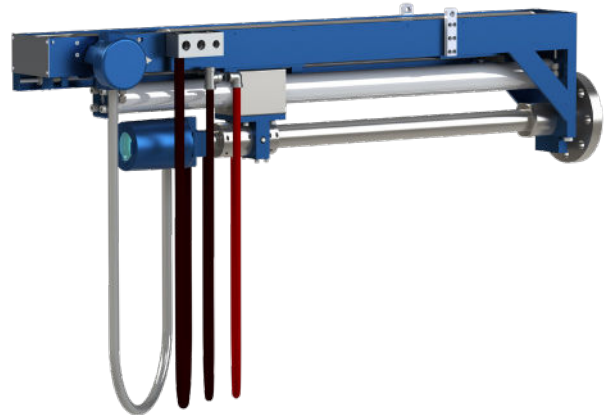


Features

- Only process camera designed for sulfur processing services
- 🏆 Patent pending thermal regulation system
- 👁️ Identify operational issues before onset of damage or equipment failure
- 🔍 Monitor integrity of critical vessel components
- 🕒 Reduce vessel downtime by minimizing turnaround discovery inspections
- ✅ Pneumatic extraction failsafe system increases reliability for continuous use



ProSpection™ with auto-retraction and insertion unit

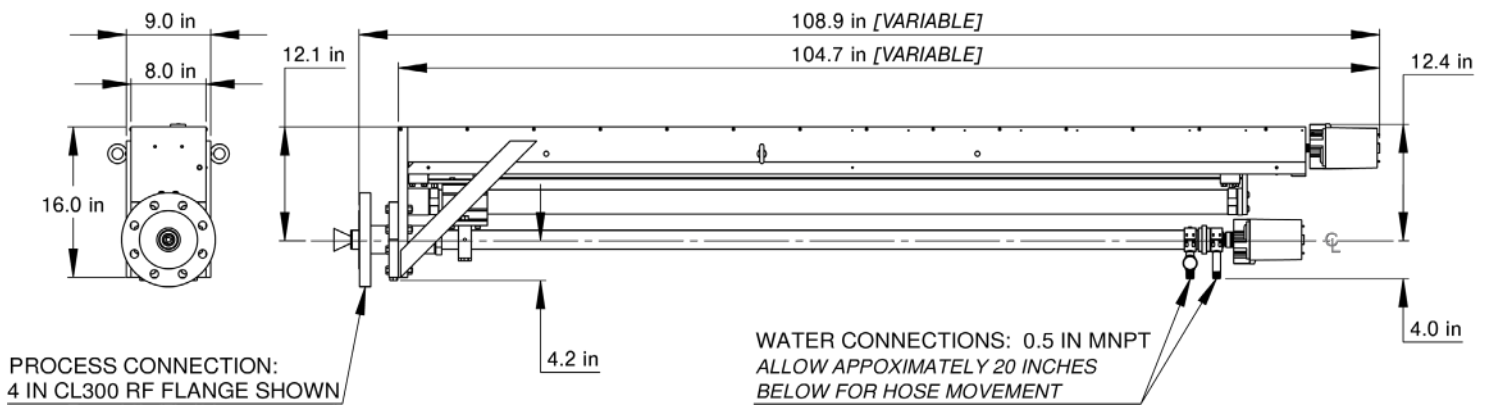
Description

The Delta Controls **ProSpection™ Process Camera** is designed for the primary purpose of reliably monitoring the interior of a Claus thermal reactor. ProSpection™ is intended for either short term online inspections or continuous monitoring. ProSpection's design and suitability for the thermal reactor is the result of attention to detail and more than 50 years of experience in the sulfur recovery industry. The camera probe places the camera and lens directly at the refractory hot face, allowing for a wide-angle view of critical vessel components such as the burner, refractory, and tubesheet.

The camera is designed to be inserted through an isolation valve while a vessel is online and can either be left inserted indefinitely or used temporarily for an inspection. A flanged seal assembly incorporates multiple redundant seals so that the camera inserts and retracts without process leakage. A nitrogen supply applies positive back pressure to the seals. In the event a seal is compromised, the nitrogen flows through the damaged seal and into the reactor. An inline flow meter would indicate flow and that a seal has been compromised. This system prevents any process gases leakage and serves as an indicator of seal integrity.

The patent pending thermal regulation system uses water or air circulated through a series of channels to accurately regulate the probe's temperature between the sulfur dew point corrosion and high temperature sulfidation limits. It also maintains the camera circuitry within its operating temperature in addition preventing lens occlusion by maintaining the lens temperature above sulfur's freezing point.

The camera utilizes a pneumatically driven system that actuates the camera in and out of the vessel. Failsafe features optimize the camera for long-term operation. The camera automatically orders its own retraction for a number of fault conditions such as loss of coolant, high camera temperature, loss of power or loss of instrument air. The extraction assembly contains an onboard air tank to safely remove the camera in case air supply is lost.



ProSpection™

Specifications

Power:	24 VDC at 2 A	Working Pressure:	150 psig (10.3 bar) at 500 °F (260 °C)
Actuator Air:	60 psig to 100 psig supply required	Working Temperature*:	-4 °F to +3092 °F ¹ (-20 °C to +1700 °C) ¹
Coolant:	Water at 0.5 gpm (continuous supply required)	Required Accessories:	Model HFI Flush Gas Station
Body Material:	Stainless steel	Optional Accessories:	<ul style="list-style-type: none"> Model TCP Nozzle Obstruction Tool Field Training, Consultation and Assistance
Trim, Bolting, Seats:	Stainless steel, aluminum, Aflas®	Certifications:	Third Party Listed by CSANRTL/C (USA and Canada) Class I, Groups B, C and D; Class II, Groups E, F and G; Class III; Encl 4X
Housing Material:	Aluminum or 316 Stainless Steel	Housing	
Flange Material:	316L Stainless Steel		
Auto-retraction & Insertion Unit Material:	Aluminum, 316 Stainless Steel		
Process Connection:	3.0 in to 6.0 in RF flange (other sizes, types, ratings available)		
Communication:	Cat5 Ethernet or Wi-Fi		

*Flange Maximum Temperature +400 °F (+204 °C)



ProSpection™ Camera Probe

Model Numbering System

MODEL EXAMPLE	MODEL	-	INSERTION LENGTH	-	COOLANT	-	PROCESS CONNECTION	-	TYPE
	HRC	-	48.0	-	W	-	3"150RY	-	AA

MODEL	DESCRIPTION
HRC	ProSpection™ Process Camera, Sulfur Processing Service

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

COOLANT	DESCRIPTION
W	Water

PROCESS CONNECTION	DESCRIPTION
3"150RY	3 in Class 150 raised face flange, 316 Stainless Steel
3"300RY	3 in Class 300 raised face flange, 316 Stainless Steel
4"150RY	4 in Class 150 raised face flange, 316 Stainless Steel
4"300RY	4 in Class 300 raised face flange, 316 Stainless Steel
6"150RY	6 in Class 150 raised face flange, 316 Stainless Steel
6"300RY	6 in Class 300 raised face flange, 316 Stainless Steel

OPTIONS	DESCRIPTION
AA	None
P	Pneumatic Extraction System

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 WORKSHEET DETAILS

- Nozzle inside diameter
- Shell thickness
- Nozzle inside height
- Refractory thickness
- Nozzle angle from vertical
- Isolation valve laying length