

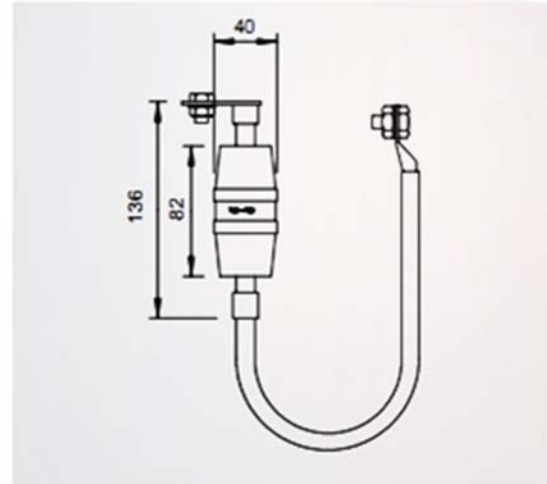


SPARK GAP

OTHER PROTECTION
EQUIPMENTS

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Type	Connection Cable Length		Contact Voltage kV	Impulse Current (10/350) kA	Nom. Discharge Impulse Current (8/20) kA	Protection Level kV	Temperature Range °C	Pack. pcs	Weight kg/100 pcs
	ft	m							
480 180	0,59	0,18	1	100	100	<3	-20 - 50	1	48
480 250	0,82	0,25	1	100	100	<3	-20 - 50	1	50
480 350	1,15	0,35	1	100	100	<3	-20 - 50	1	53

- Ex-tested to ATEX directive 94/9/EG
- Designation: Ex II 2G Eex d IIC T6
- Incl. Connector cable 25 mm² Cu, highly-flexible, with the cable lug screw (M 10)
- Pulsed current 100 kA (10/350µs)
- BET tested



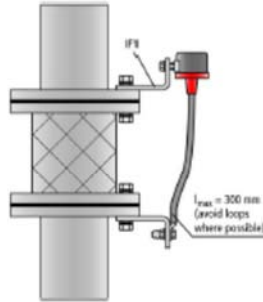
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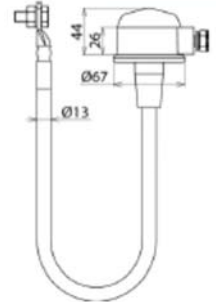
OTHER PROTECTION EQUIPMENTS

EXFS L300 (923 062)

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC 62305 in hazardous areas (zone 2)
- Approval according to ATEX directive 94/9/EC and IECEx



Installation of EXFS L300



Dimension drawing EXFS L300

Isolating spark gap according to EN 62561-3 / IEC 62561-3	yes
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA
Class (lightning current carrying capability)	N
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	300 V
Rated impulse sparkover voltage ($U_{r imp}$)	≤ 2.5 kV
Operating temperature range (T_U)	-20 °C ... +80 °C
Ambient temperature range when used in hazardous areas	-20 °C ... +60 °C
Degree of protection	IP 54
ATEX approvals	DEKRA 11ATEX0146 X
Ex marking according to EN 60079-0 and EN 60079-15: gas	II 3 G Ex nC IIC T4 Gc
IECEx approvals	IECEx DEK 11.0063X
Ex marking according to EN 60079-0	Ex nC IIC T4 Gc
Enclosure length	90 mm
Enclosure diameter	63 mm
Enclosure material	zinc die-cast, plastic
Connecting cable	H01N2-D 25 mm ² with cable lug and screw / nut (M10)
Cable length	300 mm
Suitable for flange size	220-320 mm
Extended technical data:	-----
- Nominal discharge current (8/20 μ s) (I_n)	100 kA
- Power frequency sparkover voltage (50 Hz) (U_{aw})	≤ 1.2 kV
Weight	733 g
Customs tariff number (Comb. Nomenclature EU)	85369095



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OTHER PROTECTION EQUIPMENTS

DAIRYLAND ELECTRICAL INDUSTRIES

The PCR is a solid-state device designed to simultaneously provide DC decoupling and AC continuity/grounding when used with cathodically protected structures, such as pipelines, tanks, grounding systems, and cable casings. By decoupling the cathodic protection system from grounding systems and other structures, the CP requirements can be minimized, while maintaining an effective ground or bond rated for AC faults and lightning current. All DEI devices are maintenance-free, with no requirements for periodic service or testing.

Features:

- Fail-safe design assures bonding/grounding
- Certified for hazardous locations, electrical grounding
- Higher blocking voltage than polarization cells
- Inherent over-voltage protection provided to structure
- No maintenance or testing required

Typical Applications:

- Insulated Joint Protection
- AC Voltage Mitigation
- Decoupling Electric Equipment Grounding Systems
- Decoupling From Utility Grounding Systems

Why Fault Current Is Important:

Fault current exposure for the product relates to the ampacity, proximity and mode of current transfer from a faulting source (power transmission line, motor circuit, induction from overhead lines, etc.). Select a product rating that has reasonable margin above the site conditions. Contact DEI for any assistance with selection of appropriate ratings.

Other Ratings and Certifications:

Threshold Voltage (absolute)

- 3/+1V (standard) -4/+1V (optional)
- 2/+2V (optional) -6/+1V (optional)

AC Steady-State Current (amperes - rms) 50/60Hz
45A (standard) 80A (optional)

Lightning Surge Current

100kA crest (8 x 20 μ s waveform)

Environmental rating:

NEMA 4X: Rain-proof
NEMA 6P: Submersible
(Standard) (Optional)

Hazardous Location Certifications:

Rating	Certification Agency
Class I, Division 2, Groups A, B, C, DTemp Code T5	UL, C-UL
Zone 2 - ATEX Directive, Groups IITemp Code T5	Demko/UL

Certification Agencies:

Underwriter's Laboratories (UL, C-UL)
Demko, CE Mark

For model numbers, options and accessories, see full technical literature at www.dairyland.com

AC Fault Current Ratings (Amps AC-RMS Symmetrical)		
PCR Model	Rating at 30 cycles	
	60 Hz	50 Hz
PCR-3.7KA	3,700	3,500
PCR-5KA	5,000	5,000
PCR-10KA	10,000	9,000
PCR-15KA	15,000	14,000

Note: 60 Hz models shown. For other models and options available, please visit www.dairyland.com





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**OTHER PROTECTION
EQUIPMENTS**

**DAIRYLAND
ELECTRICAL INDUSTRIES**

The SSD is a solid-state device designed to simultaneously provide DC decoupling and AC continuity/grounding when used with cathodically protected structures, such as pipelines, tanks, and grounding systems. Using proven, solid-state construction, but with new production and packaging techniques, the SSD line lowers costs while offering a certified, fail-safe solution.

Features:

- Compact, lightweight package
- Fail-safe design assures bonding/grounding
- Certified for hazardous locations, electrical grounding
- Higher blocking voltage than polarization cells
- Inherent over-voltage protection provided to structure
- No maintenance or testing required
- Submersible design

Typical Applications:

- Gradient Control Mat Decoupling
- Insulated Joint Protection
- AC Voltage Mitigation
- Decoupling Electric Equipment Grounding Systems

Why Fault Current Is Important:

Fault current exposure for the product relates to the ampacity, proximity and mode of current transfer from a faulting source (power transmission line, motor circuit, induction from overhead lines, etc.). Select a product rating that has reasonable margin above the site conditions. Contact DEI for any assistance with selection of appropriate ratings.

Other Ratings and Certifications:

Threshold Voltage (absolute)

-2/+2V (optional) -3/+1V (optional)

Lightning Surge Current

1.2kA Models: 75kA crest (4 x 10 μ s waveform)

All Other Models :100kA crest (4 x 10 μ s waveform)

AC Steady-State Current (amperes - rms) 50/60Hz
45A (Standard)

Environmental rating:

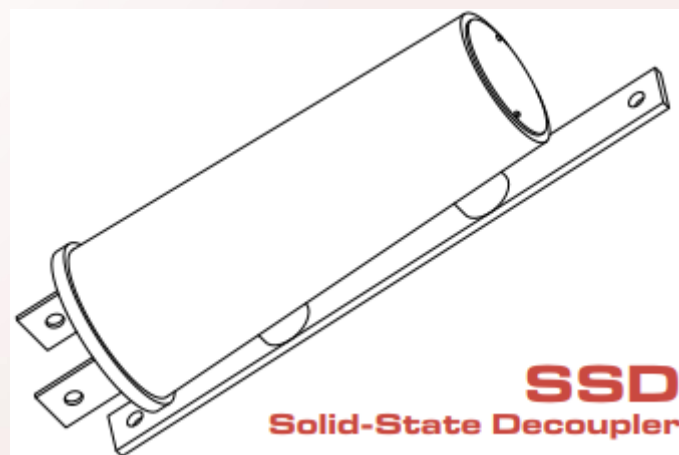
IP68 - submersible (to 2m depth)

Hazardous Location Certifications:

Rating	Certification Agency
Class I, Division 2, Groups A, B, C, D Temp Code T4	UL, C-UL
Class I, Zone 2 Group IIC - ATEX Directive, IECEx, Temp Code T4	Demko/UL

AC Fault Current Ratings (Amps AC-RMS Symmetrical)		
PCR Model	Rating at 30 cycles	
	60 Hz	50 Hz
SSD-2/2-1.2-75-R	1,200	1,200
SSD-2/2-2.0-100-R	2,000	2,000
SSD-2/2-3.7-100-R	3,700	3,700
SSD-2/2-5.0-100-R	5,000	5,000

Note: Standard SSD models shown.



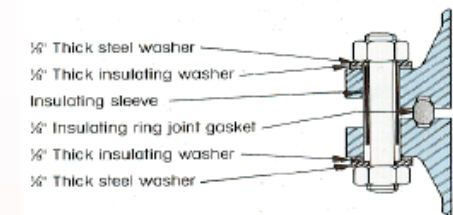
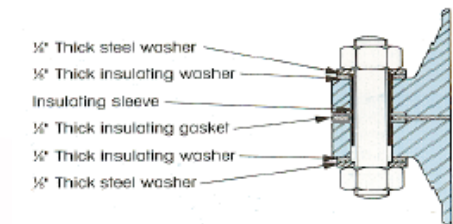
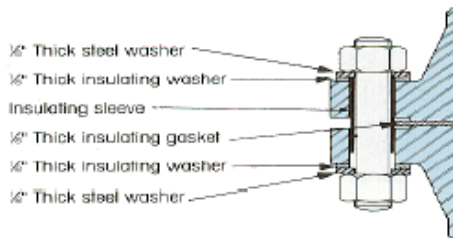
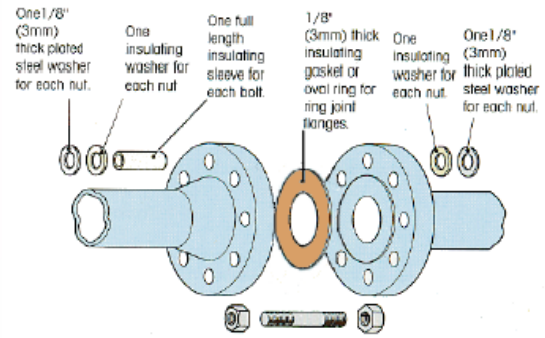


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OTHER PROTECTION EQUIPMENTS

The most common styles are Type 'F', which incorporates the use of an IBC gasket, Type 'E', which incorporates the use of a Full Face gasket, and Type 'D' which incorporates a Ring Type Joint as the insulating gasket.



TYPE 'F'

The cross sectional diagram here shows how the insulation set is assembled when using an IBC style gasket insert. You can see very clearly how the opposite flanges are totally insulated from one another.

TYPE 'E'

The cross sectional diagram here shows how the insulation set is assembled when using a full face gasket insert. Once again it is very clear to see that the flanges are totally insulated from one another.

TYPE 'D'

The cross sectional diagram here shows how the insulation set is assembled when using a Phenolic Ring Type Joint as the gasket. The oval section ring joint will fit into a standard RTJ flange ring groove.

The insulation set consists of:

One reinforced phenolic gasket, or phenolic RTJ.

One MYLAR or Phenolic sleeve per bolt.

Two reinforced phenolic washers per bolt.

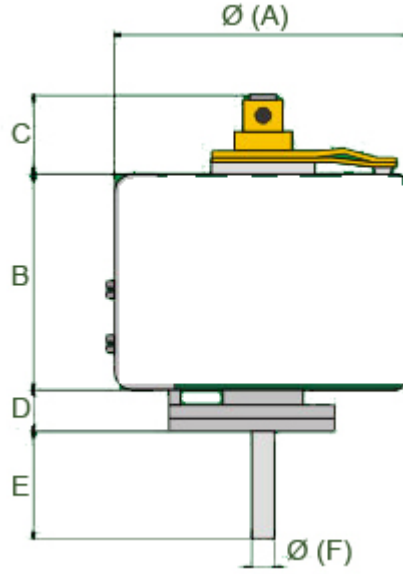
Two Zinc Plated mild steel washers per bolt.

Variations of alternative materials for the gasket or sleeves can be supplied if requested.



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Rheostat is produced in 5 different models and consists of porcelain bodies cooked at high temperature in the production of power potentiometers. As with watt resistors, the machines that wind up the power potentiometers ensure uniform distribution of heat to the surface and constant wire tension at all points. By means of closed circle winding method, windings between 13mm and 480 mm can be made. The special insulation material that covers the outer surface of the power potentiometers is resistant to 1000 ° C, and this protective layer potentiometer prevents electrical isolation and expansion of the resistance wires as a result of the formation of heat.

Technical information of Rheosta: Standard Resistance Tolerance: +/- 8% Maximum Continuous Service Temperature: 200 ° C Coating Resistance: 10 ₆ - 10 ₇ Ohm / cm at 400 ° C Spindle Rotation Angle: 0-285 / 320 ° Test Voltage: 1000V	Model	Rheostat (potansiyometer) Dimensions standard					
		Ø (A)	B	C	D	E	Ø (F)
		Rheostat 1	45	31	8	12	16
Rheostat 2	56	38	8	13	19	6	
Rheostat 3	85	50	18	11	25	8	
Rheostat 4	135	60	18	16	40	8	
Rheostat 5	200	80	30	25	80	10	



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Insulation Mat is the first among the protective materials in electrical and energy insulation. These products, which provide 100% protection, are produced based on rubber. Insulation Mat produced in various sizes and thickness are protective up to 40.000 volts current. They are flexible, durable, non-slip, water and moisture resistant structure.

In occupational safety, hazards that may occur should be minimized by appropriate measures and these risks should be eliminated completely with the help of protective materials, if possible. One of these protective materials which is very important for human life is Insulation Mats. Insulation Mats, which are obliged to be used by the law in terms of occupational safety, can be used safely in all places where there is electricity such as medium and high voltage areas, machine fronts, power plants, and electrical panel fronts. Insulation Mats are an indispensable product for occupational safety and human health.



**Insulator
(Dielectric)**

**Anti-Slip
Surface**

**Sturdy
Resistant**

**Abrasionproof
Tearproof**

**UV
Resistant**

**Water and
Moisture
Resistant**

**Heat
Resistant**

**Easy to
spread**



Model	Dimensions (cm.)	Operating Voltage (V)	Thickness (mm.)	Standard
İH-V010	100x200	10.000	2	TSE 5119 – EN 60243-1
İH-V020	100x200	20.000	3	TSE 5119 – EN 60243-1
İH-V030	100x200	36.000	4	TSE 5119 – EN 60243-1
İH-V040	100x200	40.000	5	TSE 5119 – EN 60243-1 – TSE 61111