

Plastic flowmeter



Variable area flowmeters are basically vertical internally tapered tubes mounted with the large end at the top. A float or rotor with an outer diameter slightly less than the minimum diameter of the tube is placed inside the tube. The clearance space between the float and the tube forms an annular passage or orifice. As the tube is tapered, the area of this orifice is larger when the float is near the top than it is when the float is near the bottom. By connecting the tube into a fluid flow line so flow direction is from bottom to top, the float will move upward and be supported at a point where the orifice is just large enough to pass the fluid flowing through the system.

Suitable for non-corrosive gases and fluids. This is the economic version of the glass (MDC) model.

Technical features:

Process conn.:	PT-11: from 1/2" to 3" PVC, for gluing. Threads: 1/2"BSP-Female up to 3"BSP-Female. PVC. PT-12: Flanges according to DIN DN15 up to DN80.
Temp. service:	Maximum 60°C.
Pressure service:	Maximum between 8 and 15 bar at 20°C, depending on the range.
Materials:	Measuring tube Trogramid T Connections: PVC, AISI-316 Float: AISI-316, PVDF, PVC.
Accuracy:	±4,0% value final scale. Class 4 according to VDE/VDI 3513

Ranges water in litres/hour

10...100	16...160	25...250	40...400	60...630
100...1000	160...1600	250...2500	400...4000	500...6300
1000...10000	2000...14000	1600...16000	2500...25000	6000...40000

Ranges air (atm. press) in N m³/hour

0,3...3	0,45...4,5	0,7...7	1,1...11	1,8...18
3...30	4,5...45	7...70	11...110	18...180
30...300	120...420	45...450	70...700	180...1200

Note: Also available in litres/minute upon request.

Operating principle

The flow meter is basically composed of a conic tube and a float. The upward flow propels the float to a point of balance defined by the area obtained between the float and the tube.

This balance point depends on:

Flow weight: P_f
Thrust of the fluid: E
Free pass area: A_l

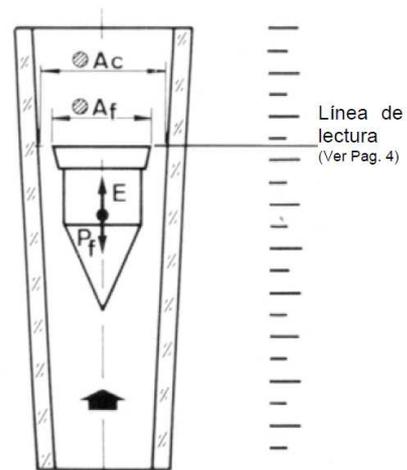
The proportional area related to flow is:

$$A_l = A_c - A_f$$

Where:

A_c = tube section
 A_f = Float section

Each position of the float is related to a flow rate, which is engraved on the measuring tube.



Installation

The instrument should be mounted *debe instalarse* teniendo en cuenta que:

- The fluid inlet is the lower part of the flowmeter (minimum value of the scale).
- The flowmeter should be installed completely vertical; a slight deviation of around 5-10° related to the vertical may cause errors up to 10%.
- It is recommended to install the flowmeter between two straight pipelines, with no bends, before the inlet and after the outlet, of approximate five times the height of the flowmeter, in order to avoid turbulences.
- Do not forget to install seals when installing the flowmeter in the process.
- WARNING: Do not open abruptly the regulation valve: the float may hit the glass tube damaging it.

Models

PT11 / PS31 ... PT12 / PS32 ... PT12(BR) / PS32(BR)

Tubo de medida serie PT serie PS*	Escalas de medida		Flotador AC máx		Presión bar	Pérdida de carga mm C.A.		Tubo Long. mm (±1mm)	Series			
	MODELO		Aluminio 2,85 g/cm ³			FLOTADOR			DN	E		
	AISI316L ⁽¹⁾ , PVDF+Plomo, PVC+Plomo ⁽²⁾ 7,95 g/cm ³		Air 20°C, 760 Torr Nm ³ /h			AISI316L	AL.					
	mín	máx	mín	máx		PVDF+Plomo PVC+Plomo ⁽²⁾						
PT-312-0160 ^{(1)*}	16	160	-	-	0,6	6	15	90 ⁽¹⁾	-	300	15	20
PT-312-0250 ^{(1)*}	25	250	-	-	0,8	8	15	90 ⁽¹⁾	-	300	15	20
PT-313-0400*	40	400	1,1	11	0,7	7	15	125	50	300	20	25
PT-313-0630*	60	630	1,8	8	1	10	15	125	50	300	20	25
PT-313-1000*	100	1000	3	30	1,7	17	15	125	50	300	20	25
PT-314-1600*	160	1600	4,5	45	2,5	25	10	175	75	300	25	32
PT-314-2500*	250	2500	7	70	4	40	10	175	75	300	25	32
PT-315-4000*	400	4000	11	110	7	70	10	230	95	300	40	50
PT-315-6300*	500	6300	18	180	10	100	10	230	95	300	40	50
PT-316-M4000	400	4000	11	110	7	70	10	300	125	300	50	63
PT-316-M6300	500	6300	18	180	10	100	10	300	125	300	50	63
PT-316-M010*	1000	10000	30	300	17	170	10	300	125	300	50	63
PT-316-M014*	2000	14000	120	420	45	200	10	300	125	300	50	63
PT-317-M016	1600	16000	45	450	25	250	8	400	170	300	65	75
PT-317-M025	2500	25000	70	700	40	400	8	400	170	300	65	75
PT-317-M040	6000	40000	180	1200	100	712	8	400	170	300	80	90

(1) Escala con flotador de PVDF ó PTFE

(2) Sólo modelos PT316-M014 y PT317-M016, M025 y M040

* Tubo de medida también en Polisulfon

PTM01 / PSM21 ... PTM02 / PSM22

Tubo de medida serie PTM	Escalas de medida		Flotador AC máx		Presión máx bar	Pérdida de carga mm C.A.		Tubo Long. mm (±1mm)	Series			
	MODELO		Aluminio 2,85 g/cm ³			FLOTADOR			DN	E		
	AISI316L ⁽¹⁾ y PVDF + Plomo 7,95 g/cm ³		Air 20°C, 760 Torr Nm ³ /h			AISI316L ⁽¹⁾	AL.					
	mín	máx	mín	máx		PVDF-Plomo						
PTM-312-0040 ^{(2)*}	4	40	-	-	0,12	1,5	15	30 ⁽²⁾	-	192	15	20
PTM-312-0060 ^{(2)*}	6	60	-	-	0,2	2	15	30 ⁽²⁾	-	192	15	20
PTM-312-0100*	10	100	0,3	3	0,15	1,8	15	90	35	192	15	20
PTM-312-0160	16	160	0,5	5	0,25	2,5	15	90	35	192	15	20
PTM-312-0250*	25	250	0,7	7	0,4	4	15	90	35	192	15	20
PTM-313-0400	40	400	1,1	11	0,7	7	15	125	50	192	20	25
PTM-313-0630*	60	630	1,8	8	1	10	15	125	50	192	20	25
PTM-313-1000*	100	1000	3	30	1,7	17	15	125	50	192	20	25