SURGE ANTICIPATOR RELIEF VALVE

Mustang Series — M116-51 or M6116-51 (Globe)

Basic Valve Features

- Single Piece Flat Diaphragm Designed
Absolute no friction to the rubber diaphragm against the basic valve

- Only Three Major Components
Cover, Stem Assembly and Body

- 100% Fusion Bonded Epoxy Coated
NSF 61 Certified Epoxy Coating Internally and Externally

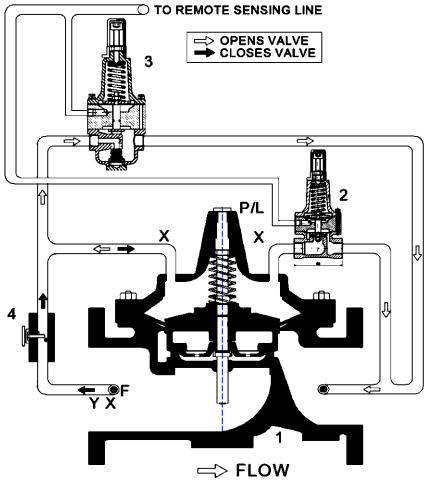
- Simplified Maintenance
No special tools and skill are required

Function

- Sense low pressure condition that precedes high pressure surge and opens to relieve high pressure

- Relieved high pressure build-up and protects system from over pressure conditions

Schematic



Components

1.	Basic Valve	F	Flo-Clean Strainer
1.	Main Valve		
2.	Fig. P500 High Pressure Control	X	Isolation Cocks
3.	Fig. P20M Low Pressure Control	Y	Strainer
4.	Needle Valve – Adj. Closing Speed	P/L	Position Indicator / Limit Switch

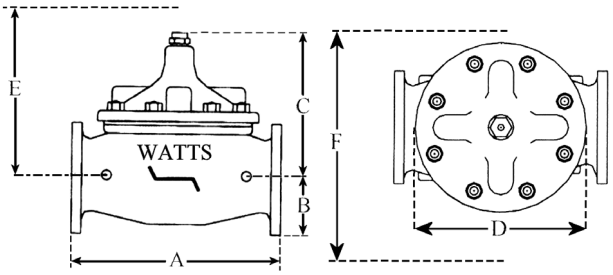
Operation

The WATTS ACV M116-51 and M6116-51 Surge Anticipator Relief Valve are designed to relieve pipeline surge when a pumping cycle is interrupted by electrical or mechanical failure. It is controlled by a normally open Figure P20M Low Pressure Control Pilot designed to : 1) Open (allowing fluid out of the basic valve cover chamber) when line pressure is falls below the adjustable setpoint of the Figure

P20M Low Pressure Pilot in anticipation of the returning high pressure wave or line pressure is exceeds the adjustable setpoint of the Figure P500 High Pressure Pilot to dissipating the high pressure surge, and, 2) Close (allowing fluid to fill the basic valve cover chamber) once system pressure is restored which the line pressure is exceeds the Figure P20M setting but falls below the Figure P500 setting, allowing valve slowly closing.

M116-51 is Full Port designed Surge Anticipator Relief Valve with M100 Basic Valve and M6116-51 is Reduced Port designed Surge Anticipator Relief Valve with M6100 Basic Valve

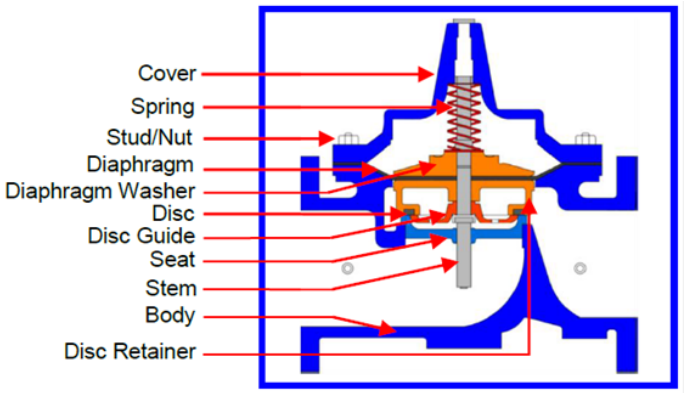
Dimensions (mm)



	A		B		C		D		E	F
VALVE SIZE	M 100	M 6100	M 100	M 6100	M 100	M 6100	M 100	M 6100	Maintenance Clearance	
32	184	---	64	---	140	---	143	---	280	480
40	229	---	78	---	140	---	143	---	280	480
50	254	---	83	---	165	---	168	---	305	510
65	295	---	95	---	262	---	203	---	360	560
80	345	279	105	105	284	178	232	168	360	560
100	381	353	114	114	362	219	292	232	410	610
150	508	451	140	140	468	295	400	292	610	815
200	645	543	171	171	554	381	508	400	660	860
250	756	660	203	203	594	454	600	508	710	965
300	864	762	241	241	744	533	711	600	760	1120
350	991	---	267	---	614	---	832	---	860	1220
400	1051	889	298	298	889	654	902	711	1020	1320
450	---	1219	---	457	---	787	---	900	1220	1420
500	---	1219	---	508	---	787	---	900	1220	1420
600	---	1219	---	610	---	787	---	1263	1220	1420

Main Valve Material Specifications

Body and Cover	-	Ductile Iron ASTM A-536
Coating	-	NSF 61 Certified Fusion Bonded Epoxy
Stem, Seat and Disc Guide	-	Stainless Steel ASTM 316
Stem Nut and Spring	-	Stainless Steel AISI 304
Disc Retainer	-	Ductile Iron “Epoxy Coated”
Diaphragm Washer	-	Ductile Iron “Epoxy Coated”
Diaphragm	-	Nylon Reinforced Buna-N ASTM D 200(
Disc	-	Buna-N Rubber ASTM D 2000
Studs and Nuts	-	Steel with Chrome Plated Stainless Steel (Optional)



Main Valve Technical Data

Valve Size	-	25 mm to 600 mm
Designed Standard	-	AWWA C530-12
Operating Pressure	-	Class 150 Max. 250 PSI (17.2 Bar)
	-	Class 300 Max. 500 PSI (34.5 Bar)
Operating Temperature	-	-10 to 90 deg. C (Fluids)
End Connection	-	50 mm to 600 mm Flanged End
	-	25 mm to 40 mm Screwed End
Flange Standard	-	ANSI Class 150, Class 300, BS 4504 PN 16 or PN 25

Pilot System Specifications

Pilot Model	-	Figure P20M (Low Pressure)
	-	Figure P500 (High Pressure)
Body Material	-	P20M Stainless Steel
Body Material	-	P500 Stainless Steel
Spring Range	-	0.2 to 7 Bar (P20M Pilot)
Spring Range	-	0.5 to 16 Bar (P500 Pilot) 5 to 20 Bar (Optional)
Diaphragm	-	Buna-N Nylon Reinforced
Disc	-	Buna-N Synthetic Rubber
Fittings and Tubing	-	Brass and Copper (Standard), Stainless Steel (Optional)

Installation Guidelines

- Prior to installation, flush line to remove debris.
- Install valve horizontally “in line” (cover facing up), so flow arrow matches flow through the line. Avoid installing valves size 150 mm and larger vertically. Consult factory **prior** to ordering if installation is other than described.
- Install inlet and outlet isolation valves. **Note :** When using butterfly valves, insure disc does not contact control valve. Damage or improper valve seating may occur.
- Provide adequate clearance for valve servicing and maintenance (refer to Dimension Table).
- It is advisable to install a strainer before the control valve to prevent any solid particle from entering the valve body.
- Install pressure gauge to monitor valve inlet pressure.
- Connect sensing line to the main header using 1/2” diameter minimum tubing or piping.
- The discharge outlet of the valve can be connected directly to suction tank or atmosphere.
- The Surge Anticipator Relief Valve shall be installing at the end of the header or at the branch-out tee of the header.

Flow Data Series M100 / M6100 (Globe)

Valve Size (mm)		25	32	40	50	65	80	100	150	200	250	300	350	400	450	500	600
Max. Continuous Flow Rate GPM	**M100**	83	95	130	208	300	460	800	1850	3100	4900	7000	8500	11000	---	---	---
	M6100	---	---	---	---	---	260	580	1025	2200	4100	6400	---	9230	14360	16500	17250
Max. Intermittent Flow Rate GPM	**M100**	86	119	161	260	380	580	990	2300	3900	6100	8800	11500	11400	---	---	---
	M6100	---	---	---	---	---	325	720	1280	2750	5100	8000	---	11500	17950	20625	21560
CV Factor USGPM	**M100**	20	25	30	54	85	115	200	490	770	1245	1750	2300	2940	---	---	---
	M6100	---	---	---	---	---	62	136	229	480	930	1458	---	2110	3300	3400	3500

Maximum continuous flow based on pipeline velocity of 20 ft. per second.
Maximum surge flow based on pipeline velocity of 45 ft. per second.
The Cv factor of a valve is the flow rate in US GPM at 60° F that will cause a 1 psi drop in pressure.
The factors stated are based upon a fully open valve.

Other WATTS ACV Surge Anticipator Relief Valve

M116 / M6116	Pressure Relief / Sustaining Valve
M116-52 / M6116-52	Surge Anticipator Relief on rate of rise of pressure

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