√CONE®

SPECIFICATION SHEET
PRECISION TUBE SERIES

# MODEL V-Series Precision Tube

## DESCRIPTION AND GENERAL PERFORMANCE SPECIFICATIONS

The V-Cone® flowmeter is a patented, differential pressure type flow measurement device. A cone is positioned in the center of the pipe to increase the velocity of the flowing fluid and create a differential pressure. This pressure difference can be measured and used to accurately interpret flowrate. Two taps are provided on every V-Cone to allow sensing of the high and low pressures. A typical V-Cone application can follow these general performance specifications:

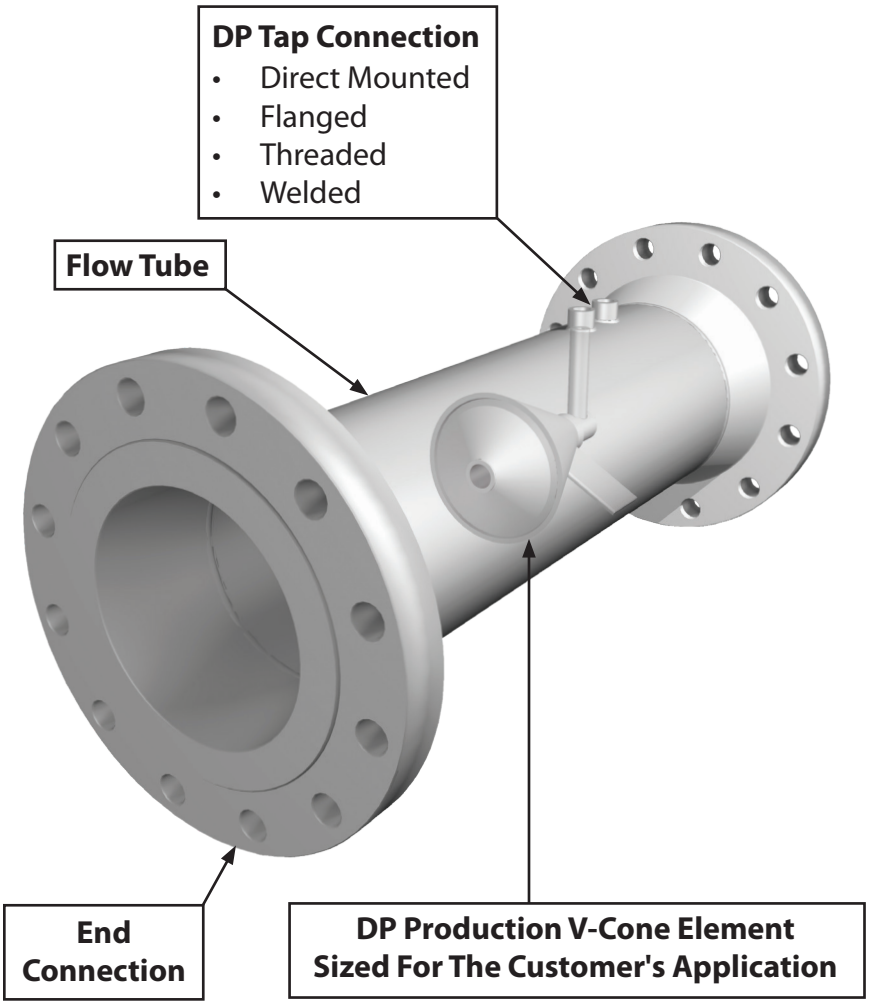
- Accuracy: up to ±0.5% of rate
- Repeatability: ±0.1%
- Turndown: 10:1
- Standard Betas: 0.45 through 0.85
- Headloss: Percentage of differential pressure produced varies with beta ratio.
- Installation: Typically 0-3 diameters upstream and 0-1 diameters downstream.

* Each V-Cone is sized for the intended application. Specific performance ratings must be obtained through the sizing process.

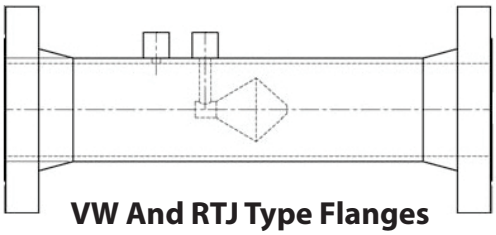
BUREAU VERITAS 1828

The V-Cone is manufactured under a quality management system that is certified to ISO 9001:2015.

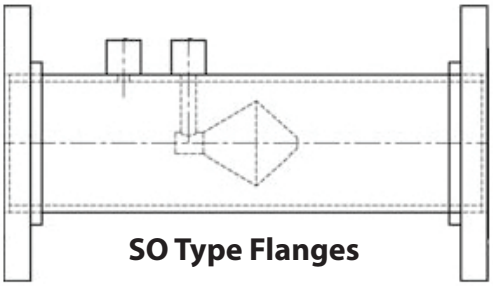
## General Configuration



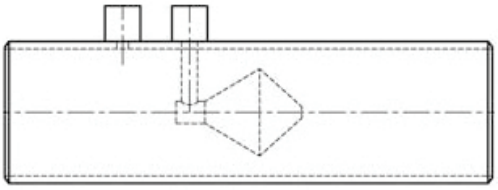

### End Connections



VW And RTJ Type Flanges



SO Type Flanges



Plain Or Beveled End

McCROMETER
www.mccrometer.com

3255 WEST STETSON AVENUE • HEMET, CALIFORNIA 92545 USA
TEL: 951-652-6811 • 800-220-2279 • FAX: 951-652-3078

Printed In The U.S.A.
Lit. # 30122-01 Rev. 1.2 / 16APR2024

McCROMETER

# V-Cone Part Number Configurator

Part Number Configurator: Choose the code for each category from the menus and place the codes in the corresponding categories shown below to create a custom V-Cone part number.

Part number code categories: Flange Type | Line Size | Materials | Schedule | Flange & Class | Process Connection - Optional RTD - Option Code

Option menus are on the next page.

Example part numbers:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| O&G | **VW** | **04** | **G** | **F** | **16** | **BC** | - **N4** - | **W2** | |
| Ind. | **VS** | **06** | **Q** | **E** | **03** | **N** | - **None** - | **F8** | (Options) |

**Flange Type**

| Code | Description |
|---|---|
| VS | (Slip On) |
| VW | (RF WN) |
| VR | (ANSI RTJ WN) |
| VB | (Beveled) |
| VT | (NPT) |
| VP | (Plain End) |
| VC | (DIN SO) |
| VD | (DIN WN) |
| VJ | (JIS SO) |
| VN | (JIS WN) |
| VG | (Hub) |

**Line Size**

| Code | Desc. |
|---|---|
| 0A | 0.5" |
| 0B | 0.75" |
| 01 | 1" |
| 0C | 1.5" |
| 02 | 2" |
| 0D | 2.5" |
| 03 | 3" |
| 04 | 4" |
| 05 | 5" |
| 06 | 6" |
| 08 | 8" |
| 10 | 10" |
| 12 | 12" |
| Up to 60" | |

For meters larger than 60", contact factory.

**Materials**

| Code | Description |
|---|---|
| U | (CS Pipe & Flg, S304/L Cone, supports & Cplg, final prep must be specified) |
| F | (CS Pipe, Flgs & Cplg, S316/L Cone & support, final prep must be specified) |
| V | (CS Pipe & Flg, 316/L Cone, supports & Cplg, final prep must be specified) |
| G | (LTCS Pipe, Flg & Cplg, S316/L cone & support, final prep must be specified) |
| Q | (All S304/L) |
| A | (All S316/L) |
| Y | (All S304H) |
| Z | (All S316H) |
| D | (Duplex S31803) |
| J | (Super Duplex S32760) |
| H | (All Hast C276) |
| K | (CS Body C276 Cone & Supports) |
| C | (P11 Chrome-Moly S316/L Cone & Supports) |
| P | (P22 Chrome-Moly S316/L Cone & Supports) |
| O | (X52/F52 Body, S316/L Cone & Supports) |
| R | (X60/F60 Body, S316/L Cone & Supports) |
| M | (All Monel 400) |
| I | (All Inconel 625) |
| T | (All Titanium) |

**Schedule**

| Code | Desc. |
|---|---|
| D | Std |
| E | S40 |
| F | S80 |
| J | S100 |
| K | S120 |
| L | S140 |
| G | S160 |
| H | XXS |
| P | XS |
| Q | S60 |
| R | S30 |

**Flange & Class**

| Code | Desription |
|---|---|
| 00 | VP Smooth Ends |
| 01 | VB Beveled Ends |
| 02 | VT Threaded Ends |
| 03 | VS SO ANSI CL 150 RF |
| 04 | VS SO ANSI CL 300 RF |
| 05 | VS SO ANSI CL 600 RF |
| 06 | VS SO ANSI CL 900 RF |
| 07 | VS SO ANSI CL 1500 RF |
| 13 | VC SO DIN 2576 PN10 FF |
| 14 | VW WN ANSI CL 150 RF |
| 15 | VW WN ANSI CL 300 RF |
| 16 | VW WN ANSI CL 600 RF |
| 17 | VW WN ANSI CL 900 RF |
| 18 | VW WN ANSI CL 1500 RF |
| 19 | VR WN ANSI CL 150 RTJ |
| 20 | VR WN ANSI CL 300 RTJ |
| 21 | VR WN ANSI CL 600 RTJ |
| 22 | VR WN ANSI CL 900 RTJ |
| 23 | VR WN ANSI CL 1500 RTJ |
| 24 | VD WN DIN 2633 PN16 RF |
| 25 | VD WN DIN 2635 PN40 RF |
| 26 | VJ SO JIS 10K |
| 27 | VJ SO JIS 20K |
| 28 | VN WN JIS 16K |
| 29 | VN WN JIS 20K |
| 32 | VR WN ANSI CL 2500 RTJ |
| 33 | VS AWWA SO FF CL B |
| 34 | VS AWWA SO FF CL D |
| 35 | VS AWWA SO FF CL E |
| 36 | VS AWWA SO FF CL F |
| 37 | VD WN DIN 2637 PN100 RF |
| 39 | VG Hub type |
| 40 | SO ANSI CL 150 FF |
| 44 | VP Victaulic Grooved Ends |
| 45 | VW WN B16.47 A 150# RF (MSS SP-44 150#) |
| 46 | VW WN B16.47 B 150# RF (API-605 150#) |
| 48 | SO DIN 2666 PN25 FF |
| 49 | VW WN ANSI CL 2500 RF |
| 50 | VW WN B16.47 A 300# RF (MSS SP-44 300#) |
| 51 | VW WN B16.47 B 300# RF (API-605 300#) |
| 52 | VR WN API 6A 10000# 6BX RTJ |
| 53 | VR WN API 6A 5000# 6BX RTJ |

**Process Connection (Standard Options)**

| Code | Description |
|---|---|
| N | 1/2" 3000# NPT Cplg |
| S | 1/2" 3000# Soc Cplg |
| F | Futbol Flanges |
| J | 1/2" RC 3000# |
| J2 | 1/2" 15A 3000# |
| J3 | 1/4" RC 3000# |

OR

**Process Connection (Non-Standard Options)**

Flanged Type (in line)
Select One Code From Each Column

| Code | Connection Type | Code | Rating |
|---|---|---|---|
| A | 1/2" Flg. Tap | A | ANSI 150# RF S80 Bore |
| B | 3/4" Flg. Tap | B | ANSI 300# RF S80 |
| 1 | 1" Flg. Tap | C | ANSI 600# RF S160 |
| C | 1.5" Flg. Tap | D | ANSI 900# RF S160 |
| 2 | 2"Flg. Tap | E | ANSI 1500# RF XXS |
| | | F | ANSI 2500# RF XXS |
| | | G | ANSI 600# RTJ S160 |
| | | H | ANSI 900# RTJ S160 |
| | | I | ANSI 1500# RTJ XXS |
| | | J | ANSI 2500# RTJ XXS |

OR

**Process Connection (Non-Standard Options)**

Coupling/Olet Type (in line)
Select One Code From Each Column

| Code | Connection Type | Code | Rating |
|---|---|---|---|
| N | NPT Cplg/Olet | 2 | 1/4" Cplg 3000# |
| S | Soc Cplg/Olet | 3 | 1/2" Cplg 6000# |
| | | 4 | 3/4" Cplg 3000# |
| | | 5 | 1" Cplg 3000# |
| | | 6 | 1/2" Olet 3000 |
| | | 7 | 1/2" Olet 6000# |
| | | 8 | 1/4" Cplg 6000# |
| | | 9 | 3/4" Cplg 6000# |
| | | Z | 3/4" Olet 6000# |
| | | Y | 3/4" Olet 3000# |

The example part numbers above are:

O&G: **VW04GF16BC-N4-W2** is a V-Cone with: Flange Type: RF WN flange; Line Size: 4"; Materials: LTCS Pipe, Flg & Cplg, S316/L cone & support, final prep must be specified; Sch. 80; Flange and Class: VW WN ANSI CL 600 RF; Process connections: 3/4" Flg. Tap ANSI 600# RF S160; RTD: 1/2" 3000# NPT Cplg 3/4" Cplg 3000#; Optional wall taps: Wall tap Configuration - 2 set taps - Tap sets 180 degrees apart.

industrial: **VS06QE03-F8** is a V-Cone with: Flange Type: Slip On; Line Size: 6"; Materials: All S304/L; Sch. 40; Flange and Class: VS SO ANSI CL 150 RF; Process Connections: 1/2" 3000# NPT Cplg; Options: 8" Reducing Flange.

**3255 WEST STETSON AVENUE • HEMET, CALIFORNIA 92545 USA**
**TEL: 951-652-6811 • 800-220-2279 • FAX: 951-652-3078**

**Printed In The U.S.A.**
**Lit. # 30122-01 Rev. 1.2 / 16APR2024**

# Option Menus

Enter Option Menu Codes Into Part Number Configurator On Previous Page.

| RTD<br>Coupling Type RTD (Optional)<br>Select One Code From Each Column | | | |
|---|---|---|---|
| Code | Description | Code | Description |
| N | 1/2" 3000# NPT Cplg | - | (Use Dash As Code) |
| S | 1/2" 3000# Soc Cplg | - | (Use Dash As Code) |
| N | NPT Cplg/Olet | 3 | 1/2" Cplg 6000# |
| S | Soc Cplg/Olet | 4 | 3/4" Cplg 3000# |
| | | 5 | 1" Cplg 3000# |
| | | 6 | 1/2" Olet 3000# |
| | | 7 | 1/2" Olet 6000# |
| | | 9 | 3/4" Cplg 6000# |
| | | Z | 3/4" Olet 6000# |
| | | Y | 3/4" Olet 3000# |

| Optional RTD<br>Flanged Type RTD (Optional)<br>Select One Code From Each Column | | | |
|---|---|---|---|
| Code | Description | Code | Description |
| A | 1/2" Flg. Tap | A | ANSI 150# RF S80 Bore |
| B | 3/4" Flg. Tap | B | ANSI 300# RF S80 |
| 1 | 1" Flg. Tap | C | ANSI 600# RF S160 |
| C | 1.5" Flg. Tap | D | ANSI 900# RF S160 |
| 2 | 2"Flg. Tap | E | ANSI 1500# RF XXS |
| | | F | ANSI 2500# RF XXS |
| | | G | ANSI 600# RTJ S160 |
| | | H | ANSI 900# RTJ S160 |
| | | I | ANSI 1500# RTJ XXS |
| | | J | ANSI 2500# RTJ XXS |

| Options<br>See The Note Table For Important Information For Each Option | | |
|---|---|---|
| Code | Description | Note |
| | **Tap Orientation - When taps are not in-line (Optional)** | |
| W- | Wall tap Configuration - 1 set taps | **f** |
| W2 | Wall tap Configuration - 2 set taps - Tap sets 180 degrees apart | |
| WA | Wall tap Configuration - 2 set taps - Tap sets 90 degrees apart | **a** |
| R0 | LP tap Rotated 180 degrees from HP tap - single set standard DP taps only | |
| R1 | LP tap Rotated 90 degrees from HP tap - single set standard DP taps only | **a** |
| R3 | LP tap Rotated 45 degrees from HP tap - single set standard DP taps only | **a** |

| | **Material Specs/Build Code Requirements (Optional)** | |
|---|---|---|
| -PED | PED Cat II or III (PED Cat I include code I0, I1 or I2) | **b** |
| MN | All Material/Construction to NORSOK M630/M601 latest Rev | **b** |
| MM | All Material to MESC latest Rev | **b** |
| MT | All Material/Construction to Maersk TS-02/TS-12 latest Rev | **b** |
| MH | NACE MR0103 Compliant | **c** |
| MB | Flanged Taps/RTD Taps Braced | **e** |

| | **Reducing Flanges (Optional)** | |
|---|---|---|
| F1 | 1" Reducing Flange | **b** |
| FC | 1.5" Reducing Flange | **b** |
| F2 | 2" Reducing Flange | **b** |
| FD | 2.5" Reducing Flange | **b** |
| F3 | 3" Reducing Flange | **b** |
| F4 | 4" Reducing Flange | **b** |
| F5 | 5" Reducing Flange | **b** |
| F6 | 6" Reducing Flange | **b** |
| F8 | 8" Reducing Flange | **b** |
| FE | 10" Reducing Flange | **b** |
| FF | 12" Reducing Flange | **b** |

| Option Notes | |
|---|---|
| Note Code | Notes |
| **a** | Not recommended for steam service |
| **b** | Contact factory for quote |
| **c** | PWHT Required for CS meter body material codes |
| **e** | Use only if the model number includes flanged tap codes or if it includeds a flanged RTD Code |
| **f** | Recommended for liquid verticle down flows and wet gas/steam vertical up flows |

**3255 WEST STETSON AVENUE • HEMET, CALIFORNIA 92545 USA**
**TEL: 951-652-6811 • 800-220-2279 • FAX: 951-652-3078**

**Printed In The U.S.A.**
**Lit. # 30122-01 Rev. 1.2 / 16APR2024**