Herais
Lab Solutions

HERAIS CHEMICAL RESISTANT DRAINAGE SOLUTIONS

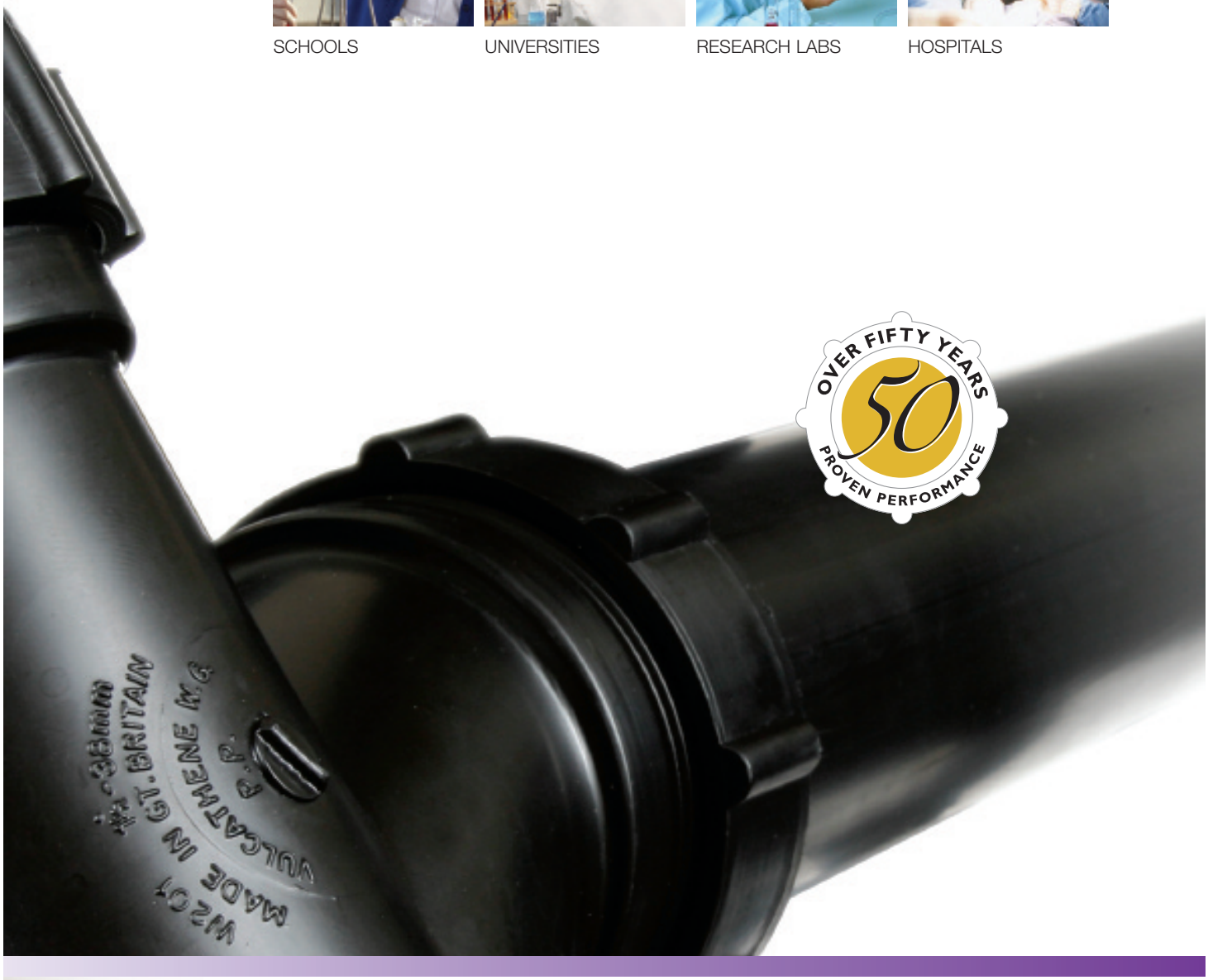
Herais


SCHOOLS


UNIVERSITIES

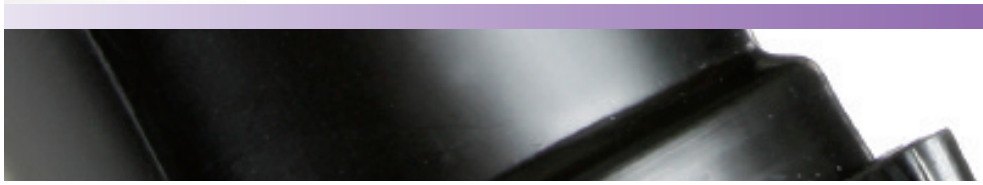

RESEARCH LABS


HOSPITALS



Safe chemical drainage

Technical Data and Dimensions



www.herais.ca

Herais

100 BESSEMER RD. LONDON
ON N6E 1R2 CANADA.
www.herais.ca
Email: higtc@windowslive.com
Tel: +1 519 800 1353

Purpose designed for safe chemical drainage

Specified world wide and proven as the world leading solution for chemical waste drainage

- Two easy jointing methods Mechanical or Enfusion
- Injection moulded fittings for accuracy and reliability
- Purpose designed for chemical drainage
- BBA tested/approved for chemical drainage
- Specified world wide for safe chemical drainage

Specified world wide for laboratory drainage for over 50 years

Herais boasts over 50 years proven performance in the laboratories of thousands of schools, universities, hospitals and research facilities around the world…..proof of its very high reliability for safe chemical drainage.

Chemical Waste Drainage System

HERAIS waste system are designed and developed to meet the requirements of modern laboratories

and are specifically for use with potable water supply.

We have various types of lab sink fittings such as bottle trap, sink waste, polypropylene lab sink, F.I to Pipe Couplers and more.

Two easy jointing methods...

Herais Enfusion System Overview

Under normal laboratory conditions the Vulcathene Mechanical drainage system is more than sufficient. Where a fused joint is preferred - for example, where pipe is to be buried or run overhead in ceiling voids or in drainage stacks - the Vulcathene Enfusion electrofusion range of chemical waste fittings is recommended.

Vulcathene Enfusion fitting sockets are moulded with an integral resistance wire in place. Jointing is completed by energizing the resistance wire via a microprocessor controlled Enfusion Control Unit.

Herais Enfusion is compatible with Mechanical offering total versatility to the designer of chemical waste drainage systems.

- Design flexibility
- Easy to install
- Multiple jointing
- Controlled fusion
- Voltage sensing
- Fusion time adjustment
- Self-diagnostic unit

Enfusion has proven over time that it produces the optimum level of performance where it matters most - at the joint interface. It offers unprecedented control of jointing - controlled fit, controlled temperature and controlled time.

Herais Mechanical System Overview

The Herais Mechanical system is a complete purpose-designed chemical resistant plumbing system which embraces laboratory bench items such as wastes, sinks and drip cups, anti-siphon traps, expansion joints plus a comprehensive range of pipe fittings from 38mm to 102mm. Mechanical Jointing, with its unique nut & olive method, is simple & fast to execute and joints can be easily made & remade without affecting the joint's efficiency, allowing system changes to be made at reduced cost. Simple, purpose designed tools ensure correct installation.

- Purpose designed and engineered system
- Simple, fast jointing method
- Demountable joints
- Anti-siphon traps
- Borosilicate glass base traps
- British Board of Agrément approved
- Co-polymer based material
  High chemical resistance rating; abrasion resistant; high impact strength; weather resistant; wide temperature capability
- Unsurpassed record of success in drainage applications

Standards & Quality

Herais products are manufactured in accordance with BS EN ISO 9001. Products are subjected to a range of checks and tests. Detailed records are kept for dimensional and performance tests for each production batch. Each batch is given a unique identification number, which is reproduced on every fitting giving complete traceability.

Vulcathene pipes and fittings are manufactured within an environmental management system which operates in accordance with the requirements of ISO 14001. Whilst there is no specific British or CEN Standard for the performance of a chemical waste drainage system, the products manufactured for the Vulcathene system are covered by Agrément Certificates which ensures their fitness for purpose.

BBA BRITISH BOARD OF AGRÉMENT
CERTIFICATE No 92/2805

British Board of Agrément Specification Clauses

Material and Manufacture

Manufactured from co-polymer polypropylene with 3% carbon black ultra violet stabiliser. All fittings injection moulded from virgin grade polypropylene. All pipes to be extruded from virgin grade polypropylene.

Mechanical System

All mechanical joints to be demountable compression. All joints incorporate a positive seal utilising a ‘tongued’ olive located in a groove cut into the external wall on the pipe. This combines system security with the ability to disassemble the system if required.

Traps

All traps should be of the anti-syphonic type, based on the GREVAC design, which prevents suction developing within the system which could prevent effective drainage of chemicals. The GREVAC type anti-syphon trap, with a Borosilicate glass base must be used with particularly strong chemical solutions and when large amounts of organic solvents are used.

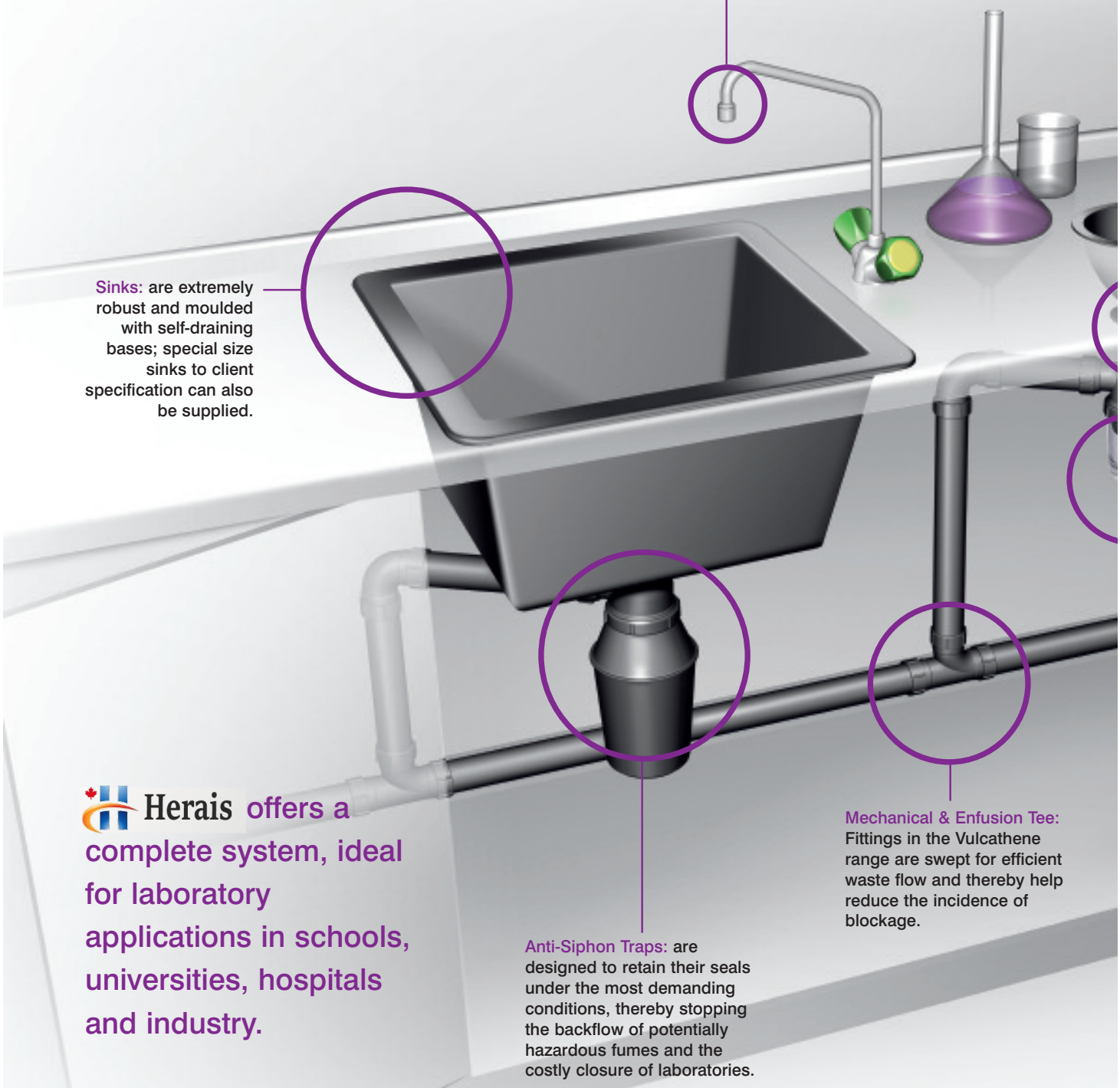
Where the W691 Dilution Recovery Trap is used, the underside of the trap must be supported to prevent undue strain on the pipework system.

The svstem

Herais is a proven chemical resistant pipework system installed in laboratories in schools, universities, hospitals and industrial facilities worldwide over a 50 year period. Vulcathene is proven with all chemical combinations emptied into it including acids, alkalis, solvents, detergents, blood samples, retro viruses and radioactive wastes.

Herais is a complete laboratory system including waste outlets, sinks, drip cups, anti-siphon traps, dilution recovery traps and a comprehensive range of pipe and fittings in sizes 38mm to 152mm.

Vultex Labline Laboratory Service Controls: have brass bodies with an anti-corrosive plastic coating providing resistance to bench top spillage & corrosive vapours.



Sinks: are extremely robust and moulded with self-draining bases; special size sinks to client specification can also be supplied.

Herais offers a complete system, ideal for laboratory applications in schools, universities, hospitals and industry.

Anti-Siphon Traps: are designed to retain their seals under the most demanding conditions, thereby stopping the backflow of potentially hazardous fumes and the costly closure of laboratories.

Mechanical & Enfusion Tee: Fittings in the Vulcathene range are swept for efficient waste flow and thereby help reduce the incidence of blockage.

Drip cups: have steep sloping sides to minimise splashing and wide rims for stability when mounting. Oval drip cups offer the flexibility of alternative flange fixings. Alternative colours can also be supplied.

Unique Tapered Sealing: Vulcathene waste outlets, drip cups and traps incorporate a unique taper providing a perfect seal when used together.

Borosilicate Glass Base Traps: can cope with particularly strong chemical solutions and organic solvents. Also allows for visible identification and recovery of valuable solids.

over 50 years of quality...

- Manufacturing: Quality is central to the operation with BS EN ISO 9001 certification and within an environmental management system which operates in accordance with the requirements of ISO 14001.

- Technical support: We offer an unrivalled level of technical support where our experienced team can provide product training and installation advice on any given project. They also provide material take-off advice from architects drawings.

- Laboratory testing: Expert advice about the action of any chemicals on Vulcathene is available from the Vulcathene chemist.

- Warehouse & Stock Control: Using computerised stock control a significant level Herais stock is maintained. We operate through a nationwide distribution network providing swift and local availability of product.

- On site support: Our external sales team are trained in the products and their usage and provide a service to the customer with advice, assistance, training and problem solving on site.

- Customer satisfaction: Vulcathene boasts over 50 years proven performance in the laboratories of thousands of schools, universities, hospitals and research facilities around the world…..proof of its very high reliability for safe chemical drainage.

Chemical Waste Drainage System

Material Properties

Manufactured from co-polymer polypropylene with 3% carbon black ultra-violet stabiliser. Vulcathene has very high resistance to chemical attack and is well suited to the conveyance of aggressive chemicals, and other liquids as used in chemical plants and laboratory waste.

The performance specification is based on the need to supply a waste system which has a high chemical resistance rating in respect of the corrosive materials which it has to convey. Good tensile strength, ductility, abrasion resistance, high impact strength, weather resistance, and is stable over the range of temperatures normally encountered in the environment in which it is used.

is resistant to many concentrated acids and alkalis and some organic solvents.
also has a good abrasion resistance throughout its operational temperature range of between -20°C and +100°C.

With a smooth bore, it is lightweight with a specific gravity of 0.905. It has high impact strength, which minimises damage during and after installation.

The full specification to which Vulcathene pipe and fittings are manufactured is detailed below.

Property	Test Method	Unit		
Melt flow index (MFI)	230°C/2.16 kg	Granules		6.5
Density (mean)		kg/m^3		9.5
Tensile yield stress	ISO 527 ASTM D 638M (50mm/min)	MPa kg/cm^2		27.0 295
Flexural modulus	ISO 178 ASTM D 790	GPa kg/cm^2		1.15 14100
Izod impact strength	ISO 180 (0.25mm notch radius)	kj/m^2	23°C 0°C -20°C -40°C	7.0 4.5 3.0 -
Rockwell hardness	ISO 2039/2, ASTM D 785	R scale		90
Vicat softening temperature (10 N force)	ISO 306A BS 2782; 102 A	°C		147
Heat distortion temperature A - 1.8 MPa (18.6kg/cm^2) B - 0.45 MPa (4.6kg/cm^2)	ISO 75/A and /B ASTM D 648-A-B	°C °C		55 90
Flammability	ISO 3795 FMVSS 302 (2mm thickness)	 Burning rate mm/min		 38

Pipe, Bench Products & Ancillaries

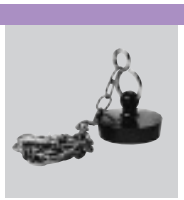
Pipe

W001 (p12)
Vulcathene Pipe

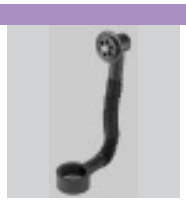
Bench Products

504 (p12)
Waste

507 (p12)
Standing Waste Tube

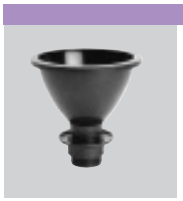


508 (p12)
Plug & Chain Assembly

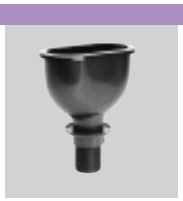


509 (p12)
Overflow Assembly

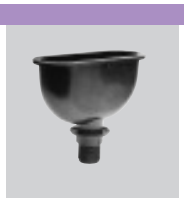
501 (p13)
Small Circular Drip Cup



500 (p13)
Large Circular Drip Cup

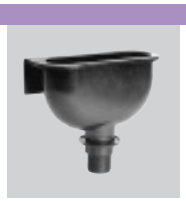


497 (p13)
Small Oval Drip Cup



499B (p13)
Large Oval Drip Cup

499T (p13)
Large Oval Drip Cup

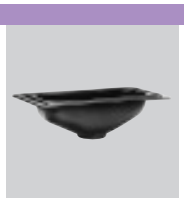


499W (p13)
Large Oval Drip Cup

601 (p14)
Sink

602 (p14)
Sink

604 (p14)
Sink



605 (p14)
Trough

603 (p15)
Running Trough

W681 (p15)
Dilution Recovery Trap

W691 (p15)
Dilution Recovery Trap
(Glass Base)

W561 (p16)
Anti-Siphon Bottle Trap

W571 (p16)
Anti-Siphon Bottle Trap
(Glass Base)

W612 (p16)
Dilution Recovery Trap

910G (p17)
Dilution Recovery Trap
(Glass Base)

W915 (p17)
Clay Trap

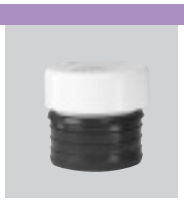
Ancillaries

PC91 (p17)
Pipe Clips

W916 (p17)
Flexible Connections

W465 (p18)
Clamp Saddle

W450 (p18)
Air Admittance Valve



W50 (p18)
Anti-Siphon Unit

(p18)
Unicollar® Fire Protection

(p19)
Galvanised
Support Channel

(p19)
Vulcathene Lubricant

DC95/DC115 (p19)
Flexible Drain Coupling

AC1221/AC1361
AC5144/AC1362 (p19)
Flexible Adaptor Coupling

Mechanical Fittings

W18 (p20)
92½° Bend

W29 (p20)
92½° Loose Nut
Sweep Bend

W19 (p20)
135° Slow Bend

W21 (p20)
135° Loose Nut
Slow Bend

W20 (p21)
92½° Equal
Sweep Tee

W37 (p21)
45° Single Wye

W38 (p21)
45° Double Wye

W942 (p22)
90° Corner Branch

W70 (p22)
'U' Bend

W16 (p22)
Line Coupler

W39 (p22)
Reducing Coupler

W14 (p23)
M.I. to Pipe Coupler

W15 (p23)
F.I. to Pipe Coupler

W121 (p23)
1¼" FI to 1½" MI BSP
Reducer

W271 (p23)
1¾" FI to Pipe Coupler

W45 (p24)
Glass Adaptor

W801 (p24)
Thermal Stress Relief

W802 (p24)
Thermal Stress Relief Unit

W803/W804 (p24)
Thermal Stress Relief Unit

W902/W903/W904 (p25)
Access Pipe

W100 (p25)
BS Table D Flange

W22 (p25)
Olive

W23 (p25)
Nut

W24 (p26)
Blanking-Off Plug

W26 (p26)
Cutting Tool

W36 (p26)
Spanner

Enfusion Fittings

L28 (p31)
Single Socket Long
Sweep Bend

L29 (p31)
Single Socket Short
Sweep Bend

L291A (p31)
Loose Nut/Socket Short
Sweep Bend

L17 (p32)
Double Socket Long
Sweep Bend

L18 (p32)
Double Socket Short
Sweep Bend

L19 (p332)
45° Double Socket
Slow Bend

L21 (p32)
45° Single Socket
Slow Bend

L20 (p33)
92½° Equal Sweep Tee

L20 (p33)
92½° Reducing
Sweep Tee

L37 (p33)
45° Single Wye

L37 (p33)
45° Reducing Wye

L35 (p34)
92½° Double Branch

L942 (p34)
90° Corner Branch

LT1 (p35)
'P' Trap

L101 (p35)
U Bend

L16 (p35)
Coupling

L16S (p35)
Slip Coupling

L39 (p36)
Reducing Coupler

L14 (p36)
M.I to Pipe Coupler

L15 (p36)
F.I to Pipe Coupler

L45 (p36)
Glass Adaptor

L801 (p37)
Thermal Stress Relief Unit

L802 (p37)
Thermal Stress Relief Unit

L803/4/6 (p37)
Thermal Stress Relief Unit

L902/3/4 (p37)
Access Pipe

L36 (p38)
Flange

L24 (p38)
Cleanout Plug

L2600 (p39)
Enfusion Control Unit

L2601 (p39)
Enfusion Hand Held Unit

L261 (p39)
Clamps

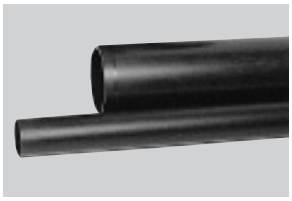
L2610 (p39)
Link Cable

Pipe Scraper (p39)

Pipe, Bench Products & Ancillaries

W001 Pipe

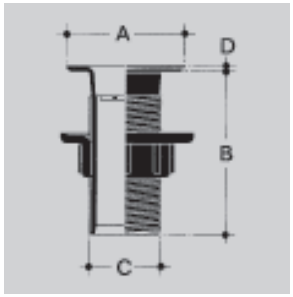
Produced in nominal internal diameters of 38mm, 51mm, 76mm, 102mm and 152mm (Enfusion only), Vulcathene pipes are supplied in standard 4m lengths.



	1½"	2"	3"	4"	6"
Nominal internal diameter	38mm	51mm	76mm	102mm	152mm
Nominal external diameter	48.3mm	60.3mm	89.0mm	114.3mm	168.3mm
Kg/m	0.43	0.58	1.25	1.63	4.34

504 Waste

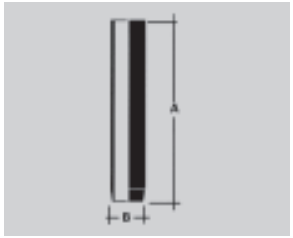
The range of 1¼", 1½", and 2" BSP threaded wastes are produced with flange widths of 60, 73 and 85mm to suit ceramic, porcelain, metal or plastic sink outlets. Slotted wastes are available for use where the waste has to accept an overflow. With an integral grating the waste is supplied with a plug ready to accept a chain fastening. Both the 1 1/4" and 1 1/2" waste outlets are available in all flange diameters and either 89mm or 102mm lengths; the 2" waste outlet is available in 85mm flange diameter and 102mm length only. Unslotted waste outlets are supplied with one waste gasket; slotted wastes are supplied with two waste gaskets.When ordering please indicate - a. Waste diameter; b. Flange diameter; c. Whether slotted or unslotted required.



Cat. No.	504
A	60/73/85mm
B	89/102/102mm
C	1¼" BSP/1½"BSP/2"BSP
D	3/3/3mm
gms	1¼"-65;1½"-75; 2"-90

507 Standing Waste Tube

Standing waste tubes are available in three lengths and the diameters are in relation to the need to fit 1¼", 1½, and 2" BSP threaded 504 series wastes. If required they can be supplied with a hanging loop. 51mm size supplied in 225mm length only. 32mm and 38mm supplied in 140mm and 178mm lengths only.



Cat. No.	507
A	140/178/225mm
B	32/38/51mm
gms	60

508 Plug & Chain Assembly

Comprising a 450mm length of stainless steel oval link chain, with a screw stay, the plug and chain assembly is available to fit either 1¼", 1½, or 2" BSP No 504 series waste fittings.

Cat. No.	508
gms	44

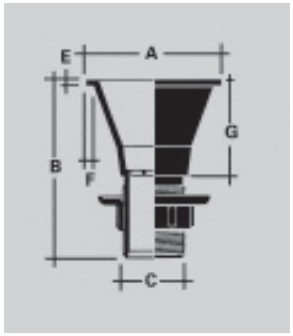
509 Overflow Assembly

The range of 509 overflow assemblies are suitable for installation with a 38mm slotted waste and any sink illustrated in this catalogue. They comprise of an overflow collar connected by a flexible hose to the overflow bend. Because of the varying requirements for placement of the overflow in the side of the sink we recommend that a hole of 42mm diameter be cut in the side of the sink to take the overflow bend. The overflow is extendable from 9" to 22".

Cat. No.	509
A	60mm
B	48mm
gms	65

501 Small Circular Drip Cup

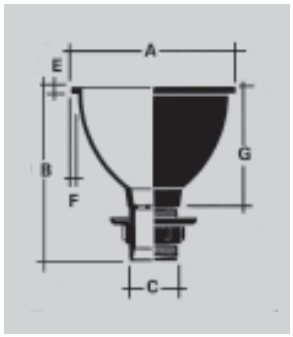
The range of 501 small circular drip cups, come with an integral grating and a wall thickness of 3mm. The small circular drip cup has steeply sloping sides to minimise splashing and the 8mm wide rim gives it stability when top mounted in the working surface. With an opening diameter of 86mm and depth of 73mm it is supplied complete with hose restraining plug and backnut.



Cat. No.	501
A	102mm
B	136mm
C	1½" BSP
E	5mm
F	6mm
G	76mm

500 Large Circular Drip Cup

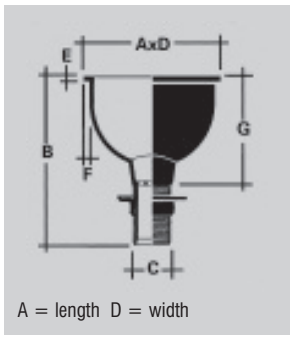
The range of 500 large circular drip cups come with an integral grating and a wall thickness of 3mm. The large circular drip cup is designed for top mounting. With a top opening diameter of 146mm it is 114mm deep and the 11mm wide rim gives it stability when top mounted in the working surface. It is supplied complete with a backnut and hose restraining plug.



Cat. No.	500
A	168mm
B	165mm
C	1½" BSP
E	8mm
F	11mm
G	114mm

497 Small Oval Drip Cup

The range of 497 small oval drip cups are moulded with a 3mm thick wall and have an opening of 166mm x 90mm x 143mm deep. The 6mm wide rim gives it stability when top mounted in the working surface. It has an integral grating, is designed for top mounting and is supplied complete with backnut.

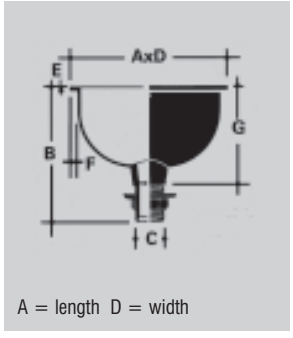


A = length D = width

Cat. No.	497
A	178mm
B	216mm
C	1½" BSP
D	102mm
E	6mm
F	6mm
G	143mm

499B/499T/499W Large Oval Drip Cup

The range of 499 Large Oval Drip Cups are moulded with a 3mm thick wall, offering a choice of 3 alternative flange fixings. Moulded with deeply curved bowls, they have integral gratings and are supplied complete with backnuts and a hose restraining plug. The 499B and 499T are designed for top mounting, whilst the 499W is designed for wall mounting using integral bracket mounts.

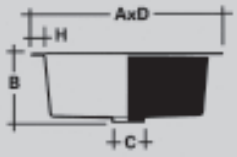


A = length D = width

Cat. No.	499B	499T	499W
A	264mm	305mm	264mm
B	225mm	225mm	225mm
C	1½" BSP	1½" BSP	1½" BSP
D	111mm	152mm	117mm
E	6mm	6mm	6mm
F	13mm	32mm	13mm
G	161mm	161mm	161mm

601 Sink

The 601 sink is extremely robust and has a self draining base. Its recessed outlet will accept the flange of the 1½" BSP 504 non-overflow threaded outlet but, if required, a 509 overflow assembly can be fitted. These sinks are designed for mounting on the underside of work surfaces.

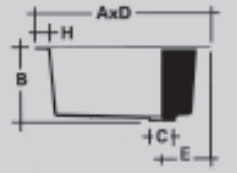


A = length D = width

Cat. No.	601
A	492mm
B	171mm
C	76 mm
D	241mm
H	32mm
gms	1030
Radius	36mm

602 Sink

The 602 sink is extremely robust and has a self draining base. Its recessed outlet will accept the flange of the 1½" BSP 504 non-overflow threaded outlet but, if required, a 509 overflow assembly can be fitted. These sinks are designed for mounting on the underside of work surfaces.

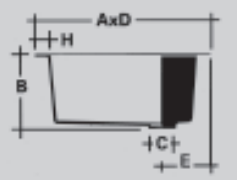


A = length D = width

Cat. No.	602
A	552mm
B	231mm
C	74mm
D	400mm
E	152mm
H	35mm
gms	2668
Radius	35mm

604 Sink

Available in three sizes the 604 range of sinks are extremely robust and have a self draining base. The 76mm recessed outlet will accept the flange of the 1½" BSP 504 non-overflow threaded outlet but, if required, a 509 overflow assembly can be fitted. These sinks are designed for mounting on the underside of work surfaces, the 48mm wide top rim, which gives rigidity, has a recess flange to accept the self adhesive sealing strip supplied with each sink.

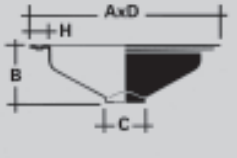


A = length D = width

Cat. No.	604/1	604/2	604/4
A	343mm	445mm	492mm
B	140mm	140mm	165mm
C	76mm	76mm	76mm
D	288mm	343mm	419mm
E	152mm	152mm	152mm
H	48mm	48mm	41mm
gms	2765		
Radius	40mm	40mm	40mm

605/1 Trough

This trough has a self draining base which incorporates a 76mm recessed outlet to accept a 1½".BSP 504 non-slotted threaded waste. These troughs are designed for mounting on the underside of work surfaces. Each trough is supplied with a self adhesive sealing strip which, when positioned in the recess in the trough lip, will form a watertight seal between the trough and the work surface.

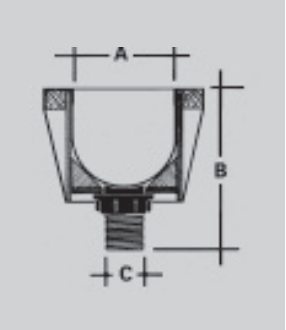


A = length D = width

Cat. No.	605/1
A	403mm
B	111mm
C	76mm
D	190mm
H	38mm
Radius	36mm

603 Running Trough

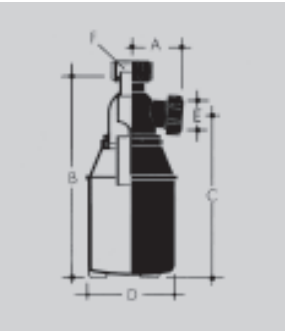
Fabricated to customers specific requirements the running trough is manufactured with 3mm thick walls and is supplied complete with waste outlet - as specified - and supporting framework.



Cat. No.	603
A	127mm
B	210mm
C	1½" BSP 2" BSP

W681 Dilution Recovery Trap

Easily emptied, by unscrewing the base from the trap, this large capacity anti-siphonic dilution recovery trap has a 76mm liquid seal and holds 2.3 litres. The 1½" BSP inlet includes a loose nut coupling for connection to a waste outlet or drip cup tail. The trap is supplied with a nut and olive to enable it to be 'P' trap configured for 38mm pipe. The addition of a W291 38mm bend will change the configuration to an 'S' trap.



Cat. No.	W681
A	86mm
B	325mm
C	270mm
D	133mm
E	1½" Mechanical thread
F	1½" BSP
gms	480

W691 Dilution Recovery Trap (Glass Base)

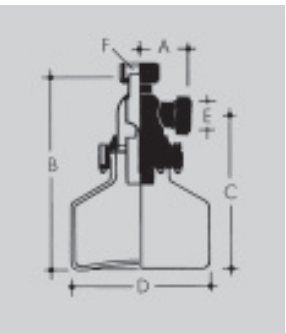
The 691 trap has a total capacity of 2.3 litres and a 76mm liquid seal.

The clear base of heat resistant, borosilicate glass makes this an ideal choice for use in waste systems which have to cope with large quantities of solid waste matter. The trap allows the volume of solids collected to be quickly assessed and, where necessary, cleared, before they can cause any damage to the system. It also allows the identification and recovery of valuable solids.

In order to remove the dilution chamber from the trap body, the glass unit should be unscrewed complete with its flange assembly. The 1½" BSP inlet includes a loose nut coupling for connection to a waste outlet or drip cup tail.

The trap is supplied with a nut and olive to enable it to be 'P' trap configured for 38mm pipe. The addition of a W291 38mm bend will change the configuration to an 'S' trap.

When installed it is important to support the underside of the trap (at least 76mm above the floor) to avoid weight strain on the pipework and connections.

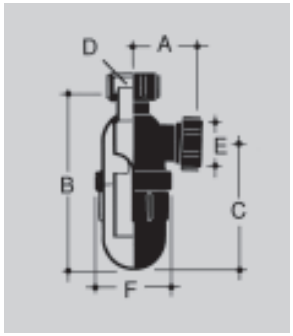


Cat. No.	W691
A	86mm
B	314mm
C	254mm
D	229mm
E	1½" Mechanical thread
F	1½" BSP
gms	2390

W561 Anti-Siphon Bottle Trap

Retaining its seal under the most demanding conditions this trap is completely dependable and is ideal for the most severe conditions. With a 76mm liquid seal, the base can be unscrewed from the body for easy cleaning.

Provided with a 1½" BSP loose nut coupling for screwing to waste or drip cup tails, the 'P' outlet is supplied with nut and olive to take 38mm Vulcathene mechanical pipe. When required a W291/L291A 38mm bend will convert it to an 'S' trap.



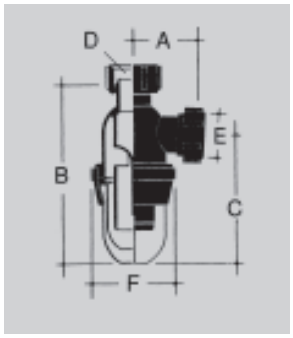
Cat. No.	W561
A	86mm
B	203mm
C	143mm
D	1½" BSP
E	1½" Mechanical thread
F	89mm
gms	300

W571 Anti-Siphon Bottle Trap (Glass Base)

Retaining its seal under the most demanding conditions this trap is completely dependable and is ideal for the most severe conditions. With a 76mm liquid seal, the base can be unscrewed from the body for easy cleaning.

Provided with a 1½" BSP loose nut coupling for screwing to waste or drip cup tails, the 'P' outlet is supplied with nut and olive to take 38mm Vulcathene mechanical pipe. When required a W291/L291A 38mm bend will convert it to an 'S' trap.

The clear base of heat resistant, borosilicate glass makes this an ideal choice for use in waste systems which have to cope with large quantities of solid waste matter. The trap allows the volume of solids collected to be quickly assessed and, where necessary, cleared, before they can cause any damage to the system. It also allows the identification and recovery of valuable solids.



Cat. No.	W571
A	86mm
B	222mm
C	162mm
D	1½" BSP
E	1½" Mechanical thread
F	89mm
gms	923

W612 Dilution Recovery Trap

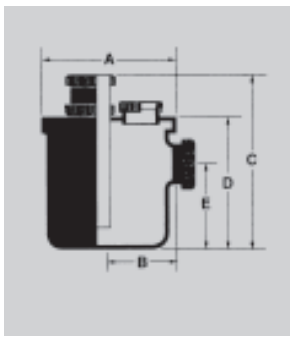
With a 4.5 litre capacity and a 76mm trap seal the W612 is particularly useful for those situations where under-bench height is limited.

When cleaning out the unit, union nuts on the lid should be diconnected, the dip tubes withdrawn and the interior of the dilution chamber carefully flushed out.

No attempt should be made to separate the lid from the dilution chamber.

For a 'P' outlet, a 51mm nut and olive is supplied, and for an 'S' outlet, add a W292 51mm bend.

Where it is intended to use the unit as a dilution chamber only, the dip tubes should be omitted. The unit is supplied with dip tubes, nuts, olives and blanking off plug. (Additional dip tubes and blanking off plugs can be ordered separately).

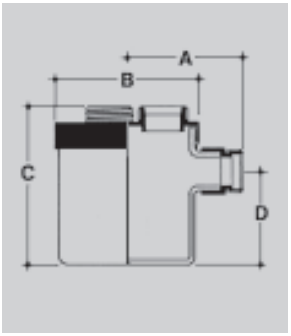


Cat. No.	W612
A	230mm
B	121mm
C	318mm
D	244mm
E	168mm
gms	2250

910G Dilution Recovery Trap (Glass Base)

With a 4.5 litre capacity and a 76mm trap seal the 910G, with its clear base of heat resistant, borosilicate glass makes this an ideal choice for use in waste systems which have to cope with large quantities of solid waste matter. The trap allows the volume of solids collected to be quickly assessed and, where necessary, cleared, before they can cause any damage to the system. It also allows the identification and recovery of valuable solids. Outlet connection are made using standard nut and olive. Dip tubes, vertical inlets, horizontal inlets and blanking off plugs should be ordered separately.

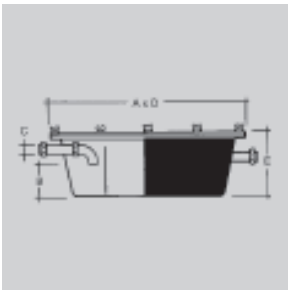
Cat. No.	910G
A	200mm
B	230mm
C	264mm
D	140mm
gms	4010



W915 Clay Trap

With a 20 litre capacity the 552 x 400 x 270mm deep clay trap incorporates inlet, and outlet connections at opposite ends, which accept 38mm FI BSP connectors. The outlet connection has a 76mm liquid seal and the lid, which has a sealing ring, is retained in position with fourteen wing nuts.

Cat. No.	W915
A	552mm
B	76mm
C	38 mm
D	400mm
E	270mm

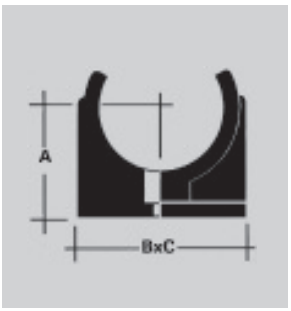


PC91 Pipe Clip

Of snap-on type these clips retain the pipe securely in place while allowing lateral movement of the pipe caused by fluctuations in thermal conditions.

Note: When 76mm and 102mm pipe are installed in long vertical runs considerable strain may be caused by thermal movement. In such conditions metal brackets should be used to retain the pipe, i.e. Munson Ring.

Cat. No.	91			
Nom. Size	38	51	76	102
A	38mm	44mm	67mm	89mm
B	60mm	76mm	111mm	140mm
C	19mm	19mm	32mm	32mm
gms	32	52	82	120



W916 Flexible Connector

Standard flexible connectors manufactured from polypropylene for use with mobile fume cupboards. The ends are pre-grooved with nut and olive supplied.
Size: 38mm
Length: 1m, 1.5m, 2m or 3m
Other lengths can be supplied to special order.

W465 Clamp Saddle

Clamp saddles enable easy connection of new branch pipes to existing Vulcathene stacks. The saddles have BSP female threaded outlets, nitrile seals, zinc plated hardware and are supplied in four sizes.

For connection to 38mm and 51mm Vulcathene pipes use Vulcathene Mechanical or Enfusion male BSP adapters.

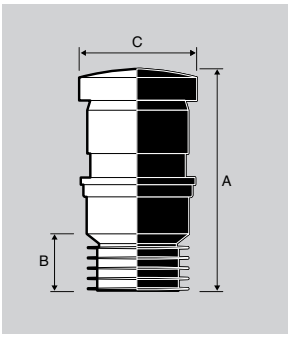
Cat. No.	W465		
Sizes:	102mm x 2" BSP	gms:	540
	102mm x 1½" BSP		500
	76mm x 2" BSP		440
	76mm x 1½" BSP		430

W450 Air Admittance Valve

Air admittance valves enable Vulcathene stacks to be terminated inside the building thereby avoiding costly roof penetration. They are designed to prevent the release of foul air whilst admitting air under conditions of reduced pressure in discharge pipes preventing water seals in traps from being drawn. The valves also contribute to the ventilation of the main drain to which the discharge stack incorporating the valve is connected.

The Vulcathene air admittance valve is designed to suit 102mm Vulcathene pipe and incorporates a rubber finned tail for internal pipe connection and a removable screw cap for maintenance access.

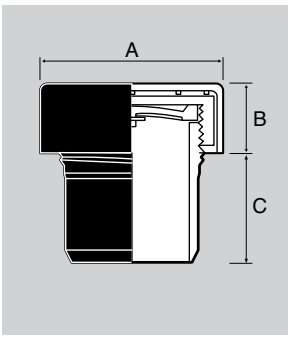
To connect to a 76mm Vulcathene stack use a 102mm/76mm reducer and insert the valve into the 102mm socket.



Cat. No.	W450
Sizes:	102mm
A	245mm
B	60mm
C	135mm
gms	872

W50 Anti-Siphon Unit

Anti-siphon units are designed to prevent the release of foul air whilst admitting air under conditions of induced or self-siphonage in discharge pipes preventing water seals in traps from being drawn. The W50 is suitable for connection to 51mm Vulcathene pipe and incorporates a rubber seal which must first be inserted into the pipe followed by the anti-siphon unit.

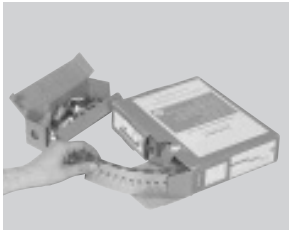


Cat. No.	W50
Sizes:	51mm
A	61mm
B	22mm
C	36mm

Unicollar® Fire Protection

Unicollar is a unique method of protecting Vulcathene pipes which pass through fire rated walls and floors. The system is supplied in continuous strip form which is cut to length and attached to the element using ready-made clips. These clips fit into the pre-punched slots on the strip.

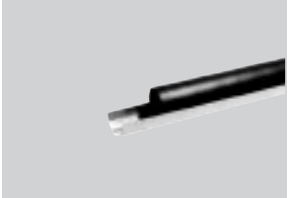
Unicollar is packed in a box which contains 2250mm length of collar or 150 segments. The box has installation details on one face. The collar is designed so that it can be cut and snapped in segments of 15mm. One box is the equivalent of 5 x 102mm (114.3mm OD) Vulcathene collars.



For details on fire rating and installation see pages 46 and 47.

Galvanised Support Channel

A galvanised metal support channel, supplied in standard 2.5 metre lengths, should be used where Vulcathene pipework requires continuous support.



W641/W642 Horizontal Inlet

For use with 910G Dilution Recovery Traps to make a horizontal pipe connection.

Cat. No.	W641	W642
gms	178	271

Vulcathene Lubricant

Supplied in 200g pots, Vulcathene lubricant should be applied to the threads of fittings before making a mechanical joint.

Glass Dip Tube

For use with 910G Dilution Recovery Traps.

W651/W652 Vertical Inlet

For use with 910G Dilution Recovery Traps to make a vertical pipe connection.

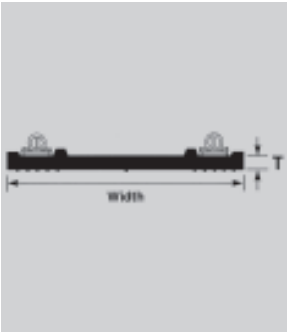
Cat. No.	W651	W652
gms	28	38

Blanking Off Plug

For use with 910G Dilution Recovery Traps

DC95/DC115 Flexible Drain Coupling

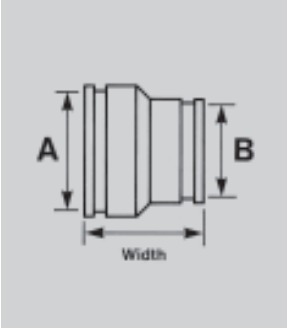
For connecting 76mm and 102mm Vulcathene stacks to underground drainage systems of other materials where a flange connection is not available. Flexible drain couplings, with nitrile sleeves, incorporate medium duty stainless steel clamping bands at either end.



Cat. No.	DC95	DC115
Size range (mm)	80-95	100-115
Width (mm)	100	100
'T' (mm)	7	7
Application	75mm (3") ABS 75mm Cast Iron 75mm Ductile Iron	100mm PVC-U 100mm PE 100mm Stainless Steel
gms	402	435

AC1221/AC1361 AC5144/AC1362 Flexible Adaptor Coupling

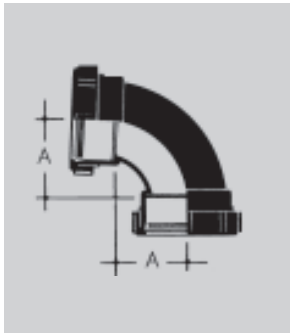
For connecting 76mm and 102mm Vulcathene stacks to underground drainage systems of other materials where a flange connection is not available. Flexible adaptor couplings have a stepped moulded nitrile sleeve with different diameters at each end to enable pipes of differing outside diameters to be jointed economically and quickly without the use of bushes. The sleeve is fitted with two stainless steel clamping bands by which they are secured to the pipe ends.



Cat. No.	AC1221	AC1361	AC5144	AC1362
Size range A/B (mm)	110-122/80-95	121-136/80-95	110-125/100-115	121-136/100-115
Width (mm)	100	100	100	100
Application (100mm)	PVC-U Cast Iron Supersleeve	Vitrified Clay Asbestos Cement Salt Glazed Ware	Supersleeve Cast Iron Ductile Iron Asbestos Cement	Vitrified Clay Salt Glazed Ware Asbestos Cement
gms	400	460	463	500

W18 92½° Bend

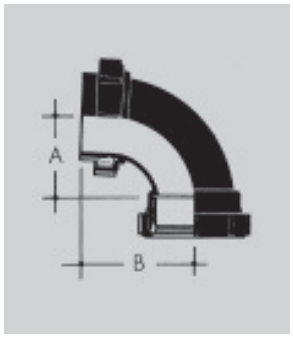
Both ends have standard nut and olive connections.



Cat. No.	W181	W182	W183	W184
Nom. Size	38mm	51mm	76mm	102mm
A	43mm	64mm	86mm	100mm
gms	64	113	343	625

W29 92½° Loose Nut Sweep Bend

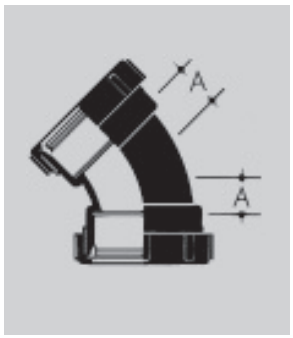
One end has the standard nut and olive connection whilst the other has a captive nut for connection to threaded units.



Cat. No.	W291	W292	W293	W294
Nom. Size	38mm	51mm	76mm	102mm
A	54mm	64mm	87mm	104mm
B	65mm	93mm	136mm	167mm
gms	68	109	338	613

W19 135° Slow Bend

Both ends have standard nut and olive connections



Cat. No.	W191	W192	W193	W194
Nom. Size	38mm	51mm	76mm	102mm
A	15mm	16mm	51mm	48mm
gms	75	120	291	900

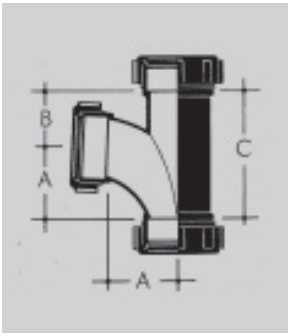
W21 135° Loose Nut Slow Bend

One end has the standard nut and olive connection whilst the other has a captive nut for connection to threaded units.

Cat. No.	W211	W212	W213	W214
Nom. Size	38mm	51mm	76mm	102mm
A	44mm	44mm	102mm	114mm
B	15mm	18mm	51mm	45mm
gms	44	66	294	468

W20 92½° Equal Sweep Tee

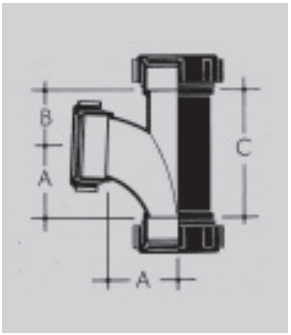
The three equal sized ends have standard nut and olive connections.



Cat. No.	W201	W202	W203	W204
Nom. Size	38mm	51mm	76mm	102mm
A	59mm	62mm	83mm	98mm
B	39mm	52mm	39mm	76mm
C	97mm	114mm	122mm	175mm
gms	104	160	471	860

W20 92½° Reducing Sweep Tee

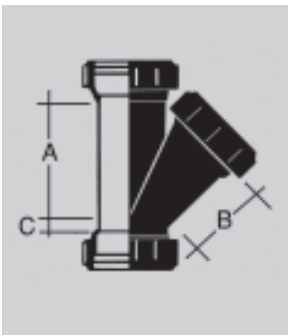
The two equal and one reduced sized ends have standard nut and olive connections.



Cat. No.	W2021
Nom. Size	51x38mm
A	58mm
B	45mm
C	114mm
gms	146

W37 45° Single Wye

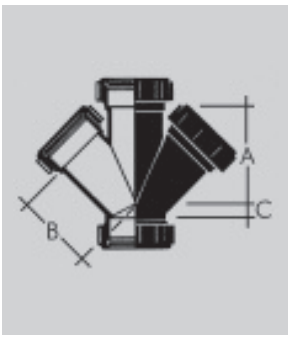
The three equal sized ends have standard nut and olive connections.



Cat. No.	W371	W372	W373	W374
Nom. Size	38mm	51mm	76mm	102mm
A	86mm	91mm	177mm	213mm
B	64mm	76mm	152mm	178mm
C	8mm	17mm	43mm	49mm
gms	96	151	650	1087

W38 45° Double Wye

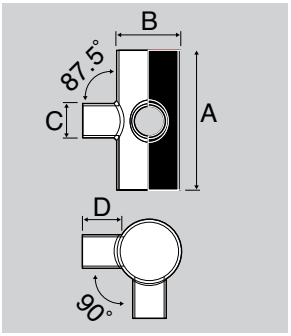
Available in all sizes. The four equal sized ends have standard nut and olive connections.



Cat. No.	W381	W382	W383	W384
Nom. Size	38mm	51mm	76mm	102mm
A	86mm	91mm	177mm	213mm
B	64mm	76mm	152mm	178mm
C	8mm	17mm	43mm	49mm
gms	180	228	800	1600

W942 90° Corner Branch

The 90° Corner branch is available in size 102mm x 51mm with spigot ends for either Mechanical or Enfusion jointing. The 51mm branches are at 92 1/2° to the main bore. Additional nuts and olives are required for Mechanical jointing unless connecting to another Vulcathene Mechanical fitting. For 38mm branch connections use Vulcathene W3921 reducers.



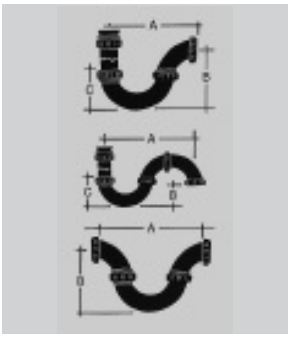
Cat. No.	W942
Sizes:	102mm x 51mm
A	250mm
B	114.3mm
C	60.3mm
D	62.9mm
gms	480

W70 'U' Bend

Available in 38mm and 51mm sizes the 'U' bend can be combined with other standard fittings from the range to make up 'P', 'S' and Running Traps.

In order to make up both 'P' and 'S' configurations the addition of a length of Vulcathene mechanical pipe, and a W15 coupler, to one end enables it to be connected to the waste fitting whilst the addition of a W29 loose nut sweep bend converts it into a 'P' trap.

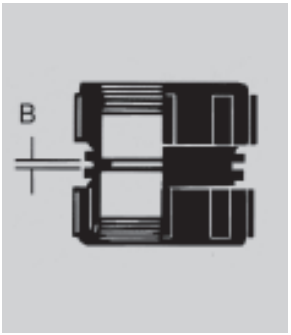
The addition of a further W29 make it into a 'S' trap. Connecting a W29 to each end of the 'U' bend makes up a running trap.



Cat. No.	'P' Trap		'S' Trap		'Running' Trap	
Nom. Size	38mm	51mm	38mm	51mm	38mm	51mm
A	219mm	259mm	235mm	273mm	199mm	231mm
B	136mm	171mm	85mm	75mm	136mm	171mm
C	84mm	100mm	84mm	100mm		
gms	140 (38mm)	236 (51mm)				

W16 Line Coupler

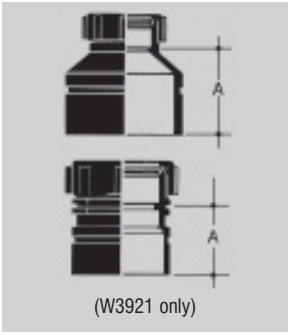
For connecting equal sized pipes together. Supplied with two nuts and olives.



Cat. No.	W161	W162	W163	W164
Nom. Size	38mm	51mm	76mm	102mm
B	3mm	3mm	6mm	6mm
gms	29	46	183	301

W39 Reducing Coupler

The six reducing couplers which cover the range all have nut and olive connections on the small diameter end while the spigot end is grooved, ready to accept the nut and olive from the fitting which is to be reduced.



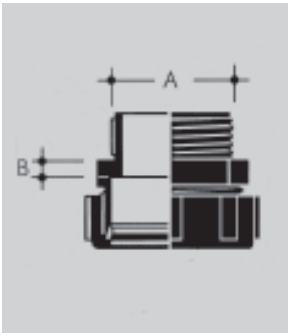
(W3921 only)

Cat. No.	W3921	W3931	W3932
Nom. Size	51 x 38mm	76 x 38mm	76 x 51mm
A	40mm	60mm	57mm
gms	44	95	102

Cat. No.	W3941	W3942	W3943
Nom. Size	102 x 38mm	102 x 51mm	102 x 76mm
A	97mm	89mm	71mm
gms	180	186	251

W14 M.I. to Pipe Coupler

With standard BSP parallel threads the W14 Pipe Coupler can be screwed direct into the F.I. fittings of metal or plastic pipes.

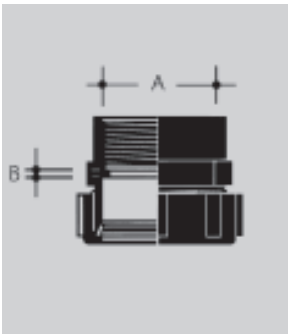


Cat. No.	W141	W142
Nom. Size	38mm	51mm
A	1½" BSP	2" BSP
B	6mm	6mm
gms	31	53

W15 F.I. to Pipe Coupler

With standard BSP parallel threads the W15 Pipe Coupler can be screwed directly to M.I. ends of metal or plastic pipes. The 38mm unit can be screwed to the threaded tail of a waste or drip cup when a pipe connection is required.

The 51mm unit can be screwed to the threaded tail of a 51mm waste.



Cat. No.	W151	W152
Nom. Size	38mm	51mm
A	1½" BSP	2" BSP
B	3mm	3mm
gms	35	52

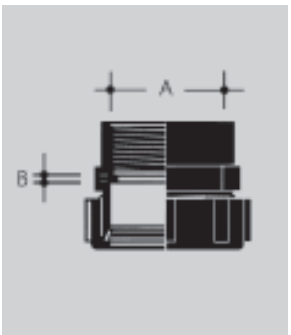
W121 1¼" F.I. x 1½" M.I. BSP Reducer

Note: Used when jointing the Vulcathene mechanical system to a 1¼" BSP waste tail. When making a connection to pipe a W151 38mm F.I. coupler should first be added to the outlet of a W121 reducer. Alternatively, the outlet of W121, which has a standard 1½" BSP parallel thread, will accept the connecting nut of any of the Vulcathene traps illustrated in this catalogue.

Cat. No.	W121
Nom. Size	38mm
A	32mm
gms	27

W271 1¾" F.I. to Pipe Coupler

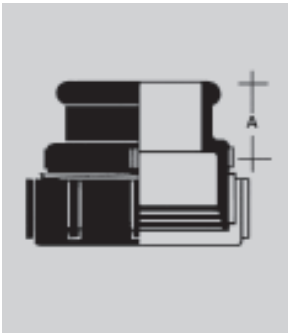
Made in one size only, this fitting should be used when joining 38mm Vulcathene Mechanical pipe to 38mm Vulcathene Polyfusion pipe. It may also be screwed to the outlet of any Vulcathene Polyfusion trap to provide a connection for 38mm Mechanical pipe.



Cat. No.	W271
Nom. Size	38mm
A	1¾" BSP
B	5mm
gms	32

W45 Glass Adaptor

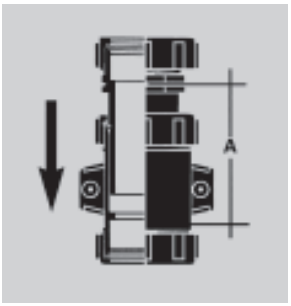
Used when jointing the Vulcathene mechanical system to a glass drainage system. Available in Flame Retardant Polpropylene (FRPP) only.



Cat. No.	W451	W452	W453	W454
Nom. Size	38mm	51mm	76mm	102mm
A	28mm	31mm	44mm	44mm
gms	37	63	192	317

W801 Thermal Stress Relief Unit

The W801 can be installed either vertically or horizontally. When installed it is important to ensure thet the end with the moulded fixing clip is the outflow end of the fitting.



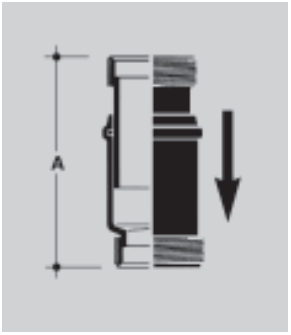
Cat. No.	W801
Nom. Size	38mm
A min	70mm
B max	108mm

W802 Thermal Stress Relief Unit

The W802 can be installed either vertically or horizontally. When installed it is important to ensure that the end which forms the collar is the outflow end of the fitting.

With BSP threaded ends, the W802 SRU is supplied with W132 F.I. to Pipe Couplers at each end.

The unit must be anchored with a metal clamp which should be located round the body of the SRU, just below the ridge round the top of the collar. This allows the pipe inserted into the collar to move freely.



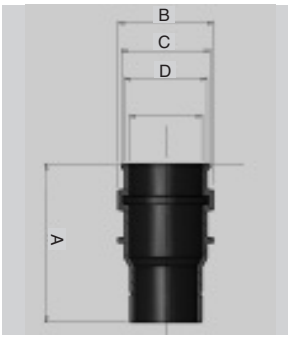
Cat. No.	W802
Nom. Size	51mm
A min	149mm
B max	203mm
gms	243

W803/W804 Thermal Stress Relief Unit

The W803 and W804 unit can be installed either vertically or horizontally. When installed it is important to ensure that the spigot end is the outflow end of the fitting.

The unit must be anchored with a metal clamp which should be located on top of the moulded locators round the body of the SRU, which then allows the pipe inserted into the collar to expand and contract.

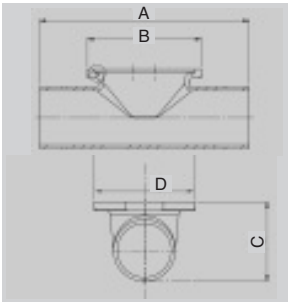
The body of the SRU incorporates an '0'ring seal.



Cat. No.	W803	W804
Nom. Size	76mm	102mm
A	196mm	215mm
B	117.2mm	144.5mm
C	110mm	141mm
D	89.7mm	115mm
gms	575	900

W90 Access Pipes

Correctly sited at critical points in the pipeline, access pipes simplify the clearing of blockages, inspection and thorough cleansing of the installation. With a clear flow bore, the W90 series access pipes have a bolt on cover and grooved spigot ends to accept nut and olive connection to the Vulcathene Mechanical System.

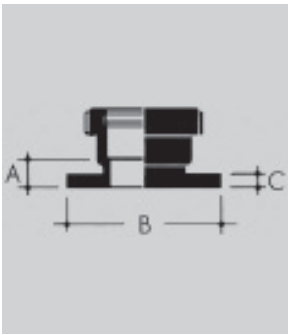


Cat. No.	W902	W903	W904
Nom. Size	51mm	76mm	102mm
A	260mm	302mm	390mm
B	164.2mm	164.2mm	218.6mm
C	114.4mm	114.4mm	138.8mm
D	145mm	145mm	179mm

W100 BS Table D Flange (Undrilled)

This allows the removal of complete pipe sections for ease of maintenance. It can also be used when connected to another BS Table D Flange.

With an aluminium backing plate, for extra strength, the BS Table D Flanges should be clamped together with a nitrile gasket and 4 bolts. These can be ordered as a separate item.



Cat. No.	W101T.D	W102T.D	W103T.D	W104T.D
Nom. Size	38mm	51mm	76mm	102mm
A	30mm	30mm	41mm	41mm
B	133mm	152mm	187mm	216mm
C	16mm	16mm	19mm	19mm
gms	300	409	1500	2087

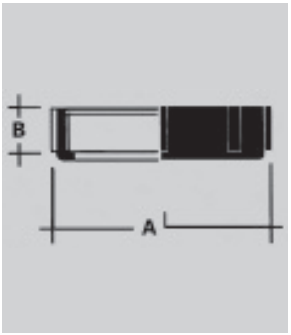
W22 Olive

The new flexible no heat Vulcathene olive locates into a groove, cut into the pipe using the cutting tool W26, by means of a 'tongue' around its inner surface. This simple, yet highly effective olive is then forced into the space between the pipe and the fitting as the nut is tightened thus forming a highly effective liquid tight seal.

Cat. No.	W221	W222	W223	W224
Nom. Size	38mm	51mm	76mm	102mm
gms	2	3	51	91

W23 Nut

Vulcathene nuts are used in conjunction with the Vulcathene olive to make a watertight joint. Every Vulcathene Mechanical fitting is supplied complete with Vulcathene nuts. We recommend that Vulcathene lubricant is smeared on the thread to facilitate tightening of the joint using the purpose-designed W36 spanner.



Cat. No.	W231	W232	W233	W234
Nom. Size	38mm	51mm	76mm	102mm
A	67mm	83mm	134mm	162mm
B	21mm	25mm	33mm	35mm
gms	58	100	250	520

W24 Blanking-Off Plug

Made to suit all pipe sizes, blanking-off plugs should be used where a rodding point is required in the waste pipe run and also for blanking off inlets of a W612 Dilution Recovery Trap. With its own tapered sealing surface, it replaces the olive, and is held into the fitting by the nut.

Cat. No.	W241	W242	W243	W244
Nom. Size	38mm	51mm	76mm	102mm
gms	38	64	109	196

W26 Groove Cutting Tool

Vulcathene grooving tools enable a groove, of the exact depth and width, to be cut in the correct location from the end of the pipe where the mechanical olive is then located.

38/51mm

76/102mm

Cat. No.	W261	W262	W263	W264
Nom. Size	38mm	51mm	76mm	102mm
gms	100	146	368	719

W36 Spanner

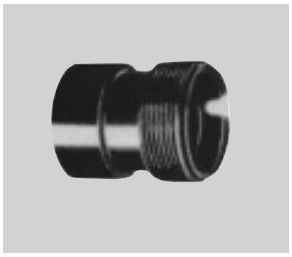
This moulded polycarbonate spanner is made specifically for use with the Vulcathene Mechanical range and should always be used to tighten the Vulcathene nuts as it will not distort or damage the nuts in the process of achieving a secure joint.

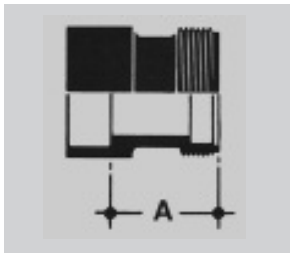
Cat. No.	W361	W362	W363	W364
Nom. Size	38mm	51mm	76mm	102mm
gms	81	110	199	269

Polyfusion Adaptors

C130 Half Coupler

Used to convert 38mm Polyfusion pipe to 38mm Mechanical pipe, the threaded end can be screwed to a W271 1¾" pipe coupler to make a mechanical joint.

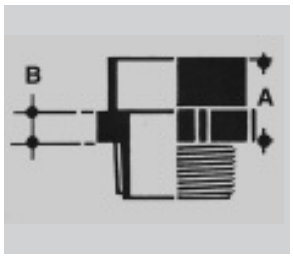




Cat. No.	C130
Nom. Size	38mm
A	45mm
gms	40

P758 BSP Coupler

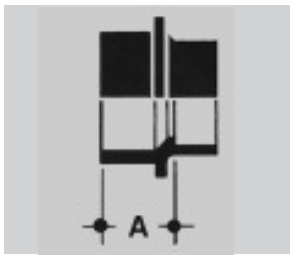
Used to convert 38mm or 51mm Polyfusion pipe to Mechanical (or Enfusion) pipe, the BSP threaded end can be screwed to W15 or L15 series female couplers.



Cat. No.	P758	
Nom. Size	38mm	51mm
A	35mm	41mm
B	41mm	41mm
gms	36	

R261 Reducing Coupler

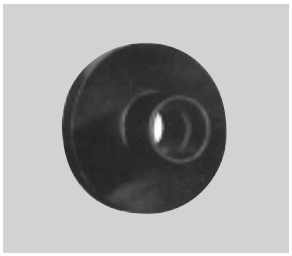
Used to convert 32mm Polyfusion pipe to 38mm Mechanical pipe, the spigot end of the reducer should be fused to the socket of a C130 38mm half coupler and the socket end fused to 32mm Polyfusion pipe.

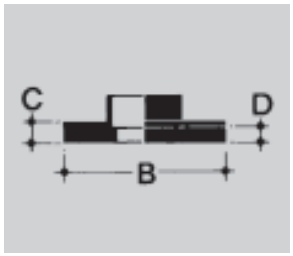


Cat. No.	R261
Nom. Size	38 x 32mm
A	25mm

200 BS Table D Flange

Used to convert Polyfusion pipework to either Mechanical or Enfusion where a flange connection is preferred. Flanges are supplied undrilled. Backing plates, gaskets and bolts (4) should be ordered as separate items.

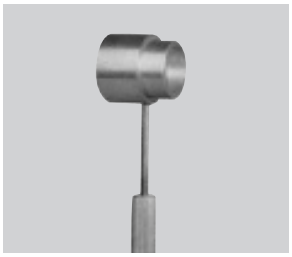




Cat. No.	200				
Nom. Size	38mm	51mm	76mm	102mm	152mm
B	133mm	152mm	187mm	216mm	279mm
C	16mm	16mm	19mm	19mm	25mm
D	29mm	22mm	32mm	29mm	38mm
gms					200

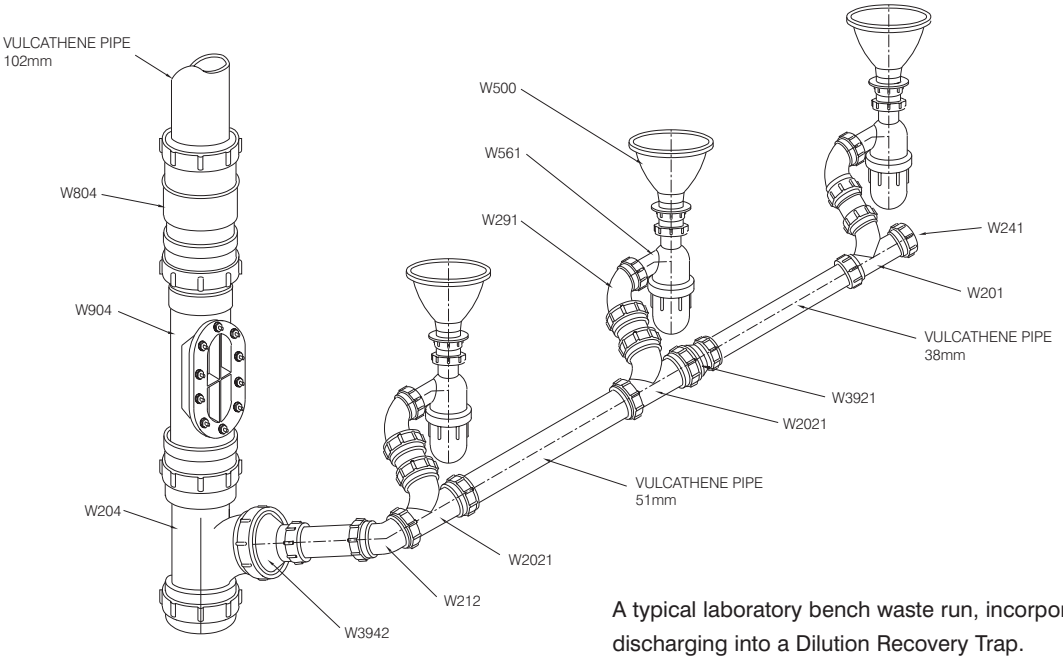
200 Hand Tool

Used for making socket fusion joints in the smaller size (32mm-51mm), the tool can be heated to the required temperature using a gas torch.

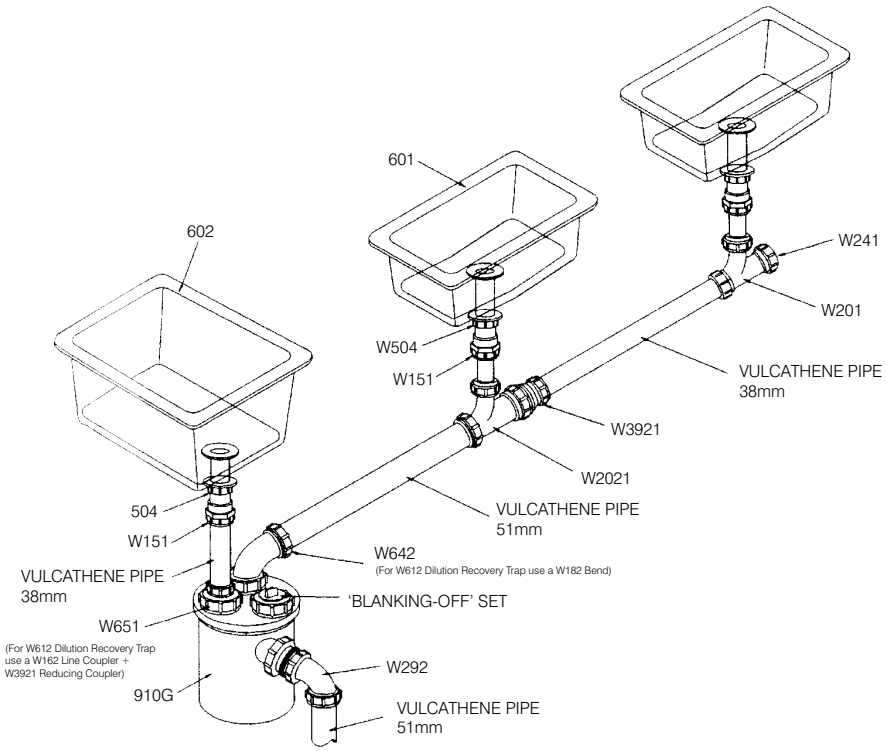


Mechanical Drainage Design

A typical laboratory bench waste run, incorporating drip cups discharging into bottle traps and then into a Vulcathene stack.



A typical laboratory bench waste run, incorporating sinks discharging into a Dilution Recovery Trap.



Making the Mechanical Joint

The Mechanical joint employs a moulded tongued thermo plastic elastomer olive which is 'keyed' to the pipe by a patented technique and takes, on average, only about half a minute to make. Once the nut is tightened and the joint is made, the pipe is locked into the fitting to give a lasting leak-free connection. The joint is demountable for maintenance or system re-design purposes, and can be made and re-made.

Note: always tighten the nuts as work progresses. They should not be left until the job is completed. When installing any chemical waste drainage system it is imperative in order to ensure that joint integrity can be maintained, in line with the design criteria of the system, Vulcathene grooving tools and spanners must be used to make the joint.

While the general principles of waste drainage still apply when jointing Vulcathene chemical waste drainage, considerable care must be taken in making the joint. When tightening a fitting made from Polypropylene the two 'dry' surfaces of the material tend to 'bind' against each other preventing the nuts on the joints being fully tightened.

To overcome this, either Vulcathene lubricating grease or petroleum jelly should be smeared onto the threads of the joint. This will enable the nut to be tightened to its full thread capacity.

W36 Series Spanners

The W36 spanner, moulded from a polycarbonate, is made specifically for use with the Vulcathene Mechanical range and should always be used to tighten the Vulcathene joint as it will not distort, damage or scar the nut. A standard spanner or strap wrench should not be used as the 'squeezing' action can distort the fitting and the pressure applied is only effectively in contact with two of the lugs on the nut.

The W36 spanner has been designed with a profile that matches the moulded shape of the nut on the Vulcathene joint. The toe of the spanner should be located over a convenient lug on the nut and the action of tightening, or loosening, the nut will ensure that the spanner maintains full contact grip evenly against 5 of the nut lugs.

It is also important to remember that the nut should not be overtightened and the leverage length' of the hands will provide sufficient force to tighten the nut and produce full joint integrity. At no time should the 'handle' of the spanner be lengthened, with a pipe or other tool, to increase the leverage when tightening a nut.

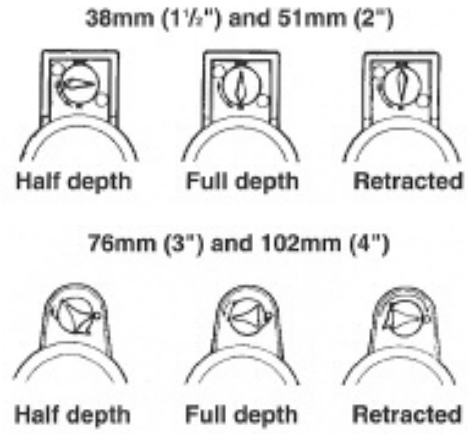
We suggest that two spanners are used when tightening the nuts. One should be placed on the nut on the opposing end of the joint to counter the force applied, enabling the nuts to be tightened to their fullest capacity.

W26 Series Groove Cutting Tools

The major factor in the joint integrity of the Vulcathene Mechanical waste drainage system is the 'tongued olive'. Therefore, we have designed a tool which very simply enables a groove, of the exact depth and width, to be cut in the correct location from the end of the pipe.

The groove cutting tools for this purpose are specific to each size of pipe. While each of the cutting tools for 76 and 102mm pipe is provided with two handles, and requires the pipe to be held in a vice, the cutting tool for 38 and 51mm pipe, can be used by holding the pipe with one hand and operating the grooving tool with the other.

When securing the pipe in a vice, care must be taken to ensure that the pressure applied is sufficient to hold the pipe without distorting it. On all the groove cutting tools the depth of the grooving blade can be changed from full to half depth and we recommend that the first few turns should be made with the blade setting at half depth.



With the groove cutting tool for the large size pipes, it is important to grip the handles with both hands to ensure that it remains square to the end of the pipe, and cuts a uniform groove round the pipe. **Note:** Groove cutting tools need to be in good condition in order to cut grooves of a constant and correct depth.

Chemical Waste Drainage System

Making the Joint

Clamp the pipe in a pipe vice. Cut to length using a rotary plastic pipe cutter as shown. This is favoured over the use of a hacksaw as the finish is clean (no loose swarf or burr on the pipe) and, more importantly, it is square and does not require further preparation. If a saw is used, it is essential that all burrs and loose material are removed.

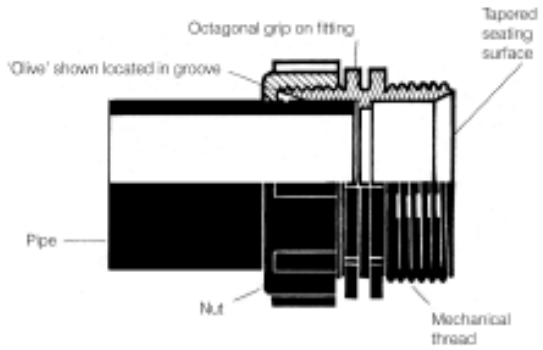
To achieve full joint integrity it is necessary that a groove, into which the 'tongued' olive locates is cut around the pipe with the special grooving tool. Insert the pipe into the grooving tool to its total depth and adjust the depth cutting blade to half depth and revolve the cutting tool anti-clockwise around the pipe. Then adjust to full depth, again revolving it anti-clockwise. When completed retract the blade and remove the tool making sure that any swarf created by the grooving action is removed. Never try to cut the groove with the blade at full cut first time.

New no-heat olives (yellow colour) have been developed for Vulcathene making joint assembly even quicker. To assemble the joint place the nut onto the pipe and slide the new no heat olives wide end first into place, with the tongue locating into the groove in the pipe. ***Note: Use Vulcathene lubricant on 76mm & 102mm Olives to aid installation.***

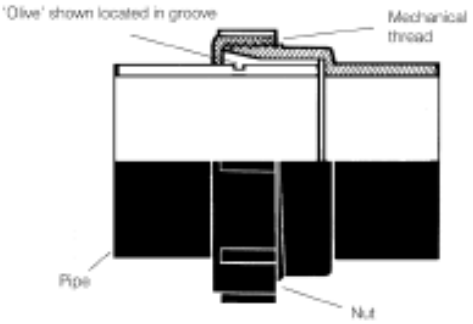
Having made sure that the fitting is clean, smear Vulcathene Lubricant or petroleum jelly onto the threads of the fitting.

Loosely assemble the joint and proceed to hand tighten the knurled nut. Using two Vulcathene spanners further tighten the joint. The nut must be tightened to its full thread capacity.

38mm (1¹/₂") and 51mm (2")

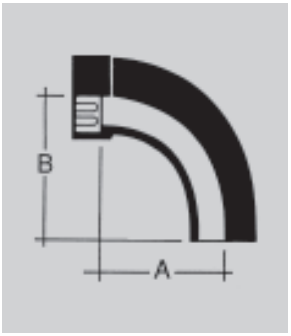


76mm (3") and 102mm (4")



L28 Single Socket Long Sweep Bend

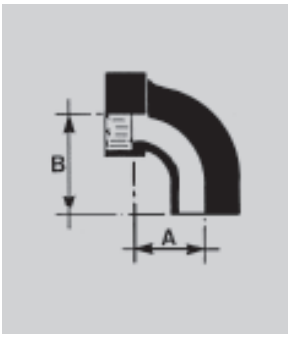
Available in sizes from 38mm to 152mm, this fitting has an Enfusion socket at one end and a plain spigot at the other.



Cat. No.	L281	L282	L283	L284	L286
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	70mm	83mm	103mm	125mm	167mm
B	117mm	117mm	171mm	203mm	247mm
gms	90	170	350	510	2000

L29 Single Socket Short Sweep Bend

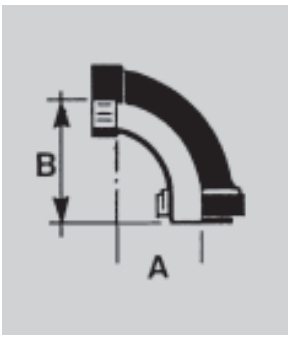
Available in 38mm and 51mm sizes this fitting has an Enfusion socket at one end and a plain spigot at the other.



Cat. No.	L291	L292
Nom. Size	38mm	51mm
A	43mm	64mm
B	75mm	97mm
gms	90	120

L291A Loose Nut/Socket Short Sweep Bend

Available in 38mm size only, this fitting has a captive nut for connection to Vulcathene threaded units at one end and an Enfusion socket at the other.



Cat. No.	L291A
Nom. Size	38mm
A	44mm
B	76mm
gms	90

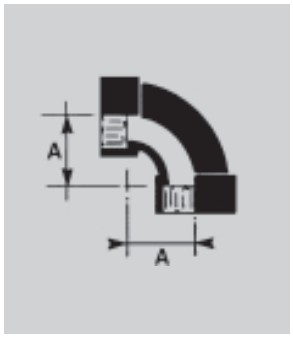
L17 Double Socket Long Sweep Bend

Available in sizes from 38mm to 152mm, this fitting has an Enfusion socket at both ends.

Cat. No.	L171	L172	L173	L174	L176
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	70mm	83mm	103mm	125mm	198mm
gms	101	170	390	530	1760

L18 Double Socket Short Sweep Bend

Available in 38mm and 51mm sizes, this fitting has Enfusion sockets at both ends.



Cat. No.	L181	L182
Nom. Size	38mm	51mm
A	43mm	64mm
gms	115	172

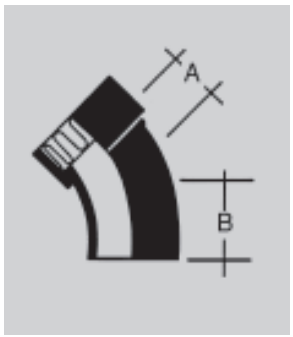
L19 45° Double Socket Slow Bend

Five standard sizes cover the 38mm to 152mm range, with an Enfusion socket at each end.

Cat. No.	L191	L192	L193	L194	L196
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	19mm	38mm	51mm	51mm	43mm
gms	80	120	300	520	1500

L21 45° Single Socket Slow Bend

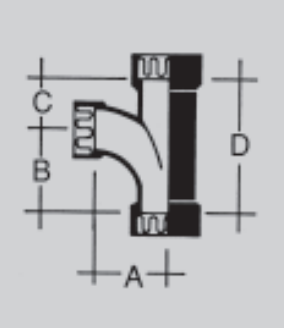
Available in five sizes to suit standard 38mm to 152mm pipe the fitting has an Enfusion socket at one end and a plain spigot at the other end.



Cat. No.	L211	L212	L213	L214	L216
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	19mm	38mm	51mm	51mm	43mm
B	38mm	76mm	95mm	100mm	114mm
gms	80	130	260	450	1450

L20 92½° Equal Sweep Tee

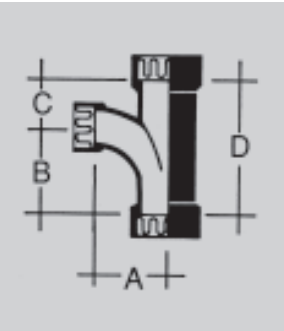
An equal three branch fitting, the sweep tee is available in four sizes from 38mm to 102mm and has an Enfusion socket on each branch.



Cat. No.	L201	L202	L203	L204
Nom. Size	38mm	51mm	76mm	102mm
A	57mm	59mm	79mm	98mm
B	70mm	59mm	78mm	98mm
C	51mm	35mm	46mm	57mm
D	121mm	94mm	124mm	156mm
gms	103	220	560	1300

L20 92½° Reducing Sweep Tee

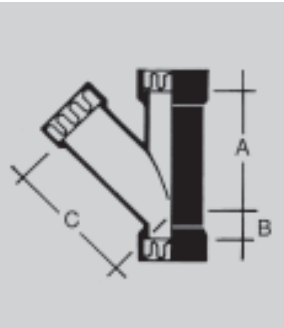
The range of five fittings covers all reducing branch requirements and have an Enfusion socket on each of the three branches. When ordering, the first two dimensions on the chart below relate to the straight through bore, and the third to the branch diameter.



Cat. No.	L2021	L2031	L2032	L2042
Nom. Size	51x51x38mm	76x76x38mm	76x76x51mm	102x102x51mm
A	57mm	114mm	83mm	100mm
B	70mm	90mm	83mm	52mm
C	51mm	65mm	70mm	28mm
D	121mm	152mm	152mm	81mm
gms	140	500	510	550

L37 45° Single Wye

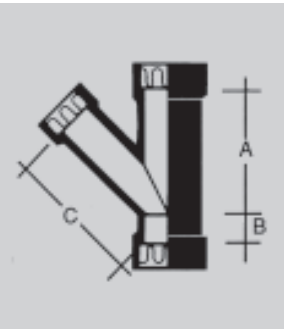
Covering the sizes from 38mm to 152mm all branches have an Enfusion socket.



Cat. No.	L371	L372	L373	L374	L376
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	83mm	92mm	127mm	212mm	214mm
B	29mm	36mm	41mm	46mm	44mm
C	83mm	92mm	127mm	187mm	214mm
gms	200	240	550	1100	3630

L37 45° Reducing Wye

A range of 8 fittings covering most requirements. For ordering the first two dimensions shown on the chart below relate to the straight through bore and the third the branch diameter. All branches have an Enfusion socket.

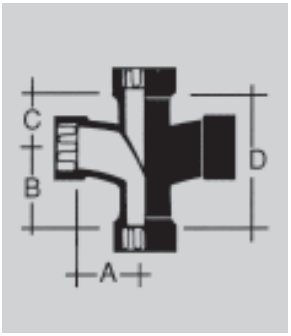


Cat. No.	L3721	L3731	L3732	L3742	L3743
Nom. Size	51x51x38mm	76x76x38mm	76x76x51mm	102x102x51mm	102x102x76mm
A	84mm	144mm	144mm	165mm	211mm
B	27mm	22mm	22mm	10mm	46mm
C	87mm	178mm	146mm	165mm	235mm
gms	170	700	520	814	1500

Cat. No.	L3762	L3763	L3764
Nom. Size	152x152x51mm	152x152x76mm	152x152x102mm
A	214mm	214mm	214mm
B	44mm	44mm	44mm
C	262mm	262mm	214mm
gms	2350	2360	2360

L35 92½° Double Branch

An equal four branch fitting, the double branch is available in three sizes from 51mm to 102mm and has an Enfusion socket on each branch.

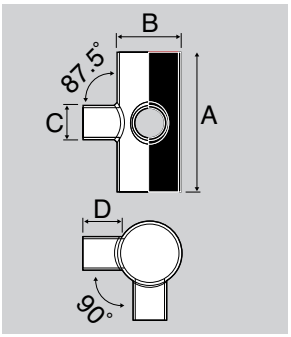


Cat. No.	L352	L353	L354
Nom. Size	51mm	76mm	102mm
A	58mm	78mm	98mm
B	59mm	79mm	98mm
C	35mm	46mm	57mm
D	93mm	124mm	156mm
gms	370	650	900

L942 90° Corner Branch*

The 90° Corner branch is available in size 102mm x 51mm with spigot ends for either Enfusion or Mechanical jointing. The 51mm branches are at 92½° to the main bore. Additional Enfusion couplers are required for Enfusion jointing unless connecting to another Vulcathene Enfusion fitting. For 38mm branch connections use Vulcathene L3912 reducers.

*Fabricated

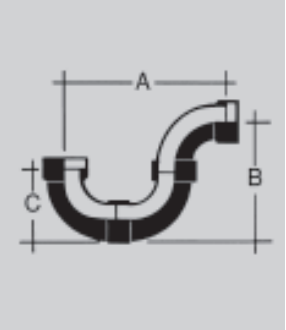


Cat. No.	W942
Sizes	102mm x 51mm
A	250mm
B	114.3mm
C	60.3mm
D	62.9mm
gms	480

Enfusion Fittings

LT1 'P' Trap

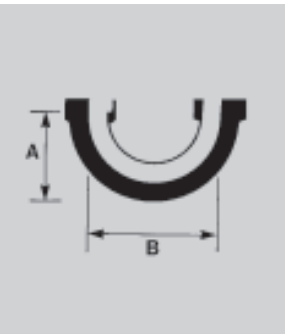
Available in 76, 102 and 152mm sizes, supplied as three loose components.



Cat. No.	LT13	LT14	LT16
Nom. Size	76mm	102mm	152mm
A	376mm	360mm	651mm
B	290mm	445mm	533mm
C	160mm	195mm	292mm
gms	1200	1700	7200

L101 U Bend

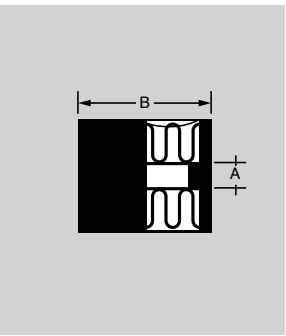
Available in 38mm and 51mm sizes, this fitting has Enfusion sockets at both ends. A 'P' trap configuration can be made by adding an L28 single socket sweep bend.



Cat. No.	L1011	L1012
Nom. Size	38mm	51mm
A	57mm	87mm
B	82mm	125mm
gms	150	200

L16 Coupling

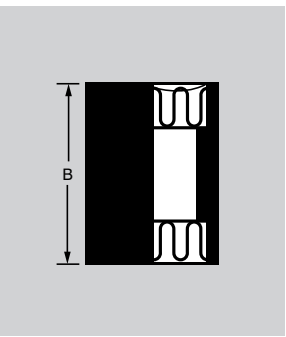
Produced to fit the five sizes of the Enfusion chemical waste drainage system, from 38mm to 152mm, the coupling has an internal stop which forms a smooth through-bore and ensures that the correct depth of pipe is inserted into the fitting.



Cat. No.	L161	L162	L163	L164	L166
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	6mm	8mm	11mm	11mm	13mm
B	61mm	74mm	102mm	127mm	183mm
gms	50	80	300	510	640

L16 (S) Slip Coupling

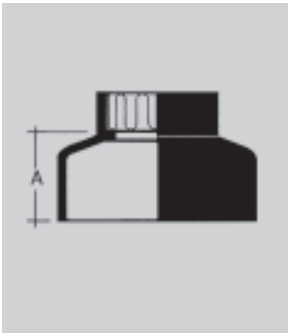
Enfusion slip couplers in sizes 102mm and 152mm can be used where a new branch connection to an existing Vulcathene stack is required.



Cat. No.	L164(S)	L166(S)
Nom. Size	102mm	152mm
B	150mm	150mm
gms	646	930

L39 Reducing Coupler

This range covers the requirement for changing from one pipe size to another. Designed with an Enfusion socket on one end and the other spigot end is fused into a larger Enfusion socket.



Cat. No.	L3912	L3923	L3924	
Nom. Size	51x38mm	76x51mm	102x51mm	
A	32mm	43mm	51mm	
gms	44	160	239	
Cat. No.	**L3934**	**L3916**	**L3936**	**L3946**
Nom. Size	102x76mm	152x38mm	152x76mm	152x102mm
A	47mm	65mm	64mm	64mm
gms	214		564	620
Note:				
76x38mm reducer:	Use L3923 reducer + L3912 reducer			
102x38mm reducer:	Use L3924 reducer + L3912 reducer			
152x51mm reducer:	Use L3946 reducer + L3924 reducer			

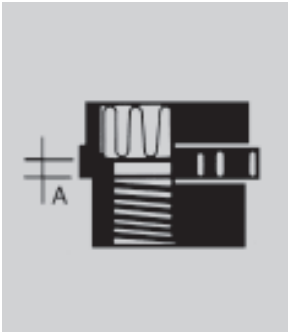
L14 M.I to Pipe Coupler

In two sizes, 38mm and 51mm, this fitting has an Enfusion socket on one end and a male thread the other.

Cat. No.	L141	L142
Nom. Size	38mm	51mm
A	6mm	6mm
gms	30	60

L15 F.I to Pipe Coupler

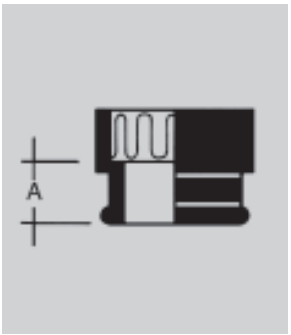
In two sizes, 38mm and 51mm, this fitting has an Enfusion socket on one end and a female thread the other.



Cat. No.	L151	L152
Nom. Size	38mm	51mm
A	8mm	8mm
gms	70	100

L45 Glass Adaptor

Produced in flame retardant PP in four sizes from 38mm to 102mm, the fitting has an Enfusion socket on one end and a beaded spigot on the other.

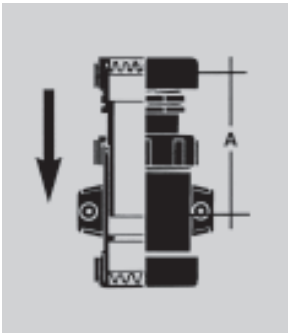


Cat. No.	L451	L452	L453	L454
Nom. Size	38mm	51mm	76mm	102mm
A	28mm	32mm	41mm	36mm
gms	40	66	400	665

L801 Thermal Stress Relief Unit

Designed for use with 38mm diameter pipe, the L801 can be installed in either vertical or horizontal pipework. When installed it is important to ensure that the end with the moulded fixing clip is the outflow end of the fitting.

When installing a stress relief unit, the tail end pipe should be pushed fully 'home' and its position marked. It should then be withdrawn 38mm.

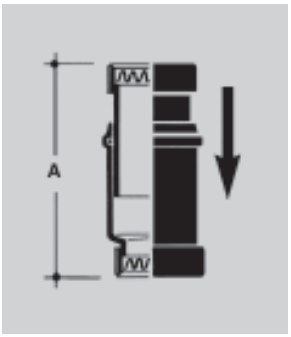


Cat. No.	L801
Nom. Size	38mm
A min	70mm
A max	108mm

L802 Thermal Stress Relief Unit

Designed for use with 51mm diameter pipe, the L802 can be installed in either vertical or horizontal pipework. When installed it is important to ensure that the end which forms the collar is the outflow end of the fitting.

The unit must be anchored with a metal clamp which should be located round the body of the stress relief unit, just below the ridge round the top of the collar. This allows the pipe inserted into the collar to expand and contract.

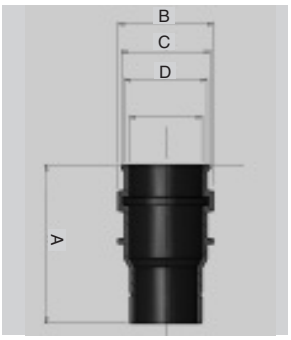


Cat. No.	L802
Nom. Size	51mm
A min	149mm
A max	203mm
gms	750

NEW

L803/4/6 Thermal Stress Relief Unit

Designed for use on 76mm, 102mm and 152mm diameter pipes this unit can be installed in either vertical or horizontal pipework. When installed it is important to ensure that the spigot end is on the outflow end of the fitting. The unit must be anchored with a metal clamp which should be located on top of the moulded locators, moulded round the body of the stress relief unit,which then allows the pipe inserted into the collar to expand and contract. Note: The body of the SRU incoporates an '0' ring seal.

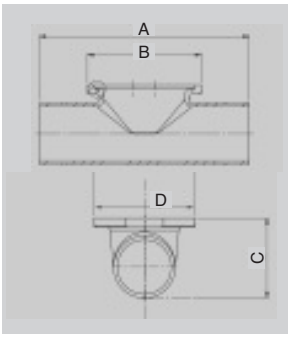


Cat. No.	L803	L804	L806
Nom. Size	76mm	102mm	
A	196mm	215mm	198mm
B	117.2mm	144.5mm	200.5mm
C	110mm	141mm	196mm
D	89.7mm	115mm	169.5mm
gms	575	900	

NEW

L902/3/4 Access Pipe

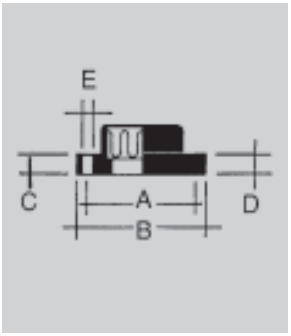
Correctly sited at critical points in the pipeline, access pipes simplify clearing blockages, inspection and thorough cleansing of the installation. With a clear flow bore, the L90 series has a bolt on cover and spigot ends for fusion to enfusion sockets.



Cat. No.	L902	L903	L904
Nom. Size	51mm	76mm	102mm
A	260mm	302mm	390mm
B	164.2mm	164.2mm	218.6mm
C	114.4mm	114.4mm	138.8mm
D	145mm	145mm	179mm

L36 Flange

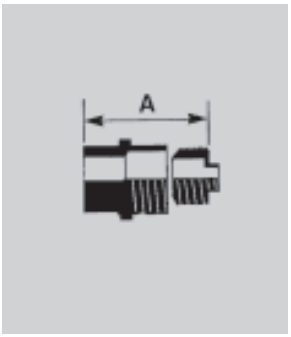
To fit pipe sizes from 38mm to 152mm, the flange is supplied (Table D) drilled or undrilled. Bolts and gaskets supplied separately.



Cat. No.	L361	L362	L363	L364	L366
Nom. Size	38mm	51mm	76mm	102mm	152mm
A	98mm	121mm	152mm	190mm	241mm
B	127mm	150mm	189mm	228mm	278mm
C	16mm	18mm	23mm	28mm	25mm
D	29mm	23mm	32mm	36mm	36mm
E	14mm	17mm	17mm	17mm	21mm
gms	280	310	600	780	1768

L24 Cleanout Plug

A simple method for draining or rodding a blocked section, the Cleanout is available to suit pipe sizes from 38mm to 102mm. The fitting comprises of a spigot which can be fused into an Enfusion socket and a threaded plug. The A dimension shows the disassemble length with a clearance allowance of 13mm.



Cat. No.	L241	L242	L243	L244
Nom. Size	38mm	51mm	76mm	102mm
A	160mm	185mm	185mm	210mm
gms	140	150	280	480

Note: For 152mm cleanout, use an L3946 reducer with an L244 cleanout plug.

Enfusion Fittings

L2600 Enfusion Control Unit

(See specification details on page 42)

L2610 Link Cable

Link cable leads in 5' lengths for multiple jointing.

L261 Clamp

Available in six sizes for 38mm to 152mm fittings, these stainless steel clamps should be fitted over the hubs of the Enfusion sockets and tightened before electrofusion welding.

NEW

L2601 Enfusion Hand Held Unit

(See specification details on page 42)

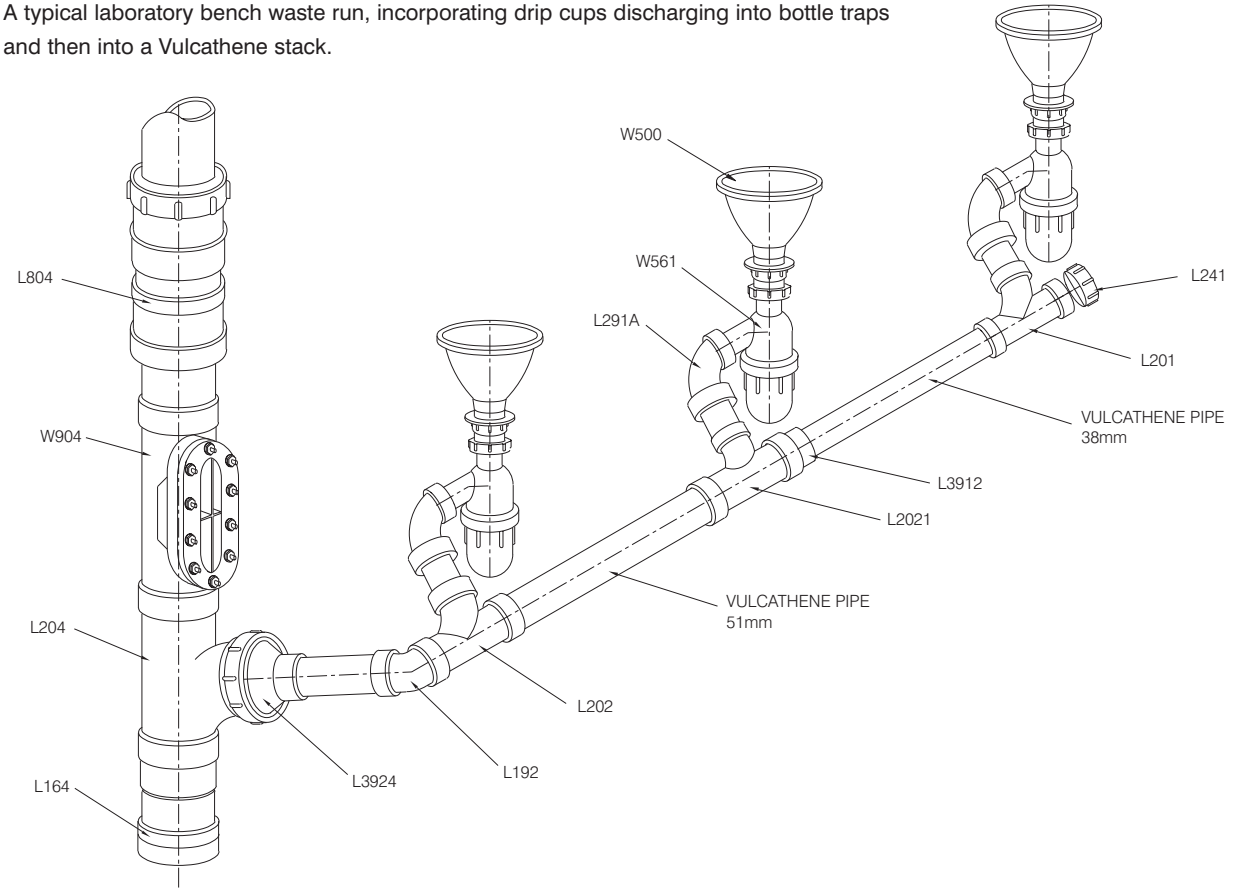
Pipe Scraper

Pipe should be thoroughly scraped over an area equal to socket depth plus 50% using a pipe scraper. Replacement blades (2 per packet) are supplied separately.

Chemical Waste Drainage System

Enfusion Drainage Design

A typical laboratory bench waste run, incorporating drip cups discharging into bottle traps and then into a Vulcathene stack.



Making the Enfusion Joint

The Enfusion Joint

Enfusion fittings are manufactured with an integral resistance wire. The wire is electrically heated by means of a microprocessor controllled Enfusion Control Unit. This results in fusion and bonding of the pipe to the fitting. Jointing is achieved within minutes.

The Enfusion joint achieves the optimum level of performance where it matters most - at the joint interface. **Controlled fit, controlled temperature and controlled time.** All of this is achieved by means of the Enfusion Control Unit, which ensures proper electrical connections, joint timing and input/output current levels. The combinations of these features provides both simplicity of jointing and perfect control.

The integral resistance wire is manufactured from a heavy gauge nickel/chrome alloy which allows for uniform electrical resistance and heating, while offering excellent chemical resistance.

The overall result is a state of the art jointing method which offers simplicity and quickness.

Making the Enfusion Joint

Before making the Enfusion Joint it is important to check that the power source is providing 104 to 126 volts at 45 to 65 cycles with 16amp capacity. The Enfusion controller provides for reasonable and normal power variation, but generators in particular should be checked to assure that rated output is being provided.

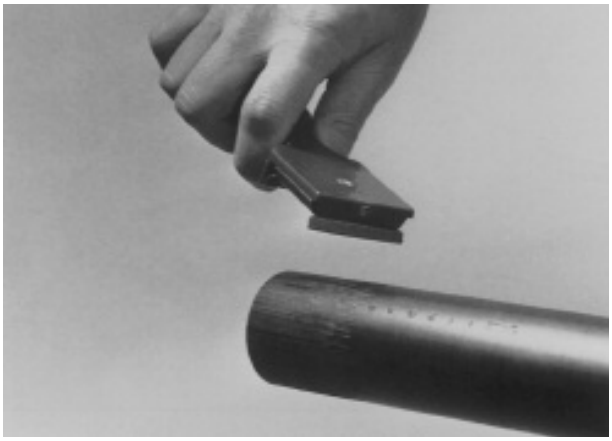
Preparation

1. Cut the pipe square and remove all burrs and loose material.

   Use a tube cutter with a wheel designed for use on plastic pipe. If a saw and mitre box combination is used make certain to remove all burrs. DO NOT CHAMFER THE CUT.

2. Using a pipe scraper scrape the end of the pipe equivalent to the depth of the socket plus 50%.

   Removal of the slick or 'skin' on the surface of the pipe is imperative to obtain a good fusion joint. Once prepared DO NOT handle this area or allow it to get dirty.

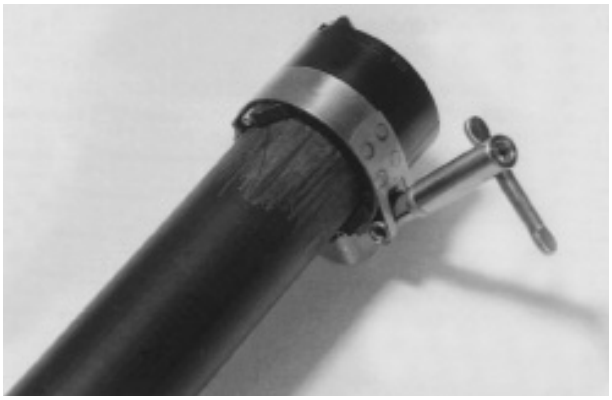


3. Insert the pipe all the way to the stop at the bottom of the socket.
4. Decide whether the joint will be welded singly or in series.

   If multiple joints are to be made refer to the table on the next page which indicates the maximum number of joints relative to the pipe size.

5. Loosely fit the appropriate sized clamp(s) over the hub(s) of the socket(s) to be joined and position flush with the socket opening.
6. Tighten the clamp(s) round the hub(s) of the socket(s). *It is important that the clamp(s) is/are fully tightened to obtain a homogeneous joint.*
7. Before using the Enfusion Control Unit ALL cables MUST be unwound from the protective frame or removed from the Pelicase if using the hand held unit.

Chemical Waste Drainage System



8. Turn the Enfusion Control Unit on and it will self test.
   Ensure the unit displays a copyright message.
9. Follow the instruction on the display to 'Connect Output Lead'.
   If using a single joint, connect the output leads to one joint. If multiple joints, utilise the link leads as required.
   Note: Terminal pin extension adaptors are available where access to the fitting terminal pin is restricted.
10. Follow the instruction on the display to 'Select Pipe Size'.
    By using the SELECT button enter the size of pipe being joined.
11. When correct size is displayed press START button.
    The Enfusion Control Unit will display the temperature and the welding time.

12. When completed, the Enfusion Control Unit will emit an audible alarm and display the message 'Disconnect Output Lead'.
    During this period the Enfusion Control Unit will count down to zero.
13. Wait 30 seconds, to allow the joints to cool, before gently disconnecting leads from the joints.
    The Enfusion Control Unit will now reset, ready for the next operation.
14. Leave the joint undisturbed for at least 5 minutes before removing clamp(s).

Troubleshooting

If the Enfusion Control Unit stops before joint completion the unit will send an audible alarm and the fault display will show... Interrupted weld, or output fault, or connection fault.

If you discover the interruption in less than 2 minutes, correct the fault displayed and press the yellow "SELECT" button to reset. The remaining weld time will be displayed. Press the green "START" button to restart the weld.

If a joint has been at fault for more than 2 minutes the joint will have cooled. The full cycle therefore should be run again.

Prior to re-fusing, 38mm to 76mm fittings should cool for 5 minutes and 102mm to 152mm fittings should cool for 7 minutes.

The Enfusion Control Unit should be re-set by shutting it off and the following from Step 8 on.

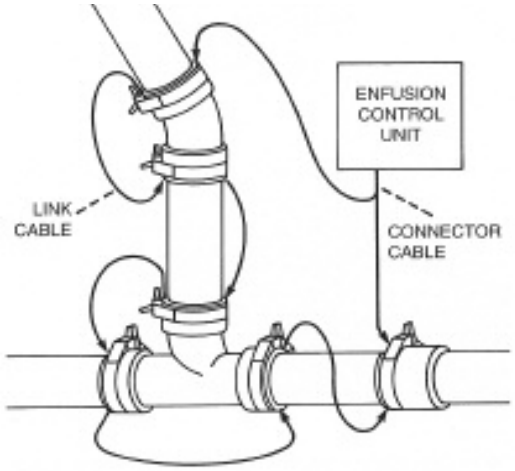
Note: When working in very cold conditions try to screen the joint from direct contact with the wind. Protecting the joint with a 'blanket' will also help prevent excessive loss of heat due to a chill wind.

Making Multiple Enfusion Joints

The chart below indicates the number of joints which can be fused at any one time utilising additional link cables in series. It is important to remember that the chart only applies to joints of the same size. Do not attempt to use the multiple jointing method for connecting joints of differing sizes.

Multiple Joint Fusion Chart					
Pipe size	38mm	51mm	76mm	102mm	152mm
Maximum number of joints	10	8	4	3	2

Chemical Waste Drainage System



Typical Multiple Jointing Configuration

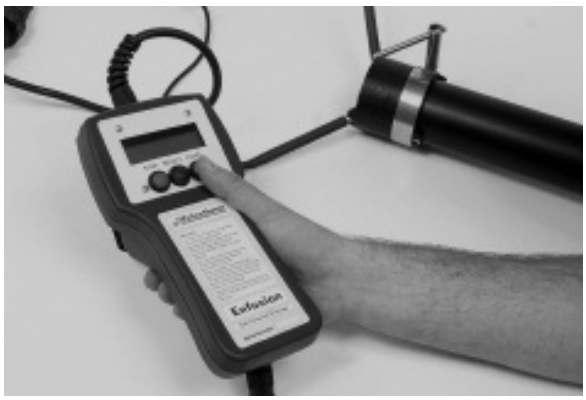
Enfusion Control Unit Specification

Duty Cycle
Using a welded pattern of 120 seconds on and 60 seconds off (2:1), and with an ambient temperature of 22°C the Enfusion Control Unit can run continuously for 5 hours. The repeated cycle of 1/2 hour off and 11/2 hour on.

Input	
Nominal input voltage	110 volts ac
Input voltage frequency	95 volts ac to 165 volts ac
Nominal supply frequency	50 Hz
Supply frequency range	40 Hz to 70 Hz
Maximum input current	11 amps
Maximum apparent input power	1200 watts
Output	
Output current	18 amps ac true rms
Output stability	±1½%
General	
Temperature range	-10°C to +40°C
Operating modes	18 amp constant current
Languages	English
Physical	
Weight	17kg
Input lead length	7.6m
Output lead length	7.6m
Specifications	
Physical protection	IP 54 (BS 5420)
Electrical safety	BS 2754
Cable	BS 6746, BS 6360
Electrical interference	BS 833
Shock & Vibration	BS 2011 (2.1 EA/EB)

Enfusion Unit (Hand Held) Specification

Operating Mode	Enfusion automatic
Operating Language	English
Operating Temperature	-20 °C to +50 °C
Input Voltage	"110 V ac 88 V to 149 V (-20% +35%)"
Input Current	11 A
Input Frequency	"50 Hz 40 Hz to 70 Hz"
Input Power	100 VA to 1250 VA
Output Current	18 A ac true rms
Output Voltage	3 V to 50 V ac true rem
Output Power	50 W to 900 W
Output Stability	+/- 1.5%
Weld Time: 1.5" & 2"	C 120 : N 90 : H 80
Weld Time: 3" to 12"	C 150 : N 120 : H 110
Power Factor	0.72
Weight	15 kg
Size	40 cm x 32 cm x 16 cm
Environmental Protection	IP65
Lead Length (to power case)	1 m
Lead Length (to hand held unit)	10 m
Lead Length (to fitting)	2 m



Enfusion Control Units contain sophisticated electronic components and should therefore be handled with care. Do not tamper with them and should they, for any reason, malfunction, please call our local Vulcathene distributor or representative.

Installation Advice

Waste Pipe Fall

Horizontal waste runs should be installed to provide a natural "fall" to the Vulcathene stack. The fall is dictated to some extent by the installation. 2° to 3° is an ideal "fall", but it should never be less than 1°.

Note: A waste system flows best at a fall of 2° to 3°, transporting any solids which may be flushed away, so the potential for blockages is reduced. Also, as chemicals will only be "flowing" through the system, the possibility of long term chemical damage will be eliminated.

Typical Pipework Falls for Vulcathene Pipes

Pipe length	Fall in pipework at 1°	Fall in pipework at 2°	Fall in pipework at 2.5°	Fall in pipework at 3°
Metres	Millimetres			
1	17.46	34.93	43.67	52.24
1.5	26.19	52.39	65.50	78.36
2	34.91	69.85	87.33	104.48
2.5	43.64	87.31	109.17	130.60
3	52.37	104.78	131.00	156.72
3.5	61.10	122.24	152.83	182.85
4	69.83	139.70	174.67	208.97
4.5	78.56	157.16	196.50	235.09
5	87.29	174.63	218.34	261.21
5.5	96.01	192.09	240.17	287.33
6	104.74	209.55	262.00	313.45
6.5	113.47	227.01	283.84	339.57
7	122.20	244.48	305.67	365.69
7.5	130.93	261.94	327.50	391.81
8	139.66	279.40	349.34	417.93
8.5	148.38	296.86	371.17	444.05
9	157.11	314.33	393.00	470.17
9.5	165.84	331.79	414.84	496.29
10	174.57	349.25	436.67	522.42
10.5	183.30	366.71	458.50	548.54
11	192.03	384.18	480.34	574.66
11.5	200.76	401.64	502.17	600.78
12	209.48	419.10	524.00	626.90

Supporting Vulcathene Pipes

Vulcathene pipe does not typically require continuous support when used for horizontal runs at room temperatures. Vulcathene pipe clips should be fixed at the following recommended centres:

Nominal I.D.	38mm	51mm	76mm	102mm	152mm
Horizontal Fixing Centres	1.22m	1.37m	1.52m	1.83m	1.83m
Vertical Fixing Centres	1.5m	1.5m	1.5m	1.5m	1.5m

Vulcathene pipe clips are snap-on and retain the pipe securely whilst still allowing lateral movement of the pipe caused by fluctuations in thermal conditions.

Note: (i) When 76mm or 102mm pipe is installed in vertical runs of some length, strain may be caused by thermal movement. In such conditions metal straps should be used to retain the pipe.

(ii) Horizontal pipe runs, where sustained temperatures in excess of 40°C (104°F) are expected, should have continuous support using Vulcathene galvanised support channel.

(iii) Where Vulcathene pipework is to be suspended, metal hangers are recommended.

Reducing Pipe Sizes

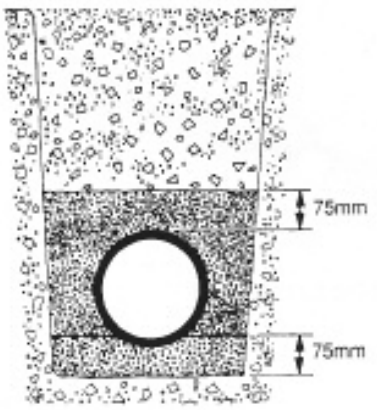
Apart from the 51mm x 38mm fitting which is produced as a one piece moulding, all reducing sweep tees in the Mechanical range are made by adding a W39 series reducing coupler to the branch of a W20 series equal sweep tee. Enfusion sweep tees are one piece moulded items.

Buried Pipes

Generally, trenches should not be less than 1m deep. The trench should be straight sided and as narrow as possible to allow proper consolidation. The trench bottom should be level and free from rock, debris and sharp objects.

A 75mm deep bed of pea gravel should be laid in the bottom of the trench and backfilling, with similar material, should continue until a 75mm layer over the pipe is achieved.

Pipes may be jointed in the trench but if joined above ground should be left for 2 hours before being 'snaked' into the trench.



Thermal Movement and Vulcathene Pipework

To overcome the problem of expansion and contraction from changing temperatures, Vulcathene Stress Relief Units (SRUs) eliminate the stresses and strains caused by thermal movement.

When installing an SRU, care should be taken to ensure an accurate Linear 'thrust and pull' movement. Any pipe clip used should not grip the pipe tightly, but should allow the pipe to slide freely without any tendency to buckle. The housing of the SRU should always be firmly anchored to allow the sliding member to accept all movement.

Vulcathene SRUs move very easily at about 5psi, the total movement, for all sizes, being approximately +/- 25mm (1"). The co-efficient of expansion for Vulcathene plumbing is 1.4mm per metre per 10°C. Generally an SRU should be installed every 4m on a straight horizontal run of Vulcathene pipework.

On Vulcathene stacks, an SRU should be installed at every floor level where there is a stack connection. If there is no stack connection one SRU should be installed every two floors.

Installing Vulcathene Thermal Stress Relief Units

All Vulcathene thermal SRUs are directional to the flow of the liquid. On 38mm and 51mm SRUs the tail end pipe should be pushed fully home and its position marked. It should then be withdrawn 38mm.

The 76mm, 102mm & 152mm are spigot ended for either mechanical or electrofusion jointing and have an open chamber fitted with a dust cap. The dust cap is prised off and slid up the pipe; the pipe is then slid into the chamber of the SRU until it hits the stop.
The pipe should then be marked to show the limit of travel, then withdrawn approx. 25-38mm. The dust cap is then firmly replaced.

Note: 76, 102 + 152mm SRU's have built-in 'o' ring seals.

The body must be firmly held still to allow the SRU to function properly. SRUs should be anchored with a metal clamp except the 38mm which has a moulded fixing clip. Multiple fix points may be required where necessary.

System Testing

The system should be inspected for any possible leaks in accordance with BS EN 12056. Air should be pumped into the system through a branch of a tee piece until a pressure equal to 38mm water gauge is achieved. The inlet valve should then be closed and the system should maintain the pressure for a minimum of three minutes.

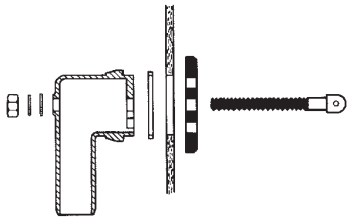
System Maintenance

The W561 and W571 anti-siphon bottle traps and the W681 anti-siphon dilution recovery traps have sumps that can be removed for cleaning by unscrewing. The chamber of the W691 anti-siphon dilution recovery trap is removed by unscrewing the flange assembly.

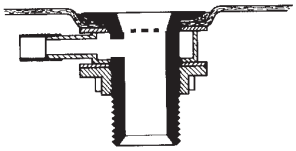
The W612 and 910G dilution recovery traps are cleaned by removing the dip tubes and carefully flushing the interior of the dilution chambers. The W90/L90 series access pipes should be fitted into the pipework system as required to provide sufficient and suitable access for testing and maintenance.

Installing Sinks, Drip Cups and Waste Assemblies

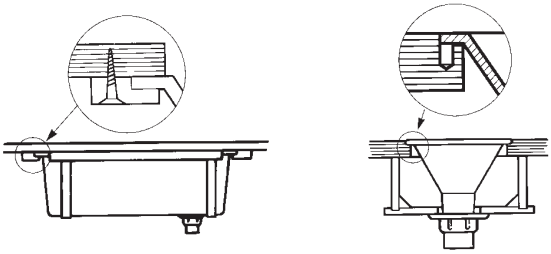
When 504 wastes are used with a plastic or thin walled vessel a Butyl Rubber Gasket should be fitted between the backnut and underside of the sink. All sinks, drip cups and slotted waste assemblies should be bedded with a suitable sealant. eg. Dow Corning 786.



The illustration above shows a 509 overflow assembly with flexible hose to connect to the waste. The overflow bend and face-plate are set in with a suitable sealant. eg. Dow Corning 786.



The illustration above shows the slotted version of the 504 waste assembly used in conjunction with the 509 overflow assembly. The waste, overflow collar and washer are all set with a suitable sealant. eg. Dow Corning 786.



The illustrations above show the recommended method of supporting Vulcathene sinks using wooden battens screwed to the underside of the work top. Larger capacity sinks may need additional supporting metal straps in the manner shown.

It is recommended that all Vulcathene Drip Cups are secured to the work top using a timber frame as illustrated above.

Vulcathene *Chemical Waste Drainage System*

1. Position lower half of saddle around pipe.

2. Taking care to seat gasket, bolt both halves together.

3. Use a spanner to tighten. Do not over torque!

4. Drill pipe wall.

Installing Clamp Saddles

Vulcathene clamp saddles enable fast and easy connection of new branch pipes to existing Vulcathene stacks without the need for special tools or equipment:

1. Position lower half of saddle onto pipe
2. Taking care to seat the gasket seal bolt both halves together
3. Use a spanner to tighten; do not over-torque!
4. Drill pipe wall.

Clamp bolts should be tightened with care. Avoid overtightening. It is recommended that for all sizes a gap of 3-4mm is left between the two clamp halves. This is achieved by a bolt torque of ca.1Nm.

Storage

The high impact strength of Vulcathene provides some protection against general handling damage on site. However certain precautions should be observed:

a) The pipes should be stored on a level flat surface free from sharp stones and similar obstructions.

b) Small pipes may be 'nested' inside larger pipes.

c) The stack should be supported, or braced to prevent collapse.

d) The pipes should not be stacked higher than:

Pipe Size	Max stacking height
Up to 76mm	20 x pipe size
102mm	12 x pipe size

e) When stored in tropical countries for prolonged periods the pipes should be temporarily covered.

f) Pipes in the stack should not be subject to excesses of temperature variation.

While it is not considered necessary for pipes installed in the UK, where pipes are to be installed in locations likely to be permanently exposed to prolonged periods of strong sunlight, such as in tropical countries, their life may be extended by painting. For more information please contact our Technical Support Department on +44 (0)1543 272446.

COSHH Regulations
Attention is drawn to the requirements of the Health and Safety at Work Act and COSHH Regulations.
Durapipe UK cannot accept any responsibility for accidents arising from the misuse of its products, faulty installation and incorrect application. Copies of COSHH Regulations are available on request.

Unicollar® Fire Protection

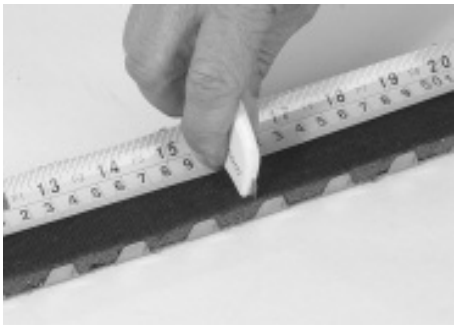
1. Removing the Casing and Accessories from the Box

The box contains the fixings and accessories required to install the collar. Open the box at the position clearly marked with an arrow. Remove the box of accessories. The end of the collar can now be pulled and the strip will uncoil. Ensure the soft Grafitex faces up. The collar strip has snapping perforations at 15mm centres. **Only pull out enough strip for the collar length required.**

2. Cutting and Snapping the Strip

Identify the outside diameter of the pipe that is to have the collar applied to. On the box is a table, which gives the number of segments for each size pipe and the length of strip required. Either count the number of (15mm) segments required or measure the strip. Cut through the Grafitex at the appropriate position e.g. for a 114mm OD pipe, cut at segment marked 30.

Hold the strip with a finger and thumb on each side of the cut and as close to the cut as possible, and fold in a downward direction as far as possible. Repeat this folding until the steel snaps.



3. Fixing the Collar

The ends of the Grafitex, once cut, will be square. To make it easy to fix, cut these square ends away at a slight angle. Shape the strip to the approximate diameter of the pipe. If the pipe is small (e.g. under 75mm) pay extra attention to the ends of the strip to ensure they have been shaped correctly. Push one of the prongs of a bracket through the notch at one end of the strip. Fold the strip around the pipe and push the other prong through the notch on the other end of the strip. (The bracket can be gently hammered in to position if pushing is difficult). Attach the bracket to the wall or floor as described over and shown on the box drawings. Fix the other bracket(s) as required.

Ensure the correct number of brackets are always used and the 2 ends of the strip always have a connecting bracket.

Vulcathene *Chemical Waste Drainage System*

4. Floors

The UniCollar® achieves Fire Resistance Level (FRL) up to 4 hours with Vulcathene pipes up to 114mm diameter, bolted to soffit of floor slab (with a similar fire rating or the same of greater thickness) using the 20mm x 5mm steel anchors provided, through the holes in the brackets provided. The concrete must be in a condition that will ensure the anchors hold securely. Larger steel fixings may be used if deemed appropriate. Back fill any gap between the pipe and concrete greater than 8mm with mortar or commercial grade mortar mix. Acrylic, intumescent or silicone sealant may be applied around the pipe on the topside of the floor slab if a water seal is required. If there is a possibility of pipe movement occurring that will cause cracks in the seal between the pipe and mortar mix (if used), it may be advisable to seal the pipe with acrylic, intumescent or silicone sealant to prevent cold smoke egress. This however is not required for the fire rating to be achieved. If the gap between the pipe and slab is less than 8mm, apply a bead of acrylic, intumescent or silicone sealant approx. 8mm deep in to the gap at the soffit.

Fire Resistance (BS 476: Port 20)

Pipe Size	*Integrity*
38mm-102mm	*4 hours*
**152mm*	*2 hours*

**Note: 2* UniCollars® *are required on 152mm size pipe.*

5. Walls

For framed walls, use the 40mm x 10 laminating screws provided. For masonry walls, use the 20mm x 5mm steel anchors provided. The wall or floor must be in a condition that will ensure the anchors hold securely. Larger steel fixings may be used if deemed appropriate. Ensure the annular gap between the wall and pipe is minimal and seal this gap with a bead of acrylic, intumescent or silicone sealant. Attach a collar to both faces of the wall. Fire tests were conducted with 2 brackets on pipes 69mm and under. For framed walls, 3 brackets are recommended if framing studs are not available to screw in to.

Fire Resistance (BS 476: Port 20)

Pipe Size	*Integrity*
38mm-152mm	*2 hours*

For details of suitability and approvals for use of UniCollar® for other pipe materials and sizes contact the technical support department on +44 (0)1543 272446.

Pipe Diameter (mm)	No of Collars per Carton
38	8
51	7
76	6
102	5
152	3

Connection to other Pipework

Mechanical/Enfusion

Enfusion and Mechanical are fully compatible offering total versatility to the designer/installer of chemical waste drainage systems.

Vulcathene Polyfusion

Vulcathene's original and first thermoplastic pipework system for chemical waste has been replaced by Vulcathene Enfusion, for installations where a welded drainage system is preferred.

To connect Polyfusion to Mechanical

A W271 1¾" F.I. pipe coupler should be used when joining 38mm Vulcathene Mechanical pipe to 38mm Vulcathene Polyfusion pipe. The F.I. thread of a W271 can be screwed to the M.I. thread of a Polyfusion C130 38mm half coupler which is then socket fused to Polyfusion pipe.

The W271 may also be screwed to the outlet of any Vulcathene Polyfusion trap to provide a connection for 38mm Vulcathene Mechanical pipe.

Polyfusion pipe sizes 51mm - 102mm should be treated as Mechanical, i.e. groove the pipe, place an olive in the groove, lubricate the fitting thread and tighten the nut.

To connect Polyfusion to Enfusion:

Use Vulcathene BS Table D flanges. Polyfusion and Enfusion cannot be jointed together using socket or electrofusion jointing methods due to the incompatibility of the materials used.

Other Plastic and Metal Materials

W14, W15, L14 and L15 range of pipe couplers have standard BSP parallel threads and can be screwed directly to the M.I. and F.I. ends of metal or plastic pipes.

Where a BSP connection is not possible, use Vulcathene BS Table D flanges.

Borosilicate Glass

Vulcathene to glass adaptors are available from 38mm to 102mm.

Cast Iron

Use Vulcathene BS Table D Flanges.

Stoneware

When it is intended to insert Vulcathene pipe directly into a collar or socket of another material the following procedure should be adopted. Roughen or score the pipe end with a suitable tool - a coarse file - to provide a suitable 'key'. Pack the socket half full with rope and follow by caulking with acid-resistant cement or a proprietary brand of sealing compound until level with the bead of the collar.

Flexible Couplers and Adaptors

Flexible couplers and adaptors can be used to connect Vulcathene to other pipe materials.

W16
Line Coupler

L16
Line Coupler

L36
Enfusion Flange

W100
BS Table D Flange

W271
1¾" F.I. to Pipe Coupler

C130
Half Coupler

W14
BSP Coupler

W15
BSP Coupler

W45
Glass Adaptor

L45
Glass Adaptor

L14
BSP Coupler

L15
BSP Coupler

AC1221/1361
AC5144/1362
Flexible Adaptor Coupling

DC95/DC115
Flexible Drain Couplings

Vulcathene *Chemical Waste Drainage System*

Polyfusion Jointing (Hand Tool Method)

1. Cut pipe square and remove burrs
2. Insert pipe into the socket of the fitting and press fully home. Mark the tube along the outside shoulder of the socket.
3. Withdraw the tube from the socket. The mark will be the visual guide for the depth of pipe entry, first into the heated tool and then into the fitting socket
4. Heat the tool using a gas torch to a temperature of approximately 240°C. When ready apply the socket to the tool first and then apply the pipe. Keep both pipe and socket on the tool until full contact has been made and surfaces properly melted. (Socket time 15 sec; pipe time 5 sec).
5. Extract the work gently from the tool, pipe and socket simultaneously, and having quickly ensured that a complete all round melt has been achieved enter the pipe into the socket.
6. Press the pipe into the socket up to the visual guide previously marked on the pipe. Hold in position for a few seconds whilst the molten surfaces amalgamate and solidify.

Chemical Resistance Data

Introduction

Information in the accompanying tables show the effect on of a wide range of chemicals. These results have been obtained from laboratory tests and when assessing them it should be remembered that unadulterated samples were used. In a typical chemical waste drainage application, however, water and other innocuous fluids would be discharged into the system to have a dilutionary effect on any noxious material that may be present.

If in anv doubt about the action of any chemicals on or there is the possibility that is to be used in situations where specialised or unusual chemicals are involved, please contact our Technical Services Department.

The tables are intended to serve only as a guide and no guarantees can be given in respect of the data shown, which is based upon information available at the time of printing. Durapipe - UK reserves the right to make any modifications deemed necessary by the acquisition of new data.

Classification

\+ Resistant
* Likely to be resistant
\- Not resistant
No data available

is classed * Likely to be resistant on the basis of the way the material behaves with chemicals of the same family group and where extensive usage by customers indicates suitability.

is classed - Not resistant on the basis of unadulterated test samples. In practice, the routine disposal of a wide variety of hot and cold chemicals is accompanied by appropriate amounts of water for the purpose of dilution and flushing.

Where no data is available, but where details or samples of chemicals can be supplied, Durapipe - UK will conduct chemical suitability tests and make recommendations accordingly.

The following notes should be read in conjunction with the chemical resistance tables:

1. These are compounds whose general formula is either $(R1)_2SO_4(R2)_2(SO4)_6.24\ H_2O$ or $(R1)(R2)(SO_4)_2\ 12\ H_2O$, where R1 represents an atom of Potassium, Sodium, Ammonium, Rubidium, Caesium, Silver or Thallium; and (R2) represents an atom of Aluminium, Iron, Chromium, Manganese or Thallium.
2. This substance is insoluble in pure water. If conveyed aqueous it would always be in the form of a suspension.
3. This substance decomposes in hot water. Unless suitability is indicated refer to Durapipe - UK.
4. Substances which are generally categorised can have widely variable compositions, and therefore each needs to be tested for suitability. Refer to Durapipe - UK.
5. This substance is only sparingly soluble in water. If conveyed aqueous it would usually be in the form of a suspension.
6. This substance is sparingly soluble in water, which then reacts with it.
7. A solution of Chromium trioxide in water, often produced by the action of concentrated Sulphuric acid on Sodium dichromate.

COSHH Regulations

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Acetaldehyde, aqueous		40%	+	+	
Acetamide, aqueous	$CH_3.CONH_2$		+	+	
Acetic acid	$CH_3.COOH$	100%	+		-
Acetic adic, aqueous		70%	+	+	+
Acetetic anhydride	$(CH_3CO)_2O$	techn. grade	+		-
Acetone	$(CH_3)_2CO$	techn. grade	+	+	
Acetophenone	$C_6H_5CO.{}_2CH_3$	techn. grade	+		
Acrylonitrile	$CH_2{:}CH.{}_2CN$	techn. grade	+		
Adipic acid, aqueous	$(CH_2CH_2C.COOH)_2$	saturated	+	+	+
Air			+	+	+
Ally alcohol (2-Propenol-1)	$CH_2CH{:}CH_2OH$	96%	+	+	
Aluminium chloride, aqueous	$AlCl_3$,$AlCl_3.6H_2O$	any	+	+	+
Aluminium cloride, solid			+	+	
Aluminium floride	AlF_3,$AlF_3.H_2O$ $AlF_3.3^1/_2H_2O$	conc.	+	+	+
Aluminium hydroxide (See Note 2)	$Al(OH)_3$		+	+	
Aluminium metaphosphate	$Al\ (PO_3)_3$		+	+	+
Aluminium sulphate, aqueous	$Al_2(SO_4)_3$, $Al_2(SO_4)_3.\ 18\ H_2O$	saturated	+	+	+
Aluminium sulphate, solid			+	+	
Alum, aqueous (See Note 1)		any	+	+	+
Amino acids			+	+	+
2-Aminoethanol (Ethanolamine)	$H_2NCH_2CH_2OH$	techn. grade	+		
Ammonia, aqueous	NH_3	any	+	+	
Ammonia, gaseous			+	+	
Ammonia, liquid			+		
Ammonia water		any	+	+	
Ammonium acetate, aqueous	$CH_3CO_2NH_4$	any	+	+	+
Ammonium carbonate, aqueous (See Note 3)	$NH_4HCO_3NH_2COONH_4$,$H_2NCOONH_4$	any	+	+	+
Ammonium chloride, aqueous (See Note 3)	NH_4Cl	any	+	+	+
Ammonium fluoride, aqueous (See Note 3)	NH_4F	saturated	+	+	
Ammonium hydrogen carbonate, aqueous	NH_4HCO_3	saturated	+	+	
Ammonium hydrosulphide, aqueous	NH_4HS	any	+	+	
Ammonium nitrate, aqueous	NH_4NO_3	any	+	+	+
Ammonium phosphate(s)	$NH_4H_2PO_4$,$(NH_4)_2HPO_4$,$(NH_4)3PO_4.3H_2O$	any	+	+	+
Ammonium sulphate, aqueous	$(NH_4)_2SO_4$	any	+	+	+
Ammonium sulphide, aqueous	$(NH_4)_2S$	any	+	+	+
Ammonium thiocyanate	NH_4SCN			-	-
Amyl acetate	$CH_3.COO.(CH_2)_4.CH_3$, Pentyl acetate	techn. grade		-	-
Amyl alcohol (C_5 alcohols)	$CH_3.(CH_2)_3.CH_2OH$, Pentan-1-ol, Butyl carbinol	tech. grade	+	+	+
Aniline	$C_6H_5NH_2$	any	+	+	
Aniline hydrochloride, aqueous	$C_6H_5NH_2.HCl$	any	+	+	
Animal oils			+		
Anon (Cyclohexanone)	$CH_2.(CH_2)_4.CO$		+		
Anthraquinone sulphonic acid, aqueous (susp.)	$C_6H_4(CO_2)C_6H_4SO_3H$		+		
Antifreeze (automotive) (See Note 4)		as supplied commercially			
Antimony chloride, anhydrous	$SbCl_3$		+	+	
Antimony pentachloride	$SbCl_3$		+	+	
Antimoney trichloride	$SbCl_5$, Antimony (III) chloride, Butter of Antimony		+	+	
Aqua regia	$(HCl+HNO_3)$		-	-	

Classification: + = Resistant * = Likely to be resistant - = Not resistant = No data available

Vulcathene — Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Aromatic oils			-	-	
Arsenic acid, aqueous	HA_5O_3	any	+	+	
Arsenic acid anhydride			+	+	
Ascorbic acid			+	+	
Asphalt			+		
®Asprin			+		
Barium hydroxide, aqueous	$Ba(OH)_28H_2O$	any	+	+	+
Battery acid	conc. H_2SO_4 diluted with water to about 25%		+	+	
Beater glue (animal glue)		as supplied	+	+	
Beef tallow			+	+	
Beer			+	+	
Beer sugar colouring		as supplied commercially	+	+	
Beeswax			+		
Benzaldehyde, aqueous	$C_6H_5.CHO$	any	+		
Benzene	C_6H_6	techn. grade	-	-	
Benzene sulphonic acid	$C_6H_5SO_3H$		+	+	
Benzoic acid, aqueous	$C_6H_5CO_2H$		+	+	+
Benzyl alcohol	$C_6H_5.CH_2OH$		+	+	
Benzyl chloride	$C_6H_5.CH_2Cl$		-	-	-
Bichromate - sulphuric acid		conc.	-	-	-
Bismuth salts			+		
Bisulphite liquor			+	+	
Bitumen			+		
Bleaching solution containing 12.5% active chlorine**			-	-	-
Bone oil			+	+	
Borax (Sodium tetraborate), aqueous	Na_2B_4O7, $Na_2B_4O_7.10H_2O$, di-Sodium tetraborate	saturated	+	+	+
Boric acid, aqueous	H_3BO_3	any	+	+	+
Brandy			+	+	
Bromic acid	Hbr	conc.	-	-	-
Bromine, liquid	Br_2	100%	-	-	-
Bromine vapours			-	-	-
Butanediol, aqueous	$HO(CH_2)_4OH$	any	+	+	+
Butanetriol, aqueous	$HOCH_2CH_2CH(OH)CH_2OH$	any	+	+	
Butanol, aqueous	$CH_3(CH_2)_3OH$	any	+		
Butanone	$C_2H_5COCH_3$		+		
2-Butenediol-1.4	$HOCH_2CH{=}CHCH_2OH$	techn. grade	+	+	
2-Butynediol-1.4	$HOCH_2C{=}CCH_2OH$	techn. grade	+		
®Butoxyl (Metoxybutylacetate)	$CH_3COO(CH_2)_4OCH_3$		+		
Butter			+	+	
Butylene glycol	$HO(CH_2)_4OH$	techn. grade	+		
Butyl acetate	$CH_3.COO.(CH_2)_3.CH_3$		*	-	-
Butyl acrylate	$H_2C{=}CHCO_2(CH_2)_3CH_3$		+		
Butyl alcohol	$CH_3.(CH_2)_3OH$, Buton-I-ol		+		
Butyl phenol	$C_2H_5CH(CH_3)C_6H_4OH$	techn. grade	+		
Butyl phenone	$C_6H_5O(CH_2)_4CH_3$	techn. grade	-	-	-
Butyl phthalate (Dibutyl phthalate)	$C_6H_4O(COOC_4H_9)_2$	techn. grade	+		
Butyric acid, auqeous	$CH_3.CH_2.CH_2.COOH$,	any	+		
Calcium carbide	CaC_2		+	+	
Calcium carbonate (See Note 5)	$CaCO_3$		+	+	+
Calcium chlorate, aqueous	$Ca(ClO_3)_2$	saturated	+	+	
Calcium chloride, aqueous	$CaCl_2$,$CaCl_2.2H_2O$,$CaCl_2.6H_2O$	saturated	+	+	+
Calcium hydroxide (See Note 5)	$Ca(OH)_2$		+	+	+

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Calcium hypochlorite, aqueous (suspension)	$Ca(OCl)_2$		*	*	-
Calcium nitrate, aqueous	$Ca(NO_3)_2$, $Ca(NO_3)_2.4H_2O$	50%	+	+	+
Calcium oxide (powder) (See Note 6)	CaO		+	+	
Calcium sulphate (See Note 5)	$CaSO_4$, $CaSO_4.2H_2O$ (Gypsum), $CaSO_4.{}^1/_2H_2O$ (Plaster of Paris)		+	+	+
Camphor oil		any	-	-	-
Cane sugar, aqueous		any	+	+	
Carbazole	$(C_6H_4)_2NH$		+	+	
Carbolic acid (Phenol)	C_6H_5OH		+		
Carbonic acid, aqueous	H_2CO_3	any	+	+	
Carbonic acid, dry		100%	+	+	
Carbon dioxide	CO_2	100%	+	+	
Carbon monoxide, gaseous	CO	techn. grade	+	+	
Castor oil			+	+	
Caustic soda solution	NaOH,	any	+	+	+
Cetyl alcohol (Hexadecanol)	$CH_3(CH_2)_{15}OH$		+		
Chloral (Trichloroacetaldehyde)	CCl_3CHO	techn. grade	+	+	
Chloramine, aqueous	NH_2Cl	saturated	+		
Chloric acid, aqueous	$HClO_3$	10%	+		-
Chloric acid, aqueous		20%	+	-	-
Chlorinated lime			+	+	
Chlorine, aqueous solution (chlorine water)	$Cl_2 + H_2O$	saturated	*	-	-
Chlorine, gaseous, dry			-	-	-
Chlorine, gaseous, moist			-	-	-
Chlorine, liquid			-	-	-
Chlorine bleaching solution with 12.5% active chlorine			-	-	-
Chloroacetic acid, aqueous	$ClCIH_2CO_2H$	<85%	+	+	
Chlorobenzene	C_6H_5Cl		-	-	-
Chloroform	$CHCl_3$	techn. grade	-	-	-
Chloromethyl bromide	CH_2ClBr		-	-	-
Chlorlsulphonic acid	$ClSO_3H$	techn. grade	-	-	-
Chrome alum (Potassium chromic sulphate) aqueous		saturated	+	+	+
Chrome anode slime			+		
Chromic acid, aqueous (See Note 7)		50%	-	-	-
Chromium trioxide, aqueous	CrO_3	50%	-	-	-
Chromosulphuric acid			-	-	-
Cider			+	+	+
Citric acid, aqueous	$C(OH)(COOH)(CH_2COOH)_2.H_2O$	saturated	+	+	+
Citrus juices			+	+	
Coal tar oil			-	-	-
Coconut oil			+		
Coconut oil alchohol		techn. grade	+		
Cod liver oil			+		
Coffee extract			+	+	
Cognac			+		
Cola concentrates			+	+	
Common salt, aqueous	NaCl	any	+	+	+
Copper chloride, aqueous	CuCl, $CuCl_2$, $CuCl_2.2H_2O$	saturated	+	+	+
Copper cyanide, aqueous	$Cu\ CN_2$	saturated	+	+	
Copper fluoride, aqueous	$Cu\ F_2$	saturated	+		
Copper nitrate, aqueous	$Cu(NO_3)_2.3H_2O$, Cupric nitrate	30%	+	+	
Copper sulphate, aqueous	$CuSO_4$, $CuSO_4.5H_2O$, Cupric sulphate	any	+	+	+

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Corn oil			+	+	
Cottonseed oil		techn. grade	+	+	
Coumarone resins			+		
Creosote			*		
Cresol	$CH_3(C_6H_4)OH$	100%	+		
Cresol, aqueous	Isomers of $CH_3.C_6H_4.OH$, Cresylic acid	dilute	+		
Crotonaldehyde	$CH_3CH{=}CHCHO$	techn. grade	+		
Cyclanone (fatty alcohol sulponate)		as supplied commercially	+	+	
Cyclohexanol	$CH_2.(CH_2)_4.CH.OH$		+	+	
Cyclohexanone (Anon)	$CH_2.(CH_2)_4.CO$		+		
Decahydronaphthalene (®Dekalin)	$C_{10}H_{18}$	techn. grade	-	-	
Detergents			+	+	
Developer solutions (photographic)			+	+	
Dextrin (starch gum), aqueous		18%	+	+	+
Dextrose, aqueous	$O(CH.OH)_4.CH.CH_2OH$, D-Glucose	any	+	+	+
1.2-Diaminoethane (Ethylenediamine)	$H_2NCH_2CH_2NH_2$	techn. grade	+	+	
1.2-Dibromoethane	$BrCH_2CH_2Br$		-	-	-
Dibutyl ether	$[CH_3(CH_2)_3]O$		-	-	-
Dibutyl phthalate (Butyl phthalate)	$C_6H_4(COOC_4H_9)_2$	techn. grade	+		
Dibutyl sebacate	$CH_3(CH_2)_3O_2C(CH_2)_8CO_2(CH_2)_3CH_3$		+		
Dichloroacetic acid	$Cl_2CHCOOH$	techn. grade	+		
Dichloroacetic acid methyl ester	$Cl_2CHCO_2CH_3$		-	-	-
Dichlorobenzene	$C_6H_4Cl_2$		-	-	-
Dichlorodiphenyltrichloroethane (DDT, powder)			+	+	
Diethanolamine	$[CH_2(OH).CH_2]_2NH$	techn. grade	+		
Diethylene glycol	$(HOCH_2CH_2)_2O$		+	+	
Diethyl ether	$(C_2H_5)_2O$		-	-	-
Diglycolic acid, aqueous	$O(CH_2CO_2H)_2$	30%	+	+	
Dihexyl phthalate	$C_6H_4(COOC_6H_{11})_2$	techn. grade	+		
Diisobutylketone	$[(CH_3)_2CH.CH_2]_2CO$	techn. grade	+	-	-
Diisoctyl phthalate	$C_6H_4(COOC_8H_{17})_2$	techn. grade	+		
Dimethylamine	$(CH_3)_2NH$		+		
Dimethyl formamide	$H.Co.N(CH_3)_2$, DMF, N. N-Dimethylformamide	techn. grade	+	+	
Dinonyl phthalate (DNP)	$C_6H_4(COOC_9H_{19})_2$	techn. grade	+		
Dioctyl phthalate	$C_6H_4[COO.CH_2.CH(C_2H_5)(CH_2)_3CH_3]_2$, Di-(2-ethylhexyl) phthalate, DOP		+		
Disodium phosphate	Na_2HPO_4		+	+	+
Disodium sulphate	Na_2SO_4		+	+	+
Dodecylbenzenesulphonic acid	$C_{12}H_{25}C_6H_4SO_3H$		+		
Drinking water, also clorinated	H_2O		+	+	+
Emulsions (photographic)			+	+	
Epichlorohydrin	$ClCH_2(CH_2)_2O$		+		
Ethanolamine (2-Aminoethanol)	$H_2NCH_2CH_2OH$	techn. grade	+		
Ethanol	CH_3CH_2OH	96%	+	+	+
Ether, Diethyl ether	$(C_2H_5)_2O$		-	-	-
Ethylenediamine tetraacetic acid	$[CH_2.N(CH_2.COOH_2)]_2$		+	+	+
Ethylene chlorohydrin (Chloroethanol)	$ClCH_2CH_2OH$	techn. grade	+		
Ethylene diamine (1.2-Diaminoethane)	$H_2NCH_2CH_2NH_2$	techn. grade	+	+	
Ethylene dichloride (Dichloroethane)	$ClCH_2CH_2Cl$		-	-	-
Ethylene glycol	$CH_2(OH).CH_2OH$		+	+	+

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Ethylene glycol monobutyl ether	$HOCH_2CH_2OC_4H_9$	techn. grade	+		
Ethylene oxide, gaseous	$CH_2.CH_2O$		+		
Ethyl acetate	$CH_3.COO.C_2H_5$	techn. grade	+		
Ethyl alcohol	C_2H_5OH	techn. grade	+	+	+
Ethyl alcohol + Avetic acid (fermentation mixture)		as used in brewing	+	+	
Ethyl benzene	$C_6H_5CH_2CH_3$	techn. grade	-	-	-
Ethyl chloride	C_2H_5Cl	techn. grade	-	-	-
Ethyl chloride (Chloroethante)	CH_3CH_2Cl	techn. grade	-	-	-
Ethyl ether	$(C_2H_5)_2O$	techn. grade	-	-	-
Ethyl ether (Diethyl ether)	$(C_2H_5)O$		-	-	-
Fatty acids			+	+	
Fatty acid amides			+		
Fatty alcohols			+		
Ferric ammonium sulphate, aqueous	$NH_4Fe(SO_4)_2.\ 12H_2O$ saturated		+	+	+
Ferric chloride	$FeCl_3$, $FeCl_3.6H_2O$, Iron (III) chloride	saturated	+	+	+
Ferric nitrate, aqueous	$Fe(NO_3)_3.9H_2O$, Iron (III) nitrate	saturated	+	+	+
Ferric sulphate, aqueous (See Note 3)	$Fe_2(SO_4)_3$, $Fe_2(SO_4)_3.xH_2O$, Iron (III) sulphate	saturated	+	+	+
Ferrous chloride, aqueous	$FeCl_2.4H_2O$	saturated	+	+	+
Ferrous sulphate, aqueous	$FeSO_4 7H_2O$	saturated	+	+	+
Fertilizer salts, aqueous		any	+	+	
Fluorine, gaseous	F_2		-	-	-
Formaldehyde, aqueous	HCHO	up to 40%	+	+	
Formamide	$HCONH_2$		+	+	
Formic acid, aqueous	H.COOH	10%	+	+	
Formic acid, aqueous		85%	+		
Fructose	$O.CH_2.(CH.OH)_3.C(OH).CH_2OH$, Laevulose		+	+	+
Fruit juices		any	+	+	+
Fruit juices, fermented			+	+	+
Fruit pulp			+	+	+
Fuming sulphuric acid	$(H_2SO_4 + SO_3)$	any	-	-	-
Furfuryl alcohol	$O.CH:CH.CH:C.CH_2OH$		+		
Gas, manufactured		as supplied commercially	+		
Gas, natural		techn. grade	+		
Geletin			+	+	+
Gin			+		
Glacial acetic acid (100% acetic acid)	CH_3COOH	techn. grade	+		-
Glauber's salt, aqueous	$Na_2SO_4 10H_2O$	any	+	+	+
Glucose, aqueous		any	+	+	+
Glycerin(e)	CH2OH.CHOH.CH2OH, Glycerol 1,2,3-Propanetriol	any	+	+	+
Glycine (Aminoacetic acid)	$H_2NCH_2CO_2H$		+	+	
Glycolic Acid, aqueous	$HOCH_2CO_2H$	up to 70%	+		
Heptane	$CH_3(CH_2)_5CH_3$		-	-	-
Hexafluorosilicic acid, aqueous	H_2SiF_6	40%	+	+	
Hexane	$CH_3(CH_2)_4CH_3$		-	-	-
Hexanetriol	$HO(CH_2)_4CH(OH)CH_2OH$		+	+	+
Honey			+	+	+
Hydrazine hydrate	$NH_2.NH_2H_2O$		+		
Hydrobromic acid, aqueous	HBr	50%	+	+	
Hydrochloric acid, aqueous	HCl	any	+	+	
Hydrocyanic acid	HCN		+	+	

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Hydrofluoric acid, aqueous	HF	85%	+		
Hydrogen	H_2		+	+	
Hydrogen chloride gas, dry and moist			+	+	
Hydrogen peroxide, aqueous	H_2O_2	10%	+	+	
Hydrogen peroxide, aqueous		30%	+		
Hydrogen sulphide, aqueous	H_2S	saturated	+	+	
Hydrogen sulphide, gaseous			+	+	
Hydroxylamine sulphated, aqueous	$(H_2NOH)_2.H_2SO_4$	12%	+	+	
Hypochlorous acid	HOCl		*	*	
Ink			+	+	
Iodine in potassium iodide solution		3% iodine	*	*	
Iodine tincture		as supplied commercially	*		
Isobutyl alcohol (Isobutanol)	$C_2H_5CH(OH)CH_3$		+		
Isooctane	$(CH_3)_2CHCH_2C(CH_3)_3$		-	-	
Isopropanol	$(CH_3)_2CHOH$	techn. grade	+	+	+
Isopropyl ether	$[(CH_3)_2CH]_2O$	techn. grade	-	-	-
i-Propanol (i-Propyl alcohol)	$(CH_3)_2CHOH$		+	+	+
Jam			+	+	+
Lactic acid, aqueous	$CH_3.CHOH.COOH$	any	+	+	+
Lactose (milk sugar)			+	+	+
Lanolin	(wool fat)		+		
Latex			+	+	
Lead acetate, aqueous	$(CH_3.COO)_2Pb.3H_2O$	any	+	+	+
Lead tetraethyl			+		
Lime (See Note 5)	CaO		+	+	+
Lime water			+	+	+
Linseed oil		techn. grade	+	+	+
Lithium bromide			+	+	+
Magnesium carbonate	$MgCO_3$, $MgCO_3.3H_2O$, $MgCO_3.5H_2O$ Magnesite		+	+	+
Magnesium chloride, aqueous	$MgCl_2$, $MgCl_2.6H_2O$		+	+	+
Magnesium hydroxide (See Note 5)	$Mg(OH)_2$		+	+	+
Magnesium iodide	$Mg\ I_2$	any	+	+	+
Magnesium sulphate (Epsom salts), aqueous	$MgSO_4$, $MgSO_4.H_2O$, $MgSO_4\ 7H_2O$	up to 100%	+	+	+
Maleic acid, aqueous	$HO_2CCH{=}CHCO_2H$		+	+	+
Malic acid, aqueous	$HO_2CCH_2CH(OH)CO_2H$	50%	+	+	+
Manganese sulphate	$MnSO_4$		+		
Margarine			+	+	
Mash		as supplied	+	+	
Mayonnaise			+		
Mercury	Hg		+	+	
Metal soaps			+	+	+
Methacrylic acid	$H_2C{=}C(CH_3)CO_2H$		+	+	
Methanol	CH_3OH	techn. grade	+	+	
Methoxybutanol	$CH_3O(CH_2)_4OH$		+		
Methoxybutyl acetate (®Butoxyl)	$CH_3CO_2(CH_2)_4OCH_3$		+		
Methylamine, aqueous	CH_3NH_2	32%	+		
Methylene chloride (dichloromethane)	CH_2Cl_2		-	-	-
Methylisobutyl ketone	$(CH_3)_2CH.Ch_2.COCH_3$	techn. grade	+		
Methyl acetate (Acetic acid methyl ester)	$CH_3CO_2CH_3$	techn. grade	+	+	
Methyl alcohol	CH_3OH		+	+	

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Methyl benzene	$C_6H_5CH_3$		-	-	
Methyl bromide (Bromomethane), gaseous	CH_3Br	techn. grade	-	-	-
Methyl chloride (Chloromethane), gaseous	CH_3Cl	techn. grade	-	-	-
Methyl cyclohexane	$C_6H_{11}CH_3$		-	-	-
Methyl ethyl ketone	$C_2H_5.CO.CH_3$	techn. grade	+		
Methyl glycol			+	+	
4-Methyl pentanol-2	$(CH_3)_2CHCH_2CH(OH)CH_3$		+		
Methyl propyl ketone	$CH_3COCH_2CH_2CH_3$		+		
Methyl salicylate (Salicyclic acid methyl ester)	$2\text{-}(HO)C_6H_4CO_2CH_3$		+		
Methyl sulphuric acid	CH_3OSO_2OH	50%	+	+	
Milk			+	+	+
Mineral water			+	+	+
Molasses			+	+	
Molasses wort			+	+	
Monochloroacetic acid	$ClCH_2CO_2H$		+	+	
Monochloroacetic acid ethyl ester	$ClCh_2CO_2C_2H_5$		+	+	
Monochloroacetic acid methyl ester	$ClCH_2CO_2CH_3$		+	+	
Morpholine	$NHCH_2CH_2OCH_2CH_2$		+	+	
Mustard			+	+	+
Must			+	+	+
Nail varnish remover	(see note 4)				
Nickel chloride	$NiCl_2$, $NiCl_2.6H_2O$		+	+	+
Nickel nitrate	$Ni(NO_3)_2.6H_2O$		+	+	+
NIckel sulphate, aqueous	$NiSO_4$, $NiSO_4.6H_2O$		+	+	+
Nicotinic acid	C_6H_4NCOOH	any	+	+	+
NItric acid	HNO_3	25%	+	-	-
2.2',2"-Nitrilotriethanol (Triethanolamine),	$(HOCH_2CH_2)_3N$		+	+	
Nitrobenzene	$C_6H_5NO_2$		+	+	
Nitrocellulose			+		
o-Nitrotoluene	$CH_3.C_6H_4NO_2$		+	-	
Nonyl alcohol (nonanol)	$CH_3(CH_2)_8OH$		+		
Nut oil			+		
Octyl cresol	$CH_3(CH_2)_7C_6H_3(CH_2)OH$	techn. grade		-	
Oleic acid	$CH_3(CH_2)_7CH{:}CH(CH_2)_7COOH$, 9-Octadecanoic acid		+	-	
Olive oil			+	+	+
Orange juice			+	+	+
Oxalic acid, aqueous	$(COOH)_2 2H_2O$	any	+	+	+
Oxygen	O_2		+	+	
Ozone	O_3	50 pphm	+	*	
Palmitic acid	$CH_3.(CH_2)_{14}.COOH$		+	+	
Palmityl alcohol			+	+	
Palm nut oil			+	+	
Paraformaldehyde	$(CH_2O)n$		+		
Peanut oil		techn. grade	+	+	
Pentanol	$CH_3(CH_2)_4OH$		+		
Perchloric acid, aqueous	$HClO_4$	20%	+	+	
Phenol (Carbolic acid)	C_6H_5OH		+	+	
Phenyl ethyl alcohol	$C_6H_5CH_2CH_2OH$		+		

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Phenyl hydrazine hydrochloride	$C_6H_5NHNH_2.HCl$		+		
Phenyl sulphonate (Sodium dodecyl benzene sulphonate)	$C_{12}H_{25}C_6H_4SO_3Na$		+	+	
Phosgene, liquid		100%	-		
Phosphoric acid, aqueous	H_3PO_4	50%	+	+	+
Phosphoric acid, aqueous		80%...95%	+		
Phosphorus oxychloride	$POCl_3$		+		
Phosphorus pentoxide	P_2O_5	100%	+		
Phosphorus trichloride	PCl_3		+		
Phthalic acid, aqueous	C_6H_4-1, 2-$(CO_2H)_2$	50%	+	+	
Phthalic acid dibutyl ester (Dibutyl phthalate)	$C_6H_4(COOC_4H_9)_2$	techn. grade	+		
Picric acid, aqueous	$(O_2N)_3C_6H_2OH$	1%	+		
Pineapple juice			+	+	
Pine needle oil			+	+	
Polyglycols			+	+	
Potassium aluminium sulphate, aqueous	$KAl(SO_4)_2.\ 12H_2O$	any	+	+	+
Potassium bicarbonate, aqueous	$KHCO_2$	saturated	+	+	+
Potassium bicromate, aqueous	$K_2Cr_2O_7$	any	+	+	+
Potassium bisulphate, aqueous	$KHSO_4$	saturated	+	+	+
Potassium *meta* bisulphate, aqueous	$K_2S_2O_5$	saturated	+	+	+
Potassium borate, aqueous	KBO_2	1%	+	+	+
Potassium bromate, aqueous	$KBrO_3$	up to 10%	+	+	+
Potassium bromide, aqueous	KBr	any	+	+	+
Potassium carbonate	K_2CO_3, $K_2CO_3.\ 1^1/_2H_2$), Potash	any	+	+	+
Potassium chlorate, aqueous	$KClO_3$	any	+	+	+
Potassium chloride, aqueous	KCl	any	+	+	+
Potassium chromate, aqueous	K_2CrO_4	40%	+	+	+
Potassium chromic sulphate (Chrome alum), aqueous	$KCr)SO_4)_2.\ 12H_2O$		+	+	+
Potassium cyanide, aqueous	KCN	any	+	+	+
Potassium dichromate, aqueous	$K_2Cr_2O_7$	saturated	+	+	+
Potassium ferricyanide, aqueous	$K_3Fe(CN)_6$	any	+	+	+
Potassium ferrocyanide, aqueous	$K_4Fe(CN)_6.\ 3H_2O$	saturated	+	+	+
Potassium fluoride, aqueous	KF	any	+	+	+
Potassium hexacyanoferrate, aqueous	$K_3Fe(CN)_6$ or $K_4Fe(CN)_6.\ 3H_2O$	any	+	+	+
Potassium hydrogen carbonate, aqueous	$KHCO_3$	saturated	+	+	+
Potassium hydrogen sulphate, aqueous	$KHSO_4$	saturated	+	+	+
Potassium hydrogen sulphate, aqueous	$K_2S_2O_5$	saturated	+	+	+
Potassium hydroxide, aqueous	KOH	any	+	+	+
Potassium iodide, aqueous	KI	any	+	+	+
Potassium nitrate, aqueous	KNO_3	any	+	+	+
Potassium perchlorate, aqueous	$KClO_4$	1%	+	+	
Potassium permanganate, aqueous	$KMnO_4$	up to 6%	+		
Potassium persulphate, aqueous	$K_2S_2O_8$	any	+	+	+
Potassium phosphate, aqueous	K_2PO_4	saturated	+	+	+
Potassium sulphate, aqueous	K_2SO_4	any	+	+	+
Potassium sulphide, aqueous	K_2S	saturated	+	+	
Potassium sulphite, aqueous	$K_2SO_5.2H_2O$	saturated	+	+	+
Potassium thiosulphate, aqueous	$K_2S_2O_3.H_2O$	saturated	+	+	+
Propanol (Propyl alcohol)	$CH_3\ Ch_2\ CHOH$	techn. grade	+	+	
i-Propanol (i-Propyl alcohol)	$(CH_3)_2CHOH$	techn. grade	+	+	
n-Propanol (n-Propyl alcohol)	$CH_3\ CH_2\ CHDH$	techn. grade	+	+	
Propargyl alcohol, aqueous	$HC{\equiv}CCH_2OH$	7%	+	+	

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Propionic acid, aqueous	$CH_3 CH_2 COOH$	any	+	+	
Propylene dichloride	CH_2 Cl CH Cl	100%	-	-	-
Propylene glycol	$CH_2 (CH_2OH)_2$, Propane-1, 2-diol, CH_3 CH(OH).CH_2OH, Propane-1,3-diol		+	+	+
Pyridine	$C_5 H_5 N$		*	*	
Quinine	$C_{20}H_{24} N_2 O_2$		+	+	
Rubber dispersions (latex)			+	+	
Salicylic acid	HOC_6H_4COOH		+	+	
Salt brines		saturated	+	+	
Sauerkraut (pickled cabbage)			+	+	+
Sea water			+	+	+
Silicic acid, aqueous	H_2SiO_3	any	+	+	
Silicone emulsion		as supplied commercially			
Silicone oil		technical	+	+	+
Silver nitrate, aqueous	Ag NO_3	any	+	+	+
Soap solution, aqueous		any	+	+	+
Soda (Sodium carbonate), aqueous		any	+	+	+
Sodium acetate, aqueous	CH_3,COONa, CH_3.COONa.$3H_2O$	any	+	+	+
Sodium aluminium sulphate	Na $Al(SO_4)_2 12H_2O$		+	+	+
Sodium benzoate, aqueous	C_6H_5. COONa	any	+	+	+
Sodium bicarbonate, aqueous	$NaHCO_3$	saturated	+	+	+
Sodium bisulphate, aqueous	$NaHSO_4$. H_2O	saturated	+	+	+
Sodium bisulphite, aqueous	$Na_2S_2O_5$	saturated	+	+	+
Sodium borate	$Na_2B_4O_7$		+	+	+
Sodium bromide	NaBr		+	+	+
Sodium carbonate, aqueous	Na_2CO_3, Na_2CO_3 $10H_2O$, Soda	any	+	+	+
Sodium chlorate, aqueous	$NaClO_3$	saturated	+	+	
Sodium chloride, aqueous	NaCl	any	+	+	+
Sodium chlorite, aqueous	$NaClO_2$	50%	+	+	
Sodium chromate	Na_2CrO_4		+	+	+
Sodium cyanide	NaCN		+	+	+
Sodium dichromate	$Na_2Cr_2O_7$. $2H_2O$		+	+	+
Sodium dodecylbenzenesulphonate	$C_{12}H_{25}C_6H_4SO_3Na$		+	+	+
Sodium ferricyanide	$Na_3fe(CN)_6$ H_2O		+	+	+
Sodium fluoride	NaF		+	+	+
Sodium hexacyanoferrate (III) (sodium ferrocyanide), aqueous	$Na_3Fe(CN)_6$. H_2O		+	+	+
Sodium hexacyanoferrate (II)	$Na_4Fe(CN)_6$. $3H_2O$		+	+	+
Sodium hexametaphosphate, aqueous	$(NaPO_3)_6$	saturated	+	+	+
Sodium hydrogen carbonate, aqueous	Na HCO_3		+	+	+
Sodium hydrogen sulphate, aqueous	$NaHSO_4$	saturated	+	+	+
Sodium hydrogen sulphite, aqueous	$NaHSO_3$	saturated	+	+	+
Sodium hydroxide, aqueous	NaOH	saturated	+	+	+
Sodium hydroxide, solid			+	+	
Sodium hypochlorite, aqueous with ≥ 5% active chlorine	NaOCl		-	-	-
Sodium nitrate, aqueous	$NaNO_3$	any	+	+	+
Sodium perborate, aqueous	$NaBO_3$. $4H_2O$				
Sodium phosphate(s)	Na_2HPO_4, $NaPO_4$. $12H_2O$ NaH_2PO_4, $Na_4P_2)_7$. $10H_2O$	any	+	+	+
Sodium silicate, aqueous	A waterglass, NaO. x SiO_2 where x = 3 to 5	any	+	+	+
Sodium sulphate, aqueous	Na_2SO_4,Na_2SO_4. $10H_2O$, Glauber's salt	cold saturated	+	+	+
Sodium sulphide, aqueous		saturated	+	+	

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Chemical Resistance Data

Substance	Formula	Concentration	Chemical Resistance of Vulcathene		
			20˚C	60˚C	80˚C
Sodium sulphite, aqueous	Na_2SO_3, $Na_2SO_3 9H_2O$	40%	+	+	+
Sodium tetraborate (Borax), aqueous	$Na_2B_4O_7$. $10H_2O$, Borax	saturated	+	+	+
Sodium thiosulphate, aqueous	$Na_2S_2O_3$, $Na_2S_2O_3$. $5H_2O$	saturated	+	+	+
Soft soap			+	+	+
Soya bean oil			+		
Spermaceti			+		
Stannic chloride, aqueous	$SnCl_4$, $SnCl_4.5H_2O$	saturated	+	+	+
Stannous chloride, aqueous	$SnCl_2$, $SnCl_2.2H_2O$	any	+	+	+
Starch, aqueous	$C_6H_{10}O_5$	any	+	+	+
Starch gum		18%	+	+	+
Starch syrup			+	+	+
Stearic acid (See Note 2)	$CH_3.(CH_2)_{16}.COOH$		+		
Styrene	$C_6H_5CHCH_2$		+		
Succinic acid, aqueous	$HOOC(CH_2)_2COOH$	50%	+	+	
Sugar syrup			+	+	+
Sulphuric acid, aqueous	H_2SO_4	up to 50%	+	+	
Sulphuric acid, aqueous		80%	+	*	
Sulphuric acid, aqueous		98%	*	-	
Sulphur (See Note 2)	S_8		+	+	+
Sulphurous acid	H_2SO_3		+	+	
Sulphuryl chloride (sulphonyl chloride)	SO_2 Cl_2	techn. grade	-	-	-
Sulphur dioxide, aqueous	SO_2	any	+	+	
Sulphur dioxide, gaseous			+	+	
Sulphur trioxide	SO_3		-	-	-
Tallow		techn. grade	+	+	
Tannic acid (tannin), aqueous		10%	+	+	
Tanning extracts, vegetable		as supplied	+	*	
Tartaric acid, aqueous	$(CHOH.COOH)_2$	any	+	+	
Tetrachloroethane	$CHCl_2$. $CHCl_2$		-	-	-
Tetrachloromethane (Carbon tetrachloride)	CCl_4	techn. grade	-	-	-
Tetrahydrofuran	CH_2 (CH_2). CH_2O	techn. grade		-	-
Tetrahydronaphtalene	$C_6H_4CH_2CH_2CH_2CH_2$	techn. grade	-	-	-
Thioglycolic acid	$HSCH_2 CO_2 H$		+	+	
Thionyl chloride	$SOCl_2$		-	-	-
Thiophene	$S(CH)_3CH$			-	-
Toluene	C_6H_5. CH_3	techn. grade	-	-	-
Toluic acids (methyl benzoic acids)	CH_3. C_6H_4 COOH	saturated	*		
Tomato juice			+	+	+
Tributyl phosphate	$(C_4H_9)_3 PO_4$		+	+	
Trichloroacetaldehyde (chloral)	CCl_3 CHO	techn. grade	+	+	
Trichloroacetic acid	CCl_3 COOH	techn. grade	+		
Trichloroethylene	CHCl: CCl_2	techn. grade	-	-	-
Tricesyl phosphate	$(CH_3.C_6H_4)_3PO_4$		+		
Triethanolamine	(HO $CH_2CH_2)_3N$		+		
Triethanolamine (2,2'2"- Nitrilotriethanol), aqueous		saturated	+		
Triethylene glycol	$HOCH_2CH_2OCH_2CH_2OCH_2CH_2OH$		+	+	

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Chemical Resistance Data

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Trioctyl phosphate	$(C_8H_{17})_3PO_4$		+		
Trisodium phosphate	$Na_3PO_412H_2O$		+	+	+
Tri-ß-chloroethylphosphate	$(ClCH_2CH_2O)_3PO$		+		
Turpentine oil		techn. grade	-	-	-
®Tween 20 and 80			+	+	
Urea, aqueous	$NH_2.CO.NH_2$	up to 33%	+	+	+
Uric acid (See note 2)	$C_5H_4N_4O_3$		+		
Urine			+	+	
Vaseline		techn. grade	+	*	
Vinegar (wine vinegar)		as supplied commercially	+	+	
Vinylidene chloride (1,1 - Dicloroethylene)	CH_2CCl_2	techn. grade	-	-	-
Vinyl acetate	$CH_3COO.CH:CH_2$		+	*	
Viscose spinning solutions			+	+	
Vitamin C			+		
Vitamin preparations, dry (powder)			+		
Walnut oil			+		
Washing up liquids		usual	+	+	
Water, distilled	H_2O		+	+	+
Whey			+	+	+
Whisky			+		
White spirit		techn. grade	-	-	-
Wine			+	+	
Wine vinegar (table vinegar)		as supplied	+		
Xylene	$C_6H_4(CH_3)_2$		-	-	-
Yeast			+		
Zinc carbonate (See note 5)	$ZnCO_3.2ZnO3H_2O$		+	+	+
Zinc chloride, aqueous	$ZNCl_2$	any	+	+	
Zinc oxide (See note 5)	ZnO		+	+	+
Zinc stearate	$[CH_3(CH_2)_{16}CO_2]_2Zn$		+	+	+
Zinc sulphate, aqueous	$ZnSO_4.7H_2O$	any	+	+	+

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HERAIS INTERNATIONAL

100 Bessemer Rd. London ON N6E 1R2 Canada

www.herais.ca

Tel: +1 519 800 1353

Email: higtc@windowslive.com