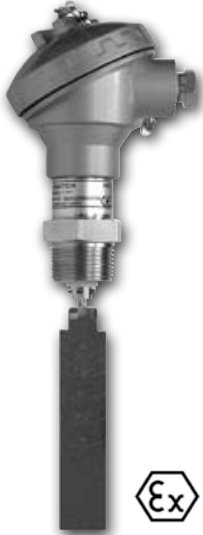


Paddle Flow Switch

PSF50 Paddle flow switch

Paddle flap flow / no flow switch



Economically priced flow/no flow paddle operated flow switch. Simple and reliable design for liquids up to 140°C. Operates with flow in both directions for installation on pipes from 1" to 3". IP65 protection housing with explosion proof version available.

- Stainless Steel construction
- Pipe sizes up to 3"
- High temperature (max 140°C, 150°C for CIP)
- EEx d version

Operating Information

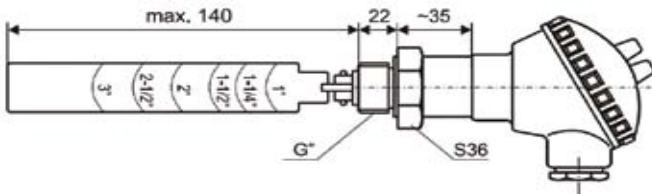
Medium type	low-contaminated liquid
Process temperature	-30...140 °C (-30...100 °C for Ex version)
CIP temperature	up to 150 °C
Process pressure	up to 25 bar
Max pressure drop	max. 200 mbar
Ambient temperature	-40...85 °C
Ambient humidity	0...95 %RH



Operating principle	paddle-operated magnet switch
Flow range	15...130 l/min
Range adjustment	cut paddle length, 1...3"

Output type	NO/NC reed contact, 230 VAC, 2A, 50 W
Output action	activates at flow rate over set point
Set-point adjustment	cut paddle length
Set-point tolerance	± 25%
Repeatability	± 5%

Dimensional Data



Options & Ordering Information

Pipe diameter	1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		
Flow range (set-point) (l/min)	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	
Paddle length	1"	20	16	33	25	47	35	66	58				
	1 1/4"			25	18	35	27	58	47	89	78		
	1 1/2"					54	39	89	62	124	97		
	2"							70	47	93	66	128	105
	2 1/2"									78	50	105	85
3"											85	62	
Process connection	G1", 1" NPT												
Electrical connection	screw terminals inside the housing												
Housing (protection)	aluminium head type "G" (IP65) or ATEX-approved Ex 'd' head type "EG" (IP68)												
Wetted parts	304 stainless steel (1.4301)												
Weight	max. 950 g												

Feature or option	Order Code PSF-X.X
Housing	G = IP65 head type "G", EG = IP68 ATEX approved Exd head type "EG"
Process Connection	Q12 = G1" BSP, Q15 = 1" NPT

Example
PSF50-G.Q12

Pelton Wheel flowmeters

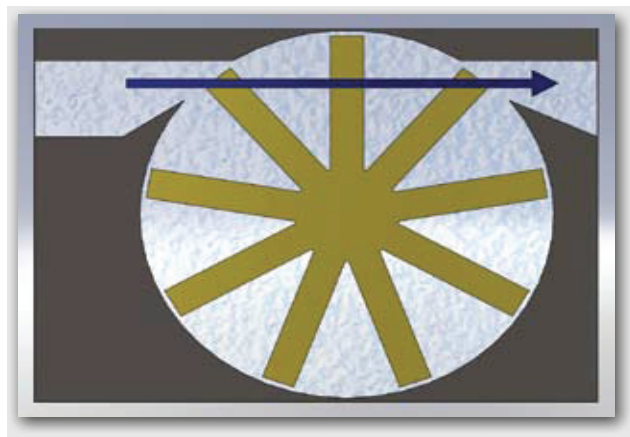
Pelton Wheel flowmeters - Principle of Operation

Principle of operation

Pelton wheel flowmeters take their name from a type of water wheel patented in the late 19th Century. Although not true Pelton wheels, modern radial flow turbines use Pelton's principles to harness the power of a jet of water directed at one side of a free running paddle wheel. The speed of rotation of the turbine is proportional to the velocity of the liquid passing through it.

This rotation is commonly sensed using embedded magnets and a Hall effect device. Optical pick-ups can also be used. For lower flow rates the turbine is housed in an in-line body and with careful design, flow rates down to a teaspoon a minute can be measured. Higher flow rates and larger pipe sizes tend to use an insertion design which makes them very cost effective as the existing pipe becomes the body of the flowmeter.

Pelton wheels are used almost exclusively on water like liquids as they quickly become non-linear with even a modest increase in viscosity.



Principle of Pelton Wheel flow movement

Pelton Wheel Flowmeters

Flowstat Pelton wheel flowmeter



Flowstat ES



Flowstat

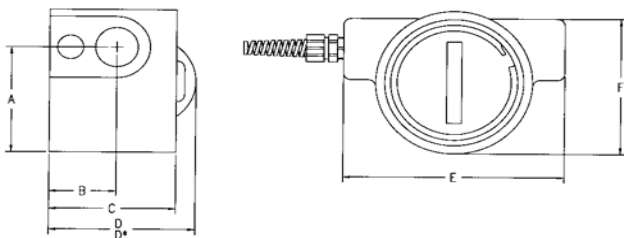
Whether it's a unique flow monitoring application, a limited budget or both, the FlowStat and FlowStat ES is a perfect fit. FlowStat comes in a Stainless Steel body, the FlowStat ES version a durable polypropylene body for cost savings, and is compatible with a variety of fluids. The sensor offers a flow measuring accuracy of $\pm 2\%$ of full scale, and is capable of handling pressures up to 34 bar and temperatures up to 107°C. For additional compatibility, the FlowStat Sensor offers 4-20mA, 0-5 Vdc, pulse or relay outputs.

- Stainless Steel or Polypropylene Design
- Pulse, Analogue or switch outputs
- Flows up to 200 L/Min
- Optional sight glass cover

Technical Information

Measuring accuracy:	$\pm 2\%$ of full-scale
Repeatability:	$\pm 0.5\%$ of full-scale
Flow measuring range:	1/2" porting, (2-60 LPM) 3/4" - 1" porting, (60-200 LPM)
Turndown ratio:	10:1
Temperature range:	(-7 to 107°C) -7°C to 66°C (ES model)
Pressure range:	to 34 Bar (10 bar ES model)
With/optional clear cover:	to 14 Bar
Standard calibration mode:	Water @ 20°C temperature
Filtration requirements:	74 micron filter or 200 mesh screen minimum

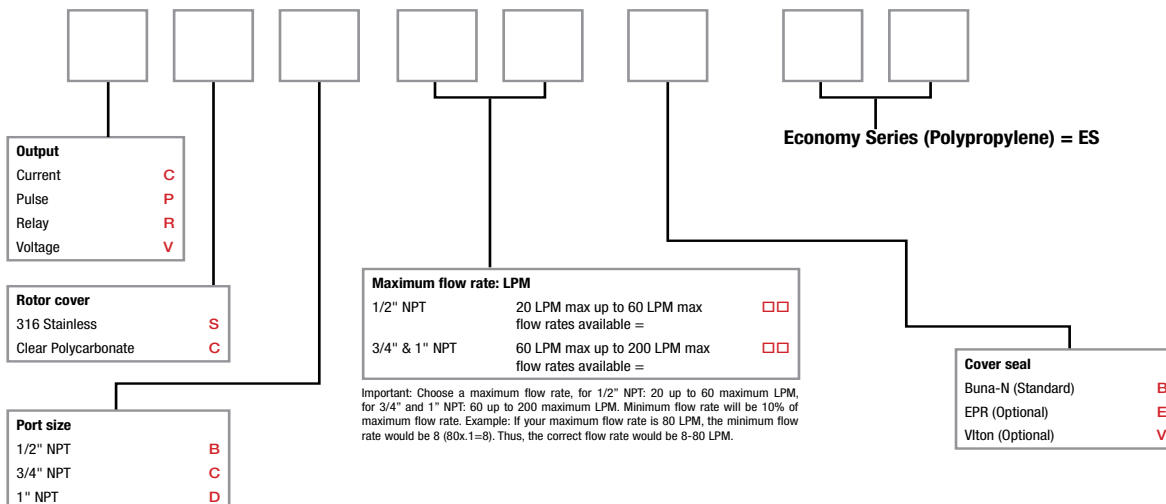
Dimensional Information



DIM	1/2" NPTF	3/4" NPTF - 1 NPTF
A	1.94" (49mm)	3.06" (78mm)
B	1.13" (29mm)	1.33" (34mm)
C	2.00" (51mm)	2.46" (62mm)
D	2.45" (62mm)	2.78" (71mm)
D*	2.45" (62mm)	2.88" (73mm)
E	3.70" (94mm)	5.25" (133mm)
F	2.63" (67mm)	3.80" (97mm)

* Dimensions with optional clear polycarbonate cover installed

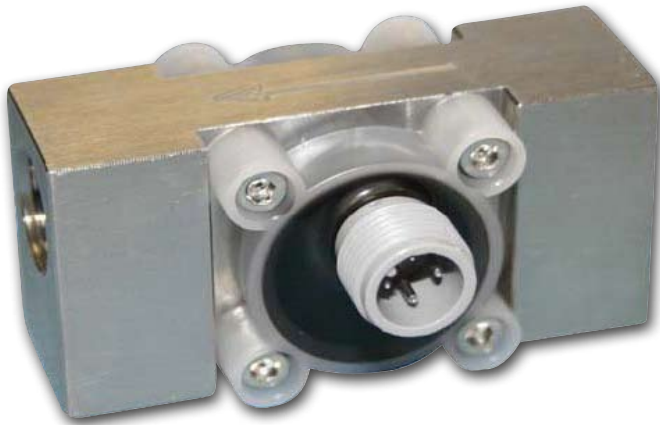
Options & Ordering Information



Recommended Instruments: FBT11, FRT12, FEB10

Paddle Flow Switch

TM Mini Turbopulse Pelton wheel flowmeter

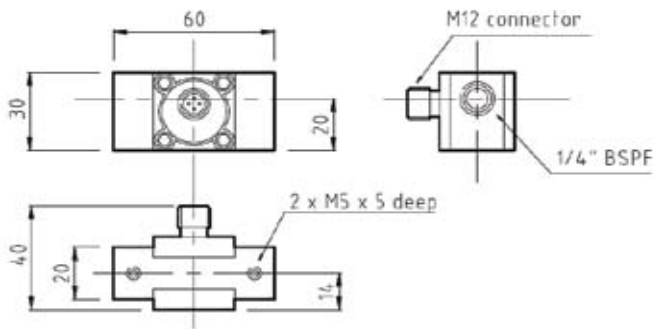


The TM series flowmeter is designed to give high performance and competitive pricing with 6 flow ranges from 0.05 to 15 litres per minute. Its choice of materials makes this the ideal choice for the metering of aggressive chemicals including ultra-pure water. The standard inlets are 1/4" BSP F although for OEM use alternatives are available.

The bearings are made of sapphire for long life and reliability, the body is either PVDF or 316 stainless steel and as standard and the 'O' ring seal is typically Viton™.

- Low flows, down to 50 mL/Min
- Stainless Steel body and connections
- Long life Sapphire Bearings
- 125°C temperature rating

Dimensional Information



Technical Information

	TP-Turbopulse Mini
Nominal sizes	(1/4" BSPF)
Accuracy @ 1cp	± 1-2% FSD
Temperature range	-5~125°C
Maximum pressure	
316 stainless steel	10 bar
Peek	10 bar
Protection class	IP66/67 (NEMA4X)
Electrical	
standard output	Hall effect sensor

Options & Ordering Information

Model	Flow range L/Min	Linearity % FSD	Typical Freq. Hz.	Approx 'K' Factor
TM001	0.05-0.5	2.0	142	17000
TM002	0.12-1.5	2.0	175	7000
TM003	0.2-4.5	1.5	260	3500
TM004	0.25-6.5	1.5	230	2100
TM005	0.3-10	1.0	235	1420
TM006	0.5-15	1.0	245	980

Pelton Wheel Flowmeters

SPX, SPT & SES series Pelton wheel flowmeter

The SPX/SPT/SES single jet meter provides accurate, wide range flow metering in an extremely rugged stainless steel package. Single jet simplicity combined with high quality jewel bearings results in long life and relatively high tolerance for problem fluids. Typical applications are chemical batching, proportional chemical injection, fertiliser injection, proportioning of spray chemicals, and general flow rate monitoring.



SES Model



SPX / SPT Model

- Ruby bearings for long life
- Completely non-metallic option (SPX & SPT units)
- Pressure rating up to 35 Bar (StSt SES unit)
- Optional sight glass cover (SPX & SPT units)

Technical Information

	SPX	SPT	SES
Connection Ports	3/8", 1/2", 3/4", 1", Female NPT thread (SAE optional)	3/8", 1/2", 3/4", 1", Female NPT thread (SAE optional)	1/2", 3/4", 1", Female NPT thread (SAE optional)
Sensor cable	standard (Maximum cable run 2000 ft.)	standard (Maximum cable run 2000 ft.)	standard (Maximum cable run 2000 ft.)
Materials			
Body	Polypropylene	PTFE Teflon	316 stainless steel
Rotor	PVDF	PVDF	PVDF
Shaft	Nickel tungsten carbide (zirconia ceramic optional)	Zirconia ceramic (silicon carbide optional)	Nickel tungsten carbide (zirconia ceramic optional)
O-ring	EPDM (Kalrez or Teflon-coated Viton optional)	Teflon-coated Viton (EPDM or Kalrez optional)	Teflon-coated Viton (EPDM or Kalrez optional)
Bearings	Ruby ring and ball	Ruby ring and ball	Ruby ring and ball
Cover	Acrylic (Polypropylene optional)	PTFE Teflon	316 stainless steel
Maximum temperature	70° C	70° C	93° C
Maximum pressure	10 bar	10 bar	35 bar
Accuracy	+1% of full scale	+1% of full scale	+1% of full scale
Power	5-24 Vdc, 2 mA min	5-24 Vdc, 2 mA min	5-24 Vdc, 2 mA min
Outputs	Current sinking pulse, 6-24 Vdc	Current sinking pulse, 6-24 Vdc	Current sinking pulse, 6-24 Vdc
Regulatory	CE Mark (Standard Power Only)	CE Mark (Standard Power Only)	CE Mark (Standard Power Only)

Options & Ordering Information

Model	Size	Options
PP/Acrylic SPX	3/8" (0.26-9 l/min) SPX/SPT only -038	Ceramic shaft (SPX & SES) -01
TFE teflon SPT	1/2" (0.38-37.8l/min) -050	Micropower pickup (use with FT415 or DL75 only) -04
STST SES	3/4" (0.76-75.6l/min) -075	PP cover (SPX) -12
	1" (1.9-151l/min) -100	High resolution rotor -13
	1" (1.9-94.5l/min) SES only -100	Teflon-coated Viton O-ring (SPX) -25
		Kalrex O-ring -59
		Silicon carbide shaft -68
		EPDM O-ring (SPT) -69

Recommended Instruments: FBT11, FRT12, FEB10

Pelton Wheel Flowmeters

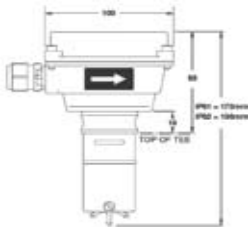
IP80 Insertion Paddlewheel flow sensor



IP80 series sensor in Stainless Steel

- Insertion design for pipe sizes up to 8"
- Ruby bearings for long life
- 100:1 turn-down (0.1-10 M/S)
- Range of materials: Brass, StSt, PVC & PP

Dimensional Information



Dimensions shown with optional cover / display

The IP80 Series are impeller type insertion meters designed for use in pipe sizes 1/2" to 8". Sensors are available in brass, 316 stainless steel, PVC, and polypropylene. Bodies are machined from a solid rod for maximum precision. High-quality jewel bearings and nickel-bound tungsten carbide shafts are used for extreme low friction and long life. Low-flow performance is good, although other SeaMetrics flow meters are recommended where extremely low flows are being measured.

The rotation of the rotor is detected by a non-drag Hall-effect sensor. Output is a pulse-type square wave, which can be sent long distances (up to 2,000 feet) without a transmitter. This signal can be connected directly to SeaMetrics controls, as well as PLC's, counters and computer cards.

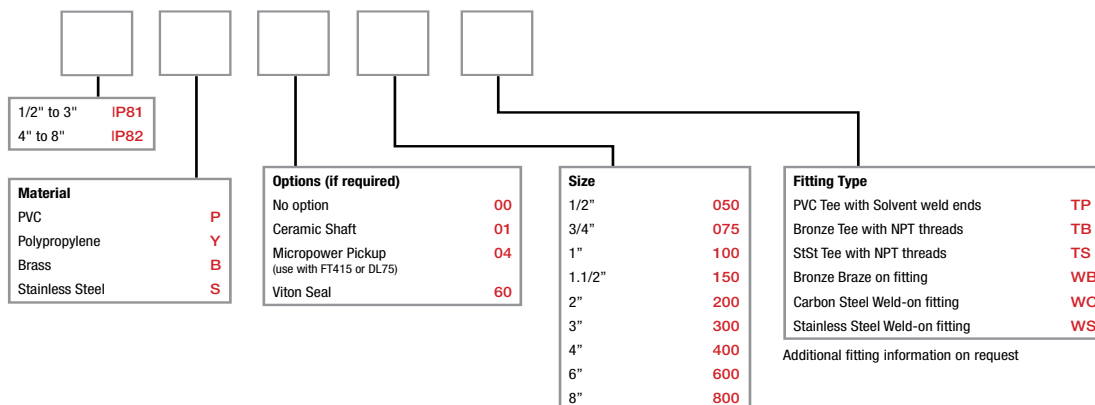
Technical Information

Materials			
Sensor body	Brass, 316 Stainless Steel, PVC or Polypropylene		
Rotor	PVDF		
Shaft	Nickel-bound tungsten carbide, (ceramic option)		
Bearings	Ruby jewel		
O-rings	EPDM (Viton optional)		
Rotor pickup	GMR (Giant Magneto-resistive) sensor		
	Brass	316 SS	PVC or Polypro
	14 bar	17 bar	12 bar @ 75° F
	93° C	93° C	55° C
Flow range	0.1 m/s		
Accuracy	+/- 1.5% of full scale		
Signal	Hall effect current sinking pulse		
Power	6-24 Vdc, 2 mA		
Maximum Current	20 mA		
Cable	#22 AWG, 3 Cond, 6m (maximum 610m run)		

Flow Ranges Information

Size	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"
LPM Min.	1.07	1.9	3.05	7.24	11.81	26.29	45.72	102.87	179.07
LPM Max.	107	190	305	724	1,181	2,629	4,572	10,287	17,907

Options & Ordering Information



Recommended Instruments: FBT11, FRT12, FEB10

Pelton Wheel Flowmeters

DP series Insertion Pelton wheel flowmeters

The DP490 & DP525 insertion pelton wheel flowmeters are cost effective stainless steel flowmeters for measuring the flow of water, fuels & other low viscosity liquids in pipe sizes from 1.5" to 100" (40~2500mm).

Insertion flowmeters are installed with the metering head inserted into the pipe resulting in very little pressure drop. They do not require external power when used with the Flomec rate totalisers however some options such as high temperature & non-magnetic models require external power.



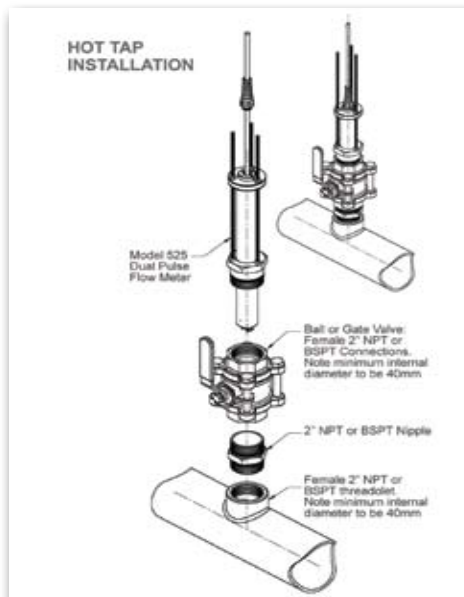
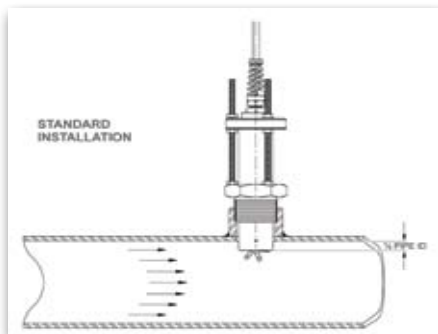
- Insertion design for pipes up to 100"
- 'Hot tap' option
- 0.25 to 49,000 l/sec flow range
- IP68 Submersible construction

Technical Information

	DP490	DP525
Suit pipe sizes	40~900mm (1.5"~36")	50~2500mm (2"~100")
Pipe connection	1.5" BSP or NPT	2" BSP or NPT
Flow range	0.25~6300 litres/sec (4~99600 USGM)	0.4~49000 litres/sec (6~78000 USGM)
Flow velocity range	0.3 ~ 10 meters/sec	
Linearity	typically $\pm 1.5\%$ with well established flow profile	
Temperature range	-40°C ~ +100°C 200 max.	
Maximum pressure	80 bar	
Materials	316SS body & rotor shaft, PVDF rotor	
*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	
Intrinsically safe coil	self powered, generates 15~3000mV	
High temperature coil	self powered, 200°C (390°F) max.	
Non magnetic sensor	3 wire NPN, 5~24Vdc, 20mA max. Nom. 0~240hz	
Analogue	loop powered 4~20mA	

* maximum thermal shock 10°C (50°F)/min applies to the reed switch

Installation examples



Recommended Instruments: FBT11, FRT12, FEB10