# TURBINE FLOWMETERS BY

The Turbine Flowmeter Company



### HO SERIES **Turbine Flowmeters** for Gas Service

Product Bulletin HO-G-110E

## ECHNICAL DATA SHEET

#### **OUTSTANDING FEATURES**

- Low cost.
- Outstanding accuracy. •
- Provides wide flow ranges.
- Wide variety of process connections • available.\*
- Operate over a wide range of temperatures and pressures.
- Exclusive use of hybrid ceramic ball bearings provide superior life.

\* MS Flared or Flanged end connections are best suited due to the even transition at the connections.



GAS SIZE SELECTOR CHART FOR STANDARD HO SERIES TURBINE FLOWMETERS					
Flowmeter Size Diameter (inches)	Repeatable Range** Based on a Gas Density of 1#/Ft <sup>3</sup>		Repeatable Range** Based on a Gas Density of .25#/Ft <sup>3</sup>		
					Magnetic Coil (ACF/M)
	1⁄2 x1⁄4	N/A	.15 – 3.5	N/A	.3 – 3.5
1⁄2 X 3⁄8	N/A	.3 – 5	N/A	.6 – 5	
5⁄8	N/A	.5 – 10	N/A	1 – 10	
3⁄4	N/A	.6 – 20	N/A	1.2 – 20	
1	2.5 – 43	.8 – 43	5 – 43	1.6 – 43	
1¼	3.5 – 100	1.25 – 100	7 – 100	2.5 – 100	
11/2	5.0 - 120	1.75 – 120	10 - 120	3.5 – 120	
2	10 - 200	3.5 – 200	20 – 200	7 – 200	
21/2	15 – 500	5 – 500	30 – 500	10 - 500	
3	20 - 600	7.5 – 600	40 - 600	15 – 600	
4	30 - 1100	N/A	60 - 1100	N/A	
5	40 - 1800	N/A	80 - 1800	N/A	
6	50 - 3000	N/A	100 - 3000	N/A	
8	100 - 4800	N/A	200 - 4800	N/A	
10	150 – 7500	N/A	300 – 7500	N/A	
12	200 - 12000	N/A	400 - 12000	N/A	

\*\*Lower limit of flow range is dependent on user's operating density.

#### **SPECIFICATIONS**

**Overrange:** 150% of maximum flow (intermittently). **Available Temperature Range:** -450°F to +350°F

Available Turn Down Range: Dependent on gas density at user's operating conditions.

**Linearity:** ±1% of reading.

**Repeatability:** ±0.25% over tabulated repeatable range.

Note: Performance enhancement techniques are routinely applied to produce wider linear and useable flow ranges. This technique is also used to improve linearity and repeatability. Consult the applications group at Hoffer with your reauirements.

continuous (to +400°F intermittent heat).

End Fittings: MS flared and flanged styles are recommended. Other types available on request.

Bearing Styles: Ceramic hybrid ball bearings only.

Materials: 316 stainless steel standard. Consult with applications group for corrosive applications. Broad material list available.

#### GAS TURBINE FLOWMETER MODEL NUMBERING SYSTEM

MODEL HO	( <u>A</u> ) X ( <u>B</u> ) - ( <u>C</u> ) - ( <u>D</u> ) - ( <u>E/F/G</u> ) - ( <u>H</u> ) - ( <u>I</u>
A. End Fitting Siz	
8. Flowmeter Siz	
C. Blade Angle (S	See Note 1)
D. Bearing Type	
(CB)	Self-lubricating, ceramic hybrid ball bearings.
. Pickup Coils	
(1M) (2M) (1MC3PA) (2MC3PA) (1MC3PAH) (2MC3PAH) (1HTM) (2HTM) (2HTM) (1ISM) (2ISM) () () () () (-ATEX)	One Magnetic Coil Two Magnetic Coils One RF Coil Two RF Coils One High Temp RF coil Two High Temp RF coils High Temperature Magnetic Coil Two High Temperature Magnetic Coils Intrinsically Safe Mag Coils 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) Pigtail or Flying Leads, Add-P and the Length of leads after any coil except the high temperature coils. Add after coil part no. when using ATEX enclosure mounted on meter.
)	Mechanical Degrees Apart           Factory Assigned. Spacing required when meter has two pickup coils.
	of Coil Enclosure (Rated Class I, Groups C & D)
(X) (X3/0) (X3H/0) (X3H/0) (X3H/0) (X4H/0) (3B/0) (4/0) (4B/0) (X8S)	<ul> <li>1" MNPT riser, welded to body. Required for all types of enclosures.</li> <li>1" riser with enclosure and without signal conditioner.</li> <li>1" riser with enclosure and dome cover for Style 1 signal conditioner.</li> <li>Same as (X3/0) with BASEEFA, FM and CENELEC-EExd approvals.</li> <li>1" riser with dome cover for ACC22 and ACC96.</li> <li>1" riser with dome cover for Style 1 signal conditioners to meet Group B.</li> <li>1" riser with flat cover for Style 2 signal conditioners to meet Group B.</li> <li>1" riser with dome cover for Style 2 signal conditioners to meet Group B.</li> <li>Add 8S after X riser for a 8" long S/S riser for hot and cold media applications.</li> </ul>
I. End Fitting Ty	*Pressure Pating / Flange Material
MS) NPT) F) DN_/PN_CS/SS) W_)	37 Deg. Male Flare Per MS33656       Include "F", number indicating resource rating, and flange material. (i.e., -FISS-)         Raised Face Flange per ANSI (*See chart below)       Include "F", number indicating resource rating, and flange material. (i.e., -FISS-)         Select one:Select One:       (SS) Stainless Steel         Wafer Style Body (Use 1, 3, 6, 9, or 15 after "W" to indicate flange weight wafer meter will be used with)       (S) Stainless Steel         NOTE: For high pressure applications, please refer to the HHP Series Data Sheet.       (9) 900# Flanges
I. Special Featur	
(PT) (CE) (PED-CE)	¼" FNPT Pressure Tap (AGA Compliant). CE Mark - Required for Europe. PED Mark - Required for Europe.

(PT)	1/4" FNPT Pressure Tap (AGA Compliant).		
(CE)	CE Mark - Required for Europe.		
(PED-CE)	PED Mark - Required for Europe.		
(SP)	Any special features that are not covered in the model number, use a written description of $-SP$ . Premier Gas turbine for improved accuracy of $\pm 0.5\%$ , requires actual or natural gas calibration. Please see HO-PG-		
(PG)			
	100 for more information. Notes:		

Request HO-L-110 Technical Data Sheet for complete specifications for HO Series for Liquid Service.



The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specification 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.

- 1. Blade Angle determined by density, assigned by factory or use of gas sizing program.
- Turbine sizes ¼" through ¾" must be equipped with MC3PA coil. 1" through 3" may be recommended for MC3PA coil depending on gas density and desired turndown range.
- 3. NPT not recommended for gas service due to possible uneven transition at NPT connections.

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



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