

# TURBINE FLOWMETERS BY HOFFER

The Turbine Flowmeter Company

## Turbine Flowmeters Product Bulletin HO-SA-107

### TECHNICAL DATA SHEET

#### SANITARY TURBINE FLOWMETER WITH 3-A LABEL FOR PROCESS LIQUID MEASUREMENT

The Hoffer Sanitary Design Turbine flowmeter is accepted as meeting 3-A Sanitary Standard No. 28-02 for measurement of process liquids where high sanitary standards are required. Available in 11 sizes, 1/4" to 3" with standard Tri-Clamp™ fittings, covering flow rates for 0.35 to 650 GPM.



Model Number					Technical Data						
Flowmeter Size	Tri-Clamp™ Size (Inches)	Bearing Type Refer Note 2	Standard Pickup Coil Refer Note 3	Tri-Clamp™ 316 SS End Fitting	Linear Flow Range (US GPM) Refer Note 1		Nominal Pulses/Gallon 'K' Factor Pulses/Gallon	Nominal Max. Frequency (Hz)	Length (Inches)		
					Min.	Max.					
Model HO <sup>4</sup>	1 1/2	X	1/4A	.35	3.5	-T -C	-1M	-TRI	15,000	900	3.56
Model HO <sup>4</sup>	3/4	X	1/4A	.35	3.5	-T -C	-1M	-TRI	15,000	900	3.56
Model HO <sup>4</sup>	1 1/2	X	3/8A	.75	7.5	-T -C	-1M	-TRI	8,900	1100	3.56
Model HO <sup>4</sup>	3/4	X	3/8A	.75	7.5	-T -C	-1M	-TRI	8,900	1100	3.56
Model HO <sup>4</sup>	1 1/2	X	1/2A	1.25	9.5	-T -C	-1M	-TRI	5,800	900	3.56
Model HO <sup>4</sup>	3/4	X	1/2A	1.25	9.5	-T -C	-1M	-TRI	5,800	900	3.56
Model HO <sup>4</sup>	1 1/2	X	5/8A	1.75	16	-T -C	-1M	-TRI	5,200	1400	3.56
Model HO <sup>4</sup>	3/4	X	5/8A	1.75	16	-T -C	-1M	-TRI	5,200	1400	3.56
Model HO	1 1/2	X	3/4A	2.5	29	-T -C	-1M	-TRI	2,200	1065	3.25
Model HO	1 1/2	X	1A	4	60	-T -C	-1M	-TRI	660	660	3.56
Model HO	1 1/2	X	1 1/4A	6	93	-T -C	-1M	-TRI	400	620	4.59
Model HO	1 1/2	X	1 1/2A	8	130	-T -C	-1M	-TRI	230	500	4.59
Model HO	2	X	2A	15	225	-T -C	-1M	-TRI	120	450	6.06
Model HO	3	X	2 1/2A	25	400	-T -C	-1M	-TRI	97	650	10.00
Model HO	4	X	3A	40	650	-T -C	-1M	-TRI	45	500	10.00

™ Ladish Tri-Clover Div.

#### Notes:

##### (Note 1) FLOW RANGE

Ranges shown are standard ranges; other ranges are available. Contact Hoffer Flow Controls.

##### (Note 2) BEARING TYPE

-T Tungsten carbide sleeve  
-C Carbon composite sleeve

##### (Note 3) PICKUP COILS

1M = Std. Magnetic pickup coil.

##### Options

1MX = Magnetic pickup coil with 1" threaded boss on meter body.

1HT = High temperature magnetic coil.

1ISM = Intrinsically Safe magnetic coil.

1(RPM\_) = Redi-Pulse pickup coil providing a user specified conditioned pulse output. (See Technical Data Sheet RP-XXX).

1(DMX\_) = Intrinsically Safe Redi-Pulse. (See Technical Data Sheet IRP-XXX).

##### (Note 4) END FITTINGS

1/4" through 5/8" flowmeters are offered with either 1 1/2" or 3/4" Tri-Clamp™.

### PERFORMANCE SPECIFICATIONS

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

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

**Temperature Range:** -450°F to +450°F, process fluid with Std. Magnetic pickup coil. -450°F to +850°F, process fluid with high temperature magnetic pickup coil. +1000°F intermittently.

**Signal Output:** 10 MVRMS or greater into a 10K ohm load at minimum flow rate.

**Materials of Construction:** 316 Stainless Steel (with exceptions noted below):

Rotor: 17.4 PH SS.

Retaining Rings: 15.7 MO PH SS when required.

Bearings: Tungsten Carbide or Hard Carbon Composite.

\* Based on 10 point water calibration at 70°F.

## OPTIONAL ACCESSORIES

### Wide Selection of Series ACC Signal Conditioner – Converters, (typical).

Model ACC18B, 2 Wire 4-20 mA converter, meter mounted (Refer to ACC18B Tech Note).

### Meter Mounted Totalizer/Indicators

Model 45 Totalizer/Indicator, 110VAC/220VAC (Refer to Bulletin 45-XXX).

Model 46 Totalizer/Indicator, Battery or DC Power (Refer to Bulletin 46-XXX).

### Micro Processor Based Flow Computer Flowstar™

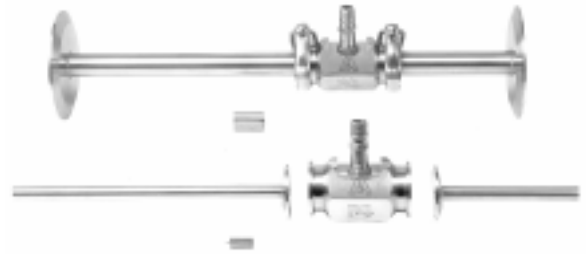
(Refer to Bulletins Flowstar Series).

## INSTALLATION KITS FOR HOFFER SANITARY TURBINE FLOWMETER

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. For example, the ¼" turbine with 1½" end fittings must have ¼" inlet and discharge piping.

To achieve this Hoffer offers the following Installation Kits with the proper size pipe, end fittings for the turbine meter selected and a choice of end fittings to fit in the process line. Flow straighteners are available for the upstream kit piping to eliminate process fluid swirl.

Turbine Size	Tri-Clamp™ Fitting On Turbine	Standard Upstream Length	Standard Downstream Length
¼"	1½"	10"	5"
¼"	¾"	10"	5"
⅜"	1½"	10"	5"
⅜"	¾"	10"	5"
½"	1½"	10"	5"
½"	¾"	10"	5"
⅝"	1½"	10"	5"
⅝"	¾"	10"	5"
¾"	1½"	10"	5"
1"	1½"	10"	5"
1¼"	1½"	14"	6"
1½"	1½"	17"	8"
2"	2"	20"	9"
2½"	3"	25"	12.5"
3"	4"	30"	15"



## Installation Kits Model Numbering

IAK- ( ) - ( ) - ( ) - ( ) - ( ) - ( )

**Size to match Turbine Size**

**Tri-Clamp™ flange size**

**Length of kit – see chart for STD lengths**

(U) Upstream (specify length)  
 (D) Downstream (specify length)  
 (UD) Upstream/downstream (specify length: \_\_X\_\_)

**Customer's Process Connections**

(B) Butt weld ends  
 (TRI) ¾" through 4" Tri-Clamp™ Size

**Risers**

(T) ½" FNPT for temperature probe  
 (P) ¼" FNPT for pressure probe

**Flow Straighteners**

(S) Integral flow straighteners in upstream pipe. (Hangers are solid cross type to meet 3A requirements).

Note: When both (T) and (P) are required, the minimum downstream length is 10".  
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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 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.

## HOW TO ORDER

- Specify process conditions.
  - Fluid to be measured.
  - Operating temperature and pressure.
  - Operating viscosity Sp. Gr.
  - Operating flow range min, normal, max.
  - Process connections required.
- Briefly describe application and electronics display or control requirements. (See "Optional Accessories".)
- Clamps and gaskets available upon request.

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



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**APPLICATION SHEET**

**CUSTOMER INFORMATION**

DATE: \_\_\_\_\_ SOURCE CODE: \_\_\_\_\_  
COMPANY NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
\_\_\_\_\_  
CONTACT: \_\_\_\_\_ E-MAIL: \_\_\_\_\_  
TELEPHONE: \_\_\_\_\_ FAX: \_\_\_\_\_  
REPRESENTATIVE: \_\_\_\_\_

**SERVICE INFORMATION**

DESIRED ACCURACY: \_\_\_\_\_  $\pm .5\%$  of reading or better \_\_\_\_\_  $\pm 1\%$  of reading \_\_\_\_\_  $\pm 2\%$  of reading.

**BUDGET:** \$ \_\_\_\_\_

FLUID / GAS: \_\_\_\_\_

VISCOSITY: \_\_\_\_\_ SPECIFIC GRAVITY: \_\_\_\_\_

FLOW RANGE: \_\_\_\_\_

OPERATING TEMPERATURE RANGE: \_\_\_\_\_

OPERATING PRESSURE RANGE: \_\_\_\_\_

LINE SIZE: \_\_\_\_\_ END CONNECTIONS: \_\_\_\_\_

**ELECTRONICS**

READOUT REQUIRED: RATE \_\_\_\_\_ TOTAL \_\_\_\_\_

UNIT OF MEASURE: \_\_\_\_\_

INTEGRAL MOUNT: \_\_\_\_\_ REMOTE MOUNT: \_\_\_\_\_

AVAILABLE POWER INPUT: \_\_\_\_\_

ANALOG OUTPUT: \_\_\_\_\_ PULSE OUTPUT: \_\_\_\_\_

Is there a desired delivery on this meter? \_\_\_\_\_

How soon do you expect to make a decision on this meter? \_\_\_\_\_

Can you say what other manufacturers or technologies you are considering? \_\_\_\_\_

Is there anything else we need to know about this application that will help us provide you with the best option?