



V Series V-Port Ball Valves for Modulating Flow Control



The V Series ball valves provide accurate control of down-stream flow rates, usually for modulating flow control applications. The throttling part of the valve is a solid stainless steel ball, not a seat insert that is prone to clogging and premature wear. They are available with electric or pneumatic actuators as well as manual with levers or geared hand wheels. No need to perform complex sizing calculations - at Assured Automation, we take care of that for you. That's just part of making valve automation easy!

These valves are an economical alternative to costly globe valves. The unique V-port ball design is simple yet effective. They are available in many characterizations to accommodate almost any flow range. The standard angles are: 15°, 30°, 60°, 90°. Special order and custom port balls are also available.

FEATURES

- Higher flow capacities
- Excellent repeatability
- Bubble-tight shut-off
- Controllable flow rates
- Non-clogging flow streams for general and slurry applications
- Self-compensating live-loaded stem packing
- Maintenance is as easy as changing a standard ball valve seat
- High temperature ball seats

TYPICAL APPLICATIONS

- Air drying equipment
- Sterilizers and autoclaves
- Pollution control equipment
- Process control applications
- Laundry equipment
- Textile dyeing and drying
- Bottling and dispensing
- Ink and paint dispensing
- Industrial compressors
- Chemical process industry
- Pharmaceutical chemical industry

ACTUATORS

Pneumatic

- Spring return
- Double acting

Electric

- Various NEMA ratings and voltages
- [see page 3 for actuator details](#)

VALVES

Body Material

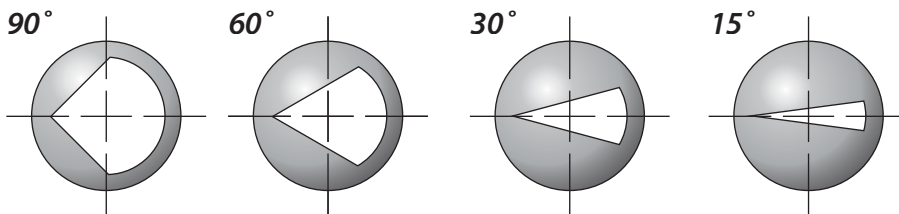
- Carbon Steel
- Stainless Steel

End Connections

- NPT Threaded Female
- Socket Weld
- Tri-Clamp
- 150# or 300# ANSI Flange

[see page 2 for valve details](#)

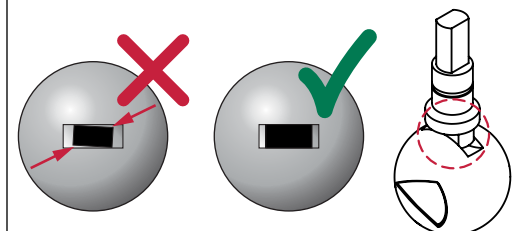
STANDARD CHARACTERIZATION PROFILES



These four profiles are standard. Others are available, including custom

[see pages 4 and 5 for Cv Factor information](#)

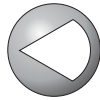
PERFECT FIT STEM SLOT



The precision machining of the perfect fit stem slot has no "play" or "slop". This provides more precise control and faster response when changing rotational direction.



V Series



V-Port Ball Valves for Modulating Flow Control

VALVE BODIES

200/300 Series



Body Design and Materials

- 3-piece “swing-out” body design
- 1/2” to 4” NPT or Socket Weld
- Carbon Steel (200 Series) or Stainless Steel (300 Series) body
- 316 SS Ball & Stem
- TFM stem seals
- TFM or 50/50 (PTFE/SS) Seats

Specifications

Temperature Range:

-20 °F to 475 °F

Pressure Rating:

1/2” to 2”: 275 psi

2 1/2” to 4”: 700 psi

350 Series



Body Design and Materials

- 3-piece “swing-out” body design
- 1/2” to 4” Tri-Clamp
- Stainless Steel body
- 316 SS Ball & Stem
- TFM stem seals
- PTFE Seats

Specifications

Temperature Range:

-20 °F to 400 °F

Pressure Rating:

1/2” to 2”: 275 psi

2 1/2” to 4”: 700 psi

150F/300F Series



Body Design and Materials

- 2-piece body design
- 1/2” to 8” 150# Flange (150F Series)
1/2” to 8” 300# Flange (300F Series)
- Stainless Steel or Carbon Steel body
- 316 SS Ball & Stem
- TFM or Graphite stem seals
- TFM or 50/50 (PTFE/SS) Seats

Specifications

Temperature Range:

-20 °F to 475 °F

Pressure Rating:

150#: 275 psi

300#: 700 psi

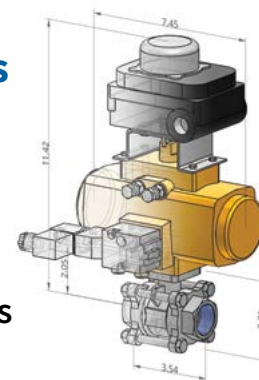
DIMENSIONS



Complete Valve Assembly CAD Models & Datasheets **ON DEMAND!**



- **Complete Specs** for Each Component in **ONE Document**
- **Dimension Drawings** of Exact Assembly

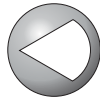


NOTE: *V Series V-port ball valves are NOT available as CAD models yet.*

We are happy to provide CAD models upon request.
Please use our online configurator or the last page of this document to generate a complete part number.



V Series



V-Port Ball Valves for Modulating Flow Control

ACTUATORS AVAILABLE

Both electric and pneumatic actuators are available to choose from. All sizing is done by Assured Automation to make selecting your assembly easy. All V Series modulating v-port ball valves are assembled and tested in our ISO certified facility.

Pneumatic

P Series Rack and Pinion



Spring Return

fail Open or Closed

or

Double Acting

fail in place

[\(see P series web page\)](#)

F Series Rack and Pinion



Spring Return

fail Open or Closed

or

Double Acting

fail in place

[\(see F series web page\)](#)

Positioners



Pneumatic

3-15 psi control signal

or

Electro-Pneumatic

4-20mA control signal

Feedback Units



2 SPDT Mechanical Switches

or

4-20mA & 2 SPDT Mechanical Switches

NEMA 4, NEMA 7, or Intrinsically Safe

Electric

Weatherproof

S4 Series



24 to 240 VAC/VDC

- 2 cam-adjustable feedback switches
- Manual override
- Electronic torque limiter

[\(see S4 series web page\)](#)

K4 Series



120 VAC and 24 VDC

- Built-in thermal protector
- Worm-gear drive
- Manual override

[\(see K4 series web page\)](#)

Explosion Proof

B7 Series



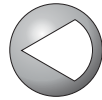
120 VAC and 24 VDC

- NEMA 4/4X/7 enclosure
- Heater and thermostat in all actuators
- Manual override

[\(see B7 series web page\)](#)



V Series



V-Port Ball Valves for Modulating Flow Control

Cv FACTORS

15° V-port Profile

| Line Size | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|-----------|----|------|------|-------|-------|-------|-------|--------|--------|--------|--------|
| | 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° |
| 1/2" | 0 | 0.04 | 0.18 | 0.44 | 0.69 | 0.99 | 1.64 | 2.12 | 2.85 | 3.64 | 4.30 |
| 3/4" | 0 | 0.05 | 0.24 | 0.56 | 0.90 | 1.34 | 2.15 | 2.75 | 3.76 | 4.75 | 5.56 |
| 1" | 0 | 0.06 | 0.32 | 0.95 | 1.50 | 2.35 | 3.80 | 4.70 | 6.50 | 8.50 | 9.85 |
| 1 1/2" | 0 | 0.06 | 0.38 | 1.17 | 2.28 | 3.85 | 5.59 | 8.10 | 10.99 | 14.86 | 17.85 |
| 2" | 0 | 0.06 | 0.69 | 2.26 | 4.45 | 7.30 | 10.68 | 15.40 | 21.39 | 28.75 | 35.05 |
| 2 1/2" | 0 | 0.08 | 0.77 | 2.44 | 5.25 | 8.08 | 11.75 | 16.44 | 22.36 | 27.24 | 32.10 |
| 3" | 0 | 0.08 | 0.92 | 2.98 | 6.65 | 9.60 | 13.50 | 19.62 | 26.69 | 31.80 | 38.40 |
| 4" | 0 | 0.12 | 1.40 | 3.76 | 8.88 | 16.79 | 27.92 | 41.85 | 59.27 | 75.55 | 97.05 |
| 6" | 0 | 0.21 | 2.50 | 6.66 | 15.79 | 29.88 | 49.74 | 74.56 | 105.55 | 134.48 | 172.05 |
| 8" | 0 | 0.34 | 4.25 | 11.33 | 26.86 | 50.80 | 84.60 | 126.88 | 195.08 | 345.80 | 497.52 |

30° V-port Profile

| Line Size | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|-----------|----|------|------|-------|-------|--------|--------|--------|--------|--------|--------|
| | 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° |
| 1/2" | 0 | 0.04 | 0.23 | 0.47 | 0.77 | 1.19 | 1.83 | 2.47 | 3.43 | 4.65 | 5.58 |
| 3/4" | 0 | 0.07 | 0.30 | 0.61 | 0.99 | 1.57 | 2.42 | 3.25 | 4.52 | 6.12 | 7.34 |
| 1" | 0 | 0.08 | 0.45 | 1.25 | 2.06 | 3.54 | 5.30 | 7.70 | 10.49 | 12.84 | 15.48 |
| 1 1/2" | 0 | 0.08 | 0.65 | 1.88 | 3.39 | 5.66 | 8.36 | 12.12 | 16.17 | 20.44 | 23.90 |
| 2" | 0 | 0.09 | 1.18 | 3.79 | 7.53 | 12.26 | 17.83 | 26.44 | 36.45 | 48.09 | 55.92 |
| 2 1/2" | 0 | 0.10 | 1.15 | 4.42 | 7.91 | 13.39 | 20.05 | 30.43 | 41.92 | 69.75 | 77.20 |
| 3" | 0 | 0.13 | 1.20 | 4.15 | 9.49 | 15.96 | 26.78 | 38.91 | 53.31 | 69.77 | 85.91 |
| 4" | 0 | 0.18 | 1.75 | 7.84 | 18.59 | 35.21 | 58.60 | 87.89 | 124.41 | 158.53 | 197.10 |
| 6" | 0 | 0.30 | 3.12 | 13.97 | 33.15 | 62.70 | 104.37 | 156.53 | 221.56 | 282.33 | 349.70 |
| 8" | 0 | 0.50 | 5.32 | 23.77 | 56.35 | 106.70 | 177.62 | 266.39 | 377.06 | 480.47 | 595.20 |

60° V-port Profile

| Line Size | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|-----------|----|------|------|-------|--------|--------|--------|--------|--------|--------|---------|
| | 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° |
| 1/2" | 0 | 0.05 | 0.28 | 0.73 | 1.11 | 1.83 | 2.92 | 4.29 | 7.00 | 9.43 | 12.78 |
| 3/4" | 0 | 0.08 | 0.35 | 0.93 | 1.46 | 2.42 | 3.85 | 5.64 | 9.21 | 12.41 | 16.28 |
| 1" | 0 | 0.09 | 0.68 | 1.74 | 2.78 | 5.13 | 8.00 | 11.88 | 18.71 | 23.22 | 32.84 |
| 1 1/2" | 0 | 0.09 | 0.92 | 2.81 | 4.69 | 8.89 | 14.85 | 21.16 | 30.73 | 45.88 | 59.74 |
| 2" | 0 | 0.11 | 1.51 | 5.80 | 10.39 | 20.60 | 33.98 | 48.75 | 69.04 | 104.23 | 136.50 |
| 2 1/2" | 0 | 0.14 | 1.46 | 5.91 | 11.90 | 23.24 | 37.92 | 59.31 | 83.29 | 113.65 | 162.50 |
| 3" | 0 | 0.16 | 2.89 | 6.70 | 15.82 | 29.36 | 46.32 | 73.60 | 106.74 | 149.88 | 193.20 |
| 4" | 0 | 0.27 | 2.20 | 12.44 | 33.67 | 62.98 | 106.26 | 160.49 | 233.96 | 329.50 | 437.29 |
| 6" | 0 | 0.27 | 5.41 | 22.15 | 59.97 | 112.16 | 189.24 | 285.82 | 416.68 | 586.83 | 800.80 |
| 8" | 0 | 0.80 | 6.66 | 23.81 | 102.06 | 190.87 | 322.06 | 486.41 | 709.11 | 998.69 | 1325.40 |

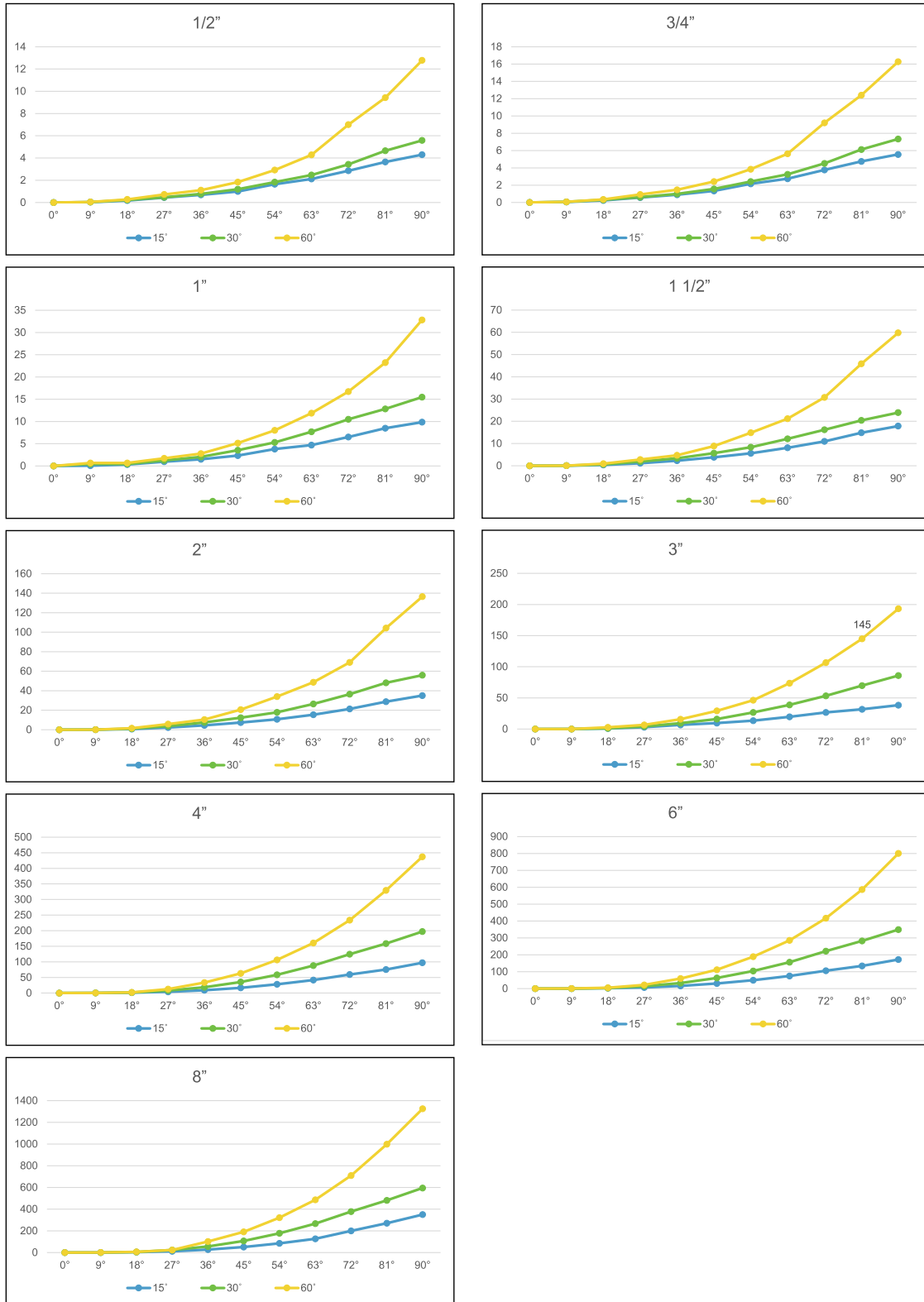


V Series



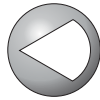
V-Port Ball Valves for Modulating Flow Control

Cv FLOW CURVES





V Series



V-Port Ball Valves for Modulating Flow Control

ORDERING INFORMATION

VALVE BODY & BALL PROFILE

Size: _____
C = 1/2" **G** = 1 1/2" **K** = 4"
D = 3/4" **H** = 2" **M** = 6"
E = 1" **J** = 3" **N** = 8"

Series: _____
V = V Series V-port

Ball Valve Body Type & Material: _____
200N = Carbon Steel 3-piece w/ swing-out body & NPT threaded connections
200S = Carbon Steel 3-piece w/ swing-out body & Socket Weld connections
300N = Stainless Steel 3-piece w/ swing-out body & NPT threaded connections
300S = Stainless Steel 3-piece w/ swing-out body & Socket Weld connections
350T = Stainless Steel 3-piece w/ swing-out body & NPT threaded connections
150FC = Carbon Steel 150# ANSI flanged
150FS = Stainless Steel 150# ANSI flanged
300FC = Carbon Steel 300# ANSI flanged
300FS = Stainless Steel 300# ANSI flanged

Stem Seal Material: _____
F = TFM **S** = 50% PTFE / 50% SS **T** = PTFE

Stem Seal Material: _____
F = TFM **S** = 50% PTFE / 50% SS **T** = PTFE

V-ball Profile: _____
1 = 15° **3** = 30° **6** = 60°

C V 350T S T 3 C8SC E5 F5420

| Size | Series | Valve | Stem Seal | Seat Seal | Profile | Actuator | Positioner | Feedback |
|------|--------|-------|-----------|-----------|---------|----------|------------|----------|
| C | V | 350T | S | T | 3 | C8SC | E5 | F5420 |

Note: only one actuator may be chosen

ACTUATOR

Pneumatic Actuators

Series: _____
C = C series Dual Rack & Pinion
F = F series Dual Rack & Pinion

Air Pressure: _____
6 = 60psi **8** = 80psi

Function: _____
S = spring return **D** = double acting

Fail Safe Position: _____
C = fail to CLOSED **O** = fail to OPEN
omit for direct acting

Positioner: _____
P5 = pneumatic **E5** = electric NEMA 4 **E5XP** = electric NEMA 7 **E5IS** = electric intrinsically safe

Feedback Unit: (*omit for none*) _____
 2x SPDT Mechanical Switches
F5 = SPDT NEMA 4 **F5EX** = SPDT NEMA 7 **F5IS** = SPDT intrinsically safe
 4-20mA Analog & 2x SPDT Mechanical Switches
F5420 = SPDT NEMA 4 **F5EX** = SPDT NEMA 7 **F5IS** = SPDT intrinsically safe

Electric Actuators

Series: _____
S4UV = universal-voltage - weatherproof (NEMA 4X)
K4 = weatherproof (NEMA 4X)
B7 = explosion proof (NEMA 7)

Voltage: (*all BUT S4UV*) _____
A = 120vAC **B** = 24vDC **F** = 12vDC

C 8 S C

| Series | Air psi | Func. | Fail Pos. |
|--------|---------|-------|-----------|
| C | 8 | S | C |

K4 A

| Series | Voltage |
|--------|---------|
| K4 | A |

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