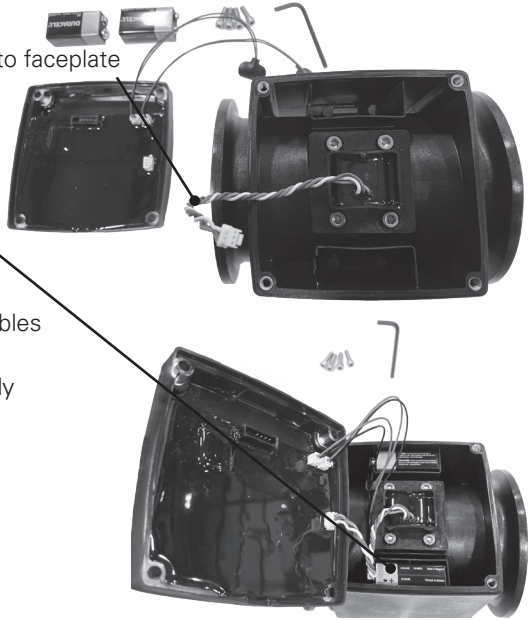


HIGH-FLOW DURA-METER™

QUICK ASSEMBLY INSTRUCTIONS

- 1 Connect paddle wheel circuit wire to faceplate
- 2 Connect the (2) 9V batteries
- 3 Install 9V batteries into meter body
- 4 Secure face plate to meter body and ensure you do not pinch any cables
- 5 Install the (4) 10-32 bolts and slightly snug to tightness



HFM3_Assembly_Installation_022024

INSTALLATION GUIDELINES

The following are principles of operation for the Dura High-Flow Meter, intended to guide installation, and not to be construed as a complete troubleshooting guide.

Good results can be assured by following these five principles.

- 1 **THE FLOW RATE OF THE SYSTEM MUST BE WITHIN THE RECOMMENDED RANGE FOR THE METER.** All flow meters have a minimum flow rate they will measure for their nominal size. No flow meter reads down to 0. This lower limit is a result of the flow velocity not containing enough momentum to keep the paddle wheel spinning. Below a certain flow rate the paddle no longer spins linearly with respect to the flow rate. This is the lowest flow rate the meter can accurately measure. The meter may indicate flow rates below this value but will contain a large inaccuracy. At some point the flow velocity becomes too low and the meter will indicate 0, even though there is still flow. The bottom line – if you don't have an adequate flow rate, you won't get satisfactory results.

② THE SYSTEM MUST BE FULL OF FLUID AT ALL TIMES. The meter and plumbing must be completely full of liquid! Flow should ALWAYS be horizontal or upward. Downward flow will not provide consistent movement of liquid across the paddlewheel. Consistent flow across the paddlewheel is essential for accuracy and consistency. To encourage this, in a horizontal installation, the paddlewheel should be at "10 o'clock" or "2 o'clock" position when viewed from the end of the flow meter. It should NOT be at "12 o'clock" or "6 o'clock"!

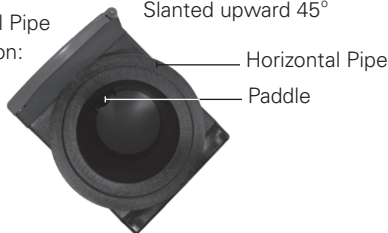
③ THERE MUST BE A SUFFICIENT LENGTH OF STRAIGHT PIPE BEFORE AND AFTER THE METER. To develop a uniform flow profile in the pipe, a straight length of smooth pipe must be both upstream and downstream of the meter. The meter should be installed away from sources of turbulence, such as pumps, strainers, elbows, etc. The diagram is a general idea of lengths of pipe needed to develop uniform flow and get accurate results from the flow meter. If an adequate run of straight pipe isn't possible, a reduction in accuracy may result. Typically, the error is uniform (linear) across the flow range. If the flow profile is consistent, the flow meter can be adjusted for it by manual calibration. The instruction manual illustrates the manual calibration method. Installation of meter with horizontal OR vertical pipe



④ INSTALLATION OF METER WITH HORIZONTAL OR VERTICAL PIPE. Install the meter in the plumbing system where the meter and pipe will always be full of liquid. Again, the installation should be designed with the goal of the flow across the paddlewheel being constant and consistent. It is also important for accuracy that the meter sees the same flow profile in use as it saw during calibration.

Install flow meter at the location where the pipe is filled with liquid.

A. Horizontal Pipe optimal option: Slanted upward 45° B. Vertical pipe optimal option:



⑤ THE FLUID ENTERING THE METER MUST BE FREE OF DEBRIS. A strainer should be installed before the flow meter to lengthen service life and improve measurement accuracy. The strainer will remove impurities or foreign objects from the fluid that can interfere with the mechanical components. Be aware that the strainer will cause turbulence, and for that reason should be installed as far away from the meter as is practical.

HIGH-FLOW DURA-METER™



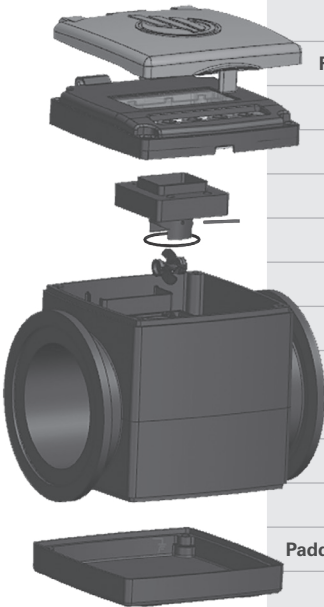
The meter will turn ON with any button press or when fluid passes through the meter. It will turn OFF when not in use.

Use buttons to navigate the four main menus; **Reset**, **Program**, **Calibration**, **Info**. The buttons correspond to the on screen indicators.

(2) 9 Volt batteries provide about 35 hours of use with the backlight turned ON. Battery life is extended with the backlight OFF.



TECHNICAL SPECIFICATIONS



| | | |
|---|------------------|------------------|
| Nominal Size | 2" | 3" |
| Model | DP-HFM2 | DP-HFM3 |
| Connection | M220 flange | M300 flange |
| Meter Accuracy | +/- 0.5% * | +/- 0.5% * |
| Non-conductive Fluids | Yes | Yes |
| Fluid Flow Initiates Measurement | Yes | Yes |
| Battery Size/Voltage | (2) 9 Volt | (2) 9 Volt |
| Battery Life Indicator | Yes | Yes |
| Backlit Display | Yes | Yes |
| Maximum Pressure | 150 PSI | 150 PSI |
| Minimum GPM | 40 | 80 |
| Maximum GPM | 300 | 700 |
| Minimum Temp | + 32 °F | + 32 °F |
| Maximum Temp | + 140 °F | + 140 °F |
| Meter Type/Style | Paddlewheel | Paddlewheel |
| Body Construction Material | GF Polypropylene | GF Polypropylene |
| Paddle Bearing Construction Material | Sapphire | Sapphire |
| Electrodes Construction Material | No | No |
| Minimum Straight Inlet | 5X diameter | 5X diameter |
| Minimum Straight Outlet | 10X diameter | 10X diameter |
| Field Calibration Capability * | Yes * | Yes * |

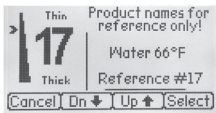
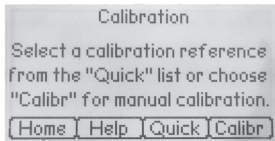
*With manual calibration

CALIBRATION

NOTE: Use a primed system. Verify your calibration. Fluid viscosity changes with temperature.

QUICK CALIBRATION

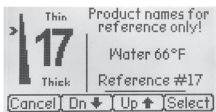
/ Great for fleet use



Select a viscosity reference number using water as the baseline.



Check
Dispense approximately 100 gallons and verify accuracy.

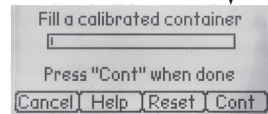
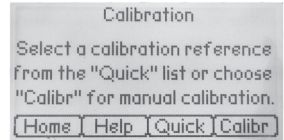


Adjust
Each viscosity reference number represents 1% change. (i.e.)
If the meter reads high, lower the viscosity reference number.
Adjust the value Up or Down
Repeat as needed.

PREFERRED METHOD

MANUAL CALIBRATION

/ Most accurate
/ Usually only takes one attempt
/ Adjustable to compensate for different measurement containers

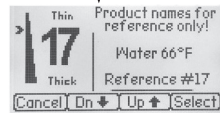


Method 1: With a Calibrated Container

Fill a calibrated container.

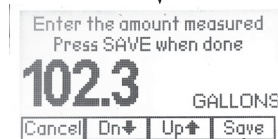
Method 2: Without a Calibrated Container

Fill a container that can be weighed with approximately 100 gallons. Divide the weight by fluid density to determine gallons dispensed.



Adjust

Adjust the default value Up or Down to match the volume dispensed.



Press **Save** as fluid #1 - #5 and **Verify!**



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