

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

CATALOG CARD

APPLICATION

Surge arresters type **PROXAR-IIIN AC** in silicone housing are intended for protection AC power engineering networks against multiple lightning and switching overvoltages 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 up to 1000 m over the sea level. 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

Surge counter type ProCounter* and insulating base. Support bases allow to install surge arrester type **PROXAR-IIIN AC** at places of retrofit or service installation.

The special support bases with various dimensions of hole position can be delivered on request.

*) INFORMATION ABOUT THE SURGE COUNTER TYPE ProCounter ARE INCLUDED IN ANOTHER CATALOG CARD

ELECTRICAL DATA

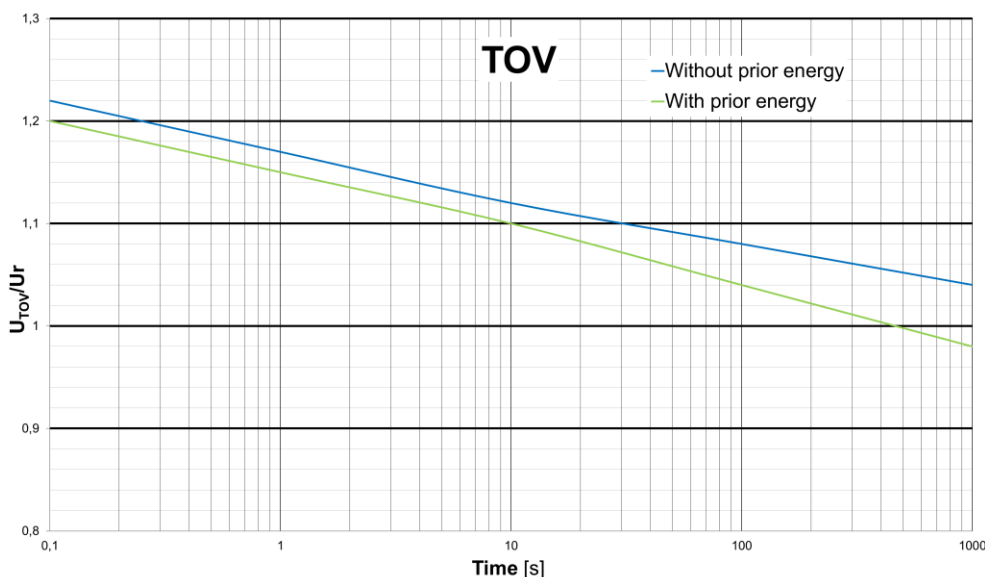
Arrester classification according to IEC 60099-4: 2015	SM (Station Medium)
Line discharge class according to IEC 60099-4: 2009	3
System voltage (Us)	3.6 – 145 kV
Rated voltage (Ur)	5.0 – 144 kV
Nominal discharge current I_n 8/20 μ s	10 kA
High current impulse I_{hc} 4/10 μ s	100 kA
Rated repetitive charge 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 μ s	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

**) for higher parameters please contact with manufacturer

TYPE PROXAR-IIIN AC	Rated voltage Ur kV	Maximum operating voltage Uc kV	TOV ¹⁾		Residual voltage in [kV] pk at a specified impulse current										
					Wave 1/... μs		Wave 8/20 μs				Wave 30/60 μs				
			1 s	10 s	10kA	2.5kA	5kA	10kA	20kA	40kA	0.125kA	0.25kA	0.5kA	1kA	2kA
5.0	5	4.0	5.8	5.5	13.8	10.3	10.9	11.8	12.9	14.7	10.4	10.9	11.5	11.9	12.5
6.0	6	4.8	6.9	6.6	16.6	12.4	13.1	14.1	15.5	17.6	10.4	10.9	11.5	11.9	12.5
7.0	7	5.6	8.1	7.7	19.3	14.5	15.3	16.5	18.1	20.6	12.2	12.7	13.4	13.9	14.6
8.0	8	6.4	9.2	8.8	22.1	16.5	17.5	18.8	20.7	23.5	13.9	14.5	15.3	15.9	16.7
9.0	9	7.2	10.4	9.9	24.9	18.6	19.7	21.2	23.3	26.4	15.7	16.3	17.2	17.9	18.7
10.0	10	8.0	11.5	11.0	27.6	20.7	21.9	23.5	25.9	29.4	17.4	18.1	19.1	19.9	20.8
11.0	11	8.8	12.7	12.1	30.4	22.7	24.0	25.9	28.4	32.3	19.1	19.9	21.0	21.8	22.9
12.0	12	9.6	13.8	13.2	33.2	24.8	26.2	28.2	31.0	35.3	20.9	21.7	23.0	23.8	25.0
13.0	13	10.4	15.0	14.3	35.9	26.9	28.4	30.6	33.6	38.2	22.6	23.5	24.9	25.8	27.1
14.0	14	11.2	16.1	15.4	38.7	29.0	30.6	32.9	36.2	41.1	24.3	25.3	26.8	27.8	29.2
15.0	15	12.0	17.3	16.5	41.5	31.0	32.8	35.3	38.8	44.1	26.1	27.1	28.7	29.8	31.2
16.0	16	12.8	18.4	17.6	44.2	33.1	35.0	37.6	41.4	47.0	27.8	29.0	30.6	31.8	33.3
17.0	17	13.6	19.6	18.7	47.0	35.2	37.2	40.0	43.9	49.9	29.6	30.8	32.5	33.8	35.4
18.0	18	14.4	20.7	19.8	49.7	37.2	39.3	42.3	46.5	52.9	31.3	32.6	34.4	35.7	37.5
19.0	19	15.2	21.9	20.9	52.5	39.3	41.5	44.7	49.1	55.8	33.0	34.4	36.3	37.7	39.6
20.0	20	16.0	23.0	22.0	55.3	41.4	43.7	47.0	51.7	58.8	34.8	36.2	38.3	39.7	41.6
21.0	21	16.8	24.2	23.1	58.0	43.4	45.9	49.4	54.3	61.7	36.5	38.0	40.2	41.7	43.7
22.0	22	17.6	25.3	24.2	60.8	45.5	48.1	51.7	56.9	64.6	38.3	39.8	42.1	43.7	45.8
23.0	23	18.4	26.5	25.3	63.6	47.6	50.3	54.1	59.5	67.6	40.0	41.6	44.0	45.7	47.9
24.0	24	19.2	27.6	26.4	66.3	49.6	52.5	56.4	62.0	70.5	41.7	43.4	45.9	47.7	50.0
25.0	25	20.0	28.8	27.5	69.1	51.7	54.6	58.8	64.6	73.4	43.5	45.2	47.8	49.6	52.1
26.0	26	20.8	29.9	28.6	71.8	53.8	56.8	61.1	67.2	76.4	45.2	47.0	49.7	51.6	54.1
27.0	27	21.6	31.1	29.7	74.6	55.8	59.0	63.5	69.8	79.3	47.0	48.9	51.6	53.6	56.2
28.0	28	22.4	32.2	30.8	77.4	57.9	61.2	65.8	72.4	82.3	48.7	50.7	53.6	55.6	58.3
29.0	29	23.2	33.4	31.9	80.1	60.0	63.4	68.2	75.0	85.2	50.4	52.5	55.5	57.6	60.4
30.0	30	24.0	34.5	33.0	82.9	62.0	65.6	70.5	77.6	88.1	52.2	54.3	57.4	59.6	62.5
33.0	33	26.4	38.0	36.3	91.2	68.2	72.1	77.6	85.3	96.9	57.4	59.7	63.1	65.5	68.7
36.0	36	28.8	41.4	39.6	99.5	74.4	78.7	84.6	93.1	105.8	62.6	65.1	68.9	71.5	75.0
39.0	39	31.2	44.9	42.9	107.8	80.7	85.2	91.7	100.8	114.6	67.8	70.6	74.6	77.4	81.2
42.0	42	33.6	48.3	46.2	116.1	86.9	91.8	98.7	108.6	123.4	73.0	76.0	80.3	83.4	87.5
45.0	45	36.0	51.8	49.5	124.4	93.1	98.3	105.8	116.3	132.2	78.3	81.4	86.1	89.3	93.7
48.0	48	38.4	55.2	52.8	132.6	99.3	104.9	112.8	124.1	141.0	83.5	86.9	91.8	95.3	100.0
51.0	51	41.0	58.7	56.1	140.9	105.5	111.5	119.9	131.8	149.8	88.7	92.3	97.6	101.3	106.2
54.0	54	43.0	62.1	59.4	149.2	112	118	127	140	159	94	98	103	107	112
60.0	60	48.0	69.0	66.0	165.8	124	131	141	155	176	104	109	115	119	125
66.0	66	53.0	75.9	72.6	182.4	136	144	155	171	194	115	119	126	131	137
72.0	72	58.0	82.8	79.2	199.0	149	157	169	186	212	125	130	138	143	150
84.0	84	67.0	96.6	92.4	232.1	174	184	197	217	247	146	152	161	167	175
96.0	96	77.0	110.4	105.6	265.3	199	210	226	248	282	167	174	184	191	200
102.0	102	82.0	117.3	112.2	281.9	211	223	240	264	300	177	185	195	203	212
108.0	108	86.0	124.2	118.8	298.5	223	236	254	279	317	188	195	207	214	225
120.0	120	96.0	138.0	132.0	331.6	248	262	282	310	353	209	217	230	238	250
132.0	132	106.0	151.8	145.2	364.8	273	288	310	341	388	230	239	253	262	275
138.0	138	111.0	158.7	151.8	381.4	285	302	324	357	405	240	250	264	274	287
144.0	144	115.0	165.6	158.4	397.9	298	315	338	372	423	250	261	275	286	300

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

¹⁾With prior energy 11 kJ/kV Ur
TOV CHARACTERISTIC



Power frequency voltage versus time characteristic TOV without prior energy

U_{TOV} dla $t=1$ s 1.170 $U_r = 1.463 U_c$
 U_{TOV} dla $t=3$ s 1.145 $U_r = 1.431 U_c$
 U_{TOV} dla $t=10$ s 1.120 $U_r = 1.400 U_c$

Power frequency voltage versus time characteristic TOV with prior energy.

U_{TOV} dla $t=1$ s 1.150 $U_r = 1.438 U_c$
 U_{TOV} dla $t=3$ s 1.125 $U_r = 1.406 U_c$
 U_{TOV} dla $t=10$ s 1.100 $U_r = 1.375 U_c$

TOV characteristic for PROXAR-IIIN AC

TECHNICAL DATA FOR HOUSING

Type PROXAR-IIIN AC	Insulation withstand voltage of housing		Height H mm	Creepage distance L mm	Strike distance mm	Dimensions			Variant of drawing Fig.	Operating position Fig.	No of housing No	Weight kg
	50 Hz wet (60s) kV	1.2/50µs dry kV				A mm	B mm	C, D Fig.				
5.0	27	74	204	700	210	175	110	M20	1	1, 2, 4	01	3.4
6.0												3.5
7.0												3.6
8.0												3.7
9.0												3.8
10.0												3.9
11.0	72	135	332	1220	338	175	110	M20	1	1, 2, 4	02	5.9
12.0												6.0
13.0												6.1
14.0												6.2
15.0												6.3
16.0												6.4
17.0												6.5
18.0												6.6
19.0												6.7
20.0												6.8
21.0												6.9
22.0												7.0
23.0	124	231	475	1640	506	188	98	M20	1	1, 2, 4	03	9.3
24.0												9.4
25.0												9.5
26.0												9.6
27.0												9.7
28.0												9.8
29.0												9.9
30.0												10.0
33.0												10.2
36.0												10.4
39.0												10.6
42.0												10.8
45.0	11.0											
48.0	160	298	575	2010	606	188	98	M20	1	1, 2, 3, 4	04	17.5
51.0												17.7
54.0												18.0
60.0												18.5
66.0	214	399	725	2570	756	188	98	M20	1	1, 2, 3, 4	05	20.5
72.0												21.0
84.0	249	466	825	2940	856	188	98	M20	1	1, 2, 3, 4	06	25.0
96.0	285	533	925	3310	956	188	98	M20	1	1, 2, 3, 4	07	27.0
102.0												27.5
108.0												28.0
120.0												29.0
96.0	339	633	1075	3870	1106	188	98	M20	1	1, 2, 3, 4	08	29.5
102.0												30.0
108.0												30.5
120.0												31.5
132.0												32.0
138.0												32.5
144.0												33.0
120.0												32.0
132.0	375	700	1175	4240	1206	188	98	M20	1	1, 2, 3, 4	09	33.0
138.0												33.5
144.0												34.0

Note: It is possible to make a surge arrester in a different housing than the catalog version.

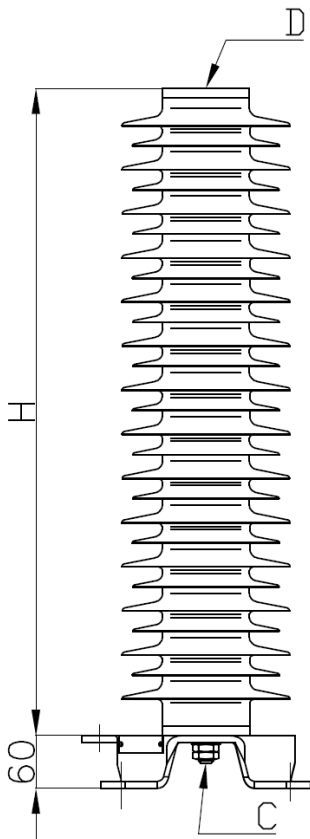


Fig.1

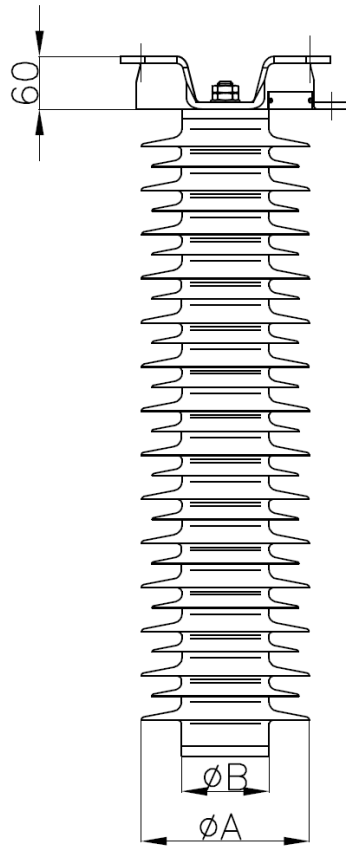


Fig.2

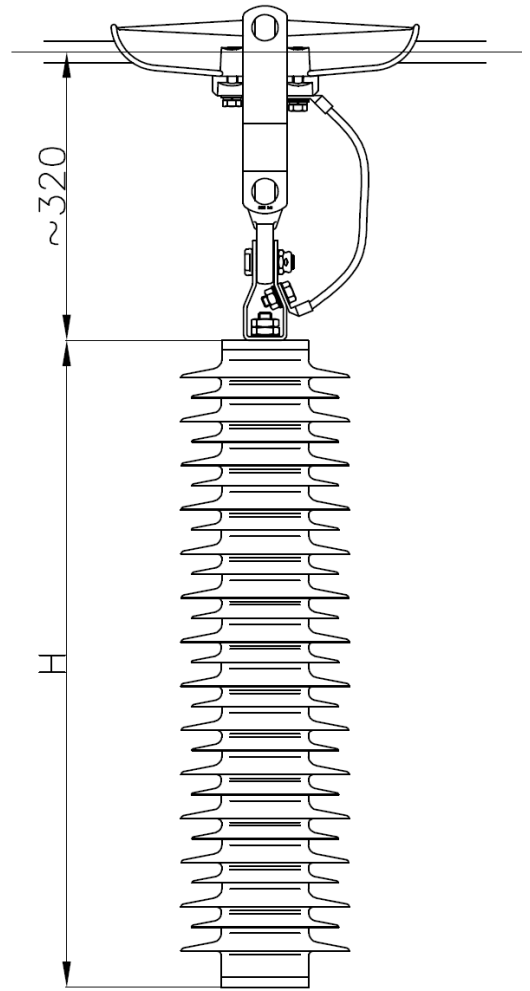


Fig.3

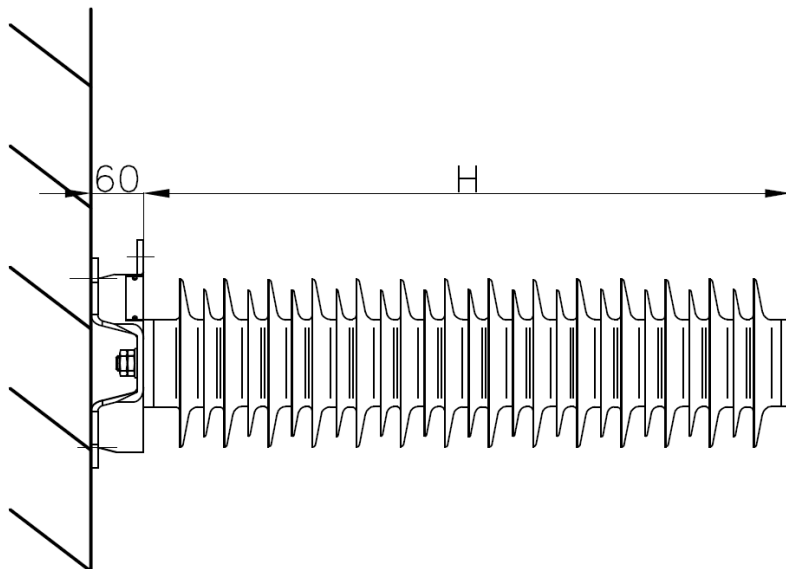


Fig.4

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

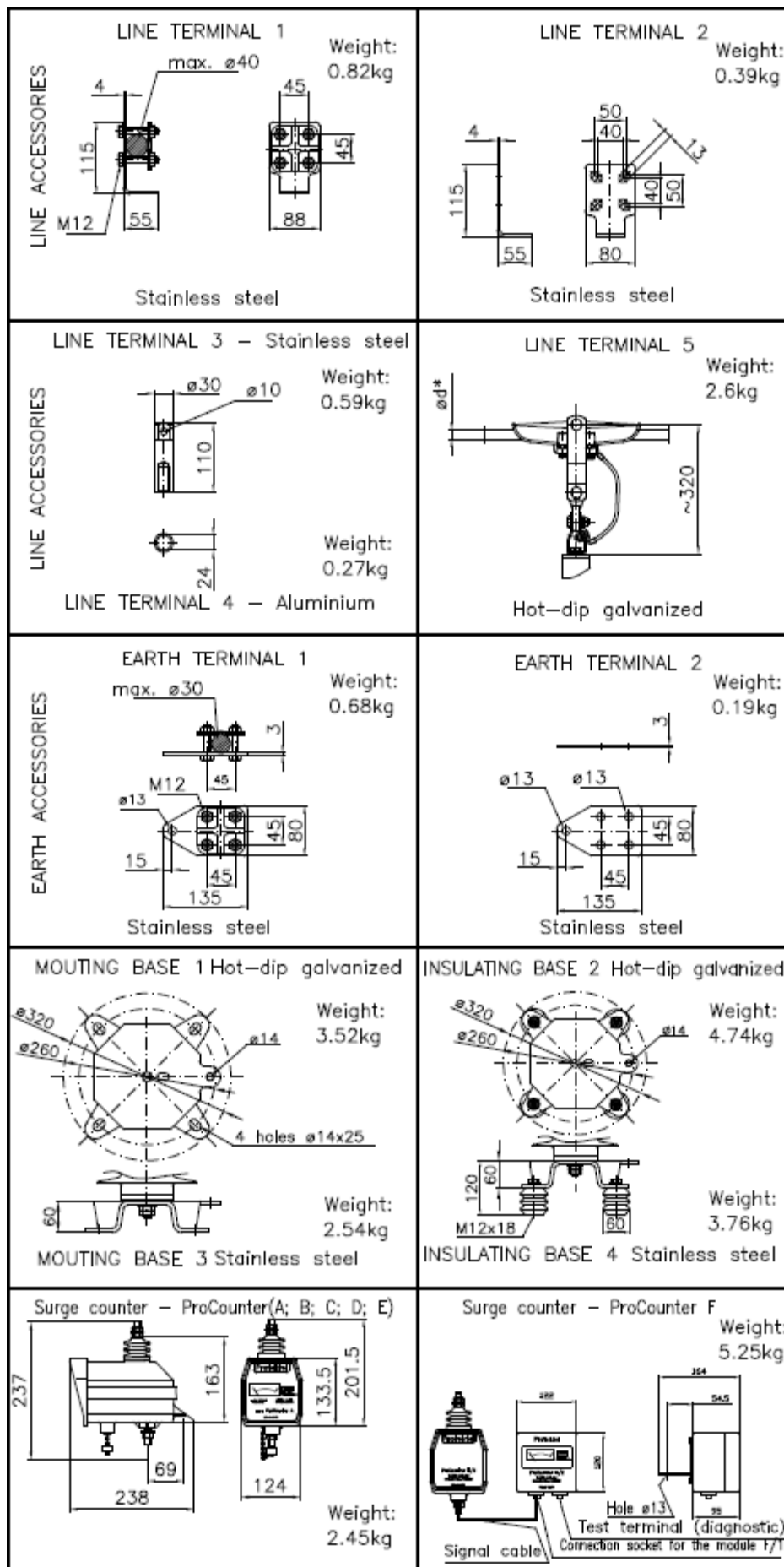


Fig.5. Equipment for surge arrester type PROXAR-IIIN AC

Order configurator***:

I	II	III	IV	V	VI	VII	VIII	IX
PROXAR-IIIN		AC						

***) Empty fields to fill.

I. Type of product

PROXAR-IIIN

II. Rated voltage Ur

See table – ELECTRICAL DATA

Ur

III. Voltage type

Alternating voltage (48 – 62 Hz)

AC

IV. Assembly (according fig. 1, 2, 3, 4)

– Vertical (fig.1)

1

– Reversed (fig.2)

2

– Suspension (fig.3)

3

– Horizontal (fig.4)

4

V. Base (according fig. 8)

– Without base

0

– Mounting base1 (Hot-dip galvanized)

1

– Insulating base 2 (Hot-dip galvanized)

2

– Mounting base 3 (Stainless steel)

3

– Insulating base 4 (Stainless steel)

4

VI. Line terminal (according fig. 5)

– without line terminal

0

– line terminal 1

1

– line terminal 2

2

– line terminal 3

3

– line terminal 4

4

– line terminal 5

5

VII. Earth terminal (according fig. 5)

– without earth terminal

0

– earth terminal 1

1

– earth terminal 2

2

VIII. Housing number

See table – TECHNICAL DATA FOR HOUSING

Housing number

IX. Surge counter (please see catalog of surge counter type ProCounter)

– without surge counter

0

– surge counter with electromagnetic counter, indicator of the leakage current and with the measuring socket

A

– surge counter with electromagnetic counter and with the measuring socket

B

– surge counter with electromagnetic counter

C

– surge counter with electromagnetic counter, indicator of the leakage current

D

– surge counter with electromagnetic counter, indicator of the leakage current, socket for transmission via signal line amounts of surges

E

– surge counter with two modules F/1 and F/2 connected to each shielded cable to signal transmission for distance 30 m., by hermetic sockets/plugs (IP67). F/1 – transmitter module, F/2 – receiver module with electromagnetic counter, indicator of the leakage current and with the measuring socket, relay output

F

Order example:

I	II	III	IV	V	VI	VII	VIII	IX
PROXAR-IIIN	96	AC	1	2	3	1	07	A

PROXAR-IIIN 96 AC 123107A – 3 pcs.

Description: Surge arrester type **PROXAR-IIIN** of rated voltage $U_r=96kV$ for **AC** system in vertical mounting version -1 with insulating base 2 (hot-dip galvanized) - **2**, line terminal - **3**, earth terminal - **1**, housing number - **07**, surge counter type ProCounter **A**.

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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

PROXAR-IIIN AC/KK/06/EN wydanie 02.2020