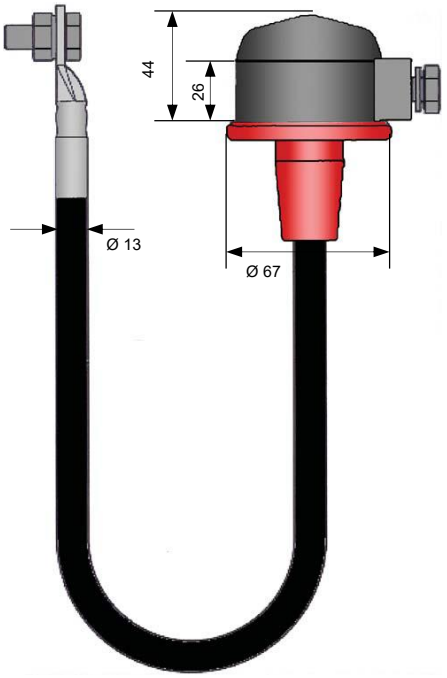
PSE ENGINEERING GMBH

The Ex isolating spark gaps EXFS L are used for conductive system parts which cannot be interconnected directly in hazardous zones. This affects, for example, pipe sections supplied with a cathodic corrosion protection system.

The spark gaps EXFS L certified by ATEX provide approved and tested safety according to harmonised European standards.

The arc-resistant tungsten-copper electrodes ensure a long service life of the Ex spark gaps.

The approved type EXFS L with flexible conductor connection adjusts itself quickly to any application environment. The prewired spark gaps include connecting cables with different lengths with cable lugs, M10 screws and nuts. The flat or angled connection brackets (IF), which are available as accessories, allow for easy connection of the spark gap at pipeline flanges.



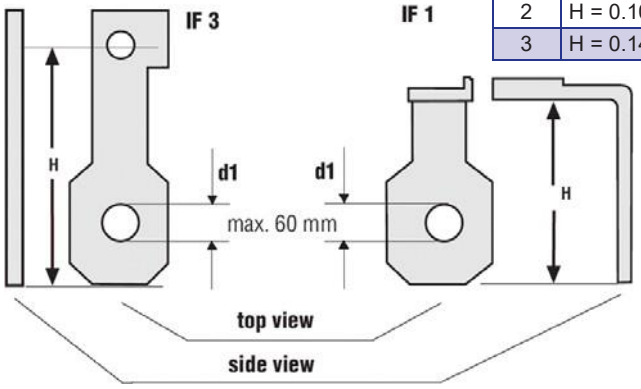
Application

An isolating spark gap connects indirectly functionally separate parts of an installation, e.g. isolated earth-termination systems. It can be used for bridging insulating pieces, insulating couplings and insulating flanges indirectly at cathodic protected parts of an installation, e.g. pipelines or tanks, as a measure of lightning equipotential bonding according to DIN VDE 0185.

Connection Bracket

Terminal Height “H”

Size	IF 1	IF 3
1	H = 0.08 m	H = 0.10 m
2	H = 0.10 m	H = 0.12 m
3	H = 0.14 m	---



EXFS L ...: Ex Isolating spark gap for aboveground installation	EXFS L100	EXFS L200	EXFS L300
Lightning impulse current	50 kA	50 kA	50 kA
Classification of lightning current carrying capability acc. to prEN 50164-3	N	N	N
Nominal discharge current (8/20 µs)	100 kA	100 kA	100 kA
100% lightning impulse spark over voltage	≤ 2.5 kV	≤ 2.5 kV	≤ 2.5 kV
Power frequency spark over voltage (50 Hz)	≤ 1.2 kV	≤ 1.2 kV	≤ 1.2 kV
Type of protection according to EN 50014, EN 50021	II 3 G EEx nC II T4	II 3 G EEx nC II T4	II 3 G EEx nC II T4
Operating temperature range [TU]	-20°C...+80°C	-20°C...+80°C	-20°C...+80°C
Degree of protection	IP 54	IP 54	IP 54
Approvals, Certifications	ZELM 03 ATEX 3192X	ZELM 03 ATEX 3192X	ZELM 03 ATEX 3192X
Length of enclosure	90 mm	90 mm	90 mm
Diameter of enclosure 63 mm 63 mm 63 mm	63 mm	63 mm	63 mm
Enclosure material	zinc die casting, plastic	zinc die casting, plastic	zinc die casting, plastic
Connecting cable	H01N2-D 25 mm² with cable lug and M10 screw / nut	H01N2-D 25 mm² with cable lug and M10 screw / nut	H01N2-D 25 mm² with cable lug and M10 screw / nut
Cable length	100 mm	200 mm	300 mm
Suitable for flange size	20 - 130 mm	120 - 230 mm	220 - 320 mm

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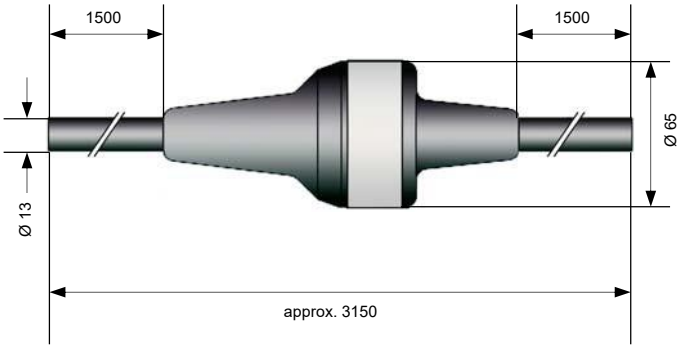
The Ex isolating spark gaps EXFS KU are used for conductive system parts which cannot be interconnected directly in hazardous zones. This affects, for example, pipe sections supplied with a cathodic corrosion protection system.

The spark gaps EXFS KU certified by ATEX provide approved and tested safety according to harmonised European standards.

Ex-Isolating spark gap EXFS KU with connecting cables for aboveground and underground installation. For lightning equipotential bonding according to IEC 62305-4.

Application

The spark gap is used in plant operated with cathodic corrosion protection systems. It is used for indirectly short-circuit insulating flanges and insulating couplings or for indirect connection of the earth system parts of the plant with cathodic protection, e.g. tanks.
The spark gap is to be installed in the immediate vicinity, e.g. on the pipe. Ensure that any loop formed on installation is as small as possible.
The pipe can be connected either by screwing or welding. All screwed connections are to be secured by spring washers to prevent them working loose.



Maintenance and operation

The spark gap is maintenance-free.
An overload usually causes welding/short-circuiting of the electrodes. This extreme overload case is detected by the potential indicator of the cathodic protection system. A defective spark gap can also be detected by a simple resistance measurement (measured value <10 kΩ).

EXFS KU: spark gap for aboveground and underground installation	EXFS KU
Lightning impulse current	50 kA
Classification of lightning current carrying capability acc. to prEN 50164-3	N
Nominal discharge current (8/20 µs)	100 kA
100% lightning impulse spark over voltage	≤ 2.5 kV
Power frequency spark over voltage (50 Hz)	≤ 1.2 kV
Type of protection according to EN 50014, EN 50021	II 3 G EEx nC II T4
Operating temperature range [TU]	-20°C...+80°C
Degree of protection	IP 67
Approvals, Certifications	ZELM 03 ATEX 3192X
Length of enclosure	90 mm
Diameter of enclosure 63 mm 63 mm 63 mm	63 mm
Enclosure material	zinc die casting, plastic covered
Connecting cable	NYY-J 1 x 25 mm^2
Cable length	2 x approx. 1500 mm

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EXFS 100

Isolating spark gap for use in hazardous zones with plastic coating and threaded M10 sockets.

- For indirect connection/earthing of functionally separate parts of installations when being affected by lightning
- Device for lightning equipotential bonding according to IEC 62305 in hazardous areas
- For bridging insulating pieces, insulating flanges, etc. in cathodic protected pipeline section
- For safe application in explosion protection zone 1 (gases) or 21 (dust)
- Considerably low spark over voltage
- Considerably high AC current withstand capability

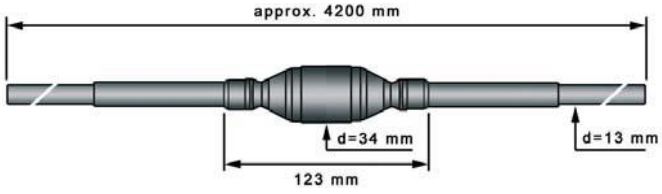
Connection cable Cu 25 mm² for EXFS 100

Connection cable for EXFS 100 with cable lug for bolt M10, M10 screw and nut StSt (V2A) and spring washer.

Cable length: 100 mm, 200 mm or 300 mm available

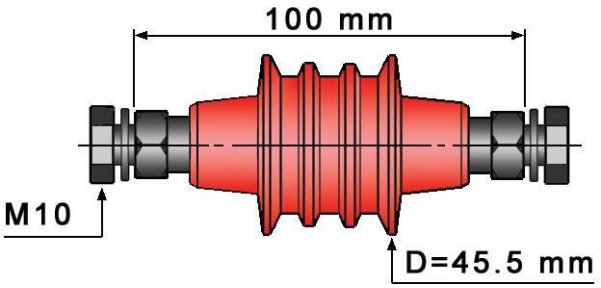
EXFS 100 KU

Spark gap for hazardous zones with 2 m connecting cables for underground installation.



EXFS 100

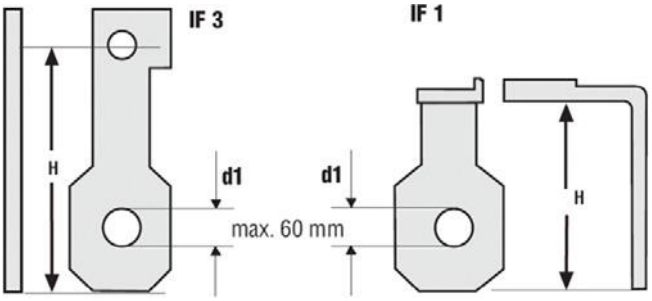
Spark gap for hazardous zones with M10 bot and nut



Connection bracket for EXFS 100

Terminal height “H”

Size	IF 1	IF 3
1	H = 0.08 m	H = 0.10 m
2	H = 0.10 m	H = 0.12 m
3	H = 0.14 m	---



Spark gap for aboveground and underground installation	EXFS 100	EXFS 100 KU
Lightning impulse current (10/350 µs)	100 kA	100 kA
Class of lightning impulse current strength acc. to EN 50164-3	H	H
Nominal discharge current (8/20 µs)	100 kA	100 kA
Rated Power-frequency withstand voltage (50 Hz)	250 V	250 V
100% lightning impulse spark over voltage	≤ 1.25 kV	≤ 1.25 kV
Power frequency spark over voltage (50 Hz)	≤ 0.5 kV	≤ 0.5 kV
Rated discharge current (50 Hz)	500 A/0.5 sec. (Tu: ≤ 45°C)	500 A/0.5 sec. (Tu: ≤ 45°C)
(Ex) Marking acc. to EN 60079 (gas atmospheres)	II 2G Ex d II T6	II 2G Ex d IIC T6
(Ex) Marking acc. to EN 61241 (combustible dust)	II 2D Ex tD A21 IP67 T 80°C	II 2D Ex tD A21 IP67 T 80°C
Operating temperature range [TU]	-20°C...+60°C	-20°C...+60°C
Degree of protection	IP 67	IP 67
Approvals, Certifications	BVS 06 ATEX E 099	BVS 06 ATEX E 099
Enclosure material	plastic coating	plastic coating; water-proof coating
Connection of enclosure	hexagon screw M10 x 16, M10 nut	./.
Connecting cable / Cable length	./.	NYY-J 1 x 25 mm² / approx. 2 m