Flexible Hose Piping Recommendations For Rotary Joints

Follow your company's safety procedures whenever working on Kadant Johnson products. Read all of the instructions before proceeding with installation or repair.

Please refer to the Kadant Johnson assembly drawing for part identification. Assembly drawings are available on request from Kadant Johnson.

Lubricate all fasteners with anti-seize compound. Tighten all fasteners in a star pattern. Torque specifications are listed on the product assembly drawing and are available from Kadant Johnson.

The following sketches illustrate recommended flexible hose installations for rotary joints. Properly installed flexible hoses will minimize the piping load applied to the rotary joint.

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.
4. These arrangements are designed to minimize hydraulic forces on the joint.

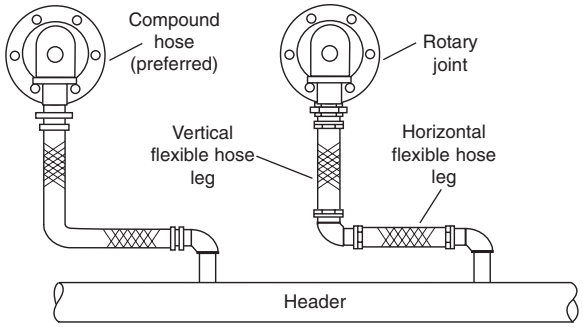


Figure 1

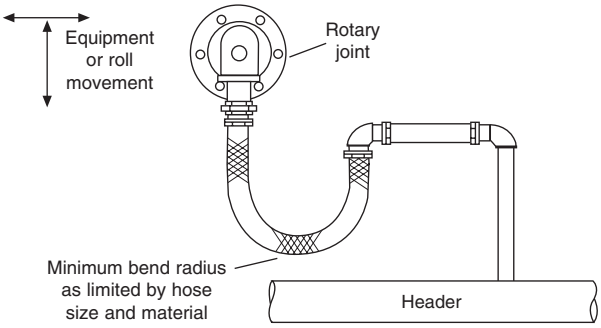


Figure 2

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 rotary joint.

Figure 2 – Another method is shown to provide flexibility of hose length, piping and roll movement vertical or horizontal. Generally the hose must be 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.

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.

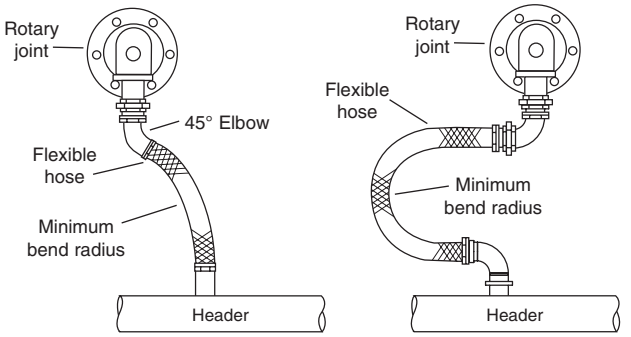


Figure 3

Figure 4 – Recommended dual-flow arrangements.

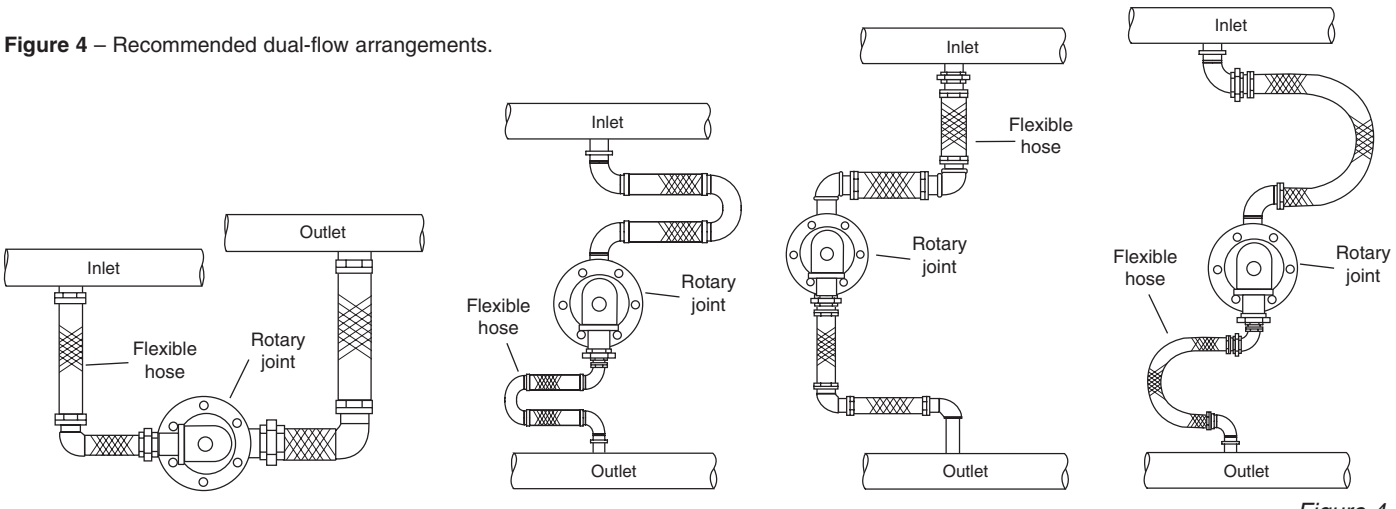
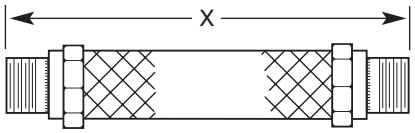


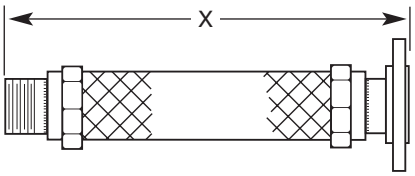
Figure 4

RECOMMENDED MINIMUM HOSE LENGTH

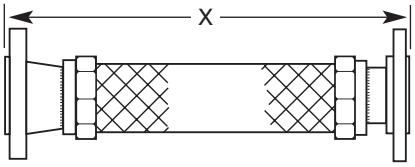
PIPE SIZE	MINIMUM LENGTH (X)	STATIC BEND	INTERMITTENT BEND	MAXIMUM OFFSET
1/4	8	0.87	5.5	1-15/16
3/8	10	1.12	5.5	1-7/8
1/2	10	1.50	6.0	1-1/2
3/4	12	2.12	8.0	15/16
1	15	2.75	9.0	1-5/8
1-1/4	18	3.25	10	2-1/8
1-1/2	18	3.75	12	1-15/16
2	21	5.00	15	2-1/8
2-1/2	22	7.00	14	2-7/16
3	24	8.25	17	2-9/16
4	28	11.0	22	2-15/16
5	30	11.0	28	2-1/2
6	33	16.5	33	2-5/8
8	36	21.5	43	2-7/16



TT



TLF



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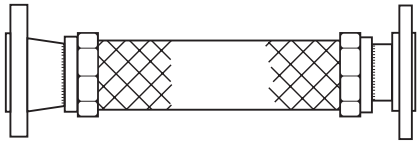
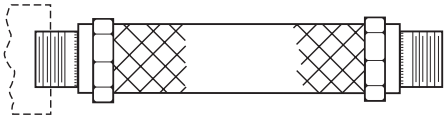


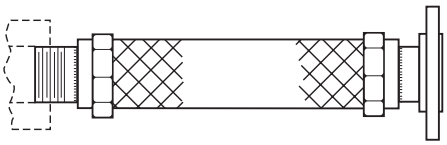
Fixed Flange One End
Lap Flange One End

Size	Maximum Pressure (psig) at:			
	400°F	500°F	600°F	650°F
1/2 x 12	150	150	150	150
3/4 x 12	150	150	150	150
1 x 15	150	150	150	150
1-1/4 x 18	150	150	150	150
1-1/2 x 18	150	150	150	150
2 x 21	150	150	150	150
2-1/2 x 22	150	150	150	150
3 x 24	150	150	150	150
4 x 28	150	150	150	150
5 x 30	150	150	150	150
6 x 33	150	150	150	150
8 x 36	150	140	135	130



Threaded Both Ends

Size	Maximum Pressure (psig) at:			
	400°F	500°F	600°F	650°F
1/4 x 12	625	600	575	560
3/8 x 12	550	525	505	490
1/2 x 12	575	550	525	510
3/4 x 12	495	465	440	430
1 x 15	440	420	405	390
1-1/4 x 18	370	350	330	320
1-1/2 x 18	340	320	300	295
2 x 21	335	325	310	300
2-1/2 x 22	330	315	305	295
3 x 24	270	255	240	235
4 x 28	190	175	170	165
5 x 30	220	205	195	190
6 x 33	195	185	175	170
8 x 36	150	140	135	130



Threaded One End
Lap Flange One End

Size	Maximum Pressure (psig) at:			
	400°F	500°F	600°F	650°F
1/2 x 12	150	150	150	150
3/4 x 12	150	150	150	150
1 x 15	150	150	150	150
1-1/4 x 18	150	150	150	150
1-1/2 x 18	150	150	150	150
2 x 21	150	150	150	150
2-1/2 x 22	150	150	150	150
3 x 24	150	150	150	150
4 x 28	150	150	150	150
5 x 30	150	150	150	150
6 x 33	150	150	150	150
8 x 36	150	140	135	130

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