Turbine Flow Meter
StaTurb TF500 Series - High Performance

Introduction

StaTurb TF500 series column flow meter contains a magnetic detector and a magnetic turbine, which drives the turbine to rotate when the medium in the pipeline flows. The rotational speed of the turbine is directly proportional to the flow velocity of the medium. The magnetic detector detects the rotational speed of the rotor and converts it into a standard industrial electrical signal for output or display. It can be used for the measurement of medium and low viscosity media, such as water, solvent, hydraulic oil, lubricating oil, etc.

Characteristics

High pressure rating

Low pressure drop

Fast response

High repeatability and accuracy

High / low temperature

Compact design

Applications

Petrochemical/Energy industry

Hydraulic/Lubrication system

Water treatment

Oil/Gas industry

Experimental equipment

Test systems

Food/Medical equipment

Specifications

Flow range	See below flow range table for details.
Applicable medium	Low to medium visocity Liquids
Accuracy	0.5%
Repeatability	<0.1%
Pressure rating	Standard 5000psi (Customization available)
Response time	2ms
Probe Operating Temperature	-40…210°F (-40…100°C)
	-40…300°F (-40…150°C)
	-40…450°F (-40...230°C)
Materials	Body: 316 stainless steel
	Rotor: 17-4 PH stainless steel
	Shaft: 316 stainless steel
	Bearing: stainless steel ball bearing / hybrid ceramic ball bearing
Process connection	MS male flare
	NPT male thread
	ASME B16.5 Flange

Flow Range - GPM

Part Code	Standard Flow Range (GPM)		Extended Flow Range (GPM)		Filtration (Micron)
	Magnetic Pickup	RF Pickup	Magnetic Pickup	RF Pickup	
R-02	0.13…1.3	0.13…1.3	0.11…1.45	0.01…1.45	10
R-04	0.32…3.2	0.27…3.2	0.11…3.4	0.03…3.4	10
R-06	0.53…5.3	0.5…5.3	0.13…6	0.06…6	10
R-08	0.87…8.7	0.74…8.7	0.16…10	0.1…10	10
R-10	1.6…16	1.2…16	0.3…19	0.2…20	10
R-12	2.4…24	2…24	0.5…25	0.3…25	10
R-16	5.8…58	5…58	1…65	0.65…65	20
R-20	10…100	9…100	1.6…130	1.3…130	20
R-24	18…180	15…180	2.6…210	2.1…210	50
R-32	30…300	21…300	3.5…350	2.7…350	50
R-40	40…400	35…400	5…450	4.5…450	50

Flow Range - LPM

Part Code	Standard Flow Range (LPM)		Extended Flow Range (LPM)		Filtration (Micron)
	Magnetic Pickup	RF Pickup	Magnetic Pickup	RF Pickup	
R-02	0.5…5	0.5…5	0.4…5.5	0.05…5.5	10
R-04	1.2…12	1…12	0.4…13	0.13…13	10
R-06	2.0…20	1.9…20	0.5…24	0.24…24	10
R-08	3.3…33	2.8…33	0.6…38	0.38…38	10
R-10	6…60	4.5…60	1.1…70	0.7…70	10
R-12	9…90	7.6…90	1.9…95	1.2…95	10
R-16	22…220	19…220	3.8…240	2.4…240	20
R-20	40…400	34…400	4.9…490	4.9…490	20
R-24	70…700	57…700	8.2…820	8.2…820	50
R-32	110…1100	83…1100	13…1300	10…1300	50
R-40	150…1500	150…1500	19…1700	17…1700	50

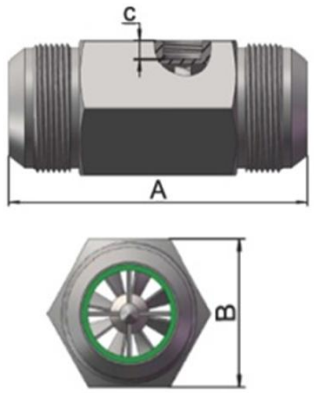
Pressure drop

Part Code	Pressure drop (% measuring range) psi						
	10%	25%	40%	55%	70%	85%	100%
R-02	0 (0)	0.01 (0.15)	0.03 (0.44)	0.05 (0.73)	0.08 (1.16)	0.11 (1.6)	0.15 (2.18)
R-04	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)
R-06	0.01 (0.15)	0.02 (0.29)	0.06 (0.87)	0.11 (1.6)	0.16 (2.32)	0.23 (3.34)	0.32 (4.64)
R-08	0.01 (0.15)	0.05 (0.73)	0.11 (1.6)	0.2 (2.9)	0.3 (4.35)	0.46 (6.67)	0.61 (8.85)
R-10	0.06 (0.87)	0.12 (1.74)	0.23 (3.34)	0.41 (5.95)	0.61 (8.85)	0.92 (13.34)	1.22 (17.69)
R-12	0.06 (0.87)	0.13 (1.89)	0.24 (3.48)	0.42 (6.09)	0.64 (9.28)	0.93 (13.49)	1.22 (17.69)
R-16	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 (10.73)
R-20	0.06 (0.87)	0.13 (1.89)	0.24 (3.48)	0.43 (6.24)	0.62 (8.99)	0.96 (13.92)	1.31 (19)
R-24	0.07 (1.02)	0.16 (2.32)	0.32 (4.64)	0.6 (8.7)	0.89 (12.91)	1.32 (19.15)	1.74 (25.24)
R-32	0.07 (1.02)	0.08 (1.16)	0.14 (2.03)	0.24 (3.48)	0.34 (4.93)	0.51 (7.4)	0.66 (9.57)
R-40	0.03 (0.44)	0.06 (0.87)	0.13 (1.89)	0.21 (3.05)	0.4 (5.8)	0.45 (6.53)	0.61 (8.85)

Following results were obtained by testing medium with a viscosity of 1.2mm^2/s

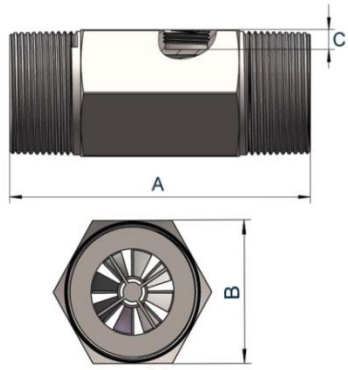
Dimensions in mm

MS Connection



Part Code	Flow Meter ID (inch)	End Fitting MS Male Flare (Tube Size)	A	B	C
R-02	0.3	1/2"	62.2	23	6.7
R-04	0.3	1/2"	62.2	23	6.7
R-06	0.37	1/2"	62.2	23	5.8
R-08	0.4	1/2"	62.2	23	5.5
R-10	0.5	5/8"	69.2	32	8.6
R-12	0.56	3/4"	83	32	7.9
R-16	0.86	1"	90.5	36	5.8
R-20	1	1-1/4"	103	41	6.5
R-24	1.31	1-1/2"	116.5	50	6.8
R-32	1.75	2"	154	65	8.8

NPT Connection



Part Code	Flow Meter Size	End Fitting NPT Male Thread	A	B	C
R-02	0.3	1/2"	68	23	6.7
R-04	0.3	1/2"	68	23	6.7
R-06	0.37	1/2"	68	23	5.8
R-08	0.4	1/2"	68	23	5.5
R-10	0.5	3/4"	69.2	32	8.6
R-12	0.56	3/4"	82.8	32	7.9
R-16	0.86	1"	90.5	36	5.8
R-20	1	1-1/4"	103	46	6.5
R-24	1.31	1-1/2"	117	50	6.8
R-32	1.75	2"	155	65	8.8

Order Code

Example: TF500-R-10AS

1. Model	
TF500-	High Performance Turbine Flow Meter

2. Part Code	
R-10	Select a part code from flow range table above to determine flow range.

3. End Fitting	
M	37° MS Male Flare
N	Male NPT Thread
Fxxx	ASME B16.5 Flange (xxx: Class#)
	E.g., F600 for ASME Flange Class 600
	Other end fittings on request

4. Bearing	
S	Stainless steel ball bearing
C	Hybrid ceramic ball bearing

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…210°F (-40…100°C)
T2	-40…300°F (-40…150°C)
T3	-40…450°F (-40...230°C)

See electronics' datasheet for details

Pulse output

Analog output

Digital display

Ex-proof digital display