



Plastic Pressure Systems

Trade Price List



EFFAST Price List

Effast from Polypipe Terrain is a well-established brand name that is recognised throughout both the industrial process market and construction industries for its market-leading range of thermoplastic pipework systems suitable for use within industrial applications. The company now provides these components to customers all over the world and leads the way in the research and development of advanced new solutions that satisfy the specific needs of the market.

Polypipe, with its large UK based manufacturing capabilities, has developed Effast's comprehensive product portfolio such that it now offers a proven and effective solution to virtually any requirement. No matter what the project, the Effast range can offer the perfect combination of pressure pipe fittings, ball, butterfly, diaphragm and actuated valves, compression joints, adaptors and other fittings. Normally available in both metric and imperial dimensions these products are suited to many different commercial applications in such areas as food and beverage processing, chemical manufacture, water treatment and agriculture.

Outstanding performance and reliability have come to represent the hallmarks by which Polypipe's Effast products are recognised and with these products also carrying BSI Kite Mark accreditation and conforming to various other European standards they can be specified with complete confidence.

Dedicated to supporting its customers at every stage the company also complements its products and systems with a full technical information and support service, while a nationwide distribution network means that products are readily available, even when needed next day.

For further information please see our contact details on the back cover of this brochure.



KM60041

WRAS
APPROVED
PRODUCT

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Effast product code guide

AFARCA032B

1 2 3 4 5 6

Material

- 1 A = ABS
 B = Brush
 C = Cleaner
 E = Rubber
 M = Metal
 P = Polypropylene
 R = PVC

Type of Fitting

- 2 B = Ball Valve
 F = Fitting
 P = Pipe/Fitting Part

Type of Fitting

- 3 A = Imperial
 B = Universal Metric/Imperial
 C = Plain/Threaded Fittings
 C = Class C Pipe
 D = EDPM Seals
 D = Class D Pipe
 E = Class E Pipe
 F = Threaded
 I = Metric
 O = O Ring/Cements/Cleaners
 R = Metal Ring Fitting
 V = Viton
 10 = 10 Bar Pipe
 16 = 16 Bar Pipe

Unique Product Code

- 4 Example RCA = Reducing Bush

Size Guide

- 5 0160 = 16mm or 3/8"
 0200 = 20mm or 1/2"
 0250 = 25mm or 3/4"
 0320 = 32mm or 1"
 0400 = 40mm or 1 1/4"
 0500 = 50mm or 1 1/2"
 0630 = 63mm or 2"
 0750 = 75mm or 2 1/2"
 0900 = 90mm or 3"
 1100 = 110mm or 4"
 1250 = 125mm
 1400 = 140mm or 5"
 1600 = 160mm or 6"
 2000 = 200mm
 2250 = 225mm or 8"
 2500 = 250mm
 3150 = 315mm

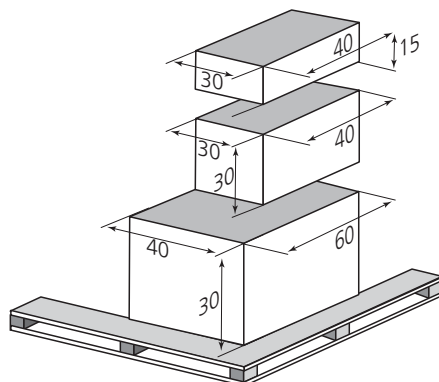
Size Guide Letter

- 6 A = 16mm or 3/8"
 B = 20mm or 1/2"
 C = 25mm or 3/4"
 D = 32mm or 1"
 E = 40mm or 1 1/4"
 F = 50mm or 1 1/2"
 G = 63mm or 2"
 H = 75mm or 2 1/2"
 I = 90mm or 3"
 L = 110mm or 4"
 M = 125mm
 N = 140mm or 5"
 O = 160mm or 6"
 P = 200mm
 Q = 225mm or 8"
 R = 315mm

Packing in boxes

EUROPALLET

- 24 box large
 48 box medium
 96 box small



BOX TYPE

- S = small 40 x 30 x 15 cm
 M = medium 40 x 30 x 30 cm
 L = large 60 x 40 x 30 cm
 S = small 0.5 kg
 M = medium 0.6 kg
 L = large 1.0 kg

Materials & Applications

PVCu



Most Widely Used Plastic Material
Large Choice of Fittings
Excellent Chemical Resistance
Rigid Construction

Typical Applications

Industrial Process Systems
Water Treatment and Chemical Dosing
Food & Beverage
Swimming Pools and Spas
Cold Water Supply

ABS



Wide Temperature Range
High Impact Strength
Abrasion Resistance
Non Toxic

Chilled Water
Boosted Cold Water
Plant Rooms
Chemical & Pharmaceutical

Polypropylene



High Impact Strength
Good Thermal and Electrical Insulator
Excellent Chemical Resistance
High Temperatures (<110°C)

Chemical Process Systems
Metal Finishing
Chemical Dosing

PE100



Large Size Range
High Impact Strength
Excellent Abrasion Resistance
UV Resistant
Flexible

Above and Below Ground Water Supply
Power Generation
Attenuation

All Effast materials are suitable for a number of applications. The table below details common applications and the appropriate Effast materials for that situation

Applications Guide	ABS	PVCu	PP-H (pipe)	PP-R (fittings)	PE100
Acids and Alkalis	✓	✓	✓		
A/C and Refrigeration	✓			✓	✓
Biotechnology	✓	✓	✓	✓	
Boosted Cold Water	✓			✓	✓
Condensate	✓				
Chemical Dosing	✓	✓	✓	✓	✓
Chemical Drainage			✓	✓	
Chilled Water	✓			✓	✓
Compressed Air				✓	
De-Mineralised Water	✓	✓	✓		
Effluent Treatment	✓		✓		✓
Electro Plating	✓	✓	✓	✓	
Film Processing	✓	✓	✓		
Food Processing & Beverages	✓				✓
Gas			✓		

Applications Guide	ABS	PVCu	PP-H (pipe)	PP-R (fittings)	PE100
Glycol Systems	✓				
Hot Cold Water		✓	✓	✓	
Hot Corrosive Materials			✓	✓	
Hot Water			✓	✓	
Irrigation	✓	✓			✓
Marine / Brine	✓				✓
Pharmaceutical	✓	✓	✓		
Potable Water	✓	✓			✓
Pulp and Paper	✓		✓		
Semi Conductor	✓	✓	✓		
Slurries	✓				✓
Sprinklers				✓	
Swimming Pools	✓	✓			
Water & Sewage Treatments	✓	✓	✓	✓	✓
Water Industry	✓	✓			✓

PVCu Pipe Systems

Unplasticised polyvinyl chloride (PVCu) is one of the most widely used thermoplastic materials for pipe installations.

Being odourless and tasteless it is suitable for conveying potable water and many food products. PVCu has excellent chemical resistance.

The good flow characteristics are the result of the smooth bore and has good resistance to abrasion. It is light in weight, easy to join together making PVCu a good alternative to the more traditional materials.

PVCu is resistant to most solutions of acids, alkalis, salts and solvents that can be mixed with water. Additional information in this respect can be obtained from our Technical Department.

Materials

Polypipe Effast PVCu is stabilised with compounds conforming to the EEC safety levels for vinyl chloride monomer (VCM) and the WRAS requirements for use with potable water.

Colour

PVCu products are recognised by their dark grey colour.

Chemical Resistance

The chemical resistance properties of PVCu are excellent: it is resistant to most solutions of acids, alkalis and salts and to solvents that can be mixed with water. PVCu is not resistant to aromatic and chlorinated hydrocarbons.

Standards

Individual products are in compliance with appropriate British Standards:

Fittings (inch size)	BS 4346 Part 1, BS EN 1452 Part 3
Pipe (inch size)	BS 3505/6, BS EN 1452 Part 2
Fittings (mm size)	DIN 8063, ISO 727, KIWA K504, UNI 7442/75
Pipe (mm size)	BS EN 1452 Part 2
Threaded fittings	BS 21, DIN 2999, ISO7
Solvent cement	BS 4346 Part 3



WRAS Approval

Water Regulations Advisory Scheme. Approved product for potable water



Kite Mark Licence Fittings No. KM 60041

Imperial and Metric Sizes

The following notes may be helpful to those unfamiliar with the different ways of describing metric and imperial sizes when specifying pipe or fittings.

When specifying Imperial pipe fittings and other components reference is made to the nominal size of the pipe bore in inches and fractions of an inch.

Metric Systems are specified by reference to the outside diameter of the pipe expressed in millimetres.

As a general guide the following table gives a comparison between metric and imperial sizes up to 8 inches. It is important to understand that metric sizes are not simply inch sizes which have been converted into millimetres and called metric. The actual equivalents are slightly different (except for Imperial size 2 1/2 inches and metric size 75mm and 5 inches and 140mm which happen to coincide exactly) and are not interchangeable.

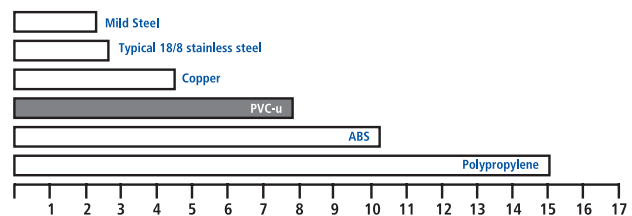
Imperial Sizes (inches)		Metric Sizes (mm)	
Nominal bore	Pipe outside dia.	Pipe outside dia.	Nominal bore
3/8"	17.1	16	10
1/2"	21.4	20	15
3/4"	26.7	25	20
1"	33.6	32	25
1 1/4"	42.2	40	32
1 1/2"	48.3	50	40
2"	60.3	63	50
2 1/2"	75.2	75	65
3"	88.9	90	80
4"	114.3	110	100
5"	140.2	140	125
6"	168.3	160	150
8"	219.1	225	200

Thermal Expansion

The thermal coefficient of linear expansion for PVCu is $7.8 \times 10^{-5} \text{m/m} \cdot ^\circ\text{C}$

It is necessary in certain situations to make special provision for this expansion and contraction.

Thermal expansion of PVCu is compared with other materials, in the following chart.



General Information

0°C – 60°C

Imperial Solvent Weld

Threaded

Metric Solvent Weld

Threaded Adaptors

Temperature range

3/8" – 8"

10" - 12" available

3/8" – 4"

16 - 315mm

16 - 110mm

PVCu

General properties of PVCu

PVCu is thermally stable in the temperature range 0°C to 60°C, however at low temperatures the impact strength of PVCu decreases. It is therefore not recommended for use at very low temperatures unless there is no likelihood of the piping materials being disturbed or subjected to impact damage. PVCu is free from toxic metals thus ensuring that it is physiologically harmless for drinking water and foodstuffs applications.

Some important advantages of PVCu are:

- Extensive choice of component parts
- Wide range of applications
- Good chemical and corrosion resistance
- Safe for potable water applications
- Low friction loss
- Self extinguishing
- High mechanical strength
- Simplified installation techniques using solvent cement welding
- Approved for potable water applications

Properties of PVCu (Average values)	
Property	Value
Density	1.38 g/cm ³
Tensile Strength	55 N/mm ²
Elongation at Break	>30 %
Impact Strength	No crack kJ/m ² (23°C)
Modulus of Elasticity (Young's Modulus)	3000 N/mm ²
Coefficient of Linear Expansion	0.08 mm/m °C
Maximum Operating Temperature	60°C
Minimum Operating Temperature	0°C
Vicat Softening Point	>76°C (VST/B 50)
Water Absorption	<4 mg/cm ³
Surface Resistance Approx.	10 ¹³ Ω
Thermal Conductivity	0.140 W/m · K
Flammability	V-0 UL94
Colour	7011 Dark Grey RAL

Temperature & Pressure Relationship

Temp °C	Class C		Class D		Class E	
	BAR	PSI	BAR	PSI	BAR	PSI
0	9.0	130	12.0	173	15.0	217
20	9.0	130	12.0	173	15.0	217
30	8.1	117	10.8	155	13.5	195
35	7.2	104	9.6	138	12.0	173
40	6.3	91	8.4	121	10.5	152
45	5.4	78	7.2	104	9.0	130
50	4.0	58	5.4	78	6.7	97
55	2.7	39	3.6	52	4.5	65
60	1.3	19	1.8	26	2.2	32

Pressure Ratings Fittings & Valves Imperial

Unless otherwise indicated the pressure ratings are as follows

Product	Size	Pressure Rating
Fitting Solvent Cement	½" – 6"	15 bar (217psi)
	8"	9 bar (130psi)
Fittings Threaded	¾" – 4"	10 bar (145psi)
Valves	¾" – 2"	16 bar (232psi)
Valves	2½" – 4"	10 bar (145psi)

Pressure Ratings Fittings & Valves Metric

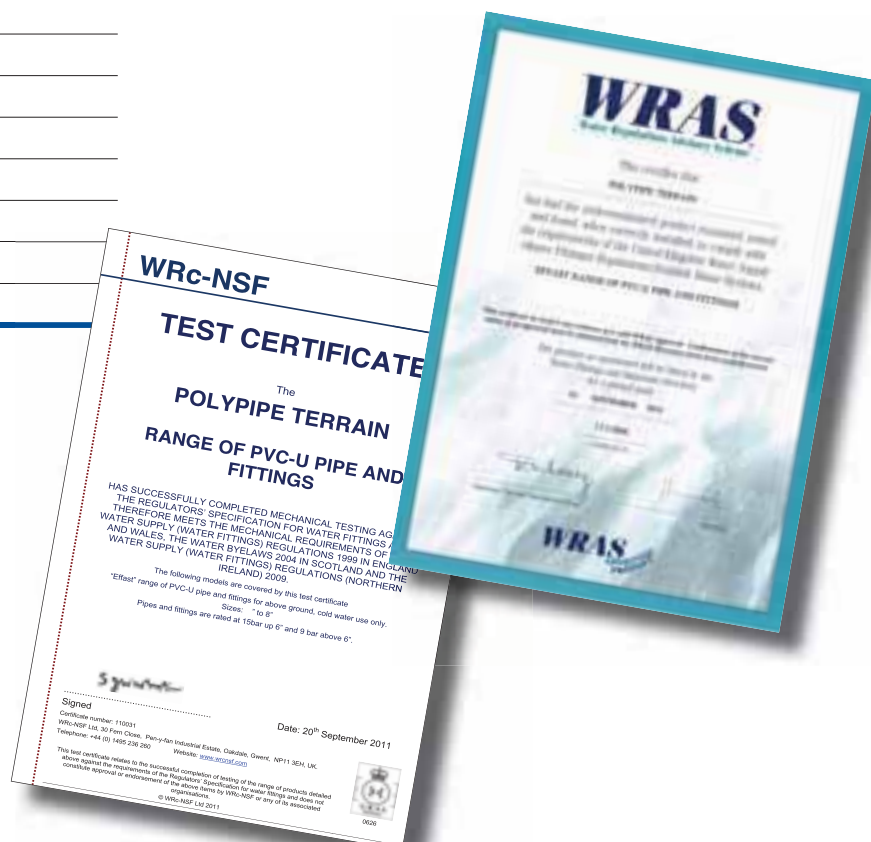
Unless otherwise indicated the pressure ratings are as follows

Product	Size mm	Pressure Rating
Fitting Solvent Cement	16 bar (232psi)	15 bar (217psi)
Fittings Threaded	200–225	10 bar (145psi)
Valves	16 bar (232psi)	16 bar (232psi)
Valves	10 bar (145psi)	10 bar (145psi)

All pressure ratings are at 20°C

All threaded fittings are parallel threaded unless stated.

ie. BSP Female and BSP Male are parallel. BSPT = BSP taper thread



Useful Information

The following information may be helpful in understanding the specification of metric and imperial sizes and pressure ratings when selecting pipe.

When specifying imperial pipe, fittings and other components, reference is made to the nominal size of the pipe bore in inches and fractions of an inch. With metric systems, reference is made to the outside diameter and is expressed in millimetres. It is important to note that with the exception of 2½"/75mm and 5"/140mm the systems are not interchangeable.

Temperature and pressure relationship for PVCu pipes					
	Class C	Class D	Class E	PN10	PN16
Temperature (°C)	bar (psi)	bar (psi)	bar (psi)	bar	bar
0	9.0 (130)	12.0 (174)	15.0 (217)	10.0	16.0
20	9.0 (130)	12.0 (174)	15.0 (217)	10.0	16.0
30	8.1 (117)	10.8 (156)	13.5 (195)	8.0	12.8
40	6.3 (91)	8.4 (121)	10.5 (152)	6.4	10.2
50	4.0 (58)	5.4 (78)	6.7 (97)	4.4	7.0
60	1.3 (18)	1.8 (26)	2.2 (31)	2.6	4.1

Imperial and metric size information			
Imperial sizes		Metric sizes	
Nominal bore (inches)	Pipe outside diameter (mm)	Pipe outside diameter (mm)	Nominal bore (mm)
¾"	17.1	16	10
½"	21.4	20	15
¾"	26.7	25	20
1"	33.6	32	25
1¼"	42.2	40	32
1½"	48.3	50	40
2"	60.3	63	50
2½"	75.2	75	65
3"	88.9	90	80
4"	114.3	110	100
5"	140.2	140	125
6"	168.3	160	150
8"	219.1	225	200

PVCu pressure pipes 6m lengths

plain end

Description	Product code	Price per length
Pressure pipe class C		
2"	RPCCLC0630PE	£33.80
2½"	RPCCLC0750PE	£49.78
3"	RPCCLC0900PE	£65.67
4"	RPCCLC1100PE	£103.29
5"	RPCCLC1400PE	£153.55
6"	RPCCLC1600PE	£235.87
8"	RPCCLC2250PE	£355.23
Pressure pipe class D		
1¼"	RPDCLD0400PE	£20.70
1½"	RPDCLD0500PE	£26.54
2"	RPDCLD0630PE	£38.71
3"	RPDCLD0900PE	£83.67
4"	RPDCLD1100PE	£134.54
6"	RPDCLD1600PE	£288.74

PVCu pressure pipes 6m lengths

plain end

Description	Product code	Price per length
Pressure pipe class E		
½"	REPCLE0200PE	£8.67
¾"	REPCLE0250PE	£12.34
1"	REPCLE0320PE	£15.88
1¼"	REPCLE0400PE	£24.84
1½"	REPCLE0500PE	£32.33
2"	REPCLE0630PE	£46.51
2½"	REPCLE0750PE	£74.93
3"	REPCLE0900PE	£101.65
4"	REPCLE1100PE	£160.43
6"	REPCLE1600PE	£346.27
Pressure pipe class 7 (machining quality max. 12 bar at 20°C)		
½"	RP7CL70200PE	£19.84
¾"	RP7CL70250PE	£26.88
1"	RP7CL70320PE	£38.19
1¼"	RP7CL70400PE	£53.22
1½"	RP7CL70500PE	£64.93
2"	RP7CL70630PE	£88.62
Pressure pipe 10 bar metric		
40mm	RP10CL100400PE	£22.11
50mm	RP10CL100500PE	£32.52
63mm	RP10CL100630PE	£36.29
75mm	RP10CL100750PE	£51.73
90mm	RP10CL100900PE	£71.94
110mm	RP10CL101100PE	£105.39
125mm	RP10CL101250PE	£146.16
140mm	RP10CL101400PE	£153.55
160mm	RP10CL101600PE	£223.72
200mm	RP10CL102000PE	£376.43
225mm	RP10CL102250PE	£474.06
250mm	RP10CL102500PE	£636.29
315mm	RP10CL103150PE	£922.55
Pressure pipe 16 bar metric		
16mm	RP16CL160160PE	£4.76
20mm	RP16CL160200PE	£6.81
25mm	RP16CL160250PE	£10.61
32mm	RP16CL160320PE	£16.89
40mm	RP16CL160400PE	£26.38
50mm	RP16CL160500PE	£40.40
63mm	RP16CL160630PE	£54.45
75mm	RP16CL160750PE	£77.13
90mm	RP16CL160900PE	£109.90
110mm	RP16CL161100PE	£159.52
160mm	RP16CL161600PE	£335.20

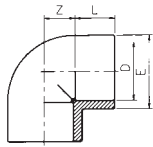
Prices shown are for one item excluding VAT # Metric equivalent may be supplied

Prices shown are for one item excluding VAT # Metric equivalent may be supplied

PVCu solvent cement fittings

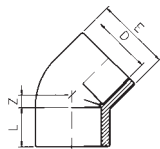
Fittings up to 6" 15 bar (20°C), above 6" 9 bar (20°C). * Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

Elbow 90° plain



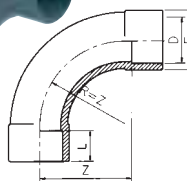
Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
3/8"	RFAGOA0160	15	9	23	10	13	£1.70
1/2"	RFAGOA0200	17	11	27	10	20	£1.98
3/4"	RFAGOA0250	20	14	33	10	35	£2.27
1"	RFAGOA0320	23	17	41	10	60	£3.21
1 1/4"	RFAGOA0400	27	23	51	10	90	£5.60
1 1/2"	RFAGOA0500	31	28	61	10	135	£7.23
2"	RFAGOA0630	38	34	75	10	220	£10.76
2 1/2"	RFAGOA0750	44	40	89	1	375	£20.18
3"	RFAGOA0900	52	48	106	1	600	£31.01
4"	RFAGOA1100	63	58	133	1	1060	£46.58
5"	RFAGOA1400	76	72	164	1	2000	£106.66
6"	RFAGOA1600	90	81	198	1	3200	£184.10
8"*	RFAGOA2250	119	115	258	1	7500	£436.40

Elbow 45° plain



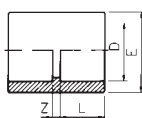
Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
3/8"	RFAGYA0160	15	6	23	10	10	£3.21
1/2"	RFAGYA0200	17	5	27	10	17	£3.72
3/4"	RFAGYA0250	20	6	33	10	30	£3.89
1"	RFAGYA0320	23	8	41	10	47	£4.74
1 1/4"	RFAGYA0400	27	10	50	10	77	£6.76
1 1/2"	RFAGYA0500	31	12	61	10	115	£8.53
2"	RFAGYA0630	38	15	75	10	190	£11.98
2 1/2"	RFAGYA0750	44	18	89	1	310	£18.82
3"	RFAGYA0900	52	21	106	1	485	£28.27
4"	RFAGYA1100	63	25	133	1	835	£58.01
5"	RFAGYA1400	76	32	164	1	1640	£98.91
6"	RFAGYA1600	90	36	198	1	2100	£120.64
8"*	RFAGYA2250	119	49	258	1	6200	£399.92

Bend 90° short radius plain



Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
1/2"	RFACUA0200	17	39	27	10	30	£7.29
3/4"	RFACUA0250	20	49	33	10	50	£8.60
1"	RFACUA0320	23	63	41	10	92	£11.91
1 1/4"	RFACUA0400	27	80	50	1	165	£16.99
1 1/2"	RFACUA0500	31	100	61	1	270	£21.12
2"	RFACUA0630	38	126	76	1	490	£33.74
2 1/2"	RFACUA0750	44	150	90	1	990	£59.13
3"	RFACUA0900	51	180	110	1	1600	£70.97
4"	RFACUA1100	63	220	133	1	2150	£118.18

Socket plain



Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
3/8"	RFAMAA0160	15	3	23	10	9	£1.29
1/2"	RFAMAA0200	17	3	27	10	15	£1.47
3/4"	RFAMAA0250	20	3	33	10	23	£1.62
1"	RFAMAA0320	23	3	41	10	36	£1.90
1 1/4"	RFAMAA0400	27	3	50	1	60	£3.37
1 1/2"	RFAMAA0500	31	3	61	1	85	£3.96
2"	RFAMAA0630	38	3	76	1	145	£5.60
2 1/2"	RFAMAA0750	44	4	90	1	222	£11.89
3"	RFAMAA0900	51	5	110	1	353	£21.41
4"	RFAMAA1100	63	6	133	1	605	£31.16
5"	RFAMAA1400	76	8	161	1	1100	£61.82
6"	RFAMAA1600	90	8	198	1	1400	£78.80
8"	RFAMAA2250	119	11	258	1	4100	£237.78

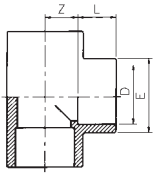
Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu solvent cement fittings

Fittings up to 6" 15 bar (20°C), above 6" 9 bar (20°C). * Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

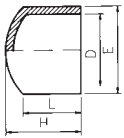
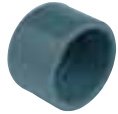
Tee 90° plain

Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
3/8"	RFATIA0160	15	9	24	10	15	£1.90
1/2"	RFATIA0200	17	11	28	10	25	£2.23
3/4"	RFATIA0250	20	14	34	10	44	£2.84
1"	RFATIA0320	23	17	42	10	75	£4.20
1 1/4"	RFATIA0400	27	21	51	10	120	£6.04
1 1/2"	RFATIA0500	31	26	61	10	172	£8.68
2"	RFATIA0630	38	33	75	10	300	£13.80
2 1/2"	RFATIA0750	44	39	89	1	495	£23.69
3"	RFATIA0900	52	47	106	1	790	£39.83
4"	RFATIA1100	63	57	133	1	1330	£58.38
5"	RFATIA1400	76	71	163	1	2550	£156.21
6"	RFATIA1600	90	81	198	1	4100	£203.04
8"*	RFATIA2250	119	114	258	1	9700	£483.77



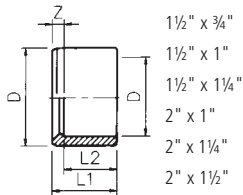
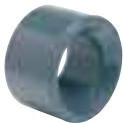
Cap plain

Nominal Size	Code	L	H	E	Pack Qty	Weight (GR)	Price each
3/8"	RFACAA0160	15	26	23	10	7	£1.24
1/2"	RFACAA0200	17	30	27	10	10	£1.39
3/4"	RFACAA0250	20	34	33	10	18	£1.63
1"	RFACAA0320	23	38	42	10	30	£1.87
1 1/4"	RFACAA0400	27	43	50	10	45	£2.86
1 1/2"	RFACAA0500	31	48	61	10	65	£4.77
2"	RFACAA0630	38	56	75	10	110	£5.86
2 1/2"	RFACAA0750	44	67	89	1	208	£14.22
3"	RFACAA0900	52	78	106	1	325	£17.99
4"	RFACAA1100	63	81	133	1	500	£27.66
5"	RFACAA1400	76	114	162	1	920	£47.76
6"	RFACAA1600	90	127	198	1	1120	£66.91
8"*	RFACAA2250	119	165	255	1	2978	£198.47



Reducing bush plain

Nominal Size	Code	L1	L2	Z	FIG	Pack Qty	Weight (GR)	Price each
1/2" x 3/8"	RFARCA020A	17	15	2	A	10	3	£1.15
3/4" x 1/2"	RFARCA025B	20	17	3	A	10	6	£1.48
1" x 1/2"	RFARCA032B	23	17	6	B	10	15	£1.91
1" x 3/4"	RFARCA032C	23	20	3	A	10	10	£1.91
1 1/4" x 1"	RFARCA040D	27	23	4	A	10	16	£2.56
1 1/2" x 3/4"	RFARCA050C	31	20	12	B	10	45	£3.07
1 1/2" x 1"	RFARCA050D	31	23	9	B	10	40	£3.07
1 1/2" x 1 1/4"	RFARCA050E	31	27	5	A	10	30	£3.07
2" x 1"	RFARCA063D	38	23	16	B	10	83	£4.23
2" x 1 1/4"	RFARCA063E	38	27	12	B	10	78	£4.23
2" x 1 1/2"	RFARCA063F	38	31	7	A	10	61	£4.23
2 1/2" x 1 1/2"	RFARCA075F	44	31	13	B	1	122	£7.54
2 1/2" x 2"	RFARCA075G	44	38	6	A	1	80	£7.54
3" x 1 1/2"	RFARCA090F	52	31	20	B	1	210	£12.09
3" x 2"	RFARCA090G	52	38	13	B	1	195	£12.09
3" x 2 1/2"	RFARCA090H	52	44	7	A	1	140	£12.09
4" x 2"	RFARCA110G	63	38	23	B	1	372	£16.60
4" x 3"	RFARCA110I	63	52	10	A	1	275	£16.60
5" x 4"	RFARCA140L	76	63	15	B	1	510	£47.85
6" x 4"	RFARCA160L	90	63	25	B	1	830	£51.45
8" x 6"*	RFARCA225M	119	90	33	B	1	1700	£158.36

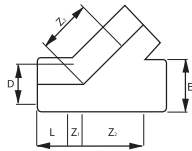


Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu solvent cement fittings

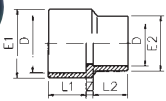
Fittings up to 6" 15 bar (20°C), above 6" 9 bar (20°C). * Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

Tee 45° plain



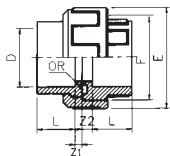
Nominal Size	Code	L	Z1	Z2	E	Weight (GR)	Price each
½"	RFATYA0200	17	7	29	27	36	£5.37
1"	RFATYA0320	23	8	44	42	103	£9.90
1½"	RFATYA0500	31	12	65	61	254	£15.29
2"	RFATYA0630	38	14	85	74	420	£23.67

Reducing socket plain



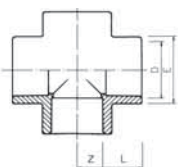
Nominal Size	Code	L1	L2	Z	E1	E2	Pack Qty	Weight (GR)	Price each
1¼" x 1"	RFAMRA040D	27	23	10	50	41	10	75	£4.08
1½" x 1¼"	RFAMRA050E	31	27	12	63	50	10	110	£5.24
2" x 1½"	RFAMRA063F	38	31	12	75	61	10	130	£6.82
4" x 3"	RFAMRA110I	63	51	17	133	108	1	530	£31.18

Union plain. Unions up to 2" 15 bar (20°C), above 2" 10 bar (20°C)



Nominal Size	Code	L	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
⅜"	RFABOA0160	15	3	10	¾"	34	10	30	£6.29
½"	RFABOA0200	17	3	10	1"	42	10	42	£7.54
¾"	RFABOA0250	20	3	10	1¼"	52	10	70	£8.60
1"	RFABOA0320	23	3	10	1½"	59	10	97	£11.13
1¼"	RFABOA0400	27	3	12	2"	72	10	115	£13.91
1½"	RFABOA0500	31	3	14	2¼"	79	10	216	£18.99
2"	RFABOA0630	38	3	18	2¾"	96	10	350	£24.58
2½"*	RFABOA0750	44	3	18	3½"	119	1	580	£62.96
3"*	RFABOA0900	52	5	18	4"	134	1	760	£91.46
4"*	RFABOA1100	63	5	18	5"	163	1	1340	£123.80

Cross 90° plain




Nominal Size	Code	L	Z	E	Weight (GR)	Price each
1"	RFACXA0320	23	17	42	110	£8.62
1½"	RFACXA0500	31	26	61	270	£15.60
2"	RFACXA0630	38	33	75	510	£21.30

PVCu solvent cement fittings

Fittings up to 6" 15 bar (20°C), above 6" 9 bar (20°C). * Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

Stub flange (serrated face) plain


	Nominal Size	Code	L	Z	d	S	E	Pack Qty	Weight (GR)	Price each
	½"	RFAQRA0200	17	3	27	6	34	10	10	£1.78
	¾"	RFAQRA0250	20	3	33	7	41	10	16	£1.86
	1"	RFAQRA0320	23	3	41	7	50	10	25	£2.23
	1¼"	RFAQRA0400	27	3	50	8	61	10	40	£4.05
	1½"	RFAQRA0500	32	3	61	8	73	10	60	£6.10
	2"	RFAQRA0630	39	3	76	9	90	10	105	£8.68
	2½"	RFAQRA0750	44	3	90	10	106	1	160	£14.16
	3"	RFAQRA0900	52	5	108	11	125	1	280	£17.44
	4"	RFAQRA1100	63	5	133	12	150	1	445	£23.01
	5"	RFAQRA1400	76	6	165	13	188	1	740	£47.69
	6"	RFAQRA1600	90	7	193	13	218	1	1000	£58.89
	8"*	RFAQRA2250	119	7	248	19	274	1	1700	£179.87

Prices shown are for one item excluding VAT # Refer to metric equivalent


PVCu full face flanges (drilled)

NP10/16 blanking flanges available, For gaskets see Accessories section

Drilled to BS 10 table D&E plain

	Nominal Size	Code	L	Z	E	f	I	S HOLES	Weight (GR)	Price each	
	½"	RFAFFA0200	17	5	95	14	67	11	4	78	£7.07
	¾"	RFAFFA0250	20	5	105	14	73	12	4	105	£7.19
	1"	RFAFFA0320	23	5	115	14	83	14	4	143	£9.23
	1½"	RFAFFA0500	32	5	152	18	98	16	4	280	£12.82
	2"	RFAFFA0630	38	5	165	18	115	18	4	380	£16.84
	3"	RFAFFA0900	51	7	200	18	146	20	8	685	£30.35
	4"	RFAFFA110E	63	8	220	18	178	22	8	940	£42.11

Drilled to BS 4504 NP10/16 plain

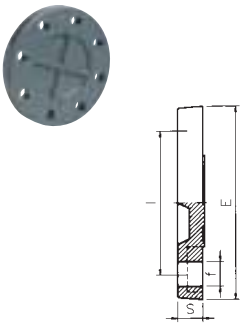
	Nominal Size	Code	L	Z	E	f	I	S HOLES	Weight (GR)	Price each	
	½"	RFAFNA0200	17	5	95	14	65	8	4	78	£8.46
	¾"	RFAFNA0250	20	5	105	14	75	9	4	105	£8.60
	1"	RFAFNA0320	23	5	115	14	85	16	4	143	£9.23
	1¼"	RFAFNA0400	27	5	142	18	100	17	4	220	£10.93
	1½"	RFAFNA0500	32	5	152	18	110	17	4	280	£12.82
	2"	RFAFNA0630	38	5	165	18	125	20	4	380	£16.84
	2½"	RFAFNA0750	44	6	185	18	145	19	4	505	£26.96
	3"	RFAFNA0900	51	7	200	18	160	22	8	685	£30.35
	4"	RFAFNA1100	63	8	220	18	180	23	8	940	£42.08

Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu blanking flanges (drilled)

Maximum working pressure: ½" – 2" 15 bar (217 psi) at 20°C. 3" – 4" 10 bar (145 psi) at 20°C. 6" 6 bar (87 psi) at 20°C

Blanking Flange Drilled to BS 10 table D/E

	Nominal Size	Code	E	S	I	f	HOLES	Weight (GR)	Price each
	½"	RFAFE0200	95	11	67	14	4	76	£23.62
	¾"	RFAFE0250	105	12	73	14	4	104	£26.87
	1"	RFAFE0320	115	14	83	14	4	140	£29.21
	1¼"	RFAFE0400	142	15	88	18	4	220	£30.76
	1½"	RFAFE0500	152	16	98	18	4	280	£33.25
	2"	RFAFE0630	165	18	115	18	4	370	£37.23
	3"	RFAFE0900	200	20	146	18	4	655	£65.79
	4" D	RFAFE110D	220	22	178	18	4	975	£84.64
	4" E	RFAFE110E	220	22	178	18	8	950	£84.64
	6"	RFAFE1600	285	28	235	22	8	1610	£148.59

Blanking Flange Drilled to BS4504 NP10/16

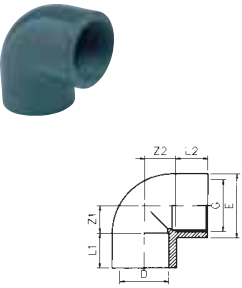
	Inches	mm	Code	E	S	I	f	HOLES	Weight (GR)	Price each
	½"	20	RFIFCI0200	95	11	65	14	4	76	£23.62
	¾"	25	RFIFCI0250	105	12	75	14	4	104	£26.87
	1"	32	RFIFCI0320	115	14	85	14	4	140	£34.65
	1¼"	40	RFIFCI0400	142	15	100	18	4	220	£36.49
	1½"	50	RFIFCI0500	152	16	110	18	4	280	£39.44
	2"	63	RFIFCI0630	165	18	125	18	4	370	£44.16
	2½"	75	RFIFCI0750	185	19	145	18	4	495	£66.15
	3"	90	RFIFCI0900	200	20	160	18	8	655	£78.05
	4"	110	RFIFCI1100	220	22	180	18	8	850	£100.39
	—	125	RFIFCI1250	230	24	190	18	8	950	£106.30
	5"	140	RFIFCI1400	250	26	210	18	8	1165	£156.87
	6"	160	RFIFCI1600	285	28	240	22	8	1610	£176.26
	—	200	RFIFCI2000	340	30	295	22	8	2480	£197.10
8"	225	RFIFCI2250	340	30	295	22	8	2480	£326.80	

Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu adaptor fittings

Fittings up to 4" 15 bar (20°C)

Elbow 90° plain/BSP female threaded

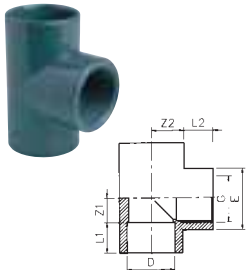
	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFCGOC0200	17	15	11	12	28	10	20	£4.74
	¾"	BSPF	RFCGOC0250	20	16	14	17	34	10	35	£5.46
	1"	BSPF	RFCGOC0320	23	19	17	20	42	10	60	£6.76
	1¼"	BSPF	RFCGOC0400	27	21	21	26	51	10	90	£14.08
	1½"	BSPF	RFCGOC0500	32	21	26	36	61	10	155	£15.62
	2"	BSPF	RFCGOC0630	39	26	33	46	75	10	265	£22.01
	2½"	BSPF	RFCGOC0750	44	30	39	53	89	1	400	£37.02
	3"	BSPF	RFCGOC0900	52	33	47	65	106	1	670	£49.73

Prices shown are for one item excluding VAT

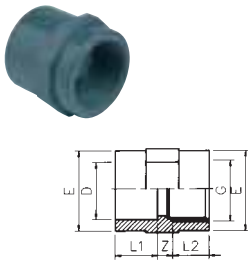
PVCu adaptor fittings

Fittings up to 4" 15 bar (20°C)

Tee 90° plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFCTIC0200	17	15	11	12	28	10	30	£6.10
	¾"	BSPF	RFCTIC0250	19	16	14	17	34	10	45	£6.72
	1"	BSPF	RFCTIC0320	23	19	17	20	42	10	75	£7.48
	1¼"	BSPF	RFCTIC0400	27	21	21	26	51	10	120	£14.08
	1½"	BSPF	RFCTIC0500	32	21	26	36	61	10	195	£14.84
	2"	BSPF	RFCTIC0630	39	26	33	46	75	5	335	£23.13
	2½"	BSPF	RFCTIC0750	44	30	39	53	89	1	505	£36.79
	3"	BSPF	RFCTIC0900	52	33	47	65	106	1	810	£43.25

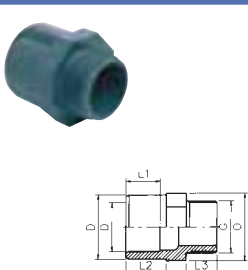
Socket plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	Z	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFCMAC0200	17	15	4	28	10	18	£4.05
	¾"	BSPF	RFCMAC0250	20	16	6	34	10	25	£4.51
	1"	BSPF	RFCMAC0320	23	19	7	42	10	38	£5.60
	1¼"	BSPF	RFCMAC0400	27	21	7	51	10	60	£8.68
	1½"	BSPF	RFCMAC0500	32	21	7	61	10	95	£10.06
	2"	BSPF	RFCMAC0630	39	26	7	75	10	165	£13.10
	2½"	BSPF	RFCMAC0750	44	30	8	89	1	215	£32.78
	3"	BSPF	RFCMAC0900	52	33	9	106	1	340	£36.93
4"	BSPF	RFCMAC1100	63	39	10	133	1	550	£42.42	

Spigot plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	E	Z	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFC AFC0200	17	15	28	24	10	20	£3.33
	¾"	BSPF	RFC AFC0250	20	16	34	27	10	25	£3.86
	1"	BSPF	RFC AFC0320	23	19	42	30	10	43	£4.71
	1¼"	BSPF	RFC AFC0400	27	21	51	36	10	65	£6.15
	1½"	BSPF	RFC AFC0500	32	21	58	41	10	73	£7.93
	2"	BSPF	RFC AFC0630	39	26	72	48	10	135	£11.38
	2½"	BSPF	RFC AFC0750	44	30	89	58	1	225	£20.59

Socket plain/BSP male threaded

	Nominal Size	G	Code	L1	L2	L3	H	O	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFCAMC0200	17	20	15	46	30	10	15	£2.49
	¾"	BSPF	RFCAMC0250	20	23	16	50	36	10	26	£2.86
	1"	BSPF	RFCAMC0320	23	27	19	57	46	10	40	£4.46
	1¼"	BSPF	RFCAMC0400	27	32	21	67	55	10	75	£6.09
	1½"	BSPF	RFCAMC0500	32	39	21	74	65	10	113	£7.86
	2"	BSPF	RFCAMC0630	39	44	26	84	80	10	150	£10.61
	2½"	BSPF	RFCAMC0750	44	52	30	99	95	1	270	£26.48
	3"	BSPF	RFCAMC0900	52	63	33	113	115	1	475	£31.35
4"	BSPF	RFCAMC1100	63	66	39	120	130	1	500	£42.24	


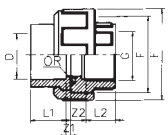
Prices shown are for one item excluding VAT

PVCu adaptor fittings


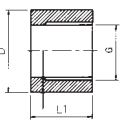
Fittings up to 4" 15 bar (20°C)

Union plain/BSP female threaded. Unions up to 2" 15 bar (20°C).


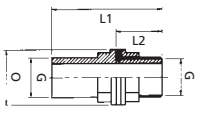
* Maximum working pressure: 10 bar (145 psi) at 20°C Supplied with EPDM O ring - for FPM O ring see Accessories section

	Nominal Size	G	Code	L1	L2	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
 	½"	BSPF	RFCBOC0200	17	15	3	11	1"	42	10	42	£10.85
	¾"	BSPF	RFCBOC0250	20	16	3	13	1¼"	52	10	70	£11.99
	1"	BSPF	RFCBOC0320	23	19	3	13	1½"	59	10	95	£14.91
	1¼"	BSPF	RFCBOC0400	27	21	3	17	2"	72	10	155	£23.90
	1½"	BSPF	RFCBOC0500	32	21	3	24	2¼"	79	10	240	£24.18
	2"	BSPF	RFCBOC0630	39	26	3	30	2¾"	96	5	405	£33.26
	2½"	BSPF	RFCBOC0750	44	30	3	32	3½"	119	1	625	£59.67
	3"*	BSPF	RFCBOC0900	52	33	5	36	4"	134	1	865	£97.23
	4"*	BSPF	RFCBOC1100	61	39	5	40	5"	163	1	1340	£131.93


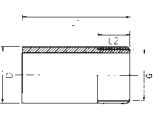
Reducing bush plain/BSP female threaded

	Nominal Size	G	Code	L1	D	G	Pack Qty	Weight (GR)	Price each
 	½" x ¾"	BSPF	RFCRCC020A	16	½"	¾"	10	5	£2.79
	¾" x 1½"	BSPF	RFCRCC025B	19	¾"	1½"	10	8	£3.33
	1" x ¾"	BSPF	RFCRCC032C	22	1"	¾"	10	15	£4.56

Tank connector plain/BSP male threaded EPDM gasket. (½" to 4" 9 bar at 20°C)

	Nominal Size	G	Code	L1	L2	O	Pack Qty	Weight (GR)	Price each
 	½"	BSPM	RFCTCC0200	77	42	38	10	41	£6.80
	¾"	BSPM	RFCTCC0250	77	42	42	10	52	£8.50
	1"	BSPM	RFCTCC0320	103	55	55	10	108	£18.69
	1¼"	BSPM	RFCTCC0400	121	70	65	10	153	£38.79
	1½"	BSPM	RFCTCC0500	128	73	72	10	216	£43.10
	2"	BSPM	RFCTCC0630	154	82	93	10	370	£47.63
	2½"	BSPM	RFCTCC0750	164	94	106	1	471	£61.13
	3"*	BSPM	RFCTCC0900	202	110	125	1	768	£86.43
	4"*	BSPM	RFCTCC1100	230	140	154	1	1421	£91.67

Barrel nipple plain/BSP male taper threaded. (½" to 4" 9 bar at 20°C)

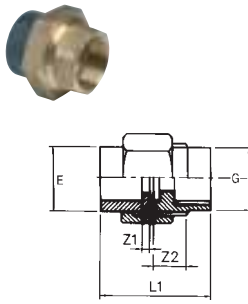
	Nominal Size	G	Code	L1	L2	Pack Qty	Weight (GR)	Price each
 	¾"	BSPM	RFCBNC0160	42	13	10	8	£2.79
	½"	BSPM	RFCBNC0200	50	16	10	14	£3.02
	¾"	BSPM	RFCBNC0250	56	17	10	25	£3.61
	1"	BSPM	RFCBNC0320	63	20	10	38	£4.77
	1¼"	BSPM	RFCBNC0400	75	24	10	52	£6.53
	1½"	BSPM	RFCBNC0500	88	30	10	80	£6.82
	2"	BSPM	RFCBNC0630	88	32	10	115	£9.15
	2½"	BSPM	RFCBNC0750	106	35	1	197	£21.37
	3"*	BSPM	RFCBNC0900	128	39	1	300	£23.90
	4"*	BSPM	RFCBNC1100	153	43	1	560	£35.84

Prices shown are for one item excluding VAT

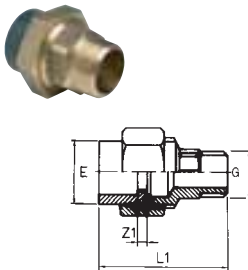
PVCu adaptor fittings

Fittings up to 4" 15 bar (20°C)

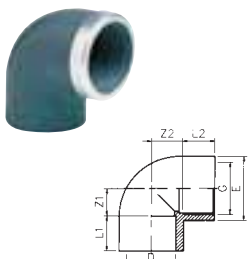
Composite union plain/BSP female brass threaded

	Nominal Size	G	Code	E	L1	Z1	Z2	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFCBFC0200	28	45	3	8	1	165	£22.51
	¾"	BSPF	RFCBFC0250	36	49	3	8	1	290	£25.12
	1"	BSPF	RFCBFC0320	42	52	3	8	1	310	£34.03
	1¼"	BSPF	RFCBFC0400	53	60	3	8	1	450	£47.19
	1½"	BSPF	RFCBFC0500	59	68	3	9	1	490	£58.98
	2"	BSPF	RFCBFC0630	74	81	3	10	1	950	£84.10
	2½"	BSPF	RFCBFC0750	93	94	3	16	1	1357	£164.40
	3"	BSPF	RFCBFC0900	105	103	5	14	1	1663	£220.85

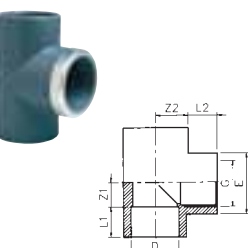
Composite union plain/BSP male taper brass threaded

	Nominal Size	G	Code	E	L1	Z1	Pack Qty	Weight (GR)	Price each
	½"	BSPTM	RFCBMC0200	28	58	3	1	175	£25.09
	¾"	BSPTM	RFCBMC0250	36	69	3	1	238	£31.76
	1"	BSPTM	RFCBMC0320	42	72	3	1	324	£42.11
	1¼"	BSPTM	RFCBMC0400	53	86	3	1	469	£52.60
	1½"	BSPTM	RFCBMC0500	59	92	3	1	595	£72.48
	2"	BSPTM	RFCBMC0630	74	109	3	1	982	£103.10
	2½"	BSPTM	RFCBMC0750	93	127	3	1	1663	£188.77
	3"	BSPTM	RFCBMC0900	105	139	5	1	2184	£272.11

Elbow 90° plain/BSP female threaded with stainless steel reinforcing ring

	Nominal Size	G	Code	L1	L2	Z1	Z2	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFRGOR0200	17	15	11	12	10	24	£6.91
	¾"	BSPF	RFRGOR0250	20	16	14	17	10	43	£7.77
	1"	BSPF	RFRGOR0320	23	19	17	20	10	72	£9.15
	1¼"	BSPF	RFRGOR0400	27	21	21	27	10	106	£16.99
	1½"	BSPF	RFRGOR0500	32	21	26	37	10	175	£18.80
	2"	BSPF	RFRGOR0630	39	26	33	46	10	289	£25.60

Tee 90° plain/BSP female threaded branch with stainless steel reinforcing ring

	Nominal Size	G	Code	L1	L2	Z1	Z2	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFRTIRO200	17	15	11	12	10	34	£8.30
	¾"	BSPF	RFRTIRO250	20	16	14	17	10	53	£9.00
	1"	BSPF	RFRTIRO320	23	19	17	20	10	87	£9.84
	1¼"	BSPF	RFRTIRO400	27	21	21	27	10	136	£16.99
	1½"	BSPF	RFRTIRO500	32	21	26	37	10	215	£19.57
	2"	BSPF	RFRTIRO630	39	26	33	46	5	359	£26.73

Prices shown are for one item excluding VAT

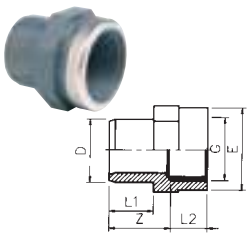
PVCu adaptor fittings

Fittings up to 4" 15 bar (20°C)

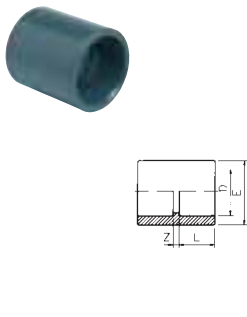
Socket plain/BSP female threaded with stainless steel reinforcing ring

	Nominal Size	G	Code	L1	L2	Z	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFRMAR0200	17	15	4	28	10	22	£6.23
	¾"	BSPF	RFRMAR0250	20	16	6	34	10	33	£6.78
	1"	BSPF	RFRMAR0320	23	19	6	42	10	50	£7.93
	1¼"	BSPF	RFRMAR0400	27	21	8	51	10	76	£11.52
	1½"	BSPF	RFRMAR0500	32	21	13	61	10	115	£13.20
	2"	BSPF	RFRMAR0630	39	26	15	75	10	189	£16.60

Spigot plain/BSP female threaded with stainless steel reinforcing ring

	Nominal Size	G	Code	L1	L2	E	Z	Pack Qty	Weight (GR)	Price each
	½"	BSPF	RFRAFRO200	17	15	28	24	10	24	£4.77
	¾"	BSPF	RFRAFRO250	20	16	34	27	10	33	£5.52
	1"	BSPF	RFRAFRO320	23	19	42	30	10	55	£6.99
	1¼"	BSPF	RFRAFRO400	27	21	51	36	10	81	£8.92
	1½"	BSPF	RFRAFRO500	32	21	58	41	10	93	£11.00
	2"	BSPF	RFRAFRO630	39	26	72	44	10	159	£14.74

Adaptor socket plain

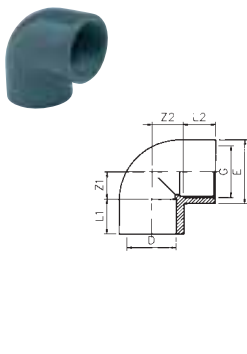
	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	½" x 20	RFBMAB0200	16	3	27	10	16	£1.92
	¾" x 25	RFBMAB0250	19	3	33	10	25	£2.01
	1" x 32	RFBMAB0320	22	3	41	10	39	£2.50
	1¼" x 40	RFBMAB0400	27	3	52	10	53	£3.79
	1½" x 50	RFBMAB0500	32	3	61	10	101	£5.42
	2" x 63	RFBMAB0630	39	3	75	10	178	£12.34
	3" x 90	RFBMAB0900	52	5	10	1	381	£22.15
	4" x 110	RFBMAB1100	67	6	133	1	750	£36.05
6" x 160	RFBMAB1600	89	8	198	1	1695	£89.21	

Prices shown are for one item excluding VAT

PVCu threaded fittings

Suitable for use with class 7 threaded pipe max.12 bar (20°C). For gaskets see Accessories section

Elbow 90° BSP female threaded

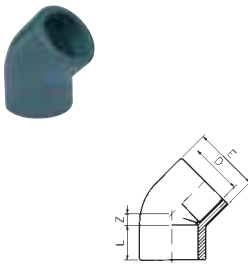
	Nominal Size	G	Code	L1-L2	Z1-Z2	E	Pack Qty	Weight (GR)	Price each
	¾"	BSPF	RFFGOF0160	11	12	24	10	15	£6.61
	½"	BSPF	RFFGOF0200	15	12	28	10	22	£6.81
	¾"	BSPF	RFFGOF0250	16	17	34	10	37	£7.08
	1"	BSPF	RFFGOF0320	19	20	42	10	60	£8.76
	1¼"	BSPF	RFFGOF0400	21	26	51	10	95	£15.54
	1½"	BSPF	RFFGOF0500	21	36	62	10	180	£18.19
	2"	BSPF	RFFGOF0630	26	45	77	10	310	£27.04
	2½"	BSPF	RFFGOF0750	30	53	89	1	425	£46.39
3"	BSPF	RFFGOF0900	33	65	106	1	740	£70.37	
4"	BSPF	RFFGOF1100	39	79	129	1	1050	£100.62	

Prices shown are for one item excluding VAT

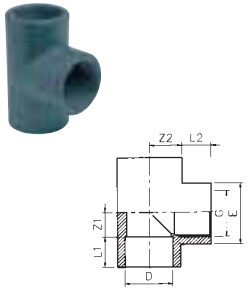
PVCu threaded fittings

Suitable for use with class 7 threaded pipe max.12 bar (20°C). For gaskets see Accessories section

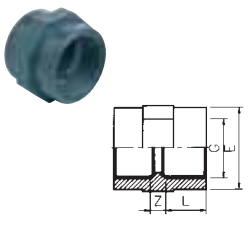
Elbow 45° BSP female threaded

	Nominal Size	G	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	3/8"	BSPF	RFFGYF0160	11	8	24	10	10	£5.14
	1/2"	BSPF	RFFGYF0200	15	6	28	10	18	£6.38
	3/4"	BSPF	RFFGYF0250	16	9	34	10	30	£6.87
	1"	BSPF	RFFGYF0320	19	11	42	10	50	£9.23
	1 1/4"	BSPF	RFFGYF0400	21	15	51	10	80	£14.00
	1 1/2"	BSPF	RFFGYF0500	21	22	62	10	155	£18.66
	2"	BSPF	RFFGYF0630	26	26	77	10	275	£27.56
	2 1/2"	BSPF	RFFGYF0750	30	31	89	1	360	£45.60
	3"	BSPF	RFFGYF0900	33	38	106	1	620	£67.32
4"	BSPF	RFFGYF1100	39	46	129	1	830	£74.38	

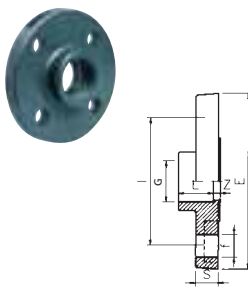
Tee 90° BSP female threaded

	Nominal Size	G	Code	L1-L2	Z1-Z2	E	Pack Qty	Weight (GR)	Price each
	3/8"	BSPF	RFFTIF0160	11	12	24	10	18	£4.97
	1/2"	BSPF	RFFTIF0200	15	12	28	10	30	£5.87
	3/4"	BSPF	RFFTIF0250	16	17	34	10	50	£7.54
	1"	BSPF	RFFTIF0320	19	20	42	10	75	£10.12
	1 1/4"	BSPF	RFFTIF0400	21	26	51	10	120	£18.07
	1 1/2"	BSPF	RFFTIF0500	21	36	62	10	240	£23.42
	2"	BSPF	RFFTIF0630	26	45	77	5	410	£39.37
	2 1/2"	BSPF	RFFTIF0750	30	53	89	1	540	£56.02
	3"	BSPF	RFFTIF0900	33	65	106	1	880	£80.37
4"	BSPF	RFFTIF1100	39	79	129	1	1310	£133.88	

Socket BSP female threaded

	Nominal Size	G	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	3/8"	BSPF	RFFMAF0160	11	6	23	10	8	£6.81
	1/2"	BSPF	RFFMAF0200	15	7	27	10	20	£7.08
	3/4"	BSPF	RFFMAF0250	16	7	33	10	25	£7.98
	1"	BSPF	RFFMAF0320	19	8	41	10	45	£9.56
	1 1/4"	BSPF	RFFMAF0400	21	8	50	10	65	£13.12
	1 1/2"	BSPF	RFFMAF0500	21	8	61	10	70	£15.15
	2"	BSPF	RFFMAF0630	26	8	75	10	125	£18.16
	2 1/2"	BSPF	RFFMAF0750	30	9	88	1	190	£40.02
	3"	BSPF	RFFMAF0900	33	10	106	1	290	£51.20
4"	BSPF	RFFMAF1100	39	11	129	1	460	£90.30	

Full face flange drilled to BS 4504 NP10/16 BSP female threaded

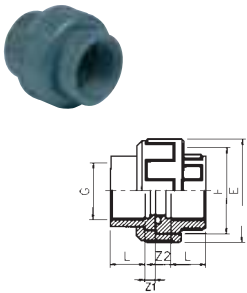
	Nominal Size	G	Code	L	Z	E	f	I	S	HOLES	Weight (GR)	Price each
	1/2"	BSPF	RFFFFF0200	15	5	95	14	65	8	4	78	£12.30
	3/4"	BSPF	RFFFFF0250	18	5	105	14	75	9	4	105	£12.79
	1"	BSPF	RFFFFF0320	19	5	115	14	85	16	4	143	£14.47
	1 1/4"	BSPF	RFFFFF0400	21	5	142	18	100	17	4	220	£16.41
	1 1/2"	BSPF	RFFFFF0500	21	5	152	18	110	17	4	280	£19.17
	2"	BSPF	RFFFFF0630	26	5	165	18	125	20	4	380	£24.98
	2 1/2"	BSPF	RFFFFF0750	30	6	185	18	145	22	4	520	£42.37
	3"	BSPF	RFFFFF0900	33	7	200	18	160	22	8	735	£47.19
	4"	BSPF	RFFFFF1100	40	8	220	18	180	23	8	940	£62.91

Prices shown are for one item excluding VAT

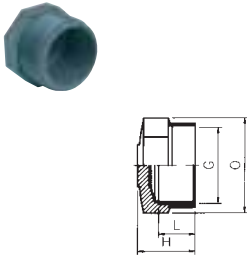
PVCu threaded fittings

Suitable for use with class 7 threaded pipe max.12 bar (20°C). For gaskets see Accessories section

Union BSP female threaded

	Nominal Size	G	Code	L	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
	3/8"	BSPF	RFFBOF0160	11	6	14	3/4"	34	10	27	£11.81
	1/2"	BSPF	RFFBOF0200	15	4	11	1"	42	10	45	£15.59
	3/4"	BSPF	RFFBOF0250	16	6	13	1 1/4"	52	10	72	£16.90
	1"	BSPF	RFFBOF0320	19	6	13	1 1/2"	59	10	100	£24.08
	1 1/4"	BSPF	RFFBOF0400	21	8	17	2"	72	10	160	£29.68
	1 1/2"	BSPF	RFFBOF0500	21	13	24	2 1/4"	79	10	264	£41.67
	2"	BSPF	RFFBOF0630	26	15	30	2 3/4"	96	5	455	£58.70
	2 1/2"*	BSPF	RFFBOF0750	30	17	32	3 1/2"	119	1	635	£92.87
	3"*	BSPF	RFFBOF0900	33	23	36	4"	134	1	905	£134.75
	4"*	BSPF	RFFBOF1100	39	27	40	5"	163	1	1355	£182.22

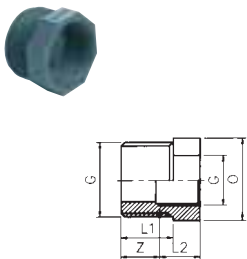
Plug BSP male threaded

	Nominal Size	G	Code	L	H	O	Pack Qty	Weight (GR)	Price each
	3/8"	BSPM	RFFTAF0160	11	23	19	10	8	£3.31
	1/2"	BSPM	RFFTAF0200	15	29	24	10	10	£4.19
	3/4"	BSPM	RFFTAF0250	16	30	30	10	15	£4.86
	1"	BSPM	RFFTAF0320	19	33	36	10	25	£5.96
	1 1/4"	BSPM	RFFTAF0400	21	39	46	10	40	£8.05
	1 1/2"	BSPM	RFFTAF0500	21	39	50	10	45	£10.12
	2"	BSPM	RFFTAF0630	26	43	65	10	80	£10.93
	2 1/2"	BSPM	RFFTAF0750	30	51	80	1	137	£23.62
	3"	BSPM	RFFTAF0900	33	56	95	1	210	£33.52
4"	BSPM	RFFTAF1100	39	63	120	1	340	£61.07	

Cap BSP female threaded

	Nominal Size	G	Code	L	H	E	Pack Qty	Weight (GR)	Price each
	3/8"	BSPF	RFFCAF0160	11	22	23	10	7	£5.42
	1/2"	BSPF	RFFCAF0200	15	21	28	10	15	£7.08
	3/4"	BSPF	RFFCAF0250	16	23	34	10	17	£8.05
	1"	BSPF	RFFCAF0320	19	26	42	10	20	£8.57
	1 1/4"	BSPF	RFFCAF0400	21	29	51	10	35	£8.85
	1 1/2"	BSPF	RFFCAF0500	21	32	61	10	50	£11.80
	2"	BSPF	RFFCAF0630	26	37	75	10	80	£14.75
	2 1/2"	BSPF	RFFCAF0750	30	50	89	10	190	£37.96
	3"	BSPF	RFFCAF0900	33	53	103	10	270	£44.22
4"	BSPF	RFFCAF1100	39	59	130	10	420	£50.40	

Reducing bush BSP male threaded/BSP female threaded


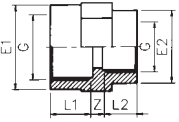
	Nominal Size	Code	L1	L2	Z	O	Pack Qty	Weight (GR)	Price each
	3/4" x 1/2"	RFFRCF025B	16	15	13	30	10	13	£4.45
	1" x 3/4"	RFFRCF032C	19	16	15	36	10	20	£5.96
	1 1/4" x 1"	RFFRCF040D	21	19	16	46	10	35	£13.22
	1 1/2" x 1 1/4"	RFFRCF050E	21	21	14	50	10	37	£14.21
	2" x 1 1/2"	RFFRCF063F	26	21	18	65	10	67	£18.53
	2 1/2" x 2"	RFFRCF075G	30	26	21	80	1	135	£20.48
	3" x 2 1/2"	RFFRCF090H	33	30	20	95	1	160	£25.12
	4" x 3"	RFFRCF110I	39	33	24	120	1	380	£41.02

Prices shown are for one item excluding VAT


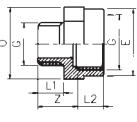
PVCu threaded fittings

Suitable for use with class 7 threaded pipe max.12 bar (20°C). For gaskets see Accessories section


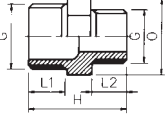
Reducing piece BSP female threaded/BSP female threaded

	Nominal Size	Code	L1	L2	Z	E1	E2	Pack Qty	Weight (GR)	Price each
 	½" x ¾"	RFFMRF020A	15	11	6	28	23	10	17	£5.76
	¾" x ½"	RFFMRF025B	16	15	7	34	27	10	25	£6.56
	1" x ¾"	RFFMRF032C	19	16	7	42	33	10	40	£7.77
	1¼" x 1"	RFFMRF040D	21	19	8	51	41	10	62	£10.54
	1½" x 1¼"	RFFMRF050E	21	21	8	58	50	10	72	£12.19
	2" x 1½"	RFFMRF063F	26	21	8	72	61	10	115	£14.99
	2½" x 2"	RFFMRF075G	30	26	8	89	75	1	128	£32.23
	3" x 2½"	RFFMRF090H	33	30	9	103	88	1	286	£41.28
	4" x 3"	RFFMRF110I	39	33	10	130	106	1	436	£71.70

Reducing piece BSP female threaded/BSP male threaded

	Nominal Size	Code	L1	L2	Z	O	E	Pack Qty	Weight (GR)	Price each
 	½" x ¾"	RFFMGF020A	11	15	22	30	28	10	16	£5.76
	¾" x ½"	RFFMGF025B	15	16	24	36	34	10	22	£6.56
	1" x ¾"	RFFMGF032C	16	19	26	46	42	10	37	£12.66
	1¼" x 1"	RFFMGF040D	19	21	30	55	51	10	59	£10.54
	1½" x 1¼"	RFFMGF050E	21	21	33	60	58	10	75	£12.19
	2" x 1½"	RFFMGF063F	21	26	34	75	72	10	110	£14.99
	2½" x 2"	RFFMGF075G	26	30	38	90	89	1	190	£32.23
	3" x 2½"	RFFMGF090H	30	33	44	105	103	1	262	£41.28
	4" x 3"	RFFMGF110I	33	39	48	130	130	1	350	£71.70

Reducing nipple BSP male threaded/BSP male threaded

	Nominal Size	Code	L1	L2	H	O	Pack Qty	Weight (GR)	Price each
 	½" x ¾"	RFFNRF020A	15	11	38	24	10	10	£3.31
	¾" x ½"	RFFNRF025B	16	15	43	30	10	17	£4.97
	1" x ¾"	RFFNRF032C	19	16	47	36	10	25	£6.67
	1¼" x 1"	RFFNRF040D	21	19	56	46	10	42	£7.95
	1½" x 1¼"	RFFNRF050E	21	21	58	50	10	48	£9.90
	2" x 1½"	RFFNRF063F	26	21	62	65	10	80	£15.59
	2½" x 2"	RFFNRF075G	30	26	73	80	1	138	£20.89
	3" x 2½"	RFFNRF090H	33	30	82	95	1	208	£25.95
	4" x 3"	RFFNRF110I	39	33	90	120	1	340	£41.84

Barrel nipple BSP male taper threaded

	Nominal Size	G	Code	L	H	Pack Qty	Weight (GR)	Price each
 	¾"	BSPT	RFFBAF0160	14	44	10	11	£3.98
	½"	BSPT	RFFBAF0200	16	50	10	13	£4.19
	¾"	BSPT	RFFBAF0250	19	56	10	20	£4.67
	1"	BSPT	RFFBAF0320	21	62	10	30	£6.26
	1¼"	BSPT	RFFBAF0400	24	75	10	51	£8.45
	1½"	BSPT	RFFBAF0500	32	87	10	83	£8.82
	2"	BSPT	RFFBAF0630	29	87	10	119	£11.80
	2½"	BSPT	RFFBAF0750	30	105	1	169	£26.48
	3"	BSPT	RFFBAF0900	37	128	1	243	£30.35
4"	BSPT	RFFBAF1100	42	156	1	485	£41.06	

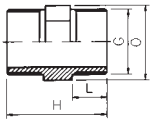
Prices shown are for one item excluding VAT

PVCu threaded fittings

Suitable for use with class 7 threaded pipe max.12 bar (20°C). For gaskets see Accessories section

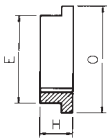
Hexagon nipple BSP male threaded/BSP male threaded

Nominal Size	G	Code	L	H	O	Pack Qty	Weight (GR)	Price each
3/8"	BSPM	RFFNIF0160	11	33	22	10	9	£3.31
1/2"	BSPM	RFFNIF0200	15	42	24	10	10	£3.47
3/4"	BSPM	RFFNIF0250	16	44	30	10	18	£4.38
1"	BSPM	RFFNIF0320	19	50	36	10	30	£5.96
1 1/4"	BSPM	RFFNIF0400	21	58	46	10	45	£8.11
1 1/2"	BSPM	RFFNIF0500	21	58	50	10	50	£8.82
2"	BSPM	RFFNIF0630	26	66	65	10	90	£11.23
2 1/2"	BSPM	RFFNIF0750	30	78	80	1	140	£20.06
3"	BSPM	RFFNIF0900	33	85	95	1	220	£28.75
4"	BSPM	RFFNIF1100	39	96	120	1	345	£40.86



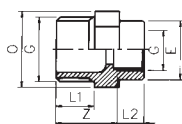
Backnut BSP female threaded

Nominal Size	G	Code	E	H	O	Pack Qty	Weight (GR)	Price each
1/2"	BSPF	RFFNUF0200	28	13	38	10	13	£2.67
3/4"	BSPF	RFFNUF0250	33	14	43	10	16	£2.85
1"	BSPF	RFFNUF0320	46	16	56	10	30	£5.03
1 1/4"	BSPF	RFFNUF0400	50	18	65	10	35	£11.17
1 1/2"	BSPF	RFFNUF0500	60	19	72	10	45	£12.11
2"	BSPF	RFFNUF0630	80	21	94	10	90	£13.60
2 1/2"	BSPF	RFFNUF0750	95	23	105	1	180	£17.42
3"	BSPF	RFFNUF0900	110	27	125	1	235	£19.57
4"	BSPF	RFFNUF1100	140	31	154	1	350	£24.65



Reducing piece BSP male threaded/BSP female threaded

Nominal Size	Code	L1	L2	Z	E	O	Pack Qty	Weight (GR)	Price each
1/2" x 3/8"	RFFRIF020A	15	11	24	23	24	10	12	£3.31
3/4" x 3/8"	RFFRIF025A	16	11	25	23	30	10	16	£4.97
3/4" x 1/2"	RFFRIF025B	16	15	26	28	30	10	20	£4.97
1" x 3/8"	RFFRIF032A	19	11	28	23	36	10	25	£6.67
1" x 1/2"	RFFRIF032B	19	15	29	28	36	10	26	£6.67
1" x 3/4"	RFFRIF032C	19	16	30	34	36	10	26	£6.67
1 1/4" x 1/2"	RFFRIF040B	21	15	33	28	46	10	42	£8.05
1 1/4" x 3/4"	RFFRIF040C	21	16	33	34	46	10	43	£8.05
1 1/4" x 1"	RFFRIF040D	21	19	33	42	46	10	46	£8.05
1 1/2" x 3/4"	RFFRIF050C	21	16	34	34	50	10	46	£9.73
1 1/2" x 1"	RFFRIF050D	21	19	34	42	50	10	50	£9.73
1 1/2" x 1 1/4"	RFFRIF050E	21	21	34	51	55	10	60	£9.73
2" x 1"	RFFRIF063D	26	19	37	42	65	10	85	£15.59
2" x 1 1/4"	RFFRIF063E	26	21	37	51	65	10	85	£15.59
2" x 1 1/2"	RFFRIF063F	26	21	37	58	65	10	87	£15.59
2 1/2" x 1 1/4"	RFFRIF075E	30	21	43	51	80	1	140	£20.89
2 1/2" x 1 1/2"	RFFRIF075F	30	21	43	58	80	1	138	£20.89
2 1/2" x 2"	RFFRIF075G	30	26	43	72	80	1	142	£20.89
3" x 1 1/2"	RFFRIF090F	33	21	47	58	95	1	200	£25.95
3" x 2"	RFFRIF090G	33	26	47	72	95	1	205	£25.95
3" x 2 1/2"	RFFRIF090H	33	30	47	89	95	1	215	£25.95
4" x 2"	RFFRIF110G	39	26	53	72	120	1	325	£41.84
4" x 2 1/2"	RFFRIF110H	39	30	53	89	120	1	330	£41.84
4" x 3"	RFFRIF110I	39	33	53	103	120	1	350	£41.84

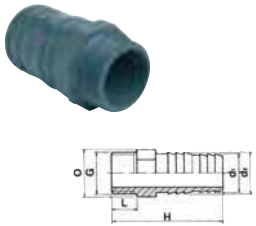


Prices shown are for one item excluding VAT

PVCu threaded fittings

Suitable for use with class 7 threaded pipe max.12 bar (20°C). For gaskets see Accessories section

Hose adaptor BSP male threaded/spigot serrated

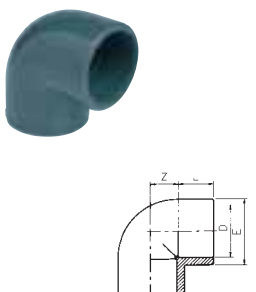
	Nominal Size	Code	L	H	D1	D2	O	Pack Qty	Weight (GR)	Price each
	3/8" x 16	RFFPGF016A	12	64	16	18	19	1	15	£3.82
	1/2" x 20	RFFPGF020B	15	70	20	22	24	1	20	£3.99
	3/4" x 25	RFFPGF025C	17	76	25	27	30	1	30	£5.28
	1" x 32	RFFPGF032D	20	80	32	34	36	1	50	£6.27
	1 1/4" x 40	RFFPGF040E	22	92	40	42	46	1	70	£9.19
	1 1/2" x 50	RFFPGF050F	23	99	50	52	50	1	118	£10.96
	2" x 63	RFFPGF063G	26	118	60	63	65	1	190	£16.92

Prices shown are for one item excluding VAT

PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Elbow 90° plain

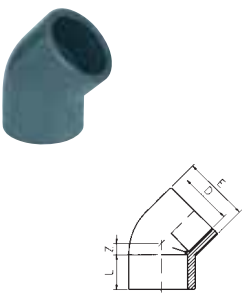
	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	16	RFIGOI0160	14	9	23	10	13	£1.38
	20	RFIGOI0200	16	11	27	10	20	£1.80
	25	RFIGOI0250	19	14	33	10	35	£2.08
	32	RFIGOI0320	22	17	41	10	60	£2.56
	40	RFIGOI0400	26	23	50	10	90	£4.52
	50	RFIGOI0500	31	28	61	10	135	£5.75
	63	RFIGOI0630	38	34	75	5	220	£8.81
	75	RFIGOI0750	44	40	89	1	375	£20.18
	90	RFIGOI0900	51	48	106	1	600	£25.79
	110	RFIGOI1100	61	58	129	1	1060	£39.16
	125	RFIGOI1250	69	66	145	1	1350	£75.89
	140	RFIGOI1400	76	72	164	1	2000	£106.66
	160	RFIGOI1600	86	81	188	1	3200	£151.85
	200*	RFIGOI2000	106	102	232	1	5850	£306.64
	225*	RFIGOI2250	119	115	258	1	7500	£421.39
250*	RFIGOI2500	131	188	287	1	12480	£1,016.54	
280*	RFIGOI2800	147	210	325	1	17000	POA	
315*	RFIGOI3150	164	236	359	1	23370	£1,332.64	

Prices shown are for one item excluding VAT

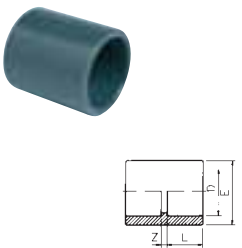
PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Elbow 45° plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	16	RFIGY10160	14	6	23	10	10	£2.69
	20	RFIGY10200	16	11	27	10	17	£2.93
	25	RFIGY10250	19	6	33	10	30	£3.17
	32	RFIGY10320	22	8	41	10	47	£3.64
	40	RFIGY10400	26	10	50	10	77	£5.34
	50	RFIGY10500	31	12	61	10	115	£5.79
	63	RFIGY10630	38	15	75	10	190	£9.97
	75	RFIGY10750	44	18	89	1	310	£18.83
	90	RFIGY10900	51	21	106	1	485	£23.40
	110	RFIGY11100	61	25	128	1	835	£49.61
	125	RFIGY11250	69	27	145	1	1080	£76.40
	140	RFIGY11400	76	32	164	1	1640	£98.91
	160	RFIGY11600	86	36	184	1	2100	£115.60
	200*	RFIGY12000	106	43	232	1	5000	£248.11
	225*	RFIGY12250	119	49	258	1	6200	£319.06
	250*	RFIGY12500	131	58	286	1	7700	£755.00
280*	RFIGY12800	146	62	320	1	10460	POA	
315*	RFIGY13150	164	66	359	1	15500	£1,406.72	

Socket plain

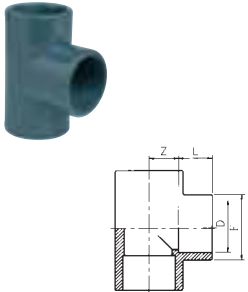
	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	16	RFIMAI0160	14	3	23	10	9	£1.24
	20	RFIMAI0200	16	3	27	10	15	£1.30
	25	RFIMAI0250	19	3	33	10	23	£1.48
	32	RFIMAI0320	22	3	41	10	36	£1.63
	40	RFIMAI0400	26	3	50	10	60	£2.58
	50	RFIMAI0500	31	3	61	10	85	£3.24
	63	RFIMAI0630	38	3	75	10	145	£4.65
	75	RFIMAI0750	44	4	88	1	222	£11.89
	90	RFIMAI0900	51	5	106	1	353	£18.22
	110	RFIMAI1100	61	6	129	1	605	£26.08
	125	RFIMAI1250	69	7	145	1	840	£42.83
	140	RFIMAI1400	76	8	161	1	1100	£61.82
	160	RFIMAI1600	86	8	182	1	1400	£66.38
	200	RFIMAI2000	106	10	227	1	2600	£158.79
	225*	RFIMAI2250	119	11	258	1	4100	£189.72
	250*	RFIMAI2500	131	11	272	1	6000	£325.81
280*	RFIMAI2800	146	10	320	1	7630	POA	
315*	RFIMAI3150	164	12	355	1	9780	£640.03	

Prices shown are for one item excluding VAT

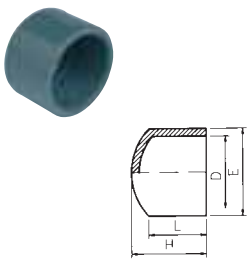
PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

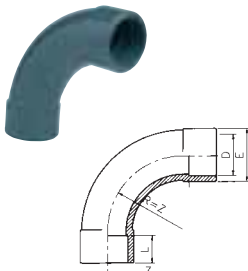
Tee 90° plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	16	RFITII0160	14	9	24	10	15	£1.62
	20	RFITII0200	16	11	28	10	25	£2.08
	25	RFITII0250	19	14	34	10	44	£2.48
	32	RFITII0320	22	17	42	10	75	£3.37
	40	RFITII0400	26	21	51	10	120	£4.75
	50	RFITII0500	31	26	61	10	172	£7.52
	63	RFITII0630	38	33	75	5	300	£11.28
	75	RFITII0750	44	39	89	1	495	£23.69
	90	RFITII0900	51	47	106	1	790	£32.59
	110	RFITII1100	61	57	129	1	1330	£49.92
	125	RFITII1250	69	67	146	1	2100	£102.01
	140	RFITII1400	76	71	163	1	2550	£156.21
	160	RFITII1600	86	81	188	1	4100	£171.23
	200*	RFITII2000	106	102	232	1	7200	£358.27
	225*	RFITII2250	119	114	258	1	9700	£388.61
250*	RFITII2500	131	128	286	1	13250	£765.34	
280*	RFITII2800	146	144	319	1	17840	POA	
315*	RFITII3150	164	162	360	1	25300	£1,600.04	

Cap plain

	Nominal Size	Code	L	H	E	Pack Qty	Weight (GR)	Price each
	16	RFICAI0160	14	26	23	10	7	£1.09
	20	RFICAI0200	16	30	27	10	10	£1.24
	25	RFICAI0250	19	34	33	10	18	£1.39
	32	RFICAI0320	22	38	42	10	30	£1.48
	40	RFICAI0400	26	43	50	10	45	£2.50
	50	RFICAI0500	31	48	61	10	65	£3.64
	63	RFICAI0630	38	56	75	10	110	£4.72
	75	RFICAI0750	44	67	89	1	208	£14.22
	90	RFICAI0900	51	78	106	1	325	£15.21
	110	RFICAI1100	61	81	128	1	500	£23.31
	125	RFICAI1250	69	103	145	1	670	£41.06
	140	RFICAI1400	76	114	162	1	920	£47.76
	160*	RFICAI1600	86	127	181	1	1120	£60.80
200*	RFICAI2000	106	145	227	1	1680	£145.65	
225*	RFICAI2250	120	165	255	1	2978	£158.27	

Bend 90° short radius plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	20	RFICUI0200	16	40	27	1	30	£6.76
	25	RFICUI0250	19	50	33	1	50	£8.36
	32	RFICUI0320	22	64	41	1	92	£13.16
	40	RFICUI0400	26	80	50	1	165	£15.98
	50	RFICUI0500	31	100	61	1	270	£19.47
	63	RFICUI0630	38	126	76	1	490	£25.47
	75	RFICUI0750	44	150	90	1	990	£59.13
	90	RFICUI0900	51	180	110	1	1600	£64.98
	110	RFICUI1100	61	220	132	1	2150	£112.58

Prices shown are for one item excluding VAT

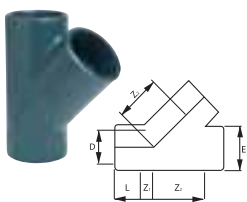
PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Reducing socket plain

	Nominal Size	Code	L1	L2	Z	E1	E2	Pack Qty	Weight (GR)	Price each
	20 x 16	RFIMRI020A	16	14	6	25	23	10	15	£1.39
	25 x 20	RFIMRI025B	19	16	6	32	28	10	25	£1.48
	32 x 25	RFIMRI032C	22	19	6	40	33	10	35	£2.26
	40 x 32	RFIMRI040D	26	22	10	50	41	10	75	£2.39
	50 x 40	RFIMRI050E	31	26	12	63	50	10	110	£2.91
	63 x 40	RFIMRI063E	38	26	17	75	50	10	140	£5.72
	63 x 50	RFIMRI063F	38	31	12	75	61	10	130	£5.72
	75 x 63	RFIMRI075G	44	38	18	90	75	1	295	£11.82
	90 x 75	RFIMRI090H	51	44	16	100	88	1	525	£14.59
	110 x 90	RFIMRI110I	61	51	17	125	106	1	530	£24.85
	125 x 110	RFIMRI125L	69	61	17	140	129	1	580	£36.11
	140 x 110	RFIMRI140L	76	61	18	160	129	1	905	£46.43

Tee 45° plain

	Nominal Size	Code	L	Z1	Z2	E	Weight (GR)	Price each
	20	RFITYI0200	16	7	29	27	36	£9.84
	25	RFITYI0250	19	7	36	33	59	£10.52
	32	RFITYI0320	22	8	44	42	103	£11.84
	40	RFITYI0400	26	10	54	50	125	£14.54
	50	RFITYI0500	31	12	65	61	254	£18.29
	63	RFITYI0630	38	14	80	74	420	£28.32

Cross 90° plain

	Nominal Size	Code	L	Z	E	Weight (GR)	Price each
	20	RFICXI0200	16	11	28	30	£4.82
	25	RFICXI0250	19	14	34	60	£7.14
	32	RFICXI0320	22	17	42	110	£8.62
	40	RFICXI0400	26	21	51	180	£12.39
	50	RFICXI0500	31	26	61	270	£15.60
	63	RFICXI0630	38	33	75	510	£21.30

Tee 90° reduced on branch plain

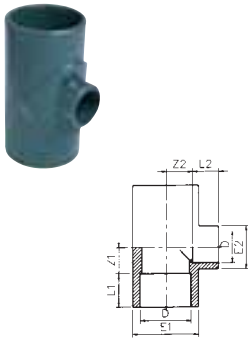
	Nominal Size	Code	L1	L2	Z1	Z2	E1	E2	Weight (GR)	Price each
	20 x 16	RFITRI020A	16	14	11	11	28	24	26	£1.75
	25 x 16	RFITRI025A	19	14	14	14	34	28	40	£2.08
	25 x 20	RFITRI025B	19	16	14	14	34	28	42	£2.48
	32 x 16	RFITRI032A	22	14	17	17	42	24	68	£3.33
	32 x 20	RFITRI032B	22	16	17	17	42	28	69	£3.33
	32 x 25	RFITRI032C	22	19	17	17	42	34	70	£3.33
	40 x 16	RFITRI040A	26	14	21	21	51	23	100	£4.84
	40 x 20	RFITRI040B	26	16	21	21	51	28	105	£4.84
	40 x 25	RFITRI040C	26	19	21	21	51	34	107	£4.84

Prices shown are for one item excluding VAT

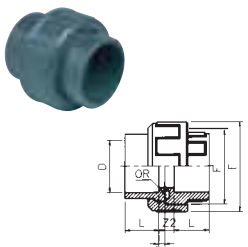
PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Tee 90° reduced on branch plain

	Nominal Size	Code	L1	L2	Z1	Z2	E1	E2	Weight (GR)	Price each
	40 x 32	RFITRI040D	26	22	21	21	51	42	112	£4.84
	50 x 20	RFITRI050B	31	16	26	26	61	28	155	£7.52
	50 x 25	RFITRI050C	31	19	26	26	61	34	157	£7.52
	50 x 32	RFITRI050D	31	22	26	26	61	42	162	£7.52
	50 x 40	RFITRI050E	31	26	26	26	61	51	168	£7.52
	63 x 25	RFITRI063C	38	19	33	33	75	34	270	£11.28
	63 x 32	RFITRI063D	38	22	33	33	75	42	275	£11.28
	63 x 40	RFITRI063E	38	26	33	33	75	51	277	£11.28
	63 x 50	RFITRI063F	38	31	33	33	75	61	278	£11.28
	75 x 40	RFITRI075E	44	26	39	39	89	51	465	£19.89
	75 x 50	RFITRI075F	44	31	39	39	89	61	465	£19.89
	75 x 63	RFITRI075G	44	38	39	39	89	75	478	£19.89
	90 x 50	RFITRI090F	51	31	47	47	106	61	703	£32.59
	90 x 63	RFITRI090G	51	38	47	47	106	75	713	£32.59
	90 x 75	RFITRI090H	51	44	47	47	106	89	730	£32.59
	110 x 50	RFITRI110F	61	31	57	57	129	61	1250	£49.49
	110 x 63	RFITRI110G	61	38	57	57	130	75	1265	£49.49
110 x 75	RFITRI110H	61	44	57	57	130	89	1260	£49.49	
110 x 90	RFITRI110I	61	51	57	57	130	106	1295	£49.49	
160 x 90	RFITRI160I	86	51	82	82	188	106	3750	£169.75	
160 x 110	RFITRI160L	86	61	82	82	188	129	3800	£169.75	
160 x 140	RFITRI160N	86	76	82	82	184	163	3940	£169.75	

Union plain. Unions up to 63mm 16 bar (20°C), above 63mm 10 bar (20°C). Supplied with EPDM O ring - for FPM O ring see Accessories section

	Nominal Size	Code	L	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
	16	RFIBOI0160	14	3	10	3/4"	34	10	30	£5.26
	20	RFIBOI0200	16	3	10	1"	42	10	42	£6.19
	25	RFIBOI0250	19	3	10	1 1/4"	52	10	70	£7.69
	32	RFIBOI0320	22	3	10	1 1/2"	59	10	97	£9.55
	40	RFIBOI0400	26	3	12	2"	72	10	115	£11.37
	50	RFIBOI0500	31	3	14	2 1/4"	79	10	216	£15.98
	63	RFIBOI0630	38	3	18	2 3/4"	96	10	350	£21.23
	75*	RFIBOI0750	44	3	18	3 1/2"	119	1	580	£62.96
	90*	RFIBOI0900	51	5	18	4"	134	1	760	£86.03
	110*	RFIBOI1100	61	5	18	5"	163	1	1340	£104.54

Prices shown are for one item excluding VAT

PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Full faced flange drilled to BS4504 NP10/16 plain

	Nominal Size	Code	L	Z	E	I	f	HOLES	S	Weight (GR)	Price each
	20	RFIFFI0200	16	5	95	65	14	4	11	78	£7.10
	25	RFIFFI0250	19	5	105	75	14	4	12	105	£7.22
	32	RFIFFI0320	22	5	115	85	14	4	14	143	£9.34
	40	RFIFFI0400	26	5	142	100	18	4	15	220	£10.95
	50	RFIFFI0500	31	5	152	110	18	4	16	280	£12.90
	63	RFIFFI0630	38	5	165	125	18	4	18	380	£16.37
	75	RFIFFI0750	44	6	185	145	18	4	19	505	£26.97
	90	RFIFFI0900	51	7	200	160	18	8	20	685	£30.47
	110	RFIFFI1100	61	8	220	180	18	8	22	940	£42.29

Blanking flange drilled to BS4504 NP10/16. Operating pressure show at 20°C

	Nominal Size	Code	E	S	I	f	HOLES	Weight (GR)	Price each
	20	RFIFCI0200	95	11	65	14	4	76	£23.62
	25	RFIFCI0250	105	12	75	14	4	104	£26.87
	32	RFIFCI0320	115	14	85	14	4	140	£34.65
	40	RFIFCI0400	142	15	100	18	4	220	£36.49
	50	RFIFCI0500	152	16	110	18	4	280	£39.44
	63	RFIFCI0630	165	18	125	18	4	370	£44.16
	75	RFIFCI0750	185	19	145	18	4	495	£66.15
	90	RFIFCI0900	200	20	160	18	8	655	£78.05
	110	RFIFCI1100	220	22	180	18	8	850	£100.39
	125	RFIFCI1250	230	24	190	18	8	950	£106.30
	140	RFIFCI1400	250	26	210	18	8	1165	£156.87
	160	RFIFCI1600	285	28	240	22	8	1610	£176.26
	200	RFIFCI2000	340	30	295	22	8	2480	£197.10
	225	RFIFCI2250	340	30	295	22	8	2480	£326.80

Reducing bush plain

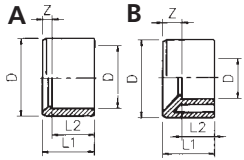
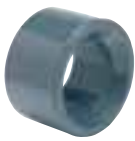
	Nominal Size	Code	L1	L2	Z	FIG	Pack Qty	Weight (GR)	Price each
	20 x 16	RFIRCI020A	16	14	2	A	10	3	£1.09
	25 x 16	RFIRCI025A	19	14	5	B	10	10	£1.24
	25 x 20	RFIRCI025B	19	16	3	A	10	6	£1.24
	32 x 16	RFIRCI032A	22	14	8	B	10	15	£1.55
	32 x 20	RFIRCI032B	22	16	6	B	10	15	£1.55
	32 x 25	RFIRCI032C	22	19	3	A	10	10	£1.55
	40 x 20	RFIRCI040B	26	16	10	B	10	25	£2.09
	40 x 25	RFIRCI040C	26	19	7	B	10	30	£2.09
	40 x 32	RFIRCI040D	26	22	4	A	10	16	£2.09

Prices shown are for one item excluding VAT

PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Reducing bush plain



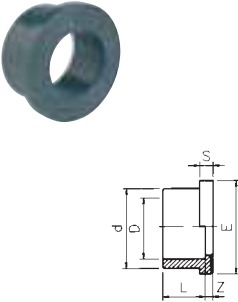
Nominal Size	Code	L1	L2	Z	FIG	Pack Qty	Weight (GR)	Price each
50 x 25	RFIRCI050C	31	19	12	B	10	45	£2.50
50 x 32	RFIRCI050D	31	22	9	B	10	40	£2.50
50 x 40	RFIRCI050E	31	26	5	A	10	30	£2.50
63 x 32	RFIRCI063D	38	22	16	B	10	83	£3.24
63 x 40	RFIRCI063E	38	26	12	B	10	78	£3.24
63 x 50	RFIRCI063F	38	31	7	A	10	61	£3.32
75 x 40	RFIRCI075E	44	26	18	B	1	120	£6.19
75 x 50	RFIRCI075F	44	31	13	B	1	122	£6.19
75 x 63	RFIRCI075G	44	38	6	A	1	80	£6.19
90 x 50	RFIRCI090F	51	31	20	B	1	210	£10.73
90 x 63	RFIRCI090G	51	38	13	B	1	195	£10.73
90 x 75	RFIRCI090H	51	44	7	A	1	140	£10.73
110 x 63	RFIRCI110G	61	38	23	B	1	372	£14.74
110 x 75	RFIRCI110H	61	44	17	B	1	370	£15.22
110 x 90	RFIRCI110I	61	51	10	A	1	275	£15.22
125 x 75	RFIRCI125H	69	44	25	B	1	412	£24.94
125 x 90	RFIRCI125I	69	51	18	B	1	450	£24.94
125 x 110	RFIRCI125L	69	61	8	A	1	275	£24.94
140 x 90	RFIRCI140I	76	51	25	B	1	550	£32.40
140 x 110	RFIRCI140L	76	61	15	B	1	510	£32.40
140 x 125	RFIRCI140M	76	69	7	A	1	320	£32.40
160 x 110	RFIRCI160L	86	61	25	B	1	820	£43.77
160 x 125	RFIRCI160M	86	69	17	B	1	725	£43.77
160 x 140	RFIRCI160N	86	76	10	A	1	555	£43.77
200 x 160*	RFIRCI200O	96	86	10	A	1	710	£87.03
225 x 160*	RFIRCI225O	119	86	33	B	1	1700	£127.38
225 x 200*	RFIRCI225P	119	106	13	A	1	1360	£127.38
250 x 160*	RFIRCI250O	132	87	45	B	1	3050	£269.71
250 x 200*	RFIRCI250P	132	97	35	A	1	3500	£269.71
250 x 225*	RFIRCI250Q	132	107	25	A	1	2150	£269.71
280 x 225*	RFIRCI280Q	146	119	27	B	1	2630	POA
315 x 200*	RFIRCI315P	165	107	58	B	1	8650	£429.06
315 x 225*	RFIRCI315Q	165	120	45	B	1	8100	£429.06
315 x 250*	RFIRCI315R	165	132	33	B	1	5080	£429.06

Prices shown are for one item excluding VAT

PVCu solvent cement fittings metric

Fittings up to 160mm 16 bar (20°C), fittings 200mm to 315mm 10 bar (20°C). * Maximum working pressure: 10 Bar (145 psi) at 20°C

Stub flange (serrated face) plain

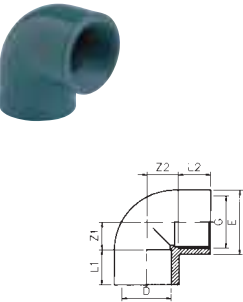
	Nominal Size	Code	L	Z	d	S	E	Pack Qty	Weight (GR)	Price each
	20	RFIQR10200	16	3	27	6	34	10	10	£1.48
	25	RFIQR10250	19	3	33	7	41	10	16	£1.63
	32	RFIQR10320	22	3	41	7	50	10	25	£2.09
	40	RFIQR10400	26	3	50	8	61	10	40	£3.24
	50	RFIQR10500	31	3	61	8	73	10	60	£3.35
	63	RFIQR10630	38	3	76	9	90	10	105	£8.63
	75	RFIQR10750	44	3	90	10	106	1	160	£14.16
	90	RFIQR10900	51	5	107	11	125	1	280	£16.13
	110	RFIQR11100	61	5	131	12	150	1	445	£22.64
	125	RFIQR11250	74	4	146	12	168	1	540	£44.54
	140	RFIQR11400	78	6	163	13	188	1	740	£47.69
	160	RFIQR11600	86	7	185	13	213	1	1000	£53.41
	200*	RFIQR12000	106	7	232	18	254	1	2000	£101.79
	225*	RFIQR12250	119	7	248	19	274	1	1700	£142.54
	250*	RFIQR12500	131	9	279	20	308	1	2300	£190.40
280*	RFIQR12800	147	15	307	32	327	1	3650	POA	
315*	RFIQR13150	165	16	346	32	377	1	4950	£347.02	

Prices shown are for one item excluding VAT

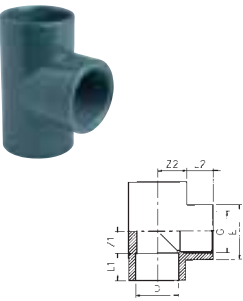
PVCu adaptor fittings metric

Fittings up to 110mm 16 bar (20°C)

Elbow 90° plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	16 x 3/8"	BSPF	RFPGOP016A	14	11	9	12	23	10	13	£2.65
	20 x 1/2"	BSPF	RFPGOP020B	16	15	11	12	28	10	20	£3.47
	25 x 3/4"	BSPF	RFPGOP025C	19	16	14	17	34	10	35	£3.94
	32 x 1"	BSPF	RFPGOP032D	22	19	17	20	42	10	60	£5.26
	40 x 1 1/4"	BSPF	RFPGOP040E	26	21	21	26	51	10	90	£10.73
	50 x 1 1/2"	BSPF	RFPGOP050F	31	21	26	36	61	10	155	£12.05
	63 x 2"	BSPF	RFPGOP063G	38	26	33	45	75	10	265	£17.38
	75 x 2 1/2"	BSPF	RFPGOP075H	44	30	39	53	89	1	400	£37.01
	90 x 3"	BSPF	RFPGOP090I	51	33	47	65	106	1	670	£42.29
	110 x 4"	BSPF	RFPGOP110L	61	39	57	79	129	1	1055	£48.77

Tee 90° plain/BSP female threaded branch


	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	16 x 3/8"	BSPF	RFPTIP016A	14	11	9	12	23	10	17	£2.86
	20 x 1/2"	BSPF	RFPTIP020B	16	15	11	12	28	10	30	£3.09
	25 x 3/4"	BSPF	RFPTIP025C	19	16	14	17	34	10	45	£4.25
	32 x 1"	BSPF	RFPTIP032D	22	19	17	20	42	10	75	£4.79
	40 x 1 1/4"	BSPF	RFPTIP040E	26	21	21	26	51	10	120	£7.58
	50 x 1 1/2"	BSPF	RFPTIP050F	31	21	26	36	61	10	195	£9.97
	63 x 2"	BSPF	RFPTIP063G	38	26	33	45	75	5	335	£14.99
	75 x 2 1/2"	BSPF	RFPTIP075H	44	30	39	53	89	1	505	£36.80
	90 x 3"	BSPF	RFPTIP090I	51	33	47	65	106	1	810	£32.45
	110 x 4"	BSPF	RFPTIP110L	61	39	57	79	129	1	1325	£56.03

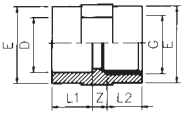
Prices shown are for one item excluding VAT

PVCu adaptor fittings metric

Fittings up to 110mm 16 bar (20°C)

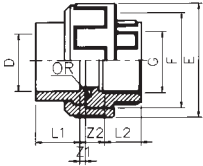
Socket plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	Z	E	Pack Qty	Weight (GR)	Price each
	16 x 3/8"	BSPF	RFPMAP016A	14	11	6	23	10	9	£2.86
	20 x 1/2"	BSPF	RFPMAP020B	17	15	4	28	10	18	£3.09
	25 x 3/4"	BSPF	RFPMAP025C	20	16	6	34	10	25	£3.35
	32 x 1"	BSPF	RFPMAP032D	23	19	7	42	10	38	£4.25
	40 x 1 1/4"	BSPF	RFPMAP040E	28	21	7	51	10	60	£6.64
	50 x 1 1/2"	BSPF	RFPMAP050F	32	21	7	61	10	95	£8.05
	63 x 2"	BSPF	RFPMAP063G	39	26	7	75	10	165	£10.67
	75 x 2 1/2"	BSPF	RFPMAP075H	44	30	8	89	1	215	£32.77
	90 x 3"	BSPF	RFPMAP090I	51	33	9	106	1	340	£35.03
	110 x 4"	BSPF	RFPMAP110L	61	39	10	129	1	550	£43.77



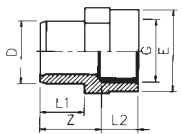
Union plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
	16 x 3/8"	BSPF	RFPBOP016A	14	11	3	14	3/4"	34	10	30	£9.97
	20 x 1/2"	BSPF	RFPBOP020B	16	15	3	11	1"	42	10	42	£11.44
	25 x 3/4"	BSPF	RFPBOP025C	19	16	3	13	1 1/4"	52	10	70	£12.19
	32 x 1"	BSPF	RFPBOP032D	22	19	3	13	1 1/2"	59	10	95	£15.88
	40 x 1 1/4"	BSPF	RFPBOP040E	26	21	3	17	2"	72	10	155	£18.28
	50 x 1 1/2"	BSPF	RFPBOP050F	31	21	3	24	2 1/4"	79	10	240	£26.56
	63 x 2"	BSPF	RFPBOP063G	38	26	3	30	2 3/4"	96	10	405	£39.98
	75 x 2 1/2"*	BSPF	RFPBOP075H	44	30	3	32	3 1/2"	119	1	625	£62.59
	90 x 3"*	BSPF	RFPBOP090I	51	33	5	36	4"	134	1	865	£85.90
	110 x 4"*	BSPF	RFPBOP110L	61	39	5	40	5"	163	1	1340	£104.54



Spigot plain/BSP female threaded

	Nominal Size	G	Code	L1	L2	E	Z	Pack Qty	Weight (GR)	Price each
	16 x 3/8"	BSPF	RFPAFP016A	14	12	23	22	10	16	£3.44
	20 x 1/2"	BSPF	RFPAFP020B	16	15	28	24	10	20	£3.53
	20 x 3/4"	BSPF	RFPAFP020C	16	16	34	24	10	25	£3.53
	25 x 1/2"	BSPF	RFPAFP025B	19	15	28	27	10	20	£4.22
	25 x 3/4"	BSPF	RFPAFP025C	19	16	34	27	10	25	£4.22
	25 x 1"	BSPF	RFPAFP025D	19	19	42	27	10	40	£4.22
	32 x 3/4"	BSPF	RFPAFP032C	22	16	34	30	10	32	£5.06
	32 x 1"	BSPF	RFPAFP032D	22	19	42	30	10	43	£5.06
	40 x 1"	BSPF	RFPAFP040D	26	19	42	36	10	50	£5.90
	40 x 1 1/4"	BSPF	RFPAFP040E	26	21	51	36	10	65	£5.90
	50 x 1 1/2"	BSPF	RFPAFP050F	31	21	58	41	10	73	£10.19
	50 x 2"	BSPF	RFPAFP050G	31	26	72	41	10	80	£10.19
	63 x 2"	BSPF	RFPAFP063G	38	26	72	48	10	135	£12.41
	75 x 2"	BSPF	RFPAFP075G	44	26	72	53	1	175	£20.52
	75 x 2 1/2"	BSPF	RFPAFP075H	44	30	89	58	1	225	£20.52
	75 x 3"	BSPF	RFPAFP075I	44	33	103	58	1	295	£20.52
90 x 2 1/2"	BSPF	RFPAFP090H	51	30	89	65	1	275	£29.46	
90 x 3"	BSPF	RFPAFP090I	51	33	103	65	1	310	£25.82	
90 x 4"	BSPF	RFPAFP090L	51	39	130	65	1	450	£29.46	
110 x 3"	BSPF	RFPAFP110I	61	33	103	76	1	440	£37.26	
110 x 4"	BSPF	RFPAFP110L	61	39	130	76	1	480	£37.26	

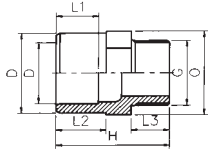


Prices shown are for one item excluding VAT

PVCu adaptor fittings metric

Fittings up to 110mm 16 bar (20°C)

Socket or spigot plain/BSP male threaded



Nominal Size	Code	L1	L2	L3	H	O	Pack Qty	Weight (GR)	Price each
12 x 16 x 3/8"	RFPAMP012A	12	14	11	36	22	10	9	£2.17
16 x 20 x 3/8"	RFPAMP016A	14	16	11	40	24	10	10	£2.17
16 x 20 x 1/2"	RFPAMP016B	14	16	15	43	24	10	11	£2.17
20 x 25 x 3/8"	RFPAMP020A	16	19	11	43	30	10	15	£2.24
20 x 25 x 1/2"	RFPAMP020B	16	19	15	46	30	10	15	£2.24
20 x 25 x 3/4"	RFPAMP020C	16	19	16	47	30	10	18	£2.24
25 x 32 x 1/2"	RFPAMP025B	19	22	15	49	36	10	25	£2.61
25 x 32 x 3/4"	RFPAMP025C	19	22	16	50	36	10	26	£2.61
25 x 32 x 1"	RFPAMP025D	19	22	19	53	36	10	30	£2.61
32 x 40 x 3/4"	RFPAMP032C	22	26	16	54	46	10	35	£3.21
32 x 40 x 1"	RFPAMP032D	22	26	19	57	46	10	40	£3.21
32 x 40 x 1 1/4"	RFPAMP032E	22	26	21	60	46	10	45	£3.21
40 x 50 x 1"	RFPAMP040D	26	31	19	64	55	10	68	£6.43
40 x 50 x 1 1/4"	RFPAMP040E	26	31	21	67	55	10	75	£6.43
40 x 50 x 1 1/2"	RFPAMP040F	26	31	21	67	55	10	77	£6.43
50 x 63 x 1 1/4"	RFPAMP050E	31	38	21	74	65	10	110	£9.34
50 x 63 x 1 1/2"	RFPAMP050F	31	38	21	74	65	10	113	£9.34
50 x 63 x 2"	RFPAMP050G	31	38	26	78	65	10	120	£9.34
63 x 75 x 1 1/2"	RFPAMP063F	38	44	21	80	80	1	160	£14.92
63 x 75 x 2"	RFPAMP063G	38	44	26	84	80	1	150	£14.92
63 x 75 x 2 1/2"	RFPAMP063H	38	44	30	91	80	1	170	£14.92
75 x 90 x 2"	RFPAMP075G	44	52	26	94	95	1	270	£26.35
75 x 90 x 2 1/2"	RFPAMP075H	44	52	30	99	95	1	270	£26.35
75 x 90 x 3"	RFPAMP075I	44	52	33	102	95	1	280	£26.35
90 x 110 x 2 1/2"	RFPAMP090H	51	61	30	110	115	1	460	£30.07
90 x 110 x 3"	RFPAMP090I	51	61	33	113	115	1	475	£30.07
90 x 110 x 4"	RFPAMP090L	51	61	39	118	115	1	485	£30.07
110 x 125 x 3"	RFPAMP110I	61	66	33	115	130	1	475	£39.02
110 x 125 x 4"	RFPAMP110L	61	66	39	120	130	1	500	£39.02

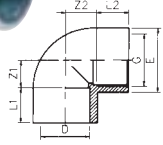
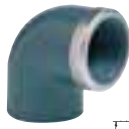
Prices shown are for one item excluding VAT

Sales and enquiries please contact: 08452 700886

PVCu adaptor fittings metric

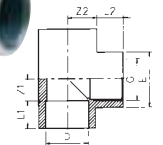
Fittings up to 110mm 16 bar (20°C)

Elbow 90° Plain/BSP Female with Stainless Reinforcing Ring



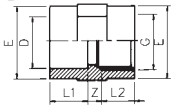
Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
20 x 1/2"	BSPF	RFRGER0200	16	15	11	12	28	10	24	£5.23
25 x 3/4"	BSPF	RFRGER0250	19	16	14	17	34	10	43	£6.15
32 x 1"	BSPF	RFRGER0320	22	19	17	20	42	10	72	£7.45
40 x 1 1/4"	BSPF	RFRGER0400	26	21	21	26	51	10	106	£10.32
50 x 1 1/2"	BSPF	RFRGER0500	31	21	26	36	61	10	175	£12.97
63 x 2"	BSPF	RFRGER0630	38	26	33	45	75	10	289	£18.28

Tee 90° plain/BSP female threaded branch with stainless steel reinforcing ring



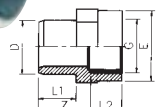
Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
20 x 1/2"	BSPF	RFRTER0200	16	15	11	12	28	10	34	£5.66
25 x 3/4"	BSPF	RFRTER0250	19	16	14	17	34	10	53	£7.33
32 x 1"	BSPF	RFRTER0320	22	19	17	20	42	10	87	£7.54
40 x 1 1/4"	BSPF	RFRTER0400	27	21	21	26	51	10	136	£12.09
50 x 1 1/2"	BSPF	RFRTER0500	32	21	26	36	61	10	215	£15.07
63 x 2"	BSPF	RFRTER0630	39	26	33	45	75	5	359	£20.64

Socket plain/BSP female threaded with stainless steel reinforcing ring



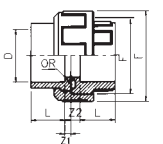
Nominal Size	G	Code	L1	L2	Z	E	Pack Qty	Weight (GR)	Price each
20 x 1/2"	BSPF	RFRMER0200	16	15	4	28	10	22	£5.23
25 x 3/4"	BSPF	RFRMER0250	19	16	6	34	10	33	£5.52
32 x 1"	BSPF	RFRMER0320	22	19	6	42	10	50	£6.53
40 x 1 1/4"	BSPF	RFRMER0400	27	21	8	51	10	76	£9.39
50 x 1 1/2"	BSPF	RFRMER0500	32	21	13	61	10	115	£11.06
63 x 2"	BSPF	RFRMER0630	39	26	15	75	10	189	£14.00

Spigot plain/BSP female threaded with stainless steel reinforcing ring



Nominal Size	G	Code	L1	L2	E	Z	Pack Qty	Weight (GR)	Price each
20 x 1/2"	BSPF	RFRAER0200	16	15	28	24	10	24	£5.70
25 x 3/4"	BSPF	RFRAER0250	19	16	34	27	10	33	£6.47
32 x 1"	BSPF	RFRAER0320	22	19	42	30	10	55	£7.39
40 x 1 1/4"	BSPF	RFRAER0400	27	21	51	36	10	81	£8.68
50 x 1 1/2"	BSPF	RFRAER0500	32	21	58	41	10	93	£13.30
63 x 2"	BSPF	RFRAER0630	39	26	72	44	10	159	£15.60

Union plain Unions up to 63mm 15 bar (20°C), above 63mm 10 bar (20°C)



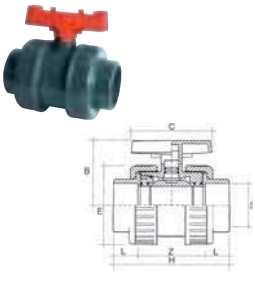
Nominal Size	Code	L	Z1	Z2	F	E	Weight (GR)	Price each
1/2" x 20	RFBBOB0200	16	3	10	1"	42	42	£11.12
3/4" x 25	RFBBOB0250	19	3	10	1 1/4"	52	70	£12.50
1" x 32	RFBBOB0320	22	3	10	1 1/2"	59	97	£19.28
1 1/4" x 40	RFBBOB0400	26	3	12	2"	72	155	£24.22
1 1/2" x 50	RFBBOB0500	31	3	14	2 1/4"	79	216	£30.97
2" x 63	RFBBOB0630	38	3	18	2 3/4"	100	350	£36.35
3" x 90*	RFBBOB0900	51	5	18	4"	134	760	£143.93
4" x 110*	RFBBOB1100	61	5	18	5"	163	1340	£156.53

Prices shown are for one item excluding VAT

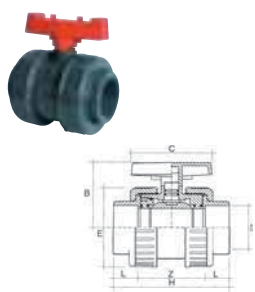
PVCu manual Ball Valves - Industrial

PN = Maximum working pressure (bar) at 20°C

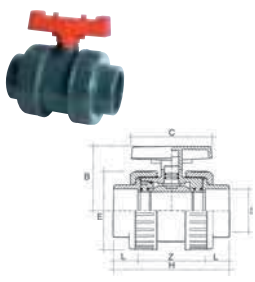
Double Union Ball Valve Plain Sockets EPDM Seals

	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
	3/8"	RBA22A0160	50	51	16	46	78	65	16	140	£44.10
	1/2"	RBA22A0200	50	51	17	46	78	65	16	140	£45.85
	3/4"	RBA22A0250	60	58	20	52	90	70	16	200	£54.07
	1"	RBA22A0320	68	65	23	60	104	82	16	300	£65.35
	1 1/4"	RBA22A0400	80	76	27	68	120	92	16	450	£83.17
	1 1/2"	RBA22A0500	94	88	31	78	140	105	16	690	£107.37
	2"	RBA22A0630	115	104	38	93	169	123	16	1150	£136.40
	2 1/2"	RBA22A0750	168	137	44	139	227	168	10	3100	£293.26
	3"	RBA22A0900	168	138	51	139	242	168	10	3250	£335.51
4"	RBA22A1100	210	166	63	160	282	190	10	5500	£466.05	

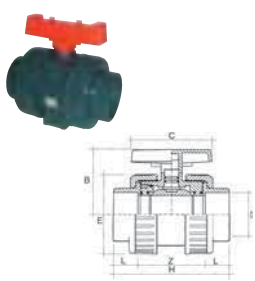
Double Union Ball Valve Plain Sockets EPDM Seals Metric

	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
	16	RBI22I0160	50	51	16	46	78	65	16	140	£44.10
	20	RBI22I0200	50	51	16	46	78	65	16	140	£45.85
	25	RBI22I0250	60	58	19	52	90	70	16	200	£54.07
	32	RBI22I0320	68	65	22	60	104	82	16	300	£65.39
	40	RBI22I0400	80	76	26	68	120	92	16	450	£83.17
	50	RBI22I0500	94	88	31	78	140	105	16	690	£107.37
	63	RBI22I0630	115	104	38	93	169	123	16	1150	£136.40
	75	RBI22I0750	168	137	44	139	227	168	10	3100	£293.52
	90	RBI22I0900	168	138	51	139	242	168	10	3250	£335.51
110	RBI22I1100	210	166	61	160	282	190	10	5500	£466.05	

Double Union Ball Valve BSP Female Threaded Sockets EPDM Seals

	Nominal Size	G	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
	3/8"	BSPF	RBF22F0160	50	51	16	46	78	65	16	140	£42.58
	1/2"	BSPF	RBF22F0200	50	51	16	46	78	65	16	140	£49.79
	3/4"	BSPF	RBF22F0250	60	58	19	52	90	70	16	200	£59.47
	1"	BSPF	RBF22F0320	68	65	22	60	104	82	16	300	£72.86
	1 1/4"	BSPF	RBF22F0400	80	76	24	68	116	92	16	450	£93.64
	1 1/2"	BSPF	RBF22F0500	94	88	24	78	126	105	16	690	£122.99
	2"	BSPF	RBF22F0630	115	104	28	93	149	123	16	1150	£157.18
	2 1/2"	BSPF	RBF22F0750	168	137	33	139	205	168	10	3050	£266.25
	3"	BSPF	RBF22F0900	168	138	36	139	212	168	10	3200	£337.97
4"	BSPF	RBF22F1100	210	166	42	160	244	190	10	5400	£498.97	

Double Union Ball Valve Plain Sockets FPM Seals

	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
	3/8"	RBA23A0160	50	51	16	46	78	65	16	140	£54.07
	1/2"	RBA23A0200	50	51	17	46	78	65	16	140	£54.83
	3/4"	RBA23A0250	60	58	20	52	90	70	16	200	£64.98
	1"	RBA23A0320	68	65	23	60	104	82	16	300	£80.73
	1 1/4"	RBA23A0400	80	76	27	68	120	92	16	450	£98.49
	1 1/2"	RBA23A0500	94	88	31	78	140	105	16	690	£129.16
	2"	RBA23A0630	115	104	38	93	169	123	16	1150	£177.57
	2 1/2"	RBA23A0750	168	137	44	139	227	168	10	3100	£350.09
	3"	RBA23A0900	168	138	51	139	242	168	10	3250	£416.17
4"	RBA23A1100	210	166	63	160	282	190	10	5500	£533.64	

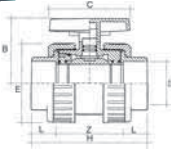
Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu manual Ball Valves - Industrial

PN = Maximum working pressure (bar) at 20°C

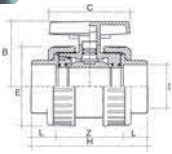
Double Union Ball Valve Plain Sockets FPM Seals Metric

Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
16	RBI23I0160	50	51	16	46	78	65	16	140	£54.07
20	RBI23I0200	50	51	16	46	78	65	16	140	£54.83
25	RBI23I0250	60	58	19	52	90	70	16	200	£64.98
32	RBI23I0320	68	65	22	60	104	82	16	300	£80.73
40	RBI23I0400	80	76	26	68	120	92	16	450	£98.49
50	RBI23I0500	94	88	31	78	140	105	16	690	£129.16
63	RBI23I0630	115	104	38	93	169	123	16	1150	£177.57
75	RBI23I0750	168	137	44	139	227	168	10	3100	£350.09
90	RBI23I0900	168	138	51	139	242	168	10	3250	£416.17
110	RBI23I1100	210	166	61	160	282	190	10	5500	£533.64



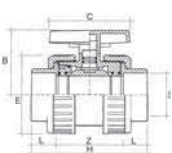
Double Union Ball Valve BSP Female Threaded Sockets FPM Seals

Nominal Size	G	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
3/8"	BSPF	RBF23F0160	50	51	16	46	78	65	16	140	£51.54
1/2"	BSPF	RBF23F0200	50	51	16	46	78	65	16	140	£60.64
3/4"	BSPF	RBF23F0250	60	58	19	52	90	70	16	200	£71.37
1"	BSPF	RBF23F0320	68	65	22	60	104	82	16	300	£91.41
1 1/4"	BSPF	RBF23F0400	80	76	24	68	116	92	16	450	£110.78
1 1/2"	BSPF	RBF23F0500	94	88	24	78	126	105	16	690	£145.72
2"	BSPF	RBF23F0630	115	104	28	93	149	123	16	1150	£197.02
2 1/2"	BSPF	RBF23F0750	168	137	33	139	205	168	10	3050	£328.42
3"	BSPF	RBF23F0900	168	138	36	139	212	168	10	3200	£467.07
4"	BSPF	RBF23F1100	210	166	42	160	244	190	10	5400	£583.38



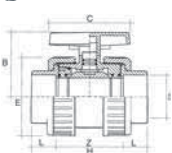
Double Union Ball Valve with Locking Handle Plain Sockets EPDM Seals

Nominal Size	Code	A	Z	t	d	H	B	PN	Price each
3/8"	RBA12A0160	62	68	17	53	72	40	16	£45.16
1/2"	RBA12A0200	62	68	17	53	72	40	16	£53.87
3/4"	RBA12A0250	70	76	20	63	79	52	16	£63.56
1"	RBA12A0320	74	81	23	70	82	52	16	£76.82
1 1/4"	RBA12A0400	84	90	27	85	100	64	16	£97.75
1 1/2"	RBA12A0500	95	104	32	101	108	73	16	£136.51
2"	RBA12A0630	109	121	39	122	117	85	16	£160.31
2 1/2"	RBA12A0750	137	148	45	155	144	110	16	£344.71
3"	RBA12A0900	163	183	56	188	163	132	10	£394.43
4"	RBA12A1100	163	176	64	188	163	132	6	£547.81



Double Union Ball Valve with Locking Handle Plain Sockets EPDM Seals Metric

Nominal Size	Code	A	Z	t	d	H	B	PN	Price each
16	RBI12I0160	62	68	17	53	72	40	16	£51.84
20	RBI12I0200	62	68	17	53	72	40	16	£54.31
25	RBI12I0250	70	76	20	63	79	52	16	£63.56
32	RBI12I0320	74	81	23	70	82	52	16	£76.82
40	RBI12I0400	84	90	27	85	100	64	16	£97.75
50	RBI12I0500	95	104	32	101	108	73	16	£126.23
63	RBI12I0630	109	121	39	122	117	85	16	£160.30
75	RBI12I0750	137	148	45	155	144	110	16	£344.71
90	RBI12I0900	163	183	56	188	163	132	10	£394.43
110	RBI12I1100	163	176	64	188	163	132	6	£547.81


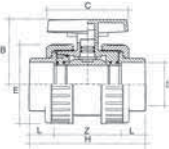


Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu manual Ball Valves - Industrial

PN = Maximum working pressure (bar) at 20°C

Double Union Ball Valve with Locking Handle BSP Female Threaded Sockets EPDM Seals


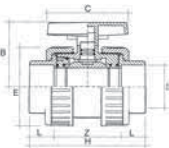
	Nominal Size	G	Code	A	Z	t	d	H	B	PN	Price each
 	3/8"	BSPF	RBF12F0160	62	68	17	53	72	40	16	£49.64
	1/2"	BSPF	RBF12F0200	62	68	17	53	72	40	16	£68.23
	3/4"	BSPF	RBF12F0250	70	76	20	63	79	52	16	£69.28
	1"	BSPF	RBF12F0320	74	81	23	70	82	52	16	£84.48
	1 1/4"	BSPF	RBF12F0400	84	90	27	85	100	64	16	£109.14
	1 1/2"	BSPF	RBF12F0500	95	104	32	101	108	73	16	£144.61
	2"	BSPF	RBF12F0630	109	121	39	122	117	85	16	£183.20
	2 1/2"	BSPF	RBF12F0750	137	148	45	155	144	110	16	£310.28
	3"	BSPF	RBF12F0900	163	183	56	188	163	132	10	£393.86
	4"	BSPF	RBF12F1100	163	176	64	188	163	132	6	£581.51

Prices shown are for one item excluding VAT # Refer to metric equivalent


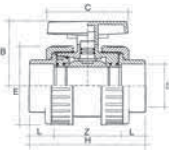
PVCu manual Ball Valves - Economy

PN = Maximum working pressure (bar) at 20°C

Double Union Ball Valve Plain Sockets EPDM Seals

	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
 	3/8"	RBA21A0160	50	51	16	46	78	65	16	140	£16.95
	1/2"	RBA21A0200	50	51	17	46	78	65	16	140	£17.60
	3/4"	RBA21A0250	60	58	20	52	90	70	16	200	£20.03
	1"	RBA21A0320	68	65	23	60	104	82	16	300	£34.20
	1 1/4"	RBA21A0400	80	76	27	68	120	92	16	450	£40.02
	1 1/2"	RBA21A0500	94	88	31	78	140	105	16	690	£50.69
	2"	RBA21A0630	115	104	38	93	169	123	16	1150	£77.23
	2 1/2"	RBA21A0750	168	137	44	139	227	168	10	3100	£221.22
	3"	RBA21A0900	168	138	51	139	242	168	10	3250	£247.76
	4"	RBA21A1100	210	166	63	160	282	190	10	5500	£381.45

Double Union Ball Valve Plain Sockets EPDM Seals Metric

	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
 	16	RBI21I0160	50	51	16	46	78	65	16	140	£16.95
	20	RBI21I0200	50	51	16	46	78	65	16	140	£17.60
	25	RBI21I0250	60	58	19	52	90	70	16	200	£20.03
	32	RBI21I0320	68	65	22	60	104	82	16	300	£34.20
	40	RBI21I0400	80	76	26	68	120	92	16	450	£40.02
	50	RBI21I0500	94	88	31	78	140	105	16	690	£50.69
	63	RBI21I0630	115	104	38	93	169	123	16	1150	£77.23
	75	RBI21I0750	168	137	44	139	227	168	10	3100	£221.22
	90	RBI21I0900	168	138	51	139	242	168	10	3250	£247.76
	110	RBI21I1100	210	166	61	160	282	190	10	5500	£381.45

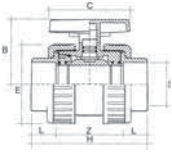
Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu manual Ball Valves - Economy

PN = Maximum working pressure (bar) at 20°C

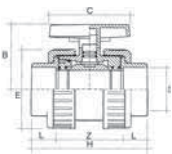
Double Union Ball Valve BSP Female Threaded Sockets EPDM Seals

Nominal Size	G	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
3/8"	BSPF	RBF21F0160	50	51	16	46	78	65	16	140	£17.53
1/2"	BSPF	RBF21F0200	50	51	16	46	78	65	16	140	£20.74
3/4"	BSPF	RBF21F0250	60	58	19	52	90	70	16	200	£22.17
1"	BSPF	RBF21F0320	68	65	22	60	104	82	16	300	£36.77
1 1/4"	BSPF	RBF21F0400	80	76	24	68	116	92	16	450	£44.27
1 1/2"	BSPF	RBF21F0500	94	88	24	78	126	105	16	690	£55.61
2"	BSPF	RBF21F0630	115	104	28	93	149	123	16	1150	£82.20
2 1/2"	BSPF	RBF21F0750	168	137	33	139	205	168	10	3050	£206.27
3"	BSPF	RBF21F0900	168	138	36	139	212	168	10	3200	£228.16
4"	BSPF	RBF21F1100	210	166	42	160	244	190	10	5400	£367.84



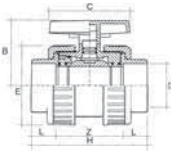
Single Union Ball Valve Plain Sockets EPDM Seals

Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
3/8"	RBA11A0160	50	51	16	46	78	65	16	140	£11.56
1/2"	RBA11A0200	50	51	17	46	78	65	16	140	£11.77
3/4"	RBA11A0250	60	58	20	52	90	70	16	200	£13.58
1"	RBA11A0320	68	65	23	60	104	82	16	300	£16.01
1 1/4"	RBA11A0400	80	76	27	68	120	92	16	450	£26.56
1 1/2"	RBA11A0500	94	88	31	78	140	105	16	690	£34.61
2"	RBA11A0630	115	104	38	93	169	123	16	1150	£54.63
2 1/2"	RBA11A0750	168	137	44	139	227	168	10	3100	£142.32
3"	RBA11A0900	168	138	51	139	242	168	10	3250	£152.72
4"	RBA11A1100	210	166	63	160	282	190	10	5500	£257.27



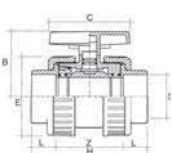
Single Union Ball Valve Plain Sockets EPDM Seals

Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
16	RBI11I0160	50	51	16	46	78	65	16	140	£11.56
20	RBI11I0200	50	51	16	46	78	65	16	140	£11.77
25	RBI11I0250	60	58	19	52	90	70	16	200	£13.58
32	RBI11I0320	68	65	22	60	104	82	16	300	£16.01
40	RBI11I0400	80	76	26	68	120	92	16	450	£26.56
50	RBI11I0500	94	88	31	78	140	105	16	690	£34.61
63	RBI11I0630	115	104	38	93	169	123	16	1150	£54.63
75	RBI11I0750	168	137	44	139	227	168	10	3100	£142.32
90	RBI11I0900	168	138	51	139	242	168	10	3250	£152.72
110	RBI11I1100	210	166	61	160	282	190	10	5500	£257.27



Single Union Ball Valve BSP Female Threaded Sockets EPDM Seals

Nominal Size	G	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
3/8"	BSPF	RBF11F0160	50	51	16	46	78	65	16	140	£11.89
1/2"	BSPF	RBF11F0200	50	51	16	46	78	65	16	140	£12.22
3/4"	BSPF	RBF11F0250	60	58	19	52	90	70	16	200	£14.07
1"	BSPF	RBF11F0320	68	65	22	60	104	82	16	300	£16.55
1 1/4"	BSPF	RBF11F0400	80	76	24	68	116	92	16	450	£27.92
1 1/2"	BSPF	RBF11F0500	94	88	24	78	126	105	16	690	£35.34
2"	BSPF	RBF11F0630	115	104	28	93	149	123	16	1150	£55.90
2 1/2"	BSPF	RBF11F0750	168	137	33	139	205	168	10	3050	£150.30
3"	BSPF	RBF11F0900	168	138	36	139	212	168	10	3200	£156.76
4"	BSPF	RBF11F1100	210	166	42	160	244	190	10	5400	£241.36

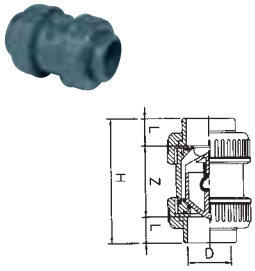


Prices shown are for one item excluding VAT # Refer to metric equivalent

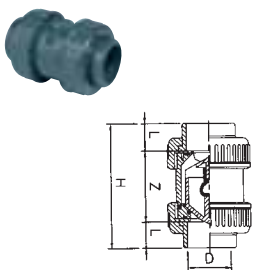
PVCu check valves

Maximum working pressure for valves 16 - 63 (1/2" - 2") 16 bar (232 psi), for valves 75 - 110 (2 1/2" - 4") 10 bar (145 psi) at 20°C

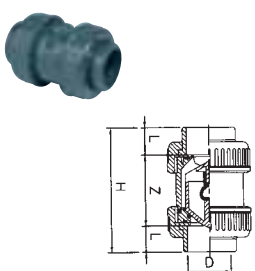
Check Valve Plain Sockets with Stainless Steel Spring EPDM Seals

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	RBA30A0160	16	46	78	110	£40.77
	1/2"	RBA30A0200	17	46	78	110	£47.76
	3/4"	RBA30A0250	20	52	90	180	£53.10
	1"	RBA30A0320	23	60	104	250	£57.16
	1 1/4"	RBA30A0400	27	68	120	380	£69.01
	1 1/2"	RBA30A0500	31	78	140	600	£84.05
	2"	RBA30A0630	38	93	169	1000	£120.66
	2 1/2"	RBA30A0750	44	139	227	2800	£290.36
	3"	RBA30A0900	51	139	242	3000	£322.28

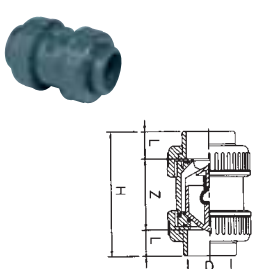
Check Valve Plain Sockets with Stainless Steel Spring EPDM Seals Metric

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	16	RBI30I0160	16	46	78	110	£46.40
	20	RBI30I0200	16	46	78	110	£47.76
	25	RBI30I0250	19	52	90	180	£53.10
	32	RBI30I0320	22	60	104	250	£57.16
	40	RBI30I0400	26	68	120	380	£69.01
	50	RBI30I0500	31	78	140	600	£84.05
	63	RBI30I0630	38	93	169	1000	£120.65
	75	RBI30I0750	44	139	227	2800	£290.36
	90	RBI30I0900	51	139	242	3000	£322.28

Check Valve BSP Female Threaded Socket with Stainless Steel Spring EPDM Seals

	Nominal Size	G	Code	L	Z	H	Weight (GR)	Price each
	3/8"	BSPF	RBF30F0160	16	46	78	110	£41.13
	1/2"	BSPF	RBF30F0200	16	46	78	110	£50.38
	3/4"	BSPF	RBF30F0250	19	52	90	180	£55.67
	1"	BSPF	RBF30F0320	22	60	104	250	£59.84
	1 1/4"	BSPF	RBF30F0400	24	68	116	380	£71.65
	1 1/2"	BSPF	RBF30F0500	24	78	126	600	£88.44
	2"	BSPF	RBF30F0630	28	93	149	1000	£126.99
	2 1/2"	BSPF	RBF30F0750	33	139	205	2800	£317.51
	3"	BSPF	RBF30F0900	36	139	212	3000	£343.80

Check Valve Plain Sockets with PTFE Coated Spring EPDM Seals

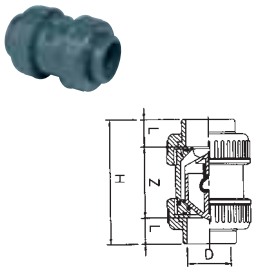
	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	RBA31A0160	16	46	78	110	£40.77
	1/2"	RBA31A0200	17	46	78	110	£48.57
	3/4"	RBA31A0250	20	52	90	180	£53.10
	1"	RBA31A0320	23	60	104	250	£57.16
	1 1/4"	RBA31A0400	27	68	120	380	£69.01
	1 1/2"	RBA31A0500	31	78	140	600	£84.05
	2"	RBA31A0630	38	93	169	1000	£120.66
	2 1/2"	RBA31A0750	44	139	227	2800	£290.36
	3"	RBA31A0900	51	139	242	3000	£322.29

Prices shown are for one item excluding VAT # Refer to metric equivalent

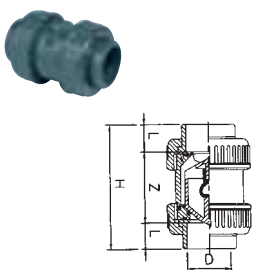
PVCu check valves

Maximum working pressure for valves 16 - 63 (1/2" - 2") 16 bar (232 psi), for valves 75 - 110 (2 1/2" - 4") 10 bar (145 psi) at 20°C

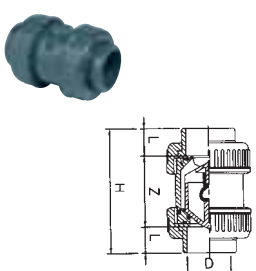
Check Valve Plain Sockets with PTFE Coated Spring EPDM Seals Metric

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	16	RBI31I0160	16	46	78	110	£40.77
	20	RBI31I0200	16	46	78	110	£47.76
	25	RBI31I0250	19	52	90	180	£53.10
	32	RBI31I0320	22	60	104	250	£57.64
	40	RBI31I0400	26	68	120	380	£69.01
	50	RBI31I0500	31	78	140	600	£84.05
	63	RBI31I0630	38	93	169	1000	£120.65
	75	RBI31I0750	44	139	227	2800	£290.36
	90	RBI31I0900	51	139	242	3000	£309.90

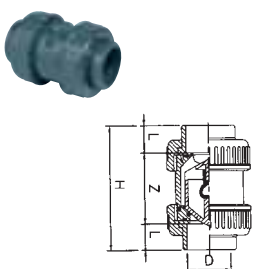
Check Valve BSP Female Threaded Sockets with PTFE Coated Spring EPDM Seals

	Nominal Size	G	Code	L	Z	H	Weight (GR)	Price each
	3/8"	BSPF	RBF31F0160	16	46	78	110	£50.38
	1/2"	BSPF	RBF31F0200	16	46	78	110	£52.61
	3/4"	BSPF	RBF31F0250	19	52	90	180	£55.67
	1"	BSPF	RBF31F0320	22	60	104	250	£59.84
	1 1/4"	BSPF	RBF31F0400	24	68	116	380	£71.65
	1 1/2"	BSPF	RBF31F0500	24	78	126	600	£88.44
	2"	BSPF	RBF31F0630	28	93	149	1000	£126.99
	2 1/2"	BSPF	RBF31F0750	33	139	205	2800	£317.51
	3"	BSPF	RBF31F0900	36	139	212	3000	£343.80

Check Valve Plain Sockets with PTFE Coated Spring FPM Seals

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	RBA34A0160	16	46	78	110	£48.96
	1/2"	RBA34A0200	17	46	78	110	£57.33
	3/4"	RBA34A0250	20	52	90	180	£63.35
	1"	RBA34A0320	23	60	104	250	£68.09
	1 1/4"	RBA34A0400	27	68	120	380	£81.61
	1 1/2"	RBA34A0500	31	78	140	600	£102.08
	2"	RBA34A0630	38	93	169	1000	£155.52
	2 1/2"	RBA34A0750	44	139	227	2800	£348.66
	3"	RBA34A0900	51	139	242	3000	£388.76

Check Valve Plain Sockets with PTFE Coated Spring FPM Seals Metric

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	16	RBI34I0160	16	46	78	110	£48.96
	20	RBI34I0200	16	46	78	110	£57.33
	25	RBI34I0250	19	52	90	180	£63.35
	32	RBI34I0320	22	60	104	250	£68.09
	40	RBI34I0400	26	68	120	380	£81.70
	50	RBI34I0500	31	78	140	600	£102.08
	63	RBI34I0630	38	93	169	1000	£155.55
	75	RBI34I0750	44	139	227	2800	£348.66
	90	RBI34I0900	51	139	242	3000	£388.76

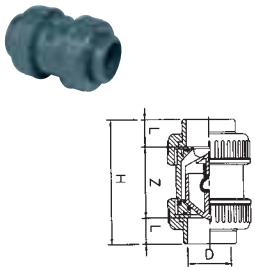
Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu

PVCu check valves

Maximum working pressure for valves 16 - 63 (1/2" - 2") 16 bar (232 psi), for valves 75 - 110 (2 1/2" - 4") 10 bar (145 psi) at 20°C

Check Valve BSP Female Threaded Sockets with PTFE Coated Spring FPM Seals

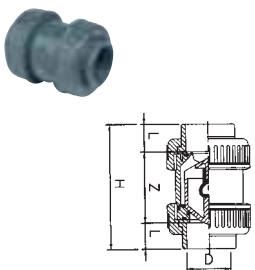
	Nominal Size	G	Code	L	Z	H	Weight (GR)	Price each
	3/8"	BSPF	RBF34F0160	16	46	78	110	£59.31
	1/2"	BSPF	RBF34F0200	16	46	78	110	£61.45
	3/4"	BSPF	RBF34F0250	19	52	90	180	£64.89
	1"	BSPF	RBF34F0320	22	60	104	250	£71.06
	1 1/4"	BSPF	RBF34F0400	24	68	116	380	£79.58
	1 1/2"	BSPF	RBF34F0500	24	78	126	600	£99.60
	2"	BSPF	RBF34F0630	28	93	149	1000	£151.69
	2 1/2"	BSPF	RBF34F0750	33	139	205	2800	£341.46
	3"	BSPF	RBF34F0900	36	139	212	3000	£379.27

Prices shown are for one item excluding VAT # Refer to metric equivalent

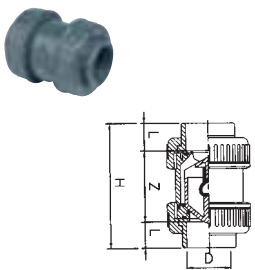
PVCu air release valves

Maximum working pressure for valves 16 - 63 (1/2" - 2") 16 bar (232 psi), for valves 75 - 110 (2 1/2" - 4") 10 bar (145 psi) at 20°C

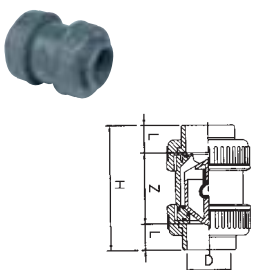
Air Release Valve Plain Sockets with EPDM Seals

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	RBA33A0160	16	46	78	110	£40.77
	1/2"	RBA33A0200	17	46	78	110	£47.76
	3/4"	RBA33A0250	20	52	90	180	£53.10
	1"	RBA33A0320	23	60	104	250	£57.16
	1 1/4"	RBA33A0400	27	68	120	380	£69.01
	1 1/2"	RBA33A0500	31	78	140	600	£84.05
	2"	RBA33A0630	38	93	169	1000	£120.66
	2 1/2"	RBA33A0750	44	139	227	2800	£255.18
	3"	RBA33A0900	51	139	242	3000	£323.81

Air Release Valve Plain Sockets with EPDM Seals Metric

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	16	RBI33I0160	16	46	78	110	£40.77
	20	RBI33I0200	16	46	78	110	£47.76
	25	RBI33I0250	19	52	90	180	£53.10
	32	RBI33I0320	22	60	104	250	£57.64
	40	RBI33I0400	26	68	120	380	£69.01
	50	RBI33I0500	31	78	140	600	£84.05
	63	RBI33I0630	38	93	169	1000	£120.65
	75	RBI33I0750	44	139	227	2800	£255.18
	90	RBI33I0900	51	139	242	3000	£283.23

Air Release Valve BSP Female Threaded Sockets with EPDM Seals

	Nominal Size	G	Code	L	Z	H	Weight (GR)	Price each
	3/8"	BSPF	RBF33F0160	16	46	78	110	£46.22
	1/2"	BSPF	RBF33F0200	16	46	78	110	£56.13
	3/4"	BSPF	RBF33F0250	19	52	90	180	£59.84
	1"	BSPF	RBF33F0320	22	60	104	250	£60.91
	1 1/4"	BSPF	RBF33F0400	24	68	116	380	£71.65
	1 1/2"	BSPF	RBF33F0500	24	78	126	600	£88.44
	2"	BSPF	RBF33F0630	28	93	149	1000	£126.99
	2 1/2"	BSPF	RBF33F0750	33	139	205	2800	£317.51
	3"	BSPF	RBF33F0900	36	139	212	3000	£343.80

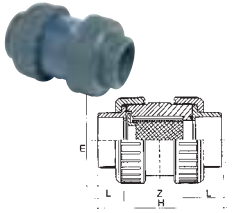
Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu in line strainers

Maximum working pressure for valves 16 - 63 (1/2" - 2") 16 bar (232 psi), for valves 75 - 110 (2 1/2" - 4") 10 bar (145 psi) at 20°C

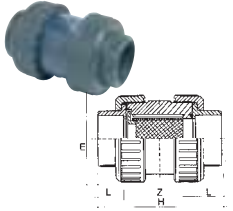
In Line Strainer Plain Sockets with EPDM Seals

Nominal Size	Code	L	Z	H	E	PN	Weight (GR)	Price each
1/2"	RBA35A0200	17	46	78	50	16	110	£51.61
3/4"	RBA35A0250	20	52	90	60	16	180	£57.51
1"	RBA35A0320	23	60	104	68	16	250	£67.03
1 1/4"	RBA35A0400	27	68	120	80	16	380	£82.85
1 1/2"	RBA35A0500	31	78	140	94	16	600	£99.18
2"	RBA35A0630	38	93	169	115	16	1000	£145.74



In Line Strainer Plain Sockets with EPDM Seals Metric

Nominal Size	Code	L	Z	H	E	PN	Weight (GR)	Price each
20	RBI35I0200	16	46	78	50	16	110	£47.29
25	RBI35I0250	19	52	90	60	16	180	£56.53
32	RBI35I0320	22	60	104	68	16	250	£67.03
40	RBI35I0400	26	68	120	80	16	380	£82.85
50	RBI35I0500	31	78	140	94	16	600	£99.18
63	RBI35I0630	38	93	169	115	16	1000	£134.52



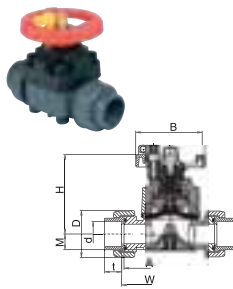
Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu diaphragm valves

Maximum working pressure: 10 bar (145 psi) at 20°C

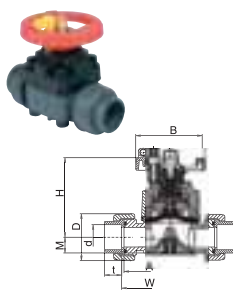
Diaphragm Valve Plain Sockets EPDM Seals

Nominal Size	Code	M	H	B	D	W	A	t	Price each
1/2"	RBA40A0200	17	100	86	43	96	90	16	£142.93
3/4"	RBA40A0250	17	100	86	53	114	108	19	£159.82
1"	RBA40A0320	21	107	86	60	122	116	22	£195.33
1 1/4"	RBA40A0400	33	144	136	74	142	136	26	£257.62
1 1/2"	RBA40A0500	33	144	136	83	160	154	31	£331.63
2"	RBA40A0630	40.3	170	136	103	190	184	38	£397.40



Diaphragm Valve Plain Sockets EPDM Seals Metric

Nominal Size	Code	M	H	B	D	W	A	t	Price each
1/2"	RBI40I0200	17	100	86	43	96	90	16	£142.94
3/4"	RBI40I0250	17	100	86	53	114	108	19	£159.82
1"	RBI40I0320	21	107	86	60	122	116	22	£195.33
1 1/4"	RBI40I0400	33	144	136	74	142	136	26	£257.62
1 1/2"	RBI40I0500	33	144	136	83	160	154	31	£331.63
2"	RBI40I0630	40.3	170	136	103	190	184	38	£397.40



Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu diaphragm valves

Maximum working pressure: 10 bar (145 psi) at 20°C

Diaphragm Valve BSP Female Threaded Sockets EPDM Seals

Nominal Size	Code	M	H	B	D	W	A	t	Price each
½"	BSPF RBF40F0200	17	100	86	43	96	90	16	£133.15
¾"	BSPF RBF40F0250	17	100	86	53	114	108	19	£164.90
1"	BSPF RBF40F0320	21	107	86	60	122	116	22	£187.39
1¼"	BSPF RBF40F0400	33	144	136	74	142	136	26	£237.18
1½"	BSPF RBF40F0500	33	144	136	83	160	154	31	£316.20
2"	BSPF RBF40F0630	40.3	170	136	103	190	184	38	£386.77

Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu 3 way ball valves

Maximum working pressure: 10 bar (145 psi) at 20°C

3 Way Ball Valve L Port EPDM O Rings Plain Ends

Nominal Size	Code	D	Price each
25	RBI80L0250	25	£106.24
32	RBI80L0320	32	£120.76
50	RBI80L0500	50	£164.46
63	RBI80L0630	63	£204.76

3 Way Ball Valve T Port EPDM O Rings Plain Ends

Nominal Size	Code	D	Price each
25	RBI81T0250	25	£106.24
32	RBI81T0320	32	£120.76
50	RBI81T0500	50	£164.46
63	RBI81T0630	63	£204.76

3 Way Ball Valve T Port Plain BS EPDM O Rings Plain Ends

Nominal Size	Code	D	Price each
¾"	RBA82T0250	¾"	£106.24
1"	RBA82T0320	1"	£120.76
1½"	RBA82T0500	1½"	£164.46
2"	RBA82T0630	2"	£204.76

3 Way Ball Valve L Port Plain BS EPDM O Rings Plain Ends


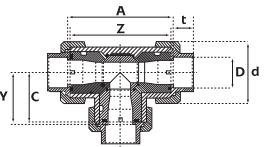
Nominal Size	Code	D	Price each
¾"	RBA83L0250	¾"	£106.24
1"	RBA83L0320	1"	£120.76
1½"	RBA83L0500	1½"	£164.46
2"	RBA83L0630	2"	£204.76

Prices shown are for one item excluding VAT # Refer to metric equivalent


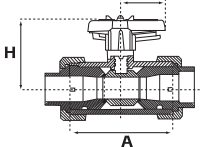
PVCu 3 way ball valves

Maximum working pressure: 10 bar (145 psi) at 20°C


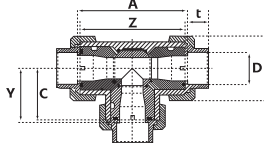
3 Way Ball Valve L Port Plain Sockets EPDM Seals

	Nominal Size	Code	A	Z	t	d	H	B	Y	C	PN	Price each
 	¾"	RBA60A0250	120	126	20	70	82	52	63	60	10	£131.11
	1"	RBA60A0320	120	127	23	70	82	52	64	60	10	£161.44
	1½"	RBA60A0500	162	171	32	101	108	73	86	81	10	£220.98
	2"	RBA60A0630	181	193	39	122	117	85	97	91	10	£287.60


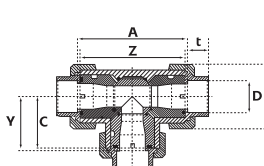
3 Way Ball Valve L Port Plain Sockets EPDM Seals Metric

	Nominal Size	Code	A	Z	t	d	H	B	Y	C	PN	Price each
 	25	RBI60I0250	120	126	20	70	82	52	63	60	10	£131.11
	32	RBI60I0320	120	127	23	70	82	52	64	60	10	£161.44
	50	RBI60I0500	162	171	32	101	108	73	86	81	10	£220.98
	63	RBI60I0630	181	193	39	122	117	85	97	91	10	£250.58

3 Way Ball Valve T Port Plain Sockets EPDM Seals

	Nominal Size	Code	A	Z	t	d	H	B	Y	C	PN	Price each
 	¾"	RBA65A0250	120	126	20	70	82	52	63	60	10	£131.11
	1"	RBA65A0320	120	127	23	70	82	52	64	60	10	£161.44
	1½"	RBA65A0500	162	171	32	101	108	73	86	81	10	£220.98
	2"	RBA65A0630	181	193	39	122	117	85	97	91	10	£287.60

3 Way Ball Valve T Port Plain Sockets EPDM Seals

	Nominal Size	Code	A	Z	t	d	H	B	Y	C	PN	Price each
 	25	RBI65I0250	120	126	20	70	82	52	63	60	10	£131.11
	32	RBI65I0320	120	127	23	70	82	52	64	60	10	£161.44
	50	RBI65I0500	162	171	32	101	108	73	86	81	10	£192.54
	63	RBI65I0630	181	193	39	122	117	85	97	91	10	£250.58

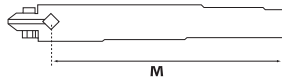
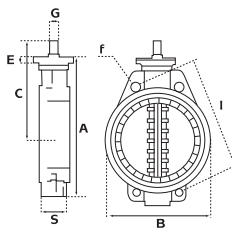
PVCu

PVCu butterfly valves - economy/industrial

Maximum working pressure: 63—140mm (2"—5"): 10 bar (145 psi) at 20°C

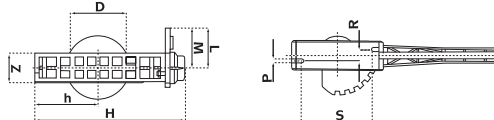
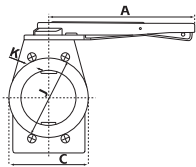
Butterfly Valve - Economy Hand Operated EPDMSeals

mm	Inches	Code	A	B	C	E	S	G	f	I	M	Weight (GR)	Price each
63-75	2-2½"	RBA15A0750	130	165	110	28	45	10	18	125	228	1770	£222.18
90	3"	RBA15A0900	233	130	123	31	57	11	18	160	240	2050	£253.77
110	4"	RBA15A1100	253	152	143	31	58	11	18	180	240	2290	£285.33
125	—	RBA15A1250	264	170	148	31	62	11	18	190	240	2700	£251.97
140	5"	RBA15A1400	284	185	159	31	63	11	18	210	240	2960	£352.54
160	6"	RBA15A1600	312	216	169	31	73	14	22	240	340	3730	£379.30
200-225	8"	RBA15A2250	370	273	200	31	83	14	22	295	340	5700	£545.83



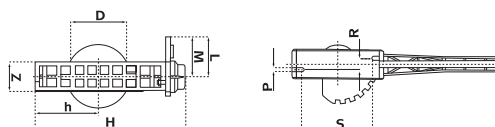
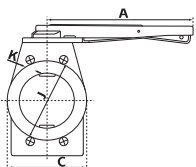
Butterfly Valve - Industrial Hand Operated EPDM Seals

mm	Inches	Code	A	D	C	H	h	K	L	M	Z	P	R	S	PN	Price each
90	3"	RBA50A0900	270	75	133	260	105	19	113	78	49	9	10	89	10	£475.82
110	4"	RBA50A1100	270	92	155	289	120	19	113	78	56	11	10	89	10	£520.23
140	5"	RBA50A1400	270	117	190	324	130	22	113	78	64	11	10	131	10	£615.41
160	6"	RBA50A1600	380	134	216	353	150	22	141	94	70	11	16	166	6	£706.37
225	8"	RBA50A2250	380	210	274	425	180	22	141	94	71	11	22	166	6	£903.03



Butterfly Valve - Industrial Hand Operated FPM Seals

mm	Inches	Code	A	D	C	H	h	K	L	M	Z	P	R	S	PN	Price each
90	3"	RBA51A0900	270	75	133	260	105	19	113	78	49	9	10	89	10	£716.79
110	4"	RBA51A1100	270	92	155	289	120	19	113	78	56	11	10	89	10	£781.27
140	5"	RBA51A1400	270	117	190	324	130	22	113	78	64	11	10	131	10	£926.86
160	6"	RBA51A1600	380	134	216	353	150	22	141	94	70	11	16	166	6	£1,063.19
225	8"	RBA51A2250	380	210	274	425	180	22	141	94	71	11	22	166	6	£1,359.83




Prices shown are for one item excluding VAT # Refer to metric equivalent

Sales and enquiries please contact: 08452 700886


PVCu butterfly valves - economy/industrial

Maximum working pressure: 63—140mm (2"—5"): 10 bar (145 psi) at 20°C

Butterfly Valve - Complete EPDM O rings

	mm	Inches	Code	D	Box	Weight (GR)	Price each
	75	2½"	RBB15B0750	1	1	4950	£174.90
	90	3"	RBB15B0900	1	1	6225	£202.64
	110	4"	RBB15B1100	1	1	7340	£214.94
	125		RBB15B1250	1	1	8167	£238.56
	140	5"	RBB15B1400	1	1	9227	£253.14
	160	6"	RBB15B1600	1	1	13839	£294.40
	200-225	8"	RBB15B2000	1	1	14740	£684.44
	250		RBB15B2500	1	1		£1168.14
	315		RBB15B3150	1	1		£3304.86

Butterfly Valve - Complete FPM O rings


	mm	Inches	Code	D	Box	Weight (GR)	Price each
	75	2½"	RBV15V0750	1	1	4950	£218.64
	90	3"	RBV15V0900	1	1	6225	£253.30
	110	4"	RBV15V1100	1	1	7340	£268.66
	125		RBV15V1250	1	1	8167	£298.16
	140	5"	RBV15V1400	1	1	9227	£316.40
	160	6"	RBV15V1600	1	1	13839	£368.04
	200-225	8"	RBV15V2000	1	1	14740	£855.54
	250		RBV15V2500	1	1		£1464.06
	315		RBV15V3150	1	1		£4131.04

Prices shown are for one item excluding VAT # Refer to metric equivalent


Wafer check valves

Maximum working pressure: 63-160mm (2" - 6"): 10 bar (145 psi) at 20°C

Wafer Check Valve EPDM Seals

	mm	Inches	Code	Price each
	63	2"	RBA71A0630	£272.50
	75	2½"	RBA71A0750	£290.98
	90	3"	RBA71A0900	£306.65
	110	4"	RBA71A1100	£361.62
	140	5"	RBA71A1400	£433.56
	160	6"	RBA71A1600	£615.42
	225	8"	RBA71A2250	£1,273.08

Wafer Check Valve with Stainless Steel Return Spring EPDM Seals


	mm	Inches	Code	Price each
	63	2"	RBA72A0630	£387.40
	75	2½"	RBA72A0750	£518.11
	90	3"	RBA72A0900	£554.07
	110	4"	RBA72A1100	£642.90
	140	5"	RBA72A1400	£731.74
	160	6"	RBA72A1600	£877.61
	225	8"	RBA72A2250	£1,634.70

Prices shown are for one item excluding VAT # Refer to metric equivalent


PVCu Electrically Actuated Double Union Ball Valves

(220 - 240 volt) (110 volt)


Electrically actuated double union ball valve - plain sockets EPDM seals

	Nominal Size	Code	Price each
	½"	RBA24A0200	POA
	¾"	RBA24A0250	POA
	1"	RBA24A0320	POA
	1¼"	RBA24A0400	POA
	1½"	RBA24A0500	POA
	2"	RBA24A0630	POA
	2½"	RBA24A0750	POA
	3"	RBA24A0900	POA
	4"	RBA24A1100	POA


Electrically actuated double union ball valve - plain sockets FPM seals

	Nominal Size	Code	Price each
	½"	RBA25A0200	POA
	¾"	RBA25A0250	POA
	1"	RBA25A0320	POA
	1¼"	RBA25A0400	POA
	1½"	RBA25A0500	POA
	2"	RBA25A0630	POA
	2½"	RBA25A0750	POA
	3"	RBA25A0900	POA
	4"	RBA25A1100	POA

Electrically actuated double union ball valve - plain sockets EPDM seals

	Nominal Size	Code	Price each
	20	RBI24I0200	POA
	25	RBI24I0250	POA
	32	RBI24I0320	POA
	40	RBI24I0400	POA
	50	RBI24I0500	POA
	63	RBI24I0630	POA
	75	RBI24I0750	POA
	90	RBI24I0900	POA
	110	RBI24I1100	POA


Electrically actuated double union ball valve - plain sockets FPM seals

	Nominal Size	Code	Price each
	20	RBI25I0200	POA
	25	RBI25I0250	POA
	32	RBI25I0320	POA
	40	RBI25I0400	POA
	50	RBI25I0500	POA
	63	RBI25I0630	POA
	75	RBI25I0750	POA
	90	RBI25I0900	POA
	110	RBI25I1100	POA


Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu Pneumatically Actuated Double Union Ball Valves Fail Safe Closed


Plain Sockets EPDM Seals

	Nominal Size	Code	Price each
	½"	RBA26A0200	POA
	¾"	RBA26A0250	POA
	1"	RBA26A0320	POA
	1¼"	RBA26A0400	POA
	1½"	RBA26A0500	POA
	2"	RBA26A0630	POA
	2½"	RBA26A0750	POA
	3"	RBA26A0900	POA
	4"	RBA26A1100	POA


FPM seals

	Nominal Size	Code	Price each
	½"	RBA27A0200	POA
	¾"	RBA27A0250	POA
	1"	RBA27A0320	POA
	1¼"	RBA27A0400	POA
	1½"	RBA27A0500	POA
	2"	RBA27A0630	POA
	2½"	RBA27A0750	POA
	3"	RBA27A0900	POA
	4"	RBA27A1100	POA

Plain Sockets EPDM Seals

	Nominal Size	Code	Price each
	20	RBI26I0200	POA
	25	RBI26I0250	POA
	32	RBI26I0320	POA
	40	RBI26I0400	POA
	50	RBI26I0500	POA
	63	RBI26I0630	POA
	75	RBI26I0750	POA
	90	RBI26I0900	POA
	110	RBI26I1100	POA

FPM seals

	Nominal Size	Code	Price each
	20	RBI27I0200	POA
	25	RBI27I0250	POA
	32	RBI27I0320	POA
	40	RBI27I0400	POA
	50	RBI27I0500	POA
	63	RBI27I0630	POA
	75	RBI27I0750	POA
	90	RBI27I0900	POA
	110	RBI27I1100	POA


Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu actuated butterfly valves EDPM


Electrically Actuated Butterfly Valve EDPM

	Nominal Size	Code	Price each
	63-75	RBI90I0750	POA
	90	RBI90I0900	POA
	110	RBI90I1100	POA
	125	RBI90I1250	POA
	140	RBI90I1400	POA
	160	RBI90I1600	POA
	200-225	RBI90I2250	POA
	315	RBI90I3150	POA


Electrically Actuated Butterfly Valve FPM

	Nominal Size	Code	Price each
	63-75	RBI91I0750	POA
	90	RBI91I0900	POA
	110	RBI91I1100	POA
	125	RBI91I1250	POA
	140	RBI91I1400	POA
	160	RBI91I1600	POA
	200-225	RBI91I2250	POA
	315	RBI91I3150	POA

Pneumatic Single Acting/Spring Return Butterfly Valve EDPM

	Nominal Size	Code	Price each
	63-75	RBI92I0750	POA
	90	RBI92I0900	POA
	110	RBI92I1100	POA
	125	RBI92I1250	POA
	140	RBI92I1400	POA
	160	RBI92I1600	POA
	200-225	RBI92I2250	POA

Pneumatic Single Acting/Spring Return Butterfly Valve FPM

	Nominal Size	Code	Price each
	63-75	RBI93I0750	POA
	90	RBI93I0900	POA
	110	RBI93I1100	POA
	125	RBI93I1250	POA
	140	RBI93I1400	POA
	160	RBI93I1600	POA
	200-225	RBI93I2250	POA

Prices shown are for one item excluding VAT # Refer to metric equivalent

PVCu actuated butterfly valves EDPM

Pneumatic Double Acting Butterfly Valve EDPM

Nominal Size	Code	Price each
63-75	RBI9410750	POA
90	RBI9410900	POA
110	RBI9411100	POA
125	RBI9411250	POA
140	RBI9411400	POA
160	RBI9411600	POA
200-225	RBI9412250	POA



Pneumatic Double Acting Butterfly Valve FPM

Nominal Size	Code	Price each
63-75	RBI9510750	POA
90	RBI9510900	POA
110	RBI9511100	POA
125	RBI9511250	POA
140	RBI9511400	POA
160	RBI9511600	POA
200-225	RBI9512250	POA



Prices shown are for one item excluding VAT # Refer to metric equivalent

Diaphragm valves

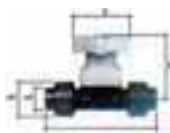
Diaphragm Valves Pneumatically Actuated

Nominal Size	Code	DN	A	A 1	B	od	oD	G	LA	Price each
	RBI4610200	15	85	31	63	20	43	G. 1	90	£327.16
	RBI4610250	20	135	33	105	25	60	G. 1½	116	£349.60
	RBI4610320	25	135	33	105	32	60	G. 1½	116	£372.10
	RBI4610400	32	222	79	151	40	83	G. 2¼	154	£550.06
	RBI4610500	40	222	79	151	50	83	G. 2¼	154	£728.04
	RBI4610630	50	234	90	161	63	103	G. 3¾	182	£814.80



Diaphragm Valves Manually Operated

Nominal Size	Code	DN	A	A 1	B	od	oD	G	LA	Price each
	RBI4710200	15	85	31	63	20	43	G. 1	90	£158.70
	RBI4710250	20	135	33	105	25	60	G. 1½	116	£176.98
	RBI4710320	25	135	33	105	32	60	G. 1½	116	£195.64
	RBI4710400	32	222	79	151	40	83	G. 2¼	154	£275.42
	RBI4710500	40	222	79	151	50	83	G. 2¼	154	£356.04
	RBI4710630	50	234	90	161	63	103	G. 3¾	182	£397.72

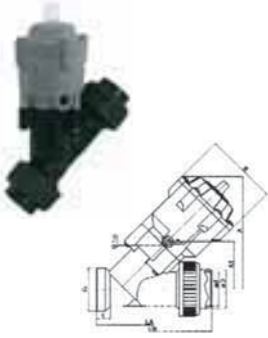


Prices shown are for one item excluding VAT # Refer to metric equivalent

Diaphragm valves

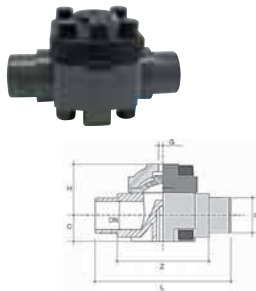
Angle Seat Globe Valves Plastic

Nominal Size	Code	A	A 1	B	Ød	ØD	G	LA	LB	Price each
	RBI45I0200				19.5	G. 1	123.8		178.57	£293.72
	RBI45I0250				24.5	G. 1½	158.0		216.66	£356.36
	RBI45I0320				31.5	G. 1½	162.0		216.66	£386.60
	RBI45I0630				62.5	G. 2¾	235.0		290.00	£476.98



Diaphragm Valve

Nominal Size	Code	dmm	DN	Box	C	G	H	L	Z	Weight (GR)	Price each
	RBI41I0400	40	32	40	38	¼	73	204	150	1.100	£61.44
	RBI41I0500	50	40	50	36	¼	73	192	130	1.150	£67.50
	RBI41I0630	63	50	63	45	¼	80	224	148	1.700	£77.50
	RBA41A032E	1" x 1¼"			38	¼	73	204	150	1.100	£62.28
	RBA41A040E	1¼" x 1¼"			38	¼	73	204	150	1.100	£76.74



Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS Pipe Systems

ABS (Acrylonitrile Butadiene Styrene) is highly rated as a thermoplastic pipework system and is used in many applications such as food and beverage processing as well as water and sewerage treatment and many other industries.

ABS has good chemical resistance with high impact strength.

ABS is non toxic and conforms to the toxicological requirements of the British Plastic Federation, British Industrial Biological Research Association Code of Practice for food usage 45/5.

It also fulfils the EEC requirements for plastic materials in contact with foodstuffs.

ABS systems are lightweight, rigid and easy to install using a solvent cement.

Colour

ABS products are recognised by their light grey colour.

Chemical Resistance

Polypipe Effast ABS has good resistance to most diluted inorganic acids, salts, animal fats and oils and organic acids. It is not resistant to organic solvents, alcohol, petrol, acetic acid or vegetable oils. Recommendations can be given by our Technical Department regarding the resistance of ABS to specific chemicals.

Standards

Individual products are in compliance with appropriate British Standards:

Fittings (inch size) BS 5392 Part 1

Pipe (inch size) BS 5391

Fittings (mm size) DIN 8063, ISO 727, UNI 7442/75

Threaded fittings BS 21, DIN 2999, ISO 7

Solvent Cement BS 4346 Part 3

Imperial and Metric Sizes

The following notes may be helpful to those unfamiliar with the different ways of describing metric and imperial sizes when specifying pipe or fittings.

When specifying Imperial pipe fittings and other components reference is made to the nominal size of the pipe bore in inches and fractions of an inch.

Metric Systems are specified by reference to the outside diameter of the pipe expressed in millimetres.

As a general guide the following table gives a comparison between metric and imperial sizes up to 8 inches. It is important to understand that metric sizes are not simply inch sizes which have been converted into millimetres and called metric. The actual equivalents are slightly different (except for Imperial size 2 1/2 inches and metric size 75mm and 5 inches and 140mm which happen to coincide exactly) and are not interchangeable.

Imperial Sizes (inches)		Metric Sizes (mm)	
Nominal bore	Pipe outside dia.	Pipe outside dia.	Nominal bore
3/8"	17.1	16	10
1/2"	21.4	20	15
3/4"	26.7	25	20
1"	33.6	32	25
1 1/4"	42.2	40	32
1 1/2"	48.3	50	40
2"	60.3	63	50
2 1/2"	75.2	75	65
3"	88.9	90	80
4"	114.3	110	100
5"	140.2	140	125
6"	168.3	160	150
8"	219.1	225	200

Temperature and Pressure

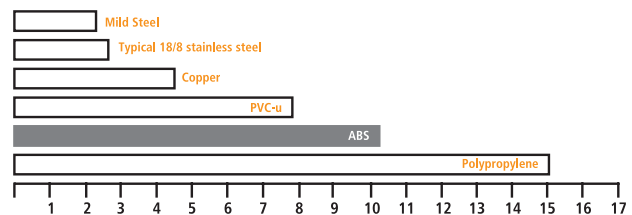
It is suitable for use over a wide temperature range from -40°C to +60°C at pressures up to 15 bar. Please consult the temperature/pressure relationship chart for specific ratings. It is important to remember that if the temperature is increased above 20°C then the pressure must be reduced.

ABS in sub-zero temperatures

ABS Pipe systems are suitable for temperatures as low as -40°C, however it is necessary as with any other pipeline to take preventative measures to ensure the pipeline fluid does not freeze, as freezing would cause subsequent damage to the system.

Thermal expansion

The thermal coefficient of linear expansion for ABS is $10.1 \times 10^{-5} \text{m/m} \cdot ^\circ\text{C}$. It is necessary in certain situations to make special provision for this expansion and contraction. Thermal expansion of ABS is compared with other materials, in the following chart.



General Information

Imperial Solvent weld
Threaded

Temperature range
-40°C to +60°C

Size range
1/2" – 8"
1/2" – 4"



WRAS Approval

Water Regulations Advisory Scheme.
Approved product for potable water



Kite Mark Licence
Fittings No. KM 60041

Sales and enquiries please contact: 08452 700886

ABS

Pressure Ratings Fittings & Valves Imperial

Unless otherwise indicated the pressure ratings are as follows

PRODUCT	SIZE	PRESSURE RATING
Fitting Solvent Cement	1/2" – 6"	15 bar (217psi)
8"	9 bar (130psi)	
Fittings Threaded	3/8" – 4"	10 bar (145psi)
Valves	3/8" – 2"	16 bar (232psi)
Valves	2 1/2" – 4"	10 bar (145psi)

All pressure ratings are at 20°C

All threaded fittings are parallel thread unless otherwise stated.

ie: BSP Female and BSP Male are Parallel

BSPT = Tapered Thread

Pressure Ratings Fittings & Valves Metric

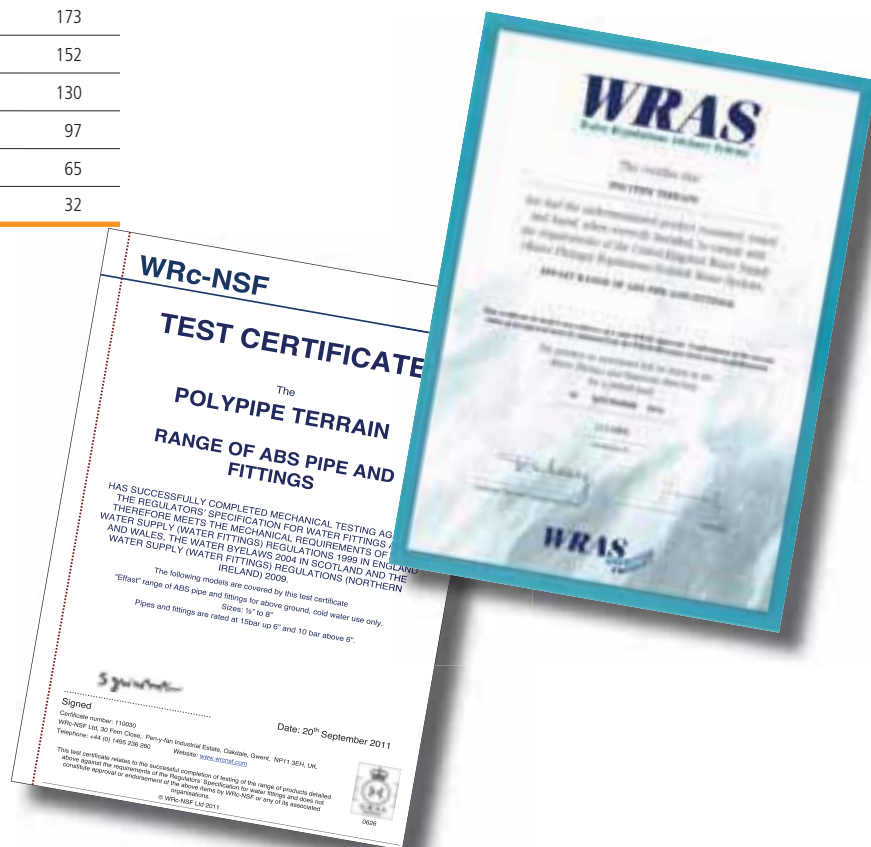
Unless otherwise indicated the pressure ratings are as follows

PRODUCT	SIZE MM	PRESSURE RATING
Fitting Solvent Cement	16–160	16 bar (232psi)
200–225	10 bar (145psi)	
Valves	20–63	16 bar (232psi)
Valves	75–110	10 bar (145psi)

All pressure ratings are at 20°C

Temperature & Pressure Relationship

Temp°C	Class C		Class D		Class E	
	BAR	PSI	BAR	PSI	BAR	PSI
0	9.0	130	12.0	173	15.0	217
20	9.0	130	12.0	173	15.0	217
30	8.1	117	10.8	155	13.5	195
35	7.2	104	9.6	138	12.0	173
40	6.3	91	8.4	121	10.5	152
45	5.4	78	7.2	104	9.0	130
50	4.0	58	5.4	78	6.7	97
55	2.7	39	3.6	52	4.5	65
60	1.3	19	1.8	26	2.2	32



Useful Information

The following information may be helpful in understanding the specification of metric and imperial sizes and pressure ratings when selecting pipe.

When specifying imperial pipe, fittings and other components, reference is made to the nominal size of the pipe bore in inches and fractions of an inch. With metric systems, reference is made to the outside diameter and is expressed in millimetres. It is important to note that with the exception of 2½"/75mm and 5"/140mm the systems are not interchangeable.

Temperature and pressure relationship for ABS pipes

Temperature (°C)	Class C	Class E
	bar (psi)	bar (psi)
-40	9.0 (130)	15.0 (217)
-20	9.0 (130)	15.0 (217)
0	9.0 (130)	15.0 (217)
20	9.0 (130)	15.0 (217)
30	8.1 (117)	13.5 (195)
40	6.3 (91)	10.5 (152)
50	4.5 (65)	7.5 (108)
60	2.7 (39)	4.5 (65)

Imperial and metric size information

Imperial sizes		Metric sizes	
Nominal bore (inches)	Pipe outside diameter (mm)	Pipe outside diameter (mm)	Nominal bore (mm)
⅜"	17.1	16	10
½"	21.4	20	15
¾"	26.7	25	20
1"	33.6	32	25
1¼"	42.2	40	32
1½"	48.3	50	40
2"	60.3	63	50
2½"	75.2	75	65
3"	88.9	90	80
4"	114.3	110	100
5"	140.2	140	125
6"	168.3	160	150
8"	219.1	225	200

ABS pressure pipes 6m lengths

plain end

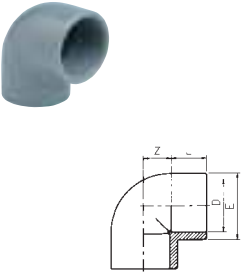
Description	Product code	Price per length
Pressure pipe class C		
 1"	APCCLC0320	£32.52
1¼"	APCCLC0400	£54.63
1½"	APCCLC0500	£69.35
2"	APCCLC0630	£93.27
2½"	APCCLC0750	£161.45
3"	APCCLC0900	£192.95
4"	APCCLC1100	£317.12
6"	APCCLC1600	£651.36
8"	APCCLC2250	£1,171.86
Pressure pipe class E		
 ½"	APECLE0200	£24.75
¾"	APECLE0250	£38.21
1"	APECLE0320	£50.34
1¼"	APECLE0400	£75.07
1½"	APECLE0500	£98.99
2"	APECLE0630	£124.21
3"	APECLE0900	£248.98
4"	APECLE1100	£401.01
Pressure pipe class T (machining quality max. 12 bar at 20°C)		
 ½"	APTCLT0200	£42.86
¾"	APTCLT0250	£48.61
1"	APTCLT0320	£69.37
1¼"	APTCLT0400	£121.44
1½"	APTCLT0500	£122.77
2"	APTCLT0630	£167.27

Prices shown are for one item excluding VAT

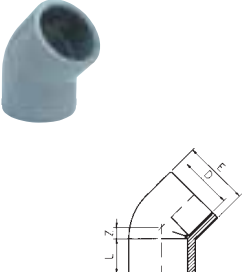
ABS solvent cement fittings

* Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

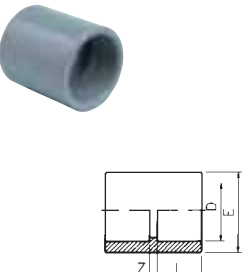
Elbow 90° Plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	½"	AFAGOA0200	17	11	27	10	13	£2.05
	¾"	AFAGOA0250	20	14	33	10	20	£2.46
	1"	AFAGOA0320	23	17	41	10	35	£3.35
	1¼"	AFAGOA0400	27	22	51	10	56	£5.77
	1½"	AFAGOA0500	32	26	61	10	117	£7.44
	2"	AFAGOA0630	37	34	75	10	222	£11.24
	2½"	AFAGOA0750	44	39	90	1	301	£21.61
	3"	AFAGOA0900	52	45	107	1	509	£32.39
	4"	AFAGOA1100	63	59	133	1	948	£48.32
	5"	AFAGOA1400	79	68	164	1	1543	£111.46
6"	AFAGOA1600	93	85	198	1	2961	£193.75	
8"*	AFAGOA2250	116	116	258	1	6567	£391.36	

Elbow 45° Plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	½"	AFAGYA0200	17	5	27	10	12	£3.92
	¾"	AFAGYA0250	20	6	33	10	18	£3.98
	1"	AFAGYA0320	23	8	41	10	31	£5.08
	1¼"	AFAGYA0400	27	10	52	10	47	£7.26
	1½"	AFAGYA0500	32	12	61	10	97	£9.12
	2"	AFAGYA0630	39	15	75	10	176	£12.54
	2½"	AFAGYA0750	44	18	90	1	231	£19.82
	3"	AFAGYA0900	52	21	107	1	390	£29.46
	4"	AFAGYA1100	63	25	133	1	649	£61.23
	6"	AFAGYA1600	90	36	198	1	2306	£127.11
8"*	AFAGYA2250	112	52	253	1	3820	£357.90	

Socket Plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	½"	AFAMAA0200	17	3	27	10	11	£1.55
	¾"	AFAMAA0250	20	3	33	10	16	£1.75
	1"	AFAMAA0320	23	3	41	10	25	£1.98
	1¼"	AFAMAA0400	27	3	52	10	39	£3.40
	1½"	AFAMAA0500	32	3	61	10	74	£4.05
	2"	AFAMAA0630	37	3	75	10	132	£5.77
	2½"	AFAMAA0750	44	4	90	1	164	£12.45
	3"	AFAMAA0900	52	5	107	1	283	£22.93
	4"	AFAMAA1100	67	6	133	1	526	£32.64
	5"	AFAMAA1400	76	8	164	1	833	£63.34
6"	AFAMAA1600	90	8	198	1	1294	£81.26	
8"*	AFAMAA2250	120	10	253	1	3391	£214.00	

Prices shown are for one item excluding VAT # Refer to metric equivalent

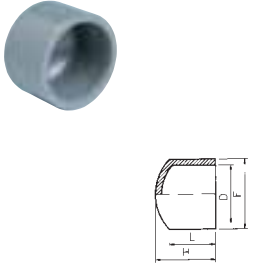
ABS solvent cement fittings

* Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

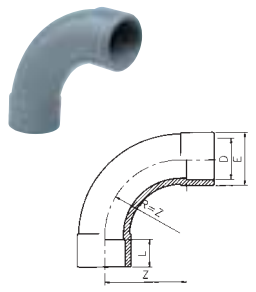
Tee 90° Plain

	Nominal Size	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
	½"	AFATIA0200	17	11	27	10	17	£2.27
	¾"	AFATIA0250	20	14	33	10	27	£3.20
	1"	AFATIA0320	23	17	41	10	50	£4.49
	1¼"	AFATIA0400	27	21	52	10	79	£6.38
	1½"	AFATIA0500	32	26	61	10	116	£9.32
	2"	AFATIA0630	37	33	75	5	284	£14.27
	2½"	AFATIA0750	44	39	90	1	394	£24.65
	3"	AFATIA0900	52	45	107	1	657	£41.60
	4"	AFATIA1100	63	62	133	1	1131	£61.09
	5"	AFATIA1400	76	71	164	1	2032	£162.05
	6"	AFATIA1600	93	86	198	1	3755	£213.48
	8"*	AFATIA2250	116	116	258	1	8453	£437.61

Cap Plain

	Nominal Size	Code	L	H	E	Pack Qty	Weight (GR)	Price each
	½"	AFACAA0200	17	37	27	10	9	£1.48
	¾"	AFACAA0250	20	31	33	10	12	£1.79
	1"	AFACAA0320	23	35	41	10	21	£2.01
	1¼"	AFACAA0400	27	42	52	10	30	£3.22
	1½"	AFACAA0500	32	47	61	10	59	£4.92
	2"	AFACAA0630	39	48	75	10	104	£6.43
	2½"	AFACAA0750	44	59	90	1	137	£16.09
	3"	AFACAA0900	52	81	107	1	235	£18.91
	4"	AFACAA1100	63	99	133	1	397	£29.01
	6"	AFACAA1600	90	132	191	1	1021	£76.89
8"*	AFACAA2250	119	165	255	1	2311	£197.42	

Bend 90° Short Radius Plain

	Nominal Size	Code	L	H	E	Pack Qty	Weight (GR)	Price each
	½"	AFACUA0200	17	40	30	10	55	£7.50
	¾"	AFACUA0250	20	50	36	10	55	£8.74
	1"	AFACUA0320	23	64	44	10	90	£12.24
	1¼"	AFACUA0400	27	80	54	1	156	£17.54
	1½"	AFACUA0500	32	100	63	1	256	£21.96
	2"	AFACUA0630	39	126	78	1	445	£29.17
	2½"	AFACUA0750	44	150	94	1	777	£60.62
	3"	AFACUA0900	51	180	113	1	1361	£74.54

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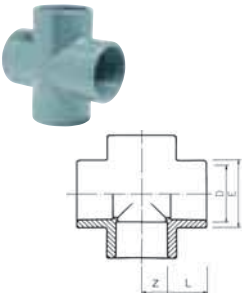
ABS solvent cement fittings

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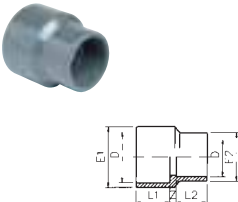
Union Plain

	Nominal Size	Code	L	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
	½"	AFABOA0200	17	3	10	1"	42	10	31	£7.96
	¾"	AFABOA0250	20	3	10	1¼"	52	10	49	£8.66
	1"	AFABOA0320	23	3	10	1½"	59	10	67	£11.70
	1¼"	AFABOA0400	27	3	12	2"	72	10	115	£14.27
	1½"	AFABOA0500	32	3	14	2¼"	79	10	164	£19.64
	2"	AFABOA0630	39	3	18	2¾"	96	10	288	£25.65
	2½"*	AFABOA0750	44	3	18	3½"	119	1	434	£62.07
	3"*	AFABOA0900	52	5	18	4"	134	1	599	£94.97
	4"*	AFABOA1100	63	5	18	5"	163	1	876	£127.91

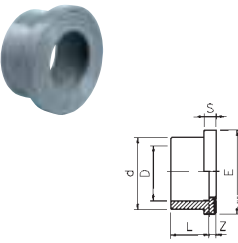
Cross 90° Plain

	Nominal Size	Code	L	Z	E	Weight (GR)	Price each
	1"	AFACXA0320	23	17	42	110	£8.91
	1½"	AFACXA0500	31	26	61	270	£15.72
	2"	AFACXA0630	38	33	75	510	£52.87

Reducing Socket Plain

	Nominal Size	Code	L1	L2	Z	E1	E2	Pack Qty	Weight (GR)	Price each
	1¼" x 1"	AFAMRA040D	27	23	5	51	42	10	49	£4.29
	1½" x 1¼"	AFAMRA050E	32	27	5	61	52	10	84	£4.92
	2" x 1½"	AFAMRA063F	39	32	5	75	62	10	155	£11.21
	4" x 3"	AFAMRA110I	63	52	4	130	108	1	524	£35.15

Stub Flange (Serrated Face) Plain


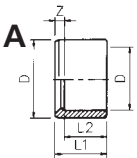
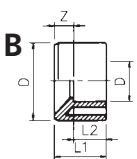
	Nominal Size	Code	L	Z	d	S	E	Pack Qty	Weight (GR)	Price each
	½"	AFAQRA0200	17	3	27	6	34	10	8	£1.41
	1"	AFAQRA0320	23	3	41	7	50	10	18	£2.27
	1½"	AFAQRA0500	32	3	61	8	73	10	50	£6.08
	2"	AFAQRA0630	39	3	76	9	90	10	91	£9.32
	2½"	AFAQRA0750	44	3	90	10	106	1	118	£14.79
	3"	AFAQRA0900	52	5	108	11	125	1	209	£18.29
	4"	AFAQRA1100	63	5	134	12	155	1	330	£23.68
	5"	AFAQRA1400	76	5	165	13	188	1	563	£54.33
	6"	AFAQRA1600	90	6	197	14	218	1	816	£61.45
8"*	AFAQRA2250	119	7	248	19	274	1	1580	£161.28	

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS solvent cement fittings

* Maximum working pressure: 9 bar (130 psi) at 20°C. For backing rings and gaskets see Accessories section

Reducing Bush Plain

	Nominal Size	Code	L1	L2	Z	FIG	Pack Qty	Weight (GR)	Price each
  	¾" x ½"	AFARCA025B	20	17	3	A	10	6	£1.56
	1" x ½"	AFARCA032B	20	17	6	B	10	16	£2.01
	1" x ¾"	AFARCA032C	23	20	3	A	10	10	£2.01
	1¼" x 1"	AFARCA040D	27	23	4	A	10	20	£2.61
	1½" x ¾"	AFARCA050C	32	20	12	B	10	39	£3.38
	1½" x 1"	AFARCA050D	32	23	9	B	10	42	£3.38
	1½" x 1¼"	AFARCA050E	32	27	5	A	10	22	£3.38
	2" x 1"	AFARCA063D	39	23	16	B	10	69	£4.52
	2" x 1¼"	AFARCA063E	39	27	12	B	10	71	£4.52
	2" x 1½"	AFARCA063F	39	32	7	A	10	54	£4.52
	2½" x 1½"	AFARCA075F	45	31	14	B	1	93	£8.03
	2½" x 2"	AFARCA075G	44	39	5	A	1	95	£8.03
	3" x 1½"	AFARCA090F	52	32	20	B	1	169	£13.86
	3" x 2"	AFARCA090G	52	39	13	B	1	143	£13.86
	3" x 2½"	AFARCA090H	52	44	8	A	1	96	£13.86
	4" x 2"	AFARCA110G	63	39	24	B	1	336	£17.31
	4" x 3"	AFARCA110I	63	52	11	A	1	258	£17.31
	5" x 4"	AFARCA140L	77	65	12	A	1	415	£49.96
	6" x 4"	AFARCA160L	90	63	27	B	1	745	£53.29
	8" x 6"*	AFARCA225M	118	91	27	B	1	1559	£147.57

Prices shown are for one item excluding VAT # Refer to metric equivalent


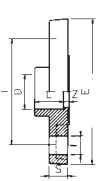
PVCu full face flanges (drilled)

For gaskets see Accessories section

Full Face Flange Drilled to BS 10 Table E Plain

	Nominal Size	Code	L	Z	E	f	I	S	HOLES	Weight (GR)	Price each
 	1"	AFAFFA0320	23	4	115	14	83	16	4	145	£9.12
	1½"	AFAFFA0500	32	4	152	18	98	17	4	270	£12.67
	2"	AFAFFA0630	38	4	165	18	115	20	4	380	£16.71
	3"	AFAFFA0900	51	7	200	18	146	22	4	526	£31.41
	4"	AFAFFA110E	61	5	220	18	178	23	8	663	£41.88

Full Face Flange Drilled to BS 4504 NP10/16 Plain

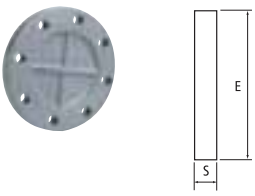
	Nominal Size	Code	L	Z	E	f	I	S	HOLES	Weight (GR)	Price each
 	1"	AFAFNA0320	23	4	115	14	85	16	4	145	£9.12
	1¼"	AFAFNA0400	27	4	142	18	100	17	4	220	£10.93
	1½"	AFAFNA0500	32	4	152	18	110	17	4	270	£12.67
	2"	AFAFNA0630	38	4	165	18	125	20	4	380	£16.71
	2½"	AFAFNA0750	44	4	185	18	145	19	4	465	£28.00
	3"	AFAFNA0900	51	7	200	18	160	22	8	524	£31.41
	4"	AFAFNA1100	61	5	220	18	180	23	8	666	£41.88

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS blanking flanges

Maximum working pressure: 2" 15 bar (217 psi) at 20°C For gaskets see Accessories section

Blanking Flange Drilled to BS4504 NP10/16

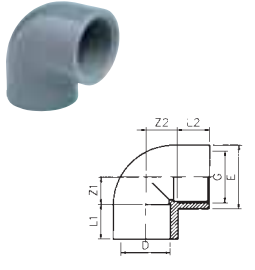
	Nominal Size	Code	E	S	I	f	HOLES	Weight (GR)	Price each
	2"	AFIFC10630	165	18	125	18	4	300	£47.82
	3"	AFIFC10900	200	20	160	18	8	524	£84.72
	4"	AFIFC11100	220	22	180	18	8	660	£110.84

Prices shown are for one item excluding VAT # Refer to metric equivalent

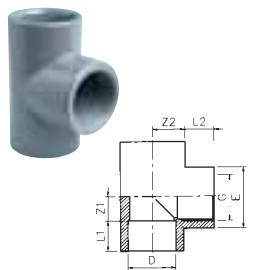
ABS adaptor fittings

Maximum working pressure: 9 bar (130 psi) at 20°C . For gaskets see Accessories section

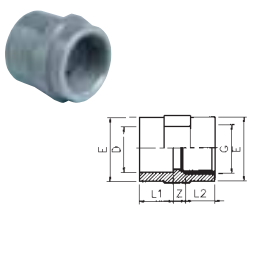
Elbow 90° Plain/BSP Female Threaded

	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFCGOC0200	17	15	11	12	28	10	16	£6.38
	¾"	BSPF	AFCGOC0250	20	16	14	17	34	10	28	£6.75
	1"	BSPF	AFCGOC0320	23	19	17	20	42	10	49	£8.75
	1¼"	BSPF	AFCGOC0400	27	21	21	27	51	10	76	£17.86
	1½"	BSPF	AFCGOC0500	32	21	26	37	61	10	163	£19.98
	2"	BSPF	AFCGOC0630	39	26	33	46	75	10	308	£28.28
	3"	BSPF	AFCGOC0900	51	35	47	66	106	1	549	£43.16

Tee 90° Plain/BSP Female Threaded

	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFCTIC0200	17	15	11	12	28	10	25	£6.81
	¾"	BSPF	AFCTIC0250	20	16	14	17	34	10	38	£7.54
	1"	BSPF	AFCTIC0320	23	19	17	20	42	10	69	£9.12
	1¼"	BSPF	AFCTIC0400	27	21	21	27	51	10	106	£19.13
	1½"	BSPF	AFCTIC0500	32	21	26	37	61	10	213	£21.07
	2"	BSPF	AFCTIC0630	39	26	33	46	75	5	380	£29.63
	3"	BSPF	AFCTIC0900	51	36	47	66	106	1	674	£55.42

Socket Plain/BSP Female Threaded

	Nominal Size	G	Code	L1	L2	Z	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFCMAC0200	17	15	4	28	10	15	£5.07
	¾"	BSPF	AFCMAC0250	20	16	6	34	10	22	£5.62
	1"	BSPF	AFCMAC0320	23	19	6	42	10	37	£7.02
	1¼"	BSPF	AFCMAC0400	27	21	8	51	10	60	£10.97
	1½"	BSPF	AFCMAC0500	32	21	13	61	10	104	£12.82
	2"	BSPF	AFCMAC0630	39	26	15	89	10	161	£16.87
	3"	BSPF	AFCMAC0900	52	33	9	106	1	343	£46.11

Prices shown are for one item excluding VAT # Refer to metric equivalent

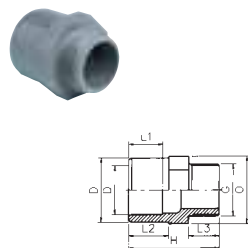
ABS adaptor fittings

Maximum working pressure: 9 bar (130 psi) at 20°C . For gaskets see Accessories section

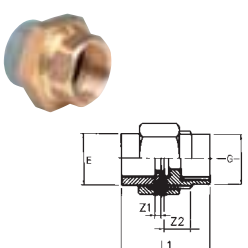
Adaptor Plain Male Spigot/BSP Female Threaded

	Nominal Size	G	Code	L1	L2	E	Z	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFC AFC0200	17	15	28	24	10	19	£3.36
	¾"	BSPF	AFC AFC0250	20	16	34	27	10	27	£4.29
	1"	BSPF	AFC AFC0320	23	19	42	30	10	43	£5.96
	1¼"	BSPF	AFC AFC0400	27	21	51	36	10	68	£7.54
	1½"	BSPF	AFC AFC0500	32	21	58	41	10	73	£10.25
	2"	BSPF	AFC AFC0630	39	25	72	48	10	115	£14.32

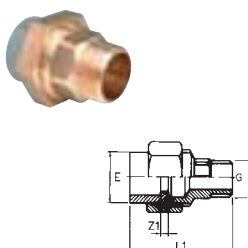
Adaptor Female Plain/BSP Male Threaded

	Nominal Size	G	Code	L1	L2	L3	H	O	Pack Qty	Weight (GR)	Price each
	½"	BSPM	AFC AMC0200	17	19	15	46	30	10	16	£3.00
	¾"	BSPM	AFC AMC0250	20	22	16	50	36	10	28	£3.91
	1"	BSPM	AFC AMC0320	23	27	19	57	46	10	48	£5.39
	1¼"	BSPM	AFC AMC0400	27	32	21	66	55	10	54	£7.43
	1½"	BSPM	AFC AMC0500	32	39	21	74	65	10	113	£9.66
	2"	BSPM	AFC AMC0630	39	44	25	84	80	10	184	£13.84
	3"	BSPM	AFC AMC0900	52	61	33	113	115	1	356	£39.82
	4"	BSPM	AFC AMC1100	63	66	39	120	130	1	454	£53.49

Composite Union Plain/BSP Female Brass Threaded

	Nominal Size	G	Code	E	L1	Z1	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFC BFC0200	28	58	3	1	175	£22.83
	¾"	BSPT	AFC BFC0250	36	69	3	1	238	£25.65
	1"	BSPT	AFC BFC0320	42	72	3	1	324	£34.41
	1¼"	BSPT	AFC BFC0400	53	86	3	1	469	£43.85
	1½"	BSPT	AFC BFC0500	59	92	3	1	595	£65.56
	2"	BSPT	AFC BFC0630	74	109	3	1	982	£81.09
	2½"	BSPT	AFC BFC0750	93	127	3	1	1663	£197.82
3"	BSPT	AFC BFC0900	105	139	5	1	2184	£202.37	

Composite Union Plain/BSP Taper Male Brass Threaded

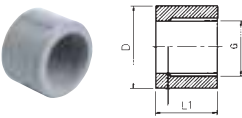
	Nominal Size	G	Code	E	L1	Z1	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFC BMC0200	28	58	3	1	175	£23.86
	¾"	BSPT	AFC BMC0250	36	69	3	1	238	£32.21
	1"	BSPT	AFC BMC0320	42	72	3	1	324	£42.50
	1¼"	BSPT	AFC BMC0400	53	86	3	1	469	£47.73
	1½"	BSPT	AFC BMC0500	59	92	3	1	595	£79.59
	2"	BSPT	AFC BMC0630	74	109	3	1	982	£103.82
	2½"	BSPT	AFC BMC0750	93	127	3	1	1663	£238.66
3"	BSPT	AFC BMC0900	105	139	5	1	2184	£274.07	

Prices shown are for one item excluding VAT # Refer to metric equivalent

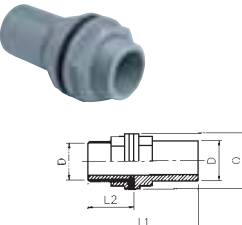
ABS adaptor fittings

Maximum working pressure: 9 bar (130 psi) at 20°C . For gaskets see Accessories section

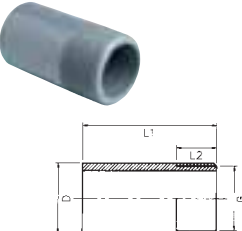
Reducing Bush Plain/BSP Female Threaded

	Nominal Size	G	Code	L1	D	G	Pack Qty	Weight (GR)	Price each
	½" x ¾"	BSPF	AFCRCC020A	16	½"	¾"	10	2	£3.72
	¾" x 1½"	BSPF	AFCRCC025B	19	¾"	1½"	10	5	£4.29
	1" x ¾"	BSPF	AFCRCC032C	22	1"	¾"	10	9	£5.68

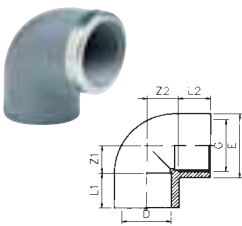
Tank Connector Plain/BSP Male Threaded EPDM Gasket

	Nominal Size		Code	L	d	F	E	Weight (GR)	Price each	
	½"	BSPM	AFCTCC0200	77	42	38		10	31	£8.68
	¾"	BSPM	AFCTCC0250	77	42	42		10	37	£10.12
	1"	BSPM	AFCTCC0320	103	55	55		10	71	£25.30
	1¼"	BSPM	AFCTCC0400	121	70	65		10	112	£41.36
	1½"	BSPM	AFCTCC0500	128	73	72		10	168	£54.00
	2"	BSPM	AFCTCC0630	154	85	93		10	317	£62.41
	2½"	BSPM	AFCTCC0750	164	88	106		1	358	£82.04
	3"	BSPM	AFCTCC0900	202	112	125		1	674	£102.23
	4"	BSPM	AFCTCC1100	230	130	154		1	1214	£122.39

Barrel Nipple Plain/BSP Male Taper Threaded

	Nominal Size	G	Code	L1	L2	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFCBNC0200	50	17	10	14	£3.72
	¾"	BSPT	AFCBNC0250	56	16	10	25	£4.66
	1"	BSPT	AFCBNC0320	63	20	10	38	£5.96
	1¼"	BSPT	AFCBNC0400	75	24	10	52	£8.20
	1½"	BSPT	AFCBNC0500	88	30	10	80	£8.94
	2"	BSPT	AFCBNC0630	88	32	10	115	£11.52
	2½"	BSPT	AFCBNC0750	106	35	1	197	£26.93
	3"	BSPT	AFCBNC0900	128	39	1	300	£30.49
	4"	BSPT	AFCBNC1100	153	43	1	560	£50.04

Elbow 90° Plain/BSP Female Threaded with Stainless Reinforcing Ring

	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFRGER0200	17	15	11	12	28	10	20	£7.44
	¾"	BSPF	AFRGER0250	20	16	14	17	34	10	36	£7.84
	1"	BSPF	AFRGER0320	23	19	17	20	42	10	61	£9.57
	1¼"	BSPF	AFRGER0400	27	21	21	27	51	10	92	£17.60
	1½"	BSPF	AFRGER0500	32	21	26	37	61	10	183	£19.68
	2"	BSPF	AFRGER0630	39	26	33	46	75	10	332	£26.87

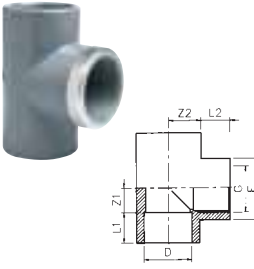
Prices shown are for one item excluding VAT # Refer to metric equivalent

Sales and enquiries please contact: 08452 700886

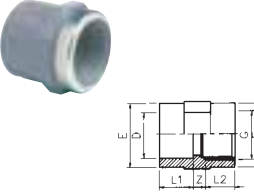
ABS adaptor fittings

Maximum working pressure: 9 bar (130 psi) at 20°C . For gaskets see Accessories section

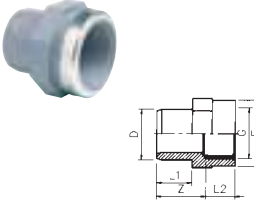
Tee 90° Plain/BSP Female Threaded Branch with Stainless Reinforcing Ring

	Nominal Size	G	Code	L1	L2	Z1	Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFRTER0200	17	15	11	12	28	10	29	£7.74
	¾"	BSPF	AFRTER0250	20	16	14	17	34	10	46	£8.44
	1"	BSPF	AFRTER0320	23	19	17	20	42	10	81	£9.81
	1¼"	BSPF	AFRTER0400	27	21	21	27	51	10	122	£18.53
	1½"	BSPF	AFRTER0500	32	21	26	37	61	10	233	£20.44
	2"	BSPF	AFRTER0630	39	26	33	46	75	5	404	£27.80

Socket Plain/BSP Female Threaded with Stainless Reinforcing Ring

	Nominal Size	G	Code	L1	L2	Z	E	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFRMER0200	17	15	4	28	10	19	£6.37
	¾"	BSPF	AFRMER0250	20	16	6	34	10	30	£6.88
	1"	BSPF	AFRMER0320	23	19	6	42	10	49	£8.14
	1¼"	BSPF	AFRMER0400	27	21	8	51	10	76	£11.86
	1½"	BSPF	AFRMER0500	32	21	13	61	10	124	£14.11
	2"	BSPF	AFRMER0630	39	26	15	89	10	185	£17.38

Adaptor Plain Male Spigot/BSP Female Threaded with Stainless Reinforcing Ring

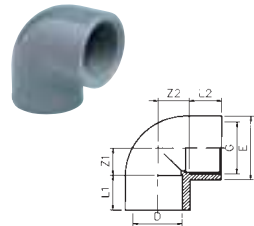
	Nominal Size	G	Code	L1	L2	E	Z	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFRAER0200	17	15	28	24	10	23	£5.05
	¾"	BSPF	AFRAER0250	20	16	34	27	10	35	£5.75
	1"	BSPF	AFRAER0320	23	19	42	30	10	55	£7.21
	1¼"	BSPF	AFRAER0400	27	21	51	36	10	84	£8.97
	1½"	BSPF	AFRAER0500	32	21	58	41	10	93	£11.48
	2"	BSPF	AFRAER0630	39	25	72	48	10	139	£15.19

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS threaded fittings

For gaskets see Accessories section

Elbow 90° BSP Female Threaded

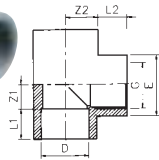
	Nominal Size	G	Code	L1/L2	Z1/Z2	E	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFFGOF0200	15	12	28	10	15	£6.62
	¾"	BSPF	AFFGOF0250	16	17	34	10	27	£6.75
	1"	BSPF	AFFGOF0320	19	20	42	10	48	£8.87
	1¼"	BSPF	AFFGOF0400	21	26	51	10	75	£13.81
	1½"	BSPF	AFFGOF0500	21	36	62	10	162	£17.60
	2"	BSPF	AFFGOF0630	26	45	77	10	306	£26.43

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS threaded fittings

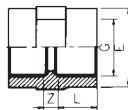
For gaskets see Accessories section

Tee 90° BSP Female Threaded



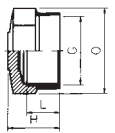
Nominal Size	G	Code	L1/L2	Z1/Z2	E	Pack Qty	Weight (GR)	Price each
½"	BSPF	AFFTIF0200	15	12	28	10	23	£6.81
¾"	BSPF	AFFTIF0250	16	17	34	10	36	£7.54
1"	BSPF	AFFTIF0320	19	20	42	10	67	£10.31
1¼"	BSPF	AFFTIF0400	21	26	51	10	104	£17.47
1½"	BSPF	AFFTIF0500	21	36	62	10	210	£22.47
2"	BSPF	AFFTIF0630	26	45	77	5	376	£38.67

Socket BSP Female Threaded



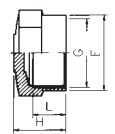
Nominal Size	G	Code	L	Z	E	Pack Qty	Weight (GR)	Price each
½"	BSPF	AFFMAF0200	15	7	27	10	16	£6.75
¾"	BSPF	AFFMAF0250	16	7	33	10	20	£7.54
1"	BSPF	AFFMAF0320	19	8	41	10	36	£9.51
1¼"	BSPF	AFFMAF0400	21	8	50	10	52	£12.98
1½"	BSPF	AFFMAF0500	21	8	61	10	56	£14.63
2"	BSPF	AFFMAF0630	26	8	75	10	100	£18.41

Plug BSP Male Threaded



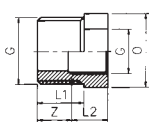
Nominal Size	G	Code	L	H	O	Pack Qty	Weight (GR)	Price each
½"	BSPM	AFFTAF0200	15	29	24	10	8	£3.91
¾"	BSPM	AFFTAF0250	16	30	30	10	12	£4.82
1"	BSPM	AFFTAF0320	19	33	36	10	20	£5.77
1¼"	BSPM	AFFTAF0400	21	39	46	10	32	£7.61
1½"	BSPM	AFFTAF0500	21	39	50	10	36	£9.66
2"	BSPM	AFFTAF0630	26	43	65	10	64	£10.96

Cap BSP Female Threaded



Nominal Size	G	Code	L	H	E	Pack Qty	Weight (GR)	Price each
½"	BSPF	AFFCAF0200	15	21	28	10	12	£5.57
¾"	BSPF	AFFCAF0250	16	23	34	10	14	£7.79
1"	BSPF	AFFCAF0320	19	26	42	10	16	£8.27
1¼"	BSPF	AFFCAF0400	21	29	51	10	28	£8.94
1½"	BSPF	AFFCAF0500	21	32	61	10	40	£11.52
2"	BSPF	AFFCAF0630	26	37	75	10	64	£14.59
3"	BSPF	AFFCAF0900	33	53	103	1	216	£50.49

Reducing Bush BSP Male Threaded/BSP Female Threaded



Nominal Size	Code	L1	L2	Z	O	Pack Qty	Weight (GR)	Price each
¾" x ½"	AFFRCF025B	16	15	13	30	10	10	£4.55
1" x ¾"	AFFRCF032C	19	16	14	36	10	16	£5.87
1¼" x 1"	AFFRCF040D	21	19	16	46	10	28	£12.94
1½" x 1¼"	AFFRCF050E	21	21	14	55	10	30	£14.22
2" x 1½"	AFFRCF063F	25	21	18	65	10	54	£18.22
2½" x 2"	AFFRCF075G	30	25	20	80	1	108	£19.85
3" x 2½"	AFFRCF090H	33	30	20	95	1	128	£28.24
4" x 3"	AFFRCF110I	39	33	24	120	1	304	£39.35

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS threaded fittings

For gaskets see Accessories section

Barrel Nipple BSP Male Taper Threaded

	Nominal Size	G	Code	L	H	Pack Qty	Weight (GR)	Price each
	½"	BSPT	AFFBAF0200	16	50	10	10	£4.10
	¾"	BSPT	AFFBAF0250	19	56	10	16	£4.82
	1"	BSPT	AFFBAF0320	21	62	10	24	£6.43
	1¼"	BSPT	AFFBAF0400	24	75	10	41	£8.27
	1½"	BSPT	AFFBAF0500	32	87	10	66	£9.01
	2"	BSPT	AFFBAF0630	29	87	10	95	£11.52
	2½"	BSPT	AFFBAF0750	30	105	1	135	£21.35
	3"	BSPT	AFFBAF0900	37	128	1	194	£24.94
	4"	BSPT	AFFBAF1100	42	156	1	388	£33.52

Hexagon Nipple BSP Male Threaded

	Nominal Size	G	Code	L	H	O	Pack Qty	Weight (GR)	Price each
	½"	BSPM	AFFNIF0200	15	42	24	10	8	£3.44
	¾"	BSPM	AFFNIF0250	16	44	30	10	14	£4.55
	1"	BSPM	AFFNIF0320	19	50	36	10	24	£5.77
	1¼"	BSPM	AFFNIF0400	21	58	46	10	36	£8.00
	1½"	BSPM	AFFNIF0500	21	58	50	10	40	£9.47
	2"	BSPM	AFFNIF0630	26	66	65	10	72	£11.44

Backnut BSP Female Threaded

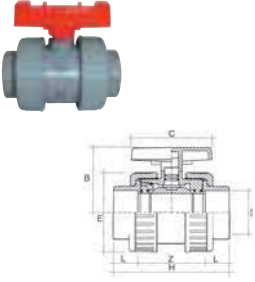
	Nominal Size	G	Code	E	H	O	Pack Qty	Weight (GR)	Price each
	½"	BSPF	AFFNUF0200	28	13	38	10	10	£2.70
	¾"	BSPF	AFFNUF0250	33	14	43	10	13	£3.00
	1"	BSPF	AFFNUF0320	46	16	56	10	24	£5.10
	1¼"	BSPF	AFFNUF0400	50	18	65	10	28	£11.20
	1½"	BSPF	AFFNUF0500	60	19	72	10	36	£12.73
	2"	BSPF	AFFNUF0630	80	21	94	10	72	£13.36
	2½"	BSPF	AFFNUF0750	95	23	105	1	144	£16.49
	3"	BSPF	AFFNUF0900	110	27	125	1	188	£18.61
	4"	BSPF	AFFNUF1100	140	31	154	1	280	£23.41

Prices shown are for one item excluding VAT # Refer to metric equivalent

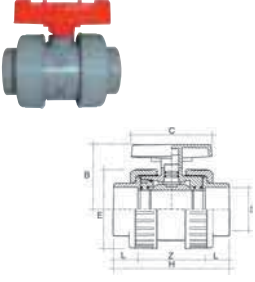
ABS manual ball valves - industrial

PN = Maximum working pressure (bar) at 20°C

Double Union Ball Valve Plain Sockets EPDM Seals

	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
	3/8"	ABA22A0160	50	51	16	46	78	65	16	112	£41.47
	1/2"	ABA22A0200	50	51	17	46	78	65	16	112	£49.07
	3/4"	ABA22A0250	60	58	20	52	90	70	16	160	£58.31
	1"	ABA22A0320	68	65	23	60	104	82	16	240	£69.65
	1 1/4"	ABA22A0400	80	76	27	68	120	92	16	360	£89.01
	1 1/2"	ABA22A0500	94	88	31	78	140	105	16	552	£115.36
	2"	ABA22A0630	115	104	38	93	169	123	16	920	£146.67
	2 1/2"	ABA22A0750	168	137	44	139	227	168	10	2480	£290.71
	3"	ABA22A0900	168	138	51	139	242	168	10	2680	£373.11
4"	ABA22A1100	210	166	63	160	282	190	10	4400	£518.33	

Double Union Ball Valve Plain Sockets FPM Seals

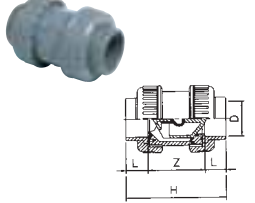
	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
	3/8"	ABA23A0160	50	51	16	46	78	65	16	112	£51.25
	1/2"	ABA23A0200	50	51	17	46	78	65	16	112	£59.55
	3/4"	ABA23A0250	60	58	20	52	90	70	16	160	£69.18
	1"	ABA23A0320	68	65	23	60	104	82	16	240	£86.53
	1 1/4"	ABA23A0400	80	76	27	68	120	92	16	360	£105.48
	1 1/2"	ABA23A0500	94	88	31	78	140	105	16	552	£139.22
	2"	ABA23A0630	115	104	38	93	169	123	16	920	£187.86
	2 1/2"	ABA23A0750	168	137	44	139	227	168	10	2480	£335.11
	3"	ABA23A0900	168	138	51	139	242	168	10	2680	£461.42
4"	ABA23A1100	210	166	63	160	282	190	10	4400	£594.10	

Prices shown are for one item excluding VAT # Refer to metric equivalent

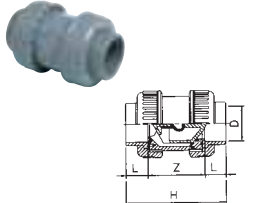
ABS check valves

Maximum working pressure for valves 16 - 63 (1/2" - 2") 16 bar (232 psi)

Check Valve Plain Sockets Stainless Steel Spring EPDM Seals

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	ABA30A0160	16	46	78	88	£48.45
	1/2"	ABA30A0200	17	46	78	88	£56.54
	3/4"	ABA30A0250	20	52	90	144	£66.65
	1"	ABA30A0320	23	60	104	200	£70.44
	1 1/4"	ABA30A0400	27	68	120	304	£100.07
	1 1/2"	ABA30A0500	31	78	140	480	£113.23
	2"	ABA30A0630	38	93	169	800	£156.18

Check Valve Plain Sockets PTFE Coated Spring EPDM Seals

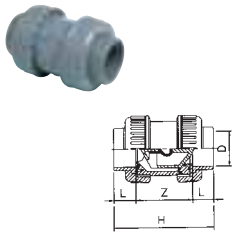
	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	ABA31A0160	16	46	78	88	£48.45
	1/2"	ABA31A0200	17	46	78	88	£56.54
	3/4"	ABA31A0250	20	52	90	144	£66.65
	1"	ABA31A0320	23	60	104	200	£70.42
	1 1/4"	ABA31A0400	27	68	120	304	£100.05
	1 1/2"	ABA31A0500	31	78	140	480	£113.23
	2"	ABA31A0630	38	93	169	800	£156.17

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS air release valves

NP10/16 blanking flanges available, For gaskets see Accessories section

Air Release Valve Plain Sockets with EPDM Seals

	Nominal Size	Code	L	Z	H	Weight (GR)	Price each
	3/8"	ABA33A0160	16	46	78	88	£48.45
	1/2"	ABA33A0200	17	46	78	88	£56.54
	3/4"	ABA33A0250	20	52	90	144	£66.65
	1"	ABA33A0320	23	60	104	200	£70.44
	1 1/4"	ABA33A0400	27	68	120	304	£100.07
	1 1/2"	ABA33A0500	31	78	140	480	£113.23
	2"	ABA33A0630	38	93	169	800	£156.18

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS Electrically Actuated Double Union Ball Valves

(220 — 240 Volt) (110 Volt)

Plain Sockets EPDM Seals

	Nominal Size	Code	Price each
	1/2"	ABA24A0200	POA
	3/4"	ABA24A0250	POA
	1"	ABA24A0320	POA
	1 1/4"	ABA24A0400	POA
	1 1/2"	ABA24A0500	POA
	2"	ABA24A0630	POA
	2 1/2"	ABA24A0750	POA
	3"	ABA24A0900	POA
	4"	ABA24A1100	POA

FPM Seals

	Nominal Size	Code	Price each
	1/2"	ABA25A0200	POA
	3/4"	ABA25A0250	POA
	1"	ABA25A0320	POA
	1 1/4"	ABA25A0400	POA
	1 1/2"	ABA25A0500	POA
	2"	ABA25A0630	POA
	2 1/2"	ABA25A0750	POA
	3"	ABA25A0900	POA
	4"	ABA25A1100	POA

Prices shown are for one item excluding VAT # Refer to metric equivalent

ABS pneumatically actuated double union ball valves fail safe closed

Plain Sockets EPDM Seals

	Nominal Size	Code	Price each
	½"	ABA26A0200	POA
	¾"	ABA26A0250	POA
	1"	ABA26A0320	POA
	1¼"	ABA26A0400	POA
	1½"	ABA26A0500	POA
	2"	ABA26A0630	POA
	2½"	ABA26A0750	POA
	3"	ABA26A0900	POA
	4"	ABA26A1100	POA

ABS pneumatically actuated double union ball valves

	Nominal Size	Code	Price each
	½"	ABA27A0200	POA
	¾"	ABA27A0250	POA
	1"	ABA27A0320	POA
	1¼"	ABA27A0400	POA
	1½"	ABA27A0500	POA
	2"	ABA27A0630	POA
	2½"	ABA27A0750	POA
	3"	ABA27A0900	POA
	4"	ABA27A1100	POA

Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene Pipe Systems

Polypipe Effast has developed a range of polypropylene valves and fittings and will continue to increase the range of products. Polypropylene pipe work systems are widely used in industrial processing applications, because of its good characteristics. Polypropylene offers good resistance to abrasion, good thermal properties and is suitable for working at higher temperatures than PVCu and ABS.

Colour

Polypropylene material is beige-grey in colour.

Chemical Resistance

Polypropylene has good chemical resistance. It is resistant to acids, alkalis, salts and to a number of organic solvents.

Standards

Individual products are in compliance with appropriate British and European Standards:

Fittings DIN 16962

Threaded fittings BS 21, DIN 2999, ISO 7

Pressure Rating

Maximum 10 bar at 20°C unless otherwise stated.

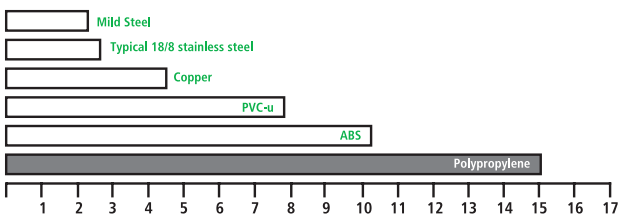
PP-H in sub-zero temperatures

PP-H Pipe systems are suitable for temperatures as low as -10°C, however it is necessary as with any other pipeline to take preventative measures to ensure the pipeline fluid does not freeze, as freezing would cause subsequent damage to the system.

Thermal expansion

The thermal coefficient of linear expansion for PP-H is $15 \times 10^{-5} \text{m/m.}^\circ\text{C}$

It is necessary in certain situations to make special provision for this expansion and contraction. Thermal expansion of PP-H is compared with other materials, in the following chart.



General Information

Temperature range

-10°C to +110°C



Socket fusion welding

The Effast Polypropylene range is connected by socket fusion welding.

Socket fusion welding in dimensions of 16mm to 110mm, however special reinforcement collars will be required for 16mm joints.

The principle of socket fusion welding is constant however small differences in technique may occur on machinery from different suppliers. It is important to note that only like materials can be joined.

Below are details of the socket fusion process and illustrations to show the process. During the pr

During the process strict adherence to the safety protocols should be given at all times.

Preparing the equipment.

It is possible to use hand held socket fusion machines when joining materials in dimensions from 20mm to 63mm, however a bench top machine is preferred if any quantity of joints is required. The equipment should be clean and in good working order before any operation takes place. Careful attention should be given when following the tool set up as shown in the machine protocols. After the tool set up is completed the heater should be allowed to heat for 10 to 15 minutes, until the joining tools have reached their required temperature. A digital thermometer should be used to check the temperature before welding commences. It should be noted that during operation the welding area should be protected from draughts, dust and adverse weather conditions likely to corrupt the joint integrity.

Preparing the pipe and fittings.

The pipe in all cases should be cut with a sharp set of pipe cutters suitable for cutting plastic piping, as this will provide a square end suitable for socket fusion welding. It is important to ensure both the pipes and the fittings are clean and free from oil, water and

grit before heating takes place. The pipe is peeled to remove the oxidised layer of material caused by UV radiation from the joint area. After the pipe is peeled, both the interior of the fitting and the peeled area of the pipe may be wiped with an alcohol wipe. Ensure there are no scrapings or chips of material attached to the pipe.

Technical Information.

The socket fusion of PP requires temperatures between 250 and 270 degrees Celsius on the heating tool before joining can be undertaken. Joining is determined by depth and shear pressure as the two preheated parts are brought together, one inside the other. The necessary times relevant to the joining process are; heating time, change over time, fixing time and cooling time. These are shown in the table.

The welding process.

After the set up and preparation has been completed in line with the machine instructions guide. The newly prepared pipes and fittings can be introduced to the heat source ensuring that both the pipe and the fitting are entered to the correct depth. They are then allowed to heat for the pre determined time. A bead of molten material should be visible forming on both the pipe and the fitting as heating takes place. When the time has elapsed, the pipe and fitting can be removed from the heat source. A change over time is shown on the table, this should be adhered to. The two parts should be joined together ensuring that the pipe is entered to the stop point inside the fitting. The joint should be held in position, and then allowed to cool in line with the correct table of parameters. A uniform double weld bead should be visible around the neck of the fitting, and a single weld bead should be evident inside the fitting. Testing can take place 1 hour after the last weld is complete.

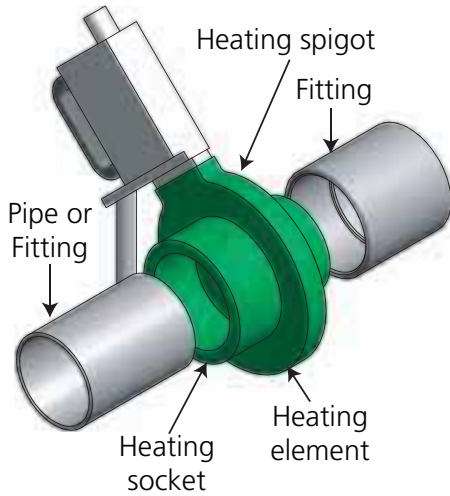
Heating times for socket fusion joints in PP. (DVS 2207, part 11)

Pipe od in mm	Min wall thickness in mm	Heating time in secs	Change over time in secs max	Cooling time in mins
16	2.0	5		
20	2.5	5	4	2
25	2.7	7		
32	3.0	8		
40	3.7	12	6	4
50	4.6	18		
63	3.6	24		
75	4.3	30	8	6
90	5.1	40		
110	6.3	50	10	8

Joining methods

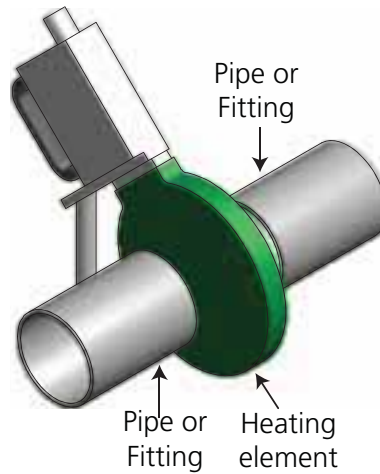
The Effast Polypropylene range is joined by socket fusion however there are two further joining techniques. For reference only the images below detail the socket fusion and also butt fusion and electro fusion techniques.

Socket fusion



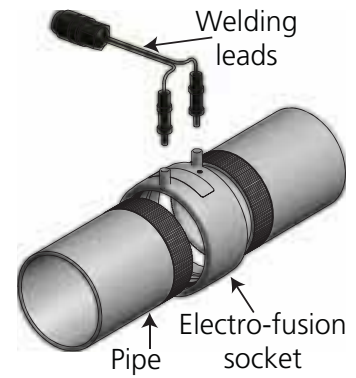
Individual parts

Butt fusion

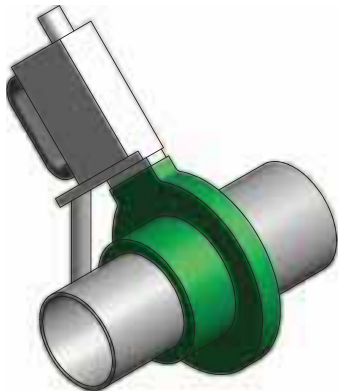


Individual parts

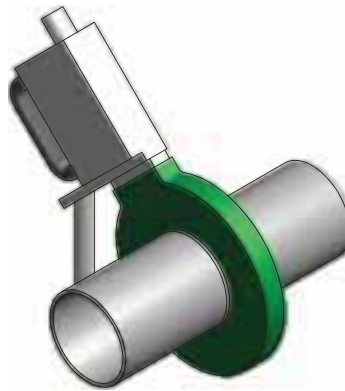
Electro fusion



Individual parts



Heating



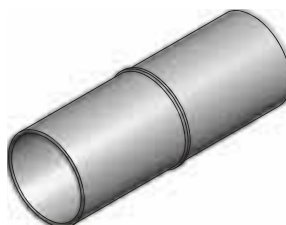
Heating



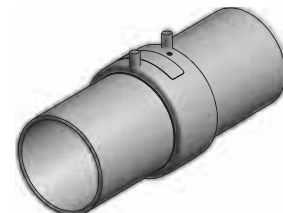
Heating



Finished joint



Finished joint



Finished joint

Polypropylene

Polypropylene pressure pipes 5m lengths

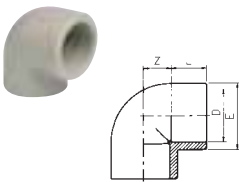
plain end

	Nominal Size	Code	SDR17 PN10	Price each
	20	PPIOCLI00200	17	£11.60
	25	PPIOCLI00250	17	£15.10
	32	PPIOCLI00320	17	£22.00
	40	PPIOCLI00400	17	£29.60
	50	PPIOCLI00500	17	£46.40
	63	PPIOCLI00630	17	£72.70
	75	PPIOCLI00750	17	£102.40
	90	PPIOCLI00900	17	£146.70
	110	PPIOCLI01100	17	£218.20

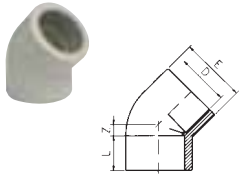
Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene socket fusion fittings

Socket Fusion Elbow 90° Plain

	Nominal Size	Code	L	Z	E	Weight (GR)	Price each
	20	PFIGOI0200	16	11	29	17	£2.66
	25	PFIGOI0250	18	14	36	28	£2.99
	32	PFIGOI0320	20	18	43	45	£3.52
	40	PFIGOI0400	22	22	53	70	£4.46
	50	PFIGOI0500	25	27	66	130	£8.31
	63	PFIGOI0630	30	32	82	230	£10.31

Socket Fusion Elbow 45° Plain

	Nominal Size	Code	L	Z	E	Weight (GR)	Price each
	20	PFIGYI0200	16	5	29	15	£3.52
	25	PFIGYI0250	18	6	36	24	£3.86
	32	PFIGYI0320	20	8	43	36	£4.46
	40	PFIGYI0400	22	10	53	58	£5.53
	50	PFIGYI0500	25	12	66	92	£7.98
	63	PFIGYI0630	30	14	82	170	£9.98

Socket Fusion TEE 90° Plain

	Nominal Size	Code	L	Z	E	Weight (GR)	Price each
	20	PFITII0200	16	11	29	20	£2.99
	25	PFITII0250	18	14	36	37	£3.25
	32	PFITII0320	20	18	43	58	£3.59
	40	PFITII0400	22	22	53	92	£4.39
	50	PFITII0500	25	27	66	146	£8.05
	63	PFITII0630	30	32	82	280	£11.03

Socket Fusion Socket Fusion Socket Plain

	Nominal Size	Code	Z	L	E	Weight (GR)	Price each
	20	PFIMAI0200	3	16	29	12	£1.59
	25	PFIMAI0250	4	18	36	18	£1.73
	32	PFIMAI0320	3	20	43	28	£2.33
	40	PFIMAI0400	4	22	53	42	£2.85
	50	PFIMAI0500	4	25	66	65	£5.13
	63	PFIMAI0630	4	30	82	104	£7.71

Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene socket fusion fittings

Socket Fusion Reducing Socket Plain

	Nominal Size	Code	L1	L2	Z	E1	E2	Weight (GR)	Price each
	25 x 20	PFIMRI025B	16	18	6	29	36	11	£4.83
	32 x 20	PFIMRI032B	16	20	6	29	43	15	£5.23
	32 x 25	PFIMRI032C	18	20	6	36	43	18	£5.67
	40 x 25	PFIMRI040C	18	22	10	36	53	23	£6.96
	40 x 32	PFIMRI040D	20	22	10	43	53	25	£6.96
	50 x 32	PFIMRI050D	20	25	12	43	66	48	£8.60
	50 x 40	PFIMRI050E	22	25	12	53	66	53	£8.60
	63 x 32	PFIMRI063D	20	30	18	43	82	71	£9.84
	63 x 40	PFIMRI063E	22	30	17	53	82	78	£9.84
63 x 50	PFIMRI063F	25	30	13	66	82	80	£10.50	

Socket Fusion Cap Plain

	Nominal Size	Code	L	H	E	Weight (GR)	Price each
	20	PFICAI0200	16	27	29	9	£2.37
	25	PFICAI0250	18	30	36	13	£2.65
	32	PFICAI0320	20	34	43	22	£2.77
	40	PFICAI0400	22	38	53	33	£3.48
	50	PFICAI0500	25	44	66	52	£4.66
	63	PFICAI0630	30	51	82	86	£6.24

Socket Fusion Stub Flange (Serrated) Plain

	Nominal Size	Code	L	Z	d	S	E	Pack Qty	Weight (GR)	Price each
	20	PFIQRI0200	16	3	27	6	34	10	7	£1.93
	25	PFIQRI0250	18	3	33	7	41	10	11	£2.07
	32	PFIQRI0320	20	3	41	7	51	10	15	£2.33
	40	PFIQRI0400	22	3	50	8	61	10	24	£2.79
	50	PFIQRI0500	25	3	61	8	73	10	34	£3.20
	63	PFIQRI0630	30	3	76	9	90	10	60	£4.45

Socket Fusion Union Plain. Supplied with EPDM O ring - for FPM O ring see Accessories section

	Nominal Size	Code	L	Z1	Z2	F	E	Pack Qty	Weight (GR)	Price each
	20	PFIBOI0200	16	3	11	1"	42	10	38	£10.83
	25	PFIBOI0250	18	3	13	1 1/4"	52	10	58	£11.87
	32	PFIBOI0320	20	3	15	1 1/2"	59	10	80	£14.44
	40	PFIBOI0400	22	7	16	2"	72	10	118	£19.14
	50	PFIBOI0500	25	3	26	2 1/4"	79	10	170	£26.78
	63	PFIBOI0630	30	11	25	2 3/4"	96	10	285	£38.15

Prices shown are for one item excluding VAT # Refer to metric equivalent

Threaded fittings PPH fiberglass reinforced

Plug

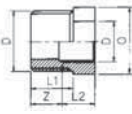
	Nominal Size	Code	L	H	O	Weight (GR)	Price each
	1/2"	PFFTAFO200	15.0	29	24	10	£2.26
	3/4"	PFFTAFO250	16.3	30	30	15	£3.10
	1"	PFFTAFO320	19.1	33	36	25	£3.82
	1 1/4"	PFFTAFO400	21.4	39	46	40	£5.26
	1 1/2"	PFFTAFO500	21.4	39	50	45	£8.14
	2"	PFFTAFO630	25.7	43	65	80	£8.40

Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene

Threaded fittings PPH fiberglass reinforced

Reducing Bush



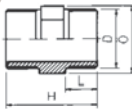
Nominal Size	Code	L1	L2	Z	O	Weight (GR)	Price each
¾" x ½"	PFFRCF025B	16.3	15.0	13.3	30	13	£3.20
1" x ¾"	PFFRCF032C	19.1	16.3	14.8	36	20	£4.10
1¼" x 1"	PFFRCF040D	21.4	19.1	16.3	46	35	£6.24
1½" x 1¼"	PFFRCF050E	21.4	21.4	14.0	55	37	£8.14
2" x 1½"	PFFRCF063F	25.7	21.4	18.3	65	67	£10.96

Reducing Nipple



Nominal Size	Code	L1	L2	H	O	Weight (GR)	Price each
¾" x ½"	PFFNRF025B	13.3	15.0	43	30	17	£4.96
1" x ¾"	PFFNRF032C	19.1	16.3	47	36	26	£6.14
1¼" x 1"	PFFNRF040D	21.4	21.4	56	46	42	£6.94
1½" x 1¼"	PFFNRF050E	21.4	21.4	58	50	48	£10.16
2" x 1½"	PFFNRF063F	25.7	21.4	62	65	81	£14.40

Nipple



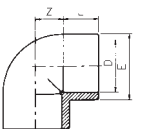
Nominal Size	Code	L	H	O	Weight (GR)	Price each
½"	PFFNIF0200	11	32	19	11	£2.94
¾"	PFFNIF0250	11	42	24	9	£3.50
1"	PFFNIF0320	15	42	30	11	£4.34
1¼"	PFFNIF0400	16	50	36	18	£5.60
1½"	PFFNIF0500	19	58	36	28	£6.74
2"	PFFNIF0630	21	58	50	46	£8.94

Adaptor Socket



Nominal Size	Code	L1	L2	Z	E	O	Weight (GR)	Price each
20 x ½"	PFFMAP020B	16.5	15	6	28	32	15	£3.06
25 x ¾"	PFFMAP025C	18.5	16	7	34	36	20	£3.30
32 x 1"	PFFMAP032D	20.5	19	7	43.5	46	32	£3.80
40 x 1¼"	PFFMAP040E	22.5	22	7	50	55	50	£4.70
50 x 1½"	PFFMAP050F	25.5	22	9	60	65	80	£7.16
63 x 2"	PFFMAP063G	30.5	26	9	78	80	140	£10.60

90° Elbow



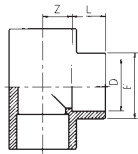
Nominal Size	Code	L	Z	E	Weight (GR)	Price each
½"	PFFGOF0200	16	11	29	17	£2.80
¾"	PFFGOF0250	18	14	36	28	£3.16
1"	PFFGOF0320	20	18	43	45	£3.70
1¼"	PFFGOF0400	22	22	53	70	£4.66
1½"	PFFGOF0500	25	27	66	130	£8.74
2"	PFFGOF0630	30	32	82	230	£10.84

Prices shown are for one item excluding VAT # Refer to metric equivalent

Sales and enquiries please contact: 08452 700886

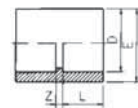
Threaded fittings PPH fiberglass reinforced

90° Tee



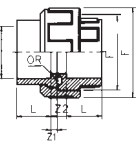
Nominal Size	Code	L	Z	E	Weight (GR)	Price each
½"	PFFTIF0200	16	11	29	20	£3.16
¾"	PFFTIF0250	18	14	36	37	£3.40
1"	PFFTIF0320	20	18	43	58	£3.80
1¼"	PFFTIF0400	22	22	53	92	£4.60
1½"	PFFTIF0500	25	27	66	146	£8.44
2"	PFFTIF0630	30	32	82	280	£11.56

Socket



Nominal Size	Code	Z	L	E	Weight (GR)	Price each
½"	PFFMAF0200	3	16.5	30.5	12	£1.66
¾"	PFFMAF0250	3.5	18.5	36	18	£1.84
1"	PFFMAF0320	3	20.5	43.5	28	£2.46
1¼"	PFFMAF0400	4	22.5	53.5	42	£3.00
1½"	PFFMAF0500	4	25.5	66	65	£5.36
2"	PFFMAF0630	4	30	82	104	£8.66

Threaded Union with O-Ring with EDPM O ring can also be supplied with FPM O ring



Nominal Size	Code	L	Z1	Z2	F	E	Weight (GR)	Price each
½"	PFFBOF0200	16	3	11	1"	42	38	£10.76
¾"	PFFBOF0250	18	3	13	1¼"	52	58	£11.56
1"	PFFBOF0320	20	3	15	1½"	59	80	£13.94
1¼"	PFFBOF0400	22	7	16	2"	72	118	£18.86
1½"	PFFBOF0500	25	3	26	2¼"	79	170	£26.34
2"	PFFBOF0630	30	11	25	2¾"	96	285	£27.40

Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene adaptor fittings

For dimensions see PVCu equivalent - PVCu Section

Composite Union Plain/BSP Female Brass Threaded



mm x Inches	Code	Price each
20 x ½"	PFCBFC0200	£11.18
25 x ¾"	PFCBFC0250	£15.89
32 x 1"	PFCBFC0320	£17.49
40 x 1¼"	PFCBFC0400	£24.97
50 x 1½"	PFCBFC0500	£31.56
63 x 2"	PFCBFC0630	£36.41

Composite Union Plain/BSP Male Taper Brass Threaded






mm x Inches	Code	Price each
20 x ½"	PFCBMC0200	£11.66
25 x ¾"	PFCBMC0250	£16.31
32 x 1"	PFCBMC0320	£18.52
40 x 1¼"	PFCBMC0400	£25.53
50 x 1½"	PFCBMC0500	£34.26
63 x 2"	PFCBMC0630	£42.43

Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene

Accessories for PP-H unions


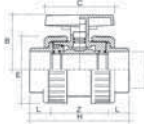

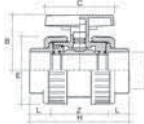
For dimensions see PVCu equivalent - Accessories Section

Union Nut											
	Nominal Size	Code								Weight (GR)	Price each
	20	PFABGA0200	27	23	1"	42				13	£6.93
	25	PFABGA0250	36	25	1¼"	52				21	£7.64
	32	PFABGA0320	41	27	1½"	59				33	£8.73
	40	PFABGA0400	53	30	2"	72				44	£11.65
	50	PFABGA0500	59	34	2¼"	79				73	£17.05
	63	PFABGA0630	74	38	2¾"	96				120	£24.41
Union Bush Plain											
	Nominal Size	Code									Price each
	20	PFIBFI0200									£4.31
	25	PFIBFI0250									£4.52
	32	PFIBFI0320									£5.49
	40	PFIBFI0400									£7.84
	50	PFIBFI0500									£12.21
	63	PFIBFI0630									£17.55
Socket End Connector Plain											
	Nominal Size	Code									Price each
	20	PFIBLI0200									£2.85
	25	PFIBLI0250									£3.26
	32	PFIBLI0320									£4.52
	40	PFIBLI0400									£5.43
	50	PFIBLI0500									£5.56
	63	PFIBLI0630									£7.64

Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene manual ball valves

PN = Maximum working pressure (bar) at 20°C


Manual EDPM Ball Valves											
	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
 	20	PBI2210200	50	51	16	46	78	65	16	63	£43.90
	25	PBI2210250	60	58	19	52	90	70	16	125	£51.86
	32	PBI2210320	68	65	22	60	104	82	16	170	£63.50
	40	PBI2210400	80	76	26	68	120	92	16	250	£78.46
	50	PBI2210500	94	88	31	78	140	105	16	425	£101.06
	63	PBI2210630	115	104	38	93	169	123	16	710	£121.00
Manual FPM Ball Valves											
	Nominal Size	Code	E	B	L	Z	H	C	PN	Weight (GR)	Price each
 	20	PBI2310200	50	51	16	46	78	65	16	63	£47.10
	25	PBI2310250	60	58	19	52	90	70	16	125	£56.20
	32	PBI2310320	68	65	22	60	104	82	16	170	£69.06
	40	PBI2310400	80	76	26	68	120	92	16	250	£85.24
	50	PBI2310500	94	88	31	78	140	105	16	425	£109.76
	63	PBI2310630	115	104	38	93	169	123	16	710	£131.70

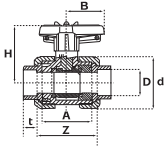
Prices shown are for one item excluding VAT # Refer to metric equivalent

Polypropylene manual ball valves


PN = Maximum working pressure (bar) at 20°C

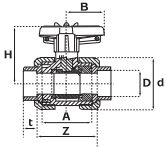
Double Union Ball Valve with Locking Handle Fusion Sockets EPDM Seals

	Nominal Size	Code	A	Z	t	d	H	B	PN	Price each
	16	PBI12I0160	62	68	17	53	72	40	10	£43.99
	20	PBI12I0200	62	68	17	53	72	40	10	£45.80
	25	PBI12I0250	70	76	20	63	79	52	10	£55.01
	32	PBI12I0320	74	81	23	70	82	52	10	£62.44
	40	PBI12I0400	84	90	27	85	100	64	10	£79.89
	50	PBI12I0500	95	104	32	101	108	73	10	£100.79
	63	PBI12I0630	109	121	39	122	117	85	10	£129.67
	75	PBI12I0750	137	148	45	155	144	110	10	£298.92
	90	PBI12I0900	163	183	56	188	163	132	10	£457.06
	110	PBI12I1100	163	176	64	188	163	132	6	£528.55




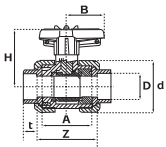
Double Union Ball Valve with Locking Handle BSP Female Threaded Sockets EPDM Seals

	Nominal Size	G	Code	A	Z	t	d	H	B	PN	Price each
	3/8"	BSPF	PBF12F0160	62	68	17	53	72	40	10	£46.48
	1/2"	BSPF	PBF12F0200	62	68	17	53	72	40	10	£48.40
	3/4"	BSPF	PBF12F0250	70	76	20	63	79	52	10	£58.43
	1"	BSPF	PBF12F0320	74	81	23	70	82	52	10	£66.15
	1 1/4"	BSPF	PBF12F0400	84	90	27	85	100	64	10	£84.31
	1 1/2"	BSPF	PBF12F0500	95	104	32	101	108	73	10	£106.70
	2"	BSPF	PBF12F0630	109	121	39	122	117	85	10	£138.34
	2 1/2"	BSPF	PBF12F0750	137	148	45	155	144	110	10	£312.12
	3"	BSPF	PBF12F0900	163	183	56	188	163	132	10	£479.05




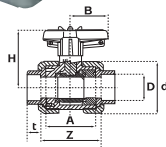
Double Union Ball Valve with Locking Handle Fusion Sockets FPM Seals

	Nominal Size	Code	A	Z	t	d	H	B	PN	Price each
	16	PBI13I0160	62	68	17	53	72	40	10	£51.30
	20	PBI13I0200	62	68	17	53	72	40	10	£53.22
	25	PBI13I0250	70	76	20	63	79	52	10	£64.50
	32	PBI13I0320	74	81	23	70	82	52	10	£73.56
	40	PBI13I0400	84	90	27	85	100	64	10	£92.95
	50	PBI13I0500	95	104	32	101	108	73	10	£115.51
	63	PBI13I0630	109	121	39	122	117	85	10	£147.00
	75	PBI13I0750	137	148	45	155	144	110	10	£332.75
	90	PBI13I0900	163	183	56	188	163	132	10	£507.36
	110	PBI13I1100	163	176	64	188	163	132	6	£592.62



Double Union Ball Valve with Locking Handle BSP Female Threaded Sockets FPM Seals

	Nominal Size	G	Code	A	Z	t	d	H	B	PN	Weight (GR)	Price each
	3/8"	BSPF	PBF13F0160	62	68	17	53	72	40	10	78	£54.05
	1/2"	BSPF	PBF13F0200	62	68	17	53	72	40	10	105	£55.83
	3/4"	BSPF	PBF13F0250	70	76	20	63	79	52	10	143	£67.66
	1"	BSPF	PBF13F0320	74	81	23	70	82	52	10	220	£84.70
	1 1/4"	BSPF	PBF13F0400	84	90	27	85	100	64	10	280	£97.36
	1 1/2"	BSPF	PBF13F0500	95	104	32	101	108	73	10	380	£130.36
	2"	BSPF	PBF13F0630	109	121	39	122	117	85	10	505	£154.56
	2 1/2"	BSPF	PBF13F0750	137	148	45	155	144	110	10	685	£345.68
	3"	BSPF	PBF13F0900	163	183	56	188	163	132	10	940	£529.36



Prices shown are for one item excluding VAT # Refer to metric equivalent

Sales and enquiries please contact: 08452 700886

Polypropylene

Polypropylene check valves



For dimensions see PVCu equivalent - PVCu Section

Fusion Sockets EPDM Seals			
	Nominal Size	Code	Price each
	20	PBI30I0200	£40.71
	25	PBI30I0250	£46.90
	32	PBI30I0320	£54.60
	40	PBI30I0400	£66.28
	50	PBI30I0500	£82.78
	63	PBI30I0630	£112.47
Fusion Sockets FPM Seals			
	Nominal Size	Code	Price each
	20	PBI32I0200	£46.90
	25	PBI32I0250	£54.60
	32	PBI32I0320	£64.79
	40	PBI32I0400	£77.29
	50	PBI32I0500	£95.29
	63	PBI32I0630	£126.50

Prices shown are for one item excluding VAT # Refer to metric equivalent

Butterfly valves

For dimensions see PVCu equivalent - PVCu Section

PP - Butterfly Valve with lever handle inch/metric EPDM seals				
	Inches	mm	Code	Price each
	3"	90	PBA50A0900	£335.36
	4"	110	PBA50A1100	£402.75
	5"	140	PBA50A1400	£497.61
	6"	160	PBA50A1600	£579.44
	8"	225	PBA50A2250	£741.12
PP - Butterfly Valve with lever handle inch/metric FPM seals				
	Inches	mm	Code	Price each
	3"	90	PBA51A0900	£387.63
	4"	110	PBA51A1100	£459.12
	5"	140	PBA51A1400	£575.99
	6"	160	PBA51A1600	£647.49
	8"	225	PBA51A2250	£828.99

Prices shown are for one item excluding VAT # Refer to metric equivalent

EFFAST PE100 Pressure Systems

Effast PE100 high density polyethylene pressure pipe system is a fast and reliable solution to the challenges presented by the requirements of modern supply systems. Utilising the benefits of polyethylene jointing technologies and excellent chemical resistance, Effast PE100 pressure pipe system can be used across a wide range of applications including:

- Water supply and distribution
- Water treatment
- Cooling water
- Pressurised waste water systems
- Transportation of chemicals

Features and Benefits

PE100 pressure pipe offers all of the benefits commonly associated with plastic systems in a wide range of sizes.

- Sizes available
 - SDR 17 (10 bar) 32mm to 1200mm
 - SDR 11 (16 bar) 20mm to 630mm
- Operating temperature -40°C to +60°C subject to pressure requirement
- Comprehensive system includes full range of pipes and fittings
- Prefabrication service is available
- Fusion weld or mechanical installation
- Excellent impact resistance
- Excellent chemical resistance

Technical data	PE 100
Density, g/cm ³ , ISO 1183	0.960
Yield stress, MPa, DIN EN ISO 527	23
Elongation at yield %, DIN EN ISO 527	9
Elongation at break, %, DIN EN ISO 527	600
Tensile modulus of elasticity, MPa, DIN EN ISO 527	1100
Impact strength, kJ/m ² , DIN EN ISO 179	no break
Notched impact strength, kJ/m ² , DIN EN ISO 2039-1	30
Shore hardness, D, ISO 868	61
Mean coefficient of linear thermal expansion, K ⁻¹ , DIN 53752	1.8-44
Thermal conductivity, W/m - K, DIN 52612	0.38
Dielectric strength, kV/mm, VDE 0303-21	22
Surface resistivity, ohm, DIN IEC 167	1x10 ¹⁴
Fire behaviour, DN 4102	B2
Physiologically safe as per BfR	yes
Chemical resistance according to DIN 8075 Supplement	fulfilled
Temperature range, C°	-50 to +80 C



Methods of Jointing

General requirements

The welding area is to be protected from harmful weather, e.g. moisture, wind, intense sunlight, and temperatures below 5 °C.

When an even, appropriate welding temperature can be maintained for the pipe walls, then welding is possible at any outside temperature. This may involve:

- Preheating
- Protective shelter
- Heating up.

In direct sunlight, cover the weld area in advance, to allow temperature differences in unevenly warmed pipe to equalize. In strong wind, close off the extreme ends of the pipe segments to prevent cooling the weld during the welding process.

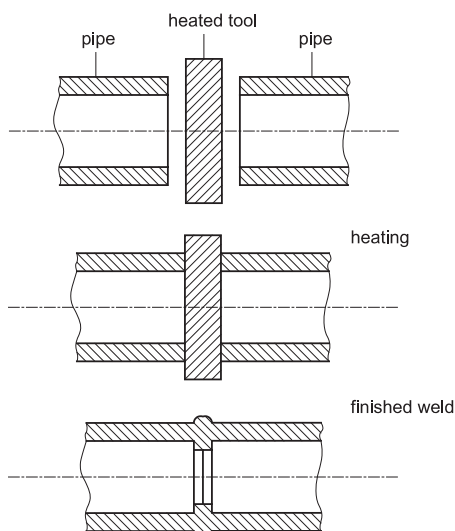
Welding methods

To achieve a permanent bond with Effast PE100 pipes and fittings, we recommend the processes that have proven themselves in practice:

- butt welding
- electro fusion welding.

Butt welding

Before butt welding, the two surfaces to be welded are heated to welding temperature by a heating plate. It is then removed and the two plasticized surfaces are pressed together to form a weld.



Heated tool butt welding

Weld preparation

The pipeline components are laid out axially before being clamped into the welding machine. The part to be welded on must be free to move along the axis, with the help of adjustable pulleys if necessary.

With a planer, machine off the surfaces to be bonded, after they have been clamped into place. If swarf happens to fall into the pipe, use a clean tool to remove it. A hand must never touch the surfaces planed for welding.

After planning, check that the surfaces are parallel. Any gap remaining must be no greater than the maximum in table.

Check that any mismatch of the pipe ends is smaller than 10 % of the pipe wall thickness. If not, the wall thicknesses are to be matched around the weld by machining.

Maximum gap before welding	
Pipe diameter (mm)	Max. gap (mm)
≤355	0.5
400 to 630	1.0
630 to 800	1.3
800 to 1200	1.5

Welding process

The heating plate is heated to welding temperature and placed between the surfaces to be welded. They are pressed against the heated tool with the correct matching pressure. The temperature is monitored with a rapidly registering surface thermometer.

The force for matching or welding can be calculated from the weld surface and the specific pressure.

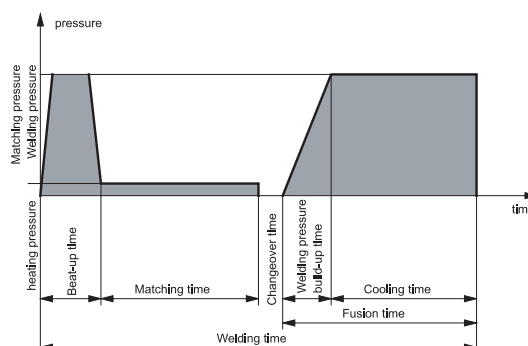
Usually the welding machine manufacturers give pressure values in table form, since most machines work with hydraulics, not with measured forces. To this pressure value, add the drag pressure from the movement of the work piece. The latter is influenced by friction of machine parts and the weight of the pipes and fittings to be welded.

Bead-up time is completed only after a bead has formed completely around both ends to be welded. The heating time begins at this point, and the pressure is reduced to nearly zero.

After heating, the fusion surfaces are detached from the heating plate without damage or contamination. The time for detaching the fusion surfaces, removing the heating plate, and bringing the fusion surfaces into contact with each other is called the changeover time. It should be kept as short as possible.

The weld surfaces should be brought into contact gently, at extremely low speed. Then pressure is slowly increased, then maintained until cooling is complete.

Never accelerate weld cooling or apply coolant to the area. For pipe walls 20 mm or more in thickness, an even cooling for a better weld can be achieved by covering the weld area during the cooling phase. After welding a double bead must go completely around the weld.



Steps in heated tool butt welding

Recommended values for butt welding, PE100 pipes and fittings

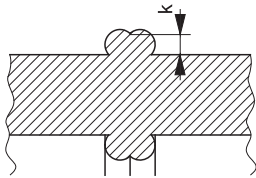
Wall thickness	Matching ²	Heat up ³	Changeover	Welding ⁴	
	Heat up time starts	Heat up time	Changeover time	Weld pressure build-up time (max. time)	Cooling time
mm	mm	s	s		s
up to 4.5	0.5	45	5	5	6
4.5–7	1.0	45–70	5–6	5–6	6–10
7–12	1.5	70–120	6–8	6–8	10–16
12–19	2.0	120–190	8–10	8–11	16–24
19–26	2.5	190–260	10–12	11–14	24–32
26–37	3.0	260–370	12–16	14–19	32–45
37–50	3.5	370–500	16–20	19–25	45–60
50–70	4.0	500–700	20–25	25–35	60–80

¹ For outdoors temperature about 20°C and moderate air movement

² Height of bead on the heated tool at the end of the matching time (matching at < 0.15 N/mm²)

³ Heated tool temperature is 210 ± 10°C. heat up time = 10 x wall thickness (heat soak at ≤ 0.02 N/mm²)

⁴ Cooling time at welding pressure (p = 0.15 ± 0.01 N/mm²)

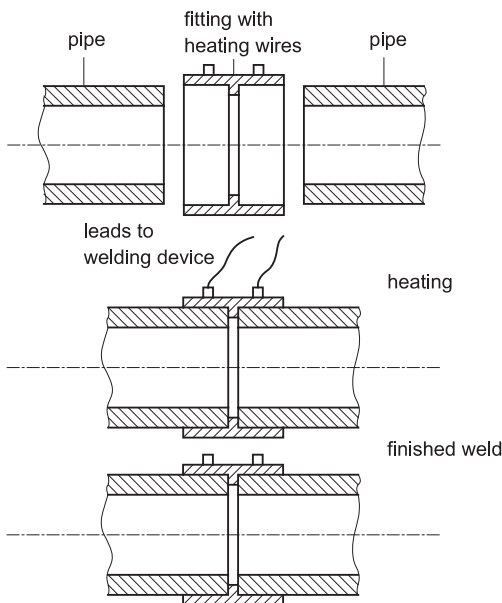


Double bead welded.

If the bead is to be removed, it should be done before the weld is entirely cooled down. Machining the bead off the cold weld runs the risk of causing dents. With brittle materials like PVC and PVDF it can cause chipping.

Electro fusion welding

The surfaces to be welded, i.e. the pipe outer surface and the socket inside surface, are heated to welding temperature and fused by electric current, through the resistance of wires within the socket.



Electro fusion welding

Weld surface preparation

For a good electro fusion weld, clean surfaces are an important factor. The pipe surfaces must be shaved in the weld area. Then the burr on the inner edge must be removed and the outer edge rounded. Effast PE100 electrofusion fittings are supplied in protective bags and should only be removed from the bag at time of use. Do not touch the inside of the electrofusion fitting at any time.

In the weld area, the pipe may be out of the round by no more than 1.5 %. Otherwise clamps for this purpose can be used to force roundness.

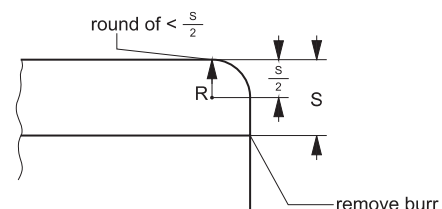
When the fitting goes on to the pipe ends, keep it straight along the axis and avoid forcing. This prevents displacing and damaging the resistance wire.

Welding process

The welding device must match the fitting used. Settings on the device are selected before welding, according to the pipe diameter and nominal pressure. The required welding information is provided in three ways. Dependent on the functionality of the welding machine, programming is possible using -


- Smart System self programming technology
- Barcode
- Manual programming of values


Welding cables connect device and fitting. Fusion is carried out automatically and weld is left at rest until the cooling time has elapsed.



Preparing pipe ends

PE100

Pressure pipe				
	Size	Product code	Price per metre	Price per length
Pressure pipe PN10				
	32mm	2000.10.32.60	£1.73	£10.38
	40mm	2000.10.40.60	£2.62	£15.72
	50mm	2000.10.50.60	£4.04	£24.24
	63mm	2000.10.63.60	£6.00	£36.00
	75mm	2000.10.75.60	£8.67	£52.02
	90mm	2000.10.90.60	£12.44	£74.64
	110mm	2000.10.110.60	£18.49	£110.94
	125mm	2000.10.125.60	£23.38	£140.28
	140mm	2000.10.140.60	£29.38	£176.28
	160mm	2000.10.160.60	£38.36	£230.16
	180mm	2000.10.180.60	£48.44	£290.64
	200mm	2000.10.200.60	£59.96	£359.76
	225mm	2000.10.225.60	£75.87	£455.22
	250mm	2000.10.250.60	£92.49	£554.94
	280mm	2000.10.280.60	£117.11	£702.66
	315mm	2000.10.315.60	£148.27	£889.62
	355mm	2000.10.355.60	£187.73	£1,126.38
	400mm	2000.10.400.60	£237.60	£1,425.60
	450mm	2000.10.450.60	£306.80	£1,840.80
500mm	2000.10.500.60	£379.82	£2,278.92	
560mm	2000.10.560.60	£475.24	£2,851.44	
630mm	2000.10.630.60	£601.56	£3,609.36	

Pressure pipe				
	Size	Product code	Price per metre	Price per length
Pressure pipe PN16				
	25mm	2000.16.25.60	£1.51	£9.06
	32mm	2000.16.32.60	£2.31	£13.86
	40mm	2000.16.40.60	£3.64	£21.84
	50mm	2000.16.50.60	£5.73	£34.38
	63mm	2000.16.63.60	£8.98	£53.88
	75mm	2000.16.75.60	£12.67	£76.02
	90mm	2000.16.90.60	£18.18	£109.08
	110mm	2000.16.110.60	£26.84	£161.04
	125mm	2000.16.125.60	£34.62	£207.72
	140mm	2000.16.140.60	£43.29	£259.74
	160mm	2000.16.160.60	£56.49	£338.94
	180mm	2000.16.180.60	£71.56	£429.36
	200mm	2000.16.200.60	£88.53	£531.18
	225mm	2000.16.225.60	£112.22	£673.32
	250mm	2000.16.250.60	£137.24	£823.44
	280mm	2000.16.280.60	£171.91	£1,031.46
	315mm	2000.16.315.60	£217.47	£1,304.82
	355mm	2000.16.355.60	£276.31	£1,657.86
	400mm	2000.16.400.60	£350.40	£2,102.40
450mm	2000.16.450.60	£452.76	£2,716.56	
500mm	2000.16.500.60	£559.56	£3,357.36	
560mm	2000.16.560.60	£700.49	£4,202.94	
630mm	2000.16.630.60	£887.11	£5,322.66	

Prices shown are for one item excluding VAT

Prices shown are for one item excluding VAT

Sales and enquiries please contact: 08452 700886

Fittings

	Size	Product code	Price each
Elbow 90° long spigot PN10			
	50mm	2001.10.50.90	£10.67
	63mm	2001.10.63.90	£15.15
	75mm	2001.10.75.90	£18.19
	90mm	2001.10.90.90	£23.47
	110mm	2001.10.110.90	£40.21
	125mm	2001.10.125.90	£55.63
	140mm	2001.10.140.90	£72.64
	160mm	2001.10.160.90	£86.13
	180mm	2001.10.180.90	£93.17
	200mm	2001.10.200.90	£128.11
	225mm	2001.10.225.90	£154.35
	250mm	2001.10.250.90	£299.15
	280mm	2001.10.280.90	£451.73
315mm	2001.10.315.90	£562.13	

Elbow 90° long spigot PN16			
	20mm	2001.16.20.90	£5.23
	25mm	2001.16.25.90	£5.65
	32mm	2001.16.32.90	£6.83
	40mm	2001.16.40.90	£6.93
	50mm	2001.16.50.90	£9.12
	63mm	2001.16.63.90	£15.63
	75mm	2001.16.75.90	£21.49
	90mm	2001.16.90.90	£24.48
	110mm	2001.16.110.90	£41.17
	125mm	2001.16.125.90	£62.24
	140mm	2001.16.140.90	£80.96
	160mm	2001.16.160.90	£91.04
	180mm	2001.16.180.90	£98.77
	200mm	2001.16.200.90	£142.45
	225mm	2001.16.225.90	£169.55
	250mm	2001.16.250.90	£332.27
280mm	2001.16.280.90	£501.97	
315mm	2001.16.315.90	£627.73	

Elbow 45° long spigot PN10			
	50mm	2001.10.50.45	£11.20
	63mm	2001.10.63.45	£15.15
	75mm	2001.10.75.45	£18.19
	90mm	2001.10.90.45	£23.47
	110mm	2001.10.110.45	£43.89
	125mm	2001.10.125.45	£57.65
	140mm	2001.10.140.45	£72.64
	160mm	2001.10.160.45	£86.99
	180mm	2001.10.180.45	£95.20
	200mm	2001.10.200.45	£129.97
	225mm	2001.10.225.45	£154.88
	250mm	2001.10.250.45	£299.15
	280mm	2001.10.280.45	£451.73
315mm	2001.10.315.45	£562.13	

Fittings

	Size	Product code	Price each
Elbow 45° long spigot PN16			
	20mm	2001.16.20.45	£4.85
	25mm	2001.16.25.45	£5.07
	32mm	2001.16.32.45	£5.44
	40mm	2001.16.40.45	£6.93
	50mm	2001.16.50.45	£9.12
	63mm	2001.16.63.45	£15.63
	75mm	2001.16.75.45	£19.09
	90mm	2001.16.90.45	£24.43
	110mm	2001.16.110.45	£46.51
	125mm	2001.16.125.45	£64.00
	140mm	2001.16.140.45	£80.69
	160mm	2001.16.160.45	£92.05
	180mm	2001.16.180.45	£105.71
	200mm	2001.16.200.45	£144.32
	225mm	2001.16.225.45	£172.27
	250mm	2001.16.250.45	£332.27
280mm	2001.16.280.45	£501.97	
315mm	2001.16.315.45	£627.73	

Tee 90° long spigot PN10			
	50mm	2004.10.50.90	£11.68
	63mm	2004.10.63.90	£15.84
	75mm	2004.10.75.90	£23.95
	90mm	2004.10.90.90	£36.85
	110mm	2004.10.110.90	£53.92
	125mm	2004.10.125.90	£73.55
	140mm	2004.10.140.90	£92.91
	160mm	2004.10.160.90	£133.71
	180mm	2004.10.180.90	£182.72
	200mm	2004.10.200.90	£261.07
	225mm	2004.10.225.90	£311.52
	250mm	2004.10.250.90	£390.40
	280mm	2004.10.280.90	£593.12
	315mm	2004.10.315.90	£759.31
	355mm	2004.10.355.90	£1174.67
	400mm	2004.10.400.90	£1607.84
450mm	2004.10.450.90	£1922.56	
500mm	2004.10.500.90	£2475.04	

Tee 90° long spigot PN16			
	20mm	2004.16.20.90	£5.92
	25mm	2004.16.25.90	£6.83
	32mm	2004.16.32.90	£7.79
	40mm	2004.16.40.90	£9.76
	50mm	2004.16.50.90	£12.91
	63mm	2004.16.63.90	£17.55
	75mm	2004.16.75.90	£26.56
	90mm	2004.16.90.90	£41.01
	110mm	2004.16.110.90	£54.83
	125mm	2004.16.125.90	£81.81
	140mm	2004.16.140.90	£101.97
	160mm	2004.16.160.90	£148.16
	180mm	2004.16.180.90	£205.12
	200mm	2004.16.200.90	£292.53
	225mm	2004.16.225.90	£346.61
	250mm	2004.16.250.90	£439.04



Prices shown are for one item excluding VAT

Prices shown are for one item excluding VAT

PE100



Fittings			
	Size	Product code	Price each
Tee 90° long spigot PN16			
	280mm	2004.16.280.90	£658.56
	315mm	2004.16.315.90	£843.41
	355mm	2004.16.355.90	£1392.27
	400mm	2004.16.400.90	£2080.75
	450mm	2004.16.450.90	£2474.29
	500mm	2004.16.500.90	£3143.20
Stub flange long spigot PN10			
	63mm	2012.10.63	£10.08
	75mm	2012.10.75	£12.69
	90mm	2012.10.90	£16.85
	110mm	2012.10.110	£21.65
	125mm	2012.10.125	£26.13
	140mm	2012.10.140	£30.29
	160mm	2012.10.160	£38.24
	180mm	2012.10.180	£58.88
	200mm	2012.10.200	£67.31
	225mm	2012.10.225	£72.21
	250mm	2012.10.250	£98.13
	280mm	2012.10.280	£143.89
	315mm	2012.10.315	£185.81
	355mm	2012.10.355	£346.61
	400mm	2012.10.400	£611.63
	Stub flange long spigot PN16		
	63mm	2012.16.63	£10.08
	75mm	2012.16.75	£12.91
	90mm	2012.16.90	£17.01
	110mm	2012.16.110	£21.76
	125mm	2012.16.125	£26.29
	140mm	2012.16.140	£30.35
	160mm	2012.16.160	£38.56
	180mm	2012.16.180	£59.25
	200mm	2012.16.200	£67.84
	225mm	2012.16.225	£72.64
	250mm	2012.16.250	£108.00
	280mm	2012.16.280	£158.83
	315mm	2012.16.315	£198.88
	355mm	2012.16.355	£372.37
	400mm	2012.16.400	£657.17
	Full face flange long spigot PN16		
	63mm	2013.16.63	£72.43
	90mm	2013.16.90	£94.72
	110mm	2013.16.110	£125.39
	125mm	2013.16.125	£128.85
	160mm	2013.16.160	£176.59
	180mm	2013.16.180	£249.17
225mm	2013.16.225	£292.00	

Prices shown are for one item excluding VAT

Fittings			
	Size	Product code	Price each
Reducer long spigot PN10			
	75x63mm	2024.10.75x63	£15.84
	90x63mm	2024.10.90x63	£22.19
	90x75mm	2024.10.90x75	£22.19
	110x63mm	2024.10.110x63	£29.71
	110x90mm	2024.10.110x90	£29.71
	125x63mm	2024.10.125x63	£35.79
	125x90mm	2024.10.125x90	£35.79
	125x110mm	2024.10.125x110	£35.79
	140x125mm	2024.10.140x125	£51.52
	160x90mm	2024.10.160x90	£68.85
	160x110mm	2024.10.160x110	£68.85
	160x125mm	2024.10.160x125	£68.85
	160x140mm	2024.10.160x140	£68.85
	180x90mm	2024.10.180x90	£89.12
	180x125mm	2024.10.180x125	£89.12
	180x160mm	2024.10.180x160	£89.12
	200x160mm	2024.10.200x160	£97.71
	225x140mm	2024.10.225x140	£157.01
	225x160mm	2024.10.225x160	£157.01
	225x180mm	2024.10.225x180	£157.01
250x160mm	2024.10.250x160	£198.40	
250x180mm	2024.10.250x180	£198.40	
250x200mm	2024.10.250x200	£198.40	
250x225mm	2024.10.250x225	£198.40	
280x200mm	2024.10.280x200	£276.91	
280x225mm	2024.10.280x225	£276.91	
280x250mm	2024.10.280x250	£264.48	
315x225mm	2024.10.315x225	£340.11	
315x250mm	2024.10.315x250	£340.11	
315x280mm	2024.10.315x280	£340.11	
355x250mm	2024.10.355x250	£1206.67	
355x280mm	2024.10.355x280	£1104.69	
355x315mm	2024.10.355x315	£650.13	
400x280mm	2024.10.400x280	£1305.81	
400x315mm	2024.10.400x315	£1225.07	
400x355mm	2024.10.400x355	£836.75	
Reducer long spigot PN16			
	25x20mm	2024.16.25x20	£4.00
	32x20mm	2024.16.32x20	£4.37
	32x25mm	2024.16.32x25	£4.37
	40x20mm	2024.16.40x20	£6.29
	40x25mm	2024.16.40x25	£6.29
	40x32mm	2024.16.40x32	£6.29
	50x25mm	2024.16.50x25	£7.79
	50x32mm	2024.16.50x32	£7.79
	50x40mm	2024.16.50x40	£7.79
	63x32mm	2024.16.63x32	£10.35
	63x40mm	2024.16.63x40	£10.35
	63x50mm	2024.16.63x50	£10.35

Prices shown are for one item excluding VAT

Fittings

	Size	Product code	Price each
Reducer long spigot PN16			
	75x50mm	2024.16.75x50	£15.84
	75x63mm	2024.16.75x63	£15.84
	90x63mm	2024.16.90x63	£22.19
	90x75mm	2024.16.90x75	£22.19
	110x63mm	2024.16.110x63	£29.76
	110x75mm	2024.16.110x75	£29.76
	110x90mm	2024.16.110x90	£29.76
	125x63mm	2024.16.125x63	£35.84
	125x90mm	2024.16.125x90	£35.84
	125x110mm	2024.16.125x110	£35.84
	140x125mm	2024.16.140x125	£51.52
	160x90mm	2024.16.160x90	£68.85
	160x110mm	2024.16.160x110	£68.85
	160x125mm	2024.16.160x125	£68.85
	160x140mm	2024.16.160x140	£68.85
	180x90mm	2024.16.180x90	£89.12
	180x125mm	2024.16.180x125	£89.12
	180x160mm	2024.16.180x160	£89.12
	200x160mm	2024.16.200x160	£97.76
	225x140mm	2024.16.225x140	£157.07
	225x160mm	2024.16.225x160	£157.07
	225x180mm	2024.16.225x180	£157.07
	250x160mm	2024.16.250x160	£198.40
	250x180mm	2024.16.250x180	£198.40
	250x200mm	2024.16.250x200	£198.40
	250x225mm	2024.16.250x225	£198.40
	280x200mm	2024.16.280x200	£276.91
	280x225mm	2024.16.280x225	£276.91
280x250mm	2024.16.280x250	£264.48	
315x225mm	2024.16.315x225	£340.11	
315x250mm	2024.16.315x250	£340.11	
315x280mm	2024.16.315x280	£340.11	
355x250mm	2024.16.355x250	£1252.59	
355x280mm	2024.16.355x280	£1169.81	
355x315mm	2024.16.355x315	£777.87	
400x280mm	2024.16.400x280	£1206.66	
400x315mm	2024.16.400x315	£1104.69	
400x355mm	2024.16.400x355	£650.03	
End cap long spigot PN10			
	50mm	2030.10.50	£8.11
	63mm	2030.10.63	£12.16
	75mm	2030.10.75	£22.72
	90mm	2030.10.90	£27.47
	110mm	2030.10.110	£35.04
	125mm	2030.10.125	£40.11
	140mm	2030.10.140	£50.13
	160mm	2030.10.160	£52.75
	180mm	2030.10.180	£72.75
	200mm	2030.10.200	£90.45

Prices shown are for one item excluding VAT

Fittings

	Size	Product code	Price each
End cap long spigot PN10			
	225mm	2030.10.225	£108.05
	250mm	2030.10.250	£124.59
	280mm	2030.10.280	£175.52
	315mm	2030.10.315	£240.32
	355mm	2030.10.355	£390.77
	400mm	2030.10.400	£689.44
End cap long spigot PN16			
	20mm	2030.16.20	£4.27
	25mm	2030.16.25	£4.59
	32mm	2030.16.32	£5.97
	40mm	2030.16.40	£7.20
	50mm	2030.16.50	£9.17
	63mm	2030.16.63	£12.21
	75mm	2030.16.75	£22.61
	90mm	2030.16.90	£27.57
	110mm	2030.16.110	£35.04
	125mm	2030.16.125	£40.16
	140mm	2030.16.140	£50.67
	160mm	2030.16.160	£52.85
	180mm	2030.16.180	£72.75
	200mm	2030.16.200	£90.77
	225mm	2030.16.225	£108.05
	250mm	2030.16.250	£124.59
280mm	2030.16.280	£175.52	
315mm	2030.16.315	£240.32	
355mm	2030.16.355	£390.77	
400mm	2030.16.400	£685.92	
Reducing tee 90° long spigot PN10			
	63x50mm	2004.10.63x50.90	£17.39
	75x50mm	2004.10.75x50.90	£26.29
	75x63mm	2004.10.75x63.90	£26.45
	90x50mm	2004.10.90x50.90	£37.33
	90x63mm	2004.10.90x63.90	£37.33
	90x75mm	2004.10.90x75.90	£36.53
	110x63mm	2004.10.110x63.90	£55.31
	110x75mm	2004.10.110x75.90	£63.04
	110x90mm	2004.10.110x90.90	£70.99
	125x110mm	2004.10.125x110.90	£76.32
	160x63mm	2004.10.160x63.90	£150.19
	160x75mm	2004.10.160x75.90	£156.00
	160x90mm	2004.10.160x90.90	£156.00
	160x110mm	2004.10.160x110.90	£157.33
180x160mm	2004.10.180x160.90	£210.19	
200x63mm	2004.10.200x63.90	£285.28	
200x90mm	2004.10.200x90.90	£293.81	
200x110mm	2004.10.200x110.90	£311.09	
200x160mm	2004.10.200x160.90	£324.91	
225x75mm	2004.10.225x75.90	£343.09	
225x90mm	2004.10.225x90.90	£354.72	

Prices shown are for one item excluding VAT

PE100

Fittings			
	Size	Product code	Price each
Reducing tee 90° long spigot PN10			
	225x110mm	2004.10.225x110.90	£356.05
	225x160mm	2004.10.225x160.90	£357.01
	225x180mm	2004.10.225x180.90	£357.01
	250x110mm	2004.10.250x110.90	£370.03
	250x160mm	2004.10.250x160.90	£377.97
	315x110mm	2004.10.315x110.90	£932.11
	315x160mm	2004.10.315x160.90	£976.43
	315x250mm	2004.10.315x250.90	£961.07
Reducing tee 90° long spigot PN16			
	63x50mm	2004.16.63x50.90	£22.40
	75x32mm	2004.16.75x32.90	£34.99
	75x50mm	2004.16.75x50.90	£34.99
	75x63mm	2004.16.75x63.90	£35.52
	90x50mm	2004.16.90x50.90	£41.49
	90x63mm	2004.16.90x63.90	£41.49
	90x75mm	2004.16.90x75.90	£41.92
	110x63mm	2004.16.110x63.90	£61.60
	110x75mm	2004.16.110x75.90	£63.84
	110x90mm	2004.16.110x90.90	£75.20
	125x110mm	2004.16.125x110.90	£85.71
	160x63mm	2004.16.160x63.90	£163.09
	160x75mm	2004.16.160x75.90	£164.48
	160x90mm	2004.16.160x90.90	£169.55
	160x110mm	2004.16.160x110.90	£173.76
	180x160mm	2004.16.180x160.90	£233.87
	200x63mm	2004.16.200x63.90	£305.17
	200x90mm	2004.16.200x90.90	£315.52
	200x110mm	2004.16.200x110.90	£322.67
	200x160mm	2004.16.200x160.90	£345.71
225x75mm	2004.16.225x75.90	£366.29	
225x90mm	2004.16.225x90.90	£393.76	
225x110mm	2004.16.225x110.90	£395.41	
225x160mm	2004.16.225x160.90	£396.80	
225x180mm	2004.16.225x180.90	£439.04	
250x110mm	2004.16.250x110.90	£458.72	
250x160mm	2004.16.250x160.90	£467.57	
315x110mm	2004.16.315x110.90	£1,109.55	
315x160mm	2004.16.315x160.90	£1,118.67	
315x250mm	2004.16.315x250.90	£1,136.48	
Tee 45° long spigot PN10			
	63mm	2004.10.63.45	£92.91
	75mm	2004.10.75.45	£140.32
	90mm	2004.10.90.45	£216.85
	110mm	2004.10.110.45	£307.89
Tee 45° long spigot PN16			
	63mm	2004.16.63.45	£103.20
	75mm	2004.16.75.45	£155.73
	90mm	2004.16.90.45	£240.91
	110mm	2004.16.110.45	£342.03

Prices shown are for one item excluding VAT

Fittings			
	Size	Product code	Price each
Profile gasket PN10			
	63mm	2014.10.63	£24.67
	75mm	2014.10.75	£25.24
	90mm	2014.10.90	£26.58
	110mm	2014.10.110	£30.36
	125mm	2014.10.125	£34.36
	140mm	2014.10.140	£36.27
	160mm	2014.10.160	£41.02
	180mm	2014.10.180	£42.80
	200mm	2014.10.200	£52.44
	225mm	2014.10.225	£53.69
	250mm	2014.10.250	£69.02
	280mm	2014.10.280	£73.24
	315mm	2014.10.315	£87.56
	355mm	2014.10.355	£130.00
	400mm	2014.10.400	£158.67
Profile gasket PN16			
	63mm	2014.16.63	£24.67
	75mm	2014.16.75	£25.24
	90mm	2014.16.90	£26.58
	110mm	2014.16.110	£30.36
	125mm	2014.16.125	£34.36
	140mm	2014.16.140	£36.27
	160mm	2014.16.160	£41.02
	180mm	2014.16.180	£42.80
	200mm	2014.16.200	£52.44
	225mm	2014.16.225	£53.69
	250mm	2014.16.250	£69.02
	280mm	2014.16.280	£73.24
	315mm	2014.16.315	£87.56
	355mm	2014.16.355	£130.00
	400mm	2014.16.400	£158.67
Profile backing ring PN16			
	63mm	2015.16.63	£21.73
	75mm	2015.16.75	£24.53
	90mm	2015.16.90	£29.42
	110mm	2015.16.110	£40.18
	125mm	2015.16.125	£40.18
	140mm	2015.16.140	£50.40
	160mm	2015.16.160	£62.04
	180mm	2015.16.180	£62.04
	200mm	2015.16.200	£94.22
	225mm	2015.16.225	£94.22
	250mm	2015.16.250	£114.44
	280mm	2015.16.280	£114.44
	315mm	2015.16.315	£174.93
	355mm	2015.16.355	£330.98
	400mm	2015.16.400	£376.67

Prices shown are for one item excluding VAT

Fittings

Size	Product code	Price each
GMS backing ring PN16		
63mm	2016.16.63	£12.22
75mm	2016.16.75	£15.02
90mm	2016.16.90	£17.11
110mm	2016.16.110	£18.67
125mm	2016.16.125	£18.67
140mm	2016.16.140	£27.38
160mm	2016.16.160	£34.53
180mm	2016.16.180	£34.53
200mm	2016.16.200	£44.00
225mm	2016.16.225	£44.00
250mm	2016.16.250	£84.89
280mm	2016.16.280	£84.89
315mm	2016.16.315	£106.49
355mm	2016.16.355	£222.84



EF coupler

20mm	2010.16.20	£6.70
25mm	2010.16.25	£6.70
32mm	2010.16.32	£6.70
40mm	2010.16.40	£10.03
50mm	2010.16.50	£10.32
63mm	2010.16.63	£12.41
75mm	2010.16.75	£19.06
90mm	2010.16.90	£19.22
110mm	2010.16.110	£29.47
125mm	2010.16.125	£33.77
140mm	2010.16.140	£43.31
160mm	2010.16.160	£52.80
180mm	2010.16.180	£62.30
200mm	2010.16.200	£88.40
225mm	2010.16.225	£100.24
250mm	2010.16.250	£144.44
280mm	2010.16.280	£218.54
315mm	2010.16.315	£242.20
355mm	2010.16.355	£442.78
400mm	2010.16.400	£484.17

EF tapping saddle



40x20	2055.16.40x20	£52.50
40x32	2055.16.40x32	£52.50
50x20	2055.16.50x20	£52.50
50x25	2055.16.50x25	£52.50
50x32	2055.16.50x32	£52.50
63x20	2055.16.63x20	£52.50
63x25	2055.16.63x25	£52.50
63x32	2055.16.63x32	£52.50
63x40	2055.16.63x40	£83.47
63x50	2055.16.63x50	£83.47
63x63	2055.16.63x63	£83.47
75x32	2055.16.75x32	£73.86

Fittings

Size	Product code	Price each
EF tapping saddle		



75x40	2055.16.75x40	£73.86
75x50	2055.16.75x50	£73.86
75x63	2055.16.75x63	£83.47
90x32	2055.16.90x32	£52.50
90x40	2055.16.90x40	£52.50
90x50	2055.16.90x50	£83.47
90x63	2055.16.90x63	£83.47
110x32	2055.16.110x32	£52.50
110x40	2055.16.110x40	£52.50
110x50	2055.16.110x50	£83.47
110x63	2055.16.110x63	£83.47
125x32	2055.16.125x32	£52.50
125x40	2055.16.125x40	£52.50
125x50	2055.16.125x50	£83.47
125x63	2055.16.125x63	£83.47
140x32	2055.16.140x32	£93.38
140x40	2055.16.140x40	£93.38
140x50	2055.16.140x50	£93.38
140x63	2055.16.140x63	£93.38
160x32	2055.16.160x32	£52.50
160x40	2055.16.160x40	£61.90
160x50	2055.16.160x50	£83.47
160x63	2055.16.160x63	£83.47
180x32	2055.16.180x32	£72.31
180x40	2055.16.180x40	£83.47
180x50	2055.16.180x50	£83.47
180x63	2055.16.180x63	£83.47
200x32	2055.16.200x32	£131.66
200x40	2055.16.200x40	£165.90
200x50	2055.16.200x50	£165.90
200x63	2055.16.200x63	£131.66
225x32	2055.16.225x32	£131.66
225x40	2055.16.225x40	£165.90
225x50	2055.16.225x50	£165.90
225x63	2055.16.225x63	£131.66
250x32	2055.16.250x32	£131.66
250x40	2055.16.250x40	£165.90
250x50	2055.16.250x50	£165.90
250x63	2055.16.250x63	£165.90

EF transition saddle



63x1¼"	2056.16.63x125	£64.02
75x1¼"	2056.16.75x125	£93.73
90x1½"	2056.16.90x15	£93.73
90x2"	2056.16.90x2	£87.26
110x1½"	2056.16.110x15	£89.71
110x2"	2056.16.110x2	£96.40
125x1½"	2056.16.125x15	£100.73
125x2"	2056.16.125x2	£102.96
140x1½"	2056.16.140x15	£122.57
140x2"	2056.16.140x2	£136.92

Prices shown are for one item excluding VAT

Prices shown are for one item excluding VAT




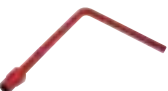
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Fittings

	Size	Product code	Price each
EF transition saddle			
	160x1½"	2056.16.160x15	£136.92
	160x2"	2056.16.160x2	£114.86
	180x1½"	2056.16.180x15	£115.77
	180x2"	2056.16.180x2	£116.59
	200x2"	2056.16.200x2	£126.46
	225x2"	2056.16.225x2	£141.02
	250x2"	2056.16.250x2	£152.27
EF branch saddle			
	63x32	2054.16.63x32	£57.96
	63x40	2054.16.63x40	£57.96
	63x50	2054.16.63x50	£57.96
	63x63	2054.16.63x63	£57.96
	75x32	2054.16.75x32	£57.96
	75x40	2054.16.75x40	£57.96
	75x50	2054.16.75x50	£57.96
	75x63	2054.16.75x63	£57.96
	90x32	2054.16.90x32	£57.96
	90x40	2054.16.90x40	£57.96
	90x50	2054.16.90x50	£57.96
	90x63	2054.16.90x63	£57.96
	90x90	2054.16.90x90	£84.39
	110x32	2054.16.110x32	£57.96
	110x40	2054.16.110x40	£57.96
	110x50	2054.16.110x50	£57.96
	110x63	2054.16.110x63	£58.92
	110x90	2054.16.110x90	£84.39
	125x32	2054.16.125x32	£57.96
	125x40	2054.16.125x40	£57.96
	125x50	2054.16.125x50	£57.96
	125x63	2054.16.125x63	£57.96
	125x90	2054.16.125x90	£84.39
	140x32	2054.16.140x32	£80.71
	140x40	2054.16.140x40	£80.71
	140x50	2054.16.140x50	£80.71
	140x63	2054.16.140x63	£80.71
	140x90	2054.16.140x90	£104.93
	160x32	2054.16.160x32	£89.95
	160x40	2054.16.160x40	£89.95
160x50	2054.16.160x50	£89.95	
160x63	2054.16.160x63	£71.23	
160x90	2054.16.160x90	£177.77	
180x32	2054.16.180x32	£79.56	
180x40	2054.16.180x40	£80.40	
180x50	2054.16.180x50	£80.40	
180x63	2054.16.180x63	£79.56	
180x90	2054.16.180x90	£177.77	
200x63	2054.16.200x63	£86.56	
200x90	2054.16.200x90	£198.17	
225x63	2054.16.225x63	£86.56	
225x90	2054.16.225x90	£198.17	
250x63	2054.16.250x63	£88.67	
250x90	2054.16.250x90	£198.17	

Prices shown are for one item excluding VAT

Fittings

	Size	Product code	Price each
EF BSPM adaptor			
	20x½"	2057.16.20x05	£30.44
	25x¾"	2057.16.25x075	£31.38
	32x½"	2057.16.32x05	£31.38
	32x¾"	2057.16.32x075	£31.38
	32x1"	2057.16.32x1	£34.53
	32x1¼"	2057.16.32x125	£39.64
	32x1½"	2057.16.32x15	£42.54
	40x1"	2057.16.40x1	£37.85
	40x1¼"	2057.16.40x125	£37.85
	40x1½"	2057.16.40x15	£40.10
	40x2"	2057.16.40x2	£54.40
	50x1"	2057.16.50x1	£42.95
	50x1¼"	2057.16.50x125	£44.05
	50x1½"	2057.16.50x15	£45.34
	50x2"	2057.16.50x2	£56.62
	63x1¼"	2057.16.63x125	£65.81
	63x1½"	2057.16.63x15	£60.74
63x2"	2057.16.63x2	£62.51	
75x2"	2057.16.75x2	£90.23	
75x2½"	2057.16.75x25	£90.23	
EF BSPF adaptor			
	20x½"	2058.16.20x05	£28.02
	25x¾"	2058.16.25x075	£32.59
	32x¾"	2058.16.32x075	£36.61
	32x1"	2058.16.32x1	£37.14
	32x1½"	2058.16.32x15	£40.96
	40x1"	2058.16.40x1	£45.22
	40x1¼"	2058.16.40x125	£45.22
	40x1½"	2058.16.40x15	£47.88
	50x1½"	2058.16.50x15	£55.03
	50x2"	2058.16.50x2	£63.61
	63x1½"	2058.16.63x15	£63.34
63x2"	2058.16.63x2	£69.28	
EF adjustable elbow			
	110mm	2051.16.110.025	£162.26
	125mm	2051.16.125.025	£200.90
	160mm	2051.16.160.025	£288.68
	180mm	2051.16.180.025	£368.76
Assembly tool			
	One size	9150T	£26.12

Prices shown are for one item excluding VAT


EFFAST Aqua range




Aqua range

Valves range


Double union. metric solvent cement

	Nominal Size	Code	D mm	DN	Weight (GR)	Price each
	20	BDRBZD0200Aq	20	15	143	£5.38
	25	BDRBZD0250Aq	25	20	229	£5.66
	32	BDRBZD0320Aq	32	25	302	£8.30
	40	BDRBZD0400Aq	40	32	468	£10.59
	50	BDRBZD0500Aq	50	40	733	£12.18
	63	BDRBZD0630Aq	63	50	1.144	£19.78


Butterfly Valves Range "Aqua"

	Nominal Size	Code	D mm	DN	Weight (GR)	Price each
	63	FDSFVD0630Aq	63	50	1337.70	£35.38
	75	FDSFVD0750Aq	75	65	1420.70	£35.38
	90	FDSFVD0900Aq	90	80	1781.90	£48.04
	110	FDSFVD1100Aq	110	100	2341.50	£64.36
	125	FDSFVD1250Aq	125	125	3546.90	£78.40
	160	FDSFVD1600Aq	160	150	4315.50	£95.08


Knife Gate Valve Range "Aqua" PN3.5

	Nominal Size	Code	D mm	DN	Weight (GR)	Price each
	50	BDRBGD0500Aq	50	40	283.30	£12.06
	63	BDRBGD0630Aq	63	50	395.80	£18.64
	75	BDRBGD0750Aq	75	65	566.70	£28.96
	90	BDRBGD0900Aq	90	80	1417.00	£54.62
	110	BDRBGD1100Aq	110	100	1833.00	£68.00

Container Adaptor

	Nominal Size	Code	D mm	Weight (GR)	Price each	
	1½"	RERATE050F	1½"	48 80 90 37 56 25	125	£9.54

Container Adaptor BSP

	Nominal Size	Code	B	C	D	S	VE	Weight (GR)	Price each
	20	RERAKE020C	16	19	42	32	10		£19.44
	25	RERAKE025D	19	22	45	40	10		£22.06
	32	RERAKE032E	22	26	49	50	10		£24.52
	50	RERAKE050G	31	38	52	69	10		£33.72
	63	RERAKE063H	38	44	53	85	10		£58.00
	75	RERAKE075I	44	51	56	100	10		£84.12

Prices shown are for one item excluding VAT # Refer to metric equivalent

Sales and enquiries please contact: 08452 700886

Clamp saddles

Clamp Saddles




Nominal Size	Code	D	PN	Bolts	Price each
20 x 1/2"	SEP010020B	20 x 1/2"	6	2	£0.90
25 x 1/2"	SEP010025B	25 x 1/2"	6	2	£0.90
25 x 3/4"	SEP010025C	25 x 3/4"	6	2	£0.90
32 x 1/2"	SEP010032D	32 x 1/2"	6	2	£1.00
32 x 1/2"	SEP010032B	32 x 1/2"	6	2	£1.00
32 x 3/4"	SEP010032C	32 x 3/4"	6	2	£1.00
40 x 1/2"	SEP010040B	40 x 1/2"	6	2	£1.16
40 x 3/4"	SEP010040C	40 x 3/4"	6	2	£1.16
40 x 1"	SEP010040D	40 x 1"	6	2	£1.16
50 x 1/2"	SEP010050B	50 x 1/2"	6	2	£1.36
50 x 3/4"	SEP010050C	50 x 3/4"	6	2	£1.36
50 x 1"	SEP010050D	50 x 1"	6	2	£1.36
63 x 1/2"	SEP010063B	63 x 1/2"	6	6	£2.16
63 x 3/4"	SEP010063C	63 x 3/4"	6	6	£2.16
63 x 1"	SEP010063D	63 x 1"	6	4	£2.16
63 x 1 1/4"	SEP010063E	63 x 1 1/4"	6	6	£2.16
63 x 1 1/2"	SEP010063F	63 x 1 1/2"	6	6	£2.16
75 x 1/2"	SEP010075B	75 x 1/2"	6	6	£3.14
75 x 3/4"	SEP010075C	75 x 3/4"	6	6	£3.14
75 x 1"	SEP010075D	75 x 1"	6	4	£3.14
75 x 1 1/4"	SEP010075E	75 x 1 1/4"	6	6	£3.14
75 x 1 1/2"	SEP010075F	75 x 1 1/2"	6	6	£3.14
75 x 2"	SEP010075G	75 x 2"	6	4	£3.14
90 x 1/2"	SEP010090B	90 x 1/2"	6	6	£3.54
90 x 3/4"	SEP010090C	90 x 3/4"	6	6	£3.54
90 x 1"	SEP010090D	90 x 1"	6	4	£3.54
90 x 1 1/4"	SEP010090E	90 x 1 1/4"	6	6	£3.54
90 x 1 1/2"	SEP010090F	90 x 1 1/2"	6	6	£3.60
90 x 2"	SEP010090G	90 x 2"	6	4	£3.60
110 x 1/2"	SEP010110B	110 x 1/2"	6	6	£4.40
110 x 3/4"	SEP010110C	110 x 3/4"	6	6	£4.40
110 x 1"	SEP010110D	110 x 1"	6	4	£4.40
110 x 1 1/4"	SEP010110E	110 x 1 1/4"	6	6	£4.40
110 x 1 1/2"	SEP010110F	110 x 1 1/2"	6	6	£4.96
110 x 2"	SEP010110G	110 x 2"	6	4	£4.96
110 x 3"	SEP010110I	110 x 3"	6	4	£7.56
125 x 1/2"	SEP010125B	125 x 1/2"	6	4	£12.36
125 x 3/4"	SEP010125C	125 x 3/4"	6	4	£12.44
125 x 1"	SEP010125D	125 x 1"	6	4	£12.44
125 x 1 1/4"	SEP010125E	125 x 1 1/4"	6	4	£12.44
125 x 1 1/2"	SEP010125F	125 x 1 1/2"	6	4	£12.44
125 x 2"	SEP010125G	125 x 2"	6	4	£12.84
125 x 2 1/2"	SEP010125H	125 x 2 1/2"	6	4	£12.84
125 x 3"	SEP010125I	125 x 3"	6	4	£12.84

Prices shown are for one item excluding VAT # Refer to metric equivalent

Aqua range

Clamp saddles

Clamp Saddles						
	Nominal Size	Code	D	PN	Bolts	Price each
	125 x 4"	SEP010125L	125 x 4"	6	4	£12.84
	140 x ¾"	SEP010140C	140 x ¾"	6	6	£15.60
	140 x 1"	SEP010140D	140 x 1"	6	6	£15.60
	140 x 1¼"	SEP010140E	140 x 1¼"	6	6	£15.60
	140 x 1½"	SEP010140F	140 x 1½"	6	6	£15.60
	140 x 2"	SEP010140G	140 x 2"	6	6	£15.60
	140 x 3"	SEP010140I	140 x 3"	6	6	£15.60
	140 x 4"	SEP010140L	140 x 4"	6	6	£15.60
	160 x ½"	SEP010160B	160 x ½"	6	6	£15.60
	160 x ¾"	SEP010160C	160 x ¾"	6	6	£15.60
	160 x 1"	SEP010160D	160 x 1"	6	6	£15.60
	160 x 1¼"	SEP010160E	160 x 1¼"	6	6	£15.60
	160 x 1½"	SEP010160F	160 x 1½"	6	6	£15.60
	160 x 2"	SEP010160G	160 x 2"	6	6	£15.60
	160 x 2½"	SEP010160H	160 x 2½"	6	6	£15.60
	160 x 3"	SEP010160I	160 x 3"	6	6	£15.60
	160 x 4"	SEP010160L	160 x 4"	6	6	£16.50
	200 x ¾"	SEP010200C	200 x ¾"	6	6	£46.46
	200 x 1"	SEP010200D	200 x 1"	6	6	£46.46
	200 x 1¼"	SEP010200E	200 x 1¼"	6	6	£46.46
	200 x 1½"	SEP010200F	200 x 1½"	6	6	£46.46
	200 x 2"	SEP010200G	200 x 2"	6	6	£49.84
	200 x 3"	SEP010200I	200 x 3"	6	6	£49.84
	200 x 4"	SEP010200L	200 x 4"	6	6	£49.84
	225 x ½"	SEP010225B	225 x ½"	6	6	£53.46
	225 x ¾"	SEP010225C	225 x ¾"	6	6	£53.46
	225 x 1"	SEP010225D	225 x 1"	6	6	£53.46
	225 x 1¼"	SEP010225E	225 x 1¼"	6	6	£53.46
	225 x 1½"	SEP010225F	225 x 1½"	6	6	£53.46
	225 x 2"	SEP010225G	225 x 2"	6	6	£58.30
	225 x 3"	SEP010225I	225 x 3"	6	6	£58.30
	225 x 4"	SEP010225L	225 x 4"	6	6	£58.30
	250 x 1"	SEP010250D	250 x 1"	6	6	£63.44
	250 x 1¼"	SEP010250E	250 x 1¼"	6	6	£63.44
250 x 1½"	SEP010250F	250 x 1½"	6	6	£63.44	
250 x 2"	SEP010250G	250 x 2"	6	6	£63.44	
250 x 3"	SEP010250I	250 x 3"	6	6	£63.44	
250 x 4"	SEP010250L	250 x 4"	6	6	£63.44	
315 x 1"	SEP010315D	315 x 1"	6	6	£80.66	
315 x 1¼"	SEP010315E	315 x 1¼"	6	6	£80.66	
315 x 1½"	SEP010315F	315 x 1½"	6	6	£80.66	
315 x 2"	SEP010315G	315 x 2"	6	6	£88.96	
315 x 3"	SEP010315I	315 x 3"	6	6	£88.96	
315 x 4"	SEP010315L	315 x 4"	6	6	£88.96	

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Sales and enquiries please contact: 08452 700886

Clamp saddles reinforced

Clamp Saddles Reinforced



Nominal Size	Code	D	PN	Bolts	Price each
20 x 1/2"	SEP011020B	20 x 1/2"	6	2	£1.80
25 x 1/2"	SEP011025B	25 x 1/2"	6	2	£1.80
25 x 3/4"	SEP011025C	25 x 3/4"	6	2	£1.80
32 x 1/2"	SEP011032D	32 x 1/2"	6	2	£2.10
32 x 1/2"	SEP011032B	32 x 1/2"	6	2	£2.10
32 x 3/4"	SEP011032C	32 x 3/4"	6	2	£2.10
40 x 1/2"	SEP011040B	40 x 1/2"	6	2	£2.30
40 x 3/4"	SEP011040C	40 x 3/4"	6	2	£2.30
40 x 1"	SEP011040D	40 x 1"	6	2	£2.30
50 x 1/2"	SEP011050B	50 x 1/2"	6	2	£2.44
50 x 3/4"	SEP011050C	50 x 3/4"	6	2	£2.44
50 x 1"	SEP011050D	50 x 1"	6	2	£2.44
63 x 1/2"	SEP011063B	63 x 1/2"	6	6	£3.66
63 x 3/4"	SEP011063C	63 x 3/4"	6	6	£3.66
63 x 1"	SEP011063D	63 x 1"	6	4	£3.66
63 x 1 1/4"	SEP011063E	63 x 1 1/4"	6	6	£3.66
63 x 1 1/2"	SEP011063F	63 x 1 1/2"	6	6	£3.66
75 x 1/2"	SEP011075B	75 x 1/2"	6	6	£4.56
75 x 3/4"	SEP011075C	75 x 3/4"	6	6	£4.56
75 x 1"	SEP011075D	75 x 1"	6	4	£4.56
75 x 1 1/4"	SEP011075E	75 x 1 1/4"	6	6	£4.56
75 x 1 1/2"	SEP011075F	75 x 1 1/2"	6	6	£4.56
75 x 2"	SEP011075G	75 x 2"	6	4	£4.56
90 x 1/2"	SEP011090B	90 x 1/2"	6	6	£5.04
90 x 3/4"	SEP011090C	90 x 3/4"	6	6	£5.04
90 x 1"	SEP011090D	90 x 1"	6	4	£5.04
90 x 1 1/4"	SEP011090E	90 x 1 1/4"	6	6	£5.04
90 x 1 1/2"	SEP011090F	90 x 1 1/2"	6	6	£5.04
90 x 2"	SEP011090G	90 x 2"	6	4	£5.04
110 x 1/2"	SEP011110B	110 x 1/2"	6	6	£5.70
110 x 3/4"	SEP011110C	110 x 3/4"	6	6	£5.70
110 x 1"	SEP011110D	110 x 1"	6	4	£5.70
110 x 1 1/4"	SEP011110E	110 x 1 1/4"	6	6	£5.70
110 x 1 1/2"	SEP011110F	110 x 1 1/2"	6	6	£5.70
110 x 2"	SEP011110G	110 x 2"	6	4	£7.06
110 x 3"	SEP011110I	110 x 3"	6	4	£10.86
125 x 1/2"	SEP011125B	125 x 1/2"	6	4	£13.80
125 x 3/4"	SEP011125C	125 x 3/4"	6	4	£13.80
125 x 1"	SEP011125D	125 x 1"	6	4	£13.80
125 x 1 1/4"	SEP011125E	125 x 1 1/4"	6	4	£13.80
125 x 1 1/2"	SEP011125F	125 x 1 1/2"	6	4	£13.80
125 x 2"	SEP011125G	125 x 2"	6	4	£13.80
125 x 2 1/2"	SEP011125H	125 x 2 1/2"	6	4	£13.80
125 x 3"	SEP011125I	125 x 3"	6	4	£15.14


Prices shown are for one item excluding VAT # Refer to metric equivalent

Sales and enquiries please contact: 08452 700886

Aqua range

Clamp saddles reinforced

Clamp Saddles Reinforced

	Nominal Size	Code	D	PN	Bolts	Price each
	125 x 4"	SEP011125L	125 x 4"	6	4	£15.14
	140 x ¾"	SEP011140C	140 x ¾"	6	6	£16.50
	140 x 1"	SEP011140D	140 x 1"	6	6	£16.50
	140 x 1¼"	SEP011140E	140 x 1¼"	6	6	£16.50
	140 x 1½"	SEP011140F	140 x 1½"	6	6	£16.50
	140 x 2"	SEP011140G	140 x 2"	6	6	£16.50
	140 x 3"	SEP011140I	140 x 3"	6	6	£16.50
	140 x 4"	SEP011140L	140 x 4"	6	6	£16.50
	160 x ½"	SEP011160B	160 x ½"	6	6	£16.50
	160 x ¾"	SEP011160C	160 x ¾"	6	6	£16.50
	160 x 1"	SEP011160D	160 x 1"	6	6	£16.50
	160 x 1¼"	SEP011160E	160 x 1¼"	6	6	£16.50
	160 x 1½"	SEP011160F	160 x 1½"	6	6	£16.50
	160 x 2"	SEP011160G	160 x 2"	6	6	£16.50
	160 x 2½"	SEP011160H	160 x 2½"	6	6	£18.36
	160 x 3"	SEP011160I	160 x 3"	6	6	£18.36
	160 x 4"	SEP011160L	160 x 4"	6	6	£20.24
	200 x ¾"	SEP011200C	200 x ¾"	6	6	£53.84
	200 x 1"	SEP011200D	200 x 1"	6	6	£73.36
	200 x 1¼"	SEP011200E	200 x 1¼"	6	6	£73.36
	200 x 1½"	SEP011200F	200 x 1½"	6	6	£73.36
	200 x 2"	SEP011200G	200 x 2"	6	6	£73.36
	200 x 3"	SEP011200I	200 x 3"	6	6	£78.50
	200 x 4"	SEP011200L	200 x 4"	6	6	£78.50
	225 x ½"	SEP011225B	225 x ½"	6	6	£87.70
	225 x ¾"	SEP011225C	225 x ¾"	6	6	£87.70
	225 x 1"	SEP011225D	225 x 1"	6	6	£87.70
	225 x 1¼"	SEP011225E	225 x 1¼"	6	6	£87.70
	225 x 1½"	SEP011225F	225 x 1½"	6	6	£87.70
	225 x 2"	SEP011225G	225 x 2"	6	6	£91.66
	225 x 3"	SEP011225I	225 x 3"	6	6	£91.66
	225 x 4"	SEP011225L	225 x 4"	6	6	£91.66
	250 x 1"	SEP011250D	250 x 1"	6	6	£102.76
	250 x 1¼"	SEP011250E	250 x 1¼"	6	6	£102.76
	250 x 1½"	SEP011250F	250 x 1½"	6	6	£107.74
250 x 2"	SEP011250G	250 x 2"	6	6	£107.74	
250 x 3"	SEP011250I	250 x 3"	6	6	£109.20	
250 x 4"	SEP011250L	250 x 4"	6	6	£109.20	
315 x 1"	SEP011315D	315 x 1"	6	6	£129.74	
315 x 1¼"	SEP011315E	315 x 1¼"	6	6	£129.74	
315 x 1½"	SEP011315F	315 x 1½"	6	6	£129.74	
315 x 2"	SEP011315G	315 x 2"	6	6	£135.66	
315 x 3"	SEP011315I	315 x 3"	6	6	£135.66	
315 x 4"	SEP011315L	315 x 4"	6	6	£135.66	

Prices shown are for one item excluding VAT # Refer to metric equivalent

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Flowmeter, Plastic Design Variable Area Principle Construction

- Male threads moulded into the ends of the metering tube allow for easy mounting of unions.
- The O-ring seals ensure reliable sealing between metering tube and union without radial forces, which could lead to bursting of the tube.
- Floats are available in stainless steel 1.4571, PP or PVDF (depending on flow medium and measuring range).
- The scale on the metering tube can be suited to the medium and is available e.g. in l/h, m³/h or %.
- Dovetail sections moulded into the metering tube allow for easy mounting of adjustable flow indicators, limit switches and a continuous readout transmitter

Features

- The plastic flowmeters operate according to the variable area principle, whereby the float can move freely within the metering tube.
- Type series 800 is suitable for volumetric flow measurement of inert and corrosive gases and liquids.

Advantages

- High accuracy, simple handling
- Impact resistance, corrosion resistance.
- Over 500 standard scales and over 3000 special scales are available and further scales are available on request.
- Clear and large size scale.

Working Pressure

Metering tubes with plastic unions	PN 10
Metering tubes with metal unions	PN 11

Design

Float material	Working medium
PP	Liquids and gases
PP with magnet	Liquids and gases
St. steel 1.4571	Liquids
St. steel 1.4571 with magnet	Liquids
PP	Gases
PP with magnet	Gases
PVDF	Liquids and gases
PVDF	Liquids and gases

Body configuration

Straight through

Connection

Threaded spigots/Socket/BS

Tube material

Polysulphone temperature range 0-100C°

Material of O rings

O-rings Viton	FPM
O-rings Ethylene-Propylene	EPDM

Design

Polyvinylchloride	PVC
Polypropylene	PP
Malleable iron	GT
St. st. 1.4571	VA
Polyvinylidenfluoride	PVDF

Note:

When ordering, the flow ranges should be stated as follows:

Liquid media	l/h
Diameter:	mm

Required information:

The following data are necessary:

1. Type of medium
2. Concentration of medium (%)
3. Required flow range (l/h, m³/h, kg/h)
4. Working pressure, relative or absolute (bar)
5. Temperature of medium (°C)
6. Viscosity of medium (if available)
7. Specific gravity of medium (if available)
8. Float with or without magnet

Aqua range

Flowmeters

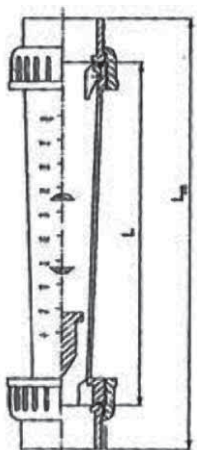
Flowmeter with Transparent PVCu Body and PVDF Float Debitmeters



Code	Description	DN	Type	Price each
HDRFLU016A	PVC 16 1.5-15	16/1.5-15	T100	£169.38
HDRFLU016B	PVC 16mm - mm range 2.5-25	16/2.5-25	T100	£169.38
HDRFLU016C	PVC 16mm - mm range 5-50	16/5-50	T100	£169.38
HDRFLU016D	PVC 16mm - mm range 10-100	16/10-100	T100	£169.38
HDRFLU020A	PVC 20mm - mm range 8-80	20/8-80	T100	£172.96
HDRFLU020B	PVC 20mm - mm range 15-150	20/15-150	T100	£172.96
HDRFLU020C	PVC 20mm - mm range 20-200	20/20-200	T100	£172.96
HDRFLU032AE	PVC 32mm - mm range 15-150	32/15-150	T100	£203.60
HDRFLU032BC	PVC 32mm - mm range 30-300	32/30-300	T100	£203.60
HDRFLU032CC	PVC 32mm - mm range 50-500	32/50-500	T100	£203.60
HDRFLU032DC	PVC 32mm - mm range 100-1000	32/100-1000	T100	£203.60
HDRFLU032C	PVC 32mm - mm range 50-500	32/50-500	T300	£256.00
HDRFLU032D	PVC 32mm - mm range 100-1000	32/100-1000	T300	£260.70
HDRFLU040A	PVC 40mm - mm range 150-1500	40/150-1500	T300	£298.96
HDRFLU040B	PVC 40mm - mm range 250-2500	40/250-2500	T300	£322.40
HDRFLU050A	PVC 50mm - mm range 200-2000	50/200-2000	T300	£333.76
HDRFLU050B	PVC 50mm - mm range 300-3000	50/300-3000	T300	£446.10
HDRFLU050C	PVC 50mm - mm range 600-6000	50/600-6000	T300	£478.90
HDRFLU063B	PVC 63mm - mm range 600-6000	63/600-6000	T300	£556.06
HDRFLU063C	PVC 63mm - mm range 1000-10000	63/1000-10000	T300	£598.18
HDRFLU063D	PVC 63mm - mm range 1500-15000	63/1500-15000	T300	£655.90

Prices shown are for one item excluding VAT # Refer to metric equivalent

Dimensions



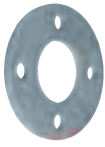
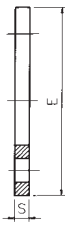
Description	DN	L	Lm
1.5 - 15	10	165	
2.5 - 25			
5 - 50			
10 - 100			
8 - 80	15	185	
15 - 150			
20 - 200			
15 - 150	25	200	
30 - 300			
50 - 500			
100 - 1000			
50 - 500	25	350	400
100 - 1000			
150 - 1500	32	350	408
250 - 2500			
200 - 2000	40	350	418
300 - 3000			
600 - 6000			
600 - 6000	50	350	432
1000 - 10000			
1500 - 15000			

SCALE FOR H2O (Suitable also for demineralized H2O) PVC pipe (max 60°C) - PVC floater

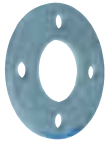

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Backing rings

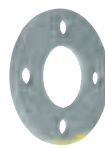

Galvanised Mild Steel Drilled to BS10 Table D/E

	Inches	mm	Code	E	ID	S	P.C.D.	Holes	Bolt Size	Weight (GR)	Price each
 	½"	—	MTABEA0200	95	28	6	67	4	M12x55	210	£11.41
	¾"	—	MTABEA0250	102	34	6	73	4	M12x60	230	£12.78
	1"	—	MTABEA0320	115	42	6	83	4	M12x60	290	£13.43
	1¼"	—	MTABEA0400	120	51	6	87	4	M12x70	290	£14.11
	1½"	—	MTABEA0500	134	62	6	98	4	M12x75	370	£17.07
	2"	—	MTABEA0630	152	78	8	115	4	M16x80	590	£24.20
	2½"	—	MTABEA0750	165	92	8	127	4	M16x85	1480	£34.07
	3"	—	MTABEA0900	185	110	8	145	4	M16x90	1060	£36.72
	4"D	—	MTABEA110D	216	138	8	178	4	M16x95	1210	£47.49
	4"E	—	MTABEA110E	216	138	8	178	8	M16x95	1190	£47.49
	5"	—	MTABEA1400	254	167	10	210	8	M16x110	2070	£81.02
	6"	—	MTABEA1600	290	196	10	235	8	M20x120	2160	£84.18
8"	—	MTABEA2250	337	250	10	292	8	M20x150	3507	£181.48	

Galvanised Mild Steel Drilled to BS4504 NP10/16

	Inches	mm	Code	E	ID	S	P.C.D.	Holes	Bolt Size	Weight (GR)	Price each
 	½"	20	MTIBNI0200	95	28	6	65	4	M12x55	350	£12.95
	¾"	25	MTIBNI0250	105	34	6	75	4	M12x60	410	£13.30
	1"	32	MTIBNI0320	115	42	6	85	4	M12x60	490	£15.00
	1¼"	40	MTIBNI0400	140	51	6	100	4	M16x70	730	£15.23
	1½"	50	MTIBNI0500	150	62	6	110	4	M16x75	820	£18.80
	2"	63	MTIBNI0630	165	78	8	125	4	M16x80	1220	£26.50
	2½"	75	MTIBNI0750	185	92	8	145	4	M16x85	1480	£36.40
	3"	90	MTIBNI0900	200	110	8	160	8	M16x90	1500	£40.35
	4"	—	MTIBNI1100	220	136	8	180	8	M16x95	1680	£52.15
	—	110	MTIBNI1100M	220	133	8	180	8	M16x95	1680	£52.15
	5"	140	MTIBNI1400	250	165	10	210	8	M16x110	1940	£82.32
	6"	—	MTIBNI1600	285	196	10	240	8	M20x120	2700	£86.77
—	160	MTIBNI1600M	285	188	10	240	8	M20x120	2700	£106.45	
—	200	MTIBNI2000	340	235	10	295	12	M20x120	3125	£123.63	
8"	225	MTIBNI2250	340	250	10	295	12	M20x150	3230	£118.86	

Galvanised Mild Steel Drilled to ASA150

	Inches	mm	Code	E	ID	S	P.C.D.	Holes	Bolt Size	Weight (GR)	Price each
 	½"	—	MTABAA0200	89	28	6	60	4	M12x55	190	£13.05
	¾"	—	MTABAA0250	99	34	6	70	4	M12x60	230	£13.43
	1"	—	MTABAA0320	108	42	6	80	4	M12x60	290	£15.12
	1¼"	—	MTABAA0400	118	51	6	90	4	M12x70	300	£15.36
	1½"	—	MTABAA0500	127	62	6	98	4	M12x75	360	£18.96
	2"	—	MTABAA0630	152	78	8	121	4	M16x80	790	£26.73
	2½"	—	MTABAA0750	177	92	9	142	4	M16x85	1205	£36.72
	3"	—	MTABAA0900	190	110	8	152	4	M16x90	1240	£40.70
	4"	—	MTABAA1100	229	138	8	190	8	M16x95	1560	£52.61
	—	110	MTABAA1100M	229	133	8	190	8	M16x95	1560	£52.61
	6"	—	MTABAA1600	280	196	10	241	8	M20x120	2730	£86.77
	—	160	MTABAA1600M	280	188	10	241	8	M20x120	2730	£86.77
8"	—	MTABAA2250	343	250	10	298	8	M20x150	3340	£118.88	


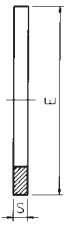
Prices shown are for one item excluding VAT # Refer to metric equivalent

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Accessories

PVCu backing rings

PVCu Backing Ring Drilled to BS4504 NP10/16

	mm	In	Code	d	E	S	P.C.D	Holes	Bolts	Weight (GR)	Price each
 	20	½"	RFIFLI0200	28	95	11	65	4	M12x55	55	£7.27
	25	¾"	RFIFLI0250	34	105	12	75	4	M12x60	85	£7.50
	32	1"	RFIFLI0320	42	115	14	85	4	M12x60	120	£8.10
	40	1¼"	RFIFLI0400	51	140	15	100	4	M16x70	175	£10.35
	50	1½"	RFIFLI0500	62	150	16	110	4	M16x75	210	£12.67
	63	2"	RFIFLI0630	78	165	18	125	4	M16x80	300	£17.99
	75	2½"	RFIFLI0750	92	185	19	145	4	M16x90	355	£25.63
	90	3"	RFIFLI0900	110	200	20	160	8	M16x90	430	£27.34
	110	—	RFIFLI1100	133	220	22	180	8	M16x95	520	£34.98
	125	—	RFIFLI1250	149	230	24	190	8	M16x100	585	£38.91
	140	5"	RFIFLI1400	167	250	26	210	8	M16x110	700	£48.87
	160	—	RFIFLI1600	190	285	28	240	8	M20x120	960	£58.11
	200	—	RFIFLI2000	235	340	30	295	8	M20x130	1230	£87.11
225	—	RFIFLI2250	250	340	30	295	8	M20x150	1150	£117.05	


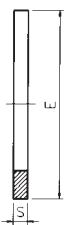
Prices shown are for one item excluding VAT # Refer to metric equivalent

Gaskets

Flat Gaskets for Full Face Flanges Drilled to BS10 Table D/E EPDM

	Nominal Size	Code	E	S	HOLES	Weight (GR)	Price each
 	1"	EPAGFA0320	114	3	4	35	£4.75
	1¼"	EPAGFA0400	120	3	4	40	£5.57
	1½"	EPAGFA0500	135	3	4	55	£7.60
	2"	EPAGFA0630	156	3	4	57	£8.23
	2½"	EPAGFA0750	165	3	4	56	£11.18
	3"	EPAGFA0900	186	3	4	99	£11.42
	4E"	EPAGFA110E	219	3	8	114	£16.67
	6"	EPAGFA1600	279	3	8	160	£22.50
	8"	EPAGFA2250	340	3	8	162	£25.08

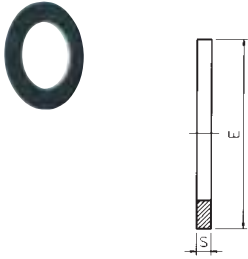
Flat Gaskets for Full Face Flanges Drilled to BS4504 NP10/16 EPDM

	Nominal Size	Code	E	S	HOLES	Weight (GR)	Price each
 	½"	EPIGFI0200	95	3	4	30	£3.25
	¾"	EPIGFI0250	101	3	4	36	£3.49
	1"	EPIGFI0320	114	3	4	35	£4.67
	1¼"	EPIGFI0400	120	3	4	40	£5.57
	1½"	EPIGFI0500	135	3	4	55	£7.60
	2"	EPIGFI0630	156	3	4	57	£8.23
	2½"	EPIGFI0750	176	3	4	78	£11.18
	3"	EPIGFI0900	186	3	8	99	£11.42
	4"	EPIGFI1100	219	3	8	114	£16.67
	6"	EPIGFI1600	279	3	8	160	£27.19
	8"	EPIGFI2250	340	3	12	195	£29.74

Prices shown are for one item excluding VAT # Refer to metric equivalent

Gaskets

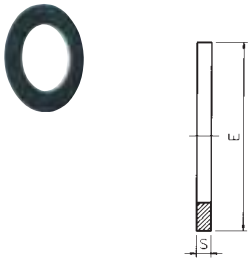
Flat Gaskets for Stub Flanges

	Inches	mm	Code	E	S	Weight (GR)	Price each
	½"	20	EPAGSA0200	30	3	20	£2.08
	¾"	25	EPAGSA0250	41	3	21	£2.47
	1"	32	EPAGSA0320	50	3	26	£3.35
	1¼"	40	EPAGSA0400	61	3	29	£3.86
	1½"	50	EPAGSA0500	73	3	34	£4.14
	2"	63	EPAGSA0630	90	3	35	£4.26
	2½"	75	EPAGSA0750	106	3	38	£4.49
	3"	90	EPAGSA0900	125	3	40	£5.03
	4"	110	EPAGSA1100	150	4	43	£7.19
	—	125	EPAGSA1250	168	4	47	£10.06
	5"	140	EPAGSA1400	188	4	59	£10.42
	6"	160	EPAGSA1600	213	4	73	£10.50
	—	200	EPAGSA2000	254	4	80	£14.25
8"	225	EPAGSA2250	274	4	88	£22.07	

Prices shown are for one item excluding VAT # Refer to metric equivalent

EPDM gaskets for tank connectors

EPDM Gaskets for Tank Connectors

	Nominal Size	Code	Price each
	½"	EPATCA0200	£1.23
	¾"	EPATCA0250	£1.30
	1"	EPATCA0320	£1.45
	1¼"	EPATCA0400	£1.70
	1½"	EPATCA0500	£1.83
	2"	EPATCA0630	£2.09
	2½"	EPATCA0750	£4.41
	3"	EPATCA0900	£4.93
	4"	EPATCA1100	£5.45


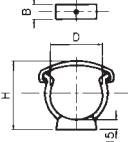
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Accessories


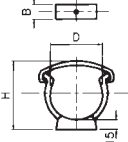
Pipe clips, clamps and brackets

Central fixing hole 5.5mm diameter


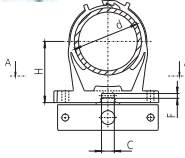
Pipe Bracket with Safety Clip

	Nominal Size	Code	L	Z	E	f	I	S	Pack Qty	Weight (GR)	Price each
 	3/8"	RFABCA0160	13	34					100	3	£2.07
	1/2"	RFABCA0200	14	39					100	5	£2.77
	3/4"	RFABCA0250	14	45					100	7	£3.35
	1"	RFABCA0320	15	52					100	10	£3.49
	1 1/4"	RFABCA0400	16	61					100	14	£3.74
	1 1/2"	RFABCA0500	17	67					100	20	£5.19
	2"	RFABCA0630	18	80					100	25	£6.58
	2 1/2"	RFABCA0750	19	96					50	33	£7.87
	3"	RFABCA0900	20	110					50	49	£12.08
	4"	RFABCA1100	25	135					10	74	£18.72
	5"	RFABCA1400	27	164					10	95	£23.32
	6"	RFABCA1600	30	196					10	184	£27.79

Pipe Bracket with Safety Clip

	Nominal Size	Code	B	H	Pack Qty	Weight (GR)	Price each
 	16	RFIBCI0160	13	33	100	3	£2.07
	20	RFIBCI0200	14	38	100	5	£2.57
	25	RFIBCI0250	14	44	100	7	£2.59
	32	RFIBCI0320	15	51	100	10	£2.94
	40	RFIBCI0400	16	60	100	14	£3.74
	50	RFIBCI0500	17	71	100	20	£4.37
	63	RFIBCI0630	18	84	100	25	£5.42
	75	RFIBCI0750	19	97	10	33	£7.87
	90	RFIBCI0900	20	113	10	49	£9.80
	110	RFIBCI1100	23	134	10	74	£17.15
	125	RFIBCI1250	25	145	10	95	£17.76
	140	RFIBCI1400	27	167	10	135	£18.33
160	RFIBCI1600	30	190	10	184	£26.77	

Universal Pipe Clamp

	mm	In	Code	H	H1	A	B	C	D	E	F	G	I	Pack Qty	Weight (GR)	Price each
 	20	1/2"	PFBPTB0200	27.0	6.0	56.0	14.0	9.0	6.5	11.0	3.5	41.0	6.5	100	10	£1.88
	25	3/4"	PFBPTB0250	30.0	10.0	61.0	16.0	9.0	6.5	11.0	3.5	46.0	6.5	100	13	£2.04
	32	1"	PFBPTB0320	31.5	11.5	67.0	16.0	9.0	6.5	11.0	3.5	52.0	6.5	100	15	£2.30
	40	1 1/4"	PFBPTB0400	37.0	14.0	80.0	17.5	9.0	6.5	11.0	3.5	64.0	6.5	100	23	£2.39
	50	1 1/2"	PFBPTB0500	41.0	15.0	84.5	20.0	9.0	6.5	11.0	3.5	70.0	6.5	100	29	£3.04
	63	2"	PFBPTB0630	49.0	15.0	96.5	24.0	9.0	6.5	11.0	3.5	80.0	6.5	100	41	£3.13
	75	2 1/2"	PFBPTB0750	70.0	15.0	126.0	26.0	12.0	8.5	14.0	4.3	106.0	8.5	20	69	£9.43
	90	3"	PFBPTB0900	80.0	20.0	137.0	26.0	12.0	8.5	14.0	4.3	117.0	8.5	20	85	£11.61

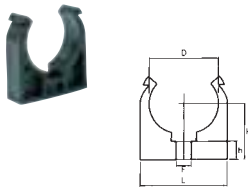
Prices shown are for one item excluding VAT # Refer to metric equivalent

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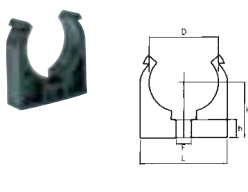
Pipe clips, clamps and brackets

Central fixing hole 5.5mm diameter

Pipe Bracket

	Nominal Size	Code	L	H	h	F	Pack Qty	Weight (GR)	Price each
	½"	PFAPTA0200	25	22	12	4	100	3	£1.16
	¾"	PFAPTA0250	31	26	12	4	100	4	£1.24
	1"	PFAPTA0320	39	30	12	4	100	6	£1.51
	1¼"	PFAPTA0400	49	33	12	4	100	10	£2.06
	1½"	PFAPTA0500	61	41	15	4	100	20	£2.32
	2"	PFAPTA0630	75	47	15	4	100	30	£2.97

Pipe Bracket

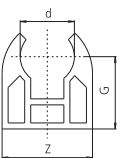
	Nominal Size	Code	L	H	h	F	Pack Qty	Weight (GR)	Price each
	20	PFIPTI0200	25	22	12	4	100	3	£1.16
	25	PFIPTI0250	31	26	12	4	100	4	£1.32
	32	PFIPTI0320	39	30	12	4	100	6	£1.54
	40	PFIPTI0400	49	33	12	4	100	10	£2.06
	50	PFIPTI0500	61	41	15	4	100	20	£2.32
	63	PFIPTI0630	75	47	15	4	100	30	£2.94

Prices shown are for one item excluding VAT # Refer to metric equivalent

Pipe hanger for PVC, PP, PVDF and PE pipes

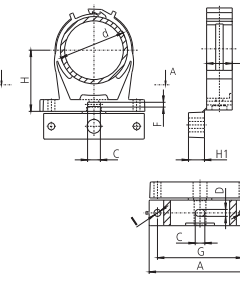
Type A

Nominal Size	mm	Code	d	d1	d2	d3	d4	Z	G
½"	20-23		10.0	3.2	3.1	7.0	—	16.0	14.5
¾"	25-28		12.0	4.2	4.2	8.0	—	19.0	17.0



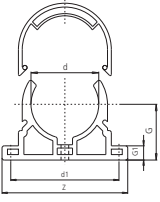
Universal Clip

Nominal Size	mm	Code	H	H1	A	B	C	D	E	F	G	I
½"	20-23		27.0	6.0	56.0	14.0	9.0	6.5	11.0	3.5	41.0	6.5
¾"	25-28		30.0	10.0	61.0	16.0	9.0	6.5	11.0	3.5	46.0	6.5
1"	31-35		31.5	11.5	67.0	16.0	9.0	6.5	11.0	3.5	52.0	6.5
1¼"	39-43		37.0	14.0	80.0	17.5	9.0	6.5	11.0	3.5	64.0	6.5
1½"	47-51		41.0	15.0	84.5	20.0	9.0	6.5	11.0	3.5	70.0	6.5
2"	60-65		49.0	15.0	96.5	24.0	9.0	6.5	11.0	3.5	80.0	6.5
2½"	72-80		70.0	15.0	126.0	26.0	12.0	8.5	14.0	4.3	106.0	8.5
3"	87-95		80.0	20.0	137.0	26.0	12.0	8.5	14.0	4.3	117.0	8.5



Type B

Nominal Size	mm	Code	d	d1	d2	d3	d4	Z	G
½"	20-23		110	8.5	7.0	19.0	167.0	189.0	80.0
¾"	25-28		125	8.5	7.0	19.0	185.0	207.0	105.0
1"	31-35		140	8.5	8.0	19.0	204.0	226.0	114.0
1¼"	39-43		160	8.5	8.0	19.0	228.0	250.0	124.0
1½"	47-51		200	8.5	8.5	19.0	287.0	311.0	158.0
2"	60-65		225	8.5	8.5	19.0	325.0	344.0	170.5



Prices shown are for one item excluding VAT # Refer to metric equivalent

Accessories

Pipe hanger spacing for horizontal piping

PVC - Pipes PN 10 + PN 16					
d mm	20°C	30°C	40°C	50°C	60°C
16	80	70	50	continuous support	
20	90	80	60		
25	95	85	65		
32	105	90	70	60	45
40	120	110	90	70	55
50	140	130	110	85	65
63	150	140	120	95	70
75	165	155	135	110	80
90	180	170	150	125	95
110	200	190	170	145	115
125	210	200	185	160	125
140	225	215	195	170	140
160	240	230	210	185	155
200	255	240	225	200	170
225	270	260	240	215	185

PP - Pipes PN 10							
d mm	20°C	30°C	40°C	50°C	60°C	80°C	100°C
16	75	70	70	65	65	55	40
20	80	75	70	70	65	60	45
25	85	85	85	80	75	70	50
32	100	95	95	90	85	75	55
40	110	110	105	100	95	85	60
50	125	120	115	110	105	90	70
63	140	135	130	125	120	105	80
75	155	150	145	135	130	115	85
90	165	165	155	150	145	125	95
110	185	180	175	165	160	140	105
125	200	190	185	180	170	150	110
140	210	205	195	190	180	155	115
160	225	225	210	200	190	165	125
180	240	240	225	215	200	170	130
200	250	250	235	225	215	185	135
225	265	260	250	240	230	200	145

PE - Pipes PN 10					
d mm	20°C	30°C	40°C	50°C	60°C
20	75	70	65	65	60
25	80	80	75	70	65
32	90	90	85	80	75
40	100	100	95	90	85
50	115	110	105	100	95
63	130	125	120	115	105
75	140	135	130	125	115
90	155	150	145	135	130
110	170	165	160	150	140
125	185	175	170	160	150
140	195	185	180	170	155
160	210	200	190	180	170
200	235	220	210	200	186
225	250	235	220	210	200
225	270	260	240	215	185


PVDF - Pipes PN 10							
d mm	20°C	30°C	40°C	50°C	60°C	80°C	100°C
16	85	80	75	70	65	60	55
20	95	90	80	75	70	65	60
25	100	95	90	85	80	75	70
32	110	100	95	90	85	80	75
40	125	115	110	100	95	90	80
50	140	130	120	115	110	100	95
63	150	140	130	120	115	105	100
75	165	155	140	130	125	115	110
90	180	165	155	145	135	125	120
110	200	185	175	160	150	140	130
125	210	195	185	170	160	150	140
140	225	210	195	180	170	160	150
160	240	225	210	195	185	170	160
200	255	240	225	210	200	185	175
225	270	255	240	225	215	200	190

Solvent cement and PTFE tape

Solvent Cement for PVCu

	Size	Code	Pack Qty	Weight (GR)	Price each
	500ml tin	RTORCO0500	12	560	£35.30


Dri-fast Solvent Cement for PVCu

	Size	Code	Pack Qty	Weight (GR)	Price each
	250ml tin	RTORDO0250	20	310	£19.40
	500ml tin	RTORDO0500	12	620	£32.71
Dri-fast utilises a special solvent formula that reduces drying times. Dri-fast is also suitable for use in damp or wet conditions.					


Solvent Cement for ABS

	Size	Code	Pack Qty	Weight (GR)	Price each
	500ml tin	ATOACO0500	12	540	£20.17


Cleaning Fluid for PVCu and ABS

	Size	Code	Pack Qty	Weight (GR)	Price each
	500ml tin	CTORMO0500	12	560	£16.68

Brushes for Solvent Cement

	Size	Code		Weight (GR)	Price each
	25mm	BTOBRO0250		10	£1.78
	50mm	BTOBRO0500		25	£3.99


PTFE Tape. Recommended for sealing threaded joints.

	Size	Code		Weight (GR)	Price each
	12mm	PTOPTFE12		10	£1.62


Accessories

PVCu and ABS valve spares


PVCu Valve Nut

	Inches	mm	Code	Pack Qty	Price each
	½"	20	RBAGHA0200	1	£2.76
	¾"	25	RBAGHA0250	1	£3.08
	1"	32	RBAGHA0320	1	£4.17
	1¼"	40	RBAGHA0400	1	£4.99
	1½"	50	RBAGHA0500	1	£6.67
	2"	63	RBAGHA0630	1	£10.48
	2½"	75	RBAGHA0750	1	£34.45
	3"	90	RBAGHA0900	1	£34.45
	4"	110	RBAGHA1100	1	£63.84


ABS Valve Nut

	Inches	mm	Code	Pack Qty	Price each
	½"	20	ABAGHA0200	1	£3.08
	¾"	25	ABAGHA0250	1	£3.78
	1"	32	ABAGHA0320	1	£4.73
	1¼"	40	ABAGHA0400	1	£6.13
	1½"	50	ABAGHA0500	1	£7.57
	2"	63	ABAGHA0630	1	£11.74
	2½"	75	ABAGHA0750	1	£38.59
	3"	90	ABAGHA0900	1	£38.59
	4"	110	ABAGHA1100	1	£71.97

PVCu Socket End Connectors Plain

	Nominal Size	Code	Pack Qty	Price each
	¾"	RBAMCA0160	1	£2.90
	½"	RBAMCA0200	1	£3.06
	¾"	RBAMCA0250	1	£3.54
	1"	RBAMCA0320	1	£4.44
	1¼"	RBAMCA0400	1	£7.03
	1½"	RBAMCA0500	1	£9.12
	2"	RBAMCA0630	1	£10.62
	2½"	RBAMCA0750	1	£31.31
	3"	RBAMCA0900	1	£37.05
4"	RBAMCA1100	1	£46.63	

ABS Socket End Connectors Plain


	Nominal Size	Code	Pack Qty	Price each
	¾"	ABAMCA0160	1	£3.40
	½"	ABAMCA0200	1	£3.71
	¾"	ABAMCA0250	1	£4.03
	1"	ABAMCA0320	1	£5.26
	1¼"	ABAMCA0400	1	£8.17
	1½"	ABAMCA0500	1	£10.66
	2"	ABAMCA0630	1	£12.33
	2½"	ABAMCA0750	1	£34.94
	3"	ABAMCA0900	1	£43.58
4"	ABAMCA1100	1	£54.39	

Prices shown are for one item excluding VAT # Refer to metric equivalent


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PVCu and ABS valve spares


PVCu Socket End Connectors Plain Metric

	Nominal Size	Code	Pack Qty	Price each
	16	RBIMCI0160	1	£2.90
	20	RBIMCI0200	1	£3.06
	25	RBIMCI0250	1	£3.54
	32	RBIMCI0320	1	£4.44
	40	RBIMCI0400	1	£7.03
	50	RBIMCI0500	1	£9.12
	63	RBIMCI0630	1	£10.62
	75	RBIMCI0750	1	£31.36
	90	RBIMCI0900	1	£37.05
	110	RBIMCI1100	1	£46.63


ABS Socket End Connectors Plain Metric

	Nominal Size	Code	Pack Qty	Price each
	16	ABIMCI0160	1	£3.27
	20	ABIMCI0200	1	£3.56
	25	ABIMCI0250	1	£3.88
	32	ABIMCI0320	1	£5.06
	40	ABIMCI0400	1	£7.87
	50	ABIMCI0500	1	£10.26
	63	ABIMCI0630	1	£11.86
	75	ABIMCI0750	1	£30.88
	90	ABIMCI0900	1	£41.90
	110	ABIMCI1100	1	£52.30

PVCu BPack Qty Female Socket End Connectors BSP Female Threaded

	Nominal Size	Code	Pack Qty	Price each
	3/8"	RBFMCF0160	1	£5.64
	1/2"	RBFMCF0200	1	£5.80
	3/4"	RBFMCF0250	1	£7.14
	1"	RBFMCF0320	1	£7.92
	1 1/4"	RBFMCF0400	1	£11.69
	1 1/2"	RBFMCF0500	1	£15.06
	2"	RBFMCF0630	1	£21.43
	2 1/2"	RBFMCF0750	1	£42.98
	3"	RBFMCF0900	1	£54.51
	4"	RBFMCF1100	1	£67.86

Actuator Bracket for Double Union Industrial Ball Valve with Universal Mounting Block


	Inches	mm	Code	Price each
	1/2"	20	PBMSVM0200	POA
	3/4"	25	PBMSVM0250	POA
	1"	32	PBMSVM0320	POA
	1 1/4"	40	PBMSVM0400	POA
	1 1/2"	50	PBMSVM0500	POA
	2"	63	PBMSVM0630	POA
	2 1/2"	75	PBMSVM0750	POA
	3"	90	PBMSVM0900	POA
	4"	110	PBMSVM1100	POA

Prices shown are for one item excluding VAT # Refer to metric equivalent


Accessories

PVCu and ABS valve spares


Industrial Ball Valve Handle Orange

	Inches	mm	Code	Price each
	3/8"		RBAMOA0160	£3.57
	1/2"		RBAMOA0200	£3.71
	3/4"		RBAMOA0250	£4.19
	1"		RBAMOA0320	£5.52
	1 1/4"		RBAMOA0400	£6.25
	1 1/2"		RBAMOA0500	£8.03
	2"		RBAMOA0630	£9.54
	2 1/2"		RBAMOA0750	£19.76
	3"		RBAMOA0900	£22.41
	4"		RBAMOA1100	£29.96


Economy Valve Handle Blue

	Inches	mm	Code	Price each
	3/8"		RBAMBA0160	£3.57
	1/2"		RBAMBA0200	£3.71
	3/4"		RBAMBA0250	£4.19
	1"		RBAMBA0320	£5.52
	1 1/4"		RBAMBA0400	£6.25
	1 1/2"		RBAMBA0500	£8.22
	2"		RBAMBA0630	£9.54
	2 1/2"		RBAMBA0750	£19.76
	3"		RBAMBA0900	£22.41
	4"		RBAMBA1100	£29.96

EPDM and PTFE Seal Kits for Industrial Ball Valves

	Inches	mm	Code	Price each
	3/8"		EBDSED0160	£16.53
	1/2"		EBDSED0200	£16.82
	3/4"		EBDSED0250	£21.19
	1"		EBDSED0320	£28.78
	1 1/4"		EBDSED0400	£42.23
	1 1/2"		EBDSED0500	£49.80
	2"		EBDSED0630	£85.14
	2 1/2"		EBDSED0750	£132.28
	3"		EBDSED0900	£145.11
	4"		EBDSED1100	£160.01

FPM and PTFE Seal Kits for Industrial Ball Valves


	Inches	mm	Code	Price each
	3/8"		EBVSEV0160	£26.46
	1/2"		EBVSEV0200	£27.02
	3/4"		EBVSEV0250	£34.04
	1"		EBVSEV0320	£45.88
	1 1/4"		EBVSEV0400	£67.63
	1 1/2"		EBVSEV0500	£80.87
	2"		EBVSEV0630	£119.70
	2 1/2"		EBVSEV0750	£211.83
	3"		EBVSEV0900	£232.23
	4"		EBVSEV1100	£256.06

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PVCu and ABS union spares


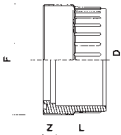
EPDM O Rings for Unions

	Inches	mm	Code	Price each
	3/8"	16	EPOGB00160	£1.70
	1/2"	20	EPOGB00200	£1.88
	3/4"	25	EPOGB00250	£1.92
	1"	32	EPOGB00320	£2.09
	1 1/4"	40	EPOGB00400	£3.92
	1 1/2"	50	EPOGB00500	£2.50
	2"	63	EPOGB00630	£2.64
	2 1/2"	75	EPOGB00750	£4.20
	3"	90	EPOGB00900	£4.67
	4"	110	EPOGB01100	£5.56


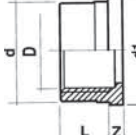
FPM O Rings for Unions

	Inches	mm	Code	Price each
	1/2"	20	EPOGBV0200	£5.33
	3/4"	25	EPOGBV0250	£8.10
	1"	32	EPOGBV0320	£9.19
	1 1/4"	40	EPOGBV0400	£21.17
	1 1/2"	50	EPOGBV0500	£23.66
	2"	63	EPOGBV0630	£26.16

PVCu Union Bush Plain

	Nominal Size	Code	L	Z	F	Weight (GR)	Price each
 	1/2"	RFABFA0200	17	10	1"	15	£3.96
	3/4"	RFABFA0250	20	10	1 1/4"	25	£4.94
	1"	RFABFA0320	23	10	1 1/2"	35	£5.71
	1 1/4"	RFABFA0400	27	12	2"	57	£8.53
	1 1/2"	RFABFA0500	31	14	2 1/4"	80	£10.51
	2"	RFABFA0630	38	18	2 3/4"	135	£11.33
	2 1/2"	RFABFA0750	44	18	3 1/2"	205	£33.65
	3"	RFABFA0900	51	18	4"	270	£39.76
4"	RFABFA1100	63	18	5"	465	£45.62	

PVCu Union End Plain

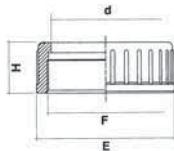
	Nominal Size	Code	L	Z	d	d1	Weight (GR)	Price each
 	1/2"	RFABLA0200	17	3	28	30	10	£4.63
	3/4"	RFABLA0250	20	3	36	39	16	£5.41
	1"	RFABLA0320	23	3	42	45	22	£6.31
	1 1/4"	RFABLA0400	27	3	53	57	40	£7.23
	1 1/2"	RFABLA0500	31	3	59	63	45	£14.59
	2"	RFABLA0630	38	3	74	78	80	£18.69
	2 1/2"	RFABLA0750	44	3	93	97	150	£23.04
	3"	RFABLA0900	51	5	105	110	195	£48.73
4"	RFABLA1100	63	5	129	135	350	£58.67	

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Accessories

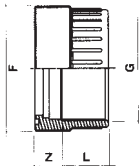
PVCu and ABS union spares

PVCu Union Nut



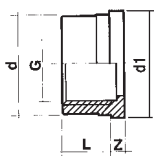
Nominal Size	Code	D	H	F	E	Weight (GR)	Price each
½"	RFABGA0200	28	23	1"	42	17	£7.77
¾"	RFABGA0250	36	25	1¼"	52	27	£9.06
1"	RFABGA0320	42	27	1½"	59	40	£14.80
1¼"	RFABGA0400	53	30	2"	72	55	£15.51
1½"	RFABGA0500	59	34	2¼"	79	90	£22.15
2"	RFABGA0630	74	38	2¾"	96	145	£28.81
2½"	RFABGA0750	93	45	3½"	119	235	£66.42
3"	RFABGA0900	105	52	4"	134	325	£79.52
4"	RFABGA1100	129	60	5"	163	510	£93.17

PVCu Union Bush BSP Female Threaded



Nominal Size	G	Code	L	Z	F	Weight (GR)	Price each
⅜"	BSPF	RFFBFF0160	11	14	1"	10	£4.20
½"	BSPF	RFFBFF0200	15	11	1"	15	£4.40
¾"	BSPF	RFFBFF0250	16	13	1¼"	27	£5.27
1"	BSPF	RFFBFF0320	19	13	1½"	35	£6.10
1¼"	BSPF	RFFBFF0400	21	17	2"	60	£9.08
1½"	BSPF	RFFBFF0500	21	24	2¼"	104	£11.12
2"	BSPF	RFFBFF0630	26	30	2¾"	180	£12.04
2½"	BSPF	RFFBFF0750	30	32	3½"	235	£35.68
3"	BSPF	RFFBFF0900	33	36	4"	335	£41.37
4"	BSPF	RFFBFF1100	39	40	5"	470	£47.47

PVCu Union End BSP Female Threaded



Nominal Size	G	Code	L	Z	d	d1	Weight (GR)	Price each
⅜"	BSPF	RFFBLF0160	11	6	22	24	7	£3.01
½"	BSPF	RFFBLF0200	15	4	28	30	10	£2.57
¾"	BSPF	RFFBLF0250	16	6	36	39	17	£3.04
1"	BSPF	RFFBLF0320	19	6	42	45	25	£3.55
1¼"	BSPF	RFFBLF0400	21	8	53	57	42	£4.05
1½"	BSPF	RFFBLF0500	21	13	59	63	65	£8.26
2"	BSPF	RFFBLF0630	26	15	74	78	120	£10.36
2½"	BSPF	RFFBLF0750	30	17	93	97	160	£16.16
3"	BSPF	RFFBLF0900	33	23	105	110	235	£27.04
4"	BSPF	RFFBLF1100	39	27	129	135	340	£32.54

Prices shown are for one item excluding VAT # Refer to metric equivalent


Sales and enquiries please contact: 08452 700886

PVCu and ABS union spares


PVC Union Bush Plain Metric

	Nominal Size	Code	L	Z	F	Weight (GR)	Price each
	16	RFIBFI0160	14	10	1"	10	£3.99
	20	RFIBFI0200	16	10	1"	15	£4.25
	25	RFIBFI0250	19	10	1¼"	25	£4.99
	32	RFIBFI0320	22	10	1½"	35	£5.76
	40	RFIBFI0400	26	12	2"	57	£8.60
	50	RFIBFI0500	31	14	2¼"	80	£10.61
	63	RFIBFI0630	38	18	2¾"	135	£11.44
	75	RFIBFI0750	44	18	3½"	205	£34.26
	90	RFIBFI0900	51	18	4"	270	£40.10
	110	RFIBFI1100	61	18	5"	465	£46.02

PVCu Union End Plain Metric

	Nominal Size	Code	L	Z	d	d1	Weight (GR)	Price each
	16	RFIBLI0160	14	3	22	24	6	£4.63
	20	RFIBLI0200	16	3	28	30	10	£4.89
	25	RFIBLI0250	19	3	36	39	16	£5.41
	32	RFIBLI0320	22	3	42	45	22	£6.31
	40	RFIBLI0400	26	3	53	57	40	£7.23
	50	RFIBLI0500	31	3	59	63	45	£14.59
	63	RFIBLI0630	38	3	74	78	80	£18.69
	75	RFIBLI0750	44	3	93	97	150	£23.45
	90	RFIBLI0900	51	5	105	110	195	£48.73
	110	RFIBLI1100	61	5	129	135	350	£58.67

ABS Union End Plain

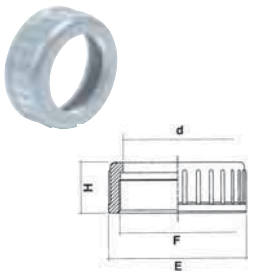
	Nominal Size	Code	L	Z	d	d1	Weight (GR)	Price each
	½"	AFABLA0200	17	3	28	30	8	£5.11
	¾"	AFABLA0250	20	3	36	39	13	£5.70
	1"	AFABLA0320	23	3	42	45	18	£7.19
	1¼"	AFABLA0400	27	3	53	57	32	£8.16
	1½"	AFABLA0500	31	3	59	63	36	£16.43
	2"	AFABLA0630	38	3	74	78	64	£21.12
	2½"	AFABLA0750	44	3	93	97	120	£26.38
	3"	AFABLA0900	51	5	105	110	156	£54.86
	4"	AFABLA1100	63	5	129	135	280	£65.95

Prices shown are for one item excluding VAT # Refer to metric equivalent

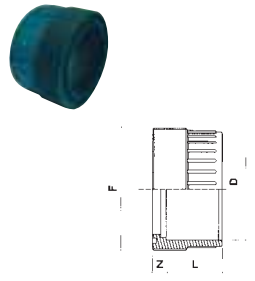
Accessories

PVCu and ABS union spares

ABS Union Nut

	Nominal Size	Code	d	H	F	E	Weight (GR)	Price each
	½"	AFABGA0200	28	23	1"	42	14	£8.64
	¾"	AFABGA0250	36	25	1¼"	52	22	£10.02
	1"	AFABGA0320	42	27	1½"	59	32	£16.63
	1¼"	AFABGA0400	53	30	2"	72	44	£17.39
	1½"	AFABGA0500	59	34	2¼"	79	72	£25.13
	2"	AFABGA0630	74	38	2¾"	76	116	£32.64
	2½"	AFABGA0750	93	45	3½"	119	188	£74.64
	3"	AFABGA0900	105	52	4"	134	260	£89.75
	4"	AFABGA1100	129	60	5"	163	408	£104.80

ABS Union Bush Plain

	Nominal Size	Code	L	Z	F	Weight (GR)	Price each
	½"	AFABFA0200	17	10	1"	12	£4.49
	¾"	AFABFA0250	20	10	1¼"	20	£4.87
	1"	AFABFA0320	23	10	1½"	28	£6.31
	1¼"	AFABFA0400	27	12	2"	46	£9.43
	1½"	AFABFA0500	31	14	2¼"	64	£11.55
	2"	AFABFA0630	38	18	2¾"	108	£12.45
	2½"	AFABFA0750	44	18	3½"	164	£36.77
	3"	AFABFA0900	51	18	4"	216	£43.06
	4"	AFABFA1100	63	18	5"	372	£47.42

Prices shown are for one item excluding VAT # Refer to metric equivalent

Material selection

In order to select the most suitable material for a pipe system the following factors need to be considered –

- The medium or fluid to be conveyed and its chemical composition
- Operating pressure
- Operating temperature

These factors are interlinked and only when all are addressed can the correct material be selected.

There are a number of properties which are key to the suitability of a material to fulfil the factors above.

General properties

Density

Is a measure of the mass of a given volume, polymers have the lowest density of all classes of engineering materials.

Energy content

The amount of energy released during the combustion of the substance. Polyolefines such as PE, PP and PB contain approximately the same energy as heating oil at 44MJ/kg.

Recycle fraction

Usually represented by a number between 0 and 1 without units. Higher fractions indicate materials which are likely to be recycled. Thermoplastics can be recycled, polyethylene offers one of the highest recycle factors of polymers at approximately 0.6.

Mechanical properties

Tensile

Tensile testing is performed by the elongation of a test specimen until it breaks. Values obtained from the resulting curve of stress against elongation include.

- Yield stress
- Percentage of elongation
- Modulus of elasticity
- Impact

Impact testing is performed to measure the ability of a material to withstand impact. The use of a notched test is necessary to produce a break in ductile materials.

Hardness

Testing the hardness of a material involves the application of a defined load through a defined surface area. Dependent on the type of test the resulting indentation or penetration is recorded as a measure of the material hardness.

Thermal properties

Thermal expansion coefficient

The rate of expansion or contraction due to a change in temperature differs between material types. Although the amount of expansion per metre for each degree change in temperature may appear small, the expansion of a long pipe length through a moderate change in temperature can be significant. Where plastics are to be joined to other materials consideration should be given to the possible stresses within the connection due to different coefficient values.

Thermal conductivity

Indication of the transfer of heat through the material. Higher values indicate a material which allows the passage of heat more readily. Lower values imply a better insulating material.

Electrical properties

Dielectric strength

The maximum electric field strength a material can intrinsically withstand without failure of its insulating properties. Poor conductors usually support electrostatic fields

Surface resistivity

The resistance to the flow of electrical current over the surface of a material. Engineering plastics are inherently good insulators with high surface resistance values of 10^{14} and above. Resistivity can be reduced through the addition of conductive additives to the base polymer.

The following is a list of abbreviations used in this catalogue:

ABS	Acrylonitrile–Butadiene–Styrene
ASA	American Standards Association
BSP	British Standard Pipe (Thread)
DIN	Deutsche Industrie Normen (German Industrial Standards)
EPDM	Ethylene Propylene Rubber
FPM	Fluorine Rubber (e.g. Viton)
GR	Weight in grammes
ISO	International Standardisation Organisation
NBR	Nitrile Rubber
NP	Nominal Pressure
PE	Polyethylene
PP	Polypropylene
PTFE	Polytetrafluoroethylene (e.g. Teflon)
PVCu	Unplasticised Polyvinyl Chloride
SP	Standard Pack
PN	Pressure Rating

Material selection



Picture supplied courtesy of Sterling Hydrotec.

Comparative properties of PVCu, ABS and PP			
Property	PVCu-Rigid	ABS High Impact	PP Homopolymer
General			
Composition	$(\text{CH}_2\text{-CH-Cl})_n$	$(\text{CH}_2\text{-CH-CH}_2\text{-CH-CN-C}_6\text{H}_5)_n$	$(\text{CH}_2\text{-CH-CH}_3)_n$
Density (Mg/m ³)	1.35 to 1.55	1.03 to 1.07	0.90 to 0.92
Energy Content (Mj/kg)	85 to 106	85 to 120	90 to 110
Recycle Fraction	0.15 to 0.25	0.45 to 0.55	0.25 to 0.35
Mechanical			
Young's Modulus of elasticity (GPa)	2.2 to 3.5	2.1 to 2.8	1 to 1.6
Elastic Limit (MPa)	35 to 52	40 to 45	28 to 33
Tensile Strength (MPa)	30 to 70	45 to 48	25 to 40
Compressive Strength (MPa)	55 to 60	55 to 60	40 to 45
Ductility	0.1 to 3	0.06 to 0.07	1 to 2
Endurance Limit (MPa)	27 to 31.2	24 to 27	15.4 to 18.2
Fracture Toughness (MPa.m ^{1/2})	1 to 2	2.3 to 2.6	1.9 to 2.1
Hardness Vickers	10.6 to 15.6	5.6 to 12.2	9.3 to 11.2
Poisson's Ratio	0.38 to 0.43	0.38 to 0.42	0.4 to 0.45
Thermal			
Normal Service Temperature (°C)	0 to 60	-40 to 60	-10 to 110
Thermal Expansion (mm/m.°C)	0.055 to 0.095	0.070 to 0.100	0.080 to 0.150
Specific Heat (J/kg.K)	1000 to 1100	1500 to 1510	1920 to 2100
Thermal Conductivity (W/m.K)	0.24 to 0.26	0.17 to 0.24	0.16 to 0.24
Electrical			
Dielectric Constant	3.1 to 3.2	2.8 to 3.3	2.26 to 2.4
Resistivity (10 ¹³ ohm.m)	3.16 to 10	6.31 to 15.8	10 to 1000

Temperature and pressure relationship for pipes, PVCu imperial							
Temperature (°C)	Class C		Class D		Class E		
	bar	psi	bar	psi	bar	psi	
0	9.0	130	12.0	174	15.0	217	
20	9.0	130	12.0	174	15.0	217	
30	8.1	117	10.8	156	13.5	195	
35	7.2	104	9.6	139	12.0	174	
40	6.3	91	8.4	121	10.5	152	
45	5.4	78	7.2	104	9.0	130	
50	4.0	58	5.4	78	6.7	97	
55	2.7	39	3.6	52	4.5	65	
60	1.3	18	1.8	26	2.2	31	

Temperature and pressure relationship for pipes, PVCu metric		
Temperature (°C)	Pipe pressure rating (bar)	
	PN10	PN16
0	10.0	16.0
20	10.0	16.0
30	8.0	12.8
35	7.1	11.8
40	6.4	10.2
45	5.1	8.2
50	4.4	7.0
55	3.3	5.2
60	2.6	4.1

Temperature and pressure relationship for pipes, ABS imperial							
Temperature (°C)	Class C		Class D		Class E		
	bar	psi	bar	psi	bar	psi	
-40	9.0	130	12.0	174	15.0	217	
-20	9.0	130	12.0	174	15.0	217	
0	9.0	130	12.0	174	15.0	217	
20	9.0	130	12.0	174	15.0	217	
30	8.1	117	11.3	163	13.5	195	
40	6.3	91	8.5	123	10.5	152	
50	4.5	65	6.3	91	7.5	108	
60	2.7	39	3.8	55	4.5	65	

Temperature and pressure relationship for pipes, PP-H metric (PN10)				
Temperature (°C)	Pipe pressure rating (bar)			
	50 Years	25 Years	10 Years	1 Year
20	10.0	10.6	11.0	12.3
40	6.2	6.6	6.9	8.0
60	3.8	4.1	4.3	5.2
80	–	1.6	2.0	3.5
95	–	–	0.9	2.3
110	–	–	–	1.6

Selection of pipeline systems

Pipeline system selection

Pipeline system selection is usually based on a number of parameters: -

- The effect of working conditions such as pressure, temperature and the fluid carried.
- Flow rate of the fluid usually governs the pipe size.

PVCu (imperial sizes) pressure ratings - fittings, valves and pipes			
Product	Size - inches	Pressure rating at 20°C	
		psi	bar
Fittings			
Solvent cement	½ - 6	217	15
	8,10 and 12	130	9
Threaded	¾ - 4	145	10
Union	½ - 2½	174	12
	3 - 4	145	10
Flange Blanks			
	1 - 2	232	16
	2½ - 4	145	10
	5 - 6	87	6
Valves			
Ball	¾ - 2	232	16
	2½ - 4	145	10
3 Way ball	¾ - 2	145	10
Diaphragm	½ - 2	145	10
Butterfly	3 - 5	145	10
	6	87	6
Knife gate	1½ - 4	36	2.5
Check	¾ - 2	232	16
	2½ - 3	145	10
Wafer check	2 - 6	145	10
	8	87	6
Pipes			
Class E	½ - 6	217	15
Class D	1¼ - 6	174	12
Class C	2 - 12	130	9
Class T Threading and machining only	¾ - 2	174	12

PVCu (metric sizes) pressure ratings - fittings, valves and pipes			
Product	Size - mm	Pressure rating at 20°C	
		bar	psi
Fittings			
Solvent cement	16 - 160	16	232
	200 - 315	10	145
Metric solvent x BSP adaptor	16 x ¾" - 110 - 4"	10	145
Valves			
Ball	16 - 63	16	232
	75 - 110	10	145
Diaphragm	20 - 63	10	145
Butterfly	90 - 140	10	145
	160	6	87
Check	16 - 63	16	232
	75 - 90	10	145
Pipes			
PN rated	16 - 315	10 and 16	145 and 232

PP-H (metric sizes) pressure ratings - fittings, valves and pipes			
Product	Size - mm (inches)	Pressure rating at 20°C	
		bar	psi
Fittings			
Socket fusion	16 - 110	10	145
Valves			
Ball union end/ socket fusion	20 - 63 (½" - 2")	10	145
Ball union end/ threaded BSP	(½" - 2")	10	145
Butterfly	90 - 140 (3" - 5")	10	145
	160 - 225 (6" - 8")	6	87
Check	20 - 63 (½" - 2")	10	145
Pipes			
PN rated	16 - 110	10	145

ABS (imperial sizes) pressure ratings - fittings, valves and pipes			
Product	Size - inches (mm)	Pressure rating at 20°C	
		psi	bar
Fittings			
Solvent cement	½ - 4	217	15
	5 - 6	174	12
	8	145	10
Threaded BSP	¾ - 3	145	10
Union	½ - 2½	174	12
	3 - 4	145	10
Flange Blanks			
	1 - 2	232	16
	2½ - 4	145	10
	5 - 6	87	6
Valves			
Ball	¾ - 2 (16 - 63mm)	232	16
	2½ - 4 (75 - 110mm)	145	10
Check	¾ - 2 (16 - 63mm)	232	16
	2½ - 3 (75 - 90mm)	145	10
Pipes			
Class E	¾ - 4	217	15
Class D	6	174	12
Class C	1 - 8	130	9
Class T Threading and machining only	¾ - 2	174	12

Valve selection

Valve selection is based upon a number of key parameters: -

- The primary valve body material is selected along with the material best suited for the pipe system.
- Thereafter valve selection will depend on the properties of the conveyed medium and the valve characteristics themselves, as shown in table.
- The compatibility of the seal material to the conveyed medium within the known operating parameters must be confirmed, which can be determined by reference to the valve seal behaviour in table.
- Additionally, valves have another important characteristic known as torque rating which is very important in actuated applications.

Valve selection			
Valve features	Ball valve	Butterfly valve	Diaphragm valve
Standard seal	EPDM, FPM	EPDM, FPM	EPDM
Flow	Full	Restricted	Restricted
Flow adjustment	Limited, not positive	Good, positive	Good, positive
Frictional pressure loss	Low	Medium	High
Behaviour water hammer	Fair	Limited	Limited

Valve seal behaviour			
Seal features	Ball valve	Butterfly valve	Diaphragm valve
Liquid, particle free	Good	Good	Good
Liquid, particulate or crystal forming	Limited, needs regular cleaning	Good, but needs occasional cleaning	Good
Liquid, viscous	Good	Limited	Limited
Gases	Good	Good	Limited

For more information regarding the selection of valves for actuation and the relevant torque figures, please ask for a copy of the full Effast Technical Catalogue.

Storage, handling and installation

Introduction

One of the key parts of a successful installation comes from the way that plastic pipes and components are stored and handled. This chapter deals with the installation of plastic pipeline systems and describes the methods for preserving structural integrity and compensating for thermal expansion.

Storage and handling

Pipe is often stored directly on the ground or supported in racks or pallets and the following conditions should be observed: -

- Ensure that the ground surface is level and cleared of debris to prevent the pipes from becoming bent, scored and damaged.
- Pipes should never be stacked more than 6 layers high and in hot climates this should be restricted to 4 layers. Large bore pipes should not be stacked greater than 1 metre high, thus avoiding ovality due to heat and pressure.
- Pipes of different diameters and wall thickness should be stacked separately. If this is not practical the larger diameter and thicker walled pipes should be stored at the bottom of the stack.
- Pipe racks should be constructed to provide full support to each pipe layer. Side supports should be at least 100mm wide and be placed at regular intervals of 1.2 metres along the pipe length.
- Narrow straps to support the pipe stack should be avoided.
- Pipes can be stored in palletised stacks as long as the pallets and not the pipes support the stack weight and pallets should be stacked no more than 3 pallets high for short periods only.
- Pipes and fittings stored for an extended period of time should be protected from direct sunlight to avoid UV degradation. Fittings should be stored using a method that allows air circulation such as porous hessian sacks, boxes or on shelves.

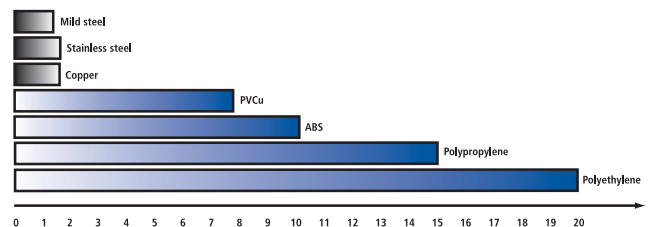
The whole purpose of correct handling is to avoid damage to pipes and should encompass loading, transit and unloading of the pipes. The following guidelines should be addressed when handling pipes: -

- Pipes should be loaded and unloaded manually without dragging them over the ground, as this causes damage. However if handling pallets of pipe by forklift ensure that the forks do not cause damage.
- Flatbed vehicles should be used to distribute pipe loads and the largest diameter pipe should be loaded first with the smaller pipe loaded on top or nested inside to avoid damage. Do not drop pipes off the vehicle when off loading but handle and stack them correctly.

Installation of plastic pipes

Thermoplastics expand and contract to a far greater extent than metals and the following sketch provides a comparison between some metals and plastics: -

Comparison of thermal expansion of plastics and metals



There are two factors to consider when calculating expansion or contraction in pipes: -

- Environmental temperature (external temperature) at which the pipe will stabilise prior to installation.
- Fluid temperature (internal temperature) which is the operational temperature of the pipeline system.

The change in length due to thermal expansion or contraction in a pipeline system is determined by the following formula: -

$$\Delta L = \Delta T \times L \times \delta$$

Where ΔL Expansion (ΔL_e) or contraction (ΔL_c) in mm

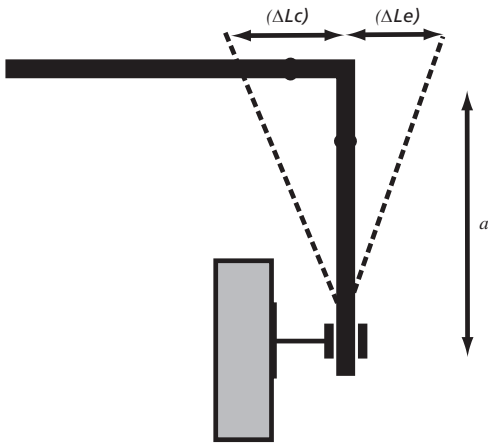
ΔT Difference in temperature between the installation and the operating temperatures in °C ($=T_{operate} - T_{install}$)

L Length of pipe when installed δ Coefficient of expansion

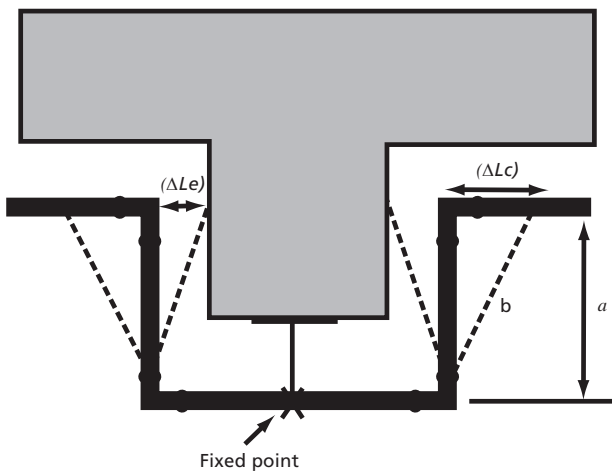
Flexible arms in pipeline installations

Flexible arms or expansion bellows are used in order to avoid the associated stresses generated from a pipe's change in length due to expansion or contraction. Expansion bellows are not a prime concern of this document and the installer is advised to seek specialist guidance from the manufacturers of such products. The flexibility of plastics permits expansion or contraction to be compensated for by means of either directional change within a pipe system (single flexible arm) or by the installation of expansion loops consisting of two flexible arms (double flexible arm), as shown in the following illustrations: -

Single arm



Double arm (expansion loop)



How to find the flexible arm (a) length

To calculate the length of a flexible arm (a) the following formulae can be used: -

Single arm:
$$a = \left(\sqrt{D \times \Delta L} \right) \times C_m$$

Double arm:
$$a = \left(\sqrt{D \times \frac{\Delta L}{2}} \right) \times C_m$$

Where a Flexible arm length (mm)
 D Pipe outside diameter (mm)
 ΔL Expansion or Contraction (mm) for single arm, for double arm use $\Delta L/2$

C_m Constant for material, see table 6.3

Table 6.3 Thermoplastic material constant (C_m)

Thermoplastic material	Constant
PVCu	33.5
ABS	32.7
PP	30.0
PE	26.0

Worked example

A 40mm ABS pipe ($C_m = 32.7$) has expanded in length by 22mm, what is the length required for single and double flexible arm arrangements?

Solution

Single arm

Double arm

$$a = \left(\sqrt{D \times \Delta L} \right) \times C_m \quad a = \left(\sqrt{D \times \frac{\Delta L}{2}} \right) \times C_m$$

$$a = \left(\sqrt{40 \times 22} \right) \times 32.7 \quad a = \left(\sqrt{40 \times \frac{22}{2}} \right) \times 32.7$$

$a = 970\text{mm}$

$a = 686\text{mm}$

Pre-stressing flexible arms

Sometimes changes of length (ΔL) can only be channelled in one direction, possibly due to a flexible section having to operate in a confined space. When this occurs the flexible arm can be pre-stressed achieving the following:-

- The flexible arm can be reduced in length
- The flexible arm will straighten under working conditions thus relieving a large amount of stress
- The installation will look better when in service

Storage, handling and installation

Coefficient of linear expansion for thermoplastics (δ)		
Thermoplastic material	Coefficient δ ($10^{-5}\text{m/m}^{\circ}\text{C}$)	Length/temperature equivalent (mm/m $^{\circ}\text{C}$)
PVCu	7.8	0.078
ABS	10.1	0.101
PP	15.0	0.150
PE	20.0	0.200

For example PVCu will expand 0.078mm per metre for every 1 $^{\circ}\text{C}$ raised in mid-wall temperature above the installation temperature.

Calculated expansion for 1 metre length pipe				
Temperature difference ($^{\circ}\text{C}$)	Expansion (mm)			Comment
	PVCu	ABS	PP	
1	0.078	0.101	0.150	
2	0.156	0.202	0.300	
3	0.234	0.303	0.450	
4	0.312	0.404	0.600	For the temperature range not on the chart add the factors
5	0.390	0.505	0.750	
6	0.468	0.606	0.900	
7	0.546	0.707	1.050	i.e.For PVCu @ 37 $^{\circ}\text{C}$
8	0.624	0.808	1.200	
9	0.702	0.909	1.350	20 $^{\circ}\text{C}$ = 1.560mm
10	0.780	1.010	1.500	+17 $^{\circ}\text{C}$ = 1.326mm
11	0.858	1.111	1.650	
12	0.936	1.212	1.800	37 $^{\circ}\text{C}$ = 2.886mm
13	1.014	1.313	1.950	
14	1.092	1.414	2.100	
15	1.170	1.515	2.250	
16	1.248	1.616	2.400	
17	1.326	1.717	2.550	
18	1.404	1.818	2.700	
19	1.482	1.919	2.850	
20	1.560	2.020	3.000	

Please note that the temperature difference is the difference between the installation temperature and the working temperature, in degrees Celsius ($^{\circ}\text{C}$).

Worked example

Find the expansion and contraction on a 4" diameter PVCu pipe system installed at 10 $^{\circ}\text{C}$, where the maximum and minimum operating temperatures are 30 $^{\circ}\text{C}$ and 8 $^{\circ}\text{C}$ respectively and the overall length of the installation is 30m.

Step	Solution	
	Operating temperature ($^{\circ}\text{C}$)	
	30	8
Calculate temperature difference ΔT ($=T_{\text{operate}} - T_{\text{install}}$)	= 30 - 10 = +20 $^{\circ}\text{C}$	= 8 - 10 = -2 $^{\circ}\text{C}$ *
Calculate change in length due to expansion and contraction $\Delta L = \Delta T \times L \times \delta$ ($\delta = 0.078$ for PVCu)	= 20 x 30 x 0.078 = 46.8mm	= -2 x 30 x 0.078 = -4.68mm*
Select length of flexible arm or compensator	Take the greater value (change in length) regardless of whether it is due to expansion or contraction that can accommodate the maximum movement. In this case $\Delta L = 46.8\text{mm}$	

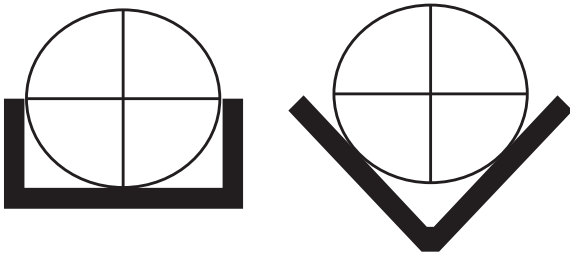
* Please note a (-) minus value represents the difference in temperature (it is not a subzero) and hence it causes a contraction of the length of the pipe.

Plastic pipe systems support and bracketing

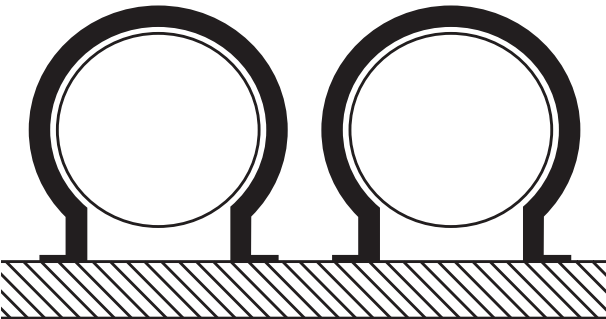
Plastic pipe systems require regular support which can vary according to pipe material, size and wall dimension of the pipe, the weight (density) of the liquid carried and the temperature of the pipe wall. There are three types of mechanism which support or restrain pipe movement: Restrained within a channel; supported with clips or brackets at predetermined intervals and limiting rings to restrict axial movement.

Supports, brackets and limiting rings

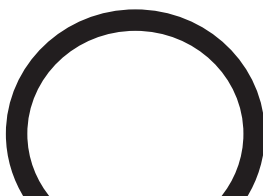
- Full support of the pipeline can be achieved by running along suitable channel and restraining it from lateral movement.



- Pipelines which are suspended have to be supported by brackets spaced at predetermined intervals (see the following tables).



- Limiting Rings PVCu and ABS: These can be made by cutting a small length (dissecting 1/3rd of the circumference) of class 'C' or 10 bar pipe of the same outside diameter of the carrier pipe. The remaining segment can be sprung open and then solvent welded into place on the carrier pipe.



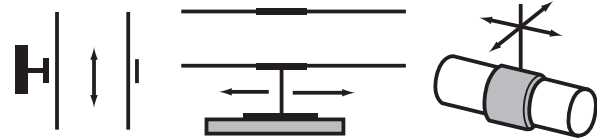
Brackets

Pipe brackets need to be made with the inside diameter of the bracket marginally larger than the pipe outer diameter. This allows free lineal movement of the pipe and avoids inhibiting expansion or contraction. They should also be smooth, to avoid damage to the outer surface of the pipe.

Tables are based on class E pipe (15 bar) or the PN16 metric rating. For pipes of a lower rating the spacing will be closer, derate as follows: -

- Class D (12 bar) and PN12 rated pipe x 0.75
- Class C (9 bar) and PN10 rated pipe x 0.62

Loose brackets - axial movement is required without constraint



A loose bracket allows axial movement.

A sliding bracket allows movement along a flat supporting surface.

Hanging bracket allows radial and axial movement.

Fixed brackets - axial movement constrained or controlled



A bracket on either side prevents axial movement.

A bracket between two pipe sockets or limiting rings prevents axial movement.

A bracket to control pipe movement in one direction.

Storage, handling and installation

Bracket spacing for gases and liquids PVCu PN 16 metric pipe and class E (15 bar) imperial pipe						
Pipe size		Bracket spacing in metres				
mm	inch	20°C	30°C	40°C	50°C	60°C
16	¾	0.80	0.70	0.50	*	*
20	½	0.90	0.80	0.60	*	*
25	¾	1.00	0.90	0.70	0.55	0.40
32	1	1.10	0.95	0.75	0.60	0.45
40	1¼	1.20	1.10	0.90	0.70	0.55
50	1½	1.30	1.20	1.00	0.80	0.60
63	2	1.40	1.30	1.10	0.90	0.65
75	2½	1.50	1.40	1.20	1.00	0.70
90	3	1.60	1.50	1.30	1.20	0.85
110	4	1.90	1.80	1.60	1.30	1.10
125	-	2.10	2.00	1.85	1.60	1.25
140	5	2.20	2.10	1.90	1.65	1.35
160	6	2.30	2.20	2.00	1.75	1.50
225	8	2.60	2.45	2.30	2.00	1.75
250	-	2.80	2.70	2.55	2.20	1.95
280	10	3.20	3.00	2.85	2.50	2.15
315	12	3.60	3.40	3.20	2.80	2.45

* Implies full support requirement.

Bracket spacing for gases and liquids - ABS class E pipe (15 bar)					
Pipe size	Bracket spacing in metres				
inch	20°C	30°C	40°C	50°C	60°C
¾	0.80	0.75	0.65	0.60	0.50
½	0.90	0.80	0.75	0.65	0.55
¾	1.00	0.95	0.85	0.75	0.70
1	1.10	1.00	0.95	0.80	0.75
1¼	1.20	1.10	1.00	0.90	0.80
1½	1.25	1.20	1.10	0.95	0.85
2	1.40	1.30	1.20	1.00	0.90
2½	1.50	1.35	1.25	1.15	1.00
3	1.60	1.45	1.35	1.20	1.05
4	1.80	1.65	1.55	1.35	1.20
5	2.00	1.80	1.70	1.50	1.30
6	2.10	1.90	1.80	1.60	1.40
8	2.30	2.10	1.90	1.70	1.50

Bracket spacing for gases and liquids - polypropylene metric 10 bar rated pipe

Pipe size mm	Bracket spacing in metres				
	20°C	40°C	60°C	80°C	100°C
16	0.74	0.68	0.63	0.54	0.39
20	0.79	0.69	0.64	0.59	0.44
25	0.84	0.82	0.74	0.69	0.49
32	0.99	0.94	0.84	0.74	0.54
40	1.05	1.03	0.94	0.84	0.59
50	1.20	1.14	1.04	0.89	0.69
63	1.38	1.29	1.18	1.04	0.79
75	1.53	1.43	1.28	1.13	0.84
90	1.63	1.53	1.43	1.23	0.93
110	1.84	1.73	1.58	1.38	1.04

The Z dimension

The following steps should be undertaken in preparation for a pipeline installation: -

- Prepare a basic sketch of the pipeline system, including fittings.
- Enter the dimensions of the pipes and fittings and the centre to centre measurement of each section either by measuring on site or from the engineer's drawings.
- Calculate the cut length of each piece of pipe between fittings to enable correct overall assembled length of section as follows:

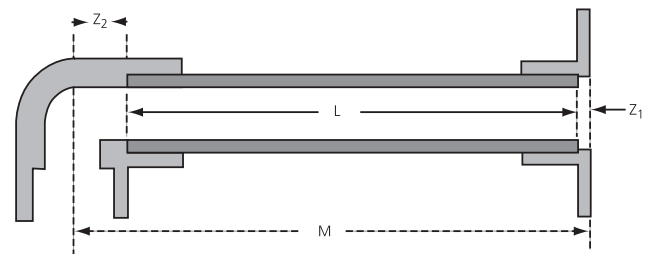
$$L = M - Z_1 - Z_2$$

Where L Cut length of pipe

M Centre to centre length between fittings

Z₁ - Z₂ Linear Dimensions of fittings

Z dimension



As an example, the installation notes for a PVCu pipe would appear as follows: -

M centre to centre	=	1200mm
Less Z ₁ flange	=	4mm
Less Z ₂ bend	=	<u>80mm</u>
		- 84mm
L cut length pipe	=	<u>1116mm</u>

Joining methods for Plastic pipe systems

This deals with the four key methods of joining plastic pipes and the selection of a joining method is dependent on the pipe material and its characteristics.

Table below is a guide to the selection of the type of joint which can be used for the particular pipe material.

Method	Thermoplastic joining methods		
	PVCu	Thermoplastic material ABS	PP and PE
Solvent cement	✓	✓	✗
Mechanical	✓	✓	✓
Fusion	✗	✗	✓
Compression	✓	✓	✓

Solvent cement is formulated to chemically solvate the surfaces of pipes and fittings, so that when they are pushed together the softened surfaces intermix and cure into a hard, strong and leak-free joint. Materials welded this way must be alike, i.e. PVCu to PVCu and ABS to ABS. Not PVCu to ABS or vice versa.

Compression jointing consists of compressing a rubber ring between the inner wall of the fitting and the outer wall of the pipe to be jointed. Compression joints can be used to connect different types of pipe, both plastic and metal. As long as the correct fitting is selected, taking into account the outside diameters of the different types of pipe work, then a satisfactory joint can be made. **Note:** Compression joints are designed primarily for use on water pipelines.

Contact Polypipe for further details.

✓ = Suitable ✗ = Not suitable

Methods of jointing

PVCu and ABS solvent jointing procedure										
	Procedure	Equipment								
Important information:	<ul style="list-style-type: none"> • Always use Personal Protective Equipment - gloves and eye protection • Always carry out work in a well ventilated area • Always refer to Material Safety Data Sheets • Dispose of waste responsibly • Failure to follow the jointing procedure may invalidate any warranties given 									
1. Cut the pipe at right angles to its axis and to the required length. Deburr the cut end of the pipe with a sharp knife or scraper.		Pipe cutter Saw Scraper or knife								
2. Chamfer the leading edge of the pipe at approximately 15° to 30°. This will prevent the solvent cement being wiped from both the pipe and fitting when mated together and will also help to build up a ring of solvent around the chamfer, thus ensuring a proper seal.		Chamfering tool Fine disc angle grinder, file or abrasive paper 80 - 100 grit								
	<table border="1"> <thead> <tr> <th>Pipe Size</th> <th>Chamfer Size (mm)</th> </tr> </thead> <tbody> <tr> <td>3/8" (16mm)</td> <td>2</td> </tr> <tr> <td>1/2" - 1 1/2" (20 - 50mm)</td> <td>3 - 4</td> </tr> <tr> <td>2" - 8" (63 - 225mm)</td> <td>5 - 6</td> </tr> </tbody> </table>	Pipe Size	Chamfer Size (mm)	3/8" (16mm)	2	1/2" - 1 1/2" (20 - 50mm)	3 - 4	2" - 8" (63 - 225mm)	5 - 6	
Pipe Size	Chamfer Size (mm)									
3/8" (16mm)	2									
1/2" - 1 1/2" (20 - 50mm)	3 - 4									
2" - 8" (63 - 225mm)	5 - 6									
3. Mark the pipe back from the chamfered end to a length equal to the socket depth plus 5mm. This mark will act as a visual indicator to show that the pipe is fully inserted into the socket.		Marker pen								
4. Roughen the pipe surface (up to the indicator mark) and the inside of the socket with abrasive cloth or paper. Do not roughen the pipe and fitting to the extent that the clearance between them is noticeably increased.		Abrasive paper/cloth 80 - 100 grit								
5. Clean the inner surface of the socket and the surface of the pipe up to the mark using a lint free cloth or absorbent paper dampened with Effast solvent cleaner.		Lint free cloth or absorbent paper Effast solvent cleaner								

PVCu and ABS solvent jointing procedure - continued

Procedure	Equipment
<p>Select the correct solvent cement, PVCu to PVCu, ABS to ABS. (failure to use the recommended solvent cement may invalidate any warranties given)</p> <p>Apply the cement straight from the tin and ensure all relevant surfaces are covered.</p>	<p>Read the instructions on the tin.</p> <p>Avoid using excessive amounts of solvent cement.</p>
	<p>Effast PVCu cement</p> <p>Effast ABS cement</p> <p>Brush (half the diameter of the socket)</p>

Joints are normally made in temperatures between 5 - 25°C and in dry conditions, damp or wet conditions can adversely effect the solvent jointing procedure. The maximum time before the cement is too dry for jointing is approximately 3 minutes. In hot weather this time is reduced. The joint must be made whilst the cement is still wet. At temperatures below 5°C the curing time will be considerably increased.

7. Push fittings/pipe together without twisting and ensure that they are aligned and fully engaged (the indicator mark should be in line with the edge of the socket) then hold the assembly for a short time as specified.

Pipe Size

¾" - 2" (16mm - 63mm)
 2½" - 4" (75 - 119mm)
 5" - 8" (140 - 225mm)
 10" - 12" (250 - 315mm)

Holding Time

(minutes)

½
 ¾
 1
 2

When the joint is made, an O-ring of cement is formed between the pipe chamfer and the internal socket wall. This ring helps to ensure seal integrity. A bead of cement will show around the external junction of the pipe and fitting, this should be wiped off leaving the outer part of the joint clean. Do not disturb for at least 10 - 15 minutes to ensure that the weld integrity is maintained. After this period, the assembly can be carefully handled, prepared for further jointing or left for the recommended curing time which is:

Up to 8" (225mm) ambient temperature constantly above 5°C After 8 hours The joint will have cured enough to withstand the working pressure.
 After 24 hours The pipe system can be fully pressure tested.

The number of operators:

For joints of up to 2½" (75mm) 1 person is required, from 3" (90mm) up to 6" (160mm) 2 persons are needed, for 8" (225mm) and above 3 people are required.

Pipe work should be ventilated during the joining and curing processes. Never seal a pipe system which has been newly jointed as the trapped vapours can cause damage. Positive ventilation with a small air blower is recommended to purge systems with multiple joints.

Recommended joints per litre of Effast cement

Pipe size		Thermoplastic material	
inch	mm	PVCu	ABS
¾ - 1	16 - 32	300	400
1¼ - 2	40 - 63	120	175
2½ - 3	75 - 90	50	70
4	110	30	45
5	140	20	30
6	160	15	25
8	200 - 225	8	15
10	250 - 280	3	4
12	315	3	4

Methods of jointing

Important points

- Heavy equipment should be supported independently from the pipeline. i.e. valves, strainers, etc.
- Pipe clips should be made to allow linear expansion of the pipeline and if lined the lining should be of a material compatible with the pipeline.
- Mastics, intumescent mastics, adhesive tapes and labels should not be used (as many degrade plastics), unless manufacturers provide documents of adhesive or mastic compatibility.
- Insulation must be considered very carefully, as a number of foam rubber insulation products and their adhesives may not be compatible with plastic pipes. Adhesives should only be used to bond the foam edges together and should never be used to bond the insulation to the pipeline. Refer to manufacturers for compatibility data. For example, compatible insulations are fibre wools (Rockwool), polystyrene, etc.
- Trace heating tapes: Don't use tapes covered with plasticized PVC as this can react with thermoplastic pipes. Tapes with sheaths made from woven wire, polyester or silicone rubber are acceptable.
- Oils: A number of synthetic oils are not suitable for use with plastic pipelines. Oils such as esters, organic phosphates and polyalkylene glycols should be avoided.
- Health and safety: Solvent cement and cleaning fluid give off vapours that are dangerous to health. During jointing the work place must be well ventilated.

Solvent jointing, "Do Nots"

- Make joints in rain or wet conditions.
- Use dirty brushes or cleaning rags.
- Use the same brushes with different solvent cements.
- Dilute or thin solvent cements with cleaner.
- Leave solvent cement tins open as the contents will evaporate and the cement performance will be reduced.
- Use near naked lights or smoke whilst jointing as solvents are highly flammable.
- Make joints in a confined space as solvents emit hazardous vapours.

Mechanical jointing procedure - threaded fittings - plastic to plastic

An extensive range of threaded fittings are available, mostly parallel threaded but some tapered. Thread compatibility is an essential aspect of jointing. For jointing such parts follow these steps: -

1. Select compatible thread i.e. Parallel to Parallel, never Parallel to taper or vice versa.
2. Use PTFE tape to seal the joint. If sealant pastes are used they must be compatible with the plastic components.
3. Hand tighten and if necessary tighten further to a maximum of $\frac{1}{4}$ turn using a strap wrench.

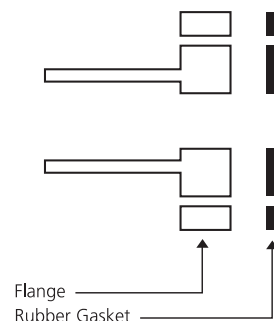
PVCu class 7 and ABS class T pipes, sizes $\frac{3}{8}$ " up to 2" are manufactured with a thick wall to enable threads to be cut.

Flanges - plastic to plastic/metal

Flanges are suitable for joining metals or rubbers to plastics. Jointing such parts follow these steps: -

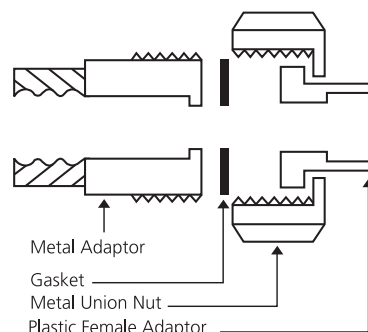
1. Ensure flanges are parallel, close to each other and allow a gap for the gasket.
2. Insert gasket, ensure that the bolt holes are aligned.
3. Use flat washers between bolt head, the nut and the flange.

Flange joint



Composite unions - metal to plastics union joint

Composite



NOTE: If metal thread is used in conjunction with a plastic thread then the temperature should not vary by more than 5°C.

DIN 8077/8078 PP-H (metric) pipe dimensions

Diameter (mm)		Wall thickness (mm)				
Outside diameter	Mean outside diameter		6 bar		10 bar	
	Minimum	Maximum	Min	Max	Min	Max
16	16	16.3	–	–	2.0	2.4
20	20	20.3	1.8	2.2	2.5	3.0
25	25	25.3	1.8	2.2	2.7	3.2
32	32	32.3	2.0	2.4	3.0	3.5
40	40	40.4	2.3	2.8	3.7	4.3
50	50	50.5	2.9	3.4	4.6	5.3
63	63	63.6	3.6	4.2	5.8	6.6
75	75	75.7	4.3	5.0	6.9	7.8
90	90	90.9	5.1	5.9	8.2	9.3
110	110	111.0	6.3	7.2	10.0	11.2

EN1452 part 2 PVCu (metric) pipe dimensions

Outside diameter (mm)	Average wall thickness (mm)		
	6 bar	10 bar	16 bar
16			
20			1.5
25			1.9
32		1.6	2.4
40		1.9	3.0
50	1.5	2.4	3.7
63	1.9	3.0	4.7
75	2.2	3.6	5.6
90	2.7	4.3	6.7
110	2.7	4.2	6.6
125	3.1	4.8	7.4
140	3.5	5.4	8.3
160	4.0	6.2	9.5
180	4.4	6.9	10.7
200	4.9	7.7	11.9
225	5.5	8.6	13.4
250	6.2	9.6	14.8
280	6.9	10.7	16.6
315	7.7	12.1	18.7

Safety factor $c = 2.5$

Safety factor $c = 2$

Pipe and fittings dimensions

DIN 8061 PVCu (metric) pipe dimensions						DIN 8063 PVCu (metric) fitting dimensions		
Diameter (mm)			Average wall thickness (mm)			Diameter (mm)		
Outside diameter	Mean outside diameter		6 bar	10 bar	16 bar	Nominal size	Mean socket internal diameter at midpoint of socket depth	
	Minimum	Maximum					Minimum	Maximum
16	16	16.2	–	–	1.2	16	16.1	16.3
20	20	20.2	–	–	1.5	20	20.1	20.3
25	25	25.2	–	1.5	1.9	25	25.1	25.3
32	32	32.2	–	1.8	2.4	30	32.1	32.3
40	40	40.2	1.8	1.9	3.0	40	40.1	40.3
50	50	50.2	1.8	2.4	3.7	50	50.1	50.3
63	63	63.2	1.9	3.0	4.7	63	63.1	63.3
75	75	75.3	2.2	3.6	5.6	75	75.1	75.3
90	90	90.3	2.7	4.3	6.7	90	90.1	90.3
110	110	110.3	3.2	5.3	8.2	110	110.1	110.4
125	125	125.3	3.7	6.0	9.3	125	125.1	125.4
140	140	140.4	4.1	6.7	10.4	140	140.2	140.5
160	160	160.4	4.7	7.7	11.9	160	160.2	160.5
180	180	180.4	5.3	8.6	13.4	180	180.3	180.6
200	200	200.4	5.9	9.6	14.9	200	200.3	200.8
225	225	225.5	6.6	10.8	16.7	225	–	–
250	250	250.5	7.3	11.9	18.6	250	–	–
280	280	280.6	8.2	13.4	20.8	280	–	–
315	315	315.6	9.2	15.0	23.4	315	–	–

BS 3505 PVCu (imperial) pipe dimensions														BS 4346 part 1 PVCu (imperial) fitting dimensions		
Diameter				Wall thickness (mm)										Diameter (mm)		
Nominal size (inch)	Mean outside diameter (mm)		Individual outside diameter (mm)		Class C 9.0 bar		Class D 12.0 bar		Class E 15.0 bar		Class 7 12.0 bar		Mean socket internal diameter at midpoint of socket depth			
	Min	Max	Min	Max	Average	Individual	Average	Individual	Average	Individual	Average					
												Min	Max	Min	Max	Min
3/8"	17.0	17.3	17.0	17.3	–	–	–	–	–	–	1.9	1.5	1.9	–	17.1	17.3
1/2"	21.2	21.5	21.2	21.5	–	–	–	–	–	–	2.1	1.7	2.1	4.0	21.3	21.5
3/4"	26.6	26.9	26.6	26.9	–	–	–	–	–	–	2.5	1.9	2.5	4.2	26.7	26.9
1"	33.4	33.7	33.3	33.8	–	–	–	–	–	–	2.7	2.2	2.7	4.8	33.5	33.7
1 1/4"	42.1	42.4	42.0	42.5	–	–	–	2.7	2.2	2.7	3.2	2.7	3.2	5.2	42.2	42.4
1 1/2"	48.1	48.4	48.0	48.5	–	–	–	3.0	2.5	3.0	3.7	3.1	3.7	5.5	48.2	48.4
2"	60.2	60.5	60.0	60.7	3.0	2.5	3.0	3.7	3.1	3.7	4.5	3.9	4.5	5.9	60.3	60.5
2 1/2*	75.0	75.3	75.0	75.3	3.6	–	–	–	–	–	5.6	–	–	–	75.1	75.3
3"	88.7	89.1	88.4	89.4	4.1	3.5	4.1	5.3	4.6	5.3	6.5	5.7	6.6	–	88.8	89.1
4"	114.1	114.5	113.7	114.9	5.2	4.5	5.2	6.8	6.0	6.9	8.3	7.3	8.4	–	114.2	114.5
5*	140.0	140.4	139.4	141.0	6.3	5.5	6.4	8.3	7.3	8.4	10.1	9.0	10.4	–	140.1	140.4
6"	168.0	168.5	167.4	169.1	7.5	6.6	7.6	9.9	8.8	10.2	12.1	10.8	12.5	–	168.2	168.5
8"	218.8	219.4	218.0	220.2	8.8	7.8	9.0	11.6	10.3	11.9	14.1	12.6	14.5	–	219	219.4
10"	272.6	273.4	271.6	274.4	10.9	9.7	11.2	14.3	12.8	14.8	17.5	15.7	18.1	–	–	–
12"	323.4	324.3	322.2	325.5	12.9	11.5	13.3	17.0	15.2	17.5	20.8	18.7	21.6	–	–	–

NOTE: All PVCu ball valve imperial socket ends are manufactured in accordance with BS 4346 part 1 for mean socket internal diameter. The mean outside diameter of a pipe is arrived at either by taking the average of any two outside diameter measurements when measured at right angles to each other or by measuring with a circumference tape.

* Sizes 2 1/2" and 5" are not British Standard sizes but the equivalent metric size. They have been included for continuity of size only.

BS 5391 ABS (imperial) pipe dimensions															BS 5392 part 1 ABS (imperial) fitting dimensions				
Nom size (inch)	Diameter				Wall thickness (mm)										Minimum socket depth (mm)	Mean socket internal diameter (mm)			
	Mean outside diameter (mm)		Individual outside diameter (mm)		Class B 6.0 bar		Class C 9.0 bar		Class D 12.0 bar		Class E 15.0 bar		Class T 12.0 bar			Root		Mouth	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Min	Max	Min	Max
	3/8	17.0	17.3	17.0	17.3	-	-	-	-	-	-	1.6	1.8	3.4		3.6	14.5	16.9	17.3
1/2	21.2	21.5	21.2	21.5	-	-	-	-	-	-	1.9	2.1	3.5	3.7	16.5	21.1	21.4	21.3	21.5
3/4	26.6	26.9	26.6	26.9	-	-	-	-	-	-	2.4	2.6	3.5	3.7	19.5	26.4	26.8	26.7	26.9
1	33.4	33.7	33.4	33.7	-	-	1.9	2.1	2.5	2.7	3.0	3.3	4.2	4.5	22.5	33.2	33.6	33.5	33.7
1 1/4	42.1	42.4	42.0	42.4	-	-	2.4	2.6	3.1	3.4	3.8	4.1	5.1	5.5	27.0	47.9	42.3	42.2	42.5
1 1/2	48.1	48.4	48.0	48.5	-	-	2.7	3.0	3.6	3.9	4.4	4.7	5.8	6.2	30.0	47.9	48.3	48.2	48.6
2	60.2	60.5	60.0	60.7	-	-	3.4	3.7	4.5	4.9	5.4	5.8	7.0	7.4	36.0	60.0	60.4	60.3	60.7
2 1/2	75.0	75.3	75.0	75.3	-	-	3.6	-	-	-	5.6	-	-	-	Refer to metric equivalent				
3	88.7	89.1	88.4	89.4	-	-	5.0	5.3	6.5	6.9	8.0	8.5	-	-	50.5	88.5	88.9	89.0	89.3
4	114.1	114.5	113.7	114.9	-	-	6.4	6.9	8.4	8.9	10.3	10.9	-	-	63.0	113.9	114.3	114.4	114.8
5	140.0	140.4	140.0	140.4	-	-	6.7	-	-	-	10.4	-	-	-	Refer to metric equivalent				
6	168.0	168.5	167.4	169.1	6.1	6.4	9.4	10.4	12.3	13.3	-	-	-	-	90.0	167.8	168.3	168.4	168.8
8	218.8	219.4	218.1	220.2	8.4	8.8	12.2	13.2	-	-	-	-	-	-	115.5	218.7	219.1	219.3	219.9

NOTE: All ABS ball valve imperial socket ends are manufactured in accordance with BS 5392 part 1 for mean socket internal diameter. The mean outside diameter is arrived at either by taking the average of any two outside diameter measurements when measured at right angles to each other or by measuring with a circumference tape.

Guide to chemical resistance

Guide to chemical resistance

The use of thermoplastic pipe systems within the domestic and industrial markets is now widespread. Thermoplastics have not only replaced traditional materials such as steel, ductile iron and copper within the water industry, but have also replaced expensive lined metal and glass systems within the chemical industries. Because of this diversity of use, it is essential that the most suitable plastic material is matched to its proposed application. This section will provide a guide to compatible material selection. The information within this section has been collated from tests carried out by both national and international standards organisations (ISO) as well as tests performed by independent test houses. The tests were based on the use of pure chemicals. For mixed chemicals, we would advise that pilot tests should be undertaken in order to ascertain the resistance of the material under these circumstances.

Chemical resistance classifications

The chemical resistance section should only be looked on as a general guide. Changes to the composition, concentrations or working conditions under which chemicals are used, can alter the resistance of the material.

Terminology for chemical resistance tables	
Symbol/term	Description
+	Resistant
0	Conditionally resistant
-	Not resistant
"Blank"	Where section is blank there is no test data available
Technical grade	Technically pure
Saturated	Media has reached its maximum absorption in water at ambient temperature, which is the point where there can be no further absorption.
Aqueous	A solution below maximum absorption, expressed as a percentage (%) of saturation (concentration)
Suspension	Insoluble or partially soluble solid carried in an aqueous base normally prepared at ambient temperature
Commercial Proprietary Industrial	Self explanatory, grades of chemical named brands in general use

Pipe joints: solvent cement

ABS pipe joints, made with "Effast" ABS solvent cement, are classed as resistant as the material itself. PVCu pipe joints, made with "Effast" PVCu solvent cement, are normally classed as resistant as the material. However the following chemicals and their concentrations are the exception.

Media	Concentration
Hydrochloric acid, HCL	25% and above
Hydrofluoric acid, HF	All concentrations
Nitric acid, HNO ₃	20% and above
Sulphuric acid, H ₂ SO ₄	70% and above

Joints in contact with the above acids can only be classed as being conditionally resistant. To make joints classed as resistant, "Dytex" solvent cement made by "Henkel" or an equivalent should be used.

Pipe joints: fusion

Fusion joints are regarded as generally having the same chemical resistance as the material itself. However the jointing process can leave a certain amount of residual stress within the joint.

Seals and seat materials

The working life of seals and seat materials is often different from that of the pipe system and greatly dependent on the working conditions involved.

The following table outlines their general resistance.

Seal and seat material	
Material type	Resistance
EPDM - Ethylene Propylene Rubber	Satisfactory resistance to most aggressive chemicals, not suitable for oils or fat
FPM - Fluorine Rubber	The most resistant of the elastomers to solvents
NBR - Nitrile Rubber	Not resistant to oxidising agents, but resists petrol and oils
PTFE - Polytetrafluoroethylene	Resists all the chemicals shown in tables

	Material °C Concentration	PVCu			ABS				PE		PP				EPDM				FPM					
		20	40	60	20	40	60	80	20	40	60	80	100	20	40	60	80	20	40	60	80	100	120	
Acetaldehyde	technically pure	-			-				+ 0 0					+ 0 -										
	40%, aqueous solution	0 -			-				+ + 0					+ + + +										
Acetic Acid	technically pure,	0 -			-				+ + 0					0										
	glacial 10% aqueous	+ + 0			+ 0 -				+ + +					+ + 0										
Acetic Acid Anhydride	technically pure	-			-				+ 0					0										
Acetone	technically pure	-			-				+ + +					+ + +										
Acrylonitrile	technically pure	-			-				+ + +					+ + 0										
Adipic Acid	saturated, aqueous	+ + 0			-				+ + +					+ + +										
Alcoholic Spirits	app. 40% ethyl alcohol	+			-				+					+										
Allyl Alcohol	96%	0 -			-				+ + +					+ +										
Aluminium Chloride	saturated	+ + +			+ + +			0	+ + +					+ + + +										
Aluminium Sulphate	cold saturated, aqueous	+ + +			+ + +			0	+ + +					+ + +										
Ammonia	gaseous, tech. pure	+ + +			-				+ + +					+										
Ammonium Acetate	aqueous, all				-				+ + +					+ + + 0										
Ammonium Hydrogen Fluoride	50%, aqueous	+ + 0			-				+ + +					+										
Ammonium Compounds: See Sodium																								
Amyl Acetate	technically pure	-			-				+ + +					0 -										
Amyl Alcohol	technically pure	+ + 0			-				+ + +					+ + +										
Aniline	technically pure	-			-				0					0										
Aniline Hydrochloride	aqueous, saturated	+ 0			-				+ + 0					+ 0										
Antimony Trichloride	90%, aqueous	+ +			-				+ + +					+ +										
Aqua Regia		+ 0			-				-					0 -										
Arsenic Acid	80%, aqueous	+ + 0			+ + +			0	+ + +					+ + +										
Barium Hydroxide	aqueous, saturated	+ + 0			+ + +			0	+ + +					+ + +										
Barium Salts	aqueous, all	+ + +			+ + +			0	+ + +					+ + +										
Beef Tallow Emulsion, Sulphonated	usual commercial	+							+					+										
Beer	usual commercial	+ + +			+ + +			0	+ + +					+ +										
Benzaldehyde	aqueous, saturated	-			-				+ + +					+										
Benzene	technically pure	-			-				0 0					0 -										
Benzine	free of lead and aromatic compounds	+ + +			-				+ + 0					0 -										
Benzoic Acid	aqueous, all	+ + 0			+ + 0			-	+ + +					+ + + +										
Benzyl Alcohol	technically pure	0			-				+ + 0					+ + 0										
Bleaching Lye	12.5% active chlorine aqueous	+ + 0			0				0 -					0 -										
Borax	aqueous, all	+ + 0			0				+ + +					+ + + +										
Boric Acid	aqueous, all	+ + 0			+ + +			0	+ + +					+ + + +										
Brine, Sea Water		+ + 0			+ + +				+ + +					+ + + +										
Bromine, Liquid	technically pure	-			-				-					-										
Butadiene	technically pure	+			-				+					+ +										
Butane	technically pure	+			+				+					+										
Butanediol	aqueous, 10%	+ 0			-				+ + +					+ +										
Butanol	technically pure	+ + 0			-				+ + +					+ 0 0										
Butyl Acetate	technically pure	-			-				+					0										
Butyl Phenol, P-Tertiary	technically pure	0 -			-				0					+										
Butylene Glycol	technically pure	+ + 0			+ + +			0	+ + +					+ +										
Butylene Liquid	technically pure	+			-				-					-										
Butyric Acid	technically pure	+			-				+ + 0					+										
Calcium Bisulphate	cold saturated, aqueous	+																						
Calcium Chloride	saturated, aqueous, all	+ + 0			+ + +			0	+ + +					+ + + +										
Calcium Hydroxide	aqueous, saturated	+ + +			+ + +			0	+ + +					+ + +										
Calcium Hypochlorite	cold saturated, aqueous	+ +			+ + -				+ + +					+ +										
Calcium Nitrate	50%, aqueous	+ +			+ + +			0	+ + +					+ +										
Carbon Dioxide (Carbonic Acid)	technically pure, moist	+ + 0			+ + +			0	+ + +					+ +										
Carbon Disulphide	technically pure	-			-				0					0										
Carbon Tetrachloride	technically pure	-			-				-					-										
Caustic Soda Solution (Sodium Hydroxide)	up to 40%, aqueous	+ + 0			+ + +			0	+ + +					+ + + +										
	up to 50%, aqueous	+ + +			+ + +			0	+ + +					+ + + +										
Chloral Hydrate	technically pure	-			-				+ + +					0 -										
Chloric Acid	10%, aqueous	+ + 0			-				+					-										
Chlorine	moist, 97% gaseous	0			-				-					-										
	anhydrous, tech.	0			-				0 0 -					-										

= No Data - = Not Recommended 0 = Conditionally Resistant + = Resistant

Guide to chemical resistance

	Material °C Concentration	PVCu		ABS				PE			PP				EPDM				FPM						
		20	40	60	20	40	60	80	20	40	60	20	60	80	100	20	40	60	80	20	60	80	100	120	
Chlorine	pure liquid, technically pure	-						-			-				-										0
Chlorine Water	saturated	0	0		0	0		0	0		0				0										0
Chloroacetic Acid, Mono	50%, aqueous	+	+		-			+	+	+	+	+			0										-
Chloroene	technically pure	-			-			0			+				-										-
Chloroethanol	technically pure	-			-			+	+	+	+	+			0										-
Chloroform	technically pure	-			-			-			0				-										0
Chlorosulphonic Acid	technically pure	0			-			-			-				-										-
Chrome Alum (Chromium Potassium Sulphate)	cold saturated, aqueous	+	+	+	+	+	0	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	
Chrome Acid	all, aqueous	+			-			0			0				0										+
Cider		+			+	+		+			+				+										+
Citric Acid	10% aqueous	+	+	0	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Copper Salts	all, aqueous	+	+	0	+	+	+	0	+	+	+	+	-		+	+	+	+	+	+	+	+	+	+	+
Corn Oil	technically pure	0			0			+	+	0	+	0			0	-									+
Cresol	cold saturated, aqueous	0			-			+	+		+				-										+
Crotonic Aldehyde	technically pure	-			-			+			+				+										+
Cyclohexane	technically pure	-			-			+	+	+	+				-										+
Cyclohexanol	technically pure	+	+	+	-			+	+	+	+	0			-										+
Cyclohexanone	technically pure	-			-			+	0	0	+	0			0										-
Detergents (Washing Powders)	usual washing lathers	+	+	0	-			+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	
Dextrine	(Starch Gum) usual commercial	+	+	+	+	+	0	+	+	+	+				+	+	+	+	+	+	+	+	+	+	
Dibutyl Ether	technically pure	-			-			0	-		0	-			-										+
Dibutyl Phthlate	technically pure	-			-			+	0	0	+	0			0										0
Dibutyl Sebacate	technically pure	-			-			+			+				+										+
Dichloroacetic Acid	technically pure	+	+	0	-			+	+	0	+	0			+	+	+	+	+	+	+	+	+	0	
Dichloroacetic Acid Methl Esher	technically pure	-			-			+	+	+	+	+			+	+	0								-
Dichlorobenzene	technically pure	-			-			0			0				-										+
Dichloroethylene	technically pure	-			-			-			0				-										0
Diesel Oil		+	+		0			+	0		0				-										+
Diethylamine	technically pure	0			-						+				0										
Di-Isobutyl Ketone	technically pure	-			-			+	-		+	-			0										-
Dimethyl Formamide	technically pure	-			-			+	+	0	+	+			0										+
Dimethylamine	technically pure	0			-			+	0		+				0										-
Ethyl Acetate	technically pure	-			-			+	0	0	+	0			0	0	0								-
Ethyl Alcohol	technically pure, 96%	+	+	0	-			+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	0	
Ethyl Alcohol + Acetic Acid	fermentation mixture	+	+	0	-			+	+	+	+				+	+	0	0	0	0	0	0	0	0	0
Ethyl Benzene	technically pure	-			-						0	-			-										0
Ethyl Chloride	technically pure	-			-			0			0				-										0
Ethyl Ether	technically pure	-			-			0			+				-										-
Ethylene Chloride	technically pure	-			-			0			0				0	0	-								+
Ethylene Diamine	technically pure	0			-			+	+	+	+				+	+	+	+	+	+	+	+	+	0	-
Ethylene Glycol	technically pure	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0
Ethylene Oxide	technically pure, liquid	-			-			-			0				0										-
Fatty Acids >C6	technically pure	+	+	+	-			+	+	0	+	+			-										+
Fatty Alcohol Sulphonates	aqueous	+	+	0	-			+	+	+	+	0			+	+	+	+	+	+	+	+	+	+	
Ferric Chloride	saturated	+	+	+	-			+	+	+	+	0	-		+	+	+	0	+	+	+	+	+	+	
Ferric Nitrate	saturated	+	+	+	+	0	-	+	+	0	0	-			+	+	0	-	+	+	+	+	+	+	
Ferrous Sulphate		+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fluosilicic Acid	32%, aqueous	+	+	+	+	+	0	+	+	+	+			0	0	-								-	
Formaldehyde	40%, aqueous	+	+		+	+	+	0	+	+	+	+			+	+	+	+	+	+	+	+	+	+	
Formamide	technically pure	-			-			+	+	+	+	+			+									0	
Formic Acid	technically pure	+	0	-	-			+	+	+	+	-			+	+	+	0							-
Fruit Juices		+	+	+	+	+	0	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	
Fuel Oil		+	0		0			0	-		0	-			-										+
Furfuryl Alcohol	technically pure	-			-			+	+	+	+	0			0										-
Gelatine	all, aqueous	+	+		+	+	+	0	+	+	+	+	+		+	+								+	
Glucose	all, aqueous	+	+	0	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Glycerine	technically pure	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	+	0	
Glycocoll	10%, aqueous	+	+		+			+	+		+				+	+								+	
Glycolic Acid	37%, aqueous	+			+	+		+	+	+	+				+									+	
Heptane	technically pure	+			+	-		+	0		+	0			-									+	

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	Material °C Concentration	PVCu			ABS				PE		PP				EPDM				FPM						
		20	40	60	20	40	60	80	20	40	60	80	100	20	40	60	80	20	40	60	80	100	120		
Hexane	technically pure	+			+ -				+		0	+	0	-				+	+						
Hydrazine Hydrate	aqueous	+			-				+	+	+	+	+	+				+							
Hydrobromic Acid	50%, aqueous	+	+	+	+	+			+	+	+	+	+	+	0	-		+	+	0	-	+	+	0	-
Hydrochloric Acid	up to 10%, aqueous	+	+	0	+	+	0	-	+	+	+	+	0	0	+	+	+	+	+	+		+	+	+	
	up to 36%, aqueous	+	+	0	-				+	+	+	+	-		+	0	-	+	-		+	-			
Hydrocyanic Acid	technically pure	+	+	0	+	+			+	+	+	+	+	+	0			+							+
Hydrofluoric Acid	up to 10%, aqueous	+	0	0	+	+			+	+	0	+	+	-				-				+	0		
	40%, aqueous	+			-				+	+	0	+	+	-				-				+			
	70%, aqueous	+			-				+	0	+			-				-				+			
Hydrogen	technically pure	+	+	+	+	+	+	0	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Hydrogen Chloride	tech. pure, gaseous	+	+	0	-				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hydrogen Peroxide	3%, aqueous	+	+	0	+	+	+		+	+	+	+	+	+	0	-		+	0	-	+	-			
	30%, aqueous	+	+		-				+	+	+	+	0	0	-			0	-		+	0	-		
	90%, aqueous				-				+	-	-			0			0				0				
Hydrogen Sulphide	technically pure	+	+	+	+				+	+	0	+	+	+	0	-		+	0	-	+	0	-		
Iodine Solution	6.5% iodine in ethanol	-			-				+	0	+			+				+							+
Iron Salts	all, aqueous	+	+	0	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Iso-Octane	technically pure	+			-				+	0	+	0		-				+							+
Isopropyl Alcohol	technically pure	+			-				+	+	+	+	+	+	+	0		+	+	+	0	+	+	+	0
Isopropyl Ether	technically pure	-			-				0	-	0	-		-				-							-
Lactic Acid	10%, aqueous	+	0	-	+	0	-		+	+	+	+	+	+	0	0	0	-	+	0	0	+	0	0	0
Lanolin	technically pure	+	0		+	+	+	0	+	+	+	+	+	+	0	-		+	+			+	+		+
Lead Acetate	aqueous, saturated	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Linseed Oil	technically pure	+	+	0	+				+	+	+	+	+	+	0	-		+	+			+	+		+
Lubricating Oils		+	+	+	0				+	+	0	0		-				+	+	0	-	+	+	0	-
Magnesium Salts	all, aqueous	+	+	0	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Maleic Acid	cold saturated, aqueous	+	+	0	+				+	+	+	+	+	0	-			+	+	-	+	+	-		
Mercury	pure	+	+	+	+				+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Mercury Salts	cold, saturated, aqueous	+	+	0	+				+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Methane (Natural Gas)	technically pure	+			+				+		+			-				+						+	
Methanol	all	+	+	0	-				+	+	+	+	+	+	+	+	0	0	0		0	0		0	0
Methyl Acetate	technically pure	-			-				+		+	0		0				0				-			-
Methyl Amine	32%, aqueous	0			-				+		+			+				+				+			+
Methyl Bromide	technically pure	-			-				0		-			-				-				0			0
Methyl Chloride	technically pure	-			-				0		-			0				-				-			-
Methylene Chloride	technically pure	-			-				0		0			-				-				0			0
Methyl Ethyl Ketone	technically pure	-			-				+	0	-	+	0	+	0			+	0		-				-
Milk		+	+	+	+	+	+	0	+	+	+	+	+	+	+	+		+				+			+
Molasses		+	+	0	+	+	0		+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Monochloroacetic Acid Ethyl Ester	technically pure	0			-				+	+	+	+	+	+				+				0			0
Monochloroacetic Acid Methyl Ester	technically pure	0			-				+	+	+	+	+	+				+				0			0
Morpholin	technically pure	-			-				+	+	+	+	+	0				0				+			+
Naphthalene	technically pure	-			-				+	0	+			-				-				+	+		+
Nickel Salts	cold saturated, aqueous	+	+	0	+	+	+	-	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Nitric Acid	5%, aqueous	+	+	+	+	0	-		+	+	+	+	0	+	+	0		+	+	0	+	0	-		+
	up to 40%, aqueous	+	+	0	-				0	-	0	-		+	+	0		+	+	0	+	+	0		+
	65%, aqueous	0	0	-	-				0	-	-	-		-				-				+	-		+
Nitrobenzene	technically pure	-			-				+	+	0	+	+	-				-				0			0
Nitroluene (O-, M-, P-)	technically pure	-			-				+	+	0	+	0	-				-				0	-		0
Nitrous Gases	diluted, moist, anhydrous	+	0	0					+	+	+	+	-	+	+	0		+	+	0	+	+	+	+	+
Oleic Acid	technically pure	+	+	+	+	0	-		+	+	0	+	0	-				-				+	-		+
Olive Oil		+	+	+	+				+	+	0	+	+	+	-			-				+	+	+	+
Oxalic Acid	cold saturated, aqueous	+	+	+	+	+			+	+	+	+	+	0	0	0	-	+	0	-	+	0	-		+
Oxygen	technically pure	+	+	+	+	+	+	-	+	+	0	+	0	+	+	+	+	+	+	+	+	+	+	+	+
Ozone	cold saturated, aqueous	+	+		-				0	-	0	-		+	0	-		+	0	-	+	-			+
Palmitic Acid	technically pure	+			-				0		-			0	-			0	-		+	-			+
Palm Oil, Palm Nut Oil		+	-						+	+	0	+	0	+	0	-		+	0	-	+	+			+
Paraffin Emulsions	usual comm., aqueous	+	+		-				+	+	0	+	0	-				-				+	+	+	+
Paraffin Oil		+	+	0	+	+	+	0	+	+	+	+	0	-				-				+	+	0	+
Perchloric Acid	10%, aqueous	+	+	0	+	+			+	+	+	+	+	+	+	0		+	+	+	0	+	+	+	0

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Guide to chemical resistance

	Material °C Concentration	PVCu		ABS				PE		PP				EPDM				FPM							
		20	40	60	80	20	40	60	80	20	40	60	80	100	120	20	40	60	80	20	40	60	80	100	120
Perchloric Acid	70%, aqueous	0				-				+ 0 -	0 -				+ + + 0					+ + 0					
Perchloroethylene (Tetrachloroethylene)	technically pure	-						0		0					-					+ +					
Petroleum	technically pure	+				-				+ + 0	+ 0				-					+ 0					
Petroleum Ether	technically pure	+ + +				-				+ 0 0	+ 0				-					+ 0					
Petroleum Jelly	technically pure	0 -				-				0 -	+ 0				-					+ + + + +					
Phenol	up to 90%, aqueous	0				-				+ + 0	+ +				-					+ -					
Phenylhydrazine	technically pure	-				-				0	0				0					+ 0					
Phenylhydrazine Hydrochloride	aqueous	0				-				0	+ 0				+ + 0					+ 0 -					
Phosgene	gaseous, technically pure	+ 0 0				-					0				+ + +					+ 0					
Phosphoric Acid	85%, aqueous	+ + +				+ + 0 -				+ + 0	+ + + +				+ + + 0					+ + + 0					
Phosphorous Pentoxide	technically pure	+ +				+ +				+ +	+				+ + +					+ +					
Photographic Developer	usual commercial	+ + 0				+ + 0				+ + 0	+				+ +					+					
Photographic Emulsion		+ +				+ +				+ +	+				+ +					+					
Photographic Fixer	usual commercial	+ + 0				+ + 0				+ +	+				+ +					+					
Phthalic Acid	saturated, aqueous	+ 0 -				-				+ + +	+ +				+ + 0					-					
Picric Acid	1%, aqueous	+				-				+	+				+ + 0					+ + 0					
Potash (Potassium Carbonate)	cold saturated, aqueous	+ +				+ + + 0				+ +	+ +				+ +					+					
Potassium Permanganate	cold saturated, aqueous	+ + 0				-				+ + 0	+ +				+ + +					+ + +					
Potassium Compounds: See Sodium																									
Propane	technically pure, liquid	+				+				+	+				-					+					
Propanol, N- And Iso-	technically pure	+ 0 0				-				+ + +	+ +				+ + +					+ +					
Propionic Acid 50%, Aqueous		+ + 0				-				+ + +	+ +				+ + +					+ 0					
Propylene Glycol	technically pure	+ + +				0				+ + +	+ +				+ + +					+ 0					
Propylene Oxide	technically pure	0				-				+	+				+					-					
Pyridine	technically pure	-				-				+ 0 0	0 0				+ 0 -					0 -					
Silicone Oil		+ 0 -				+				+ + +	+ + + +				0 -					+ +					
Silver Salts	cold saturated, aqueous	+ + 0				+ + + 0				+ + +	+ +				+ + +					+ +					
Soap Solution	all, aqueous	+ + 0				+ + + 0				+ + +	+ +				+ + +					+ +					
Sodium Acetate	all, aqueous	+				+ + + 0				+ + +	+ + + +				+ + + 0					+ + 0					
Sodium Benzoate	cold saturated, aqueous	+ + 0				-				+ + +	+ +				+ + + 0					+ + 0					
Sodium Bicarbonate	cold saturated, aqueous	+ + +								+ + +	+ + +				+ + + +					+ + +					
Sodium Bisulphate	10%, aqueous	+ + 0								+ + +	+ +				+ + + 0					+ + + +					
Sodium Bisulphite	all, aqueous	+ 0 -				+ + + 0				+ + +	+ +				+ + + 0					0 -					
Sodium Bromate	all, aqueous	+ 0				+ + + 0				+ 0	+				+ + +					+ +					
Sodium Bromide	all, aqueous	+ + 0				+ + + 0				+ + +	+ +				+ + +					+ + +					
Sodium Carbonate (Soda)	cold saturated, aqueous	+ + +				+ + + 0				+ + +	+ + + +				+ + + +					+ +					
Sodium Chlorate	all, aqueous	+ + 0				+ + + 0				+ + +	+ +				+ + + 0					+ + +					
Sodium Chloride	all, aqueous	+ + 0				+ + + 0				+ + +	+ + +				+ + + +					+ + + +					
Sodium Chlorite	diluted, aqueous	0								+	+ 0				+ + +					+ +					
Sodium Chromate	10%, aqueous	+ + 0				+ + + 0				+	+				+ + +					+ +					
Sodium Disulphate	all, aqueous	+ + 0								+	+				+ + +					+ +					
Sodium Dithionite (Hyposulphite)	up to 10%, aqueous	+ + 0								+ + +	+ +				+ + +					+ +					
Sodium Fluoride	cold saturated, aqueous	+ +				+ + + 0				+	+				+ + +					+ +					
Sodium Hydroxide See Caustic Soda																									
Sodium Hypochlorite	aqueous (12.5% active)	+ + 0				-				0 -	0 -				+					+					
Sodium Iodide	all, aqueous	+ + 0				+ + + 0				+	+				+ + +					+ +					
Sodium Nitrate	cold saturated, aqueous	+ + 0				+ +				+ + +	+ +				+ + +					+ +					
Sodium Nitrite	cold saturated, aqueous	+				+ + + 0				+	+				+ + +					+ +					
Sodium Oxalate	cold saturated, aqueous	+ + 0								+	+				+					+					
Sodium Persulphate	cold saturated, aqueous	+ + 0								+ + +	+ +				+ + + +					+ + + +					
Sodium Phosphate	cold saturated, aqueous	+ + 0				+ -				+ + +	+ + + +				+ + +					+ +					
Sodium Silicate	all, aqueous	+ + 0				+ + + 0				+ + +	+ +				+ + +					+ +					
Sodium Sulphate	cold saturated, aqueous	+ + 0				+ + + 0				+ + +	+ + +				+ + 0					+ + +					
Sodium Sulphide	cold saturated, aqueous	+ + 0				+ + + 0				+ + +	+ +				+ + +					-					
Sodium Sulphite	cold saturated, aqueous	+ + 0				+				+ + +	+ +				+ + +					+ +					
Sodium Thiosulphate	cold saturated, aqueous	+ + 0				+ -				+ + +	+ +				+ + +					+ +					
Spirits (Brandy)	usual commercial	+ + +				-				+ + +	+ +				+ + + +					+ + 0					
Stannous Chloride	cold saturated, aqueous	+ 0 0				+ +				+ + +	+ +				+ 0 -					+ +					
Starch Solution	all, aqueous	+ + +				+ +				+ + +	+ +				+ + +					+ +					
Stearic Acid	technically pure	+ + +				+ +				+ 0	+ 0				+ + 0					+ 0					

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	Material °C Concentration	PVCu			ABS				PE			PP				EPDM				FPM			
		20	40	60	20	40	60	80	20	40	60	20	60	80	100	20	40	60	80	20	60	80	100
Succinic Acid	all, aqueous	+	+	+					+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sugar Syrup	usual commercial	+	+	0	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sulphur	technically pure	0	-						+	+	+	+	+	+						+	+	+	
Sulphur Dioxide	all, moist,	+	+	0	-				+	+	+	+	+		+	+	0	-		+	-		
	technically pure, liquid	-			-				-			-			0				0				
Sulphur Trioxide		-			-				-			-			-				+				
Sulphuric Acid	up to 30%, aqueous	+	+	0	+	+	0	0	+	+	+	+	+		+	+	+	0	+	+	0	-	
	up to 50%, aqueous	+	+	+	+	0	-		+	+	+	+	+		+	+	0	-	+	+	0		
	up to 80%, aqueous	+	+	+	-				+	+	0	+	0		+	0	-		+	0	-		
	up to 90%, aqueous	+	+		-				0			0			0	-			+				
	up to 96%, aqueous	+	+	0	-				-			-			-				+				
Sulphurous Acid	saturated, aqueous	+	+	0	-				+	+	+	+	+		+	0	-		+	0	-		
Tallow	technically pure	+	+	+	+	+			+	+	+	+	+		+	+	+		+	+			
Tannic Acid	all, aqueous	+			+	+			+	+	+	+	+		+				+				
Tartaric Acid	all, aqueous	+	+	0	+	+			+	+	+	+	+		+	0	-		+	+			
Tetrachloroethane	technically pure	-			-				0			0			-				0				
Tetraethyl Lead	technically pure	+			-				+			+			0				+				
Tetrahydrofurane	technically pure	-			-				0			-			-				-				
Thionyl Chloride	technically pure	-			-				-			-			-				-				
Toluene	technically pure	-			-				0	-		0	-		-				0	-			
Tributylphosphate	technically pure	-			-				+	+	+	+	+		+				-				
Trichloroethylene	technically pure	-			-				-			0			-				+				
Trichloroacetic Acid	50%, aqueous	+	0		-				+	+	+	+	+		0				-				
Trichloroethane (Methylchloroform)	technically pure	-			-				0			0			-				+				
1,2,2-Trifluoroethane (Freon 113)	technically pure	+	+												-				+				
Tricesyl Phosphate	technically pure	-			-				+	+	+	+	0		-				-				
Triethanolamine	technically pure	0			-				+	+	+	+			-				+				
Triethylamine	technically pure				+										-								
Trioctyl Phosphate	technically pure	-			-				0			+			-				-				
Turpentine Oil	technically pure	+	0		-				0	0	0	-			-				+	+			
Urea		+	+	0	-				+	+	+	+	+		+	+	+		+	+			
Urine		+	+	0	+	+			+	+	+	+	+		+	+	+		+	+			
Vegetable Oils And Fats		+	0		+	+			+	0		+	0		-				+	+			
Vinegar		+	+	+	+	+	+	0	+	+	+	+	+		+	0	-		0	-			
Vinyl Acetate		-			+	+	0	-				+	0		+				+				
Vinyl Chloride		-			-										0				+				
Waste Gases, Alkaline		+	+	+	-				+	+	+	+	+		+	+	+	+	+	+	0	-	
Waste Gases Containing:																							
- Carbon Oxides	all	+	+	+					+	+	+	+	+		+	+	+	+	+	+	+	+	+
- Hydrochloric Acid	all	+	+	+					+	+	+	+	0		+	+	+	0	+	+	+	+	+
- Hydrogen Fluoride	traces	+	+	+					+	+	+	+			+	+	0		+	+	+		
- Nitrous Gases	traces	+	+	+					+	+	+	+	0		+	+	+	0	+	+	+	0	
- Sulphur Dioxide	traces	+	+	+					+	+	+	+	+		+	+	+	+	+	+	+	+	+
- Sulphur Trioxide	traces	+	+	+					+	+	+	+	0	0	+	+	+	0	+	+	+	+	+
- Sulphuric Acid	all	+	+	+					+	+	+	+	0		+	+	+	0	+	+	+		
Water, Condensed		+	+	0	+	+	+	-	+	+	+	+	+		+	+	0		+	+	+		
Water, Distilled, De-Ionised		+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	0	-	+	+	+	+	+
Water, Drinking		+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	0		+	+	+	+	+
Wax Alcohol	technically pure	+	+	+	-				0	-		0	-		-				+	+			
Wetting Agents	up to 5%, aqueous	+	+	0	+				+			+	+		+				+				
Wines, Red And White	usual commercial	+			+	+	+	0	+	+	+	+	+		+				+				
Wine Vinegar	usual commercial	+	+	+	+	+			+	+	+	+	+		+	0			0	-			
Yeast	all, aqueous	+	+		+				+	+	+	+	+		+	+			+				
Xylene	technically pure	-			-				-			-			-				+	-			
Zinc Salts	all, aqueous	+	+	0	+	+			+	+	+	+	+		+	+	+		+	+			

= No Data - = Not Recommended 0 = Conditionally Resistant + = Resistant

The data in the tables is based on information from the raw material suppliers, gained using direct contact between the chemical and the unprocessed raw material. The resistance of any of the finished products against these media has not been verified. There is no given or intended legally binding assurance of material properties or of suitability for a specific purpose. Materials must be tested under actual service conditions to determine the suitability for a specific application.

Engineering data & flange tables

Volumetric rate of flow (liquid)								
litre	litre per minute l/min	cubic metre per hour m ³ /h	cubic foot per hour ft ³ /h	cubic foot per minute ft ³ /m	uk gallon per minute gal/min	us gallon per minute gal/min	us barrel/d	
1	60	3.6001	127.136	2.1189	13.1986	15.8508	543.456	
0.0167	1	0.0600	2.1189	0.3532	0.22	0.2642	9.0576	
0.2778	16.6666	1	35.3147	0.5886	3.6662	4.4029	150.956	
0.0079	0.4719	0.0283	1	0.1067	0.1038	0.1247	4.2746	
0.4719	28.316	1.6990	60	1	6.2288	7.4805	256.475	
0.0758	4.546	0.2728	9.6326	0.1605	1	1.201	41.1754	
0.0631	3.7853	0.2271	8.0208	0.1337	0.8327	1	4.2857	
0.0018	0.1104	0.0066	0.2339	0.0039	0.0243	0.0292	1	

Pressure and liquid head									
① bar	kilogram force per square centimetre ② kgf/cm ²	pound force per square inch ③ lbf/in ²	④ atm	foot of water ⑤ ft h ₂ o	inch of water in h ₂ o	metre of water m h ₂	centimetre of mercury cm hg	inch of mercury in hg	⑥ mm hg
1	1.0197	14.5038	0.9869	33.4553	401.463	10.1972	75.0062	29.530	29.530
0.9807	1	14.2233	0.9878	32.8084	393.701	10	73.556	28.959	28.959
0.0689	0.0703	1	0.0609	2.3067	27.68	0.7031	5.1715	2.036	2.036
1.0133	1.0332	14.6959	1	33.889	406.782	10.3323	76.0	29.9213	29.9213
0.0299	0.0305	0.4335	0.0295	1	12	0.3048	2.242	0.8827	0.8827
0.0025	0.0025	0.0361	0.0025	0.0833	1	0.0254	0.1868	0.0734	0.0734
0.0981	0.1000	1.422	0.0968	3.2808	39.3701	1	7.3556	2.896	2.896
0.0133	0.0136	0.1934	0.0132	0.4461	5.3524	0.136	1	0.3937	0.3937
0.0339	0.0345	0.4911	0.0334	1.133	13.5951	0.3453	2.54	1	1
0.0013	0.0014	0.0193	0.0013	0.446	0.5352	0.0136	0.1	0.0394	0.0394

① 1 bar = 105N/m² ② Technical (metric) atmosphere (at) ③ Often denoted non-technically as psi ④ International standard atmosphere ⑤ At density 1g/cm³ ⑥ Also known as torr

Dimensions of flanges (mm)														
flange size			bs4504 pn6				bs4504 pn10				bs4504 pn16			
inch	n.b.mm	nominal	pcd	od	bolt	no bolts	pcd	od	bolt	no bolts	pcd	od	bolt	no bolts
½"	20	15	55	80	M10	4	65	95	M12	4	65	95	M12	4
¾"	25	20	65	90	M10	4	75	105	M12	4	75	105	M12	4
1"	32	25	75	100	M10	4	85	115	M12	4	85	115	M12	4
1¼"	40	32	90	120	M12	4	100	140	M16	4	100	140	M16	4
1½"	50	40	100	130	M12	4	110	150	M16	4	110	150	M16	4
2"	63	50	110	140	M12	4	125	165	M16	4	125	165	M16	4
2½"	75	65	130	160	M12	4	145	185	M16	4	145	185	M16	4
3"	90	80	150	190	M16	4	160	200	M16	8	160	200	M16	8
4"	110	100	170	210	M16	4	180	220	M16	8	180	220	M16	8
5"	140	125	200	240	M16	8	210	240	M16	8	210	240	M16	8
6"	160	150	225	265	M16	8	240	285	M20	8	240	285	M20	8
8"	225	200	280	320	M16	8	295	340	M20	8	295	340	M20	12
10"	280	250	335	375	M16	12	350	395	M20	12	355	405	M24	12
12"	315	300	395	440	M20	12	400	445	M20	12	410	460	M24	12
flange size			bs10 table d				bs10 table e				asa 150			
inch	n.b.mm	nominal	pcd	od	bolt	no bolts	pcd	od	bolt	no bolts	pcd	od	bolt	no bolts
½"	20	15	67	95	½"	4	67	95	½"	4	67	95	½"	4
¾"	25	20	73	102	½"	4	73	102	½"	4	73	102	½"	4
1"	32	25	83	114	½"	4	83	114	½"	4	83	114	½"	4
1¼"	40	32	87	121	½"	4	87	121	½"	4	87	121	½"	4
1½"	50	40	98	133	½"	4	98	133	½"	4	98	133	½"	4
2"	63	50	114	152	¾"	4	114	152	¾"	4	114	152	¾"	4
2½"	75	65	127	165	¾"	4	127	165	¾"	4	127	165	¾"	4
3"	90	80	146	184	¾"	4	146	184	¾"	4	146	184	¾"	4
4"	110	100	178	216	¾"	4	178	216	¾"	4	178	216	¾"	4
5"	140	125	210	254	¾"	8	210	254	¾"	8	210	254	¾"	8
6"	160	150	235	279	¾"	8	235	279	¾"	8	235	279	¾"	8
8"	225	200	292	337	¾"	8	292	337	¾"	8	292	337	¾"	8
10"	280	250	356	406	¾"	8	356	406	¾"	8	356	406	¾"	8
12"	315	300	406	457	¾"	12	406	457	¾"	12	406	457	¾"	12

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