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Suppliers of Equipment to the Energy Industry
in the Past, Present and Future



Specification guide

SERVICE STATIONS
CRITICAL INFRASTRUCTURE
COMMERCIAL REFUELLING
DATA CENTRES

PLX

Contents

Select an entry to jump to that section.

Pipework for Fuel 1
What Is Durapipe PLX? 2
Dimensions, Standards & Materials 2
Chemical Resistance & Durability 3
Pressure & Flow Ratings 4
Standard Dimensional Ratio (SDR) 4
Secondary Containment 4
Technical Support, Customer Service & Project Assistance 5
Sustainability 5
Installation Guide & Trench Excavation 6
PLX Fittings Range & Transition Fittings 7
Pressure Testing & Health and Safety ..... 8·9
Removing Water After Hydrostatic Testing 9
Warranty 10
Primary Pipe Preparation ..... 11·12
Temperature & Fusion Time Compensation 12
Close-Fit Pipe Preparation ..... 13·14
PLX One-Weld Fittings & Hand-Held Pipe Clamp 15
One-Weld Jointing Instructions ..... 16·17
Jointing Video Tutorials 18
Single Wall Pipe: Coils, Fill & Vent 19
Single Wall Couplers 19
Single Wall Elbows & Equal Tees 20
Single Wall Reducers & Spigot End Caps 21
Single Wall EF Female BSP Transitions 21
Single Wall Spigot Female & Male BSP Transitions 22
Single Wall EF Female Compact Flange BSP Transitions 22
Single Wall Spigot Female Compact Flange BSP Transitions 23
Single Wall Extended Transitions & Spigot Stub Flanges 23
Close-Fit Pipe: Coils & Straight Lengths 24
Secondary Contained 45° Elbows 24
Secondary Contained 90° Elbows, Equal Tees & Slip Closures 25
Secondary Contained Slip Closures with BSP Test Port 26
One-Weld Coupler & Elbow Specifications 27

Pipework For Fuel

Durapipe PLX is a complete range of dedicated fusion-welded pipework systems for the safe transfer of liquid fuels and their vapours. Suitable for use with unleaded petroleum, including ethanol rich alternative fuels (E85 , diesel, bio-diesel and fuel oils.

PLX is commonly used in service station forecourts and is also used for critical power infrastructure applications for hospitals and data centres.

The Durapipe PLX range was originally developed over 30-years ago and through continuous product innovation, PLX plastic piping offers the ultimate in environmental protection with maximum protection against permeation and leak free joints when transferring fuel.

Durapipe PLX is fully compliant with the Energy Institute (Institute of Petroleum Performance systems), rigorous EN testing and other worldwide recognised standards.







Key Product Information

- 10 bar pressure rating
- Temperature Rating: - 20°C to 50°C
- Secondary containment system
- 15 year warranty
- 30 year design life
- Size Range: 32mm to 110mm
- Electrofusion system

Typical Applications

- Service stations
- Critical infrastructure
- Commercial refuelling
- Data centres

Key Product Features

- Suitable for pressure and suction applications
- Resists fuel permeation
- Corrosion resistant
- Protects the environment
- Easy to install



What is Durapipe PLX?

Durapipe PLX is a high performance multi-layered polyethylene composite pipe system, supplied in single wall and secondary containment product ranges for various fuelling applications in retail, commercial and industrial markets.

Fusion welded for the greatest joint integrity, PLX is a specialist range of pipe and fittings specifically designed for the safe transfer of fuel-based liquids and their vapour in pumped or vacuum applications.

Within Durapipe PLX are the following sub-ranges:

Close-Fit

- 32mm primary/40mm secondary up to 110mm primary / 125mm secondary
- Compact secondary containment system for specific above and below ground applications.
- Available in straight lengths and coils.



Single Wall

- Polyethylene composite material
- Protective barrier co-extruded bore layer
- Polyethylene black outer skin
- Fusion welded system
- Available in straights length and coils
- EN 14125 fully accredited
- Semi-flexible pipework



PLX offers tremendous advantages over traditional materials:

- Single Wall and Secondary Contained systems available
- Safe and Durable (30 year design life)
- High Performance 10bar primary pipes
- Corrosion Resistant
- Maintenance Free
- Resists permeation
- Electrofusion Jointing and Installation
- Dedicated range of matched fittings
- Dimensional stability
- Strong and robust
- UV Resistant
- Full range of accessories and jointing tools
- Allows for interstitial monitoring and environmental protection

Dimensions & standards

Products are made in accordance with the following Standards:
Pipe: DIN 8074, 8075, OFTEC, EI, UL971v1, IPv2, EN14125
Fittings: DIN 16963 Part 1 1980,BS EN 1555, OFTEC, AREL (Transitions), EI, UL971v1, EN14125

Threaded transition fittings conform to the nominal requirements of BS 21/DIN 2999/ISO 7 specifications.
Male and Female threads are tapered.
Flanged drillings conform to the nominal requirements of ANSI#150.

Materials

All products are made from virgin polyethylene (PE) of high density. The pipe is a composite construction, co-extruded with an EVOH liner using the latest extrusion technology, resulting in consistent and technically superior performance.

Chemical Resistance

Durapipe PLX has a highly visible bore that ensures negligible permeation, low absorption and dimensional stability, whilst providing excellent chemical resistance to the Volatile Organic Compounds (VOCs) of fuels including petrol, diesels, fuel oils and biofuels.

Petrol and diesel fuels are produced in oil refineries using a distillation process. The virgin fuels separated from crude oil during this process do not, on their own, meet the required specifications for combustion or emissions for modern engines (in particular octane rating) and so are blended with a series of other hydrocarbons Volatile Organic Compounds (VOCs) and performance additives to create the required properties.

With ever increasing global demands on finite fossil fuel deposits the global market is looking for substitutes in the form of biofuels produced from a variety of feed stocks and used as a complete substitute or blended. The highly visible bonded lining and composite pipe structure ensures negligible permeation, low absorption and dimensional stability.

PLX has a high resistance to the following liquid fuels and their vapour:

- Petrol
- Diesel
- Rapeseed oil
- Kerosene
- E10 (petrol with 10% ethanol)
- E20 (Petrol with 20% ethanol)
- E85 (Petrol with 85% ethanol)
- E100 (Pure ethanol)
- B5 (Diesel with up to 5% biodiesel)
- B20 (Diesel with up to 20% biodiesel)
- B100 (Pure biodiesel)
- AdBlue/DEF



Corrosion Resistance

Being corrosion resistant, the bonded composite structure of PLX combines the properties of polyethylene and the protective barrier layer.
Both are renowned for their resistance to chemical attack, and in service will not rot, rust, pit or corrode, nor will it support microbial growth. Either buried or above ground, PLX systems are maintenance free. The pipe's smooth lined bore offers low friction and minimum resistance to flow. Corrosion resistant transition fittings are available in zinc plated mild steel, stainless steel, or polyethylene stub flanges.

UV Resistance

Pigmented with carbon black, PLX secondary contained Close-Fit and Pipe-In-Pipe systems have excellent resistance to UV light.

Even under the most severe conditions the secondary pipe will retain most of its mechanical and physical properties and will wholly protect the primary pipe. The pressure rating and 30 year design life is unaffected by exposure to sunlight.

Abuse Resistance

PLX has ductile characteristics and has exceptional resistance to abrasion, mechanical and physical abuse. Its strength and ductility will accommodate occasional pressure surges of up to twice the pipe's pressure rating.

Abrasion Resistance

Polyethylene has excellent abrasion resistance.
During installation, the abrasive particles of typical soils and backfills do not reduce the design life or pressure rating of the system.

Note: In the unlikely event of a notch or groove being cut into the external surface by more than 10 per cent of the wall thickness, the pipe section should be rejected.

Pressure and Flow Ratings

PLX primary pipework has a maximum pressure rating of 10bar (PN10) at 20°C for SDR11 and 4bar (PN4) at 20°C for SDR17 pipework. Durapipe PLX Secondary pipework has a maximum pressure rating of 4bar at 20°C.

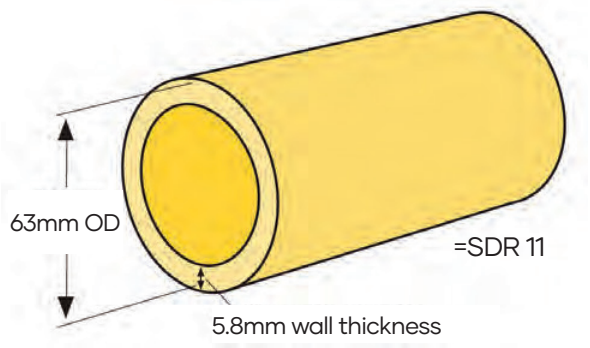
Please note that when a fitting is 10bar rated and used in conjunction with a SDR17 4bar pipe, then this will result in a 4bar system.

The smooth protective barrier layer of PLX offers a negligible resistance to flow and will not corrode or support microbial growth or deteriorate with use. PLX will maximise flow rates with greater pump efficiency and minimal operating cost.

PLX Fill & Vent (SDR17) improves the filling times of Underground Storage Tanks (USTs) and lessens the chance of tank pressurisation and over filling.

Standard Dimensional Ratio (SDR)

One of the items of information contained on both pipe and fittings is the Standard Dimensional Ratio, i.e. the ratio between wall thickness and outside diameter

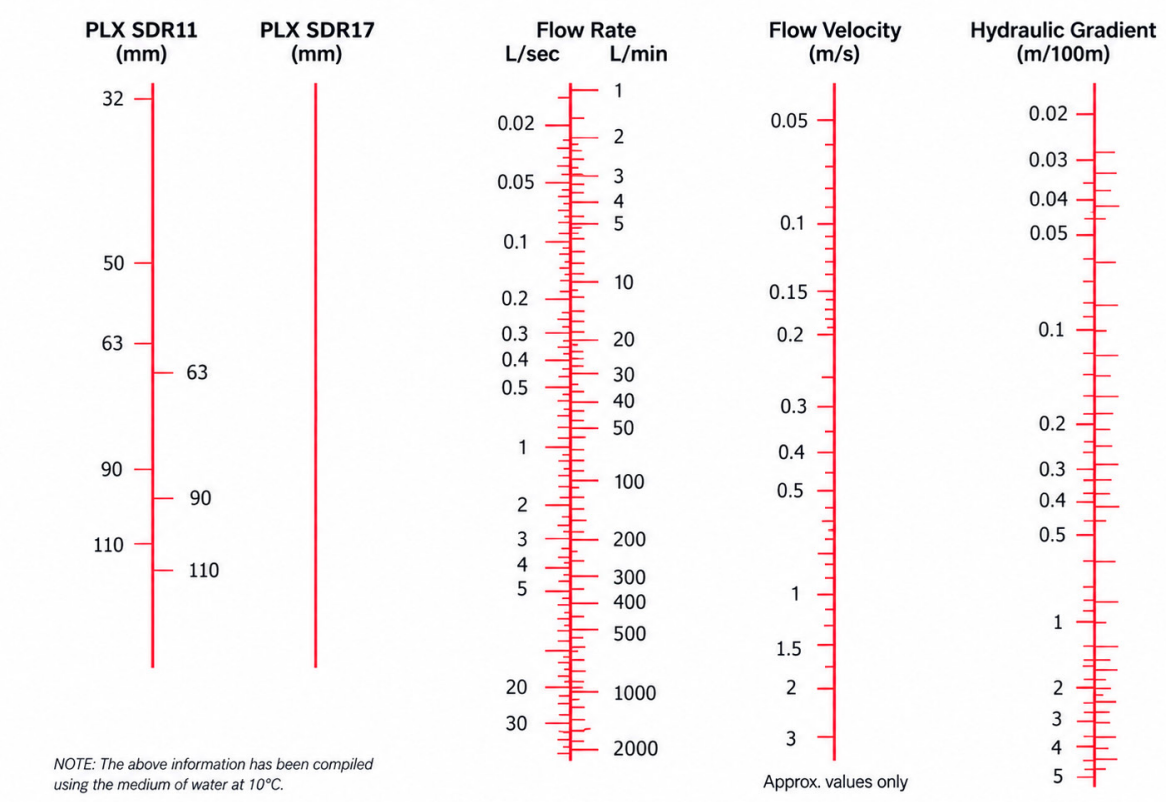


Secondary Containment

Fuel industry guidelines are making it mandatory that below ground fuel product lines are secondary contained or installed in a bunded area.

PLX secondary contained Close-Fit systems provide security against accidental fuel losses whilst providing an opportunity for continuous interstitial monitoring and environmental protection, through leak detection, in both below ground and above ground applications.

Flow Namogram



NOTE: The above information has been compiled using the medium of water at 10°C.

Approx. values only

Added Value

Quoting & Project Assistance

Whether you are planning a new service station, upgrading an existing fuel installation or working on a specialised fuel distribution project, Shipman King can assist with preparing a suitable product package.

Provide us with your plans, drawings, specifications or project requirements, and our team can assist with product selection, material estimates, availability and quotation.

Technical Support & Consultation

Shipman King provides practical technical support to help customers select the right PLX products for their project.

Our experienced team can assist with product selection, system requirements, material estimates, technical enquiries and installation advice. We can also review project drawings and specifications to help identify suitable products and quantities.

For new installations or project planning, Shipman King can provide consultation and quotation support, helping customers develop an appropriate PLX piping and containment solution from the early planning stages through to supply.

Customer Service

Shipman King is committed to providing knowledgeable, responsive support throughout the project.

Our team can assist with product enquiries, quotations, stock availability, order planning and technical information, providing customers with a single point of contact for PLX piping, fittings and associated containment equipment.

Installation Advice

PLX polyethylene piping uses electrofusion jointing to create secure and reliable connections.

Shipman King provides practical assistance with product selection, jointing requirements and installation procedures, including advice on PLX fittings and associated equipment.

Where required, our team can also provide product and jointing demonstrations to help installers understand the correct procedures before installation.

Sustainability

Sustainable Plastic Piping

Plastic piping systems provide a durable, efficient and environmentally responsible solution for fuel distribution and containment applications.

Lightweight, strong, flexible and corrosion resistant, plastic pipe requires less energy to manufacture, transport and install than many traditional metal alternatives. Its long service life and resistance to corrosion also help reduce maintenance and replacement requirements over the life of an installation.

These characteristics make plastic piping a practical choice for projects where performance, durability and long-term efficiency are important.

Durapipe PLX & Aliaxis

Shipman King supplies Durapipe PLX by Aliaxis, a high-performance polyethylene piping system designed for the safe and reliable transfer of fuels.

Aliaxis continues to improve the environmental performance of its products and manufacturing processes through:

- Compliance with relevant environmental legislation, standards and codes of practice
- Reducing waste and improving energy efficiency
- Increasing the use of recycled materials where appropriate
- Optimising manufacturing processes
- Improving transport and distribution efficiency
- Continual improvement of environmental performance

Combined with the durability, corrosion resistance and long service life of polyethylene pipe, these initiatives support a more efficient and sustainable approach to fuel distribution infrastructure.

Shipman King has supplied PLX piping and fittings in Australia for over 30 years, supporting service stations, fuel storage and other critical fuel distribution applications.

Installation Guide

Durapipe PLX products are designed to make the installation of fuel lines quicker, easier and more cost-effective than when using traditional materials. The advantages of installing with PLX systems are lightness flexibility, durability and totally secure jointing methods.

PLX System Presentations, Demonstrations and Technical Support

We offer an unrivalled level of technical support where our experienced team can provide product introductions, jointing demonstrations and installation advice on any given project. They can also provide material estimates for indicative costs from engineering drawings.

Personnel should be fully competent and conversant with the design and installation of PLX pipe systems. On-site PLX pipe jointing demonstrations can be arranged on request.

Technical Support is available, before, during and after installation.

Trench Excavation

Where pipework has to be laid in trenches, PLX pipe systems require minimal excavation. Trench dimensions are normally governed by the pipe diameter and site conditions. In general, they should be as narrow as possible, but typically not less than the outside diameter of the pipe plus 250mm to allow for correct compaction of the side fill.

Minimum depth of cover for PLX should be 500mm from ground level to crown of the pipe. It is acceptable to lay pipes directly on the bottom of the trench, provided that the soil is uniform, relatively soft and fine grained and free from large flints, stones and other hard objects, which could damage the pipe wall. The trench bottom should be brought to an even finish to provide consistent support to the pipes along their complete length.

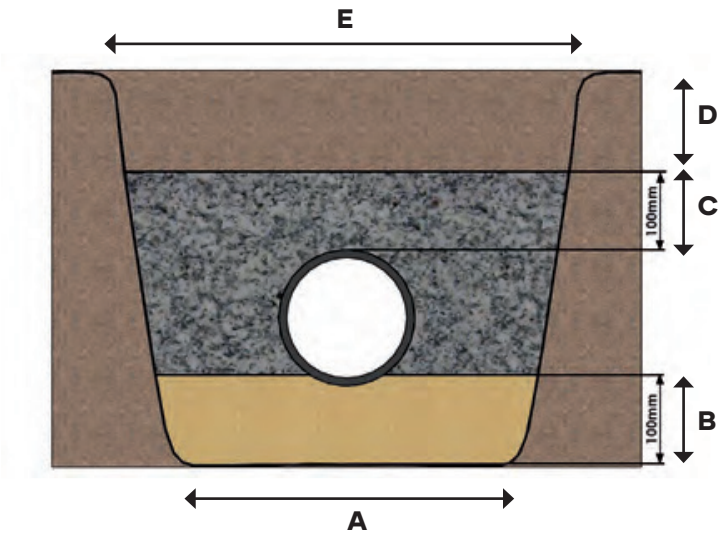


Where pipes are to be laid side by side in wide/open trenches, a minimum cover of 100mm is required and a minimum gap of 100mm should be left between pipes. 100mm thickness of selected bedding material must be placed below the pipe. Gravel or broken stone graded between five and ten millimetres in size will provide suitable bedding since it requires little compaction. Coarse sand is also acceptable provided that the particle size is not less than 3mm but care must be taken to ensure that such backfill cannot migrate as the result of high water tables. Where this possibility prevails, then the trenches must be lined with a geotextile material to prevent the migration.

Pipework must be laid to a gradient of 1:100 back to the tank. Heavy compaction equipment should not be used until the fill over the crown of the pipe is at least 300mm.

Any temporary levelling supports must be removed before the pipework is backfilled to prevent any damage to the pipe resulting from uneven settlement.

Use PLX Close-Fit Pipe Coils to reduce the number of joints required for the installation where possible.



A	B	C	D	E
450	100mm minimum	100mm minimum	400mm minimum	lower trench width + 600mm

During pipe installation a pipe cross over may be difficult to avoid. Where they occur there must be a filled space between the uppermost pipe and the one beneath. If the pipes are touching this could cause a concentrated load that may result in premature system failure or cause an uneven settlement and liquid to be trapped in system.

PLX Fittings Range

The PLX system comprises of a wide range of Single Wall and Secondary Contained Electrofusion (EF), Spigot and combined EF#Spigot fittings in couplers, elbows, tees and closures.

The jointing of PLX systems by means of electrofusion offers a permanent, rapid and convenient method of creating leak-free joints.

PLX electrofusion fittings are designed to work on a fixed fusion time for environmental temperatures between -5°C and +23°C. All PLX ECU's include built-in temperature compensation sensors which adapt accordingly to the ambient temperature. Fusion cycle temperature compensation times must be applied at temperatures below -5°C and above 23°C. (Refer to chart on page #)

When using a manual input Electrofusion Control Unit (ECU), the variant compensation time needs to be added/subtracted appropriately.

Transition Fittings

Reliable connections to steel components is vital in most plastic pipe systems and none more so than in fuel applications. PLX transitions combine the benefits of steel and plastics to ensure their design is resistant to end load and bending forces.

Available in either spigot or electrofusion format, PLX transition fittings have been innovatively designed to suit their intended application and provide ease of installation.











Pressure Testing of PLX Product Lines Single Wall and Secondary Containment

Following installation the Primary and Secondary pipes can be independently pressure tested using water, compressed air or Nitrogen. If system design allows the primary systems should be tested before the secondary system is fused. Stage testing may be preferred.

Pressure testing to prove the suitability of the PLX system has been undertaken in a controlled environment at the manufacturing facility at much higher pressures as part of development and QA approval process.

Hydraulic testing of the primary pipe can be undertaken at 1.5 times the systems maximum operating pressure (maximum 15bar) and after the system equilibrium has been achieved the pressure should be held for a period of 1 hour. After completion of hydrostatic testing all traces of water **MUST** be removed.

If testing is required using compressed air (or Nitrogen in pre-installed systems) the maximum primary test pressures should not be greater than 4bar and 60min duration. It is generally impractical to hydraulically test the interstice but a satisfactory air test can be made at a maximum 2bar pressure and 60minute duration.

Health and Safety

- Compressed air may be used to test new pipework systems if adhering to maximum pressure ratings
- Nitrogen, which is an inert gas, must always be used to test existing lines where vapours or liquid fuels may still be present. The nitrogen gas will also serve to purge the pipework of any vapours and air. Site Management must always be informed when a pressure test is due to be carried out using compressed gases at these higher pressures to ensure the safety of other site personnel.
- Compressed gases occupy 3 times the volume of a given space (when compared to water) to give the equivalent pressure. Separation of any item within the system would have an explosive effect due to the sudden release of this stored energy.
- The maximum pressure of 4bar for primary (product line) and 2bar for Secondary containment should never be exceeded because of these safety concerns.

Pressure Test Guidelines

- All pressure testing equipment should be subject to manufacturers calibration requirements before use.
- All tank connections above ground or below ground should be disconnected or isolated.
- For accurate consistency of the pressure measurement it is recommended that the target pressure should be a minimum of 50% of the gauge scaling ie. a test pressure of 4bar (60psi) the gauge range to be 0 to 8bar (0 to 120psi).
- It is recommended that a suitable pressure relief valve be incorporated into the system to prevent overcharging of the pipe. This should be set at no more than 0.5bar (10psi) above the target pressure.
- When pressure testing the primary pipe, the secondary containment pipe must be open to atmosphere, this is also applicable for testing of the secondary leaving the primary pipe open to atmosphere.
- The use of compressed air is suitable as a medium for pressure testing the pipe system.
- The use of Nitrogen (from a pressure cylinder) for pressure testing of the pipe system should be applied when the pipe system has been used:
  - for pressure testing existing lines under planned maintenance procedures.
  - or if a fuel has been used to ballast a storage tank.

Pressure Testing Procedure for Primary (product Lines)

Test heads are fixed to transition fittingsto allow pressure to be introduced and for the internal pressure to be measured. The other end (at the tank) must be closed off using spade connections between the compact flange/ flange connections to ensure that the tank is both isolated and that the pressure test is not also being applied to the tank.

- Introduce air/nitrogen to an initial pressure of 0.5bar (10psi).
- Examine all the electrofusion joints and threaded joints for any leakage using soap solution (where possible).
- The pressure may then be raised in 0.5bar increments over 15 minute intervals to a maximum pressure of 4.0bar (60psi).
- Once the target pressure is reached, measurements should be taken from the pressure gauge:

- The minimum duration of test should be 1 hour.

Continuation of procedures.

Pressure Testing Procedure for Secondary

Containment Lines

Electrofusion Short Pattern closure/Stepped coupler fittings have been designed and developed to fuse the outer containment pipe/fittings to the outside of the PLX product line pipes.

These fittings are designed to seal the interstice by electrofusion, and where fitted with access ports, permit connection to monitoring equipment using all the different mediums.

- Introduce air to an initial pressure of 0.5bar (10psi).
- Examine all the electrofusion joints and threaded joints for any leakage using soap solution (where possible).
- The pressure may then be raised in 0.5bar increments over 15 minute intervals to a maximum pressure of 2.0bar (30psi).
- Once the target pressure is reached, measurements should be taken from the pressure gauge:

- The minimum duration of test should be 1 hour.

NB: Polyethylene pipe is subject to creep under pressure and temperature. It may be necessary to apply a 'top up' to the pressure in the system after a few minutes to allow for these material fluctuations under ambient temperatures. Consideration must be made for higher temperature factors.

Note: The PLX Electrofusion Closure Fittings and the access ports are designed to allow the interstice to be monitored using over pressurization methods up to a maximum continuous working pressure of 2.0bar (30psi). These fittings have been designed for use as secondary containment closure fittings only and are marked as such. They must NEVER be used to connect PLX product lines (Suction/Pressure) or PLX Fill & Vent lines.

Removing water post hydrostatic test.

Preparation

- Confirm the hydrostatic test has passed.
- Depressurise and drain bulk water from the line to the lowest practicable level through low-point drains before pigging.
- Install the launcher at the high point/start of the run and the receiver at the low point/end of the run, in the direction of intended product flow where possible.
- Confirm all downstream valves in the pig's path are fully open and all branch lines not being pigged are isolated.

Pig Launch and Run

- Insert the correctly sized pig into the launcher and secure the launcher closure.
- Connect the propellant source (compressed air) and slowly pressurise to the minimum pressure required to move the pig (do not exceed the rated working pressure of the line or fittings).
- Confirm pig movement by monitoring the pressure differential and/or listening/feeling at accessible points along the line; maintain communication with the receiving crew.
- If the pig stalls, stop pressurising, allow pressure to equalise, and investigate the cause before resuming — do not exceed rated pressure to clear a stall.

Pig Receipt and Water Disposal

- On confirmation of pig arrival at the receiver, close the inlet valve and safely vent/bleed residual propellant pressure to atmosphere through an approved vent, away from personnel.
- Confirm zero pressure at the receiver before opening the closure.
- Remove the pig and inspect its condition; note any damage, wear, or debris on the pig run log.
- Repeat launch and receipt for each subsequent pig run until the line is confirmed dewatered (see Section 10).

Multiple Runs / Progressive Dewatering

- Where a single pass does not fully dewater the line, run additional pigs in sequence (typically 2–3 runs), inspecting recovered water volume and pig condition after each pass.
- Consider a final "dry" pig or swab run, and/or a low-pressure air purge, to remove residual moisture film ahead of drying/commissioning.

Acceptance Criteria

- No free water is discharged or observed ahead of the pig on the final run.
- The pig(s) are recovered intact at the receiver with no unexplained damage.
- Line is confirmed visually and/or by moisture check to be free of standing water

Warranty

Durapipe warrant PLX and associated products against defects in material and workmanship for a period of 15 years starting upon the later of the date of manufacturing stamped on the Product or the date of purchase of the Products (the "Warranty Period")

This warranty is subject to the following terms and conditions.

Scope of the warranty

This warranty is expressly limited to the repair replacement including shipping costs to the original point of delivery or reimbursement, at Company's discretion, of the Products proving defective in material or workmanship. The warranty does not cover any seals and gaskets, these should be replaced through a routine maintenance program. This warranty does not cover consumables, tools and fixing material that are not sold as part of the PLX system. Company does not guarantee standard Product design and does not offer any warranty of fitness for purpose. This Warranty is the sole and exclusive remedy for warranted defects and shall exclude claims for (i) punitive, special, incidental and consequential damages (ii) indirect damages, (iii) removal and reinstallation costs (iv) loss of use, loss of (anticipated) profit, loss of contract, overhead costs, the cost of business interruption, etc

Warranty claims administration

The warranty claim must be notified in writing to the Company (or through Company's distributor) (i) before the expiration of the Warranty Period and (ii) no later than 30 calendar days after noticing the defect. The warranty claim must contain the serial number of the warranted Product. The warranted Product must be returned without undue delay to the Company for inspection and testing. Use of the warranted Product should be discontinued as soon as the alleged defect is noticed.

Warranty standard exclusions

This Warranty shall not apply to

- Damages caused by installation or use in association with products that do not belong to the same product range or installed not in conformity with PLX installation instructions as detailed in the PLX Technical Literature
- Defects that are apparent or visible Such defects must be reported within 8 days of the date of purchase
- Defects due to improper use, storage, transport, handling
- Products not installed, used or maintained according to the Company's latest technical
- specifications and instructions, or in violation of good industry practices, or the state of the art
- practices
- Products that have been disassembled, repaired or modified
- Defects caused totally or partially by abnormal mechanical, environmental or working
- conditions or by an act or an omission of the customer, the end user, or any third party
- Defects caused by any event or circumstances not under the control of the Company
- Wear and tear, discoloration
- Defects caused by Force Majeure events as defined by the applicable law and case law,
- including but not limited to natural disasters, severe adverse weather conditions

Final clauses

Illegality, invalidity or unenforceability of any provision of this warranty under the applicable laws, does not affect the remaining provisions of this warranty.

Individuals acting as consumers according to the applicable law are entitled by law to remedies from Company, free of charge, in the event of a lack of conformity of the Products, as defined by the applicable legislation. Those remedies are not affected by this Warranty statement

Primary Pipe Preparation

1. It is important to make sure the pipe is cut clean and square, a wheel cutter is best for this job. The use of a cutter ensures a square swarf-free pipe end preparation.





2. Wipe loose dirt from pipe ends.

3. Measure the fitting from the centre to the end using a tape measure. Mark the pipe, using a utensil, around the circumference, with the recorded measurement.



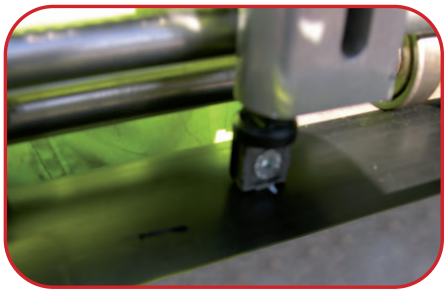


4. Using the PLX pipe preparation kit select the correct size mandrel to fit the pipe being prepared. Rotate the mandrel shaft anti-clockwise so that the mandrel expands and firmly grips the inside of the pipe. Using the spanner tighten the mandrel with 1/4 turn.





5. Place the preparation tool onto the shaft and slide along by depressing the release button to disengage the drive until the cutter tip is aligned with the marked socket depth. Position the cutter tip approximately 1mm above the pipe surface.



6. Apply the spring tension to the cutter tip. Then rotate the tool clockwise until the cutter has moved over the length of pipe to be prepared. A continuous ribbon of PE material should have been removed.



Primary Pipe Preparation - Continued

7 Use Isopropanol wipes to wipe the pipe surface should they become contaminated.



8 Mark the pipe again using a utensil and a tape measure or the PLX pipe fitting.



You can begin the electrofusion process

Temperature/Fusion Time Compensation



Durapipe PLX electrofusion fittings are designed to work on a fixed fusion time in ambient temperatures between -5°C and +23°C. For further details on fusion time compensation please contact Durapipe Technical Support.

The graph below shows the reduction factor, which should be applied to the recommended maximum continuous working pressure at 20°C to obtain appropriate working pressures for elevated temperatures.

The reduction graph has been calculated to give normal factors of safety after 50 years. It refers only to the conveyance of fluids to which the pipe material is completely resistant.

At temperatures lower than 20°C, polyethylene becomes stiffer and stronger, with strength increasing by 1.3% per °C reduction.

PE100 Components										
-30	-25	-20	-15	-10	-5° to 23°C	30	35	40	45	50
39	39	38	38	37	**34**	33	32	32	31	31
41	41	40	40	39	**36**	35	34	34	33	33
44	43	43	42	41	**38**	37	36	36	35	35
46	45	45	44	44	**40**	39	38	38	37	36
58	57	56	55	55	**50**	49	48	47	46	46
63	62	62	61	60	**55**	53	53	52	51	50
69	68	67	66	65	**60**	58	57	56	56	55
75	74	73	72	71	**65**	63	62	61	60	59
86	85	84	83	82	**75**	73	72	71	69	68
87	86	85	84	83	**76**	74	73	71	70	69
104	102	101	99	98	**90**	87	86	85	83	82
115	114	112	111	109	**100**	97	96	94	93	91
138	136	134	133	131	**120**	116	115	113	111	109
155	153	151	149	147	**135**	131	129	127	125	123
184	182	179	177	174	**160**	155	153	150	148	146
196	193	190	188	185	**170**	165	162	160	157	155
207	204	202	199	196	**180**	175	172	169	167	164
230	227	224	221	218	**200**	194	191	188	185	182
299	295	291	287	283	**260**	252	248	244	241	237
345	341	336	332	327	**300**	291	287	282	278	273
Compensated Cycle time =Nom. Cycle Time + (0.003 x Nom. Cycle Time x (20°C - Fusion Temperature))										

Temperature Compensation Chart

Close-Fit Pipe preparation

1 It is important to make sure the pipe is cut clean and square, a wheel cutter is best for this job. The use of a cutter ensures a square swarf-free pipe end preparation.



2 Wipe loose dirt from pipe ends. Mark the outer pipe to approximately 150mm from the edge, using a tape measure and pipe marking utensil.





3 Manually prepare the surface of the outer pipe using a scraper, from the mark up to the end of the pipe.



4 Measure the socket depth of the primary fitting, marking this dimension plus an additional 10-15mm on the surface of the outer pipe using the marking utensil.





5 Place the PLX Pipe protection sleeve between the primary and secondary pipe.



6 Cut the pipe square using a PLX pipe cutter. The use of a cutter ensures a square swarf-free pipe end preparation.



7 Safely remove the PLX Pipe protection sleeve together with the unwanted secondary pipe.



8 Mark the pipe again using a utensil and a tape measure or the PLX pipe fitting.

Now proceed to follow Primary Pipe Preparation guidelines.

PLX One-Weld

Secondary Contained EF Fittings

In addition to our specialist fuel conveyance pipework system; PLX, we have introduced a new range of electrofusion PLX fittings designed to significantly improve installation time on site within fuelling applications, by reducing the amount of preparation time while welding both primary and secondary joints simultaneously in one weld cycle.

- 4 welds within one electrofusion cycle
- Saving significant installation time (average 15 minutes per fitting)
- Designed for use with PLX secondary contained close fit pipe
- Interstitial monitoring as standard
- Manual and barcode welding options
- Industry first One-Weld elbow solution







Interstitial monitoring

PLX One-Weld fittings are designed to allow effective monitoring of the interstitial space between the primary and secondary joints for optimum leak detection.

Integrated pipe measurement tool

The PLX One-Weld coupler features an integrated measurement tool that provides easy and accurate socket depth measurement for primary and secondary joints.

PLX Hand-Held Pipe Clamp

Designed to easily secure both primary and secondary PLX pipes in position during electrofusion jointing to prevent movement.



One-Weld jointing instructions

Our electrofusion PLX fittings are designed to significantly improve installation time on site. PLX One-Weld reduces the amount of pipe preparation time required and allows both the primary and secondary joints to be welded simultaneously in one weld cycle.

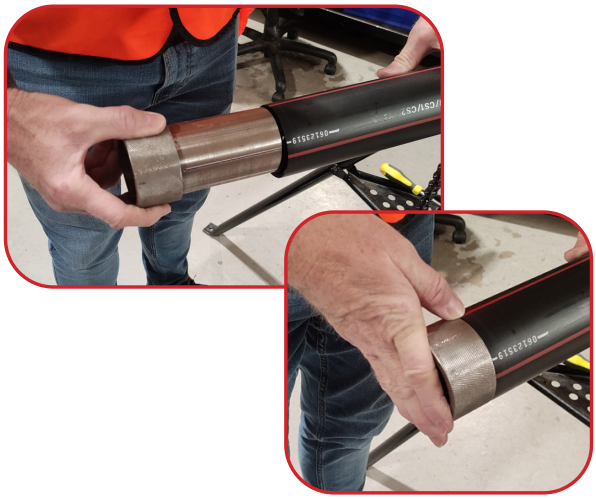


1. Using a PLX Hand-Help Pipe Clamp to deform the secondary contained pipe, secure both primary and secondary pipe together so that the pipe movement is locked. The clamp should be located approximately 500mm from the end of the pipe.

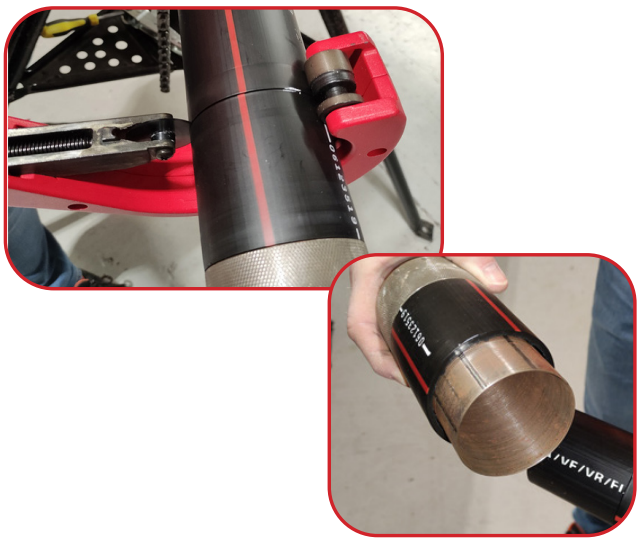
2. Using the built-in measurement device on all PLX One-Weld Couplers, measure and mark the amount of secondary contained pipe that needs to be removed.



3. Place the PLX Pipe Protection Sleeve between the primary and secondary pipe, they ensure that it is not possible to damage the primary pipe when cutting the secondary pipe.



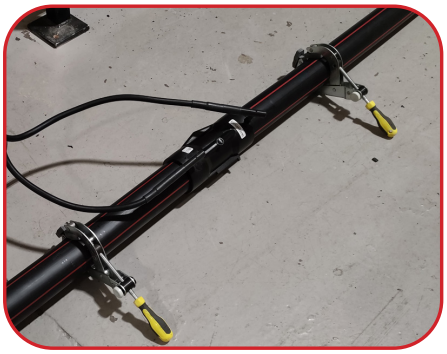
4. Cut the pipe square using a PLX Pipe Cutter. The use of a cutter ensures a square swarf-free pipe end preparation. Once cut, remove the section of secondary contained pipe.



One-Weld jointing instructions

5 With the clamps still in place from earlier, connect the electrofusion leads and preform the weld. This is the same process as per the single wall PLX.

a. Remove fitting from the packaging. Place the pin mushroom caps close to where you are performing the jointing.



b. Wipe the inner bore of the fitting with an isopropanol wipe ensuring it is clean only if necessary.

c. Push the fitting onto the pipe. Ensure the correct insertion and mark the position relative to the pipe on both sides of the fitting. Repeat this for both sides of the coupler so that all four pipes are in the fitting. Lock the pipes together using a PLX Hand-Help Pipe Clamp as per point 1.

d. Connect the leads from the electrofusion control unit to the terminals on the fitting. The lead connectors can be attached to either terminal.

e. Note the fusion time on the fitting barcode.

f. Enter the fusion time. Press the green or enter button to proceed. Durapipe offers both manual and barcode reading electrofusion control units. The barcode reading units have a light pen which the operator uses to input the necessary data.

g. At the end of the fusion cycle the indicator pins will have risen. Remove the electrofusion control unit leads.

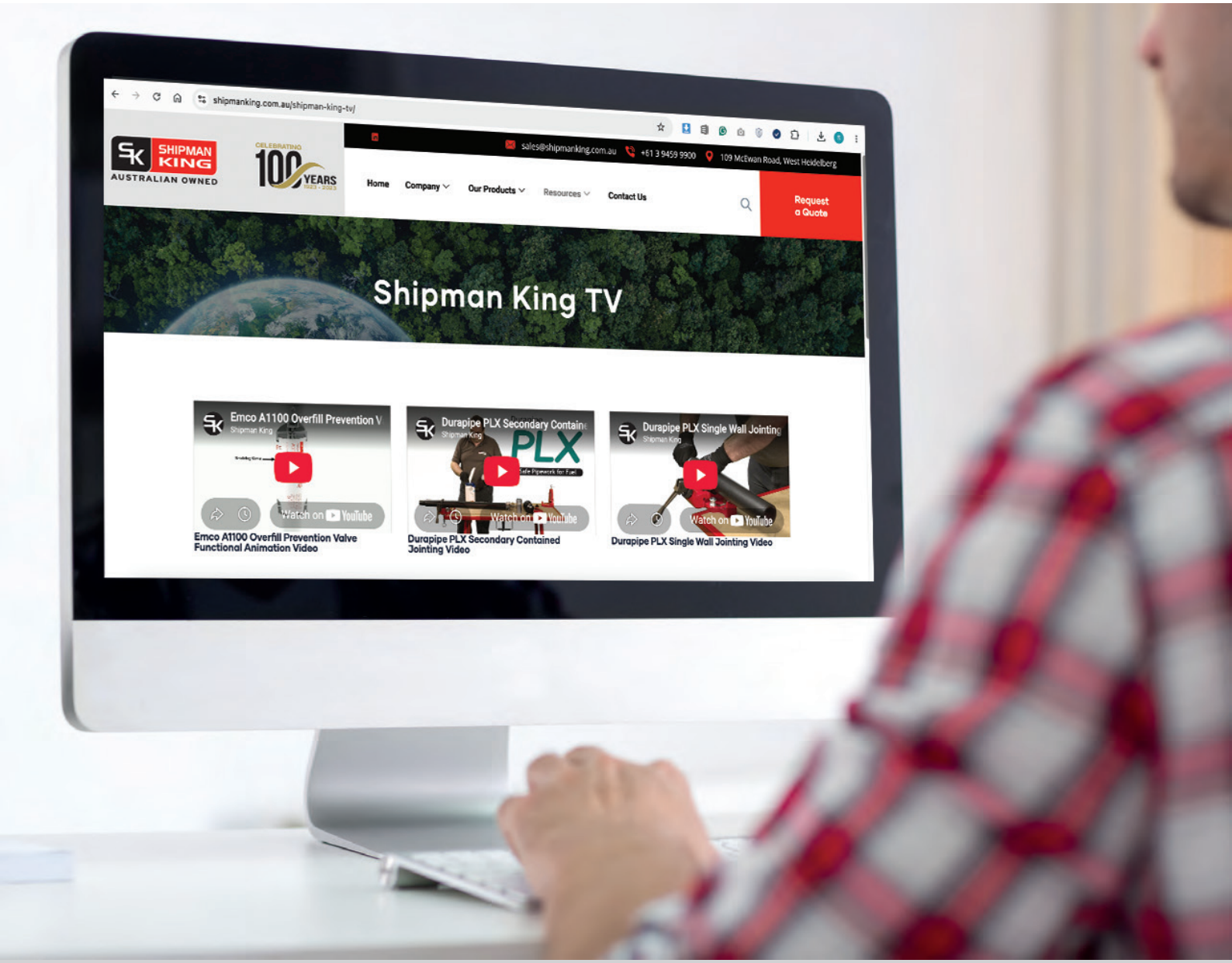


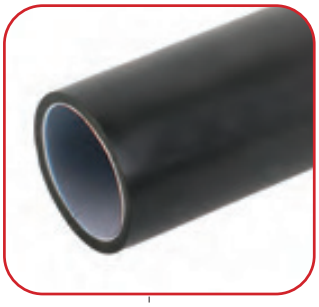
h. After the cooling time is shown on the fitting barcode, insert the pin mushroom caps to prevent an accidental repeat of the fusion process.

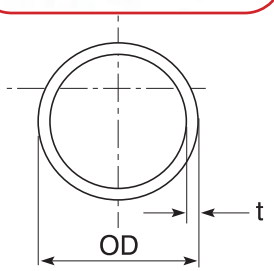


Jointing Advice from Durapipe

Watch our jointing video tutorials at:
https://shipmanking.com.au/shipman-king-tv/

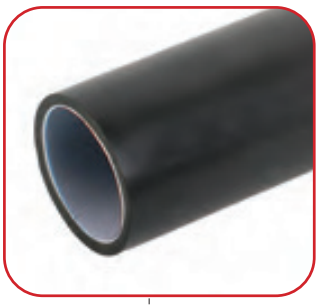


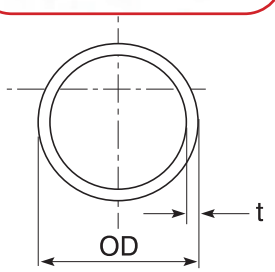




Single Wall Pipe SDR11 Coils - 10bar

Size OD mm	Size ID mm	Length M	Code	t (min)	Item Weight kg
50	41	50	DU43 614 310	4.6	33.4
63	51	50	DU43 614 311	5.8	52.6
63	51	100	DU43 615 311	5.8	105.2



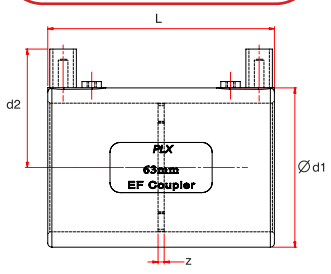


Single Wall Gravity Fill & Vent Straight Pipe SDR17 - 4bar

Size OD mm	Size ID mm	Length M	Code	t (min)	Item Weight kg
63	56	6	DU43 609 311	3.6	6.3
90	80	6	DU43 609 313	5.4	8.3
110	97	6	DU43 609 314	6.6	13.1

FITTINGS





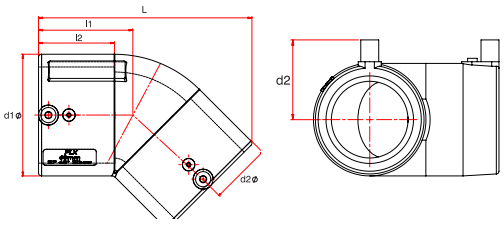
Single Wall Coupler 39.5v - 10bar

Size OD mm	Code	L mm	d1 mm	d2 mm	mm	Item Weight kg
32	DU43 609 311	83	44	39	2	0.1
50	DU43 100 310	98	65	50	3	0.1
63	DU43 100 311	111	78	58	3	0.2
90	DU43 100 313	127	119	74	3	0.6
110	DU43 100 314	135	141.5	82	3	0.8
160	DU43 100 317	164	198	113	-	1.8



Single Wall 45 Elbow 39.5v - 10bar

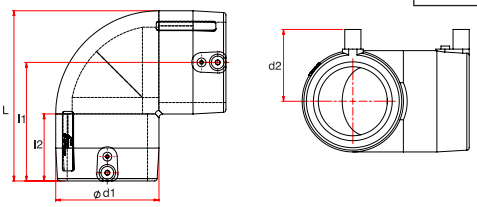
Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
50	DU43 105 310	99	57	45	66	50	0.2
63	DU43 105 311	113	65	50	80	57	0.3
90	DU43 100 313	154	89	69	115	75	0.7
110	DU43 105 313	172	99	70	136	85	1.0





Single Wall 90 Elbow 39.5v - 10bar

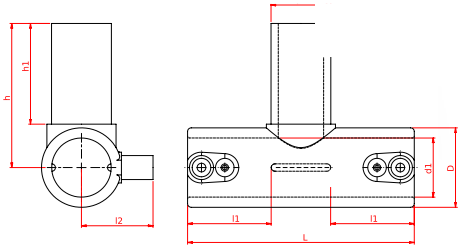
Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
32	DU43104308	82	60	40	42	38	0.1
50	DU43104310	113	80	50	65	49	0.2
63	DU43104311	130	91	54	78	56	0.4
90	DU43104313	181	126	69	111	72	0.9
110	DU43104314	210	142	71	136	85	1.3





Single Wall Equal Tee (Spigot Branch) 39.5 V - 10 bar

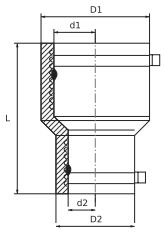
Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
32	DU43408308	122	45	78	43	0.1	0.1
50	DU43408310	133	46	93	65	0.3	0.2
63	DU43408311	154	51	111	78	0.4	0.4
90	DU43408313A	218	65	146	111	1.1	0.9
110	DU43408314	238	71	167	136	1.7	1.3





Single Wall Reducer 39.5 V - 10 bar

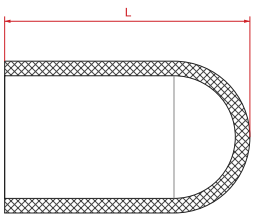
Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
32 x 63	DU43402415	125	82	63	45	32	0.2
50 x 63	DU43402444	125	82	63	68	50	0.2
63 x 90	DU43402459	160	117	90	82	63	0.5
90 x 110	DU43402483	180	140	110	115	90	0.9





Single Wall Spigot End Caps - Various SDR

Size OD mm	Code	SDR	L mm	Item Weight kg
63	DU43233311	11	95	0.2
90	DU43232313	17*	109	0.3
110	DU43232314	17*	122	0.7

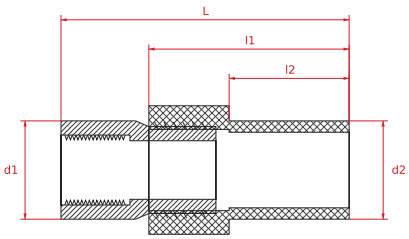


TRANSITIONS

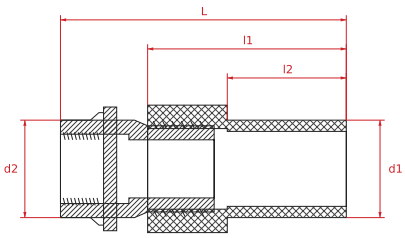


Single Wall EF Female BSP 39.5 V - 10 bar

Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
32 x 1"	DU43394308	122	83	40.5	44	39	0.7
50 x 1½"	DU43741310	139.5	107	63.5	73	53	0.7
63 x 1½"	DU43741628	140.5	108	64.5	85	59.5	0.9
63 x 2"	DU43741311	140.5	108	64.5	85	59.5	1.1



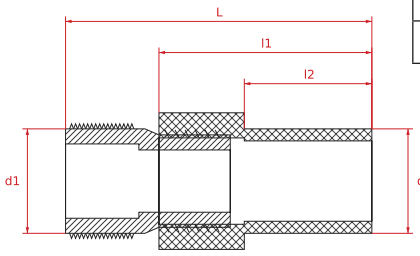




Single Wall EF Female Compact Flange BSP 39.5 V - 10 bar

Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
50 x 1½"	DU43742310	160.5	128.5	63.5	91	52.8	3.3
63 x 2"	DU43742311	161.5	129.5	64.5	102	60.5	4.0

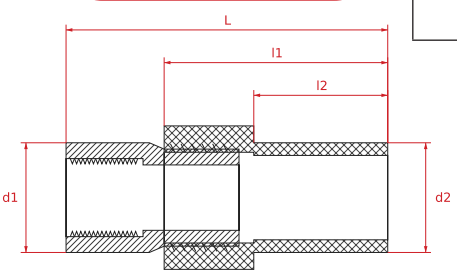




Single Wall Spigot Male BSP - 10bar

Size OD mm	Code	L (mm)	l1 (mm)	l2 (mm)	d1 (mm)	d2 (mm)	Box QTY	Item Weight kg
50 x 1½"	DU43 723 310	160.5	103	58	73	36.5	6	1.1
63 x 1½"	DU43 723 628	167.5	110	65	73	36.5	6	1.2
63 x 2"	DU43 723 311	167.5	110	65	73	36.5	20	1.1
90 x 3"	DU43 480 313	209	120	70	100	50	20	6.0
110 x 4"	DU43 480 314	244	140	85	121	60.5	20	7.5



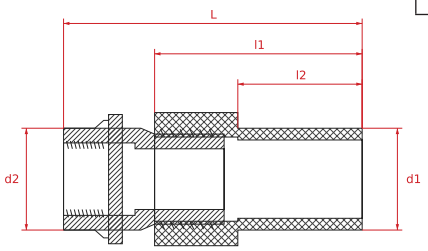


Single Wall Spigot Female BSP - 10 bar

Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
50 x 1½"	DU43719310	135.5	103	58	73	36.5	0.7
63 x 1½"	DU43719628	142.5	110	65	73	36.5	0.8
63 x 2"	DU43719311	142.5	110	65	85	42.5	1.0
90 x 3"	DU43483313	180	130	80	99	49.5	6.0
110 x 4"	DU43483314	203	150	80	131	65.5	7.5

Single Wall Spigot Female Compact Flange BSP - 10 bar

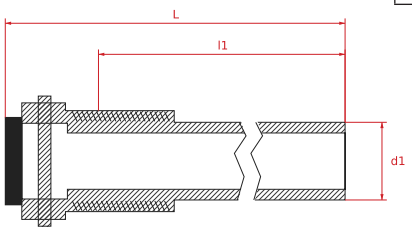




Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
63 x 1½"	DU43723628	167.5	110	65	73	36.5	1.2
63 x 2"	DU43723311	167.5	110	65	73	36.5	1.1
90 x 3"	DU43480313	209	120	70	100	50	6.0
110 x 4"	DU43480314	244	140	85	121	60.5	7.5

Single Wall Long Spigot Female Compact Flange Extended BSP - 4 bar (also Fill & Vent)

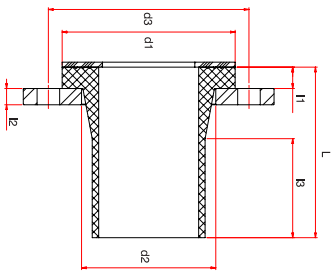




Size OD mm	Code	L mm	l1 mm	l2 mm	d1 mm	d2 mm	Item Weight kg
90 x 3"	DU43736313	841	750	700	100	115	6.5
110 x 4"	DU43736314	816	750	680	125	145	8.0

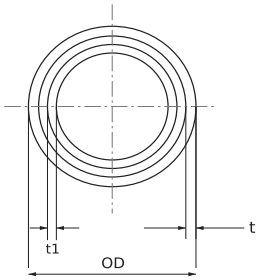
Single Wall SDR11 Spigot Stub Flange - 10 bar (S/S ANSI 150 backing ring)





Size OD (mm)	Code	L (mm)	l1 (mm)	l2 (mm)	l3 (mm)	d1 (mm)	d2 (mm)	Item weight (kg)	D3
50 (40NW)	DU43724310	95	12	17	52	83	60	1.35	98.5
63 (50NW)	DU43724311	103	14	18.5	69	100	77	2.05	120
90 (80NW)	DU43724313	112	17	23	83	132	113	4.0	152
110 (100NW)	DU43724314	144	18	23	88	160	123	5.75	191

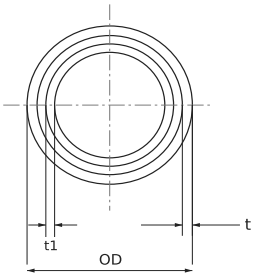




Close-Fit Pipe SDR11/26 Coils - 10bar Primary, 4 bar Secondary

Size OD mm	Length M	Code	t (min)	t1 (min)	Item Weight kg
32#40	50	DU43 624 413	1.5	2.9	29.5
50#63	50	DU43 624 444	2.4	4.5	58.9
63#75	50	DU43 624 445	2.9	5.8	87.6
32#40	100	DU43 649 413	1.5	2.9	59.0
50#63	100	DU43 649 444	2.4	4.5	118.2
63#75	100	DU43 649 445	2.9	5.8	175.0



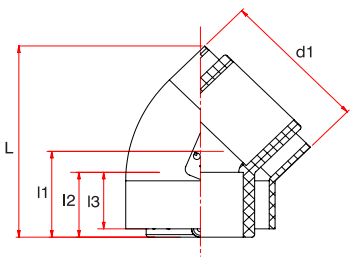


Close-Fit Pipe SDR11/26 Straights - 10bar Primary, 4 bar Secondary

Size OD mm	Length M	Code	t (min)	t1 (min)	Item Weight kg
90#110	6	DU43626313 / DU43599314	4.2	5.3	15.1
110#125	6	DU43626314 / DU43599315	4.8	6.5	24.6

FITTINGS



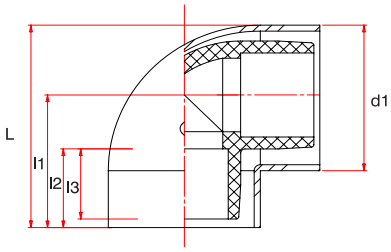


Secondary Contained 45° Elbow 39.5 V - 10 bar*

Size (mm)	Elbow size (mm)	Code	L (mm)	l1 (mm)	l2 (mm)	l3 (mm)	d1 (mm)	Item weight (kg)	Closures required
32#40	32#63	DU43250308	84	50	42	40	63	0.1	2x DU43278430
50#63	50#90	DU43250310	99	58	45	42	90	0.3	2x DU43278459
63#110	63#110	DU43250311	113	66	50	44	110	0.5	2x DU43278472
90#110	90#160	DU43262313	240	108	86	69	160	1.4	2x DU43278475
110#125	110#160	DU43262314	240	108	82	70	160	1.7	2 x DU43278476

Two additional closures are required to complete the Close-Fit elbow. Source system reference 63#110 is retained exactly; confirm whether intended for the close-fit system.



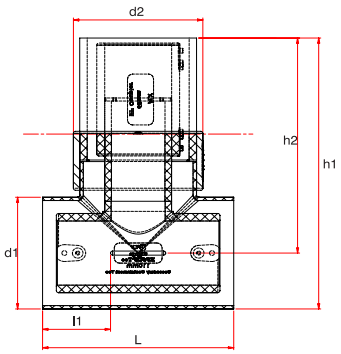


Secondary Contained 90° Elbow 39.5 V - 10 bar*

Size (mm)	Elbow size (mm)	Code	L (mm)	l1 (mm)	l2 (mm)	l3 (mm)	d1 (mm)	Item weight (kg)	Closures required
32#40	32#63	DU43248308	96	45	40	40	63	0.2	2 x DU43278430
50#63	50#90	DU43248310	128	53	50	42	90	0.4	2 x DU43278459

Two additional slip closures are required to complete the Close-Fit elbow

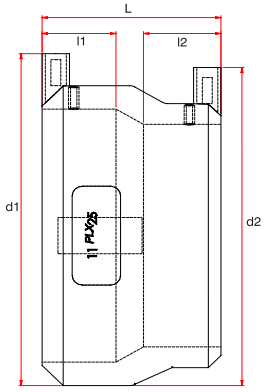




Secondary Contained Equal Tee 39.5 V - 10 bar*

Size (mm)	Elbow size (mm)	Code	L (mm)	l1 (mm)	l2 (mm)	Item weight (kg)	Closures required
50#63	50#90	DU43246310	160	60	247	0.9	3 x DU43278430
63#110	63#110	DU43246311	180	64	266	1.4	3 x DU43278459

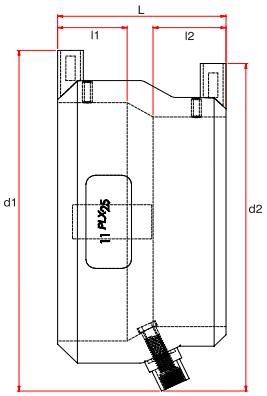




Secondary Contained Slip Closure 39.5 V - 4 bar

Size OD (mm)	Code	L (mm)	l1 (mm)	l2 (mm)	d1 (mm)	d2 (mm)	Item weight (kg)
32#40	DU43278413	69	29	33	74	74	0.1
40#63	DU43278430	78	28	31	99	99	0.1
50#63	DU43278444	67	27	29	99	99	0.2
63#75	DU43278445	67	27	29	110	113	0.2
63#90	DU43278459	84	34	34	126	126	0.2
75#110	DU43278472	89	34	34	148	130	0.3
90#110	DU43278473	87	35	34	148	138	0.3
110#125	DU43278474	85	35	37	165	158	0.4
110#160	DU43278475	113	34	35	204	179	0.7
125#160	DU43278476	100	34	35	204	188	0.6





Secondary Contained Slip Closure with 1/8" BSP Test Port 39.5 V - 4 bar

Size OD (mm)	Code	L (mm)	l1 (mm)	l2 (mm)	d1 (mm)	d2 (mm)	Item weight (kg)
32#40	DU43279413	69	29	33	92	92	0.3
50#63	DU43279444	67	27	29	116	116	0.3
63#75	DU43279445	67	27	29	129	121	0.2
63#90	DU43279459	84	34	34	143	143	0.4
75#110	DU43279472	89	34	34	165	148	0.5
90#110	DU43279473	87	35	34	162	152	0.4
110#125	DU43279474	85	35	37	180	173	0.5
110#160	DU43279475	113	34	35	204	179	0.8
125#160	DU43279476	100	34	35	209	193	0.8

PLX One-Weld

Secondary Contained EF Fittings

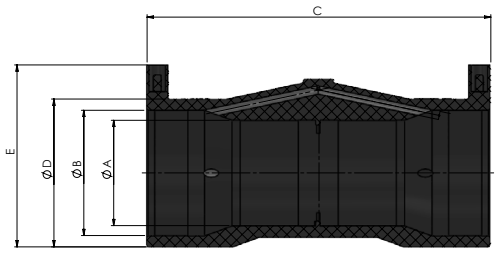


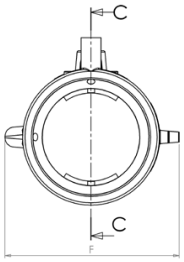
One-Weld EF Coupler

PLX Product Code	Description
DU43100445	PLX 63-75 mm S/C E/F One Weld Coupler
DU43100447	PLX 110-125 mm S/C E/F One Weld Coupler

Size	A	B	C	D	E	F
63#75mm	63.5	75.25	207	89	109.5	114
110#125mm	110.8	125.5	229	148.5	166	168







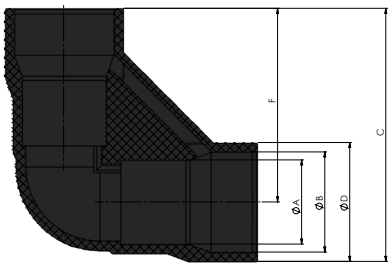


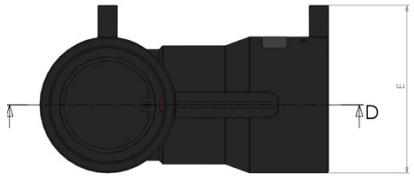
One-Weld EF 90° Elbow

PLX Product Code	Description
DU43104445	PLX 63-75 mm S/C E/F One Weld Elbow
DU43104447	PLX 110-125 mm S/C E/F One Weld Elbow

Size	A	B	C	D	E	F
63#75mm	63.5	75.25	189.5	89	109.5	145
110#125mm	110.8	125.5	249.5	148.5	166	175







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