FLOW CONTROL

TURBINE TYPE FLOW METER

SVTL/SVTG

- Directly connected to the process piping.
- Sanitary connections, threads or flanges.
- Weather proof and explosion proof housing.

Degree of protection: BR-Ex d llB T4 IP66

- Gas or liquid version.
- Pulses or 4 to 20 mA output.
- Hart optional

Applications & Characteristics

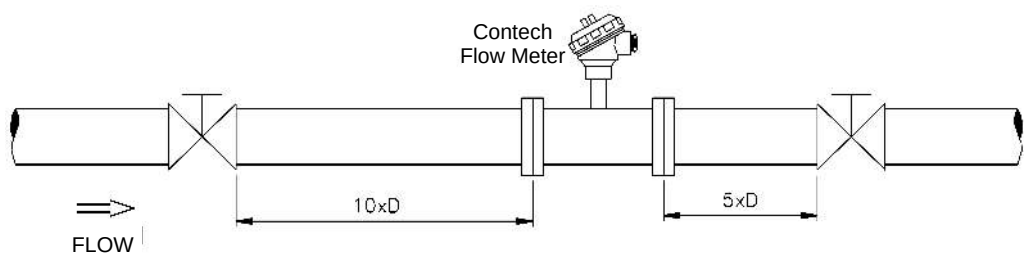
The turbine type flow meters are directly connected to the process piping through sanitary connections, threads or flanges. with diameters up to 12”, these flow meters are used to measure the flow in liquids and gases, and can be manufactured of different materials to reach a wide scope of fluids.

Principle of operations

The fluid that moves inside the piping activates an axially mounted rotor inside the flowmeter. The speed of this rotor is proportional to speed of the movement of the fluid in the process. A sensor (magnetic pickup) joined to the body of the flowmeter, has its magnetic field altered by the spinning of each vane, generating an electrical pulse that is amplified and processed as a frequency or current. A digital indicator, pre determinator and totallizer supplied by CONTECH, interpretates this signal, displaying the totalized volume.

Installation

To eliminate the effects of turbulence in the measurement of the flow, there must be an intending run before the flowmeter (upstream) and after it (downstream). The typical value of straight lengths recommended are ten times the diameter of the piping upstream, and five times the diameter of the piping downstream:



D = Diameter of the Flowmeter

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Table of Nominal Flow

LIQUIDS

Model	Nominal Diameter IN	Flow Range m³/h
L9	3/8	0.10 - 1.5
L12	1/2	0.32 - 2.34
L19	3/4	0.67 - 6.8
L25	1	0.9 - 13.8
L31	1,1/4	1.46 - 21.5
L37	1,1/2	1.9 - 29.5
L50	2	3.5 - 52
L62	2,1/2	6.2 - 91.8
L75	3	9 - 143.8
L100	4	18.3 - 282.8
L125	5	32.4 - 455.2
L150	6	46.8 - 648.8
L200	8	76.5 - 1082.6
L250	10	149.3 - 1815.7
L300	12	250 - 2500

GASES

Model	Nominal Diameter IN	Flow Range m³/h
G9	3/8	0.85 - 8.5
G12	1/2	0.7 - 17
G19	3/4	3.4 - 34
G25	1	8.50 - 85
G37	1,1/2	20.4 - 204
G50	2	34 - 340
G62	2,1/2	85 - 850
G75	3	110 - 1100
G100	4	187 - 1870
G125	5	305 - 3050
G150	6	510 - 5100
G200	8	820 - 8200
G250	10	1270 - 12700
G300	12	2040 - 20400

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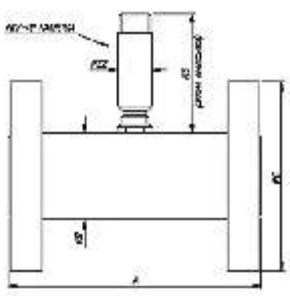
SVTL/SVTG

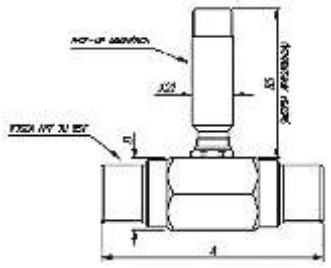
Technical Specifications

Precision	For liquids: ± 0,5% for flows between 10 and 100% of the maximum flow,with viscosity until 5 cSt. For gases: ± 1% for flows between 10 and 100% of the maximum flow.
Repeatibility	For liquids: Dispersion until 0.05% For gases: Dispersion until 0.3%
Feed	24Vdc
Consumption	20mA
Pick-Up Signal	frequency with minimum amplitude of 50mVac
Exit signal	Frequency (24V) or current of 4 to 20mA
Pressure Drop	For liquids: pressure drop until 10 PSI.
Operating Pressure	Flanged: Limited by the type of flange adopted, according to ASME norm. Threaded: 2000 to 5000 PSIG
Operating Temperature	-50 to 100°C (standard) -50 to 150°C (special)
Available bearings	420 steel bearings, ceramic bearings and tungsten carbide bushings.
Recomendations	Use a surge protection filter
Process Connections	NPT-M and BSP-M thread ASME 16.5 B Flanges (150 @ 2500 Lbs) Sanitary, Waffer
Construction Data	
Body	Stainless Steel 304, 316 or special
Rotor	Stainless Steel 420, 430 or special
Pick-up	Stainless Steel 304
Bearings	420 steel bearings, ceramic bearings or tungsten carbide bushings
Equalizer Set	316 or Special
Enclosure	Aluminium/Bakelite Or optional blast proof



Dimension / Site	A	B	C (Flange - ASME B16,5)		
			150#	300#	600#
1/2”	80	38	88.9	95.3	95.3
3/4”	100	43	98.4	117.5	117.5
1”	120	49	108.0	123.8	123.8
1,1/4”	140	57	117.5	133.4	133.4
1,1/2”	140	63,5	127.0	155.6	155.6
2”	190	70	152.4	165.1	165.1
2,1/2”	240	87	177.8	190.5	190.5
3”	260	97	190.5	209.6	209.6
4”	330	130	228.8	254.0	273.0
5”	345	150	254.0	279.4	330.2
6”	345	176	279.4	317.5	355.6
8”	420	225	343.0	381.0	119.0

Dimensions in Milimeters



COTAS / CONEXÃO	A	B
3/8"	70	28
1/2"	80	28
3/4"	100	38
1"	120	44,5
1.1/4"	140	50,8
1.1/2"	150	57
2"	200	72
2.1/2"	240	84

Dimensions in Milimeters

TURBINE TYPE FLOW METER

SVTL/SVTG

Ordering Specifications

Models Options	Series	Type	Classif. Área	Process Connection	ØProcess connection	Connection Material	Nominal Diameter	Body Material	Rotor	Electronic	Enclosure	Class Temp
	SVT	X	X	X	X	X	X	X	X	X	X	X
L												
G												
Not classified			STD									
BR EXD IIB T4 IP66			EXD									
THREAD BSP FEMALE				BF								
THREAD MALE				BM								
THREAD NPT FEMALE				NF								
THREAD NPT MALE				NM								
F. ANSI 150LB - STD - RF				A1								
F. ANSI 300LB - STD - RF				A6								
F. ANSI 600LB - STD - RF				AB								
F. ANSI 900LB - STD - RF				AG								
F. ANSI 1500LB - STD - RF				AL								
SANITARY SMS				SM								
SANITARY TRI-CLAMP				TC								
SANITARY RJT				RJ								
SANITARY DIN				SD								
SANITARY IDF				ID								
3/8”					009							
1/2”					012							
3/4”					019							
1”					025							
1,1/4”					031							
1,1/2”					038							
2”					050							
2,1/2”					063							
3”					075							
4”					100							
5”					125							
6”					150							
8”					200							
10”					250							
12”					300							
14”					350							
16”					400							
18”					450							
20”					500							
24”					600							
STAINLESS STEEL 304						A4						
STAINLESS STEEL 316						A6						
STAINLESS STEEL 316L						6L						
CARBON STEEL						C2						
3/8”							009					
1/2”							012					
3/4”							019					
1”							025					
1,1/4”							031					
1,1/2”							038					
2”							050					
2,1/2”							063					
3”							075					
4”							100					
5”							125					
6”							150					
8”							200					
10”							250					
12”							300					
14							350					
16”							400					
18”							450					
20”							500					
24”							600					
STAINLESS STEEL 304								A4				
STAINLESS STEEL 316								A6				
STAINLESS STEEL 316L								6L				
STAINLESS 420 WITH CARBIDE BEARINGS									A			
STAINLESS 420 WITH STAINLESS BEARINGS									B			
STAINLESS 420 WITH CERAMIC BEARINGS									C			
STAINLESS 17.4 PH WITH CARBIDE BEARINGS									D			
STAINLESS 17.4 PH WITH STAINLESS BEARINGS									E			
STAINLESS 17.4 PH WITH CERAMIC BEARINGS									F			
Pulse Amplifier										1		
Converter 4 to 20mA										2		
Detector Min Max Flow										3		
Pickup Mag -Internal Amplifier										4		
Pickup RF - Internal Converter										5		
Pickup RF AT - External Converter										6		
Local Indicator CTH2265i										7		
Remote Indicator CTH2265i-CV										8		
Aluminium Enclosure O52 CE 1/2” BSP - Weather Proof											AT	
Bakelite Enclosure O52 CE 1/2” BSP - Weather Proof											BT	
Aluminium Enclosure O58 CE 1/2” BSP											E1	
Aluminium Enclosure O122 CE 3/4” NPT - Explosion Proof											E2	
Aluminium Enclosure O122 CE 3/4” NPT - EX ON-SHORE											ON	
Aluminium Enclosure O122 CE 3/4” NPT - EX OFF-SHORE												
CTH 2265											SI	
No Enclosure												
80°C												2
150°C												4

FLOW CONTROL

MICRO TURBINE TYPE FLOW METER

FMT SERIES

- Capable of measuring extremely low flows, such as 0.22 l/h.in liquids and 8,49 l/h in gases.
- Low magnetic interference in the pick-up.
- Bearings adopted for special applications.
- Very appropriate to find a process variable.
- Direct piping installation.
- Explosion Proof – protection degree BR-Ex d llB T4 IP66.

Applications & Characteristics

The tangencial micro turbine type flow meters are directly linked to the process pipingthrough a threaded or flange connection. This meter has the maximum of sensibility due to its double orifice system increasing the speed of the flow of luid tangentially to the rotor. This rotor is electronically balanced, resulting in a measurement with high accuracy and repeatability, in liquids and gases in the most diverse application conditions. The geometry of these meters also eliminates the need of flow equalizers in the process.

Principle of Operation

The fluid that moves inside the piping activates an axially mounted rotor inside the flowmeter. The speed of this rotor is proportional to speed of the movement of the fluid in the process. A sensor (magnetic pickup) joined to the body of the flowmeter, has its magnetic field altered by the spinning of each vane, generating an electrical pulse that is amplified and processed as a frequency or current. A digital indicator, pre determinator and totallizer supplied by CONTECH, interpretates this signal, displaying the totalized volume.

MICRO TURBINE TYPE FLOW METER

FMT SERIES

Technical Specifications

Precision	For liquids: ± 0,05% For gases: ± 0,2%
Repeatability	For liquids: ± 0.1% of reading For gases: ± 0.2% of reading
Feed	12 or 24Vcc (other tensions on request)
Consumption	20mA
Exit Signal	30mV for a minimum linear exit
Pressure Drop	Until10 PSI in liquids
Operating Pressure	Flanged – Generally limited by the flange adopted FNTP OR MS33649-08 - 5000 OSU
Operating Temperature	-70 at 80°C
Operating Temperature	-50 to 100ºC (Standard) -50 to 150ºC (Special)
Availability of Bearings	AISI 440C ball type. tungsten carbide bearing, graphite bearing AISI 400C ball type, retention with self lubrication
Recomendations	Use of a surge protection filter
Process Connections	¾-16 UNF-3B – ½-14 NPT-F. AISI Flange - Special on request
Electric Connections	MS3102 A-10SL-4P (2 pins) Ms3106 A-10SL-4S (explosion proof) Or explosion proof aluminium enclosure

Nominal Flow

Model	Liquids (l/h)	Gases (l/h)
FM-8-3	45.42 – 454.25	424.75 – 4247.52
FM-8-4	22.71 – 227.12	170 – 1700
FM-8-5	15.89 – 159	118.9 – 1189.3
FM-6-8	4.54 – 45.42	33.98 – 339.8
FM-8-7	0.22 – 15.89	8.49 – 84.9