








INSTRUMENTATION
HOOK - UP DETAILS AND MATERIALS
(INSTALLATION OF AIR PIPING)

C			IRANIAN PETROLEUM STANDARDS 			
B						
A			INSTRUMENTATION	SCALE	DRAWING No.	SHT/REV
REV.	DESCRIPTION	DATE	INSTALLATION OF AIR PIPING		IPS - D - IN - 105	/

SYMBOLS FOR INSTRUMENT AIR PIPING DRAWINGS

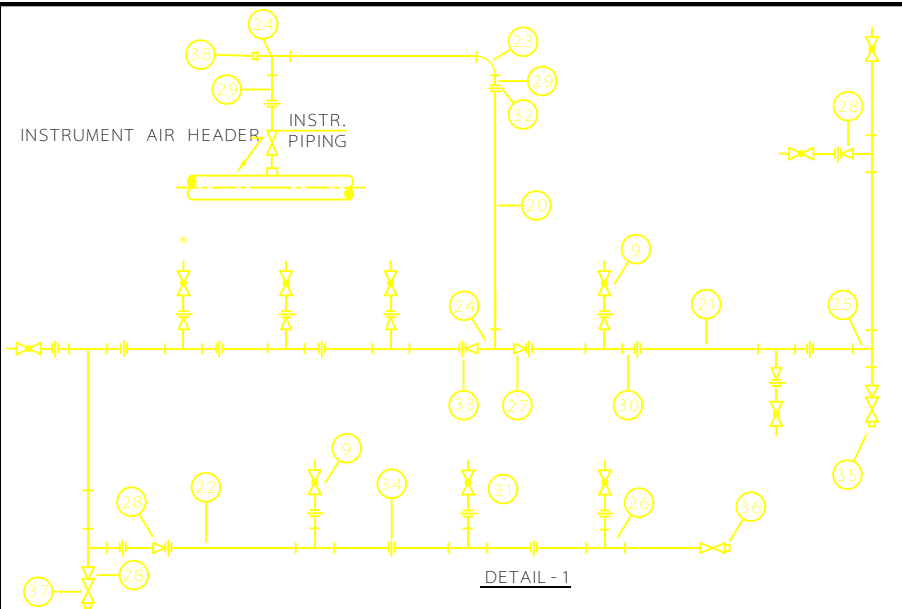
①		PNEUMATIC TUBING	
②		ELECTRONIC OR ELECTRIC SIGNAL	
③		TRANSMITTER	
④		GUAGE	⑮ 
⑤		SWITCH	
⑥		LOCAL CONTROLLER	
⑦		PNEUMATIC CONVERTER	
⑧		LOCAL MANUAL LOADER	
⑨		3-WAY SOLENOID VALVE	
⑩		4-WAY SOLENOID VALVE	
⑪		AIR FILTER REGULATOR WITH GAUGE	
⑫		CONTROL VALVE	
⑬		CONTROL VALVE WITH P/P POSITIONER	
⑭		CONTROL VALVE WITH I/P POSITIONER	

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GENERAL NOTES:

- 1 - ALL SIZES OF PIPES AND FITTINGS ARE IN INCHES AND THREADS ARE IN NPT.
- 2 - 1/2" DRAIN VALVES SHOULD BE PROVIDED AT THE LOW POINTS OF THE MAIN HEADER.
- 3 - FOR CONTINUATION OF AIR SUPPLY HEADER THAT IS BEYOND OF THIS DRAWING SCOPE SEE RELEVANT PROJECT PIPING DRAWINGS.
- 4 - FOR FULL DESCRIPTIONS OF MATERIALS SEE PROJECT MATERIAL SPECIFICATION.
- 5 - COPPER TUBES AND BRASS FITTINGS SHOULD BE PVC COATED.
- 6 - FOR SYSTEMS REQUIRING AN AIR CONSUMPTION GREATER THAN $4.7 \times 10^4 \text{ m}^3/\text{s}$ OR TOTAL TUBING LENGTH GREATER THAN 30 METER USE 1/2" PIPE INSTEAD OF 1/4" PIPE.
- 7 - RADIUS OF FLEXIBILITY LOOPS SHOULD NOT BE LESS THAN 100mm.
- 8 - IT IS RECOMMENDED THAT FOR VALVES AND FITTINGS THE RATING OF ANSI 150 SHOULD BE USED.

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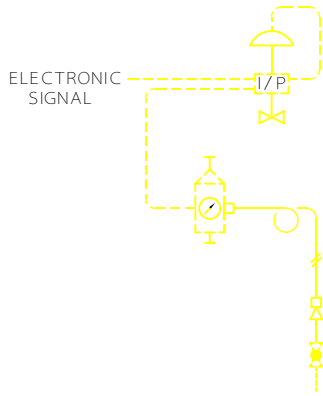


DETAIL - 1
INSTRUMENT AIR SUB HEADER
AND INDIVIDUAL AIR SUPPLY

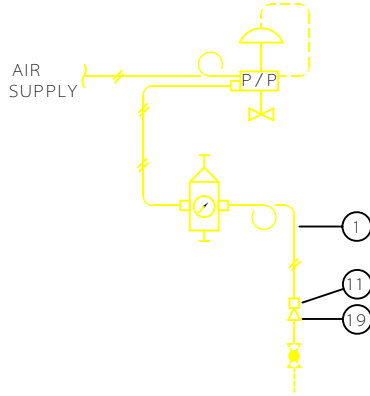
* TO BE CONTINUED ON NEXT PAGE

ITEM	SIZE	DESCRIPTION	ITEM	SIZE	DESCRIPTION
9	1/2"	GLOB VALVE . BRONZE	29	1"	NIPPLE,GALVANIZED CARBON STEEL
20	1"	LINE PIPE ,GALVANIZED CARBON STEEL	30	3/4"	NIPPLE,GALVANIZED CARBON STEEL
21	3/4"	LINE PIPE ,GALVANIZED CARBON STEEL	31	1/2"	NIPPLE,GALVANIZED CARBON STEEL
22	1/2"	LINE PIPE ,GALVANIZED CARBON STEEL	32	1"	UNION,GALVANIZED CARBON STEEL
23	1"	ELBOW,GALVANIZED CARBON STEEL	33	3/4"	UNION,GALVANIZED CARBON STEEL
24	1"	TEE EQUAL,GALVANIZED CARBON STEEL	34	1/2"	UNION,GALVANIZED CARBON STEEL
25	3/4"	TEE EQUAL,GALVANIZED CARBON STEEL	35	3/4"	PLUG,GALVANIZED CARBON STEEL
26	1/2"	TEE EQUAL,GALVANIZED CARBON STEEL	36	1/2"	PLUG,GALVANIZED CARBON STEEL
27	1"x3/4"	SWAGE NIPPLE,GALVANIZED CARBON STEEL	37	1/2"	GATE VALVE BRONZE
28	3/4"x1/2"	SWAGE NIPPLE,GALVANIZED CARBON STEEL	38	1"	PLUG,GALVANIZED CARBON STEEL

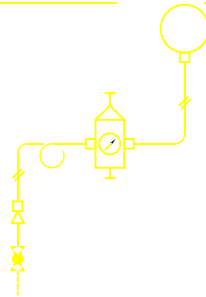
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DETAIL - 2
AIR SUPPLY FOR CONTROL VALVE
WITH I/P POSITIONER (NOTE - 2)



DETAIL - 3
AIR SUPPLY FOR CONTROL VALVE
WITH P/P POSITIONER (NOTE - 3)



DETAIL - 1
AIR SUPPLY
FOR INSTRUMENT

ITEM	SIZE	DESCRIPTION
1	1/4"	TUBE , COPPER
11	1/4"	CONNECTOR, MALE COMPR. TYPE BRASS
19	1/2"x1/4"	REDUCER GALVANIZED CARBON STEEL

- NOTES:
- 1- EQUIPMENT/LINE SHOWN WITH BROKEN LINE IS NOT INCLUDED IN MATERIAL TAKE OFF.
 - 2- WHEN FILTER REGULATOR ARE SUPPLIED BY VENDOR.(SEE DETAIL - 2)
 - 3- WHEN FILTER REGULATOR ARE SUPPLIED BY CUSTOMER.(SEE DETAIL - 3)
 - 4- DISTANCE BETWEEN AIR SUPPLY SHUT- OFF VALVE AND AIR CONSUMER SHOULD BE KEPT TO MINIMUM LENGTH.
 - 5- FOR GENERAL NOTE SEE SHEET -3 OF 10.

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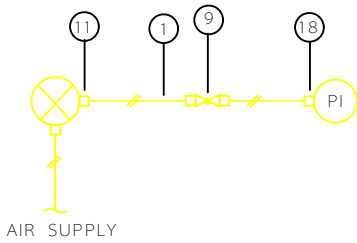


FIGURE - 1

TRANSMITTER WITH LOCAL INDICATOR

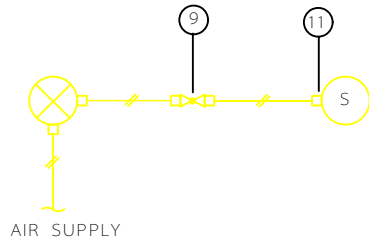


FIGURE - 2

TRANSMITTER WITH SWITCH

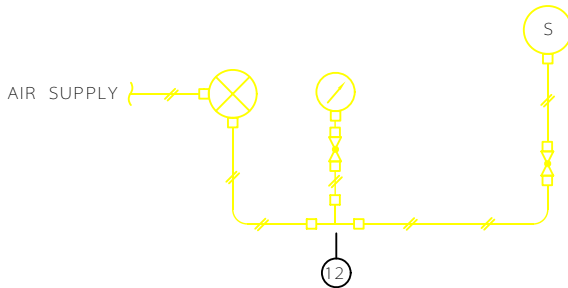


FIGURE - 3

TRANSMITTER WITH LOCAL INDICATOR AND SWITCH

ITEM	SIZE	DESCRIPTION
1	1/4"	TUBE ,COPPER
9	1/4"	GLOBE VALVE, BRONZE
11	1/4"	CONNECTOR, MALE COMPR. TYPE, BRASS
12	1/4"	TEE EQUAL COMPR. TYPE, BRASS
18	1/4"	CONNECTOR, FEMALE COMPR. TYPE, BRASS

NOTES:

1 - FOR GENERAL NOTE SEE SHEET - 3 OF 10.

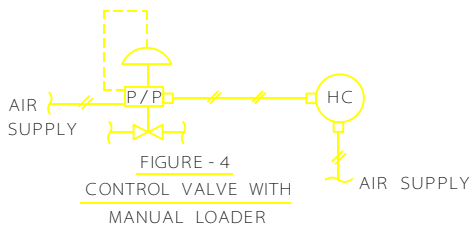
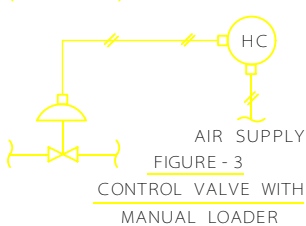
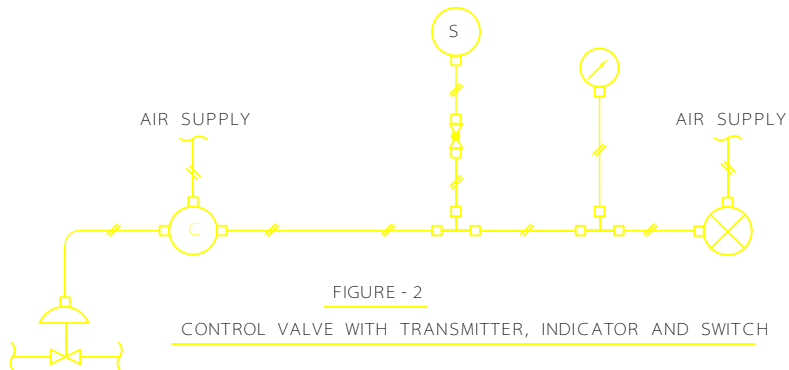
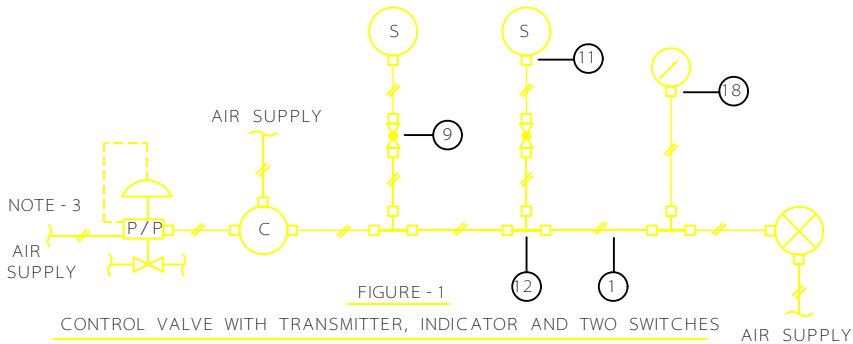
2 - FOR AIR SUPPLY DETAILS SEE SHEET - 5 OF 10...

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ITEM	SIZE	DESCRIPTION
1	1/4"	TUBE , COPPER
9	1/4"	GLOBE VALVE . BRONZE
11	1/4"	CONNECTOR, MALE COMPR. TYPE, BRASS
12	1/4"	EQUAL TEE COMPR. TYPE, BRASS
18	1/4"	CONNECTOR FEMALE COMPR. TYPE, BRASS

NOTES:

- 1 - EQUIPMENT/LINE SHOWN WITH BROKEN LINE IS NOT INCLUDED IN MATERIAL TAKE OFF.
- 2 - FOR GENERAL NOTES SEE SHEET -3 OF 10.
- 3 - FOR AIR SUPPLY DETAILS SEE SHEET -5 OF 10.

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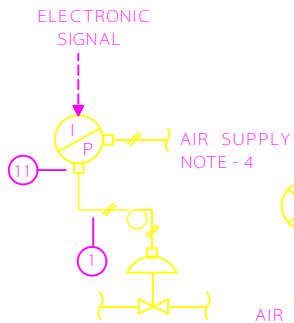


FIGURE - 1
CONTROL VALVE
WITHOUT POSITIONER

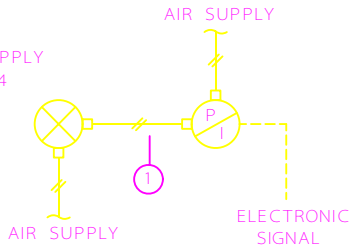


FIGURE - 2
TRANSMITTER
WITH TRANSDUCER

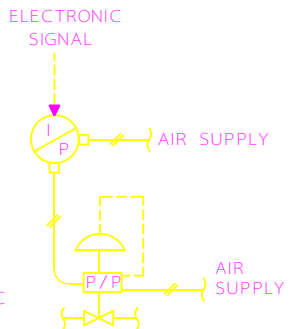


FIGURE - 3
CONTROL VALVE
WITHOUT POSITIONER

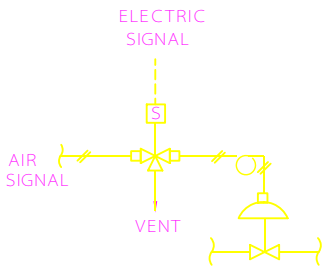


FIGURE - 4
CONTROL VALVE
WITH SOLENOID

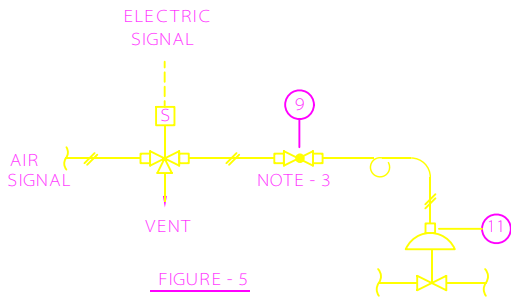


FIGURE - 5
CONTROL VALVE
WITH SOLENOID

ITEM	SIZE	DESCRIPTION
1	1/4"	TUBE , COPPER
9	1/4"	GLOBE VALVE , BRONZE
11	1/4"	CONNECTOR, MALE COMPR. TYPE ,BRASS

- NOTES:
- 1 - EQUIPMENT/LINE SHOWN WITH BROKEN LINE IS NOT INCLUDED IN MATERIAL TAKE OFF.
 - 2 - FOR GENERAL NOTES SEE SHEET - 3 OF 10.
 - 3 - GLOBE VALVE FOR RATE OF CONTROL VALVE OPENING OR CLOSING ADJUSTMENT.
 - 4 - FOR AIR SUPPLY DETAILS SEE SHEET - 5 OF 10.

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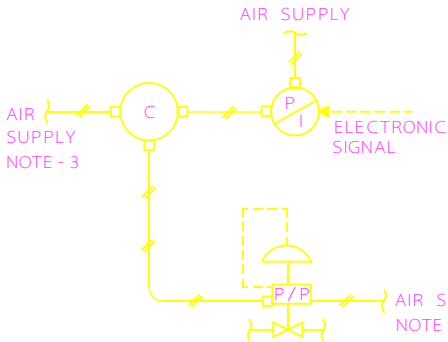


FIGURE - 1
CONTROLLER
WITH POSITIONER

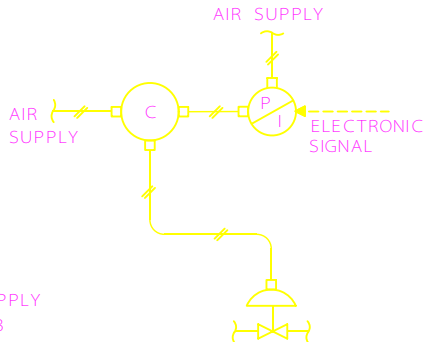


FIGURE - 2
CONTROLLER
WITHOUT POSITIONER

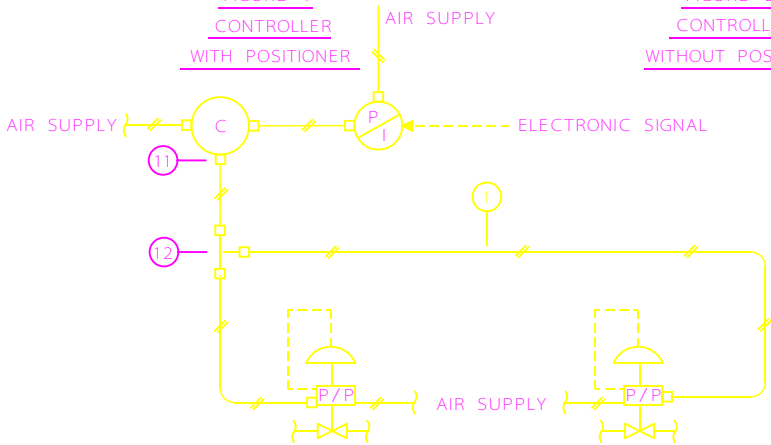


FIGURE - 3
SPLIT RANGE
CONTROLLER WITH TRANSDUCER

ITEM	SIZE	DESCRIPTION
1	1/4"	TUBE , COPPER
11	1/4"	CONNECTOR, MALE COMPR. TYPE, BRASS
12	1/4"	EQUAL TEE COMPR. TYPE, BRASS

NOTES:
 1- EQUIPMENT/LINE SHOWN WITH BROKEN LINE IS NOT INCLUDED IN MATERIAL TAKE OFF.
 2- FOR GENERAL NOTES SEE SHEET -3 OF 10.
 3- FOR AIR SUPPLY DETAILS SEE SHEET - 5 OF 10.

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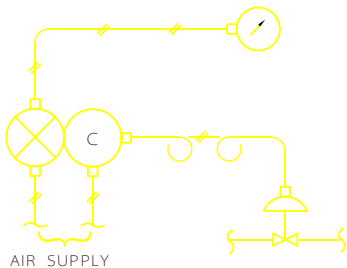
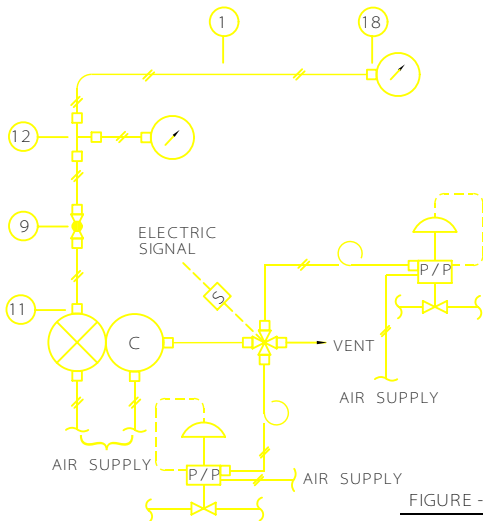


FIGURE - 1
TRANSMITTER/ CONTROLLER
WITH INDICATOR



TRANSMITTER/CONTROLLER
WITH TWO INDICATORS

FIGURE - 2

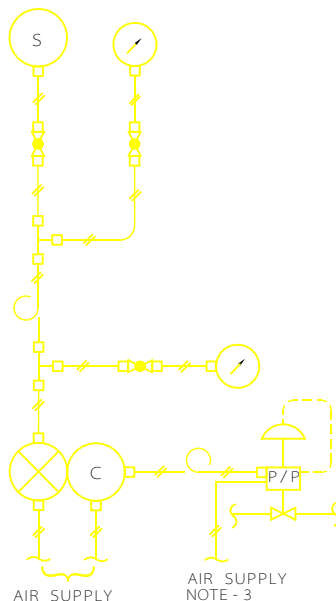


FIGURE - 3
TRANSMITTER/ CONTROLLER, WITH
TWO INDICATORS AND ONE SWITCH

ITEM	SIZE	DESCRIPTION
1	1/4"	TUBE , COPPER
9	1/4"	GLOBE VALVE . BRONZE
11	1/4"	CONNECTOR, MALE COMPR. TYPE, BRASS
12	1/4"	EQUAL TEE COMPR. TYPE, BRASS
18	1/4"	CONNECTOR FEMALE COMPR. TYPE, BRASS

NOTES:

- 1- EQUIPMENT/LINE SHOWN WITH BROKEN LINE IS NOT INCLUDED IN MATERIAL TAKE OFF.
- 2- FOR GENERAL NOTES SEE SHEET-3 OF 10.
- 3- FOR AIR SUPPLY DETAILS SEE SHEET-5 OF 10.

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