

Float Valve

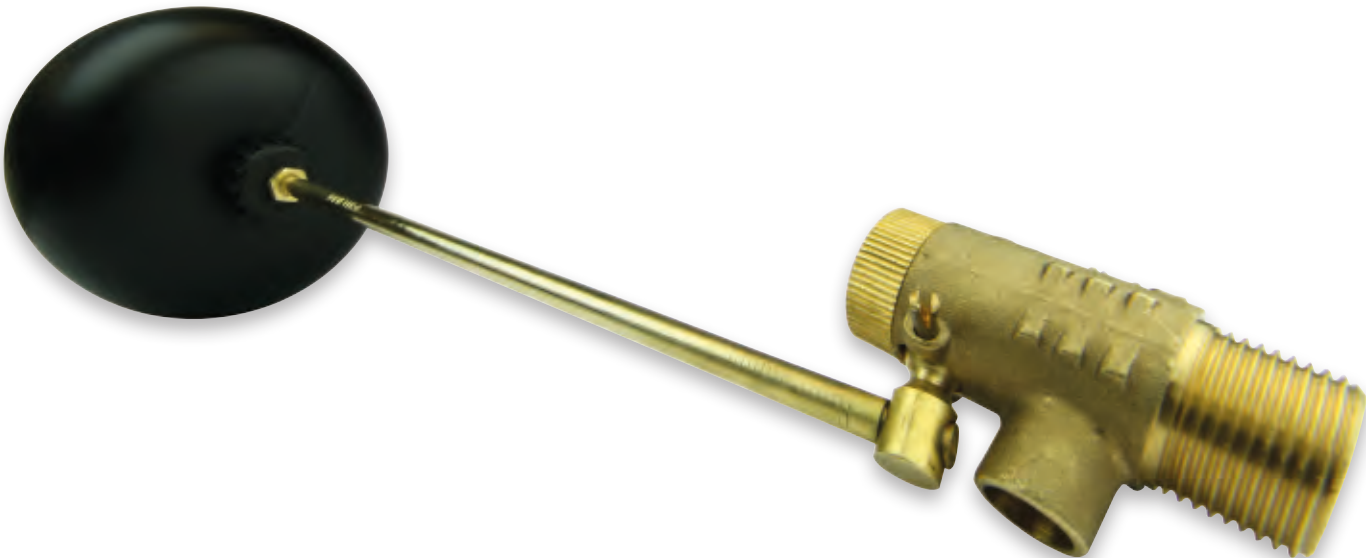
Philmac
ULTRA
PHIL

Technical Manual



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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. 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.

Disclaimer

Please note that the information, opinions, recommendations and advice given in this manual are supplied only to provide an improved understanding of the technical aspects of fitting systems.

So far as the law allows, Philmac Pty Ltd will not accept liability in respect of any loss or damage of any kind claimed to arise as a result of reliance upon any information claimed in this manual.

Please refer to our Terms and Conditions of sale.

Standards & Tests

Philmac's UltraPHIL float valves are designed to comply with the following standards.



Standards

AS1910: Water Supply - Float control valves for use in hot and cold water.

AS/NZ 4020: Testing of products for use in contact with drinking water.

AS1722.1 Pipe threads of Whitworth form part 1: sealing pipe threads.

AS1722.2 Pipe threads of Whitworth form part 2: fastening pipe threads.

ISO7: Pipe threads where pressure tight joints are made on the threads.

Performance Tests

Shut Off Test: Tested for shut off against a hydrostatic water pressure of 2000 kPa [290 psi] or 20 bar.

Strength Test: Tested for strength in their intended application. This includes testing at the maximum recommended operating temperature and a pressure of 3000 kPa [435 psi] or 30 bar @ 60°C.

Endurance Test: Operating mechanisms are subjected to 50,000 cycle endurance test to simulate the opening and closing operations during the service life of the valve.

**Philmac UltraPHIL range
of float valves are
WaterMark™ certified**



WaterMark™ Certification Scheme is managed by the Australian Building Codes Board [ABCB] for all plumbing and drainage products.

WaterMark™ is a mandatory certification scheme for plumbing and drainage products installed in Australia. Each type of product is required to meet its own specific Australian Standard.

Products that carry the WaterMark™ certification trademark undergo a five-year certification life cycle, with annual product surveillance. WaterMark™ certification must be displayed on the product.

Testing of products for WaterMark™ certification must be undertaken by a laboratory with ISO/IEC 17025 accreditation.

System Design Considerations

Operating temperature: Cold water applications are rated at 20°C. However the brass valves can be used in an environment where the water is subsequently heated to 95° C in a tank. In these cases a hot water rated float must be used.

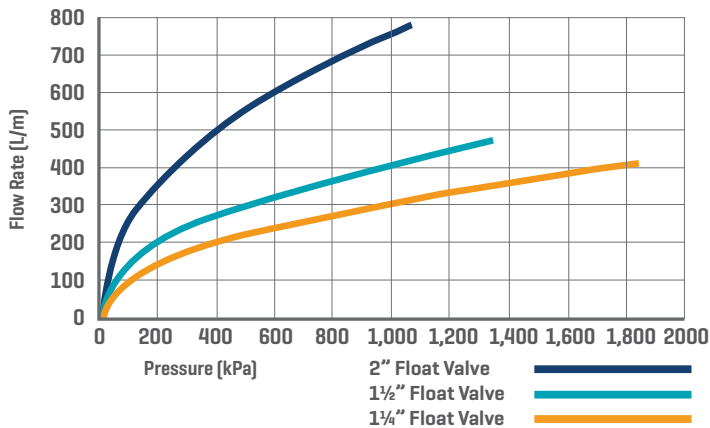
Weathering: Brass components are UV resistant.

Air Gap: When connecting to potable water or drinking water applications the installation should comply with the relevant air gap standards AS 3500.1 to prevent back siphonage.

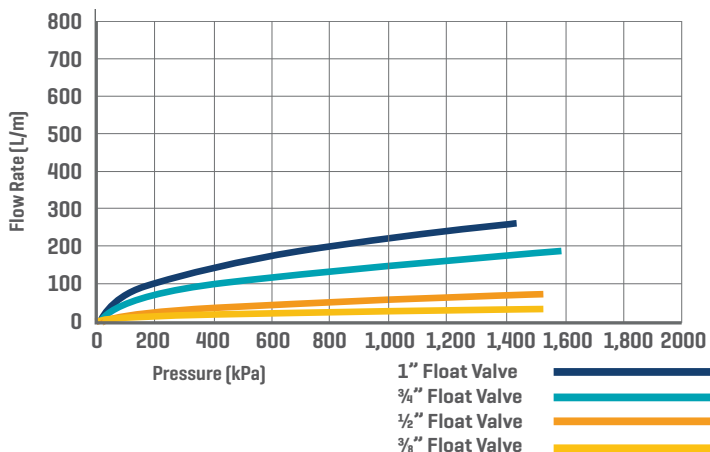
Mounting Positions: Top and side.

UltraPHIL Float Valve Performance Data

Tapered Thread Float Valve



Parallel Thread Float Valve



Chemical Resistance

Philmac's UltraPHIL Float valve has been 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 to Philmac's UltraPHIL float valve range. The mixing together of chemicals may affect the compatibility.

Chemical	Compatibility
Acetic acid (10%)	X
Acetic acid (50%)	X
Alcohol (ethanol)	X
Ammonium nitrate (10% Aqueous)	X
Ammonium nitrate (>10% Aqueous)	X
Antifreeze	X
Brine	X
Calcium carbonate	X
Calcium chloride	X
Calcium nitrate	✓
Calcium sulphate	X
Chlorine water	X
Citric Acid	X
Copper Sulphate >5%	X
Diesel (fuel)	X
Ethyl alcohol (ethanol)	X
Hydrochloric acid (10%)	X
Hydrochloric acid (30%)	X
Kerosene	X
Lubricating oils (not synthetic)	✓
Magnesium nitrate	X
Magnesium sulphate	✓
Mineral oils	X
Nitric acid (10%)	X
Nitric acid (40%)	X
Olive oil	
Orange juice	
Petrol	X
Phosphoric acid (any concentration)	X
Potable water	✓
Potassium chloride	X
Potassium nitrate	X
Potassium sulphate	X
Sodium bicarbonate	✓
Sodium hypochlorite (<10%)	
Sulphuric acid (10%)	X
Sulphuric acid (30%)	X
Urea	
Zinc nitrate	X
Zinc sulphate	X

Empty Cell=No data available

Note recommendations based on fluids at 20° C or less

UltraPHIL Float Valve Operation & Installation Instructions

Installing the Tapered Thread Float Valve



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



2 Screw the valve into the female thread by hand until firm*.



3 Finish tightening the body with a Stillson wrench or equivalent.

Installing the Parallel Thread Float Valve



1 Remove the back nut and slide the thread through the appropriate sized hole.

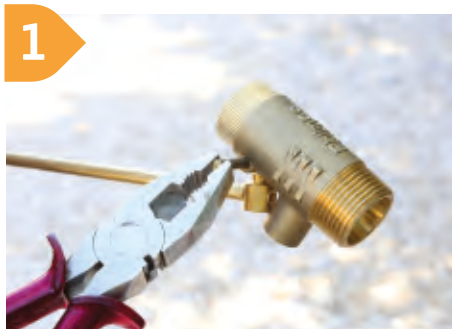


2 Where using the stem sleeve to fit the valve into $\frac{3}{4}$ " holes, ensure it is properly located on the valve side of the installation to prevent the valve moving.

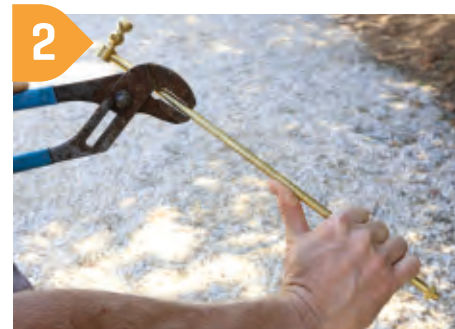


3 Refit the back nut and tighten with a spanner. The valve body can be held in place with a spanner, multi-grips or equivalent.

Adjusting the lever arm



1 It maybe necessary to bend the lever arm to adjust the water level. Remove the pivot pin by straightening the end tabs, then remove the lever from the valve body.



2 By using a pair of multi-grips or equivalent the lever can then be bent to the necessary angle.

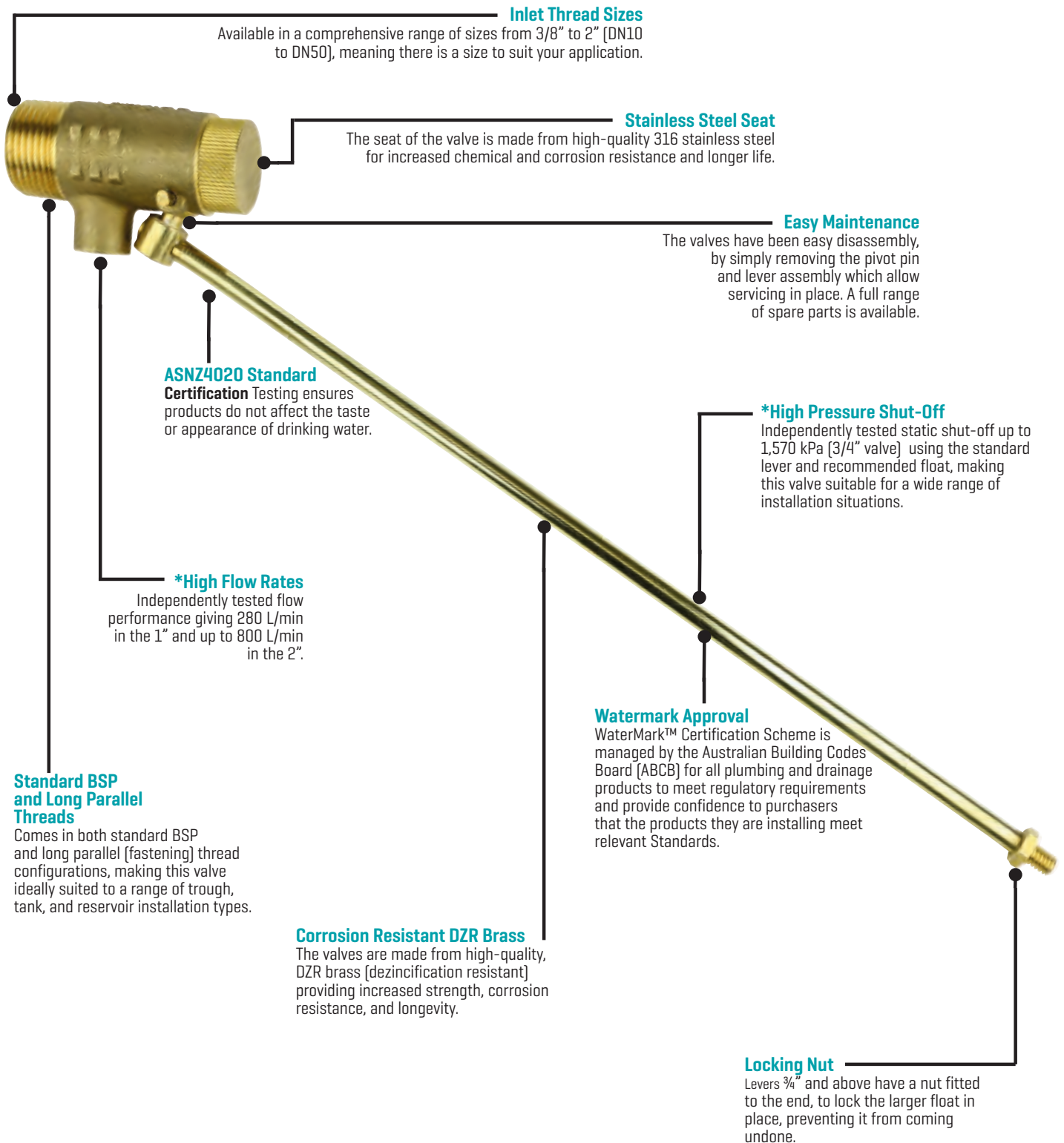


3 Adjust the lever arm and then refit. Once the correct lever arm angle is achieved ensure the pivot pin tabs are flared outward by using a small screwdriver.

Scan for
installation video



Benefits



* Independently tested by University of South Australia (AFMG), NATA accredited laboratory

Recommended Float Size^A

Philmac Code	Float Description	Connection	Suits Valve Types	Additional Information
90 4893 10	3" Natural hot water	5/16" BSW	3/8" UltraPHIL Brass float valves	Suitable to 1,000 kPa shut-off. Does not comply with AS1910*
90 4894 10	4" Natural hot water	5/16" BSW	½" UltraPHIL brass & EasyPHIL plastic float valves	
90 4893 00	3" Black cold water	5/16" BSW	3/8" UltraPHIL Brass float valves	OK up to 1,000 kPa shut-off. Does not comply with AS1910*
90 4894 00	4" Black cold water	5/16" BSW	½" UltraPHIL brass & EasyPHIL plastic	
90 4895 00	5½" Black cold water	5/16" BSW	VersaPHIL plastic float valves	Suitable for smaller chamber poly troughs. Reduces shut-off pressure on standard lever to 1150 kPa and short lever to 950 kPa
90 4896 00	6" Black cold water	5/16" BSW	¾" and 1" UltraPHIL brass, VersaPHIL and TankPHIL plastic float valves	Can be used on 1-¼" UltraPHIL brass to achieve 1250 kPa shut-off but does not comply with AS1910
90 4898 00	8" Black cold water	3/8" BSW	1-¼" and 1-½" UltraPHIL Brass float valves	
90 4898 20	8" Orange cold water	1/2" BSW	1" and 1-¼" MegaPHIL High Flow Float Valves	Can be used with 1-½" and 2" MegaPHIL High Flow Float Valves but reduces the shut-off pressure
90 4899 20	9" Orange cold water	1/2" BSW	All MegaPHIL High Flow Float Valves	Can be used with 2" UltraPHIL brass valve to achieve 1250 kPa shut-off but does not comply with AS1910
0 4890 20	9½" Orange Turbo cold water	1/2" BSW	1-½" and 2" MegaPHIL High Flow Float Valves	Has 28% more volume than the 9" float and therefore will provide an increased shut-off pressure
90 1614 00	3" Copper Cold water	5/16" BSW	3/8" UltraPHIL Brass float valves	
90 1617 00 90 1628 00	4-1/2" Copper Cold water 4-1/2" Copper Hot water	5/16" BSW	1/2" UltraPHIL Brass float valves	
90 1615 00	5" Copper Cold water	5/16" BSW	1/2" & 3/4" UltraPHIL Brass float valves	
90 1618 00 90 1629 00	6" Copper Cold water 6" Copper Hot water	5/16" BSW	3/4" & 1" UltraPHIL Brass float valves	
90 1619 00 90 1630 00	7" Copper Cold water 7" Copper Hot water	3/8" BSW	3/4" & 1" UltraPHIL Brass float valves	
90 1621 00 90 1631 00	8" Copper Cold water 8" Copper Hot water	3/8" BSW	1-1/4" & 1-1/2" UltraPHIL Brass float valves	
90 1623 00 90 1632 00	10" Copper Cold water 10" Copper Hot water	1/2" BSW	2" UltraPHIL Brass float valves	
90 1645 00	5" Stainless Steel	5/16" BSW	1/2" & 3/4" UltraPHIL Brass float valves, 1/2", 3/4" & 1" 500 Series S/S float valves	
90 1648 00	8" Stainless Steel	3/8" BSW	1-1/4" & 1-1/2" UltraPHIL Brass float valves, 1-1/2" 500 Series S/S float valves	

Hot Water Floats



90 4893 10



90 4894 10

Cold Water Floats



90 4893 00



90 4898 00



90 4894 00



90 4898 20



90 4895 00



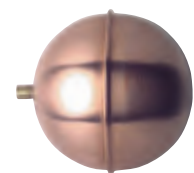
90 4899 00



90 4896 00



90 4890 20

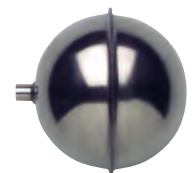


Cold Water

90 1614 00 - 90 1617 00 - 90 1615 00
- 90 1618 00 - 90 1619 00 -
90 1621 00 - 90 1623 00

Hot Water

90 1628 00 - 90 1629 00 -
90 1630 00 - 90 1631 00 -
90 1632 00



A. Recommended floats are plastic unless designated otherwise. CU = copper.

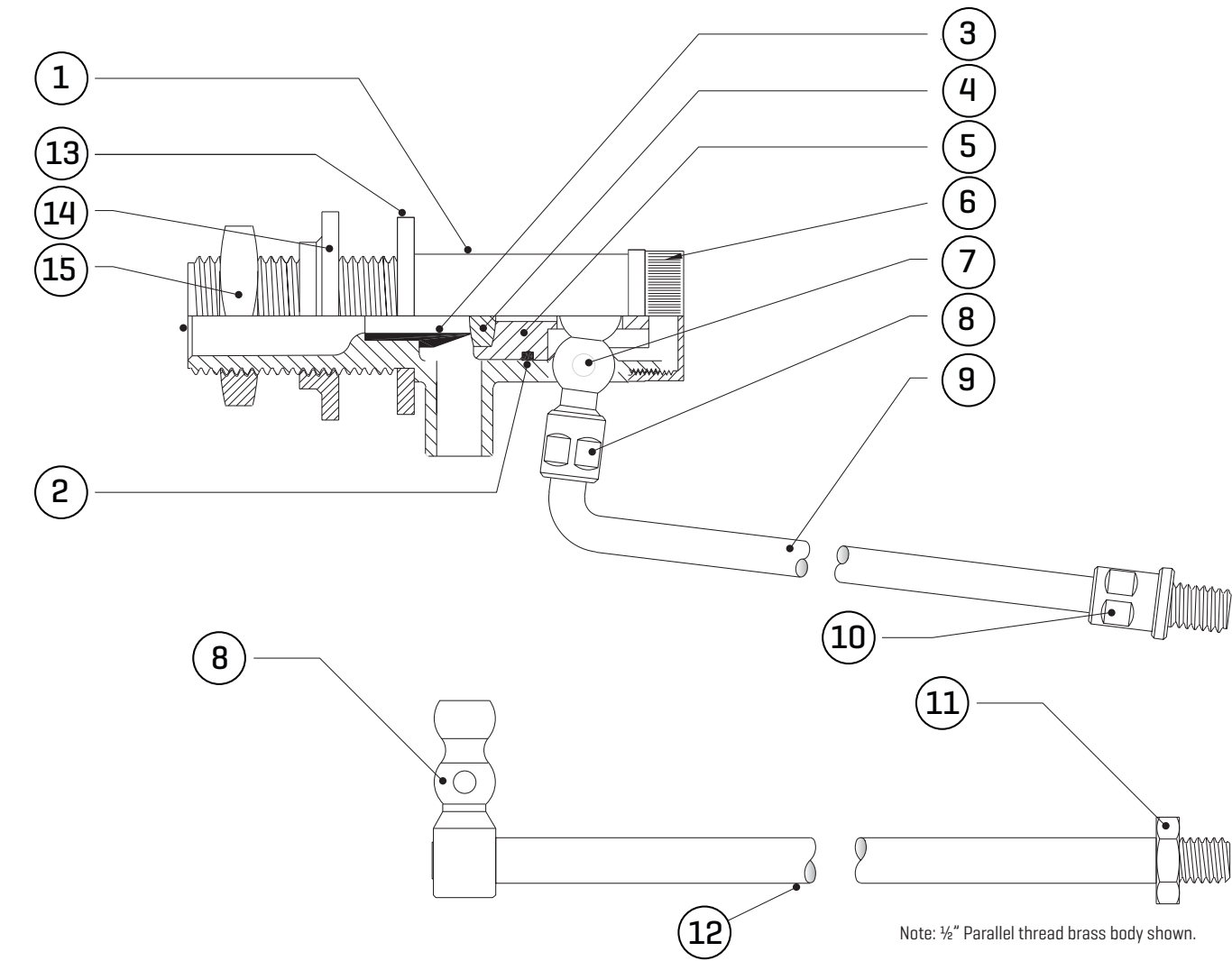
B. To comply with AS1910 valves the recommended float size provides a shut-off pressure of 1400 kPa

C. For agricultural purposes the recommended float size achieves at least a shut-off pressure of 1250 kPa

D. Uses 10" [255] copper float

UltraPHIL Float Valve Materials & Components

Parallel Thread Float Valve

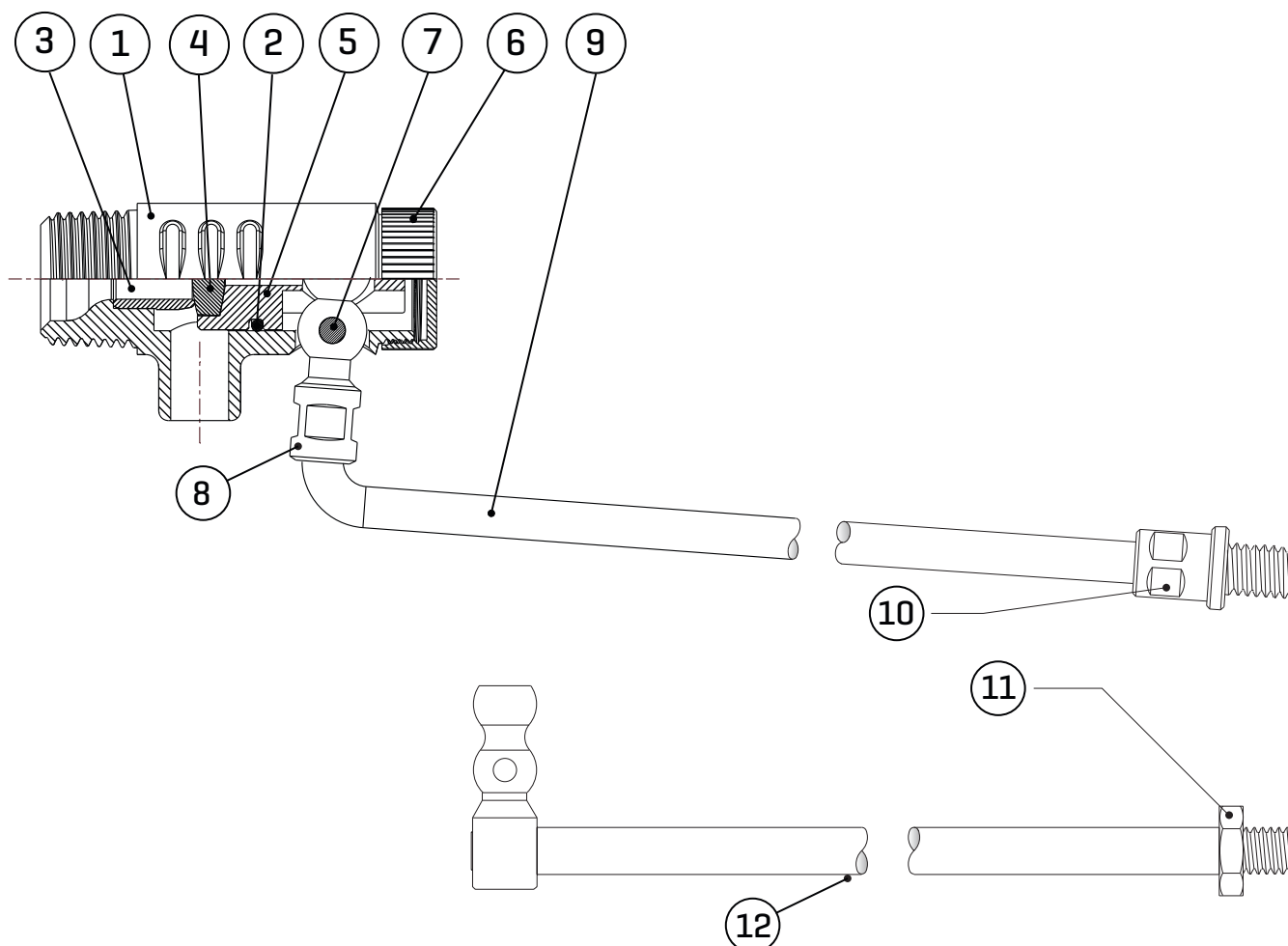


1	Body	DZR Brass
2	O-Ring	Nitrile Rubber
3	Seat	Nitrile Rubber
4	Seat Seal	Nitrile Rubber
5	Plunger	DZR Brass
6	Body Cap	DZR Brass
7	Pivot Pin	DZR Brass
8	Cam	DZR Brass
9	Horizontal Lever [3/8" & 1/2" only]	DZR Brass
10	Adapter [3/8" & 1/2" only]	DZR Brass
11	Back Nut [Lever]	DZR Brass
12	Horizontal Lever [3/4" to 2"]	DZR Brass
13	Collar	DZR Brass
14	Stem Sleeve*	DZR Brass
15	Back Nut [Body]	DZR Brass

* A stem sleeve is a stepped washer which allows a 1/2" valve to be fitted to a hole that would be used by a 3/4" valve.

UltraPHIL Float Valve Materials & Components

Tapered Thread Float Valve

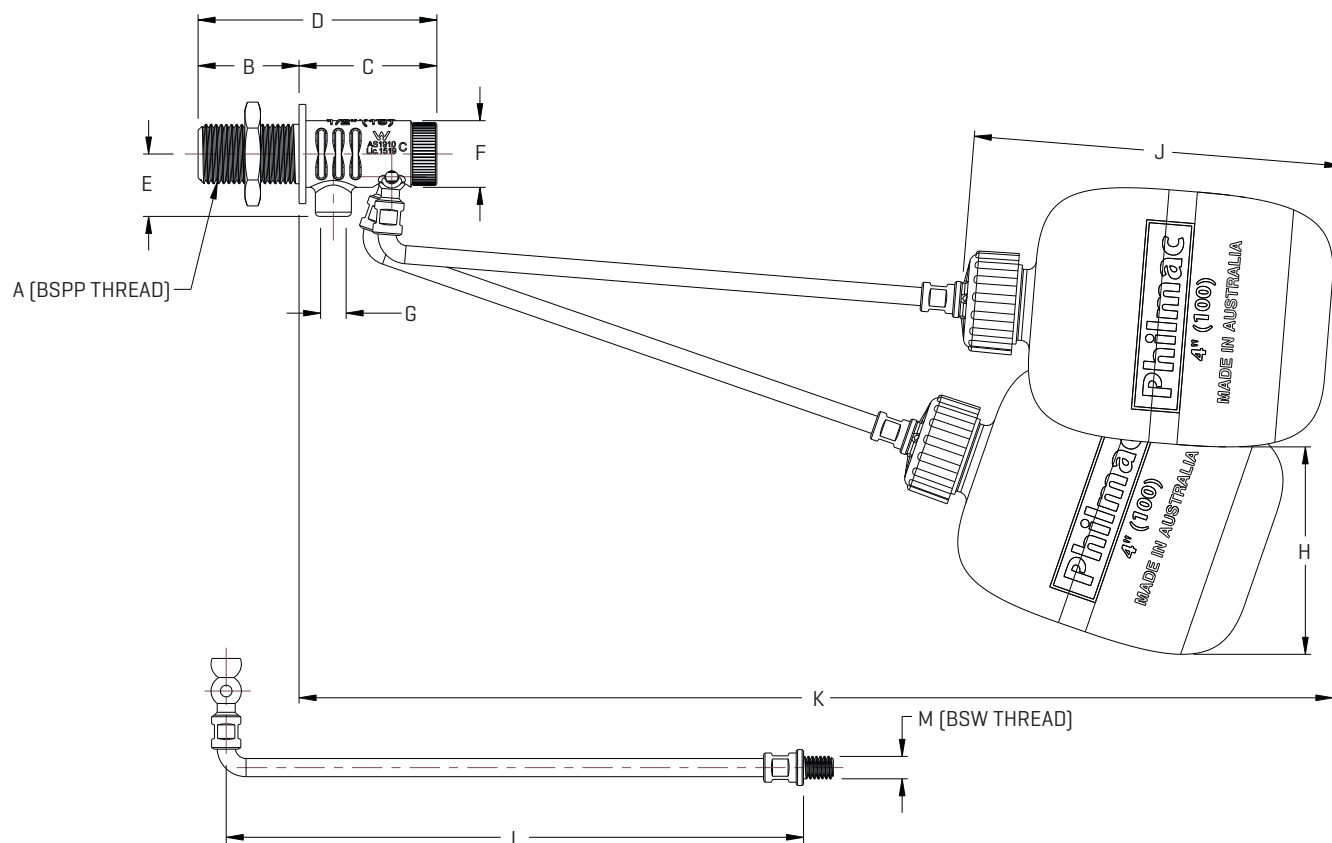


Note: ½" Tapered thread brass body shown.

1	Body	DZR Brass
2	O-Ring	Nitrile Rubber
3	Seat	316 Stainless Steel
4	Seat Seal	Nitrile Rubber
5	Plunger	DZR Brass
6	Body Cap	DZR Brass
7	Pivot Pin	DZR Brass
8	Cam	DZR Brass
9	Horizontal Lever [1/2" only]	DZR Brass
10	Adapter [1/2" only]	DZR Brass
11	Back Nut [Lever]	DZR Brass
12	Horizontal Lever [3/4" to 2"]	DZR Brass

UltraPHIL Float Valve Parallel Thread Dimensions

Parallel Thread Float Valve



Nominal Size [A]	Part Number	Thread Type	B	C	D	E	F	G	H	J	K	L	M	Seat Orifice
3/8" [DN10]	90 3005 00	Short Parallel	15.0	35.8	50.8	17	18	6	29	130	277	125	5/16"†	2.4
1/2" [DN15]*	90 3013 00	Parallel	38.6	48.6	84.2	22	24	9	84	130	414	254	5/16"†	6.3
1/2" [DN15]*	90 3015 00	Parallel	38.6	48.6	84.2	22	24	9	73	130	365	204	5/16"†	6.3
1/2" [DN15]**	90 3023 00	Parallel	38.6	48.6	84.2	22	24	9	73	130	365	204	5/16"†	6.3
1/2" [DN15]	90 3031 00	Short Parallel	22.6	48.6	71.2	22	24	9	73	130	365	204	5/16"†	6.3

K = Float valves fitted with recommended Philmac 4" black float Product code: 90 4894 00

All dimensions in millimetres unless otherwise stated

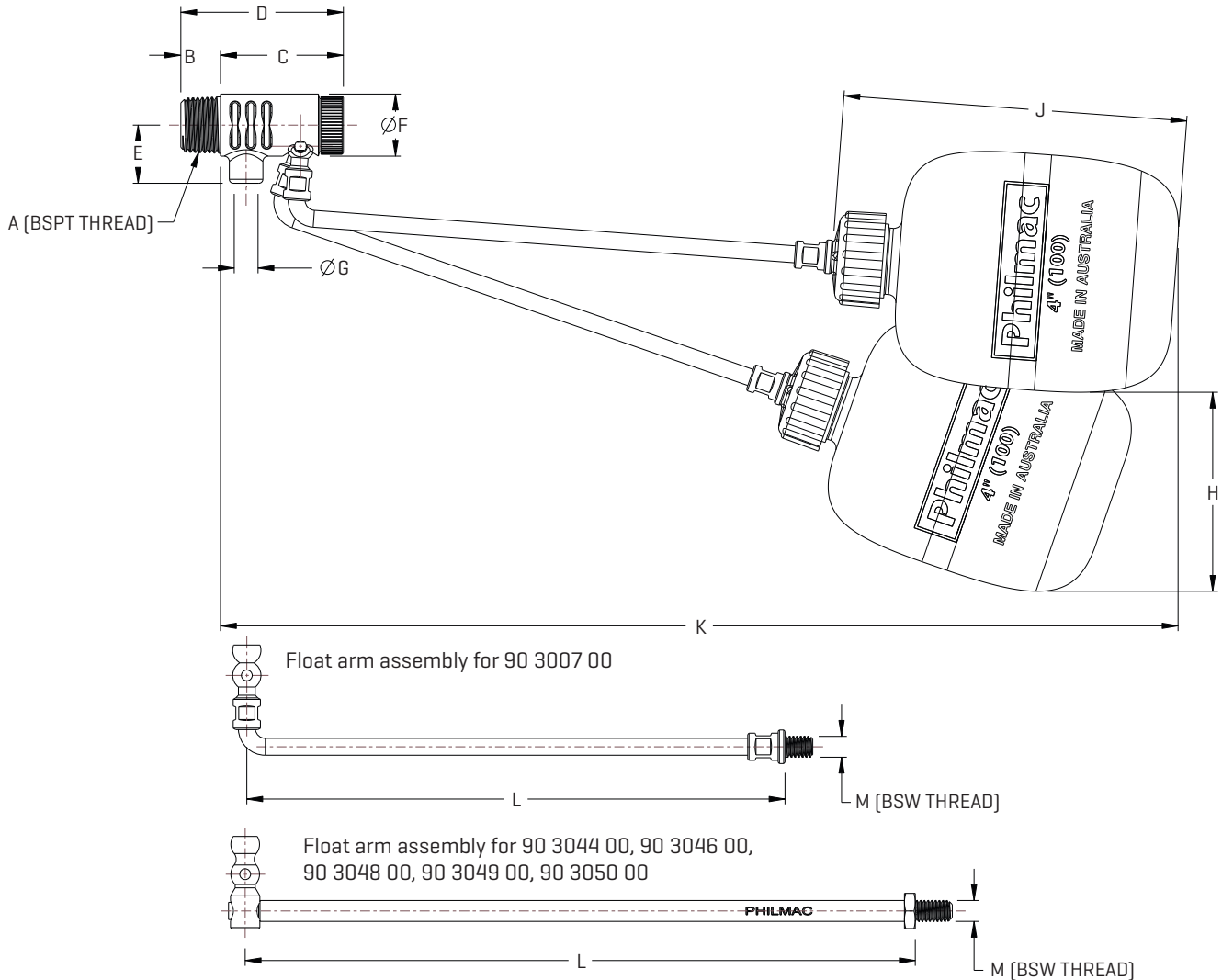
* Includes back nut

** Includes back nut and stem sleeve [3/4" spacer washer]

† British Standard Whitworth Thread

UltraPHIL Float Valve Tapered Thread Dimensions

Tapered Thread Float Valve



Nominal Size [A]	Part Number	Thread Type	B	C	D	E	F	G	H	J	K	L	M	Seat Orifice
½" [DN15]	90 3007 00	Tapered	15.0	46.5	61.5	22	24	9	75	130	362	204	5/16"†	6.3
¾" [DN20]	90 3044 00	Tapered	19.0	50.2	69.3	28	30	13	138	155	441	254	5/16"†	9.9
1" [DN25]	90 3046 00	Tapered	19.0	61.5	80.5	33	35	15	166	155	550	359	5/16"†	12.7
1¼" [DN32]	90 3048 00	Tapered	22.5	68.5	91.0	39	43	18.2	196	227	627	361	¾"†	15.8
1½" [DN40]	90 3049 00	Tapered	22.5	73.5	95.8	45	49	21	221	227	703	431	¾"†	19.0
2" [DN50]	90 3050 00	Tapered	26.0	87.9	113.9	55	62	28	243	179	763	460	½"†	25.4

K = Float valves fitted with recommended Philmac float

90 3007 00 Philmac 4" black float Product code: 90 4894 00

90 3044 00, 90 3046 00 Philmac 6" black float Product code: 90 4896 00

90 3048 00, 90 3049 00 Philmac 8" black float Product code: 90 4896 00

90 3050 00 Philmac 10" Copper float Product code: 90 1623 00

All dimensions in millimetres unless otherwise stated

† British Standard Whitworth Thread



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