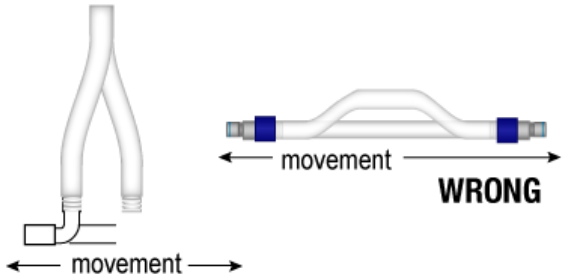
General Hose Installation Guide

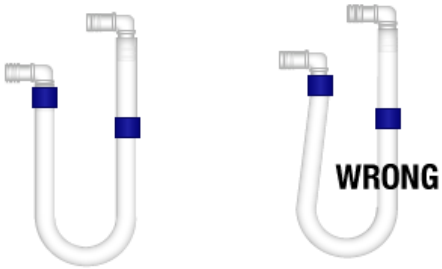
A

B

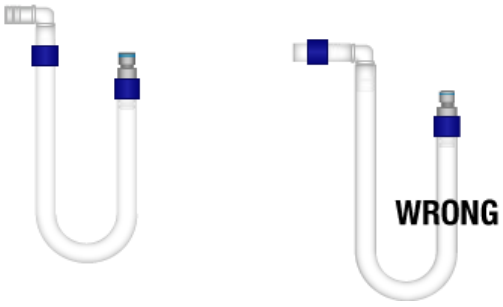
C



D



E



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Prior to Installation:

- Examine the hose for any obvious damage. IF HOSE IS DAMAGED, DO NOT USE. Examples of damage may include slices to the cover, kinds, broken braid, and crushing of the hose (can reduce life and pressure rating).
- Review application to ensure proper selection of hose has been made by examining materials, pressure, chemical compatibility, temperature and environment.
- Hose movement should be restricted to a SINGLE PLANE (Drawing A) to minimize the resultant twisting (torque). Note: the flexing plane should also be the plane in which bending occurs. Excessive bending will induce stress fatigue. (Drawing B).
- Axial movement should be eliminated. The hose should not be stretched or compressed along its longitudinal axis when installed in-line. (Drawing C).

Installation:

- **Never use hose below minimum bend radius (Drawing D**). Bend radii (measured to inside radius of fluoropolymer lined hose and centerline for Stainless Steel Metal hoses) are give for individual products and sizes (consult factory for specific data). These values represent the minimum bend radius at which the hose can be properly installed. If these values are not maintained, the hose can fail prematurely. Note: In some cases, vacuum and pressure ratings are based on not exceeding 2X minimum bed radius (consult factory for specific hose ratings).
- **Do not allow severe bends (Drawing E).** Severe bends can cause kinking I a hose or overstressing the assembly and/or material, resulting in damage and ultimate failure. If severe bends can not be avoided, then use elbows designed to accommodate the direction change.
- **Do not twist (torque) assembly along centerline during installation**. The likelihood of leakage and/or failure increases for hoses that are twisted (torque) during assembly. The proper use of floating flanges and swivel type fittings (i.e. JIC) can eliminate improper twisting.

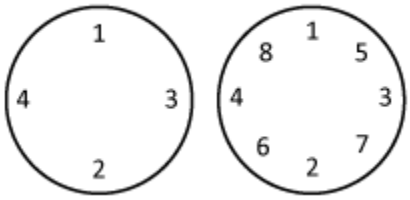
Hose Assemblies with PTFE, FEP Flare-Thru and PFA Encapsulated FLANGED Fittings:

- **Flange Covers should not be removed until hose is ready to be bolted into position.** Flange covers should be replaced immediately after disconnecting hose to protect sealing surfaces.
- **Gaskets are not required when hose is connected to a sealing surface made of PTFE, FEP or PFA.** If the hose is connected to any other surface, such as metal, glass, carbon, reinforced plastic, etc., a gasket should be used.
- **Bolts should be tightened using proper bolt techniques and torque values.** The table below gives torque values for lined hoses using class 150 flanges. Bolts should be clean and lubricated with flat washers being sued to ensure correct torque.

Nominal Hose Size

.5"	1"	1.5"	2"	3"	4"
10	10	15	25	40	30

Torque (ft.-lbs.)



Bolt Torque Sequence bolt torque sequence

For accurate tightening, a torque wrench is HIGHLY recommended. If a flange leak occurs on one side of a properly torqued flange, the bolts should not be over-torqued. Instead, loosen the bolts on the non-leaking side the same amount you tighten the bolts on the leaking side.

Installation

Flare-Thru Fittings; Clamp Style Sanitary Ends:

For installation of WSIB, Open Pitch and MTL/MTLSJ series hose assemblies, we recommend that Solid PTFE gaskets MUST be used to insure a leak-tight seal. Use of other types of gaskets may result in leaks, sealing surface damage, or you may experience difficulty in installing the sanitary clamps.

Threaded End Connections (MNPT); Metallic & Plastic Pipe Fittings:

Typically, male pipefitting (MNPT) can be effectively sealed using common PTFE sealing tape. Other types of pipe dope or sealing compounds (usually PTFE paste) should be checked to confirm compatibility with service fluids and temperatures of the application.

Any welding near the hose assembly should be done in a manner to protect the liner and the hose from damage.

Notes for Hose Assemblies with Chemfluor Fluoropolymer "Flare-Thru" Fittings Precautions to be taken during removal for Storage/Cleaning/Sterilization

- Assemblies or components with flare-thru ends (include Chemfluor lined adapters) MUST NEVER be removed from the hose/piping system until assemblies or components with the flare-thru ends have completely cooled down to a least 70°F.
- Assemblies MUST ALWAYS have the flare-thru ends restrained. End caps and solid PTFE gaskets for clamp style sanitary fittings may be used, flange covers/blind flanges, or a lap joint flange with stub end and the appropriate gasketing or just having the assembly bolted or clamped into he hose/piping system is recommended. We also recommend the use of dust plugs/caps for Female and Male Cam-Locks.
- Assemblies or components with flare-thru ends that are to be pressured tested or cleaned (autoclaved) MUST ALWAYS have the flare-thru ends restrained by end caps, flange covers, dust

- plus/caps or a flange with a stub end and appropriate gasketing, prior to start of the process. These devices MUST remain in place during heat-up and through complete cool-down to at least 70°F before removing for installation.
- Flanges covers, ends caps, dust plugs/caps or a flange with stub end and appropriate gasketing MUST be replaced immediately after disconnecting hose. Flange covers or end caps MUST NOT be removed until hose assembly or components is ready to be bolted or clamped into position.

Service Life Factors:

The actual service life of the hose assembly is strongly affected by its environment. Some of the factors which may influence service life include:

- Corrosion
  - General Corrosion Attack
  - Stress Corrosion Cracking
  - Intergranual Corrosion
  - Pitting Corrosion

- Fatigue (including)
  - High Cyclic
  - Flexure
  - Pulsation
  - Vibration
  - Torsion'

- Vibration
- Wear
- Proper hose configuration and live length should be use when hose may be exposed to movements form attached piping, tanks or equipment (i.e. thermal growth or mechanical imposed) and/or offset.