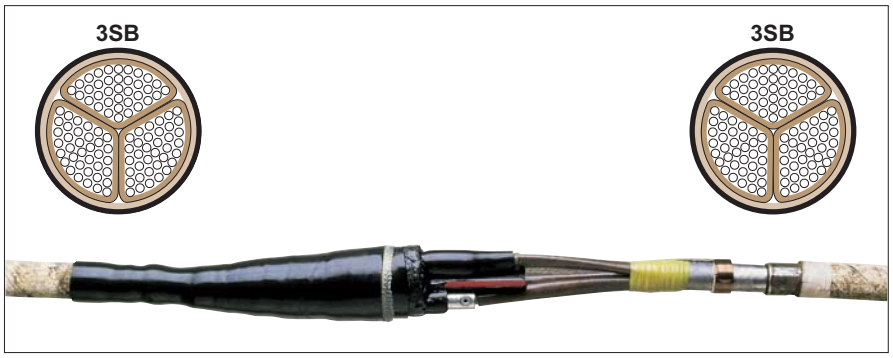
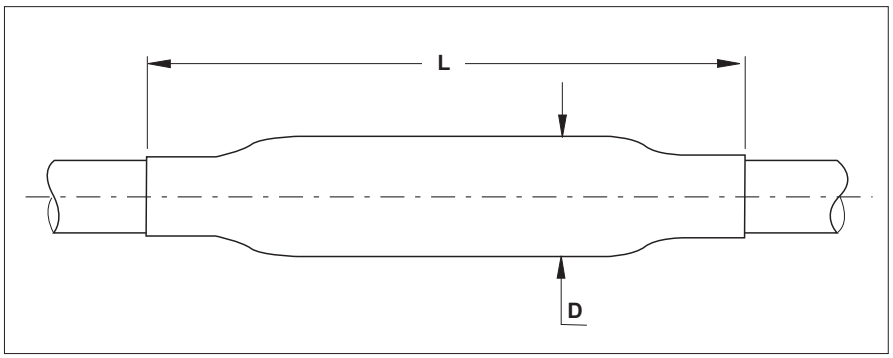
# Joints for belted or screened, 3-core paper insulated cables with one common metal sheath 6 kV, 10 kV, 15 kV, 20 kV and 35 kV




Belted cable


Belted or screened cable




Dimensions L, D see table

## Cable

The joints are designed for 3-core belted or screened paper insulated (MI, MIND) cables 6 kV, 10 kV, 15 kV, 20 kV and 35 kV with a common metal sheath.
For example: АСНРАbI, N(A)КВА, SB, ASB, SAAB, AABУ, ASBУ, СБ, АСБУ, ААБУ, ААШв, АСБ-В, KftA, Akny, HAKnFtA, HknFty, Hkny, CMKOPV, CMKOY, AMKOY, ANKOPY, IPO 13, NPO 13, IPHO 13, NPHO 13, N(A)HKBA.

## Design of joints

**For belted cables**
The paper cores are covered with oil barrier tubing. The crutch is filled with a stress grading, oil resistive yellow mastic. The mechanical connectors, supplied with the joint, are covered with a stress control patch. The primary insulation over the connectors is provided with proven adhesive coated, heat-shrinkable tubing. The area between and around the cores is filled with a cold applied mastic which is fully compatible with the materials used to impregnate paper cables. Heat-shrinkable tubing seals to the metal sheath and ensures during installation that the mastic flows and fills any void. Solderless earth connection and metal tape replace the metal sheath and armour in the joint. An outer heat-shrinkable tubing provides the outer sealing and protection.

**For belted or screened cables**
The paper cores are completely covered with oil barrier tubing and from the crutch area to the screen end with conductive tubing. The crutch area is filled with a stress grading, oil resistive yellow mastic and sealed with an adhesive lined, conductive breakout which is installed over the cores and the end of the metal sheath.
Thus the paper cable is transformed to a quasi polymeric cable construction and the cables jointed similarly. At the end of the conductive tubing and over the connectors stress grading mastic is applied. The jointing area of each cable core is covered with heat-shrinkable stress control tubing. Heat-shrinkable triple-extruded elastomeric joint body provides the correct thickness of insulation and the screening over the insulation. Copper mesh wrapped around the joint area rebuilds the metallic screen. The metal sheath and armour are jointed with solderless connections. The armour is replaced by a metal case or a metal tape. The outer sealing and protection is performed by adhesive coated, thick-wall heat-shrinkable tubing.
The joints are designed to allow crossing of cable cores. Joints types GUSJ are supplied with mechanical connectors, joints type EPKJ are supplied without connectors.

# Joints for belted or screened, 3-core paper insulated cables with one common metal sheath 6 kV, 10 kV, 20 kV and 35 kV

## Joints including mechanical connectors

**Joints for belted paper insulated cables 6 kV, 10 kV and 20 kV**

| Nominal voltage $U_o/U$ (kV) | Cross section ($mm^2$) | Ordering description | Dimensions (mm) L | D |
|---|---|---|---|---|
| 3,5/6 | 25– 50 | GUSJ-12/ 35- 50 | 1050 | 90 |
| | 70–120 | GUSJ-12/ 70-120 | 1250 | 120 |
| | 150–240 | GUSJ-12/150-240 | 1250 | 140 |
| 6/10 | 25– 50 | GUSJ-12/ 35- 50 | 1050 | 90 |
| | 70–120 | GUSJ-12/ 70-120 | 1250 | 120 |
| | 150–240 | GUSJ-12/150-240 | 1250 | 140 |
| 8,7/15 | 70–150 | GUSJ-24/ 70-150-3SB | 1800 | 130 |
| | 120–240 | GUSJ-24/120-240-3SB | 1800 | 150 |
| 12/20 | 70–150 | GUSJ-24/ 70-150-3SB | 1800 | 130 |
| | 120–240 | GUSJ-24/120-240-3SB | 1800 | 150 |

## Joints without connectors

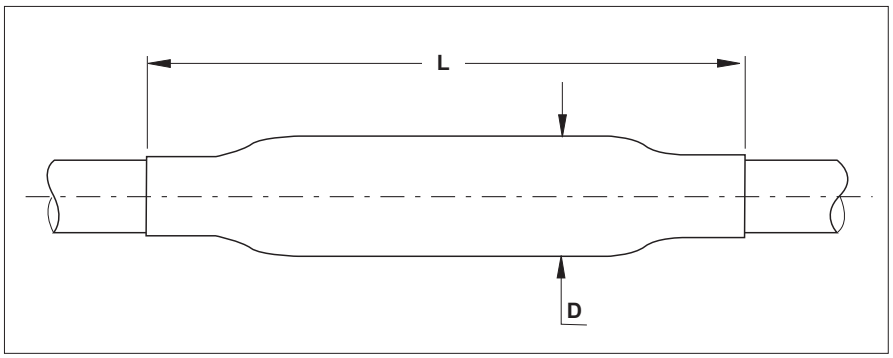
**Joints for screened or belted paper insulated cables 10 kV, 20 kV and 35 kV**

| Nominal voltage $U_o/U$ (kV) | Cross section ($mm^2$) | Ordering description | Dimensions (mm) L | D |
|---|---|---|---|---|
| 6/10 | 35– 70 | EPKJ-17A/3SB-3SB-T | 2500 | 110 |
| | 95–185 | EPKJ-17B/3SB-3SB-T | 2500 | 130 |
| | 240–400 | EPKJ-17C/3SB-3SB-T | 2500 | 160 |
| 8,7/15 | 25– 50 | EPKJ-17A/3SB-3SB-T | 2500 | 110 |
| | 70–150 | EPKJ-17B/3SB-3SB-T | 2500 | 130 |
| | 185–300 | EPKJ-17C/3SB-3SB-T | 2500 | 160 |
| 12/20 | 35– 70 | EPKJ-24B/3SB-3SB-T | 2500 | 110 |
| | 95–240 | EPKJ-24C/3SB-3SB-T | 2500 | 130 |
| | 300–400 | EPKJ-24D/3SB-3SB-T | 2500 | 160 |
| 20/35 | 50– 70 | EPKJ-36A/3SB-3SB-T | 2500 | 110 |
| | 95–150 | EPKJ-36B/3SB-3SB-T | 2500 | 130 |
| | 185–400 | EPKJ-36C/3SB-3SB-T | 2500 | 160 |

**Note:** The joints are designed for crimp connectors. Connectors are not included in the joints.

# Joints for screened, paper insulated cables with one metal sheath per phase 10 kV, 15 kV, 20 kV and 35 kV


3-core paper insulated cable




Dimensions L, D see table

## Cable

The joints are designed for single or 3-core, screened, paper insulated (MI, MIND) cables 10 kV, 15 kV, 20 kV and 35 kV with one metal sheath per phase. For example: ACHPAbI, NAHKBA, AOSB, OSB-V, AOSB, OSB, AVVB, AVVG, APVG, ОСБ-В, АОСБ, ОСБ, Нkny, НАКny, CNKOY, ANKOY, ANKTOYPV, AMKTOYPV, IPZO 13, NPZO 13, N(A)EKBA, N(A)KLEY.

## Design of joints

For three-core cables a solderless earth connection provides the connection between the armour and the metal sheaths. Heat-shrinkable breakouts and tubing seal and protect the metal sheaths. A stress grading, oil resistive yellow mastic is laid around the end of the metal sheath and the paper cores are completely covered with oil barrier tubing. A short conductive tubing rebuilds the screen from the metal sheath to the covered paper core.
Thus the paper cable is transformed to a quasi polymeric cable construction and the cables are jointed similarly. At the end of the conductive tubing and over the connectors stress grading mastic is applied. The jointing area of each cable core is covered with heat-shrinkable stress control tubing. Heat-shrinkable triple-extruded elastomeric joint body provides the correct thickness of insulation and the screening over the insulation. Copper mesh wrapped around the joint area rebuilds the metallic screen.
The metal sheaths are jointed with solderless connections. For three core cables the armour is replaced by a metal tape. The outer sealing and protection is performed by adhesive coated, thick-wall heat-shrinkable tubing for single core cables and by a fibre-reinforced wrap-around for 3-core cables.
Joints type GUSJ are supplied with mechanical connectors, joints type RPKJ and EPKJ are supplied without connectors.

# Joints for screened, paper insulated cables with one metal sheath per phase 10 kV, 15 kV, 20 kV and 35 kV

## Joints including mechanical connectors

### Joints for three core cables with steel tape armour

| Nominal voltage $U_o/U$ (kV) | Cross section ($mm^2$) | Ordering description | Dimensions (mm) L | D |
|---|---|---|---|---|
| 6/10 | 25– 70 | GUSJ-24/ 25- 70-3HL | 1600 | 90 |
| | 70–150 | GUSJ-24/ 70-150-3HL | 1600 | 120 |
| | 120–240 | GUSJ-24/120-240-3HL | 1600 | 140 |
| 8,7/15 | 25– 70 | GUSJ-24/ 25- 70-3HL | 1600 | 90 |
| | 70–150 | GUSJ-24/ 70-150-3HL | 1600 | 120 |
| | 120–240 | GUSJ-24/120-240-3HL | 1600 | 140 |
| 12/20 | 25– 70 | GUSJ-24/ 25- 70-3HL | 1600 | 90 |
| | 70–150 | GUSJ-24/ 70-150-3HL | 1600 | 120 |
| | 120–240 | GUSJ-24/120-240-3HL | 1600 | 140 |
| 20/35 | 35– 50 | GUSJ-42/ 35- 50-3HL | 2000 | 120 |
| | 70–120 | GUSJ-42/ 70-120-3HL | 2000 | 130 |
| | 120–240 | GUSJ-42/120-240-3HL | 2000 | 150 |

### Joints for single core cables without armour

| Nominal voltage $U_o/U$ (kV) | Cross section ($mm^2$) | Ordering description | Dimensions (mm) L | D |
|---|---|---|---|---|
| 12/20 | 25– 70 | GUSJ-24/ 25- 70-1HL | 700 | 60 |
| | 70–150 | GUSJ-24/ 70-150-1HL | 700 | 70 |
| | 120–240 | GUSJ-24/120-240-1HL | 700 | 80 |
| 20/35 | 35– 50 | GUSJ-42/ 35- 50-1HL | 1000 | 70 |
| | 70–120 | GUSJ-42/ 70-120-1HL | 1000 | 80 |
| | 120–240 | GUSJ-42/120-240-1HL | 1000 | 90 |

## Joints without connectors

### Joints for three core cables with steel tape armour

| Nominal voltage $U_o/U$ (kV) | Cross section ($mm^2$) | Ordering description | Dimensions (mm) L | D |
|---|---|---|---|---|
| 6/10 | 35– 70 | RPKJ-24A/3HL-3HL-T-CEE01 | 1900 | 90 |
| | 95–185 | RPKJ-24B/3HL-3HL-T-CEE01 | 1900 | 130 |
| | 185–300 | RPKJ-24C/3HL-3HL-T-CEE01 | 1900 | 160 |
| 8,7/15 | 25– 50 | RPKJ-24A/3HL-3HL-T-CEE01 | 1900 | 90 |
| | 70–150 | RPKJ-24B/3HL-3HL-T-CEE01 | 1900 | 130 |
| | 150–300 | RPKJ-24C/3HL-3HL-T-CEE01 | 1900 | 160 |
| 12/20 | 25– 95 | RPKJ-24B/3HL-3HL-T-CEE01 | 1900 | 90 |
| | 95–240 | RPKJ-24C/3HL-3HL-T-CEE01 | 1900 | 130 |
| | 240–400 | RPKJ-24D/3HL-3HL-T-CEE01 | 1900 | 160 |
| 20/35 | 50– 70 | EPKJ-36A/3HL-3HL-T | 2250 | 90 |
| | 95–150 | EPKJ-36B/3HL-3HL-T | 2250 | 130 |
| | 185–400 | EPKJ-36C/3HL-3HL-T | 2250 | 160 |

**Note:** The joints are designed for crimp connectors. Connectors are not included in the joints.

### Joints for single core cables without armour

| Nominal voltage $U_o/U$ (kV) | Cross section ($mm^2$) | Ordering description | Dimensions (mm) L | D |
|---|---|---|---|---|
| 6/10 | 35– 70 | EPKJ-17A/1HL-1HL | 850 | 60 |
| | 95–185 | EPKJ-17B/1HL-1HL | 950 | 70 |
| | 240–400 | EPKJ-17C/1HL-1HL | 950 | 80 |
| 12/20 | 35– 70 | EPKJ-24B/1HL-1HL | 850 | 70 |
| | 95–240 | EPKJ-24C/1HL-1HL | 950 | 80 |
| | 300–400 | EPKJ-24D/1HL-1HL | 950 | 90 |
| 20/35 | 50– 70 | EPKJ-36A/1HL-1HL | 1050 | 70 |
| | 95–150 | EPKJ-36B/1HL-1HL | 1050 | 80 |
| | 185–400 | EPKJ-36C/1HL-1HL | 1050 | 90 |

**Note:** The joints are designed for crimp connectors. Connectors are not included in the joints.

**Joints for other cable types, cross sections and voltage classes are available on request.**