Product information

Insertion turbine data sheet

- Economical
- For 40 –100mm pipes
- 0.3 to 10 M/S velocity
- Linearity 1½% typical
- 316 St St body
- Dual sensing
- Low installation cost
- Pulse output
- 80 Bar rating
- Viton seal
- 1½" fitting
- 1% Repeatability
- IP68 (NEMA 6)
- 100°C standard
- 200°C Option
- Simple apparatus option

Ideal for

- HVAC
- Water distribution
- Boiler feed
- Irrigation

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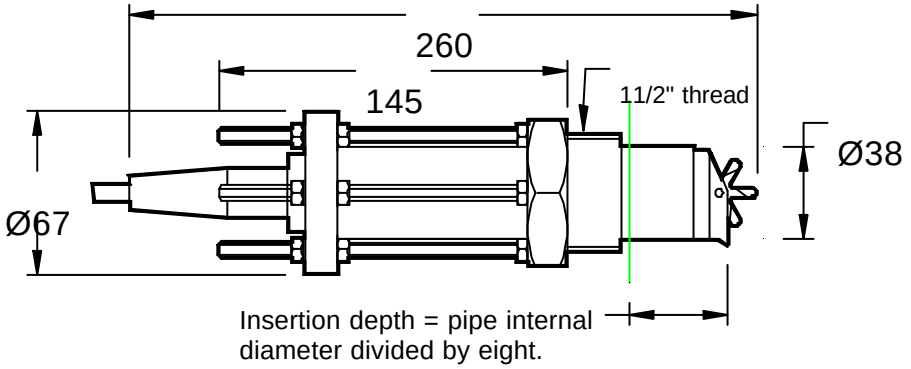
This innovative, robust insertion turbine combines proven technology with modern materials and design. The turbine rotates freely on graphite/PTFE impregnated PEEK™ bearings and has specially aerofoil shaped blades to extend the dynamic range of the meter. The specially contoured housing further improves the meters linearity particularly at lower fluid velocities. Each meter contains two sensors, one self powered for our battery operated equipment and the other an open collector transistor. A reed switch may be specified for hazardous areas were simple apparatus is acceptable. The body is manufactured from AISI316 stainless steel and as standard is supplied with three meters of five core screened instrument cable. The Metra-count, view, smart and batch can all be mounted directly onto the meter (via a mounting stalk) and all of these can be self powered with the exception of Metra-batch which requires an external power source.



Insertion depth = pipe internal diameter divided by eight.

Meter 'K' factors for common pipe sizes

Pipe I/D (# 40)mm	Schedule 40 Pipe (#40) pulses/litre	Schedule 40 Pipe (#40) pulses/USG	Schedule 80 pipe (#80) pulses/litre	Schedule 80 pipe (#80) pulses/ USG
1½"40.9	18.678	70.695	21.524	81.468
2" 52.6	11.238	42.534	12.818	48.517
2.5" 62.7	7.880	29.824	8.899	33.682
3" 78.0	5.062	19.161	5.676	21.485
4" 102.0	2.912	11.021	3.233	12.237

Standard Materials of construction

Body	- 316 St St
'O' Ring seal	- Viton
Spindle	- Tungsten carbide
Rotor	- PEEK™ (PTFE & graphite filled)
Fitting	- 1½" Thread

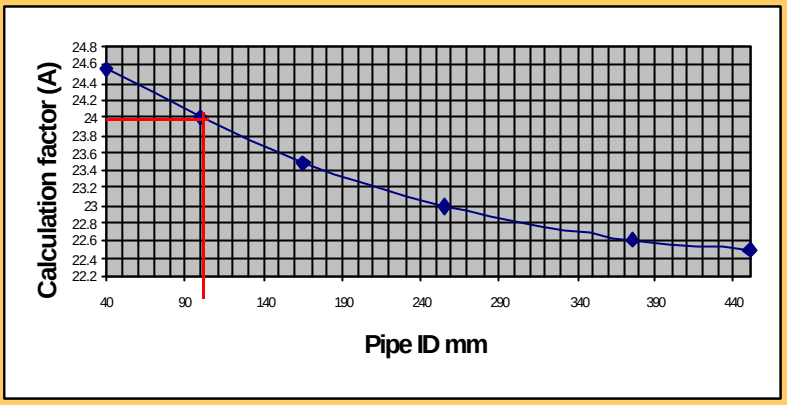
To calculate the 'K' factor in pulses per litre for a given pipe internal diameter use the formula below.

$$\text{Pulses/Litre} = \frac{1273.2 \times (A) \text{ from graph}}{\text{pipe ID}^2 \text{ (mm)}}$$

e.g.
For a 100 mm bore pipe (A) = 24

$$\text{Pulses /Litre} = \frac{1273.2 \times 24}{100 \times 100}$$

$$= 3.056 \text{ pulses per litre}$$

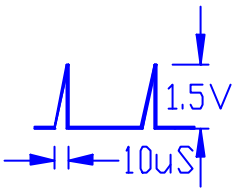


Specification

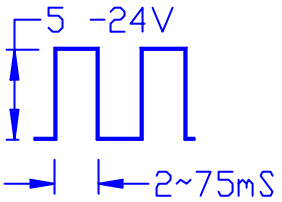
Pipe sizes	40 to 900 mm
Velocity range	0.3 to 10M/Sec
Fitting size	1½" BSPT or NPT
Linearity	± 1.5 % typically
Repeatability	± 0.5 % typically
Pressure	80 Bar Maximum
Temperature	-40°C to +100°C Optional 200°C
Body material	316 Stainless steel
Rotor material	PEEK™
Bearing	PTFE/graphite impregnated PEEK™
Spindle	Tungsten carbide
'O' ring	Viton™
Outputs	Open collector pulse 1.5V X 10µS pulse Reed switch (optional)
Frequency	230 Hz @ 10 M/Sec 77 Hz with reed switch
Cable	3m X 5 core screened
Protection	IP68
Options	Mounted instruments 200°C sensor Reed switch sensor Conduit entry

These insertion turbines provide a cost effective and simple means to measure the flow of a wide range of low viscosity liquids. Installation is quick and inexpensive in pipes from 40 mm diameter up to 900 mm diameter. For rate and total applications a self powered instrument can be mounted directly onto the meter for a stand alone measurement. Other instruments permit high and low flow alarms, 4-20 mA loops or even batching functions, these all require external power. The meter requires at least ten pipe diameters of straight pipe upstream and five downstream to ensure a fully developed flow profile and accurate measurements. Large disturbances may require greater straight lengths.

PULSE OUTPUTS



Pulse wire



Hall effect

Reed switch (optional)

Order codes

Standard meter BSPT mount	**400-003**
NPT mount	**400-004**
Mounting stalk	**400-005**

For local instrument mounting

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