

## NPT-Serie

### Präzisionsturbinenzähler



#### Merkmale

- Zählergrößen von 1/2" bis 2"
- Acht verschiedene Zählermodelle
- Durchflussmessungen von 0,01 bis 31 l/Sek. bei Flüssigkeiten und 0,35 bis 188 l/Sek. bei Gasen
- Mit magnetischen (NPT-Serie) oder modulierten (NPTC-Serie) Signalumwandlern erhältlich

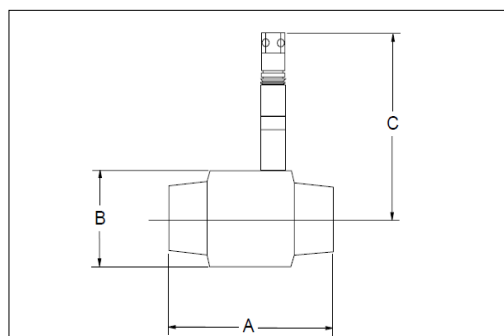
#### Beschreibung

Für diese Serie gilt derselbe Qualitätsstandard wie für alle anderen Turbinenzähler. Die NPT-Anschlüsse an diesem Präzisionsdurchflussmesser gewährleisten eine präzise Durchflussmessung (sowohl bei Flüssigkeiten, als auch bei Gasen) bei einer Vielzahl von industriellen Anwendungsgebieten. Sämtliche Kalibrierungsvariationen, die bei den AN- und ANC-Serien zur Verfügung stehen, sind auch bei der NPT-Serie möglich. Für Spezifikationen und Durchflussbereiche von Flüssigkeitszählern, siehe Datenblätter 42-AN und 42-GAS für Spezifikationen und Durchflussbereiche von Gaszählern.

#### Applikationen

Für genaue Labor- und Testmessungen.

#### Abmessungen



| Modell      | A               | B               | C              | Rohrgröße |
|-------------|-----------------|-----------------|----------------|-----------|
| NPT (C) 8-4 | 68 mm (2.703")  | 28 mm (1.12")** | 106 mm (4.19") | 1/2"      |
| NPT (C) 8-6 | 68 mm (2.703")  | 28 mm (1.12")** | 107 mm (4.22") | 1/2"      |
| NPT (C) 8   | 68 mm (2.703")  | 28 mm (1.12")** | 108 mm (4.25") | 1/2"      |
| NPT (C) 12  | 83 mm (3.293")  | 32 mm (1.25")** | 110 mm (4.34") | 3/4"      |
| NPT (C) 16  | 96 mm (3.777")  | 42 mm (1.63")*  | 112 mm (4.41") | 1"        |
| NPT (C) 20  | 108 mm (4.230") | 48 mm (1.88")*  | 115 mm (4.53") | 1 1/4"    |
| NPT (C) 24  | 119 mm (4.667") | 57 mm (2.25")*  | 120 mm (4.75") | 1 1/2"    |
| NPT (C) 32  | 150 mm (5.886") | 70 mm (2.75")*  | 127 mm (5.00") | 2"        |

\* Sechskantgehäuse

\*\* Rechteckiges Gehäuse

\*Cox ist ein Geschäftsbereich von Badger Meter, Inc.



## Precision Meters

### Turbine Flow Meters

#### DESCRIPTION

Cox Precision Turbine Flow Meters have unprecedented mechanical linearity, resulting in minimizing, or negating, temperature induced viscosity influence. Cox Precision Turbine Meters come with a variety of process fittings, sizes and options to accommodate the requirements of most applications while offering wide flow ranges.

| Features                                                | Benefits                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expanded mechanical linearity                           | Increased usable flow range with less sensitivity to fluid temperature/viscosity effect on the output.                                                                                                                                                                       |
| Helical rotor design                                    | Exceptional speed-of-response, with reduced pressure drop.                                                                                                                                                                                                                   |
| Comprehensive pickoff selection                         | Meets application requirements for temperature and electronic outputs.                                                                                                                                                                                                       |
| High-Performance ceramic ball bearings                  | Ceramic bearings provide near-perfect roundness, higher Rockwell hardness and are lighter and more tolerant to temperature than 440C stainless steel bearings. They eliminate adhesive wear and perform well in non-lubricating liquids found in cryogenic fluids and water. |
| 6-bladed rotor supports                                 | Improved flow conditioning.                                                                                                                                                                                                                                                  |
| NVLAP accredited facility with NIST traceable standards | Third party audits to ensure calibration uncertainty. Laboratory correlation to verify that all calibrators produce the same result.                                                                                                                                         |
| A variety of end fittings                               | AN, NPT, hose barb, flange, high pressure, tri-clamp and special fittings to meet specific installation configurations.                                                                                                                                                      |

#### CALIBRATIONS

Calibrations are accomplished by using various blends of solvent and oil to simulate actual fluid conditions. For varying process temperature conditions, multiple viscosity calibrations are used to develop a universal viscosity curve. UVC calibrations enable a flow computer to track temperature and compensate for fluid viscosity. Flow Dynamics tailors calibrations to replicate process conditions so the meter is characterized to provide the best attainable accuracy.

Calibrations are performed by our Flow Dynamics NVLAP (Lab Code 200668) accredited calibration facility, which uses primary standard calibrators, offering uncertainties of  $\pm 0.05$  percent of reading with  $\pm 0.02$  percent repeatability. Users can be assured that Cox Precision Meters come with a best-in-class calibration, traceable to NIST standards.



#### APPLICATIONS

Cox Precision Flow Meters are the ideal solutions for standard and high pressure liquid flow applications in test and measurement and precision industrial processes, found in the automotive, aerospace and general industries.

#### OPERATION AND PERFORMANCE

As a fluid passes through the meter, the velocity of the fluid provides rotational energy on the rotor. The rotor blades, passing through a magnetic or radio frequency field, generate pulses proportional to flow. Each pulse is transmitted to the meter electronics, where it amplifies the pulse output.

Outstanding mechanical linearity, up to 100:1, is achievable, depending on meter size. Paired with a flow processor, meter linearity improves from the standard  $\pm 0.50$  percent to within  $\pm 0.1$  percent of reading over the entire repeatable flow range, while providing fluid temperature viscosity compensation. Temperature effects on the meter bore diameter are compensated for by using thermal expansion coefficients, with Strouhal-Roshko equations, to provide a very accurate and repeatable volumetric flow rate.

#### Performance Specifications

- Repeatability:  $\pm 0.02\%$  of reading
- Linearity:  $\pm 0.50\%$  ( $\pm 0.1\%$  with flow processor)
- Calibrator Uncertainty:  $\pm 0.05\%$  of reading
- Frequency Output: 1200...1500 Hz
- Response Time: 2...3 ms (at 1.2 cSt)
- Pressure Ratings: See "[Pressure Specifications](#)" on page 5



**Badger Meter**

TUR-DS-00169-EN-03 (October 2013)



# Product Data Sheet

## CONSTRUCTION

Cox Precision Meters feature 316 stainless steel housings. Wetted materials include axial helical rotors, made of 17-4 stainless steel, that rotate on robust ceramic ball bearings. The supports and all other materials are made from 300 series stainless steel. High pressure meters come standard with AS33514 fittings. End Fittings are fully compliant with AS33514 and AS4375. For pressure ratings, see [“Pressure Specifications” on page 5](#).

### Materials of Construction

|                |                         |
|----------------|-------------------------|
| <b>Body</b>    | 316 stainless steel     |
| <b>Shafts</b>  | 316 stainless steel     |
| <b>Rotors</b>  | 17-4 PH stainless steel |
| <b>Bearing</b> | Ceramic                 |

## METER INSTALLATION

Cox Turbine Flow Meters mount directly in the piping and can be installed in any position without affecting performance. For optimal performance, recalibrate the meter if the mounting orientation is changed from the original horizontal calibration.

To reduce flow turbulence, a straightener section of tube, at a minimum of 10 diameters in length upstream and a similar section at a minimum of five diameters downstream, is recommended. If this recommendation is impractical, due to space limitations, pay careful attention to the location of valves and bends. To compensate for piping bends, meters can be calibrated in the same piping configuration. Flow straightener sections are available from Cox Flow Measurement. For best performance and longevity, upstream filtration (10...75 micron, depending on meter size) is helpful, to prevent bearing contamination and to avoid rotor blade damage.

## FLOW RANGE SPECIFICATIONS

**NOTE:** The flow data below represents two different pickoff types, radio frequency and magnetic. Radio frequency (RF) pickoffs extend the measurable linear flow range by eliminating magnetic induced drag. RF pickoffs require a power input, whereas magnetic pickoffs generate their own power to produce an output signal and typically, have greater tolerance to higher process temperatures.

### U.S. Standard Flow Data

| Carrier (RF) Linear Range <sup>2</sup> |                                  |                                       |                   | Non-Linear Repeatable Range    |                                      |                       | $\Delta p^1$ at Max. Flow PSIG (g/cm <sup>2</sup> ) | Freq. Output at Max. Flow |
|----------------------------------------|----------------------------------|---------------------------------------|-------------------|--------------------------------|--------------------------------------|-----------------------|-----------------------------------------------------|---------------------------|
| Size                                   | gpm (lpm)                        | lb/hr (kg/hr)                         | Linear Flow Ratio | gpm (lpm)                      | lb/hr (kg/hr)                        | Flow Ratio (Turndown) |                                                     |                           |
| 8-4                                    | 0.20...3.00<br>(0.76...11.36)    | 76...1143<br>(34.47...518.46)         | 15:1              | 0.05...3.00<br>(0.19...11.36)  | 19...1143<br>(8.62...518.46)         | 60:1                  | 6.5<br>(0.46)                                       | 1500 Hz                   |
| 8-6                                    | 0.30...6.00<br>(1.14...22.71)    | 114...2286<br>(51.71...1036.91)       | 20:1              | 0.06...6.00<br>(0.23...22.71)  | 22.8...2286<br>(10.34...1036.91)     | 100:1                 | 8.5<br>(0.60)                                       |                           |
| 8                                      | 0.40...9.50<br>(1.51...35.96)    | 152...3619<br>(68.95...1641.55)       | 24:1              | 0.09...9.50<br>(0.34...35.96)  | 34.3...3619<br>(15.56...1641.55)     |                       | 8.5<br>(0.60)                                       |                           |
| 10                                     | 0.50...15.5<br>(1.89...58.67)    | 190...5905<br>(86.18...2678.46)       | 30:1              | 0.16...15.5<br>(0.61...58.67)  | 60.9...5905<br>(27.62...2678.46)     |                       | 9.0<br>(0.63)                                       |                           |
| 12                                     | 1.00...30.0<br>(3.78...113.56)   | 381...11,430<br>(172.82...5184.56)    | 30:1              | 0.30...30.0<br>(1.13...113.56) | 114...11,430<br>(51.71...5184.56)    |                       | 9.0<br>(0.63)                                       |                           |
| 16                                     | 1.60...65.0<br>(6.06...246.05)   | 610...24,765<br>(276.69...11,233.2)   | 40:1              | 0.45...65.0<br>(1.70...246.05) | 171...24,765<br>(77.67...11,233.2)   | 150:1                 | 9.0<br>(0.63)                                       |                           |
| 20                                     | 1.90...95.0<br>(7.19...359.61)   | 724...36,195<br>(328.40...16,417.7)   | 50:1              | 0.65...95.0<br>(2.46...359.61) | 247...36,195<br>(112.04...16,417.7)  |                       | 8.5<br>(0.60)                                       |                           |
| 24                                     | 2.60...155<br>(9.84...586.74)    | 990...59,055<br>(449.06...26,786.9)   | 60:1              | 1.05...155<br>(3.97...586.74)  | 400...59,055<br>(181.44...26,786.9)  |                       | 9.0<br>(0.60)                                       |                           |
| 32                                     | 3.10...310<br>(11.73...1,173.48) | 1181...118,110<br>(535.69...53,573.7) | 100:1             | 2.10...310<br>(7.95...1173.48) | 800...118,110<br>(362.87...53,573.7) |                       | 9.0<br>(0.63)                                       |                           |

#### NOTES:

1. Pressure drop is based on using MIL-PRF-17024E, Type II at 77° F, with a specific gravity of 0.77.
2. Linear flow range was developed using 1.2 centistokes.

| Magnetic 10:1 Linear Range |                                 |                                       |                                                       | K-Factor<br>Pulses/<br>Gallon <sup>3</sup><br>(Liter <sup>3</sup> ) | Extended Range – Linear <sup>2</sup> |                                        |                          |                                         |
|----------------------------|---------------------------------|---------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------|----------------------------------------|--------------------------|-----------------------------------------|
| Size                       | gpm<br>(lpm)                    | lb/hr<br>(kg/hr)                      | $\Delta p^1$ at 10:1<br>PSID<br>(kg/cm <sup>2</sup> ) |                                                                     | gpm<br>(lpm)                         | lb/hr<br>(kg/hr)                       | Flow Ratio<br>(Turndown) | Freq. at<br>Min./Max.<br>Output<br>(Hz) |
| 8-4                        | 0.25...2.50<br>(0.95...9.46)    | 95...952<br>(43.09...431.82)          | 3.5<br>(0.25)                                         | 28,800<br>(7610)                                                    | 0.25...3.00<br>(0.95...11.36)        | 95...1143<br>(43.09...518.46)          | 12:1                     | 120/1440                                |
| 8-6                        | 0.50...5.00<br>(1.89...18.93)   | 190...1905<br>(86.18...864.10)        | 4.5<br>(0.32)                                         | 14,400<br>(3805)                                                    | 0.50...6.00<br>(1.89...22.71)        | 190...2286<br>(86.18...1036.91)        | 12:1                     | 120/1440                                |
| 8                          | 0.75...7.50<br>(2.84...28.39)   | 285...2857<br>(129.27...1295.91)      | 6.0<br>(0.42)                                         | 9600<br>(2536)                                                      | 0.60...9.00<br>(2.27...34.07)        | 229...3429<br>(103.87...1555.37)       | 15:1                     | 96/1440                                 |
| 10                         | 1.25...12.5<br>(4.73...47.32)   | 476...4762<br>(215.91...2160.01)      | 5.0<br>(0.35)                                         | 5760<br>(1522)                                                      | 1.00...15.0<br>(3.79...56.78)        | 381...5715<br>(172.82...2592.28)       | 15:1                     | 96/1440                                 |
| 12                         | 2.50...25.0<br>(9.46...94.74)   | 952...9525<br>(431.82...4320.47)      | 5.0<br>(0.35)                                         | 2800<br>(761)                                                       | 1.50...30.0<br>(5.68...113.56)       | 571...11,430<br>(259.01...5184.56)     | 20:1                     | 72/1440                                 |
| 16                         | 5.00...50.0<br>(18.93...189.27) | 1905...19,050<br>(864.09...8640.93)   | 5.0<br>(0.35)                                         | 1440<br>(380)                                                       | 2.50...60.0<br>(9.46...227.13)       | 953...22,860<br>(432.27...10,369.1)    | 24:1                     | 60/1440                                 |
| 20                         | 7.50...75.0<br>(28.39...283.91) | 2857...28,575<br>(1295.91...12,961.4) | 5.5<br>(0.39)                                         | 960<br>(254)                                                        | 3.00...90.0<br>(11.36...340.69)      | 1143...34,290<br>(518.46...15,553.6)   | 30:1                     | 48/1440                                 |
| 24                         | 12.5...125<br>(47.32...473.18)  | 4762...47,625<br>(2160.01...21,602.3) | 6.0<br>(0.42)                                         | 576<br>(152)                                                        | 5.00...150<br>(18.93...567.81)       | 1905...57,150<br>(864.09...25,922.8)   | 30:1                     | 48/1440                                 |
| 32                         | 25.0...250<br>(94.64...946.35)  | 9525...95,250<br>(4320.47...43,204.6) | 6.5<br>(0.46)                                         | 288<br>(76)                                                         | 6.20...300<br>(23.47...1135.62)      | 2362...114,300<br>(1071.39...51,845.6) | 48:1                     | 30/1440                                 |

**NOTES:**

1. Pressure drop is based on using MIL-PRF-17024E, Type II at 77° F, with a specific gravity of 0.77.
2. Extended range is linear, with liquids up to 1.5 centistokes. Over 2.0 centistokes, output becomes non-linear but repeatable.
3. K-Factor will vary slightly from meter to meter.

## PRESSURE SPECIFICATIONS

### Pressure Ratings for AN End Fittings

| Size | Pipe Size<br>in. (mm) | Meter Body: 316 Stainless Steel |      |        |      |        |      |
|------|-----------------------|---------------------------------|------|--------|------|--------|------|
|      |                       | 100° F                          |      | 300° F |      | 500° F |      |
|      |                       | bar                             | psig | bar    | psig | bar    | psig |
| 8-4  | 0.25 (6.35)           | 367                             | 5330 | 299    | 4340 | 231    | 3350 |
| 8-6  | 0.37 (9.52)           | 317                             | 4600 | 245    | 3550 | 172    | 2500 |
| 8    | 0.50 (12.7)           | 483                             | 7000 | 388    | 5625 | 293    | 4250 |
| 10   | 0.62 (15.87)          | 390                             | 5660 | 319    | 4630 | 248    | 3600 |
| 12   | 0.75 (19.05)          | 317                             | 4600 | 245    | 3550 | 172    | 2500 |
| 16   | 1.00 (25.4)           | 248                             | 3600 | 193    | 2800 | 138    | 2000 |
| 20   | 1.25 (31.75)          | 190                             | 2760 | 157    | 2280 | 124    | 1800 |
| 24   | 1.50 (38.1)           | 168                             | 2430 | 135    | 1965 | 103    | 1500 |
| 32   | 2.00 (50.8)           | 121                             | 1760 | 97     | 1405 | 72     | 1050 |

### Pressure Ratings for HP End Fittings

| Meter Size | Continuous |     | Proof |     | Burst  |      |
|------------|------------|-----|-------|-----|--------|------|
| All Sizes  | PSIG       | Bar | PSIG  | Bar | PSIG   | Bar  |
|            | 5000       | 345 | 7500  | 517 | 25,000 | 1724 |

### Pressure Ratings for NPT End Fittings

| Size | ISO/NPT Pipe Size<br>in. (mm) | Meter Body 316 Stainless Steel |      |                        |      |
|------|-------------------------------|--------------------------------|------|------------------------|------|
|      |                               | Male (Furnished Thread)        |      | Female (Mating Thread) |      |
|      |                               | bar                            | psig | bar                    | psig |
| 8-4  | 0.25 (6.35)                   | 525                            | 7614 | 408                    | 5922 |
| 8-6  | 0.37 (9.52)                   | 493                            | 7144 | 324                    | 4700 |
| 8    | 0.50 (12.7)                   | 486                            | 7050 | 305                    | 4418 |
| 10   | 0.75 (19.05)                  | 466                            | 6768 | 285                    | 4136 |
| 12   | 0.75 (19.05)                  | 466                            | 6768 | 285                    | 4136 |
| 16   | 1.00 (25.4)                   | 343                            | 4982 | 278                    | 4042 |
| 20   | 1.25 (31.75)                  | 401                            | 5828 | 324                    | 4700 |
| 24   | 1.50 (38.1)                   | 330                            | 4794 | 291                    | 4230 |
| 32   | 2.00 (50.8)                   | 259                            | 3760 | 253                    | 3666 |

#### NOTES:

- Pressure ratings listed are for temperatures up to 100° F (37.8° C).
- Pressure rating is calculated with an allowable stress value of 20,000 psi for 316 SS per pressure piping code ASME B31.3.
- Chart is displaying safe working pressure, in accordance with power piping code ASME B31.1.

**NOTE:** It is recommended that the flow meter have "AN" end fittings and that the "NPT" transition be done on the far ends of the flow straighteners. This avoids a step in the flow stream next to the flow meter and produces an improved flow profile. If the NPT end fittings were selected for their high pressure rating, then the step is unavoidable and the calibration will account for the distorted profile.

### Pressure Ratings for Flange End Fittings (in accordance with ASME B16.5 Standards)

| ANSI Flange | PSIG | Bar |
|-------------|------|-----|
| 150#        | 275  | 19  |
| 300#        | 720  | 50  |
| 600#        | 1440 | 99  |
| 900#        | 2160 | 149 |
| 1500#       | 3600 | 248 |
| 2500#       | 6000 | 414 |

#### NOTES:

- Specifications from maximum non-shock allowable working pressure in PSIG at 100° F (37.8° C) or less.
- Stainless steel 316A-181 material.

**Pressure Ratings for Tri-Clamp End Fittings**

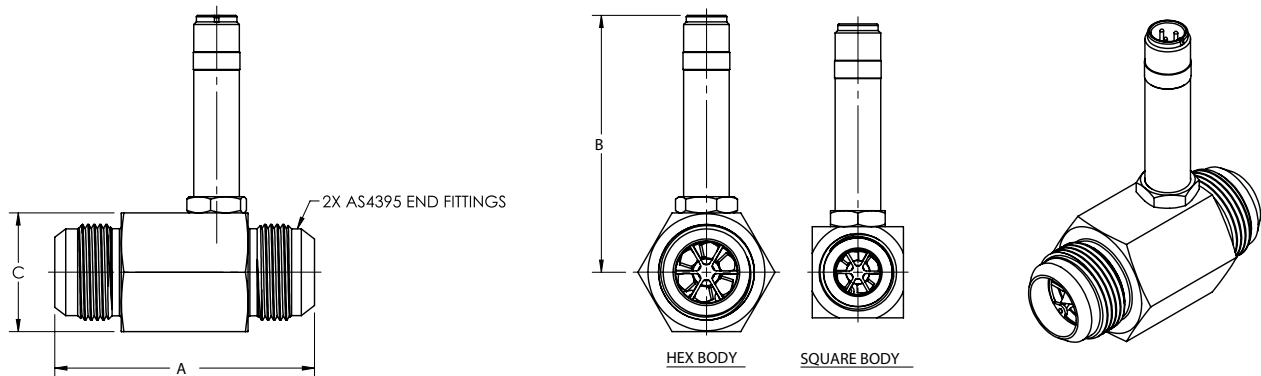
| Size | Pipe Size<br>in. (mm) | Meter Body: 316 Stainless Steel |      |
|------|-----------------------|---------------------------------|------|
|      |                       | bar                             | psig |
| 8-4  | 0.25 (6.35)           | 153                             | 2220 |
| 8-6  | 0.37 (9.52)           | 153                             | 2220 |
| 8    | 0.50 (12.7)           | 153                             | 2220 |
| 10   | 0.62 (15.87)          | 41                              | 600  |
| 12   | 0.75 (19.05)          | 41                              | 600  |
| 16   | 1.00 (25.4)           | 41                              | 600  |
| 20   | 1.25 (31.75)          | 41                              | 600  |
| 24   | 1.50 (38.1)           | 41                              | 600  |
| 32   | 2.00 (50.8)           | 38                              | 550  |

**NOTE:** Specifications in this table are based on a Tri-Clover® clamp 13MHHS, with Buna-N material gaskets at a fluid temperature of 70° F (21.1° C).  
Other style clamps may produce different pressure ratings.

## DIMENSIONS

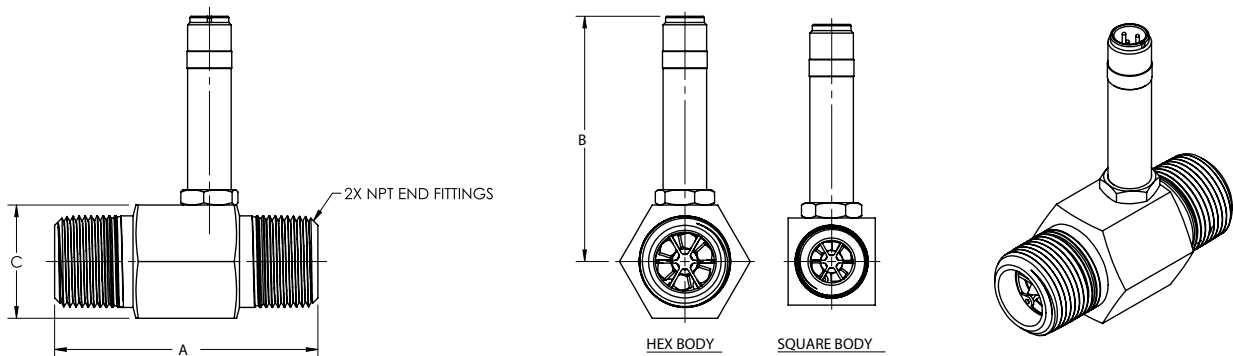
Dimension B specifies the most common pickoff type. Actual size may vary depending on pickoff choice. Consult factory for details.

### AN End Fitting



| Size | End Fitting<br>in. (mm) | A<br>in. (mm) | B (RF)<br>in. (mm) | B (MAG)<br>in. (mm) | C<br>in. (mm)            |
|------|-------------------------|---------------|--------------------|---------------------|--------------------------|
| 8-4  | 0.50 (12.70)            | 2.45 (62.23)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square Body |
| 8-6  | 0.50 (12.70)            | 2.45 (62.23)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square Body |
| 8    | 0.50 (12.70)            | 2.45 (62.23)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.12 (28.45) Square Body |
| 10   | 0.625 (15.88)           | 2.72 (69.08)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.25 (31.75) Square Body |
| 12   | 0.75 (19.05)            | 3.25 (82.55)  | 3.40 (86.36)       | 2.90 (73.66)        | 1.25 (31.75) Square Body |
| 16   | 1.00 (25.40)            | 3.56 (90.42)  | 3.50 (88.90)       | 3.00 (76.20)        | 1.63 (41.40) Hex Body    |
| 20   | 1.25 (31.75)            | 4.06 (103.1)  | 3.60 (91.44)       | 3.10 (78.74)        | 1.88 (47.75) Hex Body    |
| 24   | 1.50 (38.10)            | 4.59 (116.6)  | 3.80 (96.52)       | 3.30 (83.82)        | 2.25 (57.15) Hex Body    |
| 32   | 2.00 (50.80)            | 6.06 (153.9)  | 4.00 (101.6)       | 3.50 (88.90)        | 2.75 (69.85) Hex Body    |

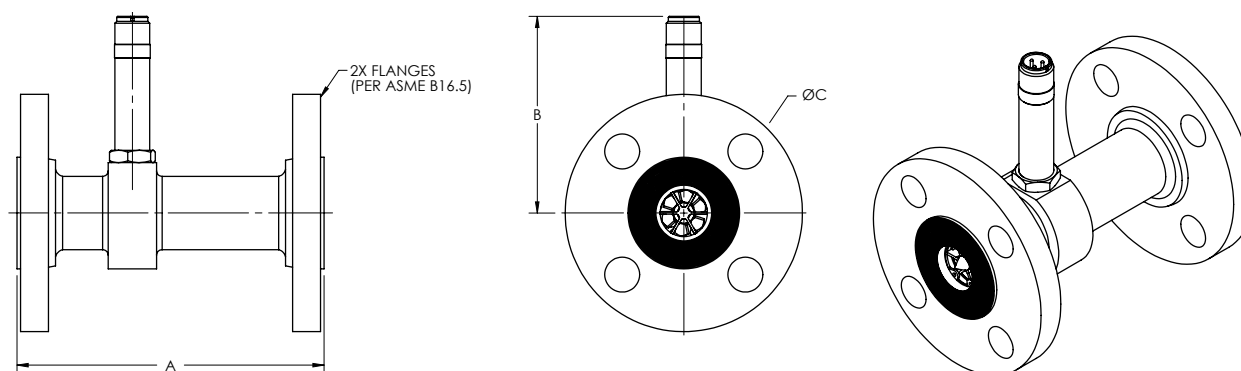
### NPT End Fitting



| Size | End Fitting<br>in. (mm) | A<br>in. (mm) | B (RF)<br>in. (mm) | B (MAG)<br>in. (mm) | C<br>in. (mm)            |
|------|-------------------------|---------------|--------------------|---------------------|--------------------------|
| 8-4  | 0.50 (12.70)            | 2.70 (68.58)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square Body |
| 8-6  | 0.50 (12.70)            | 2.70 (68.58)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square Body |
| 8    | 0.50 (12.70)            | 2.70 (68.58)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.12 (28.45) Square Body |
| 10   | 0.75 (19.05)            | 3.29 (83.57)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.25 (31.75) Square Body |
| 12   | 0.75 (19.05)            | 3.29 (83.57)  | 3.40 (86.36)       | 2.90 (73.66)        | 1.25 (31.75) Square Body |
| 16   | 1.00 (25.40)            | 3.78 (96.01)  | 3.50 (88.90)       | 3.00 (76.20)        | 1.63 (41.40) Hex Body    |
| 20   | 1.25 (31.75)            | 4.23 (107.4)  | 3.60 (91.44)       | 3.10 (78.74)        | 1.88 (47.75) Hex Body    |
| 24   | 1.50 (38.10)            | 4.67 (118.6)  | 3.80 (96.52)       | 3.30 (83.82)        | 2.25 (57.15) Hex Body    |
| 32   | 2.00 (50.80)            | 5.89 (149.6)  | 4.00 (101.6)       | 3.50 (88.90)        | 2.75 (69.85) Hex Body    |

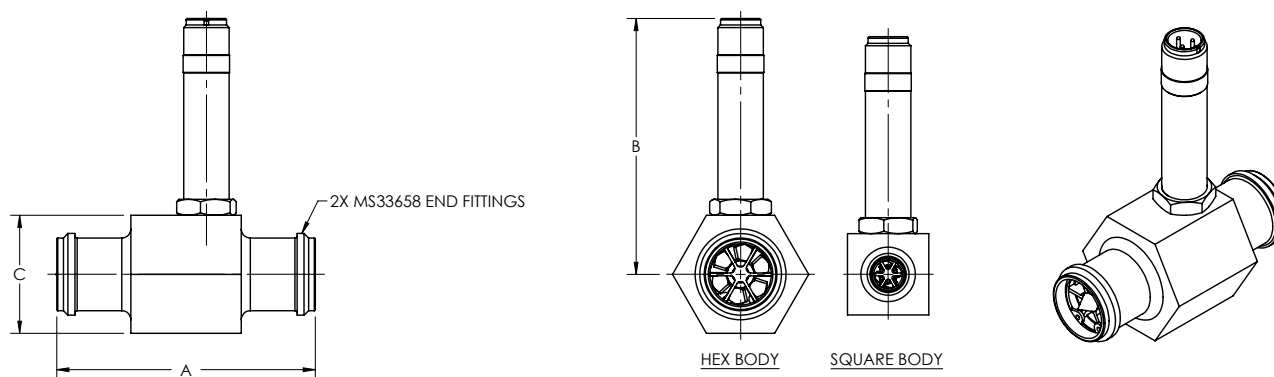


## Flange End Fitting



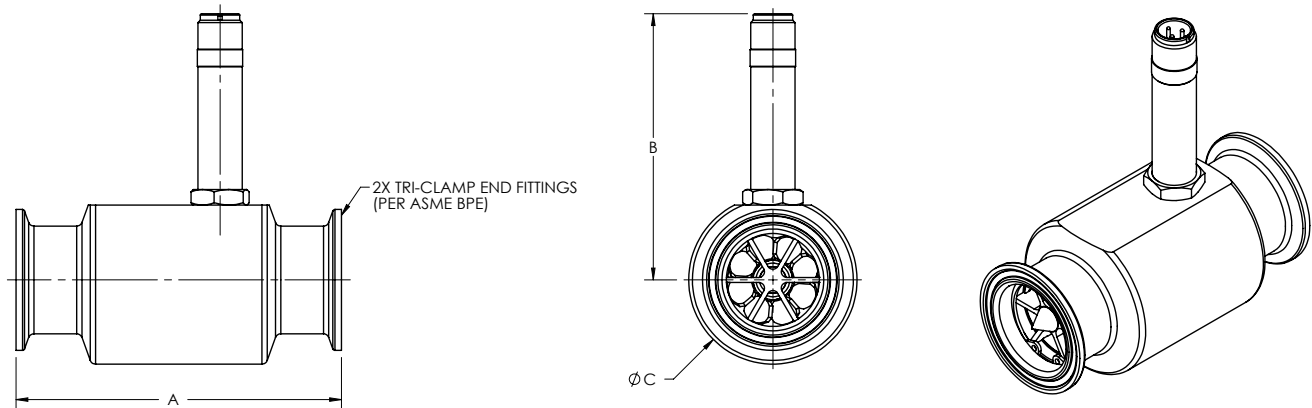
| Size | A<br>in. (mm) | B (RF)<br>in. (mm) | B (MAG)<br>in. (mm) | C—150# Flange<br>in. (mm) | C—300# Flange<br>in. (mm) | C—600# Flange<br>in. (mm) |
|------|---------------|--------------------|---------------------|---------------------------|---------------------------|---------------------------|
| 8-4  | 5.00 (127.0)  | 3.20 (81.28)       | 2.70 (68.58)        | 3.50 (89)                 | 3.75 (95)                 | 3.75 (95)                 |
| 8-6  | 5.00 (127.0)  | 3.20 (81.28)       | 2.70 (68.58)        | 3.50 (89)                 | 3.75 (95)                 | 3.75 (95)                 |
| 8    | 5.00 (127.0)  | 3.30 (83.82)       | 2.80 (71.12)        | 3.50 (89)                 | 3.75 (95)                 | 3.75 (95)                 |
| 10   | 5.50 (139.7)  | 3.30 (83.82)       | 2.80 (71.12)        | 3.50 (89)                 | 3.75 (95)                 | 3.75 (95)                 |
| 12   | 5.50 (139.7)  | 3.40 (86.36)       | 2.90 (73.66)        | 3.88 (99)                 | 4.62 (117)                | 4.62 (117)                |
| 16   | 5.50 (139.7)  | 3.50 (88.90)       | 3.00 (76.20)        | 4.25 (108)                | 4.88 (124)                | 4.88 (124)                |
| 20   | 6.00 (152.4)  | 3.60 (91.44)       | 3.10 (78.74)        | 4.62 (117)                | 5.25 (133)                | 5.25 (133)                |
| 24   | 6.00 (152.4)  | 3.80 (96.52)       | 3.30 (83.82)        | 5.00 (127)                | 6.12 (155)                | 6.12 (155)                |
| 32   | 6.50 (165.1)  | 4.00 (101.6)       | 3.50 (88.90)        | 6.00 (152)                | 6.50 (165)                | 6.50 (165)                |

## Hose Barb End Fitting



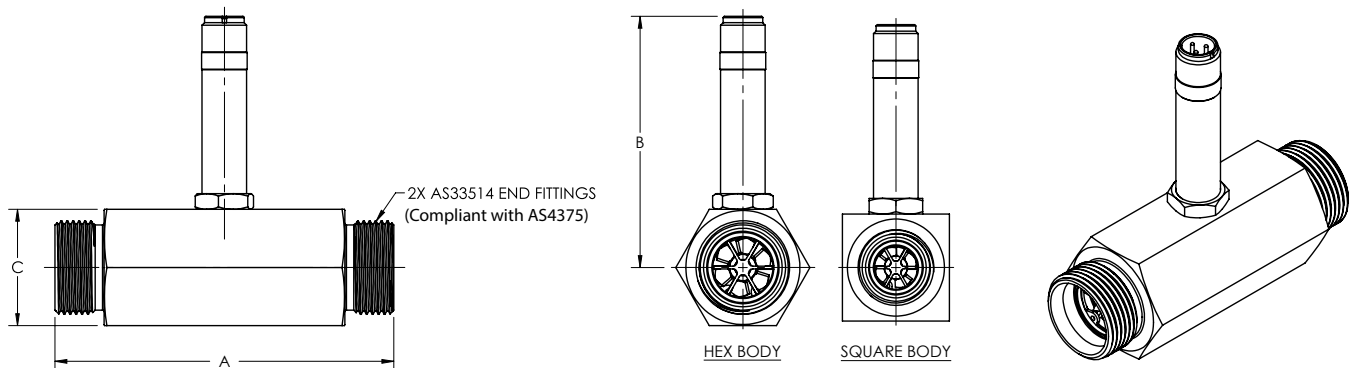
| Size | End Fitting<br>in. (mm) | A<br>in. (mm) | B (RF)<br>in. (mm) | B (MAG)<br>in. (mm) | C<br>in. (mm)            |
|------|-------------------------|---------------|--------------------|---------------------|--------------------------|
| 8-4  | 0.50 (12.70)            | 3.18 (80.77)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square body |
| 8-6  | 0.50 (12.70)            | 3.18 (80.77)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square body |
| 8    | 0.50 (12.70)            | 3.18 (80.77)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.12 (28.45) Square body |
| 10   | 0.625 (15.88)           | 3.24 (82.30)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.25 (31.75) Hex body    |
| 12   | 0.75 (19.05)            | 3.25 (82.55)  | 3.40 (86.36)       | 2.90 (73.66)        | 1.25 (31.75) Hex body    |
| 16   | 1.00 (25.40)            | 3.56 (90.42)  | 3.50 (88.90)       | 3.00 (76.20)        | 1.63 (41.40) Hex body    |
| 20   | 1.25 (31.75)            | 4.50 (114.3)  | 3.60 (91.44)       | 3.10 (78.74)        | 1.88 (47.75) Hex body    |
| 24   | 1.50 (38.10)            | 5.00 (127.0)  | 3.80 (96.52)       | 3.30 (83.82)        | 2.25 (57.15) Hex body    |
| 32   | 2.00 (50.80)            | 6.50 (165.1)  | 4.00 (101.6)       | 3.50 (88.90)        | 2.75 (69.85) Hex body    |

## Tri-Clamp End Fitting



| Size | End Fitting<br>in. (mm) | A<br>in. (mm) | B (RF)<br>in. (mm) | B (MAG)<br>in. (mm) | C<br>in. (mm) | Clamp Size<br>in. (mm) |
|------|-------------------------|---------------|--------------------|---------------------|---------------|------------------------|
| 8-4  | 0.50 (12.70)            | 3.56 (90.42)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.50 (38.10)  | 0.75(19.05)            |
| 8-6  | 0.50 (12.70)            | 3.56 (90.42)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.50 (38.10)  |                        |
| 8    | 0.50 (12.70)            | 3.56 (90.42)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.50 (38.10)  |                        |
| 10   | 1.25 (31.75)            | 3.56 (90.42)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.77 (44.96)  | 1.50 (38.10)           |
| 12   | 1.25 (31.75)            | 3.56 (90.42)  | 3.40 (86.36)       | 2.90 (73.66)        | 1.77 (44.96)  |                        |
| 16   | 1.50 (31.80)            | 3.56 (90.42)  | 3.50 (88.90)       | 3.00 (76.20)        | 1.99 (50.55)  |                        |
| 20   | 1.50 (31.80)            | 4.59 (116.6)  | 3.60 (91.44)       | 3.10 (78.74)        | 2.17 (55.12)  |                        |
| 24   | 1.50 (31.80)            | 4.59 (116.6)  | 3.80 (96.52)       | 3.30 (83.82)        | 2.38 (60.45)  | 2.00 (50.80)           |
| 32   | 2.00 (50.80)            | 6.06 (153.9)  | 4.00 (101.6)       | 3.50 (88.90)        | 3.18 (80.77)  |                        |

## High Pressure End Fitting



| Size | End Fitting<br>in. (mm) | A<br>in. (mm) | B (RF)<br>in. (mm) | B (MAG)<br>in. (mm) | C<br>in. (mm)            |
|------|-------------------------|---------------|--------------------|---------------------|--------------------------|
| 8-4  | 0.50 (12.70)            | 3.25 (82.55)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square body |
| 8-6  | 0.50 (12.70)            | 3.25 (82.55)  | 3.20 (81.28)       | 2.70 (68.58)        | 1.12 (28.45) Square body |
| 8    | 0.50 (12.70)            | 3.50 (88.90)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.12 (28.45) Square body |
| 10   | 0.625(15.88)            | 4.00 (101.6)  | 3.30 (83.82)       | 2.80 (71.12)        | 1.25 (31.75) Square body |
| 12   | 0.75 (19.05)            | 4.50 (114.3)  | 3.40 (86.36)       | 2.90 (73.66)        | 1.50 (38.10) Square body |
| 16   | 1.00 (25.40)            | 4.75 (120.7)  | 3.50 (88.90)       | 3.00 (76.20)        | 1.63 (41.40) Hex body    |
| 20   | 1.25 (31.75)            | 5.50 (139.7)  | 3.60 (91.44)       | 3.10 (78.74)        | 1.88 (47.75) Hex body    |
| 24   | 1.50 (38.10)            | 6.00 (152.4)  | 3.80 (96.52)       | 3.30 (83.82)        | 2.25 (57.15) Hex body    |
| 32   | 2.00 (50.80)            | 7.00 (177.8)  | 4.00 (101.6)       | 3.50 (88.90)        | 2.75 (69.85) Hex body    |

**NOTE:** Higher flange ratings and other end fitting types can be provided. Consult the factory for pricing and delivery estimates.

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