

# TURBINE FLOWMETERS BY HOFFER

Perfecting Measurement™



**“API” SERIES**  
(American Precision Instruments)  
**Turbine Flowmeters**  
for Custody Transfer  
Product Bulletin HO-API-114M

## TECHNICAL DATA SHEET

### OUTSTANDING FEATURES

- ◆ Designed for **custody transfer** flow applications and to be **compliant with API standard Chapter 5.3**.
- ◆ Optionally available with **multiple pickup coils** for **redundancy** or **bi-directional** flow measurement.
- ◆ Bearing types available include **self-lubricating, ceramic ball bearings** and **tungsten carbide sleeve**.
- ◆ Rotor assembly is **hydrodynamically balanced** and “floats” on fluid cushion to provide extended bearing life.
- ◆ Offered with **bladed** rotors in sizes 1" through 4".

### HOFFER API SERIES BLADED FLOWMETERS

The Hoffer *API Series* turbine flowmeters provide extremely accurate custody transfer grade flow measurement in a bladed rotor design. These flowmeters are typically used to measure liquid petroleum products.



Note: For rim design custody transfer flowmeters we offer the CT Series.

### SIZE SELECTOR CHART FOR “BLADED” API SERIES

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
1"	6	8.6	206	1.4	60	85.7	2057	13.6	75	107	2570	17	500
1½"	13	18.6	446	3	130	186	4457	29.5	175	250	6000	40	230
2"	22	31.4	754	5	225	321	7714	51	275	393	9430	62.5	180
2½"	40	57	1368	9	400	571	13700	90.8	500	714	17100	113.5	70.5
3"	65	93	2232	15	650	929	22200	147.6	800	1140	27400	181.7	48
4"	125	179	4296	28.2	1250	1780	42800	283.9	1500	2140	51400	341	23.81

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.
- ◆ Flanges: 316 stainless steel standard. Carbon steel or 304 stainless steel flanges per ASME/ANSI B16.5 are optional. Available in ANSI, DIN, and ring joint type flanges.
- ◆ Bearings: Tungsten carbide sleeve and ceramic ball bearing types are available.
- ◆ Optional NACE compliance per MR0175 available.

### GENERAL DESCRIPTION

- ◆ **Linearity:**  
±0.25% linearity standard .  
±0.5% to extended maximum flow range.  
±0.15% premium linearity over reduced 5 to 1 turndown range.
- ◆ **Repeatability:** ±0.02% at any point throughout the extended flow range.
- ◆ **Temperature Range:** -450°F to +450°F, process fluid with standard magnetic pickup coil.
- ◆ **Pressure Drop:** 4 PSI at maximum linear flow rate.
- ◆ **Output:** 10mV RMS or greater into a 10K ohm load at a minimum flow rate.

# API SERIES

## 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**

- (BP) Ceramic Hybrid Ball Bearings, Self-Lubricating for 1" size.
- (CB) Ceramic Hybrid Ball Bearings, Self-Lubricating for 1-1/2" thru 4".
- (T) Tungsten Carbide Steel.

**F. Pickup Coils**

- (1M) One Magnetic Coil.
- (2M) Two Magnetic Coils.
- (1HTM) One High Temperature Mag Coil (+850°F/454°F).
- (1ISM) One Intrinsically Safe Mag Coil.
- (1ISM-ATEX) One ISM ATEX Coil.
- (2ISM) Two Intrinsically Safe Mag Coils.
- (2ISM-ATEX) Two ISM ATEX Coils.
- \_(RPM) Redi-Pulse Coil (See Redi-Pulse Technical Data Sheet RP-XXX).
- \_(DMX) Intrinsically Safe Redi-Pulse Coil (See I.S. Redi-Pulse Technical Data Sheet IRP-XXX).

**G. Coil Spacing, Mechanical Degrees Apart** (Factory assigned)

**H. Riser and Explosion-Proof Coil Enclosures**

- (X) 1" MNPT Riser, welded to body, required for all type of enclosures.
- (X-ATEX) 3/4" Male NPT Coil Riser-ATEX Exd Compliant.
- (XE2) 3/4" Male NPT Coil Riser with E2 enclosure. (See chart)\*
- (X-ATEX)E2 3/4" Male NPT Coil Riser with E2 enclosure. (See chart)\*
- (X8S) 8" Long S/S 1" MNPT riser. (For fluid temperatures below -40°F (-40°C) or above +140°F +60°C).
- (X8S-ATEX) 8" Long S/S 3/4" MNPT riser. (For fluid temperatures below -40°F (-40°C) or above +140°F +60°C).

**\*E2 EXPLOSION-PROOF/FLAME-PROOF ENCLOSURE WITH 3/4" FNPT MOUNT AND 3/4" CABLE ENTRY RATINGS:**

- FM: CLASS I, DIV. 1, GR. ABCD, CLASS II/III, DIV. 1, GR. EFG, TYPE 4X
- CSA: CLASS I, DIV. 1, GR. ABCD, CLASS II, DIV. 1, GR. EFG, CLASS III, TYPE 4X EX D IIC, CLASS I, ZONE 1, IP 66
- ATEX: EX II 2GD Ex d IIC, IP66/68
- IEC: EX D IIC IP68

**I. End Fitting Types**

- (F\_\_\_\_) Raised Face Flanges per ANSI (See chart)\*\*.
- (DN\_/PN\_-CS/SS) DN=Metric Size, PN=Flange Pressure Rating (in DIN Std.) and select Material.

**\*\*Pressure Rating/Flange Material**

Include "F", number indicating pressure rating, and flange material. (i.e., -F15S-).

- |                    |                                    |
|--------------------|------------------------------------|
| <b>Select one:</b> | <b>Select one:</b>                 |
| (1) 150# Flanges   | (SS) Stainless Steel               |
| (3) 300# Flanges   | (CS) Carbon Steel                  |
| (6) 600# Flanges   |                                    |
| (9) 900# Flanges   | Note: 316 SS flanges are standard. |
| (15) 1500# Flanges |                                    |
| (25) 2500# Flanges |                                    |

**J. Rotor Design**

- (B) Blade

**K. Locating Pins**

- (LP) Flanged flow straightening locating pin mating holes. Included standard.

**L. Premium Linearity**

- (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.
- (SEP-CE) Sound Engineering Practice.
- (SP) Any special features that are not covered in the model number, use a written description of the -SP.
- (EXP) CSA Explosion-Proof Certification. (See chart)\*\*\*
- (X) No Special Features

\*\*\* CLASS I, DIV. 1, GR. ABCD; CLASS I, DIV. 2, GR. ABCD; CLASS II, DIV. 1, GROUPS EFG  
CANADA: CLASS I, ZONE 1 & 2, Ex d II C  
USA: CLASS I, ZONE 1 & 2, AEx d II C

**Notes:**

1. Specify schedule of pipe in which flowmeter will be installed when ordering.
2. A complete line of flowmeter signal conditioners (preamplifiers) and flow computers are available. Consult with the applications group at Hoffer for additional information.

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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.

