



# W71 & W73 Double Seat Mix Proof Valves

## Application

Mix Proof valves provide safe separation of dissimilar products within the same valve body. For general purpose Mix Proof applications, WCB offers two basic valve types. The W71 Series for standard shutoff service, and the W73 Series for divert applications.

## Materials

Product Wetted: Stainless Steel, ASTM 316L (UNS-S31603); (DIN-1.4404)  
Non-Product: Stainless Steel, ASTM 304 (UNS-S30400); (DIN-1.4301)  
Seat: Tri-Ring Compression Seal on Upper and Lower Stems  
Elastomers: EPDM or FKM (Fluoroelastomer)  
Finish:  $\leq 32 \text{ Ra}$  ( $\leq 0.8 \mu\text{m}$ ) Other finishes available upon request.

## Pressure Ratings:

Operating Pressure: 1½"-3" Sizes - 150 psig (10.3 bar)  
4" Size - 100 psig (6.9 bar)  
4" Sch. 5 Size - 150 psig (10.3 bar)  
6" Size - Consult Factory  
6" Sch. 5 Size - 150 psig (10.3 bar)

## Actuator:

Non Seat Lifting (NSL)

### Air Requirements

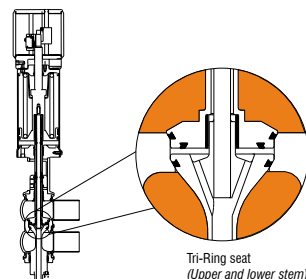
Min. Supply Pressure: 75 psi (5.2 bar)  
Air Volume 1.5"-2" Valves:  
.014 ft<sup>3</sup> O.D. Tube (.0003 m<sup>3</sup>) Open Valve  
Air Volume 2.5"-4" Valves:  
.039 ft<sup>3</sup> (.0009 m<sup>3</sup>) Open Valve  
2" Sch. 5  
3-4" Sch. 5  
6" Sch. 5

Independent Seat Lifting (SL)

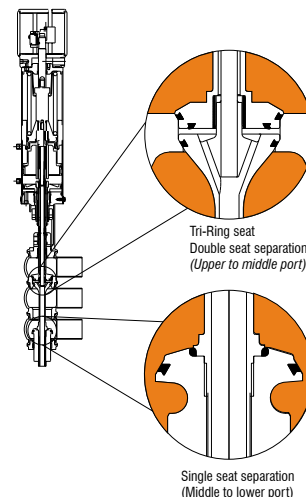
### Air Requirements

Min. Supply Pressure: 75 psi (5.2 bar)  
Maximum: 100 psi (6.9 bar)  
Air Volume 1.5" and 2" Valves:  
.03 ft<sup>3</sup> (.0008 m<sup>3</sup>) Open Valve  
.006 ft<sup>3</sup> (.0002 m<sup>3</sup>) Lower Seat Lift

### W71 Series - Shut-Off

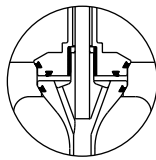


### W73 Series - Divert

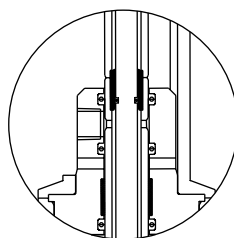
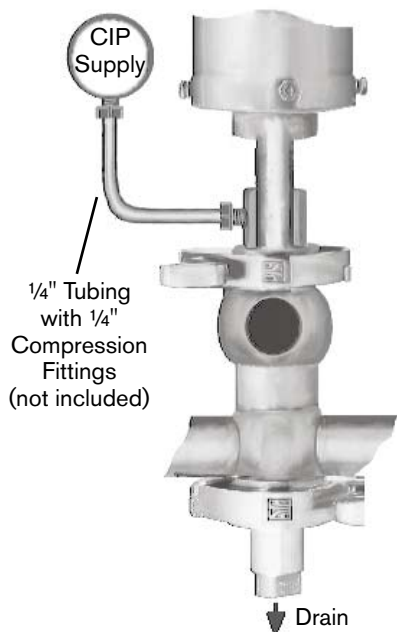


.004 ft<sup>3</sup> (.0001 m<sup>3</sup>) Upper Seat Lift  
Air Volume 2.5"-4" Valves:  
.07 ft<sup>3</sup> (.002 m<sup>3</sup>) Open Valve  
.08 ft<sup>3</sup> (.002 m<sup>3</sup>) Lower Seat Lift  
.005 ft<sup>3</sup> (.0001 m<sup>3</sup>) Upper Seat Lift  
2" Sch. 5  
3-4" Sch. 5  
6" Sch. 5

## Seat Option

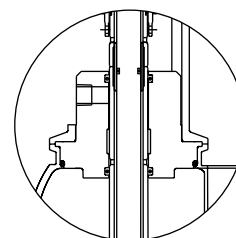
Seat Type		Material	Maximum Temperature
	Tri-Ring (TR)  Compression Seal Upper & Lower Stems	EPDM	Oper. 280°F (137°C) Steril. 275°F (135°C)
		FKM (Fluoroelastomer)	Oper. 350°F (176°C) Steril. - Consult Factory
Balanced Lower: Stems Standard. Balanced Upper Stems: Optional on 2"-3"; Standard on 4"-6".			

## Accessories



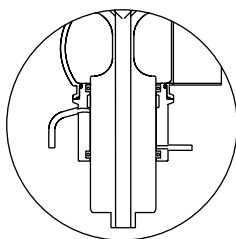
External Liquid Flush  
(vent cavity only)

1/4" NPT Flush Connection for cleaning the area between the seat and throughout the vent/drain cavity. Flush Pressure: 30 psig (2.1 bar) min. to 45 psig (3.1 bar) max. Flush access to vent/cavity only when valve is in closed position.



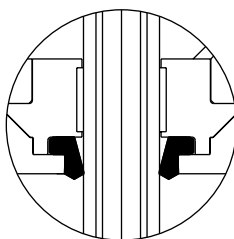
External Steam Barrier -  
Upper Stem

1/4" NPT Connection for steam trace of the upper stem o-ring and vent/drain cavity. Steam access to vent/drain cavity when valve is in open or closed position. Steam Pressure: Saturated steam 10 psig (.7 bar) max. Used with lower stem flush.



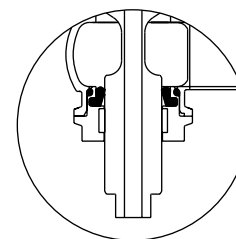
External Flush -  
Lower Stem

1/4" Tube OD Connection for liquid or steam trace of the lower stem and o-ring. Flush Pressure: 30 psig (2.1 bar) min. to 45 psig (3.1 bar) max. Steam Pressure: Saturated steam 10 psig (.7 bar) max.



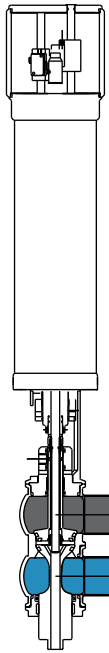
Wiping Stem Seal  
(upper stem)

Optional seal for both upper and lower stems, in place of standard o-ring available in EPDM or FKM (Fluoroelastomer).

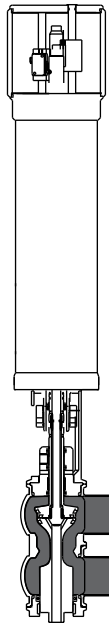


Wiping Stem Seal  
(Lower Stem)

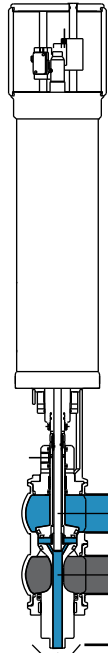
# W71 - Shut-Off



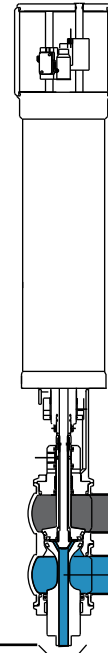
**Valve Closed**  
Atmospheric Vent Open



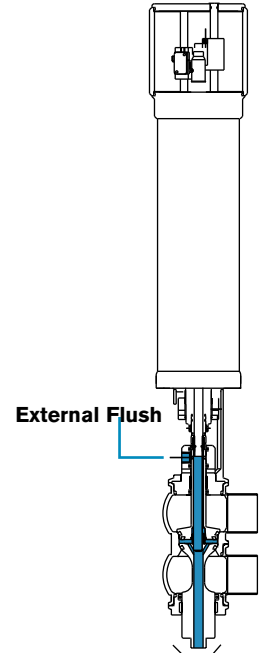
**Valve Open**  
Atmospheric Vent Closed



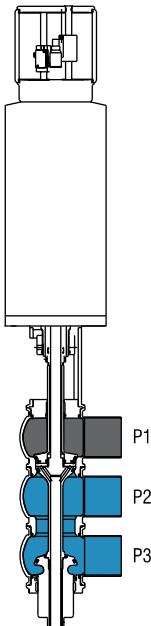
**Optional Upper Seat Clean**



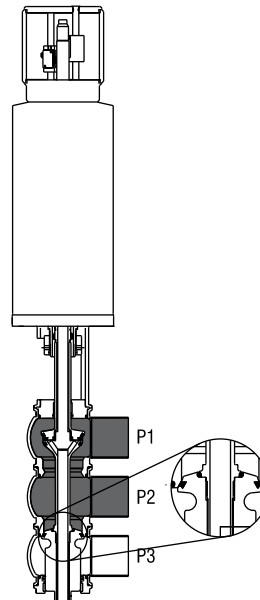
**Optional Lower Seat Clean**



**Optional External Flush**



**Failsafe Closed - Stem Lowered**  
Mixproof separation between P1 & P2.

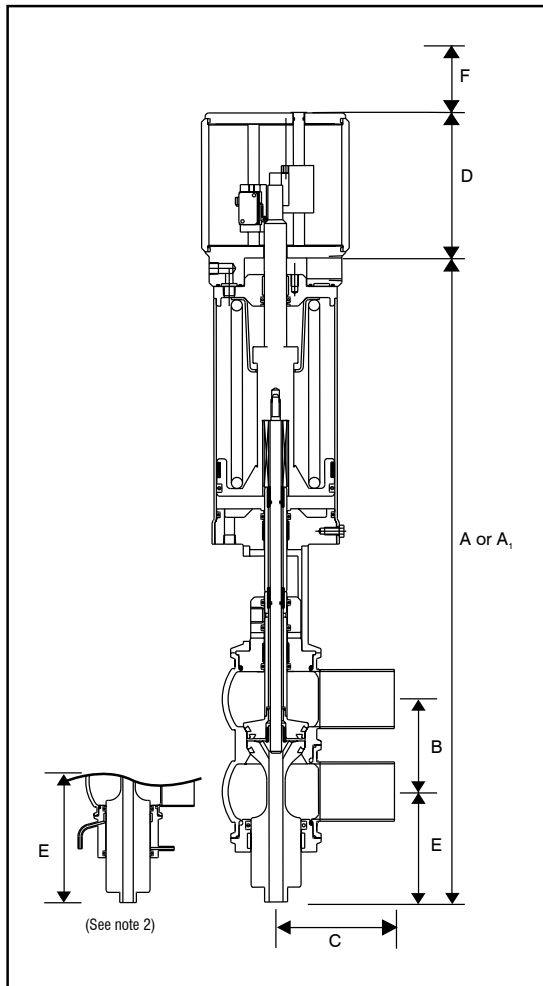


**Stem Raised**  
Single seat protection between P2 & P3.  
Valve open between P2 & P1.

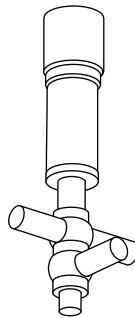
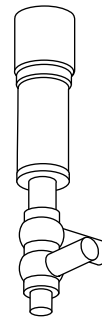
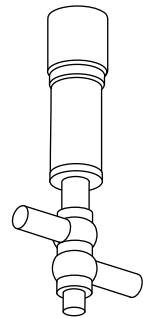
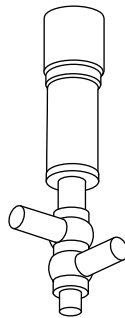
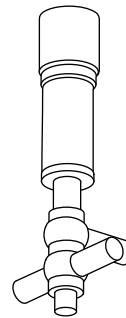
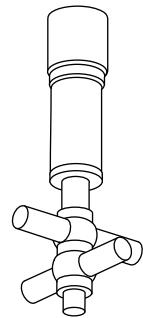
 **Product**

 **CIP**

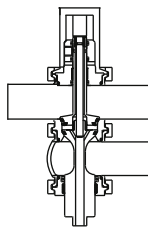
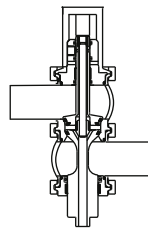
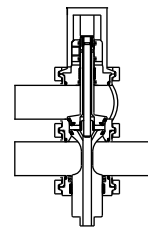
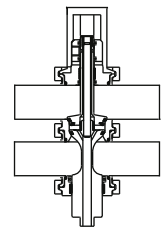
## Body Configuration



### W71 - Shut-Off One Piece Bodies

**A1****B1****B1****B3****C1****E1**

### Two Piece Clamped Bodies\*

**CS****TS****TD****CD**

\*Clamped bodies allow for ports to be rotated in any direction.

## Valve Dimensions - Inches (mm)

Valve Size Tube OD	A See Note 1 & 2	A <sub>1</sub> See Note 1 & 2	B	C	Control Top D	E See Note 2	F See Note 3	Actuator Diameter	Stroke Length
1.5	23.20 (590)	29.00 (737)	2.63 (67)	4.00 (101)	3.20 (81)	3.50 (89)	7.50 (191)	4.00 (102)	1.080 (27)
2.0	24.00 (610)	31.20 (792)	3.13 (80)	4.00 (101)	3.20 (81)	3.70 (94)	8.50 (216)	4.00 (102)	1.375 (35)
2.5	25.60 (650)	31.80 (808)	3.63 (92)	4.00 (101)	3.20 (81)	4.40 (112)	10.00 (254)	6.00 (152)	1.75 (44)
3.0	26.60 (676)	32.80 (833)	4.13 (105)	4.00 (101)	3.20 (81)	4.70 (119)	11.00 (280)	6.00 (152)	1.75 (44)
4.0	29.30 (744)	35.40 (899)	5.13 (130)	6.00 (152)	3.20 (81)	5.80 (147)	14.00 (355)	6.00 (152)	1.75 (44)

Note 1: A - Dimension with non-seat lift actuator. A<sub>1</sub> - Dimension with seat lift actuator.

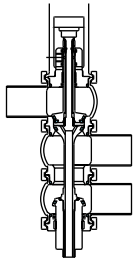
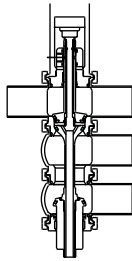
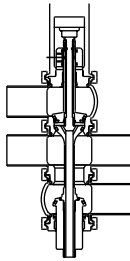
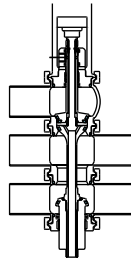
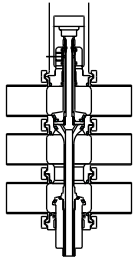
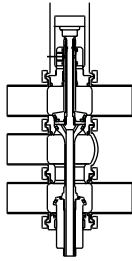
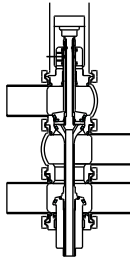
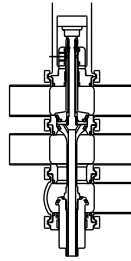
Note 2: A or A<sub>1</sub>, & E - Dimensions are with standard lower housing. For dimensions with lower flush housing, contact factory.

Note 3: F Dimension - Minimum clearance above valve required for valve removal.

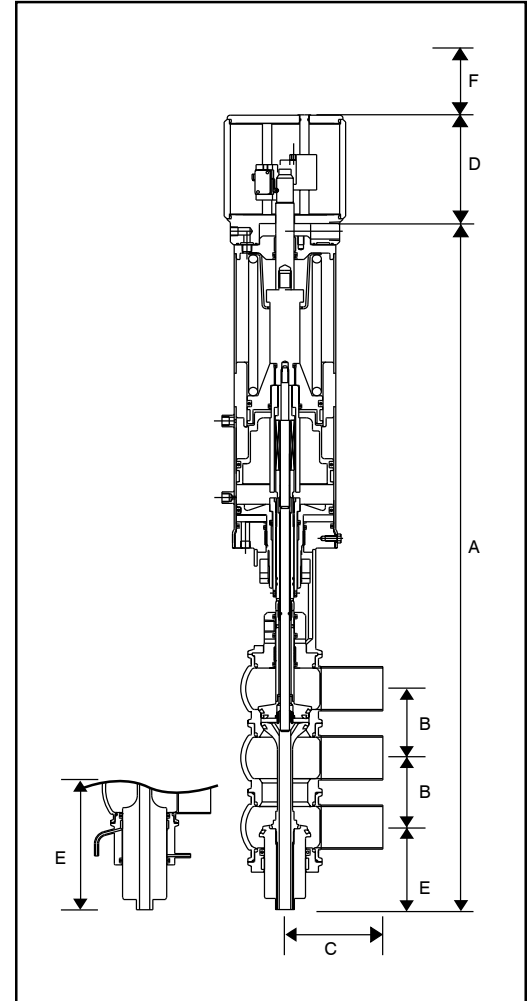
Air ports on actuator are 1/8" NPT. External flush/steam connection for upper stem & vent cavity is 1/4" NPT.

Lower stem flush connection is 1/4" Tube OD.

## Body Configuration

**W73 - Divert****Three Piece Clamped Bodies\*****TTT****CTT****TCT****TCC****CCC****CTC****TTC****CCT**

\*Clamped bodies allow for ports to be rotated in any direction.



## Valve Dimensions - Inches (mm)

Valve Size Tube OD	A See Note 1 & 2	B	C	Control Top D	E See Note 2	F See Note 3	Actuator Diameter	Stroke Length
1.5	31.63 (803)	2.63 (67)	4.00 (101)	3.20 (81)	3.50 (89)	7.50 (191)	4.00 (102)	1.080 (27)
2.0	34.33 (872)	3.13 (80)	4.00 (101)	3.20 (81)	3.70 (94)	8.50 (216)	4.00 (102)	1.375 (35)
2.5	35.43 (890)	3.63 (92)	4.00 (101)	3.20 (81)	4.40 (112)	10.00 (254)	6.00 (152)	1.75 (44)
3.0	36.93 (938)	4.13 (105)	4.00 (101)	3.20 (81)	4.70 (119)	11.00 (280)	6.00 (152)	1.75 (44)
4.0	40.53 (1029)	5.13 (130)	6.00 (152)	3.20 (81)	5.80 (147)	14.00 (355)	6.00 (152)	1.75 (44)

Note 1: W73 valves have seat lifting actuator standard. A - dimension with seat lift actuator.

Note 2: A & E - Dimensions are with standard lower housing. For dimensions with lower flush housing, contact factory.

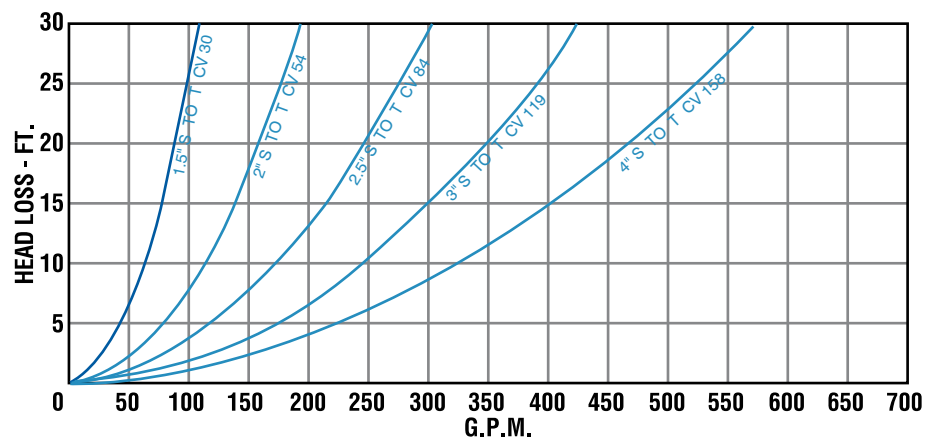
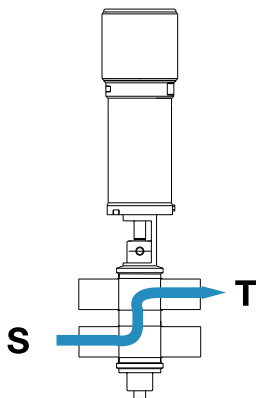
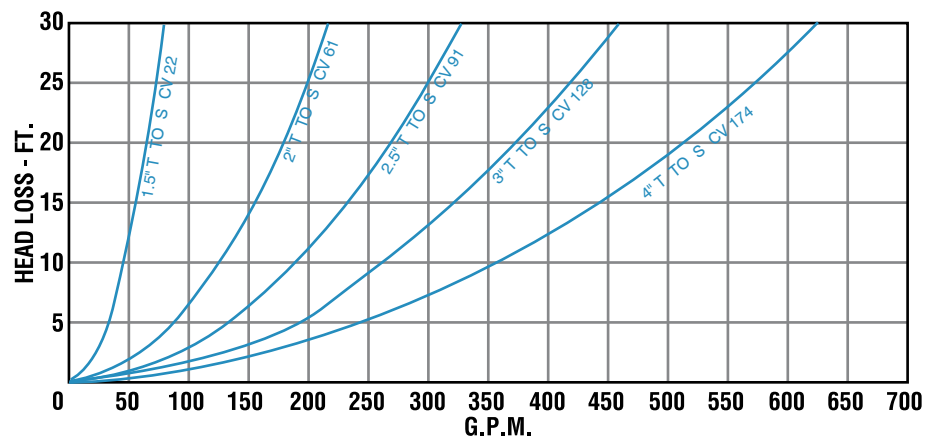
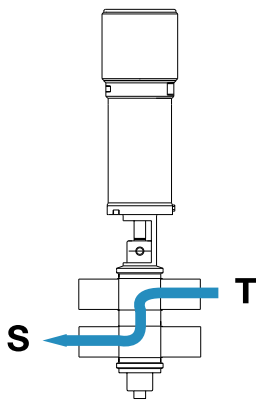
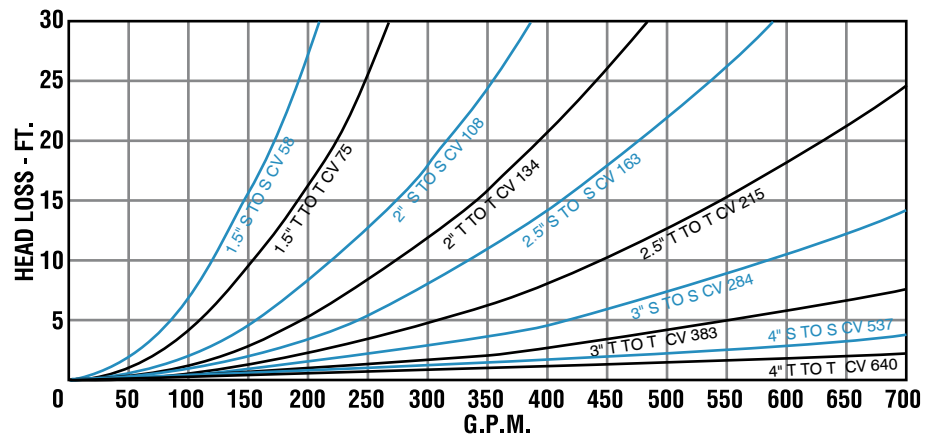
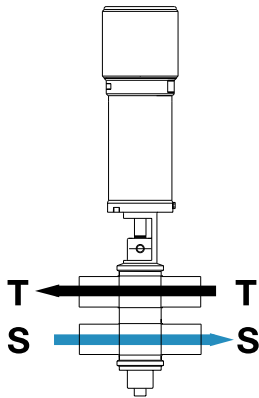
Note 3: F Dimension - Minimum clearance above valve required for valve removal.

Air ports on actuator are 1/8" NPT. External flush/steam connection for upper stem & vent cavity is 1/4" NPT.

Lower stem flush connection is 1/4" Tube OD.

# Pressure Loss Curves

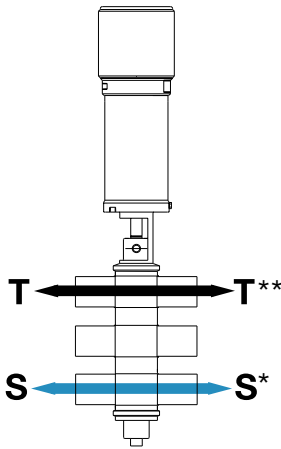
## W71 Series Cv



Curves are based on water at 70°F (21°C).  
1 foot head - 0.433 psi

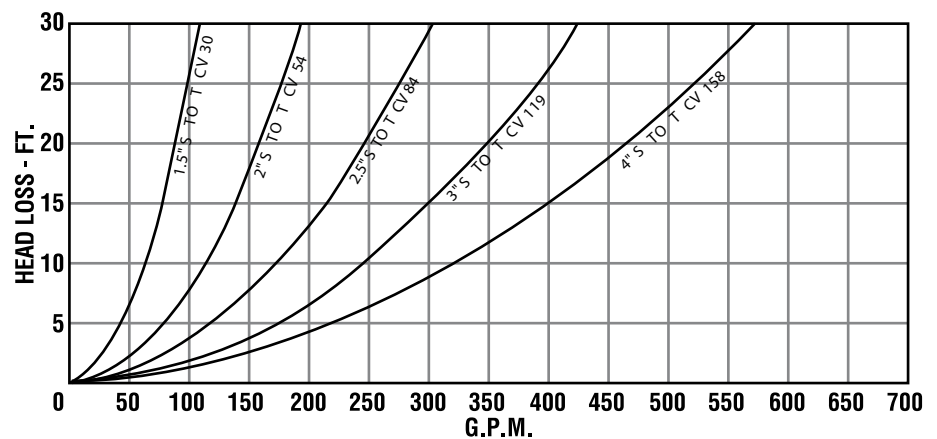
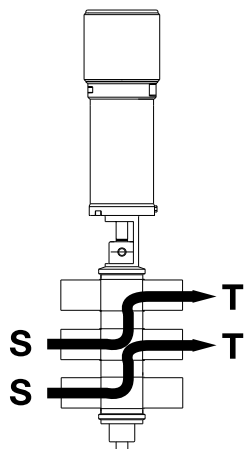
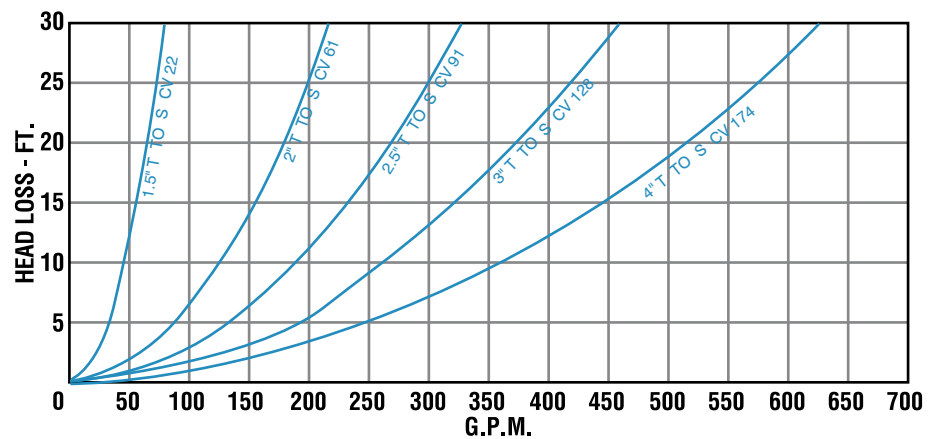
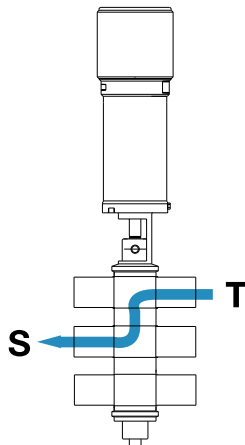
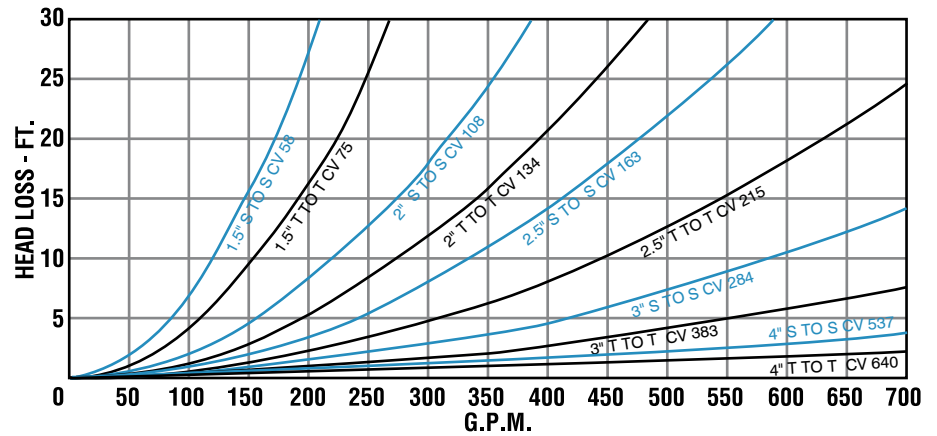
# Body Configuration

## W73 Series Cv



\*S to S is with valve stem raised.

\*\*T to T is with valve stem lowered.



Curves are based on water at 70°F (21°C).  
1 foot head - 0.433 psi

# Control Tops



## Features

- Transparent Control Top keeps all electrical components visible.
- Maintainable! Designed with the user in mind, making assembly and troubleshooting worry free and easy!
- WCB uses the industry's most widely recognized electrical components, so access to off the shelf replacement parts is easy, ensuring quick delivery and less down time!
- NEMA 4x (Ip66)

## Connector Options

- S/O Cord Grip for hard wire (std)
- Quick Disconnect Pin Connectors

## Interface Options

- AS-i Field® Bus Card
- DeviceNet® Field Bus Network Card

## Position Indication

- Set and Forget linear switch
- Inductive Proximity Switches - 20-140V AC/DC, 2-Wire (Std)
- Microswitches 24VDC, 110VAC
- Intrinsically safe options 5-24VDC

## Solenoid Valves

- 24V DC or 110V AC

## Manifolding and Welded Assemblies Available

- Design and fabrication
- Hydrostatic Testing
- Constructed to 3A and other specifications



PROCESS EQUIPMENT

Your local contact:



**THE WILLIAMS - CARVER COMPANY, INC.**

4001 MISSION RD P.O. BOX #3140

KANSAS CITY, KS 66103-0140

Office [913] 236-4949 Fax [913] 236-9331

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