

APPLICATION TEMPERATURE LIMITS AND APPLICATION ADVICE FOR MINERAL INSULATED MATERIALS

Application temperature limits:

The different mineral insulated thermocouple types have generally a metal sheath made of special steel material no. 1.4541 or of Inconel material no. 2.4816.

Other sheath materials are available on request.

The max. application temperature of mineral insulated thermocouples in pure air without any further harmful gaseous components are as follows:

material no.	sheath material	max. application temperature
1.4541	special steel	800°C
2.4816	Inconel	1100°C

- ▶ An important quality characteristic of the sheath material is its resistance against corrosion
- ▶ With higher measuring temperatures especially with cyclic stress, the wall thickness is reduced by scaling
- ▶ Aggressive gaseous components can be harmful to the sheath material
- ▶ Bigger diameters increase the service life of mineral insulated thermocouples

The above mentioned information do not claim to be complete. Herewith, we would like to point out that the allowed application temperature and service life of mineral insulated thermocouples are influenced by lots of circumstances.

Mineral insulated material:

The following table shows in which fields mineral insulated materials have good oxidation and alternating temperature resistance. The application temperature limits in different media are as follows:

Measuring medium	Application temperature	
	1.4541	2.4816
air	approx. 800°C	approx. 1100°C
carbon dioxide	approx. 650°C	approx. 500°C
benzene	approx. 100°C	not recommended
benzol	approx. 100°C	not recommended
boric acid	approx. 100°C	not recommended
butyl alcohol	approx. 100°C	not recommended
up to 50°G.L phosphoric acid	approx. 100°C	not recommended
nitric acid	approx. 100°C	not recommended
liquid sodium	not recommended	approx. 750°C
sulphurous air	not recommended	approx. 550°C
chlorine free water	not recommended	approx. 590°C