

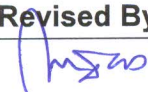
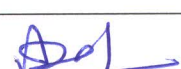



Offshore Design Section  
Engineering Services  
ISO – 9001:2000

FUNCTIONAL  
SPECIFICATION FOR  
“PRESSURE INDICATING  
CONTROLLER”

Spec. No.	3601
Rev. No.	05
Discipline	Instt
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# FUNCTIONAL SPECIFICATION FOR “PRESSURE INDICATING CONTROLLER”

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## 1.0 SCOPE OF THIS DOCUMENT:

- 1.1 This functional specification describes the essential design considerations for the selection of Pressure Indicating Controller for the intended service.

## 2.0 REFERENCE DOCUMENTS AND SPECIFICATIONS:

- a) Instrumentation Design Criteria
- b) Basic Bid Work
- c) Project P & IDs
- d) Instrument Process Data Sheets.

## 3.0 SCOPE OF SUPPLY:

- 3.1 The quantity to be supplied and installed shall be as per the requirements indicated in the Basic Bid Work, and the P & IDs.
- 3.2 The vendor shall be responsible for the selection of the Pressure Indicating Controller suitable for its intended application, its procurement, tagging, packing, testing & calibration, preparation for shipment, along with accessories, spares, and assistance where required for its installation & commissioning at site. This FS shall be read in conjunction with the Instrument Design Criteria.

## 4.0 PRESSURE INDICATING CONTROLLER:

### 4.1 Type: Pneumatic.

#### 4.1.1 General:

- 4.1.1.1 Process Impulse connection shall be ½” NPTF and pneumatic connection shall be ¼” NPTF.
- 4.1.1.2 The input pneumatic supply to the controller shall be 1.5 kg/cm<sup>2</sup>g. The controller out put shall be 0.2 to 1.0 kg/cm<sup>2</sup>. The controller shall have local set point adjustment.
- 4.1.1.3 The pneumatic controller shall have proportional and integral control mode.
- 4.1.1.4 The pneumatic controller shall have two-position auto manual switch. The pneumatic controller shall have internal manual regulator.
- 4.1.1.5 The pneumatic controller shall be provided with air filter regulator with gauge as per functional specification number MR/OD/INST/FS/3606.
- 4.1.1.6 Over range protection shall be 130% of FSD.
- 4.1.1.7 Pointer- process variable pointer shall be in red colour and set point pointer shall be green in colour.

### 4.2 Material:

- 4.2.1 Instrument parts shall be resistant to the corrosive properties of the process fluid and ambient conditions to which they are exposed.

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4.3 **Accuracy:** Accuracy shall be  $\pm 1\%$  of span. Repeatability shall be  $\pm 0.2\%$  of span.

4.4 **Reading Scales:** Pressure:  $\text{Kg/cm}^2$

4.5 **Enclosure Class:**  $\Delta$

The Pressure indicating controller enclosure shall be minimum weatherproof to IP-53 with protective acrylic enclosure (This supersedes IDC Cl. No.3.6.4.4.2). Pressure indicating controller shall be furnished with all necessary weather and anti-corrosion protection to prevent damage from saline and corrosive process atmosphere.

## 5 INSTALLATION REQUIREMENTS:

5.1 The installation of Pressure indicating controller shall in general be according to clause 3.6.4.6 of Instrumentation Design Criteria.

5.2 All Pressure indicating controller shall be mounted as close as possible to sensing point. Mountings accessories required for Pressure indicating controller shall be 316SS or better. All instrument supports shall be galvanized prior to installation.

## 6 CALIBRATION, INSPECTION & TESTING:

6.1 Calibration, inspection and testing requirements shall in general be as per clause 3.6.4.7.8 of Instrumentation Design Criteria.

6.2 All the instruments shall be factory calibrated for the specified ranges.

## 7 TAGGING & NAMEPLATES:

7.1 Tagging & Nameplate requirements shall in general be according to clause 3.6.6.1 of Instrumentation Design Criteria.

7.2 The Pressure indicating controller shall be provided with SS name plate indicating the following:

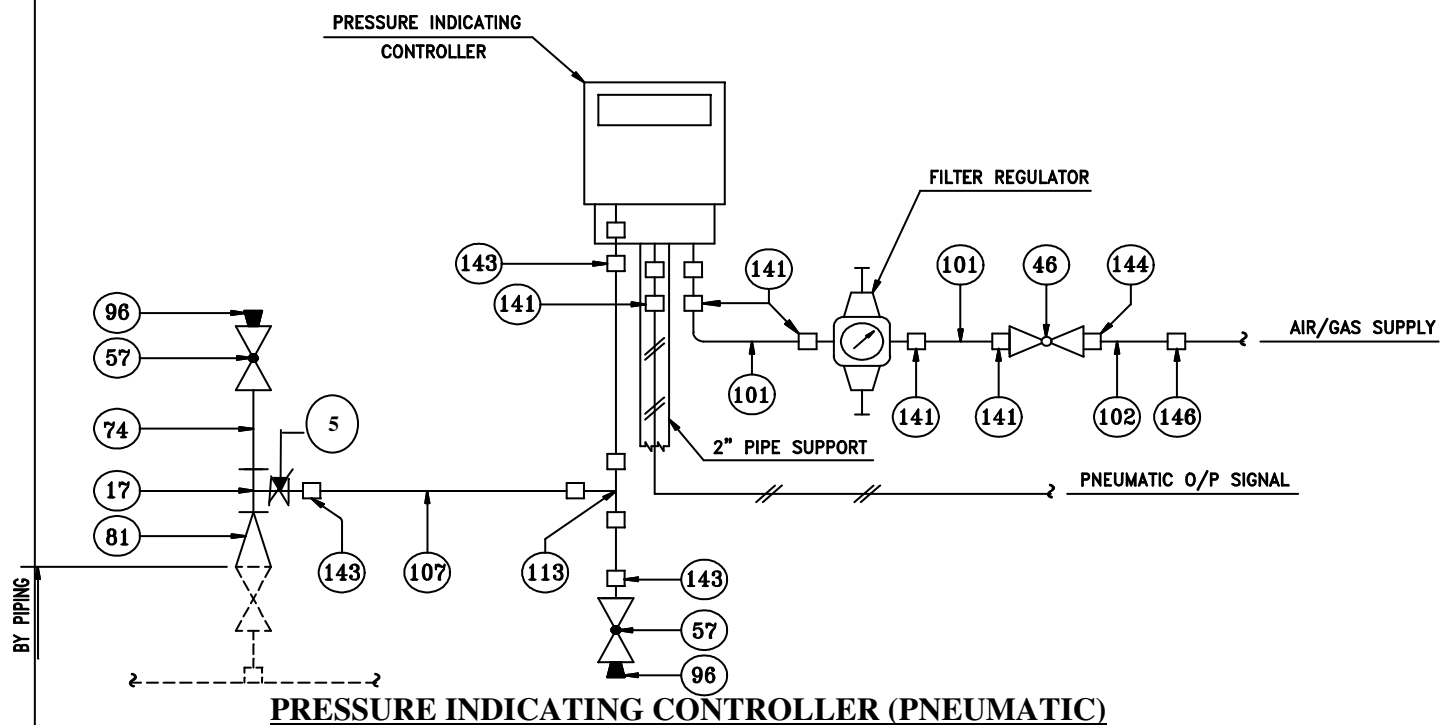
- Tag Number
- Manufacturer's Name and Model Number
- Element material
- Enclosure classification
- Body material

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**ANNEXURE – I**

(Hook Up Drawing)  $\Delta$



**BILL OF MATERIAL**

ITEM	QTY.	SIZE	DESCRIPTION	MATERIAL
17	1	1/2"	PIPE TEE THxTHxTH NPTF	
57	2	1/2"	GLOBE VALVE SCRWD. NPTF	
74	1	1/2"	PIPE NIPPLE SMLS	
81	1	3/4 x 1/2"	SWAGE NIPPLE PLxTH NPTM	
96	2	1/2"	PIPE PLUG SCREWED NPTM	
107	A/R	1/2"ODx0.065"THK	TUBING	
113	1	1/2"x1/2"x1/2"OD	TUBING TEE	
143	3	1/2"THx1/2"OD	MALE TUBING CONNECTOR	
46	1	1/4"	BALL VALVE SCREWED NPTF	
101	A/R	1/4"ODx0.035THK	TUBING	
102	A/R	3/8"ODx0.035THK	TUBING	
141	5	1/4"TH.x1/4"OD	MALE TUBING CONNECTOR	
144	1	1/4"TH.x3/8"OD	MALE TUBING CONNECTOR	
146	1	1/2"TH.x3/8"OD	MALE TUBING CONNECTOR	
5	1	1/2"	Inst. Isolation Ball Valve	

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### ANNEXURE – II:- TYPICAL DATA SHEET

<b>PIC (PNEUMATIC)</b>					
UNITS :- Flow    Liquid – M3/HR    Gas – NM3/HR    Pressure – kg/cm2    Temperature – deg C    Level/length -M					
1	Type		<b>MEASURING UNIT</b>		
2	Function		19	Service	
3	Mounting		20	Pressure Element	
4	Case Material		21	Element Material	
5	Enclosure Class		22	Socket Material	
6	Supply Air Pressure		23	Body Material	
7	Accuracy		24	Connection location	
8	Repeatability		25	DIAPHRAGM SEAL (Wherever Required)	
9	Air Consumption			Type	
10	Ambient temperature			Wetted Parts	
11	Relative Humidity			Other Material	
				Process Connection	
				Facing & Finish	
				Capillary Material	
				Armour Material	
				Capillary Length	
<b>CONTROLLER</b>					
12	Output			Flushing Filling connection.	
13	A/M Switch Position		<b>MISCELLANIOUS</b>		
14	Set Point Adjustment		26	Over range protection	
	Setting range	0-100 %FS			
15	Manual Regulator		27	Blow out protection	-
16	Mode		28	Options	
17	Chart			a) Mounting accessories	
18	Moving Parts Material			b) Air filter regulator with Gauge	
			29	Pneumatic Connect.	

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<u>PRESSURE INDICATING CONTROLLER (PNEUMATIC)</u>								
TAG No.	<i>RANGE</i>	OPERATING PRESSURE	MAX. SERVICE PRESSURE	OPERATING TEMPERATURE	MAX. SERVICE TEMP.	FLUID	SERVICE	OPTIONS

NOTE :-

VENDOR SEAL AND SIGNATURE