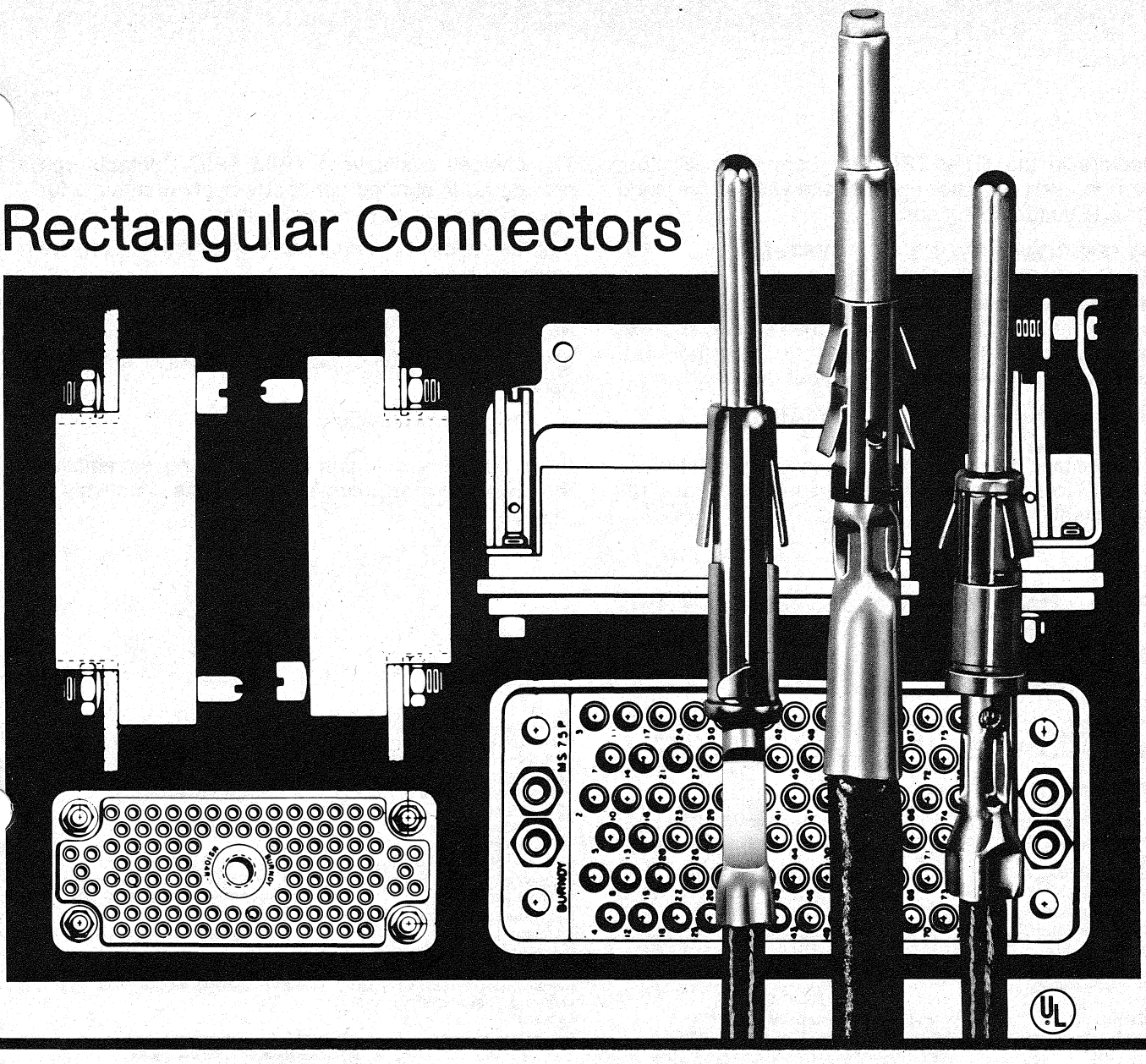
Rectangular Connectors



The Burndy HYFEN Series of Multi-Contact Rectangular Connectors offers an extremely reliable, rugged, and versatile system in which any of the TRIM TRIO family of contacts can be used.

HYFEN Connectors, available in ten sizes from 14 to 152 positions, are supplied pre-assembled with a choice of accessories. Contacts are supplied separately.

The range of accessories available include hoods, strain relief clamps, guide pins, jack screws, and pin protection skirts. These options and a variety of methods for discriminating between similar connectors, in addition to pin and socket contacts that can be interchanged and intermixed in both plug and receptacle assemblies to make the HYFEN series a truly versatile system.

The performance characteristics of the HYFEN Connectors are in conformance with the applicable requirements of MIL-C-28748.

HYFEN CONNECTORS — A SYSTEM WITH BUILT-IN ECONOMY

Connectors are supplied pre-assembled to your requirements saving you production assembly time and the associated problems of component handling, scheduling, and inventory.

Connectors and TRIM TRIO Contacts offer cost savings in many areas —

The comprehensive range of contact installation tooling available enables you to select the type most efficient for your production requirements.

The inherent reliability of crimp terminations enables semi-skilled operators to be used and minimizes quality assurance costs.

The extensive range of contacts available allows you to make the choice of the most cost-effective contact for your particular application.

Once tooled for TRIM TRIO Contacts, all other con-

nectors in the TRIM TRIO Interconnection System can be used for other applications without the need for additional tooling costs.

HYFEN CONNECTORS — A SYSTEM WITH BUILT-IN RELIABILITY

HYFEN Connectors and TRIM TRIO Contacts have proven their reliability over more than a decade of extensive, trouble-free use in military, industrial, and commercial applications throughout the world.

HYFEN CONNECTORS — A SYSTEM WITH BUILT-IN VERSATILITY

The options in accessories enables a connector assembly to be produced to cover practically any requirement.

The choices available in TRIM TRIO Contacts can provide an integrated connector system suitable for most signal and power applications.

Discrimination of connector assemblies can be achieved by:

a. Polarization of protection skirts

b. Position of guide pins and sockets and jack screws

c. Position of contacts

Such flexibility provides discriminating capabilities that even the most complex of systems is unlikely to exhaust.

Performance Characteristics and Materials

Performance Characteristics MS-M, MSD-M, MSB-M

Characteristics	Performance
Contact Rating (Per MIL-W-5088)	Machined 13 Amperes; Formed Two Piece 13 Amperes; Formed One Piece 5 Amperes
Operating Voltage	750 volts AC 60 HZ
Operating Temperature	MS-M + MSD-M −55° to + 125° C; MSB-M −55° to + 85° C
Contact Voltage Drop (Max.)	Machined 23 Millivolts; Formed Two Piece/One Piece 25 Millivolts
Insulation Resistance (Min.)	5000 Megohms minimum at 500 VDC
Test Potential (1 min. duration)	2000 volts AC 60 HZ
Contact Retention In Block (Min.)	25 lbs. (machined contacts) 15 lbs. (formed contacts) after 10 insertions and withdrawals
Connector Mating Forces (Max.)	per MIL-C-28748
Crimp Joint Characteristics	Machined contacts per MIL-STD-202, method 106; formed 240 hours at 40° C, 90-95% R.H.
Corrosion	Salt spray per MIL-STD 202 Method 101
Moisture Resistance	Machined contacts per MIL-STD-202, method 106; formed, 240 hours at 40° C, 90-95% R.H.
Vibration Resistance	per MIL-STD-202, Method 204
Shock	per MIL-STD-202, Method 207
Durability	500 cycles mating and unmating
Flamability	per UL 94V-0
Subminiature coaxial contacts	
Isolation at 30 MHZ	140 db
V.S.W.R. for RG174/U, 50 Ohm cable at 510 MHz	1.12
at 2300 MHz	1.30
Operating Temperature in mated condition	-55° C to + 125° C -67° F to + 257° F
Contact Retention in Connector Body (Contact retention after 5 cycles of insertion and extraction)	15 lbs. Minimum

U.L. recognized—File No. E 31151.

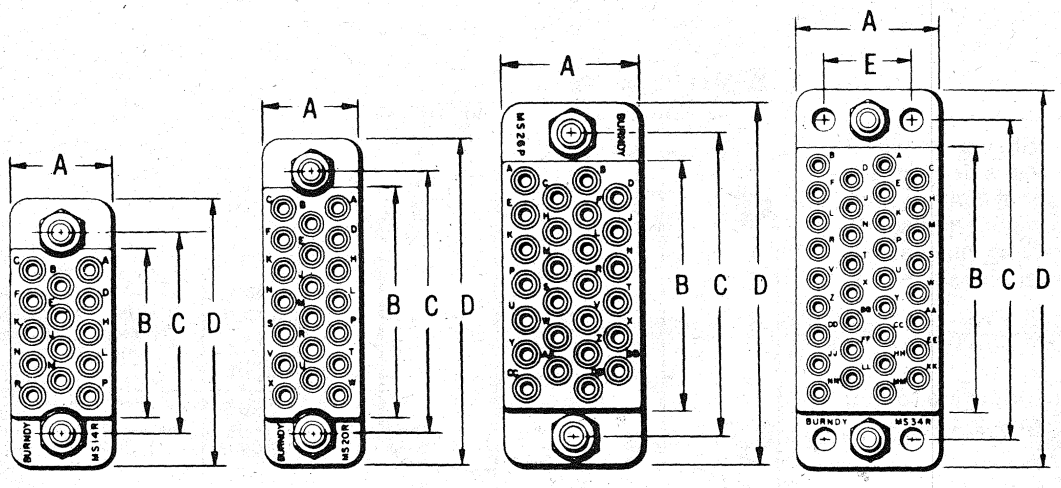
Characteristics	Performance
Contact Voltage Drop (When measured on mated contacts from the wire or braid 1/4" beyond the hyring, one (1) ampere current	30 MV. Maximum
Contact Withdrawal Forces Inner Socket using pin (.024" Diameter)	1/2 ounce Minimum
Outer Socket using pin (.073" Diameter)	1/2 ounce Minimum
Dielectric Withstanding Voltage (Applied for 1 minute between inner and outer contacts)	750 Volts AC RMS (Multi-piece) 450 Volts AC RMS (Monocrimp)
Insulation Resistance of Inner Bushings (Per MIL-STD-202B Method 302 Test Cond. B)	1,000 Megohms Min.
Durability (250 cycles mating and unmating of assembled pins and sockets)	Meets Voltage Drop requirements
Crimp Requirements	(Meets MIL-T-7928 for tensile and electrical tests on inner conductor) 8 to 12 lbs. Minimum on the braid depending upon type of coax wire used.
Salt Spray 48 Hours	Contacts show no evidence of corrosion and pass withdrawal requirements
Shock (One shock of 50g. intensity in each of three mutually perpendicular directions)	Contact shows no evidence of damage

Materials

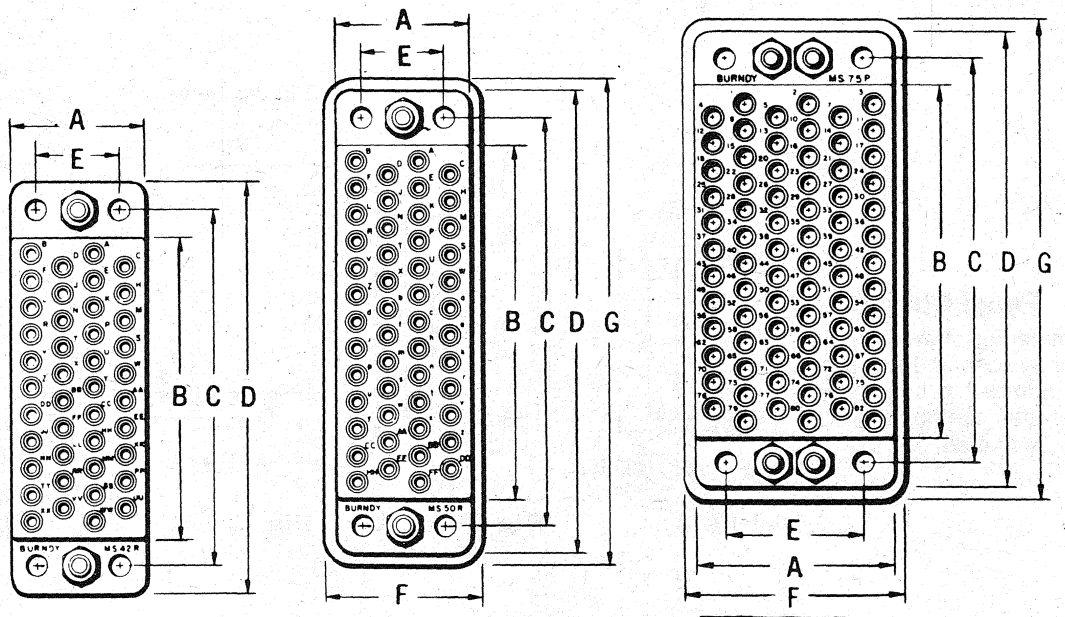
Item	Material
MS-M Blocks	Glass-filled Phenolic per MIL-M-14F, type MFH
MSD-M Blocks	Diallyl Phthalate per MIL-M-19833
MSB-M Blocks	Glass-filled Phenolic per MIL-M-14F Plated tin over nickel
Guide pins and sockets	Brass-ASTM B1.6 (with accessories Nickel plated Stainless Steel #303)
Keyed jacks and Rotating jacks	Stainless Steel #303

14-75 Place Blocks MS-M, MSD-M, MSB-M

Plug and Receptacle Dimensions



14 positions 20 positions 26 positions 34 positions



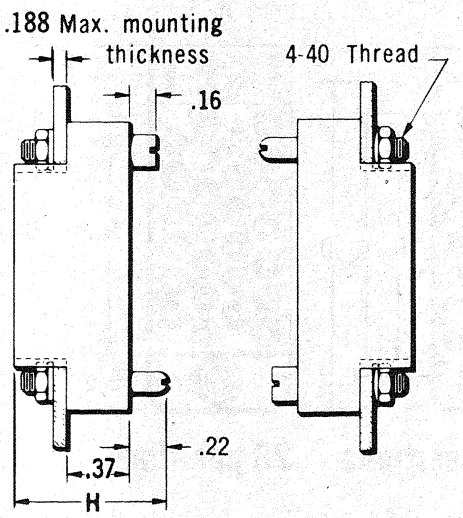
42 positions 50 positions 75 positions

No. of Positions	Dimensions in Inches						
	A	B	C	D	E	F	G
14	.46	.79	.937	1.25	—	—	—
20	.46	1.10	1.250	1.56	—	—	—
26	.59	1.07	1.312	1.62	—	—	—
34	.75	1.41	1.686	2.00	.468	—	—
42	.75	1.69	1.990	2.31	.468	—	—
50	.75	2.00	2.281	2.59	.468	.87	2.72
75	1.11	2.00	2.281	2.59	.764	1.23	2.72

14-75 Place Blocks
Type MS-M, MSD-M, MSB-M

Block Size — Blocks of all 3 materials have the same dimensions. The number of contact positions given below must be used to complete the catalog numbers in the Ordering Chart on page 5.

NOTE: Mounting hardware torque requirement—2-4 in-lbs.



Block Family	Max. "H" In.	
	With Jackscrews	With Guide Pin & Socket
MS-M	1.13	1.10
MSD-M	1.13	1.10
MSB-M	1.13	1.10

Panel Cutouts

All 3 block materials have the same cutout dimensions for blocks with the same number of contact positions. Alternate methods of mounting, are indicated in the table.

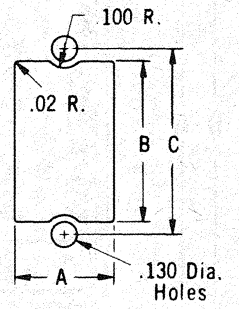


Fig. 1

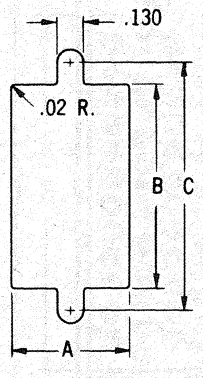


Fig. 2

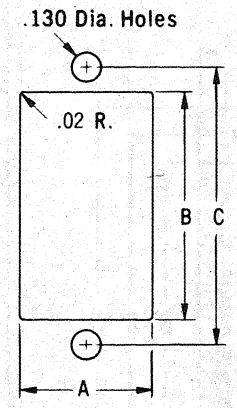


Fig. 3

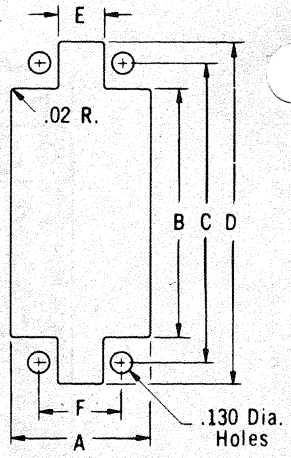


Fig. 4

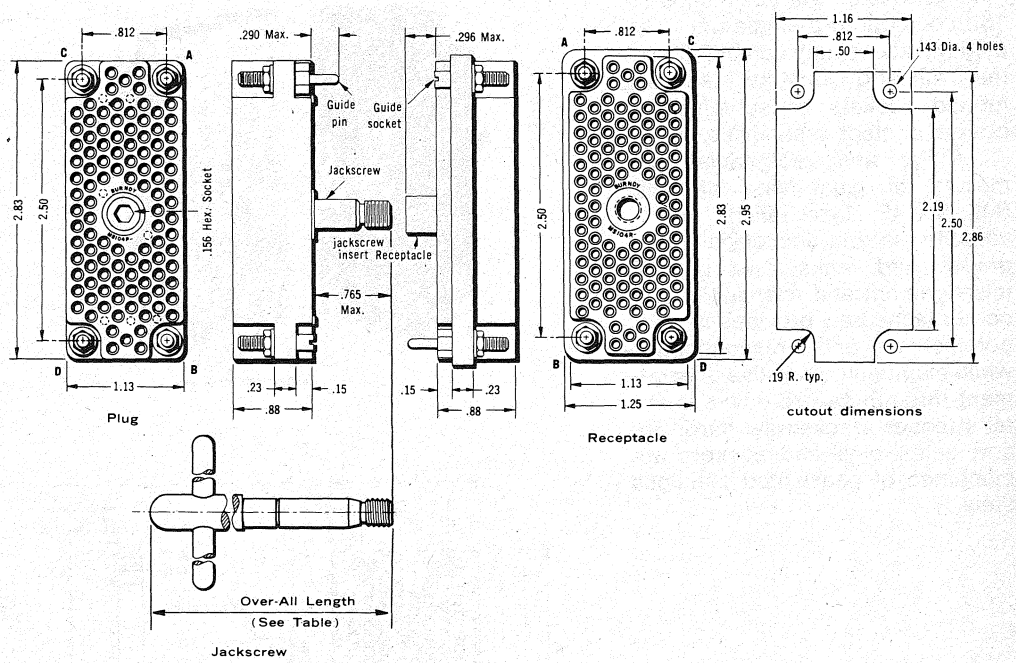
No. of Positions	Fig. No.	Dimensions in Inches					
		A	B	C	D	E	F
14	1 or 2	.49	.82	.937	—	—	—
20	1 or 2	.49	1.13	1.250	—	—	—
26	2 or 3	.62	1.11	1.312	—	—	—
34	4	.78	1.44	1.686	1.94	.25	.468
42	4	.78	1.72	1.990	2.24	.25	.468
50	4	.78	2.03	2.281	2.53	.25	.468
75	4	1.14	2.03	2.281	2.53	.56	.764

104 Position Block

This connector enables the user to accommodate 104 contacts in a single unit. These contacts may be any combination of subminiature coaxial contacts and #16 machined and formed contacts.

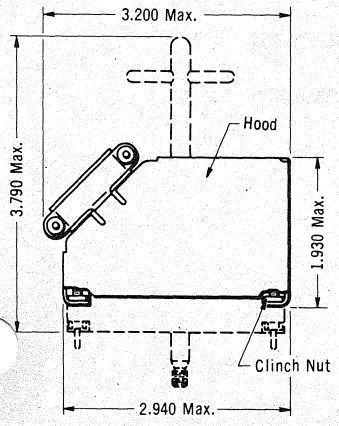
The plugs and receptacles are molded of diallyl phthalate per MIL-M-14, type SDG. The jackscrews and related hardware are machined of non-magnetic, passivated stainless steel. The molded in mounting ferrules in both the plug and receptacle are brass, cadmium plated.

Type MSD104-M



Type MSH104M-1

A combination hood and cable clamp assembly has been designed for the MSD104PM-410 and MSD104PM-494 connectors. Unlike the other accessories, this one is not pre-assembled by Burndy to the connector panel but must be ordered separately.



Performance Characteristics

Contact rating *
Operating voltage 750 volts AC 60 cycles
Operating temperature — 55°C to +125°C
Contact voltage drop (Max.) 23 millivolts machined — 25 millivolts formed
Insulation resistance 5000 megohms minimum
Test potential (1 Min. duration) 2000 volts AC 60 cycles
Contact retention in panel (Min.) 25 lbs. machined, 15 lbs. formed after 10 insertions and withdrawals

*Ref. Performance Characteristics page 2

Crimp joint characteristics machined meet requirements of MIL-C-28748 — formed, MIL-T-7928
Corrosion salt spray per MIL-STD-202 Method 101
Moisture resistance machined per MIL-STD-202 Method 106 — formed 240 hours at 40°C, 90-95% RH
Vibration resistance per MIL-STD-202 Method 204
Shock per MIL-STD-202 Method 207

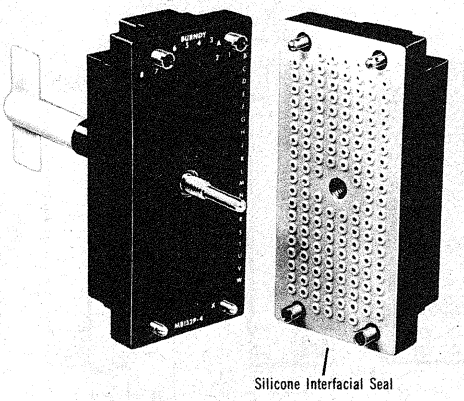
Ordering Chart for MSD104-M

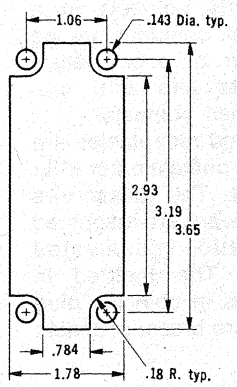
MSD104PM — (Plug) Catalog Number	Orientation of Guide Pins	Type of Jackscrew	Overall Length of Winged Jackscrew	MSD104RM — (Receptacle) Catalog Number
MSD104PM-401	None	Hex-Socket	—	MSD104RM-402
MSD104PM-410	None	Winged	4.520 max.	MSD104RM-402
MSD104PM-415	A, D	Hex-Socket	—	MSD104RM-416
MSD104PM-487	A, B, C, D	Winged	3.020 max.	MSD104RM-489
MSD104PM-488	A, B, C, D	Winged	3.520 max.	MSD104RM-489
MSD104PM-494	A, B, C, D	Winged	4.520 max.	MSD104RM-489

152 Position Block

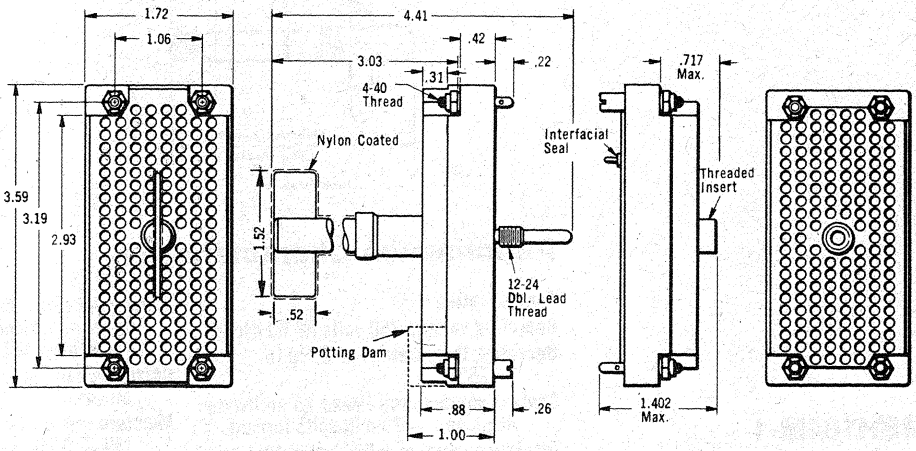
This connector will accommodate 152 contacts in a single unit. The plug will accept any combination of the Trim Trio Contacts machined formed sockets or subminiature coaxial contact assemblies.

Plugs and receptacles are molded of glass-filled phenolic (MIL-M-14F, Type MFH). Nonreversible pin and socket polarizing guides and jackscrews prevent misalignment and mismatching. A center jackscrew provides ease of connection and disconnection while maintaining positive engagement through severe environmental stresses. Jackscrew hardware and guide pins and sockets are machined of passivated stainless steel.





cutout dimensions



Plug Receptacle

Performance Characteristics

Contact rating *

Operating voltage 750 volts AC 60 cycles

Operating temperature —55°C to +125°C

Contact voltage drop (Max) 23 millivolts machined; 25 millivolts formed

Insulation resistance 5000 megohms minimum

Test potential (1 minute duration) 2000 volts AC 60 cycles

Contact retention in panel 25 lbs. machined, 15 lbs. formed after 10 insertions and withdrawals

Crimp joint characteristics machined meet requirements of MIL-C-28748; formed, of MIL-T-7928

Corrosion salt spray per MIL-STD-202, method 101

Moisture resistance withstands 750 volts AC for 5 minutes

Vibration resistance per MIL-STD-202, Method 204

Shock per MIL-STD-202, Method 207

*Ref. Performance Characteristics page 2

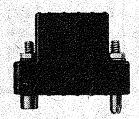
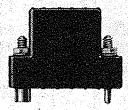
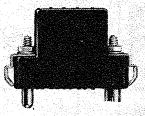
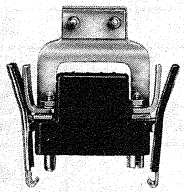
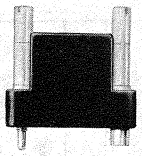
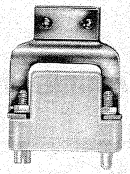
Ordering Information

CATALOG NUMBER	Description
MB152-P4	Plug
MB152-R4	Receptacle

INTERMATEABILITY CHECK LIST FOR PLUG AND RECEPTACLE VARIATIONS

PLUG ASSEMBLIES	RECEPTACLE ASSEMBLIES																											
	1	1C	1L	1S	57	57S	58	58S	118	118S	120	120L	120S	124	124S	140	140S	151	269	269C	269L	269S	820	820L	820S	824	824S	840
1	●			●							●		●										●		●			
1C			●									●									●			●				
1L		●																										
1S	●			●							●		●															
57							●	●								●	●	●										●
57S							●	●								●	●	●										
58					●	●			●	●				●	●											●	●	
58S					●	●			●	●				●	●											●	●	
118							●	●								●	●	●										
118S							●	●								●	●											
120	●			●							●		●										●		●			
120L		●																										
120S	●			●							●		●										●		●			
124							●	●								●	●	●										●
124S							●	●								●	●	●										
140					●	●			●	●				●	●											●	●	
140S					●	●			●	●				●	●											●	●	
151					●	●			●	●				●	●											●	●	
269	●			●							●		●						●			●	●					
269C			●									●									●			●				
269L		●																		●								
269S	●			●							●		●						●			●						
820	●										●		●										●		●			
820L		●																										
820S				●							●		●										●		●			
824							●	●								●	●	●										●
824S				●			●	●								●	●	●										
840					●	●			●	●				●	●											●	●	

Selector Chart for 14-75 Place Blocks

 Block With Guide Hardware	 Block With Fixed Jack Hardware	 Block With Quick Disconnect Hardware	 Block With Quick Disconnect Latching Spring	 Block With Turnable Jack Hardware	 Strain Relief Clamp
X					
X					
X					X
X					X
X					
X					
X					
X					
	X				
	X				
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	X				
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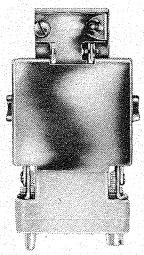
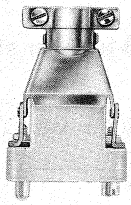
 Suitcase Hood	 Clam Shell Hood	Without Skirt	 Plug Skirt	 Receptacle Skirt	Variation Number	Catalog Page Number
		X			1	4
			X	X	1S □	4
		X			269	10
			X	X	269S □	10
X		X			820	11
X			X	X	820S □	11
	X	X			120	10
	X		X	X	120S □	10
		X			58	-
			X	X	58S □	-
		X			151	10
	X	X			140	10
	X		X	X	140S □	10
		X			1C	12
					269C	12
		X			1L	12
		X			269L	12
X					820L	12
		X			57	-
			X	X	57S □	-
	X	X			124	10
	X		X	X	124S □	10
X		X			824	11
X			X	X	824S □	11
X					840	11
		X			118	10
			X	X	118S □	10

□ DESIGNATION REQUIRED FOR DISCRIMINATION POSITION
SEE PAGE 9 FOR DETAILS.

How to Order — Hyfen Rectangular Connectors

This catalog has been produced to provide the necessary information to order standard HYFEN Connector assemblies.

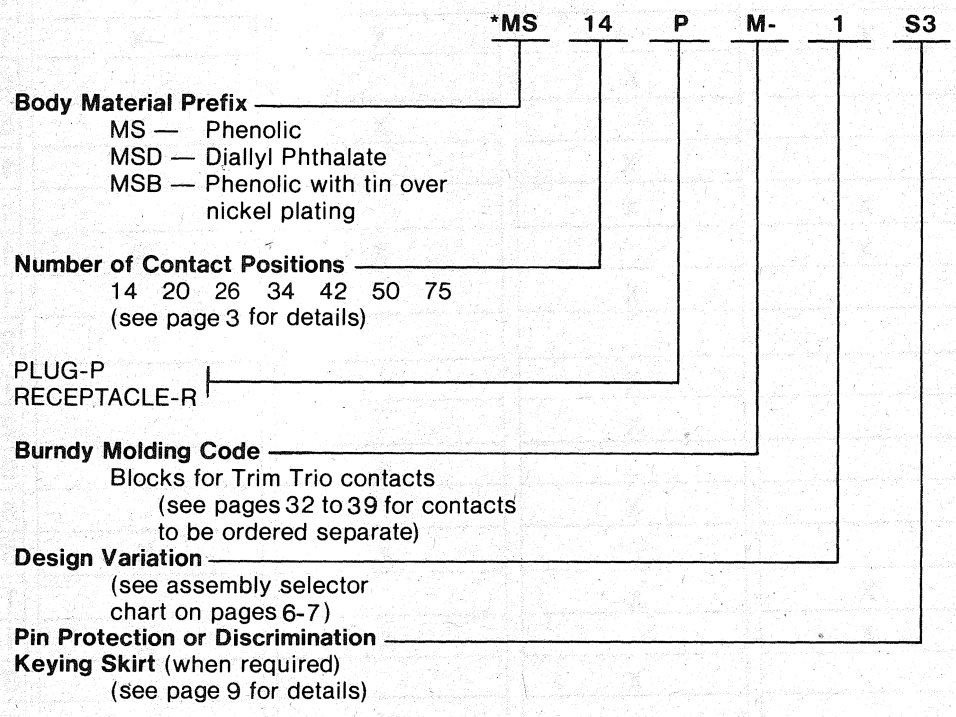
There are five criteria to be considered in developing the part number for a basic connector assembly. **Note:** Trim Trio contacts must be ordered separately.

1. The body material
2. The number of contact positions
3. Plug or receptacle block
4. The design variation number for the desired accessories (i.e., strain-relief clamps, hoods, guide pins and sockets, or jack screws)
5. If optional pin protection skirts are required, the discrimination suffix must be indicated. If skirts are not required no designator is to be included in the part numbering.

A Selector Chart for obtaining the required connector assembly has been included. This chart will identify the variation number and the page number in the catalog containing detailed dimensional information.

If the optional pin protection skirt is selected, the appropriate discrimination suffix number must be selected from page 9.

After selecting plug and receptacle assemblies, it is advisable to verify the intermateability of variations by checking the Intermateability Check List on page 8.



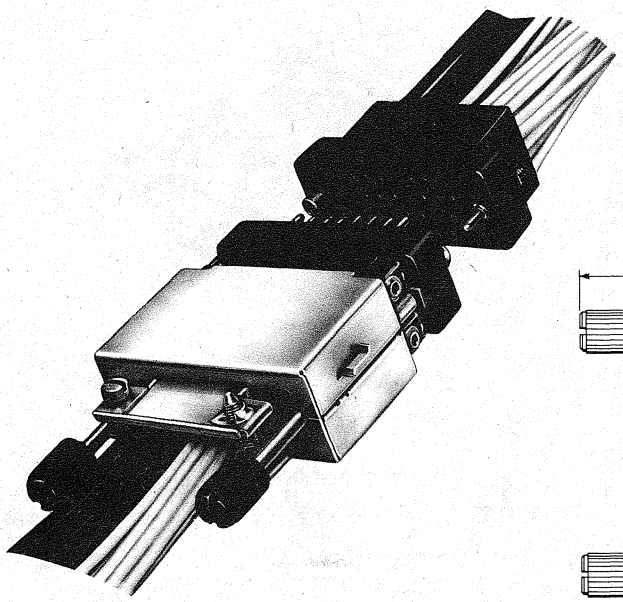
*Example Part Number: Phenolic Block; 14 Positions; Plug; For Trim Trio Contacts To Be Ordered Separate; Guide Pin And Socket Variation; And, Pin Protection Skirt With Discrimination Pin In #3 Key Position

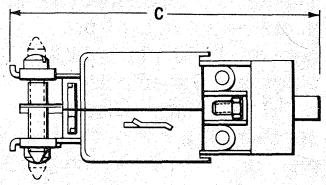
Suitcase Hood and Block Assemblies

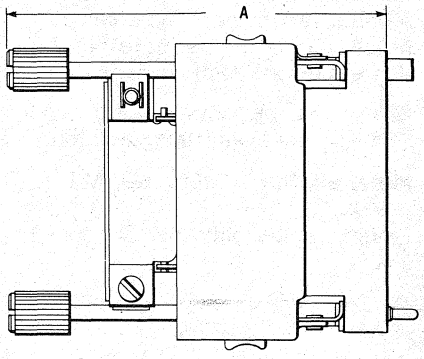
The suitcast hood, preassembled, opens easily for contact insertion, inspection, or changes, and snaps shut. Assemblies can include turnable jack screws, quick disconnects, pin protection skirts, guide pins and sockets. See pages 6-7 for these variations.

Material:

Hood, Cable Clamp Bar, Hinge Block: Aluminum per QQ-A-250.
Finish: Gold chromate per MIL-C-5541
Latch: Cooper alloy per ASTM B-122, Alloy 3 or per QQ-C-585 Comp. 5.
Jackscrew: Passivated stainless steel, A1S1B113 per QQ-S-633.
Jackscrew Knob: Nylon per MIL-P-20693, Type 3.







Suitcase Hood and Assemblies

	Body Size	Dimensions in Inches
		MS-M, MSD-M
"A" Dimension Block with rotating jackscrews and suitcase hood	14 20 26 34 42 50 75*	3.33
"C" Dimension Block with guide pins, sockets and suitcase hood	14 20 26 34 42 50 75*	2.56

*May be used on plug only.

Quick Disconnect and Block Assemblies

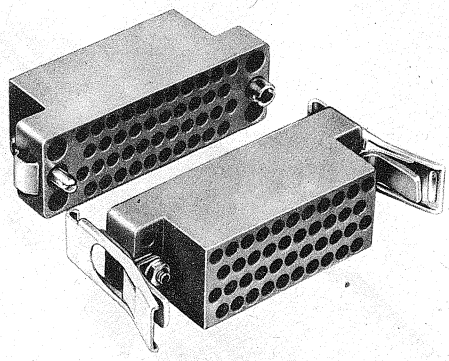
The Quick Disconnect latch is an effective method of positively connecting 14-50 place MS-M HYFEN plugs and receptacles.

The Quick Disconnect latch consists of a hooked spring on the plug and a retainer on the receptacle. When the plug and receptacle are mated, the spring snaps onto the retainer and locks the plug and receptacle together. The connector halves can be separated by depressing the latch springs.

Note: Pin protection skirts cannot be used with this variation.

Material: Steel C1070 per MIL-S-8143

Finish: Nickel plate per QQ-N-290



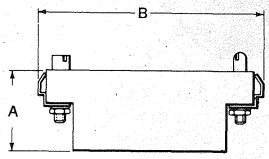


Fig. 1

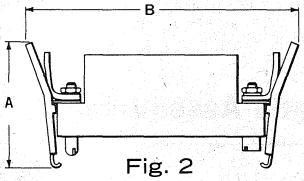


Fig. 2

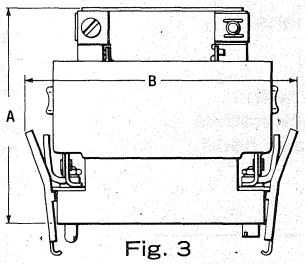


Fig. 3

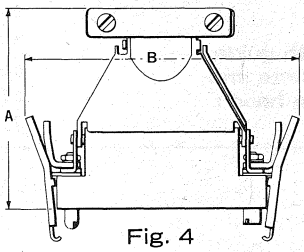


Fig. 4

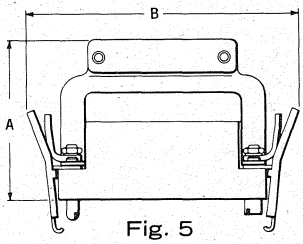


Fig. 5

	Body Size	Dimensions in Inches	
		"A" max.	"B" max.
		MS-M, MSD-M	all
Fig. 1 Quick Disconnect Latch Retainer with Block	14	.90	1.46
	20		1.77
	26		1.83
	34		2.20
	42		2.52
	50		2.81
Fig. 2 Quick Disconnect Latch Spring with Block	14	1.42	2.09
	20		2.40
	26		2.46
	34		2.84
	42		3.14
	50		3.43
Fig. 3 Quick Disconnect Latch with Suitcase Hood & Block	14	2.59	2.09
	20		2.40
	26		2.46
	34		2.84
	42		3.14
	50		3.43
Fig. 4 Quick Disconnect Latch with Clam-shell Hood & Block	14	1.95	2.09
	20		2.40
	26		2.46
	34	2.27	2.84
	42		3.14
	50		3.43
Fig. 5 Quick Disconnect Latch with Cable Clamp & Block	14	1.66	2.09
	20		2.40
	26	1.83	2.46
	34	1.87	2.84
	42		3.14
	50		3.43

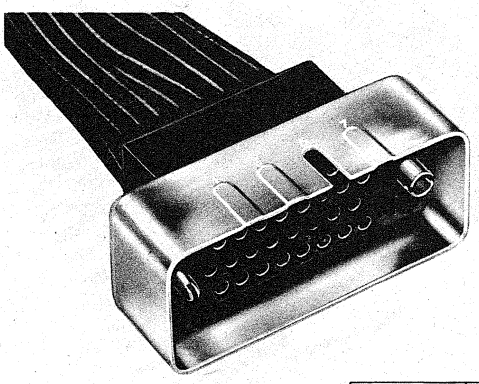
Pin Protection Skirts and Block Assemblies

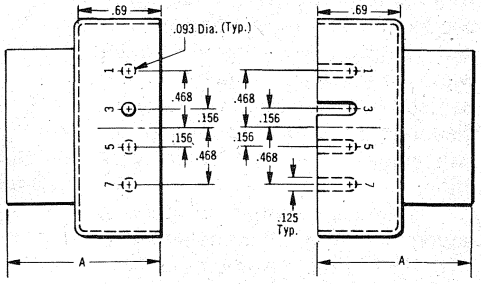
Pin protection skirts provide contacts with maximum protection from physical damage. The pin protection skirts minimize the danger of short circuiting when connector halves are not mounted.

Material

Aluminum alloy finished with gold chromate per MIL-C-5541.

Pin protection skirts are available in any one of 4 polarizing positions. The location of the polarization pin & slot is specified in the suffix to the catalog number.





Slot No.	Suffix	Catalog Number	
		Plug with Pin	Receptacle with slot
1	S1	MS--P--S1	MS--R--S1
3	S3	MS--P--S3	MS--R--S3
5	S5	MS--P--S5	MS--R--S5
7	S7	MS--P--S7	MS--R--S7
None	S9	MS--P--S9	MS--R--S9

RACK & PANEL

Pin Protection Skirt and Block Assemblies

	Body Size	"A" Dimensions in Inches	
		Block with Guide Pin and Socket	Block with Rotating Jackscrews
		MS-M, MSD-M,	MS-M, MSD-M,
Pin Protection Skirt and Block	14 20 26 34 42 50 75	1.42	1.45
Pin Protection Skirt, Suitcase Hood and Block	14 20 26 34 42 50 75	2.76	3.65

	Body Size	"A" Dimensions in Inches	
		Block with Guide Pin and Socket	Block with Rotating Jackscrews
		MS-M, MSD-M,	MS-M, MSD-M,
Pin Protection Skirt, Clamshell Hood and Block	14 20 26	2.24	2.24
	34 42 50 75	2.56	2.56
Pin Protection Skirt, Cable Clamp and Block	14	1.90	1.90
	20	1.91	1.91
	26	2.09	2.09
	34 42 50 75	2.12	2.12

Clamshell Hood and Block Assemblies

The clamshell hood, used either with jackscrews or guide pins, allows contacts to be snapped into and removed from the connector without removing the hood. It may be used in conjunction with a quick disconnect or pin protection skirts, See pages 6-7 for these variations.

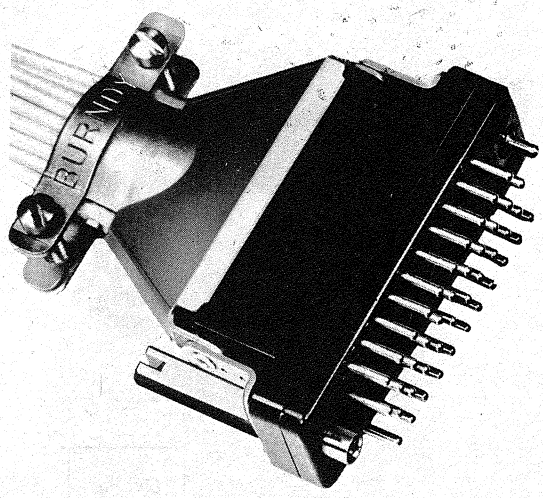
The hood clamp is designed to accommodate a full complement of #20 AWG wires maximum per MIL-W-16878 (.081 diameter maximum over insulation with or without outer nylon jacket). Clamp will close down to a minimum wire accommodation of 50% capacity.

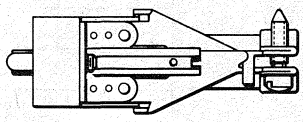
Material:

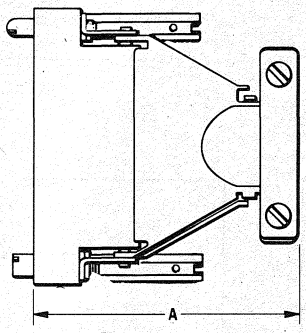
Hood: aluminum alloy
Jackscrews: passivated stainless steel
Jack socket: passivated stainless steel

Finish:

Hood: gold chromate per MIL-C-5541





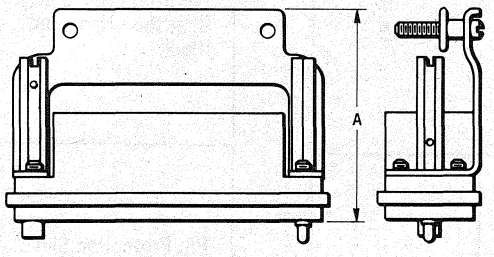


ClamshellHood and Block Assemblies

Body Size	"A" Dimensions in Inches
	MS-M, MSD-M
14	1.92
20	
26	
34	2.24
42	
50	
75	

Cable Clamp and Block Assemblies

The cable clamp is designed for use with all MS-M type miniature rectangular HYFEN connectors and can be fitted to either the plug or receptacle. It may be used with either guide pins or rotating jack screws. The cable clamp affords strain relief and permits easy access to contacts. The conductor restraining screws of the cable clamp are rubber sleeved to prevent damage to the conductor insulation. It can be used with pin protection skirts. See pages 6-7 for these variations.

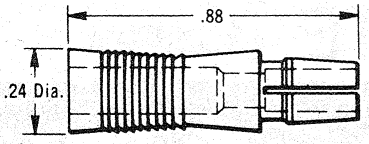


Cable Clamp and Block Assemblies

Body Size	"A" Dimensions in Inches
	MS-M, MSD-M
14	1.58
20	1.59
26	1.77
34	1.80
42	
50	
75	

Quick Disconnect Cable Splice Accommodates Trim Trio Contacts:

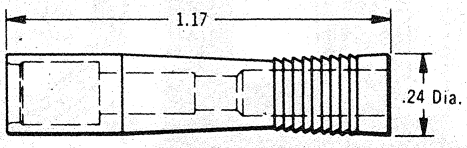
One subminiature coaxial contact or
One no. 16 machined or formed contact



RSCDEX-2 Plug

COLOR TABLE			
Catalog No.	Color	Catalog No.	Color
RSCDEX-2	Natural	RSCDEX-9	Green
RSCDEX-5	Black	RSCDEX-10	Yellow
RSCDEX-6	Blue	RSCDEX-11	Purple
RSCDEX-7	Brown	RSCDEX-12	Gray
RSCDEX-8	Red		

Closing with a positive snap this quick disconnect cable splice locks until intentionally separated. At that time a separating force of between three and eleven pounds is all that is needed. This Trim Trio quick disconnect splice offers the user unlimited wiring versatility.



RSMDEX-1 Receptacle

COLOR TABLE			
Catalog No.	Color	Catalog No.	Color
RSMDEX-1	Natural	RSMDEX-9	Green
RSMDEX-5	Black	RSMDEX-10	Yellow
RSMDEX-6	Blue	RSMDEX-11	Purple
RSMDEX-7	Brown	RSMDEX-12	Gray
RSMDEX-8	Red		