

Surge arrester POLIM-H..N



Product description

Surge arrester with metal oxide resistors without spark gaps (MO surge arrester), direct molded silicone housing, grey color, designed and tested according to IEC 60099-4.

Overvoltage protection of

- Transformers
- Motors
- Generators
- Cables and cable terminations
- Cable sheaths
- Traction systems – fixed installations
- Rolling stock and high speed trains
- Capacitors and capacitor banks
- Medium voltage equipment

Application

- Systems with alternating current (AC)
- Outdoor and indoor installations

Additional certification

- Shock and vibration tested according to IEC 61373
- Fire and smoke behaviour tested and classified according to EN 45545-2

Technical data

Arrester class	SH, Station High
Line discharge class (LD)	4
Nominal discharge current I_n (8/20 μ s)	20 kA _{peak}
Repetitive charge transfer rating Q_{rs}	2.4 As (C)
Rated thermal energy	
W_{th} at $T_{amb} = 40^\circ\text{C}$	12 kJ/kV (U_r) = 15 kJ/kV (U_c)
W_{th} at $T_{amb} = 55^\circ\text{C}$	10.5 kJ/kV (U_r) = 13.1 kJ/kV (U_c)
High current impulse I_{hc} (4/10 μ s)	100 kA _{peak}
Long duration current impulse	1350 A for 2000 μ s
Short-circuit rating I_s (50Hz)	63 kA _{rms} for 0.2 s

Power frequency voltage versus time characteristic (TOV) without prior duty energy input

U_{TOV} at t = 1 s	1.125 U_r = 1.406 U_c
U_{TOV} at t = 3 s	1.090 U_r = 1.363 U_c
U_{TOV} at t = 10 s	1.060 U_r = 1.325 U_c

Power frequency voltage versus time characteristic (TOV) with prior duty energy input of 10.5 kJ/kV (U_r) = 13.1 kJ/kV (U_c)

U_{TOV} at t = 1 s	1.105 U_r = 1.381 U_c
U_{TOV} at t = 3 s	1.074 U_r = 1.342 U_c
U_{TOV} at t = 10 s	1.033 U_r = 1.291 U_c

Mechanical loads

Torque	100 Nm
Tensile strength axial	4000 N
Short term load SSL perpendicular to axis	4000 Nm
Long term load SLL perpendicular to axis	2000 Nm

Service conditions

Ambient air temperature T_{amb}	-60 to +55 °C (for temperatures up to 80 °C consider instructions of application guidelines)
Altitude	up to 1800 m (for higher altitudes contact manufacturer)
Frequency of system voltage	16.7/50/60 Hz



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Electrical data

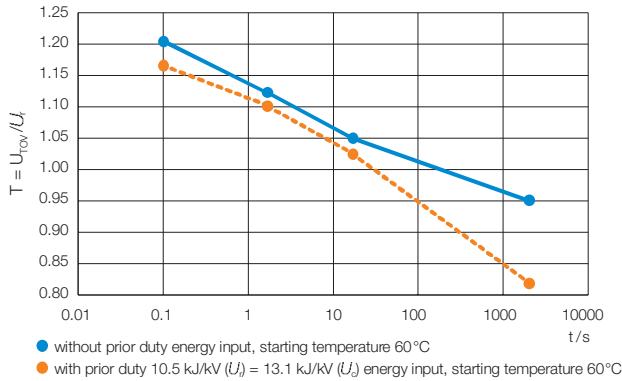
U_c		U_r		Residual voltage U_{res} at specified impulse current								
Continuous operating voltage	Rated voltage	Steep current impulse wave 1/... μ s		Lightning current impulse wave 8/20 μ s					Switching current impulse wave 30/60 μ s			
		10 kA	20 kA	2 kA	5 kA	10 kA	$I_n=20$ kA	40 kA	500 A	1000 A	2000 A	
kV_{rms}	kV_{rms}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}	kV_{peak}
4	5.0	12.7	13.6	10.6	11.2	11.6	12.7	14.2	9.8	10.1	10.4	
5	6.3	15.9	17.0	13.3	13.9	14.5	15.9	17.7	12.3	12.6	13.0	
6	7.5	19.0	20.4	15.9	16.7	17.4	19.0	21.3	14.7	15.2	15.6	
7	8.8	22.2	23.8	18.6	19.5	20.3	22.2	24.8	17.2	17.7	18.2	
8	10.0	25.3	27.2	21.2	22.3	23.2	25.3	28.4	19.6	20.2	20.8	
9	11.3	28.5	30.6	23.9	25.1	26.1	28.5	31.9	22.1	22.7	23.4	
10	12.5	31.7	34.0	26.5	27.8	29.0	31.7	35.4	24.5	25.2	26.0	
11	13.8	34.8	37.4	29.2	30.6	31.9	34.8	39.0	27.0	27.7	28.6	
12	15.0	38.0	40.8	31.8	33.4	34.8	38.0	42.5	29.4	30.3	31.2	
13	16.3	41.1	44.2	34.5	36.2	37.7	41.1	46.0	31.9	32.8	33.8	
14	17.5	44.3	47.6	37.1	38.9	40.6	44.3	49.6	34.3	35.3	36.4	
15	18.8	47.5	50.9	39.8	41.7	43.5	47.5	53.1	36.8	37.8	39.0	
16	20.0	50.6	54.3	42.4	44.5	46.4	50.6	56.7	39.2	40.3	41.6	
17	21.3	53.8	57.7	45.1	47.3	49.3	53.8	60.2	41.7	42.8	44.2	
18	22.5	56.9	61.1	47.7	50.1	52.2	56.9	63.7	44.1	45.4	46.8	
19	23.8	60.1	64.5	50.4	52.8	55.1	60.1	67.3	46.6	47.9	49.4	
20	25.0	63.3	67.9	53.0	55.6	58.0	63.3	70.8	49.0	50.4	52.0	
21	26.3	66.4	71.3	55.7	58.4	60.9	66.4	74.3	51.4	52.9	54.6	
22	27.5	69.6	74.7	58.3	61.2	63.8	69.6	77.9	53.9	55.4	57.2	
23	28.8	72.8	78.1	60.9	63.9	66.7	72.8	81.4	56.3	57.9	59.7	
24	30.0	75.9	81.5	63.6	66.7	69.6	75.9	85.0	58.8	60.5	62.3	
25	31.3	79.1	84.9	66.2	69.5	72.5	79.1	88.5	61.2	63.0	64.9	
26	32.5	82.2	88.3	68.9	72.3	75.4	82.2	92.0	63.7	65.5	67.5	
27	33.8	85.4	91.7	71.5	75.1	78.3	85.4	95.6	66.1	68.0	70.1	
28	35.0	88.6	95.1	74.2	77.8	81.2	88.6	99.1	68.6	70.5	72.7	
29	36.3	91.7	98.4	76.8	80.6	84.1	91.7	102.7	71.0	73.0	75.3	
30	37.5	94.9	101.8	79.5	83.4	87.0	94.9	106.2	73.5	75.6	77.9	
31	38.8	98.0	105.2	82.1	86.2	89.9	98.0	109.7	75.9	78.1	80.5	
32	40.0	101.2	108.6	84.8	89.0	92.8	101.2	113.3	78.4	80.6	83.1	
33	41.3	104.4	112.0	87.4	91.7	95.7	104.4	116.8	80.8	83.1	85.7	
34	42.5	107.5	115.4	90.1	94.5	98.6	107.5	120.3	83.3	85.6	88.3	
35	43.8	110.7	118.8	92.7	97.3	101.5	110.7	123.9	85.7	88.2	90.9	
36	45.0	113.8	122.2	95.4	100.1	104.4	113.8	127.4	88.2	90.7	93.5	
37	46.3	117.0	125.6	98.0	102.8	107.3	117.0	131.0	90.6	93.2	96.1	
38	47.5	120.2	129.0	100.7	105.6	110.2	120.2	134.5	93.1	95.7	98.7	
39	48.8	123.3	132.4	103.3	108.4	113.1	123.3	138.0	95.5	98.2	101.3	
40	50.0	126.5	135.8	106.0	111.2	116.0	126.5	141.6	98.0	100.7	103.9	
41	51.3	129.7	139.2	108.6	114.0	118.9	129.7	145.1	100.4	103.3	106.5	
42	52.5	132.8	142.6	111.3	116.7	121.8	132.8	148.6	102.8	105.8	109.1	
43	53.8	136.0	145.9	113.9	119.5	124.7	136.0	152.2	105.3	108.3	111.7	
44	55.0	139.1	149.3	116.5	122.3	127.6	139.1	155.7	107.7	110.8	114.3	

Housing

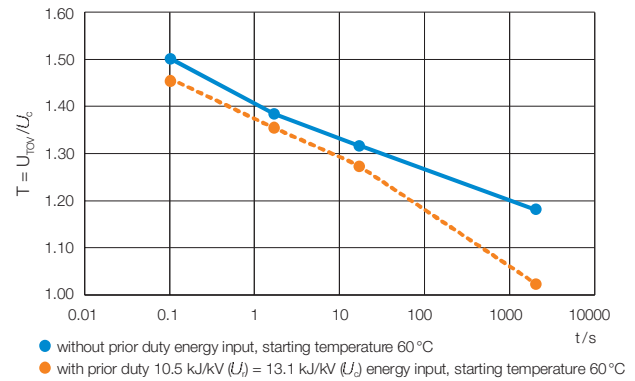
U_c Continuous operating voltage	Creepage distance	Flashover distance	Recommended minimum clearances		Height H	Weight	Insulation withstand voltage of empty housing			
			E_{min}	F_{min}			1.2/50 μ s dry		50 Hz, 60 s wet condition	
							required values acc. to IEC	guaranteed	required values acc. to IEC	guaranteed
kV_{rms}	mm	mm	mm	mm	mm	kg	kV_{peak}	kV_{peak}	kV_{rms}	kV_{rms}
4	358	196	100	190	210	5.7	17	118	8	34
5	358	196	101	190	210	5.8	21	118	10	34
6	493	227	111	190	240	6.6	25	137	12	39
7	493	227	121	190	240	6.7	29	137	14	39
8	493	227	131	190	240	6.8	33	137	16	39
9	648	277	141	191	290	8.0	38	167	18	48
10	648	277	151	201	290	8.1	42	167	20	48
11	648	277	161	211	290	8.2	46	167	22	48
12	648	277	171	221	290	8.3	50	167	24	48
13	823	346	181	231	360	10.0	54	208	26	59
14	823	346	191	241	360	10.1	58	208	28	59
15	823	346	201	251	360	10.2	62	208	30	59
16	823	346	212	261	360	10.3	66	208	32	59
17	823	346	221	271	360	10.4	70	208	34	59
18	823	346	231	281	360	10.6	74	208	36	59
19	823	346	242	292	360	10.7	79	208	38	59
20	823	346	252	301	360	10.8	83	208	39	59
21	978	396	262	311	410	12.0	87	238	41	68
22	978	396	272	322	410	12.1	91	238	43	68
23	978	396	282	332	410	12.2	95	238	45	68
24	978	396	292	342	410	12.3	99	238	47	68
25	978	396	302	352	410	12.4	103	238	49	68
26	1133	446	312	362	460	13.7	107	268	51	76
27	1133	446	322	372	460	13.8	112	268	53	76
28	1133	446	332	382	460	13.9	116	268	55	76
29	1133	446	342	392	460	14.0	120	268	57	76
30	1423	527	352	402	540	16.0	124	317	59	90
31	1423	527	362	412	540	16.1	128	317	61	90
32	1423	527	372	422	540	16.2	132	317	63	90
33	1423	527	382	432	540	16.3	136	317	65	90
34	1423	527	392	442	540	16.4	140	317	67	90
35	1423	527	402	452	540	16.6	144	317	69	90
36	1423	527	412	462	540	16.7	148	317	71	90
37	1597	596	423	472	610	18.0	153	358	73	102
38	1597	596	432	482	610	18.1	157	358	74	102
39	1597	596	442	492	610	18.2	161	358	76	102
40	1597	596	453	502	610	18.3	165	358	78	102
41	1733	627	463	512	640	19.3	169	377	80	107
42	1733	627	473	522	640	19.4	173	377	82	107
43	1733	627	483	533	640	19.5	177	377	84	107
44	1733	627	493	543	640	19.6	181	377	86	107

TOV and Dimensions

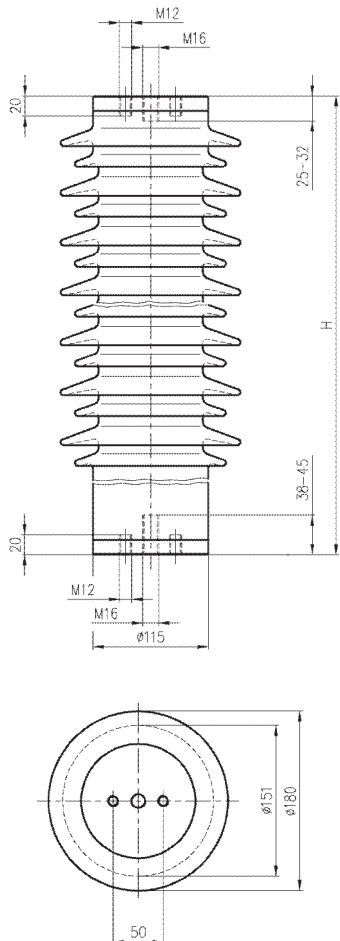
Power-frequency voltage-versus-time characteristic (TOV) based on U_r



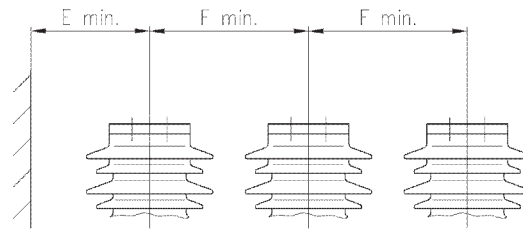
Power-frequency voltage-versus-time characteristic (TOV) based on U_c



Dimensions (mm)



Dimensions according to outline drawing HAAR481686
Outline drawings with accessories on request



Structure of type designation
(Example)

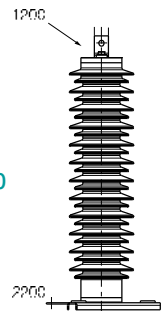
POLIM-H 36 N

Type of arrester ————
 U_c = Continuous operating voltage ————
 Housing ————

Structure of type designation with optional accessories
(Example)

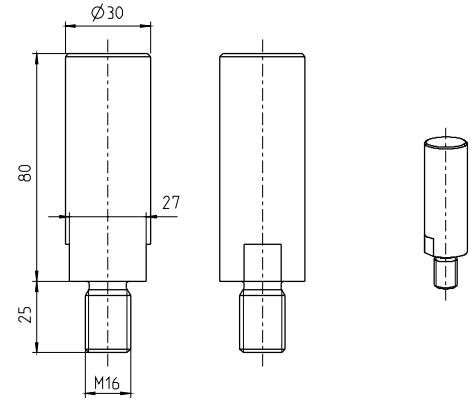
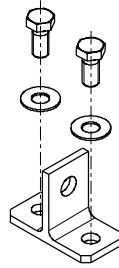
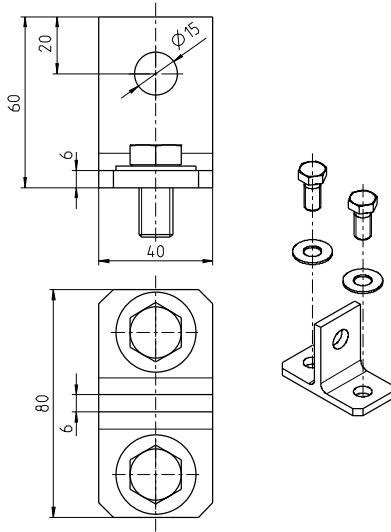
POLIM-H 36 N / 1200 / 2200

Type of surge arrester ————
 Type of top accessory (optional) ————
 Type of bottom accessory (optional) ————



Common Top Accessories (optional)

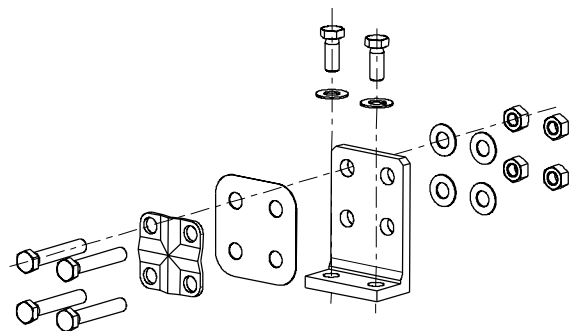
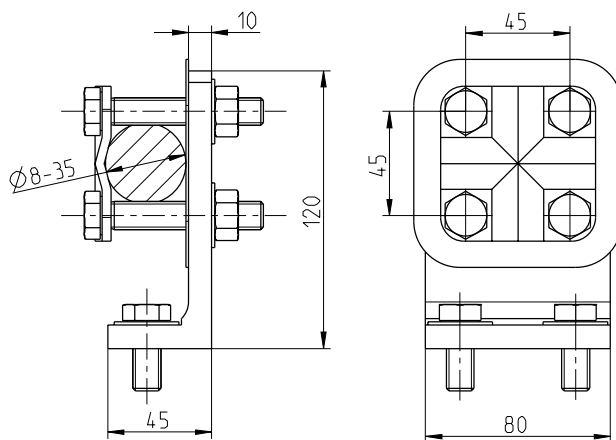
Dimensions (mm)



Type 1200 Flat terminal (aluminium alloy)

Type 1201 Flat terminal (stainless steel)

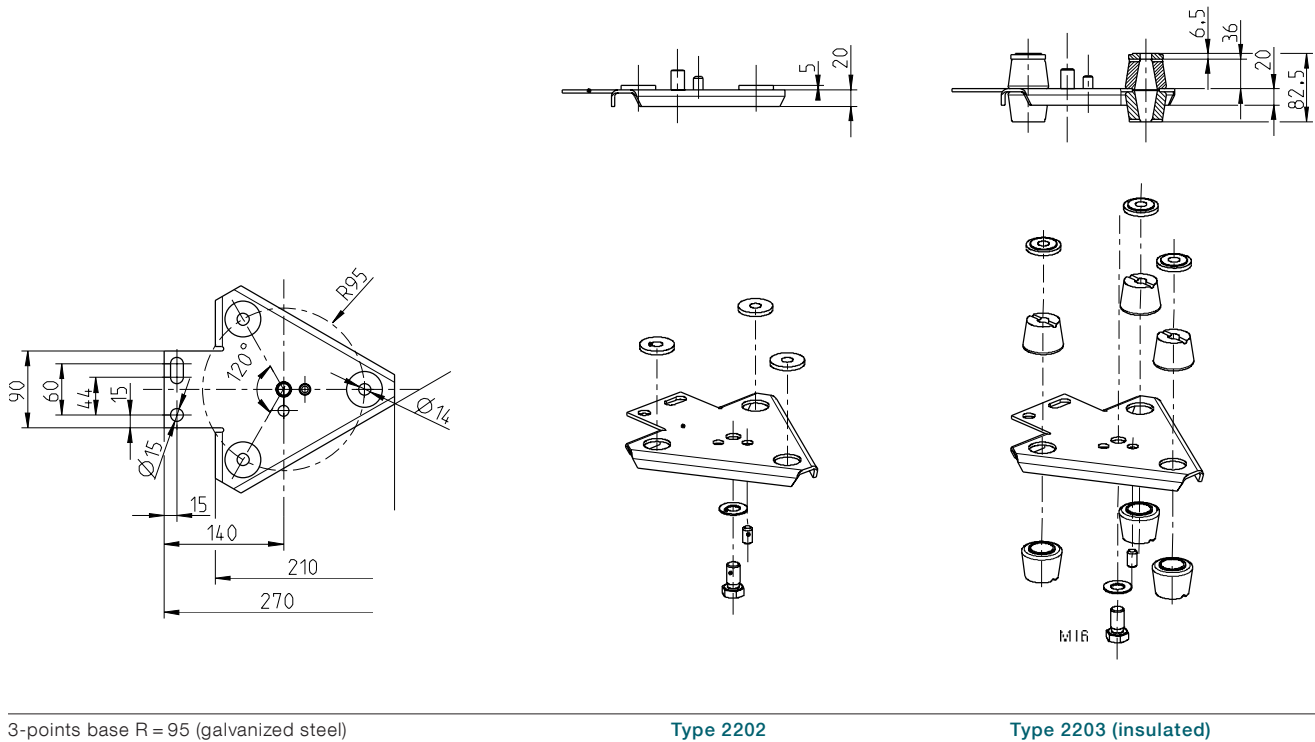
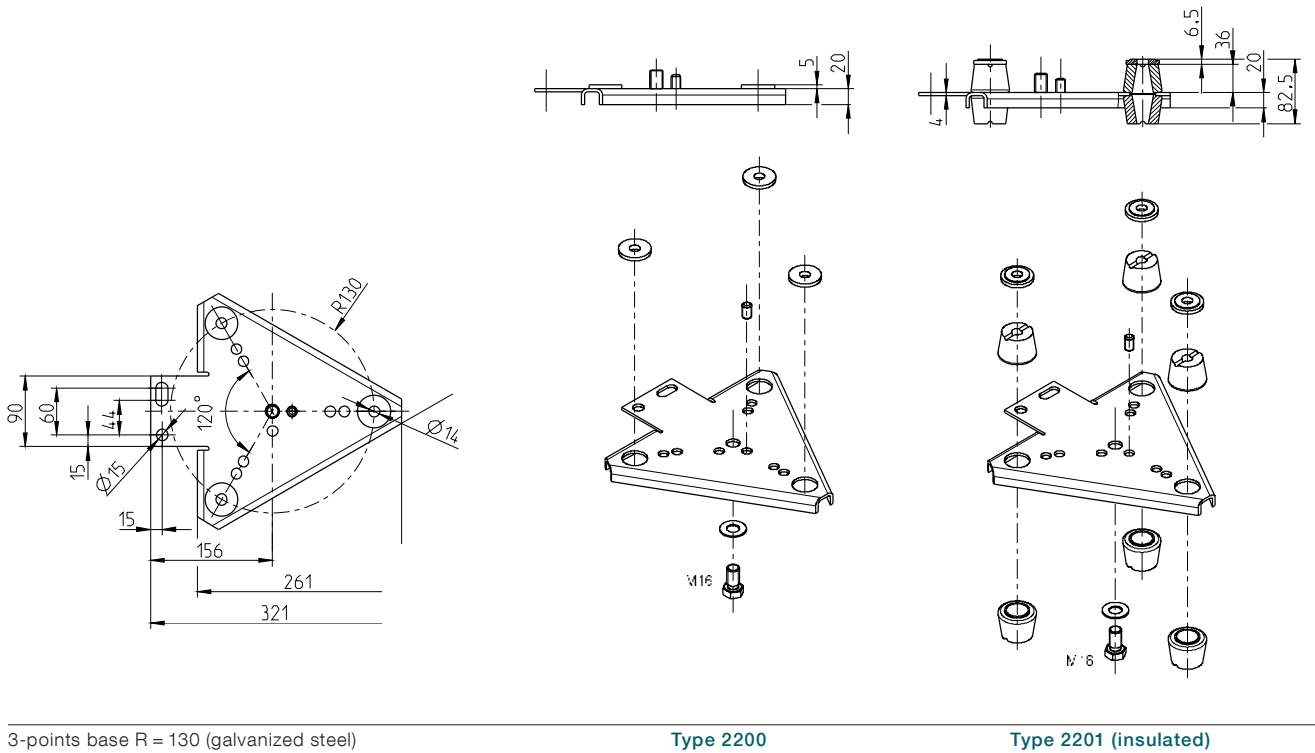
Type 1220 Stud $\phi 30 \times 80$ (stainless steel)



Type 1209 Line terminal (bracket: aluminium alloy, other parts: stainless steel)

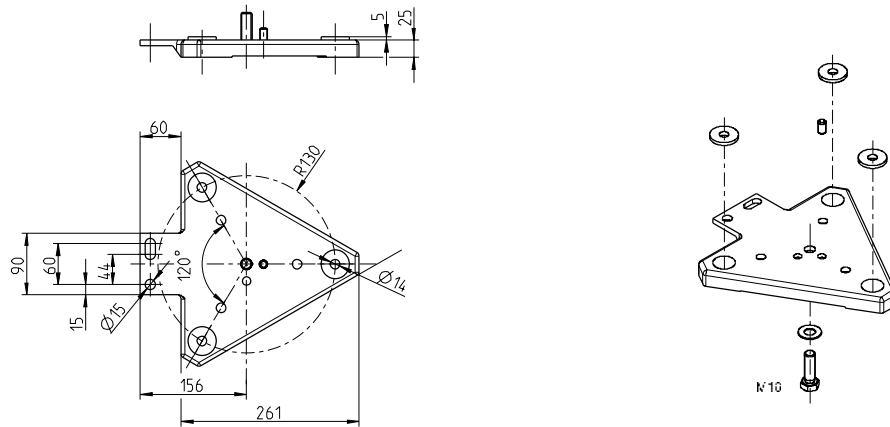
Common Bottom Accessories (optional)

Dimensions (mm)

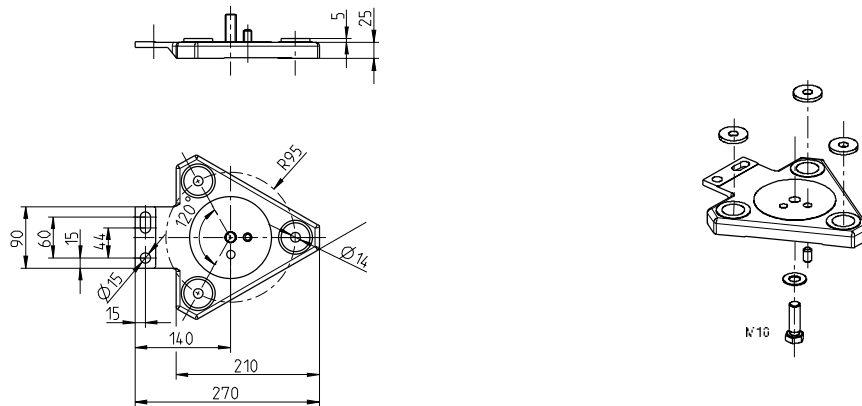


Common Bottom Accessories (optional)

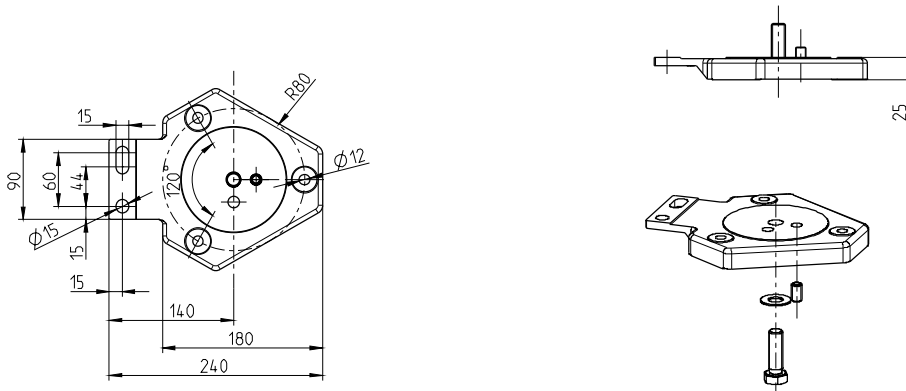
Dimensions (mm)



Type 2204 3-points reinforced base R = 130 – for railway application (aluminium alloy)



Type 2206 3-points reinforced base R = 95 – for railway application (aluminium alloy)



Type 2225 3-points reinforced base R = 80 – for all application (aluminium alloy)

For further information please contact:

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For detailed information regarding the dimensioning of our products see the following ABB documents:

- Application guidelines
Overvoltage protection
Metal oxide surge arresters in medium voltage systems
- Application guidelines
Overvoltage protection
Metal oxide surge arresters in railway facilities

For pdf or print version please send E-mail to:
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