

Mainline Propeller Meters

Models 111/112 — Plain End Tube Type

Description

150 psi (10 bar) Working Pressure, 300 psi (20 bar) Working Pressure, Magnetic Drive Sealed Gear Housing, Sizes 4" through 36" (DN 100mm—DN 900mm)

Sensus Propeller Meters are intended for accountability measurement of potable or non-potable cold (to 100°F/38°C) water where flow is in only one direction. The meters can be installed at any convenient angle from horizontal to vertical; in discharge, suction or pressurized lines; within stated pressure ratings. For accurate measurement, a full flow of water through the meter and stated minimum flow rates are required. Because all appropriate parts are sealed for protection, the meters can be used with water containing particulate solids (as sand), without causing undue wear.



Model 111



Standard Sealed Register



E-ROFI Register

Features

CONSTRUCTION

The meters are produced of fabricated steel and protected internally by an epoxy paint.

MAGNETIC DRIVE

Eliminates mechanical packings and stuffing boxes. A sleeve-type ceramic magnet in the propeller assembly drives a follower magnet located within the sealed gear box.

RIGHT ANGLE GEARING

The brass bevel gears, which drive the register shaft, operate within a factory-sealed, oil-filled, one-piece cast bronze gear box, providing lubrication for the life of the meter.

CERAMIC BEARING AND SHAFT

The double land ceramic bearing retained in the propeller assembly rotates on a ceramic sleeved shaft. The high purity ceramic provides exceptionally good wear characteristics, even in water containing entrained solids.

REGISTERS

Sensus Propeller Meters are available with a standard sealed mechanical register (Model 111) or a sealed Electronic Rate of Flow Instrument and Transmitter—E-ROFI (Model 112).

INSTALLATION

The meter is installed in the pipeline similar to placing a short length of plain end pipe in the line either by welding, brazing or using pipe couplings, such as Smith-Blair #411 flexible couplings. The meter must have a full flow of liquid to assure proper registration. Valves, fittings and other equipment which may create a flow disturbance, should be positioned at least five pipe diameters upstream, and three to five diameters downstream from the meter.

GASKETS

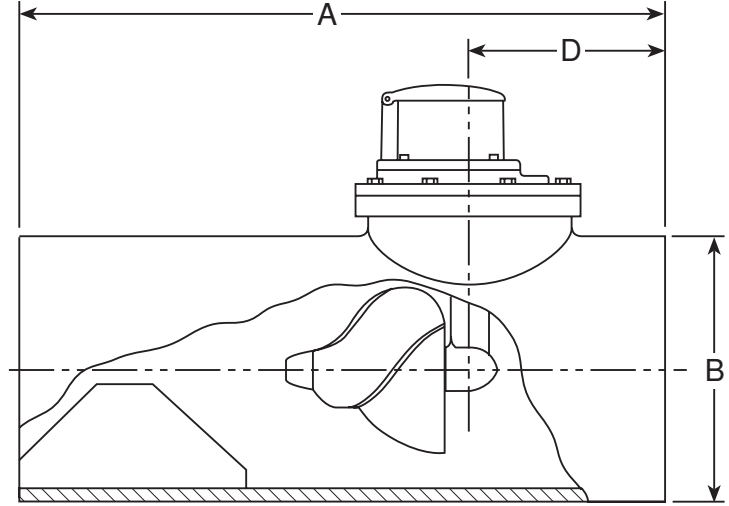
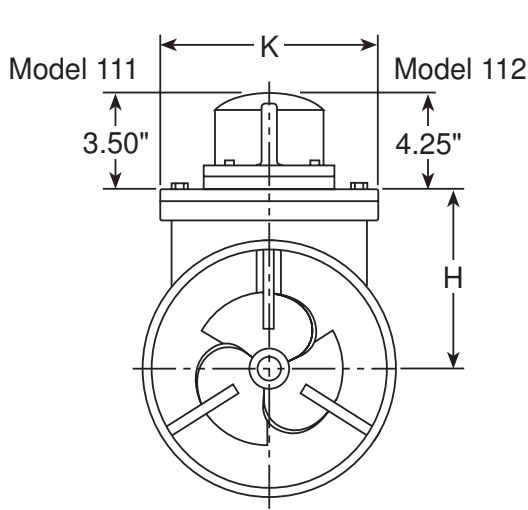
A flat gasket is used at the connection of the meter head to the body on 4" (DN 100mm) through 8" (DN 200mm). An "O" ring is used on 10" (DN 250mm) and larger sizes.

INSTRUMENTATION CAPABILITIES

The E-ROFI or High-Speed Pickup Registers are available for interfacing with Sensus Act-Pak Instruments. Refer to Bulletin E-1116 for HSPU and Bulletin E-1110 for E-ROFI Register.

MAINTENANCE

Should maintenance or testing be needed, the meter head can be removed without disturbing the tube body in the pipeline. Cover plates are available for maintaining service or flushing of lines when the meter head is removed.



| Meter Size | Low Flow GPM m ³ /h 1 | Normal Range GPM m ³ /h 2 | A in mm | B in mm | D in mm | H in mm | K in mm | Shipping Weight Pounds kg |
|-----------------|--|--|---------------|------------------|------------------|------------------|------------------|------------------------------|
| 4" DN 100mm | 82 18.2 | 125-500 28-114 | 17" 432mm | 4-1/2" 114mm | 6-1/2" 165mm | 3-7/8" 99mm | 7-1/2" 190mm | 45 lbs. 20 kg |
| 6" DN 150mm | 160 36.3 | 220-1200 50-273 | 21" 533mm | 6-1/2" 168mm | 8" 203mm | 5" 127mm | 9" 229mm | 75 lbs. 34 kg |
| 8" DN 200mm | 190 43.2 | 250-1650 57-375 | 23" 584mm | 8-5/8" 219mm | 8" 203mm | 6" 152mm | 9" 229mm | 100 lbs. 45 kg |
| 10" DN 250mm | 260 59.0 | 330-2500 75-568 | 25" 635mm | 10-3/4" 273mm | 9-1/2" 241mm | 7-3/8" 187mm | 11" 279mm | 120 lbs. 54 kg |
| 12" DN 300mm | 257 62.4 | 350-3500 80-795 | 27" 686mm | 12-3/4" 324mm | 9-1/2" 241mm | 8-3/8" 213mm | 11" 279mm | 160 lbs. 73 kg |
| 14" DN 350mm | 350 79.5 | 450-4500 102-1022 | 41" 1041mm | 14" 356mm | 11-1/2" 292mm | 9-1/4" 235mm | 13-1/2" 343mm | 275 lbs. 125 kg |
| 16" DN 400mm | 450 102.2 | 550-5500 125-1249 | 47" 1194mm | 16" 406mm | 11-1/2" 292mm | 10-1/4" 260mm | 13-1/2" 343mm | 340 lbs. 154 kg |
| 18" DN 450mm | 550 124.9 | 725-7250 165-1647 | 53" 1346mm | 18" 457mm | 14-1/2" 368mm | 11-5/8" 295mm | 13-1/2" 343mm | 400 lbs. 181 kg |
| 20" DN 500mm | 700 159.0 | 850-9000 193-2044 | 59" 1499mm | 20" 508mm | 14-1/2" 368mm | 12-5/8" 321mm | 13-1/2" 343mm | 500 lbs. 227 kg |
| 24" DN 600mm | 1000 227.1 | 1300-1300 295-2952 | 71" 1803mm | 24" 610mm | 17-1/2" 445mm | 12-5/8" 321mm | 13-1/2" 343mm | 675 lbs. 306 kg |
| 30" DN 750mm | 1600 363.4 | 2100-18600 477-4224 | 83" 2108mm | 30" 762mm | 17-1/2" 445mm | 12-5/8" 321mm | 13-1/2" 343mm | 950 lbs. 431 kg |
| 36" DN 900mm | 2400 545.0 | 3000-2400 681-5450 | 95" 2413mm | 36" 914mm | 19-1/2" 495mm | 12-5/8" 321mm | 13-1/2" 343mm | 1250 lbs. 567 kg |

¹ Low Flow — 95% minimum accuracy ² Intermittent Flow — 25% over maximum rated capacity

SPECIFICATIONS

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|---|---|
| SERVICE | Where fluid flow is in one direction only. |
| ACCURACY | 100 ± 2% of actual flow within specified normal and intermittent flow ranges. 95% minimum at low flow rate. |
| PRESSURE RATING | 9150 psi (10 bar) maximum working pressure; 300 psi (20 bar) maximum working pressure. |
| TEMPERATURE | 100°F (38°C) maximum. |
| MAXIMUM FLOW | Maximum normal flow rates listed are for continuous service. See bulletin PM-725 for details. |
| INTERMITTENT FLOW | 25% overrated capacity for 10% to 15% of the total operating time of the meter. |
| STANDARD REGISTER | Six-digit straight reading type with full 3" (75mm) diameter, 100-division dial and center sweep test hand. Registration available in gallons, cubic feet, acre feet, litres, cubic meters, miners inch hours, barrels and other standard units. |
| ELECTRONIC RATE OF FLOW INSTRUMENT/TRANSMITTER | The electronic rate of flow instrument (E-ROFI) registers are used to display and transmit volume and flow rate data from a Sensus Propeller Meter to various Sensus Act-Pak Electronic Instruments which are used to monitor, control, record volume, and rate of flow. Act-Paks are normally located apart from the meter. The instrument is mounted on Sensus Propeller Meter Head Assemblies using the sealed register type adapter plate assemblies. |
| MATERIALS | Tube Bodies: 4" (DN 100mm) through 36" (DN 900mm) Sizes: Fabricated steel body and straightening vanes coated internally and externally with epoxy paint. Meter Head: Ductile Iron Propeller and Nut: Polypropylene Propeller Spindle: Ceramic-Coated Stainless Steel Rotor Bearings: Ceramic Magnets: Permanent, Ceramic Sleeve Type Gear Housing: One-Piece Cast Bronze Shafts and Bolts: Stainless Steel |
| OPTIONAL EQUIPMENT | Blank covers, E-ROFI Registers and HSPU for use with Sensus Act-Pak Instruments. |

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