

TURBINE FLOWMETERS BY HOFFER

The Turbine Flowmeter Company



“API” SERIES
(American Precision Instruments)
Turbine Flowmeters
for Custody Transfer

Product Bulletin HO-API-114E

TECHNICAL DATA SHEET

OUTSTANDING FEATURES

- ◆ Designed for custody transfer flow applications.
- ◆ Output linear with flow rate.
- ◆ Optional multiple pickup coils available.
- ◆ Multiple bearing types available including ceramic hybrid ball bearings.
- ◆ Rotor assembly is hydrodynamically balanced and “floats” on fluid cushion to provide extended bearing life.
- ◆ Optional bi-directional flowmeters available.
- ◆ Rim type rotor assemblies are optionally available on flowmeters 4” and larger.



GENERAL DESCRIPTION

The Hoffer API Series of turbine flowmeters provide extremely accurate flow rate measurement and dependable service as required for custody transfer of liquid petroleum products.

SIZE SELECTOR CHART FOR API SERIES

METER SIZE	NORMAL FLOW RANGE								MAXIMUM EXTENDED				PULSES/GALLON (±5%)	
	MINIMUM LINEAR				MAXIMUM LINEAR				FLOW RANGE				BLADE ROTOR	RIM ROTOR
	GPM	BPH	BPD	M3/HR	GPM	BPH	BPD	M3/HR	GPM	BPH	BPD	M3/HR		
¾”	3.6	5.2	124	.82	29	41.4	994	6.6	35	50	1200	7.9	2200	N/A
1”	6	8.6	206	1.4	60	85.7	2057	13.6	75	107	2570	17	500	N/A
1½”	13	18.6	446	3	130	186	4457	29.5	175	250	6000	40	230	N/A
2”	22	31.4	754	5	225	321	7714	51	275	393	9430	62.5	180	N/A
2½”	35	50	1200	8	400	571	13700	90.8	500	714	17100	113.5	70.5	N/A
3”	55	79	1886	12.5	650	929	22200	147.6	800	1140	27400	181.7	48	N/A
4”	85	121	2914	19.3	1250	1780	42800	283.9	1500	2140	51400	341	23.81	N/A
5”	167	238	5712	38	2000	2857	68568	454	2500	3571	85704	568	9	N/A
6”	240	343	8229	54.5	2900	4140	99400	659	3600	5140	123000	817.6	5.6	23.81
8”	475	679	16286	108	5200	7420	178000	1181	6400	9140	219000	1453	2.5	11.9
10”	800	1143	27429	181.7	8000	11400	274000	1817	9800	14000	336000	2225	1.11	6
12”	1330	1900	45600	302	12000	17100	411000	2725	15000	21400	514000	3406	.713	4.8

Flow ranges and performance specifications are based on a specific gravity of 1.0 and a viscosity of 1.0 centistoke.
For performance at other specific gravities and viscosities. Consult factory.

MATERIALS OF CONSTRUCTION

316 stainless steel (with exceptions noted below).

- ◆ Blade Rotor: 17-4 PH stainless steel.
- ◆ Rim Rotor: *Blades* – 316 stainless steel.
Rim – 316 stainless steel.
Rim Buttons – 430 stainless steel.
- ◆ Flanges: 316 stainless steel standard. Optional carbon steel or 304 stainless steel flanges per ASME/ANSI B16.5 are available.
- ◆ Bearings: Both sleeve and ball bearing types are available.

PERFORMANCE SPECIFICATIONS

- Linearity:** ±0.25% over normal flow range.
 ±0.5% to extended maximum flow range.
 ±0.15% premium linearity over reduced flow ranges.
- Repeatability:** ±0.02% at any point throughout the extended flow range.
Note: Performance specifications are based on a specific gravity of 1.0 and a viscosity of 1.0 centistoke. For performance at other specific gravities and viscosities, consult factory.
- Temperature Range:** -450°F to +450°F, process fluid with standard magnetic pickup coil.
 -450°F to +850°F, process fluid with high temperature magnetic pickup coil (optional).
- Pressure Drop:** 4 PSI at maximum linear flow rate.
- Output:** 10mV RMS or greater into a 10K ohm load at a minimum flow rate.

A complete line of flowmeter signal conditioners (preamplifiers) and flow computers are available. Consult with the applications group at Hoffer for additional information.

MODEL NUMBER DESIGNATION

Model HO	(A)	X	(B)	-	(C)	-	(D)	-	(E)	-	(F/G/H)	-	(I)	-	(J)	-	(K)	-API-	(L)	(M)
A. End Fitting Size (Same as process line)																				
B. Flowmeter Size (Same as process line)																				
C. Minimum Operating Flow (In GPM)																				
D. Maximum Operating Flow (In GPM)																				
E. Bearing Type																				
(CB)	Ceramic Hybrid Ball Bearings, Self-Lubricating.																			
(T)	Tungsten Carbide Steel.																			
(C)	Hard Carbon Composite Sleeve Bearing.																			
F. Pickup Coils																				
(1M)	One Magnetic Coil.																			
(2M)	Two Magnetic Coils.																			
(1MC3PA)	One RF Coil.																			
(2MC3PA)	Two RF Coils.																			
(1MC2PAHT)	One High Temp 6" Pigtail Coil.																			
(2MC2PAHT)	Two High Temp 6" Pigtail Coils.																			
(1HTM)	One High Temperature Mag Coil.																			
(2HTM)	Two High Temperature Mag Coils.																			
(1ISM)	Intrinsically Safe Mag Coil.																			
(2ISM)	Two Intrinsically Safe Mag Coils.																			
(RP)	Redi-Pulse Coil (See Redi-Pulse Technical Data Sheet RP-XXX)																			
(IRP)	Intrinsically Safe Redi-Pulse Coil (See I.S. Redi-Pulse Technical Data Sheet IRP-XXX)																			
(-P)	Pigtail or Flying Leads, Add -P and the length of leads after any coil except the High Temp Coils.																			
(-ATEX)	Add after coil part no. when using ATEX enclosure.																			
G. Coil Spacing, Mechanical Degrees Apart (Factory assigned)																				
H. Coil Enclosure Options																				
(X)	1" MNPT Riser, welded to body, required for all type of enclosures.																			
(X3/0)	1" Riser with enclosure without any signal conditioner.																			
(X3H/0)	1" Riser with enclosure and dome cover for style 1 signal conditioner.																			
(X3B/0)	Same as (X3/0) with BASEEFA, FM and CENELEC-Exd Approvals.																			
(X4H/0)	1" Riser with Dome Cover for ACC22 and ACC96.																			
(3B/0)	1" Riser with Dome Cover for Style 1 signal conditioners to meet Group B.																			
(3B/0-ATEX)	1" Riser with Dome Cover for Style 1 signal conditioners to meet Group B & meets ATEX.																			
(4/0)	1" Riser with Flat Cover for Style 2 signal conditioners to meet Groups C & D.																			
(4B/0)	1" Riser with Dome Cover for Style 2 signal conditioners to meet Group B.																			
(X8S)	Add 8S after X Riser for an 8" long S/S Riser for hot and cold media applications.																			
I. End Fitting Types																				
(NPT)	Male National Pipe Thread.																			
(F)	Raised Face Flanges per ANSI (* See chart below).																			
(DN/PN_CS/SS)	DN=Metric Size, PN=Flange Pressure Rating (in DIN Std.) and Select Material.																			
(W)	Wafer Style Body (Use 1,3,6,9, 15 or 25 after "W" to indicate flange weight wafer meter will be used with)																			
J. Rotor Design																				
(B)	Blade																			
(R)	Rim - Available on flowmeters 4" and larger.																			
K. Locating Pins																				
(LP)	Locating pins (required when using with flanged flow straighteners).																			
L. Premium																				
(P)	Premium linearity (±0.15%) over reduced flow ranges.																			
M. Special Features																				
(CE)	CE Mark required for Europe.																			
(PED-CE)	PED-CE Mark required for Europe.																			
(SP)	Any special features that are not covered in the model number, use written description of the -SP.																			

*Pressure Rating/Flange Material	
Include "F", number indicating pressure rating, and flange material. (i.e., -F15S-).	
Select one:	Select one:
(1) 150# Flanges	(SS) Stainless Steel
(3) 300# Flanges	(CS) Carbon Steel
(6) 600# Flanges	Note: 316 SS flanges are standard, add -304 at end of Model # if 304 flanges are required.
(9) 900# Flanges	
(15) 1500# Flanges	
(25) 2500# Flanges	



The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

The quality system covering the design, manufacture and testing of our products is certified to International Standard ISO 9001.

