

Turbine Flow Meter

StaTurb TF100 Series - Standard

Introduction

StaTurb TF100 series flowmeter contains a magnetic detector and a magnetically permeable rotor (impeller). The flow of the medium drives the rotor (impeller) to turn. The rotational speed of the rotor (impeller) is proportional to the flow velocity of the medium. Magnetic The detector detects the rotational speed of the rotor and converts it into a standard industrial electrical signal for output or display.

TF100 series are used to measure medium or lower viscosity media, such as water, light fuel, solvent, hydraulic oil, lubricating oil etc.



Characteristics

- High pressure resistance
- Low pressure loss
- Fast response
- High repeatability and accuracy
- Resistant to contamination
- Optional 20:1 turndown

Applications

- Petrochemical / Energy
- Hydraulic / Lubrication
- Chemical processing
- Oil / Gas
- Aviation / Aerospace
- Test bench

Specifications

Applicable medium	Liquids with medium or lower viscosity
Accuracy	1% of reading (optional 0.5%)
Repeatability	<0.2% of reading
Pressure resistance	Max. 6000 psi (420 bar)
Operating Temperature	-100...250°F (-75...120°C)
	High temperature model: up to 750°F (400°C)
Materials	Body: SS316 Rotor: SS316 Bearing: tungsten carbide journal bearing
Process connection	NPT thread G thread

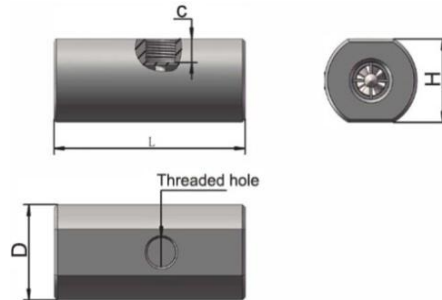
Flow Range

Part Code	Flow Meter Size (Inch)	Flow Range		Max. Pressure Rating		Max. Filter Diameter (Micron)
		GPM	LPM	psi	bar	
R4A	1/4"	0.13...1.3	0.5...5	6000	420	75
R4	1/4"	0.26...2.6	1...10	6000	420	100
R6	3/8"	0.52...5.2	2...20	6000	420	150
R8A	1/2"	1...10	3.8...38	6000	420	150
R8	1/2"	1.8...18	6.8...68	6000	420	150
R12	3/4"	3.4...34	13...130	4300	300	150
R16	1"	4.5...45	17...170	4300	300	200
R20	1-1/4"	6.6...66	25...250	3600	250	200
R24	1-1/2"	8.5...85	32...320	3600	160	200
R32	2"	18...180	67...670	2100	150	200

Pressure Drop

Part Code	Pressure Drop (% flow range)						
	bar (psi)						
	10%	25%	40%	55%	70%	85%	100%
R4A	0.00 (0.00)	0.01 (0.15)	0.03 (0.44)	0.05 (0.73)	0.08 (1.16)	0.11 (1.60)	0.15 (2.18)
R4	0.01 (0.15)	0.03 (0.44)	0.06 (0.87)	0.16 (2.32)	0.19 (2.76)	0.27 (3.92)	0.35 (5.08)
R6	0.01 (0.15)	0.02 (0.29)	0.06 (0.87)	0.11 (1.60)	0.16 (2.32)	0.23 (3.34)	0.32 (4.64)
R8A	0.01 (0.15)	0.05 (0.73)	0.11 (1.60)	0.20 (2.90)	0.30 (4.35)	0.46 (6.67)	0.61 (8.85)
R8	0.06 (0.87)	0.12 (1.74)	0.23 (3.34)	0.41 (5.95)	0.61 (8.85)	0.92 (13.35)	1.22 (17.70)
R12	0.06 (0.87)	0.13 (1.89)	0.24 (3.48)	0.42 (6.10)	0.64 (9.29)	0.93 (13.49)	1.22 (17.70)
R16	0.06 (0.87)	0.09 (1.31)	0.16 (2.32)	0.27 (3.92)	0.39 (5.66)	0.57 (8.27)	0.74 (10.74)
R20	0.06 (0.87)	0.13 (1.89)	0.24 (3.48)	0.43 (6.24)	0.62 (9.00)	0.96 (13.93)	1.31 (19.00)
R24	0.07 (1.02)	0.16 (2.32)	0.32 (4.64)	0.60 (8.70)	0.89 (12.91)	1.32 (19.15)	1.74 (25.24)
R32	0.07 (1.02)	0.08 (1.16)	0.14 (2.03)	0.24 (3.48)	0.34 (4.93)	0.51 (7.40)	0.66 (9.58)

Dimensions



Part Code	Flow Meter Size (inch)	End Fittings		Dimensions (female thread)							
		Female Thread (inch)	Male Thread (inch)	L		H		D		C	
				mm	inch	mm	inch	mm	inch	mm	inch
R4A	1/4"	1/4"	1/2"	68	2.68	27	1.06	33	1.3	9.7	0.38
R4	1/4"	1/4"	1/2"	68	2.68	27	1.06	33	1.3	9.2	0.36
R6	3/8"	3/8"	1/2"	68	2.68	30	1.18	36	1.42	8.7	0.34
R8A	1/2"	1/2"	1/2"	96.6	3.8	41	1.61	47	1.85	11.7	0.46
R8	1/2"	1/2"	1/2"	96.6	3.8	41	1.61	47	1.85	11.7	0.46
R12	3/4"	3/4"	3/4"	115	4.53	46	1.81	52	2.05	11.7	0.46
R16	1"	1"	1"	142	5.59	50	1.97	56	2.2	11	0.43
R20	1-1/4"	1-1/4"	1-1/4"	164	6.46	60	2.36	66	2.6	12.5	0.49
R24	1-1/2"	1-1/2"	1-1/2"	197	7.76	70	2.76	76	3	13.5	0.53
R32	2"	2"	2"	210	8.27	75	2.95	83	3.26	11	0.43

Order Code

Example: TF100-NF-R12-B

1. Model

TF100- Turbine Flow Meter

2. End Fitting

GF Female G thread
 GM Male G thread
 NF Female NPT thread
 NM Male NPT thread
 S Other connections on request

3. Part Code

R12 Select a part code from flow range table above to determine the flow range.

4. Accuracy

A 0.5% of reading
 B 1% of reading

5. Turndown (optional)

E20 20:1
 A 20:1 turndown will result in a 50% reduction in the lower flow limit.

Electronics

1. Model

S1000- Electronics for turbine flow meter

2. Pickup

M Magnetic (standard)
 H Hall effect
 R RF

3. Output

P1 Pulse output
 P2 Linearized pulse output
 A Analog output
 D Digital transmitter
 E Ex-proof transmitter

4. Temperature

T1 -40...200°F (-40...100°C)
 T2 -40...300°F (-40...150°C)
 T3 -40...450° (-40...230°C)

See electronics' datasheet for details



Pulse output



Analog output



Digital display



Ex-proof digital display