

## CUTOUT Fuse Holders (Standard)

**PFISTERER**  
THE POWER CONNECTION



CABLE SYSTEMS | COMPONENTS | **OVERHEAD LINES** | RAILWAY CATENARY SYSTEMS

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STANDARD Cutout  
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## Application

The Primary purpose of any cutout is to provide protection for your system and the various apparatus on these lines, such as transformers and capacitor banks. PFISTERER cutouts provide reliable protection for low-level, intermediate and high-level faults. With the use of a portable Loadbreak tool, PFISTERER cutouts can function much like an overhead disconnect switch. Alternatively 200 amp Solid Links are available.

## Ratings & Specifications

Standard PFISTERER cutouts have maximum design voltage ratings to simplify the choice of cutouts. There are no restrictions to grounded star, ungrounded star or delta systems having maximum operating voltages equal to, or less than the cutout maximum design rating. In each voltage class, these are continuous current ratings of 100A using fuse links and 200A using a solid disconnect link. See the charts for other specifications.



## Quality Construction

### Efficient Current Transfer

The PFISTERER cutout has an all copper single piece current path with Silver-plated contacts. Terminals are tin-plated brass for use with copper or aluminium conductor.

### Loadbuster Hooks

Galvanised steel hooks are standard on all PFISTERER cutouts, for use with a portable Loadbuster tool. The hooks are mounted under the top contact and serve as a guide for the fuse holder when closing at an off centre angle.

### Top Contact

The top contact is designed such that it provides a smooth self aligning action during closing. The top contact is formed from highly conductive copper and is silver-plated, which provides a continuous current path from dome nut to PG clamp. The contact is designed to maintain firm and constant pressure with the fuse holder contact surface until fault interruption is accomplished. Backing the top contact is the Loadbreak bracket, which prevents over-racking. Used in conjunction with a load break tool of the correct rating, the cutout can be opened under load.

### Hinge

The hinge on the cutouts employs a large pivot area for the fuse holder's trunnion and is manufactured from brass for its strength and superior electrical properties. The hinge contacts are of a highly conductive copper alloy and silver-plated to ensure an efficient current transfer from the trunnion casting.

### Insulator (Silicone)

All silicone bushings are manufactured from HTV silicone and have been tested in accordance to various international aging standards including; IEC 61109 - Annex C, SCSPVAC17 – KIPTS & ANSI C29-13-2000 Tracking & Erosion resistance. Leakage distances range from 380mm–1130mm, with BIL ratings of 110kV-200kV. The advantages of HTV silicone are numerous, namely,

1. Silicones are the only housing materials that are able to transfer their intrinsic hydrophobic behavior to pollution layers. Therefore, leakage currents are suppressed and the risk of flashover is reduced. Moreover, composite insulators with silicone housings do not require cleaning. Some other polymers such as EPDM or some special Cycloaliphatics are also hydrophobic but not able to coat the pollution layers deposited on the housing surface.
2. High tensile strength to weight ratio.
3. Improved performance in highly polluted areas.
4. An unattractive target for vandals and very resistant to projectile damage.
5. Flexibility, providing better seismic capabilities and preventing cascade failure of post units.
6. High resistance to UV degradation.
7. High resistance to thermal extremes (-35°C to +50°C)

### Insulator (Porcelain)

These insulators of sky-glazed grey porcelain, with leakage distances range from 230mm–720mm, with BIL ratings of 110kV-170kV.

### Fuse Holder

The solid cap on the single vent fuse holder is made of silver-plated brass, which provides efficient current transfer. An integral ring is provided in the top tube casting for opening and closing the fuse holder using conventional disconnect tools from the ground, from a bucket truck or from a cherry picker.

The toggle type trunnion casting is of silver-plated brass for efficient current transfer to the lower hinge contacts. Cams on the trunnion ensure high-pressure current path to the lower contacts. The pivot bosses are cast full round for smooth rotational operation in the hinge but prevent the trunnion from disengaging when closing the fuse tube. The spring operated link ejector assists with clearing low-level fault currents. A groove in the centre of the link ejector guides the fuse tail directly from the fuse tube to the attachment nut. Radii on the link ejector minimise the bending stress on the fuse tail to prevent strands breaking.

## Quality Construction cont.....

The link ejector is pinned to the trunnion with a brass pin to provide resistance to corrosive elements and assure smooth pivotal action. An interlocking device between link ejector and bottom tube casting prevents excessive tension on the fuse link during closure, which could cause link breakage during closure.

The link ejector employs an impact effect to ensure toggle action of the trunnion during low fault and overload interruptions. Dropout action is assured. The link ejector provides sufficient surface area to facilitate re-fusing by a linesman wearing gloves.

### Interchangeability

PFISTERER Fuse carriers are interchangeable with all cutouts manufactured in accordance with the IEC 282 Specification.

### Fuse Tube

The inside diameter of the 100A fuse tube increases the internal pressure, giving superior and reliable expulsion action. During frequently encountered intermediate fault ranges, this diameter also permits higher TRV, (Transient Recovery Voltage), values to be tolerated.

The liner is constructed of an arc quenching material. The tube is manufactured from fibreglass, which permits a smaller bore and provides a higher burst strength. It is protected from the weather and environment by an ultra violet resistant coating.

### Brackets

All mounting brackets are manufactured from steel to international standards and are hot dip galvanised in accordance with ISO 1461. Stainless steel options are available on request.

### Higher interrupt capacities

By using a copper arc-shortening rod attached to the dome nut inside the top of the fuse tube, lowering the fuse link, higher interrupt ratings are obtainable. It is necessary to use fuse links with removable button heads when using an arc-shortening rod.

### Creepage

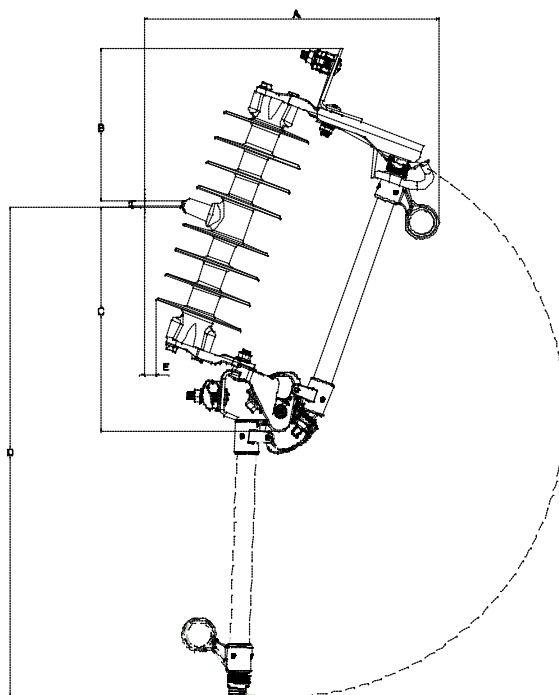
PFISTERER cutouts are available for use under various pollution conditions. Units are available in 20mm/kV to 31mm/kV Creepage values.

### Extra Corrosion protection

All PFISTERER cutouts are available with components made from stainless steel and plated copper alloy, to offer greater corrosion resistance for severely aggressive environments where corrosion can become a major factor. See ordering data page.

### Terminals

Tin plated copper alloy parallel groove type terminals are standard on all PFISTERER cutouts. They can accommodate aluminium or copper conductor sizes ranging from Ø6-Ø15mm. The parallel groove terminal is designed to accommodate two different size conductors, as is the case when arrestors are being used. Eyebolt and Lug mount options are also available.



### Porcelain Cutouts

KV BIL	A	B	C	D	E	Creepage
110	348	164	247	502	28	230
125	370	200	393	643	4.2	380
150	370	200	393	643	4.2	660
170	383	240	333	771	1	720

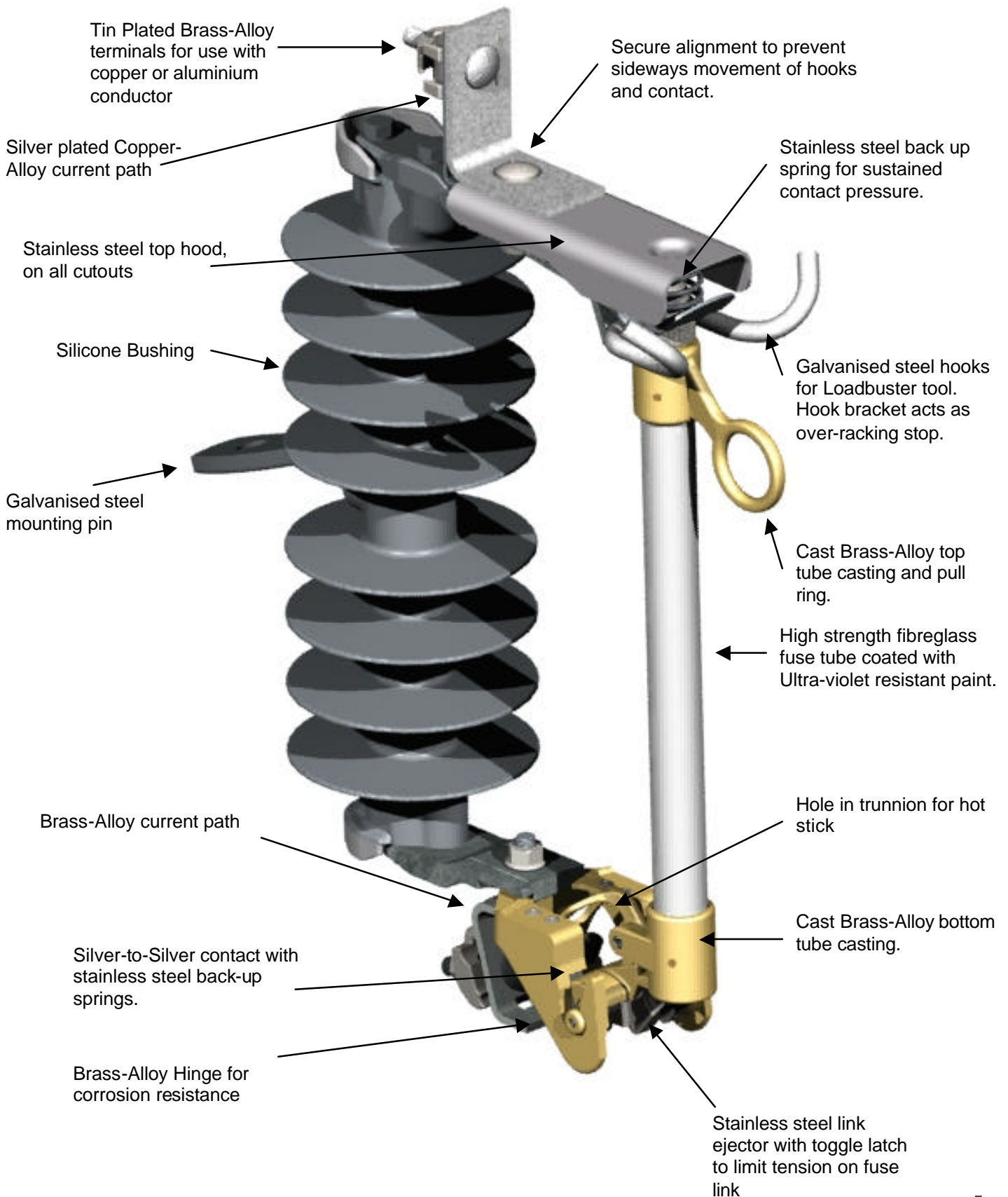
### Silicone Cutouts

KV BIL	A	B	C	D	E	Creepage
110	362	158	253	509	13	380
125 'V'	432	188	236	493	38	480
125	376	200	295	642	3	480
150	376	200	295	642	3	480
150	376	200	295	642	-7	600
200 'V'	518	178	309	659	46	750
200 'V'	828	274	315	758	48	750
200 'V'	642	217	351	791	64	1130

'V' indicates that the unit is configured in a V profile utilising two bushings.

# Standard Type Cutout

All PFISTERER Cutouts meet or exceed IEC / ANSI Specifications



## Specifications and ordering information

### Porcelain Cutouts

(110kV BIL)

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 010-001	Porcelain	No	No	No	No	10/16*	45	230	190	100
146 010-002		No	No	No	Yes	10/16*				
146 010-003		Yes	No	No	No	10				
146 010-004		Yes	No	4"	No	16				
146 010-005		Yes	No	No	Yes	10				
146 010-006		Yes	No	4"	Yes	16				
146 010-007		Yes	Yes	No	No	10				
146 010-008		Yes	No	4"	No	16				
146 010-009		Yes	No	No	Yes	10				
146 010-010		Yes	Yes	4"	Yes	16				

(125kV BIL)

\* - Rating with 4" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 020-001	Porcelain	No	No	No	No	8/12*	50	398	230	100
146 020-002		No	No	No	Yes	8/12*				
146 020-003		Yes	No	No	No	8				
146 020-004		Yes	No	6"	No	12				
146 020-005		Yes	No	No	Yes	8				
146 020-006		Yes	No	6"	Yes	12				
146 020-007		Yes	Yes	No	No	8				
146 020-008		Yes	No	6"	No	12				
146 020-009		Yes	No	No	Yes	8				
146 020-010		Yes	Yes	6"	Yes	12				

(150kV BIL)

\* - Rating with 6" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 030-001	Porcelain	No	No	No	No	8/12*	50	545	230	100
146 030-002		No	No	No	Yes	8/12*				
146 030-003		Yes	No	No	No	8				
146 030-004		Yes	No	6"	No	12				
146 030-005		Yes	No	No	Yes	8				
146 030-006		Yes	No	6"	Yes	12				
146 030-007		Yes	Yes	No	No	8				
146 030-008		Yes	No	6"	No	12				
146 030-009		Yes	No	No	Yes	8				
146 030-010		Yes	Yes	6"	Yes	12				

(170kV BIL)

\* - Rating with 4" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 040-001	Porcelain	No	No	No	No	11.2*	65	660	275	100
146 040-002		No	No	No	Yes	11.2*				
146 040-003		Yes	No	6"	No	11.2*				
146 040-004		Yes	No	6"	Yes	11.2*				
146 040-005		Yes	No	6"	No	11.2*				
146 040-006		Yes	Yes	6"	Yes	11.2*				

\* - Rating with 6" Arc Shortening Rod

# Standard Type Cutout

## (170kV BIL)

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 050-001	Porcelain	No	No	No	No	11.2*	65	720	285	100
146 050-002		No	No	No	Yes	11.2*				
146 050-003		Yes	No	8"	No	11.2*				
146 050-004		Yes	No	8"	Yes	11.2*				
146 050-005		Yes	No	8"	No	11.2*				
146 050-006		Yes	Yes	8"	Yes	11.2*				

## Silicone Cutouts

\* - Rating with 8" Arc Shortening Rod

## (110kV BIL)

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 060-001	Silicone	No	No	No	No	10/16*	45	380	140	100
146 060-002		No	No	No	Yes	10/16*				
146 060-003		Yes	No	No	No	10				
146 060-004		Yes	No	4"	No	16				
146 060-005		Yes	No	No	Yes	10				
146 060-006		Yes	No	4"	Yes	16				
146 060-007		Yes	Yes	No	No	10				
146 060-008		Yes	No	4"	No	16				
146 060-009		Yes	No	No	Yes	10				
146 060-010		Yes	Yes	4"	Yes	16				

## (110kV BIL)

\* - Rating with 4" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 070-001	Silicone	No	No	No	No	10/16*	45	480	205	100
146 070-002		No	No	No	Yes	10/16*				
146 070-003		Yes	No	No	No	10				
146 070-004		Yes	No	4"	No	16				
146 070-005		Yes	No	No	Yes	10				
146 070-006		Yes	No	4"	Yes	16				
146 070-007		Yes	Yes	No	No	10				
146 070-008		Yes	No	4"	No	16				
146 070-009		Yes	No	No	Yes	10				
146 070-010		Yes	Yes	4"	Yes	16				

## (125kV BIL)

\* - Rating with 4" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 080-001	Silicone	No	No	No	No	8/12*	60	480	177	100
146 080-002		No	No	No	Yes	8/12*				
146 080-003		Yes	No	No	No	8				
146 080-004		Yes	No	6"	No	12				
146 080-005		Yes	No	No	Yes	8				
146 080-006		Yes	No	6"	Yes	12				
146 080-007		Yes	Yes	No	No	8				
146 080-008		Yes	No	6"	No	12				
146 080-009		Yes	No	No	Yes	8				
146 080-010		Yes	Yes	6"	Yes	12				

\* - Rating with 6" Arc Shortening Rod

# Standard Type Cutout

(150kV BIL)

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 090-001	Silicone	No	No	No	No	8/12*	60	480	205	100
146 090-002		No	No	No	Yes	8/12*				
146 090-003		Yes	No	No	No	8				
146 090-004		Yes	No	6"	No	12				
146 090-005		Yes	No	No	Yes	8				
146 090-006		Yes	No	6"	Yes	12				
146 090-007		Yes	Yes	No	No	8				
146 090-008		Yes	No	6"	No	12				
146 090-009		Yes	No	No	Yes	8				
146 090-010		Yes	Yes	6"	Yes	12				

(150kV BIL)

\* - Rating with 6" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 100-001	Silicone	No	No	No	No	8/12*	62	600	210	100
146 100-002		No	No	No	Yes	8/12*				
146 100-003		Yes	No	No	No	8				
146 100-004		Yes	No	6"	No	12				
146 100-005		Yes	No	No	Yes	8				
146 100-006		Yes	No	6"	Yes	12				
146 100-007		Yes	Yes	No	No	8				
146 100-008		Yes	No	6"	No	12				
146 100-009		Yes	No	No	Yes	8				
146 100-010		Yes	Yes	6"	Yes	12				

(200kV BIL)

\* - Rating with 6" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 110-001	Silicone	No	No	No	No	8/12*	60	750	288	100
146 110-002		No	No	No	Yes	8/12*				
146 110-003		Yes	No	No	No	8				
146 110-004		Yes	No	6"	No	12				
146 110-005		Yes	No	No	Yes	8				
146 110-006		Yes	No	6"	Yes	12				
146 110-007		Yes	Yes	No	No	8				
146 110-008		Yes	No	6"	No	12				
146 110-009		Yes	No	No	Yes	8				
146 110-010		Yes	Yes	6"	Yes	12				

(200kV BIL)

\* - Rating with 8" Arc Shortening Rod

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 120-001	Silicone	No	No	No	No	11.2*	60	750	288	100
146 120-002		No	No	No	Yes	11.2*				
146 120-003		Yes	No	8"	No	11.2*				
146 120-004		Yes	No	8"	Yes	11.2*				
146 120-005		Yes	No	8"	No	11.2*				
146 120-006		Yes	Yes	8"	Yes	11.2*				

\* - Rating with 8" Arc Shortening Rod

# Standard Type Cutout

(200kV BIL)

Part #	Insulator Type	Fuse Holder	Fuse Break	Arc Shortening Rod	Earth Stud	Interrupt capacity (kA)	1 min Power frequency withstand (wet) (kV)	Minimum Creepage Distance (mm)	Arcing Distance (mm)	Current Rating (Amps)
146 130-001	Silicone	No	No	No	No	11.2*	81	1130	345	100
146 130-002		No	No	No	Yes	11.2*				
146 130-003		Yes	No	8"	No	11.2*				
146 130-004		Yes	No	8"	Yes	11.2*				
146 130-005		Yes	No	8"	No	11.2*				
146 130-006		Yes	Yes	8"	Yes	11.2*				

\* - Rating with 8" Arc Shortening Rod