**Application**
- Temperature measurement in pipe systems and tanks with gasses and fluid media such as air, steam and water at high pressure and flow velocity.
- Operating range is up to 600°C, max. 450 bar (water) and 60 m/sec. (steam).
- Fields of application:
  - Boilers
  - Power plants
  - Chemical process engineering

**Technical features**
- Thermocouple type J, K or N acc.to IEC 584-1
- Permissible mechanical and thermal stress acc. to DIN 43763
- Installed to the process by welding
- The measuring insert can be exchanged or calibrated without closing down the process
- Measuring insert is a mineral insulated type, vibrationproof
- Thermowell drilled from bar stock. Fast response time.
- Optionally, can be supplied with head mounted transmitter.

**Ordering**
The requested sensor is selected from the table below.
The colour code means:
- **Standard:** Built of standard modules (short delivery time)
- **Variant:** Modified standard modules
- **Special:** Special versions and material. We are specialist in temperature measurement. Please contact us and we shall do our utmost to solve your specific measuring task.

### Ordering information

<table>
<thead>
<tr>
<th>Specification number</th>
<th>Sensor</th>
<th>Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1307-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Thermowell

**Type:**
- DSS Length L=115 Corus K=40 ... 0
- D4S Length L=140 Corus K=65 ... 1
- D4SS Length L=200 Corus K=65 ... 2

- Special: ...
- None. Insert for D5S (115) ...
- None. Insert for D4S (140) ...
- None. Insert for D4SS (200) ...

#### Material:
- None
- W.no. 1.7335 13CrMo44 ...
- W.no. 1.7380 10CrMo910 ...
- W.no. 1.4571 XCrNiMoTi17122 ...
- W.no. 1.5415 18Mo3 ...

#### Extension tube (mm)
- 52 ...
- 102 ...
- 152 ...
- 202 ...

#### Connection head
- B: Degree of protection IP 65 ...
- BHS: Degree of protection IP 65 ...
- BHSH: Degree of protection IP 65, high cap for transmitter ...

#### Transmitter, 2-wire, 4-20mA output

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>FPTU Standard version. As terminal block</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FPTU Standard version. In high cap (B-head)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>FPTU galvanic isolated. As terminal block</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FPTU galvanic isolated. In high cap (B-head)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>FPTU galvanic isolated. ExXialCT4/6. As terminal block</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>FPTU galvanic isolated. ExXialCT4/6. In high cap (B-head)</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>FPTT galvanic isolated. As terminal block</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>FPTT galvanic isolated. In high cap (B-head)</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>FPTT galvanic isolated. ExXialCT4/6. As terminal block</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>FPTT galvanic isolated. ExXialCT4/6. In high cap (B-head)</td>
<td></td>
</tr>
<tr>
<td>Special</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Tolerance acc to IEC 584-2

- Class 2, for J, K and N, i.e. ±2.5°C or 0.0075 x \( t_{\text{actual}} \) (°C) 3)
- Class 1, for J, K and N, i.e. ±1.5°C or 0.0040 x \( t_{\text{actual}} \) (°C) 3)

Note 3: The highest value apply.

#### Number of thermocouples

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

#### Measuring insert

<table>
<thead>
<tr>
<th>Model</th>
<th>Thermocouple Type</th>
<th>Diam./type</th>
<th>Continuously</th>
<th>Shortly</th>
</tr>
</thead>
<tbody>
<tr>
<td>TK80</td>
<td>Fe-CuNi</td>
<td>J</td>
<td>3</td>
<td>MI 2)</td>
</tr>
<tr>
<td>TK115</td>
<td>NiCr-Ni</td>
<td>K</td>
<td>3</td>
<td>MI 2)</td>
</tr>
<tr>
<td>TK125</td>
<td>NiCr20Si15</td>
<td>N</td>
<td>3</td>
<td>MI 2)</td>
</tr>
</tbody>
</table>

Special:
- Note 1: The values apply for the thermocouple.
- Note 2: MI = Mineral insulated.

### Accessories
- Measuring insert: See data sheet 9108-01
- Thermowell: See data sheet 9111
- Transmitter: See data sheet 9168
- Extension: See data sheet 9111

### Customer information

- Name: [Name]
- Tel.: [Tel.]
**Dimensions**

- **Assembly**
  - Connection head: Type B / B+Hx CAP (for transmitter)
  - Measuring insert: Type BHS / BHSH (for transmitter)
- **Type TK, mineral insulated**
  - Transmitter as terminal block

**Stress diagram for thermowell acc. to DIN 43763**

- **Fig. 1**
  - Air: 662
  - Water: 225
- **Fig. 2**
  - Air: 473
  - Superheated steam: 442
- **Fig. 3**
  - Air: 390
  - Superheated steam: 319

**Permissible stress diagram**

- **Material (W.Nr.)**
  - Fig. 1: 1.7335
  - Fig. 2: 1.7380
  - Fig. 3: 1.4571
- **Maximum flow velocity**
  - **Air**: 60
  - **Water**: 5
  - **Superheated steam**: 60
- **In water @ 0.4m/sec.**
  - In air @ 1m/sec.
  - In steam @ 40m/sec.
- **in water**: 540
  - 260
  - 950
- **DS/DSS**
  - **t0.5**: 2
  - **t0.9**: 6
  - **t0.5**: 200
  - **t0.9**: 950
  - **t0.5**: 4
  - **t0.9**: 8

**Response time**

- The 0.5/0.9 time is the time that it takes the sensor to reach 50%/90% of the final value of a temperature change of a medium.
- If media and velocity are different from the ones stated, the time can change significantly.

**Connection diagram**

- **Thermocouple**
  - Single TC
  - Duplex TC
- **Transmitter FPUT/FPTT**
  - 4-20mA supply

---

**AMETEK DENMARK A/S**
**GYDEVANG 32-34, DK-3450 ALLERØD**
**TEL.: +45 48168000**
**FAX: +4548168080**