**DUALPULSE – insertion flowmeters**

DP490 & DP525 are cost effective stainless steel flowmeters for measuring the flow of water, fuels & other low viscosity liquids in pipes sizes 1.5"-100" (40~2500mm). Insertion flowmeters are installed with the metering head 1/8" into the pipe resulting in very little pressure drop. They do not require external power when used with the Flomec rate totalizers, however some options such as high temperature & non-magnetic models require external power.

Applications include HVAC, hot & chilled water, fire systems, water distribution (management & treatment), boiler feed water & hydrant flow testing.

**FEATURES:**
- IP68 (NEMA6) submersible 316SS construction.
- Low cost of ownership, wide flow range.
- Rugged & compact design.
- Intrinsically safe hazardous area versions.
- Integral or remote pre-amplifiers & flow instruments.
- DP525 version suitable for "hot tap" installation.
- Quadrature pulse output option & Bi-Directional Flow Measurement
- Integral 4-20mA output option

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**General Specifications**

<table>
<thead>
<tr>
<th>Model Prefix</th>
<th>DP490</th>
<th>DP525</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suit pipe sizes</td>
<td>40~900mm (1.5&quot; ~ 35&quot;)</td>
<td>50~2500mm (2&quot;~100&quot;)</td>
</tr>
<tr>
<td>Pipe connection</td>
<td>1.5&quot; or 2&quot; BSPT or NPT male</td>
<td>2&quot; BSPT or NPT male</td>
</tr>
<tr>
<td>Flow range</td>
<td>0.25 ~ 6300 litres/sec (4 ~ 99600 USGM)</td>
<td>0.4 ~ 49000 litres/sec (6 ~ 78000 USGM)</td>
</tr>
<tr>
<td>Flow velocity range</td>
<td>0.3 ~ 10 metres/sec (1 ~ 33 feet/sec)</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>typically ± 1.5% with well-established flow profile</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40°C ~ +150°C ( -40°F ~ +300°F )</td>
<td></td>
</tr>
<tr>
<td>Maximum pressure</td>
<td>80 bar (1160 psig)</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>316ss body &amp; rotor shaft, PVDF rotor (PEEK rotor optional)</td>
<td></td>
</tr>
</tbody>
</table>

**Pulse Outputs**
- Reed switch: 30Vdc x 200mA (max.), Nom. 0 ~ 80hz*
- Hall effect: 3 wire NPN, 5 ~ 24 VDC, 20mA (max.) Nom. 0 ~ 240hz
- Voltage Pulse: Self-Generated voltage. Nom. 0 ~ 240hz
- Non-magnetic sensor: 3 wire NPN, 5~24Vdc max., 20mA max. Nom. 0 ~ 240hz
- Optional outputs: 4~20mA, scaled pulse, quadrature pulse, flow alarms or two stage batch control
- Protection class: IP68 (NEMA6), integral ancillaries can be supplied I.S. (intrinsically safe)
- Overall dimensions: Refer over page

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* Reed Switch resolution is 1/3rd that of the NPN Hall Effect or Voltage pulse outputs.
Over all Dimensions:

<table>
<thead>
<tr>
<th>Configuration</th>
<th>H (1.5&quot; BSP)</th>
<th>H (2&quot; BSP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Head</td>
<td>385</td>
<td>869</td>
</tr>
<tr>
<td>BT Register</td>
<td>394</td>
<td>880</td>
</tr>
<tr>
<td>RT40 Register</td>
<td>380</td>
<td>865</td>
</tr>
<tr>
<td>RT12/EB Register</td>
<td>415</td>
<td>900</td>
</tr>
</tbody>
</table>

Standard Installation:

Alignment Slot Parallel To pipe

Examples of insertion depth D:
- For 40mm pipe ID (D= 5.0 mm)
- For 50mm pipe ID (D= 6.25 mm)
- For 100mm pipe ID (D= 12.5 mm)
- For 400mm pipe ID (D= 50.0 mm)

Insertion Depth: 1/8 OF PIPE I.D.
## Model Coding – Dual Pulse Insertion Flowmeters:

<table>
<thead>
<tr>
<th>Code</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP490</td>
<td>1.5 to 38&quot; pipes</td>
<td>(400 – 900mm) suitable for &quot;hot-tap&quot; installations (valve not included)</td>
</tr>
<tr>
<td>DPS25</td>
<td>2 to 100&quot; pipes</td>
<td>(500 – 2000mm)</td>
</tr>
</tbody>
</table>

### Body material
- S 316 Stainless Steel

### Rotor & bearing materials
- 1 PEEK high temperature rotor with stainless steel rotor shaft: -10°C (14°F) 
- 2 PVDF rotor with 316 stainless steel rotor shaft: (standard) 100°C (212°F)

### O-ring materials
- 1 Viton (standard): -15°C (5°F) minimum
- 2 EPDM (Ethylene Propylene Rubber): -40°C (+4°F) to 120°C (+250°F)
- 3 Teflon encapsulated Viton or application specific: -15°C (5°F) minimum
- 4 Furan (Nitrile): -40° to 100°C (+4° to 212°F)

### Temperature limits
- 5 100°C (212°F) standard, (@ 89°C [190°F] maximum for non-magnetic output type 4) and 4-20mA
- 2 120°C (250°F) - available with electrical connections 5 & 6 & PEEK rotor only
- 3 150°C (300°F) - NPN output only (available with electrical connection 5 & PEEK rotor only)

### Process connections
- 1 BSPT male thread: 1/2" (DP490), 2" (DP525)
- 2 NPT male thread: 1/2" (DP490), 2" (DP525)
- 3 2" BSPT male thread on the DP490
- 4 2" NPT male thread on the DP490

### Pick-up type
- 1 NPN open collector & voltage pulse (standard)
- 2 NPN open collector(s) only (for temp code 3 or OP option)
- 3 Reed switch only (may be used with an I.S. barrier or instrument in hazardous areas)
- 4 Non magnetic rotor w/8th NPn output (for liquids with ferrous impurities, needs power)
- 8 NPN open collector & Reed switch

### Electrical connections
- 1 3 metres cable: 16AWG (standard)
- 2 10 metres cable: 16AWG
- 3 20 metres cable: 16AWG
- 4 50 metres cable: 16AWG (for lengths refer to factory)
- 5 Terminal box on stem kit (add this for integral output option: F1, 4-20mA output)
- 6 Stem kit (price included with integral options B2, B3, R2, R3 & EO)

### Integral options
- QP Quadrature pulse output (requires F02 for bi-directional flow capability)
- B2 BT11 dual totaliser (with scaleable pulse output)
- B3 I.S. intrinsically safe BT11 including output
- R0 scaled pulse, alarms & 4-20mA
- R1 RT12 rate totaliser with all outputs (Alloy housing)
- R2 RT12 rate totaliser with all outputs
- R3 I.S. intrinsically safe RT12 with all outputs
- R4 * RT40 large LCD flow rate totaliser
- F1 Loop powered 4-20mA analog output (also add elec. connection 5 terminal box on stem kit)
- E1 Zebatron DC powered two stage batch controller
- S1 Specific build requirement
Hot Tap Installation

Major obstructions such as pumps, valves, reducers or strainers to be kept well outside the straight run pipe sections.

Installation Straight Piping Requirements

10 pipe dia. minimum
25 pipe dia preferred
5 pipe dia. min.

FLOW

Orientation

10 o'clock 12 o'clock 2 o'clock

Other positions around the pipe are acceptable

Mount on either the 2, 10 or 12 o'clock positions of the pipe. If there is any likelihood of air entrainment in a horizontal pipe do not locate the flow transducer in the 12 o'clock position.