



**MODEL VF31**  
 VERTICAL DOWNFLOW METER  
 SEALED METER MECHANISM - MAGNETIC DRIVE  
 SEALED TOTALIZER  
 SIZES 4" thru 20"



#### DESCRIPTION

**MODEL VF31 VERTICAL DOWNFLOW METERS** are designed for mounting in tees with up to 150 PSI working pressure. The bolt-on design permits use in a wide range of applications with up to 150 psi working pressure. The mounting flange conforms to ANSI class 125 drilling. It is necessary, upon ordering, to furnish the I.D. dimension of the pipe the meter is to be mounted on for calibration purposes.

**INSTALLATION** is made by bolting the meter assembly to an appropriate cast iron or fabricated steel tee. These tees usually replace an elbow in existing systems such as on the suction or discharge side of a centrifugal pump or laterals in irrigation systems. The meter must have a full flow of liquid for proper accuracy. Fully opened gate valves, fittings or other obstructions that tend to set up flow disturbances should be a minimum of five pipe diameters upstream and one pipe diameter downstream from the meter.

**PROPELLER** is magnetically coupled with the drive mechanism through the sealed separator assembly. This completely eliminates water entering the meter assembly, as well as the need for any packing gland. The propeller is a conical shaped three bladed propeller, injection molded of thermoplastic material resistant to normal water corrosion and deformation due to high flow velocities.

**BEARING** in propeller is a water lubricated ceramic sleeve and spindle bearing system with a ceramic/stainless steel spindle. Dual ceramic thrust bearings, standard on all meters, handle flows in both forward and reverse directions. The bearing design promotes extended periods of maintenance free propeller operation. Bearings within the sealed meter mechanism are shielded precision stainless steel bearings and are factory lubricated for the life of the meter.

**TOTALIZER** is o-ring sealed and magnetically coupled with the driving mechanism, and features a six digit totalizer with a full 3" diameter, 100 division, center sweep dial that permits extremely accurate readings for timing purposes in determining flow rates. The totalizer dial can be furnished in gallons, cubic feet, acre feet, or any standard liquid measuring units. The bonnet, with padlock hasp, can be positioned in four different directions for the easiest possible reading when the meters are mounted in unusual positions.

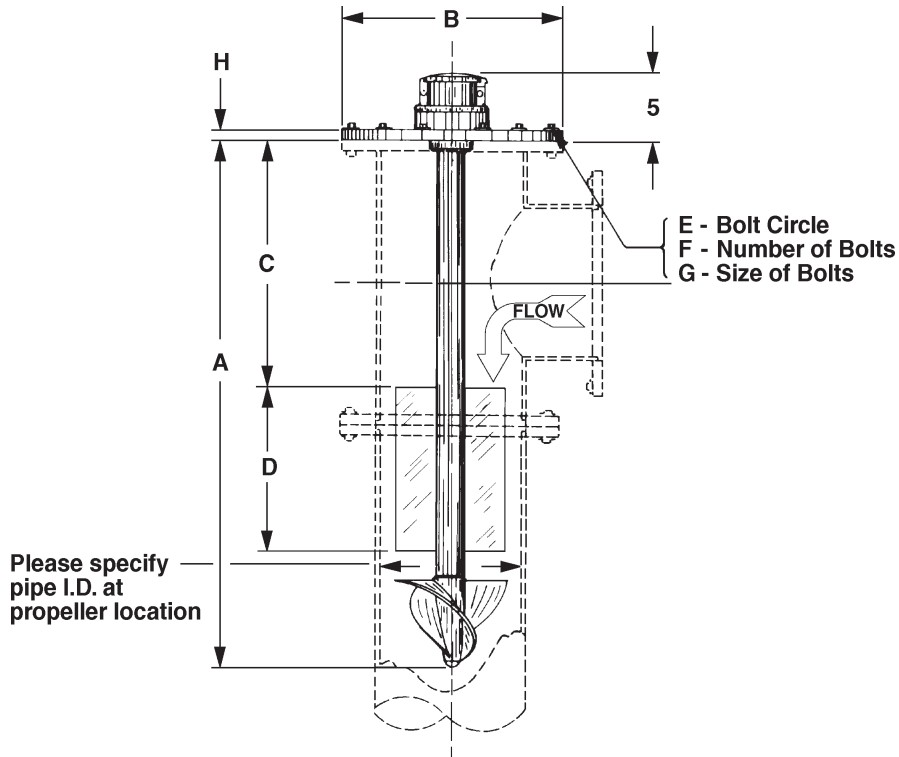
**CHANGE GEARS** may be easily exchanged in the field when changing the dial, or when recalibrating for different pipe sizes. It is not necessary to remove pressure from the line for these changes.

**O-RING SEALS** are used at all points where seals are required, making the meter mechanism completely immune to any of the corrosive effects of atmospheric moisture or the liquids measured by the meter assembly.

#### SPECIFICATIONS

<b>ACCURACY</b>	Plus or minus 2% of actual flow within the range specified for each meter size.
<b>PRESSURE RANGE</b>	Up to 150 PSI maximum working pressure.
<b>TEMPERATURE RANGE</b>	140° F Maximum. Consult factory for special construction for higher temperatures.
<b>MINIMUM FLOWS</b>	As shown for each meter size and construction are required for accurate registration. See flow chart. NOTE: Minimum flow will be higher when auxiliary equipment is added.
<b>MAXIMUM FLOWS</b>	As shown for each meter size and construction are rated for continuous operation. See flow chart.
<b>INTERMITTENT FLOWS</b>	As shown for each meter size are rated for 10% to 15% of the total time the meter is operating. Consult factory for High Velocity construction when inter-mittent flows are higher than shown on flow chart and/or when longer operating periods are required.
<b>MATERIALS</b>	Used in construction are chosen to minimize the corrosive effects of the liquids measured by the meter assembly. MAGNETS - permanent ceramic type INTERIOR BEARINGS - shielded stainless steel PROPELLER BEARING - ceramic sleeve type PROPELLER SPINDLE - ceramic sleeve on stainless steel PROPELLER - injection molded thermoplastic DROP PIPE - stainless steel SEPARATOR - stainless steel SHAFTS AND BOLTS - stainless steel METER HEAD - cast iron or fabricated steel, NSF approved fusion epoxy coated.
<b>OPTIONAL EQUIPMENT</b>	A meter mounted Forward & Reverse Totalizer, Totalizer Extensions and a wide range of controls and instruments for indicating, totalizing, and recording flow data for each meter. Special constructions and materials are available upon request.
<b>ORDERING INFO</b>	Must be specified by the customer and includes: Minimum and maximum flow ranges, temperature of meter environment, totalizer dial units, type of materials and construction, I.D. of pipe and optional equipment desired.

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METER & PIPE SIZE	FLOW RANGES, GPM			STANDARD DIAL FACE (GPM/GAL)	DIMENSIONS								EST SHIPPING WEIGHT POUNDS
	MIN.	MAX.	INT.		A	B	C	D	E	F	G	H	
4	55	500	700	500/100	34	9	13 <sup>3</sup> / <sub>8</sub>	12	7 <sup>1</sup> / <sub>2</sub>	8	5/8	5/8	70
6	130	1200	1500	1200/1000	36 <sup>1</sup> / <sub>2</sub>	11	16	12	9 <sup>1</sup> / <sub>2</sub>	8	3/4	11/16	90
8	170	1500	2000	1500/1000	40 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>2</sub>	20	12	11 <sup>3</sup> / <sub>4</sub>	8	3/4	11/16	120
10	200	2000	3000	2000/1000	44	16	26 <sup>1</sup> / <sub>2</sub>	12	14 <sup>1</sup> / <sub>4</sub>	12	7/8	11/16	135
12	220	3000	3500	3000/1000	48	19	27 <sup>1</sup> / <sub>2</sub>	12	17	12	7/8	13/16	215
14	320	4000	4500	4000/1000	54	21	31 <sup>1</sup> / <sub>2</sub>	14	18 <sup>3</sup> / <sub>4</sub>	12	1	15/16	250
16	420	5000	6000	5000/1000	60	23 <sup>1</sup> / <sub>2</sub>	35 <sup>1</sup> / <sub>2</sub>	16	21 <sup>1</sup> / <sub>4</sub>	16	1	1	280
18	720	6000	7500	6000/1000	66	25	39 <sup>1</sup> / <sub>2</sub>	18	22 <sup>3</sup> / <sub>4</sub>	16	1 <sup>1</sup> / <sub>8</sub>	11/16	310
20	870	8000	9000	8000/10000	72	27 <sup>1</sup> / <sub>2</sub>	43 <sup>1</sup> / <sub>2</sub>	20	25	20	1 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	390



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