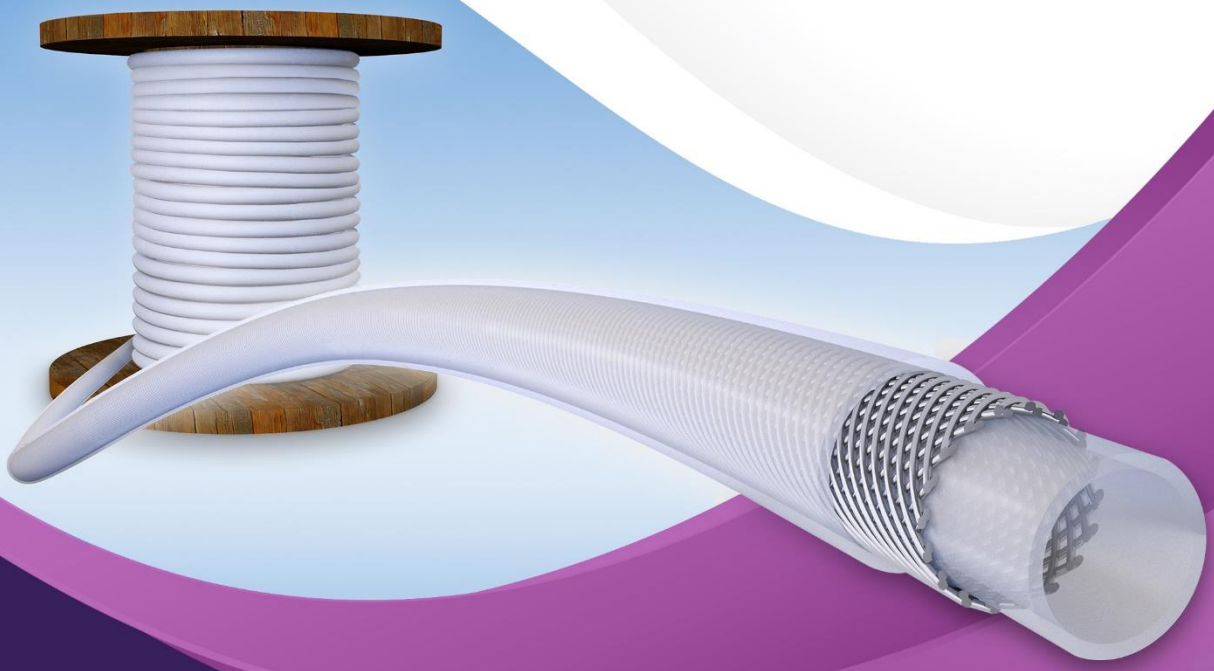
ft water treatment



FT Water Treatment is the perfect partner for all your dual containment needs.

We offer solutions for chemical dosing and chemical transportation in both rigid and flexible pipework, with leak detection as standard.

01543 416024 enquiries@ftwatertreatment.co.uk www.ftwatertreatment.co.uk

FLEXIBLE DOUBLE CONTAINMENT SYSTEMS

Our flexible dual contained chemical dosing hose will save you time and money compared to traditional pipe-in-pipe systems. The two systems, PF Detect and Protectaflex, both consist of a durable PU outer jacket and an inner hose in a choice of materials (reinforced PVC, LDPE, PTFE and TPV).

The main difference between the two products is the leak detection system:

- **PF Detect** – offers built-in leak detection, which only requires a minimal amount of liquid to trigger the alarm and shut off procedure, with the leaked liquid contained by the versatile polyurethane jacket.
- **Protectaflex** – has leak detection in the dosing cabinet and/or the POA. System-designed catch pots are available if required.

Both products share some common features and benefits:

- Made from a light and supple material, and it relies on capillary action rather than gravity to work, meaning it can be installed almost anywhere.
- Lightweight meaning lower shipping and storage costs.
- Good flexibility and lower bend radius.
- Easy to handle and install, for example, flexible hose can often be installed via a duct so there is no need for expensive and disruptive excavation works.
- Fittings can be swaged on, offering a comprehensive coupling, eliminating the risks of clips and the need for expensive bespoke dual contained fittings. Only one standard hose tail fitting required per end. (Click here to find out which hose tail you need.)
- Hose can be delivered in continuous runs with no joints up to 500m, meaning you only require one fitting for each end on half a kilometre of hose.
- Reduced packaging and fully recyclable resulting in a lower carbon footprint.
- In tests, the PU outer did not distort when the inner hose burst.

January 2026

Contents

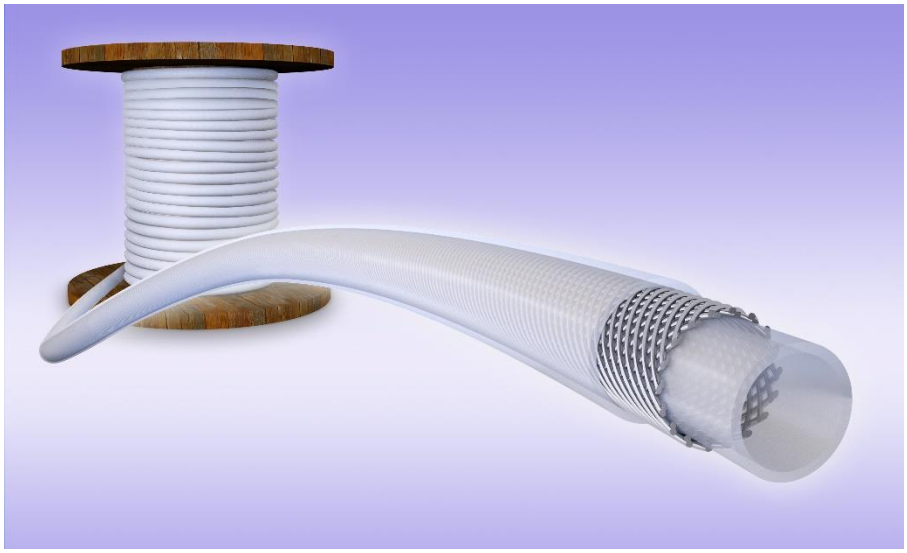
Dual Contained Hose – Flexible

Protectaflex

Protectaflex is a new of generation dual containment hose system, offering all the benefits of existing products but in a smaller, lighter, and more manageable format. Due to its lighter weight & reduced packaging, Protectaflex offers a significant reduction in shipping weight, lowering your carbon footprint. The durable PU outer is UV stable and offers excellent clarity for visual inspection.
Inner hoses are available in reinforced PVC, LDPE, PTFE and TPV.

Features & Benefits

- Lower cost than traditional hose-in-hose systems.
- Lower shipping and storage costs. Up to 48% lighter than traditional hose-in-hose systems.
- Better flexibility and lower bend radius.
- Easier to handle and easier to install than current dual contained products.
- Fittings can be swaged on, offering a comprehensive coupling, eliminating the risks of clips and the need for expensive bespoke dual contained fittings. Only one standard hose tail fitting required per end.
- Reduced packaging and fully recyclable resulting in a lower carbon footprint.
- System designed catch pots which enable the outer containment to be terminated inside the catch pot.
- Ideal for temporary lines as no catch pot is required.
- Potential to have a continuous run of inner dosing hose even with a catch pot.
- In tests the PU outer did not distort when the inner hose burst.

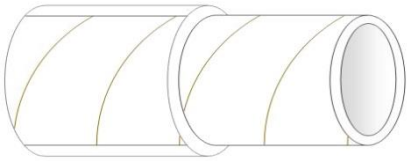


PF Detect

The first leak detectable chemical dosing hose

PF Detect

- All the advantages of the Protectaflex product with the added benefit of a leak detection system.
- Know the minute your dosing system has any problems.



FT Water Treatment is proud to offer the very latest generation of dual containment hose – PF Detect. This hose offers all the obvious advantages of the Protectaflex product with the added benefit of a leak detection system. It has been developed for the chemical dosing market to further reduce environmental leakage risk and is approved by major UK water and wastewater treatment companies.

If you want to know the minute your dosing system has any problems this is the hose for you. PF Detect will sound an alarm, send a signal to switch off your dosing pump and give you the chance to get your reserve line working within seconds of a hose failure.

The fear of aggressive chemicals getting out into the environment, due to undetected leaks, was the reason behind the development of dual containment hose. With PF Detect this fear can be almost eradicated! The leak detection system only requires a minimal amount of liquid to trigger the alarm and shut off procedure, with the leaked liquid contained by the versatile polyurethane jacket.
With attractive per metre costs and the potential to forego the expense of catch pots, PF Detect really offers anyone who wishes to save money, without cutting corners, a most exciting opportunity to put in the very latest system available.

Features & Benefits

- Hoses can be wired direct into the rig or SCADA for instant shut-off and alarm.
- Immediate visual and audible alarm once system is triggered by either chemical leak or system cable failure (when used in conjunction with alarm box).
- Alarms not reliant on chemicals having to reach detection points or catch pots.
- Due to minimal leak potential PF Detect can eliminate the need for mid-point catch pots.
- Reduced risk of environmental exposure as chemical escape is minimised and contained.
- With no excess of chemical to clear up in outer containment hoses, clean-ups and replacement of hoses are quicker and safer.
- Lightweight and reduced size, hence lower carriage and packaging costs.
- Works with cost effective and readily available fitting.
- Choice of inner tubes.
- Each hose can be supplied, circuit tested and certified prior to dispatch with point of application end assembled.
- Supplied with simple to use inlet end assembly kit containing shrink connectors and connecting cable and an outlet kit containing shrink connectors and resistor pack.
- Available with optional alarm box - one alarm box will take up to six hoses.

Hose Materials – Protectaflex and PF Detect

RP – Clear Reinforced PVC Hose (Protectaflex)

RP – Grey Reinforced PVC Hose (PF Detect)

Features and Benefits
Silicone free
Cadmium free
Good UV resistance
Wide range of operating temperatures
Lightweight and flexible
Smooth bore allowing excellent flow rate
Clear RP allows full visibility of contents
Self-extinguishing i.e., does not support combustion

Applications
Factory air supply
Hydraulics
Pneumatics
Coolant Lines
Instrumentation
Chemical transfer
Water and fluid handling
Food handling and beverage lines
Materials handling
Compressed air
Crop spraying

Excellent Chemical Resistance It is resistant to most:
Oxidising agents
Reducing agents
Dilute acids
Dilute alkalis

Conformance
The raw materials used have regulatory approval for food contact applications
Non-phthalate
RoHS and WEEE
BS EN-ISO5774:2016
UL94-V2 and UL94-HB (@ 3mm thickness)
BS EN-ISO1307:2006

Note: All our PVC is manufactured from non-phthalate material which is free from substances of Very High Concern as described under REACH regulations. The material complies with the migration requirements of 2002/72/EC and its amendments. Additives used are listed in EU regulation 2011/10/EC and in the FDA code of federal regulations in chapter 21.

Pressure v Temperature – Clear Braided Hose (RPVC)

All pressures are in bar

Temperature	Pressure Type	Hose Size - Standard Clear Braided							
		6.3 x 11.5	10 x 16	12.5 x 18.5	19 x 26	25 x 32	32 x 42	38 x 48	50 x 62
20°C	BP	64.0	60.0	60.0	40.0	40.0	40.0	40.0	32.0
	WP	16.0	15.0	15.0	10.0	10.0	10.0	10.0	8.0
25°C	BP	60.2	56.4	56.4	37.6	37.6	37.6	37.6	30.1
	WP	15.0	14.1	14.1	9.4	9.4	9.4	9.4	7.5
30°C	BP	54.4	51.0	51.0	34.0	34.0	34.0	34.0	27.2
	WP	13.6	12.8	12.8	8.5	8.5	8.5	8.5	6.8
35°C	BP	49.3	46.2	46.2	30.8	30.8	30.8	30.8	24.6
	WP	12.3	11.6	11.6	7.7	7.7	7.7	7.7	6.2
40°C	BP	45.4	42.6	42.6	28.4	28.4	28.4	28.4	22.7
	WP	11.4	10.7	10.7	7.1	7.1	7.1	7.1	5.7
45°C	BP	41.0	38.4	38.4	25.6	25.6	25.6	25.6	20.5
	WP	10.2	9.6	9.6	6.4	6.4	6.4	6.4	5.1
50°C	BP	35.2	33.0	33.0	22.0	22.0	22.0	22.0	17.6
	WP	8.8	8.3	8.3	5.5	5.5	5.5	5.5	4.4
55°C	BP	31.4	29.4	29.4	19.6	19.6	19.6	19.6	15.7
	WP	7.8	7.4	7.4	4.9	4.9	4.9	4.9	3.9
60°C	BP	26.9	25.2	25.2	16.8	16.8	16.8	16.8	13.4
	WP	6.7	6.3	6.3	4.2	4.2	4.2	4.2	3.4
65°C	BP	22.4	21.0	21.0	14.0	14.0	14.0	14.0	11.2
	WP	5.6	5.3	5.3	3.5	3.5	3.5	3.5	2.8

LDPE Hose – White

WRAS approval No: available on request
Natural LDPE liner
1000 denier high tenacity polyester yarn reinforcement
White flexible EVA cover
LPPE offers the same excellent chemical resistance as low-density polyethylene

Features and Benefits
The material used is approved for food contact applications in Europe and the USA
Tested in accordance with BS6920
Hose temperature range: -20°C to +55°C, occasional use up to +65°C, cold blend temperature — 45°C
WRAS approval for conveyance of cold potable water at 23°C and hot potable water up to 85°C
PVC free making it suitable for a range of applications where end users are concerned about the possibility of phthalate (plasticiser) migration
Available in purple subject to minimum order quantity
The flexibility of these hoses is not dependent on the use of plasticisers therefore the problems resulting from plasticiser extraction or migration do not occur
Applications
Cold water connections to vending machines
Conveyance of soft drinks in cellar to bar installations
Chemical lines
Some liquid foodstuffs

Industrial Tube Technical Data

Burst pressures and working temperatures.
As the temperature falls the hose will become less flexible, the cold bend temperature being: -45^{O}C for PVC and -70^{O}C for polyurethane.
Extreme caution should be taken if the temperature is exceeded. Any increase in temperature above 20^{O}C will result in a decrease in the short-term burst pressure.
Short-term burst pressure is defined as the value recorded when testing a hose from zero pressure to burst pressure, in a single uninterrupted attempt.

Pressure v Temperature – LDPE

All pressures are in bar

Temperature	Pressure Type	Hose Size - LDPE							
		6.3x11.5	10x16	12.5x18.5	19x26	25x33	32x42	38x48	50x62
20°C	BP	67	56	48	70	65	55	50	45
	WP	16.8	14.0	12.0	17.5	16.3	13.8	12.5	11.3
25°C	BP	57.6	48.2	41.3	60.2	55.9	47.3	43.0	38.7
	WP	14.4	12.0	10.3	15.1	14.0	11.8	10.8	9.7
30°C	BP	49.6	41.4	35.5	51.8	48.1	40.7	37.0	33.3
	WP	12.4	10.4	8.9	13.0	12.0	10.2	9.3	8.3
35°C	BP	42.9	35.8	30.7	44.8	41.6	35.2	32.0	28.8
	WP	10.7	9.0	7.7	11.2	10.4	8.8	8.0	7.2
40°C	BP	36.9	30.8	26.4	38.5	35.8	30.3	27.5	24.8
	WP	9.2	7.7	6.6	9.6	8.9	7.6	6.9	6.2
45°C	BP	31.5	26.3	22.6	32.9	30.6	25.9	23.5	21.2
	WP	7.9	6.6	5.6	8.2	7.6	6.5	5.9	5.3
50°C	BP	26.8	22.4	19.2	28.0	26.0	22.0	20.0	18.0
	WP	6.7	5.6	4.8	7.0	6.5	5.5	5.0	4.5
55°C	BP	23.5	19.6	16.8	24.5	22.8	19.3	17.5	15.8
	WP	5.9	4.9	4.2	6.1	5.7	4.8	4.4	3.9
60°C	BP	20.1	16.8	14.4	21.0	19.5	16.5	15.0	13.5
	WP	5.0	4.2	3.6	5.3	4.9	4.1	3.8	3.4
65°C	BP	17.4	14.6	12.5	18.2	16.9	14.3	13.0	11.7
	WP	4.4	3.6	3.1	4.6	4.2	3.6	3.3	2.9

TPV Hose – Purple

Copely is at the forefront of flexible thermoplastic hose development and has added a Thermo Plastic Vulcanizate (TPV) hose to their range. TPV hoses offer an alternative to the market in various applications with distinct advantages over rubber hoses. TPV offers an alternative option in chemical transfer and is used widely as an electrical insulation material.

Key Features:

- Same or better performance as rubber at similar price point.
- Up to 35% lighter and fully recyclable.
- Potential for lower system costs, less weight and better recyclability when compared to EPDM.
- Wide temperature operating range compared to PVC.
- Good chemical compatibility offering an alternative to Fluoropolymers. (e.g. PTFE).
- Excellent durability.
- Suitable for electrical cable cover.
- Can be supplied as anti-static or conductive.
- Low odour.

Markets:

- Compressed air applications.
- Industrial, construction, automotive, general manufacturing.
- Chemical transfer.
- Electrical insulation.
- Power generation.

Sizes:

- 6.3mm to 25mm ID
- All sizes available as PF-Detect

Internal Diameter	External Diameter	Max. Working Pressure*	Min. Burst Pressure*	Min. Bend Radius	Weight per Metre
6.3mm	11.5mm	7.5 bar	30 bar	45mm	0.071kg
12.5mm	18.5mm	7.5 bar	30 bar	98mm	0.143kg
19mm	26mm	7.5 bar	30 bar	136mm	0.242kg
25mm	33mm	7.5 bar	30 bar	166mm	0.357kg

*Minimum and Maximum pressures are at ambient (20°C).

Safety factor of 4:1 applied as per ISO7751 for general use.

Operating temperature range: -40°C to +110°C

*Pressure/Temperature Reduction: 25C = 28.2 bar 30C = 25.5 bar 40C = 21.3 bar

Pressure v Temperature – TPV (purple)

All pressures are in bar

Temperature	Pressure Type	Hose Size – Purple				
		6.3 x 11.5	10 x 16	12.5 x 18.5	19 x 26	25 x 32
20°C	BP	30.0	30.0	30.0	30.0	30.0
	WP	7.5	7.5	7.5	7.5	7.5
25°C	BP	28.2	28.2	28.2	28.2	28.2
	WP	7.1	7.1	7.1	7.1	7.1
30°C	BP	25.5	25.5	25.5	25.5	25.5
	WP	6.4	6.4	6.4	6.4	6.4
35°C	BP	23.1	23.1	23.1	23.1	23.1
	WP	5.8	5.8	5.8	5.8	5.8
40°C	BP	21.3	21.3	21.3	21.3	21.3
	WP	5.3	5.3	5.3	5.3	5.3

PTFE Hose – Opaque

Features and Benefits
Suitable for food use
Non-hardening
Non-stick
Durable
Retains flexibility and integrity within a wide operating temperature range
Excellent resistance against ageing
Plasticiser free
Low permeability
Excellent friction co-efficient

Applications
Transport of harsh chemicals
Transport of nutrients
Painting and printing equipment
Abrasion protection
Welding electrode guide tubing
Electrical insulation
Analytical instruments
Environmental monitoring equipment
Heat exchangers
Component covering

Chemical Resistance
Almost universally inert to industrial chemicals and solvents
Can handle virtually any corrosive material in use today
Low permeability of the tube contents

Pressure v Temperature – PTFE Tube

All pressures are in bar

Temperature	Pressure Type	Tube Size - PTFE Tube								
		4 x 6	5 x 8	6 x 8	8 x 10	9 x 12	10 x 12	12 x 15	19 x 21	25 x 28
20°C	BP	84.0	100.0	56.0	42.0	56.0	40.0	52.0	32.0	15.0
	WP	21.0	25.0	14.0	10.5	14.0	10.0	13.0	8.0	3.8
50°C	BP	73.1	87.0	48.7	36.5	48.7	34.8	45.2	27.8	10.2
	WP	18.3	21.8	12.2	9.1	12.2	8.7	11.3	7.0	2.6
75°C	BP	64.7	77.0	43.1	32.3	43.1	30.8	40.0	24.6	8.5
	WP	16.2	19.3	10.8	8.1	10.8	7.7	10.0	6.2	2.1
100°C	BP	57.1	68.0	38.1	28.6	38.1	27.2	35.4	21.8	7.8
	WP	14.3	17.0	9.5	7.1	9.5	6.8	8.8	5.4	2.0
150°C	BP	44.5	53.0	29.7	22.3	29.7	21.2	27.6	17.0	6.0
	WP	11.1	13.3	7.4	5.6	7.4	5.3	6.9	4.2	1.5
200°C	BP	32.8	39.0	21.8	16.4	21.8	15.6	20.3	12.5	3.5
	WP	8.2	9.8	5.5	4.1	5.5	3.9	5.1	3.1	0.9
250°C	BP	23.5	28.0	15.7	11.8	15.7	11.2	14.6	9.0	2.7
	WP	5.9	7.0	3.9	2.9	3.9	2.8	3.6	2.2	0.7

Protectaflex and PF Detect Technical Data

Protectaflex	PF Detect

Inner Hose Dimensions		PU Outer	PU Cover	BP - Bar	BP - Bar	WP -Bar	WP - Bar
ID Sizes	OD Sizes	Total OD of Hose	Total OD of Hose	RPVC	LDPE	RPVC	LDPE
6.3mm	11.5mm	16.5mm	14.5mm	64	67	16	16.75
10mm	16mm	21mm	19mm	60	56	15	14
12.5mm	18.5mm	23.5mm	20.5mm	60	48	15	12
19mm	26mm	31mm	29mm	40	70	10	17.5
25mm	33mm	38mm	36mm	40	65	10	16.25
32mm	42mm	47mm	45mm	40	55	10	13.75
38mm	48mm	53mm	51mm	40	50	10	12.5
50mm	62mm	67mm	65mm	32	45	8	11.25

Inner Hose Dimensions		PU Outer	PU Cover	Bend Radius	Bend Radius	Bend Radius	Bend Radius
ID Sizes	OD Sizes	Total OD of Hose	Total OD of Hose	RPVC - PF	LDPE - PF	RPVC-TPV - PFD	LDPE - PFD
6.3mm	11.5mm	16.5mm	14.5mm	22	22	45-45	45
10mm	16mm	21mm	19mm	37	37	75-75	75
12.5mm	18.5mm	23.5mm	20.5mm	49	49	98-98	98
19mm	26mm	31mm	29mm	84	84	136-136	136
25mm	33mm	38mm	36mm	118	118	166-166	166
32mm	42mm	47mm	45mm	153	175	192-n/a	219
38mm	48mm	53mm	51mm	210	215	250-n/a	269
50mm	62mm	67mm	65mm	277	315	347-n/a	394

Inner Hose Dimensions		PU Outer	PU Cover	Weight Kg/m	Weight Kg/m	Max Coil
ID Sizes	OD Sizes	Total OD of Hose	Total OD of Hose	RPVC	LDPE	Length - MT
6.3mm	11.5mm	16.5mm	14.5mm	0.23	0.21	500
10mm	16mm	21mm	19mm	0.34	0.29	500
12.5mm	18.5mm	23.5mm	20.5mm	0.39	0.34	500
19mm	26mm	31mm	29mm	0.59	0.51	500
25mm	33mm	38mm	36mm	0.81	0.68	500
32mm	42mm	47mm	45mm	1.15	0.97	500
38mm	48mm	53mm	51mm	1.35	1.14	500
50mm	62mm	67mm	65mm	1.95	1.62	350

BP – Burst Pressure WP – Working Pressure

Protectaflex and PF Detect Sample Specification

Secondary Containment of Pipework

a) All pipework containing chemicals that passes outside of bunded areas shall be secondary contained.
b) Chemical pipework, including tank filling or transfer pipes, that passes above bunded areas and which, in the event of a leak, could present a hazard to persons or equipment in the vicinity of the pipework, e.g. where adjacent to main thoroughfares or electrical equipment, shall be secondary contained.
c) Secondary containment systems shall be arranged to contain any drips and sprays and divert them into a safe, purpose-designed containment area incorporating leak detection and alarm.
d) Materials used for the secondary containment, which could come into contact with the chemical, shall be chemically resistant to the chemical. All outer containment shall be made of UV stable, no-phthalate clear PU material.
e) The use of close-fitting secondary containment such as 'Protectaflex' or similar systems i.e., where a leak remains pressurised between the dosing line and outer containment, are permitted. These systems may not need intermediate catch pots and can be utilised as long continuous hose where practicable. The point of application (POA) end of this type of secondary containment hose shall remain 'open' to ensure leaks between the inner and outer can escape and be detected at the POA end. This hose shall be provided with supplier-approved machined fitted end hose tail connectors.
f) Leak detection can be provided by designing the dual contained dosing hose such that any leaks between the dosing rig and the POA are safely contained within the bunded area at each end. Alternatively, a built-in leak detection system such as 'PF Detect' or similar can be used.
g) The need for installing intermediate catch pot drain points shall be considered on all installations with particularly long dosing pipework routes by checking the 'time to detection' of any leaks. Joints within the secondary containment shall be kept to a minimum.
h) Wherever possible, chemical pipework shall be routed indoors and above ground. The pipework shall be routed such that it can be accessed for inspection and maintenance with routes carefully planned to avoid personnel thoroughfares, electrical equipment and potential impact damage. Pipework that cannot be rendered safe from impact damage due to its position or cannot be adequately protected, in addition to the secondary containment shall be routed below ground in a duct or covered trench.
i) Pipework conveying chemicals that are vulnerable or exposed to freezing shall be suitably trace heated, lagged or otherwise protected.

Important Installation Guidelines for Protectaflex & PF Detect

Handle with care!

Do not allow vehicles to drive over the hose when laid out ready for installation.

When pulling through ducts do not use excessive force as this may damage the hose and/or wire in the PF Detect.

Pressure testing and continuity testing of PF Detect should be done after installation and **before** any external trace heating or insulation is installed.

Test pressures exceeding the operating capabilities of the hose are not recommended. If in doubt always check before testing.

We recommend the use of tie-wraps, but if incorrectly installed they can restrict the ability of fluids to flow between the containment and hose. If you do choose to use tie wraps, please ensure there is a gap between the hose and the tie wrap of 5mm.

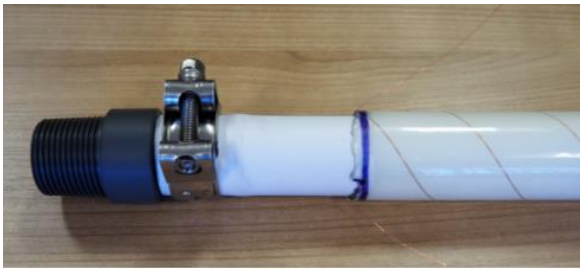
Before testing ensure the hose is at ambient temperature. If it has been installed in concrete ducts etc. and left in the sun it could be at too high a temperature to pressure test without causing excessive expansion. Let water flow through for enough time to allow the hose to return to ambient temperature.

Do not exceed the stated minimum bend radius of the hose.

How to Peel Back Protectaflex and PF Detect

Follow these simple steps when you need to peel back the hose to insert fittings.

A video demonstrating the process is available on our YouTube channel FT Water Treatment.



Equipment needed:

- Marker pen
- Box cutter
- Small screwdriver
- Long nose pliers
- EN388 Level 4 or 5 cut resistant gloves

Step 1

Mark a ring around the hose approximately at a point which is 2 to 2 ½ times the depth of the fitting. Mark 4 points around the hose where you will score it.

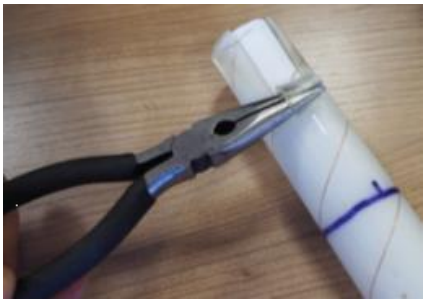
Step 2

Using a sharp box cutter score the outer PU cover approximately 0.5mm deep (you want to avoid damaging the inner hose). 10mm from the end of the hose, go right the way through. Repeat this at each mark.

Step 3

Using a small screwdriver, ease up the end of the outer PU cover.

Step 4
Using long nose pliers, grip the end and roll the PU back to the mark.
Repeat this until all the outer is peeled back.



Step 5
Ensure the copper wire is still intact and not damaged. The inner hose will be undamaged.
Use the box cutter to trim the ends.

Step 6
Carefully trim the end of the hose where you cut right through to ensure there's no damage to the end of the hose.

Step 7
Slide on the stainless steel band clamp, then insert the fitting and tighten the clamp.

Fitting the Resistor to the End of the Hose

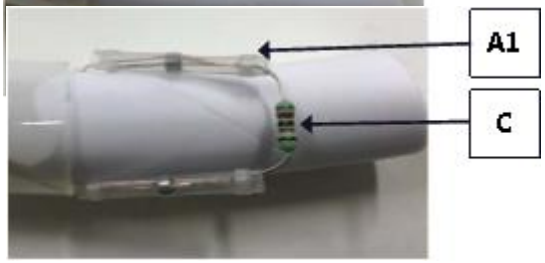
Watch a short video here demonstrating how to connect hose to the leak detection wires and the alarm box

Step 1

Slide a small solder sleeve (A1) on to each exposed length of wire.

Step 2

Insert the 82k resistor (C) into the ends of the solder sleeves ensuring the ring of solder is in contact with all of the wires.

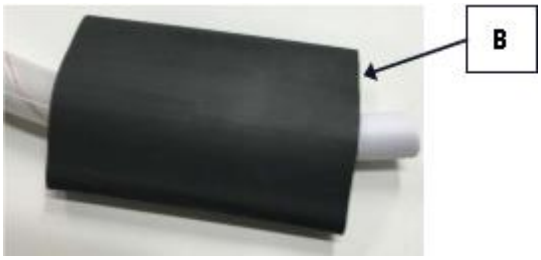


Step 3

Using a hot air gun with a small nozzle (do not use a naked flame), heat the sleeves until they have shrunk completely and the solder rings have melted and flowed. Keep the heat source moving to avoid charring. Do not move the joint until it has cooled as this may weaken the joint.

Step 4

Insert the hose into the heat shrink tube (B), ensuring it covers the end of the resistor and all exposed sensor wire.



Step 5

Heat (using a hot air gun with a small nozzle, not a naked flame) until the heat shrink tube has fully shrunk and is smooth. Keep the heat source moving to avoid charring.

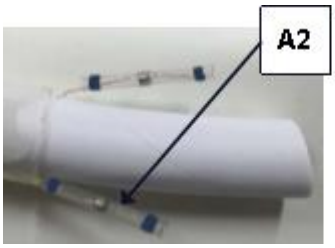
Step 6

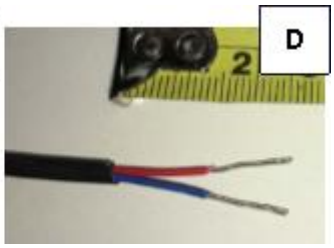
Inspect the exposed adhesive where the hose and tube join. This small bead of exposed adhesive creates the seal. Allow to cool completely.

Connecting the Sensor Wires to the 2-Core Leader Cable

Step 1

Slide a large solder sleeve (A2) on to each exposed length of wire. Cut away 50mm of the black outer sleeve on the leader cable (2-core flex cable) and trim 10mm to expose the strands.





Step 2

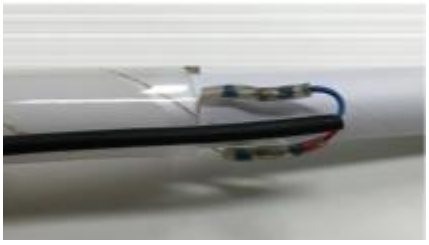
Slide the leader cable wires into the solder sleeves (no polarity)

Step 3

Using a hot air gun with a small nozzle (do not use a naked flame), heat the sleeves until they have shrunk completely and the solder rings have melted and flowed. Keep the heat source moving to avoid charring. Do not move the joint until it has cooled, this may weaken the joint.

Step 4

Position the leader cable (2-core flex cable) as shown. Either tape or hold in place.



Step 5

Insert the hose into the heat shrink tube (B), ensuring it covers the end of the resistor and all exposed sensor wire.

Step 6

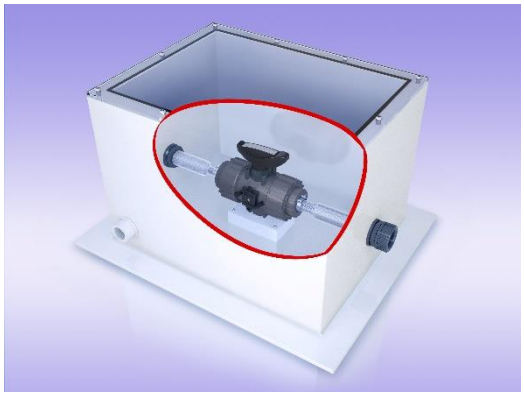
Heat (using a hot air gun with a small nozzle, not a naked flame)until the heat shrink tube has fully shrunk and is smooth. Keep the heat source moving to avoid charring. Inspect the exposed adhesive where the hose and tube join. This small bead of exposed adhesive creates the seal. Let the entire connector area cool before handling.

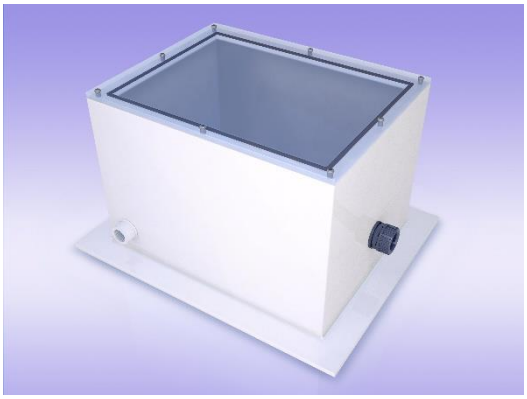
Catch pots

To complement our hose package, FT Water Treatment can also offer catch pots for all of our dual containment systems. The standard catch pot is 450mm x 350mm x 300mm high with a 50mm flange for mounting. This can also be attached on the side of the catch pot so you can mount it on a wall. *Please note, this is the standard size but any size can be manufactured to suit your application*.

The catch pot is made of 9mm polypropylene and has a removable clear lid secured with stainless steel screws. The lid is sealed with an EPDM gasket for an all-round watertight finish and the hose is connected by our bespoke range of fittings to an isolation valve.

Entry and exit for the dual contained hose is by using our special tank connectors with a compression weather seal for sizes up to 32mm DC hose and then a special boss is made to suit the 38mm and 50mm DC hose using an O-ring for weather sealing.





There is access in the side of the catch pot for a float switch (usually supplied) and a connection in the base for a ½" lockable handle drain valve.

Protectaflex and PF Detect Fittings and Accessories

Protectaflex Hose Size	PVC Tank Connector	S/S Band Clamp	PVC Hose Tail	Size
6.3 x 11.5 (OD - 16.5mm)	5.16.022 + O-ring (BS208)	MS12S	P6-0.5	6.3mm x 1/2" BSPM
10 x 16 (OD - 21mm)	5.16.027 + O-ring (BS211)	MS17S	P10-0.5 (0.38)	10mm x 1/2" BSPM (3/8")
12.5 x 18.5 (OD - 23.5mm)	5.16.027	S19S	P12-0.5	12.5mm x 1/2" BSPM
19 x 26 (OD - 31mm)	5.16.032	S28S	P19-0.75	19mm x 3/4" BSPM
25 x 33 (OD - 38mm)	5.16.040	S34S	P25-1	25mm x 1" BSPM
32 x 42 (OD - 47mm)	5.16.054	S43S	P32-1.25	32mm x 1 1/4" BSPM
38 x 48 (OD - 53mm)	Special Boss Req	S51S	P38-1.5	38mm x 1 1/2" BSPM
50 x 62 (ID - 67 mm)	Special Boss Req	S63S	P50-2	50mm x 2" BSPM

PF-Detect Hose Size	PVC Tank Connector	S/S Band Clamp	PVC Hose Tail	Size
6.3 x 11.5 (OD - 14.5mm)	5.16.022 + O-ring (BS311)	MS12S	P6-0.5	6.3mm x 1/2" BSPM
10 x 16 (OD - 19mm)	5.16.022	MS16S	P10-0.5	10mm x 1/2" BSPM
12.5 x 18.5 (OD - 21.5mm)	5.16.027 + O-ring (BS211)	S19S	P12-0.5	12.5mm x 1/2" BSPM
19 x 26 (OD - 29mm)	5.16.032+ O-ring (BS319)	S27S	P19-0.75	19mm x 3/4" BSPM
25 x 33 (OD - 36mm)	5.16.040 + O-ring (BS324)	S34S	P25-1	25mm x 1" BSPM
32 x 42 (OD - 45mm)	5.16.054 + O-ring (BS327)	S43S	P32-1.25	32mm x 1 1/4" BSPM
38 x 48 (OD - 51mm)	Special Boss Req	S51S	P38-1.5	38mm x 1 1/2" BSPM
50 x 62 (D - 65mm)	Special Boss Req	S63S	P50-2	50mm x 2" BSPM

Hose Size	PTFE Spray Guard	Heat Shrink TC
6.3mm - 12.5mm	TPCH31MM-1	HCS-3
19mm - 32mm	TPCH47MM-1	HCS-4s
38mm - 50mm	TPCH57MM-1	HCS-5

PTFE Hose Tail	Size
PTFE10-0.5	10mm x 1/2" BSPM
PTFE12-0.5	12.5mm x 1/2" BSPM
PTFE19-0.75	19mm x 3/4" BSPM
PTFE25-1	25mm x 1" BSPM

PVC Hose Tail	Size
P6 - 20	6.3mm x 20mm solvent spigot
P10-20	10mm x 20mm solvent spigot
P12-20	12.5mm x 20mm solvent spigot
P19-25	19mm x 25mm solvent spigot
P25-32	25mm x 32mm solvent spigot
P32-40	32mm x 40mm solvent spigot
P38-50	38mm x 50mm solvent spigot
P50-63	50mm x 63mm solvent spigot

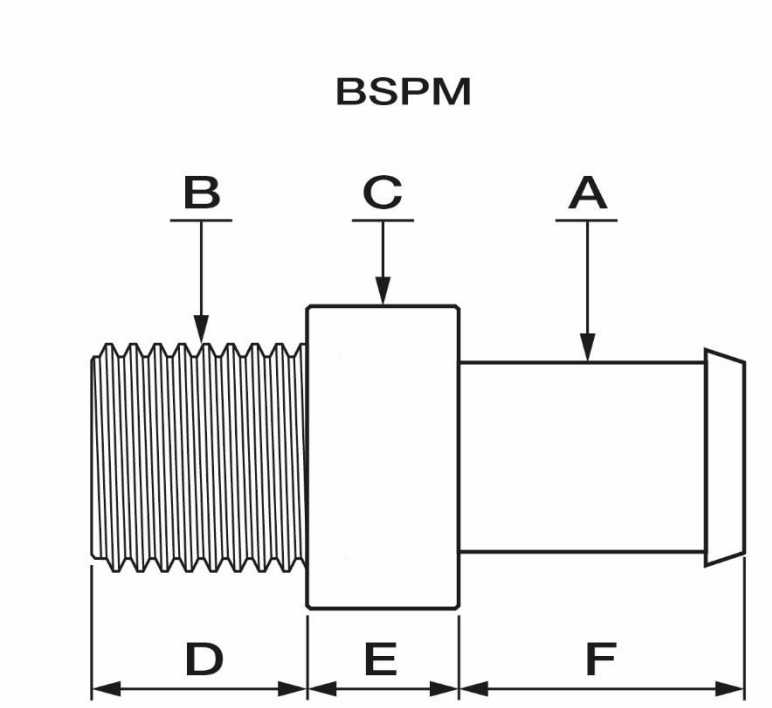
S/S Swaged fittings - M / F
12.5mm x 1/2" BSPM
19mm x 3/4" BSPM
25mm x 1" BSPM
32mm x 1 1/4" BSPM
38mm x 1 1/2" BSPM
50mm x 2" BSPM

Plesae specify F or M on order.

S/S BSPP to BSPT adaptor
1/2 x 1/2
3/4 x 3/4
1 x 1
1 1/4 x 1 1/4
1 1/2 x 1 1/2
2 x 2

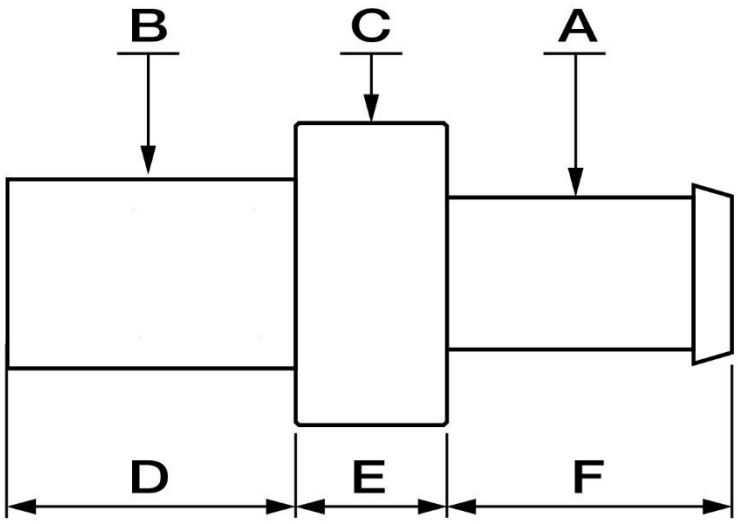
Hose Fittings and Clamps

PVCu Hose Connections



ØA x B	ØC	ID	D	E	F	CODE
6.3 x ½"	25	3.5mm	20	15	30	P6 – 0.5
10 x ½"	25	6.5mm	20	15	30	P10 – 0.5
12.5 x ½"	25	8.5mm	20	15	30	P12 – 0.5
19 x ¾"	30	13.0mm	25	15	30	P19 – 0.75
25 x 1"	35	18.5mm	30	20	40	P25 – 1
32 x 1 ¼"	45	22.0mm	35	20	40	P32 – 1.25
38 x 1 ½"	50	26.0mm	40	20	45	P38 – 1.5
50 x 2"	65	38.0mm	40	20	45	P50 - 2

SOLVENT SPIGOT

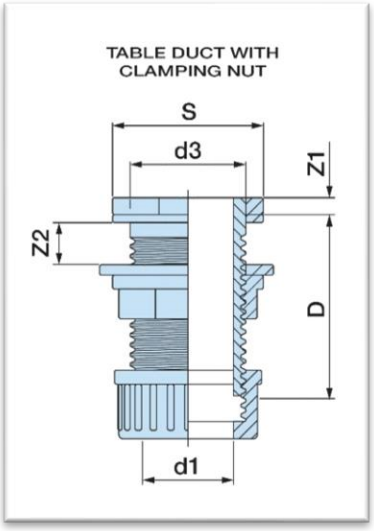


ØA x B	ØC	ID	D	E	F	CODE
6.3 x 20mm	25	3.5mm	20	15	30	P6 – 20
10 x 20mm	25	6.5mm	20	15	30	P10 – 20
12.5 x 20mm	25	8.5mm	20	15	30	P12 – 20
19 x 25mm	30	13.0mm	25	15	30	P19 – 25
25 x 32mm	40	18.5mm	25	20	40	P25 – 32
32 x 40mm	45	22.0mm	30	20	40	P32 – 40
38 x 50mm	55	26.0mm	35	20	45	P38 – 50
50 x 63mm	70	38.0mm	40	20	45	P50 - 63

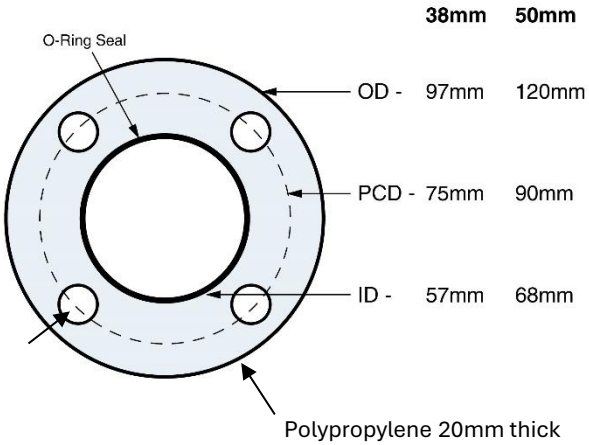
Stainless Steel Clamps

PART NO.	SIZE
MS12S	10-12mm
MS17S	15-17mm
S19S	17-19mm
S21S	19-21mm
S25S	23-25mm
S27S	25-27mm
S31S	29-31mm
S34S	31-34mm
S40S	37-40mm
S42S	40-43mm
S47S	43-47mm
S52S	47-51mm
S55S	51-55mm
S59S	55-59mm
S63S	59-63mm
S68S	63-68mm

PVCu Tank Connector with Clamping Nut



Flange hole diameter:



Hose Size (mm)	Code	d1	d3	Z1	Z2	D	S
6.3 + O Ring	5.16.022	20	26mm	8	0-25	56	32
10 + O Ring / 12.5	5.16.027	25	33mm	10	0-25	60	40
19	5.16.032	32	42mm	7	0-25	66	55
25	5.16.040	40	48mm	7	0-25	78	74
32	5.16.054	50	60mm	9	0-30	84	78
38	Special Boss (above) or Heat Shrink Tank Connector (page 26) required						
50							

As an alternative to the tank connectors, we can supply heat shrink entry glands:

This series of heat shrinkable hose entry glands were developed to provide a cost-effective method of providing a weatherproof seal on a variety of hoses. The glands are manufactured in accordance with MIL-1-81765/1 and MIL-1-23053/15 specifications and provide a flame retarded adhesive lined body along with a male threaded part to enable fixture to the gland plate.

- Six sizes cover diameters from 4mm through to 70mm
- Provides a watertight seal and secure fixing to gland plate/ box
- Flame retardant

The range comprises six different sizes as detailed in the table below:

Ref No	O/D max	O/D min	Bulkhead Thickness Max	Total Length	Drill Hole	Suitable for hose sizes
HCS1	12mm	4mm	6mm	95mm	26mm	
HCS2	17mm	7mm	6mm	95mm	26mm	
HCS3	**26mm**	**13mm**	**6mm**	**100mm**	**35mm**	**6.3mm, 10mm, 12.5mm**
HCS4	38mm	19mm	6mm	130mm	51mm	
HCS4s	**53mm**	**19mm**	**10mm**	**170mm**	**60mm**	**19mm, 25mm, 32mm**
HCS5	**70mm**	**36mm**	**6mm**	**200mm**	**88mm**	**38mm, 50mm**

Stock items shown in **purple.**

Insulation and Trace Heating

Insulation

FT Water Treatment can supply pipe insulation consisting of high density, compressions-resistant, PIR foam sections combined with water vapour-resistant insulations and also protective outer shell covering.

Features:

- Prevents condensation and corrosion
- Closed cell structure with built-in water vapour barrier
- Ease of application reduces cost and time of installation
- Inherent resistance to microbial growth
- Standard 2m lengths

NB: Minimum 25mm wall thickness required.

Trace Heating

We offer a micro self-regulating heating cable.

Features:

- Small and highly flexible so can be installed between pipes and insulation
- No overheating or burn even when overlapping each other
- Independent heat output control along the length
- Soft switching for energy saving and longer service life
- Self-regulating thermal performance in response to temperature
- Cut to length to suit requirements and installation conditions

Use:

- External trace heating of chemical pipeline and hoses
- Temperature maintenance in the chemical dosing market
- Frost protection and temperature maintenance
- Moisture-proof applications
- Use in hazardous locations

Specification:

- Temperature maintained (power on)
- Maximum intermittent exposure temperature (power off)
- Power supply 24V – 240V AC
- Outer jacket – FR polyolefin or fluoropolymer
- Heating cable dimension approx. 11.6mm x 5.6mm
- Bus wire – 20AWG Nickel plated copper
- Installation temperature min. -50° C
- Nominal power output 15 watt/m@10°C

IN-TRACE™

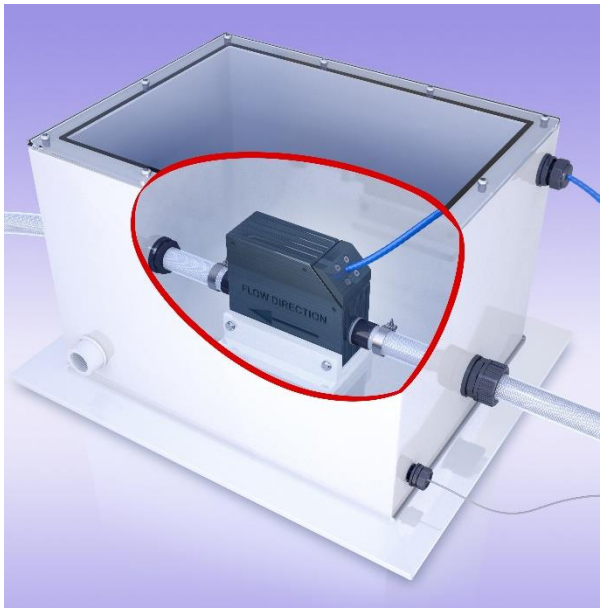
IN-TRACE brings a modern approach to trace heating flexible dual contained hoses enabling fluids to flow in safe, controlled conditions. In conjunction with Copely Developments and Solco, our major partners, IN-TRACE is an easy-to-install self-regulating trace heating system for frost protection through to temperature maintenance up to 25°C. With its unique format of placing the heating cable inside the hose, this removes risk to the physical properties of the hose, whilst achieving temperature maintenance at significantly less power usage and reduce carbon footprint.

Key Benefits

- Pre-installed trace heating cable
- Low wattage cable for running costs
- Frost protection and up to 25°C temperature maintenance
- Only requires minimal 25mm thick insulation
- Reduced power usage and carbon footprint
- Operational risk removal
- Suitable for water and liquid chemicals
- Comprehensive Circuit Kit for full installation

Availability

- Available with Protectaflex and PF Detect
- Standard lengths 50m and 100m subject to hose size and requirements
- Available for 19mm, 25mm, 38mm and 50mm bore hoses only



Bespoke catch pots for the entry port are available and made to order.

IPSR Heating Cable

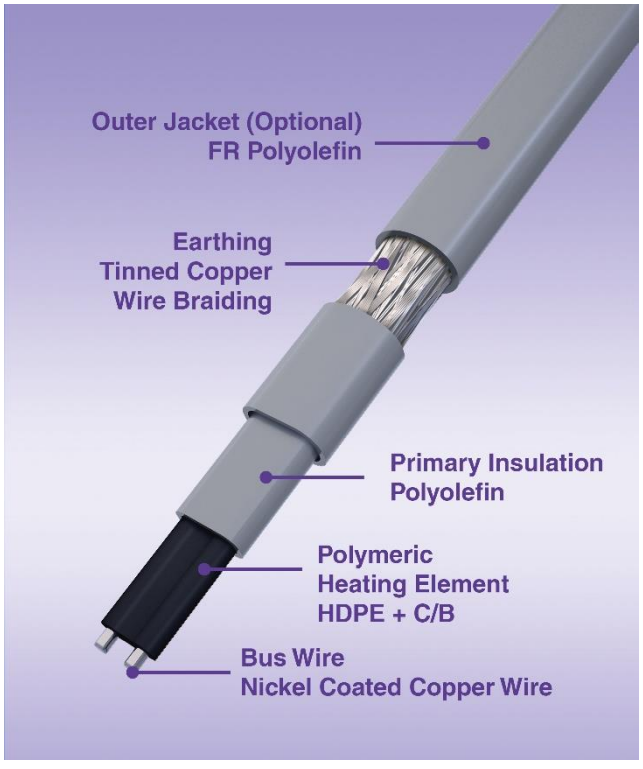
Temperature maintenance and frost protection

Features

- It will not burn or overheat even when overlapped
- It self-regulates thermal performance in response to temperature
- It can be cut to any length to suit any installation condition
- FEP cover
- Independent heat output control along the length
- Soft (power) switching (which improves energy savings and efficiency) and gives a longer service life
- Easy termination for power connection and splicing

Specification

- Temperature maintaining up to 50°C (122°F)
- Power supply: 230 Vac
- Heating cable approximate dimensions: 8.3mm x 6.0mm
- Bus wire – 19AWG Nickel-plated copper
- Installation temperature minimum: -50°C
- Nominal power output: 13 watt/m@10°C



Smart-ECO Thermostat

The Smart-ECO air/surface sensing thermostat is designed to provide user-friendly measurement and control for heating cables. It provides cost-effective and accurate ON/OFF control over trace heating circuits and fault monitoring and feedback via a BMS safety relay.

Features

- The Smart-ECO air/surface sensing thermostat has a 20 A control relay switching the heating load and a 2 A ~BMS fault alarm relay.
- Air or surface sensing applications between -20°C to +99°C in non-hazardous areas.
- Up to 4 diagnosed alarm types: Sensor short/open circuit error, Load relay error, Voltage error and High/low temperature limits exceeded error.
- The unit is designed to work easily with heating cable termination kits.

Specification

- Rated voltage: 100 Vac (min) – 270 Vac (max), 50/60 Hz
- Max. load current: 20A
- Temperature setting range: -20°C to +99°C
- Ambient temperature: -20°C to +60°C
- Temperature sensor type: 3m NTC Thermistor, max. exposure temperature 200°C
- Enclosure material: ABS base, polycarbonate transparent lid
- Enclosure dimensions: 125mm x 175mm x 75mm
- No. of terminals (rated cross section): 14 x n2.5mm^2
- Control method: ON/OFF

Static Mixers (DN15 to DN50)

The Static Mixer is a unionized mixer that is able to withstand the most severe industrial applications. The liquid moves through the static mixer. Mixing occurs around the centre-line and in the direction of flow.

- Available in imperial (1/2” to 2”) or metric (d20mm to d63mm) systems (not interchangeable).
- Pressure rating: maximum working pressure is 16 bar at 20°C.
- Available with PVCu or polypropylene union ends.
- Easy removal of the mixer body from the pipe system allows seals to be replaced without any additional equipment.
- Economic, long lasting, in-line static mixer. More economical than motorized mixers.
- Static mixers prevent overmixing and undermixing, and resist fouling in the pipe.
- Mixing elements are welded to the mixer body so internal pressure changes cannot collapse the elements and block the flow.
- Maintenance free.
- 6 or 12 element versions available.
- Manufactured in accordance with the relevant British and international standards.

Safety Spray Shields

Safety Spray Shields are used to prevent injury to personnel or damage to equipment in the event of a leak or spray-out of acids, caustics, chlorine, and other dangerous liquids at piping connections found in chemical, pulp/paper, petrochemical and wastewater treatment plants. Our Safety Spray Shields are constructed from PTFE, polypropylene, PVC, polyethylene, and stainless steel and offer an extra level of protection to hose connections.

Rigid Dual Contained Pipework – Guardian System

Guardian is a dual contained 'pipe-in-pipe' system made from PVC-U material. It offers a 25-year design life.

Guardian is a unique system that incorporates a patented Centra-Lok™ system, which provides a solid fixed fitting, offering a true point of difference from other dual contained systems on the market. The Guardian system averages up to 60% fewer overall joints compared to other systems. Since joints are always the most common source of premature failures and leaks, it is easy to see the huge impact Centra-Lok has on maintenance, repair and installation costs.

Manufactured in PVC-U material, Guardian is ideal for water and waste treatment applications as it allows the safe transportation of different fluids and some chemical concentrates without fear of corrosion and environmental pollution.

Typical Applications

- Water and wastewater treatment
- Chemical process
- Pharmaceutical
- Industrial process
- Food and beverage
- Marine

Typical Uses

- Chemical treatment
- Aggressive chemicals
- Unknown / hazardous waste
- Aggressive chemicals
- High value contents
- Water damage prevention

Key Product Information

- Size range: ½"#2" up to 8"#12"
- Pressure rating: Class E 15 bar
- Temperature rating: +5ºC to +60ºC

Key Product Features

- Patented Centra-Lok™ system holds fitting in the correct place prior to installation.
- Extremely easy to install – following the same simple solvent cement jointing process as single-wall PVC-U, there are no special tools, equipment or hot works permits required.
- Visual or automated leak detection system available.
- Clear or grey pipe containment.

Services & Case Studies

If you place an order before midday, most stocked items can be delivered to UK sites the next working day.

Full training on-site is available along with after-sales support services. To assist you with installation of our flexible doing hose, we have a couple of videos which you may find useful:

How to peel back Protectaflex

How to connect PF Detect to the leak detection wires and the alarm box

Sundon Water Treatment Facility

Chemical injection at static mixer – photo courtesy of Ward & Burke

As part of Affinity Water's drive to provide high-quality drinking water, whilst protecting chalk streams and their wildlife, and maintaining the ecological health of rivers, they are importing water from Anglian Water's Grafham Water Reservoir. However, the treated water from Grafham WTW has a different water chemistry to that of most of the treated water in Affinity's network, thus necessitating further water treatment. A treatment facility at Sundon Reservoir has been constructed to assist with this.

FT Water Treatment's PF Detect was selected for the two dosing hoses that connect the dosing skid in one building to the point of application cabinet in another building. The flexible hoses carried sodium hypochlorite for a distance of around 50m. Due to the product's in-built leak detection and the outer hose's extremely high burst pressure, in the very unlikely event of a leak, chemicals will be contained within the hose and dosing will automatically switch to the standby line.

The use of PF Detect has allowed the client to transfer chemicals through ducts over a great length without the need for catch pots and rigid outer piping.

PF Detect Meets the PAC Dosing Requirements for Scottish Water

Scottish Water has been involved in two design and build projects at the Daldowie and Dalmarnock Sewage Treatment Works. Both projects were aimed at reducing the impact of discharges to the River Clyde from the wastewater works. A new tertiary chemical dosing plant was required as part of the work.

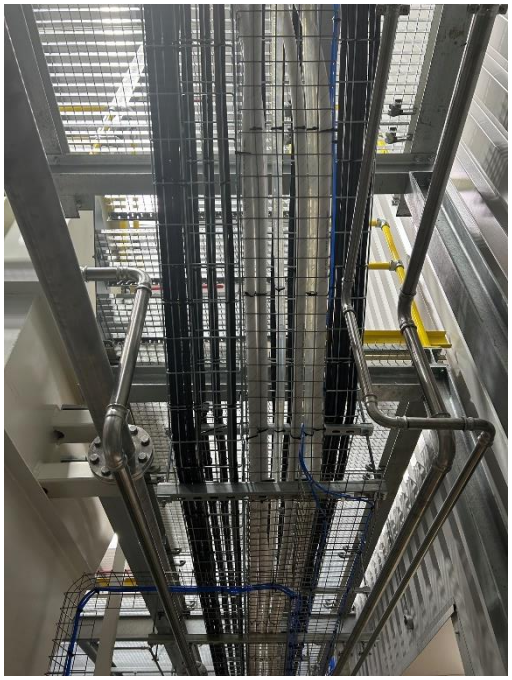
PF Detect was introduced to Scottish Water as an innovative dual contained chemical dosing hose with built-in leak detection. Scottish Water employees were particularly interested in the product as no catch pots are required. The 50m route from the dosing rig to the point of application (shown above bottom right) involved a duct underneath a roadway as well as height changes so they couldn't rely on a catch pot in a low point. Also, Scottish Water wanted to avoid the problems associated with accessing the pit on a road for maintenance.

Having reviewed PF Detect and collaborated closely with the Scottish Water Standards and Specification Engineers for both Daldowie and Dalmarnock STW, Kenny Naylor, Senior Project Manager and Stewart Smolarek, Project Manager, were satisfied that the flexible PF Detect hose would meet all their PAC dosing requirements.

"This innovative design has saved us a lot of time and money while still offering the total safety to operators and the environment that we need for our chemical dosing applications" said Stewart Smolarek of Scottish Water. "Not having to install a catch pot in a low point, which would be required for the old-style hose-in-hose system, made the routing of the dosing hose much easier and saved a considerable amount on time and money for the Project and operational maintenance of a catch pot under a road."

Scottish Water are happy with the PF Detect solution and are now looking at further installations where they have the same potential issues.

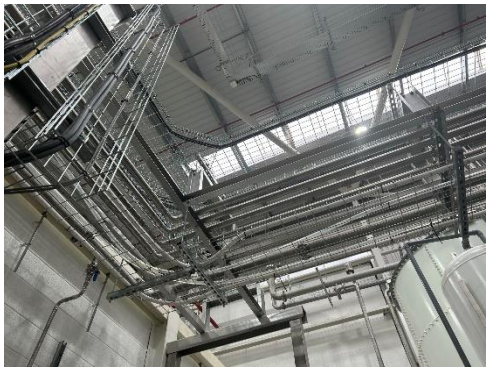
FT Chemical Dosing Hose Supplied to Large Manufacturing Plant in Peterborough



FT Water Treatment was delighted to be contacted by an existing client, Diamond Fabrications, regarding the installation of our flexible, dual contained chemical dosing hose into a new build beverage can manufacturing facility.

A former brownfield site in Peterborough was the location for the £60 million development. The state-of-the-art drinks can manufacturing hub is the operator's largest facility in Europe, creating 280 jobs and producing up to 1 million cans per day.

FT Water Treatment's chemical dosing hose, PF Detect, is flexible and lightweight and, since it relies on capillary action rather than gravity to work, it can be installed almost anywhere. Furthermore, at up to 63% lighter than traditional rigid systems, it is easier and cheaper to handle and transport. The built-in leak detection does away with the need for catch pots and means that aggressive chemicals will never leak out into the environment. Six lines of PF Detect in Vendhose and PTFE have been installed at the site transporting sulphuric acid and caustic soda.



Mark of Diamond Fabrications commented, "Having worked with FT in the past, we had no hesitation in recommending PF Detect for the project. The hose is easy to install and there were no problems throughout the process. Our customer has been impressed with the quality of the product and would like to see it included in all future new builds."

The end user is a global manufacturer of cans and, as part of the process, the aluminium cans have to be washed, dried, coated with varnish and printed. The PF Detect chemical dosing hose is used to transport the chemicals to the washing tanks.

Aluminium cans will always be 100% recyclable as aluminium doesn't deteriorate, regardless of how many times it is used and melted down again. This allows beverage manufacturers to meet their sustainability goals, and it also means that cans are increasingly preferred by customers and consumers alike. A growing proportion of new beverages in the UK is being introduced in cans, and this new facility demonstrates the company's commitment to meeting expanding customer requirements.

PF Detect Used in Europe's Largest State-of-the-Art Filtration System

Heigham WTW, Anglian Water

In February 2020, a brand new state-of-the-art water filtration system, part of Heigham WTW, was officially opened. This £36 million project has been delivered by Anglian Water as part of its ongoing investment in the region. The new system will allow water containing high levels of sediment to be processed at the facility, which can treat up to 57 million litres per day.

As part of this project, FT Water Treatment supplied over 2000 metres of its flexible chemical dosing hose, PF Detect. The hose (along with various hose tails, clamping fittings and valves) was used to transport sodium hydroxide, ferric chloride, citric acid and hydrochloric acid from dosing cabinets to various points of application around the treatment site.

PF Detect, which offers built-in leak detection, has been installed by a growing number of water companies throughout the UK and Europe. It uses capillary action making it very quick and easy to install as it does not have to rely on gravity. It is lightweight making it easy to transport on huge drums.

420m – The longest single run of PF Detect has been installed in Brisbane, Australia

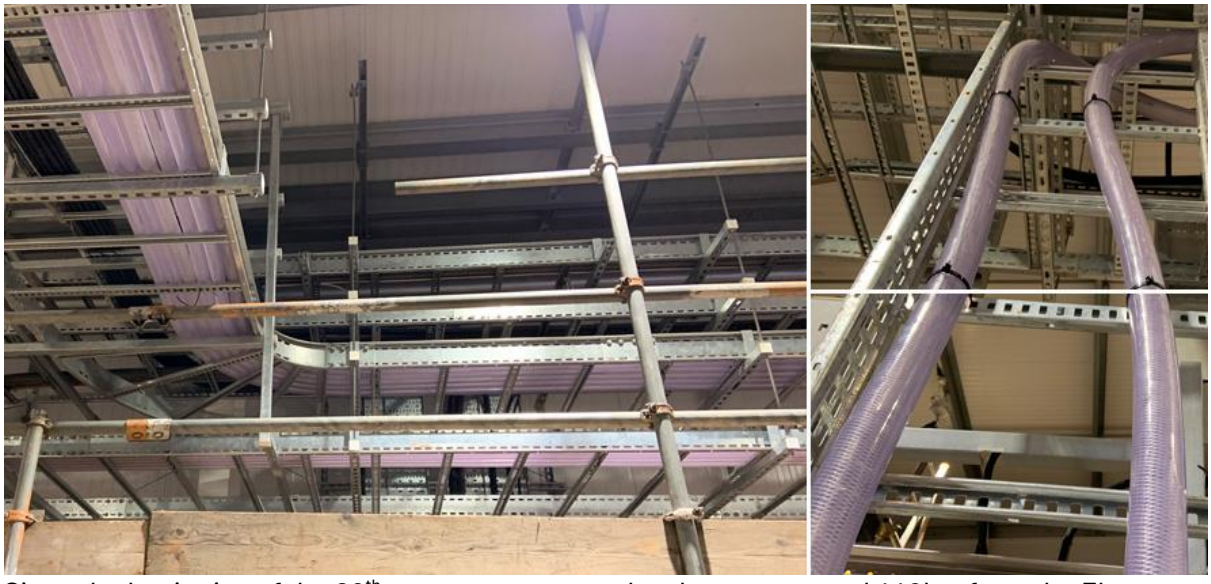
Over 800m of PF Detect (25mm LDPE) has recently been installed at North Pine Dam Water Treatment Plant, located north of Brisbane, Queensland. The plant, which turns raw water into drinking water, treats up to 250 megalitres of water daily. The purpose of the upgrade project was to provide double containment to an ammonia injection line.

The key challenge with this installation was the potential high ambient temperature under a large roof space. In summer this is expected to be as high as 60 Celsius. The potential issue is the major drop in working pressure as a result. The installation was also to be installed in-ground and above ground. FT Water Treatment worked closely with our supplier to provide a solution to increase the amount of re-enforcement to compensate for the increase in temperature. As a result, a new 'High Pressure' LDPE option is now available. The increase in pressure is around 25%.

The project manager said, 'The installation was more efficient than we thought. The challenge was to have 400m in a single run, but the crew installed the hose with no issue. The installation time compared to conventional pipes such as PVC is considerably less. Using conventional pipes, the installation can take 60% more time than installing the LDPE hose'.

Protectaflex Installed as Part of the Birmingham Resilience Project

Frankley WTW



Since the beginning of the 20th century, raw water has been conveyed 118km from the Elan Valley in Wales, under gravity by aqueduct, to the water treatment works (WTW) in Birmingham for treatment and supply to the population of the city. The aqueduct has been in continuous service for over 100 years and required important maintenance work to be undertaken. Severn Trent appointed DNM Alliance to carry out the multi-million-pound project.

To enable the work on the aqueduct to be undertaken, the WTW is being upgraded with a new treatment stream capable of treating raw River Severn water. The treatment stream includes the construction of its own dedicated chemical treatment dosing plant. FT Water Treatment's dual contained chemical dosing hose was chosen as part of the project.

Over 5000m of Protectaflex hose *(12.5mm, 19mm, 25mm, 32mm & 38mm RPVC Protectaflex and 38mm VH Protectaflex)* and associated hose tails, clamping fittings and valves have been installed between the dosing cabinets to various points of application around the treatment site.

The chemicals being transported are Sodium Bisulphite, Orthophosphoric Acid, Polymer, Ferric Sulphate, Sodium Hypochlorite & Sulphuric Acid.

High Pressure Dual Contained Dosing Lines Offered a Cost-Effective Solution

Leada Engineering contacted us to help find a solution when a high pressure, WRAS approved, dual contained dosing line was required for a project they were working on with Yorkshire Water.

Overview

At a disinfection dosing solution at two borehole abstraction sites in Yorkshire, Leada Engineering found that the discharge mains were operating at pressures in excess of 16 bar. Historically, chlorine gas dosing was facilitated using motive water eductors that dosed the chlorine gas into motive under vacuum, the motive water for the eductors was operated at a pressure sufficient to allow the gas to be dosed directly into the main. Dosing sodium hypochlorite into the mains at these pressures posed a number of difficulties / challenges. Yorkshire Water's standard product dosing system is rated to 8 bar max. The material selection to dose at pressures in excess of this would have been costly and time consuming due to the material compatibility with chemicals like sodium hypochlorite.

The Approach

As the client nominated solution was not feasible, the Leada engineers, in conjunction with FT Water Treatment, developed a bespoke pressure solution compatible with water softeners. The flow rates required to inject sodium hypochlorite would have been excessive in terms of flow and power; more importantly the increase in throughput of the water softeners (as a result of increased pressure and flow) would have imposed significant operational costs on the client as a result of increased waste brine generation and subsequent removal.

The Solution

The solution involved taking water from the main (at mains pressure) for use as carrier water. The pressure in the carrier water feed lines to the softeners was reduced. The softened water then feeds the standard product dosing cabinet where the 14% sodium hypochlorite is dosed into the softened carrier water, at the compatible 4 bar pressure. The diluted solution of sodium hypochlorite is then boosted (in terms of pressure) with flow controlled variable speed high pressure carrier pumps, allowing connection onto the high pressure mains.

As a consequence of the high pressure dosing system, high pressure dual contained, WRAS approved dosing lines were required; these didn't exist in the market. This was where FT Water Treatment was able to help. A dual contained hose, suitable for pressures up to 30 bar was developed and then integrated with Leada's own point of application injection points rated to 30 bar.

Protectaflex Used in the Pulp and Paper Industry

FT Water Treatment has supplied our Protectaflex VH system to one of the largest paper mills in Europe for their Biocide Dosing system.

The main contractor selected Protectaflex due to the smaller overall size on the 38mm ID hose and lighter weight making installation much easier and quicker than traditional hose-in-hose systems.

As there were multiple dosing points a special catch pot was manufactured, which included a manifold, so that only one supply line was required.

Due to specific requirements on site the double contained system was supplied in the colour purple rather than the usual white outer cover, to easily identify it as a chemical line.

Although our flexible hose was developed with the water industry in mind, it is, in fact, suitable for a wide variety of markets. Solutions are offered for all application requirements including chemical dosing, filtration, membrane technology and aeration. Markets which would benefit from our products range from water (potable, waste, industrial process) through to chemical and pharmaceutical (production, manufacture, distribution) and manufacturing (production cooling lines, water distribution, effluent treatment).

Frequently Asked Questions

Q. What internal diameters are available in dual contained hose?

The ID of the product is 6.3mm – 50mm.

Common sizes are 12.5mm, 19mm, 25mm and 32mm

Q. What are the maximum lengths that can be utilised?

The product is supplied on drums of 450 - 500 metres but we have supplied lengths of up to 700 metres. Common lengths of 150, 200, 250 metres are readily available, and each coil is tested for electric conductivity and certified before delivery.

Q. What chemicals can be transported through the product?

The product comes with various material inners such as PVC, LDPE, PTFE and TPV to cover resistance of most common chemicals used in dosing such as Sodium Hypochlorite, Ferric and Caustic. Full chemical details are always requested including concentrations to ensure that the product is fully fit for purpose. Full chemical resistance charts are available on request.

Q. Are catch pots needed when using Protectaflex and PF Detect?

The use of Protectaflex can eliminate the need for a catch pot if so desired. If the hose is running from the dosing cabinet to the POA both should have leak detection already built in as a safety precaution if other pipework within the cabinet or POA fails.

Using PF Detect normally eliminates the need for catch pots. In the unlikely event of a leak an audible and visual alarm will be triggered. The system will be wired into the main control PLC and made to shut off the pump instantly, thus dramatically reducing any impact on the environment due to leaking chemicals.

Q. Does the product comply with REACH legislation?

All products are now REACH (Registration, Evaluation, Authorisation and restriction of Chemicals) compliant.

Please visit www.hse.gov.uk/reach for more information.

Other standards include FDA and DIN and are dependent upon material and application.

Q. What product is recommended for the transportation of 96% - 98% sulphuric acid?

See Appendix 1

Appendix 1 – Sulphuric Acid Dosing Applications

Sulphuric Acid is commonly used for Water Treatment and we are often asked what options we can offer for the double containment systems for these dosing applications.

The strength of acid varies and this has an effect on the selection of the dosing system we would offer.

The following chart shows the chemical compatibility of the dosing hoses we supply with the different strengths of acid.

<table>
<tr><th>Dosing Hose:</th><th colspan="2">RP (PVC)</th><th colspan="2">VH (LDPE)</th><th colspan="2">TPV or PTFE</th></tr>
<tr><td>Concentration</td><td>@20°C</td><td>@60°C</td><td>@20°C</td><td>@60°C</td><td>@20°C</td><td>@60°C</td></tr>
<tr><td>Up to 45%</td><td>Good</td><td>Good</td><td>Good</td><td>Good</td><td>Good</td><td>Good</td></tr>
<tr><td>50%</td><td>Good</td><td>Limited</td><td>Good</td><td>Good</td><td>Good</td><td>Good</td></tr>
<tr><td>55%</td><td>Limited</td><td>Limited</td><td>Good-Limited</td><td>Good-Limited</td><td>Good</td><td>Good</td></tr>
<tr><td>60%</td><td rowspan="6" colspan="2">Do Not Use</td><td>Good-Limited</td><td>Limited-Poor</td><td>Good</td><td>Good</td></tr>
<tr><td>70%</td><td rowspan="6" colspan="2">Do Not Use</td><td>Good</td><td>Good</td></tr>
<tr><td>80%</td><td>Good</td><td>Good</td></tr>
<tr><td>90%</td><td>Good</td><td>Good</td></tr>
<tr><td>95%</td><td>Good</td><td>Good</td></tr>
<tr><td>98%</td><td>Good</td><td>Good</td></tr>
<tr><td>Fuming</td><td>Good</td><td>Good</td></tr>
</table>

All concentrations are aqueous solutions.

As you can see, up to 50% concentration the VH (LDPE) option would be suitable, but above this then the options are TPV (new material for 2026) or PTFE lined hose.

The PF Detect system would be our recommendation due to the in-built leak detection giving an immediate warning in the unlikely event of a leak.

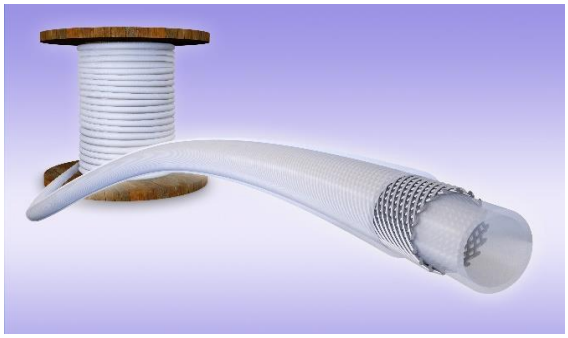
A very small volume of chemical would attack the copper wires embedded between the inner and outer hose and set off an alarm, which could stop the pump almost immediately.

This would give the maximum protection to the operators and reduce any potential environmental damage.

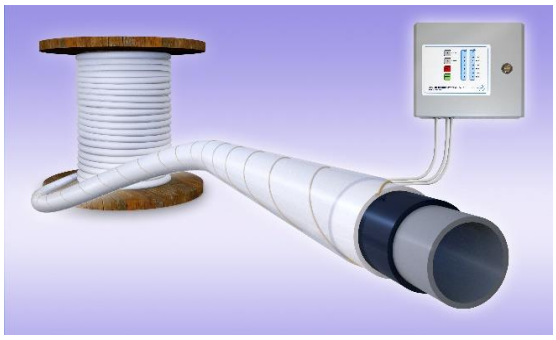
If you would like to learn more about the flexible double containment systems, please contact us.

ft water treatment

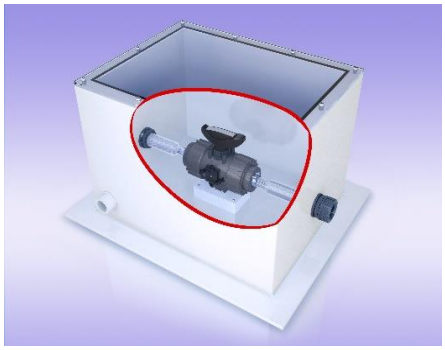
CHEMICAL DUAL CONTAINED SYSTEMS WITH OR WITHOUT BUILT-IN LEAK DETECTION



Protectaflex



PF Detect



Catch pots

IN-TRACE

Hose fittings

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