

# TURBINE FLOWMETERS BY HOFFER

Perfecting Measurement™

## Sanitary Turbine Flowmeters

Product Bulletin HO-SA-107L

### TECHNICAL DATA SHEET

#### SANITARY TURBINE FLOWMETER FOR PROCESS LIQUID MEASUREMENT

The Hoffer Sanitary Design Turbine flowmeter is designed and manufactured to be compliant with the ASME Bioprocessing Equipment Standard BPE-2012 for measurement of process liquids where high sanitary standards are required. ASME-BPE-2012 is the leading Standard on how to design and build equipment used in the production of biopharmaceuticals. This series includes 11 sizes, ¼" to 3" with standard Tri-Clamp™ fittings, covering flow rates for 0.35 to 650 GPM.



**Note:** Turbine meter must be installed with pickup coil pointing down to ensure proper cleanability.

Technical Data										
Flowmeter Size				Linear Flow Range (US GPM) <i>Refer to Note 1</i>		Nominal Pulses/Gallon 'K' Factor Pulses/Gallon	Nominal Max. Frequency (Hz)	Length (Inches)		
Tri-Clamp™ Size (Inches)				Min.	Max.					
* Model HO3A	1½	X	1/4A	.35	3.5	15,000	900	3.56		
Model HO3A	3/4	X	1/4A	.35	3.5	15,000	900	3.56		
* Model HO3A	1½	X	3/8A	.75	7.5	8,900	1100	3.56		
Model HO3A	3/4	X	3/8A	.75	7.5	8,900	1100	3.56		
* Model HO3A	1½	X	1/2A	1.25	9.5	5,800	900	3.56		
Model HO3A	3/4	X	1/2A	1.25	9.5	5,800	900	3.56		
* Model HO3A	1½	X	5/8A	1.75	16	5,200	1400	3.56		
Model HO3A	3/4	X	5/8A	1.75	16	5,200	1400	3.56		
* Model HO3A	1½	X	3/4A	2.5	29	2,200	1065	3.25		
Model HO3A	1½	X	1A	4	60	840	840	3.56		
Model HO3A	1½	X	1¼A	6	93	400	620	4.59		
Model HO3A	1½	X	1½A	8	130	230	500	4.59		
Model HO3A	2	X	2A	15	225	120	450	6.06		
* Model HO3A	3	X	2½A	25	400	97	650	10.00		
* Model HO3A	4	X	3A	40	650	45	500	10.00		

™ Ladish Tri-Clover Div.

(Note 1) Ranges shown are standard ranges; other ranges are available. Contact factory.

\* (Note 2) These sizes require the use of an installation kit to meet sanitary requirements. Optional for other sizes.

#### OPTIONAL ACCESSORIES

##### Signal Conditioners/Converters

CAT Series (Refer to CAT Technical Data Sheets).

##### Meter Mounted Totalizer/Rate Indicators

Model HIT-2A Totalizer/Rate Indicator (Refer to Technical Data Sheet HIT-2A-XXX).

##### Micro Processor Based Flow Computers

Nova-Flow and Flowstar™ Series

(Refer Flowstar Series and Nova-Flow Series Technical Data Sheets).

#### PERFORMANCE SPECIFICATIONS

**\*\*Accuracy & Linearity:** ±0.5% of reading or better.

**\*\*Repeatability:** ±0.1% of reading or better.

##### Temperature Range:

-40°F to +325°F, process fluid with Std. Magnetic pickup coil.

**Signal Output:** 10 mV<sub>RMS</sub> or greater into a 10K ohm load at minimum flow rate.

##### Materials of Construction:

316/316L Dual Rated Stainless Steel

(with exceptions noted below):

**Rotor:** 17.4 PH SS.

**Retaining Ring:** 15.7 MO PH SS.

**Bearings:** Hard Carbon Composite.

**Surface Finish:** All meter surfaces meet sanitary standards with 32 micro inch finish. Finer finishes for internally wetted surfaces available as an option. Contact factory for details.

*\*\*Based on 12 point water calibration at 70°F.*

#### INSTALLATION KITS FOR HOFFER SANITARY TURBINE



To achieve optimum performance of the Sanitary Turbine Flowmeter, a minimum of 10 pipe diameters upstream and 5 pipe diameters downstream of meter size pipe must be used.

In addition, certain combinations of nominal meter sizes and tri-clamp sizes, as indicated on the sizing chart, require the use of adaptor piping to meet sanitary specifications. To meet these requirements, Hoffer offers optional sanitary installation kits to provide appropriate straight runs before and after the meter to produce optional results. Contact factory for additional details.

## SANITARY TURBINE FLOWMETER MODEL NUMBERING SYSTEM

MODEL HO3A      ( A ) X ( B ) - ( C ) - ( D ) - ( E ) - ( F / G ) - ( TRI ) - ( H )

### A. Tri-Clamp Size

### B. Flowmeter Size

### C. Minimum Operating Flow

### D. Maximum Operating Flow

### E. Bearing Type

(C9) Hard Carbon Composite Sleeve Bearing. M-199 Grade. For use in fluids with a pH of 6 and above.

(C1) Hard Carbon Composite Sleeve Bearing. M-100 Grade. Acceptable for use in fluids with a pH less than 6 such as wine, vinegar or fruit juice (acidic).

**Note: Both bearings are approved by the Food and Drug Administration.**

### F. Pickup Coils

(1M) One Magnetic Coil

(2M) Two Magnetic Coils

(1MC3PA) One RF Coil

(2MC3PA) Two RF 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 temperature coils.

(-ATEX) Add after coil part no. when using ATEX enclosure mounted on meter.

### G. Riser and Explosion-Proof Coil Enclosures

(X) 1" MNPT riser, welded to body.

(XATEX) 3/4" MNPT riser, welded to body.

(XE2) 1" MNPT riser with E2 enclosure. Includes a 1"x3/4" adapter. \*(see ratings below)

(X-ATEX)E2 3/4" MNPT riser with E2 enclosure. \*(see ratings below)

(X8S) 8" long S/S 1" MNPT riser for fluid temps below -40°F(-40°C) or above +140°F (+60°C).

(X8S-ATEX) 8" long S/S 3/4" MNPT riser for fluid temps below -40°F(-40°C) or above +140°F (+60°C).

### End Fitting Types

(\_\_\_TRI) Tri-Clover Sanitary End Fitting. Enter size of the tri-clamp end fitting.

### H. Special Features

(CE) CE Mark-Required for Europe

(PED-CE) PED Mark-Required for Europe

(SEP-CE) Sound Engineering Practice

(SP) Any special features that are not covered in the model number, use -SP and a written description.

**\* 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, DIV1, GR.EFG, CLASS III, TYPE 4X EX D IIC, CLASS I, ZONE 1, IP 66

ATEX: EX II 2GD Ex d tD IIC, IP66/68

IEC: EX D IIC IP68

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## HOFFER 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 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.

