BY-PASS ROTAMETER

DESIGN FEATURES:

- Easy to Maintain
- On-Line installation
- Most economical, low cost
- Pipe size -40 NB to 600 NB
- Connections can be rotated 360 degree at 90 degree.
- Transparent acrylics sheets.
- Scale length of 180-200 mm.
- Low flow & High flow alarm switch on request.
- Available in complete MOC in S.S 304 & S.S 316

DESPRICTION

By-pass Rota meters are suitable for flow rate measurement in 2'' NB or higher size pipes. The instrument is simple in construction and reliable in flow rate indication. The complete assembly consists of carrier rings/flanged taps, bypass line and a Rota meter as indicator. The orifice plate dimension is based on BS/ISO- 5167 specification.

PRINCIPLE OF BY-PASS ROTAMETER

- By Pass Rota meter is an inference type Rota meter & fixed Orifice in a pipeline.
- Differential pressure (DP) is created in the main pipe line by providing an Orifice Plate in the main Pipe line. Because of this differential pressure a branch of flow moves through by- pass line provided across the orifice plate from upstream side to down -stream side of Orifice Plate.
- An additional range orifice plate is provided in the by-pass line which is designed such that flow through by –pass line (through range orifice plate) flows in proportion with the flow through main pipe line (Main Orifice Plate).
- Hence by measuring the flow from By-pass Line we can estimate the flow through Main pipe Line

PERFORMANCE:

Accuracy	: +/- 2% F.S.D.
Repeatability	: 0.5 %
Rangeability	: 5:1 for 50" WC D.P., 7:1 for 100" & 150" WC D.P., 10 : 1 for 200" & 40 0" WC D.P.
Scale length	: 180-200 mm
Pressure Ratings	: Maximum Operating Pressure is 25 Kg/Cm2.
Temperature Ratings	: Maximum Operating Temperature rating is 121 ^{o} C for Gas services And 93^{o} C for Liquid services.
Connections	: Flanged.
Enclosure	: IP 55 OR IP 65 on request

BY-PASS METERING COMPONENTS:

The By-pass flow meter consists of a mainline Orifice plate, a set of Orifice Flanges Or a carrier ring, a flow meter, range Orifice, Bypass piping with Isolation Valves.

- **Mainline Orifice Plate**: - The purpose of the mainline orifice plate is to create the pressure differential. As the flow rate varies across this mainline orifice, the pressure differential across this plate also varies and it is this variation, which makes the meter function.

- **Orifice Flanges / Carrier Ring**: - Orifice flanges / carrier rings serve two functions. First, they hold the mainline orifice plate in the proper position within the pipeline. Secondly they channel a portion of the flow out of the high-pressure side of the orifice and return it again to the low-pressure side. This function may be accomplished with other than flange taps. The Bypass piping may be connected directly to the pipeline in the form of pipe taps, radius taps OR vena contract taps.

- **Variable Area Flow Meter**: - As discussed above, a flow meter (Glass Tube Rotameter) is placed in the Bypass piping to measure the bypass flow.

- **Range Orifice**: - The range orifice is a small orifice placed in the bypass piping either before OR after the flow meter. This orifice is sized so that the total pressure drop through the bypass-piping equals the pressure differential across the mainline orifice

MATERIAL OF CONSTRUCTION

Mainline Orifice Plate	:	316SS, 304SS, P.P., PTFE
Orifice Flange / Carrier Ring	:	M.S., 316SS, P.P.
Range Orifice	:	316SS
Bypass Piping with Isolation Valves	:	M.S., 316SS

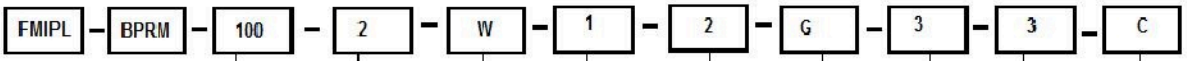
GLASS TUBE ROTAMETER

Tube	: Borosilicate Glass
Float	: SS 316, PTFE, others on request
Packing	: Neoprene, PTFE, Silicon, Viton
End Fitting	: M.S., C.S., SS304, SS316, CF-8M, CF8, C.I. PTFE Lined, SS PTFE Lined, PVC, others on request
Frame & Cover	: M.S. OR SS

CAPACITY TABLE – GLASS TUBE BYPASS ROTAMETER FOR LIQUIDS					
Mainline Size Sch. 40	Flange Taping (M3/Hr.)				
	Differential in mm W.C.				
	1250	2500	3750	5000	10000
1.5	7	10	12	14	20
2	11	16	20	23	33
2.5	16	23	28	33	47
3	25	36	40	51	72
4	44	62	76	88	125
5	69	98	119	138	196
6	100	141	173	200	282
8	173	245	300	346	490
10	273	386	473	546	772
12	387	548	671	775	1097
14	468	663	812	937	1326
16	612	866	1061	1225	1732
18	775	1096	1342	1550	2192
20	963	1362	1668	1926	2724
24	1393	1970	2413	2786	3940

CAPACITY TABLE – GLASS TUBE BYPASS ROTAMETER FOR GASES					
Mainline Size Sch. 40	Flange Taping (M3/Hr.)				
	Differential in mm W.C.				
	1250	2500	3750	5000	10000
1.5	130	190	235	270	385
2	220	315	385	445	635
2.5	315	450	555	640	905
3	490	695	855	990	1400
4	1020	1450	1775	2050	2900
5	1605	2270	2780	3215	4545
6	2310	3270	4005	4630	6545
8	4000	5655	6930	8000	11320
10	6295	8905	10910	12600	17820
12	8930	12500	15000	17500	24600
14	10785	15255	18685	21580	30520
16	14095	19930	24415	28190	39870
18	17840	25230	30905	35685	50470
20	22170	31355	38400	44345	62715
24	32065	45350	55545	64135	90705

MODEL DECODIFICATION:



MAIN LINE SIZE			
CODE	SIZE	CODE	SIZE
50	2"	350	14"
65	2 1/2"	400	16"
80	3"	450	18"
100	4"	500	20"
150	6"	600	24"
200	8"	700	28"
250	10"	800	32"
300	12"		

RATING	
CODE	DESCRIPTION
1	150 # RF
2	300 # RF
3	600 # RF

TYPE OF HOLDER	
CODE	DESCRIPTION
C	CARRIER RING
W	WELD NECK
S	SOCKET

MOC OF HOLDER	
CODE	DESCRIPTION
1	C.S.
2	SS 304
3	SS-316
4	P.P.
5	OTHER

MOC OF ORIFICE PLATE	
CODE	DESCRIPTION
1	SS-304
2	SS-316
3	PTFE
4	HASTELLOY-C
5	OTHER

GASKET	
CODE	DESCRIPTION
C	CAF
P	PTFE
N	NON - ASBTS

ISOLATION VALVE	
CODE	DESCRIPTION
1	BALL VALVE
2	NIDDLE VALVE

MOC OF INDICATOR	
CODE	DESCRIPTION
1	M.S.
2	SS-304
3	SS-316
4	P.P.
5	OTHER

TYPE OF INDICATOR	
CODE	DESCRIPTION
G	GTRM
A	ABRM
M	MTRM