



Connectors and accessories

Substation equipment



sicame
GROUP

About us



Sicame Group is one of the key players in the electrical equipment business worldwide. It has been able to adapt and develop to support the continuous evolution of electricity infrastructure in France and around the world, and become the largest independent entity in its sector.

A true player in the energy transition, it offers its customers new products and services to improve energy efficiency, deal with environmental risks and support the development of electric vehicle and solar power plant markets.

70

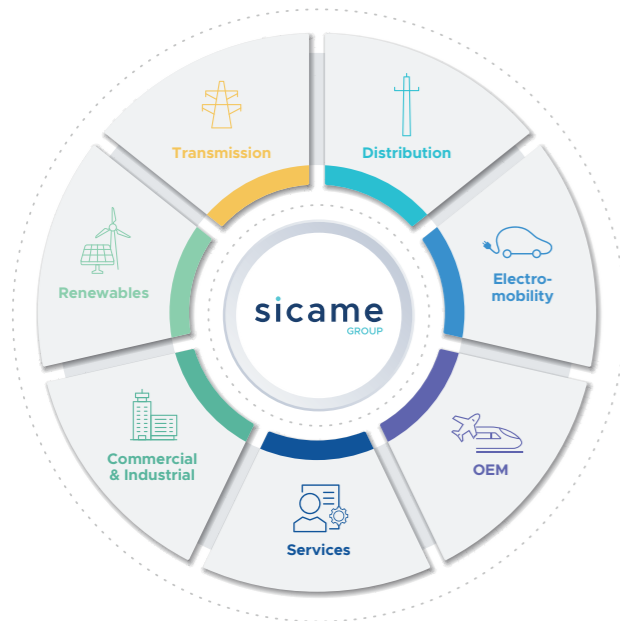
years of worldwide success

600 M€

2024 turnover

3,600

employees



Our fields of activity

Sicame Group is specialised in **products and services** related to transmission and distribution of **electrical energy**, renewables, electro-mobility, safety equipment and industrial applications.

5 continents

26 countries

50 companies
around the world

Products distributed
in 157 countries

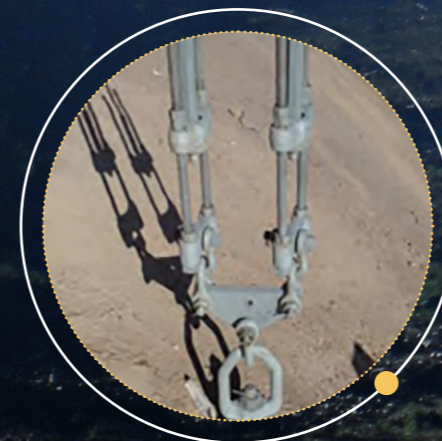


Sicame Group is a recognized world leader specialized in the definition and manufacturing of components, accessories, equipment's & services for building Transmission and Distribution electrical networks. With decades of background and recognized expertise, Sicame Transmission business unit is specialized in designing, manufacturing and producing comprehensive ranges of Transmission lines and systems connectors, dampening systems, hardware and most advanced substation fitting solutions, adapted to the most technical configurations such as 8-bundle Spacer dampers, UHV HVDC connectors or innovative high temperature conductor accessories.

Sicame Transmission relies on world class brands - renowned and trustworthy in the Transmission realm thanks to unique know-how - giving our customers the best in class solutions. Sicame Transmission is specialized in designing, manufacturing and testing products for High and Extra High Voltage Overhead Transmission Lines.

A century of Engineering Leadership Our Transmission & Substation set of companies carry an unmatched combined know how heritage.

Widest range of tested high voltage components. The combination of our ranges and testing facilities allows for a completely tested thorough HV, EHV and UHV line and system accessories.





Summary

01

Technical introduction

04

Special solutions

02

HV Aluminum connectors

05

Wildlife mitigation

03

EHV Aluminum connectors

06

Grounding and shortcircuiting equipment



01

Technical introduction

R&D expertise	08
Technical specifications	10
• Technical information	
• Type test reports	
• Technical information standards	
Installation manual	15
Projects in North America	22
Other reference projects worldwide	27

Technical introduction

R&D Expertise

Developing the new generation of 1200 kV AC and 800 kV DC

SICAME's engineering team has acquired internationally recognized expertise in customized substation configuration design, enabling us to provide full technical evaluation for:

- 3D designs
- Laboratory testing
- Thermal simulations
- Antivibration studies
- Corona simulations

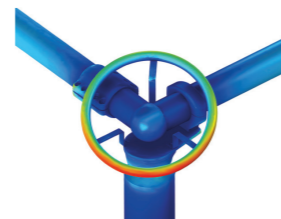
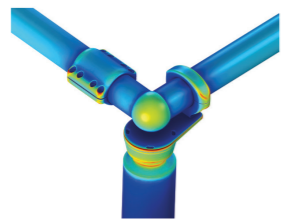
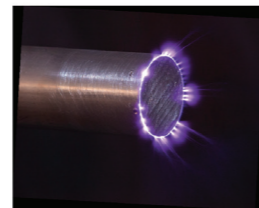
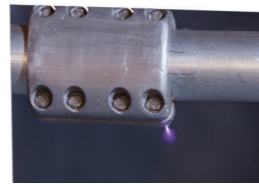
Personalized solutions (LSS connectors line for the disconnection in effect. Lighter corona protections, device line to damper vibrations in the substation tubes,...)

Our Research and Development Engineering Teams focus on:

- Identification of UHV performance factors
- Investigation of new materials
- Exploration of new designs

Approvals

Our products meet and are approved by the main international standards IEC, NEMA, ASTM, UL, VDE, AENOR and DIN.



Corona in the base of the support, as expected from corona simulation.



No corona detected, as expected from corona simulation.



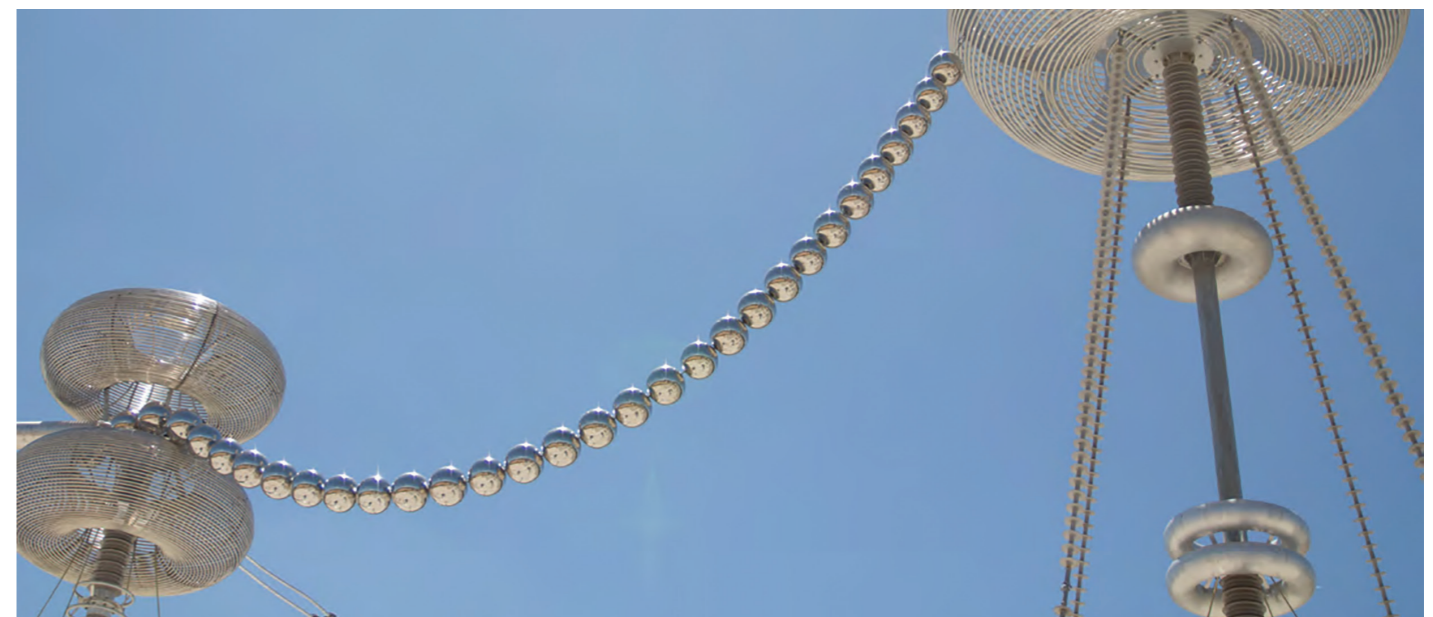
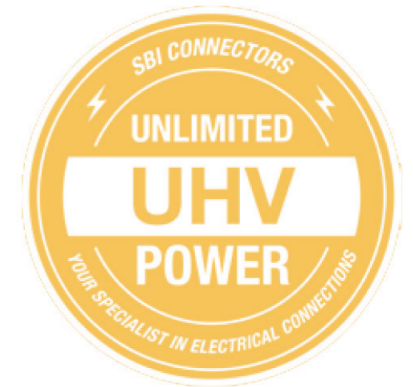
High and Ultra High Voltage Research and Development Center

Sicame and the MClA center (Motion Control and Industrial Applications) collaborate in the creation of the high and ultra high voltage Research and Development center. It is a unique center in Europe because of its characteristics, equipment and facilities. MClA is an affiliated center of the Polytechnic University of Catalonia, which focuses on research, innovation and product development.

The state-of-the-art center provides the Sicame R&D team with the opportunity to constantly expand its knowledge by conducting several types of tests and simulations, with the aim of offering its customers the most efficient and innovative solutions.

In addition, the company collaborates with the MClA center and the Polytechnic University of Catalonia, funding several theses to ensure continuous research in HV system applications.

All new developments are tested and validated at the Investigation center and high voltage test through: Electrical tests, Mechanical tests, Chemical and metallographic tests and controls, Outside tests for Corona / RIV, Corrosion tests in salt fog chamber.



Technical specifications

Technical information

Pullout strength test ANSI/NEMA CC1 §2.7-3.2

- The connectors for stranding conductors(s) are designed to withstand the mechanical loads which can be applied on the conductor(s)
- The minimum pullout strength of the connector is a tensile load of 8896 N applied.
- No failure to be observed during the test

Cantilever strength test - ANSI/NEMA CC1 §2.8-3.4

- Support devices are designed to withstand the mechanical loads which can be applied to the supports fixed in structures or post insulators
- The minimum cantilever strength of support is a transverse load of 8896 N is applied
- This mechanical value is representative of the forces applied to the connections in case of short-circuit and external loads, like wind, applied to the bus bar and beard for whole structure system
- No failure to be observed during the test

Torque strength test - ANSI/NEMA CC1 §3.5

- The conductor(s) are assembled in the connector and the bolts are tightened uniformly and alternatively in accordance with their instruction manual (document reference: IICSO1), increments until 50% over the nominal torque value is achieved
- No failure to be observed during the test

Temp. Rise test - ANSI/NEMA CC1 §2.6 §3.1

- Connectors must not provoke any temperature rise in a substation circuit and should not transfer any additional heating to other component or equipment of the substation layout
- NEMA CC1 standard criteria's are as follows: The connectors tested have a temperature rise less than or equal to the hottest connected conductor for the same current
- No damage or failure to be observed during the test
- Included resistance test in the according to IEC 62271-1

Short-circuit test – IEC 62271-1 §6.6

- The connectors are designed to carry-out the short-circuit current that may flow through the conductors on which it is installed
- This short-circuit current must not cause any damage to the connector and neither burn on the contact surfaces nor welding between the parts must occur during the short-circuit
- Included resistance test according IEC 62271-1

Resistance test - IEC 62271-1 §6.4

- This test shows the difference between the electrical resistances of the connector, before and after testing should be less than 20%
- This test can be done in Temperature Rise Test, Short Circuit test and Salt Spay Corrosion Test described in this document

Heat cycle test - ANSI C119.4

- This test consists of checking the stability of the electrical resistance after performing a number of cycles, which depends on the class of the connector
- This stability is achieved if all resistance measurement does not vary by more than ±5% from the average of all the measurements at specified intervals during the course of the test

Corona & riv test - IEC 62271-1 §6.9.1 & IEC 61284

- According IEC 62271-1 neither Positive Corona spark nor light are observed on the surface of the products with naked eyes at the nominal voltage equal to $U_n=1.1xU_r/\sqrt{3}$ where U_n : Phase-ground voltage, U_r : Phase-to-Phase Voltage
- The maximum Radio Interference Voltage (R.I.V.) level is less than 2500 μ V (68 dB) at $1.1 x U_r/\sqrt{3}$ with a 300 Ω test circuit impedance. According IEC 61284 the corona extinction (corrected values according to IEC 60060-1) shall exceed the specified minimum corona extinction. The RIV recorded at the specified test voltage shall not exceed the specified maximum RIV
- The curve indicating the RIV against the test voltage shall not present any sudden change between the specified test voltage or conductor voltage gradient and 110 % of the specified test voltage or conductor voltage gradient

Salt spray corrosion test – IEC 60068-2-11

- The connector tested is assembled with the conductor(s) and/or palm required and the whole object is exposed to 500 hours of salt mist in a chamber
- The resistance shall not increase more than 20% between the first and final measurement

Type test reports

Type test applicable standards and specifications:

- SICAME has over 50 years' experience in design and manufacture of HV and EHV substation connectors
- The Company designs its HV connectors in line with best practice and to internationally recognized industry standards. The standard we adhere to, where appropriate, and that are internationally recognized are:

ANSI/NEMA CC1 Standard:

Electric Power Connection for Substation from American National Standard and National Electrical Manufacturers Association.

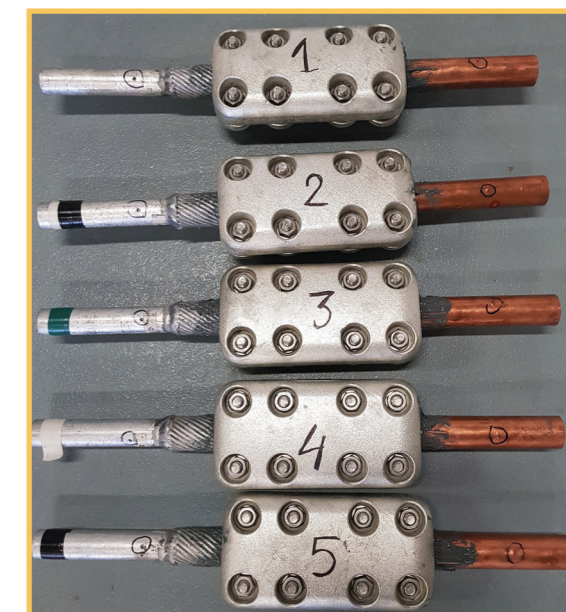
IEC Standards:

International standard from the International Electrotechnical Commission.

BS EN Standards:

British Standard European Standard.

* The type test required can be studied



Technical information Standards

Hardware:

We recommend **A2-70** or **A4-80** in accordance with **EN ISO 3506-1** standard.

Characteristics of A2-70 and A4-80 steel in accordance with ISO 3506-1										
Chemical composition Mass fraction (%)									Tensile resistance Rm / [MPa] / min.	Conventional elastic limit Rp0.2 / [MPa] / min.
-	C	Si	Mn	P	S	Cr	Ni	Cu	-	-
A2-70	0,1	1	2	0,05	0,03	15-20	8-19	4	700	450
A4-80	0,08	1	2	0,045	0,03	16-18	10-15	4	800	600

Our nuts are coated with an anti-seize special treatment.

Description:

This special treatment is a suspension of high-molecular polymers in water. To optimize the lubrication properties this special treatment contains specially selected PTFE. The treatment is used as a coating agent and develops this a well adhering, touch-proof lubricating film after drying. It has been developed to achieve define low friction coefficients with a minimum variation range.

Field of application:

This special treatment is used for mass part lubrication. A typical application example is the coating of stainless-steel screws/bolts and nuts, self-tapping or self-forming screws, rivets, sheet-metal screws, and chipboard screws.

Aluminium:

EN 1706 Aluminium and aluminium alloys. Castings. Chemical composition and mechanical characteristics.
EN ISO 6892-1 Metallic materials. Tensile test. Part 1: Test method (at room temperature).
ISO 8062 Dimensional tolerances for castings.

Aluminium alloy EN 1706 AC-42100							
Chemical composition mass fraction (%)							
Si	Fe	Cu	Mn	Mg	Zn	Ti	Al
6,5÷7,5	0,19	0,05	0,10	0,25÷0,45	0,07	0,25	Remainder

Aluminium alloy EN 1706 AC-42100			
Mechanical properties of the alloy casted in sand for separately cast test bar			
Heat treatment	Tensile resistance Rm / [MPa] / min.	Conventional elastic limit Rp0.2 / [MPa] / min.	Elongation A50mm / [%] / min.
F	140	80	2
T6	230	190	2

1N/mm² = 1MPa

aluminium alloy EN 1706 AC-42100		
conductivity properties of the alloy casted in sand for separately cast test bar		
Material	Electrical conductivity measured at 20°C [MS/m] [1/μΩm]	Thermal conductivity [W/mK]
EN 1706 AC-42100	20÷27	160-180

Copper:

EN 1982 Copper and Copper alloys.
EN ISO 6892-1 Metallic materials. Tensile test. Part 1: Test method (at room temperature).
ISO 8062 Dimensional tolerances for castings.

Alloy and chemical properties and castings:

Element	Numeric designation Chemical composition expressed in % of mass		
	EN 1982-CC491K	EN 1982-CC330G	EN 1982-CC754S
Cu	83.0-87.0	88.0-92.0	58.0-63.0
Zn	4.0-6.0	0.5	residual
Sn	4.0-6.0	0.3	1
Pb	4.0-6.0	0.3	0.5-2.5
Ni	2	1	1
P	0.1	-	0.02
Fe	0.3	1.2	0.7
Sb	0.25	-	-
S	0.1	-	-
Al	0.01	8.0-10.5	0.8
Si	0.01	0.2	0.05
Mn	-	0.5	0.5

Alloy and mechanical properties:

Mechanical properties of sand casted alloy			
Numeric designation	Conventional elastic limit Rp0.2 [MPa] min.	Tensile resistance Rm [MPa] min.	Elongation A50mm / [%] / min.
EN 1982- CC491K	90	200	13
EN 1982- CC330G	180	500	20
EN 1982- CS754S	80	220	15

1N/mm² = 1MPa

Correlation studies on various existing connector lines, as well as mechanical and electrical engineering considerations in the early seventies, resulted in the establishing of a few simple design rules. Basic idea for all our connectors range is that the connector, at full load, has to run cooler as the conductor(s) to be connected. In order to guarantee this, these rules were applied to shape the connectors lines. Hereafter we will set these basic design rules and describe in more detail the various peculiarities of the designs.

Contact force:

It is well established that the contact resistance of a mechanical connection depends upon the contact force between the surfaces in contact (and not upon contact pressure). As a result of various correlation studies, as well as from laboratory tests it was decided to link the contact force to the amperage of the connection.

A simple rule was set: $F=k \cdot I$

F : Contact Force (N) - I : Current (A) - K : constant (N/A)

For the constant k, a minimum value of 40 Newton Ampere is chosen

Contact surface

The Aluminum material has the propensity to undergo plastic (permanent) deformation when submitted to stress (pressure or traction). This permanent deformation is called “cold flow” and it depends upon pressure, temperature and time.

Studies during the many years of experience, as well taking physical properties in consideration, has led to the definition for the maximum contact force (N/mm). At every specific temperature, there exists a threshold pressure, which is such that up to this limit, there is practically no cold flow. At 110°C, this limit is in the vicinity of 27 N/mm. This is the maximum limit contact pressure adopted for the design of this connector line, which was chosen as the highest steady-state temperature of an Aluminium connection. A short period of overheating during fault currents do not adversely affect a well-designed connection.

Exceeding the maximum force or temperature for a long period of time it will lead to cold flow and loss of the connection quality.

Amperage

Studies during the many years of experience, as well taking physical properties in consideration, has led to the definition for the allowed maximum Amperage per mm² is < 0,4 to 1 A / mm² depending on the type of connector. The dimensioning of the connectors is based on the above mentioned definitions with, as a result, for all product lines a “run cooler as conductor” performance as result. This philosophy is established in all variations of our substation connectors.

Connector design

The objective here is to engineer a connector device following the basic rules of adequate force, contact surface and amperage, as given by the rules established previously. A good design should be compact in size. As the force generating mechanism was of major importance, and should be under control, we decided to go for a bolt-nut-washer configuration (no threaded holes).

In order to minimize the possible malfunction of the bolt-nut-washer mechanism, it was also decided to apply the bolting torque to the nut (and not to the bolt head). This is important when tightening on a cylindrical conductor, as there is always a resulting wedge effect, when the components are put under stress. When tightening on the bolt head, the wedge effect would impart to the bolt shaft an alternating bending stress, which is detrimental to the assembly.

Connector grooves to accommodate cables or buses are cast to size of the nominal diameter of the conductor. This diameter is marked on the clamping element. At the end of the groove a cavity is provided for the cutting burs of the conductor ending.

Basic multi-cap design

The connector design is based on the multi-cap principle. The body of the connector carries the current, and caps are used to transmit the contact force to the conductor and the body.

A cap carries 2 bolts (and not more). The choice of the “2 bolts per cap” is for mechanical and reliability considerations. Mechanically, each cap transmits its force to a well defined part of the conductor, and guarantees a contact pressure between the conductor and the current carrying body, at the location of the cap.

In a single-cap design, when 6 bolts are used, it may happen that only the extremities of the cap transmit pressure to the conductor (deformed cap). This would result in too high pressure on the extremities, and low pressure at all at the centre of the cap.

Compactness of design

Compactness was achieved by placing the bolt shafts as close as possible to the conductor. Doing so also decreased the bending moment at the centre - line of Cap and Body, giving a second-effect lowering of the bulkiness of the connector.

Installation manual

Preparation of surfaces

Copper (Cu)

Copper conductors do not require any special preparation. Copper oxide is generally broken down by a reasonably low value of contact pressure. Unless the copper is badly oxidized, a good contact can be achieved with very little cleaning (see accessories).

Aluminum (Al)

Oxidation of Aluminum conductors is inevitable. Aluminum oxide is hard, tenacious, and forms a high resistant film. The oxide film forms very rapidly on surfaces exposed to air. Failure to remove this oxide can produce a high electrical resistance and ultimately, a failure of the connection. The steps are:

- Clean the contact surface with a dry stainless steel wire brush (see accessories), until it is bright and clean
- Contact grease should then be applied immediately after cleaning, using another stainless steel wire brush and the surface scraped again through the contact grease. For cables, ensure that the contact grease penetrates between the wires as deeply as possible
- Mark an area 1/4” wider than the connector to brush and coat thoroughly with the contact grease to ensure the contact area is exceeded. Generous application of the contact grease is required

If the connector includes a tinned surface, usually for bimetallic connections, it should not be brushed even if the conductor to connect is copper made. Only Aluminum conductors should be brushed and contact grease applied.

Preparation of bolted connectors

copper (Cu)

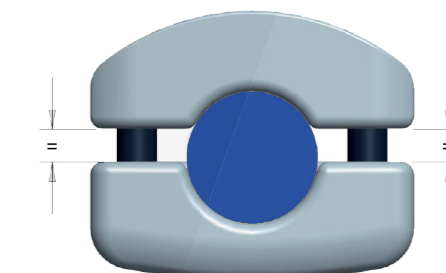
Copper bolted connectors do not require any special preparation, except where there is excessive dirt or dust. This can be removed with a clean dry cloth or brush (see accessories).

Aluminum (Al)

For all Aluminum bolted connectors, irrespective of the conductor material, it is essential that contact grease be applied to both surfaces that are in contact. Where both surfaces are Aluminum:

- Surfaces must be cleaned using a dry stainless steel wire brush (see accessories) to remove dirt and dust
- Contact grease should then be applied immediately after cleaning, using another stainless steel wire brush and the surface scraped again through the contact grease
- Ample contact grease must be applied so that it squeezes out of the sides as the final torque to the bolts is applied

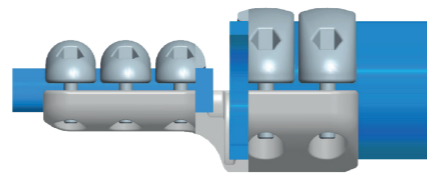
If the connector includes a tinned surface, usually for bimetallic connections, it should not be brushed even if the conductor to connect is copper made. Only Aluminum conductors should be brushed and contact grease applied.



Installation for substation connectors

Handling of connectors

- Connectors should be handled with care. Even slight damage to the outer surface of a connector can create corona
- Be particularly careful with cables of expansion connectors, damage of the cable can cause cable breakage as well as local corona.
- Avoid dropping or placing the connector on sandy soil. Soil particles can lodge in the threading and damage the bolt. In such cases, the connector should be cleaned with a soft brush.
- Check that the conductor diameter is in the correct range of diameters for the connector being used.



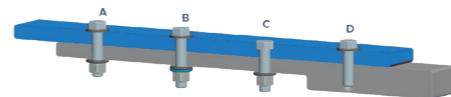
Installation

- Ensure that the conductor is fully inserted into the connector, ensuring it goes to the end of the cavity.
- When assembling make sure the cap is the same distance from both sides. Introduce the screw or nut into the hex hole, depending on the connector and layout, and apply the appropriate torque.

Mechanical joints

Placing the elements

- For mechanical assemblies there are different provisions for securing the various elements
- The basic elements of the assembly are: bolts, washers, washers and nuts
- The following shows the four configurations used
- We do not recommend any change in the standard hardware and installing a hardware not delivered by our company or under our authorization
- In the same way, we do not recommend to install any type of grease for the bolts and nuts assembled in the connectors, since the standard hardware delivered has surface treatment to avoid the gripping in the mechanical union
- These changes without the authorization of our engineers, installing external hardware or using greases, can modify the behavior of the assembly, upsetting the resultant torque and the forces applied
- If in any case is required to use a different hardware and/or a grease in the hardware union, contact us with the technical datasheet of the hardware and/or grease used and will be the technician and engineers of SICAME who warranty the correct installation of the connector

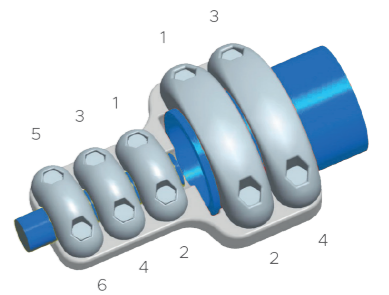


- A. Screw - Washer - bodies unite - washer - nut.
- B. Screw - Washer - bodies unite - washer - washer lock in place - nut.
- C. Recessed screw - body unite - washer - nut.
- D. Screw - Washer - body unite - unite body with threaded hole.

Note: For standard orders, hardware is supplied with surface treatment to avoid gripping problems in these union elements.

Tightening Sequence

- Initially the screws should be tightened to 60% of the total torque, in the sequence described below
- Subsequently, tighten in the same sequence to the total recommended tightening torque. Always starting at the “end of the conductor” side of the connector and working to the other side of the connector
- We recommend you use the correct torque wrench and sockets



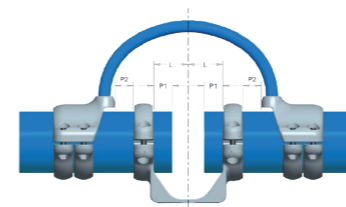
Recommended tightening

Equipment hardware (Nm)	Torque				
	M8	M10	M12	M14	M16
Aluminum and Aluminum alloys	10	20	40	60	90
Silicon bronze 12 24 55 75 115	12	24	55	75	115
Stainless steel A2	15	35	60	90	140
Stainless steel A4	22	44	72	-	187
Necessary key (mm)	13	17	19	22	24

Equivalent units: 10 NM = 10J = 10 WS ≈ 1 KGM ≈ 1KPM

Expansion connectors installation

- Expansion connectors allow for expansion and contraction of the conductors as the temperature varies
- The Ideal temperature when mounting connectors is 20°C, for other temperatures, different spacing will be required, these spacing can be determined by following the chart below
- The dimension (L) is the total possible movement of the connector
- At room temperature, 20°C, P1 = L / 2 (see graph), while P2 is always the difference in length between L and P1



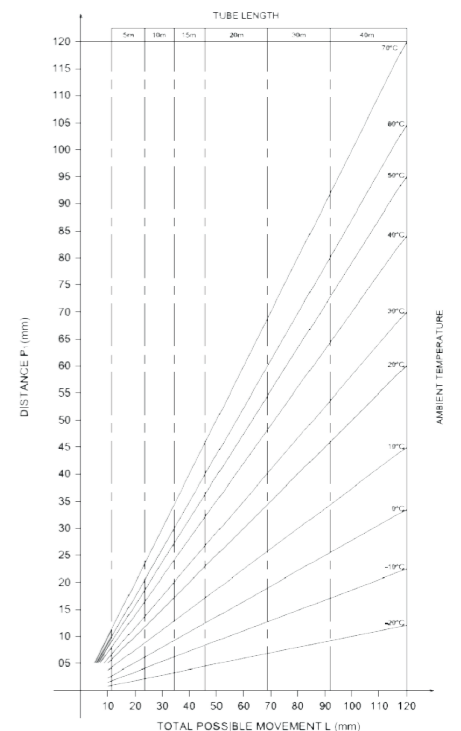
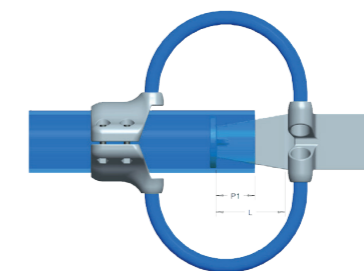
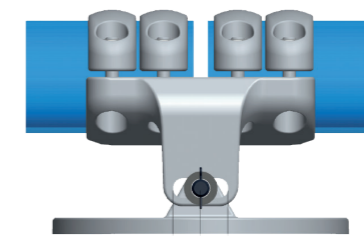
$$P2 = L - P1$$

T° ambient 50°C
L = 60 mm

Look up the graph attached

P1 = 47 mm

P2 = L - P1
P1 = 47 mm P2 = 13 mm



Cupal sheets

Cupal sheets are used when bimetallic connections are required, the following installation procedure should be adopted.

- Prepare the surfaces of the conductor and the surface of the sheet of cupal as described previously by treating the surfaces of the foil as that of a connector
- Install the cupal sheet, in the cavity of the connector
- It is important when installing the bimetallic sheets that the copper component is placed at the bottom of the connection, so that the apparent salts corrosion does not affect the conductor / Aluminum connector which could result in accelerated degradation of the contact

Compression connectors

The connectors can be assembled for compression with different forms depending on the requirement, for example, circumferential, hexagonal..

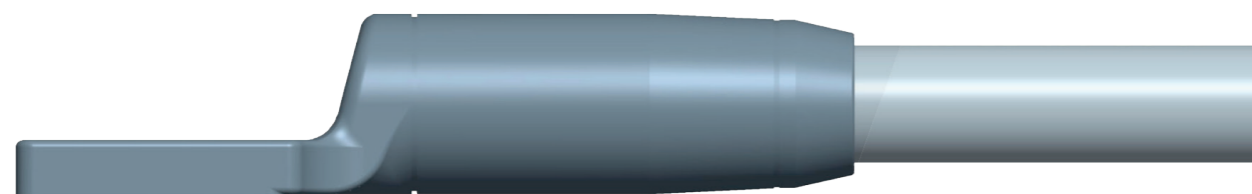
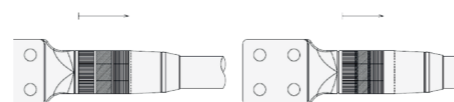
There are two methodologies when crimping:

- Space compression
- Overlap compression (normally 1/3, 1/4, 1/5)

In the first instance, a number of compressions may be applied which are spaced a short distance apart. In the second case, the compressions will overlap by a fraction (see below) of the overall width from the edge of the previous compression.

To affect correct compression the following steps should be taken.

- Banding the cable end before cutting (prevents fraying)
- Thoroughly clean the cable to be connected
- Apply the contact grease (see accessories) to both the conductor and the connector
- Insert the cable into the connector. Remember to remove the ring (band) from the cable end
- Selection and preparation of the tool to perform the compression
- For multiple compressions begin the compression from the cable end of the assembly and ensure you withdraw towards the end of connector for subsequent compressions



Welded connectors

The welding methods recommended are the tungsten inert gas (TIG) and metallic inert gas (MIG), as set out in NEMA CC1 - 2009.

Aluminum 4043 alloy rod shall be used as filler material for Aluminum welded connections between sand castings, extruded Aluminum shapes or cables.

Alternating current shall be used for TIG welding, whereas reversed polarity direct current shall be used for MIG welding. Argon or helium, or a mixture of the two shall be used as shielding gases.

It is highly recommended that the welding operation would be performed by personnel with high skill level in Aluminum welding, because of the difficulty of this process.

Before the welding, it is necessary to:

- Remove oil, oxides, soiling and moisture from the surfaces to be welded. The conductor and power connector welding areas have to be cleaned with a degreasing agent (solvent)
- Sufficient time must be allowed for evaporation of the solvent before welding. Moreover, after solvent cleaning, the oxides shall be removed by brushing with a stainless steel wire brush
- Test the welding machine settings by making a test bead on an Aluminum casting
- Visually inspect the connection to determine proper edge preparation and alignment into the joint

All the melt shall be made with clean metal. During the weld, a smooth and continuous flow of metal with parent metal should be maintained. When several passes are to be made, check the previous pass before laying down the next one, to detect the presence of poor fusion or cracks.

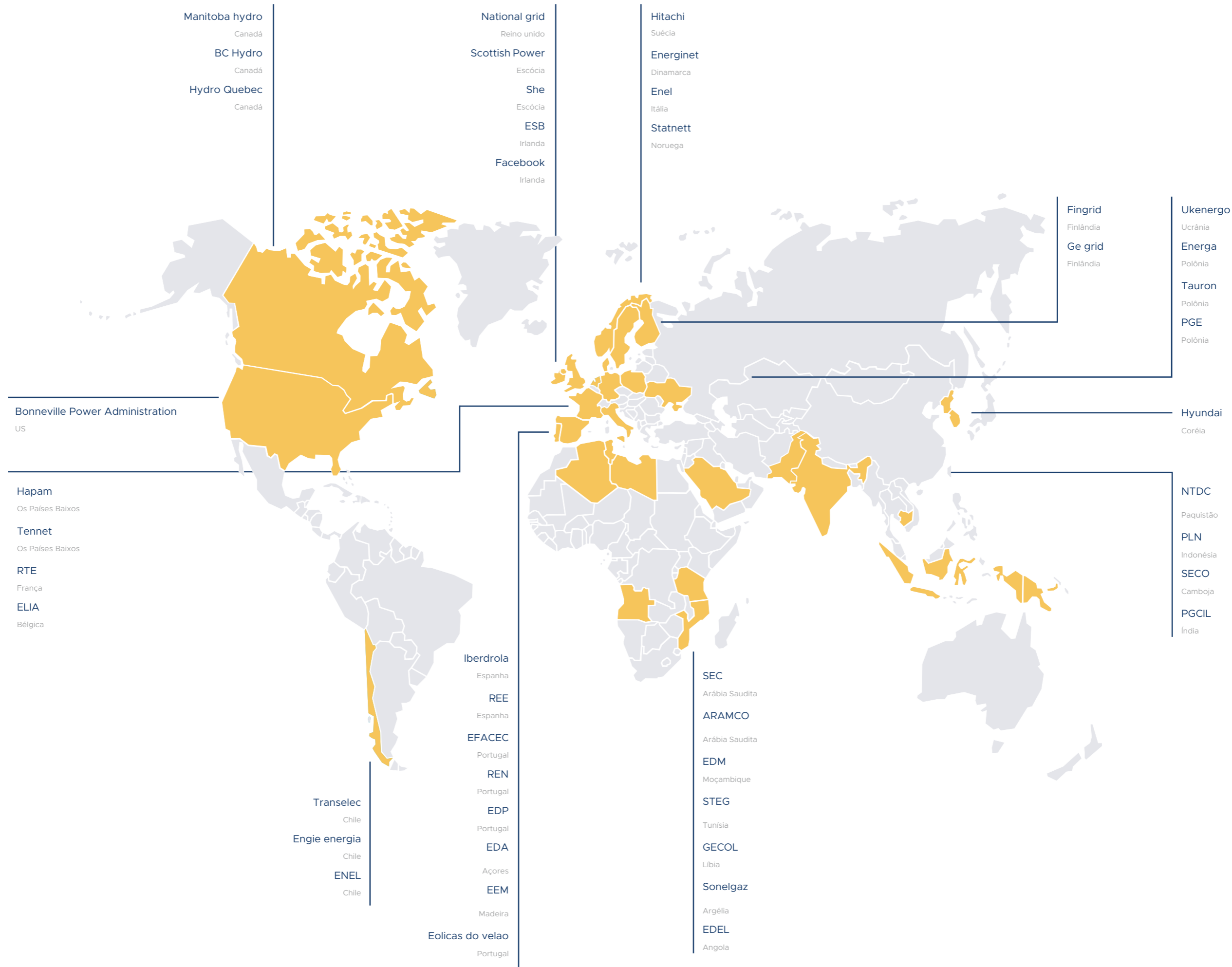
The completed weld must have a smooth finish and indicate good fusion. After the welding it is recommended to accurately clean the weld, to ensure a smooth surface and avoid the corona appearance.

Bimetallic connectors

- For the bimetallic mechanical connectors special care must be taken when handling to ensure that the layer of varnish on the joint between the Aluminum and copper is not damaged
- This varnish is an environmental protection to ensure no corrosion takes place. If for any reason this layer is damaged the bimetallic connector should be replaced

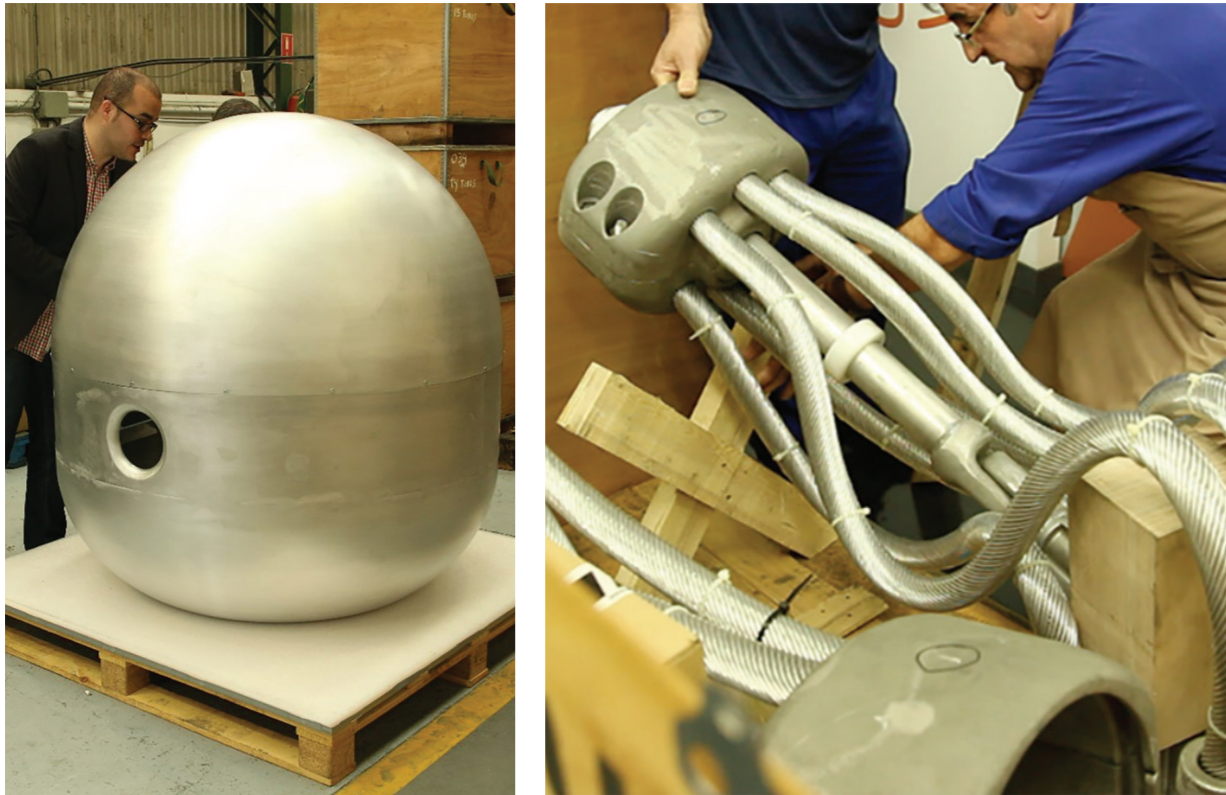
Maintenance

- Connectors delivered by SICAME require no special maintenance
- All products shown in this manual are used in substations and have not been designed for a reinstallation or reopening. In case it is required, please do not hesitate to contact us
- For each connection to be done, it is highly recommended to perform a previous visual inspection prior to installation to ensure products have not been damaged during transportation nor loose pieces are lost, thus requiring an eventual replacement
- Do not hesitate to contact us if you have any queries in this regard. In any case, store your connectors in a dry and clean location before installation



Projects in North America

Celilo station converter



Celilo converter station is located near the Columbia river, is the northern station of the Pacific DC Intertie, a 1,360 - kilometer HVDC link that connects to the Sylmar converter station in Los Angeles. It transmits electricity from the Pacific Northwest to as many as three million households in the greater Los Angeles area.

The upgraded Celilo station is owned by Bonneville Power Administration.

Sicame designed and manufactured all corona spheres protection as well adjustable connectors for 560 kV DC and 500 kV AC.

Product	HVDC converter transformers
Power rating	770 MVA, 560 kV DC, 500/230 kV AC
Location	U.S California



Sicame has successfully delivered high voltage connectors and corona protection in several projects in North America

Maritime link HVDC station converters



Maritime link project is the first electricity link between the island of Newfoundland and North America.

The maritime link project is a 500 MW high-voltage direct current (HVDC) connection that enables clean, renewable electricity generated in Newfoundland and Labrador to be transmitted to the North American grid in Nova Scotia. Integration of additional renewables is contributing to Canada's emission-reduction efforts.

In addition to the two converter stations for the ±200 kV HVDC link, the project scope also included two 230 kV AC substations in Newfoundland, one 345 kV AC substation in Nova Scotia, and two cable transition stations.

Power transmitted:	500 MW
Direct voltage:	±200 kV

Bipole III riel station converter



These HVDC converter stations are part of the Manitoba Hydro Bipole III transmission project. The entire transmission line is acting as an “electricity highway,” bolstering the reliability of Manitoba’s electricity supply by reducing dependence on existing HVDC transmission lines and converter stations while also ensuring low-loss transport of renewable hydropower from northern generating stations to meet growing energy requirements.

HVDC converter stations are specialized substations that support the conversion of electric power from high voltage alternating current (AC) to high-voltage direct current (HVDC), or vice versa, a critical component to interconnecting separate power systems. The HVDC project consists of two stations: Keewatinohk and Riel. The Keewatinohk Station is located in the far north of Manitoba, about 45 km north of Gillam, MB. The Riel station is located outside of Winnipeg.

Voltage: **1000 V DC (+/-500 V DC)**

Current: **2000 A**

Chibougamau SVC

Sicame provided ultra high voltage connectors for SVC (Static Var Compesator) substation.

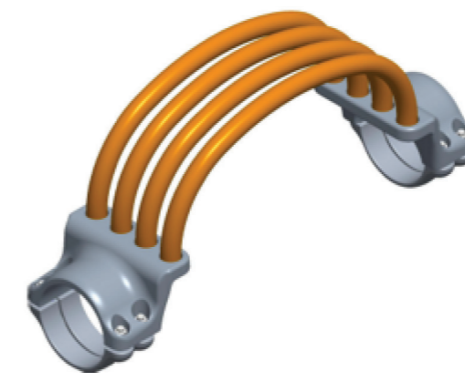
SVC to stabilize a large 735 kV transmission system in Canada.

In Canada, Hydro-Québec is operating several Static Var Compensators (SVC) in its 735 kV transmission system. The 735 kV grid transmits a total of 15000 MVA of environmentally friendly hydro power over six lines from the generating stations along La Grande Rivière at James Bay down to the Montréal area some 1000 km to the south.

Purpose of SVC is:

- Regulate and control the 735 kV voltage under normal steady-state as well as contingency conditions;
- Provide dynamic, fast response reactive power following system contingencies such as network short circuits and line and generator disconnections;
- Enhance the first swing stability by maintaining system voltages during large disturbances

Controlled voltage	735 kV
SVC rating	-300/+300 Mvar
Ambient temperature range	-40°C to +40°



Un = 150 kV
In = 2.665 A
Icc = 29 kA/s



Un = 150 kV
In = 4.533 A
Icc = 40.3 kA/s
80 kA / 2 pipes

Necec HVDC station converter

Other reference projects worldwide



Project	Installation country	Voltage
Meftah Substation	Algeria	63/225 kV
Mamba and Rilima substations	Angola	230 kV
Lagoa Substation	Azores	60/30 kV
Karnafuli substation	Bangladesh	63/230 kV
Gramme substation	Belgium	380 kV
Bipole III Riel and Keewatinhok substations	Canada	345 kV
Cumbre and Changos substations	Chile	500 kV
Odense wind farm substation	Denmark	220 kV
Assiut substation	Egypt	34,5 kV
Busbar vibration dampers installed in several substations in Finland	Finland	400 kV
Techiman and Akosombo substations	Ghana	161 kV
Seoni substation	India	765/400/220 kV
Penawaran substation	Indonesia	150 kV
Ghom substation	Iran	63/230 kV
Clonee data center substation	Ireland	220 kV
Poggio a Caiano substation	Italy	380 kV
Daugavpils and Grobina substations	Latvia	380 kV
Pedra Mole Substation	Madeira	60 kV
Matola Substation	Mozambique	66 kV
Jhimpr wind farm and Quaid-e-Azam solar farm substations	Pakistan	150/220/500 kV
GPZ Makow substation	Poland	110 kV
Tavira substation	Portugal	400/150/60 kV
Ras Abu Fontas substation	Qatar	63/230 kV
Abqaig substation	Saudi Arabia	380 kV
CMS (Caithness-Moray HVDC link) Blackhillock and spittal station converters	Scotland	450 kV
Kaolack substation	Senegal	245 kV
Cartelle substation	Spain	400 kV
Hemsjo substation	Sweden	380 kV
Bukoba substation	Tanzania	132 kV
Metlaoui and Kasserine Sud Substations	Tunisia	220 kV
Borssele substation	The Netherlands	380 kV
Birecik substation	Turkey	400 kV
Al Taweelah and Al Ain substations	UAE-Abu Dhabi	400 kV
Krakovskaya ssuubssttaatioonn	Ukraine	330 kV
Nemo HVDC link - Richborough, Bolney and Ninfield substations	United Kingdom	400 kV
Celilo HVDC converter	USA	570 kV
El Furrial and Palital substations	Venezuela	230/400 kV

It is the first large-scale multi-terminal HVDC transmission in the world.

The project consists of building a transmission line extending approximately 100 km between Appalaches substation in Saint Adrien d'Irlande (near Thetford Mines in the Chaudière Appalaches region) and a connection point on the Québec-Maine border. The project's overall aim is to increase the exchange capacity between Québec and New England.

The new 320 kV direct-current line will connect to the future New England Clean Energy Connect (NECEC) line, slated for construction in Maine.

In tandem with this project, a new AC-to-DC converter will be installed at Appalaches substation to supply the planned transmission line.

Sicame has provided high voltage connectors to be installed on the station converters.

All connectors are designed and tested by our R&D experts to ensure the high level of performance required to work at this voltage level.



02

HV Aluminum connectors

Single connectors

- Straight connector 30
- T-Connector 33
- Straight terminal 39
- T-Terminal 41
- Angle terminal 43

Bundle connectors

- Straight connector 44
- Straight terminal 46

Supports

- Support for cable 47
- Support for tube 49

Expansion connectors

- Straight expansion terminal 50
- Straight expansion support 51

Earthing connectors

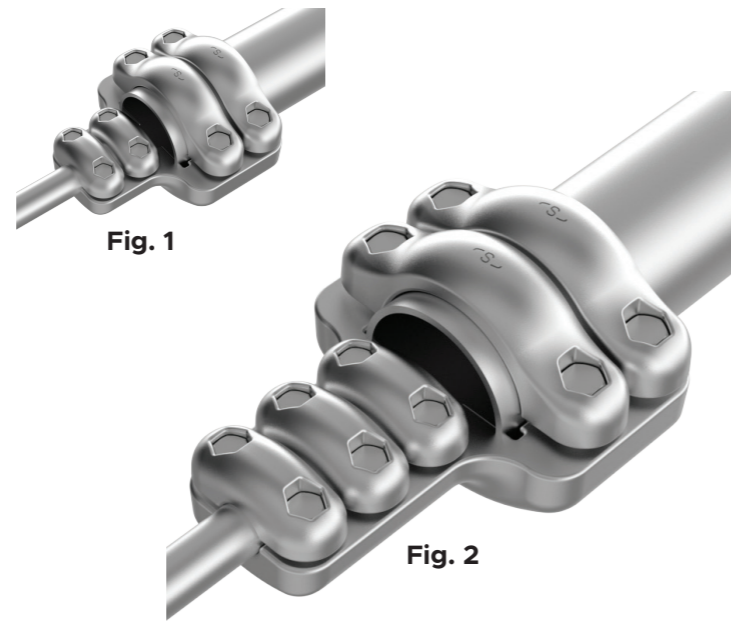
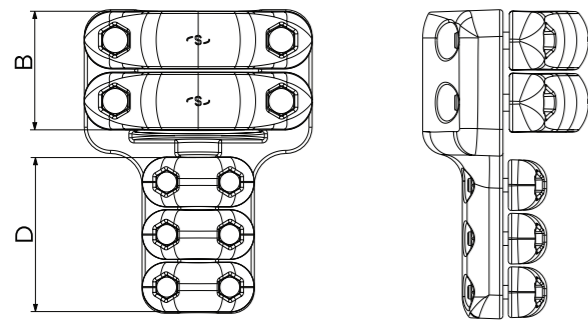
- Earthing stirrups for tube 55

Accessories

- Spacers 56
- End cap 57
- Corona end cap 59

Straight connector

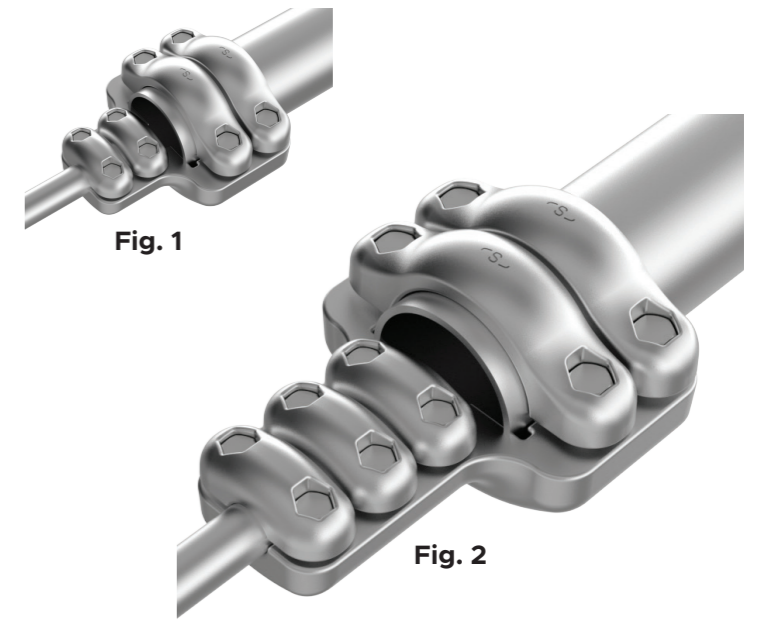
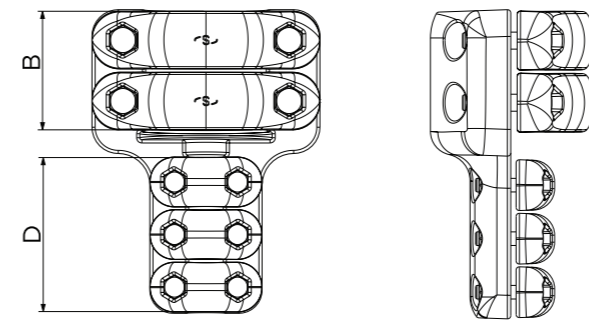
SS (tube-cable)



Up To 345 kV A2 - 70

Part number	Fig No	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	D inch (mm)	Bolts (tube) inch	Bolts (cable) inch
S6M03S100-240NSIX	1	2 (60,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S6M03S240-330NSIX	1	2 (60,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S6M03S330-420NSIX	1	2 (60,3 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S6M03S420-550NSIX	2	2 (60,3 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
S7M3S100-240NSIX	1	2 1/2 (73 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S7M3S240-330NSIX	1	2 1/2 (73 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S7M3S330-420NSIX	1	2 1/2 (73 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S7M3S420-550NSIX	2	2 1/2 (73 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
S8M9S100-240NSIX	1	3 (88,9 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S8M9S240-330NSIX	1	3 (88,9 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S8M9S330-420NSIX	1	3 (88,9 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S8M9S420-550NSIX	2	3 (88,9 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
S10M16S100-240NSIX	1	3 1/2 (101,6 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S10M16S240-330NSIX	1	3 1/2 (101,6 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)

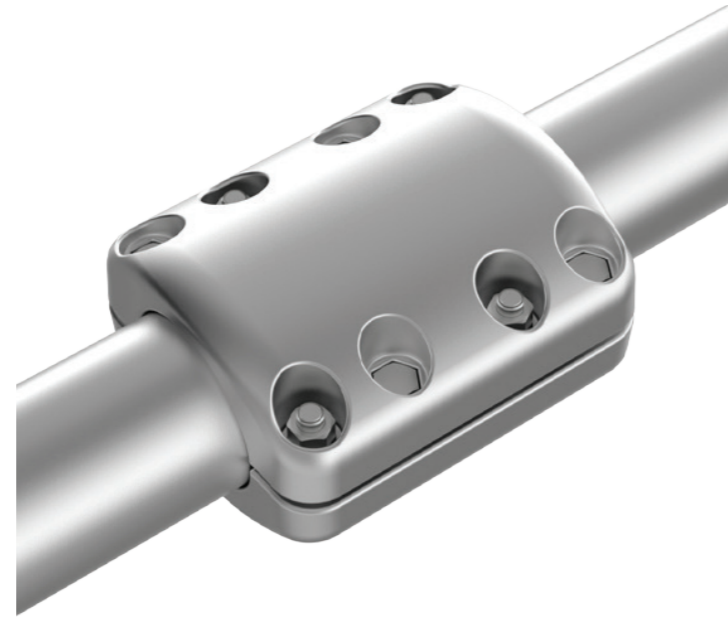
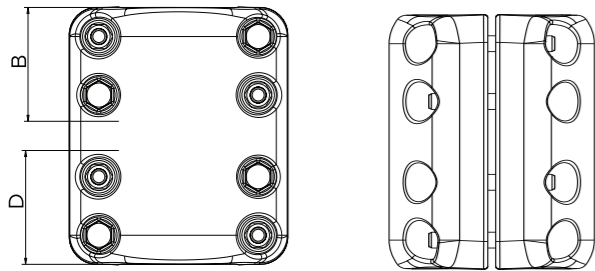
SS (tube-cable)



Up To 345 kV A2 - 70

Part number	Fig No	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	D inch (mm)	Bolts (tube) inch	Bolts (cable) inch
S10M16S330-420NSIX	1	3 1/2 (101,6 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S10M16S420-550NSIX	2	3 1/2 (101,6 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
S11M43S100-240NSIX	1	4 (114,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	4,57 (116)	3,23 (82)	5/8 (M16)	3/8 (M10)
S11M43S240-330NSIX	1	4 (114,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	4,57 (116)	3,93 (100)	5/8 (M16)	1/2 (M12)
S11M43S330-420NSIX	1	4 (114,3 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	4,57 (116)	3,93 (100)	5/8 (M16)	1/2 (M12)
S11M43S420-550NSIX	2	4 (114,3 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
S14M13S100-240NSIX	1	5 (141,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	4,57 (116)	3,23 (82)	5/8 (M16)	3/8 (M10)
S14M13S240-330NSIX	1	5 (141,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	4,57 (116)	3,93 (100)	5/8 (M16)	1/2 (M12)
S14M13S330-420NSIX	1	5 (141,3 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	4,57 (116)	3,93 (100)	5/8 (M16)	1/2 (M12)
S14M13S420-550NSIX	2	5 (141,3 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
S16M82S100-240NSIX	1	6 (168,2 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	4,57 (116)	3,23 (82)	5/8 (M16)	3/8 (M10)
S16M82S240-330NSIX	1	6 (168,2 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	4,57 (116)	3,93 (100)	5/8 (M16)	1/2 (M12)
S16M82S330-420NSIX	1	6 (168,2 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	4,57 (116)	3,93 (100)	5/8 (M16)	1/2 (M12)
S16M82S420-550NSIX	2	6 (168,2 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)

SS (tube-tube)



Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	Bolts inch
S6M03SZ2NSIX	2 (60,3 mm)	3,93 (100)	1/2 (M12)
S7M3SZ2NSIX	2 1/2 (73 mm)	3,93 (100)	1/2 (M12)
S8M9SZ2NSIX	3 (88,9 mm)	3,93 (100)	1/2 (M12)
S10M16SZ2NSIX	3 1/2 (101,6 mm)	3,93 (100)	1/2 (M12)
S11M43SZ2NSIX	4 (114,3 mm)	4,56 (116)	5/8 (M16)
S14M13SZ2NSIX	5 (141,3 mm)	4,56 (116)	5/8 (M16)
S16M8SZ2NSIX	6 (168,2 mm)	4,56 (116)	5/8 (M16)



T-Connector

ST (tube-cable)

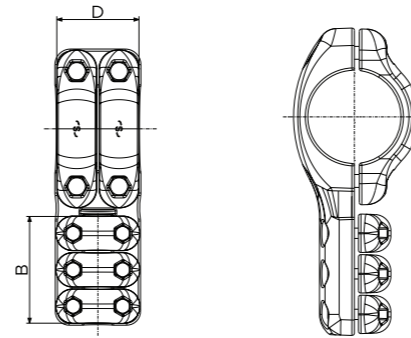


Fig. 1

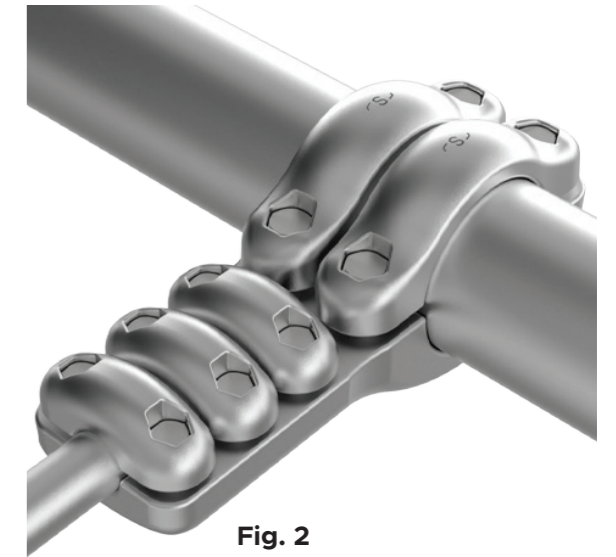


Fig. 2

Up To
345 kV

A2 - 70

Part number	Fig No	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	D inch (mm)	Bolts (cable) inch (mm)	Bolts (tube) inch (mm)
S100-240T6M03NSIX	1	2 (60,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S240-330T6M03NSIX	1	2 (60,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S330-420T6M03NSIX	1	2 (60,3 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S420-550T6M03NSIX	2	2 (60,3 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	3,93 (100)	1/2 (M12)	1/2 (M12)
S100-240T7M3NSIX	1	2 1/2 (73 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S240-330T7M3NSIX	1	2 1/2 (73 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S330-420T7M3NSIX	1	2 1/2 (73 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S420-550T7M3NSIX	2	2 1/2 (73 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	3,93 (100)	1/2 (M12)	1/2 (M12)
S100-240T8M9NSIX	1	3 (88,9 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S240-330T8M9NSIX	1	3 (88,9 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S330-420T8M9NSIX	1	3 (88,9 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S420-550T8M9NSIX	2	3 (88,9 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	3,93 (100)	1/2 (M12)	1/2 (M12)
S100-240T10M16NSIX	1	3 1/2 (101,6 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S240-330T10M16NSIX	1	3 1/2 (101,6 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)

ST (tube-cable)

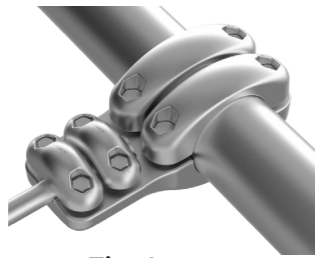
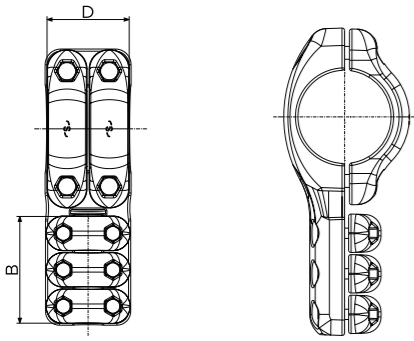


Fig. 1

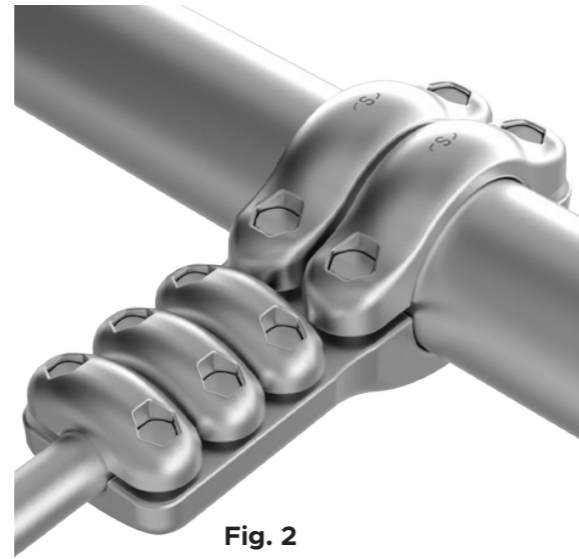
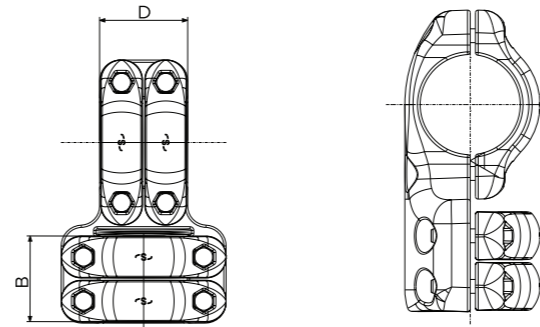


Fig. 2

Up To
345 kV

A2 - 70

ST (tube-tube)



Up To
500 kV

A2 - 70

Part number	Fig No	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	D inch (mm)	Bolts (cable) inch (mm)	Bolts (tube) inch (mm)
S330-420T10M16NSIX	1	3 1/2 (101,6 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S420-550T10M16NSIX	2	3 1/2 (101,6 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	3,93 (100)	1/2 (M12)	1/2 (M12)
S100-240T11M43NSIX	1	4 (114,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	4,57 (116)	3/8 (M10)	5/8 (M16)
S240-330T11M43NSIX	1	4 (114,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,57 (116)	1/2 (M12)	5/8 (M16)
S330-420T11M43NSIX	1	4 (114,3 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,57 (116)	1/2 (M12)	5/8 (M16)
S420-550T11M43NSIX	2	4 (114,3 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	4,57 (116)	1/2 (M12)	5/8 (M16)
S100-240T14M13NSIX	1	5 (141,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	4,57 (116)	3/8 (M10)	5/8 (M16)
S240-330T14M13NSIX	1	5 (141,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,57 (116)	1/2 (M12)	5/8 (M16)
S330-420T14M13NSIX	1	5 (141,3 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,57 (116)	1/2 (M12)	5/8 (M16)
S420-550T14M13NSIX	2	5 (141,3 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	4,57 (116)	1/2 (M12)	5/8 (M16)
S100-240T16M8NSIX	1	6 (168,2 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	4,57 (116)	3/8 (M10)	5/8 (M16)
S240-330T16M8NSIX	1	6 (168,2 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,57 (116)	1/2 (M12)	5/8 (M16)
S330-420T16M8NSIX	1	6 (168,2 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,57 (116)	1/2 (M12)	5/8 (M16)
S420-550T16M8NSIX	2	6 (168,2 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	4,57 (116)	1/2 (M12)	5/8 (M16)

Part number	Pipe main IPS inch (mm)	Pipe tap IPS inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	Bolts inch
S6M03TNSIX	2 (60,3 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S7M3TNSIX	2 1/2 (73 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S8M9TNSIX	3 (88,9 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S10M16TNSIX	3 1/2 (101,6 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S11M43TNSIX	4 (114,3 mm)	4 (114,3 mm)	4,57 (116)	4,57 (116)	4,57 (116)	5/8 (M16)
S14M13TNSIX	5 (141,3 mm)	5 (141,3 mm)	4,57 (116)	4,57 (116)	4,57 (116)	5/8 (M16)
S16M8TNSIX	6 (168,2 mm)	6 (168,2 mm)	4,57 (116)	4,57 (116)	4,57 (116)	5/8 (M16)



ST (cable-cable)

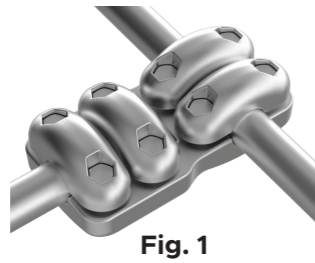
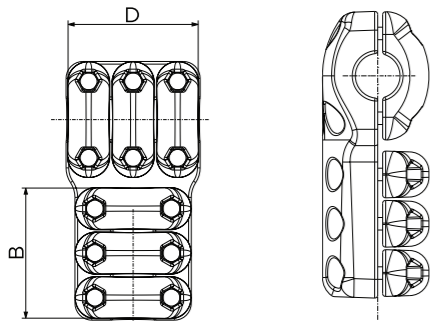


Fig. 1

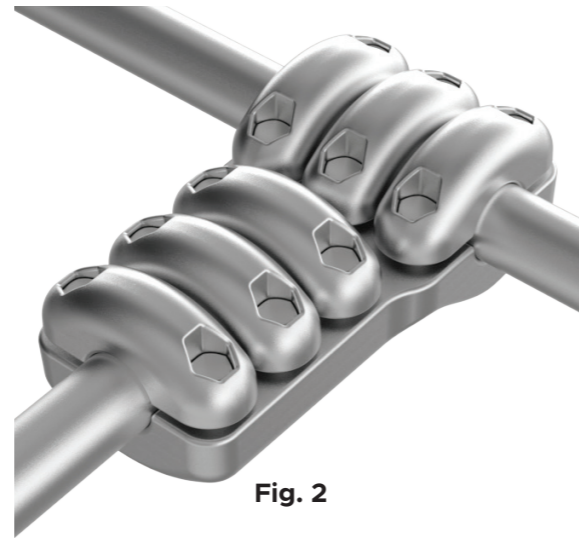


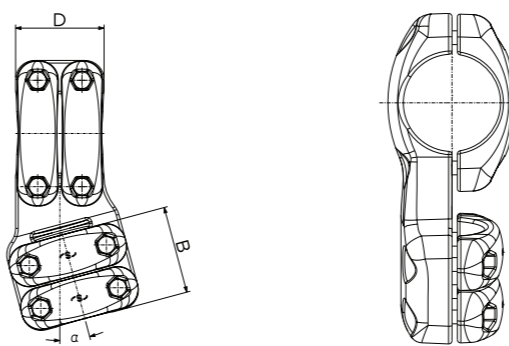
Fig. 2

Up To
345 kV

A2 - 70

Part number	Fig No	Cable tap inch (mm)	Cable main inch (mm)	B inch (mm)	D inch (mm)	Bolts (tap) inch	Bolts (main) inch
S110-240T100-240NSIX	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,23 (82)	3/8 (M10)	3/8 (M10)
S110-240T240-330NSIX	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S110-240T330-420NSIX	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S110-240T420-550NSIX	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,23 (82)	3,93 (100)	3/8 (M10)	1/2 (M12)
S240-330T240-330NSIX	1	700MCM (24,48 mm) - 1250MCM (32,7 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S240-330T330-420NSIX	1	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S240-330T420-550NSIX	1	700MCM (24,48 mm) - 1250MCM (32,7 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S330-420T330-420NSIX	1	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S330-420T420-550NSIX	1	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)
S420-550T420-550NSIX	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,90 (150)	5,90 (150)	1/2 (M12)	1/2 (M12)

STK

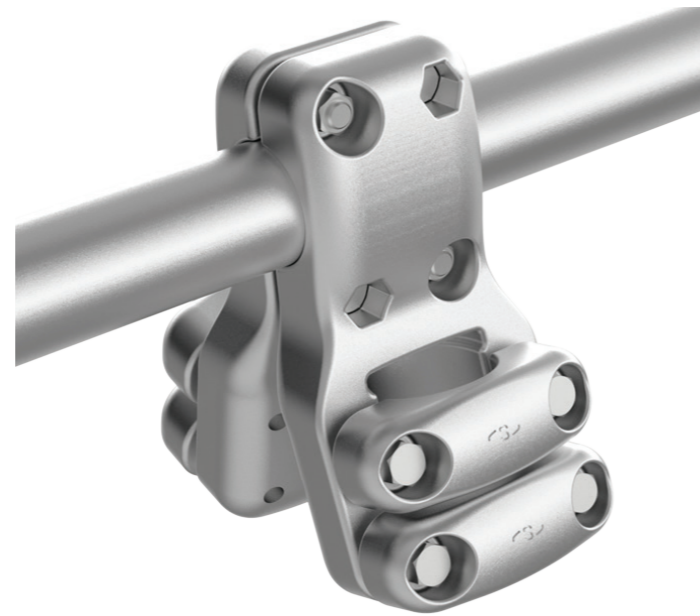
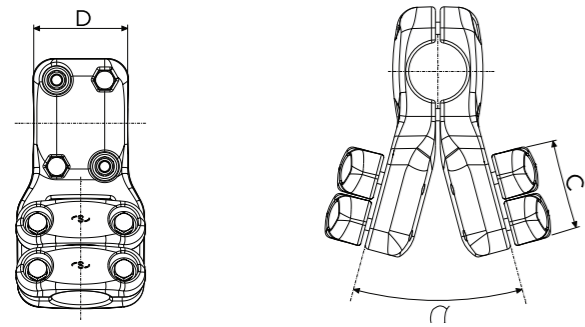


Up To
500 kV

A2 - 70

Part number	Pipe main IPS inch (mm)	Pipe tap IPS inch (mm)	B inch (mm)	D inch (mm)	inch	Bolts (main) inch	α
S6M03THNSIX	2 (60,3 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH7M3NSIX	2 1/2 (73 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S7M3THNSIX	2 1/2 (73 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH8M9NSIX	3 (88,9 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S7M3TH8M9NSIX	3 (88,9 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S8M9THNSIX	3 (88,9 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH10M16NSIX	3 1/2 (101,6 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S7M3TH10M16NSIX	3 1/2 (101,6 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S8M9TH10M16NSIX	3 1/2 (101,6 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH11M43NSIX	4 (114,3 mm)	2 (60,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	10
S7M3TH11M43NSIX	4 (114,3 mm)	2 1/2 (73 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	10
S8M9TH11M43NSIX	4 (114,3 mm)	3 (88,9 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	10
S11M43THNSIX	4 (114,3 mm)	4 (114,3 mm)	4,56 (116)	4,56 (116)	5/8 (M16)	5/8 (M16)	10

SATJ



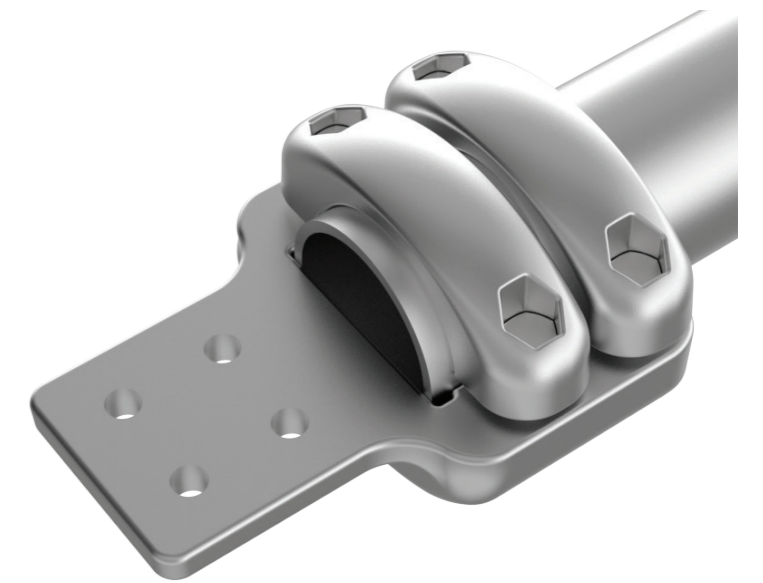
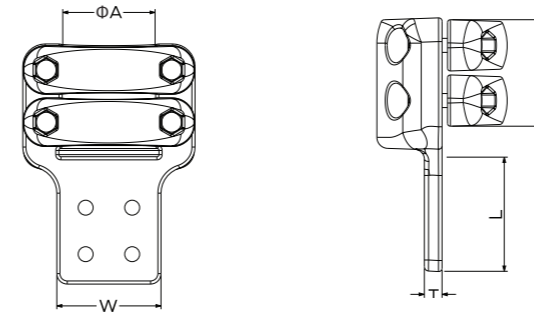
Up To
500 kV

A2 - 70

Part number	Pipe main IPS inch (mm)	Pipe tap IPS inch (mm)	C inch (mm)	D inch (mm)	Bolts (main) inch	Bolts (tap) inch	α
S6M03ATJNSIX	2 (60,3 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ7M3NSIX	2 (60,3 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ8M9NSIX	2 (60,3 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ10M16NSIX	2 (60,3 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S7M3ATJ10M16NSIX	2 1/2 (73 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S8M9ATJ10M16NSIX	3 (88,9 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ11M43NSIX	2 (60,3 mm)	4 (114,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	30
S7M3ATJ11M43NSIX	2 1/2 (73 mm)	4 (114,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	30
S8M9ATJ11M43NSIX	3 (88,9 mm)	4 (114,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	30

Straight terminal

SA (tube)



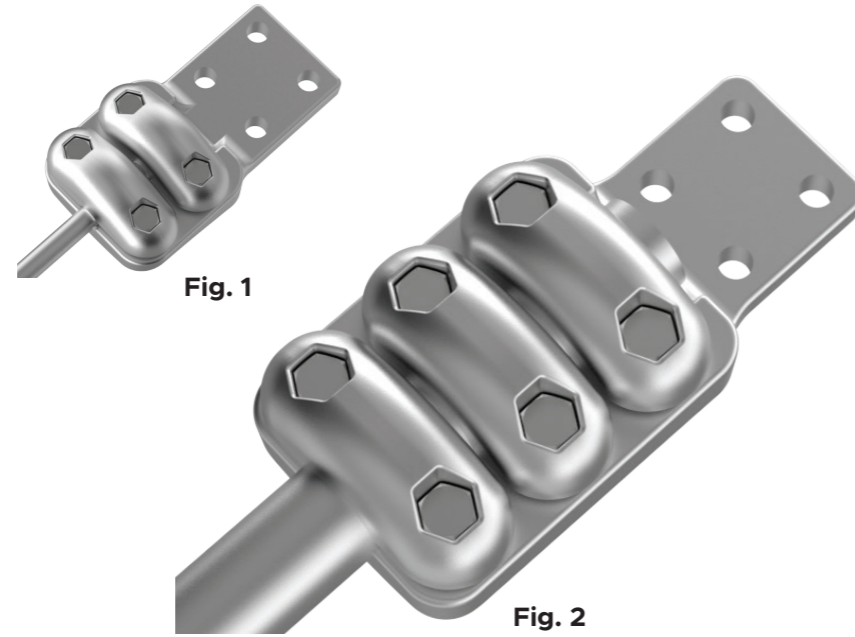
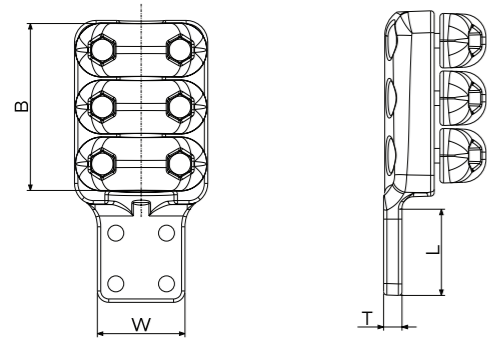
Up To
500 kV

A2 - 70

Part number	Pad type	Pipe size IPS inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
S6M03AC2NSIX	1	2 (60,3 mm)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	1520
S6M03AC3NSIX	2	2 (60,3 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2000
S6M03AC44NSIX	2	2 (60,3 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S7M3AC2NSIX	1	2 1/2 (73 mm)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	2000
S7M3AC3NSIX	2	2 1/2 (73 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2000
S7M3AC44NSIX	2	2 1/2 (73 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S8M9AC2NSIX	1	3 (88,9 mm)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	2000
S8M9AC3NSIX	2	3 (88,9 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2000
S8M9AC44NSIX	2	3 (88,9 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S10M16AC2NSIX	1	3 1/2 (101,6 mm)	3,93 (100)	3 (76)	2 (50,8)	0,98 (25)	1/2 (M12)	2500
S10M16AC3NSIX	2	3 1/2 (101,6 mm)	3,93 (100)	3 (76)	3 (76)	0,98 (25)	1/2 (M12)	2500
S10M16AC44NSIX	2	3 1/2 (101,6 mm)	3,93 (100)	4 (102)	4 (102)	0,98 (25)	1/2 (M12)	2500
S11M43AC3NSIX	2	4 (114,3 mm)	4,56 (116)	3 (76)	3 (76)	0,98 (25)	5/8 (M16)	2500
S11M43AC44NSIX	2	4 (114,3 mm)	4,56 (116)	4 (102)	4 (102)	0,98 (25)	5/8 (M16)	2500
S14M13AC3NSIX	2	5 (141,3 mm)	4,56 (116)	3 (76)	3 (76)	0,98 (25)	5/8 (M16)	2500
S14M13AC44NSIX	2	5 (141,3 mm)	4,56 (116)	4 (102)	4 (102)	0,98 (25)	5/8 (M16)	2500
S16M8AC3NSIX	2	6 (168,2 mm)	4,56 (116)	3 (76)	3 (76)	0,98 (25)	5/8 (M16)	2500
S16M8AC44NSIX	2	6 (168,2 mm)	4,56 (116)	4 (102)	4 (102)	0,98 (25)	5/8 (M16)	2500

Straight terminal

SA (cable)



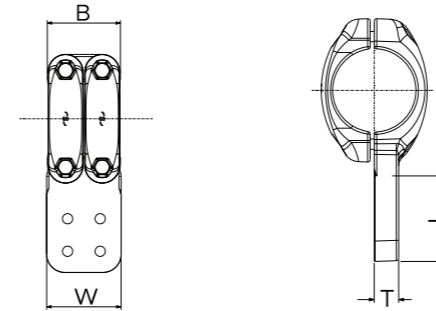
Up To
345 kV

A2 - 70

Part number	Fig No	Pad type	Cable inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
S100-240A2NSIX	1	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3 (76)	2 (50,8)	0,63 (16)	3/8 (M10)	816
S100-240A3NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3 (76)	3 (76)	0,63 (16)	3/8 (M10)	1216
S100-240A44NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	4 (102)	4 (102)	0,63 (16)	3/8 (M10)	1632
S240-330A2NSIX	1	1	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	2 (50,8)	0,63 (16)	1/2 (M12)	800
S240-330A3NSIX	1	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	3 (76)	0,63 (16)	1/2 (M12)	1200
S240-330A44NSIX	1	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4 (102)	4 (102)	0,63 (16)	1/2 (M12)	1632
S330-420A2NSIX	1	1	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3 (76)	2 (50,8)	0,63 (16)	1/2 (M12)	800
S330-420A3NSIX	1	2	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3 (76)	3 (76)	0,63 (16)	1/2 (M12)	1200
S330-420A44NSIX	1	2	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	4 (102)	4 (102)	0,63 (16)	1/2 (M12)	1632
S420-550A3NSIX	2	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,88 (150)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	1520
S420-550A44NSIX	2	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,88 (150)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2040

T-Terminal

SF (tube)

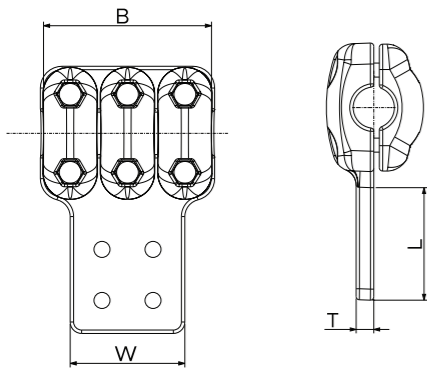


Up To
500 kV

A2 - 70

Part number	Pad type	Pipe size IPS inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
S6M03FC2NSIX	1	2 (60,3 mm)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	2000
S6M03FC3NSIX	2	2 (60,3 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2000
S6M03FC44NSIX	2	2 (60,3 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S7M3FC2NSIX	1	2 1/2 (73 mm)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	2000
S7M3FC3NSIX	2	2 1/2 (73 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2000
S7M3FC44NSIX	2	2 1/2 (73 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S8M9FC2NSIX	1	3 (88,9 mm)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	2000
S8M9FC3NSIX	2	3 (88,9 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2000
S8M9FC44NSIX	2	3 (88,9 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S10M16FC3NSIX	2	3 1/2 (101,6 mm)	3,93 (100)	3 (76)	3 (76)	0,98 (25)	1/2 (M12)	2500
S10M16FC44NSIX	2	3 1/2 (101,6 mm)	3,93 (100)	4 (102)	4 (102)	0,98 (25)	1/2 (M12)	2500
S11M43FC3NSIX	2	4 (114,3 mm)	4,56 (116)	3 (76)	3 (76)	0,98 (25)	5/8 (M16)	2500
S11M43FC44NSIX	2	4 (114,3 mm)	4,56 (116)	4 (102)	4 (102)	0,98 (25)	5/8 (M16)	2500
S14M13FC3NSIX	2	5 (141,3 mm)	4,56 (116)	3 (76)	3 (76)	0,98 (25)	5/8 (M16)	2500
S14M13FC44NSIX	2	5 (141,3 mm)	4,56 (116)	4 (102)	4 (102)	0,98 (25)	5/8 (M16)	2500
S16M8FC3NSIX	2	6 (168,2 mm)	4,56 (116)	3 (76)	3 (76)	0,98 (25)	5/8 (M16)	2500
S16M8FC44NSIX	2	6 (168,2 mm)	4,56 (116)	4 (102)	4 (102)	1,18 (30)	5/8 (M16)	3000

SF (cable)



Up To 345 kV

A2 - 70

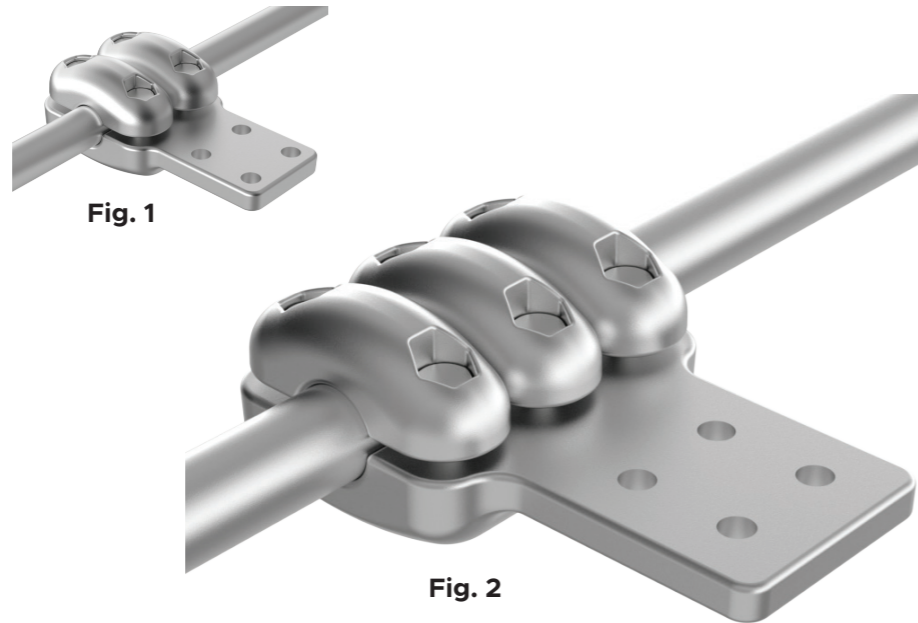


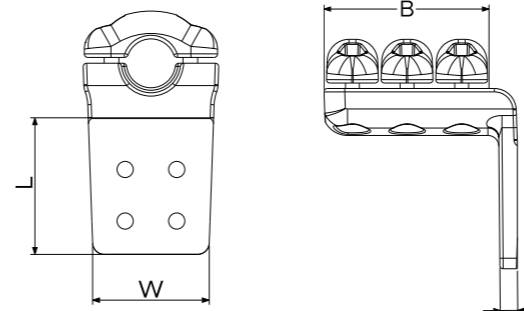
Fig. 1

Fig. 2

Part number	Fig No	Pad type	Cable inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
S100-240FC2NSIX	1	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3 (76)	2 (50,8)	0,63 (16)	3/8 (M10)	816
S100-240FC3NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3 (76)	3 (76)	0,63 (16)	3/8 (M10)	1216
S100-240FC44NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	4 (102)	4 (102)	0,63 (16)	3/8 (M10)	1632
S240-330FC2NSIX	1	1	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	2 (50,8)	0,63 (16)	1/2 (M12)	800
S240-330FC3NSIX	1	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	3 (76)	0,63 (16)	1/2 (M12)	1200
S240-330FC44NSIX	1	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4 (102)	4 (102)	0,63 (16)	1/2 (M12)	1632
S330-420FC2NSIX	1	1	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3 (76)	2 (50,8)	0,63 (16)	1/2 (M12)	800
S330-420FC3NSIX	1	2	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3 (76)	3 (76)	0,63 (16)	1/2 (M12)	1200
S330-420FC44NSIX	1	2	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	4 (102)	4 (102)	0,63 (16)	1/2 (M12)	1632
S420-550FC3NSIX	2	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,88 (150)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	1520
S420-550FC44NSIX	2	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,88 (150)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2040

Angle terminal

SAK (cable)



Up To 345 kV

A2 - 70

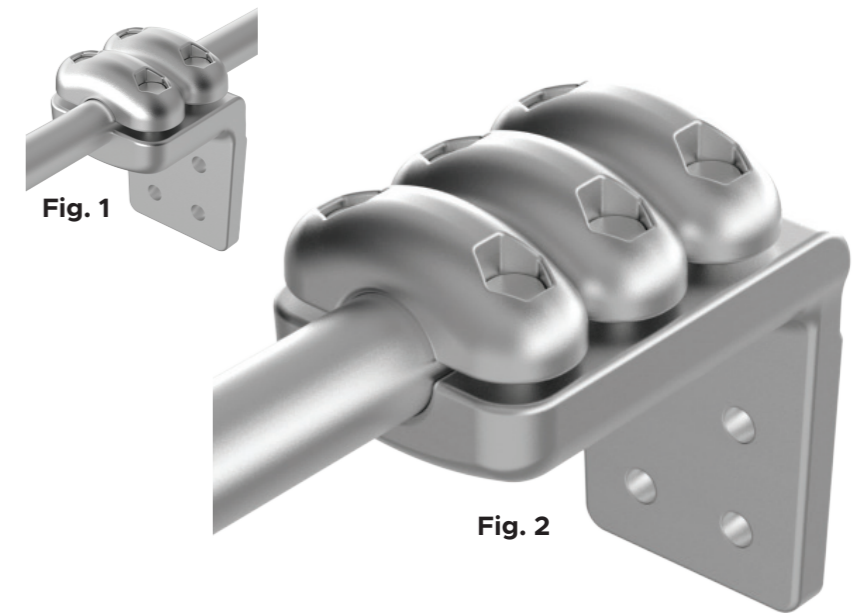


Fig. 1

Fig. 2

Part number	Fig No	Pad type	Cable inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
S100-240AL2NSIX	1	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3 (76)	2 (50,8)	0,63 (16)	3/8 (M10)	816
S100-240AL3NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3 (76)	3 (76)	0,63 (16)	3/8 (M10)	1216
S100-240AL44NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	4 (102)	4 (102)	0,63 (16)	3/8 (M10)	1632
S240-330AL2NSIX	1	1	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	2 (50,8)	0,63 (16)	1/2 (M12)	800
S240-330AL3NSIX	1	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	3 (76)	0,63 (16)	1/2 (M12)	1200
S240-330AL44NSIX	1	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4 (102)	4 (102)	0,63 (16)	1/2 (M12)	1632
S330-420AL2NSIX	1	1	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3 (76)	2 (50,8)	0,63 (16)	1/2 (M12)	800
S330-420AL3NSIX	1	2	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	3 (76)	3 (76)	0,63 (16)	1/2 (M12)	1200
S330-420AL44NSIX	1	2	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	3,93 (100)	4 (102)	4 (102)	0,63 (16)	1/2 (M12)	1632
S420-550AL3NSIX	2	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,88 (150)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	1520
S420-550AL44NSIX	2	2	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	5,88 (150)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2040

Straight connector

SSD (stud/tube-cable)

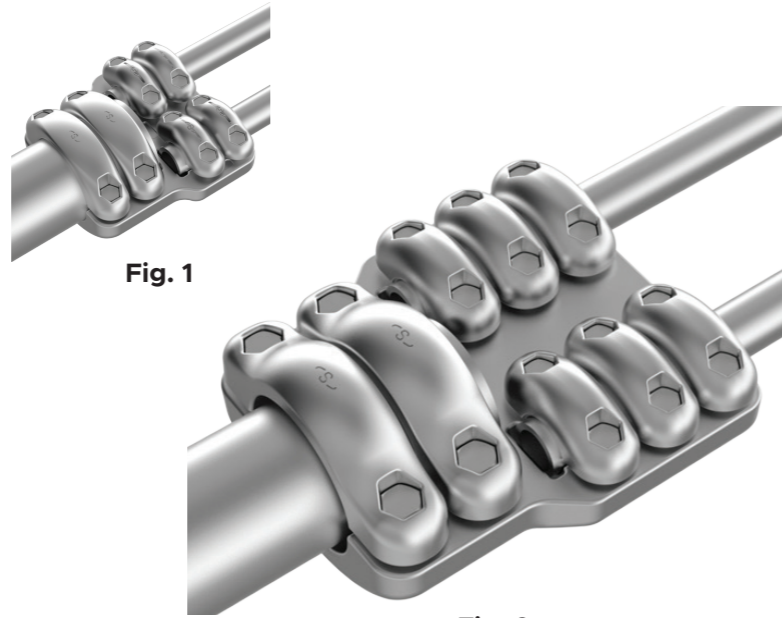
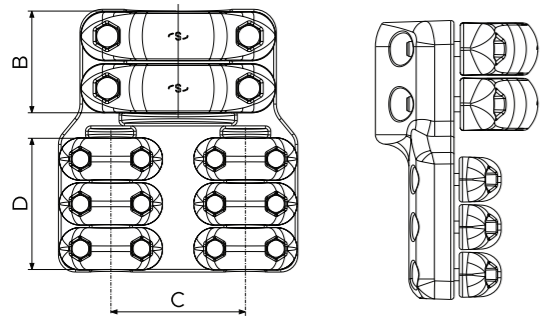


Fig. 1

Fig. 2

Up To 345 kV

A2 - 70

Part number	Fig No	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	Bolts (tube) inch	Bolts (cable) inch
S6M03S100-240D2NSIX	1	2 (60,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S6M03S240-330D2NSIX	1	2 (60,3 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)
S6M03S330-420D2NSIX	1	2 (60,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S6M03S420-550D2NSIX	2	2 (60,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)
S7M3S100-240D2NSIX	1	2 1/2 (73 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S7M3S240-330D2NSIX	1	2 1/2 (73 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)
S7M3S330-420D2NSIX	1	2 1/2 (73 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S7M3S420-550D2NSIX	2	2 1/2 (73 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)
S8M9S100-240D2NSIX	1	3 (88,9 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S8M9S240-330D2NSIX	1	3 (88,9 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)
S8M9S330-420D2NSIX	1	3 (88,9 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S8M9S420-550D2NSIX	2	3 (88,9 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)
S10M16S100-240D2NSIX	1	3 1/2 (101,6 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S10M16S240-330D2NSIX	1	3 1/2 (101,6 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)

SSD (stud/tube-cable)

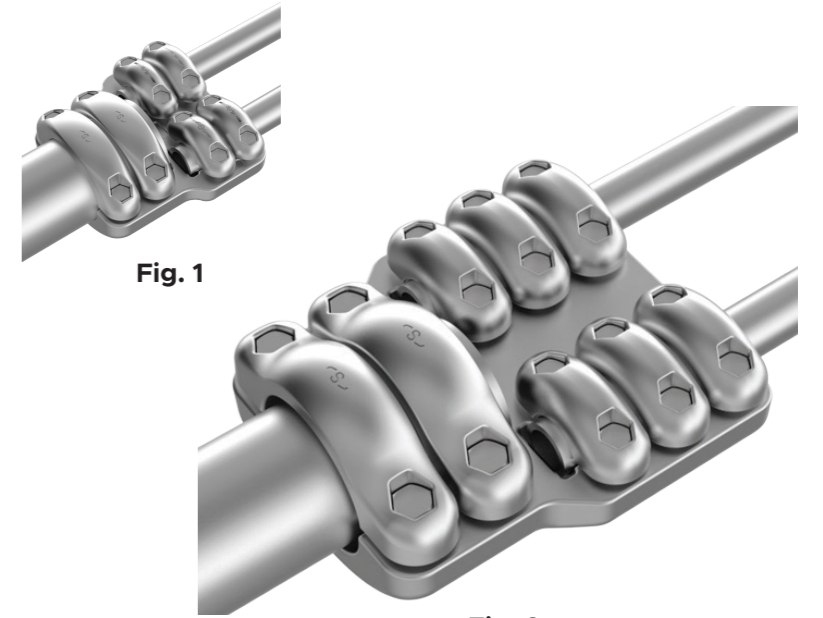
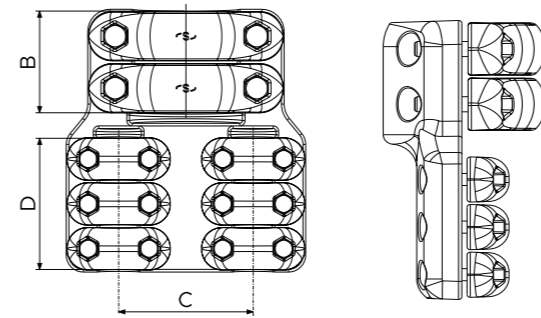


Fig. 1

Fig. 2

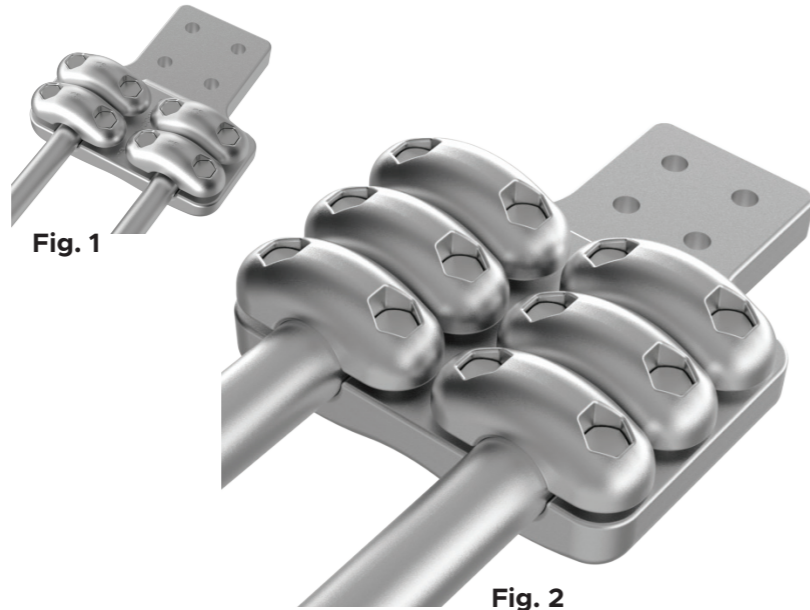
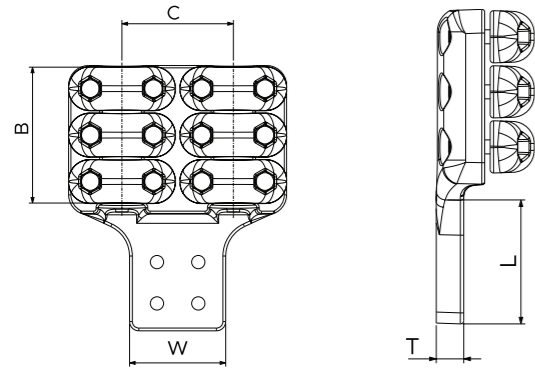
Up To 345 kV

A2 - 70

Part number	Fig No	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	Bolts (tube) inch	Bolts (cable) inch
S10M16S330-420D2NSIX	1	3 1/2 (101,6 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S10M16S420-550D2NSIX	2	3 1/2 (101,6 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)
S11M43S100-240D2NSIX	1	4 (114,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,93 (100)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S11M43S240-330D2NSIX	1	4 (114,3 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,93 (100)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)
S11M43S330-420D2NSIX	1	4 (114,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S11M43S420-550D2NSIX	2	4 (114,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)
S14M13S100-240D2NSIX	1	5 (141,3 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	4,57 (116)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S14M13S240-330D2NSIX	1	5 (141,3 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	4,57 (116)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)
S14M13S330-420D2NSIX	1	5 (141,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	4,57 (116)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S14M13S420-550D2NSIX	2	5 (141,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)
S16M82S100-240D2NSIX	1	6 (168,2 mm)	1/0 (9,36 mm) - 650MCM (23,58 mm)	4,57 (116)	3,93 (100)	3,23 (82)	1/2 (M12)	3/8 (M10)
S16M82S240-330D2NSIX	1	6 (168,2 mm)	650MCM (23,58 mm) - 1250MCM (32,7 mm)	4,57 (116)	4,33 (110)	3,93 (100)	1/2 (M12)	1/2 (M12)
S16M82S330-420D2NSIX	1	6 (168,2 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	4,57 (116)	4,72 (120)	3,93 (100)	1/2 (M12)	1/2 (M12)
S16M82S420-550D2NSIX	2	6 (168,2 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,31 (135)	5,90 (150)	1/2 (M12)	1/2 (M12)

Straight terminal

SDA (cable)



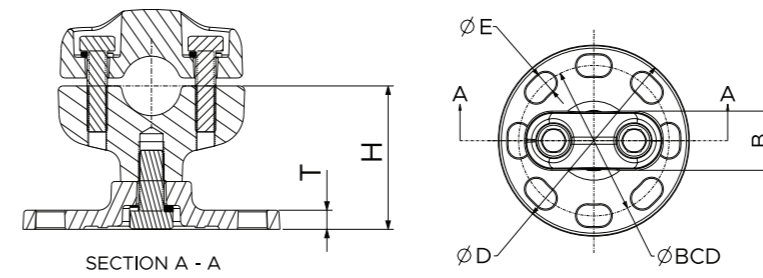
Up To
345 kV

A2 - 70

Part number	Fig No	Pad type	Cable inch (mm)	B inch (mm)	C inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
S100-240D2A2NSIX	1	1	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	3 (76)	2 (50,8)	0,79 (20)	3/8 (M10)	1520
S100-240D2A3NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	3/8 (M10)	1520
S100-240D2A44NSIX	1	2	1/0 (9,36 mm) - 650MCM (23,58 mm)	3,23 (82)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S240-330D2A2NSIX	1	1	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,9 (100)	4,33 (110)	3 (76)	2 (50,8)	0,79 (20)	1/2 (M12)	1520
S240-330D2A3NSIX	1	2	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,9 (100)	4,33 (110)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	1520
S240-330D2A44NSIX	1	2	650MCM (23,58 mm) - 1250MCM (32,7 mm)	3,9 (100)	4,33 (110)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
S330-420D2A2NSIX	1	1	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,9 (100)	4,72 (120)	3 (76)	2 (50,8)	0,98 (25)	1/2 (M12)	1520
S330-420D2A3NSIX	1	2	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,9 (100)	4,72 (120)	3 (76)	3 (76)	0,98 (25)	1/2 (M12)	1520
S330-420D2A44NSIX	1	2	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,9 (100)	4,72 (120)	4 (102)	4 (102)	0,98 (25)	1/2 (M12)	2000
S420-550D2A3NSIX	2	2	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	5,31 (135)	3 (76)	3 (76)	0,98 (25)	1/2 (M12)	2000
S420-550D2A44NSIX	2	2	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	5,31 (135)	4 (102)	4 (102)	0,98 (25)	1/2 (M12)	2000

Support for cable

SLHB (cable)

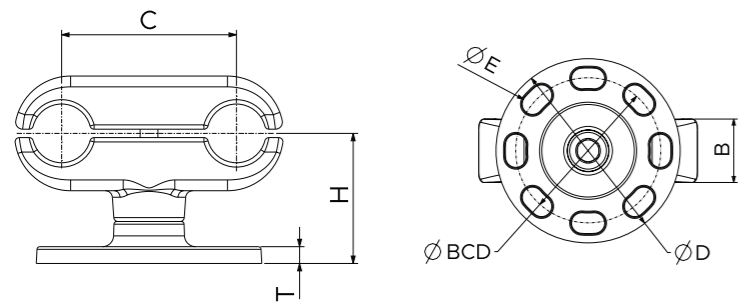


Up To
345 kV

A2 - 70

Part number	Cable inch (mm)	B inch (mm)	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	Bolts inch
SLH100-240B3NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,97 (50)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	3/8 (M10)
SLH100-240B5NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,97 (50)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	3/8 (M10)
SLH240-330B3NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1,97 (50)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SLH240-330B5NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1,97 (50)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SLH330-420B3NSIX	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1,97 (50)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SLH330-420B5NSIX	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1,97 (50)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SLH420-550B3NSIX	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	1,97 (50)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SLH420-550B5NSIX	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	1,97 (50)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)

SLHDB (cable)



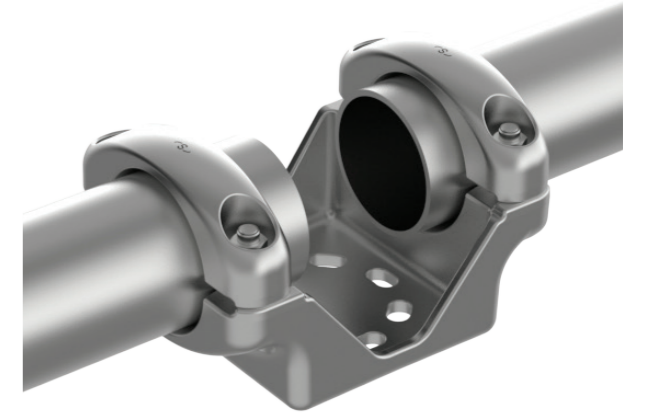
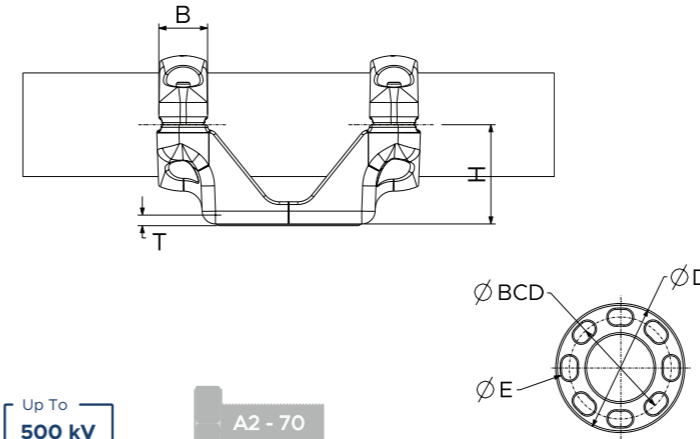
Up To
345 kV

A2 - 70

Part number	Cable inch (mm)	B inch (mm)	C inch (mm)	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	Bolts inch
SLH100-240D2B3NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,61 (41)	3,93 (100)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	3/8 (M10)
SLH100-240D2B5NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,61 (41)	3,93 (100)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	3/8 (M10)
SLH240-330D2B3NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1,97 (50)	4,33 (110)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SLH240-330D2B5NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1,97 (50)	4,33 (110)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SLH330-420D2B3NSIX	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1,97 (50)	4,92 (125)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SLH330-420D2B5NSIX	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1,97 (50)	4,92 (125)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SLH420-550D2B3NSIX	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	1,97 (50)	4,92 (125)	3,54 (90)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SLH420-550D2B5NSIX	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	1,97 (50)	4,92 (125)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)

Support for tube

SXHB



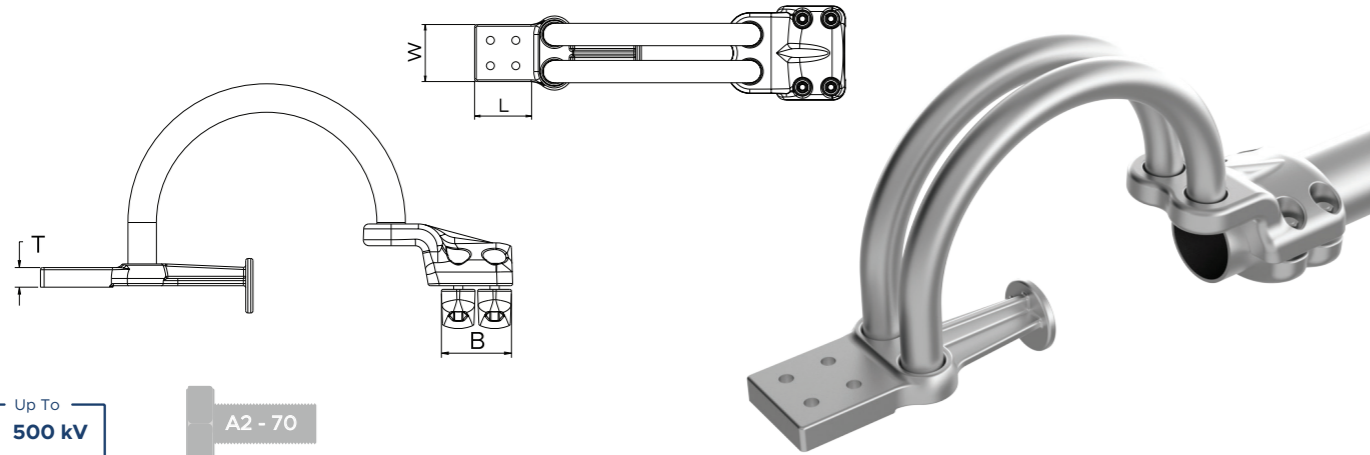
Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	Bolts inch (mm)
SXH6M03B3G70NSIX	2 (60,3 mm)	1,97 (50)	2,75 (70)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH6M03B5G70NSIX	2 (60,3 mm)	1,97 (50)	2,75 (70)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH6M03B7G70NSIX	2 (60,3 mm)	1,97 (50)	2,75 (70)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH7M3B3G80NSIX	2 1/2 (73 mm)	1,97 (50)	3,125 (80)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH7M3B5G80NSIX	2 1/2 (73 mm)	1,97 (50)	3,125 (80)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH7M3B7G80NSIX	2 1/2 (73 mm)	1,97 (50)	3,125 (80)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH8M9B3G92NSIX	3 (88,9 mm)	1,97 (50)	3,62 (92)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH8M9B5G92NSIX	3 (88,9 mm)	1,97 (50)	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH8M9B7G92NSIX	3 (88,9 mm)	1,97 (50)	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH10M16B3G102NSIX	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH10M16B5G102NSIX	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH10M16B7G102NSIX	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	1/2 (M12)
SXH11M43B3G114NSIX	4 (114,3 mm)	2,28 (58)	4,48 (114)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	5/8 (M16)
SXH11M43B5G114NSIX	4 (114,3 mm)	2,28 (58)	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH11M43B7G114NSIX	4 (114,3 mm)	2,28 (58)	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH14M13B3G127NSIX	5 (141,3 mm)	2,28 (58)	5 (127)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	5/8 (M16)
SXH14M13B5G127NSIX	5 (141,3 mm)	2,28 (58)	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH14M13B7G127NSIX	5 (141,3 mm)	2,28 (58)	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH16M8B3G140NSIX	6 (168,2 mm)	2,28 (58)	5,51 (140)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	5/8 (M16)
SXH16M8B5G140NSIX	6 (168,2 mm)	2,28 (58)	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH16M8B7G140NSIX	6 (168,2 mm)	2,28 (58)	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	5/8 (M16)

Straight expansion terminal

SXA



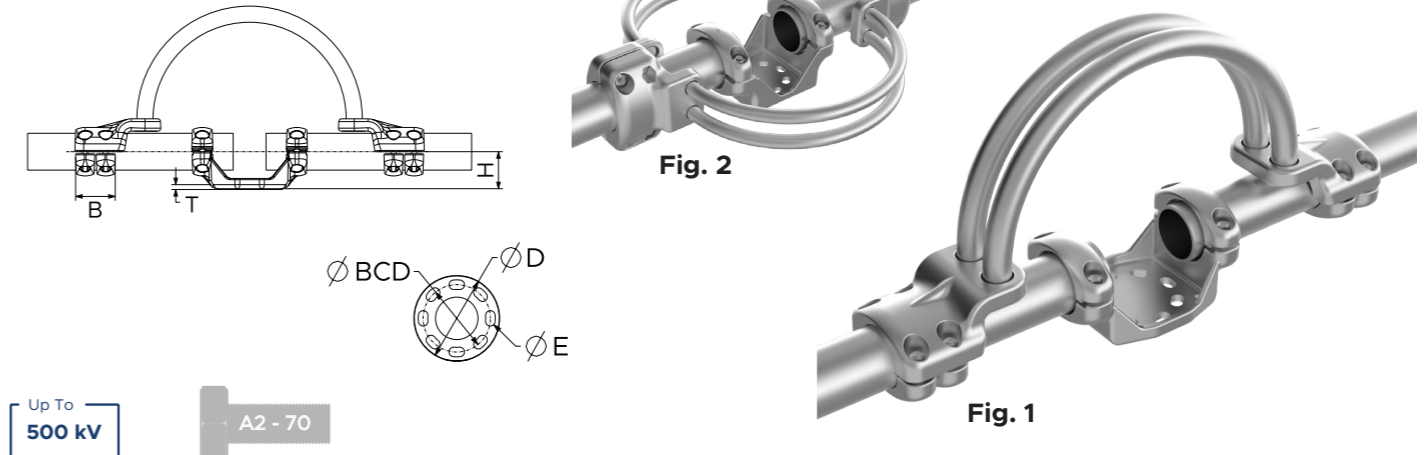
Up To
500 kV

A2 - 70

Part number	Pad type	Pipe size IPS inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
S6M03XA3NC2NSIX	1	2 (60,3 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,24 (31,7)	1/2 (M12)	2000
S6M03XA44NC2NSIX	2	2 (60,3 mm)	1,97 (50)	4 (102)	4 (102)	0,78 (20)	2	1,24 (31,7)	1/2 (M12)	2000
S7M3XA3NC2NSIX	1	2 1/2 (73 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,24 (31,7)	1/2 (M12)	2000
S7M3XA44NC2NSIX	2	2 1/2 (73 mm)	1,97 (50)	4 (102)	4 (102)	0,78 (20)	2	1,24 (31,7)	1/2 (M12)	2000
S8M9XA3ND2NSIX	1	3 (88,9 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S8M9XA44ND2NSIX	2	3 (88,9 mm)	1,97 (50)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S10M16XA3ND2NSIX	1	3 1/2 (101,6 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S10M16XA44ND2NSIX	2	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S10M16XA6ND2NSIX	3	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	6 (152)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S11M43XA3ND2NSIX	1	4 (114,3 mm)	4,57 (116)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S11M43XA44ND2NSIX	2	4 (114,3 mm)	4,57 (116)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S11M43XA6ND3NSIX	3	4 (114,3 mm)	4,57 (116)	4 (102)	6 (152)	1 (25)	3	1,54 (39,2)	5/8 (M16)	3800
S14M13XA3ND2NSIX	1	5 (141,3 mm)	4,57 (116)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S14M13XA44ND2NSIX	2	5 (141,3 mm)	4,57 (116)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S14M13XA6ND3NSIX	3	5 (141,3 mm)	4,57 (116)	4 (102)	6 (152)	1 (25)	3	1,54 (39,2)	5/8 (M16)	3800
S16M8XA3ND2NSIX	1	6 (168,2 mm)	4,57 (116)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S16M8XA44ND2NSIX	2	6 (168,2 mm)	4,57 (116)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S16M8XA6ND3NSIX	3	6 (168,2 mm)	4,57 (116)	4 (102)	6 (152)	1 (25)	3	1,54 (39,2)	5/8 (M16)	3800

Straight expansion support

SXHSB

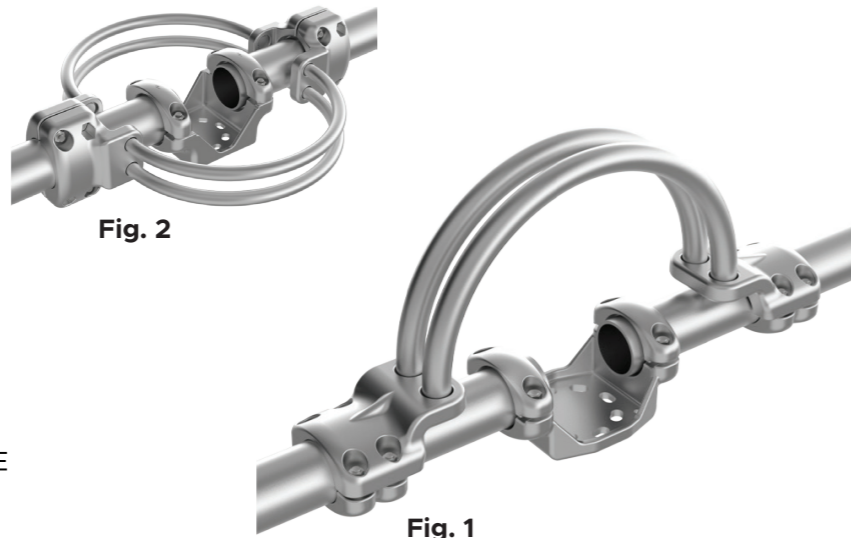
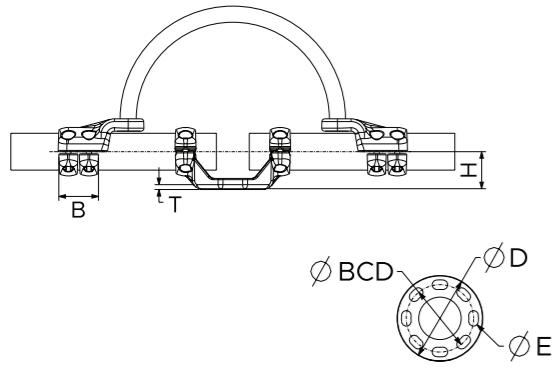


Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
SXH6M03SB3C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
SXH6M03SB5C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
SXH6M03SB7C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
SXH7M3SB3D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH7M3SB5D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH7M3SB7D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH8M9SB5D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH8M9SB5E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
SXH8M9SB7D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400
SXH8M9SB7E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
SXH10M16SB5D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH10M16SB5E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
SXH10M16SB7D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400

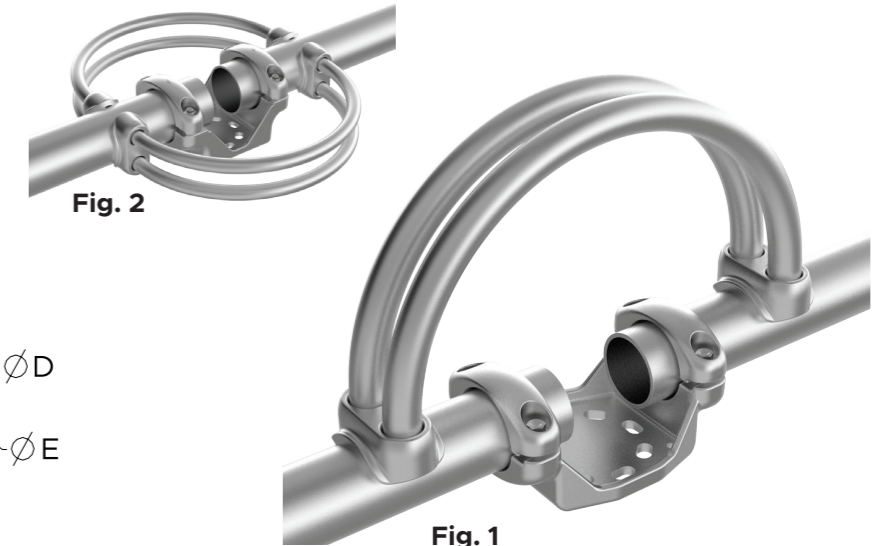
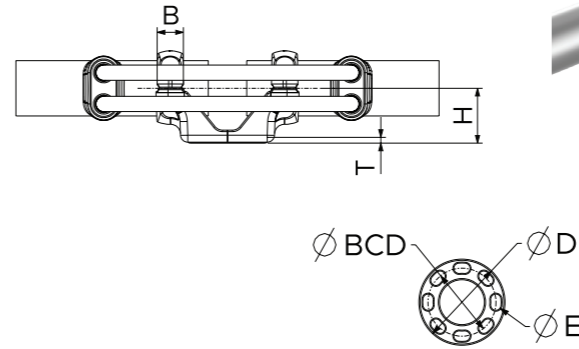
SXH5B



Up To
500 kV

A2 - 70

WSXH5B



Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
SXH10M16SB7E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
SXH11M43SB5D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	5/8 (M16)	3200
SXH11M43SB5C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
SXH11M43SB7D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	5/8 (M16)	3200
SXH11M43SB7C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
SXH14M13SB5C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
SXH14M13SB5D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
SXH14M13SB7C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
SXH14M13SB7D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
SXH16M8SB5D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
SXH16M8SB5E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,76 (44,8)	5/8 (M16)	6000
SXH16M8SB7D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
SXH16M8SB7E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,76 (44,8)	5/8 (M16)	6000

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
WSXH6M03SB3C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
WSXH6M03SB5C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
WSXH6M03SB7C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
WSXH7M3SB3D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH7M3SB5D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH7M3SB7D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH8M9SB5D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH8M9SB5E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH8M9SB7D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH8M9SB7E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH10M16SB5D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH10M16SB5E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH10M16SB7D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400

WSXHSB

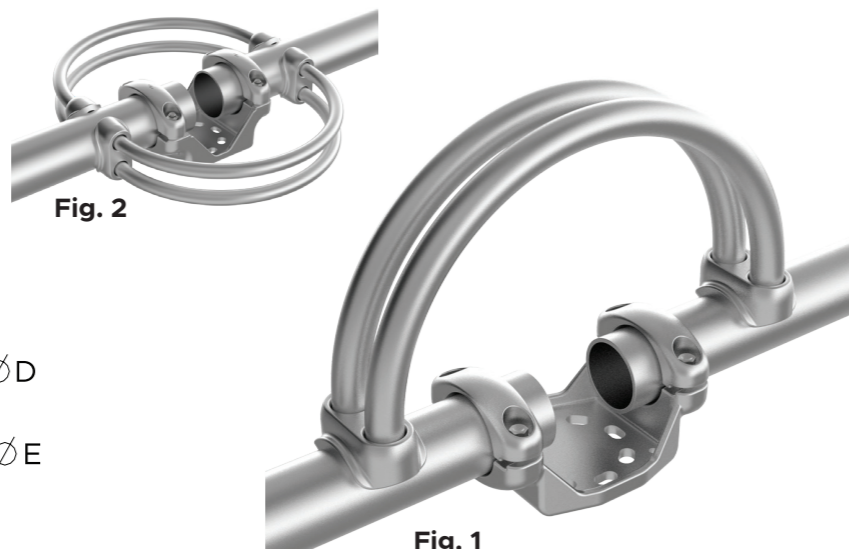
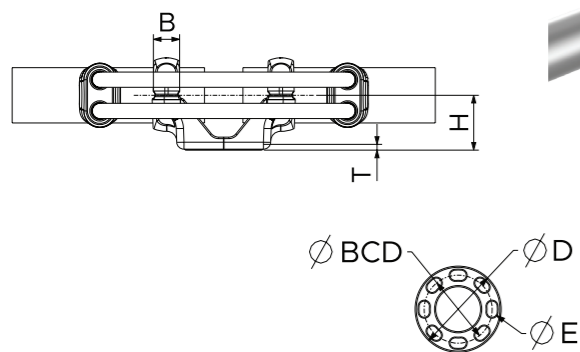


Fig. 2

Fig. 1

Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
WSXH10M16SB7E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH11M43SB5D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	5/8 (M16)	3200
WSXH11M43SB5C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH11M43SB7D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	5/8 (M16)	3200
WSXH11M43SB7C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH14M13SB5C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH14M13SB5D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH14M13SB7C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH14M13SB7D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH16M8SB5D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH16M8SB5E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,76 (44,8)	5/8 (M16)	6000
WSXH16M8SB7D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH16M8SB7E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,76 (44,8)	5/8 (M16)	6000

Earthing stirrups for tube

SGP (tube)

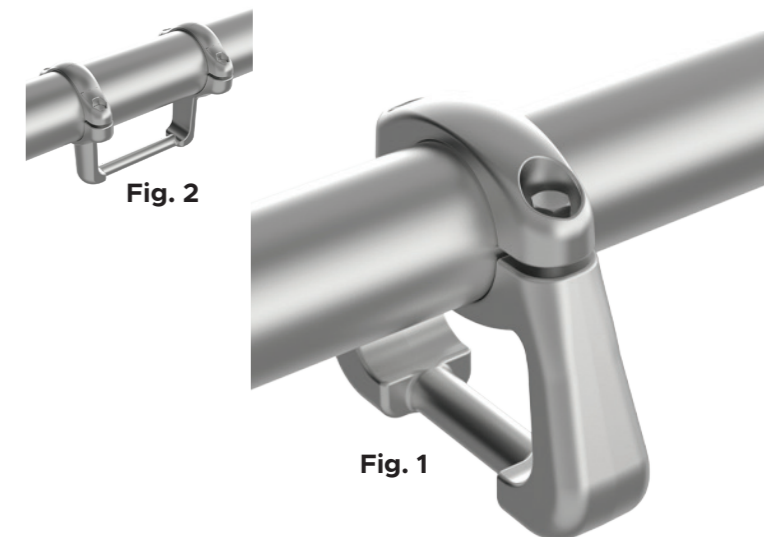
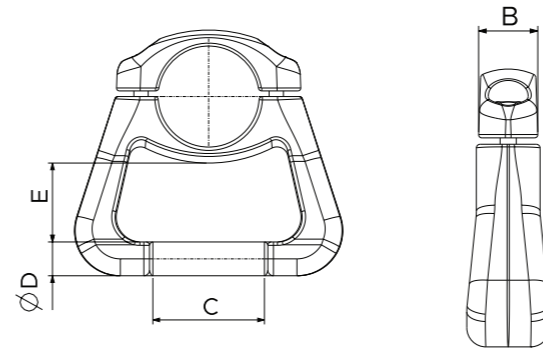


Fig. 2

Fig. 1

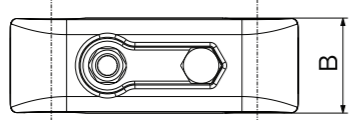
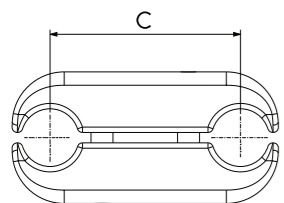
Up To
345 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	Fig No	B inch (mm)	C inch (mm)	D inch (mm)	E inch (mm)	Bolts inch
SG8M9P3L20Z1NSIX	3 (88,9 mm)	1	1,97 (50)	7,87 (200)	1,18 (30)	4,92 (125)	1/2 (M12)
SG10M16P3L20Z1NSIX	3 1/2 (101,6 mm)	1	1,97 (50)	7,87 (200)	1,18 (30)	4,92 (125)	1/2 (M12)
SG11M43P3L20Z1NSIX	4 (114,3 mm)	1	2,28 (58)	7,87 (200)	1,18 (30)	4,92 (125)	5/8 (M16)
SG14M13P3L20Z1NSIX	5 (141,3 mm)	1	2,28 (58)	7,87 (200)	1,18 (30)	4,33 (110)	5/8 (M16)
SG16M8P3L20Z1NSIX	6 (168,2 mm)	1	2,28 (58)	7,87 (200)	1,18 (30)	3,93 (100)	5/8 (M16)
SG6M03PL3L10NSIX	2 (60,3 mm)	2	1,97 (50)	3,93 (100)	1,18 (30)	2,75 (70)	1/2 (M12)
SG7M3PL3L10NSIX	2 1/2 (73 mm)	2	1,97 (50)	3,93 (100)	1,18 (30)	2,75 (70)	1/2 (M12)
SG8M9PL3L10NSIX	3 (88,9 mm)	2	1,97 (50)	3,93 (100)	1,18 (30)	4,92 (125)	1/2 (M12)
SG10M16PL3L10NSIX	3 1/2 (101,6 mm)	2	1,97 (50)	3,93 (100)	1,18 (30)	4,92 (125)	1/2 (M12)
SG11M43PL3L10NSIX	4 (114,3 mm)	2	2,28 (58)	3,93 (100)	1,18 (30)	3,93 (100)	5/8 (M16)
SG14M13PL3L10NSIX	5 (141,3 mm)	2	2,28 (58)	7,87 (200)	1,18 (30)	3,74 (95)	5/8 (M16)
SG16M8PL3L10NSIX	6 (168,2 mm)	2	2,28 (58)	7,87 (200)	1,18 (30)	3,74 (95)	5/8 (M16)

Spacers

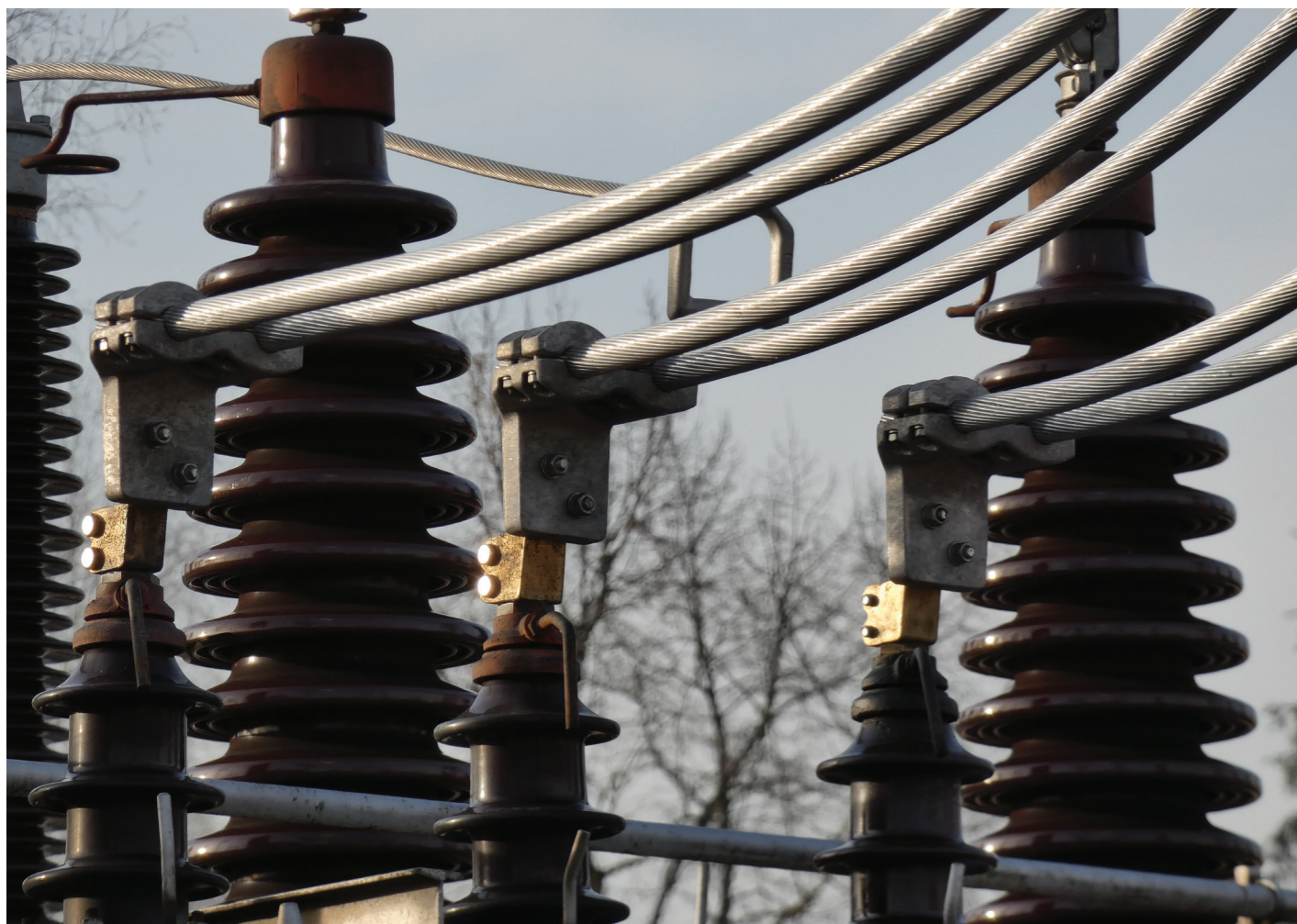
SD



Up To
345 kV

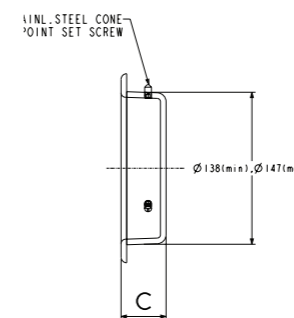
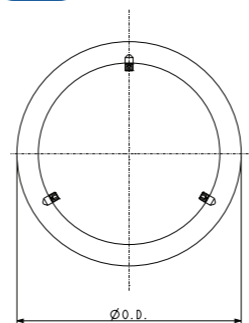
A2 - 70

Part number	Cable inch (mm)	B inch (mm)	C inch (mm)	Bolts inch
S100-240D2NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,61 (41)	3,93 (100)	1/2 (M12)
S240-330D2NSIX	650MCM (23,58 mm) - 1250MCM (32,7 mm)	2,16 (55)	4,33 (110)	1/2 (M12)
S330-420D2DNSIX	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	2,16 (55)	4,92 (125)	1/2 (M12)
S420-550D2DNSIX	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	2,16 (55)	4,92 (125)	1/2 (M12)



End cap

LB

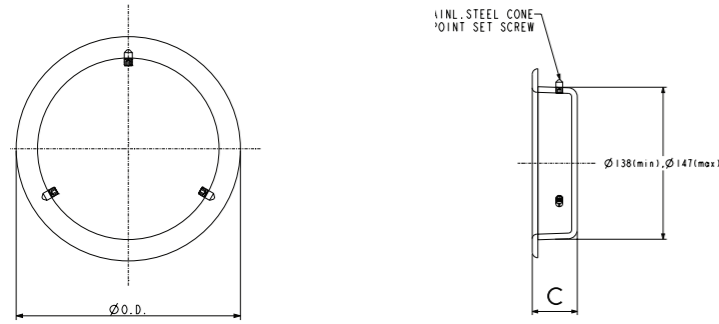


Up To
345 kV

A2 - 70

Part number	OD inch (mm)	ID min inch (mm)	ID max inch (mm)	C inch (mm)	Damping Cable inch (mm)
LB6X4M6GE10	2 (60,3 mm)	1,49 (38)	1,81 (46)	1,57 (40)	-
LB6X5M5GE10	2 (60,3 mm)	1,85 (47)	2,2 (56)	1,57 (40)	-
LB7M3X6M5GE10	2,5 (73 mm)	2,24 (57)	2,55 (65)	1,57 (40)	-
LB8M9X7M5GE10	3 (88,9 mm)	2,63 (67)	2,95 (75)	1,57 (40)	-
LB8M9X8M5GE10	3 (88,9 mm)	2,63 (67)	3,34 (85)	1,57 (40)	-
LB10M16X9M5GE10	3,5 (101,6 mm)	3,42 (87)	3,74 (95)	1,57 (40)	-
LB11M4X10GE10	4 (114,3 mm)	3,62 (92)	3,93 (100)	1,57 (40)	-
LB11M4X10M2GE10	4 (114,3 mm)	3,62 (92)	4,01 (102)	1,57 (40)	-
LB11M4X10M9GE10	4 (114,3 mm)	3,97 (101)	4,29 (109)	1,57 (40)	-
LB14M13X12M6GE10	5 (141,3 mm)	4,64 (118)	4,96 (126)	1,57 (40)	-
LB14M13X13M5GE10	5 (141,3 mm)	5 (127)	5,31 (135)	1,57 (40)	-
LB14M13X13M6GE10	5 (141,3 mm)	5,03 (128)	5,35 (136)	1,57 (40)	-
LB16M8X14M6GE10	6 (168,2 mm)	5,43 (138)	5,78 (147)	1,57 (40)	-
LB16M8X15M6GE10	6 (168,2 mm)	5,82 (148)	6,14 (156)	1,57 (40)	-
LB6X4M6DC1525	2 (60,3 mm)	1,49 (38)	1,81 (46)	1,57 (40)	0,59-0,98 (15-25)
LB6X5M5DC1525	2 (60,3 mm)	1,85 (47)	2,2 (56)	1,57 (40)	0,59-0,98 (15-25)
LB7M3X6M5DC1525	2,5 (73 mm)	2,24 (57)	2,55 (65)	1,57 (40)	0,59-0,98 (15-25)
LB8M9X7M5DC1525	3 (88,9 mm)	2,63 (67)	2,95 (75)	1,57 (40)	0,59-0,98 (15-25)
LB8M9X8M5DC1525	3 (88,9 mm)	2,63 (67)	3,34 (85)	1,57 (40)	0,59-0,98 (15-25)
LB10M16X9M5DC1525	3,5 (101,6 mm)	3,42 (87)	3,74 (95)	1,57 (40)	0,59-0,98 (15-25)
LB11M4X10DC1525	4 (114,3 mm)	3,62 (92)	3,93 (100)	1,57 (40)	0,59-0,98 (15-25)

LB



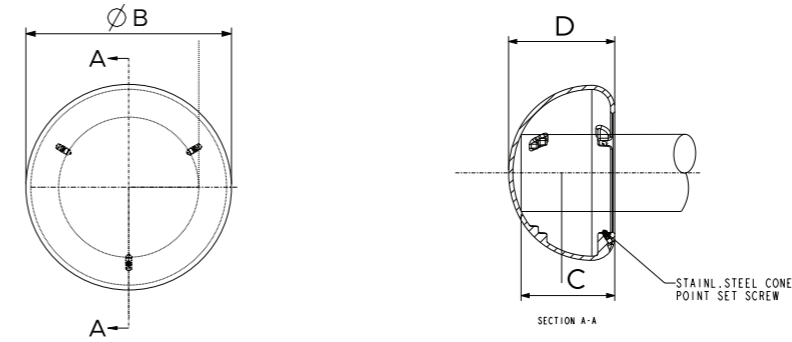
Up To
345 kV

A2 - 70

Part number	OD inch (mm)	ID min inch (mm)	ID max inch (mm)	C inch (mm)	Damping Cable inch (mm)
LB11M4X10M2DC1525	4 (114,3 mm)	3,62 (92)	4,01 (102)	1,57 (40)	0,59-0,98 (15-25)
LB11M4X10M9DC1525	4 (114,3 mm)	3,97 (101)	4,29 (109)	1,57 (40)	0,59-0,98 (15-25)
LB14M13X12M6DC1525	5 (141,3 mm)	4,64 (118)	4,96 (126)	1,57 (40)	0,59-0,98 (15-25)
LB14M13X13M5DC1525	5 (141,3 mm)	5 (127)	5,31 (135)	1,57 (40)	0,59-0,98 (15-25)
LB14M13X13M6DC1525	5 (141,3 mm)	5,03 (128)	5,35 (136)	1,57 (40)	0,59-0,98 (15-25)
LB16M8X14M6DC1525	6 (168,2 mm)	5,43 (138)	5,78 (147)	1,57 (40)	0,59-0,98 (15-25)
LB16M8X15M6DC1525	6 (168,2 mm)	5,82 (148)	6,14 (156)	1,57 (40)	0,59-0,98 (15-25)
LB6X4M6DC2545	2 (60,3 mm)	1,49 (38)	1,81 (46)	1,57 (40)	0,98-1,77 (25-45)
LB6X5M5DC2545	2 (60,3 mm)	1,85 (47)	2,2 (56)	1,57 (40)	0,98-1,77 (25-45)
LB7M3X6M5DC2545	2,5 (73 mm)	2,24 (57)	2,55 (65)	1,57 (40)	0,98-1,77 (25-45)
LB8M9X7M5DC2545	3 (88,9 mm)	2,63 (67)	2,95 (75)	1,57 (40)	0,98-1,77 (25-45)
LB8M9X8M5DC2545	3 (88,9 mm)	2,63 (67)	3,34 (85)	1,57 (40)	0,98-1,77 (25-45)
LB10M16X9M5DC2545	3,5 (101,6 mm)	3,42 (87)	3,74 (95)	1,57 (40)	0,98-1,77 (25-45)
LB11M4X10DC2545	4 (114,3 mm)	3,62 (92)	3,93 (100)	1,57 (40)	0,98-1,77 (25-45)
LB11M4X10M2DC2545	4 (114,3 mm)	3,62 (92)	4,01 (102)	1,57 (40)	0,98-1,77 (25-45)
LB11M4X10M9DC2545	4 (114,3 mm)	3,97 (101)	4,29 (109)	1,57 (40)	0,98-1,77 (25-45)
LB14M13X12M6DC2545	5 (141,3 mm)	4,64 (118)	4,96 (126)	1,57 (40)	0,98-1,77 (25-45)
LB14M13X13M5DC2545	5 (141,3 mm)	5 (127)	5,31 (135)	1,57 (40)	0,98-1,77 (25-45)
LB14M13X13M6DC2545	5 (141,3 mm)	5,03 (128)	5,35 (136)	1,57 (40)	0,98-1,77 (25-45)
LB16M8X14M6DC2545	6 (168,2 mm)	5,43 (138)	5,78 (147)	1,57 (40)	0,98-1,77 (25-45)
LB16M8X15M6DC2545	6 (168,2 mm)	5,82 (148)	6,14 (156)	1,57 (40)	0,98-1,77 (25-45)

Corona end cap

SCBB



Up To
345 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)
SCBB18A5	2 (60,3 mm)	110	55	75
SCBB19A5	2 1/2 (73 mm)	150	80	100
SCBB20A5	3 (88,9 mm)	135	65	93
SCBB21A5	3,5 (101,6 mm)	148	65	98
SCBB22A5	4 (114,3 mm)	200	70	120
SCBB24A5	5 (141,3 mm)	210	75	125
SCBB86A5	6 (168,2 mm)	225	70	118





03

EHV Aluminum connectors

Single connectors

- Straight connector 62
- T-Connector 63
- T-Terminal 67

Bundle connectors

- Straight connector 68
- T-Connector 69
- Straight terminal 70

Supports

- Support for cable 71
- Support for tube 72

Expansion Connectors

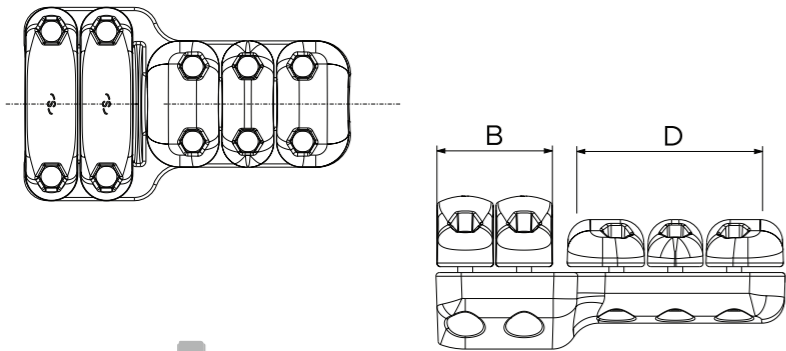
- Straight expansion terminal 73
- Straight expansion support 74

Accessories

- Spacers 78
- Corona end cap 79
- Hardware shield 80

Straight connector

ZS (tube-cable)



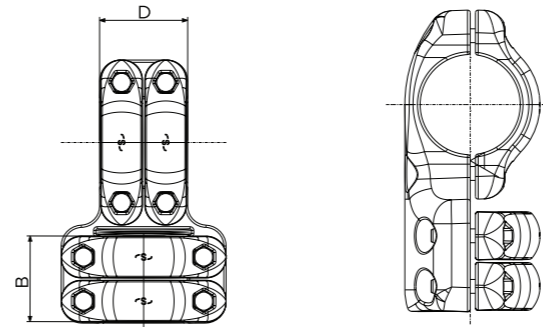
Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	Cable inch (mm)	B inch (mm)	D inch (mm)	Bolts (tube) inch	Bolts (cable) inch
Z6M03S250-330NSIX	2 (60,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z6M03S330-420NSIX	2 (60,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z6M03S420-550NSIX	2 (60,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z7M3S250-330NSIX	2 1/2 (73 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z7M3S330-420NSIX	2 1/2 (73 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z7M3S420-550NSIX	2 1/2 (73 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z8M9S250-330NSIX	3 (88,9 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z8M9S330-420NSIX	3 (88,9 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z8M9S420-550NSIX	3 (88,9 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z10M16S250-330NSIX	3 1/2 (101,6 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z10M16S330-420NSIX	3 1/2 (101,6 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z10M16S420-550NSIX	3 1/2 (101,6 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z11M43S250-330NSIX	4 (114,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z11M43S330-420NSIX	4 (114,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z11M43S420-550NSIX	4 (114,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z14M13S250-330NSIX	5 (141,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z14M13S330-420NSIX	5 (141,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z14M13S420-550NSIX	5 (141,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z16M82S250-330NSIX	6 (168,2 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z16M82S330-420NSIX	6 (168,2 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z16M82S420-550NSIX	6 (168,2 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)

T-Connector

ST (tube-tube)



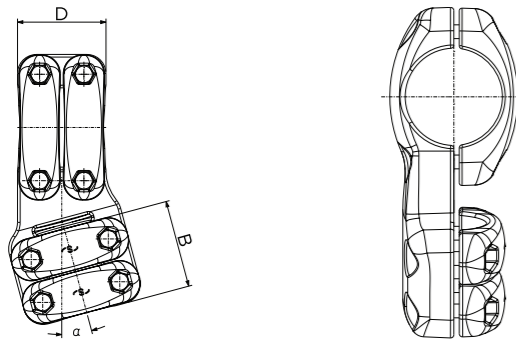
Up To
500 kV

A2 - 70

Part number	Pipe main IPS inch (mm)	Pipe tap IPS inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	Bolts inch
S6M03TNSIX	2 (60,3 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S7M3TNSIX	2 1/2 (73 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S8M9TNSIX	3 (88,9 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S10M16TNSIX	3 1/2 (101,6 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	3,94 (100)	1/2 (M12)
S11M43TNSIX	4 (114,3 mm)	4 (114,3 mm)	4,57 (116)	4,57 (116)	4,57 (116)	5/8 (M16)
S14M13TNSIX	5 (141,3 mm)	5 (141,3 mm)	4,57 (116)	4,57 (116)	4,57 (116)	5/8 (M16)
S16M8TNSIX	6 (168,2 mm)	6 (168,2 mm)	4,57 (116)	4,57 (116)	4,57 (116)	5/8 (M16)



STK

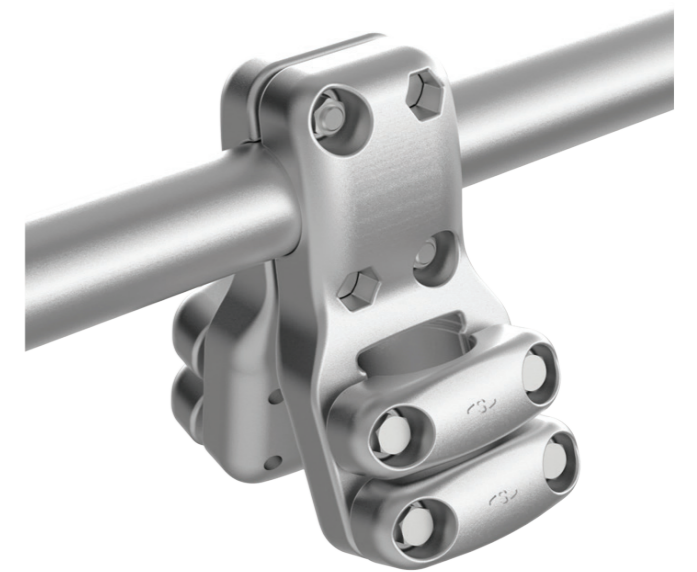
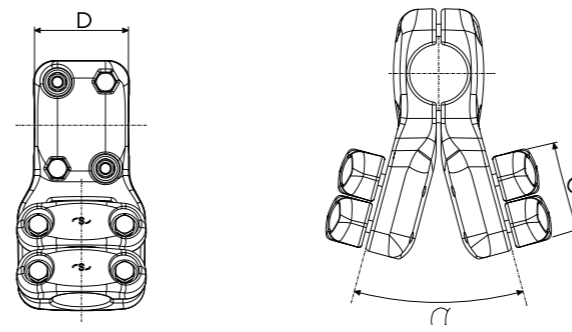


Up To
500 kV

A2 - 70

Part number	Pipe main IPS inch (mm)	Pipe tap IPS inch (mm)	B inch (mm)	D inch (mm)	inch	Bolts (main) inch	α
S6M03THNSIX	2 (60,3 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH7M3NSIX	2 1/2 (73 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S7M3THNSIX	2 1/2 (73 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH8M9NSIX	3 (88,9 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S7M3TH8M9NSIX	3 (88,9 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S8M9THNSIX	3 (88,9 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH10M16NSIX	3 1/2 (101,6 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S7M3TH10M16NSIX	3 1/2 (101,6 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S8M9TH10M16NSIX	3 1/2 (101,6 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	10
S6M03TH11M43NSIX	4 (114,3 mm)	2 (60,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	10
S7M3TH11M43NSIX	4 (114,3 mm)	2 1/2 (73 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	10
S8M9TH11M43NSIX	4 (114,3 mm)	3 (88,9 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	10
S11M43THNSIX	4 (114,3 mm)	4 (114,3 mm)	4,56 (116)	4,56 (116)	5/8 (M16)	5/8 (M16)	10

SATJ

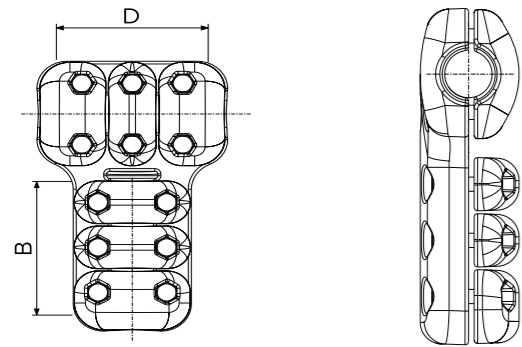


Up To
500 kV

A2 - 70

Part number	Pipe main IPS inch (mm)	Pipe tap IPS inch (mm)	C inch (mm)	D inch (mm)	Bolts (main) inch	Bolts (tap) inch	α
S6M03ATJNSIX	2 (60,3 mm)	2 (60,3 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ7M3NSIX	2 (60,3 mm)	2 1/2 (73 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ8M9NSIX	2 (60,3 mm)	3 (88,9 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ10M16NSIX	2 (60,3 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S7M3ATJ10M16NSIX	2 1/2 (73 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S8M9ATJ10M16NSIX	3 (88,9 mm)	3 1/2 (101,6 mm)	3,93 (100)	3,93 (100)	1/2 (M12)	1/2 (M12)	30
S6M03ATJ11M43NSIX	2 (60,3 mm)	4 (114,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	30
S7M3ATJ11M43NSIX	2 1/2 (73 mm)	4 (114,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	30
S8M9ATJ11M43NSIX	3 (88,9 mm)	4 (114,3 mm)	3,93 (100)	4,56 (116)	1/2 (M12)	5/8 (M16)	30

ZT (cable)



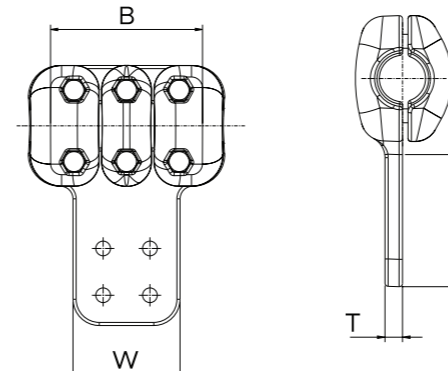
Up To
500 kV

A2 - 70

Part number	Cable tap inch (mm)	Cable main inch (mm)	B inch (mm)	D inch (mm)	Bolts inch
Z250-330TNSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z250-330T330-420NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z250-330T420-550NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z330-420T250-330NSIX	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z330-420TNSIX	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z330-420T420-550NSIX	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z420-550T250-330NSIX	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z420-550T330-420NSIX	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,90 (150)	5,90 (150)	1/2 (M12)
Z420-550TNSIX	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,90 (150)	5,90 (150)	1/2 (M12)

T-Terminal

ZF (cable)



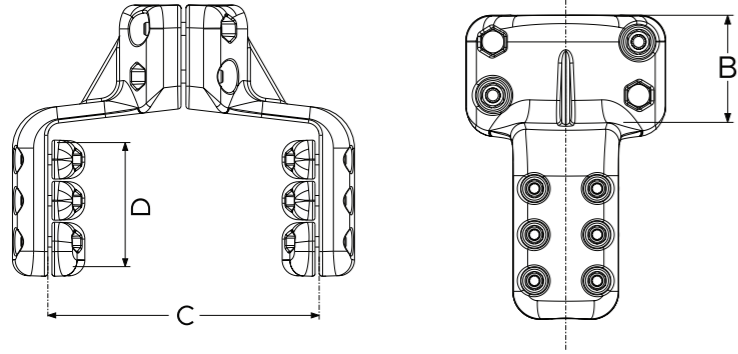
Up To
500 kV

A2 - 70

Part number	Pad type	Cable inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
Z250-330FC3NSIX	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	1520
Z250-330FC44NSIX	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	3,93 (100)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
Z330-420FC3NSIX	2	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,88 (150)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	1520
Z330-420FC44NSIX	2	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,88 (150)	4 (102)	4 (102)	0,79 (20)	1/2 (M12)	2000
Z420-550FC3NSIX	2	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	3 (76)	3 (76)	1 (25)	1/2 (M12)	1900
Z420-550FC44NSIX	2	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	4 (102)	4 (102)	1 (25)	1/2 (M12)	2500

Straight connector

ZSD (tube-cable)



Up To
500 kV

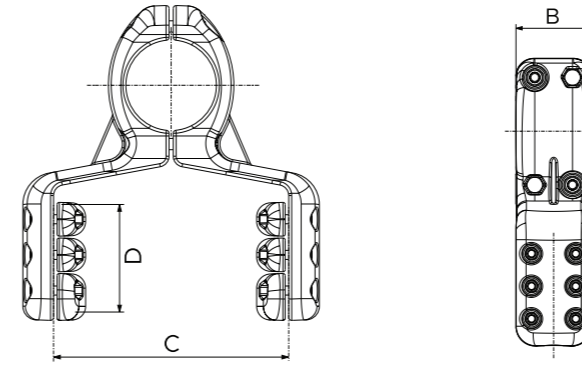
A2 - 70



Part number	Pipe size IPS inch (mm)	Cable inch (mm)	C inch (mm)	B inch (mm)	D inch (mm)	Bolts (tube) inch	Bolts (cable) inch
Z6M03S250-330D6M6DNSIX	2 (60,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z6M03S330-420D6M6DNSIX	2 (60,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z6M03S420-550D6M6DNSIX	2 (60,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z7M3S250-330D6M6DNSIX	2 1/2 (73 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z7M3S330-420D6M6DNSIX	2 1/2 (73 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z7M3S420-550D6M6DNSIX	2 1/2 (73 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z8M9S250-330D6M6DNSIX	3 (88,9 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z8M9S330-420D6M6DNSIX	3 (88,9 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z8M9S420-550D6M6DNSIX	3 (88,9 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z10M16S250-330D6M6DNSIX	3 1/2 (101,6 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z10M16S330-420D6M6DNSIX	3 1/2 (101,6 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z10M16S420-550D6M6DNSIX	3 1/2 (101,6 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z11M43S250-330D6M6DNSIX	4 (114,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z11M43S330-420D6M6DNSIX	4 (114,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z11M43S420-550D6M6DNSIX	4 (114,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z14M13S250-330D6M6DNSIX	5 (141,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z14M13S330-420D6M6DNSIX	5 (141,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z14M13S420-550D6M6DNSIX	5 (141,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z16M82S250-330D6M6DNSIX	6 (168,2 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z16M82S330-420D6M6DNSIX	6 (168,2 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z16M82S420-550D6M6DNSIX	6 (168,2 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)

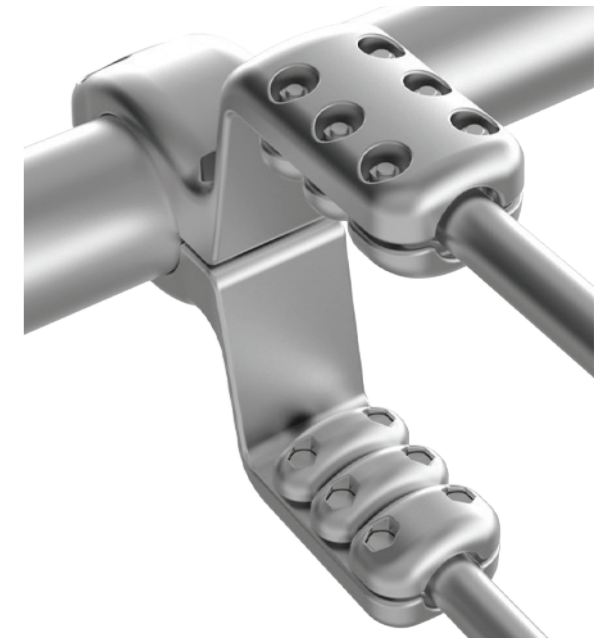
T-Connector

ZDT01 (tube-cable)



Up To
500 kV

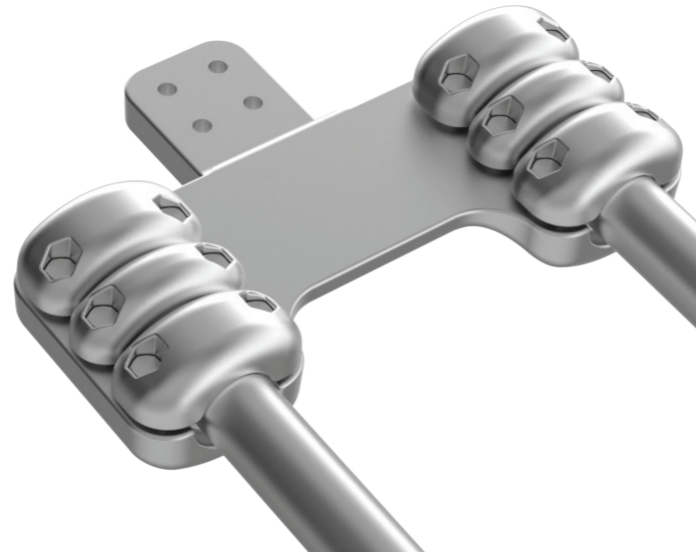
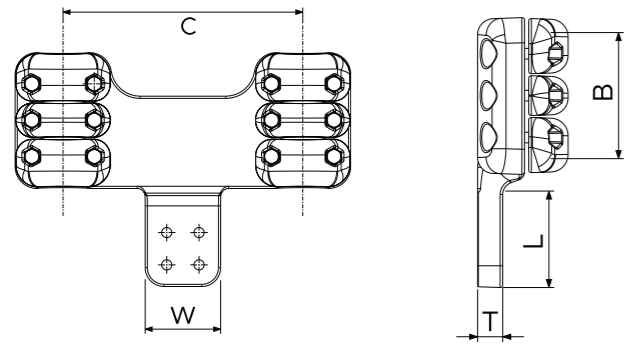
A2 - 70



Part number	Pipe size IPS inch (mm)	Cable inch (mm)	C inch (mm)	B inch (mm)	D inch (mm)	Bolts (tube) inch (mm)	Bolts (cable) inch (mm)
Z250-330D6M6T6M03DNSIX	2 (60,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z330-420D6M6T6M03DNSIX	2 (60,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z420-550D6M6T6M03DNSIX	2 (60,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z250-330D6M6T7M3DNSIX	2 1/2 (73 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z330-420D6M6T7M3DNSIX	2 1/2 (73 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z420-550D6M6T7M3DNSIX	2 1/2 (73 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z250-330D6M6T8M9DNSIX	3 (88,9 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z330-420D6M6T8M9DNSIX	3 (88,9 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z420-550D6M6T8M9DNSIX	3 (88,9 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z250-330D6M6T10M16DNSIX	3 1/2 (101,6 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z330-420D6M6T10M16DNSIX	3 1/2 (101,6 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z420-550D6M6T10M16DNSIX	3 1/2 (101,6 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	3,93 (100)	5,90 (150)	1/2 (M12)	1/2 (M12)
Z250-330D6M6T11M43DNSIX	4 (114,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z330-420D6M6T11M43DNSIX	4 (114,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z420-550D6M6T11M43DNSIX	4 (114,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z250-330D6M6T14M13DNSIX	5 (141,3 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z330-420D6M6T14M13DNSIX	5 (141,3 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z420-550D6M6T14M13DNSIX	5 (141,3 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z250-330D6M6T16M82DNSIX	6 (168,2 mm)	700MCM (24,48 mm) - 1250MCM (32,7 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z330-420D6M6T16M82DNSIX	6 (168,2 mm)	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)
Z420-550D6M6T16M82DNSIX	6 (168,2 mm)	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	13 (330)	4,57 (116)	5,90 (150)	5/8 (M16)	1/2 (M12)

Straight terminal

ZDA (cable)



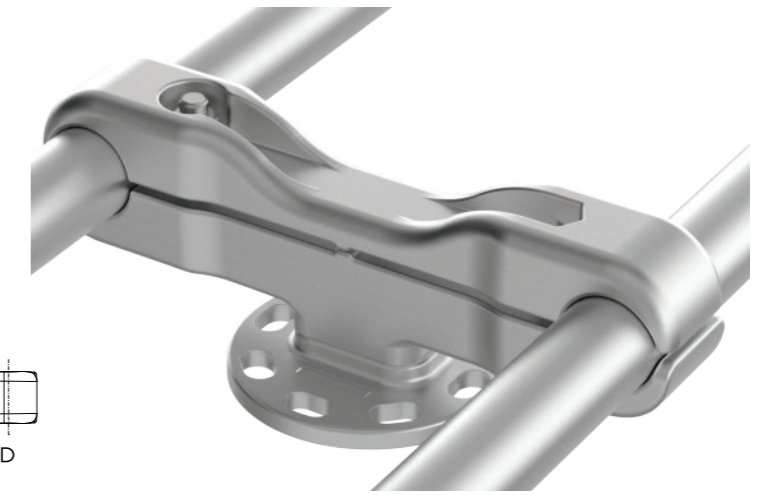
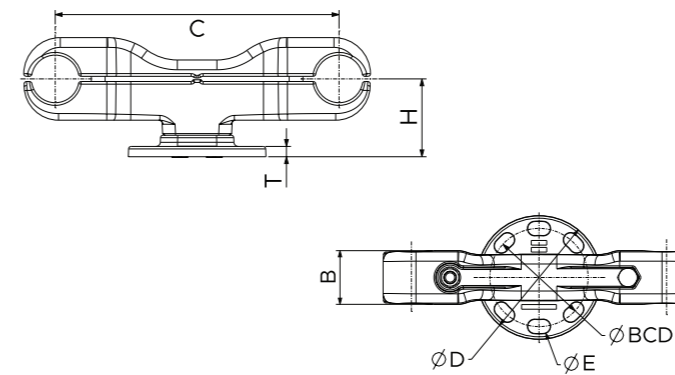
Up To
500 kV

A2 - 70

Part number	Pad type	Cable inch (mm)	B inch (mm)	C inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	Bolts inch	Current A
Z250-330D6M6A3NSIX	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	5,88 (150)	13 (330)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2,000
Z250-330D6M6A44NSIX	2	700MCM (24,48 mm) - 1250MCM (32,7 mm)	5,88 (150)	13 (330)	4 1/2 (115)	4 (102)	0,79 (20)	1/2 (M12)	2,000
Z250-330D6M6A6NSIX	3	700MCM (24,48 mm) - 1250MCM (32,7 mm)	5,88 (150)	13 (330)	4 1/2 (115)	6 (152)	0,79 (20)	1/2 (M12)	2,000
Z330-420D6M6A3NSIX	2	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,88 (150)	13 (330)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2,000
Z330-420D6M6A44NSIX	2	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,88 (150)	13 (330)	4 1/2 (115)	4 (102)	0,79 (20)	1/2 (M12)	2,000
Z330-420D6M6A6NSIX	3	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	5,88 (150)	13 (330)	4 1/2 (115)	6 (152)	0,79 (20)	1/2 (M12)	2,000
Z420-550D6M6A3NSIX	2	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	13 (330)	3 (76)	3 (76)	0,79 (20)	1/2 (M12)	2,000
Z420-550D6M6A44NSIX	2	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	13 (330)	4 1/2 (115)	4 (102)	0,79 (20)	1/2 (M12)	2,000
Z420-550D6M6A6NSIX	3	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	5,88 (150)	13 (330)	4 1/2 (115)	6 (152)	0,79 (20)	1/2 (M12)	2,000

Support for cable

ZLHDB



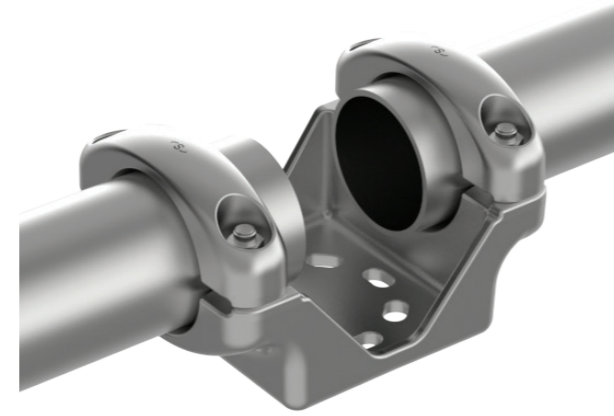
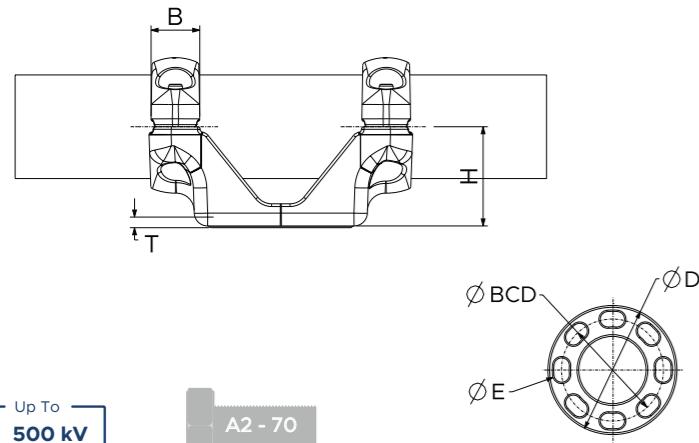
Up To
345 kV

A2 - 70

Part number	Cable inch (mm)	B inch (mm)	C inch (mm)	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	Bolts inch
ZLH100-240D6M6B5NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,97 (50)	13 (330)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	3/8 (M10)
ZLH100-240D6M6B7NSIX	1/0 (9,36 mm) - 650MCM (23,58 mm)	1,97 (50)	13 (330)	3,54 (90)	7 (178)	8,3 (212)	0,7 (18)	0,6 (15)	3/8 (M10)
ZLH240-330D6M6B5NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1,97 (50)	13 (330)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
ZLH240-330D6M6B7NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	1,97 (50)	13 (330)	3,54 (90)	7 (178)	8,3 (212)	0,7 (18)	0,6 (15)	1/2 (M12)
ZLH330-420D6M6B5NSIX	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1,97 (50)	13 (330)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
ZLH330-420D6M6B7NSIX	1300MCM (33,4 mm) - 2000MCM (41,40 mm)	1,97 (50)	13 (330)	3,54 (90)	7 (178)	8,3 (212)	0,7 (18)	0,6 (15)	1/2 (M12)
ZLH420-550D6M6B5NSIX	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	2,55 (65)	13 (330)	3,54 (90)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
ZLH420-550D6M6B7NSIX	2250MCM (43,92 mm) - 3500MCM (54,81 mm)	2,55 (65)	13 (330)	3,54 (90)	7 (178)	8,3 (212)	0,7 (18)	0,6 (15)	5/8 (M16)

Support for tube

SXHB



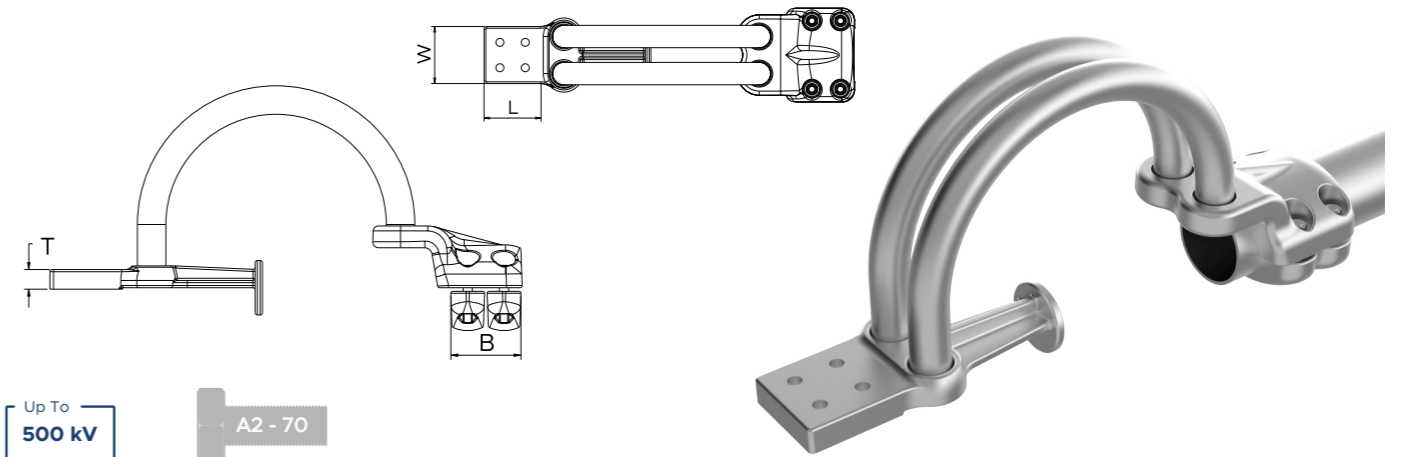
Up To 500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	Bolts inch (mm)
SXH6M03B3G70NSIX	2 (60,3 mm)	1,97 (50)	2,75 (70)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH6M03B5G70NSIX	2 (60,3 mm)	1,97 (50)	2,75 (70)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH6M03B7G70NSIX	2 (60,3 mm)	1,97 (50)	2,75 (70)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH7M3B3G80NSIX	2 1/2 (73 mm)	1,97 (50)	3,125 (80)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH7M3B5G80NSIX	2 1/2 (73 mm)	1,97 (50)	3,125 (80)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH7M3B7G80NSIX	2 1/2 (73 mm)	1,97 (50)	3,125 (80)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH8M9B3G92NSIX	3 (88,9 mm)	1,97 (50)	3,62 (92)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH8M9B5G92NSIX	3 (88,9 mm)	1,97 (50)	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH8M9B7G92NSIX	3 (88,9 mm)	1,97 (50)	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH10M16B3G102NSIX	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	1/2 (M12)
SXH10M16B5G102NSIX	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	1/2 (M12)
SXH10M16B7G102NSIX	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	1/2 (M12)
SXH11M43B3G114NSIX	4 (114,3 mm)	2,28 (58)	4,48 (114)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	5/8 (M16)
SXH11M43B5G114NSIX	4 (114,3 mm)	2,28 (58)	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH11M43B7G114NSIX	4 (114,3 mm)	2,28 (58)	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH14M13B3G127NSIX	5 (141,3 mm)	2,28 (58)	5 (127)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	5/8 (M16)
SXH14M13B5G127NSIX	5 (141,3 mm)	2,28 (58)	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH14M13B7G127NSIX	5 (141,3 mm)	2,28 (58)	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH16M8B3G140NSIX	6 (168,2 mm)	2,28 (58)	5,51 (140)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	5/8 (M16)
SXH16M8B5G140NSIX	6 (168,2 mm)	2,28 (58)	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	5/8 (M16)
SXH16M8B7G140NSIX	6 (168,2 mm)	2,28 (58)	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	5/8 (M16)

Straight expansion terminal

SXA



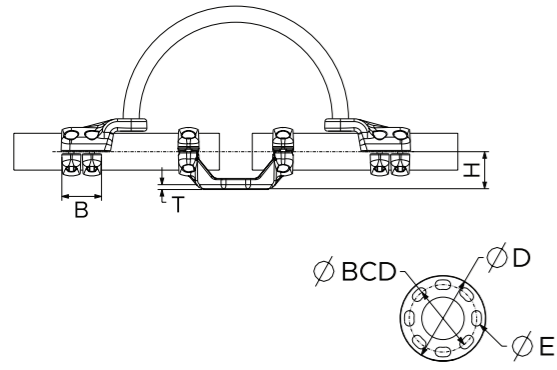
Up To 500 kV

A2 - 70

Part number	Pad type	Pipe size IPS inch (mm)	B inch (mm)	L inch (mm)	W inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
S6M03XA3NC2NSIX	1	2 (60,3 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,24 (31,7)	1/2 (M12)	2000
S6M03XA44NC2NSIX	2	2 (60,3 mm)	1,97 (50)	4 (102)	4 (102)	0,78 (20)	2	1,24 (31,7)	1/2 (M12)	2000
S7M3XA3NC2NSIX	1	2 1/2 (73 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,24 (31,7)	1/2 (M12)	2000
S7M3XA44NC2NSIX	2	2 1/2 (73 mm)	1,97 (50)	4 (102)	4 (102)	0,78 (20)	2	1,24 (31,7)	1/2 (M12)	2000
S8M9XA3ND2NSIX	1	3 (88,9 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S8M9XA44ND2NSIX	2	3 (88,9 mm)	1,97 (50)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S10M16XA3ND2NSIX	1	3 1/2 (101,6 mm)	1,97 (50)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S10M16XA44ND2NSIX	2	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S10M16XA6ND2NSIX	3	3 1/2 (101,6 mm)	1,97 (50)	4 (102)	6 (152)	1 (25)	2	1,54 (39,2)	1/2 (M12)	2500
S11M43XA3ND2NSIX	1	4 (114,3 mm)	4,57 (116)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S11M43XA44ND2NSIX	2	4 (114,3 mm)	4,57 (116)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S11M43XA6ND3NSIX	3	4 (114,3 mm)	4,57 (116)	4 (102)	6 (152)	1 (25)	3	1,54 (39,2)	5/8 (M16)	3800
S14M13XA3ND2NSIX	1	5 (141,3 mm)	4,57 (116)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S14M13XA44ND2NSIX	2	5 (141,3 mm)	4,57 (116)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S14M13XA6ND3NSIX	3	5 (141,3 mm)	4,57 (116)	4 (102)	6 (152)	1 (25)	3	1,54 (39,2)	5/8 (M16)	3800
S16M8XA3ND2NSIX	1	6 (168,2 mm)	4,57 (116)	3 (76)	3 (76)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S16M8XA44ND2NSIX	2	6 (168,2 mm)	4,57 (116)	4 (102)	4 (102)	1 (25)	2	1,54 (39,2)	5/8 (M16)	2500
S16M8XA6ND3NSIX	3	6 (168,2 mm)	4,57 (116)	4 (102)	6 (152)	1 (25)	3	1,54 (39,2)	5/8 (M16)	3800

Straight expansion support

SXH5B



Up To
500 kV

A2 - 70

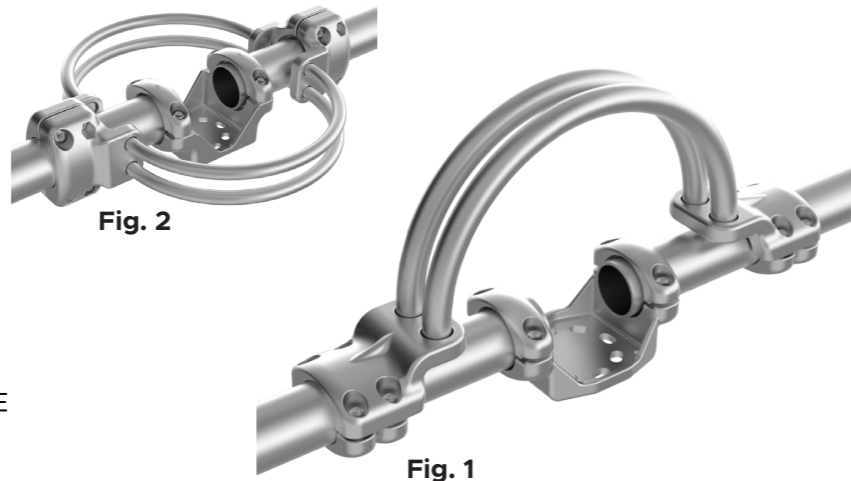
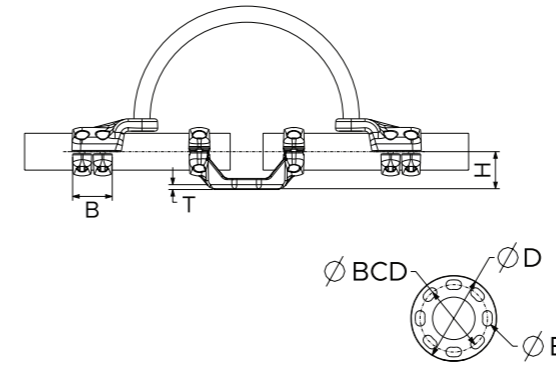


Fig. 2

Fig. 1

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
SXH6M03SB3C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
SXH6M03SB5C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
SXH6M03SB7C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
SXH7M3SB3D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH7M3SB5D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH7M3SB7D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH8M9SB5D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH8M9SB5E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
SXH8M9SB7D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400
SXH8M9SB7E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
SXH10M16SB5D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
SXH10M16SB5E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
SXH10M16SB7D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400

SXH5B



Up To
500 kV

A2 - 70

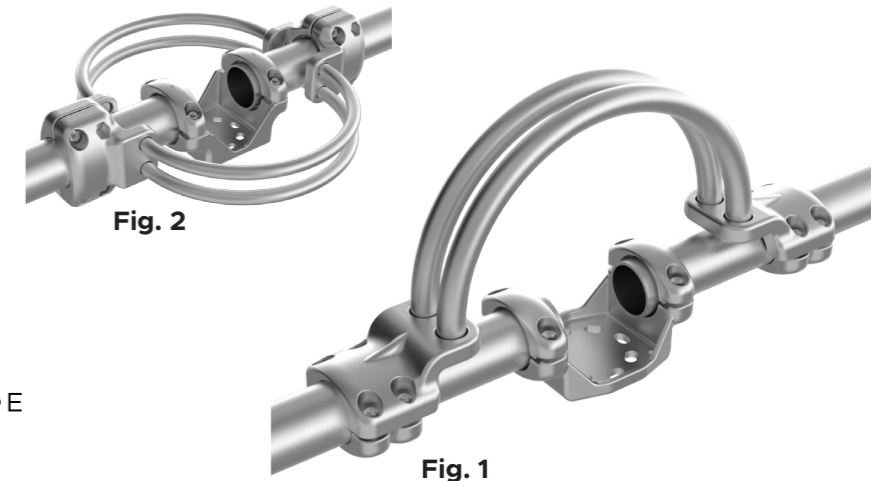
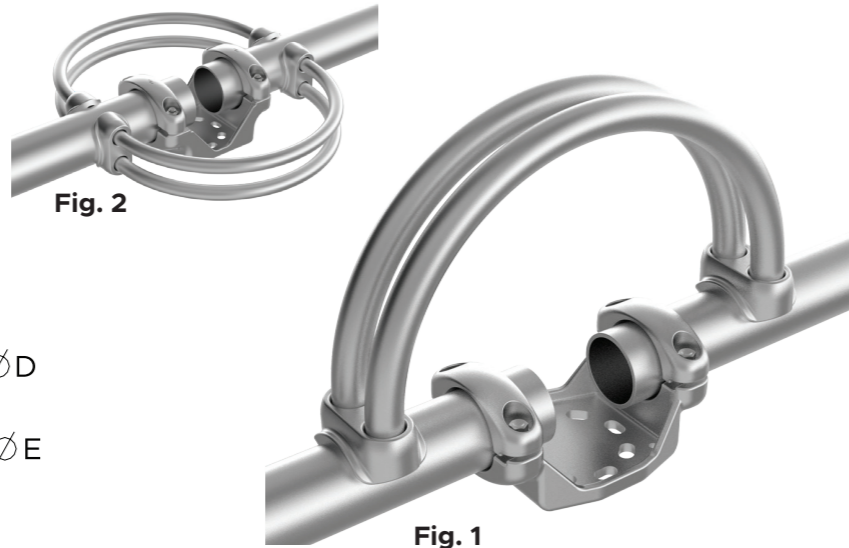
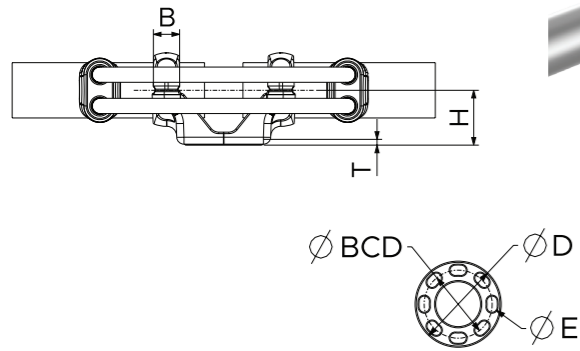


Fig. 2

Fig. 1

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
SXH10M16SB7E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
SXH11M43SB5D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	5/8 (M16)	3200
SXH11M43SB5C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
SXH11M43SB7D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	5/8 (M16)	3200
SXH11M43SB7C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
SXH14M13SB5C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
SXH14M13SB5D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
SXH14M13SB7C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
SXH14M13SB7D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
SXH16M8SB5D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
SXH16M8SB5E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,76 (44,8)	5/8 (M16)	6000
SXH16M8SB7D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
SXH16M8SB7E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,76 (44,8)	5/8 (M16)	6000

WSXH5B

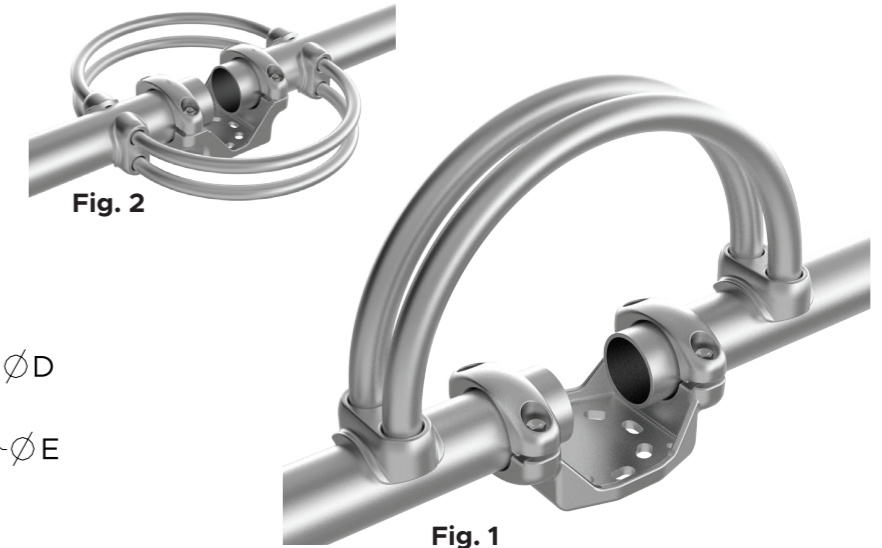
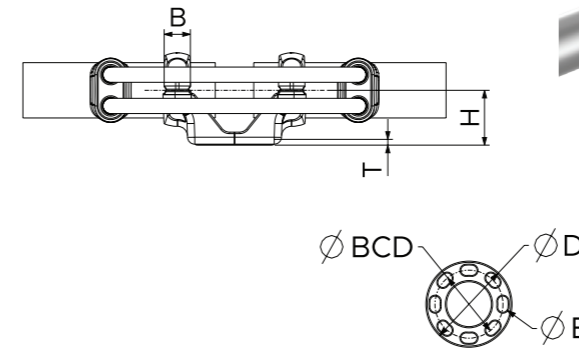


Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
WSXH6M03SB3C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
WSXH6M03SB5C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
WSXH6M03SB7C2G70NSIX	2 (60,3 mm)	1,97 (50)	1	2,75 (70)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,24 (31,7)	1/2 (M12)	2000
WSXH7M3SB3D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	3 (76)	4,33 (110)	0,55 (14)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH7M3SB5D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH7M3SB7D2G80NSIX	2 1/2 (73 mm)	1,97 (50)	1	3,125 (80)	7 (178)	8,35 (212)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH8M9SB5D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH8M9SB5E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH8M9SB7D2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH8M9SB7E2G92NSIX	3 (88,9 mm)	3,93 (100)	1	3,62 (92)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH10M16SB5D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,54 (39,2)	1/2 (M12)	2400
WSXH10M16SB5E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH10M16SB7D2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,54 (39,2)	1/2 (M12)	2400

WSXH5B



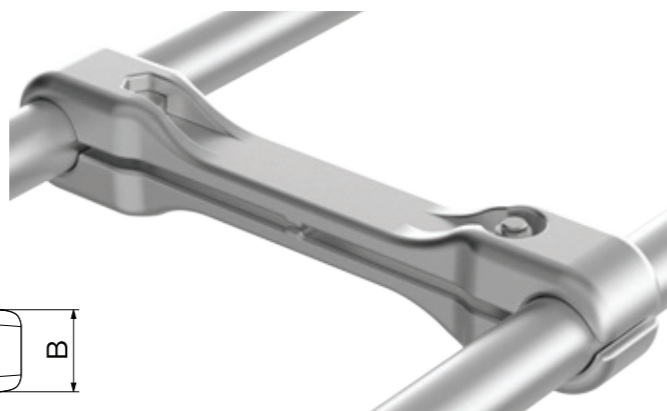
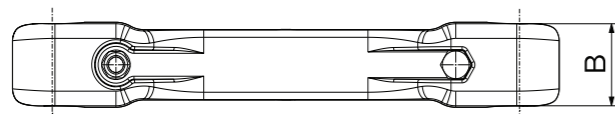
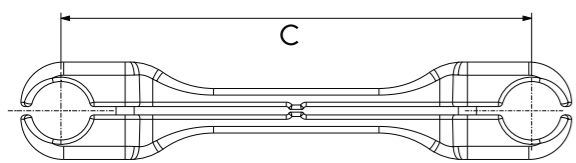
Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	Fig No	H inch (mm)	BCD inch (mm)	D inch (mm)	E inch (mm)	T inch (mm)	N° cables	Ø inch (mm)	Bolts inch (mm)	Current A
WSXH10M16SB7E2G102NSIX	3,5 (101,6 mm)	3,93 (100)	1	4 (102)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	1/2 (M12)	3200
WSXH11M43SB5D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	2	1,76 (44,8)	5/8 (M16)	3200
WSXH11M43SB5C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH11M43SB7D2G114NSIX	4 (114,3 mm)	4,57 (116)	1	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	2	1,76 (44,8)	5/8 (M16)	3200
WSXH11M43SB7C4DG114NSIX	4 (114,3 mm)	4,57 (116)	2	4,48 (114)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH14M13SB5C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH14M13SB5D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH14M13SB7C4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,24 (31,7)	5/8 (M16)	3600
WSXH14M13SB7D4DG127NSIX	5 (141,3 mm)	4,57 (116)	2	5 (127)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH16M8SB5D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH16M8SB5E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	5 (127)	6,3 (160)	0,7 (18)	0,5 (12)	4	1,76 (44,8)	5/8 (M16)	6000
WSXH16M8SB7D4DG140NSIX	6 (168,2 mm)	4,57 (116)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,54 (39,2)	5/8 (M16)	4500
WSXH16M8SB7E4DG140NSIX	6 (168,2 mm)	6,85 (174)	2	5,51 (140)	7 (178)	8,35 (212)	0,7 (18)	0,6 (15)	4	1,76 (44,8)	5/8 (M16)	6000

Spacers

ZCD



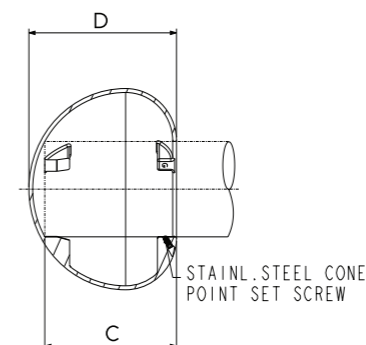
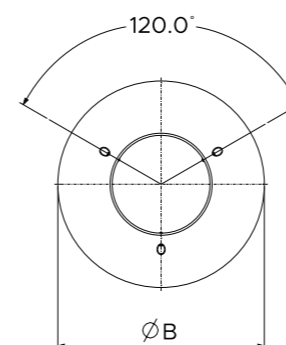
Up To
500 kV

A2 - 70

Part number	Cable inch (mm)	B inch (mm)	C inch (mm)	Bolts inch
ZCD250-330D3NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	2,16 (55)	5,9 (150)	1/2 (M12)
ZCD330-420D3NSIX	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	2,16 (55)	5,9 (150)	1/2 (M12)
ZCD420-550D3NSIX	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	2,55 (65)	5,9 (150)	5/8 (M16)
ZCD250-330D6M6NSIX	700MCM (24,48 mm) - 1250MCM (32,7 mm)	2,16 (55)	13 (330)	1/2 (M12)
ZCD330-420D6M6NSIX	1250MCM (32,7 mm) - 2000MCM (41,40 mm)	2,16 (55)	13 (330)	1/2 (M12)
ZCD420-550D6M6NSIX	2000MCM (41,40 mm) - 3500MCM (54,81 mm)	2,55 (65)	13 (330)	5/8 (M16)

Corona end cap

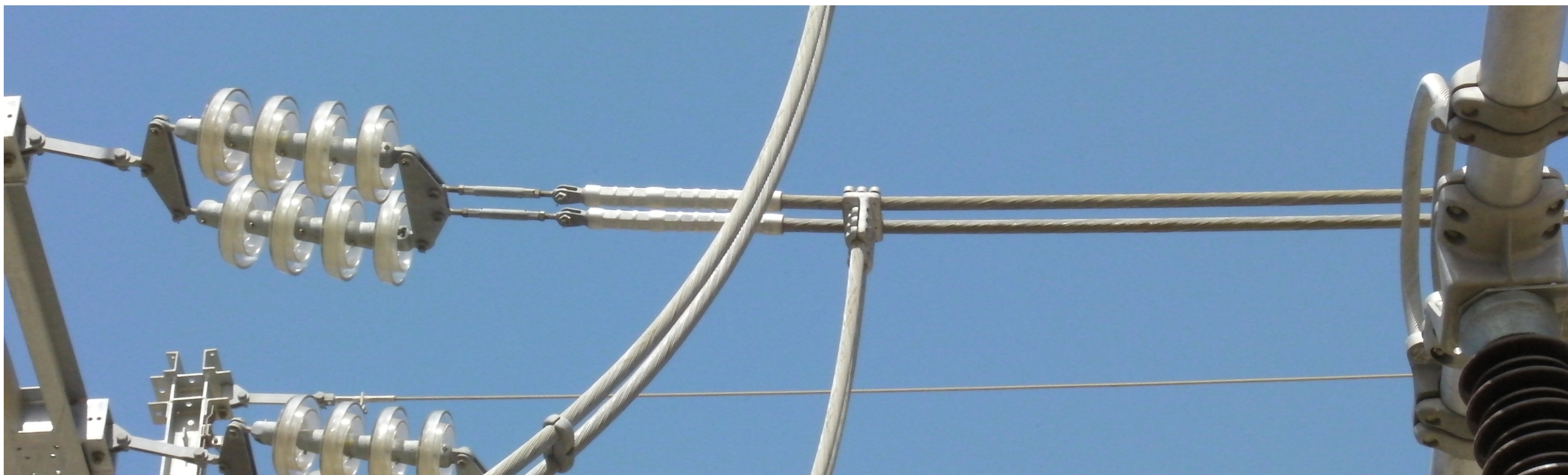
ZCBB



Up To
500 kV

A2 - 70

Part number	Pipe size IPS inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)
ZCBB18A	2 (60,3 mm)	230	175	195
ZCBB19A	2,5 (73 mm)	230	175	195
ZCBB20A	3 (88,9 mm)	260	190	210
ZCBB21A	3,5 (101,6 mm)	280	200	220
ZCBB22A	4 (114,3 mm)	280	200	220
ZCBB24A	5 (141,3 mm)	305	200	230
ZCBB86A	6 (168,2 mm)	400	280	310



Hardware shield

STS

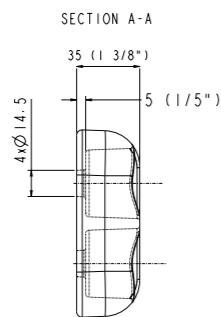
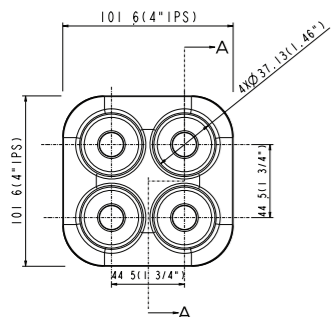


Fig. 1



Fig. 2

Up To
500 kV

A2 - 70

Part number	Figure
STS44N	1
STS6N	2





04

Special solutions

Busbar vibration damper	84
Busbar adjustable connector	88
Solution for HVDC converters	90

Special solutions

Busbar vibration damper

High voltage (HV) and ultra high voltage (UHV) substations are, depending on their geographical location, exposed to climatic conditions: special wind.

The wind causes sinusoidal turbulence to the substation busbars that in return causes variations in the carrying capacity with the fluid (air) moving in the same way as on an airplane's wing.

In certain frequency conditions, busbars that are exposed to the wind can reach its natural resonance frequency (low frequency) that creates severe vibrations that can damage the installation.

To solve this problem, a means of shock-absorption must be fitted to the tube that opposes and dissipates the vibration, taking into account the tube's natural resonance frequency.

The most common solution to date is to place a cable inside the tube. But this cheap method is not satisfactory as the cable subjected to the vibrations may come out of the tube if the end caps are not properly tightened or welded they could be loose, creating a short circuit when they touch the ground.

Furthermore, if the cable within the conductor starts to vibrate, it may produce a noise that would be registered as a false-positive for a malfunction.

Being aware that the various current solutions are neither technically nor economically satisfactory, SBI Connectors in consultation with SALVI requested the participation of Milan (Italy) and Stellenbosh (South Africa) Polytechnic Universities in researching a new generation of dampers: the busbar damper.

This new generation is suitable for the majority of situations and is highly efficient. Following positive results from the experimental tests, the new damper offers the following advantages:

- Protects and lengthens the lifetime station equipment
- No maintenance is required because the counterpoise's initial fixed setting
- Provides almost total dissipation of vibrations caused by wind
- Can be adapted to all existing stations
- Simple, quick configuration
- Cost effective



Damper A, B & C

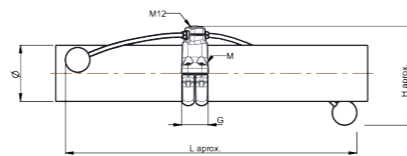


Fig. 1



Damper D & E

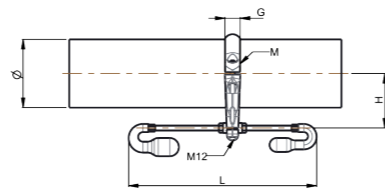


Fig. 2



Damper F

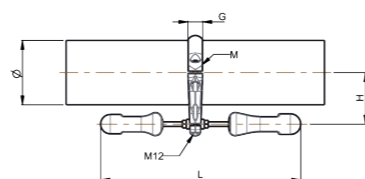


Fig. 3

Table dimensions:

Damper model	O.D	Fig	L	G	H	Bolts
SDAM60BNS	"2" IPS (60,3 mm)"	1	1140	92	330	M12
SDAM60DNS		2	565	47	110	
SDAM60EENS		2	695	47	110	
SDAM60FNS		3	780	47	100	
SDAM73BNS	"2-1/2" IPS (73 mm)"	1	1140	92	330	M12
SDAM73DNS		2	565	47	105	
SDAM73EENS		2	695	47	105	
SDAM89BNS	W"3" IPS (88,9 mm)"	1	1140	92	330	M12
SDAM89DNS		2	565	47	115	
SDAM89EENS		2	695	47	115	
SDAM89FNS		3	780	47	115	
SDAM101BNS	3-1/2" IPS	1	1140	92	330	M12
SDAM101DNS		2	565	47	125	
SDAM101EENS		2	695	47	125	
SDAM101FNS		3	780	47	125	
SDAM114ANS	"4" IPS (114,3 mm)"	1	1300	106	440	M12
SDAM114BNS		1	1140	106	330	
SDAM114DNS		2	565	47	135	
SDAM114EENS		2	695	47	135	
SDAM114FNS		3	780	47	135	
SDAM143ANS	"5" IPS (141,3 m)"	1	1300	106	440	M14
SDAM143BNS		1	1140	106	330	
SDAM143CNS		1	1550	106	670	
SDAM143DNS		2	565	57	150	
SDAM143EENS		2	695	57	150	
SDAM143FNS		3	780	57	150	
SDAM168ANS	"6" IPS (168,3 m)"	1	1300	106	440	M14
SDAM168BNS		1	1140	106	330	
SDAM168CNS		1	1550	106	670	
SDAM168DNS		2	565	57	160	
SDAM168EENS		2	695	57	160	
SDAM168FNS		3	780	57	160	
SDAM219ANS	"8" IPS (219,1 m)"	1	1300	120	440	M16
SDAM219BNS		1	1140	120	330	
SDAM219CNS		1	1550	120	670	
SDAM219DNS		2	565	57	190	
SDAM219EENS		2	695	57	190	
SDAM219FNS		3	780	57	190	

Table selection:

Damper model	O.D.	Fig	Tube length																											
			5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
SDAM60BNS	"2" IPS (60,3 mm)"	1																												
SDAM60DNS		2																												
SDAM60ENS		2																												
SDAM60FNS		3																												
SDAM73BNS	"2-1/2" IPS (73 mm)"	1																												
SDAM73DNS		2																												
SDAM73ENS		2																												
SDAM89BNS	"3" IPS (88,9 mm)"	1																												
SDAM89DNS		2																												
SDAM89ENS		2																												
SDAM89FNS		3																												
SDAM101BNS	3-1/2" IPS	1																												
SDAM101DNS		2																												
SDAM101ENS		2																												
SDAM101FNS		3																												
SDAM114ANS	"4" IPS (114,3 mm)"	1																												
SDAM114BNS		1																												
SDAM114DNS		2																												
SDAM114ENS		2																												
SDAM114FNS	3																													
SDAM143ANS	"5" IPS (141,3 m)"	1																												
SDAM143BNS		1																												
SDAM143CNS		1																												
SDAM143DNS		2																												
SDAM143ENS	2																													
SDAM143FNS	3																													
SDAM168ANS	"6" IPS (168,3 m)"	1																												
SDAM168BNS		1																												
SDAM168CNS		1																												
SDAM168DNS		2																												
SDAM168ENS	2																													
SDAM168FNS	3																													
SDAM219ANS	"8" IPS (219,1 m)"	1																												
SDAM219BNS		1																												
SDAM219CNS		1																												
SDAM219DNS		2																												
SDAM219ENS		2																												
SDAM219FNS		3																												



Busbar adjustable connector

current solution:

Disadvantages of the current solution

Angled busbar connections in most of the substations are obtained either by bending the tube or by welding an Aluminum sphere to join the tubes.

Welding operation must be made on site, difficult to perform due to the precision required, the weather conditions and construction site constraints.

Bending busbar operation must be done at the manufacturing plant using a special Aluminum alloy and heat treatment. This special manufacturing process increase the product cost. Special transport for bending busbars is also an additional expense.

New Sicame solution:

Elbow connector for busbar from 60° to 180°.

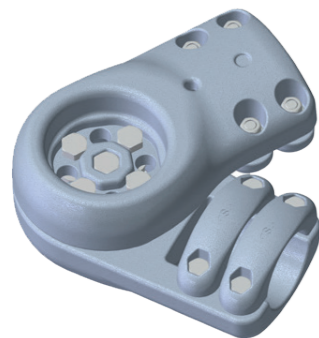
- Adjustable on site
- Easy and fast installation
- Cost effective

Design type for busbars from Ø 80 to 180 mm and Ø 200 to 400 mm

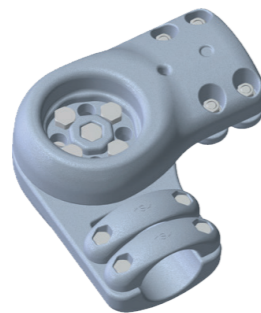
Most usual angle configurations:

Adjustable connector that allows angular connections between Aluminum busbars from 60° to 180°.

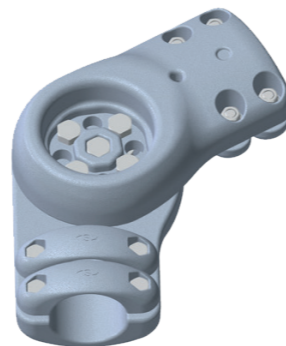
Adjustable connector solution avoids bending or welding busbars in the substation and makes installation work faster, easier and more cost effective.



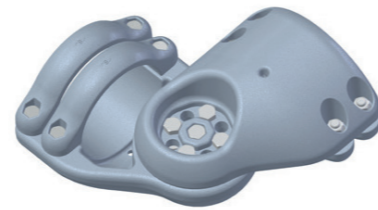
60° connection



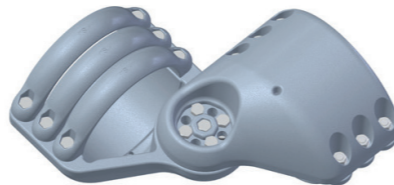
90° connection



120° connection



Ø 80 to 180 mm



Ø 200 to 400 mm



Adjustable connector that allows angular connections between Aluminum busbars from 60° to 180°.

Adjustable connector solution avoids bending or welding busbars in the substation and makes installation work faster, easier and more cost effective.

Special adjustable system with 5 bolts that assure a right contact surface performance and allow different angle configurations from 60° to 180° depends on the tube diameter.

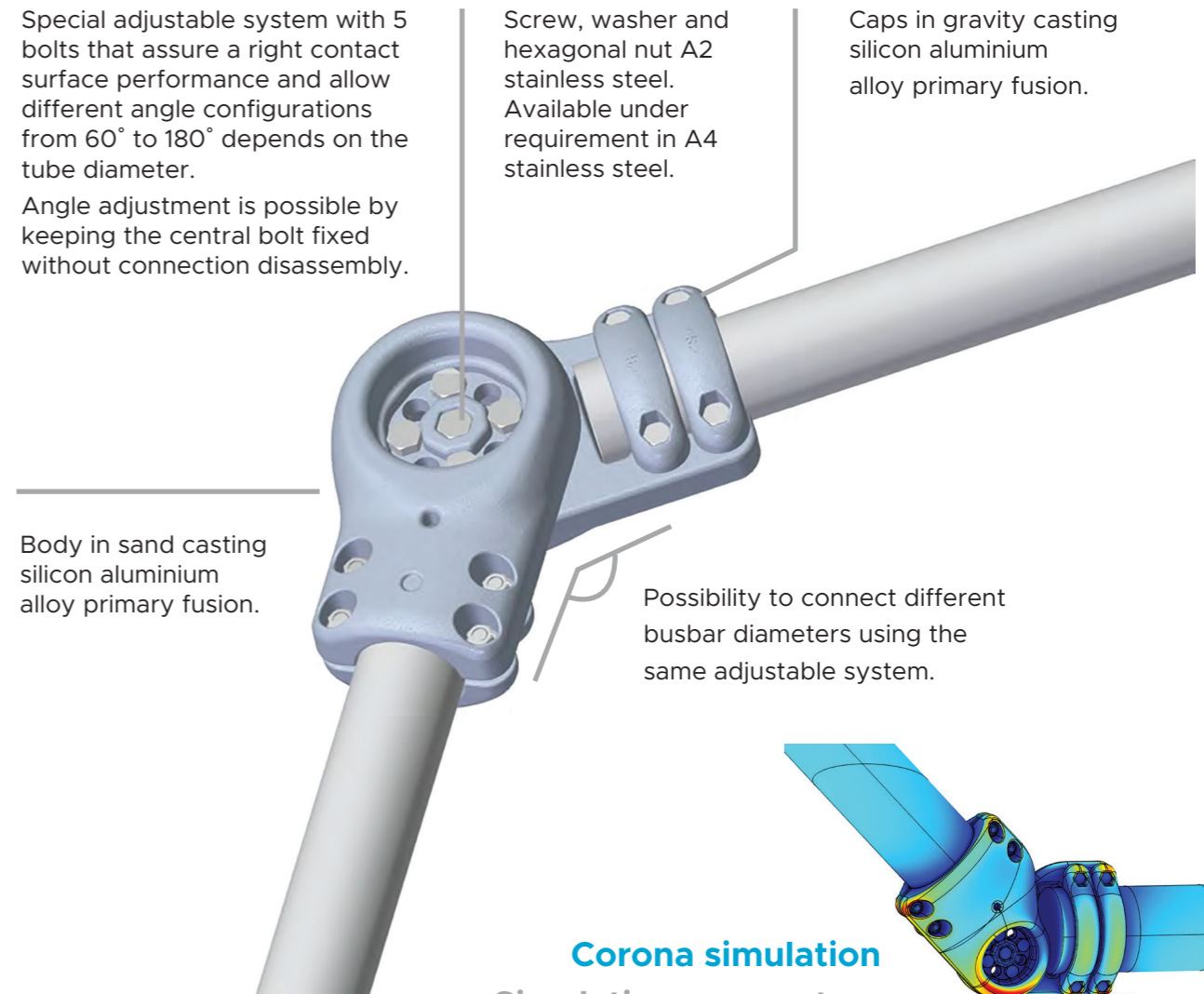
Angle adjustment is possible by keeping the central bolt fixed without connection disassembly.

Screw, washer and hexagonal nut A2 stainless steel. Available under requirement in A4 stainless steel.

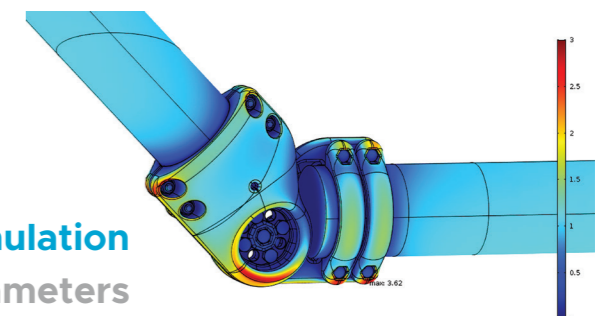
Caps in gravity casting silicon aluminium alloy primary fusion.

Body in sand casting silicon aluminium alloy primary fusion.

Possibility to connect different busbar diameters using the same adjustable system.



Corona simulation
Simulation parameters



Solution for HVDC converters



HVDC (High Voltage Direct Current) Solutions

HVDC technology involves the transmission of electricity using direct current (DC) instead of alternating current (AC). In an HVDC system, electrical power is converted from AC to DC at a converter station, transmitted over long distances through DC transmission lines, and then converted back to AC at another converter station for distribution.

The primary advantage of HVDC over traditional AC systems is its efficiency in long-distance transmission. AC power loses energy due to resistance and inductance in the transmission lines, especially over long distances. In contrast, HVDC transmission reduces these losses significantly, making it more efficient for distances exceeding 600 kilometers (approximately 373 miles).

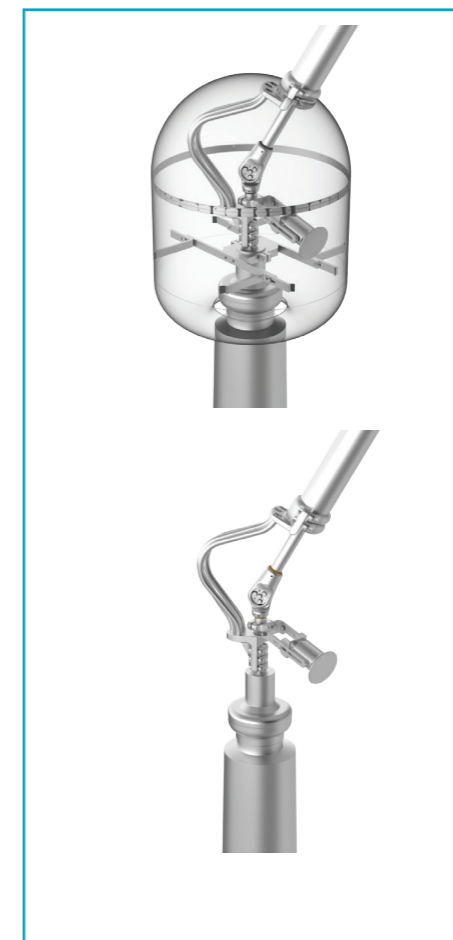
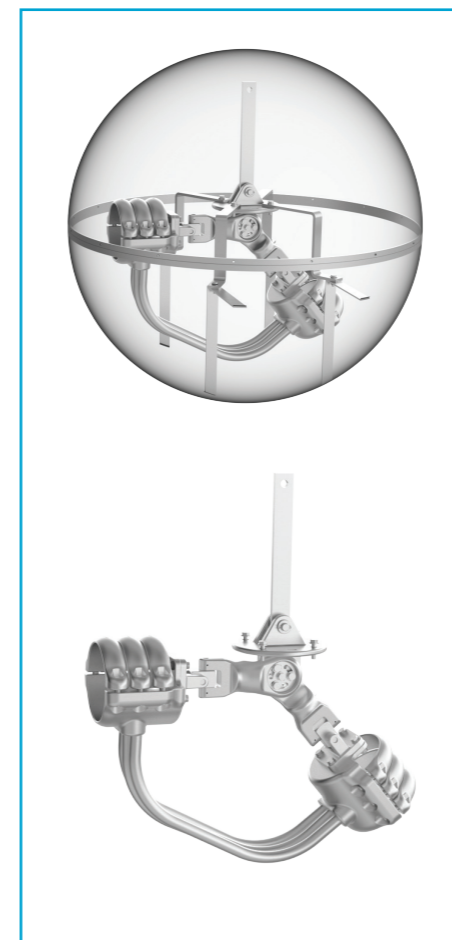
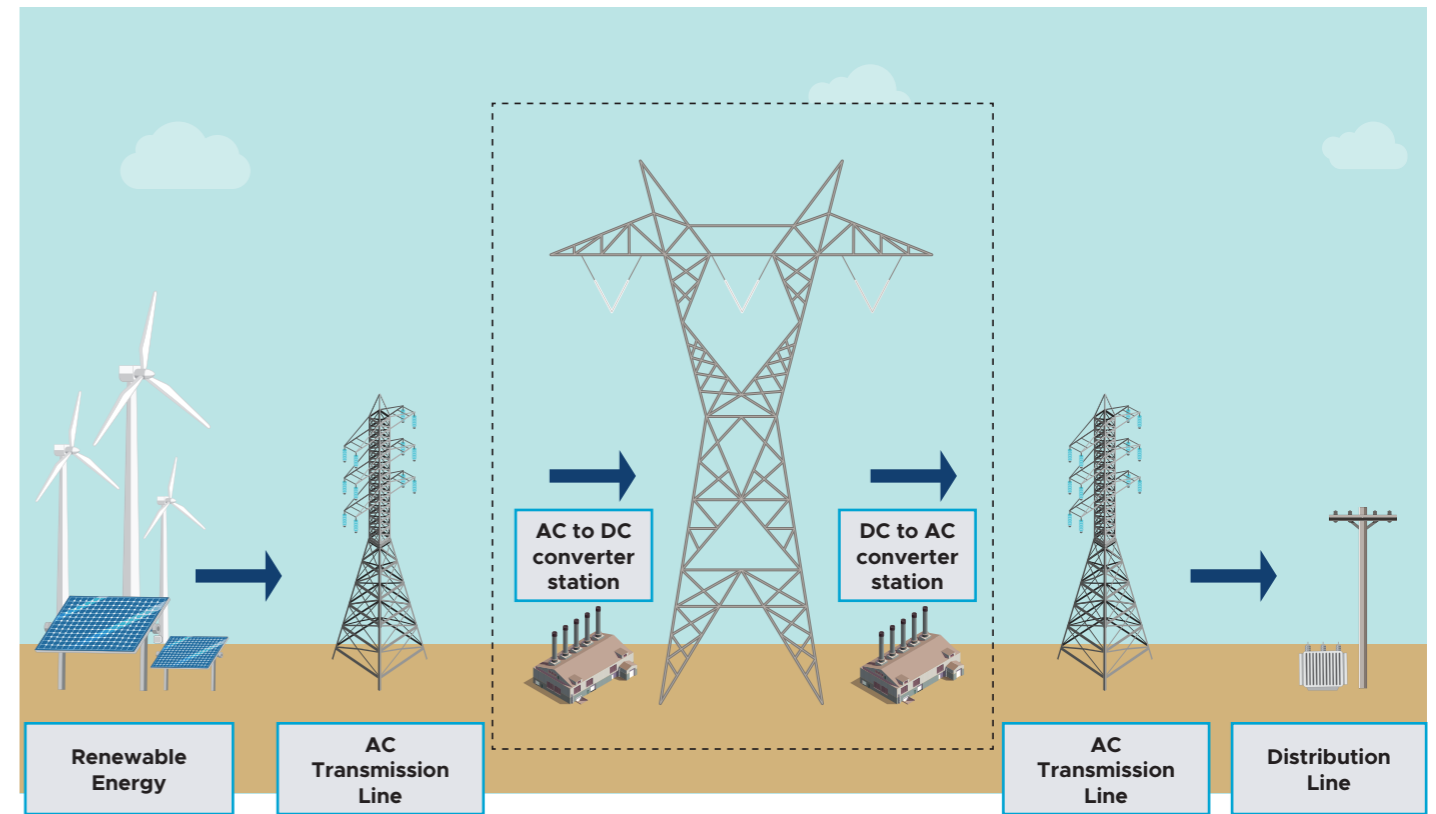
HVDC systems also offer improved stability and control. DC transmission allows for precise control of power flow, enabling grid operators to manage power distribution more effectively. This is particularly beneficial for integrating renewable energy sources, which can be intermittent and variable. Additionally, HVDC systems can connect asynchronous power grids, allowing for the interconnection of different regions with varying electrical standards.

Recent advancements in HVDC technology have focused on enhancing the performance and reliability of converter stations, which are critical components of HVDC systems. Innovations in power electronics, such as voltage-sourced converters (VSCs), have played a significant role in this regard.

These advancements in HVDC converter technology have had a significant impact on grid performance. They have enabled the construction of more efficient and reliable HVDC substations, capable of handling higher power capacities and supporting the integration of renewable energy sources. The improved efficiency and control provided by these technologies are essential for modernizing the power grid and meeting the growing demand for clean and reliable energy.

Sicame has extensive experience in the design and manufacture of connectors for HVDC station converters, and its products have been installed in several HVDC converter worldwide.

Find here some examples of customized designs for HVDC converters applications.





05

Wildlife mitigation

Rip-stop™ insulating line hose	94
Fusing tape	96
Squirrel and woodpecker deterring pole wrap	98
Universal cutout and loadbreak cutout covers	100
Universal bushing + equipment covers	102
Raptor Guard™ spikes perching excluders	104

Wildlife mitigation

Rip-stop™ insulating line hose

Line hose prevents electrocutions by insulating dangerous energized areas. It can be used on any bare or non-insulated area or wire to add insulating protection.

Only tear resistant line hose in the industry

- Best in class silicone Rip-stop™ line hose does not tear/deteriorate/get hard/brittle
- Protects lines from contact-caused outages and adverse environmental conditions including vegetation, wildlife, weather, etc
- Available in gray and hi-viz orange or yellow
- 50% overlap provides superior coverage
- 35 kV insulation rating
- V-0 flame retardant material
- Easy hot stick or glove install



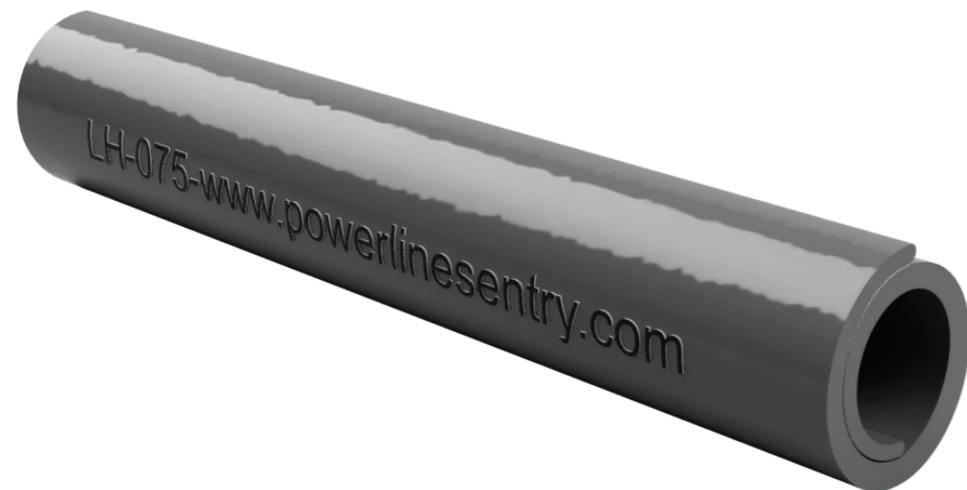
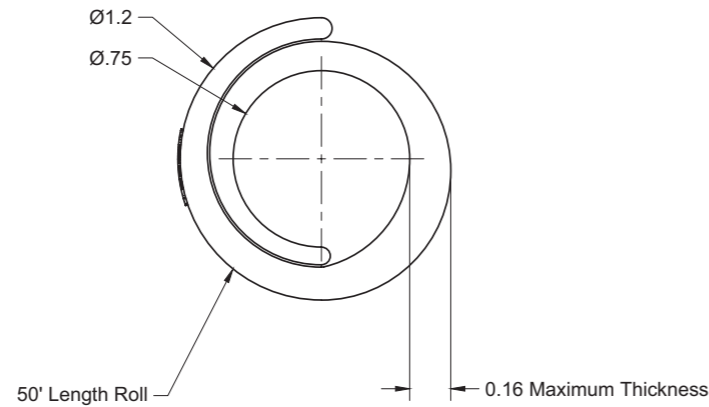
V-0
flame retardant



Very hotstick
friendly



Rated for systems
up to 345 kV



Part number	Color	Length	I.D.	kV rating	ACSR range	Conductor range	Min qty
LH-038-50	●	50'/15.24 m	3/8"/.95 cm	<25 kV	#6-2/0 ACSR	0.175"-5"/44 cm- 1.27 cm	-
LH-038-50-KT *	●	50'/15.24 m	3/8"/.95 cm	<25 kV	#6-2/0 ACSR	0.175"-5"/44 cm- 1.27 cm	-
LH-063-50	●	50'/15.24 m	5/8"/1.59 cm	<34.5 kV	1/0-336 ACSR	.375"-7"/.95 cm-1.78 cm	-
LH-063-50 KT *	●	50'/15.24 m	5/8"/1.59 cm	<34.5 kV	1/0-366 ACSR	.375"-7"/.95 cm-1.78 cm	-
LH-075-50	●	50'/15.24 m	3/4"/1.91 cm	<34.5 kV	266-477 ACSR	.6"-9"/1.52 cm- 2.29 cm	-
LH-075-50-KT *	●	50'/15.24 m	3/4"/1.91 cm	<34.5 kV	266-477 ACSR	.6"-9"/1.52 cm- 2.29 cm	-
LH-100-25	●	25'/7.62 m	1"/2.54 cm	<44 kV	397-715 ACSR	.74" - 1.1" / 1.88 cm - 2.8 cm	-
LH-100-25-KT *	●	25'/7.62 m	1" / 2.54 cm	<44 kV	397-715 ACSR	.74"-1.1"/1.88 cm-2.8 cm	-
LH-125-25	●	25'/7.62 m	1 1/4"/3.18 cm	<44 kV	715-1192 ACSR	1"-1.35"/2.54 cm- 3.43 cm	-
LH-125-25-KT *	●	25'/7.62 m	1 1/4"/3.18 cm	<44 kV	715-1192 ACSR	1"-1.35"/2.54 cm- 3.43 cm	-
LH-150-25	●	25'/7.62 m	1 1/2"/3.81 cm	<69 kV	1193-1780 ACSR	1.3" - 1.6" / 3.3 cm -4.06 cm	-

Tools	
LHT-038	Hotstick compatible installation tool for LH-038
LHT-038-R	Hotstick compatible installation tool set for full span installation of LH-038 rolls
LHT-063-075	Hotstick compatible installation tool for LH-063 and LH-075
LHT-100-125	Hotstick compatible installation tool for LH-100 and LH-125
LHT-150	Hotstick compatible installation tool for LH-150

Tests	Results
IEEE 1656/5.2 wet withstand	>20 kV
Tear strength	46.5 KN/M
ASTM D257-14 volume resistivity	5.20X10 ¹⁶ OHMS/cm
ASTM D257-14 surface resistance	1.61X10 ¹² OHMS
ASTM D257-14 insulation resistance	2.94X10 ¹² OHMS
ISO 37:2017 elongation at break	414%
ISO 7619-1:2010 shore hardness	62 SHORE A
ASTM D573-04 heat resistance	200°C/72 hrs 414% elongation, 65 shore A
IEEE 1656/5.6 Ultraviolet aging / ASTM G-155	1,000 hrs
UL 94 flammability of plastic materials	V-0
ASTM D149 dielectric strength	287 V/MIL (11.3 kV/mm)
ASTM D 3638 comparative tracking index	526 V
ASTM D150-18 dielectric constant and dissipation factor	2.96 // 0.004
ISO 812 brittleness temperature	>-94°F (-70°C)

Fusing tape

Fusing tape provides an irreversible bond that is resistant to moisture, oxygen, ozone, UV, and corona over a wide temperature range

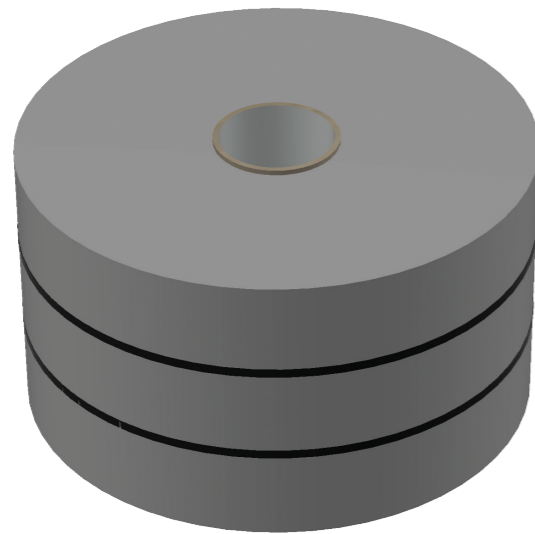
- Self fuses to seal
- Provides irreversible bond, but bonds only to itself
- Will not tear once sealed
- Protects over a wide temperature range
- Insulation barrier is resistant to moisture, oxygen, ozone, UV, and corona
- >15 kV phase-to-ground insulation rating per layer when installed with 2/3 overlap and 10% stretch
- >69 kV insulation available with additional layers
- Packaged in 2" x 36' roll - trim as needed
- V-0 flame retardant material
- Easy to use > install video



V-0
flame retardant



Rated for <69 kV
insulation



Part number	Length	Width	kV rating	Min qty	Conductor diameter
FTP-200	36'/10.97 m	2" / .05 cm	<15 kV per layer with proper installation	5	10 sets (30 total)

Tests	Results
ASTM D142 elongation at break	500%
ASTM D149 dielectric strength	684 V/MIL (26.9 kV/mm)
ASTM D142 tensile strength	1458 PSI (10053 kV/mm)
Temperature range	-60°F to -400°F (-51°C to -204°C)

Squirrel and woodpecker deterring pole wrap

Pole wrap is a cost effective solution for deterring climbing animals from interference with energized connections and equipment.

Widest coverage in the industry

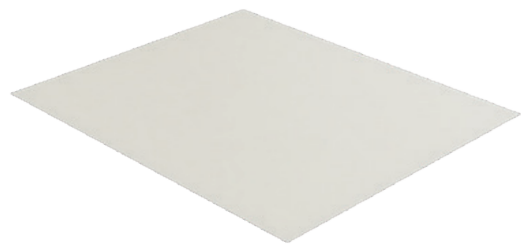
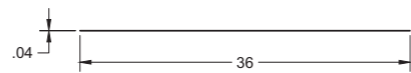
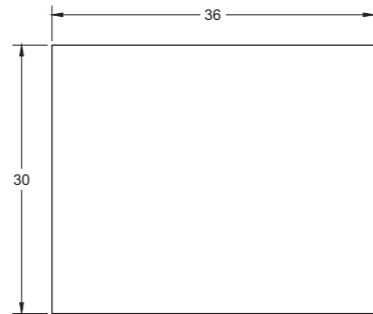
- Smooth, glossy exterior deters climbing animals on poles and substation fencing
- Prevents woodpeckers from landing/attaching to the surface and causing structural damage to the pole
- Textured interior helps prevent accelerated pole rot - only one of its kind in the industry
- 30" of coverage, can be overlapped for extended coverage
- UV resistant polymer prevents accelerated weathering
- V-O flame retardant material available
- Lineman climbable / affable
- Non conductive - provides <30 kV insulation per layer



V-O
flame retardant



Rated at <30 kV
insulation



Part number	Length	Height	Pkg	Color	kV rating	Min qty
PW-040-1-G	100' / 2.54 m	30"/76.2 cm	1 Roll	●	< 30	5
PW-040-1-3-G	36" / .91 m	30"/76.2 cm	20 Sheets	●	< 30	-

Tests	Results
ASTM D-149 Dielectric strength	>30 kV @ .040"
ASTM D1822 Tensile impact	>200 FT-LB/IN
ASTM D746 Low temperature brittleness	-79°C
ASTM D1693 Environmental stress crack resistance	>1,000 hrs

Universal cutout and loadbreak cutout covers

Cutout covers insulate exposed portions of cutout equipment to prevent electrocution events and power outages.

Adjusts to fit

- Only adjustable cover in the industry
- > Standard cover clips provide 2" (5 cm) height adjustment for universal secure fit on most polymer and porcelain 100 and 200 amp cutouts
- > Loadbreak cover features Raptor Claw™ roto lock for adjustable internal diameter, providing a universal secure fit on ABB, Hubbell-Chance, Aluma-Form and Maclean style loadbreak cutouts (shed widths up to 5")
- Neck adjusts to the size of the cutout for a tight and secure universal fit
- Fully covers all energized portions
- Allows insulator sheds to naturally clean
- Open design allows for easy access during inspections
- Standard cover allows for load break tool access
- V-O flame retardant material
- Hot stick friendly, snaps into position, no locking pins



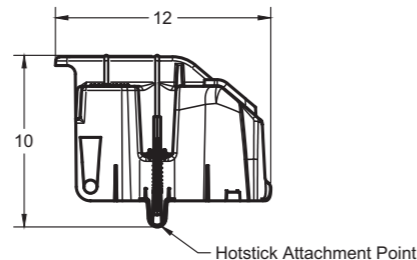
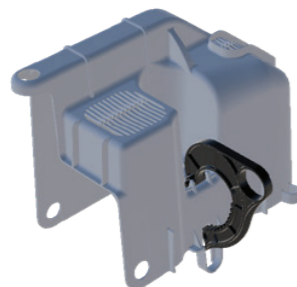
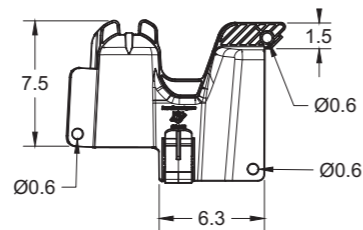
V-O
flame retardant



Very hotstick
friendly



Rated at <35 kV
insulation



Part number	Fit	Shed diameter	kV rating	Min qty
CT-D02	most polymer and porcelain 100 and 200 amp cutouts	<3"/7.62 cm	<35	20
CT-D04	ABB, Hubbell-Chance, Aluma-Form and Maclean style loadbreak cutouts (shed widths up to 5")	<5"/12.7 cm	<35	20

Tests	Results
IEEE 1656 / 5.2 wet withstand	>18 kV
IEEE 1656 / 5.3 wet power frequency flashover	>95%
IEEE 1656 / 5.4 lightning impulse withstand	125 kV
IEEE 1656 / 5.5 cold temperature test	Passed/-25°C
IEEE 1656 / 5.6 ultraviolet aging	5,000 hrs
Wind retention	>90 MPH
UL 94 flammability of plastic materials	V-0
ASTM D149 dielectric strength	467 V/MIL (18.4 kV/mm)
ASTM D2303 inclined plane tracking and erosion: initial tracking (variable voltage)	4.0 kV
ASTM D638 tensile strength @ yield	2,400 PSI (17 MPA)
ASTM D790 flexural modulus	140,000 PSI (966 MPA)
Regulatory	Rohs compliant

Universal bushing + equipment covers

Equipment covers insulate connection points between the conductor and the equipment to prevent electrocution events and power outages.

Adjusts to fit

- Only adjustable cover in the industry
- > Small cover fits sheds up to 4" (10.16 cm) wide x 6" (15.24 cm) tall to fit most transformer bushings
- > Medium cover fits sheds up to 5.5" (13.97 cm x 20.32 cm) wide x 8" tall to fit most reclosers and regulators
- Clam shell design adjusts to the size of the equipment for a tight and secure universal fit
- No-wear hinges provide superior durability (no tape needed!)
- Multiple entry/exit options
- Full topside closure for superior salt, air pollution, ozone, dust, and other contaminate protection
- Multiple hotstick attachment points
- V-O flame retardant material
- Easy hotstick install-no locking pins
- Small cover is infrared friendly



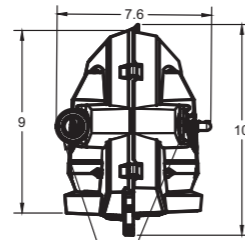
V-O
flame retardant



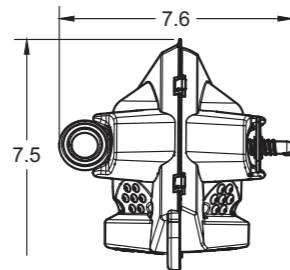
Very hotstick
friendly



Rated at <35 kV
insulation



Bolt and Snap-in Nut for Size Adjustment



Part number	Shed diameter	Rod diameter	Height	kV rating	Min qty
BC-D01	< 4"/10.16 cm	< 2.5"/6.35 cm	< 6"/15.24 cm	< 35	20
BC-D02	< 5.5"/13.97 cm	< 3"/7.62 cm	< 8"/20.32 cm	< 35	20

Tests	Results
IEEE 1656 / 5.2 wet withstand	>18 kV
IEEE 1656 / 5.6 ultraviolet aging	5,000 hrs
UL 94 flammability of plastic materials	V-0
ASTM D149 dielectric strength	467 V/MIL (18.4 kV/mm)
ASTM D2303 inclined plane tracking and erosion: initial tracking (variable voltage)	4.0 kV
ASTM D638 tensile strength @ yield	2,400 PSI (17 MPA)"
ASTM D790 flexural modulus	140,000 PSI (966 MPA)
Regulatory	Rohs compliant

Raptor Guard™ spikes perching excluders

Perching excluders on transmission structures isolate dangerous energized areas and deter birds of prey from using structures as hunting perches.

Adjusts to fit

- Blunt-tipped solid fiberglass spikes deter perching, as proven by live flight cage raptor tests conducted in collaboration with the Rocky Mountain Raptor program
- Engineered to maintain structural integrity under extreme environmental conditions for decades
- Durability and effectiveness have been highlighted in the pilot programs by the Washington State fish and wildlife and the bureau of land management
- Optional side extension covers vertical insulators or ends of cross arm
- Modular design allows for custom lengths
- Magnetic hot stick install option is available
- WWUL 94 V-0 flame retardant material



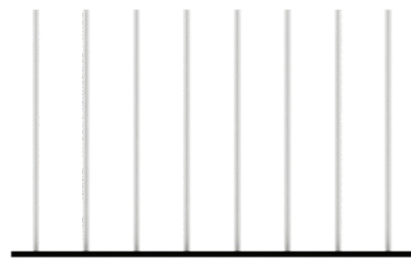
V-0
flame retardant



Very hotstick
friendly



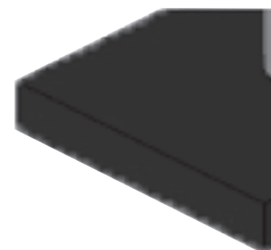
Rated for all
voltages



Standard spikes



Spikes with extra coverage



Base options - Flat

Part number	Coverage	Mount type	Min qty
RGSP-12-EC *	12" / 30.48 cm	Cross arm	10
RGSP-24	24" / 60.96 cm	Cross arm	20
RGSP-24-EC *	24" / 60.96 cm	Cross arm	10
RGSP-36	36" / 91.44 cm	Cross arm	10
RGSP-36-EC *	36" / 91.44 cm	Cross arm	10
RGSP-48	48" / 121.92 cm	Cross arm	10
RGSP-48-EC *	48" / 121.92 cm	Cross arm	10

* Spikes with EC feature additional side spike extension to cover vertical insulators or ends of arm.

Tests	Results
UL 746C outdoor weatherability	F1
UL-94 flammability	V-0 // 5VA @ .118"thickness
ASTM D-256 impact strength	23.0 FT-LB/IN
ASTM D695 flexural stress	3,810 PSI

06

Grounding and short circuiting equipment



Earthing and short-circuiting clamps for busbars and line conductors	108
Earthing and short-circuiting clamp for bare overhead conductors	110
C type cooper connectors	111
Self-extending copper-steel rods	112
Connector heads for earthing rods	113
Improvement of earthing systems	114
Exothermic connection	115

Grounding and short circuiting equipment

Earthing and short-circuiting clamps for busbars and line conductors

Use:

- Grounding and shorting of bare rigid cylindrical conductors (Tubes and earth bars)
- For medium and high voltage substations
- Maximum short circuit current I_{sc}: 40 kA / 1s

Characteristics:

- 4 sizes of clamps for conductors from 4 to 225 mm
- 3 drives available: bayonet, hexagonal, ring
- 2 range levels: Pro and Expert



MT-736-065-PE



MT-736-085-XH



MT-736-150-XE



MT-736-225-XH

Pro

Metric screw tightening:

Metric screw tightening involves applying a specific torque to a screw to ensure proper clamping force.

Part number	Range tightening (mm)	Drive		
		Bayonet 15 mm	Hexagonal 26 mm	Ring
MT-736-065-PE	Ø 4 - 65	x		
MT-736-065-PH			x	
MT-736-065-P				x
MT-736-085-PE	Ø 10 - 85	x		
MT-736-085-PH			x	
MT-736-085-P				x
MT-736-150-PE	Ø 40 - 150	x		
MT-736-150-PH			x	
MT-736-150-P				x
MT-736-225-PE	Ø 110 - 225	x		
MT-736-225-PH			x	
MT-736-225-P				x

Expert

ACME screw tightening:

Quick tightening for more productivity.

Part number	Range tightening (mm)	Drive		
		Bayonet 15 mm	Hexagonal 26 mm	Ring
MT-736-065-XE	Ø 4 - 65	x		
MT-736-065-XH			x	
MT-736-065-X				x
MT-736-085-XE	Ø 10 - 85	x		
MT-736-085-XH			x	
MT-736-085-X				x
MT-736-150-XE	Ø 40 - 150	x		
MT-736-150-XH			x	
MT-736-150-X				x
MT-736-225-XE	Ø 110 - 225	x		
MT-736-225-XH			x	
MT-736-225-X				x

Example:

MT-736-085-XH clamp type MT-736 for bare conductors from 10 to 85 mm with an ACME quick screw driven by a hexagonal fitting end.

MT-736-XXX-XX

Range taking

- 065"for conductors from 4 to 65 mm
- 085"for conductors from 10 to 85 mm
- 150"for conductors from 40 to 150 mm
- 225"for conductors from 110 to 225 mm

Screw operating fitting end

- "E" Bayonet 15 mm
- "H" Hexagonal 26 mm
- "" Ring

Set screw type

- "P" ISO screws
- "X" ACME screws

The products

- 24 references to cover all applications
- Bayonet, hexagonal or ring drive
- Maximum ICC of 40 kA / 1s

Earthing and short-circuiting clamp for bare overhead conductors

Use:

- **Easy removal:** New oversized ring to facilitate gripping with the hook of the clamp holder
- **Improved connectivity:** For use with $\varnothing \geq 12$ mm and ≤ 13 mm bolt for terminal tightening

New range:

Reference	Type	Isc
MT-613	Pre-Arming	23 kA / 1s (High power spring)
MT-613/1	Automatic	23 kA / 1s (High power spring)
MT-613/2	Automatic	8 kA / 1s (Low power spring)
MT-613/3	Pre-Arming	8 kA / 1s (Low power spring)



+

The products

- **Design:** Improved ergonomics
- **Better ISC:** For more safety
- **Improved connectivity:** For all uses
- **Productivity:** Even more competitive

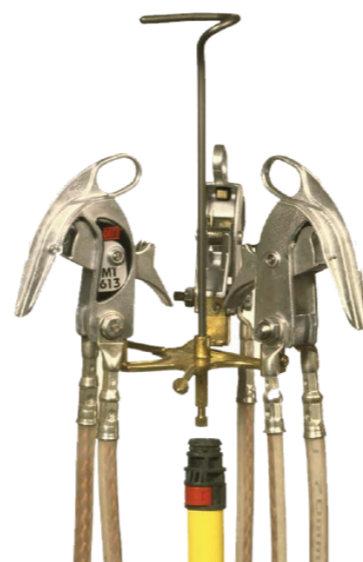
Compatible clamp holder trays:

For automatic grippers: MT-613/1 & MT-613/2

- Tray for 3 clamps: MT-630-C / K / S; MT-635-C
- Tray for 4 clamps: MT-634-C / K

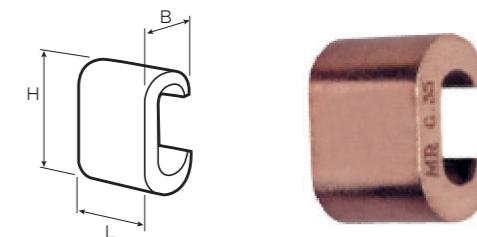
For pre-cocking clamps: MT-613 & MT-613/3

- Tray for 3 clamps: MT-635/1-K; MT-633-C / K / S
- Tray for 4 clamps: MT-634/1-C / K



C type cooper connectors

- Application Cu-Cu splices and shunts in overhead lines and ground connections. Pure electrolytic copper with a (C) shape
- Without cutting the main cable
- Contact a specialist for details on the crimping tools



Reference	L	H	B	Principal conductor (mm ²)		Secondary conductor (mm ²)	
				Min	Max	Min	Max
YC10	8	9,8	6,4	2,5	6	1,5	6
YC8	12,7	12,6	8,4	10	10	1,5	10
C25PM	19	21	11,9	25	25	10	16
C16	17	19	11,5	10	16	2 x 1,5	16
VC4C6	17,7	19,3	11,9	16	25	2,5	16
YC4	17,7	21	11,9	16	25	16	25
C25	20	24,3	15	25	29,3	10	29,3
C35	20	26,5	15	30	35	25	35
YC2C2	21,2	26,5	15,6	35	40	35	40
C50	20	26,5	17,2	50	50	16	50
YC26C2	28	33,1	20,4	50	70	10	35
YC26	28	34,1	21	50	70	40	70
C95-35	30	41	26	95	100	4	40
C75	30	41	26	70	95	35	70
YC28	29	39,6	25,1	95	100	95	100
YC29	30	44	27	100	125	25	125
YC31C28	27,2	44,1	27,2	150	185	25	100
YC240C120	22,4	68	34	150	240	95	120
C150	30	45	28	150	150	75	150
C185	35	54	33	150	185	60	150
YC120C070	18,5	50	23,5	95	120	10	70
YC120C	21,8	52,5	24	95	120	95	120
YC240C070	22,4	61	31	150	240	10	70
YC240C	32	74	34	150	240	150	240

Self-extending copper-steel rods

Self-extending copper-steel rods (round shape, module 19, \varnothing 17.3 mm)

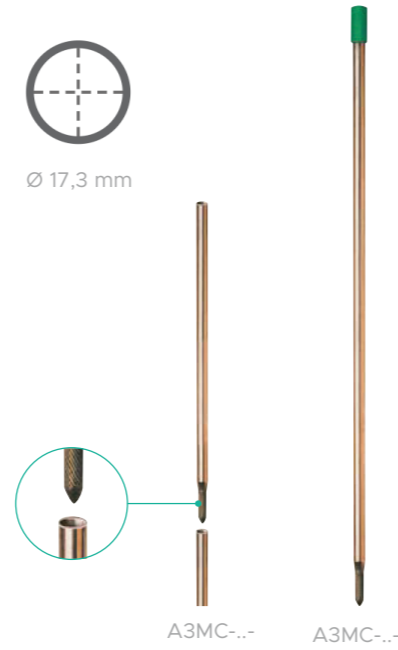
Network type: LV

Application:

- For the evacuation of fault currents to earth
- Self-extending rods: the lower end of each rod has a point intended both for driving in and connecting; the upper end is pierced, receiving, without any sleeve, the point of the previous rod

Features:

- Steel with copper electroplating: minimum thickness 350 μ m
- Resistance: ≥ 70 daN/mm²



Part number	Connector	Profile	Use EN	Diameter (mm)	Weight (kg)	Length (mm)
A3MC-10Z	Cosses C2C-95Z, TO-2-19 and TO-3-16/19	Circular	Auto-extending	17.3	1,8	1 000
A3MC-15Z	Cosses C2C-95Z, TO-2-19 and TO-3-16/19	Circular	Auto-extending	17.3	2,75	1 500

Accessories:

- Driving pins: CH-MZ, CH-LMZ and CH-MP
- Connection terminals: C2C-95Z, TO-2-19 and TO-3-16/19



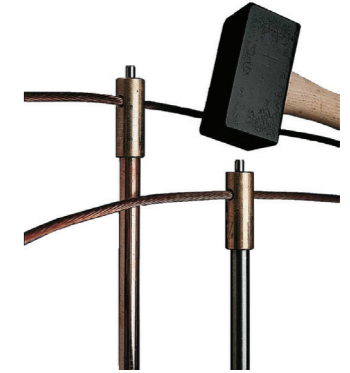
Connector heads for earthing rods

Connector heads for earthing rod.

Network type: LV

Application:

- Head/rod connection obtained by conical press-fitting with force
- Head/cable connection made by striking a stainless steel peg located in the upper part of the head. This strike guarantees the connection head/posts and head/cable
- For earthing rods: \varnothing 17,3 mm copper-steel and \varnothing 16 mm stainless-steel
- Right-angled running through copper cable 25-29 mm²



Part number	Fitting	Mounting	Diameter (mm)	Capacity	Height (mm)	Weight (kg)
TFT-16/17	Copper steel stake D. 17.3 mm and steel	Copper steel stake D. 17.3 mm and stainless steel D. 16 mm	25	Cu 25 / 29 mm ²	75	0,15

Improvement of earthing systems

Improvement of earthing systems.

Network type: LV | Standards: IEC 62561-7

Application:

- Material of very high conductivity which considerably improves the efficiency of earth circuits
- Spread around the earth conductors at the bottom of the trench, it allows to locally reduce earth resistance and impedance
- Can be used dry or mixed with water

Physical and chemical features:

- Solubility in water: not very important
- Specific gravity (H₂O=1): 0.9
- Melting temperature: 3500°C
- Appearance: grey powder

Composition:

- Aluminum silicate hydroxide
- Carbon
- Hydraulic binders
- Quartz crystals
- Dust fixing oil
- Sulphur



Reference	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
TR-115	500	150	300	11,5

Exothermic connection

The ultimate solution for safe and reliable exothermic connections

Cat'advanced weld consists of the following components:



Superior performance:

- **High-quality electrical connection:** Achieves a molecular bond that ensures long-lasting durability
- **Corrosion resistance:** Designed to withstand harsh environments, ensuring reliability over time
- **High conductivity:** Ensures optimal electrical performance
- **Mechanical strength:** Exceptional resistance to mechanical stresses


User-friendly:

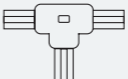
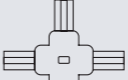

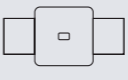


- **Fast installation:** No need to handle welding metal - simply “plug and play”
- **Easy to use:** Simplified installation to reduce the risk of error
- **Quick setup:** Achieve a permanent connection in 5 steps
- **Easy to store and transport:** No starting powder included in cup

Product	Characteristics	Ref. to order separately
Electronic ignitor	Safety light and warning sound Ignition starts when pressing 2 keys simultaneously Minimum of 5000 welds Delivered with 1.8 m lead and Type C charger	CEW-EI
Handle clamps	Used to close the mold Unique handle clamp for all configurations Gloveasy: user-friendly to operate with gloves Ergonomic Heat resistance	CEW-HC
Welding powder	Self contained welding material with copper oxide and aluminium Safer transportation and storage Available in 65 g, 90 g, 115 g, 150 g, 200 g ie : CEW-WP150 (welding powder 150 g)	CEW-WPXXX
Graphic mold	Delivered with metal plate indicating the quantity of powder required (from 65 to 200 g) Part number to be defined according to customer needs ie : CEW-050T050 (T connection for 2 cables of 50 mm²)	CEW-XXXXXXX

Extensive configurations to meet your needs

CAT'ADVANCED WELD offers a range of configurations to suit multiple applications:

Connection type	Illustration	Primary conductor in mm²	Secondary conductor in mm²	Mold reference	Welding powder Reference
End to End connection		25	25	CEW-025E025	CEW-WP65
		35	35	CEW-035E035	CEW-WP65
		50	50	CEW-050E050	CEW-WP65
		70	70	CEW-070E070	CEW-WP65
		95	95	CEW-095E095	CEW-WP90
		120	120	CEW-120E120	CEW-WP115

Connection type	Illustration	Primary conductor in mm²	Secondary conductor in mm²	Mold reference	Welding powder Reference
T connection		25	25	CEW-025T025	CEW-WP65
		35	25	CEW-035T025	CEW-WP65
		35	35	CEW-035T035	CEW-WP65
		50	35	CEW-050T035	CEW-WP65
		50	50	CEW-050T050	CEW-WP90
		70	50	CEW-070T050	CEW-WP90
		70	70	CEW-070T070	CEW-WP90
		95	70	CEW-095T070	CEW-WP90
		95	95	CEW-095T095	CEW-WP115
		120	95	CEW-120T095	CEW-WP150
120	120	CEW-120T120	CEW-WP150		
Cross connection		25	25	CEW-025X025	CEW-WP65
		35	25	CEW-035X025	CEW-WP65
		35	35	CEW-035X035	CEW-WP65
		50	35	CEW-050X035	CEW-WP90
		50	50	CEW-050X050	CEW-WP90
		70	50	CEW-070X050	CEW-WP115
		70	70	CEW-070X070	CEW-WP115
		95	70	CEW-095X070	CEW-WP150
		95	95	CEW-095X095	CEW-WP150
		120	95	CEW-120X095	CEW-WP200
120	120	CEW-120X120	CEW-WP200		
Parallel connection		25	25	CEW-025P025	CEW-WP65
		35	25	CEW-035P025	CEW-WP65
		35	35	CEW-035P035	CEW-WP65
		50	35	CEW-050P035	CEW-WP90
		50	50	CEW-050P050	CEW-WP90
		70	50	CEW-070P050	CEW-WP115
		70	70	CEW-070P070	CEW-WP115
		95	70	CEW-095P070	CEW-WP150
		95	95	CEW-095P095	CEW-WP150
		120	95	CEW-120P095	CEW-WP200
120	120	CEW-120P120	CEW-WP200		
End to End connection for tape conductors		25x3 mm	25x3 mm	CEW-253E253	CEW-WP90
		30x2 mm	30x2 mm	CEW-302E302	CEW-WP65
T connection for tape conductors		25x3 mm	25x3 mm	CEW-253T253	CEW-WP90
		30x2 mm	30x2 mm	CEW-302T302	CEW-WP90
Cross connection for tape conductors		25x3 mm	25x3 mm	CEW-253X253	CEW-WP150
		30x2 mm	30x2 mm	CEW-302X302	CEW-WP115



Sicame Group

+33 (0)5 55 73 89 00
1 boulevard Marius Vivier Merle, 69003 Lyon, France

● [sicame-group.com](https://www.sicame-group.com)

Sicame North America
[sicame-north-america.com](https://www.sicame-north-america.com)

+1 866-457-4830
info@sicamena.com

1674 Frontenac Rd, Naperville
IL 60563, United States of America

