

LEAD FREE*

Model 27

Altitude Pilot

Size: 1/8" NPT Actuation Ports (1/4" NPT Sense Line Port)

The Model 27 Altitude Pilot is a hydraulically operated, diaphragm actuated, spring loaded 3-port pilot designed to open or close based upon static tank head pressure versus an adjustable spring setting. It directly monitors tank head pressure by a contractor field installed Sensing Line. The large diaphragm area causes the Model 27 to be sensitive to slight changes in tank head pressure.

The Model 27 Altitude Pilot works in conjunction with a 3-Way Accelerator Pilot (Model 22 or Model 22-1) to open and close the Main Valve.

As water level decreases, the sensed tank head pressure falls below the control setpoint of the Model 27, causing it to pressurize the cover of the 3-Way Accelerator, allowing the Main Valve to open for filling operations. The valve will either open fully or regulate to fill the tank based upon the pilot control system installed on the Main Valve.

As water level increases, the sensed tank head pressure increases above the control setpoint of the Model 27, causing it to de-pressurize the cover of the 3-Way Accelerator, closing the Main Valve.

Turning the Adjusting Screw clockwise increases the control setting, increasing tank level. Turning the Adjustment Screw counterclockwise lowers the control setting, decreasing tank level.

The Model 27 may be equipped with an optional Altitude Gauge or Delayed Opening Pilot in the sensing line to allow for increased tank turn-over. Consult your factory representative for details.



Model 27

Specifications

Body:	Brass Alloy C36000 (std) Stainless Steel (opt)
Adjustment Spring:	Steel
Adjustment Range:	5-20 feet (2 - 6 meters) 10-75 feet (3 - 23 meters) 50-225 feet (15- 69 meters)
Elastomers:	Buna-N (std) EPDM (opt)

***The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.**

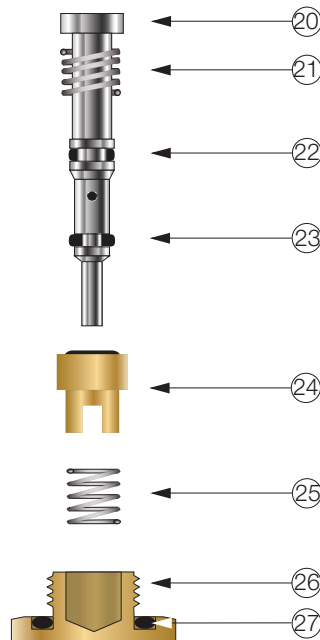
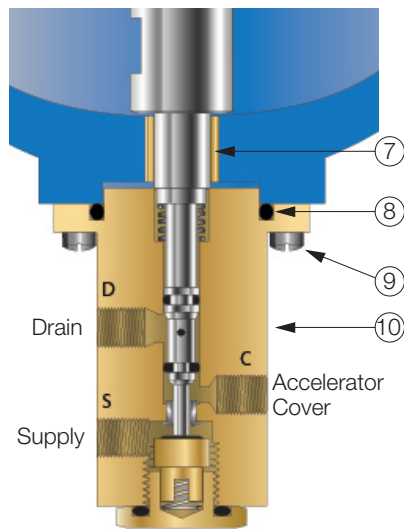
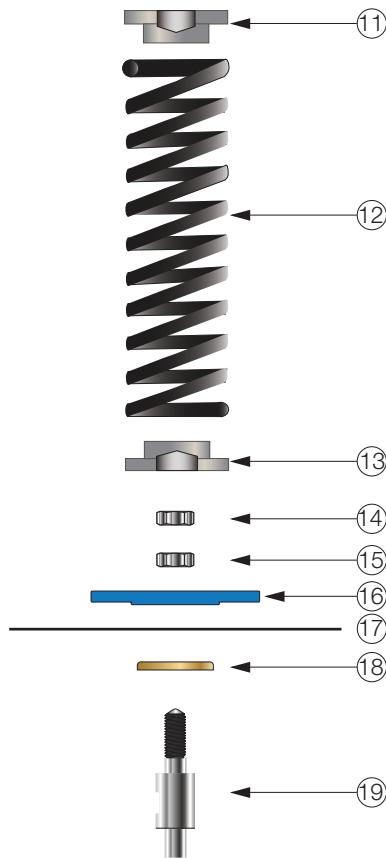
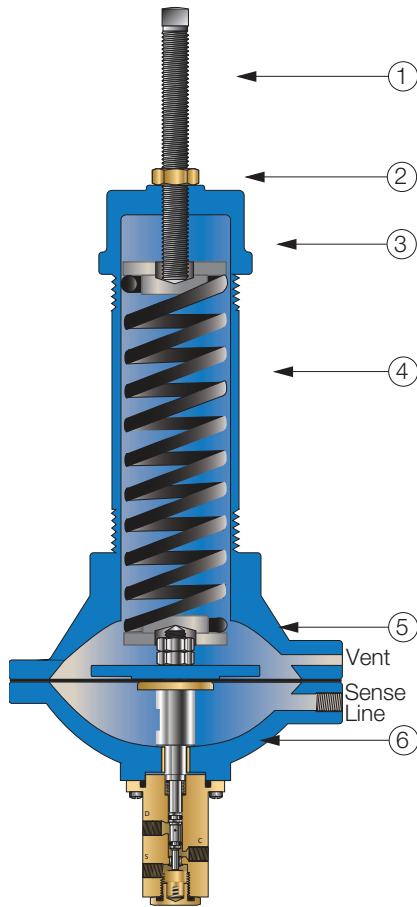
NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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Model 27 Altitude Pilot



Spring Color Code

Yellow	5-20 Foot Range
Orange	10-75 Foot Range
Black	50-225 Foot Range

Item	Description
1	Adjusting Screw
2	Jam Nut
3	Cap
4	Spring Housing
5	Upper Chamber
6	Lower Chamber
7	Bearing
8	O-Ring*
9	Machine Screw
10	F23 Body
11	Upper Spring Guide
12	Spring (see below)
13	Lower Spring Guide
14	Upper Jam Nut
15	Lower Jam Nut
16	Upper Diaphragm Washer
17	Diaphragm*
18	Lower Diaphragm Washer
19	Shaft
20	Stem
21	Spring
22	O-Ring*
23	O-Ring*
24	Disc and Retainer*
25	Spring
26	Lower Cap
27	O-Ring*

*Included in Repair Kit



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Classic Series Basic Valves

LEAD FREE*

F100 / F1100

Full Port Ductile Iron Single Chamber Basic Valve

The Watts ACV Models F100 and F1100 are full port, single chamber basic valves that incorporate a one-piece disc and diaphragm assembly. This assembly is the only moving part within the valve allowing it to open, close, or modulate as commanded by the pilot control system.

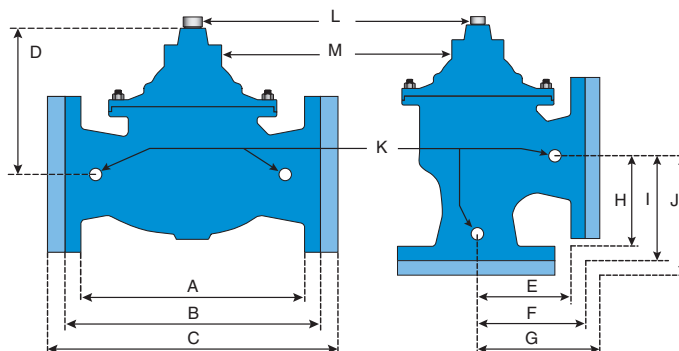
Watts ACV Main Valves are Lead Free. The Watts ACV piloting system contains Lead Free* components, ensuring all of our configurations are Lead Free compliant.

Model F100: Globe Pattern Single Chamber Basic Valve

Model F1100: Angle Pattern Single Chamber Basic Valve

F100 (Globe)

F1100 (Angle)



Dimensions

Valve Size	Globe Thread		Globe 150#		Globe 300#		Cover To Center		Angle Thread		Angle 150#		Angle 300#		Angle Thread		Angle 150#		Angle 300#		Port Size NPT	Port Size NPT	Port Size NPT	Shipping Weights*	
	A		B		C		D		E		F		G		H		I		J		K	L	M	lbs.	kgs.
in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	in.	in.		
1¼	7¼	184					3½	89	3¼	83					1⅞	48					¼	½	⅜	15	7
1½	7¼	184	8½	216			3½	89	3¼	83	4	102			1⅞	48	4	102			¼	½	⅝	15	7
2	9⅜	238	9⅜	238	10	254	4⅞	125	4	102	4	102	4¼	108	4	102	4	102	4¼	108	½	½	¾	35	16
2½	11	279	11	279			7	178	5½	140	5½	140	5⅜	148	4	102	4	102	4⅞	110	½	½	¾	65	30
3	10½	267	12	305	13¼	337	7	178	5¼	133	5¾	146	6⅞	156	5¼	133	5¾	146	6⅞	156	½	½	¾	95	43
4			15	381	15⅝	397	8⅝	219			6¾	171	7⅞	181			6¾	171	7⅞	181	½	½	¾	190	86
6			20	508	21	533	11¾	298			8½	216	8⅞	225			8½	216	8⅞	225	½	½	½	320	145
8			25⅜	645	26⅜	670	15¾	400			11	279	11½	292			11	279	11½	292	½	1	½	650	295
10			29¾	756			18¾	476													1	1	1	940	426

Standard Materials

Body & Cover: Ductile Iron ASTM A536

Coating: NSF Listed Fusion Bonded Epoxy Lined and Coated

Trim: 316 Stainless Steel

Elastomers: Buna-N (standard)
EPDM (optional)
Viton (optional)

Stem, Nut & Spring: Stainless Steel

Operating Pressure

Threaded = 400psi (27.6 bar)

150 Flanged = 250psi (17.2 bar)

300 Flanged = 400psi (27.6 bar)

Operating Temperature

Buna-N: 160°F (71°C) Maximum

EPDM: 300°F (140°C) Maximum

Viton®: 250°F (121°C) Maximum

Epoxy Coating**: 140°F (60°C) Maximum

** Valves can be provided without internal epoxy coating consult factory

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Viton® is a registered trademark of DuPont Dow Elastomers.

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F100 / F1100 – Full Port Ductile Iron Single Chamber Basic Valve

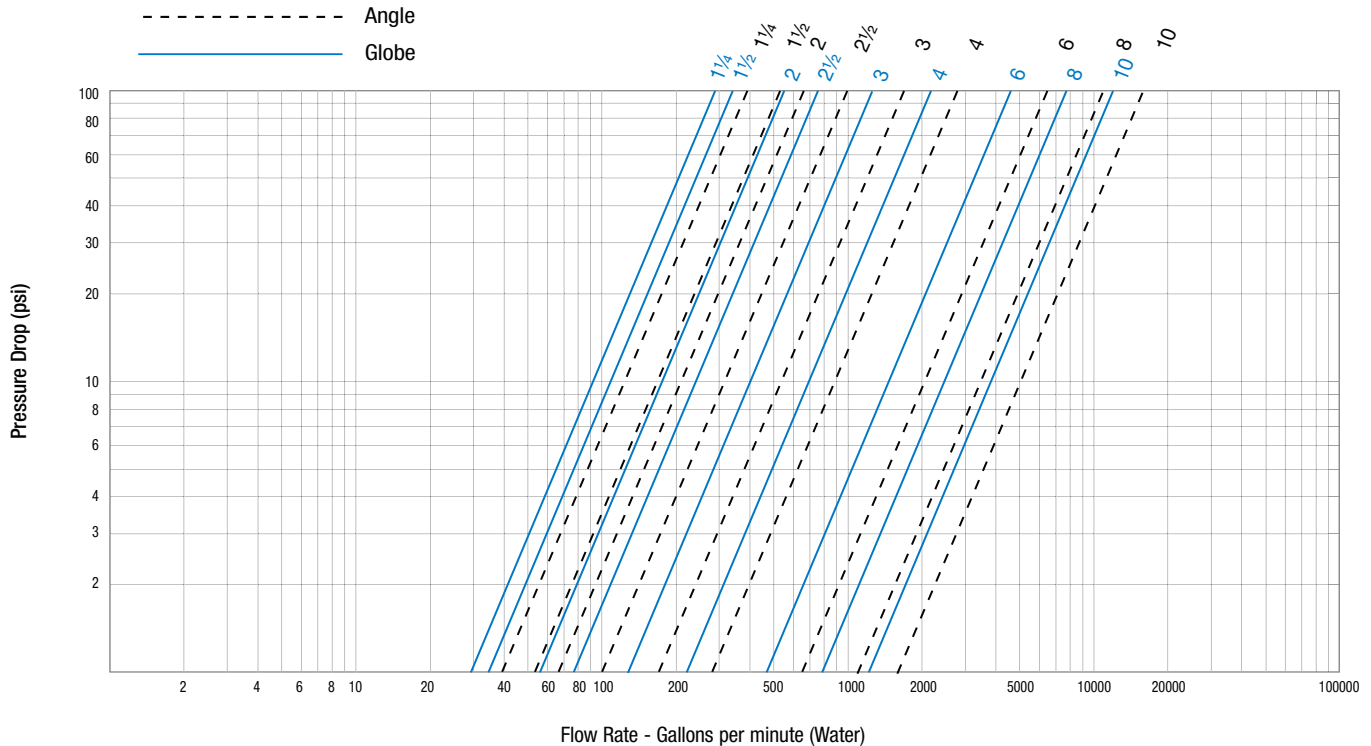
Flow Data - ACV F100 (Globe) / F1100 (Angle)

Valve Size - Inches	1¼	1½	2	2½	3	4	6	8	10	
Suggested	Maximum Continuous Flow Rate Gpm (Water)	93	125	208	300	460	800	1800	3100	4900
	Maximum Intermittent Flow Rate Gpm (Water)	115	158	260	370	570	1000	2300	3900	6000
	Minimum Flow Rate Gpm (Water)	3	5	6	9	15	16	17	25	55
C_v	Factor GPM (Globe)	29	34	55	75	125	220	460	775	1200
	Factor GPM (Angle)	39	53	66	99	170	280	650	1100	1600

- Maximum continuous flow based on velocity of 20 ft. per second.
- Maximum intermittent flow based on velocity of 25 ft. per second.
- Minimum flow rates based on a 20-40 psi pressure drop.
- The C_v Factor of a valve is the flow rate in US GPM at 60°F that will cause a 1psi drop in pressure.
- C_v factor can be used in the following equations to determine Flow (Q) and Pressure Drop (ΔP):

$$Q \text{ (Flow)} = C_v \sqrt{\Delta P} \quad \Delta P \text{ (Pressure Drop)} = (Q/C_v)^2$$

- The C_v factors stated are based upon a fully open valve.
- Many factors should be considered in sizing control valves including inlet pressure, outlet pressure and flow rates.
- For sizing questions including cavitation analysis consult Watts with system details.



Valve Cover Chamber Capacity

Valve Size - Inches	1¼	1½	2	2½	3	4	6	8	10
fl.oz.	4	4	4	10	10	22	70		
U.S. Gal								1 ¼	2 ½

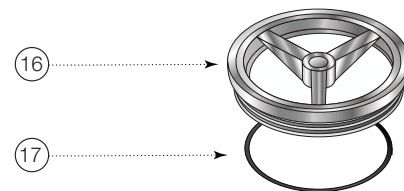
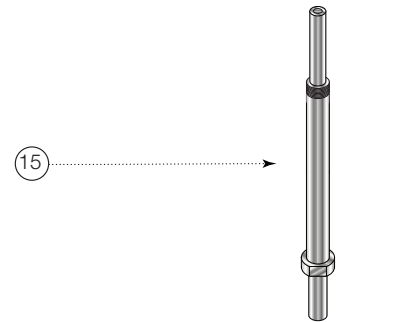
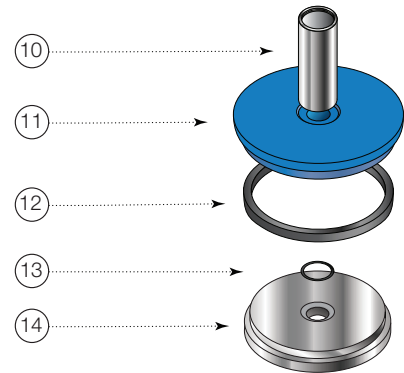
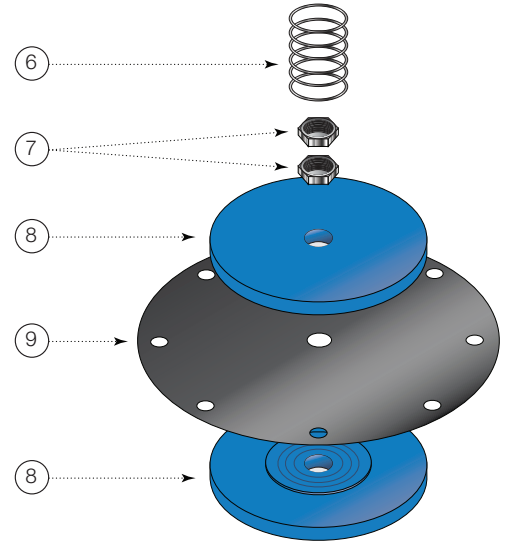
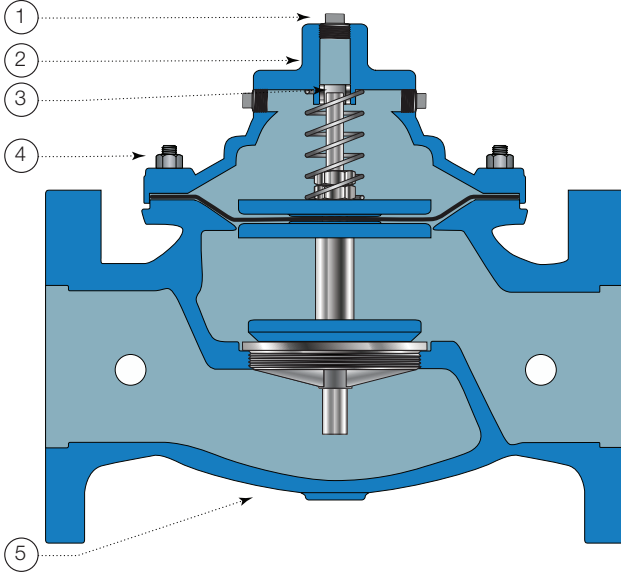
Valve Travel

Valve Size - Inches	1¼	1½	2	2½	3	4	6	8	10
Travel - Inches	¾	¾	½	¾	¾	1	1½	2	2½

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F100

Full Port Ductile Iron Single Chamber Basic Valve



Item	Description	Material
1	Pipe Plug	Lead Free Brass
2	Cover	ASTM A536 65-45-12 Epoxy Coated Ductile Iron
3	Cover Bearing	ASTM A276 304 Stainless Steel
4	Stud with Cover Nut and Washer	ASTM A570 Gr.33 Zinc Plated Steel
5	Body	ASTM A536 65-45-12 Epoxy Coated Ductile Iron
6	Spring	ASTM A276 302 Stainless Steel
7	Stem Nut	ASTM A276 304 Stainless Steel
8	Diaphragm Washer	ASTM A536 65-45-12 Epoxy Coated Ductile Iron
9	Diaphragm*	Buna-N (Nitrile)
10	Spacer	ASTM A276 304 Stainless Steel
11	Quad Seal Retainer	ASTM A536 65-45-12 Epoxy Coated Ductile Iron
12	Quad Seal*	Buna-N (Nitrile)
13	O-Ring*	Buna-N (Nitrile)
14	Quad Seal Plate	ASTM A743 CF8M (316) Stainless Steel
15	Shaft / Stem	ASTM A276 304 Stainless Steel
16	Seat Ring	ASTM A743 CF8M (316) Stainless Steel
17	Seat Gasket*	Buna-N (Nitrile)

* Contained in Main Valve Repair Kit



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