INSTRUCTION BULLETIN

10B4500/4600 ORI-FLOWRATOR™ FLOWMETERS

SERIES 10B4500 & 10B4600 ORI-FLOWRATOR™ FLOWMETERS

Instr Bulletin Ref		10B	45/46	00
10B9016, 10B9017	... Catalog Prefix; Variable Head Flow Meter	10B		
10A4500	..... Basic 4500 Series Meter with "O" Ring Seals		45	
10A4600	..... Basic 4600 Series Meter with Packing Gland Seals		46	
	Type Enclosure; Connection & Direction; See Meter Instruction Bulletin for Details			00

BRIEF FUNCTIONAL DESCRIPTION

Refer to the attached Instruction Bulletins for complete information on the components described briefly below. Drawing ID-10B-1002 printed on the rear of this sheet illustrates typical installations of the Ori-flowrator Flowmeter.

The instrument defined above is a kinetic manometer used to measure fluid flow in conjunction with a primary orifice. The Ori-flowrator Meter is placed in parallel with the primary orifice and can measure flow regardless of the main line pipe size. The Ori-flowrator Meter provides flow rate indication on a linear scale over a range of approximately 10:1 (7:1 for 25" differential meters); whereas the measurement range with a conventional type differential pressure instrument, with a square root scale, is approximately 4:1. The total pressure drop across the Ori-Flowrator Meter is the same as the drop across the primary orifice. A range orifice is located in the meter outlet fitting, as shown in Figure 1 and determines the differential pressure range of the unit.

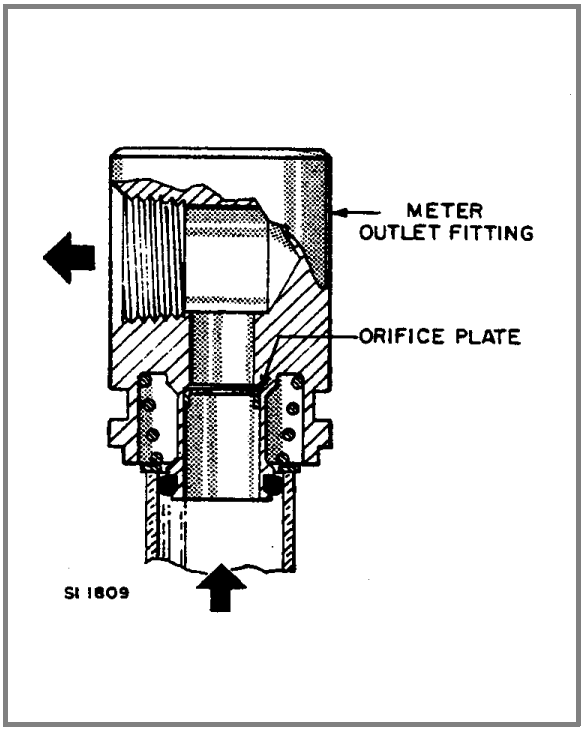


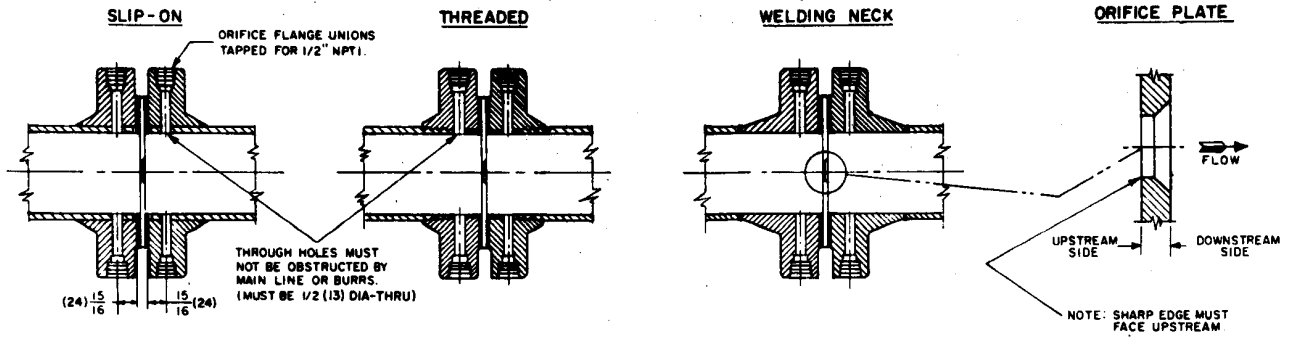
Figure 1. Meter Outlet Fitting

Flow rate through the range orifice is measured by the Ori-Flowrator Meter. This range orifice is sized so that fluid flow through the meter at maximum pressure drop, is exactly equal to the flow rate required to lift the meter float to the maximum position.

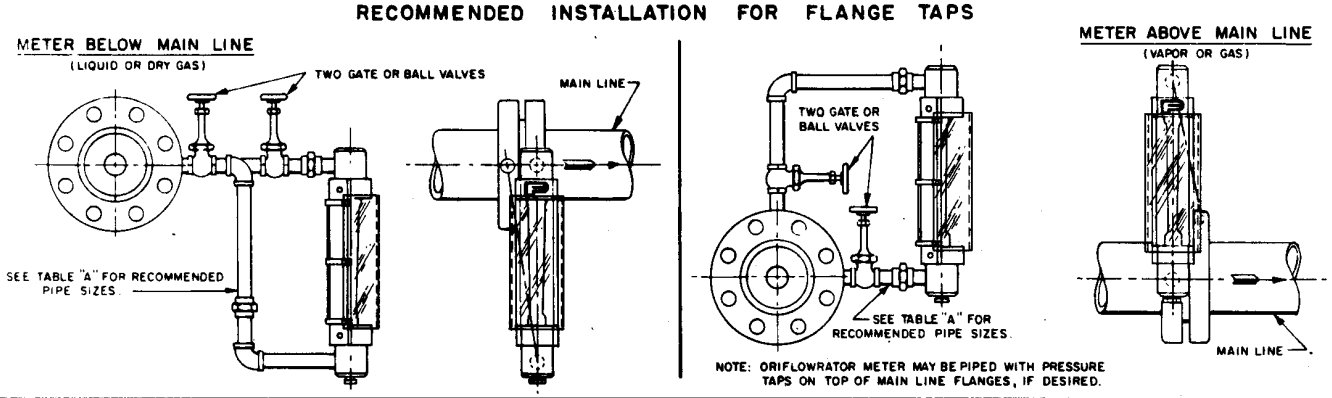
Since the flow through the range orifice is proportional to the instantaneous flow rate through the main flow line, the Ori-Flowrator Meter also measures the main line instantaneous flow rate.

ID-10B-1002

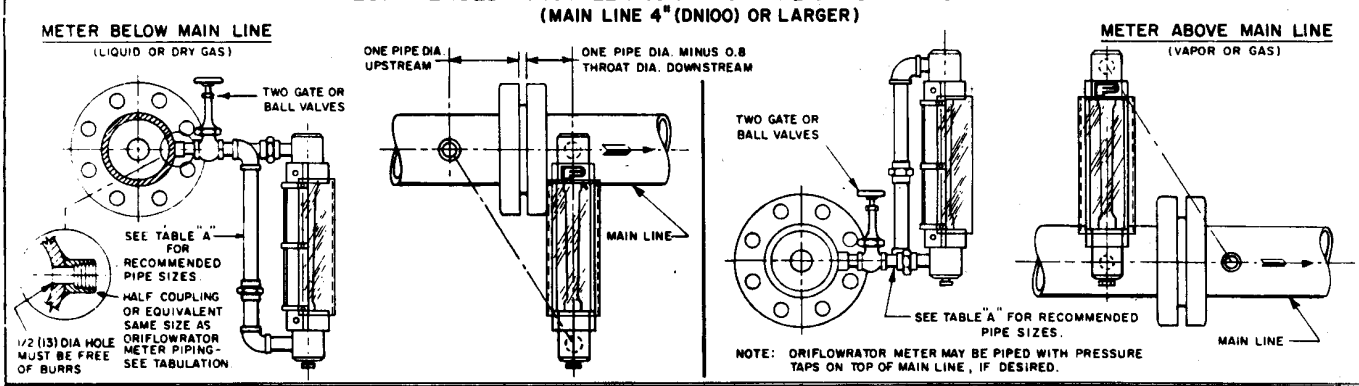
TYPICAL ORIFICE FLANGE UNIONS (A.G.A. STD.)



RECOMMENDED INSTALLATION FOR FLANGE TAPS



RECOMMENDED INSTALLATION FOR VENA CONTRACTA TAPS (MAIN LINE 4" (DN100) OR LARGER)



NOTES:

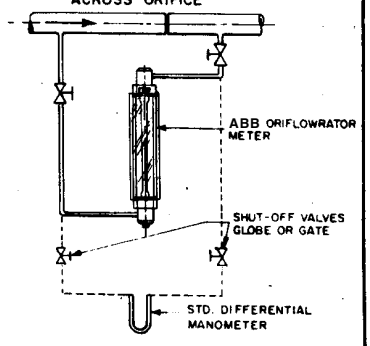
1. USE FLANGE OR VENA CONTRACTA TAPS. PIPE TAPS ARE NOT RECOMMENDED.
2. MEASURE PRESSURE AT THE DOWNSTREAM TAP WHEN REQUIRED. MEASURE TEMPERATURE 3-5 DIAMETERS DOWNSTREAM OR 10-15 DIAMETERS UPSTREAM.
3. WHEN METERING LIQUIDS, PROVIDE AIR VENTS AT THE HIGH POINTS.
4. LAG ORIFLOWRATOR METER PIPING WHEN NECESSARY.
5. ALL DIMENSIONS ARE IN INCHES; DIMENSIONS IN PARENTHESES ( ) ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

TABLE A

PIPE SIZES FOR INSTALLATION OF ORIFLOWRATOR METER DISTANCE FROM ORIFICE IS APPLICABLE FOR FLANGE OR VENA CONTRACTA TAPS.			EQUIV. PIPE LENGTH OF FITTINGS, FT.			
PIPE SIZE ANSI	PIPE SIZE DIN	ALLOWABLE EQUIV. LENGTH OF ORIFLOWRATOR PIPING	90° EL.	45° EL.	VALVE	UNION
1/2	DN15	UP TO 10 FEET (3 m)	1.5	0.8	0.35	0.17
3/4	DN20	UP TO 20 FEET (6 m)	2.0	1.0	0.45	0.19
1	DN25	UP TO 60 FEET (20 m)	2.5	1.2	0.60	0.21

NOTES:
KEEP NUMBER OF FITTINGS TO A MINIMUM.
USE NECESSARY REDUCING FTGS. AT ORIFICE CONNS. & METER-PIPE TO BE FREE OF BURRS, FRICTION LOSSES BASED ON SCHEDULE 40 PIPE.

SCHEMATIC ORIFLOWRATOR METER HOOK-UP FOR CHECKING PRESSURE DROP ACROSS ORIFICE



REV	DESCRIPTION	DATE	APPD
1	ADDED OPERATOR PROTECTION SHIELD ILLUSTRATION & METRIC DIMS, AND NOTE 5	11 OCT 95	
0			

TYPICAL INSTALLATIONS FOR SERIES 10B$\frac{3}{4}$500 10B$\frac{3}{4}$600 ORIFLOWRATOR METERS

ABB Inc.

DRAWING NUMBER: ID-10B-1002 REV. 1