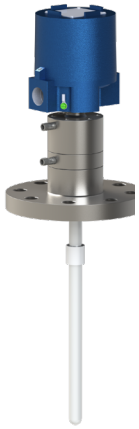
Model HTS • Thermocouple, Sulfur Processing Service, Compact

Features

- Compact thermocouple utilizing verified technology for sulfur processing service
- Worldwide technology standard for protecting Claus thermal reactors
- Maintenance free
- Remains accurate under extreme conditions
- Protects and extends the useful life of refractory and improves reactor up-time
- The only proven thermocouple technology to function reliably long term in sulfur service



Model HTS

Description

The Delta Controls **Model HTS** Thermocouple is designed for the primary purpose of reliably **protecting** a vessel and its refractory lining **from excessive temperatures**. The HTS is designed for installations unable to accommodate the recommended **6 inch process connection** of the Model HTX. The HTS provides long term **accuracy** and **reliability** in sulfur processing service.

The design of the HTS is the result of attention to detail, more than 45 years of experience, and numerous field installations. The thermocouple junction is isolated from corrosive and invasive gases by using a constant low-flow flush gas circulating across the junction. The **flush gas** is kept at a pressure higher than the internal reactor pressure to mitigate the migration of process gases through the element well, body, or seals. **Process gases** that enter are carried away by the flush gas. The metered flush gas flow has an insignificant effect on the accuracy of the temperature measurement. The Model HNP, consisting of ceramic fiber rings sized for the customer's nozzle, is required with the use of the HTS.

For most applications, Model HTX is preferred as it offers the **highest reliability** of any thermocouple. The HTS provides a highly reliable alternative compatible with smaller process connections for installations unable to accommodate the recommended **6 inch process connection** of the Model HTX.

The HTS is built to meet **each customer's specific installation requirements**, such as thermocouple type, insertion length, and materials of construction.

Installation tools are available, and recommended to accurately produce the refractory aperture in the correct size and alignment needed by the refractory well and HTS Thermocouple assembly.

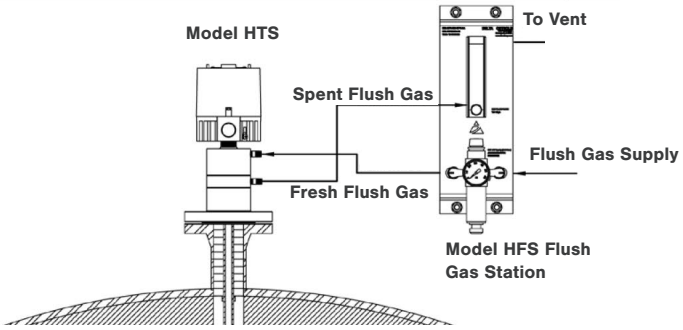
Specifications

Thermocouple Types:	B, R, S (others available)
Body Material:	Stainless steel
Trim, Bolting, and Seats:	Stainless steel
Housing Material:	Aluminum or 304 Stainless Steel
Element Well Material:	Blended alumina ceramic
Threaded Process Connection:	ANSI 1.5, 2.0 in MPT
Flanged Process Connection:	ANSI 1.5 in, 2.0 in, 3.0 in (other sizes, types ratings available)
Flush Gas:	Nitrogen (11 L/h)
Working Pressure:	150 psig (10.3 bar) at 500 °F (260 °C)
Working Temperature:	0 °F to 3100 °F (-18 °C to 1704 °C)
Required Accessories:	Model HFS Flush Gas Station Model HNP Nozzle Packing Kit

Optional Accessories:

- Model HRG Refractory Drilling System
- Model TEW Thermocouple Extension Leadwire
- Model HRM Casting Mandrel
- Refractory diamond drills
- Field training, consultation and assistance

Certifications:	
Housing:	Third Party Listed by CSA NRTL/C (USA and Canada) Class I, Groups B, C and D; Class II, Groups E, F and G; Class III; Encl 4X



Model Numbering System

MODEL EXAMPLE	MODEL	-	T/C 1	-	T/C 2	-	T/C 3	-	INSERTION LENGTH	-	PROCESS CONNECTION	-	OPTIONS
	HTS	-	R	-	R	-	O	-	**.*	-	2"150RY	-	AA

MODEL	DESCRIPTION
HTS	Thermocouple, Sulfur Processing Service, Compact

T/C	DESCRIPTION	RANGE[1]
B	(-) platinum +6% rhodium / (+) platinum +30% rhodium	+212 °F to +3270 °F (+100 °C to +1799 °C)
R	(-) platinum / (+) platinum +13% rhodium	+32 °F to +3200 °F (0 °C to +1760 °C)
S	(-) platinum / (+) platinum +10% rhodium	+32 °F to +3200 °F (0 °C to +1760 °C)
K	(-) AlumelTM / (+) chromel	-300 °F to +1800 °F (-184 °C to +982 °C)
T	(-) Constantan® / (+) copper	-450°F to +660 °F (-268 °C to +349 °C)
C	(-) tungsten / (+) tungsten	+30 °F to +4200 °F (-1 °C to +2316 °C)
O	None (T/C 2, T/C 3 only)	

INSERTION LENGTH	DESCRIPTION
**.*	Distance from flange face to inside face of the refractory (**.* *in*)

PROCESS CONNECTION	DESCRIPTION
1.5"MPTY	1.5 in male pipe thread, 316 Stainless Steel
2"MPTY	2 in male pipe thread, 316 Stainless Steel
2"150RY	2 in Class 150 raised face flange, 316 Stainless Steel
2"300RY	2 in Class 300 raised face flange, 316 Stainless Steel
3"150RY	3 in Class 150 raised face flange, 316 Stainless Steel
3"300RY	3 in Class 300 raised face flange, 316 Stainless Steel
3"MPTY	3 in MPT, 316 Stainless Steel

OPTIONS	DESCRIPTION
AA	None
XPB	304 Stainless Steel housing, NACE

Notes:
[1] Temperature shown is the maximum recommended for continuous service

REQUIRED ORDERING INFORMATION

- Detailed model number
- Tag or nameplate detail (if required)
- Documentation & testing packages (if required, refer to Additional Resources)

INSTALLATION DETAILS

- Nozzle inside diameter
- Shell thickness
- Nozzle inside height
- Refractory thickness
- Nozzle angle from vertical