

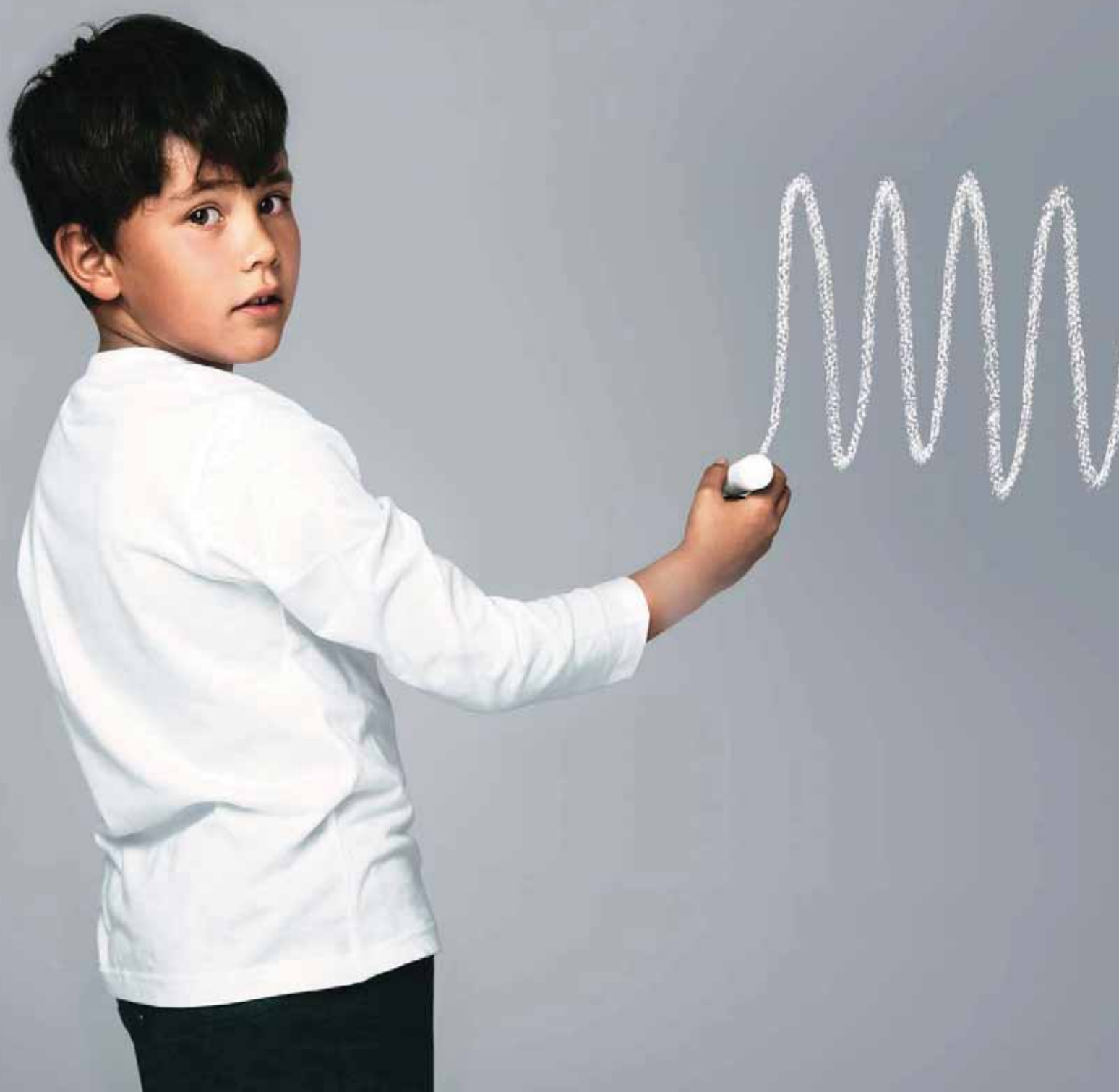
RF Coaxial connectors

General catalogue

Edition 2013/08



Improve your reliability





Your partner for system solutions

HUBER+SUHNER is a leading international producer and supplier of electrical and optical interconnectivity components and systems. Core capabilities in radio frequency, fiber optic and low frequency technology are united under a single roof. The success of the company's high-grade standard products and customised applications based on its cutting edge-know how in radio frequency and microwave technology, supported by advanced simulation processes.

RF coaxial connectors

HUBER+SUHNER offers a wide range of RF connectors for various applications. The products are used in markets like radio base stations, medical, space, defense and other industries. The product portfolio is being constantly refined. New market trends and customer requirements drive product developments such as MBX, MXP, MMPX. Additionally HUBER+SUHNER supports its customers worldwide with application engineers, helping the customers in selecting the right product for each specific application.

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General information

Series not mentioned in this catalogue

For several reasons, only the most popular HUBER+SUHNER connector series and the appropriate connectors are mentioned in this catalogue. Connector series such as 4195, SMPX etc. belong to the extended product range. The selection within these series however is rather limited. For more information, please contact our subsidiary or agent in your country.

Series	Coupling mechanism	Frequency range (GHz)	Interface standard
4195 mid size coaxial connector	screw-on	DC - 14	- IEC 169-11 - VG 95277
PC7 (sexless) mid size precision coaxial connector	screw-on	DC - 18	- IEC 457-2 - IEEE Std. 287
SMPX micro miniature coaxial precision connector	snap-on	DC - 40	- MIL-STD 348A/326 - DSCC 94007/94008
PC2.4 subminiature precision coaxial connector	screw-on	DC - 50	- IEC 61169-40
PC1.85 subminiature precision coaxial connector	screw-on	DC - 65	- IEC 61169-32

Services and support

Non standard connectors

Although our standard assortment is broad and miscellaneous, there are customer requirements which need a special solution. Thanks to capabilities and years of experience, HUBER+SUHNER is the ideal partner when customized solutions are demanded.

3D files

For the exchange of CAD models between various CAD systems, HUBER+SUHNER is providing the customers with 3D files in IGS or STEP data format.

Simulations / PCB layouts

HUBER+SUHNER has the ability and the tools for computer simulation of customer specific printed circuit board layouts.

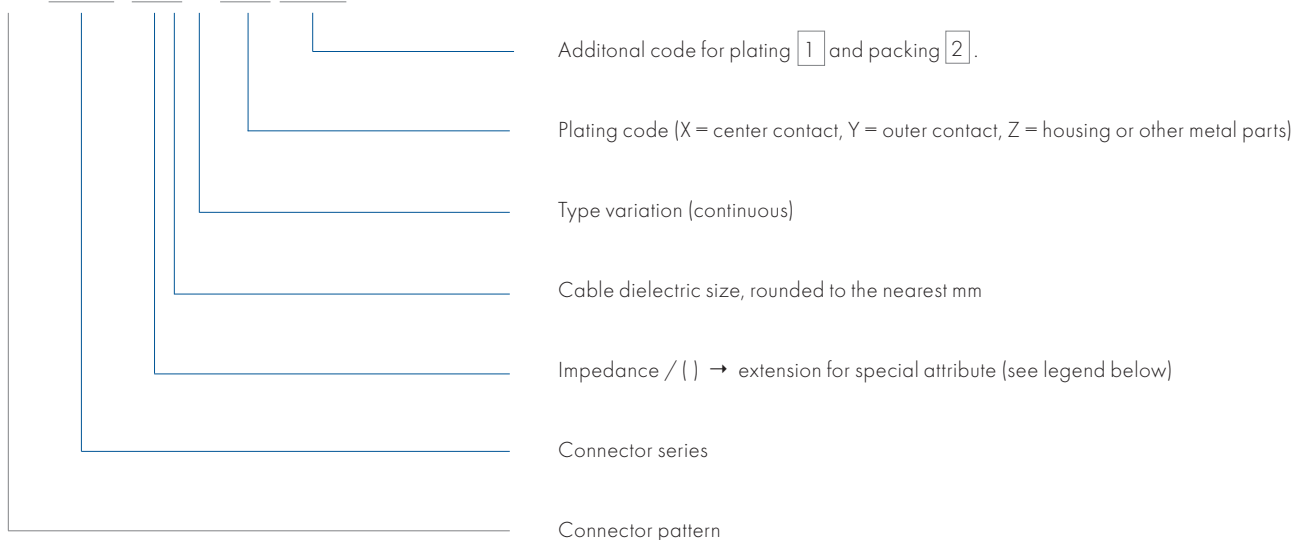
Engineering notes, glossary, etc.

Since there is a RF connector guide available from HUBER+SUHNER, we deal with connector specific data only in this catalogue. We do not go into details regarding engineering notes or glossary etc. If you want to know more about RF connectors, please order the HUBER+SUHNER RF connector guide under item number 648116 (english version) or 84009865 (german version).

Definitions and type codes

HUBER+SUHNER part number

11_BNC-()50-3-4/XYZ (1 2)



Examples:

82 MMCX-S50-0-51

...../111 NH

...../111 NY

- | | | |
|---|---|--|
| S | = | SMT (surface mount) |
| N | = | nickel underplating |
| H | = | packing (bulk, 100 pcs) |
| Y | = | variable industrial packing (quantity depending on size of connector type) |

Legend

Plating code (XYZ)

- | | | |
|---|---|------------------|
| 0 | = | silver |
| 1 | = | gold or SUCOPRO® |
| 2 | = | nickel |
| 3 | = | SUCOPLATE® |
| 4 | = | chromium |
| 5 | = | tin plated |
| 9 | = | stainless steel |

Additional code for plating **1**

- | | | |
|---|---|--------------------------------------|
| N | = | gold plating, nickel underplated |
| U | = | gold plating, not nickel underplated |

Additional code for packaging **2**

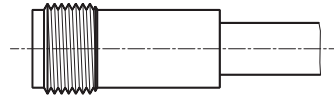
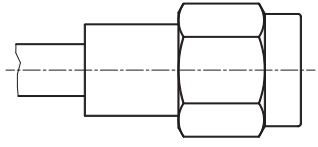
- | | | |
|---|---|--------------------------------|
| E | = | single packaging |
| F | = | bulk with 50 pieces |
| G | = | tape and reel with 750 pieces |
| H | = | bulk with 100 pieces |
| L | = | tape and reel with 1500 pieces |
| Y | = | variable industrial packing |

Extension for special attribute: ()

- | | | |
|---|---|---|
| L | = | left run thread |
| Q | = | quick-mate |
| R | = | reverse sex |
| S | = | surface mount (SMT) |
| T | = | reverse sex surface mount (SMT) |
| U | = | unusual types (deviation from standard interface) |
| Z | = | zinc die casting |

Connector patterns

Definition of plug and jack



Plug

A plug is a connector featuring the active part of the coupling mechanism (for example coupling nut).

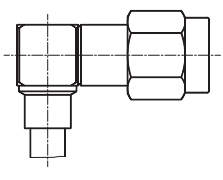
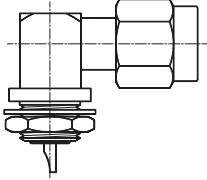
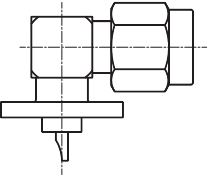
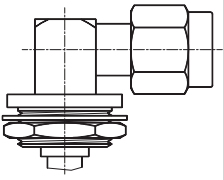
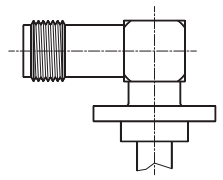

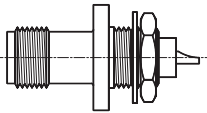
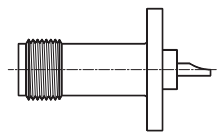
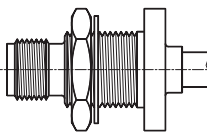
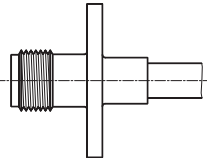
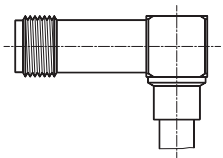
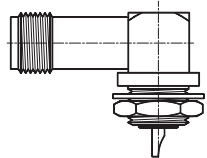
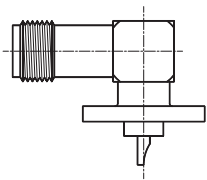
Jack

A jack is a connector featuring the coupling mechanism complementary to the plug.

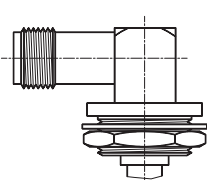
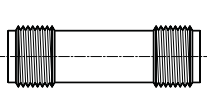
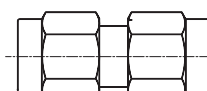

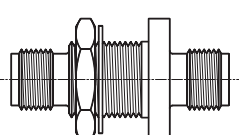
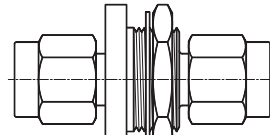
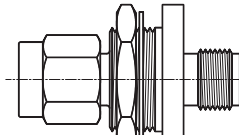
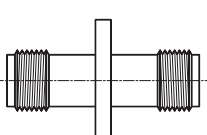
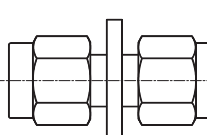
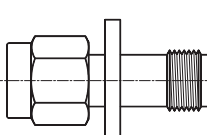
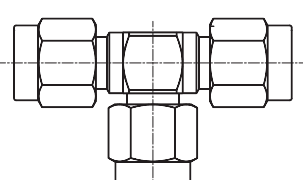
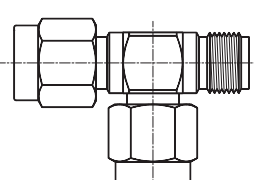
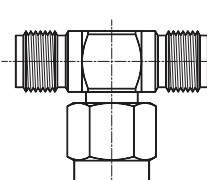
Patterns

10...	Right angle panel cable plug(male)/flange mount	11...	Straight cable plug (male)	12...	Straight bulkhead receptacle, plug (male)
13...	Straight panel receptacle, plug (male), flange mount	14...	Straight bulkhead cable plug (male)	15...	Straight panel cable plug (male)

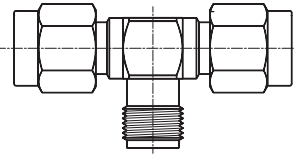
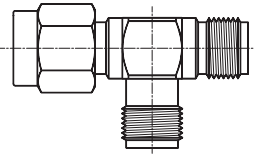
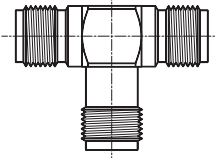
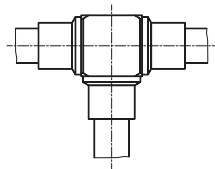
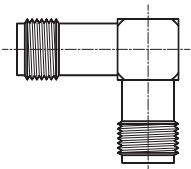
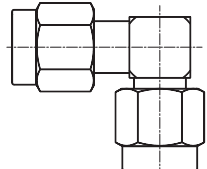
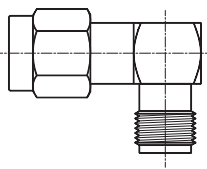
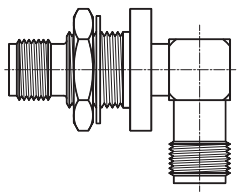
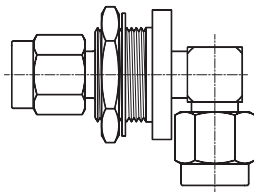
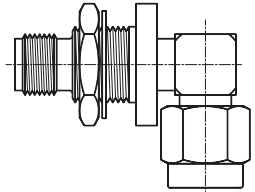
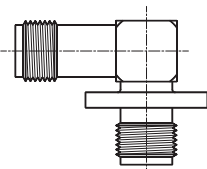
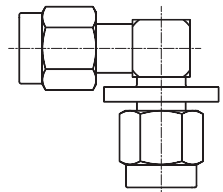
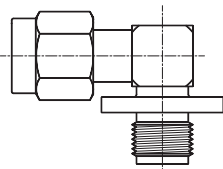
Connector patterns

16...	Right angle cable plug (male)	17...	Right angle bulkhead receptacle, plug (male)	18...	Right angle panel receptacle, plug (male), flange mount
					
19...	Right angle bulkhead cable plug (male)				
					
20...	Right angle panel cable jack (female), flange mount	21...	Straight cable jack (female)	22...	Straight bulkhead receptacle, jack (female)
					
23...	Straight panel receptacle, jack (female), flange mount	24...	Straight panel bulkhead cable jack (female)	25...	Straight panel cable jack (female), flange mount
					
26...	Right angle cable jack (female)	27...	Right angle bulkhead receptacle, jack (female)	28...	Right angle panel receptacle, jack (female), flange mount
					

Connector patterns

29...	Right angle bulkhead cable jack (female)				
					
31...	Adaptor jack/jack (female/female)	32...	Adaptor plug/plug (male/male)	33...	Adaptor plug/jack (male/female)
					
34...	Bulkhead adaptor jack/jack (female/female)	35...	Bulkhead adaptor plug/plug (male/male)	36...	Bulkhead adaptor plug/jack (male/female)
					
37...	Panel adaptor jack/jack (female/female), flange mount	38...	Panel adaptor plug/plug (male/male), flange mount	39...	Panel adaptor plug/jack (male/female), flange mount
					
41...	T-adaptor, 3 plugs (male)	42...	T-adaptor, 2 plugs (male), 1 jack (female), asymmetric	43...	T-adaptor, 2 jacks (female), 1 plug (male)
					

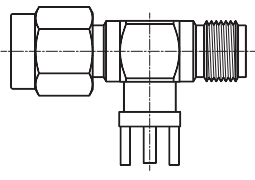
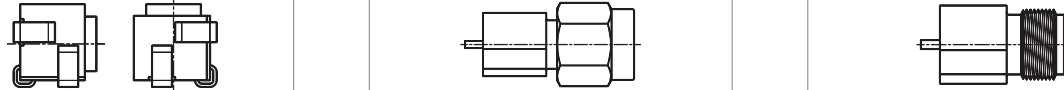
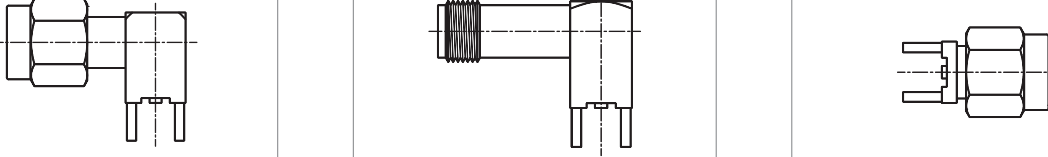
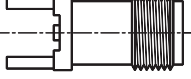
Connector patterns

44...	T-adaptor, 2 plugs (male), 1 jack (female)	45...	T-adaptor, 1 plug (male), 2 jacks (female), asymmetric	46...	T-adaptor, 3 jacks (female)
					
47...	T-cable junction				
					
51...	L-adaptor jack/jack (female/female)	52...	L-adaptor plug/plug (male/male)	53..	L-adaptor plug/jack (male/female)
					
54...	Bulkhead-L-adaptor jack/jack (female/female)	55...	Bulkhead-L-adaptor plug/ plug (male/male)	56...	Bulkhead-L-adaptor plug/jack (male/female)
					
57...	Panel L-adaptor jack/jack (female/ female), flange mount	58...	Panel L-adaptor plug/plug (male/male), flange mount	59...	Panel L-adaptor plug/jack (male/female), flange mount
					

Connector patterns

61...	Protective cap for plug (male)	62..	Protective cap for jack (female)	63...	Shorting jack (female)
64...	Shorting plug (male)	65...	Termination	71...	Straight bulkhead cable feed through
80...	PCB T-cable junction	81...	Straight PCB plug (male)	82...	Straight PCB jack (female)
83...	Straight PCB cable terminator	84...	Right angle PCB plug (male)	85...	Right angle PCB jack (female)
86...	Right angle PCB cable terminator	87...	PCB T-adaptor jack/jack (female/female)	88...	PCB T-adaptor plug/plug (male/male)

Connector patterns

89...	PCB T-adaptor plug/jack (male/female)				
					
90...	Combi-print-connector	91...	Edge mount PCB plug (male)	92..	Edge mount PCB jack (female)
					
93...	Right angle PCB plug with ground pin in-hole and SMT signal pin (male)	94...	Right angle PCB jack with ground pin in-hole and SMT signal pin (female)	95...	Straight PCB plug with ground pin in-hole and SMT signal pin (male)
					
96...	Straight PCB jack with ground pin in-hole and SMT signal pin (female)				
					

Selecting connector, plating and packaging

How to select the suitable coaxial connector series

Technical elements

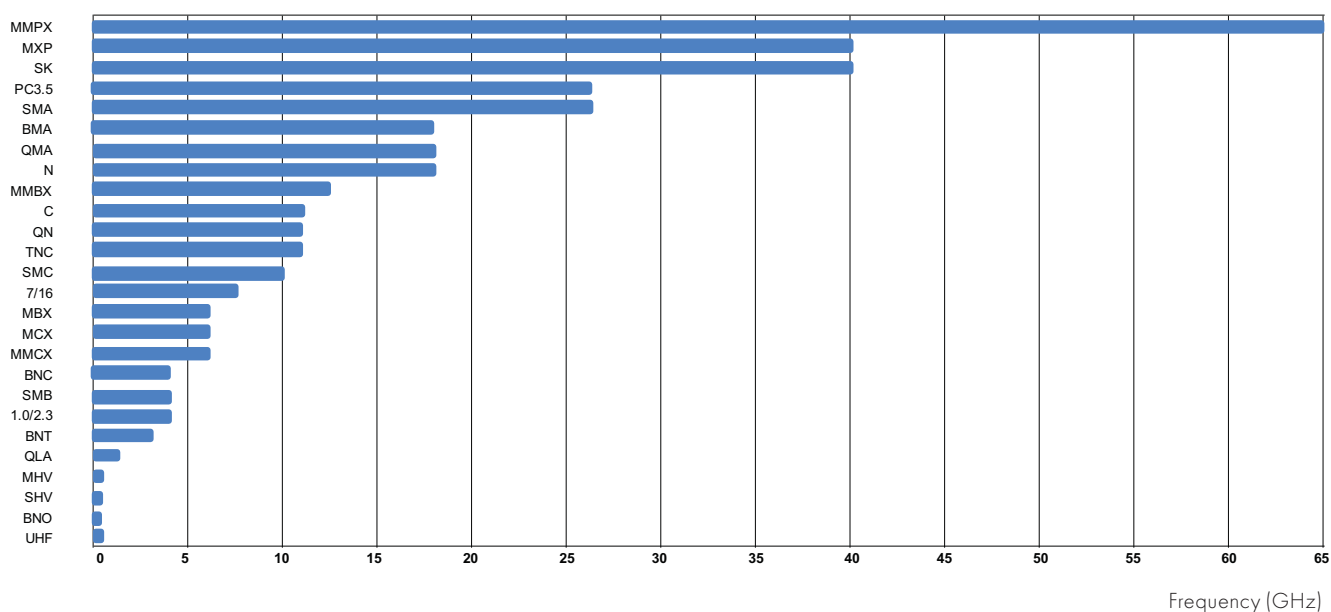
Frequency, cable type, impedance and coupling mechanism are key factors to consider in selecting a coaxial connector series. Depending on the application, other factors such as sealing, temperature, working voltage, IM performance, vibration etc. also have to be taken into account.

Connectors must, at a minimum, provide the same level of performance as the cable or the application to which they are attached. This means, before selecting a connector series the cable type or the application has to be known. Its structure, dimensions and frequency range restrain the connector series that can be used.

The table below shows the different cable structures and the suitable connector series.

Cable structure	Suitable connector series
Coaxial cables	BNC, BMA, DIN 7/16, DIN 1.0/2.3, MBX, MCX, MMCX, MMBX, MMPX, N, QN, PC 3.5, SK, QLA, SMA, QMA, SMB, SMC, TNC, C, UHF, MXP
Balanced twin cables	BNO
Triaxial cables	BNT
High voltage (coaxial cables)	MHV (H4), SHV
Board to board	MMBX, MBX

Cut-off frequency as well as coupling mechanism of a connector series limit the frequency range that a connector can operate. The following table shows the frequency range of different connector series within this catalogue.



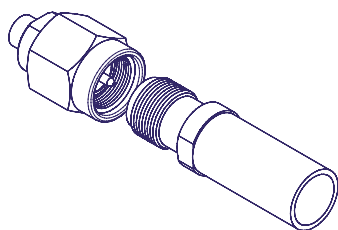
Frequency range of connector series.

Coupling mechanisms

Coupling mechanisms make it possible to mate connector pairs and also determine whether or not the mated pair can meet the specified mechanical and electrical characteristics, such as operating frequency.

The following four types of mechanisms are commonly used for the series described in this catalogue.

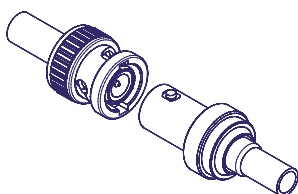
Screwed coupling mechanism



The coupling mechanism consists of a thread and a coupling nut. Special attention must be paid to the maximum torque permitted and the coupling nut captivation.

The screwed connection is used in series like SMC, SMA, TNC, N and 7/16 because the mechanism guarantees the most solid, stationary coupling suited for e.g. test and measurement, military and telecoms applications.

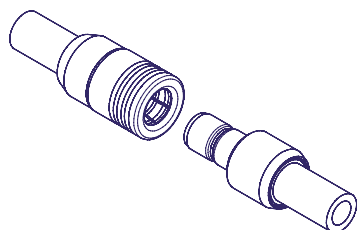
Bayonet coupling mechanism



The bayonet coupling is a twist-snap connection. The coupling mechanism is best known through the BNC.

The bayonet connection often is chosen as coupling when it is important to have a sturdy mechanism and at the same time fast mating. Therefore, the mechanism is reliable for test and measurement applications as well as military systems. Used in the series BNC, BNO, BNT, SHV and MHV.

Snap-on coupling mechanism

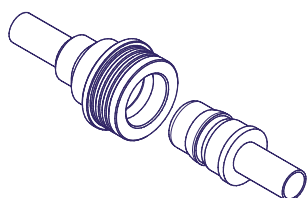


The snap mechanism is commonly used for connectors with small mechanical dimensions and high packing density. Because this type of connection is easy to use, it is often designed into PCB applications.

The main feature of the snap-on mechanism is that the engagement and disengagement action can be completed extremely quickly. This mechanism is very reliable when used for small connectors such as MMCX, MMPX, MCX and SMB series.

Coupling mechanisms

QUICK-LOCK coupling mechanism

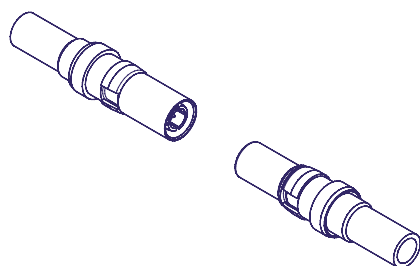


A QUICK-LOCK coupling mechanism is basically a snap-on interface with additional self-locking.

Demating is performed by retracting the unlock-sleeve of the male connector.

Quick-Lock connectors prevent unintentional loosening of mated pairs and they provide a fast and reliable interconnection. The QMA and QN connector interface feature this time saving locking mechanism.

Slide-on coupling mechanism



The slide mechanism is used extensively where a high packing density and easy handling is needed. A typical application is the interconnection of daughter boards to mother boards.

This mechanism is often used for various DIN-multiport connectors and also with connectors such as BMA, MMBX or DIN 1.0/2.3 which are commonly attached to PCBs.

Coupling mechanism	Connector series
Bayonet	BNC, BNO, BNT, MHV (H4), SHV
Quick-Lock	QMA, QN
Threaded	DIN 4.1/9.5, DIN 7/16, N, PC 1.85, PC 2.4, PC 3.5, SK (2.92 mm), SMA, SMC, TNC
Snap-on	MCX, MMCX, MMPX, QLA, SMB, SMPX
Slide-on	BMA, DIN 1.0/2.3, MBX, MMBX, MXP

Overview coupling mechanisms

Plating information

HUBER+SUHNER is your plating technology specialist and your competent partner for developing and applying proper coatings for specific uses and conditions. This section explains the metallic plating used for the different HUBER+SUHNER connectors.

Plating is required for different reasons:

- Add conductive material to supply sufficient current carrying capacity (good electrical and thermal conductivity)
- Diminish or eliminate surface oxidation/corrosion and provide protective coating over conductors
- Ensure good contact between conductors
- Achieve a good solder or weld attachment surface
- Obtain a better wear resistance (abrasion resistance and hardness)

Our main platings are

- Gold
- Silver
- SUCOPLATE® (H+S plating)
- SUCOPRO® (H+S plating)



Plating information

Gold

Gold is a precious metal available either as soft fine gold or as hard version. It is a good heat and electricity conductor and unaffected by air and most reagents, which makes it a superb material for electrical signal transmission. Gold can be deposited on nickel or copper. It is quite expensive compared to other plating materials.

Application

The primary use of gold in RF applications is for plating. Inner conductors are frequently gold-plated when e.g. good conductivity, excellent oxidation resistance and continuous mating (repeatability) are required (e.g. in defence applications). Even in highly polluted atmospheres, a gold surface will be free of oxide. Gold plating is available according to MIL-DTL-45204 D or can be customer specific.

Gold offers the following main advantages:

- Excellent wettability / solderability
- Excellent protection against corrosion
- Low contact resistance
- Good wear resistance

Colour: gold coloured

Plating information

SUCOPRO® the gold plating for the future

SUCOPRO is a thin gold plating developed by HUBER+SUHNER, featuring a nickel-phosphorus alloy (10.5 % - 15 %) underlayer.

Below 300 °C the NiP is amorphous and non-magnetic. The gold layer - which is not subject to oxidation itself - protects the nickel-phosphorus underlayer against oxidation, thus allowing good wetting while soldering. It provides stable, low contact resistance and improved protection against oxidation and corrosion. As it contains only a thin layer of gold, the solder joints will not become brittle.

The nickel-phosphorus layer provides very good corrosion resistance, highwear resistance and hardness, and a diffusion barrier against gold, copper, tin and zinc. Between 300°C and 500°C, it changes its structure to microcrystalline and its hardness increases, but no brittleness or weak adhesion occurs.

Application

Initially, SUCOPRO was developed for piece parts which demand an excellent solderability and/or wear resistance, that is PCB connectors and adaptors. But more and more customers select this plating also for cable connectors, adaptors, on bodies and centre contacts.

Meanwhile, SUCOPRO is an excellent plating for almost all subminiature connectors.

SUCOPRO plating offers the following main advantages:

- Excellent wear resistance for more than 1000 mating cycles
- Non-magnetic
- Excellent corrosion resistance
- Excellent wettability / solderability
- Very high strength of soldered joints without embrittlement
- Low contact resistance
- Good passive intermodulation properties

Colour: gold coloured



Plating information

SUCOPLATE®

As one of the leading RF connector manufacturers, HUBER+SUHNER has delivered several hundred million coaxial connectors with SUCOPLATE plating to demanding customers worldwide. These components, featuring unique mechanical and electrical properties, are used in a wide range of applications such as off-shore, airframes, space, test+measurement, telecommunications and wireless.

SUCOPLATE is a copper alloy composed of three components: copper, tin and zinc. Being non-magnetic and nonallergic (nickel-free), SUCOPLATE is an attractive alternative to nickel plating.

It has a good electrical performance and corrosion resistance. The non-magnetic property in the contact area is also important for obtaining negligible passive intermodulation products (PIM) in communication systems such as base transceiver stations.

Application

Silver is the standard plating for connector bodies and center contact of 7/16 connectors. Traditionally, silver plating is well-known as a very good plating for low passive intermodulation components.

Thanks to its good solderability, silver is used for soldering ferrules and cable entries.

SUCOPLATE offers the following important performance highlights:

- Superior electrical conductivity and low contact resistance
- Non-magnetic
- Excellent passive intermodulation properties
- Uniform plating thickness
- High wear resistance
- Low surface friction
- Excellent adhesion and ductility (no cracking when bending parts)
- Tarnish resistant
- High corrosion resistance
- Nonallergic

Colour: similar to stainless steel

Plating information

Silver

Silver has excellent electrical and thermal conductivity which makes it very suitable for plating. It is cheaper than gold. Having the best conductivity of all metals this metal can carry a high current load with the least loss. Silver is particularly advantageous when a low passive intermodulation product is desired.

Other features of silver are that it is easily shaped, provides very good heat conductivity, good corrosion resistance in air and water and the lowest contact resistance. A disadvantage is that silver tarnishes (sulfide film on the surface) when exposed to ozone, hydrogen sulfide and sulphur. Tarnishing influences the appearance but does not have any impact on the electrical performance.

Application

Silver is the standard plating for connector bodies and center contact of 7/16 connectors. Traditionally, silver plating is well-known as a very good plating for low passive intermodulation components.

Thanks to its good solderability, silver is used for soldering ferrules and cable entries.

Silver offers the following main advantages:

- Excellent electrical conductivity
- Good corrosion resistance
- Low contact resistance
- Good solderability
- Excellent passive intermodulation properties

Colour: silver coloured



Packaging information

HUBER+SUHNER attaches great importance to high quality, economic packaging. This section will give you an overview of the types and packaging materials used. All our packagings have to fulfill the following functions:

- Protection of the connectors against mechanical stress, humidity and dust during storage transport and usage
- Identification and information about the product
- Easy handling for production
- Economic and useful recycling after use

All packagings fulfill the specification according to ISO 14000. For further information please contact your local HUBER+SUHNER representative.

Single and bulk packaging

Plastic bags from HUBER+SUHNER are sealed by welding or provided with a mini-grip closure (bulk only) for reclosing after use. They are easy to handle and are marked for recycling with the material recycling symbol according to the recommended international DIN standard. For product identification and retraceability, they are labelled with the type version and the order, batch and assembly instruction numbers.

Material: LDPE or PP, transparent

Attributes: Electrostatically conductive,
External resistance $10^8 \dots 10^{10} \Omega$
Air-tight
Chemically resistant
Chlorine free
Halogen free



Single (sealed by welding)



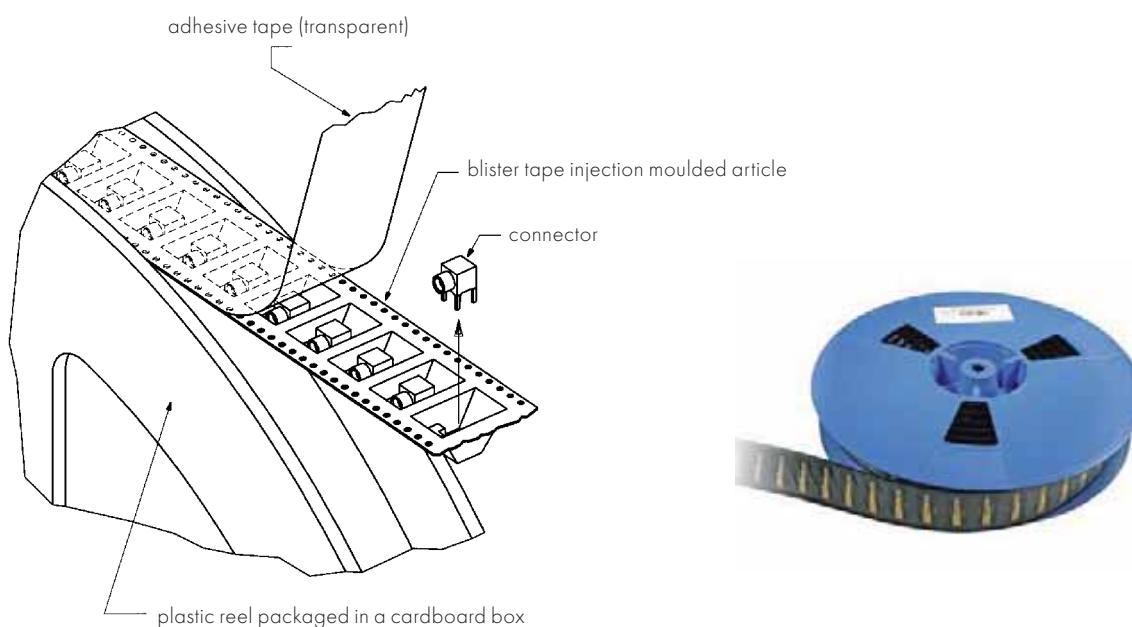
Bulk (mini-grip)

Packaging information

Tape and reel packaging

The main benefit of tape+reel packaging is the possibility of using an automatic PCB assembling process for the connector. This enables to reduce the cost of the whole manufacturing and protects the connectors during transportation and processing. Our tape+reel packaging meets the international standards EIA 481 and DIN IEC 286-3. The fully automated packaging machine provides perfect packaging quality.

Material:	reel	polystyrene (PS)	(anti-static)
	carrier tape	polystyrene (PS) or polycarbonate (PC)	(anti-static)
	carrier tape	polystyrene (PS) or polyethylene terephthalate (PET)	(anti-static)
	box	cardboard	






Type of packaging	Bulk	Single	Tape+reel	Notes
Cable connectors	x	x		- standard for high volumes - standard depending on connector size
Flange connectors	x	x		- standard for high volumes - standard depending on connector size
PCB connectors	x		x	- small quantities - standard for high volumes with automatic processing
Adaptors		x		- standard - other packaging on request

Cable entry variants

Cable entries for flexible cables

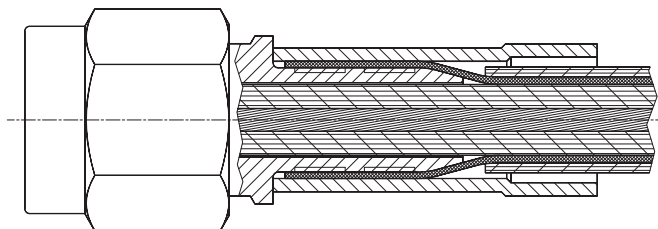
HUBER+SUHNER® full crimp

Full crimp connectors with crimped centre and outer contacts allow quick and simple assembly with high reliability. The example below shows the three steps which are necessary to crimp a subminiature SMC connector.

1		<p>Full crimp connectors are normally supplied in three parts: centre contact, body and crimp ferrule.</p>
2		<p>During crimping, the centre contact is accurately positioned in the crimp insert.</p>
3		<p>The pre-assembled cable is pushed into the body. Due to a snap mechanism between center contact and insulator, center contact is captivated and protected against axial displacement.</p>
4		<p>The final operation is crimping of the crimp ferrule.</p>

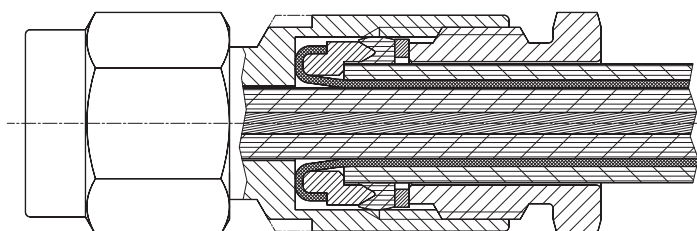
Cable entry variants

Cable entry crimp



The centre contact is soldered and the cable braid is crimped to the connector body. The crimp technique enables an economic assembling of high reliability. Suitable taper sleeves are available; see page 458.

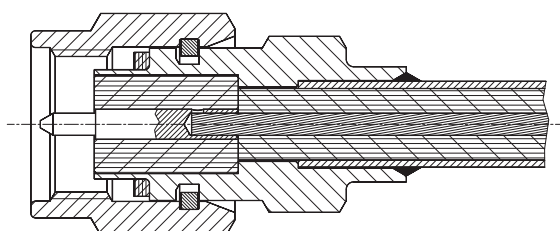
Cable entry clamp



The clamp type cable entry is recommended for weather-exposed applications. The cable jacket is secured by a rubber gasket and the cable screen by an axially tightened press ring.

Cable entries for semi-rigid cables

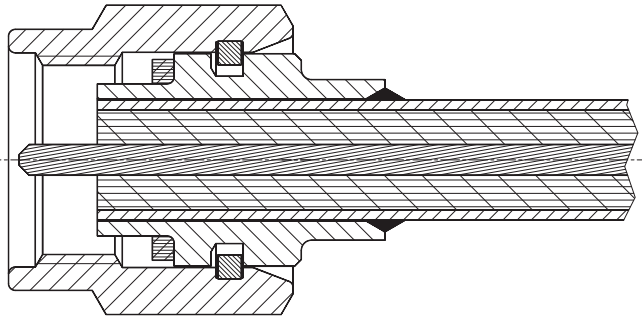
Soldered, with pin and insulator



Centre contact and body of the connector are soldered onto the centre or outer conductor of the cable.

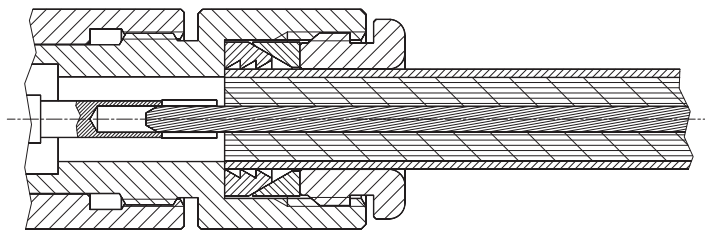
Cable entry variants

Soldered, without pin and insulator (SMA for semi-rigid cable .141")



Pin and insulator are formed directly by the cable. The body is soldered to the copper jacket. This design features a very low reflection coefficient, short length, low cost and ease of assembly. Recommended for connections which must not be undone frequently, moisture-sealed.

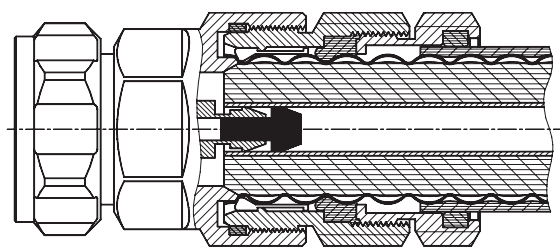
Solderless cable entry, clamp cone



Specially for assembly of large size semi-rigid cables. The copper jacket of the cable is held by a clamp cone.

Cable entry for corrugated copper tube cables

HUBER+SUHNER® QUICK-FIT (e.g. for 7/8" cable)












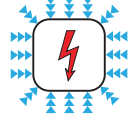
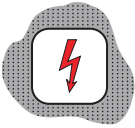
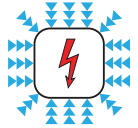


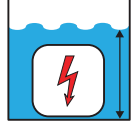
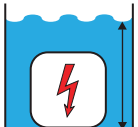
Humidity-proof cable entry for RF cables with corrugated copper tube. The cable entries support standard foam dielectric cables 1/2", 7/8", 1_1/4" and 1_5/8" and 1/4", 3/8" and 1/2" highflex SUCOFEEED as well as the equivalent products of Andrew, RFS, NK cables.

Features

- Low, stable and reproducible PIM (Passive Intermodulation Product)
- Quick and easy assembly
- Competitive pricing
- IP rating (IP 68 for QUICK-FIT connector types)
- Cable multi-brand compatibility

IP ratings



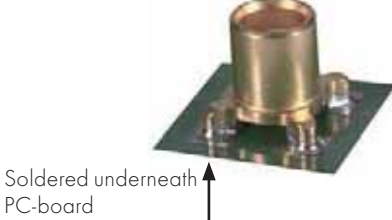
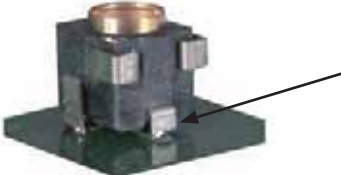
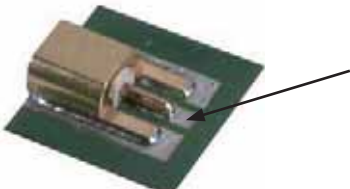
The IP rating system provides a means of classifying the degree of protection from dust and water afforded by electrical equipment and enclosures. The system is recognised in most countries and is set out in a number of standards, including IEC 60529.

1st digit: protection against solid objects			2nd digit: protection against liquids		
IP x...		Description / test	IP ...y		Description / test
0		No protection	0		No protection
1		Protected against solid objects over 50 mm, e.g. accidental touch by hands	1		Protected against vertically falling drops of water
2		Protected against solid objects over 12.5 mm, e.g. fingers	2		Protected against direct sprays of water up to 15° from the vertical
3		Protected against solid objects over 2.5 mm (tools/wires)	3		Protected against sprays to 60° from the vertical
4		Protected against solid objects over 1 mm (tools /wires / small wires)	4		Protected against water sprayed from all directions - limited ingress permitted
5		Protected against dust - limited ingress (no harmful deposit)	5		Protected against low pressure jets of water from all directions - limited ingress permitted
6		No ingress of dust	6		Protected against strong jets of water, e.g. for use on shipdecks - limited ingress permitted
			7		Protected against the effects of immersion between 15 cm and 1 m
Example IP 67:		No ingress of dust and protected against the effects of immersion between 15 cm and 1 m.	8		Protected against long periods of immersion under pressure

Soldering

Soldering is an important technique in the assembly of electronic products. It is the process of joining two metals by the use of a solder alloy, and it is one of the oldest known joining techniques.

Good soldering quality as a prerequisite for reliable joints can be achieved only through a soldering process in which a great many variables both with respect to materials and to techniques have been optimised in an integrated system. The various mass-soldering processes all have their own particular characteristics. They differ in the way in which the solder flux and the solder alloy are applied to the parts to be joined and in the manner by which the heat is supplied. The following information describes the soldering methods. This information should be considered as a recommendation. Depending on the specific application, it is up to the user to select the most suitable method.

Item to be soldered		Usual methods
Centre conductor of coaxial cable		<ul style="list-style-type: none"> • Soldering iron • Resistance heating
Outer conductor of semi-rigid cable		<ul style="list-style-type: none"> • Inductive (RF) • Soldering iron • Resistance heating
Connector for printed circuit board through-hole version		<ul style="list-style-type: none"> • Wave soldering • Reflow soldering • Soldering iron
Connector for printed circuit board surface-mount version		<ul style="list-style-type: none"> • Reflow soldering • Soldering iron
Connector with solder tab		<ul style="list-style-type: none"> • Soldering iron • Reflow soldering

In addition to the soldering method, temperature and dwell time, parameters such as the flux, surface, material and geometry of the parts to be soldered must be taken into account.

Soldering

Commonly used solder

Depending on components, soldering temperature etc., the following solders are used:

SnPb	63/37	183 °C lead solder
SnPb	60/40	188 °C lead solder
SnPbAg	62/36/2	179 °C lead solder
SnAgCu	96.5/3.0/0.5	217 °C leadfree solder
SnAg	96.5/3.5	221 °C leadfree solder

The higher melting temperature during leadfree soldering is critical for the cable stripping dimensions during assembly. The expansion of the cable dielectric will be larger.

How do you judge the quality of a solder joint?

A good (reliable) solder joint will, during the lifetime of the equipment in which the joint is situated, perform its mechanical and electrical functions without failures. Visual aspects of good soldered joints are:

1. Good wetting
2. Correct amount of solder
3. Sound and smooth surface

All soldered joints on a printed board should give a uniform impression regardless of their location on the printed board. Solder should flow evenly over the surfaces to be soldered and run out thinly towards the edges of the joint. The contact angle should be well under 30° if the surfaces are sufficiently large. Good wetting of both the component and the solder land with the correct amount of solder is so important that this is the major criterion in the assessment of soldered joints. The solder should wet the entire periphery of the termination to be soldered, and from the edge of the solder land the thickness of the solder coat should increase uniformly up to the termination.

Leadfree solder joints have a different appearance from their tinlead counter parts.

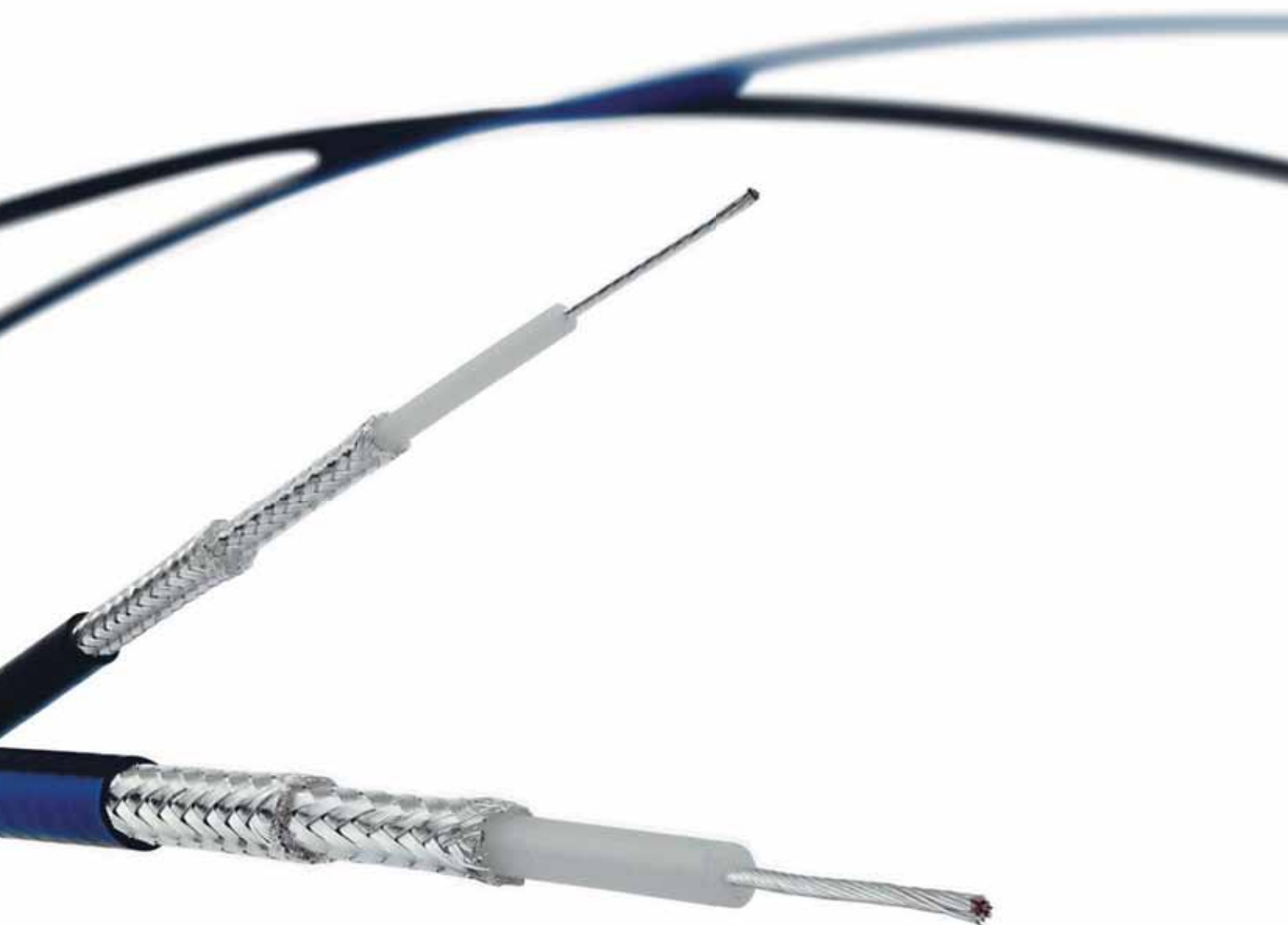
- Grainy and less bright
- Larger wetting angle



Suitable cables

The HUBER+SUHNER coaxial connector portfolio covers a wide range of different cable types, such as flexible cables, semi-rigid cables, corrugated copper tube cables, etc.

Please find hereafter the dimensions and the material of all cables (cable groups) mentioned within this e-paper.



Flexible cables

Screen type	Cable group	Cable type	Ω	Centre conductor			Insulation	
				mm/inches	Material	Ø mm/ inches	Material	Ø mm/inches
Single screen	U0	K_01152-07	50	7 x 0.06/002	CuAg	0.19/007	PFA	0.52/020
	U1	RG_178_B/U	50	7 x 0.10/004	CuStAg	0.30/012	PTFE	0.83/033
	U1	EF_178	50	7 x 0.10/004	CuStAg	0.30/012	SPEX	0.82/032
	U1	RG_196_A/U	50	7 x 0.10/004	CuStAg	0.30/012	PTFE	0.83/033
Single screen	U2	G_02232-09	50	7 x 0.16/006	Cu	0.49/019	PE	1.50/059
	U2	RG_174_/U	50	7 x 0.16/006	CuSt	0.48/019	PE	1.48/058
	U2	RG_188_A/U	50	7 x 0.18/007	CuStAg	0.54/021	PTFE	1.55/061
	U2	RG_316_/U	50	7 x 0.18/007	CuStAg	0.54/021	PTFE	1.54/061
	U2	EF_316	50	7 x 0.18/007	CuStAg	0.54/021	SPEX	1.54/060
Single screen	U3	G_01130_HT	50	0.40/016	Cu	0.40/016	PE/HL	1.4--1.9/055- .075
Double screen	X3	S_01162_D-01	50	7 x 0.18/007	Cu	0.54/021	SPE	1.37/014
Double screen	U4	G_02232_D	50	7 x 0.16/006	Cu	0.49/019	PE	1.50/059
	U4	GX_02272_D-02	50	7 x 0.16/006	CuSn	0.48/018	PEX	1.50/059
	U4	K_02232_D-01	50	7 x 0.18/007	CuStAg	0.54/021	PTFE	1.54/061
	U4	K_02252_D*	50	7 x 0.18/007	CuStAg	0.54/021	PTFE	1.54/061
	U4	EF_316_D	50	7 x 0.18/007	CuStAg	0.54/021	SPEX	1.54/061
Single screen	U5	RG_179_B/U	75	7 x 0.10/004	CuStAg	0.30/012	PTFE	1.55/061
	U5	EF_179	75	7 x 0.10/004	CuStAg	0.30/012	SPEX	1.55/061
	U5	RG_187_A/U	75	7 x 0.10/004	CuStAg	0.30/012	PTFE	1.55/061
	S5	S_02223-01	75	0.35/014	Cu	0.35/014	SPE	1.55/061
Double screen	S9	S_02162_B	50	7 x 0.27/010	Cu	0.80/031	SPE	2.10/082
Single screen	U6	GX_03173-01	75	7 x 0.14/005	CuSt	0.42/016	PE	2.45/096
Double screen	X12	G_02133_D-05	75	0.31/012	Cu	0.31/012	PE	1.95/0.78
Single screen	U7	GX_03272	50	19 x 0.18/007	CuSn	0.90/035	PEX	2.95/116
	U7	RG_58_C/U	50	19 x 0.18/007	CuSn	0.90/035	PE	2.95/116

List of abbreviations

AL-PET	polyester aluminium	HL	semiconducting layer
Cu	plain copper wire	LDPE	low-density polyethylene
CuAg	silvered copper wire	LSFH™	low smoke free halogene
CuAg/CuAg	double screened silvered copper wire	PE	polyethylene
CuAl	aluminium wire, copper plated	PEX	polyethylene, cross linked
Cu/Cu	double screened plain copper wire	PFA	perfluoralkoxy
CuSn	copper wire, tin plated	PTFE	polytetrafluorethylene
CuSt	copper plated steel wire	PVC	polyvinylchloride
CuStAg	silvered copper plated steel wire	RADOX®	polymere, flame retardant
FEP	fluorethylenepropylene	SPE	foam polyethylene
GSi	glass fibre braided and silicone varnish	SPEX	foam polyethylene, cross linked
HDPE	high-density polyethylene	UL-PVC	polyvinylchloride, flame retardant

Screen		Jacket		Cable retention force	Operating frequency range	Notes
Material	Ø mm/inches	Material	Ø mm/inches	N/lbs		
CuAg	0.90/.035	PFA	1.25/.049	13.9/3.1	1 GHz	
CuAg	1.33/.052	FEP	1.80/.071	32.7/7.3		
CuAg	1.35/.053	RADOX®	1.84/.072	32.7/7.3		
CuAg	1.33/.052	PFA	1.83/.072	32.7/7.3		
Cu	2.00/.079	PVC	2.55/.100	59.0/13.3	1 GHz	
CuSn	2.00/.079	PVC	2.55/.100	43.5/9.7		
CuAg	2.00/.079	PFA	2.60/.102	54.4/12.1		
CuAg	2.00/.079	FEP	2.50/.098	54.4/12.1		
CuAg	2.05/.080	RADOX®	2.52/.099	54.4/12.1		
CuAg	2.40/.095	PVC	3.15/.124	54.4/12.1	1 GHz	
Cu/Cu	1.70-2.20/.067-.086	LSFH™	2.70/.106	106.0/23.8	2 GHz	
Cu/Cu	2.0-2.5/.08 - .10	PVC	3.10/.122	119.7/26.7	6 GHz	* equivalent cable: RD 316
CuSn/CuSn	2.0-2.5/.08 - .10	RADOX®	3.20/.125	120.0/26.9		
CuAg/CuAg	2.0-2.5/.08 - .10	UL-PVC	3.00/.118	108.8/24.3		
CuAg/CuAg	2.0-2.5/.08 - .10	FEP	3.00/.118	108.8/24.3		
CuAg/CuAg	2.0-2.5/.08 - .10	RADOX®	3.16/.124	108.8/24.3		
CuAg	2.00/.079	FEP	2.54/.100	54.4/12.1	1 GHz	
CuAg	2.13/.083	RADOX®	2.54/.100	54.4/12.1		
CuAg	2.00/.079	PFA	2.65/.104	54.4/12.1		
Cu	2.00/.079	PVC	2.55/.100	54.4/12.1		
AL-PET(foil) CuSn(braid)	2.15-2.65/.084-.104	LSFH™	3.15/.124	56.0/12.6	6 GHz	
CuSn	2.90/.114	RADOX®	3.70/.146	120.3/26.9	1 GHz	
CuSn/CuSn	2.40-2.85/.095-.112	PVC	3.60/.141	119.7/26.7	2 GHz	in acc. to BT CW 1383A-3002
CuAg	3.60/.142	RADOX®	4.95/.195	128.7/28.7	1 GHz	
CuSn	3.60/.142	PVC	4.95/.195	128.7/28.7		

Flexible cables (cont.)

Screen type	Cable group	Cable type	Ω	Centre conductor			Insulation	
				mm/inches	Material	Ø mm/ inches	Material	Ø mm/inches
Double screen	R8	K_02253_D-02	75	7 x 0.10/004	CuStAg	0.30/012	PTFE	1.55/061
Double screen	X27	SPUMA_195	50	0.94/037	Cu	0.94/037	SPE	2.79/110
Double screen	U9	RG_142_B/U	50	0.95/037	CuStAg	0.95/037	PTFE	2.95/116
	U9	EF_142	50	0.88/035	CuAg	0.95/037	SPEX	2.95/116
	U9	RG_223_/U	50	19 x	CuAg	0.88/035	PE	2.95/116
	U11	RG_400_/U	50	0.20/008	CuAg	1.00/039	PTFE	2.95/116
	U11	EF_400	50	19 x 0.20/008	CuAg	1.00/039	SPEX	3.03/119
Single screen	U12	G_03233	75	7 x 0.16/006	Cu	0.48/019	PE	2.95/116
	U13	G_03130_HT	75	0.50/020	Cu	0.50/020	PE/HL	3.0-3.4/12-.13
Double screen	U14	G_03233_D	75	0.47/019	CuAg	0.47/019	PE	2.95/116
Double screen	S16	S_04262_D-09	50	1.40/055	CuAg	1.40/055	SPE	3.78/148
Double screen	X9	S_04162_B-60	50	1.40/055	CuAg	1.40/055	SPE	3.83/150
Double screen	X28	SPUMA_240	50	1.42/056	Cu	1.42/056	SPE	3.81/150
Single screen	U16	GX_04273-12	75	7 x 0.21/008	Cu	0.63/025	PEX	3.83/150
	U16	RG_59_B/U	75	0.58/022	CuSt	0.58/022	PE	3.64/143
Single screen	U17	S_04263	75	0.83/033	Cu	0.83/033	SPE	3.70/146
Double screen	U18	G_04233_D	75	0.58/022	CuSt	0.58/022	PE	3.64/143
Double screen	S24	S_06162_D-03	50	2.05/080	Cu	2.05/080	SPE	5.60/220
Single screen	U29	GX_07272	50	7 x 0.75/030	Cu	2.25/089	PEX	7.25/285
	U29	RG_213_/U	50	7 x 0.75/030	Cu	2.25/089	PE	7.25/285
Double screen	U30	SPUMA-400-FR-01	50	2.74/108	CuAl	2.74/108	SPE	7.24/285
	U30	SPUMA-400	50	2.74/108	CuAl	2.74/108	SPE	7.24/285
Multiple screen	S32	S_07262_BD	50	7 x 0.95/037	CuAg	2.85/112	SPE	7.35/289
Double screen	U32	RG_214_/U	50	7 x 0.75/030	CuAg	2.25/089	PE	7.28/286
	U32	RG_214 hiflex	50	19 x 0.45/017	CuAg	2.25/089	PE	7.30/287
	U32	GX_07272_D	50	7 x 0.72/028	CuAg	2.25/089	PEX	7.28/286
	U33	RG_393_/U	50	7 x 0.79/031	CuAg	2.37/093	PFA	7.25/285
	U33	EF_393	50	7 x 0.82/032	CuAg	2.46/096	SPEX	7.30/287
Single screen	U34	RG_11_A/U	75	7 x 0.40/016	CuSn	1.20/047	PE	7.25/285
Double screen	U36	RG_216_/U	75	7 x 0.40/016	CuSn	1.20/047	PE	7.25/285
Double screen	U38	RG_217_/U	50	2.70/106	Cu	2.70/106	PE	9.40/370
	S39	S_10162_B-11	50	3.78/149	CuAl	3.78/149	SPE	9.75/384
	S39	S_10172_B-11	50	3.78/149	CuAl	3.78/149	SPE	9.75/384
Double screen	X29	SPUMA_600	50	4.44/175	CuAl	4.44/175	SPE	11.56/455

List of abbreviations

Al-PET	polyester aluminium	HL	semiconducting layer
Cu	plain copper wire	LDPE	low-density polyethylene
CuAg	silvered copper wire	LSFH™	low smoke free halogene
CuAg/CuAg	double screened silvered copper wire	PE	polyethylene
CuAl	aluminium wire, copper plated	PEX	polyethylene, cross linked
Cu/Cu	double screened plain copper wire	PFA	perfluoroalcoxy
CuSn	copper wire, tin plated	PTFE	polytetrafluorethylene
CuSt	copper plated steel wire	PVC	polyvinylchloride
CuStAg	silvered copper plated steel wire	RADOX®	polymere, flame retardant
FEP	fluorethylenepropylene	SPE	foam polyethylene
GSi	glass fibre braided and silicone varnish	SPEX	foam polyethylene, cross linked
HDPE	high-density polyethylene	UL-PVC	polyvinylchloride, flame retardant

Screen		Jacket		Cable retention force	Operating frequency range	Notes
Material	Ø mm/inches	Material	Ø mm/inches	N/lbs		
CuAg/CuAg	2.00-2.50/.08 - .10	FEP	3.00/.118	130.0/29.2	2 GHz	
AL-PET(foil) CuSn(braid)	2.95-3.53/.116 - .139	PE	4.95/.195	128.7/28.7	6 GHz	
CuAg/CuAg	3.6-4.25/.142-.167	FEP	4.95/.195	257.5/57.5	6 GHz	
CuAg/CuAg	3.54-4.20/.139-.165	RADOX®	5.00/.197	257.5/57.5		
CuAg/CuAg	3.6-4.20/.142-.165	PVC	5.40/.213	257.5/57.5		
CuAg/CuAg	3.6-4.20/.142-.165	FEP	4.95/.195	257.5/57.5		
CuAg/CuAg	3.6-4.15/.142-.163	RADOX®	5.10/.200	257.5/57.5		
Cu	3.60/.142	PVC	5.00/.197	128.7/28.7	1 GHz	
Cu	4.00/.157	PVC	5.00/.197	128.7/28.7		
CuAg/CuAg	3.6-4.2/.14-.165	PVC	5.35/.211	257.5/57.5	2 GHz	
CuAg/CuAg	4.2-4.7/.165-.185	LSFH™	5.70/.224	228.0/51.3	6 GHz	
AL-PET(foil) CuSn(braid)	4.00-4.53/.157-.178	LSFH™	5.50/.216	130.0/29.2	6 GHz	
AL-PET(foil) CuSn(braid)	3.96-4.52/.156-.178	PE	6.15/.242	183.7/41.0	6 GHz	
CuSn	4.45/.175	RADOX®	6.10/.240	183.7/41.0	1 GHz	
Cu	4.50/.177	PVC	6.10/.240	171.4/38.3		
Cu	4.35/.171	LSFH™	6.10/.240	147.1/32.9	1 GHz	
CuAg/CuAg	4.45-5.2/.175-.204	PVC	6.70/.264	367.3/82.0	2 GHz	
Cu/Cu	6.1-6.75/.24-.266	LSFH™	7.90/.311	440.8/98.4	6 GHz	
CuAg	8.15/.321	RADOX®	10.30/.406	423.1/94.5	2 GHz	
Cu	8.10/.319	PVC	10.30/.406	423.1/94.5	1 GHz	
AL-PET(foil) CuSn(braid)	7.40-8.15/.291-.321	LSFH™	10.25/.403	305.0/68.6	6 GHz	
AL-PET(foil) CuSn(braid)	7.40-8.15/.291-.321	PE	10.25/.403	305.0/68.6		
CuAg/Cu/CuSn	8.00-8.10-9.00/.315-.319-.354	LSFH™	10.80/.425	661.1/148.6	3 GHz	*
CuAg/CuAg	8.0-8.70/.315-.342	PVC	10.80/.425	477.5/106.6	6 GHz	
CuAg/CuAg	8.0-8.70/.315-.342	PVC	10.80/.425	477.5/106.6		
CuAg	8.0-8.70/.315-.342	RADOX®	10.80/.425	354.0/79.6		
CuAg/CuAg	8.0-8.75/.315-.344	FEP	9.90/.390	477.5/106.6		
CuAg/CuAg	8.0-8.75/.315-.344	RADOX®	10.05/.396	477.5/106.6		
Cu	8.15/.321	PVC	10.30/.406	423.1/94.5	1 GHz	
Cu/Cu	8.0-8.75/.32-.344	PVC	10.80/.425	587.7/131.3	2 GHz	
Cu/Cu	10.3-11.2/.406-.441	PVC	13.85/.545	952.0/212.6	6 GHz	
Cu (foil)/Cu (braid)	9.85-10.7/.388-.421	LSFH™	12.9/.508	317.3/70.9	7.5 GHz	
Cu (foil)/Cu (braid)	9.85-10.7/.388-.421	PE	12.9/.508	317.3/70.9	7.5 GHz	
AL-PET(foil) CuSn(braid)	11.56-12.55/.455-.494	PE	14.99/.590	317.3/70.9	6 GHz	

* double screened with helically wrapped foil

Flexible cables (cont.)

Cable groups V,W: various cables

Screen type	Cable group	Cable type	Ω	Centre conductor			Insulation	
				mm/inches	Material	\varnothing mm/inches	Material	\varnothing mm/inches
Symmetric screened cable	V1	RG_108_A/U	78	7 x 0.32/.013	CuSn	2 x 0.96/.038	PE	2.0-4.0/.08-.16
Triaxial cable	W1	G_02332	50	7 x 0.16/.006	Cu	0.48/.019	PE	1.50/.059
Triaxial cable	W2	G_03332	50	7 x 0.31/.012	Cu	0.93/.037	PE	2.95/.116
Triaxial cable	W2	G_03333	75	7 x 0.16/.006	Cu	0.48/.019	PE	2.95/.116

SEMI-RIGID cables

Cable group	Cable type	Ω	Centre conductor			Insulation	
			\varnothing mm/inches	Material	\varnothing mm/inches	Material	\varnothing mm/inches
Y19	EZ_34	50	0.20/.008	CuStAg	0.20/.008	PTFE	0.66/.026
Y15	EZ_47	50	0.29/.011	CuStAg	0.29/.011	PTFE	0.94/.037
Y2	SUCOFORM_47	50	0.31/.012	CuAg	0.31/.012	PTFE	0.94/.037
Y3	EZ_86	50	0.51/.020	CuStAg	0.51/.020	PTFE	1.68/.066
Y4	EZ_86-75	75	0.29/.011	CuStAg	0.29/.011	PTFE	1.73/.068
Y10	EZ_118_TP	50	0.81/.032	CuAg	0.81/.032	PTFE	2.31/.091
Y5	EZ_141	50	0.92/.036	CuStAg	0.92/.036	PTFE	2.98/.117
Y6	EZ_141-75	75	0.51/.020	CuStAg	0.51/.020	PTFE	2.98/.117
Y7	EZ_250	50	1.63/.064	CuAg	1.63/.064	PTFE	5.31/.209
Y16	SUCOFORM_86	50	0.53/.021	CuStAg	0.53/.021	PTFE	1.65/.065
Y11	MULTIFLEX_86	50	0.47/.018	CuAg	0.47/.018	PTFE	1.48/.058
Y12	SUCOFORM_141	50	0.95/.037	CuStAg	0.95/.037	PTFE	2.95/.116
Y17	MULTIFLEX_141	50	0.92/.037	CuAg	0.92/.037	PTFE	2.96/.117
Y14	SUCOFORM_250-1	50	1.67/.065	CuAg	1.67/.065	PTFE	5.24/.206

Foam dielectric corrugated copper tube cables

Screen type	Cable group	Cable type	Ω			Insulation	
				Material	\varnothing mm/inches	Material	\varnothing mm/inches
Corrugated copper tube cable	M5	SUCOFEED_1/4_HF	50	AlCu	1.90/.074	SPE	4.40/.173
	M7	SUCOFEED_3/8_HF	50	AlCu	2.80/.110	SPE	6.90/.272
	M9	SUCOFEED_1/2_HF	50	AlCu	3.60/.142	SPE	8.70/.343
	M12	SUCOFEED_1/2	50	AlCu	4.80/.189	SPE	11.90/.469
	M23	SUCOFEED_7/8	50	Cu	9.00/.354	SPE	22.00/.866
	M25	SUCOFEED_7/8_LA	50	Cu	9.50/.374	SPE	22.70/.894
	M32	SUCOFEED_1_1/4	50	Cu	13.00/.511	SPE	32.00/1.259
	M42	SUCOFEED_1_5/8	50	Cu	17.30/.681	SPE	42.00/1.654

Screen		Jacket		Cable retention force	Recommended operating frequency range	Notes
Material	Ø mm/inches	Material	Ø mm/inches	N/lbs		
CuSn	4.70/.185	PVC	6.00/.236	110.4/24.8	–	
Cu Cu	2.00/.079 3.05/.120	PVC PVC	2.80/.110 4.25/.167	130.6/29.4	1 GHz	
Cu Cu	3.60/.142 5.75/.226	PVC PVC	5.00/.197 7.35/.289	294.3/66.2	1 GHz	
Cu Cu	3.60/.142 5.75/.226	PVC PVC	5.00/.197 7.35/.289	294.3/66.2	1 GHz	

Screen		Jacket		Cable retention force	Notes
Material	Ø mm/inches	Material	Ø mm/inches	N/lbs	
Cu	0.86/.034			23.9/5.3	
Cu	1.19/.047			41.8/9.3	
CuSn	1.19/.047			26.1/5.87	
Cu	2.20/.086			158.5/35.6	
Cu	2.20/.086			139.5/31.2	
Cu-TP	2.95/.116			246.0/54.9	
Cu	3.58/.141			309.1/69.5	
Cu	3.58/.141			309.1/69.5	
Cu	6.35/.250			952.4/212.7	
CuSn	2.20/.086			100.0/22.5	
CuAg	2.20/.086	FEP	2.65/.104	160.0/36.0	
CuSn	3.58/.141			100.0/22.5	
CuAg	3.58/.141	FEP	4.14/.163	160.0/36.0	
CuSn	6.30/.248			100.0/22.5	

Screen		Jacket		Cable retention force	Notes
Material	Ø mm/inches	Material	Ø mm/inches	N/lbs	
Cu	6.40/.252	LDPE	7.70/.303	100.0/22.5	
Cu	9.50/.374	LDPE	10.80/.425	150.0/33.7	
Cu	12.10/.476	LDPE	13.40/.528	200.0/45.0	
Cu	13.70/.539	LDPE	16.00/.630	200.0/45.0	
Cu	24.70/.972	LDPE	27.75/1.093	700.0/157.4	
Cu	25.40/1.000	LDPE	27.90/1.098	700.0/157.4	
Cu	35.70/1.406	HDPE	39.50/1.550	> 700.0/157.4	
Cu	46.20/1.890	HDPE	50.00/1.968	> 700.0/157.4	

List of abbreviations see page 34



Series MMBX – micro miniature board connectors

Description

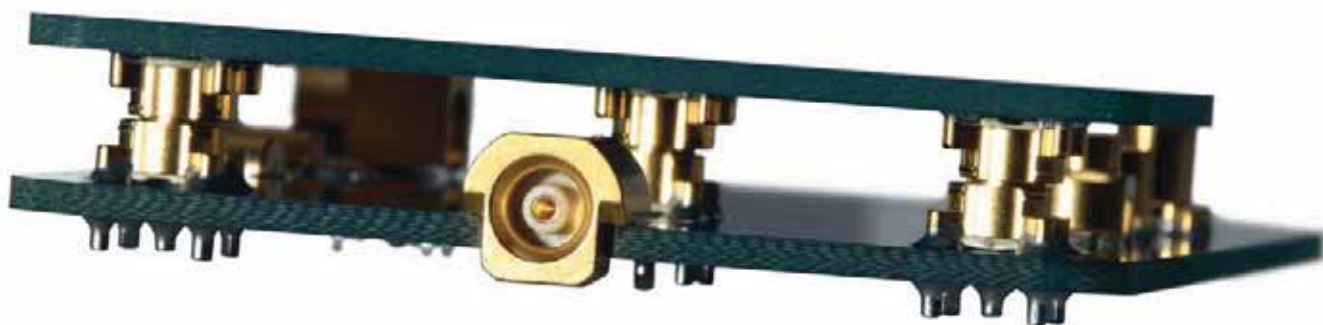
HUBER+SUHNER MMBX connectors are especially developed for board-to-board and board-to-module RF interconnections. Along with MBX the board-to-board portfolio of HUBER+SUHNER provides highest flexibility for today's and future radio module applications.

MMBX connectors offer an operation frequency up to 12.4 GHz. The series contains of a wide range of board and cable connectors with a minimum board-to-board distance of only 6.7 mm.

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Technical data	41
Cable connectors	44
Receptacles with solder end	44
PCB connectors	45
Adaptors within series	48
Assembly and disassembly tools	48

Characteristics	Requirements
Frequency	DC ... 12.4 GHz
Axial float (misalignment)	± 0.3 mm
Radial float (misalignment)	depending on the adaptor ± 0.4 mm (at 6.7 mm board-to-board distance)
Minimum board-to-board distance	6.7 mm
Minimum panel-to-board distance	4.63 mm
Minimum panel-to-panel distance	2.56 mm
Power	typical 260 W at 2.4 GHz at room temperature



Series MMBX – design guideline

Working range (axial and radial)

In mated condition, the two connecting parts have to be aligned within the dimension given for the axial and radial working range.

The axial working range in this example is $8 \text{ mm} \pm 0.3 \text{ mm}$, the radial working range is $\pm 0.4 \text{ mm}$.

The tolerance for the axial working range depends on the interface (MMBX $\pm 0.3 \text{ mm}$). The radial working range depends on the length of the adaptor: the longer the adaptor the higher the radial working range.

Connecting range

The two connecting parts need to be aligned within the connecting range when mating.

In order to guarantee a blind mateable connection, the tilted adaptor will be guided by the funnel of the opposite connector.

The connecting range therefore depends on the length of the adaptor and the pull-in range (size of the funnel). The connecting range in the example is $\pm 0.8 \text{ mm}$ for a pull-in range of 1.8 mm . If the funnel (pull-in range) is smaller than 0.95 mm , a blind mateable assembly process is not possible anymore.

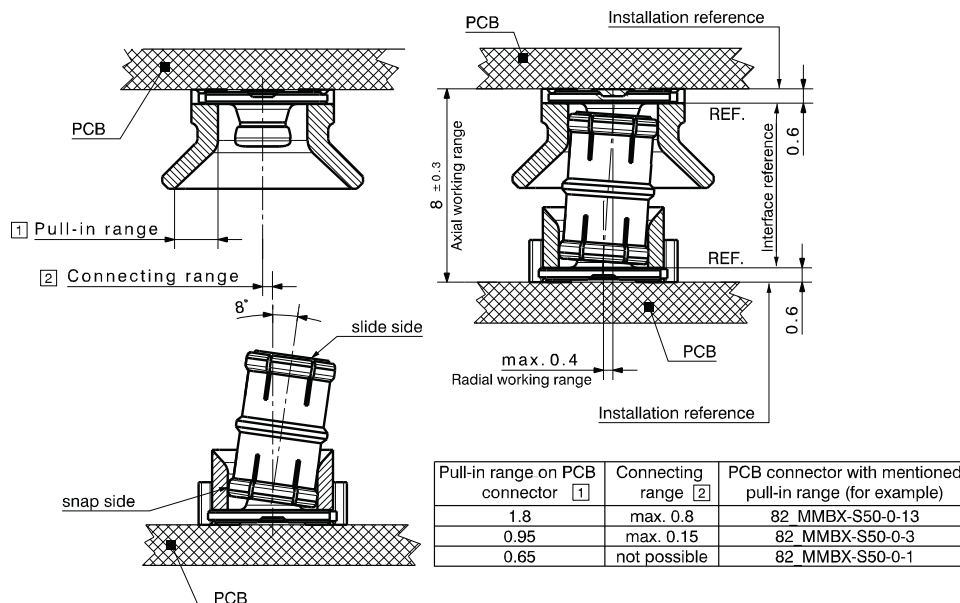
In the case where the connecting range and radial working range are different, the smaller value has to be considered for the alignment of the boards.

Recommendation

HUBER+SUHNER recommend using guiding pins to align the boards within the connecting range and working range and also distance holders to maintain the axial misalignment within the working range.

HUBER+SUHNER provide an outline drawing for every application with the relevant mechanical dimensions that need to be considered when designing-in MMBX.

3D STEP files are available on www.hubersuhner.com.



Series MMBX – technical data

MMBX PCB connectors - board-to-board

Electrical data	Requirements		
Impedance	50 Ω		
Frequency range	DC ... 12.4 GHz		
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz		
Working voltage (at sea level)	≤ 330 V rms, 50 Hz		
Insulation resistance	≥ 1 GΩ		
Contact resistance - centre contact - outer contact	≤ 5 mΩ ≤ 1 mΩ		
Return loss / VSWR	typical values for a board-to-board connection		
	board-to-board distance	DC ... 2.5 GHz	2.5 ... 6 GHz
	6.7 mm	26 dB / 1.11	25 dB / 1.12
	11.65 mm	26 dB / 1.11	19 dB / 1.25
20.0 mm	26 dB / 1.11	19 dB / 1.25	
RF-leakage (interface only)	≥ 70 dB (DC ... 6 GHz) ≥ 60 dB (6 GHz ... 12.4 GHz)		
Power	typical 260 W at 2.4 GHz at room temperature		

Mechanical data	Requirements
Engagement force (slide-side)	≤ 15 N / 3.4 lbs
Disengagement force (slide-side)	≤ 15 N / 3.4 lbs
Durability (matings)	100
Axial float (misalignment)	± 0.3 mm
Radial float (misalignment)	depending on the adaptor length ± 0.4 mm (at 6.7 mm board-to-board distance) ± 0.8 mm (at 11.65 mm board-to-board distance)

Environmental data	Test conditions
Temperature range	- 55 °C ... + 155 °C / - 67 °F ... + 311 °F
Climatic category	55/155/21
Thermal shock	MIL-STD-202, method 107 G, condition B1
Moisture resistance	MIL-STD-202, method 106 F
Corrosion	MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204 D, condition A

Processing data	Requirements
Adherent to the print - shearing - pulling (vertical to PCB)	≥ 150 N / 33.7 lbs. ≥ 150 N / 33.7 lbs.

Material data		
Connector parts	Material	Plating
Centre contact	brass / bronze / copper-beryllium alloy	SUCOPRO® gold plating
Outer contact	brass / bronze	SUCOPRO® gold plating
Body	brass	SUCOPRO® gold plating
Insulators	LCP / PTFE / PFA	

Series MMBX – technical data

MMBX cable connectors

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 12.4 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz
Working voltage (at sea level)	250 V rms, 50 Hz
Insulation resistance	$\geq 1 \text{ G}\Omega$
Contact resistance - centre contact - outer contact	$\leq 5 \text{ m}\Omega$ $\leq 1 \text{ m}\Omega$
Return loss / VSWR (typical values)	$\geq 30 \text{ dB} / 1.07$ (DC ... 2.5 GHz) $\geq 25 \text{ dB} / 1.12$ (2.5 ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8–30 N / 1.8–6.7 lbs
Durability (matings)	100

Environmental data	Test conditions
Temperature range	-55°C ... +155°C / -67°F ... +311°F
Climatic category	55/155/10
Thermal shock	MIL-STD-202, method 107 G, condition B1
Moisture resistance	MIL-STD-202, method 106 F
Corrosion	MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204 D, condition A

Material data		
Connector parts	Material	Plating
Centre contact	copper-beryllium alloy	SUCOPRO® gold plating
Outer contact	bronze / copper-beryllium alloy	SUCOPRO® gold plating
Body	brass	SUCOPRO® gold plating / SUCOPLATE®
Crimp ferrules	E-copper	SUCOPRO® gold plating / gold / SUCOPLATE®
Insulators	PTFE / PFA	

Series MMBX – technical data

MMBX adaptors between series

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 12.4 GHz
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz
Working voltage (at sea level)	\leq 330 V rms, 50 Hz
Insulation resistance	\geq 1 G Ω
Contact resistance - centre contact - outer contact	\leq 5 m Ω \leq 1 m Ω
Return loss / VSWR (typical values)	\geq 30 dB / 1.07 (DC ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8-30 N / 1.8-6.7 lbs
Durability (matings)	500

Environmental data	Test conditions
Temperature range	-55°C ... +155°C / -67°F ... +311°F
Climatic category	55/155/10
Thermal shock	MIL-STD-202, method 107 G, condition B1
Moisture resistance	MIL-STD-202, method 106 F
Corrosion	MIL-STD-202, method 101, condition B

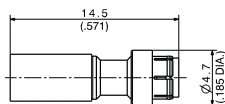
Material data		
Connector parts	Material	Plating
Centre contact	copper-beryllium alloy	SUCOPRO® gold plating
Outer contact	brass / bronze / copper-beryllium alloy	SUCOPRO® gold plating
Body	brass / bronze / copper-beryllium alloy	SUCOPRO® gold plating
Insulators	LCP / PTFE / PFA	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

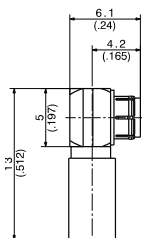
Series MMBX – cable connectors

Straight cable plugs (male)



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MMBX-50-2-2/111_NE	23001744	U4 (EF_316_D)	single	27351	1 / A

Right angle cable plugs (male)



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MMBX-50-2-2/111_NE 16_MMBX-50-2-2/111_NH	23001746 84028931	U4 (EF_316_D)	single bulk 100 pcs.	27352	A

Receptacles with solder end

Receptacle, jack (female)

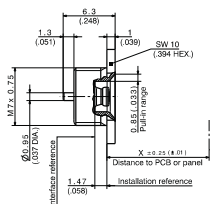


Fig. 1

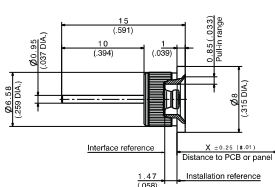


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Assembly instruction	Fig.
22_MMBX-50-0-1/111_NE	23008312	single	screwed-in	1
22_MMBX-50-0-2/111_NY	84005177	bulk 100 pcs.	pressed-in	2

Series MMBX – PCB connectors

Straight PCB jacks (female)

- Surface mount type SMT

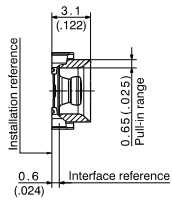


Fig. 1

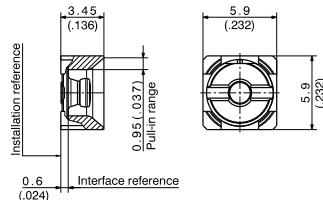


Fig. 2

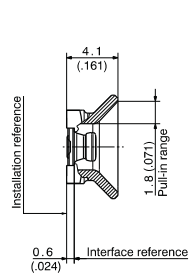
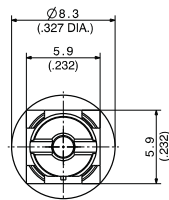


Fig. 3



HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Notes	Fig.
82_MMBX-S50-0-1/111_NE	23001785	single	ML 122	pull-in range 0.65 mm/.0256 in.	1
82_MMBX-S50-0-1/111_NH	23001784	bulk 100 pcs.			
82_MMBX-S50-0-1/111_NM	23001783	tape and reel			
82_MMBX-S50-0-3/111_NE	23015527	single	ML 122	pull-in range 0.95 mm/.0374 in.	2
82_MMBX-S50-0-3/111_NH	23011273	bulk 100 pcs.			
82_MMBX-S50-0-3/111_NM	23031931	tape and reel			
82_MMBX-S50-0-13/111_NE	84032435	single	ML 122	pull-in range 1.80 mm/.0709 in.	3
82_MMBX-S50-0-13/111_NH	23036608	bulk 100 pcs.			
82_MMBX-S50-0-13/111_NM	23041511	tape and reel			

Series MMBX – PCB connectors

Straight PCB jacks (female)

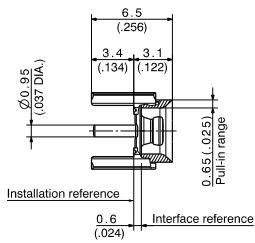


Fig. 1

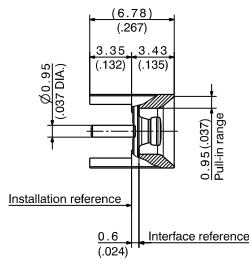


Fig. 2

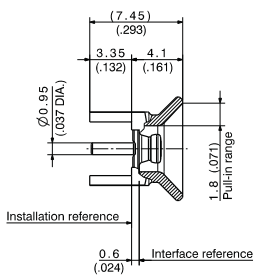
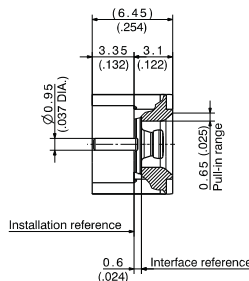


Fig. 3



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
82_MMBX-50-0-2/111_NE	23001788	single	ML 15	pull-in range 0.65 mm/0.256 in.	1
82_MMBX-50-0-2/111_NH	23001787	bulk 100 pcs.			
82_MMBX-50-0-2/111_NM	23001786	tape and reel			
82_MMBX-50-0-4/111_NH	23013667	bulk 100 pcs.	ML 15	pull-in range 0.95 mm/0.374 in.	2
82_MMBX-50-0-14/111_NE	84032421	single			
82_MMBX-50-0-14/111_NH	23038051	bulk 100 pcs.			

Straight PCB jacks (female), edge mount

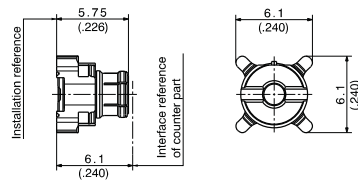


HUBER+SUHNER type	Item no.	Packaging	Mounting hole
92_MMBX-S50-0-12/111_NE	84019159	single	ML 147
92_MMBX-S50-0-12/111_NM	23038620	tape and reel	

Series MMBX – PCB connectors

Straight PCB plugs (male)

- Surface mount type SMT



HUBER+SUHNER type	Item no.	Packaging	Soldering pad
81_MMBX-S50-0-1/111_NE	23001782	single	ML 122
81_MMBX-S50-0-1/111_NH	23001781	bulk 100 pcs.	
81_MMBX-S50-0-1/111_NM	23001780	tape and reel	

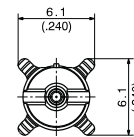
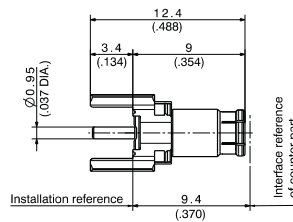
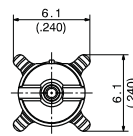
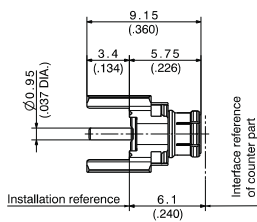


Fig. 1

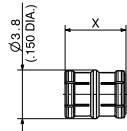
Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.
81_MMBX-50-0-2/111_NE	23001779	single	ML 15	1
81_MMBX-50-0-2/111_NH	23001778	bulk 100 pcs.		
81_MMBX-50-0-2/111_NM	23001776	tape and reel		
81_MMBX-50-0-11/111_NM	23028072	tape and reel		2

Series MMBX – adaptors within series

Straight adaptors

- Plug to plug (male)



HUBER+SUHNER type	Item no.	Packaging	Board-to-board distance	Adaptor length X	Min. pull-in range
32_MMBX-50-0-1/111_NE 32_MMBX-50-0-1/111_NY	23001749 84028418	single industrial 200 pcs.	6.7 mm/.264 in.	4.8 mm/.189 in.	0.65 mm/.026 in. *
32_MMBX-50-0-12/111_NH	84004734	bulk 100 pcs.	8.0 mm/.315 in.	6.0 mm/.236 in.	0.95 mm/.037 in.
32_MMBX-50-0-4/111_NE 32_MMBX-50-0-4/111_NY	23010564 23038658	single industrial 300 pcs.	10.0 mm/.394 in.	8.0 mm/.315 in.	1.80 mm/.071 in.
32_MMBX-50-0-13/111_NE	84031096	single	12.0 mm/.472 in.	10.0 mm/.417 in.	1.80 mm/.071 in.
32_MMBX-50-0-5/111_NE 32_MMBX-50-0-5/111_NY	84026915 23011920	single industrial 200 pcs.	14.0 mm/.551 in.	12.0 mm/.472 in.	1.80 mm/.071 in.
32_MMBX-50-0-10/111_NY	23034946	industrial 200 pcs.	15.0 mm/.591 in.	13.0 mm/.512 in.	1.80 mm/.071 in.

* Only suitable pull-in-range.

Adaptors with other lengths available upon request.

Series MMBX – assembly and disassembly tools



Fig. 1



Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Operating instruction	Fig.
74_Z-0-0-437	23023494	single	27378	1
74_Z-0-0-557	84032418		0000246815	2

Series MBX – miniature board connectors

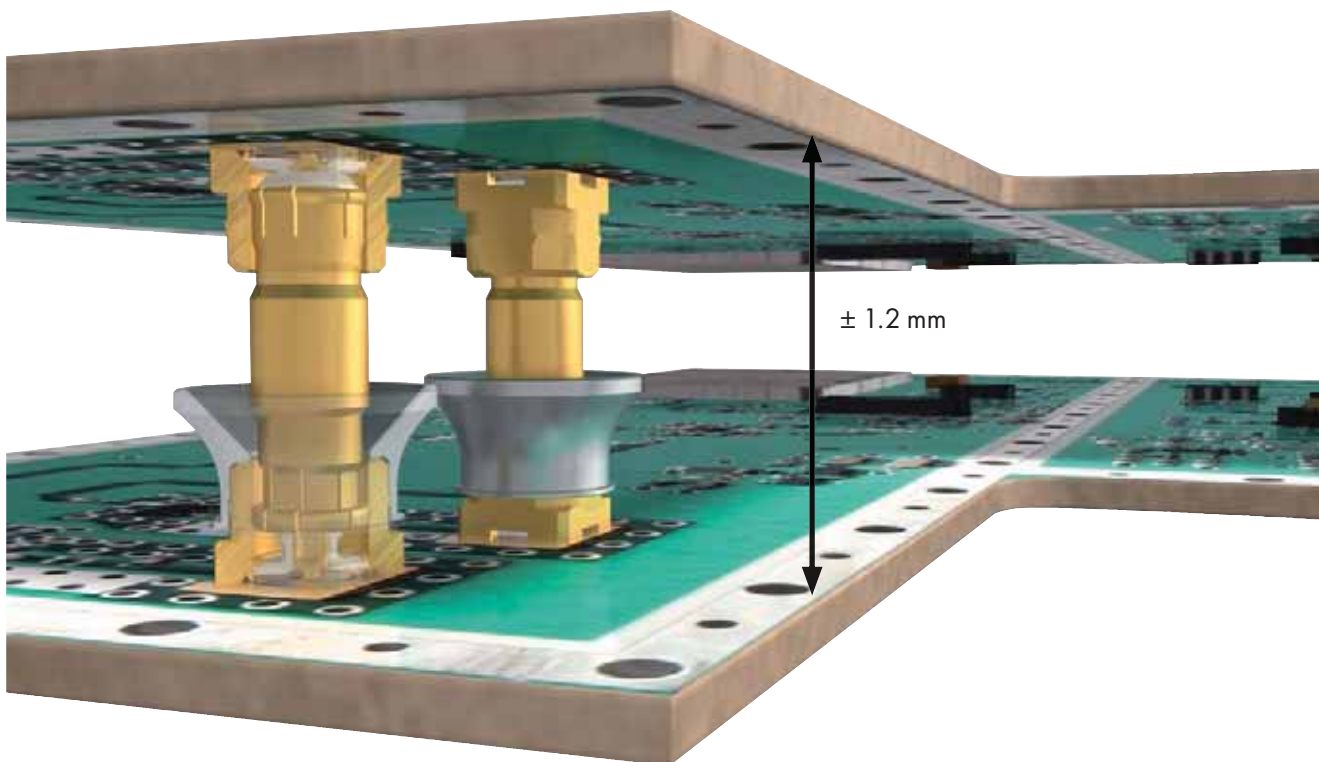
Description

HUBER+SUHNER MBX connectors are especially developed for board-to-board and board-to-module RF interconnections. The mechanical design is outstanding, allowing the MBX to cope with mechanical misalignment in radial and axial directions and still hold an excellent electrical performance. MBX completes the board-to-board assortment of HUBER+SUHNER with its development based on the well-known board-to-board connector MMBX. MBX fulfils higher requirements with best in class axial misalignment of ± 1.2 mm. MBX is the answer to higher integration and miniaturisation. It is the perfect solution for multiple connections from board-to-board / board-to-module and complex stack-ups in radio module applications.

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Assembly and disassembly tool	58

Characteristics	Requirements
Frequency	DC ... 6 GHz
Axial float (misalignment)	± 1.2 mm
Radial float (misalignment)	depending on the adaptor ± 0.6 mm (at 13 mm board-to-board distance) ± 1.0 mm (≥ 18 mm board-to-board distance)
Minimum board-to-board distance	13 mm
Power	typical 260 W at 2.4 GHz at room temperature



Series MBX – design guideline

Working range (axial and radial)

In mated condition, the two connecting parts have to be aligned within the dimension given for the axial and radial working range.

The axial working range in this example is $18 \text{ mm} \pm 1.2 \text{ mm}$, the radial working range is $\pm 1.0 \text{ mm}$.

The tolerance for the axial working range depends on the interface and is for MBX $\pm 1.2 \text{ mm}$. The radial working range depends on the adaptor and is in this case $\pm 1.0 \text{ mm}$.

In contradiction to the MMBX interface, the tilt of the adaptor can be limited with the MBX. The great advantage of this feature is that there now is a constant working range with different adaptor lengths and thus the same standard funnel for the connecting parts can be used.

Connecting range

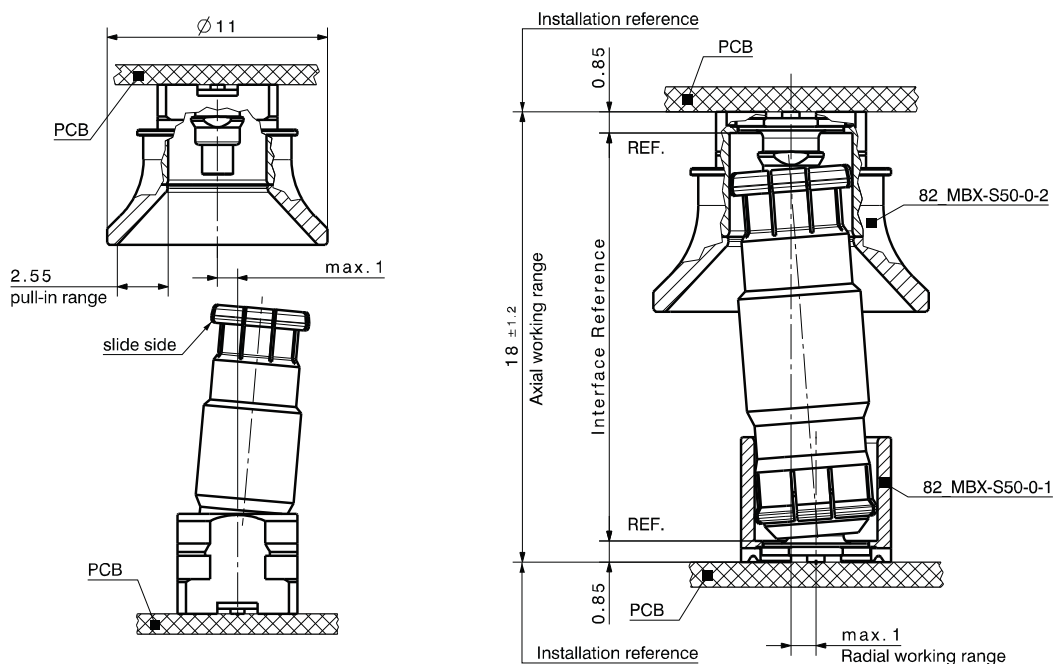
The two connecting parts need to be aligned within the connecting range when mating. In order to guarantee a blind mateable connection, the tilted adaptor will be guided by the funnel of the opposite connector.

The connecting range therefore depends on the adaptor and the pull-in range (size of the funnel). In the case where the connecting range and radial working range are different, the smaller value has to be considered for the alignment of the boards.

Recommendation

HUBER+SUHNER recommend using guiding pins to align the boards within the connecting range and working range and also distance holders to maintain the axial misalignment within the working range.

HUBER+SUHNER provide an outline drawing for every application with the relevant mechanical dimensions that need to be considered when designing-in MBX. 3D STEP files are available on www.hubersuhner.com



Series MBX – technical data

MBX PCB connectors - board-to-board

Electrical data	Requirements			
Impedance	50 Ω			
Frequency range	DC ... 6 GHz			
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz			
Working voltage (at sea level)	\leq 330 V rms, 50 Hz			
Insulation resistance	\geq 1 G Ω			
Contact resistance - centre contact - outer contact	\leq 5 m Ω \leq 2.5 m Ω / \leq 5 m Ω ¹⁾			
Return loss / VSWR	typical values for a board-to-board connection (measured on a board)			
	axial misalignment	DC ... 2.5 GHz	2.5 ... 4 GHz	4 ... 6 GHz
	\pm 1.2mm	22 dB / 1.17	19 dB / 1.25	15 dB / 1.43
	\pm 0.8mm	23 dB / 1.15	20 dB / 1.22	16 dB / 1.38
RF-leakage (interface only)	\geq 70 dB (DC ... 6 GHz)			
Power	typical 260 W at 2.4 GHz at room temperature			

¹⁾ Straight adaptor within series with SUCOPLATE® plating.

Mechanical data	Requirements
Engagement force (slide-side)	\leq 15 N / 3.4 lbs
Disengagement force (slide-side)	\leq 15 N / 3.4 lbs
Durability (matings)	100
Axial float (misalignment)	\pm 1.2 mm
Radial float (misalignment)	depending on the adaptor \pm 0.6 mm (at 13 mm board-to-board distance) \pm 1.0 mm (\geq 18 mm board-to-board distance)

Environmental data	Test conditions
Temperature range	-55°C ... +155°C / -67°F ... +311°F
Climatic category	55/155/10
Thermal shock	MIL-STD-202, method 107 G, condition B1
Moisture resistance	MIL-STD-202, method 106 F
Corrosion	MIL-STD-202, method 101, condition B ²⁾
Vibration	MIL-STD-202, method 204 D, condition A
Mechanical shock	MIL-STD-202, method 213 B, condition B

²⁾ Not applicable for SUCOPLATE® plated adaptors within series.

Processing data	Requirements
Adherent to the print - shearing - pulling (vertical to PCB)	\geq 150 N / 33.7 lbs. \geq 150 N / 33.7 lbs.

Material data		
Connector parts	Material	Plating
Centre contact	brass / bronze / copper-beryllium alloy	SUCOPRO® gold plating
Outer contact	brass / bronze	SUCOPRO® gold plating / SUCOPLATE®
Body	brass	SUCOPRO® gold plating / SUCOPLATE®
Insulators	LCP / PTFE / PFA	

Series MBX – technical data

MBX cable connectors

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz
Working voltage (at sea level)	250 V rms, 50 Hz
Insulation resistance	$\geq 1 \text{ G}\Omega$
Contact resistance - centre contact - outer contact	$\leq 5 \text{ m}\Omega$ $\leq 2.5 \text{ m}\Omega$
Return loss / VSWR (typical values)	$\geq 30 \text{ dB} / 1.07$ (DC ... 2.5 GHz) $\geq 25 \text{ dB} / 1.12$ (2.5 ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8-30 N / 1.8-6.7 lbs
Durability (matings)	100

Environmental data	Test conditions
Temperature range	-55°C ... +155°C / -67°F ... +311°F
Climatic category	55 / 155 / 10
Thermal shock	MIL-STD-202, method 107 G, condition A1
Moisture resistance	MIL-STD-202, method 106 F
Corrosion	MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204 D, condition A
Mechanical shock	MIL-STD-202, method 213 B, condition B

Material data		
Connector parts	Material	Plating
Centre contact	brass / bronze / copper-beryllium alloy	SUCOPRO® gold plating
Outer contact	bronze / copper-beryllium alloy	SUCOPRO® gold plating
Body	brass	SUCOPRO® gold plating / SUCOPLATE®
Crimp ferrules	copper	gold / SUCOPLATE®
Insulators	LCP / PTFE / PFA	

Series MBX – technical data

MBX adaptors between series

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	1 kV rms, 50 Hz
Working voltage (at sea level)	\leq 330 V rms, 50 Hz
Insulation resistance	\geq 1 G Ω
Contact resistance - centre contact - outer contact	\leq 5 m Ω \leq 2.5 m Ω
Return loss / VSWR (typical values)	\geq 30 dB / 1.07 (DC ... 6 GHz)

Mechanical data	Requirements
Engagement force	max. 30 N / max. 6.7 lbs
Disengagement force	8-30 N / 1.8-6.7 lbs
Durability (matings)	500

Environmental data	Test conditions
Temperature range	-55°C ... +155°C / -67°F ... +311°F
Climatic category	55 / 155 / 10
Thermal shock	MIL-STD-202, method 107 G, condition B1
Moisture resistance	MIL-STD-202, method 106 F
Corrosion	MIL-STD-202, method 101, condition B

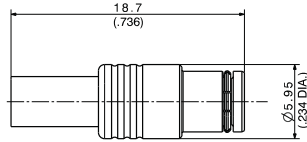
Material data		
Connector parts	Material	Plating
Centre contact	brass / bronze / copper-beryllium alloy	SUCOPRO® gold plating
Outer contact	brass / bronze	SUCOPRO® gold plating
Body	brass / bronze	SUCOPRO® gold plating
Insulators	LCP / PTFE / PFA	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

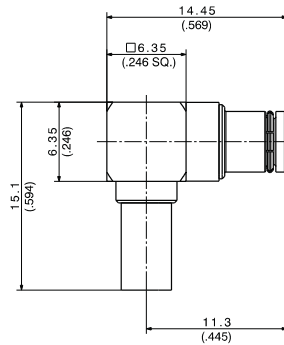
Series MBX - cable connectors

Straight cable plugs (male)



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_MBX-50-2-1 / 113_NE 11_MBX-50-2-1 / 113_NH	84104694 84093696	U4 (EF_316_D)	single bulk 100 pcs.	0000333519

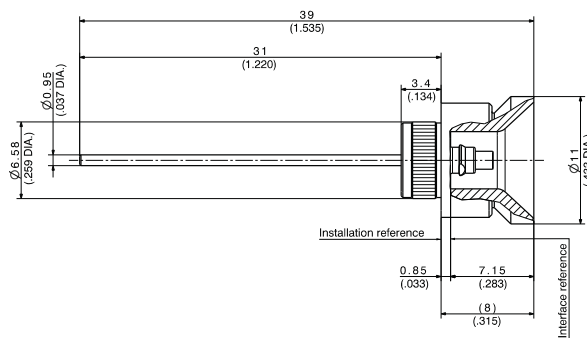
Right angle cable plugs (male)



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_MBX-50-2-1 / 113_NE 16_MBX-50-2-1 / 113_NH	84104696 84093680	U4 (EF_316_D)	single bulk 100 pcs.	0000326568

Receptacles with solder end

Receptacle, jack (female)



HUBER+SUHNER type	Item no.	Packaging	Assembly instruction
22_MBX-50-0-1 / 113_NY	84097667	industrial 100 pcs.	pressed-in

Series MBX – PCB connectors

Straight PCB jacks (female)

- Surface mount type SMT

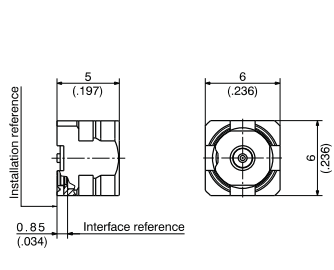


Fig. 1

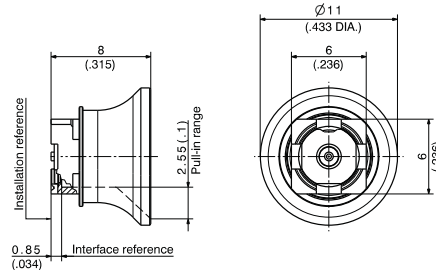


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Fig.
82_MBX-S50-0-1/111_NE	84104680	single	ML 173	1
82_MBX-S50-0-1/111_NH	84094199	bulk 100 pcs.		
82_MBX-S50-0-1/111_NM	84094200	tape and reel		
82_MBX-S50-0-2/113_NE	84104681	single	ML 174	2
82_MBX-S50-0-2/113_NH	84094287	bulk 100 pcs.		
82_MBX-S50-0-2/113_NM	84094288	tape and reel		

Straight PCB jacks (female)

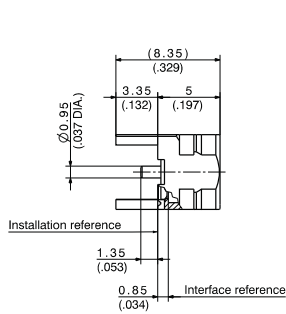


Fig. 1

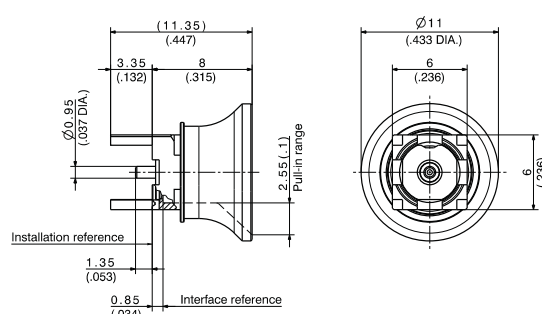


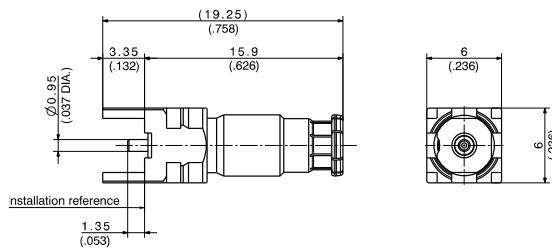
Fig. 2



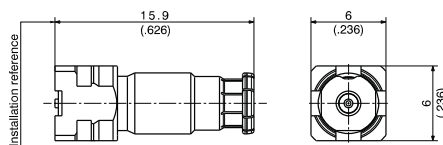
HUBER+SUHNER type	Item no.	Packaging	Soldering pad	Fig.
82_MBX-50-0-3/111_NE	84104683	single	ML 174	1
82_MBX-50-0-3/111_NH	84094366	bulk 100 pcs.		
82_MBX-50-0-3/111_NM	84094369	tape and reel		
82_MBX-50-0-4/113_NE	84104684	single	ML 174	2
82_MBX-50-0-4/113_NH	84094405	bulk 100 pcs.		
82_MBX-50-0-4/113_NM	84094406	tape and reel		

Series MBX – PCB connectors

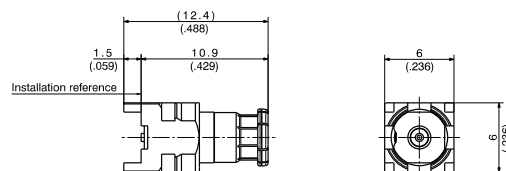
Straight PCB plugs (male)



HUBER+SUHNER type	Item no.	Packaging	Soldering pad
81_MBX-50-0-3/111_NE	84104686	single	ML 174
81_MBX-50-0-3/111_NH	84094396	bulk 100 pcs.	
81_MBX-50-0-3/111_NM	84094392	tape and reel	



HUBER+SUHNER type	Item no.	Packaging	Soldering pad
81_MBX-S50-0-2/111_NE	84104688	single	ML 173
81_MBX-S50-0-2/111_NH	84094305	bulk 100 pcs.	
81_MBX-S50-0-2/111_NM	84094306	tape and reel	

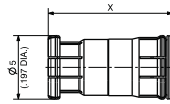


HUBER+SUHNER type	Item no.	Packaging	Soldering pad
95_MBX-50-0-1/111_NM	84095992	tape and reel	--

Series MBX – adaptors within series

Straight adaptors

- Plug to plug (male)



Black insulator: slide-side
 White insulator: snap-side

HUBER+SUHNER type	Item no.	Packaging	Board-to-board distance	Adaptor length X
32_MBX-50-0-1/111_NE 32_MBX-50-0-1/111_NH	84104690 84142599	single bulk 100 pcs.	13 mm/0.512 in.	9.7 mm/0.382 in.
32_MBX-50-0-1/133_NE 32_MBX-50-0-1/133_NH	85001197 85001201	single bulk 100 pcs.	13 mm/0.512 in.	9.7 mm/0.382 in.
32_MBX-50-0-2/111_NE 32_MBX-50-0-2/111_NH	84104691 84094285	single bulk 100 pcs.	18 mm/0.709 in.	14.7 mm/0.579 in.
32_MBX-50-0-2/133_NE 32_MBX-50-0-2/133_NH	85001211 85001227	single bulk 100 pcs.	18 mm/0.709 in.	14.7 mm/0.579 in.
32_MBX-50-0-3/111_NE 32_MBX-50-0-3/111_NH	8410492 84094387	single bulk 100 pcs.	28 mm/1.012 in.	24.7 mm/0.972 in.

Adaptors with other lengths available upon request.

Series MBX – assembly and disassembly tool



HUBER+SUHNER type	Item no.	Packaging	Operating instruction
74_Z0-0-488	84101887	single	-

Series MMCX – micro miniature connectors

Description

HUBER+SUHNER MMCX connectors are intended for use in applications where the smallest dimensions have to be achieved. These connectors can be used in applications from DC to 6 GHz.

The reliable «snap-on» coupling mechanism ensures that the electrical parameters are consistently reproduced.

Due to its non-slotted outer contact, the MMCX series provides a low RF-leakage.

In addition, HUBER+SUHNER SMT MMCX connectors fully meet today's SMT (Surface Mount Technology) requirements with superior design, material selection and packaging.

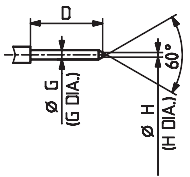
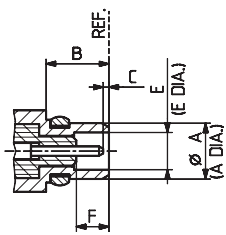
The HUBER+SUHNER SMT connectors are suitable to all reflow-soldered SMT -PCBs where impedance matching or screened signal transmission is necessary.

Content

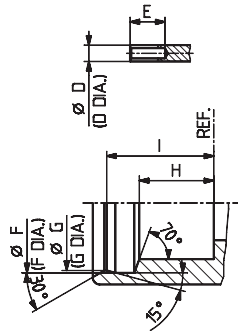
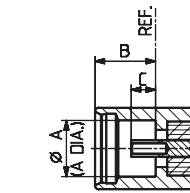
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Application notes for MMCX edge mount	75

Interface dimensions (mm/inches)

Plug (male)



Jack (female)



	Plug		Jack	
	min.	max.	min.	max.
A	---	2.40/.094	2.41/.095	---
B	2.70/.106	---	---	2.65/.104
C	0.00/.000	0.25/.010	0.90/.035	1.20/.047
D	1.23/.048	---	0.70/.028 nom.	
E	1.58/.062	1.62/.064	1.40/.055	---
F	1.23/.048	---	3.00/.118	3.04/.120
G*	0.38/.015	0.42/.017	2.88/.113	2.92/.115
H	---	0.20/.008	1.57/.062	1.63/.064

	Jack		
G*	2.88/.113	2.90/.114	2.92/.115
I	2.34/.092	2.30/.091	2.26/.089

* I is rated to G.

Series MMCX – technical data

Electrical data	CECC 22000	Requirements
Impedance		50 Ω
Frequency range		DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	4.4.5	500 V rms, 50 Hz
Working voltage (at sea level)		≥ 170 V rms, 50 Hz
Insulation resistance	4.4.4	≥ 10 ³ MΩ / ≥ 500 MΩ ¹⁾
Contact resistance - centre contact - outer contact	4.4.2 4.4.3	≤ 5.0 mΩ / ≥ 10 MΩ ¹⁾ ≤ 2.5 mΩ / ≥ 5 MΩ ¹⁾
VSWR (mated pair) - up to 4 GHz - 4 up to 6 GHz	4.4.1	(typical values) ≤ 1.15 ≤ 1.40 for cable connectors, see table below
RF leakage (measured at 1 GHz) - connectors for flexible cables - connectors for semi-rigid cables	4.4.8	≥ 60 dB ≥ 70 dB

¹⁾ Valid for MMCX «cube»-connectors only.

Typical VSWR	Frequency range			Cable group
Connector type	1 GHz	2.5 GHz	6 GHz	
Straight connectors	1.03	1.08	1.12	Y3, Y11
	1.04	1.08	1.12	U1
Right angle connectors	1.03	1.08	1.13	Y3, Y11
	1.07	1.12	1.25	U1

Mechanical data	CECC 22000	Requirements
Engagement force	4.5.4	≥ 15 N / 3.4 lbs
Disengagement force	4.5.4	6 N ... 15 N / 1.4 lbs ... 3.4 lbs
Contact captivation	4.5.2	≥ 10 N / 2.3 lbs
Cable retention force ¹⁾	4.5.5	see pages 32 - 37
Durability (matings)	4.7.1	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	CECC 22000 test conditions	Equivalent MIL test conditions
Temperature range		-55 °C ... +155 °C / -67 °F ... +311 °F
Climatic category	4.6.5 → 55/155/21	
Thermal shock	4.6.7 → IEC 68-2-14 Na	MIL-STD-202, method 107, condition F
Moisture resistance	4.6.6 → IEC 68-2-3 Ca	MIL-STD-202, method 106
Corrosion	4.6.10 → IEC 68-2-11 Ka	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	4.6.3 → IEC 68-2-6 Fc	MIL-STD-202, method 204, condition C

Series MMCX – technical data

Environmental data for «cube» connectors only	CECC 22000 test conditions	Equivalent MIL test conditions
Temperature range		-40 °C ... +90 °C / -40 °F ... +194 °F
Climatic category	4.6.5 → 40/90/21	
Thermal shock	4.6.7	MIL-STD-202, method 107, - 40 °C / 40 °F and + 90 °C / +194 °F, 30 min. each
Moisture resistance	4.6.6	MIL-STD-202, method 103, condition B
Vibration	4.6.3	3 cycles in 3 opposite directions 10-150 Hz, 10-60 Hz: 0.75 mm / .030 in., 60-150 Hz: 10 G
Mechanical shock	4.6.4	MIL-STD-202, method 213, condition B

Material data		
Connector parts	Material	Plating
Centre contact	copper-beryllium alloy, bronze	gold / SUCOPRO® gold plating
Body	brass	gold / SUCOPRO® gold plating
Crimp ferrules	brass	gold / SUCOPRO® gold plating
Insulators	PTFE or PFA	

Material data for «cube» connectors only		
Connector parts	Material	Plating
Leads Contact sockets	bronze	gold
Body	LCP (liquid crystal polymer), brass	gold
Outer contact	brass	gold
Insulators	LCP (liquid crystal polymer), PTFE or PFA	

Processing data		
for «cube» connectors only	Test standard	Requirement
Lead free reflow process	IPC/JEDECJ-STD-020C	recommended
Adherent to the print - shearing - pulling (vertical to PCB)		25 N/5.6 lbs 50 N/11.2 lbs

Some connectors may have a specification that differs from the above mentioned data.

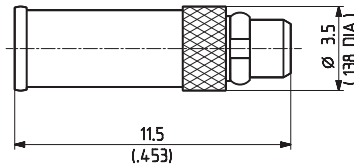
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series MMCX – cable connectors

Straight cable plugs (male)

For semi-rigid cables

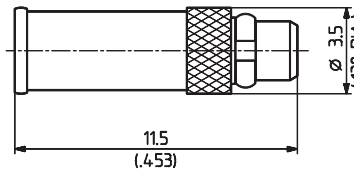
- Cable entry soldered
- Centre contact crimped



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MMCX-50-1-3/111_OE	22648893	Y2 (EZ_47)	single	9078	1
11_MMCX-50-2-1/111_OE 11_MMCX-50-2-1/111_OH	22645297 22649039	Y3, Y11, Y16 (EZ_86)	single bulk 100 pcs.	9170	

For flexible cables

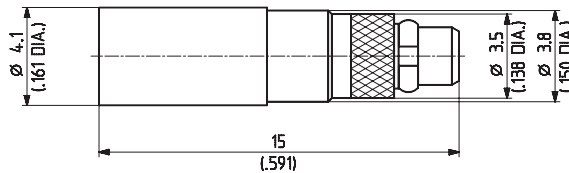
- HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MMCX-50-1-1/111_OE 11_MMCX-50-1-1/111_OH	22645298 22651666	U1 (EF_178)	single bulk 100 pcs.	9169	1 / 2.67
11_MMCX-50-1-2/111_OE 11_MMCX-50-1-2/111_OH	22645296 84027753	U0 (K_01152-07)	single bulk 100 pcs.		

For flexible cables

- HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MMCX-50-2-3/111_OE 11_MMCX-50-2-3/111_OH	22649899 23000258	U2 (EF_316)	single bulk 100 pcs.	9110	1 A
11_MMCX-50-2-4/111_OE	22649901	U4 (EF_316_D)	single		

Series MMCX – cable connectors

Right angle cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

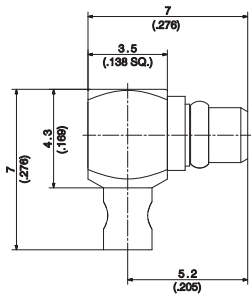


Fig. 1

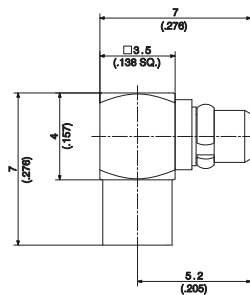


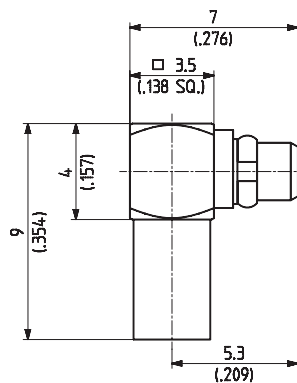
Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
16_MMCX-50-1-12/111_OE 16_MMCX-50-1-12/111_OH	84030531 21000178	Y2, Y15 (EZ_47)	single bulk 100 pcs.	0000180777	1
16_MMCX-50-2-13/111_OE 16_MMCX-50-2-13/111_OH	84032569 84007944	Y3, Y11 (EZ_86)	single bulk 100 pcs.	0000214734	2

For flexible cables

- Cable entry crimp
- Centre contact soldered



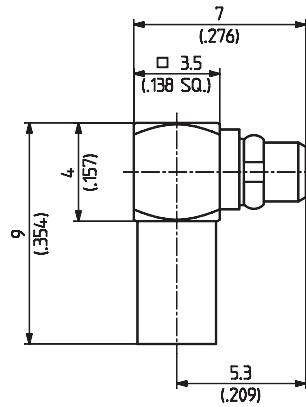
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MMCX-50-1-1/111_OE 16_MMCX-50-1-1/111_OH	22645955 22648762	U1 (EF_178)	single bulk 100 pcs.	9175	2.67

Series MMCX – cable connectors

Right angle cable plugs (male)

For flexible cables

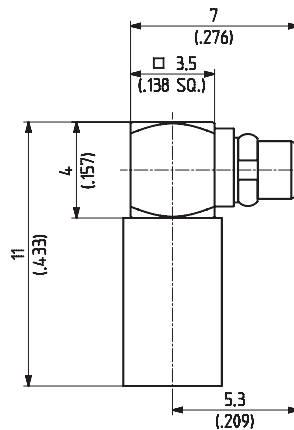
- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MMCX-50-1-2/111_OE 16_MMCX-50-1-2/111_OH	22645956 22649009	U0 (K_01152-07)	single bulk 100 pcs.	9175	2.67

For flexible cables

- Cable entry crimp
- Centre contact soldered



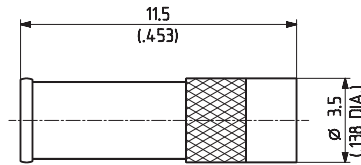
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MMCX-50-2-2/111_OE 16_MMCX-50-2-2/111_OH	22649374 22651401	U4 (EF_316_D)	single bulk 100 pcs.	9128	A
16_MMCX-50-2-4/111_OE 16_MMCX-50-2-4/111_OH	22649433 22649635	U2 (EF_316)	single bulk 100 pcs.		

Series MMCX – cable connectors

Straight cable jacks (female)

For semi-rigid cables

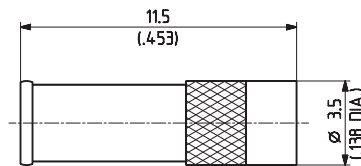
- Cable entry soldered
- Centre contact crimped



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_MMCX-50-2-1/111_OE	22645290	Y3, Y11, Y16 (EZ_86)	single	9170	1

For flexible cables

- HUBER+SUHNER® full crimp

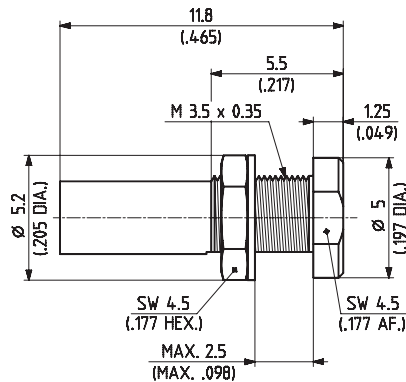


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_MMCX-50-1-1/111_OE	22645288	U1 (EF_178)	single	9169	1 / 2.67
21_MMCX-50-1-2/111_OE	22645289	U0 (K_01152-07)			

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact crimped
- Front mounting



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_MMCX-50-2-1/111_OE	22645954	Y3, Y11, Y16 (EZ_86)	single	9170	ML68	1

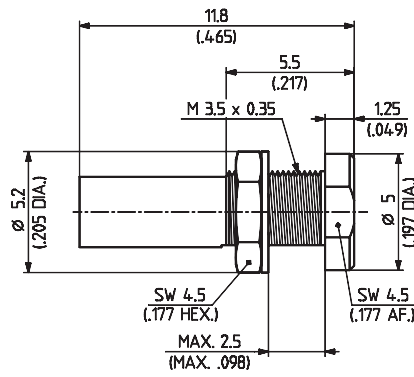
Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series MMCX – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Front mounting

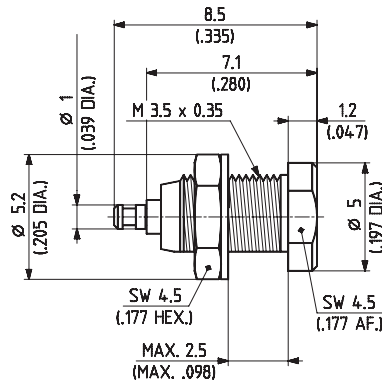


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_MMCX-50-1-1/111_OE 24_MMCX-50-1-1/111_OH	22645952 23000416	U1 (EF_178)	single bulk 100 pcs.	9169	ML68	1/2.67

Series MMCX – receptacles with solder end

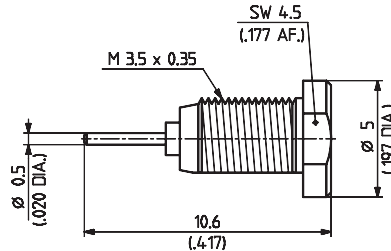
Receptacles, jacks (female)

- Bulkhead mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
22_MMCX-50-0-1/111_OE	22645951	single	ML 68
22_MMCX-50-0-1/111_OH	22660126	bulk 100 pcs.	

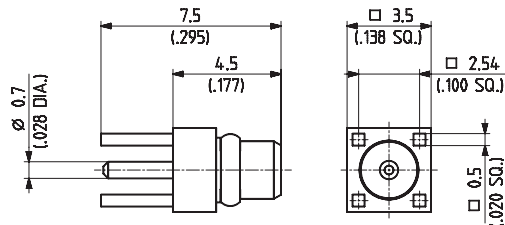
- Bulkhead mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
22_MMCX-50-0-4/111_OH	22660282	bulk 100 pcs.	M 3.5 × 0.35

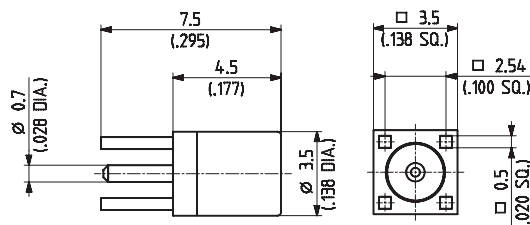
Series MMCX – PCB connectors

Straight PCB plugs (male)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
81_MMCX-50-1-1/111_OE	22646298	single	ML 44	without stand-off

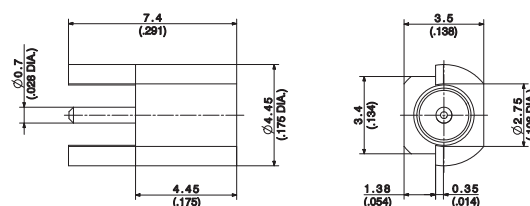
Straight PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
82_MMCX-50-0-1/111_NE	22645958	single	ML 44	without stand-off
82_MMCX-50-0-1/111_NH	22648469	bulk 100 pcs.		

Jacks for horizontal applications

- Edge mount



HUBER+SUHNER type	Item no.	Packaging	PCB layout	Notes
82_MMCX-S50-0-2/111_KE	22648789	single	see application notes on page 72	
82_MMCX-S50-0-2/111_KH	22649680	bulk 100 pcs.		
82_MMCX-S50-0-2/111_KG	22649679	tape and reel	see application notes on page 72	blister tape containing 750 pcs.
82_MMCX-S50-0-2/111_KL-1	23041776			blister tape containing 1500 pcs.

Series MMCX – PCB connectors

Straight PCB jacks (female)

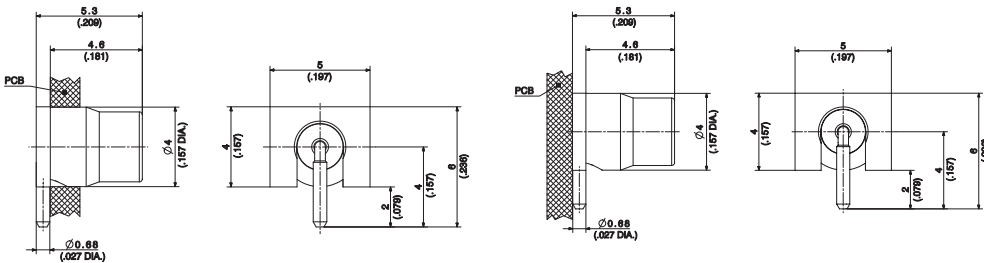
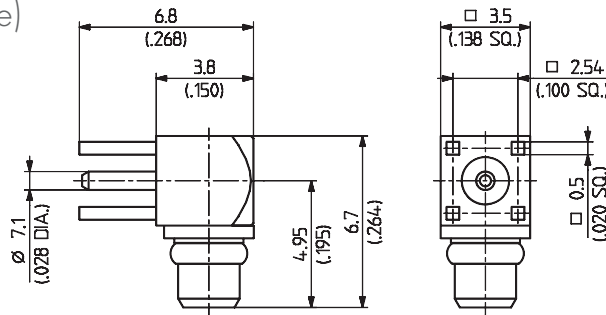


Fig. 1

Fig. 2

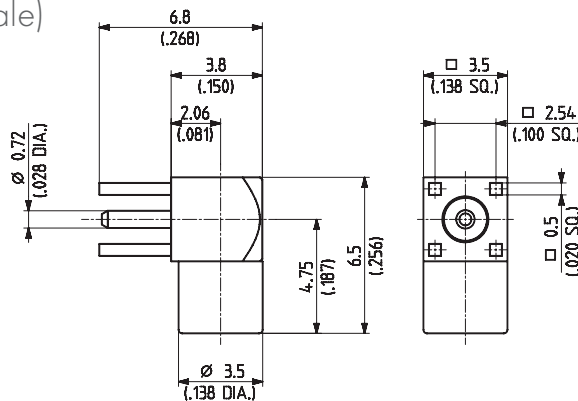
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	
82_MMCX-50-0-8/111_OE	22652153	single	ML 167	through-hole mount	1
82_MMCX-50-0-8/111_OM	22660270	tape and reel			
82_MMCX-50-0-18/111_OM	23023564	tape and reel	ML 130	surface mount technology	2

Right angle PCB plugs (male)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
84_MMCX-50-0-1/111_OH	22658819	bulk 100 pcs.	ML 44	without stand-off

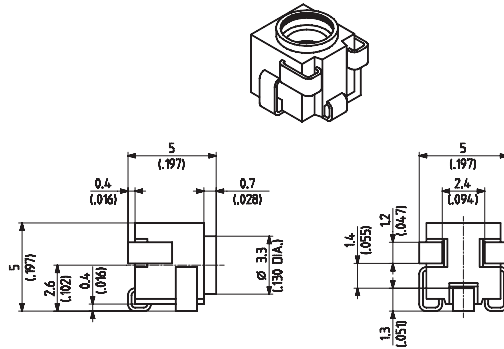
Right angle PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
85_MMCX-50-0-1/111_OE	22645968	single	ML 44	without stand-off
85_MMCX-50-0-1/111_OH	22646636	bulk 100 pcs.		

Series MMCX – «cube» connectors

Jacks for straight (vertical) applications



HUBER+SUHNER type	Item no.	Packaging	PCB layout	Notes
82_MMCX-S50-0-55/119_OM	84021645	tape and reel	see application notes on page 72	blister tape containing 1500 pcs.

Jacks for right angle (horizontal) applications



HUBER+SUHNER type	Item no.	Packaging	PCB layout	Notes
85_MMCX-S50-0-55/119_OM	84021646	tape and reel	see application notes on page 72	blister tape containing 1500 pcs.

Combination jack
for straight (vertical) or right angle (horizontal) applications



HUBER+SUHNER type	Item no.	Packaging	PCB layout
90_MMCX-S50-0-55/119_OE	84021577	single	see application notes on page 72
90_MMCX-S50-0-55/119_OH	84021269	bulk 100 pcs.	

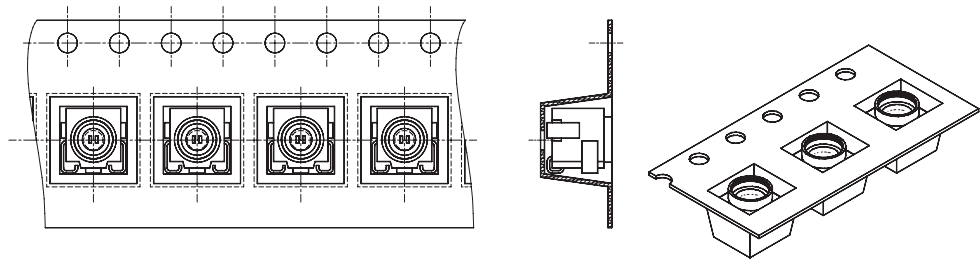
Series MMCX «cube» connectors – packaging

Blister tape supply in accordance with IEC 286-3/EIA-481

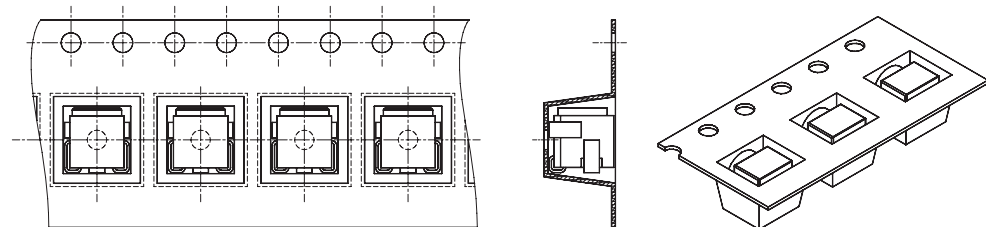
For automated placement the connectors can be supplied on industry standard tape-and-reel. Depending on the application, they are packaged uniformly either for vertical or horizontal mounting.

Bulk supply in bags of one single or 100 pcs. (90_MMCX-S50-0-55)

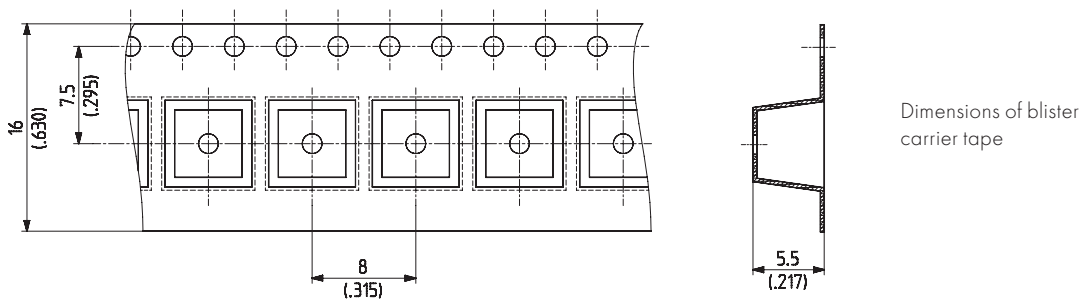
This delivery form supports vertical or horizontal applications of the SMT MMCX connector. It is suitable for manual or automated tube fed pick-and-place assembly.



1. Straight (vertical) application (82_MMCX-S50-0-55)



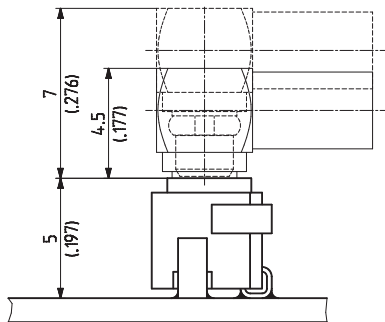
2. Right angle (horizontal) application (85_MMCX-S50-0-55)



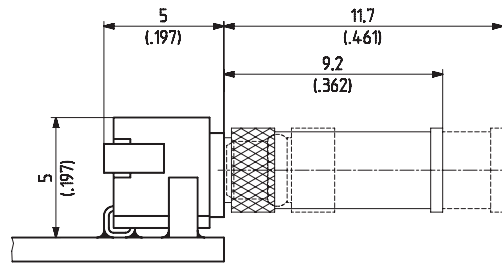
The 16 mm/.63 inches blister tape is delivered on reels of 330 mm/13 inches diameter and in tough cardboard boxes.

Series MMCX «cube» connectors – application notes

Dimensions of mated pair and clearance for mating



Vertical mounting together with a right angle cable connector (can be rotated by 360°).



Horizontal mounting together with a straight cable connector.

Appropriate operation

Surface-mounted electronic components exhibit a lower adherence force to the PCB than through-hole components. The solder joints act as a mechanical fixation to the board and also function as the electrical contact. Therefore the following has to be considered:

- Avoid forces from the cable of the mating connector to the surface mount connector.
Fix the cable sufficiently and in several places.
- Apply only axial forces during the mating and demating of the connector parts.

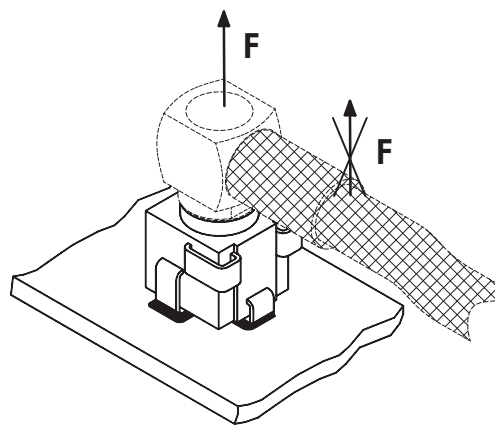
Non-axial forces – such as improper pulling at the cable entry or the cable portion of right angle mating connector – may cause excessive torque forces, which could result in damage to the solder joints.

Recommendation

Application of the assembly tools 74_Z-0-0-225 or 74_Z-0-0-272 when disengaging right angle connectors. The tool 74_Z-0-0-272 can simultaneously be used as a mating support for straight connectors.





Warning:
force must not be applied to this region.

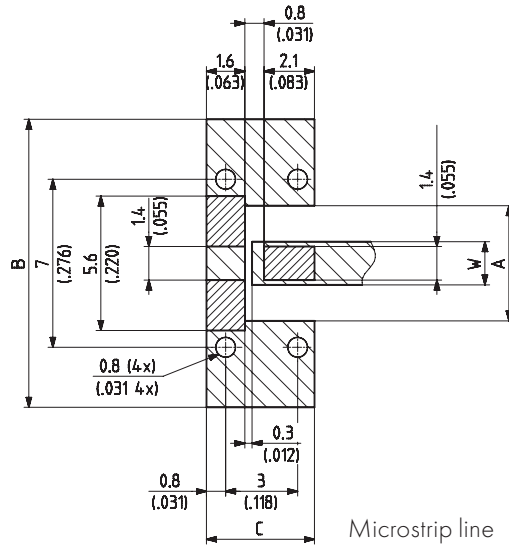


Series MMCX «cube» connectors - application notes

Recommended mounting pattern



Material FR 4 ($\epsilon_r = 4.6$)

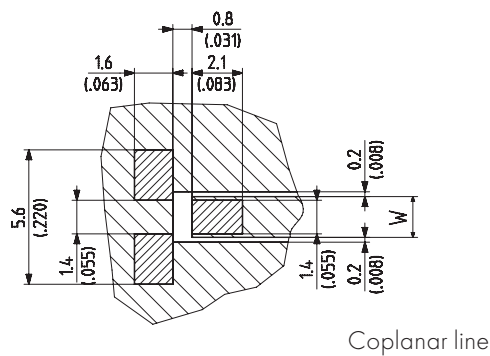
-  Pattern
-  Land (free of solder mask)



PCB thickness	W	A	B	C
1.0 mm / .039 in.	1.8 mm / .071 in.	2.4 mm / .094 in.	12 mm / .472 in.	4.5 mm / .177 in.
1.6 mm / .063 in.	2.8 mm / .110 in.	4.8 mm / .189 in.	16 mm / .630 in.	5.0 mm / .197 in.

Material FR 4 ($\epsilon_r = 4.6$)

-  Pattern
-  Land (free of solder mask)



PCB thickness	W
0.8 mm / .031 in.	1.85 mm / .037 in.
1.0 mm / .039 in.	1.70 mm / .067 in.
1.2 mm / .047 in.	1.60 mm / .063 in.
1.6 mm / .063 in.	1.50 mm / .159 in.

Data valid for PCB material FR 4 ($\epsilon_r = 4.6$)

Series MMCX «cube» connectors – application notes

Automated pick-and-place for MMCX «cube»-connectors

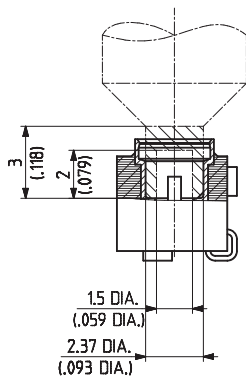
The MMCX «cube» connectors can be processed on all state-of-the-art pick-and-place machines.

Application hints

- Position of the connectors in the carrier tape
For the uniform orientation of the connectors refer to the figures in section «packaging» (see page 75).
- Connector pick up by suction tip
Vertical mounting (82_MMCX-S50-0-55)
You have the choice between the contact of the suction tip on the outer edge of the outer conductor sleeve (convenient circular or square standard tip) or the insertion of a special tip into the connector interface.
When using an insertion tip consider that the outer conductor sleeve is only centered along one axis. A chuck alignment is possible only along this axis, which however is fully sufficient.

Horizontal mounting (85_MMCX-S50-0-55)

The suction tip meets an even surface and can be a suitable standard one:
Vision system alignment inspection
The optical alignment inspection of the MMCX «cube» connector is supported by its asymmetrical contour in vertical as well as horizontal applications.
Placement
For placing the connectors, the special arrangement of the leads must be considered. When applying a suction tip, the eccentricity of the outer conductor sleeve has to be taken into account.



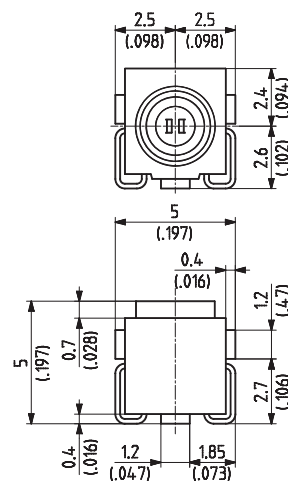
Recommendation for an insertion tip.

Soldering

MMCX «cube» connectors are compatible with reflow soldering methods.
Infrared soldering (IR, IC - max. 260 °C/500 °F, 10 s) is recommended.
Lead free solder pastes (96.5 % tin, 3.5 % silver) can be used with a thickness of 0.20 mm/.008 inches to 0.25 mm/.010 inches if stencilled or screened in accordance with our recommended mounting pattern. The stand-off of 0.4 mm/.016 inches enables an easy visual inspection of the soldered joint.

Cleaning

The stand-off also allows effective cleaning after soldering, if necessary. It is especially advantageous when applying aqueous solutions.
Because of the material used, MMCX «cube» connectors withstand solvents such as alcohols, halogenated hydrocarbons and azeotropic solutions, as well as water mixed with alkaline saponifiers.



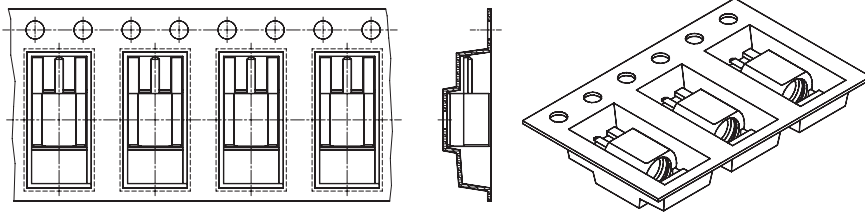
Series MMCX edge mount connectors – packaging

Blister tape supply in accordance with IEC 286-3/EIA-481

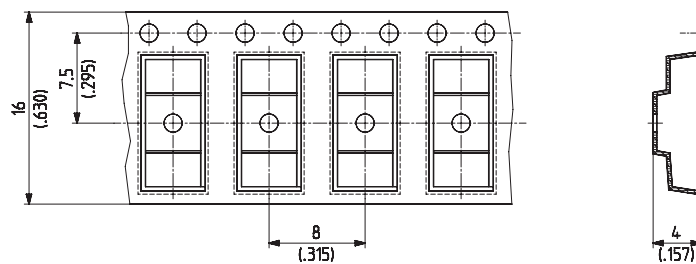
Bulk supply in bags of 100 pcs.

For automated placement the connectors can be supplied on industry standard type-and-reel.

This delivery form is suitable for manual or automated tube fed pick-and-place assembly.



Straight (horizontal) application

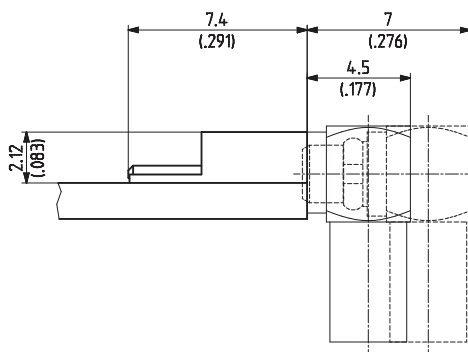


Dimensions of blister carrier tape

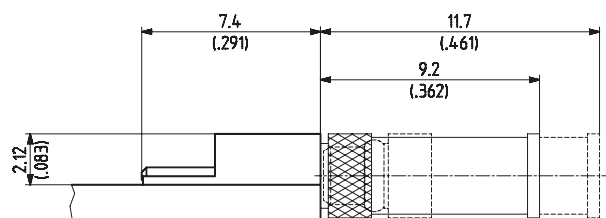
The 16 mm/.63 inches blister tape is delivered on reels of 330 mm/13 inches diameter and in tough cardboard box.

Series MMCX edge mount connectors – application notes

Dimensions of mated pair and clearance for mating



Horizontal mounting together with a right angle cable connector.



Horizontal mounting together with a straight cable connector.

Series MMCX edge mount connectors – application notes

Appropriate operation for MMCX edge mount

For appropriate operation the following has to be considered:

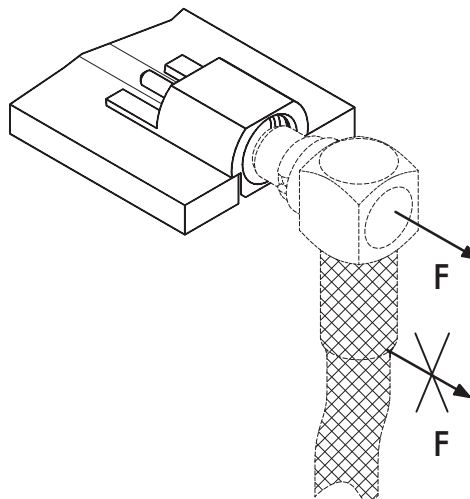
- Avoid forces from the cable of the mating connector to the surface mount connector.
Fix the cable sufficiently and in several places.
- Apply only axial forces during the mating and demating of the connector parts.

Non-axial forces – such as improper pulling at the cable entry or the cable portion of a right angle mating connector – may cause excessive torque forces, which could result in damage to the solder joints.

For further information about soldering or cleaning, please see page 74.



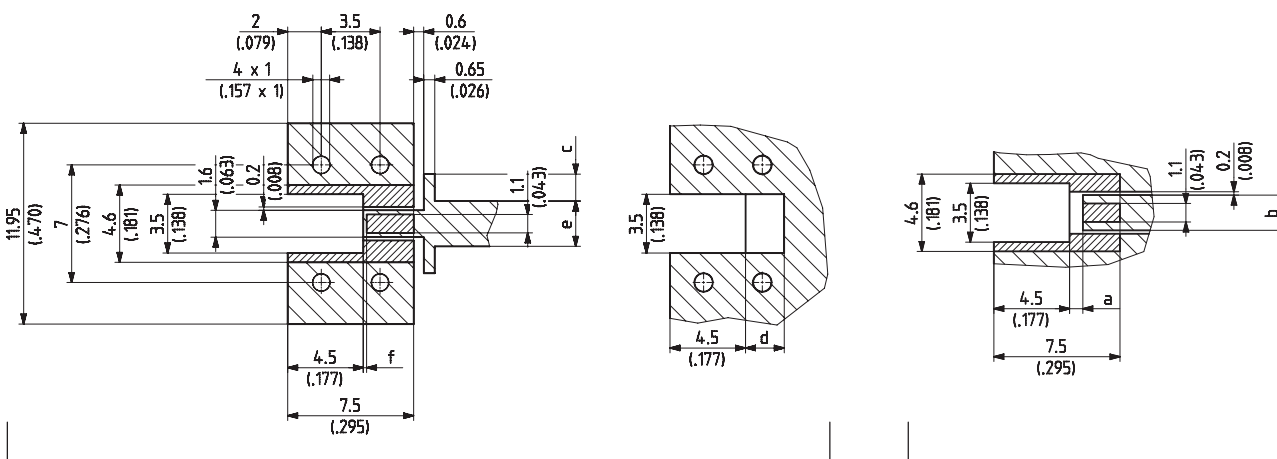
Warning:
force must not be applied to this region.



Recommended mounting pattern for MMCX edge mount

Material FR 4 ($\epsilon_r = 4.6$)

- Pattern
- Land (free of solder mask)



Microstrip line

Coplanar line

PCB thickness	a	b	c	d	e	f
0.8 mm / .031 in.	1.6 / .063	1.90 / .075		1.1 / .043	1.4 / .055	1.0 / .039
1.0 mm / .039 in.	1.4 / .055	1.75 / .069	0.3 / .012	1.2 / .047	1.8 / .071	0.9 / .035
1.6 mm / .063 in.	0.8 / .031	1.55 / .061	1.6 / .063	2.3 / .091	2.8 / .110	0.4 / .016

Series MCX 50 Ω - micro miniature connectors

Description

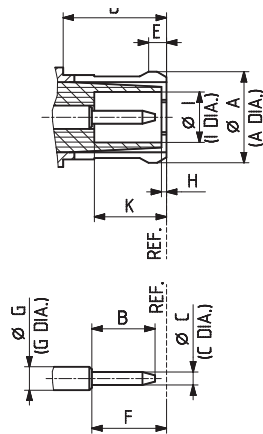
HUBER+SUHNER MCX micro miniature snap-on connectors offer you an excellent blend of size, weight, durability and performance for applications such as mobile and fixed telecommunications, in GPS applications and in test+measurement systems for testing instruments and apparatus. They are designed for frequencies up to 6 GHz and are tested according to the international standard CECC 22220. And they meet all the high requirements that micro coaxial connectors are expected to satisfy today.

Content

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Interface dimensions (mm/inches)

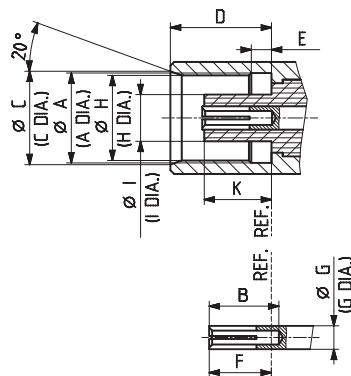
Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	3.72/.146*	3.80/.150*	3.60/.142	3.70/.146
B	2.49/.098	2.59/.102	2.80/.110	---
C	0.48/.019	0.53/.021	3.75/.148	3.85/.152
D	4.15/.163	---	4.00/.157	4.12/.162
E	0.70/.028	0.75/.030	0.75/.030	0.85/.033
F	2.80/.110	3.20/.126	2.30/.091	2.80/.110
G	0.95/.037 nom.		0.95/.037 nom.	
H	---	0.30/.012	3.42/.135	3.48/.137
I	2.00/.079	2.07/.081	1.80/.071	1.98/.078
K	2.80/.110	3.20/.126	2.60/.102	2.80/.110

* Prior to slotting.

Jack (female)



Interface dimensions conformable to the standards:

International	IEC 60169-36
Europe	CECC 22220

Series MCX 50 Ω – technical data

Electrical data	CECC 22000	Requirements
Impedance		50 Ω
Frequency range		DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	4.4.5	≥ 750 V rms, 50 Hz (depending on cable)
Working voltage (at sea level) - unmated		≥ 170 V rms, 50 Hz (depending on cable)
Working voltage (at 21 000 m / 70 000 ft.) - unmated		≥ 42 V rms, 50 Hz (depending on cable)
Insulation resistance	4.4.4	≥ 10 ⁴ MΩ
Contact resistance - centre contact	4.4.2	≤ 5.0 mΩ
- outer contact	4.4.3	≤ 1.0 mΩ
RF leakage (measured at 1 GHz) - connectors for flexible cables - connectors for semi-rigid cables	4.4.8	≥ 60 dB ≥ 70 dB

Mechanical data	CECC 22000	Requirements
Engagement force	4.5.1	≥ 25 N / 5.6 lbs
Disengagement force	4.5.1	8 N ... 20 N / 1.8 lbs ... 4.5 lbs
Contact captivation	4.5.2	≥ 10 N / 2.3 lbs
Cable retention force ¹⁾	4.5.5	see pages 32 - 37
Durability (matings)	4.7.1	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	CECC 22000	Requirements
Temperature range		-55 °C ... +155 °C / -67 °F ... +311 °F
Climatic category		IEC → 55/155/21
Thermal shock	4.6.7	MIL-STD-202, method 107, condition F
High temperature endurance test	4.7.2	MIL-STD-202, method 108A, condition D
Moisture resistance	4.6.6	MIL-STD-202, method 106
Corrosion	4.6.10	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	4.6.3	MIL-STD-202, method 204, condition D

Series MCX 50 Ω – technical data

Material data		
Connector parts	Material	Plating
Bodies	brass	gold / SUCOPLATE® / SUCOPRO® gold plating
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy	gold / SUCOPRO® gold plating
Outer contacts - plug - jack	copper-beryllium alloy brass	gold / SUCOPRO® gold plating SUCOPLATE®
Crimp ferrules	copper / brass	gold / SUCOPLATE® / SUCOPRO® gold plating
Insulators	PTFE or PFA	

Other material and platings on request.

Some connectors may have a specification that differs from the above mentioned data.

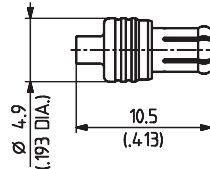
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series MCX 50 Ω – cable connectors

Straight cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

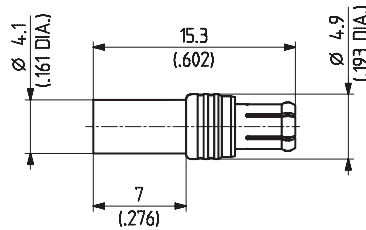
- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_MCX-50-1-14/111_NE	23032081	Y2, Y15 (EZ_47)	single	27413
11_MCX-50-2-19/111_NH	23032147	Y3, Y11, Y16 (EZ_86)	bulk 100 pcs.	27496
11_MCX-50-2-19/111_NE 11_MCX-50-3-1/111_NH	23024699 84006763	Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	0000200108

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



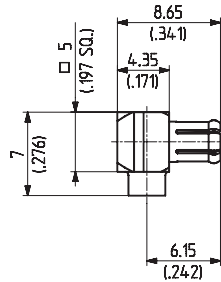
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MCX-50-1-13/133_NH	22658307	U1 (EF_178)	bulk 100 pcs.	27316	1 A
11_MCX-50-1-13/111_NH	23002830	U1 (EF_178)	bulk 100 pcs.	27316	
11_MCX-50-2-15/111_NE 11_MCX-50-2-15/111_NH	84018641 23000440	U4 (EF_316_D)	single bulk 100 pcs.	27306	
11_MCX-50-2-15/133_NH	23000566	U4 (EF_316_D)	bulk 100 pcs.	27306	
11_MCX-50-2-16/111_NE 11_MCX-50-2-16/111_NH	84022831 22658275	U2 (EF_316)	single bulk 100 pcs.	27306	
11_MCX-50-2-16/133_NH	23000437	U2 (EF_316)	bulk 100 pcs.	27306	

Series MCX 50 Ω – cable connectors

Right angle cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

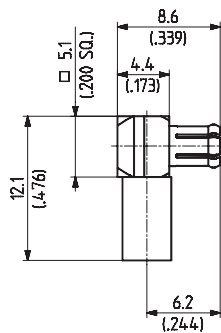
- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_MCX-50-1-11/111_NE 16_MCX-50-1-11/111_NH	23024700 23032063	Y2, Y15 (EZ_47)	single bulk 100 pcs.	27495
16_MCX-50-2-104/111_NH	23032067	Y3, Y11, Y16 (EZ_86)	bulk 100 pcs.	27308
16_MCX-50-3-8/111_NH	23012471	Y5, Y17 (EZ_141)	bulk 100 pcs.	27401

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458



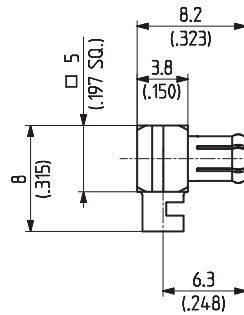
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MCX-50-1-7/111_NH	23000443	U1 (EF_178)	bulk 100 pcs.	27319	A
16_MCX-50-1-7/133_NH	22658308	U1 (EF_178)	bulk 100 pcs.	27319	
16_MCX-50-2-11/133_NE 16_MCX-50-2-11/133_NH	22660003 22650803	U4 (EF_316_D)	single bulk 100 pcs.	27102	
16_MCX-50-2-11/111_NH-1	23015358	U4 (EF_316_D)	bulk 100 pcs.	27102	
16_MCX-50-2-14/133_NE 16_MCX-50-2-14/133_NH	22660002 22660001	U2 (EF_316)	single bulk 100 pcs.	27102	
16_MCX-50-2-14/111_NH	23000445	U2 (EF_316)	bulk 100 pcs.	27102	

Series MCX 50 Ω – cable connectors

Right angle cable plugs (male)

For flexible cables

- Low profile
- Cable entry soldered
- Centre contact soldered

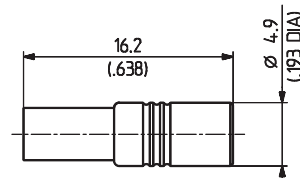


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_MCX-50-2-102/111_NH-1	23000454	U2 (EF_316)	bulk 100 pcs.	27307

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_MCX-50-1-11/111_NE	84023972	U1 (EF_178)	single	27317	1 A
21_MCX-50-1-11/111_NH	23005297		bulk 100 pcs.		
21_MCX-50-2-12/111_NE	23032052	U4 (EF_316_D)	single	27309	
21_MCX-50-2-12/133_NH	22658278	U4 (EF_316_D)	bulk 100 pcs.	27309	
21_MCX-50-2-13/111_NH	23005298	U2 (EF_316)	bulk 100 pcs.	27309	
21_MCX-50-2-13/133_NH	22658279	U2 (EF_316)	bulk 100 pcs.	27309	

Series MCX 50 Ω – cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid, SUCOFORM and MULTIFLEX cables

- Cable entry soldered
- Centre contact soldered

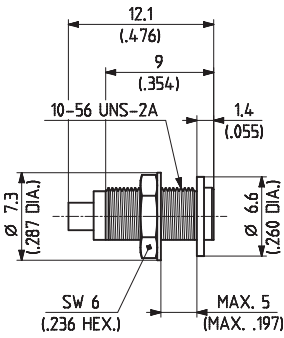


Fig. 1

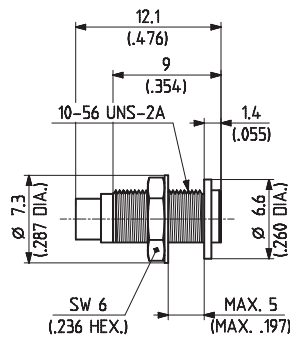
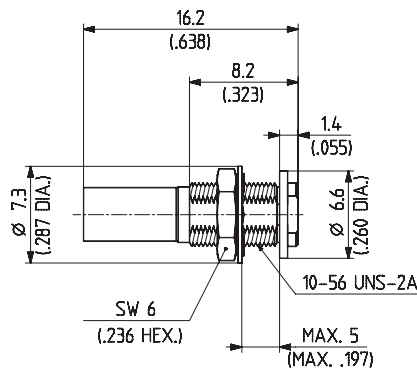


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_MCX-50-1-3/111_NE	22641648	Y2, Y15 (EZ_47)	single	3100	ML 11	1
24_MCX-50-2-3/111_NE	22543580	Y3, Y11 (EZ_86)				2

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_MCX-50-1-13/111_NH	23005299	U1 (EF_178)	bulk 100 pcs.	27317	ML 11	1 A
24_MCX-50-1-13/133_NH	22658310	U1 (EF_178)		27317		
24_MCX-50-2-6/111_NH	23005300	U4 (EF_316_D)		27309		
24_MCX-50-2-7/111_NH	23000468	U2 (EF_316)		27309		

Series MCX 50 Ω – receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- Front mounting

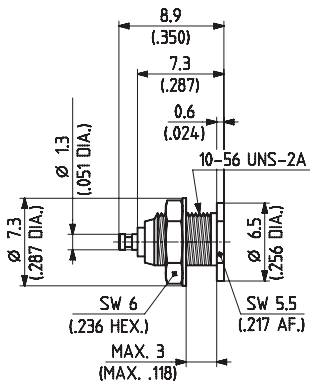


Fig. 1

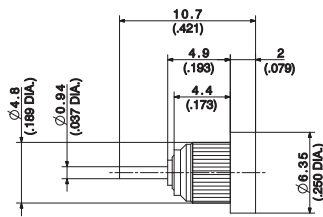


Fig. 2 (press-in)

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.
22_MCX-50-0-2/111_NE	22640171	single	ML 11	1
22_MCX-50-0-2/111_NH	22646960	bulk 100 pcs.		
22_MCX-50-0-2/133_NE	22643633	single	ML 11	1
22_MCX-50-0-2/133_NH	22644433	bulk 100 pcs.		
22_MCX-50-0-19/111_NH	22652984	bulk 100 pcs.	ML 103	2
22_MCX-50-0-19/133_NH	23019789	bulk 100 pcs.	ML 103	

Series MCX 50 Ω – PCB connectors

Straight PCB plugs (male)

- With stand-off
- 2.54 / .100 in. grid

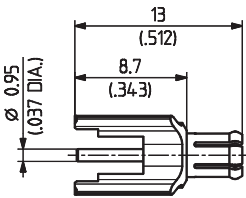


Fig. 1

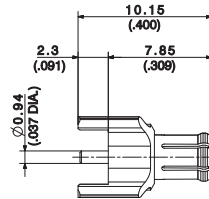
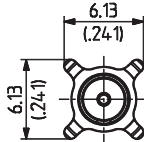
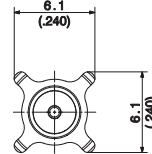


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.
81_MCX-50-0-6/111_NE	84023713	single	ML 15	1
81_MCX-50-0-6/111_NH	23005296	bulk 100 pcs.		
81_MCX-50-0-9/111_NH	23026871	bulk 100 pcs.		2

Straight PCB jacks (female)

- 2.54 / .100 in. grid

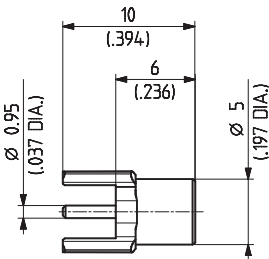


Fig. 1

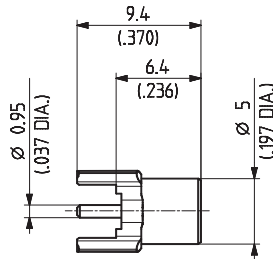
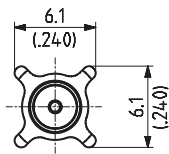
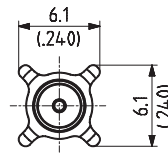


Fig. 2

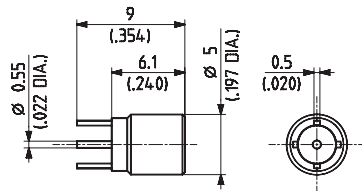


HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
82_MCX-50-0-17/111_NH-1	23006209	bulk 100 pcs.	ML 15	without stand-off	1
82_MCX-50-0-19/111_NE	84018352	single		with stand-off	
82_MCX-50-0-19/111_NH-1	22658305	bulk 100 pcs.			2
82_MCX-50-0-19/111_NM	23000573	tape and reel			

Series MCX 50 Ω – PCB connectors

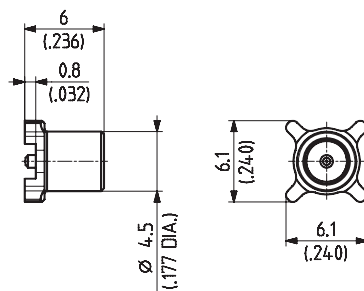
Straight PCB jacks (female)

- 1.27 mm / .05 in. grid
- Space saving version



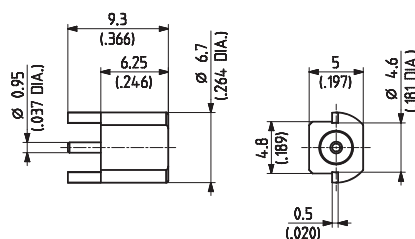
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
82_MCX-50-0-10/111_NE	22641649	single	ML 44	without stand-off
82_MCX-50-0-10/111_NH	22651980	bulk 100 pcs.		

- Surface mount type SMT



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
82_MCX-S50-0-29/111_NE	84018482	single	ML 120
82_MCX-S50-0-29/111_NH	23001527	bulk 100 pcs.	
82_MCX-S50-0-29/111_NM	22658306	tape and reel	

- Surface mount type SMT
- Edge mount

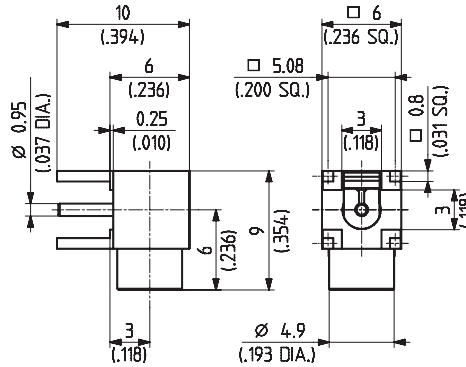


HUBER+SUHNER type	Item no.	Packaging	Mounting hole
82_MCX-S50-0-22/111_NE	22651467	single	ML 121
82_MCX-S50-0-22/111_NM	84011207	tape and reel	

Series MCX 50 Ω – PCB connectors

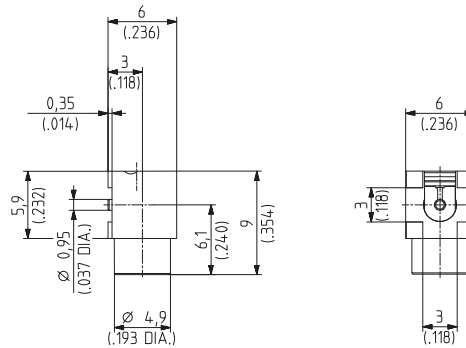
Right angle PCB jacks (female)

- 2.54 mm / .100 in. grid



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
85_MCX-50-0-16/111_NE	84018523	single	ML 15
85_MCX-50-0-16/111_NH	23001545	bulk 100 pcs.	
85_MCX-50-0-16/111_NM	84030779	tape and reel	

- Surface mount type SMT



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
85_MCX-S50-0-25/111_NH	23005091	bulk 100 pcs.	ML 123
85_MCX-S50-0-25/111_NM	84036471	tape and reel	



Series MCX 75 Ω – micro miniature connectors

Description

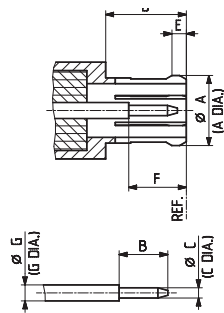
HUBER+SUHNER MCX 75 Ω connectors are derived from the MCX 50 Ω series but have a characteristic impedance of 75 Ω. They offer outstanding electrical properties up to 6 GHz and allow the transmission of digital signals with high bit rates.

Content

Description	89
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PCB connectors	92

Interface dimensions (mm/inches)

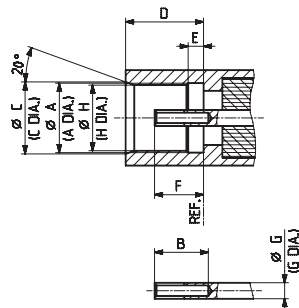
Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	3.72/.146*	3.80/.150*	3.60/.142	3.70/.146
B	2.49/.098	2.59/.102	2.80/.110	---
C	0.48/.019	0.53/.021	3.75/.148	3.85/.152
D	4.15/.163	---	4.00/.157	4.12/.162
E	0.70/.028	0.75/.030	0.75/.030	0.85/.033
F	2.80/.110	3.20/.126	2.30/.091	2.80/.110
G	0.83/.033 nom.		0.83/.033 nom.	
H	3.42/.135	3.48/.137		

* Prior to slotting.

Jack (female)



Interface dimensions conformable to the standards:

Intermateable with MCX 50 Ω connectors acc. to CECC 22220.

Series MCX 75 Ω – technical data

Electrical data	Requirements
Impedance	75 Ω
Frequency range	DC ... 6 GHz
Dielectric withstanding voltage (at sea level)	≥ 500 V rms, 50 Hz (depending on cable)
Working voltage (at sea level) - unmated	≥ 170 V rms, 50 Hz (depending on cable)
Working voltage (at 21 000 m / 70 000 ft.) - unmated	≥ 45 V rms, 50 Hz (depending on cable)
Insulation resistance	≥ 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 5.0 mΩ ≤ 2.5 mΩ

Mechanical data	Requirements
Engagement force	≥ 25 N / 5.6 lbs
Disengagement force	8 N ... 20 N / 1.8 lbs ... 4.5 lbs
Contact captivation	≥ 10 N / 2.3 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition F
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition D

Material data		
Connector parts	Material	Plating
Bodies	brass	gold / SUCOPLATE® / SUCOPRO® gold plating
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy	gold / SUCOPRO® gold plating
Outer contacts (resilient)	copper-beryllium alloy	gold / SUCOPLATE® / SUCOPRO® gold plating
Crimp ferrules	copper	SUCOPLATE® / SUCOPRO® gold plating
Insulators	PTFE or PFA	

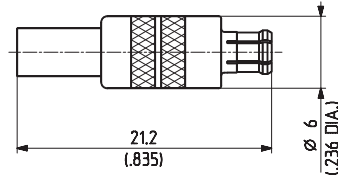
Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series MCX 75 Ω – cable connectors

Straight cable plugs (male)

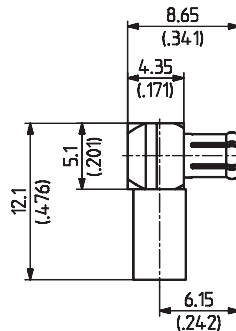
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_MCX-75-2-1/113_NE	22646946	U5 (RG_187_A/U)	single	9196	1 A
11_MCX-75-2-6/113_NE	22650698	R8 (K_02253_D-02)			

Right angle cable plugs (male)

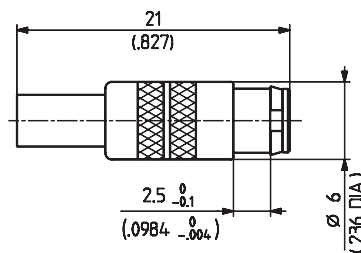
- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_MCX-75-2-5/133_NH	23008072	U5 (RG_187_A/U)	bulk 100 pcs.	27383	A

Straight bulkhead cable jacks (female)

- HUBER+SUHNER® full crimp
- «Snap-on» panel mounting
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_MCX-75-2-1/113_NE	22646948	U5 (RG_187_A/U)	single	9196	ML 82	1 A

Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series MCX 75 Ω – PCB connectors

Straight PCB jacks (female)

- 2.54 / .100 in.

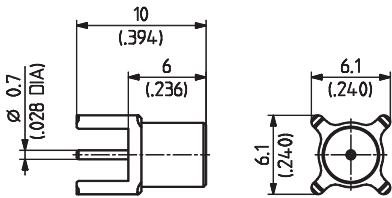


Fig. 1

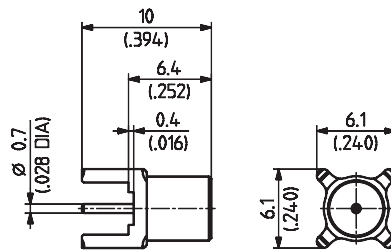
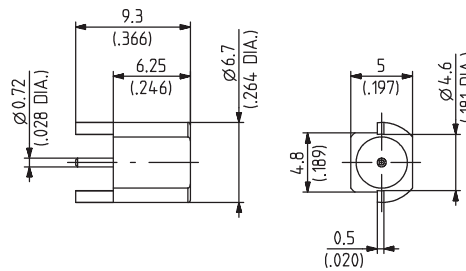


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
82_MCX-75-0-4/111_NE	84023729	single	ML 15	without stand-off	1
82_MCX-75-0-4/111_NH	23004043	bulk 100 pcs.			
82_MCX-75-0-5/111_NH	23004046	bulk 100 pcs.		with stand-off	2

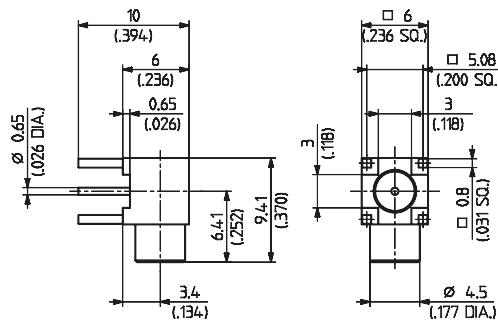
- Surface mount type SMT
- Edge mount



HUBER+SUHNER type	Item no.	Packaging
82_MCX-S75-0-2/111_NE	22651011	single
82_MCX-S75-0-2/111_NH	84020046	bulk 100 pcs.
82_MCX-S75-0-2/111_NM	84017665	tape and reel

Right angle PCB jacks (female)

- 2.54 / .100 in.



HUBER+SUHNER type	Item no.	Packaging
85_MCX-75-0-1/111_NE	22649202	single
85_MCX-75-0-1/111_NH	22650766	bulk 100 pcs.

Series MMPX - 67 GHz/80 Gbps snap-on connectors

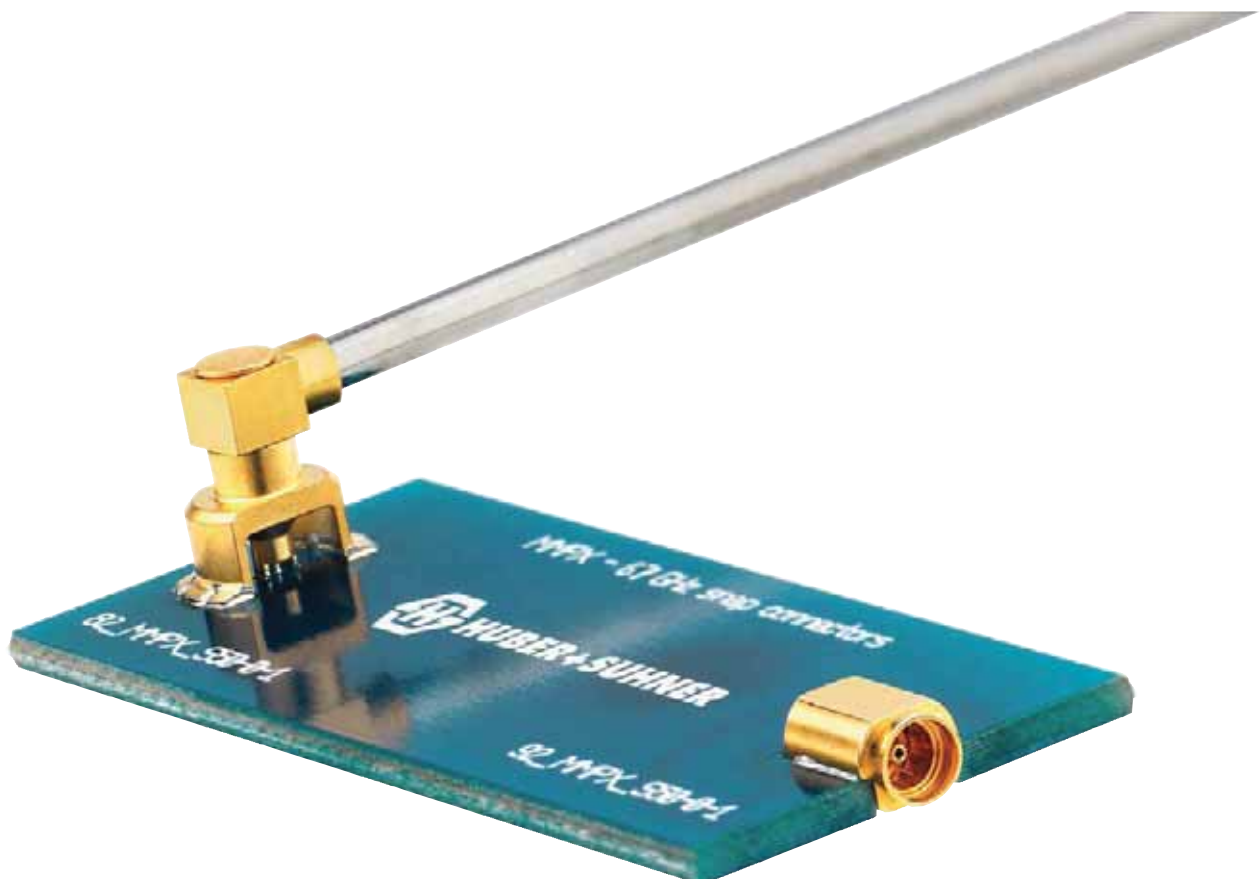
Description

The snap-on connector family MMPX is the most ideal coaxial-to-PCB system solution for operating frequencies up to 67 GHz and data rates up to 80 Gbps. The comprehensive product range consists of cable connectors and assemblies, PCB connectors and adaptors to open standards. MMPX connectors feature excellent electrical performance at smallest mechanical dimensions. The broadband characteristics, the small size and the outstanding performance permit new solutions for applications in numerous markets such as high speed digital testing and radio frequency testing (60 GHz WPAN), industrial, mobile communication, space and defence.

Interface dimensions conformable to the standards:
HUBER+SUHNER proprietary interface standard.

Content

Description	93
Smallest dimensions and highest performance	94
Technical data	95
Cable connectors	96
PCB connectors	98
Decoupling tools	100



Series MMPX – smallest dimensions and highest performance

Key features

- True 67 GHz/80 Gbps coaxial-to-PCB transition
- Broadband characteristics from DC to 67 GHz
- Excellent return loss
- Excellent shielding – low cross-talk
- Via-in-pad capable
- 5.08 mm pitch (0.2")
- Mechanically robust design
- Extensive technical support
- 3D-files, modelling data and customised footprints

Benefits

- Future proof design
Thanks to the broadband characteristics, the excellent return loss and the true 67 GHz coaxial-to-PCB transition MMPX helps in developing future proof RF systems.
- Quick and reliable mating
The MMPX snap-on mechanism is completely decoupled from the electrical path and therefore specifically optimised for quick and reliable mating.
- Space saving
The minimal pitch on boards of 5.08 mm (0.2 inch) saves expensive board material.
- One connector for several applications
The unique electrical and mechanical performance as well as the compact form makes MMPX ideal for a variety of applications.
- Overall cost saving
The attractive pricing, the extensive technical support including footprint service and the HUBER+SUHNER one-stop shop approach minimises the overall costs for design-ins and trade procedures.

Comprehensive product range

- Various PCB connector and cable connector types
- Broad range of standard HUBER+SUHNER MULTIFLEX 86 assemblies (MMPX to SMA, 3.5 mm, 2.92 mm and 1.85 mm / phase match: +/- 1 ps absolute)
- Customised assemblies with semi-rigid, HUBER+SUHNER SUCOFORM and MULTIFLEX cables
- Adaptors to 2.92 mm and 1.85 mm

Series MMPX – technical data

Electrical data				
Impedance	50 Ω			
Frequency range	DC ... 67 GHz			
Return loss	typical values for coaxial-to-PCB transition (measured) ¹⁾			
	configuration	DC ... 26.5 GHz	26.5 ... 50 GHz	50 ... 67 GHz
	straight PCB jack mated with a straight cable plug	25 dB	20 dB	10 dB
	straight PCB jack mated with a right angle cable plug	25 dB	20 dB	10 dB
	edge mount PCB jack mated with a straight cable plug	25 dB	20 dB	16 dB
RF-leakage (interface only)	-60 dB (DC ... 67 GHz)			
Dielectric withstanding voltage (at sea level)	500 V rms, 50 Hz			
Working voltage (at sea level)	≤ 170 V rms, 50 Hz			
Insulation resistance	≥ 1 GΩ			
Contact resistance				
- centre contact	≤ 5 mΩ			
- outer contact	≤ 2 mΩ			

¹⁾ Valid for recommended PCB material/stacking only!

Mechanical data	
Engagement force	max. 30 N / 6.7 lb _f (typical 20 N / 4.4 lb _f)
Disengagement force	max. 30 N / 6.7 lb _f (typical 15 N / 3.3 lb _f)
Durability (matings)	100 (adaptors: 500)

Environmental data	Testing conditions
Temperature range	-65 °C ... +155 °C / -85 °F ... +311 °F
Thermal shock	MIL-STD-202, method 107 G, condition A/F
High temperature endurance	IEC-61-169-1
Corrosion	MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204 D, condition D
Mechanical shock	MIL-STD-202, method 213 D, condition I
Solderability	MIL-STD-883D

Processing data		
Typical values adherent to the PCB	straight PCB jack full SMT	edge mount PCB full SMT
- shearing	90 N / 20.2 lb _f	70 N / 15.7 lb _f
- pulling (vertical to the PCB)	50 N / 11.2 lb _f	no standard value available

Material data		
Male connector parts	Material	Plating
Centre contact	CuBe / brass	SUCOPRO® gold plating
Outer contact	brass	SUCOPRO® gold plating
Body	brass	SUCOPRO® gold plating
Insulators	PTFE	
Female connector parts		
Centre contact	CuBe	SUCOPRO® gold plating
Outer contact	CuBe	SUCOPRO® gold plating
Body	brass	SUCOPRO® gold plating
Insulators	PTFE	

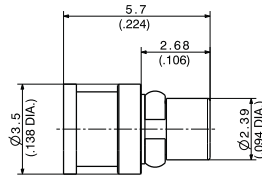
Some connectors may have a specification that differs from the mentioned data.

Series MMPX – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- Outer contact soldered
- Center contact soldered
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended



HUBER+SUHNER type	Item no.	Cable size	Packaging	Notes
11_MMPX-50-2-1/111_NE	84022225	0.086"	single	Air dielectric – no support bead. For optimal electrical performance. For semi-rigid cables only!

For semi-rigid, semi-flexible or flexible cables

- Outer contact soldered
- Center contact plugged
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended

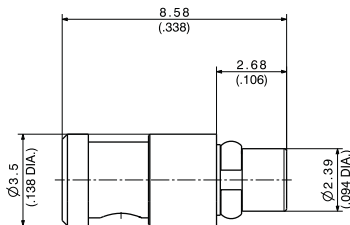


Fig. 1

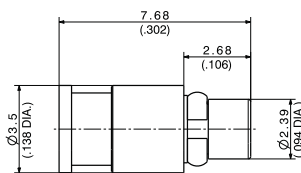


Fig. 2

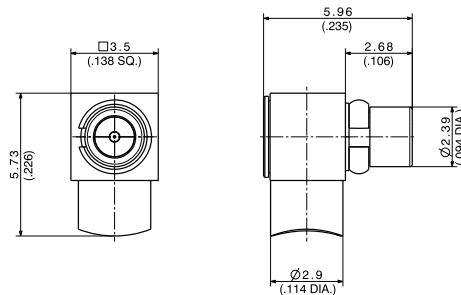
HUBER+SUHNER type	Item no.	Cable size	Packaging	Notes	Fig.
11_MMPX-50-1-4/111_NE	84122130	0.053"	single	for HUBER+SUHNER MULTIFLEX cables	1
11_MMPX-50-2-2/111_NE	84022228	0.086"		for semi-rigid and HUBER+SUHNER SUCOFORM cables	2
11_MMPX-50-2-3/111_NE	84089228	0.086"		for HUBER+SUHNER MULTIFLEX cables	2

Series MMPX – cable connectors

Right angle cable plugs (male)

For semi-rigid, semi-flexible or flexible cables

- Outer contact soldered
- Center contact plugged
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended

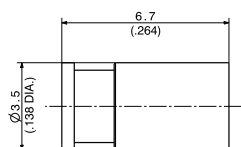


HUBER+SUHNER type	Item no.	Cable size	Packaging	Notes
16_MMPX-50-2-1/111_NE	84022227	0.086"	single	for semi-rigid and HUBER+SUHNER SUCOFORM cables
16_MMPX-50-2-2/111_NE	84067778	0.086"		for HUBER+SUHNER MULTIFLEX cables

Straight cable jack (female)

For semi-rigid, semi-flexible or flexible cables

- Outer contact soldered
- Center contact soldered
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended

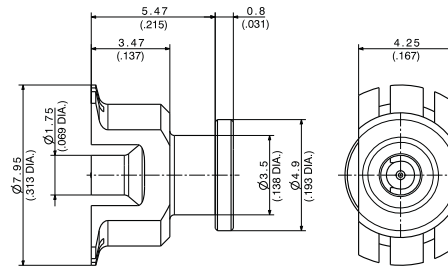


HUBER+SUHNER type	Item no.	Cable size	Packaging	Notes
21_MMPX-50-2-1/111_NE	84022226	0.086"	single	for semi-rigid and HUBER+SUHNER SUCOFORM cables

Series MMPX – PCB connectors

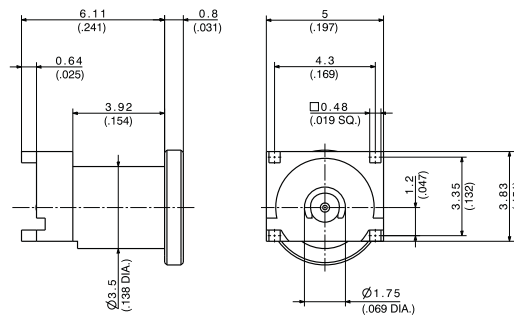
Straight PCB jacks (female)

- Full SMD
- Super structure for high peel strength
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended



HUBER+SUHNER type	Item no.	PCB footprint	Packaging	Notes
82_MMPX-S50-0-2/111_NM	84096711	on request	tape	blister tape containing 10 pcs.
82_MMPX-S50-0-2/111_NM-1	84096752		tape/reel	reeled blister tape containing 750 pcs.

- Semi SMD
- Short leg version
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended

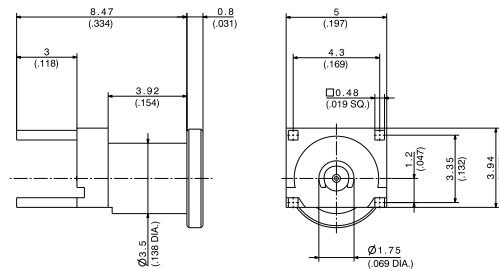


HUBER+SUHNER type	Item no.	PCB footprint	Packaging	Notes
96_MMPX-50-0-2/111_NM-1	84093961	on request	tape	blister tape containing 10 pcs.
96_MMPX-50-0-2/111_NM	84093966		tape/reel	reeled blister tape containing 750 pcs.

Series MMPX – PCB connectors

Straight PCB jacks (female)

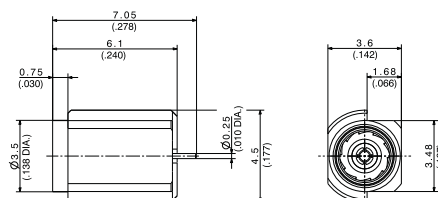
- Semi SMD
- Long leg version
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended



HUBER+SUHNER type	Item no.	PCB footprint	Packaging	Notes
96_MMPX-50-0-3/111_NM-1	84099981	on request	tape	blister tape containing 10 pcs.
96_MMPX-50-0-3/111_NM	84099988		tape/reel	reeled blister tape containing 450 pcs.

Straight PCB jacks (female), edge-mount

- Full SMD
- PCB cut out necessary
- Decoupling tool 74_Z-0-0-491 or 74_Z-0-0-555 recommended



HUBER+SUHNER type	Item no.	PCB footprint	Packaging	Notes
92_MMPX-S50-0-1/111_NM	84009138	on request	tape	blister tape containing 10 pcs.
92_MMPX-S50-0-1/111_NM-1	84009140		tape/reel	reeled blister tape containing 500 pcs.

Series MMPX – decoupling tools

«All-round» decoupling tool

This decoupling tool is suitable for all kind of MMPX combinations.

HUBER+SUHNER type 74_Z-0-0-555
Item no. 84020011



«PCB» decoupling tool

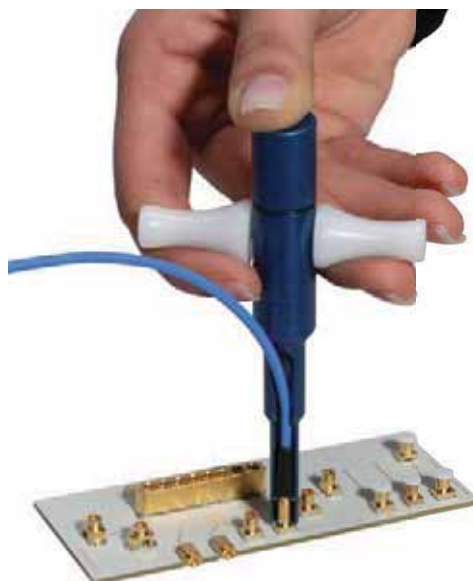
This high-end decoupling tool is especially suited for decoupling MMPX combinations when the PCB connectors are placed very close to each other. The anodized surface is non-conductive and helps to prevent short-cutting circuits on the PCB.

Note: Suitable for flexible cables only!

Possible combination of patterns

- 11_MMPX / 82_MMPX
- 11_MMPX / 92_MMPX
- 11_MMPX / 96_MMPX
- 16_MMPX / 82_MMPX
- 16_MMPX / 96_MMPX

HUBER+SUHNER type 74_Z-0-0-491
Item no. 84114252



Series SMB – subminiature connectors

Description

The HUBER+SUHNER subminiature connectors series SMB and SMC have the same basic design. They only differ with regard to their coupling mechanism. HUBER+SUHNER SMB subminiature connectors are suitable for applications from DC up to 4 GHz.

Coupling mechanism

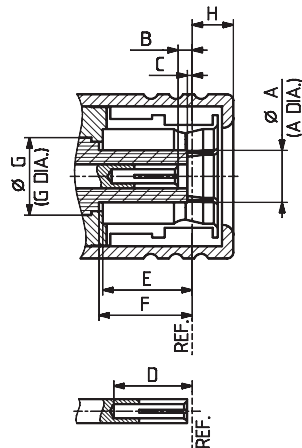
The SMB snap-on mechanism provides a fast and reliable connection for applications with high packing density.

Content

Description	101
Coupling mechanism	101
Interface dimensions in mm / inches	101
Technical data	102
Cable connectors	103
Receptacles with solder end	107
PCB connectors	108

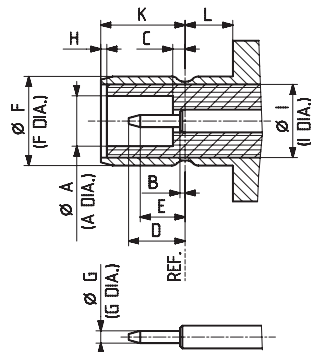
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
	---	2.06/.081	2.08/.082	---
B	0.18/.007	0.94/.037	---	0.18/.007
C	0.18/.007	---	---	0.18/.007
D	2.97/.117	---	---	2.97/.117
E	3.58/.141	---	1.32/.052	---
F	3.58/.141	---	3.66/.144	3.71/.146
G	3.05/.120 nom.		0.48/.019	0.53/.021
H	---	1.63/.064	0.00/.000	---
I	---	---	3.05/.120 nom.	
K	---	---	3.33/.131	3.58/.141
L	---	---	1.65/.065	---

Jack (female)



Interface dimensions conformable to the standards:

International:	IEC 60169-10
Europe:	CECC 22130
USA:	MIL-C-39012 SMB
	Interface MIL-STD-348a/311

Series SMB – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 4 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz (depending on cable)
Working voltage (at sea level)	250 V rms for cables with 1 mm / 0.039 in. dielectric 335 V rms for cables with 2 mm / 0.078 in. dielectric
Insulation resistance	≥10 ⁴ MΩ
Contact resistance - centre contact - outer contact	≤ 5 mΩ ≤ 2.5 mΩ
RF-leakage (measured at 1 GHz)	≥ 55 dB

Mechanical data	Requirements
Engagement force	8 N ... 63 N / 1.8 lbs ... 14.2 lbs
Disengagement force	8 N ... 63 N / 1.8 lbs ... 14.2 lbs
Contact captivation	≥ 18 N / 4.0 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B

Material data		
Connector parts	Material	Plating
Bodies	brass	gold or SUCOPLATE®
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
Crimp ferrules	copper/brass	gold or SUCOPLATE®
Springs and washers	copper-beryllium alloy	gold or SUCOPLATE®
Insulators	PTFE or PFA	

Some connectors may have a specification that differs from the above mentioned data.

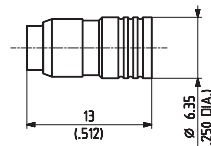
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series SMB – cable connectors

Straight cable plugs (male)

For semi-rigid cables

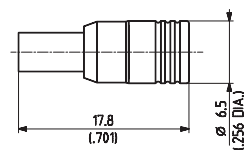
- Open entry
- Cable entry soldered
- Centre contact crimp or soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_SMB-50-2-13/111_NE 11_SMB-50-2-13/111_NH	22543362 22658765	Y3, Y11, (EZ_86)	single bulk 100 pcs.	9002	1

For flexible cables

- Closed entry
- HUBER+SUHNER® full crimp
- Tapper sleeves see 458



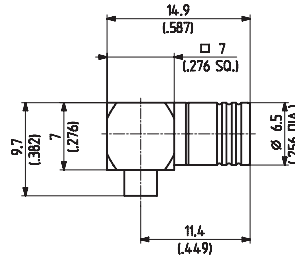
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Notes
11_SMB-50-1-40/111_NE 11_SMB-50-1-40/111_NH	22648050 22650186	U1 (RG_178_B/U)	single bulk 100 pcs.	3077	1 A	low retention
11_SMB-50-2-40/111_NE 11_SMB-50-2-40/111_NH	22648051 23014146	U2 (RG_316/U)	single bulk 100 pcs.			
11_SMB-50-2-40/133_NE 11_SMB-50-2-40/133_NH	22648498 22650179		single bulk 100 pcs.			
11_SMB-50-2-41/111_NE 11_SMB-50-2-41/111_NH	22648052 22650536	U4 (K-02252_D)	single bulk 100 pcs.			

Series SMB – cable connectors

Right angle cable plugs (male)

For semi-rigid cables

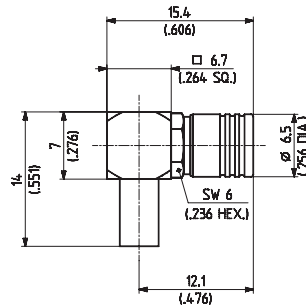
- Closed entry
- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_SMB-50-2-23/111_NE	22644079	Y3, Y11 (EZ_86)	single	9160

For flexible cables

- Closed entry
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



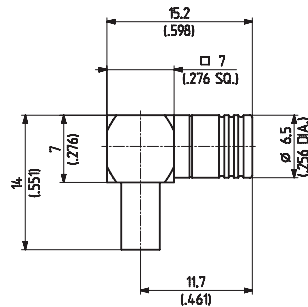
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Notes
16_SMB-50-2-110/111_NE	22659113	U2 (RG_316_/U)	single	3096	1 A	high retention, open entry
16_SMB-50-2-110/111_NH	22659114	U2 (RG_316_/U)	bulk 100 pcs.			
16_SMB-50-2-110/133_NH	22659116	U2 (RG_316_/U)	bulk 100 pcs.			
16_SMB-50-2-111/111_NH	22659120	U4 (K-02252_D)	bulk 100 pcs.			
16_SMB-50-2-111/111_NH-1	23015343	U4 (K-02252_D)	bulk 100 pcs.			
16_SMB-50-1-40/111_NE	22648053	U1 (RG_178_B/U)	single			
16_SMB-50-2-40/111_NE	22648054	U2 (RG_316_/U)	single			
16_SMB-50-2-40/111_NH	22650695	U2 (RG_316_/U)	bulk 100 pcs.			
16_SMB-50-2-40/133_NH	22650669	U2 (RG_316_/U)	bulk 100 pcs.			
16_SMB-50-2-41/111_NH	22660335	U4 (K-02252_D)	bulk 100 pcs.			

Series SMB – cable connectors

Right angle cable plugs (male)

For flexible cables

- Closed entry
- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458

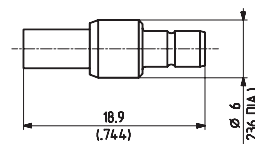


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Plating body
16_SMB-50-2-50/111_NE 16_SMB-50-2-50/111_NH	22648057 23011371	U2 (RG_316_/U)	single bulk 100 pcs.	9157	A	
16_SMB-50-2-50/133_NH	22650181	U2 (RG_316_/U)	bulk 100 pcs.			
16_SMB-50-2-51/111_NE 16_SMB-50-2-51/111_NH	22648058 22658985	U 4 (K_02252_D)	single bulk 100 pcs.			
16_SMB-50-2-51/133_NE 16_SMB-50-2-51/133_NH	23029417 22650182	U 4 (K_02252_D)	single bulk 100 pcs.			SUCOPLATE®

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_SMB-50-1-10/111_NE *	22543424	U1 (RG_17_B/U)	single	3077	1 A
21_SMB-50-2-10/111_NE 21_SMB-50-2-10/111_NH	22640205 22651810	U2 (RG_316_/U)	single bulk 100 pcs.		
21_SMB-50-2-11/111_NE	22642407	(K_02252_D)	single		

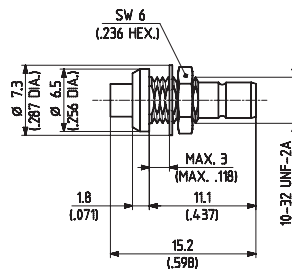
* Centre contact not captivated.

Series SMB – cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact crimp or soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_SMB-50-2-13/111_NE *	22640822	Y3, Y11, Y16 (EZ_86)	single	9002	ML 11	1
24_SMB-50-2-13/111_NH *	84047710		bulk 100 pcs.			

* Centre contact not captivated.

For flexible cables

- HUBER+SUHNER® full crimp
- Rear mounting
- Mounting hole ML 11
- Taper sleeves see page 458

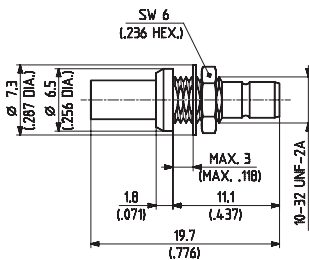


Fig. 1

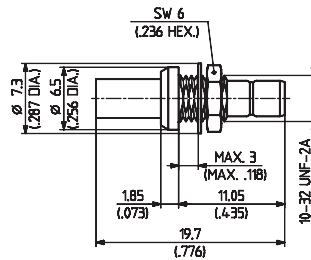


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Plating body	Fig.
24_SMB-50-1-10/111_NE*	22543631	U1 (RG_178_B/U)	single	3077	1 A		1
24_SMB-50-1-10/111_NH	22645690		bulk 100 pcs.				
24_SMB-50-2-110/111_NE	22658161	U2 (RG_316_/U)	single				
24_SMB-50-2-110/111_NH	22659126		bulk 100 pcs.				
24_SMB-50-2-110/133_NH	22659128	U2 (RG_316_/U)	bulk 100 pcs.				SUCOPLATE®
24_SMB-50-2-111/111_NH	22659130	U2 (RG_316_/U)	bulk 100 pcs.				
24_SMB-50-2-111/133_NH	23005564	U4 (K_02252_D)	bulk 100 pcs.			SUCOPLATE®	

* Centre contact not captivated.

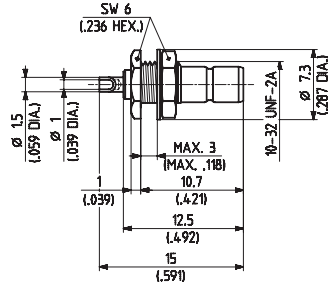
Series SMB – receptacles with solder end

Receptacle jack (female)

- Bulkhead mounted
- Rear mounting
- Insulating washers see page 460

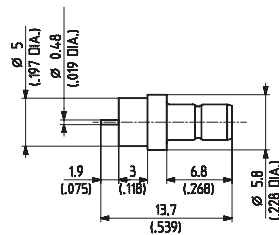


SMB



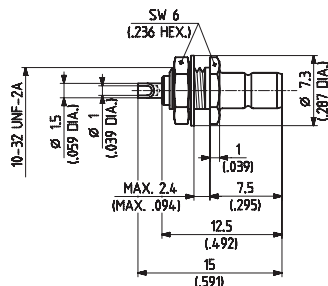
HUBER+SUHNER type	Item no.	Packaging	Mounting hole
22_SMB-50-0-3/111_NE	22640207	single	ML 11

- Bulkhead mounted
- Hermetically sealed
- Suited for microstrip circuits for direct soldering (250 °C / 482 °F max.)
- RoHS compliant alternative on request



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Leak rate
22_SMB-50-0-5/111_NE	22640209	single	ML 90	≤ 10 ⁻⁸ Torr. l./sec.(atm cc/s)

- Bulkhead mounted
- Front mounting
- Insulating washers see page 460



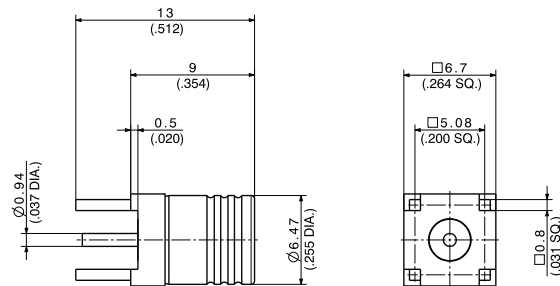
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body
22_SMB-50-0-2/133_NH	22651503	bulk 100 pcs.	ML 11	SUCOPLATE®

Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series SMB - PCB connectors

Straight PCB plug (male)

- 2.54 mm / .100 in grid
- Open entry



HUBER+SUHNER type	Item no.	Mounting hole	Plating body	Notes
81_SMB-50-0-41/111_NE	22648059	ML 15	gold	with stand-off

Straight PCB jacks (female)

- 2.54 mm / .100 in grid

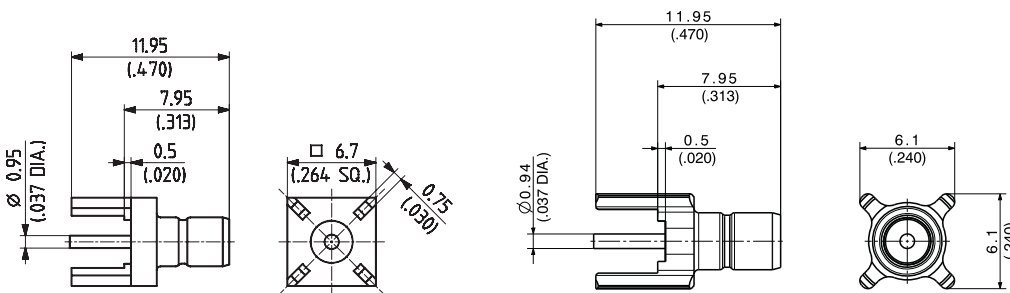


Fig. 1

Fig. 2

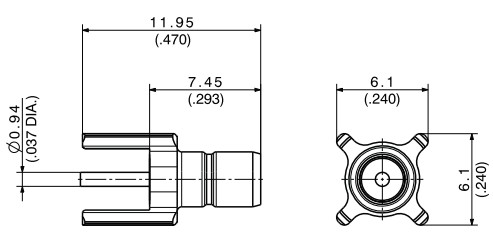


Fig. 3



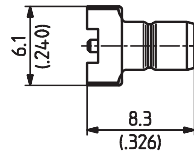
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body	Fig.	Notes
82_SMB-50-0-1/133_NE	22641492	single	ML 15	SUCOPLATE®	1	with stand-off
82_SMB-50-0-1/111_NH-1	23017254	bulk 100 pcs.		SUCOPRO® plating	1	with stand-off
82_SMB-50-0-17/111_NH	23010991	bulk 100 pcs.		SUCOPRO® gold plating	2	with stand-off
82_SMB-50-0-19/111_NH	23011018	bulk 100 pcs.		SUCOPRO® gold plating	3	without stand-off

Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series SMB – PCB connectors

Straight PCB jacks (female)

- Surface mount type SMT



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body
82_SMB-S50-0-18/111_NH	23010995	bulk 100 pcs.	ML 122	SUCOPRO® gold plating

Right angle PCB jacks (female)

- 2.54 mm / .100 in grid
- With stand-off

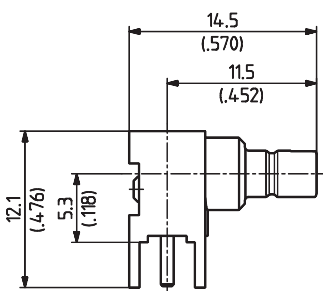


Fig. 1

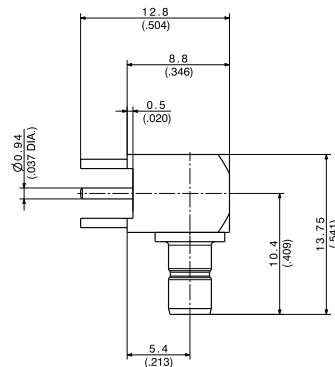
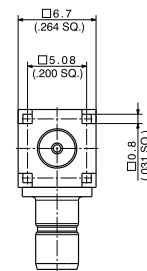


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body	Fig.
85_SMB-Z50-0-19/111_NE	84041359	single	ML 15	SUCOPRO® gold plating	1
85_SMB-Z50-0-19/111_NH	23010999	bulk 100 pcs.			
85_SMB-50-0-1/111_NE	22640235	single	ML 15	gold	2
85_SMB-50-0-1/111_NH	22645989	bulk 100 pcs.			
85_SMB-50-0-1/133_NE	22641270	single			
85_SMB-50-0-1/133_NH	22644524	bulk 100 pcs.			



Series SMC – subminiature connectors

Description

The HUBER+SUHNER SMC subminiature connector series is based on the same design as the SMB series. But due to its screw-on coupling mechanism, the HUBER+SUHNER SMC subminiature connectors are suitable for applications up to 10 GHz.

Coupling mechanism

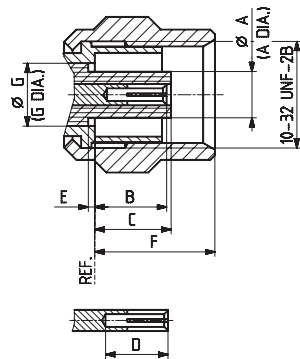
The SMC screw-on mechanism permits a vibration-proof connection suitable for semi-permanent connections and for use in mobile equipment with low VSWR requirements.

Content

Description	111
Coupling mechanism	111
Interface dimensions in mm / inches	111
Technical data	112
Cable connectors	113
Receptacles	116
PCB connectors	117

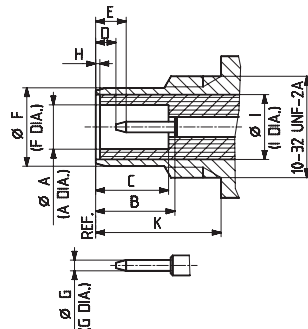
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	---	2.60/.081	2.08/.082	---
B	2.85/.112	3.40/.134	3.40/.134	---
C	---	3.40/.134	3.40/.134	---
D	2.79/.110	---	0.61/.024	---
E	0.00/.000	---	---	2.13/.084
F	---	5.92/.233	---	3.71/.146
G	3.05/.120 nom.		0.48/.019	0.53/.021
H	---	---	0.00/.000	---
I	---	---	3.05/.120 nom.	
K	---	---	5.94/.234	---

Jack (female)



Interface dimensions conformable to the standards:

International:	IEC 60169-9
Europe:	CECC 22140
USA:	MIL-C-39012 SMC

Series SMC – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 10 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz (depending on cable)
Working voltage (at sea level)	250 V rms for cables with 1 mm / 0.039 in. dielectric 335 V rms for cables with 2 mm / 0.078 in. dielectric
Insulation resistance	≥10 ⁴ MΩ
Contact resistance - centre contact - outer contact	≤ 5 mΩ ≤ 2.5 mΩ
RF-leakage (measured at 1 GHz)	≥ 90 dB

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	25 Ncm ... 35 Ncm / 2.2 in. lbs ... 3.1 in. lbs 71 Ncm / 6.2 in. lbs
Coupling nut retention force	≥ 150 N / 33.72 lbs
Contact captivation	≥ 10 N / 2.25 lbs
Cable retention force ¹⁾	see pages 32 – 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	salt spray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition D

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE® / SUCOPRO® gold plating / gold
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
Crimp ferrules	copper/brass	SUCOPLATE® / SUCOPRO® gold plating / gold
Coupling nut	brass	SUCOPLATE® / SUCOPRO® gold plating / gold
Insulators	PTFE or PFA	

Some connectors may have a specification that differs from the above mentioned data.

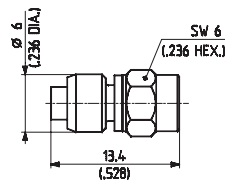
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series SMC – cable connectors

Straight cable plugs (male)

For semi-rigid cables

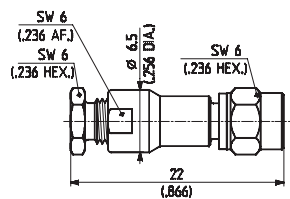
- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_SMC-50-2-13/111_NH	22650675	Y3, Y11, Y15 (EZ_86)	bulk 100 pcs.	9002

For flexible cables

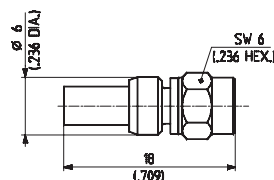
- Cable entry HUBER+SUHNER® pressure-sleeve
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_SMC-50-1-6/111_NE	22640238	U1 (RG_178_B/U)	single	3041
11_SMC-50-2-5/111_NE	22640246	U2 (RG_316_/U)		

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

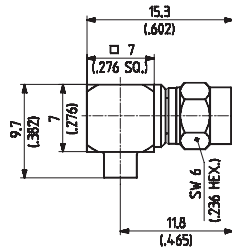


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Plating body	Assembly instruction	Crimp insert
11_SMC-50-1-10/111_NH	22648629	U1 (RG_178_B/U)	bulk 100 pcs.	gold	3077	1A
11_SMC-50-2-10/111_NE	22640811	U2 (RG_316_/U)	single	gold		
11_SMC-50-2-10/111_NH	22645841		bulk 100 pcs.	gold		
11_SMC-50-2-10/133_NE	22641528	U2 (RG_316_/U)	single	SUCOPLATE®		
11_SMC-50-2-11/111_NE	22640251	U4 (K_02252_D)	single	gold		

Series SMC – cable connectors

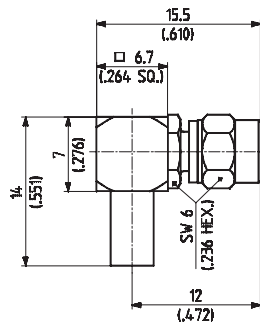
Right angle cable plugs (male)

- For semi-rigid cables
- Cable entry soldered
 - Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_SMC-50-2-25/111_NE 16_SMC-50-2-25/111_NH	22644126 23003713	Y3, Y11, Y15 (EZ_86)	single bulk 100 pcs.	9160

- For flexible cables
- HUBER+SUHNER® full crimp
 - Taper sleeves see page 458



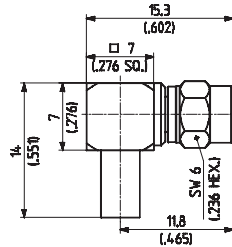
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Plating body	Assembly instruction	Crimp insert
16_SMC-50-1-10/111_NE 16_SMC-50-1-10/111_NH	22543364 22648283	U1 (RG_178_B/U)	single bulk 100 pcs.	gold	3096	1A
16_SMC-50-2-10/111_NE 16_SMC-50-2-10/111_NH	22640269 22645323	U2 (RG_316_/U)	single bulk 100 pcs.	gold		
16_SMC-50-2-11/111_NE	22543366	U4 (K_02252_D)	single	gold		
16_SMC-50-2-11/133_NH	22658856	U2 (RG_316_/U)	bulk 100 pcs.	SUCOPLATE®		

Series SMC – cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458

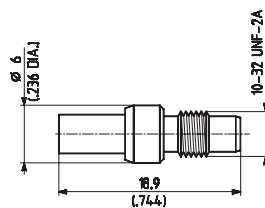


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_SMC-50-1-20/111_NE	22644083	U1 (RG_178_B/U)	single	9157	A
16_SMC-50-2-20/111_NE	22643949	U2 (RG_316_/U)			

Straight cable jacks (female)

For flexible cables

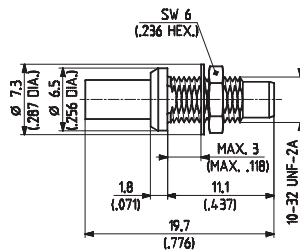
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_SMC-50-2-10/111_NE	22640279	U2 (RG_316_/U)	single	3077	1 A

For flexible cables

- HUBER+SUHNER® full crimp
- Rear mounting
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_SMC-50-1-10/111_NE *	22640290	U1 (RG_178_B/U)	single	3077	ML 11	1 A
24_SMC-50-2-110/111_NE	22660133	U2 (RG_316_/U)	single			
24_SMC-50-2-110/111_NH	22660135		bulk 100 pcs.			

* Centre contact NOT captivated.

Series SMC – receptacles

Straight bulkhead receptacles, jacks (female)

- Solder end
- Insulating washers see page 460

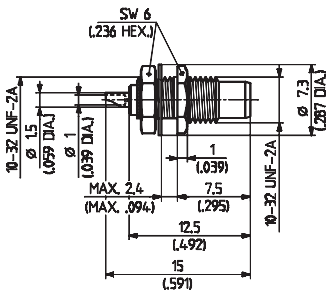


Fig. 1

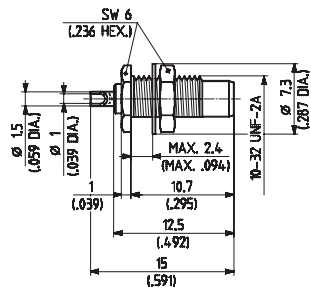


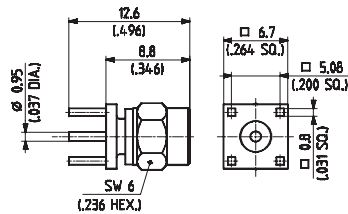
Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_SMC-50-0-2/111_NE	22640281	single	ML 11	1	front mounting
22_SMC-50-0-3/111_NE	22640282			2	rear mounting

Series SMC – PCB connectors

Straight PCB plug (male)

- 2.54 mm / .100 in. grid
- Without stand-off

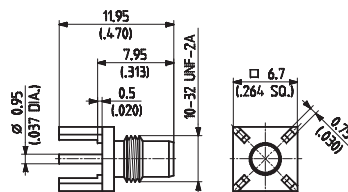


SMC

HUBER+SUHNER type	Item no.	Packaging	Mounting hole
81_SMC-50-0-1/111_NE	22640312	single	ML 15

Straight PCB jacks (female)

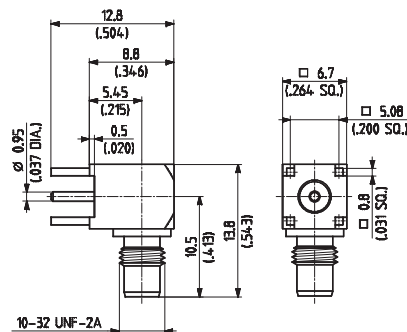
- 2.54 mm / .100 in. grid
- With stand-off



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
82_SMC-50-0-1/111_NE	22640313	single	ML 15
82_SMC-50-0-1/111_NH	22646201	bulk 100 pcs.	

Right angle PCB jacks (female)

- 2.54 mm / .100 in. grid
- With stand-off



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
85_SMC-50-0-1/111_NE	22640326	single	ML 15
85_SMC-50-0-1/111_NH	22652987	bulk 100 pcs.	
85_SMC-50-0-1/133_NE	22642472	single	



Series SMA – coaxial connectors

Description

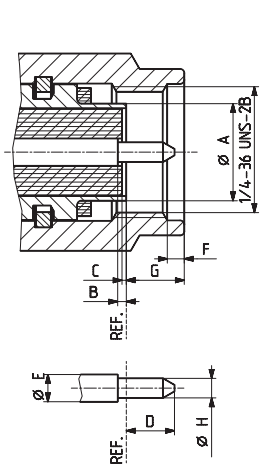
HUBER+SUHNER SMA connectors are precision connectors for microwave applications up to 18 GHz. The extended frequency version operates with excellent return loss performances up to 26.5 GHz. There is a huge variety of applications for HUBER+SUHNER SMA connectors, as in telecom, test+measurement, instruments, avionics, etc.

The HUBER+SUHNER series SMA is classified into two categories:

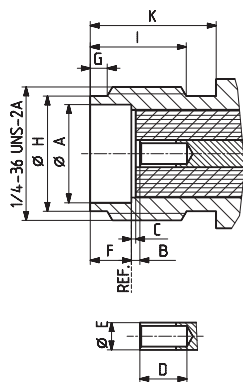
- HUBER+SUHNER standard SMA connectors for high end applications or applications subject to rough conditions.
- HUBER+SUHNER® ECO SMA connectors for high volume applications.

Interface dimensions (mm/inches)

Plug (male)



Jack (female)



Content

Description	119
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Features	119
Technical data	120
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Receptacles	137
PCB connectors	145
Protective caps and shorts	147

	Plug		Jack	
	min.	max.	min.	max.
A	-	4.59/1.81	4.59/.181	-
B	0.00/.000	0.25/.010	0.00/.000	0.25/.010
C	0.00/.000	0.25/.010	0.00/.000	0.25/.010
C	-	2.54/.100	2.67/.105	-
E	1.24/.049	1.29/.051	1.24/.049	1.29/.051
F	0.38/.015	1.14/.045	1.88/.074	1.98/.078
G	-	3.43/.135	0.38/.015	1.14/.045
H	0.90/.036	0.94/.037	5.28/.208	5.49/.216
I	-	-	4.32/.170	-
K	-	-	5.54/.218	-

Features

- Frequency range up to 18 GHz, extended frequency version up to 26.5 GHz
- Excellent return loss
- Intermateable with PC3.5 and SK
- The SMA (Subminiature A) interface dimensions conform to the following standards:
 - International: IEC 60169-15
 - Europe: CECC 22110
 - USA: MIL-C-39012 SMA
 - Interface MIL-STD 348a/310

Series SMA – technical data

Electrical data	MIL-C-39012	50 Ω			
Impedance		50 Ω			
Frequency range for interface		DC ... 18 GHz (extended range DC ... 26.5 GHz)			
RL (typical value)		for cable connectors refer to table below			
Cable type		semi-rigid		flexible	
Cable dielectric diameter (mm/in.)		1.5/.066	3/.117	1.5/.066	3/.117
RF-leakage measured at 3 GHz	3.26	≥ 100 dB·f (GHz)		≥ 60 dB	
Dielectric withstanding voltage (at sea level, in V rms, 50 Hz)	3.17	1000	1500	750	1000
Working voltage (at sea level, in V rms, 50 Hz)		335	500	250	335
Corona extinction voltage (at 21 000 m/70 000 ft., in V rms, 50 Hz)	3.22	250	375	190	250
Working voltage (at 21 000 m/70 000 ft., in V rms, 50 Hz)		85	125	65	85
RF withstanding voltage at 5 MHz (V rms)	3.23	670	1000	500	670
Insulation resistance	3.11	≥ 5·10 ³ MΩ			
Contact resistance - centre contact - outer contact	3.16	≤ 3 mΩ ≤ 2.5 mΩ			

Typical RL for HUBER+SUHNER standard SMA cable connectors

Typical RL (dB)	Frequency range					Cable group
Connector type	1 GHz	2.5 GHz	5 GHz	12.4 GHz	18 GHz	
Straight connectors	37	37	37	29	28	Y3, Y11
	37	37	34	29	23	Y5, Y12
	32	29	28			U2, U4
	34	32	29			U7, U9
Right angle connectors	37	32	26	19		Y3, Y11
	37	32	28	22		Y5, Y12
	32	29	26			U2, U4
	37	32	29			U7, U9


Series SMA – technical data

Typical RL for HUBER+SUHNER® ECO SMA cable connectors

Typical RL (dB)	Frequency range				Cable group
	1 GHz	2.5 GHz	5 GHz	6 GHz	
Connector type					
Straight connectors	36	36	35	30	Y3, Y11
	36	36	35	30	Y5, Y12
	32	29	26	25	U2, U4
	34	32	27	25	U7, U9
Right angle connectors	36	32	26	25	Y3, Y11
	36	32	28	24	Y5, Y12
	32	29	26	25	U2, U4
	36	32	26	25	U7, U9

Mechanical data	MIL-C-39012		
Recommended coupling nut torque		HUBER+SUHNER standard SMA	0.8 ± 1.1 Nm (7.1 ± 9.7 in. lbs.)
		HUBER+SUHNER® ECO SMA	0.45 Nm (4.0 in. lbs)
Coupling nut retention force	3.25		≥ 270 N / 60.7 lbs
Contact captivation -axial	3.12	HUBER+SUHNER standard SMA	≥ 27 N / 6.1 lbs.
		HUBER+SUHNER® ECO SMA	≥ 20 N / 5.4 lbs.
Cable retention force ¹⁾		see suitable cables, pages 32 – 37	
Durability (matings)			≤ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Test conditions
Temperature range	-65°C ± +165°C / -85 °F ± +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition D
Shock	MIL-STD-202, method 213, condition I
	Except the hermetic sealed SMA connectors all other connector types satisfy RoHS compatibility.

Series SMA – technical data

Material data			
Connector part		Material	Plating
Bodies, outer contacts, nut	HUBER+SUHNER standard SMA	copper-beryllium alloy stainless steel, spring bronze	gold, passivated
	HUBER+SUHNER® ECO SMA	brass, spring bronze	SUCOPLATE® / SUCOPRO® gold plating
Pin contacts		copper-beryllium alloy, brass	gold / SUCOPRO® gold plating
Socket contacts		copper-beryllium alloy/spring bronze	gold
Crimp ferrules		copper, brass	gold
Insulators		PTFE or PFA	
Gaskets		silicone rubber	

HUBER+SUHNER SMA connectors satisfy in principle the above technical data. For detailed specifications refer to the published data sheets on our webpage www.hubersuhner.com.

Series SMA – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- With pin and insulator
- Cable entry soldered
- Centre contact soldered

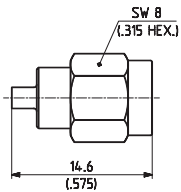


Fig. 1

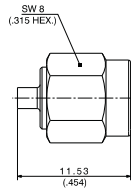


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.	Notes
11_SMA-50-1-1/111_NE ¹⁾	22642387	Y19 (EZ_34)	single	9118	gold	1	
11_SMA-50-1-2/111_NE ¹⁾	22642388	Y2, Y15 (SUCOFORM_47)	single	9119		1	
11_SMA-50-1-53/119_NH	23013327	Y2, Y15 (SUCOFORM_47)	bulk 100 pcs.	150006		2	nut passivated stainless steel

¹⁾ Compound 74_Z-0-0-116 needed.

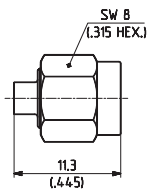


Fig. 1

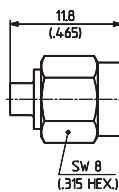


Fig. 2

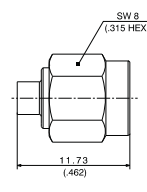


Fig. 3



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.	Notes
11_SMA-50-2-15/111_NE 11_SMA-50-2-15/111_NH	22544545 22645898	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	9056	gold	1	
11_SMA-50-2-29/119_NH ¹⁾	22660366	Y11 (MULTIFLEX_86)	bulk 100 pcs.	27334	gold	2	nut passivated stainless steel
11_SMA-50-2-65/119_NE ¹⁾ 11_SMA-50-2-65/119_NH ¹⁾	22642315 22645366	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	9056	gold	1	nut passivated stainless steel
11_SMA-50-2-110/133_NE ²⁾ 11_SMA-50-2-110/133_NP ²⁾	84130715 84117816	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 500 pcs.	0000349249	SUCOPLATE®	3	

¹⁾ Cable entry CuBe/gold.

²⁾ Use torque wrench 74_Z-0-0-79.

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- With pin and insulator
- Cable entry soldered
- Centre contact soldered

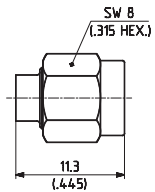


Fig. 1

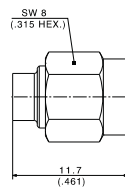


Fig. 2

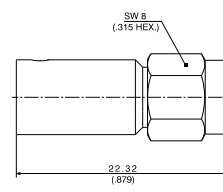


Fig. 3



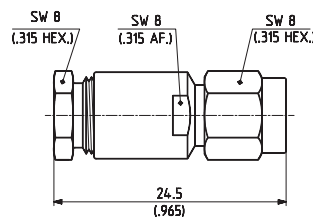
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.	Notes
11_SMA-50-3-15/111_NE 11_SMA-50-3-15/111_NH	22544547 22651601	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	9056	gold	1	
11_SMA-50-3-65/119_NE 11_SMA-50-3-65/119_NH	22641643 22646570	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	9056	gold	1	nut passivated stainless steel
11_SMA-50-3-235/133_NE ¹⁾ 11_SMA-50-3-235/133_NP ¹⁾	84130698 84104274	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 500 pcs.	0000333508	SUCOPLATE®	2	
11_SMA-50-5-1/111_NE	22642399	Y7, Y14 (SUCOFORM_250_01)	single	0000181414	gold	3	

¹⁾ Use torque wrench 74_Z0-0-79.

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body
11_SMA-50-3-7/111_NE	22640050	U7 (RG_58_C/U)	single	3071	gold
11_SMA-50-3-8/111_NH	22648630	U9 (EF_142)	bulk 100 pcs.		
11_SMA-50-3-10/111_NE	22640053	U11 (EF_400)	single		

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

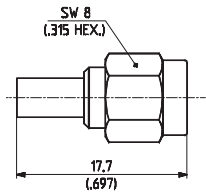


Fig. 1

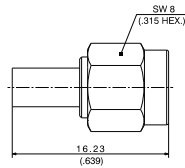


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert	Fig.	Notes
11_SMA-50-1-4/111_NE	22645871	U1 (EF_178)	single	27061	gold	A	1	
11_SMA-50-2-5/111_NE 11_SMA-50-2-5/111_NH	22640042 22646312	U2 (EF_316)	single bulk 100 pcs.	27266	gold	A	1	
11_SMA-50-2-6/111_NE 11_SMA-50-2-6/111_NH	22640043 22650740	U4 (EF_316_D)	single bulk 100 pcs.	27266	gold	A	1	
11_SMA-50-2-27/111_NE ¹⁾ 11_SMA-50-2-27/111_NH ¹⁾	84022967 22652923	U2 (EF_316)	single bulk 100 pcs.	27164	gold	1 A	1	
11_SMA-50-2-55/199_NE	22641377	U2 (EF_316)	single	3069	passivated stainless steel	A	1	
11_SMA-50-2-56/199_NE 11_SMA-50-2-56/199_NH	22641376 22651486	U4 (EF_316_D)	single bulk 100 pcs.	3069	passivated stainless steel	A	1	
11_SMA-50-2-111/133_NE ²⁾ 11_SMA-50-2-111/133_NP ²⁾	84130699 84117820	U2 (EF_316)	single bulk 500 pcs.	0000348839	SUCOPLATE®	A	2	
11_SMA-50-2-112/133_NE ²⁾ 11_SMA-50-2-112/133_NP ²⁾	84130700 84115820	U4 (EF_316_D)	single bulk 500 pcs.	0000347891	SUCOPLATE®	A	2	

¹⁾ HUBER+SUHNER® full crimp.
²⁾ Use torque wrench 74_Z0-0-79.

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

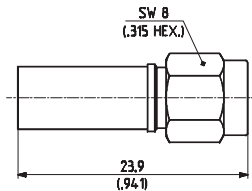


Fig. 1

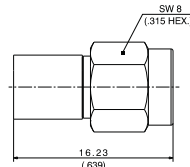


Fig. 2

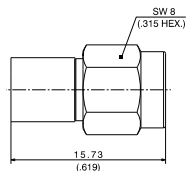


Fig. 3

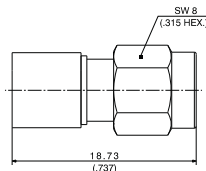


Fig. 4

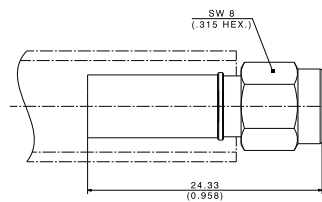


Fig. 5

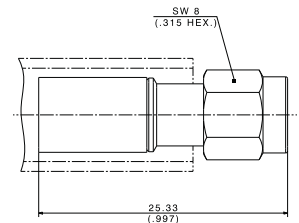


Fig. 6

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert	Fig.	Notes
11_SMA-50-3-5/111_NE	22640048	U7	single	3069	gold	B	1	
11_SMA-50-3-5/111_NH	22644684	RG_58_C/U	bulk 100 pcs.	3069	gold	B	1	
11_SMA-50-3-6/111_NE	22640049	U9, U11 (EF_142)	single	3069	gold	B	1	
11_SMA-50-3-6/111_NH	22650739		bulk 100 pcs.	3069	gold	B	1	
11_SMA-50-3-55/199_NE	22641371	U7	single	3069	passivated stainless steel	B	1	
11_SMA-50-3-56/199_NE	22543647	U9, U11 (EF_142)	single	3069	passivated stainless steel	B	1	
11_SMA-50-3-56/199_NH	22648300		bulk 100 pcs.	3069	passivated stainless steel	B	1	
11_SMA-50-3-236/133_NE ¹⁾	84130702	U9, U11 (EF_142)	single	0000349507	SUCOPLATE®	1*	2	
11_SMA-50-3-236/133_NP ¹⁾	84117821		bulk 500 pcs.	0000349507	SUCOPLATE®	1*	2	
11_SMA-50-3-237/133_NE ¹⁾	84130709	U7	single	0000349571	SUCOPLATE®	B	3	
11_SMA-50-3-237/133_NP ¹⁾	84117823	RG_58_C/U	bulk 500 pcs.	0000349571	SUCOPLATE®	B	3	
11_SMA-50-3-239/133_NF	85010668	X27 (SPUMA_195)	single	0000417562	SUCOPLATE®	B	5	
11_SMA-50-4-50/133_NE ¹⁾	84130705	S16, X9	single	0000347768	SUCOPLATE®	2*	4	
11_SMA-50-4-50/133_NP ¹⁾	84112519	(S_04262_D)	bulk 500 pcs.	0000347768	SUCOPLATE®	2*	4	
11_SMA-50-4-77/133_NE	85010193	X28 (SPUMA_240)	single	0000416855	SUCOPLATE®	C	6	

¹⁾ Use torque wrench 74_Z-0-0-79

1* Crimp tool 76_Z-0-0-57

2* Crimp tool 76_Z-0-4-23

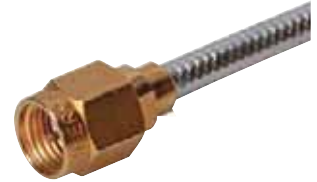
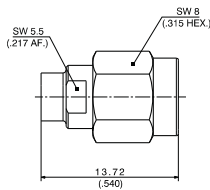
All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

26.5 GHz – straight cable plugs (male)

For semi-rigid cables

- With pin and insulator
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body
11_SMA-50-3-100/111_NE	22648718	Y5, Y12, Y17	single	0000181590	gold
11_SMA-50-3-100/111_NH	22658936	(SUCOFORM_141)	bulk 100 pcs.		

- Without pin and insulator

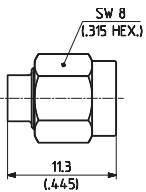


Fig. 1

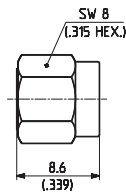


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.	Notes
11_SMA-50-3-14/-11_NH	22644467	Y5 (EZ_141)	bulk 100 pcs.	9055	gold	1	
11_SMA-50-3-16/-11_NH	22644470		bulk 100 pcs.		gold	2	
11_SMA-50-3-42/-33_NE	22649222		single		SUCOPLATE®	2	
11_SMA-50-3-42/-33_NH	22646128		bulk 100 pcs.				
11_SMA-50-3-64/-19_NH	22649224		bulk 100 pcs.		gold	1	nut passivated stainless steel
11_SMA-50-3-66/-19_NE	22641644		single		gold	2	nut passivated stainless steel
11_SMA-50-3-66/-19_NH	22645207	bulk 100 pcs.					

Series SMA – cable connectors

Right angle cable plugs (male)

For semi-rigid cables

- With pin and insulator
- Cable entry soldered
- Centre contact soldered

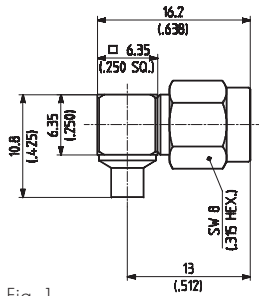


Fig. 1

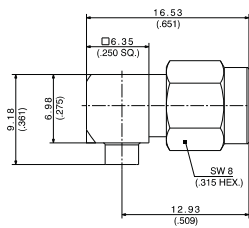


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.	Notes
16_SMA-50-2-53/119_NE 16_SMA-50-2-53/119_NH	22644242 22646639	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	3068	gold	1	nut passivated stainless steel
16_SMA-50-2-103/111_NE 16_SMA-50-2-103/111_NH	84018309 22652924	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	3068	gold	1	
16_SMA-50-2-110/133_NE ¹⁾ 16_SMA-50-2-110/133_NP ¹⁾	84130706 84117807	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 500 pcs.	0000335631	SUCOPLATE®	2	

¹⁾ Use torque wrench 74_Z-0-0-79.

- With pin and insulator
- Cable entry soldered
- Centre contact soldered

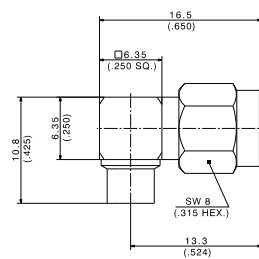


Fig. 1

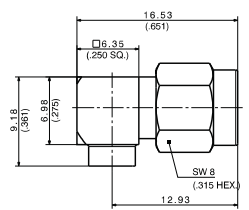


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.	Notes
16_SMA-50-3-3/111_NE 16_SMA-50-3-3/111_NH	22640073 22646569	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	3068	gold	1	
16_SMA-50-3-13/133_NE ¹⁾ 16_SMA-50-3-13/133_NP ¹⁾	84130707 84117810	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 500 pcs.	0000335642	SUCOPLATE®	2	
16_SMA-50-3-53/119_NE 16_SMA-50-3-53/119_NH	22644243 22646561	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	3068	gold	1	nut passivated stainless steel

¹⁾ Use torque wrench 74_Z-0-0-79.

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA - cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

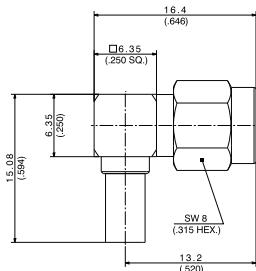


Fig. 1

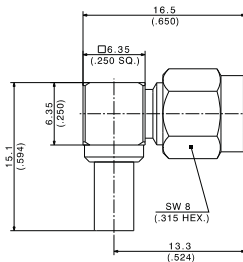


Fig. 2

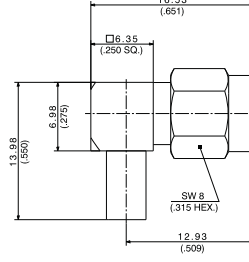


Fig. 3



SMA

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert	Fig.	Notes
16_SMA-50-1-1/111_NE 16_SMA-50-1-1/111_NH	22641805 22660358	U1 (EF_178)	single bulk 100 pcs.	3070	gold	A	1	
16_SMA-50-2-55/199_NE 16_SMA-50-2-55/199_NH	22642661 84028953	U2 (EF_316)	single bulk 100 pcs.	3070	passivated stainless steel		2	
16_SMA-50-2-56/199_NE 16_SMA-50-2-56/199_NH	22642662 22658888	U4 (EF_316_D)	single bulk 100 pcs.	3070	passivated stainless steel		2	
16_SMA-50-2-105/111_NE 16_SMA-50-2-105/111_NH	22651455 22651456	U2 (EF_316)	single bulk 100 pcs.	3070	gold		1	
16_SMA-50-2-106/111_NE 16_SMA-50-2-106/111_NH	22651457 22651458	U4 (EF_316_D)	single bulk 100 pcs.	3070	gold		1	
16_SMA-50-2-111/133_NE ¹⁾ 16_SMA-50-2-111/133_NP ¹⁾	84130708 84117808	U2 (EF_316)	single bulk 500 pcs.	0000335656	SUCOPLATE®		3	
16_SMA-50-2-112/133_NE ¹⁾ 16_SMA-50-2-112/133_NP ¹⁾	84130709 84117809	U4 (EF_316_D)	single bulk 500 pcs.	0000335656	SUCOPLATE®		3	

¹⁾ Use torque wrench 74_Z-0-0-79.

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

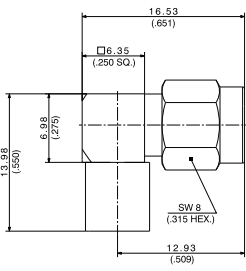


Fig. 1

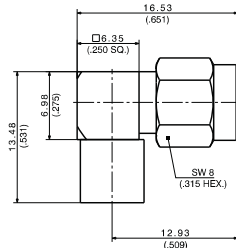


Fig. 2

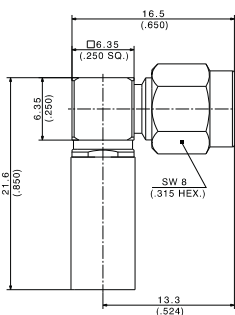


Fig. 3

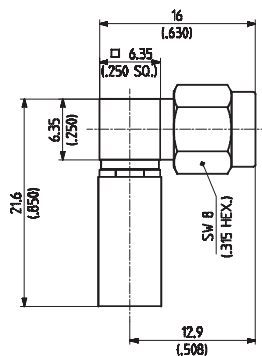


Fig. 4

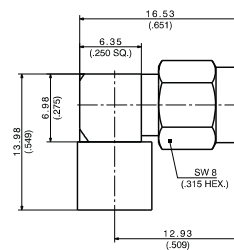


Fig. 5

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert	Fig.	Notes
16_SMA-50-3-14/133_NE ¹⁾ 16_SMA-50-3-14/133_NP ¹⁾	84130711 84117811	U9, U11 (EF_142)	single bulk 500 pcs.	0000335678	SUCOPLATE®	B	1	
16_SMA-50-3-15/133_NE ¹⁾ 16_SMA-50-3-15/133_NP ¹⁾	84130712 84117812	U7 (RG_58)	single bulk 500 pcs.	0000335679	SUCOPLATE®	B	2	
16_SMA-50-3-56/199_NE	22642660	U9, U11 (EF_142)	single	3070	passivated stainless steel	B	3	
16_SMA-50-3-105/111_NE 16_SMA-50-3-105/111_NH	22651585 22651800	U7 (RG_58)	single bulk 100 pcs.	3070	gold	B	4	
16_SMA-50-3-106/111_NE 16_SMA-50-3-106/111_NH	22650546 22650545	U9, U11 (EF_142)	single bulk 100 pcs.	3070	gold	B	4	
16_SMA-50-4-50/133_NE ¹⁾ 16_SMA-50-4-50/133_NP ¹⁾	84130714 84117813	S16, X9 (S_04262_D)	single bulk 500 pcs.	0000335684	SUCOPLATE®	C	5	

1) Use torque wrench 74_Z0-0-79.

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

26.5 GHz – right angle cable plugs (male)

For semi-rigid cables

- With pin and insulator
- Cable entry soldered
- Centre contact plugged

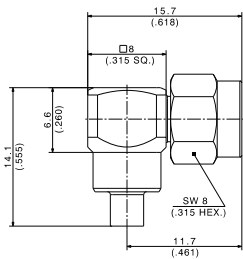


Fig. 1

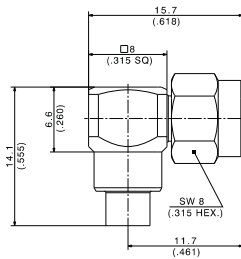


Fig. 2



SMA

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.
16_SMA-50-2-100/199_NH	23018813	Y3, Y11, Y16 (SUCOFORM_86)	bulk 100 pcs.	27055	passivated stainless steel	1
16_SMA-50-3-100/199_NE	22648293	Y5, Y12, Y17 (SUCOFORM_141)	single			2

Straight cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

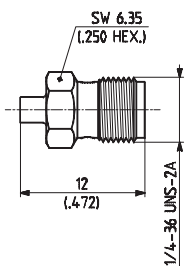


Fig. 1

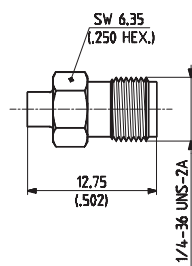


Fig. 2

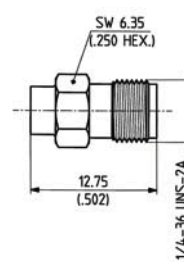


Fig. 3



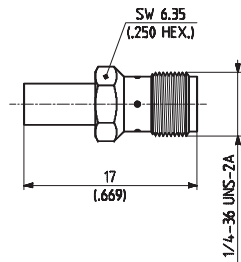
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Fig.
21_SMA-50-1-1/111_NE	22642385	Y19 (EZ_34)	single	9118	gold	1
21_SMA-50-1-2/111_NE	22642386	Y2, Y15 (SUCOFORM_47)	single	9119		1
21_SMA-50-2-15/111_NE 21_SMA-50-2-15/111_NH	22544549 22652141	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	9057		2
21_SMA-50-3-15/111_NE 21_SMA-50-3-15/111_NH	22544550 22645042	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	9057		3

Series SMA – cable connectors

Straight cable jacks (female)

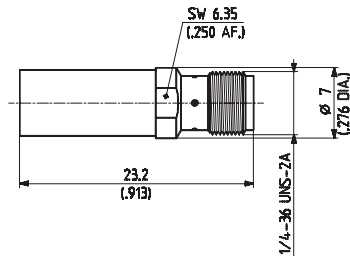
For flexible cables

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert
21_SMA-50-2-5/111_NE	22640077	U2 (EF_316)	single	3069	gold	A
21_SMA-50-2-6/111_NE	22640078	U4 (EF_316_D)	single			
21_SMA-50-2-6/111_NH	22651818		bulk 100 pcs.			

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert
21_SMA-50-3-5/111_NE	22640081	U7 (RG_58_C/U)	single	3069	gold	B
21_SMA-50-3-6/111_NE	22640082	U9, U11 (EF_142)				

Series SMA - cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered
- With panel seal



SMA

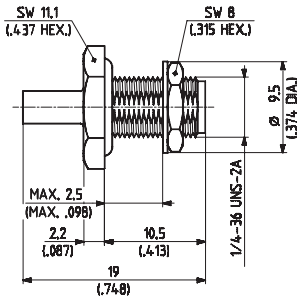


Fig. 1

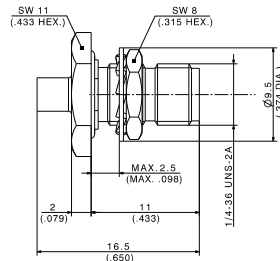


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Mounting hole	Fig.
24_SMA-50-2-15/111_NE 24_SMA-50-2-15/111_NH	22544532 22645490	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	9057	gold	ML 35	1
24_SMA-50-2-41/133_NE 24_SMA-50-2-41/133_NH	22641381 22645368	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	0000185051	SUCOPLATE®	ML 20	2

- Cable entry soldered
- Centre contact soldered
- With panel seal

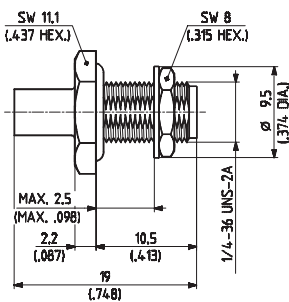


Fig. 1

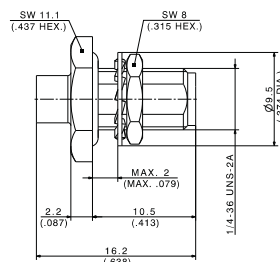


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Mounting hole	Fig.
24_SMA-50-3-15/111_NE 24_SMA-50-3-15/111_NH	22641153 22645259	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	9057	gold	ML 35	1
24_SMA-50-3-17/111_NH	23040704	Y5, Y12, Y17 (SUCOFORM_141)	bulk 100 pcs.	3066	SUCOPRO® gold plating	ML 35	2

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry crimp
- Centre contact soldered

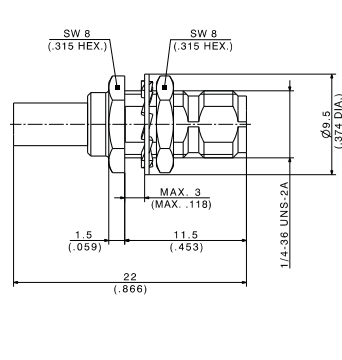


Fig. 1

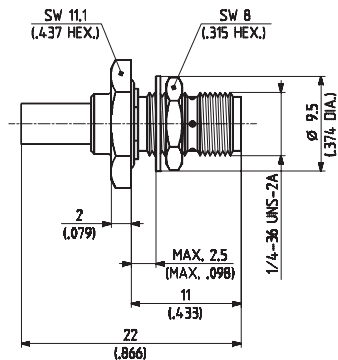


Fig. 2

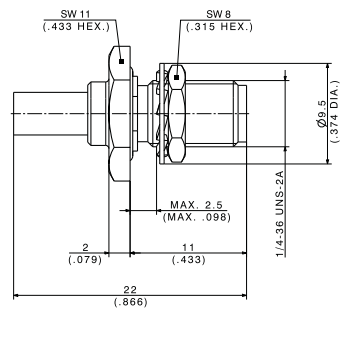


Fig. 3

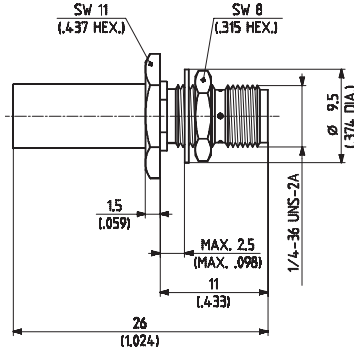


Fig. 4

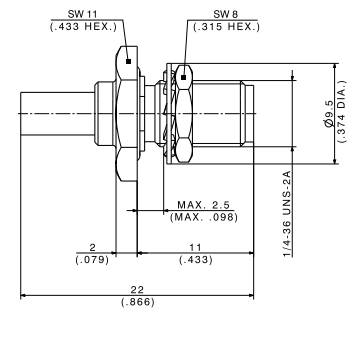


Fig. 5

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Crimp insert	Mounting hole	Fig.	Notes
24_SMA-50-1-3/111_NE	22649873	U1 (EF_178)	single	27104	gold	A	ML 35	1	
24_SMA-50-2-13/111_NE 24_SMA-50-2-13/111_NH	22651767 22651719	U4 (EF_316_D)	single bulk 100 pcs.	3069	gold	A	ML 20	2	
24_SMA-50-2-14/111_NE 24_SMA-50-2-14/111_NH	22651748 22651747	U2 (EF_316)	single bulk 100 pcs.	3069	gold	A	ML 20	2	
24_SMA-50-2-37/133_NE 24_SMA-50-2-37/133_NH	85013993 85013981	U4 (EF_316_D)	single bulk 100 pcs.	3069	SUCOPLATE®	A	ML 20	5	
24_SMA-50-2-46/133_NE 24_SMA-50-2-46/133_NH	22644246 22646565	U2 (EF_316)	single bulk 100 pcs.	3069	SUCOPLATE®	A	ML 20	2	
24_SMA-50-3-42/133_NE	22641358	U9 (EF_142)	single	3072	SUCOPLATE®	B	ML 20	4	
24_SMA-R50-2-51/133_NE	23011465	U2 (EF_316)	single	0000292354	SUCOPLATE®	A	ML 35	3	reverse SMA

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA - cable connectors

26.5 GHz - straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

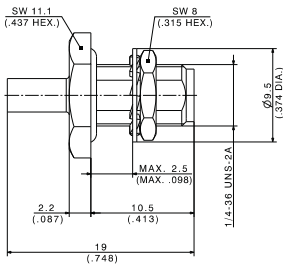


Fig. 1

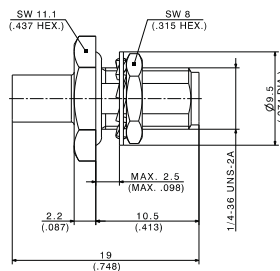


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Mounting hole	Fig.
24_SMA-50-2-100/111_NE	22648727	Y3, Y11, Y16 (SUCOFORM_86)	single	27055	gold	ML 35	1
24_SMA-50-3-100/111_NE	22648728	Y5, Y12, Y17 (SUCOFORM_141)	single				2

Straight panel cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

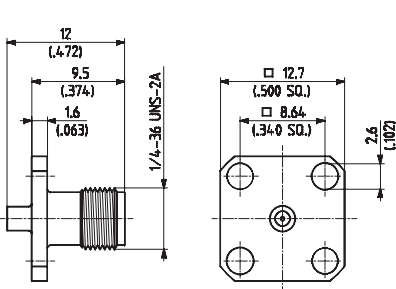


Fig. 1

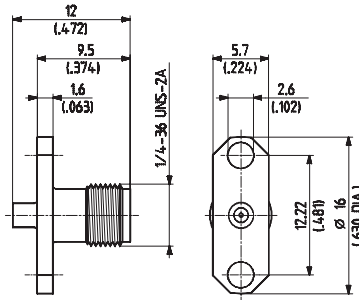


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Mounting hole	Fig.
25_SMA-50-1-2/111_NE	22642390	Y2, Y15 (SUCOFORM_47)	single	9119	gold	ML 19	1
25_SMA-50-1-4/111_NE 25_SMA-50-1-4/111_NH	22642391 23017424	Y2, Y15 (SUCOFORM_47)	single bulk 100 pcs.	9119		-	2
25_SMA-50-2-15/111_NE ¹⁾	22544551	Y3, Y11, Y16 (SUCOFORM_86)	single	9057		ML 19	1
25_SMA-50-2-25/111_NE ¹⁾	22641493	Y3, Y11, Y16 (SUCOFORM_86)	single	9057		-	2

¹⁾ Centre contact not captivated.

Series SMA – cable connectors

Straight panel cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

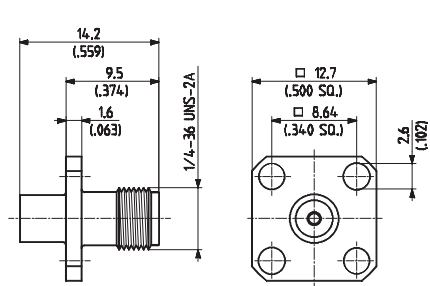


Fig. 1

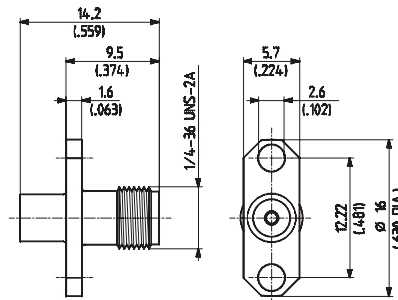


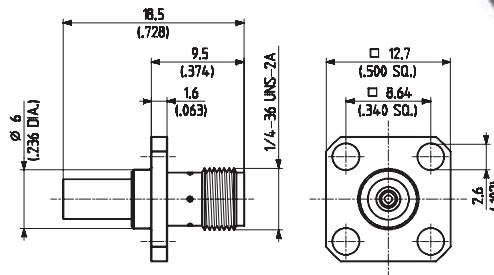
Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Mounting hole	Fig.
25_SMA-50-3-15/111_NE ¹⁾	22544552	Y5, Y12, Y17 (SUCOFORM_141)	single	9057	gold	ML 19	1
25_SMA-50-3-15/111_NH ¹⁾	22644717		bulk 100 pcs.			-	2
25_SMA-50-3-25/111_NE ¹⁾	22641410	Y5, Y12, Y17 (SUCOFORM_141)	single				

¹⁾ Centre contact not captivated

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Plating body	Mounting hole	Crimp insert
25_SMA-50-2-5/111_NE	22640112	U2 (EF_316)	single	3072	gold	ML 19	A
25_SMA-50-2-5/111_NH	22650755		bulk 100 pcs.				
25_SMA-50-2-6/111_NE	22640113	U4 (EF_316_D)	single				
25_SMA-50-2-46/133_NE	22642246	U4 (EF_316_D)	single	3072	SUCOPLATE®	ML 19	A

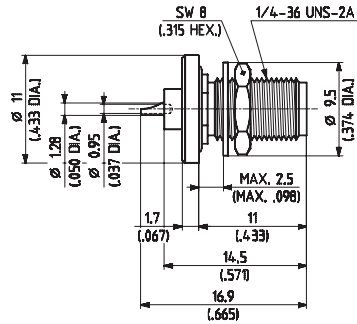
All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – receptacles

Straight bulkhead receptacles

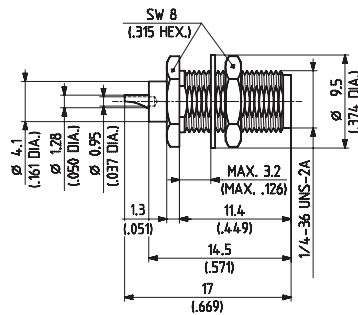
With solder end, jacks (female)

- With panel seal



HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Mounting
22_SMA-50-0-1/111_NE	22640087	single	gold	ML 20	rear mounting

- Without panel seal



HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Mounting
22_SMA-50-0-4/111_NE	22640962	single	gold	ML 35	rear mounting
22_SMA-50-0-4/111_NH	22649418	bulk 100 pcs.	gold	ML 35	rear mounting

Series SMA - receptacles

Straight bulkhead receptacles

With coaxial end, jacks (female)

- Without panel seal

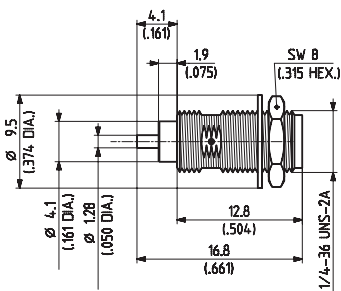


Fig. 1

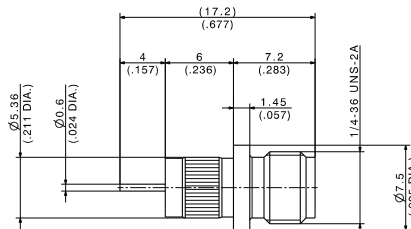


Fig. 2

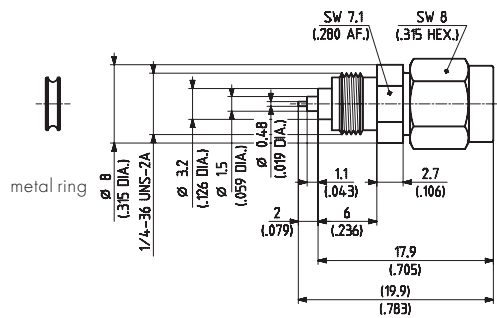


HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Mounting	Fig.
22_SMA-50-0-3/111_NE	22640089	single	gold	ML 98	Front mounting	1
22_SMA-50-0-53/199_NE	22543498	single	passivated stainless steel			
22_SMA-50-0-83/133_NH ¹⁾	84014290	bulk 100 pcs.	SUCOPLATE®	ML 177	Front mounting	2

¹⁾ Use torque wrench 74_Z-0-0-79.

Hermetically sealed, plug (male)

- «Spark Plug» with metal ring seal
- RoHs compliant alternative on request
- Front mounting



HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Notes
12_SMA-50-0-110/111_NE ¹⁾	22652315	single	gold	ML 42	leak rate 10-8 Torr/sec

¹⁾ Use assembly tool 74_Z-0-0-75 and torque wrench 74_Z-0-0-80.

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – receptacles

Straight bulkhead receptacles

Hermetically sealed, jacks (female)

- RoHs compliant alternative on request
- Front mounting

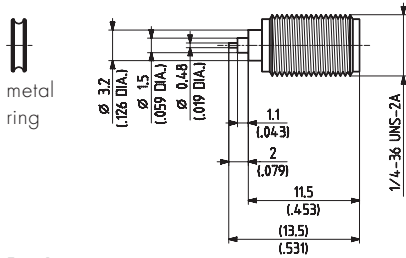


Fig. 1

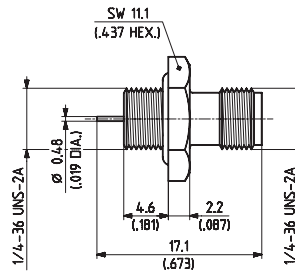


Fig. 2

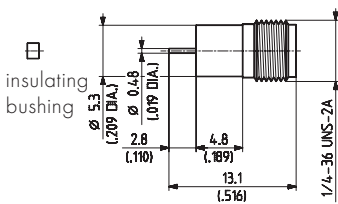


Fig. 3



SMA

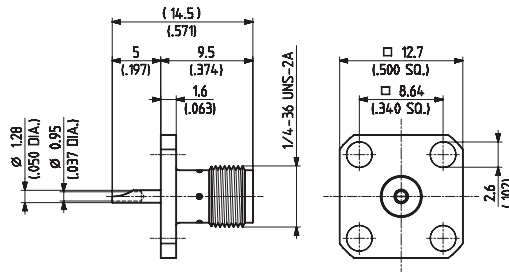
HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Fig.	Notes
22_SMA-50-0-10/111_NE ¹⁾	22641291	single	gold	ML42	1	«Spark Plug» with metal ring seal leak rate 10 ⁻⁸ Torr l/sec
22_SMA-50-0-12/111_NE 22_SMA-50-0-12/111_NY	84042904 22641293	single tray 75 pcs.		ML98	2	with panel seal tap drill 74_Z-0-0-24 leak rate 10 ⁻⁶ Torr l/sec
22_SMA-50-0-15/111_NE	22544588	single		ML96	3	for direct soldering ¹⁾ soldering temperature 250°C/482°F leak rate 10 ⁻⁸ Torr l/sec

¹⁾ Use assembly tool 74_Z-0-0-75 and torque wrench 74_Z-0-0-80.

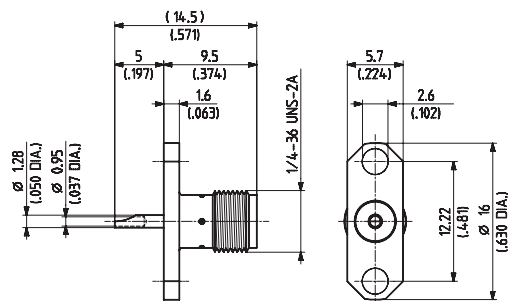
Series SMA - receptacles

Straight panel receptacles

With solder end, jacks (female)

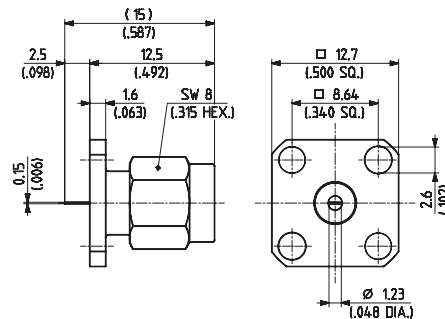


HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
23_SMA-50-0-1/111_NE	22640090	single	gold	flush dielectric
23_SMA-50-0-1/111_NH	22651409	bulk 100 pcs.	gold	
23_SMA-50-0-51/199_NE	22543948	single	passivated stainless steel	



HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
23_SMA-50-0-11/111_NE	22640095	single	gold	flush dielectric
23_SMA-50-0-41/133_NE	22543984	single	SUCOPLATE®	flush dielectric
23_SMA-50-0-41/133_NH	22644383	bulk 100 pcs.	SUCOPLATE®	flush dielectric
23_SMA-50-0-61/199_NE	22544796	single	passivated stainless steel	flush dielectric

With tab end, plug (male)



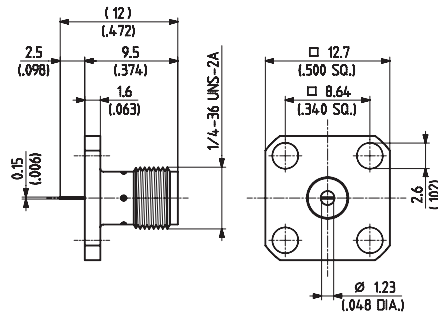
HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
13_SMA-50-0-2/111_NE	22640056	single	gold	flush dielectric

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA - receptacles

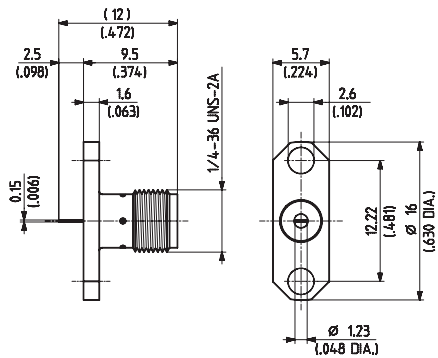
Straight panel receptacles

With tab end, jacks (female)



SMA

HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
23_SMA-50-0-2/111_NE	22640091	single	gold	flush dielectric
23_SMA-50-0-52/199_NE	22543487		passivated stainless steel	



HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
23_SMA-50-0-12/111_NE	22640096	single	gold	flush dielectric
23_SMA-50-0-62/199_NE	22544779		passivated stainless steel	

Series SMA - receptacles

Straight panel receptacles

With coaxial end, jacks (female)

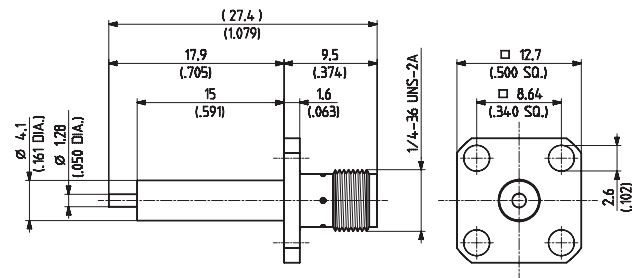


Fig. 1

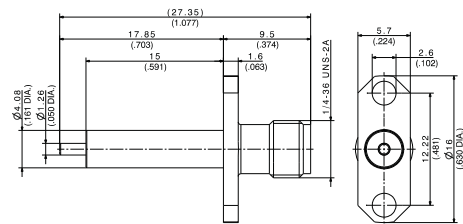


Fig. 2

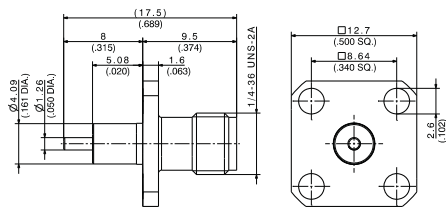


Fig. 3

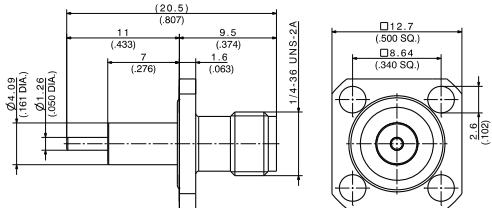


Fig. 4

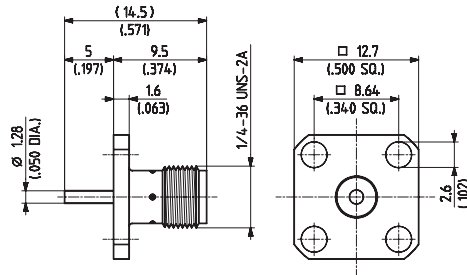
HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes	Fig.
23_SMA-50-0-3/111_NE	22640092	single	gold	extended dielectric	1
23_SMA-50-0-13/111_NE	22640097	single	gold	extended dielectric	2
23_SMA-50-0-13/111_NH	22658873	bulk 100 pcs.	gold	extended dielectric	2
23_SMA-50-0-53/199_NE	22641394	single	passivated stainless steel	extended dielectric	1
23_SMA-50-0-53/199_NH	22649843	single	passivated stainless steel	extended dielectric	1
23_SMA-50-0-272/133_NH	23030310	bulk 100 pcs	SUCOPLATE®	extended dielectric	3
23_SMA-50-0-324/111_NY	84035778	tray 100 pcs.	SUCOPRO® gold plating	extended dielectric with panel sealing	4

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA - receptacles

Straight panel receptacle

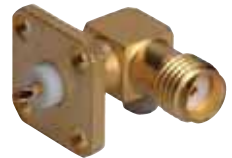
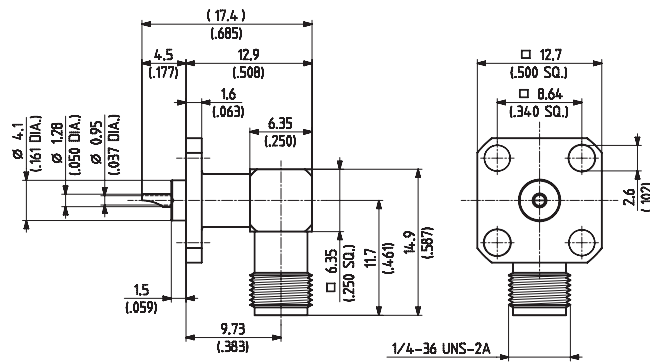
With coaxial end, jack (female)



HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
23_SMA-50-0-21/111_NE	22640101	single	gold	flush dielectric

Right angle panel receptacle

With solder end, jack (female)

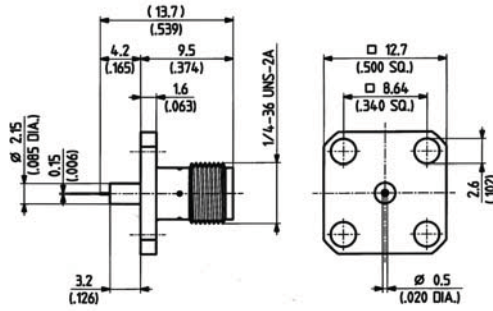


HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
28_SMA-50-0-1/111_NE	22641321	single	gold	extended dielectric

Series SMA – receptacles

26.5 GHz – straight panel receptacle

With tab end, jack (female)



HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Notes
23_SMA-50-0-94/199_NE	22649049	single	passivated stainless steel	ML 93	extended dielectric

Series SMA - PCB connectors

Straight PCB jacks (female)

- Edge mount

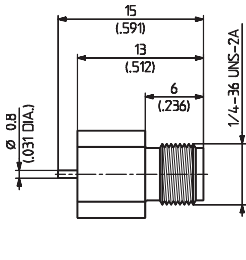


Fig. 1

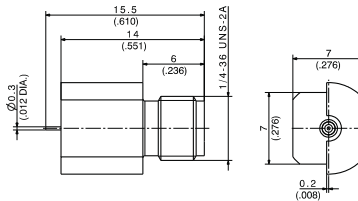
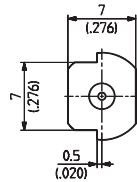
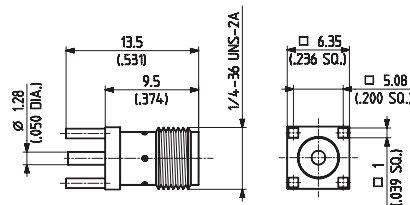


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole	Fig.
82_SMA-S50-0-45/111_NE	22652330	single	SUCOPRO® gold plating	ML 132	1
82_SMA-S50-0-45/111_NM	84037646	tape and reel 500 pcs.	SUCOPRO® gold plating	ML 132	1
92_SMA-50-0-10/111_NE	84120623	single	SUCOPRO® gold plating	ML 132	2
92_SMA-50-0-10/111_NM	84036781	tape and reel 500 pcs.	SUCOPRO® gold plating	ML 132	2

Straight PCB jacks (female)

- Without stand-off



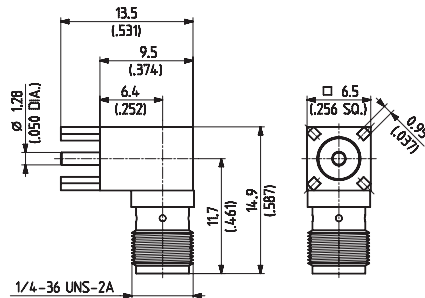
HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole
82_SMA-50-0-1/111_NE	22543359	single	gold	ML41
82_SMA-50-0-1/111_NH	22644334	bulk 100 pcs.	gold	ML41

All highlighted types are HUBER+SUHNER® ECO SMA types.

Series SMA – PCB connectors

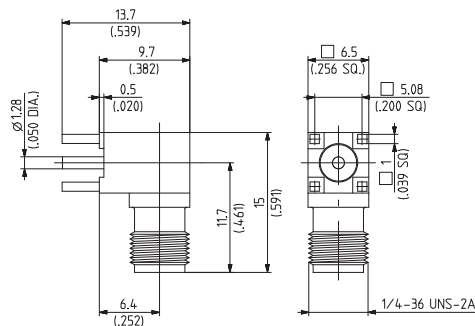
Right angle PCB jacks (female)

- Without stand-off



HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole
85_SMA-50-0-101/111_NE	22658792	single	gold	ML41
85_SMA-50-0-101/111_NH	22652140	bulk 100 pcs.		

- With stand-off



HUBER+SUHNER type	Item no.	Packaging	Plating body	Mounting hole
85_SMA-50-0-144/111_YH	23000527	bulk 100 pcs.	gold	ML41

Series SMA – protective caps and shorts

Caps for jacks

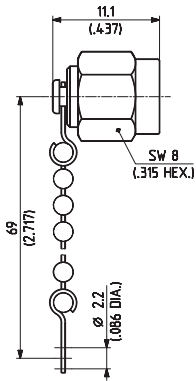


Fig. 1

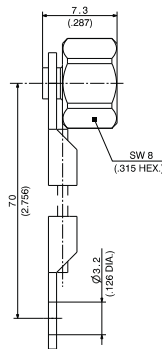
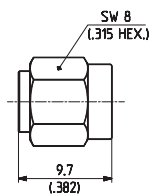


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes	Fig.
62_SMA-0-0-1/-11_NE	22640159	single	gold	humidity sealed, with chain	1
62_SMA-0-0-8/-3_NE	84120887	single	SUCOPLATE®	with wire, IP 68	2

Shorting cap



HUBER+SUHNER type	Item no.	Packaging	Plating body	Notes
64_SMA-50-0-1/111_NE	22640161	single	gold	humidity sealed

All highlighted types are HUBER+SUHNER® ECO SMA types.



Series PC 3.5 – precision subminiature connectors

Description

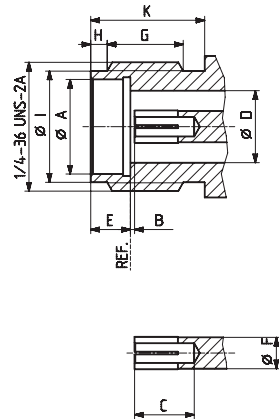
HUBER+SUHNER PC 3.5 connectors are precision connectors for use in microwave applications up to 26.5 GHz. They are especially suitable for use with semi-rigid cables and microwave components. They are intermateable with SMA and SK (2.92 mm) connectors. Due to an air dielectric interface and the more durable construction a superior repeatability further enhances the performance.

Content

Description	149
Interface dimensions in mm / inches	149
Technical data	150
Cable connectors	151
Flange mount connectors	153
Transition pins	154

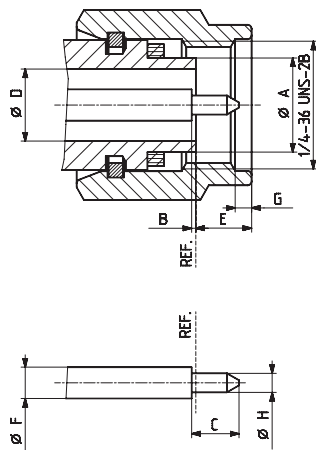
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.55/.179	4.58/.180	4.60/.181	4.63/.182
B	0.00/.000	0.08/.003	0.00/.000	0.08/.003
C	2.03/.080	2.29/.090	2.79/.110	3.18/.125
D	3.49/.138	3.51/.138	3.49/.138	3.51/.138
E	2.36/.093	3.56/.135	1.88/.074	1.98/.078
F	1.51/.060	1.52/.060	1.51/.060	1.52/.060
G	0.38/.015	1.14/.045	3.35/.132	4.62/.182
H	0.92/.036	0.93/.037	0.38/.015	1.14/.045
I	---	---	5.30/.209	5.40/.213
K	---	---	5.54/.218	---

Jack (female)



Interface dimensions conformable to the standards:

International: IEC 60169-23

Series PC 3.5 – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 26.5 GHz
Dielectric withstanding voltage (at sea level) - RG 405/U - RG 402/U	750 V rms, 50 Hz 1000 V rms, 50 Hz
Working voltage (at sea level) - RG 405/U - RG 402/U	≤ 250 V rms, 50 Hz ≤ 335 V rms, 50 Hz
Insulation resistance	≥ 5 · 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 3 mΩ ≤ 2 mΩ
RF-leakage	≥ 100 dB · f (GHz) dB
VSWR (typical values) - RG 405/U - RG 402/U - adaptors	≤ 1.13 up to 26.5 GHz ≤ 1.10 up to 26.5 GHz ≤ 1.08 up to 18 GHz / ≤ 1.15 up to 26.5 GHz

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	0.80 ... 1.10 Nm / 7.1 ... 9.7 in. lbs 1.70 Nm / 15.0 in. lbs
Coupling nut retention force	≥ 270 N / 60.7 lbs
Contact captivation	≥ 27 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Test conditions
Temperature range	-65 °C ... +90 °C / -85 °F ... +194 °F
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	Saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition D
Shock	MIL-STD-202, method 213, condition I

Material data		
Connector part	Material	Plating
Bodies	stainless steel	passivated
Cable entries	brass	gold
Centre contacts	copper-beryllium alloy	gold
Support beads	polystyrene, crosslinked	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series PC 3.5 – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact plugged-in

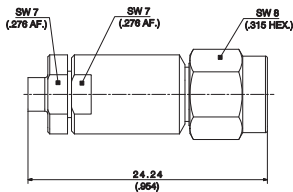


Fig. 1

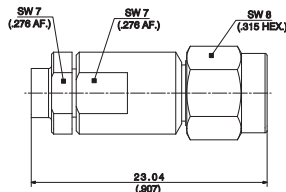


Fig. 2

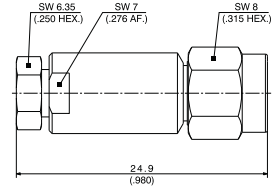


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
11_PC35-50-2-4/199_UE	84009440	Y3, Y16 (EZ_86)	single	0000215467	1
11_PC35-50-3-4/199_UE	84009380	Y5, Y12 (EZ_141)		0000215467	2
11_PC35-50-2-5/199_UE	84139219	Y11 (MF_86)		0000381973	3

Straight cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact plugged-in

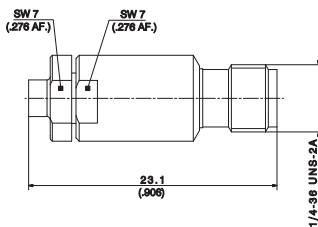


Fig. 1

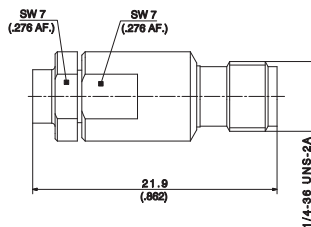


Fig. 2

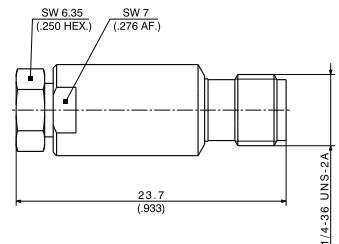


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
21_PC35-50-2-4/199_UE	84009419	Y3, Y16 (EZ_86)	single	0000215467	1
21_PC35-50-3-3/199_UE	84009382	Y5, Y12 (EZ_141)		0000215467	2
21_PC35-50-2-5/199_UE	84139085	Y11 (MF_86)		0000381865	3

Series PC 3.5 – cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Bulkhead mounted
- Cable entry soldered
- Centre contact plugged-in
- With panel seal

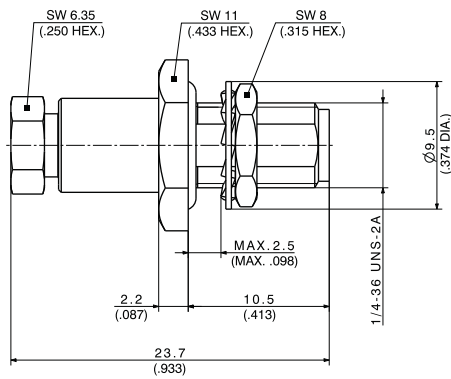


Fig. 1

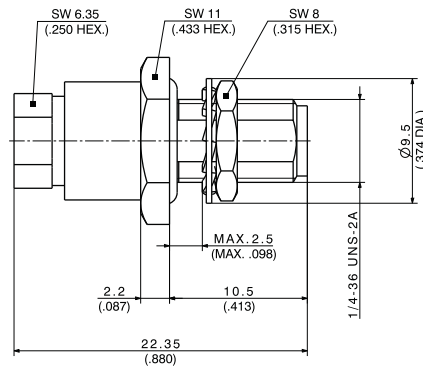


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_PC35-50-2-3/19_UE	84023357	Y3, Y16 (EZ_86)	single	0000238568	ML 35	1
24_PC35-50-2-5/199_UE	84139301	Y11 (MF_86)		0000382070		1
24_PC35-50-3-3/199_UE	84023038	Y5, Y12 (EZ_141)		0000234974		2

Series PC 3.5 – flange mount connectors

Flange mount, jacks (female)

- Panel mounted

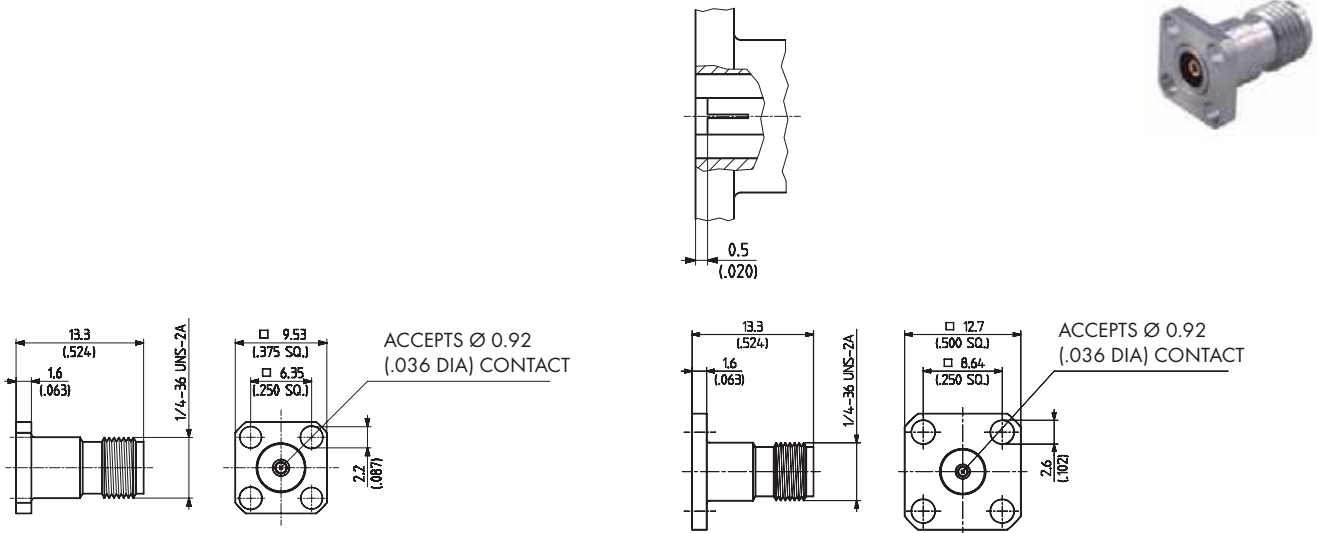
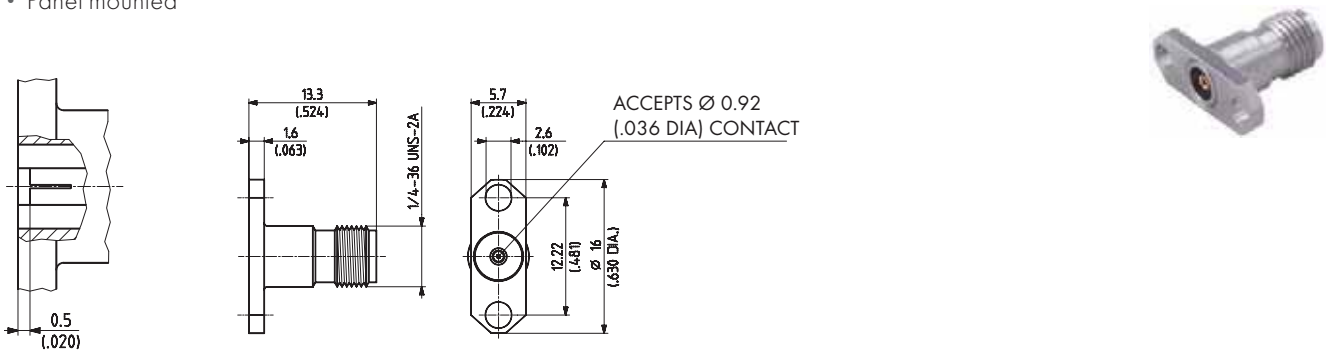


Fig. 1

Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Flange type	Fig.
23_PC35-50-0-51/199_UE	22644918	single	square	1
23_PC35-50-0-53/199_UE	22644910			2

- Panel mounted



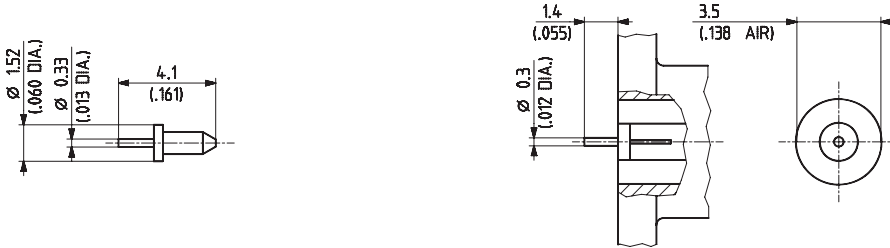
HUBER+SUHNER type	Item no.	Packaging	Flange type
23_PC35-50-0-54/199_UE	22644911	single	2-hole

Series PC 3.5 – transition pins

Transition pins

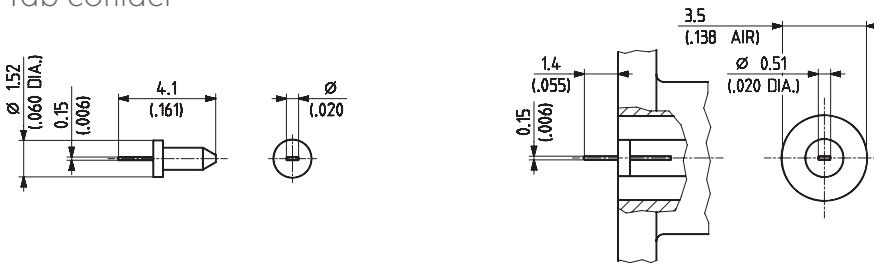
for PC 3.5 connectors with interchangeable contact pins

Pin contact



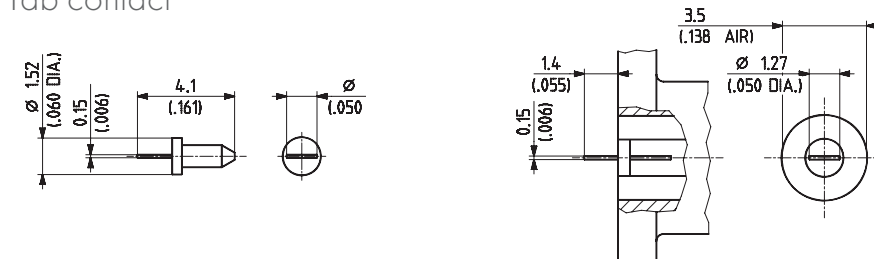
HUBER+SUHNER type	Item no.	Packaging	Plating
73_Z0-0-168	22644927	10 pins	gold

Tab contact



HUBER+SUHNER type	Item no.	Packaging	Plating
73_Z0-0-169	22644931	10 pins	gold

Tab contact



HUBER+SUHNER type	Item no.	Packaging	Plating
73_Z0-0-170	22644932	10 pins	gold

Series SK (2.92 mm) - prec. submini. connectors

Description

HUBER+SUHNER SK connectors are precision connectors for microwave applications up to 40 GHz. They are intermateable with series SMA and PC 3.5. They have a high mechanical stability and an excellent repeatability. The shortened male pin ensures a non-destructive mating process. The glass beads, when used in conjunction with the SK launchers, enable the connectors to be replaced without disturbing the hermetic seal. For a mechanical decoupling between glass bead and internal microwave circuit, stress relief contacts are available.

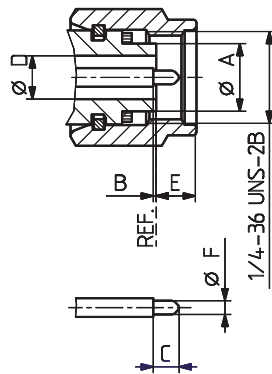
Content

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Interface dimensions in mm/inches	155
Technical data	156
Cable connectors	157
Launchers	158
Accessories	159

SK
(2.92 mm)

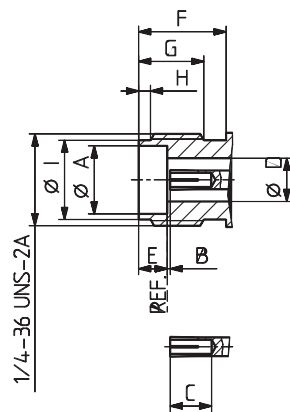
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.53/.178	4.57/.180	4.60/.181	4.64/.183
B	0.00/.000	0.13/.005	0.00/.000	0.13/.005
C	1.55/.061	1.65/.065	2.80/.110	---
D	2.89/.114	2.95/.116	2.89/.114	2.95/.116
E	---	3.28/.129	1.88/.074	1.98/.078
F	0.91/.036	0.94/.037	5.90/.232	---
G	---	---	4.40/.173	---
H	---	---	0.70/.028	0.90/.036
I	---	---	5.30/.208	5.40/.213

Jack (female)



Series SK (2.92 mm) - technical data

SK
(2.92 mm)

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 40 GHz
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz
Working voltage (at sea level) mated/unmated	≤ 250 V rms, 50 Hz
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 3 mΩ ≤ 2 mΩ
VSWR (typical values) - cable connectors (cable assembly with 2 connectors) - launchers	≤ 1.37 DC ... 40 GHz ≤ 1.43 DC ... 40 GHz

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	1.30 Nm / 11.47 in. lbs 1.70 Nm / 15.0 in. lbs
Contact captivation	≥ 27 N / 4.9 lbs
Durability (matings)	≥ 500

Environmental data	Requirements
Temperature range	-55 °C ... +125 °C / -67 °F ... +257 °F
Thermal shock	MIL-STD-202, method 107, condition B
Vibration	MIL-STD-202, method 204, condition D

Material data		
Connector parts	Material	Plating
Bodies, cable connectors Bodies, receptacles	copper beryllium alloy / stainless steel stainless steel / copper alloy	gold passivated / gold
Centre contacts	copper beryllium alloy	gold
Support beads	PPO (polyphenylene oxide)	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series SK (2.92 mm) – cable connectors

Straight cable plugs (male)

For semi-rigid cables

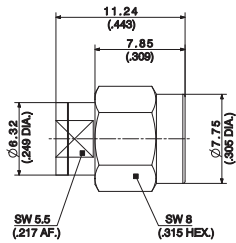


Fig. 1

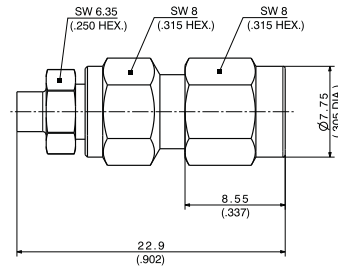


Fig. 2



SK
(2.92 mm)

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.	Notes
11_SK-50-2-56/119_NE	84013230	Y16 (EZ_86)	single	27445	1	plug
11_SK-50-2-60/199_NE	84098644	Y11 (MF_86)		0000331903	2	plug

Straight cable plugs (male)

For semi-rigid cables

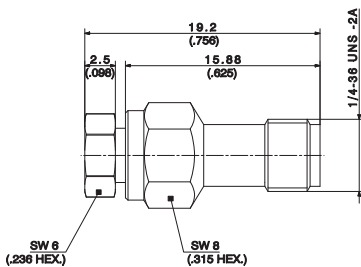


Fig. 1

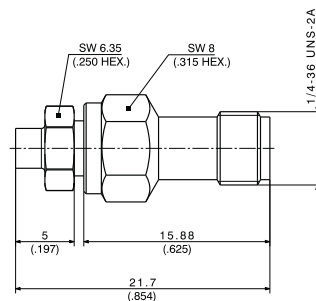


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.	Notes
21_SK-50-2-58/199_NE	84019664	Y16 (EZ_86)	single	0000234990	1	jack
21_SK-50-2-61/199_NE	84094378	Y11 (MF_86)		0000326138	2	jack

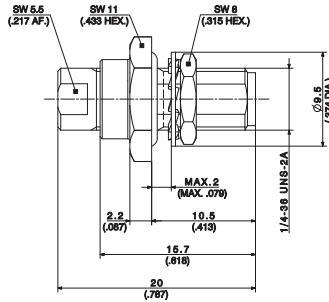
Series SK (2.92 mm) - cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid cables

- with panel seal

SK
(2.92 mm)



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_SK-50-2-55/1--_NE	84016419	Y10 (EZ_118-TP)	single	0000229976	ML 35	1

Series SK (2.92 mm) - launchers

«Sparkplug» launchers

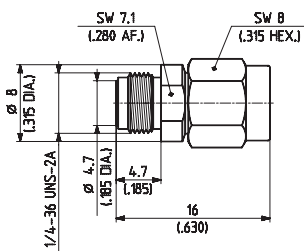


Fig. 1

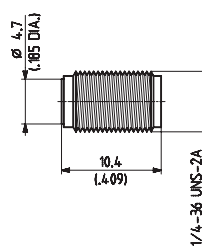


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Assembly instruction	Mounting hole	Fig.	Notes
12_SK-50-0-51/199_NE	22645974	single	9181	ML 75	1	plug
22_SK-50-0-51/199_NE	22645975	single	9181	ML 75	2	jack

Series SK (2.92 mm) - launchers

Panel launchers (male)

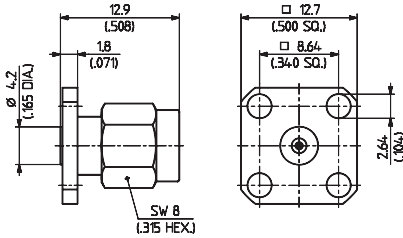


Fig. 1

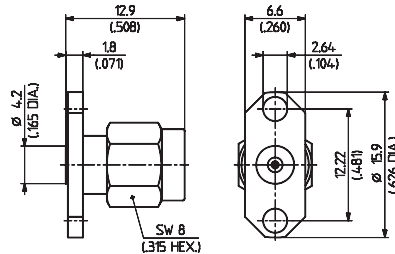


Fig. 2



SK
(2.92 mm)

HUBER+SUHNER type	Item no.	Packaging	Assembly instruction	Mounting hole	Flange type	Fig.
13_SK-50-0-51/199_NE	22645978	single	9182	ML77	square	1
13_SK-50-0-52/199_NE	22645976	single	9182	ML78	2-hole	2

Panel launchers (male)

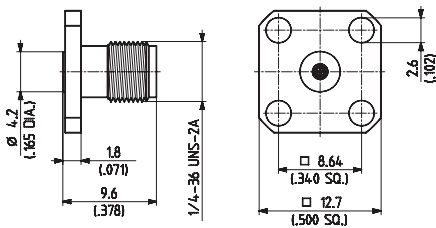


Fig. 1

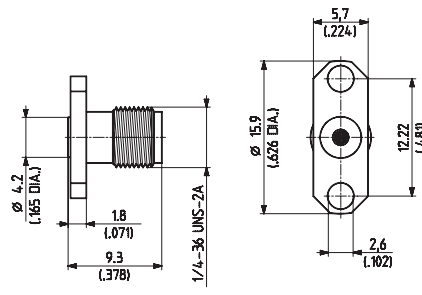


Fig. 2

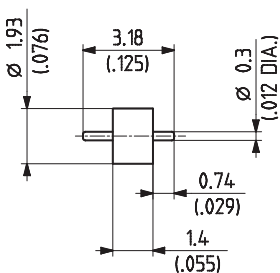


HUBER+SUHNER type	Item no.	Packaging	Assembly instruction	Mounting hole	Flange type	Fig.
23_SK-50-0-51/199_NE	22645979	single	9182	ML77	square	1
23_SK-50-0-52/199_NE	22645977	single	9182	ML78	2-hole	2

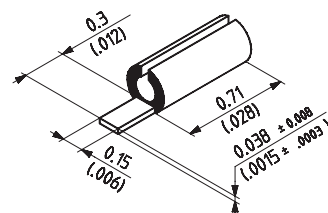
Series SK (2.92 mm) - accessories

Glass bead for 12 SK, 13 SK, 22 SK, 23 SK launchers
(package with 1 piece)

Microstrip stress relief contacts
(package with 100 pieces)



HUBER+SUHNER type
73_Z-0-0-203/11_NE
Item no. 22645983



HUBER+SUHNER type
73_Z-0-0-204/1--_NH
Item no. 22645980



Series PC 1.85 – precision subminiature connectors

Description

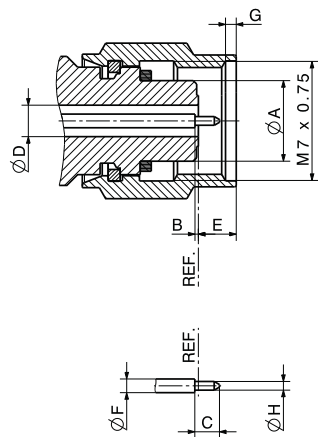
HUBER+SUHNER PC 1.85 connectors are precision connectors for use in microwave applications up to 65 GHz. The connectors features best electrical performance, excellent mechanical stability as well as extreme reliability. They are particularly well suited for semi-rigid, semi-flexible and flexible microwave cables. PC 1.85 is intermateable with PC 2.4.

Content

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Interface dimensions in mm/inches	161
Technical data	162
Cable connectors	163

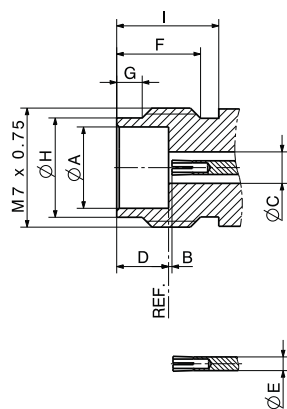
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.725/0.186	4.75/0.187	4.77/0.1878	4.795/0.1888
B	0.00/0.00	0.08/0.003	0.00/0.00	0.08/0.003
C	1.34/0.053	1.44/0.057	1.84/0.07233	1.86/0.07333
D	1.838/0.07233	1.862/0.07333	3.00/0.118	3.10/0.122
E	1.85/0.073	2.45/0.096	0.791/0.0311	0.816/0.0321
F	0.791/0.0311	0.816/0.0321	4.80/0.189	5.06/0.199
G	0.5/0.02	0.76/0.03	1.37/0.054	1.63/0.064
H	0.498/0.0196	0.523/0.0206	5.79/0.228	5.89/0.232
I			6.00/0.236	

Jack (female)



Interface dimensions conformable to the standards:

International: IEC 60169-23

Series PC 1.85 – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 65 GHz
Dielectric withstanding voltage (at sea level)	500 V rms, 50 Hz
Working voltage (at sea level)	150 V rms, 50 Hz
Insulation resistance	$\geq 5 \cdot 10^3 \text{ M}\Omega$
Contact resistance - centre contact - outer contact	$\leq 4 \text{ m}\Omega$ $\leq 2.5 \text{ m}\Omega$
Return loss (typical values cable assemblies) - MULTIFLEX 86 HE - Semi-rigid 86 (SR_86_LA) - SUCOFORM 86	$\leq 16 \text{ dB}$ up to 65 GHz $\leq 15 \text{ dB}$ up to 65 GHz $\leq 15 \text{ dB}$ up to 65 GHz

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	0.8 ... 1.1 Nm / 7.1 ... 9.7 in. lbs 1.65 Nm / 14.6 in. lbs
Contact captivation	$\geq 20 \text{ N}$ / 4.5 lbs
Durability (matings)	≥ 500

Environmental data	Test conditions
Temperature range	-55 °C ... +155 °C / -67 °F ... +311 °F
Thermal shock	IEC 60068-2-14
Damp heat steady state	IEC 60068-2-78
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27

Material data		
Connector part	Material	Plating
Body/nut	stainless steel	
Cable entry	BZ4	SUCOPRO®/gold plating
Centre contact	copper beryllium alloy	SUCOPRO®/gold plating
Support bead	LCP	
Gaskets	silicone rubber	

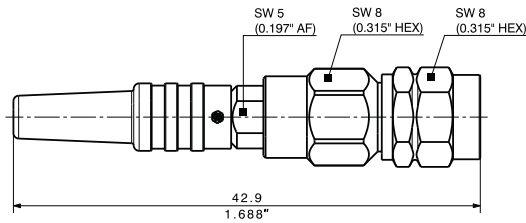
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series PC 1.85 – precision subminiature connectors

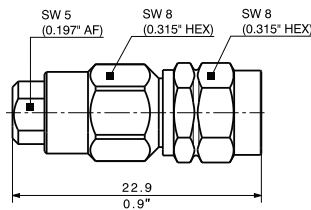
Straight cable plugs (male)

For semi-rigid, SUCOFORM and MULTIFLEX cables

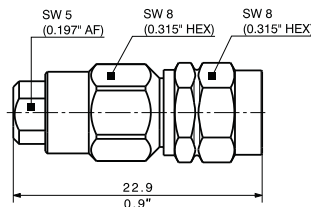
- Cable entry soldered
- Centre contact plugged-in



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_PC185-50-2-4/19-_NE	84144282	Y11 (MF_86_HE)	single	0000373606



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_PC185-50-2-5/19-_NE	84152948	U99 (SR_86_LA)	single	0000373655



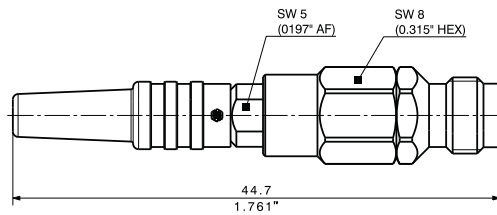
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_PC185-50-2-6/19-_NE	85001960	Y16 (SM_86)	single	0000388588

Series PC 1.85 – precision subminiature connectors

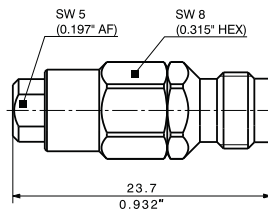
Straight cable jacks (female)

For semi-rigid, SUCOFORM and MULTIFLEX cables

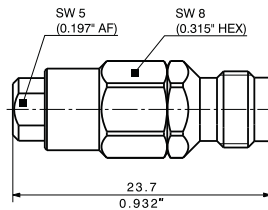
- Cable entry soldered
- Centre contact plugged-in



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
21_PC185-50-2-4/19-_NE	84144175	Y11 (MF_86_HE)	single	0000397321



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
21_PC185-50-2-5/19-_NE	85001993	U99 (SR_86_LA)	single	0000397354



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
21_PC185-50-2-6/19-_NE	85002004	Y16 (SM_86)	single	0000397358

Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series 1.0/2.3 inserts according to DIN 41626/2

Description

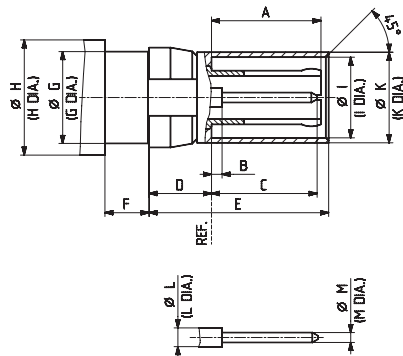
HUBER+SUHNER coaxial «inserts» 1.0/2.3 are suitable for the insertion of mixed layout connectors DIN 41612 (pattern M). These inserts feature a slide-on coupling mechanism, which ensures a short connect-disconnect time. Impedance accuracy, fast and easy assembly as well as high reproducibility due to the full crimp cable entry are typical characteristics of these H+S connectors. The 1.0/2.3 inserts are suitable for applications up to 4 GHz.

Contents

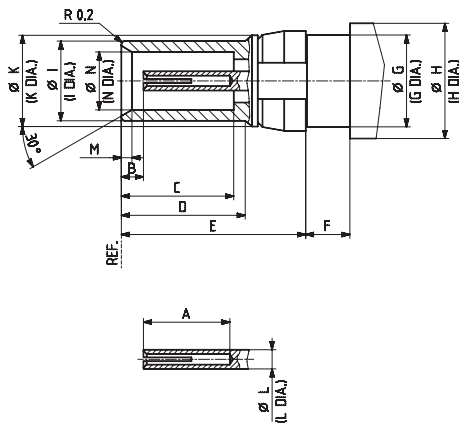
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Interface dimensions (mm/inches)

Plug (male)



Jack (female)



	Plug		Jack	
	min.	max.	min.	max.
A	5.40/.213	5.70/.224	4.50/.177	---
B	---	1.15/.045	1.15/.045	1.45/.057
C	5.20/.205	5.50/.217	5.80/.228	5.90/.232
D	3.05/.120	3.20/.126	6.40/.252	6.50/.256
E	9.25/.364	9.35/.368	9.50/.374	9.60/.378
F	2.22/.087	2.40/.094	2.22/.087	2.40/.094
G	4.76/.187	4.79/.189	4.76/.187	4.79/.189
H	---	6.00/.236	---	6.00/.236
I	4.20/.165	4.28/.169	4.03/.159	4.15/.163
K	4.66/.183	4.78/.188	4.72/.186	4.75/.187
L	1.00/.039 nom.		1.00/.039 nom.	
M	0.48/.019	0.52/.020	0.50/.020	0.60/.024
N	---	---	3.00/.118	3.06/.120

Interface dimensions conformable to the standards:

Germany: DIN 41626/2

Series 1.0/2.3 – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range (GHz)	DC ... 4
Dielectric withstanding voltage (at sea level)	750 V rms, 50 Hz (depending on cable)
Working voltage (at sea level)	250 V rms, 50 Hz (depending on cable)
Insulation resistance	$\geq 200 \text{ M}\Omega$
Contact resistance - centre conductor - outer conductor	$\leq 10 \text{ m}\Omega$ $\leq 3 \text{ m}\Omega$

Mechanical data	Requirements
Engagement force	$\leq 10 \text{ N} / 2.3 \text{ lbs}$
Disengagement force	$\leq 10 \text{ N} / 2.3 \text{ lbs}$
Contact captivation	$\geq 10 \text{ N}$
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-55 °C ... +125 °C / -67 °F ... +257 °F
Climatic category	IEC \rightarrow 50/125/56
Moisture resistance	MIL-STD-202, method 106
Corrosion	salt spray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition A

Series 1.0/2.3 – technical data

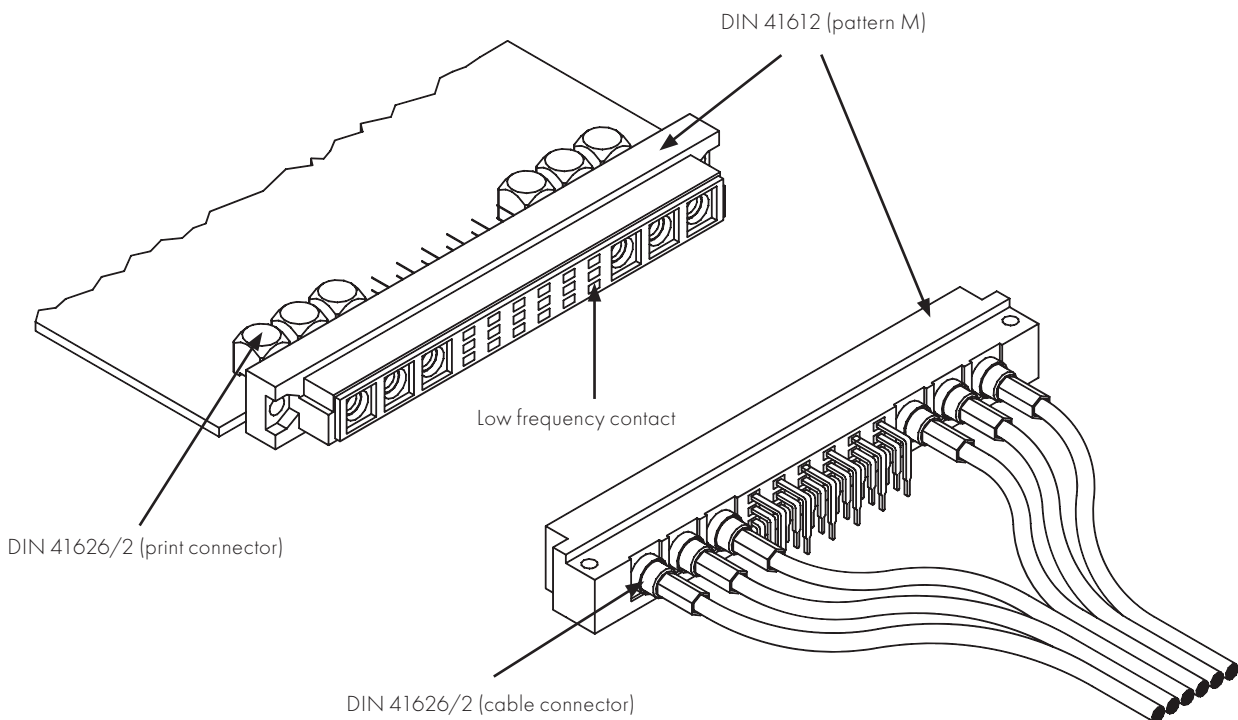
Material data		
Connector part	Material	Plating
Bodies	brass	gold / SUCOPRO® gold plating
Outer contacts	copper-beryllium alloy, brass	gold / SUCOPRO® gold plating
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper	gold / SUCOPRO® gold plating
Insulators	PTFE or PFA	

1.0/2.3

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

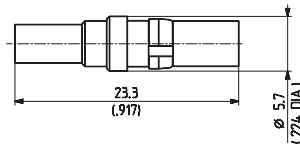
Typical application



Series 1.0/2.3 – cable connectors

Straight cable plugs (male)

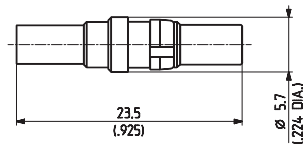
- HUBER+SUHNER® full crimp
- Removal tool see page 448



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Plating
11_1023-C50-2-2/111_NE-1	84148590	U4 (K_02252_D)	single	9191	1 A	SUCOPRO® gold plating
11_1023-C50-2-2/111_NE 11_1023-C50-2-2/111_NH	22648559 22649631		single bulk 100 pcs			gold
11_1023-C50-2-3/111_NE 11_1023-C50-2-3/111_NH	22648780 22649007	U2 (RG_316_/U)	single bulk 100 pcs.			gold

Straight cable jacks (female)

- HUBER+SUHNER® full crimp
- Removal tool see page 448

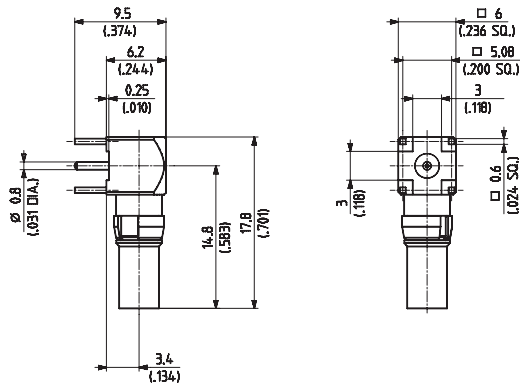


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Plating
21_1023-C50-2-2/111_NE-1	84149886	U4 (K_02252_D)	single	9191	1 A	SUCOPRO® gold plating
21_1023-C50-2-2/111_NE	22648560					gold
21_1023-C50-2-3/111_NE	22648790	U2 (RG_316_/U)				gold

Series 1.0/2.3 – PCB connectors

Right angle PCB jacks (female)

- Removal tool see page 448



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating
85_1023-C50-0-1/111_NE-1	84149979	single	ML 15	SUCOPRO® gold plating
85_1023-C50-0-1/111_NE	22648561			gold

1.0/2.3



Series QLA 00 – subminiature coaxial connectors

Description

The QLA 00 series contains connectors with a quick latch coupling mechanism: connection is achieved by simply pushing the plug into the jack. 3 latching springs automatically engage, thereby securing the mated connectors against axial forces. No twisting action is required. The connectors are easily released by slightly pulling back the outer sleeve of the plug. This coupling mechanism provides a fast and reliable connection for applications up to 1.4 GHz.

Content

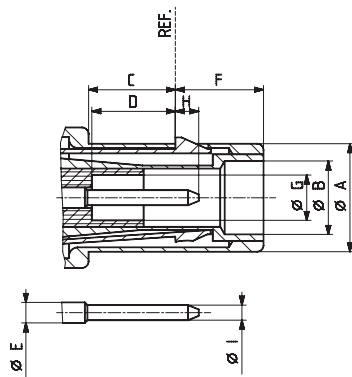
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Compatibility

All connectors of the series QLA 00 are without any restrictions intermateable with Lemo series 00.250.

Interface dimensions (mm/inches)

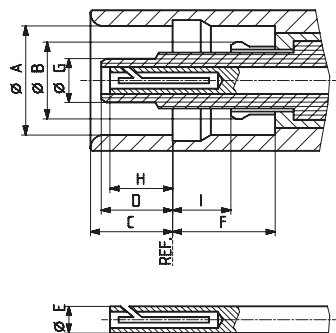
Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.96/.195	5.03/.198	5.05/.199	5.11/.201
B	3.38/.133	3.44/.135	3.50/.138 *	3.55/.140 *
C	3.93/.155	4.08/.161	3.73/.147	3.86/.152
D	3.55/.140	---	---	3.48/.137
E	0.95/.037 nom.		1.24/.049 nom.	
F	4.00/.157	4.16/.164	4.23/.167	4.88/.192
G	2.10/0.83	2.16/.085	1.95/.077	2.03/.080
H	---	1.32/.052	---	3.30/.130
I	0.69/.027	0.72/.028	2.35/.093	2.90/.114

* Prior to slotting.

Jack (female)



Interface dimensions conformable to the standards:

NIM-CAMAC-Standard CD/N549

Series QLA 00 – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 1.4 GHz
Dielectric withstanding voltage (at sea level)	1.5 kV, 50 Hz
Working voltage (at sea level) - unmated - mated	≤ 300 V rms, 50 Hz ≤ 500 V rms, 50 Hz
Insulation resistance	≥ 10 ⁶ MΩ
Contact resistance - centre contact - outer contact	≤ 4 mΩ ≤ 2 mΩ
VSWR (typical value for mated connector pair) 11 QLA - 21 QLA	DC ... 300 MHz = 1.15 300 MHz - 1.4 GHz = 1.20
RF-leakage (measured at 500 MHz)	≥ 80 dB

Mechanical data	Requirements
Engagement force	typ. 2 N / .45 lbs
Disengagement force	typ. 5 N / 1.1 lbs
Contact captivation	≥ 20 N / 4.5 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 10 000

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-55 °C ... +150 °C / -67 °F ... +302 °F
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	salt spray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition D
Shock	MIL-STD-202, method 213, condition I

Material data		
Connector parts	Material	Plating
Bodies	brass, annealed	nickel
Pin contacts	brass, annealed	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper	SUCOPLATE®
Insulators	PTFE or PFA	

Some connectors may have a specification that differs from the above mentioned data.

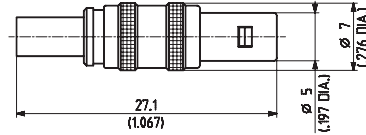
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series QLA 00 – cable connectors

Straight cable plugs (male)

For flexible cables

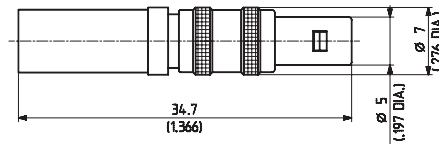
- HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QLA-01-1-8/122_NE	22641146	U1 (EF_178)	single	9007	1 A
11_QLA-01-2-8/122_NE	22544043	U2 (RG_316_U)	single		
11_QLA-01-2-8/122_NH	22544042		bulk 100 pcs.		
11_QLA-01-2-9/122_NH	22648228	U4 (EF_316_D)	bulk 100 pcs.		
11_QLA-01-2-13/122_NH	22644547	U3 (G_01130_HT)	bulk 100 pcs.	27020	

For flexible cables

- HUBER+SUHNER® full crimp



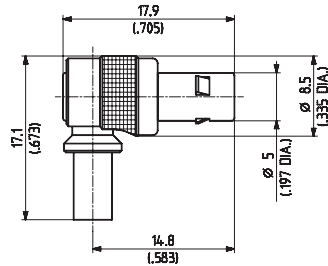
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QLA-01-3-1/122_NE	22641313	U7 (RG_58_C/U)	single	3015	2 B
11_QLA-01-3-2/122_NE	22643326	U9 (RG_223_/U)			

Series QLA 00 – cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

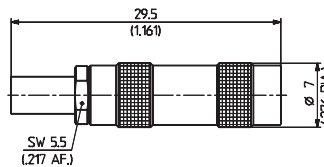


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QLA-01-2-1/122_NE	22640013	U2 (RG_316_U)	single	3091	A
16_QLA-01-2-13/122_NE	22544279	U3 (G_01130_HT)			
16_QLA-01-2-4/122_NE	22640015	U4 (EF_316_D)			

Straight cable jack (female)

For flexible cables

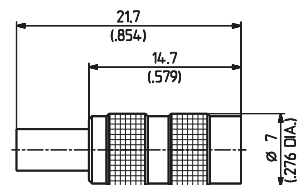
- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_QLA-01-2-1/112_NE	22640019	U2 (RG_316_U)	single	3089	A
21_QLA-01-2-1/112_NH	22651746		bulk 100 pcs.		

For flexible cables

- HUBER+SUHNER® full crimp



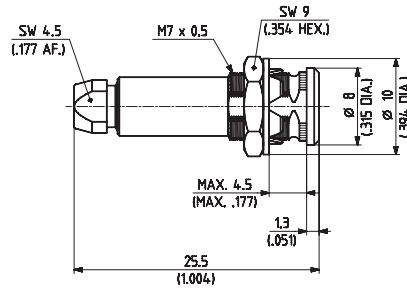
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_QLA-01-2-5/112_NH	22652371	U2 (RG_316_U)	bulk 100 pcs.	27158	1 A

Series QLA 00 – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

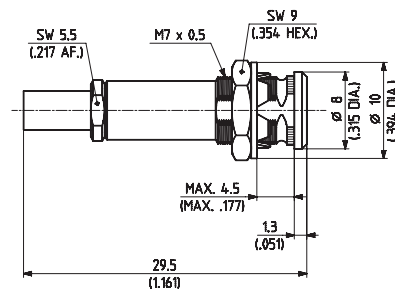
- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Notes
24_QLA-01-2-11/112_NE	22544535	U2 (RG_316_U)	single	9008	ML 99	max. cable diameter 2.90 mm/.114 in.

For flexible cables

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_QLA-01-2-1/112_NE	22640026	U2 (RG_316_/U)	single	3089	ML 99	A

Series QLA 00 – receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted

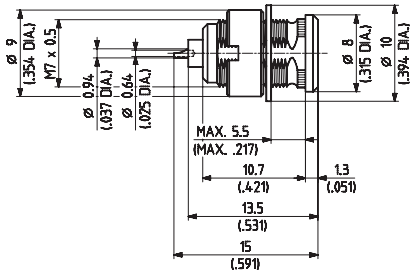


Fig. 1

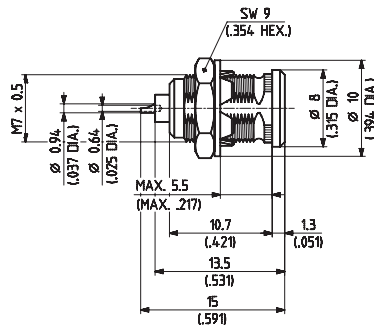


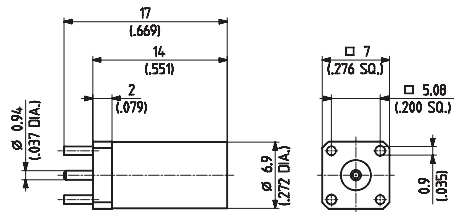
Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_QLA-01-0-1/112_NE	22640023	single	ML 23	1	
22_QLA-01-0-1/112_NH	22646308	bulk 100 pcs.	ML 23	1	
22_QLA-01-0-2/112_NE	22640024	single	ML 99	2	counter sunk from rear

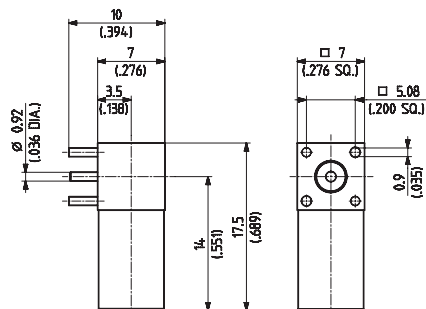
Series QLA 00 – PCB connectors

Straight PCB jack (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
82_QLA-01-0-2/112_NE	22543414	single	ML 97	without stand-off

Right angle PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
85_QLA-01-0-2/112_NE	22640039	single	ML 97	without stand-off
85_QLA-01-0-2/110_NH	22646483	bulk 100 pcs.		



Series BMA - subminiature blind mate connectors

Description

HUBER+SUHNER BMA blind mate connectors open up special dimensions in microwave applications up to 18 GHz. HUBER+SUHNER offers a range of connectors for fixed as well as «floating» configurations with any axial or radial misalignment taken out by the outer contact of the jacks. The BMA series presents an outstanding range of products featuring high reliability and ease of assembly.

Compatibility

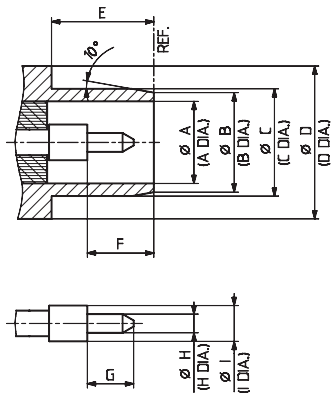
The HUBER+SUHNER range of BMA connectors is fully compatible with the OSP connector series.

Content

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Interface dimensions in mm/inches	179
Technical data	180
BMA connector applications	181
Cable connectors	184
Receptacles with solder-in hermetic seal	188
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PCB connectors	191

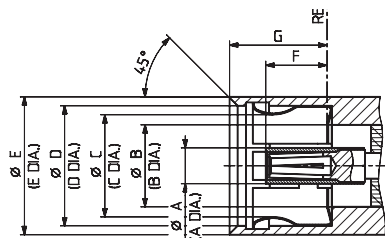
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.09/.161 nom		1.78/.070 nom.	
B	4.88/.192 nom.		4.09/.161 nom.	
C	5.31/.209	5.35/.211	----	5.08/.200
D	7.62/.300 nom.		5.71/.225	----
E	5.03/.198	----	7.37/.290	----
F	3.25/.128	----	3.05/.120	3.23/.127
G	2.29/.090 nom.		----	5.03/.198
H	0.90/.035	0.94/.037		
I	1.78/.070 nom.			

Jack (female)



Interface dimensions conformable to the standards:

USA: MIL-STD-348A/321

Series BMA – technical data

Electrical data	Requirements	
Cable type	.086" semi-rigid	.141" semi-rigid
Impedance	50 Ω	
Frequency range	DC ... 18 GHz	
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz	1.0 kV rms, 50 Hz
Insulation resistance	≥ 5 • 10 ³ MΩ	
Contact resistance - centre contact - outer contact	≤ 2 mΩ ≤ 2 mΩ	
RF-leakage interface only (fully mated)	≥ 90 dB • f (GHz) ¹⁾	
RF-testing voltage (at sea level)	1.0 kV rms, 5 MHz	670 V rms, 5 MHz
Admissible power (at sea level and room temperature)	≤ 300 W at 3 GHz	

¹⁾ Measured at interface with reference planes being in true alignment.

Mechanical data	Requirements
Engagement force	≤ 13.5 N
Disengagement force	≥ 2 N
Contact captivation	≥ 27 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 1000

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +125 °C / -85 °F ... +257 °F
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition D
Shock	MIL-STD-202, method 213, condition I

Material data		
Connector parts	Material	Plating
Bodies	copper beryllium alloy stainless steel	gold
Pin contacts	copper beryllium alloy	gold
Spring basket	copper beryllium alloy	gold
Springs (floating connectors)	stainless steel	
Insulators	PTFE or PFA	
Gaskets	EPDM, 40 shore A	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series BMA - connector applications

Quick and reliable engagement and disengagement of multiple microwave transmission lines, high packaging density of flexible and rigid coaxial lines and cable free connection of modules to motherboard are some needs of modern microwave systems.

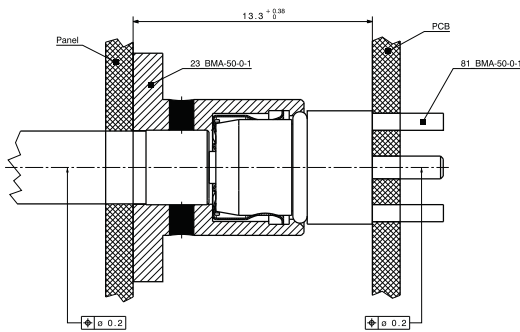
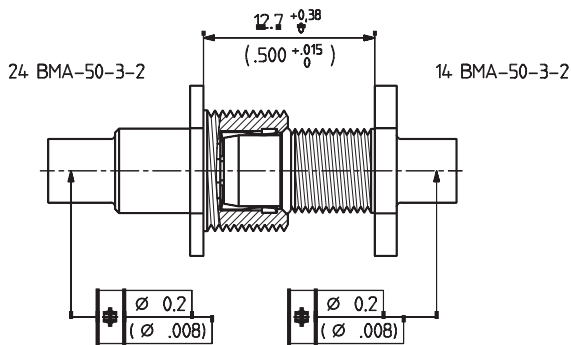
HUBER+SUHNER BMA connectors offer an economical solution for the most demanding interconnector applications found today in civil and military microwave circuits. To help ensure a problem free, reliable long term operation the following guidelines should be used.

Assembly hints

Radial and axial misalignments can be accommodated with the spring outer contacts of the HUBER+SUHNER BMA connector. These misalignments are due to the build-up of tolerances with the major contributions coming from: axial direction, mounting plate distances and plate distortions. Radial direction: mounting hole positions and concentricity, plate distortion and misalignment.

For recommended mounting hole sizes see page 465f.

Rigid mounting (examples)

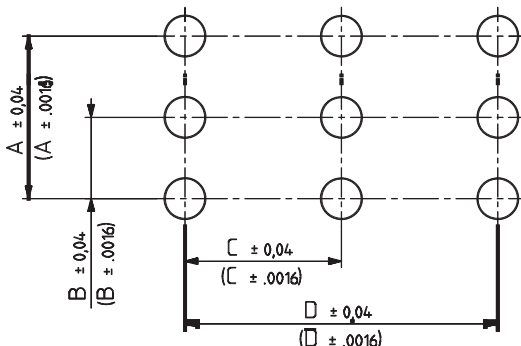


Maximum misalignment

Axial:	0.38 mm / .015 in. *
Radial:	0.20 mm / .008 in.

* For applications with reduced return loss specifications 0.76 mm / .030 in. is allowable.

Hole dimensions

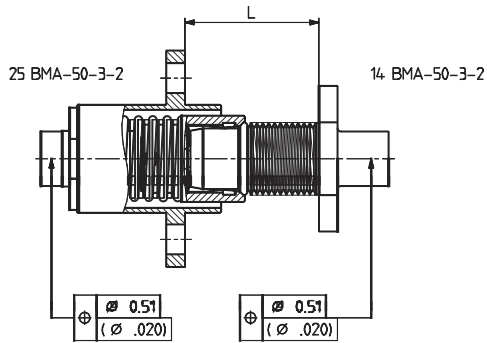


To avoid tolerances build-up all mounting holes must be tolerated from a single datum point.

It is also important that both of the mounting plates are properly affixed and correctly positioned.

Series BMA – connector applications

Float mounting (example)



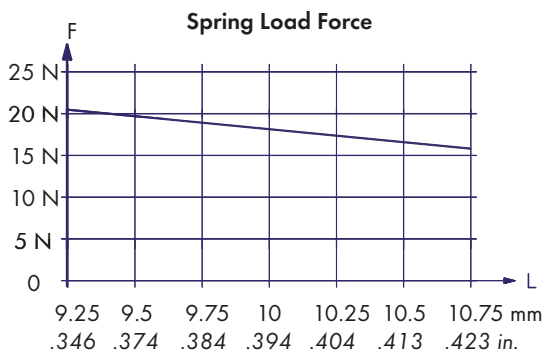
The increased tolerance correction of the connector is achieved by using an extra spring system.

This allows the centre assembly of the connector to move freely within the flange body.

Recommended maximum tolerances:

Axial: 1.52 mm / .060 in.

Radial: 0.51 mm / .020 in.



The adjacent diagram shows the relationship between the connector preloading force and the separation distance “L” between the mounting reference planes for a typical connector pair (25_BMA-50-3-2 and 14 BMA-50-3-2).

To ensure optimum contact under extreme radial misalignment the following points must be considered:

A:
The maximum misalignment tolerances must not be exceeded. Any possible bending of the mounting plate due to the spring preloading of the individual connectors must be taken into account.

If distortion occurs, the following steps should be taken to minimise the effect:

- Re-dimensioning
- Bracing of the mounting plate
- Reduction of maximum connector preloading force which will result in the limitation of length L.

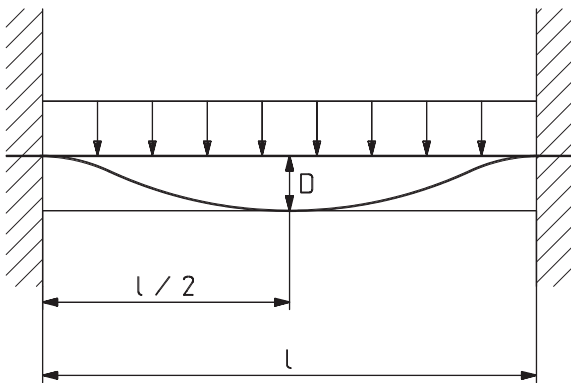
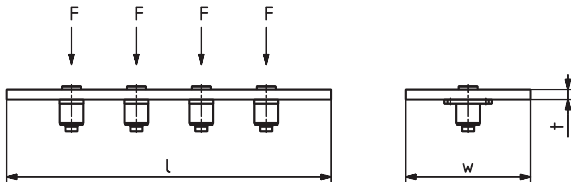
B:
A minimum preloading force of 16 N must be ensured for each connector pair so that the maximum engaging force will be exceeded. This represents the upper limit of separation. For the example above this is a length L of maximum 10.65 mm / .419 in.

Data on other connector combinations available on request. For the dimensioning of the holes the same points must be considered as for the rigid mounting.

Series BMA – connector applications

Mounting plate bending

For an array of BMA connectors to be mounted on a chassis, the forces on the connectors must be taken into account and in the case of a floating assembly the preloading forces must be considered.



For a simplified calculation the mounting plate can be considered as a beam under deflection, thus the bending is:

Legend:

- D deflection = $\frac{n \cdot F \cdot l^3}{384 E \cdot I}$
- E modulus of elasticity
aluminium: $E = 70\,000 \text{ N/mm}^2$
steel: $E = 210\,000 \text{ N/mm}^2$
- F preloading force
- I moment of beam = $\frac{w \cdot t^3}{12}$
- l length of panel
- n number of connectors
- t thickness of panel
- w width of panel

Example:

4 connectors of type 25_BMA-50-3-2 (preloading force $F = 20 \text{ N}$ each):
 $E = 70\,000 \text{ N/mm}^2$ (aluminium chassis)
 thickness of panel (t) 2 mm
 width of panel (w) 20 mm
 length of panel (l) 80 mm

$$I = \frac{20\text{mm} \cdot (2\text{mm})^3}{12} = 13.33\text{mm}^4$$

$$D = \frac{4 \cdot 20\text{N} \cdot (80\text{mm})^3}{384 \cdot 70'000 \frac{\text{N}}{\text{mm}^2} \cdot 13.33\text{mm}^4} = 0.11\text{mm}$$

Series BMA - cable connectors

Straight bulkhead cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Bulkhead mounted, rigid
- Body material: CuBe, gold plated

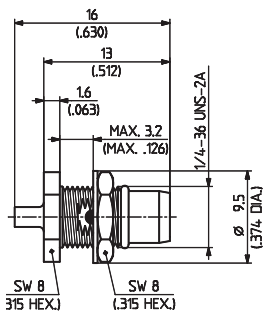


Fig. 1

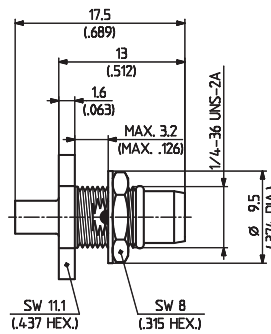


Fig. 2

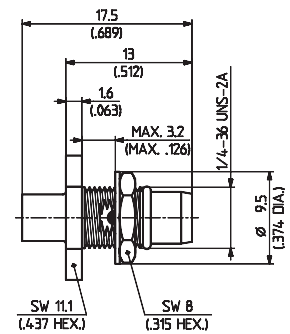


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
14_BMA-50-1-15/111_NE	22646663	Y2, Y15 (EZ_47)	single	27180	ML 56	1
14_BMA-50-2-2/111_NE	22645600	Y3, Y11, Y16 (EZ_86)		9171		2
14_BMA-50-3-2/111_NE	22645601	Y5, Y12, Y17 (EZ_141)		9171		3

For flexible cables

- Cable entry crimp
- Bulkhead mounted, rigid
- Body material: stainless steel

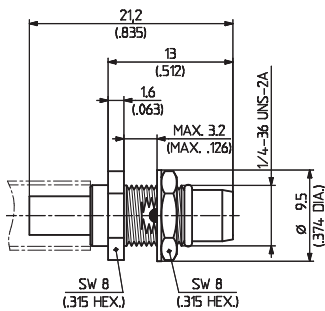


Fig. 1

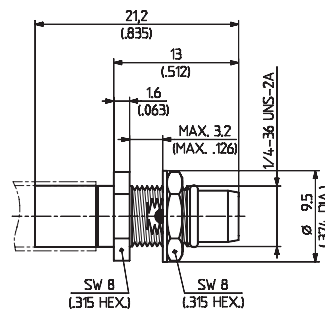


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
14_BMA-50-2-3/199_NE	22645614	U2 (RG_316_/U)	single	9172	ML 56	A ¹⁾	1
14_BMA-50-3-3/199_NE	22645615	U9, U11 (RG_400_/U)		9173		B ²⁾	2

¹⁾ MIL insert M22520/5-03A can also be used.

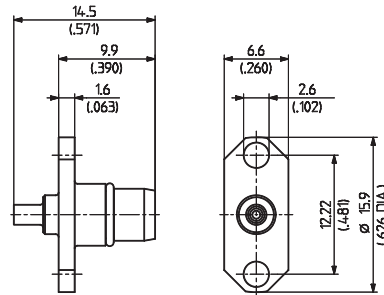
²⁾ MIL insert M22520/5-05A can also be used.

Series BMA – cable connectors

Straight panel cable plug (male)

For semi-rigid cables

- Cable entry soldered
- 2-hole mounted
- Body material: CuBe, gold plated



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
15_BMA-50-1-15/111_NE	22649704	Y2, Y15 (EZ_47)	single	27180

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Snap-in, floating
- Body material: CuBe, gold plated

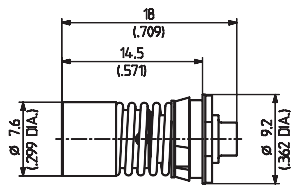


Fig. 1

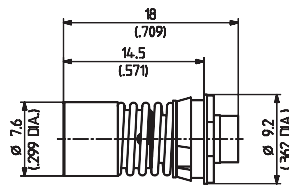


Fig. 2

Connector fixed into mounting panel with snap-in mechanism. Recommended removal tool: 74_Z-0-0-213

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_BMA-50-2-4/111_NE	22645606	Y3, Y11, Y16 (EZ_86)	single	9171	ML66	1
24_BMA-50-3-4/111_NE	22645607	Y5, Y12, Y17 (EZ_141)				2

It is recommended to use a service loop to facilitate the float features of the connector.

Series BMA - cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry crimp
- Snap-in, floating
- Body material: stainless steel

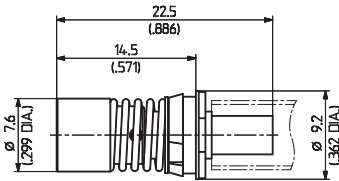


Fig. 1

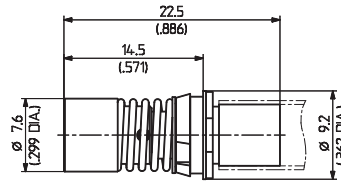


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
24_BMA-50-2-5/119_NE	22645620	U2 (RG_316_/U)	single	9172	ML66	A ¹⁾	1
24_BMA-50-3-5/119_NE	22645621	U9, U11 (RG_400_/U)		9173		B ²⁾	2

¹⁾ MIL insert M22520/5-03A can also be used.

²⁾ MIL insert M22520/5-05A can also be used.

Straight panel cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Flange mount, floating

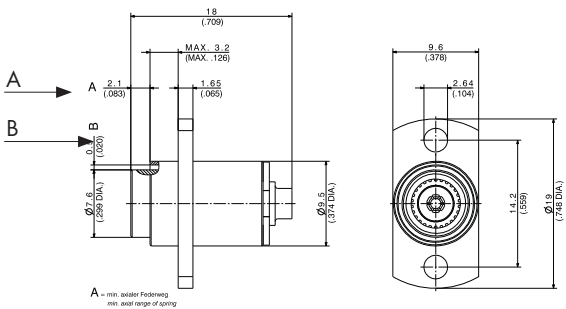


Fig. 1

A = min. 2.1 mm/.083 in. axial range of spring
 B = min. 0.5 mm/.020 in. radial misalignment

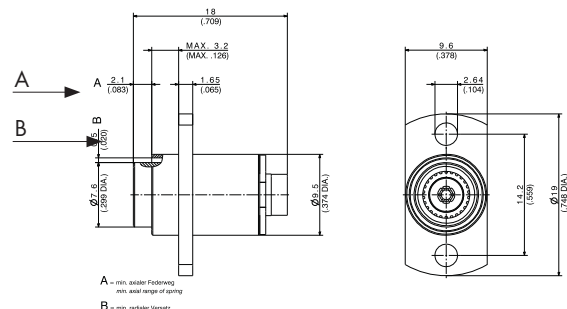


Fig. 2

Outer connector body and flange of stainless steel,
 inner floating part of gold plated CuBe

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
25_BMA-50-2-2/119_NE	22645604	Y3, Y16 (EZ_86)	single	9171	ML58	1
25_BMA-50-3-2/119_NE	22645605	Y5, Y12, Y17 (EZ_141)				2

It is recommended to use a service loop to facilitate the float features of the connector.

Series BMA - cable connectors

Straight panel cable jacks (female)

For flexible cables

- Cable entry crimp
- Flange mount, floating

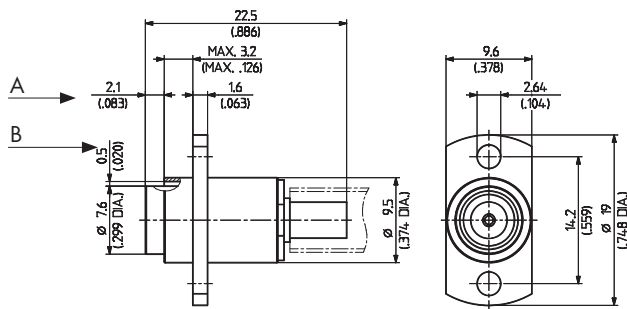


Fig. 1

A = min. 2.1 mm/.083 in. axial range of spring
 B = min. 0.5 mm/.020 in. radial misalignment

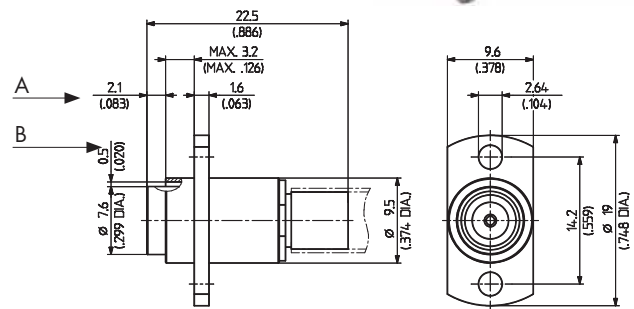


Fig. 2

Outer connector body and flange of stainless steel,
 inner floating part of gold plated CuBe

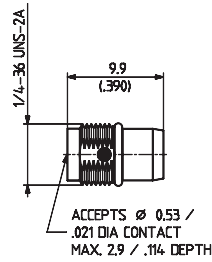
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
25_BMA-50-2-3/119_NE	22645618	U2 (RG_316_/U)	single	9172	ML 58	A ¹⁾	1
25_BMA-50-3-3/119_NE	22645619	U9, U11 (RG_400_/U)		9173		B ²⁾	2

¹⁾ MIL insert M22520/5-03A can also be used.
²⁾ MIL insert M22520/5-05A can also be used.

Series BMA – receptacles with solder-in hermetic seal

Receptacle, plug (male)

- Bulkhead mounted
- Threaded installation
- Body material: stainless steel

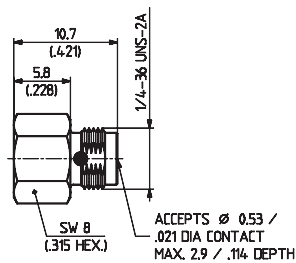


HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Suitable glass-bead
12_BMA-50-0-3/199_NE	22645636	single	ML 61	73 Z-0-0-198 ¹⁾

Use tool 74_Z-0-0-215 with torque wrench 74_Z-0-0-214 for mounting. For fixturing hermetic seal while soldering, fixture 74_Z-0-0-211 is recommended.
¹⁾ See page 463.

Receptacle, jack (female)

- Bulkhead mounted
- Threaded installation
- Body material: stainless steel



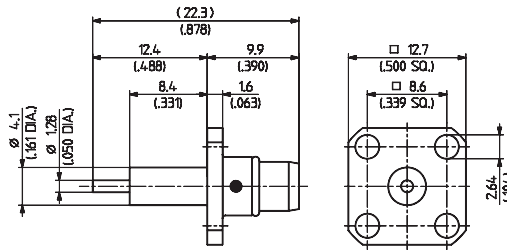
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Suitable glass-bead
22_BMA-50-0-3/199_NE	22645637	single	ML 61	73 Z-0-0-198 ¹⁾

Use tool 74_Z-0-0-215 with torque wrench 74_Z-0-0-214 for mounting. For fixturing hermetic seal while soldering, fixture 74_Z-0-0-211 is recommended.
¹⁾ See page 463.

Series BMA – receptacles with solder end

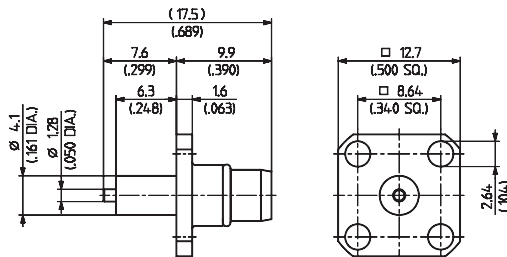
Receptacles, plugs (male)

- Panel mounted
- Body material: stainless steel



HUBER+SUHNER type	Item no.	Packaging	Flange type	Notes
13_BMA-50-0-1/199_NE	22645622	single	square	with extended dielectric

- Panel mounted
- Body material: stainless steel

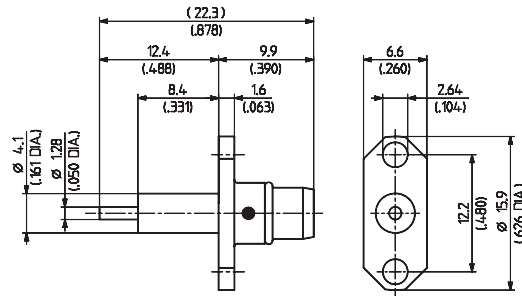


HUBER+SUHNER type	Item no.	Packaging	Flange type	Notes
13_BMA-50-0-13/199_NE	22660107	single	square	with extended dielectric

Series BMA – receptacles with solder end

Receptacle, plug (male)

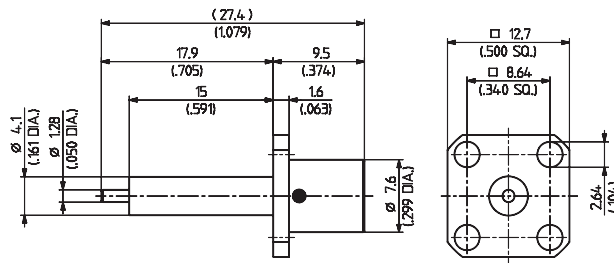
- Panel mounted
- Body material: stainless steel



HUBER+SUHNER type	Item no.	Packaging	Flange type	Notes
13_BMA-50-0-2/199_NE	22645623	single	2-hole	with extended dielectric

Receptacles, jack (female)

- Panel mounted
- Body material: stainless steel

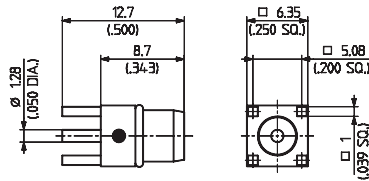


HUBER+SUHNER type	Item no.	Packaging	Flange type	Notes
23_BMA-50-0-1/119_NE	22645624	single	square	with extended dielectric

Series BMA – PCB connectors

Straight PCB plug (male)

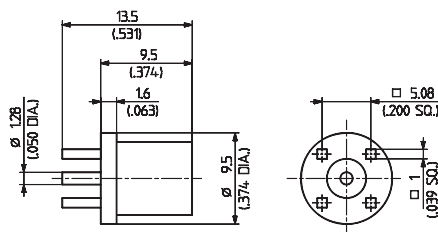
- Body material: CuBe, gold plated



HUBER+SUHNER type	Item no.	Packaging	Flange type
81_BMA-50-0-1/111_NE	22645630	single	ML 41

Straight PCB jack (female)

- Body material: CuBe, gold plated



HUBER+SUHNER type	Item no.	Packaging	Flange type
82_BMA-50-0-1/111_NE	22645631	single	ML 41



Series ECO BMA – connectors

Description

An alternative, cost effective and reliable blind mate solution with brass body material and SUCOPLATE® surface plating for applications up to 12.4 GHz.

Compatibility

ECO BMA connectors from HUBER+SUHNER are mechanically compatible with standard BMA connectors according to MIL-STD-348A/321

Properties

- Cost effective material and plating
- DC - 12.4 GHz
- Axial float
- Radial float
- 500 matings

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Cable connectors	195



Series ECO BMA – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 12.4 GHz
Return loss (RL)	connector specific
Dielectric withstanding voltage (at sea level)	1000 V RMS 50 Hz
Insulation resistance	$\geq 5 \cdot 10^3 \text{ M}\Omega$
Contact resistance - centre contact - outer contact	3 mΩ 2.5 mΩ

Mechanical data	Requirements
Engagement force	$\leq 13.5 \text{ N}$
Contact captivation	$\geq 27 \text{ N}$
Durability (matings)	≥ 500

Environmental data	Requirements
Temperature range	-40 °C ... +125 °C
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B

Material data		
Connector parts	Material	Plating
Body	brass	SUCOPLATE®
Body (when soldered)	brass	SUCOPRO®
Center contact, male	brass	SUCOPRO®
Center contact, female	copper-beryllium alloy	SUCOPRO®
Basket (outer contact)	copper-beryllium alloy	SUCOPRO®
Compression spring	stainless steel	
Insulators	PTFE or PFA	
Gasket material	EPDM	

Recommendations regarding application please see page 181ff.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series ECO BMA – cable connectors

Straight bulkhead cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Bulkhead mounted

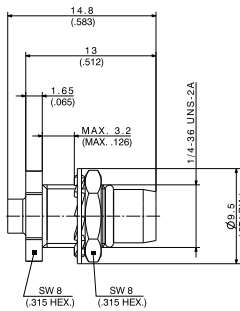


Fig. 1

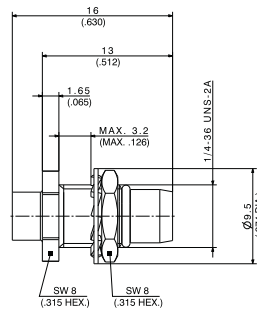


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
14_BMA-50-2-33/133_NH	85006671	Y3, Y11, Y16 (EZ_86)	bulk 100 pcs	0000407366	ML 56	1
14_BMA-50-3-31/133_NH	85006443	Y5, Y12, Y17 (EZ_141)		0000408218		2

For flexible cables

- Cable entry crimp
- Bulkhead mounted

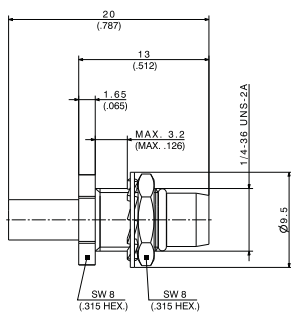


Fig. 1

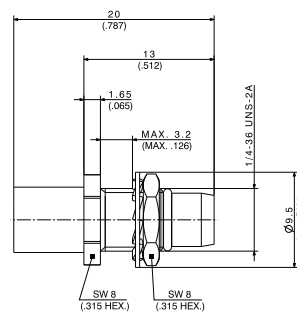


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
14_BMA-50-2-34/133_NH	85006685	U2 (RG_316_/U)	bulk 100 pcs	0000407975	ML 56	A	1
14_BMA-50-3-32/133_NH	85006605	U9,U11 (RG_400_/U)		0000408386		76_Z0-0-57	2

Mounting hole ML 56

Series ECO BMA - cable connectors

Straight panel cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Flange mount

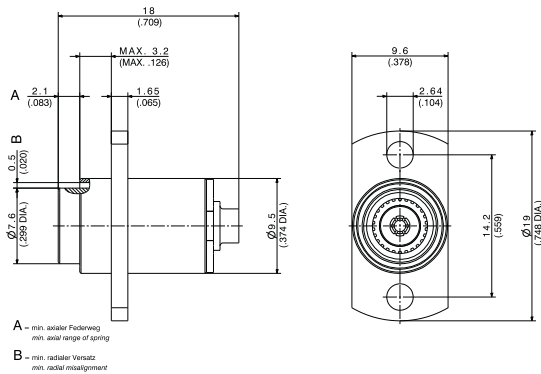


Fig. 1

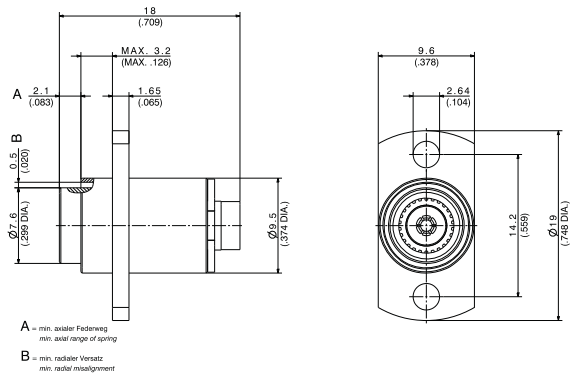


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
25_BMA-N50-2-32/113_NH	85006517	Y3,Y16 (EZ_86)	bulk 100 pcs	0000406310	ML 58	1
25_BMA-N50-3-10/113_NH	85006464	Y5,Y12,Y17 (EZ_141)		0000406844		2

For flexible cables

- Cable entry crimp
- Bulkhead mounted

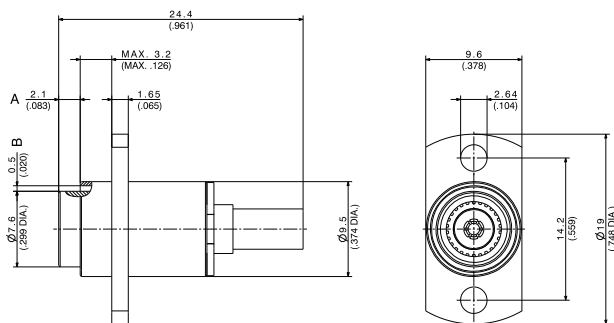


Fig. 1

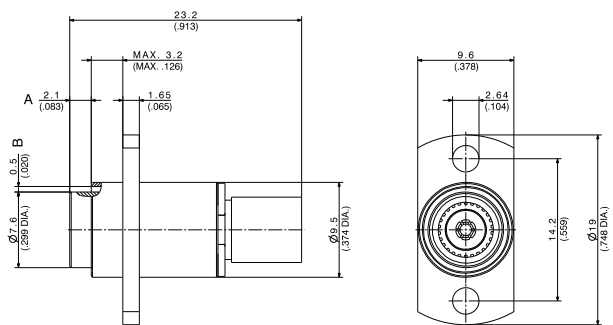


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
25_BMA-N50-2-33/113_NH	85006558	U2 (RG_316_/U)	bulk 100 pcs	0000406625	A	1
25_BMA-N50-3-11/113_NH	85006521	U9, U11 (RG_400_/U)		0000406908	76_Z-0-0-57	2

Series QMA – subminiature connectors

Description

HUBER+SUHNER QMA coaxial connectors are according to QLF standard and available with 50 Ω impedance. The frequency range extends to 18 GHz, depending on the connector and cable type. However most of the QMA connectors are return loss optimised for frequencies up to 6 GHz. The interface is based on the SMA dimension but instead of a threaded coupling mechanism a new snap-lock mechanism is used.

The QMA interface has a very similar performance to the SMA, but in addition it offers an easier, faster and safer coupling operation, helping customers to save significantly time during production. The packaging density of QMA is increased compared to SMA connectors thanks to the fact that no torque spanner is required to fasten the coupling nut.

QMA is not intermateable with SMA.

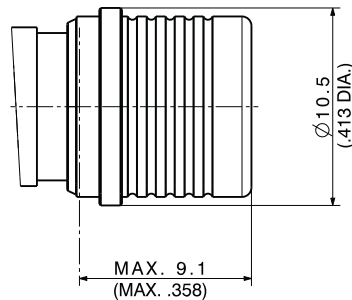
QMA connectors are also available as waterproof version (IP 68) and are compatible with QLF standard.

Content

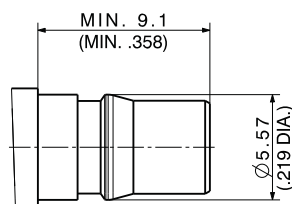
Description	197
Interface dimensions in mm / inches	197
Features	197
Technical data	198
Cable connectors	200
Receptacles	209
PCB connectors	211
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QMA eXtreme – XQMA	214
Calibration	215

Interface dimensions (mm/inches)

Plug (male)



Jack (female)



Features

- Easy to mate
- 10 times faster than with threaded SMA
- Increased reliability
- No torque or tooling required
- 360° rotatable interface
- Easy routing of cable assembly without mechanical stress or electrical performance degradation
- Higher packing density
- Size equivalent to SMA, but space saving as there is no need for wrench clearance
- Excellent electrical performance
- Consistent VSWR performance enables to replace standard SMA
- Return loss optimised DC – 6 GHz



Series QMA – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 18 GHz
Dielectric withstanding voltage (at sea level)	1000 V rms, 50 Hz
Working voltage (at sea level)	480 V rms, 50 Hz
Insulation resistance	$\geq 5 \cdot 10^3$ MΩ
Contact resistance - centre contact - outer contact	≤ 3.0 mΩ max. (initial) ≤ 2.5 mΩ max. (initial)
Passive intermodulation	-120 dBc static @ 1.8 GHz, 2 x 20 W
Screening effectiveness - DC to 3 GHz - 3 to 6 GHz	-80 dB min. -70 dB min.
Return loss (typical) - DC to 3 GHz - 3 to 6 GHz	≥ 32 dB ≥ 25 dB

Mechanical data	Requirements
Mating characteristics - engagement force - disengagement force	25 N typical 20 N typical
Interface retention force	60 N min.
Durability	100 mating cycles min.
Connector pitch	12.4 mm min center to center

Environmental data	Test conditions for standard QMA
Temperature range	-40 °C ... +85 °C
Thermal shock	IEC 60169-1 16.4 (-40 °C ... +85 °C)
Corrosion	IEC 60169-1 16.7 (48 hrs)
Damp heat	IEC 60169-1 16.3 (96 hrs) steady state
Vibration	IEC 60068-2-64 random 5-20 Hz: $1.29 (m/s^2)^2 / Hz$ 20-500 Hz: -3 dB/octave

Environmental data	Test conditions for waterproof QMA
Temperature range	-40 °C ... +105 °C
Thermal shock	MIL-STD-202, method 107, condition B
Corrosion	MIL-STD-202, method 101, condition B
Damp heat	MIL-STD-202, method 106 F
Vibration	MIL-STD-202, method 204, condition D
Ingress protection	IP 68 IEC 60529, mated condition

Series QMA – technical data

Material data		
Connector parts	Material	Plating
Bodies, outer contact	brass / spring bronze	SUCOPLATE® / SUCOPRO® gold plating
Pin contacts	brass	SUCOPRO® gold plating
Socket contacts	spring bronze / copper-beryllium alloy	SUCOPRO® gold plating
Insulators	PTFE or PFA	
Crimp ferrules	copper	SUCOPLATE®
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

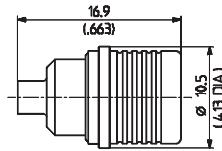
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series QMA – cable connectors

Straight cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

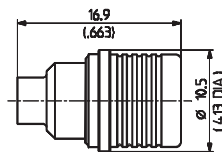
- Cable entry soldered
- Centre contact plugged-in



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_QMA-50-2-3/133_NE 11_QMA-50-2-3/133_NH	23017704 23017705	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	27428

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

- Cable entry soldered
- Centre contact plugged-in



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Notes
11_QMA-50-3-3/133_NE 11_QMA-50-3-3/133_NH	23017695 23017696	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	27428	body: SUCOPRO® gold plating
11_QMA-50-3-3/133_NH-1	84093812		bulk 100 pcs.		body: SUCOPLATE®

Series QMA – cable connectors

Straight cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

- Waterproof
- Cable entry soldered
- Centre contact plugged or soldered

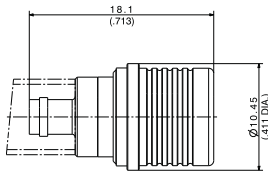


Fig. 1

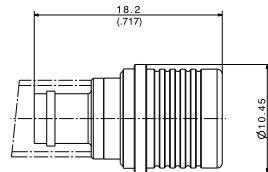
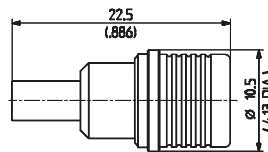


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
11_QMA-W50-2-6/113_NE 11_QMA-W50-2-6/113_NH	84075866 84068215	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	0000263508	1
11_QMA-W50-3-7/133_NE 11_QMA-W50-3-7/133_NH	84075868 84068217	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	0000263762	2

For flexible cables

- HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QMA-50-2-1/133_NE 11_QMA-50-2-1/133_NH	23017700 23017701	U4 (K_02252_D)	single bulk 100 pcs.	27427	1 A
11_QMA-50-2-2/133_NE 11_QMA-50-2-2/133_NH	23017720 23017721	U2 (RG_316_/U)	single bulk 100 pcs.		

Series QMA – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

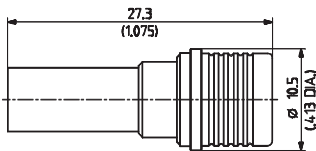


Fig. 1

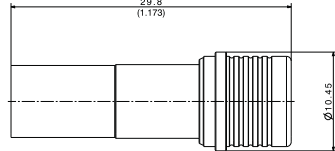


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_QMA-50-3-1/133_NE 11_QMA-50-3-1/133_NH	23017697 23017698	U9, U11 (RG_400_U)	single bulk 100 pcs.	27429	B	1
11_QMA-50-3-2/133_NE 11_QMA-50-3-2/133_NH	23017702 23017703	U7 (RG_58_C/U)	single bulk 100 pcs.			
11_QMA-50-4-2/133_NH	84000234	S16, X9 (S_04262_D)	bulk 100 pcs.	0000231592	C	2

For flexible cables

- Waterproof
- Cable entry clamped
- Centre contact plugged or soldered

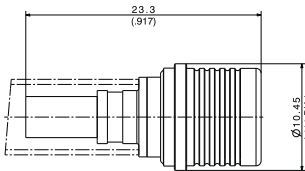


Fig. 1

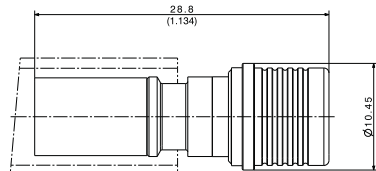


Fig. 2



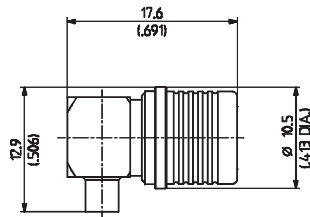
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_QMA-W50-2-8/133_NH	84104479	U2 (EF_316)	bulk 100 pcs.	0000312675	A	1
11_QMA-W50-4-3/133_NE 11_QMA-W50-4-3/133_NH	84075865 84023153	S16, X9, (S_04162_B-60)	single bulk 100 pcs.	0000239799	C	2

Series QMA – cable connectors

Right angle cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_QMA-50-2-3/133_NE 16_QMA-50-2-3/133_NH	23017666 23017667	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	27444

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

- Cable entry soldered
- Centre contact soldered

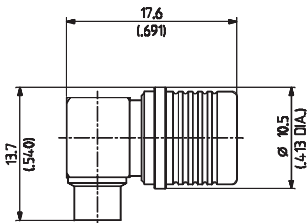


Fig. 1

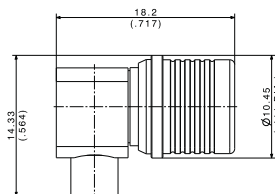


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
16_QMA-50-3-3/133_NE 16_QMA-50-3-3/133_NH	23017693 23017694	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	27444	1
16_QMA-50-3-10/13-_NE 16_QMA-50-3-10/13-_NP	85013178 85013182	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	0000366362	2

Series QMA – cable connectors

Right angle cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

- Waterproof
- Cable entry soldered
- Centre contact soldered

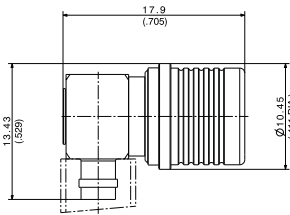


Fig. 1

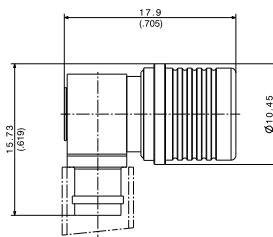


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.	Notes
16_QMA-W50-2-9/113_NE 16_QMA-W50-2-9/113_NH	84068219 84075867	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	0000263789	1	body: SUCOPRO® gold plating
16_QMA-W50-3-5/113_NE 16_QMA-W50-3-5/113_NH	84075863 84060993	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	0000263850	2	body: SUCOPRO® gold plating
16_QMA-W50-3-5/133_NH	84093914	Y5, Y12, Y17 (SUCOFORM_141)	bulk 100 pcs.	0000263850	2	body: SUCOPLATE®

For flexible cables

- Cable entry crimp
- Centre contact soldered

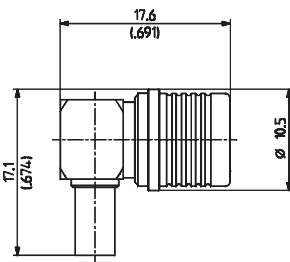


Fig. 1

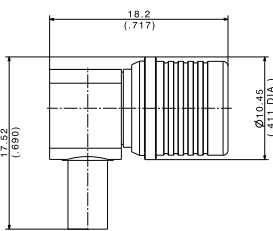


Fig. 2



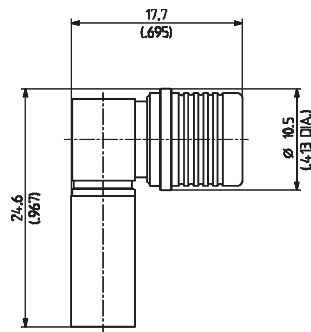
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
16_QMA-50-2-1/133_NE 16_QMA-50-2-1/133_NH	23017654 23017644	U4 (K_02252_D)	single bulk 100 pcs.	27443	A	1
16_QMA-50-2-2/133_NE 16_QMA-50-2-2/133_NH	23017657 23017658	U2 (RG_316_/U)	single bulk 100 pcs.			
16_QMA-50-2-12/133_NE 16_QMA-50-2-12/133_NP	85013183 85013184	U4 (K_02252_D)	single bulk 100 pcs.	0000366343	A	2

Series QMA – cable connectors

Right angle cable plugs (male)

For flexible cables

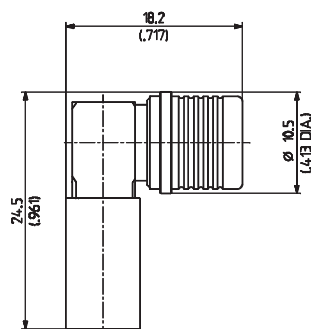
- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QMA-50-3-1/133_NE 16_QMA-50-3-1/133_NH	23017686 23017687	U9, U11 (RG_400/U)	single bulk 100 pcs.	27443	B
16_QMA-50-3-2/133_NE 16_QMA-50-3-2/133_NH	23017691 23017692	U7 (RG_58_C/U)	single bulk 100 pcs.		

For flexible cables

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QMA-50-4-1/133_NH	23012849	S16 (S_04262_D)	bulk 100 pcs.	27405	C

Series QMA – cable connectors

Right angle cable plugs (male)

For flexible cables

- Waterproof
- Cable entry crimp
- Centre contact soldered

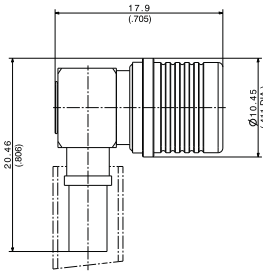


Fig. 1

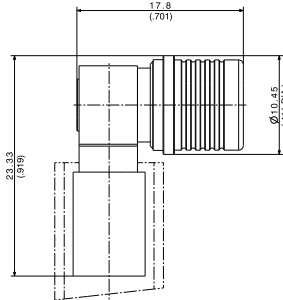


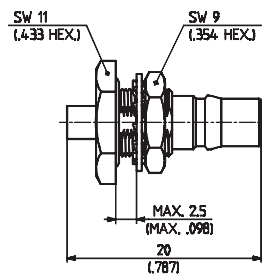
Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
16_QMA-W50-2-10/133_NH	84104679	U2 (EF_316)	bulk 100 pcs.	0000312747	A	1
16_QMA-W50-4-5/133_NE 16_QMA-W50-4-5/133_NH	84075864 84023140	S16, X9, (S_04162_B-60)	single bulk 100 pcs.	0000241978	C	2

Straight bulkhead cable jacks (female)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

- Cable entry soldered
- Centre contact plugged-in
- With panel seal



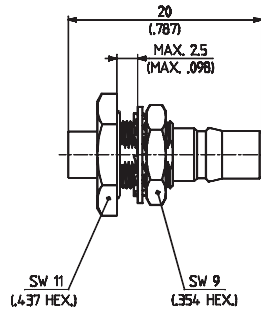
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_QMA-50-2-1/111_NE 24_QMA-50-2-1/111_NH	23017742 23017743	Y3, Y11, Y16 (SUCOFORM_86)	single bulk 100 pcs.	27428	ML 20

Series QMA – cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

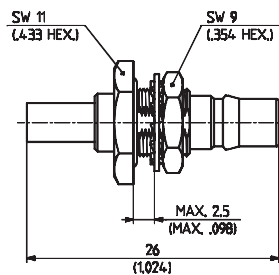
- Cable entry soldered
- Centre contact plugged-in
- With panel seal



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_QMA-50-3-3/111_NE 24_QMA-50-3-3/111_NH	23017683 23017684	Y5, Y12, Y17 (SUCOFORM_141)	single bulk 100 pcs.	27428	ML 20

For flexible cables

- Cable entry crimp
- Centre contact soldered
- With panel seal



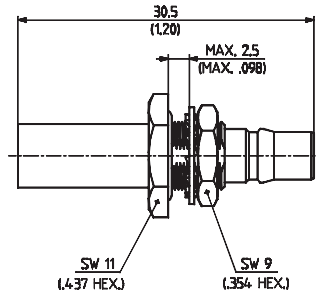
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_QMA-50-2-2/133_NE 24_QMA-50-2-2/133_NH	23017829 23017830	U4 (K_02252_D)	single bulk 100 pcs.	27429	ML 20	A
24_QMA-50-2-3/133_NE 24_QMA-50-2-3/133_NH	23017837 23017838	U2 (RG_316_U)	single bulk 100 pcs.			

Series QMA – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry crimp
- Centre contact soldered
- With panel seal

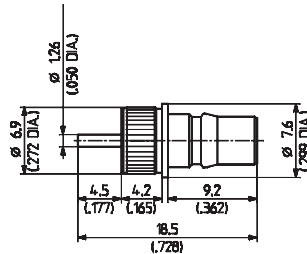


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_QMA-50-3-1/133_NE 24_QMA-50-3-1/133_NH	23017822 23017823	U9, 11 (RG_400/U)	single bulk 100 pcs.	27429	ML 20	B
24_QMA-50-3-2/133_NE 24_QMA-50-3-2/133_NH	23017795 23017796	U7 (RG_58_C/U)	single bulk 100 pcs.			

Series QMA – receptacles

Straight bulkhead receptacles, jacks (female)

- Coaxial end
- Press-in chassis mount



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
22_QMA-50-0-7/133_NF	84001926	bulk 50 pcs.	ML 143	press-in

- Coaxial end
- Screw-in chassis mount

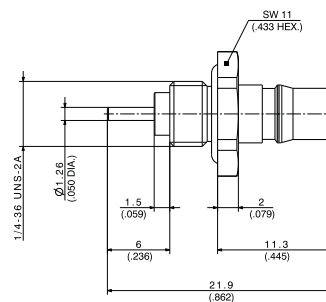
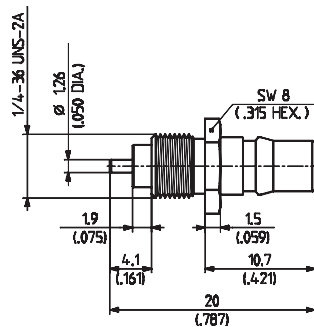


Fig. 1

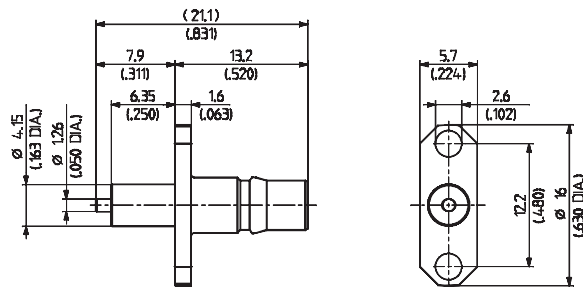
Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Fig.	Notes
22_QMA-50-0-4/133_NH	23022628	bulk 100 pcs.	1	extended dielectric, without panel seal
22_QMA-50-0-34/133_NH	84061333		2	extended dielectric, with panel seal

Series QMA – receptacles

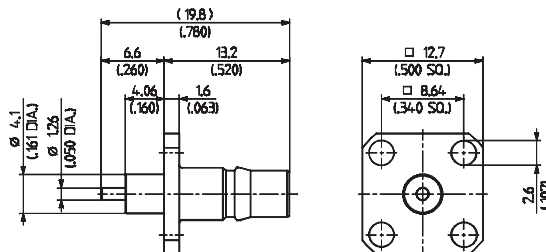
Straight panel receptacle, jack (female)

- 2-hole flange
- Without panel seal
- With coaxial end



HUBER+SUHNER type	Item no.	Packaging	Notes
23_QMA-50-0-2/111_NH	23024985	bulk 100 pcs.	extended dielectric

- 4-hole flange
- Without panel seal
- With coaxial end

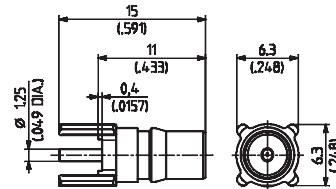


HUBER+SUHNER type	Item no.	Packaging	Notes
23_QMA-50-0-3/111_NH	23025007	bulk 100 pcs.	extended dielectric

Series QMA – PCB connectors

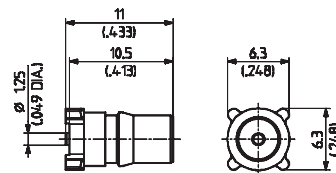
Straight PCB jacks (female)

- With stand-off



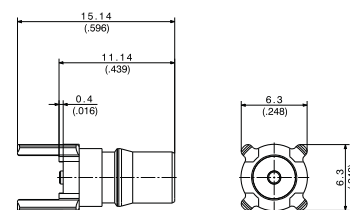
HUBER+SUHNER type	Item no.	Packaging	PCB layout
82_QMA-50-0-3/111_NH	23017656	bulk 100 pcs.	ML 41

- Surface mount type SMT



HUBER+SUHNER type	Item no.	Packaging	PCB layout
82_QMA-S50-0-2/111_NH	23017631	bulk 100 pcs.	ML 136

- With ground pins through-hole and SMT signal pin

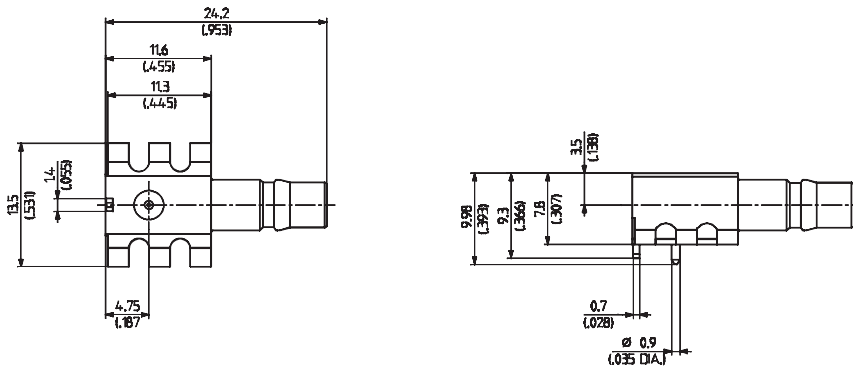


HUBER+SUHNER type	Item no.	Packaging	PCB layout
96_QMA-50-0-1/111_NH	84003328	bulk 100 pcs.	ML 155

Series QMA – PCB connectors

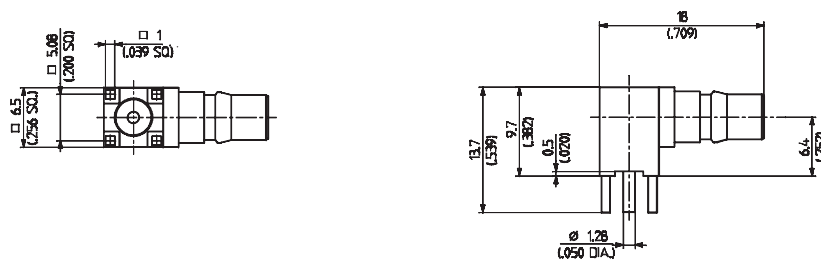
Right angle PCB jacks (female)

- Surface mount type SMT (with positioning pin)



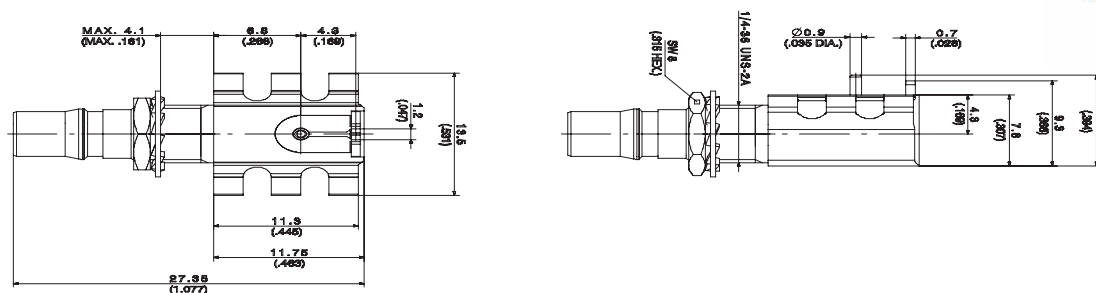
HUBER+SUHNER type	Item no.	Packaging	PCB layout
85_QMA-S50-0-2/111_NM	23021299	tape and reel	ML 137

- With stand-off



HUBER+SUHNER type	Item no.	Packaging	PCB layout
85_QMA-50-0-3/111_NH	23021463	bulk 100 pcs.	ML 41

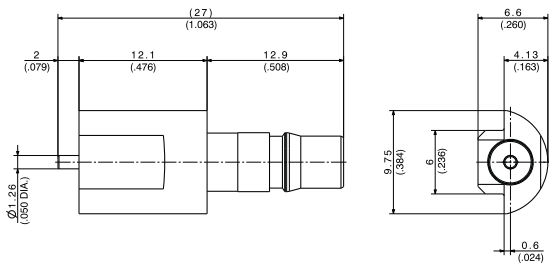
- Surface mount type SMT
- Bulkhead mounted



HUBER+SUHNER type	Item no.	Packaging	PCB layout
85_QMA-S50-0-5/111_NM	84002573	tape and reel	ML 137

Series QMA – PCB connectors

Edge mount PCB jack (female)



HUBER+SUHNER type	Item no.	Packaging	PCB layout
92_QMA-50-0-6/111_NM	84015704	tape and reel	ML 169

Protection caps

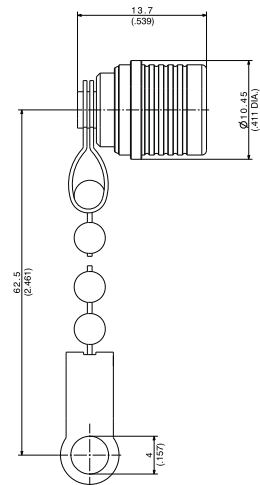


Fig. 1

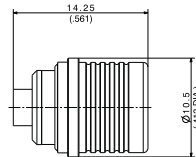


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Fig.	Notes
62_QMA-0-0-1/-33_-E	23040004	single	1	
62_QMA-W0-0-4/-33_-E	84068119		2	waterproof

QMA eXtreme – XQMA

Description

QMA eXtreme is the advanced version of the waterproof QMA, combining the quick lock mechanism and waterproof properties also in rough environmental conditions. The coupling mechanism is completely waterproof and not only the RF signal path, thus protecting the connector from corrosion in a salty atmosphere and from freezing in case of high humidity and low temperature.



Key features

- IP68 sealing on the complete connection including coupling mechanism
- High corrosion resistance
- Freezing protection

Benefits

- Compact modules design
- Easy connection with outdoor protection
- All benefits of the quick lock connection

For more product information please contact our offices.



Series QMA – calibration with adaptor swapping method

For return Loss/VSWR measurement of QMA connectors, HUBER+SUHNER recommends the following calibration method:

Calibration with PC3.5 to PC3.5 calibration adaptors (SMA calibration)

Adaptors: 31_PC35-50-0-2/199_NE (item no. 23020456) or
32_PC35-50-0-2/199_NE (item no. 23020457) or
33_PC35-50-0-2/199_NE (item no. 23020453) see all three adaptors on page 428 - 429



Exchanging of the calibration adaptors with the required QMA adaptors

31_PC35-QMA-50-1/199_NE (Item no. 23017468) see page 429 or
32_PC35-QMA-50-1/1--_NE (Item no. 23017489) see page 429 or
33_PC35-QMA--50-1/199_NE (Item no. 23017467) see page 429 or
33_QMA-PC35-50-1/1--_NE (Item no. 23017488) see page 430





Series QN – coaxial connectors

Description

HUBER+SUHNER QN coaxial connectors are available with 50 Ω impedance. The frequency range extends to 11 GHz, depending on the connector and cable type, however most of the QN connectors are return loss optimised for frequencies up to 6 GHz. The interface is based on the inner dimensions of the N connector but instead of a threaded coupling mechanism a snap-lock mechanism is used.

The QN interface has a very similar performance to N, but in addition it offers an easier, faster and safe coupling operation, helping the customers to save significantly time during production of their systems.

The packaging density of QN increased compared to N thanks to the fact that no torque spanner is required to fasten the coupling nut. Additionally the outer dimensions of QN are smaller than N, leading to the advantage that even TNC-size flanges can be used at QN connectors.

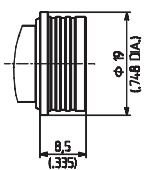
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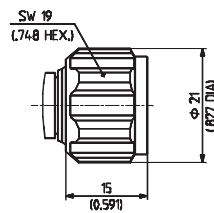
Interface dimensions compared to N

Plug (male)

QN

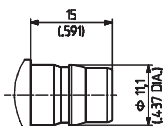


N

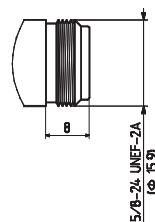


Jack (female)

QN



N



Features of QN connectors

- Cycle time improvement for making RF connections (10 times faster to mount than threaded connectors)
- No torque required
- Higher packaging density
- Free-rotating connection when mated (cable torsion relief)
- Eliminates loosening problems associated with threaded connectors
- Same performance as N
- Best intermodulation performance thanks to the unique interface design

HUBER+SUHNER QN - the cost effective solution for advanced RF interconnections!

IP rating (interface, mated) IP 68

Series QN – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC to 6 GHz (optimised) DC to 11 GHz (working range)
Dielectric withstanding voltage (at sea level)	2500 V rms, 50 Hz
Working voltage (at sea level)	≤ 1000 V rms, 50 Hz
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 1.5 mΩ ≤ 1.5 mΩ
RF-leakage	100 MHz to 3 GHz ≥ 90 dB
Return loss (typical)	DC - 3 GHz ≥ 32 dB; 3 to 6 GHz ≥ 25 dB; 6 to 11 GHz ≥ 20 dB
Intermodulation	better -155 dBc (2 x 43 dBm carrier)

Mechanical data	Requirements
Engagement force (typical)	30 N
Disengagement force (typical)	30 N
Retention force for interface	≥ 450 N
Bending moment admissible (interface)	≤ 10 Nm
Contact captivation	≥ 28 N
Durability (matings)	≥ 100

Environmental data	Requirements
Temperature range	-40 °C ... +125 °C / -40 °F ... +257 °F
Climatic category	40 / 125 / 21 (IEC 60169_1 16.2)
Moisture resistance	MIL-STD-202 F, method 106 F
Corrosion	saltspray test acc. to MIL-STD-202 F, method 101 D, condition B
Vibration	IEC-1169-1 paragraph 9.3.3. (10 - 500 Hz; 5g)
Shock	MIL-STD-202 F, method 213, condition 1
Rapid change of temperature	IEC 60169-1 16.4 (-40 °C ... + 125 °C / - 40 °F ... + 257 °F)

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	SUCOPRO® gold plating
Socket contacts	spring bronze	SUCOPRO® gold plating
Insulators	PTFE or PFA	
Contact washer	spring bronze or copper-beryllium	SUCOPRO® gold plating

Some connectors may have a specification that differs from the above mentioned data.

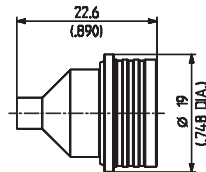
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series QN – cable connectors

Straight cable plugs (male)

For semi-rigid cables, SUCOFORM and MULTIFLEX cables

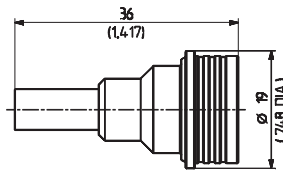
- Cable entry soldered
- Centre contact plugged-in



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_QN-50-3-3/113_NE	23033393	Y5, Y12 (SM_141)	single	27502

For flexible cables

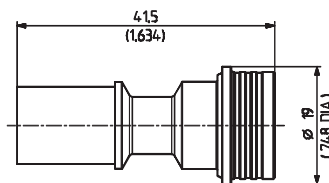
- HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QN-50-3-1/133_NE	23033391	U9 (EF_142)	single	27500	2 B
11_QN-50-3-2/133_NE	23033392	U7 (RG_58_C/U)		27501	
11_QN-50-3-4/133_NE	84016563	U11 (EF_400)		230235	

For flexible cables

- HUBER+SUHNER® full crimp



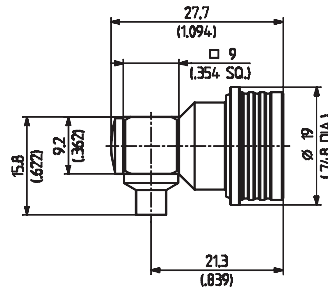
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_QN-50-7-1/133_NE	23033394	U32 (RG_214_U)	single	27503	3 D
11_QN-50-7-2/133_NE	23033395	U33 (EF_393)		27504	2.5 D
11_QN-50-7-3/133_NE	23033396	U29 (RG_213/U)		27505	3 D

Series QN – cable connectors

Right angle cable plugs (male)

For semi-rigid, SUCOFORM and MULTIFLEX cables

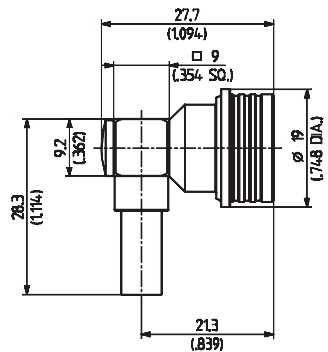
- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_QN-50-3-3/13_NE	23033268	Y5, Y12, Y17 (SM_141)	single	27508

For flexible cables

- Cable entry crimp
- Centre contact soldered



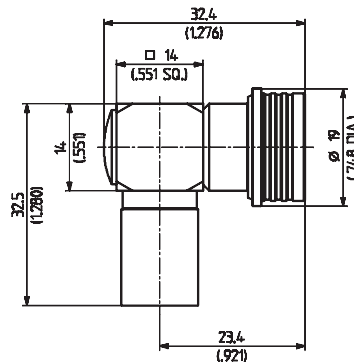
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QN-50-3-1/133_NE	23033267	U9, U11 (EF_400)	single	27506	B
16_QN-50-3-2/133_NE	23033398	U7 (RG_58_C/U)		27507	B
16_QN-50-4-1/133_NE	23033078	S16 (S_04262_D)		27509	C

Series QN – cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

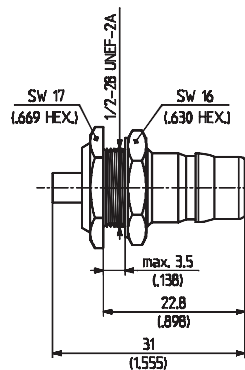


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_QN-50-7-1/133_NE	23032410	U32, U33 (EF_393)	single	27510	D
16_QN-50-7-2/133_NE	23033399	U29 (RG_213_/U)		27511	
16_QN-50-7-5/133_NE	84078879	U30 (SPUMA_400)		27511	

Straight bulkhead cable jacks (female)

For semi-rigid, SUCOFORM and MULTIFLEX cables

- Cable entry soldered
- Centre contact plugged-in



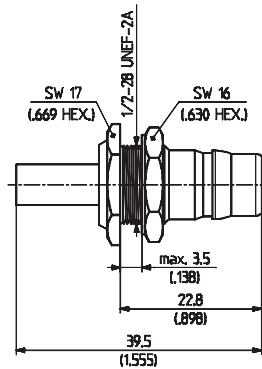
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_QN-50-3-3/133_NE	23033423	Y5, Y12, Y17 (SM_141)	single	27514	ML 112

Series QN – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

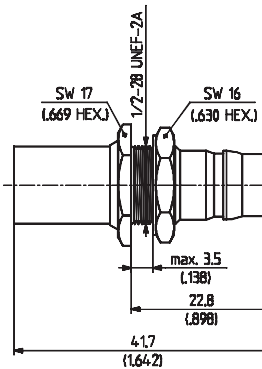
- HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_QN-50-3-1/133_NE	23033400	U9 (EF_142)	single	27512	ML 112	2 B
24_QN-50-3-2/133_NE	23033402	U7 (RG_58_C/U)		27513		

For flexible cables

- HUBER+SUHNER® full crimp



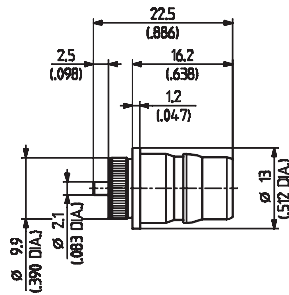
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_QN-50-7-1/133_NE	23033403	U33 (EF_393)	single	27515	ML 112	2.5 D
24_QN-50-7-2/133_NE	23033404	U32 (RG_214_U)		27516		3 D
24_QN-50-7-3/133_NE	23033405	U29 (RG_213_U)		27517		3 D
24_QN-50-7-5/133_NE	84039869	U30 (SPUMA_400)		253545		4 D

Series QN – receptacles with solder end

Receptacles, jacks (female)

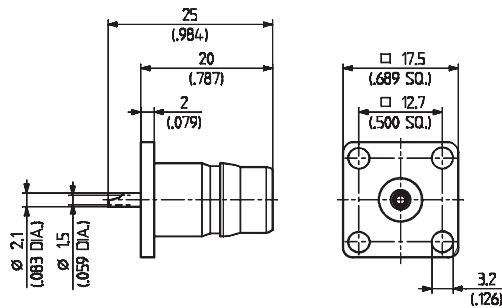
For flexible cables

- Bulkhead mounted
- Press-in chassis mount



HUBER+SUHNER type	Item no.	Packaging	Notes
22_QN-50-0-1/133_NE	23033237	single	press-in
22_QN-50-0-1/133_NY	23033904	bulk 100 pcs.	

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Notes
23_QN-50-0-1/133_NE	23033251	single	flange with same dimensions as TNC
23_QN-50-0-1/133_NY	23033252	bulk 150 pcs.	

QN eXtreme - XQN

Description

Besides the outstanding characteristics of the quick lock connector QN, this advanced version has some extra features. The coupling mechanism is completely waterproof and not only the RF signal path, thus protecting the complete connector from corrosion in a salty atmosphere and from freezing in case of high humidity and low temperatures.

This extra features besides the excellent PIM performance (typical -162 dBc) and the optimum power performance (~350 W by 2 GHz) makes this connector the ideal solution for antenna connections.



Key features

- IP67 sealing for the complete connection including coupling mechanism
- High corrosion resistance
- Freezing protection

Benefits

- Compactness (X-QN size is smaller than DIN716 & DIN 4.1/9.5)
- Easy to install (tool-less, quick-lock)
- No taping required (secure mating with outdoor protection)
- Overall lower costs of ownership
- Excellent PIM performance

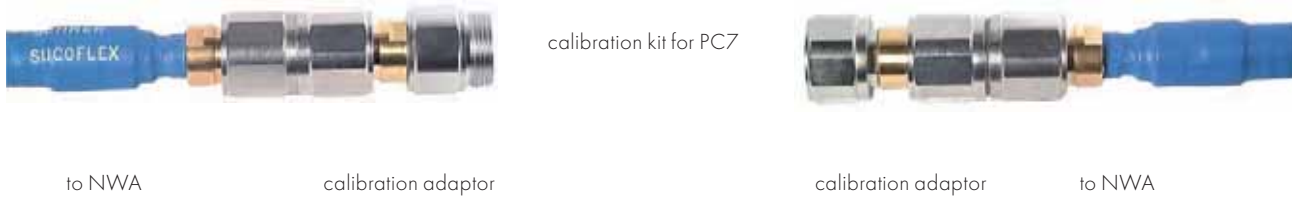
For more product information please contact our offices.



Series QN – calibration with adaptor swapping method

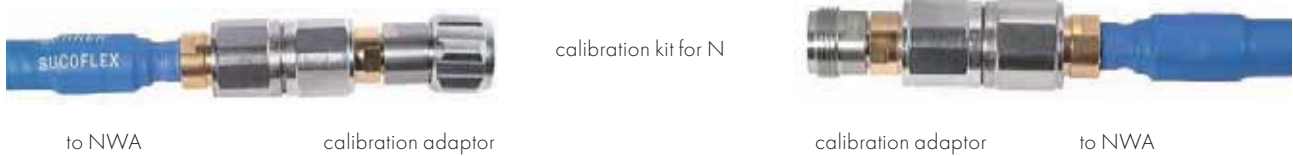
1. Calibration with PC7 to PC7 calibration adaptors (PC7 calibration)

Adaptors: 32_PC7-U50-0-1/1--_NE (item no. 23032719) and
33_PC7-U50-0-1/1--_NE (item no. 23032721)



Alternative calibration with N to PC7 calibration adaptors (N calibration)

Adaptors: 32_N-PC7-50-6/1--_NE (item no. 23032917) see page 418 or
33_PC7-N-50-6/1--_NE (item no. 23032916) see page 419



2. Exchanging of the calibration adaptors with the required QN adaptors

32_PC7-QN-50-1/1--_NE (item no. 23032720) see page 430 or
33_PC7-QN-50-1/1--_NE (item no. 23032722) see page 430





Series BNC 50 Ω - coaxial miniature connectors

Description

HUBER+SUHNER BNC is still a popular connector series, featuring a two stud bayonet coupling mechanism, which is particularly useful for frequently coupled and uncoupled RF connections with frequencies up to 4 GHz.

Compatibility

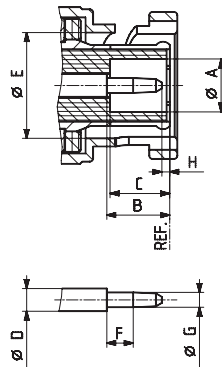
50 Ω BNC connectors and 75 Ω BNC connectors are intermateable without any restrictions.

Content

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Interface dimensions in mm / inches	227
Technical data	228
Cable connectors	229
Receptacles with solder end	238
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Protective caps and shorts	244

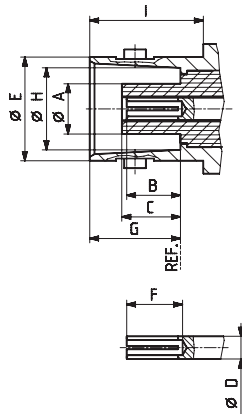
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	---	---	4.72/.186
B	5.33/.210	5.84/.230	4.72/.186	5.23/.206
C	5.28/.208	5.79/.228	4.78/.188	5.28/.208
D	2.06/.081	2.21/.087	2.06/.081	2.21/.087
E	9.78/.385	9.91/.390	9.60/.378	9.70/.382
F	1.98/.078	---	4.95/.195	---
G	1.32/.052	1.37/.054	8.31/.327	8.51/.335
H	0.08/.003	---	8.10/.319	8.15/.321
I	---	---	10.52/.414	---

Jack (female)



Interface dimensions conformable to the standards:

International:	IEC 61169-8
Europe:	CECC 22120
USA:	MIL-C-39012, BNC Interface MIL-STD-348A/301
Great Britain:	BS 9210 N 004

Series BNC 50 Ω – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 4 GHz
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level)	500 V rms, 50 Hz (depending on cable)
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 1.5 mΩ ≤ 1 mΩ
RF-leakage (between 2 - 3 GHz)	≥ 55 dB

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in. lbs ... 2.5 in. lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 27 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE® / SUCOPRO® gold plating
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy copper alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper / brass	SUCOPLATE®
Insulators	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series BNC 50 Ω – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

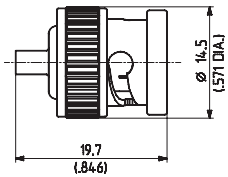


Fig. 1

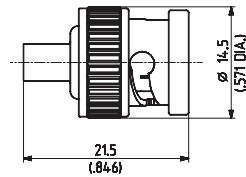


Fig. 2

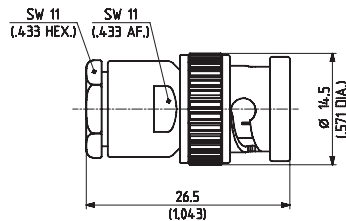


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
11_BNC-50-2-20/103_NE *	22641778	Y3, Y11, Y16 (EZ_86)	single	9100	1
11_BNC-50-3-54/103_NE *	22540108	Y5, Y12, Y17 (EZ_141)		9106	2

* Centre contact NOT captivated.

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_BNC-50-1-1/133_NE	22540021	U1 (RG_178_B/U)	single	3005
11_BNC-50-2-1/133_NE	22540029	U2 (RG_316_/U)		
11_BNC-50-3-1/133_NE *	22540045	U7, U9 (RG_58_C/U)		3004
11_BNC-50-3-5/133_NE	22540054			3005

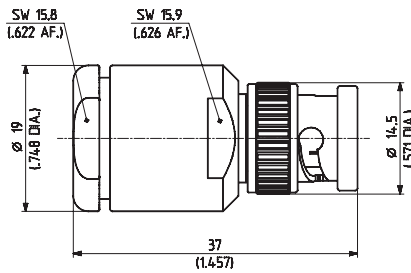
* Centre contact NOT captivated.

Series BNC 50 Ω - cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_BNC-50-7-1/133_NE	22540145	U29 (RG_213/U)	single	3008
11_BNC-50-7-2/133_NE	22540149	U32 (RG_214/U)		

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

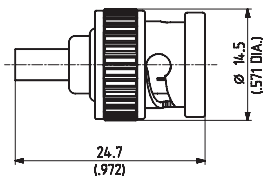


Fig. 1

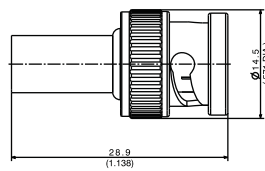


Fig. 2



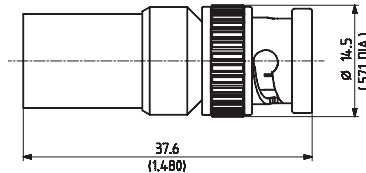
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_BNC-50-1-5/133_NE	22641759	U1 (RG_178_B/U)	single	9068	1 A	1
11_BNC-50-2-13/133_NE	22543749	U2 (RG_316_/U)	single			
11_BNC-50-2-13/133_NH	22644716		bulk 100 pcs.			
11_BNC-50-2-14/133_NE	22641683	U4 (K_02252_D)	single			
11_BNC-50-2-14/133_NH	22649839		bulk 100 pcs.	3015	2 B	2
11_BNC-50-2-16/133_NE	22544026	U3 (G_01130_HT)	single			
11_BNC-50-2-16/133_NH	22648466		bulk 100 pcs.	27057	2 C	2
11_BNC-50-3-87/133_NE	84057578	U7 (RG_58_C/U)	single			
11_BNC-50-3-87/133_NH	84057579		bulk 100 pcs.			
11_BNC-50-3-86/133_NE	84057576	U9 (RG_223/U)	single	3015	2 B	2
11_BNC-50-3-86/133_NH	84057577		bulk 100 pcs.			
11_BNC-50-3-36/133_NE	22540089	U13 (G_03130-HT)	single	3015	2 C	2
11_BNC-50-3-88/133_NE	84057580	U11 (RG_400/U)	single			
11_BNC-50-3-88/133_NH	84057581		bulk 100 pcs.	27057	2 C	2
11_BNC-50-4-4/133_NE	22540115	U16 (RG_59 B/U)	single			
11_BNC-50-4-4/133_NH	22648238		bulk 100 pcs.			

Series BNC 50 Ω - cable connectors

Straight cable plugs (male)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

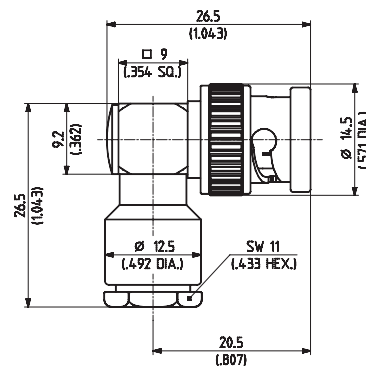


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_BNC-50-7-6/133_NE	22640863	U32 (RG_214/U)	single	3061	3 D
11_BNC-50-7-7/133_NE	22543766	U29 (RG_213/U)			

Right angle cable plugs (male)

For flexible cables

- Cable entry clamp



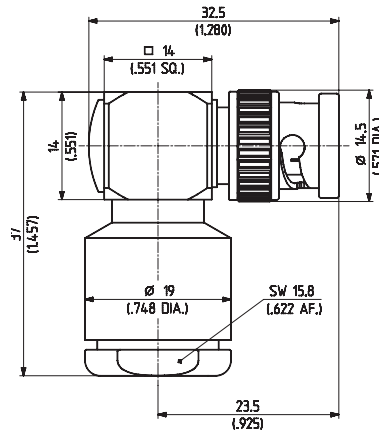
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_BNC-50-2-9/133_NE	84013192	U2 (RG_316_/U)	single	3024
16_BNC-50-3-25/133_NE	84013233	U7, U9 (RG_58_C/U)		

BNC 50 Ω

Series BNC 50 Ω - cable connectors

Right angle cable plugs (male)

- For flexible cables
- Cable entry clamp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_BNC-50-7-6/133_NE	22651588	U29 (RG_213/U) U32 (RG_214/U)	single	27121

- For flexible cables
- Cable entry crimp
 - Center contact soldered
 - Taper sleeves see page 458

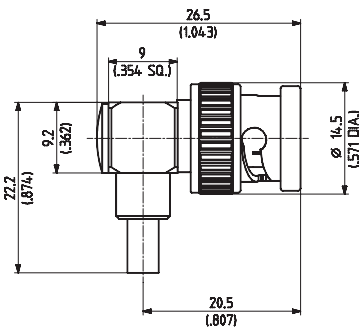


Fig. 1

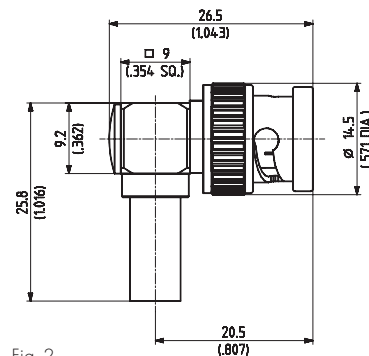


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
16_BNC-50-2-3/133_NE 16_BNC-50-2-3/133_NH	22540168 22648628	U2 (RG_316_/U)	single bulk 100 pcs.	3079	A	1
16_BNC-50-2-5/133_NE 16_BNC-50-2-5/133_NH	22540169 22650221	U4 (K_02252_D)	single bulk 100 pcs.			
16_BNC-50-3-5/133_NE	22540185	U7 (RG_58_C/U)	single	3058	B	2
16_BNC-50-3-7/133_NE 16_BNC-50-3-7/133_NH	22540192 22650222	U9, U11 (RG 400/U)	single bulk 100 pcs.			

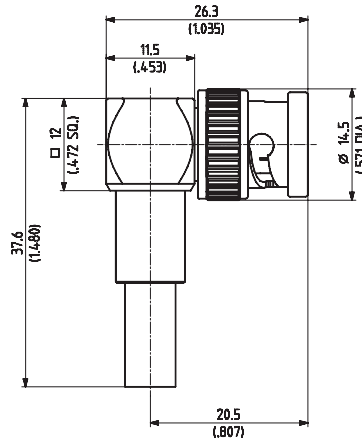
Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series BNC 50 Ω – cable connectors

Right angle cable plugs (male)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

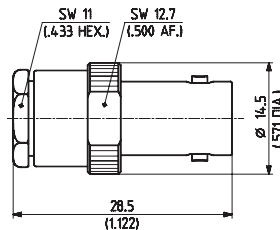


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_BNC-50-3-13/133_NE	22540198	U7 (RG_58_C/U)	single	3015	2 B

Straight cable jacks (female)

For flexible cables

- Cable entry clamp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
21_BNC-50-2-1/133_NE	22540228	U2 (RG_316_/U)	single	3005
21_BNC-50-3-12/133_NE	22540263	U7, U9 (RG_58_C/U)		

Series BNC 50 Ω - cable connectors

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

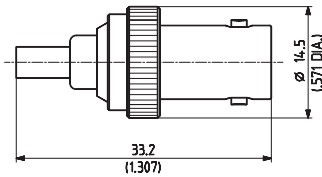


Fig. 1

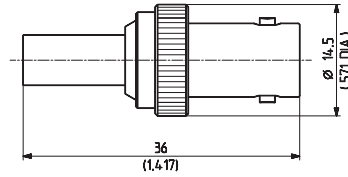


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
21_BNC-50-1-4/133_NE	22641777	U1 (RG_178_B/U)	single	9068	1 A	1
21_BNC-50-2-9/133_NE	22641732	U2 (RG_316_/U)				
21_BNC-50-2-10/133_NE	22641779	U4 (K_02252_D)		0000231215	2 B	2
21_BNC-50-3-27/133_NE	84057699	U7 (RG_58_C/U)				
21_BNC-50-3-28/133_NE	84057722	U9 (RG_223/U)				

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Insulating washers see page 460
- With panel seal

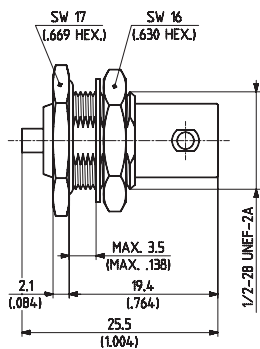


Fig. 1

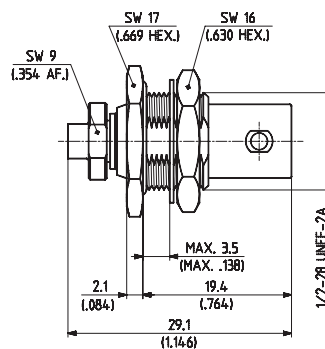


Fig. 2

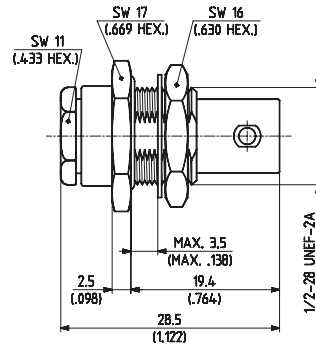
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_BNC-50-2-20/133_NE	22641886	Y3, Y11, Y16 (EZ_86)	single	9100	ML4	1
24_BNC-50-3-33/133_NE	22641923	Y5, Y12, Y17 (EZ_141)		9005		2

Series BNC 50 Ω - cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry clamp
- With panel seal
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_BNC-50-1-1/133_NE	22540362	U1 (RG_178_B/U)	single	3005	ML4
24_BNC-50-2-1/133_NE	22540365	U2 (RG_316_/U)			
24_BNC-50-3-5/133_NE	22540385	U7, U9 (RG_58_C/U)			

For flexible cables

- HUBER+SUHNER® full crimp
- With panel seal
- Insulating washers see page 460
- Taper sleeves see page 458

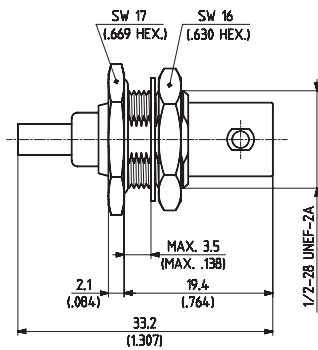


Fig. 1

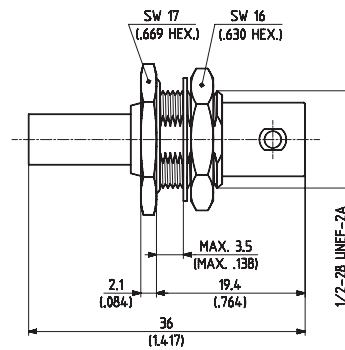


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_BNC-50-1-6/133_NE	22641781	U1 (RG_178_B/U)	single	9068 / ML4	1 A	1
24_BNC-50-1-6/133_NH	84011438		bulk 100 pcs.			
24_BNC-50-2-45/133_NE	84057863	U2 (RG_316_/U)	single	3015 / ML4	2 B	2
24_BNC-50-2-45/133_NH	84057864		bulk 100 pcs.			
24_BNC-50-2-46/133_NE	84057872	U4 (K_02252_D)	single	3015 / ML4	2 B	2
24_BNC-50-2-46/133_NH	84057873		bulk 100 pcs.			
24_BNC-50-3-1/133_NE	22540378	U7 (RG_58_C/U)	single	3015 / ML4	2 B	2
24_BNC-50-3-8/133_NE	22540389	U9 (RG_223/U)	single			
24_BNC-50-3-25/133_NE	22658913	U11 (RG_400/U)	single			
24_BNC-50-3-25/133_NH	22660362		bulk 100 pcs.			

Cable groups see page 32

Assembly tools see page 441

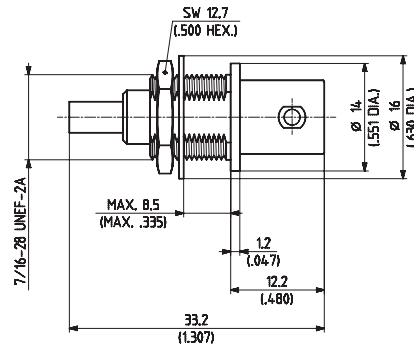
Mounting holes / PCB layouts see page 465

Series BNC 50 Ω - cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

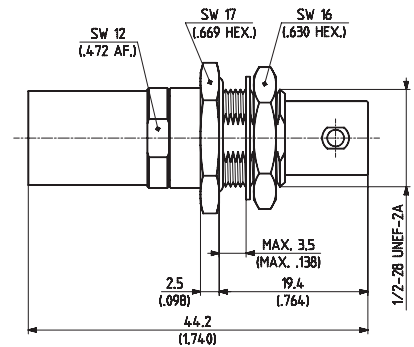
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Front mounting
- Without panel seal



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_BNC-50-2-29/133_NE	22648682	U2 (RG_316_/U)	single	9068	ML3	1 A

For flexible cables

- HUBER+SUHNER® full crimp
- With panel seal
- Insulating washers see page 460
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_BNC-50-7-3/133_NE	22540415	U29 (RG_213/U)	single	9121	ML4	3 D

Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series BNC 50 Ω - cable connectors

Straight panel cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

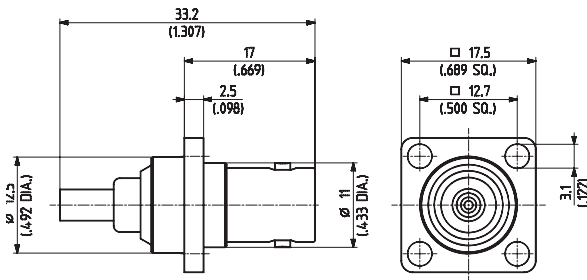


Fig. 1

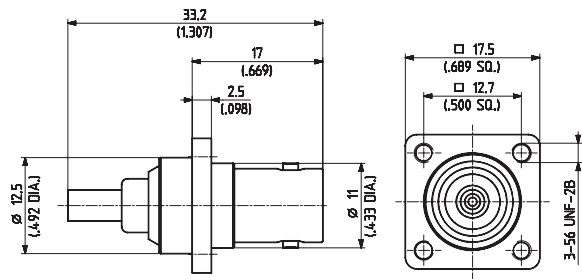


Fig. 2

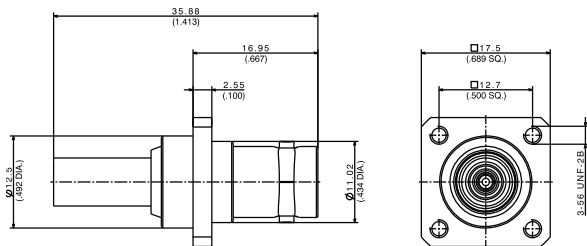


Fig. 3

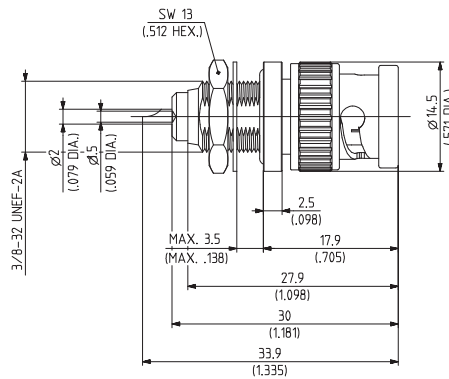
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
25_BNC-50-2-13/133_NE	22641919	U2 (RG_316_/U)	single	9068	ML 8	1 A	2*
25_BNC-50-2-14/133_NE	22641924						1
25_BNC-50-2-16/133_NE	22641795	U4 (K_02252_D)					
25_BNC-50-3-39/133_NE	84057974	U7 (RG_58_C/U)		0000231565		2 B	3

* Mounting also possible with screws ISO M 2.5.

Series BNC 50 Ω – receptacles with solder end

Receptacles, plugs (male)

- Bulkhead mounted
- Insulating washers see page 460
- Solder tags see page 461



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Panel thickness	Notes
12_BNC-50-0-1/133_NE	22540154	single	ML 2	max. 3.5 mm	with panel seal

Receptacles, jacks (female)

- Bulkhead mounted
- Insulating washers see page 460
- Solder tags see page 461

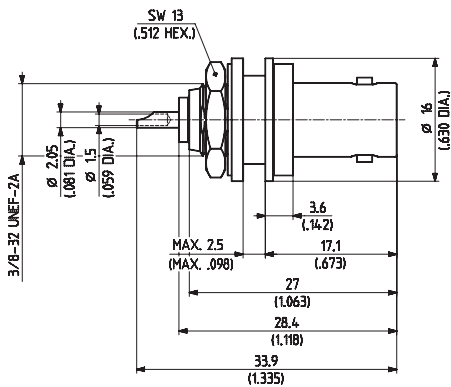


Fig. 1

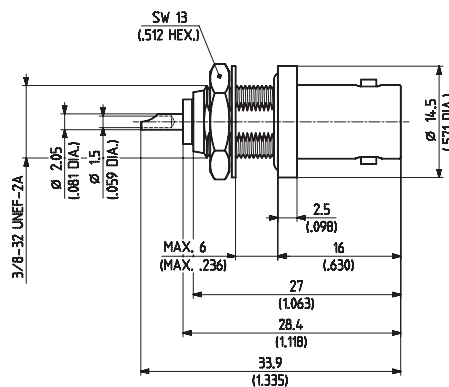


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_BNC-50-0-2/133_NE	22540293	single	ML 102	1	insulated mounting *
22_BNC-50-0-3/133_NE	22540301	single	ML 1	2	with panel seal
22_BNC-50-0-3/133_NH	22645500	bulk 100 pcs.	ML 1	2	with panel seal

* Equipped with insulating washers 77_Z-0-0-2 (not protected against rotation).

Series BNC 50 Ω - receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- Insulating washers see page 460
- Solder tags see page 461

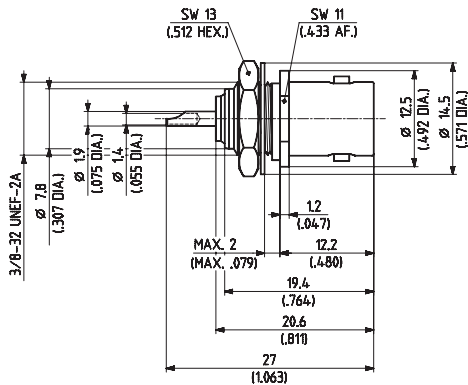


Fig. 1

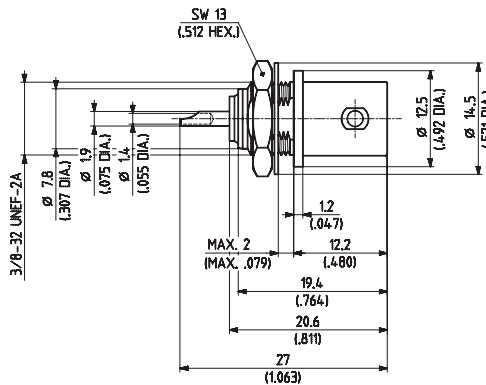


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_BNC-50-0-4/133_NE	22540303	single	ML 3	1	not suitable for insulated mounting
22_BNC-50-0-5/133_NE 22_BNC-50-0-5/133_NH	22540308 22650242	single bulk 100 pcs.	ML 2	2	suitable for insulated mounting

- Bulkhead mounted
- Insulating washers see page 460
- Solder tags see page 461

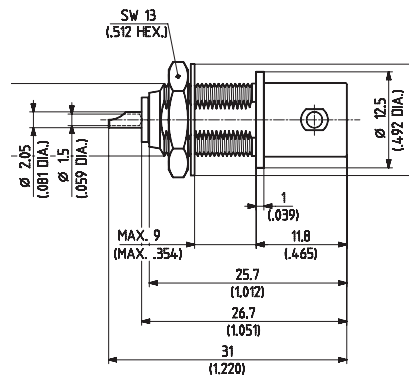


Fig. 1

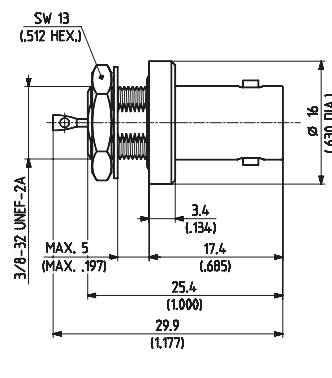


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_BNC-50-0-16/133_NE	22540314	single	ML 2	1	suitable for insulated mounting
22_BNC-50-0-24/100_NE *	22540321	single	ML 2	2	hermetically sealed / body silver plated**

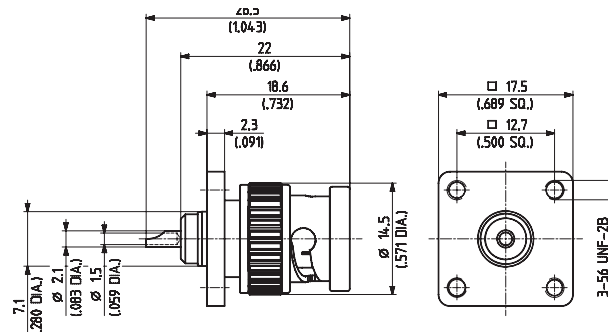
* RoHS compliant alternative on request.

** Leakrate 10⁻⁶ Torr l/sec. (atm cc/s) max.

Series BNC 50 Ω - receptacles with solder end

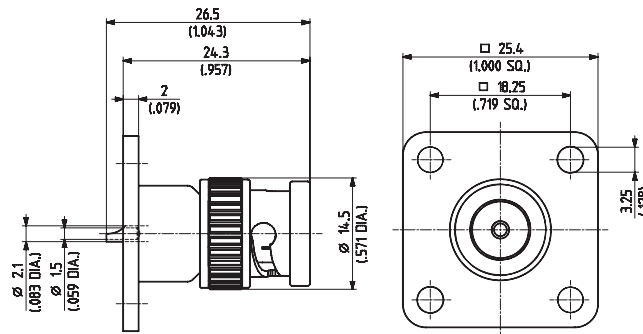
Receptacles, plugs (male)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
13_BNC-50-0-1/133_NE	22543470	single	ML 6	mounting also possible with screws ISO M 2.5

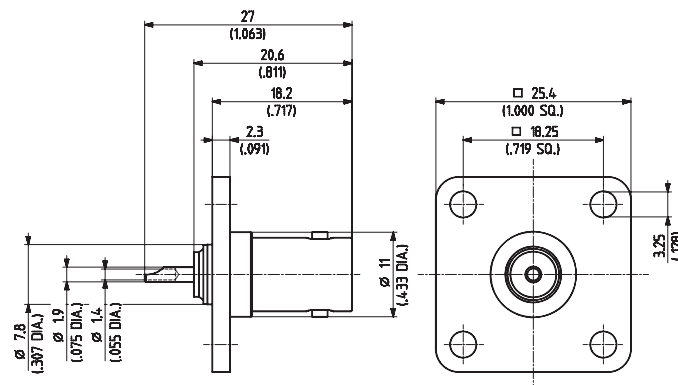
- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
13_BNC-50-0-2/133_NE	22540160	single	ML 5	suitable for SUCOBOX applications, see page 462

Receptacles, jacks (female)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_BNC-50-0-2/133_NE	22540333	single	ML 5	suitable for SUCOBOX applications, see page 462

Cable groups see page 32

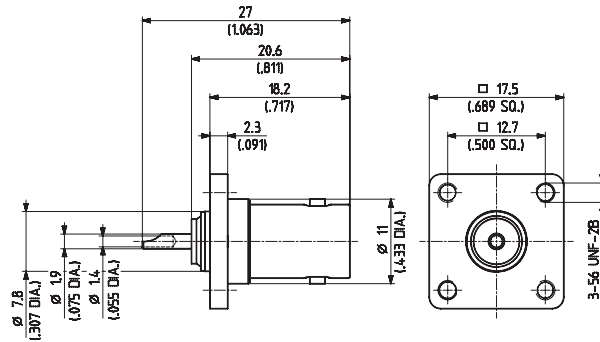
Assembly tools see page 441

Mounting holes / PCB layouts see page 465

Series BNC 50 Ω - receptacles with solder end

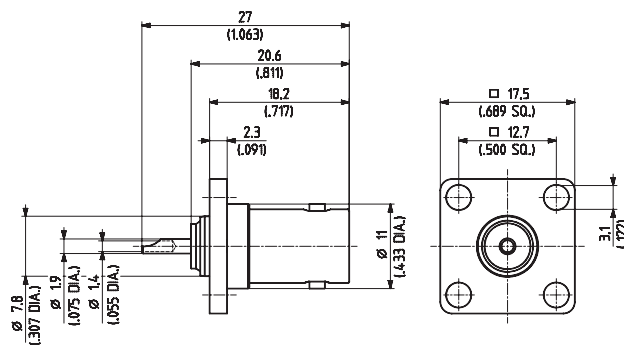
Receptacles, jacks (female)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_BNC-50-0-12/133_NE	22540349	single	ML 6	mounting also possible with screws ISO M 2.5

- Panel mounted

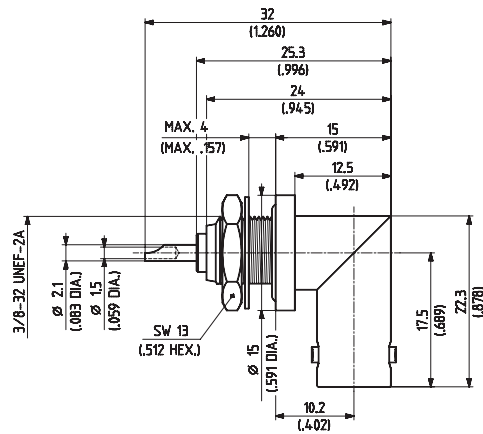


HUBER+SUHNER type	Item no.	Packaging	Mounting hole
23_BNC-50-0-16/133_NE	22540355	single	ML 6

Series BNC 50 Ω – receptacles with solder end

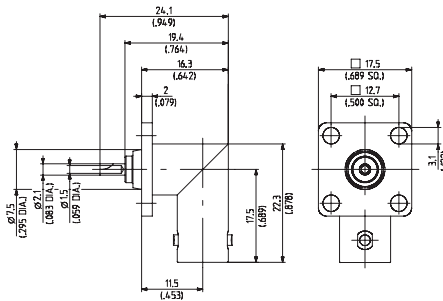
Right angle receptacles, jack (female)

- Bulkhead mounted
- With panel seal
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
27_BNC-50-0-1/133_NE	22540492	single	ML 2

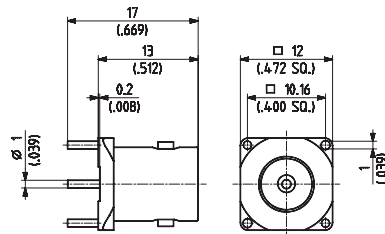
- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
28_BNC-50-0-2/133_NE	22540500	single	ML 6	fastening hole d = 3.1 mm / .12 in.

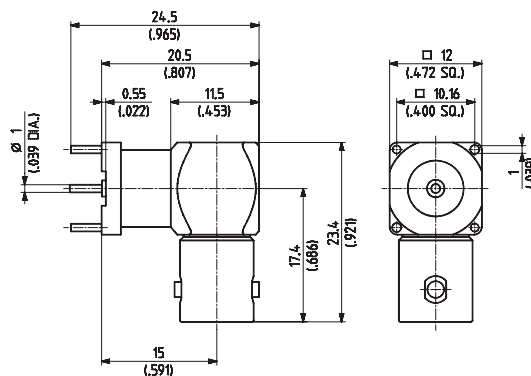
Series BNC 50 Ω – PCB connectors

Straight PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
82_BNC-50-0-1/133_NE	22645779	single	ML 49	plating body: SUCOPLATE®
82_BNC-50-0-1/133_NH	22543974	bulk 100 pcs.		
82_BNC-50-0-1/111_NH	23012124	bulk 100 pcs.		plating body: SUCOPRO® gold plating

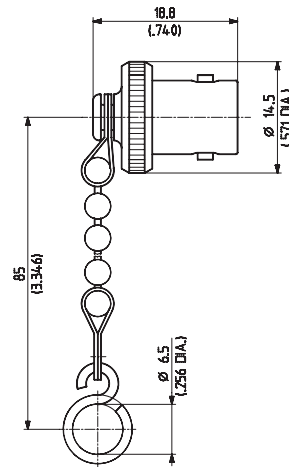
Right angle PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
85_BNC-50-0-1/133_NE	22540736	single	ML 49	plating body: SUCOPLATE®

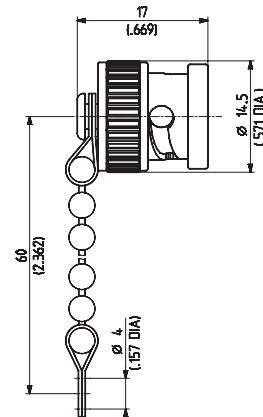
Series BNC 50 Ω – protective caps and shorts

Protective cap for plugs (male)



HUBER+SUHNER type	Item no.	Packaging	Notes
61_BNC-0-0-1/-33_-E	22540660	single	with chain and loop

Protective caps for jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Notes
62_BNC-0-0-1/-33_-E	22540666	single	protective cap with chain
64_BNC-50-0-1/133_NE	22540681		short circuit with chain

Protective caps for jacks (female)

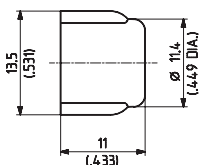


Fig. 1

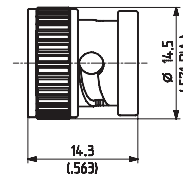


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Fig.	Notes
62_BNC-0-0-2/-..._H	22540667	bulk 100 pcs.	1	made of plastic
62_BNC-0-0-3/-33_-E	22540669	single	2	

Series BNC 75 Ω - coaxial miniature connectors

Description

HUBER+SUHNER BNC 75 Ω featuring a two stud bayonet coupling mechanism which is particularly useful for frequently coupled and uncoupled RF connections. At frequencies up to 1 GHz the small impedance deviation is negligible for most applications.

Compatibility

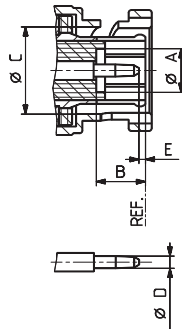
75 Ω BNC connectors and 50 Ω BNC connectors are intermateable without any restrictions.

Contents

Description	245
Compatibility	245
Interface dimensions in mm / inches	245
Technical data	246
Cable connectors	247
Receptacles with solder end	251
PCB connectors	252
Protective caps and shorts	253

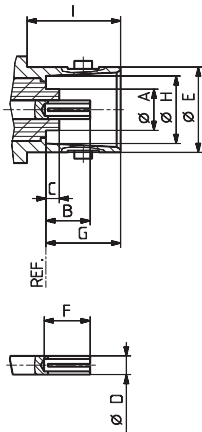
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	4.97/.196	---	4.72/.186
B	5.28/.208	5.79/.228	4.72/.186	5.23/.206
C	9.78/.385	9.91/.390	1.50/.059 nom.	
D	1.32/.052	1.37/.054	2.10/.827 nom.	
E	0.08/.003	1.02/.040	9.60/.378	9.70/.382
F	---	4.95/.195	---	---
G	---	8.35/.328	8.48/.334	---
H	---	---	8.10/.319	8.15/.321
I	---	---	10.60/.417	---

Jack (female)



Interface dimensions conformable to the standards:

International: IEC 61169-8

Series BNC 75 Ω – technical data

Electrical data	Requirements
Impedance	75 Ω
Frequency range	DC ... 1 GHz
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level)	500 V rms, 50 Hz (depending on cable)
Insulation resistance	$\geq 5 \cdot 10^3 \text{ M}\Omega$
Contact resistance - centre contact - outer contact	$\leq 1.5 \text{ m}\Omega$ $\leq 1 \text{ m}\Omega$
RF-leakage (measured at 1 GHz)	$\geq 55 \text{ dB}$

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in. lbs ... 2.5 in. lbs
Coupling nut retention force	$\geq 450 \text{ N} / 101.2 \text{ lbs}$
Contact captivation	$\geq 27 \text{ N} / 6.1 \text{ lbs}$
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	salt spray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE® / SUCOPRO® gold plating
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy copper alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper / brass	SUCOPLATE®
Insulators	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

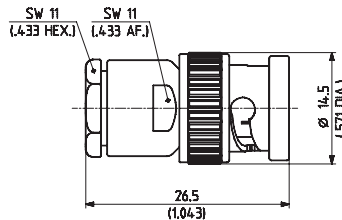
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series BNC 75 Ω – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_BNC-75-2-1/133_NE	22543768	U5 (RG_187_A/U)	single	3005
11_BNC-75-4-3/133_NE	22540758	U6 (RG_59_B/U)		

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

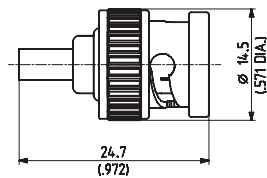


Fig. 1

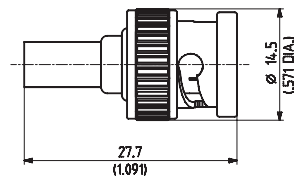


Fig. 2

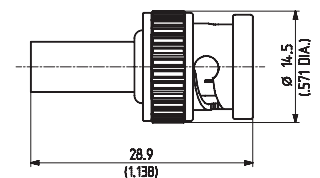


Fig. 3

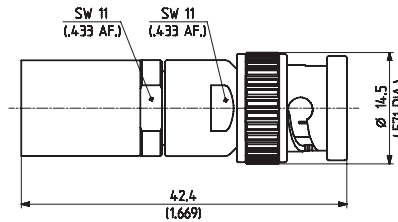
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_BNC-75-2-15/133_NE	22641685	U5 (RG_187_A/U)	single	9068	1 A	1
11_BNC-75-2-15/133_NH	22644586		bulk 100 pcs.			
11_BNC-75-2-18/133_NE	22643710	S5 (S_02223-01)	single	27001	1/4.95	2
11_BNC-75-2-21/133_NE	22644358	X12 (G_02133_D-05)	single			
11_BNC-75-3-8/133_NE	22540707	U12 (G_03233)	single	3015	2 B	3
11_BNC-75-3-9/133_NE	22540709	U14 (G_03233_D)	single			
11_BNC-75-4-4/133_NE	22540761	U16 (RG_59_B/U)	single			
11_BNC-75-4-4/133_NH	22544846		bulk 100 pcs.			
11_BNC-75-4-6/133_NE	22540765	U18 (G_04233_D)	single	3015	2 C	3
11_BNC-75-4-6/133_NH	22540766		bulk 100 pcs.			
11_BNC-75-4-30/133_NE	22544636	U17 (S_04263)	single			

Series BNC 75 Ω – cable connectors

Straight cable plugs (male)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_BNC-75-7-5/133_NE	22540811	U34 (RG_11_A/U)	single	9120	2D
11_BNC-75-7-6/133_NE	22543960	U36 (RG_216/U)			

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458

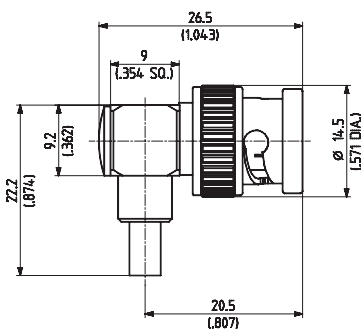


Fig. 1

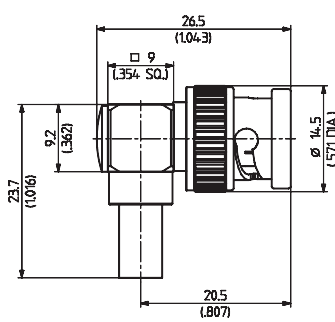


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
16_BNC-75-2-3/133_NE	22540820	U5 (RG_187_A/U)	single	3079	A	1
16_BNC-75-4-4/133_NE	22540840	U16 (RG_59_B/U)		3058	C	2
16_BNC-75-4-5/133_NE	22540842	U18 (G_04233_D)		3058	C	2

Series BNC 75 Ω – cable connectors

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

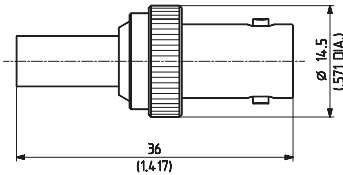


Fig. 1

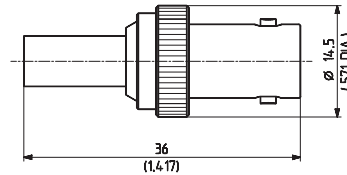


Fig. 2

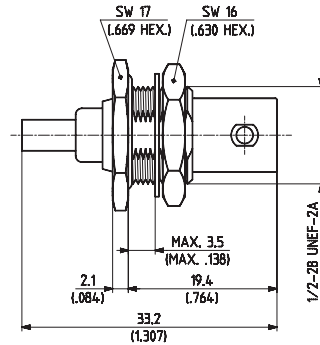


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
21_BNC-75-2-5/133_NE	22641780	U5 (RG_187_A/U)	single	9068	1A	1
21_BNC-75-2-5/133_NH	22645904	U5 (RG_187_A/U)	bulk 100 pcs.			
21_BNC-75-4-4/133_NE	22540872	U16 (RG_59_B/U)	single	3015	2 C	2

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- With panel seal
- Insulating washers see page 460
- Taper sleeves see page 458



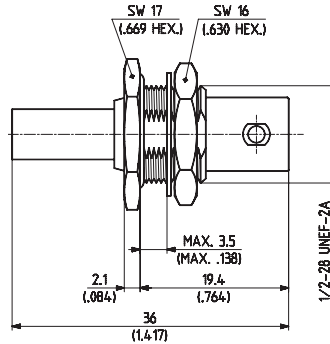
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_BNC-75-2-6/133_NE	22641786	U5 (RG_187_A/U)	single	9068	ML4	1A
24_BNC-75-2-6/133_NH	22644569	U5 (RG_187_A/U)	bulk 100 pcs.			

Series BNC 75 Ω - cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- With panel seal
- Insulating washers see page 460
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_BNC-75-2-15/133_NE	22644339	X12 (G_02133_D-05)	single bulk 100 pcs.	27001	ML 4	1 / 4.95
24_BNC-75-2-15/133_NH	22641492					
24_BNC-75-4-3/133_NE	22540930	U16 (RG_59_B/U)	single	3015		2 C
24_BNC-75-4-4/133_NE	22540932	U18 (G_04233_D)	single			

Straight panel cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

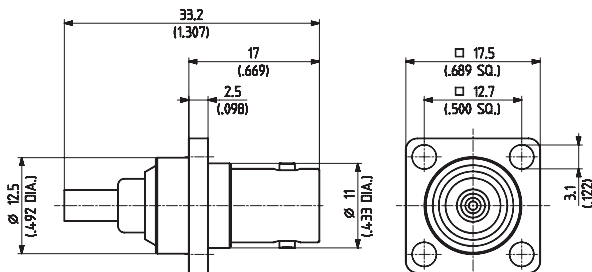


Fig. 1

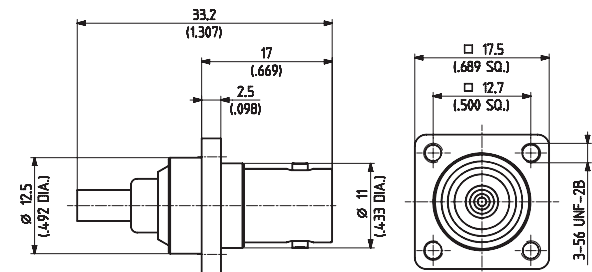


Fig. 2

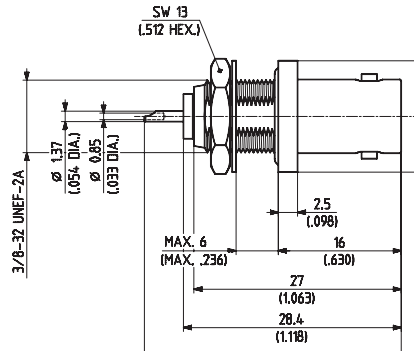
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
25_BNC-75-2-7/133_NE	22641790	U5 (RG_187_A/U)	single	9068	1 A	1
25_BNC-75-2-8/133_NE	22641791					2*

* Mounting also possible with screws ISO M 2.5.

Series BNC 75 Ω – receptacles with solder end

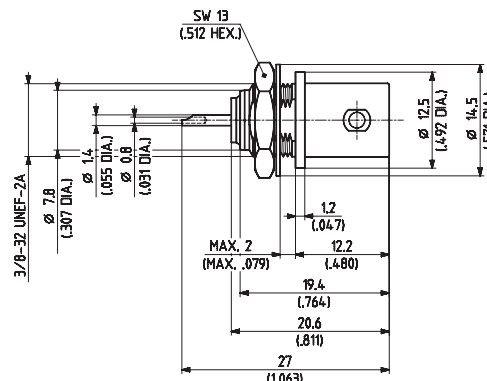
Receptacles, jacks (female)

- Bulkhead mounted
- With panel seal
- Solder tags see page 461
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
22_BNC-75-0-1/133_NE	22540883	single	ML 1

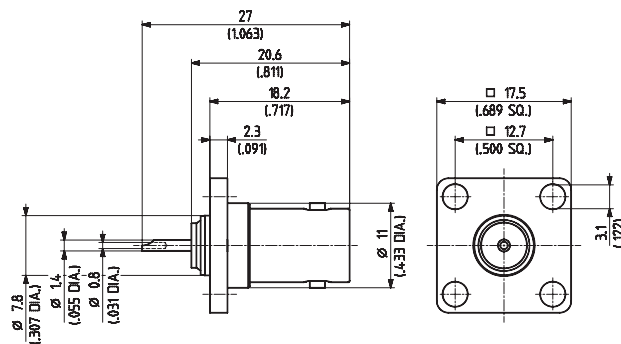
- Bulkhead mounted
- Solder tags see page 461
- Insulating washers see page 460



BNC 75 Ω

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
22_BNC-75-0-4/133_NE	22540889	single	ML 2	without panel seal

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
23_BNC-75-0-10/133_NE	22540906	single	ML 6

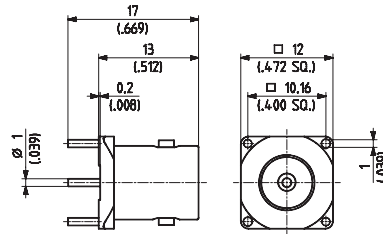
Cable groups see page 32

Assembly tools see page 441

Mounting holes / PCB layouts see page 465

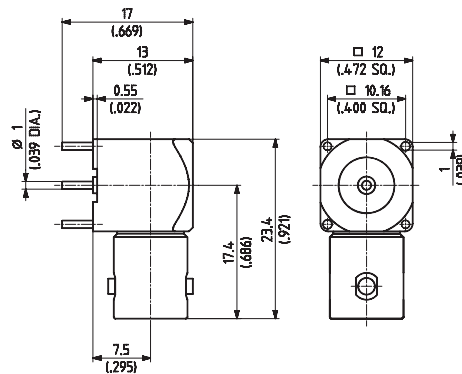
Series BNC 75 Ω – PCB connectors

Straight PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body
82_BNC-75-0-2/122_NE	22643586	single	ML 49	nickel
82_BNC-75-0-2/122_NH	22646624	bulk 100 pcs.		

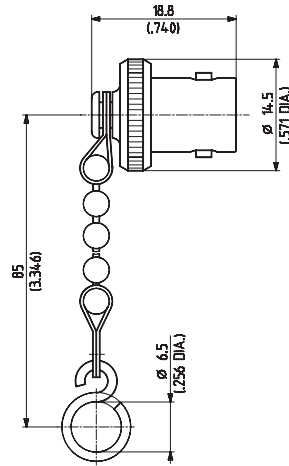
Right angle PCB jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
85_BNC-75-0-1/133_NE	22641623	single	ML 49
85_BNC-75-0-1/133_NH	22646488	bulk 100 pcs.	

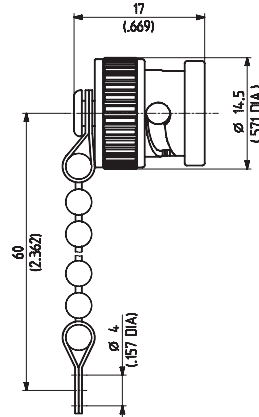
Series BNC 75 Ω – protective caps and shorts

Protective cap for plugs (male)



HUBER+SUHNER type	Item no.	Packaging	Notes
61_BNC-0-0-1/-33_-E	22540660	single	with chain and loop

Protective cap for jacks (female)



HUBER+SUHNER type	Item no.	Packaging	Notes
62_BNC-0-0-1/-33_-E	22540666	single	with chain

Series BNC 75 Ω – protective caps and shorts

Protective caps for jacks (female)

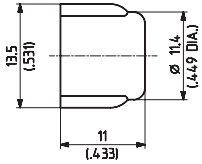


Fig. 1

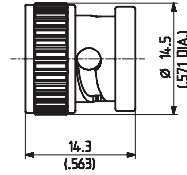


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Fig.	Notes
62_BNC-0-0-2/-_-H	22540667	bulk 100 pcs.	1	made of plastic
62_BNC-0-0-3/-33_-E	22540669	single	2	

Series BNC «real» 75 Ω connectors

Description

«Real» 75 Ω BNC connectors are suitable for applications up to 3 GHz, contrary to the conventional 75 Ω BNC connector types, which are applicable up to 1 GHz only. With our HUBER+SUHNER® full crimp technique, they can be assembled quick and easy to all convenient cable types. Thanks to good electrical properties they are suitable for different applications, such as broadcast, telecommunication, etc.

Content

Description	255
Compatibility	255
Properties	255
Benefits	255
Technical data	256
Cable connectors	258

Compatibility

Mechanically they are mateable with all conventional BNC connectors (50 Ω and 75 Ω).

Properties

- True 75 Ω impedance
- DC - 3 GHz
- Good return loss properties

Benefits

- Fast and easy mounting (HUBER+SUHNER® full crimp)
- Intermateable with standard BNC 50 Ω and BNC 75 Ω connectors



Series BNC «real» 75 Ω – technical data

Electrical data	Requirements
Impedance	75 Ω
Frequency range	DC ... 3 GHz
Return loss	see table below
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level)	500 V rms, 50 Hz (depending on cable)
Insulation resistance	$\geq 5 \times 10^3$ MΩ
Contact resistance - centre conductor - outer conductor	≤ 1.5 mΩ ≤ 1.0 mΩ

Connector type	Typical RL (dB) values			Cable
	1 GHz	2 GHz	3 GHz	
Straight cable plugs (11_BNC-75-..)	30	28	24	Draka 0.6/2.8
	30	28	24	Draka 0.8/3.7 AF
	30	28	–	G_04233_D*
	30	28	24	Draka 1.0/4.8 AF
Right angle cable plug (16_BNC-75-..)	28	21	–	G_04233_D*
Straight bulkhead cable jacks (24_BNC-75-..)	35	24	24	Draka 0.8/3.7 AF
	30	25	–	G_04233_D*
	35	26	24	Draka 1.0/4.8 AF

* For applications up to 2 GHz.

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 ... 2.5 in.lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 27 N / 6.1 lbs
Durability (matings)	500

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category IEC	55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	Saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Series BNC «real» 75 Ω – technical data

Material data		
Connector part	Material	Plating
Bodies	brass / spring bronze	SUCOPLATE®
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper-beryllium alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper	SUCOPLATE®
Insulators	PTFE or PFA	
Gaskets	silicon rubber	

Some connectors may have a specification that differs from the above mentioned data.

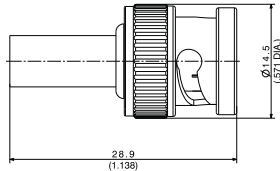
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series BNC «real» 75 Ω - cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- HUBER+SUHNER® full crimp



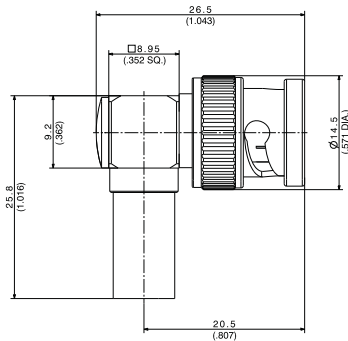
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert *
11_BNC-75-3-38/133_NE	84070521	Draka 0.6/2.8	single	0000270344	76_Z-0-3-26
11_BNC-75-4-39/133_NE	84070591	Draka 0.8/3.7 AF		0000270231	76_Z-0-4-24
11_BNC-75-4-40/133_NE	84112535	U18 (G_04233_D)		0000270231	76_Z-0-4-24
11_BNC-75-5-20/133_NE	84070641	Draka 1.0/4.8 AF		0000270280	76_Z-0-5-22

* Suitable for the large HUBER+SUHNER crimping tool.

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Center contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert *
16_BNC-75-4-14/133_NE	84135532	U18 (G_04233_D)	single	3058	76_Z-0-4-24

* Suitable for the large HUBER+SUHNER crimping tool.

Series BNC «real» 75 Ω - cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Mounting hole ML 4
- Panel thickness max. 3.5 mm

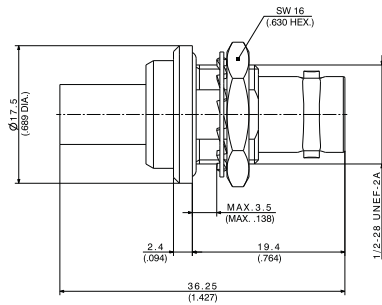


Fig. 1

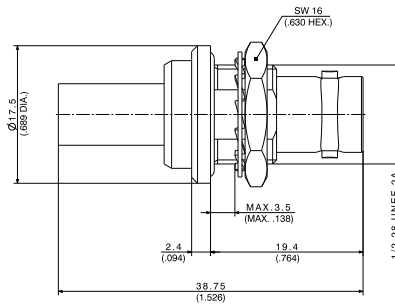


Fig. 2



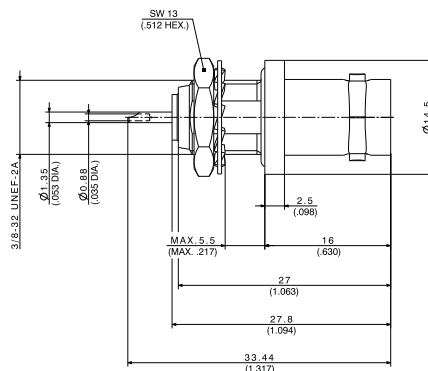
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert *	Fig.
24_BNC-75-4-18/133_NE	84135127	Draka 0.8/3.7 AF	single	0000365601	76_Z-0-4-24	1
24_BNC-75-4-19/133_NE	84135191	U18 (G_04233_D)		0000365657	76_Z-0-4-24	2
24_BNC-75-5-7/133_NE	84135216	Draka 1.0/4.8 AF		0000365714	76_Z-0-5-22	

* Suitable for the large HUBER+SUHNER crimping tool.

Receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- Flange with O-ring



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Panel thickness
22_BNC-75-0-16/133_NE	84135058	single	ML 1	5.5 mm max.



Series TNC 50 Ω - coaxial miniature connectors

Description

HUBER+SUHNER TNC connectors are threaded RF connectors applicable from DC up to 11 GHz. The threaded coupling mechanism improves control over the interface dimensions and allows them to be used under a higher environmental load than BNC, especially under a high vibration load.

Compatibility

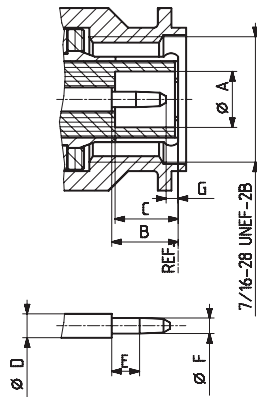
50 Ω TNC connectors and 75 Ω TNC connectors are intermateable without restrictions.

Content

Description	261
Compatibility	261
Interface dimensions in mm/inches	261
Technical data	262
Cable connectors	263
Receptacles with solder end	272
Protective caps and shorts	275

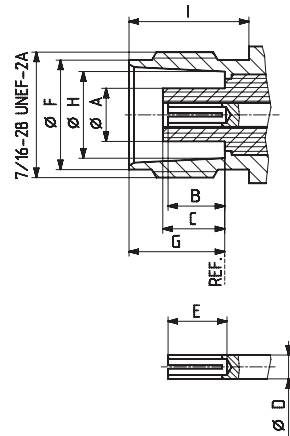
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	---	---	4.72/.186
B	5.33/.210	5.84/.230	4.72/.186	5.23/.206
C	5.28/.208	5.79/.228	4.78/.188	5.28/.208
D	2.06/.081	2.21/.087	2.06/.081	2.21/.087
E	1.98/.078	---	4.95/.195	---
F	1.32/.052	1.37/.054	9.60/.378	9.70/.382
G	0.08/.003	---	8.31/.327	8.51/.335
H	---	---	8.10/.319	8.15/.321
I	---	---	10.52/.414	---

Jack (female)



Interface dimensions conformable to the standards:

International:	IEC 60169-17
Europe:	CECC 22 200
USA:	MIL-C-39012
	TNC-Interface MIL-STD-348A/313

Series TNC 50 Ω – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 11 GHz
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level) - unrated	500 V rms, 50 Hz (depending on cable)
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 1.5 mΩ ≤ 1 mΩ
RF-leakage (between 2 and 3 GHz)	≥ 60 dB

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	46 Ncm ... 69 Ncm / 4.1 in. lbs ... 6.1 in. lbs 170 Ncm / 15.0 in. lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 27 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper beryllium alloy copper alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper / brass	SUCOPLATE®
Insulators	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series TNC 50 Ω - cable connectors

Straight cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

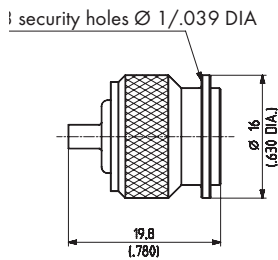


Fig. 1

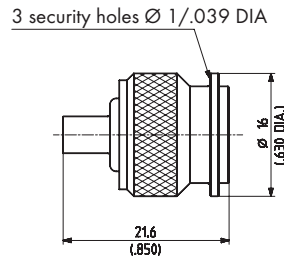


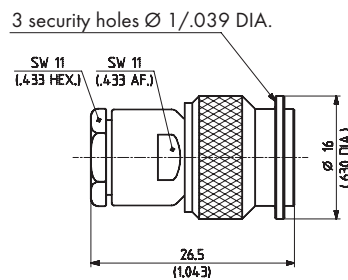
Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.	Notes
11_TNC-50-2-20/103_NE *	22642519	Y3, Y11, Y16 (EZ_86)	single	9100	1	
11_TNC-50-3-29/103_NE * 11_TNC-50-3-29/113_NE *	22641997 22544841	Y5, Y12 (EZ_141)		9106	2	outer contact silver outer contact gold

* Centre contact NOT captivated.

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_TNC-50-2-1/133_NE	22640783	U2 (RG_316_/U)	single	3005
11_TNC-50-3-5/133_NE	22640798	U7, U9, U11 (RG_58_C/U)		3005
11_TNC-50-3-6/133_NE *	22543475	U7, U9, U11 (RG_58_C/U)		3004

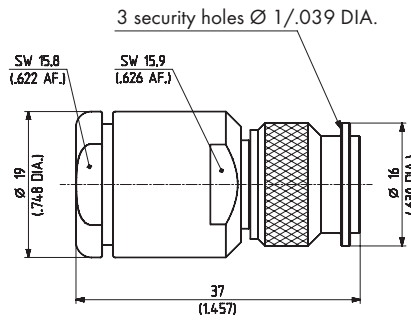
* Centre contact NOT captivated.

Series TNC 50 Ω - cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_TNC-50-7-2/133_NE	22640466	U29 (RG_213/U) U32 (RG_214/U)	single	3008

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

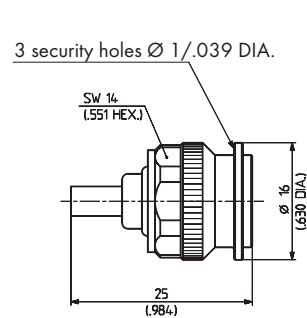


Fig. 1

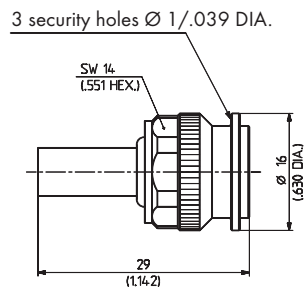


Fig. 2

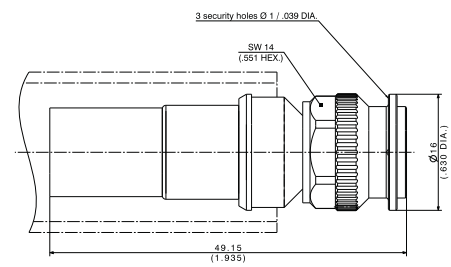


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_TNC-50-2-112/133_NE	23001710	U2 (RG_316_/U)	single	27215	1 A	1
11_TNC-50-2-113/133_NE	23001711	U4 (K_02252_D)	single			
11_TNC-50-3-115/133_NE 11_TNC-50-3-115/133_NH	23001712 23001713	U9 (RG_223/U)	single bulk 100 pcs.	3015	2 B	2
11_TNC-50-3-116/133_NE	23001714	U7 (RG_58_C/U)	single			
11_TNC-50-3-117/133_NE	23010015	U11 (RG_400/U)	single			
11_TNC-50-7-18/133_NE	84077868	U30 (SPUMA_400)	single	0000184567	4 D	3

Cable groups see page 32

Assembly tools see page 441

Mounting holes / PCB layouts see page 465

Series TNC 50 Ω - cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact plugged

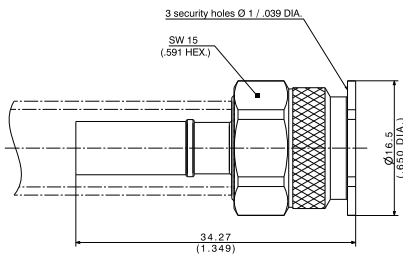


Fig. 1

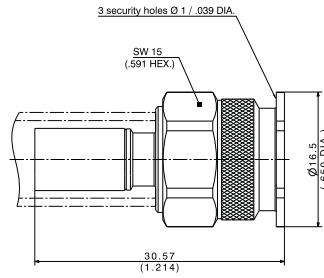


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_TNC-50-3-120/133_NE	84010745	X27 (SPUMA_195)	single	0000417754	B	1
11_TNC-50-4-77/133_NE	85010169	X28 (SPUMA_240)		0000416857	C	2

Series TNC 50 Ω - cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered

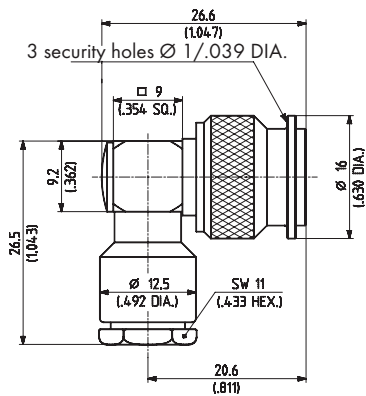


Fig. 1

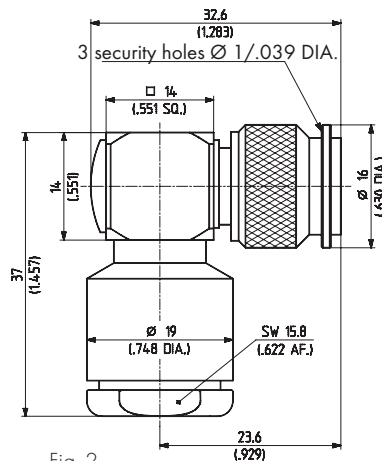


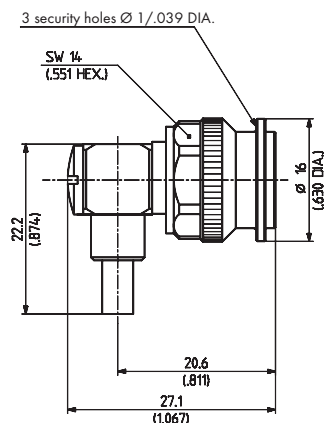
Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
16_TNC-50-3-28/133_NE	84012481	U7, U9, U11 (RG 58_C/U)	single	3024	1
16_TNC-50-7-4/133_NE	22651587	U29 (RG_216/U) U32 (RG 214/U)	single	3003	2

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458



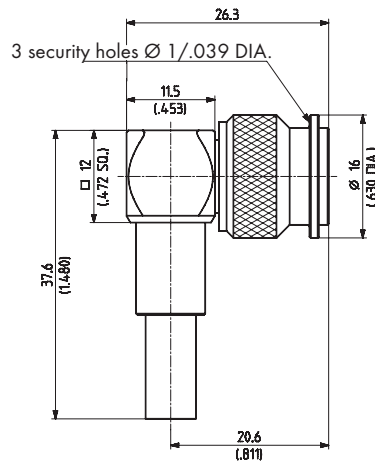
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_TNC-50-2-119/133_NE	23010087	U2 (RG_316_/U)	single	27216	A
16_TNC-50-2-7/133_NE	23001716	U4 (K_02252_D)			

Series TNC 50 Ω - cable connectors

Right angle cable plugs (male)

For flexible cables

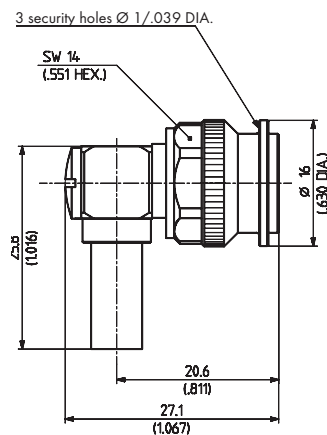
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_TNC-50-3-13/133_NE	22640492	U7 (RG_58_C/U)	single	0000335265	2 B
16_TNC-50-3-18/133_NE	22543606	U9 (RG_223/U)			

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458



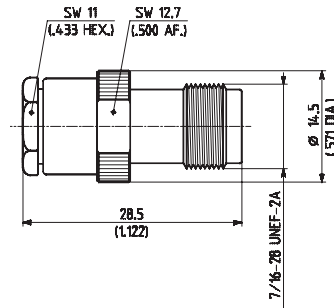
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_TNC-50-3-111/133_NE	23001717	U9 (RG_223/U)	single	27218	B
16_TNC-50-3-112/133_NE	23010115	U7 (RG_58 C/U)	single		
16_TNC-50-4-115/133_NE	23001718	S16 (S_04262_D-09)	single	27219	C
16_TNC-50-4-115/133_NH-1	22658175		bulk 100 pcs.		

Series TNC 50 Ω - cable connectors

Straight cable jacks (female)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
21_TNC-50-2-2/133_NE	22640515	U2 (RG_316_/U)	single	3005
21_TNC-50-3-4/133_NE	22640523	U7, U9 (RG_58_C/U)		

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

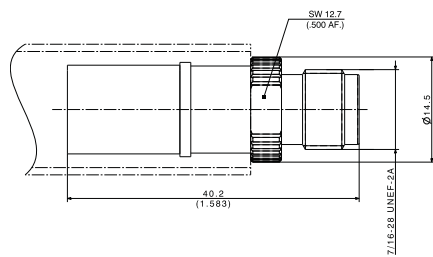
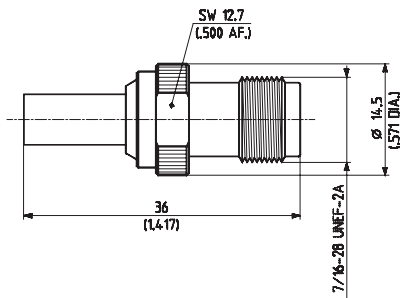


Fig. 1

Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
21_TNC-50-3-31/133_NE	84016544	U7 (RG_58_C/U)	single	0000231215	2 B	1
21_TNC-50-3-32/133_NE	84016601	U9 (RG_223/U)		0000231453		
21_TNC-50-7-1/133_NE	84128527	U30 (SPUMA_400)	single	0000345941	4 D	2

Series TNC 50 Ω - cable connectors

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- With panel seal
- Insulating washers see page 460

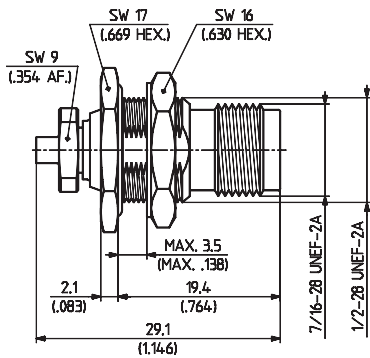


Fig. 1

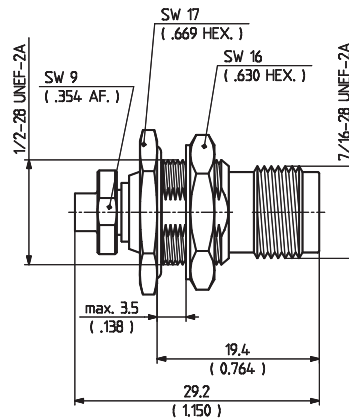


Fig. 2

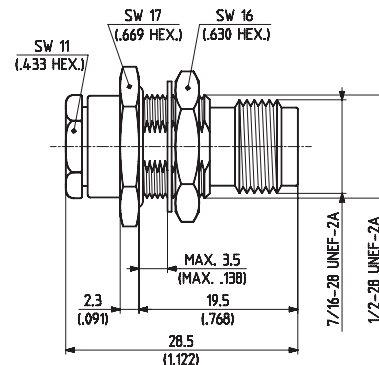


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_TNC-50-2-31/133_NE *	23001721	Y3, Y11 (EZ_86)	single	27269	ML 4	1
24_TNC-50-3-30/133_NH *	23001723	Y5, Y12 (EZ_141)	bulk 100 pcs.	27220		2

* Centre contact NOT captivated.

For flexible cables

- Cable entry clamp
- Centre contact soldered
- With panel seal
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_TNC-50-2-1/133_NE	22543398	U2 (RG_316_/U)	single	3005	ML 4

Series TNC 50 Ω - cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- With panel seal
- Taper sleeves see page 458
- Insulating washers see page 460

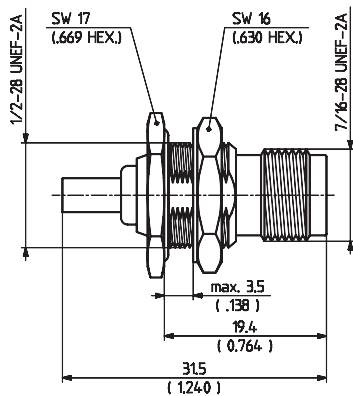


Fig. 1

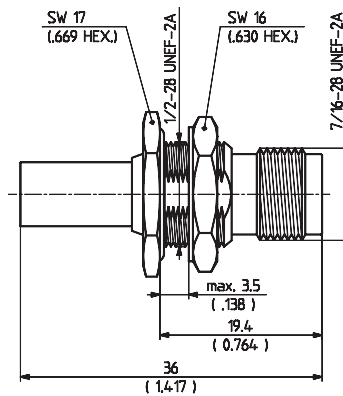


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
24_TNC-50-2-27/133_NE	23001719	U2 (RG_316_/U)	single	9068	ML 4	1 A	1
24_TNC-50-2-29/133_NH	23001720	U4 (K_02252_D)	bulk 100 pcs.				
24_TNC-50-3-21/133_NE	23001722	U9 (RG_223/U)	single	27221	ML 4	2 B	2
24_TNC-50-3-23/133_NE	23010150	U7 (RG_58_C/U)	single				

For flexible cables

- Cable entry crimp
- Center contact plugged
- With panel seal
- Taper sleeves see page 458
- Insulating washers see page 460

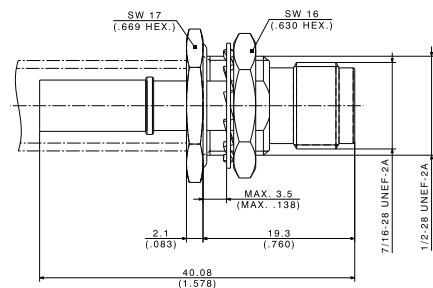


Fig. 1

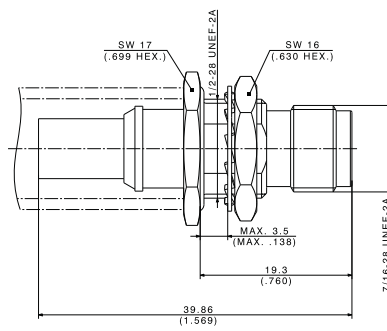


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert	Fig.
24_TNC-50-3-54/133_NE	84010762	X27 (SPUMA_195)	single	0000417644	ML 4	B	1
24_TNC-50-4-77/133_NE	85010236	X28 (SPUMA_240)		0000416856		C	2

Cable groups see page 32

Assembly tools see page 441

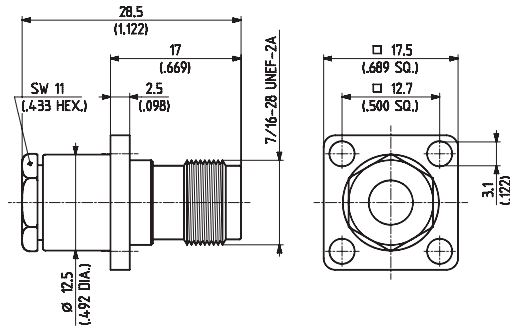
Mounting holes / PCB layouts see page 465

Series TNC 50 Ω - cable connectors

Straight panel cable jacks (female)

For flexible cables

- Cable entry clamp
- Center contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
25_TNC-50-2-1/133_NE	22640578	U2 (RG_316_/U)	single	3005	ML 8
25_TNC-50-3-9/133_NE	22643707	U7, U9 (RG_58_C/U)			

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

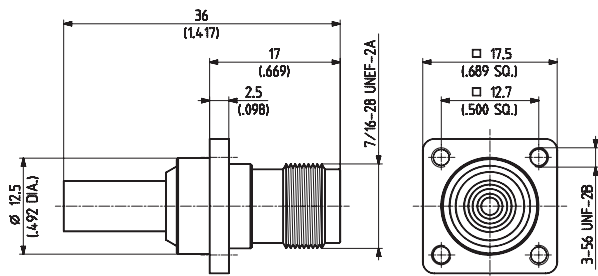
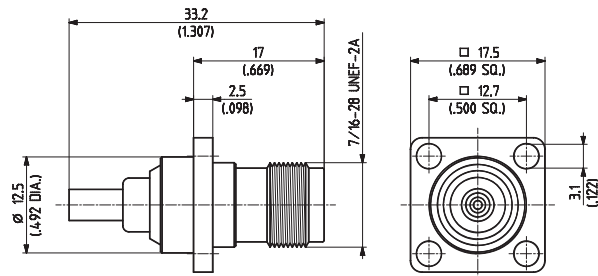


Fig. 1

Fig. 2

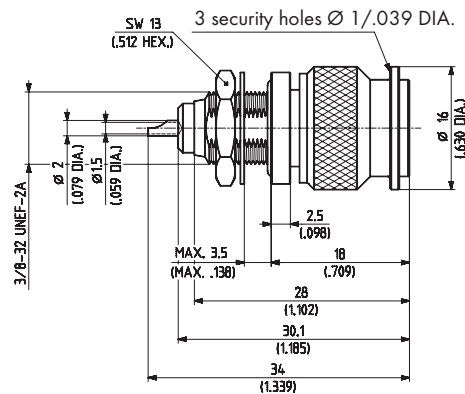
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Mounting hole	Crimp insert	Fig.
25_TNC-50-2-19/133_NE	84016723	U2 (RG_316_/U)	single	ML 8	1 A	1
25_TNC-50-3-19/133_NE	84016722	U7 (RG_58_C/U)			2 B	2*

* Mounting also possible with screws ISO M 2.5.

Series TNC 50 Ω – receptacles with solder end

Receptacles, plugs (male)

- Bulkhead mounted
- With panel seal
- Insulating washers see page 460
- Solder tags see page 461



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
12_TNC-50-0-1/133_NE	22640467	single	ML 2

Receptacles, jacks (female)

- Bulkhead mounted
- Insulating washers see page 460
- Solder tags see page 461

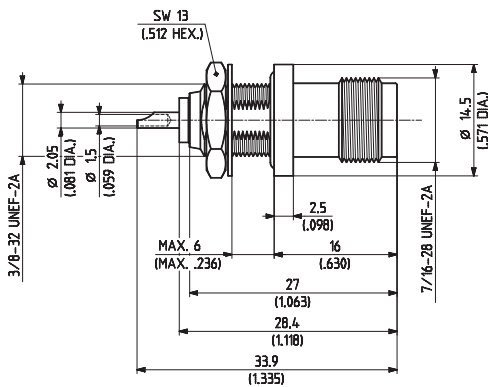


Fig. 1

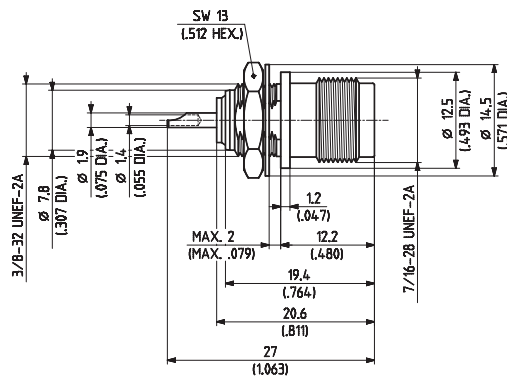
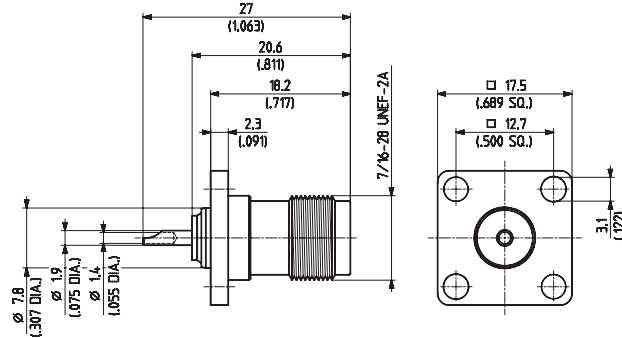


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_TNC-50-0-1/133_NE	22640537	single	ML 1	1	with panel seal
22_TNC-50-0-2/133_NE	22640539		ML 2	2	

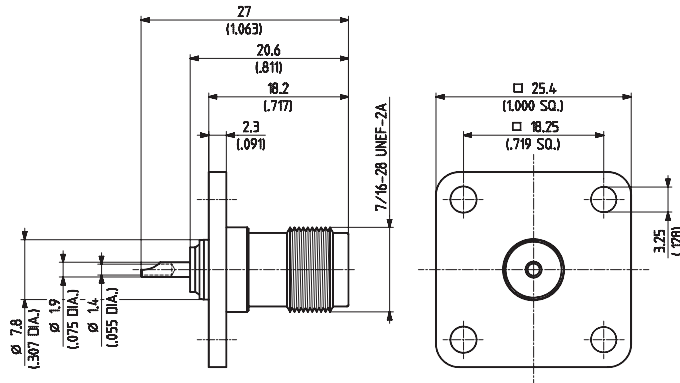
Series TNC 50 Ω – receptacles with solder end

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
23_TNC-50-0-2/133_NE	22640549	single	ML 6
23_TNC-50-0-2/133_NH	22644322	bulk 100 pcs.	

- Panel mounted



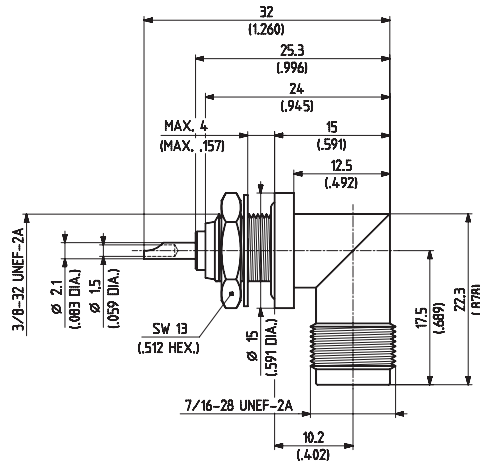
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_TNC-50-0-6/133_NE	22640551	single	ML 5	suitable for SUCOBOX applications, see page 462

TNC 50 Ω

Series TNC 50 Ω – receptacles with solder end

Right angle receptacle, jack (female)

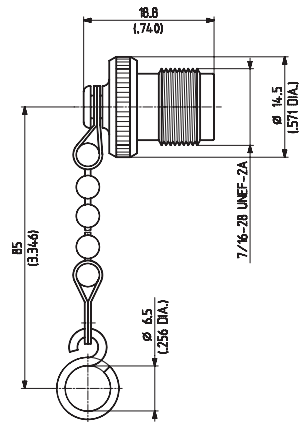
- Bulkhead mounted
- With panel seal
- Insulating washers see page 460
- Solder tags see page 461



HUBER+SUHNER type	Item no.	Packaging	Mounting hole
27_TNC-50-0-1/133 NE	22543405	single	ML 2

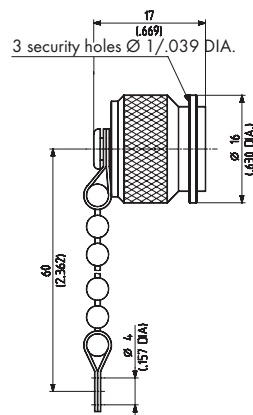
Series TNC 50 Ω – protective caps and shorts

Protective cap for plugs



HUBER+SUHNER type	Item no.	Packaging	Notes
61_TNC-0-0-1/33_-E	22640661	single	with chain

Protective cap for jacks



HUBER+SUHNER type	Item no.	Packaging	Notes
62_TNC-0-0-1/33_-E	22640665	single	with chain

TNC 50 Ω



Series TNC 75 Ω - coaxial miniature connectors

Description

Within the internationally standardised TNC mating face dimensions a perfect 75 Ω characteristic impedance cannot be realised. However, at frequencies up to 1 GHz the small impedance deviation is negligible for practical applications. The threaded coupling mechanism allows them to be used under higher environmental load than BNC.

Content

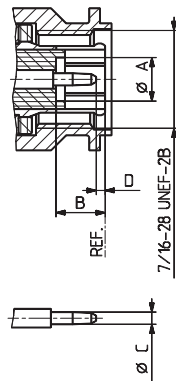
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Compatibility

75 Ω TNC connectors and 50 Ω TNC connectors are intermateable without restrictions.

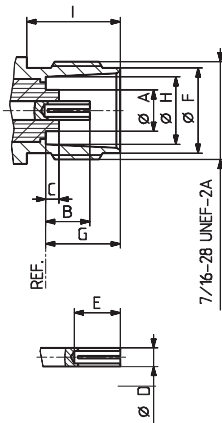
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	4.97/.196	---	4.72/.186
B	5.28/.208	5.79/.228	4.72/.186	5.23/.206
C	1.32/.052	1.37/.054	1.50/.059 nom.	
D	0.08/.003	1.02/.040	2.10/.827 nom.	
E	---	---	4.95/.195	---
F	---	---	9.60/.378	9.70/.382
G	---	---	8.35/.328	8.48/.334
H	---	---	8.10/.319	8.15/.321
I	---	---	10.60/.417	---

Jack (female)



Interface dimensions conformable to the standards:

(based on IEC 60169-17 and IEC 60169-8, annex A)

Series TNC 75 Ω – technical data

Electrical data	Requirements
Impedance	75 Ω
Frequency range	DC ... 1 GHz
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level) - unmated	500 V rms, 50 Hz (depending on cable)
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 1.5 mΩ ≤ 1 mΩ
RF-leakage (measured at 1 GHz)	≥ 60 dB

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	46 Ncm ... 69 Ncm / 4.1 in. lbs ... 6.1 in. lbs 170 Ncm / 15.0 in. lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 27 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold / SUCOPRO® gold plating
Socket contacts	copper(-beryllium) alloy copper alloy	gold / SUCOPRO® gold plating
Crimp ferrules	copper / brass	SUCOPLATE®
Insulators, standard version	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

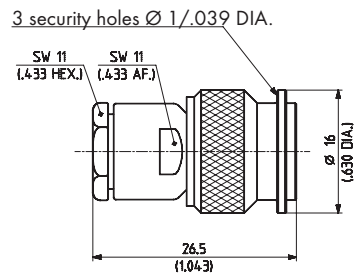
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series TNC 75 Ω – cable connectors

Straight cable plugs (male)

For flexible cables

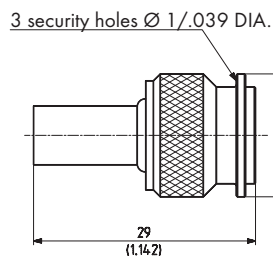
- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_TNC-75-4-2/133_NE	22543477	U16 (RG_59_B/U)	single	3005

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



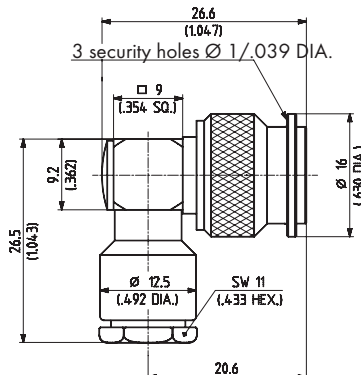
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_TNC-75-4-4/133_NE	22543478	U16 (RG_59_B/U)	single	3015	2 C
11_TNC-75-4-9/133_NE	22642678	U18 (G_04233_D)			
11_TNC-75-4-30/133_NE	22642503	U17 (S_04263)			

Series TNC 75 Ω - cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered

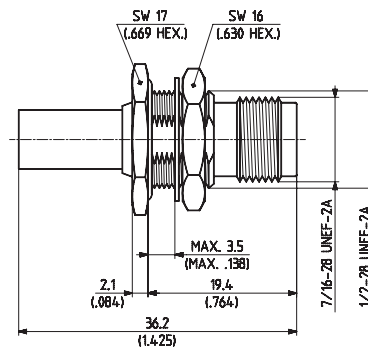


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
16_TNC-75-4-2/133_NE	22641402	U16 (RG_59_B/U)	single	3024

Straight bulkhead cable jacks (female)

For flexible cables

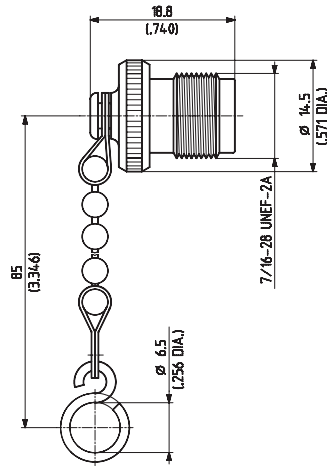
- HUBER+SUHNER® full crimp
- With panel seal
- Taper sleeves see page 458
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_TNC-75-4-8/133_NE	22544140	U16 (RG_59_B/U)	single	3015	ML4	2 C

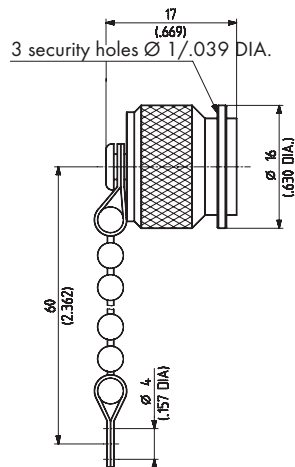
Series TNC 75 Ω – protective caps

Protective cap for plugs



HUBER+SUHNER type	Item no.	Packaging	Notes
61_TNC-0-0-1/-33_-E	22640661	single	with chain

Protective cap for jacks



HUBER+SUHNER type	Item no.	Packaging	Notes
62_TNC-0-0-1/-33_-E	22640665	single	with chain



Series BNO – twinaxial miniature connectors

Description

HUBER+SUHNER BNO twin connectors are two pin bayonet coupled (same bayonet locking mechanism as BNC) connectors for use with balanced twin-conductor cables with 75 Ω to 130 Ω impedance. They have polarised contacts and are not intermateable with BNC.

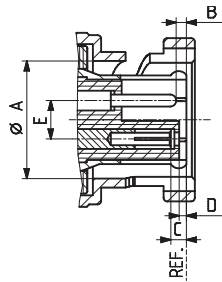
The HUBER+SUHNER BNO twin connectors are suitable for applications up to 200 MHz (i.e. computer networks and process control).

Content

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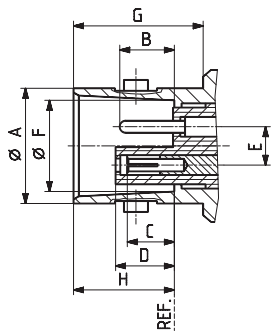
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	9.78/.385	9.91/.390	9.60/.378	9.70/.382
B	0.89/.035	1.65/.065	4.34/.171	5.08/.200
C	0.81/.032	1.80/.071	3.96/.156	5.08/.200
D	0.71/.028	1.07/.042	4.78/.188	5.23/.206
E	3.14/.124	3.26/.128	3.14/.124	3.26/.128
F	---	---	8.10/.319	8.15/.321
G	---	---	10.52/.414	---
H	---	---	8.36/.329	8.46/.333

Jack (female)



Interface dimensions conformable to the standards:

International: IEC 60169-22

Series BNO – technical data

Electrical data	Requirements
Impedance	not defined
Frequency range (for connector interface)	DC ... 200 MHz
Dielectric withstanding voltage (at sea level)	1.5 kV rms, 50 Hz between any two contacts
Insulation resistance	$\geq 10^4 \text{ M}\Omega$
Contact resistance - centre contact - outer contact	$\leq 2 \text{ m}\Omega$ $\leq 2 \text{ m}\Omega$

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0,6 in. lbs ... 2.5 in. lbs
Coupling nut retention force	$\geq 450 \text{ N} / 101.2 \text{ lbs}$
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-50 °C ... +125 °C / -58 °F ... +257 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
Crimp ferrules	copper	SUCOPLATE®
Insulators	ETFE (Tefzel)	
Gaskets	silicon rubber	

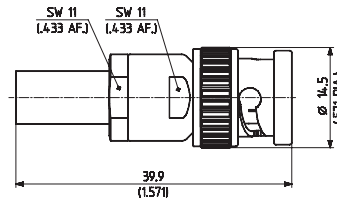
Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series BNO - cable connectors

Straight cable plugs (male)

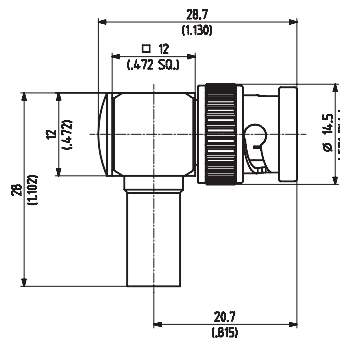
- Cable entry crimp
- Centre contact crimp or soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_BNO-0-4-1/133_NE	22541080	V1 (RG_108_A/U)	single	3083	76_Z-0-4-8
11_BNO-0-4-1/133_NH	22649903		bulk 100 pcs.		

Right angle cable plug (male)

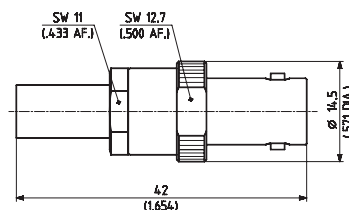
- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
16_BNO-0-4-1/133_NE	22643456	V1 (RG_108_A/U)	single	9042	C

Straight cable jacks (female)

- Cable entry crimp
- Centre contact crimp or soldered

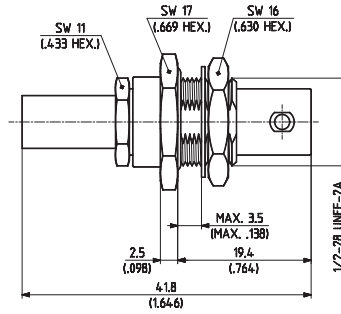


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_BNO-0-4-1/133_NE	22541081	V1 (RG_108_A/U)	single	3083	76_Z-0-4-8

Series BNO - cable connectors

Straight bulkhead cable jacks (female)

- Cable entry crimp
- Centre contact crimp or soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_BNO-0-4-1/133_NE	22541086	V1 (RG_108_A/U)	single	9043	ML4	76_Z-0-4-8

Series BNO - receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- Without panel seal
- Front mounting

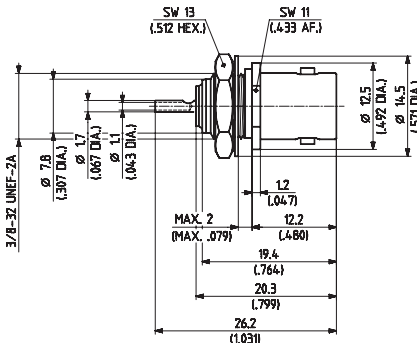


Fig. 1

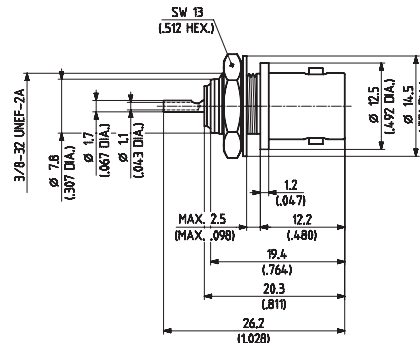


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_BNO-0-0-1/133_NE	22541082	single	ML 3	1	max. panel thickness 2 mm/.079 in.
22_BNO-0-0-2/133_NE	22541083		ML 2	2	max. panel thickness 2.5 mm/.098 in.

- Panel mounted

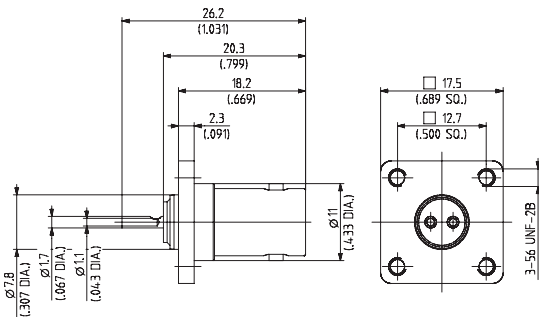


Fig. 1

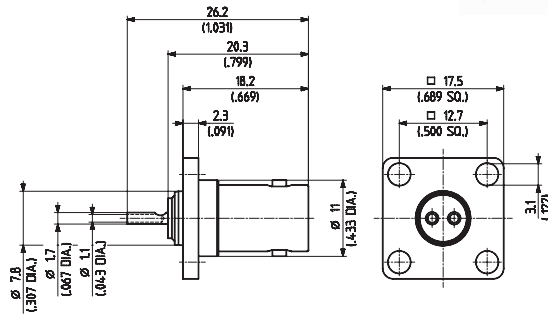


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
23_BNO-0-0-1/133_NE	22543389	single	ML 6	1	flange with 4 threads *
23_BNO-0-0-2/133_NE	22541085			2	flange with 4 holes

* Mounting also possible with screws ISO M 2.5.



Series BNT – triaxial miniature connectors

Description

HUBER+SUHNER BNT triaxial connectors are RF connectors with a bayonet coupling mechanism and three concentric contacts (inner conductor, inner screen and outer screen) for triaxial cables.

HUBER+SUHNER BNT connectors are intermateable with BNC connectors, but the inner conductor and outer screen are connected only.

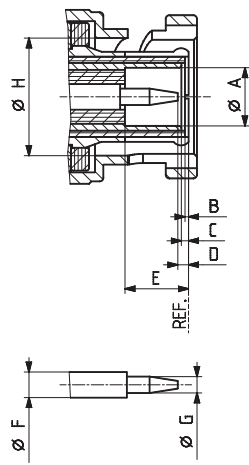
BNT connectors are suitable for applications up to 3 GHz (inner coaxial line).

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Interface dimensions (mm/inches)

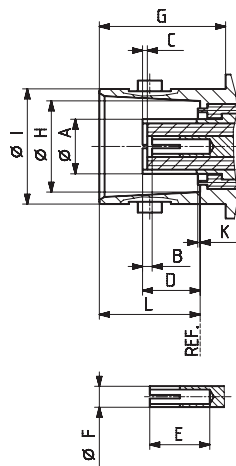
Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
	4.85/.191	4.90/.193	4.95/.195 *	5.05/.199 *
B	0.00/000	0.40/.016	0.10/.004	---
C	0.50/.020 nom.		0.20/.008 nom.	
D	0.60/.024 nom.		4.90/.193 nom.	
E	5.30/.209	---	5.00/.197	---
F	1.43/.056	1.47/.058	1.70/.067	1.75/.069
G	1.32/.052	1.37/.054	10.52/.414	---
H	9.78/.385	9.91/.390	8.10/.319	8.15/.321
I	---	---	9.60/.378	9.70/.382
K	---	---	0.20/.008 nom.	
L	---	---	8.31/.327	8.51/.335

* Prior to slotting.

Jack (female)



Series BNT – technical data

Electrical data	Requirements
Impedance	50 Ω (between centre contact and first outer contact)
Frequency range	DC ... 3 GHz (inner coaxial line)
Dielectric withstanding voltage (at sea level) - centre contact/inner screen - between screens	1 kV rms, 50 Hz 400 V rms, 50 Hz
Insulation resistance - centre contact/inner screen - between screens	$\geq 5 \cdot 10^3 \text{ M}\Omega$ $\geq 5 \cdot 10^2 \text{ M}\Omega$
Contact resistance - centre contact - inner screen - outer screen	$\leq 1.5 \text{ m}\Omega$ $\leq 1.0 \text{ m}\Omega$ $\leq 1.5 \text{ m}\Omega$

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in. lbs ... 2.5 in. lbs
Coupling nut retention force	$\geq 450 \text{ N} / 101.2 \text{ lbs}$
Contact captivation	$\geq 27 \text{ N} / 6.1 \text{ lbs}$
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-50 °C ... +125 °C / -58 °F ... +257 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
1st outer contact	brass	silver / SUCOPLATE®
Crimp ferrules	copper	SUCOPLATE®
Insulators	PTFE or PFA	
Gaskets	silicon rubber	

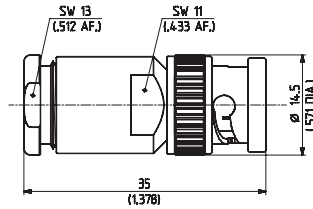
Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series BNT – cable connectors

Straight cable plugs (male)

- Cable entry clamp

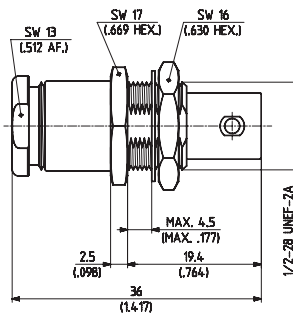


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_BNT-50-2-1/103_NE *	22541057	W1 (G_02332)	single	3082
11_BNT-50-3-1/103_NE	22541058	W2 (G_03332)		

* Centre contact NOT captivated.

Straight bulkhead cable jacks (female)

- Cable entry clamp
- With panel seal



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_BNT-50-2-1/103_NE *	22541075	W1 (G_02332)	single	3082	M4
24_BNT-50-3-1/103_NE	22541077	W2 (G_03332)			

* Centre contact NOT captivated.

Series BNT - receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- Without panel seal
- Front mounting

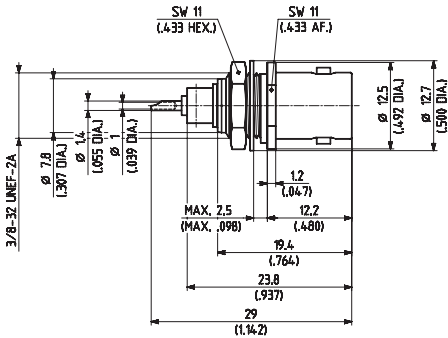


Fig. 1

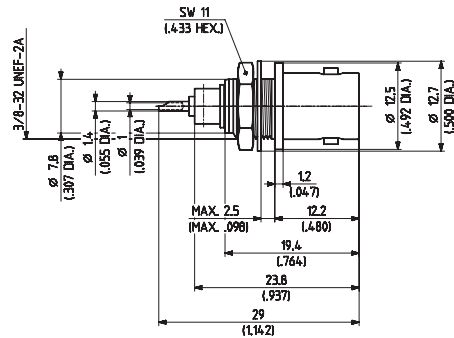


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.
22_BNT-50-0-1/103_NE	22541069	single	ML 3	1
22_BNT-50-0-2/103_NE	22541070		ML 2	2

Flange mount, jacks (female)

- Panel mounted

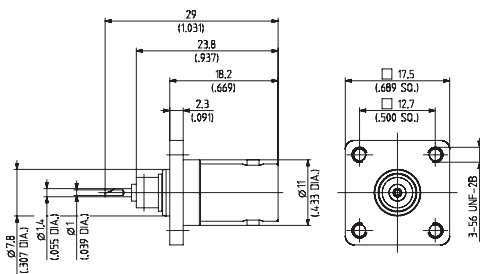


Fig. 1

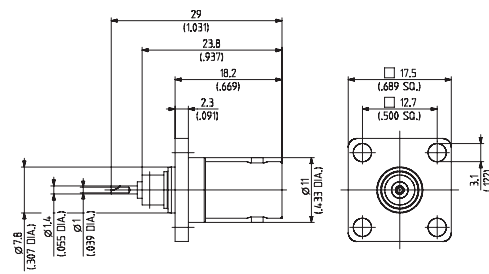


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
23_BNT-50-0-1/103_NE	22544850	single	ML 6	1	flange with 4 threads *
23_BNT-50-0-2/103_NE	22541073			2	flange with 4 holes

* Mounting also possible with screws ISO M 2.5.

Series SHV – high voltage connectors

Description

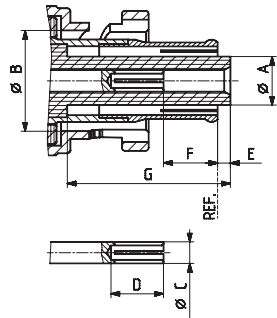
HUBER+SUHNER SHV (Safe High Voltage) connectors provide more secure handling: center contacts are well recessed to prevent shock hazards in unmated condition. All inner contacts are fully captivated and will withstand axial forces of 100 N minimum. When mating a connector pair the outer conductor contact is made prior to the inner conductor contacts. SHV connectors are suitable for all high voltage applications up to 5 kV DC or 3.5 kV rms. These connectors are typically used in nuclear instruments or test and measurement equipment. Voltages are valid for both, the mated and the unmated condition.

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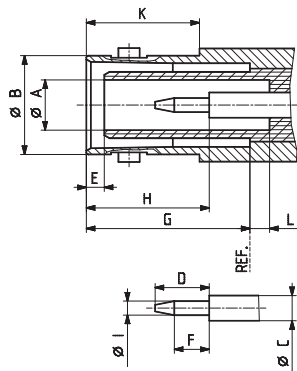
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.57/.180	4.72/.186	4.83/.190	4.98/.196
B	9.78/.385	9.91/.390	9.60/.378	9.70/.382
C	2.06/.081	---	2.06/.081	---
D	5.44/.214	---	5.26/.207	5.44/.214
E	1.17/.046	1.63/.064	1.55/.061	1.98/.078
F	4.42/.174	---	3.30/.130	---
G	15.90/.626	16.10/.634	15.90/.626	16.00/.630
H	---	---	11.59/.456	12.70/.500
I	---	---	1.32/.052	1.37/.054
K	---	---	10.85/.427	---
L	---	---	1.63/.064	2.18/.086

Jack (female)



Interface dimensions conformable to the standards:

International: IEC 60498, NIM ND-545
 USA: MIL-STD-348A/314
 ANSIN 24.4

Series SHV – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 300 MHz
Dielectric withstanding voltage (at sea level)	5.0 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level)	3.5 V rms, 50 Hz (depending on cable)
Insulation resistance	≥10 ⁶ MΩ
Contact resistance - centre contact - outer contact	≤ 2 mΩ ≤ 1.5 mΩ
Corona extinction voltage (at 21 000 m)	≥ 350 V rms, 50 Hz (depending on cable)
Current rating, continuous	≤ 10 A

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in. lbs ... 2.5 in. lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 27 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Test conditions (PTFE)	Test conditions (polystyrol)
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F	-55 °C ... +100 °C / -67 °F ... +212 °F
Climatic category	IEC → 55/155/21	
Thermal shock	MIL-STD-202, method 107, condition B	
Moisture resistance	MIL-STD-202, method 103, condition B	
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B	
Vibration	MIL-STD-202, method 204, condition A	
Shock	MIL-STD-202, method 213, condition I	
Radiation resistance (with polystyrene dielectric)	≥ 10 ⁹ rad	

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
Crimp ferrules	copper	SUCOPLATE®
Insulators	PTFE or PFA	
Insulators (radiation resistant types)	polystyrol, crosslinked	

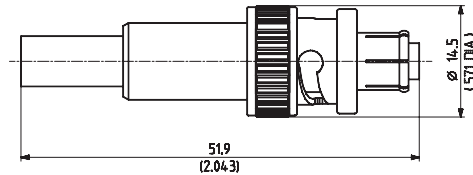
Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series SHV – cable connectors

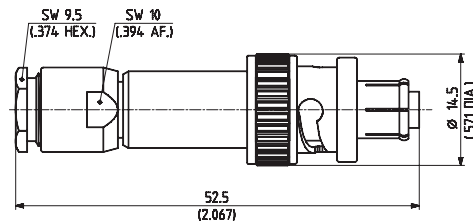
Straight cable plugs (male)

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
11_SHV-50-3-1/133_NE	22541987	U7 (RG_58_C/U)	single	3092	2 B
11_SHV-50-4-1/133_NE	22541992	U16 (RG_59_B/U)			2 C

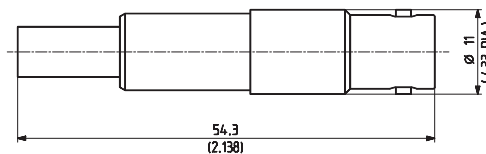
- Cable entry clamp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_SHV-50-3-10/133_NE	22541990	U7 (RG_58_C/U)	single	3094
11_SHV-50-4-10/133_NE	22541996	U16 (RG_59_B/U)		

Straight cable jacks (female)

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

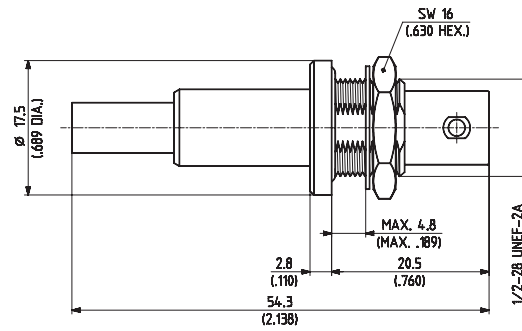


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_SHV-50-3-1/133_NE	22541998	U7 (RG_58_C/U)	single	3092	2 B
21_SHV-50-4-1/133_NE	22542001	U16 (RG_59_B/U)			2 C

Series SHV – cable connectors

Straight bulkhead cable jacks (female)

- HUBER+SUHNER® full crimp
- With panel seal
- Taper sleeves see page 458

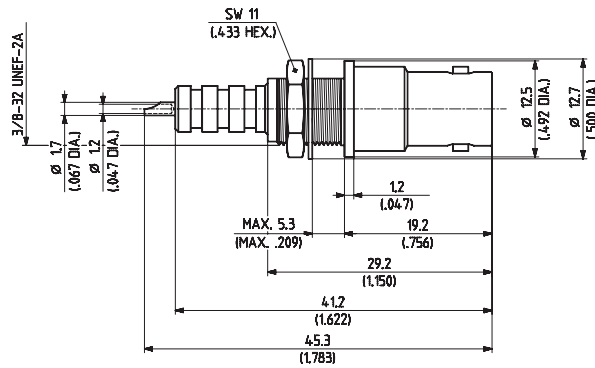


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_SHV-50-3-1/133_NE	22641281	U7 (RG_58_C/U)	single	3092	ML4	2 B
24_SHV-50-4-1/133_NE	22544592	U16 (RG_59_B/U)				2 C

Series SHV – receptacles with solder end

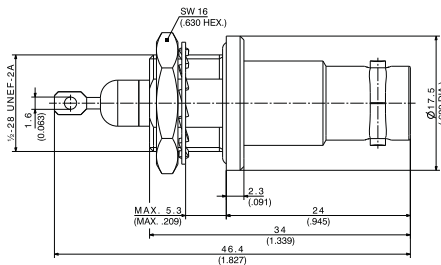
Receptacles, jacks (female)

- Bulkhead mounted
- without panel seal



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Insulator	Notes
22_SHV-50-0-2/133_NE	22544054	single	ML 2	PTFE	
22_SHV-50-0-6/133_NE	22542007			polystyrol	radiation resistant

- Bulkhead mounted
- Hermetically sealed



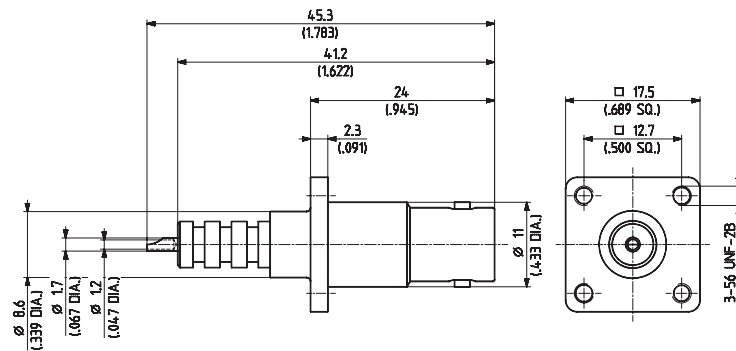
HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Plating body	Notes
22_SHV-50-0-3/100_NE *	22543968	single	ML 4	silver	leak rate 10 ⁻⁶ Torr l/sec.(atm cc/s)

* RoHS compliant alternative on request.

Series SHV – receptacles with solder end

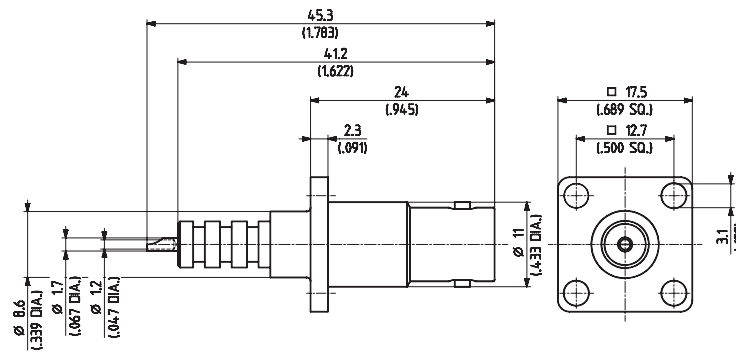
Receptacles, jacks (female)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_SHV-50-0-1/133_NE	22542008	single	ML 106	mounting also possible with screws ISO M 2.5

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
23_SHV-50-0-2/133_NE	22542010	single	ML 106	

Series MHV (H4) - high voltage connectors

Description

HUBER+SUHNER MHV (Miniature High Voltage) are coaxial miniature high voltage connectors with 5 kV rms test voltage (mated pairs). The MHV connectors have a working voltage up to 1.6 kV rms in mated condition and are suitable for applications up to 300 MHz. MHV connectors are of similar design to BNC connectors but the insulators protrude over the outer contacts to give a degree of contact-voltage proof when unmated.

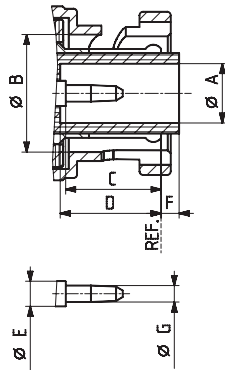
However, if a high degree of protection in the unmated condition is required, use of series SHV is recommended.

Content

Description	299
Interface dimensions in mm / inches	299
Technical data	300
Cable connectors	301
Receptacles with solder end	303

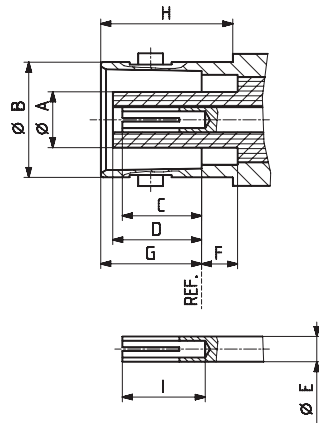
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	4.83/.190	---	---	4.72/.186
B	9.78/.385	9.91/.390	9.60/.378	9.70/.382
C	7.18/.283	---	---	7.11/.280
D	8.10/.319	---	---	8.05/.317
E	---	2.31/.091	2.06/.081	2.31/.091
F	---	2.18/.086	2.18/.086	---
G	1.32/.052	1.37/.054	8.31/.327	8.51/.335
H	---	---	10.52/.414	---
I	---	---	6.86/.270	---

Jack (female)



Series MHV – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 300 MHz
Dielectric withstanding voltage (at sea level)	5.0 kV rms, 50 Hz (depending on cable)
Working voltage (at sea level)	1.6 kV rms, 50 Hz (depending on cable)
Insulation resistance	≥ 5 • 10 ⁶ MΩ
Contact resistance - centre contact - outer contact	≤ 2 mΩ ≤ 1 mΩ
Corona extinction voltage (at 21 000 m)	≥ 300 V rms, 50 Hz (depending on cable)
Current rating, continuous	≤ 10 A

Mechanical data	Requirements
Coupling nut torque	7 Ncm ... 28 Ncm / 0.6 in. lbs ... 2.5 in. lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 15 N / 6.1 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Test conditions
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	salt spray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold
Socket contacts	copper-beryllium alloy	gold
Crimp ferrules	copper	SUCOPLATE®
Insulators	PTFE or PFA	

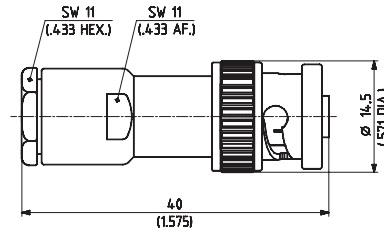
Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series MHV – cable connectors

Straight cable plugs (male)

- Cable entry clamp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_H4-50-3-1/133_NE *	22541732	U7 (RG_58_C/U)	single	3012
11_H4-50-4-1/133_NE *	22541742	U16 (RG_59_B/U)		

* Centre contact NOT captivated.

- Cable entry crimp
- Taper sleeves see page 458

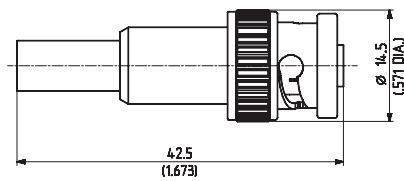


Fig. 1

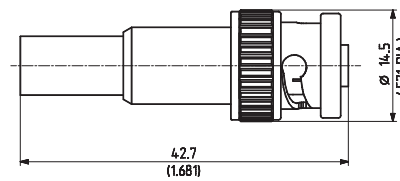


Fig. 2

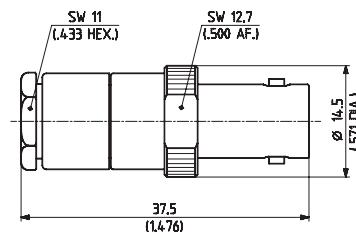


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_H4-50-3-3/133_NE *	22541737	U7 (RG_58_C/U)	single	3078	B	1
11_H4-50-4-4/133_NE *	22543809	U16 (RG_59_B/U)			C	2

* Centre contact NOT captivated.

Straight cable jacks (female)

- Cable entry clamp



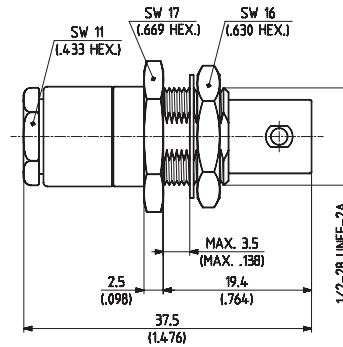
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
21_H4-50-3-1/133_NE *	22541756	U7 (RG_58_C/U)	single	3012

* Centre contact NOT captivated.

Series MHV - cable connectors

Straight bulkhead cable jacks (female)

- Cable entry clamp
- With panel seal



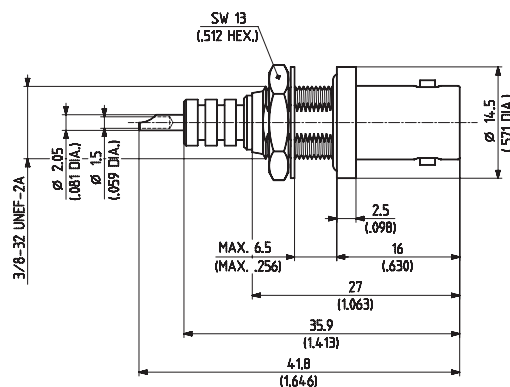
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole
24_H4-50-3-1/133_NE	22541784	U7 (RG_58_C/U)	single	3012	ML 4

* Centre contact NOT captivated.

Receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- With panel seal

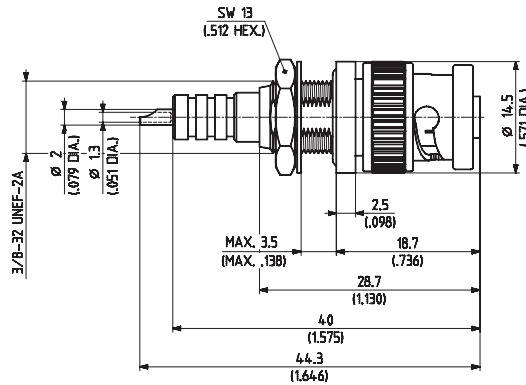


HUBER+SUHNER type	Item no.	Packaging	Mounting hole
22_H4-50-0-1/133_NE	22652095	single	ML 1

Series MHV – receptacles with solder end

Receptacles, plugs (male)

- Bulkhead mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes
12_H4-50-0-1/133_NE	22543467	single	ML 2	with panel seal

Flange mount, jacks (female)

- Panel mounted

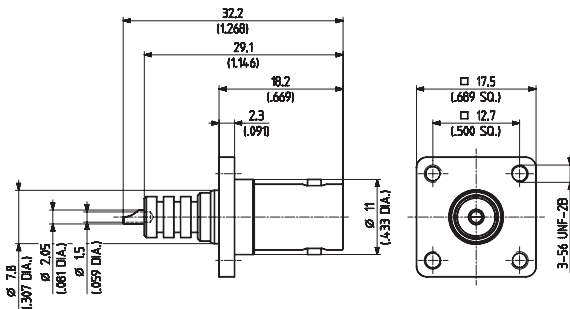


Fig. 1

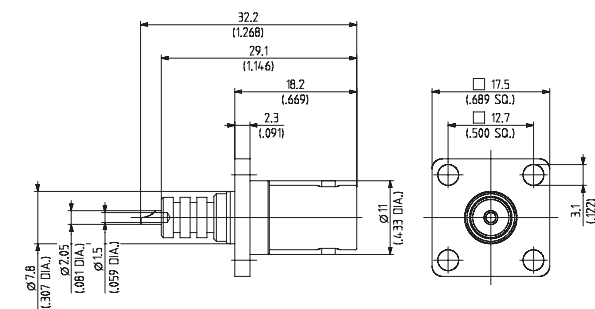


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
23_H4-50-0-7/133_NE	22541776	single	ML 6	mounting also possible with screws ISO M 2.5	1
23_H4-50-0-8/133_NE	22541779				2



Series C – coaxial connectors

Description

HUBER+SUHNER C connectors are medium size RF connectors with two-stud bayonet mechanism which allows quick and easy coupling and decoupling. The C connectors provide 50 Ω impedance and the frequency range (connector interface) is specified for applications up to 11 GHz.

Interface dimensions conformable to MIL-STD-348 A/302.

Applications

- Defence
- Instrumentation
- Airframe

Content

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Applications	305
Technical data	306
Cable connectors	307
Receptacles	309



Series C – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range (interface)	DC ... 11 GHz
Dielectric withstanding voltage (at sea level)	3 kV rms, 50 Hz
Working voltage (at sea level)	≤ 1.0 kV rms, 50 Hz
Insulation resistance	$\geq 5 \cdot 10^3$ M Ω
Contact resistance	
- centre contact	≤ 1 m Ω
- outer contact	≤ 1 m Ω

Mechanical data	Requirements
Durability (matings)	≥ 500

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C
Climatic category	IEC \rightarrow 55/155/21
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Centre contacts	brass	gold / SUCOPRO® gold plating
Outer contacts	brass	SUCOPLATE®
Insulators	PTFE	
Crimp ferrules	copper	SUCOPLATE®
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

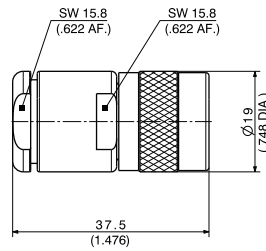
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series C – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction
11_C-50-7-6/133_NE	22541137	U32 (RG_214_/U)	single	3008

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeve see page 458

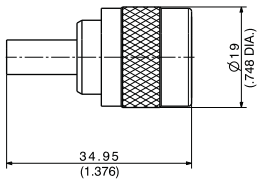


Fig. 1

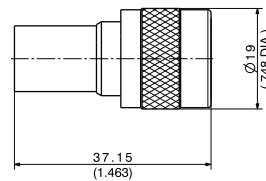


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_C-50-3-7/133_NE	22541103	U72 (RG_58_C/U)	single	3063	2 B	1
11_C-50-3-8/133_NE	22541104	U9 (RG_223_/U)		3063	2 B	1
11_C-50-7-15/133_NE	22541144	U32 (RG_214_/U)		3061	3 D	2

Series C - cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered

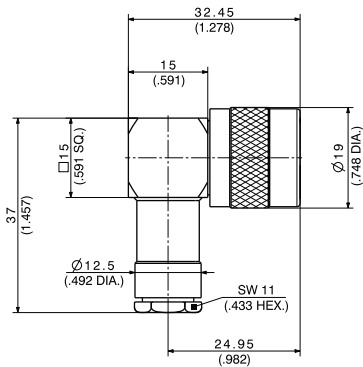


Fig. 1

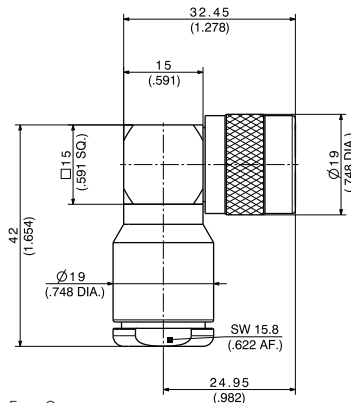


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
16_C-50-3-3/133_NE	22642051	U9 (RG_223_/U	single	3016	1
16_C-50-7-6/133_NE	22541185	U32 (RG_214_/U		27166	2

Series C – receptacles

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry clamp
- Centre contact soldered

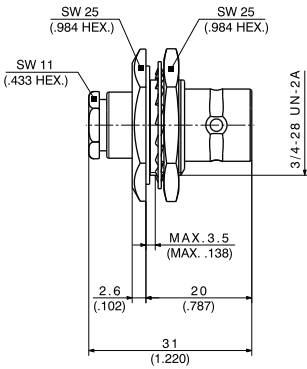


Fig. 1

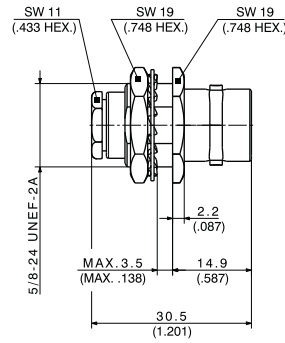


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Fig.
24_C-50-3-2/133_NE	22644448	U9 (RG_223_/U)	single	0000177464	ML 25	1
24_C-50-3-5/133_NE	22543622				ML 24	2

- Panel mounted

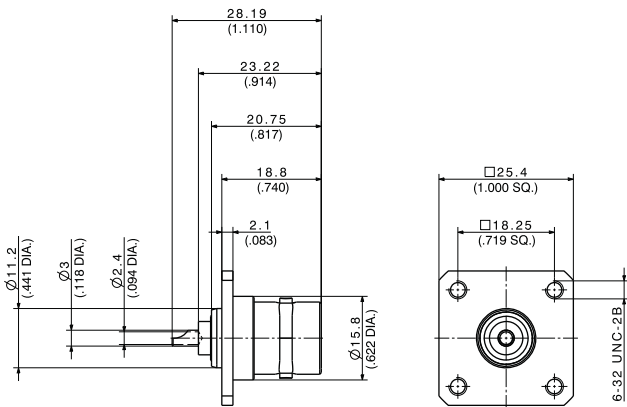


Fig. 1

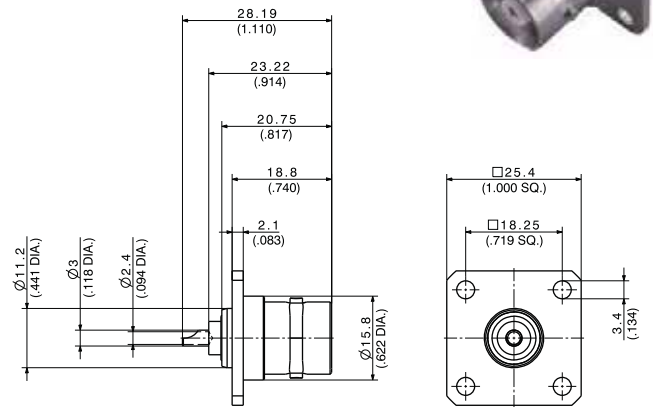


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Notes	Fig.
23_C-50-0-1/133_NE	22541226	single	ML 36	flange with 4 threads	1
23_C-50-0-2/133_NE	22541230			flange with 4 holes	2



Series N 50 Ω – coaxial connectors

Description

HUBER+SUHNER N connectors are available with 50 Ω and 75 Ω impedance. The frequency range extends to 18 GHz, depending on the connector and cable type. The screw-type coupling mechanism provides a sturdy and reliable connection.

HUBER+SUHNER N connectors are available for flexible cables, for semi-rigid cables and for corrugated copper tube cables.

Cable entries: clamp, crimp and solder types available, as well as HUBER+SUHNER QUICK-FIT for corrugated copper tube cables.

Content

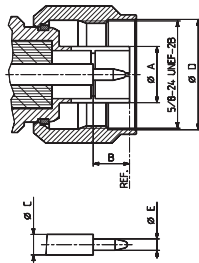
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Interface dimensions in mm/inches	311
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Compatibility

Inner conductors of N 75 Ω connectors have a smaller diameter than those of the 50 Ω version. Therefore 50 Ω and 75 Ω connectors must not be mated with each other.

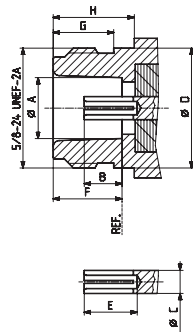
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	---	8.38/.330	8.03/.316	8.13/.320
B	5.33/.210	5.84/.230	4.75/.187	5.26/.207
C	---	3.15/.124	---	3.15/.124
D	16.00/.630	---	---	15.93/.627
E	1.60/.063	1.68/.066	5.33/.210	---
F	---	---	9.04/.356	9.19/.362
G	---	---	6.76/.266	---
H	---	---	10.72/.422	---

Jack (female)



Interface dimensions conformable to the standards:

International:	IEC 61169-16
Europe:	CECC 22 210
USA:	MIL-STD-348A/304

IP rating (interface, mated) IP 68

Series N 50 Ω – technical data

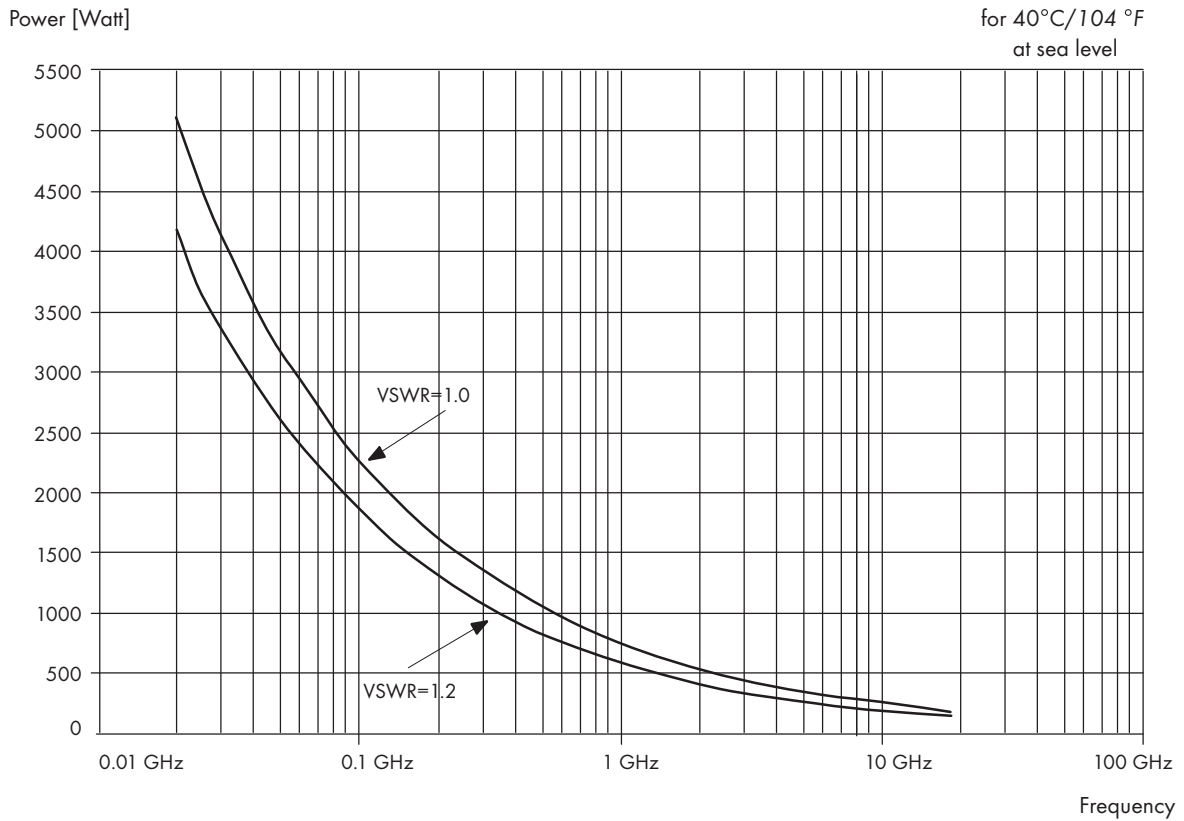
Electrical data	Requirements
Impedance	50 Ω
Frequency range - flexible cables - semi-rigid cables	DC ... 11 GHz DC ... 18 GHz
Dielectric withstanding voltage (at sea level)	2.5 kV rms, 50 Hz
Working voltage (at sea level)	≤ 1.0 kV rms, 50 Hz
Insulation resistance	≥ 5 • 10 ⁹ MΩ
Contact resistance - centre contact - outer contact	≤ 1.0 mΩ ≤ 1.0 mΩ
RF leakage (between 2 and 3 GHz)	≥ 90 dB
VSWR	see table below

Typical VSWR *	Frequency range					Cable group
	1 GHz	2.5 GHz	5 GHz	12.4 GHz	18 GHz	
Straight connectors	1.04	1.05	1.08			M6
	1.03	1.04	1.06	1.12		Y5, Y12
	1.03	1.04	1.05	1.07	1.09	Y5, Y12
	1.03	1.04	1.05	1.08	1.12	Y7
	1.05	1.09	1.17			U7, U9
	1.04	1.06	1.12			U28, U29, U32, U33
	1.03	1.05	1.14			S24
	1.03	1.05	1.10			S39
Right angle connectors	1.04	1.05	1.08			M6
	1.04	1.05	1.06	1.12		Y5, Y12
	1.05	1.10	1.20			U7, U9
	1.08	1.10	1.12			U28, U29, U32, U33

* Values which can be achieved when connectors are perfectly fixed onto cable.

Series N 50 Ω - technical data

Admissible power of N connectors



Mechanical data	Requirements					
Coupling nut torque - recommended - proof torque	0.68 Nm ... 1.13 Nm / 6.0 ... 10.0 in. lbs 1.70 Nm / 15.0 in. lbs					
Coupling nut retention force	≥ 450 N / 101.2 lbs					
Contact captivation	≥ 28 N / 6.3 lbs					
Cable retention force ¹⁾	see pages 32 - 37					
Durability (matings)	≥ 500					
- recommended torque for connectors with profile HEX19 (HEX18) coupling nut	matings	500	250	100	60	30
	torque	1 Nm	2 Nm	3 Nm	4 Nm	5 Nm

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Series N 50 Ω – technical data

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold / SUCOPRO® gold plating
Outer contact, slotted	spring bronze	SUCOPLATE®
Female contacts	copper beryllium alloy, spring bronze	gold / SUCOPRO® gold plating
Crimp ferrules	copper	SUCOPLATE®
Insulators, standard version	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series N 50 Ω – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered

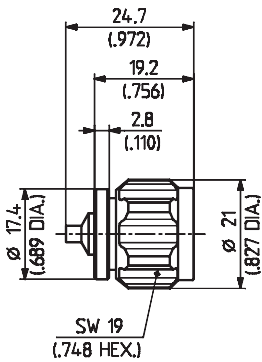


Fig. 1

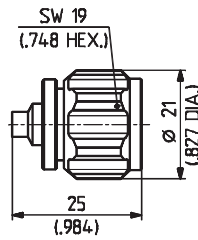
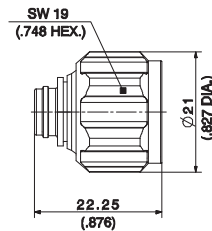


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight	Fig.
11_N-50-2-15/113_UE	22660315	Y3, Y11, Y16 (EZ_86)	single	3095	25.6 g/0.90 oz.	1
11_N-50-3-13/113_NE	22542083	Y5, Y12, Y17 (EZ_141)			29.0 g/1.02 oz.	2

For SUCOFORM cables

- Cable entry soldered
- Centre contact soldered



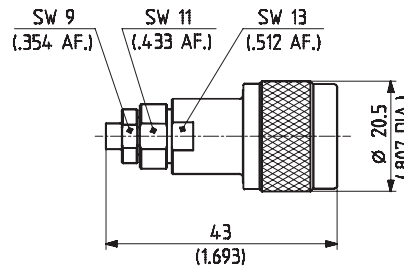
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight	Fig.
11_N-50-5-18/103_NH	84008445	Y7, Y13, Y14 (SUCOFORM_250-01)	bulk 100 pcs.	0000215552	21.9 g/0.77 oz.	1

Series N 50 Ω – cable connectors

Straight cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact plugged-in
- Frequency range: DC - 18 GHz

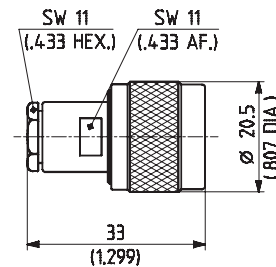


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_N-50-3-51/133_NE	22543919	Y5, 12 (EZ_141)	single	9006	43.0 g/1.51 oz. *

* Stainless steel.

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_N-50-2-1/133_NE	22544030	U2, X3 (RG_316_/U)	single	3017	38.0 g/1.33 oz.
11_N-50-2-2/133_NE	22643807	U4 (K_02252_D)			38.0 g/1.33 oz.
11_N-50-3-5/133_NE	22542073	U7, U9, U11, X25 (RG_58_C/U)			36.0 g/1.26 oz.

Series N 50 Ω – cable connectors

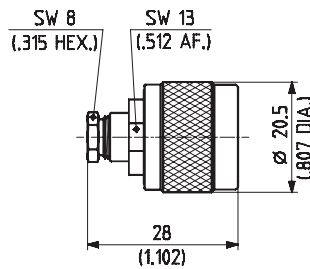
Straight cable plugs (male)

Precision connector – low VSWR

For flexible cables

- Cable entry clamp
- Centre contact soldered
- VSWR:

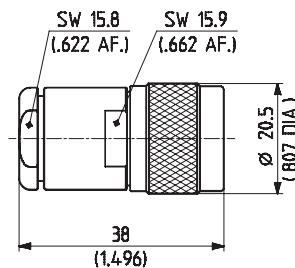
DC - 4 GHz	4 - 10 GHz	10 - 12.4 GHz
≤ 1.10	≤ 1.20	≤ 1.25



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_N-50-3-54/133_NE	22642009	U9, U11, X25 (RG_223_/U)	single	9099	32.0 g/1.12 oz.

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_N-50-7-5/133_NE *	22542117	U29, U32, X11 (RG_214_U)	single	3007	51.0 g/1.79 oz.
11_N-50-7-6/133_NE	22542120			3008	51.0 g/1.79 oz.
11_N-50-7-82/133_NE **	84081597	U30 (SPUMA_400)		253737	55.0 g/1.94 oz.

* Centre contact NOT captivated.

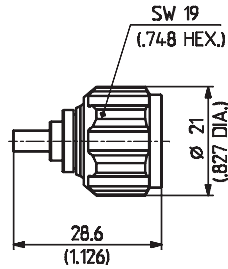
** Centre contact plugged.

Series N 50 Ω – cable connectors

Straight cable plugs (male)

For flexible cables

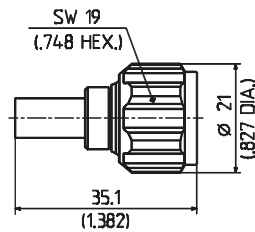
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_N-50-2-11/133_NH	22658813	U2 (RG_316_U)	bulk 100 pcs.	9068	1 A	26.5 g/0.93 oz.
11_N-50-2-16/133_NE	23014128	U4 (K_02252_D)	single			25.4 g/0.89 oz.

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_N-50-3-28/133_NE	22642842	U7 (RG_58_C/U)	single	3015	2 B	23.0 g/0.81 oz.
11_N-50-3-29/133_NE	22642843	U9 (RG_223_U)	single	3015	2 B	23.0 g/0.81 oz.
11_N-50-3-31/133_NE	22648829	U11 (RG_400_U)	single	3015	2 B	28.0 g/0.98 oz.
11_N-50-3-31/133_NH	22650658		bulk 100 pcs.			
11_N-50-4-63/133_NE	22652069	S16 (S_04262_D-09)	single	3015	2 C	27.3 g/0.96 oz.

Series N 50 Ω – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact plugged-in
- Taper sleeves see page 458

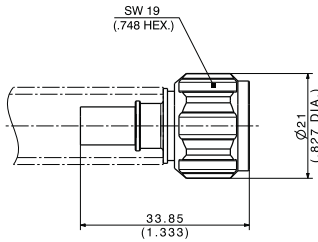


Fig. 1

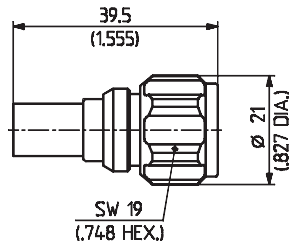


Fig. 2

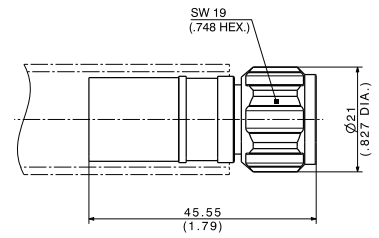


Fig. 3



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
11_N-50-4-11/133_NH	84110 888	X28 (SPUMA_240)	bulk 100 pcs.	291824	6.50	24.3 g/0.86 oz.	1
11_N-50-6-10/133_NH	22660330	S24 (S_06162_D-03)	bulk 100 pcs.	270891	8.65	29.5 g/1.03 oz.	2
11_N-50-12-20/033_E	85009711	X29 (SPUMA_600)	single	420913	14.5	39.0 g/1.37 oz.	3

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

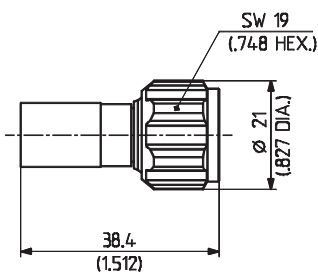


Fig. 1

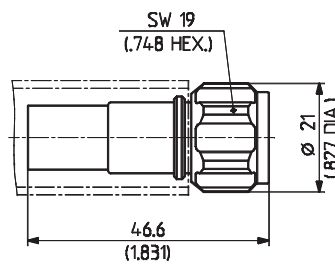


Fig. 2



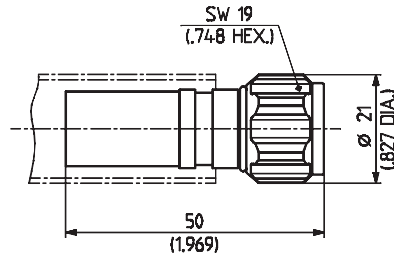
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
11_N-50-7-43/133_NE	22642844	U29 (RG_213_/U)	single	3061	3 D	28.0 g/0.98 oz.	1
11_N-50-7-44/133_NE	22642845	U32 (RG_214_/U)		3061	3 D	28.0 g/0.98 oz.	1
11_N-50-7-49/133_NE	22652111	S32 (S_07262_BD)		9067	4 D	40.0 g/1.40 oz.	2
11_N-50-7-61/133_NE	22651793	U33 (RG_393_/U)		27070	2.5 D	28.5 g/1.00 oz.	1
11_N-50-7-69/133_NE	22660143	U30 (SPUMA_400)		311731	4 D	35.0 g/1.23 oz.	2

Series N 50 Ω – cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact plugged-in
- Degree of protection IP 67

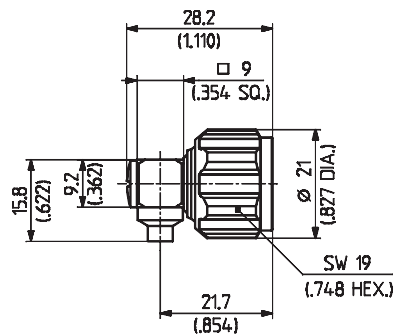


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_N-50-10-5/103_UV	23002543	S39 (S_10162_B-11)	bulk 20 pcs.	27356	12.4	37.8 g/1.32 oz.

Right angle cable plugs (male)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
16_N-50-3-15/133_NE	22648832	Y5, Y12, Y17 (EZ_141)	single	9200	29.1 g/1.02 oz.

Series N 50 Ω – cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered

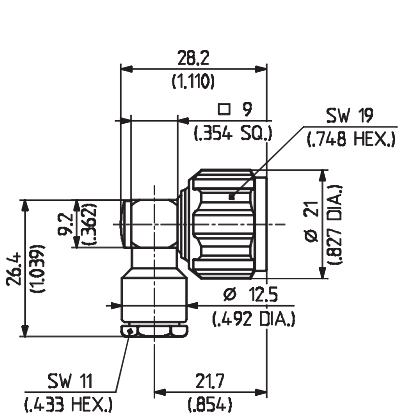


Fig. 1

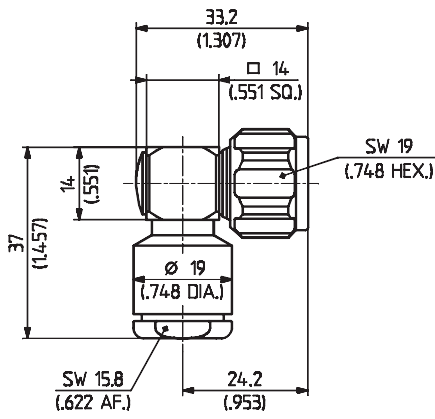


Fig. 2

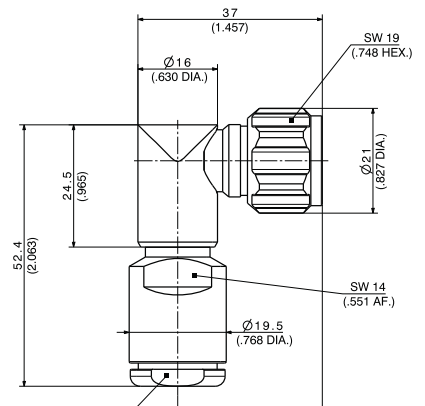


Fig. 3

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight	Fig.
16_N-50-3-103/133_NE	22651610	U7, U9, U11 (RG_223_/U)	single	27060	37.0 g/1.30 oz.	1
16_N-50-7-26/133_NE	22650825	U29, U32 (RG_214_/U)		27121	65.0 g/2.28 oz.	2
16_N-50-7-50/133_NE *	84082125	U30 (SPUMA_400)		253737	87.0 g/3.07 oz.	3

* Centre contact plugged.

Series N 50 Ω – cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458

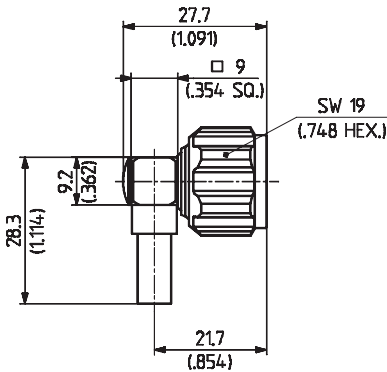


Fig. 1

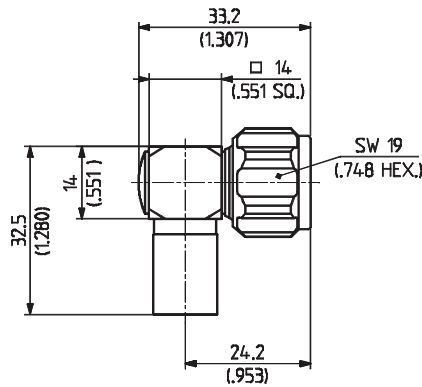
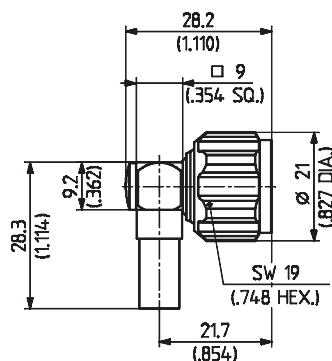


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
16_N-50-3-26/133_NE	22642846	U7 (RG_58_C/U)	single	3058	B	27.0 g/0.95 oz.	1
16_N-50-3-27/133_NE	22642847	U9, U11 (RG_223_/U)	single	3058	B	27.0 g/0.95 oz.	1
16_N-50-3-27/133_NH	22650168	U9, U11 (RG_223_/U)	bulk 100 pcs.	3058	B	27.0 g/0.95 oz.	1
16_N-50-7-30/133_NE	22642848	U29 (RG_213_/U)	single	3076	D	42.0 g/1.47 oz.	2
16_N-50-7-31/133_NE	22642849	U32 (RG_214_/U)	single	3076	D	42.0 g/1.47 oz.	2

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458



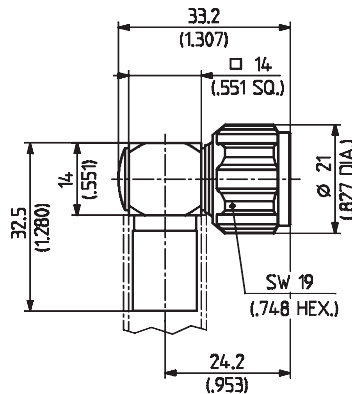
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
16_N-50-4-14/133_NE	23015067	S16 (S_04262_D-09)	single	3058	C	31.7 g/1.11 oz.

Series N 50 Ω – cable connectors

Right angle cable plugs (male)

For flexible cables

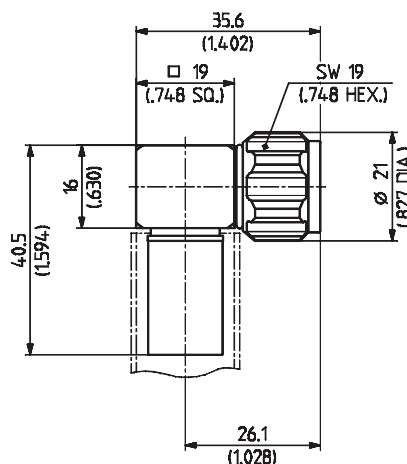
- Cable entry crimp
- Centre contact soldered
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
16_N-50-7-22/133_NE	22651794	S32 (S_07262_BD)	single	9094	D	50.0 g/1.75 oz.

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Degree of protection IP 67
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
16_N-50-10-1/103_UV	23002552	S39 (S_10162_B-11)	bulk 20 pcs.	27357	12.4	50.0 g/1.75 oz. *

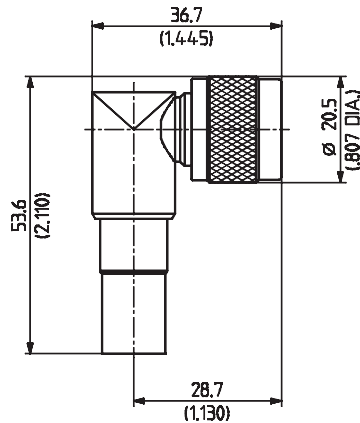
* Centre contact not nickel underplated.

Series N 50 Ω – cable connectors

Right angle cable plugs (male)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

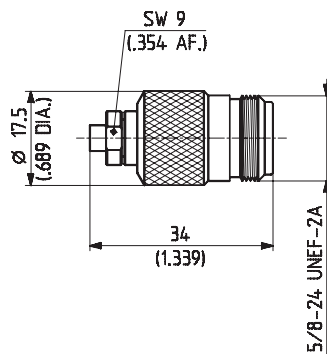


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
16_N-50-7-28/133_NE	22652040	U33 (RG_393_/U)	single	27064	4 D	63.6 g/2.23 oz.
16_N-50-7-29/133_NE	22651494	U29 (RG_213_/U)		9009	3 D	65.0 g/2.28 oz.
16_N-50-7-36/133_NE	22651495	U32 (RG_214_/U)		9009	3 D	66.0 g/2.31 oz.

Straight cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Frequency range (GHz)	Weight
21_N-50-2-14/133_NE *	22642666	Y3, Y11, Y16 (EZ_86)	single	9073	DC-18	38.0 g/1.33 oz.
21_N-50-3-11/133_NE *	22543921	Y5, Y12, Y17 (EZ_141)		9005	DC-12.4	38.0 g/1.33 oz.

* Centre contact NOT capticated.

Series N 50 Ω – cable connectors

Straight cable jacks (female)

For flexible cables

- Cable entry clamp
- Centre contact soldered

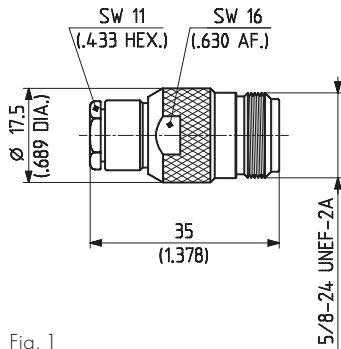


Fig. 1

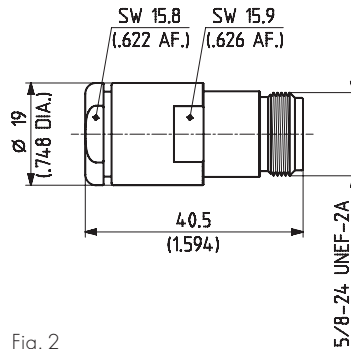


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight	Fig.
21_N-50-3-5/133_NE	22543504	U7, U9, U11 (RG_223_/U)	single	3017	38.0 g/1.33 oz.	1
21_N-50-7-8/133_NE	22542254	U29, U32, X11 (RG_213_/U)		3008	50.0 g/1.75 oz.	2

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

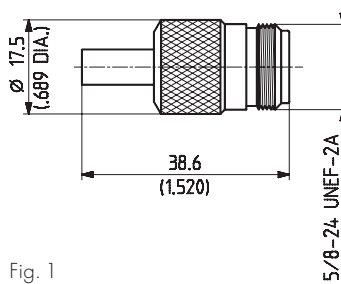


Fig. 1

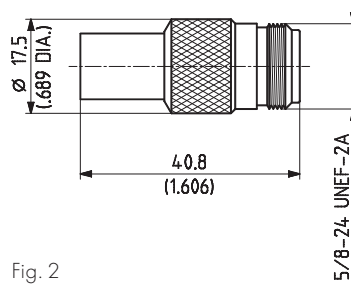


Fig. 2

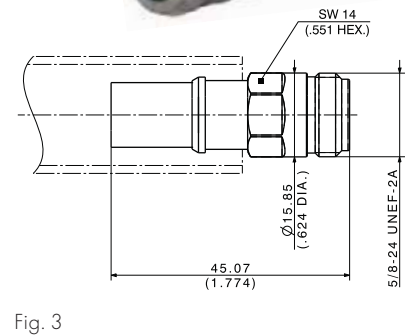


Fig. 3

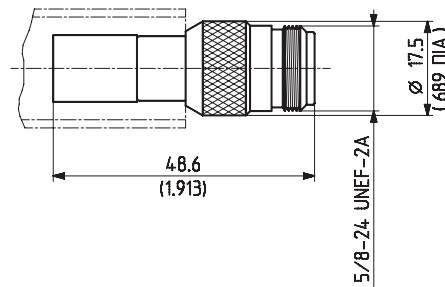
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
21_N-50-3-7/133_NE	22542229	U7 (RG_58_C/U)	single	3063	2 B	36.0 g/1.26 oz.	1
21_N-50-3-8/133_NE	22542231	U9 (RG_223_/U)		3063	2 B	36.0 g/1.26 oz.	1
21_N-50-3-12/133_NE	22651795	U11 (RG_400_/U)		3063	2 B	35.0 g/1.23 oz.	1
21_N-50-7-13/133_NE	22542257	U29 (RG_213_/U)		3061	3 D	38.0 g/1.33 oz.	2
21_N-50-7-14/133_NE	22542258	U32 (RG_214_/U)		3061	3 D	37.0 g/1.30 oz.	2
21_N-50-7-32/133_NE	84119763	U30 (SPUMA_400)		344575	4 D	31.5 g/1.11 oz.	3

Series N 50 Ω - cable connectors

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Degree of protection IP 66



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
21_N-50-7-20/133_NE	22651796	S32 (S_07262_BD)	single	9067	4 D	370 g/1.30 oz.

For flexible cables

- Cable entry crimp
- Centre contact plugged-in
- Degree of protection IP 67

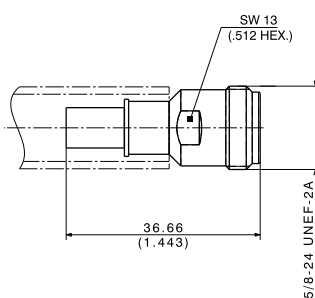


Fig. 1

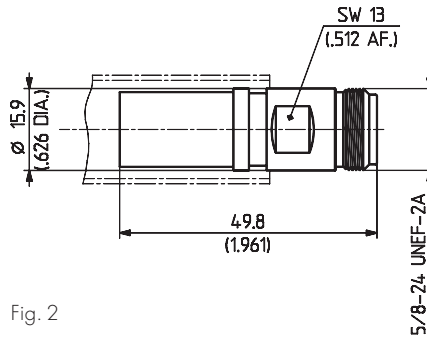


Fig. 2



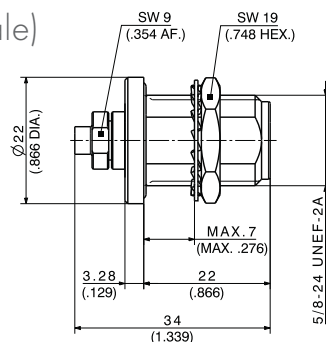
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
21_N-50-4-6/133_NH	84110983	S28 (SPUMA_240)	bulk 100 pcs.	291867	6.5	22.8 g/0.8 oz.	1
21_N-50-10-1/133_UF *	23003072	S39 (S_10162_B-11)	bulk 50 pcs.	27356	12.4	38.1 g/1.33 oz.	2

* Centre contact not nickel underplated.

Straight bulkhead cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered
- Mounting hole ML 12
- With panel seal
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Frequency range (GHz)	Weight
24_N-50-2-14/133_NE	22544637	Y3, Y11, Y16 (EZ_86)	single	9073	DC - 12.4	39.0 g/1.37 oz.
24_N-50-3-14/133_NE	22542300	Y5, Y12, Y17 (EZ_141)		9005	DC - 12.4	39.0 g/1.37 oz.

Cable groups see page 32

Assembly tools see page 441

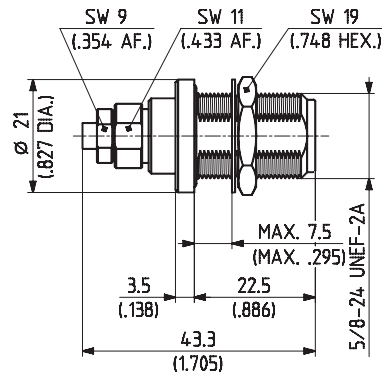
Mounting holes / PCB layouts see page 465

Series N 50 Ω – cable connectors

Straight cable jacks (female)

For semi-rigid cables

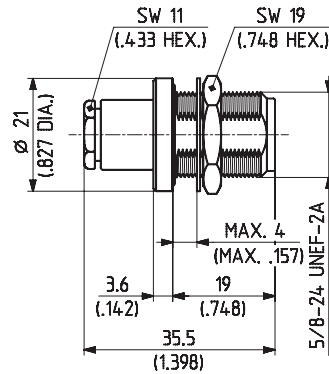
- Cable entry soldered
- Centre contact plugged-in
- Body material: stainless steel
- Mounting hole ML 12
- With panel seal
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Frequency range (GHz)	Weight
24_N-50-3-51/19_NE	22642344	Y5, Y12 (EZ_141)	single	9006	DC - 18	45.0 g/1.58 oz.

For flexible cables

- Cable entry clamp
- Centre contact soldered
- With panel seal
- Insulating washers see page 460



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight
24_N-50-2-1/133_NE	22641239	U2, X3 (RG_316_/U)	single	9150	ML 12	42.0 g/1.47 oz.

Series N 50 Ω – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry clamp
- Centre contact soldered
- With panel seal
- Insulating washers see page 460

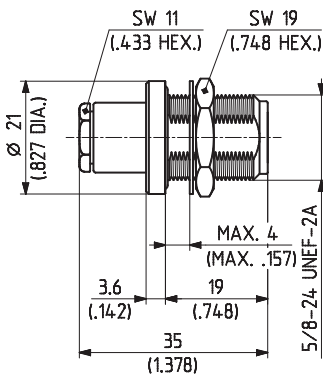


Fig. 1

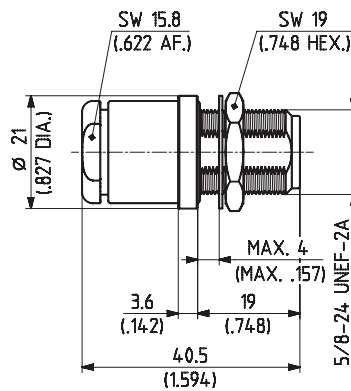


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight	Fig.
24_N-50-3-10/133_NE	22542295	U7, U9, U11 (RG_58_C/U)	single	9150	ML 12	41.0 g/1.44 oz.	1
24_N-50-7-8/133_NE	22542323	U29, U32 (RG_214_/U)		3008	ML 12	53.0 g/1.86 oz.	2

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Insulating washers see page 460
- Mounting hole ML 12

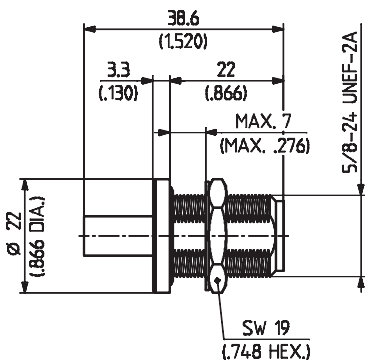


Fig. 1

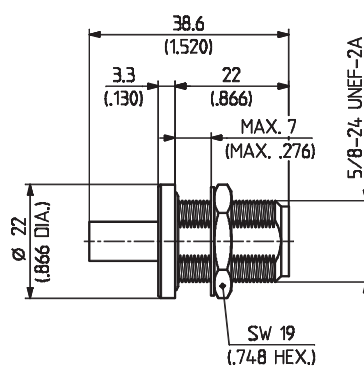


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
24_N-50-2-4/133_NE	22650170	U2 (RG_316/U)	single	9068	1 A	35.2 g/1.23 oz.	1
24_N-50-2-117/133_NE	22660124	U4 (K_02252_D)		9068	1 A	36.1 g/1.26 oz.	1
24_N-50-4-17/133_UE	22651789	S16 (S_04262_D-09)		3063	2 C	37.3 g/1.31 oz.	2 *

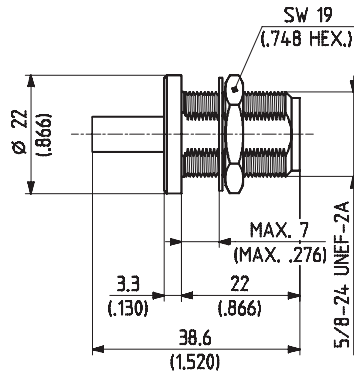
* Has to be crimped with large crimp tool or table press! Centre contact not nickel underplated.

Series N 50 Ω – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Insulating washers see page 460
- Mounting hole ML 12

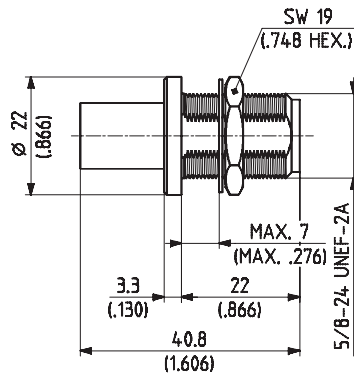


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
24_N-50-3-11/133_NE	22542296	U7 (RG_58_C/U)	single	3063	2 B	38.0 g/1.33 oz. *
24_N-50-3-12/133_NE	22542297	U9 (RG_223_/U)				

* Has to be crimped with large crimp tool or table press!

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Insulating washers see page 460
- Mounting hole ML 12



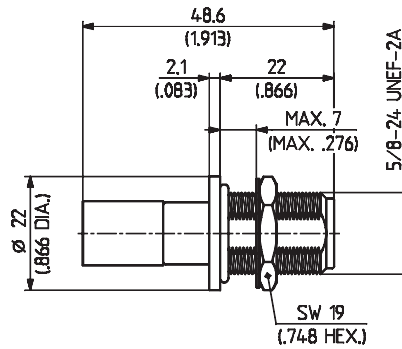
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
24_N-50-7-14/133_NE	22542326	U29 (RG_213_/U)	single	3061	3 D	40.0 g/1.40 oz.
24_N-50-7-15/133_NE	22542327	U32 (RG_214_/U)				

Series N 50 Ω – cable connectors

Straight bulkhead cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Insulating washers see page 460
- Mounting hole ML 12



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
24_N-50-7-24/133_NE	22649912	U33 (RG_393_/U)	single	27064	4 D	39.3 g/1.38 oz.

Series N 50 Ω - cable connectors

Straight panel cable jacks (female)

For semi-rigid cables

- Cable entry soldered
- Centre contact soldered
- Mounting hole ML 14

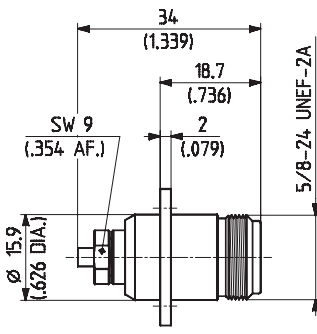


Fig. 1

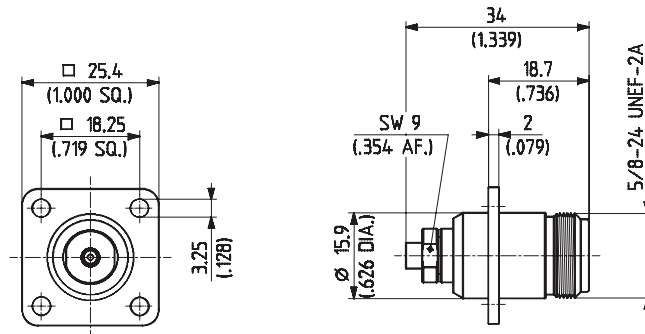


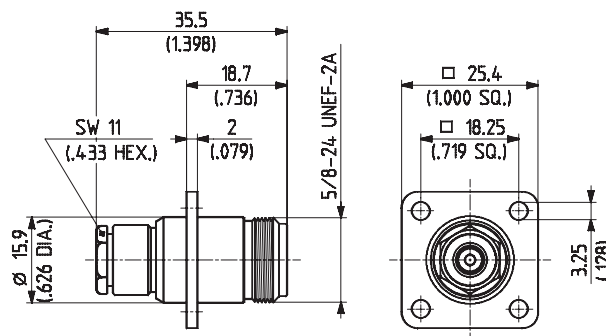
Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Frequency range (GHz)	Weight	Fig.
25_N-50-2-14/133_NE *	22641303	Y3, Y11, Y16 (EZ_86)	single	9073	DC - 12.4	42 g/1.47 oz.	1
25_N-50-3-9/133_NE *	22543952	Y5, Y12, Y17 (EZ_141)		9005			2

* Centre contact NOT captivated.

For flexible cables

- Cable entry clamp
- Centre contact soldered



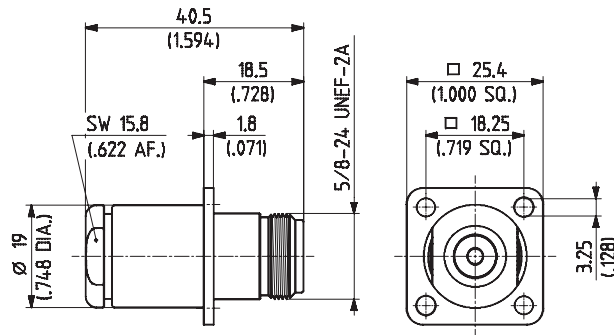
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight
25_N-50-2-2/133_NE	22542332	U2, X3 (RG_316_/U)	single	3017	ML 14	45.0 g/1.58 oz.
25_N-50-3-4/133_NE	22542342	U7, U9, U11 (RG_58_C/U)				44.0 g/1.54 oz.

Series N 50 Ω - cable connectors

Straight panel cable jacks (female)

For flexible cables

- Cable entry clamp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight
25_N-50-7-8/133_NE	22542366	U29, U32 (RG_214_/U)	single	3008	ML 18	55.0 g/1.93 oz.

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Mounting hole ML 14

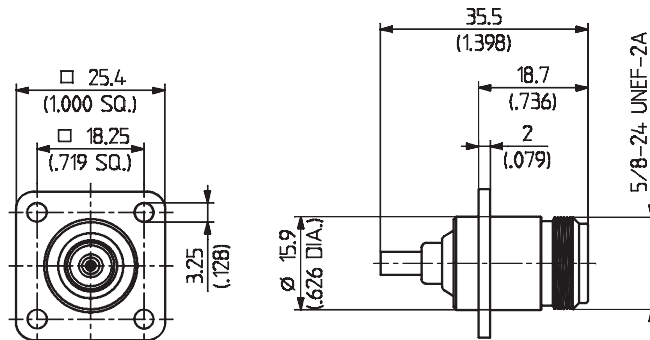
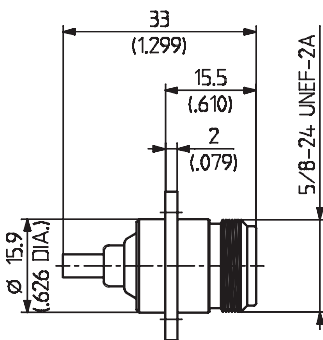


Fig. 1

Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
25_N-50-2-9/133_NE	22651072	U2 (RG_316_/U)	single	9068	1 A	34.5 g/1.21 oz.	1
25_N-50-2-10/133_NE	22651054	U4 (K_02252_D)				38.6 g/1.35 oz.	2

Series N 50 Ω – cable connectors

Straight panel cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Mounting hole ML 14

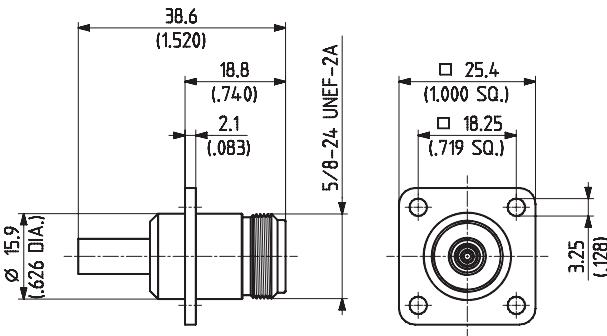


Fig. 1

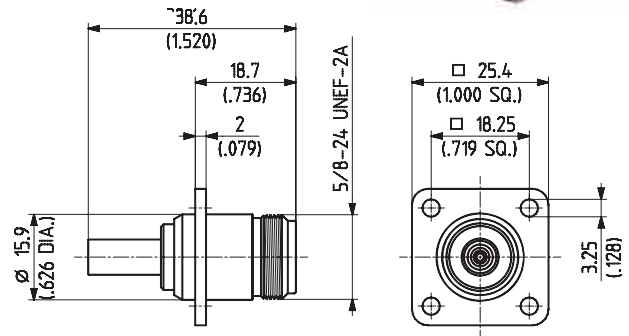
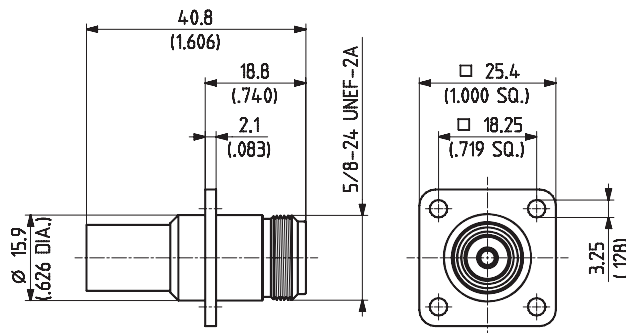


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
25_N-50-3-6/133_NE	22542346	U7 (RG_58_C/U)	single	3063	2 B	39.0 g/1.37 oz.	1
25_N-50-3-7/133_NE	22542348	U9 (RG_223_/U)				39.0 g/1.37 oz.	1
25_N-50-3-20/133_NE	22649913	U11 (RG_400_/U)				37.0 g/1.30 oz.	2

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458
- Mounting hole ML 14

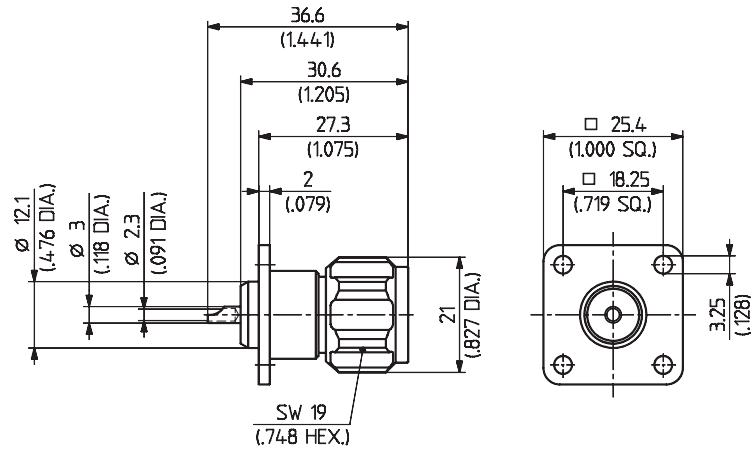


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
25_N-50-7-13/133_NE	22542369	U29 (RG_213_/U)	single	3061	3 D	42.0 g/1.47 oz.
25_N-50-7-14/133_NE	22542370	U32 (RG_214_/U)				

Series N 50 Ω – receptacles with solder end

Receptacles, plug (male)

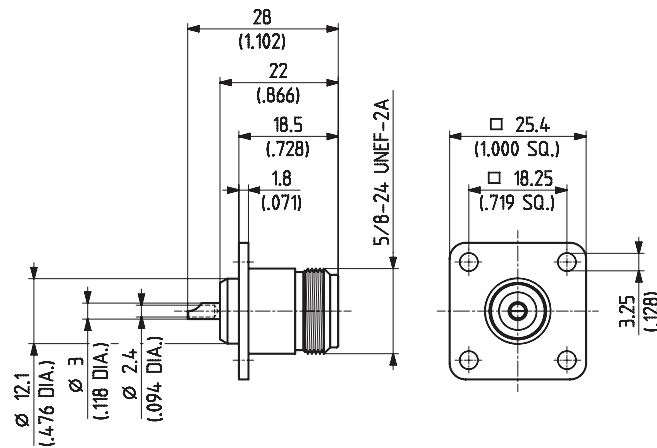
- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight
13_N-50-0-1/133_NE	22542173	single	ML 16	46.0 g/1.61 oz.

Receptacles, jacks (female)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight
23_N-50-0-1/133_NE	22542272	single	ML 17	31.0 g/1.09 oz.

Series N 50 Ω – receptacles with solder end

Receptacles, jacks (female)

- Bulkhead mounted
- Solder tags see page 461
- With panel seal
- Insulating washers see page 460

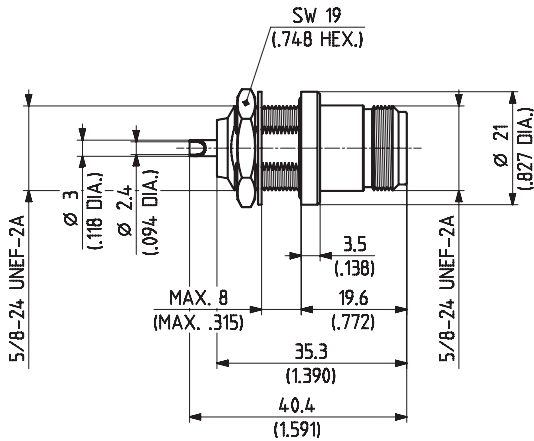


Fig. 1

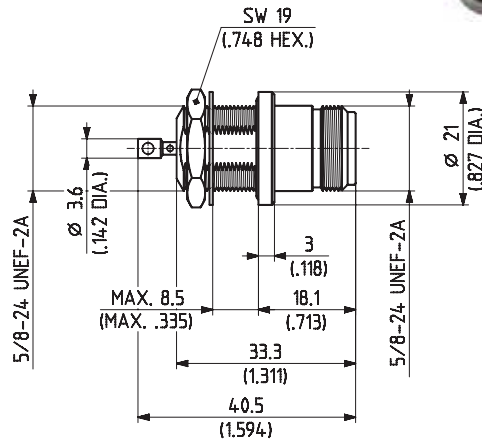
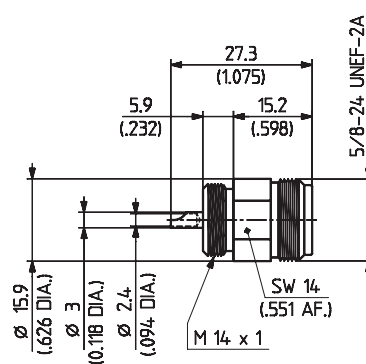


Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight	Notes	Fig.
22_N-50-0-2/133_NE	22542265	single	ML 12	47.0 g/1.65 oz.		1
22_N-50-0-3/133_NE	22644425				hermetically sealed *	2

* Leak rate 10^{-6} Torr l/sec.(atm cc/s) max.
 * RoHs compliant alternative on request.

- Bulkhead mounted

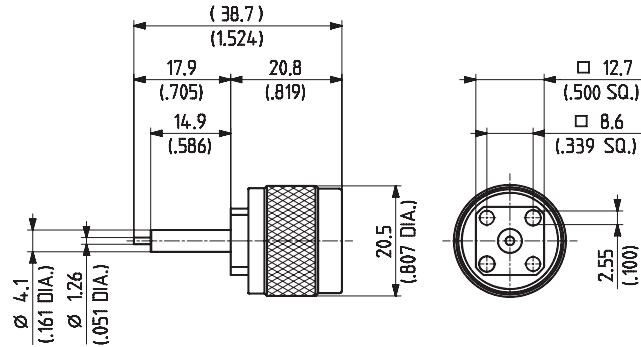


HUBER+SUHNER type	Item no.	Packaging	Weight	Notes
22_N-50-0-23/133_NF	22651448	bulk 50 pcs.	20.8 g/0.73 oz.	without nut and washer (direct screw into panel, thread M 14 x 1)

Series N 50 Ω – receptacles with solder end

Receptacles, plugs (male)

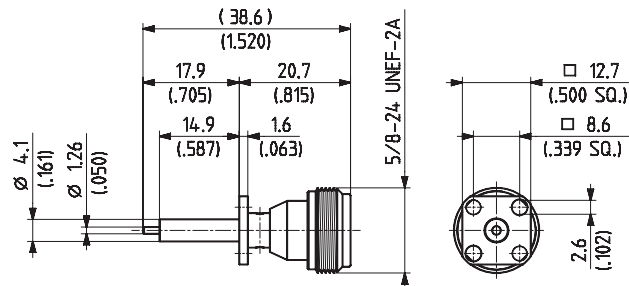
- Panel mounted
- Extended dielectric



HUBER+SUHNER type	Item no.	Packaging	Weight	Notes
13_N-50-0-30/133_NE	22642831	single	30.0 g/1.05 oz.	SMA flange size

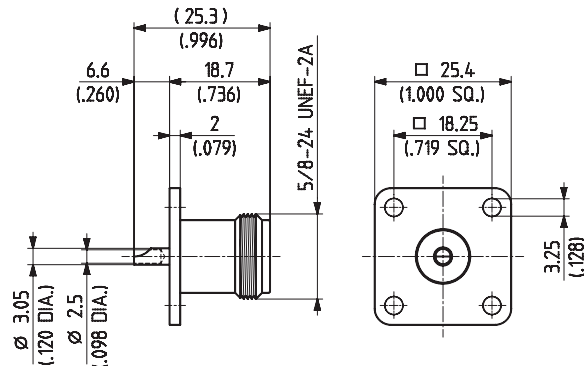
Receptacles, jacks (female)

- Panel mounted
- Extended dielectric



HUBER+SUHNER type	Item no.	Packaging	Weight	Notes
23_N-50-0-30/133_NE	22642835	single	14.0 g/0.49 oz.	SMA flange size

- Panel mounted
- Solder pot terminal
- Flush dielectric

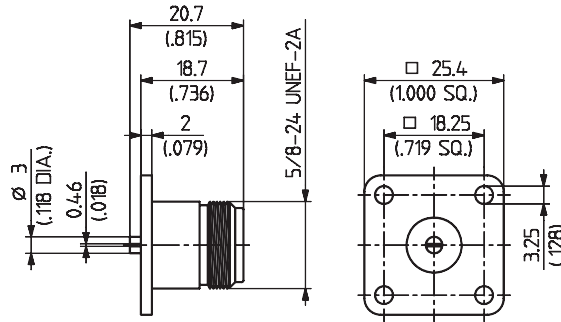


HUBER+SUHNER type	Item no.	Packaging	Weight
23_N-50-0-23/133_NE	22544751	single	24.0 g/0.84 oz.

Series N 50 Ω – receptacles with solder end

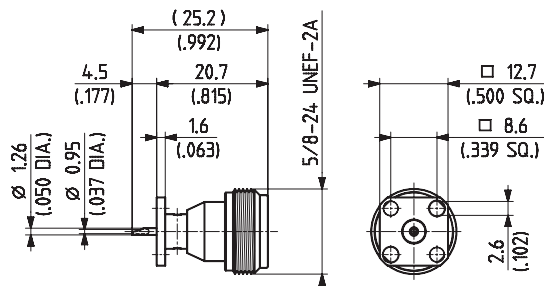
Receptacles, jacks (female)

- End of centre pin slotted
- Panel mounted
- Flush dielectric



HUBER+SUHNER type	Item no.	Packaging	Weight
23_N-50-0-69/133_NX	22648797	bulk 150 pcs.	27.9 g/0.89 oz.

- Panel mounted
- Solder pot terminal
- Flush dielectric

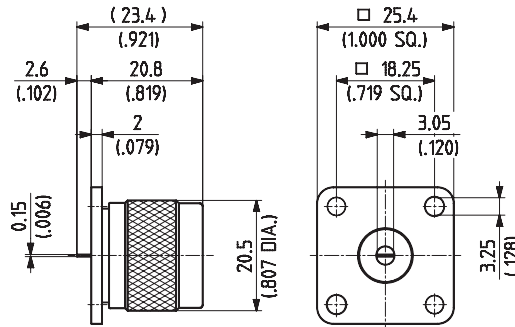


HUBER+SUHNER type	Item no.	Packaging	Weight	Notes
23_N-50-0-31/133_NE	22642836	single	13.6 g/0.48 oz.	SMA flange size

Series N 50 Ω – stripline launchers

Receptacles, plugs (male)

- Panel mounted
- Tab contact
- Flush dielectric



HUBER+SUHNER type	Item no.	Packaging	Weight
13_N-50-0-33/133_NE	22642834	single	36.0 g/1.26 oz.

Receptacles, jacks (female)

- Panel mounted
- Tab contact
- Flush dielectric

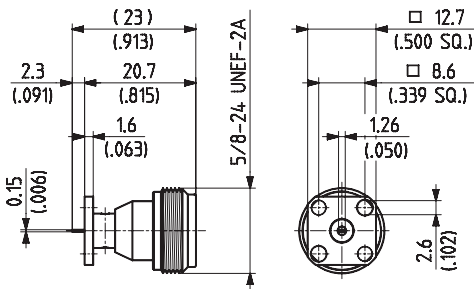


Fig. 1

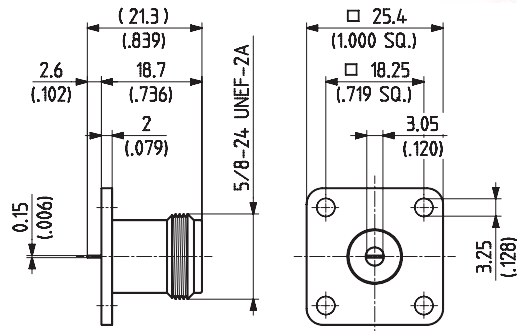


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Weight	Notes	Fig.
23_N-50-0-16/133_NE	22641166	single	13.5 g/0.47 oz.	SMA flange size	1
23_N-50-0-33/133_NE	22642837		24.5 g/0.86 oz.		2

Series N 50 Ω – protective caps

- Suitable for N 50 Ω and N 75 Ω
- With chain

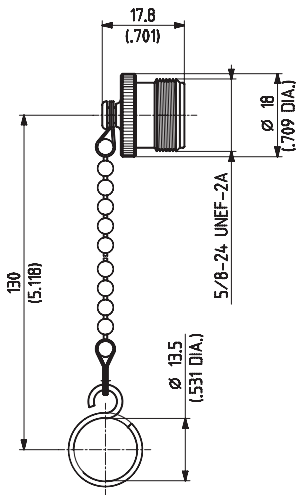


Fig. 1

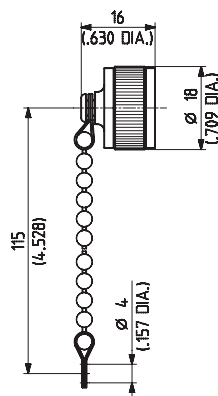


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Weight	Notes	Fig.
61_N-0-0-1/-3_E	22542452	single	16.0 g/0.56 oz.	for plugs	1
62_N-0-0-1/-3_E	22543433		15.0 g/0.53 oz.		2



Series N 75 Ω – coaxial connectors

Description

HUBER+SUHNER N connectors are available with 50 Ω and 75 Ω impedance. The screw-type coupling mechanism provides a sturdy and reliable connection.

Compatibility

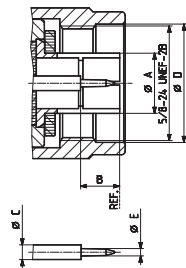
Center conductors of N 75 Ω connectors have a smaller diameter than those of the 50 Ω version. Therefore 50 Ω and 75 Ω connectors must not be mated with each other.

Content

Description	341
Compatibility	341
Interface dimensions in mm / inches	341
Technical data	342
Cable connectors	343
Receptacles with solder end	345

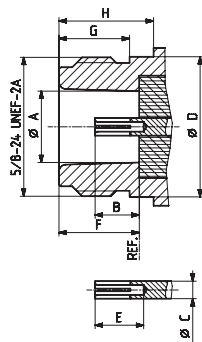
Interface dimensions (mm/inches)

Plug (male)



	Plug		Jack	
	min.	max.	min.	max.
A	---	8.38/.330	8.03/.316	8.13/.320
B	5.33/.210	5.84/.230	4.75/.187	5.26/.207
C	---	2.00/.079	---	2.00/.079
D	16.00/.630	---	---	15.93/.627
E	1.00/.039	1.05/.041	5.33/.210	---
F	---	---	9.04/.356	9.19/.362
G	---	---	6.76/.266	---
H	---	---	10.72/.422	---

Jack (female)



IP rating (interface, mated) IP 68

Series N 75 Ω - technical data

Electrical data	Requirements
Impedance	75 Ω
Frequency range	DC ... 1.5 GHz
Dielectric withstanding voltage (at sea level)	2.5 kV rms, 50 Hz
Working voltage (at sea level)	≤ 1.0 kV rms, 50 Hz
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance - centre contact - outer contact	≤ 1.0 mΩ ≤ 1.0 mΩ
RF-leakage (measured at 1 GHz)	≥ 90 dB

Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	0.68 Nm ... 1.13 Nm / 6.0 ... 10.0 in. lbs 1.70 Nm / 15.0 in. lbs
Coupling nut retention force	≥ 450 N / 101.2 lbs
Contact captivation	≥ 28 N / 6.3 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	Requirements
Temperature range	-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	IEC → 55/155/21
Thermal shock	MIL-STD-202, method 107, condition B
Moisture resistance	MIL-STD-202, method 106
Corrosion	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	MIL-STD-202, method 204, condition B
Shock	MIL-STD-202, method 213, condition G

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	gold / SUCOPRO® gold plating
Outer contact, slotted	spring bronze	SUCOPLATE®
Female contacts	copper-beryllium alloy spring bronze	gold / SUCOPRO® gold plating
Crimp ferrules	copper	SUCOPLATE®
Insulators, standard version	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series N 75 Ω - cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry clamp
- Centre contact soldered

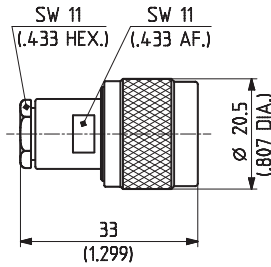


Fig. 1

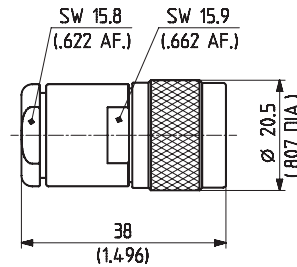


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight	Fig.
11_N-75-4-3/133_NE	22542467	U16 (RG_59_B/U)	single	27042	34.0 g/1.19 oz	1
11_N-75-4-6/133_NE	22542475	U18 (G_04233_D)		27042	34.0 g/1.19 oz	1
11_N-75-7-4/133_NE	22542497	U34, U36 (RG_216_/U)		3008	48.0 g/1.68 oz.	2

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

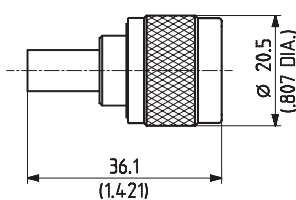


Fig. 1

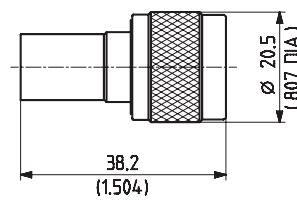


Fig. 2

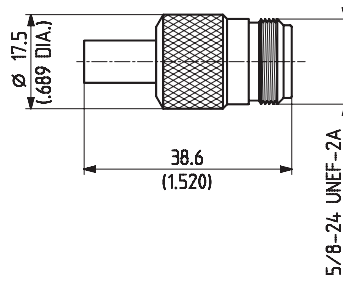
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
11_N-75-4-8/133_NE	22542477	U16 (RG_59_B/U)	single	3063	2 C	30.0 g/1.05 oz.	1
11_N-75-4-9/133_NE	22542478	U18 (G_04233_D)		3063	2 C	30.0 g/1.05 oz.	1
11_N-75-7-16/133_NE	22542511	U34 (RG_11_A/U)		3061	2 D	32.0 g/1.12 oz.	2
11_N-75-7-18/133_NE	22542512	U36 (RG_216_/U)		3061	2 D	32.0 g/1.12 oz.	2

Series N 75 Ω - cable connectors

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

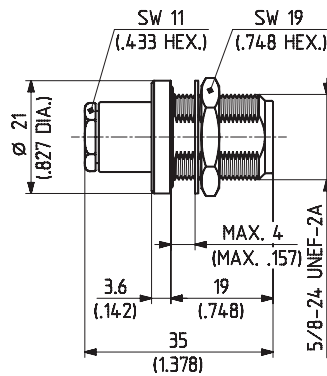


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
21_N-75-4-8/133_NE	22640810	U16 (RG_59_B/U)	single	3063	2 C	34.0 g/1.19 oz.

Straight bulkhead cable jacks (female)

For flexible cables

- Cable entry clamp
- Centre contact soldered
- With panel seal
- Insulating washers see page 460

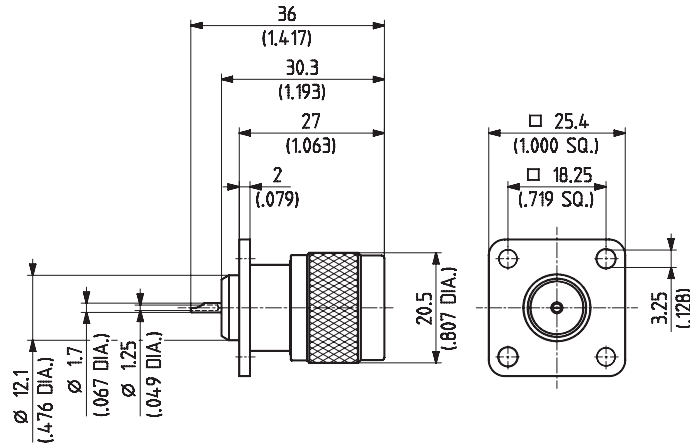


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight
24_N-75-4-2/133_NE	22543628	U16 (RG_59_B/U)	single	27042	ML 12	40.0 g/1.40 oz.

Series N 75 Ω – receptacles with solder end

Flange mount, plug (male)

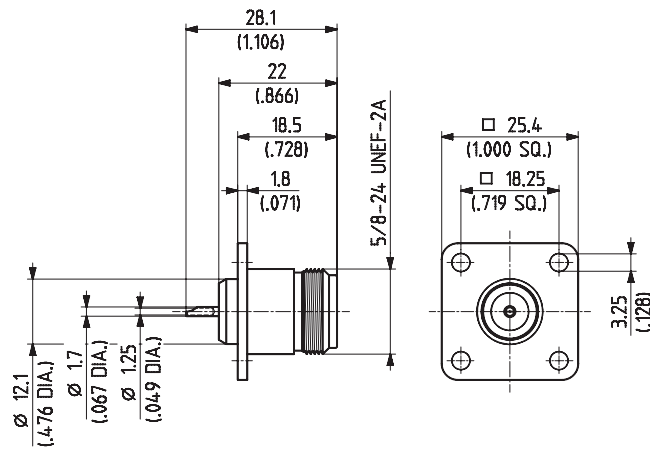
- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight
13_N-75-0-1/133_NE	22542522	single	ML 16	45.0 g/1.58 oz.

Flange mount, jack (female)

- Panel mounted



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight
23_N-75-0-1/133_NE	22542575	single	ML 17	30.0 g/1.05 oz.

N 75 Ω



Series UHF - coaxial connectors

Description

UHF connectors do not have defined impedance. They are intended for applications up to 200 MHz where mechanically robust connectors are required. They are mateable with 4 mm banana plugs.

Content

Description	347
Applications	347
Technical data	348
Cable connectors	349
Receptacles	350

Interface dimensions conformable to IEC 60169-12.

Applications

- Signal transmission at lower frequency
- Antennas
- CB radio



Series UHF – technical data

Electrical data	Requirements
Impedance	not defined
Frequency range	DC ... 200 MHz
Dielectric withstanding voltage (at sea level)	2 kV rms, 50 Hz
Working voltage (at sea level)	≤ 750 V rms, 50 Hz
Insulation resistance	≥ 5 • 10 ³ MΩ
Contact resistance	
- centre contact	≤ 5 mΩ
- outer contact	≤ 5 mΩ

Mechanical data	Requirements
Durability (matings)	≥ 500

Environmental data	Requirements
Temperature range	-55 °C ... +165 °C (PTFE) -25 °C ... +100 °C (PP)
Corrosion	salt spray test acc. to MIL-STD-202, method 101, condition B

Material data		
Connector parts	Material	Plating
Bodies	brass	nickel / SUCOPLATE®
Centre contacts	brass	silver
Outer contacts	brass	nickel / SUCOPLATE®
Insulators	PTFE PP Polypropylene	
Crimp ferrules	copper	nickel / SUCOPLATE®

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series UHF - cable connectors

Straight cable plugs (male)

For flexible cables

- HUBER+SUHNER® full crimp
- Taper sleeves see page 458

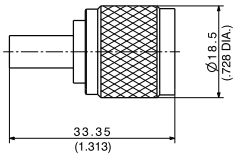


Fig. 1

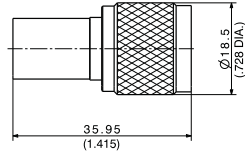


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_UHF-0-3-17/022_-E	22542678	U7 (RG_58_C/U)	single	3075	2 B	1
11_UHF-0-3-18/022_-E	22542679	U9 (RG_223_/U)			2 B	1
11_UHF-0-7-17/023_-E	22542744	U29 (RG_213_/U)			3 D	2
11_UHF-0-7-18/023_-E	22542745	U32 (RG_214_/U)			3D	2

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

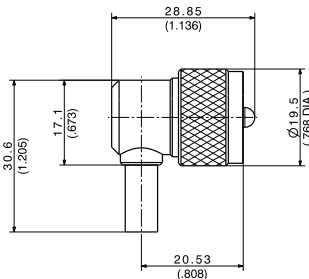


Fig. 1

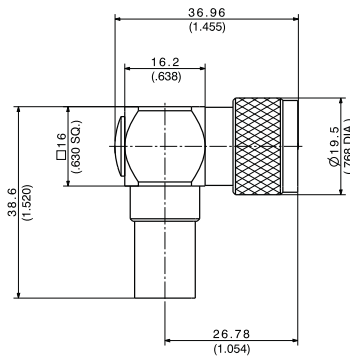


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
16_UHF-0-3-4/023_-E	22542757	U7 (RG_58_C/U)	single	3058	B	1
16_UHF-0-7-4/023_-E	22542766	U29 (RG_213_/U)		3076	D	2

Series UHF - cable connectors

Straight cable jacks (female)

For flexible cables

- HUBER+SUHNER® full crimp

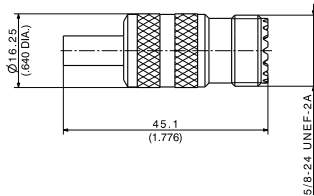


Fig. 1

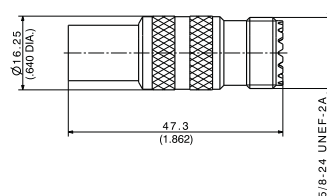


Fig. 2

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
21_UHF-0-3-3/033_E	22542770	U7 (RG_58_C/U)	single	3075	2 B	1
21_UHF-0-7-4/033_E	22542775	U29 (RG_213_/U)			3 D	2

Series UHF - receptacles

Receptacles, jacks (female)

- With solder end

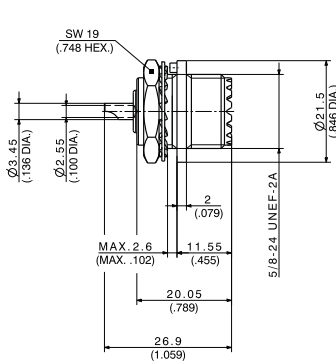


Fig. 1

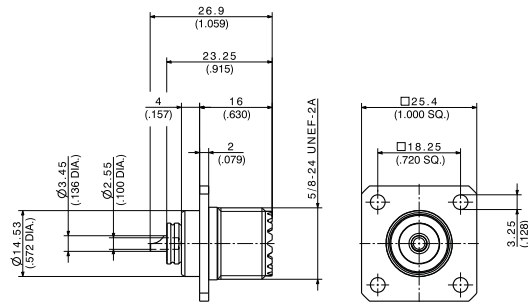


Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Fig.	Notes
22_UHF-0-0-1/033_NE	22542779	single	ML 178	1	bulkhead mounted
23_UHF-0-0-2/033_NE	22542788		ML 48	2	panel mounted (4-hole)

Series 7/16 - coaxial connectors

Description

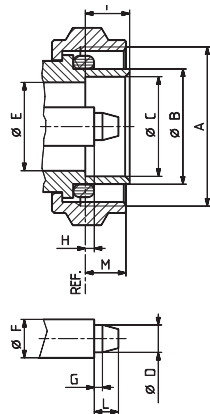
HUBER+SUHNER 7/16 connectors are mechanically very rugged coaxial connectors with screw lock. They have a characteristic impedance of 50 Ω and are applicable with excellent electrical properties up to 7.5 GHz. Transmission of medium to high power with radio transmitters and low PIM transmission of received signals such as in mobile phone base stations are typical applications.

Content

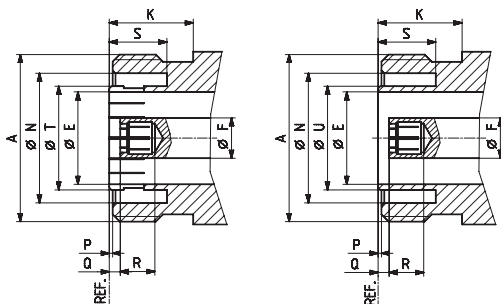
Description	351
Interface dimensions in mm / inches	351
Technical data	352
Cable connectors	355
7/16 combination system	364
Receptacles with solder end	367
Protective caps	368

Interface dimensions (mm/inches)

Plug (male)



Jack (female)



	Plug		Jack	
	min.	max.	min.	max.
A	M29 x 1.5		M29 x 1.5	
B	20.60/.811	21.40/.843	---	---
C	18.03/.710	18.21/.717	---	---
D	4.96/.195	5.04/.198	---	---
E	15.85/.624	16.25/.640	15.85/.624	16.25/.640
F	7.00/.276 nom.		7.00/.276 nom.	
G	1.40/.055	1.60/.063	---	---
H	1.47/.058	1.77/.070	---	---
I	7.00/.276	8.00/.315	---	---
K	---	---	10.00/.394	---
L	---	4.50/.177	---	---
M	7.00/.276	9.00/.354	---	---
N	---	---	22.10/.870	22.90/.902
P	---	---	0.50/.020	0.70/.028
Q	---	---	1.77/.070	2.07/.082
R	---	---	5.00/.197	---
S	---	---	8.10/.319	---
T	---	---	---	18.50/.728 *
U	---	---	---	18.00/.709

Interface dimensions conformable to the standards:

International	IEC 61169-4
Europe	CECC 22 190
Germany	DIN 47223

Degree of protection (interface, mated) IP 68

Series 7/16 - technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range	DC ... 7.5 GHz combination types: DC - 1 GHz
Dielectric withstanding voltage (at sea level) - combination system	4.0 kV rms, 50 Hz 2.5 kV rms, 50 Hz
Working voltage (at sea level) - combination system	≤ 2.5 kV rms, 50 Hz ≤ 1.0 kV rms, 50 Hz
Insulation resistance	$\geq 10^4$ M Ω
Contact resistance - centre contact - outer contact	≤ 0.4 m Ω ≤ 1.5 m Ω
RF-leakage (at 1 GHz)	≥ 110 dB
VSWR	see table below

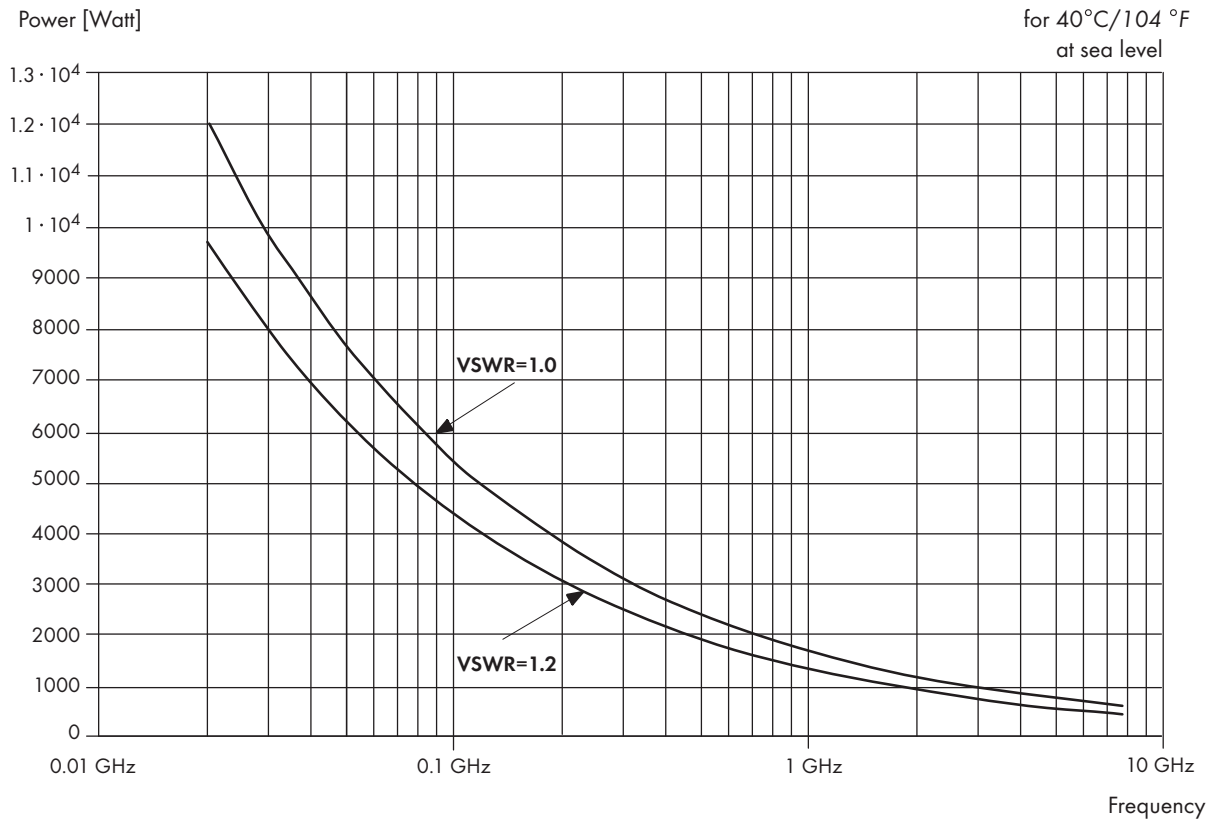
Typical VSWR *	Frequency range			Cable group
	1 GHz	2.5 GHz	5 GHz	
Straight connectors	1.04	1.05	1.12	M5, M7
	1.05	1.07	1.10	U29, U32
	1.03	1.05	1.10	S39
Right angle connectors	1.04	1.05	1.12	M5; M7

* Values which can be achieved when connectors are perfectly fixed onto cable.

Other connections and cables on request.

Series 7/16 - technical data

Admissible power of 7/16 connectors



Mechanical data	Requirements
Coupling nut torque - recommended - proof torque	25 Nm ... 30 Nm / 221 ... 260 in. lbs 35 Nm / 310 in. lbs
Coupling nut retention force	≥ 1000 N / 225.0 lbs
Contact captivation	≥ 200 N / 45.0 lbs
Cable retention force ¹⁾	see pages 32 - 37
Durability (matings)	≥ 500

¹⁾ Value considers maximum load of the cables without irreversible variations of specifications.

Environmental data	CECC 22190 test conditions	Equivalent MIL test conditions
Temperature range		-65 °C ... +165 °C / -85 °F ... +329 °F
Climatic category	4.6.5 → 55/155/56	
Corrosion (mated connectors)	4.6.10 → IEC 68-2-11 Ka	saltspray test acc. to MIL-STD-202, method 101, condition B
Vibration	4.6.3 → IEC 68-2-6 Fc	

Series 7/16 - technical data

Material data		
Connector parts	Material	Plating
Bodies	brass	SUCOPLATE®
Pin contacts	brass	silver
Outer contact, jacks Socket contact	spring bronze	silver
Crimp ferrules	copper	SUCOPLATE®
Insulators, standard version	PTFE or PFA	
Gaskets	silicone rubber	

Some connectors may have a specification that differs from the above mentioned data.

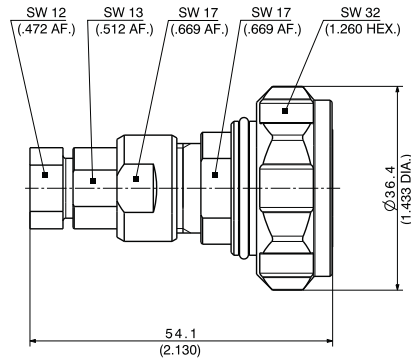
The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series 7/16 - cable connectors

Straight cable plugs (male)

For corrugated cables

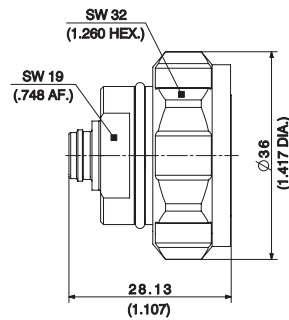
- Cable entry clamp
- Centre contact plugged
- Degree of protection IP 68



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_716-50-5-7/003_-E	84064394	M5 (SUCCOFEED_1/4_HF)	single	267204	145.0 g / 5.12 oz.

For SUCOFORM cables

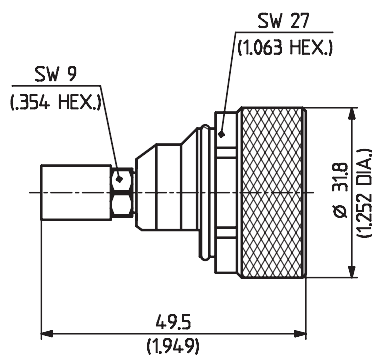
- Cable entry soldered
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_716-50-5-6/003_-Y	84008435	Y14 (SUCOFORM_250-01)	bulk 10 pcs.	215393	75.0 g / 2.65 oz.

For flexible cables

- Cable entry crimp
- Centre contact plugged



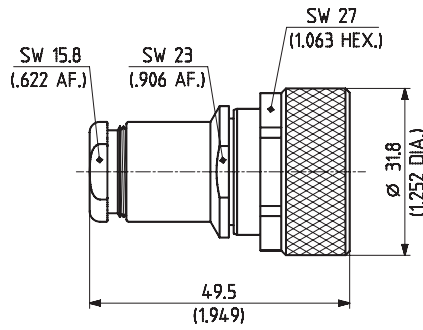
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_716-50-6-3/003_-E	22652341	S24 (S_06162_D-03)	single	27330	8.65	86.0 g / 3.01 oz.

Series 7/16 - cable connectors

Straight cable plugs (male)

For flexible cables

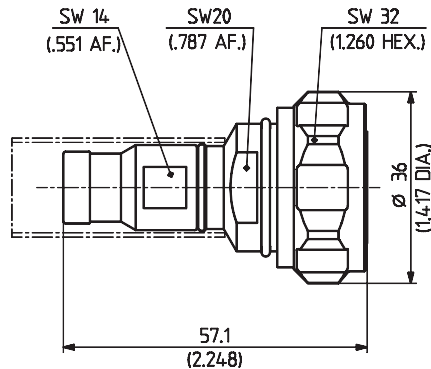
- Cable entry HUBER+SUHNER® pressure-sleeve
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_716-50-7-3/003_-E	22544075	U29 (RG_213_/U)	single	9018	105.0 g / 3.68 oz.
11_716-50-7-4/003_-E	22544076	U32 (RG_214_/U)			100.0 g / 3.50 oz.

For corrugated cables

- Cable entry soldered
- Centre contact soldered
- Degree of protection IP 66



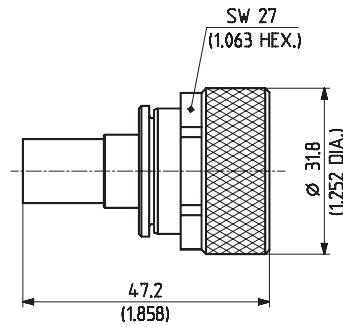
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
11_716-50-7-20/003_-Z	22658154	M7 (SUFOFEED_3/8_HF)	bulk 10 pcs.	27186	115.0 g / 4.05 oz.

Series 7/16 - cable connectors

Straight cable plugs (male)

For flexible cables

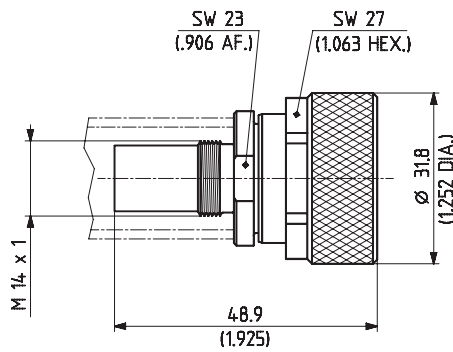
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_716-50-7-1/003_-E	22544073	U29 (RG_213_/U))	single	9017	3 D	85.0 g / 2.98 oz.
11_716-50-7-2/003_-E	22544074	U32 (RG_214_/U)		9017	3 D	85.0 g / 2.98 oz.

For flexible cables

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_716-50-7-14/003_-E	22646908	S32 (S_07262_BD)	single	27003	D	91.0 g / 3.19 oz. *

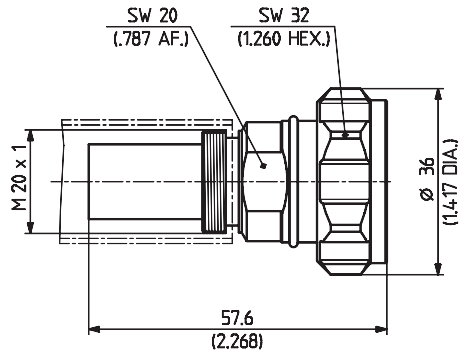
* Type available with additional sealing ferrule (IP 67).

Series 7/16 - cable connectors

Straight cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact plugged-in
- Degree of protection IP 67

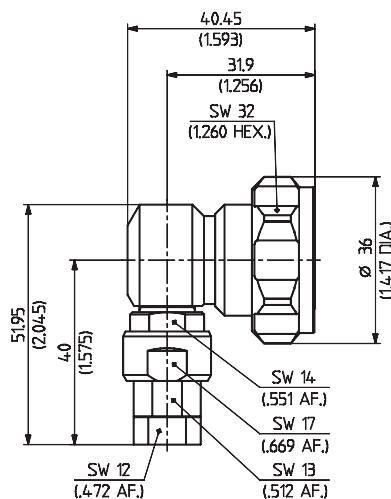


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
11_716-50-10-3/003_-Z	23002520	S39 (S_10172_B-11)	bulk 10 pcs.	27354	12.4	100.0 g / 3.52 oz.

Right angle cable plugs (male)

For corrugated cables

- Cable entry clamp
- Centre contact soldered
- Degree of protection IP 68



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
16_716-50-5-2/003_-Z	23016774	M5 (SUCCOFEED_1/4_HF)	bulk 10 pcs.	273569	12.4	150.0 g / 5.25 oz.

Series 7/16 - cable connectors

Right angle cable plugs (male)

For flexible cables

- Cable entry crimp
- Centre contact soldered

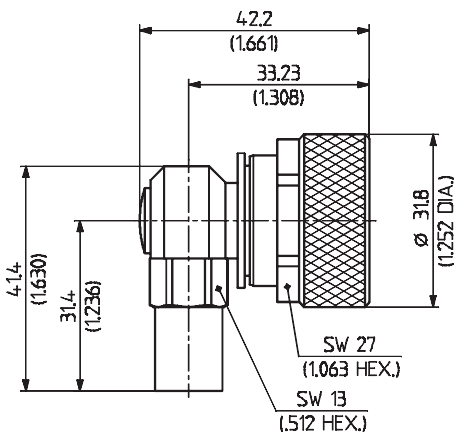


Fig. 1

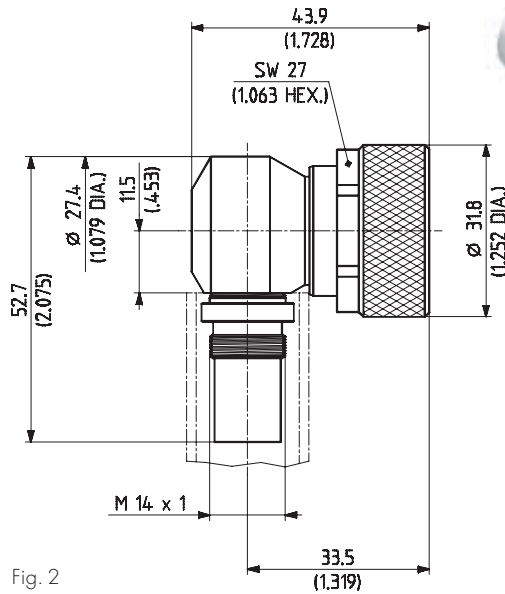


Fig. 2

HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight	Fig.
16_716-50-7-10/003_-E	22658839	U33 (RG_393_/U) U32 (RG_214_/U)	single	9087	D	103.0 g / 3.61 oz.	1
16_716-50-7-11/003_-E	22649421	S32 (S_07262_BD)		9094		154.0 g / 5.39 oz.	2 *

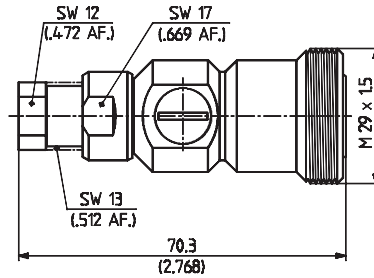
* Types available with additional sealing ferrule (IP 67).

Series 7/16 - cable connectors

Straight cable jacks (female)

For corrugated cables

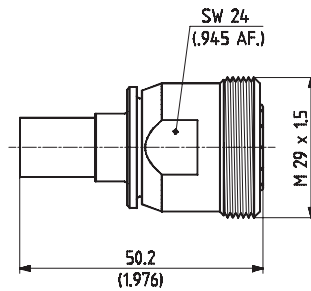
- Cable entry clamp
- Centre contact soldered
- Degree of protection IP 68



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Weight
21_716-50-5-400/003_-Z	23011950	M5 (SUCCOFEED_1/4_HF)	bulk 10 pcs.	27297	140.0 g / 4.90 oz.

For flexible cables

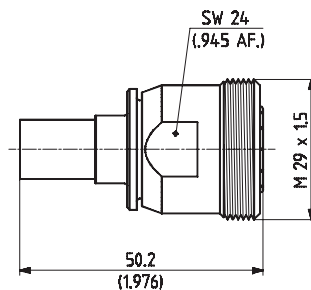
- HUBER+SUHNER® full crimp
- Taper sleeves see page 458



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
21_716-50-7-1/003_-E	22544092	U29 (RG_213_/U)	single	9017	3 D	90.0 g / 3.15 oz.
21_716-50-7-2/003_-E	22544093	U32 (RG_214_/U)				

For flexible cables

- Cable entry crimp
- Centre contact soldered



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
21_716-50-7-11/003_-E	22648494	S32 (S_07262_BD)	single	27003	D	97.0 g / 3.40 oz. *

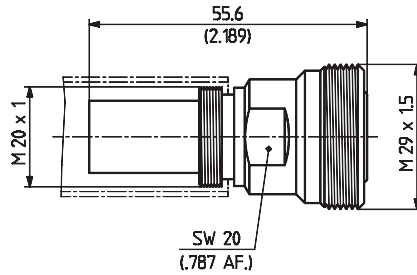
* Types available with additional sealing ferrule (IP 67).

Series 7/16 - cable connectors

Straight cable jacks (female)

For flexible cables

- Cable entry crimp
- Centre contact plugged-in
- Degree of protection IP 67

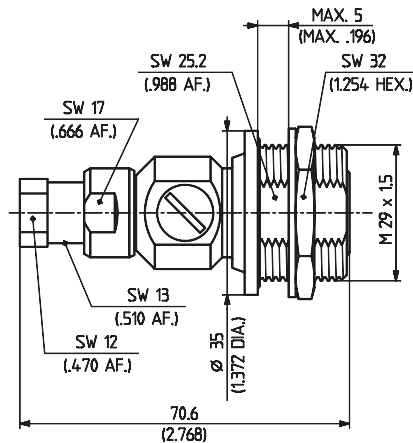


HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
21_716-50-10-1/003_Z	23002535	S39 (S_10162_B-11)	bulk 10 pcs.	27354	12.4	85.0 g / 2.99 oz.

Straight bulkhead cable jacks (female)

For corrugated cables

- Cable entry clamp
- Centre contact soldered
- Degree of protection IP 68



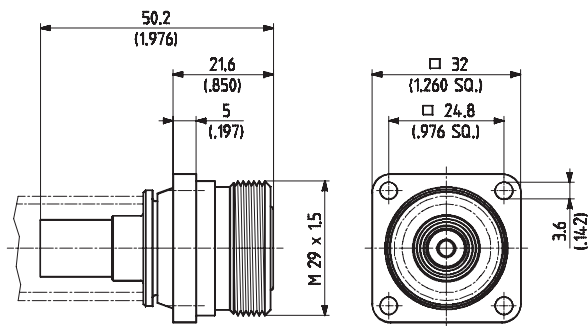
HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight
24_716-50-5-400/003_Z	22658272	M5 (SUCCOFEED_1/4_HF)	bulk 10 pcs.	27297	ML 110	171.0 g / 6.03 oz.

Series 7/16 - cable connectors

Straight panel cable jacks (female)

For flexible cables

- Cable entry crimp
- Centre contact soldered
- Mounting hole ML 27
- Degree of protection IP 66



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Crimp insert	Weight
25_716-50-7-11/003_-E	22649423	S32 (S_07262_BD)	single	27003	D	112.0 g / 3.92 oz.

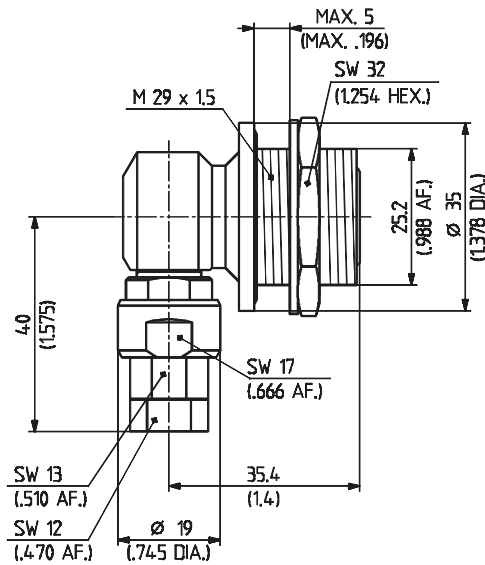
7/16

Series 7/16 - cable connectors

Right angle bulkhead cable jacks (female)

For corrugated cables

- Cable entry clamp
- Centre contact soldered
- Degree of protection IP 68



HUBER+SUHNER type	Item no.	Cable group	Packaging	Assembly instruction	Mounting hole	Weight
29_716-50-5-400/003_-Z	22658301	M5 (SUCCOFEED_1/4_HF)	bulk 10 pcs.	27315	ML 110	171.0g / 6.03 oz.

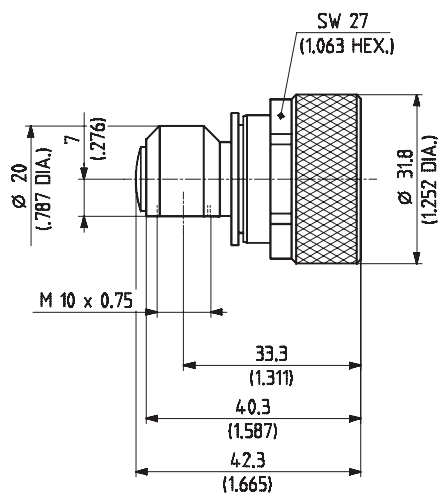
Series 7/16 - combination system

The HUBER+SUHNER 7/16 combination system enables efficient, lowcost and flexible stocking of 7/16 cable connectors. The 11 basic parts can be combined to obtain 48 different cable connector types for almost all coaxial cables with 2.95 mm (.116 in.), 4.7 mm (.185 in.) or 7.25 mm (.285 in.) dielectric diameter. The cable entries are available with both crimp type or pressure-sleeve (no special tools) cable attachment.

Centre conductors are soldered. All cable entries can be used together with any of the combi-heads. Taper sleeves can be supplied for the crimp type cable entries. Straight or right angle configurations are possible with the same sub-assemblies. All types have 50 Ω impedance and are suitable for frequencies up to 1 GHz. The working voltage is limited to 1.0 kV rms.

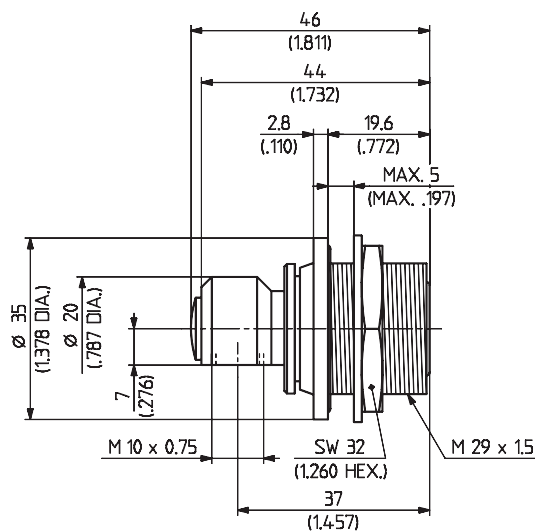
Combi-heads

- Plug (male)



HUBER+SUHNER type	Item no.	Packaging	Weight	Notes
11_716-50-0-2/003_E	22641432	single	100.0 g / 3.50 oz.	cable entries see following pages

- Bulkhead jack (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight	Notes
24_716-50-0-1/003_E	22650517	single	ML 110	126.0 g / 4.44 oz.	cable entries see following pages

Cable groups see page 32

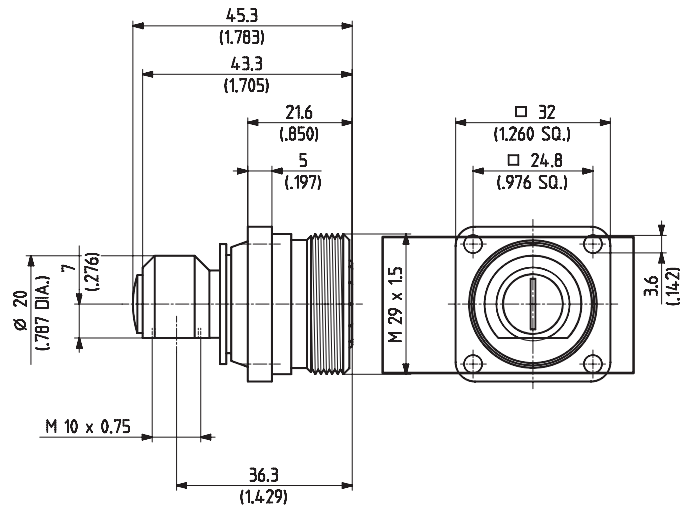
Assembly tools see page 441

Mounting holes / PCB layouts see page 465

Series 7/16 - combination system

Combi-heads

- Panel jack (female)



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight	Notes
25_716-50-0-2/003_E	22641434	single	ML 27	124.0 g / 4.34 oz.	cable entries see below

Cable entries (for use with all combi-heads)

- Cable entry crimp
- Taper sleeves see page 458

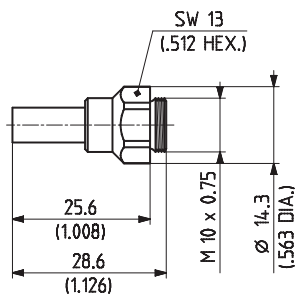


Fig. 1

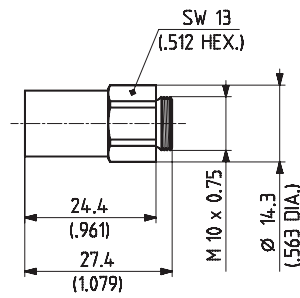


Fig. 2



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
71_Z-0-3-21/-33_E	22641435	U7 (RG_58_C/U)	single	9084	B	1
71_Z-0-3-22/-33_E	22641436	U9 (RG_223_/U)				
71_Z-0-7-21/-33_E	22641440	U29 (RG_213_/U)		9087	D	2
71_Z-0-7-22/-33_E	22641441	U32 (RG_214_/U)				

Series 7/16 – combination system

Cable entries (for use with all combi-heads)

- Cable entry pressure-sleeve

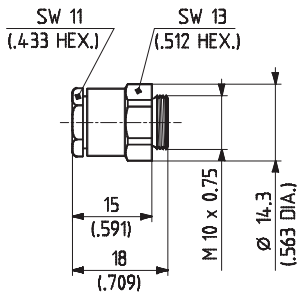


Fig. 1

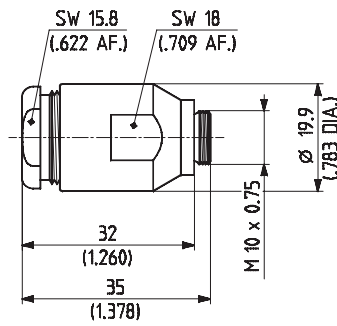


Fig. 2

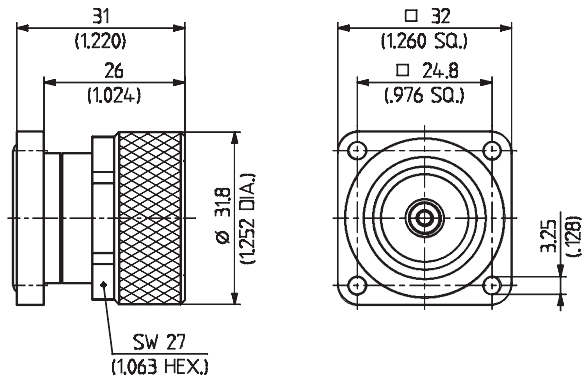


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Fig.
71_Z-0-3-24/-33_-E	22641438	U7, U9 (RG_58_C/U)	single	9085	1
71_Z-0-7-24/-33_-E	22641443	U32 (RG_214_/U)		9088	2

Series 7/16 - receptacles with solder end

Receptacle, plug (male)

- Panel mounted
- Flange with O-ring
- Centre contact captivated for torque



HUBER+SUHNER type	Item no.	Packaging	Weight	Notes
13_716-50-0-4/003_V	22658959	bulk 20 pcs.	98.0 g / 6.00 oz.	centre conductor with threaded stud M3

Receptacles, jacks (female)

- Panel mounted

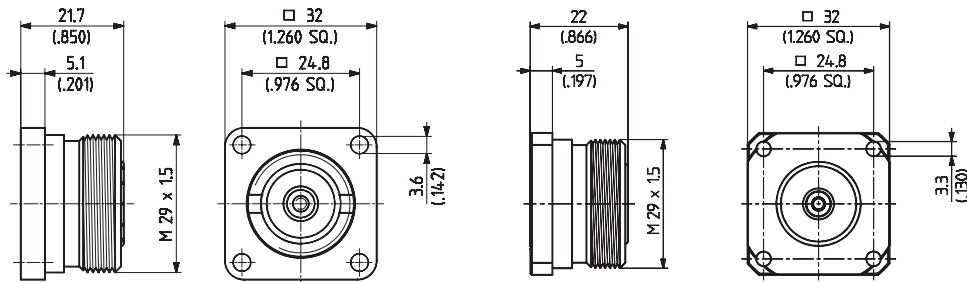


Fig. 1

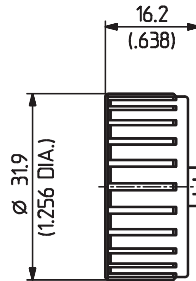
Fig. 2



HUBER+SUHNER type	Item no.	Packaging	Mounting hole	Weight	Notes	Fig.
23_716-50-0-1/003_E	22544102	single	ML 27	75.0 g / 2.65 oz.	centre conductor with threaded stud M3	1
23_716-50-0-57/003_V	23015661	bulk 20 pcs.		80.0 g / 2.80 oz.	centre conductor with threaded stud M3	2

Series 7/16 - protective cap

- Protective cap for jack
- Made of plastic



HUBER+SUHNER type	Item no.	Packaging	Notes
62_716-0-0-4/--_--H	23005877	bulk 100 pcs.	water protection according to IP 68

7/16

Series QUICK-FIT – coaxial connectors

General description

HUBER+SUHNER QUICK-FIT connectors are worldwide approved N and 7/16 connectors for foam dielectric corrugated copper tube cables. They offer a greatly simplified and economic approach to cable preparation and assembly. The product line meets the requirements of multi-carrier, high-channel-count transceivers such as base stations of today's mobile communication infrastructure networks.

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Cable stripping tools and spare parts	375
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Application

- Rugged connectors for easy outdoor termination of corrugated feeder and jumper cables
- Meeting the special requirements of BTS applications

Features

- Excellent RF performance
- Low, stable and reproducible PIM (Passive Intermodulation Product), typically -165 dBc
- Safe assembly process, in-field termination with reproducible electrical performance
- Quick and easy assembly, 2 main connector parts, 4 steps in less than 4 minutes
- High IP rating, IP 68
- Multi-brand, multi-design and multi-material cable compatibility
- Backward compatibility
- Reusability

Benefits

- Easy field installation
- Time saving
- Simplified logistics
- Low cost of ownership
- Support quality of a proven connector house
- Compatible for copper and aluminium cables



Series QUICK-FIT – technical data

Electrical data	Requirements
Impedance	50 Ω
Frequency range (for connector interface)	N: DC ... 11 GHz 7/16: DC ... 7.5 GHz
VSWR	≤ 1.06 (RL ≥ 30 dB); f ≤ 2.5 GHz
PIM ¹⁾	better than -155 dBc

¹⁾ Carrier to 3rd order intermodulation product ratio with 2 x 20 W (43 dBm) carrier power, f ≤ 1.88 GHz.

Mechanical data	Requirements
Recommended coupling nut torque IEC	N: 0.68 ... 1.13 Nm / 0.49 ... 0.82 ft lb. IEC 61169-16 7/16: 25 ... 30 Nm / 18.05 ... 21.66 ft lb. IEC 61169-4
Recommended coupling nut torque HUBER+SUHNER	N: 3 Nm / 2.2 ft lb. with 100 matings max.
Coupling nut retention force	N: ≥ 450 N / 101.2 lbs. 7/16: ≥ 1000 N / 225.0 lbs.
Centre contact	captivated
Durability (matings)	≥ 500

Environmental data	Requirements
Temperature range	- 40 °C ... + 85 °C / - 40 °F ... + 185 °F
IP rating	IP 68 (acc. to IEC 60529)

Material data	Material	Plating
Connector part		
Cable entry	brass	SUCOPLATE®
Connector head	brass	SUCOPLATE®
Outer contact	brass	SUCOPLATE®
Centre contact	spring bronze/brass	silver
Insulators	PTFE or PFA	
Gaskets	rubber	

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

Series QUICK-FIT - cable connectors

For cable size 1/2" _HF; 1/2" _HF_FR and 1/2" _HF_FR_UL

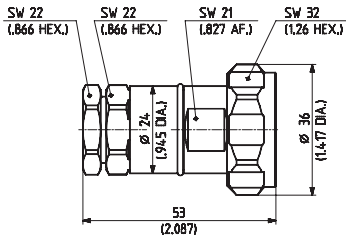


Fig. 1

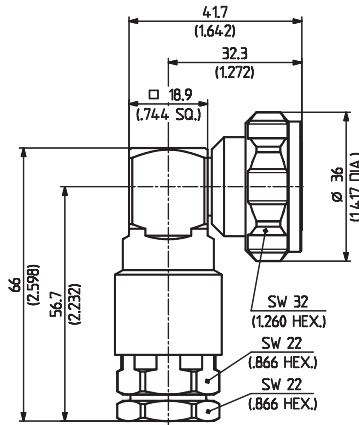


Fig. 2

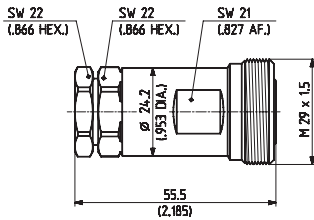


Fig. 3

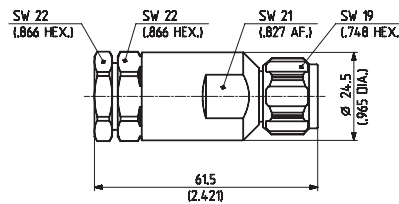


Fig. 4

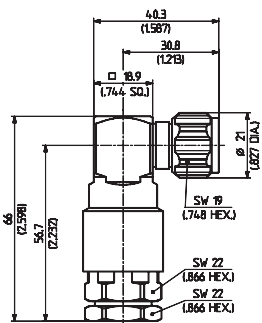


Fig. 5

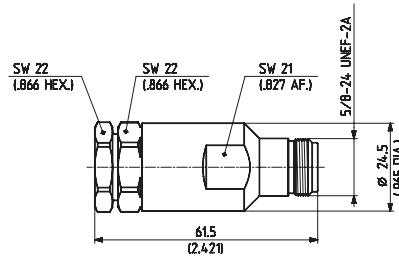


Fig. 6

Type no.	Connector style	Item no.	Assembly instruction	Stripping tool	Item no. stripping tool	Fig.
11_716-50-9-9	DIN 7/16 male	22660309	DOC-0000179418	74_Z-0-9-15	23001006	1
16_716-50-9-5	DIN 7/16 male right angle	23007298				2
21_716-50-9-9	DIN 7/16 female	22660310				3
11_N-50-9-9	N male	22660311				4
16_N-50-9-6	N female right angle	23007299				5
21_N-50-9-9	N female	22660312				6

Cable compatibility list on request.

Series QUICK-FIT - cable connectors

For cable size 1/2"; 1/2"_FR and 1/2"_FR_UL

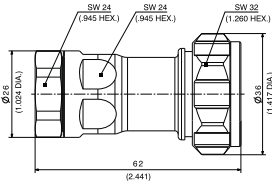


Fig. 1

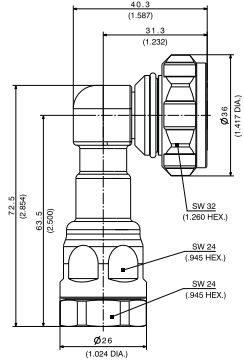


Fig. 2

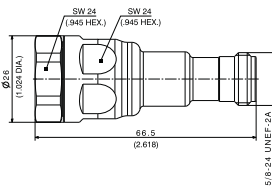


Fig. 3

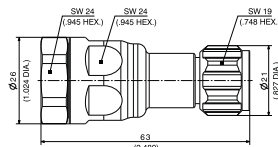


Fig. 4

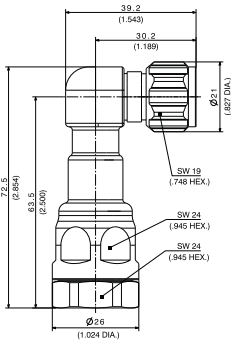


Fig. 5

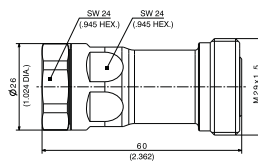


Fig. 6

Type no.	Connector style	Item no.	Assembly instruction	Stripping tool	Item no. stripping tool	Fig.
11_716-50-12-50/033_-E	DIN 7/16 male	84201175	DOC-0000386367	74_Z-0-12-11	84147226	1
16_716-50-12-50/033_-E	DIN 7/16 male right angle	84201179				2
21_716-50-12-50/033_-E	DIN 7/16 female	84201177				3
11_N-50-12-50/033_-E	N male	84201169				4
16_N-50-12-50/033_-E	N female right angle	84201181				5
21_N-50-12-50/033_-E	N female	84201173				6

Cable compatibility list on request.

Series QUICK-FIT – cable connectors

For cable size 7/8"; 7/8"_FR; 7/8"_LA; 7/8"_LA_FR and 7/8"_HF

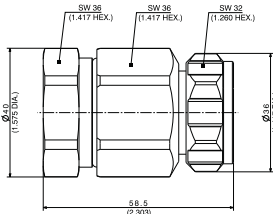


Fig. 1

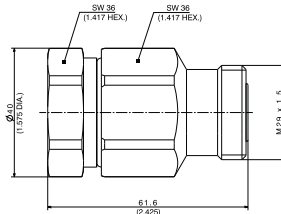


Fig. 2

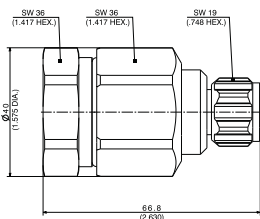


Fig. 3

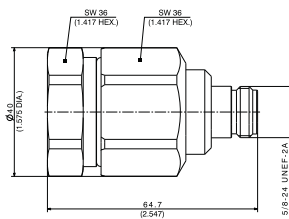


Fig. 4

Type no.	Connector style	Item no.	Assembly instruction	Stripping tool	Item no. stripping tool	Fig.
11_716-50-23-44	DIN 7/16 male	84069135	DOC-0000295365	refer to tables below	refer to tables below	1
21_716-50-23-44	DIN 7/16 female	84069194				2
11_N-50-23-43	N male	84124063				3
21_N-50-23-43	N female	84124062				4

Cable compatibility list on request.

Stripping tools

Rotating tools (machine or hand operated)



Type no.	For cable size	Item no.
74_Z-0-23-21	7/8"	85002265
74_Z-0-23-22	7/8" LA	84147229

Guillotine tools (hand operated, flaring section included)



Type no.	For cable size	Item no.
74_Z-0-23-100	all 7/8" sizes	84133924

Series QUICK-FIT – cable connectors

For cable size 1_1/4" and 1_1/4"_FR

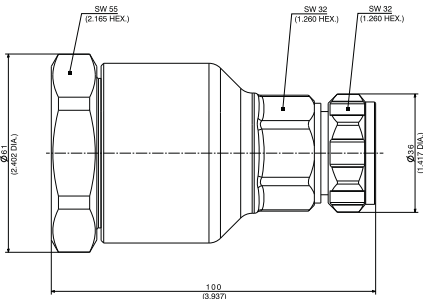


Fig. 1

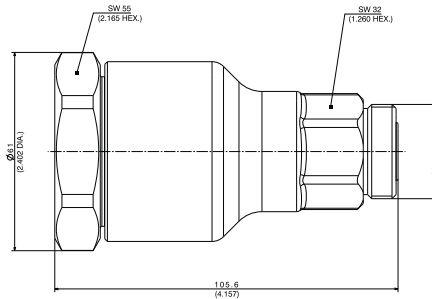


Fig. 2



Type no.	Connector style	Item no.	Assembly instruction	Jacket stripping/ flaring tool	Item no. stripping tool	Fig.
11_716-50-32-4	DIN 7/16 male	84116088	DOC-0000341341	74_Z-0-32-14/ 74_Z-0-32-15	23010533/ 84120843	1
21_716-50-32-4	DIN 7/16 female	84116150				2

Cable compatibility list on request.

For cable size 1_5/8" and 1_5/8"_LA

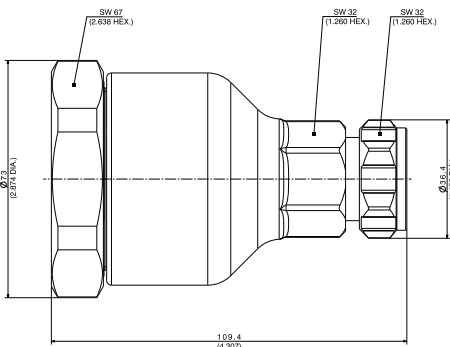


Fig. 1

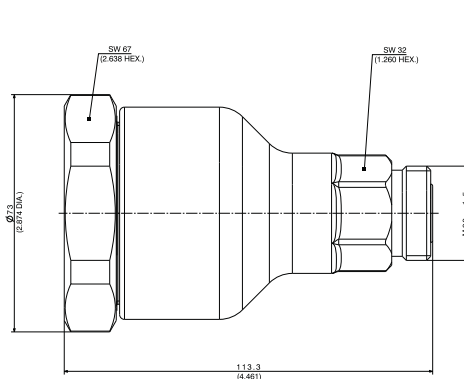


Fig. 2



Type no.	Connector style	Item no.	Assembly instruction	Jacket stripping/ flaring tool	Item no. stripping tool	Fig.
11_716-50-42-4	DIN 7/16 male	84079343	DOC-0000299051	74_Z-0-42-14/ 74_Z-0-42-15	23010534/ 84085074	1
21_716-50-42-4	DIN 7/16 female	84079305				2

Cable compatibility list on request.

Series QUICK-FIT – cable stripping tools and spare parts

Stripping tools for easy cable preparation in one single operation can be used manually or with electrical power tool.

Type no.	Item no.	Part description	1/2" HF	1/2"	7/8"	7/8" LA	1 1/4"	1 5/8"	1 5/8" LA
74_Z-0-9-15	23001006	stripping tool (1/2" HF)	X						
74_Z-0-12-11	84147226	stripping tool (1/2")		X					
74_Z-0-23-21	85002265	stripping tool (7/8")			X				
74_Z-0-23-22	84147229	stripping tool (7/8" LA)				X			
74_Z-0-23-100	84133924	stripping tool (7/8", guillotine)			X	X			
74_Z-0-32-14	23010533	stripping tool (1_1/4")					X		
74_Z-0-32-15	84120843	flaring tool (1_1/4")					X		
74_Z-0-42-14	23010534	stripping tool (1_5/8")						X	X
74_Z-0-42-15	84085074	flaring tool (1_5/8")						X	X
74_Z-0-0-359	23014976	handle (for stripping tools)	X ⁴⁾	X ⁴⁾	optional	optional	optional	optional	optional
74_Z-0-0-402	22652193	abrasive paper 320	X	X					
74_Z-0-0-424	23001952	spanner AF 17 mm							
74_Z-0-0-425	23001953	spanner AF 18 mm							
74_Z-0-0-426	23001954	spanner AF 19 mm							
74_Z-0-0-427	23001955	spanner AF 21 mm	X						
74_Z-0-0-428	23001956	spanner AF 22 mm	X	X					
74_Z-0-0-429	23001957	spanner AF 24 mm		X					
74_Z-0-0-415	22652206	counter sink			X ¹⁾	X ¹⁾	X ¹⁾	X ¹⁾	X ¹⁾
74_Z-0-0-418	22652209	Stanley knife	X	X	X	X	X	X	X
74_Z-0-0-420	22652211	steel brush		X	X	X	X	X	X
74_Z-0-0-422	22652213	steel measure 200 mm	X ²⁾	X ²⁾	X ²⁾	X ²⁾	X ²⁾	X ²⁾	X ²⁾
74_Z-0-0-432	23002005	screwdriver ²⁾		X					
74_Z-0-0-433	23002007	screwdriver ⁴⁾			X	X	X	X	X
74_Z-0-0-12	22642718	small metal saw	X	X	X	X	X	X	X
74_Z-0-0-434	23002166	monkey wrench ³⁾					X	X	X

Type no.	Item no.	Part description
74_Z-0-0-297	22650531	cutting corrugated copper, foam and inner conductor for 74_Z-0-23-21, 74_Z-0-23-22
74_Z-0-0-346	23000936	blade (cutting jacket) for 74_Z-0-9-15, 74_Z-0-12-15
74_Z-0-0-347	23000937	blade (cutting corrugated copper tube) for 74_Z-0-12-15
74_Z-0-0-348	23000938	triangle knife (deburring inner conductor) for 74_Z-0-9-15, 74_Z-0-12-15
74_Z-0-0-349	23001008	blade (cutting corrugated copper tube) for 74_Z-0-9-15
74_Z-0-0-355	23008264	blade (cutting jacket) for 74_Z-0-32-14
74_Z-0-0-356	23010537	blade (cutting jacket) 74_Z-0-42-14
74_Z-0-0-416	22652207	allen wrench AF 2.5 mm/.098 in. for 74_Z-0-9-15, 74_Z-0-12-15, 74_Z-0-32-14 and 74_Z-0-42-14
74_Z-0-0-423	23000311	allen wrench AF 4 mm/.157 in. for removing the BIT adaptor
74_Z-0-0-421	22652212	screwdriver, Torx 1 (Torx T7) for changing the triangle knife 74_Z-0-0-348

¹⁾ For assembly use either the Stanley knife or the counter sink.

²⁾ Only necessary without HUBER+SUHNER stripping tool.

³⁾ 2 wrenches are needed for assembling.

⁴⁾ Handle included in QUICK-FIT stripping tool delivery.

Series QUICK-FIT – cold shrink tubes for additional protection

This special cold shrink tube reliably protects coaxial connectors against humidity and harsh environmental influences like icy conditions or a polluted atmosphere. It especially supports outdoor feeder line installations in mobile communications and other wireless systems.

The simple and fast assembly of this cold shrink tube, by pulling out the supporting spiral, enables a reliable installation without special tools. After the assembly the cold shrink tube provides reliable protection by its continuous radial contact pressure.

Features

- Quick and easy installation without tool
- No torches or heat required
- Accommodates a wide range of cable sizes
- Good thermal stability
- Resists acids and bases, ozone and UV radiation
- Water resistant
- Application temperature (shrinking process) -20 °C / +50 °C
- Working temperature -20 °C / +130 °C

Type no.	Item no.	For connector pair
73_Z-0-0-678/---_E Material: silicone	84062968	1/2" HF - 1/2" HF 1/2" HF - 1/2" 1/2" HF - 7/8" 1/2" - 1/2" 1/2" - 7/8" 7/8" - 7/8"
73_Z-0-0-339/---_E Material: EPDM*	22658885	1/2" HF - 1 1/4" 1/2" HF - 1 5/8" 1/2" - 1 1/4" 1/2" - 1 5/8" 7/8" - 1 1/4" 7/8" - 1 5/8"

* At temperatures below 0 °C shrinking process can be supported by hand warmth.

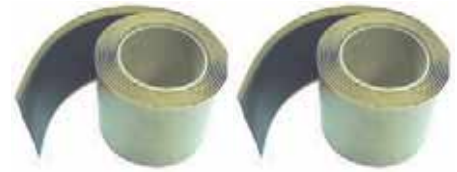


Series QUICK-FIT – fast-wrap weatherproofing kit

Fast-wrap is a unique, time saving, weatherproofing solution for the telecom industry. The cross-linked butyl on elastomer carrier becomes a powerful sealing mechanism that can withstand the continued assault of outdoor elements above or below ground. This same material technology has been used successfully for over thirty years in the roofing and construction industries where it is exposed to the harshest environments. In fact, time and heat only serve to enhance its self-amalgamation and sealing properties. Fast-wrap is a comprehensive replacement for common butyl tape weatherproofing kits and installs three times faster. Unlike butyl tape, Fast-wrap is clean, easy to cut, simple to wrap, removable, and will not flow after installation.

Applications

- Outdoor corrugated feeder line to jumper cable connections
- Cable to lightning protector or antenna connections
- Grounding kits
- Fiber or dataline connections above or below ground
- Component connections



Colour	black	
Dimensions	5.4 cm x 1.5 m, 2-1/8" x 5 ft. per roll	2 rolls per kit
Specific gravity	1.08 +/- .05	tested per ASTM D792-79
Penetration	40/120	tested per ASTM D217 (300 cone)
Ozone/UV resistance	high	tested per ASTM D1149-81 with no degradation
Elongation	300%	tested per ASTM D412-80
Low temperature	-49 °F / -45 °C	tested per ASTM D746
Flash point	350 °F / +177 °C	tested per ASTM D92
Shear strength	15 PSI min	tested per ASTM D816
Peel strength	3 PSI min.	tested per ASTM D413
Tensile strength	50 PSI max.	tested per ASTM D412
Odor	nil	
Volatile % by volume	.001 %	
Shelf life	10 years	
Resistance to	5 % acids, 5 % NaOH, water soluble solvents, acid and basic soils, heat up to 90 °C for one year, heat spikes at 130 °C for 24 hrs	
Do not expose to	oil, carbon tetrachloride, naphtha, mineral spirits, gasoline	
Warranty	3 years	
Patent pending		

For connector pair	Connections per kit
1-5/8" to 1/2"	2
1-1/4" to 1/2"	2
7/8" to 1/2"	4
1/2" to 1/2"	12
7/8" to device	12
1/2" to device	12

Item number:
84125631
Inquiries to be made at
HUBER+SUHNER Inc. (USA)





Reverse polarity connectors

Description

According UL FCC (part 15.203) regulations, wireless radio equipment with removable antenna must not have a standardised interface. This to avoid the connection of antenna equipment which is not WLAN approved.

An established solution are the so called reverse polarity connectors. That means, the male connector is fitted with female centre contact and insulator, whereas the female side is fitted with male centre contact and insulator. For identification of reverse connectors the letter R (for reverse) is used in the type description. Example: 11_TNC-R50-3-42.

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Reverse polarity connectors SMA	382
Reverse polarity connectors - adaptors	386



Reverse polarity connectors TNC

Straight cable plugs (reverse)

For flexible cables

- Cable attachment: HUBER+SUHNER® full crimp

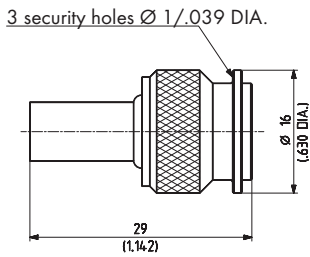


Fig. 1

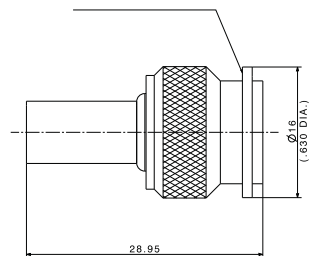


Fig. 2

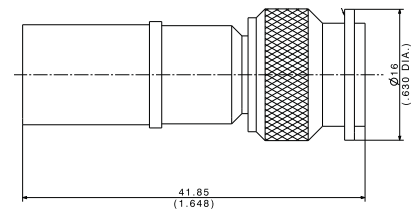


Fig. 3



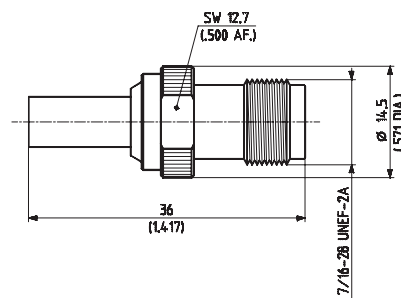
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_TNC-R50-3-42/133_NE	22658965	U7 (RG_58_C/U)	single	3015	2 B	1
11_TNC-R50-3-43/133_NE	22659046	U9 (RG_223_/U)		3015	2 B	1
11_TNC-R50-4-76/133_NE	84031534	LMR 240*		0000246324	2 C	2
11_TNC-R50-7-13/133_NE	84031806	LMR 400*		27288	4 D	3

* LMR® is a registered trade mark of Times Microwave Systems

Straight cable jacks (reverse)

For flexible cables

- Cable attachment: HUBER+SUHNER® full crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_TNC-R50-3-14/133_NE	23003716	U7 (RG_58_C/U)	single	27221	2 B

Reverse polarity connectors TNC

Straight bulkhead cable jacks (reverse)

For flexible cables

- Cable attachment: HUBER+SUHNER® full crimp
- With panel seal
- Mounting hole ML 4

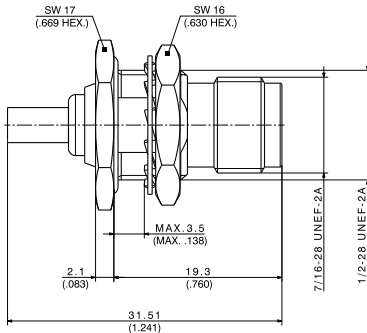


Fig. 1

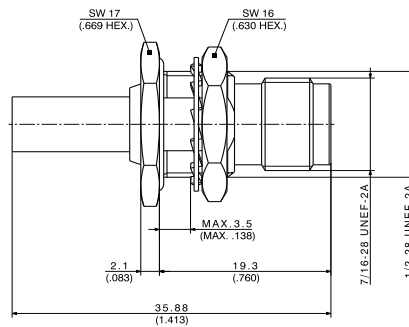


Fig. 2

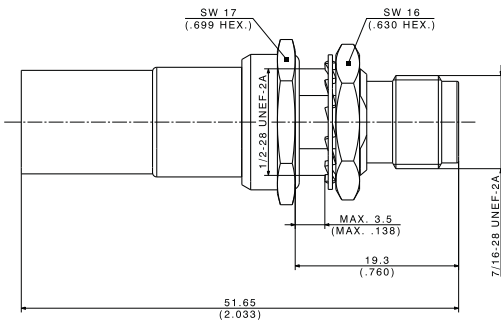


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
24_TNC-R50-2-44/133_NE	84064623	U2 (RG_316_/U)	single	0000179123	1 A	1
24_TNC-R50-3-24/133_NE	84031905	U7 (RG_58_C/U)		27221	2 B	2
24_TNC-R50-3-25/133_NE	84031952	U9 (RG_223_U)		27221	2 B	2
24_TNC-R50-4-60/133_NE	84032154	LMR 240*		0000246324	2 C	2
24_TNC-R50-7-4/133_NE	84032531	LMR 400*		27288	4 D	3

* LMR® is a registered trade mark of Times Microwave Systems.

Reverse polarity connectors SMA

Straight cable plugs (reverse)

For flexible cables

- Cable attachment: centre contact soldered / outer contact crimp

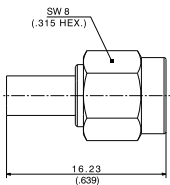


Fig. 1

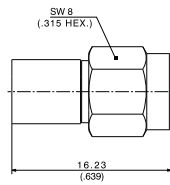


Fig. 2

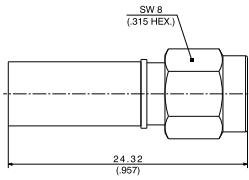


Fig. 3

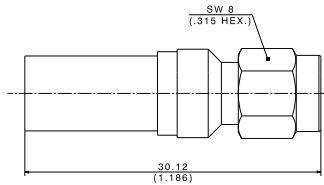


Fig. 4

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
11_SMA-R50-2-113/133_NE*	84130701	U4 (K_02252_D)	single bulk 500 pcs.	0000360393	A	1
11_SMA-R50-2-113/133_NP*	84117824					
11_SMA-R50-3-238/133_NE*	84130704	U9, U11 (RG_223_/U)	single bulk 500 pcs.	0000360525	B	2
11_SMA-R50-3-238/133_NP*	84117825					
11_SMA-R50-3-48/133_NE*	22658747	U7 (RG_58_C/U)	single	M27192	B	3
11_SMA-R50-4-97/133_NH*	84027004	S16, X9 (S_04262_D-09)	bulk 100 pcs.	0000241878	C	4

* Use torque wrench 74_Z-0-0-79.

Reverse polarity connectors SMA

Right angle cable plugs (reverse)

For flexible cables

- Cable attachment: centre contact soldered / outer contact crimp

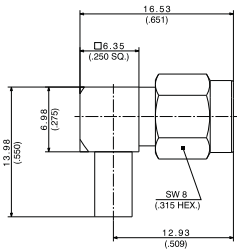


Fig. 1

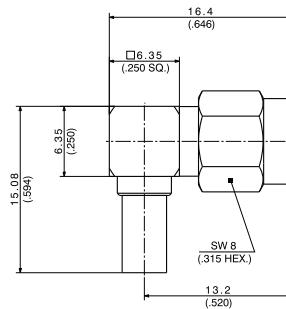


Fig. 2

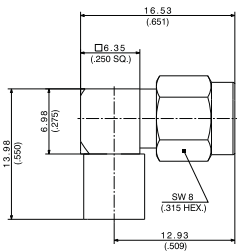


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert	Fig.
16_SMA-R50-2-113/133_NE *	84130710	U4 (K_02252_D)	single	0000368977	A	1
16_SMA-R50-2-113/133_NP *	84117814		bulk 500 pcs.			
16_SMA-R50-2-149/133_NH *	23039493	U2 (RG_316_/U)	bulk 100 pcs.	27543	A	2
16_SMA-R50-3-16/133_NE *	84130713	U9, U11 (RG_223_/U)	single	0000368978	B	3
16_SMA-R50-3-16/133_NP *	84117815		bulk 500 pcs.			

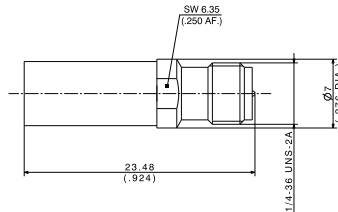
* Use torque wrench 74_Z-0-0-79.

Reverse polarity connectors - series SMA

Straight cable jacks (reverse)

For flexible cables

- Cable attachment: centre contact soldered / outer contact crimp

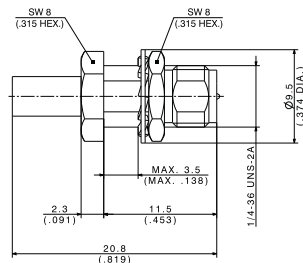


HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Crimp insert
21_SMA-R50-3-51/133_NE	84032514	U7 (RG_58_C/U)	single	0000246751	B

Straight bulkhead cable jacks (reverse)

For flexible cables

- Cable attachment: centre contact soldered / outer contact crimp
- With panel seal



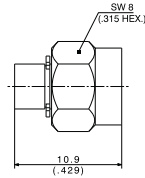
HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Assembly instruction	Mounting hole	Crimp insert
24_SMA-R50-2-51/133_NE	23011465	U2 (RG_316_/U)	single	0000292354	ML 35	A

Reverse polarity

Reverse polarity connectors - terminations SMA

50 Ω , plug (reverse)

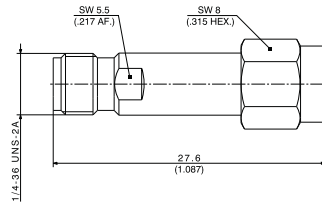
- 1 Watt
- DC - 6 GHz



HUBER+SUHNER type	Item no.	Packaging	VSWR		Power
			DC - 3 GHz	3 - 6 GHz	
65_SMA-R50-0-70/133_NE	84043759	single	1.15	1.2	1 Watt
65_SMA-R50-0-70/133_NH	84038521	bulk 100 pcs.			

Reverse polarity connectors - adaptors

- Straight
- Plug (reverse) to jack (standard)



HUBER+SUHNER type	Item no.	Packaging	Side 1 (male)	Side 2 (female)
33_SMA-R50-0-5/111_NE	23003618	single	SMA reverse	SMA standard

- Angle
- Plug (reverse) to jack (standard)

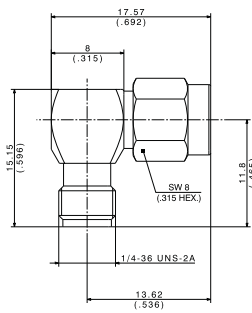
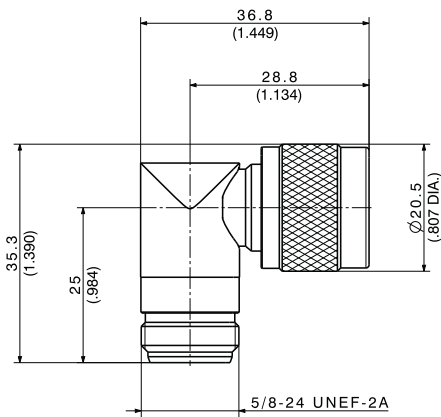


Fig. 1

Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Side 1 (male)	Side 2 (female)	Fig.
53_N-R50-0-7/133_NE	22652057	single	N reverse	N standard	1
53_SMA-R50-0-3/111_NE	23029833		SMA reverse	SMA standard	2

Series MXP – 40 Gbps multicoax solution

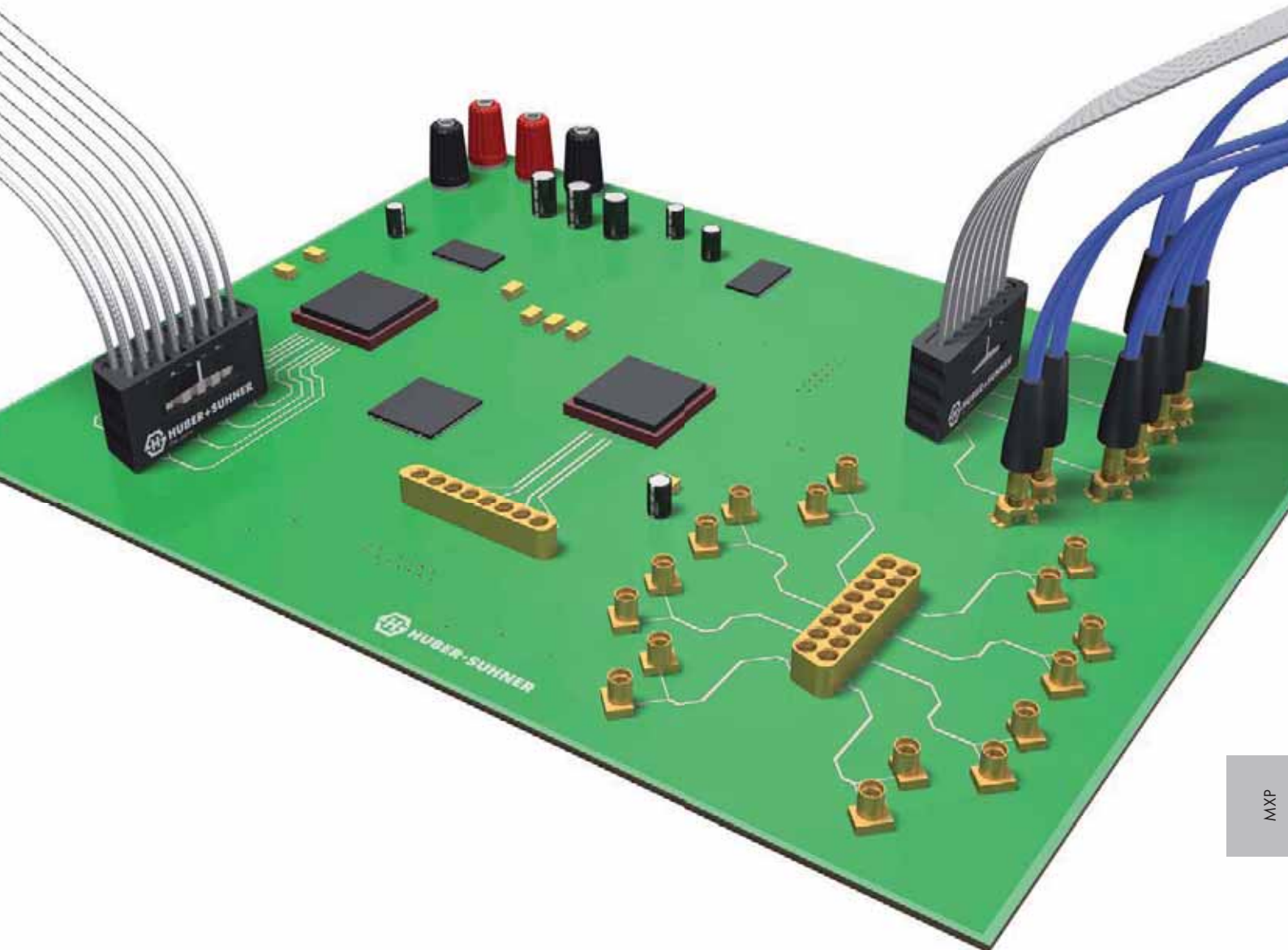
Description

The ganged multicoax solution MXP offers a true 40 GHz/40 Gbps coaxial-to-PCB transition with a very small form factor. Its reliable mating and ease of use make it especially suited for bench-top test systems as well as interconnect within automated test equipment. A broad range of configurations with highly flexible cable assemblies and compact PCB connectors are available.

Content

Description	387
High speed digital testing	388
Technical data	389
PCB connectors	390
Cable assemblies	391
Low loss breakout system	396

Interface dimensions conformable to the standards:
HUBER+SUHNER proprietary interface standard.



MXP

Series MXP – high speed digital testing

Features

- Operating range up to 40 GHz/40 Gbps
- Highest density - lowest loss
- Extensive technical support
- 3D-files, modelling data and footprints

Benefits

- Reliable push-on mating
- Space saving
- Shorter lines between chip and PCB connector
- Easy channel management
- Overall cost savings and service benefits

Overview product range (1 x 8 and 2 x 8 ganged systems)

- Straight PCB connectors (SMT)
- Breakout assemblies MXP-to-SK (2.92 mm)
- Jumper assemblies MXP-to-MXP
- Loop back assemblies
- Custom solutions on request

Repair Service

HUBER+SUHNER is offering a retermination service for the professional replacement of defective channels. Your HUBER+SUHNER representative will guide you if you are in need of a repair and want to benefit from this opportunity.

Series MXP – technical data

Typical electrical data	Testing conditions	Performance
Frequency range		DC up to 40 GHz
Operating range / data rate		Up to 40 Gbps
Impedance		50 Ω
Return loss	mated condition gated measurement: cable connector/ PCB transition PCB: Rogers RO3003 cable: HUBER+SUHNER MULTIFLEX 53	≥ 20 dB up to 22.5 GHz
Insertion loss	305 mm (12") assembly	≤ 2 dB up to 22.5 GHz
Cross-talk	at PCB transition	≤ -40 dB

Typical mechanical data	Testing conditions	Performance
Mating force (per single channel)		max. 3.4 N (typical 1.1 N)
Demating force (per single channel)		max. 3.4 N (typical 1.1 N)
Durability (matings)	MIL-PRF-39012, paragraph 4.7.12	> 500

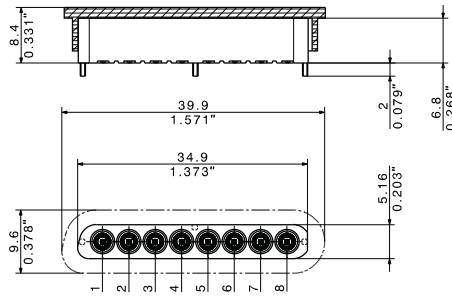
Material data cable connector	Material	Plating
Center contact	copper beryllium	SUCOPRO® gold plating
Outer contact	brass	SUCOPRO® gold plating
Insulator	PTFE	N/A
Body	aluminium	black anodised

Material data PCB connector	Material	Plating
Center contact	copper beryllium	SUCOPRO® gold plating
Outer contact	BZ4	SUCOPRO® gold plating
Body	brass	SUCOPRO® gold plating
Insulator	PEEK	N/A

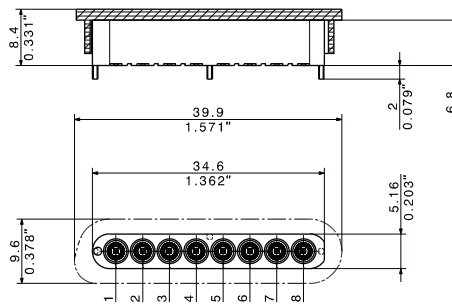
Typical environmental data	Testing conditions	Requirements
Temperature range		-55 °C ... +85 °C
Thermal aging (mated condition)	IEC 60068-2-2, test B	120 °C / 260 h
Change of temperature	IEC 60068-2-14, test Na	assembly: -55 °C ... +85 °C PCB: -55 °C ... +85 °C
Vibration	IEC 60068-2-6	on request
Mechanical shock (transport)	MIL-STD-202, method 213, condition I	100 g / 6 ms
Damp heat steady state	IEC 60068-2-78, Test Ca	40 °C / humidity 93 % / 96 h

Series MXP – PCB connectors

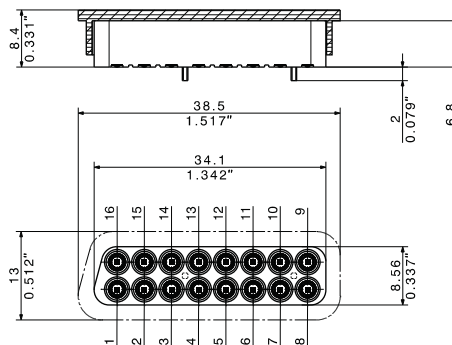
- Pitch 4 mm (0.16")
- Via-in-pad capable
- 0.7 mm (0.028") pin size allows easy matching to smallest trace width
- SMD technology – ground pins for better mechanical stability of solder joint



HUBER+SUHNER type 1 x 8 ganged	Item no.	Packaging	Notes
1x8A_81_MXP-S50-0-1/111_NE	84091435	tape	asymmetric design (coded)



HUBER+SUHNER type 1 x 8 ganged	Item no.	Packaging	Notes
1x8A_81_MXP-S50-0-2/111_NE	84091436	tape	symmetric design (non coded)

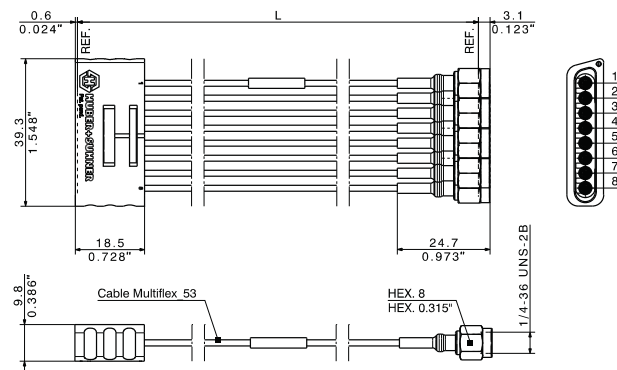


HUBER+SUHNER type 2 x 8 ganged	Item no.	Packaging	Notes
2x8A_81_MXP-S50-0-1/111_NE	84072058	tape	asymmetric design (coded)

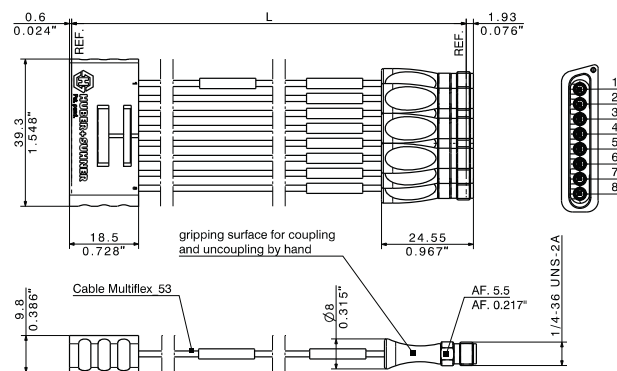
Cable groups see page 32 Assembly tools see page 441 Mounting holes / PCB layouts see page 465

Series MXP – cable assemblies

- Broad range of standard breakout assemblies
MXP-to-SK (2.92 mm) and jumper assemblies
MXP-to-MXP available
- Standard phase matching +/- 2 ps absolute
- Customised assemblies on request



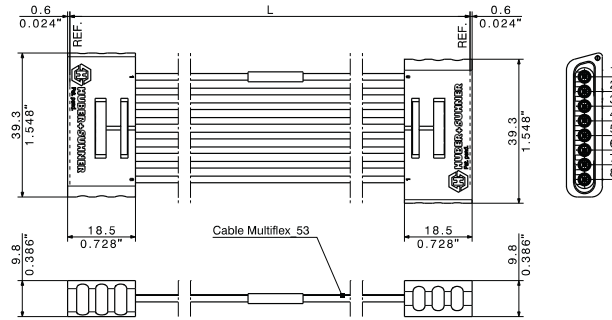
HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/11SK/152	84097196	152 mm (6")	single channels numbered
MF53/1x8A_21MXP/11SK/229	84099600	229 mm (9")	
MF53/1x8A_21MXP/11SK/305	84099607	305 mm (12")	



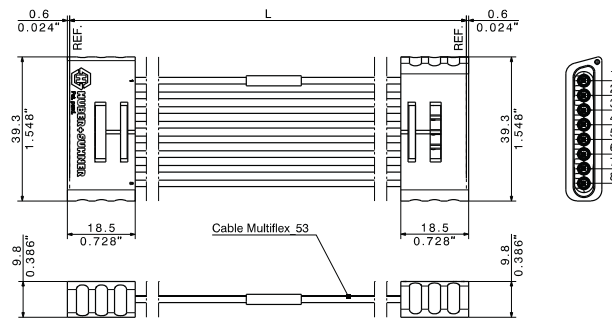
HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/21SK_ergo/152	84093980	152 mm (6")	single channels numbered With ergo grip on SK side. Please see low loss breakout system with SUCOFLEX 404 test leads on page 396.
MF53/1x8A_21MXP/21SK_ergo/229	84098899	229 mm (9")	
MF53/1x8A_21MXP/21SK_ergo/305	84098900	305 mm (12")	

Series MXP – cable assemblies

- Features see page 396



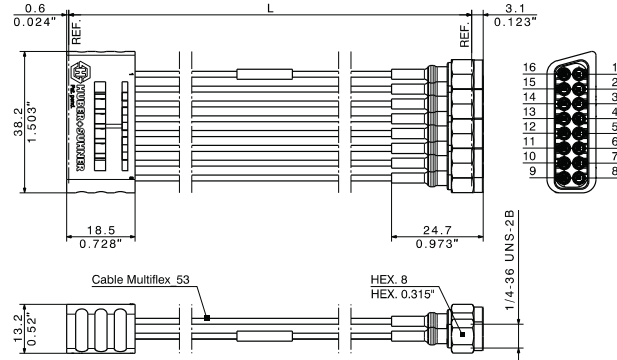
HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/21MXP/305	84099960	305 mm (12")	pin map: 1 to 8
MF53/1x8A_21MXP/21MXP/610	84100060	610 mm (24")	



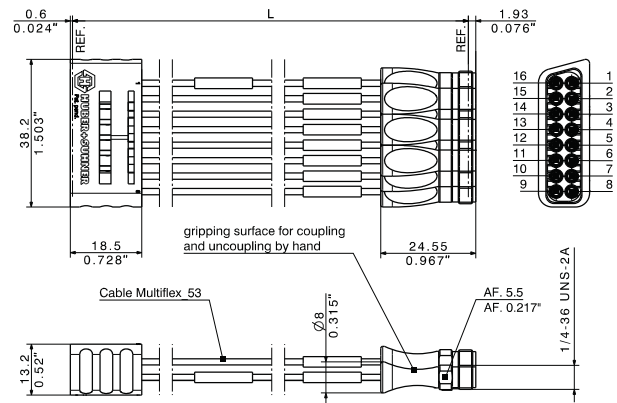
HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/21MXP/305_1	84099634	305 mm (12")	pin map: 1 to 1
MF53/1x8A_21MXP/21MXP/610_1	84099914	610 mm (24")	

Series MXP – cable assemblies

- Features see page 396



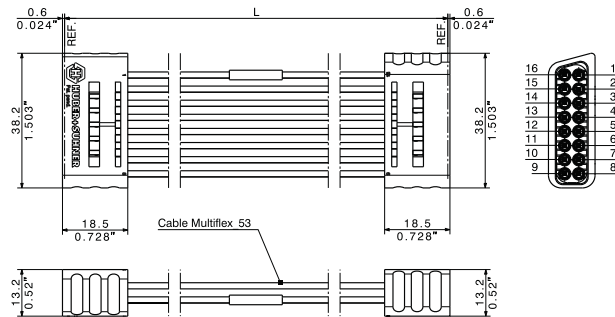
HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/2x8A_21MXP/11SK/152	84088950	152 mm (6")	Single channels numbered
MF53/2x8A_21MXP/11SK/229	84098901	229 mm (9")	
MF53/2x8A_21MXP/11SK/305	84088954	305 mm (12")	
MF53/2x8A_21MXP/11SK/610	84089090	610 mm (24")	



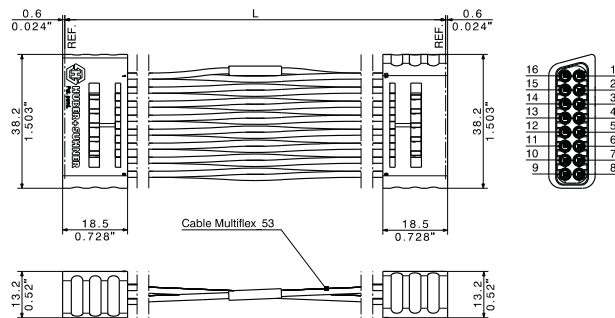
HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/2x8A_21MXP/21SK_ergo/152	84093901	152 mm (6")	single channels numbered With ergo grip on SK side. Please see low loss breakout system with SUCOFLEX 404 test leads on page 396.
MF53/2x8A_21MXP/21SK_ergo/229	84098908	229 mm (9")	
MF53/2x8A_21MXP/21SK_ergo/305	84098902	305 mm (12")	

Series MXP – cable assemblies

- Features see page 388



HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/2x8A_21MXP/21MXP/305	84099955	305 mm (12")	pin map: 1 to 16
MF53/2x8A_21MXP/21MXP/610	84099957	610 mm (24")	

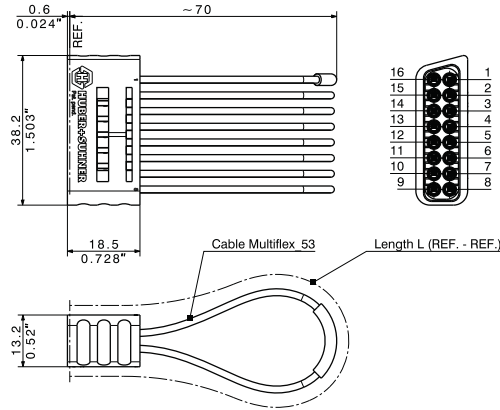


HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/2x8A_21MXP/21MXP/305_1	84099487	305 mm (12")	pin map: 1 to 1
MF53/2x8A_21MXP/21MXP/610_1	84099511	610 mm (24")	

Series MXP – cable assemblies

Typical application

- Channel bridging
- Features see page 388



HUBER+SUHNER type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/2x8A_21MXP/152	84095097	152 mm (6")	loop back configuration

Series MXP

Low loss breakout system with SUCOFLEX 404 test leads

Features

- Short MXP breakout assemblies minimises loss while still providing highest flexibility
- SUCOFLEX 404 offers lowest loss interconnectivity to the test equipment
- Quick and reliable interconnection thanks to the QuickMate nut (SUCOFLEX 404) and ergonomic grip (MXP)
- No torque wrench required

Benefits

- Highest density - lowest loss
- Fast and reliable mating
- Reduces total cost of testing



MXP

Adaptors

HUBER+SUHNER is manufacturing a wide range of adaptors in various configurations like within series or between series, straight or angled designs and some with panel mount features. They are classified according to their typical intended applications of which each require its specific properties. There are four major groups which are identified by means of a color code in this catalogue: standard, precision, low passive intermodulation (PIM) and quick-mate adaptors.

Standard adaptors

Features

- Wide range of different configurations
- Appropriate materials

Benefits

- Most common interfaces available
- Accurate transitions
- Effective and reliable interconnection solutions

Precision adaptors

Features

- Precision interfaces
- Excellent electrical performance
- Premium base materials and platings

Benefits

- For precision laboratory measurements
- High repeatability and accuracy

PIM adaptors

Features

- Outstanding low intermodulation performance
- Excellent electrical contacts
- Non-magnetic materials

Benefits

- High reliability
- Repeatable intermodulation measurements

Quick-mate adaptors

Features

- Adaptors with slide-on coupling mechanism
- High abrasion resistance thanks SUCOPRO® gold plating

Benefits

- Easy coupling and decoupling
- Fast and reliable measurements
- Longest lifetime

Adaptor connector matching matrix

	BMA	BNC	MBX	MCX	MMBX	MMCX	MMPX	N	PC1.85	PC2.4	SK (2.92)	PC3.5	
BMA													
BNC		24		26		28		30					
MBX													
MCX		26		67				71				75	
MMBX													
MMCX		28				106							
MMPX									126		128		
N		30		71				141		143		145	
PC1.85							126						
PC2.4								143			173		
SK (2.92)							128			173	186		
PC3.5				75				145				199	
PC7								146				200	
QLA		36						147					
QMA								148				202	
QN								149				203	
SMA	17	39	60	80	99	117		150					
SMB		40						151					
SMC		41						152					
SMPX											195		
TNC		43			103			154					
7/16								155				209	
4.1/9.5								156					

How to find an adaptor

The interface pairing of an adaptor can be found in the matrix above. The various interface services are listed in the first column and row. The matrix number is the intercept point of two interfaces (e.g. 24 for BNC to BNC). The matrix number can be found in the upper left corner of the detail adaptors information in the following pages. The adaptors are sorted by this matrix number in ascending order. Consequently all BNC to BNC adaptors have the matrix number 24 and are in immediate succession. If the adaptor consists of two different interfaces the matrix number can be found either by following the row and then the column or vice versa. For example row MCX and column BNC leads to 26 as well as row BNC and column MCX. If there is no number in an intercept point there are no adaptors for this connector pairing available.

Tracking examples

Interface pairing

matrix number

BNC to BNC

24

BNC to MCX and MCX to BNC

26

	BMA	BNC	MBX	MCX
BMA				
BNC		24		26
MBX				
MCX		26		67

	PC7	QLA	QMA	QN	SMA	SMB	SMC	SMPX	TNC	7/16	4.1/9.5	
					17							BMA
		36			39	40	41		43			BNC
					60							MBX
					80							MCX
					99				103			MMBX
					117							MMCX
												MMPX
	146	147	148	149	150	151	152		154	155	156	N
												PC1.85
												PC2.4
								195				SK (2.92)
	200		202	203						209		PC3.5
				214	215				219			PC7
		222										QLA
			232		234							QMA
	214									247		QN
	215		234		249	250			253			SMA
					250	256						SMB
							262					SMC
												SMPX
	219				253				271	272		TNC
				247					272	274	275	7/16
										275		4.1/9.5

Examples of detailed product information of specific adaptors

Header with colore code: Standard (grey) Matrix number and specific product ID

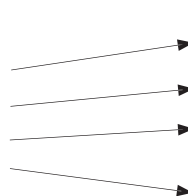
Precision (red)
PIM (blue)
Quick-mate (green)

Matrix number and specific product ID

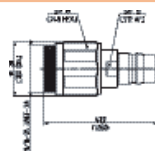
214	H+S type Item no.	33_PC7-QN-50-1/1--_NE 23032722	24	H+S type Item no.	37_BNC-75-0-1/133_NE 22541045
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Details

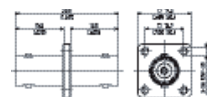
- Interface series and gender
- Various characteristics
- Material / mechanical *
- VSWR



PC7
QN
jack (f)
El. length
41.85 mm
Material
PC7
QN
brass/gold
stainless steel
VSWR
DC - 3 GHz ≤ 1.03
3 - 6 GHz ≤ 1.05
6 - 11 GHz ≤ typ. 1.12



BNC
jack (f) 2 x
Material
Mounting hole
Flange
brass/SUCO
ML 10
4 threads



Notes

*) Material and plating descriptions refer to the connector body or outer contact.

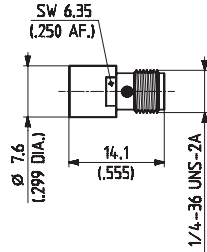
Used abbreviations: ML Mounting hole dimensions, see appendix
SUCO SUCOPLATE® plating
SUPR SUCOPRO®, gold plating
CuBe Copper Beryllium alloy

Adaptors

17	H+S type Item no.	31_BMA-SMA_50-1/1-9_UE 22645642
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BMA
SMA

jack (f)
jack (f)



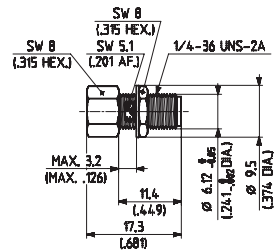
Material stainless steel

VSWR DC - 9 GHz $\leq 1.04 + 0.02 \cdot f$ (GHz)
9 - 18 GHz ≤ 1.22

17	H+S type Item no.	34_BMA-SMA-50-2/1--_UE 22645650
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BMA
SMA

jack (f)
jack (f)



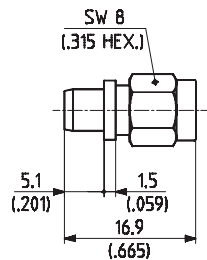
Material stainless steel
Mounting hole ML 56

VSWR DC - 18 GHz $\leq 1.05 + 0.02 \cdot f$ (GHz)

17	H+S type Item no.	32_BMA-SMA-50-1/199_UE 22645643
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BMA
SMA

plug (m)
plug (m)



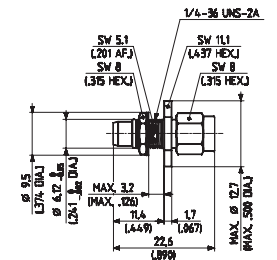
Material stainless steel

VSWR DC - 9 GHz $\leq 1.04 + 0.02 \cdot f$ (GHz)
9 - 18 GHz ≤ 1.22

17	H+S type Item no.	35_BMA-SMA-50-1/193_UE 22645647
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BMA
SMA

plug (m)
plug (m)



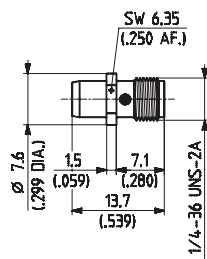
Material stainless steel
Mounting hole ML 56

VSWR DC - 18 GHz $\leq 1.07 + 0.02 \cdot f$ (GHz)

17	H+S type Item no.	33_BMA-SMA-50-1/199_UE 22645644
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BMA
SMA

plug (m)
jack (f)



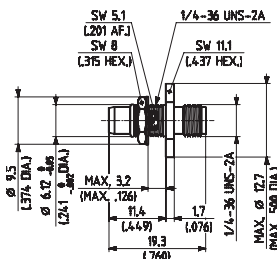
Material stainless steel

VSWR DC - 18 GHz $\leq 1.06 + 0.009 \cdot f$ (GHz)

17	H+S type Item no.	36_BMA-SMA-50-1/199_UE 22645651
----	----------------------	------------------------------------

BMA
SMA

plug (m)
jack (f)



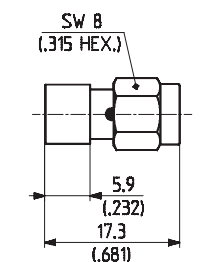
Material stainless steel
Mounting hole ML 56

VSWR DC - 18 GHz $\leq 1.03 + 0.015 \cdot f$ (GHz)

17	H+S type Item no.	33_SMA-BMA-50-1/1-9_UE 22645645
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SMA
BMA

plug (m)
jack (f)



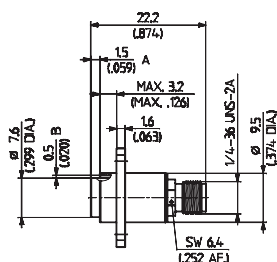
Material stainless steel

VSWR DC - 18 GHz $\leq 1.06 + 0.009 \cdot f$ (GHz)

17	H+S type Item no.	37_BMA-SMA-50-1/1--_UE 22645649
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BMA
SMA

jack (f)
jack (f)



Material stainless steel
Mounting hole ML 58

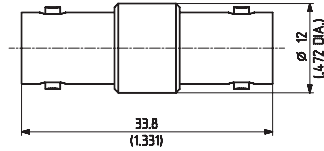
VSWR DC - 9 GHz $\leq 1.07 + 0.017 \cdot f$ (GHz)
9 - 18 GHz ≤ 1.22

Introduction and general information on page 397 and 398/399.

Adaptors

24	H+S type Item no.	31_BNC-50-0-1/133_NE 22540540
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BNC jack (f) 2 x



Material brass/SUCO

VSWR DC - 4 GHz $\leq 1.06 + 0.04 \cdot f(\text{GHz})$

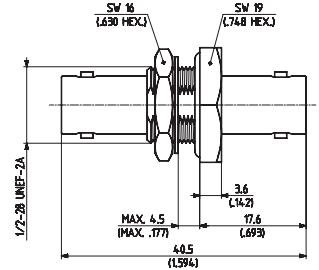
24	H+S type Item no.	34_BNC-50-0-6/100_NE 22540631
----	----------------------	----------------------------------

BNC jack (f) 2 x

Hermetic sealed

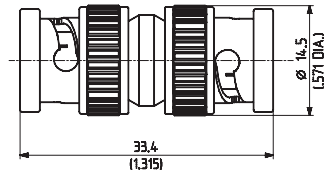
Material CuBe/silver
Mounting hole ML 4

VSWR DC - 4 GHz ≤ 1.43



24	H+S type Item no.	32_BNC-50-0-1/133_NE 22540565
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BNC plug (m) 2 x



Material brass/SUCO

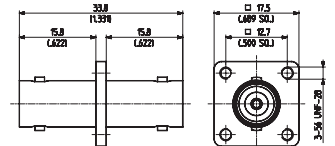
VSWR DC - 4 GHz $\leq 1.06 + 0.04 \cdot f(\text{GHz})$

24	H+S type Item no.	37_BNC-50-0-1/133_NE 22540635
----	----------------------	----------------------------------

BNC jack (f) 2 x

Material brass/SUCO
Mounting hole ML 10

VSWR DC - 4 GHz $\leq 1.06 + 0.04 \cdot f(\text{GHz})$

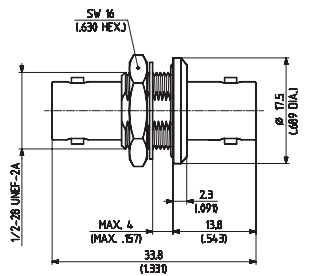


24	H+S type Item no.	34_BNC-50-0-1/133_NE 22540627
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BNC jack (f) 2 x

Material brass/SUCO
Mounting hole ML 4

VSWR DC - 1.5 GHz ≤ 1.04
1.5 - 4 GHz $\leq 1.08 + 0.10 \cdot f(\text{GHz})$

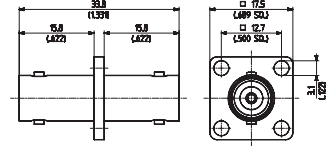


24	H+S type Item no.	37_BNC-50-0-2/133_NE 22540638
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BNC jack (f) 2 x

Material brass/SUCO
Mounting hole ML 10

VSWR DC - 4 GHz $\leq 1.06 + 0.04 \cdot f(\text{GHz})$



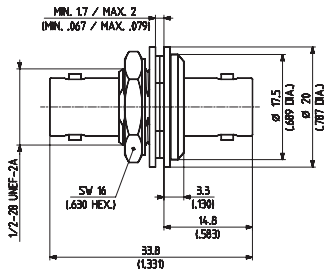
24	H+S type Item no.	34_BNC-50-0-2/133_NE 22540629
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BNC jack (f) 2 x

For insulated mounting

Material brass/SUCO
Mounting hole ML 22

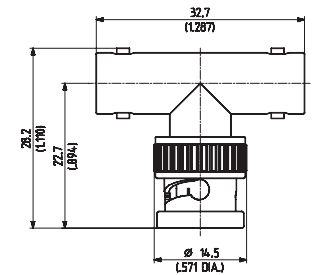
VSWR DC - 1.5 GHz ≤ 1.04
1.5 - 4 GHz $\leq 1.08 + 0.10 \cdot f(\text{GHz})$



24	H+S type Item no.	43_BNC-50-0-1/133_NE 22540644
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BNC jack (f) 2 x
plug (m) 1 x

Material brass/SUCO

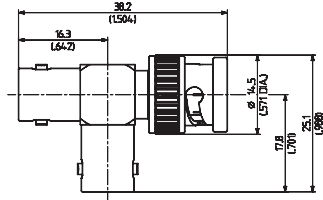


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Adaptors

24	H+S type Item no.	45_BNC-50-0-2/133_NE 22652370
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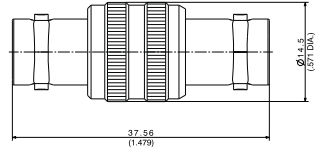
BNC jack (f) 2 x
plug (m) 1 x



Material brass/SUCO

24	H+S type Item no.	31_BNC-75-0-2/133_NE 84119590
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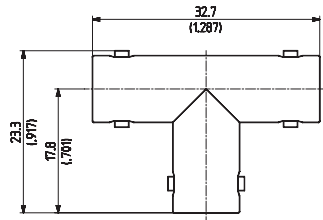
BNC jack (f) 2 x



Material brass/SUCO

24	H+S type Item no.	46_BNC-50-0-1/133_NE 22540649
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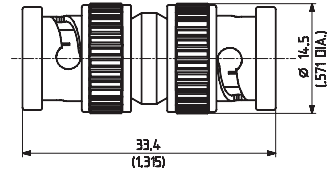
BNC jack (f) 3 x



Material brass/SUCO

24	H+S type Item no.	32_BNC-75-0-1/133_NE 22541016
----	----------------------	----------------------------------

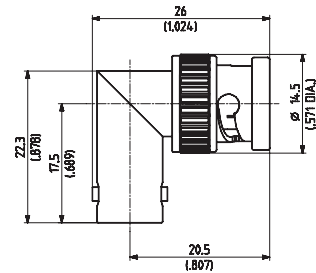
BNC plug (m) 2 x



Material brass/SUCO

24	H+S type Item no.	53_BNC-50-0-1/133_NE 22540657
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BNC plug (m) 1 x
jack (f) 1 x

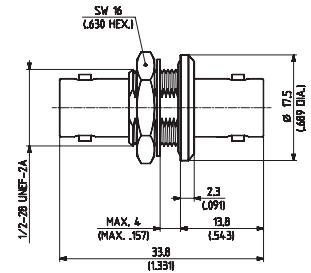


Material brass/SUCO

VSWR DC - 4 GHz $\leq 1.06 + 0.04 \cdot f(\text{GHz})$

24	H+S type Item no.	34_BNC-75-0-1/133_NE 22541040
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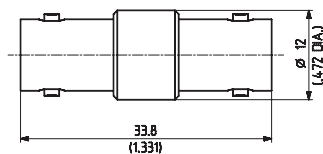
BNC jack (f) 2 x



Material brass/SUCO
Mounting hole ML 4

24	H+S type Item no.	31_BNC-75-0-1/133_NE 22541003
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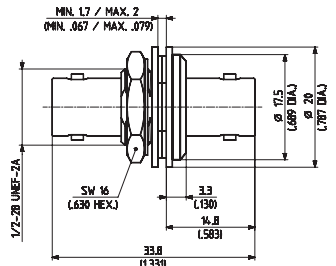
BNC jack (f) 2 x



Material brass/SUCO

24	H+S type Item no.	34_BNC-75-0-2/133_NE 22541042
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BNC jack (f) 2 x



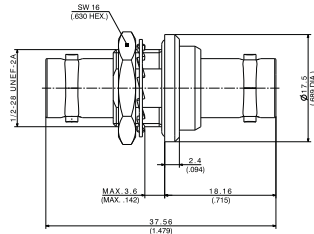
For insulated mounting
Material brass/SUCO
Mounting hole ML 22

Introduction and general information on page 397 and 398/399.

Adaptors

24 H+S type
Item no. 34_BNC-75-0-5/133_NE
84095130

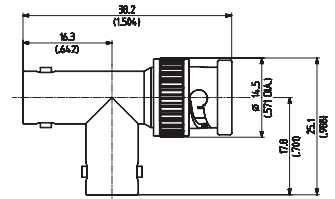
BNC jack (f) 2 x



Material brass/SUCO
Mounting hole ML 4

24 H+S type
Item no. 45_BNC-75-0-1/133_NE
22541050

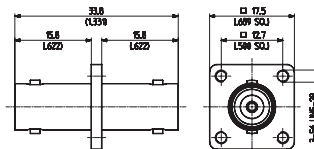
BNC jack (f) 2 x
plug (m) 1 x



Material brass/SUCO

24 H+S type
Item no. 37_BNC-75-0-1/133_NE
22541045

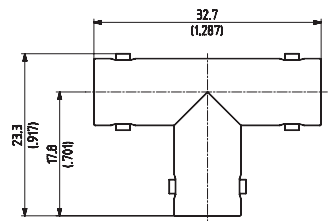
BNC jack (f) 2 x



Material brass/SUCO
Mounting hole ML 10
Flange 4 threads

24 H+S type
Item no. 46_BNC-75-0-1/133_NE
22541053

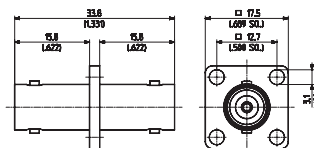
BNC jack (f) 3 x



Material brass/SUCO

24 H+S type
Item no. 37_BNC-75-0-2/133_NE
22541047

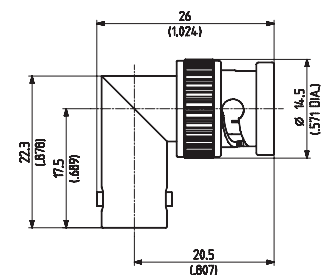
BNC jack (f) 2 x



Material brass/SUCO
Mounting hole ML 10
Flange 4 holes

24 H+S type
Item no. 53_BNC-75-0-1/133_NE
22541055

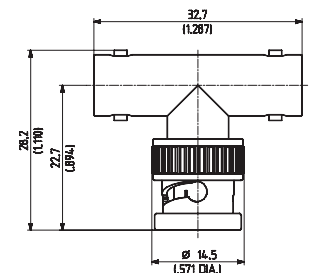
BNC plug (m)
jack (f)



Material brass/SUCO

24 H+S type
Item no. 43_BNC-75-0-1/133_NE
22541049

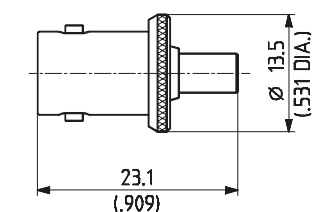
BNC jack (f) 2 x
plug (m) 1 x



Material brass/SUCO

26 H+S type
Item no. 31_BNC-MCX-50-1/1--_UE
22543639

BNC MCX jack (f)
jack (f)

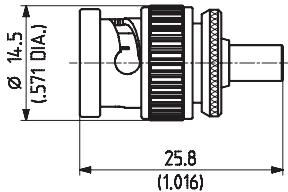


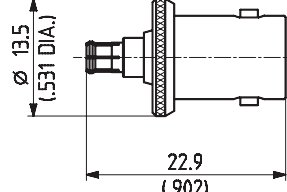
Material BNC brass/SUCO
MCX brass/gold

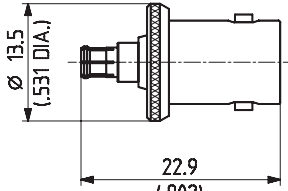
VSWR DC - 2 GHz $\leq 1.03 + 0.13 \cdot f(\text{GHz})$
2 - 4 GHz ≤ 1.29

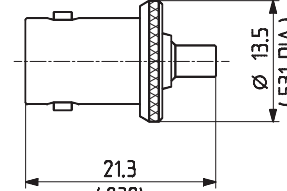
Introduction and general information on page 397 and 398/399.

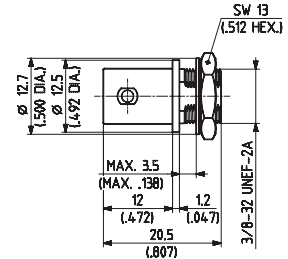
Adaptors

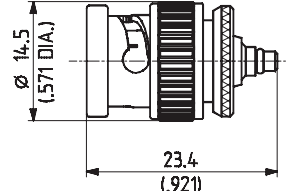
26	H+S type Item no.	33_BNC-MCX-50-1/1--_UE 22543829
BNC MCX	plug (m) jack (f)	
Material BNC MCX	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	≤ 1.20

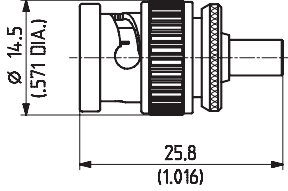
26	H+S type Item no.	33_MCX-BNC-75-1/1--_NE 22649211
MCX BNC	plug (m) jack (f)	
Material MCX BNC	CuBe/gold brass/SUCO	
VSWR	DC - 4 GHz	≤ 1.20

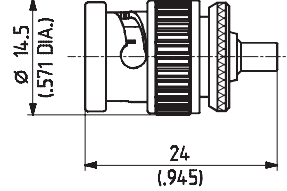
26	H+S type Item no.	33_MCX-BNC-50-1/1--_UE 22543585
MCX BNC	plug (m) jack (f)	
Material MCX BNC	CuBe/gold brass/SUCO	
VSWR:	DC - 1 GHz 1 - 4 GHz	≤ 1.04 ≤ 1.29

28	H+S type Item no.	31_BNC-MMCX-50-1/1--_UE 22645963
BNC MMCX	jack (f) jack (f)	
Material BNC MMCX	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	≤ 1.05 + 0.04 • f (GHz)

26	H+S type Item no.	34_BNC-MCX-50-2/133_UE 22644912
BNC MCX	jack (f) jack (f)	
Material Mounting hole	brass/SUCO ML 2	
VSWR	DC - 4 GHz	≤ 1.03 + 0.04 • f (GHz)

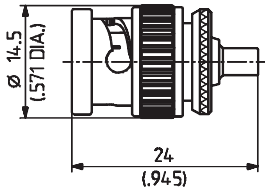
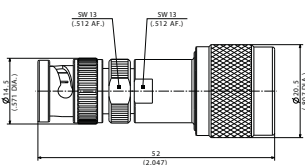
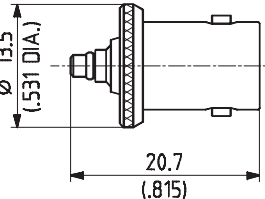
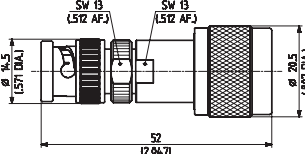
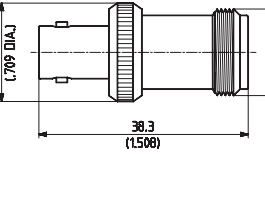
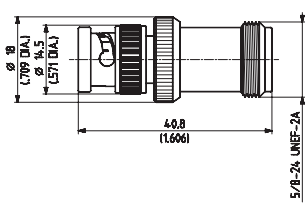
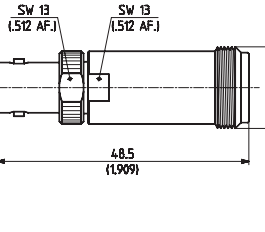
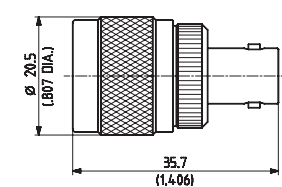
28	H+S type Item no.	32_BNC-MMCX-50-1/1--_UE 22645959
BNC MMCX	plug (m) plug (m)	
Material BNC MMCX	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	≤ 1.03 + 0.05 • f (GHz)

26	H+S type Item no.	33_BNC-MCX-75-1/1--_NE 22649213
BNC MCX	plug (m) jack (f)	
Material BNC MCX	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	≤ 1.20

28	H+S type Item no.	33_BNC-MMCX-50-1/1--_NE 22652907
BNC MMCX	plug (m) jack (f)	
Material BNC MMCX	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	≤ 1.03 + 0.05 • f (GHz)

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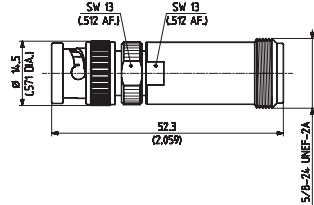
28	H+S type Item no.	33_BNC-MMCX-50-1/1--_UE 22645964	30	H+S type Item no.	32_BNC-N-50-1/133_UE 22540571
BNC MMCX	plug (m) jack (f)		BNC N	plug (m) plug (m)	
Material	brass/SUCO		Material	brass/SUCO	
VSWR	DC - 4 GHz	$\leq 1.05 + 0.025 \cdot f(\text{GHz})$	VSWR	DC - 4 GHz	$\leq 1.06 + 0.4 \cdot f(\text{GHz})$
28	H+S type Item no.	33_MMCX-BNC-50-1/111_UE 22645966	30	H+S type Item no.	32_BNC-N-50-51/1--_UE 22544051
MMCX BNC	plug (m) jack (f)		BNC N	plug (m) plug (m)	
Material MMCX BNC	brass/gold brass/SUCO		Material	stainless steel	
VSWR	DC - 4 GHz	$\leq 1.05 + 0.04 \cdot f(\text{GHz})$	VSWR	DC - 4 GHz	$\leq 1.05 + 0.01 \cdot f(\text{GHz})$
30	H+S type Item no.	31_BNC-N-50-1/133_UE 22540549	30	H+S type Item no.	33_BNC-N-50-1/133_NE 22540608
BNC N	jack (f) jack (f)		BNC N	plug (m) jack (f)	
Material	brass/SUCO		Material	brass/SUCO	
VSWR	DC - 4 GHz	≤ 1.22	VSWR	DC - 4 GHz	$\leq 1.04 + 0.025 \cdot f(\text{GHz})$
30	H+S type Item no.	31_BNC-N-50-51/1--_UE 22544049	30	H+S type Item no.	33_N-BNC-50-1/133_UE 22542414
BNC N	jack (f) jack (f)		N BNC	plug (m) jack (f)	
Material	stainless steel		Material	brass/SUCO	
VSWR	DC - 4 GHz	$\leq 1.05 + 0.01 \cdot f(\text{GHz})$	VSWR	DC - 4 GHz	≤ 1.22

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30 H+S type Item no. 33_BNC-N-50-51/--_UE 22544052

BNC N plug (m) jack (f)

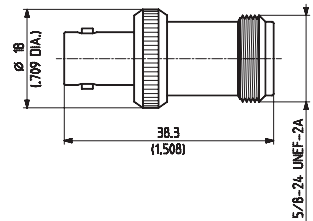


Material stainless steel

VSWR DC - 4 GHz $\leq 1.05 + 0.01 \cdot f(\text{GHz})$

30 H+S type Item no. 31_BNC-N-75-1/133_UE 22543640

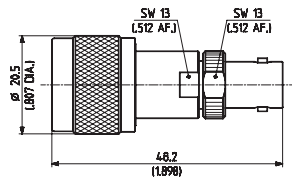
BNC N jack (f) jack (f)



Material brass/SUCO

30 H+S type Item no. 33_N-BNC-50-51/1--_UE 22544050

N BNC plug (m) jack (f)

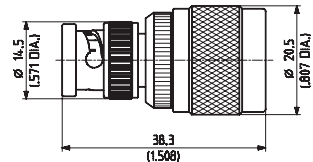


Material stainless steel

VSWR DC - 4 GHz $\leq 1.05 + 0.01 \cdot f(\text{GHz})$

30 H+S type Item no. 32_BNC-N-75-1/133_UE 22541022

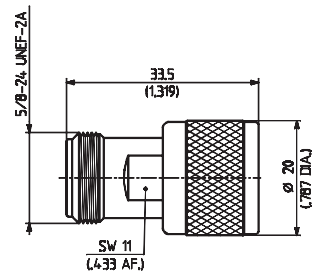
BNC N plug (m) plug (m)



Material brass/SUCO

30 H+S type Item no. 33_BNC-N-Q50-4/133_NE 23003163

BNC N plug (m) quick-mate jack (f)

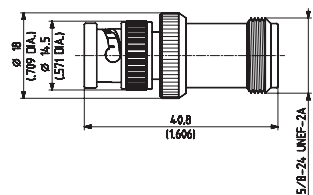


Material brass/SUCO

VSWR DC - 4 GHz ≤ 1.07

30 H+S type Item no. 33_BNC-N-75-1/133_UE 22541034

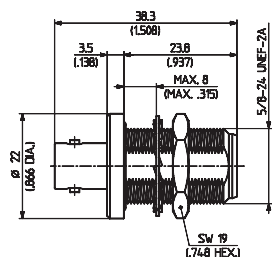
BNC N plug (m) jack (f)



Material brass/SUCO

30 H+S type Item no. 34_BNC-N-50-1/133_UE 22651055

BNC N jack (f) jack (f)

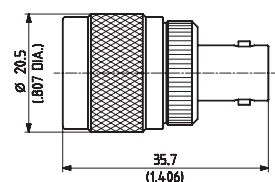


Material brass/SUCO
Mounting hole ML 12

VSWR DC - 4 GHz ≤ 1.22

30 H+S type Item no. 33_N-BNC-75-1/133_UE 22542622

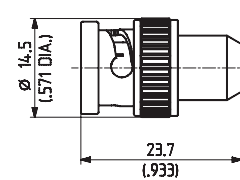
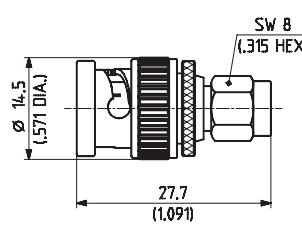
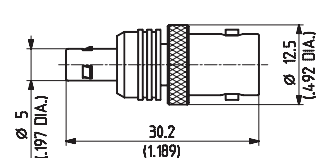
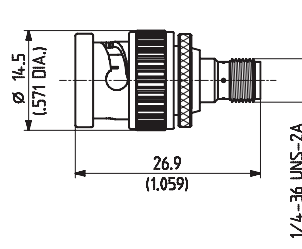
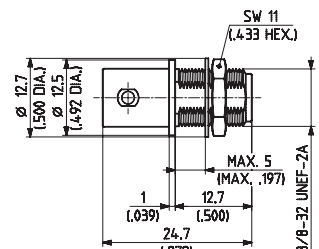
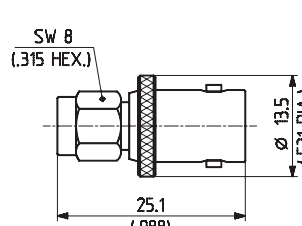
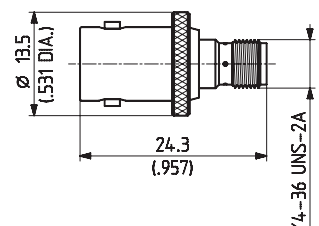
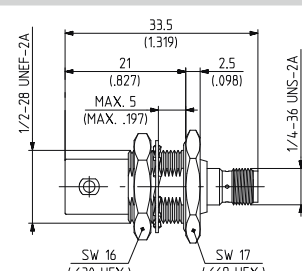
N BNC plug (m) jack (f)



Material brass/SUCO

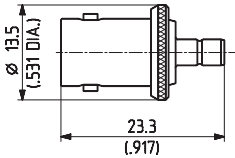
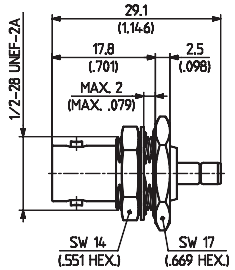
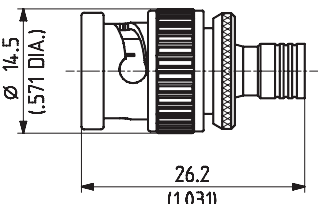
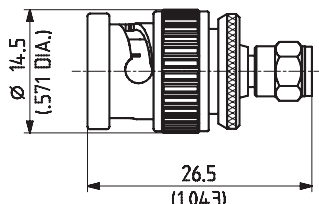
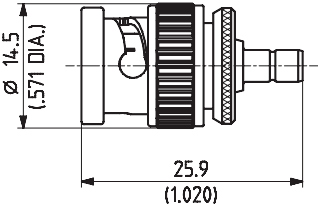
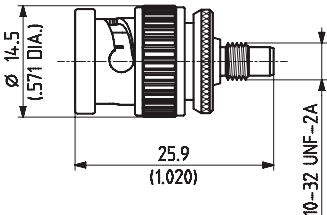
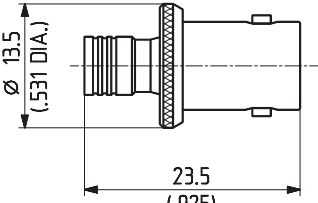
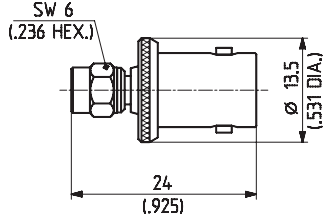
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36	H+S type Item no.	33_BNC-QLA-01-1/1--_NE 22540624	BNC QLA	plug (m) jack (f)		Material BNC QLA	brass/SUCO brass/nickel	39	H+S type Item no.	32_BNC-SMA-50-1/1--_UE 22540572	BNC SMA	plug (m) plug (m)		Material BNC SMA	brass/SUCO CuBe/gold	VSWR	DC - 4 GHz	$\leq 1.03 + 0.03 \cdot f(\text{GHz})$
36	H+S type Item no.	33_QLA-BNC-01-1/1--_NE 22640029	QLA BNC	plug (m) jack (f)		Material QLA BNC	brass/nickel brass/SUCO	39	H+S type Item no.	33_BNC-SMA-50-1/1--_UE 22540610	BNC SMA	plug (m) jack (f)		Material BNC SMA	brass/SUCO CuBe/gold	VSWR	DC - 4 GHz	$\leq 1.03 + 0.03 \cdot f(\text{GHz})$
36	H+S type Item no.	34_BNC-QLA-01-1/1--_UE 22640971	BNC QLA	jack (f) jack (f)		Material Mounting hole	brass/SUCO ML 2	39	H+S type Item no.	33_SMA-BNC-50-1/1--_NE 22640153	SMA BNC	plug (m) jack (f)		Material SMA BNC	CuBe/gold brass/SUCO	VSWR	DC - 4 GHz	$\leq 1.05 - 0.037 \cdot f(\text{GHz})$
39	H+S type Item no.	31_BNC-SMA-50-1/1--_UE 22540551	BNC SMA	jack (f) jack (f)		Material BNC SMA	brass/SUCO CuBe/gold	39	H+S type Item no.	34_BNC-SMA-50-2/1--_UE 22651028	BNC SMA	jack (f) jack (f)		Material BNC SMA Mounting hole	brass/SUCO CuBe/gold ML 4	VSWR	DC - 4 GHz	$\leq 1.06 - 0.03 \cdot f(\text{GHz})$

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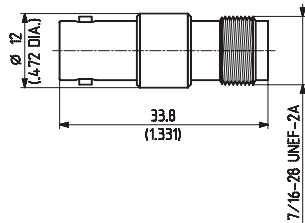
40	H+S type Item no.	31_BNC-SMB-50-2/1--_UE 22540553	40	H+S type Item no.	34_BNC-SMB-50-1/133_NE 22659005
BNC SMB	jack (f) jack (f)		BNC SMB	jack (f) jack (f)	
Material BNC SMB	brass/SUCO brass/gold		Material Mounting hole	brass/SUCO ML 4	
VSWR	DC - 2 GHz 2 - 4 GHz:	$\leq 1.03 + 0.095 \cdot f(\text{GHz})$ ≤ 1.22	VSWR	DC - 2 GHz 2 - 4 GHz:	≤ 1.065 ≤ 1.33
40	H+S type Item no.	32_BNC-SMB-50-2/1--_UE 22540574	41	H+S type Item no.	32_BNC-SMC-50-2/1--_NE 22540576
BNC SMB	plug (m) plug (m)		BNC SMC	plug (m) plug (m)	
Material BNC SMB	brass/SUCO brass/gold		Material BNC SMC	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	≤ 1.12	VSWR	DC - 4 GHz	≤ 1.15
40	H+S type Item no.	33_BNC-SMB-50-2/1--_UE 22540612	41	H+S type Item no.	33_BNC-SMC-50-2/1--_NE 22540616
BNC SMB	plug (m) jack (f)		BNC SMC	plug (m) jack (f)	
Material BNC SMB	brass/SUCO brass/gold		Material BNC SMC	brass/SUCO brass/gold	
VSWR	DC - 4 GHz	$\leq 1.06 + 0.04 \cdot f(\text{GHz})$	VSWR	DC - 4 GHz	≤ 1.22
40	H+S type Item no.	33_SMB-BNC-50-2/1--_UE 22640396	41	H+S type Item no.	33_SMC-BNC-50-2/1--_NE 22640405
SMB BNC	plug (m) jack (f)		SMC BNC	plug (m) jack (f)	
Material SMB BNC	brass/gold brass/SUCO		Material SMC BNC	brass/gold brass/SUCO	
VSWR	DC - 4 GHz	$\leq 1.05 + 0.075 \cdot f(\text{GHz})$	VSWR	DC - 2 GHz 2 - 4 GHz	$\leq 1.03 + 0.095 \cdot f(\text{GHz})$ ≤ 1.22

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43 H+S type Item no. 31_BNC-TNC-50-1/133_UE 22540559

BNC jack (f)
TNC jack (f)

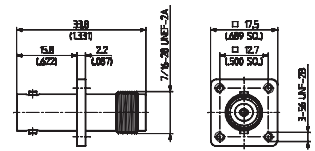


Material brass/SUCO

VSWR DC - 4 GHz ≤ 1.22

43 H+S type Item no. 37_BNC-TNC-50-1/133_UE 22540639

BNC jack (f)
TNC jack (f)

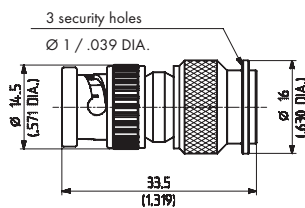


Material brass/SUCO
Mounting hole ML 10

VSWR DC - 4 GHz ≤ 1.22

43 H+S type Item no. 32_BNC-TNC-50-1/133_NE 22540582

BNC plug (m)
TNC plug (m)

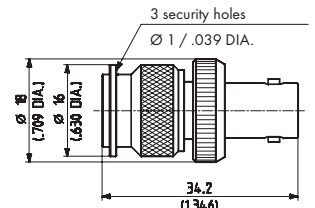


Material brass/SUCO

VSWR DC - 4 GHz ≤ 1.22

43 H+S type Item no. 33_TNC-BNC-75-1/133_UE 22640759

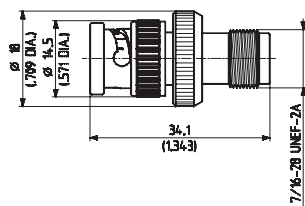
TNC plug (m)
BNC jack (f)



Material

43 H+S type Item no. 33_BNC-TNC-50-1/133_NE 22540614

BNC plug (m)
TNC jack (f)

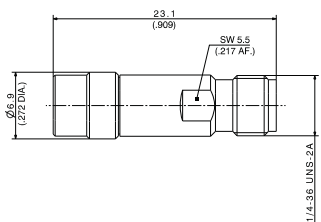


Material brass/SUCO

VSWR DC - 4 GHz ≤ 1.22

60 H+S type Item no. 31_MBX-SMA-50-1/111_NE 84093625

MBX SMA jack (f)
jack (f)

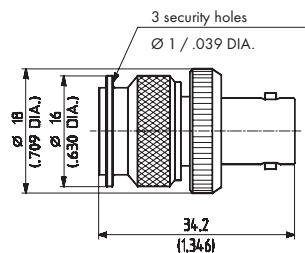


Material brass/SUCO

VSWR DC - 6 GHz ≤ 1.083

43 H+S type Item no. 33_TNC-BNC-50-1/133_NE 22640631

TNC plug (m)
BNC jack (f)

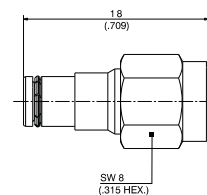


Material brass/SUCO

VSWR DC - 4 GHz ≤ 1.22

60 H+S type Item no. 32_MBX-SMA-50-1/111_NE 84093642

MBX SMA plug (m)
plug (m)



Material brass/SUPR

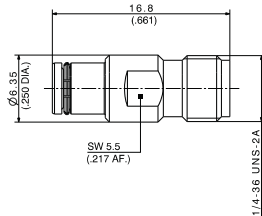
VSWR DC - 6 GHz ≤ 1.083

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60 H+S type
Item no. 33_MBX-SMA-50-1/111_NE
84093656

MBX
SMA plug (m)
jack (f)

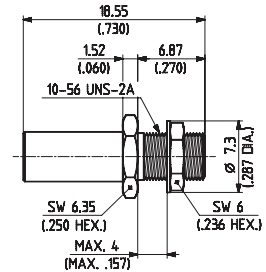


Material brass/SUPR

VSWR DC - 6 GHz ≤ 1.083

67 H+S type
Item no. 34_MCX-50-0-2/111_NE
22649868

MCX jack (f) 2 x

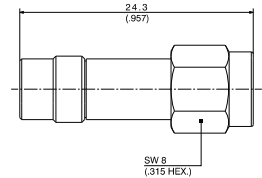


Material brass/gold
Mounting hole ML 35

VSWR DC - 1.5 GHz ≤ 1.06
1.5 - 6 GHz ≤ 1.22

60 H+S type
Item no. 33_SMA-MBX-50-1/11-NE
84093662

SMA
MBX plug (m)
jack (f)

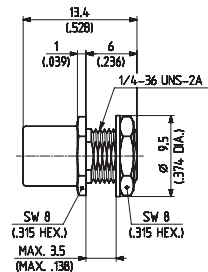


Material brass/SUPR

VSWR DC - 6 GHz ≤ 1.083

67 H+S type
Item no. 34_MCX-75-0-1/111_NE
22649382

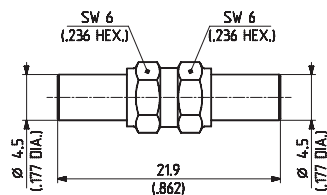
MCX jack (f) 2 x



Material brass/gold
Mounting hole ML 35

67 H+S type
Item no. 31_MCX-50-0-1/111_NE
22543558

MCX jack (f) 2 x

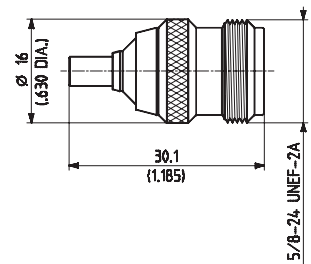


Material brass/gold

VSWR DC - 1 GHz ≤ 1.05
1 - 6 GHz ≤ 1.22

71 H+S type
Item no. 31_MCX-N-50-1/1--_UE
22640172

MCX N jack (f)
jack (f)

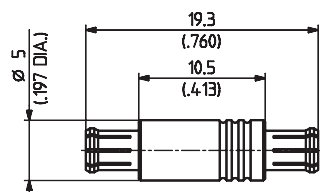


Material MCX N
brass/gold
brass/SUCO

VSWR DC - 6 GHz $\leq 1.03 + 0.05 \cdot f$ (GHz)

67 H+S type
Item no. 32_MCX-50-0-3/111_NE
22653002

MCX plug (m) 2 x

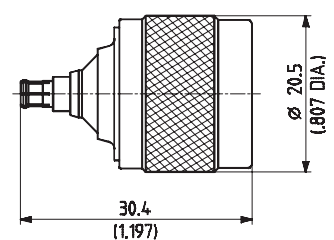


Material brass/gold

VSWR DC - 1.5 GHz ≤ 1.06
1.5 - 6 GHz ≤ 1.22

71 H+S type
Item no. 32_MCX-N-50-1/1--_UE
22543584

MCX N plug (m)
plug (m)

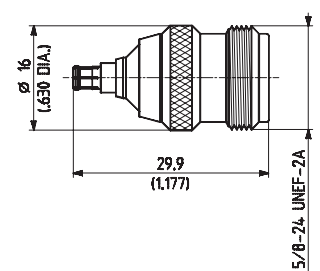


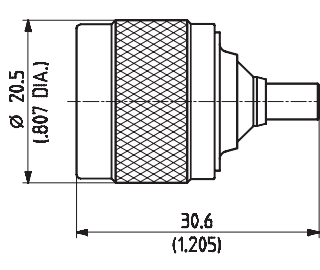
Material MCX N
CuBe/gold
brass/SUCO

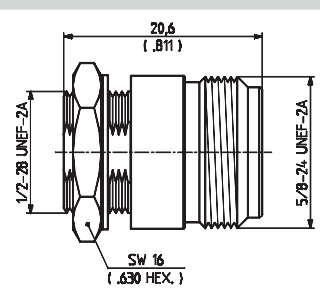
VSWR DC - 6 GHz $\leq 1.03 + 0.05 \cdot f$ (GHz)

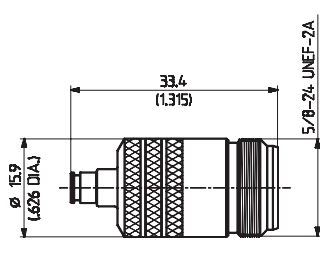
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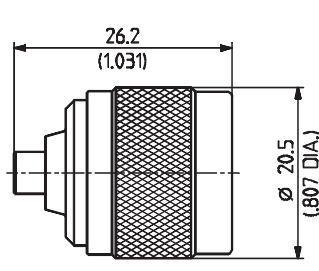
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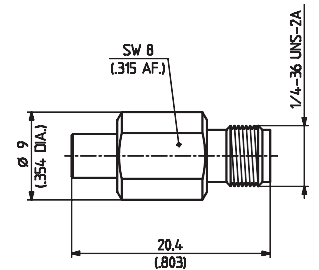
71	H+S type Item no.	33_MCX-N-50-1/1--_UE 22543586
MCX N	plug (m) jack (f)	
Material MCX N	CuBe/gold brass/SUCO	
VSWR	DC - 6 GHz	$\leq 1.03 + 0.035 \cdot f(\text{GHz})$

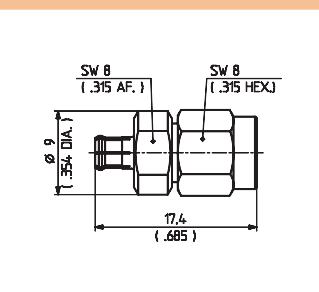
71	H+S type Item no.	33_N-MCX-50-1/1--_UE 22543796
N MCX	plug (m) jack (f)	
Material N MCX	brass/SUCO brass/gold	
VSWR	DC - 6 GHz	$\leq 1.03 + 0.03 \cdot f(\text{GHz})$

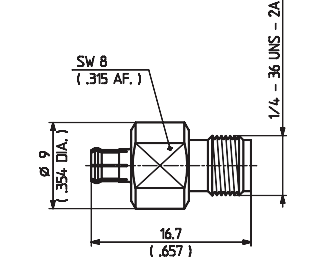
71	H+S type Item no.	34_MCX-N-50-1/133_UE 22646217
MCX N	jack (f) jack (f)	
Material Mounting hole	brass/SUCO ML 4	
VSWR	DC - 6 GHz	$\leq 1.03 + 0.03 \cdot f(\text{GHz})$

71	H+S type Item no.	31_MCX-N-75-10/133_NE 22651488
MCX N	jack (f) jack (f)	
Material MCX N	CuBe/SUCO brass/SUCO	
VSWR	DC - 3 GHz	≤ 1.07

71	H+S type Item no.	33_N-MCX-75-1/1--_NE 22649214
N MCX	plug (m) jack (f)	
Material N MCX	brass/SUCO brass/gold	

75	H+S type Item no.	31_MCX-PC35-50-1/111_NE 22651593
MCX PC3.5	jack (f) jack (f)	
Material	CuBe/SUPR	
VSWR	DC - 3 GHz 3 - 6 GHz:	≤ 1.065 ≤ 1.09

75	H+S type Item no.	32_MCX-PC35-50-1/111_NE 22651600
MCX PC3.5	plug (m) plug (m)	
Material	CuBe/SUPR	
VSWR	DC - 3.5 GHz: 3.5 - 6 GHz:	≤ 1.07 ≤ 1.09

75	H+S type Item no.	33_MCX-PC35-50-1/111_NE 22651594
MCX PC3.5	plug (m) jack (f)	
Material	CuBe/SUPR	
VSWR	DC - 3.5 GHz 3.5 - 6 GHz:	≤ 1.065 ≤ 1.094

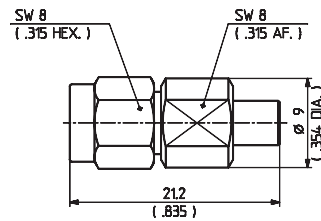
Introduction and general information on page 397 and 398/399.

Adaptors

75	H+S type Item no.	33_PC35-MCX-50-1/111_NE 22651599
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PC3.5
MCX

plug (m)
jack (f)



Material

CuBe/SUPR

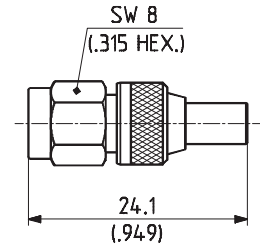
VSWR

DC - 3.5 GHz ≤ 1.065
3.5 - 6 GHz ≤ 1.094

80	H+S type Item no.	33_SMA-MCX-50-1/111_NE 22645488
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SMA
MCX

plug (m)
jack (f)



Material
SMA
MCX

CuBe/gold
brass/gold

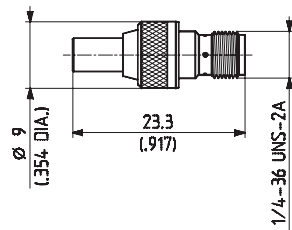
VSWR

DC - 6 GHz $\leq 1.03 + 0.03 \cdot f(\text{GHz})$

80	H+S type Item no.	31_MCX-SMA-50-1/111_NE 22645485
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MCX
SMA

jack (f)
jack (f)



Material
MCX
SMA

brass/gold
CuBe/gold

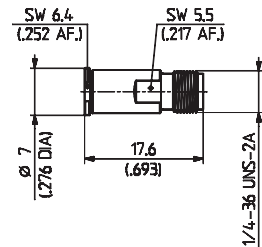
VSWR

DC - 6 GHz $\leq 1.03 + 0.03 \cdot f(\text{GHz})$

99	H+S type Item no.	31_MMBX-SMA-50-1/111_NE 23004933
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MMBX
SMA

jack (f)
jack (f)



Material
MMBX
SMA

brass/SUPR
CuBe/SUPR

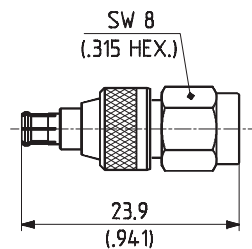
VSWR

DC - 2.5 GHz ≤ 1.05
2.5 - 6 GHz ≤ 1.06
6 - 12.4 GHz ≤ 1.35

80	H+S type Item no.	32_MCX-SMA-50-1/111_NE 22645486
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MCX
SMA

plug (m)
plug (m)



Material
MCX
SMA

brass/gold
CuBe/gold

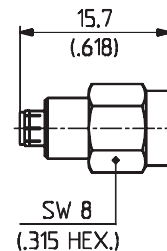
VSWR

DC - 6 GHz $\leq 1.03 + 0.03 \cdot f(\text{GHz})$

99	H+S type Item no.	32_MMBX-SMA-50-1/119_NE 23004934
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MMBX
SMA

plug (m)
plug (m)



Material

CuBe/SUPR

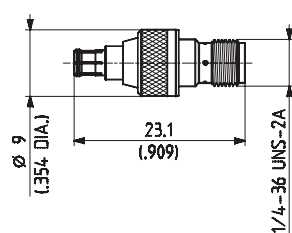
VSWR

DC - 2.5 GHz ≤ 1.05
2.5 - 6 GHz ≤ 1.06
6 - 12.4 GHz ≤ 1.35

80	H+S type Item no.	33_MCX-SMA-50-1/111_UE 22645487
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MCX
SMA

plug (m)
jack (f)



Material

CuBe/gold

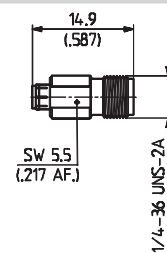
VSWR

DC - 6 GHz $\leq 1.03 + 0.03 \cdot f(\text{GHz})$

99	H+S type Item no.	33_MMBX-SMA-50-1/111_NE 23004937
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MMBX
SMA

plug (m)
jack (f)



Material

CuBe/SUPR

VSWR

DC - 2.5 GHz ≤ 1.05
2.5 - 6 GHz ≤ 1.06
6 - 12.4 GHz ≤ 1.35

Introduction and general information on page 397 and 398/399.

Adaptors

99 H+S type Item no. 33_SMA-MMBX-50-1/119_NE 23004935

SMA MMBX plug (m) jack (f)

Material SMA CuBe/SUPR MMBX brass/SUPR

VSWR DC - 2.5 GHz ≤ 1.05
2.5 - 6 GHz ≤ 1.06
6 - 12.4 GHz ≤ 1.35

117 H+S type Item no. 31_MMCX-SMA-50-1/111_OE 22645961

MMCX SMA jack (f) jack (f)

Material MMCX SMA brass/gold CuBe/SUPR

VSWR DC - 2.5 GHz ≤ 1.10
2.5 - 6 GHz ≤ 1.18

103 H+S type Item no. 34_MMBX-TNC-50-1/1-3_NE 23014297

MMBX TNC jack (f) jack (f)

Material brass/SUCO

VSWR DC - 5 GHz ≤ 1.3

117 H+S type Item no. 31_MMCX-SMA-50-2/111_NE 22658201

MMCX SMA jack (f) jack (f)

Material CuBe/SUPR

VSWR DC - 3.5 GHz: ≤ 1.07
3.5 - 6 GHz ≤ 1.09

106 H+S type Item no. 31_MMCX-50-0-1/111_OE 22645960

MMCX plug (f) 2 x plug (m)

Material brass/gold

VSWR DC - 3 GHz ≤ 1.10
3 - 6 GHz ≤ 1.28

117 H+S type Item no. 32_MMCX-SMA-50-1/111_OE 22645967

MMCX SMA plug (m) plug (m)

Material MMCX SMA brass/gold CuBe/gold

VSWR DC - 2.5 GHz ≤ 1.10
2.5 - 6 GHz ≤ 1.18

106 H+S type Item no. 34_MMCX-50-0-1/111_OE 22650516

MMCX jack (f) 2 x

Material brass/gold Mounting hole ML 88

VSWR DC - 1.5 GHz: ≤ 1.06
1.5 - 6 GHz ≤ 1.22

117 H+S type Item no. 32_MMCX-SMA-50-2/111_NE 22658202

MMCX SMA plug (m) plug (m)

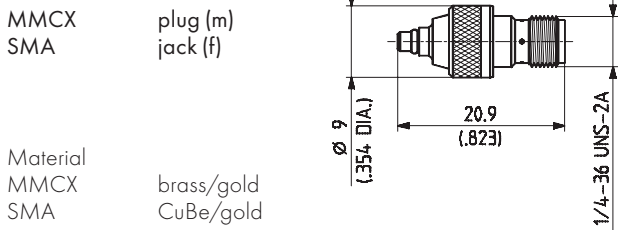
Material CuBe/SUPR

VSWR DC - 3.5 GHz ≤ 1.07
3.5 - 6 GHz ≤ 1.09

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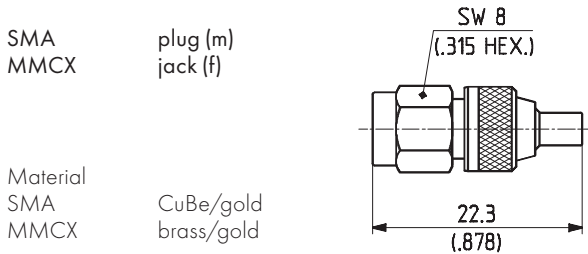
Adaptors

117	H+S type Item no.	33_MMCX-SMA-50-1/111_UE 22645970
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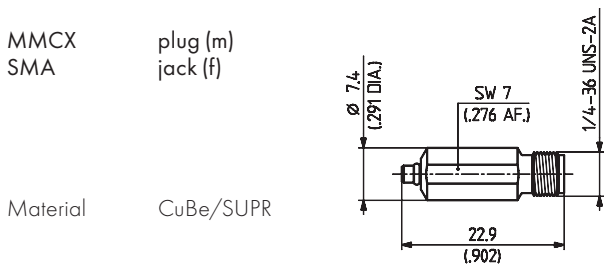
VSWR DC - 2.5 GHz ≤ 1.10
2.5 - 6 GHz ≤ 1.18

117	H+S type Item no.	33_SMA-MMCX-50-1/111_NE 22645969
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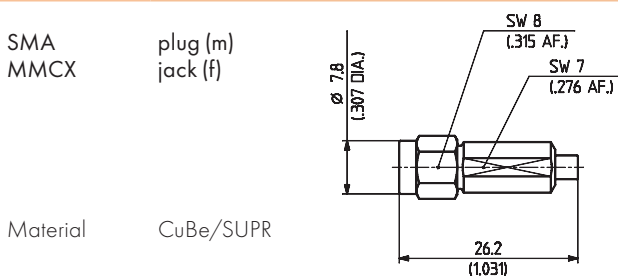
VSWR DC - 2.5 GHz ≤ 1.10
2.5 - 6 GHz ≤ 1.18

117	H+S type Item no.	33_MMCX-SMA-50-2/111_NE 22658203
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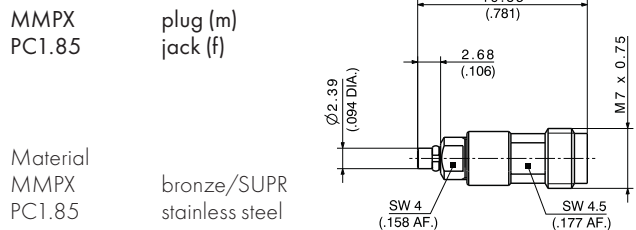
VSWR DC - 3.5 GHz ≤ 1.065
3.5 - 6 GHz ≤ 1.094

117	H+S type Item no.	33_SMA-MMCX-50-2/111_NE 22658204
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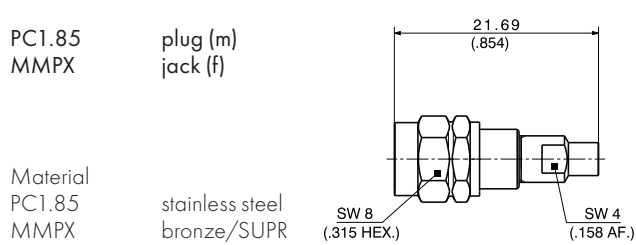
VSWR DC - 3.5 GHz ≤ 1.065
3.5 - 6 GHz ≤ 1.094

126	H+S type Item no.	33_MMPX-PC185-50-1/111_NE 84004922
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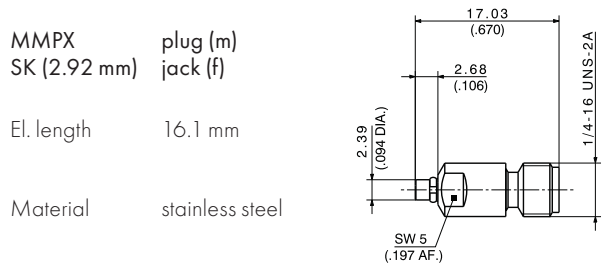
VSWR DC - 26.5 GHz ≤ 1.173
26.5 - 67 GHz ≤ 1.433

126	H+S type Item no.	33_PC185-MMPX-50-1/111_NE 84004935
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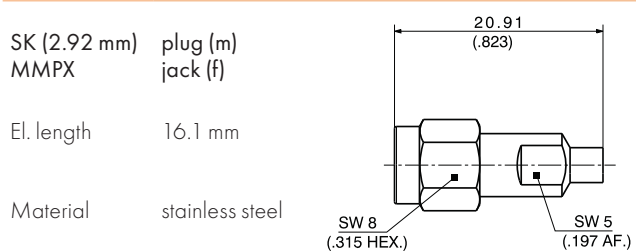
VSWR DC - 26.5 GHz ≤ 1.173
26.5 - 67 GHz ≤ 1.433

128	H+S type Item no.	33_MMPX-SK-50-1/199_NE 84071648
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VSWR DC - 15 GHz: ≤ 1.105
15 - 30 GHz ≤ 1.152
30 - 40 GHz ≤ 1.222

128	H+S type Item no.	33_SK-MMPX-50-1/199_NE 84071696
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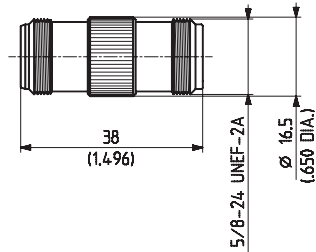
VSWR DC - 15 GHz ≤ 1.105
15 - 30 GHz ≤ 1.152
30 - 40 GHz ≤ 1.222

Introduction and general information on page 397 and 398/399.

Adaptors

141	H+S type Item no.	31_N-50-0-2/133_NE 22542382
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N jack (f) 2 x

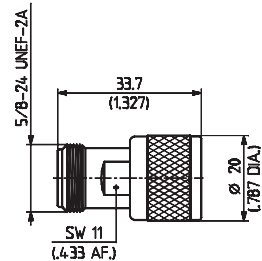


Material brass/SUCO

VSWR DC - 2 GHz ≤ 1.07
2 - 8 GHz ≤ 1.43
8 - 12.4 GHz ≤ 1.92

141	H+S type Item no.	33_N-Q50-0-4/133_NE 22660297
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N plug (m)
quick-mate
jack (f)

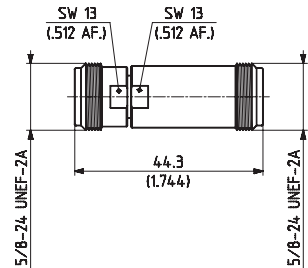


Material brass/SUCO

VSWR DC - 5 GHz ≤ 1.07
5 - 8 GHz ≤ 1.22
8 - 11 GHz ≤ 1.28

141	H+S type Item no.	31_N-50-0-51/199_NE 22652112
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N jack (f) 2 x

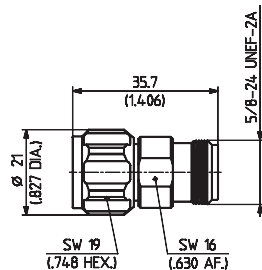


Material stainless steel

VSWR DC - 18 GHz $\leq 1.03 + 0.01 \cdot f(\text{GHz})$

141	H+S type Item no.	33_N-50-0-7/133_NE 23014355
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N plug (m) 1 x
jack (f) 1 x

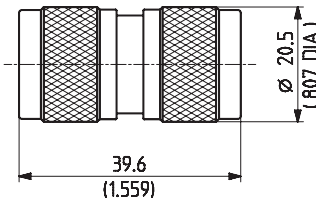


Material brass/SUCO

VSWR DC - 18 GHz $\leq 1.03 + 0.05 \cdot f(\text{GHz})$

141	H+S type Item no.	32_N-50-0-1/133_NE 22542398
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N plug (m) 2 x

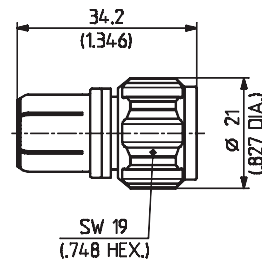


Material brass/SUCO

VSWR DC - 9 GHz $\leq 1.06 + 0.04 \cdot f(\text{GHz})$
9 - 12 GHz ≤ 1.40

141	H+S type Item no.	33_N-Q50-0-14/133_NE 23003160
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N plug (m)
quick-mate
jack (f)

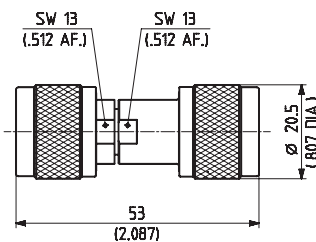


Material brass/SUCO

VSWR DC - 4 GHz ≤ 1.12
4 - 8 GHz ≤ 1.22

141	H+S type Item no.	32_N-50-0-51/193_NE 22652113
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N plug (m) 2 x

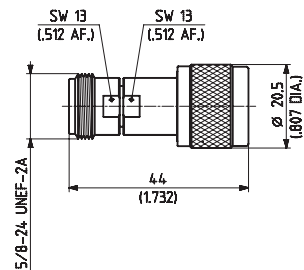


Material stainless steel

VSWR DC - 18 GHz $\leq 1.03 + 0.01 \cdot f(\text{GHz})$

141	H+S type Item no.	33_N-50-0-51/193_NE 22652114
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N plug (m)
jack (f)



Material stainless steel

VSWR DC - 18 GHz $\leq 1.03 + 0.01 \cdot f(\text{GHz})$

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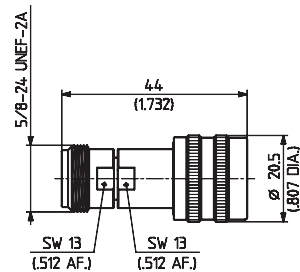
Adaptors

141	H+S type Item no.	33_N-50-0-52/199_UE 22648921
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N plug (m)
jack (f)

Quick-screw (male side)

Material stainless steel

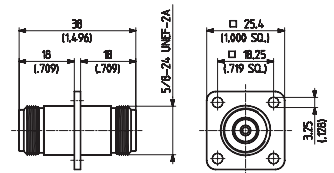


VSWR DC - 18 GHz $\leq 1.03 + 0.01 \cdot f(\text{GHz})$

141	H+S type Item no.	37_N-50-0-1/133_NE 22542437
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N jack (f) 2 x

Material brass/SUCO
Mounting hole ML 14

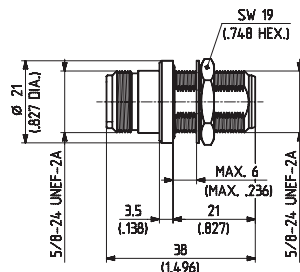


VSWR DC - 12.4 GHz $\leq 1.19 + 0.06 \cdot f(\text{GHz})$

141	H+S type Item no.	34_N-50-0-1/133_NE 22542435
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N jack (f) 2 x

Material brass/SUCO
Mounting hole ML 12

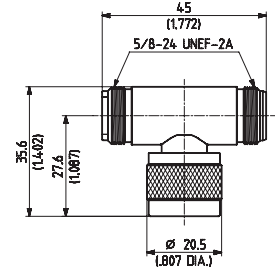


VSWR DC - 12.4 GHz $\leq 1.06 + 0.17 \cdot f(\text{GHz})$

141	H+S type Item no.	43_N-50-0-1/133_NE 22542442
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N jack (f) 2 x
plug (m) 1 x

Material brass/SUCO

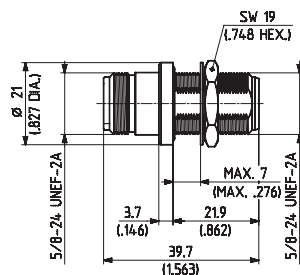


141	H+S type Item no.	34_N-50-0-3/133_NE 22642946
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N jack (f) 2 x

Hermetic sealed

Material brass/SUCO
Mounting hole ML 12

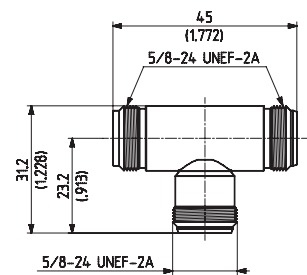


VSWR DC - 11 GHz $\leq 1.08 + 0.13 \cdot f(\text{GHz})$

141	H+S type Item no.	46_N-50-0-1/133_NE 22542445
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N jack (f) 3 x

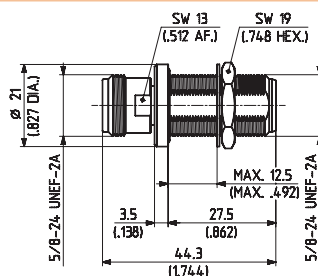
Material brass/SUCO



141	H+S type Item no.	34_N-50-0-51/193_NE 22544593
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N jack (f) 2 x

Material stainless steel
Mounting hole ML 12

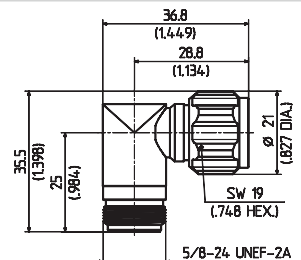


VSWR DC - 18 GHz $\leq 1.03 + 0.01 \cdot f(\text{GHz})$

141	H+S type Item no.	53_N-50-0-4/133_NE 22651447
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N plug (m)
jack (f)

Material brass/SUCO



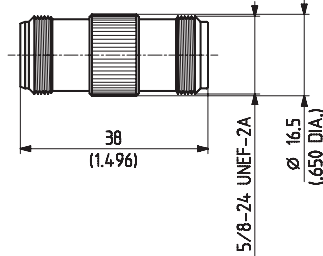
VSWR DC - 2 GHz ≤ 1.08
2 - 6 GHz ≤ 1.22
6 - 8 GHz ≤ 1.29

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Adaptors

141 H+S type
Item no. 31_N-75-0-2/133_NE
22542612

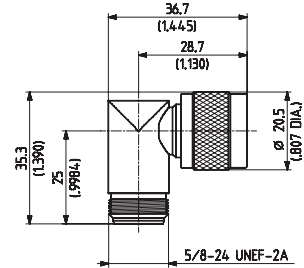
N jack (f) 2 x



Material brass/SUCO

141 H+S type
Item no. 53_N-75-0-4/133_NE
22651799

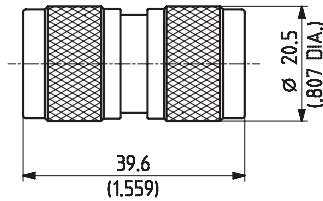
N plug (m)
jack (f)



Material brass/SUCO

141 H+S type
Item no. 32_N-75-0-1/133_NE
22542618

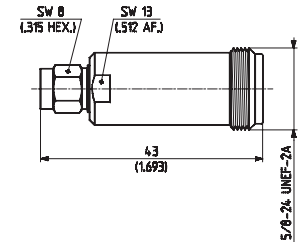
N plug (m) 2 x



Material brass/SUCO

143 H+S type
Item no. 33_PC24-N-50-1/199_UE
22650021

PC2.4 N plug (m)
jack (f)

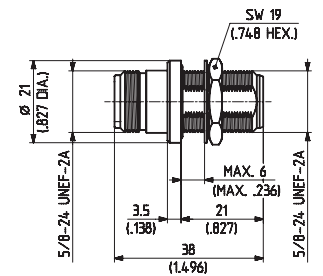


Material stainless steel

VSWR DC - 10 GHz ≤ 1.05
10 - 18 GHz ≤ 1.08

141 H+S type
Item no. 34_N-75-0-1/133_NE
22542631

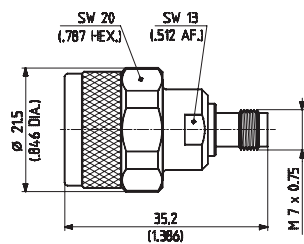
N jack (f) 2 x



Material brass/SUCO
Mounting hole ML 12

143 H+S type
Item no. 33_N-PC24-50-1/199_UE
22649932

N PC2.4 plug (m)
jack (f)

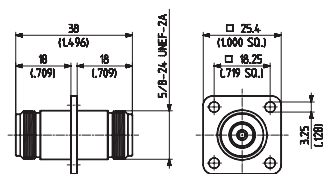


Material stainless steel

VSWR DC - 10 GHz ≤ 1.05
10 - 18 GHz ≤ 1.08

141 H+S type
Item no. 37_N-75-0-1/133_NE
22542633

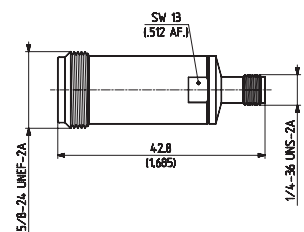
N jack (f) 2 x



Material brass/SUCO
Mounting hole ML 14

145 H+S type
Item no. 31_N-PC35-50-1/1--_UE
22643960

N PC3.5 jack (f)
jack (f)



Material stainless steel

VSWR DC - 12.4 GHz ≤ 1.10
12.4 - 18 GHz ≤ 1.15

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Adaptors

145 H+S type Item no. 32_N-PC35-50-1/1--_UE 22643957

N PC3.5 plug (m) plug (m)

Material stainless steel

VSWR DC - 12.4 GHz ≤ 1.10
12.4 - 18 GHz ≤ 1.15

146 H+S type Item no. 32_N-PC7-50-1/1--_UE 22543571

N PC7 plug (m)

Material N stainless steel
PC7 brass/gold

VSWR DC - 18 GHz $\leq 1.02 + 0.002 \cdot f(\text{GHz})$

145 H+S type Item no. 33_N-PC35-50-1/1--_UE 22643959

N PC3.5 plug (m) jack (f)

Material stainless steel

VSWR DC - 12.4 GHz ≤ 1.10
12.4 - 18 GHz ≤ 1.15

146 H+S type Item no. 32_N-PC7-50-6/1--_NE 23032917

N PC7 plug (m)

El. length 41.85 mm

Material N stainless steel
PC7 brass/gold

VSWR DC - 3 GHz ≤ 1.03
3 - 6 GHz ≤ 1.05
6 - 11 GHz $\leq \text{typ. } 1.12$

145 H+S type Item no. 33_PC35-N-50-1/1--_UE 22643958

PC3.5 N plug (m) jack (f)

Material stainless steel

VSWR DC - 12.4 GHz ≤ 1.10
12.4 - 18 GHz ≤ 1.15

146 H+S type Item no. 33_PC7-N-50-1/1--_UE 22543547

PC7 N jack (f)

Material PC7 brass/gold
N stainless steel

VSWR DC - 18 GHz $\leq 1.02 + 0.002 \cdot f(\text{GHz})$

145 H+S type Item no. 39_PC35-N-50-1/1--_UE 22660363

PC3.5 N plug (m) jack (f)

Material stainless steel

VSWR DC - 12.4 GHz ≤ 1.10
12.4 - 18 GHz ≤ 1.15

146 H+S type Item no. 33_PC7-N-50-5/33_NE 23004036

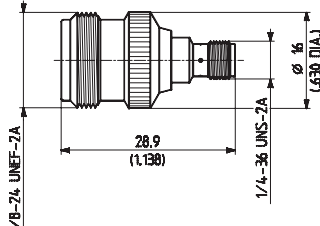
PC7 N jack (f)

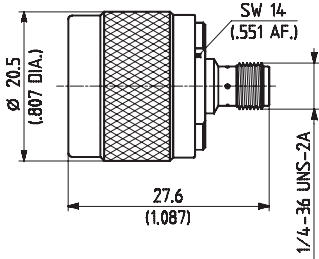
Material PC7 brass/gold
N stainless steel

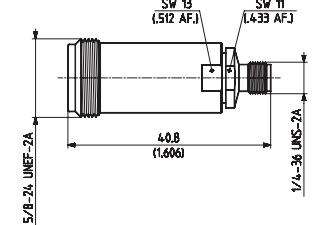
VSWR DC - 18 GHz $\leq 1.03 + 0.002 \cdot f(\text{GHz})$

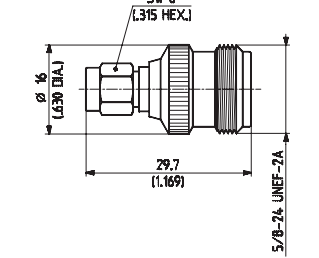
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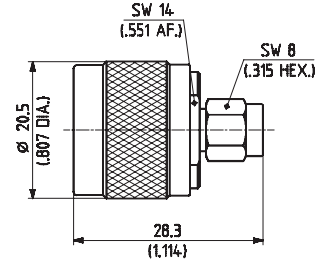
Adaptors

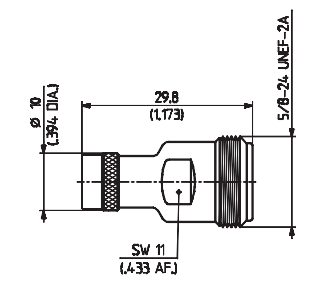
150	H+S type Item no.	31_N-SMA-50-1/1--_UE 22542386
N SMA	jack (f) jack (f)	
Material N SMA	brass/SUCO CuBe/gold*	
VSWR	DC - 12.4 GHz	$\leq 1.05 + 0.015 \cdot f$ (GHz)

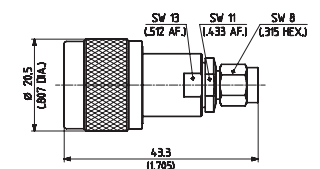
150	H+S type Item no.	33_N-SMA-50-1/113_UE 22542421
N SMA	plug (m) jack (f)	
Material N SMA	brass/SUCO CuBe/gold*	
VSWR	DC - 12.4 GHz	$\leq 1.05 + 0.015 \cdot f$ (GHz)

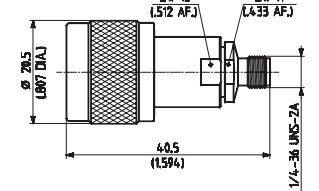
150	H+S type Item no.	31_N-SMA-50-51/1--_NE 22660178
N SMA	jack (f) jack (f)	
Material N SMA	stainless steel CuBe/gold	
VSWR	DC - 18 GHz	$\leq 1.025 + 0.007 \cdot f$ (GHz)

150	H+S type Item no.	33_SMA-N-50-1/1--_UE 22640154
SMA N	plug (m) jack (f)	
Material SMA N	CuBe/gold brass/SUCO	
VSWR	DC - 12.4 GHz	$\leq 1.05 + 0.015 \cdot f$ (GHz)

150	H+S type Item no.	32_N-SMA-50-1/11-_NE 22542399
N SMA	plug (m) plug (m)	
Material N SMA	brass/SUCO CuBe/gold*	
VSWR	DC - 12.4 GHz	$\leq 1.05 + 0.017 \cdot f$ (GHz)

150	H+S type Item no.	33_SMA-N-Q50-4/1-3_NE 22660211
SMA N	plug (m) quick-mate jack (f)	
Material SMA N	CuBe/SUPR brass/SUCO	
VSWR	DC - 6 GHz 6 - 12.4 GHz	≤ 1.07 ≤ 1.18

150	H+S type Item no.	32_N-SMA-50-51/1--_UE 22543916
N SMA	plug (m) plug (m)	
Material N SMA	stainless steel CuBe/gold	
VSWR	DC - 18 GHz	$\leq 1.025 + 0.007 \cdot f$ (GHz)

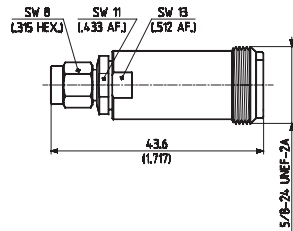
150	H+S type Item no.	33_N-SMA-50-51/1--_NE 22660180
N SMA	plug (m) jack (f)	
Material N SMA	stainless steel CuBe/gold	
VSWR	DC - 18 GHz	$\leq 1.025 + 0.007 \cdot f$ (GHz)

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150	H+S type Item no.	33_SMA-N-50-51/1--_NE 22660181
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SMA
N plug (m)
jack (f)

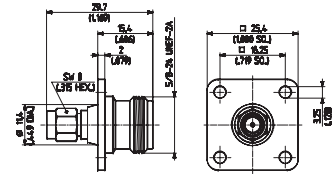


Material
SMA CuBe/gold
N stainless steel

VSWR DC - 18 GHz $\leq 1.025 + 0.007 \cdot f(\text{GHz})$

150	H+S type Item no.	39_SMA-N-50-1/1--_NE 22640156
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SMA
N plug (m)
jack (f)

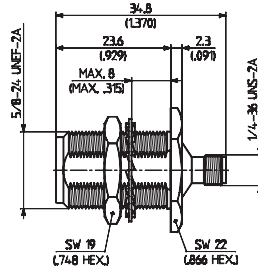


Material
SMA CuBe/gold
N brass/SUCO
Mounting hole ML 13/14

VSWR DC - 12.4 GHz $\leq 1.05 + 0.015 \cdot f(\text{GHz})$

150	H+S type Item no.	34_N-SMA-50-1/193_UE 22642820
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N
SMA jack (f)
jack (f)

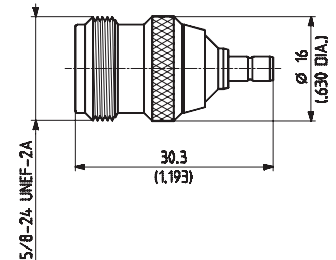


Material stainless steel
Mounting hole ML 12

VSWR DC - 12.4 GHz $\leq 1.05 + 0.017 \cdot f(\text{GHz})$

151	H+S type Item no.	31_N-SMB-50-1/1--_UE 22542387
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N
SMB jack (f)
jack (f)

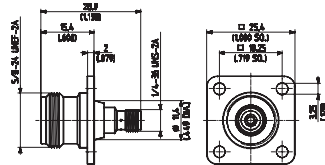


Material
N brass/SUCO
SMB brass/gold

VSWR DC - 3 GHz $\leq 1.03 + 0.08 \cdot f(\text{GHz}) \leq 1.27$
3 - 4 GHz

150	H+S type Item no.	37_N-SMA-50-1/1--_UE 22543458
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N
SMA jack (f)
jack (f)

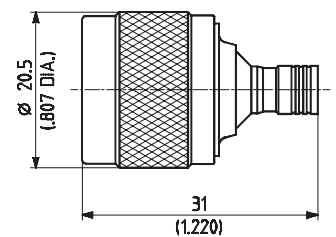


Material
N brass/SUCO
SMA CuBe/gold
Mounting hole ML 13/14

VSWR DC - 12.4 GHz $\leq 1.05 + 0.015 \cdot f(\text{GHz})$

151	H+S type Item no.	32_N-SMB-50-1/1--_UE 22542400
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N
SMB plug (m)
plug (m)

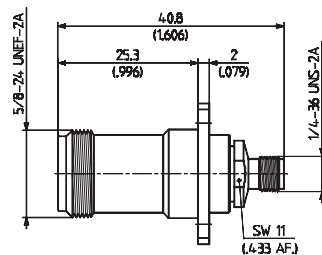


Material
N brass/SUCO
SMB brass/gold

VSWR DC - 3 GHz $\leq 1.03 + 0.08 \cdot f(\text{GHz}) \leq 1.27$
3 - 4 GHz

150	H+S type Item no.	37_N-SMA-50-51/1--_NE 22645162
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N
SMA jack (f)
jack (f)

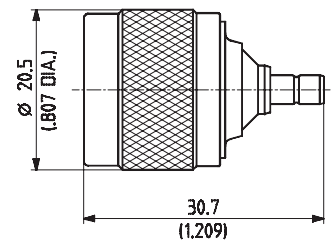


Material
N stainless steel
SMA CuBe/gold

VSWR DC - 18 GHz $\leq 1.025 + 0.007 \cdot f(\text{GHz})$

151	H+S type Item no.	33_N-SMB-50-1/1--_UE 22542422
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N
SMB plug (m)
jack (f)

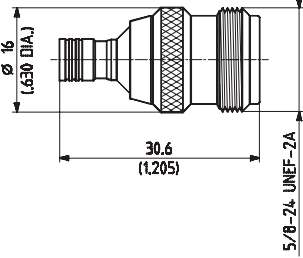


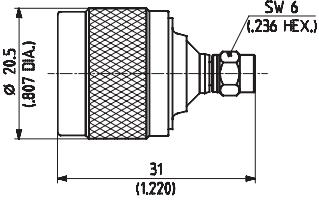
Material
N brass/SUCO
SMB brass/gold

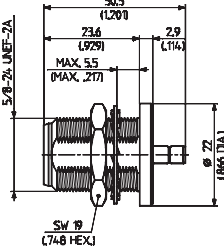
VSWR DC - 3 GHz $\leq 1.03 + 0.08 \cdot f(\text{GHz}) \leq 1.27$
3 - 4 GHz

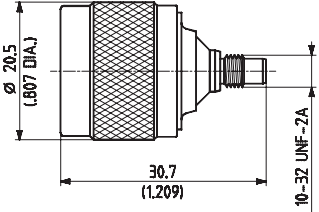
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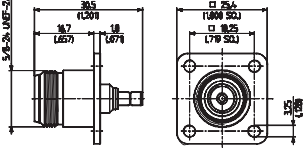
Adaptors

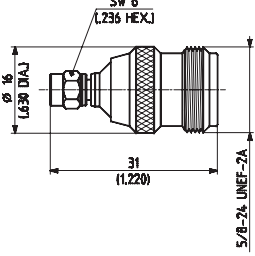
151	H+S type Item no.	33_SMB-N-50-1/1--_UE 22640394
SMB N	plug (m) jack (f)	
Material SMB N	brass/gold brass/SUCO	
VSWR	DC - 3 GHz 3 - 4 GHz	$\leq 1.03 + 0.08 \cdot f(\text{GHz})$ ≤ 1.27

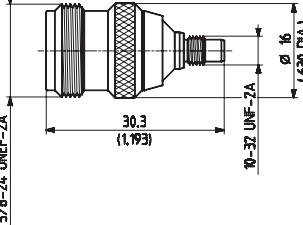
152	H+S type Item no.	32_N-SMC-50-1/1--_NE 22542402
N SMC	plug (m) plug (m)	
Material N SMC	brass/SUCO brass/gold	
VSWR	DC - 2 GHz 2 - 4 GHz 4 - 10 GHz	≤ 1.10 ≤ 1.20 ≤ 1.40

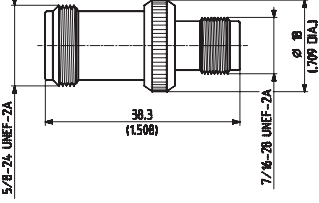
151	H+S type Item no.	34_N-SMB-50-1/1--_UE 22642272
N SMB	jack (f) jack (f)	
Material N SMB Mounting hole	brass/SUCO brass/gold ML 12	
VSWR	DC - 4 GHz	≤ 1.22

152	H+S type Item no.	33_N-SMC-50-1/1--_NE 22542423
N SMC	plug (m) jack (f)	
Material N SMC	brass/SUCO brass/SUCO	
VSWR	DC - 2 GHz 2 - 4 GHz 4 - 10 GHz	≤ 1.10 ≤ 1.20 ≤ 1.40

151	H+S type Item no.	37_N-SMB-50-1/1--_UE 22641514
N SMB	jack (f) jack (f)	
Material N SMB Mounting hole	brass/SUCO brass/gold ML 14	
VSWR	DC - 4 GHz	$\leq 1.06 + 0.08 \cdot f(\text{GHz})$

152	H+S type Item no.	33_SMC-N-50-1/1--_NE 22640406
SMC N	plug (m) jack (f)	
Material SMC N	brass/gold brass/SUCO	
VSWR	DC - 2 GHz 2 - 4 GHz 4 - 10 GHz	≤ 1.10 ≤ 1.20 ≤ 1.40

152	H+S type Item no.	31_N-SMC-50-1/1--_NE 22542389
N SMC	jack (f) jack (f)	
Material N SMC	brass/SUCO brass/gold	
VSWR	DC - 2 GHz 2 - 4 GHz 4 - 10 GHz	≤ 1.10 ≤ 1.20 ≤ 1.40

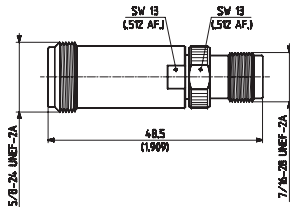
154	H+S type Item no.	31_N-TNC-50-1/133_UE 22542392
N TNC	jack (f) jack (f)	
Material	brass/SUCO	
VSWR	DC - 7 GHz 7 - 11 GHz	$\leq 1.06 + 0.12 \cdot f(\text{GHz}) \leq 1.90$

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154 H+S type Item no. 31_N-TNC-50-51/1--_UE 22543954

N jack (f)
TNC jack (f)

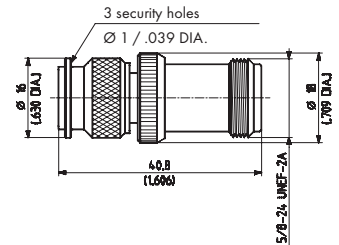


Material stainless steel

VSWR DC - 12.4 GHz $\leq 1.05 + 0.01 \cdot f(\text{GHz})$

154 H+S type Item no. 33_TNC-N-50-1/133_UE 22640637

TNC plug (m)
N jack (f)

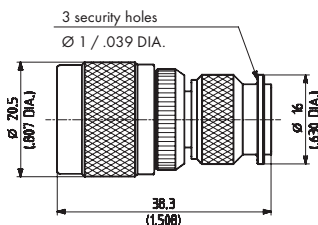


Material brass/SUCO

VSWR DC - 3 GHz ≤ 1.05
3 - 5.5 GHz ≤ 1.18
5.5 - 11 GHz ≤ 2.00

154 H+S type Item no. 32_N-TNC-50-1/---_UE 22542406

N plug (m)
TNC plug (m)

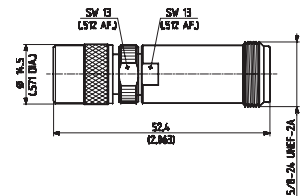


Material brass/SUCO

VSWR DC - 11 GHz $\leq 1.06 + 0.11 \cdot f(\text{GHz})$

154 H+S type Item no. 33_TNC-N-50-51/---_UE 22544046

TNC plug (m)
N jack (f)

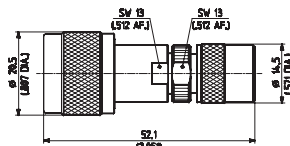


Material stainless steel

VSWR DC - 12.4 GHz $\leq 1.05 + 0.01 \cdot f(\text{GHz})$

154 H+S type Item no. 32_N-TNC-50-51/1--_UE 22543953

N plug (m)
TNC plug (m)

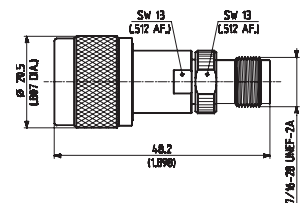


Material stainless steel

VSWR DC - 12.4 GHz $\leq 1.05 + 0.01 \cdot f(\text{GHz})$

154 H+S type Item no. 33_N-TNC-50-51/1--_UE 22543955

N plug (m)
TNC jack (f)

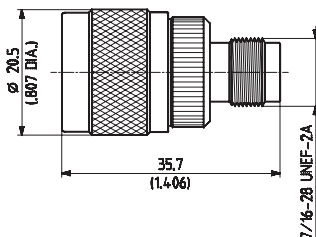


Material stainless steel

VSWR DC - 12.4 GHz $\leq 1.05 + 0.01 \cdot f(\text{GHz})$

154 H+S type Item no. 33_N-TNC-50-1/133_NE 22542427

N plug (m)
TNC jack (f)

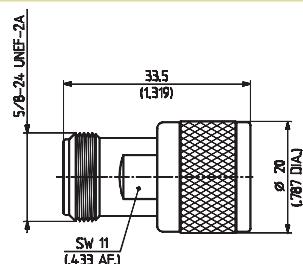


Material brass/SUCO

VSWR DC - 11 GHz $\leq 1.13 + 0.02 \cdot f(\text{GHz})$

154 H+S type Item no. 33_TNC-N-Q50-4/133_NE 22660360

TNC plug (m)
N quick-mate jack (f)

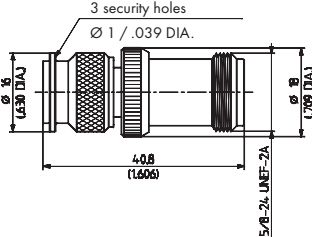


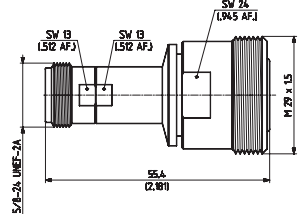
Material brass/SUCO

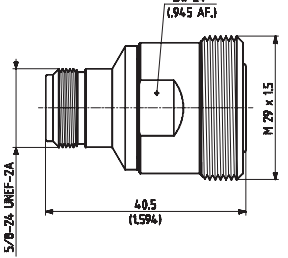
VSWR DC - 4 GHz ≤ 1.065
4 - 8 GHz ≤ 1.12
8 - 11 GHz ≤ 1.28

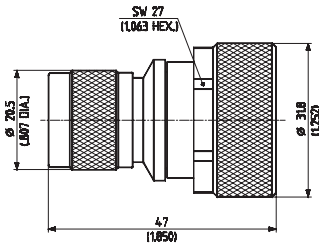
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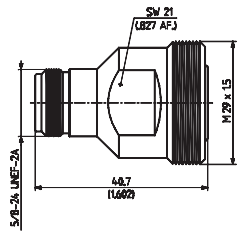
Adaptors

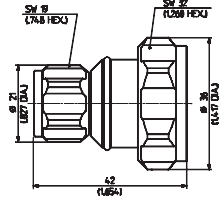
154	H+S type Item no.	33_TNC-N-75-1/133_UE 22658811
TNC N	plug (m) jack (f)	
Material	brass/SUCO	

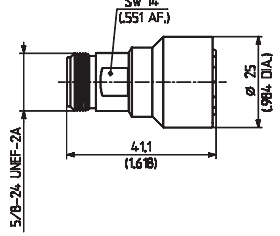
155	H+S type Item no.	31_N-716-50-51/-33_NE 22544129
N 7/16	jack (f) jack (f)	
Material	brass/SUCO	

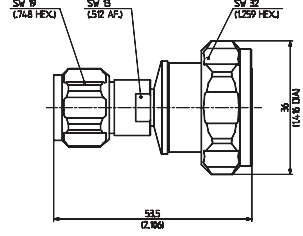
155	H+S type Item no.	31_N-716-50-1/-/_UE 22640869
N 7/16	jack (f) jack (f)	
Material	brass/SUCO	
VSWR	DC - 7.5 GHz $\leq 1.03 + 0.02$	

155	H+S type Item no.	32_N-716-50-1/-/_NE 22544576
N 7/16	plug (m) plug (m)	
Material	brass/SUCO brass/silver	
VSWR	DC - 7.5 GHz $\leq 1.03 + 0.02 \cdot f$ (GHz)	

155	H+S type Item no.	31_N-716-50-2/133_WE 22658137
N 7/16	jack (f) jack (f)	
Material	brass/SUCO	
Intermodulation:	≤ -165 dBc	

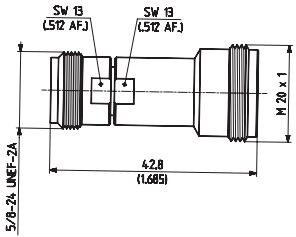
155	H+S type Item no.	32_N-716-50-2/133_WE 22658140
N 7/16	plug (m) plug (m)	
Material	brass/SUCO	
Intermodulation:	≤ -165 dBc	

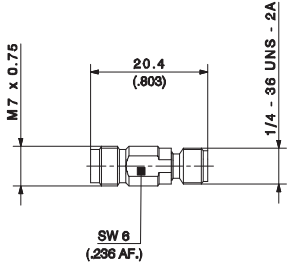
155	H+S type Item no.	31_716-N-Q50-1/1-3_NE 23008294
7/16 N	jack (f) quick-mate jack (f)	
Material	brass/SUCO	
VSWR	DC - 6 GHz $\leq 1.02 + 0.04 \cdot f$ (GHz)	

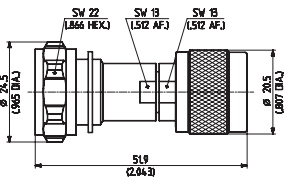
155	H+S type Item no.	32_N-716-50-51/-33_NE 22544127
N 7/16	plug (m) plug (m)	
Material	brass/SUCO	
VSWR	DC - 7.5 GHz $\leq 1.03 + 0.004 \cdot f$ (GHz)	

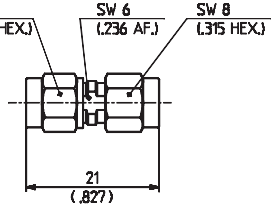
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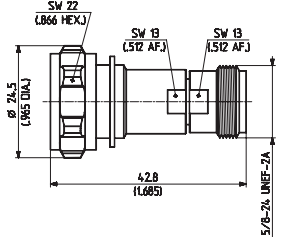
Adaptors

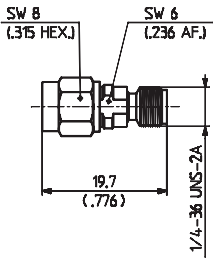
156	H+S type Item no.	31_N-4195-50-12/139_UE 22646160
N 4.1/9.5	jack (f) jack (f)	
Material N 4.1/9.5	stainless steel brass/SUCO	
VSWR	DC - 6 GHz 6 - 14 GHz	≤ 1.05 ≤ 1.12

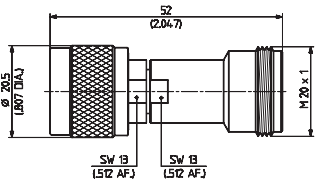
173	H+S type Item no.	31_PC24-SK-50-1/199_NE 84008075
PC2.4 SK (2.92 mm)	jack (f) jack (f)	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.12

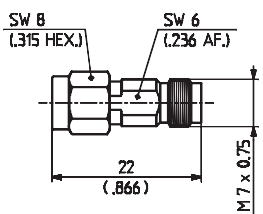
156	H+S type Item no.	32_4195-N-50-1/1--_UE 22650781
4.1/9.5 N	plug (m) plug (m)	
Material 4.1/9.5 N	brass/SUCO stainless steel	
VSWR	DC - 14 GHz	≤ 1.06

173	H+S type Item no.	32_PC24-SK-50-1/199_NE 23004729
PC2.4 SK (2.92 mm)	plug (m) plug (m)	
El. length	16.1 mm	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.12

156	H+S type Item no.	33_4195-N-50-1/--_UE 22646154
4.1/9.5 N	plug (m) jack (f)	
Material 4.1/9.5 N	brass/SUCO stainless steel	
VSWR	DC - 6 GHz 6 - 14 GHz	≤ 1.05 ≤ 1.12

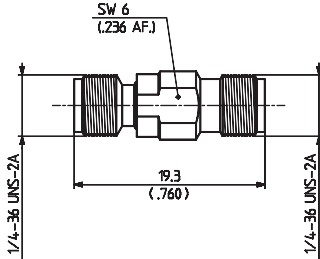
173	H+S type Item no.	33_PC24-SK-50-2/199_NE 23004730
PC2.4 SK (2.92 mm)	plug (m) jack (f)	
El. length	16.1 mm	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.12

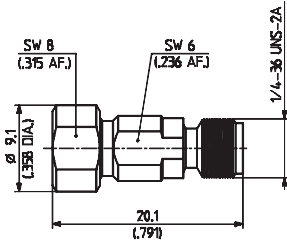
156	H+S type Item no.	33_N-4195-50-51/1-3_UE 22648618
N 4.1/9.5	plug (m) jack (f)	
Material N 4.1/9.5	stainless steel brass/SUCO	
VSWR	DC - 6 GHz 6 - 14 GHz	≤ 1.05 ≤ 1.12

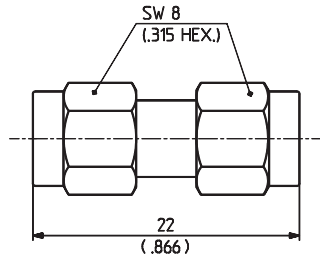
173	H+S type Item no.	33_SK-PC24-50-1/199_NE 23004731
SK (2.92 mm) PC2.4	plug (m) jack (f)	
El. length	16.1 mm	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.12

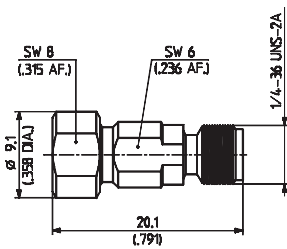
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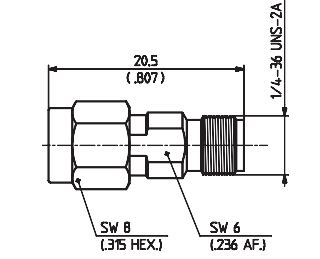
Adaptors

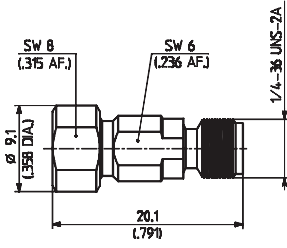
186	H+S type Item no.	31_SK-50-0-1/199_NE 23004726
SK (2.92 mm)	jack (f) 2 x	
El. length	16.1 mm	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.20

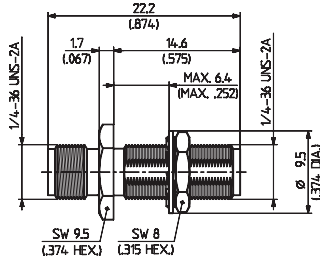
195	H+S type Item no.	31_SK-SMPX-50-1/199_NE 23021816
SK (2.92 mm) SMPX	jack (f) jack (f) full	
Material	stainless steel	
VSWR	DC - 15 GHz 15 - 30 GHz 30 - 40 GHz	≤ 1.105 ≤ 1.152 ≤ 1.222

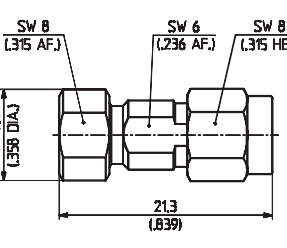
186	H+S type Item no.	32_SK-50-0-1/199_NE 23004727
SK (2.92 mm)	plug (m) 2 x	
El. length	16.1 mm	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.20

195	H+S type Item no.	31_SK-SMPX-50-2/199_NE 23021817
SK (2.92 mm) SMPX	jack (f) jack (f) limited	
Material	stainless steel	
VSWR	DC - 15 GHz 15 - 30 GHz 30 - 40 GHz	≤ 1.105 ≤ 1.152 ≤ 1.222

186	H+S type Item no.	33_SK-50-0-1/199_NE 23004728
SK (2.92 mm)	plug (m) jack (f)	
El. length	16.1 mm	
Material	stainless steel	
VSWR	DC - 40 GHz	≤ 1.20

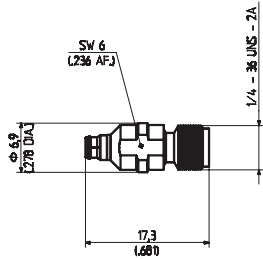
195	H+S type Item no.	31_SK-SMPX-50-3/199_NE 23021818
SK (2.92 mm) SMPX	jack (f) jack (f) smooth	
Material	stainless steel	
VSWR	DC - 15 GHz 15 - 30 GHz 30 - 40 GHz	≤ 1.105 ≤ 1.152 ≤ 1.222

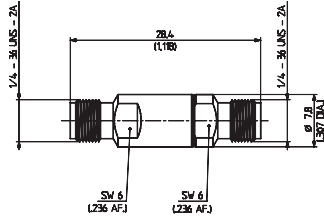
186	H+S type Item no.	34_SK-50-0-51/199_NE 22658969
SK (2.92 mm)	jack (f) 2 x	
Material	stainless steel	
Mounting hole	ML 35	
VSWR	DC - 40 GHz	≤ 1.02 + 0.01 • f (GHz)

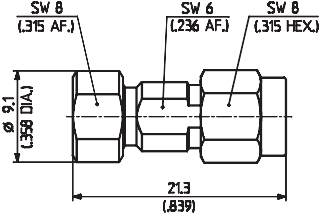
195	H+S type Item no.	33_SK-SMPX-50-1/199_NE 23021753
SK (2.92 mm) SMPX	plug (m) jack (f) full	
Material	stainless steel	
VSWR	DC - 15 GHz 15 - 30 GHz 30 - 40 GHz	≤ 1.105 ≤ 1.152 ≤ 1.222

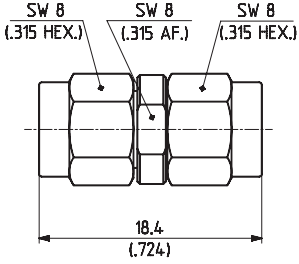
Introduction and general information on page 397 and 398/399.

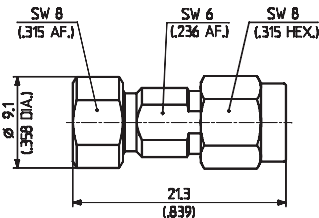
Adaptors

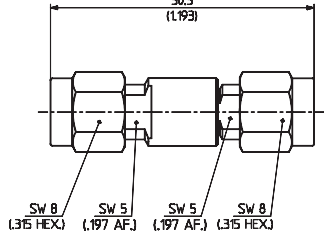
195	H+S type Item no.	33_SMPX-SK-50-1/199_NE 23032847
SMPX SK (2.92 mm)	plug (m) jack (f)	
Material	stainless steel	
VSWR	DC - 12 GHz	≤ 1.05
	12 - 40 GHz	≤ 1.2

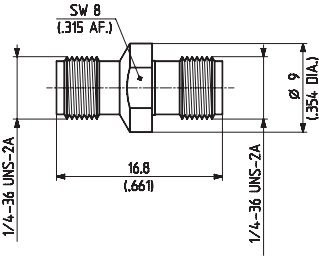
199	H+S type Item no.	31_PC35-50-0-2/199_NE 23020456
PC3.5	jack (f) 2 x	
El. length	25.5 mm	
Material	stainless steel	
VSWR	DC - 1.5 GHz	≤ 1.036
	1.5 - 6 GHz	≤ 1.065
	6 - 18 GHz	≤ 1.22

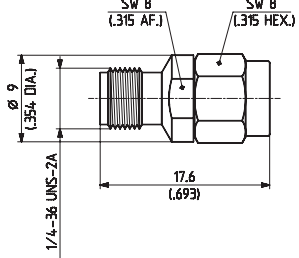
195	H+S type Item no.	33_SK-SMPX-50-2/199_NE 23021792
SK (2.92 mm) SMPX	plug (m) jack (f) limited	
Material	stainless steel	
VSWR	DC - 15 GHz	≤ 1.105
	15 - 30 GHz	≤ 1.152
	30 - 40 GHz	≤ 1.222

199	H+S type Item no.	32_PC35-50-0-1/199_UE 22644361
PC3.5	plug (m) 2 x	
El. length	14.1 mm	
Material	stainless steel	
VSWR	DC - 18 GHz	≤ 1.08
	18 - 26.5 GHz	≤ 1.15

195	H+S type Item no.	33_SK-SMPX-50-3/199_NE 23021793
SK (2.92 mm) SMPX	plug (m) jack (f) smooth	
Material	stainless steel	
VSWR	DC - 15 GHz	≤ 1.105
	15 - 30 GHz	≤ 1.152
	30 - 40 GHz	≤ 1.222

199	H+S type Item no.	32_PC35-50-0-2/199_NE 23020457
PC3.5	plug (m) 2 x	
El. length	25.5 mm	
Material	stainless steel	
VSWR	DC - 1.5 GHz	≤ 1.036
	1.5 - 6 GHz	≤ 1.065
	6 - 18 GHz	≤ 1.22

199	H+S type Item no.	31_PC35-50-0-1/199_UE 22644360
PC3.5	jack (f) 2 x	
El. length	14.1 mm	
Material	stainless steel	
VSWR	DC - 18 GHz	≤ 1.08
	18 - 26.5 GHz	≤ 1.15

199	H+S type Item no.	33_PC35-50-0-1/199_UE 22644362
PC3.5	plug (m) jack (f)	
El. length	14.1 mm	
Material	stainless steel	
VSWR	DC - 18 GHz	≤ 1.08
	18 - 26.5 GHz	≤ 1.15

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Adaptors

199 H+S type
Item no. 33_PC35-50-0-2/199_NE
23020453

PC3.5 plug (m)
jack (f)

El. length 25.5 mm

Material stainless steel

VSWR DC - 1.5 GHz ≤ 1.036
1.5 - 6 GHz ≤ 1.065
6 - 18 GHz ≤ 1.22

200 H+S type
Item no. 33_PC7-PC35-50-1/1--_UE
22644231

PC7 PC3.5 jack (f)

Material PC7 brass/gold
PC3.5 stainless steel

VSWR DC - 15 GHz ≤ 1.05
15 - 18 GHz ≤ 1.09

199 H+S type
Item no. 39_PC35-50-0-1/199_UE
23003664

PC3.5 plug (m)
jack (f)

Material stainless steel

VSWR DC - 4 GHz ≤ 1.03
4 - 10 GHz ≤ 1.07
10 - 26.5 GHz ≤ 1.22

202 H+S type
Item no. 31_PC35-QMA-50-1/199_NE
23017468

PC3.5 QMA jack (f)
jack (f)

Material stainless steel

VSWR DC - 1.5 GHz: ≤ 1.036
1.5 - 6 GHz ≤ 1.065
6 - 18 GHz ≤ 1.22

200 H+S type
Item no. 32_PC7-PC35-50-1/1--_UE
22644230

PC7 PC3.5 plug (m)

Material PC7 brass/gold
PC3.5 stainless steel

VSWR DC - 15 GHz ≤ 1.05
15 - 18 GHz ≤ 1.09

202 H+S type
Item no. 32_PC35-QMA-50-1/1--_NE
23017489

PC3.5 QMA plug (m)
plug (m)

Material stainless steel

VSWR DC - 1.5 GHz: ≤ 1.036
1.5 - 6 GHz ≤ 1.065
6 - 18 GHz ≤ 1.22

200 H+S type
Item no. 32_PC35-PC7-50-3/33_NE
23003902

PC3.5 PC7 plug (m)

Material PC3.5 brass/SUCO
PC7 brass/gold

VSWR DC - 18 GHz ≤ 1.06

202 H+S type
Item no. 33_PC35-QMA-50-1/199_NE
23017467

PC3.5 QMA plug (m)
jack (f)

Material stainless steel

VSWR DC - 1.5 GHz: ≤ 1.036
1.5 - 6 GHz ≤ 1.065
6 - 18 GHz ≤ 1.22

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Adaptors

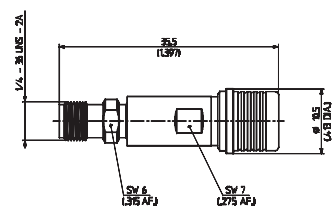
202 H+S type Item no. 33_QMA-PC35-50-1/1--_NE 23017488

QMA PC3.5 plug (m) jack (f)

El. length 25.5 mm

Material stainless steel

VSWR DC - 1.5 GHz: ≤ 1.036
1.5 - 6 GHz ≤ 1.065
6 - 18 GHz ≤ 1.22

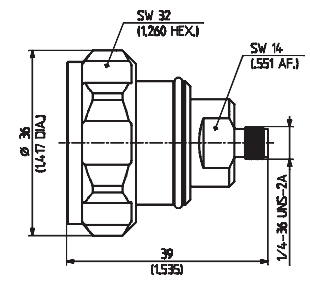


209 H+S type Item no. 33_716-PC35-50-1/133_WE 22658821

7/16 PC3.5 plug (m) jack (f)

Material brass/SUCO

Intermodulation: ≤ -160 dBc

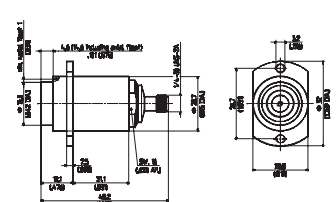


203 H+S type Item no. 39_QN-PC35-U50-1/19-_NE 23033936

QN PC3.5 plug (m) jack (f)

Material stainless steel

VSWR DC - 2.5 GHz ≤ 1.035
2.5 - 6 GHz ≤ 1.12
6 - 11 GHz ≤ 1.22



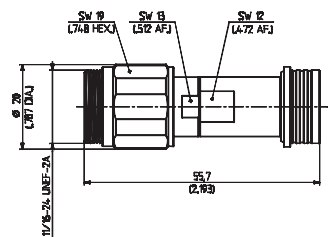
214 H+S type Item no. 32_PC7-QN-50-1/1--_NE 23032720

PC7 QN plug (m)

El. length 41.85 mm

Material brass/gold

VSWR DC - 3 GHz ≤ 1.03
3 - 6 GHz ≤ 1.05
6 - 11 GHz $\leq \text{typ. } 1.12$

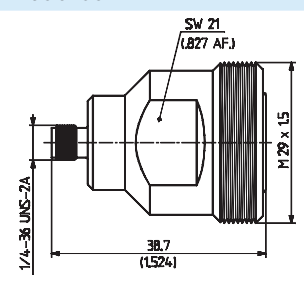


209 H+S type Item no. 31_PC35-716-50-1/133_WE 22658135

PC3.5 7/16 jack (f) jack (f)

Material brass/SUCO

Intermodulation: ≤ -160 dBc



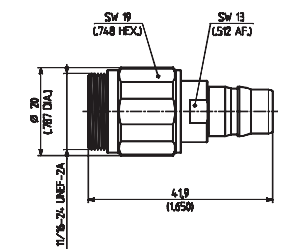
214 H+S type Item no. 33_PC7-QN-50-1/1--_NE 23032722

PC7 QN jack (f)

El. length 41.85 mm

Material PC7 QN brass/gold stainless steel

VSWR DC - 3 GHz ≤ 1.03
3 - 6 GHz ≤ 1.05
6 - 11 GHz $\leq \text{typ. } 1.12$

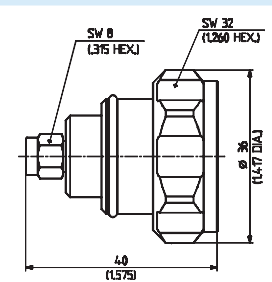


209 H+S type Item no. 32_PC35-716-50-1/133_WE 22658143

PC3.5 7/16 plug (m) plug (m)

Material brass/SUCO

Intermodulation: ≤ -160 dBc

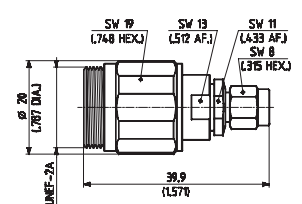


215 H+S type Item no. 32_PC7-SMA-50-1/---_UE 22543546

PC7 SMA plug (m)

Material PC7 SMA brass/gold CuBe/gold

VSWR DC - 18 GHz: $\leq 1.025 + 0.002 \cdot f$ (GHz)

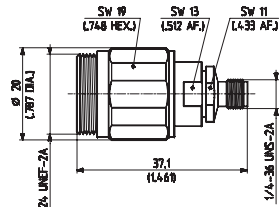


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Adaptors

215 H+S type Item no. 33_PC7-SMA-50-1/1--_UE 22543548

PC7 SMA jack (f)

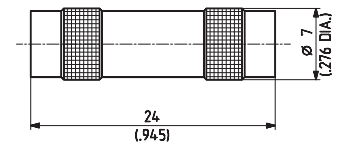


Material PC7 SMA brass/gold CuBe/gold

VSWR DC - 18 GHz: $\leq 1.025 + 0.002 \cdot f(\text{GHz})$

222 H+S type Item no. 31_QLA-01-0-1/112_NE 22640028

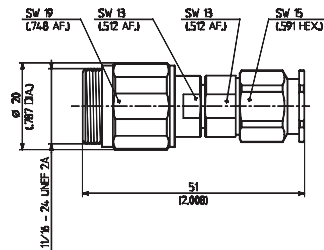
QLA jack (f) 2 x



Material brass/nickel

219 H+S type Item no. 32_PC7-TNC-50-52/-33_NE 23003983

PC7 TNC plug (m)

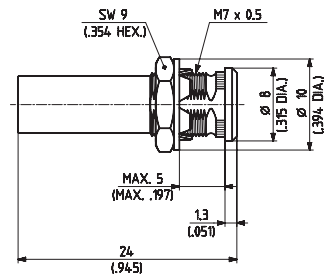


Material PC7 TNC brass/gold stainless steel

VSWR DC - 18 GHz $\leq 1.03 + 0.009 \cdot f(\text{GHz})$

222 H+S type Item no. 34_QLA-01-0-2/112_NE 22640031

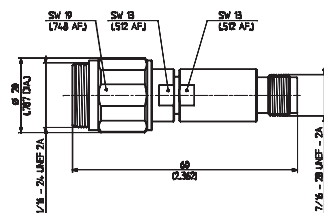
QLA jack (f) 2 x



Material Mating hole brass/nickel ML 99

219 H+S type Item no. 33_PC7-TNC-50-52/-33_NE 23003920

PC7 TNC jack (f)

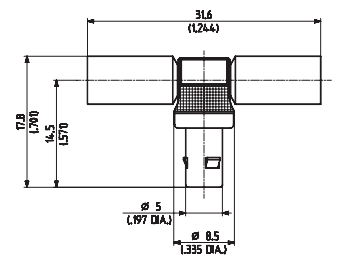


Material PC7 TNC brass/gold stainless steel

VSWR DC - 18 GHz $\leq 1.03 + 0.009 \cdot f(\text{GHz})$

222 H+S type Item no. 43_QLA-01-0-1/112_NE 22640032

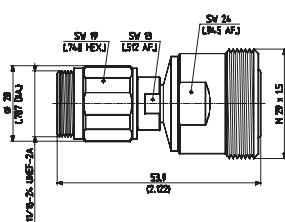
QLA jack (f) 2 x plug (m) 1 x



Material brass/nickel

220 H+S type Item no. 33_PC7-716-50-1/--3_NE 22544126

PC7 7/16 jack (f)

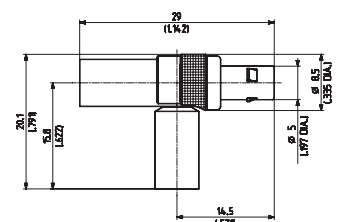


Material PC7 7/16 brass/SUPR brass/SUCO

VSWR DC - 7.5 GHz $\leq 1.03 + 0.004 \cdot f(\text{GHz})$

222 H+S type Item no. 45_QLA-01-0-1/112_NE 22640033

QLA jack (f) 2 x plug (m) 1 x



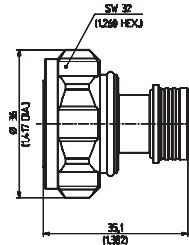
Material brass/nickel

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Adaptors

247	H+S type Item no.	32_QN-716-50-1/113_WE 23033643
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QN
7/16 plug (m)
 plug (m)

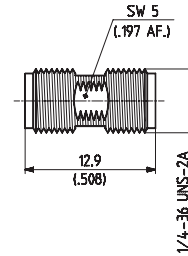


Material brass/SUCO

Intermodulation: ≤ -155 dBc

249	H+S type Item no.	31_SMA-50-0-51/199_NE 22641486
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SMA jack (f) 2 x

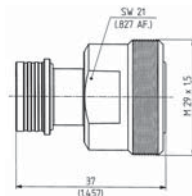


Material stainless steel

VSWR DC - 18 GHz ≤ 1.05 + 0.01 • f (GHz)

247	H+S type Item no.	33_QN-716-50-1/113_WE 23033550
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QN
7/16 plug (m)
 jack (f)

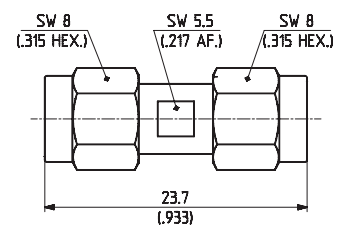


Material brass/SUCO

Intermodulation: ≤ -155 dBc

249	H+S type Item no.	32_SMA-50-0-1/111_NE 22640151
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SMA plug (m) 2 x

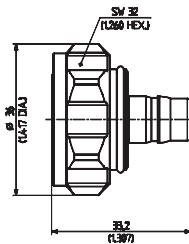


Material CuBe/gold

VSWR DC - 18 GHz ≤ 1.05 + 0.005 • f (GHz)

247	H+S type Item no.	33_716-QN-50-1/113_WE 23033644
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7/16
QN plug (m)
 jack (f)

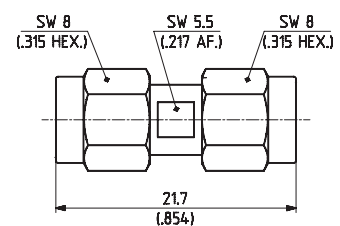


Material brass/SUCO

Intermodulation: ≤ -155 dBc

249	H+S type Item no.	32_SMA-50-0-52/199_NE 22643689
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SMA plug (m) 2 x

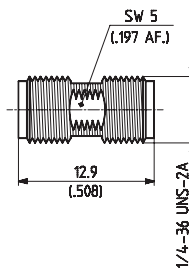


Material stainless steel

VSWR DC - 18 GHz ≤ 1.05 + 0.005 • f (GHz)

249	H+S type Item no.	31_SMA-50-0-1/111_NE 22640150
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SMA jack (f) 2 x

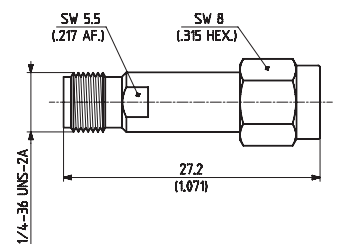


Material CuBe/gold

VSWR DC - 18 GHz ≤ 1.05 + 0.01 • f (GHz)

249	H+S type Item no.	33_SMA-50-0-1/111_NE 22641119
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SMA plug (m)
 jack (f)



Material CuBe/gold

VSWR DC - 18 GHz ≤ 1.05 + 0.008 • f (GHz)

Introduction and general information on page 397 and 398/399.

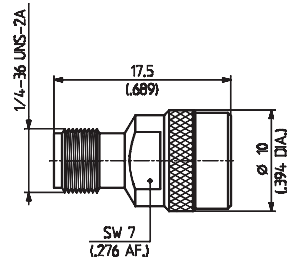
Adaptors

249 H+S type 33_SMA-Q50-0-4/1-9_NE
Item no. 22660213

SMA plug (m)
quick-mate
jack (f)

Material CuBe/SUPR

VSWR DC - 5 GHz ≤ 1.07
5 - 16 GHz ≤ 1.22
16 - 18 GHz ≤ 1.28

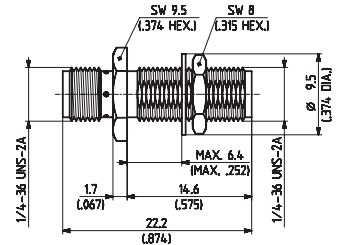


249 H+S type 34_SMA-50-0-51/199_NE
Item no. 22544823

SMA jack (f) 2 x

Material stainless steel
Mounting hole ML 35

VSWR DC - 18 GHz ≤ 1.05 + 0.005 • f (GHz)

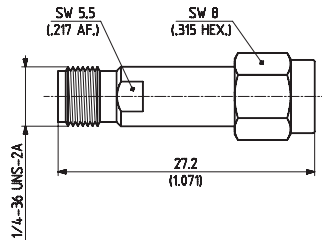


249 H+S type 33_SMA-50-0-51/199_NE
Item no. 22644253

SMA plug (m)
jack (f)

Material stainless steel

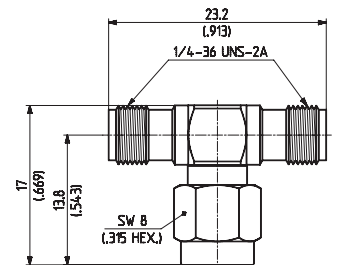
VSWR DC - 18 GHz ≤ 1.05 + 0.008 • f (GHz)



249 H+S type 43_SMA-50-0-1/111_NE
Item no. 22543356

SMA plug (m) 1 x
jack (f) 2 x

Material CuBe/gold

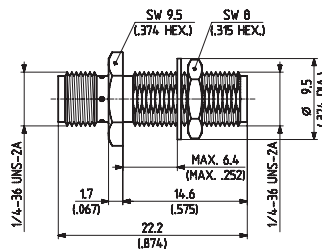


249 H+S type 34_SMA-50-0-1/111_NE
Item no. 23009027

SMA jack (f) 2 x

Material CuBe/gold
Mounting hole ML 35

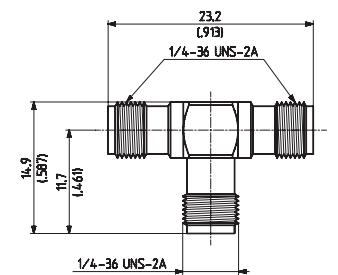
VSWR DC - 18 GHz ≤ 1.05 + 0.005 • f (GHz)



249 H+S type 46_SMA-50-0-1/111_NE
Item no. 22543357

SMA jack (f) 3 x

Material CuBe/gold



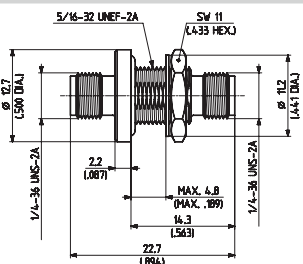
249 H+S type 34_SMA-50-0-3/111_NE
Item no. 22641297

SMA jack (f) 2 x

Hermetic sealed

Material CuBe/gold
Mounting hole ML 38

VSWR DC - 3 GHz ≤ 1.1
3 - 7 GHz ≤ 1.2
7 - 18 GHz ≤ 1.3

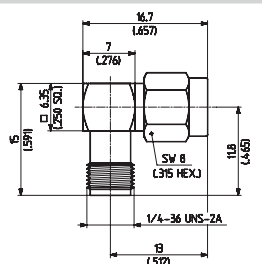


249 H+S type 53_SMA-50-0-51/199_NE
Item no. 22642655

SMA plug (m)
jack (f)

Material stainless steel

VSWR DC - 14 GHz ≤ 1.02 + 0.03 • f (GHz)



Introduction and general information on page 397 and 398/399.

Adaptors

250	H+S type Item no.	31_SMA-SMB-50-1/111_UE 22641728
SMA SMB	jack (f) jack (f)	
Material SMA SMB	CuBe/gold brass/gold	
VSWR	DC - 4 GHz	$\leq 1.05 + 0.04 \cdot f(\text{GHz})$

253	H+S type Item no.	32_SMA-TNC-50-1/1--_UE 22640938
SMA TNC	plug (m) plug (m)	
Material SMA TNC	CuBe/gold brass/SUCO	
VSWR	DC - 4 GHz 4 - 8 GHz 8 - 11 GHz	≤ 1.10 ≤ 1.20 ≤ 1.30

250	H+S type Item no.	33_SMA-SMB-50-1/111_NE 22658917
SMA SMB	plug (m) jack (f)	
Material	brass/gold	
VSWR	DC - 4 GHz 4 - 7 GHz	$\leq 1.05 + 0.04 \cdot f(\text{GHz})$ ≤ 1.21

253	H+S type Item no.	33_SMA-TNC-50-1/1--_NE 22640939
SMA TNC	plug (m) jack (f)	
Material SMA TNC	CuBe/gold brass/SUCO	
VSWR	DC - 6 GHz 6 - 11 GHz	$\leq 1.03 + 0.05 \cdot f(\text{GHz})$ ≤ 1.33

250	H+S type Item no.	33_SMB-SMA-50-1/111_UE 22641727
SMB SMA	plug (m) jack (f)	
Material SMB SMA	brass/gold CuBe/gold	
VSWR	DC - 4 GHz	$\leq 1.05 + 0.04 \cdot f(\text{GHz})$

253	H+S type Item no.	33_TNC-SMA-50-1/1--_UE 22640940
TNC SMA	plug (m) jack (f)	
Material TNC SMA	brass/SUCO CuBe/gold	
VSWR	DC - 4 GHz 4 - 8 GHz 8 - 11 GHz	≤ 1.10 ≤ 1.20 ≤ 1.30

253	H+S type Item no.	31_SMA-TNC-50-1/1--_UE 22640941
SMA TNC	jack (f) jack (f)	
Material SMA TNC	CuBe/gold brass/SUCO	
VSWR	DC - 2 GHz 2 - 6 GHz 6 - 11 GHz	≤ 1.10 ≤ 1.20 ≤ 1.30

256	H+S type Item no.	31_SMB-50-0-1/111_NE 22640221
SMB	jack (f) 2 x	
Material	brass/gold	
VSWR	DC - 4 GHz	$\leq 1.03 + 0.08 \cdot f(\text{GHz})$

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Adaptors

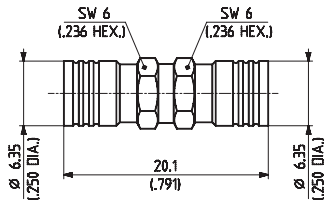
256	H+S type Item no.	32_SMB-50-0-1/111_NE 22640222
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SMB plug (m) 2 x

«open entry»

Material brass/gold

VSWR DC - 1.5 GHz $\leq 1.03 + 0.18 \cdot f(\text{GHz})$
1.5 - 4 GHz ≤ 1.30

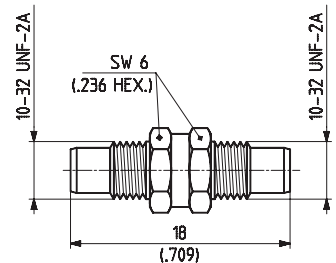


262	H+S type Item no.	31_SMC-50-0-1/111_NE 22640300
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SMC jack (f) 2 x

Material brass/gold

VSWR DC - 10 GHz $\leq 1.08 + 0.15 \cdot f(\text{GHz})$

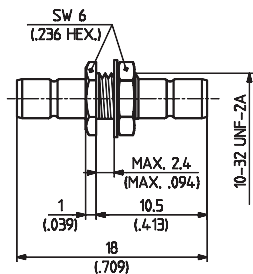


256	H+S type Item no.	34_SMB-50-0-2/111_NE 22640224
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SMB jack (f) 2 x

Material brass/gold
Mounting hole ML 11

VSWR DC - 2 GHz $\leq 1.04 + 0.1 \cdot f(\text{GHz})$
2 - 4 GHz ≤ 1.24

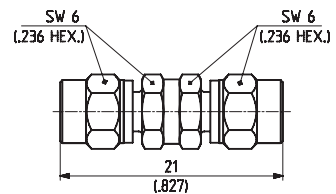


262	H+S type Item no.	32_SMC-50-0-1/111_NE 22543822
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SMC plug (m) 2 x

Material brass/gold

VSWR DC - 10 GHz $\leq 1.08 + 0.10 \cdot f(\text{GHz})$

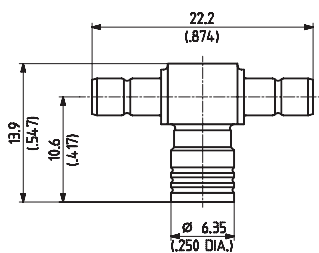


256	H+S type Item no.	43_SMB-50-0-2/111_NE 22640226
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SMB plug (m) 1 x
jack (f) 2 x

«open entry»

Material brass/gold

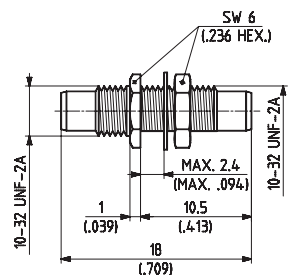


262	H+S type Item no.	34_SMC-50-0-2/111_NE 22640302
-----	----------------------	----------------------------------

SMC jack (f) 2 x

Material brass/gold
Mounting hole ML 11

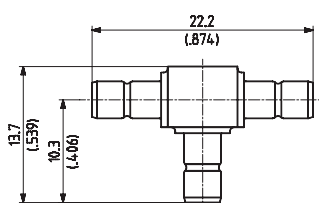
VSWR DC - 10 GHz $\leq 1.03 + 0.08 \cdot f(\text{GHz})$



256	H+S type Item no.	46_SMB-50-0-2/111_NE 22640228
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SMB jack (f) 3 x

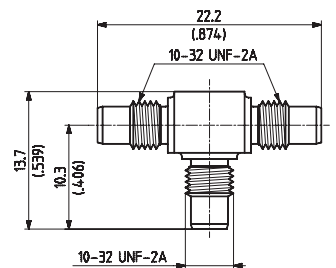
Material brass/gold



262	H+S type Item no.	46_SMC-50-0-2/111_NE 22640307
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SMC jack (f) 3 x

Material brass/gold

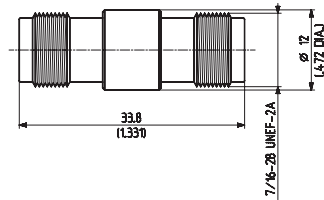


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Adaptors

271 H+S type Item no. 31_TNC-50-0-1/133_NE 22640623

TNC jack (f) 2 x



Material brass/SUCO

VSWR DC - 11 GHz $\leq 1.06 + 0.15 \cdot f(\text{GHz})$

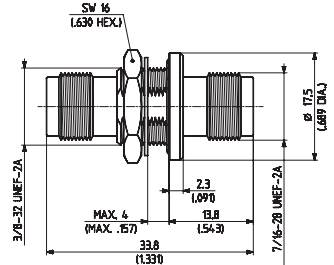
271 H+S type Item no. 34_TNC-50-0-4/133_NE 22658794

TNC jack (f) 2 x

Precision adap.

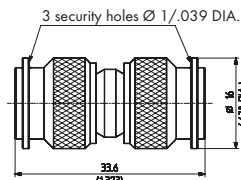
Material brass/SUCO
Mounting hole ML 4

VSWR DC - 8 GHz $\leq 1.07 + 0.01 \cdot f(\text{GHz})$



271 H+S type Item no. 32_TNC-50-0-1/133_NE 22543407

TNC plug (m) 2 x



Material brass/SUCO

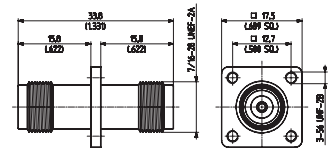
VSWR DC - 11 GHz $\leq 1.03 + 0.025 \cdot f(\text{GHz})$

271 H+S type Item no. 37_TNC-50-0-1/133_NE 22640646

TNC jack (f) 2 x

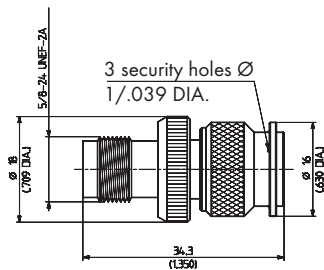
Material brass/SUCO
Mounting hole ML 8
Flange 4 threads

VSWR DC - 9 GHz $\leq 1.09 + 0.16 \cdot f(\text{GHz})$
9 - 11 GHz ≤ 2.53



271 H+S type Item no. 33_TNC-50-0-1/133_NE 22543649

TNC plug (m)
jack (f)



Material brass/SUCO

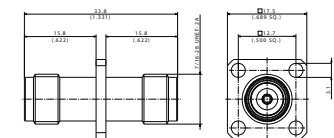
VSWR DC - 11 GHz: $\leq 1.10 + 0.027 \cdot f(\text{GHz})$

271 H+S type Item no. 37_TNC-50-0-2/133_NE 22640648

TNC jack (f) 2 x

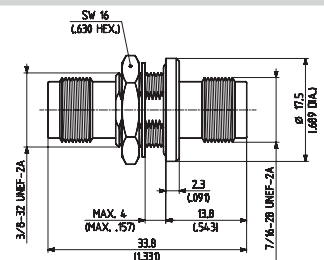
Material brass/SUCO
Mounting hole ML 8
Flange 4 holes

VSWR DC - 9 GHz $\leq 1.09 + 0.16 \cdot f(\text{GHz})$
9 - 11 GHz ≤ 2.53



271 H+S type Item no. 34_TNC-50-0-1/133_NE 22640643

TNC jack (f) 2 x



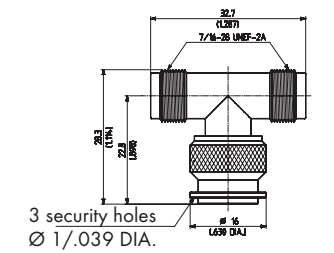
Material brass/SUCO
Mounting hole ML 4

VSWR DC - 2 GHz ≤ 1.11
2 - 8 GHz ≤ 1.50
8 - 11 GHz ≤ 1.90

271 H+S type Item no. 43_TNC-50-0-1/133_NE 22640651

TNC jack (f) 2 x
plug (m) 1 x

Material brass/SUCO

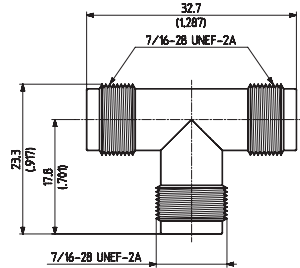


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Adaptors

271 H+S type
Item no. 46_TNC-50-0-1/133_NE
22640655

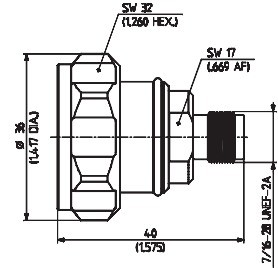
TNC jack (f) 3 x



Material brass/SUCO

272 H+S type
Item no. 33_716-TNC-50-1/133_WE
22658824

7/16 TNC plug (m)
jack (f)

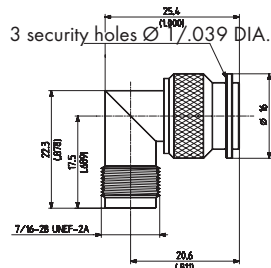


Material brass/SUCO

Intermodulation: ≤ -165 dBc

271 H+S type
Item no. 53_TNC-50-0-1/133_NE
22640659

TNC plug (m)
jack (f)

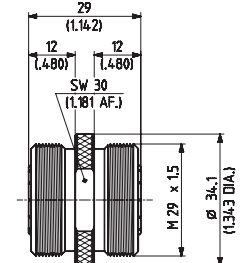


Material brass/SUCO

VSWR DC - 5 GHz ≤ 1.03 + 0.11 • f (GHz)
5 - 11 GHz ≤ 1.58

274 H+S type
Item no. 31_716-50-0-1/003_E
22544117

7/16 jack (f) 2 x

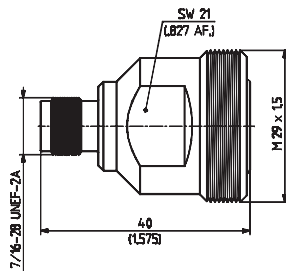


Material brass/SUCO

VSWR DC - 3 GHz ≤ 1.03
3 - 7.5 GHz ≤ 1.03 + 0.01 • f (GHz)

272 H+S type
Item no. 31_TNC-716-50-1/133_WE
22658134

TNC 7/16 jack (f)
jack (f)

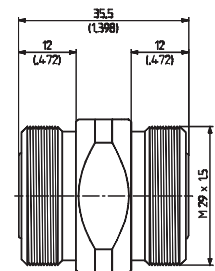


Material brass/SUCO

Intermodulation: ≤ -165 dBc

274 H+S type
Item no. 31_716-50-0-2/133_WE
22658136

7/16 jack (f) 2 x

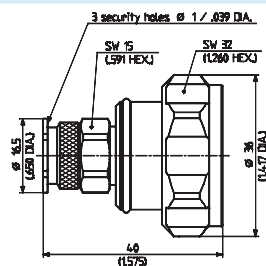


Material brass/SUCO

Intermodulation: ≤ -165 dBc

272 H+S type
Item no. 32_TNC-716-50-1/133_WE
22658142

TNC 7/16 plug (m)
plug (m)

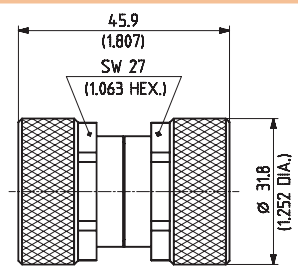


Material brass/SUCO

Intermodulation: ≤ -165 dBc

274 H+S type
Item no. 32_716-50-0-1/003_E
22544118

7/16 plug (m) 2 x



Material brass/silver

VSWR DC - 2 GHz: ≤ 1.02
2 - 4 GHz: ≤ 1.03
4 - 6 GHz: ≤ 1.04

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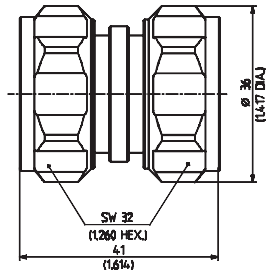
Adaptors

274 H+S type Item no. 32_716-50-0-2/133_WE 22658141

7/16 plug (m) 2 x

Material brass/SUCO

Intermodulation: ≤ -165 dBc

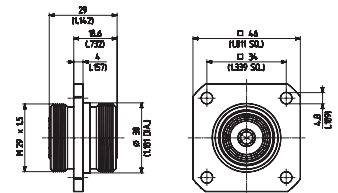


274 H+S type Item no. 37_716-50-0-1/003_-E 22544122

7/16 jack (f) 2 x

Material brass/SUCO
Mounting hole ML 28

VSWR DC - 3 GHz ≤ 1.03
3 - 7.5 GHz $\leq 1.03 + 0.01 \cdot f(\text{GHz})$

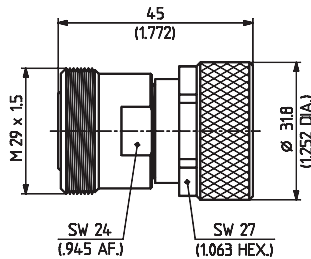


274 H+S type Item no. 33_716-50-0-1/003_-E 22651577

7/16 plug (m) jack (f)

Material brass/silver

VSWR DC - 2 GHz: ≤ 1.02
2 - 4 GHz: ≤ 1.03
4 - 6 GHz: ≤ 1.04

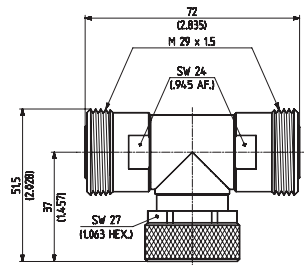


274 H+S type Item no. 43_716-50-0-1/003_-E 22544572

7/16 jack (f) 2 x plug (m) 1 x

Material brass/SUCO

VSWR DC - 7.5 GHz $\leq 1.02 + 0.025 \cdot f(\text{GHz})$

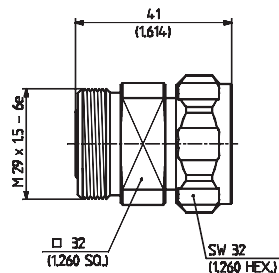


274 H+S type Item no. 33_716-50-0-2/133_WE 22658193

7/16 plug (m) jack (f)

Material brass/SUCO

Intermodulation: ≤ -165 dBc

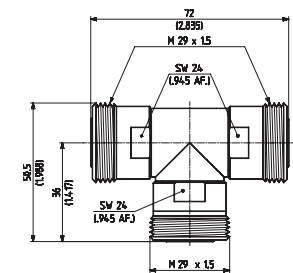


274 H+S type Item no. 46_716-50-0-1/003_-E 22643266

7/16 jack (f) 3 x

Material brass/SUCO

VSWR DC - 7.5 GHz $\leq 1.02 + 0.025 \cdot f(\text{GHz})$

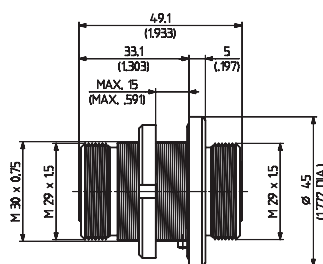


274 H+S type Item no. 34_716-50-0-1/003_-E 22544120

7/16 jack (f) 2 x

Material brass/SUCO
Mounting hole ML 29

VSWR DC - 4 GHz: $\leq 1.02 + 0.05 \cdot f(\text{GHz})$
4 - 7.5 GHz: ≤ 1.22

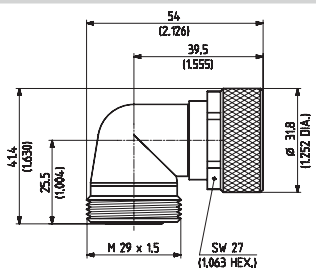


274 H+S type Item no. 53_716-50-0-1/003_-E 22641259

7/16 plug (m) jack (f)

Material brass/SUCO

VSWR DC - 7.5 GHz $\leq 1.02 + 0.025 \cdot f(\text{GHz})$



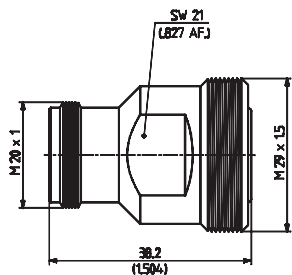
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Adaptors

275 H+S type 31_4195-716-50-1/133_WE
Item no. 22658138

4.1/9.5 jack (f)
7/16 jack (f)

Material brass/SUCO



Intermodulation: ≤ -165 dBc

Assembly tools

Crimping tools and inserts for flexible cables	442
Tool sets for semi-rigid cable assembling (solder type)	445
Selection of common and helpful assembly tools	446
Assembly tools for BMA connectors with hermetic seal	450
Assembly tools for SK connectors	450
Torque wrenches	451
Combination tool for MMBX/MMCX/MCX	452
Special tools for QMA connectors	452
Special tools for QN and MMPX connectors	453
Special tools for MBX and MMBX connectors	454

Crimping tools and inserts for flexible cables

Small crimp tool with fixed inserts



HUBER+SUHNER type	Item no.	Size	Colour code	Square section (centre contact)	Hexagonal section (outer contact)
75_Z-0-3-4	22544613	2 B	orange	1.6 mm / .063 in.	5.5 mm / .217 in.
75_Z-0-4-4	22544612	2 C	yellow	1.6 mm / .063 in.	6.5 mm / .256 in.

Small crimp tool with interchangeable inserts 1/2A, 2B, 2C



Fig. 1



Fig. 2

HUBER+SUHNER type	Item no.	Description	Fig.
75_Z-0-0-50	22544754	tool without inserts	1
75_Z-0-0-51	22544755	tool with various inserts in wooden box (1/2A, 2B, 2C)	2

Interchangeable inserts for small crimp tool



HUBER+SUHNER type	Item no.	Size	Square section (centre contact)	Hexagonal section (outer contact)
76_Z-0-1-1	23000884	0.54/A	0.54 mm / .021 in.	3.3 mm / .130 in.
76_Z-0-2-20	22645153	1/4.95	0.7 mm / .028 in.	4.95 mm / .195 in.
76_Z-0-2-51	22544756	1/2A	0.7/1.6 mm / .028/.063 in.	3.3 mm / .130 in.
76_Z-0-2-53	22645337	1/2.67	0.7 mm / .028 in.	2.7 mm / .106 in.
76_Z-0-3-51	22544757	2B	1.6 mm / .063 in.	5.5 mm / .217 in.
76_Z-0-4-51	22544758	2C	1.6 mm / .063 in.	6.5 mm / .256 in.

Crimping tools and inserts for flexible cables

Large crimp tool with interchangeable inserts 1/2A, 2B, 2C, 3D



Fig. 1



Fig. 2

HUBER+SUHNER type	Item no.	Description	Fig.
75_Z-0-0-1	22543157	tool without inserts	1
76_Z-0-0-15	22543177	tool with various inserts and cutting insert in wooden box (1/2A, 2B, 2C, 3D)	2

Tool boxes



HUBER+SUHNER type	Item no.	Description
76_Z-0-0-9	22644671	large tool box (empty)
76_Z-0-0-11	22543175	large tool box without tooling but including foam insert for tools and allen key

Table press with interchangeable inserts



HUBER+SUHNER type	Item no.	Description
75_Z-0-0-2	22543158	press without inserts (for inserts see page 444)

Crimping tools and inserts for flexible cables

Interchangeable inserts fitting large crimp tool and table press



HUBER+SUHNER type	Item no.	Size	Colour code	Square section (centre contact)	Hexagonal section (outer contact)
76_Z-0-1-2	23000885	0.54/A		0.54 mm/.021 in.	3.3 mm /.130 in.
76_Z-0-2-1	22543181	1/2 A	red	0.7/1.6 mm/.028/.063 in.	3.3 mm /.130 in.
76_Z-0-2-8	22544191	1/4.95		0.7 mm /.028 in.	4.95 mm /.195 in.
76_Z-0-3-1	22543185	2 B	orange	1.6 mm /.063 in.	5.5 mm /.217 in.
76_Z-0-3-9	22641133	B 1.22/1.22		1.2 mm /.047 in.	5.5 mm /.217 in.
76_Z-0-4-1	22543189	2 C	yellow	1.6 mm /.063 in.	6.5 mm /.256 in.
76_Z-0-4-8	22543190	C 1.22/1.22		1.2 mm /.047 in.	6.5 mm /.256 in.
76_Z-0-5-8	22543192	8/1.22/1.22		1.2 mm /.047 in.	8.0 mm /.315 in.
76_Z-0-5-21	22543193	2/8.0		1.6 mm /.063 in.	8.0 mm /.315 in.
76_Z-0-6-1	22649051	3/8.65		2.4 mm /.094 in.	8.65 mm /.341 in.
76_Z-0-6-21	22543194	2/9.75		1.6 mm /.063 in.	9.8 mm /.386 in.
76_Z-0-7-1	22543195	3 D	violet	2.4 mm /.094 in.	10.7 mm /.421 in.
76_Z-0-7-7	22543196	2 D		1.6 mm /.063 in.	10.7 mm /.421 in.
76_Z-0-7-8	22660322	2.5/D		2.5 mm /.098 in.	10.7 mm /.421 in.
76_Z-0-7-14	22544524	4 D		3.3 mm /.130 in.	10.7 mm /.421 in.
76_Z-0-10-14	23002630	12.4		–	12.4 mm /.488 in.
76_Z-0-0-26	22645880	1/2.67		0.7 mm /.028 in.	2.7 mm /.106 in.
76_Z-0-3-26	84077169	1.22 / B		1.2 mm /.047 in.	5.5 mm /.217 in.
76_Z-0-4-24	84077171	1.22 / C		1.2 mm /.047 in.	6.5 mm /.256 in.
76_Z-0-5-22	84077161	1.22 / 8.0		1.2 mm /.047 in.	8.0 mm /.315 in.
76_Z-0-0-57	85008389	B		–	5.5 mm /.217 in.
76_Z-0-4-23	84074473	C		–	6.5 mm /.256 in.
76_Z-0-12-1	85009833	14.5		–	14.5 mm /.570 in.

Special insert and tools for large crimp tool and table press



HUBER+SUHNER type	Item no.	Description
76_Z-0-0-1	22543170	cutting insert for cables up to 12 mm/4.72 in. outer diameter
76_Z-0-0-2	22543172	spare blades for cutting insert (10 pieces per package)
76_Z-0-0-3	22543173	support plate for bench mounting of large crimp tool





Tool sets for semi-rigid cable assembling (solder type)

The tool sets include a solid wooden storage case. The composition of these sets is as indicated in the list of tools.



HUBER+SUHNER type	Item no.	Size	Colour code
74_Z-0-0-70	22544725	SMA	includes all tools required for economic and reliable assembling of SMA connectors
74_Z-0-0-71	22641350	N	includes all tools required for assembling of N connectors to semi-rigid cables
74_Z-0-0-72	22544747	SMA	includes only the minimum of tools required for assembling of SMA connectors

Selection of common and helpful assembly tools

HUBER+SUHNER type	Item no.	W-no. *	For series	Description	Tool set 74 Z-0-0-			
					70	71	72	
74_Z-0-0-14	22543124	W14	SMA	locator tools for contact and insulators	•		•	
74_Z-0-0-21	22543130	W21	SMA	torque wrench 1 Nm	•			
74_Z-0-0-24	22543133		SMA	tap drill for SMA (1/4-36 UNS-2B thread)				
74_Z-0-0-29	22543138	W29	N	dielectric insertion tool for insulators series N		•		

* Marking on tool.

Selection of common and helpful assembly tools

HUBER+SUHNER type	Item no.	W-no. *	For series	Description	Tool set 74 Z-0-0-			
					70	71	72	
74_Z-0-0-35	22544282	W35	N	soldering gauge 0.45 mm / .018 in.		•		
74_Z-0-0-52	22544553	W52	SMA	dielectric insertion tool for SMA plugs	•		•	
74_Z-0-0-53	22544554	W53	SMA	dielectric insertion tool for SMA jacks	•		•	
74_Z-0-0-54	22544555	W54	SMA	contact holder for pins and sockets	•		•	
74_Z-0-0-55 74_Z-0-0-56	22544516 22544517	W55 W56	SMA SMA	soldering gauge 0.25 mm / .010 in. soldering gauge 0.4 mm / .016 in.	• •		• •	
74_Z-0-0-58	22544557	W58	BMA, SK, N, SMA	soldering fixture (works with W374)	•	•	•	
74_Z-0-0-59	22544558	W59	BMA, N, SMA	inserts for EZ_141 (works with W58 and W442)	•	•	•	
74_Z-0-0-60	22544559	W60	BMA, N, SMA	inserts for EZ_86 (works with W58 and W442)	•	•	•	
74_Z-0-0-133	22643022	W133	BMA, N, SMA	insert for EZ_47 (works with W58 and W442)				
74_Z-0-0-62	22544561	W62	SMA	locator tool for SMA plugs without pin (works with W58 and W442)				
74_Z-0-0-63	22544562	W63	SMA	trim tool for SMA plugs without pin	•			
74_Z-0-0-66	22544616	W66	N	locator tool (works with W58 and W442)		•		
74_Z-0-0-67	22544640	W67	N	contact holder for pins and sockets series N		•		

* Marking on tool.

Selection of common and helpful assembly tools

HUBER+SUHNER type	Item no.	W-no. *	For series	Description	Tool set 74 Z-0-0-			
					70	71	72	
74_Z-0-0-68	22544715	W68	BMA, SK, N, SMA	1 set of blades with protector	•	•	•	
74_Z-0-0-75	22544807	W75	SK, SMA	assembly tool for hermetic jacks				
74_Z-0-0-81	22641423		SK, SMA	positioner for assembly of coupling nuts	•	•		
74_Z-0-0-142	22643462	W142	SMA	rebore tool	•		•	
74_Z-0-0-157	22643029	W157	BMA, SK, N, SMA	cable stripping tool for EZ_47, EZ_86, EZ_141, SUCO-FORM_86 and 141	•	•	•	
74_Z-0-0-160	22643514			replacement cutting wheels; set for EZ_47, EZ_86, EZ_141 (works with W157)	•	•	•	
74_Z-0-0-164	22643028	W164	BMA, N, SMA	trim tool for centre contacts	•	•		
74_Z-0-0-196 74_Z-0-0-197 74_Z-0-0-198 74_Z-0-0-397	22645359 22645360 22645361 84005300			replacement support cover for EZ_47, EZ_86, EZ_141, EZ_118 (works with W157)				
74_Z-0-0-206 74_Z-0-0-207 74_Z-0-0-208	22645364 22645363 22645362			replacement cutting wheels for EZ_47, EZ_86, EZ_141, (works with W157)				
74_Z-0-0-209	22645585	W209	BMA	locator tool used with W58 and W442 (for BMA plug)				
74_Z-0-0-210	22645586	W210	BMA	locator tool used with W58 and W442 (for BMA jack)				
74_Z-0-0-213	22645593	W213	BMA	removal tool for receptacles with snap-in mechanism				
74_Z-0-0-231	22646131	W231	SK	locator tool for SK plugs (works with W58 and W442)				
74_Z-0-0-232	22646132	W232	SK	locator tool for SK jacks (works with W58 and W442)				






* Marking on tool.

Selection of common and helpful assembly tools

HUBER+SUHNER type	Item no.	W-no. *	For series	Description	Tool set 74 Z-0-0-			
					70	71	72	
74_Z-0-0-233	22646133	W233	SK	inserts for semi-rigid cable EZ_118 (works with W58 and W442)				
74_Z-0-0-234	22646134	W234	SK	replacement cutting wheels for EZ_118 (works with W157)				
74_Z-0-0-246	22646873	W246	SMA	jacket remover for semi-rigid and SUCOFORM cables. After cutting and breaking of jacket with tool W-157, remove separated piece with tool W-246.				
74_Z-0-0-264	22646290	W264	SK	trim tool for centre conductor of semi-rigid cable EZ_118				
74_Z-0-0-265	22646291	W265	SK	spare blade for W264				
74_Z-0-0-270	22648901	W270	1.0/ 2.3	removal tool for 1.0/2.3 inserts				
74_Z-0-0-368	23021264	W368	SMA	locator tool for SMA female (works with W58 and W442)	•		•	
74_Z-0-0-369	23021266	W369	SMA	locator tool for SMA male (works with W58 and W442)	•		•	
74_Z-0-0-374	23022146	W374	BMA, SK, SMA, N	support for soldering fixture (works with W58 and W442)				
74_Z-0-0-375	23022145	W375	BMA, SK, SMA, N	soldering fixture for centre contacts (works with W374)				




* Marking on tool.

Selection of common and helpful assembly tools






HUBER+SUHNER type	Item no.	W-no. *	For series	Description	Tool set 74 Z-0-0-			
					70	71	72	
74_Z-0-0-441	23024586	W441	BMA, SK, SMA, N	collecting tank for coolant or flux (works with W374)				
74_Z-0-0-442	23024588	W442	BMA, SK, SMA, N	soldering fixture (works with W374)				
74_Z-0-0-443	23024584	W443	BMA, SK, SMA, N	for positioning locator tools (works with W442)				
74_Z-0-3-2	22543148	W3-2	SMA, N	stripping gauge for insulation EZ_141	•	•		
74_Z-0-3-4	22543150	W3-4	N	trim tool for EZ_141		•		

* Marking on tool.

Assembly tools for BMA connectors with hermetic seal

HUBER+SUHNER type	Item no.	W-no. *	Description	
74_Z-0-0-211	22645591		soldering fixture for hermetic seal (12_BMA-50-0-3 and 22_BMA-50-0-3)	
74_Z-0-0-214	22645579		torque wrench (box spanner) torque 2.00 Nm, 8 mm hex.	
74_Z-0-0-215	22645580		screwdriver for 12_BMA-50-0-3 to use with 74_Z-0-0-214	

Assembly tools for SK connectors

HUBER+SUHNER type	Item no.	W-no. *	Description	
74_Z-0-0-226	22646136	W226	soldering fixture for glass bead	
74_Z-0-0-227	22646137	W227	soldering fixture for glass bead	
74_Z-0-0-228	22646138	W228	assembling tool for dielectric bead	
74_Z-0-0-230	22646130	W230	step drill (only if sliding contacts are not used)	
74_Z-0-0-235	22646135	W235	step drill (only if sliding contacts are used)	

* Marking on tool.

Torque wrenches



Box-spanner



Torque wrench (standard style)

HUBER+SUHNER type	Item no.	For series	Torque	Opening	Notes
74_Z0-0-21	22543130	SMA / PC 3.5	1.00 Nm	8.0 mm/.315 in	standard style
74_Z0-0-45	22544232	SMC	0.30 Nm	6.0 mm/.236 in.	standard style
74_Z0-0-77	22544820	SMA	1.00 Nm	8.0 mm/.315 in.	box-spanner *
74_Z0-0-79	22642374	SMA economic	0.45 Nm	8.0 mm/.315 in.	standard style
74_Z0-0-80	22544821	SMA hermetic	1.95 Nm	7.0 mm/.276 in.	standard style
74_Z0-0-174	22643898	SK	1.30 Nm	8.0 mm/.315 in.	standard style
74_Z0-0-189	22644368	SK hermetic	2.00 Nm	8.0 mm/.315 in.	standard style
74_Z0-0-192	22645084	TNC	1.00 Nm	15.0 mm/.591 in.	standard style
74_Z0-0-193	22645085	N	1.00 Nm	20.0 mm/.787 in.	standard style
74_Z0-0-321	22651994	N	1.00 Nm	19.0 mm/.748 in.	standard style
74_Z0-0-373	23021864	TNC	1.00 Nm	14.0 mm/.551 in.	standard style

* Suitable at high packing density.

Precision torque wrench

- In plastic box
- With calibration certificate



HUBER+SUHNER type	Item no.	For series	Torque	Opening	Notes
74_Z0-0-492	84104509	SMA, SK, PC3.5, PC2.4 and PC1.85	0.9 Nm	8.0 mm/.315 in	90 ° deflection

Combination tools for MMBX/MMCX/MCX

For protective cap mounting and decoupling



HUBER+SUHNER type	Item no.	Description
74_Z-0-0-30	22543139	assembly tool for 16_MCX and MMBX right angle connectors (decoupling and cap mounting)
74_Z-0-0-225	22645861	16_MMCX-50-1-1, 16_MMCX-50-1-2, 16_MMCX-50-2-1 (decoupling and cap mounting)
74_Z-0-0-272	22648614	all 11_MMCX- and 16_MMCX-connectors (decoupling and cap mounting)
74_Z-0-0-276	22648710	decoupling tool for bulkhead jacks (MCX 75 Ω)
74_Z-0-0-350	23004135	removal tool (16_MMCX)

Special tools for QMA connectors

Decoupling tool for high density applications



HUBER+SUHNER type	Item no.	W-no.*	Description
74_Z-0-0-459	84032400	W459	decoupling tool for high density application (for QMA and QN)

Assembly tool



HUBER+SUHNER type	Item no.	W-no.*	For series	Description
74_Z-0-0-360	23023444	W360	QMA	locator tools for QMA connectors (suitable for semi-rigid cables)

* Marking on tool.

Special tools for QN and MMPX connectors

Decoupling tool



HUBER+SUHNER type	Item no.	W-no.*	For series	Description
74_Z-0-0-459	84032400	W459	QN/QMA	decoupling tool for high density application

Locator tool



HUBER+SUHNER type	Item no.	W-no.*	For series	Description
74_Z-0-0-390	23035218	W390	QN	locator tool for 11 QN and 16 QN connectors (works with W58 and W442)

Locator tool



HUBER+SUHNER type	Item no.	W-no.*	For series	Description
74_Z-0-0-391	23035220	W391	QN	locator tool for 24 QN connectors (works with W58 and W442)

Locator tool for MMPX



HUBER+SUHNER type	Item no.	W-no.*	For series	Description
74_Z-0-0-555_---_E	84020011	W555	MMPX	decoupling tool (distance washers included)
74_Z-0-0-556_---_E	84031617	W556		distance washers (for replacement)

* Marking on tool.

Special tools for MBX and MMBX connectors

Assembly and disassembly tool for MBX



HUBER+SUHNER type	Item no.	Packaging	Operating instruction
74_Z-0-0-488	84101887	single	0000346622

Assembly and disassembly tool for MMBX



Fig.1



Fig. 2

HUBER+SUHNER type	Item no.	Packaging	Operating instruction	Fig.
74_Z-0-0-437	23023494	single	27378	1 (assembly tool)
74_Z-0-0-557	84032418		0000246815	2 (disassembly tool)

Various tools



HUBER+SUHNER type	Item no.	Description
74_Z-0-0-12	22642718	small saw
74_Z-0-0-13	22644241	replacement saw blade for 74_Z-0-0-12
74_Z-0-0-24	22543133	tap drill (thread 1/4-36 UNS-2B)
74_Z-0-0-89	22644721	screwdriver for female centre contacts (series 7/16)
74_Z-0-0-115	22642492	syringe for casing compound
74_Z-0-0-116	22642493	casting compound (resin 6.75 cm ³ and accelerator 3.0 cm ³) 2 containers
74_Z-0-0-177	22644541	tool for cap mounting (16_SMB/C/S connectors)
74_Z-0-0-229	22646139	tap drill (thread 1/4-36 UNS for blind hole thread)
74_Z-0-0-238	22646071	tap drill (thread 5/8-24 UNEF)

Accessories

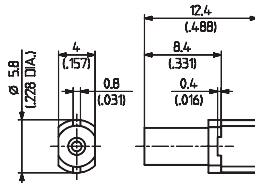
Cable terminators	456
Taper sleeves	458
Insulating washers	460
Solder tags	461
Component container «SUCOBOX»	462
Accessories for SK connectors	463
Accessories for BMA connectors	463

Cable terminators

Straight PCB cable terminators

For flexible cables

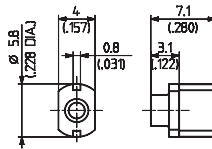
- Cable entry crimp
- 2.54 / .100 in. grid



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Plating body	Assembly instruction	Mounting hole	Crimp insert
83_CT-0-1-1/-11_NE	23013158	U1 (RG_178_B/U)	single	gold	27408	ML45	A
83_CT-0-2-1/-11_NE	23013159	U2 (RG_316_/U)					
83_CT-0-2-2/-11_NE	23013161	U4 (K_02252_D)					

For semi-rigid cables

- Cable entry soldered
- 2.54 / .100 in. grid



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Plating body	Assembly instruction	Mounting hole
83_CT-0-2-4/-11_NE	23013176	Y3, Y16 (EZ_86)	single bulk 100 pcs.	gold	27410	ML45
83_CT-0-2-4/-11_NH	23013177					

Cable terminators

For flexible cables

- Cable entry soldered

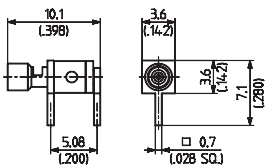


Fig.1

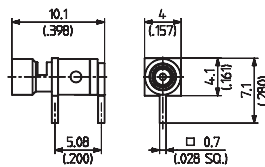


Fig. 2

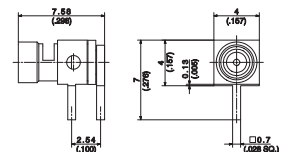
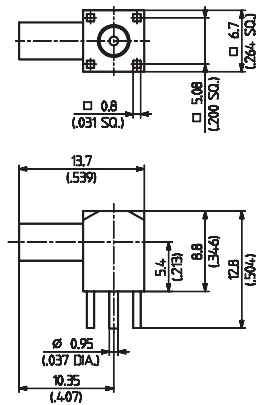


Fig. 3

HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Plating body	Assembly instruction	Mounting hole	Fig.
86_CT-0-1-1/111_NE	23013202	U1 (RG_178_B/U)	single	gold	27411	ML 100	1
86_CT-0-2-1/111_NH	23013216	U2 (RG_316_/U)	bulk 100 pcs.		27411	ML 100	2
86_CT-0-2-5/111_NH	23016926	U2 (RG_316_/U)	bulk 100 pcs.		27432	ML 164	3

For flexible cables

- Cable entry crimp



HUBER+SUHNER type	Item no.	Cable group (example)	Packaging	Plating body	Assembly instruction	Mounting hole	Crimp insert
86_CT-0-2-2/111_NE	23013227	U2 (RG_316_/U)	single	gold	27412	ML 15	A

Taper sleeves and suitable assembly tools

Release spray is recommended for mounting (Acmos 70 - 2404, oil-less)

- For connectors with cable entry crimp
- Made of EVA (ethylenevinylacetat)
- Temperature resistant - 40 °C - + 70 °C / - 40 °F - +158 °F
- Free of halogen
- Recyclable



Cable group	U1	U2, U5, S5	U4, R8	U7, U11, U12, U13 + RG_142_B/U, EF_142		U16, U17	U18
example	RG_196_A/U	RG_188_A/U RG_179_B/U	G_02232_D K_02252_D	RG_58_C/U	RG_223_/U G_03233_D	RG_59_B/U	G_04233_D
colour black	78_Z-0-1-1	78_Z-0-2-1	78_Z-0-2-3	78_Z-0-3-4	78_Z-0-3-5	78_Z-0-4-4	78_Z-0-4-5
Item no.	22544447	22544467	22544457	22544408	22641890	22544427	22641673
brown	78_Z-1-1-1	78_Z-1-2-1	78_Z-1-2-3	78_Z-1-3-4	78_Z-1-3-5	78_Z-1-4-4	78_Z-1-4-5
Item no.	22544448	22544468	22544458	22544416	22641664	22544436	22641674
red	78_Z-2-1-1	78_Z-2-2-1	78_Z-2-2-3	78_Z-2-3-4	78_Z-2-3-5	78_Z-2-4-4	78_Z-2-4-5
Item no.	22544449	22544469	22544459	22544415	22641665	22544435	22641675
orange	78_Z-3-1-1	78_Z-3-2-1	78_Z-3-2-3	78_Z-3-3-4	78_Z-3-3-5	78_Z-3-4-4	78_Z-3-4-5
Item no.	22544450	22544470	22544460	22544414	22641666	22544434	22641676
yellow	78_Z-4-1-1	78_Z-4-2-1	78_Z-4-2-3	78_Z-4-3-4	78_Z-4-3-5	78_Z-4-4-4	78_Z-4-4-5
Item no.	22544451	22544471	22544461	22544413	22641667	22544433	22641677
green	78_Z-5-1-1	78_Z-5-2-1	78_Z-5-2-3	78_Z-5-3-4	78_Z-5-3-5	78_Z-5-4-4	78_Z-5-4-5
Item no.	22544452	22544472	22544462	22544412	22641668	22544432	22641678
blue	78_Z-6-1-1	78_Z-6-2-1	78_Z-6-2-3	78_Z-6-3-4	78_Z-6-3-5	78_Z-6-4-4	78_Z-6-4-5
Item no.	22544453	22544473	22544463	22544411	22641669	22544431	22641679
violet	78_Z-7-1-1	78_Z-7-2-1	78_Z-7-2-3	78_Z-7-3-4	78_Z-7-3-5	78_Z-7-4-4	78_Z-7-4-5
Item no.	22544454	22544474	22544464	22544410	22641670	22544430	22641680
grey	78_Z-8-1-1	78_Z-8-2-1	78_Z-8-2-3	78_Z-8-3-4	78_Z-8-3-5	78_Z-8-4-4	78_Z-8-4-5
Item no.	22544455	22544475	22544465	22544409	22641671	22544429	22641681
white	78_Z-9-1-1	78_Z-9-2-1	78_Z-9-2-3	78_Z-9-3-4	78_Z-9-3-5	78_Z-9-4-4	78_Z-9-4-5
Item no.	22544456	22544476	22544466	22544508	22641672	22544428	22641682
length	20 mm/.79 in.	20 mm/.79 in.	20 mm/.79 in.	38 mm/1.5 in.	38 mm/1.5 in.	38 mm/1.5 in.	38 mm/1.5 in.
Assembly tool	74_Z-0-2-1	74_Z-0-2-1	74_Z-0-2-1	74_Z-0-3-6	74_Z-0-3-6	74_Z-0-4-6	74_Z-0-4-6
Item no.	22543144	22543144	22543144	22544544	22544544	22544543	22544543

Taper sleeves and suitable assembly tools

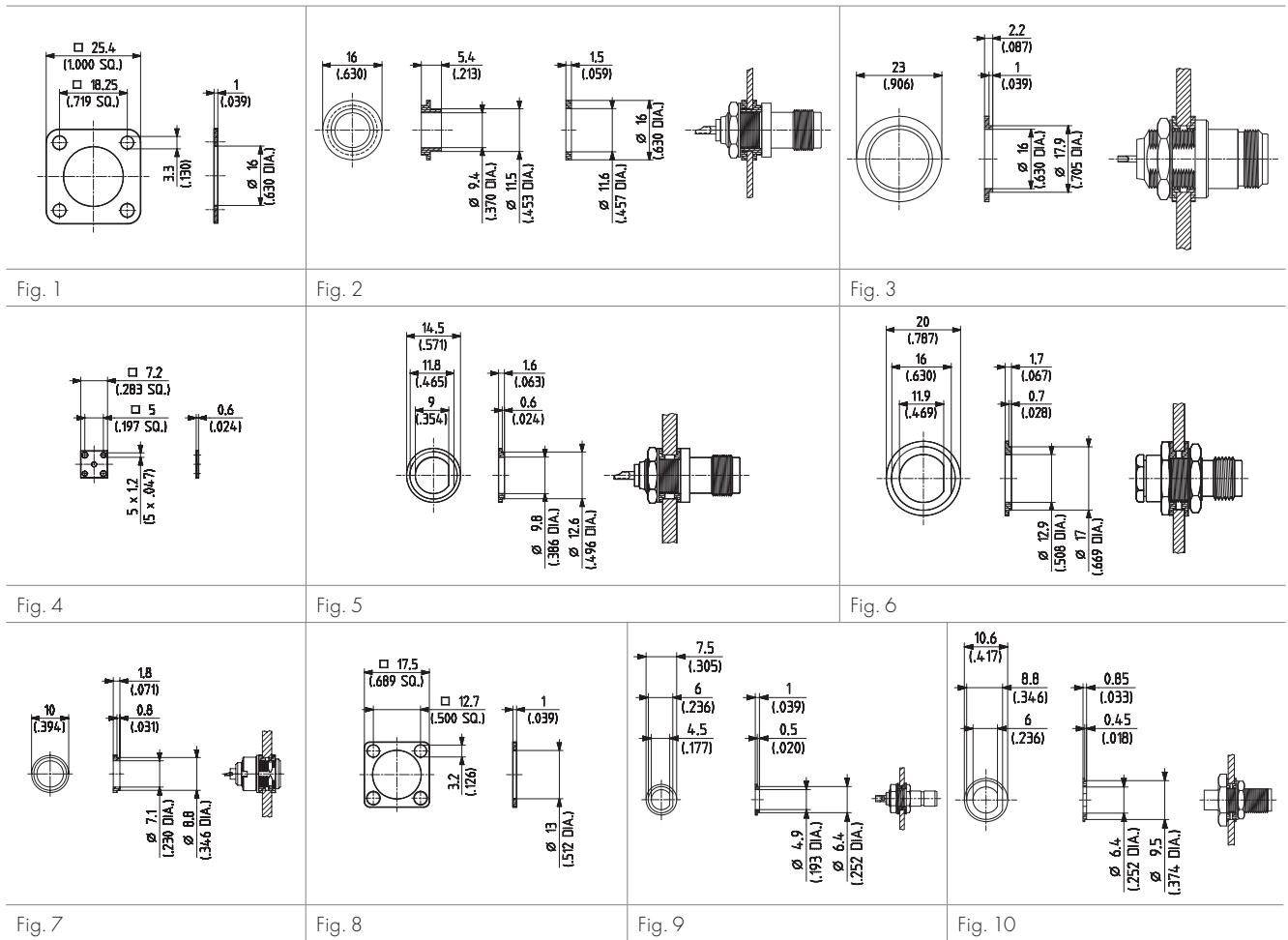
The two types below are available in black only

Cable group	U29, U30, U34	U32, U36
example	RG_213_/U	RG_214_/U
colour black	78_Z-0-7-1	78_Z-0-7-2
Item no.	22641162	22641163
Length	48 mm / 1.89 in.	48 mm / 1.89 in.
Assembly tool	74_Z-0-7-2	74_Z-0-7-3
Item no.	22641165	22641164



* Marking on tool.

Insulating washers



HUBER+SUHNER type	Item no.	Suitable for		Mounting hole	Material	Fig.	Notes
		Connector pattern *	Connector series				
77_Z-0-0-1/---_H	22543199	23, 25	N	ML 14	polyamide	1	10 pcs. each
77_Z-0-0-2/---_H	22543200	12, 22	BNC, TNC	ML 102	polyamide	2	**/10 pairs
77_Z-0-0-4/---_Z	22543202	12,22,24,34	N	ML 113	polyamide	3	10 pairs
77_Z-0-0-8/---_H	22543204	82, 85	SMB/C/S, MCX, QLA 00, SMA	ML 41	PTFE	4	100 pcs.
77_Z-0-0-9/---_Z	22543205	12, 22	BNC, TNC	ML 4	polycarbonate	5	**/10 pairs
77_Z-0-0-12/---_H	22543209	24, 34	BNC, TNC	ML 22	polycarbonate	6	10 pairs
77_Z-0-0-14/---_Z	22543211	22, 24, 34	QLA 00	ML 114	polyamide	7	**/10 pairs
77_Z-0-0-15/---_H	22641429	23, 25	BNC, TNC	ML 8	polyethylene	8	10 pcs. each
77_Z-0-0-21/---_Z	22645782	22, 24, 34	SMB/C/S	ML 35	polycarbonate	9	10 pairs
77_Z-0-0-23/---_Z	22652083	22, 34***	SMA	ML 2	polycarbonate	10	for connectors with ML 35 only / 10 pairs

* See connector pattern on page 8f.

** Without rotation protection.

*** Not all types of pattern 34 are suitable for insulated mounting.

Solder tags

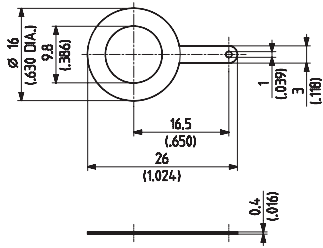


Fig. 1

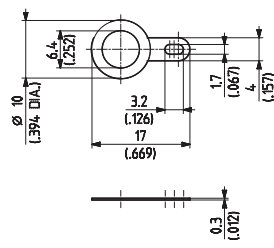


Fig. 2

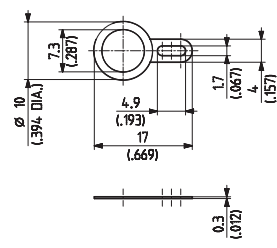


Fig. 3

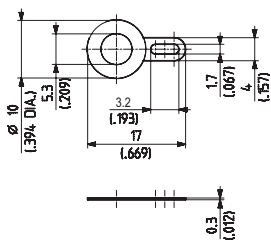


Fig. 4

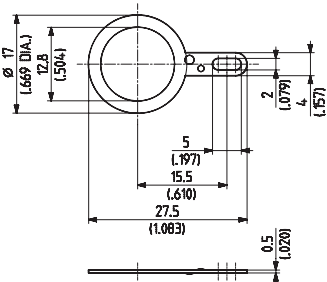


Fig. 5

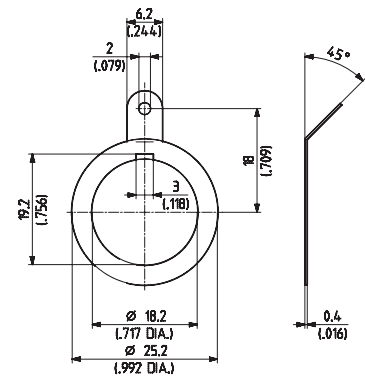


Fig. 6

HUBER+SUHNER type	Item no.	Suitable for		Packaging	Fig.	Notes
		Connector pattern *	Connector series			
72_Z-0-0-1/---_5H	22543029	12, 22	BNC, BNO, BNT, SHV, MHV, TNC	bulk 100 pcs.	1	single ended
72_Z-0-0-6/---_0H	22543036	22, 24, 34	SMA		2	
72_Z-0-0-8/---_5H	22543038	22, 24	QLA 00		3	
72_Z-0-0-9/---_5H	22543039	12, 22, 24, 34	SMB/SMC/SMS, MCX		4	
72_Z-0-0-11/---_5H	22641496	24, 34	BNC, BNO, BNT, SHV, MHV, TNC		5	
72_Z-0-0-13/---_5H	22642507	22, 24, 34	N		6	

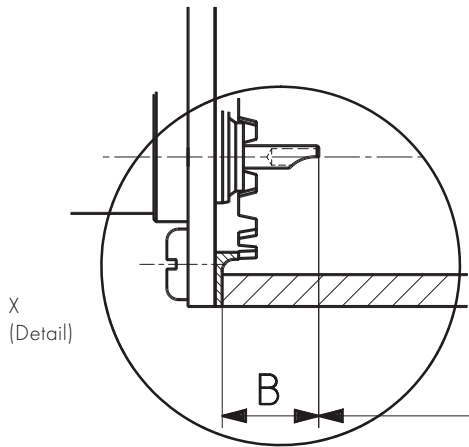
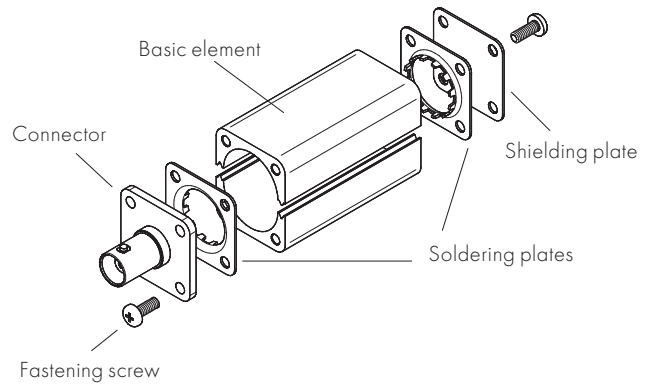
* See connector pattern on page 8f.

Component container «SUCOBOX»

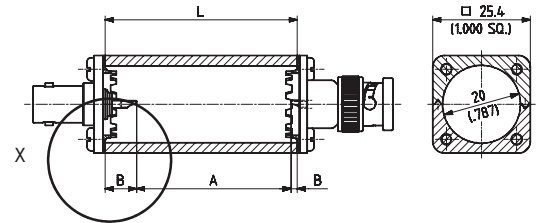
The HUBER+SUHNER «SUCOBOX» is a versatile component container with coaxial input and output connectors or cable entries.

SUCOBOX

The basic element consists of two similar container parts, two soldering plates for easy soldering of the earthing and 8 tightening screws.



B
Distance between pin end and soldering plate



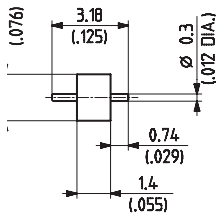
HUBER+SUHNER type	Item no.	Description	Length L	Material	Packaging
66_CB-35-0-1/---_E	22541510	basic element	35.0 mm / 1.38 in.	aluminium, anodised, blue	single
66_CB-50-0-1/---_E	22541514	basic element	50.0 mm / 1.97 in.	aluminium, anodised, blue	single
72_Z-0-0-5/---_OH	22543035	soldering plate, separate	–	brass, silver plated	bulk 100 pcs.
73_Z-0-0-9/---_H	22543056	shielding plate, separate	–	brass, silver plated	bulk 100 pcs.

Suitable connectors

HUBER+SUHNER type	Item no.	Connector	Dimension B (see drawing top left)	Packaging
13_BNC-50-0-2/133_NE	22540160	plug	1.5 mm / 0.06 in.	single
23_BNC-50-0-2/133_NE	22540333	jack	8.0 mm / 0.31 in.	
13_N-50-0-1/133_NE	22542173	plug	9.0 mm / 0.35 in.	
23_N-50-0-1/133_NE	22542272	jack	9.0 mm / 0.35 in.	

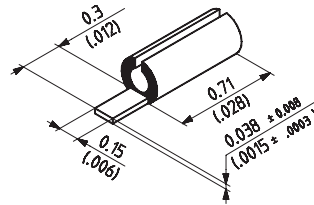
Accessories for SK connectors

Glass bead for 12 SK, 13 SK, 22 SK, 23 SK launchers
(package with 1 piece).



HUBER+SUHNER type
73_Z-0-0-203
Item no. 22645983

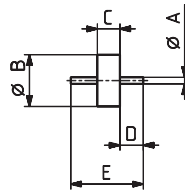
Microstrip stress relief contacts
(package with 100 pieces).



HUBER+SUHNER type
73_Z-0-0-204
Item no. 22645980
Mounting instruction: 9183

Accessories for BMA connectors

Glass bead for 12_BMA-50-0-3 and 22_BMA-50-0-3.

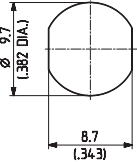
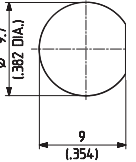
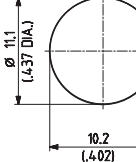
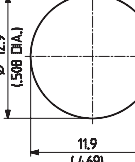
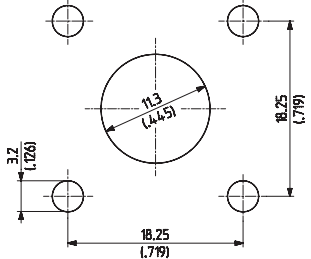
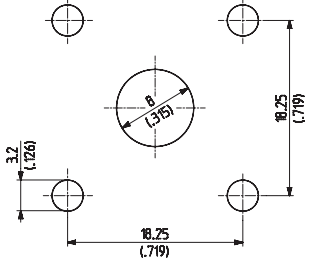
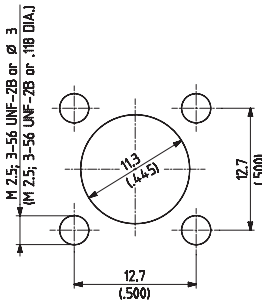
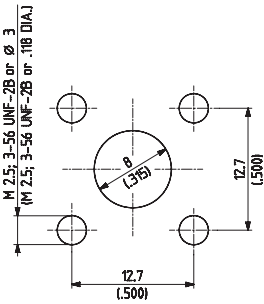
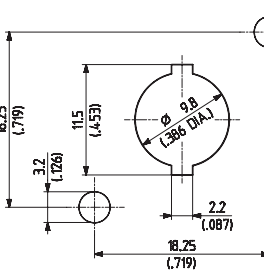
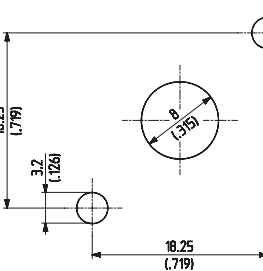
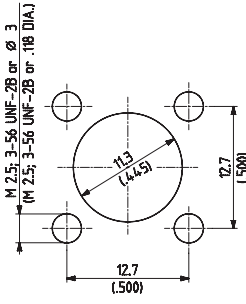
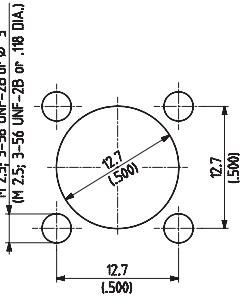
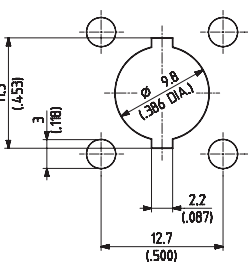
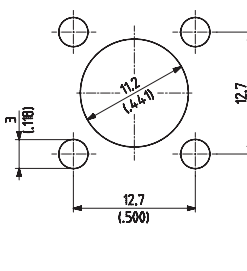


HUBER+SUHNER type	Item no.	A	B	C	D	E
73_Z-0-0-198	22645655	0.5 mm / .020 in.	4.0 mm / .157 in.	1.75 mm / .069 in.	1.8 mm / .071 in.	5.6 mm / .220 in.



Mounting holes and PCB layouts

Dimensions of mounting holes

ML 1	ML 2	ML 3	ML 4
			
ML 5	 <p style="text-align: center;">rear panel mounting</p>		 <p style="text-align: center;">front panel mounting</p>
 <p style="text-align: center;">rear panel mounting</p>	 <p style="text-align: center;">front panel mounting</p>	 <p style="text-align: center;">rear panel mounting</p>	 <p style="text-align: center;">front panel mounting</p>
 <p style="text-align: center;">rear panel mounting</p>	 <p style="text-align: center;">front panel mounting</p>	 <p style="text-align: center;">rear panel mounting</p>	 <p style="text-align: center;">front panel mounting</p>

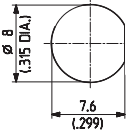
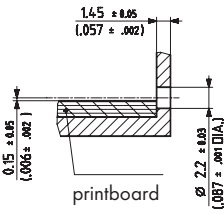
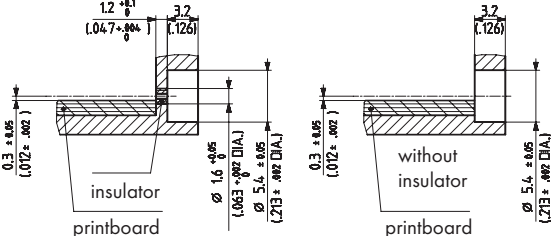
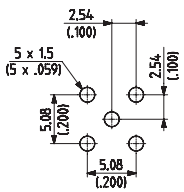
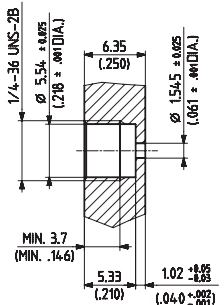
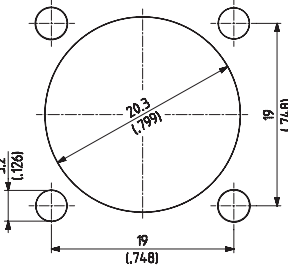
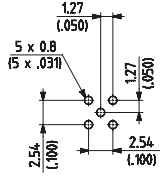
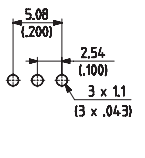
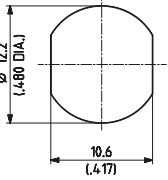
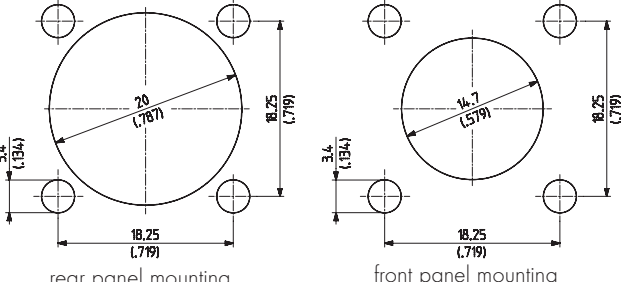
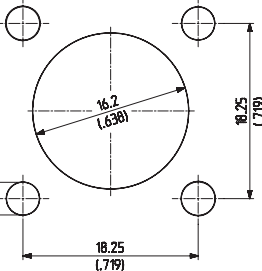
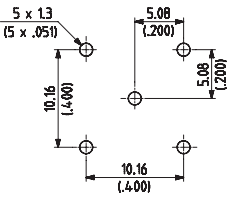
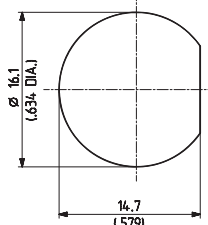
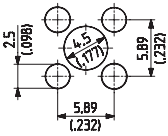
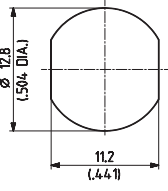
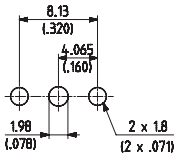
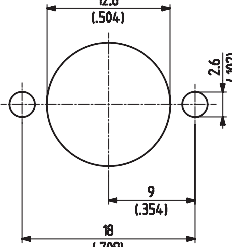
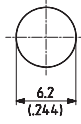
Mounting holes and PCB layouts

<p>ML 10</p>	<p>ML 11</p>	<p>ML 12</p>	<p>ML 13</p>
<p>ML 14</p>	<p>ML 15</p>	<p>ML 16</p> <p>rear panel mounting</p>	<p>ML 16</p> <p>front panel mounting</p>
<p>ML 17</p> <p>rear panel mounting</p>	<p>ML 17</p> <p>front panel mounting</p>	<p>ML 18</p> <p>rear panel mounting</p>	<p>ML 18</p> <p>front panel mounting</p>
<p>ML 19</p>	<p>ML 20</p>	<p>ML 21</p>	<p>ML 22</p>
<p>ML 23</p>	<p>ML 24</p>	<p>ML 25</p>	<p>ML 26</p>

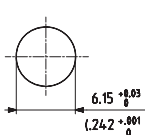
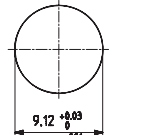
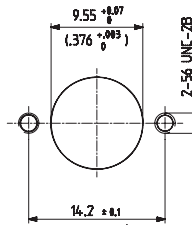
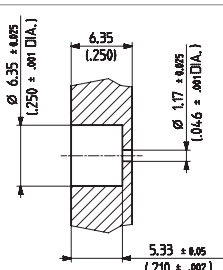
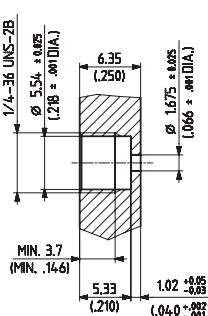
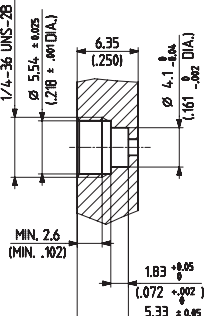
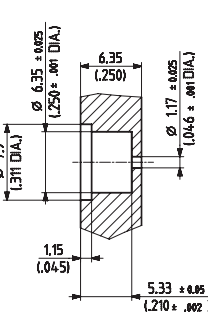
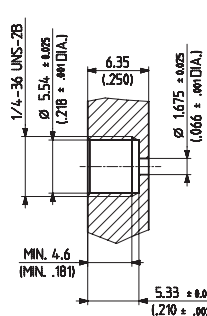
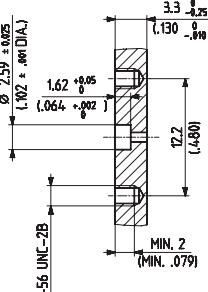
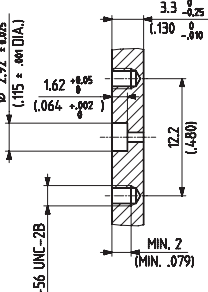
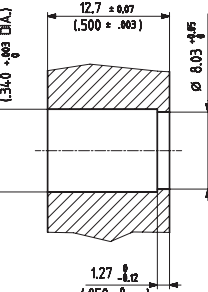
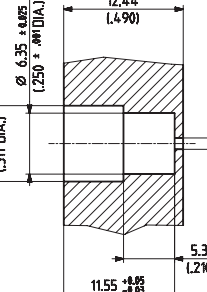
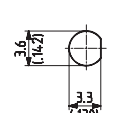
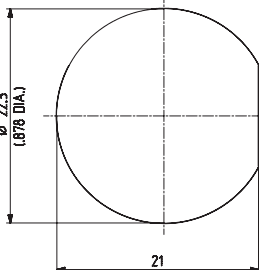
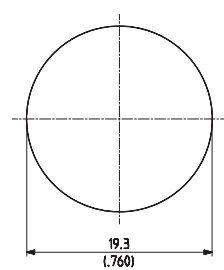
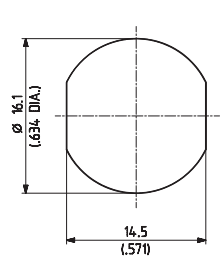
Mounting holes and PCB layouts

<p>ML 27</p>	<p>ML 28</p>		
<p>ML 29</p>	<p>ML 30</p>	<p>ML 31</p>	
<p>ML 32</p>	<p>ML 33</p>	<p>ML 34</p>	<p>ML 35</p>
<p>ML 36</p> <p>rear panel mounting front panel mounting</p>		<p>ML 37</p> <p>rear panel mounting front panel mounting</p>	

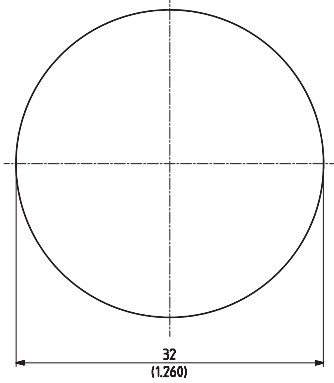
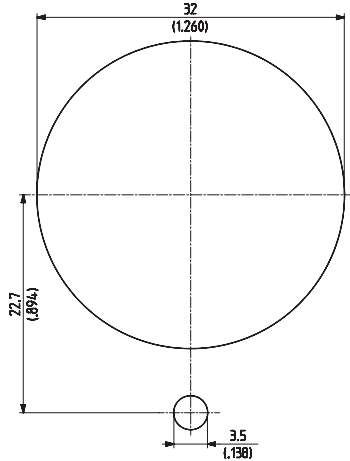
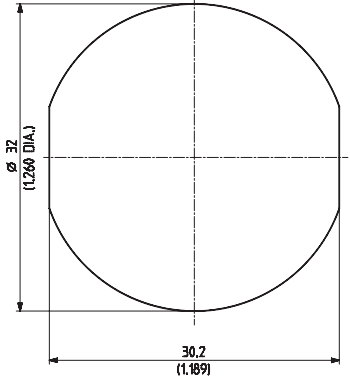
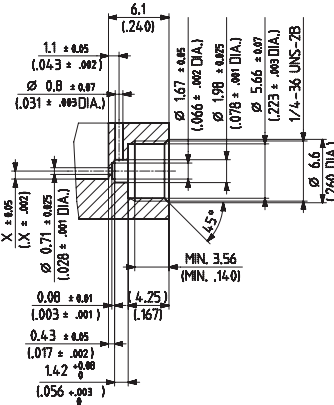
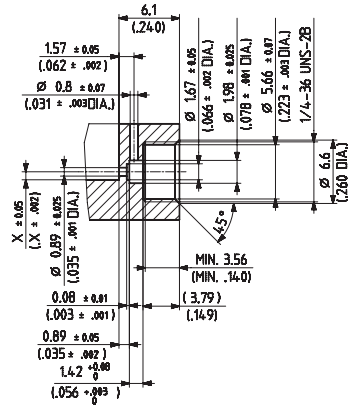
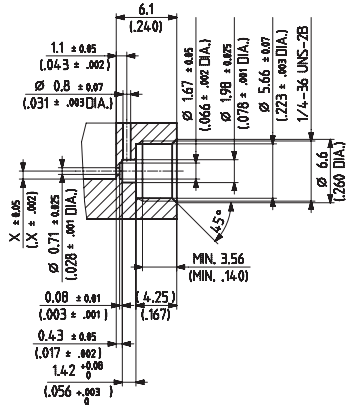
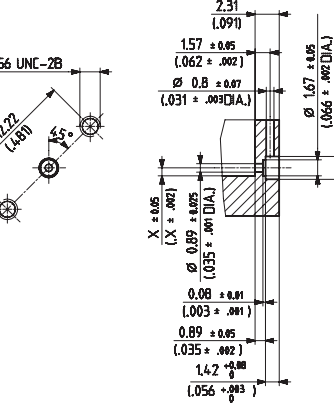
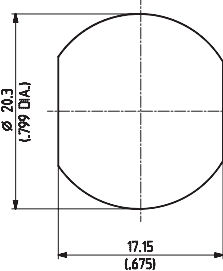
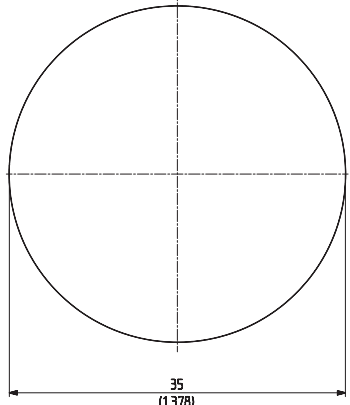
Mounting holes and PCB layouts

<p>ML 38</p> 	<p>ML 39</p>  <p>printboard</p>	<p>ML 40</p>  <p>insulator printboard</p> <p>without insulator printboard</p>	
<p>ML 41</p> 	<p>ML 42</p>  <p>1/4-36 UNS-2B MIN. 3.7 (MIN. .146)</p>	<p>ML 43</p> 	<p>ML 44</p> 
<p>ML 45</p> 	<p>ML 46</p> 	<p>ML 47</p>  <p>rear panel mounting</p> <p>front panel mounting</p>	
<p>ML 48</p> 	<p>ML 49</p> 	<p>ML 50</p> 	<p>ML 51</p> 
<p>ML 52</p> 	<p>ML 53</p> 	<p>ML 54</p> 	<p>ML 55</p> 

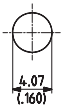
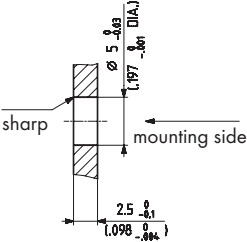
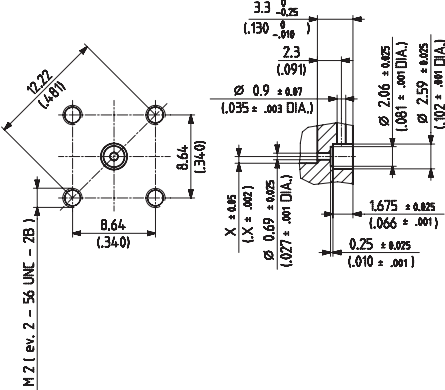

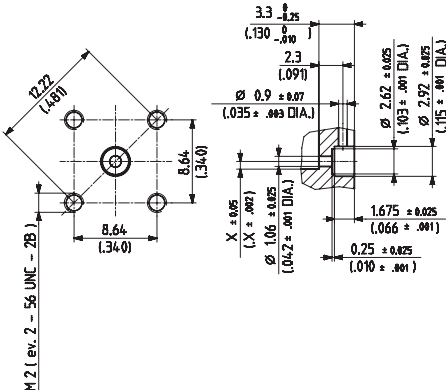
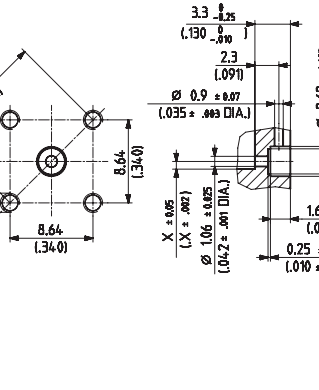





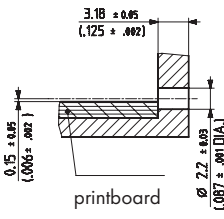
Mounting holes and PCB layouts

<p>ML 56</p> 	<p>ML 57</p> 	<p>ML 58</p> 	<p>ML 59</p> 
<p>ML 60</p> 	<p>ML 61</p> 	<p>ML 62</p> 	<p>ML 63</p> 
<p>ML 64</p> 	<p>ML 65</p> 	<p>ML 66</p> 	<p>ML 67</p> 
<p>ML 68</p> 	<p>ML 69</p> 	<p>ML 70</p> 	<p>ML 71</p> 

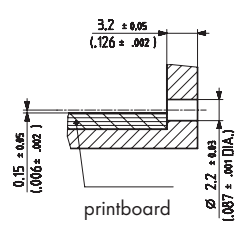
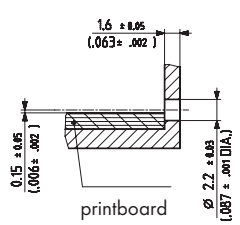
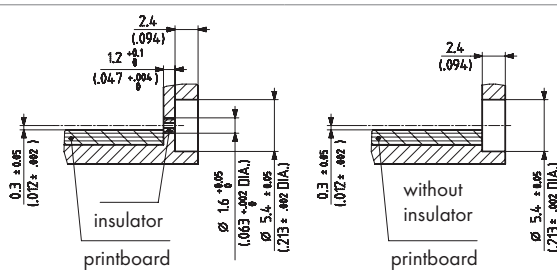
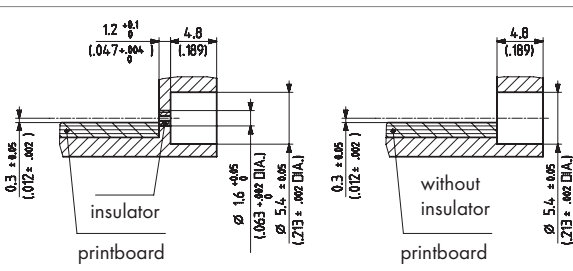
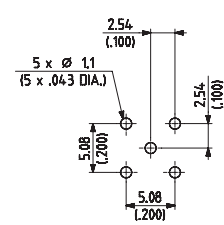
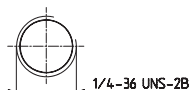
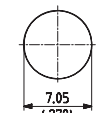
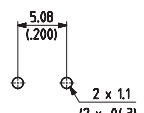
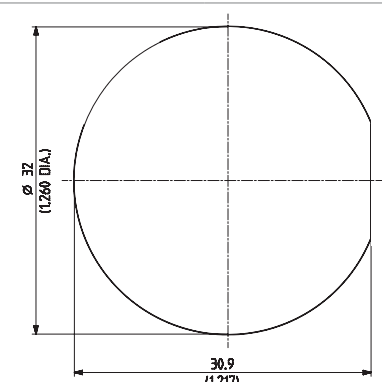
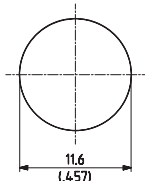
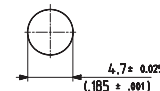
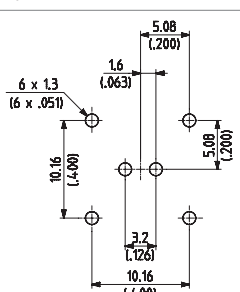
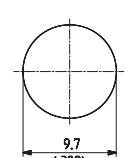
Mounting holes and PCB layouts

<p>ML 72</p> 	<p>ML 73</p> 	<p>ML 74</p> 
<p>ML 75</p> 	<p>ML 76</p> 	<p>ML 77</p> 
<p>ML 78</p> 	<p>ML 79</p> 	<p>ML 80</p> 

Mounting holes and PCB layouts

<p>ML 81</p> 	<p>ML 82</p> 	<p>ML 83</p> 
<p>ML 84</p> 	<p>ML 85</p> 	<p>ML 86</p> 
<p>ML 87</p> 	<p>ML 88</p> 	<p>ML 89</p> 
<p>ML 90</p> 	<p>ML 91</p> 	<p>ML 92</p> 

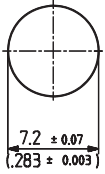
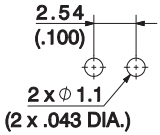
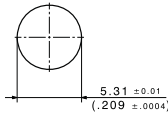
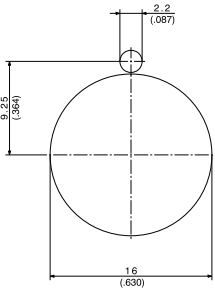
Mounting holes and PCB layouts

<p>ML 93</p> 	<p>ML 94</p> 	<p>ML 95</p> 	
<p>ML 96</p> 		<p>ML 97</p> 	<p>ML 98</p> 
<p>ML 99</p>  <p>counter sunk from rear</p>	<p>ML 100</p> 	<p>ML 101</p> 	
<p>ML 102</p> 	<p>ML 103</p> 	<p>ML 104</p> 	<p>ML 105</p> 

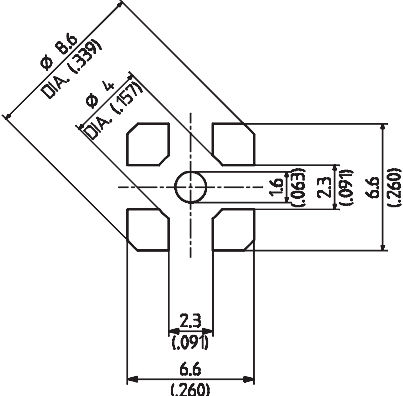
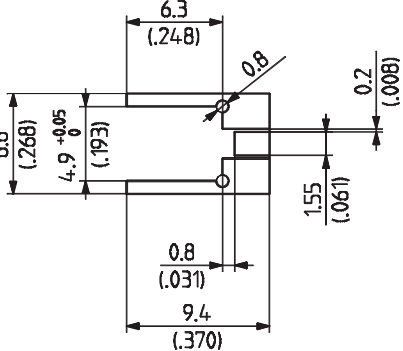
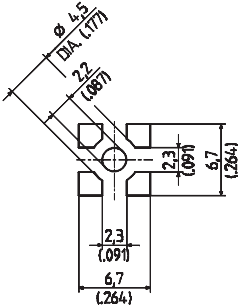
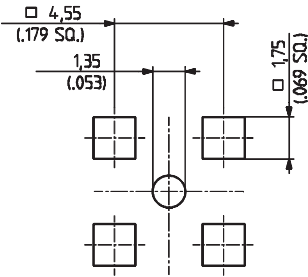
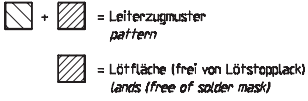
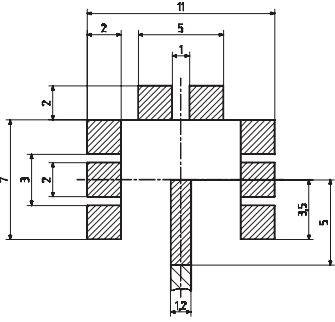
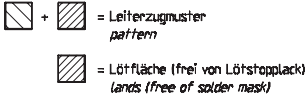
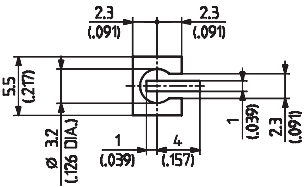
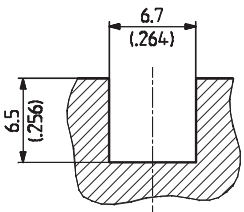
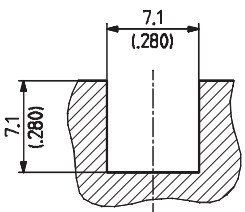
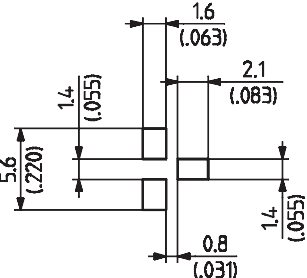
Mounting holes and PCB layouts

<p>ML 106</p>	<p>ML 107</p>		
<p>ML 108</p>	<p>ML 109</p>	<p>ML 110</p>	<p>ML 111</p>
<p>ML 112</p>	<p>ML 113</p>	<p>ML 114</p>	<p>ML 115</p>
<p>ML 118</p>	<p>ML 119</p>	<p>ML 128</p>	<p>ML 143</p>

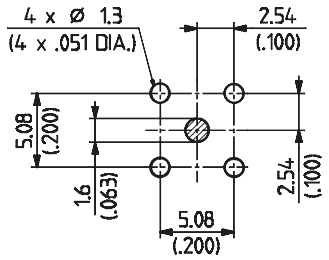
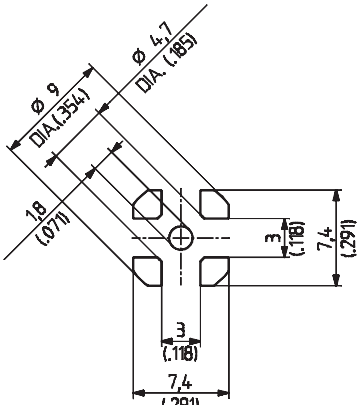
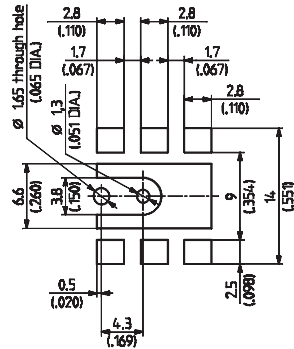
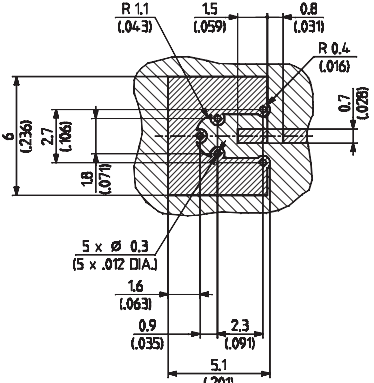
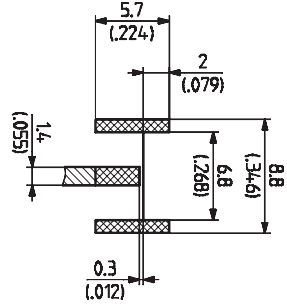
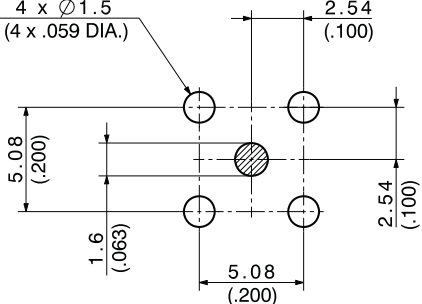
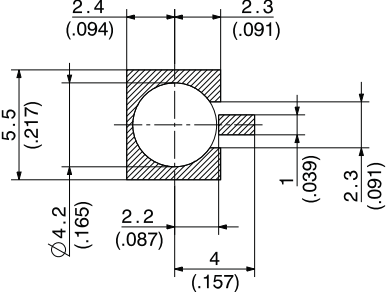
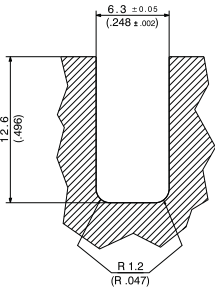
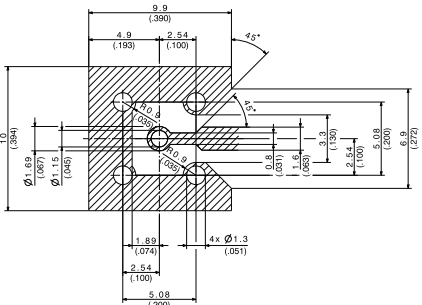
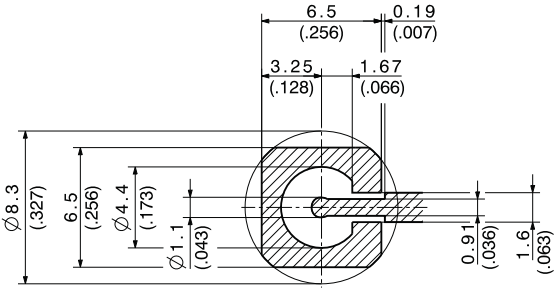
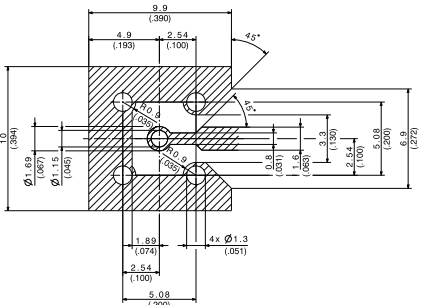
Mounting holes and PCB layouts

ML 146	ML 164	ML 177	ML 178
			

Dimensions of PCB layouts (ML)

ML 120	ML 121	ML 122
		
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Dimensions of PCB layouts (ML)

<p>ML 135</p> 	<p>ML 136</p> 	<p>ML 137</p> 
<p>ML 138</p> 	<p>ML 147</p> 	<p>ML 155</p> 
<p>ML 167</p> 	<p>ML 169</p> 	<p>ML 174</p> 
<p>ML 173</p> 	<p>ML 174</p> 	

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