TECHNICAL CATALOGUE

ASTORE

THERMOPLASTIC PIPEWORK SYSTEMS

Astore has the perfect products for your business. Astore thermoplastic pipework systems have been manufactured and used for the pressure pipework requirements of different market sectors for many years.

Our range of fully matched systems of pipes, fittings and valves are ideally suited for a variety of applications where a lightweight, high quality and durable pipework system is required.

Water treatment

Water and waste water treatment are critical to every industry. Each industry has its own set of requirements that determine treatment needs, from process water to waste water. Astore understands water technologies and is ready to help you meet these requirements. Through everything from cooling lines to high-purity water technology and related services, Astore helps industry and manufacturers meet specific water quality requirements to ensure consistent processes and production. Astore also helps industry meet ever-increasing industrial waste water regulations, while improving efficiency and reducing costs.

Water treatmen

Aquaculture

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Aquaculture is the farming of aquatic plants and animals, and encompasses everything from plants to fish, molluscs, crustaceans, amphibians and reptiles. Aquaculture is the world's fastest growing food production sector, increasing by 10 per cent per annum over the past decade. As world fisheries continue to decline, it is worth noting that already 40% of the fish consumed worldwide are produced in farms.

Astore has always had a very close relationship with the practical side of the aquaculture industry, working with production, technology and supply companies. We provide pressure pipework solutions and are able to advise on projects at all levels and at all stages of development.

Aquaculture

Food and beverage

Astore has worked with a variety of businesses across the food and beverage supply chain to help develop innovative pipework solutions to the industry.

The food and beverage sector is facing rapidly evolving competitive pressures and businesses need to adapt to combat these pressures, but also to maintain a competitive advantage.

Astore offer food and beverage companies information, product range selection and innovative solutions to enhance their strategies, needs and future applications.

Irrigation

Water is one of our most precious natural resources. Yet in many of the fastest growing regions of the world, it is also the scarcest. In some areas 70% of the natural water can be used for irrigation purposes. By using Astore pressure pipework you can reduce leakage and increase control and help address the seasonal scarcity of water.

Astore products offer simple installation with long-term performance benefits resulting in improved productivity.

The range offers flexibility, enabling you to lay-down new pipelines with compression fittings; or adding to or branching off from existing pipelines with clamp saddles. Both solutions offer leak-free performance.

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Pools and spas

Astore has over 30 years experience in the UK pool and spa industry and are knowledgeable in all aspects of the pipe requirements for the pool/spa market. We manufacture PVC pressure pipework and valves, which are sold through a national network of swimming pool and spa companies with whom we work closely.

Astore products are specifically designed to meet the needs of the pools and spa sector. Providing excellent resistance to chlorine attack and offering a broad range to suit large or small projects, the Astore products ensure a trouble free installation and a long life.

Founded in 1970, Astore has and continues to develop advanced techniques in the production of thermoplastic pressure fittings and valves in both PVC and ABS.

ABS Pipework Systems

ABS Typical Applications:

- Waste water
- Potable water
- Process water
- Chilled water
- Agriculture and horticulture

Imperial size range:
- 1/2" to 8"

Pressure rating:
- Up to Class E

PVC-U Pipework Systems

PVC-U Typical Applications:

- Water treatment
- Waste water
- Agriculture and horticulture
- Swimming pools
- Irrigation
- Chemical applications

Imperial size range:
- 1/2" to 12"

Metric size range:
- 16mm to 315mm

Temperature:
- 5°C to 60°C

Pressure rating:
- Up to Class E

VALVES

Complete range of manual and actuated ball and butterfly valves

- Ball valves
- Butterfly valves
- Check valves
- Non-return valves

Available in ABS and PVC-U

Available with Electric or Pneumatic actuation

CLAMP SADDLES

- Made from tough polypropylene material
- Mechanical saddles with single and double branch
- Stainless steel reinforcing ring

Metric size range:
- 20mm to 315mm

Pressure rating:
- Up to 10 bar

COMPRESSION FITTINGS

- Wide range of fittings available
- Polypropylene material
- Fittings for PE metric pipelines

Metric size range:
- 16mm to 110mm

Pressure rating:
- PN16 up to 63mm
  PN10 75mm to 110mm

Contents

Introduction

Founded in 1970, Astore has and continues to develop advanced techniques in the production of thermoplastic pressure fittings and valves in both PVC and ABS.

Specialists in the supply of cost-effective pipe systems to a wide range of market sectors, Astore have the ability to be flexible and responsive to the demands of our customers.

As an indication of commitment to quality manufacture, Astore PVC-U and ABS fittings and pipework are UK Water Regulations Advisory Scheme approved. The Italian Institute of Plastics (IIP) has granted certificates of conformity for the Astore production systems in compliance with UNI EN ISO 9002 (Certificate No 354).

Astore products are available via a network of approved stockists in the UK, serviced by our central sales and distribution centre in Cannock in the Midlands.

Product Profile

Astore offers a complete range of imperial size PVC-U and ABS pressure pipe, fittings, valves (both Manual and Actuated), clamp saddles and compression fittings to satisfy the requirements of installers and specifiers.

The systems offered by Astore encompass a wide range of pipes and fittings to BS imperial, metric and threaded standards.
A complete range of pipeline accessories in PVC-U and ABS are also available. The products are divided into six groups:

ABS & PVC-U Imperial (page 21)

PVC-U Metric (page 33)

Manifolds (page 51)

Valves (page 53)

Clamp saddles (page 81)

Compression fittings (page 87)

This users guide shows the design and installation techniques required to achieve a safe, long-lasting, high intensity system.

Standards and Approvals

Astore products are manufactured in accordance with the following standards:

Astore is an ISO 14000 certified company.

PVC-U pipe:
Imperial BS EN 1452-2
Metric DIN 8061-2 KIWA 49 (REV.1)

Astore PVC is approved for use within public water supplies and by the secretary of state. Astore PVC is listed in the 'list of approved products' published by the DWI.

ABS pipe: BS 5391 Part 1

PVC-U fittings:
Imperial BS 4346 Part 1
Threaded BS 21, ISO R7 DIN 2999, ISO UNI 228/1
Metric ISO 727, EN 1452, KIWA 54

ABS fittings: BS 5392 Part 1

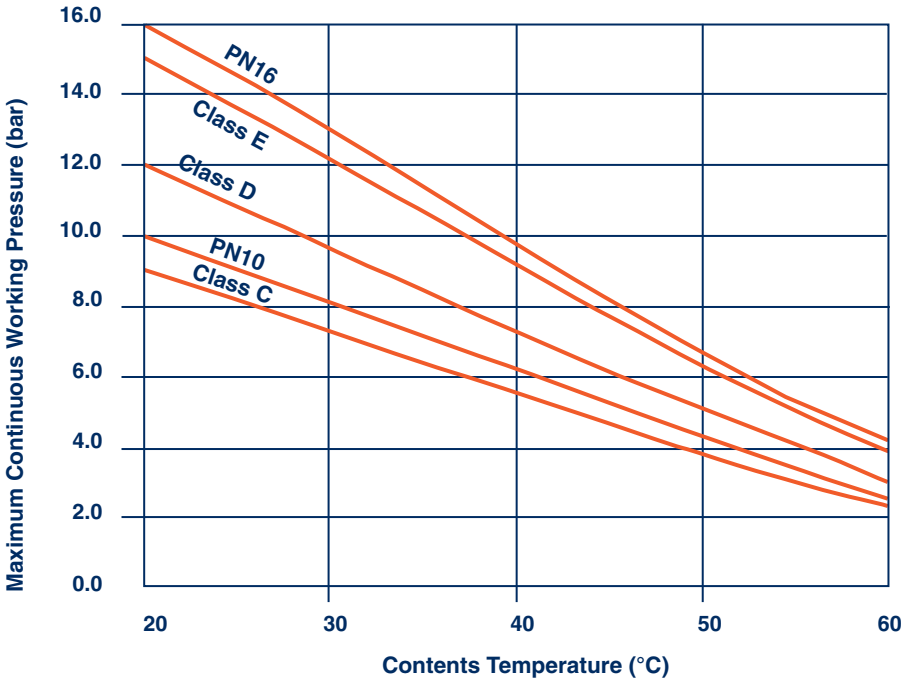
Astore PVC-U fittings are UK Water Regulations Advisory Scheme approved and listed (Licence N° 9902025).

Astore ABS fittings are UK Water Regulations Advisory Scheme approved and listed (Licence N° 9902026).

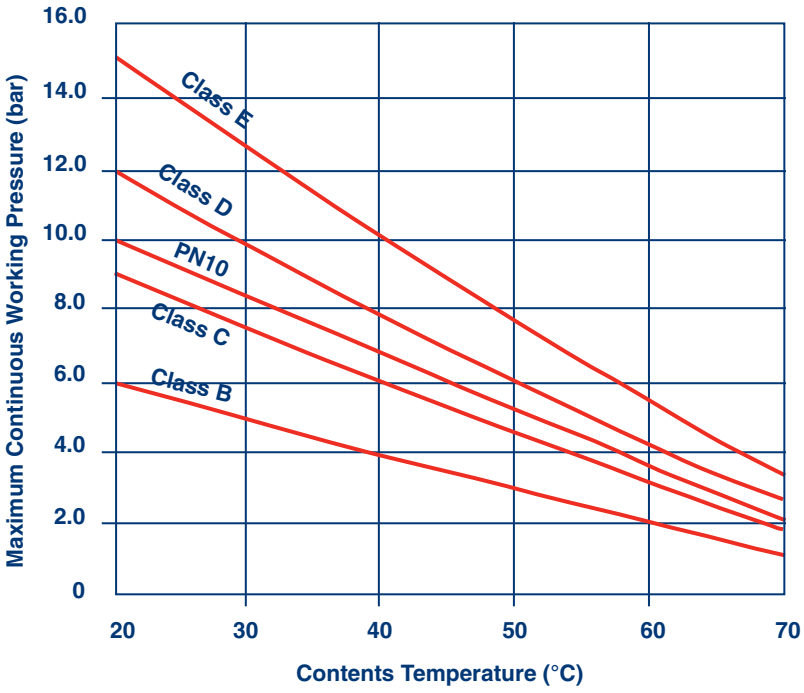
Working Conditions

The graphs below show the pressure/temperature relationship. PVC-U systems should not be used at temperatures in excess of +60°C or below +5°C; ABS systems are not recommended for use at temperatures in excess of 70°C or below -40°C.

PVC-U Pressure Temperature Relationship



ABS Pressure Temperature Relationship



Flow Calculations

Pressure drop due to friction can be determined for practical purposes using the flow nomogram overleaf.

The pressure drop at a given flow rate can be determined as follows:

1. Obtain the internal diameter (ID) of the pipe to be used by referring to the pipe dimension tables on pages 10 and 11.
2. Mark this diameter on the Internal Diameter Scale.
3. Mark the required flow rate in litres per second on Flow Rate Scale.
4. Draw a straight line connecting these two points and extend through the flow Velocity and the Hydraulic Gradient Scales.
5. The velocity of flow in metres per second is determined from the intersection with the Flow Velocity Scale.
6. The frictional head loss in metres per 100 metres of pipe can then be read off the Hydraulic Gradient Scale.

Pressure Drop in Fittings

To determine the total pressure drop in the system, the total straight pipe length calculated for the fittings is added to the total straight pipe length to obtain the total drop.

The pressure drop in fittings can be calculated with the following formula: $L = K \times ID$

Where 'L' is the equivalent pipe length (in metres),
'K' is the fittings constant (different for each kind of fitting)
'ID' is the fitting internal diameter in mm.

The fittings constant 'K' is shown below:

Elbow 90°. 0.030

Elbow 45° 0.014

Tee 90° (Straight through) 0.012

Tee 90° (Side branch) 0.060

Bends 90°. 0.012

Reducing Bush (per size reduction) 0.015

These values are included as a guide to facilitate calculation of overall system performance and should not be used in isolation.

Flow Nomogram

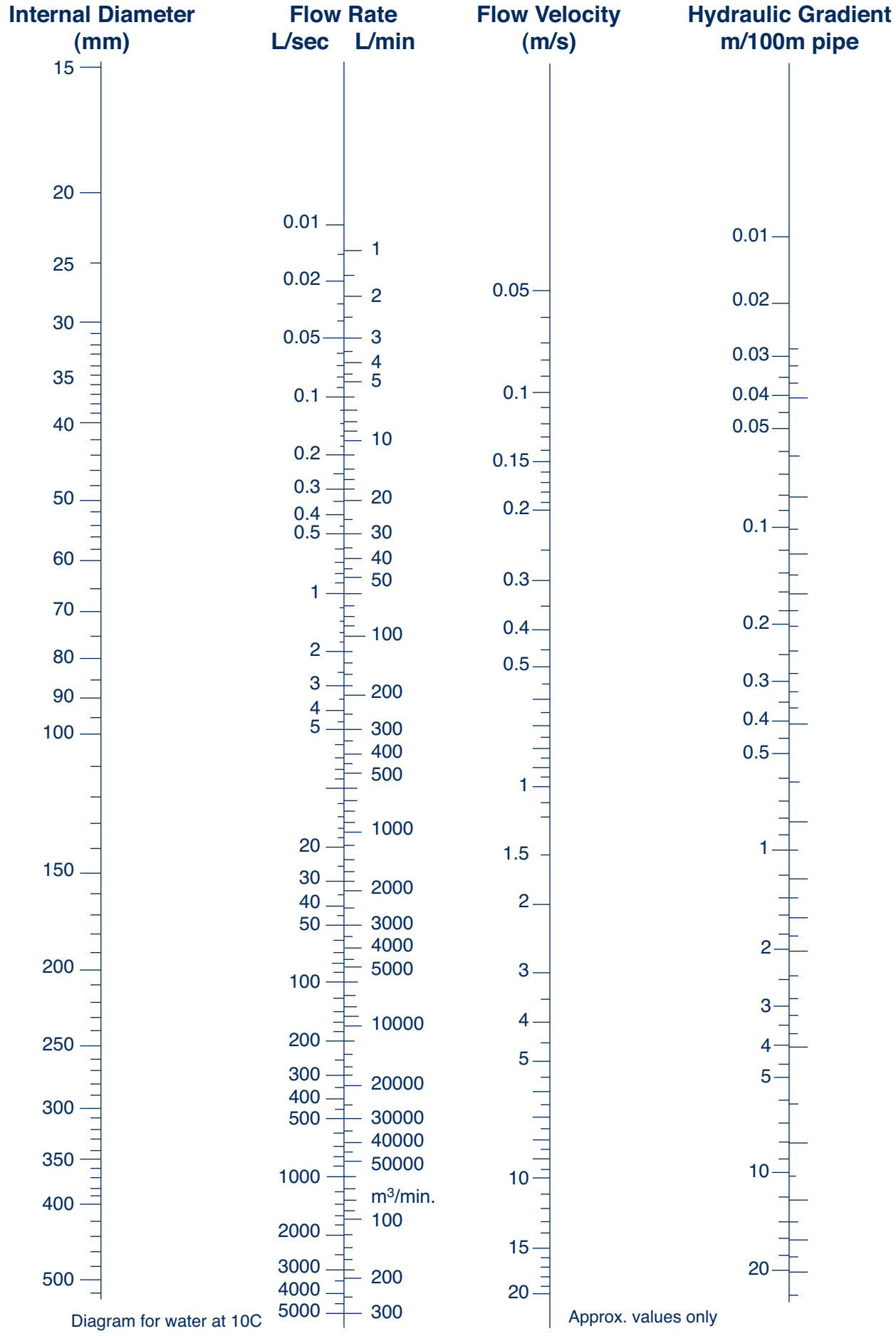


Diagram for water at 10C

Approx. values only

Pipe Routing

Systems installed above ground should be designed such that there are sufficient changes in direction to accommodate expansion or contraction. The support method described on pages 12 & 13, will ensure that the pipework can move axially without snaking. Utilise all available pipe flexibility. Do not place clips too close to changes in direction.

Calculating Expansion and Contraction

Temperature variations in a pipework system will increase or decrease the length of each pipe. This is the result of temperature changes in the fluid carried and also from ambient temperature variations.
The rate of expansion or contraction of pipework is dependent on its length, its coefficient of expansion and the temperature difference.
Increase/decrease in pipe length is given by the formula:

$$\text{Expansion} = L \times \alpha \times \Delta T$$

where: L = length (mm)
α = coefficient of linear expansion
ΔT = temperature difference of the pipe (°C)

The coefficient of linear expansion for ABS: 10×10^{-5} per °C

Rule of thumb: ABS expands/contracts 1mm/metre/10°C temperature change:

Example:
What is the expansion/contraction of an insulated, 30m long, ABS Condenser water main, installed at 15°C, operating at a maximum temperature of 35°C and a minimum temperature of 5°C?

Expansion:

L	=	30,000 mm
α	=	10×10^{-5}
ΔT	=	35 - 15 = 20°C
Expansion	=	$30{,}000 \times 10 \times 10^{-5} \times 20$°C
	=	60mm

Contraction:

L	=	30,000 mm
α	=	10×10^{-5}
ΔT	=	15 - 5 = 10°C
Contraction	=	$30{,}000\text{mm} \times 10 \times 10^{-5} \times 10$°C
	=	30mm

Hence the system must be designed, using expansion loops, the natural flexibility of pipe, or expansion bellows, to cater for a differential movement, with an expansion of 60mm and a contraction of 30mm.

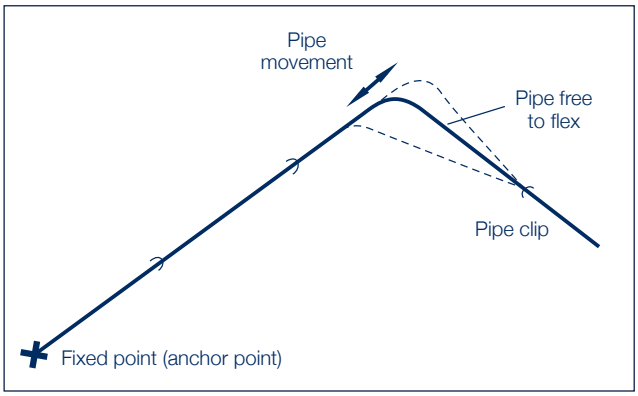
The system should be designed to cater for the greater amount of movement of either expansion or contraction.

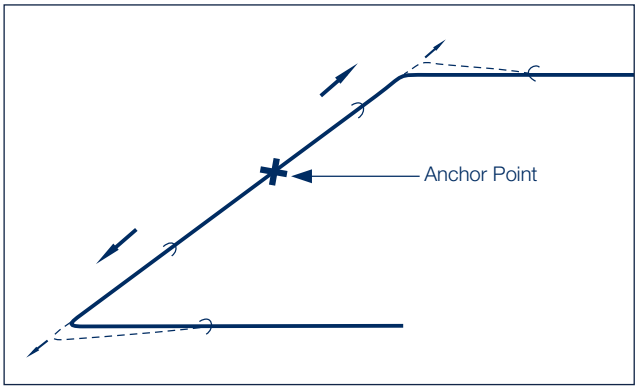
Catering for Pipe Movement

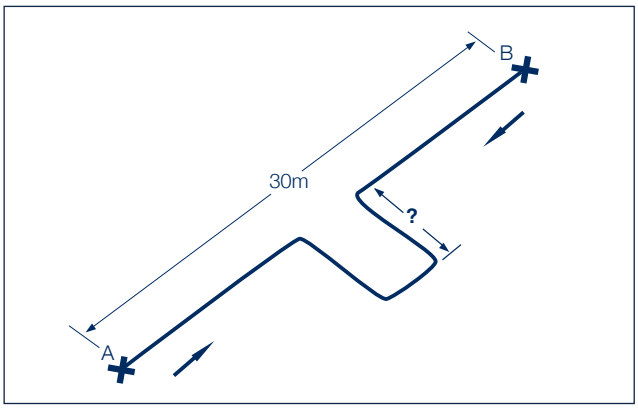
Systems installed above ground should be designed to ensure that there are sufficient changes in direction to accommodate expansion and contraction. The support method described later will ensure that the pipework can move axially without snaking. If sufficient changes in direction are not available within the design of the system, alternative methods of catering for pipe movement can be considered such as expansion loops or flexible rubber bellows.

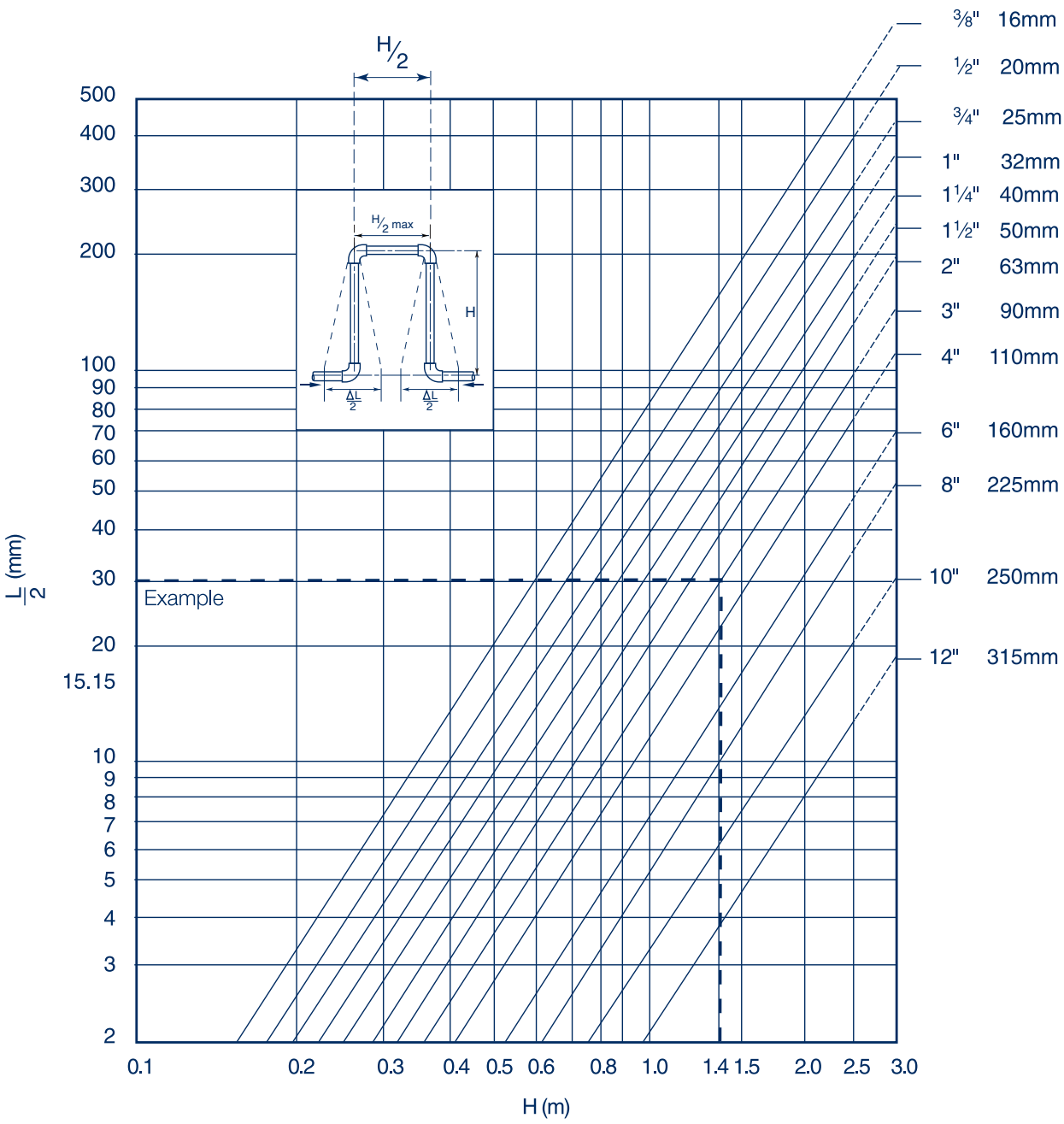
Expansion Loops

The length of unrestrained pipe (free leg length) required to accommodate expansion can be calculated from the graph opposite.









Example:

Calculate the size of expansion loop required for a 90mm diameter pipe expanding 60mm and contracting 30mm:

Based on the worst case ie. 60mm expansion, $\frac{\Delta L = 30mm}{2}$

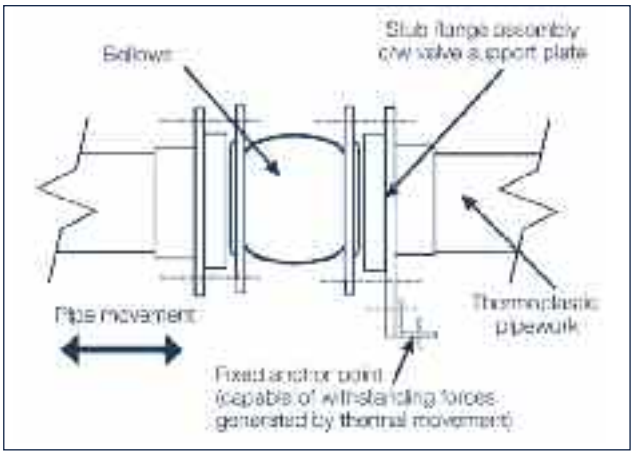
Draw a horizontal line from the vertical section to meet the 90mm pipe gradient line.

Drop a perpendicular from the intersection point to the horizontal scale. The figure obtained is the free leg length of the loop required.

Hence, in this instance a loop measuring 1400mm long x 700mm wide will cater for ±60mm movement i.e. the loop will cater for both the expansion and contraction of the pipe.

Expansion Bellows

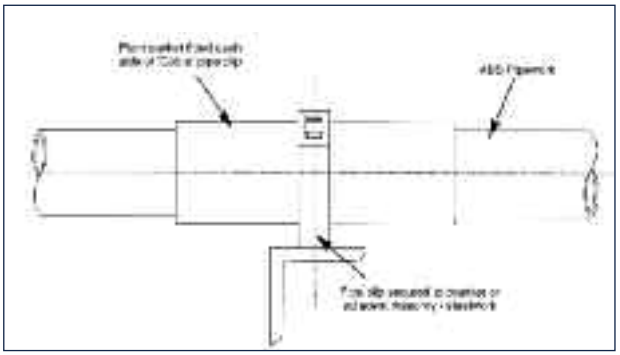
Rubber expansion bellows may also be used in place of or in conjunction with the natural flexibility of the ABS. These must be of a suitable design to ensure correct operation with ABS pipework. Bellows must be installed in accordance with manufacturer's recommendations.



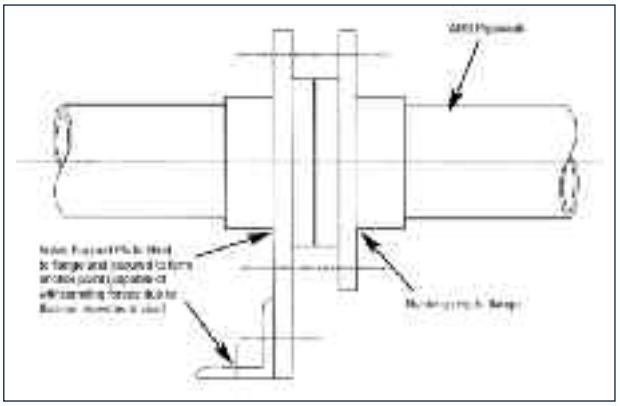
Anchor Points

The direction of pipe movement can be controlled by the use of anchor points at strategic positions. There are a number of methods of securely anchoring plastic pipes, some of which are detailed below. However it should be noted that tight fitting pipe supports should not be used since damage to the pipe could occur. Note: See above for advice on anchoring of bellows.

Construction of typical anchor points



1. Small Bore (up to 4" Pipework)



2. Larger Pipe (above 4" Pipework)

Pipe Supports and Clips

Pipe supports and clips should provide lateral restraint and allow free, unrestricted, axial pipe movement. Standard 'drop rods' may not provide sufficient lateral restraint and the ABS pipe could start to 'snake'.

Astore pipe supports are designed to meet these requirements. A suitable alternative would be mild steel saddle clips designed with a clearance between the pipe and the clip. All steel brackets in contact with the plastic pipe should be free of sharp edges to avoid damaging the pipe.

Support Centres

The recommended distance between supports for ABS and PVC-U pipes filled with water is given in the following tables. These tables are based on the thinnest wall pipe in each size. For sizes 1", 1 1/4", 1 1/2", 2", 3" and 4" the support distance can be increased by 10% for class E pipes. Where the contents have a specific gravity greater than 1, the distance must be decreased by dividing the recommended centre distances by the specific gravity. The details shown are for horizontal pipes. For vertical pipes, support centres may be increased by 50%.

Pipe trays can be used for sizes 16mm, 20mm, 25mm and 32mm. These allow support distances to be increased to 2.0 metres.

ABS Support Centres

Size mm/imperial	Support distance (m) at 20°C	Support distance (m) at 50°C	Support distance (m) at 70°C
20mm / 1/2"	0.9	0.6	0.5
25mm / 3/4"	1.0	0.7	0.6
32mm / 1"	1.1	0.8	0.7
40mm / 1 1/4"	1.2	0.9	0.7
50mm / 1 1/2"	1.3	1.0	0.7
63mm / 2"	1.4	1.1	0.8
75mm / 2 1/2"	1.5	1.2	0.8
90mm / 3"	1.6	1.2	0.9
110mm / 4"	1.8	1.3	1.0
125mm	1.9	1.4	1.0
140mm / 5"	2.0	1.5	1.1
160mm / 6"	2.1	1.6	1.2
200mm	2.2	1.7	1.3
225mm / 8"	2.3	1.8	1.5
250mm	2.5	2.0	1.7
10"	2.7	2.2	1.9
315mm / 12"	2.9	2.4	2.1

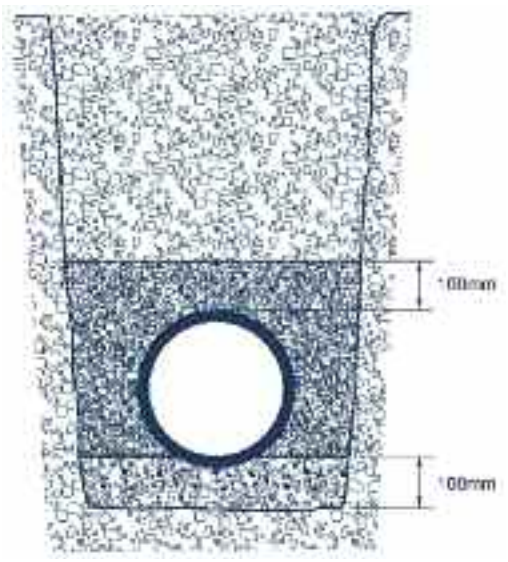
PVC-U Support Centres

Size mm/imperial	Support distance (m) at 20°C	Support distance (m) at 50°C
16mm / 3/8"	0.8	0.5
20mm / 1/2"	0.9	0.6
25mm / 3/4"	1.0	0.7
32mm / 1"	1.1	0.8
40mm / 1 1/4"	1.2	0.9
50mm / 1 1/2"	1.3	1.0
63mm / 2"	1.4	1.1
75mm / 2 1/2"	1.5	1.2
90mm / 3"	1.6	1.3
110mm / 4"	1.9	1.3
160mm / 6"	2.3	1.6

Support of Heavy Equipment

Large valves, strainers and other heavy equipment should always be independently supported to prevent undue loading onto the system. Astore valve support plates have been designed for this purpose and may be used in place of flange backing rings.

Buried Pipes



Recommendations covering essential requirements for installations below ground may be summarised as follows:

In general, trenches should not be less than a metre deep. Trenches should be straight sided, approximately 300mm wider than the pipe diameter to allow proper consolidation of packing materials. Trench bottoms should be as level as is practical. Large pieces of rock, debris and sharp objects should be removed. Alternatively gravel can be laid approximately 100mm deep on the floor of the trench. (Sand may be used but subterranean water is liable to wash sand away and leave the pipe unsupported.) If pipes are jointed above ground, they should remain undisturbed for 2 hours before being lowered into the trench.

After laying, pipes should be covered with gravel or similar material to a depth of 100mm above the crown of the pipe. The gravel should be extended sideways to both trench walls and compacted. This should be done prior to testing, with joints left exposed.

Care should be taken to ensure that sharp objects, stones, etc, are prevented from falling into the trench before covering the pipe. After pressure testing, joints should be covered with gravel or similar material, and back filling completed. A section of pipe installed below ground to the above recommendations is shown in the illustration.

Anchor Blocks

For wholly solvent welded systems the pipework is pressure balanced and anchor thrust blocks are not required.

When rubber ring joints are used it is necessary to provide concrete anchor blocks at all sudden changes in direction such as elbows, bends, tees etc. This is necessary to withstand the forces generated by system pressurisation.

For greater detail, users in the U.K. are recommended to study the Code of Practice CP 312 published by the Pipe and Fittings Group of the British Standards Institute covering installations above and below ground.

Threaded Connections

Connections - plastics to metal

There are several recommended methods to connect metal and plastic systems:

Composite unions
Flanges
Male threaded fittings
Female threaded fittings

Plastics expand or contract more than metals for any given change in temperature. The practice of connecting plastic threaded fittings to metal threads is not recommended where the joint is likely to experience a temperature change of more than +/-5°C, otherwise leaks may occur.

Composite unions are available with brass male or female BSP threaded adaptors.

If it is required to cut a thread on to Astore pipe, use a sharp die especially reserved for plastic pipes and cut full thread depth without lubricant, in one operation.

This should only be attempted on pipe sizes up to 2" (n.b. Class T or class 7 pipe must be used).

Assembly should be carried out by hand and final tightening by a strap wrench, if necessary.

Extra care must be taken not to overtighten or damage the thread. **Pipe wrenches must not be used**.

It is recommended that PTFE tape be used when making threaded joints/connections.

Any other sealing compound must be confirmed by Astore as being suitable.

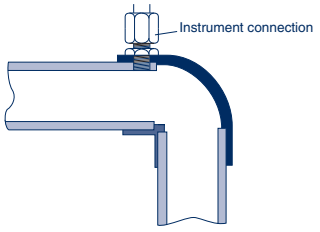
'Boss White' and anaerobic adhesive sealants, such as Loctite 542 and 572, can chemically attack ABS and must not be used.

Connection to instrumentation

Instrumentation connections can be made by drilling through pipe and socket where the material is at its thickest and tapping the hole to receive a threaded fitting, as shown below:

Pipe size	Connection size
20mm - 63mm/½" - 2"	Use tees, reducing bushes and threaded fittings
75mm-110mm/2½" -4"	Max. tapping ½" BSP.
125mm-140mm/5"	Max. tapping ¾" BSP.
160mm & above/6" & above	Max. tapping 1" BSP.

Such connections, if correctly drilled and tapped with full thread form will be limited to Class C /PN10 pressures.



Flanged joints

Full face flanges are available from 1/2" to 6"

The following stub flanges are available in metric PVC from 20mm to 315mm and provide a convenient means of converting from Imperial to Metric systems in sizes 8"/200mm and above.

The correct galvanised mild steel backing ring and rubber gasket must be used with both types.

Flange bolting procedure

The following procedure is recommended for installing Astore flanges:

1. Inspect flange faces and ensure that they are clean and undamaged.
2. Check that the correct backing ring and rubber gaskets have been supplied. Astore supplies a matched system of flanges and backing rings - do not interchange Metric and Imperial components.
3. Loosely assemble flanges. Ensure that flanges and bolt holes align and that the flange faces are parallel. Ensure that the gasket is correctly positioned between the flanges.
4. Ensure that the appropriate sized washer is placed under both bolt heads and nuts.
5. Tighten the nuts and bolts in a diagonally opposite sequence (see below) to ensure even loading around the flange to avoid distortion. It is recommended that the nuts and bolts be tightened as uniformly as possible progressively from a finger tight start.
6. Repeat as necessary until tightness of all bolts is achieved.

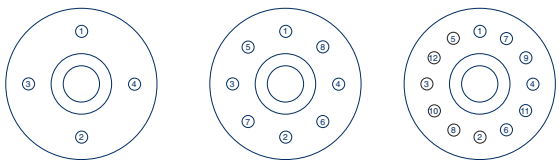
Tightening torques for flange bolts in Astore plastic piping systems

Recommended Torque Values (Nm)

Size	Torque
20	15
25	15
32	15
40	20
50	30
63	35
75	40
90	40
110	40
125	50
140	50
160	60
200	70
225	70
250	80
315	100

The tolerance on torque is +/- 10%

Tightening sequence



Jointing Procedures

The solvent cement operates by chemically softening the outside of the pipe and the inside of the fitting. Joint integrity is greatly reduced if these surfaces are not absolutely clean and properly prepared.

1) The pipe must be cut clean and square. A suitable wheel cutter will eliminate swarf. A saw may be used, however this will create dust which may enter the pipework system.

2) File a chamfer, approximately 3mm x 45°. This prevents the solvent cement layer being scraped from the surface of the fitting when the joint is assembled.

3) Mark the pipe a known distance from the end and clear of the area to be abraded. This should be used to check the pipe penetration into the socket after assembly.

4) Thoroughly abrade the end of the pipe over a length equal to depth of the fitting socket, using clean coarse emery cloth.

5) Thoroughly abrade the inside surface of the fitting socket.

6) Clean thoroughly the abraded surfaces of pipe and fittings using a clean, lint free cloth or paper towel, moistened with Astore Eco-cleaner.

7) Using a clean brush, apply the Astore solvent cement to the pipe and fitting using longitudinal strokes. The abraded areas should be completely covered with the cement. The amount required will vary with pipe diameter and the fit between pipe and fitting, but should be such in all cases that the cement is still liquid when pipe and fitting are assembled. It is important to apply cement quickly, to enable assembly without excessive force being required.

8) Immediately after application of cement, push pipe fully home into the fitting. Do not twist. Hold the pipe and the fitting for times varying from a few seconds on sizes 3/8" to 1 minute on sizes 8" and above. Application of the correct amount of cement will result in a neat bead of cement at the edge of the fitting and the pipe. Excessive deposits inside the fittings must be avoided as these can weaken the wall, particularly on small sizes. When working under cold conditions make sure the joints are free from frost and moisture and allow extra curing time to compensate for the lower temperature.

9) Wipe off excess cement from outside of the joint. The drying time for joints will vary with fit, amount of solvent cement applied, ambient temperature and working pressure. It is recommended that whenever possible, joints are left to cure for 24 hours before the test pressure is applied. However, it is recognised there will be times when joints will need to be put into service within a few hours of being made. A rough but safe working guide, where contents temperature will not exceed 20°C, is 1 hour per bar for systems up to 4". For larger sizes increase this time to $1^{1}/_{2}$ hours per bar. In any event joints should be allowed to cure for a minimum of 4 hours.

10) Using the mark previously made, check that the pipe has been fully inserted.

11) Do not disturb the joint for at least 10 minutes after assembly. On larger sizes do not subject the joint to bending or twisting forces for at least 4 hours (see below). When making subsequent joints, which can be done without waiting, take care not to transmit forces to freshly made joints in the system. Allow sufficient drying time prior to pressurisation of the system (see page 17).

12) Replace lids on containers.

CAUTION

DO NOT use near naked flames

DO NOT smoke in the working area

DO NOT use in confined spaces

DO NOT joint in the rain or wet conditions

DO NOT use dirty brushes

DO NOT use dirty or oily cleaning cloths

DO NOT use the same brushes for different cements

DO NOT dilute or decant Astore ABS solvent cement

Follow safety instructions on Astore solvent cement and Eco-cleaner containers

Always wear appropriate personal protective equipment

Notes

1. The integrity of Astore systems may be affected if Astore solvent cement and Astore Eco-cleaner are not used. Astore disclaims responsibility for any Astore system constructed with any other cement or not fabricated in accordance with the instructions herein.
2. To achieve the correct speed of application on sizes 5"/140mm and above, cement should be applied simultaneously to pipe and fitting, by two people.

Drying Times

The drying times will vary with fit, amount of solvent cement applied, ambient temperature and working pressure. It is recommended that, wherever possible, joints of sizes up to 8"/225mm are allowed to dry for at least 24 hours, and sizes 10" and 12"/250mm and 315mm for at least 48 hours. These guidelines are based on an ambient temperature of between 10°C to 40°C. Longer drying times will be required at lower and higher ambient temperatures.

It is recognised that there will be occasions when the system will need to be put into service within a few hours of being made. A rough but safe working guide where the ambient temperature is between 10°C to 40°C and the contents temperature does not exceed 20°C is as follows:

Size Range	Up to 2 1/2" 75mm	3" to 4" 90mm to 125mm	5" & 6" 140mm & 160mm	8" 200mm & 225mm	10" & 12" 250mm & 315mm
Drying Time ABS	0.5 hour / bar	1.0 hour / bar	1.5 hours / bar	2.0 hours / bar	48 hours minimum
Drying Time PVC-U	1.0 hour / bar	1.0 hour / bar	1.5 hours / bar	2.0 hours / bar	30 hours minimum

Note - minimum drying period should never be less than 1 hour.

An indication of the number of joints to be made per litre of cement is as follows:

Size mm	Size inch	Recommended container size	Joints per litre ABS	Joints per litre PVC-U
16 - 32	3/8 - 1	0.5 Litre	400	300
40 - 63	1 1/4 - 2	0.5 Litre	200	120
75 - 110	2 1/2 - 4	0.5 Litre	70	50
125 - 140	5	1 Litre	20	15
160 - 225	6 - 8	1 Litre	10	8
250 - 315	10 - 12	1 Litre	5	3

Chemically Resistant PVC-U Cement

For PVC-U applications with the following chemicals we recommend the use of HCR-36 (Product code R PCO.0100) a chemically resistant version of our Astore PVC-U cement. Always use the appropriate cleaner (Product code M CFO.0100) when using this chemical resistant cement.

Sulphuric acid	concentration higher than 70%
Hydrochloric acid	concentration higher than 25%
Nitric acid	concentration higher than 20%
Hydrofluoric acid	each concentration
Sodium hypochlorite	active chlorine higher than 7.5%
Lyes, bases (caustic soda)	concentration higher than35%

Maximum gap 0.3mm	Maximum pressure
20°C	12 bar
50°C	6 bar
60°C	4.5 bar
80°C	1.5 bar

Maximum pressure depends also on the pipe system used and PN class.

Additional Important Information

Thermal insulation

Some insulation products can contain substances capable of having a detrimental effect on thermoplastic pipework eg. certain types of foam rubber insulations can cause certain thermoplastics to fail at elevated temperatures.

Recommended insulation - a list of some of the common types of insulation materials known to be suitable with ABS and PVC-U pipework are as follows:

Fibre wool, such as 'Rockwool'
Armaflex Class 1 HT
Koolphen K Phenolic foam
Polystyrene

Note - the above list is not exhaustive – please contact our technical support department on 01543 272400 if further assistance is required.

Some adhesives can also be detrimental. Do not bond insulation to thermoplastic pipework. (This comment also applies to any tapes, adhesives, or other substances used to secure the heating tape to the pipework. Contact our technical department if you have any concerns.)

Trace heating

Thermoplastic pipework can be damaged by plasticisers used in the outer coverings on some heating tapes. Tapes sheathed in plasticised PVC must be avoided, unless specifically approved by us. (This comment also applies to any tapes, adhesives, or other substances used to secure the heating tape to the pipework.)

Recommended heating tapes

The selection of heating tapes with silicone rubber, woven wire, or woven polyester outer sheaths will eliminate the risk of plasticiser migration. These tapes are therefore preferred for use on thermoplastic systems.

Pipe contents identification

Do not put self-adhesive labels directly on to pipe surfaces as this may be detrimental to pipe performance. It is recommended that some sort of barrier, such as aluminium foil, is placed between pipe and identification label.

Intumescent mastic and mastic sealants

Certain mastic sealants are formulated with phthalates. Phthalates are known to be extremely aggressive toward ABS and PVC-U materials, and therefore confirmation of the suitability of any mastic sealant should be determined before being used in conjunction with ABS and PVC-U pipework.

Pipe clips

It is important that the composition of pipe clips and their linings do not include substances which might have a detrimental effect upon the ABS pipe. Please check for suitability before use. We strongly recommend the use of Astore pipe brackets for pipe sizes up to and including 110mm OD/4" NB, wherever circumstances allow.

Pneumatic testing

Pneumatic testing not recommended because of the risk to personnel or property if, for example, a joint has been temporarily assembled without solvent cement and has then been mistakenly left in that condition. Such joints could separate suddenly and violently during the test.
Also, leak detection sprays designed to detect air leaks on steel pipework can damage thermoplastics.

Contact with synthetic oils

Some synthetic oils are unsuitable for use with thermoplastic pipe systems. The main types of synthetic oils identified as being incompatible with thermoplastic pipe systems includes Esters, Polyalkylene Glycols, and Organic Phosphates.

It should be noted that some metal coil manufacturers use these oils in their manufacturing process. This is normally drained from the coil. If it is suspected that residues of oil may remain in the coil it should be filled with methylated spirits, then thoroughly flushed with water.

Freezing conditions

Precautions should be taken to prevent contents freezing, as this can cause pipework to split.

For ABS Mono-ethylene glycol can be added to the system to lower the freezing point. See opposite for advice on insulation and trace heating.

Contact with fluxes

Some fluxes can be detrimental to thermoplastic pipework. Care should be taken when soldering copper pipework directly above, or close to, pipework.

Buried pipes

Do not lay pipework in contaminated ground eg. 'brown-field' sites.
Do not lay pipework in ground where spillages of chemicals may occur.

Thread sealants

Some thread sealants can damage plastic pipework. PTFE tape should be used when making threaded connections.
See page 14 for further information.

Resistance to U.V. (sunlight)

Care should be taken to avoid exposure to U.V. light, eg. sunlight, particularly during storage. This will cause discoloration and deterioration of the material. Whilst this is a surface effect only it is recommended that precautions be taken to prevent this happening. If stored outdoors pipe should be covered with opaque sheeting. If installed outdoors it can be protected from the effects of U.V. by insulating or painting.

Pressure surges

Astore pipework can withstand pressure surges within the limitations detailed within CP312 Part 2:1973 and its amendment dated 1977. On no account should pressure surges be allowed to exceed the maximum continuous working pressure calculated using the graph on page 7.

Health and Safety at Work Act and COSHH Regulations

Attention is drawn to the requirements in the U.K. of this Act and to the 1988 Control of Substances Hazardous to Health (COSHH) Regulations.

Astore UK cannot accept responsibility for accidents arising from the misuse of its products because of bad installation or incorrect application.

Material safety data

Material safety data sheets are available on our website www.astore.uk.com

Filling and flushing

When purchasing chemicals for either flushing or long-term system use, suppliers should be advised of the material it is for. Guidance on the suitability of various system flushing or filling fluids with the various thermoplastics can be found in the Astore Chemical Data catalogue, LCR10200.

Testing

It is suggested that the following test procedure be followed, after joints have been allowed to dry for the appropriate minimum time (at least 24 hours):

The system should be divided conveniently into test sections.

Fill the section with cold water making sure that no air pockets remain. Do not pressurise at this stage.

Check the system for leaks. If no leaks are apparent check for and remove any remaining air. Increase pressure up to 3 bar. *Do not pressurise further at this stage.

Leave the section pressurised for 10 minutes. If the pressure decays, inspect for leaks and rectify as necessary. If the pressure remains constant, slowly increase the hydrostatic pressure to 1½ times the nominal operating pressure.

Leave the section pressurised for a period not exceeding 1 hour. During this time the pressure should not change.

CAUTION

Personnel must stand well clear when pressure testing systems.

Similarly, under no circumstances should pressure tests be carried out using pressurised gases. Such a test could be extremely dangerous and does not serve any useful purpose.

***Note:**

If extended times are required to achieve hydrostatic pressure, either leakage has occurred or air remains in the line. Inspect for leakage and if none is apparent, reduce the pressure and check for trapped air which must be removed before further pressurisation is commenced.

If a leakage source is difficult to establish it is acceptable to pressure the line using air or nitrogen to a maximum pressure of 1.5 bar. Test joints etc. with a soap solution.

Colour

Astore ABS products are a mid-grey colour, generally in accordance with BS5252 and RAL 7001.

Astore PVC-U products are a dark-grey colour, generally in accordance with BS5252 and RAL 7011.

Dimensions and Standards

Astore systems are manufactured in accordance with the following standards:

PVC-U pipe:
Imperial BS 3505 - 3506
Metric DIN 8061-2, KIWA 49 (Rev.1)

ABS pipe: BS 5391 Part 1

PVC-U fittings:
Imperial BS 4346 Part 1, Threaded BS 21, ISO R7 Din 2999
Metric ISO 727, EN 1492, KIWA 54
Threaded & Transition ISO R7, ISO UNI 228/1, BS 21, Din 2999

ABS fittings: BS 5392 Part 1

Materials

Materials used for the manufacture of Astore pressure pipe fittings and valves are selected for their non-toxic properties and suitability for potable water as required by the appropriate international authorities.
Both ABS and PVC-U comply with ISO 727 and the requirements of the World Health Organisation for potable water transportation.

Gaskets and seals

Gaskets and O-Ring seals are made from EPDM except where stated otherwise.

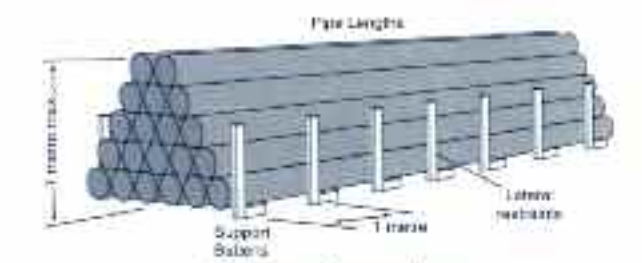
Interchangeability

Components in the imperial and metric ranges are not interchangeable, except for 2½"/ 75mm and 5"/140mm.

Handling and Storage

Care should be taken at all stages of handling, transportation and storage. Pipe must be transported by a suitable vehicle and properly loaded and unloaded, eg. wherever possible moved by hand or mechanical lifting equipment. It must not be dragged across the ground.

The storage should be flat, level and free from sharp stones.



Storage of loose pipes

Lengths

Pipe lengths stored individually should be stacked in a pyramid not more than one metre high, with the bottom layer fully restrained by wedges. Where possible, the bottom layer of pipes should be laid on timber battens at one-metre centres. On-site, pipes may be laid out individually in strings. (Where appropriate, protective barriers should be placed with adequate warning signs and lamps.)

Bundles

Bundled packs of pipe should be stored on clear, level ground with the battens supported from the outside by timbers or concrete blocks. For safety, bundled packs should not be stacked more than three metres high.

Smaller pipes may be nested inside larger pipes. Side bracing should be provided to prevent stack collapse.

Similar precautions should be taken with fittings and these should be kept in protective wrappings until required for use.

Weathering

Prolonged storage (greater than one month) or storage in areas where high temperature is anticipated, the stack height should never exceed 4 layers or 1 metre maximum height. Such stacks should be protected from the effects of weathering by placing an opaque covering over them. If fixed to the side bracing the sheets will provide protected and shaded conditions and allow a free passage of air around the pipes.

Where the pipes are to be installed in locations likely to be permanently exposed to prolonged periods of strong sunlight, such as in tropical countries, the life can be extended by painting the pipe with household gloss or emulsion. Cellulose based paints should only be used with extreme care and close attention paid to the manufacturers instructions.

Pipe Contents Identification

Do not put self-adhesive labels directly onto pipe surface as this can cause stress cracking. It is recommended that some sort of barrier such as aluminium foil, is placed between the pipe and identification label.

Approvals

Astore products are manufactured in accordance with the following standards:

Astore PVC-U Fittings: pipe and cement are UK Water Regulations Advisory Scheme Approved and Listed (Licence N° 9902025).

Astore ABS Fittings: pipe and cement are UK Water Regulations Advisory Scheme Approved and Listed (Licence N° 9902026).

Astore PVC-U system is approved for use in public water supplies under Regulation 31 of the Water Supply (Water Quality) Regulations 2000.

Astore PVC-U system is listed in the 'List of Approved Products' published by the DWI.

ABS & PVC-U imperial

Astore offers a complete range of imperial size PVC-U and ABS pressure pipe and fittings to satisfy the requirements of installers, specifiers and end users. The systems offered by Astore encompass a wide range of pipes and fittings to BS imperial, metric and threaded standards. A complete range of pipeline accessories in PVC-U and ABS are also available.

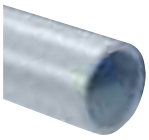
ABS Typical Applications:

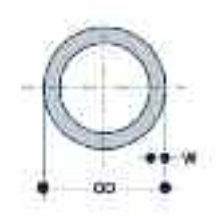
- Waste water
- Potable water
- Process water
- Chilled water
- Agriculture and horticulture
- Imperial size range: 1/2" to 8"
- Temperature: -40°C to 70°C
- Pressure rating: Up to Class E

PVC-U Typical Applications:

- Water treatment
- Waste water
- Agriculture and horticulture
- Swimming pools
- Irrigation
- Chemical applications
- Imperial size range: 1/2" to 12"
- Temperature: 5°C to 60°C
- Pressure rating: Up to Class E

PAC | ABS PRESSURE PIPE CLASS C

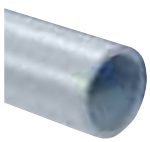




Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
1"	33.4	1.9	0.220	PAC.0320
1 1/4"	42.1	2.4	0.340	PAC.0400
1 1/2"	48.1	2.7	0.450	PAC.0500
2"	60.2	3.4	0.700	PAC.0630
2 1/2"	75.0	4.7	1.350	PAC.0750
3"	88.7	5.0	1.480	PAC.0900
4"	114.1	6.4	2.480	PAC.1100
5"	140.0	8.8	4.650	PAC.1400
6"	168.0	9.4	5.470	PAC.1600
8"	218.8	12.2	9.530	PAC.2250

6 metre lengths

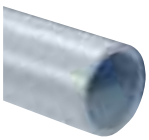
PAD | ABS PRESSURE PIPE CLASS D



Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
6"	168.0	12.3	6.88	PAD.1600

6 metre lengths

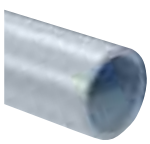
PAT | ABS PRESSURE PIPE CLASS T



Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
3/8"	17.0	3.4	0.160	PAT.0160
1/2"	21.2	3.5	0.220	PAT.0200
3/4"	26.6	3.5	0.290	PAT.0250
1"	33.4	4.2	0.440	PAT.0320
1 1/4"	42.1	5.1	0.680	PAT.0400
1 1/2"	48.1	5.8	0.870	PAT.0500
2"	60.2	7.0	1.310	PAT.0630

6 metre lengths

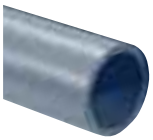
PAE | ABS PRESSURE PIPE CLASS E



Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
1/2"	21.2	1.9	0.140	PAE.0200
3/4"	26.6	2.4	0.210	PAE.0250
1"	33.4	3.0	0.330	PAE.0320
1 1/4"	42.1	3.8	0.520	PAE.0400
1 1/2"	48.1	4.4	0.680	PAE.0500
2"	60.2	5.4	1.060	PAE.0630
3"	88.7	8.1	2.280	PAE.0900
4"	114.1	10.3	3.760	PAE.1100

6 metre lengths

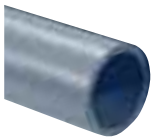
PRC | PVC-U PRESSURE PIPE CLASS C



Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
2"	60.2	2.5	0.646	PRC.0630
3"	88.7	3.5	1.421	PRC.0900
4"	114.1	4.5	2.334	PRC.1100
5"	140.0	5.5	3.485	PRC.1400
6"	168.0	6.6	4.997	PRC.1600
8"	218.8	7.8	7.693	PRC.2250

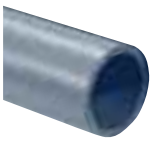
6 metre lengths

PRD | PVC-U PRESSURE PIPE CLASS D



Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
1 1/4"	42.1	2.2	0.428	PRD.0400
1 1/2"	48.1	2.5	0.550	PRD.0500
2"	60.2	3.1	0.839	PRD.0630
3"	88.7	4.6	1.827	PRD.0900
4"	114.1	6.0	3.036	PRD.1100
5"	140.0	7.3	4.542	PRD.1400
6"	168.0	8.8	6.532	PRD.1600
8"	218.8	10.3	9.979	PRD.2250

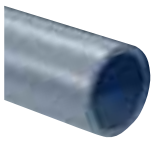
PRE | PVC-U PRESSURE PIPE CLASS E



Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
1/2"	21.2	1.7	0.170	PRE.0200
3/4"	26.6	1.9	0.240	PRE.0250
1"	33.4	2.2	0.335	PRE.0320
1 1/4"	42.1	2.7	0.509	PRE.0400
1 1/2"	48.1	3.1	0.661	PRE.0500
2"	60.2	3.9	1.036	PRE.0630
3"	88.7	5.7	2.220	PRE.0900
4"	114.1	7.3	3.652	PRE.1100
6"	168.0	10.8	7.894	PRE.1600

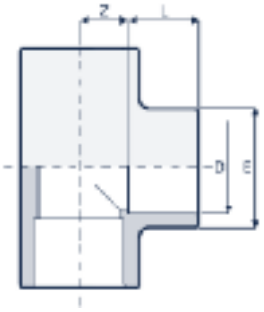
6 metre lengths

PR7 | PVC-U PRESSURE PIPE CLASS 7



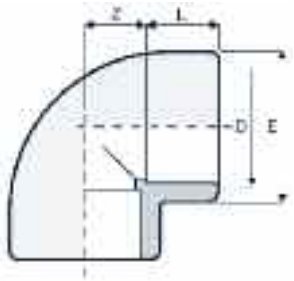
Nom Dia.	OD mm	Min. Wall (w) mm	Weight kg/m	Code
1/2"	21.2	3.7	0.300	PR7.0200
3/4"	26.6	3.9	0.418	PR7.0250
1"	33.4	4.5	0.615	PR7.0320
1 1/4"	42.1	4.8	0.844	PR7.0400
1 1/2"	48.1	5.1	1.039	PR7.0500
2"	60.2	5.5	1.440	PR7.0630

TI4 | TEE PLAIN



Nom Dia.	L	Z	E	Code	PVC-U gms	ABS gms	Box
1/2"	16	11	28	TI4.0200	35	27	400
3/4"	19	14	34	TI4.0250	50	38	220
1"	22	17	42	TI4.0320	70	53	130
1 1/4"	26	21	51	TI4.0400	120	91	70
1 1/2"	31	26	61	TI4.0500	185	141	90
2"	38	33	75	TI4.0630	305	232	45
2 1/2"	44	39	89	TI4.0750	505	384	30
3"	51	47	106	TI4.0900	795	604	18
4"	61	57	129	TI4.1100	1415	1075	10
5"	76	72	163	TI4.1400	2740	2082	4
6"	86	82	186	TI4.1600	3855	2930	3
8"	115	116	257	TI4.2250	10500	-	-
8"	115	100	257	TI4.2250	-	9600	-
10"	139	148	306	TI4.2800	18600	N/A	-
12"	165	175	363	TI4.3150	27200	N/A	-

GO4 | ELBOW 90° PLAIN

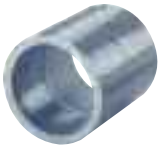


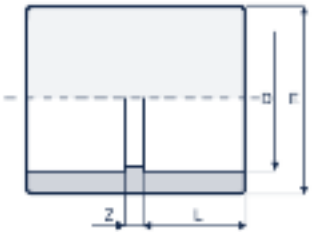
Nom Dia.	L	Z	E	Code	PVC-U gms	ABS gms	Box
1/2"	16	11	28	GO4.0200	25	19	600
3/4"	19	14	34	GO4.0250	35	27	350
1"	22	17	42	GO4.0320	35	27	200
1 1/4"	26	21	51	GO4.0400	95	72	100
1 1/2"	31	26	61	GO4.0500	145	110	60
2"	38	33	75	GO4.0630	230	175	60
2 1/2"	44	39	89	GO4.0750	385	293	40
3"	51	47	106	GO4.0900	600	456	25
4"	61	57	129	GO4.1100	1020	775	14
5"	76	72	163	GO4.1400	2125	1615	6
6"	86	82	186	GO4.1600	2920	2219	4
8"	115	116	257	GO4.2250	8850	-	-
8"	115	112	256	GO4.2250	-	6900	-
10"	140	146	307	GO4.2800	13300	N/A	-
12"	165	175	363	GO4.3150	20300	N/A	-

GY4 | ELBOW 45° PLAIN

Nom Dia.	L	Z	E	Code	PVC-U gms	ABS gms	Box
1/2"	16	5	28	GY4.0200	20	15	600
3/4"	19	6	34	GY4.0250	25	19	450
1"	22	8	42	GY4.0320	45	34	200
1 1/4"	26	10	51	GY4.0400	75	57	130
1 1/2"	31	12	61	GY4.0500	110	84	150
2"	38	14	75	GY4.0630	230	175	90
2 1/2"	44	17	89	GY4.0750	300	228	50
3"	51	20	106	GY4.0900	420	319	25
4"	61	24	129	GY4.1100	835	635	16
5"	76	31	163	GY4.1400	1620	1231	6
6"	86	35	186	GY4.1600	2265	1721	5
8"	116	65	259	GY4.2250	7250	5620	-
10"	140	66	307	GY4.2800	9800	N/A	-
12"	165	78	363	GY4.3150	15500	N/A	-

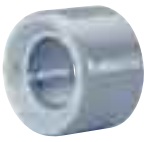
MA4 | SOCKET PLAIN





Nom Dia.	L	Z	E	Code	PVC-U gms	ABS gms	Box
1/2"	16	3	28	MA4.0200	15	11	900
3/4"	19	3	34	MA4.0250	20	15	500
1"	22	3	42	MA4.0320	30	23	300
1 1/4"	26	3	51	MA4.0400	60	46	150
1 1/2"	31	3	61	MA4.0500	85	65	100
2"	38	3	75	MA4.0630	140	106	50
2 1/2"	44	4	89	MA4.0750	215	163	70
3"	51	5	106	MA4.0900	355	270	40
4"	61	6	129	MA4.1100	605	460	25
5"	76	8	162	MA4.1400	1230	935	10
6"	86	8	182	MA4.1600	1380	1049	6
8"	115	12	195	MA4.2250	4950	-	-
8"	119	11	257	MA4.2250	-	3668	-
10"	140	10	308	MA4.2800	5800	N/A	-
12"	165	13	362	MA4.3150	9800	N/A	-

RC4 | REDUCING BUSH PLAIN



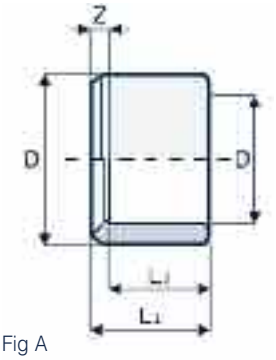


Fig A

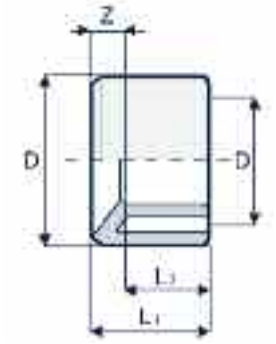


Fig B

Nom Dia. DxD	L_1	L_2	Z	Fig.	Code	PVC-U gms	ABS gms	Box
3/4 x 1/2"	19.5	16.5	3	A	RC4.025B	5.5	4	300
1 x 1/2"	22.5	16	6.5	A	RC4.032B	18	14	200
1 x 3/4"	22.5	19.5	3	A	RC4.032B	10	8	200
1 1/4 x 1"	27	23	4	A	RC4.040D	15	11	120
1 1/2 x 3/4"	30	20	10	B	RC4.050C	45	34	70
1 1/2 x 1"	30	22.5	7.5	A	RC4.050D	44	33	70
1 1/2 x 1 1/4"	31	27	4	A	RC4.050E	35	27	70
2 x 1"	36	29	7	A	RC4.063D	80	61	90
2 x 1 1/4"	38	26	12	B	RC4.063E	80	61	150
2 x 1 1/2"	38	32	7	B	RC4.063F	65	49	80
2 1/2 x 2"	43.5	36	7.5	A	RC4.075G	85	65	28
3 x 1 1/2"	50.5	30	20.5	B	RC4.090F	220	167	36
3 x 2"	51	38	13	B	RC4.090G	205	156	36
3 x 2 1/2"	50.5	43.5	7	A	RC4.090H	150	114	36
4 x 2"	63	36	27	B	RC4.110G	375	285	18
4 x 3"	63	51	12	A	RC4.110I	280	213	18
5 x 4"	76	61	15	B	RC4.140L	460	350	30
6 x 4"	90	63	27	B	RC4.160L	795	604	9
8 x 6"	115.5	90	25.5	A	RC4.225O	1400	-	-
8 x 6"	110	87	23	A	RC4.225O	-	1185	-
10 x 8"	140	115	25	A	RC4.280R	3500	N/A	-
12 x 10"	165	140	25	A	RC4.315S	4100	N/A	-

CA4 | CAP PLAIN

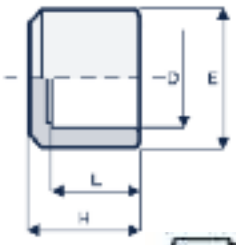


Fig A

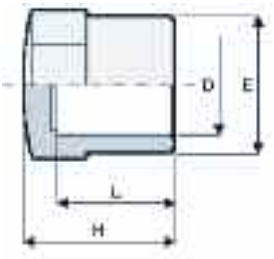
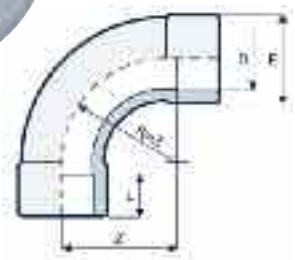


Fig B

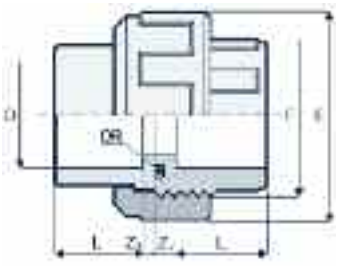
Nom Dia.	L	H	E	Fig.	Code	PVC-U gms	ABS gms	Box
1/2"	16	24	28	A	CA4.0200	49	37	1200
3/4"	19	27	34	A	CA4.0250	49	37	800
1"	22	30	42	A	CA4.0320	33	25	400
1 1/4"	26	35	51	A	CA4.0400	50	38	300
1 1/2"	31	40	61	A	CA4.0500	70	53	150
2"	38	48	75	A	CA4.0630	115	87	95
2 1/2"	44	59	89	B	CA4.0750	228	173	50
3"	51	67	106	B	CA4.0900	349	265	30
4"	61	77	129	B	CA4.1100	530	403	20
5"	76	108	162	A	CA4.1400	860	654	20
6"	86	126	181	A	CA4.1600	1317	990	-

CU4 | BEND 90° PLAIN



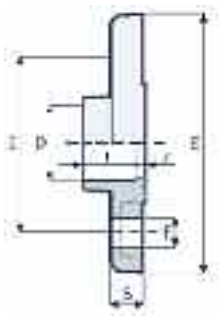
Nom Dia.	L	Z	E	Code	PVC-U gms	ABS gms	Box
1/2"	16	40	28	CU4.0200	45	34	300
3/4"	19	50	34	CU4.0250	75	57	150
1"	22	64	41	CU4.0320	120	91	90
1 1/4"	26	80	51	CU4.0400	205	156	100
1 1/2"	31	100	65	CU4.0500	310	236	50
2"	38	126	77	CU4.0630	510	388	25
2 1/2"	44	150	94	CU4.0750	995	756	15
3"	51	180	113	CU4.0900	1765	1341	10
4"	61	220	137	CU4.1100	2805	2132	5

BO4 | UNION PLAIN



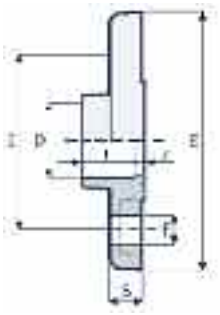
Nom Dia.	L	Z_1	Z_2	F	E	O-Ring	Code	PVC-U gms	ABS gms	Box
1/2"	16	3	10	1"	42	4081	BO4.0200	42	32	350
3/4"	19	3	10	1/4"	52	4112	BO4.0250	70	53	200
1"	22	3	10	1/2"	59	4131	BO4.0320	97	74	150
1 1/4"	26	3	12	2"	72	6162	BO4.0400	156	119	80
1 1/2"	31	3	14	1/4"	79	6187	BO4.0500	216	164	50
2"	38	3	18	3/4"	96	6237	BO4.0630	368	280	30
2 1/2"	44	3	20	1/2"	116.6	6312	BO4.0750	560	426	15
3"	51	5	20	4"	131	6362	BO4.0900	750	570	12
4"	61	5	20	5"	159.4	6450	BO4.1100	1300	988	12

FF4 | FULL FACE FLANGE DRILLED BS 10 TABLE D AND E



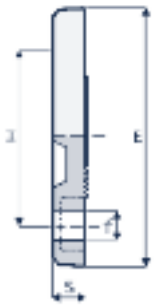
Nom Dia.	L	Z	E	I	f	S	No. Holes	Code	PVC-U gms	ABS gms	Box
1/2"	16	4	95	67	14	11	4	FF4.0200	70	53	150
3/4"	19	4	105	73	14	12	4	FF4.0250	87	66	120
1"	22	4	115	83	14	14	4	FF4.0320	137	104	80
1 1/4"	26	4	140	87	14	15	4	FF4.0400	237	180	60
1 1/2"	31	5	150	98	14	16	4	FF4.0500	80	213	40
2"	38	5	165	115	18	18	4	FF40630	395	300	25
3"	51	7	200	145	18	20	4	FF4.0900	780	593	10

FFN | FULL FACE FLANGE DRILLED PN16



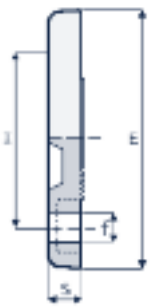
Nom Dia.	L	Z	E	I	f	S	No. Holes	Code	PVC-U gms	ABS gms
1/2"	15	4.5	95	65	14	11	4	FFN.0200	70	53
3/4"	19	4.5	105	75	14	12	4	FFN.0250	105	80
1"	22	4.5	115	85	14	14	4	FFN.0320	148	112
1 1/4"	26	4.5	142	100	18	15	4	FFN.0400	225	171
1 1/2"	31	4.5	152	110	18	16	4	FFN.0500	285	217
2"	38	4.5	165	125	18	18	4	FFN.0630	420	319
2 1/2"	44	6	185	145	18	19	4	FFN.0750	505	384
3"	51	7	200	160	18	20	8	FFN.0900	735	558
4"	61	8	220	180	18	22	8	FFN.1100	930	707

FCD | BLANK FLANGE DRILLED TABLE D AND E



Nom Dia.	E	I	f	S	No. Holes	Code	PVC-U gms	ABS gms	Box
1/2"	95	67	14	11	4	FCD.0200	99	75	250
3/4"	105	73	14	12	4	FCD.0250	106	81	150
1"	115	83	14	14	4	FCD.0320	206	157	120
1 1/2"	150	98	14	16	4	FCD.0500	327	249	70
2"	165	115	18	18	4	FCD.0630	358	272	40
3"	200	145	18	20	4	FCD.0900	570	433	30
4"	220	178	18	22	8	FCD.1100	766	582	20
6"	285	235	22	28	8	FCD.1600	1455	1106	20

FCN | BLANK FLANGE DRILLED PN16

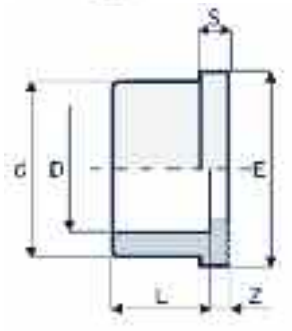


Nom Dia.	E	I	f	S	No. Holes	Code	PVC-U gms	ABS gms	Box
1/2"	95	65	14	11	4	FCN.0200	99	75	250
3/4"	105	75	14	12	4	FCN.0250	106	81	150
1"	115	85	14	14	4	FCN.0320	206	157	120
1 1/2"	150	110	18	16	4	FCN.0500	327	249	70
2"	165	125	18	18	4	FCN.0630	358	272	40
3"	200	160	18	20	8	FCN.0900	570	433	30
4"	220	180	18	22	8	FCN.1100	766	582	20
6"	285	240	22	28	8	FCN.1600	1455	1106	20

FCP | BLANK FLANGE UNDRILLED

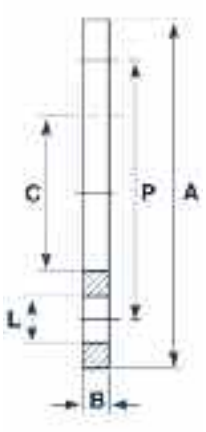
Nom Dia.	E	S	Code	PVC-U gms	ABS gms
1/2"	95	13	FCP.0200	120	91
3/4"	105	13	FCP.0250	145	110
1"	115	13	FCP.0320	160	122
1 1/4"	140	13	FCP.0400	205	156
1 1/2"	150	13	FCP.0500	250	190
2"	165	13	FCP.0630	300	220
2 1/2"	185	20	FCP.0750	510	387
3"	200	20	FCP.0900	690	524
4"	220	20	FCP.1100	950	722
6"	250	25	FCP.1600	2100	1596

QR4 | STUB FLANGE SERRATED FACE



	Nom Dia.	L	Z	d	E	S	Code	PVC-U gms	ABS gms	Box
	1/2"	16	3	27	34	6	QR4.0200	10	8	1200
	3/4"	19	3	33	41	7	QR4.0250	14	11	750
	1"	22	3	41	50	7	QR4.0320	33	25	400
	1 1/4"	26	3	50	61	8	QR4.0400	37	28	250
	1 1/2"	31	3	61	73	8	QR4.0500	60	46	120
	2"	38	3	76	90	9	QR4.0630	110	84	80
	2 1/2"	44	3	90	106	10	QR4.0750	165	125	50
	3"	51	5	108	125	11	QR4.0900	270	205	60
	4"	61	5	131	150	12	QR4.1100	445	338	40
PVC-U	5"	76	5	165	188	17	QR4.1400	735	-	20
ABS	5"	76	7	165	180	14	QR4.1400	-	680	20
	6"	86	5	191	212	16	QR4.1600	1250	950	12
	8"	116	8	250	270	20	QR4.2250	2105	-	6
PVC-U	8"	118	14	257	269	26	QR4.2250	-	2075	6
ABS	10"	147	8	308	326	29	QR4.2800	3450	N/A	-
	12"	169	9	362	378	33	QR4.3150	5060	N/A	-

BR4



DRILLED TO NP16 (BS 4504)

Nom Dia.	OD (A)	ID (C)	Thickness (B)	PCD (P)	No. Holes	Size of bolt holes (L)	Code
1/2" - 20mm	90	28	8	65	4	14	G BR4.020N
3/4" - 25mm	105	34	8	75	4	14	G BR4.025N
1" - 32mm	115	42	8	85	4	14	G BR4.032N
1 1/4" - 40mm	140	51	8	100	4	18	G BR4.040N
1 1/2" - 50mm	150	62	8	110	4	18	G BR4.050N
2" - 63mm	165	78	8	125	4	18	G BR4.063N
2 1/2" - 75mm	185	92	8	145	4	18	G BR4.075N
3" - 90mm	200	110	10	160	8	18	G BR4.090N
4" - 110mm	200	133	10	180	8	18	G BR4.110N
5" - 140mm	250	167	10	210	8	18	G BR4.140N
6"	285	196	10	240	8	22	G BR4.160N
160mm	285	192	10	240	8	22	G BR1.1600
8" - 225mm (PVC)	340	250	15	295	12	22	G BR4.225N
8" (ABS)	339	255	11	295	12	22	G BR4.22DN
10"	405	308	20	355	12	26	G BR4.280N
12	460	364	20	410	12	26	G BR4.315N

DRILLED TO TABLE D (BS10)

Nom Dia.	OD (A)	ID (C)	Thickness (B)	PCD (P)	No. Holes	Size of bolt holes (L)	Code
1/2" - 20mm	96	29	6	68	4	16	G BR4.0200
3/4" - 25mm	104	34	7	73	4	14	G BR4.0250
1" - 32mm	114	42	7	84	4	14	G BR4.0320
1 1/4" - 40mm	121	51	7	88	4	16	G BR4.0400
1 1/2" - 50mm	134	62	8	98	4	14	G BR4.0500
2" - 63mm	152	78	8	114	4	18	G BR4.0630
2 1/2" - 75mm	159	92	8	127	4	18	G BR4.0750
3" - 90mm	184	110	10	95	4	18	G BR4.0900
4" - 110mm	216	133	10	178	8	18	G BR4.110E
4" - 110mm	216	133	10	178	4	18	G BR4.1100
5" - 140mm	254	167	10	210	8	18	G BR4.1400
6"	279	196	10	235	8	22	G BR4.1600
8" - 225mm (PVC)	337	250	15	292	8	22	G BR4.2250
8" (ABS)	337	256	15	292	8	22	G BR4.225D
10"	406	308	20	356	12	22	G BR4.2800

DRILLED TO ASA 150

Nom Dia.	OD (A)	ID (C)	Thickness (B)	PCD (P)	No. Holes	Size of bolt holes (L)	Code
1/2" - 20mm	89	28	8	60	4	16	G BR4.020A
3/4" - 25mm	99	34	6	70	4	16	G BR4.025A
1" - 32mm	108	42	8	79	4	16	G BR4.032A
1 1/4" - 40mm	118	51	8	89	4	16	G BR4.040A
1 1/2" - 50mm	127	62	8	98	4	16	G BR4.050A
2" - 63mm	152	78	8	121	4	19	G BR4.063A
2 1/2" - 75mm	178	92	8	140	4	19	G BR4.075A
3" - 90mm	191	110	10	152	4	19	G BR4.090A
4" - 110mm	229	133	10	191	8	19	G BR4.110A
5" - 140mm	254	167	10	216	8	22	G BR4.140A
6"	279	196	10	241	8	22	G BR4.160A
8" - 225mm (PVC)	343	250	15	298	8	22	G BR4.225A
8" (ABS)	340	255	12	298	8	22	G BR4.22DA

GFF | EPDM GASKET - FULL FACE DRILLED BS10 TABLE D OR E

Nom Dia.	E	S	No. Holes	gms	Code
1/2"	95	3	4	30	GFF.0200
3/4"	101	3	4	36	GFF.0250
1"	114	3	4	35	GFF.0320
1 1/4"	120	3	4	40	GFF.0400
1 1/2"	135	3	4	55	GFF.0500
2"	156	3	4	57	GFF.0630
2 1/2"	165	3	4	56	GFF.0750
3"	186	3	4	99	GFF.0900
4"	219	3	8	114	GFF.1100
4"	219	3	4	116	GFF.110E
6"	279	3	8	160	GFF.1600
8"	340	3	8	162	GFF.2250

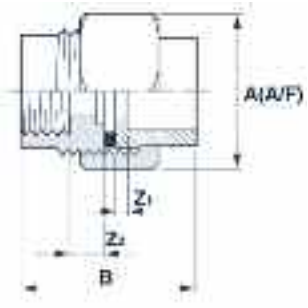
GFN | EPDM GASKET - FULL FACE DRILLED PN10/16

Nom Dia.	E	S	No. Holes	gms	Code
1/2"	95	3	4	30	GFN.0200
3/4"	101	3	4	36	GFN.0250
1"	114	3	4	35	GFN.0320
1 1/4"	120	3	4	40	GFN.0400
1 1/2"	135	3	4	55	GFN.0500
2"	156	3	4	57	GFN.0630
2 1/2"	176	3	4	78	GFN.0750
3"	186	3	8	99	GFN.0900
4"	219	3	8	114	GFN.1100
6"	279	3	8	160	GFN.1600
8"	340	3	12	195	GFN.2250

GQP | EPDM GASKET FOR SERRATED STUB FLANGE (QR4)

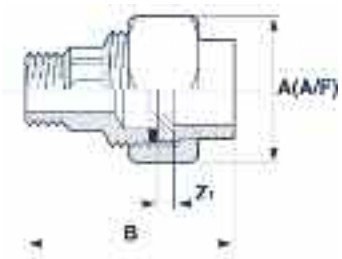
Nom Dia.	I	E	S	Code
1/2"	20	32	2	GQP.0200
3/4"	25	39	2	GQP.0250
1"	32	48	2	GQP.0320
1 1/4"	40	59	2	GQP.0400
1 1/2"	50	71	2	GQP.0500
2"	63	88	2	GQP.0630
2 1/2"	75	104	2	GQP.0750
3"	90	123	2	GQP.0900
4"	110	148	3	GQP.1100
5"	140	186	3	GQP.1400
6"	160	211	3	GQP.1600
8"	220	270	3	GQP.2250

FB6 | COMPOSITE UNIONS PLAIN / BSP THREADED FEMALE BRASS



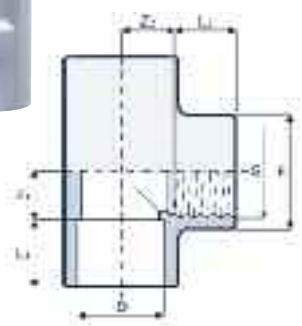
Size	PN	A	B	Z_1	Z_2	gms	Code
1/2	15	40	42	3	7	165	FB6.0200
3/4	15	48	49	3	9	290	FB6.0250
1	15	55	59	11	12	310	FB6.0320
1 1/4	15	65	68	9	10	450	FB6.0400
1 1/2	15	79	75	12	14	800	FB6.0500
2	15	88	90	14	14	950	FB6.0630

MB6 | COMPOSITE UNIONS PLAIN / BSP THREADED MALE BRASS



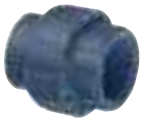
Size	PN	A	B	Z_1	gms	Code
1/2	15	40	54	3	175	MB6.0200
3/4	15	48	74	3	320	MB6.0250
1	15	55	86	8	420	MB6.0320
1 1/4	15	65	94	10	620	MB6.0400
1 1/2	15	78	108	13	1000	MB6.0500
2	15	88	129	15	1200	MB6.0630

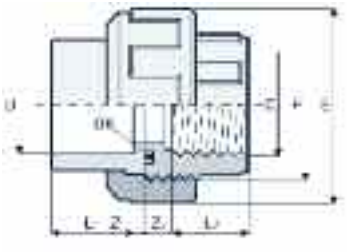
TI6 | TEE PLAIN/THREADED BRANCH



Nom Dia. D&G	L_1	L_2	Z_1	Z_2	E	Code	PVC-U gms	ABS gms	Box
1/2"	16	15	11	12	28	TI6.0200	49	37	400
3/4"	19	16	14	16	34	TI6.0250	55	42	220
1"	22	19	17	20	42	TI6.0320	75	57	130
1 1/4"	26	21	21	25	51	TI6.0400	125	95	70
1 1/2"	31	21	26	35	61	TI6.0500	200	152	90
2"	38	25	33	45	75	TI6.0630	380	289	45
2 1/2"	44	30	39	52	89	TI6.0750	530	403	30
3"	51	33	47	64	106	TI6.0900	845	642	18

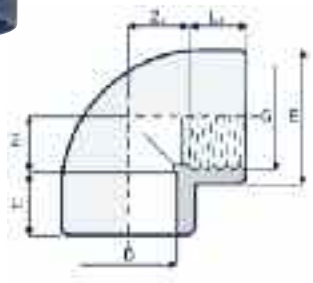
BO6 | UNION PLAIN/THREADED





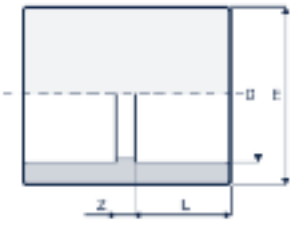
Nom Dia. D&G	L_1	L_2	Z_1	Z_2	F	E	'O' Ring	Code	PVC-U gms	ABS gms	Box
1/2"	16	15	3	11.0	1"	42	4081	BO6.0200	42	32	350
3/4"	19	16	3	12.7	11/4"	52	4112	BO6.0250	70	53	200
1"	22	19	3	12.9	11/2"	59	4131	BO6.0320	96	73	150
11/4"	26	21	3	16.6	2"	72	6162	BO6.0400	155	118	80
11/2"	31	21	3	23.6	21/4"	79	6187	BO6.0500	237	180	50
2"	38	25	3	30.3	23/4"	96	6237	BO6.0630	405	308	30

GO6 | ELBOW 90° PLAIN/THREADED



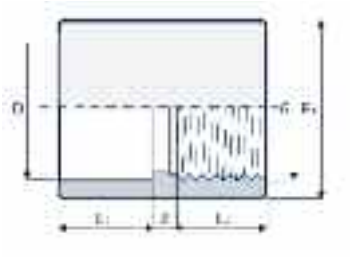
Nom Dia. D&G	L_1	L_2	Z_1	Z_2	E	Code	PVC-U gms	ABS gms	Box
1/2"	16.5	15	10.5	12	27	GO6.0200	13	19	150
3/4"	19.5	16.3	13.5	16.7	33	GO6.0250	25	29	180
1"	22.5	19.1	17	20.4	41	GO6.0320	55	46	150
11/4"	27	21.5	21.5	27	54	GO6.0400	120	72	40
11/2"	31	21.4	27	36.6	61	GO6.0500	170	125	40
2"	38	25.7	33.5	45.8	76	GO6.0630	340	213	50
21/2"	44	30.3	40.5	54.3	90	GO6.0750	420	317	40
3"	51	33.3	48	65.7	108	GO6.0900	750	524	9
4"	63	39.3	58	81.7	131	G06.1100	1050		10

MA5 | IMPERIAL/METRIC SOCKET PLAIN



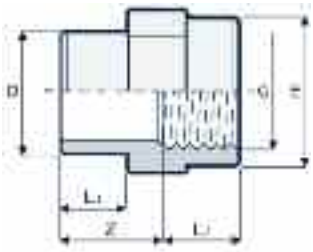
Diameter			L	Z	E	Code	PVC-U gms	Box
1/2"	x	20	16	2.5	27	MA5.0200	12	200
3/4"	x	25	19	2.5	33	MA5.0250	22	120
1"	x	32	22	2.5	41	MA5.0320	44	60
11/4"	x	40	26	2	50	MA5.0400	65	40
11/2"	x	50	31	4	61	MA5.0500	125	40
2"	x	63	38	5	76	MA5.0630	210	30
21/2"	x	75	44	4	90	MA5.0750	250	-
3"	x	90	51	5.5	108	MA5.0900	438	8
4"	x	110	61	4	132	MA5.1100	852	12

MA6 | SOCKET PLAIN/THREADED



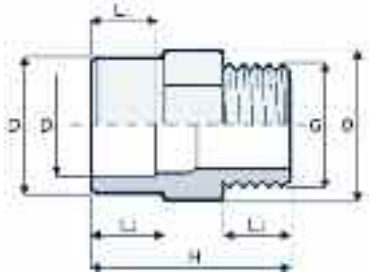
Nom Dia. D&G	L_1	L_2	Z	E_1	Code	PVC-U gms	ABS gms	Box
1/2"	16	15	4	27	MA6.0200	15	11	200
3/4"	19.5	16.3	5.2	33	MA6.0250	25	19	120
1"	22.5	19.1	4.5	41	MA6.0320	45	30	60
1 1/4"	27	21.4	4	50	MA6.0400	65	46	40
1 1/2"	30	21.4	8	61	MA6.0500	100	76	40
2"	36	25.7	9	76	MA6.0630	160	137	30
2 1/2"	44	30.2	17.8	90	MA6.0750	260	171	70
3"	51	33	22.7	108	MA6.0900	449	270	8
4"	61	39	10	129	MA6.1100	555	422	25

AF6 | ADAPTOR MALE PLAIN/FEMALE THREADED



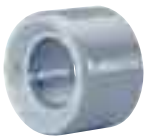
Nom Dia. D&G	L_1	L_2	E	Z	Code	PVC-U gms	ABS gms	Box
1/2"	16	15.0	28	22	AF6.0200	20	15	800
3/4"	19	16.3	34	29	AF6.0250	30	23	500
1"	22	19.1	42	32	AF6.0320	40	30	300
1 1/4"	26	21.4	51	37	AF6.0400	76	58	150
1 1/2"	31	21.4	58	42	AF6.0500	100	76	100
2"	38	25.7	72	50	AF6.0630	140	106	60

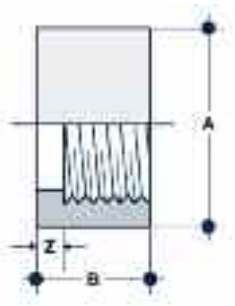
AM6 | ADAPTOR FEMALE PLAIN/MALE THREADED



Nom Dia. DxDxG	L_1	L_2	L_3	H	O	Code	PVC-U gms	ABS gms	Box
1/2" x 3/4" x 1/2"	16	19	15.0	46	30	AM6.0200	15	11	800
3/4" x 1" x 3/4"	19	22	16.3	50	36	AM6.0250	25	19	400
1" x 3/4" x 1"	22	26	19.1	57	46	AM6.0320	40	30	250
1 1/4" x 1" x 1 1/4"	26	31	21.4	67	55	AM6.0400	70	53	130
1 1/2" x 1 1/4" x 1 1/2"	31	38	21.4	74	65	AM6.0500	115	87	80
2" x 1 1/2" x 2"	38	44	25.7	84	80	AM6.0630	160	122	60
2 1/2" x 2" x 2 1/2"	44	51	30.2	99	95	AM6.0750	285	217	45
3" x 2 1/2" x 3"	51	61	33.3	113	115	AM6.0900	490	372	20
4" x 3" x 4"	61	68	39.3	120	130	AM6.1100	490	372	30

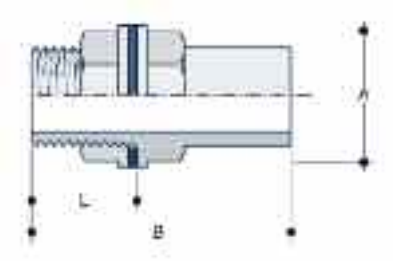
RC6 | REDUCING BUSH PLAIN/THREADED





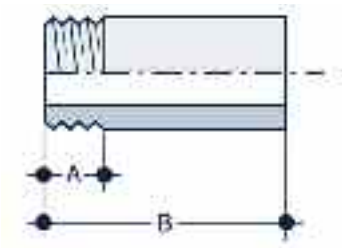
Nom Dia.	B	Z	A	Code	PVC-U gms	ABS gms
1/2" x 3/8"	16	6	21.4	RC6.020A	5	4
3/4" x 1/2"	20	5	26.5	RC6.025B	9	7
1" x 3/4"	25	6	33.6	RC6.032C	15	12

TC6 | TANK CONNECTOR PLAIN/THREADED



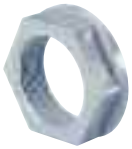
Nom Dia.	L	B	A	Code	PVC-U gms	ABS gms
1/2"	42	76	28	TC6.0200	34	26
3/4"	42	76	33	TC6.0250	39	30
1"	55	101	46	TC6.0320	110	80
1 1/4"	70	120	50	TC6.0400	154	120
1 1/2"	73	127	60	TC6.0500	207	170
2"	85	152	79	TC6.0630	358	325
2 1/2"	94	164	90	TC6.0750	471	430
3"	112	202	105	TC6.0900	656	700
4"	130	230	135	TC6.1100	1345	1225

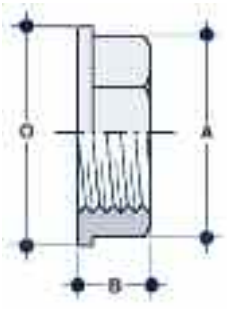
BN6 | BARREL NIPPLE PLAIN/THREADED



Nom Dia.	A	B	Code	PVC-U gms	ABS gms
3/8"	13	42	BN6.0160	10	5
1/2"	16	49	BN6.0200	15	10
3/4"	18	55	BN6.0250	20	15
1"	21	62	BN6.0320	35	25
1 1/4"	23	72	BN6.0400	60	45
1 1/2"	30	87	BN6.0500	45	70
2"	30	87	BN6.0630	115	105
2 1/2"	35	106	BN6.0750	180	120
3"	38	127	BN6.0900	300	252
4"	40	150	BN6.1100	560	525

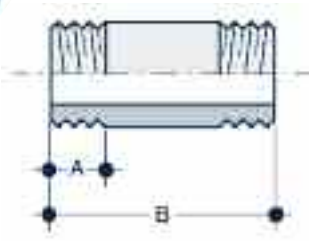
NU2 | BACK NUT THREADED





Nom Dia. BSP	A	B	O	Code	PVC-U gms	ABS gms	Box
1/2"	29	13	37	NU2.0200	10	10	1500
3/4"	33	14	43	NU2.0250	10	10	1200
1"	46	16	56	NU2.0320	25	20	610
1 1/4"	50	18	59	NU2.0400	30	20	400
1 1/2"	60	19	70	NU2.0500	40	30	320
2"	79	21	92	NU2.0630	80	65	156
2 1/2"	95	23	105	NU2.0750	105	85	120
3"	110	27	125	NU2.0900	165	130	120
4"	139	30	152	NU2.1100	260	205	56

BA2 | BARREL NIPPLES THREADED



Nom Dia. BSPT	A	B	Code	PVC-U gms	ABS gms
1/2"	16	49	BA2.0200	15	10
3/4"	18	55	BA2.0250	20	15
1"	21	62	BA2.0320	35	25
1 1/4"	23	72	BA2.0400	55	40
1 1/2"	30	87	BA2.0500	75	60
2"	30	87	BA2.0630	105	95
2 1/2"	30	105	BA2.0750	169	157
3"	38	127	BA2.0900	250	245
4"	40	150	BA2.1100	500	490

ST4 | PIPE BRACKET IN PP*

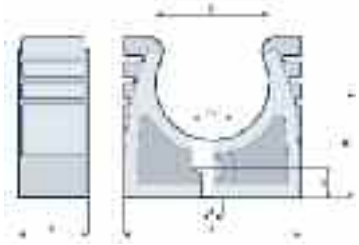


Fig A

Nom Dia.	H	L	d2	d1	h	F	Fig.	Code	gms	Box	Pack
3/8"	22.0	28.0	5.5	10.5	7.5	16.0	A	ST4.0160	6	1500	10
1/2"	24.5	33.0	5.5	10.5	7.5	16.0	A	ST4.0200	7	1100	10
3/4"	28.2	38.0	5.5	10.5	7.5	16.0	A	ST4.0250	9	900	10
1"	31.5	48.0	5.5	10.5	7.5	16.0	A	ST4.0320	13	600	10
1 1/4"	41.5	54.0	5.5	10.5	7.5	20.0	B	ST4.0400	23	370	10
1 1/2"	46.5	64.5	7.0	14.0	9.0	23.0	B	ST4.0500	29	240	10
2"	56.0	80.0	7.0	14.0	9.0	25.0	B	ST4.0630	39	280	10
2 1/2"	63.6	94.0	9.0	17.0	10.5	27.5	B	ST4.0750	55	240	10
3"	72.0	115.0	9.0	17.0	13.5	30.0	B	ST4.0900	85	100	10
4"	81.0	138.5	9.0	17.0	13.5	30.0	B	ST4.1100	100	100	10

* AVAILABLE ALSO IN BLACK PE

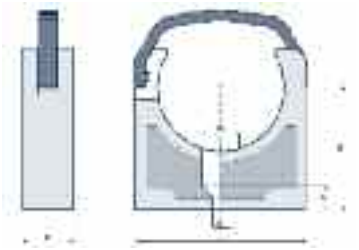


Fig B

SOLVENT CEMENT

Description	Volume (l)	Code
ABS solvent cement	0.5	S ACO.0200
PVC solvent cement	0.5	R PCO.0200
ECO cleaner	0.5	M CFO.0200

Description	Volume (l)	Code
PVC chemical resistant cement	1	R PCO.0100
PVC chemical resistant cleaner	0.5	M CFO.0100

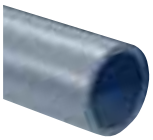
PVC-U metric

PVC-U Typical Applications:

- Water treatment
- Waste water
- Agriculture and horticulture
- Swimming pools
- Irrigation
- Chemical applications
- Metric size range: 16mm to 315mm
- Temperature: 5°C to 60°C
- Pressure rating: Up to Class E

PIPE

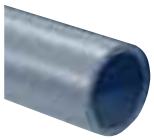
PVC-U PRESSURE PIPE 10 BAR

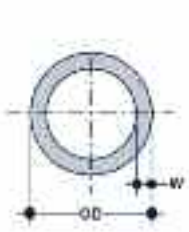


Nom dia.	Min. Wall (w) mm	Weight kg/m	Length m	Code
20	1.5	0.096	5	R P10.0200
25	1.5	0.146	5	R P10.0250
32	1.6	0.24	5	R P10.0320
40	1.9	0.35	5	R P10.0400
50	2.4	0.552	5	R P10.0500
63	2.4	0.705	5	R P10.0630
75	2.9	0.998	5	R P10.0750
90	3.5	1.443	5	R P10.0900
110	4.2	2.113	5	R P10.1100
125	4.8	2.718	5	R P10.1250
160	6.2	4.491	5	R P10.1600

5 metre lengths

PVC-U PRESSURE PIPE 16 BAR



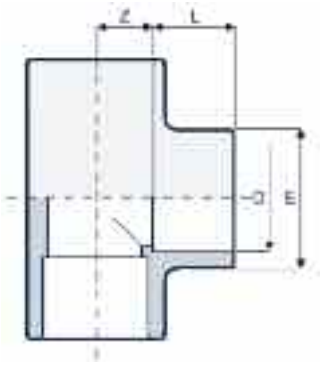


Nom dia.	Min. Wall (w) mm	Weight kg/m	Length m	Code
20	1.5	0.137	5	R P16.0200
25	1.9	0.212	5	R P16.0250
32	3.0	0.342	5	R P16.0320
40	3.0	0.525	5	R P16.0400
50	3.7	0.809	5	R P16.0500
63	3.8	1.064	5	R P16.0630
75	4.5	1.5	5	R P16.0750
90	5.4	2.152	5	R P16.0900
110	6.6	3.197	5	R P16.1100
125	6.8	3.929	5	R P16.1250
160	9.5	6.668	5	R P16.1600

5 metre lengths

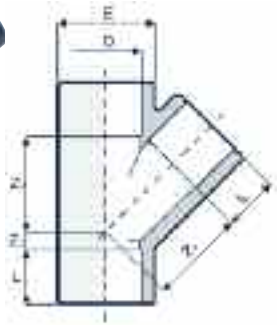
Note: Other pressure ratings and sizes available on request.

TI1 | TEE 90°



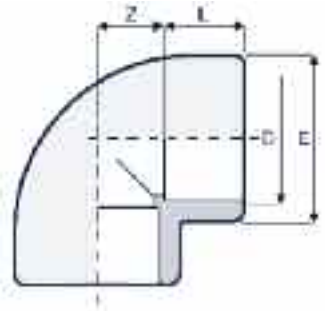
D	L	Z	E	Weight (g)	Code	Box	Master
16	14	9	23	13	TI1.0160	700	C
20	16	11	28	35	TI1.0200	400	C
25	19	14	34	50	TI1.0250	220	C
32	22	17	42	70	TI1.0320	130	C
40	26	21	51	120	TI1.0400	70	C
50	31	26	61	185	TI1.0500	80	B
63	38	33	75	305	TI1.0630	45	B
75	44	39	89	505	TI1.0750	30	B
90	51	47	106	795	TI1.0900	18	B
110	61	57	129	1415	TI1.1100	10	B
125	69	66	146	2020	TI1.1250	6	B
140	76	72	163	2740	TI1.1400	4	B
160	86	82	186	3855	TI1.1600	3	B
180	96	94	215	6180	TI1.1800	3	B
200	106	102	230	6960	TI1.2000	1	B
225	119	115	258	9600	TI1.2250	1	B
250	131	128	286	13250	TI1.2500	–	–
280	146	144	319	17840	TI1.2800	–	–
315	164	162	360	25300	TI1.3150	–	–

TY1 | TEE 45°



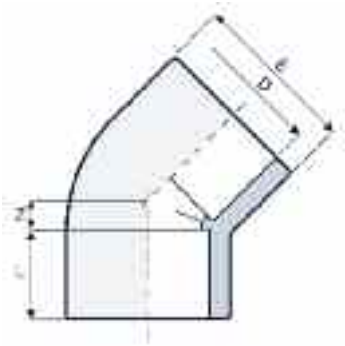
D	L	Z_1	Z_2	E	Weight (g)	Code	Box	Master
20	16	7	30	27	39	TY1.0200	100	–
25	19	7	35	33	62	TY1.0250	50	–
32	22	9	44	41	110	TY1.0320	60	–
40	26	11	55	50	190	TY1.0400	50	C
50	31	12	68	63	335	TY1.0500	20	C
63	38	15	85	78	570	TY1.0630	15	C

GO1 | ELBOW 90°



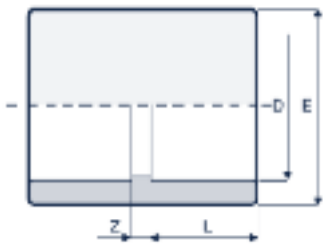
D	L	Z	E	Weight (g)	Code	Box	Master
16	14	9	23	14	GO1.0160	1100	C
20	16	11	28	25	GO1.0200	600	C
25	19	14	34	35	GO1.0250	350	C
32	22	17	42	35	GO1.0320	180	C
40	26	21	51	95	GO1.0400	100	C
50	31	26	61	145	GO1.0500	60	C
63	38	33	75	230	GO1.0630	60	B
75	44	39	89	385	GO1.0750	40	B
90	51	47	106	600	GO1.0900	25	B
110	61	57	129	1020	GO1.1110	14	B
125	69	66	146	1385	GO1.1250	8	B
140	76	72	163	2125	GO1.1400	6	B
160	86	82	186	2920	GO1.1600	4	B
180	96	94	215	5200	GO1.1800	4	B
200	106	102	230	5400	GO1.2000	2	B
225	119	115	258	7550	GO1.2250	1	B
250	131	188	287	12480	GO1.2500	–	–
280	147	210	325	17000	GO1.2800	–	–
315	164	236	359	23370	GO1.3150	–	–

GY1 | ELBOW 45°



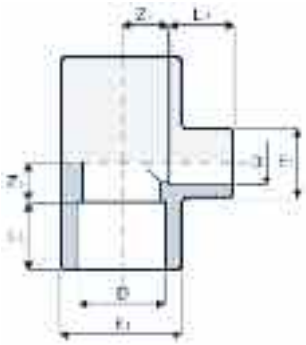
D	L	Z	E	Weight (g)	Code	Box	Master
16	14	5	23	20	GY1.0160	1000	C
20	16	5	28	20	GY1.0200	600	C
25	19	6	34	25	GY1.0250	400	C
32	22	8	42	45	GY1.0320	200	C
40	26	10	51	75	GY1.0400	130	C
50	31	12	61	110	GY1.0500	150	B
63	38	14	75	230	GY1.0630	90	B
75	44	17	89	300	GY1.0750	50	B
90	51	20	106	420	GY1.0900	25	B
110	61	24	129	835	GY1.1100	16	B
125	69	27	145	1085	GY1.1250	12	B
140	76	31	163	1620	GY1.1400	6	B
160	86	35	186	2265	GY1.1600	5	B
200	108	48	230	4500	GY1.2000	2	B
225	121	55	260	6400	GY1.2250	2	B
250	131	58	286	7700	GY1.2500	–	–
280	146	62	320	10460	GY1.2800	–	–
315	164	66	359	15500	GY1.3150	–	–

MA1 | SOCKET



D	L	Z	E	Weight (g)	Code	Box	Master
16	14	3	23	10	MA1.0160	1450	C
20	16	3	28	15	MA1.0200	900	C
25	19	3	34	20	MA1.0250	500	C
32	22	3	42	30	MA1.0320	300	C
40	26	3	51	60	MA1.0400	150	C
50	31	3	61	85	MA1.0500	100	C
63	38	3	75	140	MA1.0630	50	C
75	44	4	89	215	MA1.0750	70	B
90	51	5	106	355	MA1.0900	40	B
110	61	6	129	605	MA1.1100	25	B
125	69	7	145	935	MA1.1250	20	B
140	76	8	162	1100	MA1.1400	10	B
160	86	8	182	1380	MA1.1600	6	B
200	106	12	231	3810	MA1.2000	3	B
225	119	11	262	4755	MA1.2250	2	B
250	131	10	286	5760	MA1.2500	–	–
280	146	10	320	7630	MA1.2800	–	–
315	164	12	355	9780	MA1.3150	–	–

TR1 | REDUCING TEE



DxD	L_1	L_2	Z_1	Z_2	E_1	E_2	Weight (g)	Code	Box	Master
20 x 16	16	14	11	11	28	23	30	TR1.020A	400	C
25 x 16	19	14	14	14	34	23	45	TR1.025A	250	C
25 x 20	19	16	14	14	34	28	45	TR1.025B	250	C
32 x 16	22	14	17	17	42	23	65	TR1.032A	150	C
32 x 20	22	16	17	17	42	28	65	TR1.032B	150	C
32 x 25	22	19	17	17	42	34	65	TR1.032C	150	C
40 x 16	26	14	21	21	51	23	105	TR1.040A	70	C
40 x 20	26	16	21	21	51	28	110	TR1.040B	70	C
40 x 25	26	19	21	21	51	34	110	TR1.040C	70	C
40 x 32	26	22	21	21	51	42	110	TR1.040D	70	C
50 x 20	31	16	26	26	61	28	170	TR1.050B	90	B
50 x 25	31	19	26	26	61	34	170	TR1.050C	90	B
50 x 32	31	22	26	26	61	42	170	TR1.050D	90	B
50 x 40	31	26	26	26	61	51	170	TR1.050E	90	B
63 x 20	38	16	33	33	75	28	275	TR1.063B	60	B
63 x 25	38	19	33	33	75	34	275	TR1.063C	60	B
63 x 32	38	22	33	33	75	42	275	TR1.063D	50	B
63 x 40	38	26	33	33	75	51	280	TR1.063E	50	B
63 x 50	38	31	33	33	75	61	280	TR1.063F	50	B
75 x 32	44	22	39	39	89	42	455	TR1.075D	35	B
75 x 40	44	26	39	39	89	51	455	TR1.075E	30	B
75 x 50	44	31	39	39	89	61	460	TR1.075F	30	B
75 x 63	44	38	39	39	89	75	470	TR1.75G	30	B
90 x 40	51	26	47	47	106	51	715	TR1.090E	20	B
90 x 50	51	31	47	47	106	61	720	TR1.090F	20	B
90 x 63	51	38	47	47	106	75	725	TR1.090G	20	B
90 x 75	51	44	47	47	106	89	750	TR1.090H	20	B
110 x 50	61	31	57	57	129	61	1250	TR1.110F	12	B
110 x 63	61	38	57	57	129	75	1303	TR1.110G	12	B
110 x 75	61	44	57	57	129	89	1270	TR1.110H	10	B
110 x 90	61	51	57	57	129	106	1315	TR1.110I	10	B
160 x 110	86	61	82	57	187	131	3540	TR1.160L	3	B

MR1 | REDUCING SOCKET

Fig A

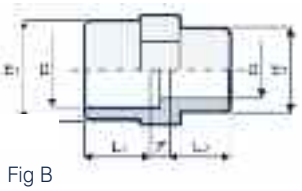
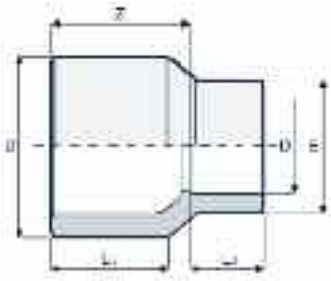


Fig B

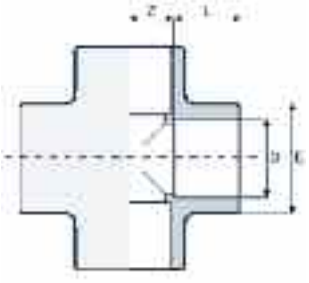
DxD	L_1	L_2	Z_1	E_1	E_2	Fig.	Weight (g)	Code	Box	Master
20 x 16	16	14	6	28	23	B	10	MR1.020A	1000	C
25 x 20	19	16	6	34	28	B	13	MR1.025B	500	C
32 x 25	22	19	6	42	34	B	37	MR1.032C	300	C
40 x 32	26	22	6	51	42	B	55	MR1.040D	150	C
50 x 40	31	26	6	61	51	B	80	MR1.050E	100	C
63 x 50	38	31	6	75	61	B	130	MR1.063F	90	C
75 x 63	44	38	4	89	75	A	210	MR1.075G	80	B
90 x 75	51	44	5	106	89	A	370	MR1.090H	50	B
110 x 90	61	51	6	129	106	A	528	MR1.110I	35	B
125 x 110	69	61	24	145	129	B	809	MR1.125L	16	B
140 x 110	76	61	25	160	129	B	1166	MR1.140L	15	B

RL1 | REDUCING SOCKET MALE/FEMALE



D x D	L_1	L_2	Z	E	Weight (g)	Code	Box	Master
140 x 110	76	61	92	129	809	RL1.140L	16	B
160 x 110	86	61	100	129	1166	RL1.160L	15	B

CR1 | CROSS



D	L	Z	E	Weight (g)	Code	Box	Master
25	19	14	35	60	CR1.0250	40	—
32	22	18	43	105	CR1.0320	50	—
40	26	23	52	175	CR1.0400	40	C
50	31	27	64	265	CR1.0500	20	C
63	38	33.5	79	505	CR1.0630	12	C

RC1 | REDUCING BUSH

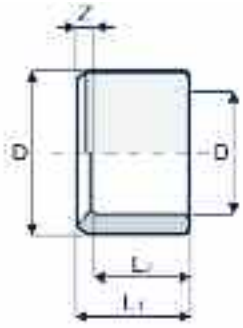


Fig A

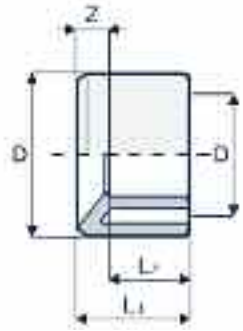


Fig B

DxD	L_1	L_2	Z	Fig.	Weight (g)	Code	Box	Master
20 x 16	16	14	2	A	5	RC1.020A	4000	C
25 x 16	19	14	5	B	10	RC1.025A	2200	C
25 x 20	19	16	3	A	5	RC1.025B	2200	C
32 x 16	22	14	8	B	15	RC1.032A	1100	C
32 x 20	22	16	6	B	18	RC1.032B	1100	C
32 x 25	22	19	3	A	10	RC1.032C	1100	C
40 x 20	26	16	10	B	25	RC1.040B	600	C
40 x 25	26	19	7	B	32	RC1.040C	600	C
40 x 32	26	22	4	A	15	RC1.040D	600	C
50 x 20	31	16	15	B	50	RC1.050B	300	C
50 x 25	31	19	12	B	45	RC1.050C	300	C
50 x 32	31	22	9	B	44	RC1.050D	300	C
50 x 40	31	26	5	A	31	RC1.050E	300	C
63 x 32	38	22	16	B	80	RC1.063D	150	C
63 x 40	38	26	12	B	80	RC1.063E	150	C
63 x 50	38	31	7	A	65	RC1.063F	150	C
75 x 40	44	26	18	B	120	RC1.075E	100	C
75 x 50	44	31	13	B	120	RC1.075F	100	C
75 x 63	44	38	6	A	85	RC1.075G	100	C
90 x 50	51	31	20	B	220	RC1.090F	60	C
90 x 63	51	38	13	B	205	RC1.090G	60	C
90 x 75	51	44	7	A	150	RC1.090H	60	C
110 x 63	61	38	23	B	375	RC1.110G	30	C
110 x 75	61	44	17	B	380	RC1.110H	30	C
110 x 90	61	51	9	A	280	RC1.110I	30	C
125 x 75	69	44	25	B	440	RC1.125H	24	C
125 x 90	69	51	18	B	455	RC1.125I	24	C
125 x 110	69	61	8	A	300	RC1.125L	24	C
140 x 90	76	51	25	B	315	RC1.140I	30	B
140 x 110	76	61	15	B	460	RC1.140L	30	B
140 x 125	76	69	7	B	330	RC1.140M	30	B
160 x 90	86	51	35	B	1040	RC1.160I	9	C
160 x 110	86	61	25	A	795	RC1.160L	20	B
160 x 125	86	69	17	B	715	RC1.160M	20	B
160 x 140	86	76	10	B	710	RC1.160N	20	B
200 x 160	106	76	30	A	2020	RC1.200O	10	B
225 x 160	119	86	33	B	1840	RC1.225O	6	B
225 x 200	119	106	13	A	1196	RC1.225P	7	B
250 x 160	132	86	45	B	3100	RC1.250O	–	–
250 x 200	132	106	25	A	3500	RC1.250P	–	–
250 x 225	132	119	12	A	2100	RC1.250Q	–	–
280 x 225	147	119	27	B	4300	RC1.280Q	–	–
315 x 200	165	106	58	B	8650	RC1.315P	–	–
315 x 225	165	119	45	B	8100	RC1.315Q	–	–
315 x 250	165	131	33	B	5080	RC1.315R	–	–
315 x 280	165	146	18	A	4590	RC1.315S	–	–

CA1 | CAP

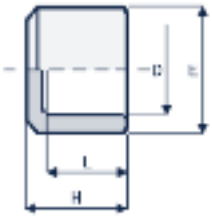
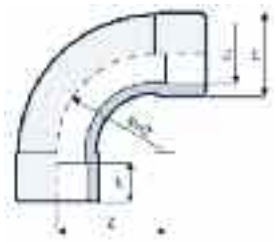


Fig A

Fig B

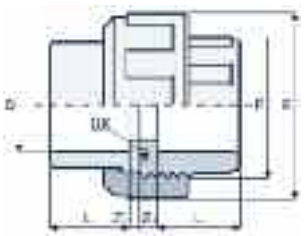
D	L	H	E	fig.	Weight (g)	Code	Box	Master
16	14	22	23	B	49	CA1.0160	2000	C
20	16	24	28	A	49	CA1.0200	1200	C
25	19	27	34	A	49	CA1.0250	800	C
32	22	30	42	A	33	CA1.0320	400	C
40	26	35	51	A	50	CA1.0400	250	C
50	31	40	61	A	70	CA1.0500	150	C
63	38	48	75	A	115	CA1.0630	90	C
75	44	59	89	B	228	CA1.0750	50	C
90	51	67	106	B	349	CA1.0900	30	C
110	61	77	129	B	530	CA1.1100	20	C
125	69	98	145	A	660	CA1.1250	30	B
140	76	108	162	A	860	CA1.1400	20	B
160	86	123	182	A	1080	CA1.1600	13	B
225	119	163	260	A	3000	CA1.2250	4	C

CU1 | BEND 90°



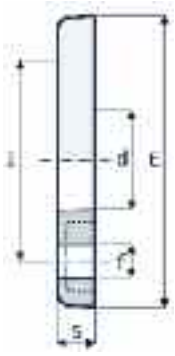
D	L	Z	E	Weight (g)	Code	Box	Master
20	16	40	28	45	CU1.0200	300	C
25	19	50	34	75	CU1.0250	150	C
32	22	64	41	120	CU1.0320	90	C
40	26	80	51	205	CU1.0400	100	B
50	31	100	65	310	CU1.0500	50	B
63	38	126	77	510	CU1.0630	25	B
75	44	150	94	995	CU1.0750	15	B
90	51	180	113	1765	CU1.0900	8	B
110	61	220	137	2805	CU1.1100	5	B
160	86	207	189	5020	CU1.1600	4	–

BO1 | UNION WITH O-RING



D	L	Z_1	Z_2	F	E	O-R	Weight (g)	Pn	Code	Box	Master
16	11	3	10	3/4"	31	3062	30	16	BO1.0160	700	C
20	16	3	10	1"	42	4081	42	16	BO1.0200	350	C
25	19	3	10	1 1/4"	52	4112	70	16	BO1.0250	200	C
32	22	3	10	1 1/2"	59	4131	97	16	BO1.0320	140	C
40	26	3	12	2"	72	6162	156	16	BO1.0400	80	C
50	31	3	14	2 1/4"	79	6187	216	16	BO1.0500	50	C
63	38	3	18	2 3/4"	96	6237	368	16	BO1.0630	30	C
75	44	3	20	3 1/2"	116.6	6312	560	10	BO1.0750	15	C
90	51	5	20	4"	131	6362	750	6	BO1.0900	12	C
110	61	5	20	5"	159.4	6450	1300	6	BO1.1100	12	B

FL1 | LOOSE FLANGE

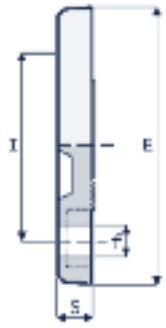


D	DN	d	E	S	l	f	N° drill	Weight (g)	Bolts	Code	Box	Master
20	15	28	95	11	65	14	4	70	M12x55	FL1.0200	250	C
25	20	34	105	12	75	14	4	80	M12x60	FL1.0250	200	C
32	25	42	115	14	85	14	4	116	M12x60	FL1.0320	120	C
40	32	51	140	15	100	18	4	180	M16x70	FL1.0400	100	C
50	40	62	150	16	110	18	4	215	M16x75	FL1.0500	80	C
63	50	78	165	18	125	18	4	295	M16x80	FL1.0630	50	C
75	65	92	185	19	145	18	4	455	M16x90	FL1.0750	35	C
90	80	110	203	20	160	18	8	460	M16x90	FL1.0900	30	C
110	100	132	222	22	180	18	8	515	M16x100	FL1.1100	20	C
125	110	149	230	24	190	18	8	724	M16x100	FL1.1250	30	B
140	125	167	250	26	210	18	8	813	M16x110	FL1.1400	25	B
160	150	190	285	28	240	22	8	1285	M20x120	FL1.1600	20	B
200	200	235	341	30	285	22	8/12	2045/1930	M20x120	FL1.2000	10	B
225	200	244	341	30	285	22	8/12	1950/1250	M20x140	FL1.2250	10	B
250	250	281	395	33	350	22	12	2780	M20x140	FL1.2500	8	B
280	250	309	396	35	350	22	12	1880	M20x160	FL1.2800	–	–
315	300	349	465	40	400	22	12	3050	M20x180	FL1.3150	–	–

FF1 | FIXED FLANGE

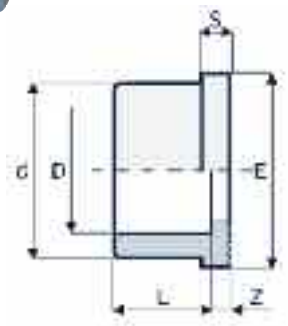
D	DN	L	Z	E	l	f	S	N° drill	Weight (g)	Bolts	Code	Box	Master
20	15	16	4	95	65	14	11	4	70	M12x55	FF1.0200	150	C
25	20	19	4	105	75	14	12	4	87	M12x60	FF1.0250	150	C
32	25	22	4	115	85	14	14	4	137	M12x60	FF1.0320	80	C
40	32	26	4	140	100	18	15	4	237	M16x70	FF1.0400	60	C
50	40	31	5	150	110	18	16	4	280	M16x75	FF1.0500	40	C
63	50	38	5	165	125	18	18	4	395	M16x80	FF1.0630	25	C
75	65	44	6	185	145	18	19	8	555	M16x90	FF1.0750	15	C
90	80	51	7	200	160	18	20	8	780	M16x90	FF1.0900	10	C
110	100	61	8	220	180	18	22	8	1070	M16x100	FF1.1100	20	C

FC1 | BLANK FLANGE



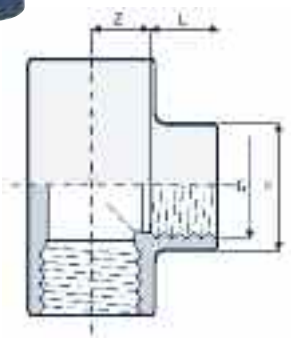
D	DN	E	S	I	f	N° drill	Weight (g)	Bolts	Code	Box	Master
20	15	95	11	64	14	4	99	M12x55	FC1.0200	250	C
25	20	105	12	76	14	4	106	M12x60	FC1.0250	150	C
32	25	115	14	86	14	4	206	M12x60	FC1.0320	120	C
40	32	141	15	100	18	4	295	M16x70	FC1.0400	90	C
50	40	150	16	111	18	4	327	M16x75	FC1.0500	70	C
63	50	165	18	126	18	4	358	M16x80	FC1.0630	30	C
75	65	185	19	145	18	4	444	M16x90	FC1.0750	30	C
90	80	200	20	160	18	8	570	M16x90	FC1.0900	30	C
110	100	220	22	180	18	8	766	M16x100	FC1.1100	20	C

QR1 | STUB



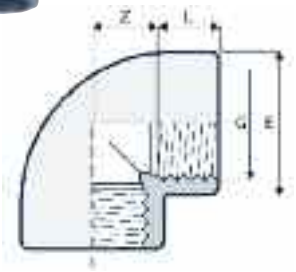
D	L	Z	d	S	E	Weight (g)	Code	Box	Master
20	16	3	27	6	34	10	QR1.0200	1200	C
25	19	3	33	7	41	14	QR1.0250	750	C
32	22	3	41	7	50	33	QR1.0320	400	C
40	26	3	50	8	61	37	QR1.0400	250	C
50	31	3	61	8	73	60	QR1.0500	150	C
63	38	3	76	9	90	110	QR1.0630	80	C
75	44	3	90	10	106	165	QR1.0750	50	C
90	51	5	108	11	125	270	QR1.0900	60	B
110	61	4	131	12	150	445	QR1.1100	40	B
125	69	5	147	13	168	565	QR1.1250	25	B
140	76	5	165	14	188	735	QR1.1400	20	B
160	86	5	188	16	212	1250	QR1.1600	12	B
200	106	7	232	16	254	2519	QR1.2000	7	B
225	119	7	248	16	274	2570	QR1.2250	6	B
250	131	9	274	20	308	3000	QR1.2500	4	B
280	147	14.5	307	32	327	3650	QR1.2800	–	–
315	165	16	346	32	377	4950	QR1.3150	–	–

TI2 | TEE 90°



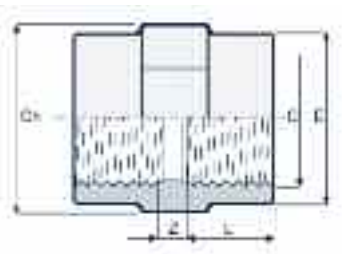
G	L	Z	E	Weight (g)	Code	Box	Master
3/8"	11.4	11.6	23	37	TI2.0160	700	C
1/2"	15	13	28	30	TI2.0200	400	C
3/4"	16.3	16.7	35	55	TI2.0250	220	C
1"	19.1	19.9	43	80	TI2.0320	120	C
1 1/4"	21.4	25.6	51	132	TI2.0400	70	C
1 1/2"	21.4	35.6	61	255	TI2.0500	80	B
2"	25.7	45.3	75	450	TI2.0630	45	B
2 1/2"	30.2	52.8	89	595	TI2.0750	30	B
3"	33.3	64.7	106	1040	TI2.0900	18	B
4"	39.3	78.7	129	1415	TI2.1100	10	B

GO2 | ELBOW 90°



G	L	Z	E	Weight (g)	Code	Box	Master
3/8"	11.4	11.6	23	27	GO2.0160	1100	C
1/2"	15	13	28	25	GO2.0200	600	C
3/4"	16.3	16.7	35	40	GO2.0250	300	C
1"	19.1	19.9	43	65	GO2.0320	170	C
1 1/4"	21.4	25.6	51	100	GO2.0400	100	C
1 1/2"	21.4	35.6	61	190	GO2.0500	60	C
2"	25.7	45.3	76	340	GO2.0630	60	B
2 1/2"	30.2	52.8	89	455	GO2.0750	40	B
3"	33.3	64.7	106	545	GO2.0900	25	B
4"	39.3	78.7	129	1030	GO2.1100	14	B

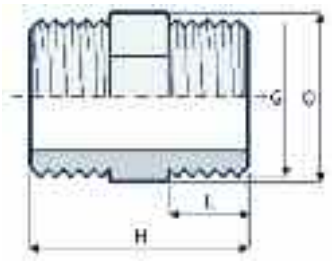
MA2 | SOCKET



G	L	Z	E	Ch	Weight (g)	Code	Box	Master
3/8"	11.4	6	23	24	9	MA2.0160	1300	C
1/2"	15	7	28	29	20	MA2.0200	700	C
3/4"	16.3	7	34	35	30	MA2.0250	450	C
1"	19.1	8	42	43	50	MA2.0320	250	C
1 1/4"	21.4	8	51	55	65	MA2.0400	150	C
1 1/2"	21.4	8	58	65	100	MA2.0500	120	C
2"	25.7	8	72	75	135	MA2.0630	70	C
2 1/2"	30.2	9	89	90	215	MA2.0750	80	B
3"	33.3	10	103	105	305	MA2.0900	60	B
4"	39.3	11	130	130	652	MA2.1100	35	B

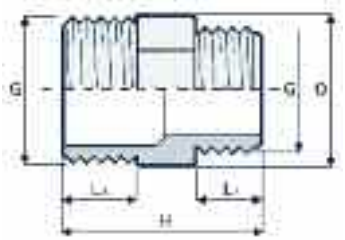
THREADED FITTINGS

NI2 | NIPPLE



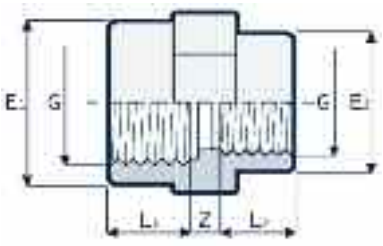
G	L	H	O	Weight (g)	Code	Box	Master
3/8"	11.4	33	22	5	NI2.0160	2400	C
1/2"	15	42	24	10	NI2.0200	1000	C
3/4"	16.3	44	30	20	NI2.0250	700	C
1"	19.1	50	36	30	NI2.0320	400	C
1 1/4"	21.4	58	46	45	NI2.0400	200	C
1 1/2"	21.4	58	50	63	NI2.0500	150	C
2"	25.7	66	65	105	NI2.0630	80	C
2 1/2"	30.2	78	80	175	NI2.0750	100	B
3"	33.3	85	95	245	NI2.0900	70	B
4"	39.3	96	120	348	N12.1100	35	B

NR2 | REDUCING NIPPLE



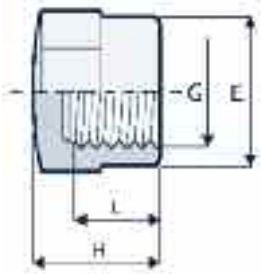
GxG	L_1	L_2	H	O	Weight (g)	Code	Box	Master
1/2" x 3/8"	15	11.4	38	24	14	NR2.020A	1000	C
3/4" x 1/2"	16.3	15	43	30	15	NR2.025B	700	C
1" x 3/4"	19.1	16.3	47	36	25	NR2.032C	400	C
1 1/4" x 1"	21.4	19.1	56	46	40	NR2.040D	250	C
1 1/2" x 1 1/4"	21.4	21.4	58	50	60	NR2.050E	150	C
2" x 1 1/2"	25.7	21.4	62	65	90	NR2.063F	100	C
2 1/2" x 2"	30.2	25.7	72	80	155	NR2.075G	100	B
3" x 2 1/2"	33.3	30.2	82	95	240	NR2.090H	35	B
4" x 3"	39.3	33.3	90	120	357	NR2.110I	24	B

MR2 | REDUCING SOCKET



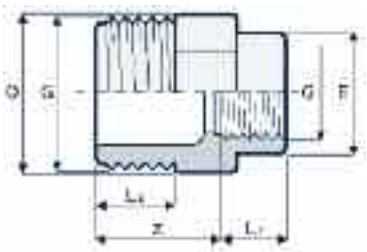
GxG	L_1	L_2	Z	E_1	E_2	Weight (g)	Code	Box	Master
1/2" x 3/8"	15	11.4	6	28	23	7	MR2.020A	900	C
3/4" x 1/2"	16.3	15	7	34	28	25	MR2.025B	500	C
1" x 3/4"	19.1	16.3	7	42	34	40	MR2.032C	300	C
1 1/4" x 1"	21.4	19.1	8	51	42	34	MR2.040D	150	C
1 1/2" x 1 1/4"	21.4	21.4	8	58	51	79	MR2.050E	100	C
2" x 1 1/2"	25.7	21.4	8	72	58	130	MR2.063F	90	C
2 1/2" x 2"	30.2	25.7	8	89	72	178	MR2.075G	100	B
3" x 2 1/2"	33.3	30.2	9	103	89	226	MR2.090H	50	B
4" x 3"	39.3	33.3	10	130	103	515	MR2.110I	40	B

CA2 | CAP



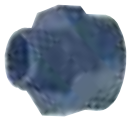
G	L	H	E	Weight (g)	Code	Box	Master
3/8"	11.4	22	23	37	CA2.0160	2000	C
1/2"	15	24	28	20	CA2.0200	1200	C
3/4"	16.3	27	34	25	CA2.0250	750	C
1"	19.1	30	42	40	CA2.0320	400	C
1 1/4"	21.4	35	51	60	CA2.0400	250	C
1 1/2"	21.4	40	61	85	CA2.0500	150	C
2"	25.7	48	75	115	CA2.0630	90	C
2 1/2"	30.2	50	89	251	CA2.0750	70	C
3"	33.3	53	103	390	CA2.0900	40	C
4"	39.3	59	130	623	CA2.1100	60	B

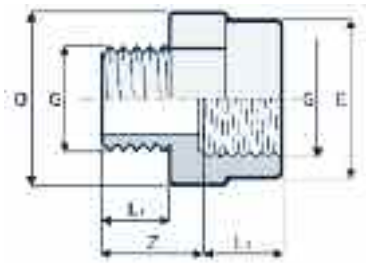
RI2 | REDUCER MALE/FEMALE



GxG	L_1	L_2	Z	E_1	O	Weight (g)	Code	Box	Master
1/2" x 3/8"	15	11.4	24	23	24	21	RI2.020A	1200	C
3/4" x 3/8"	16.3	11.4	25	23	30	15	RI2.025A	700	C
3/4" x 1/2"	16.3	15	26	28	30	20	RI2.025B	700	C
1" x 3/8"	19.1	11.4	28	23	36	37	RI2.032A	500	C
1" x 1/2"	19.1	15	29	28	36	25	RI2.032B	500	C
1" x 3/4"	19.1	16.3	30	34	36	30	RI2.032C	450	C
1 1/4" x 1/2"	21.4	15	33	28	46	41	RI2.040B	250	C
1 1/4" x 3/4"	21.4	16.3	33	34	46	45	RI2.040C	250	C
1 1/4" x 1"	21.4	19.1	33	42	46	50	RI2.040D	250	C
1 1/2" x 3/4"	21.4	16.3	34	34	50	50	RI2.050C	220	C
1 1/2" x 1"	21.4	19.1	34	42	50	54	RI2.050D	200	C
1 1/2" x 1 1/4"	21.4	21.4	34	51	55	79	RI2.050E	150	C
2" x 1"	25.7	19.1	37	42	65	95	RI2.063D	100	C
2" x 1 1/4"	25.7	21.4	37	51	65	10	RI2.063E	100	C
2" x 1 1/2"	25.7	21.4	37	58	65	105	RI2.063F	100	C
2 1/2" x 1 1/4"	30.2	21.4	43	51	80	140	RI2.075E	80	C
2 1/2" x 1 1/2"	30.2	21.4	43	58	80	145	RI2.075F	60	C
2 1/2" x 2"	30.2	25.7	43	72	80	160	RI2.075G	60	C
3" x 1 1/2"	33.3	21.4	47	58	95	199	RI2.090F	30	C
3" x 2"	33.3	25.7	47	72	95	215	RI2.090G	30	C
3" x 2 1/2"	33.3	30.2	47	89	95	230	RI2.090H	30	C
4" x 2"	39.3	25.7	53	72	120	340	RI2.110G	55	B
4" x 2 1/2"	39.3	30.2	53	89	120	355	RI2.110H	55	B
4" x 3"	39.3	33.3	53	103	120	200	RI2.110I	45	B

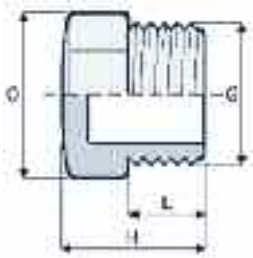
MG2 | MALE/FEMALE ADAPTOR





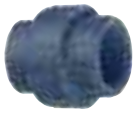
GxG	L_1	L_2	Z	O	E	Weight (g)	Code	Box	Master
3/8" x 1/2"	11.4	15	22	30	28	27	MG2.016B	1000	C
1/2" x 3/4"	15	16.3	24	36	34	15	MG2.020C	600	C
3/4" x 1"	16.3	19.1	26	46	42	40	MG2.025D	300	C
1" x 1 1/4"	19.1	21.4	30	55	51	72	MG2.032E	200	C
1 1/4" x 1 1/2"	21.4	21.4	33	60	58	83	MG2.040F	150	C
1 1/2" x 2"	21.4	25.7	34	75	72	125	MG2.050G	90	C
2" x 2 1/2"	25.7	30.2	38	90	89	202	MG2.063H	100	B
2 1/2" x 3"	30.2	33.3	44	105	103	240	MG2.075I	75	B
3" x 4"	33.3	39.3	48	130	130	333	MG2.090L	40	B

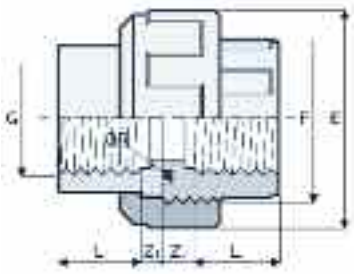
TA2 | PLUG



G	L	H	O	Weight (g)	Code	Box	Master
3/8"	11.4	24	22	5	TA2.0160	2000	C
1/2"	15	29	24	10	TA2.0200	1500	C
3/4"	16.3	30	30	15	TA2.0250	1000	C
1"	19.1	33	36	25	TA2.0320	600	C
1 1/4"	21.4	39	46	50	TA2.0400	300	C
1 1/2"	21.4	39	50	35	TA2.0500	250	C
2"	25.7	43	65	80	TA2.0630	150	C
2 1/2"	30.2	51	80	160	TA2.0750	80	C
3"	33.3	55	95	235	TA2.0900	50	C
4"	39.3	61	120	360	TA2.1100	60	B

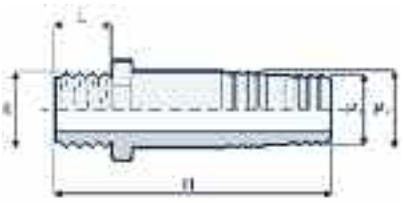
BO2 | UNION WITH O-RING





G	L	Z_1	Z_2	F	E	O-R	Weight (g)	Pn	Code	Box	Master
3/8"	11.4	5.6	13.6	3/4"	34	3062	32	16	BO2.0160	700	C
1/2"	15	4	11	1"	42	4081	44	16	BO2.0200	350	C
3/4"	16.3	5.7	12.7	1 1/4"	52	4112	72	16	BO2.0250	200	C
1"	19.1	5.9	12.9	1 1/2"	59	4125	100	16	BO2.0320	140	C
1 1/4"	21.4	7.6	16.6	2"	72	6162	161	16	BO2.0400	80	C
1 1/2"	21.4	12.6	23.6	2 1/4"	79	6187	264	16	BO2.0500	50	C
2"	25.7	15.3	30.3	2 3/4"	96	6237	454	16	BO2.0630	30	C
2 1/2"	30.2	17.8	32.8	3 1/2"	119	6312	560	10	BO2.0750	15	C
3"	33.3	25.7	36.7	4"	134	6362	750	6	BO2.0900	12	C
4"	39.3	27.7	40.7	5"	163	6450	1300	6	BO2.1100	12	B

PO3 | HOSE ADAPTOR

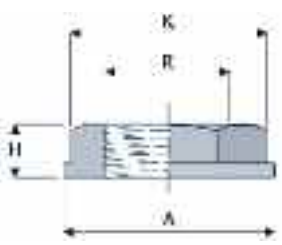


RxP1xP2	L	H	Weight (g)	Code	Box
3/8" x 16 x 18	11.4	58	14	PO3.016A	300
1/2" x 20 x 22	15	66	19	PO3.020B	150
3/4" x 25 x 27	16.3	81	30	PO3.025C	80
1" x 30 x 32	19.1	97	45	PO3.032D	100
1 1/4" x 40 x 42	21.4	104	85	PO3.040E	50
1 1/2" x 50 x 52	21.4	111	120	PO3.050F	30
2" x 60 x 64	25.7	123	180	PO3.063G	40

GY2 | ELBOW 45°

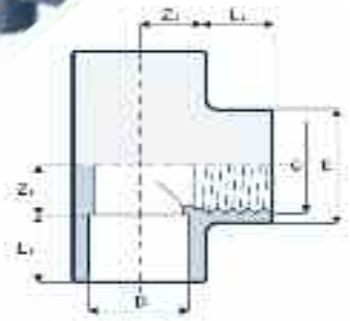
G	L	Z	E	Weight (g)	Code	Box	Master
1/2"	15	12	28	31	GY2.0200	600	C
3/4"	16.3	16.7	34	49	GY2.0250	400	C
1"	19.1	19.9	42	61	GY2.0320	200	C
1 1/4"	21.4	25.6	51	101	GY2.0400	130	C
1 1/2"	21.4	35.6	61	150	GY2.0500	150	B
2"	25.7	45.3	75	290	GY2.0630	90	B
2 1/2"	30.2	52.8	89	355	GY2.0750	50	B
3"	33.3	64.7	106	615	GY2.0900	25	B
4"	39.3	78.7	129	835	GY2.1100	16	B

NU2 | BACKING NUT



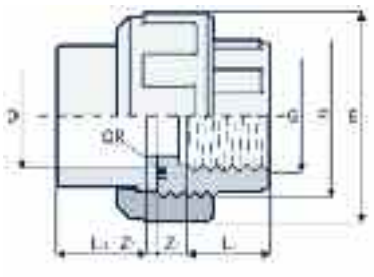
R	A	K	H	Weight (g)	Code	Pack	Box	Master
1/2"	38	28	13	11	NU2.0200	25	1000	C
3/4"	44	33	13.5	14	NU2.0250	25	750	C
1"	58	46	16	31	NU2.0320	25	400	C
1 1/4"	62	50	18	32	NU2.0400	10	300	C
1 1/2"	76	60	19	52	NU2.0500	10	200	C
2"	92	79	20.8	84	NU2.0630	10	120	C
2 1/2"	106	94	22	-	NU2.0750	10		C
3"	125	110	26	-	NU2.0900	10		C
4"	151	138	29	-	NU2.1100	10		C

TI3 | TEE 90°



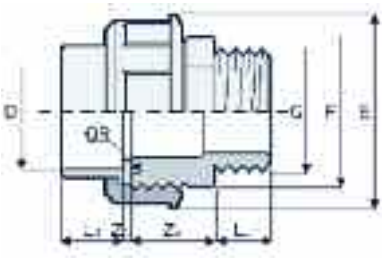
DxG	L_1	L_2	Z_1	Z_2	E	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	9	11.6	23	40	TI3.016A	700	C
20 x 1/2"	16	15	12	13	28	32	TI3.020B	400	C
25 x 3/4"	19	16.3	15	17	35	52	TI3.025C	220	C
32 x 1"	22	19.1	18	21	43	71	TI3.032D	120	C
40 x 1 1/4"	26	21.4	21	25.6	51	125	TI3.040E	70	C
50 x 1 1/2"	31	21.4	26	35.6	61	200	TI3.050F	80	B
63 x 2"	38	25.7	33	45.3	75	380	TI3.063G	45	B
75 x 2 1/2"	44	30.2	39	52.8	89	530	TI3.075H	30	B
90 x 3"	51	33.3	47	64.7	106	845	TI3.090I	18	B
110 x 4"	61	39.3	57	78.7	129	1415	TI3.110L	10	B

BO3 | UNION WITH O-RING



DxG	L_1	L_2	Z_1	Z_2	F	E	O-R	Weight (g)	PN	Code	Box	Master
16 x 3/8"	14	11.4	3	13.6	3/4"	34	3062	31	16	BO3.016A	700	C
20 x 1/2"	16	15	3	11	1"	42	4081	42	16	BO3.020B	350	C
25 x 3/4"	19	16.3	3	12.7	1 1/4"	52	4112	70	16	BO3.025C	200	C
32 x 1"	22	19.1	3	12.9	1 1/2"	59	4125	96	16	BO3.032D	140	C
40 x 1 1/4"	26	21.4	3	16.6	2"	72	6162	155	16	BO3.040E	80	C
50 x 1 1/2"	31	21.4	3	23.6	2 1/4"	79	6187	237	16	BO3.050F	50	C
63 x 2"	38	25.7	3	30.3	2 3/4"	96	6237	405	16	BO3.063G	30	C
75 x 2 1/2"	45	30.2	3	32.8	3 1/2"	119	6312	560	10	BO3.075H	15	C
90 x 3"	53	59.0	5	36.7	4"	134	6362	750	6	BO3.090I	12	C
110 x 4"	61	69.0	5	40.7	5"	163	6450	1300	6	BO3.110L	12	B

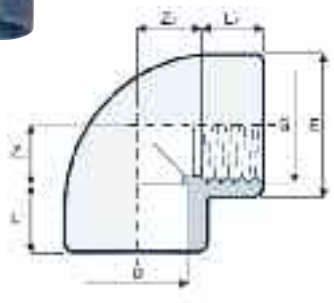
BM3 | UNION MALE WITH O-RING



DxG	L_1	L_2	Z_1	Z_2	F	E	O-R	Weight (g)	Code	Box	Master
50 x 1 1/2"	31	28	3	41	2 1/4"	79	6187	270	BM3.050F	45	C
50 x 2"	31	28	3	41	2 1/4"	79	6187	258	BM3.050G	40	C
63 x 2"	38	28	3	43	2 3/4"	96	6237	406	BM3.063G	25	C

TRANSITION FITTINGS

GO3 | ELBOW 90°



DxG	L_1	L_2	Z_2	E_1	O	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	9	11.6	23	25	GO3.016A	1100	C
20 x 1/2"	16	15	11	12	28	25	GO3.020B	600	C
25 x 3/4"	19	16.3	14	17	35	40	GO3.025C	300	C
32 x 1"	22	19.1	18	20.5	43	72	GO3.032D	170	C
40 x 1 1/4"	26	21.4	21	25.6	51	95	GO3.040E	100	C
50 x 1 1/2"	31	21.4	26	35.6	61	165	GO3.050F	60	C
63 x 2"	38	25.7	33	46	76	320	GO3.063G	60	B
75 x 2 1/2"	44	30.2	39	52.8	89	417	GO3.075H	40	B
90 x 3"	51	33.3	47	64.7	106	690	GO3.090I	25	B
110 x 4"	61	39.3	57	78.7	129	1035	GO3.110L	14	B

MA3 | SOCKET

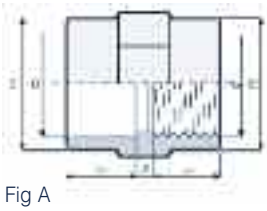


Fig A

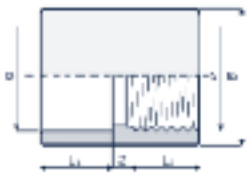
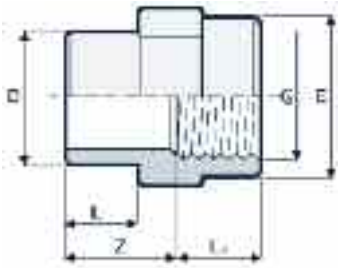


Fig B

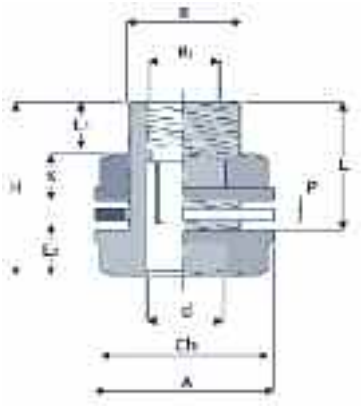
DxG	L_1	L_2	Z	E_1	E_2	Fig.	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	6	23	23	A	10	MA3.016A	1400	C
20 x 1/2"	16	15	4	28	28	A	23	MA3.020B	700	C
25 x 3/4"	19	16.3	5	35	35	A	34	MA3.025C	450	C
32 x 1"	22	19.1	6	43	43	A	53	MA3.032D	250	C
40 x 1 1/4"	26	21.4	8	51	51	B	60	MA3.040E	150	C
50 x 1 1/2"	31	21.4	13	61	61	B	100	MA3.050F	100	C
63 x 2"	38	25.7	8	76	76	A	190	MA3.063G	50	C
75 x 2 1/2"	44	30.2	8	89	89	A	225	MA3.075H	75	B
90 x 3"	51	33.3	9	106	103	A	355	MA3.090I	40	B
110 x 4"	61	39.3	10	129	130	A	555	MA3.110L	25	B

AF3 | FEMALE THREADED ADAPTOR



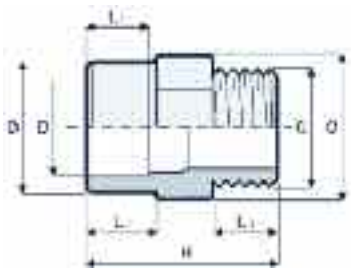
DxG	L_1	L_2	E	Z	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	23	22	10	AF3.016A	1400	C
20 x 1/2"	14	15	28	22	20	AF3.020B	800	C
20 x 3/4"	16	15	28	26	30	AF3.020C	600	C
25 x 1/2"	16	16.3	34	26	20	AF3.025B	700	C
25 x 3/4"	16	19	28	29	30	AF3.025C	500	C
25 x 1"	19	16.3	34	29	52	AF3.025D	300	C
32 x 3/4"	19	19.1	42	29	30	AF3.032C	400	C
32 x 1"	19	22	34	32	40	AF3.032D	250	C
40 x 1"	22	19.1	42	33	50	AF3.040D	220	C
40 x 1 1/4"	22	19.1	42	37	76	AF3.040E	150	C
50 x 1 1/4"	26	21.4	51	37	85	AF3.050E	150	C
50 x 1 1/2"	31	21,4	51	42	100	AF3.050F	100	C
50 x 2"	31	21.4	58	42	125	AF3.050G	100	C
63 x 1 1/2"	31	25.7	72	42	148	AF3.063F	80	C
63 x 2"	38	25.7	72	50	140	AF3.063G	60	C
75 x 2"	38	44	75	61	180	AF3.075G	45	C
75 x 2 1/2"	44	30.2	89	59	188	AF3.075H	35	C
75 x 3"	44	33.3	103	59	200	AF3.075I	35	C
90 x 2 1/2"	44	51	89	68	249	AF3.090H	25	C
90 x 3"	51	33.3	103	67	235	AF3.090I	40	B
90 x 4"	51	39.3	130	67	456	AF3.090L	35	B
110 x 3"	51	61	106	82	502	AF3.011I	35	B
110 x 4"	61	39.3	130	77	490	AF3.011L	30	B

AS3 | TANK CONNECTOR



RxdxR1	A	Ch	L	L_1	L_2	H	P	K	Weight (g)	Code	Pack	Box	Master
3/4" x 16 x 1/2"	44	33	47	15	14	60.5	3	13.5	53	AS3.016B	5	125	C
1" x 20 x 3/4"	58	46	49	16.3	16	65	3	16	108	AS3.020C	5	90	C
1 1/4" x 25 x 1"	62	50	52	19.1	19	70	3	18	142	AS3.025D	5	80	C
1 1/2" x 32 x 1"	76	60	54	19.1	22	73	3	19	192	AS3.032D	-	60	C
2" x 40 x 1 1/2"	92	79	60	21.4	26	81	3	20.8	337	AS3.040F	-	35	C

AM3 | MALE THREADED ADAPTOR



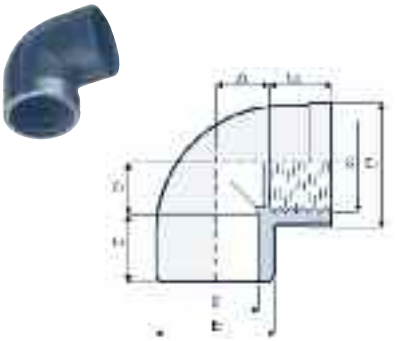
DxDxG	L_1	L_2	L_3	H	O	Weight (g)	Code	Box	Master
12 x 16 x 3/8"	12	14	11.4	34.5	20.4	10	AM3.012A	2300	C
16 x 20 x 3/8"	14	16	11.4	40	24	10	AM3.016A	1200	C
16 x 20 x 1/2"	14	16	15	43	24	15	AM3.016B	1100	C
20 x 25 x 3/8"	16	19	11.4	43	30	19	AM3.020A	700	C
20 x 25 x 1/2"	16	19	15	46	30	15	AM3.020B	700	C
20 x 25 x 3/4"	16	19	16.3	47	30	20	AM3.020C	700	C
25 x 32 x 1/2"	19	22	15	49	36	25	AM3.025B	450	C
25 x 32 x 3/4"	19	22	16.3	50	36	25	AM3.025C	400	C
25 x 32 x 1"	19	22	19.1	53	36	45	AM3.025D	400	C
32 x 40 x 3/4"	22	26	16.3	54	46	40	AM3.032C	280	C
32 x 40 x 1"	22	26	19.1	57	46	40	AM3.032D	250	C
32 x 40 x 1 1/4"	22	26	21.4	60	46	55	AM3.032E	200	C
40 x 50 x 1"	26	31	19.1	64	55	70	AM3.040D	130	C
40 x 50 x 1 1/4"	26	31	21.4	67	55	70	AM3.040E	130	C
40 x 50 x 1 1/2"	26	31	21.4	67	55	70	AM3.040F	120	C
50 x 63 x 1 1/4"	31	38	21.4	74	65	70	AM3.050E	100	C
50 x 63 x 1 1/2"	31	38	21.4	74	65	115	AM3.050F	80	C
50 x 63 x 2"	31	38	25.7	78	65	125	AM3.050G	75	C
63 x 75 x 1 1/2"	38	44	21.4	80	80	198	AM3.063F	70	C
63 x 75 x 2"	38	44	25.7	84	80	160	AM3.63G	60	C
63 x 75 x 2 1/2"	38	44	30.2	91	80	195	AM3.063H	45	C
75 x 90 x 2"	44	51	25.7	94	95	270	AM3.075G	45	C
75 x 90 x 2 1/2"	44	51	30.2	99	95	285	AM3.075H	45	C
75 x 90 x 3"	44	51	33.3	102	95	285	AM3.075I	25	C
90 x 110 x 2"	51	61	25.7	110	115	485	AM3.090G	20	C
90 x 110 x 2 1/2"	51	61	30.2	110	115	485	AM3.090H	20	C
90 x 110 x 3"	51	61	33.3	113	115	490	AM3.090I	20	C
90 x 110 x 4"	51	61	39.3	118	115	480	AM3.090L	30	B
110 x 125 x 3"	61	66	33.3	115	130	490	AM3.110I	35	B
110 x 125 x 4"	61	66	39.3	120	130	490	AM3.110L	30	B

TRANSITION FITTINGS

TM3 | TEE 90° WITH REINFORCING RING

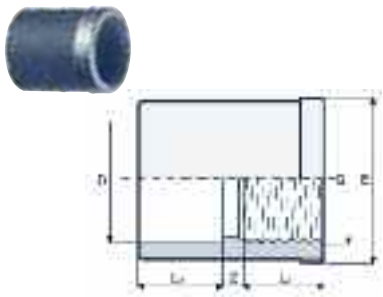
DxG	L_1	L_2	Z_1	Z_2	E_1	E_2	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	9	11.6	23	25	35	TM3.016A	700	C
20 x 1/2"	16	15	11	12	28	30	45	TM3.020B	400	C
25 x 3/4"	19	16.3	14	16.7	34	35	55	TM3.025C	220	C
32 x 1"	22	19.1	17	19.9	42	45	75	TM3.032D	130	C
40 x 1 1/4"	26	21.4	21	25.6	51	55	125	TM3.040E	70	C
50 x 1 1/2"	31	21.4	26	35.6	61	65	200	TM3.050F	80	B
63 x 2"	38	25.7	33	45.3	75	78	330	TM3.063G	45	B

GM3 | ELBOW 90° WITH REINFORCING RING



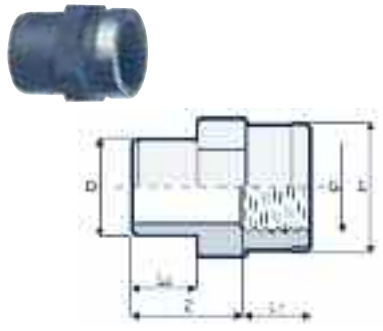
DxG	L_1	L_2	Z_1	Z_2	E_1	E_2	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	9	11.6	23	25	25	GM3.016A	1000	C
20 x 1/2"	16	15	11	12	28	30	25	GM3.020B	650	C
25 x 3/4"	19	16.3	14	16.7	34	35	25	GM3.025C	350	C
32 x 1"	22	19.1	17	19.9	42	45	60	GM3.032D	200	C
40 x 1 1/4"	26	21.4	21	25.6	51	55	95	GM3.040E	100	C
50 x 1 1/2"	31	21.4	26	35.6	61	65	165	GM3.050F	60	C
63 x 2"	38	25.7	33	45.3	75	78	280	GM3.063G	60	B

MM3 | SOCKET WITH REINFORCING RING



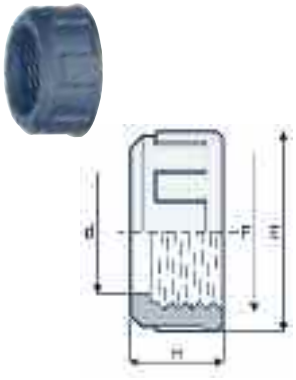
DxG	L_1	L_2	E	Z	Weight (g)	Code	Box	Master
16 x 3/8"	14	11.4	6	25	10	MM3.016A	1500	C
20 x 1/2"	16	15	4	30	15	MM3.020B	900	C
25 x 3/4"	19	16.3	6	35	25	MM3.025C	500	C
32 x 1"	22	19.1	6	45	40	MM3.032D	300	C
40 x 1 1/4"	26	21.4	8	55	60	MM3.040E	150	C
50 x 1 1/2"	31	21.4	13	65	100	MM3.050F	90	C
63 x 2"	38	25.7	15	78	180	MM3.063G	50	C

RM3 | ADAPTOR WITH REINFORCING RING



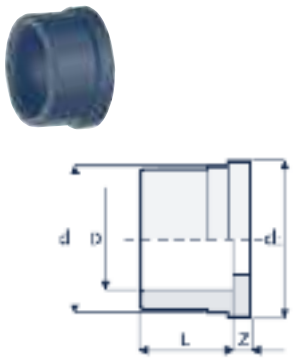
DxG	L_1	L_2	E	Z	Weight (g)	Code	Box	Master
20 x 1/2"	16	15	30	26	20	RM3.020B	750	C
25 x 1/2"	16	19	30	29	20	RM3.025B	650	C
25 x 3/4"	19	16.3	35	29	30	RM3.025C	450	C
32 x 3/4"	19	22	35	32	30	RM3.032C	400	C
32 x 1"	22	19.1	45	33	40	RM3.032D	270	C
40 x 1"	22	20.6	45	37	50	RM3.040D	220	C
40 x 1 1/4"	26	21.4	55	37	53	RM3.040E	150	C
50 x 1 1/2"	31	21.4	65	42	100	RM3.050F	100	C
50 x 2"	31	25.7	78	42	125	RM3.050G	100	C
63 x 2"	38	25.7	78	50	140	RM3.063G	60	C

BG1 | NUT FOR BO1, BO2 AND BO3



D	d	H	F	E	Weight (g)	Code
16	22	23	3/4"	34	10	BG1.0160
20	27.6	23	1"	42	20	BG1.0200
25	36.1	25	1 1/4"	52	30	BG1.0250
32	41.6	27	1 1/2"	59	40	BG1.0320
40	53.1	30	2"	72	59	BG1.0400
50	59.1	34	2 1/4"	79	75	BG1.0500
63	74.1	38	2 3/4"	96	108	BG1.0630
75	92.7	45	3 1/2"	119	162	BG1.0750
90	105.5	52	4"	134	250	BG1.0900
110	129.5	59	5"	163	412	BG1.1100

BL1 | LOOSE PART FOR BO1 AND BO3



D	L	Z	d	d1	Weight (g)	Code
16	14	3	22	24	4	BL1.0160
20	16	3	27.5	30.1	10	BL1.0200
25	19	3	36	38.8	15	BL1.0250
32	22	3	41.5	44.7	20	BL1.0320
40	26	3	53	56.5	40	BL1.0400
50	31	3	59	62.6	40	BL1.0500
63	38	3	74	78.4	75	BL1.0630
75	44	3	90.5	97	145	BL1.0750
90	52	5	104.8	110	190	BL1.0900
110	61	5	128.8	135.5	335	BL1.1100

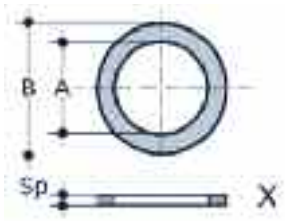
BL2 | LOOSE PART FOR BO2

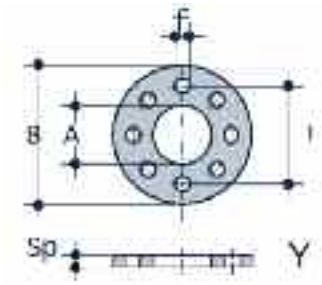
G	L	Z	d	d1	Weight (g)	Code
3/8"	11.4	5.6	22	24	11	BL2.0160
1/2"	15	4	27.5	30.1	11	BL2.0200
3/4"	16.3	5.7	36	38.8	15	BL2.0250
1"	19.1	5.9	41.5	44.7	24	BL2.0320
1 1/4"	21.4	7.6	53	56.5	58	BL2.0400
1 1/2"	21.4	12.6	59	62.6	70	BL2.0500
2"	25.7	15.3	74	78.4	105	BL2.0630
2 1/2"	30.2	17.8	90.5	97	165	BL2.0750
3"	59	25.7	104.8	110	170	BL2.0900
4"	69	27.7	128.8	135.5	331	BL2.1100

GBO | O-RING FOR BO1, BO2 AND BO3

D	I	E	S	O-R	Code
16	23.4	28.7	2.6	3093	GBO.0160
20	20.2	27.2	3.5	4081	GBO.0200
25	28.2	35.2	3.5	4112	GBO.0250
32	32.9	39.9	3.5	4131	GBO.0320
40	40.6	51.2	5.3	6162	GBO.0400
50	47	57.6	5.3	6187	GBO.0500
63	60.4	71	5.3	6237	GBO.0630
75	78.7	89.5	5.3	6312	GBO.0750
90	88.2	99.0	5.3	6350	GBO.0900
110	110.5	121.2	5.3	6437	GBO.1100

GQP | FLAT GASKET FOR QR1





D	A	B	I	Sp	f	Code	Fig.
20	20	32	–	2	–	GQP.0200	X
25	25	39	–	2	–	GQP.0250	X
32	32	48	–	2	–	GQP.0320	X
40	40	59	–	2	–	GQP.0400	X
50	50	71	–	2	–	GQP.0500	X
63	63	88	–	2	–	GQP.0630	X
75	75	104	–	2	–	GQP.0750	X
90	90	123	–	2	–	GQP.0900	X
110	110	148	–	3	–	GQP.1100	X
125	125	167	–	3	–	GQP.1250	X
140	140	186	–	3	–	GQP.1400	X
160	160	211	–	3	–	GQP.1600	X
200	197	267	–	3	–	GQP.2000	X
225	220	270	–	3	–	GQP.2250	X
250	250	305	–	4	–	GQP.2500	X
280	265	395	350	4	12Ø22	GQP.2800	Y
315	290	462	400	4	12Ø22	GQP.3150	Y

ST1 | PIPE CLIP IN PP*

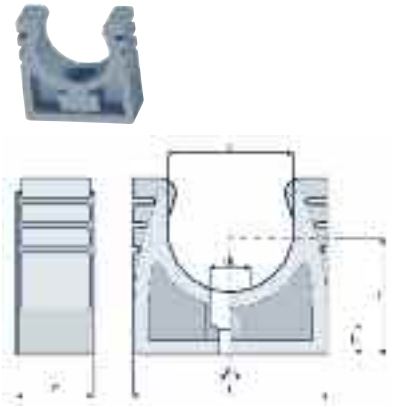


Fig A

D	H	L	d2	d1	h	f	Fig.	Weight (g)	Code	Pack	Box	Master
16	22.9	28	5.5	10.5	7.5	16	A	6	ST1.0160	10	1500	C
20	25	33	5.5	10.5	7.5	16	A	7	ST1.0200	10	1100	C
25	27.5	38	5.5	10.5	7.5	16	A	9	ST1.0250	10	900	C
32	31	48	5.5	10.5	7.5	16	A	13	ST1.0320	10	600	C
40	41.5	54	5.5	10.5	7.5	20	B	23	ST1.0400	10	370	C
50	46.5	64.5	7	14	9	23	B	29	ST1.0500	10	240	C
63	56	80	7	14	9	25	B	39	ST1.0630	10	280	B
75	63.6	94	9	17	10.5	27.5	B	55	ST1.0750	10	240	B
90	72	115	9	17	13.5	30	B	85	ST1.0900	10	100	B
110	83.8	139	9	17	14	30	B	100	ST1.1100	10	100	B

*Also available in black PE

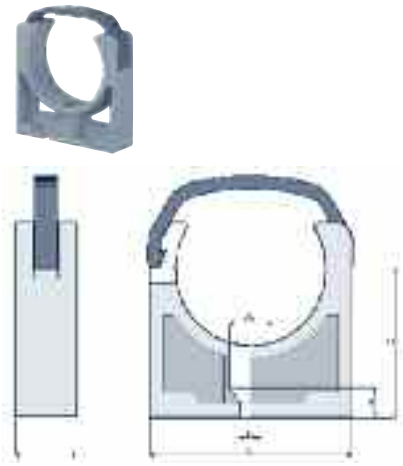


Fig B

SOLVENT CEMENT

Description	Volume (l)	Code
PVC solvent cement	0.5	R PCO.0200
ECO cleaner	0.5	M CFO.0200

Description	Volume (l)	Code
PVC chemical resistant cement	1	R PCO.0100
PVC chemical resistant cleaner	0.5	M CFO.0100

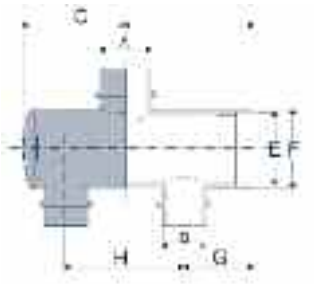
MANIFOLDS

The new CLT Manifold system is manufactured from PVC-U material and allows up to four outlets from one inlet.

- The system is completely modular, allowing the user to build the manifold to their specific requirement. The components are simply solvent welded together.
- An internal coupling step ensures that when building the manifold, all outlets are perfectly aligned.
- The system is 10 bar pressure rated.
- The system is available with solvent weld spigot or BSP threaded ends.
- It is no longer necessary to fabricate manifolds from individual pipe and fittings, giving significant cost and time savings.
- WRAS approved product.

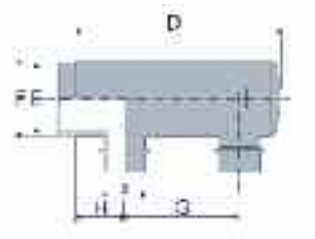
PLAIN SOLVENT ENDS

CLF | MALE SPIGOT INLET / OUTLET



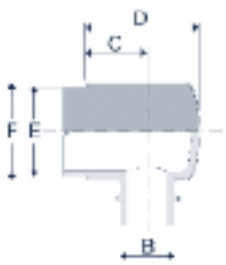
Size	A	B	C	D	E	F	G	H	Code
63mm Inlet / 50mm outlet body	63	50	117	144	83	90	77.5	135.5	M CLF063F
50mm Inlet / 50mm outlet body	50	50	117	144	83	90	77.5	135.5	M CLF050F

CLM | MALE SPIGOT DOUBLE OUTLET



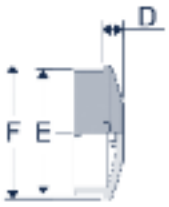
Size	B	D	E	F	G	H	Code
2 x 50mm	50	241	83	90	135.5	57.5	M CLM050F

CLM | SINGLE SPIGOT OUTLET



Size	B	C	D	E	F	Code
1 x 50mm	50	57.5	105	83	90	M CLM0500

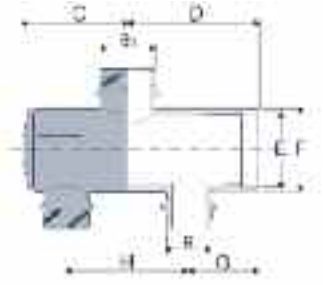
CLT | END CAP



	D	E	F	Code
End cap	12.5	83	90	M CLT0900

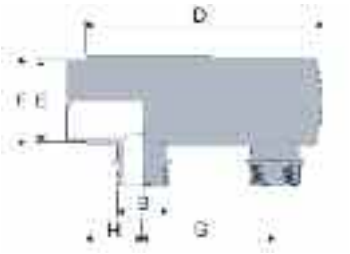
BSP THREADED ENDS

CLF | MALE BSP INLET / OUTLET



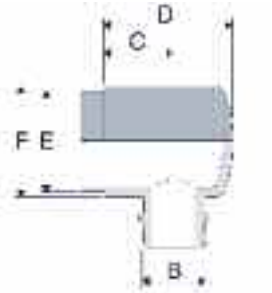
Size	A	B	C	D	E	F	G	H	Code
63mm Inlet / 50mm outlet body	2"	1 1/2"	117	144	83	90	77.5	135.5	T CLF063F
50mm Inlet / 50mm outlet body	1 1/2"	1 1/2"	117	144	83	90	77.5	135.5	T CLF050F

CLM | MALE BSP DOUBLE OUTLET



Size	B	D	E	F	G	H	Code
2 x 50mm	1 1/2"	241	83	90	135.5	57.5	T CLM050F

CLM | SINGLE BSP OUTLET



Size	B	C	D	E	F	Code
1 x 50mm	1 1/2"	57.5	105	83	90	T CLM0500

CLT | END CAP

	D	E	F	Code
End cap	12.5	83	90	M CLT0900

CONFIGURATION OPTIONS

4 x outlet

3 x outlet

2 x outlet

VALVES

A complete range of manual and actuated ball and butterfly valves.

Company Approval

Italian Institute of Plastics (IIP) has officially tested the conformity of Astore production system to UNI EN ISO 9001 (Certificate No. 354).

This standard defines the characteristics (dimensional, performance, environmental, safety and organisational setup) of a product and deem them suitable for the demands of the market. The extensive range of quality high performance products are recognised and appreciated throughout the world.

SINCERT SQP ISTITUTO ITALIANO DEI PLASTICI

Certificate No. 354

UNI EN ISO 9001

Standards

Astore ball valves are manufactured according to the following standards:

- ISO metric solvent weld series to ISO 727, EN 1452/4, complying with pipes to ISO 161/1, EN 1452/2
- BS solvent weld series to BS 4346/1, complying with pipes to BS 3506, BS 3505
- BSP threaded series to UNI ISO 228/1, DIN 2999, BS 21

CE

Astore valves follow the Directive of the European Parliament PED 97/23/CE regarding pressure equipment and are produced according to UNI EN ISO 16135.

The sheet here attached shows the classification of the family valves, which are marked CE (in self-certification), or CE 1115 (under approval of Notified Body).

Valves family	Mark
111	CE 1115
311	CE 1115
324	CE
326	CE
322	CE
302	CE
303	CE
800	CE 1115
VFO	CE 1115
VSA	CE 1115
VNR	CE 1115

111 | PVC BALL VALVE

D 16-3/8" – 32-1"

D 40-1 1/4" – 63-2"

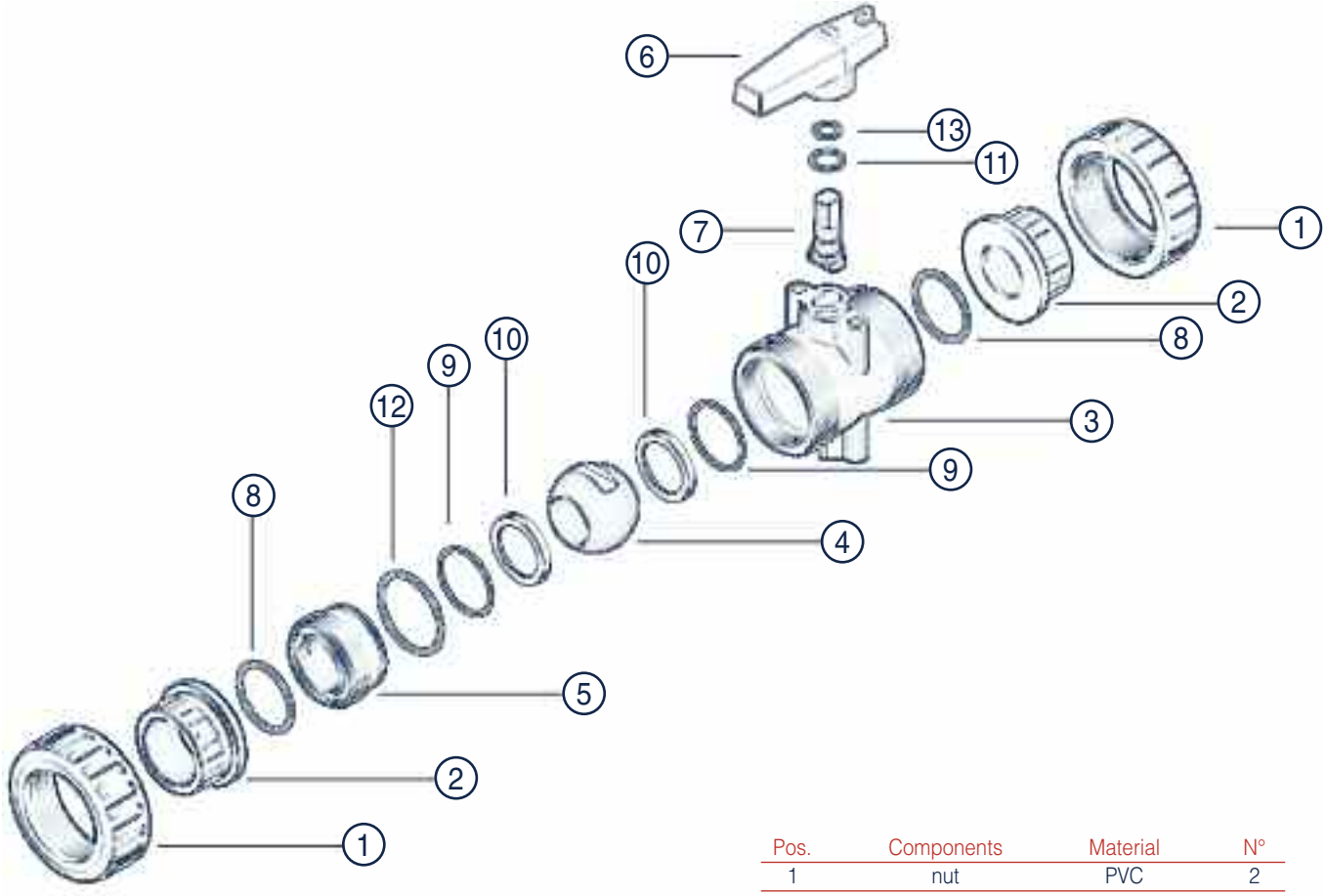
Grey PVC ball valve for industrial applications, true union, adjustable support, provided with seatings for actuator brackets and connections.

EPDM or FPM seals, PTFE ball seats.

Operating pressure: PN16 at 20° C.

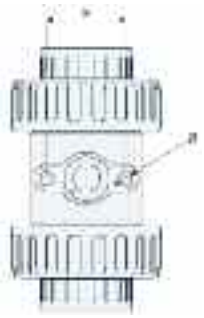
Versions available: ISO metric (M111) and BS standard (I111) plain solvent weld socket; BSP threaded socket (T112).

Manufactured in other international standards (ASTM, JIS) upon request.



Pos.	Components	Material	N°
1	nut	PVC	2
2	union end	PVC	2
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM/FPM	2
9	seat O-ring	EPDM/FPM	2
10	ball seat	PTFE	2
11	stem O-ring	EPDM/FPM	1
12	body O-ring	EPDM/FPM	1
13	stem O-ring	EPDM/FPM	1

111 | PVC BALL VALVE



DN	X	Ø
10	31	5.5
15	31	5.5
20	31	5.5
25	40	6.5
32	45	8
40	50	8
50	50	8

M111

D	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
16	10	14	69	97	47	45	66	160	M.111.0160	M.111.016F	45
20	15	16	70	102	47	45	66	160	M.111.0200	M.111.020F	45
25	20	19	82	120	57	55	78	260	M.111.0250	M.111.025F	22
32	25	22	87	131	68	67	86	380	M.111.0320	M.111.032F	18
40	32	26	98	150	86	83	100	655	M.111.0400	M.111.040F	10
50	40	31	101	163	98	91	110	925	M.111.0500	M.111.050F	8
63	50	38	121	197	122	111	130	1695	M.111.0630	M.111.063F	8

T112

R	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
3/8"	10	14	69	97	47	45	66	160	T.112.0160	T.112.016F	45
1/2"	15	16	70	102	47	45	66	160	T.112.0200	T.112.020F	45
3/4"	20	19	82	120	57	55	78	260	T.112.0250	T.112.025F	22
1"	25	22	87	131	68	67	86	380	T.112.0320	T.112.032F	18
1 1/4"	32	26	98	150	86	83	100	655	T.112.0400	T.112.040F	10
1 1/2"	40	31	101	163	98	91	110	925	T.112.0500	T.112.050F	8
2"	50	38	121	197	122	111	130	1695	T.112.0630	T.112.063F	8

I111

D	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
3/8"	10	14	69	97	47	45	66	160	I.111.0160	I.111.016F	45
1/2"	15	16	70	102	47	45	66	160	I.111.0200	I.111.020F	45
3/4"	20	19	82	120	57	55	78	260	I.111.0250	I.111.025F	22
1"	25	22	87	131	68	67	86	380	I.111.0320	I.111.032F	18
1 1/4"	32	26	98	150	86	83	100	655	I.111.0400	I.111.040F	10
1 1/2"	40	31	101	163	98	91	110	925	I.111.0500	I.111.050F	8
2"	50	38	121	197	122	111	130	1695	I.111.0630	I.111.063F	8

311 | PVC BALL VALVE

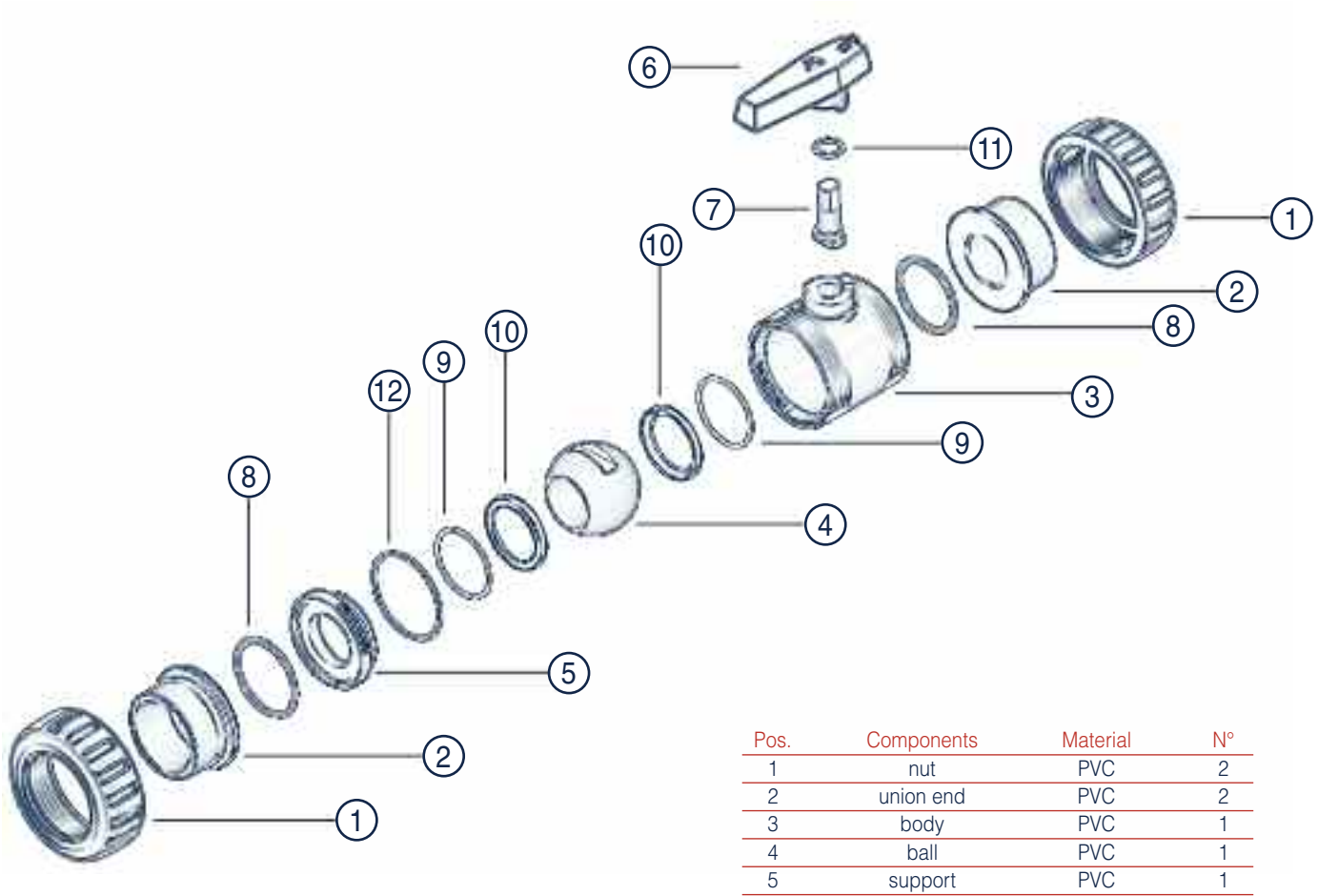
Grey PVC ball valve for processing plants, true union, adjustable swivel support.

EPDM or FPM seals, PTFE ball seats.

Operating pressure: PN 16 to 20°C up to d.63-2"; PN 10 to 20°C d.75- 2 1/2" 90-3"; PN 6 to 20°C d.110-4".

Versions available: ISO metric (M311) and BS standard (I311) plain solvent weld socket; BSP threaded socket (T312).

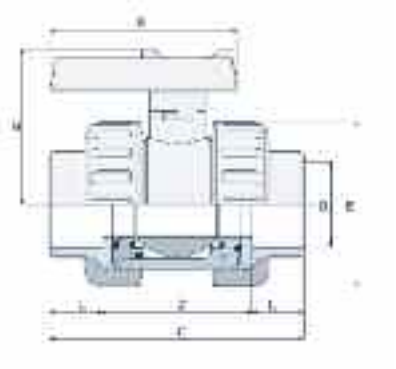
Manufactured in other international standards (ASTM, JIS) upon request.



Pos.	Components	Material	N°
1	nut	PVC	2
2	union end	PVC	2
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM/FPM	2
9	seat O-ring	EPDM/FPM	2
10	ball seat	PTFE	2
11	stem O-ring	EPDM/FPM	1
12	body O-ring	EPDM/FPM	1

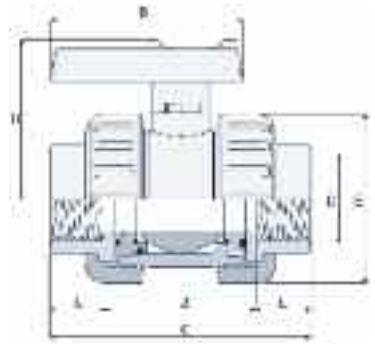
311 | PVC BALL VALVE

M311



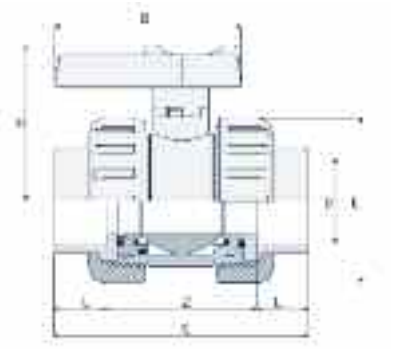
D	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
16	10	14	47	75	50	50	57	120	M.311.0160	M.311.016F	45
20	15	17	47	81	50	50	57	125	M.311.0200	M.311.020F	45
25	20	19	57	95	59	55	66	205	M.311.0250	M.311.025F	22
32	25	22	61	105	68	66.5	75	300	M.311.0320	M.311.032F	18
40	32	26	72	124	80	79.5	90	440	M.311.0400	M.311.040F	18
50	40	31	84	146	96	93	103	710	M.311.0500	M.311.050F	10
63	50	38	96	172	116	107	121	1110	M.311.0630	M.311.063F	8
75	65	44	170	258	196	151	212	3060	M.311.0750	M.311.075F	3
90	80	51	170	272	196	151	212	3110	M.311.0900	M.311.090F	3
110	100	61	193	315	239	178	212	5550	M.311.1100	M.311.110F	2

T312



D	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
3/8"	10	14	47	75	50	50	57	130	T.312.0160	T.312.016F	45
1/2"	15	17	47	81	50	50	57	135	T.312.0200	T.312.020F	45
3/4"	20	19	57	95	59	55	66	215	T.312.0250	T.312.025F	22
1"	25	22	61	105	68	66.5	75	310	T.312.0320	T.312.032F	18
1 1/4"	32	26	72	124	80	79.5	90	460	T.312.0400	T.312.040F	18
1 1/2"	40	31	84	146	96	93	103	730	T.312.0500	T.312.050F	10
2"	50	38	96	172	116	107	121	1130	T.312.0630	T.312.063F	8
2 1/2"	65	44	170	258	196	151	212	3060	T.312.0750	T.312.075F	3
3"	80	51	170	272	196	151	212	3110	T.312.0900	T.312.090F	3
4"	100	61	193	315	239	178	212	5550	T.312.1100	T.312.110F	2

I311



D	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
3/8"	10	14	47	75	50	50	57	120	I.311.0160	I.311.016F	45
1/2"	15	17	47	81	50	50	57	125	I.311.0200	I.311.020F	45
3/4"	20	19	57	95	59	55	66	205	I.311.0250	I.311.025F	22
1"	25	22	61	105	68	66.5	75	300	I.311.0320	I.311.032F	18
1 1/4"	32	26	72	124	80	79.5	90	440	I.311.0400	I.311.040F	18
1 1/2"	40	31	84	146	96	93	103	710	I.311.0500	I.311.050F	10
2"	50	38	96	172	116	107	121	1110	I.311.0630	I.311.063F	8
2 1/2"	65	44	170	258	196	151	212	3060	I.311.0750	I.311.075F	3
3"	80	51	170	272	196	151	212	3110	I.311.0900	I.311.090F	3
4"	100	61	193	315	239	178	212	5550	I.311.1100	I.311.110F	2

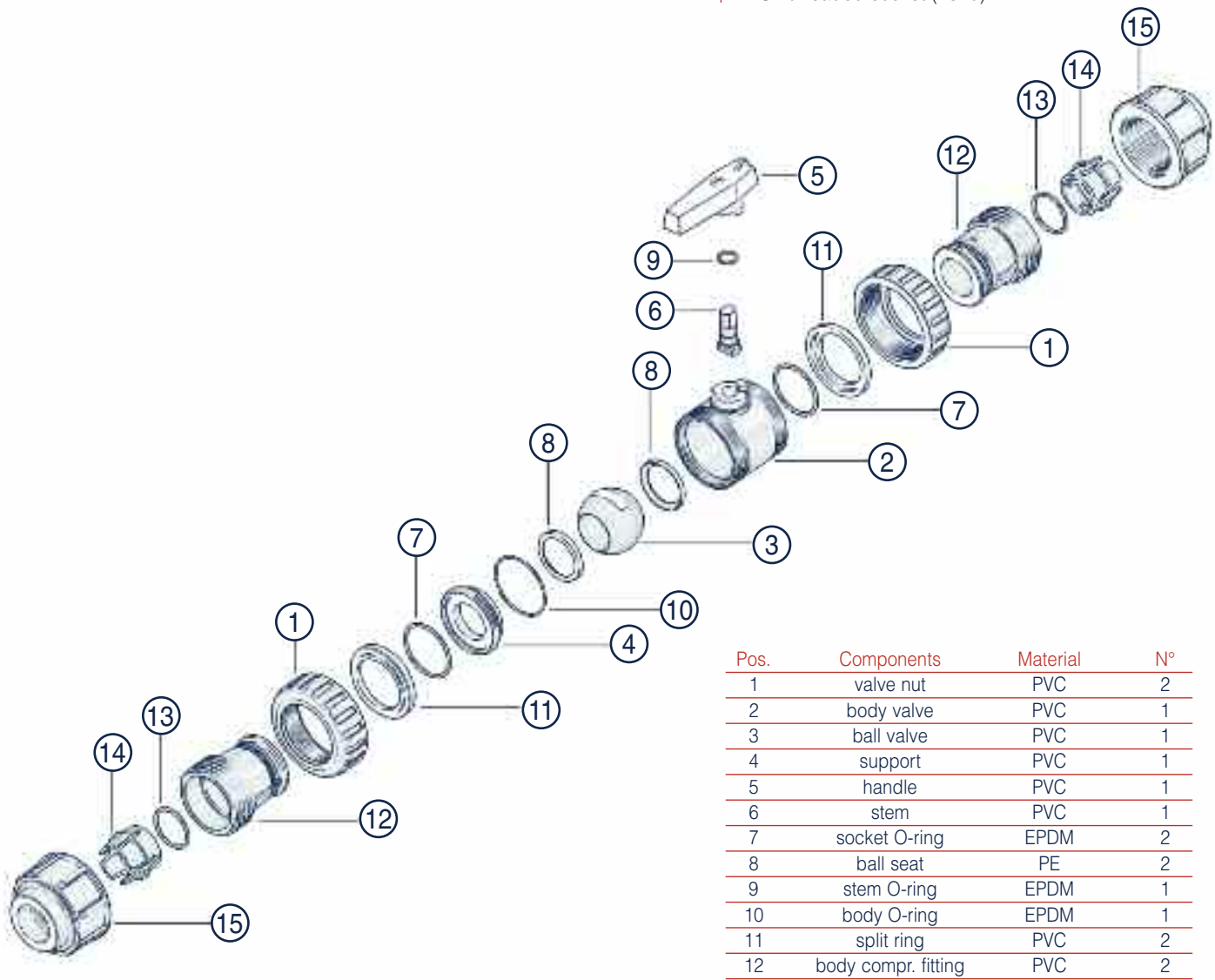
334 | PVC BALL VALVE

Grey PVC ball valve for water supply systems and swimming pools, true union, with adjustable support.

EPDM seals, PE ball seats.

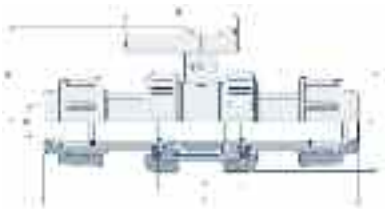
Operating pressure: PN 16 to 20 °C up to d.63-2" PN 10 d.75 2 1/2" - 90-3", PN 6 d. 110-4".

Version available: ISO metric (M324) and BS standard (I324) plain solvent weld socket, BSP threaded socket (T325).



Pos.	Components	Material	N°
1	valve nut	PVC	2
2	body valve	PVC	1
3	ball valve	PVC	1
4	support	PVC	1
5	handle	PVC	1
6	stem	PVC	1
7	socket O-ring	EPDM	2
8	ball seat	PE	2
9	stem O-ring	EPDM	1
10	body O-ring	EPDM	1
11	split ring	PVC	2
12	body compr. fitting	PVC	2
13	compr. fitting O-ring	NBR	2
14	clinching ring	POM	2
15	compr. fitting nut	PP	2

M334



D	DN	C	E	H	B	Z	Weight (g)	Code	Box
20	15	175	50	50	57	74	193	M.334.0200	60
25	20	195	59	55	66	85	292	M.334.0250	30
32	25	212	68	63	75	85	450	M.334.0320	20

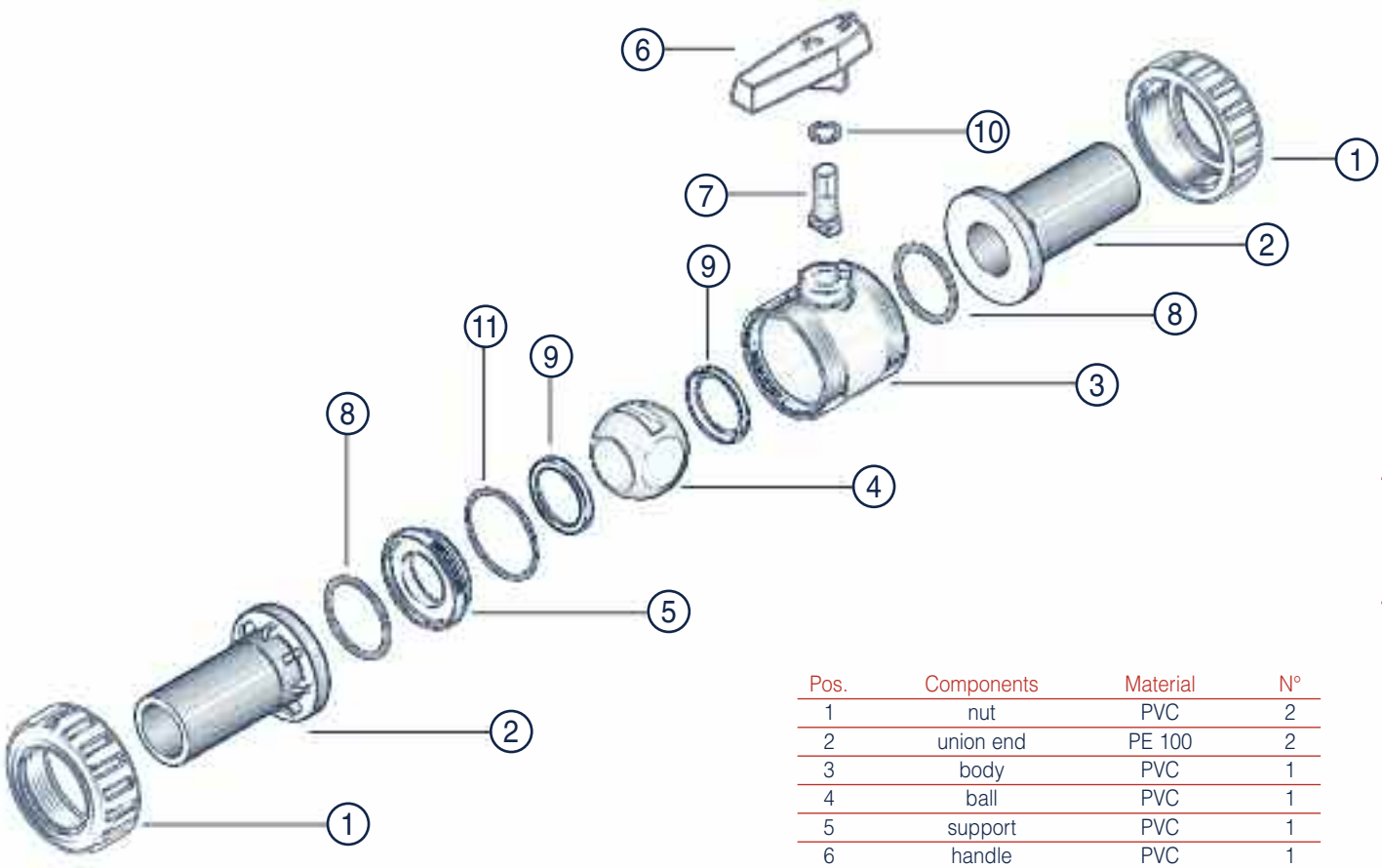
326 | PVC BALL VALVE

Grey PVC ball valve for water supply systems in PE pipes, true union, with adjustable support.

EPDM seals, PE ball seats.

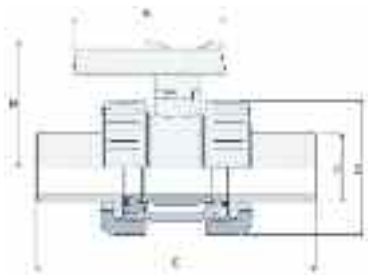
Operating pressure: PN 16 to 20° C.

Version available: supplied with PE 100 SDR 11 union ends, for butt welding and electrofusion (M326).



Pos.	Components	Material	N°
1	nut	PVC	2
2	union end	PE 100	2
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	2
8	socket O-ring	EPDM	2
9	ball seat	PE	2
10	stem O-ring	EPDM	1
11	body O-ring	EPDM	1

M326



D	DN	C	E	H	B	Weight (g)	Code
20	15	152	50	50	57	125	M.326.0200
25	20	192	59	55	66	215	M.326.0250
32	25	201	68	66,5	75	320	M.326.0320
40	32	220	80	79,5	90	460	M.326.0400
50	40	246	96	93	103	740	M.326.0500
63	50	272	116	107	121	1150	M.326.0630

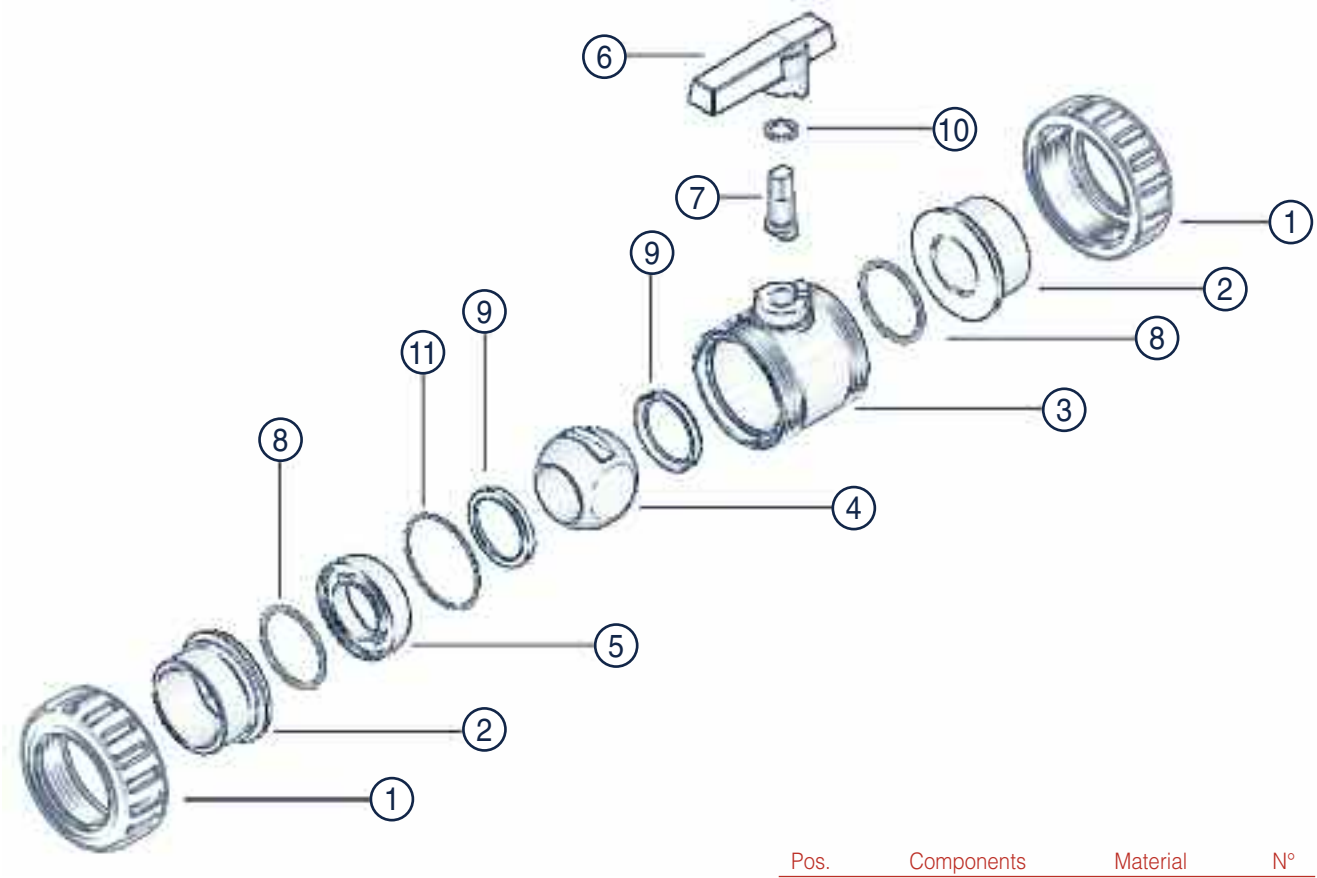
322 | PVC BALL VALVE

Grey PVC ball valve for water irrigation and supply systems, true union, free support.

EPDM seals, PE ball seats.

Operating pressure: PN 16 to 20°C up to d.63-2", PN 10 to 20°C d.75-2 1/2" 90-3", PN 6 to 20°C d.110-4".

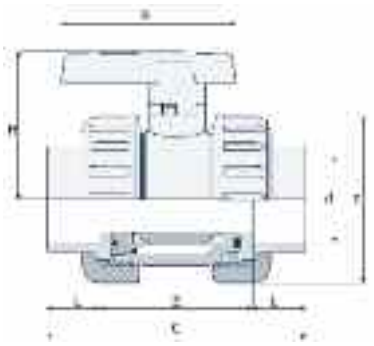
Versions available: ISO metric (M322) and BS standard (I322) plain solvent weld socket; BSP threaded female socket (T321).



Pos.	Components	Material	N°
1	nut	PVC	2
2	union end	PVC	2
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM	2
9	ball seat	PE	2
10	stem O-ring	EPDM	1
11	body O-ring	EPDM	1

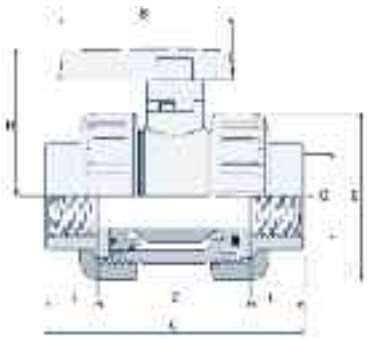
322 | PVC BALL VALVE

M322



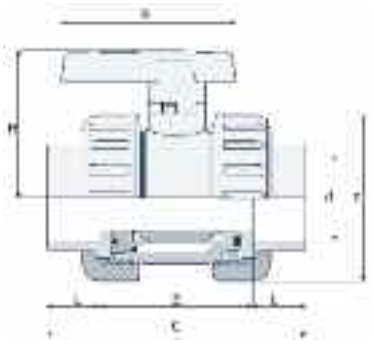
D	DN	L	Z	C	E	H	B	Weight (g)	Code	Box
16	10	14	47	75	50	50	57	120	M.322.0160	120
20	15	17	47	81	50	50	57	125	M.322.0200	120
25	20	19	57	95	59	55	66	205	M.322.0250	70
32	25	22	61	105	68	63	75	300	M.322.0320	50
40	32	26	72	124	80	76	90	440	M.322.0400	30
50	40	31	84	146	96	88	103	710	M.322.0500	20
63	50	38	96	172	116	102	121	1110	M.322.0630	10
75	65	44	170	258	196	151	212	3060	M.322.0750	3
90	80	51	170	272	196	151	212	3110	M.322.0900	3
110	100	61	193	315	239	178	212	5550	M.322.1100	2

T321



G	DN	L	Z	C	E	H	B	Weight (g)	Code	Box
3/8"	10	14	47	75	50	50	57	130	T.321.0160	120
1/2"	15	17	47	81	50	50	57	135	T.321.0200	120
3/4"	20	19	57	95	59	55	66	215	T.321.0250	70
1"	25	22	61	105	68	63	75	310	T.321.0320	50
1 1/4"	32	26	72	124	80	76	90	460	T.321.0400	30
1 1/2"	40	31	84	146	96	88	103	730	T.321.0500	20
2"	50	38	96	172	116	102	121	1130	T.321.0630	10
2 1/2"	65	44	170	258	196	151	212	3060	T.321.0750	3
3"	80	51	170	272	196	151	212	3110	T.321.0900	3
4"	100	61	193	315	239	178	212	5550	T.321.1100	2

I322



D	DN	L	Z	C	E	H	B	Weight (g)	Code	Box
3/8"	10	14	47	75	50	50	57	120	I.322.0160	120
1/2"	15	17	47	81	50	50	57	125	I.322.0200	120
3/4"	20	19	57	95	59	55	66	205	I.322.0250	70
1"	25	22	61	105	68	63	75	300	I.322.0320	50
1 1/4"	32	26	72	124	80	76	90	440	I.322.0400	30
1 1/2"	40	31	84	146	96	88	103	710	I.322.0500	20
2"	50	38	96	172	116	102	121	1110	I.322.0630	10
2 1/2"	65	44	170	258	196	151	212	3060	I.322.0750	3
3"	80	51	170	272	196	151	212	3110	I.322.0900	3
4"	100	61	193	315	239	178	212	5550	I.322.1100	2

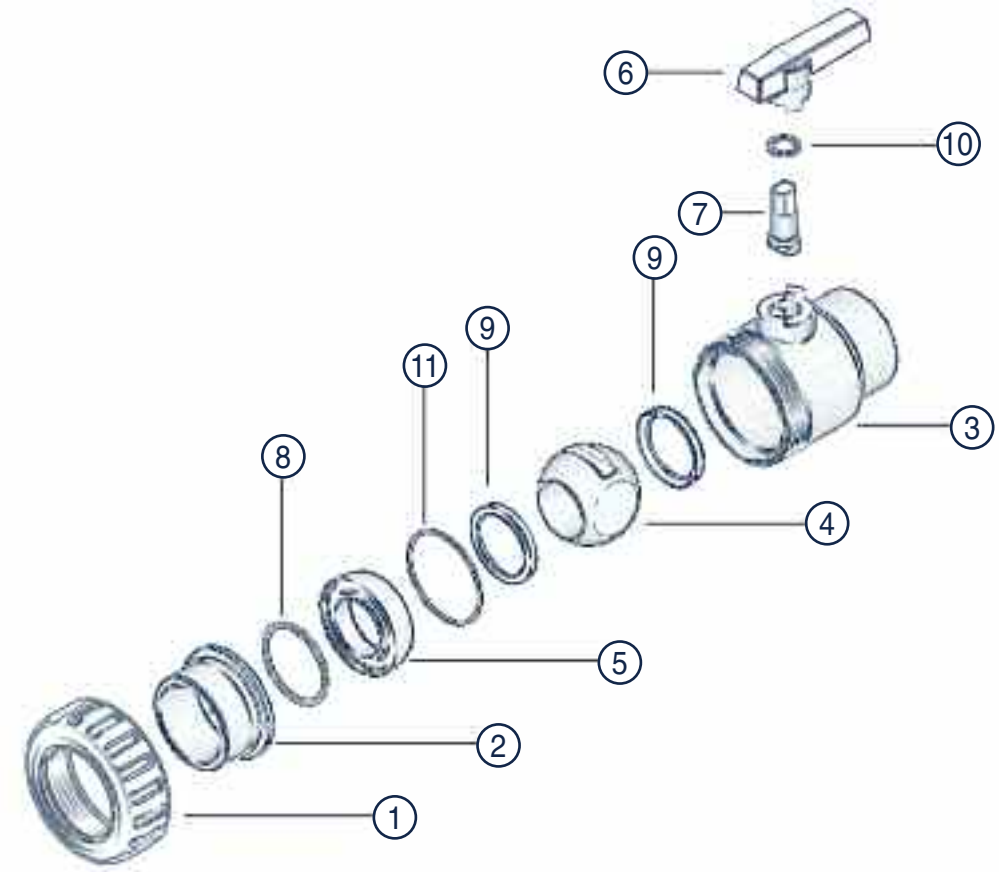
302 | PVC BALL VALVE

Grey PVC ball valve for irrigation and water supply systems, single union, free support.

EPDM seals, PE ball seats.

Operating pressure: PN 16 to 20°C up to d.63-2", PN 10 to 20°C d.75-2 1/2" 90-3", PN 6 to 20°C d.110-4".

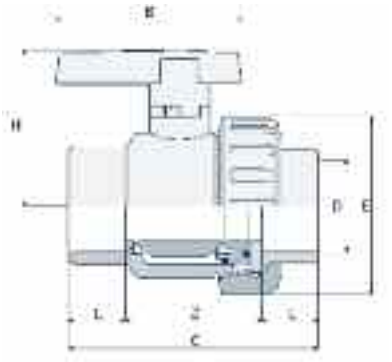
Versions available: ISO metric (M302) and BS standard (I302) plain solvent weld socket; BSP threaded socket (T301).



Pos.	Components	Material	N°
1	nut	PVC	1
2	union end	PVC	1
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM	1
9	ball seat	PE	2
10	stem O-ring	EPDM	1/2
11	body O-ring	EPDM	1
12	seat O-ring	EPDM	2

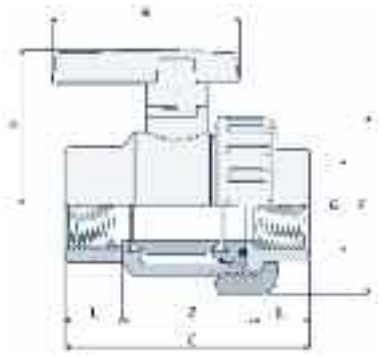
302 | PVC BALL VALVE

M302



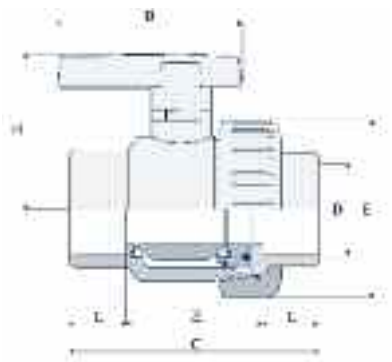
D	DN	L	Z	C	E	H	B	Weight (g)	Code	Box
16	10	14	51	85	50	50	57	95	M.302.0160	120
20	15	17	54	85	50	50	57	100	M.302.0200	120
25	20	19	63	98	59	55	66	155	M.302.0250	80
32	25	22	71	111	68	63	75	240	M.302.0320	60
40	32	26	88	136	80	76	90	350	M.302.0400	30
50	40	31	96	158	96	88	103	550	M.302.0500	20
63	50	38	104	180	116	102	121	930	M.302.0630	10
75	65	44	105	193	196	151	212	2230	M.302.0750	4
90	80	51	105	207	196	151	212	2250	M.302.0900	4
110	100	61	137	259	239	178	212	4310	M.302.1100	2

T301



G	DN	L	Z	C	E	H	B	Weight (g)	Code	Box
3/8"	10	14	51	85	50	50	57	105	T.301.0160	120
1/2"	15	17	54	85	50	50	57	110	T.301.0200	120
3/4"	20	19	63	98	59	55	66	165	T.301.0250	80
1"	25	22	71	111	68	63	75	250	T.301.0320	60
1 1/4"	32	26	88	136	80	76	90	370	T.301.0400	30
1 1/2"	40	31	96	158	96	88	103	570	T.301.0500	20
2"	50	38	104	180	116	102	121	950	T.301.0630	10
2 1/2"	65	44	105	193	196	151	212	2230	T.301.0750	4
3"	80	51	105	207	196	151	212	2250	T.301.0900	4
4"	100	61	137	259	239	178	212	4310	T.301.1100	2

I302



D	DN	L	Z	C	E	H	B	Weight (g)	Code	Box
3/8"	10	14	51	85	50	50	57	95	I.302.0160	120
1/2"	15	17	54	85	50	50	57	100	I.302.0200	120
3/4"	20	19	63	98	59	55	66	155	I.302.0250	80
1"	25	22	71	111	68	63	75	240	I.302.0320	60
1 1/4"	32	26	88	136	80	76	90	350	I.302.0400	30
1 1/2"	40	31	96	158	96	88	103	550	I.302.0500	20
2"	50	38	104	180	116	102	121	930	I.302.0630	10
2 1/2"	65	44	105	193	196	151	212	2230	I.302.0750	4
3"	80	51	105	207	196	151	212	2250	I.302.0900	4
4"	100	61	137	259	239	178	212	4310	I.302.1100	2

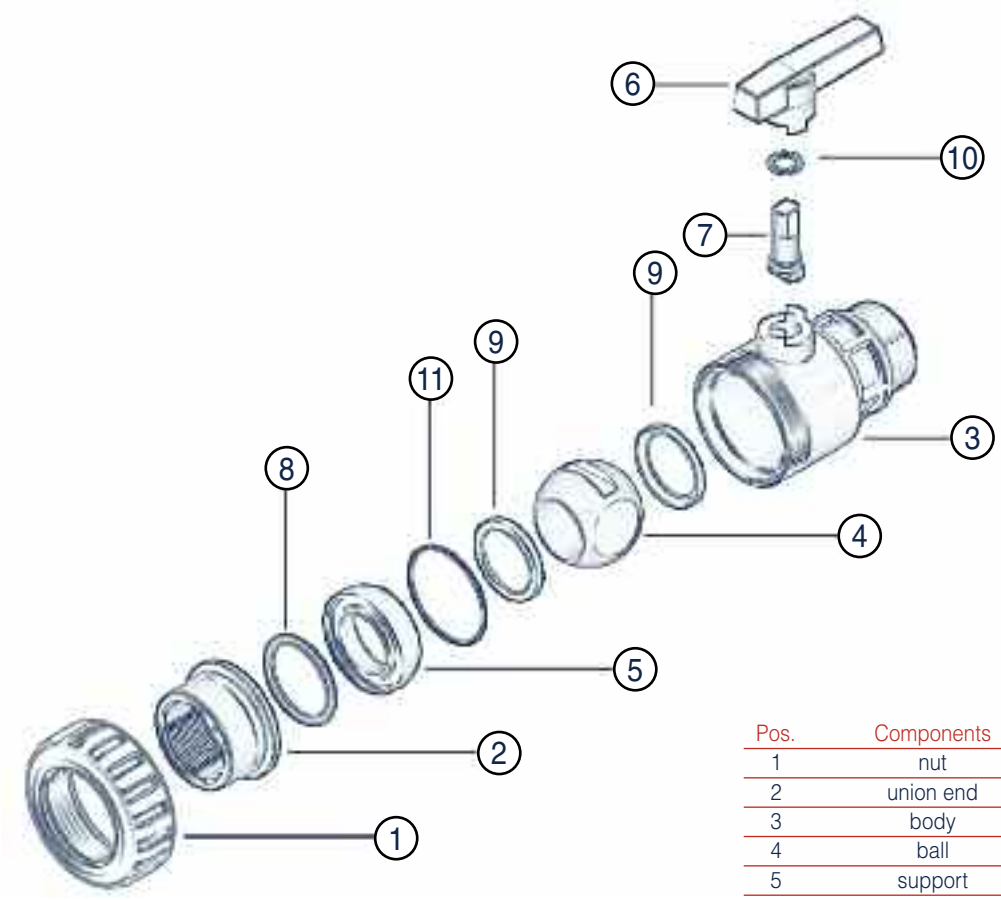
303 | PVC BALL VALVE

Grey PVC ball valve for irrigation and water supply systems, single union, free support.

EPDM seals, PE ball seats.

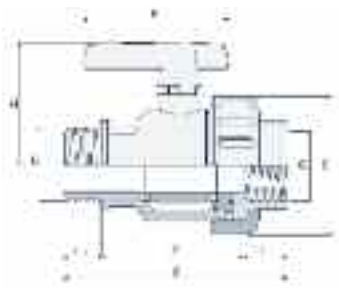
Operating pressure: PN 16 to 20°C.

Version available: BSP threaded socket on nut side, male thread on valve body side (T303).



Pos.	Components	Material	N°
1	nut	PVC	1
2	union end	PVC	1
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM	1
9	ball seat	PE	2
10	stem O-ring	EPDM	1
11	body O-ring	EPDM	1

T303



G	DN	L_1	L_2	Z	C	E	H	B	Weight (g)	Code	Box
3/8"	10	14	14	51	85	50	50	57	72	T.303.0160	120
1/2"	15	17	17	54	85	50	50	57	95	T.303.0200	120
3/4"	20	19	19	63	98	59	55	66	156	T.303.0250	80
1"	25	22	22	71	111	68	63	75	238	T.303.0320	60
1 1/4"	32	26	26	88	136	80	76	90	360	T.303.0400	30
1 1/2"	40	31	31	96	158	96	88	103	540	T.303.0500	20
2"	50	38	38	104	180	116	102	121	875	T.303.0630	10

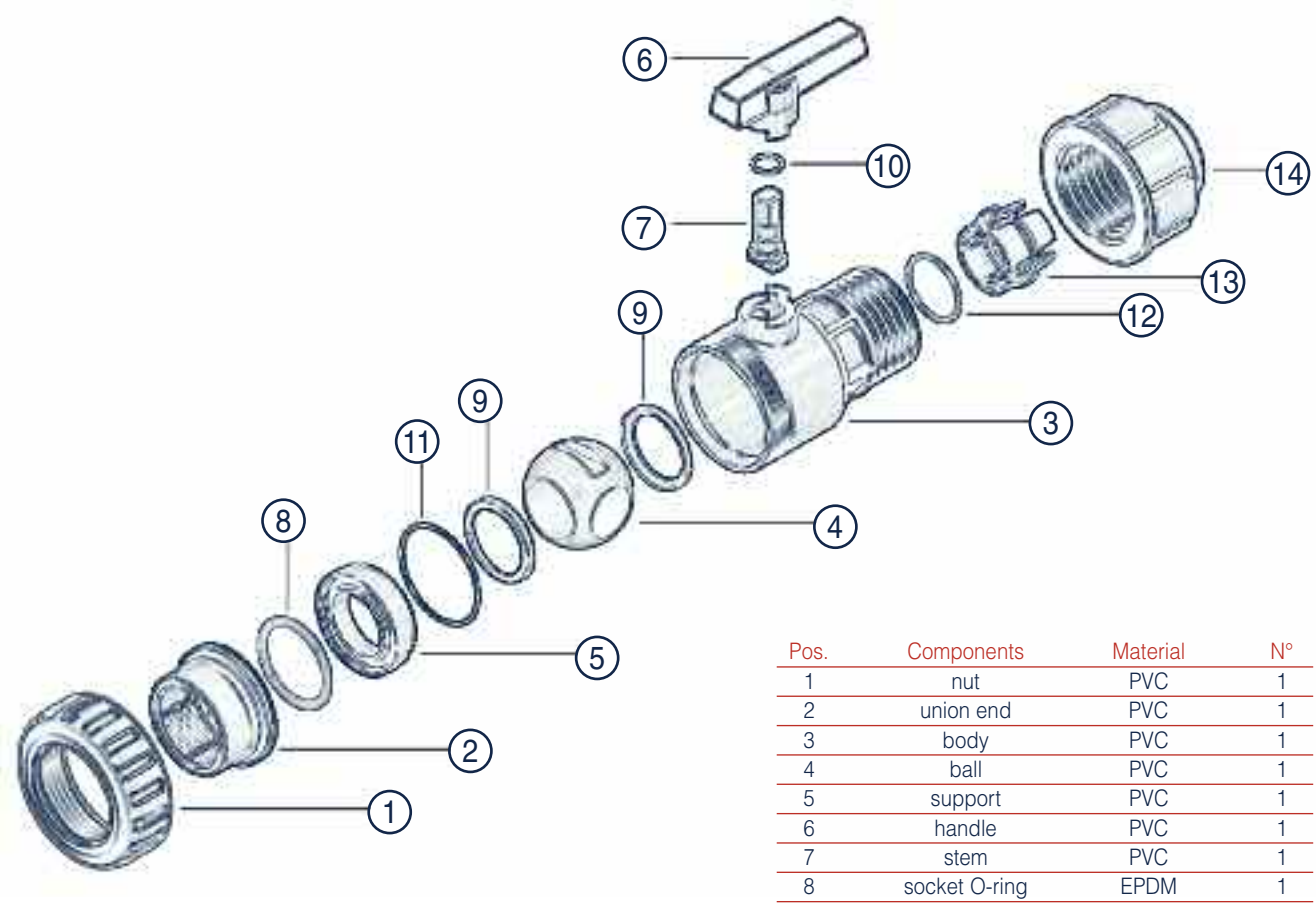
305 | PVC BALL VALVE

Grey PVC ball valve for irrigation systems, single union, free support.

EPDM seals, PE ball seats.

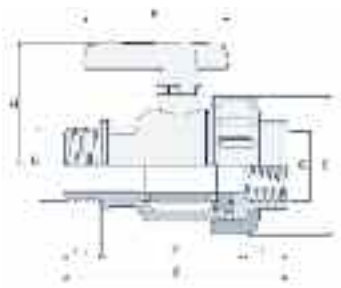
Operating pressure: PN 16 to 20°C.

Version available: BSP threaded socket on nut side, compression fitting for connection to PE pipes on valve body side (T305).



Pos.	Components	Material	N°
1	nut	PVC	1
2	union end	PVC	1
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM	1
9	ball seat	PE	2
10	stem O-ring	EPDM	1
11	body O-ring	EPDM	1
12	body O-ring	NBR	1
13	clinching ring	POM	1
14	nut	PP	1

T305



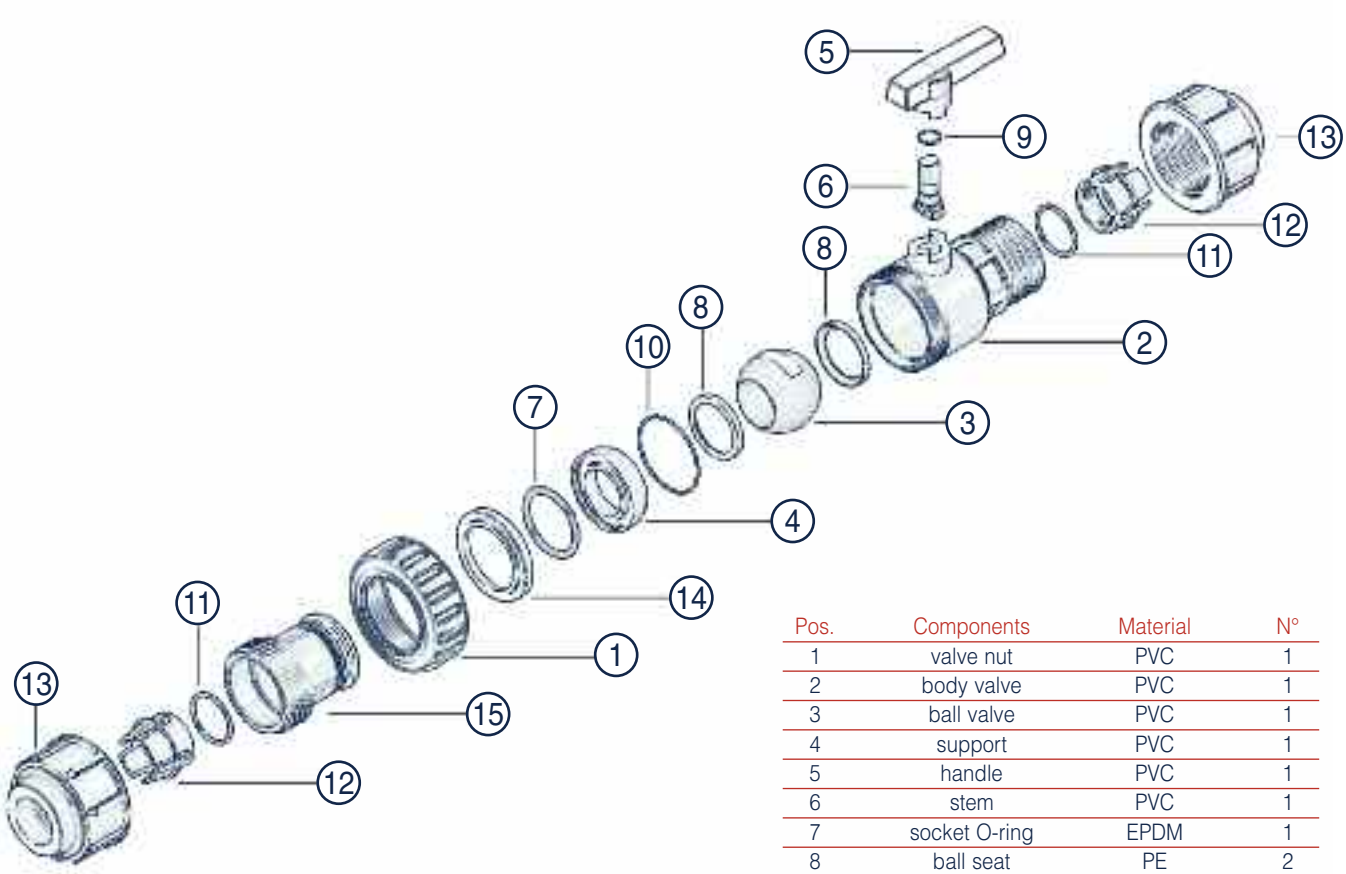
G	DN	L	C	E	H	B	Weight (g)	Code	Box
16 x 3/8"	10	14	99	50	50	57	42	T.305.016A	120
20 x 1/2"	15	17	99	50	50	57	46	T.305.020B	100
25 x 3/4"	20	19	115	59	55	66	110	T.305.025C	60
32 x 1"	25	22	131	68	63	75	211	T.305.032D	40
40 x 1 1/4"	32	26	158	80	76	90	320	T.305.040E	20
50 x 1 1/2"	40	31	181	96	88	103	460	T.305.050F	15
63 x 2"	50	38	221	116	102	121	690	T.305.063G	8

335 | PVC BALL VALVE

Grey PVC ball valve for irrigation systems, single union, free support.

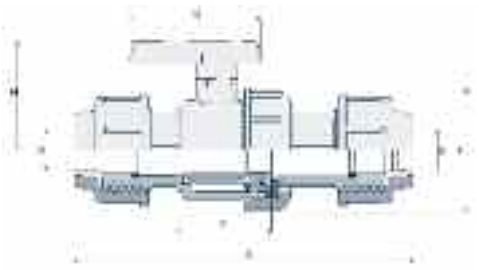
EPDM seals, PE ball seats.

Operating pressure: PN 16 to 20°C provided with compression fitting junction to connect PE ISO metric pipes from both sides.



Pos.	Components	Material	N°
1	valve nut	PVC	1
2	body valve	PVC	1
3	ball valve	PVC	1
4	support	PVC	1
5	handle	PVC	1
6	stem	PVC	1
7	socket O-ring	EPDM	1
8	ball seat	PE	2
9	stem O-ring	EPDM	1
10	body O-ring	EPDM	1
11	compr. fitting O-ring	NBR	2
12	clinching ring	POM	2
13	compr. fitting nut	PP	2
14	split ring	PVC	1
15	body compr. fitting	PVC	1

M335



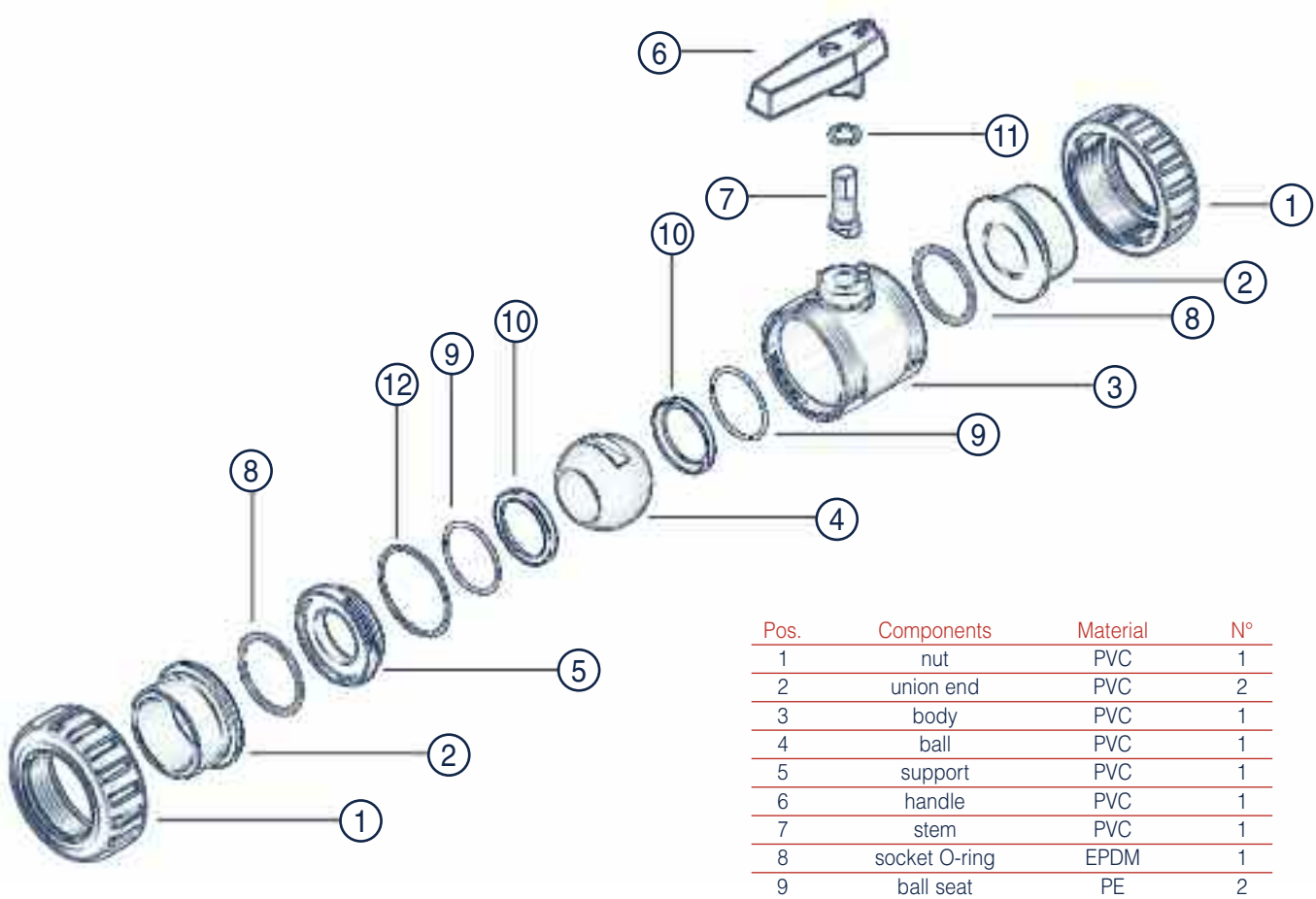
D	DN	C	E	H	B	Z	Weight (g)	Code	Box
20	15	148	50	50	57	67	156	M.335.0200	70
25	20	165	59	55	66	77	235	M.335.0250	40
32	25	188	68	63	75	83	365	M.335.0320	30

311 | ABS BALL VALVE

Grey ABS ball valve for processing plants, true union, adjustable support.

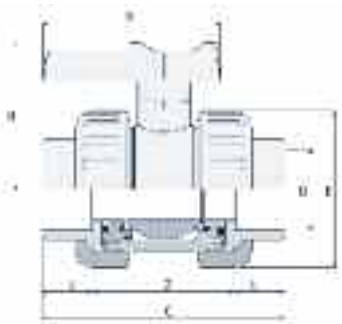
EPDM seals, PTFE ball seats.

Version available BS standard (S311) plain solvent weld socket.



Pos.	Components	Material	N°
1	nut	PVC	1
2	union end	PVC	2
3	body	PVC	1
4	ball	PVC	1
5	support	PVC	1
6	handle	PVC	1
7	stem	PVC	1
8	socket O-ring	EPDM	1
9	ball seat	PE	2
10	stem O-ring	EPDM	1
11	body O-ring	EPDM	1
12	body O-ring	NBR	1
13	clinching ring	POM	1
14	nut	PP	1

S311

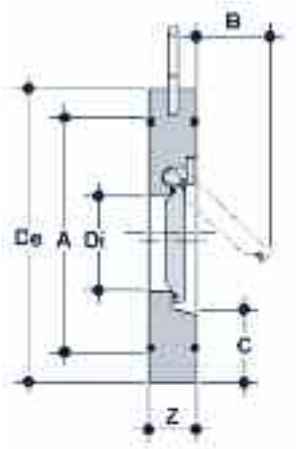


D	DN	L	Z	C	E	H	B	Weight (g)	Code EPDM	Code FPM	Box
3/8"	10	14	47	75	50	50	57	95	S.311.0160	S.311.016F	45
1/2"	15	17	47	81	50	50	57	95	S.311.0200	S.311.020F	45
3/4"	20	19	57	95	59	55	66	156	S.311.0250	S.311.025F	22
1"	25	22	61	105	68	66.5	75	228	S.311.0320	S.311.032F	8
1 1/4"	32	26	72	124	80	79.5	90	334	S.311.0400	S.311.040F	18
1 1/2"	40	31	84	146	96	93	103	540	S.311.0500	S.311.050F	10
2"	50	38	96	172	116	107	121	844	S.311.0630	S.311.063F	8
2 1/2"	65	44	170	258	196	151	212	2326	S.311.0750	S.311.075F	3
3"	80	51	170	272	196	151	212	2364	S.311.0900	S.311.090F	3
4"	100	61	193	315	239	178	212	4218	S.311.1100	S.311.110F	2

MCLP | PVC WAFER CHECK VALVE

PVC wafer check valve. Connection with flanges, Astore stubs (QR1) and flat gaskets (GQP).

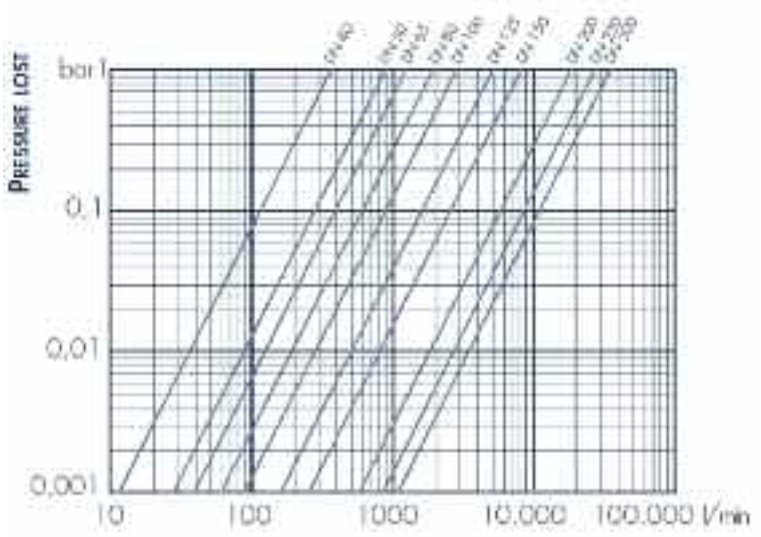
Pressure rating PN 5 to 20°C, maximum pressure rating of connected pipe PN 10.



D	DN	De	Z	Di	A	B	C	Weight (g)	Code	A (hor) Bar	A (vert) Bar	B Bar
1 1/2"/50mm	40	95	16	21	72	25	28	160	M.CLP.0500	0.001	0.004	0.3
2"/63mm	50	109	20	32	86	37	29	250	M.CLP.0630	0.001	0.004	0.4
2 1/2"/75mm	65	129	20	40	105	50	31	320	M.CLP.0750	0.001	0.004	0.3
3"/90mm	80	144	20	54	119	61	32	390	M.CLP.0900	0.001	0.007	0.2
4"/110mm	100	164	22	70	146	77	31	550	M.CLP.1100	0.001	0.007	0.2
5"140mm	125	195	23	92	173	94	35	750	M.CLP.1400	0.001	0.007	0.3
6"/160mm	150	220	25	112	197	115	35	1100	M.CLP.1600	0.001	0.007	0.1
8"/225mm	200	275	35	154	225	152	38	2100	M.CLP.2250	0.001	0.012	0.1
10"/280mm	250	330	40	192	312	180	41	3500	M.CLP.2800	0.001	0.012	0.1
12"/315mm	300	380	45	227	363	215	41	5300	M.CLP.3150	0.001	0.012	0.1

A - Minimum pressure for valve opening

B - Minimum pressure for seal



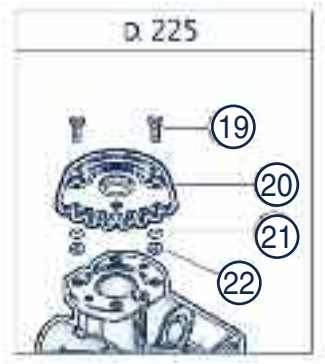
M800 | PVC BUTTERFLY VALVE

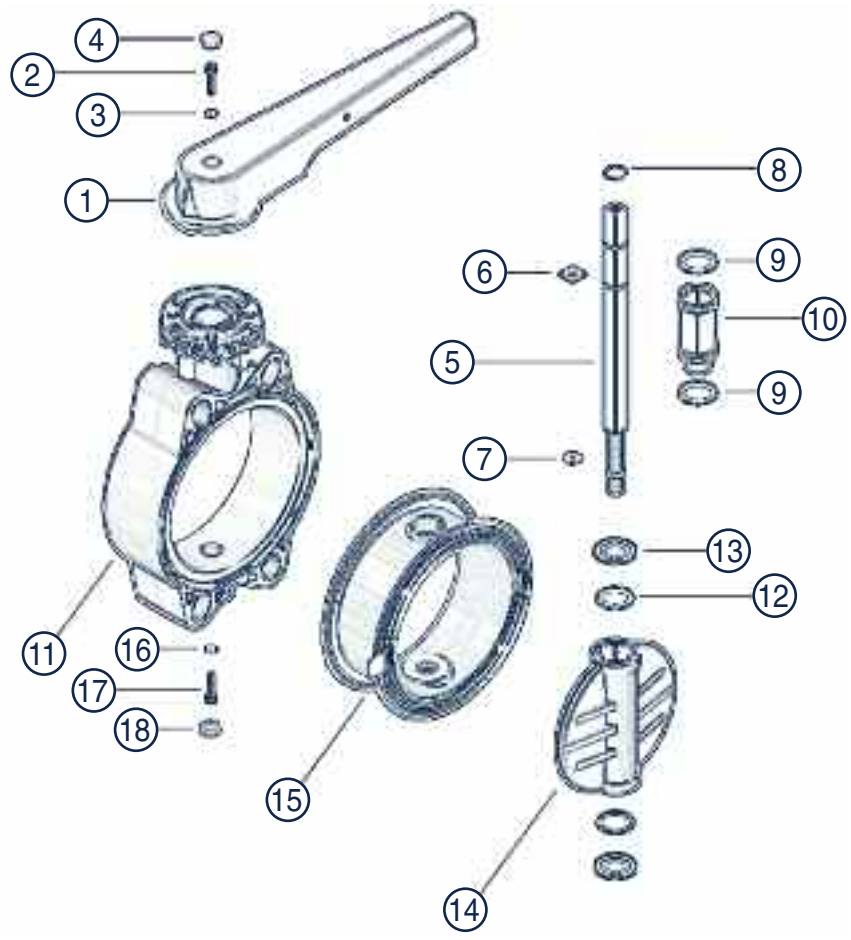
Grey PVC butterfly valve for water supply systems. EPDM seals, galvanised steel stem.

Flange type coupling with collars and flanges.

Range available from d.50 (DN 40) up to d.315 (DN 300).

Diameters d.280-315 supplied with gear box as standard. Pressure rating and operating torque, see page 74.





D.50 DN 40 – D.75 DN 65

D.90 DN 80 – 160 DN 150

D.225 DN 200

Pos.	Components	Material	N°
1	handle	PVC	1
2	screw	stainless steel	1
3	washer	stainless steel	1
4	protection cap	PE	1
5	shaft	zinc plated steel	1
6	shaft gasket	EPDM	1
7	shaft O-ring	EPDM	1
8	seeger ring	stainless steel	1
9	bush O-ring	EPDM	2
10	bush	nylon	1
11	body	PVC	1

Pos.	Components	Material	N°
12	disc O-ring	EPDM	2
13	anti-friction ring	PTFE	2
14	disc	PVC	1
15	gasket	EPDM	1
16	washer	stainless steel	1
17	screw	stainless steel	1
18	protection cap	PE	1
19	screw	stainless steel	2
20	pad	PVC	1
21	washer	stainless steel	2
22	nut	stainless steel	2

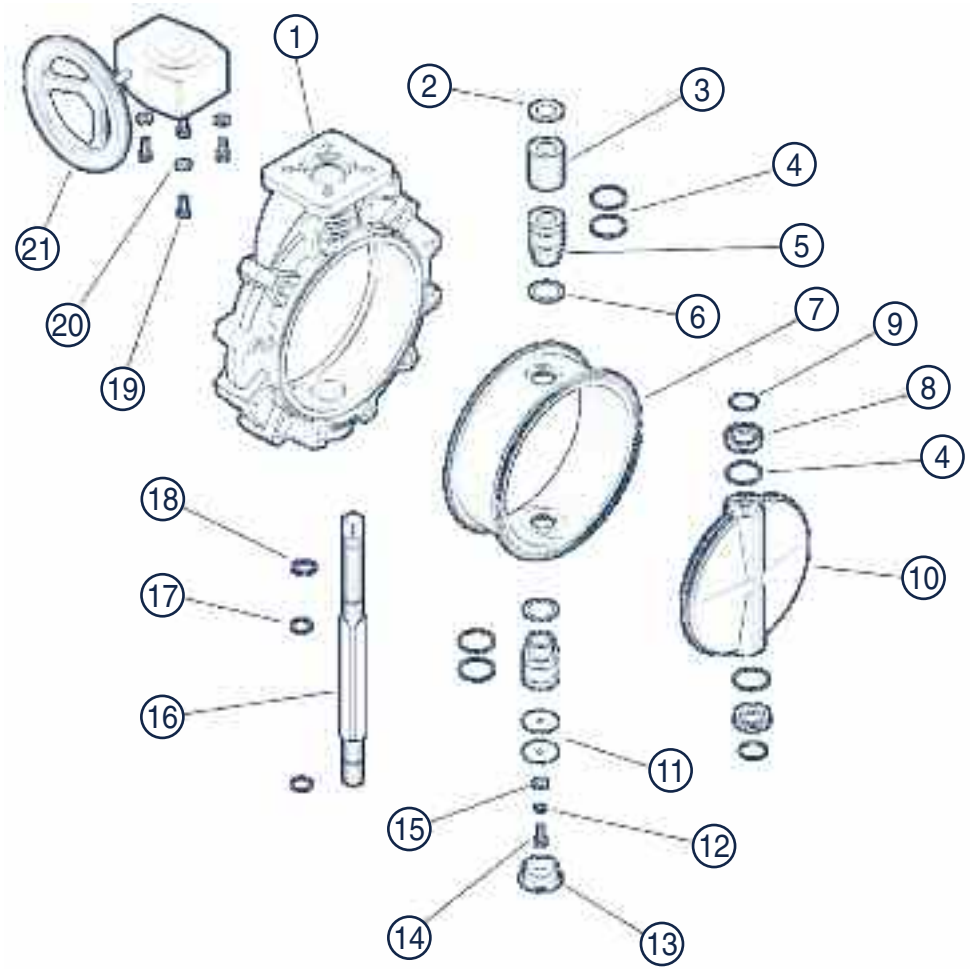
M800 | PVC BUTTERFLY VALVE

D 280 – 315

Grey PVC butterfly valve for water supply systems, true union.

EPDM seals, galvanized steel stem.

Flange type coupling with collars and flanges. Range available from D 50 (DN 40) up to D 315 (DN 300). Diameters D 280 - 315 a gearbox is provided as standard. Pressure rating and operating torque, see Page 74.

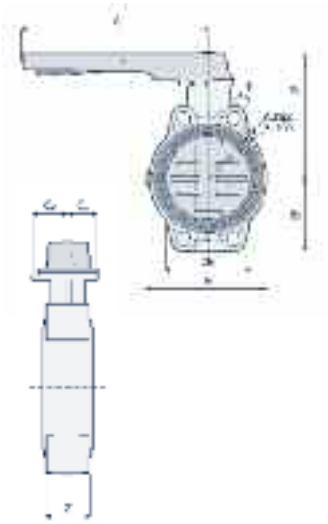


Pos.	Components	Material	N°
1	body	PVC	1
2	washer	stainless steel	1
3	bush	PP	1
4	bush O-ring	EPDM	4
5	bush for O-ring	PP	2
6	washer	stainless steel	2
7	primary liner	EPDM	1
8	anti-friction ring	PTFE	2
9	disc o-ring	EPDM	2
10	disc	PVC	1
11	washer	stainless steel	2

Pos.	Components	Material	N°
12	washer	stainless steel	1
13	protection cap	PE	1
14	disc screw	stainless steel	1
15	washer	stainless steel	1
16	shaft	zinc plated steel	1
17	O-ring shaft	EPDM	2
18	seeger ring	stainless steel	1
19	screw	stainless steel	4
20	washer	stainless steel	4
21	gear box	stainless steel	1

M800 | PVC BUTTERFLY VALVE

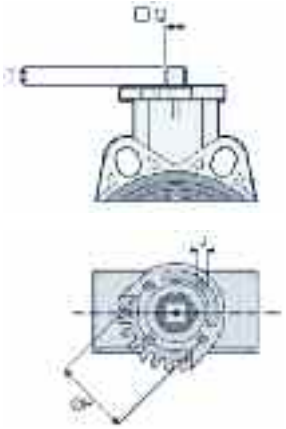
M800



D	DN	B_2	B_3	C	C_1	C_2	H	Z	A	A min	F max	Weight	N° (g)	Code holes	Box
1 1/2"/50mm	40	60	136	175	45	42	132	33	93	109	19	827	4	M.800.0500	5
2"/63mm	50	70	143	175	45	42	147	43	108	124	19	1012	4	M.800.0630	5
2 1/2"/75mm	65	80	168	250	45	53	165	46	128	144	19	1420	4	M.800.0750	5
3"/90mm	80	90	182	250	45	53	130	49	145	159	19	1640	4	M.800.0900	5
4"/110mm	100	105	196	250	45	53	150	56	165	190	19	1990	4	M.800.1100	5
5"/140mm	125	121	215	355	45	53	185	64	204	215	23	3030	4	M.800.1400	5
6"/160mm	150	132	229	355	45	53	210	70	230	242	23	3730	4	M.800.1600	5
8"/225mm	200	161	309	425	65	82	325	71	280	298	23	8240	8	M.800.2250	2

M800

D	DN	B_2	B_5	B_6	G	G_1	G_2	G_3	Z	A min	A max	F	Weight (g)	N° holes	Code
10"/280mm	250	210	317	281	88	236	76	250	114	335	362	25	18600	12	M.800.2800
12"/315mm	300	245	374	338	88	236	76	250	114	390	432	29	25600	12	M.800.3150



D	DN	PN	J	P	T	Q	Torque in N/m
50	40	16	7	50	12	11	8
63	50	16	7	50	12	11	10
75	65	10	7/9	50/70	12	11	12
90	80	10	9	70	16	14	25
110	100	10	9	70	16	14	45
140	125	10	9	70	19	17	60
160	150	10	9	70	19	17	90
225	200	10	11	102	24	22	140
280	250	6	11/13/17	102/125/140	29	22	100
315	300	4	11/13/17	102/125/140	29	22	180

31NE | PVC BALL FOOT VALVE

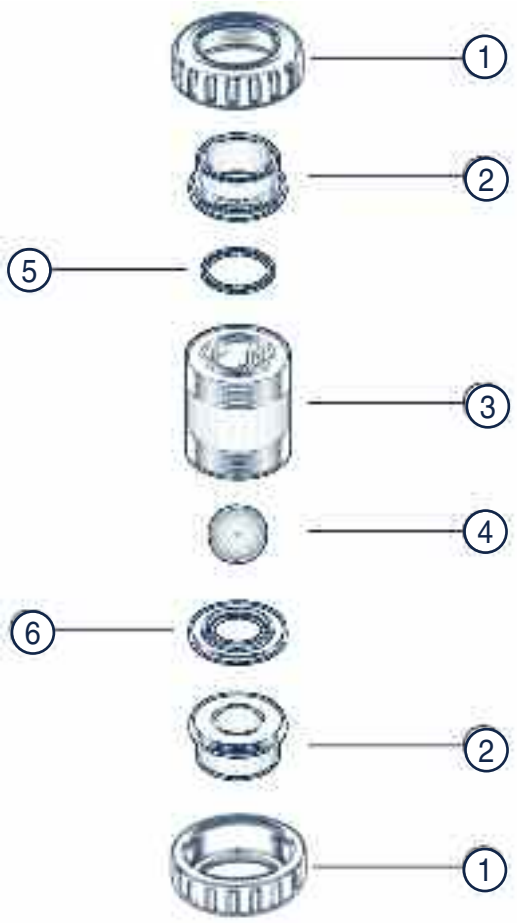
Grey PVC ball foot valve, true union, vertical operation, with reference marks on body to ensure correct installation.

EPDM or FPM (upon request) seals.

Operating pressure: PN 16 to 20°C.

Versions available: ISO metric (M31N) and BS standard (I31N) plain solvent weld socket; BSP threaded socket (T32N).

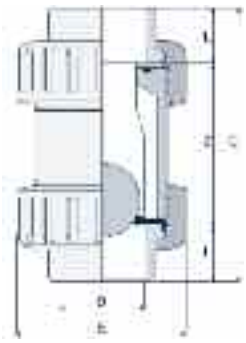
Available to be manufactured in other international standards (ASTM, JIS) upon request.



Pos.	Components	Material	N°
1	nut	PVC	2
2	union end	PVC	2
3	body	PVC	1
4	ball	PVC	1
5	socket O-ring	EPDM/FPM	1
6	ball gasket	EPDM/FPM	1

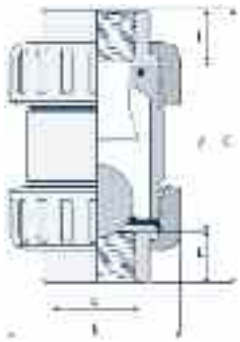
31NE | PVC BALL FOOT VALVE

M31N



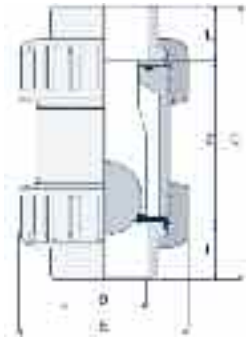
D	DN	L	Z	C	E	Weight (g)	Code	Box
16	10	14	48	76	50	98	M.31N.0160	120
20	15	17	48	82	50	104	M.31N.0200	120
25	20	19	55	93	59	152	M.31N.0250	80
32	25	22	62	106	68	244	M.31N.0320	50
40	32	26	75	127	80	384	M.31N.0400	30
50	40	31	84	146	96	607	M.31N.0500	20
63	50	38	99	175	116	987	M.31N.0630	10

T32N



D	DN	L	Z	C	E	Weight (g)	Code	Box
3/8"	10	14	48	76	50	98	T.32N.0160	120
1/2"	15	17	48	82	50	104	T.32N.0200	120
3/4"	20	19	55	93	59	152	T.32N.0250	80
1"	25	22	62	106	68	244	T.32N.0320	50
1 1/4"	32	26	75	127	80	384	T.32N.0400	30
1 1/2"	40	31	84	146	96	607	T.32N.0500	20
2"	50	38	99	175	116	987	T.32N.0630	10

I31N



D	DN	L	Z	C	E	Weight (g)	Code	Box
3/8"	10	14	48	76	50	98	I.31N.0160	120
1/2"	15	17	48	82	50	104	I.31N.0200	120
3/4"	20	19	55	93	59	152	I.31N.0250	80
1"	25	22	62	106	68	244	I.31N.0320	50
1 1/4"	32	26	75	127	80	384	I.31N.0400	30
1 1/2"	40	31	84	146	96	607	I.31N.0500	20
2"	50	38	99	175	116	987	I.31N.0630	10

VSA | BALL AIR-RELEASE VALVE

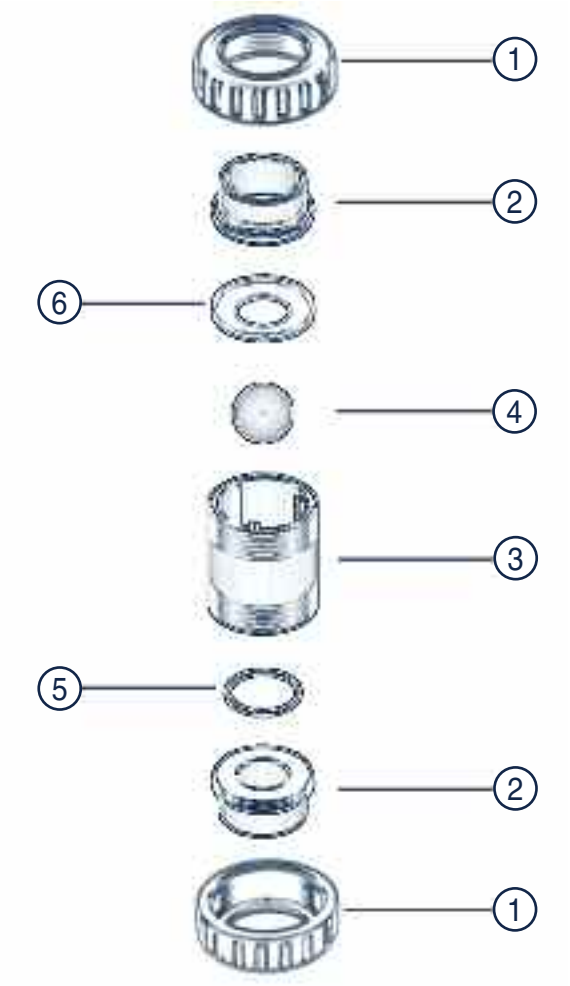
Grey PVC air-release ball valve, true union, vertical operation, with reference marks on body to ensure correct installation.

EPDM or FPM (upon request) seals.

Operating pressure: PN 16 to 20°C.

Versions available: ISO metric (MVSA) and BS standard (IVSA) plain solvent weld socket; BSP threaded socket (TVSA).

Available to be manufactured in other international standards (ASTM, JIS) upon request.



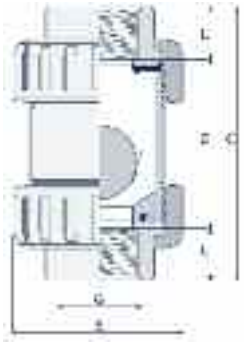
Pos.	Components	Material	N°
1	nut	PVC	2
2	union end	PVC	2
3	body	PVC	1
4	ball	PVC	1
5	socket O-ring	EPDM/FPM	1
6	ball gasket	EPDM/FPM	1

VSA | BALL AIR-RELEASE VALVE

MVSA

D	DN	L	Z	C	E	Weight (g)	Code	Box
16	10	14	48	76	50	96	M.VSA.0160	120
20	15	17	48	82	50	96	M.VSA.0200	120
25	20	19	55	93	59	99	M.VSA.0250	80
32	25	22	62	106	68	145	M.VSA.0320	50
40	32	26	75	127	80	234	M.VSA.0400	30
50	40	31	84	146	96	357	M.VSA.0500	20
63	50	38	99	175	116	937	M.VSA.0630	10

TVSA



D	DN	L	Z	C	E	Weight (g)	Code	Box
3/8"	10	14	48	76	50	96	T.VSA.0160	120
1/2"	15	17	48	82	50	96	T.VSA.0200	120
3/4"	20	19	55	93	59	99	T.VSA.0250	80
1"	25	22	62	106	68	145	T.VSA.0320	50
1 1/4"	32	26	75	127	80	234	T.VSA.0400	30
1 1/2"	40	31	84	146	96	357	T.VSA.0500	20
2"	50	38	99	175	116	937	T.VSA.0630	10

IVSA

D	DN	L	Z	C	E	Weight (g)	Code	Box
3/8"	10	14	48	76	50	96	I.VSA.0160	120
1/2"	15	17	48	82	50	96	I.VSA.0200	120
3/4"	20	19	55	93	59	99	I.VSA.0250	80
1"	25	22	62	106	68	145	I.VSA.0320	50
1 1/4"	32	26	75	127	80	234	I.VSA.0400	30
1 1/2"	40	31	84	146	96	357	I.VSA.0500	20
2"	50	38	99	175	116	937	I.VSA.0630	10

T201 | PVC CHECK VALVE

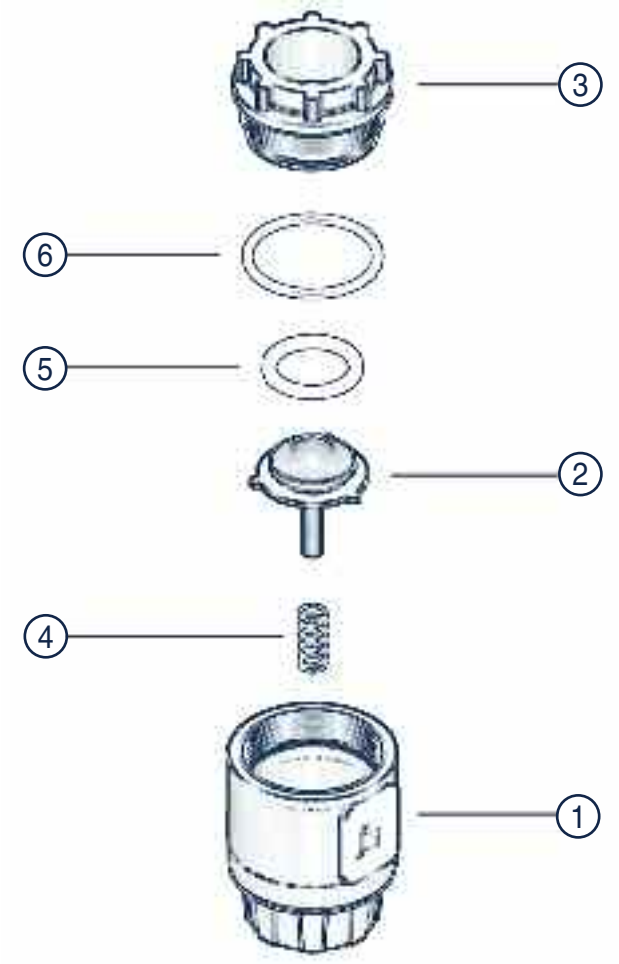
PVC check valve with spring and piston for horizontal and vertical applications.

AISI 300 steel spring, EPDM gaskets.

Maximum operating pressure: 10 bar to 20°C.

Version available BSP female thread (T201).

The valve can be fitted with (FLT) for use as foot valve.



FLT

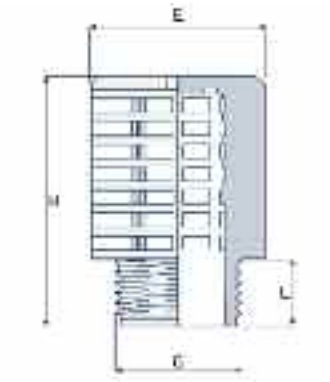
Pos.	Components	Material	N°
1	body	PVC	2
2	piston	PVC	2
3	lock nut	PVC	1
4	spring	stainless steel	1
5	piston O-ring	EPDM	1
6	body O-ring	EPDM	1
7	filter	PVC	-

T201 | PVC CHECK VALVE

T201

G	DN	L	Z	C	E	Weight (g)	Code	Box
3/4"	20	16	33	65	45	75	T.201.0250	200
1"	25	22	38	82	55	135	T.201.0320	100
1 1/4"	32	26	45	97	68	234	T.201.0400	50
1 1/2"	40	31	57	119	85	435	T.201.0500	25
2"	50	38	73	149	107	875	T.201.0630	10

TFLT



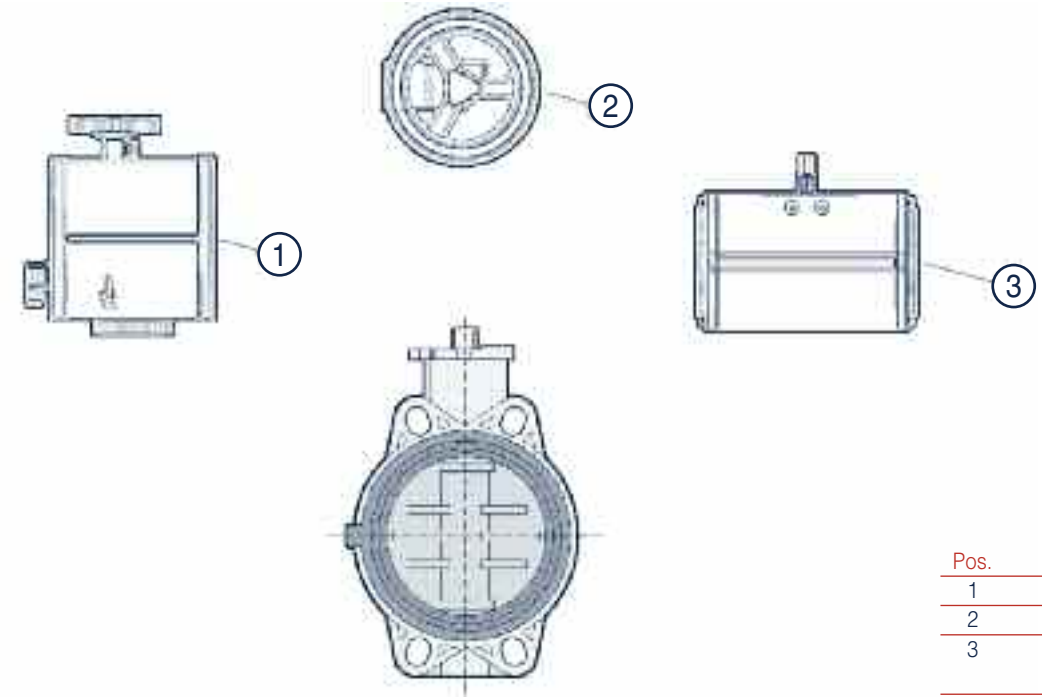
G	L	H	E	Weight (g)	Code
3/4"	12	55	36.5	28	T.FLT.0250
1"	15.5	69	46.5	55	T.FLT.0320
1 1/4"	15.5	82.5	59	100	T.FLT.0400
1 1/2"	16	90.5	66	125	T.FLT.0500
2"	15	108.5	81	220	T.FLT.0630

		DN20	DN25	DN32	DN40	DN50
MMH_20	A	350	350	250	250	150
	B	100	100	250	300	300

A - Minimum pressure for valve opening

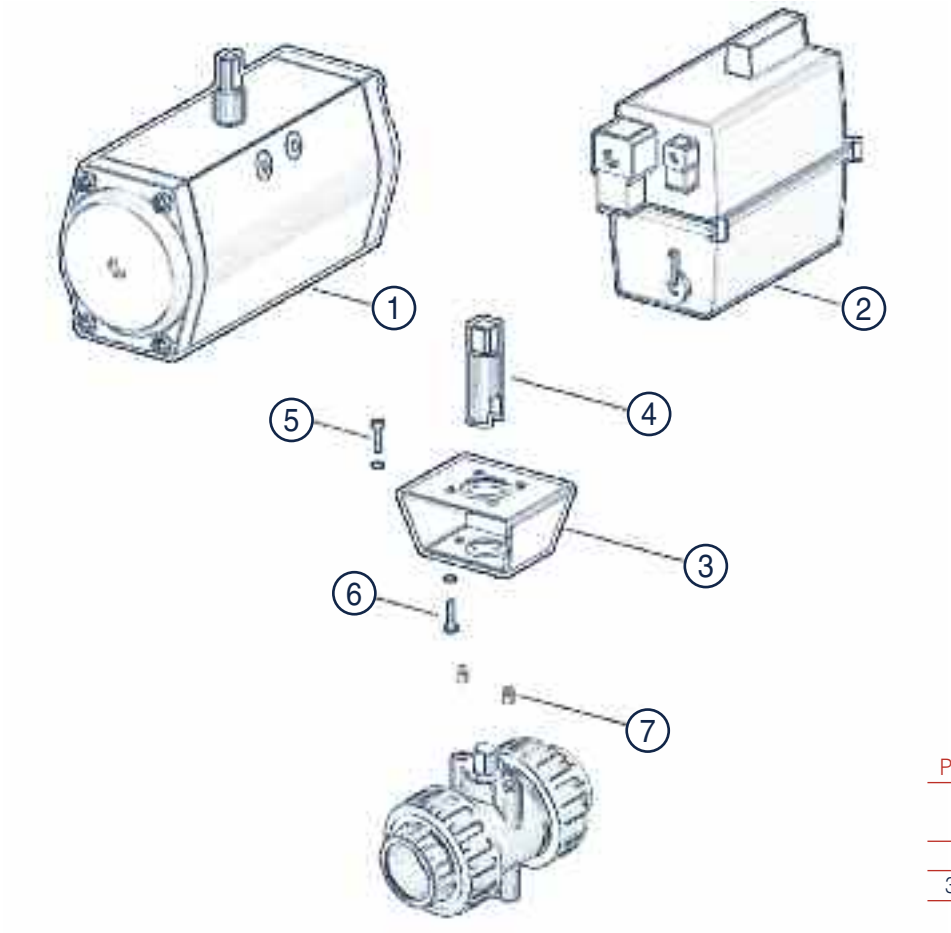
B - Minimum pressure for seal

M800



Pos.	Components
1	electric actuator
2	reduction gear box
3	pneumatic actuator single or double acting

111



Pos.	Components
1	pneumatic actuator single or double acting
2	electric actuator
3-7	kit for actuation

CLAMP SADDLES

Astore clamp saddles are the ideal solution for branching from existing pipelines for water and irrigation.

Range

Astore clamp saddles are supplied in the following types:

- 505 single branch. Coupling with pipes from D 20 up to D 315 mm, threaded branches from 1/2" to 4".
  Provided with 2, 4 or 6 bolts according to the diameters and metal reinforcing ring on the threaded branches.
- 508 double branch. Coupling with pipes from D 20 up to D 315 mm, threaded branches from 1/2" to 4".
  Provided with 2, 4 or 6 bolts according to the diameters and metal reinforcing ring on the threaded branches.

Materials

Saddle body in PP black co-polymer, nuts and bolts in zinc chromed steel, O-ring gasket in NBR, reinforcing ring in AISI 430.

Standards

Threads following DIN 2999 - BS 21 - ISO R 7/1 up to D 160 mm, ISO 228 from D 180 to D 315 mm.

Coupling to pipes complying:

- PE metric sized according to UNI 10910, DIN 8072-8074, ISO 3607 and UNI EN 12201.
- PVC metric sized according to ISO 161, UNI EN 1452, BRL-K502.
- PP metric sized according to ISO 3609, UNI 8318, DIN 8077.

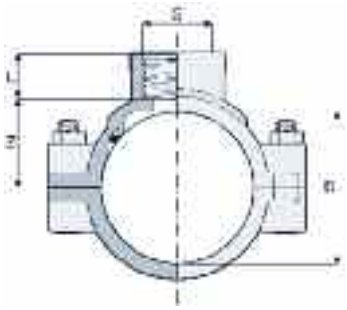
Pressure Rating

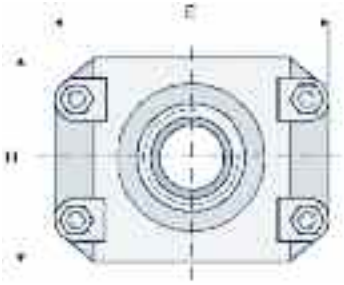
505 and 508 - see table below.

505 - WORKING PRESSURE AT 20°C ACCORDING TO ISO 13460

DxG	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
20	10 BAR								
25	10 BAR	10 BAR							
32	10 BAR	10 BAR	10 BAR						
40	10 BAR	10 BAR	10 BAR						
50	10 BAR	10 BAR	10 BAR						
63	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR				
75	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR			
90	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR			
110	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR	10 BAR		6 BAR	
125		10 BAR	10 BAR	10 BAR	10 BAR	10 BAR			
140			10 BAR	10 BAR	10 BAR	10 BAR	6 BAR	6 BAR	
160		10 BAR	10 BAR	10 BAR	10 BAR	10 BAR		6 BAR	
180				6 BAR	6 BAR	6 BAR		6 BAR	6 BAR
200				6 BAR	6 BAR	6 BAR		6 BAR	6 BAR
225				4 BAR	4 BAR	4 BAR		4 BAR	4 BAR
250				4 BAR	4 BAR	4 BAR		4 BAR	4 BAR
280				4 BAR	4 BAR	4 BAR		4 BAR	4 BAR
315				4 BAR	4 BAR	4 BAR		4 BAR	4 BAR

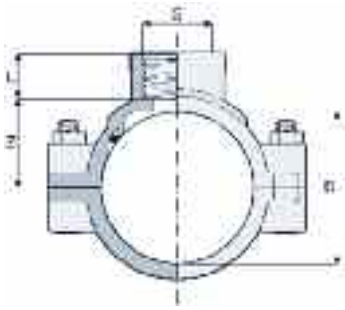
505

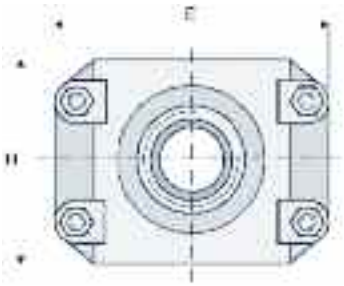




DxG	L	Z	E	H	Weight (g)	No. Bolts	Bolts	Code	Pack	Box	Master
20 x 1/2"	17	16	62	37.5	56	2	M6x35	P.505.020B	1	150	C
25 x 1/2"	18.5	18.5	69	43	67	2	M6x35	P.505.025B	1	120	C
25 x 3/4"	18.5	18.5	69	43	71	2	M6x35	P.505.025C	1	120	C
32 x 1/2"	18.5	22.5	78	45	99	2	M8x45	P.505.032B	1	100	C
32 x 3/4"	18.5	22.5	78	45	103	2	M8x45	P.505.032C	1	100	C
32 x 1"	18.5	22.5	91	60	138	2	M8x45	P.505.032D	1	60	C
40 x 1/2"	22	27	84	51	119	2	M8x45	P.505.040B	1	60	C
40 x 3/4"	22	27	84	51	125	2	M8x45	P.505.040C	1	60	C
40 x 1"	22	27	84	51	132	2	M8x45	P.505.040D	1	60	C
50 x 1/2"	22	32.5	87	53	119	2	M8x45	P.505.050B	1	50	C
50 x 3/4"	22	32.5	87	53	123	2	M8x45	P.505.050C	1	50	C
50 x 1"	22	32.5	87	53	132	2	M8x45	P.505.050D	1	50	C
63 x 1/2"	17	40	100	71	237	4	M8x50	P.505.063B	1	75	B
63 x 3/4"	20	40	100	71	244	4	M8x50	P.505.063C	1	75	B
63 x 1"	22	40	100	71	249	4	M8x50	P.505.063D	1	75	B
63 x 1 1/4"	24	40	100	71	260	4	M8x50	P.505.063E	1	70	B
63 x 1 1/2"	24	40	100	71	267	4	M8x50	P.505.063F	1	70	B
75 x 1/2"	17	44.5	120	91	312	4	M8x50	P.505.075B	1	50	B
75 x 3/4"	20	44.5	120	91	319	4	M8x50	P.505.075C	1	50	B
75 x 1"	22	44.5	120	91	329	4	M8x50	P.505.075D	1	50	B
75 x 1 1/4"	24	44.5	120	91	360	4	M8x50	P.505.075E	1	45	B
75 x 1 1/2"	24	44.5	120	91	342	4	M8x50	P.505.075F	1	45	B
75 x 2"	26	44.5	120	91	346	4	M8x50	P.505.075G	1	45	B
90 x 1/2"	17	52	137	91	358	4	M8x60	P.505.090B	1	40	B
90 x 3/4"	20	52	137	91	360	4	M8x60	P.505.090C	1	40	B
90 x 1"	22	52	137	91	367	4	M8x60	P.505.090D	1	40	B
90 x 1 1/4"	24	52	137	91	370	4	M8x60	P.505.090E	1	35	B
90 x 1 1/2"	24	52	137	91	380	4	M8x60	P.505.090F	1	35	B
90 x 2"	26	52	137	91	390	4	M8x60	P.505.090G	1	35	B
110 x 1/2"	17	65	155	98.5	403	4	M8x60	P.505.110B	1	25	B
110 x 3/4"	20	65	155	98.5	407	4	M8x60	P.505.110C	1	25	B
110 x 1"	22	65	155	98.5	417	4	M8x60	P.505.110D	1	25	B
110 x 1 1/4"	24	65	155	98.5	430	4	M8x60	P.505.110E	1	25	B
110 x 1 1/2"	24	65	155	98.5	438	4	M8x60	P.505.110F	1	25	B
110 x 2"	24	65	155	98.5	451	4	M8x60	P.505.110G	1	25	B
110 x 3"	33	65	155	98.5	537	4	M8x60	P.505.110I	1	20	B
125 x 3/4"	20	73.5	168	101	540	4	M8x60	P.505.125C	1	30	B
125 x 1"	22	73.5	168	101	543	4	M8x60	P.505.125D	1	30	B
125 x 1 1/4"	24	73.5	168	101	545	4	M8x60	P.505.125E	1	30	B
125 x 1 1/2"	24	73.5	168	101	548	4	M8x60	P.505.125F	1	30	B
125 x 2"	24	73.5	168	101	552	4	M8x60	P.505.125G	1	30	B
140 x 1"	22	80	189	134	921	6	M8x60	P.505.140D	1	20	B
140 x 1 1/4"	24	80	189	134	923	6	M8x60	P.505.140E	1	20	B
140 x 1 1/2"	24	80	189	134	926	6	M8x60	P.505.140F	1	20	B
140 x 2"	24	80	189	134	930	6	M8x60	P.505.140G	1	20	B
140 x 2 1/2"	24	80	189	134	937	6	M8x60	P.505.140H	1	20	B
140 x 3"	33	80	189	134	944	6	M8x60	P.505.140I	1	20	B
160 x 3/4"	22	88	213	137	987	6	M8x60	P.505.160C	1	16	B

505





DxG	L	Z	E	H	Weight (g)	No. Bolts	Bolts	Code	Pack	Box	Master
160 x 1"	22	88	213	137	991	6	M8x60	P.505.160D	1	16	B
160 x 1 1/4"	24	88	213	137	994	6	M8x60	P.505.160E	1	16	B
160 x 1 1/2"	24	88	213	137	996	6	M8x60	P.505.160F	1	16	B
160 x 2"	28.5	88	213	137	1000	6	M8x60	P.505.160G	1	16	B
160 x 3"	36	88	213	137	1014	6	M8x60	P.505.160I	1	15	B
180 x 1 1/4"	24	115	265	171	2289	6	M10x80	P.505.180E	1	8	B
180 x 1 1/2"	24	115	265	171	2292	6	M10x80	P.505.180F	1	8	B
180 x 2"	24	115	265	171	2296	6	M10x80	P.505.180G	1	8	B
180 x 3"	33	115	265	171	2310	6	M10x80	P.505.180I	1	8	B
180 x 4"	42	115	265	171	2314	6	M10x80	P.505.180L	1	6	B
200 x 1 1/4"	24	115	265	171	2019	6	M10x80	P.505.200E	1	8	B
200 x 1 1/2"	24	115	265	171	2022	6	M10x80	P.505.200F	1	8	B
200 x 2"	24	115	265	171	2026	6	M10x80	P.505.200G	1	8	B
200 x 3"	33	115	265	171	2040	6	M10x80	P.505.200I	1	8	B
200 x 4"	42	115	265	171	2044	6	M10x80	P.505.200L	1	8	B
225 x 1 1/4"	24	127.5	280	173	2165	6	M10x80	P.505.225E	1	7	B
225 x 1 1/2"	24	127.5	280	173	2145	6	M10x80	P.505.225F	1	7	B
225 x 2"	24	127.5	280	173	2155	6	M10x80	P.505.225G	1	7	B
225 x 3"	33	127.5	280	173	2180	6	M10x80	P.505.225I	1	7	B
225 x 4"	42	127.5	280	173	2210	6	M10x80	P.505.225L	1	7	B
250 x 1 1/4"	24	142	313	181	2545	6	M10x80	P.505.250E	1	7	B
250 x 1 1/2"	24	142	313	181	2548	6	M10x80	P.505.250F	1	7	B
250 x 2"	224	142	313	181	2552	6	M10x80	P.505.250G	1	7	B
250 x 3"	33	142	313	181	2566	6	M10x80	P.505.250I	1	7	B
250 x 4"	42	142	313	181	2570	6	M10x80	P.505.250L	1	6	B
280 x 1 1/4"	24	171	385	190	4069	6	M10x80	P.505.280E	1	3	B
280 x 1 1/2"	24	171	385	190	4072	6	M10x80	P.505.280F	1	3	B
280 x 2"	24	171	385	190	4076	6	M10x80	P.505.280G	1	3	B
280 x 3"	33	171	385	190	4090	6	M10x80	P.505.280I	1	3	B
280 x 4"	42	171	385	190	4094	6	M10x80	P.505.280L	1	3	B
315 x 1 1/4"	24	171	385	190	3168	6	M10x80	P.505.315E	1	4	B
315 x 1 1/2"	24	171	385	190	3171	6	M10x80	P.505.315F	1	4	B
315 x 2"	24	171	385	190	3175	6	M10x80	P.505.315G	1	4	B
315 x 3"	33	171	385	190	3189	6	M10x80	P.505.315I	1	4	B
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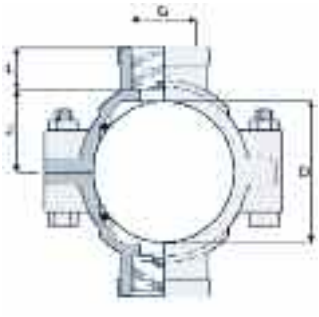

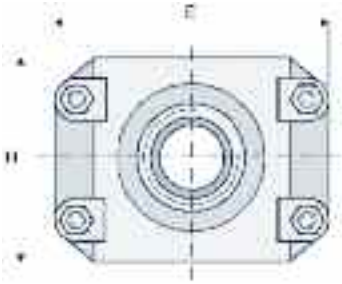

DxGxG	L	Z	E	H	Weight (g)	No. Bolts	Bolts	Code	Pack
20 x 1/2" x 1/2"	17	16	62	37.5	61	2	M6x35	P.508.020B	1
25 x 1/2" x 1/2"	18.5	18.5	69	43	53	2	M6x35	P.508.025B	1
25 x 3/4" x 3/4"	18.5	18.5	69	43	79	2	M6x35	P.508.025C	1
32 x 1/2" x 1/2"	18.5	22.5	78	45	106	2	M8x45	P.508.032B	1
32 x 3/4" x 3/4"	18.5	22.5	78	45	114	2	M8x45	P.508.032C	1
32 x 1" x 1"	18.5	22.5	91	60	154	2	M8x45	P.508.032D	1
40 x 1/2" x 1/2"	22	27	84	51	132	2	M8x45	P.508.040B	1
40 x 3/4" x 3/4"	22	27	84	51	144	2	M8x45	P.508.040C	1
40 x 1" x 1"	22	27	84	51	156	2	M8x45	P.508.040D	1
50 x 1/2" x 1/2"	22	32.5	87	53	126	2	M8x50	P.508.050B	1
50 x 3/4" x 3/4"	22	32.5	87	53	140	2	M8x50	P.508.050C	1
50 x 1" x 1"	22	32.5	87	53	154	2	M8x50	P.508.050D	1
63 x 1/2" x 1/2"	17	40	100	71	250	4	M8x50	P.508.063B	1
63 x 3/4" x 3/4"	20	40	100	71	252	4	M8x50	P.508.063C	1
63 x 1" x 1"	22	40	100	71	272	4	M8x50	P.508.063D	1
63 x 1 1/4" x 1 1/4"	24	40	100	71	292	4	M8x50	P.508.063E	1
63 x 1 1/2" x 1 1/2"	24	40	100	71	308	4	M8x50	P.508.063F	1
75 x 1/2" x 1/2"	17	44.5	170	91	320	4	M8x60	P.508.075B	1
75 x 3/4" x 3/4"	20	44.5	170	91	324	4	M8x60	P.508.075C	1
75 x 1" x 1"	22	44.5	170	91	340	4	M8x60	P.508.075D	1
75 x 1 1/4" x 1 1/4"	24	44.5	170	91	356	4	M8x60	P.508.075E	1
75 x 1 1/2" x 1 1/2"	24	44.5	170	91	364	4	M8x60	P.508.075F	1
75 x 2" x 2"	26	44.5	170	91	392	4	M8x60	P.508.075G	1
90 x 1/2" x 1/2"	17	52	137	91	362	4	M8x60	P.508.090B	1
90 x 3/4" x 3/4"	20	52	137	91	366	4	M8x60	P.508.090C	1
90 x 1" x 1"	22	52	137	91	374	4	M8x60	P.508.090D	1
90 x 1 1/4" x 1 1/4"	24	52	137	91	392	4	M8x60	P.508.090E	1
90 x 1 1/2" x 1 1/2"	24	52	137	91	398	4	M8x60	P.508.090F	1
90 x 2" x 2"	26	52	137	91	414	4	M8x60	P.508.090G	1
110 x 1/2" x 1/2"	17	65	155	98.5	408	4	M8x60	P.508.110B	1
110 x 3/4" x 3/4"	20	65	155	98.5	414	4	M8x60	P.508.110C	1
110 x 1" x 1"	22	65	155	98.5	422	4	M8x60	P.508.110D	1
110 x 1 1/4" x 1 1/4"	24	65	155	98.5	450	4	M8x60	P.508.110E	1
110 x 1 1/2" x 1 1/2"	24	65	155	98.5	466	4	M8x60	P.508.110F	1
110 x 2" x 2"	24	65	155	98.5	494	4	M8x60	P.508.110G	1
110 x 3" x 3"	33	65	159	118.5	730	4	M8x60	P.508.110I	1
125 x 3/4" x 3/4"	20	73.5	168	101	540	4	M8x60	P.508.125C	1
125 x 1" x 1"	22	73.5	168	101	553	4	M8x60	P.508.125D	1
125 x 1 1/4" x 1 1/4"	24	73.5	168	101	575	4	M8x60	P.508.125E	1
125 x 1 1/2" x 1 1/2"	24	73.5	168	101	589	4	M8x60	P.508.125F	1
125 x 2" x 2"	24	73.5	168	101	615	4	M8x60	P.508.125G	1
140 x 1" x 1"	22	80	189	134	968	6	M8x75	P.508.140D	1
140 x 1 1/4" x 1 1/4"	24	80	189	134	985	6	M8x75	P.508.140E	1
140 x 1 1/2" x 1 1/2"	24	80	189	134	995	6	M8x75	P.508.140F	1
140 x 2" x 2"	24	80	189	134	1015	6	M8x75	P.508.140G	1
140 x 2 1/2" x 2 1/2"	24	80	189	134	1070	6	M8x75	P.508.140H	1
140 x 3" x 3"	33	80	189	134	1200	6	M8x75	P.508.140I	1

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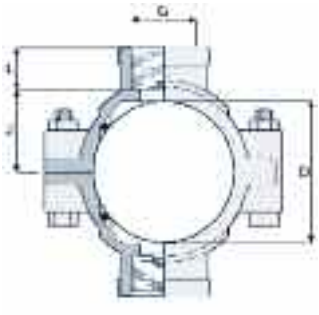
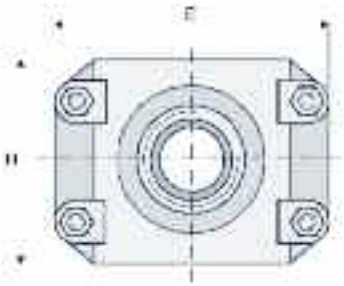




DxGxG	L	Z	E	H	Weight (g)	No. Bolts	Bolts	Code	Pack
160 x 1" x 1"	22	88	213	137	1045	6	M8x75	P.508.160D	1
160 x 1 1/4" x 1 1/4"	24	88	213	137	1080	6	M8x75	P.508.160E	1
160 x 1 1/2" x 1 1/2"	24	88	213	137	1098	6	M8x75	P.508.160F	1
160 x 2" x 2"	28.5	88	213	135	1135	6	M8x75	P.508.160G	1
160 x 3" x 3"	36	88	213	135	1120	6	M8x75	P.508.160I	1
180 x 1 1/4" x 1 1/4"	24	115	265	171	2356	6	M10x80	P.508.180E	1
180 x 1 1/2" x 1 1/2"	24	115	265	171	2380	6	M10x80	P.508.180F	1
180 x 2" x 2"	24	115	265	171	2460	6	M10x80	P.508.180G	1
180 x 3" x 3"	33	115	265	171	2660	6	M10x80	P.508.180I	1
180 x 4" x 4"	42	115	265	171	2840	6	M10x80	P.508.180L	1
200 x 1 1/4" x 1 1/4"	24	115	265	171	1910	6	M10x80	P.508.200E	1
200 x 1 1/2" x 1 1/2"	24	115	265	171	1935	6	M10x80	P.508.200F	1
200 x 2" x 2"	24	115	265	171	1980	6	M10x80	P.508.200G	1
200 x 3" x 3"	33	115	265	171	2200	6	M10x80	P.508.200I	1
200 x 4" x 4"	42	115	265	171	2380	6	M10x80	P.508.200L	1
225 x 1 1/4" x 1 1/4"	24	127.5	280	173	2110	6	M10x80	P.508.225E	1
225 x 1 1/2" x 1 1/2"	24	127.5	280	173	2130	6	M10x80	P.508.225F	1
225 x 2" x 2"	24	127.5	280	173	2195	6	M10x80	P.508.225G	1
225 x 3" x 3"	33	127.5	280	173	2420	6	M10x80	P.508.225I	1
225 x 4" x 4"	42	127.5	280	173	2600	6	M10x80	P.508.225L	1
250 x 1 1/4" x 1 1/4"	24	142	313	181	2580	6	M10x80	P.508.250E	1
250 x 1 1/2" x 1 1/2"	24	142	313	181	2600	6	M10x80	P.508.250F	1
250 x 2" x 2"	224	142	313	181	2650	6	M10x80	P.508.250G	1
250 x 3" x 3"	33	142	313	181	2860	6	M10x80	P.508.250I	1
250 x 4" x 4"	42	142	313	181	3040	6	M10x80	P.508.250L	1
280 x 1 1/4" x 1 1/2"	24	171	385	190	4050	6	M10x80	P.508.280E	1
280 x 1 1/2" x 1 1/2"	24	171	385	190	4070	6	M10x80	P.508.280F	1
280 x 2" x 2"	24	171	385	190	4120	6	M10x80	P.508.280G	1
280 x 3" x 3"	33	171	385	190	4320	6	M10x80	P.508.280I	1
280 x 4" x 4"	42	171	385	190	4500	6	M10x80	P.508.280L	1
315 x 1 1/4" x 1 1/4"	24	171	385	190	3105	6	M10x80	P.508.315E	1
315 x 1 1/2" x 1 1/2"	24	171	385	190	3120	6	M10x80	P.508.315F	1
315 x 2" x 2"	24	171	385	190	3170	6	M10x80	P.508.315G	1
315 x 3" x 3"	33	171	385	190	3400	6	M10x80	P.508.315I	1
315 x 4" x 4"	42	171	385	190	3600	6	M10x80	P.508.315L	1

Installation

1 Define the position of the branch and clean the external surface of the pipe.

2 Put the O-ring in the relevant seat and position the upper part of the saddle on the pipe.

3 Couple the bottom part of the saddle with the upper one. Insert the bolts from the bottom, screw the nuts and tighten the bolts diagonally opposite each other.

4 Drill a hole in the pipe taking care not to damage the reverse of the pipe or the gasket.

COMPRESSION FITTINGS

Astore PP compression fittings are joints for PE pipes dedicated to water distribution systems. They can be used for both irrigation and drinking water applications.

Range

The extensive range of Astore fittings can satisfy a very wide range of plant engineering installation requirements.
The range comprises of fittings from D 16 mm up to D 110 mm.
The threads have a metal reinforcement on the external part of the thread for added security.

Materials

Body and nut in polypropylene black co-polymer, clinching ring in white POM resin, O-ring in NBR, reinforcement ring in AISI 430.

Reference Standards

Astore compression fittings are manufactured in compliance with the following standards: ISO 3458, ISO 3459, ISO 3501, ISO 3503, ISO 14236, DIN 8076-3, UNI 9561.

The joints can be installed on all PE pipes which comply with the following standards: ISO 3607, DIN 8072, DIN 8074, UNI 10910, UNI EN 12201.

The threaded versions are manufactured in compliance with standard ISO 7/1.

Pressure Rating at 20°C

- 16 bar - from D 16 mm up to D 63 mm
- 10 bar - from D 75 mm up to D 110 mm

Astore is an ISO 9001 certified company, certificate No. 354.

Astore is member of the Irrigation Association (IA).

Astore compression fittings are approved by DVGW (DW-8616BQ0078).

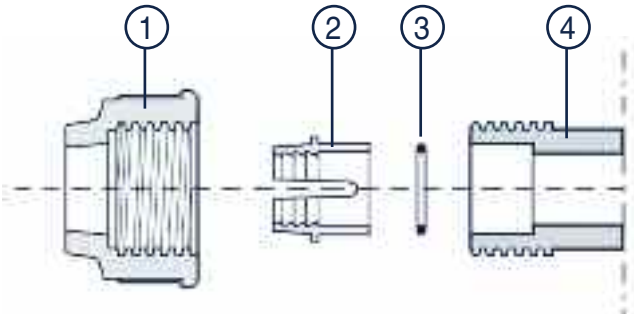
Company Approval

Italian Institute of Plastics (IIP) has tested the conformity of Astore production system to UNI EN ISO 9001 (certificate No. 354).
This standard defines the characteristics (dimensional, performance, environmental, safety and organisational setup) of a product and deem them suitable for the demands of the market.
The extensive range of quality high performance products are recognised and appreciated all over the world.

Certificate No. 354

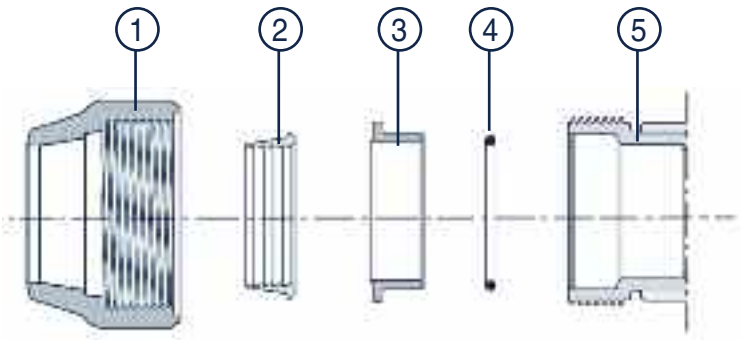
UNI EN ISO 9001

D 16 – 63



Pos.	Components
1	nut
2	clinching ring
3	O-ring
4	body

D 75 – 110



Pos.	Components
1	nut
2	clinching ring
3	thrust bushing
4	O-ring
5	body

511 | MALE ADAPTOR

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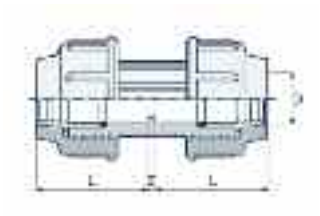
DxG	L1	L2	Z	Weight (g)	Code	Pack	Box	Master
16 x 3/8"	18	45	16	23	P.511.016A	20	500	B
16 x 1/2"	18	45	20	23	P.511.016B	20	500	B
16 x 3/4"	20	45	20	25	P.511.016C	20	500	B
20 x 1/2"	18	50	18	36	P.511.020B	20	400	B
20 x 3/4"	20	50	19	38	P.511.020C	20	400	B
25 x 1/2"	18	57	19	53	P.511.025B	10	250	B
25 x 3/4"	20	57	20	54	P.511.025C	10	250	B
25 x 1"	20	57	26	56	P.511.025D	10	250	B
32 x 3/4"	20	64	23	81	P.511.032C	10	150	B
32 x 1"	20	64	26	83	P.511.032D	10	150	B
32 x 1 1/4"	24	64	26	89	P.511.032E	10	150	B
40 x 1"	20	76	26	137	P.511.040D	5	90	B
40 x 1 1/4"	24	76	29	140	P.511.040E	5	90	B
40 x 1 1/2"	24	76	29	143	P.511.040F	5	90	B
50 x 1 1/4"	24	88	29	214	P.511.050E	5	55	B
50 x 1 1/2"	24	88	29	214	P.511.050F	5	55	B
50 x 2"	29	88	34	222	P.511.050G	5	55	B
63 x 1 1/2"	24	103	29	341	P.511.063F	5	30	B
63 x 2"	29	103	34	347	P.511.063G	5	30	B
63 x 2 1/2"	32	103	39	361	P.511.063H	5	30	B
*75 x 2"	29	118	34	520	P.511.075G	1	25	B
*75 x 2 1/2"	32	118	40	516	P.511.075H	1	25	B
*75 x 3"	38	118	43	534	P.511.075I	1	25	B
*90 x 2"	29	136	34	740	P.511.090G	1	16	B
*90 x 2 1/2"	32	136	40	750	P.511.090H	1	16	B
*90 x 3"	38	136	43	750	P.511.090I	1	16	B
*90 x 4"	44	136	49	793	P.511.090L	1	16	B
*110 x 2"	27	150	34	1040	P.511.110G	1	8	B
*110 x 3"	38	151	43	1138	P.511.110I	1	8	B
*110 x 4"	44	151	49	1156	P.511.110L	1	8	B

510 | COUPLING



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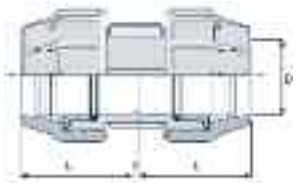
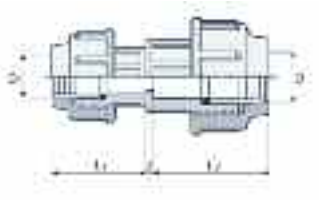


DxD	L	Z	Weight (g)	Code	Pack	Box	Master
16 x 16	45	4	42	P.510.0160	20	360	B
20 x 20	50	4	66	P.510.0200	20	220	B
25 x 25	57	4	96	P.510.0250	10	150	B
32 x 32	64	4	144	P.510.0320	10	100	B
40 x 40	76	4	242	P.510.0400	5	50	B
50 x 50	88	4	374	P.510.0500	5	35	B
63 x 63	103	9	599	P.510.0630	5	20	B
*75 x 75	118	4	905	P.510.0750	1	15	B
*90 x 90	136	5	1290	P.510.0900	1	11	B
*110 x 110	151	4	1970	P.510.1100	1	6	B

512 | REDUCER COUPLING



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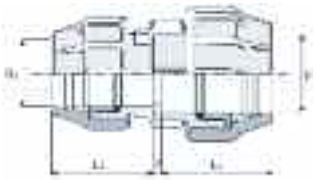

DxD1	L1	L2	Z	Weight (g)	Code	Pack	Box	Master
20 x 16	40.5	50	4	54	P.512.020A	20	260	B
25 x 20	50	57	4	81	P.512.025B	10	180	B
32 x 20	50	57.5	4	109	P.512.032B	10	110	B
32 x 25	53	58	4	123	P.512.032C	10	110	B
40 x 25	57	76	4	183	P.512.040C	5	70	B
40 x 32	64	76	4	190	P.512.040D	5	70	B
50 x 25	57	88	4	262	P.512.050C	5	40	B
50 x 32	64	88	4	281	P.512.050D	5	40	B
50 x 40	76	88	4	319	P.512.050E	5	40	B
63 x 32	64	103	4	403	P.512.063D	5	25	B
63 x 40	76	103	4	450	P.512.063E	5	25	B
63 x 50	88	103	4	492	P.512.063F	5	20	B
*75 x 50	88	118	4	664	P.512.075F	1	15	B
*75 x 63	103	118	4	757	P.512.075G	1	15	B
*90 x 63	103	136	4	980	P.512.090G	1	12	B
*90 x 75	118	136	4	1123	P.512.090H	1	12	B
110 x 75	118	151	4	1502	P.512.110H	1	6	B
*110 x 90	136	151	4	1682	P.512.110I	1	6	B

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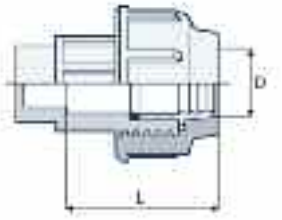
DxG	L1	L2	Z	Weight (g)	Code	Pack	Box	Master
16 x 3/8"	19	45	4	26	P.601.016A	20	500	B
16 x1/2"	19	45	4	30	P.601.016B	20	500	B
20 x 1/2"	19	50	5	41	P.601.020B	20	400	B
20 x 3/4"	21	50	6	47	P.601.020C	20	340	B
25 x 1/2"	19	57	3	54	P.601.025B	10	250	B
25 x 3/4"	21	57	6	61	P.601.025C	10	250	B
25 x 1"	21	57	8	68	P.601.025D	10	200	B
32 x 1/2"	19	64	4	85	P.601.032B	10	150	B
32 x 3/4"	21	64	4	88	P.601.032C	10	150	B
32 x 1"	21	64	7	95	P.601.032D	10	150	B
32 x 1 1/4"	25	64	8	100	P.601.032E	10	130	B
40 x 1"	21	76	4	148	P.601.040D	5	90	B
40 x 1 1/4"	25	76	4	155	P.601.040E	5	90	B
40 x 1 1/2"	25	76	6	172	P.601.040F	5	90	B
50 x 1 1/4"	25	88	4	231	P.601.050E	5	55	B
50 x 1 1/2"	25	88	6	234	P.601.050F	5	55	B
50 x 2"	30	88	6	254	P.601.050G	5	55	B
63 x 1 1/2"	25	103	9	360	P.601.063F	5	30	B
63 x 2"	30	103	3	374	P.601.063G	5	30	B
*75 x 2"	30	118	7	537	P.601.075G	1	25	B
*75 x 2 1/2"	33	118	4	635	P.601.075H	1	25	B
*75 x 3"	39	118	6	580	P.601.075I	1	25	B
*90 x 2"	30	136	3	700	P.601.090G	1	16	B
*90 x 2 1/2"	33	136	10	730	P.601.090H	1	16	B
*90 x 3"	39	136	10	932	P.601.090I	1	16	B
110 x 3"	39	151	10	1316	P.601.110I	1	8	B
*110 x 4"	45	151	10	1390	P.601.110L	1	8	B

521 | PLUG



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D	L	Weight (g)	Code	Pack	Box	Master
16	45	30	P.521.0160	20	500	B
20	50	50	P.521.0200	20	400	B
25	57	65	P.521.0250	10	250	B
32	64	100	P.521.0320	10	150	B
40	76	165	P.521.0400	5	90	B
50	88	245	P.521.0500	5	60	B
63	103	390	P.521.0630	5	30	B
*75	118	655	P.521.0750	1	28	B
*90	136	950	P.521.0900	1	22	B
*110	151	1420	P.521.1100	1	8	B

513 | ELBOW

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DxD	L	Z	Weight (g)	Code	Pack	Box	Master
16 x 16	45	11	45	P.513.0160	20	360	B
20 x 20	50	13	70	P.513.0200	20	200	B
25 x 25	57	15	105	P.513.0250	10	150	B
32 x 32	64	19	161	P.513.0320	10	80	B
40 x 40	76	23	269	P.513.0400	5	50	B
50 x 50	88	28	415	P.513.0500	5	30	B
63 x 63	103	35	656	P.513.0630	5	15	B
*75 x 75	118	41	994	P.513.0750	1	11	B
*90 x 90	136	49	1450	P.513.0900	1	8	B
*110 x 110	151	60	2193	P.513.1100	1	4	B

519 | ELBOW MALE THREADED

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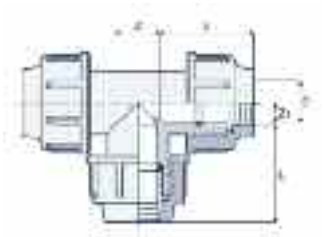
DxG	L1	L2	Z	Z1	Weight (g)	Code	Pack	Box	Master
16 x 1/2"	45	18	11	40	29	P.519.016B	20	400	B
20 x 1/2"	50	18	13	46	50	P.519.020B	20	260	B
20 x 3/4"	50	20	13	46	50	P.519.020C	20	260	B
25 x 1/2"	57	20	15	52	75	P.519.025B	10	180	B
25 x 3/4"	57	20	15	52	75	P.519.025C	10	180	B
25 x 1"	57	20	15	52	75	P.519.025D	10	180	B
32 x 1"	64	20	19	61	120	P.519.032D	10	110	B
32 x 1 1/4"	64	24	19	61	120	P.519.032E	10	110	B
40 x 1 1/4"	76	24	23	69	198	P.519.040E	5	60	B
40 x 1 1/2"	76	24	23	69	198	P.519.040F	5	60	B
50 x 1 1/2"	88	24	28	82	305	P.519.050F	5	35	B
50 x 2"	88	29	28	82	305	P.519.050G	5	35	B
63 x 2"	103	29	35	96	480	P.519.063G	5	20	B
63 x 2 1/2"	103	32	35	96	480	P.519.063H	5	20	B
*75 x 2 1/2"	118	32	41	111	709	P.519.075H	1	14	B
*75 x 3"	118	38	41	111	709	P.519.075I	1	14	B
*90 x 3"	136	38	49	128	1031	P.519.090I	1	10	B
90 x 4"	136	38	49	128	1031	P.519.090L	1	10	B
*110 x 4"	153	44	58	143	1549	P.519.110L	1	5	B

518 | ELBOW FEMALE THREADED

*

DxG	L_1	L_2	Z	Z_1	Weight (g)	Code	Pack	Box	Master
16 x 3/8"	45	19	11	25	32	P.518.016A	20	400	B
16 x 1/2"	45	19	11	28	32	P.518.016B	20	400	B
20 x 1/2"	50	19	13	28	51	P.518.020B	20	260	B
20 x 3/4"	57	20	13	28	51	P.518.020C	20	260	B
25 x 1/2"	57	19	13	28	75	P.518.025B	10	180	B
25 x 3/4"	57	21	15	31	77	P.518.025C	10	180	B
25 x 1"	57	21	15	31	77	P.518.025D	10	160	B
32 x 1/2"	64	19	19	40	122	P.518.032B	10	110	B
32 x 3/4"	64	21	19	40	122	P.518.032C	10	110	B
32 x 1"	64	21	19	40	122	P.518.032D	10	110	B
32 x 1 1/4"	64	25	19	40	122	P.518.032E	10	90	B
40 x 1 1/4"	76	25	23	44	198	P.518.040E	5	60	B
40 x 1 1/2"	76	25	23	51	198	P.518.040F	5	60	B
50 x 1 1/2"	88	25	28	55	316	P.518.050F	5	35	B
50 x 2"	88	30	28	55	316	P.518.050G	5	35	B
63 x 2"	103	30	35	63	582	P.518.063G	5	20	B
63 x 2 1/2"	103	33	35	78	499	P.518.063H	5	20	B
*75 x 2 1/2"	118	33	41	73	810	P.518.075H	1	14	B
*75 x 3"	118	39	41	73	810	P.518.075I	1	14	B
*90 x 3"	136	39	49	87	1213	P.518.090I	1	10	B
90 x 4"	136	45	49	87	1213	P.518.090L	1	10	B
*110 x 4"	151	45	60	103	1767	P.518.110L	1	5	B

514 | TEE



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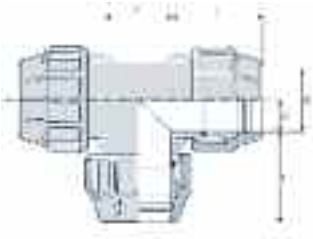


DxDxD	L	Z	Z_1	Weight (g)	Code	Pack	Box	Master
16 x 16 x 16	45	22	11	66	P.514.0160	20	220	B
20 x 20 x 20	50	26	13	101	P.514.0200	20	120	B
20 x 25 x 20	53	26	13	115	P.514.020C	10	120	B
25 x 25 x 25	57	30	15	151	P.514.0250	10	90	B
25 x 32 x 25	54	30	15	190	P.514.025D	10	70	B
32 x 32 x 32	64	38	19	236	P.514.0320	10	50	B
40 x 40 x 40	76	46	23	390	P.514.0400	5	30	B
50 x 50 x 50	88	56	28	598	P.514.0500	5	20	B
63 x 63 x 63	103	70	35	944	P.514.0630	4	12	B
*75 x 75 x 75	118	82	41	1427	P.514.0750	1	7	B
*90 x 90 x 90	136	98	49	2113	P.514.0900	1	5	B
*110 x 110 x 110	151	120	60	3191	P.514.1100	1	3	B

516 | TEE MALE THREADED

*

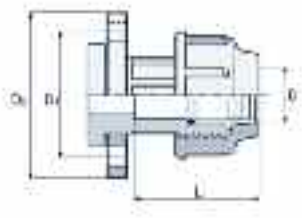
DxGxD	L1	L2	Z	Z1	Weight (g)	Code	Pack	Box	Master
16 x 1/2" x 16	45	18	22	40	52	P.516.016B	20	240	B
20 x 1/2" x 20	50	18	26	46	82	P.516.020B	20	140	B
20 x 3/4" x 20	50	20	26	46	82	P.516.020C	20	140	B
25 x 3/4" x 25	57	20	30	52	122	P.516.025C	10	100	B
25 x 1" x 25	57	20	30	52	122	P.516.025D	10	100	B
32 x 1" x 32	64	20	38	61	190	P.516.032D	10	60	B
32 x 1 1/4" x 32	64	24	38	61	190	P.516.032E	10	60	B
40 x 1 1/4" x 40	76	24	46	69	322	P.516.040E	5	30	B
40 x 1 1/2" x 40	76	24	46	69	322	P.516.040F	5	30	B
50 x 1 1/2" x 50	88	24	56	82	490	P.516.050F	5	20	B
50 x 2"x 50	88	29	56	82	490	P.516.050G	5	20	B
63 x 2"x 63	103	29	70	96	775	P.516.063G	4	12	B
63 x 2 1/2" x 63	103	32	70	96	775	P.516.063H	4	12	B
*75 x 2 1/2" x 75	118	32	82	111	790	P.516.075H	1	10	B
75 x 3" x 75	118	38	82	111	1150	P.516.075I	1	10	B
*90 x 3" x 90	125	38	97	122	1800	P.516.090I	1	6	B
90 x 4" x 90	125	44	97	130	1680	P.516.090L	1	6	B
*110 x 4" x 110	144	44	119	143	2523	P.516.110L	1	3	B

515 | TEE FEMALE THREADED

*

DxG	L1	L2	Z	Z1	Weight (g)	Code	Pack	Box	Master
16 x 3/8" x 16	45	19	22	25	55	P.515.016A	20	240	B
16 x 1/2" x 16	45	19	22	19	48	P.515.016B	20	240	B
20 x 1/2" x 20	50	19	26	27	85	P.515.020B	20	140	B
20 x 3/4" x 20	50	19	26	27	85	P.515.020C	20	140	B
25 x 1/2" x 25	57	19	30	31	127	P.515.025B	10	100	B
25 x 3/4" x 25	57	21	30	31	127	P.515.025C	10	100	B
25 x 1" x 25	57	21	30	35	127	P.515.025D	10	100	B
32 x 1/2" x 32	64	19	38	40	195	P.515.032B	10	60	B
32 x 3/4" x 32	64	21	38	40	195	P.515.032C	10	60	B
32 x 1" x 32	64	21	38	40	195	P.515.032D	10	60	B
32 x 1 1/4" x 32	64	25	38	40	195	P.515.032E	10	50	B
40 x 1" x 40	76	21	46	44	322	P.515.040D	5	30	B
40 x 1 1/4" x 40	76	25	46	44	322	P.515.040E	5	30	B
40 x 1 1/2" x 40	76	25	46	50	322	P.515.040F	5	30	B
50 x 1 1/2" x 50	88	25	56	55	510	P.515.050F	5	20	B
50 x 2" x 50	88	25	56	55	510	P.515.050G	5	20	B
63 x 2" x 63	103	30	70	64	801	P.515.063G	4	12	B
63 x 2 1/2" x 63	103	33	70	64	801	P.515.063H	4	12	B
*75 x 2 1/2" x 75	118	33	82	75	1270	P.515.075H	1	10	B
75 x 3" x 75	118	36	82	80	1270	P.515.075I	1	10	B
*90 x 3" x 90	136	36	98	87	1882	P.515.090I	1	6	B
90 x 4" x 90	136	40	98	91	1882	P.515.090L	1	6	B
*110 x 4" x 110	151	40	120	103	2780	P.515.110L	1	3	B

520 | FLANGE ADAPTOR



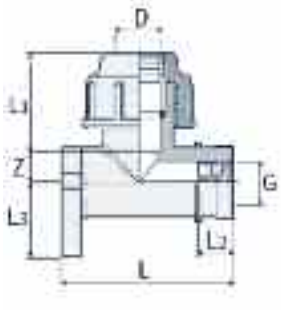
DxDN	L	D_1	D_2	No. Drill	Weight (g)	Code	Pack	Box	Master
*75 x 2 1/2"	118	145	185	4	886	P.520.075H	1	5	C
75 x 3"	118	160	200	8	992	P.520.075I	1	13	B
*90 x 3"	136	160	200	4	1198	P.520.090I	1	8	B
90 x 4"	136	180	220	8	1364	P.520.090L	1	8	B
*110 x 4"	151	180	220	8	1684	P.520.110L	1	6	B

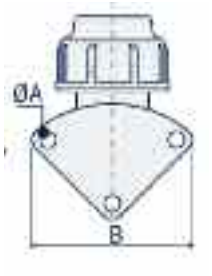
*

523 | REDUCING TEE

DxDxID	L	L_1	Z	Z_1	Weight (g)	Code	Box	Master
25 x 20 x 25	51.5	47	30	14	132	P.523.025B	100	B
32 x 25 x 32	57.5	51	32	19	207	P.523.032C	60	B
40 x 32 x 40	83	75	40	17	340	P.523.040D	40	B
50 x 40 x 50	100	90	44	23	580	P.523.050E	20	B
63 x 50 x 63	95	85	66	33	950	P.523.063F	12	B

524 | WALL BRACKETS



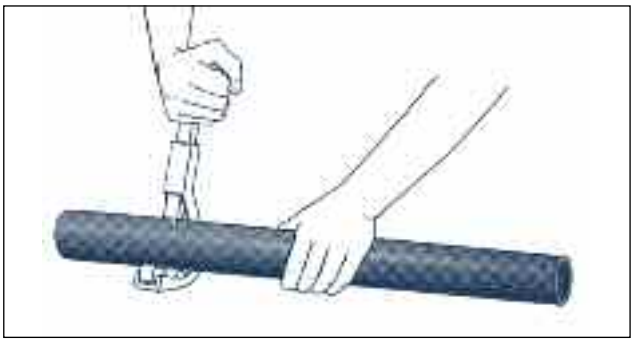


DxG	L	L_1	L_2	Z	A	B	Weight (g)	Code	Pack	Box	Master
25 x 3/4"	83.5	57	21	14	6	62	76	P.524.025C	10	150	B

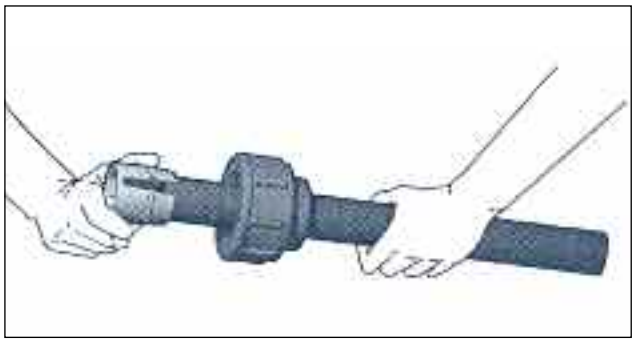
517 | REDUCER JOINT

D_1xD	L	Weight (g)	Code	Pack	Box	Master
50 x 20	79	55	P.517.050B	20	120	B
50 x 25	81	65	P.517.050C	20	120	B
63 x 20	79	85	P.517.063B	10	100	B
63 x 25	81	100	P.517.063C	10	100	B

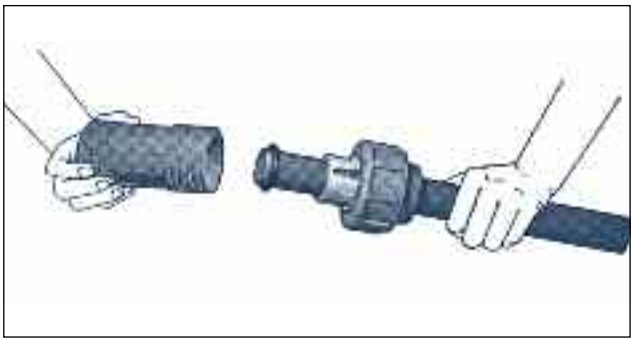
Installation D16-63



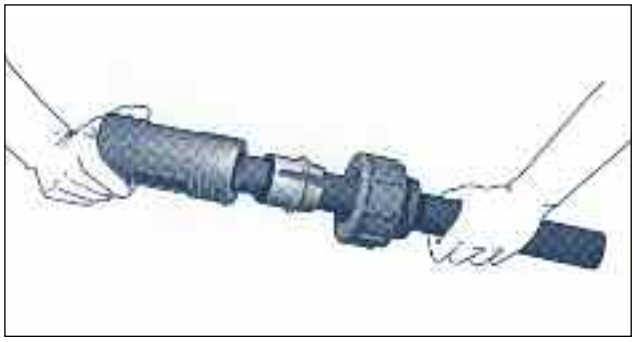
1 Cut the pipe square at 90° to the length using a pipe cutter.



2 Insert on the pipe in the following order collar and clinching and place the O-ring on the mouth of the pipe (fig.2 & 3).



3 Insert the body of the joint until the gasket is struck in the body itself (fig.4).



4 Insert the body of the joint until the gasket has slid inside the body.

5 Fully tighten the nut. The nut can be tightened manually up to d32 mm, but for larger diameters it is advisable to use a wrench.

Installation D75-90

1

Cut the pipe square at 90° to the length using a pipe cutter.

Lubricate the pipe and the gasket so that the fittings sit correctly on the pipe. Insert the fittings onto the pipe in the following order: ring nut, clinching ring, thrust bushing and put the gasket on the mouth of the pipe.

2

Push the body of the fitting on the pipe until the gasket is pushed inside the body (fig.2).

3

Push the body of the fitting on the pipe until the gasket is struck in the body itself (fig.2).

Installation D110

1

Cut the pipe square at 90° to the length using a pipe cutter.

Lubricate the pipe and the gasket so that the fittings sit correctly on the pipe. Insert the fittings onto the pipe in the following order: ring nut, thrust bushing, gasket and body of the fitting.

2

Fully tighten the nut until the gasket is stuck inside the body.

3

Untighten the nut, open the clenching ring and insert it on the pipe, fully tighten the nut using a belt or chain wrench.

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ASTORE UK - TERMS AND CONDITIONS OF SALE

1. DEFINITIONS
"Seller" shall mean Glynwed Pipe Systems Limited, Registered in England under number 1698059. "Buyer" shall mean any company, organisation or individual to whom a quotation is offered, or whose order is accepted by the Seller.

2. CONDITIONS
All offers, quotations, estimates, acceptances and contracts are subject to these Conditions of Business and any terms or conditions which any other person shall seek to impose or make part of any contract shall, so far as is inconsistent with these Conditions of Business, not apply unless expressly agreed by the Seller in writing. The headings in these conditions are for convenience only and shall not affect their interpretation.

3. QUOTATIONS AND PRICE VARIATION
a) Any quotation given by the Seller is an invitation to the Buyer to make an offer only and no order of the Buyer placed with the Seller in pursuance of a quotation or otherwise shall be binding on the Seller unless and until it is accepted in writing by the Seller.

b) Unless stated otherwise, all quotations and published price lists are ex works, exclusive of VAT and shall remain valid for 30 days or such a period as may be quoted but nevertheless the Seller may amend or withdraw any quotation by written or oral notice. Quotations may be varied if the Buyer makes variations in his specifications.

4. STATEMENTS OR REPRESENTATIONS TO THE BUYER
If any statement or representation has been made to the Buyer upon which the Buyer relies other than in the documents enclosed with the Seller's quotation, the Buyer must set out that statement or representation in a document to be attached to or endorsed on the order in which case the Seller may submit a new quotation.

5. DELIVERY - TIME
a) Any period for delivery given at any time and in any manner by the Seller is an estimate only and is not binding on the Seller. Delivery periods are normally calculated from the later of:
i) acceptance of order; or
ii) where applicable, the receipt by the Seller of a detailed specification or drawings.

b) Time shall not be deemed to be of the essence of the contract. Failure by the Seller to meet any quoted delivery period for any part or the whole of the order shall not entitle the Buyer to rescind the contract or to claim damages of any nature.

c) The Seller will endeavour to comply with reasonable requests by the Buyer for postponement of delivery but shall be under no obligation to do so. Where delivery is postponed otherwise than due to default by the Seller the Buyer shall pay all costs and expenses including a reasonable charge for storage and transportation occasioned thereby and an extra charge for split delivery if applicable.

d) The Buyer will receive delivery of any consignment between the hours of 8.00am and 4.00pm Monday to Friday inclusive, unless otherwise agreed in writing. Cost incurred by the Seller arising from the Buyer's refusal to accept consignments within the agreed hours shall be borne by the Buyer.

6. DELIVERY AND RISK
a) Except where stated to the contrary in the contract, delivery shall be made as follows:
i) where the Buyer provides the transport, delivery shall be made ex the Seller's works;
ii) where the Seller provides the transport, delivery shall be made to the premises of the Buyer, or the premises of the Buyer's customer or works site if the Buyer has requested delivery to be so made but where the Buyer has made such a request the Seller will make a first delivery to the Buyer's customer or works site as so much of the goods as is available for that delivery but subsequent deliveries will be made to the premises of the Buyer.

b) The Seller may at its discretion make partial delivery of orders and invoice the same.

c) Risk in the goods shall pass on delivery.

d) Where goods are sent FOB the Seller's responsibility shall cease when the goods are placed on board ship or aircraft without the need for the Seller to give notice to the Buyer and the provisions of Section 32(3) of the Sale of Goods Act 1979 shall not apply.

7. OWNERSHIP OF GOODS
a) The goods shall remain the sole and absolute property of the Seller as legal and equitable owner until such time as the Buyer shall have paid to the Seller the contract price together with the full price of any other goods the subject of any contract between the Seller and the Buyer.

b) The Buyer acknowledges that until such time as the property in the goods passes to the Buyer he is in possession of the goods as a bailee and fiduciary agent for the Seller and the Purchaser shall store the goods in such a manner that they are clearly identifiable as the property of the Seller.

c) Until payment due under all contracts between the Buyer and the Seller had been made in full, in the event of sale of the goods by the Buyer:
i) the Seller shall be entitled to trace all proceeds of sale received by the Buyer through any bank or other account maintained by the Buyer; and
ii) the Buyer shall if requested by the Seller in writing to so assign its rights to recover the selling price of the goods from the third parties concerned. Such monies to be held separately by the Buyer as agent on behalf of the Seller.

8. TERMS OF PAYMENT
In the event of default in payment according to the agreed payment terms between the Seller and the Buyer – ie: by the end of the month following the month of despatch of the goods the Seller shall be entitled without prejudice to any other right or remedy to suspend all further deliveries and to charge interest on any amount outstanding at the rate of 2% per month until payment in full is made (a part of a month being treated as a full month for the purpose of calculating interest).

9. SHORTAGES AND DEFECTS APPARENT ON DELIVERY
a) It shall be the responsibility of the Buyer to inspect or arrange for an inspection of the goods on delivery whether the goods are delivered to the Buyer's premises or to the premises of the Buyer's customer or to a works site. If no such inspection is made the Buyer shall be deemed to have accepted the goods.

b) The Buyer shall have no claim for shortages or defects apparent on inspection unless:
i) a written complaint is made to the Seller within three days of receipt of the goods specifying the shortage or defect; and
ii) the Seller is within seven days of receipt of the complaint given an opportunity to inspect the goods and investigate the complaint before any use is made of the goods.

c) If a complaint is not made to the Seller as herein provided then in respect of such shortages or defects the goods shall be deemed to be in all respects in accordance with the contract and the Buyer shall be bound to pay for the same accordingly.

10. CLAIMS FOR DEFECTS NOT APPARENT ON INSPECTION
a) The Buyer shall have no claim for defects not apparent on inspection unless the Seller is notified of defective workmanship or materials within twelve months from delivery of the goods. Provided that the goods have been installed and applied in accordance with any relevant recommendations made by the Seller, the Seller will at its option replace the goods or refund the net invoiced price in respect of the goods which have been shown to be defective. If the Seller does so supply substitute goods the Buyer shall be bound to accept such substituted goods in full satisfaction of the obligations of the Seller under the contract.

b) The Buyer shall in any event have no claim or set-off in respect of defects unless a written complaint is sent to the Seller as soon as the defect is noticed and no use is made of the goods thereafter or alteration made thereto by the Buyer before the Seller is given an opportunity to inspect the goods.

c) The Buyer is responsible for ensuring that the goods are fit for any particular purpose, and no warranty or condition of fitness for any particular purpose is to be implied into the contract.

11. LIABILITY
Save as stated in Conditions 9 and 10 (and save in respect of death or personal injury resulting from the negligence of the Seller its servants or agents) the Seller shall not be liable for any claim or claims for direct or indirect consequential or incidental injury loss or damage made by the Buyer against the Seller whether in contract or in tort (including negligence on the part of the Seller its servants or agents) arising out of or in connection with any defect in the goods or their fitness or otherwise for any particular purpose or any act omission neglect or default of the Seller its servants or agents in the performance of the contract.

12. FORCE MAJEURE
Notwithstanding anything herein contained neither the Buyer nor the Seller is to be held liable for any delay or failure to carry out the contract due wholly or in part to an act of God action by any Government whether British or foreign civil war strikes and/or lockouts wheresoever occurring fire trade disputes floods or unfavourable weather or any material becoming unavailable or irreplaceable (whether at all or at commercially acceptable prices) or any other circumstances beyond the control of the Seller.

13. SUB-CONTRACTING
The Seller reserves the right to sub-contract the fulfilment of any order or any part thereof.

14. INSOLVENCY AND BREACH OF CONTRACT
In the event that:
a) the Buyer commits any breach of the contract and fails to remedy such breach (if capable of remedy) within a period of thirty days from receipt of a notice in writing from the Seller requesting such remedy; or

b) any distress or execution is levied upon any of the goods or property of the Buyer; or

c) the Buyer offers to make any arrangements with or for the benefit of its creditors or (if an individual) becomes subject to a petition for a bankruptcy order or (being a limited company) has a receiver appointed of the whole or any part of its undertaking property or assets; or

d) an order is made or a resolution is passed or analogous proceedings are taken for the winding up of the Buyer (save for the purpose of reconstruction or amalgamation with insolvency and previously approved in writing by the Seller) the Seller shall thereupon be entitled without prejudice to its other rights hereunder forthwith to suspend all further deliveries until the default has been made good or to determine the contract and any unfulfilled part thereof or at the Seller's option to make partial deliveries. Notwithstanding any such termination the Buyer shall pay to the Seller at the contract rate for all the goods delivered up to and including the date of termination.

15. INDUSTRIAL PROPERTY RIGHTS
If goods supplied by the Seller to the Buyer's design or specifications infringe or are alleged to infringe any patent or registered design right or copyright the Buyer will indemnify the Seller against all damages, costs and expenses incurred by the Seller as a result of the infringement or allegation. The Buyer will give the Seller all possible help in meeting any infringement claim brought against the Seller.

16. BUYER'S ERROR IN ORDERING
In the event the Buyer orders incorrectly the Seller will be under no obligation to the Buyer to rectify or assist in rectifying the error.

17. LAW AND JURISDICTION
The contract shall be subject in all respects to English Law and to the jurisdiction of the English Courts.

Astore UK reserves the right to modify the details in this publication as products and specifications are updated and improved.

The content of this publication is for general information only and it is the user's responsibility to determine the suitability of any product for the purpose intended.

For further information on all Astore UK products and services contact our Customer Services Team as detailed below.

Astore UK is a trade name of Glynwed Pipe Systems Ltd.
Company number 1698059.

Registered office
Astore UK
Walsall Road
Norton Canes
Cannock
Staffordshire
WS11 9NS
United Kingdom

ASTORE

THERMOPLASTIC PIPEWORK SYSTEMS

ASTORE UK

Walsall Road, Norton Canes, Cannock, Staffordshire WS11 9PU
Telephone: +44 (0)1543 272400 • Fax: +44 (0)1543 272413
E-mail: sales@astore.uk.com • Website: www.astore.uk.com

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