Power cables with aluminium conductors, xlpe insulated, pvc sheathed. (AL/XLPE/PVC [AXMK])

Rated voltage: 600/1000 V

**Standard specification:** HD 603-6-D

1. **Conductor:**
   - Aluminium solid class 1 IEC 60228 or stranded compacted class 2 IEC 60228 sector shaped

2. **Insulation:**
   - XLPE type 0(85) acc. to HD 603

3. **Laying up of cores:**
   - PVC type 0(85) acc. to HD 603

4. **Overhead:**
   - PVC type 0(85) acc. to HD 603

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### Characteristics Table

<table>
<thead>
<tr>
<th>No. of cores</th>
<th>Cross-section</th>
<th>Nom. voltage of insulation</th>
<th>Nom. thickness of sheath</th>
<th>Appr. overall diameter</th>
<th>Appr. weight of cable</th>
<th>Electrical resistance of conductor</th>
<th>Core Identification</th>
<th>Current rating in air</th>
<th>Current rating directly in ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 x 125 mm²</td>
<td>1.6 x 1.6</td>
<td>31</td>
<td>2.1</td>
<td>31</td>
<td>226</td>
<td>0.19</td>
<td>240</td>
<td>0.14</td>
<td>380</td>
</tr>
<tr>
<td>3 x 250 mm²</td>
<td>1.6 x 1.6</td>
<td>31</td>
<td>2.1</td>
<td>31</td>
<td>462</td>
<td>0.19</td>
<td>350</td>
<td>0.12</td>
<td>425</td>
</tr>
<tr>
<td>3 x 350 mm²</td>
<td>1.6 x 1.6</td>
<td>31</td>
<td>2.1</td>
<td>31</td>
<td>462</td>
<td>0.19</td>
<td>350</td>
<td>0.12</td>
<td>425</td>
</tr>
</tbody>
</table>

- Installation conditions used for the current capacity calculations:
  - Temperature of the ground: +30°C
  - Depth of laying: 0.3 m
  - Air temperature: 25°C
  - Soil thermal resistivity: 1.5 (W/m²K)

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**Hellenic Cables Group:** Internationally known under the Cable Group trademark, with five manufacturing plants in Greece, Romania and Bulgaria, is a leading cable manufacturer for over sixty years. Specifically, the company’s wide product range extends to PVC, EPR and XLPE insulated land and submarine power cables rated up to 600 kV, as well as cables for special applications, such as low smoke, halogen free and fire-resistant cables, cables suitable for the oil and gas industry and railways. Furthermore, telecommunication signal and data cables with copper conductors or optical fibres, flame retardant halogen free plastic or elastomer compounds and enamelled wires complete Cable’s product range.

Cable’s products and procedures are certified from organizations such as BASEC, VDE, IMQ, LCIE, CESI, KEMA, TUV, ELETAM, DIN and UL.

Technical expertise combined with continuous investments in state-of-the-art machinery ensures a level of efficiency and quality which meet the strictest standards. The company’s Quality Management System is certified to ISO 9001:2008, to Environmental Management System to ISO 14001:2004, and our Health and Safety management system complies with OHSAS 18001:2007. Commitment to quality and sustainable development principles has been a key factor in enabling the Group to establish a strong reputation internationally.

The Group’s highly experienced technical and managerial staff have a strong commitment to technological excellence, outstanding quality and to providing solutions fulfilling customer needs. These ensure that the user of Cable’s products has made a reliable choice.
### MEDIUM VOLTAGE POWER CABLES

**Type of cable:** AHKAMK-WP

Bundled cable consisting of three phase cores each with aluminium round solid or stranded compacted conductors, XLPE insulated, Aluminium polyethylene laminated tape and polyethylene oversheath, laid around a bare earth conductor

**Rated voltage:** 12/20 (24) kV

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**Standard specification: HD 620/10F Type 10F3**

1. **Conductor:**
   - Aluminium round solid class 1 EN 50288 or
   - Aluminium round stranded compacted class 2 EN 50288

2. **Conductor non-metallic extruded screen:**
   - Extruded semiconducting compound

3. **Insulation:**
   - XLPE wire free retardant type C1/C4 according to HD 620

4. **Core non-metallic extruded screen:**
   - Extruded semiconducting compound bonded to insulation

5. **Semi-conductive waterproofing tape longitudinally applied with overlap

6. **Metallic screen / Radial water tightness:**
   - AL/PAL laminated tape

7. **Sheath:**
   - Polyethylene type (MDPE) according to HD 620

8. **Berthing conductor in the centre between the laid-up cores,
   - Annealed bare copper round stranded compacted class 2 EN 50288

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<table>
<thead>
<tr>
<th>No of cores x nom. x-section</th>
<th>nom. thickness of Insulation</th>
<th>nom. thickness of over sheath</th>
<th>approx. diameter</th>
<th>approx. weight of cable</th>
<th>cable resistance at conductor at 20°C d.c., max</th>
<th>current rating directly in ground</th>
<th>Max short-circuit withstand capability of the conductor</th>
<th>Max short-circuit withstand capability of the metallic screen AL/PAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm²</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>Kg/Km</td>
<td>Ohm/Km</td>
<td>A</td>
<td>A</td>
<td>kA/1 s</td>
</tr>
<tr>
<td>3x1x100 = 1x35</td>
<td>5.5</td>
<td>2.8</td>
<td>62</td>
<td>2.620</td>
<td>0.661</td>
<td>191</td>
<td>192</td>
<td>4.7</td>
</tr>
<tr>
<td>3x1x160 = 1x35</td>
<td>5.5</td>
<td>2.8</td>
<td>69</td>
<td>3.380</td>
<td>0.525</td>
<td>273</td>
<td>272</td>
<td>8.9</td>
</tr>
<tr>
<td>3x1x250 = 1x35</td>
<td>5.5</td>
<td>2.8</td>
<td>76</td>
<td>4.220</td>
<td>0.341</td>
<td>405</td>
<td>409</td>
<td>15.6</td>
</tr>
<tr>
<td>3x1x400 = 1x35</td>
<td>5.5</td>
<td>2.8</td>
<td>78</td>
<td>4.220</td>
<td>0.125</td>
<td>680</td>
<td>646</td>
<td>22.8</td>
</tr>
</tbody>
</table>

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**Standard specification: HD 620/10F Type 10F5**

1. **Conductor:**
   - Aluminium round solid class 1 EN 50288 or
   - Aluminium round stranded compacted class 2 EN 50288

2. **Conductor non-metallic extruded screen:**
   - Extruded semiconducting compound

3. **Insulation:**
   - XLPE wire free retardant type C1/C4 according to HD 620

4. **Core non-metallic extruded screen:**
   - Extruded semiconducting compound bonded to insulation

5. **Semi-conductive waterproofing tape longitudinally applied with overlap

6. **Metallic screen / Radial water tightness:**
   - AL/PAL laminated tape

7. **Sheath:**
   - Polyethylene type (MDPE) according to HD 620

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<table>
<thead>
<tr>
<th>No of cores x nom. x-section</th>
<th>nom. thickness of Insulation</th>
<th>nom. thickness of over sheath</th>
<th>approx. diameter</th>
<th>approx. weight of cable</th>
<th>cable resistance at conductor at 20°C d.c., max</th>
<th>current rating directly in ground</th>
<th>Max short-circuit withstand capability of the conductor</th>
<th>Max short-circuit withstand capability of the metallic screen AL/PAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm²</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>Kg/Km</td>
<td>Ohm/Km</td>
<td>A</td>
<td>A</td>
<td>kA/1 s</td>
</tr>
<tr>
<td>3x1x100</td>
<td>5.5</td>
<td>2.8</td>
<td>61</td>
<td>2.620</td>
<td>0.661</td>
<td>191</td>
<td>192</td>
<td>4.7</td>
</tr>
<tr>
<td>3x1x160</td>
<td>5.5</td>
<td>2.8</td>
<td>68</td>
<td>3.380</td>
<td>0.525</td>
<td>273</td>
<td>272</td>
<td>8.9</td>
</tr>
<tr>
<td>3x1x250</td>
<td>5.5</td>
<td>2.8</td>
<td>74</td>
<td>4.220</td>
<td>0.341</td>
<td>405</td>
<td>409</td>
<td>15.6</td>
</tr>
<tr>
<td>3x1x400</td>
<td>5.5</td>
<td>2.8</td>
<td>77</td>
<td>4.220</td>
<td>0.125</td>
<td>680</td>
<td>646</td>
<td>22.8</td>
</tr>
</tbody>
</table>

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**Notes:**
- Maximum short-circuit withstand capability of the metallic screens (AL/PAL laminates tape 85-180degC)
- Maximum short-circuit withstand capability of the metallic screen (AL/PAL laminates tape 85-180degC)
Bundled cable consisting of three cores with aluminium round solid or stranded compacted conductors, XLPE insulation, aluminium wire screen (AWS), aluminium laminate tape, polyethylene overshield.

Rated voltage: 12/20 (24) kV

**Standard specification:** Generally according to HD 620/10M, HD 620/10F-Type 10F where applicable.

1. **Conductor:**
   - Aluminium round solid class 1 EN 50282 or
   - Aluminium round stranded compacted class 2 EN 50287

2. **Conductor non-metallic extruded screen:**
   - Extruded semiconducting compound

3. **Insulation:**
   - XLPE water-tree resistant type DIN 4 according to HD 620

4. **Core non-metallic extruded screen:**
   - Extruded semiconducting compound bonded to insulation

5. **Semiconductive waterblocking tape applied helically with overlap:**

6. **Metallic screen:**
   - Aluminium wires helically applied over each individual core

7. **Semiconductive waterblocking tape applied helically with overlap:**

8. **Radial watertightness:**
   - XLPE laminate tape

9. **Sheath:**
   - Polyethylene type DMP-10 according to HD 620/10M

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Three-core cable with aluminium round solid or stranded compacted conductors, XLPE insulation, screen of aluminium wires, aluminium laminate tapes, polyethylene overshield.

Rated voltage: 12/20 (24) kV

**Standard specification:** HD 620/10M

1. **Conductor:**
   - Aluminium round solid class 1 EN 50282 or
   - Aluminium round stranded compacted class 2 EN 50287

2. **Conductor non-metallic extruded screen:**
   - Extruded semiconducting compound

3. **Insulation:**
   - XLPE water-tree resistant type DIN 4 according to HD 620

4. **Core non-metallic extruded screen:**
   - Extruded semiconducting compound bonded to insulation

5. **Filling material in the joints in order to achieve the triangular shape:**

6. **Semiconductive waterblocking tape applied helically with overlap:**

7. **Metallic screen:**
   - Aluminium wires helically applied over the assembly of cores

8. **Semiconductive waterblocking tape applied helically with overlap:**

9. **Radial watertightness:**
   - Two XLPE laminate tapes

10. **Sheath:**
    - Polyethylene type DMP-10 according to HD 620

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### Table: Electrical resistance of conductor at 20°C (in Ohm/m) and current rating in air

<table>
<thead>
<tr>
<th>Area of conductor x nominal section</th>
<th>Insulation</th>
<th>Nominal thickness of overshield</th>
<th>Approx. overall diameter</th>
<th>Approx. weight of cable</th>
<th>Electrical resistance of conductor at 20°C (in m/Ohm max)</th>
<th>Current rating in air</th>
<th>Maximum short-circuit withstand capability of the aluminium wire screen</th>
<th>Sheath</th>
<th>Maximum short-circuit withstand capability of the aluminium laminate tape</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm²</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>Kg/100 m</td>
<td>Ohm/100 m</td>
<td>A</td>
<td>kA/s (5 s)</td>
<td>(3x4)</td>
<td>(3x28)</td>
</tr>
<tr>
<td>3x4 (50)</td>
<td>5.5</td>
<td>2.8</td>
<td>67</td>
<td>2.250</td>
<td>0.641</td>
<td>185</td>
<td>180</td>
<td>4.7</td>
<td>2.8</td>
</tr>
<tr>
<td>3x4 (55)</td>
<td>5.5</td>
<td>3.2</td>
<td>71</td>
<td>3.250</td>
<td>0.641</td>
<td>185</td>
<td>180</td>
<td>4.7</td>
<td>2.8</td>
</tr>
<tr>
<td>3x4 (60)</td>
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<td>3.7</td>
<td>75</td>
<td>3.750</td>
<td>0.641</td>
<td>185</td>
<td>180</td>
<td>4.7</td>
<td>2.8</td>
</tr>
<tr>
<td>3x4 (100)</td>
<td>5.5</td>
<td>5.5</td>
<td>116</td>
<td>5.500</td>
<td>1.291</td>
<td>195</td>
<td>190</td>
<td>14.1</td>
<td>5.7</td>
</tr>
<tr>
<td>3x4 (150)</td>
<td>5.5</td>
<td>6.5</td>
<td>145</td>
<td>6.500</td>
<td>1.291</td>
<td>195</td>
<td>190</td>
<td>14.1</td>
<td>5.7</td>
</tr>
<tr>
<td>3x4 (280)</td>
<td>5.5</td>
<td>7.1</td>
<td>183</td>
<td>7.100</td>
<td>1.735</td>
<td>195</td>
<td>190</td>
<td>14.1</td>
<td>5.7</td>
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