TURBINE FLOWMETERS BY HOFFER

The Turbine Flowmeter Company

NEW 5-year warranty Best Turbine in the Industry

PREMIUM "API" SERIES
(American Precision Instruments)
Turbine Flowmeters
for Custody Transfer

Product Bulletin HO-APIP-105E

TECHNICAL DATA SHEET

OUTSTANDING FEATURES

- Designed for custody transfer flow applications.
- Output linear with flow rate.
- Optional multiple pickup coils available.
- Multiple bearings 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 Premium API Series of turbine flowmeters provide extremely accurate flow measurement and dependable service as required for custody transfer of liquid petroleum products.

SIZE SELECTOR CHART FOR "PREMIUM" API SERIES (±.15% LINEARITY)

Meter Size	Normal Flow Range								Maximum Extended Flow Range				Pulses/Gallon (±5%)	
	Minimum Linear				Maximum Linear									
	GPM	BPH	BPD	M3/HR	GPM	BPH	BPD	M3/HR	GPM	BPH	BPD	M3/HR	Blade Rotor	Rim Rotor
¾"	5.8	8.3	199	1.3	29	41.4	994	6.6	35	50	1200	7.9	2200	N/A
1"	12	17.2	411.4	2.72	60	85.7	2057	13.6	75	107	2570	17	500	N/A
1½"	26	37.2	891.4	5.9	130	186	4457	29.5	175	250	6000	40	230	N/A
2	45	64.2	1543	10.2	225	321	7714	51	275	393	9430	62.5	180	N/A
2½"	80	114	2740	18.16	400	571	13,700	90.8	500	714	17,100	113.5	70.5	N/A
3"	130	186	4440	29.5	650	929	22,200	147.6	800	1140	27,400	181.7	48	N/A
4"	250	356	8560	56.8	1250	1780	42,800	283.9	1500	2140	51,400	341	23.8	71.4
5"	425	607	14,568	966	2000	2857	68,568	454	2500	3571	85,704	568	9	23.85
6"	580	828	19,880	131.8	2900	4140	99,400	659	3600	5140	123,000	817.6	5.6	23.8
8"	1040	1484	35,600	236.2	5200	7420	178,000	1181	6400	9140	219,000	1453	2.5	11.9
10"	1600	2280	54,800	363.4	8000	11,400	274,000	1817	9800	14,000	336,000	2225	1.11	6
12"	2400	3420	82,200	545	12,000	17,100	411,000	2725	15,000	21,400	514,000	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 bearings types are available.

PERFORMANCE SPECIFICATIONS

Linearity: ±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 of1.0 and a viscosity of 1.0 centistoke. For performance at otherspecific 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 coi l (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 flowcomputers 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- P - (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) .
_(____)	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-Eexd 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).

Premium

(P)	Premium linearity (±0.15%) over reduced flow ranges.

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 a written description of the -SP.

* Pressure Rating / Flange Material		
Include "F", number indicating pressure rating, and flange material. (i.e., -F1SS-).		
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	

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

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