

Stainless Steel Turbine Flowmeter for Low Viscosity Liquids



measuring
•
monitoring
•
analyzing

DOT



- Measuring Range:
0.5...5 GPM to 240...2400 GPM
(Higher Ranges on Request)
- Linearity: $\pm 0.5\%$ of Reading
- p_{\max} : 3,600 PSIG for NPT Models
- t_{\max} : 176 °F, 250 °F with mV Output
- Process Connections:
1/2" ...2" NPT or 1/2" ...6" ANSI Flanges
(Larger Flange Sizes Upon Request)
- Material: Stainless Steel
- Output: mV Pulse, Transistor Pulse,
Analog 4-20 mA, or LCD Total, Rate/
Total, or Batching Display with Analog
& Switching Outputs



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KOBOLD Instruments, Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Main Office:
1.800.998.1020
1.412.788.4890
info@koboldusa.com
www.koboldusa.com

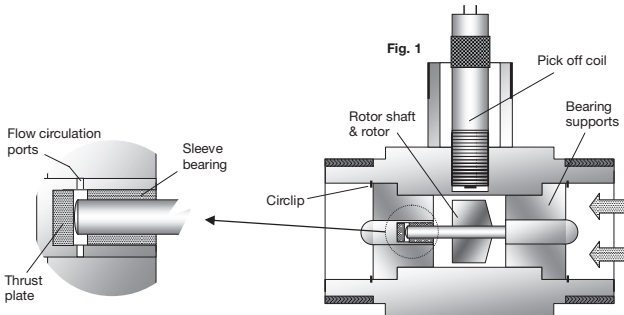


Description

The DOT is a highly accurate turbine flowmeter used to measure the flow of clean, low viscosity liquids. Stainless steel construction with tungsten carbide bearings provide a long service life for a wide range of aggressive and non-lubricating liquids.

Operation is as follows: a pick-up coil with a permanent magnet core is mounted in the housing adjacent to the rotor blade tips and a magnetic circuit is created by the rotation blades.

The rotation of the rotor varies the pick up of this magnetic circuit and the flux changes induce a small voltage in the coil, the frequency of which is directly proportional to the rotor speed and the volumetric flow rate. The meter is supplied with standard frequency output (mV or NPN), 4 - 20mA analog output, or one of three local displays: a dual totalizer, a rate totalizer, or a batching totalizer.



Applications

- Chemical and Allied Products
- Pharmaceuticals
- Fuels
- Deionized Water
- Fuel Additives
- Petrochemicals
- Plastics and Hydraulics
- Water Conditioning

Technical Details

- Sizes:** 1/2" ...2" NPT, 1/2" ...6" ANSI, (Larger on Request)
- Linearity at 1cP:** ± 0.5 % of Reading, (± 0.2% with the Linearization Feature of Z3 Electronic)
- Repeatability:** ± 0.02 ... 0.05 % with Steady Flow Conditions
- Maximum Pressure**
- Threaded:** 3,600 PSIG
- Flanged:** According to ASME B16.5
- Process Temperature**
- F0:** -4...250 °F
- F4, L0, Zx:** -4...176°F

Technical Details

Pressure Drop: Approx. 4 PSI at Max. Flow (S.G. = 1.0, Viscosity = 1cP)

Materials

- Housing:** 316 Stainless Steel
- Connections:** 316 Stainless Steel
- Rotor:** SS 430 (up to DOT-xx15), SS ANC 21 (Duplex Stainless Steel, for Larger Sizes)
- Bearing Support:** 316 Stainless Steel
- Bearings:** Tungsten Carbide (Shaft, Bushing, Thrust Plate)

Supply Voltage

- F0:** No Supply Voltage
- F4:** 12...28 V_{DC}, Reverse Polarity Protected
- L0:** 12...36 V_{DC}

Outputs

- F0:** mV Output, 2 Wire (65' Max Transmission)
- F4:** NPN, 3-wire
- L0:** 4 - 20mA Output, 2 Wire
- Z1, Z2, Z3:** See Comparison Table (page 3)

Electronic Features

Z1, Z2, Z3: See Comparison Table (page 3)

Protection

- F0, L0:** IP 66/67
- Z1, Z2, Z3:** IP65
- F4:** IP55

Recommended Filtration Requirements:

Meter Size	Mesh Size
1/2"	120
3/4" ...1"	80
1-1/2" ...2"	40
3" ...12"	10



Electronics with LCD Display (for Further Details see ZOK Datasheet)

Function	..Z1..	..Z2..	..Z3..
Dual Totalizer	X		X
Batching Controller		X	
Rate / Totalizer			X
Power Supply			
DC Supply	X	X	X
Battery Operation	X		X
Sensor Supply (only with External Power Supply)			
Sensor Supply	8 - 24 V _{DC}	12 - 24 V _{DC}	8 - 24 V _{DC}
Electrical Outputs (only with External Supply)			
Relay Outputs		X	
Status Outputs	X	X	X
Analog Outputs			2L / 3L
Pulse Outputs			X
LCD Display			
Selectable Units	X	X	X
Decimal Point	X	X	X
Accumulative Total	X	X	X
Resettable Total	X	X	X
Linearization	X		X
Rate Display	X	X	X
Backlighting	X	X	X
Arithmetic Functions	X		X



Stainless Steel Turbine Flowmeter Model DOT

Order Details: Threaded Models (Example: DOT-13 15G N5 F0 0 0)

Housing & Connection Material	Range (GPM)	Process Connection (NPT)	Output & Display Electronic	Electrical Connection	Flow Direction
DOT-13.. = SS/SS	..05G.. = 0.5...5	..N4.. = 1/2"	..F0.. = mV Output	..0.. = 10" Flying Leads	..0 = All Directions (No Display)
	..10G.. = 1.0...10	..N5.. = 3/4"		..S.. = Military Style Connection	
	..15G.. = 1.8...18		..F4.. = NPN Pulse Output	..S.. = Military Style Connection	
	..20G.. = 3.6...36		..L0.. = 4-20mA Output	..N.. = Junction Box, 1/2" NPT	
	..25G.. = 7.5...75	..N6.. = 1"	..Z1.. = Dual Totalizing LCD Display	..M.. = M20	..B = Bottom-Top, Display on Right
	..30G.. = 15...150	..N8.. = 1-1/2"	..Z2.. = Batch Controlling LCD Display	..N.. = 1/2" NPT	..M = Bottom-Top, Display on Left
	..35G.. = 30...300	..N9.. = 2"	..Z3.. = Rate & Total LCD Display		..L = Left-Right, Display on Top
					..R = Right-Left, Display on Top

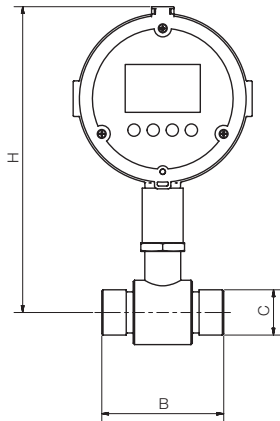
Order Details: Flange Models (Example: DOT-13 50G AE Z3 N L)

Housing & Connection Material	Range (GPM)	Process Connection* (150lb ANSI)	Output & Display Electronic	Electrical Connection	Flow Direction		
DOT-13.. = SS/SS	..05G.. = 0.5...5	..A4.. = 1/2"	..F0.. = mV Output	..0.. = 10" Flying Leads	..0 = All Directions (No Display)		
	..10G.. = 1.0...10	..A5.. = 3/4"		..S.. = Military Style Connection			
	..15G.. = 1.8...18		..F4.. = NPN Pulse Output	..S.. = Military Style Connection			
	..20G.. = 3.6...36		..L0.. = 4-20mA Output	..N.. = Junction Box, 1/2" NPT			
	..25G.. = 7.5...75	..A6.. = 1"	..Z1.. = Dual Totalizing LCD Display	..M.. = M20	..B = Bottom-Top, Display on Right		
	..30G.. = 15...150	..A8.. = 1-1/2"				..Z2.. = Batch Controlling LCD Display	
	..35G.. = 30...300	..A9.. = 2"				..Z3.. = Rate & Total LCD Display	..M = Bottom-Top, Display on Left
	..40G.. = 60...600	..AB.. = 3"					..L = Left-Right, Display on Top
	..45G.. = 120...1200	..AC.. = 4"					..R = Right-Left, Display on Top
..50G.. = 240...2400	..AE.. = 6"						

*Note: for 300lb ANSI, replace ..Ax.. with ..Bx..

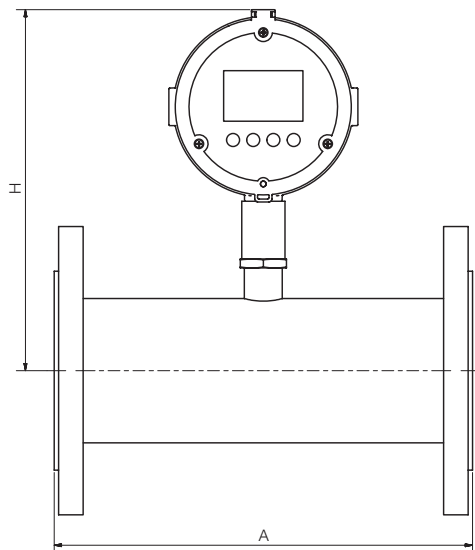
Dimensions

Threaded Models



Flow (GPM)	Threaded Connection	B	H
0.5...5	1/2"	2.50"	8.74"
1...10	3/4"	2.50"	8.74"
1.8...18	3/4"	2.50"	8.74"
3.6...36	3/4"	3.25"	8.78"
7.5...75.	1"	3.50"	8.90"
15..150	1-1/2"	4.50"	9.17"
30...300	2"	5.25"	9.33"

Flange Models

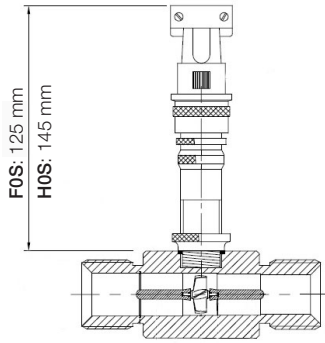


Flow (GPM)	ANSI Flanged Connection	A	H
0.5...5	1/2"	5.00"	8.62"
1...10	3/4"	5.00"	8.62"
1.8...18	3/4"	5.00"	8.62"
3.6...36	3/4"	5.50"	8.74"
7.5...75	1"	6.00"	8.98"
15...150	1-1/2"	7.00"	9.09"
30...300	2"	7.75"	9.33"
60...600	3"	10.00"	9.80"
120...1200	4"	14.00"	10.55"
240...2400	6"	14.50"	11.73"

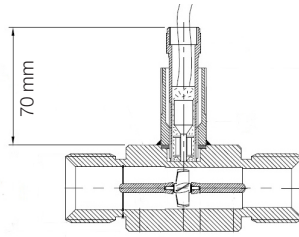


Dimensions

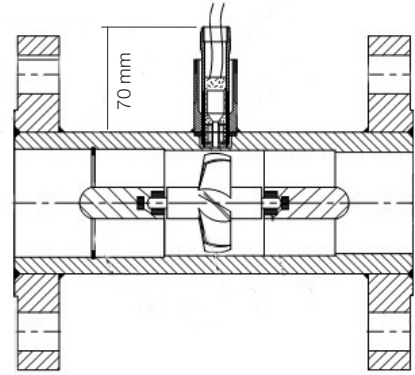
F0S/F4S with MS Connector



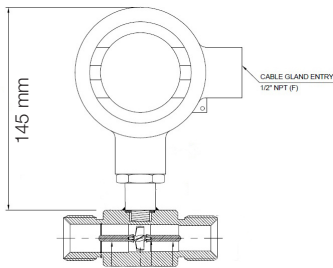
F00 Threaded Flying Leads



F00 Flange with Flying Leads



L0N Threaded with Junction Box



L0N Flange with Junction Box

