

OV-SERIES VALVES

Installation, Maintenance & Operating Instructions



Standard
with Screw
Connections

Standard
with Flange
Connections

Stainless Steel
with Screw
Connections

Note: OV-Series Valves offered in Cast Iron, Brass, Steel and Stainless Steel

APPLICATION

The OV-Series valve is a "Relief Valve" (RV) in a sense that the outlet pressure doesn't affect the valve's set pressure. The valves operate off the inlet pressures only. The OV-Series valve is to be used when you don't want the backpressure to affect the valves opening pressure. The valve sizes from 1/2" to 2" operate efficiently with liquids of any viscosity at pressures from 10 to 500 P.S.I.

Available in screwed connection and flange, in a choice of brass, cast iron, steel or stainless steel. Widely used in a variety of applications, the OV-Series valves are ideally suited for all hydraulic and lubricating systems for pressure regulation and system protection. Special requirements should be referred to our engineering staff for recommendations.

INSTALLATION

Fulflo valves can be mounted in any position. A tee may be inserted in the pump discharge line to mount the valve. The correct size of valve should be installed, preferably matching the pump discharge line. Screw the valve into the nipple in the tee, or in the case of the flange style, bolt the valve to the companion flange screwed into the nipple. When the valve is used for frequent bypassing of oil pressure, its outlet

should be piped back to the tank. Care must be taken to have the discharge well below the oil level in the tank to prevent air entrainment and erratic operation.

Only if the valve is used as safety or overload relief and operates infrequently may its discharge be piped back into the pump suction line. Frequent or continuous operation under these conditions will cause excessive heating of the oil and possible damage.

OV-SERIES

SETTING VALVES

Valves may be set with a hydraulic hand pump for cracking pressure. If a test stand is available, valve should be connected to the discharge header with the pump bypass open, and the bypass gradually closed until the desired pressure registers on the gauge. Adjust valve adjusting screw until valve slightly bleeds at the set bypass pressure and lock adjusting screw.

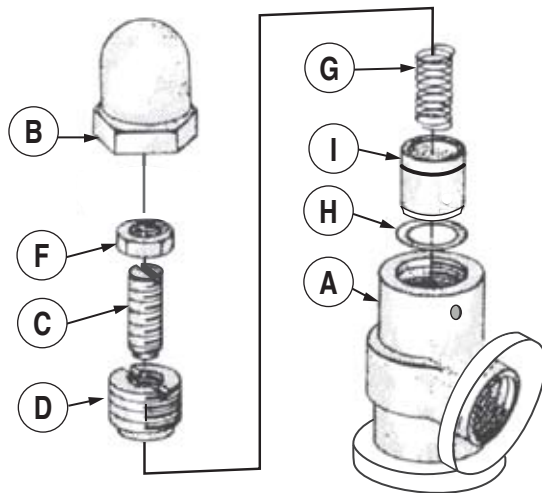
Fulflo valves are not designed to be positive shut-off, and will pass a minimal amount of leakage before the set pressure. If a valve is required to bypass a given amount of fluid at a given pressure, a test stand

having a flow meter in the pump discharge line must be available. With a valve adjusted for cracking pressure as above, continue closing bypass until the required flow registers on the flow meter and observe pressure. Readjust pressure, if necessary, to obtain desired pressure at desired flow.

MAINTENANCE

Fulflo valves provide reliable “chatter-free” operation when the system is free of abrasives and foreign matter. Continuous filtration of the liquid used is strongly recommended.

TYPICAL DISASSEMBLY

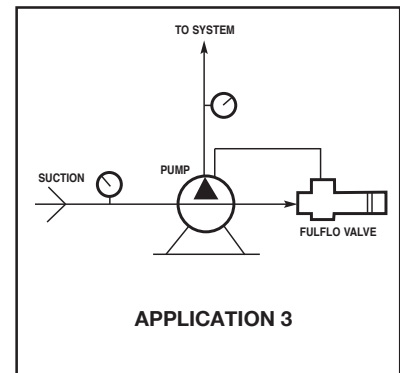
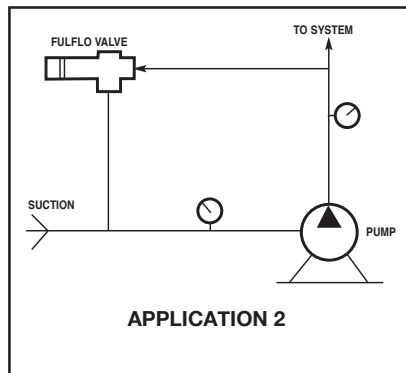
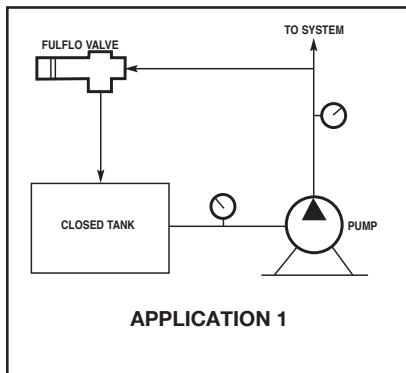


To dismantle valve for inspection or cleaning:

1. Remove cap “B”
2. Remove lock nut “F”
3. Remove adjusting screw “C”
4. Remove retainer “D”
5. Remove spring “G”
6. Remove piston “I”
7. Remove stop ring “H” (Not Recommended)
(Special tooling is required to install new stop ring.)

Inspect valve bore and piston for wear and scoring. Replace broken or damaged parts. Clean all parts thoroughly and re-assemble by reversing the above procedure.

TYPICAL APPLICATIONS



OV-SERIES

ASSEMBLY NUMBER IDENTIFICATION CHART

Symbol No.	Designation	Code	Description
1	Style	None	Standard Model
2	Series	OV	
3	Material	J B S SS	Cast iron Brass Steel Stainless Steel (300 Series Stainless)
4	Connections	None F	Screw Connections Flange Connections 300# Flange Class Standard (250# Flange Class - Cast Iron Standard)
5	Size	-3 -4 -5 -6 -7 -8	1/2" 3/4" 1" 1 1/4" 1 1/2" 2"
6,7,8	ASA Flange Rating	None -150 -600	300# Flange Standard (no designation required)
9	Flange Style 150# & 600# Only	A B C D	Raised Face, Staggered Bolt Centers Smooth Face, Staggered Bolt Centers Raised Face, Bolts on Valve Centerline Smooth Face, Bolts on Valve Centerline
10	O-Ring Material	R RV RS RA EPR RN	Buna (standard) Viton Silicone Aflas Ethylene Propylene Neoprene (Note: No Teflon O-Rings may be used)
11	Options	SP	Steel Parts <i>(used on cast iron valves only)</i>
12	Piston Material	/HS /SS /3SS	Hardened Steel 416 Stainless Steel 303 Stainless Steel (For Stainless Valves Only)
13	Spring	/WS /XS /YS /ZS	
14	Setting		Desired Set Pressure

EXAMPLES:

OVJ-5RVSP/HS/WS							
OV	J	-5	RV	SP	/HS	/WS	
<small>Series</small>	<small>Cast Iron</small>	<small>1"</small>	<small>Witon O-Ring</small>	<small>Steel Parts</small>	<small>H.S. Piston</small>	<small>WS Spring</small>	

OVJF-5R/HS/WS							
OV	J	F	-5	R	/HS	/WS	
<small>Series</small>	<small>Cast Iron</small>	<small>Flanged</small>	<small>1"</small>	<small>Buna O-Ring</small>	<small>H.S. Piston</small>	<small>WS Spring</small>	

OVJF-5-150AR/HS/WS									
OV	J	F	-5	-150	A	R	/HS	/WS	
<small>Series</small>	<small>Cast Iron</small>	<small>Flanged</small>	<small>1"</small>	<small>Rating</small>	<small>Style</small>	<small>Buna O-Ring</small>	<small>H.S. Piston</small>	<small>WS Spring</small>	

STANDARD PRESSURE RANGE CHART

Valve Pipe Size	Valve Flange Size	SPRING PRESSURE AND IDENTIFICATION NO.							
		GREEN-WS		YELLOW-XS		WHITE-YS		BLUE-ZS	
		Low	High	Low	High	Low	High	Low	High
1/2"		40	100	75	150	150	300	250	500
3/4"		30	80	70	140	130	250	150	450
1"	1"	10	50	25	100	40	150	125	300
1 1/4"	1 1/4"	10	50	25	100	40	150	125	300
1 1/2"	1 1/2"	30	100	60	175	150	350	300	500
2"	2"	30	100	60	175	150	350	300	500

+/-1-5 PSI ON ALL SPRING RANGES

OV-SERIES

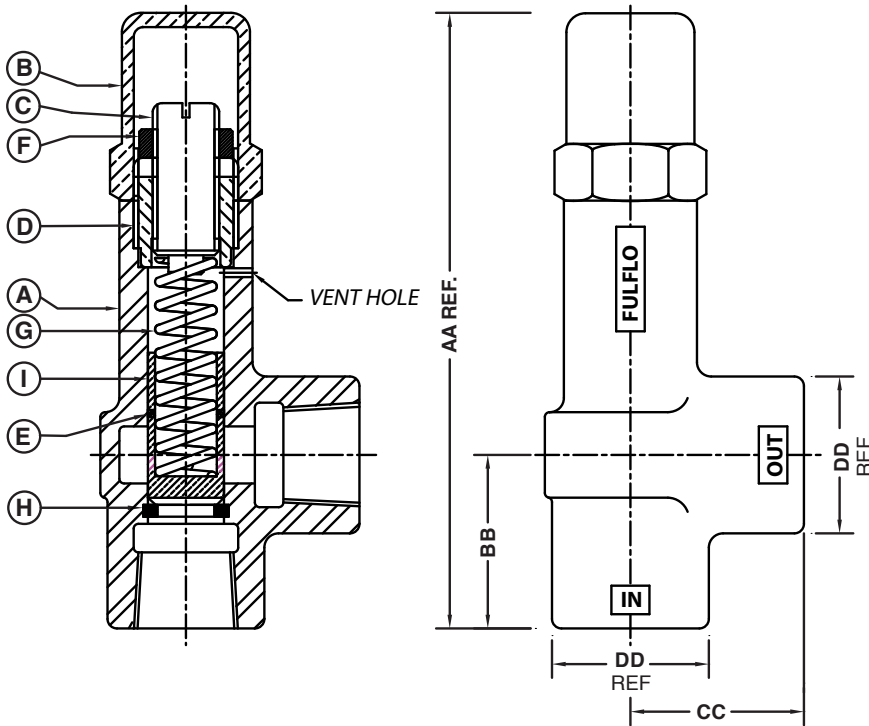
OVJ Cast Iron **OVB** Brass

OVS Steel

OVSS Stainless Steel

OVJ-SP Cast Iron with Steel Parts

DIMENSIONS



Valve Size	DIMENSIONS IN INCHES			
	AA	BB	CC	DD REF
3/8"	5 ¹¹ / ₃₂	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈
1/2"	6 ⁹ / ₁₆	1 ¹¹ / ₁₆	1 ⁷ / ₁₆	1 ⁷ / ₁₆
3/4"	6 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1 ¹³ / ₁₆	1 ¹¹ / ₁₆
1"	8 ⁷ / ₃₂	2 ⁹ / ₃₂	2 ⁹ / ₃₂	2 ¹ / ₁₆
1 1/4"	9 ⁹ / ₁₆	2 ⁹ / ₁₆	2 ⁹ / ₁₆	2 ¹ / ₂
1 1/2"	11 ¹ / ₁₆	2 ¹¹ / ₁₆	2 ¹¹ / ₁₆	2 ⁷ / ₈
2"	13	3	3	3 ¹ / ₄

PARTS LIST

SYM.	NAME	MODEL	VALVE SIZE					
			1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	BODY	OVJ, OVJ-SP OVB OVS OVSS	300-33 300-B33 300-S33 300-SS33	400-26 400-B26 400-S26 400-SS26	500-39 500-B39 500-S39 500-SS39	600-25 600-B25 600-S25 600-SS25	700-27 700-B27 700-S27 700-SS27	800-30 800-B30 800-S30 800-SS30
B	CAP	OVJ, OVJ-SP OVB OVS OVSS	301-S 301-B 301-S 301-SS	401 401-B 401-S 401-SS	501 501-B 501-S 501-SS	601 601-B 601-S 601-SS	701 701-B 701-S 701-SS	801 801-B 801-S 801-SS
C	ADJUSTING SCREW	OVJ, OVB OVS, OVJ-SP OVSS	302-B 302-S 302-SS	402-B 402-S 402-SS	502-B 502-S 502-SS	602-B 602-S 602-SS	702-B 702-S 702-SS	802-B 802-S 802-SS
D	RETAINER	OVJ, OVB OVS, OVJ-SP OVSS	303-B 303-S 303-SS	403-B 403-S 403-SS	503-B 503-S 503-SS	603-B 603-S 603-SS	703-B 703-S 703-SS	803-B 803-S 803-SS
E	PISTON O-RING †	OVJ, OVJ-SP, OVB, OVS OVSS	224-*	424-*	204-*	7073-*	7069-*	7069-*
F	LOCK NUT	OVJ, OVJ-SP, OVS, OVB OVSS	305-S 305-SS	405-S 405-SS	505-S 505-SS	605-S 605-SS	705-S 705-SS	805-S 805-SS
G	SPRING †	ALL MODELS	207-**	307-**	407-**	507-**	607-**	707-**
H	STOP RING	OVJ, OVB OVS, OVJ-SP OVSS	308-B 308-S 308-SS	408-B 408-S 408-SS	508-B 508-S 508-SS	608-B 608-S 608-SS	708-B 708-S 708-SS	808-B 808-S 808-SS
I	PISTON †	HARDENED STEEL 416 STAINLESS STEEL 303 STAINLESS STEEL	306-21 306-A21 306-SS21	406-22 406-A22 406-SS22	506-32 506-A32 506-SS32	606-32 606-A32 606-SS32	706-25 706-A25 706-SS25	806-23 806-A23 806-SS23

* See o-ring selection chart

** See spring pressure chart

† Recommended spare parts

OV-SERIES

OVJF Cast Iron

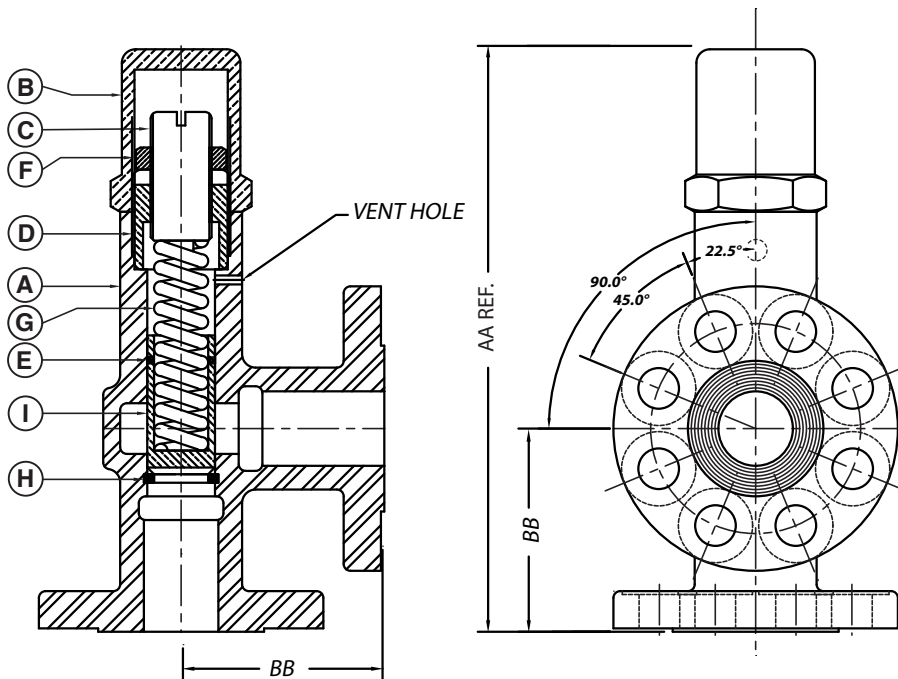
OVSF Steel

OVBF Brass

OVSSF Stainless Steel

OVJF-SP Cast Iron with Steel Parts

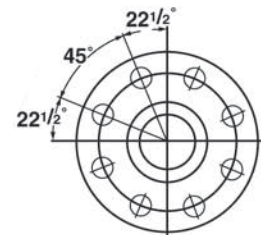
DIMENSIONS



DIMENSIONS IN INCHES

Valve Size	AA	BB
1"	9 ¹ / ₂ "	3 ¹ / ₂ "
1 ¹ / ₄ "	10 ¹³ / ₁₆ "	3 ³ / ₄ "
1 ¹ / ₂ "	12 ⁷ / ₁₆ "	4 ¹ / ₁₆ "
2"	14 ⁹ / ₁₆ "	4 ⁹ / ₁₆ "

Note: Dimensions reflect 150# and 300# only



FOR 2" VALVE ONLY

PARTS LIST

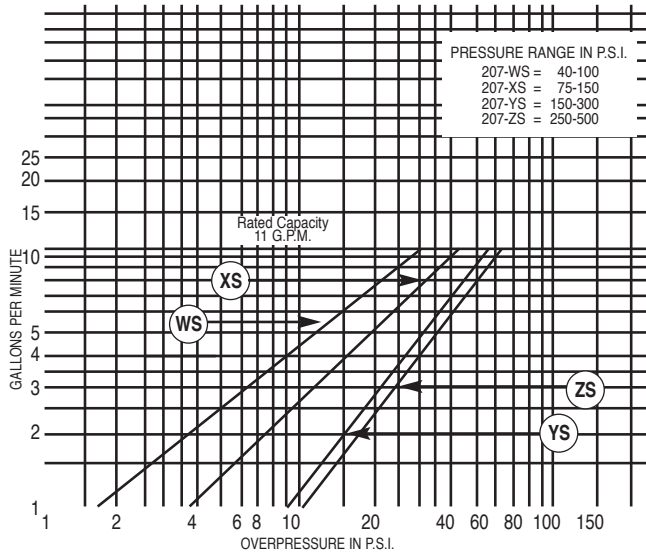
SYM.	NAME	MODEL	VALVE SIZE			
			1"	1 ¹ / ₄ "	1 ¹ / ₂ "	2"
A	BODY	OVJF, OVJF-SP OVBF OVSF OVSSF	500-F39 500-BF39 500-SF39 500-SSF39	600-F25 600-BF25 600-SF25 600-SSF25	700-F27 700-BF27 700-SF27 700-SSF27	800-F30 800-BF30 800-SF30 800-SSF30
B	CAP	OVJF, OVJF-SP OVBF OVSF OVSSF	501 501-B 501-S 501-SS	601 601-B 601-S 601-SS	701 701-B 701-S 701-SS	801 801-B 801-S 801-SS
C	ADJUSTING SCREW	OVJF, OVBF OVSF, OVJF-SP OVSSF	502-B 502-S 502-SS	602-B 602-S 602-SS	702-B 702-S 702-SS	802-B 802-S 802-SS
D	RETAINER	OVJF, OVBF OVSF, OVJF-SP OVSSF	503-B 503-S 503-SS	603-B 603-S 603-SS	703-B 703-S 703-SS	803-B 803-S 803-SS
E	PISTON † O-RING †	OVJF, OVJF-SP OVBF, OVSF OVSSF	204*	7073*	7069*	7069*
F	LOCK NUT	OVJF, OVJF-SP OVSF, OVBF OVSSF	505-S 505-S 505-SS	605-S 605-S 605-SS	705-S 705-S 705-SS	805-S 805-S 805-SS
G	SPRING †	ALL MODELS	407**	507**	607**	707**
H	STOP RING	OVJF, OVBF OVJF-SP, OVSF OVSSF	508-B 508-S 508-SS	608-B 608-S 608-SS	708-B 708-S 708-SS	808-B 808-S 808-SS
I	PISTON †	HARDENED STEEL 416 STAINLESS STEEL 303 STAINLESS STEEL	506-32 506-A32 506-SS32	606-32 606-A32 606-SS32	706-25 706-A25 706-SS25	806-23 806-A23 806-SS23

* See o-ring selection chart
 ** See spring pressure chart
 † Recommended spare parts

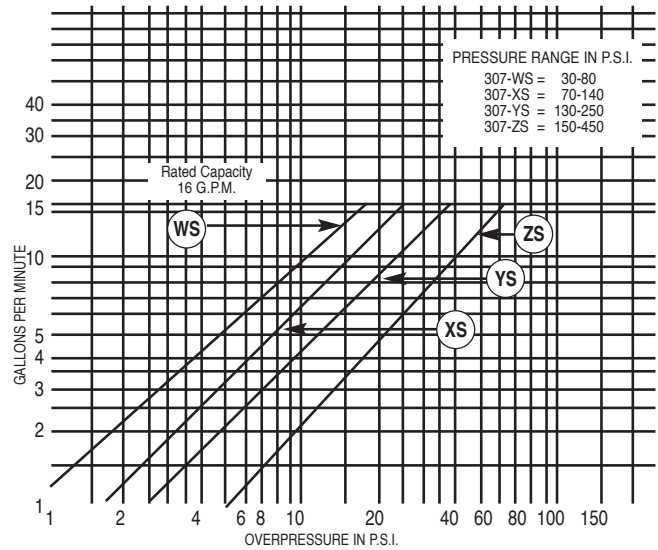
OV-SERIES PERFORMANCE CHARTS

All valve tests 110°F. to 120°F. Oil Viscosity 150 S.S.U. at 100°F.
(Charts good from 30 to 500 S.S.U.)

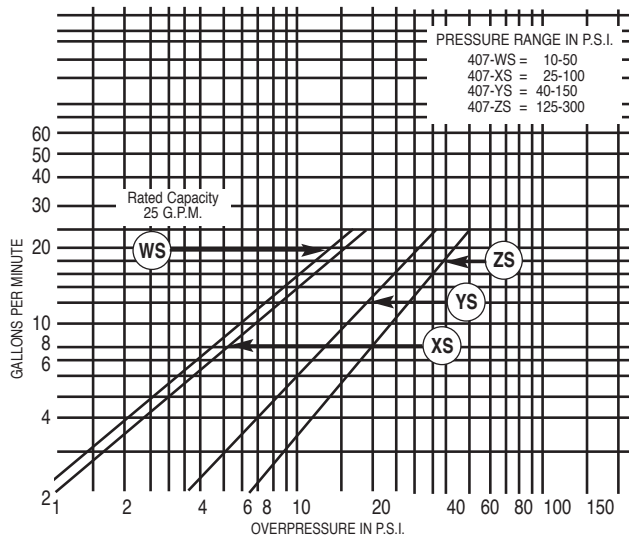
1/2" VALVE TESTS



3/4" VALVE TESTS



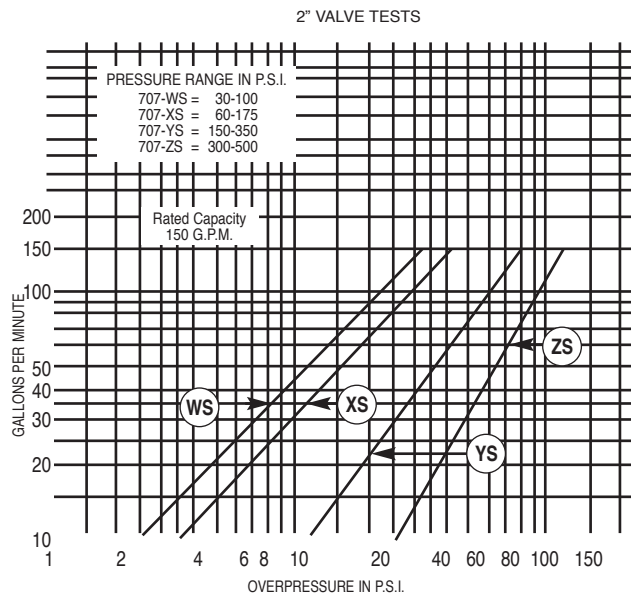
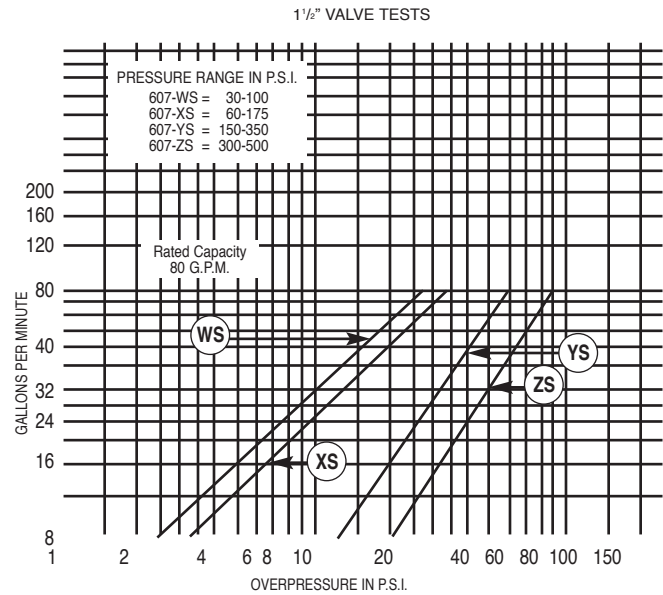
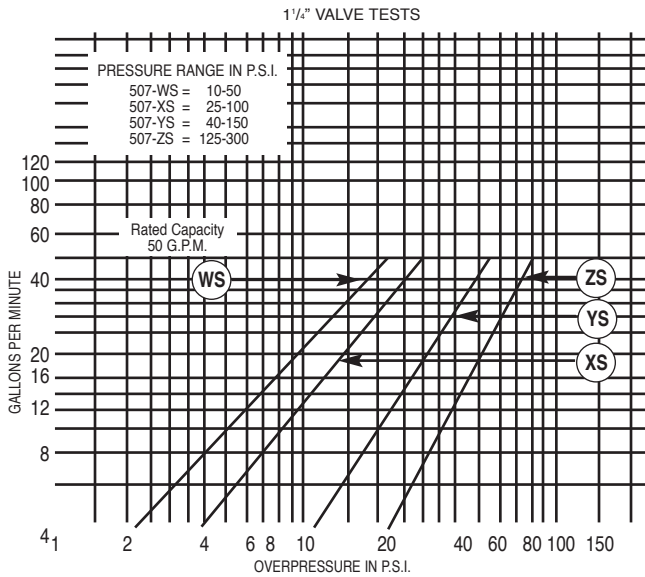
1" VALVE TESTS



Overpressure - The pressure increase or accumulation above the set pressure when the valve is discharging flow.

OV-SERIES PERFORMANCE CHARTS

All valve tests 110°F. to 120°F. Oil Viscosity 150 S.S.U. at 100°F.
(Charts good from 30 to 500 S.S.U.)



Overpressure - The pressure increase or accumulation above the set pressure when the valve is discharging flow.