

A Leading Manufacturer of Quality Thermocouple and RTD Assemblies Since 1972

# Thermowells

Thermowells are used to provide an isolation between a temperature sensor and the environment, either liquid, gas or slurry. A thermowell allows the temperature sensor to be removed and replaced without compromising either the ambient region or the process.

Care must be taken in determining the material used for the thermowell as well as other factors. Thermo Sensors offers design assistance that includes pressure, temperature and or corrosion as well as vibration effects of the fluids. This vibration can cause well stem failure.



Thermo Sensors thermowell materials include:

- Carbon Steel
- 304 & 316 Stainless Steel
- Monel
- Brass

Please refer to our order guide to assist in determining your needs. We can also provide technical design assistance and application suggestions. Give us a call.

## Thermowell Material Guide

Thermowell materials for various average applications are listed in the following table. The list has been carefully prepared and takes into consideration such factors as contamination, electrolysis, catalytic reaction and other variables. Standard materials are recommended wherever possible. Service may vary, however, in industrial use as a result of temperature, pressure, concentration and impurities in the corrosive medium.

While the recommendations cannot guarantee service, they will serve as an effective guide. **Thermo Sensors Corporation** can provide consultation for special applications upon request.

Industry	Application	Conditions	Material
Cement and Lime	Kiln hot end (clinker) cool end (flue) Clinker cooler Exit Flue	to 2600 °F 600-2000 °F to 1200 °F	C30 Ceramic 28% Chrome Iron - Inconel 601 Cerampak - 28% Chrome Iron - Inconel 601 Inconel 601, 28% Chrome Iron - Silicon Carbide, Silicon Nitride
Ceramic	Dryers Kilns-Brick Vitreous enameling  Grinding wheels Abrasive grits Porcelain pottery	1800-2200 °F 1600-2000 °F  to 500 °F to 2300 °F 2000-2400 °F	Carbon Steel - Silicon Carbide - Silicon Nitride - Wrought Iron C30 Ceramic - Inconel 600 - Silicon Carbide - Silicon Nitride Inconel 600 - Firebrick - 28 % Chrome Iron - Silicon Carbide - Silicon Nitride  Wrought Iron C30 Ceramic C30 Ceramic
Chemical	Acetate Solvents Acetic Acid	Crude or Pure 10%-70 °F 50%-70 °F 50%-212 °F 99%-70 °F	Monel - Nickel 304 Stainless Steel 304 Stainless Steel 316 Stainless Steel - Monel Monel

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Acetic Anhydride	99%-212 °F	Monel
Acetone		Monel - Nickel
Acetone	212 °F	304 Stainless Steel
Acetylene		304 Stainless Steel - Monel - Nickel
Alcohol Ethyl	70 °F	304 Stainless Steel
	212 °F	304 Stainless Steel
Alcohol Methyl	70 °F	304 Stainless Steel
	212 °F	304 Stainless Steel
Aluminum	Molten	Cast Iron
Aluminum Acetate	Saturated	304 Stainless Steel
Aluminum Chloride		Hastelloy B
Aluminum Sulphate	10%-70 °F	304 Stainless Steel
	Saturated 70 °F	304 Stainless Steel
	10%-212 °F	316 Stainless Steel
	Saturated 212 °F	316 Stainless Steel
Ammonia	All concentrations 70 °F	304 Stainless Steel - 316 Stainless Steel
Ammonia Hydroxide		2024-T4 Aluminum - 304 Stainless Steel - 316 Stainless Steel
Ammonia Liquors		2024-T4 Aluminum - 304 Stainless Steel - 316 Stainless Steel
Ammonia Phosphate (Dibasic)		Monel
(Monobasic)		Phosphor Bronze
(Tribasic)		Monel
Ammonium Chloride	All Concentrations 212 °F	316 Stainless Steel
Ammonium Nitrate	All Concentrations 70 °F	304 Stainless Steel
	All Concentrations 212 °F	304 Stainless Steel
Ammonium Sulphate	°F	304 Stainless Steel
	5%-70 °F	316 Stainless Steel
	10%-212 °F	316 Stainless Steel
Amylacetate	Saturated 212 °F	Monel - 304 Stainless Steel
Aniline		304 Stainless Steel - Monel
Asphalt	All Concentrations 70 °F	C1018 Steel - 304 Stainless Steel - Monel - Nickel
Barium Carbonate		304 Stainless Steel
Barium Chloride	70 °F	Monel
	5%-70 °F	Monel - Hastelloy C
	Saturated 70 °F	316 Stainless Steel - Hastelloy C
Barium Hydroxide	Aqueous - Hot	C1018 Steel
Benzaldehyde		C1018 Steel
Benzene		304 Stainless Steel
Benzine	70 °F	C1018 Steel - 2024-T4 Aluminum - Monel - Inconel 600
Benzol		304 Stainless Steel
Boracic Acid	Hot	304 Stainless Steel
Brines	5% Hot or Cold	Monel
Bromine		Tantalum Sleeved
	70 °F	Monel
Butadiene	Dry 125 °F	Brass - 304 Stainless Steel
Butane		304 Stainless Steel
Buthlacetate	70°F	Monel
Butyl Alcohol		Copper - 304 Stainless Steel
Butylenes		C1018 Steel - Phosphor Bronze