

RESPONSE TIME MINERAL INSULATED THERMOCOUPLES / RESISTANCE THERMOMETERS

mineral insulated thermocouples

| insulated hot junction | | response time in | | | |
|---------------------------|--------------------|------------------|------------------|-----------|--|
| (form A) sheath-Ø (mm) | water with 0,2 m/s | | air with 2,0 m/s | | |
| | t 0,5 (s) | t 0,9 (s) | t 0,5 (s) | t 0,9 (s) | |
| 0,5 | 0,06 | 0,13 | 1,80 | 5,50 | |
| 1,0 | 0,15 | 0,50 | 3,00 | 10,00 | |
| 1,5 | 0,21 | 0,60 | 8,00 | 25,00 | |
| 3,0 | 1,20 | 2,90 | 23,00 | 80,00 | |
| 4,5 | 2,50 | 5,90 | 37,00 | 120,00 | |
| 6,0 | 4,00 | 9,60 | 60,00 | 200,00 | |
| 8,0 | 7,00 | 17,00 | 100,00 | 360,00 | |

| welded hot junction | | response time in | | | |
|---------------------------|--------------------|------------------|------------------|-----------|--|
| (form B) sheath-Ø (mm) | water with 0,2 m/s | | air with 2,0 m/s | | |
| | t 0,5 (s) | t 0,9 (s) | t 0,5 (s) | t 0,9 (s) | |
| 0,5 | 0,03 | 0,10 | 1,80 | 6,00 | |
| 1,0 | 0,06 | 0,18 | 3,00 | 10,00 | |
| 1,5 | 0,13 | 0,40 | 8,00 | 25,00 | |
| 3,0 | 0,22 | 0,75 | 23,00 | 80,00 | |
| 4,5 | 0,45 | 1,60 | 33,00 | 110,00 | |
| 6,0 | 0,55 | 2,60 | 55,00 | 185,00 | |
| 8,0 | 0,75 | 4,60 | 97,00 | 310,00 | |

mineral insulated resistance thermometer

| sheath-Ø (mm) | response time in | | | |
|---------------|--------------------|-----------|------------------|-----------|
| | water with 0,2 m/s | | air with 2,0 m/s | |
| | t 0,5 (s) | t 0,9 (s) | t 0,5 (s) | t 0,9 (s) |
| 1,6 | 3,6 | 5,5 | 10,8 | 26,3 |
| 3,0 | 5,2 | 9,8 | 20,0 | 51,0 |
| 6,0 | 10,4 | 23,2 | 46,8 | 121,0 |

These indications are only reference values as the response time depends on the applied RTD.

► General

Mineral insulated thermocouples and mineral insulated resistance thermometers can be bent with a radius of 5 x the outer diameter of the sheath material. Herewith it must be considered that any bending of the measuring tip over a length of 60 mm has to be avoided.