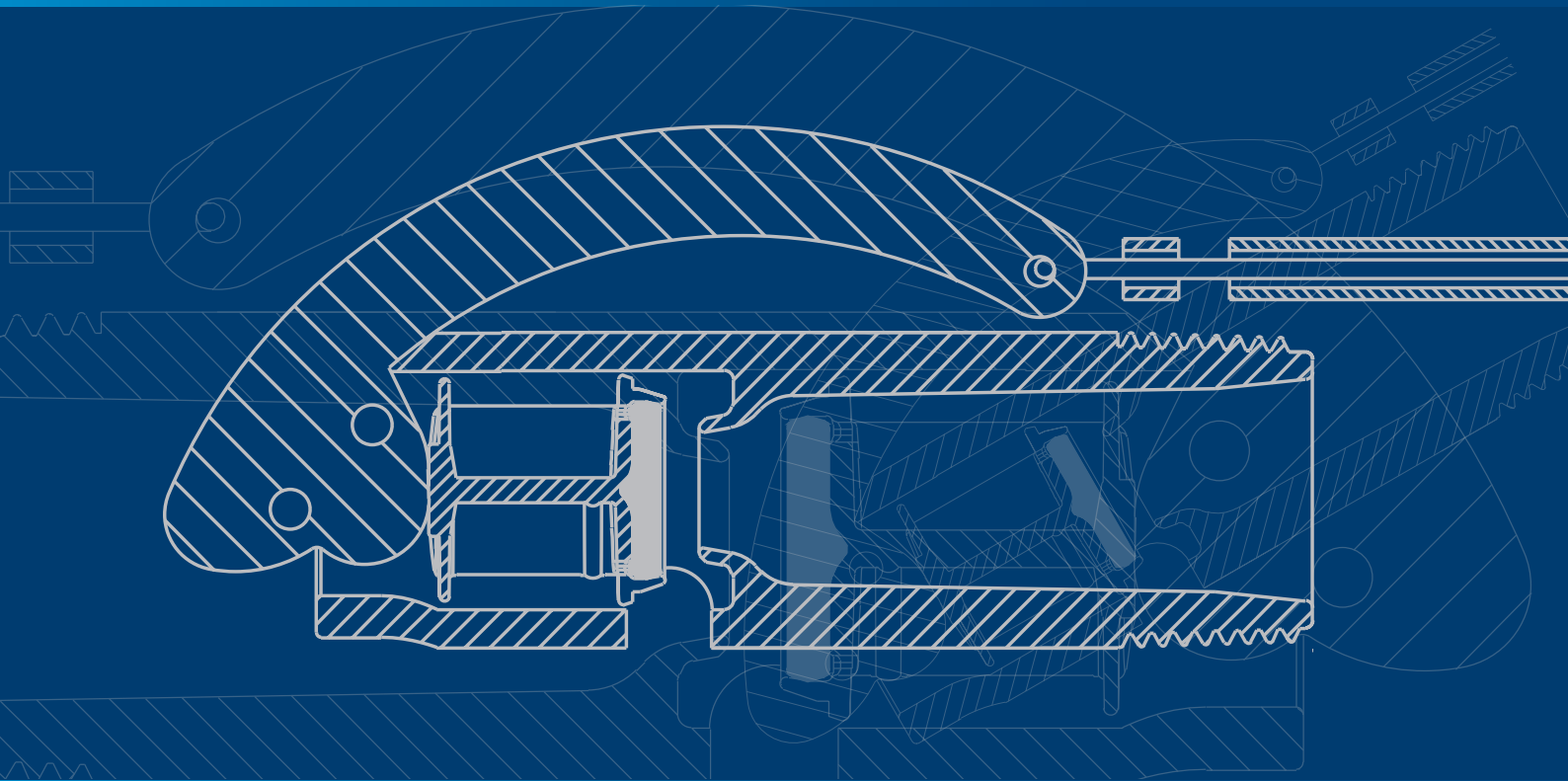


# Trough Valves



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## Disclaimer

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Committed to sustainable development, Philmac is well renowned for quality products and services. Philmac manufactures pipe fittings and valves under a Quality Assurance System assessed and approved to ISO 9001-2000 and has obtained the prestigious environmental management certification ISO 14000. Philmac has a NATA accredited laboratory and tests fittings and valves to international and national standards. Third party accreditation is carried out by SAI Global.

# Look, No Arms!

Your stock can't knock the Philmac trough valve.

With no lever arm, Philmac's submersed trough valve has virtually eliminating the risk of damage by stock.

The float is UV stabilised and easily adjusted from above the water line.

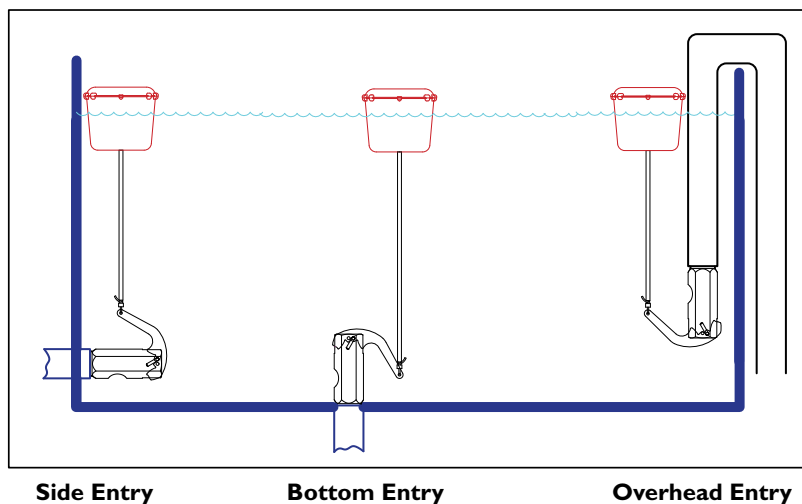
And because the float is bright orange, you'll be able to see from a distance that it's in the right place and at the right level.



The trough valve is designed to handle high and low water pressure and works effectively when installed at any angle.

The unit is available in various sizes to suit most popular drinking troughs and comes in high impact polypropylene or corrosion-resistant quality brass.

## One valve suits different tank arrangements



## TROUGH VALVES

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Philmac's unique and compact trough valve is essentially a float valve but has been designed specifically for stock troughs. The valve hugs the trough wall and has no long lever arm, virtually eliminating the risk of damage caused by stock. By using a cord/float attachment, stock are no longer able to damage levers or manipulate flow.

The extensive range includes quality brass valves and high impact, UV resistant polypropylene valves. The brass version comes with a stainless steel seat ensuring longevity of the product.

This Australia made product is not only robust but versatile as it can be installed in a horizontal or vertical position within the trough.

## APPLICATIONS

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**Agriculture:** Stock troughs and tanks.

## BENEFITS

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### Fast and Easy Installation

- **Multi-position Installation:** The valves have been designed to work in either a vertical or horizontal position for flexible installation.
- **BSP Inlet Threads:** The Rural, Irrigation and Plumbing sectors use British Standard Pipe (BSP) threads as a standard. Philmac also uses these thread types across the valve range to ensure compatibility with other threaded fittings and make installation easy.
- **NPT Inlet Threads:** Philmac offers a complete set of valves with NPT threads.
- **Cord Attachment:** The cord is easily attached to the float and therefore adjustment of the cord is a quick and simple process.

### Complete Security

- **Reliable Operation:** Consistent high quality injection moulded plastic bodies or machined brass plus a stainless steel lever arm and stainless steel seat (brass version) means years of reliable operation.
- **Corrosion Resistant:** Manufactured with plastic, stainless steel and brass components which all have a high degree of corrosion resistance ensuring the longevity of the valve in harsh agricultural conditions.
- **Lever Damage:** Stock can no longer stampede/damage lever or force unnecessary water out of valve, as the float operates independently of the small lever on the valve.

### High Performance

- **Manufactured from advanced thermoplastic materials:** Philmac plastic trough valves are manufactured from lightweight high performance thermoplastic materials, which have excellent impact, UV and corrosion resistance.
- **Low pressure shutoff:** Trough valves are designed to seal off with very low pressure providing there is water in the tank to provide upthrust on the float.

### Complete Coverage

- **Wide range:** The range of trough valves is comprehensive and includes sizes ¾", 1" and 1¼" (DN20, 25 and 32).



## STANDARDS & TESTS

Philmac's range of trough valves are designed to comply with the following standards and undertake a range of tests to ensure they comply with these standards.

### Tests

**Shut Off Test:** Valves are tested for shut off against a hydrostatic water pressure of 300 kPa (43 psi) or 3 bar.

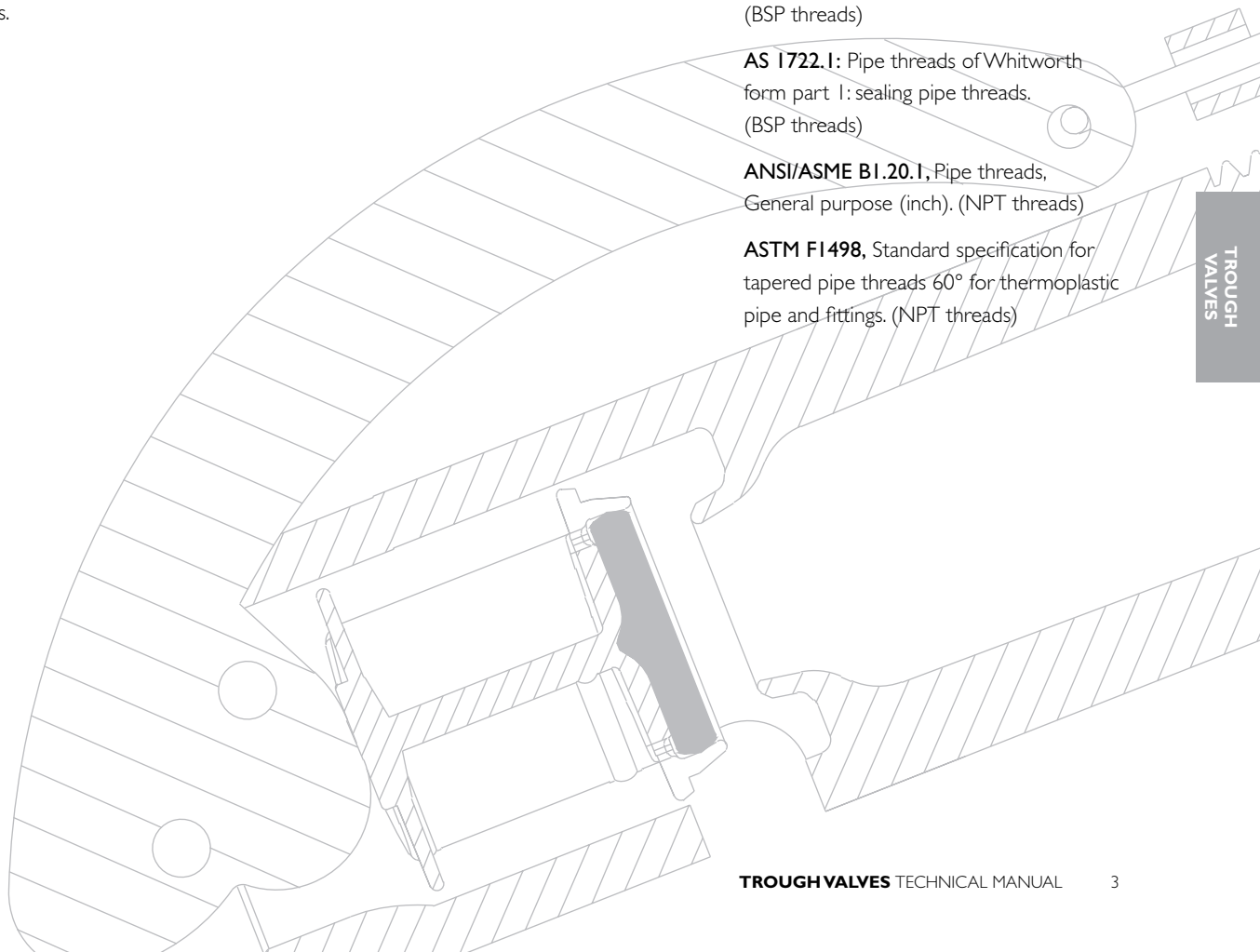
### Standards

**AS/ISO 7.1,** Pipe threads where pressure joints are made on the threads. Part 1 Dimensions, tolerances and designations. (BSP threads)

**AS 1722.1:** Pipe threads of Whitworth form part 1: sealing pipe threads. (BSP threads)

**ANSI/ASME B1.20.1,** Pipe threads, General purpose (inch). (NPT threads)

**ASTM F1498,** Standard specification for tapered pipe threads 60° for thermoplastic pipe and fittings. (NPT threads)



## TROUGHVALVES OPERATION & INSTALLATION INSTRUCTIONS

The Philmac trough valves operate by opening and closing a plunger against a seat through the action of a lever attached to a float. As the water level drops, the float and lever move in a downward direction and the plunger moves away from the seat opening the valve. When the water level rises, the float and lever move in an upwards direction and the plunger moves towards the seat until it sits firmly against the seat and shuts the valve off.



1. Apply PTFE tape or approved sealant to the thread ensuring sufficient is applied to ensure a watertight seal.



2. Screw into female thread by hand until firm.



3. Using a pipe wrench or multigrips on the body of the valve screw it into the female thread until tight. Where necessary ensure the female thread is held stationary to avoid it from moving.

### Conversion for Overhead Entry



1. For overhead installation the lever needs to be relocated by unscrewing the pin from the body.



2. Rotate the lever by 180° and reinsert the pin through the lower hole (upper hole is for the standard installation). (Refer page 6 for pin locations).



3. Installation position.

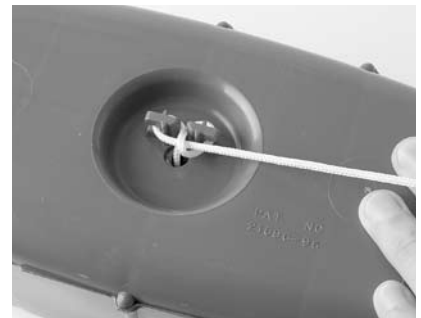
### Setting the Float



1. Insert the cord through bottom hole of the float, ensure the top of the float is BELOW the rim of the trough then place the cord around the right hand lug. Make a loop.



2. Twist the loop.



3. Place it over the left hand lug and pull tight.

## SYSTEM DESIGN CONSIDERATIONS

**Maximum Operating Pressure:**  
400 kPa or 58 psi (¾" brass only); and  
300 kPa or 43 psi (all other valves) at 20°C.

**Threads:** Available in either BSP  
(Whitworth form), or NPT

**Sealing threads:** Philmac recommends  
sealing threads with PTFE tape. Other  
approved sealants for plastic or brass  
materials can be used providing the  
sealant does not enter the valve where it  
may cause damage.

**Operating temperature:** Connection is  
cold water (less than 20°C) rated.

**Weathering:** All plastic materials used  
contain pigments to provide excellent  
protection against degradation from  
ultra-violet (UV) radiation. However long-  
term continuous exposure to UV is not  
recommended and plastic components  
should ideally be protected.

### Flow Rates (Litres/min)

Inlet Pressure (kPa)	Inlet Size					
	¾" Brass (DN20)	¾" Plastic (DN20)	1" Brass (DN25)	1" Plastic (DN25)	1 ¼" Brass (DN32)	1 ¼" Plastic (DN32)
25	32	33	37	33	57	60
50	38	42	48	42	70	76
75	46	49	58	49	85	92
100	53	57	67	57	99	108
150	64	70	83	70	121	132
200	74	82	96	82	140	154
250	83	91	106	91	157	172
300	91	100	114	100	175	187
400	106	-	-	-	-	-

### Flow Rates (US Gallons/min)

Inlet Pressure (psi)	Inlet Size					
	¾" Brass (DN20)	¾" Plastic (DN20)	1" Brass (DN25)	1" Plastic (DN25)	1 ¼" Brass (DN32)	1 ¼" Plastic (DN32)
5	9.3	9.6	10.9	9.6	16.6	17.6
10	11.7	12.6	14.6	12.6	21.6	23.4
15	13.9	15.3	18.0	15.3	26.3	28.7
20	16.0	17.7	21.0	17.7	30.7	33.5
25	18.0	19.9	23.6	19.9	34.8	37.8
30	19.9	21.8	25.8	21.8	38.5	41.6
35	21.6	23.5	27.7	23.5	42.0	44.9
40	23.2	25.0	29.2	25.0	45.1	47.7
50	26.0	-	-	-	-	-
55	27.0	-	-	-	-	-

## CHEMICAL RESISTANCE

Philmac's trough valves are primarily designed to convey water. However there may be occasions where the water contains chemicals and/or alternative fluids need to be controlled. The following table is provided as a **guide only** for the compatibility of various chemicals and/or alternative fluids to Philmac trough valves. The mixing together of chemicals may affect the compatibility.

Chemical	Compatibility	
	Trough Valve - Plastic	Trough Valve - Brass
Acetic acid (10%)	R	N
Acetic acid (50%)	N	N
Alcohol (ethanol)	N	N
Ammonium nitrate	R	N
Antifreeze	R	R
Brine	R	N
Calcium carbonate	R	
Calcium chloride	N	N
Calcium nitrate	N	
Calcium sulphate	N	
Chlorine water	N	N
Citric Acid	N	N
Copper Sulphate >5%	N	N
Diesel (fuel)	R	R
Ethyl alcohol (ethanol)	N	N
Hydrochloric acid (10%)	N	N
Hydrochloric acid (30%)	N	N
Kerosene	R	R
Lubricating oils (not synthetic)	R	R
Magnesium nitrate	R	
Magnesium sulphate	R	R
Mineral oils	R	R
Nitric acid (10%)	N	N
Nitric acid (40%)	N	N
Olive oil	N	
Orange juice	R	
Petrol	R	
Phosphoric acid (85%)	N	N
Drinking water	R	R
Potassium chloride	R	R
Potassium nitrate	R	R
Potassium sulphate	R	
Sodium bicarbonate	R	
Sodium hypochlorite (<10%)	N	N
Sulphuric acid (10%)	N	N
Sulphuric acid (30%)	N	N
Urea	R	R
Zinc nitrate		N
Zinc sulphate	N	

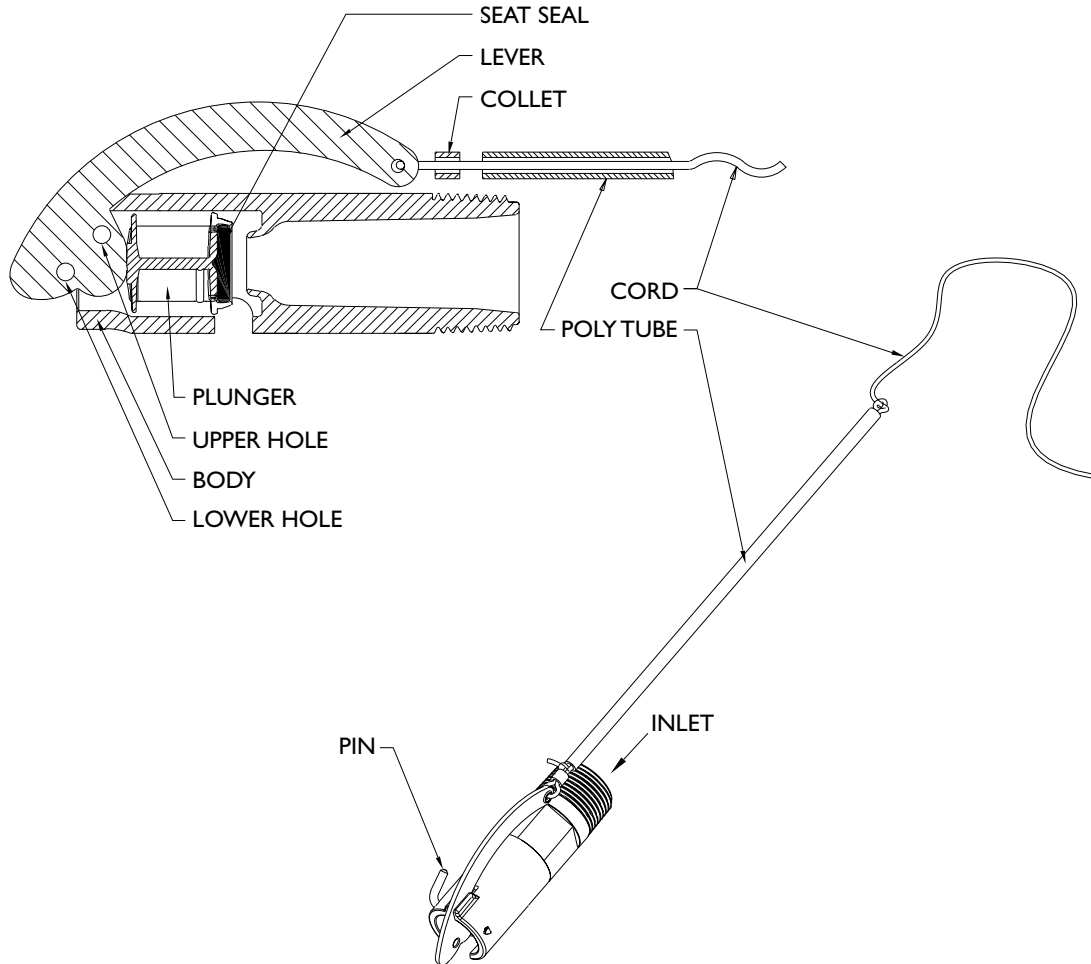
N = Consult Philmac

R = Resistant

Empty Cell = No data available

Note recommendations based on fluids at 20° C or less

## TROUGHVALVES MATERIAL & COMPONENTS



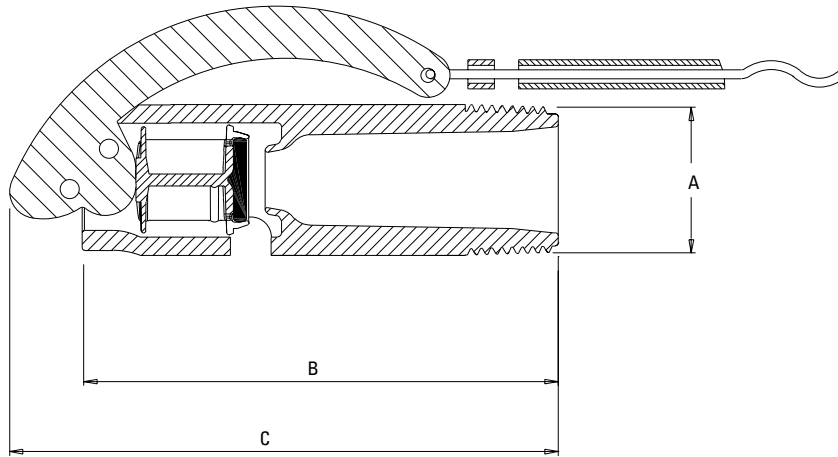
### Trough Valves - Plastic

Body	Seat	Plunger	Seat Seal	Pin	Lever	Collet	Cord	Poly Tube
Acetal	Acetal	Acetal	Nitrile rubber	316 S/S	316 S/S	Polypropylene	Polyester	Polypropylene

### Trough Valves - Brass

Body	Seat	Plunger	Seat Seal	Pin	Lever	Collet	Cord	Poly Tube
Acetal	316 S/S	Acetal	Nitrile rubber	316 S/S	316 S/S	Polypropylene	Polyester	Polypropylene

## TROUGH VALVES RANGE & DIMENSIONS



### Trough Valve - PLASTIC Body

Thread Size (A)	Nominal Size	Part Number		B	C
		BSP Threads	NPT Threads		
¾"	DN20	AQ400P	AQ400P-NPT	47	127
1"	DN25	AQ500P	AQ500P-NPT	55	148
1 ¼"	DN32	AQ600P	AQ600P-NPT	62	166

### Trough Valve - BRASS Body

Thread Size (A)	Nominal Size	Part Number		B	C
		BSP Threads	NPT Threads		
¾"	DN20	AQ100B	AQ100B-NPT	47	127
1"	DN25	AQ200B	AQ200B-NPT	55	148
1 ¼"	DN32	AQ300B	AQ300B-NPT	62	166

All dimensions in millimetres unless otherwise stated

## OVERVIEW OF THE PHILMAC VALVE RANGE

Valves play an integral part in the performance, management and control of water quality, flow and pressure within a pipe system. Philmac manufacture a broad range of valves. Each valve is designed to cater for an array of applications. Whether you want high flow, high shut-off, high pressure, compact size, plastic or metal, tapered or parallel threads, solid levers or chain/rope levers (with a choice in lever length).

**Philmac has the right valve for you!**



The connection you can trust.

## VALVE RANGE QUICK REFERENCE GUIDE

	Sleeve	Horizontal Float	Servo Tank	Cistern	Ball
<b>Primary Application</b>					
Stock Water	•	•	•		•
Mains Water Connection		•	•	•	•
Commercial/Industrial		•	•	•	•
Pump					•
Trough	•	•			•
Tanks		•	•	•	•
Pipes					•
<b>Features</b>					
Hot Water Application					
Potable Water Approval (4020)	•	•	•		•
Underwater installation		With Cord Attachment			
Lever length options		•			
Recycled Water Identification Option					•
<b>Technical</b>					
Maximum Flow Rate (L/min)	238	496	2820	10.4	1680
Maximum Pressure Rating (kPa)	1000	1400	2000	3500	1400
Connection Type (Inlet)	BSP	BSP	BSP	BSP	BSP
Connection Type (Outlet)			BSP	BSP	BSP
Sizes	¾" & 1" (DN20 & 25)	½" to 2" (DN15 to 50)	1 ½" to 3" (DN40 to 80)	½" (DN15)	½" to 2" (DN15 to 50)

- <sup>A</sup> 400 kPa for ¾" Brass
- <sup>B</sup> Shutoff pressure varies with valve size
- <sup>C</sup> Screwed
- <sup>D</sup> Flanged



Foot/Non-Return	Trough	High Flow Float	Air Release	Ratio	Floats
◆	◆	◆		◆	◆
				◆	◆
◆				◆	◆
◆					◆
◆	◆	◆			◆
◆			◆	◆	
					◆ (95°C) Max.)
				◆	◆
	◆				
900	187	330		2260° & 46000°	
1400	300 <sup>A</sup>	620 <sup>B</sup>	1400	3500	
BSP	BSP	BSP	BSP	BSP or Flanged	BSW
BSP		BSP		BSP or Flanged	
½" to 2" (DN15 to 50)	¾" to 1 ¼" (DN20 to 32)	1" – 2" (DN25 to 50)	1" (DN25)	½" to 6"	3" to 10"

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