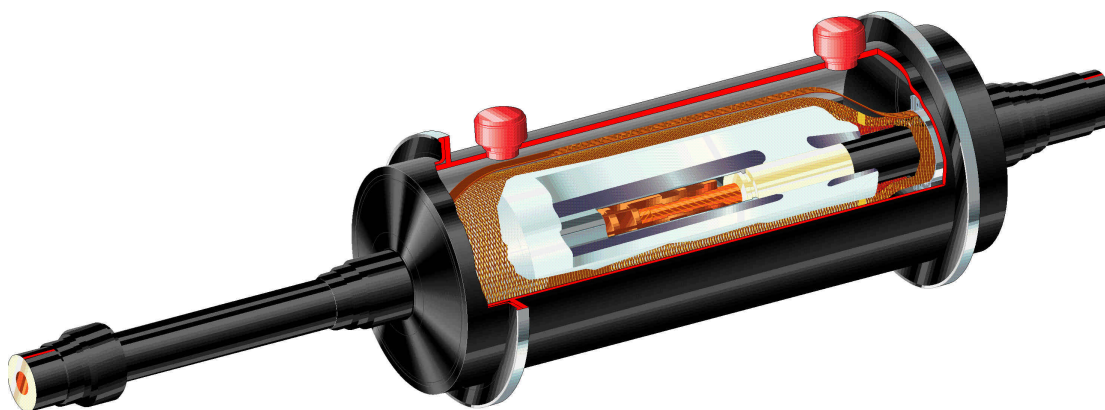


## HIGH VOLTAGE SILICONE SLIP-ON JOINT 72.5KV - 300KV

*ixosil*® MSA



### GENERAL

The MSA slip-on joint is a compact, easy and fast to install silicone rubber slip-on joint with geometrical stress control. This was a result of design and development by a highly skilled and dedicated R&D team using advanced materials and the latest technologies in design and manufacturing, hand in hand with the Sefag ixosil installation department. The extensive field experience of the Sefag ixosil installation team helped to design one of the easiest joints to install using few installation tools and minimal assembly time while offering operational reliability.

The silicone rubber body and stress cones are produced in a clean room environment to ensure products of the highest quality and reliability. The finished one piece joint body is slipped onto the cable and the integrated stress control elements controlling the electrical field inside the joint. The cable conductor is connected by compression or optional with welding or shear-off bolts.

The advantages of the Sefag ixosil single piece joint are multiple. Due to its compact size the jointing pit size is greatly reduced. Each joint can be used over a broad range of cable diameters, thus reducing the requirement to carry large inventories of joints. This is particularly useful for customers using more than one diameter of cable.

### BENEFITS

- Compact size : less weight, smaller joint bay
- Clean room : constant high quality
- Installation : fast, few tools, no hydraulic equipment
- Flexibility : short delivery time, availability of different sizes

### APPLICATION

The MSA slip-on joint is designed to connect two high voltage polymeric cables with copper or aluminium conductors. The joint is available with integrated screen insulation, therefore it can be used for any kind of cable screen.

### ORDERING DATA

- Cable design and operating voltages
- Cross-section of conductor and cable screen
- Material of conductor
- Min. and max. insulation diameter
- Type of screen treatment and outer casing

### QUALITY ASSURANCE

The Sefag ixosil quality system is in compliance with ISO 9001:2000 standard. Every single joint body is electrically routine tested and visually examined before leaving the factory.

## SPECIAL CHARACTERISTICS

The slip-on joint is made entirely of high-grade silicon rubber with one premolded and pretested silicone rubber body. The stress control elements are cast into the stress cones and are likewise of silicon rubber. They have an exactly calculated and optimised external contour. This ensures that the field strength is within the permitted range at every point in the joint and for every operating status.

The elasticity of the silicone rubber enables the joint to accept diameter tolerances as well as changes in cable diameter caused by variations in load. The low Shore A hardness of the silicone material prevents constriction of the core insulation even under high alternating loads allowing it to adapt to any unevenness in the stripped core insulation.

This joint system ensures high operating reliability and is also absolutely maintenance-free even under extreme loading conditions. The proven slip-on technique requires little assemble work and minimises the fitting risk.

## JOINT TYPES

Straight through joints and joints with integrated screen interruption for cross bonding systems are available. Depending on the cable construction different options are available to electrically re-connect the metallic cable sheaths or wire screens. The MSA joint is available with a solid plastic, metal casing protection or with a shrink sleeve to protect the joint against moisture ingress and external damages. The joint is fully submersible in water.

MSA170DO.\_



Screen transition

MSA170.\_.S



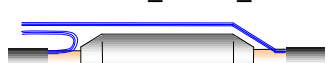
Shrink sleeve

MSA170.\_.MS



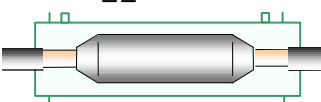
Metal water barrier with shrink sleeve

MSA170XL.\_ or XK.\_



Screen interruption with screen take out

MSA170.\_.G



Plastic casing with filling compound

MSA170.\_.MG



Metal water barrier with plastic

## ELECTRICAL LEVELS

	MSA72	MSA123	MSA145	MSA170	MSA245	MSA300
Highest voltage Um	72.5kV	123kV	145kV	170kV	245kV	300kV
Rated voltage	60 - 69kV	110-115kV	132-138kV	150-161kV	220-230kV	275kV
Lighting impulse withstand voltage (BIL)	325kV	550kV	650kV	750kV	1050kV	1050kV
AC withstand voltage 30 min	90kV	160kV	190kV	218kV	318kV	400kV
Heating cycle test voltage	72kV	128kV	152kV	174kV	254kV	320kV
Partial discharge test < 5pc at	54kV	96kV	114kV	131kV	190kV	240kV

## ELECTRICAL ROUTINE TEST

	MSA72	MSA123	MSA145	MSA170	MSA245	MSA300
AC withstand voltage 30min	90kV	160kV	190kV	218kV	318kV	400kV
Partial discharge test < 5pc at	54kV	96kV	114kV	131kV	190kV	240kV

## STANDARDS

Complete typetest according IEC 60840/62067 was performed under official supervision. Routine test are performed according IEC60840/62067.

## RANGE OF APPLICATION

Temperature	: -40°C to +120°C
Cable cross-section	: max. 2000 mm <sup>2</sup>
Diameter over insulation 72kV	: 37 mm -103mm
Diameter over insulation 123-170kV	: 45 mm -103mm
Diameter over insulation 245-300kV	: 52 mm -103mm