



K-LINE INSULATORS LIMITED
TORONTO, ONTARIO, CANADA

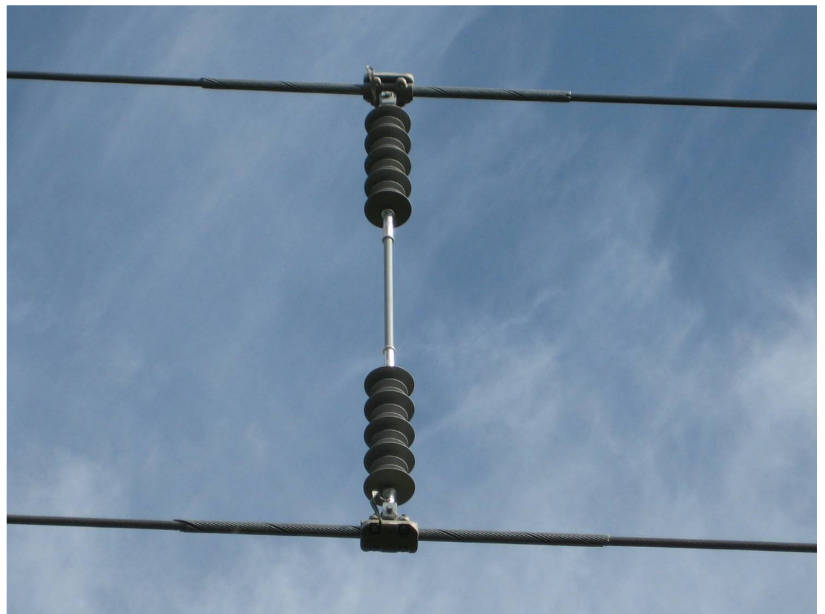
Catalogue TD-IPS

TRANSMISSION & DISTRIBUTION

SILICONE INSULATORS

InterPhase Spacers

15 kV to 400 kV



ISO9001
SAI GLOBAL
FILE No. 000117

Transmission & Distribution Silicone InterPhase Spacers

With environmental exposure to ice and/or wind, Overhead Transmission and Distribution Lines are susceptible to conductor motion that may result in outages or interruptions on the electrical system due to conductor contact, flashovers, or plant damage. InterPhase Spacers (IPS) were developed to minimize the probability of these occurrences by maintaining conductor separation.

K-LINE INSULATORS LIMITED (KLI) InterPhase Spacers consist of silicone rubber sheds and sheath injection molded over a fiberglass rod and may be coupled with silicone rubber covered rods to increase length. Although lightweight and flexible, InterPhase Spacers are designed to meet the torsional, bending and compression loads of the application. There are a variety of end fittings options available depending on the conductor clamping requirements with or without armour rod. **KLI** InterPhase Spacers meet the requirements of IEC 61109, ANSI C29.13, ANSI C29.12, CSA C411.5 and CSA C411.4.

K-LINE INSULATORS LIMITED is registered to ISO 9001 Quality Systems.

PERFORMANCE BENEFITS

The performance benefits of **KLI** InterPhase Spacer Insulators are listed below.

- Improves Reliability (by mitigating interruptions and outages due to conductor contact, flashovers or plant damage in all types of environments)
- Safety (light weight for handling and installation)
- Service Life (consistent performance over its service life)
- Life Cycle Cost (savings over ceramic insulators)

APPLICATION

The quantity and placement of InterPhase Spacers in a span depends on the span length and the application. Contact your **KLI** Representative for application / placement instructions.

CORE ROD

The core rod of the insulator is made of a high quality, epoxy resin, E-Glass fiberglass rod that has been specially formulated for electrical and mechanical applications.

HOUSING

The housing (includes sheath and sheds) of the insulator is one piece, high temperature vulcanized, injection molded silicone rubber that is chemically bonded to the core rod. This ensures that the interface between the rubber and rod is impenetrable against moisture ingress. **KLI** uses its own proprietary silicone rubber formula in the manufacture of its insulators. The formulation has silicone rubber as the base polymer material with additives to enhance its performance in wet and contaminated environments.



Crossing InterPhase Spacer



InterPhase Spacer installation from Helicopter using Barehand/Live Line work method

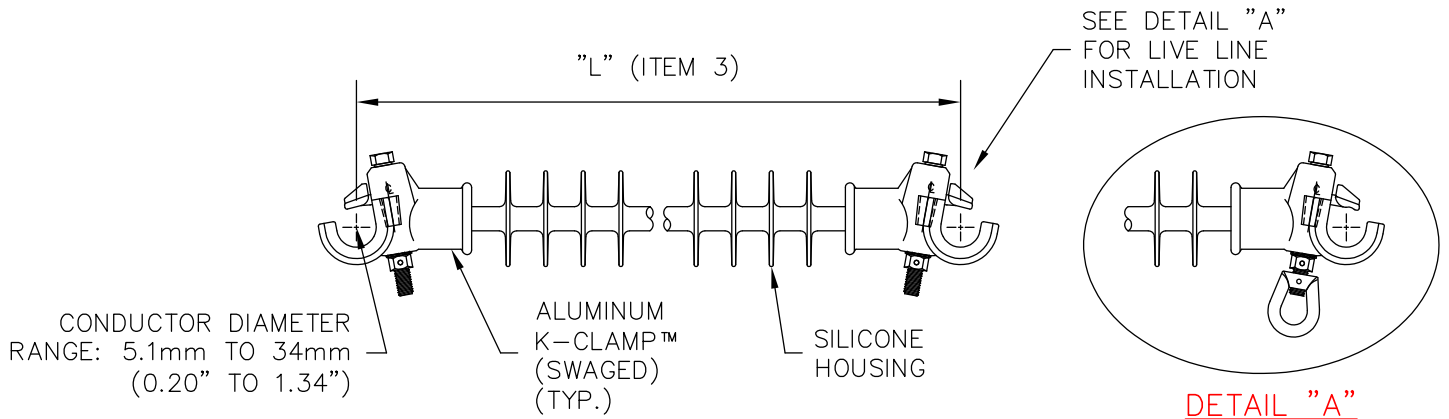


InterPhase Spacer installation

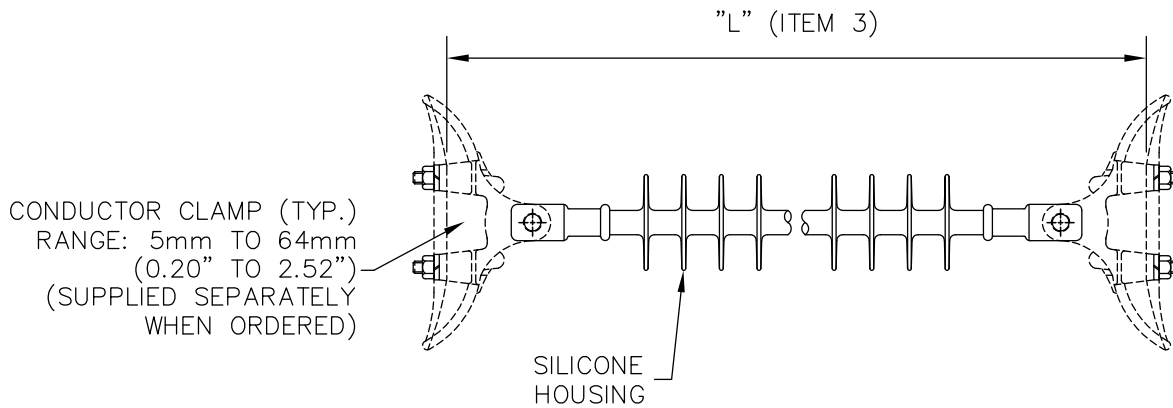


InterPhase Spacer installation using Hot Line Tools

DISTRIBUTION INTERPHASE SPACER – 15kV to 69kV



DESIGN WITH K-CLAMPS™



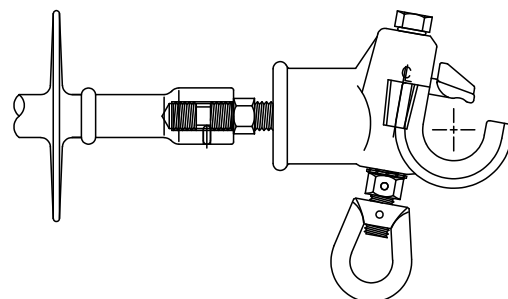
DESIGN WITH SUSPENSION CLAMPS

| ITEM | SPECIFICATION | DATA | |
|------|--|------|----|
| 1 | OPERATING VOLTAGE (PHASE – PHASE) | kV | |
| 2 | MOUNTING ARRANGEMENT: 1) HORIZONTAL 2) VERTICAL | | |
| 3 | LENGTH "L" (CONDUCTOR – CONDUCTOR) | mm | |
| 4 | CONDUCTOR DIAMETER (INCLUDING ARMOUR ROD IF APPLICABLE) | mm | |
| 5 | CONDUCTOR CLAMP: 1) SUSPENSION 2) K-CLAMP® | | |
| 6 | POLLUTION LEVEL (IEC 60815) | | |
| 7 | EYE NUT OPTION FOR LIVE LINE INSTALLATION (SEE DETAIL "A") | YES | NO |

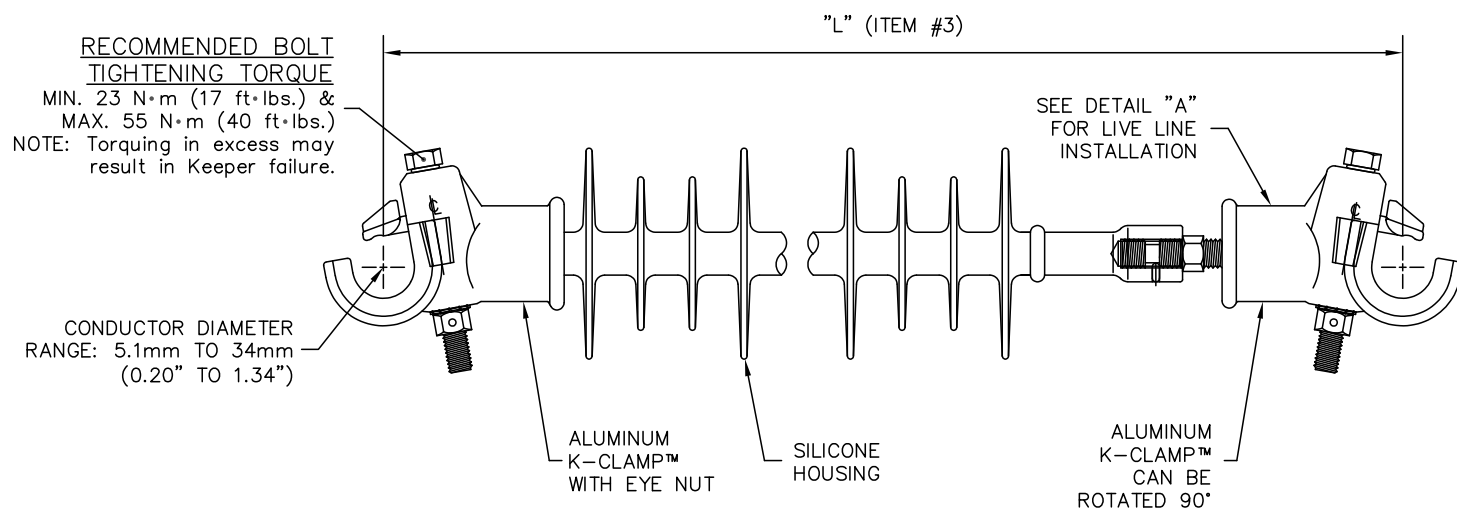
NOTE:

1. OTHER DESIGNS ARE AVAILABLE, PLEASE CONTACT KLI FOR DETAILS.
2. ARMOR ROD MAY BE REQUIRED

SPECIAL APPLICATION DISTRIBUTION INTERPHASE SPACER – 15kV to 69kV



DETAIL "A"

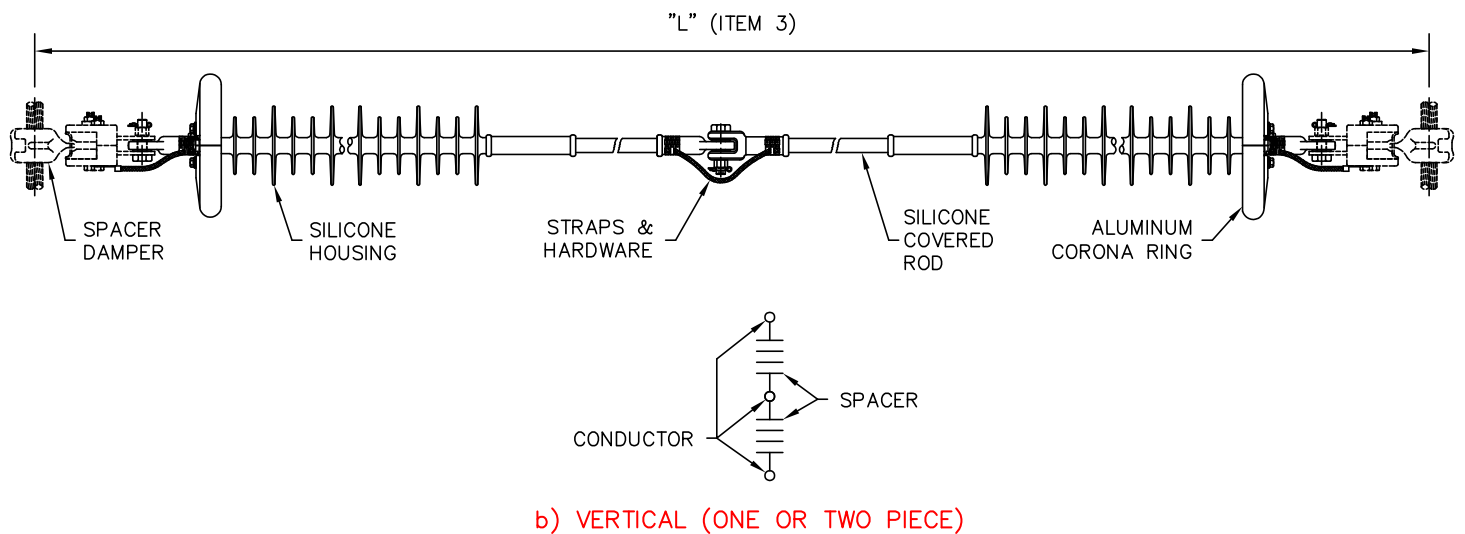
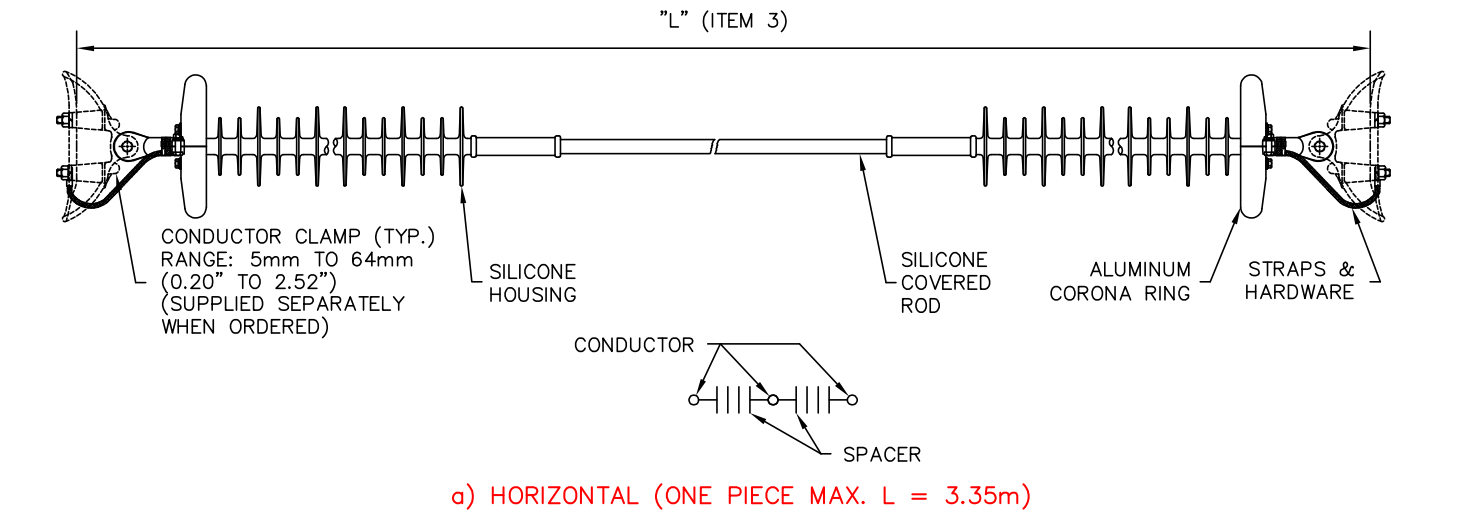


| ITEM | SPECIFICATION | DATA | |
|------|--|------|----|
| 1 | OPERATING VOLTAGE (PHASE – PHASE) | kV | |
| 2 | MOUNTING ARRANGEMENT: 1) HORIZONTAL 2) VERTICAL | | |
| 3 | LENGTH "L" (CONDUCTOR – CONDUCTOR) | mm | |
| 4 | CONDUCTOR DIAMETER (INCLUDING ARMOUR ROD IF APPLICABLE) | mm | |
| 5 | CONDUCTOR CLAMP: 1) ADJUSTABLE K-CLAMP® | | |
| 6 | POLLUTION LEVEL (IEC 60815) | | |
| 7 | EYE NUT OPTION FOR LIVE LINE INSTALLATION (SEE DETAIL "A") | YES | NO |

NOTE:

1. OTHER DESIGNS ARE AVAILABLE, PLEASE CONTACT KLI FOR DETAILS.
2. THIS DESIGN IS INTENDED FOR SHORT SPANS AND TO ASSIST IN CONTROLLING LOW SEVERITY CONDUCTOR MOTION.
3. ARMOR ROD MAY BE REQUIRED.

TRANSMISSION INTERPHASE SPACER – 69kV to 400kV



| ITEM | SPECIFICATION | DATA |
|------|---|------|
| 1 | OPERATING VOLTAGE (PHASE – PHASE) | kV |
| 2 | MOUNTING ARRANGEMENT: 1) HORIZONTAL 2) VERTICAL | |
| 3 | LENGTH "L" (CONDUCTOR – CONDUCTOR) | mm |
| 4 | CONDUCTOR DIAMETER (INCLUDING ARMOUR ROD IF APPLICABLE) | mm |
| 5 | CONDUCTOR CLAMP: 1) SUSPENSION | |
| 6 | POLLUTION LEVEL (IEC 60815) | |

NOTE:

1. OTHER DESIGNS ARE AVAILABLE, PLEASE CONTACT KLI FOR DETAILS.
2. ARMOR ROD MAY BE REQUIRE



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