

Stock Proof Trough Valve

TECHNICAL
MANUAL



The connection you can trust.

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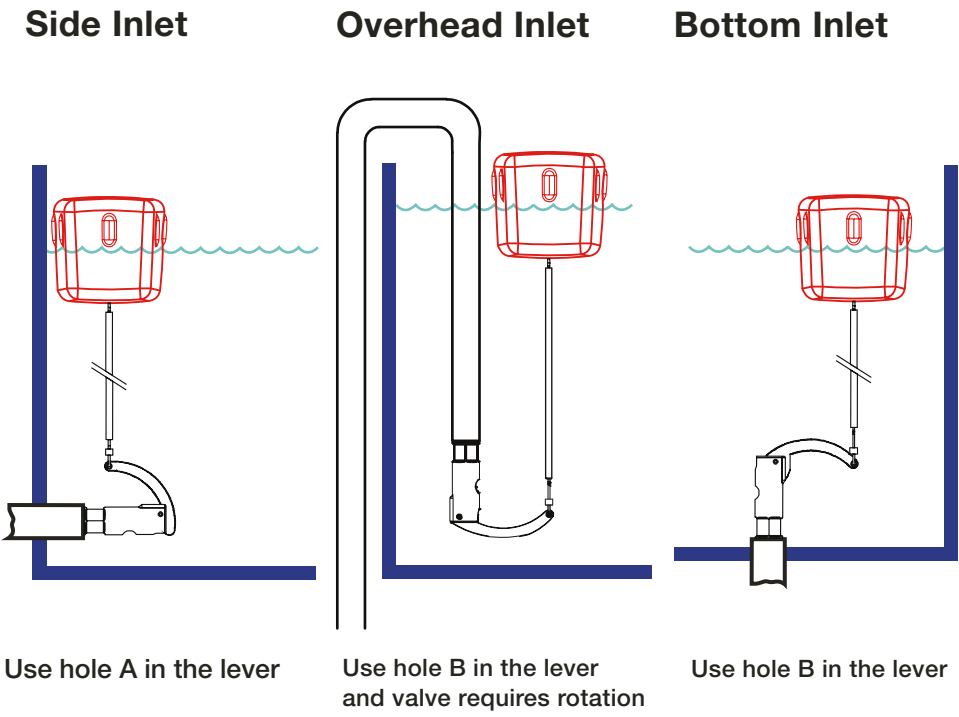
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Committed to sustainable development, Philmac is well renowned for quality products and services. Philmac manufactures pipe fittings and valves under a Quality Assurance System assessed and approved to ISO 9001-2000 and has obtained the prestigious 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.



Installation



TROUGH VALVES

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

Agriculture: Stock troughs and tanks.

BENEFITS

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.
- **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 1 ¼" (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.

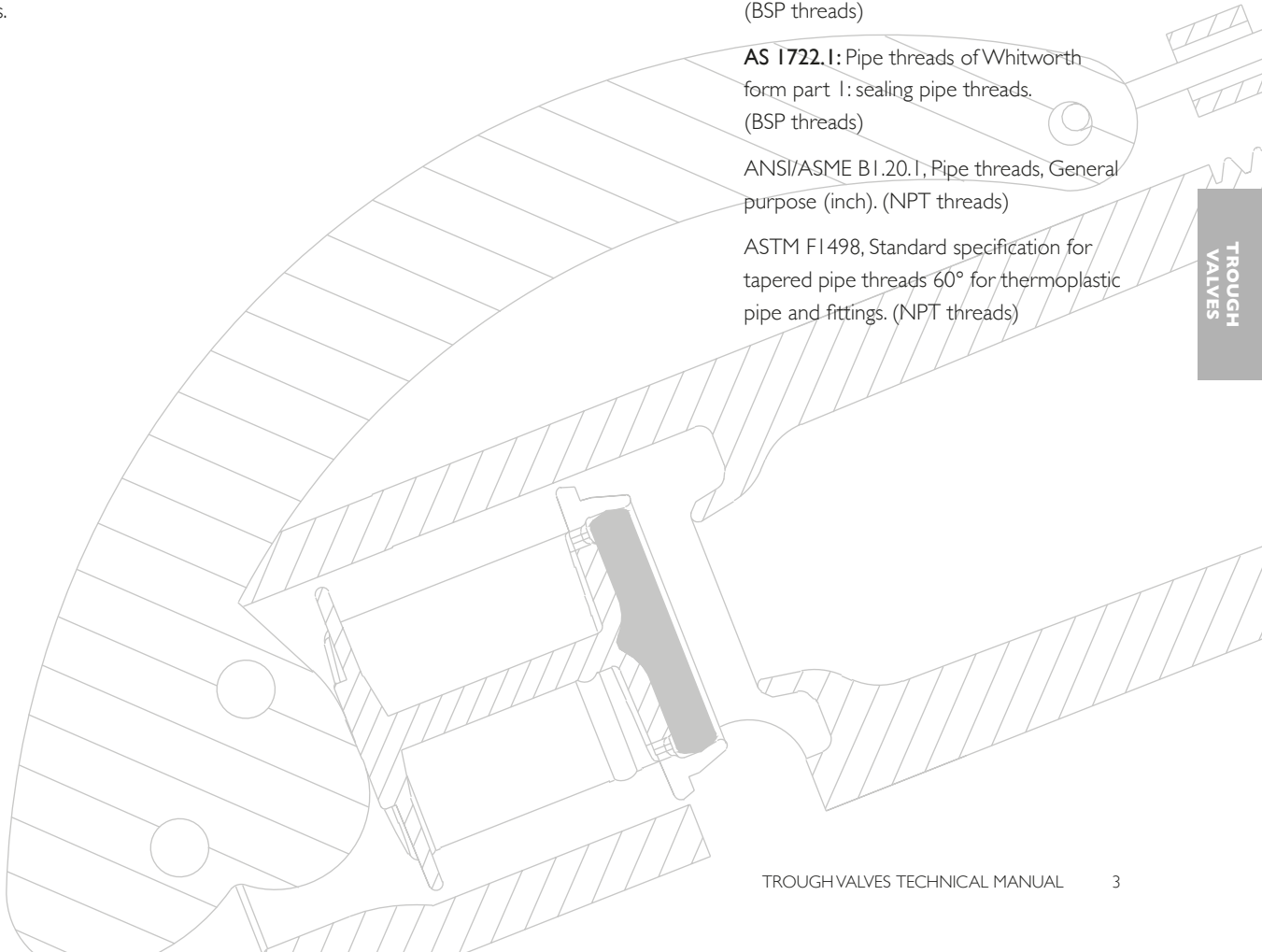
Standards

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)



TROUGH VALVES 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 54 for pin locations).



3. Installation position.

Setting the Float



Make a loop and insert through the hole in the bottom of the float



Insert the cord through loop allowing enough cord to tie off the float on the top lugs



Pull tight the knot on the bottom of the float. This knot can easily be loosened to adjust the float level



Bring the cord to the top of float between the two lugs



Loop around the lug



Then twist the cord to make a loop and pass the cord back between the lugs while holding the loop



Loop the cord around the opposite lug and then pass through the loop



Pull to tighten on the lugs



Once adjusted to the correct level in the trough any excess cord can be trimmed if necessary

SYSTEM DESIGN CONSIDERATIONS

Maximum Operating Pressure: 400 kPa or 58 psi (¾" brass only) and 300 kPa or 43 psi 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)	1" Brass (DN25)	1 ¼" Brass (DN32)
25	32	37	57
50	38	48	70
75	46	58	85
100	53	67	99
150	64	83	121
200	74	96	140
250	83	106	157
300	91	114	175
400	106	-	-

Inlet Pressure (kPa)	Inlet Size		
	¾" Plastic (DN20)	1" Plastic (DN25)	1 ¼" Plastic (DN32)
25	33	33	60
50	42	42	76
75	49	49	92
100	57	57	108
150	70	70	132
200	82	82	154
250	91	91	172
300	100	100	187
400	-	-	-

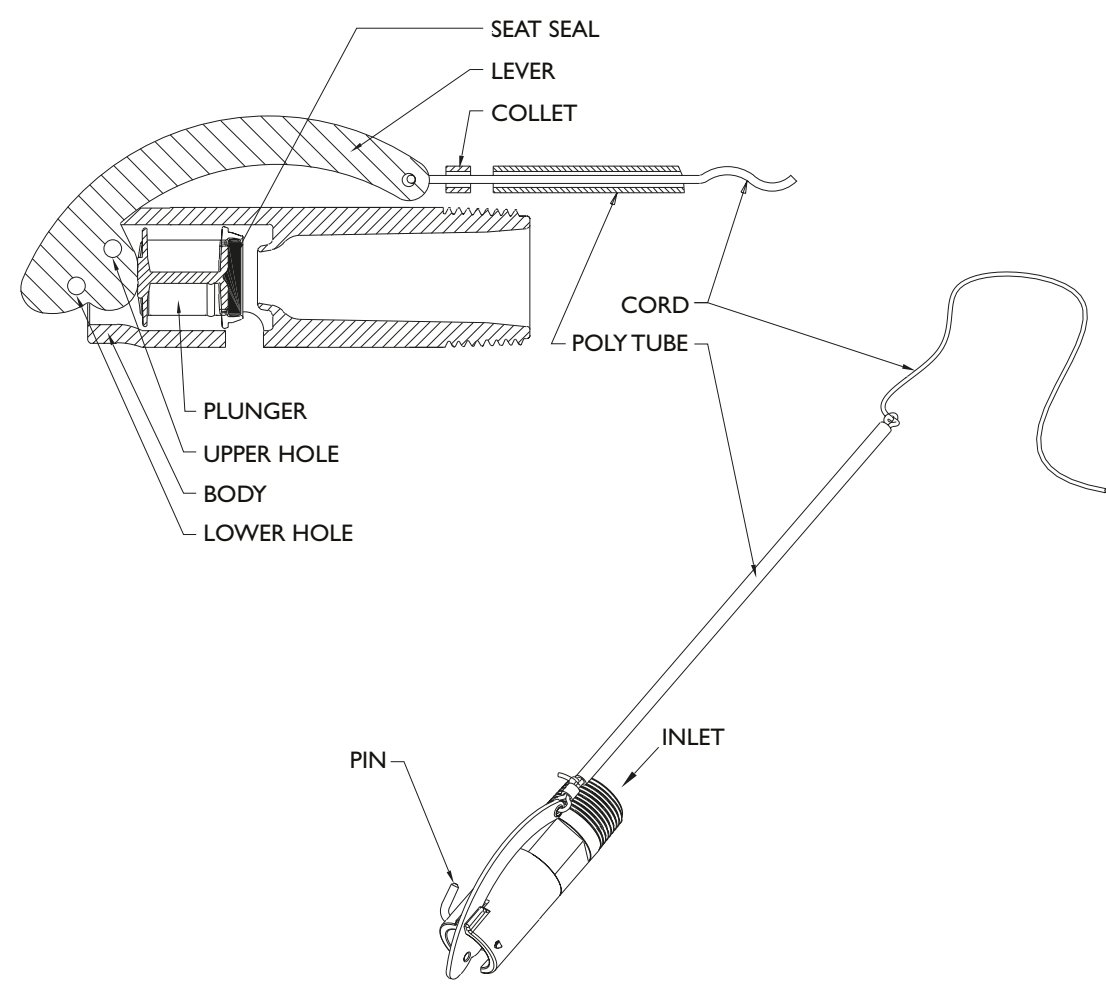
CHEMICAL RESISTANCE

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

TROUGH VALVES MATERIAL & COMPONENTS



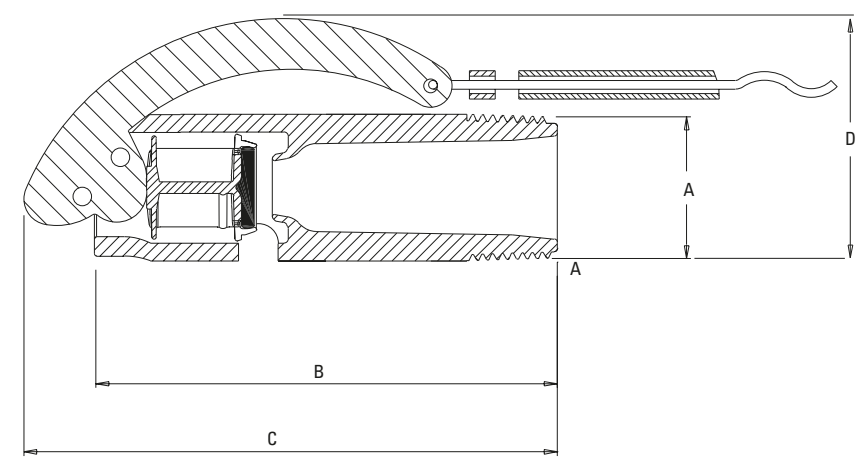
Trough Valves - Plastic

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

Part Number	Nominal Size	Size (A)	B	C	D
AQ400P	DN20	¾" (20)	105	120	53.5
AQ500P	DN25	1" (25)	107.5	121.9	55.5
AQ600P	DN32	1¼" (32)	132	149.6	74.25

Trough Valve - BRASS Body

Part Number	Nominal Size	Size (A)	B	C	D
AQ400P	DN20	¾" (20)	103	120	53.5
AQ500P	DN25	1" (25)	107.5	124.5	55.0
AQ600P	DN32	1¼" (32)	135	147.5	73.05

All dimensions in millimetres unless otherwise stated

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