ELS™ Rotary Joints

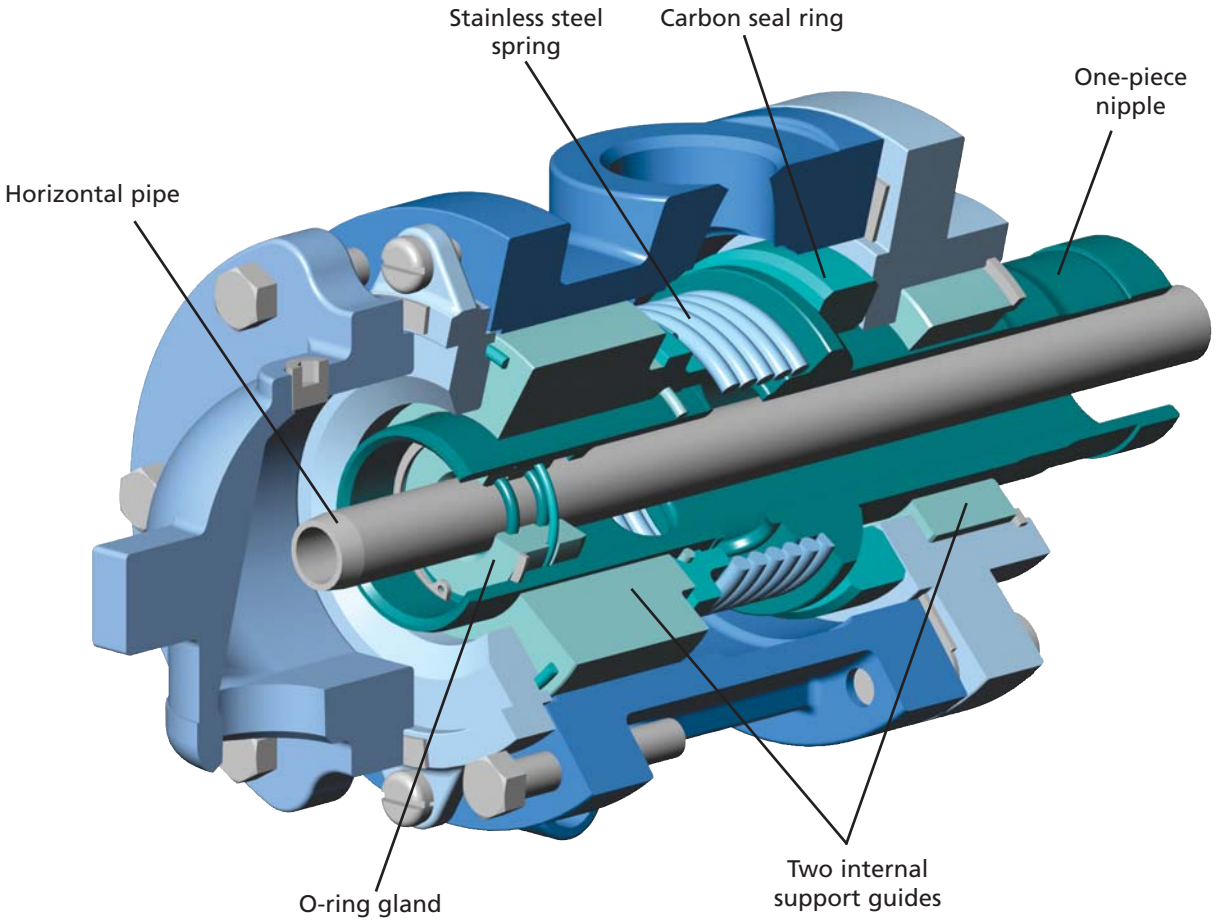
For steam and thermal oil service

KADANT
AN ACCENT ON INNOVATION

Self-aligning rotary joint with dual carbon bearing support.

Engineered reliability and performance.

Overview



Features

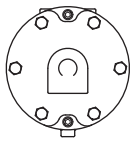
- Designed for steam and thermal oil
- Two internal support guides
- Standard o-ring or preformed packing
- Stationary or rotating horizontal pipe
- Flexibility in mounting

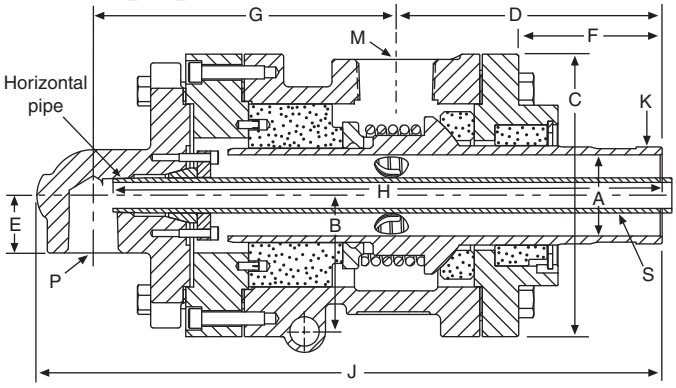
Benefits

- Application flexibility, simplified inventory
- Increased reliability and performance
- Reduced handling time, easy to maintain
- Extended operating life
- No special installation tools required

2″ – 6″

Type ELSJ – Stationary horizontal pipe



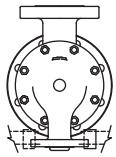


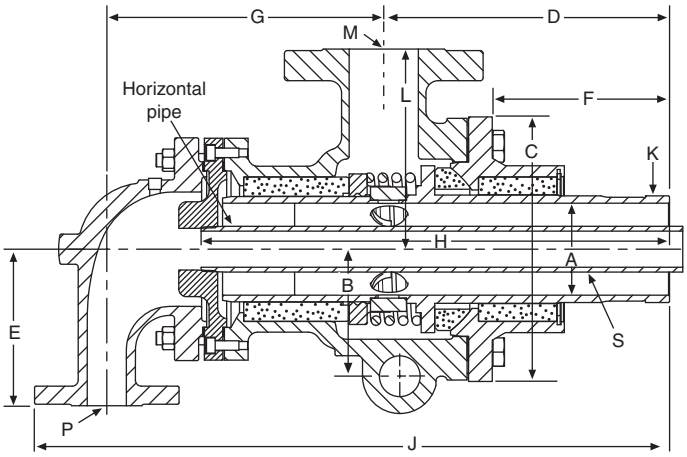
Size (K)	M	P	S		A	B	C	D	E	F	G	H	J	Units
2"	1½"	¾" – 1"	½"		1.94	3.25	6.75	6.36	1.38	3.43	7.24	13.12	14.94	inches
					49	83	171	161	35	87	184	333	380	mm
2½"	2" – 2½"	1" – 1½"	1"		2.30	3.25	7.25	7.47	1.38	4.23	7.69	14.53	16.41	inches
					58	83	184	190	35	107	195	369	417	mm
3"	2" – 2½"	1¼" – 1½"	¾" – 1½"		2.80	3.88	7.88	8.25	1.69	4.73	7.80	14.75	17.31	inches
					71	98	200	210	43	120	198	375	440	mm

Dimensions are for reference only and subject to change. Flanged connections available in 150 and 300 class flanges.

Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 200 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 200 rpm

Type ELSJ – Stationary horizontal pipe





Size (K)	M	P	S		A	B	C	D	E	F	G	H	J	L	Units
3½"	3"	1½"	1¼"		3.38	4.81	9.15	10.78	6.50	6.28	11.58	19.49	25.35	7.00	inches
					86	122	232	274	165	159	294	495	644	178	mm
4"	3"	1½"	1½"		3.82	5.28	10.98	11.87	6.50	7.36	11.50	19.45	26.37	8.31	inches
					97	134	279	301	165	187	292	494	670	211	mm
5"	4"	2"	1½"		4.72	6.50	13.74	15.64	6.50	9.80	12.81	24.21	31.58	10.32	inches
					120	165	349	397	165	249	325	615	802	262	mm

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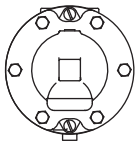
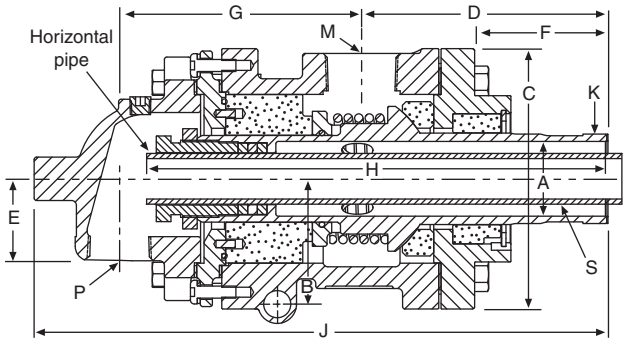
Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 200 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 200 rpm

2″ – 6″

Type ELSN – Rotating horizontal pipe





Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	Units
2"	1½"	¾" – 1¼"	½" – 1"	1.94	3.25	6.75	6.38	2.12	3.44	6.28	12.00	14.88	inches
				49	83	171	162	54	87	160	305	378	mm
2½"	2" – 2½"	1" – 1¼"	¾" – 1¼"	2.30	3.62	7.25	7.50	2.25	4.25	7.00	13.44	15.75	inches
				58	92	184	191	57	108	178	341	400	mm
3"	2" – 2½"	1" – 1¼"	¾" – 1½"	2.80	4.06	7.88	8.25	2.38	4.75	7.81	14.75	17.53	inches
				71	103	200	210	60	121	198	375	445	mm
3½"	3"	1¼" – 1½"	1" – 1½"	3.38	4.69	9.25	10.31	3.12	6.25	9.56	18.44	24.12	inches
				86	119	235	262	79	159	243	468	613	mm

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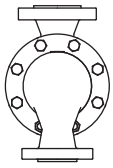
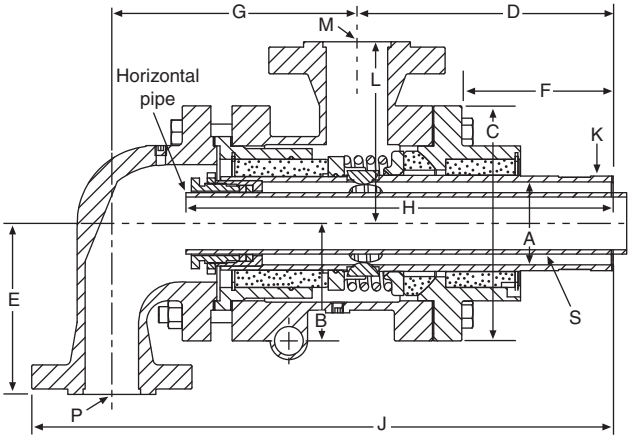
Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 200 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 200 rpm

Type ELSN – Rotating horizontal pipe





Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	L	Units
3½"	3"	1½"	1¼"	3.38	4.69	9.15	10.78	6.50	6.28	11.58	19.49	25.35	7.00	inches
				86	119	232	274	165	159	294	495	644	178	mm
4"	3"	2½"	1¼" – 1½"	3.88	5.50	11.00	12.00	8.00	7.06	11.38	20.00	27.12	8.50	inches
				99	140	279	305	203	179	289	508	689	216	mm
5"	4"	3"	3"	4.75	6.87	13.75	15.69	10.00	9.12	13.88	24.94	33.69	10.38	inches
				121	175	349	399	254	232	353	633	856	264	mm

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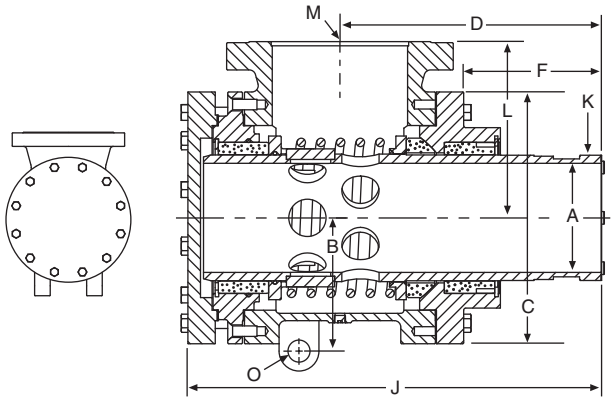
Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 200 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 200 rpm

Type ELST – Through flow



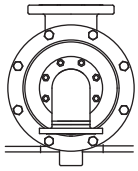
Size (K)	M	A	B	C	D	F	J	L	O	Units
2½"	2½"	2.31	3.62	7.25	7.50	4.25	13.62	3.25	0.69	inches
		59	92	184	191	108	346	83	18	mm
3"	2" – 2½"	2.90	4.06	7.88	8.25	4.75	14.81	3.88	0.86	inches
		74	103	200	210	121	376	99	22	mm
3½"	3"	3.38	4.69	9.25	10.31	6.25	18.62	4.38	0.86	inches
		86	119	235	262	159	473	111	22	mm
4"	3"	3.88	5.50	11.00	11.94	7.06	20.25	8.31	1.06	inches
		99	140	279	303	179	514	211	27	mm
5"	4"	4.75	6.50	13.75	15.69	9.12	25.12	10.38	1.31	inches
		121	165	349	399	232	638	264	33	mm
6½"	8"	6.50	7.94	15.00	15.56	8.19	24.63	10.50	1.31	inches
		165	202	381	395	208	626	267	33	mm

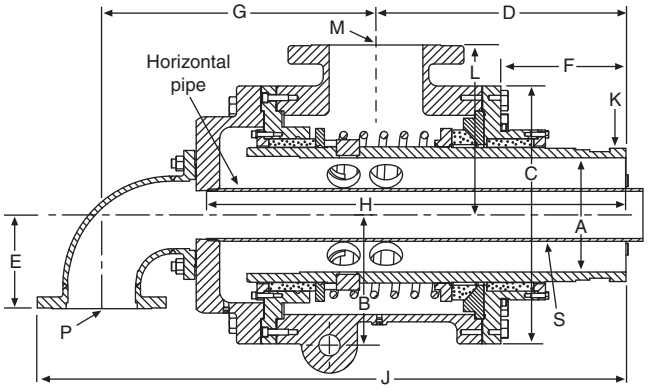
Dimensions are for reference only and subject to change. Flanged connections available in 150 and 300 class flanges.

Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 200 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 200 rpm

6½″ – 12″

Type ELSJ – Stationary horizontal pipe



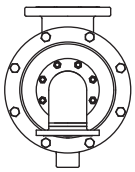


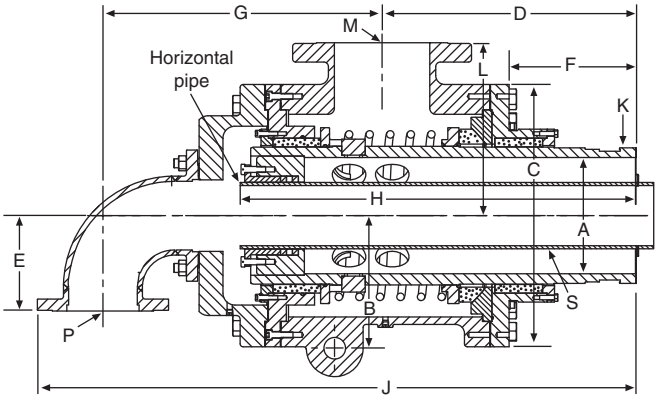
Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	L	Units
6½"	8"	4"	3"	6.50	7.50	15.00	15.56	8.00	8.19	20.39	26.25	40.94	10.50	inches
				165	191	381	395	203	208	518	667	1,040	267	mm
10"	8"	6"	4"	9.75	11.12	22.00	21.25	8.00	10.63	23.44	35.75	50.19	14.50	inches
				248	282	559	540	203	270	595	908	1,275	368	mm

Dimensions are for reference only and subject to change. Flanged connections available in 150 and 300 class flanges.

Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 15 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 15 rpm

Type ELSN – Rotating horizontal pipe





Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	L	Units
6½"	8"	4"	3" – 4"	6.50	7.94	15.00	15.56	6.50	8.19	18.88	25.19	38.94	10.50	inches
				165	202	381	395	165	208	480	640	989	267	mm
8"	8"	6"	5"	8.75	10.25	19.13	18.01	10.00	8.67	21.93	27.16	46.18	13.25	inches
				222	260	486	457	254	220	557	690	1,173	337	mm
10"	8"	6"	5"	9.75	11.12	22.00	21.25	8.00	10.63	23.44	33.18	50.19	14.50	inches
				248	282	559	540	203	270	595	843	1,275	368	mm
12"	10"	8"	7"	11.50	12.10	23.80	23.90	10.50	13.40	25.40	36.30	56.80	15.30	inches
				292	307	605	607	267	340	645	922	1,443	389	mm

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Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 15 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 15 rpm

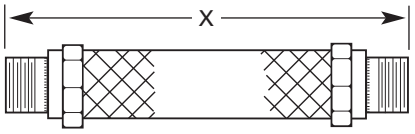
Accessories

Flexible hose

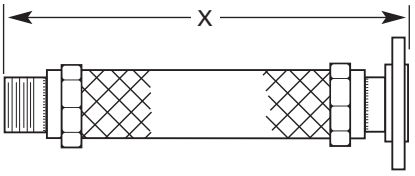
To ensure free movement of the rotary joint and elimination of side loading, the proper installation, type, and length of flexible hose should be used.

Recommended hose length, bend, and offset

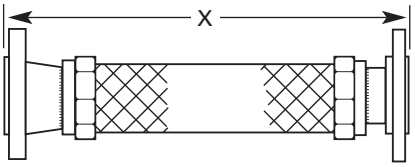
Pipe Size	Minimum Length (X)	Minimum Bend Radius	Maximum Offset	Units
¾″	12	8	1.0	inches
	300	200	25	mm
1″	15	9	1.5	inches
	380	230	40	mm
1¼″	18	10	2.0	inches
	450	250	50	mm
1½″	18	12	2.0	inches
	450	300	50	mm
2″	21	15	2.0	inches
	530	380	50	mm
2½″	22	14	2.5	inches
	550	350	65	mm
3″	24	17	2.5	inches
	610	430	65	mm
4″	28	22	3.0	inches
	700	550	80	mm
5″	30	28	2.5	inches
	750	700	65	mm
6″	33	33	2.5	inches
	830	830	65	mm



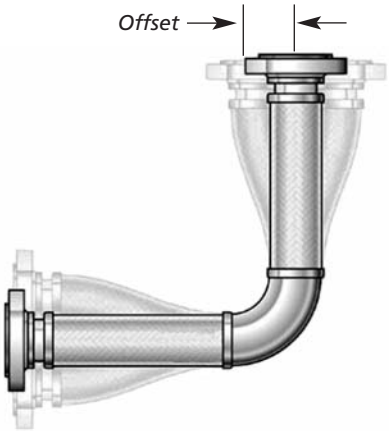
Threaded both ends



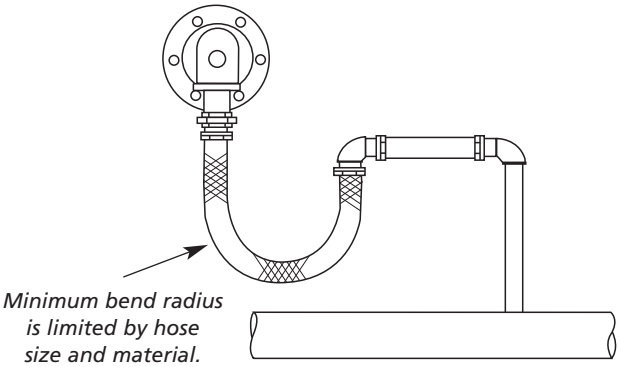
Threaded one end, lap flange other end



Fixed flange one end, lap flange other end



Compound hose (recommended)



Minimum bend radius is limited by hose size and material.

Sight flow indicators

Sight flow indicators are engineered to provide visual observation of liquid and non-hazardous gas flows. These pipeline indicators are available with ductile iron bodies in sizes ⅜″ to 4″ with threaded or flanged connections. All glass windows are made of borosilicate glass. Sight flow indicators can be furnished with special transparent-type Mica liners to provide additional protection against glass erosion.

SX™ rotary joint for steam and thermal oil (¾" to 3")
The SX rotary joint is designed for steam and thermal oil applications with a stationary supply pipe. Its two internal carbon-graphite bearings permit self-alignment and long operating life – even on cylinders that are not concentric. The convex seal ring and optimized seal diameter provide extended seal life and reduced maintenance for the SX rotary joint. The SX rotary joint line is available in sizes from ¾" to 3" and can be used in single or dual flow applications. The rotary joint is rated up to 650°F (343°C), 300 psig (20 bar), and 550 RPM.

RX™ rotary union for water, thermal oil, and air (⅜" to 6")
The RX rotary union features a balanced seal and carbon-to-tungsten carbide seal package that makes the RX rotary union more robust and able to run longer than other ball bearing designs. The RX rotary union is supported by two widely-spaced anti-friction bearings, capable of intermittent dry running, and has the balanced seal-loading springs located outside the flow area to minimize potential for fouling. The RX rotary union is rated up to 500°F (260°C), 150 psig (10 bar), and 3,000 RPM.

Pivot Body™ syphon elbow
The Pivot Body syphon elbow allows a syphon pipe to be inserted into a roll through the journal and then pivot into place. Unlike conventional syphon elbows, the Pivot Body syphon elbow does not rely on a hinge pin to hold vertical and horizontal pipes together. Its patented pinless design provides improved performance and increased reliability compared to conventional syphon elbows. U.S. Patent No. 7,618,068.

Flexible hose
Flexible hose is engineered specifically for use as inlet and outlet connections to Kadant Johnson rotary joints. It is used to prevent pipe strains from creating stress on the rotating joint and enhances the rotating joint's built-in flexibility. Available in sizes from ¼" to 8" with threaded or flanged couplings.

Thermocompressors
Steam jet thermocompressors are designed to boost low-pressure steam by properly mixing high-pressure steam. With just three basic components: nozzle, mixing section, and diffuser, the Kadant Johnson high-efficiency thermocompressor is simple yet energy efficient.

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Kadant is a leading global supplier of products and services that improve productivity and quality in paper production and other process industries. For the nearest location and contact, visit our Website.

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Replaces: ELS-3000