

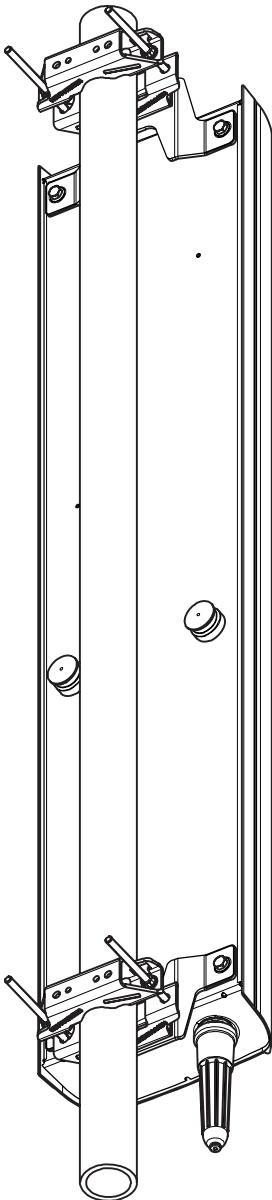
Mounting Hardware

Amount of needed clamps

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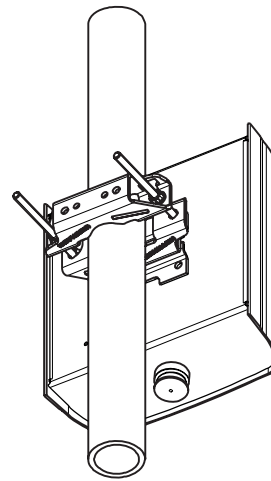
VPol 800/900
All other Panels

2 pcs



VPol 800/900
Antenna height: 264 mm

1 pc



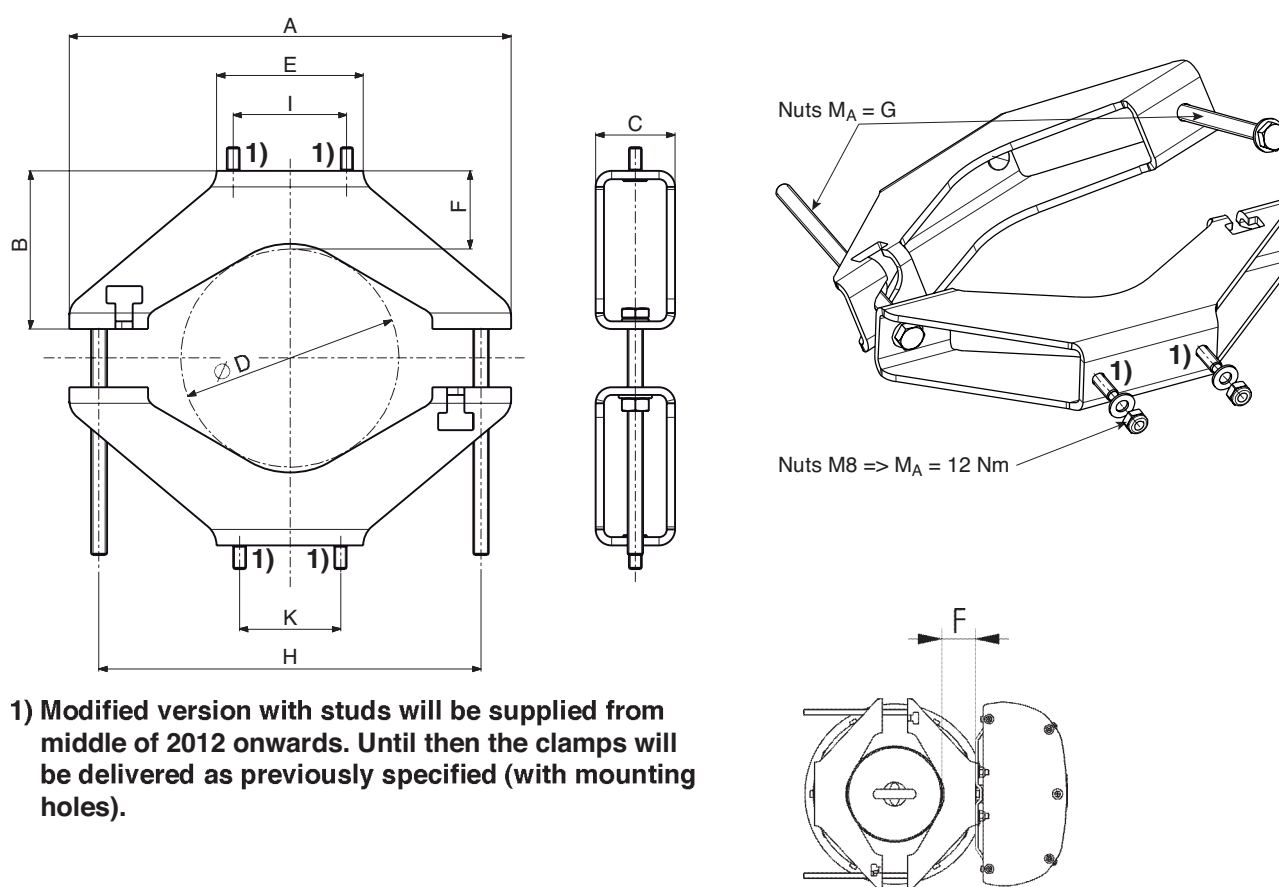
Panel Accessories

Mounting Hardware

Clamps

Clamps

Type No.	731651	738546	85010002	85010003
Suitable for mast diameter	28 – 60 mm	42 – 115 mm	110 – 220 mm	210 – 380 mm
Antenna – mast distance F	25 – 28 mm	20 – 26 mm	47 – 55 mm	48 – 68 mm
Number of pieces	1 clamp	1 clamp	1 clamp	1 clamp
Material – Clamp	Hot-dip galvanized steel	Hot-dip galvanized steel	Hot-dip galvanized steel	Hot-dip galvanized steel
– Screws	Hot-dip galvanized steel/ Stainless steel	Hot-dip galvanized steel/ Stainless steel	Hot-dip galvanized steel/ Stainless steel	Stainless steel/ Stainless steel
– Nuts	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Weight	0.8 kg	1.1 kg	2.7 kg	4.8 kg

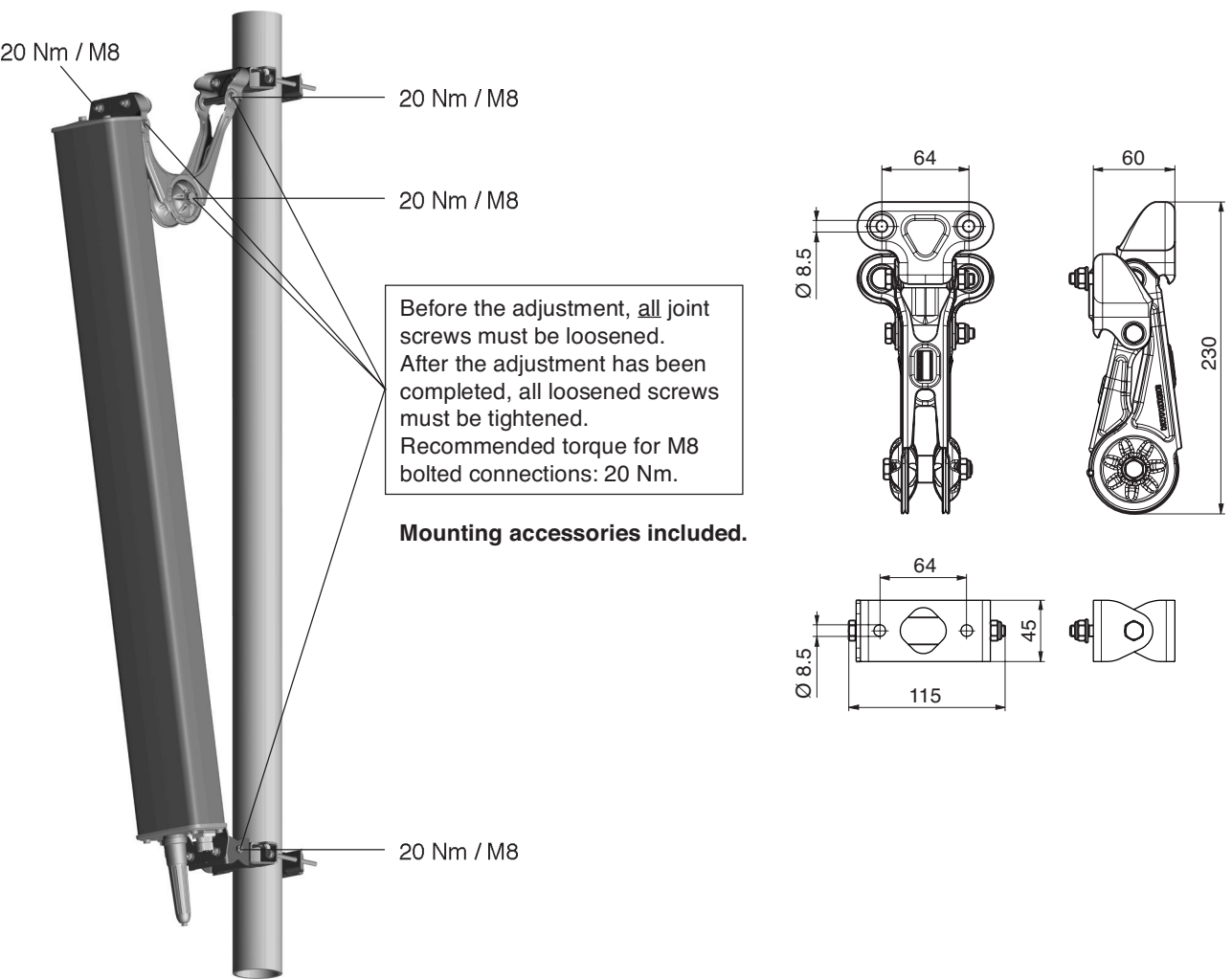


Type No.	A	B	C	D	E	F	G	H	I	K
731651	116 mm	40 mm	40 mm	28 – 60 mm	93 mm	25 – 28 mm	20 Nm	84 mm	–	64 mm
738546	152 mm	40 mm	40 mm	42 – 115 mm	93 mm	20 – 26 mm	25 Nm	125 mm	72 mm	64 mm
85010002	280 mm	100 mm	50 mm	110 – 220 mm	93 mm	47 – 55 mm	35 Nm	240 mm	72 mm	64 mm
85010003	442 mm	150 mm	50 mm	210 – 380 mm	150 mm	48 – 68 mm	35 Nm	392 mm	72 mm	64 mm

**Please note: Kathrein does not recommend to use counter nuts.
The additional nuts supplied are only meant as spares.**

Standard Downtilt kit for Panel Antennas (Wind load Category “L”)

Antenna height: 502 mm
662 mm
982 mm
1302 mm



For heights not mentioned in this table please use downtilt kit 732327.

Downtilt angle		Downtilt kit with scale	Downtilt kit without scale*		
Antenna height	Downtilt angle	Type No.	Type No.	Weight	Material
502 mm	0° – 25°	732322	732327	Approx. 1.3 kg	All parts: Hot-dip galvanized steel Nuts / washers: Stainless steel
662 mm	0° – 19°	732321			
982 mm	0° – 13°	732318			
1302 mm	0° – 10°	732317			

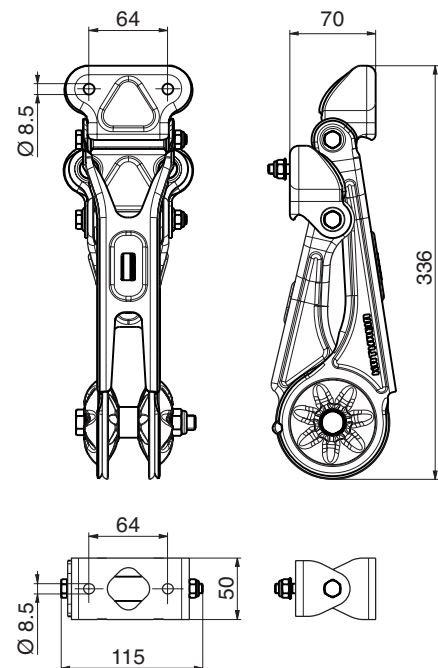
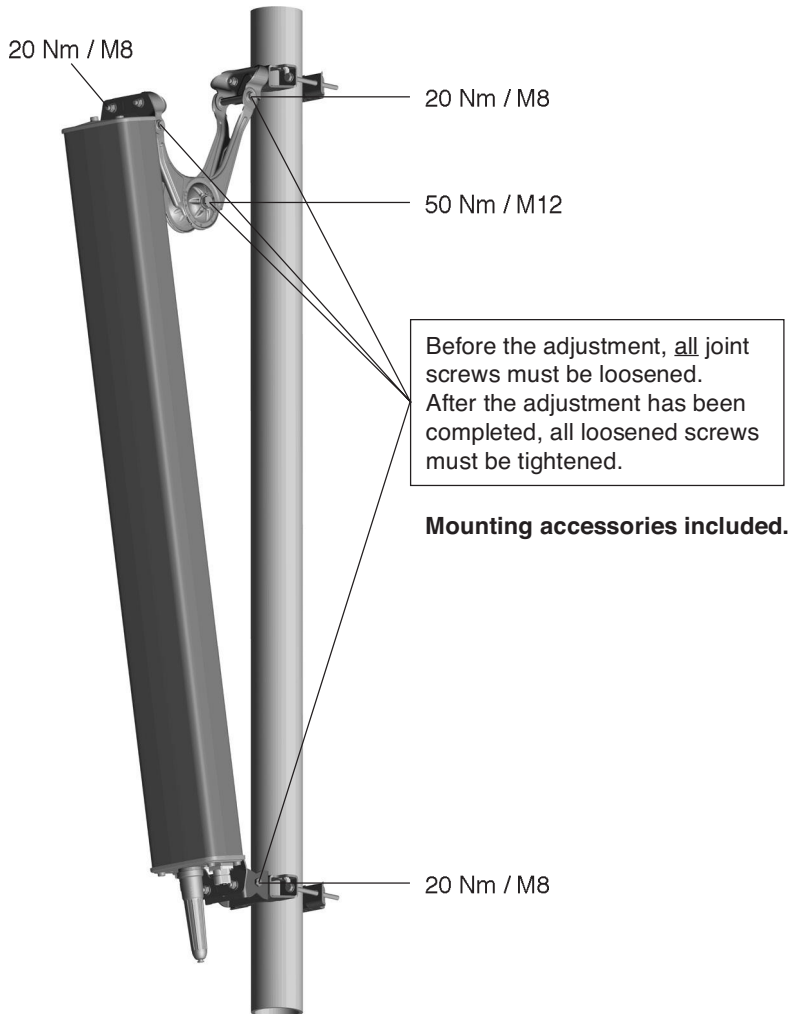
* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 42 mm.

Standard Downtilt kit for Panel Antennas (Wind load Category “L” and “M”)

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Antenna height: 654 – 735 mm
974 – 1032 mm
1294 – 1306 mm
1934 – 1946 mm
2254 / 2256 mm
2574 – 2582 mm



For heights not mentioned in this table please use downtilt kit 737978.

Downtilt angle		Downtilt kit with scale	Downtilt kit without scale*	Weight	Material
Antenna height	Downtilt angle	Type No.	Type No.		
654 – 735 mm	0° – 30°	737972	737978	Approx. 2.3 kg	All parts: Hot-dip galvanized steel Nuts / washers: Stainless steel
974 – 1032 mm	0° – 21°	737973			
1294 – 1306 mm	0° – 16°	737974			
1934 – 1946 mm	0° – 11°	737975			
2254 / 2256 mm	0° – 9°	737977			
2574 – 2582 mm	0° – 8°	737971			

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

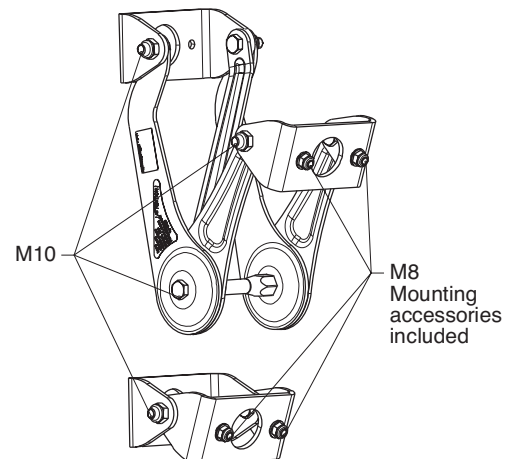
Use the downtilt kit together with the clamps Type No. 731651, 738546, 85010002, 85010003, 85010014 for pole mounting and 85010016 for wall mounting.

Standard Downtilt kit for Panel Antennas (Wind load Category “H”)

Special downtilt kit for Panel antennas with a higher wind load.

Downtilt kit

Type No.	85010008
Preferred range of use	<ul style="list-style-type: none"> – Panel antennas with a higher wind load – Panel antennas with attached mounting plates – Downtilt kit without scale for universal use
Weight	6.5 kg
Material	Hot-dip galvanized steel
Screws	Hot-dip galvanized steel / stainless steel
Nuts	Stainless steel



Recommended mast clamps:

Type No.	Description	Mast diameter	Weight approx.	Units per antenna
738546	1 clamp	42 – 115 mm	1.1 kg	2
85010002	1 clamp	110 – 220 mm	2.9 kg	2
85010003	1 clamp	210 – 380 mm	4.8 kg	2

Recommended torque for all bolted connections:

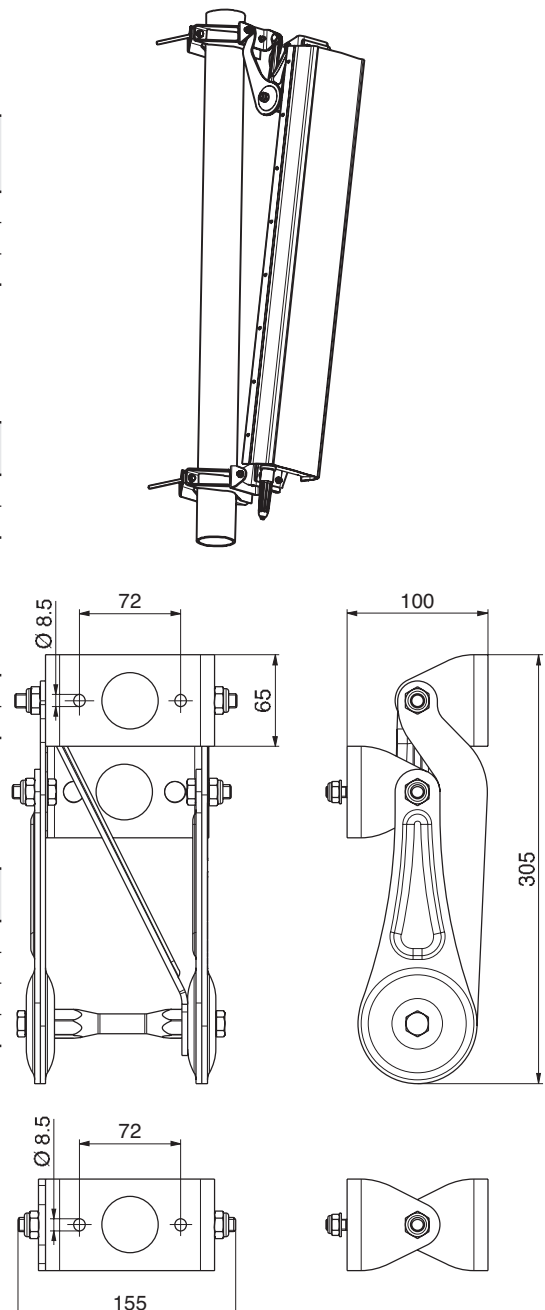
Screw size	Torque
M8	20 Nm
M10	50 Nm

Maximum acceptable load:

Frontal wind load	< 5000 N
Lateral wind load	< 1300 N

Downtilt angle

Antenna height	Downtilt angle
1498 mm	0° – 13°
2058 mm	0° – 10°
2516 mm	0° – 8°
2628 mm	0° – 8°

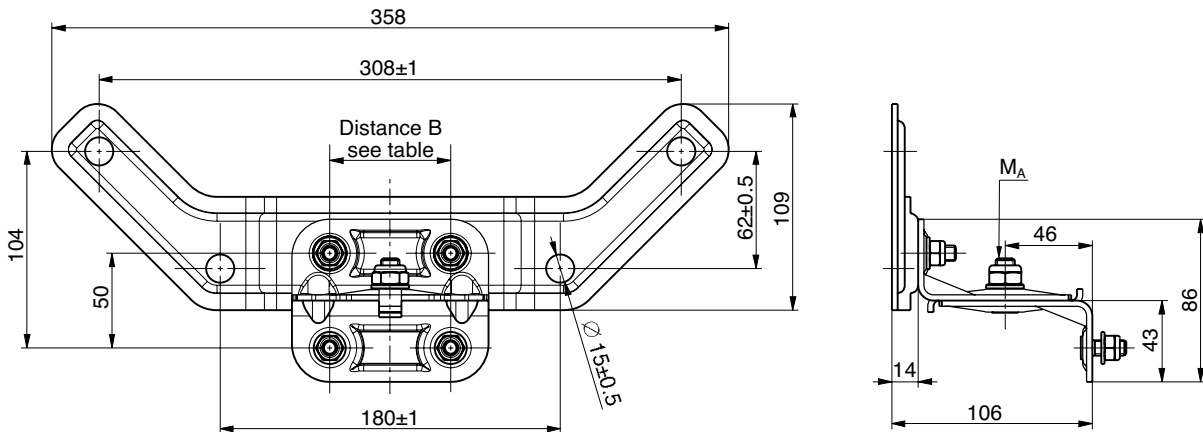
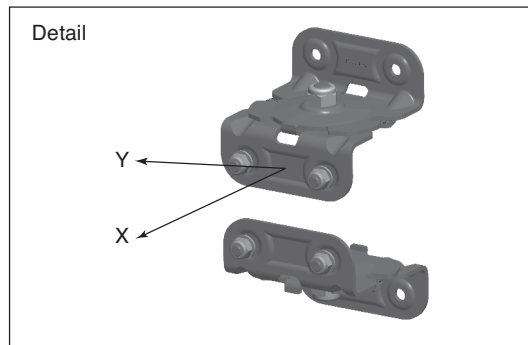
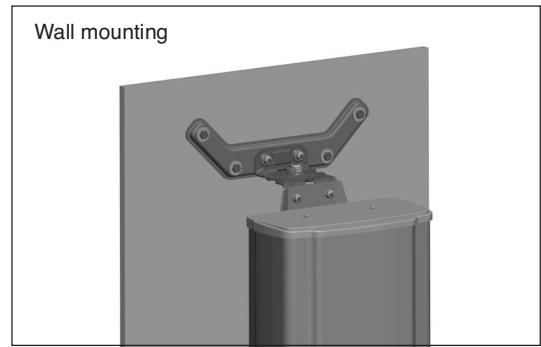
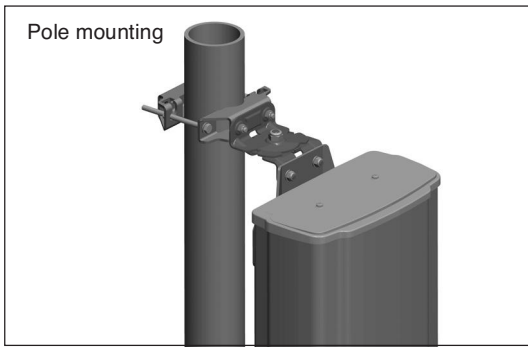


All Panels

Mounting Hardware

Azimuth Adjustment Kits

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The azimuth adjustment kit for pole mounting can be mounted with all suitable clamps, 3-Sector clamps and 2x A-/C-/F-Panel mounting kits (with the latter only as an interface between mounting kit and antenna).

Type No.	85010014	85010015	85010016	85010017
Suitable for	pole mounting		wall mounting	
Number of pieces	2 brackets	2 brackets	2 brackets	2 brackets
Distance between screws [B]	64 mm	72 mm	64 mm	72 mm
Angular range	± 30°		± 30°	
Weight / kit	approx. 1260 g	approx. 1260 g	approx. 2500 g	approx. 2500 g
Supplied mounting accessories	all screws		Screws and dowels for wall fastening are not supplied, they must be chosen by installer according to on-site requirements.	
	Adapter for downtilt kit 7323xx series		Adapter for downtilt kit 7323xx series	
Materials	Parts are hot-dip galvanized steel; Captive nuts are stainless steel			
Max. permissible static load / kit				
– X direction	2150 N	5100 N	2150 N	5100 N
– Y direction	760 N	1350 N	760 N	1350 N

**Recommended torque: Screws M6: 8 Nm; Screws M8: 20 Nm; MoS₂ greased.
Minimum torque MA: 30 Nm; MoS₂ greased**

3 Sector Panel Arrangement

3 Sector Clamp Kit

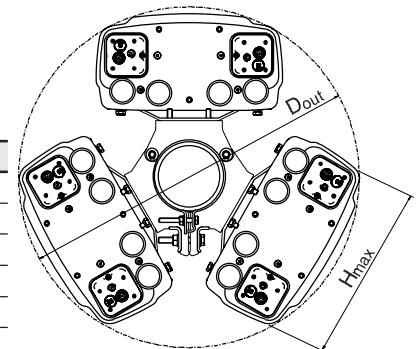
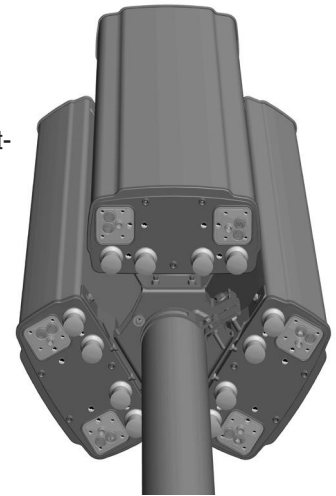
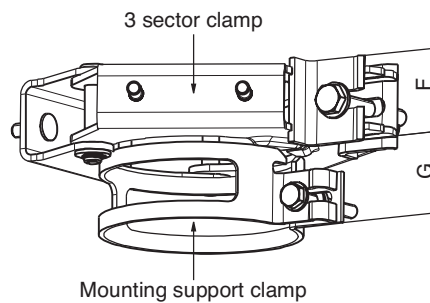
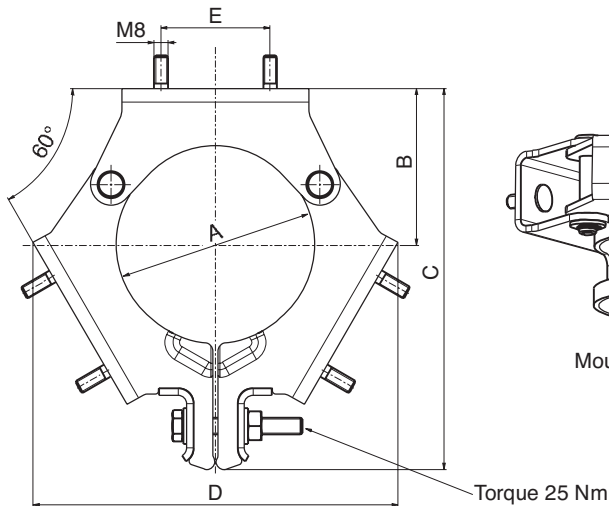
Mounting Hardware

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- Slim and unobtrusive design.
- Nearly cylindrical optical appearance with small outer diameter.
- Suitable for all Panels with an antenna housing width less than 400 mm (H_{max}).

Please note:

Panels with connector position “Rearside” fit only with downtilt kit azimuth adjustment kit or offset mounted in-between.



Bottom view without downtilt kit

Type No.	A	B	C	D	E	F	G	H_{max}	Weight
742263	88.9	65	180	168	64	50	45	280	4 kg
742317	88.9	88	213	199	64	50	45	361	4 kg
742033	114.3	92	217	207	64	50	45	375	4 kg
742034	139.7	100	236	228	64	50	45	400	4 kg
85010058	114.3	92	217	207	72	50	45	375	4 kg
85010059	139.7	100	236	228	72	50	45	400	4 kg

All dimensions in mm.

D_{out} is determined by mounted components.

3 Sector Clamp Kit (Antenna Wind load Category “L” and “M”)

Type No.	742263	742317	742033	742034
Angle between antennas	120°	120°	120°	120°
Suitable for mast diameter	88.9 mm	88.9 mm	114.3 mm	139.7 mm
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp	2 x 3 sector clamp 2 x mounting support clamp	2 x 3 sector clamp 2 x mounting support clamp	2 x 3 sector clamp 2 x mounting support clamp
Material				
– 3 sector clamp	Hot-dip galvanized steel	Hot-dip galvanized steel	Hot-dip galvanized steel	Hot-dip galvanized steel
– Mounting support clamp	Aluminum	Aluminum	Aluminum	Aluminum
– Screws	Hot-dip galvanized steel	Hot-dip galvanized steel	Hot-dip galvanized steel	Hot-dip galvanized steel
– Nuts	Stainless steel	Stainless steel	Stainless steel	Stainless steel

3 Sector Clamp Kit (Antenna Wind load Category “H”)

Type No.	85010058	85010059
Angle between antennas	120°	120°
Suitable for mast diameter	114.3 mm	139.7 mm
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp	2 x 3 sector clamp 2 x mounting support clamp
Material		
– 3 sector clamp	Hot-dip galvanized steel	Hot-dip galvanized steel
– Mounting support clamp	Aluminum	Aluminum
– Screws	Hot-dip galvanized steel	Hot-dip galvanized steel
– Nuts	Stainless steel	Stainless steel

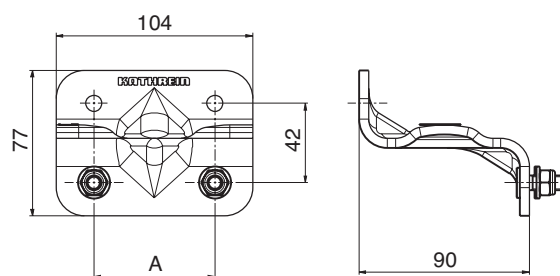
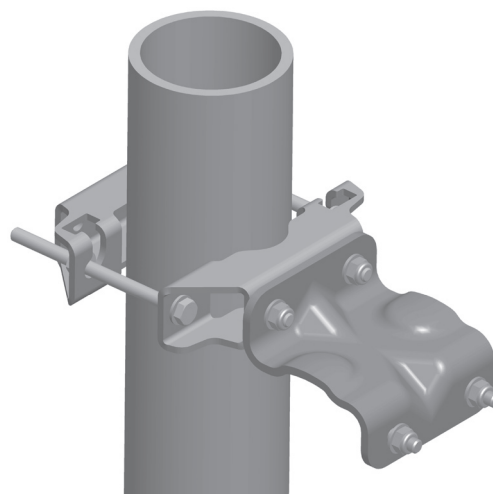
Mounting Hardware Offset for Panel Antennas

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Type No.	85010060	85010061
Wind load category	"L" and "M"	"H"
Quantity needed per antenna	2 x spacer	
Material: – spacer – nuts	Hot-dip galvanized steel Stainless steel	
Dimension "A"	64 mm	72 mm
Weight	0.65 kg	
Scope of supply	1 x spacer, Fitting accessories	

Recommended torque for M8 bolted connections: 20 Nm

Please use the offset in combination with clamps corresponding to the pole diameter.



Mounting accessories (order separately)

Possible clamps in combination with:

85010060

Type No.	Description	Mast diameter	Weight approx.	Units per antenna
731651	1 clamp	28 – 64 mm	0.8 kg	2
738546	1 clamp	42 – 115 mm	1.1 kg	2
85010002	1 clamp	110 – 220 mm	2.9 kg	2
85010003	1 clamp	210 – 380 mm	4.8 kg	2
742263	2 x 3 sector clamp	88.9 mm	4.0 kg	1
742317	2 x 3 sector clamp	88.9 mm	4.0 kg	1
742033	2 x 3 sector clamp	114.3 mm	4.0 kg	1
742034	2 x 3 sector clamp	139.7 mm	4.0 kg	1

85010061

Type No.	Description	Mast diameter	Weight approx.	Units per antenna
738546	1 clamp	42 – 115 mm	1.1 kg	2
85010002	1 clamp	110 – 220 mm	2.9 kg	2
85010003	1 clamp	210 – 380 mm	4.8 kg	2
85010058	2 x 3 sector clamp	114.3 mm	4.0 kg	1
85010059	2 x 3 sector clamp	139.7 mm	4.0 kg	1

If a downtilt kit is used, please choose the fitting one from the antenna data sheet.

Panel Accessories

2 x Panel Mounting Kit

for Panels width 112 mm and 155 mm

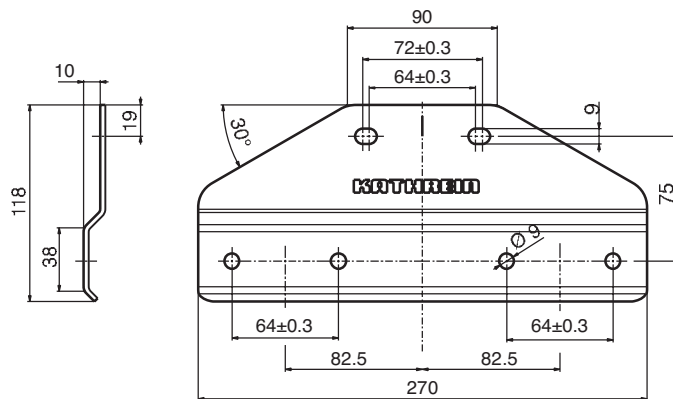
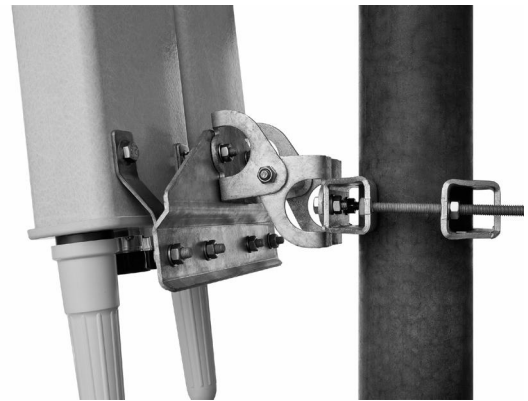
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Use this mounting kit only for Panels with a maximum width of 160 mm.
Wind load category: L (Light) or M (Medium)

2 x Panel Mounting Kit

Type No.	742113
Contents	2 x brackets and mounting accessories
Material: – Clamp and screws – Nuts and washers	Hot-dip galvanized steel Stainless steel
Weight	Approx. 1.6 kg

Recommended torque for M8 bolted connections: 20 Nm



Configuration <u>without</u> mechanical downtilt	Configuration <u>with</u> mechanical downtilt

Use the 2 x Panel Mounting Kit together with the following mounting accessories

Type No.	Description	Remarks	Weight approx.	Units per antenna
731651	1 clamp	Mast: 28 – 60 mm diameter	0.8 kg	2
738546	1 clamp	Mast: 42 – 115 mm diameter	1.1 kg	2
85010002	1 clamp	Mast: 110 – 220 mm diameter	2.7 kg	2
85010003	1 clamp	Mast: 210 – 380 mm diameter	4.8 kg	2
85010060	1 offset	in combination with the clamps	1.3 kg	2
737978	1 downtilt kit	Downtilt angle: depending on antenna height	2.3 kg	1

For a three sector panel arrangement, use the mounting kit type no. 742113 together with the three sector clamp 742213, 742033 or 742034. Three sector clamp 742263 does not match.

If a downtilt kit is used, please choose the fitting one from the antenna datasheet.

Panels VPol / XPol 800/900

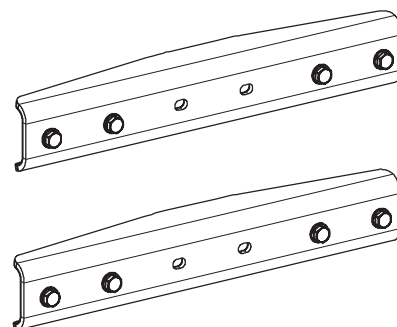
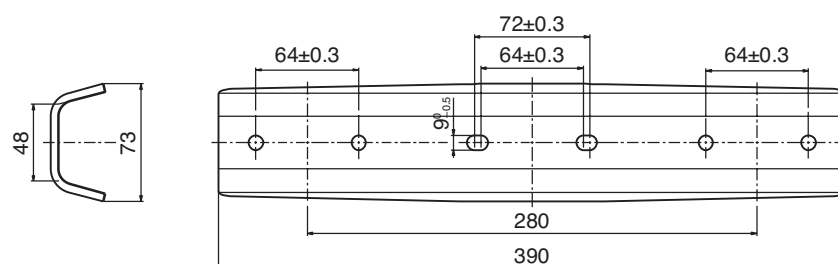
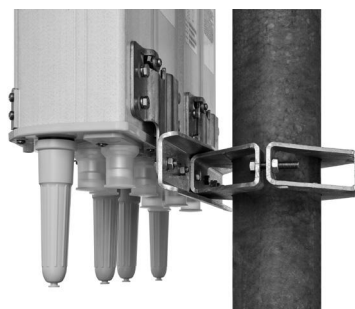
Panels XXPoI 800/900 / 1800/2000

2 x Panel Mounting Kit

Use this mounting kit only for Panels with
a maximum width of 262 mm.
Wind load category: H (Heavy)

Type No.	85010006
Contents	2 x brackets and mounting accessories
Material: – Clamp and screws – Nuts and washers	Hot-dip galvanized steel Stainless steel
Weight	Approx. 3.3 kg

Recommended torque for M8 bolted connections: 20 Nm



Configuration <u>without</u> mechanical downtilt	Configuration <u>with</u> mechanical downtilt

Mounting Accessories (order separately)

Clamps (only the listed clamps are allowed!)

Type No.	Description	Remarks	Weight approx.	Units per antenna
85010002	1 clamp	Mast: 110 – 220 mm diameter	2.7 kg	2
85010003	1 clamp	Mast: 210 – 380 mm diameter	4.8 kg	2
85010061	1 offset	in combination with the clamps	1.3 kg	2

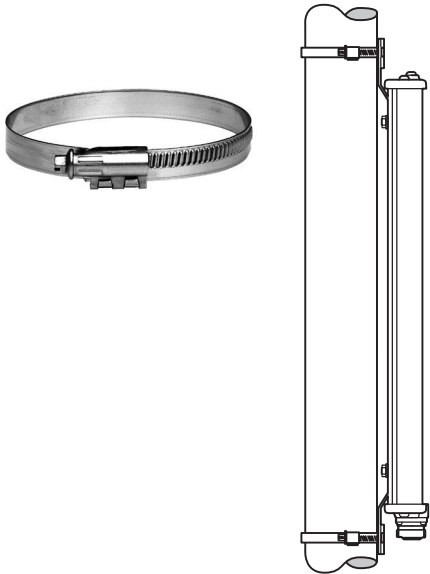
If a downtilt kit is used, please choose the fitting one from the antenna datasheet.

Mounting Hardware

Tension Band for Panel Antennas

(Wind load Category “L”)

Type No.	734360	734361	734362	734363	734364	734365
Suitable for mast diameter	34 – 60 mm	60 – 80 mm	80 – 100 mm	100 – 120 mm	120 – 140 mm	45 – 125 mm
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Weight (approx.)	0.06 kg	0.07 kg	0.08 kg	0.09 kg	0.11 kg	0.08 kg



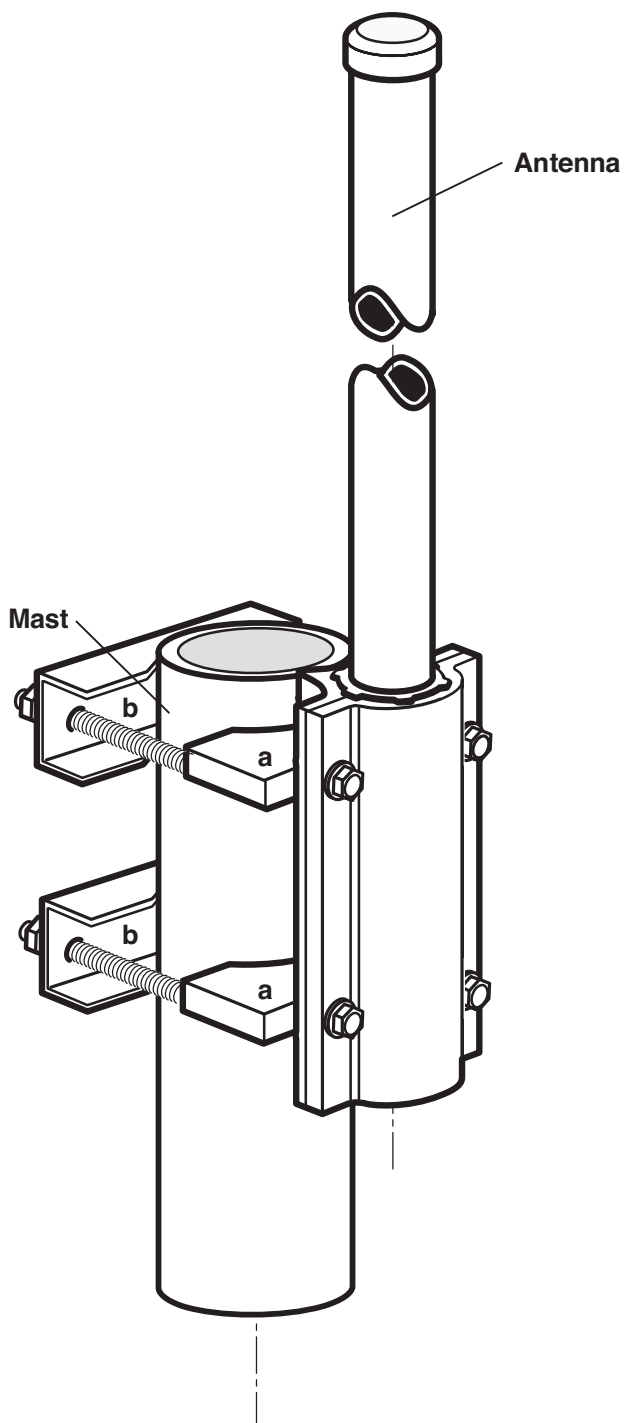
Please note:
Only usable without downtilt kit!

Side-mounting Clamp Omnidirectional Antennas Large Pipe

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Type No. 738908

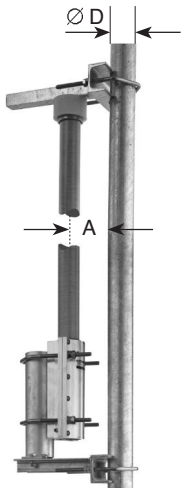
For masts of 94 – 125 mm diameter



Side-mounting Bracket Omnidirectional Antennas

Type No. 737398
 Side-mounted bracket
 (for mast diameters of 40 – 105 mm)

Type No.	737398			
Bracket	At the bottom only			
Fits for antenna type no.	800/900 MHz 736347 736348 736349 736350 736351 738664 738192	1800 MHz 739785 738187 739404 737190	UMTS 741790	Dual-band 80010274



Side-mounting is possible for four fixed distances between the tubular mast and the antenna:

800/900 MHz (holes 1 and 3)			1800/2000 MHz (hole 2)								
<div>A = 100 mm = 0.3 λ</div> <div>A = 160 mm = 0.5 λ</div> <div>A = 240 mm = 0.75 λ</div>			<div>A = 80 mm = 0.5 λ</div>								
<div> Hole 3</div>			<div> Hole 1</div>			<div> Hole 3</div>			<div> Mast Bracket Antenna Antenna base Bracket Hole 2</div>		
<div><div>Pipe D</div><div>Horizontal Radiation Pattern</div><div>Spacing A Curve</div></div> <div><div>40 mm</div><div> direction from mast to antenna →</div><div>100 mm</div><div>160 mm</div><div>240 mm</div></div>			<div><div>Pipe D</div><div>Horizontal Radiation Pattern</div><div>Spacing A Curve</div></div> <div><div>40 mm</div><div> direction from mast to antenna →</div><div>160 mm</div><div>240 mm</div></div>			<div><div>Pipe D Curve</div><div>Horizontal Radiation Pattern</div><div>Spacing A</div></div> <div><div>40 mm</div><div> direction from mast to antenna →</div><div>100 mm</div><div>80 mm</div></div>					

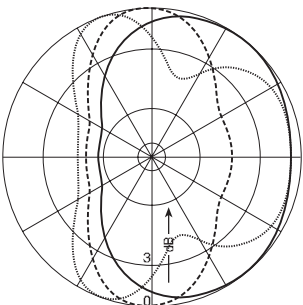
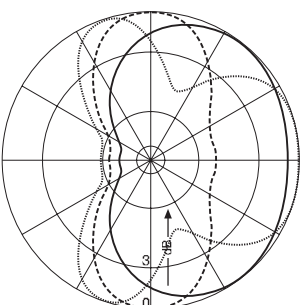
Side-mounting Brackets Omnidirectional Antennas 900

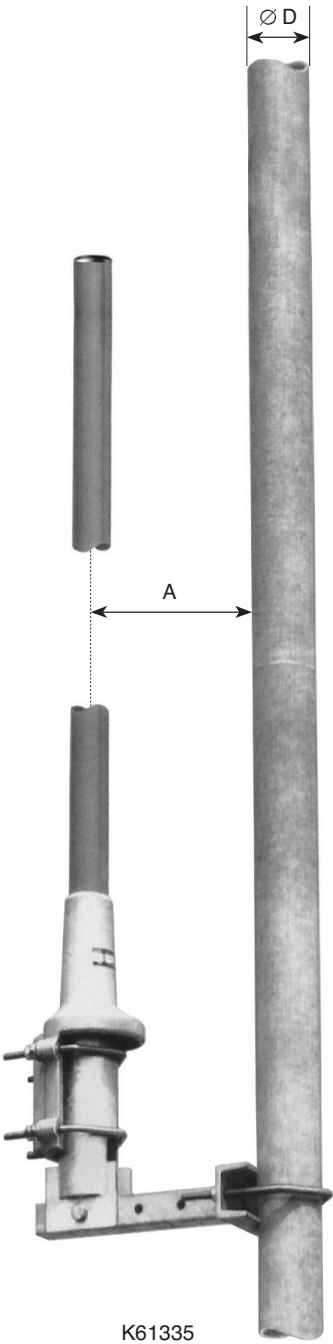
For mast diameters of 40 – 105 mm

Type No.	K61335
Bracket	At the bottom only
Fits for antenna type no.	K75116.. K75156..

Side mounting is possible for three fixed distances between the tubular mast and the antenna:

100 mm = 0.3 λ
 160 mm = 0.5 λ
 240 mm = 0.75 λ

Pipe D	Horizontal Radiation Pattern	Spacing A Curve	Additional gain to the nominal value of the antenna gain
40 mm		100 mm	2 dB
		160 mm	3 dB
		240 mm	2 dB
100 mm		100 mm	2.5 dB
		160 mm	3.5 dB
		240 mm	2.5 dB



All Panels

Accessories

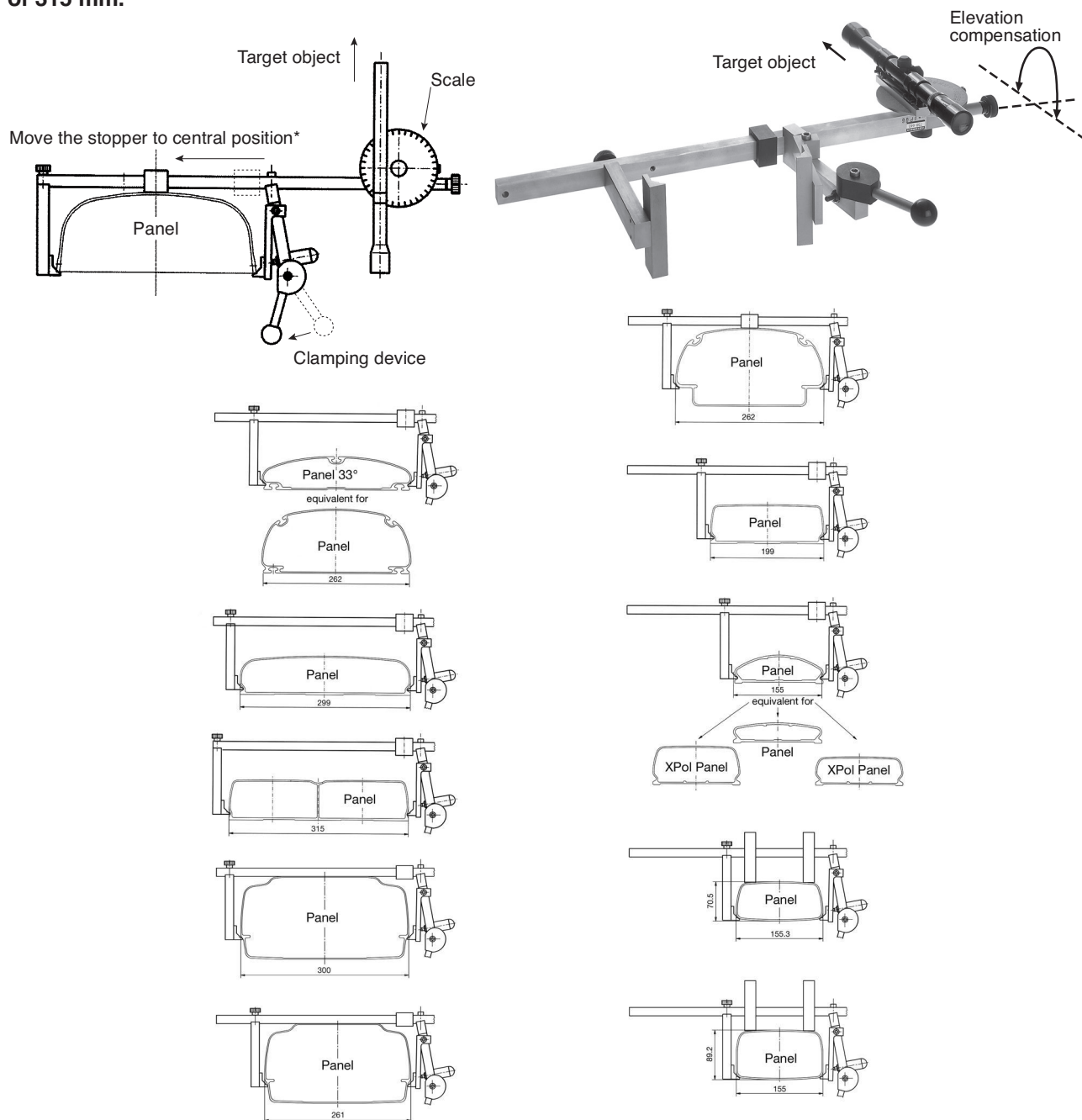
Azimuth Adjustment Tool

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Type No. 738440

Precise azimuth adjustment for mast mounted antennas can easily be achieved by using the azimuth adjustment tool.

This tool is suitable to all types of Panels and Tri-Sector Pipe Antennas with a maximum width of 315 mm.



Instruction:

- Use a map to work out the angle between the designed antenna azimuth and target (church, building, mountain peak).
- Set this angle on the scale of the adjustment tool.
- Place the adjustment tool onto the antenna and tighten the clamping device.
- Use the telescope to aim at the target object, if necessary, use elevation compensation.
- Then rotate the antenna until the target object appears in the telescope.

* Observe the position of the stopper when fitting the azimuth adjustment tool.

Kathrein Installation Tool for Triple-band Antennas Type No. 85010005

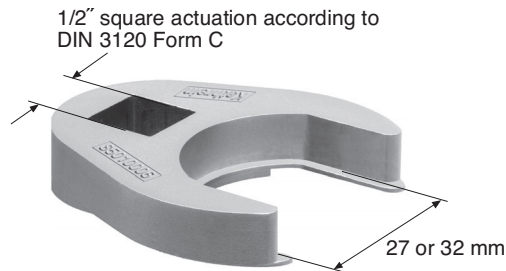
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Please note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the feederline connector interfaces, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

Kathrein installation set: Type No. 85010005

Set has to be ordered separately!

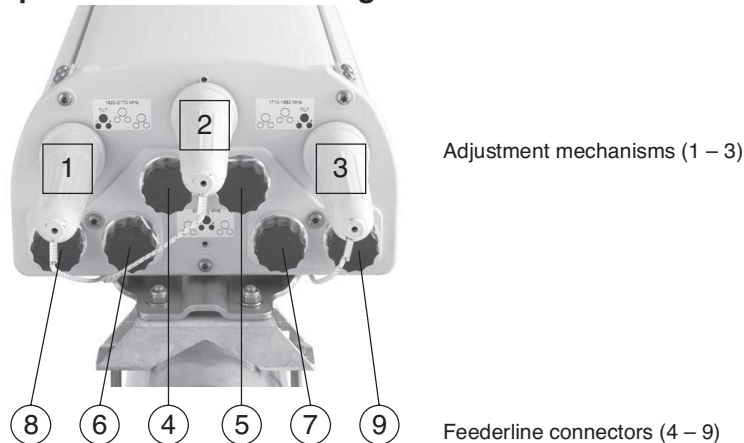
Set consists of two spanners of 27 and 32 mm width.



These tools are suitable for 7-16 connectors with a wrench size of 27 or 32 mm.

Tighten nut within a torque range of 25 – 33 Nm depending on connector manufacturers' specifications.

Description of connector arrangement:



There are six feederline connectors and three adjustment mechanisms located at the bottom of the antenna.

For detailed information about feederline installation for Triple-band Antennas please see Kathrein RET system brochure.

Part 2:

Filters, Combiners and Amplifiers for Mobile Communications