EUROMOLD

Euromold is the leading European specialised designer, manufacturer and distributor of prefabricated cable accessories for medium voltage energy distribution. Euromold provides a complete range of accessories for underground cables: premoulded EPDM rubber connectors for cables and epoxy bushings for transformers and switchgear, as well as a large range of cold-shrinkable terminations and joints from 12 to 42 kV. Euromold is also the manufacturer of electrical components for the high voltage accessories of the Nexans group.

ISO 9001 Certificate

Since 1992, Euromold’s commitment to quality is demonstrated by its ISO 9001 certification.

International standards

All our products meet the International standards like CENELEC HD 629.1, CENELEC EN 50180, IEC 60137, IEC 60502-4… or country specifications. Official certificates, CESI, KEMA, ATEX… prove the conformity of our products. Long duration tests of existing or new products are continuously performed in our test fields.

Laboratory accreditation

Since June 2000, Euromold’s independent ELAB laboratory obtained the BELAC accreditation no.144-TEST conform with the European standards for laboratories ISO 17025 for electrical testing of low and medium voltage cable accessories according to the international standards EN 50393, IEC 60502-4, IEC 61442 and HD 629.
TECHNICAL INFORMATION

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CERTIFICATIONS

QUALITY CERTIFICATION
Euromold is committed to providing the highest quality cable accessories available. To ensure high reliability in use, essential for products that must last for at least 25 years, Euromold products are tested at all stages of manufacturing. Each and every product is electrically tested before being distributed. This way, the quality and safety of the products is guaranteed.
At Euromold, quality control takes place before, during and after production.

ISO 9001 QUALITY MANAGEMENT SYSTEM
Scope: development, design, manufacturing and sales of electrical cable accessories for medium and high voltage networks.
First approval date: 18 June 1992.

ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM
Scope: development, design, manufacturing and sales of electrical cable accessories for medium and high voltage networks.
First approval date: 17 May 2013.

OHSAS18001 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM
Scope: development, design, manufacturing and sales of electrical cable accessories for medium and high voltage networks.
First approval date: 16 September 2013.

QUALITY ASSURANCE
Euromold’s commitment to quality goes beyond the factory. Its Quality Assurance Program requires supplier quality agreements centring on Euromold specifications and embodying the concept of zero defects. The ISO 9001 certification is the seal of its commitment to excellence.

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First approval date: 16 September 2013.
**ATEX - DIRECTIVE 94/9/EC**

Components intended for use on/in equipment or protective system intended for use in potentially explosive atmospheres:

- K400TB(/G)
- K430TB(/G)
- K440TB(/G)
- K676LRA(/G)
- K300PB
- 300SA
- 400PB-XSA
- K675BE
- K400AR-3
- K400AR-4
- 400A-24B
- K400CP-SC
- K440CP
- K670AR-2
- K672T1
- K672TBC
- K680CP
- K484TB
- K804PB
- 800SA
- K900AR-1
- K900AR-2
- K900AR-3
- K900AR-4
- K480TB(/G)
- K489TB(/G)
- K800PB(/G)
- K809PB(/G)
- K400BE
- K480BE
- K784TB(/G)
- K909TB(/G)
- K909PB(/G)
- K900BE

**ELAB**

Elab is the Nexans laboratory accredited by BELAC to perform electrical test programmes according to the CENELEC HD 629.1 (IEC 60502-4) and EN 50393 standards for low and medium voltage power accessories from 300 volts up to 42 kV. The certificate number is BELAC no. 144-TEST.

The ISO 17025 standard prescribes the rules for the lab accreditation. It specifies the independency of the lab, the necessary competence, the organisation, the measurement accuracy and the handling of the instruments. Performing tests at accredited labs means that these tests are correctly performed, documented and repeatable in other accredited labs.
PROPERTIES OF EPDM AND SILICONE RUBBERS

For approximately 40 years Euromold has been formulating and moulding rubber compounds. The knowledge and skill gained over this extensive period has overcome many obstacles and are a great asset for the future. The resultant hydrocarbon-based elastomers have all advantages of general purpose rubbers but its performances excel in electrical strength and resistance to environmental conditions.

The silicone rubbers used by Euromold in its cold-shrinkable and slip-on terminations have been selected for their excellent tracking resistance as well as their unique hydrophobic properties.

ELECTRICAL PROPERTIES

<table>
<thead>
<tr>
<th>Typical values</th>
<th>EPDM Insulation</th>
<th>EPDM Conductive</th>
<th>Silicone Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric strength (kV/mm)</td>
<td>33</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>Dielectric constant</td>
<td>2.7 to 3.1</td>
<td>-</td>
<td>2.6</td>
</tr>
<tr>
<td>Dissipation factor (x 10^-3)</td>
<td>2.5</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Volume resistivity at 20 °C (Ohm-cm)</td>
<td>10^14</td>
<td>50</td>
<td>10^15</td>
</tr>
</tbody>
</table>

OTHER PROPERTIES

<table>
<thead>
<tr>
<th>Typical values</th>
<th>EPDM Insulation</th>
<th>EPDM Conductive</th>
<th>Silicone Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity (kg/dm³)</td>
<td>1.33</td>
<td>1.12</td>
<td>1.15</td>
</tr>
<tr>
<td>Tensile strength (N/mm²)</td>
<td>4.8</td>
<td>11</td>
<td>8.5</td>
</tr>
<tr>
<td>Shore hardness (Shore A)</td>
<td>65</td>
<td>80</td>
<td>47</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>400</td>
<td>450</td>
<td>700</td>
</tr>
<tr>
<td>Abrasion resistance</td>
<td>good</td>
<td>excellent</td>
<td>poor</td>
</tr>
<tr>
<td>Heat ageing</td>
<td>good</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>Temperature range (°C)</td>
<td>-60 to +130</td>
<td>-60 to +130</td>
<td>-80 to +200</td>
</tr>
<tr>
<td>Resistance to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- U.V.</td>
<td>good</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>- Ozone</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>- Sunlight</td>
<td>outstanding</td>
<td>outstanding</td>
<td>outstanding</td>
</tr>
<tr>
<td>- Water absorption</td>
<td>very good</td>
<td>very good</td>
<td>excellent</td>
</tr>
<tr>
<td>- Solvent</td>
<td>poor</td>
<td>poor</td>
<td>poor</td>
</tr>
<tr>
<td>- Hydrocarbon oil</td>
<td>poor</td>
<td>poor</td>
<td>good</td>
</tr>
<tr>
<td>- Silicone oil</td>
<td>good</td>
<td>good</td>
<td>poor</td>
</tr>
</tbody>
</table>

RADIATION RESISTANCE

EPDM connectors are also installed in nuclear containment areas.

OZONE/CORONA RESISTANCE

The outstanding resistance to corona is due to the ability of the EPDM rubber to withstand ozone and other chemical compounds formed by discharges and its resistance to heat.

CHEMICAL RESISTANCE

Products made from EPDM rubber resist attacks made by many acids, alkalis, detergents, phosphates, esters, ketones, alcohols and glycols. They give particularly outstanding service in the presence of hot water and high pressure steam. Like all hydrocarbon-based elastomers, EPDM is not resistant to hydrocarbon solvents and oils or chlorinated hydrocarbons.

RESISTANCE TO MECHANICAL ABUSE

EPDM rubber has good resistance to compression, cutting, impact, tearing and abrasion over a wide temperature range.
RESISTANCE TO THE ENVIRONMENT
EPDM rubber has properties comparable with the best speciality elastomers in resistance to weather. Accelerated life and salt spray tests suggest excellent properties which have been proven in practice by more than 40 years experience in widely varied applications all over the world. Silicone rubber has outstanding long-term resistance to weather in aggressive environments (industrial, coastal and desert climates).

RESISTANCE TO WATER
Water has little effect on the properties of EPDM hydrocarbon rubber. Even long immersion in hot water results in minimal loss of tensile strength. Tests also show a very low degree of water absorption. Silicone rubbers retain their surface hydrophobicity which is a considerable advantage for outdoor applications.

INTERNATIONAL PROTECTION CLASS
By design, Euromold screened separable connectors are protecting live elements of the connection against ingress of dust and water. The protection class per IEC 60529 is IP67.

PROPERTIES OF SILICONE LUBRICANT
The high viscosity silicone grease has been chosen for both its lubrication and dielectric properties. It is used as a lubricant when installing all premoulded rubber accessories on epoxy bushings as well as on the core insulation of dry cables. Its selection is the result of several years of evaluation by Euromold of many types of silicone grease. Silicone grease displays a high level of long-term lubricating stability avoiding any ageing effects (e.g. the risk of sticking). It also offers excellent dielectric properties assuring good performance at high voltage interfaces. In addition, the grease contributes in making interfaces watertight. It is completely compatible with all premoulded rubber accessories as well as with polymeric insulated cables.

USES
Use of this grease has proven to be of value in the installation of accessories in series and for operations such as greasing interfaces after disconnection. The installation instructions included in each product package detail clearly the application of the silicone grease.

MATERIAL SAFETY DATA SHEET
Material safety data sheets can be obtained for all lubricants.
ELECTRICAL STRESS IN CABLES
The design and construction of screened power cables is primarily based on two types of electrical stress – a radial stress which can be represented by flux lines and a longitudinal stress on the surface of the insulation where the screen has been removed. (Fig. 1).

ELECTRICAL STRESS RELIEF
When the semi-conductive screen is cut, the electrical field distribution changes radically. The surrounding air and the dielectric material in the vicinity of the cut screen become overstressed (Fig. 2) and breakdown of the cable will soon occur. To avoid this, we control the equipotential lines by installing a termination with a stress cone (Fig. 3), a termination with linear stress relief (Fig. 4) or a separable connector (Fig. 5) at the end of the screen. The terminations will make sure that equipotential lines are sufficiently far apart when they finally emerge into the air and that they will not cause ionization. The separable connector keeps the equipotential lines inside the cable/connector assembly in a controlled way. This stress relief is automatically built into all the accessories by the precision moulding of conductive and/or insulating EPDM/silicone rubber.
THE VOLTAGE DETECTION POINT

The connectors manufactured by Euromold are provided with a capacitive test point: the voltage detection point (VD point). This enables a local check to confirm that the product is de-energised prior to disconnection (Use a high resistance test device - approx. 250 MΩ).

The capacitive test point consists of a metallic insert, moulded into the insulation and electrically connected to a convenient external terminal.

Under normal operating circumstances this terminal is earthed by its conductive rubber cap. The cap must be removed prior to testing. When applying the test device, a capacitive potential divider is effectively established. The components of which are:

- $C_{tc}$: between test point and line potential.
- $C_{tg}$: between test point and earthed conductive screen.
- $C_m$: representing the capacity of the detection apparatus.

The voltage available at the test point is directly proportional to the line voltage depending on the capacitance ratio.

Although relatively high voltages can be present on the test point after removing the conductive cap, the overall available energy is minimal and any potential would disappear instantaneously if accidentally touched by an operator or other personnel. The current transfer would be a fraction of a microampere and imperceptible to human touch.

Key

- 1. Conductive rubber cap
- 2. Metallic insert (capacitive test point)
- 3. EPDM conductive screen (earth potential)
- 4. EPDM insulation
- 5. EPDM internal screen (line potential)
- 6. Metallic insert (line potential)
APPLICATION
Terminations and separable connectors require additional earthing devices when installed on some types of cable. Please also check the product page in the catalogue.

TERMINATIONS & CONNECTORS

<table>
<thead>
<tr>
<th>Cable type</th>
<th>Copper tape screen</th>
<th>Copper wire screen</th>
<th>Longitudinal Al/Cu foil screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-conductive screen type</td>
<td>Extruded</td>
<td>Extruded</td>
<td>Easy strip</td>
</tr>
<tr>
<td>Conductor size (mm²)</td>
<td>Kit MT</td>
<td>Kit MT</td>
<td>Kit MT</td>
</tr>
<tr>
<td>16-35</td>
<td>Kit MT</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>50-500</td>
<td>Kit MT</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>630-1200</td>
<td>Kit MT</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
**KIT DESCRIPTION**

**KIT MT/RS**
for use with copper tape screened cables.

1. Tinned braid with solder block.
2. Constant force spring.

**KIT MT**
for use with copper tape screened cables.

1. Tinned braid with solder block.
2. Tinned copper wire for earth braid cleating.

**TSC**
for use with fabric tape (graphite) cables.

A roll of semi-conductive tape.

**KIT 020, KIT 025 & KIT 050**
for use with longitudinal aluminium or copper foil screened cables.

1. Two cleating collars.
2. Tinned copper earth braid with solder block, copper wire and terminal lug soldered to a tinned copper plate.
OVERALL DIMENSIONS

These diagrams show the dimensions of the connectors in assembled position and the minimum dimensions necessary to disconnect.

SEPARABLE CONNECTORS WITH INTERFACE A

152SR

158LR

In mm.
SEPARABLE CONNECTORS
WITH INTERFACE B

400LR

400TE

In mm.
SEPARABLE CONNECTORS
WITH INTERFACE D

676LRA

SEPARABLE CONNECTORS
WITH INTERFACE E - 5/8"

784TB

In mm.
SEPARABLE CONNECTORS
WITH INTERFACE F

909TB

In mm.
DIMENSIONS & RATINGS OF EQUIPMENT BUSHINGS

DIMENSIONS

These diagrams show the dimensions of the interfaces of equipment bushings according to CENELEC standards EN 50180:2010 and EN 50181:2010.

SHORT CIRCUIT RATINGS

<table>
<thead>
<tr>
<th>Interface type</th>
<th>Contact type</th>
<th>Current rating (A)</th>
<th>RMS symm. (kA)</th>
<th>Peak asymm. (kA)</th>
<th>Voltage Um (kV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Pin and socket</td>
<td>250</td>
<td>12.5</td>
<td>9.0</td>
<td>7.5</td>
</tr>
<tr>
<td>B1</td>
<td>Pin and socket</td>
<td>250</td>
<td>12.5</td>
<td>9.0</td>
<td>7.5</td>
</tr>
<tr>
<td>B2</td>
<td>Pin and socket</td>
<td>400</td>
<td>16.0</td>
<td>11.3</td>
<td>9.2</td>
</tr>
<tr>
<td>C1</td>
<td>Bolted</td>
<td>630</td>
<td>28.0</td>
<td>19.7</td>
<td>16.1</td>
</tr>
<tr>
<td>C2</td>
<td>Bolted</td>
<td>1250</td>
<td>75.0</td>
<td>53.0</td>
<td>43.3</td>
</tr>
<tr>
<td>D1</td>
<td>Bolted</td>
<td>800</td>
<td>50.0</td>
<td>35.3</td>
<td>28.8</td>
</tr>
<tr>
<td>D2</td>
<td>Bolted</td>
<td>1250</td>
<td>75.0</td>
<td>53.0</td>
<td>43.3</td>
</tr>
<tr>
<td>E1</td>
<td>Bolted</td>
<td>800</td>
<td>50.0</td>
<td>35.3</td>
<td>28.8</td>
</tr>
<tr>
<td>E2</td>
<td>Bolted</td>
<td>1250</td>
<td>75.0</td>
<td>53.0</td>
<td>43.3</td>
</tr>
<tr>
<td>F1</td>
<td>Bolted</td>
<td>2500</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F2</td>
<td>Bolted</td>
<td>630</td>
<td>28.0</td>
<td>19.7</td>
<td>16.1</td>
</tr>
<tr>
<td>F3</td>
<td>Bolted</td>
<td>1250</td>
<td>75.0</td>
<td>53.0</td>
<td>43.3</td>
</tr>
</tbody>
</table>

In mm.
APPLICATION

The voltage, current and routine test ratings mentioned below are at least at the same level of the CENELEC standards. The actual maximum withstand level of the products are higher than these ratings. For compliance with other standards, refer to our local representative.

VOLTAGE

<table>
<thead>
<tr>
<th>U_{0}/U (U_m)</th>
<th>6/10 kV (12 kV)</th>
<th>6.35/11 kV (12 kV)</th>
<th>8.7/15 kV (17.5 kV)</th>
<th>12/20 kV (24 kV)</th>
<th>12.7/22 kV (24 kV)</th>
<th>18/30 kV (36 kV)</th>
<th>19/33 kV (36 kV)</th>
<th>20.8/36 kV (42 kV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial discharge extinction</td>
<td>12 kV</td>
<td>12.5 kV</td>
<td>17.5 kV</td>
<td>24 kV</td>
<td>25 kV</td>
<td>36 kV</td>
<td>38 kV</td>
<td>42 kV</td>
</tr>
<tr>
<td>Impulse (1.2 x 50 µs)</td>
<td>75 kV</td>
<td>95 kV</td>
<td>95 kV</td>
<td>125 kV</td>
<td>125 kV</td>
<td>170 kV</td>
<td>194 kV</td>
<td>200 kV</td>
</tr>
<tr>
<td>AC voltage 5'</td>
<td>27 kV</td>
<td>28.5 kV</td>
<td>39 kV</td>
<td>54 kV</td>
<td>57 kV</td>
<td>81 kV</td>
<td>85.5 kV</td>
<td>93.5 kV</td>
</tr>
<tr>
<td>DC voltage 15'</td>
<td>36 kV</td>
<td>38 kV</td>
<td>52 kV</td>
<td>72 kV</td>
<td>76 kV</td>
<td>108 kV</td>
<td>114 kV</td>
<td>125 kV</td>
</tr>
</tbody>
</table>

CURRENT

<table>
<thead>
<tr>
<th>Current</th>
<th>Separable connectors &amp; Bushings</th>
<th>Terminus &amp; joints</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interface type</td>
<td>Same as cable</td>
</tr>
<tr>
<td></td>
<td>A1/B1</td>
<td>B2</td>
</tr>
<tr>
<td>Continuous Ir</td>
<td>250 A</td>
<td>400 A</td>
</tr>
<tr>
<td>Overload (8 h in 24 h period)</td>
<td>300 A</td>
<td>600 A</td>
</tr>
</tbody>
</table>

ROUTINE TESTS

<table>
<thead>
<tr>
<th>Test level</th>
<th>- (12 kV)</th>
<th>K (24 kV)</th>
<th>M (36 kV)</th>
<th>P (42 kV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial discharge extinction @ 5 pC</td>
<td>11 kV</td>
<td>21 kV</td>
<td>31 kV</td>
<td>42 kV</td>
</tr>
<tr>
<td>AC voltage 1'</td>
<td>35 kV</td>
<td>55 kV</td>
<td>77 kV</td>
<td>85 kV</td>
</tr>
</tbody>
</table>
EQUIPMENT BUSHINGS

Test sequences following IEC 60137 and internal test specification TS0030. All our designs have been validated using this international standard. These values do not necessarily reflect the maximum levels. Test reports are available upon request.

**IEC 60137**
- 4 samples
- AC voltage dry
  - 5 min @ 4.5 U/√3
- Partial discharges
  - (ambient temperature)
  - max. 10 pC @ 2 U/√3
- Impulse (1.2 x 50 µs)
  - (ambient temperature)
  - 15x +, 15x -
- Cantilever
  - load of 300 N (I ≤ 800 A) or 1000 N (I > 800 A) - 1 min at both ends of bushing
- AC voltage dry
  - 15 min @ 2.5 U/√3
- Partial discharges
  - (elevated & ambient temperature)
  - max. 10 pC @ 2 U/√3
- Examination

**TS0030**
- 4 samples
- Partial discharges
  - (ambient temperature)
  - max. 10 pC @ 2 U/√3
- Thermal shock
  - 10 cycles of 4 h @ 100° C and 4 h @ -30° C
- Partial discharges
  - (elevated & ambient temperature)
  - max. 10 pC @ 2 U/√3
- Examination
TERMINATIONS
Test sequences following HD 629.1 Table 3 (indoor terminations) and Table 4 (outdoor terminations). All our designs have been validated using this international standard. These values do not necessarily reflect the maximum levels. Test reports are available upon request.

<table>
<thead>
<tr>
<th>A1</th>
<th>4 samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC voltage dry</td>
<td>15 min @ 6 $U_0$</td>
</tr>
<tr>
<td>AC voltage dry</td>
<td>5 min @ 4.5 $U_0$</td>
</tr>
<tr>
<td>(Outdoor only) AC voltage wet</td>
<td>1 min @ 4 $U_0$</td>
</tr>
<tr>
<td>Partial discharges (ambient temperature)</td>
<td>max. 10 pC @ 2 $U_0$</td>
</tr>
<tr>
<td>Impulse (1.2 x 50 µs) (elevated temperature)</td>
<td>10x +, 10x -</td>
</tr>
<tr>
<td>Heating cycles in air</td>
<td>126 cycles @ 2.5 $U_0$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A2</th>
<th>3 samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC voltage dry</td>
<td>15 min @ 6 $U_0$</td>
</tr>
<tr>
<td>AC voltage dry</td>
<td>5 min @ 4.5 $U_0$</td>
</tr>
<tr>
<td>Thermal short circuit (conductor)</td>
<td>2 x 250 °C - 1 s</td>
</tr>
<tr>
<td>Dynamic short circuit</td>
<td>1 x 80/100/125 kA 10 ms</td>
</tr>
<tr>
<td>Impulse (1.2 x 50 µs) (ambient temperature)</td>
<td>10x +, 10x -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A3</th>
<th>3 samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Indoor only) Humidity</td>
<td>300 h @ 1.25 $U_0$</td>
</tr>
<tr>
<td>(Outdoor only) Salt fog</td>
<td>1000 h @ 1.25 $U_0$</td>
</tr>
<tr>
<td>Examination</td>
<td></td>
</tr>
</tbody>
</table>

Additional Test Sequences (Outdoor only)
- Partial discharges (elevated & ambient temperature) max. 10 pC @ 2 $U_0$
- Impulse (1.2 x 50 µs) (ambient temperature) 10x +, 10x -
- AC voltage dry 15 min @ 2.5 $U_0$
- Examination

Heating cycles in air 126 cycles @ 2.5 $U_0$
- Partial discharges (elevated & ambient temperature) max. 10 pC @ 2 $U_0$
- Impulse (1.2 x 50 µs) (ambient temperature) 10x +, 10x -
- AC voltage dry 15 min @ 2.5 $U_0$
- Examination
**TEST SEQUENCES**

**FOLLOWING CENELEC 629.1**

**JOINTS**

Test sequences following HD 629.1 Table 5. All our designs have been validated using this international standard. These values do not necessarily reflect the maximum levels. Test reports are available upon request.

<table>
<thead>
<tr>
<th>Test Sequence</th>
<th>B1</th>
<th>4 samples</th>
<th>B2</th>
<th>3 samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC voltage dry</td>
<td>DC voltage dry</td>
<td>15 min @ 6 U₀</td>
<td>DC voltage dry</td>
<td>15 min @ 6 U₀</td>
</tr>
<tr>
<td>AC voltage dry</td>
<td>AC voltage dry</td>
<td>5 min @ 4.5 U₀</td>
<td>AC voltage dry</td>
<td>5 min @ 4.5 U₀</td>
</tr>
<tr>
<td>Partial discharges</td>
<td>Partial discharges</td>
<td>(ambient temperature) max. 10 pC @ 2 U₀</td>
<td>(ambient temperature) max. 10 pC @ 2 U₀</td>
<td></td>
</tr>
<tr>
<td>Impulse (1.2 x 50 µs) (elevated temperature)</td>
<td>Impulse (1.2 x 50 µs) (elevated temperature)</td>
<td>10x +, 10x -</td>
<td>10x +, 10x -</td>
<td></td>
</tr>
<tr>
<td>Heating cycles in air</td>
<td>Heating cycles in air</td>
<td>63 cycles @ 2.5 U₀</td>
<td>63 cycles @ 2.5 U₀</td>
<td></td>
</tr>
<tr>
<td>Heating cycles in water</td>
<td>Heating cycles in water</td>
<td>63 cycles @ 2.5 U₀</td>
<td>63 cycles @ 2.5 U₀</td>
<td></td>
</tr>
<tr>
<td>Partial discharges (elevated &amp; ambient temperature)</td>
<td>Partial discharges (elevated &amp; ambient temperature)</td>
<td>max. 10 pC @ 2 U₀</td>
<td>max. 10 pC @ 2 U₀</td>
<td></td>
</tr>
<tr>
<td>Impulse (1.2 x 50 µs) (ambient temperature)</td>
<td>Impulse (1.2 x 50 µs) (ambient temperature)</td>
<td>10x +, 10x -</td>
<td>10x +, 10x -</td>
<td></td>
</tr>
<tr>
<td>AC voltage dry</td>
<td>AC voltage dry</td>
<td>15 min @ 2.5 U₀</td>
<td>15 min @ 2.5 U₀</td>
<td></td>
</tr>
<tr>
<td>Examination</td>
<td>Examination</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**SCREENED SEPARABLE CONNECTORS**

Test sequences following HD 629.1 Table 7.

All our designs have been validated using this international standard. These values do not necessarily reflect the maximum levels. Test reports are available upon request.

### D1
- 4 samples
  - DC voltage dry: 15 min @ 6 $U_0$
  - AC voltage dry: 5 min @ 4.5 $U_0$
  - Partial discharges (ambient temperature): max. 10 pC @ 2 $U_0$
  - Impulse (1.2 x 50 µs) (elevated temperature): 10x +, 10x -
  - Heating cycles in air: 63 cycles @ 2.5 $U_0$
  - Heating cycles in water: 63 cycles @ 2.5 $U_0$
  - 5 x disconnection/ connection
  - Partial discharges (elevated & ambient temperature): max. 10 pC @ 2 $U_0$
  - Impulse (1.2 x 50 µs) (ambient temperature): 10x +, 10x -
  - AC voltage dry: 15 min @ 2.5 $U_0$
  - Examination

### D2
- 3 samples
  - DC voltage dry: 15 min @ 6 $U_0$
  - AC voltage dry: 5 min @ 4.5 $U_0$
  - Thermal short circuit (screen)
  - Thermal short circuit (conductor): 2 x 250 °C - 1 s
  - Dynamic short circuit: 1 x 80/100/125 kA 10 ms
  - 5 x disconnection/ connection
  - Impulse (1.2 x 50 µs) (ambient temperature): 10x +, 10x -
  - AC voltage dry: 15 min @ 2.5 $U_0$
  - Examination

### D3
- 1 sample
  - Operating eye
    - Axial: 1300 N - 1 min
    - Torque: 14 Nm
  - Partial discharges (ambient temperature): max. 10 pC @ 2 $U_0$
  - Examination
  - Screen resistance measurement: max. 5000 Ω
  - Leakage current measurement: max. 0.5 mA @ $U_m$
  - Screen fault current initiation
  - Capacitive test point performance

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**TEST SEQUENCES FOLLOWING CENELEC 629.1**

<table>
<thead>
<tr>
<th>Example</th>
<th>Test Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>DC voltage dry: 15 min @ 6 $U_0$</td>
</tr>
<tr>
<td>D2</td>
<td>Partial discharges (screen)</td>
</tr>
<tr>
<td>D3</td>
<td>Operating eye Axial: 1300 N - 1 min</td>
</tr>
</tbody>
</table>

---

**Examination**

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>5 x disconnection/ connection</td>
</tr>
<tr>
<td>D2</td>
<td>5 x disconnection/ connection</td>
</tr>
<tr>
<td>D3</td>
<td>1 sample</td>
</tr>
</tbody>
</table>

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**Note:** Each 1 sample
APPLICATION
Jumpers are prefabricated lengths of cable on which separable connectors or terminations are installed on each end. Jumpers are used as fixed solutions in windturbines, transformers,... Test leads are typically used to perform tests on electrical installations, transformers, motors...

DESIGN
Jumpers comprise:
1. Connector or termination adapted to the chosen interface type and chosen voltage class.
2. Cable length.
3. A screen wire finishing with an earthing lug is standard. Other finishings are available upon request.

All Jumpers are standard tested for AC withstand and partial discharge before leaving the factory. Other tests can be done on request.

Up to 52 kV

EUROMOLD®
ENQUIRY SHEET

1. Product to be installed on side A:
   - 430TB
   - 480TB
   - 484TB
   - Other: ...........

2. Product to be installed on side B:
   - 480TB
   - AFN
   - AIN
   - Other: ...........

3. Voltage class: ....../....... (....... kV)

4. Current: ........ A

5. Length cable lead (L1):
   Cable type:
   - XLPE
   - EPR
   - Other: .........................

6. Screen:
   - Length given by product: ...........
   - Length L2: ....................
   - Braided
   - Twisted
   - Extra cable
   - Joint contact + grounding cable
   - Joint contact + grounding cable + HS tube
   - Other

7. Position contact surface side B:
   - In line with side A
   - 90° angle with side A
   - Other: ...........................................

8. Testing:
   - AC
   - PD
   - Impulse
   - Test report

9. Packaging:
   - Cardboard box
   - Wooden box

9. Remarks:
   ............................................................................................................................................................
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ABOUT NEXANS
Nexans brings energy to life through an extensive range of cables and cabling solutions that deliver increased performance for our customers worldwide. Nexans’ teams are committed to a partnership approach that supports customers in four main business areas: Power transmission and distribution (submarine and land), Energy resources (Oil & Gas, Mining and Renewables), Transportation (Road, Rail, Air, Sea) and Building (Commercial, Residential and Data Centers). Nexans’ strategy is founded on continuous innovation in products, solutions and services, employee development, customer training and the introduction of safe, low-environmental-impact industrial processes.
In 2013, Nexans became the first cable player to create a Foundation to introduce sustained initiatives for access to energy for disadvantaged communities worldwide.
Nexans is an active member of Europacable, the European Association of Wire & Cable Manufacturers, and a signatory of the Europacable Industry Charter. The Charter expresses its members' commitment to the principles and objectives of developing ethical, sustainable and high-quality cables.
Nexans, acting for the energy transition, has an industrial presence in 40 countries, commercial activities worldwide, is employing close to 26,000 people and generating sales in 2016 of 5.8 billion euros. Nexans is listed on NYSE Euronext Paris, compartment A.

ABOUT NEXANS POWER ACCESSORIES
Nexans, and its trademarks EUROMOLD® and GPH®, is a worldwide presence in power accessories. The power accessories business group employs 1000 people in 18 countries and has sales in over 90 countries. With more than 50 years of experience in cable accessories it is considered the leading European designer and manufacturer of power accessories.

POWER NETWORKS
Nexans contributes to the reliability and security of energy networks around the world by increasing capacity and reducing technical and non-technical losses through affordable, state-of-the-art technology.
Some of our main clients in this sector are EDF, RWE, Endessa, E-on, Iberdrola, ENEL, BKW Bern.
WIND TURBINES AND WIND FARMS
Nexans is, with its GPH®, EUROMOLD® and Windlink product lines, an important partner in wind energy projects. In Germany we supply thousands of connectors and sleeves to the leading OEMs in wind turbines and power utility applications. Prefabricated jumpers - pretested in the factory to assure immediate and fault-free installation - have been supplied to GE Wind, Vestas and others.

RAILWAY NETWORKS AND ROLLING STOCK
Since many years Nexans has been a reliable partner for railway networks and rolling stock producers. Our products have been used in large projects like the Lötsch tunnel in Switzerland or the Transrapid project in Shanghai and in many other projects since the early 1970s.

OIL AND GAS
Nexans has been supplying connectors and joints for oil and gas projects (offshore and onshore) since more than 30 years. Some examples are listed below:
- Amec/Snepco Bonga Project, Nigeria
- Shell Tern Alpha, North Sea
- FPSO (Floating Production Storage and Offloading)
  Serpentina
- FPSO Anasuria
- FPSO Terra Nova, Canada
- FPSO Schielgallion
- Aker Kvaerner Oil & Gas, Celdonia Project
- AIOC (Azerbaijan International Operating Consortium), Full Field Development Project, Azerbaijan
- Buzzard Field, North Sea
- BP ACG project Azerbaijan
- BP Shaz Deniz, Caspian Sea - Shell Sakhalin Island, Sea of Japan - Petronas, Malaysia.

OTHER INDUSTRIES
From motors to mines, from pumps to ships, all have been powered through Nexans, EUROMOLD® and GPH® accessories since the 1950s.
Nexans Network Solutions N.V.
Div. Euromold

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E-Mail: sales.euromold@nexans.com

Your company details:

Company: .................................................................
Address: .....................................................................
Tel.: .........................................................................
E-Mail: .....................................................................

CABLE DATA

/ Cable identification:

Cable type:  
- Single core
- Three core

System voltage (kV):
- 3.6/6 (7.2)
- 6/10 (12)
- 6.35/11 (12)
- 8.7/15 (17.5)

System current (A):
- 250
- 400
- 630
- 800

Single core

1. Conductor material:  
- Al
- Cu
- Round
- Sector shaped
- Solid
- Stranded
- Class 5

Conductor size: ........ mm²

2. Core insulation:  
- type:  
- XLPE
- EPR
- Paper
- diameter: ................ mm

3. Semi-conductive screen:  
- type:  
- Bonded
- Easy strip
- Fabric tape
- diameter (Optional): ........ mm

4. Metal screen type:  
- Al
- Cu
- Wire screen
- Tape screen

5. Armour type:  
- No
- SWA
- STA

6. Outer sheath:  
- XLPE
- PVC
- Other
- Diameter: ........ mm

Bushing type (If applicable):  

Please e-mail to: sales.euromold@nexans.com

Please copy this page and use it for all enquiries to
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