



## HIGH VOLTAGE SURGE ARRESTER TYPE PROXAR-IIN AC IN SILICONE HOUSING

### CATALOGUE CARD

#### APPLICATION

Surge arresters type **PROXAR-IIN 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 for 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 for install surge arrester type **PROXAR-IIN AC** at places of retrofit or service installation.

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

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

#### ELECTRICAL DATA

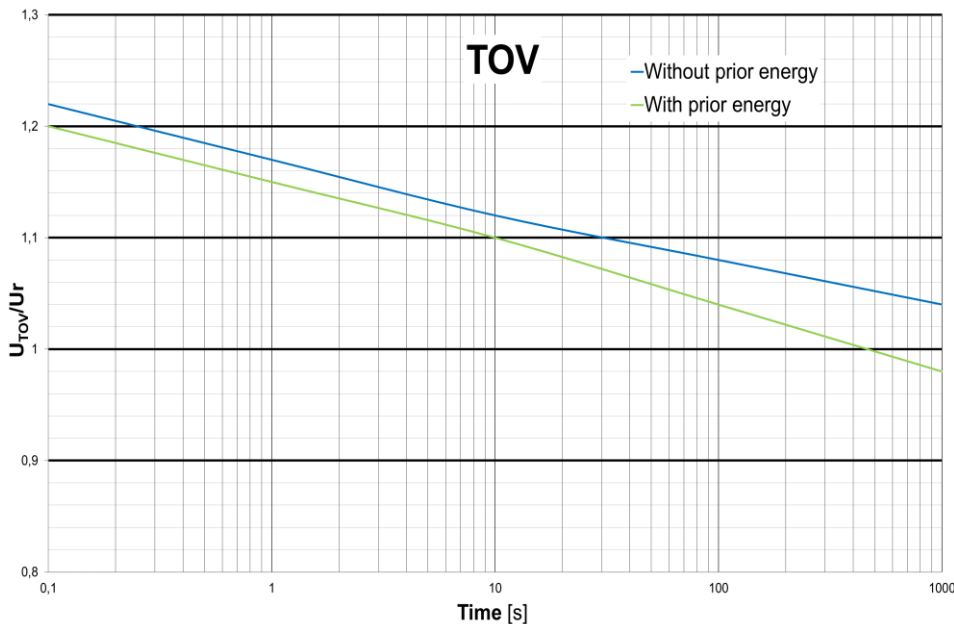
Arrester classification according to EN 60099-4: 2014	SL(Station Low)
Line discharge class according to IEC 60099-4: 2009	2
System voltage (Us)	7.2 – 145 kV
Rated voltage (Ur)	6.0 – 144 kV
Nominal discharge current In 8/20 μs	10 kA
High current impulse Ihc 4/10 μs	100 kA
Rated repetitive charge transfer rating Qrs	1.6 C
Rated thermal Energy Wth	7.0 kJ/kV Ur
Single impulse energy capability (impulse duration 2 ms – 4 ms)	3,5 kJ/kV Ur
Long duration current impulse, 2000 μs	600 A
Short circuit rating	50 kA/0.2s
Service conditions:	
- ambient temperature	-40 °C do +60 °C**
- altitude up to	1000 m**
- frequency	48 – 62 Hz
Mechanical data:	
- specified long-term load (SLL)	1000 Nm
- specified short-term load (SSL)	1600 Nm
- torsional strength	300 Nm

\*\* ) for higher parameters please contact with manufacturer

Typ PROXAR- IINAC	Rated voltage  Ur kV	Maximum operating voltage  Uc kV	TOV <sup>1)</sup>		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	250A	500A	1000A
6	6	4.8	6.9	6.6	17.7	13.6	14.1	15.4	17.1	11.7	12.0	12.6
7	7	5.6	8.1	7.7	19.8	15.1	15.7	17.2	19.1	13.1	13.4	14.1
8	8	6.4	9.2	8.8	22.6	17.3	18.0	19.6	21.8	14.9	15.3	16.1
9	9	7.2	10.4	9.9	25.4	19.4	20.2	22.1	24.5	16.8	17.2	18.1
10	10	8.0	11.5	11.0	28.2	21.6	22.5	24.6	27.3	18.7	19.2	20.1
11	11	8.8	12.7	12.1	31.1	23.8	24.7	27.0	30.0	20.5	21.1	22.1
12	12	9.6	13.8	13.2	33.9	25.9	27.0	29.5	32.7	22.4	23.0	24.2
13	13	10.4	15.0	14.3	36.7	28.1	29.2	31.9	35.4	24.3	24.9	26.2
14	14	11.2	16.1	15.4	39.5	30.2	31.5	34.4	38.2	26.1	26.8	28.2
15	15	12.0	17.3	16.5	42.4	32.4	33.7	36.8	40.9	28.0	28.7	30.2
16	16	12.8	18.4	17.6	45.2	34.6	35.9	39.3	43.6	29.9	30.6	32.2
17	17	13.6	19.6	18.7	48.0	36.7	38.2	41.7	46.3	31.7	32.6	34.2
18	18	14.4	20.7	19.8	50.8	38.9	40.4	44.2	49.1	33.6	34.5	36.2
19	19	15.2	21.9	20.9	53.6	41.1	42.7	46.7	51.8	35.5	36.4	38.3
20	20	16.0	23.0	22.0	56.5	43.2	44.9	49.1	54.5	37.3	38.3	40.3
21	21	16.8	24.2	23.1	59.3	45.4	47.2	51.6	57.2	39.2	40.2	42.3
22	22	17.6	25.3	24.2	62.1	47.5	49.4	54.0	60.0	41.1	42.1	44.3
23	23	18.4	26.5	25.3	64.9	49.7	51.7	56.5	62.7	42.9	44.0	46.3
24	24	19.2	27.6	26.4	67.8	51.9	53.9	58.9	65.4	44.8	46.0	48.3
25	25	20.0	28.8	27.5	70.6	54.0	56.2	61.4	68.1	46.7	47.9	50.3
26	26	20.8	29.9	28.6	73.4	56.2	58.4	63.8	70.9	48.5	49.8	52.3
27	27	21.6	31.1	29.7	76.2	58.3	60.7	66.3	73.6	50.4	51.7	54.4
28	28	22.4	32.2	30.8	79.1	60.5	62.9	68.7	76.3	52.2	53.6	56.4
29	29	23.2	33.4	31.9	81.9	62.7	65.2	71.2	79.0	54.1	55.5	58.4
30	30	24.0	34.5	33.0	84.7	64.8	67.4	73.7	81.8	56.0	57.5	60.4
33	33	26.4	38.0	36.3	93.2	71.3	74.1	81.0	89.9	61.6	63.2	66.4
36	36	28.8	41.4	39.6	101.6	77.8	80.9	88.4	98.1	67.2	68.9	72.5
39	39	31.2	44.9	42.9	110.1	84.3	87.6	95.8	106.3	72.8	74.7	78.5
42	42	33.6	48.3	46.2	118.6	90.7	94.4	103.1	114.5	78.4	80.4	84.6
45	45	36.0	51.8	49.5	127.1	97.2	101.1	110.5	122.6	84.0	86.2	90.6
48	48	38.4	55.2	52.8	135.5	103.7	107.8	117.9	130.8	89.6	91.9	96.6
51	51	41.0	58.7	56.1	144.0	110.2	114.6	125.2	139.0	95.2	97.7	102.7
54	54	43.0	62.1	59.4	161.0	123.2	128.1	140.0	155.4	106.4	109.2	114.8
60	60	48.0	69.0	66.0	179.4	137.3	142.7	156.0	173.2	118.6	121.7	127.9
66	66	53.0	75.9	72.6	196.7	150.5	156.5	171.0	189.8	130.0	133.4	140.2
72	72	58.0	82.8	79.2	215.1	164.6	171.1	187.0	207.6	142.1	145.9	153.3
84	84	67.0	96.6	92.4	250.7	191.8	199.5	218.0	242.0	165.7	170.0	178.8
90	90	72.0	103.5	99.0	269.1	205.9	214.1	234.0	259.7	177.8	182.5	191.9
92	92	73.6	105.5	100.9	273.5	209.3	217.6	237.8	264.0	180.8	185.5	195.0
96	96	77.0	110.4	105.6	286.4	219.1	227.8	249.0	276.4	189.2	194.2	204.2
102	102	82.0	117.3	112.2	304.8	233.2	242.5	265.0	294.2	201.4	206.7	217.3
108	108	86.0	124.2	118.8	322.0	246.4	256.2	280.0	310.8	212.8	218.4	229.6
120	120	96.0	138.0	132.0	357.7	273.7	284.6	311.0	345.2	236.4	242.6	255.0
132	132	106.0	151.8	145.2	393.3	301.0	312.9	342.0	379.6	259.9	266.8	280.4
138	138	111.0	158.7	151.8	411.7	315.0	327.6	358.0	397.4	272.1	279.2	293.6
144	144	115.0	165.6	158.4	429.0	328.2	341.3	373.0	414.0	283.5	290.9	305.9

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

<sup>1)</sup>With prior energy 6.7 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 1.150  $U_r = 1.438 U_c$   
 $U_{TOV}$  dla  $t=10$  s 1.120  $U_r = 1.400 U_c$

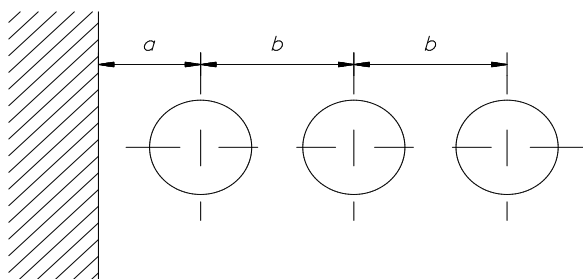
Power frequency voltage versus time characteristic TOV with prior energy.

$U_{TOV}$  dla  $t=1$  s 1.150  $U_r = 1.438 U_c$   
 $U_{TOV}$  dla  $t=3$  s 1.130  $U_r = 1.413 U_c$   
 $U_{TOV}$  dla  $t=10$  s 1.100  $U_r = 1.375 U_c$

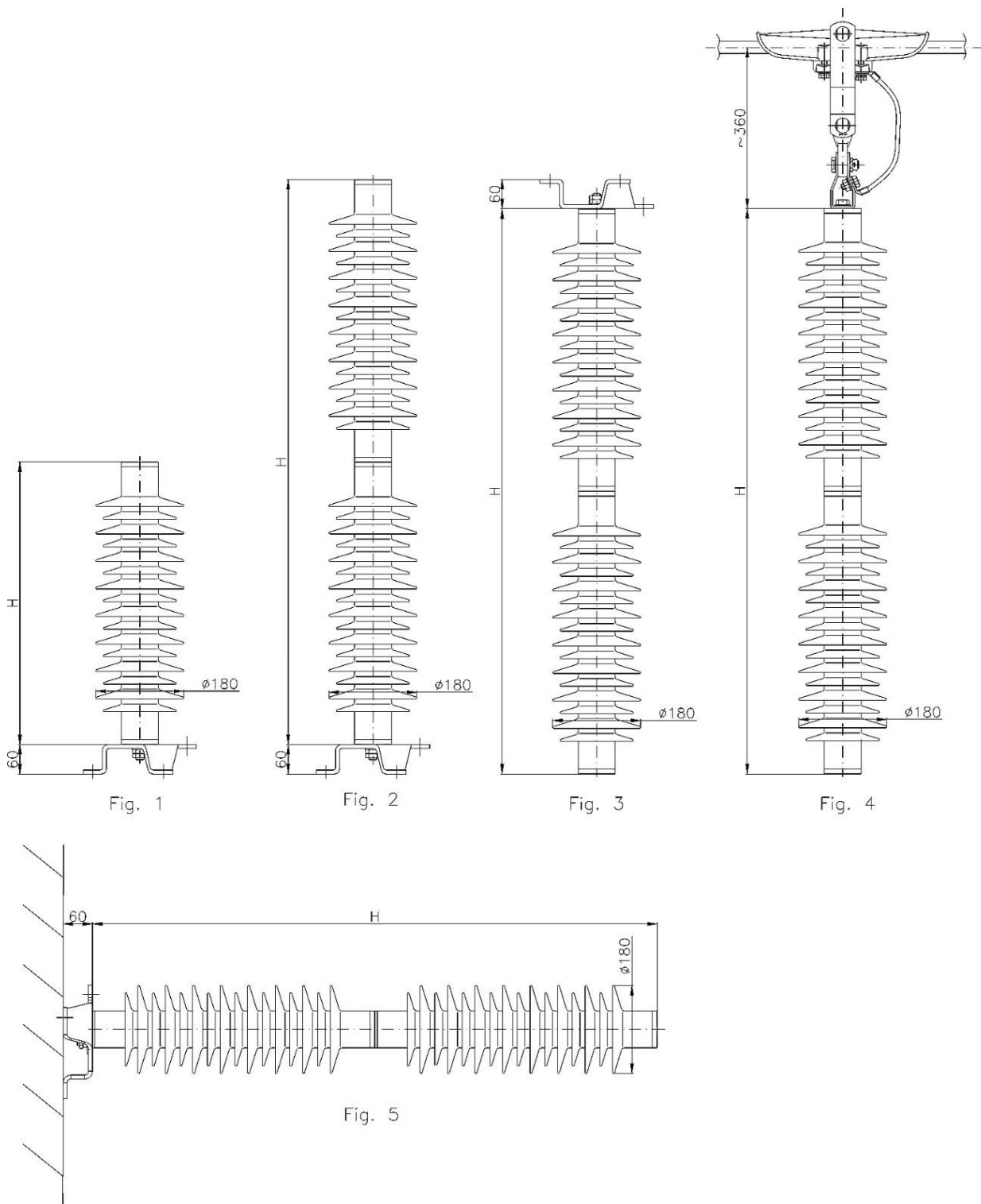
TOV characteristic for PROXAR-IIN AC

### TECHNICAL DATA FOR HOUSING

Typ PROXAR-IIN AC	Insulation withstand voltage of housing		Minimal distances		Creepage distance	Flash-over distance	Height H	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”							
6	49	102	180	90	325	193	183	1	1, 3, 5	01	1.92
7			180	105							1.97
8			180	110							2.02
9			180	120							2.07
10			180	135							2.12
11	64	132	180	140	544	249	239	1	1, 3, 5	02	2.37
12			180	150							2.62
13			180	160							2.87
14			210	165							3.12
15			220	175							3.37
16	78	162	240	190	763	305	295	1	1, 3, 5	03	3.48
17			240	200							3.59
18			250	205							3.7
19			260	215							3.73
20			270	225							3.76
21			280	230							3.79
22			280	240							3.82
23	93	191	300	260	981	361	351	1	1, 3, 5	04	3.86
24			310	265							3.95
25			320	275							4.08
26			330	280							4.21
27			330	290							4.34
28			340	300							4.47
29			350	305							4.6
30			360	315							4.73
33	107	221	400	355	1200	417	407	1	1, 3, 5	05	5.61
36			430	380							6.48
39			450	405							6.89
42	121	251	470	430	1418	473	463	1	1, 3, 5	06	7.25
45			500	455							7.61
48			530	485							7.97
51	136	280	550	510	1637	529	519	1	1, 3, 5	07	8.93
54			620	575							9.89
60			670	625							10.85
66	180	370	800	760	2292	697	687	1	1, 3, 5,	09	11.66
72			830	785							12.52
84			950	905							13.38
90	300	620	1040	995	3712	1161	1150	2	2, 3, 4, 5	10	14.24
92			1060	1010							15.1
96			1090	1045							15.94
102			1140	1095							17.4
108			1190	1145							18.86
120			1330	1280							19.72
96			330	680							1090
102	1140	1095			22.1						
108	1190	1145			23.3						
120	1330	1280			24.5						
132	1430	1385			25.7						
120	360	740	1330	1280	4584	1385	1374	2	1, 2, 3, 4,	12	26.9
132			1430	1385							28.1
138			1480	1435							29.3
144			1530	1485							30.0



Minimal mounting distances of surge arresters.



The drawings No 1 – 5 presents different system of assembling surge arresters. Drawing No 1 and 2 present vertical system of assembling. Drawings No 3 presents reverse system of assembling surge arrester. Drawing No 4 presents suspension system of assembly line surge arrester. Drawings No 5 presents horizontal system of assembling surge arrester. For other ways of assembling surge arresters please contact with the manufacturer. Below the figures are presenting different options line and earth accessories available for use in surge arresters type PROXAR-IIN AC

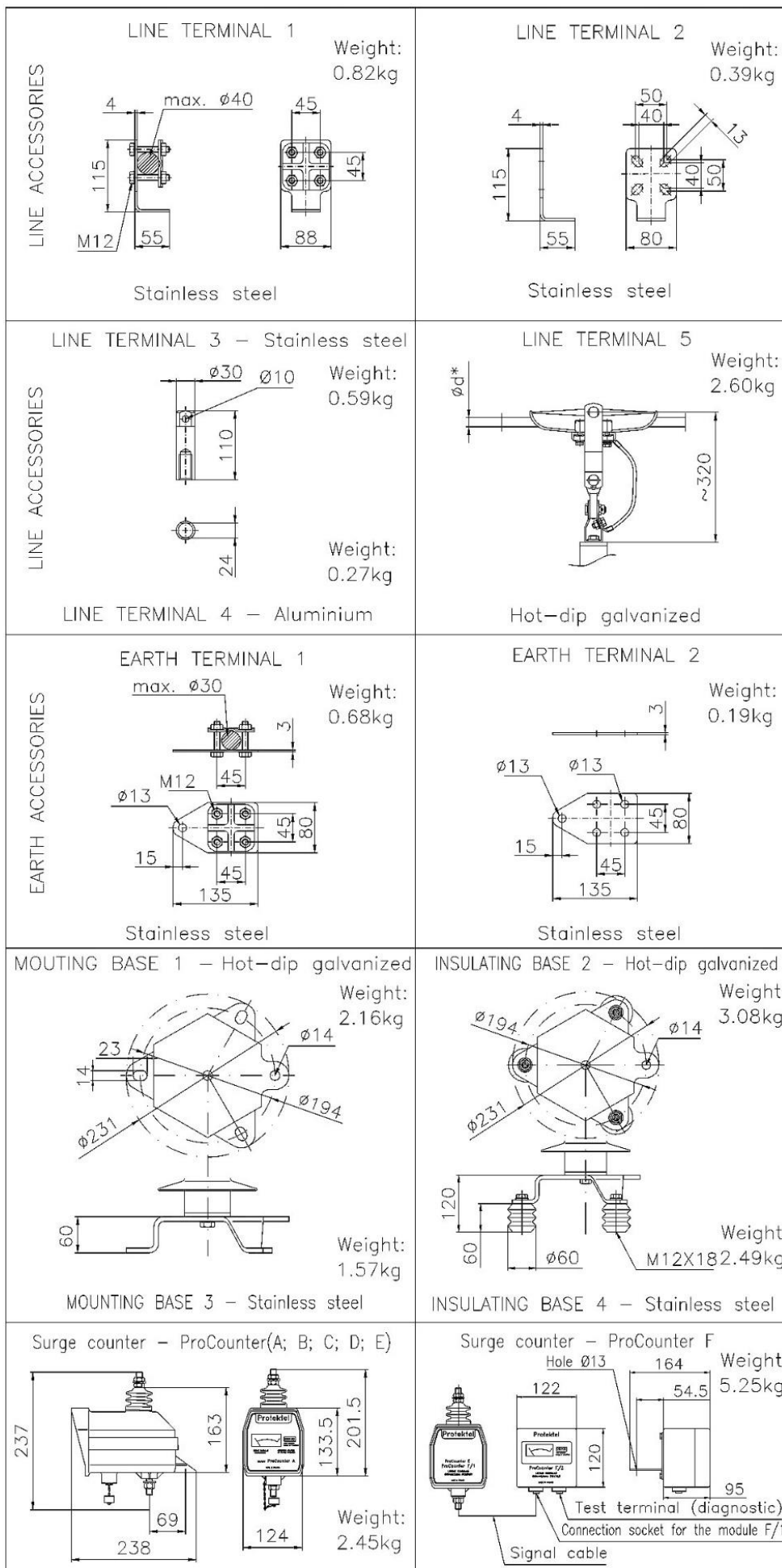


Fig.6. Equipment for surge arrester type PROXAR-IIN AC

Order configurator\*\*\*:

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

\*\*\*) Empty fields to fill.

**I. Type of product**

PROXAR-IIN

**II. Rated voltage Ur**

See table – TECHNICAL DATA

Ur

**III. Voltage type**

Alternating voltage (48 – 62 Hz)

AC

**IV. Assembly (according fig. 1 or 2, 3, 4, 5)**

– Vertical 1

1

– Reversed 2

2

– Suspension 3

3

– Horizontal 4

4

**V. Base (according fig. 6)**

– 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

**VI. Line terminal (according fig. 6)**

– 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. 6)**

– 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-IIN	96	AC	1	2	3	1	1 0	A

**PROXAR-IIN 96 AC 123110A** – 3 pcs.

Description: Surge arrester type **PROXAR-IIN** 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 – **10**, surge counter type ProCounter **A**.

**PROTEKTEL Sp. z o.o.**

**Piłsudskiego 92 str.; PL 06-300 Przasnysz**

**Poland**

**Tel./Fax +48 029 7525784**

**E-mail: protektel@protektel.pl**

**www.protektel.pl**

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