K27 Fire Resisting Control Cables (CR1-C1 Class)

Applications

The cables are designed for provide circuit integrity for safety lightning, smoke extraction, ventilation, emergency telephone and exits during fire for underground railways.

Standards

- RATP K27 specification
- Fire resistant: class CR1
- No fire propagation: class C1 RATP (<30cm)

Construction

- Conductors: Class 1 solid conductor from 1.5mm² to 4mm²; class 2 stranded conductor for 6mm².
- Insulation: Silicone rubber insulation.
- Stranding: Cores are helically stranded in concentric layers.
- Inner Sheath: LSZH.
- Armour: Two layers of steel tape.
- Outer Sheath: LSZH.

Electrical Characteristics at 20°C

<table>
<thead>
<tr>
<th>Number of strands/Nominal Conductor Diameter</th>
<th>mm</th>
<th>7/1.04</th>
<th>1/1.39</th>
<th>1/1.79</th>
<th>1/2.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Cross Section Area</td>
<td>mm²</td>
<td>6</td>
<td>1.5</td>
<td>2.5</td>
<td>4</td>
</tr>
<tr>
<td>Nominal Insulation Thickness</td>
<td>mm</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td>300/500</td>
</tr>
</tbody>
</table>

Mechanical and Thermal Properties

- Minimum Bending Radius: 5×OD (static); 10×OD (dynamic)
- Temperature Range: -10°C to +90°C (during operation); -10°C to +60°C (during installation)
### Dimensions and Weight

<table>
<thead>
<tr>
<th>Cable Code</th>
<th>Number of Cores</th>
<th>Nominal Sheath Thickness mm</th>
<th>Maximum Overall Diameter mm</th>
<th>Nominal Weight kg/km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inner</td>
<td>Outer</td>
<td></td>
</tr>
<tr>
<td>7/1.04mm Conductor, 4.76mm Insulated Wire</td>
<td>2</td>
<td>1.0</td>
<td>1.5</td>
<td>17.0</td>
</tr>
<tr>
<td>RS/K27-SZ1F3Z1-U(AS+)-2G6</td>
<td>1/1.39mm Conductor, 2.99mm Insulated Wire</td>
<td>2</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>RS/K27-SZ1F3Z1-U(AS+)-3G1.5</td>
<td>3</td>
<td>1.0</td>
<td>1.5</td>
<td>12.5</td>
</tr>
<tr>
<td>RS/K27-SZ1F3Z1-U(AS+)-12G1.5</td>
<td>12</td>
<td>1.0</td>
<td>1.5</td>
<td>18.9</td>
</tr>
<tr>
<td>1/1.79mm Conductor, 3.79mm Insulated Wire</td>
<td>2</td>
<td>1.0</td>
<td>1.5</td>
<td>13.2</td>
</tr>
<tr>
<td>RS/K27-SZ1F3Z1-U(AS+)-2G2.5</td>
<td>3</td>
<td>1.0</td>
<td>1.5</td>
<td>13.5</td>
</tr>
<tr>
<td>1/2.25mm Conductor, 4.26mm Insulated wire</td>
<td>2</td>
<td>1.0</td>
<td>1.5</td>
<td>14.7</td>
</tr>
<tr>
<td>RS/K27-SZ1F3Z1-U(AS+)-3G4</td>
<td>3</td>
<td>1.0</td>
<td>1.5</td>
<td>15.6</td>
</tr>
</tbody>
</table>

- **Impact Resistant**
- **Mineral Oil Resistant**
- **Acid & Alkaline Resistant**
- **Laid In conduit**
- **Flame Retardant**
  - NF C32-070-2.1(C2)
  - IEC 60332-1/EN 50265-2-1
- **Fire Retardant**
  - NF C32-070-2.2(C1)
  - IEC 60332-3/EN 50266
- **Zero Halogen**
  - IEC 60754-1/NF C20-454
  - EN 50267-2-1
- **Low Smoke Emission**
  - IEC 61034/NF C20-902
  - EN 50268/NF C32-073
  - IEC 60754-2/NF C20-453
- **Low Corrosivity**
- **Low Toxicity**
- **Insulation Integrity**
  - FE180
  - NF C32-070-2.3(CR1)
  - EN 50200/IEC 60331
MD4 Fire Resisting Telecom Cables (CR1-C1 Class)

Applications
The cables are telecommunication cables for tunnel application. The cables are halogen free fire resistant, inductive protected and armoured.

Standards
- Fire retardant: NBN C 30-004 F2
- Fire resistant: NBN 713-020 Add.3. -RF 1h

Construction
- Conductors: Solid copper conductor, 0.5mm² nominal cross section area.
- Insulation: Mica-tape + LSZH insulation.
- Cabling Element: Four conductors are twisted to form a quad.
- Stranding: Quads are helically stranded in concentric layers.
- Core Wrapping: Plastic tape(s) with overlapping.
- Inner Sheath: LSZH sheath.
- Screen: Copper tape screen.
- Intermediate Sheath: LSZH sheath.
- Armour: Two layer of steel tape.
- Outer Sheath: LSZH sheath.

Electrical Characteristics at 20°C

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Conductor Diameter</td>
<td>0.8</td>
</tr>
<tr>
<td>Nominal Cross Section Area</td>
<td>0.5</td>
</tr>
<tr>
<td>Nominal Insulation Thickness</td>
<td>0.5</td>
</tr>
<tr>
<td>Maximum Conductor Resistance (DC)</td>
<td>36.7</td>
</tr>
<tr>
<td>Minimum Insulation Resistance</td>
<td>100</td>
</tr>
<tr>
<td>Maximum Capacitance</td>
<td>120</td>
</tr>
<tr>
<td>Voltage Test 2 mins</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Mechanical and Thermal Properties
- Minimum Bending Radius: 10×OD
- Temperature Range: -40°C to +60°C (during operation); -10°C +60°C (during installation)
## Dimensions and Weight

<table>
<thead>
<tr>
<th>Cable Code</th>
<th>No. of Quads</th>
<th>Nominal Sheath Thickness mm</th>
<th>Nominal Overall Diameter mm</th>
<th>Nominal Weight kg/km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inner</td>
<td>Interm.</td>
<td>Outer</td>
</tr>
<tr>
<td>RS/MD4-HH(K)HBH-7Q0.8-FR</td>
<td>7</td>
<td></td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

- **0.8mm Conductor, 1.8mm Insulated Wire**
- **Anti Induction**
- **Rated Voltage**
- **Laid In Ducts**
- **Buried in Ground**
- **Flame Retardant**
  - NF C32-070-2.1(C2)
  - IEC 60332-1/EN 50285-2-1
- **Fire Retardant**
  - NF C32-070-2.2(C1)
  - IEC 60332-3/EN 50286
- **Zero Halogen**
  - IEC 60754-1/EN C20-454
  - EN 50267-2-1
- **Low Smoke Emission**
  - IEC 61034/NF C20-74
  - EN 50286/EN C32-073
- **Low Corrosivity**
  - EN 50287-2-2/EN C32-074
  - EN 50287-2-2/EN C32-075
- **Low Toxicity**
  - IEC 61034/EN 50287-2-2/EN C32-074
  - EN 50287-2-2/EN C32-075

- **Insulation Integrity FE180**
- **EN 50200/IEC 60331**
  - EN 50267-2-1
- **Zero Halogen**
  - IEC 60754-1/EN C20-454
  - EN 50286/NF C32-073
- **Low Smoke Emission**
  - IEC 61034/NF C20-902
  - EN 50286/NF C32-073
- **Low Corrosivity**
  - EN 50287-2-2/EN C32-074
  - EN 50287-2-2/EN C32-075
- **Low Toxicity**
  - IEC 61034/NF C20-74
  - EN 50287-2-2/EN C32-074
  - EN 50287-2-2/EN C32-075