FSE/FSE(w) 100°C

FreezeStop Extra
Self-Regulating Heating Cable

Electrical heating cable for freeze protection or temperature maintenance.

- Automatically adjusts heat output in response to increasing or decreasing pipe temperature.
- Can be cut-to-length with no wastage.
- Will not overheat or burnout, even when overlapped.
- Full range of controls and accessories.
- Approved for use in non-hazardous, hazardous and corrosive environments.
- Available up to 277VAC.

**DESCRIPTION**

FreezeStop Extra is an industrial grade, self-regulating heating cable that can be used for freeze protection or temperature maintenance to 100°C.

It can be cut-to-length on site and exact piping lengths can be matched without any complicated design considerations.

FreezeStop Extra is approved for use in non-hazardous, hazardous and corrosive environments to worldwide standards.

Its self-regulating characteristics improve safety and reliability. FreezeStop Extra will not overheat or burnout, even when overlapped upon itself. Its power output is self-regulated in response to the pipe temperature.

The installation of FreezeStop Extra is quick and simple and requires no special skills or tools. Termination, splicing and power connection components are all provided in convenient kits.

**INHERENTLY TEMPERATURE-SAFE**

“The inherent ability to self-regulate at a temperature level below the maximum product rating and withstand temperature of the insulating materials, without the need for temperature control.”

Other manufacturers self-regulating products are typically limited to a maximum energised temperature, typically 65°C at which point, their retained power output prevent the cable from self-regulating at its own limiting temperatures. All such products require temperature control to ensure their own temperature safety.

**DESCRIPTION**

Buswires.

Inherently temperature-safe self-regulating matrix.

Thermoplastic electrical insulation.

Continuous conductive covering of metal braid. (-C)

Thermoplastic or fluoropolymer outer jacket.

FSE

FSEw
**SPECIFICATION**

**MAXIMUM CONTINUOUS EXPOSURE**
**TEMPERATURE (Power ON):** 100ºC (212ºF)

**MAXIMUM PERMISSIBLE EXPOSURE**
**TEMPERATURE (Power OFF):** 100ºC (212ºF)

**MINIMUM OPERATING**
**TEMPERATURE:** -65ºC* (-85ºF)

**MINIMUM INSTALLATION**
**TEMPERATURE:** -40ºC (-40ºF)

**POWER SUPPLY:** 12 - 277V AC

**TEMPERATURE CLASSIFICATION:**
up to 45W/m @ nom voltage - T4 (135ºC)
>45W/m @ nom 230V powered to 277V - T3 (200ºC)

**MAXIMUM RESISTANCE**
**OF PROTECTIVE BRAIDING:** 18.2 Ohm/km

**INGRESS PROTECTION:** IP67

**WEIGHTS & DIMENSIONS:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions (mm) +/-0.5</th>
<th>Weight (kg/100m)</th>
<th>Min Bend Radius (mm)</th>
<th>Gland Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSE..C</td>
<td>11.5 x 4.75</td>
<td>9.5</td>
<td>30</td>
<td>M20</td>
</tr>
<tr>
<td>FSE..CT</td>
<td>12.7 x 5.95</td>
<td>12.4</td>
<td>35</td>
<td>M20</td>
</tr>
<tr>
<td>FSE..CF</td>
<td>12.4 x 5.65</td>
<td>13.2</td>
<td>35</td>
<td>M20</td>
</tr>
<tr>
<td>FSEw..C</td>
<td>14.2 x 5.3</td>
<td>12.9</td>
<td>30</td>
<td>M20</td>
</tr>
<tr>
<td>FSEw..CT</td>
<td>15.4 x 6.5</td>
<td>17.0</td>
<td>40</td>
<td>M25</td>
</tr>
<tr>
<td>FSEw..CF</td>
<td>15.1 x 6.2</td>
<td>16.6</td>
<td>40</td>
<td>M25</td>
</tr>
</tbody>
</table>

**APPROVAL DETAILS:**

- **ATEX**
  - FSE: Sira 02ATEX3076
  - FSEw: Sira 12ATEX3114

- **IECEx**
  - FSE: SIR 11.0126
  - FSEw: SIR 11.0127

- **DNV-GL**
  - TAE00002KA

- **EAC**
  - TC RU 02.B.06041

- **Japanese**
  - FSE - CML 17JPN3004X 1 to 2
  - FSEw - CML 17JPN3004X 1 to 2

- **CNEEx**
  - FSE + FSEw - CNEEx19.1552U

**ORDERING INFORMATION:**

Example:

45 FSEw 2 - C T

Output 45W/m at 10ºC
FREEZSTOP EXTRA WIDE
Supply Voltage 220 - 277V AC
Metal Braid
Thermoplastic Outerjacket

**ATEX & IECEx MARKINGS:**

- **II 2GD**
  - Ex e IIC T4 Gb
  - EN 60079-0:2009

- **II 2GD**
  - Ex e IIC T4 Gb
  - EN 60079-0:2009

**MAXIMUM LENGTH (m) vs. CIRCUIT BREAKER SIZE:**

The following circuit details relate specifically to the trace heating of pipework and equipment. For any other application consult Heat Trace.

<table>
<thead>
<tr>
<th>Cat</th>
<th>Start-up</th>
<th>6A</th>
<th>10A</th>
<th>16A</th>
<th>20A</th>
<th>25A</th>
</tr>
</thead>
<tbody>
<tr>
<td>17FSE</td>
<td>10ºC</td>
<td>46</td>
<td>76</td>
<td>120</td>
<td>148</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0ºC</td>
<td>36</td>
<td>62</td>
<td>98</td>
<td>122</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>-20ºC</td>
<td>24</td>
<td>42</td>
<td>66</td>
<td>82</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>-40ºC</td>
<td>16</td>
<td>28</td>
<td>44</td>
<td>56</td>
<td>68</td>
</tr>
<tr>
<td>31FSE</td>
<td>10ºC</td>
<td>32</td>
<td>52</td>
<td>82</td>
<td>104</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>0ºC</td>
<td>26</td>
<td>42</td>
<td>68</td>
<td>84</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>-20ºC</td>
<td>16</td>
<td>28</td>
<td>46</td>
<td>56</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-40ºC</td>
<td>12</td>
<td>18</td>
<td>30</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>45FSEw</td>
<td>10ºC</td>
<td>24</td>
<td>38</td>
<td>62</td>
<td>76</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>0ºC</td>
<td>20</td>
<td>32</td>
<td>50</td>
<td>64</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>-20ºC</td>
<td>12</td>
<td>22</td>
<td>34</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>-40ºC</td>
<td>8</td>
<td>14</td>
<td>22</td>
<td>28</td>
<td>34</td>
</tr>
<tr>
<td>60FSEw</td>
<td>10ºC</td>
<td>20</td>
<td>35</td>
<td>52</td>
<td>66</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>0ºC</td>
<td>16</td>
<td>28</td>
<td>44</td>
<td>56</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-20ºC</td>
<td>12</td>
<td>20</td>
<td>32</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>-40ºC</td>
<td>8</td>
<td>14</td>
<td>22</td>
<td>28</td>
<td>34</td>
</tr>
</tbody>
</table>

**THERMAL RATINGS:**

Nominal output at 115V or 230V when FSE is installed on thermally insulated carbon steel pipes.

**FURTHER INFORMATION:**

Please consult the appropriate termination instructions and the Heat Trace Design, Installation & Maintenance Manual (HTDIMM 010) for further details.

---

Heat Trace Ltd, Mere’s Edge, Chester Road, Helsby, Frodsham, Cheshire, WA6 0DJ, England.

Tel: +44 (0)1928 726451    Fax: +44 (0)1928 727846

www.heat-trace.com        email: info@heat-trace.com

The information given herein, including drawings, illustrations and schematics (which are intended for illustration purposes only), is believed to be reliable. However, Heat Trace Ltd makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. Users of Heat Trace Ltd products should make their own evaluation to determine the suitability of each such product for specific applications. In no way will Heat Trace Ltd be liable for any damages arising out of the misuse, resale or use of the product.