POLYPROCESSING COMPANY Providing Solutions Through Innovation	**Technical Bulletin**	**The Value of Flexible Connections!**

Properly designed and installed flexible connections increase product life cycle and maximize operating efficiencies for polyethylene chemical storage tanks!

Design Issues:

1) Rigid piping and valves exert stress on fittings and tank
2) Pipe expands/contracts with temperature fluctuations
3) Pumps produce surge forces and vibrations

Flexible Connection Design Solution:

1) Absorbs movement and stress
2) Accommodates pipe misalignment
3) Surge force protection
4) Isolates pump vibration

Flexible Connection Types:

1) Expansion Joints (bellows-type)
2) Chemical Hose
3) Pipe Loop (PVC/CPVC ≤ 1 inch in diameter)

Flexible Connection Requirements:

1) Capacities ≥ 1000 gallons
2) Fittings located on the lower 1/3 of the sidewall
3) Expansion joints must meet the following minimum requirements:
   a. Axial Compression ≥ 0.67”
   b. Axial Extension ≥ 0.67”
   c. Lateral Deflection ≥ 0.51”
   d. Angular Deflection ≥ 14°
   e. Torsional Rotation ≥ 4°
4) Install per figure #1 below

Flexible Connections Provide a Margin of Safety

Figure 1 – Flexible "hose" connections must be installed with sweeping radii and the hose should not be bent at a 90° angle see "A". Flexible hoses must not be installed on the same horizontal plane as movement of the hose becomes restrictive. Installation should be "offset" to allow for the correct movement of the hose and to eliminate undue stress on the tank and piping system see "B".

Figure A

Right **Wrong**

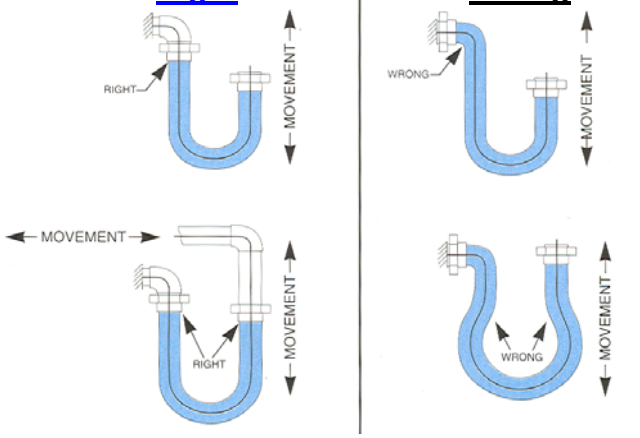


Figure B

Right **Wrong**

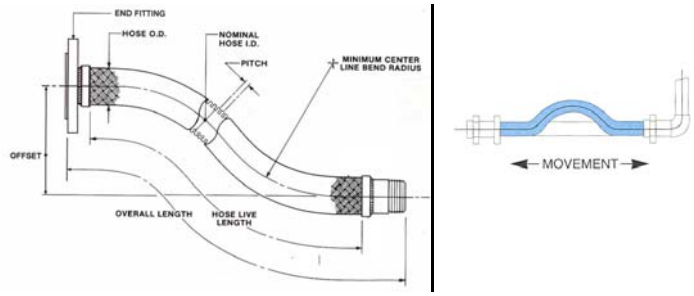
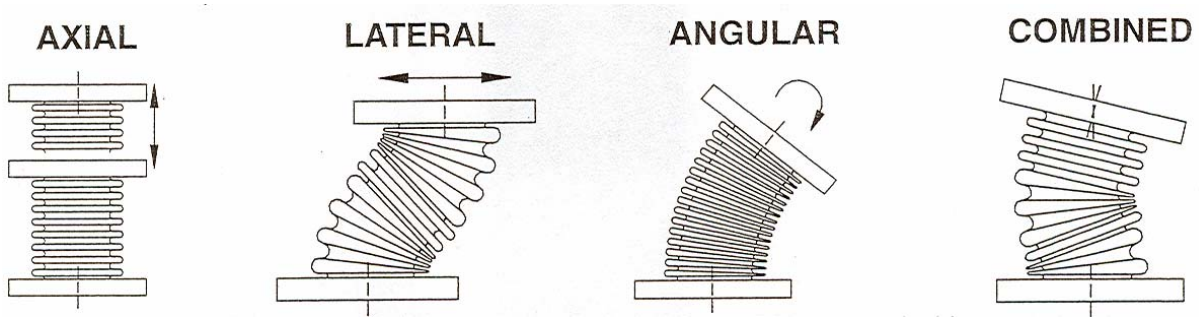


Figure 2



	2"	3"	4"
Axial Compression	0.67"	0.67"	0.67"
Axial Extension	0.67"	0.67"	0.67"
Lateral Deflection	0.51"	0.51"	0.51"
Angular Deflection	25°	18°	14°

Std 150# ANSI Flange Compatible