SWS Bearings LTD
High Quality Bearing Manufacturer

SWS Bearings LTDd

----- Your Reliable Bearings Factory







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SWS Bearings LTD is one of the most reliable bearings factories and exporters in China. We mainly supply roller and ball bearings.

SWS was founded in 2007, located in Changzhou city,jiangsu Province It just takes around 2 hours from Changzhou to Shanghai by car, and very convenient transportation.

In 2009, SWS has invested three factories in Shandong, and Dalian city. Our products sell worldwide. Our products and service include:

- Miniature and middle-large size deep groove ball bearing
- Double-row self-aligning roller bearing
- Four-row heavy type cylindrical roller bearing
- Self-aligning roller bearing
- Axial thrust ball bearing, thrust ball and roller bearing
- Single and double taper roller bearing
- Needle roller bearing
- High precision spindle bearing
- Pillow block bearing, bush, steel balls
- Technical support
- Maintenance
- Products training

Bore size range:3mm~6.5m
Weight range:10.5g~2.6ton

SWS bearings are widely used in railway, mining, mechanical equipment, automobile, ship, metallurgy, petrifaction, electric power, agriculture, textile and aviation, etc.

SWS products have sell to Europe, Asia, America, south-east Asia, which are our most important market. We have spent much time on developing new products, and also produce top quality products. We are very popular in domestic and abroad.

Welcome your inquiry and Look forward our cooperation in the future.

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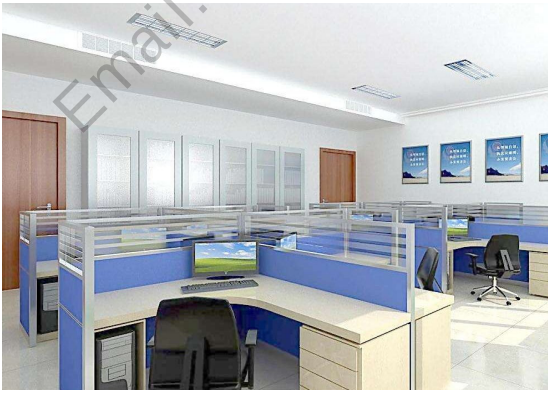
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Equipment



Workshop



Office



Product



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Rod ends requiring maintenance

Dimensions
Tolerances
Radial internal clearance
Materials
Permissible operating temperature range
Fatigue strength
Relubrication facilities

Product tables
1.1 Rod ends with a female thread, steel/steel
1.2 Rod ends with a female thread, for hydraulic cylinders, steel/steel
1.3 Rod ends with a male thread, steel/steel
1.4 Rod ends with a cylindrical section welding shank, steel/steel
1.5 Rod ends with a rectangular section welding shank, steel/steel
1.6 Rod ends with a female thread, steel/bronze
1.7 Rod ends with a male thread, steel/bronze

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SWS manufactures rod ends requiring mainten-ance with a steel/steel or a steel/bronze sliding contact surface combination.

Steel/steel rod ends consist of a rod end housing and a steel/steel radial spherical plain bearing from the standard assortment, where the outer ring is secured in the housing. These rod ends are available with a female thread (→ **fig. 1**), male thread (→ **fig. 2**) or a welding shank (→ **fig. 3**).

Steel/bronze rod ends consist of a rod end housing and a steel/bronze spherical plain bearing. These bearings have an inner ring made of steel and an outer ring made of bronze. The bearing is held in position by staking the housing on both sides of the outer ring. These rod ends are available with a male or female thread.

SWS supplies rod ends with a threaded shank with a right-hand thread as standard. With the exception of rod ends with the designation suffix VZ019, all rod ends are also available with a left-hand thread. They are identified by the des-ignation prefix L.

Dimensions

The dimensions of SWS rod ends requiring maintenance are in accordance with the standards listed in **table 1**.

Male and female threads of SWS rod ends are in accordance with ISO 965-1:1998, except for rod ends with female thread having the desig-nation suffix /VZ019, which is in accordance with ISO 8139:2009.

Tolerances

SWS rod end inner ring dimensional tolerances are in accordance with ISO 12240-4:1998. The tolerances for the steel/steel rod end inner rings are listed in **table 3** and the tolerances for steel/bronze rod end

d nominal bore diameter
Δ_{dmp} deviation of the mean bore diameter from the nominal
Δ_{Bs} deviation of the single inner ring width from the nominal

Fig. 1
Rod end with a female thread

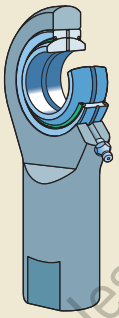


Fig. 2
Rod end with a male thread

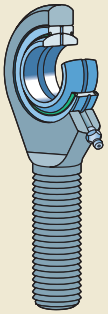
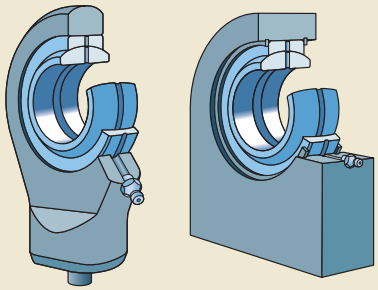


Fig. 3
Rod ends with a welding shank



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Radial internal clearance

The clearance values for steel/steel rod ends are in accordance with dimension series E and EH of ISO 12240-4:1998, as far as they have been standardized. The values are listed in **table 4**.

The clearance values for steel/bronze rod ends are in accordance with dimensions series K of ISO 12240-4:1998 and are listed in **table 5** .

Materials

SWS rod end housings for bearings that require maintenance are made of the materials listed in **table 6 .**

The materials used for steel/steel radial spherical plain bearings incorporated in SWS rod ends are provided in the section *Materials* **.**

The bearings incorporated in the steel/bronze rod ends have an outer ring made of bronze and an inner ring made of bearing steel which has been hardened and ground.

Table 1

Standards

Series	Standards
SA(A)	ISO 12240-4:1998 dimension series E, EH
SI(A)	ISO 12240-4:1998 dimension series E, EH
SC	ISO 12240-4:1998 dimension series E
SCF	–
SIJ	ISO 8133:2006
SIR	–
SIQG	ISO 8132:2006
SAKAC	ISO 12240-4:1998 dimension series K
SIKAC	ISO 12240-4:1998 dimension series K
SIKAC/VZ019	ISO 8139:2009, ISO 12240-4:1998

Table 2

Inner ring dimensional tolerances for steel/bronze rod ends

Bore diameter d		SIKAC and SAKAC series			
		Δ_{dmp}		Δ_{Bs}	
over	incl.	high	low	high	low
mm		µm		µm	
–	**6**	12	0	0	–120
6	**10**	15	0	0	–120
10	**18**	18	0	0	–120
18	**30**	21	0	0	–120

Table 3

Inner ring dimensional tolerances for steel/steel rod ends

Bore diameter d		SA(A), SI(A), SIJ, SIR, SC and SCF series				SIQG series			
		Δ_{dmp}		Δ_{Bs}		Δ_{dmp}		Δ_{Bs}	
over	incl.	high	low	high	low	high	low	high	low
mm		µm		µm		µm		µm	
–	**10**	0	–8	0	–120	–	–	–	–
10	**18**	0	–8	0	–120	18	0	0	–180
18	**30**	0	–10	0	–120	21	0	0	–210
30	**50**	0	–12	0	–120	25	0	0	–250
50	**80**	0	–15	0	–150	30	0	0	–300
80	**120**	0	–20	0	–200	35	0	0	–350
120	**180**	0	–25	0	–250	40	0	0	–400
180	**250**	0	–30	0	–300	46	0	0	–460

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Permissible operating temperature range

The permissible operating temperature range for SWS rod ends requiring maintenance depends on the rod end housing, the bearing, the bearing seals and the grease used for lubri-cation. The values for the permissible operating temperature range are listed in **table 7**.

The load carrying capacity of the rod end is reduced at temperatures above 100 °C. For temperatures below 0 °C, check to be sure that the fracture toughness of the rod end housing is adequate for the intended application.

Table 4

Radial internal clearance for steel/steel rod ends

Bore diameter d		Radial internal clearance Normal	
over	incl.	min	max
mm		µm	
–	12	16	68
12	20	20	82
20	35	25	100
35	60	30	120
60	90	36	142
90	140	42	165
140	240	50	192

Table 5

Radial internal clearance for steel/bronze rod ends

Bore diameter d		Radial internal clearance Normal	
over	incl.	min	max
mm		µm	
–	6	5	50
6	10	7	61
10	18	8	75
18	30	10	92

Table 6

Housing materials for rod ends requiring maintenance

Series	Size	Material	Material No.
SA(A)	6 to 80	Heat treatable steel C45V zinc coated and chromatized	1.0503
SI(A)	6 to 80	Heat treatable steel C45V zinc coated and chromatized	1.0503
SC	20 to 80	Construction steel S 355 J2G3 (St 52-3 N)	1.0570
SCF	20 to 80	Construction steel S 355 J2G3 (St 52-3 N)	1.0570
SIQG	12 to 63	Heat treatable steel C45	1.0503
	70 to 200	EN-GJS-400-15	–
SIJ	12 to 50	Heat treatable steel C45	1.0503
	60 to 100	EN-GJS-400-15	–
SIR	25 to 80	Heat treatable steel C45	1.0503
	90 to 120	EN-GJS-400-15	–
SAKAC	5 to 12	Free-machining steel 9 SMnPb 28 K zinc coated and chromatized	1.0718
	14 to 30	Heat treatable steel C35N zinc coated and chromatized	1.0501
SIKAC	5 to 12	Free-machining steel 9 SMnPb 28 K zinc coated and chromatized	1.0718
	14 to 30	Heat treatable steel C35N zinc coated and chromatized	1.0501

SWS reserves the right to use similar material or material of higher strength.

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Fatigue strength

In all applications where a rod end is subjected to alternating loads, loads that vary in magnitude or where failure of a rod end is dangerous, make sure that the selected rod end has sufficient fatigue strength.

Relubrication facilities

SWS rod ends requiring maintenance are pro-vided with a grease fitting or a lubrication hole in the rod end housing. Relubrication via the pin is also possible. Exceptions are steel/steel rod ends in the SA .. E and SI .. E series and a few smaller rod ends as indicated in the product tables. The type and design of relubrication facilities in the rod end housing are listed in **table 8**.

Table 7

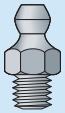
Permissible operating temperature range for rod ends requiring maintenance

Series	Permissible operating temperature range[1]	
	from	incl.
–	°C	
Steel/steel rod ends		
SA .. E(S)	–50	+200
SA(A) .. ES-2RS	–30	+130
SI .. E(S)	–50	+200
SI(A) .. ES-2RS	–30	+130
SIQG .. ES	–50	+200
SIJ .. ES	–50	+200
SIR .. ES	–50	+200
SC(F) .. ES	–50	+200
Steel/bronze rod ends		
SAKAC .. M	–30	+180
SIKAC .. M (/VZ 019)	–30	+180

[1] Permissible operating temperature range of the grease must be considered.

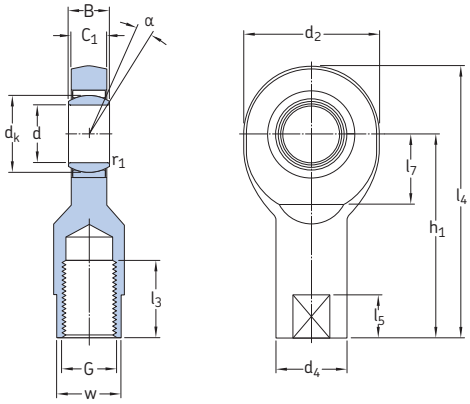
Table 8

Relubrication facilities for rod ends requiring maintenance

Series	Size	Relubrication facilities Design	
Steel/steel rod ends			
SA .. ES **SI .. ES** **SI .. ES** **SIJ .. ES** **SC .. ES**	15 to 20 15 to 20 15 to 20 16 to 20 20	Lubrication hole diameter 2,5 mm	
SA(A) .. ES(-2RS) **SI(A) .. ES(-2RS)** **SIJ .. ES** **SIR .. ES** **SIQG .. ES(A)** **SC .. ES** **SCF .. ES**	25 to 80 25 to 80 25 to 100 25 to 120 12 to 200 25 to 80 20 to 80	Grease fitting in accordance with DIN 71412: 1987	
Steel/bronze rod ends			
SAKAC .. M **SIKAC .. M(/VZ 019)**	6 to 30 6 to 30	Grease fitting in accordance with DIN 3405: 1986	

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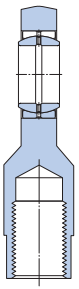
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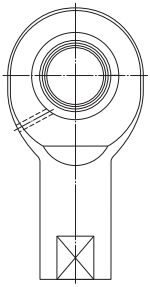
SI(L) .. E

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
6	22	M 6	6	4,5	30	13	3,4	8,15	0,023	**SI 6 E**[1)]	**SIL 6 E**[1)]
8	25	M 8	8	6,5	36	15	5,5	12,9	0,036	**SI 8 E**[1)]	**SIL 8 E**[1)]
10	30	M 10	9	7,5	43	12	8,15	19	0,065	**SI 10 E**[1)]	**SIL 10 E**[1)]
12	35	M 12	10	8,5	50	10	10,8	25,5	0,11	**SI 12 E**[1)]	**SIL 12 E**[1)]
15	41	M 14	12	10,5	61	8	17	37,5	0,18	**SI 15 ES**	**SIL 15 ES**
17	47	M 16	14	11,5	67	10	21,2	44	0,25	**SI 17 ES**	**SIL 17 ES**
20	54	M 20×1,5	16	13,5	77	9	30	57	0,36	**SI 20 ES**	**SIL 20 ES**
25	65	M 24×2	20	18	94	7	48	90	0,65	**SI 25 ES**	**SIL 25 ES**
30	75	M 30×2	22	20	110	6	62	116	1,00	**SI 30 ES**	**SIL 30 ES**
35	84	M 36×3	25	22	130	6	80	134	1,40	**SI 35 ES-2RS**	**SIL 35 ES-2RS**
40	94	M 39×3	28	24	142	6	100	166	2,20	**SIA 40 ES-2RS**	**SILA 40 ES-2RS**
	94	M 42×3	28	24	145	6	100	166	2,30	**SI 40 ES-2RS**	**SIL 40 ES-2RS**
45	104	M 42×3	32	28	145	7	127	224	2,90	**SIA 45 ES-2RS**	**SILA 45 ES-2RS**
	104	M 45×3	32	28	165	7	127	224	3,20	**SI 45 ES-2RS**	**SIL 45 ES-2RS**
50	114	M 45×3	35	31	160	6	156	270	4,10	**SIA 50 ES-2RS**	**SILA 50 ES-2RS**
	114	M 52×3	35	31	195	6	156	270	4,50	**SI 50 ES-2RS**	**SIL 50 ES-2RS**
60	137	M 52×3	44	39	175	6	245	400	6,30	**SIA 60 ES-2RS**	**SILA 60 ES-2RS**
	137	M 60×4	44	39	225	6	245	400	7,10	**SI 60 ES-2RS**	**SIL 60 ES-2RS**
70	162	M 56×4	49	43	200	6	315	530	9,50	**SIA 70 ES-2RS**	**SILA 70 ES-2RS**
	162	M 72×4	49	43	265	6	315	530	10,5	**SI 70 ES-2RS**	**SIL 70 ES-2RS**
80	182	M 64×4	55	48	230	5	400	655	15,0	**SIA 80 ES-2RS**	**SILA 80 ES-2RS**
	182	M 80×4	55	48	295	5	400	655	19,0	**SI 80 ES-2RS**	**SIL 80 ES-2RS**

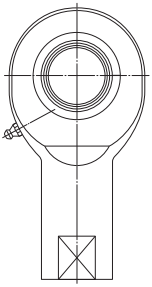
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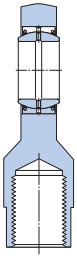
SI(L) .. ES

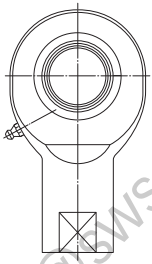


d ≤ 20 mm



d ≥ 25 mm





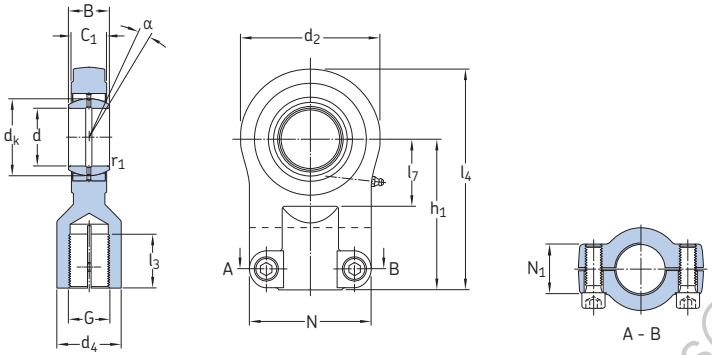
SI(L)A .. ES-2RS
SI(L) .. ES-2RS

Dimensions

d	d_k	d_4 ≈	l_3 min	l_4 max	l_5 ≈	l_7 min	r_1 min	w h14
mm								
6	10	11	11	43	8	10	0,3	9
8	13	13	15	50	9	11	0,3	11
10	16	16	15	60	11	13	0,3	14
12	18	19	18	69	12	17	0,3	17
15	22	22	21	83	14	19	0,3	19
17	25	25	24	92	15	22	0,3	22
20	29	28	30	106	16	24	0,3	24
25	35,5	35	36	128	18	30	0,6	30
30	40,7	42	45	149	19	34	0,6	36
35	47	49	60	174	25	40	0,6	41
40	53 53	58 58	65 65	191 194	25 25	46 46	0,6 0,6	50 50
45	60 60	65 65	65 65	199 219	30 30	50 50	0,6 0,6	55 55
50	66 66	70 70	68 68	219 254	30 30	58 58	0,6 0,6	60 60
60	80 80	82 82	70 70	246 296	35 35	73 73	1 1	70 70
70	92 92	92 92	80 80	284 349	40 40	85 85	1 1	80 80
80	105 105	105 105	85 85	324 389	45 45	98 98	1 1	90 90

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Rod ends with a female thread, for hydraulic cylinders, steel/steel
d **12 – 70** mm

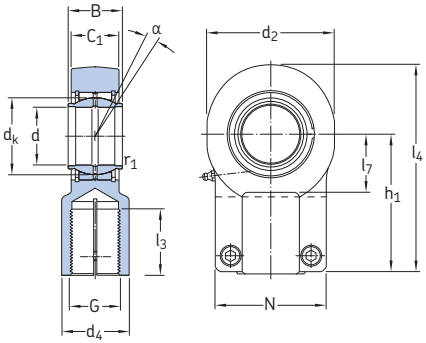


SI(L)J .. ES

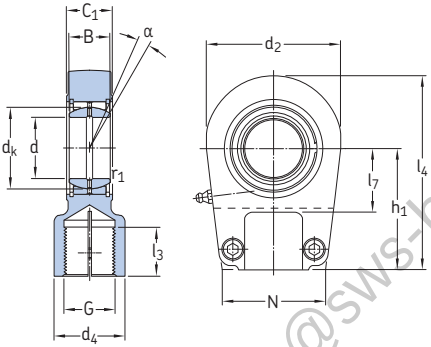
Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread[1]
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
12	36	M 10×1,25	10	8	42	3	10,8	21,2	0,14	**SIJ 12 E**[2]	**SILJ 12 E**[2]
	33	M 12×1,25	12	11	38	4	10,8	22	0,11	**SIQG 12 ESA**[3]	**SILQG 12 ESA**[3]
16	45	M 12×1,25	14	11	48	3	21,2	23,5	0,25	**SIJ 16 ES**	**SILJ 16 ES**
	41	M 14×1,5	16	14	44	4	17,6	32,5	0,21	**SIQG 16 ES**	**SILQG 16 ES**
20	55	M 14×1,5	16	13	58	3	30	51	0,40	**SIJ 20 ES**	**SILJ 20 ES**
	48	M 16×1,5	20	17,5	52	4	30	43	0,40	**SIQG 20 ES**	**SILQG 20 ES**
25	65	M 16×1,5	20	17	68	3	48	73,5	0,68	**SIJ 25 ES**	**SILJ 25 ES**
	57	M 16×1,5	20	23,5	50	7	48	52	0,49	**SIR 25 ES**	**SILR 25 ES**
	59	M 20×1,5	25	22	65	4	48	69,5	0,66	**SIQG 25 ES**	**SILQG 25 ES**
30	80	M 20×1,5	22	19	85	3	62	112	1,35	**SIJ 30 ES**	**SILJ 30 ES**
	65	M 22×1,5	22	28,5	60	6	62	78	0,77	**SIR 30 ES**	**SILR 30 ES**
32	71	M 27×2	32	28	80	4	65,5	100	1,20	**SIQG 32 ES**	**SILQG 32 ES**
35	79	M 28×1,5	25	30,5	70	6	80	118	1,20	**SIR 35 ES**	**SILR 35 ES**
40	98	M 27×2	28	23	105	3	100	146	2,40	**SIJ 40 ES**	**SILJ 40 ES**
	95	M 35×1,5	28	35,5	85	7	100	200	2,10	**SIR 40 ES**	**SILR 40 ES**
	90	M 33×2	40	34	97	4	100	176	2,00	**SIQG 40 ES**	**SILQG 40 ES**
50	122	M 33×2	35	30	130	3	156	216	3,80	**SIJ 50 ES**	**SILJ 50 ES**
	118	M 45×1,5	35	40,5	105	6	156	280	3,60	**SIR 50 ES**	**SILR 50 ES**
	110	M 42×2	50	42	120	4	156	270	3,50	**SIQG 50 ES**	**SILQG 50 ES**
60	160	M 42×2	44	38	150	3	245	405	8,50	**SIJ 60 ES**	**SILJ 60 ES**
	132	M 58×1,5	44	50,5	130	6	245	325	6,00	**SIR 60 ES**	**SILR 60 ES**
63	134	M 48×2	63	53,5	140	4	255	375	6,80	**SIQG 63 ES**	**SILQG 63 ES**
70	156	M 65×1,5	49	55,5	150	6	315	450	9,40	**SIR 70 ES**	**SILR 70 ES**

[1] Check availability of rod ends with left-hand thread.
[2] No relubrication facilities.
[3] Can only be relubricated via the outer ring.

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SI(L)QG .. ES



SI(L)R .. ES

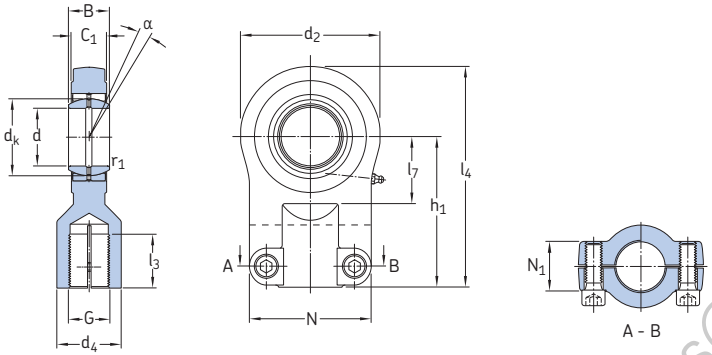
Dimensions

d	d_k	d_4 max	l_3 min	l_4 max	l_7 min	N max	N_1 max	r_1 min	**Cylinder bolt with internal hexagon** (ISO 4762:1998) Size	Tightening torque
mm									–	Nm
12	18	17	15	62	16	40	13	0,3	M 6	10
	18	17	17	55	13	33	11	0,3	M 5	5,5
16	25	21	17	70,5	20	45	13	0,3	M 6	10
	23	22	19	64,5	17	41	14	0,3	M 6	9,5
20	29	25	19	85,5	25	55	17	0,3	M 8	25
	29	26,5	23	77	21	48	18	0,3	M 8	23
25	35,5	30	23	100,5	30	62	17	0,6	M 8	25
	35,5	26	17	79,5	27	42	23,5	0,6	M 8	23
	35,5	31	29	97	26	55	18	0,6	M 8	23
30	40,7	36	29	125	35	80	19	0,6	M 10	45
	40,7	33	23	93,5	29	47	28,5	0,6	M 8	23
32	43	38	37	116,5	31	67	23	0,6	M 10	46
35	47	41,5	29	110,5	37	59	30,5	0,6	M 10	46
40	53	45	37	155	45	90	23	0,6	M 10	45
	53	50,5	36	133,5	44	67	35,5	0,6	M 10	46
	53	47	46	143	40	81	28	0,6	M 10	46
50	66	55	46	192,5	58	105	30	0,6	M 12	80
	66	62,5	46	164,5	54	89	40,5	0,6	M 12[1)]	79[1)]
	66	58	57	175,5	49	97,5	33	0,6	M 12	79
60	80	68	57	230	68	134	38	1	M 16	160
	80	76,5	59	202,5	64	91	50,5	1	M 16[1)]	46[1)]
63	83	70	64	213,5	61	116	40	1	M 16[1)]	195[1)]
70	92	87,5	66	234,5	74	101	55,5	1	M 16[1)]	79[1)]

[1)] Bolts, position of bolts, and tightening torque may vary.

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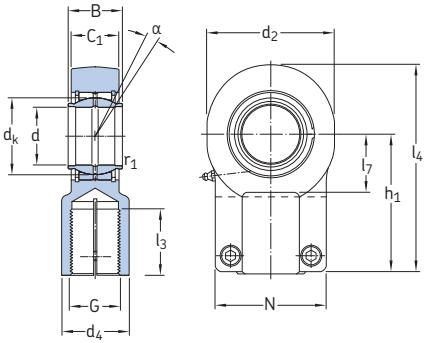
Rod ends with a female thread, for hydraulic cylinders, steel/steel
d **80 – 200** mm



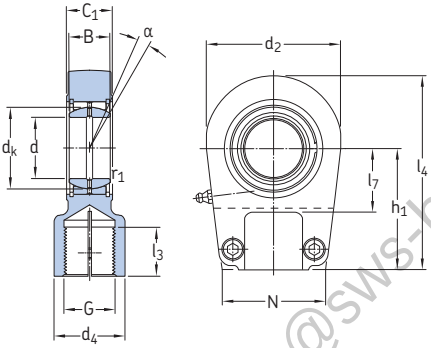
SI(L)J .. ES

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
80	205	M 48×2	55	47	185	3	400	610	14,5	**SIJ 80 ES**	**SILJ 80 ES**
	178	M 80×2	55	60,5	170	6	400	560	13,0	**SIR 80 ES**	**SILR 80 ES**
	170	M 64×3	80	68	180	4	400	600	14,5	**SIQG 80 ES**	**SILQG 80 ES**
100	240	M 64×3	70	57	240	3	610	780	29,5	**SIJ 100 ES**	**SILJ 100 ES**
	232	M 110×2	70	70,5	235	7	610	950	30,0	**SIR 100 ES**	**SILR 100 ES**
	212	M 80×3	100	85,5	210	4	610	930	28,0	**SIQG 100 ES**	**SILQG 100 ES**
120	343	M 130×3	85	90,5	310	6	950	2 450	84,0	**SIR 120 ES**	**SILR 120 ES**
125	268	M 100×3	125	105	260	4	950	1 430	43,0	**SIQG 125 ES**	**SILQG 125 ES**
160	328	M 125×4	160	133	310	4	1 370	2 200	80,0	**SIQG 160 ES**	**SILQG 160 ES**
200	420	M 160×4	200	165	390	4	2 120	3 400	165	**SIQG 200 ES**	**SILQG 200 ES**

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SI(L)QG .. ES



SI(L)R .. ES

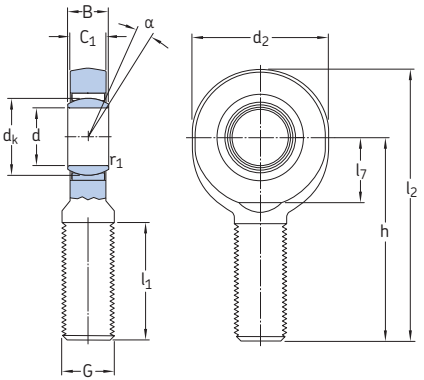
Dimensions

d	d_k	d_4 max	l_3 min	l_4 max	l_7 min	N max	N_1 max	r_1 min	**Cylinder bolt with internal hexagon** (ISO 4762:1998) Size	Tightening torque
mm									–	Nm
80	105	90	64	287,5	92	156	47	1	M 20	310
	105	103,5	81	267,5	79	126	60,5	1	M 20[1)]	195[1)]
	105	91	86	272,5	77	150	50	1	M 20[1)]	390[1)]
100	130	110	86	360	116	190	57	1	M 24	530
	130	140	111	362,5	103	167	70,5	1	M 24[1)]	390[1)]
	130	110	96	324	97	180	65	1	M 24[1)]	670[1)]
120	160	175	135	493	138	257	86	1	M 24[1)]	670[1)]
125	160	135	113	407	118	202	75	1	M 24[1)]	670[1)]
160	200	165	126	490	148	252	85	1	M 24[1)]	670[1)]
200	250	215	161	623	193	323	106	1,1	M 30[1)]	1 350[1)]

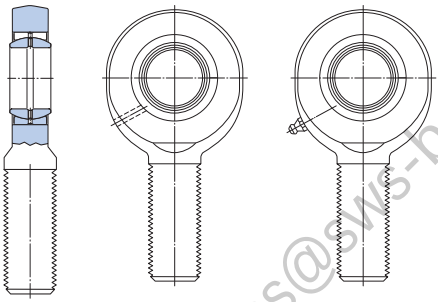
[1)] Bolts, position of bolts, and tightening torque may vary.

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SA(L) .. E



SA(L) .. ES

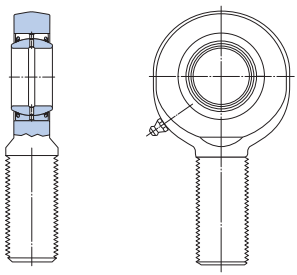
d ≤ 20 mm

d ≥ 25 mm

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6g	B	C_1 max	h	α	C	C_0			
mm						degrees	kN		kg	–	
6	22	M 6	6	4,5	36	13	3,4	8,15	0,017	**SA 6 E**[1]	**SAL 6 E**[1]
8	25	M 8	8	6,5	42	15	5,5	12,9	0,029	**SA 8 E**[1]	**SAL 8 E**[1]
10	30	M 10	9	7,5	48	12	8,15	18,3	0,053	**SA 10 E**[1]	**SAL 10 E**[1]
12	35	M 12	10	8,5	54	10	10,8	24,5	0,078	**SA 12 E**[1]	**SAL 12 E**[1]
15	41	M 14	12	10,5	63	8	17	28	0,13	**SA 15 ES**	**SAL 15 ES**
17	47	M 16	14	11,5	69	10	21,2	31	0,19	**SA 17 ES**	**SAL 17 ES**
20	54	M 20×1,5	16	13,5	78	9	30	42,5	0,32	**SA 20 ES**	**SAL 20 ES**
25	65	M 24×2	20	18	94	7	48	78	0,53	**SA 25 ES**	**SAL 25 ES**
30	75	M 30×2	22	20	110	6	62	81,5	0,90	**SA 30 ES**	**SAL 30 ES**
35	84	M 36×3	25	22	130	6	80	110	1,30	**SA 35 ES-2RS**	**SAL 35 ES-2RS**
40	94	M 39×3	28	24	150	6	100	140	1,85	**SAA 40 ES-2RS**	**SALA 40 ES-2RS**
	94	M 42×3	28	24	145	6	100	140	1,90	**SA 40 ES-2RS**	**SAL 40 ES-2RS**
45	104	M 42×3	32	28	163	7	127	200	2,45	**SAA 45 ES-2RS**	**SALA 45 ES-2RS**
	104	M 45×3	32	28	165	7	127	200	2,55	**SA 45 ES-2RS**	**SAL 45 ES-2RS**
50	114	M 45×3	35	31	185	6	156	245	3,30	**SAA 50 ES-2RS**	**SALA 50 ES-2RS**
	114	M 52×3	35	31	195	6	156	245	3,90	**SA 50 ES-2RS**	**SAL 50 ES-2RS**
60	137	M 52×3	44	39	210	6	245	360	5,70	**SAA 60 ES-2RS**	**SALA 60 ES-2RS**
	137	M 60×4	44	39	225	6	245	360	6,25	**SA 60 ES-2RS**	**SAL 60 ES-2RS**
70	162	M 56×4	49	43	235	6	315	490	7,90	**SAA 70 ES-2RS**	**SALA 70 ES-2RS**
	162	M 72×4	49	43	265	6	315	490	10,0	**SA 70 ES-2RS**	**SAL 70 ES-2RS**
80	182	M 64×4	55	48	270	5	400	585	12,0	**SAA 80 ES-2RS**	**SALA 80 ES-2RS**
	182	M 80×4	55	48	295	5	400	585	14,5	**SA 80 ES-2RS**	**SAL 80 ES-2RS**

[1] No relubrication facilities.

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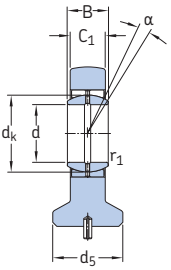
SA(L)A .. ES-2RS

Dimensions

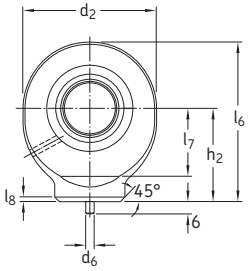
d	d_k	l_1 min	l_2 max	l_7 min	r_1 min
mm					
6	10	16	49	10	0,3
8	13	21	56	11	0,3
10	16	26	65	13	0,3
12	18	28	73	17	0,3
15	22	34	85	19	0,3
17	25	36	94	22	0,3
20	29	43	107	24	0,3
25	35,5	53	128	30	0,6
30	40,7	65	149	34	0,6
35	47	82	174	40	0,6
40	53 53	86 90	199 194	46 46	0,6 0,6
45	60 60	92 95	217 219	50 50	0,6 0,6
50	66 66	104 110	244 254	58 58	0,6 0,6
60	80 80	115 120	281 296	73 73	1 1
70	92 92	125 132	319 349	85 85	1 1
80	105 105	140 147	364 389	98 98	1 1

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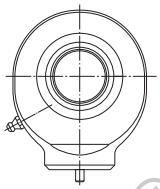
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SC .. ES



d = 20 mm



d ≥ 25 mm

Principal dimensions					Angle of tilt	Basic load ratings dynamic	static	Mass	Designation
d	d_2 max	B	C_1 max	h_2	α	C	C_0		
mm					degrees	kN		kg	–
20	54	16	13,5	38	9	30	46,5	0,20	**SC 20 ES**
25	65	20	18	45	7	48	73,5	0,45	**SC 25 ES**
30	75	22	20	51	6	62	96,5	0,65	**SC 30 ES**
35	84	25	22	61	6	80	112	1,00	**SC 35 ES**
40	94	28	24	69	7	100	134	1,30	**SC 40 ES**
45	104	32	28	77	7	127	180	1,90	**SC 45 ES**
50	114	35	31	88	6	156	220	2,50	**SC 50 ES**
60	137	44	39	100	6	245	335	4,60	**SC 60 ES**
70	162	49	43	115	6	315	455	6,80	**SC 70 ES**
80	182	55	48	141	6	400	550	9,70	**SC 80 ES**

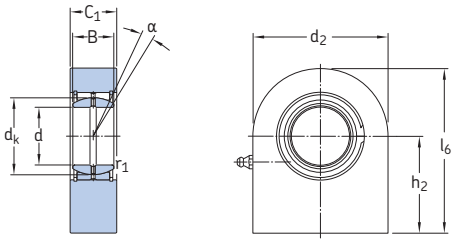
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Dimensions

d	d_k	d_5 max	d_6	l_6 max	l_7 min	r_1 min	l_8
mm							
20	29	29	4	66	24	0,3	2
25	35,5	35	4	78	30	0,6	3
30	40,7	42	4	89	34	0,6	3
35	47	49	4	104	40	0,6	3
40	53	54	4	118	46	0,6	4
45	60	60	6	132	50	0,6	4
50	66	64	6	150	58	0,6	4
60	80	72	6	173	73	1	4
70	92	82	6	199	85	1	5
80	105	97	6	237	98	1	5

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SCF .. ES

Principal dimensions					Angle of tilt	Basic load ratings dynamic	static	Mass	Designation
d	d_2 max	B	C_1 max	h_2 js13	α	C	C_0		
mm					degrees	kN		kg	–
20	51,5	16	20	38	9	30	63	0,35	**SCF 20 ES**
25	56,5	20	24	45	7	48	65,5	0,53	**SCF 25 ES**
30	66,5	22	29	51	6	62	110	0,87	**SCF 30 ES**
35	85	25	31	61	6	80	183	1,55	**SCF 35 ES**
40	102	28	36,5	69	7	100	285	2,45	**SCF 40 ES**
45	112	32	41,5	77	7	127	360	3,40	**SCF 45 ES**
50	125,5	35	41,5	88	6	156	415	4,45	**SCF 50 ES**
60	142,5	44	51,5	100	6	245	530	7,00	**SCF 60 ES**
70	166,5	49	57	115	6	315	680	10,0	**SCF 70 ES**
80	182,5	55	62	141	6	400	750	15,0	**SCF 80 ES**
90	228,5	60	67	150	5	490	1 290	23,5	**SCF 90 ES**
100	252,5	70	72	170	7	610	1 430	31,5	**SCF 100 ES**
110	298	70	83	185	6	655	2 200	48,0	**SCF 110 ES**
120	363	85	92,5	210	6	950	3 250	79,5	**SCF 120 ES**

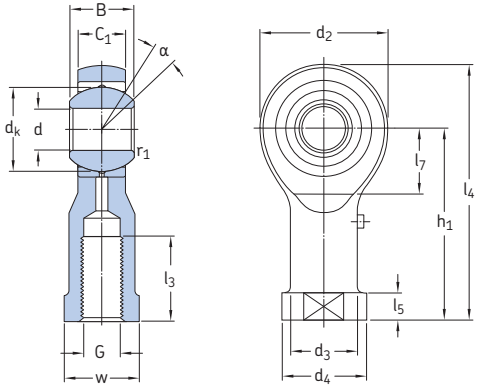
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Dimensions

d	d_k	l_6 max	r_1 min
mm			
20	29	64	0,3
25	35,5	73,5	0,6
30	40,7	85	0,6
35	47	103,5	0,6
40	53	120	0,6
45	60	133	0,6
50	66	151	0,6
60	80	171,5	1
70	92	198,5	1
80	105	232,5	1
90	115	264,5	1
100	130	296,5	1
110	140	334	1
120	160	391,5	1

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SI(L)KAC .. M(/VZ019)
d ≥ 6 mm

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
5	19	M 5	8	7,5	27	13	3,25	5,4	0,017	**SIKAC 5 M**[1]	**SILKAC 5 M**[1]
	19	M 4	8	7,5	27	13	3,25	5,4	0,017	**SIKAC 5 M/VZ019**[1]	**–**
6	21	M 6	9	7,5	30	13	4,3	5,4	0,025	**SIKAC 6 M**	**SILKAC 6 M**
8	25	M 8	12	9,5	36	14	7,2	9,15	0,043	**SIKAC 8 M**	**SILKAC 8 M**
10	29	M 10	14	11,5	43	13	10	12,2	0,072	**SIKAC 10 M**	**SILKAC 10 M**
	29	M 10×1,25	14	11,5	43	13	10	12,2	0,072	**SIKAC 10 M/VZ019**	**–**
12	33	M 12	16	12,5	50	13	13,4	14	0,11	**SIKAC 12 M**	**SILKAC 12 M**
	33	M 12×1,25	16	12,5	50	13	13,4	14	0,11	**SIKAC 12 M/VZ019**	**–**
14	37	M 14	19	14,5	57	16	17	20,4	0,16	**SIKAC 14 M**	**SILKAC 14 M**
16	43	M 16	21	15,5	64	15	21,6	29	0,22	**SIKAC 16 M**	**SILKAC 16 M**
	43	M 16×1,5	21	15,5	64	15	21,6	29	0,22	**SIKAC 16 M/VZ019**	**–**
18	47	M 18×1,5	23	17,5	71	15	26	35,5	0,30	**SIKAC 18 M**	**SILKAC 18 M**
20	51	M 20×1,5	25	18,5	77	14	31,5	35,5	0,40	**SIKAC 20 M**	**SILKAC 20 M**
22	55	M 22×1,5	28	21	84	15	38	45	0,50	**SIKAC 22 M**	**SILKAC 22 M**
25	61	M 24×2	31	23	94	15	47,5	53	0,65	**SIKAC 25 M**	**SILKAC 25 M**
30	71	M 30×2	37	27	110	17	64	69,5	1,15	**SIKAC 30 M**	**SILKAC 30 M**
	71	M 27×2	37	27	110	17	64	69,5	1,15	**SIKAC 30 M/VZ019**	**–**

[1] No relubrication facilities.

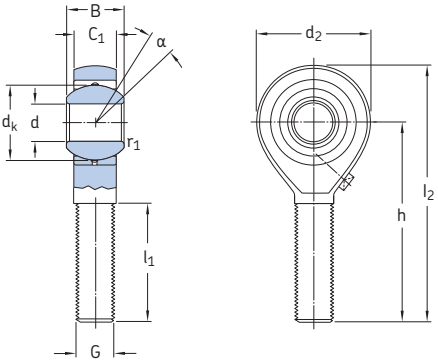
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Dimensions

d	d_k	d_3 ≈	d_4 max	l_3 min	l_4 max	l_5 ≈	l_7 min	r_1 min	w h14
mm									
5	11,1	9	12	8	38	4	9	0,3	9
	11,1	9	12	10	38	4	9	0,3	9
6	12,7	10	14	9	42	5	10	0,3	11
8	15,8	12,5	17	12	50	5	12	0,3	14
10	19	15	20	15	59	6,5	14	0,3	17
	19	15	20	20	59	6,5	14	0,3	17
12	22,2	17,5	23	18	68	6,5	16	0,3	19
	22,2	17,5	23	22	68	6,5	16	0,3	19
14	25,4	20	27	21	77	8	18	0,3	22
16	28,5	22	29	24	87	8	21	0,3	22
	28,5	22	29	28	87	8	21	0,3	22
18	31,7	25	32	27	96	10	23	0,3	27
20	34,9	27,5	37	30	105	10	25	0,3	30
22	38,1	30	40	33	114	12	27	0,3	32
25	42,8	33,5	44	36	127	12	30	0,3	36
30	50,8	40	52	45	148	15	35	0,3	41
	50,8	40	52	51	148	15	35	0,3	41

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SA(L)KAC .. M
d ≥ 6 mm

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6g	B	C_1 max	h	α	C	C_0			
mm						degrees	kN		kg	–	
5	19	M 5	8	6	33	13	3,25	4,8	0,013	**SAKAC 5 M**[1]	**SALKAC 5 M**[1]
6	21	M 6	9	6,75	36	13	4,3	4,8	0,020	**SAKAC 6 M**	**SALKAC 6 M**
8	25	M 8	12	9	42	14	7,2	8	0,032	**SAKAC 8 M**	**SALKAC 8 M**
10	29	M 10	14	10,5	48	13	10	10,8	0,054	**SAKAC 10 M**	**SALKAC 10 M**
12	33	M 12	16	12	54	13	12,2	12,2	0,085	**SAKAC 12 M**	**SALKAC 12 M**
14	37	M 14	19	13,5	60	16	17	17,3	0,13	**SAKAC 14 M**	**SALKAC 14 M**
16	43	M 16	21	15	66	16	21,6	23,2	0,19	**SAKAC 16 M**	**SALKAC 16 M**
18	47	M 18×1,5	23	16,5	72	16	26	29	0,26	**SAKAC 18 M**	**SALKAC 18 M**
20	51	M 20×1,5	25	18	78	16	29	29	0,34	**SAKAC 20 M**	**SALKAC 20 M**
22	55	M 22×1,5	28	20	84	16	38	39	0,44	**SAKAC 22 M**	**SALKAC 22 M**
25	61	M 24×2	31	22	94	15	46,5	46,5	0,60	**SAKAC 25 M**	**SALKAC 25 M**
30	71	M 30×2	37	25	110	17	61	61	1,05	**SAKAC 30 M**	**SALKAC 30 M**

[1] No relubrication facilities.

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Dimensions

d	d_k	l_1 min	l_2 max	r_1 min
mm				
5	11,1	19	44	0,3
6	12,7	21	48	0,3
8	15,8	25	56	0,3
10	19	28	64	0,3
12	22,2	32	72	0,3
14	25,4	36	80	0,3
16	28,5	37	89	0,3
18	31,7	41	97	0,3
20	34,9	45	106	0,3
22	38,1	48	114	0,3
25	42,8	55	127	0,3
30	50,8	66	148	0,3

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Maintenance-free rod ends

Dimensions
Tolerances
Radial internal clearance, preload
Materials
Permissible operating temperature range
Fatigue strength

Product tables
2.1 Maintenance-free rod ends with a female thread, steel/PTFE sintered bronze
2.2 Maintenance-free rod ends with a male thread, steel/PTFE sintered bronze
2.3 Maintenance-free rod ends with a female thread, steel/PTFE fabric
2.4 Maintenance-free rod ends with a male thread, steel/PTFE fabric
2.5 Maintenance-free rod ends with a female thread, steel/PTFE FRP
2.6 Maintenance-free rod ends with a male thread, steel/PTFE FRP

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SWS manufactures maintenance-free rod ends with three different sliding contact surface com-binations in different series:

- Steel/PTFE sintered bronze (→ **fig. 1**):
  – SI(L) .. C series
  – SA(L) .. C series
- Steel/PTFE fabric (→ **fig. 2**):
  – SI(L) .. TXE-2LS series
  – SI(L)A .. TXE-2LS series
  – SA(L) .. TXE-2LS series
  – SA(L)A .. TXE-2LS series
- Steel/PTFE FRP (→ **fig. 3**):
  – SI(L)KB .. F series
  – SA(L)KB .. F series

Rod ends with either a steel/PTFE sintered bronze or steel/PTFE fabric sliding contact sur-face combination contain a bearing from the standard assortment. The outer ring is staked in place in the housing.

Rod ends with a steel/PTFE FRP sliding con-tact surface combination consist of a rod end housing and a spherical plain bearing inner ring. Between the housing and the inner ring, a slid-ing layer of fibre reinforced polymer, containing PTFE, is moulded to the housing.

SWS supplies maintenance-free rod ends with a threaded shank with a right-hand thread as standard. With the exception of rod ends with the designation suffix VZ019, all rod ends are also available with a left-hand thread. They are identified by the designation prefix L.

Fig. 1
Maintenance-free rod end, steel/PTFE sintered bronze

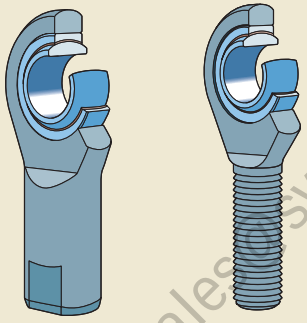


Fig. 2
Maintenance-free rod end, steel/PTFE fabric

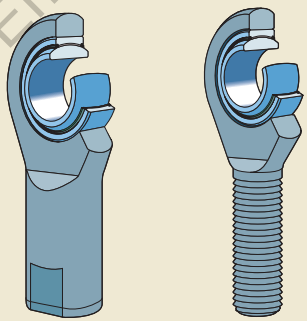
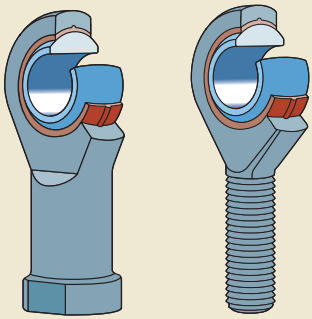


Fig. 3
Maintenance-free rod end, steel/PTFE FRP



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Tolerances

SWS rod end inner ring dimensional tolerances are in accordance with ISO 12240-1:1998. The tolerances are listed in **table 1**The s.ymbols used in **table 1** are explained in the following:

d nominal bore diameter
Δ_{dmp} deviation of the mean bore diameter from the nominal
Δ_{Bs} deviation of the single inner ring width from the nominal

Radial internal clearance, preload

Depending on their design, SWS maintenance-free rod ends may have a radial internal clear-ance or a light preload.

Table 2

Radial internal clearance and frictional moment for maintenance-free rod ends

Bore diameter d over	incl.	Radial internal clearance max	Frictional moment max
mm		µm	Nm
Sliding surface steel/PTFE sintered bronze (designation suffix C)			
–	**12**	28	0,15
12	**20**	35	0,25
20	**30**	44	0,40
Sliding surface steel/PTFE fabric (designation suffix TXE-2LS)			
35	**80**	50	–
Sliding surface steel/PTFE FRP (designation suffix F)			
5		50	0,20
6		50	0,25
8		50	0,30
10		75	0,40
12		75	0,50
14		75	0,60
16		75	0,70
18		85	0,80
20		100	1
22		100	1,2

Table 1

Inner ring dimensional tolerances for maintenance-free rod ends

Bore diameter d over	incl.	SA(A) and SI(A) series Δ_{dmp} high	low	Δ_{Bs} high	low	SAKB and SIKB series Δ_{dmp} high	low	Δ_{Bs} high	low
mm		µm		µm		µm		µm	
–	**6**	0	–8	0	–120	12	0	0	–120
6	**10**	0	–8	0	–120	15	0	0	–120
10	**18**	0	–8	0	–120	18	0	0	–120
18	**30**	0	–10	0	–120	21	0	0	–120
30	**50**	0	–12	0	–120	–	–	–	–
50	**80**	0	–15	0	–150	–	–	–	–

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Materials

SWS rod end housings for maintenance-free bearings are made of materials as listed in **table 3**.

Details of the materials used for the maintenance-free radial spherical plain bearings incorporated in the rod ends are listed in **table 3** on **pages 128** to **129.**

The inner ring of rod ends with a steel/PTFE FRP sliding contact surface combination is made of bearing steel. The ring is through-hardened and ground. The sliding contact surface of the inner ring is hard chromium plated. The sliding layer consists of a fibre reinforced polymer, containing PTFE.

Permissible operating temperature range

The permissible operating temperature range for SWS maintenance-free rod ends depends on the rod end housing, the incorporated bearing and the bearing seals. The values for misoperating temperature range are listed in **table 4**.

The load carrying capacity of the rod end is reduced at temperatures above 100 °C. For temperatures below 0 °C, check to be sure that the fracture toughness of the rod end housing is adequate for the intended application.

Fatigue strength

In all applications where a rod end is subjected to alternating loads, loads that vary in magnitude or where failure of a rod end is dangerous, make sure that the selected rod end has sufficient fatigue strength.

Table 3

Housing materials for maintenance-free rod ends

Series	Size	Material	Material No.
SA(A) SI(A)	6 to 80	Heat treatable steel C45V, zinc coated and chromatized	1.0503
SAKB SIKB	5 to 12	Free-machining steel, zinc coated and chromatized	1.0718
	14 to 22	Heat treatable steel C35N, zinc coated and chromatized	1.0501

Table 4

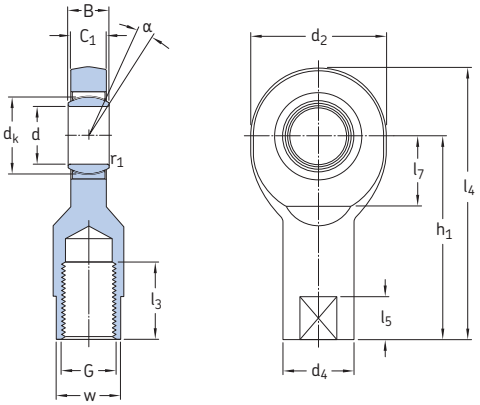
Permissible operating temperature range for maintenance-free rod ends

Rod end sliding contact surface combination	Permissible operating temperature range[1]		Reduced load carrying capacity
	from	incl.	from
–	°C		°C
Steel/PTFE sintered bronze	–50	+150	+80
Steel/PTFE fabric	–40	+110	+65
Steel/PTFE FRP	–40	+75	+50

[1] For temperatures below 0 °C, make sure that the fracture toughness of the rod end housing is adequate for the intended application.

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Maintenance-free rod ends with a female thread, steel/PTFE sintered bronze
d **6 – 30** mm



SI(L) .. C

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
6	22	M 6	6	4,5	30	13	3,6	8,15	0,023	**SI 6 C**	**SIL 6 C**
8	25	M 8	8	6,5	36	15	5,8	12,9	0,036	**SI 8 C**	**SIL 8 C**
10	30	M 10	9	7,5	43	12	8,65	19	0,065	**SI 10 C**	**SIL 10 C**
12	35	M 12	10	8,5	50	10	11,4	25,5	0,11	**SI 12 C**	**SIL 12 C**
15	41	M 14	12	10,5	61	8	18	37,5	0,18	**SI 15 C**	**SIL 15 C**
17	47	M 16	14	11,5	67	10	22,4	46,5	0,25	**SI 17 C**	**SIL 17 C**
20	54	M 20×1,5	16	13,5	77	9	31,5	57	0,35	**SI 20 C**	**SIL 20 C**
25	65	M 24×2	20	18	94	7	51	90	0,65	**SI 25 C**	**SIL 25 C**
30	75	M 30×2	22	20	110	6	65,5	118	1,05	**SI 30 C**	**SIL 30 C**

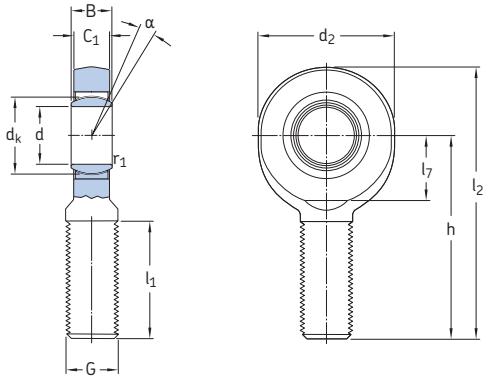
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Dimensions

d	d_k	d_4 ≈	l_3 min	l_4 max	l_5 ≈	l_7 min	r_1 min	w h14
mm								
6	10	11	11	43	8	10	0,3	9
8	13	13	15	50	9	11	0,3	11
10	16	16	15	60	11	13	0,3	14
12	18	19	18	69	12	17	0,3	17
15	22	22	21	83	14	19	0,3	19
17	25	25	24	92	15	22	0,3	22
20	29	28	30	106	16	24	0,3	24
25	35,5	35	36	128	18	30	0,6	30
30	40,7	42	45	149	19	34	0,6	36

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Maintenance-free rod ends with a male thread, steel/PTFE sintered bronze
d **6 – 30** mm



SA(L) .. C

Principal dimensions						Angle of tilt	Basic load ratings dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6g	B	C_1 max	h	α	C	C_0			
mm						degrees	kN		kg	–	
6	22	M 6	6	4,5	36	13	3,6	8,15	0,017	**SA 6 C**	**SAL 6 C**
8	25	M 8	8	6,5	42	15	5,85	12,9	0,030	**SA 8 C**	**SAL 8 C**
10	30	M 10	9	7,5	48	12	8,65	18,3	0,053	**SA 10 C**	**SAL 10 C**
12	35	M 12	10	8,5	54	10	11,4	24,5	0,078	**SA 12 C**	**SAL 12 C**
15	41	M 14	12	10,5	63	8	18	34,5	0,13	**SA 15 C**	**SAL 15 C**
17	47	M 16	14	11,5	69	10	22,4	42,5	0,19	**SA 17 C**	**SAL 17 C**
20	54	M 20×1,5	16	13,5	78	9	31,5	51	0,32	**SA 20 C**	**SAL 20 C**
25	65	M 24×2	20	18	94	7	51	78	0,57	**SA 25 C**	**SAL 25 C**
30	75	M 30×2	22	20	110	6	65,5	104	0,90	**SA 30 C**	**SAL 30 C**

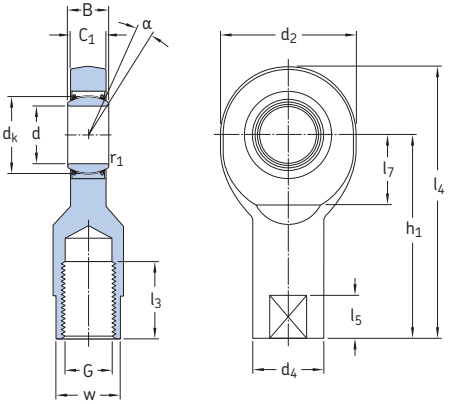
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Dimensions

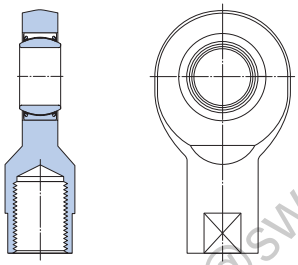
d	d_k	l_1 min	l_2 max	l_7 min	r_1 min
mm					
6	10	16	49	10	0,3
8	13	21	56	11	0,3
10	16	26	65	13	0,3
12	18	28	73	17	0,3
15	22	34	85	19	0,3
17	25	36	94	22	0,3
20	29	43	107	24	0,3
25	35,5	53	128	30	0,6
30	40,7	65	149	34	0,6

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Maintenance-free rod ends with a female thread, steel/PTFE fabric
d **35 – 80** mm



SI(L) .. TXE-2LS



SI(L)A .. TXE-2LS

Principal dimensions						Angle of tilt	Basic load ratings[1] dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
35	84	M 36×3	25	22	130	6	224	134	1,40	**SI 35 TXE-2LS**	**SIL 35 TXE-2LS**
40	94	M 39×3	28	24	142	7	280	166	2,20	**SIA 40 TXE-2LS**	**SILA 40 TXE-2LS**
	94	M 42×3	28	24	145	7	280	166	2,30	**SI 40 TXE-2LS**	**SIL 40 TXE-2LS**
45	104	M 42×3	32	28	145	7	360	224	2,90	**SIA 45 TXE-2LS**	**SILA 45 TXE-2LS**
	104	M 45×3	32	28	165	7	360	224	3,20	**SI 45 TXE-2LS**	**SIL 45 TXE-2LS**
50	114	M 45×3	35	31	160	6	440	270	4,10	**SIA 50 TXE-2LS**	**SILA 50 TXE-2LS**
	114	M 52×3	35	31	195	6	440	270	4,50	**SI 50 TXE-2LS**	**SIL 50 TXE-2LS**
60	137	M 52×3	44	39	175	6	695	400	6,30	**SIA 60 TXE-2LS**	**SILA 60 TXE-2LS**
	137	M 60×4	44	39	225	6	695	400	7,10	**SI 60 TXE-2LS**	**SIL 60 TXE-2LS**
70	162	M 72×4	49	43	265	6	880	530	10,5	**SI 70 TXE-2LS**	**SIL 70 TXE-2LS**
80	182	M 80×4	55	48	295	5	1 140	655	19,0	**SI 80 TXE-2LS**	**SIL 80 TXE-2LS**

[1] Dynamic load rating of the bearing to be used for basic rating life calculation only. Check suitability of the rod end against its static load rating in all cases. The dynamic load applied on the rod end must not exceed its static load rating.

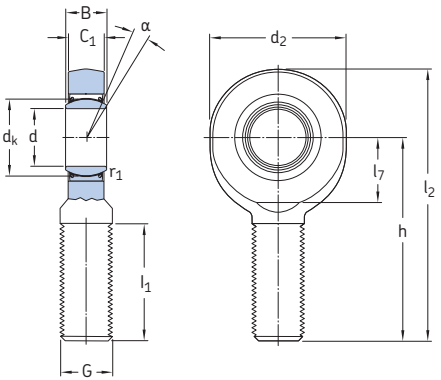
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Dimensions

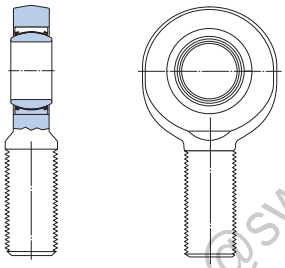
d	d_k	d_4 ≈	l_3 min	l_4 max	l_5 ≈	l_7 min	r_1 min	w h14
mm								
35	47	49	60	174	25	40	0,6	41
40	53	58	65	191	25	46	0,6	50
	53	58	65	194	25	46	0,6	50
45	60	65	65	199	30	50	0,6	55
	60	65	65	219	30	50	0,6	55
50	66	70	68	219	30	58	0,6	60
	66	70	68	254	30	58	0,6	60
60	80	82	70	246	35	73	1	70
	80	82	70	296	35	73	1	70
70	92	92	80	349	40	85	1	80
80	105	105	85	389	40	98	1	90

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SA(L) .. TXE-2LS



SA(L)A .. TXE-2LS

Principal dimensions						Angle of tilt	Basic load ratings[1] dynamic	static	Mass	Designations Rod end with right-hand thread	left-hand thread
d	d_2 max	G 6g	B	C_1 max	h	α	C	C_0			
mm						degrees	kN		kg	–	
35	84	M 36×3	25	22	130	6	224	110	1,30	**SA 35 TXE-2LS**	**SAL 35 TXE-2LS**
40	94	M 39×3	28	24	150	6	280	140	1,85	**SAA 40 TXE-2LS**	**SALA 40 TXE-2LS**
	94	M 42×3	28	24	145	6	280	140	1,90	**SA 40 TXE-2LS**	**SAL 40 TXE-2LS**
45	104	M 42×3	32	28	163	7	360	200	2,45	**SAA 45 TXE-2LS**	**SALA 45 TXE-2LS**
	104	M 45×3	32	28	165	7	360	200	2,55	**SA 45 TXE-2LS**	**SAL 45 TXE-2LS**
50	114	M 45×3	35	31	185	6	440	245	3,30	**SAA 50 TXE-2LS**	**SALA 50 TXE-2LS**
	114	M 52×3	35	31	195	6	440	245	3,90	**SA 50 TXE-2LS**	**SAL 50 TXE-2LS**
60	137	M 52×3	44	39	210	6	695	360	5,70	**SAA 60 TXE-2LS**	**SALA 60 TXE-2LS**
	137	M 60×4	44	39	225	6	695	360	6,25	**SA 60 TXE-2LS**	**SAL 60 TXE-2LS**
70	162	M 72×4	49	43	265	6	880	490	10,0	**SA 70 TXE-2LS**	**SAL 70 TXE-2LS**
80	182	M 80×4	55	48	295	5	1 140	585	14,5	**SA 80 TXE-2LS**	**SAL 80 TXE-2LS**

[1] Dynamic load rating of the bearing to be used for basic rating life calculation only. Check suitability of the rod end against its static load rating in all cases. The dynamic load applied on the rod end must not exceed its static load rating.

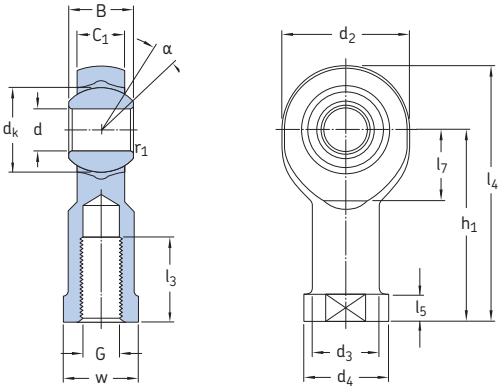
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Dimensions

d	d_k	l_1 min	l_2 max	l_7 min	r_1 min
mm					
35	47	82	174	40	0,6
40	53	86	199	46	0,6
	53	90	194	46	0,6
45	60	92	217	50	0,6
	60	95	219	50	0,6
50	66	104	244	58	0,6
	66	110	254	58	0,6
60	80	115	281	73	1
	80	120	296	73	1
70	92	132	349	85	1
80	105	147	389	98	1

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Maintenance-free rod ends with a female thread, steel/PTFE FRP
d **5 – 22** mm



SI(L)KB .. F

Principal dimensions						Angle of tilt	Basic load ratings dynamic	Basic load ratings static	Mass	Designations Rod end with right-hand thread	Designations Rod end with left-hand thread
d	d_2 max	G 6H	B	C_1 max	h_1	α	C	C_0			
mm						degrees	kN		kg	–	
5	19	M 5	8	6	27	13	3,25	5,3	0,019	**SIKB 5 F**	**SILKB 5 F**
6	21	M 6	9	6,75	30	13	4,25	6,8	0,028	**SIKB 6 F**	**SILKB 6 F**
8	25	M 8	12	9	36	14	7,1	11,4	0,047	**SIKB 8 F**	**SILKB 8 F**
10	29	M 10	14	10,5	43	13	9,8	14,3	0,079	**SIKB 10 F**	**SILKB 10 F**
	29	M 10×1,25	14	10,5	43	13	9,8	14,3	0,079	**SIKB 10 F/VZ019**	–
12	33	M 12	16	12	50	13	13,2	17	0,12	**SIKB 12 F**	**SILKB 12 F**
	33	M 12×1,25	16	12	50	13	13,2	17	0,12	**SIKB 12 F/VZ019**	–
14	37	M 14	19	13,5	57	16	17	27,5	0,16	**SIKB 14 F**	**SILKB 14 F**
16	43	M 16	21	15	64	15	21,4	34,5	0,23	**SIKB 16 F**	**SILKB 16 F**
	43	M 16×1,5	21	15	64	15	21,4	34,5	0,23	**SIKB 16 F/VZ019**	–
18	47	M 18×1,5	23	16,5	71	15	26	41,5	0,33	**SIKB 18 F**	**SILKB 18 F**
20	51	M 20×1,5	25	18	77	14	31	50	0,38	**SIKB 20 F**	**SILKB 20 F**
22	55	M 22×1,5	28	20	84	15	38	61	0,52	**SIKB 22 F**	**SILKB 22 F**

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