

# 8" Steel Model H8

Bulletin SS01017 Issue/Rev. 1.1 (10/18)

## Smith Meter® PD Meter

The **Smith Meter® Model H8 Meter** is an 8", double-case, straight-through, rotary vane type positive displacement meter. Applications include: blending, batching, dispensing, inventory control, and custody transfer of crude oils and refined products.

### Features

- **Superior Accuracy** – The Smith Meter Rotary Vane Meter principle, combined with the meter's uniquely designed offset inlet and outlet nozzles, minimizes pressure drop across the measuring chamber, which reduces flow through the meter clearances for maximum accuracy.
- **Low Pressure Drop** – Streamlined flow path provides low pressure drop.
- **Positive and Accurate Registration** – High torque drive calibrator with adjustment in 0.05% increments ensures accurate registration.
- **Long Service Life** – Low friction ball bearings, fixed cam-type timing, and rugged construction give sustained accuracy and long service life.

## Options

- **High Viscosity Meter Clearances** – To extend operation at maximum flow rate from 400 mPa·s to 2,000 mPa·s.
- **High Temperature Clearances** – To extend operating temperatures from 137°F to 200°F (58°C to 93°C).
- **All Iron Trim** – for operating temperatures above 200°F (93°C).
- **LPG Trim** – For low lubricity liquids such as LPG.
- **NACE Construction** – Special components available to meet requirements of NACE Standard MR-01-75.

1 Intermittent rating applies to service on clean, refined products where continuous operation is not required (e.g., truck loading, rail loading, and other loading or batching applications).

2 Based on a maximum flow rate of 1,600 USGPM (365 m³/h).



## Operating Specifications

| Maximum Flow Rate                        |       |       |       |      |
|------------------------------------------|-------|-------|-------|------|
|                                          | USGPM | BPH   | L/min | m³/h |
| Continuous Rating – Standard Trim        | 1,600 | 2,300 | 6,075 | 365  |
| Intermittent Rating¹ – Standard Trim     | 1,750 | 2,500 | 6,625 | 400  |
| Continuous Rating – All Iron or LPG Trim | 1,200 | 1,725 | 4,550 | 275  |

| Minimum Flow Rate<br>Typical Performance |                                |     |     |     |     |      |
|------------------------------------------|--------------------------------|-----|-----|-----|-----|------|
| Linearity²                               | Viscosity (Centipoise – mPa·s) |     |     |     |     |      |
|                                          | Units                          | 1   | 5   | 20  | 100 | 400  |
| ±0.15%                                   | USGPM                          | 180 | 70  | 20  | 4.0 | 1.0  |
|                                          | BPH                            | 260 | 100 | 30  | 5.7 | 1.4  |
|                                          | L/min                          | 680 | 265 | 76  | 15  | 3.8  |
|                                          | m³/h                           | 41  | 16  | 4.5 | 0.9 | 0.2  |
| ±0.25%                                   | USGPM                          | 135 | 55  | 15  | 3.0 | 0.75 |
|                                          | BPH                            | 193 | 79  | 22  | 4.3 | 1.1  |
|                                          | L/min                          | 511 | 208 | 57  | 12  | 2.8  |
|                                          | m³/h                           | 31  | 12  | 3.4 | 0.7 | 0.2  |
| ±0.50%                                   | USGPM                          | 90  | 35  | 10  | 2.0 | 0.5  |
|                                          | BPH                            | 129 | 50  | 15  | 2.9 | 0.7  |
|                                          | L/min                          | 341 | 133 | 38  | 7.6 | 1.9  |
|                                          | m³/h                           | 20  | 8   | 2   | 0.5 | 0.1  |

Repeatability

±0.02%

Viscosity

Standard: 400 mPa•s<sup>3</sup> (2,000 SSU) maximum.

Optional: 2 Pa•s (10,000 SSU) maximum – specify “High Viscosity Meter Clearances.”

Over 2 Pa•s: Specify “High Viscosity Meter Clearances” and derate maximum flow rate in direct proportion to viscosity over 2 Pa•s (e.g., at 4 Pa•s, derate maximum flow rate to 50% of normal continuous rating - 800 USGPM).

| Temperature                            |                                 |
|----------------------------------------|---------------------------------|
| Standard Meter Clearances with:        |                                 |
| Buna-N / PTFE <sup>4</sup> :           | -20°F to 137°F (-29°C to 58°C)  |
| Viton:                                 | 10°F to 137°F (-12°C to 58°C)   |
| High Temperature Meter Clearance with: |                                 |
| Buna-N / PTFE <sup>4</sup> :           | -20°F to 200°F (-29°C to 93°C)  |
| Viton:                                 | 10°F to 200°F (-12°C to 93°C)   |
| All Iron Trim with:                    |                                 |
| Buna-N:                                | -20°F to 225°F (-29°C to 108°C) |
| PTFE <sup>4</sup> :                    | -20°F to 400°F (-29°C to 205°C) |
| Viton:                                 | 10°F to 400°F (-12°C to 205°C)  |

Meter Gearing

Ten U.S. gallons, one barrel, or ten dekaliters per revolution of meter calibrator output shaft.

| Maximum Working Pressure |        |                    |                     |
|--------------------------|--------|--------------------|---------------------|
| Model                    | Flange | PSI                | kPa                 |
| H8-S1                    | 150    | 150                | 1,034               |
| H8-S3                    | 150    | 285 <sup>5</sup>   | 1,965 <sup>5</sup>  |
| H8-S5                    | 300    | 300                | 2,068               |
| H8-S6                    | 300    | 740 <sup>5</sup>   | 5,102 <sup>5</sup>  |
| H8-S7                    | 600    | 1,480 <sup>5</sup> | 10,204 <sup>3</sup> |
| H8-S8                    | 900    | 2,220 <sup>5</sup> | 15,306 <sup>5</sup> |

Flange Class per ANSI B16.5 Raised Face Flange.

3 1,000 mPa•s = 1,000 cP = 1 Pa•s.

4 Polytetrafluoroethylene (PTFE).

5 Maximum working pressure at 100°F (38°C).

6 All S3 Through S8 meters with Viton trim will have PTFE<sup>4</sup> packing gland seals.

7 Standard

| Materials of Construction |         |                                                          |                                                    |
|---------------------------|---------|----------------------------------------------------------|----------------------------------------------------|
| Trim                      | Housing | Internals                                                | Seals <sup>6</sup>                                 |
| Standard                  | Steel   | Iron, Steel, Stainless, Steel, Aluminum                  | Buna-N <sup>7</sup> , PTFE <sup>4</sup> , or Viton |
| LPG Trim                  | Steel   | Iron, Steel, Stainless, Steel, Aluminum, Rulon and Nylon | Buna-N <sup>7</sup> , PTFE <sup>4</sup> , or Viton |
| All Iron                  | Steel   | Iron, Steel, Stainless Steel                             | Buna-N <sup>7</sup> , PTFE <sup>4</sup> , or Viton |

Installation

It is recommended that the meter be protected with a suitable mesh strainer.

Weights & Measures Approvals

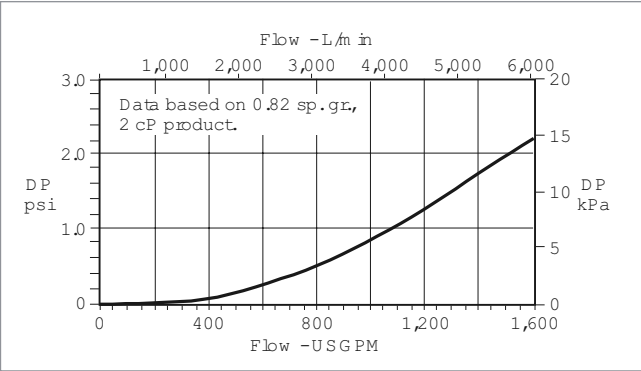
USA: NTEP CC 95-054

Canada: NOA S.WA-0615

European Union: MID

Others: Consult factory

Pressure Drop (ΔP)



| Meter Ordering Information |                                                                                                                                          |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Application                | Batching, Loading, Blending, Inventory, Custody Transfer, Process Control, etc.                                                          |
| Operating Conditions       | Liquid – Name and sp. gr., Flow Range <sup>8</sup> , Temp. Range <sup>8</sup> , Viscosity Range <sup>8</sup> , Maximum Working Pressure. |
| Seals                      | Buna-N <sup>9</sup> , Viton, or PTFE <sup>4</sup> .                                                                                      |
| Units of Registration      | Gallons, Barrels, Litres, Dekalitres, Cubic Meters, Pounds, Tons, Kilograms.                                                             |
| Direction of Flow          | Left to right (as viewed above) is standard and will be supplied unless right to left flow is specified.                                 |
| Options and Accessories    | As required.                                                                                                                             |

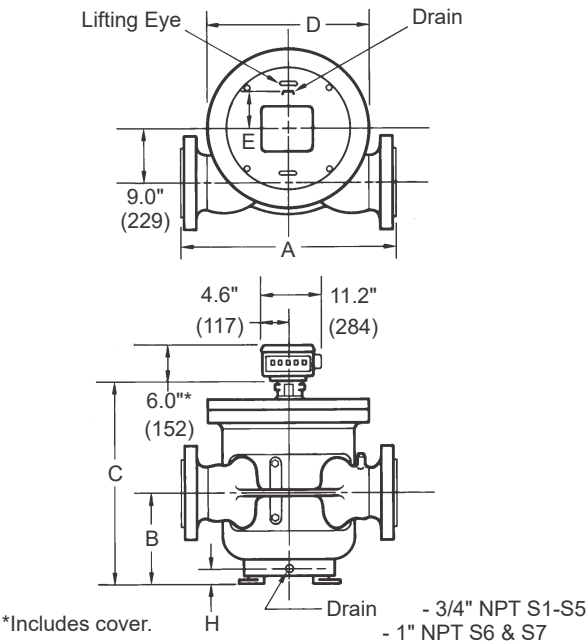
# Dimensions

## Inches (Millimeters)

**Note:** Dimensions – inches to the nearest tenth (millimeters to the nearest whole mm), each independently dimensioned from respective engineering drawings.

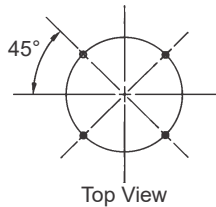
| Model | A             | B           | C             | D           | E           | F         | G           | H          | Weight - lb (kg) |
|-------|---------------|-------------|---------------|-------------|-------------|-----------|-------------|------------|------------------|
| H8-S1 | 28.0" (711)   | 15.4" (391) | 32.9" (836)   | 24.0" (610) | 7.3" (185)  | 0.8" (20) | 17.0" (432) | 3.6" (91)  | 855 (388)        |
| H8-S3 | 28.0" (711)   | 15.4" (391) | 34.3" (871)   | 24.0" (610) | 7.3" (185)  | 0.8" (20) | 17.0" (432) | 3.6" (91)  | 860 (390)        |
| H8-S5 | 28.8" (732)   | 15.4" (391) | 34.3" (871)   | 24.0" (610) | 7.3" (185)  | 0.8" (20) | 17.0" (432) | 3.6" (91)  | 875 (397)        |
| H8-S6 | 33.5" (851)   | 16.1" (409) | 37.1" (942)   | 25.8" (654) | 7.1" (180)  | 0.9" (23) | 18.3" (465) | 3.3" (84)  | 1,450 (658)      |
| H8-S7 | 35.8" (909)   | 16.3" (414) | 38.6" (980)   | 29.0" (737) | 7.8" (198)  | 0.9" (23) | 18.3" (465) | 3.4" (86)  | 1,790 (812)      |
| H8-S8 | 40.3" (1,023) | 23.0" (584) | 46.9" (1,191) | 37.8" (960) | 15.6" (396) | 1.3" (31) | 25.0" (635) | 6.3" (160) | 4,530 (2,059)    |

Model H8-S1 through S8



### Meter Anchor Bolt Holes

4 - "F" Bolt Holes on a  
"G" Diameter Bolt Circle



# Accessories

## Strainer

8" steel, R.F. flanged.

## Hydraulic Valves

8" globe-type, steel, R.F. flanged, 300 psi maximum working pressure (see Bulletin AB03004).

## Air Eliminator

8" steel, R.F. flanged.

## Counters

200 Series - Accumulative, 9-digit, non-reset type.  
600 Series - Large 5 digit reset, small 8 digit non-reset.

## Printer

7-digit accumulative.  
Optional 6-digit zero start.

## Preset Counter

300C Series - 4-digit (5-digit optional) mechanical pushbutton preset. Microswitch package for hydraulic valve, pump control or other interlock optional.

## Electronic Pulse Transmitters

LNC Pulse Transmitter (adapts to 600 Series Counters).  
Low-Resolution - 1 or 10 pulses<sup>10</sup>.  
High-Resolution (HR) - 50 or 100 pulses<sup>10</sup>.

## UPT

Universal Pulse Transmitter – High Resolution dual pulse quadrature output in a weather-tight explosion-proof enclosure (up to 1000 pulses/rev) used to provide pulse inputs to optional electronic indicators/controllers/flow computers which may perform electronic temperature compensation.

## Flow Rate Indicator

Direct Mount Mechanical.  
Remote Electronic.

## Remote Registration

Electronic Totalizers.

## Mechanical Automatic Temperature Compensation

Model ATC - Factory-set for a given product.  
Model ATG - Field-adjustable for different products.