

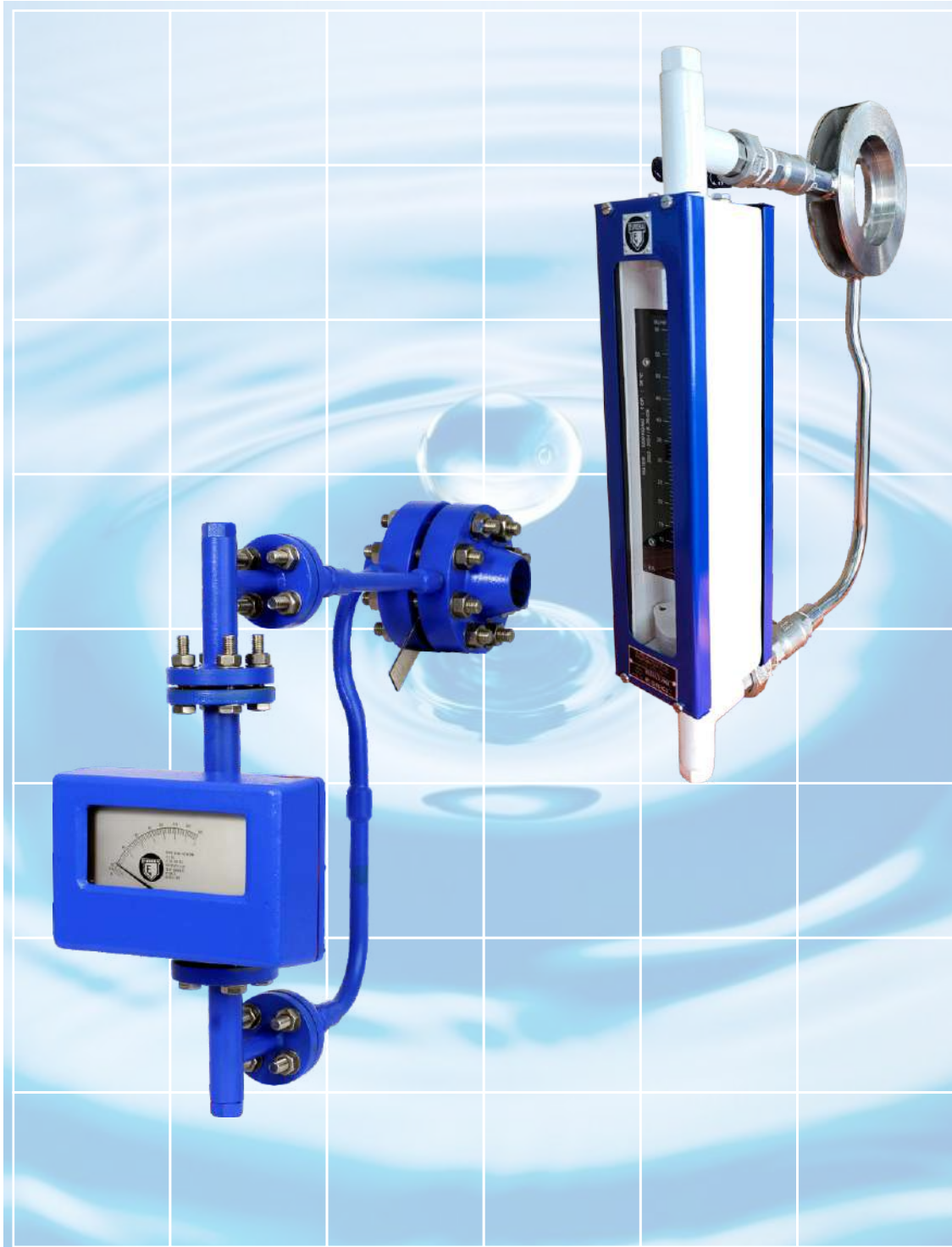


# EUREKA

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 17025:Certified

## BYE PASS ROTAMETER

For Reliable Flow Rate Indication



**EUREKA  
INDUSTRIAL  
EQUIPMENTS  
PVT. LTD.**

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Eureka make Bypass Rotameters are being used for variety of applications in the industry for several years. These are available for flow measurement in pipe size 1" & above. These can be used for clean non viscous liquids & variety of gases. Special models for corrosive fluids are also available. These flowmeters can be installed in horizontal as well as vertical piping systems. Three different designs are available based on the type of pressure tapplings used.

## WORKING PRINCIPLE

A Bypass Rotameter is a differential pressure measurement type flowmeter. It consists of three components.

### 1. Main line Orifice Plate:

An Orifice plate is installed in the main pipe line whose flow rate is to be measured. The plate can either be installed in between the flanges or a carrier ring assembly. This orifice plate creates a differential pressure due the restriction created to the main line flow. The differential pressure varies with the fluid flow in the main line. Based on the differential pressure, the flow through a pipe can be established using a mathematical equation.

### 2. Indicating Rotameter:

This is a Glass/Metal tube inline rotameter which is installed in a bypass arrangement. A small range orifice is fixed at the inlet of this rotameter. The range orifice is designed to create the same differential pressure which is created by a main line orifice plate. With this arrangement the rotameter works as a manometer or a differential measuring device.

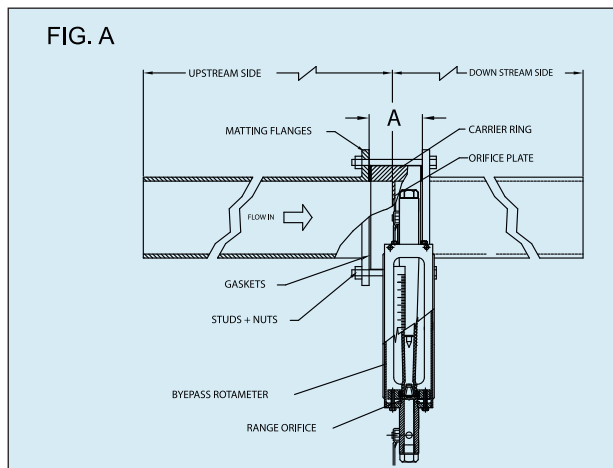
### 3. Bypass Piping:

Bypass arrangement is used to divert a small portion of flow from the main line through an indicating rotameter. The flow at the upstream side of a main line orifice plate is connected at the inlet of the rotameter & outlet of the rotameter is connected to a downstream side of an orifice plate. The isolation valves are also provided in the bypass piping system for easy maintenance.

Eureka make Bypass Rotameters are offered by using three types of pressure tapplings.

#### 1. Corner Tapping: (Ref FIG.A)

It is normally used for carrier ring type arrangement. The pressure taps are drilled through a carrier ring assembly. These taps open at the corner of an orifice plate mounted in between the carrier ring. The carrier ring is sandwiched between the line flanges. A Carrier Ring type Bypass Rotameter (BPC series) is available for pipe size from 25 mm to 450 mm NB. It can be designed to suit various types & pressure classes of line flanges. BPC series rotameters are normally manufactured as a complete unit comprising of a carrier ring with bypass arrangement and indicating Glass/Metal tube rotameter. The carrier ring is designed in one/two piece unit.

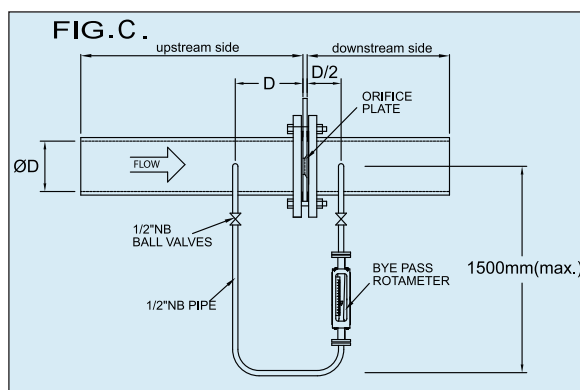
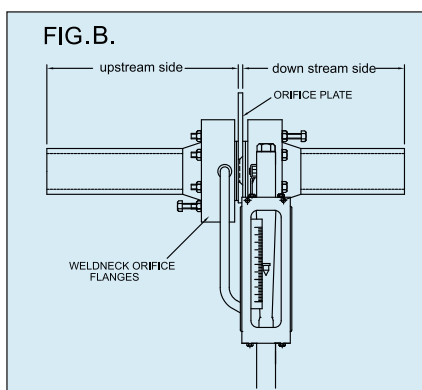


#### 2. Flange Tapping: (Ref FIG.B)

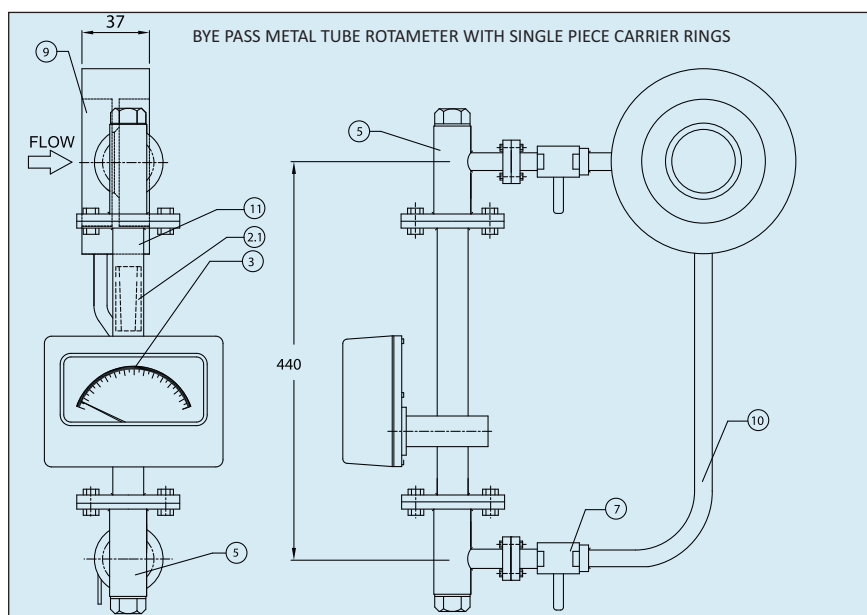
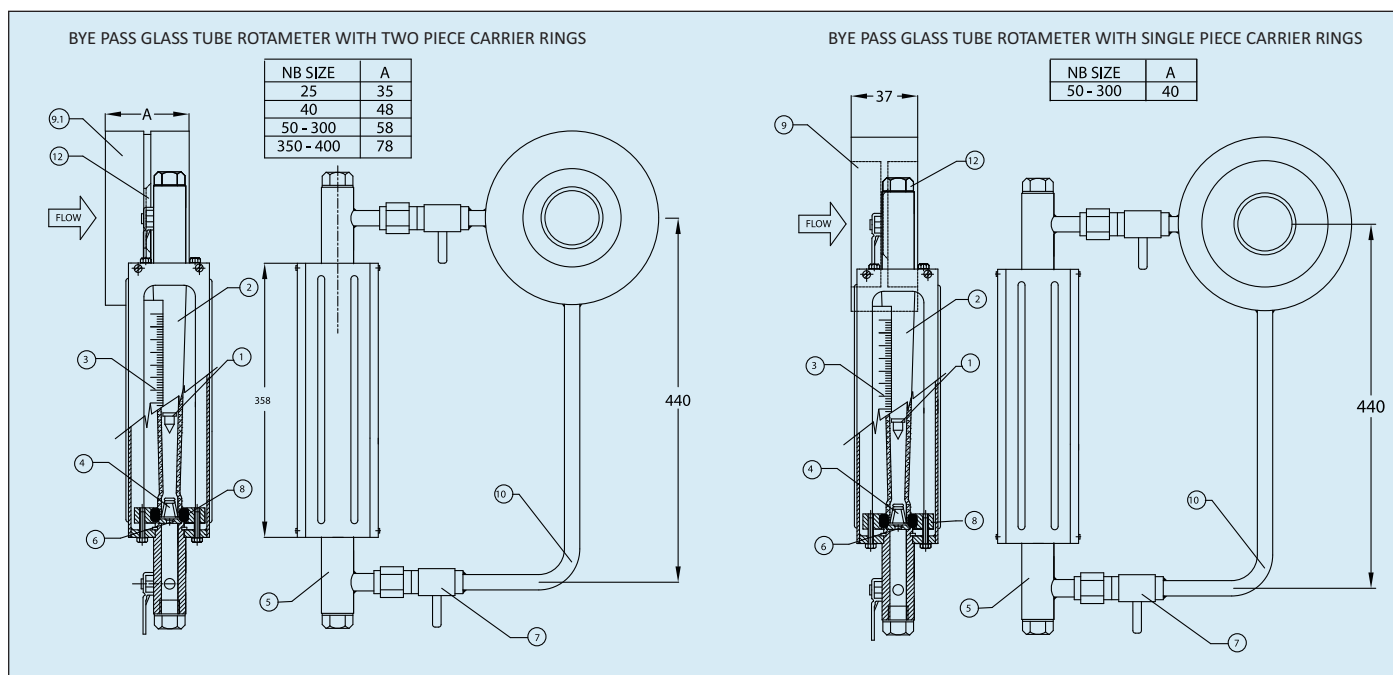
The pressure taps are drilled on the orifice flange which is welded to the main line pipe. The taps are at a distance of 24.5 mm from the orifice plate. The Bypass rotameter with flange tapplings (BPF series) are available from 50 mm to 900 mm NB pipe sizes. Normally weld neck flanges are used. The scope of supply includes an orifice plate, a pair of orifice flanges, indicating rotameter & bypass arrangement (optional).

#### 3. D & D/2 Tapping: (Ref FIG.C)

In this type the pressure tapplings are drilled on the main pipe itself. The upstream tapping is at a distance of D which is internal pipe diameter from the orifice plate. The downstream tap is at a distance of D/2 from the orifice plate. The D, D/2 type bypass rotameters are available for line size of 50 mm to 1000 mm NB. The scope of supply includes an orifice plate and an indicating rotameter. The mainline flanges & bypass arrangement is normally in customer's scope.



## GENERAL CONSTRUCTION FOR BYE PASS CARRIER RING ASSEMBLY



SR.NO.	PART NAME
1	FLOAT
2	MEASURING TUBE GTR TYPE
2.1	MEASURING TUBE MTR TYPE
3	SCALE
4	FLOAT RETAINER
5	END BLOCKS
6	RANGE ORIFICE
7	ISOLATING VALVES
8	GLAND PACKINGS
9	CARRIER RINGS SINGLE PIECE WITH ORIFICE PLATE
9.1	CARRIER RINGS TWO PIECE
10	B.P. LINE
11	METAL TUBE
12	ORIFICE PLATE

### MATERIAL OF CONSTRUCTION

Orifice plate	316 SS / EBONITE / HASTEALLOY `C`
Carrier rings	316 SS / MILD STEEL / C.S.
Orifice flanges *	ASTM-A-182 / A-105
Orifice flanges std :	ASME B16.36
Pipe line	316 SS / MILD STEEL / C.S.
Wetted parts of the Rotameter	316 SS / Mild Steel / C.S. or Rubber Lined Steel **/ PTFE Lined Steel.**

\*\* In case of D & D/2 TAPPINGS

\* In case of FLANGE TAPPINGS ONLY

### PERFORMANCE

Accuracy	±2% of full flow
Rangeability	7 : 1 or 5 : 1
GTR Type	10 : 1 on request
Rangeability	3 : 1
MTR Type	
Accessories	High & Low flow alarms.
Transmitter	Against Specific Request.

