

TURBINE FLOWMETERS BY HOFFER

The Turbine Flowmeter Company



HO SERIES Turbine Flowmeters for Gas Service

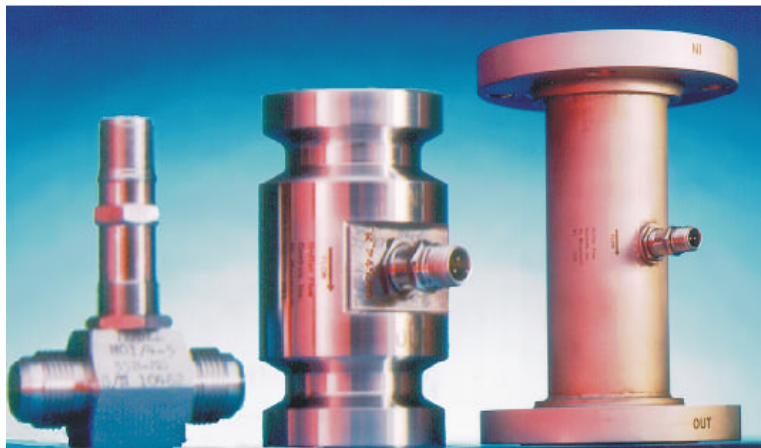
Product Bulletin HO-G-111H

TECHNICAL 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 ³		Repeatable Range** Based on a Gas Density of .25#/Ft ³	
	Magnetic Coil (ACF/M)	MCP Coil (ACF/M)	Magnetic Coil (ACF/M)	MCP Coil (ACF/M)
1/2 x 1/4	N/A	.15 – 3.5	N/A	.3 – 3.5
1/2 x ?	N/A	.3 – 5	N/A	.6 – 5
?	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
1 1/4	3.5 – 100	1.25 – 100	7 – 100	2.5 – 100
1 1/2	5.0 – 120	1.75 – 120	10 – 120	3.5 – 120
2	10 – 200	3.5 – 200	20 – 200	7 – 200
2 1/2	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

This chart is for quick reference only and not for final size. Calculate using actual service conditions.
**Lower limit of flow range is dependent on user's operating density.

SPECIFICATIONS

Overrange: 150% of maximum flow (intermittently).

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

Linearity: ±1% of reading typical. ***

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 requirements.

Available Temperature Range: -400°F to +350°F continuous (to +400°F intermittent heat).

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

Bearing Styles: Self-lubricating, ceramic hybrid ball bearings.

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

*** Linearity is density-dependent for a given meter. Consult factory for details.

GAS TURBINE FLOWMETER MODEL NUMBERING SYSTEM

MODEL HO (**A**) X (**B**) - (**C**) - (**D**) - (**E/F/G**) - (**H**) - (**I**)

A. End Fitting Size

B. Flowmeter Size

C. Blade Angle (See Note 1)

D. Bearing Type

- (BP) Self-lubricating, **ceramic** hybrid ball bearings, sizes 1/4" thru 1". (-400 to +350°F)
 (CB) Self-lubricating, **ceramic** hybrid ball bearings, sizes 1-1/4" thru 12". (-400 to +350°F)

E. Pickup Coils

- (1M) One Magnetic Coil
 (2M) Two Magnetic Coils
 (1MC3PA) One RF Coil
 (2MC3PA) Two RF Coils
 (1MC3PAHT) One High Temp RF coil
 (2MC3PAHT) Two High Temp RF coils
 (1HTM) High Temperature Magnetic Coil
 (2HTM) Two High Temperature Magnetic Coils
 (1ISM) Intrinsicly Safe Mag Coil
 (2ISM) Two Intrinsicly Safe Mag Coils
 _(RP____) Redi-Pulse Coil (See Redi-Pulse Technical Data Sheet RP-XXX)
 _ (_____) Intrinsicly 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 temperature coils.
 (-ATEX) Add after coil part no. when using ATEX enclosure mounted on meter.

F. Coil Spacing, Mechanical Degrees Apart

- () Factory Assigned. Spacing required when meter has two pickup coils. If second coil not required skip option (F).

G. Explosion-Proof Coil Enclosure (Rated Class I, Groups C & D)

- (X) 1" MNPT riser, welded to body. Required for all types of enclosures.
 (X3/0) 1" riser with enclosure and without 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-EEExd 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) Same as 3B/0 but 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 a 8" long S/S riser for hot and cold media applications.

H. End Fitting Types

- (MS) 37 Deg. Male Flare Per MS33656
 (NPT) Male National Pipe Thread (See Note 3)
 (F____) Raised Face Flange 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)

I. Special Features

- (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.
 (PG) Premier Gas turbine for improved accuracy of ±0.5%, requires actual or natural gas calibration. Please see HO-PG-100 for more information.

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

***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
(4) 400# Flanges		(6) 600# Flanges	
(9) 900# Flanges	Note: 316 SS flanges are standard, add -304 at end of model# if 304 flanges are required.	(15) 1500# Flanges	
(25) 2500# Flanges			

H OFFER FLOW CONTROLS, INC.
 107 Kitty Hawk Lane, P. O. Box 2145, Elizabeth City, NC 27906-2145
 800-628-4584 252-331-1997 FAX 252-331-2886
www.hofferflow.com email: info@hofferflow.com

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.

Notes:

1. Blade Angle determined by density, assigned by factory or use of gas sizing program.
2. Turbine sizes 1/4" through 3/4" 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.



ISO 9001 Registered Company