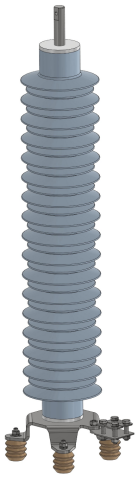


HIGH VOLTAGE SURGE ARRESTER TYPE PROXAR-IIIN AC IN SILICONE HOUSING

CATALOG CARD

APLICATION

Surge arresters type **PROXAR-IIIN AC** in silicone housing are intended for protection AC power engineering networks against multiple lightning and switching overvoltage's in HV substations, cables and transformers. This surge arrester is destined to all special technical requirements as well.

OPERATING CONDITIONS

Surge arresters adapted for outdoor and indoor installation and temperate and tropical climate. The possibility to install in any working positions.

ADVANTAGES

- Low residual voltage
- High energy input capacity
- Stable U-I characteristics even after multiple strokes
- Housing resistant to rough handling
- Explosion and shatter – resistant design
- Pollution resistant and UV
- Ability to install in any position (vertically or horizontally)
- Maintenance free
- Low weight, easy transportation and storage
- Ability to work in horizontal position

ADDITIONAL EQUIPMENT

Additional accessories include a base for mounting surge arresters, as well as line and grounding accessories (see: accessories for surge arresters).

ELECTRICAL DATA

Arrester classification according to IEC 60099-4: 2015	SM(Station Medium)
Line discharge class according to IEC 60099-4: 2009	3
System voltage (Us)	3.6 – 245 kV
Rated voltage (Ur)	1.0 – 228 kV
Nominal discharge current In 8/20 μs	10 kA
High current impulse Ihc 4/10 μs	100 kA
Rated repetitive charge transfer rating Qrs	2.4 C
Rated thermal Energy Wth	11.0 kJ/kV Ur
Single impulse energy capability (impulse duration 2 ms – 4 ms)	5.9 kJ/kV Ur
Long duration current impulse, 2000 μs	1000 A
Short circuit rating	65 kA/0.2s
Service conditions:	
- ambient temperature	-45 °C do +60 °C*
- altitude up to	1000 m*
Mechanical data:	
- specified long-term load (SLL)	2500 Nm
- specified short-term load (SSL)	4000 Nm
- torsional strength	200 Nm
- vertical load	5 kN
Mechanical data:[1)]	
- specified long-term load (SLL)	1200 Nm
- specified short-term load (SSL)	1800 Nm
- torsional strength	200 Nm
- tensile strength	5 kN

*) for other values please contact with the manufacturer;

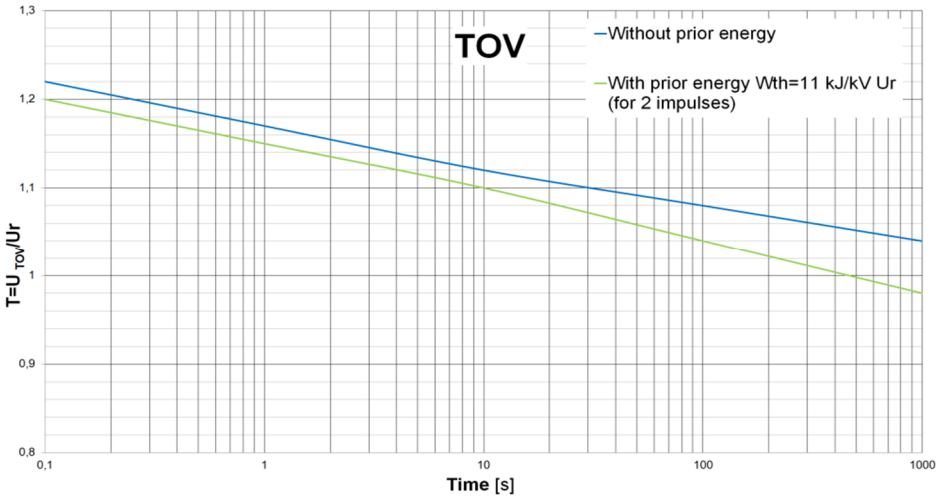
[1)] Only applies to drawing and cover No.1

Type PROXAR-IIIN AC	Rated voltage Ur	Maximum continuous operating voltage Uc	TOV[2)]		Residual voltage in [kV] pk at a specified impulse current							
			rms	rms	Wave 1/… µs	Wave 8/20 µs				Wave 30/60 µs		
			1 s	10 s	10kA	2.5kA	5kA	10kA	20kA	0.25kA	0.5kA	1kA
	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV
1.0	1.0	0.8	1.2	1.1	4.2	2.2	2.3	2.4	2.6	1.9	2.0	2.0
1.2	1.2	1.0	1.4	1.3	4.7	2.6	2.7	2.9	3.1	2.3	2.3	2.4
1.5	1.5	1.2	1.7	1.7	5.5	3.2	3.4	3.6	3.9	2.8	2.9	3.0
1.7	1.7	1.4	2.0	1.9	6.0	3.7	3.8	4.1	4.4	3.2	3.3	3.5
2.0	2.0	1.6	2.3	2.2	6.8	4.3	4.5	4.8	5.2	3.8	3.9	4.1
2.2	2.2	1.8	2.5	2.4	7.3	4.7	5.0	5.3	5.7	4.2	4.3	4.5
2.5	2.5	2.0	2.9	2.8	8.1	5.4	5.6	6.0	6.5	4.7	4.9	5.1
2.7	2.7	2.2	3.1	3.0	8.6	5.8	6.1	6.5	7.0	5.1	5.3	5.5
3.0	3.0	2.4	3.5	3.3	9.4	6.5	6.8	7.2	7.8	5.7	5.9	6.1
3.2	3.2	2.6	3.7	3.5	9.9	6.9	7.2	7.7	8.3	6.0	6.2	6.5
3.5	3.5	2.8	4.0	3.9	10.6	7.5	7.9	8.4	9.1	6.6	6.8	7.1
3.7	3.7	3.0	4.3	4.1	11.2	8.0	8.3	8.9	9.6	7.0	7.2	7.5
4.0	4.0	3.2	4.6	4.4	11.9	8.6	9.0	9.6	10.4	7.6	7.8	8.1
4.5	4.5	3.6	5.2	5.0	13.2	9.7	10.1	10.8	11.7	8.5	8.8	9.1
5	5	4.0	5.8	5.5	14.5	10.8	11.3	12.0	13.0	9.5	9.8	10.2
6	6	4.8	6.9	6.6	17.1	12.9	13.5	14.4	15.6	11.3	11.7	12.2
7	7	5.6	8.1	7.7	19.6	15.1	15.8	16.8	18.2	13.2	13.7	14.2
8	8	6.4	9.2	8.8	22.2	17.2	18.0	19.2	20.8	15.1	15.6	16.2
9	9	7.2	10.4	9.9	24.8	19.4	20.3	21.6	23.4	17.0	17.6	18.3
10	10	8.0	11.5	11.0	27.4	21.5	22.5	24.0	26.0	18.9	19.5	20.3
11	11	8.8	12.7	12.1	30.6	23.7	24.8	26.4	28.6	20.8	21.5	22.3
12	12	9.6	13.8	13.2	33.2	25.8	27.0	28.8	31.2	22.7	23.4	24.4
13	13	10.4	15.0	14.3	35.8	28.0	29.3	31.2	33.8	24.6	25.4	26.4
14	14	11.2	16.1	15.4	38.3	30.1	31.5	33.6	36.4	26.5	27.3	28.4
15	15	12.0	17.3	16.5	40.9	32.3	33.8	36.0	39.0	28.4	29.3	30.5
16	16	12.8	18.4	17.6	44.0	34.4	36.0	38.4	41.6	30.2	31.2	32.5
17	17	13.6	19.6	18.7	46.6	36.6	38.3	40.8	44.2	32.1	33.2	34.5
18	18	14.4	20.7	19.8	49.2	38.7	40.5	43.2	46.8	34.0	35.1	36.5
19	19	15.2	21.9	20.9	51.7	40.9	42.8	45.6	49.4	35.9	37.1	38.6
20	20	16.0	23.0	22.0	54.3	43.0	45.0	48.0	52.0	37.8	39.0	40.6
21	21	16.8	24.2	23.1	56.9	45.2	47.3	50.4	54.6	39.7	41.0	42.6
22	22	17.6	25.3	24.2	59.5	47.3	49.5	52.8	57.2	41.6	42.9	44.7
23	23	18.4	26.5	25.3	62.6	49.5	51.8	55.2	59.8	43.5	44.9	46.7
24	24	19.2	27.6	26.4	65.2	51.6	54.0	57.6	62.4	45.4	46.8	48.7
25	25	20.0	28.8	27.5	67.7	53.8	56.3	60.0	65.0	47.3	48.8	50.8
26	26	20.8	29.9	28.6	70.3	55.9	58.5	62.4	67.6	49.1	50.7	52.8
27	27	21.6	31.1	29.7	72.9	58.1	60.8	64.8	70.2	51.0	52.7	54.8
28	28	22.4	32.2	30.8	75.4	60.2	63.0	67.2	72.8	52.9	54.6	56.8
29	29	23.2	33.4	31.9	78.0	62.4	65.3	69.6	75.4	54.8	56.6	58.9
30	30	24.0	34.5	33.0	80.6	64.5	67.5	72.0	78.0	56.7	58.5	60.9
33	33	26.4	38.0	36.3	88.8	71.0	74.3	79.2	85.8	62.4	64.4	67.0
36	36	28.8	41.4	39.6	96.6	77.4	81.0	86.4	93.6	68.0	70.2	73.1
39	39	31.2	44.9	42.9	104.8	83.9	87.8	93.6	101.4	73.7	76.1	79.2
42	42	33.6	48.3	46.2	112.5	90.3	94.5	100.8	109.2	79.4	81.9	85.3
45	45	36.0	51.8	49.5	120.2	96.8	101.3	108.0	117.0	85.1	87.8	91.4
48	48	38.4	55.2	52.8	128.5	103.2	108.0	115.2	124.8	90.7	93.6	97.4
51	51	41.0	58.7	56.1	136.2	109.7	114.8	122.4	132.6	96.4	99.5	103.5
54	54	43.0	62.1	59.4	144	116	122	130	140	102	105	110
60	60	48.0	69.0	66.0	160	129	135	144	156	113	117	122
66	66	53.0	75.9	72.6	176	142	149	158	172	125	129	134
72	72	58.0	82.8	79.2	192	155	162	173	187	136	140	146
84	84	67.0	96.6	92.4	224	181	189	202	218	159	164	171
96	96	77.0	110.4	105.6	257	206	216	230	250	181	187	195
102	102	82.0	117.3	112.2	273	219	230	245	265	193	199	207
108	108	86.0	124.2	118.8	288	232	243	259	281	204	211	219
120	120	96.0	138.0	132.0	321	258	270	288	312	227	234	244
132	132	106.0	151.8	145.2	352	284	297	317	343	249	257	268
138	138	111.0	158.7	151.8	367	297	311	331	359	261	269	280
144	144	115.0	165.6	158.4	383	310	324	346	374	272	281	292
150	150	120.0	172,5	165,0	405	323	338	360	390	284	293	305
156	156	125.0	179,4	171,6	420	335	351	374	406	295	304	317
162	162	130.0	186,3	178,2	436	348	365	389	421	306	316	329
168	168	134.0	193,2	184,8	451	361	378	403	437	318	328	341
192	192	154.0	220,8	211,2	515	413	432	461	499	363	374	390
198	198	158.0	227,7	217,8	530	426	446	475	515	374	386	402
204	204	163.0	234,6	224,4	546	439	459	490	530	386	398	414
216	216	173.0	248,4	237,6	577	464	486	518	562	408	421	438
228	228	182.0	262,2	250,8	607	490	513	547	593	431	445	463

There is a possibility of manufacturing surge arresters for different voltages that are not listed in the table.

[2)]With prior energy 11 kJ/kV Ur

TOV CHARACTERISTIC

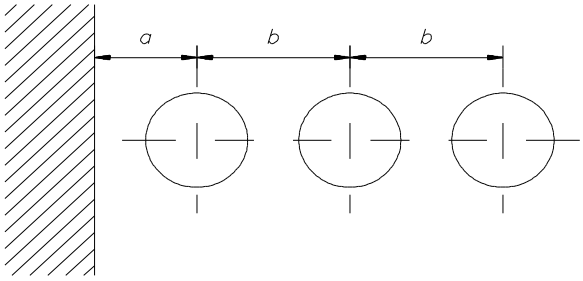


Power frequency voltage versus time characteristic TOV without prior energy

U_{TOV} for t=1 s 1.170 Ur = 1.463 Uc
U_{TOV} for t=3 s 1.145 Ur = 1.431 Uc
U_{TOV} for t=10 s 1.120 Ur = 1.400 Uc

Power frequency voltage versus time characteristic TOV
with prior energy 11 kJ/kV Ur;
13.75 kJ/kV Uc

U_{TOV} for t=1 s 1.150 Ur = 1.438 Uc
U_{TOV} for t=3 s 1.125 Ur = 1.406 Uc
U_{TOV} for t=10 s 1.100 Ur = 1.375 Uc



Minimal mounting distances of surge arresters.

TECHNICAL DATA FOR HOUSING

Us	Type PROXAR IIIN AC	Insulation withstand voltage of housing		Minimal distances		Dimension						Variant of drawing	Operating position	Housing number	Weight
		50 Hz wet (60s)	1.2/50µs dry	Distance between Arresters „b"	Distance between arrester and the nearest grounded structure „a"	H	Creepage distance	Flash-over distance	A	B	C				
kV	kV	kV	kV	mm	mm	mm	mm	mm	mm	mm	M	Fig.	Fig.	No	kg
	1.0	28	75	150	75	165	318	165	148	71	M12	1	6, 7, 9	01	2.4
	1.2			150	75										2.5
	1.5			150	75										2.6
	1.7			150	75										2.6
	2.0			150	75										2.7
	2.2			150	75										2.7
	2.5			150	75										2.8
	2.7			150	75										2.8
	3.0			150	75										2.9
	3.2			150	75										2.9
	3.5			150	75										3.0
	3.7			150	75										3.1
	4.0			150	75										3.2
3.6	4.5			150	75										3.3
	5.0			150	85										3.5
	6.0			150	95										3.7
	7.0			150	95										3.9
	8.0			150	100										4.1
7.2	9.0			150	110										4.3
	10.0			150	115										4.5
	11	77	141	220	165	235	528	247	219	113	M16	2	6, 7, 9	02	12.4
	12			230	170										12.5
	13			240	180										12.6
	14			240	185										12.7
12	15			250	195										12.8
Us	Type	Insulation withstand voltage of housing		Minimal distances		Dimension						Variant of	Operating pos	Housing	Weig

	PROXAR IIIN AC	50 Hz wet (60s)	1.2/50µs dry	Distance between Arresters „b"	Distance between arrester and the nearest grounded structure „a"	H	Creepage distance	Flash-over distance	A	B	C				
kV	kV	kV	kV	mm	mm	mm	mm	mm	mm	mm	M	Fig.	Fig.	No	kg
	16			270	210										13.6
	17			280	215										13.7
	18			280	225										13.8
	19	94	173	290	235	291	760	303	219	113	M16	2	6, 7, 9	03	13.9
	20			300	240										14.0
	21			310	250										14.1
17.5	22			310	255										14.2
	23			330	275										15.0
	24			340	280										15.1
	25			350	290										15.2
	26	112	205	360	295	347	992	359	219	113	M16	2	6, 7, 9	04	15.3
	27			360	305										15.4
	28			370	310										15.5
	29			380	320										15.6
24	30			390	325										15.7
	33	129	237	430	370	403	1225	415	219	113	M16	2	6, 7, 9	05	16.4
	36			450	395										16.6
	39			470	415										17.1
	42	147	269	500	440	459	1457	471	219	113	M16	2	6, 7, 9	06	17.4
36	45			520	460										17.7
52	48	164	301	550	495	515	1689	527	219	113	M16	2	6, 7, 9	07	18.0
	51			570	515										18.5
	54	182	334	620	555	571	1741	583	219	113	M20	3	6, 7, 8, 9	08	20.0
	60			660	600										20.5
72.5	66	217	398	740	680	683	2208	695	219	113	M20	3	6, 7, 8, 9	09	21.5
	72			790	725										22.0
	84	269	494	920	865	851	2905	863	219	113	M20	3	6, 7, 8, 9	10	23.0
	96			1050	995										25.5
	102	304	558	1100	1040	963	3369	975	219	113	M20	3	6, 7, 8, 9	11	26.0
123	108			1140	1085										26.5
	96			1050	995										27.5
	102			1100	1040										29.5
	108	339	622	1140	1085	1075	3834	1087	219	113	M20	3	6, 7, 8, 9	12	30.0
	120			1270	1215										30.5
	132			1360	1305										31.5
	138			1410	1350										32.0
145	120			1270	1215										32.5
	132	391	718	1360	1305	1243	4530	1255	219	113	M20	3	6, 7, 8, 9	13	35.0
	138			1410	1350										36.0
	144			1450	1395										36.5
	138	236	516	1940	1635	1243	4530	743	219	113	M20	4	6, 7, 9	14	43.5
	144			1980	1680										44.0
	150			2030	1725										44.5
	156	314	698	2070	1770	1534	5110	1034	219	113	M20	5	6, 7, 9	15	45.0
	162			2120	1820										45.5
170	168			2170	1865										46.0
	138			1940	1635										45.0
	144			1980	1680										45,5
	150	344	765	2030	1725	1646	5577	1146	219	113	M20	5	6, 7, 9	16	46.0
	156			2070	1770										46.5
	162			2120	1820										47.0
	168			2170	1865										47.5
	192			2270	1970										54.5
	198			2320	2015										55.5
	204	393	874	2360	2060	1926	6738	1326	219	113	M20	5	6, 7, 9	17	56.5
	216			2460	2155										57.5
245	228			2550	2245										59.5
	192			2270	1970										62.5
	198			2320	2015										63.5
	204	454	1009	2360	2060	2150	7668	1550	219	113	M20	5	6, 7, 9	18	64.5
	216			2460	2155										65.5
	228			2550	2245										67.5

Note: It is possible to make a surge arrester in a different housing than the catalog version. Us – maximum system voltage

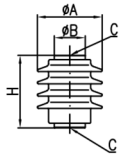


Fig. 1

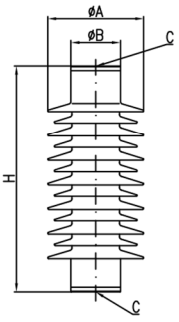


Fig. 2

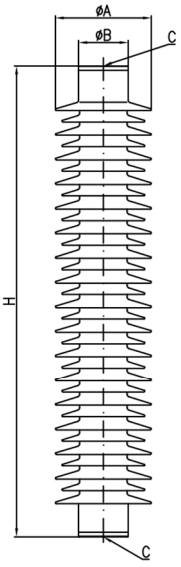


Fig. 3

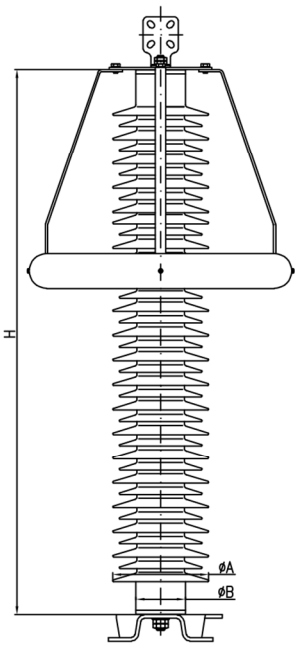


Fig. 4

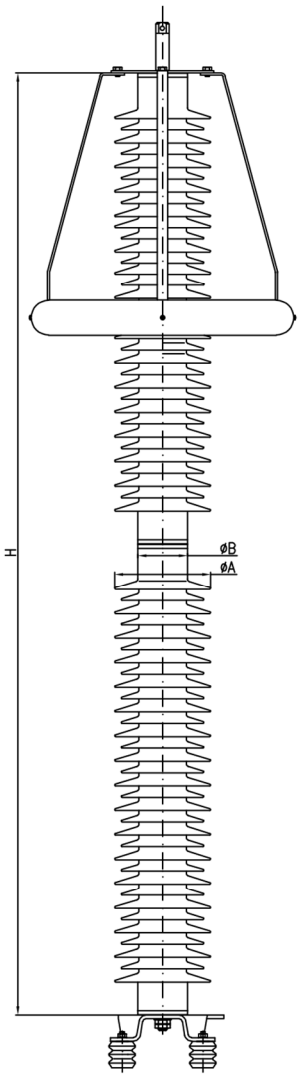


Fig. 5

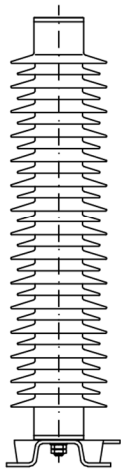


Fig. 6

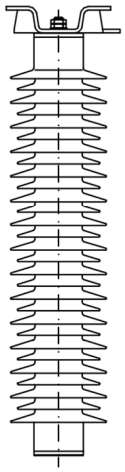


Fig. 7

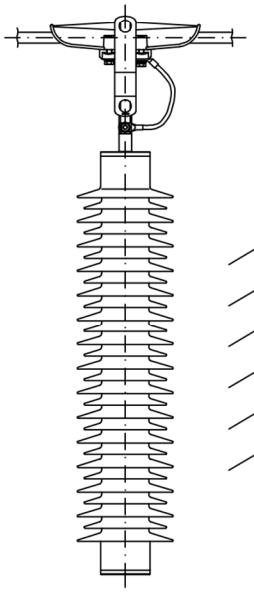


Fig. 8

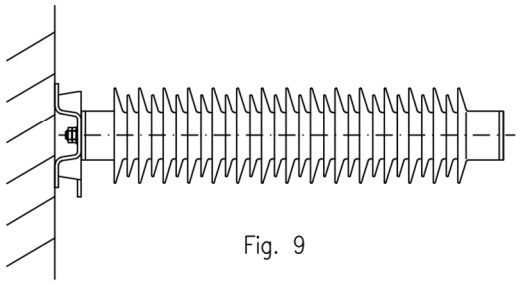
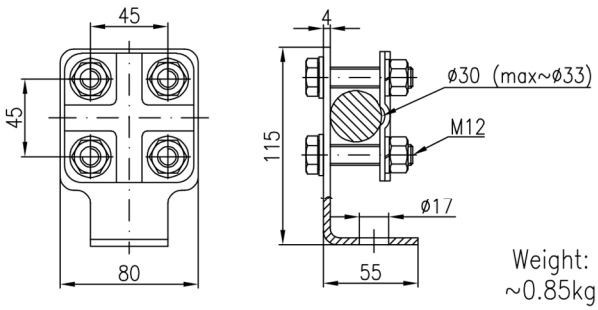


Fig. 9

In the above figures show the configuration of the surge arresters housing (fig. 1; 2, 3, 4, 5). The drawings No 6 – 9 present different system of assembling surge arresters. Drawings No 6 present vertical system of assembling. Drawing No 7 presents reverse system of assembling surge arrester. Drawing No 8 presents suspension system of assembly line surge arrester. Drawing No 9 presents horizontal system of assembling. Below the figures are presenting different options line and earth accessories available for use in surge arrester type PROXAR-IIIN AC. For horizontal working configuration of surge arresters is this same option like for vertical working.

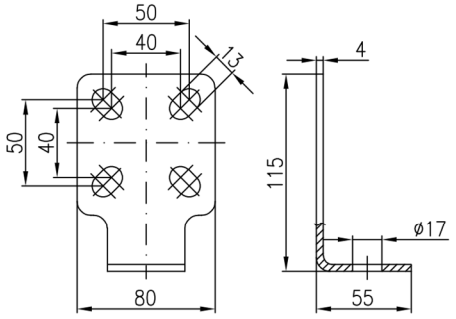
LINE ACCESSORIES

LINE TERMINAL 1 (Stainless steel)



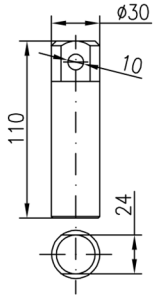
Weight: ~0.85kg

LINE TERMINAL 2 (Stainless steel)



Weight: ~0.42kg

LINE TERMINAL 3 (Stainless steel)

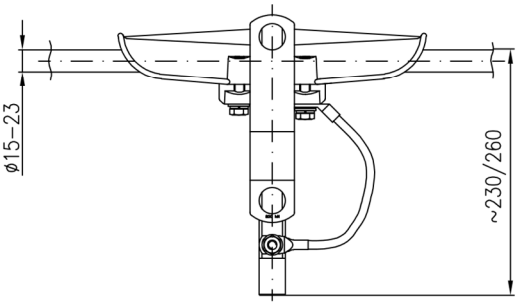


Weight: ~0.60kg

Weight: ~0.27kg

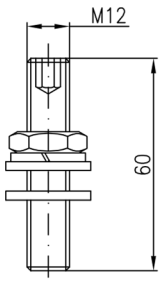
LINE TERMINAL 4 (Aluminium)

LINE TERMINAL 5 (Hot–dip galvanized/Stainless steel)



Weight: ~3.15kg

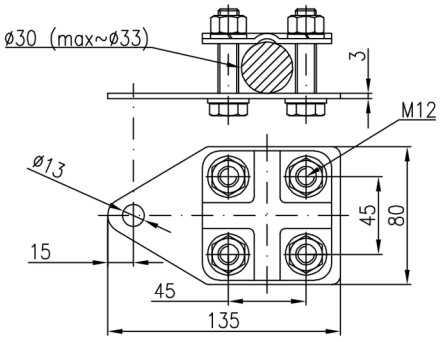
LINE TERMINAL 6 (Stainless steel)



Weight: ~0.06kg

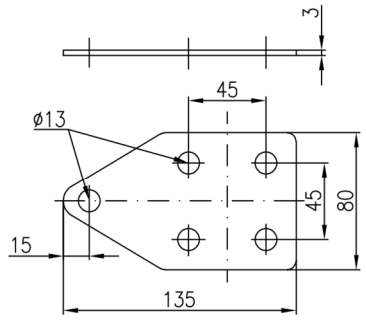
EARTH ACCESSORIES

EARTH TERMINAL 1 (Stainless steel)



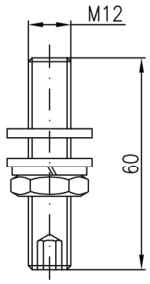
Weight: ~0.68kg

EARTH TERMINAL 2 (Stainless steel)



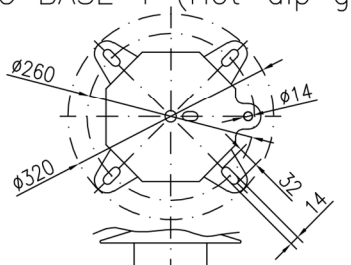
Weight: ~0.25kg

EARTH TERMINAL 6 (Stainless steel)

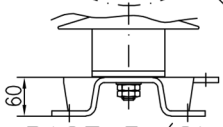


Weight: ~0.06kg

MOUTING BASE 1 (Hot–dip galvanized)



Weight: ~3.75kg

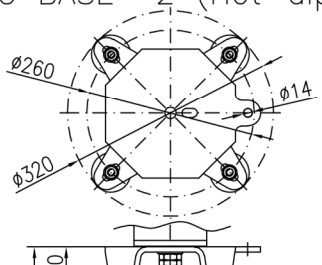


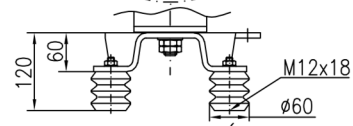
Weight: ~2.84kg

MOUTING BASE 3 (Stainless steel)

INSULATING BASE 2 (Hot–dip galvanized)

Weight: ~4.98kg





Weight: ~4.08kg

INSULATING BASE 4 (Stainless steel)

Fig.10. Equipment for surge arrester type PROXAR-IIIN AC

Order configurator**:

1	2	3	4	5	6	7	8	9
PROXAR-IIIN		**AC**						

**) Empty fields to fill.

1. Type of product
PROXAR-IIIN

2. Rated voltage Ur
See table – TECHNICAL DATA — **Ur**

3. Voltage type
Alternating voltage (48 – 62 Hz) — **AC**

4. Assembly (according fig. 6, 7, 8, 9)

– Vertical 1	**1**
– Reversed 2	**2**
– Suspension 3	**3**
– Horizontal 4	**4**

5. Base (according fig. 10)

– Without base	**0**
– Mounting base 1 (Hot-dip galvanized)	**1**
– Insulating base 2 (Hot-dip galvanized)	**2**
- Mounting base 3 (Stainless steel)	**3**
- Insulating base 4 (Stainless steel)	**4**

6. Line terminal (according fig. 10)

– without line terminal	**0**
– line terminal 1	**1**
– line terminal 2	**2**
– line terminal 3	**3**
– line terminal 4	**4**
– line terminal 5	**5**
– line terminal 6	**6**

7. Earth terminal (according fig. 10)

– without earth terminal	**0**
– earth terminal 1	**1**
– earth terminal 2	**2**
– earth terminal 6	**6**

8. Housing number
See table – TECHNICAL DATA FOR HOUSING — **Housing number**

9. Housing design

– standard	**0**
– non-standard (to be agreed with the manufacturer)	**X**

Order example:

1	2	3	4	5	6	7	8	9
PROXAR-IIIN	**96**	**AC**	**1**	**2**	**3**	**1**	**12**	**0**

PROXAR-IIIN 96 AC 1231120 – 3 pcs.

Description: Surge arrester type **PROXAR-IIIN** of rated voltage Ur=**96**kV for **AC** system in vertical mounting version -**1** with insulating base 2 (hot-dip galvanized) - **2**, line terminal - **3**, earth terminal - **1**, housing number - **12**, in standard design **0**.

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Proxar

ATTENTION
The manufacturer reserves the right to change technical data or designee without prior notice.
PROXAR® is a registered trademark newest family of surge arresters produced by Protektel