



Energy Division

Axicom Hollow-Core Composite Station Post Insulators SPI

SPI

Axicom Hollow-Core Composite Station Post Insulators

Axicom Composite Insulators from Tyco Electronics have been in service worldwide for 2 decades as important components of high voltage apparatus. Modern circuit breakers, instrument transformers, cable terminations and other components in high voltage substations utilize this advanced technology for voltages up to 800kV. Far more than 100,000 units in service confirm customer's trust in Axicom composite technology. Building on two decades of experience we are able to offer station post insulators to make substations more reliable and less sensitive to environmental stresses.



Application

Busbar support and disconnectors of air insulated high voltage substations are the most popular application areas. The superior behaviour of Axicom composite insulators SPI vs porcelain types is of particular interest in heavy polluted areas and/or countries with seismic threats. As these insulators do not need any cleaning or maintenance they can change a normal air insulated substation into a "minimum maintenance substation".

Design

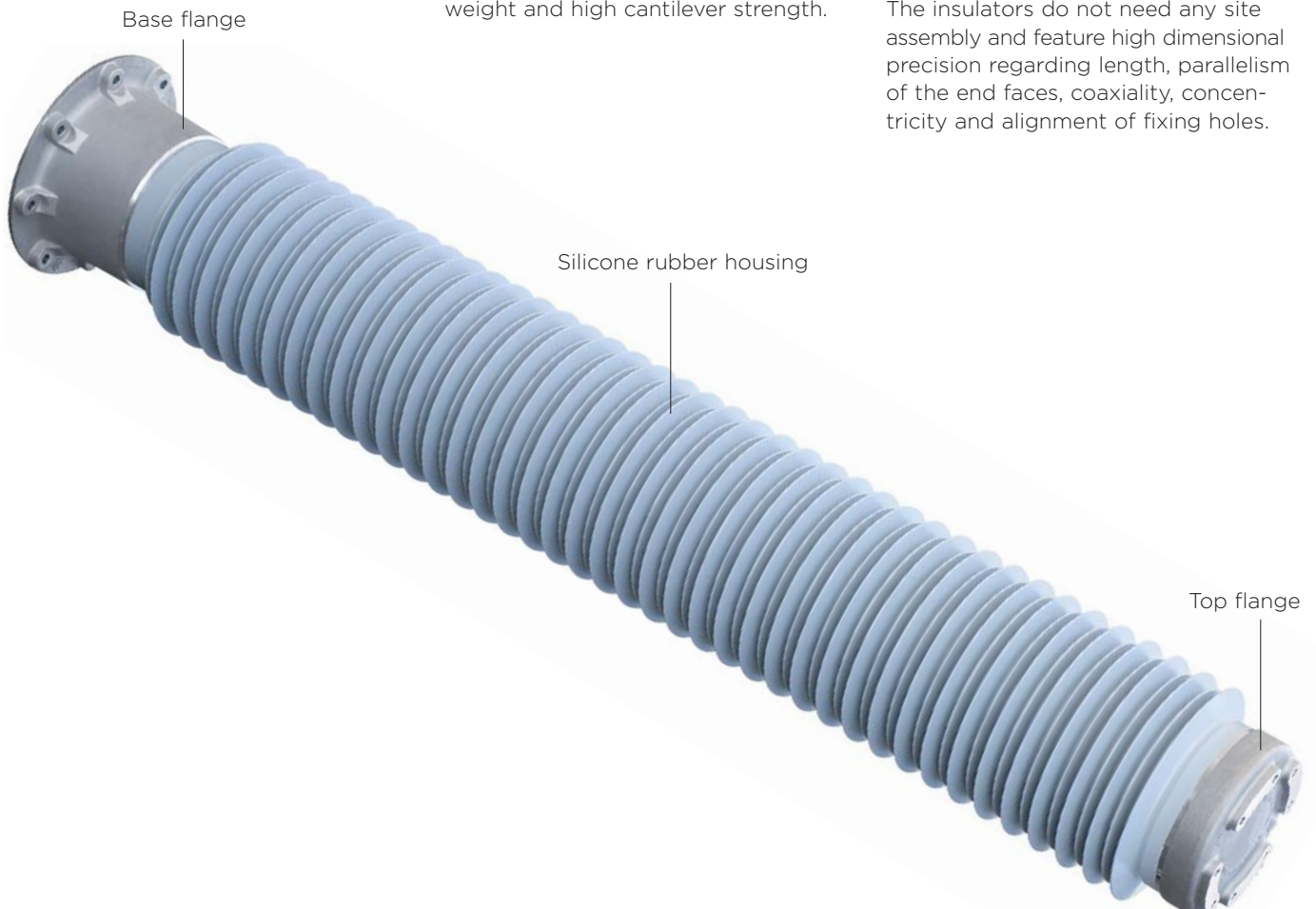
Station post insulators - SPI - consist of a high strength epoxy impregnated glass fibre tube, corrosion resistant flanges and tracking/erosion resistant silicone weather sheds. The silicone material is identical with the proven non-filled silicone type used in Axicom's hollow insulators for bushings. In order to avoid any accumulation of moisture inside the tube the insulator is filled with a long term reliable, high resistance solid foam. This design allows for the combination of light weight and high cantilever strength.

Light weight

Axicom SPI insulators are much lighter compared with the porcelain equivalent. Lower weight allows the designer to save cost in support structure, it allows for easier handling during erection of the substation. The weight of a porcelain C6-650 is approx 95kg - the equivalent SPI 6-650 is only 32kg.

Up to 800kV - one piece design without intermediate flanges

All SPI insulators up to a total length of 10m consist of a single piece. The insulators do not need any site assembly and feature high dimensional precision regarding length, parallelism of the end faces, coaxiality, concentricity and alignment of fixing holes.



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High creepage distance

All SPI types have a common alternating shed profile which is identical with the Axicom hollow-core insulators with their 20 years of proven service. Depending on the operating voltage pollution, class 3 or 4 in accordance with IEC 60815 can be achieved. As indicated in the latest drafts of this standard (under revision) the specific creepage distance required for the superior silicone material can be reduced vs the creepage of porcelain.

Main components

High strength tube

The tube is an internal insulating part of a composite hollow insulator and is designed to ensure the mechanical characteristics. The tube is generally manufactured of resin-impregnated fibers in our own factory. The impregnation resin is an epoxy resin with properties, which are especially adapted to the requirements of high voltage and outdoor applications. The endless fibers are arranged in such a manner to achieve specified mechanical strength and guarantee the lowest deflection under cantilever load.



In-house laboratories for mechanical testing

Corrosion resistant flanges

The end flanges are part of the composite hollow insulator and they are assembled with the tube using Axicom's special connection technique in order to transmit the mechanical loads and provide the seal to the supporting structure and adjacent structure. Special flanges can be offered on request. The end flanges are available on mainly aluminum alloy castings in order to provide a high performance and corrosion resistance.

Closed cell foam inside

The inside of SPI insulators is completely filled with a special closed cell foam. This foam material is firmly bonded to the inside of the tube. Its main purpose is to ensure the inner electrical strength and avoid water accumulation inside the tube during the lifetime of the product.

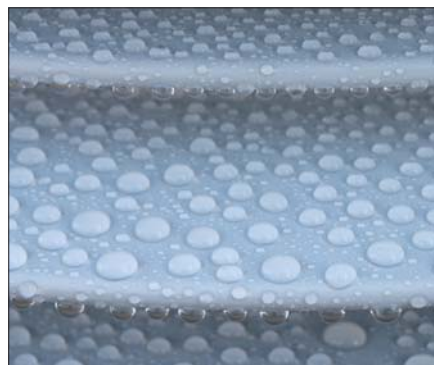


Silicone moulding shop

High quality silicone rubber housing

The silicone rubber housing is directly molded onto the tube. The housing as the external insulating part of a composite hollow insulator performs the necessary electrical functions like creepage distance as well as acting as environmental protection. The applied silicone rubber has been developed specifically for the manufacturing of our high voltage insulators. The electrical properties have been optimized according to the Silicone Rubber Programme of Axicom. Special surface treatments of both, the tube and metal end flanges by using primer systems guarantee a perfect bond of the silicone rubber with the tube as well as with the flanges.

This silicone rubber has outstanding properties like tracking and erosion resistance, UV resistance, flexibility, high tear strength and a very high and long term stable hydrophobicity. These properties were confirmed by rigorous testing and service experience.



Hydrophobic surface of Axicom SPI insulators

The stable hydrophobicity of its outstanding silicone rubber housing makes SPI insulators maintenance free - no cleaning required.

Selection is easy

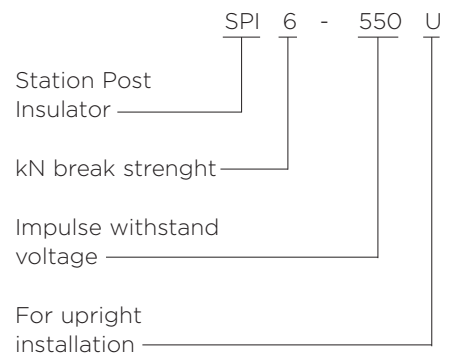
For many substation designs the mechanical and electrical requirements are defined, based on porcelain station post insulators. Each Axicom SPI insulator is designed to replace a specific porcelain type. Selection is easy as the part description contains the familiar IEC 60273 numbers.

For upright and hanging applications

All SPI insulators can be ordered alternatively for upright and hanging application.

U: Upright
H: Hanging

This information is part of the product description



For 20 years - the high voltage industry and utilities around the world have counted on Axicom composite insulators



800kV dead tank breaker



245kV GIS



420kV power transformer



420kV life tank breaker



420kV instrument transformer

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale. Axicom, TE Logo and Tyco Electronics are trademarks.

Energy Division - innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, lighting controls, power measurement and control.

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Our commitment. Your advantage.