

ELS Rotary Joints

For steam and thermal oil service

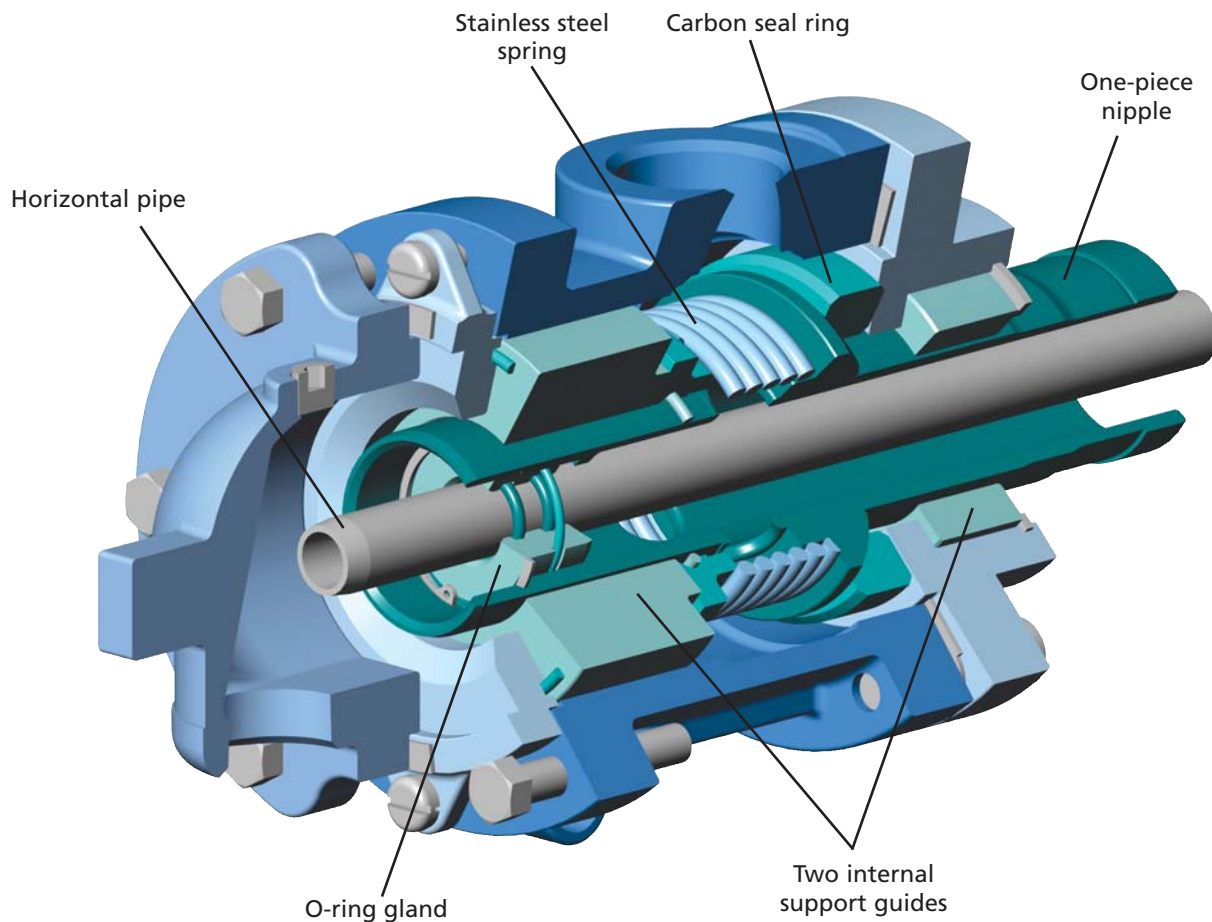
KADANT
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Self-aligning
seal with dual carbon
bearing support.



Engineered reliability and performance.

Overview



Features

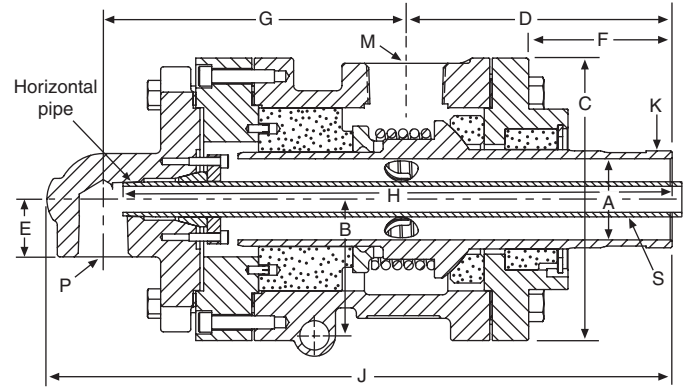
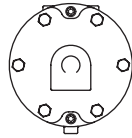
- ▶ Designed for steam and thermal oil
- ▶ Two internal support guides
- ▶ Standard o-ring or preformed packing
- ▶ Stationary or rotating horizontal pipe
- ▶ Flexibility in mounting
- ▶ Single nipple design for all syphon sizes

Benefits

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

2" - 6"

Type ELSJ – Stationary horizontal pipe

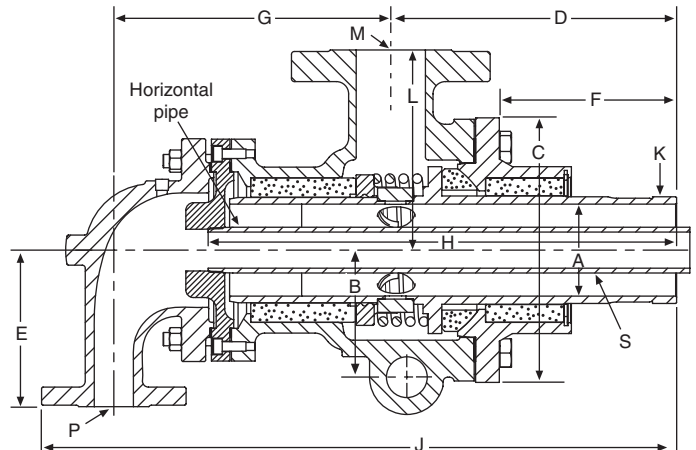
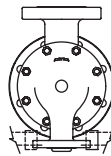


Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	Units
2"	1½"	¾" - 1"	½"	1.94	3.25	6.75	6.36	1.38	3.43	7.24	13.12	14.94	inches
				49	83	171	161	35	87	184	333	380	mm
2½"	2" - 2½"	1" - 1½"	1"	2.30	3.25	7.25	7.47	1.38	4.23	7.69	14.53	16.41	inches
				58	83	184	190	35	107	195	369	417	mm
3"	2" - 2½"	1¼" - 1½"	¾" - 1½"	2.80	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



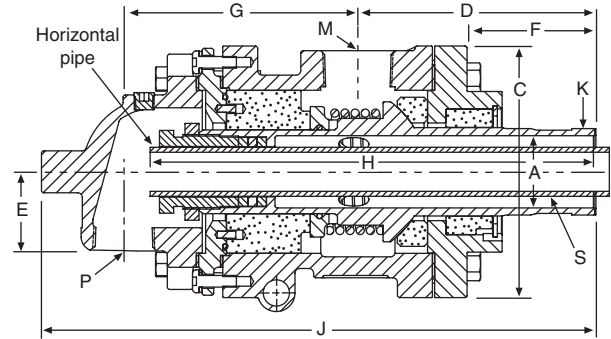
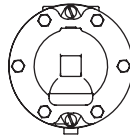
Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	L	Units
4"	3"	1½"	1½"	3.82	5.28	10.98	11.87	6.50	7.36	11.50	19.45	26.37	8.31	inches
				97	134	279	301	165	187	292	494	670	211	mm
5"	4"	2"	1½"	4.72	6.50	13.74	15.64	6.50	9.80	12.81	24.21	31.58	10.32	inches
				120	165	349	397	165	249	325	615	802	262	mm

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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

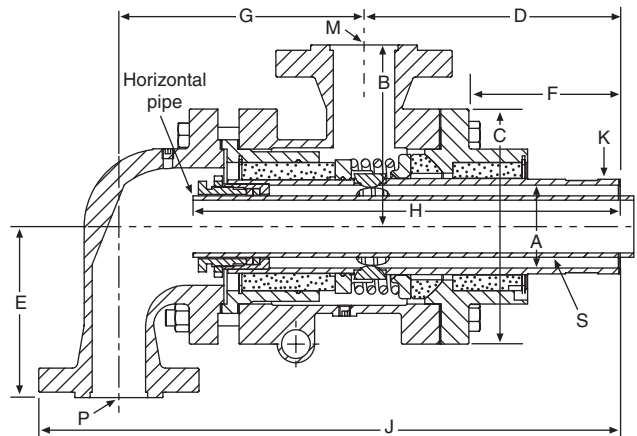
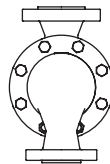


Size (K)	M	P	S	A	C	D	E	F	G	H	J	Units
2"	1½"	¾" – 1¼"	½" – 1"	1.94	6.75	6.38	2.12	3.44	6.28	12.00	14.88	inches
				49	171	162	54	87	160	305	378	mm
2½"	2" – 2½"	1" – 1¼"	¾" – 1¼"	2.30	7.25	7.50	2.25	4.25	7.00	13.44	15.75	inches
				58	184	191	57	108	178	341	400	mm
3"	2" – 2½"	1" – 1¼"	¾" – 1½"	2.80	7.88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

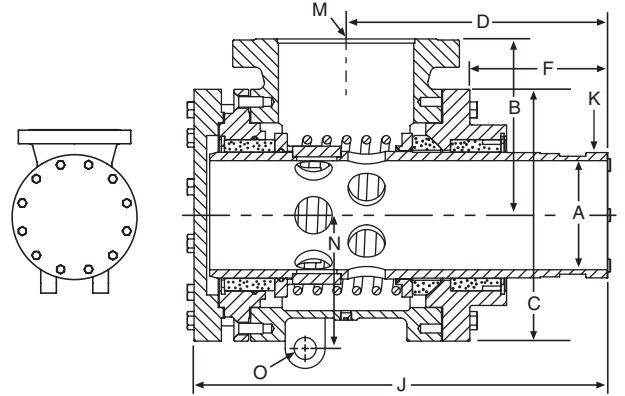


Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	Units
4"	3"	2½"	1¼" – 1½"	3.88	8.50	11.00	12.00	8.00	7.06	11.38	20.00	27.12	inches
				99	216	279	305	203	179	289	508	689	mm
5"	4"	3"	3"	4.75	10.38	13.75	15.69	10.00	9.12	13.88	24.94	33.69	inches
				121	264	349	399	254	232	353	633	856	mm

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Fluid Type	Pressure	Temperature	Speed
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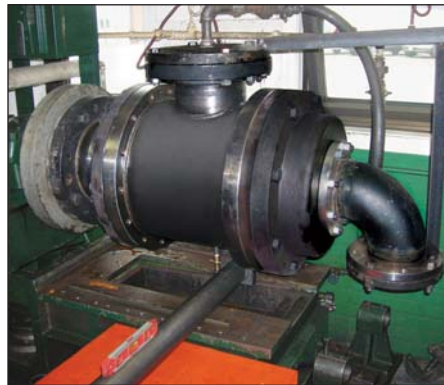
Type ELST – Through flow



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

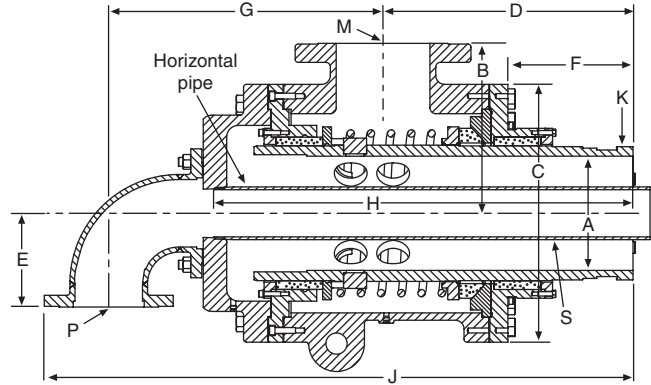
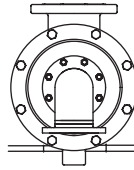
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Fluid Type	Pressure	Temperature	Speed
Steam	300 psig (20 bar)	Up to 500°F (260°C)	Up to 200 rpm
Thermal Oil	150 psig (10 bar)	Up to 650°F (343°C)	Up to 200 rpm



6½" – 12"

Type ELSJ – Stationary horizontal pipe

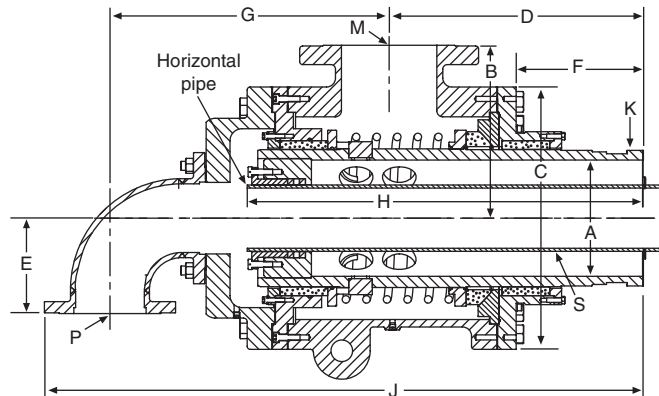
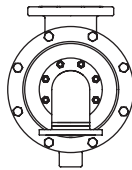


Size (K)	M	P	S	A	B	C	D	E	F	G	H	J	Units
6½"	8"	4"	3"	6.50	10.50	15.00	15.56	8.00	8.19	20.39	26.25	40.94	inches
				165	267	381	395	203	208	518	667	1,040	mm
10"	8"	6"	4"	9.75	14.50	22.00	21.25	8.00	10.63	23.44	35.75	50.19	inches
				248	368	559	540	203	270	595	908	1,275	mm

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	Units
6½"	8"	4"	3" – 4"	6.50	10.50	15.00	15.56	6.50	8.19	18.88	25.19	38.94	inches
				165	267	381	395	165	208	480	640	989	mm
8"	8"	6"	5"	8.75	13.25	19.13	18.01	10.00	8.67	21.93	27.16	46.18	inches
				222	337	486	457	254	220	557	690	1,173	mm
10"	8"	6"	5"	9.75	14.50	22.00	21.25	8.00	10.63	23.44	33.18	50.19	inches
				248	368	559	540	203	270	595	843	1,275	mm
12"	10"	8"	7"	11.50	15.30	23.80	23.90	10.50	13.40	25.40	36.30	56.80	inches
				292	389	605	607	267	340	645	922	1,443	mm

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

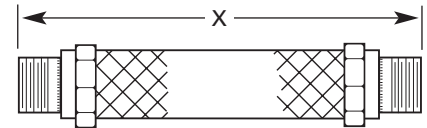
Accessories

Flexible hose

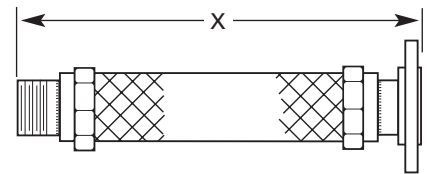
To ensure free movement of the rotary joint and elimination of side loading, the proper installation, type, and length of flexible hose should be used.

Recommended hose length, bend, and offset

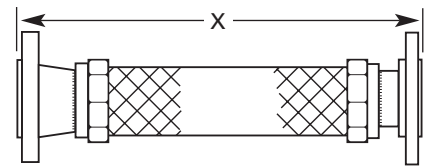
Pipe Size	Minimum Length (X)	Minimum Bend Radius	Maximum Offset	Units
3/4"	12	8	1.0	inches
	300	200	25	mm
1"	15	9	1.5	inches
	380	230	40	mm
1 1/4"	18	10	2.0	inches
	450	250	50	mm
1 1/2"	18	12	2.0	inches
	450	300	50	mm
2"	21	15	2.0	inches
	530	380	50	mm
2 1/2"	22	14	2.5	inches
	550	350	65	mm
3"	24	17	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



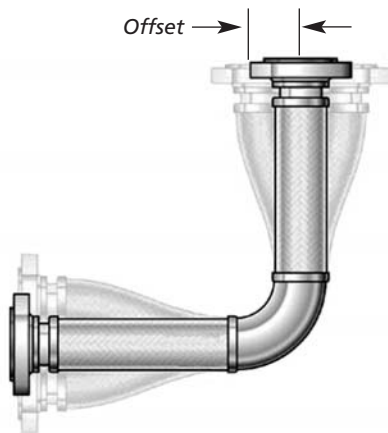
Threaded both ends



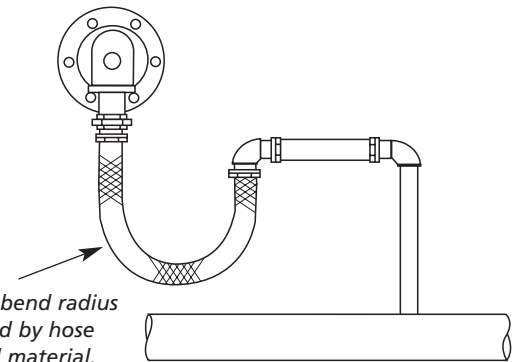
Threaded one end, lap flange other end



Fixed flange one end, lap flange other end



Compound hose (recommended)



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 3/8" 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.



Rotating Unions

Type SX for steam and thermal oil ($\frac{3}{4}$ " to 3")



The SX rotary union 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 union. The SX rotary union line is available in sizes from $\frac{3}{4}$ " to 3" and can be used in single or dual flow applications. The union is rated up to 650°F (343°C), 300 psig (20 bar), and 550 RPM.

Type RX for water, thermal oil, and air ($\frac{3}{8}$ " to 6")



The RX rotary union features a balanced seal and carbon-to-tungsten carbide seal package that makes the RX more robust and able to run longer than other ball bearing designs. The RX 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 is rated up to 500°F (260°C), 150 psig (10 bar), and 3,000 RPM.

Type G for coolant, water, air, and hydraulic oil



The G rotary union is a high performance, high precision rotary union generally applied to spindles on CNC machines, gun drilling, milling, and other machinery. The G union is designed for speeds up to 50,000 RPM and pressures up to 3,600 psig (248 bar) in sizes ranging from $\frac{1}{4}$ " (M10) to $\frac{5}{8}$ " (M16).

Custom engineered rotary unions



The Multi-Pass (MP) rotary union, designed for pneumatic, hydraulic, and water applications, is supported by precision ball bearings. MP unions are available with up to 12 passages and rated up to 225°F (107°C), 3,000 psig (207 bar), and 500 RPM.

The Over-the-Shaft (OTS) rotary union is applied to various types of rolls that require cooling through the driven roll journal. The OTS features a design for both high-speed and lower-speed applications and is rated up to 200°F (93°C) and 150 psig (10 bar).

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Contact us:

KADANT JOHNSON INC.
805 Wood Street
Three Rivers, MI 49093 USA

Tel: +1-269-278-1715
Fax: +1-269-279-5980
Email: info@kadant.com