



## SURGE ARRESTER FOR DC SYSTEM VOLTAGE TYPE PROXAR-IVN DC IN SILICONE HOUSING

### CATALOGUE CARD

#### APPLICATION

Surge arresters type **PROXAR-IVN DC** in silicone housing are intended for protection of DC power energy networks against multiple lightning and switching overvoltages. This surge arrester is destined to all special technical requirements.

#### OPERATING CONDITIONS

Surge arresters adapted for outdoor and indoor installation and temperate and tropical climate up to 1000 m above sea. Dimension of surge arresters enable installation in switchgear in minimum pole distances 150 mm.

#### ADVANTAGE

- Efficient protection characteristics
- 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
- Stable against shock and vibration
- Support insulator function
- Maintenance free
- Easy installation

#### ACCESSORIES

Surge Arresters of the PROXAR-IVN DC can be delivered with stainless steel base suitable to assembly on old place interchangeable for old type of surge arresters and with top accessories.

For request of customer manufacturer can delivery accessories according customer agreement.

#### ELECTRICAL DATA

Arrester classification according to EN 50526-1: 2012	DC-B
Line discharge class according to IEC 60099-4: 2009	4
System voltage ( $U_{NDC}$ )	0.6 - 3 kV
Continuous operating voltage ( $U_{DC}$ )	1.0 – 4.7 kV
Nominal discharge current $I_n$ 8/20 $\mu$ s	20 kA
High current impulse $I_{hc}$ 4/10 $\mu$ s	200 kA
Long duration impulse current strength	1350 A      2000 $\mu$ s
	1000 A      2800 $\mu$ s
	1600 A      2800 $\mu$ s
Long duration impulse current at operating duty test	
Energy capability, 2 impulses	13.5 kJ/kV of $U_c$ dc
Energy capability in operating duty test	10,5 kJ.kV of $U_c$ dc
Energy input with $I_{hc}$	2.65 kJ/kV of $U_c$ dc
Short circuit rating	40 kA dc for 0.2s*
* structure of surge arrester is resistant on 50 kA short circuit current according to Report no 8060/NBR/10 IEL	
Service conditions:	
- temperature	-40 °C do +60 °C**
- altitude up to	1000 m**
Mechanical data:	
- short-term bending moment	1800 Nm
- long-term bending moment	1200 Nm
- torque moment	650 Nm
- vertical load	20 kN

Mechanical shock resistance and vibration:

- according to PN-EN 60068-2-6:2008
- according to PN-EN 60068-2-27:2009
- according to PN-EN 661373:2011

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

3 g 10 ÷ 500 Hz

30 g

category 1, class B

TYPE PROXAR-IVN DC	Continuous operating voltage Uc(DC)	Residual voltage in kV pk at a specified impulse current								
		Wave 1/... μs (pk)		Wave 8/20 μs (pk)				Wave 30/60 μs (pk)		
		10kA	20kA	5kA	10kA	20kA	40kA	500A	1kA	2kA
1.0	1.0	2.65	2.97	2.30	2.42	2.60	2.87	1.99	2.03	2.10
1.5	1.5	4.12	4.57	3.53	3.74	4.01	4.39	3.06	3.15	3.24
2.0	2.0	5.37	5.95	4.63	4.90	5.28	5.80	3.98	4.06	4.23
2.5	2.5	6.77	7.51	5.81	6.14	6.59	7.22	5.03	5.18	5.33
3.0	3.0	8.06	8.92	6.95	7.38	7.91	8.65	5.99	6.12	6.37
4.2	4.2	11.10	12.10	9.40	10.00	10.90	12.00	8.10	8.40	8.70
4.5	4.5	12.01	13.09	10.17	10.82	11.80	12.98	8.76	9.08	9.41
4.7	4.7	12.52	13.64	10.60	11.28	12.30	13.53	9.13	9.47	9.81

Note: It is possible to make PROXAR-IVN DC surge arrester with a different range of continuous operating voltage.

#### TECHNICAL DATA FOR HOUSING

Type PROXAR-IVN DC	Insulation withstand voltage of empty housing		Minimal distances		Height H	Creepage distance L	Weight
	DC voltage wet (60s)	1.2/50 μs dry	Distance between arresters „b”	Distance between arrester and the nearest grounded structure „a”			
kV	kV	kV	mm	mm	mm	mm	kg
1.0	17	75	180	100	165	318	2.3
1.5			180	100			2.5
2.0			180	100			2.7
2.5			180	100			3.0
3.0			180	100			3.2
4.2			180	100			3.5
4.5			180	100			3.6
4.7			180	100			3.6

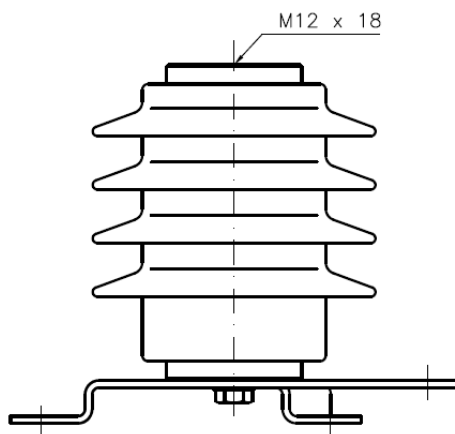


Fig.1

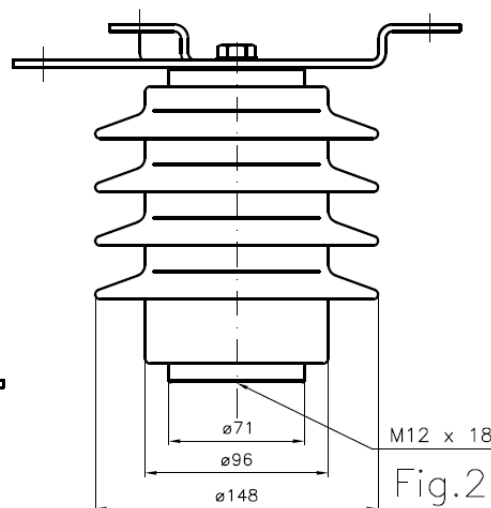


Fig.2

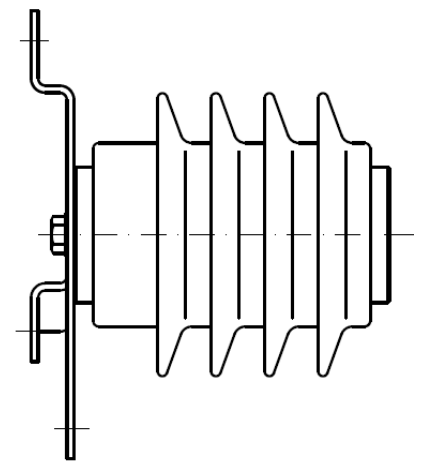


Fig.3

The figure shows the installation of surge arresters type PROXAR-IVN DC. Figure 1 shows a vertical installation, Figure 2 shows a reversed installation. There is also a possibility to work / install surge arresters in a horizontal position. Completion of surge arresters to work in horizontal position is the same as for vertical installation.

**ATTENTION:** The maximum bending moment for the insulating bracket is 50 Nm.

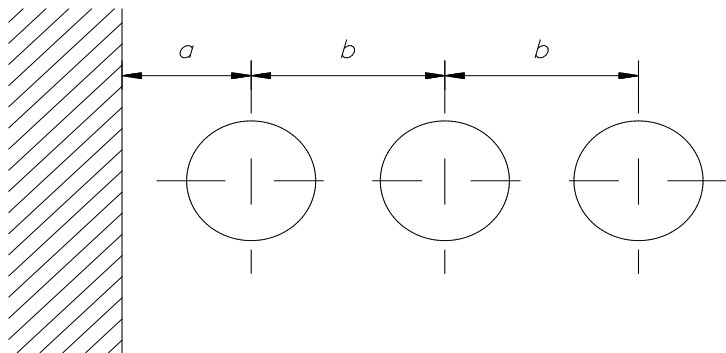


Fig.4. Minimal mounting distances of surge arresters.

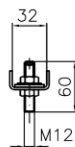
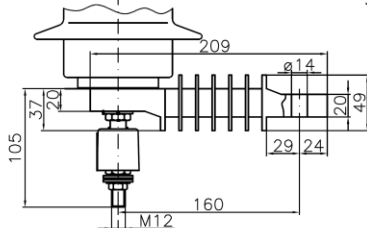
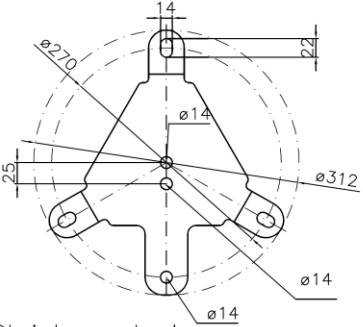
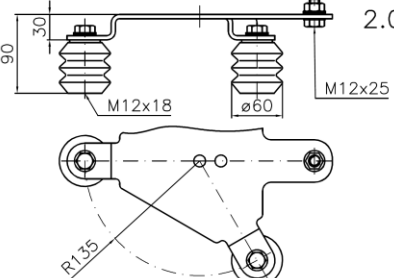
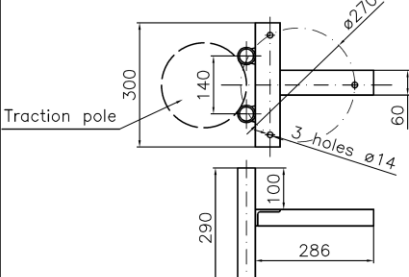
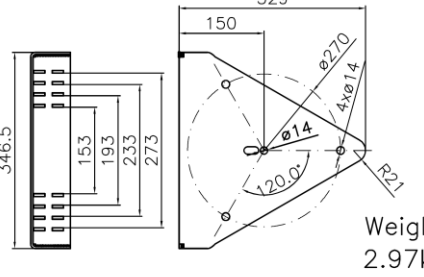
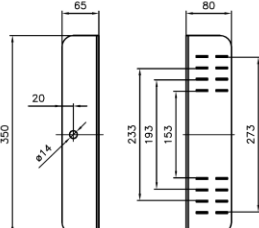
<p>LINE ACCESSORIES</p> <p>LINE TERMINAL 1</p> <p>Weight: 0.23kg</p>  <p>Stainless steel</p>	<p>EARTH ACCESSORIES</p> <p>INSULATING BRACKET WITH DISCONNECTOR 1</p> <p>Weight: 0.44kg</p> 
<p>MOUNTING BASE 1</p> <p>Weight: 1.18kg</p>  <p>Stainless steel</p>	<p>INSULATING BASE 2</p> <p>Weight: 2.06kg</p>  <p>Cycloaliphatic resin</p>
<p>MOUNTING BASE 3 (for traction pole)</p> <p>Weight: 4.54kg</p>  <p>Hot-dip galvanized</p>	<p>MOUNTING BASE 4 (for traction pole)</p> <p>Weight: 2.97kg</p>  <p>Stainless steel</p>
<p>MOUNTING BASE 5 (for traction pole)</p> <p>Weight: 1.47kg</p>  <p>Stainless steel</p>	

Fig.5. Equipment for surge arresters type PROXAR-IVN DC

Order configurator\*\*\*:

	I	II	III	IV	V	VI	VII	VIII
<b>PROXAR-IVN</b>			<b>DC</b>					
*** Empty fields to fill.								
<b>I. Type of product</b> PROXAR-IVN								
<b>II. Continuous operating voltage <math>U_c</math></b> See table – ELECTRICAL DATA		<b><math>U_c</math></b>						
<b>III. Voltage type</b> Direct voltage			<b>DC</b>					
<b>IV. Assembly (according fig. on page 2)</b> Vertical 1 (Fig. 1) Reversed installation (Fig. 2) Horizontal (Fig. 3)				<b>1</b> <b>2</b> <b>3</b>				
<b>V. Base (according fig. on page 3)</b> Without base Mounting base 1 Insulating base 2					<b>0</b> <b>1</b> <b>2</b>			
<b>VI. Line terminal (according fig. on page 3)</b> Without line terminal Line terminal 1						<b>0</b> <b>1</b>		
<b>VII. Earth terminal (according fig. on page 3)</b> Without earth terminal Insulating bracket with disconnector 1****							<b>0</b> <b>1</b>	
<b>VIII. Mounting base for traction pole (according fig. on page 3)</b> Without mounting base for traction pole Mounting base 3 Mounting base 4 Mounting base 5								<b>0</b> <b>3</b> <b>4</b> <b>5</b>

\*\*\*\*) Before sending the order please contact with manufacturer

Order example:

I	II	III	IV	V	VI	VII	VIII
PROXAR-IVN	4.5	DC	1	1	1	0	0

**PROXAR-IVN 4.5 DC 11100 – 3 pcs.**

Description: Surge arrester type **PROXAR-IVN** of continuous operating voltage  $U_c=4.5$  kV for **DC** system in vertical mounting version -1 with mounting base - 1, line terminal - 1, without earth terminal – 0.

**PROTEKTEL Sp. z o.o.**  
**Piłsudskiego 92 str.**  
**PL 06-300 Przasnysz**  
**Poland**  
**Tel./Fax +48 029 7525784**  
**E-mail: [protektel@protektel.pl](mailto:protektel@protektel.pl)**  
**[www.protektel.pl](http://www.protektel.pl)**  
**Check out our [dc surge arresters](#)**

#### 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