

DWV Pipe & Fittings System

Product Catalogue



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1.0 Introduction

Iplex Pipelines, a major manufacturer of plastic pipeline systems, was one of the first companies to market PVC-U (unplasticised polyvinyl chloride) systems in Australia and it has continued to progress, successfully developing many export markets

Iplex Pipelines PVC-U Drain Waste & Vent (DWV) system is one of the most comprehensive on the market with a full range from 40mm to 375mm in diameter. Iplex was a pioneer in the development and marketing of PVC systems for DWV applications and is well known for its excellent product quality.

PVC-U is the predominant material used in DWV applications in Australia. The economic advantages are well accepted, they are lightweight, resistant to a wide variety of chemicals, do not support combustion (are approved for multi-storey plumbing in conjunction with approved fire stop collars), they are impervious to bacteria and fungal attack and are not subject to electrolytic or galvanic corrosion. The fittings are designed with a high impact strength, which helps prevent damage during handling and installation. All parts assemble easily using either solvent cement or rubber seal rings to accommodate thermal or ground movement.

Installation should be made with reference to AS/NZS 3500 National Plumbing Standard and AS/NZS 2032 Installation of PVC Pipe Systems.

2.0 Product Data

2.1 Standards

Iplex Pipelines PVC-U DWV pipe and fittings systems are intended for use above and below ground including exposure to direct sunlight and are manufactured to AS/NZS 1260 PVC pipes and fittings for drain, waste and vent applications. Iplex DWV pipe and fittings are also certified products holding the StandardsMark and WaterMark indicating that the products have been independently assessed and recognised as quality products.

Pipes are supplied in effective lengths of 6 metres or 3 metres. **Total pipe length** = *Effective Length* + *Insertion Depth*. Pipes are supplied with either rubber ring or solvent weld jointing systems, in classes SN6 and SN10 (DN100) and SN4 and SN8.

2.2 Pipe dimensions

Pipes are specified in terms of stiffness classes measured in a standard test. The new classes are not exactly the same as the earlier classification scheme (Class SH and Class SEH) but are similar.

Class SN4 and Class SN6 are considered to be suitable for plumbing and domestic use, effectively replacing Class SH.

Class SN8 and Class SN10 are suitable for general municipal drainage, deeper burial and similar applications where higher pipe stiffness is required to minimise deflection of the installed pipes due to the load imposed by the back fill or surcharge or to poor soil conditions. These pipes have effectively replaced Class SEH pipes.

2.3 Colour and markings

Iplex Pipelines DWV pipe and fittings are manufactured in a light grey colour in a semi-gloss finish, which is opaque and flawless.

All DWV pipes are repeatedly branded in accordance with AS/NZS 1260, which includes the date and place of manufacture.





2.4 Best Environmental Practice (BEP) PVC and the GBCA Green Star rating

In 2010 the Green Building Council of Australia (GBCA) reviewed its Green Star rating tool and under a new approach, the use of lplex PVC pressure and non-pressure pipe, conduit and fittings can assist buildings to qualify for up to two positive credit points where pipe and fittings can be shown to comply with the GBCA "Best practice Guidelines for PVC in the Built Environment".

As a means of demonstrating Best Environmental Practice PVC (BEP PVC), Iplex was subjected to an extensive audit process by independent third-party certifier, ApprovalMark. on Monday 20th February 2012, Iplex was issued with BEP PVC Certificate of Compliance No. 037. A PDF copy may be downloaded from the Iplex website (www.iplex.com.au).

The GBCA has recognised environmental advances made by Iplex and others and has based its revision on a series of PVC Expert Reference Panel (ERP) meetings, site visits, discussions with key stakeholders and examination of international studies. This process has shown the lifecycle of PVC - from raw materials and production through use to end-of-life, recycling and disposal - has changed considerably in recent years and there is a clear rationale for favouring PVC products that are manufactured and reclaimed through Best Environmental Practice production and end of life product management processes.

More information can be found on the following websites:

Green Building Council Australia website - www.gbca.org.au

Plastics Industry Pipe Association website - www.pipa.com.au





2.5 Material properties

The properties listed in the following table are typical characteristics of PVC-U.

These mechanical properties are for PVC-U at 20°C.

Density	1530kg/m ³
Ultimate tensile strength	52MPa
Compressive strength	66MPa
Shore D hardness	85 ASTM D2240
Hardness (Brinell) at 23degC	12-15
Elongation at yield	5.5%
Poissons ratio	0.38
Coefficient of linear thermal expansion	7 x 10 ⁻⁵ / °C
Vicat softening temperature	Approximately 80°C
Ring bending modulus	3 minute 3200MPa and long term 1400MPa

2.6 Product limitations

4(10) 14 8 20%		
Effect of low temperature	The impact resistance of PVC-U pipe and fittings decreases with reduction in temperature therefore	
·	increased care should be exercised if installations are carried out near 0°C.	
	PVC-U DWV pipes have a softening temperature of approximately 80°C. Because the material has a	
Effect on elevated temperatures	low thermal conductivity DWV pipes are able to cope with typical discharges at even higher tempera-	
	tures. Full bore and extended discharges at higher temperatures should be avioded.	
	• The systems are more than adequate for normal domestic applications in low and multi-rise dwellings	
One sight and applicable as	Where more specialised applications, such as tea-makers, autoclaves, hospitals, commerica	
Specialised applications	dishwashers, commercial laundries, industrial kitchens and laboratories are concerned, where	
	prolonged discharges of liquids at elevated temperatures can occur, contact lplex Pipelines.	





2.7 Product advantages

Features	Benefits
	Extremely smooth bores, precision joints, and lack of internal projections ensure unrivalled hydraulic capacitation.
High flow rate	over the total life of the system
	Flatter grades are possible using PVC-U systems
Flammability • PVC-U does not support combustion	
Non-conductivity	PVC-U is a non-conductor of electricity, and is therefore not subject to galvanic or electrolytic action
	Properly made solvent weld joints have been shown to have excellent resistance to tree root intrusions the
Tree root resistance	cause blockages and infiltration in other systems. Iplex DWV elastomeric seal joints have been designed w
Tree root resistance	high interface pressures which, when coupled with smooth, impervious. PVC socket and spigot surfaces, provide
	a high resistance to tree root intrusions (verified by research carried out in conjunction with CSIRO)
	The light weight of Iplex DWV pipes together with longer pipe lengths, flexibility and the use of narrow tren
Low installation cost	widths significantly reduces installation costs, the major portion of the total in-situ costs. PVC pipes do not requi
Low installation cost	electrofusion couplings and may be installed with electric power in a wide range of climatic conditions.
	The inert nature of PVC-U pipe provides complete corrosion resistance, and renders wrapping, coating and linit
Corrosion resistant	unnecessary. This inert nature ensures that PVC-U sewer and drainage pipes have a long operational life.
Corresion resistant	The spacing of manholes can be increased due to greatly reduced incidence of blockage and increased flo
	rates possible with PVC-U sewers.
Manhole reduction	In some cases manholes can be replaced with PVC-U riser and access points. Manholes are often the greater
mainible reduction	single cost element in sewerage systems, and any reduction in their number makes sound economic sense
	Ground water infiltration and sewerage exfiltration due to broken and cracked elements and joint opening
Leakage elimination	caused by ground movement are eliminated by the precision joints, flexible pipe barrel and sealed access poir
	provided by the PVC-U sewer pipe and fittings system

Both the elastomeric seal and the solvent cement joint provided with the system eliminate the contamination of the groundwater aquifer and surface waters by sewer effluent with the resulting health hazards, visual pollution and public concern.

2.8 Chemical resistance

The excellent chemical resistance of PVC-U to acids, alkalis, oxidising and reducing agents make it particularly suitable for a wide range of industrial applications. Generally PVC-U is resistant to most oils, fats alcohols and aromatic-free petrol, but is unsuitable for use with aromatic and chlorinated hydrocarbons, ketones and esters which can lead to swelling and softening of the material.

PVC-U DWV pipes are resistant to all of the chemicals expected to be encountered in drain and waste applications.

A full Chemical Resistance Library can be viewed on the Iplex website www.iplex.com.au.

Testing

Testing of pipes is in accordance with the requirements of AS/NZS 1260.

Pipes are subjected to the following tests, performed as detailed in the standard.

- · Dimensional test
- · Pipe stiffness
- Impact resistance at 20°C
- · Reversion test
- · Softening point test
- Ring flexibility
- · Joint hydrostatic pressure test
- · Joint liquid infiltration test

2.9 Pipeline design

Design and Installation of DWV pipe and fittings is covered by AS/NZS 3500 National Plumbing Standard, and AS/NZS 2032 - Installation of PVC-U Pipe Systems, installers should also ensure that local authority requirements are met. Check DESIGN TOOLS on our website (www.iplex.com.au) for more information.





3.0 Jointing Methods

PVC-U pipelines are easy to assemble. While Iplex rubber ring jointed pipes can be fully assembled above the trench, care must be taken to ensure joints do not pull apart during lowering into the trench and all joints must subsequently be inspected. DWV solvent welded pipe may be fully jointed above the trench but not lowered into the trench until the solvent has taken its initial set.

3.1 Solvent weld joint

Iplex Pipelines premium solvent cements and benzene free priming fluids are manufactured to AS/NZ S3879. Solvent cements and priming fluids for PVC (PVC-U and PVC-M) and ABS pipe and fittings.

To achieve strong leak free joints tradespeople should:

- 1) Select the correct solvent cement for the application Type N - for non-pressure joints that may have a small clearance.
- 2) Select the correct pipe and fitting using the Iplex Pipelines part list.
- 3) Follow jointing steps 1 8 carefully in jointing instructions. Short cuts will result in poor joints that are likely to cause system failure.

How solvent cement works:

Iplex solvent is a solution of resin in a mixture of solvents, which soften the surfaces when applied to PVC-U pipe and fittings. It is not a glue.

A thin uniform coat is applied to both the spigot and socket and the joint is assembled while the surfaces are still wet and fluid. The cement layers intermingle and become one. The strength of the joint develops as the solvent permeates the PVC-U and the volatile constituents evaporate.

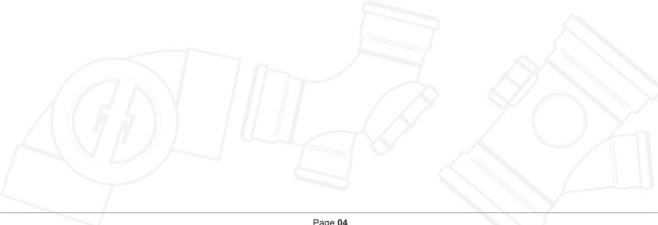
The importance of Iplex pipelines priming fluids:

Before applying the solvent cement, it is essential to use Iplex Priming Fluid for successful jointing as the fluid not only cleans and degreases, but removes the glazed surface from PVC-U which allows the solvent cement to permeate into the wall of the pipe or fitting.

It must be applied with a clean, lint free cotton cloth. Brushing the priming fluid on or simply pouring the fluid over the pipes and fittings does not remove grease and dirt.

Iplex pipelines - Solvent cement - Type N:

Type N is used for non-pressure applications and is formulated with the gap filling properties needed with clearance fits.







Jointing instructions

Do not work with hot pipes or on hot windy days without protecting pipes from the wind. Keep lid on solvent cement to minimise evaporation. Do not use solvent over 12 months old.

Step 1 - Cut spigot square and deburr:

Cut the spigot as square as possible using a mitre box and hacksaw or power saw. Remove all swarf and burrs from both inside and outside edges with a knife, file, reamer or sandpaper. Swarf and burrs if left, will wipe off the solvent cement and prevent proper jointing. Also swarf inside pipes can become dislodged and jam taps and valves.



Step 2 - Check alignment:

Check the pipe and spigot or fittings for proper alignment. The time for any adjustments is now, not later.



Step 3 - Mark clearly:

Mark the spigot with a pencil or marker at a distance equal to the internal depth of the socket. Only use pencil or a marker. Do not score or damage the surface of the pipe or fitting.



Step 4 - Clean and soften the surface:

Thoroughly clean the inside of the socket and the area between the pencil mark and the spigot end with a clean, lint free cotton cloth dipped in priming fluid (do not use synthetic material). This removes dirt and grease and softens the PVC-U surface. Do no brush or pour the priming fluid on.

*Iplex recommends the use of gloves. If contact with skin occurs, wash affected area with soap and copious quantities of water immediately.







Jointing instructions - Continued...

Step 5 - Coat socket first - then spigot:

Apply a thin, uniform coat of Iplex solvent cement to the socket. Take care to ensure that solvent build up does not occur in the root of the socket - a pool of cement there will severely weaken the pipe or fitting. Now apply a uniform coat of solvent cement to the external surface of the spigot up to the pencil mark.



Step 6 - Assemble-hold for 30 seconds:

Assemble the joint quickly before the cement dries by pushing the spigot firmly into the socket as far as the pencil mark, ending with a quarter turn to spread the cement evenly. Hold the joint in this position for at least thirty seconds without movement.



Step 7 - A vital 5 minutes:

Wipe off the excess solvent cement from the outside of the joint and where possible from the inside of the joint. Do not disturb the joint for at least a further five minutes-movement may break the initial bond.



Step 8 - Curing and testing:

The cure time is the time taken for the joint to achieve sufficient strength to allow it to be tested by internal pressure or vacuum.

The minimum cure time for solvent weld joints in Iplex DWV pipes and fittings is 24 hours.







Storage

- Solvent cement and priming fluids are highly flammable. In the event of fire, smother with a fire blanket or earth or use suitable fire extinguisher.
- · Store solvent cements and priming fluid in a cool place away from heat, flames and sparks.
- · Ensure can lids are tightly closed when not in use.
- Use solvent cements within twelve months of the date stamped on the bottom of the bottle/can. If the solvent cement has become so thick that it does not flow easily, discard.
- · Do not add any other ingredients or solvents to these products.

Safety precautions

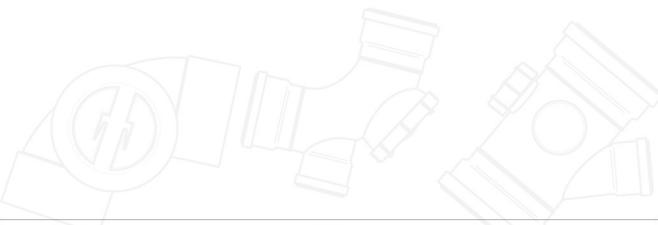
- Do not use solvent cements or priming fluid in confined spaces without adequate ventilation, or near open flames or sparks.
- · Do not smoke while using these products.
- · If spilt on skin, wash off with soap and water.
- · If poisoning occurs, consult a doctor or Poisons information Centre.
- · Keep container sealed when not in use.

If swallowed:

Solvent cement	Do not induce vomiting.	
Solvent cement	Call Poisons Information Centre or a doctor immediately.	
Priming fluid	Do not induce vomiting.	
Frining naid	Call Poisons Information Centre or a doctor immediately.	

Avoid contact with eyes:

• If contact occurs flush with copious amounts of water.







3.2 Elastomeric seal

DWV rubber ring joint pipe is supplied with the well known lplex ring, which fits easily into the integral socket, and is available in sizes 100mm to 375mm.

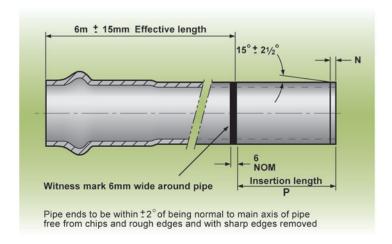
Unless otherwise requested Styrene Butadiene (SBR) rings are supplied.

Polymer	Color code
Styrene Butadiene (SBR)	Blue
Ethylene Propylene Diene Monomer	Green

If it is necessary to cut pipes on site use a fine toothed handsaw. The cut position should be measured to allow the penetration depth of the spigot into the socket shown in table below. A mitre box is recommended to ensure the cut is square to the pipe axis and all burrs removed with a file.

A chamfer similar to the factory produced chamfer on the pipes supplied is essential before attempting to joint the pipes. The maximum length of chamfers applied on site must be no more than Dimension 'N' shown in the table below. The witness mark should then be made, using a soft pencil, at the required penetration depth.

Chamfer and witness mark details:



Nominal pipe size (mm)	Dim. 'P' (mm)	Dim. 'N' (mm)
100	84	11
150	96	13
250	120	20
300	130	20
375	140	25





Iplex lubricant

Iplex lubricant is an economical lubricant for non-pressure applications where jointing forces are not critical and a bactericidal lubricant is not necessary.

Average number of joints per litre of lplex lubricant (estimate only):

Nominal pipe size (mm)	Approx. joints per litre
100	75
150	50
225	35
300	25
375	20

Average number of joints per litre of lplex solvent (estimate only):

Nominal pipe size (mm)	Approx. joints per litre
40	100
50	60
65	60
80	60
100	48
150	40
225	16
300	8
375	6

Average number of joints per litre of lplex primer (estimate only):

Nominal pipe size (mm)	Approx. joints per litre
40	500
50	300
65	250
80	200
150	90
225	30
300	24
375	16





Jointing instruction

Step 1 - Clean

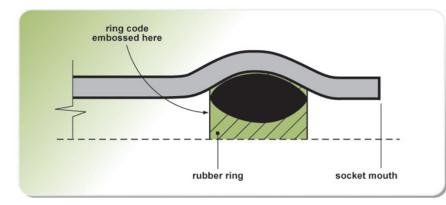
Remove all dust and dirt from the pipe spigot and socket or coupling paying particular attention to cleaning behind the rubber rings.



Check the ring code embossed on the inner face of the thicker section of the ring is correct and the correct colour code (blue) is on the outer circumference of the thicker section of the ring.

Step 3 - Install ring

Install the rubber ring ensuring it seals evenly in the PVC-U socket.



Step 4 - Apply lubricant

Apply lubricant to the spigot, fully covering the circumference up to the witness mark, ensuring that the lubricant also covers the pipe chamfer.



Step 5 - Insert pipe

With pipes in a straight line introduce the spigot into the socket and push home until the witness mark remains just visible. In this position clearance is automatically provided to allow for expansion and contraction. Jointing may be assisted by the use of a crowbar and wooden block. The socket of the joint being made should be restrained to prevent backward movement which would close up joints already made.

Note:

Keep container closed when not in use to avoid spillage or contamination by dust or dirt.

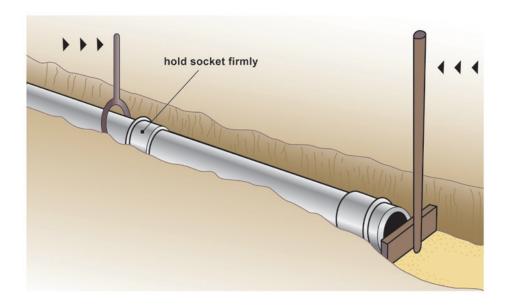


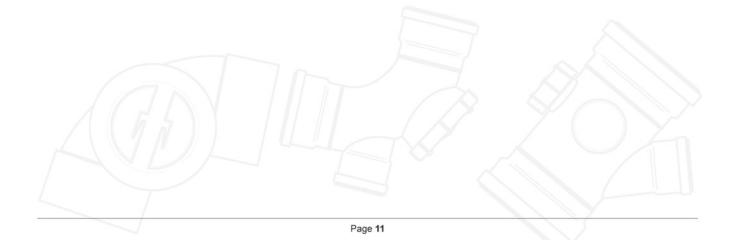


Placing pipes into trenches

Both Iplex seal rubber ring and solvent weld jointed PVC-U lines can be jointed outside the trench if required. However, it is recommended that rubber ring joints be made in the trench, particularly in pipelines of 150mm diameter and over, to avoid the possible necessity of re-positioning disturbed joints. Solvent weld jointed pipes can safely be handled without risk, provided that the joints have been allowed to develop sufficient strength.

When pipes are jointed in the trench, the jointing procedures are described under solvent weld or Iplex seal rubber ring joints. Particular care should be taken to ensure that no dirt or moisture has collected on the joint surface during handling.









4.0 Installation

One of the most significant advantages of Iplex PVC-U DWV pipe system is its light weight. This means that the pipe can be easily handled and longer lengths can be installed without sophisticated lifting machinery and with minimum in-trench labour.

Long pipe lengths increase the speed with which a system can be installed, and also mean that pipelines are less susceptible to misalignment and consequent blockage following possible ground movement, than those made up of short pipe lengths.

Sewer and waste pipelines rely on gravity to ensure adequate flow of fluid. Strict adherence to the designed grade along the entire pipeline is essential and the line must be maintained to specification between inspection or manhole position.

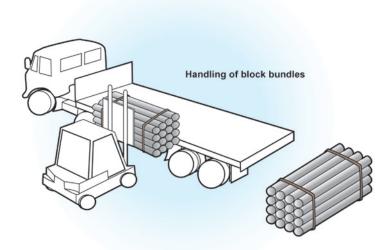
Installation of PVC-U DWV pipelines should be fast and efficient provided the following guidelines are followed. The installer should also be familiar with AS/NZS 2032 - Installation of PVC-U Pipe Systems, and AS/NZS 3500 - National Plumbing Standard together with the requirements of local authorities, where applicable.

4.1 Handling and storage:

While PVC-U pipes are light and easy to handle, careless handling can cause unnecessary damage. Pipes and fittings should not be dropped or thrown onto hard surfaces or allowed to come into contact with sharp objects that could inflict deep scratches. PVC-U pipes should not be allowed to slide across sharp edges.

Bowing

- Pipes can distort under high applied loads due to pipes not been properly supported or stacked too high or incorrectly. This
 can be aggravated if the pipes are hot.
- · Heat sources should be avoided to reduce the risk of distortion.
- If pipes or fittings are to be stored outdoors for more than 12 months they should be protected, by for example, hessian or
 white shade cloth in a manner that allows ventilation and avoids heat build-up.
- Pipes heated on one side by direct sunlight might tend to bow. This process is reversible and the bow can be eliminated
 by exposing the other side to the sunlight or otherwise allowing the temperature to become consistent before laying the
 pipe.



Temporary storage in the fields where racks are not provided, can be in stacks on the ground, providing this surface is level and free from loose stones or other sharp projections.

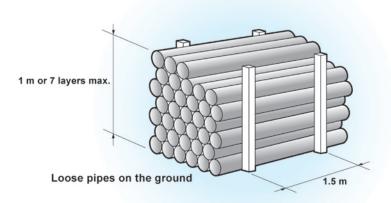
Socketed pipes should be stacked in layers with sockets placed at alternative ends of the rack, and protruding, to avoid uneven stacks and distortion. The sockets should not be load bearing. Another acceptable approach is to have alternate layers pipes facing in the same direction.

If mechanical handling equipment such as forklifts or cranes are to be used on bundles, adequate spreader and lifting bars should be provided. Wire slings must be kept clear of the pipes.

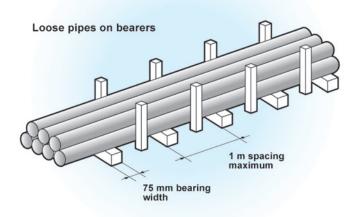




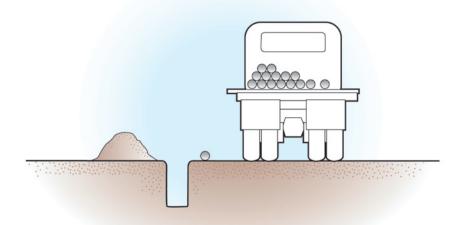
4.1 Handling and storage - Continued...



Racks for long term storage are recommended and should preferably provide continuous support, but if this is not possible then supports of at least 75mm bearing widths at 1m centres (max) should be placed beneath the pipes. Side restraints should be placed at centres not exceeding 1.5m and stacks should not exceed 1m in height.



When unloading alongside dug trenches, it is recommended that pipes be placed on the opposite side of the trench from excavated material.



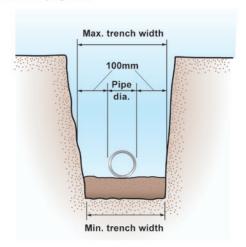
Rubber rings, lubricant, solvent cement and priming fluid should be stored under cover until pipelaying commences.





4.2 Trenching:

Trenches should be excavated in accordance with plans and specifications and with reference to AS/NZS 2032. They should be as narrow as practicable at the level of the top of the pipe and, in a straight trench, have a bed width not less than 200mm wider than the pipe diameter, to provide working space for the laying crew.



Trenches when excavated are either 'stable' or 'unstable'. The category into which a trench fits is affected by the soil conditions, width, depth and method of excavation. To ensure that maximum support is given to the buried pipe by the undisturbed ground the resultant stable or unstable trench should be treated in the following way:

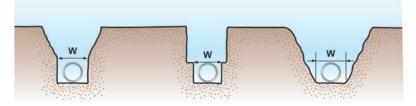
Stable conditions:

Stable conditions are those where, after excavation, the trench walls remain solid and do not show any signs of collapse or cave-in. Under such conditions the recommended trench widths are shown in the following table:

Pipe diameter (mm)	Normal width (mm)
100	400
150-200	600
225-300	750
375	900

Unstable conditions:

Unstable conditions are those where, during or after excavation, the trench walls tend to collapse and cave-in. Under these conditions, in open or unrestricted areas, the top of the trench can be widened until stability is reached. A smaller trench should then be dug in the bottom of the excavation to contain the pipe as shown. In areas where space is limited, e.g. in streets, it may be necessary to support trench walls by timber or other suitable shoring.



Trench depths:

The minimum trench depth should be such that pressures created by the weight of fill material plus anticipated traffic or other superimposed loads will not damage the pipes. As a guide the recommended minimum clear cover above is listed below:

Condition	Min. cover depth
Where no subject to vehicular loading:	300mm
Where subject to vehicular loading:	
Under driveways:	450mm
In sealed roadways:	600mm
In unsealed roadways:	750mm





Laying and compaction

Preparing the trench:

The trench bottom should be as level as possible, so that the barrel of the pipe is fully supported. The trench bottom should have sandy or loamy soil, free from rocks and stones to ensure continuous support for the pipe.

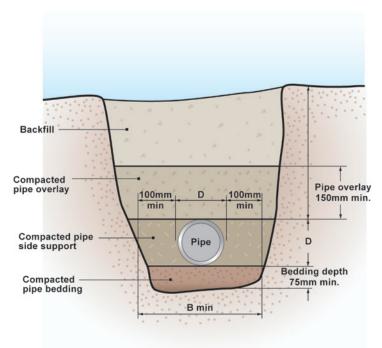
Wet conditions:

In wet ground, sloppy working conditions can be alleviated by first placing a layer of hard granular material, or by de-watering the area in and around the trench. If patches of ground are so wet that there is a risk of subsidence and possible damage to sections of the pipeline, these areas should be consolidated by the addition of suitable fill material.

Trench installation:

The trench should be excavated deeply enough to allow for the specified grade, the required depth of bedding, and the minimum cover over the pipe.

AS/NZS 2032 - "Installation of PVC-U Pipe Systems", suggests the following typical installation in a trench, which Iplex recommends.



AS/NZS 2032 suggests the following materials as suitable for bedding and overlay in the trench:

- (a) Suitable sand, free from rock or other hard or sharp objects.
- (b) Crushed rock or gravel of approved grading up to a maximum size of 14mm
- (c) Cement mortar, containing one part of cement and four parts of sand by volume, mixed with clean water to a workable consistency (bedding only).





4.3 Backfilling

Use of short lengths of pipe

PVC-U pipe may be cut on site when shorter lengths are required for the installation of fittings.

The cutting of PVC-U pipe is easily achieved using a fine-toothed handsaw or a PVC-U pipe cutter. The position of the cut should be measured and carefully re-checked before cutting: reasonable accuracy should be exercised to ensure that the cut is square to the axis of the pipe and all burrs must be removed from the cut end before making a joint.

Completing sitework

Once the pipe is laid in the trench backfilling can commence. Two distinct phases are involved with pipelines:

- a. backfilling prior to testing the pipeline
- b. backfilling after testing the pipeline

Backfilling usually follows pipe installation as closely as possible in order to protect the pipe from external damage. This eliminates the possibility of the pipe floating due to flooding of open trenches, and avoids shifting the pipe out of line due to cave-ins.

It should be remembered that the purpose of backfilling is not only to protect the pipe by covering it, but to provide firm continuous support under the pipe. Where concrete or mortar bedding has been used, the bedding has to take its initial set before overlay materials is added.

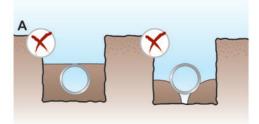
Initial backfilling

The first step in providing firm continuous support for the pipeline is to tamp soil solidly under the entire barrel of the pipe, care being taken not to disturb the grade.

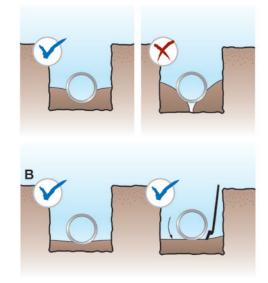
The embedment material should be free from stones, rock or clay. If the native, excavated soil is not suitable, then imported materials should be used for the embedment zone. The initial backfill should be placed by hand-shovel in layers not exceeding 100mm deep. Each layer should be well tamped round and under the pipeline using the long tamper illustrated. In this way air pockets are eliminated from beneath the pipe.

The layers should be shovelled in and tamped, the process being repeated until the pipe is firmly bedded. The flat tamper illustrated is used to consolidate this fill to heights of 300mm above the top of the pipe for diameters up to 300mm.

The illustrations A and B below show the wrong and right ways of tamping the initial backfill.







Case A, too much soil is present and the tamping bar cannot compact it properly leaving a void underneath the pipe.

Case B, shows the correct fill of a 100mm layer of soil which can be compacted to form a firm bed for the pipe.

Pipe joints should be temporarily left exposed when placing the initial backfill, to enable pressure tests to be carried out. After testing the line, backfilling and final filling may be completed.





4.4 Testing pipelines

Modern construction practice is to adopt some rigorous form of acceptance test on newly constructed sewer lines. It is usual for two separate tests to be made: one prior to backfilling and another towards the end of the job when backfilling has been completed and settled, and manholes and sidelines constructed.

The purpose of testing a non-pressure pipeline is to ensure that the line has been correctly laid to line and grade, will flow satisfactorily and is sealed at each joint and fitting.

In the case of a sewer pipeline system, three distinct areas require testing.

- 1. The sewer rising mains
- 2. The gravity pipeline sections
- 3. The gravity reticulation sections

The recommended practices for testing gravity pipelines are as follows:

Preparing for the Test:

During the installation careful checking and adequate supervision will ensure that sewer lines are laid to line and grade. If an installation specification exists it should be followed. Otherwise the pipeline section to be tested should be backfilled leaving all couplings and fittings exposed for inspection during testing. In solvent weld PVC-U jointed non-pressure pipelines, at least 24 hours should have elapsed since the last joint was made before testing commences.

Test procedures:

All new sewers and sanitary drainage and other non-pressure installations shall be tested using either hydrostatic test, low pressure air test or vacuum testing. The tests shall also be applied to any section of existing pipeline or drain that has been repaired or replaced. All openings in the pipeline below the top of the section under test shall be sealed.

Hydrostatic testing:

The pipeline shall be filled with water to a height of not less than 1m above the natural ground level at the highest point of the section being tested, or to the flood level of the lowest sanitary fixture, but not exceeding 5m at the lowest point of the test section

The pressure shall be maintained without leakage for at least 15 minutes. The source of any leaks shall then be ascertained and any defects repaired. The pipeline shall then be retested.

Volume of water required to fill line:

For a guide as to the amount of water required to fill the test section of sewer line, the following table has been calculated. The amount of water required in practice will vary slightly from the tabulated figures due to variations in pressure and temperature.

Nominal dia. (mm)	Vol. in m3/km or I/m
100 SN6	8.5
150 SN4	18
225 SN4	43.9
300 SN4	69.6
375 SN4	112.2





Low pressure air testing:

All inlets, outlets and access points shall be capped and sealed. Air shall be introduced slowly, since rapid pressurization can cause significant air temperature changes that may affect testing accuracy.

Apply an initial test pressure of approximately 15kPa. Close the valve on the pressure line and shut off the pump. Allow the air pressure to stabilize for at least 3min to identify any initial leakage.

When the pressure has stabilized and is at or above the starting test pressure of 10kPa commence the test by allowing the gauge pressure to drop to 10kPa, at which point initiate time recording. Record the drop in pressure over the test period.

The length of drain under test is considered to pass if the pressure drop is ≤3kPa for the relevant time interval specified in table below.

Vacuum air testing:

All inlets, outlets and access points shall be capped and sealed.

Apply an initial test vacuum (negative gauge pressure) of approximately 15kPa. Close the valve on the vacuum line and shut off the vacuum pump. Allow the air pressure to stabilize for at least 3min to identify any initial leakage.

When the vacuum has stabilized and is above the starting test vacuum of 10kPa, commence the test by allowing the vacuum to drop to 10kPa, at which point initiate time recording.

Record the drop in vacuum over the test period.

The length of drain under test is considered to pass if the test vacuum loss is ≤3kPa for the relevant time interval specified in table below.

Pressure and vacuum air testing acceptance times for 3kPa pressure change:

Pipe size			Test length,	metres		
(DN)	50	100	150	200	250	300
(mm)		Minin	num test dura	ation, minute	S	
<100	2	2	2	2	3	3
100	2	2	2	2	3	3
150	3	3	3	5	6	6
225	4	5	8	10	13	15
300	6	9	14	18	23	29
375	7	14	22	29	36	43

NOTES:

- 1. Timing of the test duration shall commence after the 3 minutes initial period.
- 2. Test duration times for other combinations of pipe size and test length may be interpolated.

Closed circuit television (CCTV) inspection:

CCTV acceptance inspection of sanitary drains shall be conducted in accordance with the requirements of WSA 05. In addition, the operator shall investigate, describe, identify and report on the defects or features in accordance with the criteria in this Clause.

Inspection shall be conducted under no-flow conditions, that is the sanitary plumbing system is not being used so that the flow (water) level can be measured and reported.

NOTE: It is recommended that the sanitary drain be cleaned prior to inspection.

AS/NZS 2032 and AS/NZS 3500 may also be referred to for information on testing DWV installations.





Completing final backfill

After testing of the pipeline, selected material should be hand shovelled over each exposed joint and tamped to give 300mm minimum cover. Final backfilling to ground level can be completed by hand or machine, using the soil originally excavated from the trench. Care should be taken to exclude large rocks and stones from the final backfill.

Above ground installation

DWV pipes being relatively light materials and available with a large variety of fittings can readily be installed inside buildings, factories, etc.

Thermal movement

PVC-U has a coefficient linear expansion of 7 x 10⁻⁵°C. This means that 1 metre length of PVC-U will expand approximately 0.7mm for each 10°C rise or fall in temperature. However due to the short duration of most effluent flows and the slow temperature response of the material, the greatest thermal movements take place due to variation in environmental temperature rather than the effect of hot effluent discharge. Successful accommodation of thermal movement is dependent on the controlled direction and distribution of this movement.

The following information is intended as a general guide and reference should be made to the relevant code of practice issued by the appropriate statutory authority.

Unless thermal movement can be accommodated by alternative means, expansion joints should be fitted. Maximum spacing intervals for locating expansion joints are 6 metres for cold and 4 metres for hot pipelines. The maximum length of pipeline between fixed points should be 2 metres for cold pipelines and 1 metre for hot pipelines

Vertical DWV stacks and discharge pipes should have expansion joints located on each floor where fixtures or branch lines are connected, directly above the highest branch connection. They should also be located at the base of a stack or at the end of a drain connection for a discharge pipe if the length of pipe between fixed points exceeds the distances stated above.

On graded pipelines expansion joints should be placed immediately upstream of the entry to a vertical stack or other graded line, and immediately upstream of each change of direction in the graded lines

Expansion joints may be omitted in the following locations:

- 1. At the top floor of a stack where the stack is free to move through a weather proof sleeve through the roof.
- 2. At the base of an external stack connected to a drainage trap where the stack is free to move through a sleeve fitted in the drain connection.
- 3. At a junction or bend in a graded pipeline where the thermal movement in the pipeline can be accommodated by deflec tion of the offset leg without affecting the grade of the pipeline, subject to the length of the pipeline and the offset leg. Supporting of the pipe shall not impede expansion movement in such cases.







4.5 Expansion

Thermal movement

Alternative expansion provision:

Nominal size of pipe (mm)	Max. pipe length 'L' (m)	Min. offset leg length 'I' (m)
	2	0.5
40/50	3	0.6
40/50	4	0.8
	6	1.0
	2	0.75
65/80/100	3	1.0
65/80/100	4	1.1
	6	1.2
	2	1.0
150	3	1.1
	4	1.2
	6	1.2

Expansion couplings D63 & D64

A D63 expansion coupling comprises a standard D57 coupling and a seal ring adaptor factory assembled ready for use.

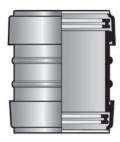
A D64 repair slip coupling comprises a D57 coupling without a centre register and with a seal ring adaptor fitted to both sockets factory assembled. It is used to effect repairs to damaged pipe work or to marry in a branch to an existing installation.

To apply this fitting, cut out the necessary portion of the stack or pipe work, chamfer and clean up the exposed end(s), coat the seal rings of the number D64 coupling(s) with Iplex Lubricant and slide coupling(s) onto the existing pipe work.

D63 Expansion coupling



D64 Repair slip coupling



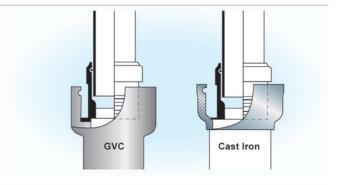
Prepare replacement section or assembly, chamfer ends and offer into position. Slide down coupling(s) and centre over the butt ends of the pipe.

Always secure the slip coupling(s) in position with brackets.

With expansion joint to cast iron

A D59 bush supplied complete with seal ring joint is used to connect cast iron. The joint is made using FERROPRE.

Note: Care should be taken to ensure that a 12mm (1/2in) gap is left between the end of the pipe and the base of socket.



Brackets

Iplex metal brackets are designed to fit the profile of the fitting sockets.

Brackets are designed to perform two functions:

- 1. To clamp fittings, creating a fixed point
- 2. As a guide-bracket allowing thermal movement of the pipework. The pipe should be free to move through the bracket to accommodate expansion and contraction. All expansion joints must be securely anchored with brackets.



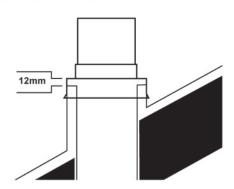


4.6 Weathering apron

Weatherproof sleeves are fitted in the normal manner and an Iplex D74 weathering apron fitted as follows:

- a. Clean pipe and inside of D74 weathering apron with Iplex priming fluid.
- b. Solvent weld in position with Iplex solvent weld cement, leaving a 12mm(1/2in) gap between the top of the slate and the shoulder of the weathering apron.

Expansion joint and fixed support requirements in vertical and graded pipelines.



Supports for PVC-U pipelines

Fixed supports	 The purpose of a fixed support is to restrain all movement and to provide a fixed point in the installation. The clip or support shall be securely attached to the fitting, located in the clamping groove where provided.
Sliding supports	 The purpose of a sliding support or clip is to provide a guide without restraint on axial movement of the pipe.
Location of supports	 Refer to maximum spacing of pipe supports table. PVC-U shall be supported at intervals dependent on the maximum temperature likely to be reached by the material.
PVC-U pipes through walls & floors	 Any pipe or fitting built into a wall or floor shall either be lagged with a suitable flexible material not less than 6mm thick, or pass through a sleeve providing an annular clear space of not less than 6mm, so as to permit the pipe to be sealed in position without restricting axial movement of the pipe.

Maximum spacing of pipe supports for non-pressure pipes AS/NZS 2032:2006

Nominal size of pipe (mm)	Graded pipelines (m)	Vertical pipelines (m)
32	0.90	1.80
40/50	1.00	2.00
65-150	1.20	2.50
>150	1.50	3.00

Testing above ground waste pipes:

The tests, which must be applied, are similar to those specified previously. The only difference is in the preparation of the pipeline for test.

Preparing the pipeline for test:

Before the procedures outlined previously are observed the pipeline should first be checked for the following:

- All joints should be inspected to ensure the correct location of the witness mark or groove to the coupling socket.
- · Check that seven days minimum has elapsed since the last concrete thrust block or support was cast.
- Check the tightness of all ties and clamps and the correct positioning of PVC-U or felt pads preventing PVC-U pipe from chafing





5.0 Frequently Asked Questions

Can DWV pipe be installed in sunlight?

Yes, DWV pipe and fittings contain UV absorber (TiO2) and can be installed in direct sunlight.

How deep or shallow can I bury DWV pipe?

Refer to AS/NZS 2566 and AS/NZS 2032.

What is the flow capacity of the DWV pipe?

Refer Design tools - Hydraulic flow calculator on website (www.iplex.com.au)

Can I encase DWV pipes in concrete?

Yes, refer to AS/NZS 2032.

Can I run petrol through the pipe?

Generally not, but refer Design Tools - Chemical resistance chart on website (www.iplex.com.au)

What dimensions does DWV pipe and fittings come in?

Refer Product properties.

What pressure do I test to?

Refer to AS/NZS 2032.

What is a safe span if installed above the ground?

Refer to AS/NZS 2032.

Does DWV contain lead?

The manufacture of DWV pipe and fittings use no heavy metal stabilisers.

Can I earn Green Star credit points with Iplex DWV pipe and fittings?

Yes, Iplex DWV pipe and fittings meet the Best Environmental Performance Standards of the Green Building Council of Australia.



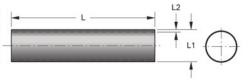


6.0 Product Range

DWV System - Pipes

Drain, Waste & Vent Pipe - Solvent weld:

			Typica	l dimensions	
Product code	Nominal size (mm) DN	Stiffness rating	Length (m) L	Minumum mean outside dia. (mm) L1	Wall thickness min. (mm) L2
DPSH40	40	SH	6	43	2.0
DPSH50	50	SH	6	56	2.2
DPSH65	65	SH	6	69	2.7
DPSH80	80	SH	6	82	2.9
DSMH100	100	SN6	6	110	3.0
DSMH150	150	SN4	6	160	4.2
DSMH225	225	SN4	6	250	6.6
DSMH300	300	SN4	6	315	8.4
DSME100C	100	SN10	3	110	3.9
DSME100	100	SN10	6	110	3.9
DSME150C	150	SN8	3	160	5.2
DSME150	150	SN8	6	160	5.2
DSME225C	225	SN8	3	250	8.2
DSME225	225	SN8	6	250	8.2
DSEH300C	300	SN8	3	315	10.4
DSEH300	300	SN8	6	315	10.4

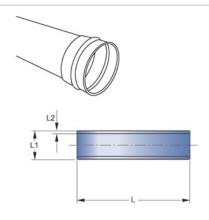


Note

Rating SH = Standard

Drain, Waste & Vent Pipe - Rubber ring:

and	Typical dimensions							
Product code	Nominal size (mm) DN	Stiffness rating	Length (m) L	Minumum mean outside dia. (mm) L1	Wall thickness min. (mm) L2			
DRMH150C	150	SN4	3	160	4.2			
DRMH225C	225	SN4	3	250	6.6			
DRSH300C	300	SN4	3	315	8.4			
DRSH375C	300	SN4	3	400	10.6			
DRME150C	150	SN8	3	160	5.2			
DRME225C	225	SN8	3	250	8.2			
DRME300C	300	SN8	3	315	10.4			
DREH375C	375	SN8	3	400	13.2			



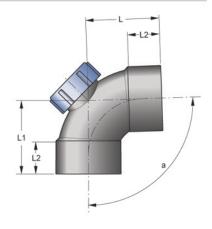
Note:





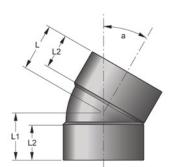
I.O. Bend F&F:

((# 4))]]	Typical dimensions						
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2		
D0014045	40	45	43	43	29		
D0014088	40	88	58	58	26		
D0015045	50	45	49	49	32		
D0015088	50	88	69	69	30		
D0016545	65	45	69	69	44		
D0016588	65	88	98	98	40		
D0018088	80	88	118	118	47		
D00110045	100	45	81	81	51		
D00110088	100	88	155	152	53		
D00115088	150	88	222	257	79		



Plain Bend F&F:

(1/2)		Typical dimensions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2		
D0023245	32	45	35	35	26		
D0023288	32	88	49	49	25		
D0024015	40	15	48	48	27		
D0024045	40	45	37	37	29		
D0024088	40	88	58	58	27		
D0025015	50	15	35	35	30		
D0025045	50	45	43	43	30		
D0025088	50	88	72	72	32		
D0026515	65	15	44	44	39		
D0026545	65	45	54	54	39		
D0026588	65	88	98	98	40		
D0028015	80	15	78	78	51		
D0028045	80	45	63	63	45		
D0028088	80	88	118	118	47		
D0021005	100	5	59	59	51		
D00210015	100	15	62	62	51		
D00210030	100	30	69	69	51		
D00210045	100	45	76	76	51		
D00210060	100	60	87	107	53		
D00210088	100	88	131	131	51		
D00215015	150	15	96	111	77		
D00215045	150	45	116	137	77		
D00215088	150	88	222	257	78		



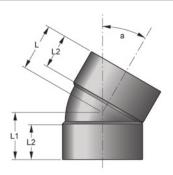
Note:





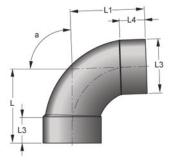
Fabricated Bends F&F:

((4))]	1-69	Typical dimensions				
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
D0021505	150	5	107	111	80	
D00215030	150	30	165	180	77	
D0022255	225	5	219	250	125	
D00222515	225	15	250	250	110	
D00222530	225	30	250	250	110	
D00222545	225	45	200	200	110	
D00222588	225	88	365	365	175	
D00230015	300	15	321	321	175	
D00230022	300	22	331	331	175	
D00230030	300	30	342	342	175	
D00230045	300	45	340	340	175	
D00230088	300	88	567	567	175	
D00237545	375	45	456	456	200	
D00237588	375	88	653	653	200	



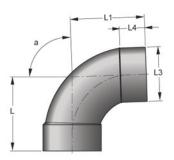
Plain Bend M&F:

((6/1)) ///	1	Typical dimensions						
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	
D0034042	40	42	38	39	43	27	27	
D0035042	50	42	48	48	56	32	32	
D0035088	50	88	74	74	56	34	34	
D0036542	65	42	67	69	69	44	44	
D0038042	80	42	78	79	82	51	51	
D0031005	100	5	59	70	110	51	70	
D00310011	100	11	75	60	110	75	51	
D00310015	100	15	62	77	110	51	53	
D00310022	100	22	88	65	110	70	47	
D00310030	100	30	87	71	110	53	51	
D00310042	100	42	75	92	110	51	53	
D00310060	100	60	107	87	110	53	52	
D00310088	100	88	151	151	110	52	80	
D00315015	150	15	111	98	160	111	77	
D00315042	150	42	116	137	160	77	78	
D00315088	150	88	261	222	160	77	78	



Fabricated Bends M&F:

((1/2))][Typical dimensions							
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D0031505	150	5	120	90	160	80		
D0032255	225	5	160	217	250	125		
D00322545	225	45	265	256	250	110		
D00322560	225	60	291	260	250	110		
D00322588	225	88	384	365	250	110		



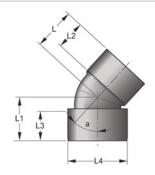
Note





Reducing Bend M&F:

Product code	Typical dimensions						
	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D004504042	50x40	42	39	41	27	27	56



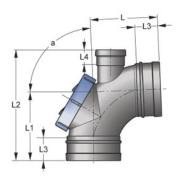
Rear Access Bend F&F:

	Typical dimensions							
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2			
D00510088	100	88	149	153	51			



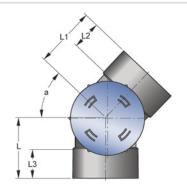
Vented Access Bend F&F:

((1/1))		Z'C	Typical	dimen	sions		
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D008105088	100x50	88	149	153	246	51	32



Side Access Bend F&F:

((5/2))	Typical dimensions							
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2			
D01010045	100	45	108	108	51			
D01010088	100	88	151	156	53			



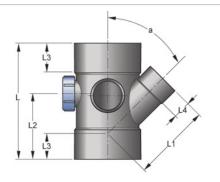
Note:





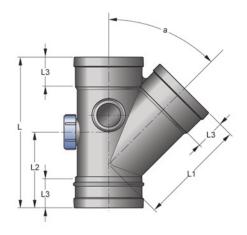
I.O. Junction F&F Reducing:

1 ((f / i)) [[[]	Typical dimensions						
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D017105045	100x50	45	203	136	51	45	31
D017106545	100x65	45	203	154	51	45	39



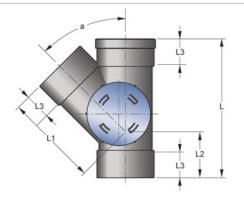
I.O. Junction F&F:

((1/2)) [U	Typical dimensions								
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D0184088	40	88	119	63	64	28			
D0185045	50	45	143	101	72	31			
D0185088	50	88	133	70	72	32			
D0186545	65	45	204	143	96	41			
D0186588	65	88	172	100	100	40			
D0188088	80	88	202	118	118	47			
D01810045	100	45	264	187	133	51			
D01810088	100	88	250	146	146	53			



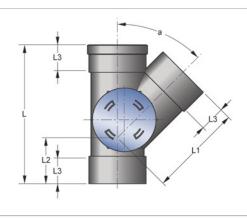
Side Access Junction F&F left hand:

((#/)) [U	Typical dimensions						
Product code	Nominat size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	
D01910045	100	45	288	192	95	53	



Side Access Junction F&F right hand:

((fi)) [[Typical dimensions						
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	
D02010045	100	45	288	192	95	53	



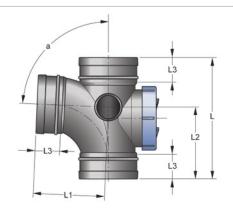
Note:





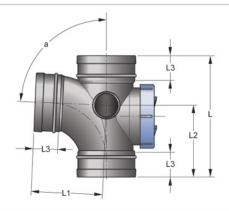
Rear Access Junction F&F:

((4/1))][Typical dimensions							
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D0238088	80	88	202	118	118	51		
D02310088	100	88	251	147	148	51		
D02315088	150	88	405	222	257	78		



Fabricated Access Junctions:

((j/i))] [Typical dimensions						
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	
D02322588	225	88	820	600	510	125	



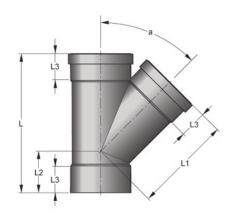
Plain Junction F&F:

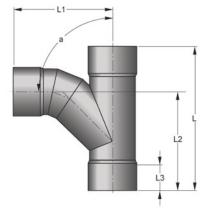
((1/h)) /U	Typical dimensions								
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D0243288*	32	88	97	56	58	25			
D0244045**	40	45	132	83	49	29			
D0244088*	40	88	105	57	62	27			
D0245045**	50	45	143	101	42	31			
D0245088*	50	88	133	70	72	32			
D0246545**	65	45	204	143	64	41			
D0246588*	65	88	172	100	46	40			
D0248045**	80	45	218	152	66	47			
D0248088*	80	88	202	118	118	47			
D02410045**	100	45	266	188	80	51			
D02410088*	100	88	242	146	138	53			
D02415045***	150	45	413	276	137	77			
D02415088	150	88	405	222	256	79			

- * Thread on 1 end only

 ** Thread on 1 end and branch

 *** Thread on branch only



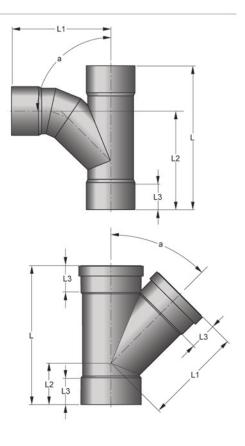






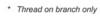
Fabricated Junction F&F:

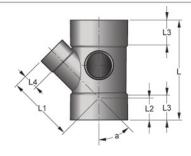
((fh)) /U	Typical dimensions							
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D02422545	225	45	834	542	292	125		
D02422588	225	88	820	614	571	125		
D02430045	300	45	980	656	329	175		
D02430088	300	88	-	-		175		
D02437545	375	45	1246	823	423	200		
D02437588	375	88	1246	858	854	200		

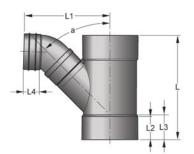


Plain Junction F&F Reducing:

((f h) \	Typical dimensions										
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L3				
D025805045*	80x50	45	194	143	55	45	34				
D025105045*	100x50	45	203	136	51	45	31				
D025106545*	100x65	45	203	154	51	45	39				
D025108045	100x80	45	233	176	63	51	45				
D025151045*	150x100	45	373	226	97	77	51				
D025151088	150x100	88	320	169	175	79	53				







Note

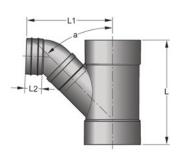


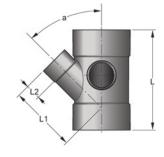


Fabricated Junctions F&F Reducing:

(44) / //		Typical	Dimen	sions	
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2
D025221045*	220x100	45	500	311	55
D025221545*	220x150	45	500	361	80
D025221588	220x150	88	500	410	80
D025301045*	300x100	45	716	423	55
D025301088	300x100	88	716	399	55
D025301545*	300x150	45	780	474	80
D025301588	300x150	88	763	472	80
D025302245*	300x225	45	955	588	125
D025302288	300x225	88	908	591	125
D025371088	370x100	88	836	449	55
D025371545*	370x150	45	907	553	80
D025371588	370x150	88	907	551	80
D025372245*	370x225	45	1034	658	125
D025372288	370x225	88	1034	683	125
D025373045*	370x300	45	1126	731	175
D025373088	370x300	88	1126	759	175

^{*} Thread on branch only





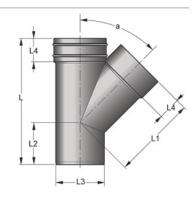
Plain Junction M&F:

((1/1)) [[Typical dimensions										
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4				
D02610088	100	88	250	146	146	110	53				
D02610045	100	45	286	191	95	110	51				
D02615045	150	45	413	276	141	160	77				
D02615088	150	88	407	222	258	160	79				



Plain Junction M&F Reducing:

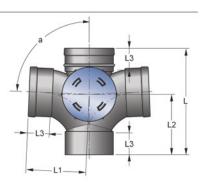
Typical dimensions										
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4			
D027151045	150x100	45	373	226	97	160	77			
D027151088	150x100	88	320	169	175	160	79			



Access Double Junction F&F:

((1/2))	Typical dimensions								
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D03310088	100	88	259	146	147	53			

Note:

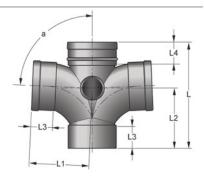






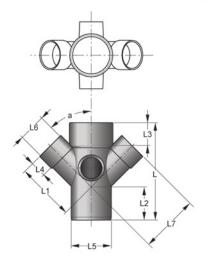
Plain Double Junction F&F:

((4)) / [Typical dimensions									
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4			
D03610088	100	88	259	146	147	53	53			



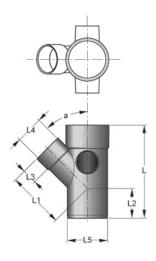
Double Riser Junction 45 M&F:

((1/2))		(8)	70	Турі	cal din	nensio	ns			
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	Dim. (mm) L6	Dim. (mm) L7
D04485544	80	45	200	119	68	47	32	82	56	119
	Branch d	etails: 2	of 50 x	45°, 2 c	of 40 x 8	8°				
D04485444	80	45	200	119	68	47	32	82	56	107
	Branch d	etails: 1	of 50 x	45°, 1 c	f 40 x 4	5°, 2 of 4	10 x 88°			



Riser Junction 45 M&F:

	Typical dimensions									
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4			
D0468544	80	45	191	116	61	30	56			
	Branch det	ails: 1 of	50 x 45°	2 of 40	x 88°					
D04684444	80	45	191	107	61	27	43			
	Branch det	ails: 1 of	40 x 45°	3 of 40	x 88°					
D04685544	80	45	191	116	61	30	56			
	Branch det	Branch details: 1 of 50 x 45°, 1 of 50 x 88°, 2 of 40 x 88°								



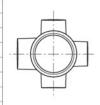
Note

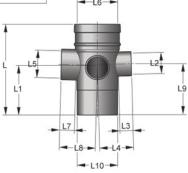




Four way Riser 88 M&F:

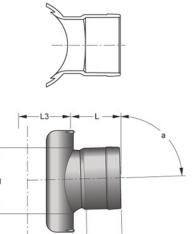
((4 4))					Ту	pical	dimen	sions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	Dim. (mm) L6	Dim. (mm) L7	Dim. (mm) L8	Dim. (mm) L9	Dim. (mm) L10
D04885444	80	88	186	102	43	27	69	56	82	30	74	95	82
	Branch	details:	1 of 50	x 88°,	3 of 40	x 88°	02		9				
D048105554	100	88	176	92	43	27	83	56	110	31	86	92	110
	Branch	details:	1 of 40	x 88°,	3 of 50	x 88°							70
D048105544	100	88	176	92	43	31	83	56	110	31	83	92	110
	Branch	details:	2 of 40	x 88°,	2 of 50	x 88°							
D048185544	100	88	176	92	43	28	83	56	110	31	86	92	82
	Branch	details:	2 of 40	x 88°,	2 of 50	x 88°			As T				





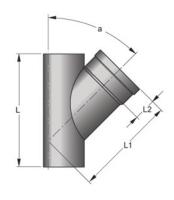
Clamp on Boss:

((4/1)) /[Typical dimensions							
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D0501032	100x32	88	21	50	-	110			
D050104088	100x40	88	46	56	27	110			
D050105088	100x50	88	56	70	38	110			
D050106588	100x65	88	61	83	43	110			



Fabricated Clamp on Boss:

((1/1))][Typical dimensions									
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2					
D050151045	150x100	45	250	226	55					
D050221045	225x100	45	305	250	55					
D050301045	300x100	45	305	250	55					
D050301545	300x150	45	305	330	80					



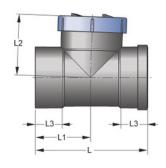
Note





Inspection Test Opening F&F:

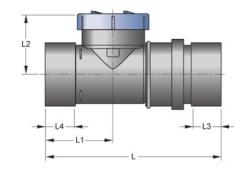
((44)) //	Typical dimensions								
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3				
D05465	65	165	86	84	41				
D05480	80	216	106	93	51				
D054100	100	216	106	117	52				
D054150	150	359	187	165	77				



Inspection Opening & Expansion Adaptor:

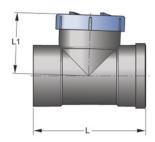
((1/1))	Typical dimensions						
Product code	Nominal size (mm)	Max dim. (mm) L	Min dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D05480EC	80	325	290	106	93	51	51
D054100EC	100	367	315	127	-	53	54

^{* 80}mm allows for 35mm expansion * 100mm allows for 50mm expansion



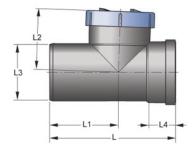
Fabricated Inspection Opening F&F:

((i/i))	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
D054225150	225x150	500	240		
D054225225	225x225	500	303		
D054300150	300x150	740	270		
D054375150	375x150	680	310		



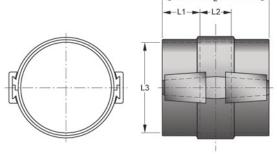
Inspection Opening M&F:

((5/1))	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	
D055100	100	242	132	117	110	52	
D055150	150	359	187	165	160	77	



Repair Coupling F&F:

((1/1)) //	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D056100	100	130	46	38	110		
D056150	150	176	60	55	160		







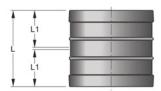
Plain Coupling:

$\langle (\vec{n}, \vec{n}) \rangle \langle (\vec{n}, \vec{n}) \rangle$	Typical dimensions				
code	Nomina		Dim. (mm) L1		
D05732	32	54	26		
D05740	40	57	29		
D05750	50	63	31		
D05765	65	84	40		
D05780	80	90	44		
D057100	100	110	53		
D057150	150	159	77		
D057225	225	226	110		
D057300	300	358	176		



Fabricated Coupling:

((1/2)) ///	Typical dimensions				
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
D057300	300	500	175		
D057375	375	700	200		



Access Coupling:

((1/2)) ///	Typical dimensions				
Product code	Nonnia		Dim. (mm) L1		
D05880	80	90	44		
D058100	100	103	51		
D058150	150	159	77		



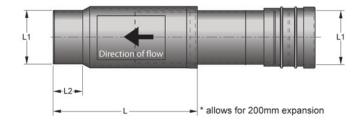
Expansion Coupling Assembly F&F:

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2		
D06150	50	146	32	32		
D06165	65	190	40	40		
D06180	80	230	51	51		
D061100	100	236	53	51		
D061150	150	311	77	77		



Double Expansion Coupling Assembly F&F:

((1/1)) / [Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
D061100D	100	294	110	60	



Note:





Expansion Coupling F&F:

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2		
D06340	40	81	47	29		
D06350	50	84	47	32		
D06365	65	98	53	40		
D06380	80	122	65	51		
D063100	100	127	69	51		
D063150	150	182	100	77		



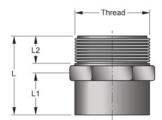
Slip Rehab Coupling:

((1/4))	Typical dimensions			
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	
D064100	100	110	-	



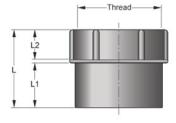
Male Iron Coupling:

((1/1/2))	Typical dimensions					
Product code	Nominal size (mm)	Thread BSP (inches)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
D0663232	32	1-1/4"	48	24	19	
D0664040	40	1-1/2"	51	27	18	
D0665050	50	2"	52	31	20	
D066100100	100	4"	111	55	56	



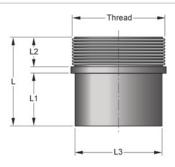
Female Iron Coupling:

((i/i))	Typical dimensions					
Product code	Nominal size (mm)	Thread BSP (inches)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
D0673232	32	1-1/4"	49	25	21	
D0674040	40	1-1/2"	53	29	22	
D0675050	50	2"	56	32	21	
D0676565	65	2-1/2"	105	69	32	



Male Iron Adaptor:

((1/1))	Typical dimensions					
Product code	Nominal size (mm)	Thread BSP (inches)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
D0684040	40	1-1/2"	47	27	16	43
D0685050	50	2"	57	34	19	56



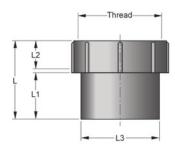
Note:





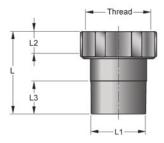
Female Iron Adaptor:

((1/2)) ///	Typical Dimensions					
Product code	Nominal Size (mm)	Thread BSP (inches)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
D0694040	40	1-1/2"	44	31	20	43
D0695050	50	2"	56	33	20	56



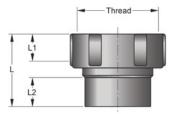
Cap & Lining Male Spigot:

((1/1)) [Typical dimensions						
Product code	Nominal size (mm)	Thread BSP (inches)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	
D0704040	40	1-1/2"	72	37.5	18	28	
D0705050	50	2"	76	50.5	20	31	
D0704040B(Brass)	40	1-1/2"	71	37.8	17	28	



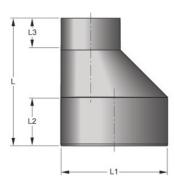
Cap & Lining Female Socket:

((1/2))	Typical dimensions						
code	Nominal size (mm)	Thread BSP (inches)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2		
D0715040	40	2"	54	20	21		



Level Invert Taper:

((1/2))	Typical dimensions						
code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D0724032	40x32	73	43	25	25		
D0725032	50x32	98	56	32	25		
D0725040	50x40	68	56	29	28		
D0726540	65x40	97	69	39	29		
D0726550	65x50	79	69	38	31		
D0728040	80x40	121	82	50	27		
D0728050	80x50	138	82	50	38		
D0728065	80x65	125	82	50	44		
D07210050	100x50	132	110	49	31		
D07210065	100x65	127	110	49	39		
D07210080	100x80	166	110	49	51		
D07225100	225x100	209	160	97	51		
D072225100	225x100	600	250	125	51		
D072225150	225x150	401	250	125	80		
D072300150	300x150	768	315	180	80		
D072300225	300x225	552	315	175	125		
D072375300*	375x300	740	400	200	175		



Note: *Fabricated item

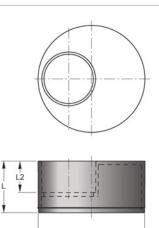
Note:





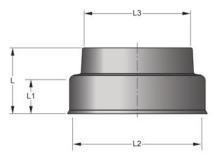
Socket Reducer:

((64))	Typical dimensions						
Product code	Nonnia		Dim. (mm) L1	Dim. (mm) L2			
D0734032	40x32	29	43	27			
D0735032	50x32	32	56	25			
D0735040	50x40	30	56	28			
D0736540	65x40	40	69	31			
D0736550	65x50	40	69	32			
D0738050	80x50	45	82	30			
D0738065	80x65	45	82	39			
D07310040	100x40	53	110	29			
D07310050	100x50	53	110	32			
D07310065	100x65	51	110	39			
D07310080	100x80	53	110	47			
D073150100	150x100	79	160	53			



Weathering Apron:

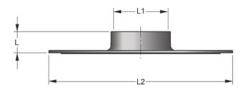
((1/1)) //	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D07440	40	70	38	56	43			
D07450	50	70	38	69	56			
D07480	80	70	38	102	83			
D074100	100	68	38	133	110			



Safe Waste Tray:

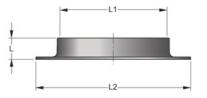
((6))	Typical dimensions						
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2			
D07740	40	22	43	190			
D07750	50	22	56	190			
D07780	80	22	82	190			
D07780G*	80	22	90	190			
D077100	100	22	110	190			





Floor Flange:

((1/2))	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2				
D07840	40	22	43	75				
D07850	50	22	56	110				
D07865	65	22	69	115				
D07880	80	22	82	134				
D078100	100	22	110	159				



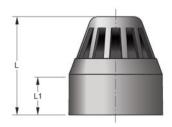
Note





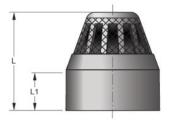
Vent Cowl:

((44)) //	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1				
D07940	40	50	22				
D07950	50	65	25				
D07965	65	88	45				
D07980	80	72	25				
D079100	100	85	25				
D079150	150	100	25				



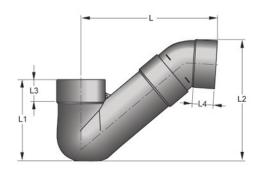
Vent Cowl (Insect proof):

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1			
D08050	50	65	25			
D08080	80	72	25			
D080100	100	85	25			



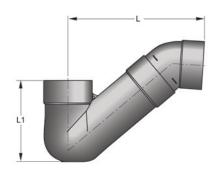
Disconnector Trap Fixed:

((1/2))	I SA	Тур	ical din	nension	s	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D081100	110	332	198	295	53	51



Fabricated Disconnector Trap Fixed:

((1/1/2))	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1				
D081150	160	460	415				



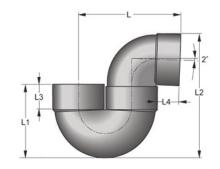
Note:





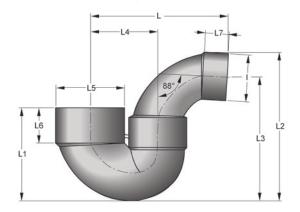
Adjustable Disconnector Trap F&F:

((6))	1 (8)	Тур	ical Din	nension	S	
Product code	Nominal Size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D083100	100	232	166	281	56	51

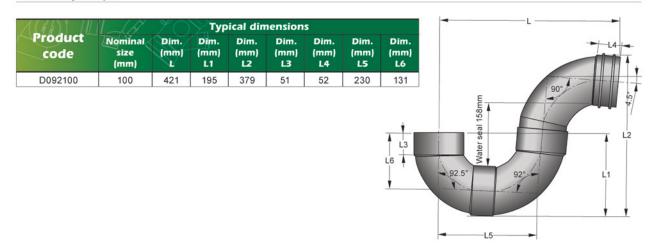


Adjustable F/W Gully P Trap:

((44)) []	Typical dimensions									
code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	Dim. (mm) L6	Dim. (mm) L7	Dim. (mm) L8
D0868050	80x50	178	121	193	161	88	82	45	31	56
D0868065	80x65	185	121	206	167	88	82	45	39	69
D0868080	80x80	267	156	237	190	88	82	47	51	82



Boundary Trap:



Note:



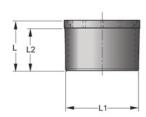


Diamond Grate:

((1/2)) //	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2			
D09580	80	52	76	44			
D09580CA*	80	52	76	44			

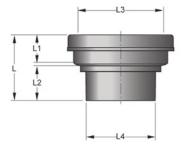
^{*}Chrome Plate A.B.S.





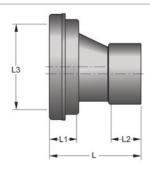
Male Pan Collar:

((4/1)) [[Typical dimensions					
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
127100	100	97	41	52	127	103
128100	100	108	44	50	127	103
D099100R	100	Rubber for pan collar				



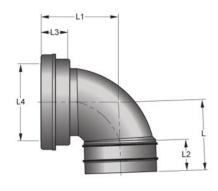
Female Pan Collar:

((##))	Typical dimensions						
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D100100	100	100	41	52	127		
D10010080	100x80	136	41	45	127		



Pan Connector Bend:

((1/2)) //	Typical dimensions					
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D102100125	100x125	128	116	44	51	127



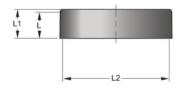
Note:





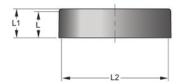
Push on Cap:

(6/1) / /	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2			
D10540	40	25	28	43			
D10550	50	25	27	56			
D10565	65	25	28	69			
D10580	80	25	28	82			
D105100	100	27	30	110			
D105150	150	33	38	160			
D105225	225	47	54	250			
D105300	300	47	54	315			



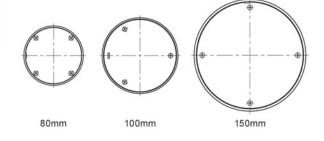
Fabricated Push on Cap:

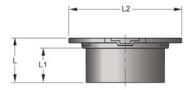
((1/4))	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2			
D105375	375	280	320	400			



Bolted Trap Screw:

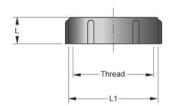
$((\vec{k},\vec{k}))$.	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	No. of screws		
D10680	80	58	45	126	4		
D106100	100	66	51	168	3		
D106100B (Brass)	100	66	51	168	3		
D106100C (Chrome)	100	66	51	168	3		
D106150*	150	98	77	221	4		
D106150B (Brass)*	150	98	77	221	4		





Threaded Access Cap:

((1/2))][]	Typical	dimens	ions
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1
D10950	50	20	66
D10980	80	24	96
D109100	100	29	125
D109150	150	30	175



Note





Bend with Grate 88 degree:

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
D11150	50	88	67	57	33	76



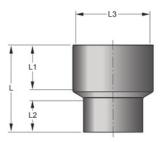
Flap Valve:

((1/2))][Typical	dimen:	sions
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1
D11350	50	68	30
D113100	100	190	55
D113150	150	154	76
D113225	225	230	110
D113300	300	326	175



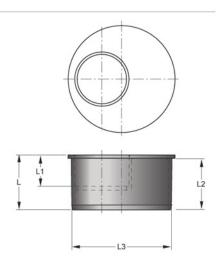
Shower Riser:

((6/1)) [[Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D1188050	80x80	90	46	32	76		



Pipe Reducer:

((1/2))][Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D12210050	100x50	57	32	53	103			



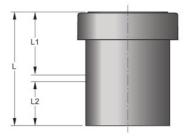
Note:





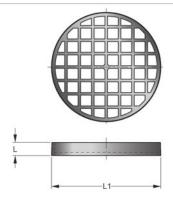
Copper to PVC Adaptor (Rubber ring joint):

(6/1)	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2				
D1244040	40x40	81	47	29				
D1245050	50x50	84	47	32				
D1246565	65x65	98	53	40				
D1248080	80x80	123	65	51				
D124100100	100x100	127	69	51				



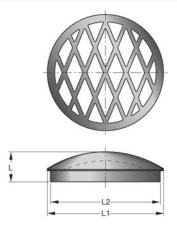
Short DT Grate:

((//h))	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1				
D125125S	125	17	141				



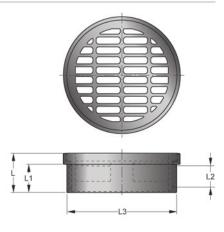
Dome Grate:

(# h)) .	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2				
D126125	125	39	150	142				



Pop-up Grate:

((ff)) \ / [Typical dimensions							
Product code	Nominal size (mm)	Min. Max. dim. dim. (mm) L (mm) L		Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3		
D128100S	100	51	79	37	28	142		



Note:





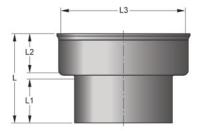
Finishing Collar:

$((\vec{h}, \vec{b}))$, $ U $	(B 7)	Typical	dimens	ions	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
D131100	100	82	53	19	143
D131100S(Spigot Long)	100	150	108	36	143
D131100L (Long)	100	93	51	36	143



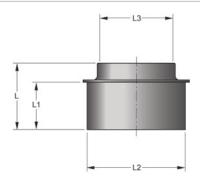
Earthernware Spigot Adaptor:

((4/1)) [[Typical	dimens	ions	
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
D132100	100	111	51	57	160
D132150	150	156	77	68	218
D132225	225	340	125	65	305



Wall Sleeve:

((4/1)) //		Typical dimensions								
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3					
D13340	40	52	37	63	43					
D13350	50	52	37	76	56					
D13365	65	52	37	88	69					
D133100	100	52	37	133	110					



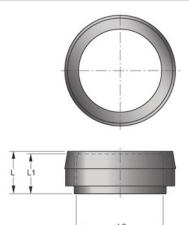
Note





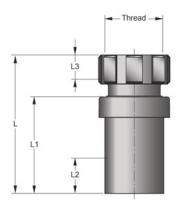
DWV Adaptor Earthernware Socket:

((6))	Тўр	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2					
D135100	100	54	51	110					
D135150	150	82	77	160					
D135225	225	160	125	277					



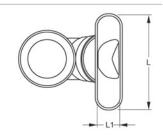
Adjustable Bath Connector:

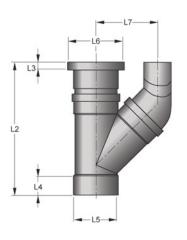
((6))	Typical dimensions							
code	Nominal size (mm)	Thread BSP (Inches)	Min. dim. (mm) L	Max. dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	
D13740	40	1-1/2"	105	130	81	29	20	



Squash Top Assembly (Fabricated):

Typical dimensions										
Product code	avoilliai	Dim. (mm) L	(mm) (mm) (mm) (mm) (m					Dim. (mm) L6		
D148100A	100	248	63	352	17	51	110	143	161	





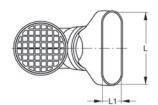
Note

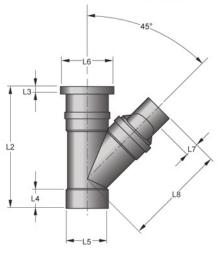




Squash Top Kit (Fabricated):

Typical dimensions										
Product code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	Dim. (mm) L6	Dim. (mm) L7	Dim. (mm) L8
D148100K	100	200	76	338	17	51	110	143	38	281

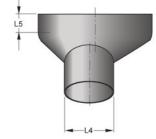


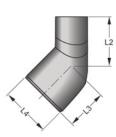


Squash Slope Top (Fabricated):

((4/1)) 11	Typical dimensions							
code	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	
D14910045	100	248	63	110	91	110	40	







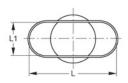
Note





Inlet Level (Fabricated):

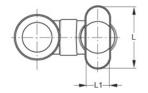
((1/2))	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4		
D150100	100	200	76	143	110		

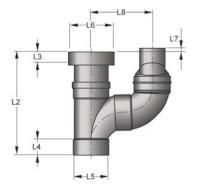




Single Inlet Level Kit (Fabricated):

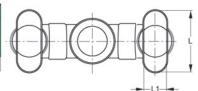
((4/1)) [[Typical dimensions									
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	Dim. (mm) L6	Dim. (mm) L7	Dim. (mm) L8
D153100K	100	200	76	339	37	51	110	143	12	198

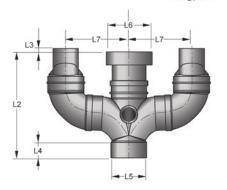




Double Inlet Level Kit (Fabricated):

((1/h)) [U	1	70	¥ :	ГурісаІ	dimens	ions	2 2		
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	Dim. (mm) L6	Dim. (mm) L7
D154100K	100	200	76	356	37	53	110	143	210





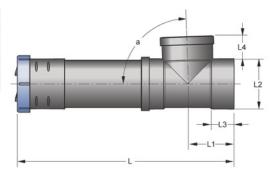
Note





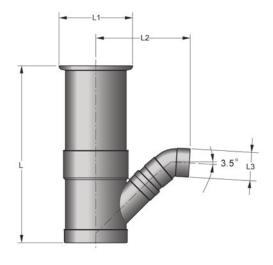
IP Boundary (Fabricated):

((6)) /	168	70	Typical	dimens	ions		
code code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
D700100	100	88	804	106	110	52	54
D700150	150	88	804	106	160	-	-



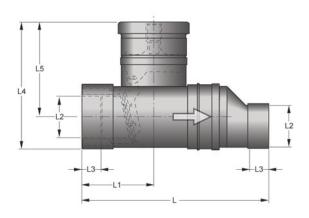
Silt Trap (Fabricated):

((1/4))	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3			
D715225100	225x100	730	390	304	110			
Bucket only								
D712225		10n	nm holes					
D712225C		3mm holes						
D712225E		5m	m holes					



Reflux Valve (Fabricated):

((f/)) / l	Typical dimensions							
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5	
D730100	100	490	190	110	50	340	250	



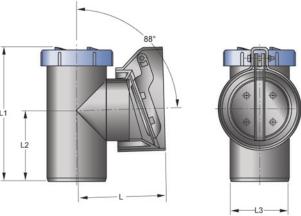
Note:





BCC Overflow Relief (Fabricated):

((1/2)) 11	Typical dimensions						
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	
D735100	100	88	167	254	132	110	



Note:





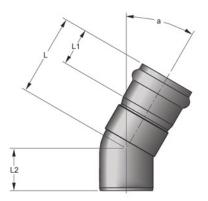
Bend F&F - 2RRJ:

((1))		Typical	dimens	ions	
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2
DR0210045	100	45	175	77	78
DR0210088	100	88	230	120	78
DR0215045	150	45	235	125	78
DR0215088	150	88	385	275	94
DR0222545	225	45	280	140	122
DR0222588	225	88	400	260	122
DR0230045	300	45	400	260	147
DR0230088	300	88	540	400	147
DR0237545	375	45	440	280	250
DR0237588	375	88	630	470	250



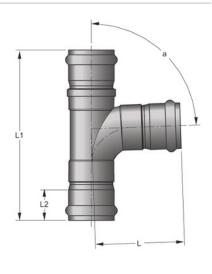
Bend M&F - 1RRJ:

$((f_h))$		Typical	dimens	sions	
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2
DR0310015	100	15	161	83	41
DR0310030	100	30	165	87	43
DR0310045	100	45	175	97	78
DR0310060	100	60	225	98	79
DR0310088	100	88	259	99	80
DR0315015	150	15	235	125	25
DR0315030	150	30	200	90	115
DR0315042	150	45	235	125	70
DR0315088	150	88	385	275	185
DR0322515	225	15	260	120	135
DR0322545	225	45	280	140	195
DR0322588	225	88	400	260	315
DR0330015	300	15	300	145	190
DR0330030	300	30	310	155	200
DR0330045	300	45	400	260	300
DR0330088	300	88	540	400	440
DR0337545	375	45	440	280	330
DR0337588	375	88	630	470	510



Junction F&F - 3RRJ:

((6))		Typical dimensions							
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2				
DR2410045	100	45	290	465	78				
DR2410088	100	88	230	440	78				
DR2415045	150	45	410	545	94				
DR2415088	150	88	360	540	94				
DR2422545	225	45	520	840	122				
DR2422588	225	88	610	840	122				
DR2430045	300	45	660	1000	147				
DR2430088	300	88	710	1000	147				
DR2437545	375	45	790	1220	250				
DR2437588	375	88	840	1200	250				



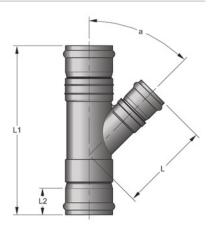
Note:





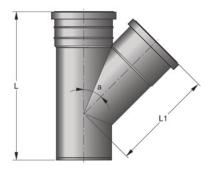
Reducing Junction F&F - 3RRJ:

		Typical	dimens	ions	
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2
DR25151045	150x100	45	335	500	94
DR25151088	150x100	88	280	455	94
DR25221045	225x100	45	400	630	122
DR25221545	255x150	45	460	710	122
DR25221588	225x150	88	490	710	122
DR25301045	300x100	45	465	710	147
DR25301545	300x150	45	510	780	147
DR25301588	300x150	88	510	780	147
DR25371045	375x100	45	530	1000	250
DR25371545	375x150	45	590	1000	250
DR25371588	375x150	88	590	1000	250



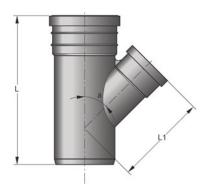
Junction M&F - 2RRJ:

((1))	Тур	Typical dimensions							
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1					
DR2615045	150	45	545	410					
DR2615088	150	88	540	360					
DR2622545	225	45	840	520					
DR2630045	300	45	1000	660					



Reducing Junction M&F - 2RRJ:

$\langle (\vec{n}_{\vec{n}}) \rangle / \langle (\vec{n}_{\vec{n}}) \rangle$	Typical dimensions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1		
DR27151045	150x100	45	335	500		
DR27151088	150x100	88	280	455		
DR27221045	225x100	45	400	630		
DR27221088	225x100	88	420	630		
DR27221545	225x150	45	460	710		
DR27221588	225x150	88	490	710		
DR27301045	300x100	45	465	710		
DR27301088	300x100	88	460	710		
DR27301545	300x150	45	510	780		
DR27301588	300x150	88	510	780		
DR27302245	300x225	45	610	980		
DR27302288	300x225	88	700	980		
DR27371045	375x100	45	530	800		
DR27371088	375x100	88	510	800		
DR27371545	375x150	45	590	980		
DR27371588	375x150	88	590	980		
DR27372245	375x225	45	660	1000		
DR27372288	375x225	88	710	1000		
DR27373045	375x300	45	720	1100		
DR27373088	375x300	88	750	1100		



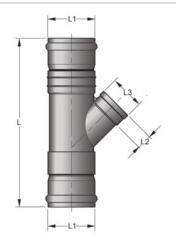
Note:





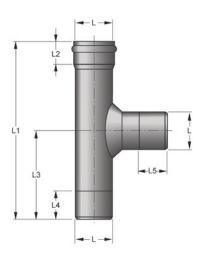
Red. Slope Junction F&F - 2RRJ:

Product		Тур	ical din	nension	s	
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
DR2915104B	150x100	45	610	160	51	110
DR2930104B	300x100	45	1000	315	75	110
DR2937104B	375x100	45	1000	400	75	110



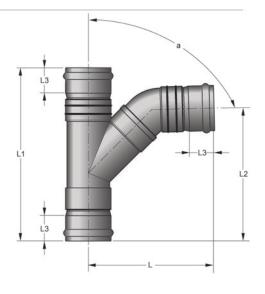
Water Board Drop Junction M&F - 1RRJ:

((1/h)) III	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5
DR37150WB	150	160	750	94	375	120	310
DR37225WB	225	250	920	120	470	160	450
DR37300WB	300	315	1020	147	510	170	530



Slope Riley Junction M&F - 2RRJ:

(fi))	Typical dimensions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
DR4015088	100	88	470	650	490	94



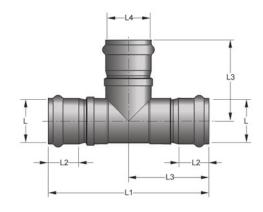
Note:





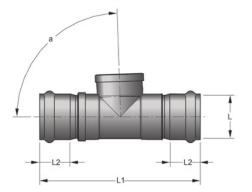
Square Junction F&F - 3RRJ:

$Z(f_{i})$		Тур	ical din	nension	s	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4
DR52150150	150	160	595	94	275	150
DR52225150	225x150	250	680	122	250	150
DR52300150	300x150	315	1040	147	345	150



Inspection Opening F&F - 2RRJ:

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
DR54100	100	88	110	415	78	
DR54150	150	88	160	-	94	



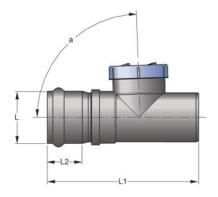
Note





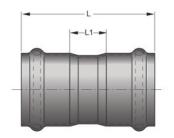
Inspection Opening M&F - 1RRJ:

((6/2))	Typical dimensions					
Product code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
DR55100	100	88	110	341	78	
DR55150	150	88	160	504	94	



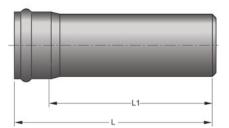
Coupling F&F - 2RRJ:

((6))	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
DR57100	100	215	59		
DR57150	150	260	40		
DR57225	225	420	140		
DR57300	300	1000	700		
DR57375	375	1000	680		



DWV Short Pipes M&F - 1RRJ:

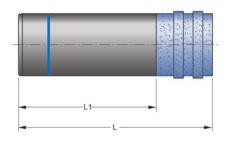
((1/2))	Typical	dimens	ions
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1
DR60EH100E	100	500	405
DR60EH150E	150	500	390
DR60EH225E	225	500	360
DR60EH300E	300	500	345
DR60EH375E	375	500	340



Manhole Spigot Connector M&M (Sanded) C/W weep rings:

Product	Typical dimensions				
code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
DM61EHW100	100	500	405		
DM61EHW150	150	500	390		
DM61EHW225	225	500	360		
DM61EHW300	300	500	345		
DM61EHW375	375	500	340		





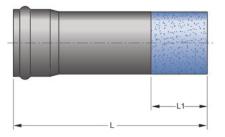
Note:





Manhole Socket Connector M&F - 1RRJ (Sanded):

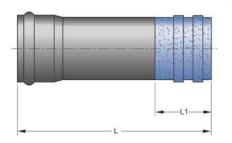
(f_i)	Typical	dimens	sions	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	
DR61100	100	500	140	
DR61150	150	500	145	
DR61225	225	500	200	
DR61300	300	500	200	
DR61375	375	500	200	



Manhole Socket Connector M&F - 1RRJ (Sanded) C/W weep rings:

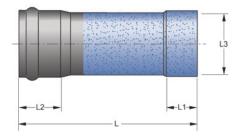
((f)) (L	Typical	ions	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1
DR61EHW100	100	500	140
DR61EHW150	150	500	145
DR61EHW225	225	500	200
DR61EHW300	300	500	200
DR61EHW375	375	500	200

^{*} used in South East Qld.



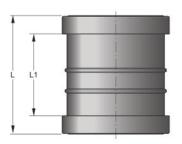
Manhole Socket Coupling F&F - 1RRJ (Sanded):

((i)) I	Typical dimensions								
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3				
DR62100	100	320	55	78	110				
DR62150	150	320	80	94	160				
DR62225	225	500	125	122	250				
DR62300	300	500	-	-	315				
DR62375	375	600	-	-	400				



Slip Repair Coupling F&F - 2RRJ:

$\langle (f_i) \rangle / \langle (f_i) \rangle$	Typical dimensions					
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1			
DR64100	100	140	105			
DR64150	150	210	160			
DR64225	225	325	245			
DR64300	300	460	360			
DR64375	375	500	400			



Note

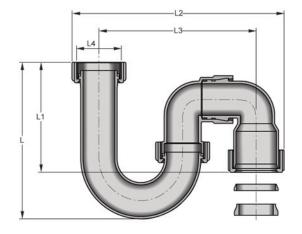




S&P Trap:

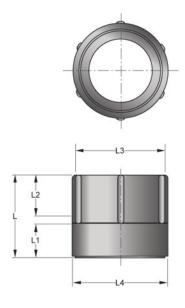
Z((F/A))] [[]	Typical dimensions						
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (BSP) L4	
T0014032	40x32	197	147	228	169	1-1/4"	
T00140	40	168	118	228	169	1-1/2"	
T00150	50	215	164	268	194	2"	

^{*} C/W dishwasher connection



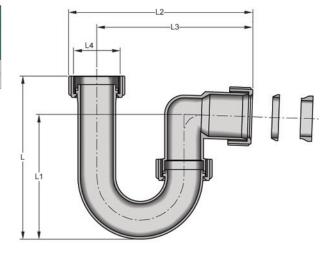
Threaded Trap Adaptor:

((Fh)) III	168	Уту	pical di	mensio	ns	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (BSP) L3	Dim. (BSP) L4
T0024032	40x32	41	17	20	1-1/4"	1-1/2"



P Trap:

$\angle(f(h))$	Typical dimensions							
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (BSP) L4		
T00340	40	168	129	190	90	1-1/2"		
T00350	50	215	153	236	108	2"		



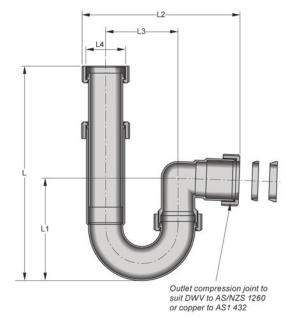
Note:





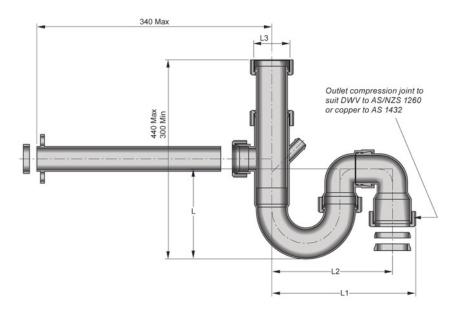
Telescopic P Trap:

Product code		У Ту	pical di	mensio	ns	
	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (BSP) L4
T00440	40	290	131	191	90	1-1/2"
T00450	50	297	153	236	108	2"



Telescopic Waste Disposal S&P Trap:

Product code		Typical dimensions						
	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (BSP) L3			
T00550	50	148	236	198	2"			



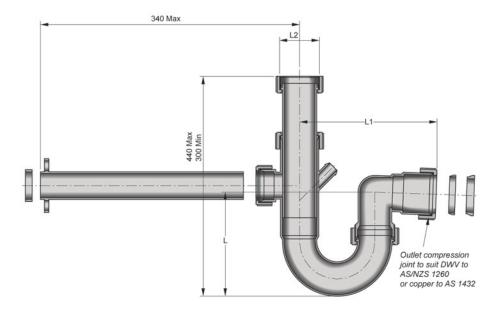
Note:





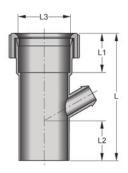
Telescopic Waste Disposal P Trap:

Product code	Ťy	pical di	mensio	ns
	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (BSP) L2
T00650	50	155	205	2"



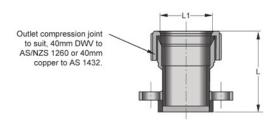
Dishwasher Connector (50mm):

Product code		Ту	pical di	mensio	ns	4
	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
T00735JP	50	60	128	40	40	52



Waste Disposal Connector (40mm):

(f_i)	Typical	dimen	sions
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1
T00740	40	67	43



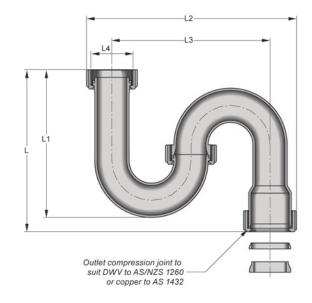
Note:





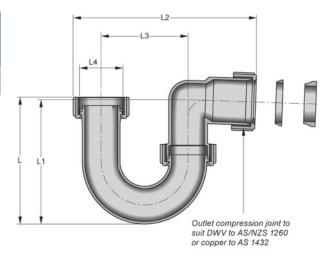
S Trap:

Product code	168	χту	pical di	mensio	ns	
	Nominal size (mm)	Dim. (mm)	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (BSP) L4
T00940	40	185	168	239	180	1-1/2"
T00950	50	215	191	289	216	2"



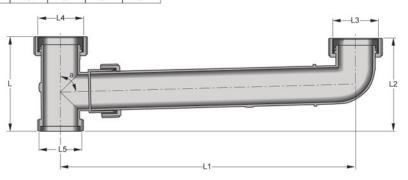
Low Level P Trap:

$\angle (f_i)$		/ Ty	pical di	mensio	ns	
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (BSP) L4
T01240	40	131	129	190	90	1-1/2"
T01250	50	153	148	190	90	2"



Double Bowl Sink Connector:

((1/2))	Typical dimensions							
code	Nominal size (mm)	Angle (deg) a	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (BSP) L3	Dim. (BSP) L4	Dim. (BSP) L5
T01450300	50x300	88	124	385	122	2"	2"	2"
T01450600	50x400	-	124	598	131	2"	2"	2"



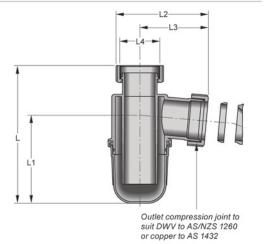
Note:





Bottle Trap:

((1/2)) II		Уту	pical dimensions			
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (BSP) L4
T01750	50	220	131	137	102	2"

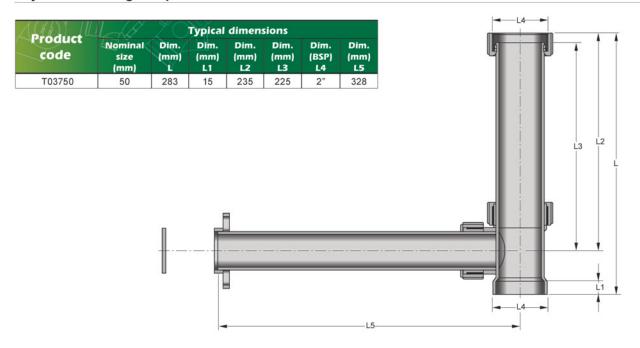


Bath Connector Trap:

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (BSP) L1	Dim. (BSP) L2		
T01950150	50x150	164	2"	2"		



Adjustable Garbage Disposal Connector:



Note

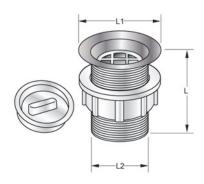




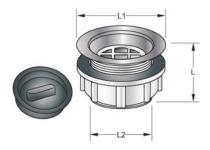
DWV System - Floor Grates

Waste Outlet and Plug:

((1/2)) //	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (BSP) L2	
L00140	40	73.5	55.5	1-1/2"	



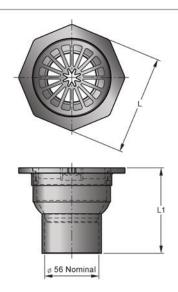
((1/1)) [Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (BSP) L2	
L00150	50	55	85	2"	



Floor Grate:

	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
G0028050	80x50	102	59		
G0028050C*	80x50	102	59		
G0028050FC**	80x50	102	59		

- * Chrome centre
- ** Full chrome



Note:



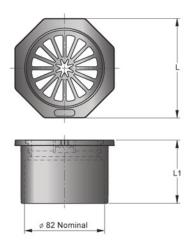


DWV System - Floor Grates

Floor Grate Socket:

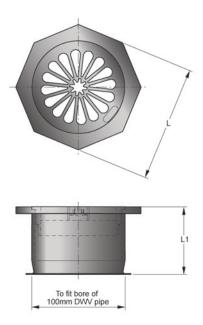
$\langle (j_i) \rangle$	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
G00480	80	103	65		
G00480FC*	80	103	65		

^{*} Full chrome



Floor Grate:

((1/2))	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1		
G168100	100	120	70		



Note

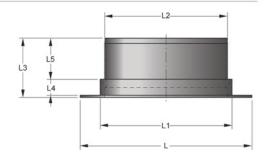




DWV System - Smart Products

Smart Collar:

((1/2))	Typical dimensions					
code	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3	Dim. (mm) L4	Dim. (mm) L5
D101SCOLLAR	232	178	165	80	22	55



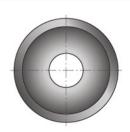
Smart Collar Adaptor:

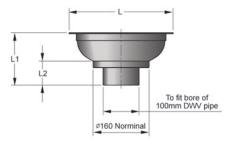
$Z((i_i))$	Typical dimensions			
Product code	Dim. (mm) L	Dim. (mm) L1		
D101SCOLLARADP	171	20		



Smart Pan:

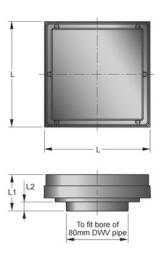
((1/2)) //	Typical dimensions				
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
D101SPAN	160	297	150	69	





Smart Tile:

((1/2))	Typical dimensions					
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2		
D101STILESS80	80	131	45	11		



Note:

•Terminate collar for Smart pan / waste

[•]Adaptor for Smart pan / waste

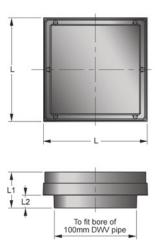




DWV System - Smart Products

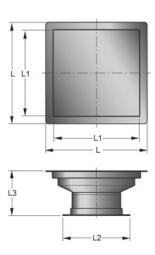
Smart Tile:

((1/2))	Typical dimensions			
Product code	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2
D101STILESS100	100	131	45	45



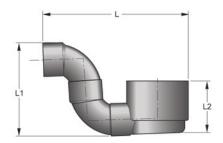
Smart Waste:

((5/2))	Typical dimensions			
Product code	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	Dim. (mm) L3
D101SWASTE	350	295	165	154



Smart Trap:

Product code	Typical dimensions			Typical d	
	Nominal size (mm)	Dim. (mm) L	Dim. (mm) L1	Dim. (mm) L2	
D101STRAP1050	100x50	274	176	97	



Note





DWV System - Jointing Materials

Solvent Cement Non Pressure (Blue):

Product code	Size
JNB0125	125ml
JNB0250	250ml
JNB0500	500ml
JNB1000	1 litre
JNB4000	4 litre



Solvent Cement Non Pressure (Clear):

Product code	Size
JNC0250	250ml
JNC0500	500ml



Lubricant - Standard:

Product code	Size
JLO10500	500ml
JLO11000	1 litre
JLO14000	4 litre



Lubricant - Bactericidal:

Product code	Size
JLB10500	500ml
JLB11000	1 litre
JL B14000	4 litre



Priming Fluid (Red):

Product code	Size
JR0250	250ml
JR0500	500ml
JR1000	1 litre
JR4000	4 litre



Note:

- It is recommended when assembling and installing lplex PVC pipes and fittings that lplex solvent cement and priming fluids be used.
- All dimensions, mass & volume are approximate only. If critical contact lplex Pipelines.



iPLEX Pipelines

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