# PLASTIC FOOT VALVES

Foot valves are also referred to as one-way or non-return valves. Foot valves are commonly used with shallow/deep well jet, piston, centrifugal pump installations and various other applications. Their purpose is to prevent reverse flow and maintain system pressure in pressurized pumping systems. They are installed on the end of the suction line of any suction pump. The foot valve not only prevents fluid / water from flowing backward when the pump is off, the valve also keeps the fluid trapped in the suction pipe when the pump stops, sustaining the prime for the pump, and preventing pump burnout. Foot valves work automatically, opened by the pump's suction pulling the valve poppet/flapper open against a low tension spring or with gravity, normally ½ PSI or less cracking pressure (cracking pressure is the pressure it takes to open the valve). When the pump stops, the valve starts closing automatically with assistance of the spring or gravity as the flow slows, and is completely sealed before it comes to a full stop. This eliminates flow reversal which would cause the poppet/flapper to slam against the seat causing hydraulic shock or water hammer. Without a foot valve, gravity would cause the water or fluid to flow in the reverse direction resulting in the loss of prime and system pressure.

Available in 3/4"-2" sizes

Available in 2-1/2"-6" sizes

Available in 3/8" and 1/2" sizes

| Flow Rate/Velocity Chart For Foot Valve Selection* | | | | | |
|---|---|---|---|---|---|
| Nominal | | Min 5ft./sec. | | Max 7ft./sec. | |
| in | mm | GPM | LPM | GPM | LPM |
| 3/4 | 19.05 | 7.00 | 26.50 | 9.00 | 34.07 |
| 1 | 25.40 | 13.00 | 49.21 | 17.00 | 64.35 |
| 1-1/4 | 31.75 | 19.00 | 71.92 | 27.00 | 102.21 |
| 1-1/2 | 38.10 | 28.00 | 105.99 | 39.00 | 147.63 |
| 2 | 50.80 | 49.00 | 185.49 | 69.00 | 261.19 |
| 2-1/2 | 63.50 | 77.00 | 291.48 | 107.00 | 405.04 |
| 3 | 76.20 | 110.00 | 416.40 | 154.00 | 582.95 |
| 4 | 101.60 | 196.00 | 741.94 | 274.00 | 1037.20 |
| 6 | 152.40 | 441.00 | 1669.37 | 617.00 | 2335.60 |

***When selecting a valve it is crucial to maintain flow velocity that does not exceed 5-7 feet per second.**

**In horizontal applications, check for "This side up" and place at the top and centered when installed**

**For use with ASTM-D2239 Polyethylene (PE) pipe**

**Flow Coefficient (CV)** is the flow rate through a valve in the fully open position, which will produce a differential pressure of 1 PSI.
It is defined as the volume of water in US gallons per minute (GPM) at 60°F (15.5°C)

**TEMPERATURE CORRECTION FACTOR FOR PVC VALVES**

As temperature increases, working pressure decreases. The optimal working pressure for PVC valves is 150 PSI @ 73°F (22°C)
If the temperature increases above 73°F (22°C), use the PVC correction factor to determine working pressure.
Multiply the maximum working pressure by the correction factor.

| **Temperature** | 73°F (22°C) | 90°F (32°C) | 100°F (38°C) | 110°F (38°C) | 120°F (49°C) | 130°F (54°C) | 140°F (60°C) |
|---|---|---|---|---|---|---|---|
| **PVC Correction Factor** | 1.00 | 1.00 | 1.00 | 0.83 | 0.66 | 0.50 | 0.33 |

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BII-17PFV-0725(23,131, 81LD)V2

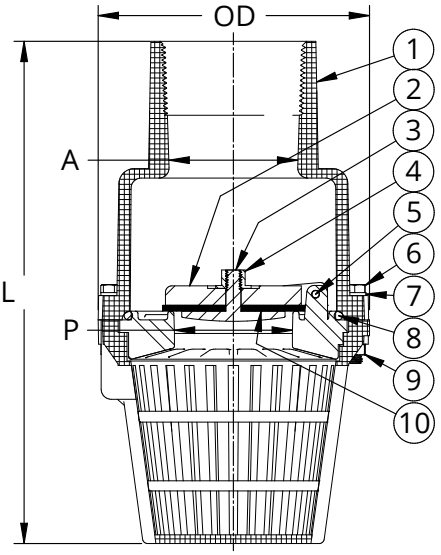
# 17PFVF SERIES - FLAPPER TYPE PLASTIC FOOT VALVES (GRAVITY CLOSING)

**FEATURES:**
- Tapered screen for easy installation.
- Gravity closing flapper to help eliminate back flow.
- Screen has small holes to prevent flat pieces of debris/scale from passing through and into the pumps impeller.
- The screens high open area ensures flow is not restricted.
- Vertical installation is recommended. The valve will perform better and last longer if installed in vertical orientation.

**SPECIFICATIONS:**
- 100% fill flow flapper design
- 304 Stainless Steel hardware and rod
- Injection molded PVC body and screen
- NBR Sealing Gasket ensures a positive seal.
- Threads confrom to ANSI/ASME B1.20.1 Pipe
- Threads, General Purpose, Inch
- 5/16-18 UNC x 1-3/4" Long Hex Head Bolt
- 5/16" Lock Washer
- #353 O-Ring
- 5/16-18 UNC Hex Nut

**CERTIFICATIONS:**
- NSF/ANSI Standard 372 Certified (Drinking Water System Components - Lead Content)

**RATINGS:**
- Max Working Pressure: 150 PSI at 73°F (1034 kPa at 22°C) (3" and 4") (For anything over 150 PSI @ 73°F, refer to the Temperature Correction Factor Chart)
- Minimum Back Flow Head pressure: 5 PSI (3" and 4")
- Max Working Pressure: 100 PSI at 73°F (1034 kPa at 22°C) (6")
- Minimum Back Flow Head pressure: 7 PSI (6")
- Cracking Pressure is equal to or less than 1/2 PSI
- Max temperature rating: 140°F (60°C)




| MATERIAL LIST | | |
|---|---|---|
| **No** | **Part Name** | **Material** |
| 1 | Valve Body | Polyvinyl Chloride (PVC) |
| 2 | Flapper | Polyvinyl Chloride (PVC) |
| 3 | Gasket Retainer | Acrylonitrile Butadiene Styrene (ABS) |
| 4 | Retainer Nut | Acrylonitrile Butadiene Styrene (ABS) |
| 5 | Hinge Pin | 304 Stainless Steel |
| 6 | Hex Head Bolt | 304 Stainless Steel |
| 7 | Lock Washer | 304 Stainless Steel |
| 8 | O-Ring | Nitrile Butadiene Rubber (NBR) |
| 9 | Hex Nut | 304 Stainless Steel |
| 10 | Gasket | Nitrile Butadiene Rubber (NBR) |

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It is defined as the volume of water in US gallons per minute (GPM) at 60°F (15.5°C)

| DIMENSIONS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Part No.** | **IC Connection** | **Flow Coefficient (CV)** | **L (Total Length)** | | **OD** | | **A** | | **P (Port Diameter)** | | **S (Slot Width)** | | **Weight** | |
| | | | **in** | **mm** | **in** | **mm** | **in** | **mm** | **in** | **mm** | **in** | **mm** | **lbs** | **grams** |
| 17PFVF-300 | 3" FPT | 405 | 12.33 | 313.00 | 7.13 | 181.00 | 3.07 | 78.00 | 2.91 | 74.00 | 0.01 | 0.26 | 3.86 | 1750 |
| 17PFVF-400 | 4" FPT | 614 | 14.11 | 358.00 | 8.23 | 209.00 | 4.10 | 104.00 | 3.86 | 98.00 | 0.01 | 0.23 | 5.89 | 2670 |
| 17PFVF-600 | 6" FPT | 1183 | 20.09 | 510.00 | 11.54 | 293.00 | 5.91 | 150.00 | 5.71 | 145.00 | 0.02 | 0.46 | 14.88 | 6750 |

Tolerance: ± 2%


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