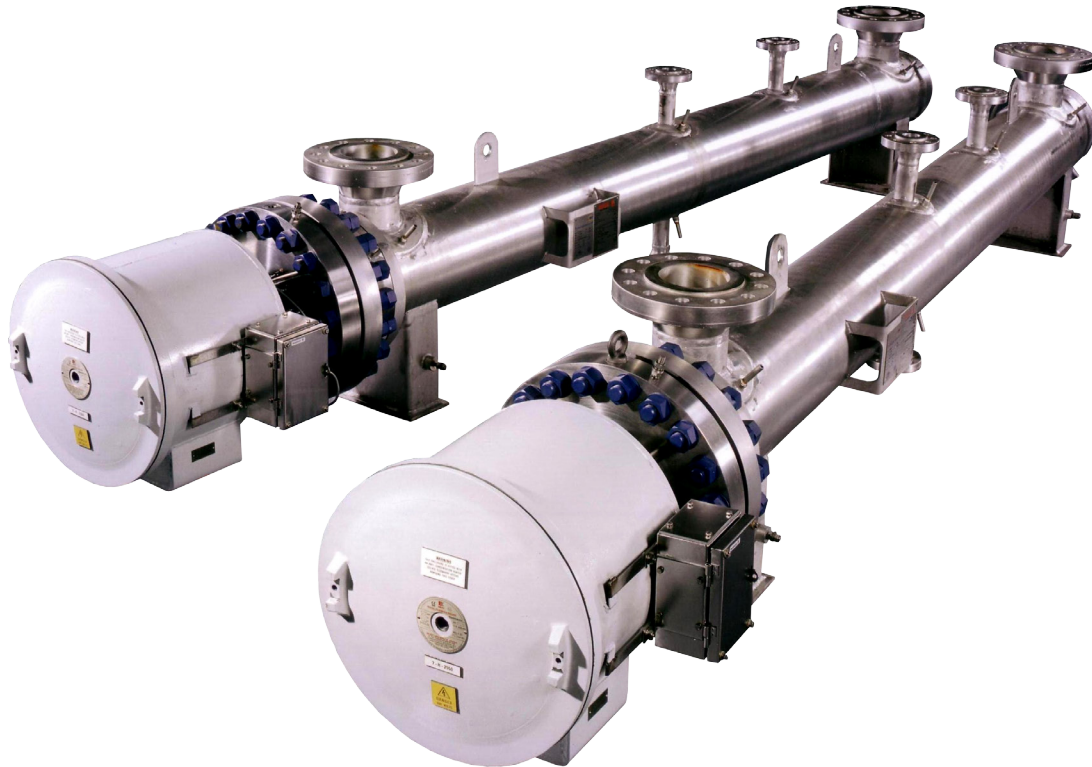


## FP Range of Explosionproof / Flameproof Certified Process Flow Heaters

The FP type flameproof electric heaters comprise a large range of process flow heaters, certified for use in hazardous areas and are custom built to meet client specifications.



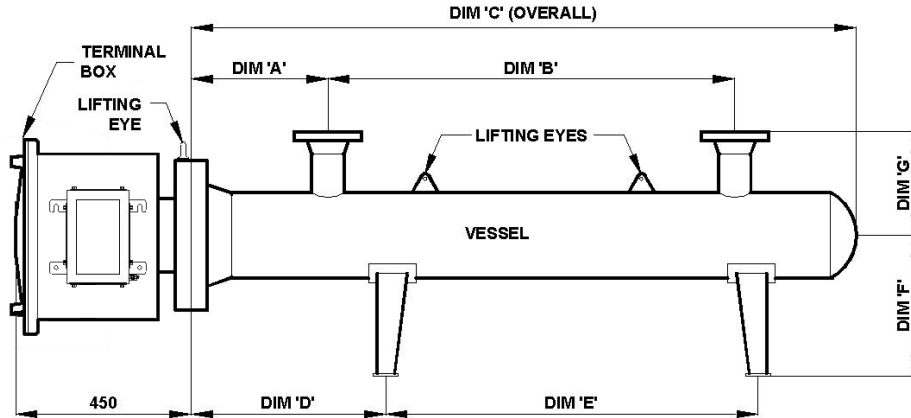
### FEATURES

- Certified to ATEX, IECEx or CSA standards
- Terminal box is certified weatherproof to IP66 as well as Type 4 or 4X standards
- Temperature classifications T1 to T6
- Up to 1400kW (larger ratings achieved by a combination of enclosures)
- Elements are individually replaceable on site without the need for special tools
- Anti-condensation heaters fitted, if required

### TYPICAL APPLICATIONS

- Fuel gas
- Natural gas
- Industrial gases
- Molecular sieve regeneration
- Heat transfer oils
- Fuel oils
- Water
- Crude oil / hydrocarbons / liquids
- Heating mediums

|                             |  |   |  |                 |                 |          |                          |                     |       |
|-----------------------------|--|---|--|-----------------|-----------------|----------|--------------------------|---------------------|-------|
| <b>Certifications</b>       | <p>ATEX / IECEx  II 2 G/D<br/>           Ex d IIC T1 to T6 Gb<br/>           Ex tb IIIC T85 to T450°C Db IP66<br/>           EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31<br/>           CSA (CEC/NEC) Class I, Div 1, Groups A, B, C, D; T1 to T6, Enclosure Type 4 or 4X<br/>           CSA (CEC) Ex d IIC; T1 to T6 Gb, IP66 (CAN)<br/>           CSA (NEC) Class I, Zone 1, AEx d IIC; T1 to T6 Gb, IP66 (USA)<br/>           CU TR (formerly GOST), CNEEx, CCOE, Inmetro, KGS</p> |   |  |                 |                 |          |                          |                     |       |
| <b>Vessel Design Codes</b>  | <p>PED Compliant<br/>           Stoomwezen<br/>           CODAP</p>  | <p>PD 5500 2000 Cat 1<br/>           ASME VIII Div 1/2<br/>           EN13445</p> | <p>AS 1210<br/>           AD Merkblätter</p>           |                 |                 |          |                          |                     |       |
| <b>Vessel Materials</b>     | <p>Carbon steel<br/>           Duplex<br/>           Monel</p>   | <p>Low temperature steel<br/>           Titanium<br/>           Nickel alloys</p> | <p>Stainless steel<br/>           Super austenitic</p> |                 |                 |          |                          |                     |       |
| <b>Elements</b>             | <p>Manufactured from 80/20 NiCr resistance wire with high purity compacted magnesium oxide powder sheathed within corrosion / erosion resistant tube, eg:</p> <table border="0" style="width: 100%;"> <tr> <td>Incoloy 800/825</td> <td>Inconel 600/625</td> <td>Titanium</td> </tr> <tr> <td>316/316L stainless steel</td> <td>321 stainless steel</td> <td>Monel</td> </tr> </table> <p>Element sheath available in welded or seamless tube up to 1.6mm thick</p>  |   |  | Incoloy 800/825 | Inconel 600/625 | Titanium | 316/316L stainless steel | 321 stainless steel | Monel |
| Incoloy 800/825             | Inconel 600/625  | Titanium  |  |                 |                 |          |                          |                     |       |
| 316/316L stainless steel    | 321 stainless steel  | Monel   |  |                 |                 |          |                          |                     |       |
| <b>Internals</b>            | <p>Elements are supported in a segmental or rod type baffle assembly to prevent flow-induced vibration and hot spots, generally complying with TEMA standards</p>  |   |  |                 |                 |          |                          |                     |       |
| <b>Element to Tubesheet</b> | <p>Generally, elements are sealed into the flange by 'Bite' type couplings which provide a 100% seal at pressures up to 400 barg and give the opportunity to replace individual elements on site. Elements can be welded to the tubesheet, in stand-off and non-stand-off configurations</p>   |   |  |                 |                 |          |                          |                     |       |
| <b>Terminal Box</b>         | <p>Manufactured from either iron or stainless steel</p>  |   |  |                 |                 |          |                          |                     |       |
| <b>Voltage</b>              | <p>Suitable for voltages up to 690V (600V CAN and USA)</p>   |   |  |                 |                 |          |                          |                     |       |



Tables indicate EXHEAT standard designs for hydrocarbon gas heating applications. Dimensions may vary from other mediums on compliance with project specification.

| Short Option |            |      |      |      |     |      |     |     |                |               |
|--------------|------------|------|------|------|-----|------|-----|-----|----------------|---------------|
| kW           | Withdrawal | A    | B    | C    | D   | E    | F   | G   | Diameter (Ins) | Diameter (mm) |
| 25           | 2200       | 1490 | 1605 | 1985 | 215 | 1555 | 400 | 250 | 4              | 100           |
| 50           | 2200       | 240  | 1555 | 2035 | 265 | 1505 | 400 | 275 | 6              | 150           |
| 75           | 2200       | 240  | 1555 | 2035 | 265 | 1505 | 400 | 275 | 6              | 150           |
| 100          | 2200       | 240  | 1555 | 2035 | 265 | 1505 | 400 | 275 | 6              | 150           |
| 125          | 2200       | 290  | 1520 | 2100 | 315 | 1470 | 400 | 300 | 8              | 200           |
| 150          | 2200       | 290  | 1520 | 2100 | 315 | 1470 | 400 | 300 | 8              | 200           |
| 175          | 2200       | 290  | 1520 | 2100 | 315 | 1470 | 400 | 300 | 8              | 200           |
| 200          | 2200       | 333  | 1500 | 2166 | 358 | 1450 | 400 | 325 | 10             | 250           |
| 225          | 2200       | 335  | 1500 | 2170 | 360 | 1450 | 400 | 325 | 10             | 250           |
| 250          | 2200       | 335  | 1500 | 2170 | 360 | 1450 | 400 | 325 | 10             | 250           |
| 275          | 2200       | 335  | 1500 | 2170 | 360 | 1450 | 400 | 325 | 10             | 250           |
| 300          | 2200       | 335  | 1500 | 2170 | 360 | 1450 | 400 | 325 | 10             | 250           |
| 325          | 2200       | 385  | 1450 | 2220 | 410 | 1400 | 400 | 350 | 12             | 300           |
| 350          | 2200       | 385  | 1450 | 2220 | 410 | 1400 | 400 | 350 | 12             | 300           |
| 375          | 2200       | 385  | 1450 | 2220 | 410 | 1400 | 400 | 350 | 12             | 300           |
| 400          | 2200       | 385  | 1450 | 2220 | 410 | 1400 | 400 | 350 | 12             | 300           |
| 425          | 2200       | 385  | 1450 | 2220 | 410 | 1400 | 400 | 350 | 12             | 300           |
| 450          | 2200       | 385  | 1450 | 2220 | 410 | 1400 | 400 | 350 | 12             | 300           |
| 475          | 2200       | 425  | 1440 | 2290 | 450 | 1390 | 400 | 375 | 14             | 350           |
| 500          | 2200       | 425  | 1440 | 2290 | 450 | 1390 | 400 | 375 | 14             | 350           |
| 600          | 2200       | 450  | 1410 | 2310 | 475 | 1360 | 400 | 400 | 16             | 400           |
| 700          | 2200       | 450  | 1410 | 2310 | 475 | 1360 | 400 | 400 | 16             | 400           |
| 800          | 2200       | 500  | 1375 | 2375 | 525 | 1325 | 400 | 425 | 18             | 450           |
| 900          | 2200       | 500  | 1375 | 2375 | 525 | 1325 | 400 | 425 | 18             | 450           |

| Long Option |            |     |      |      |     |      |     |     |                |               |
|-------------|------------|-----|------|------|-----|------|-----|-----|----------------|---------------|
| kW          | Withdrawal | A   | B    | C    | D   | E    | F   | G   | Diameter (Ins) | Diameter (mm) |
| 50          | 3600       | 190 | 3005 | 3385 | 215 | 2955 | 400 | 250 | 4              | 100           |
| 100         | 3600       | 240 | 2955 | 3435 | 265 | 2905 | 400 | 275 | 6              | 150           |
| 150         | 3600       | 240 | 2955 | 3435 | 265 | 2905 | 400 | 275 | 6              | 150           |
| 200         | 3600       | 240 | 2955 | 3435 | 265 | 2905 | 400 | 275 | 6              | 150           |
| 250         | 3600       | 290 | 2920 | 3500 | 315 | 2870 | 400 | 300 | 8              | 200           |
| 300         | 3600       | 290 | 2920 | 3500 | 315 | 2870 | 400 | 300 | 8              | 200           |
| 350         | 3600       | 290 | 2920 | 3500 | 315 | 2870 | 400 | 300 | 8              | 200           |
| 400         | 3600       | 335 | 2900 | 3570 | 360 | 2850 | 400 | 325 | 10             | 250           |
| 450         | 3600       | 335 | 2900 | 3570 | 360 | 2850 | 400 | 325 | 10             | 250           |
| 500         | 3600       | 335 | 2900 | 3570 | 360 | 2850 | 400 | 325 | 10             | 250           |
| 600         | 3600       | 335 | 2900 | 3570 | 360 | 2850 | 400 | 325 | 10             | 250           |
| 700         | 3600       | 385 | 2850 | 3620 | 410 | 2800 | 400 | 350 | 12             | 300           |
| 800         | 3600       | 385 | 2850 | 3620 | 410 | 2800 | 400 | 350 | 12             | 300           |
| 900         | 3600       | 385 | 2850 | 3620 | 410 | 2800 | 400 | 350 | 12             | 300           |