

Type 1118

3/4" and 1" 3-Way Valve Assembly RESEARCH® CONTROL Valves

Technical Brief

DESCRIPTION

The Type 1118 three-way valve is available in either 3/4" or 1" sizes for modulating control of liquids, gases, or steam in either mixing or diverting applications. The unit features one common port and two non-common ports. When used in a diverting application, the common port is piped as the valve inlet with flow proportionally controlled through the two outlet ports. When used in a mixing application, the common port is piped as the outlet with incoming fluid entering the two non-common ports. In this application, the inlet pressure to the two inlets should be the same. Each innervalve within the unit is connected by a common stem and is stroked simultaneously by the actuator. This action causes one orifice to open as the other is closing. The Cv, as well as the characteristic, of each innervalve can be the same or of different value, depending on the requirements of the application.

APPLICATIONS

The Type 1118 three-way valve is used in mixing applications such as temperature control. By varying the position of the innervalve, the percentage of fluid passing through each innervalve can be controlled as it exits the common port. The same concept can be applied to blending of various chemicals, dyes, additives, and other fluids or gases that must be proportionally mixed. The Type 1118 is also well suited to diverting applications such as flow or pressure control in hydraulic systems. In a hydraulic system the fluid enters the common port of the valve with one of the non-common ports controlling the flow to a cylinder or a vessel. The unused fluid is recirculated back to the sump through the other non-common port.

MATERIALS OF CONSTRUCTION

Body - Bonnet

Standard	316 stainless steel, carbon steel
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Innervalve

Standard	316 stainless steel
Optional	Stellite, TFE or Kel-F soft seating on quick opening trims only.

Packing

Standard	TFE chevron rings
Optional	Graphite

Actuator

Standard	Die cast aluminum
Optional	316L stainless steel on standard models



Shown with Type 754 actuator

STANDARD FEATURES

- Wide range of interchangeable trim sets
- Threaded bonnet for quick disassembly
- Choice of linear or quick opening characteristics
- Choice of Cv and characteristic on each port
- TFE chevron packing
- ANSI Class III shutoff

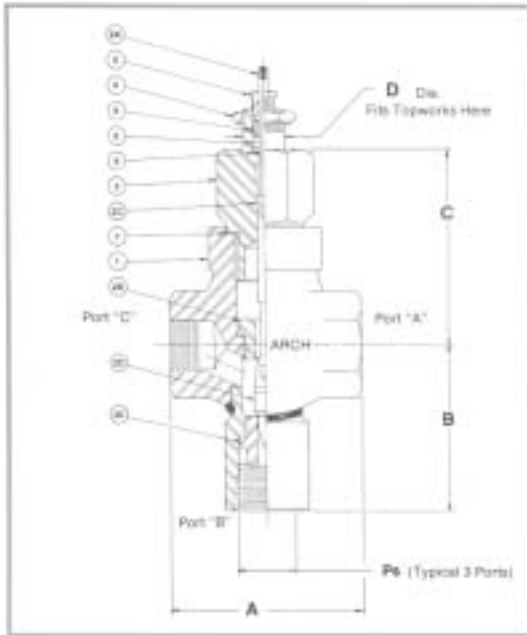
OPTIONAL FEATURES

- Flanges, socket weld, and butt-weld nipples
- Radiating fin bonnet for higher temperatures

ACTUATOR CHOICES

Standard	Air-to-open, fail close
	Air-to-close, fail open
Optional	Integral top-mounted positioner
Standard Signals	3-15#, 3-27#, 6-30#
Optional Signals	3-9#, 9-15# with positioner
Accessories	Filter regulator, gauges, I/P converter, limit switches, handwheel, solenoids





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DIMENSIONS (INCHES)

PS	A	B	C	D	STROKE
3/4 inch	3.37	2.94	3.90	.875	.562
1 inch	4.00	3.34	3.95	.875	.562

Description of Items

1. Valve Body
2. Invervalve (trim set):
 - A. Upper stem - 3/16" Ø
 - B. Upper Seat - 3/4" - 3/4" hex
1" - 15/16" hex
 - C. Plug (throttling portion)
 - D. Lower Seat - 3/4" - 5/8" hex
1" - 1-3/4" hex
3. Bonnet - 3/4" - 1-1/2" hex
1" - 1-3/4" hex
4. Yoke lock nut - 1-1/8" hex
5. Packing gland - 1/2" hex
6. Packing
7. Body-bonnet gasket
8. Packing follower
9. Packing adaptor

Pressure vs. Temperature

TEMP	316 SS		Carbon Steel	
	3/4"	1"	3/4"	1"
100°F	1500	1500	1500	1500
200°F	1450	1450	1350	1350
300°F	1325	1325	1325	1325
400°F	1175	1175	1275	1275
500°F	1100	1100	1200	1200
600°F	1050	675	1100	1100
700°F	840	250	1075	1075
800°F	575	-	-	-

3/4" Rec. Bonnet Torque=290 ft/lbs.
1" Rec. Bonnet Torque=345 ft/lbs.

INNERVALVE CHART

Size	Max. DP	Trim Size	Cv	Linear	Orifice Dia.	Orifice Area
1"	100 psi	5.0 lwr seat	5.0	50:1	0.6250	0.3068
		5.0 upr seat	5.0	50:1	0.6250	0.3068
1"	100 psi	4.0 lwr seat	4.0	50:1	0.6250	0.3068
		4.0 upr seat	4.0	50:1	0.6250	0.3068
3/4", 1"	100 psi	3.5 lwr seat	3.5	50:1	0.5000	0.1963
		3.5 upr seat	3.5	50:1	0.4375	0.1503
3/4", 1"	100 psi	A lwr seat	2.5	40:1	0.3750	0.1104
		A upr seat	2.5	40:1	0.4375	0.1503
3/4", 1"	100 psi	B lwr seat	2.0	40:1	0.3750	0.1104
		B upr seat	2.0	40:1	0.4375	0.1503
3/4", 1"	100 psi	C lwr seat	1.5	40:1	0.2810	0.0620
		C upr seat	1.5	40:1	0.4375	0.1503
3/4", 1"	150 psi	D lwr seat	0.8	40:1	0.2500	0.0491
		D upr seat	0.8	40:1	0.4375	0.1503
3/4", 1"	150 psi	E lwr seat	0.5	40:1	0.2500	0.0491
		E upr seat	0.5	40:1	0.4375	0.1503
3/4", 1"	300 psi	F lwr seat	0.3	30:1	0.1560	0.0191
		F upr seat	0.3	30:1	0.4375	0.1503
3/4", 1"	300 psi	G lwr seat	0.2	30:1	0.1560	0.0191
		G upr seat	0.2	30:1	0.4375	0.1503
3/4", 1"	300 psi	H lwr seat	0.13	30:1	0.1560	0.0191
		H upr seat	0.13	30:1	0.4375	0.1503
3/4", 1"	300 psi	I lwr seat	0.08	30:1	0.1560	0.0191
		I upr seat	0.08	30:1	0.4375	0.1503
3/4", 1"	300 psi	J lwr seat	0.05	30:1	0.1560	0.0191
		J upr seat	0.05	30:1	0.4375	0.1503

Note: While 3-way valves can be used in mixing and diverting applications, the characteristics are based on mixing. Equal percentage trims are not recommended on 3-way valves.



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