

Flexible Hose Piping Recommendations For Rotary Joints

The following sketches illustrate recommended flexible hose installation for rotary joints to minimize piping loads applied to the bearings of rotary joints which directly affect the life of wearing parts.

1. Flexible metal hose should be attached directly to the joint between fixed piping and rotary joint.
2. Piping must be supported independent of the rotary joint. Do not support piping with rotary joint.
3. Flexible hose is used to minimize piping loads due to thermal expansion of piping or process equipment. Also when equipment moves or vibration is present, the flexible hose absorbs this motion with minimal effect on rotary joint.

EXAMPLES OF FLEXIBLE HOSE INSTALLATIONS

Figure 1 – the vertical piece of hose allows for header expansion and misalignment of header connection relative to rotary joint connection within normal piping tolerances. Also flexible hose tolerance in length is compensated for to a reasonable amount. The horizontal leg of flexible hose allows for thermal and hydraulic expansion of vertical hose leg without exerting large forces on joint.

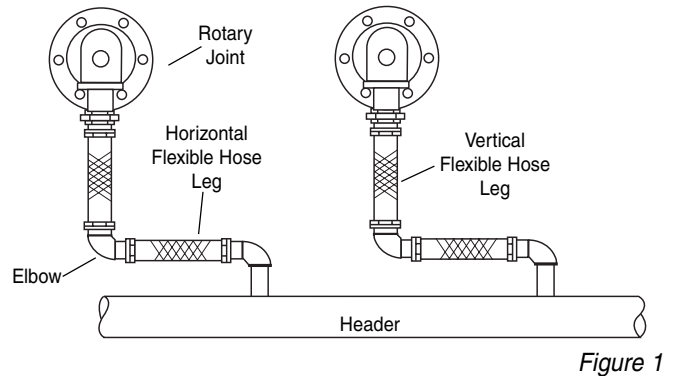


Figure 1

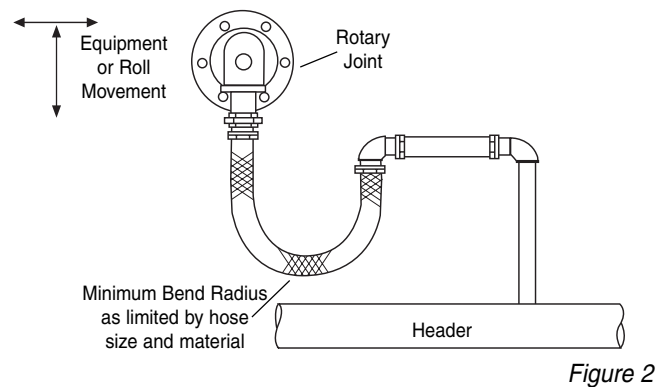


Figure 2

Figure 2 – another method is shown to provide flexibility of hose length, piping and roll movement vertical or horizontal. Generally the hose must be much longer than needed for Figure 1 due to the minimum bend radius allowable, which is dependent on size and material of hose and amount of equipment movement.

This method is only recommended for ball bearing joints or internally compensated joints where axial movement of joint is not present. If joint moves axially, a torsional stress is built up in the hose thus shortening the hose life.

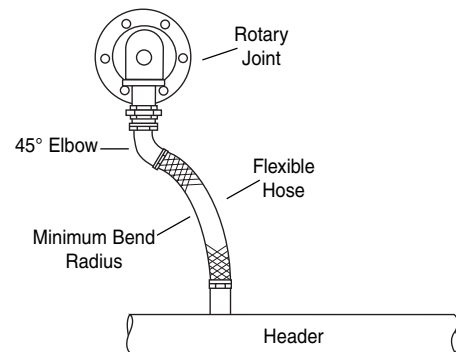


Figure 3

Figure 3 – illustrates another recommended method using a single piece of hose which requires sufficient hose length to stay within the minimum bend radius of the specified hose size and material. This arrangement minimizes hydraulic loads developed by the hose caused from length and space tolerance.

Figure 4 – recommended dual-flow arrangements.

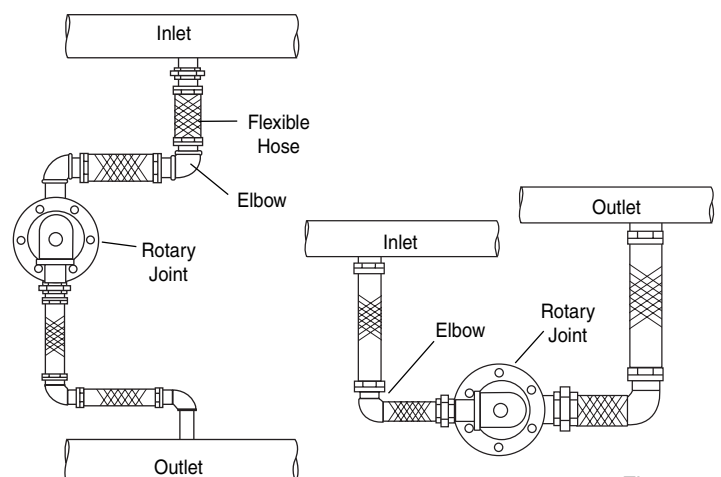
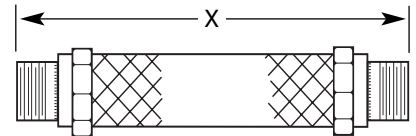


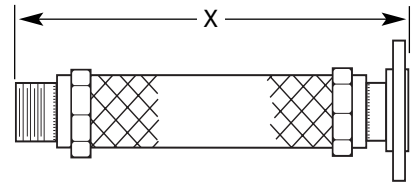
Figure 4

RECOMMENDED MINIMUM HOSE LENGTH

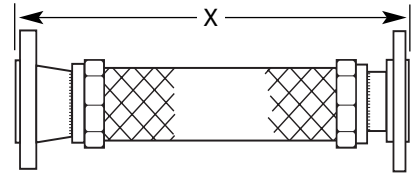
PIPE SIZE	MINIMUM LENGTH (X) mm
1/4"	200
3/8"	250
1/2"	250
3/4"	300
1"	380
1-1/4"	450
1-1/2"	450
2"	530
2-1/2"	610
3"	690
4"	710
5"	760
6"	840
8"	910



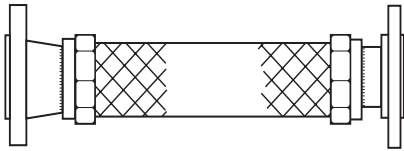
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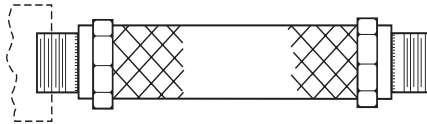
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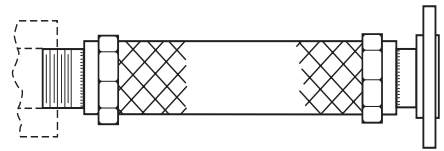
FFLF



Fixed Flange One End
Lap Flange One End



Threaded Both Ends



Threaded One End
Lap Flange One End

Size	Maximum Pressure (bar) at:			
	205°C	260°C	315°C	340°C
1/2" x 300mm	10	10	10	10
3/4" x 300mm	10	10	10	10
1" x 380mm	10	10	10	10
1-1/4" x 450mm	10	10	10	10
1-1/2" x 450mm	10	10	10	10
2" x 530mm	10	10	10	10
2-1/2" x 550mm	10	10	10	10
3" x 610mm	10	10	10	10
4" x 710mm	10	10	10	10
5" x 760mm	10	10	10	10
6" x 840mm	10	10	10	10
8" x 910mm	10	10	9	9

Size	Maximum Pressure (bar) at:			
	205°C	260°C	315°C	340°C
1/4" x 300mm	43	41	40	39
3/8" x 300mm	38	36	35	34
1/2" x 300mm	40	38	38	35
3/4" x 300mm	34	32	30	30
1" x 380mm	30	29	28	27
1-1/4" x 450mm	26	24	23	22
1-1/2" x 450mm	23	22	21	20
2" x 530mm	23	22	21	21
2-1/2" x 550mm	23	22	21	20
3" x 610mm	19	18	17	16
4" x 710mm	13	12	12	11
5" x 760mm	15	14	13	13
6" x 840mm	13	13	12	12
8" x 910mm	10	10	9	9

Size	Maximum Pressure (bar) at:			
	205°C	260°C	315°C	340°C
1/2" x 300mm	10	10	10	10
3/4" x 300mm	10	10	10	10
1" x 380mm	10	10	10	10
1-1/4" x 450mm	10	10	10	10
1-1/2" x 450mm	10	10	10	10
2" x 530mm	10	10	10	10
2-1/2" x 550mm	10	10	10	10
3" x 610mm	10	10	10	10
4" x 710mm	10	10	10	10
5" x 760mm	10	10	10	10
6" x 840mm	10	10	10	10
8" x 910mm	10	10	9	9

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