

# WPR Series Flow Monitor with Flow Rate Transmitters

## ● Hydraulic or pneumatic models available

The WPR series in-line flow rate transmitters provide proportional analogue outputs of 4 - 20 mA, 0 - 5 Vdc and 1 - 5 Vdc\*, 20 - 2000 Hz square-wave pulse. These outputs will drive popular data acquisition devices, meters and analogue input cards. Typical applications include monitoring the minimum flow in lubrication systems and protecting against high flows. A flow rate transmitter will rapidly pay for itself by reducing down time and avoiding damage to critical equipment.

WPR flow rate transmitters maintain all the features of a standard WP flow rate monitor in addition to the transmitted output. The unit is fully sealed for weather tight or wash down applications. The WPR series flow monitors do not require straight inlet or outlet piping and can be installed in any orientation. The advanced design of the sharp edged orifice ensures good reliability over a wide viscosity range and minimises the effect of contamination. Accuracy is 2.5% over the centre third of the scale and 4% over the entire flow range.

\* The 1 - 5 Vdc output requires an external 249 ohm resistor (not included with transmitter) to be wired at the receiving device.



Manufacturers of hydraulic components and test equipment  
for the Mobile, Industrial and Agricultural industries



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## Features

- Economic early warning solution
- Factory calibrated for 4 - 20 mA, 0 - 5 Vdc, 1 - 5 Vdc and square wave pulse outputs
- Available for fluids or air
- Wide variety of flow ranges
- Port sizes from 3/8" to 2"
- Direct reading
- Accurate within 2.5% over mid-scale, 4% FSD
- Advanced stainless steel sharp edge orifice
- Unrestricted mounting in any orientation

**BFPA** The British Fluid Power Association



Certificate No.8242

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(Issue 3)

## Specifications

### Measuring accuracy

±2.5% of full-scale in the centre third of the measuring range  
±4% of full-scale over the entire scale range

**Repeatability:** ± 1% of full scale

### Flow measuring range

Hydraulic: 0.2 - 560 lpm (0.05 - 150 US gpm), Pneumatic:  
1.5 - 1300 SCFM

### Maximum operating pressure

Hydraulic: Aluminium & brass monitors 240 bar (3000 psi),  
stainless steel 410 bar (5900 psi)  
Pneumatic: Aluminium & brass monitors 40 bar (580 psi),  
stainless steel 70 bar (1000 psi)

**Maximum operating temperature:** 116° C (240° F)

**Pressure differential:** See graphs below

### Standard calibration fluids

Hydraulic: DTE 25 @ 43°C (40 cSt), 0.873 sg  
Pneumatic: Air @ 21°C, 1.0 sg and 6.9 bar (100 psi)

## Electronic Transmitter Performance

**Power Requirements:** 12 - 35 Vdc

**Load Driving capacity:** 4 - 20 mA: Load resistance is dependant on power supply voltage. Use the following equation to calculate maximum load resistance: Max loop Load ( ) = 50 (Power supply volts - 12)  
0 - 5 Vdc: Minimum load resistance 1000.  
1 - 5 Vdc: Minimum load resistance 25k  
Square Wave Pulse: Minimum load resistance 1000

**Transmission distance:** 4 - 20 mA and 1 - 5 Vdc are limited only by wire resistance and power supply voltage.  
< 200 feet recommended for 0 - 5 Vdc and square wave pulse

**Over-current protection:** Self limiting at 35 mA

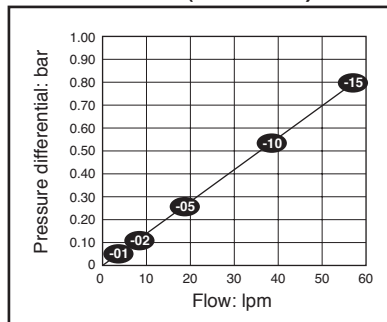
**Resolution:** 10 bit (0.1 %)

**Isolation:** Inherently isolated from the process

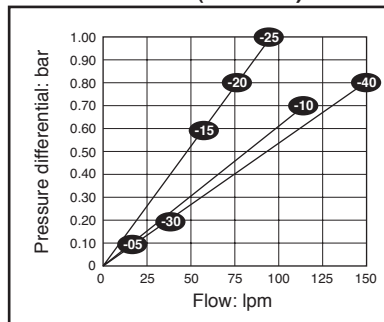
**Response time:** < 100 milliseconds

### Pressure differential graphs categorised by size code

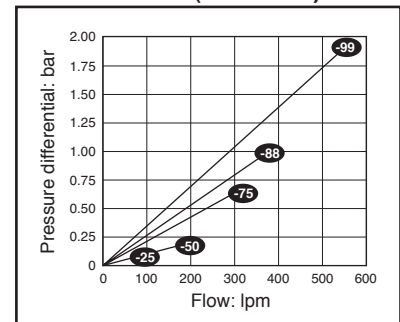
Series 3 (3/8" - 1/2")



Series 4 (3/4" - 1")



Series 5 (1 1/4" - 2")



-15 = Model number (see Sales Brochure)

14.5 psi = 1 bar, 1 US gpm = 3.785 lpm

## Construction

### Wetted components:

High pressure casing,  
end ports and tapered  
shafts:

Aluminium, Brass & Stainless Steel

Seals:

Buna-N (STD), EPR, Viton® or Kalrez®

Transfer magnet:

Teflon® coated Alnico

Floating Orifice disc:

Stainless Steel

All other internal parts:

Stainless Steel

(Teflon® is a registered trademark of DuPont) (Viton® & Kalrez® are registered trademarks of Dow DuPont Elastomers)

### Non-wetted components:

Window tube:

Polycarbonate  
(STD), Pyrex

Window seals:

Buna-N (STD),  
Teflon®

Enclosure + Cover

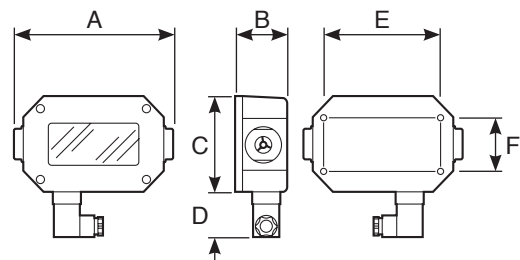
Aluminium

DIN Connector

Polyamide

## Dimensions

| Size code          | 3         | 4         | 5          | 5 (2" Ports) |
|--------------------|-----------|-----------|------------|--------------|
| Dim. A mm (inches) | 167 (6.6) | 182 (7.2) | 258 (10.2) | 322 (12.7)   |
| Dim. B mm (inches) | 56 (2.2)  | 75 (3)    | 97 (3.8)   | 97 (3.8)     |
| Dim. C mm (inches) | 101 (4)   | 114 (4.5) | 135 (5.3)  | 135 (5.3)    |
| Dim. D mm (inches) | 47 (1.9)  | 47 (1.9)  | 47 (1.9)   | 47 (1.9)     |
| Dim. E mm (inches) | 128 (5)   | 127 (5)   | 172 (6.8)  | 172 (6.8)    |
| Dim. F mm (inches) | 57 (2.2)  | 73 (2.9)  | 95 (3.7)   | 95 (3.7)     |



# Product Selector

Standard Flow Meter Part Number  
(For custom units, consult the Sales Office)

Series # WP  -  -  Webtec Part Number

## Step 1 - Style

|                           |     |
|---------------------------|-----|
| BASIC in line for liquid  | = B |
| Pneumatic for air and gas | = G |
| High Temp 200 °C (400 °F) | = H |
| Flow alarm, 1 switch      | = M |
| Flow alarm, 2 switches    | = N |
| Flow transmitter          | = R |
| Phosphate esters          | = P |

## Step 2 - Port / Line Size

|             |     |
|-------------|-----|
| 1/4" - 1/2" | = 3 |
| 3/4" - 1"   | = 4 |
| 1 1/4" - 2" | = 5 |

## Step 3 - Material

|                 |     |
|-----------------|-----|
| Aluminium       | = A |
| Brass           | = B |
| Stainless Steel | = S |

## Step 4 - Pressure rating maximum

|                                     |     |
|-------------------------------------|-----|
| 42 bar (600 psi)                    | = 4 |
| (Air and gas / Aluminium and brass) |     |
| 69 bar (1000 psi)                   | = 5 |
| (Air and gas / Stainless steel)     |     |
| 240 bar (3500 psi)                  | = 6 |
| (Liquids / Aluminium and brass)     |     |
| 420 bar (6000 psi)                  | = 7 |
| (Liquids / Stainless steel)         |     |

## Step 5 - Fluid:

|                                |     |
|--------------------------------|-----|
| Air and Gases                  | = A |
| Oil and 0.873 specific gravity | = H |
| Water and 1.0 specific gravity | = W |

## Step 6 - Thread porting

|                                 |     |
|---------------------------------|-----|
| <b>Size 3 available threads</b> |     |
| 1/4" NPTF                       | = S |
| 1/8" NPTF                       | = A |
| 1/2" NPTF                       | = B |
| 9/16" -18UN #6 SAE ORB          | = E |
| 3/4" -16UN #8 SAE ORB           | = F |
| 7/8" -14UN #10 SAE ORB          | = G |
| 3/8" BSPP                       | = R |
| 1/2" BSPP                       | = T |

|                                 |     |
|---------------------------------|-----|
| <b>Size 4 available threads</b> |     |
| 3/4" NPTF                       | = C |
| 1" NPTF                         | = D |
| 1-1/16" -12UN #12 SAE ORB       | = H |
| 1-5/16" -12UN #16 SAE ORB       | = J |
| 3/4" BSPP                       | = U |
| 1" BSPP                         | = V |

|                                 |     |
|---------------------------------|-----|
| <b>Size 5 available threads</b> |     |
| 1-1/4" NPTF                     | = K |
| 1-1/2" NPTF                     | = L |
| 2" NPTF                         | = M |
| 1-5/8" -12UN #20 SAE ORB        | = N |
| 1-7/8" -12UN #24 SAE ORB        | = P |
| 2" -12UN #32 SAE ORB            | = Q |
| 1-1/4" BSPP                     | = W |
| 1-1/2" BSPP                     | = Y |
| 2" BSPP                         | = X |

Please note - SAE porting not available in brass

## Step 7 - Flow ranges

| Oil and Water LPM (USgpm) | @100 PSIG SCFM | Size        |
|---------------------------|----------------|-------------|
| 0.5-4 (0.05 - 1)          | 1.5 -12        | = 01 3 only |
| 0.5-4 (0.1 - 1) water     |                |             |
| 1-8 (0.2-2)               | 4-23           | = 02 3 & 4  |
| 2-19 (0.5-5)              | 5-50           | = 05 3 & 4  |
| 4-38 (1-10)               | 10-100         | = 10 3 & 4  |
| 4-56 (1-15)               | 25-150         | = 15 3 & 4  |
| 10-75 (2-20)              | 20-215         | = 20 4 only |
| 10-100 (2-25)             | 20-250         | = 25 4 & 5  |
| 10-115 (3-30)             | 30-330         | = 30 4 only |
| 15-150 (4-40)             | 30-400         | = 40 4 only |
| 15-190 (5-50)             | 40-500         | = 50 4 only |
| 15-190 (5-50)             | 30-470         | = 50 5 only |
| 30-280 (8-75)             | 30-750         | = 75 5 only |
| 40-375 (10-100)           | 150-900        | = 88 5 only |
| 75-550 (20-150)           | 150-1300       | = 99 5 only |

## Step 8 - Optional flow directions

|                 |      |
|-----------------|------|
| Uni-directional | =    |
| Bi directional  | = BI |
| Reverse flow    | = RF |

Not all flow ranges are available with Bi and reverse directional options, please consult the sales office.

## Case Drain Monitor

Series # WPC  -  -  Webtec Part Number

## Port / Line Size

|           |     |
|-----------|-----|
| 1/2"      | = 3 |
| 3/4" - 1" | = 4 |

## Material

|           |     |
|-----------|-----|
| Aluminium | = A |
|-----------|-----|

## Pressure Rating Max.

|                   |     |
|-------------------|-----|
| 70 bar (1000 psi) | = 5 |
|-------------------|-----|

## Fluid Media

|                                |     |
|--------------------------------|-----|
| Oil and 0.873 specific gravity | = H |
| Water and 1.0 specific gravity | = W |

## Flow ranges (oil and water)

| LPM (USgpm)           | Size        |
|-----------------------|-------------|
| 0.5-4 (0.05 - 1)      | = 01 3 only |
| 0.5-4 (0.1 - 1) water |             |
| 1-8 (0.2-2)           | = 02 3 & 4  |
| 2-19 (0.5-5)          | = 05 3 & 4  |
| 4-38 (1-10)           | = 10 3 & 4  |
| 4-56 (1-15)           | = 15 3 & 4  |
| 10-75 (2-20)          | = 20 4 only |
| 10-100 (2-25)         | = 25 4 & 5  |
| 10-115 (3-30)         | = 30 4 only |

## Thread Type

| Porting (All Female) | Size       |
|----------------------|------------|
| 1/2" BSPP            | = T 3 only |
| 3/4" BSPP            | = U 4 only |
| 1" BSPP              | = V 4 only |
| 1/2" NPTF, dry seal  | = B 3 only |
| 3/4" NPTF, dry seal  | = C 4 only |
| 1" NPTF, dry seal    | = D 4 only |