



HISPEC[®] HI5000

Downhole Pressure Transducer

- Compact design
- NACE certified materials
- Silicon-on-sapphire sensor technology for outstanding stability
- High temperature up to 392 °F (200 °C)
- High pressure up to 29,000 psi (2,000 bar)
- All-welded and sealed construction for use in harsh and corrosive environments



The advanced sensor design consists of a piezoresistive silicon strain gauge circuit, which is epitaxially grown onto the surface of a sapphire diaphragm to form a single crystalline structure. The sapphire sensor element is then molecularly bonded to a titanium alloy sub-diaphragm.

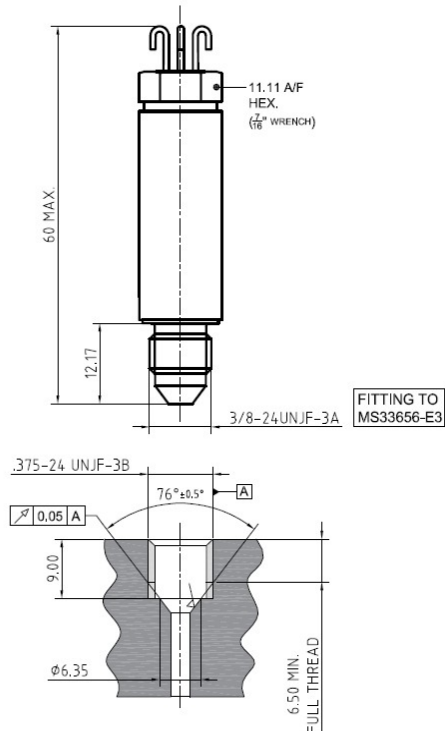
This enables the sensor to endure higher over-pressures and provides superb corrosion resistance. The sensor exhibits virtually no hysteresis and excellent long-term stability over wide temperature ranges.

Specifications

The **HISPEC® HI5000** transmitter, for downhole applications, is highly compact with a typical length of 57mm. The tough, corrosion-resistant design, using NACE certified materials, makes installation easy in challenging environments. The sensor is designed to withstand high shock and vibration inputs in high temperature applications which require accuracy, stability and long term performance of downhole pressure monitoring.

Dimensions (in mm)

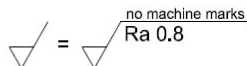
MECHANICAL INTERFACE AND PRESSURE CONNECTION DETAILS



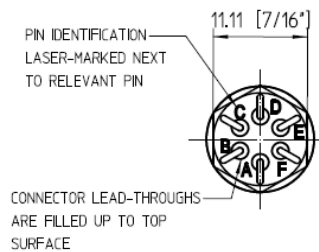
PRESSURE
CONNECTION
PORT
(IN SECTION)

NOTES:

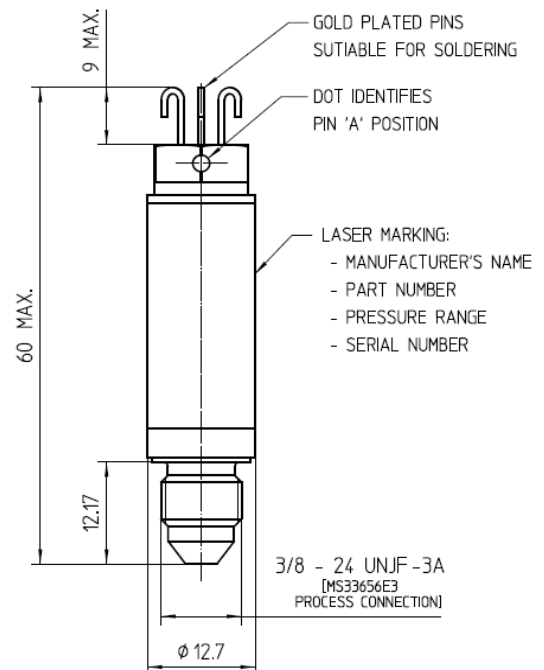
1. THE CONICAL SEAL SURFACE SHALL BE FREE OF FLAWS, NICKS AND CHATTER MARKS.



Electrical Connections



ELECTRICAL CONNECTION:	
PIN	DESIGNATION
A	+EXCITATION
B	+SIGNAL
C	-SIGNAL
D	-EXCITATION
E	RTD
F	RTD



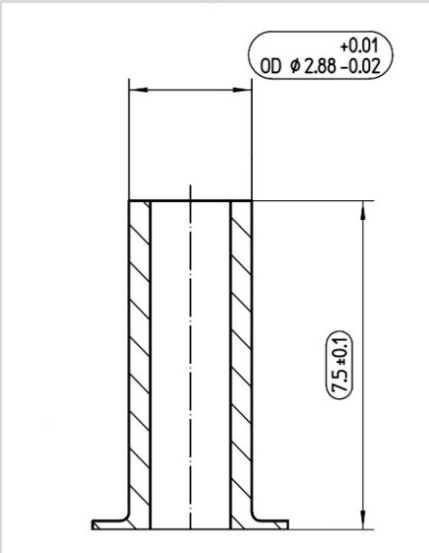
Technical Data

Type	HI5000
Sensor Technology:	Silicon-on-Sapphire
Pressure Range:	See Table 2 (next page)
Proof Pressure:	See Table 2 (next page)
Burst Pressure:	See Table 2 (next page)
Excitation:	3-10 VDC (5 VDC Nominal)
Input Resistance:	4000Ω ±1000Ω
Output Resistance:	4000Ω ±1000Ω
Output at zero pressure over the calibrated pressure range:	±8.0 mV/V
Full scale sensitivity (span) over the calibrated temperature range:	10-20 mV/V Nominal
Operating Temperature Range:	-40°F to 392°F (-40°C to +200°C)
Calibrated Temperature Range:	+75.2°F to +356°F (+24°C to +180°C)
Non-linearity & Hysteresis Combined:	±0.150 % of span maximum (Best Fit Straight Line method)
Total Error Band (Non-linearity, Hysteresis & Thermal Effects):	± 0.20% of span, serial number specific polynomial model P(T,mV) provided for all input pressures and temperatures over the calibration range
Pressure Media:	Any compatible with NACE approved Titanium grade 5 and BT9 alloys (other materials available. Contact sales)
Electrical Connection:	Gold plated pins See Table 1 (previous page)
Process Connection Thread:	3/8-24UNJF-3A as per MS33656-E3 (Other options available, subject to MOQ)
Insulation resistance:	All connections pins together to case: 100 MΩ minimum at 50 VDC
Platinum Resistance Temperature Detector (RTD):	0°C, 1000Ω ±0.06% to IEC 751 Class A, Alpha = 0.00385 nominal
Recommended Installation Torque:	14-17 Nm (125 to 150 in-lb)
Calibration Data:	Calibration certificate supplied includes the coefficients for a 5 th order polynomial calibration model
Net Weight:	20g maximum (less than 1 oz.)

Table 2

Model Number	Thread Type	Pressure Range (Sealed Gauge)*		Proof pressure	Burst Pressure
		Bar	PSI		
HI5000-0400FT	3/8-24UNJF-3A	0-400	5000	200%	300%
HI5000-0600FT		0-600	10000	200%	300%
HI5000-1000FT		0-1000	15000	150%	200%
HI5000-1500FT		0-1500	22500	110%	150%
HI5000-2000FT		0-2000	30000	110%	150%

Replaceable Top Hat Seal

Part Number	Thread Compatibility	Material	Dimensions
HI5000-TH	3/8-24UNJF	Inconel 625	

*** TECHNICAL NOTE:** Atmospheric pressure is recorded at the time of calibration, therefore Sealed Gauge pressure values can be converted to Absolute pressure values.

DISCLAIMER : ESI Technology Ltd operates a policy of continuous product development. We reserve the right to change specification without prior notice. All products manufactured by ESI Technology Ltd are calibrated using precision calibration equipment, traceable to national measurement standards.