



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

CATALOGUE CHART

APPLICATION

Surge arresters type **PROXAR-IIN 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 in 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 absorbing multiple surges
- 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 DETAILS

Arrester classification according to EN 60099-4: 2014

Line discharge class according to IEC 60099-4: 2009

System voltage (Us)

Rated voltage (Ur)

Nominal discharge current I_n 8/20 μ s

High current impulse I_{hc} 4/10 μ s

Rated repetitive charge transfer rating Qrs

Rated thermal Energy Wth

Single impulse energy capability (impulse duration 2 ms – 4 ms)

Long duration current impulse, 2000 μ s

Short circuit rating

Service conditions:

- ambient temperature
- altitude up to
- frequency

Mechanical data:

- SLL long-term load
- SSL short-term load
- torque
- tensile strength

SL(Station Low)

2

7.2 – 145 kV

6.0 – 144 kV

10 kA

100 kA

1.6 C

7.0 kJ/kV Ur

3,5 kJ/kV Ur

600 A

50 kA/0.2s

-40 °C do +60 °C**

1000 m*

48 – 62 Hz

1000 Nm

1600 Nm

300 Nm

2.5 kN

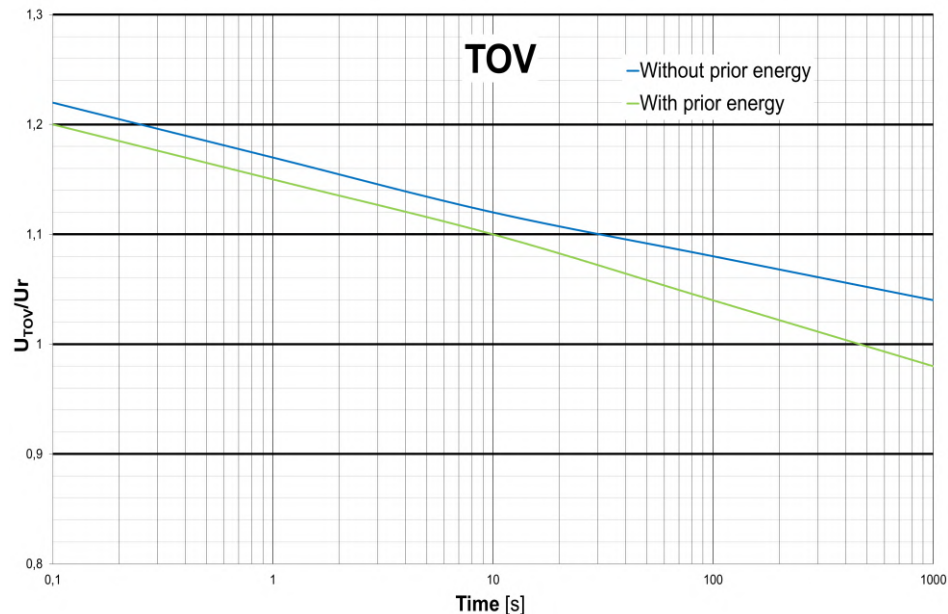
*) for higher parameters please contact with manufacturer

ELECTRICAT DATA

Type PROXAR-IIN AC	Rated voltage Ur	Maximum continuous operating voltage Uc	TOV ¹⁾		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	250A	500A	1000A
	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV
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. ¹⁾With prior energy 6.7 kJ/kV Ur

TOV CHARACTERISTIC



IEC power frequency voltage versus time (U-t) characteristic TOV without prior energy

U_{TOV} for $t=1$ s 1.170 $U_r = 1.463 U_c$
 U_{TOV} for $t=3$ s 1.150 $U_r = 1.438 U_c$
 U_{TOV} for $t=10$ s 1.120 $U_r = 1.400 U_c$

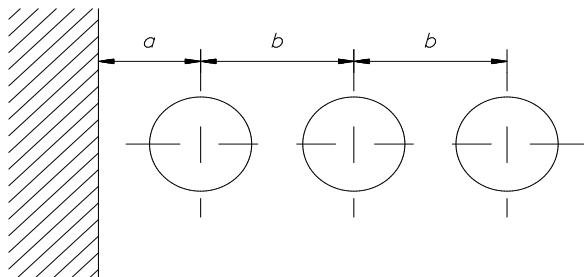
IEC power frequency voltage versus time (U-t) characteristic TOV with prior energy 6.7 kJ/kV Ur; 8.375 kJ/kV Uc

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

TECHNICAL DATA FOR HOUSING

Us	Type PROXAR IIN AC	External insulation		Minimal distances		Dimensions						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, D				
kV	kV	kV	kV	mm	mm	mm	mm	mm	mm	mm	M	Fig.	Fig.	No	kg
7.2	6	49	102	180	90	183	325	193	75	180	M16	1	3, 4, 6	01	1.92
	7			180	105										1.97
	8			180	110										2.02
	9			180	120										2.07
	10			180	135										2.12
12	11	64	132	180	140	239	544	249	75	180	M16	1	3, 4, 6	02	2.37
	12			180	150										2.62
	13			180	160										2.87
	14			210	165										3.12
	15			220	175										3.37
12.5	16	78	162	240	190	295	763	305	75	180	M16	1	3, 4, 6	03	3.48
	17			240	200										3.59
	18			250	205										3.70
	19			260	215										3.73
	20			270	225										3.76
	21			280	230										3.79
	22			280	240										3.82
24	23	93	191	300	260	351	981	361	75	180	M16	1	3, 4, 6	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
36	33	107	221	400	355	407	1200	417	75	180	M16	1	3, 4, 6	05	5.61
	36			430	380										6.48
	39	121	251	450	405	463	1418	473	75	180	M16	1	3, 4, 6	06	6.89
	42			470	430										7.25
52	45	136	280	500	455	519	1637	529	75	180	M16	1	3, 4, 6	07	7.61
	48			530	485										7.97
	51			550	510										8.93
72.5	54	150	310	620	575	575	1856	585	75	180	M16	1	3, 4, 5, 6	08	9.89
	60			670	625										10.85
	66	180	370	800	760	687	2292	697	75	180	M16	1	3, 4, 5, 6	09	11.66
	72			830	785										12.52
	84			950	905										13.38
123	90	300	620	1040	995	1150	3712	1161	75	180	M16	2	3, 4, 5, 6	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	1045	1262	4148	1273	75	180	M16	2	3, 4, 5, 6	11	20.9
	102			1140	1095										22.1
	108			1190	1145										23.3
	120			1330	1280										24.5
145	132	360	740	1430	1385	1374	4584	1385	75	180	M16	2	3, 4, 5, 6	12	25.7
	138			1480	1435										26.9
	144			1530	1485										28.1
															29.3
															30.0

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



Minimal mounting distances for surge arresters.

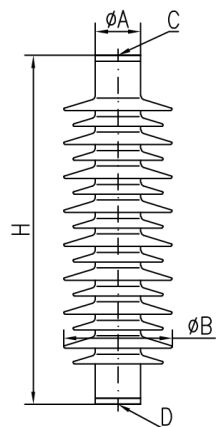


Fig. 1

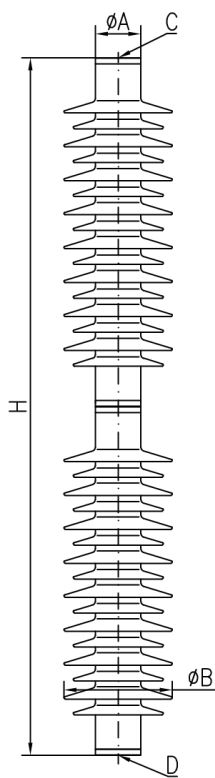


Fig. 2

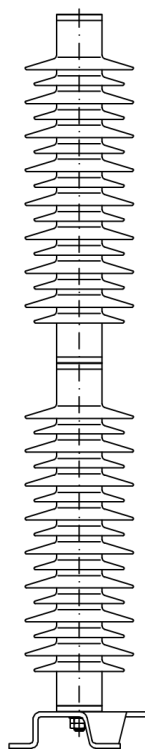


Fig. 3

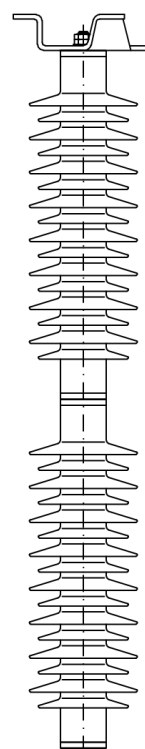


Fig. 4

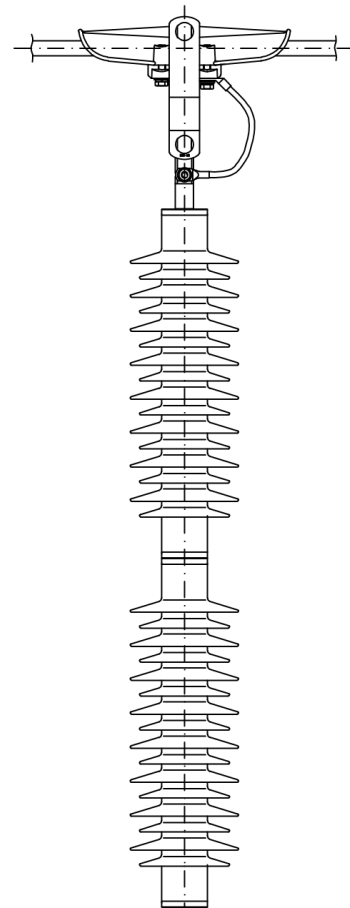


Fig. 5

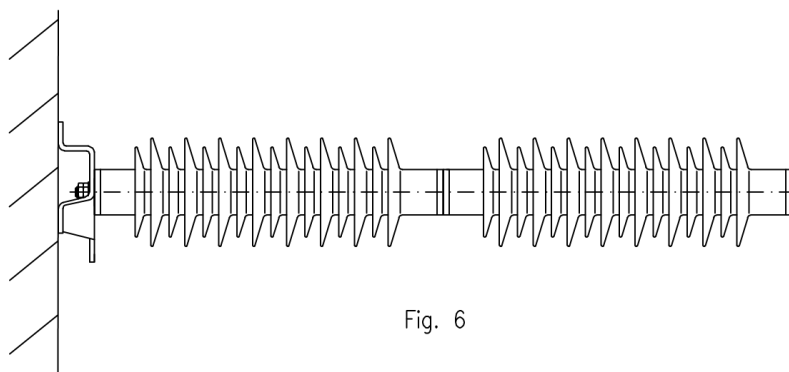


Fig. 6

The above figures show the configuration of the surge arresters housing (fig. 1; 2). The drawings No 3 – 6 presents different system of assembling surge arresters. Drawings No 3 presents vertical system of assembling. Drawings No 4 presents reverse system of assembling surge arrester. Drawing No 5 presents suspension system of assembly line surge arrester. Drawings No 6 presents horizontal system of assembling. Below the figures are presenting different options line and earth accessories available for use in surge arrester type PROXAR-IIN 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 ACCESSORIES	LINE TERMINAL 3 (Stainless steel) Weight: ~0.60kg LINE TERMINAL 4 (Aluminium) Weight: ~0.27kg	LINE TERMINAL 5 (Hot-dip galvanized/Stainless steel) Weight: ~3.15kg
LINE ACCESSORIES	LINE TERMINAL 6 (Stainless steel) Weight: ~0.06kg	EARTH ACCESSORIES EARTH TERMINAL 1 (Stainless steel) Weight: ~0.68kg
EARTH ACCESSORIES	EARTH TERMINAL 2 (Stainless steel) Weight: ~0.25kg	EARTH ACCESSORIES EARTH TERMINAL 6 (Stainless steel) Weight: ~0.06kg
	MOUTING BASE 1 (Hot-dip galvanized) Weight: ~2.33kg MOUTING BASE 3 (Stainless steel) Weight: ~1.73kg	INSULATING BASE 2 (Hot-dip galvanized) Weight: ~3.27kg INSULATING BASE 4 (Stainless steel) Weight: ~2.67kg

Fig.7. Equipment for surge arrester type PROXAR-IIN AC

Order configurator**:

***) Empty fields to fill.

1. Type of product

PROXAR-IIN

2. Rated voltage Ur

See table – ELECTRICAL DATA

Ur

3. Voltage type

Alternating voltage (48 – 62 Hz)

AC

4. Mounting (according fig. 3, 4, 5, 6)

– Vertical (fig. 3)

1

– Reversed (fig. 4)

2

– Suspension (fig. 5)

3

– Horizontal (fig. 6)

4

5. Base (according fig. 7)

– 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. 7)

– 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. 7)

– 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. Design

– standard

0

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

X

Order example:

1	2	3	4	5	6	7	8	9
PROXAR-IIN	96	AC	1	2	3	1	10	0

PROXAR-IIN 96 AC 1231100 – 3 pcs.

Description: Surge arrester type **PROXAR-IIN** of rated voltage $U_r=96\text{kV}$ for **AC** system in vertical mounting version -1 with insulating base (hot-dip galvanized) – 2; line terminal – 3; earth terminal – 1; housing number – 10; in standard design 0.

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POLAND



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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