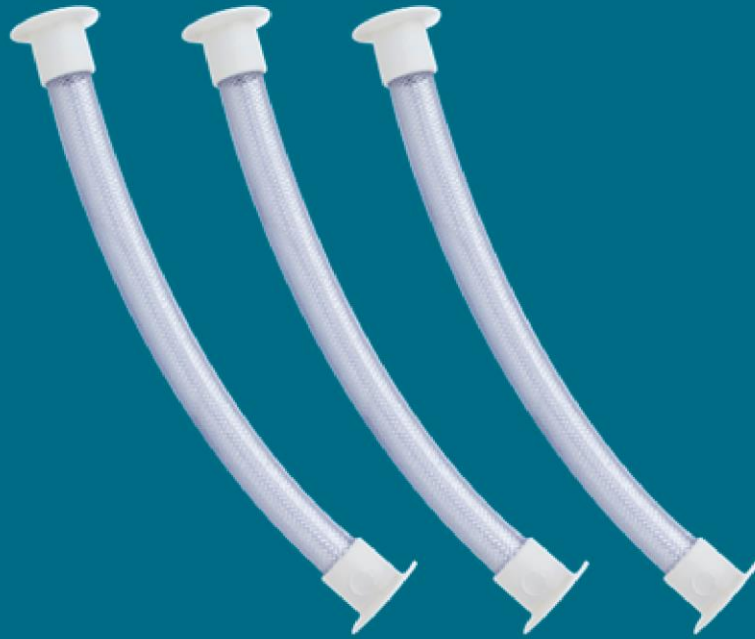




Smart Membrane Solutions
Putting Process Managers at Ease

Permeate Hoses Manual



Contact Smart Membrane Solutions:



+64 3 741 1808



info@smartmembranesolutions.co.nz



PO Box 148, Rolleston 7643, New Zealand



www.smartmembranesolutions.co.nz



INSTRUCTION MANUAL

IM-EN-PH v2

This product manual is delivered to the end user with the Smart Membrane Solutions Membrane Permeate Hoses. Information in this manual is subject to change without notice. When the manual is changed, a revised copy is published at www.smartmembranesolutions.co.nz.

Document uncontrolled if printed.





Table of Contents

1. Introduction	3
1.1 Description	3
1.2 Available Models	4
1.3 General Safety Considerations	5
1.4 Warranty	5
1.5 Disposal	5
2. Installation	6
2.1 Installation Components	6
2.2 Recommended Installation Angles	6
2.3 Installing the Clamp Connections	9
3. Maintenance and Service	10
3.1 Replacing the Sample Point Rubber Bung	10
4. Specifications	11



1. Introduction

The Smart Membrane Solutions permeate hose connects the end of each membrane housing to the permeate header.

1.1 Description

The permeate hose is made of a food grade flexible transparent plastic tube with a moulded tri ferrule on each end.

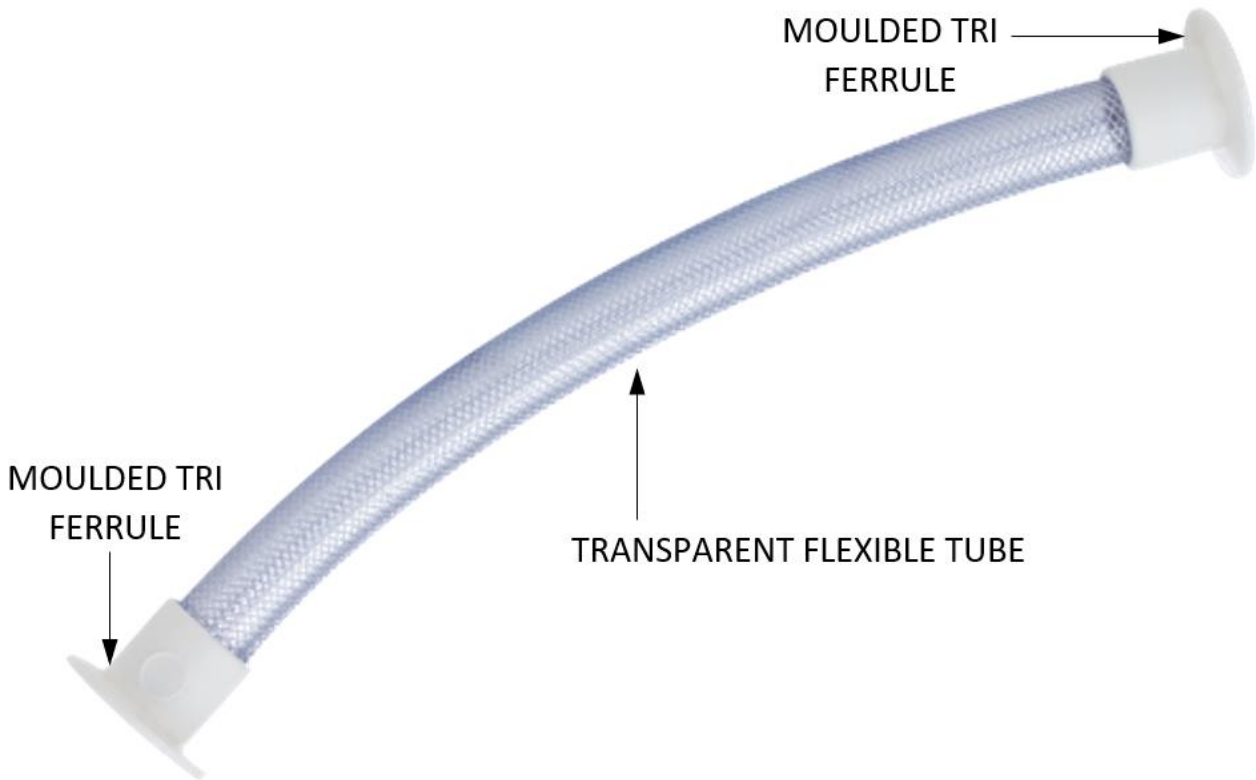
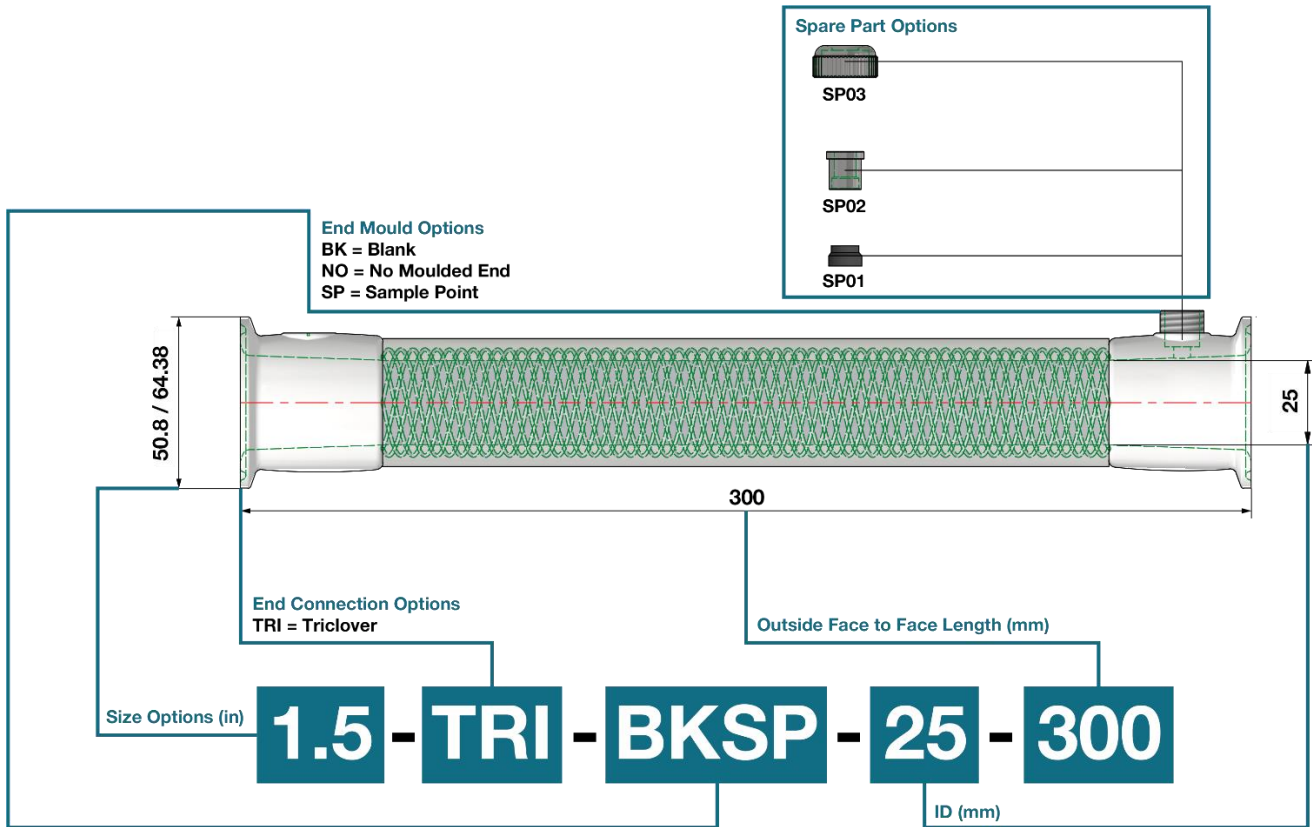


Figure 1.1 Permeate Hose

1.2 Available Models

The permeate hose is available in two connection sizes, two hose lengths, and comes with or without sanitary sample points to suit the different process requirements, as per the options shown in figure 1.2 below.



Tri ferrule size	Sample Point	Permeate Hose Length	Product Code
1.5"	Yes	300 mm – 25 mm diameter	1.5-TRI-BKSP-25-300
1.5"	Yes	450 mm – 25 mm diameter	1.5-TRI-BKSP-25-450
2.0"	Yes	300 mm – 25 mm diameter	2.0-TRI-BKSP-25-300
2.0"	Yes	450 mm – 25 mm diameter	2.0-TRI-BKSP-25-450
1.5"	NO	300 mm – 25 mm diameter	1.5-TRI-BK BK-25-300
1.5"	NO	450 mm – 25 mm diameter	1.5-TRI-BK BK-25-450
2.0"	NO	300 mm – 25 mm diameter	2.0-TRI-BK BK-25-300
2.0"	NO	450 mm – 25 mm diameter	2.0-TRI-BK BK-25-450

Figure 1.2 Hose Options

All models meet the Food Contact Materials Regulation (EC) 1935/2004, the NZFSA operation guideline: design and construction of Dairy Premises and Equipment, the USDA Guidelines for the Sanitary Design and Fabrication of Dairy Processing Equipment (2001) – Sections D & E, the EU Regulation on Good Manufacturing Practice (GMP): 2023/2006-EC and the US FDA Code of Federal Regulations Title 21 (Food and Drugs).



1.3 General Safety Considerations

The following general safety precautions must be observed during installation and service of the permeate hoses. Failure to comply with these precautions or with specific WARNINGS given elsewhere in this manual violates safety standards of design, manufacture, and intended use of the hoses.

Smart Solutions Membranes assumes no liability for the customer's failure to comply with these requirements. If the permeate hose is used in a manner not specified in this manual, the design functions may be impaired.

Smart Solutions Membranes will not be liable for malfunctions or damage resulting from any modification made to the permeate hose by the customer.

The following symbol marks are used in this user's manual.

	<p>This indicates a WARNING. It provides safety precaution information need to avoid injury.</p>
	<p>This indicates a NOTE which contains additional information and hints.</p>

1.4 Warranty




All Smart Membrane Solutions products are guaranteed to be free from defective materials or workmanship under normal use for the purpose for which they are intended. Smart Membrane Solutions provides a limited warranty that covers the repair or replacement of any items which have been proved defective upon examination by Smart Membrane Solutions within 12 months from the date of delivery.

Warranty does not cover normal wear and tear of the product over time, or any products that are handled, installed or used against the manufacturer's guidance.

1.5 Disposal

When wanting to dispose of an obsolete permeate hose or any parts of the hose, please observe local and national regulations and requirements.

2. Installation

-  **Warning!** Installation of the permeate hose must be performed by a suitably trained person.
-  **Warning!** Ensure the membrane housing & permeate header are free of any liquid or pressure during installation.
-  **Warning!** Take care not to damage the moulded tri ferrule ends through accidentally dropping the permeate hose, or by exerting excessive force (such as knocking or placing heavy objects on top).

2.1 Installation Components

The permeate hose (A) connects at one end to the Membrane Housing permeate tube (B) via the (38 mm (1.5”) or 51 mm (2.0”) moulded tri ferrule end (C) using a gasket and tri clamp (D) to secure it in place. The other end connects to the permeate header via the second moulded tri ferrule end using a gasket and tri clamp, as per figure 2.1 below. If the model has a sample point, it is located on one end of the moulded tri ferrule (E).

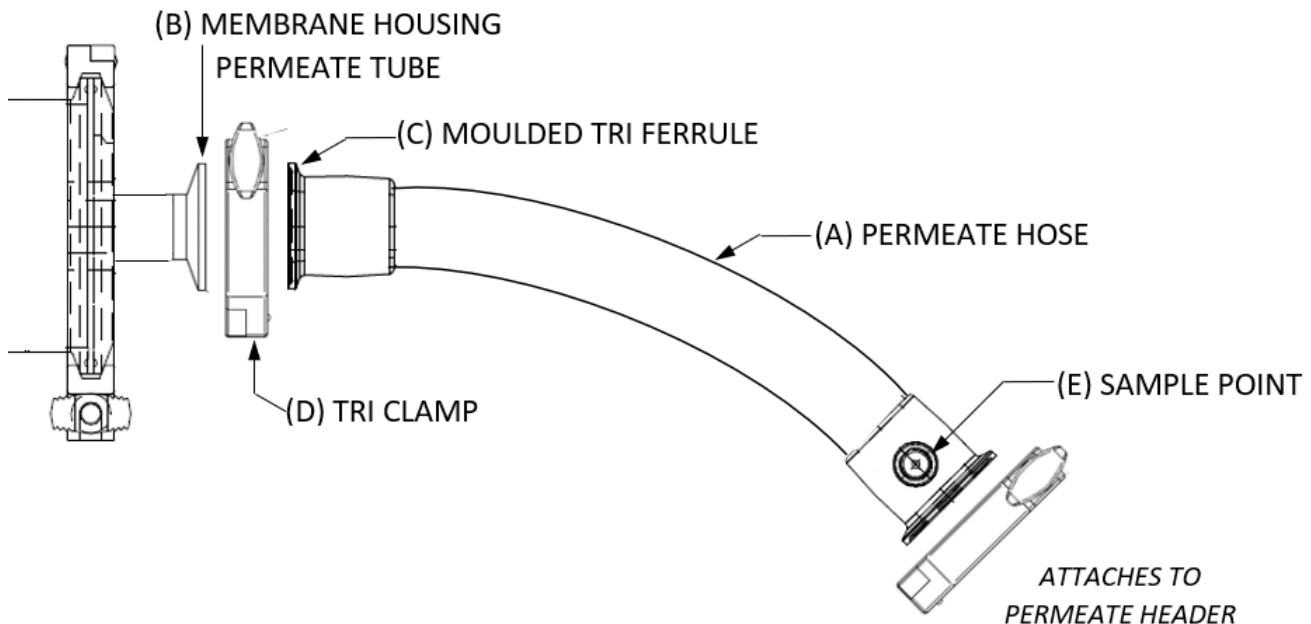


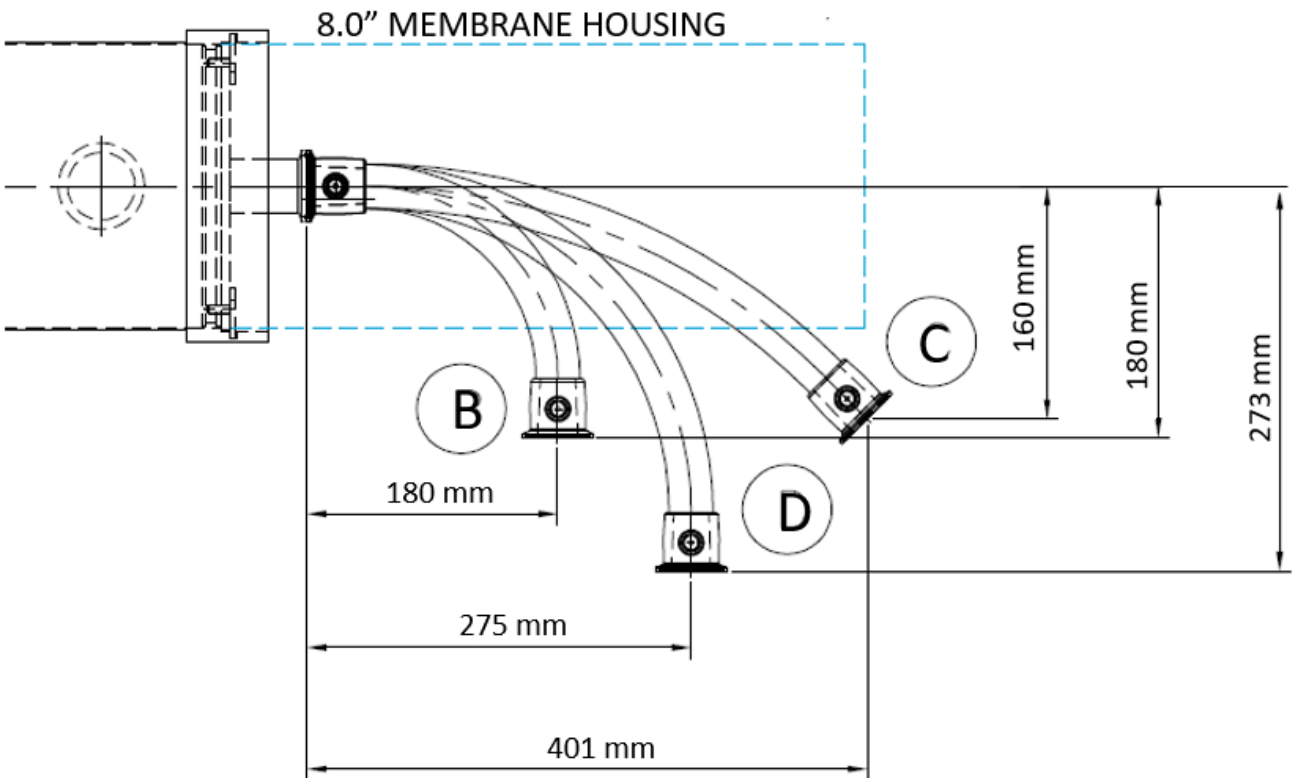
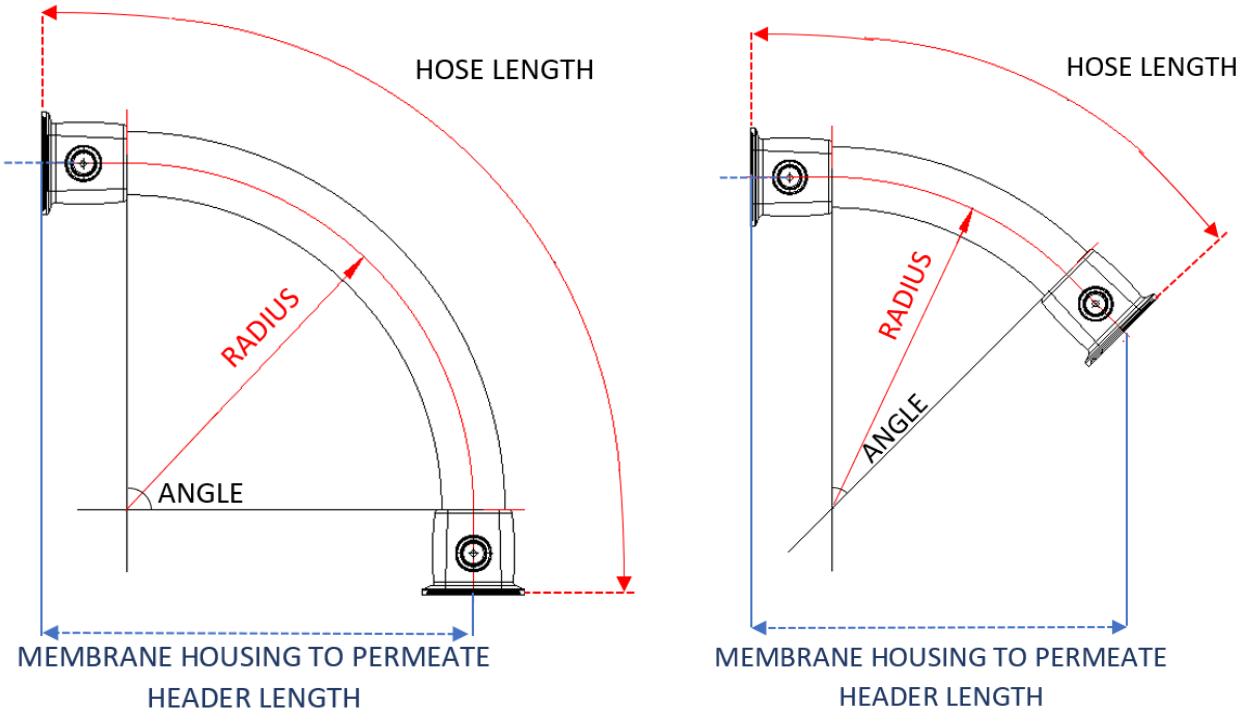
Figure 2.1: Permeate Hose Installation Components

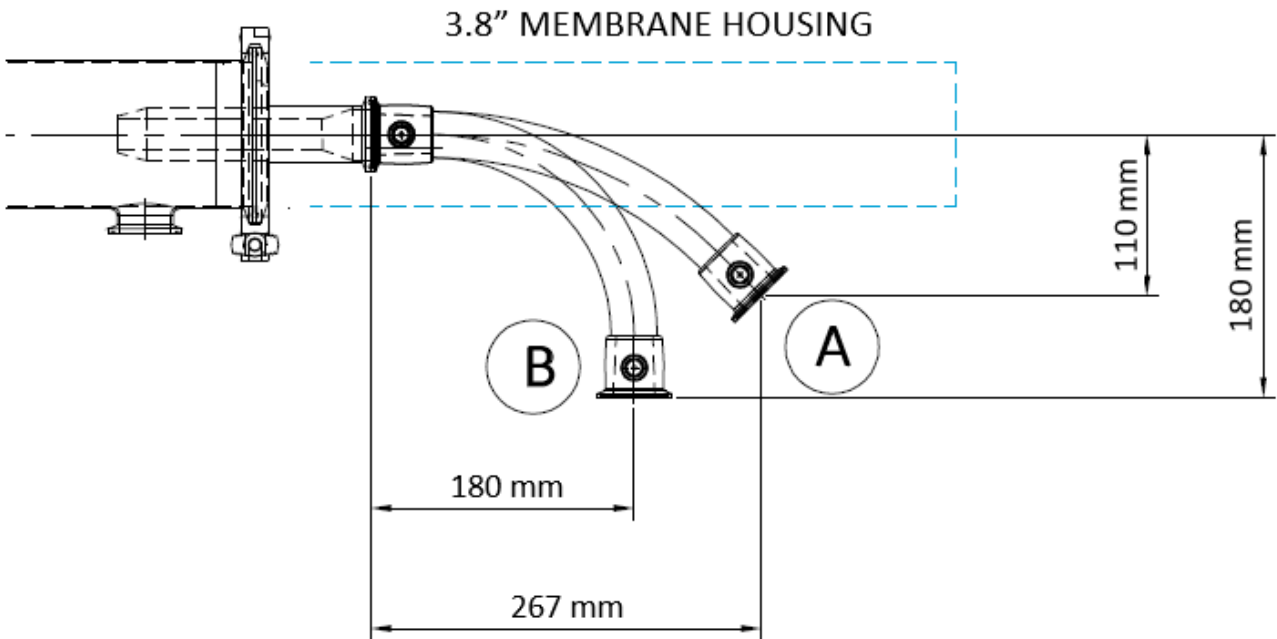
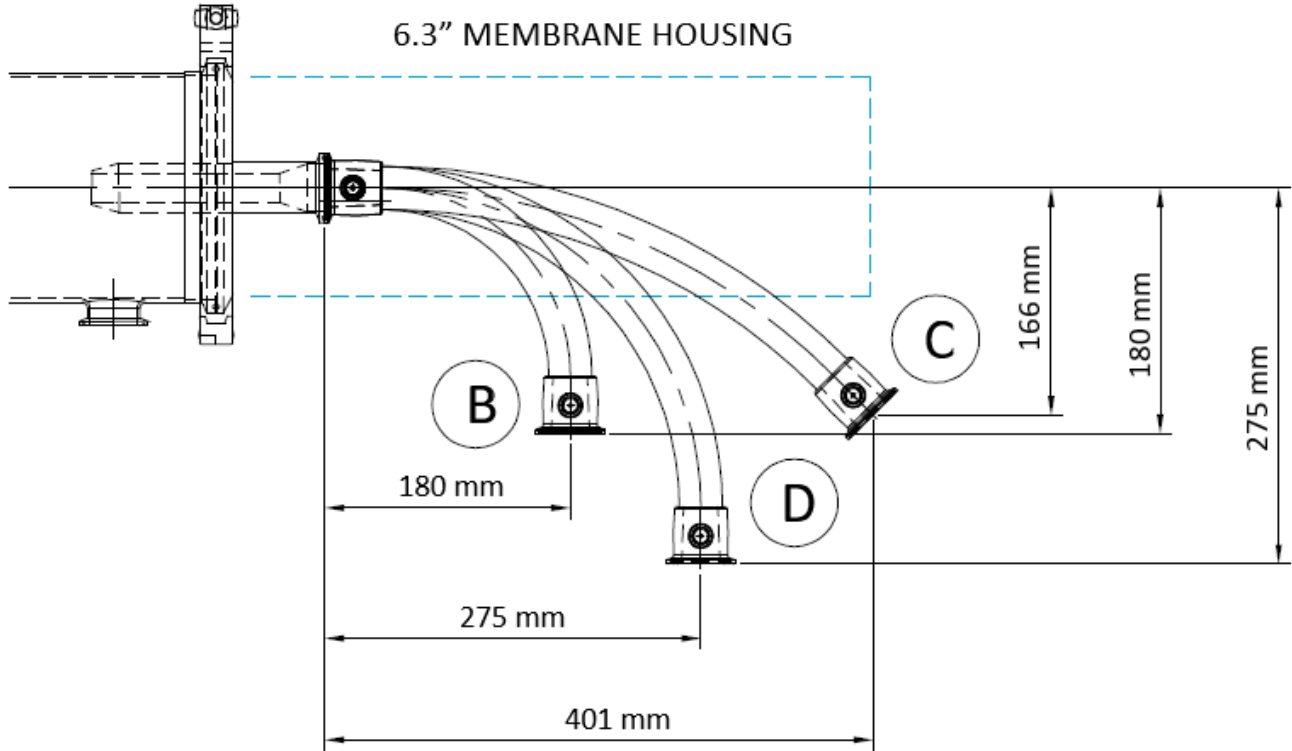
2.2 Recommended Installation Angles

The bend radius of the installed permeate hoses must not be less than 130 mm. The table below and associated figures provides the recommended installation information for both the 1.5” and 2.0” end connection sized permeate hose.

Reference	Installed Angle	Permeate Hose Length	Membrane Housing to Permeate Header length	Radius
A	45°	300 mm	267 mm	275 mm
B	90°	300 mm	180 mm	138 mm
C	45°	450 mm	401 mm	465 mm
D	90°	450 mm	275 mm	233 mm

Document uncontrolled if printed.







2.3 Installing the Clamp Connections



Note! Always use a sanitary tri clamp gasket to provide a sanitary seal and prevent any potential fluid leaks. If reusing a gasket, inspect the gasket prior to re-use to ensure it is clean and free from defects.

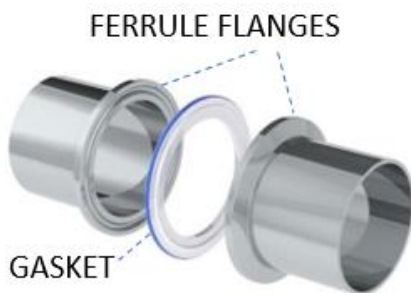


Warning! Take care during installation to avoid damage to personnel through misplacement of fingers between the flanges or clamp.



Warning! Ensure that the factory procedures include a connection inspection before pressurisation. Incorrect clamping can cause leakage.

1. Position the gasket between the ferrule flanges.



2. Align the bead of the gasket with the grooves of both ferrule flange faces.



3. Mate the faces together and then apply the clamp. Make sure both flanges are within the clamp groove.



4. Tighten the clamp so it is firm but finger tight.



Note! When the clamp is tightened, it squeezes on the flanges, pushing the ferrules toward each other. This creates a proper seal. The clamp connection should perfectly align the two ferrules, providing uniform crush to the gasket.



3. Maintenance and Service

The need for regular maintenance is minimal, due to the permeate hose having no moving parts and requiring no mechanical or electrical adjustments. However, the permeate hose model with sanitary sample point will require replacement of the rubber bung on a regular basis, depending on how often the sample point is used.

3.1 Replacing the Sample Point Rubber Bung

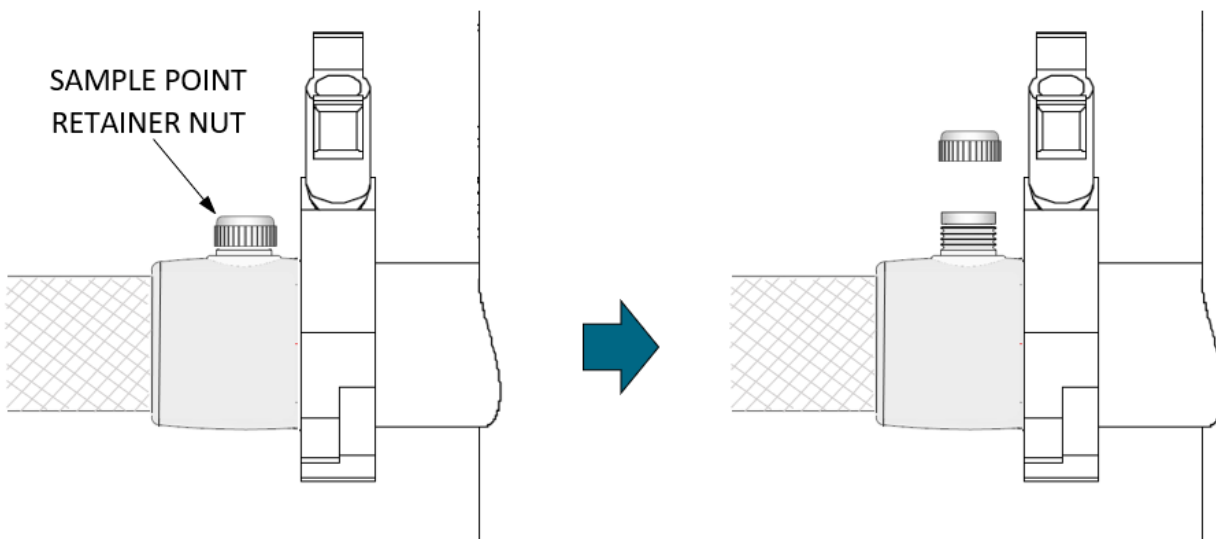


Warning! Wear appropriate protective clothing and be careful when removing the sample point. Always check the pipeline is empty before opening the permeate hose sample point.

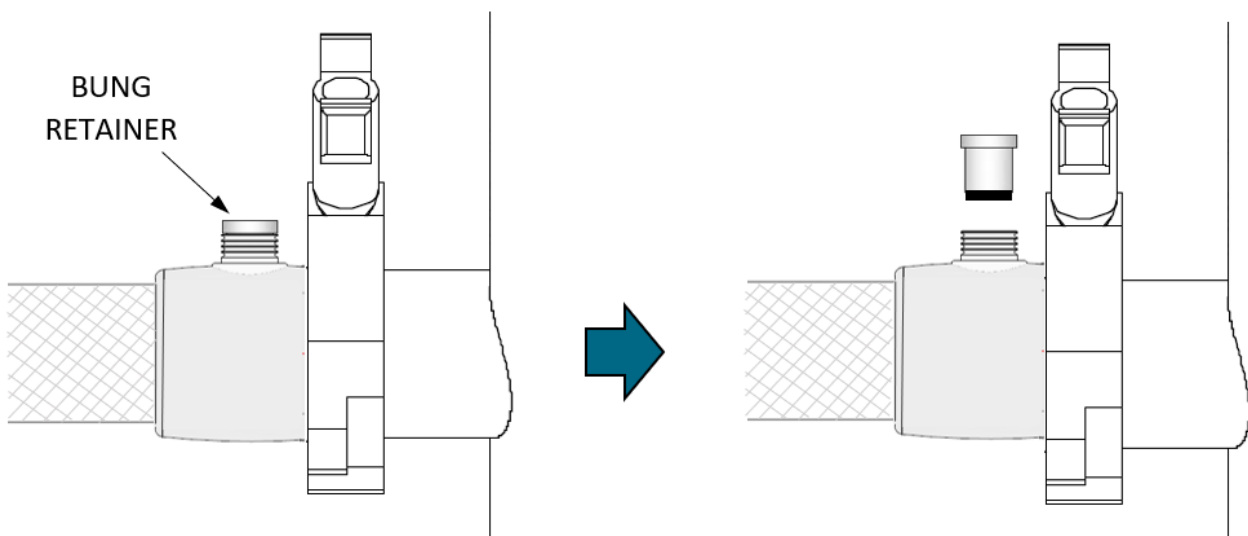


Note! The sample point rubber can be removed without having to remove the whole permeate hose.

1. Undo to the sample point retainer nut and remove.

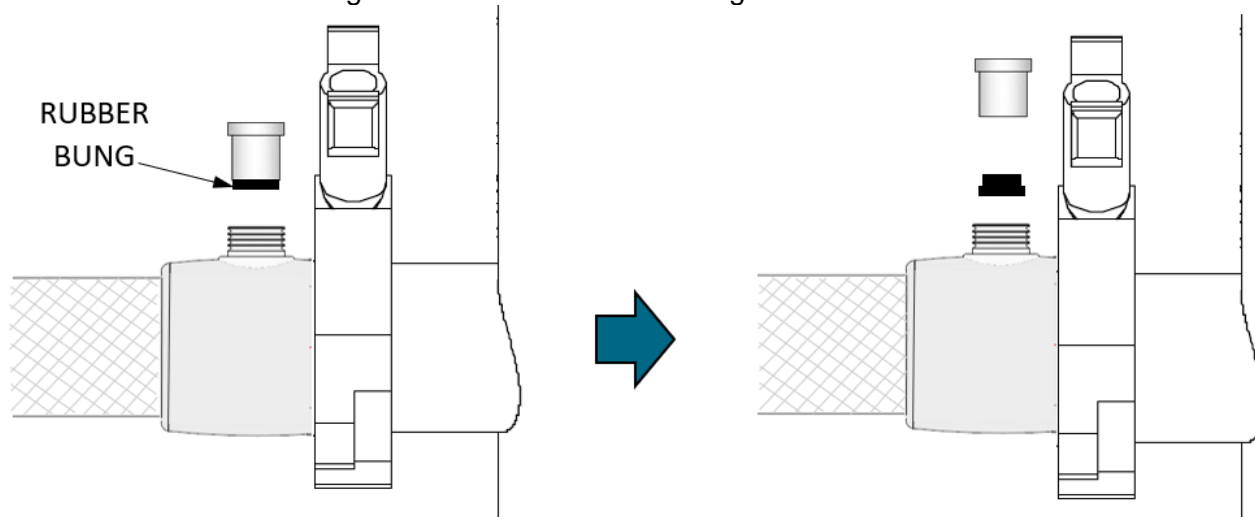


2. Remove the stainless-steel bung retainer from the sample point housing.



Document uncontrolled if printed.

3. Remove the rubber bung from the stainless-steel bung retainer.



Note! The rubber bung may be hard to remove from the bung retainer. If the bung is stuck, use a small screwdriver to push the bung out of the retainer.

4. Replace the rubber bung with a new one, re-insert into the bung retainer, then into the sample point housing and tighten the sample point nut as per the reverse of steps 3, 2 and 1 above.

4. Specifications

Parameter	Specification
Material	Plastic hose with moulded plastic ends, stainless steel and EPDM or Nitrile Rubber Sample Component
Fluid pressure	Max 6 bar
Fluid temperature	-10°C to +60°C
Bend Radius	Max 130°
Environment	Indoor, wet location Ambient temperature: -10°C to +50°C
Pipe connection	1.5" or 2.0" Triclover
Compliance	EU 1935/2004-EC FDA 21 CFR 177.1660 EU n°10/2011 (Classes A, B, C) FDA 21 CFR Parts 170 to 199 Item 175.300

For further information please contact:

Smart Membrane Solutions
PO Box 148, Rolleston,
Canterbury 7643,
New Zealand.
Phone +64-3-7411 808
info@smartmembranesolutions.co.nz