Oil & Gas - Cable Solutions

Exploration & Production - Offshore

VFD Cables

IEEE

**BOSTRIG TYPE P VFD 2 kV**

Shielded three conductor, unarmored or armored and sheathed Type P power cable 2000 V, 1/0 AWG to 777 MCM. Mud Resistant design option (Type P-MR) available on demand.

**APPLICATION**

Bostrig Type P shielded three conductor VFD Marine and Offshore Cable is designed specifically for use with variable frequency AC motor drives. This cable is designed to significantly mitigate the deleterious effects of high frequency harmonics and electromagnetic interference (EMI) on the motor/drive system as well as the adjacent environment. Armored and sheathed cables are suitable for use in Zone 1 hazardous locations offshore. Unarmored cables are suitable for use in Class I, Division 2 hazardous locations offshore.

**DESIGN & CONSTRUCTION**

1. **CONDUCTOR**
   Soft annealed tinned copper; a polyester tape separator is used over the conductor

2. **INSULATION**
   Bostrig Type P chemically cross-linked polyolefin (XLPO)

3. **GROUND CONDUCTORS**
   All Bostrig Type P-VFD Cables listed in this specification sheet are built using system grounds equal to the aggregate cross-section of a phase conductor and can be in contact with or isolated from the overall shield. A system ground is REQUIRED for supplying power from the switchboard to the inverter and then to the motor. If the VFD cable is only being used between the motor and the inverter, a cable with a lesser ground can be utilized.

4. **SHIELD**
   Braided tinned copper and aluminum polyester tape for 100% coverage

5. **JACKET**
   Flame-retardant Arctic Neoprene (complying with Type N Neoprene as required in IEEE 1580)

6. **ARMOUR**
   (optional)
   Braided bronze

7. **SHEATH**
   (only armoured versions)
   Flame-retardant Arctic Neoprene applied over the armor (complying with Type N Neoprene as required in IEEE 1580)
   Special ester-based mud resistant jacket is available on request

**STANDARDS & APPROVALS**

IEEE 1580 and IEEE 45 Marine Shipboard Cables
UL 1309 Marine Shipboard Cable Type XP110
CSA 22.2 No. 245 Marine Shipboard Cable Type XPI10
UL 1277 Type TC-ER for exposed runs (unarmoured)
ASTM B 33 Conductor Materials
CSA 22.2 Cold bend/cold impact (-40 °C / -35 °C)
IEEE 1202 and IEC 60332-3-22 Flame propagation

- Det Norske Veritas (DNV)
- American Bureau of Shipping (ABS)
- Transport Canada Approved AMS400-20-2
- Transport Canada 8700-20-2
- Lloyd’s Register of Shipping (LRS)
- United States Coast Guard-46CFR
- ETL listed
- CSA listed

CONTACT INFO:
prysmianoilandgas@prysmiangroup.com
www.prysmiangroup.com/contact-us
Exploration & Production - Offshore

VFD Cables

IEEE

PERFORMANCES / RATINGS

FIRE BEHAVIOUR

IEEE 1202
IEC 60332-3-22

CHEMICAL RESISTANCE

VERY GOOD
EXCELLENT (MUD RES)

IMPACTS

GOOD

SMOKE DENSITY, CORROSIVITY AND TOXICITY

LOW EMISSION (MUD RES)

MIN. PERMISSIBLE AMBIENT TEMPERATURE DURING LAYING

-40 °C
(-20 °C MUD RES)

MAX OPERATING TEMPERATURE

+100 °C

SHORT CIRCUIT TEMPERATURE

+250 °C

UV RESISTANCE

GOOD

QUALITY & TESTING

Prysmian has a built-in multi-step quality assurance program, covering the production process from cable design and raw material purchases to final inspection and testing documentation.

The ISO 9001 quality system of Prysmian Group (together with ISO 14001 and OHSAS 18001) has been assessed, approved and is currently audited by SGS.

This information is provided for reference only. Please consult the factory or your representative to confirm all engineering information. This information is not intended to replace the information in the appropriate and applicable standard or code.

CONTACT INFO:
prysmianoilandgas@prysmiangroup.com
www.prysmiangroup.com/contact-us
## TECHNICAL DATA

### Unarmoured

<table>
<thead>
<tr>
<th>Conductor Size</th>
<th>Ground Size</th>
<th>Sheath Thickness</th>
<th>Cable Diameter (Nominal)</th>
<th>Inductance (μH/ft)</th>
<th>Capacitance (pF/ft)</th>
<th>Ampacity † (Measured @ °C)</th>
<th>Cable Weight (Approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(AWG/MCM)</td>
<td>(AWG/MCM)</td>
<td>(in)</td>
<td>(mm)</td>
<td>(μH/km)</td>
<td>(pF/M)</td>
<td>95°C</td>
<td>Lbs/Mft kg/km</td>
</tr>
<tr>
<td>1/0</td>
<td>56.3</td>
<td>5</td>
<td>18.6</td>
<td>1.52</td>
<td>38.6</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>2/0</td>
<td>66.5</td>
<td>4</td>
<td>21.5</td>
<td>1.62</td>
<td>41.1</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>4/0</td>
<td>112.6</td>
<td>1</td>
<td>56.3</td>
<td>2.09</td>
<td>53.1</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>262</td>
<td>133</td>
<td>1</td>
<td>56.3</td>
<td>2.22</td>
<td>56.4</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>313</td>
<td>158.6</td>
<td>110</td>
<td>18.6</td>
<td>2.35</td>
<td>59.7</td>
<td>0.08</td>
<td>0.2</td>
</tr>
<tr>
<td>373</td>
<td>189.3</td>
<td>210</td>
<td>61.5</td>
<td>2.54</td>
<td>64.5</td>
<td>0.08</td>
<td>0.2</td>
</tr>
<tr>
<td>444</td>
<td>225.1</td>
<td>310</td>
<td>92.1</td>
<td>2.85</td>
<td>72.4</td>
<td>0.08</td>
<td>0.2</td>
</tr>
<tr>
<td>535</td>
<td>271.2</td>
<td>310</td>
<td>92.1</td>
<td>3.01</td>
<td>76.5</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>646</td>
<td>327.5</td>
<td>410</td>
<td>112.6</td>
<td>3.16</td>
<td>80.3</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>777</td>
<td>393.8</td>
<td>262 KCMIL</td>
<td>0.06</td>
<td>3.5</td>
<td>88.9</td>
<td>0.09</td>
<td>0.3</td>
</tr>
</tbody>
</table>

### Armoured and Sheathed

<table>
<thead>
<tr>
<th>Conductor Size</th>
<th>Ground Size</th>
<th>Sheath Thickness</th>
<th>Cable Diameter (Nominal)</th>
<th>Inductance (μH/ft)</th>
<th>Capacitance (pF/ft)</th>
<th>Ampacity † (Measured @ °C)</th>
<th>Cable Weight (Approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(AWG/MCM)</td>
<td>(AWG/MCM)</td>
<td>(in)</td>
<td>(mm)</td>
<td>(μH/km)</td>
<td>(pF/M)</td>
<td>95°C</td>
<td>Lbs/Mft kg/km</td>
</tr>
<tr>
<td>1/0</td>
<td>56.3</td>
<td>5</td>
<td>18.6</td>
<td>1.8</td>
<td>45.7</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>2/0</td>
<td>66.5</td>
<td>4</td>
<td>21.5</td>
<td>1.9</td>
<td>48.3</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>4/0</td>
<td>112.6</td>
<td>1</td>
<td>56.3</td>
<td>2.37</td>
<td>60.2</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>262</td>
<td>133</td>
<td>1</td>
<td>56.3</td>
<td>2.5</td>
<td>63.5</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>313</td>
<td>158.6</td>
<td>110</td>
<td>18.6</td>
<td>2.63</td>
<td>66.8</td>
<td>0.08</td>
<td>0.2</td>
</tr>
<tr>
<td>373</td>
<td>189.3</td>
<td>210</td>
<td>61.5</td>
<td>2.88</td>
<td>73.2</td>
<td>0.08</td>
<td>0.2</td>
</tr>
<tr>
<td>444</td>
<td>225.1</td>
<td>310</td>
<td>92.1</td>
<td>3.19</td>
<td>81</td>
<td>0.08</td>
<td>0.2</td>
</tr>
<tr>
<td>535</td>
<td>271.2</td>
<td>310</td>
<td>92.1</td>
<td>3.35</td>
<td>85.1</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>646</td>
<td>327.5</td>
<td>410</td>
<td>112.6</td>
<td>3.53</td>
<td>89.7</td>
<td>0.09</td>
<td>0.3</td>
</tr>
<tr>
<td>777</td>
<td>393.8</td>
<td>262 KCMIL</td>
<td>0.14</td>
<td>3.84</td>
<td>97.5</td>
<td>0.09</td>
<td>0.3</td>
</tr>
</tbody>
</table>

†Ampacity based on 45°C ambient temperature. 95°C values based on ABS MODU Rules Table 6 - 100°C values based on IEEE-45 - 110°C values based on API 14F.

This information is provided for reference only. Please consult the factory or your representative to confirm all engineering information. This information is not intended to replace the information in the appropriate and applicable standards or code.