

2 Guiding systems

Profile rail guides

Profile rail guides

Profile rail guides from SKF are modern machine components used in the production of linear guiding systems with unlimited travel (→ **fig 22**). They usually consist of a profile rail with four precision-ground raceways and a slide unit with four ball circulation paths. This design offers numerous benefits. The square configuration of the raceways results in a guidance system with good rigidity, capable of withstanding moment loads in all directions. The load-carrying capacity is equal in all four directions (→ **fig 23**). Ready-to-mount units guarantee economy and simplicity of mounting. Installation and adjustment procedures are reduced to a minimum. The design of the system is such that inaccuracies of the adjacent components can be accommodated. SKF profile rail guides are noted for their ease of maintenance and reliability. As standard, they are provided with grease nipple and seals on all sides. The two-point contact of the rolling elements with the raceways permits high operational speeds with quiet running and a low coefficient of friction. Good running accuracy is assured throughout the operational life of the system. Guides with specific preload can be supplied for special requirements. This is achieved through selection. Preload selection depends on the load and stiffness specifications.

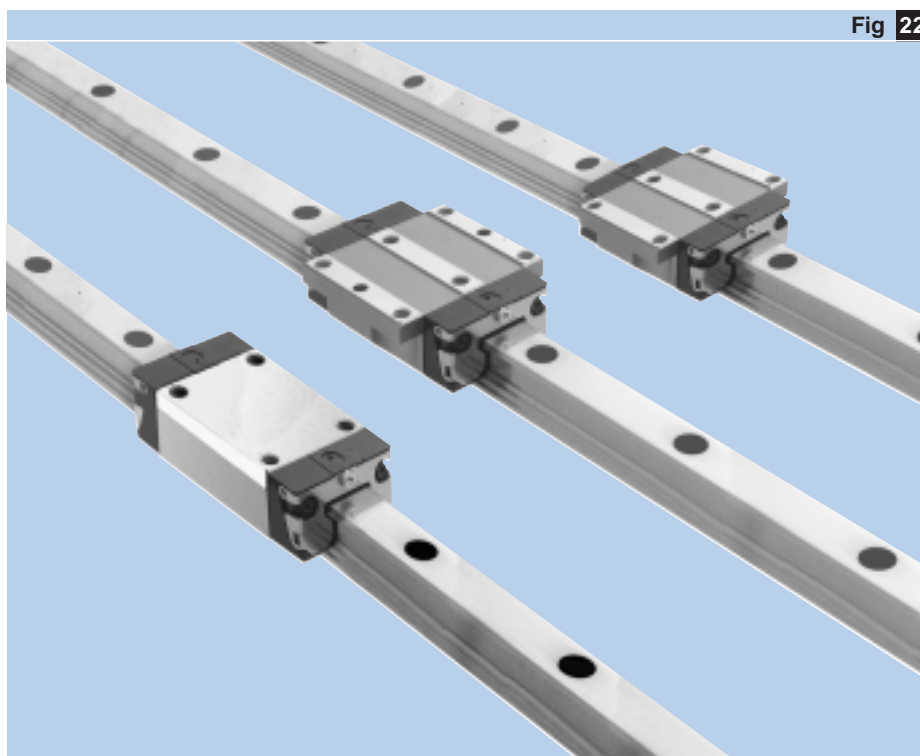


Fig 22

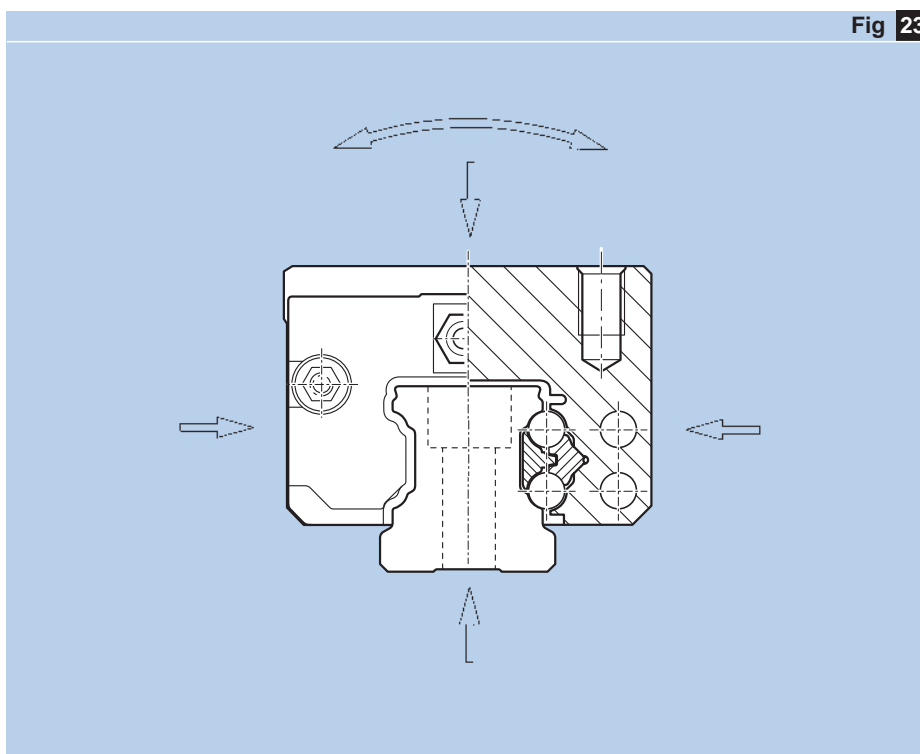
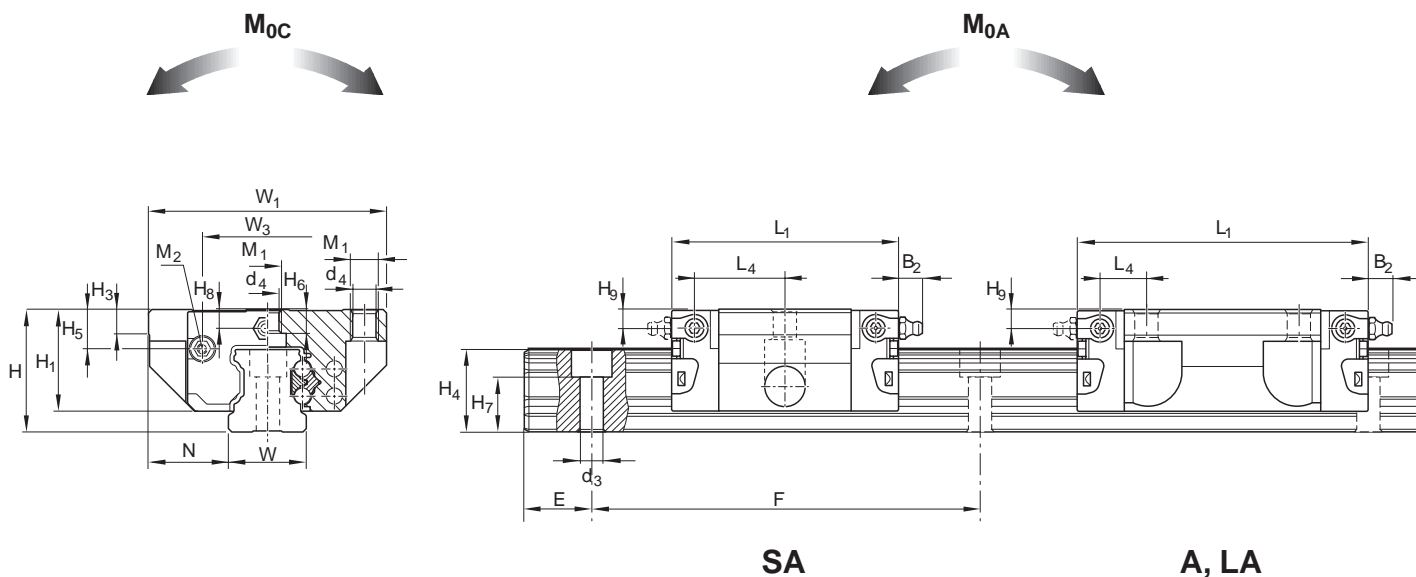


Fig 23

2 Guiding systems
Profile rail guides

LLRHS .. SA
 LLRHS .. A
 LLRHS .. LA

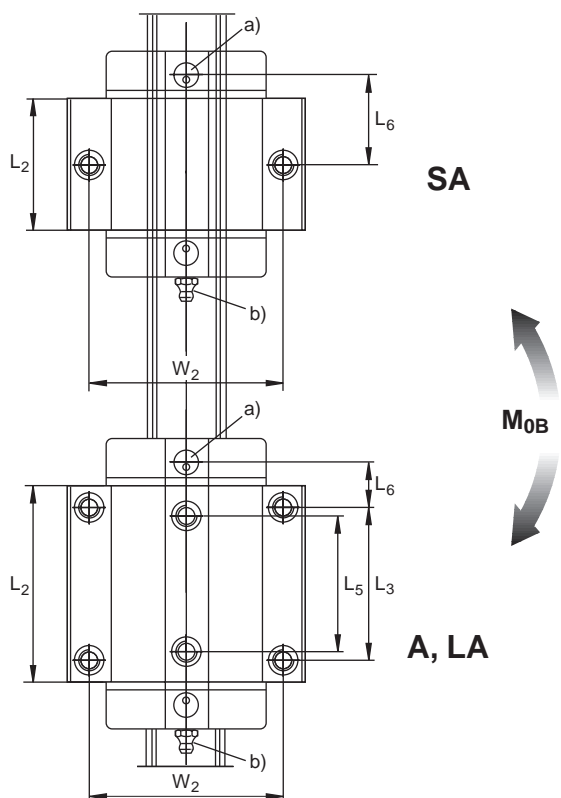


Designations	Dimensions																		
	W ₁	W	N	L ₁	L ₂	H	H ₁	H ₄ ¹⁾	H ₄ ²⁾	H ₃	W ₂	L ₃	L ₅	W ₃	H ₅	L ₆	L ₄	H ₈	H ₉
mm																			
LLRHS 15 SA	47	15	16.0	44.7	25.7	24	19.90	16.30	16.20	5.0	38	-	-	24.55	6.70	16.25	17.85	3.20	3.20
LLRHS 15 A	47	15	16.0	58.2	39.2	24	19.90	16.30	16.20	5.0	38	30	26	24.55	6.70	8.00	9.60	3.20	3.20
LLRHS 15 LA	47	15	16.0	72.6	53.6	24	19.90	16.30	16.20	5.0	38	30	26	24.55	6.70	15.20	16.80	3.20	3.20
LLRHS 20 SA	63	20	21.5	57.3	31.9	30	25.35	20.75	20.55	6.0	53	-	-	32.50	7.30	22.95	22.95	3.35	3.35
LLRHS 20 A	63	20	21.5	75.0	49.6	30	25.35	20.75	20.55	6.0	53	40	35	32.50	7.30	11.80	11.80	3.35	3.35
LLRHS 20 LA	63	20	21.5	91.0	65.6	30	25.35	20.75	20.55	6.0	53	40	35	32.50	7.30	19.80	19.80	3.35	3.35
LLRHS 25 SA	70	23	23.5	66.4	38.6	36	29.90	24.45	24.25	7.5	57	-	-	38.30	11.50	25.35	26.50	5.50	5.50
LLRHS 25 A	70	23	23.5	85.6	57.8	36	29.90	24.45	24.25	7.5	57	45	40	38.30	11.50	12.45	13.60	5.50	5.50
LLRHS 25 LA	70	23	23.5	107.3	79.5	36	29.90	24.45	24.25	7.5	57	45	40	38.30	11.50	23.30	24.45	5.50	5.50
LLRHS 30 SA	90	28	31.0	74.8	45.0	42	35.35	28.55	28.35	7.0	72	-	-	48.40	14.60	28.80	30.50	6.05	6.05
LLRHS 30 A	90	28	31.0	97.2	67.4	42	35.35	28.55	28.35	7.0	72	52	44	48.40	14.60	14.00	15.70	6.05	6.05
LLRHS 30 LA	90	28	31.0	119.2	89.4	42	35.35	28.55	28.35	7.0	72	52	44	48.40	14.60	25.00	26.70	6.05	6.05
LLRHS 35 SA	100	34	33.0	84.4	51.4	48	40.40	32.15	31.85	8.0	82	-	-	58.00	17.35	32.70	34.20	6.90	6.90
LLRHS 35 A	100	34	33.0	110.0	77.0	48	40.40	32.15	31.85	8.0	82	62	52	58.00	17.35	14.50	16.00	6.90	6.90
LLRHS 35 LA	100	34	33.0	138.5	105.5	48	40.40	32.15	31.85	8.0	82	62	52	58.00	17.35	28.75	30.25	6.90	6.90
LLRHS 45 A*	120	45	37.5	137.6	97.0	60	50.30	40.15	39.85	10.0	100	80	60	69.80	20.90	17.30	19.30	8.20	8.20
LLRHS 45 LA*	120	45	37.5	174.1	133.5	60	50.30	40.15	39.85	10.0	100	80	60	69.80	20.90	35.50	37.50	8.20	8.20

¹⁾ With rail cover strip

²⁾ Without rail cover strip

* In preparation



Legend:

a) For O-ring

Size 15: $\varnothing 4 \times 1.0$ (mm)

Size 20-35: $\varnothing 5 \times 1.0$ (mm)

Open lube bore as required.

See Accessories:

Mounting lubrication adapter.

b) Lube nipple, size 15 and 20:

Funnel-type nipple

Type A – Thread size M3, DIN 3405

$B_2 = 1.6$ mm

Size 25 to 35: AM 6 DIN 71412

$B_2 = 9.5$ mm

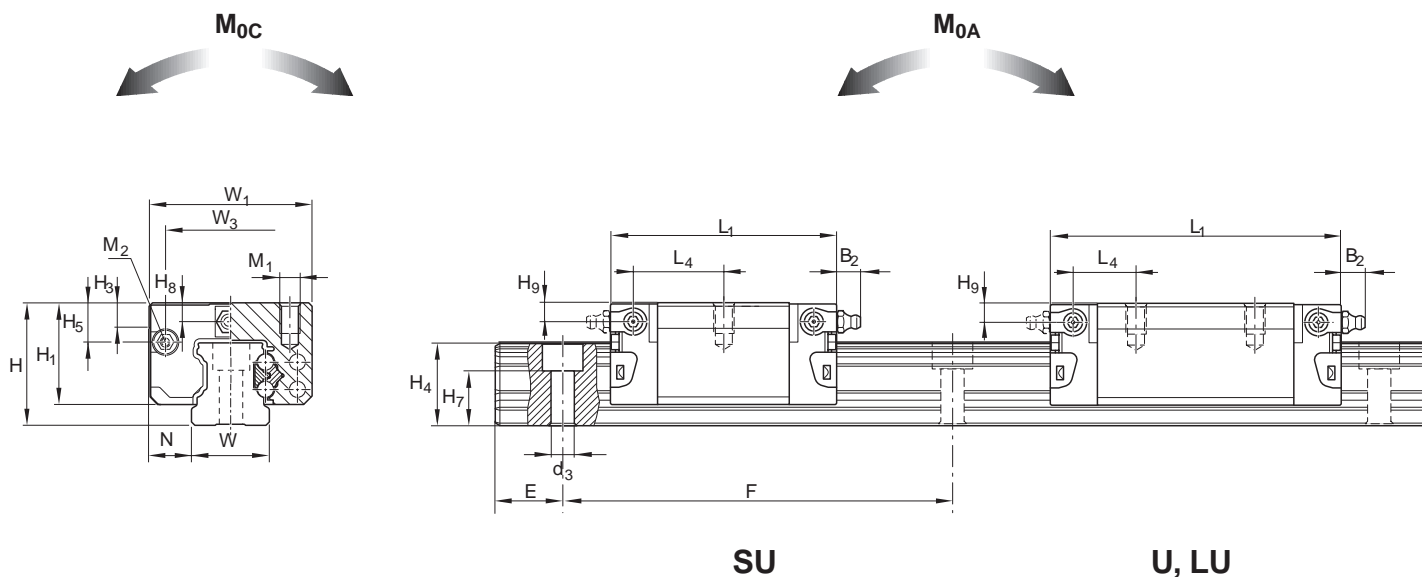
Connection possible at all sides.

Designations	Dimensions								Basic load ratings				Mass
	H ₆	H ₇	d ₄	M ₁	d ₃	M ₂	E _{min}	F	C	C ₀	M _{0A/0B}	M _{0C}	
	mm								N		Nm		kg
LLRHS 15 SA	–	10.65	4.3	M5×5.2	4.4	M2.5-3.5 deep	10	60	5400	8100	28	80	0.15
LLRHS 15 A	4.4	10.65	4.3	M5×5.2	4.4	M2.5-3.5 deep	10	60	7800	13500	71	130	0.20
LLRHS 15 LA	4.4	10.65	4.3	M5×5.2	4.4	M2.5-3.5 deep	10	60	10000	20000	150	190	0.40
LLRHS 20 SA	–	13.35	5.3	M6×7.7	6.0	M3-5 deep	10	60	12400	13600	58	170	0.40
LLRHS 20 A	5.2	13.35	5.3	M6×7.7	6.0	M3-5 deep	10	60	18800	24400	165	310	0.60
LLRHS 20 LA	5.2	13.35	5.3	M6×7.7	6.0	M3-5 deep	10	60	24400	35200	330	450	0.80
LLRHS 25 SA	–	15.55	6.7	M8×9.3	7.0	M3-5 deep	10	60	15900	18200	94	260	0.60
LLRHS 25 A	7.0	15.55	6.7	M8×9.3	7.0	M3-5 deep	10	60	22800	30400	240	430	0.80
LLRHS 25 LA	7.0	15.55	6.7	M8×9.3	7.0	M3-5 deep	10	60	30400	45500	510	650	1.15
LLRHS 30 SA	–	17.35	8.5	M10×11.0	9.0	M3-5 deep	12	80	22100	24800	150	430	0.95
LLRHS 30 A	7.9	17.35	8.5	M10×11.0	9.0	M3-5 deep	12	80	31700	41300	380	720	1.20
LLRHS 30 LA	7.9	17.35	8.5	M10×11.0	9.0	M3-5 deep	12	80	40000	57800	715	1000	1.70
LLRHS 35 SA	–	20.85	8.5	M10×12.0	9.0	M3-5 deep	12	80	29300	32400	220	700	1.40
LLRHS 35 A	10.2	20.85	8.5	M10×12.0	9.0	M3-5 deep	12	80	41900	54000	565	1160	1.75
LLRHS 35 LA	10.2	28.85	8.5	M10×12.0	9.0	M3-5 deep	12	80	55600	81000	1215	1740	2.55
LLRHS 45 A*	14.4	23.5	10.4	M12×15.0	14.0	M4-7 deep	16	105	68100	85700	1130	2310	3.00
LLRHS 45 LA*	12.4	23.5	10.4	M12×15.0	14.0	M4-7 deep	16	105	90400	128500	2425	3470	4.30

2 Guiding systems

Profile rail guides

LLRHS .. SU
 LLRHS .. U
 LLRHS .. LU

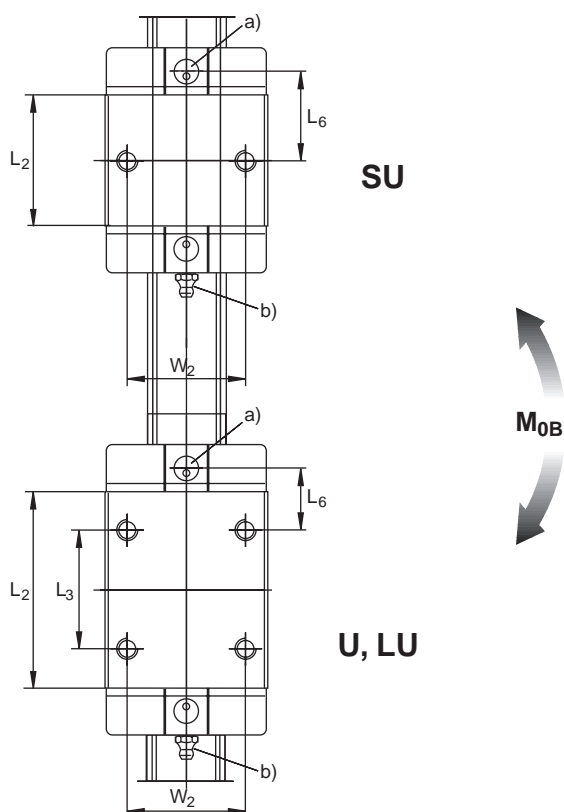


Designations	Dimensions																	
	W ₁	W	N	L ₁	L ₂	H	H ₁	H ₄ ¹⁾	H ₄ ²⁾	H ₃	W ₂	L ₃	W ₃	H ₅	L ₆	L ₄	H ₈	H ₉
mm																		
LLRHS 15 SU	34	15	9.5	44.7	25.7	24	19.90	16.30	16.20	5.0	26	-	24.55	6.70	16.25	17.85	3.20	3.20
LLRHS 15 U	34	15	9.5	58.2	39.2	24	19.90	16.30	16.20	5.0	26	26	24.55	6.70	10.00	11.60	3.20	3.20
LLRHS 15 LU	34	15	9.5	72.6	53.6	24	19.90	16.30	16.20	5.0	26	26	24.55	6.70	17.20	18.80	3.20	3.20
LLRHS 20 SU	44	20	12.0	57.3	31.9	30	25.35	20.75	20.55	6.0	32	-	32.50	7.30	22.95	22.95	3.35	3.35
LLRHS 20 U	44	20	12.0	75.0	49.6	30	25.35	20.75	20.55	6.0	32	36	32.50	7.30	13.80	13.80	3.35	3.35
LLRHS 20 LU	44	20	12.0	91.0	65.6	30	25.35	20.75	20.55	6.0	32	50	32.50	7.30	14.80	14.80	3.35	3.35
LLRHS 25 SU	48	23	12.5	66.4	38.6	36	29.90	24.45	24.25	7.5	35	-	38.30	11.50	25.35	26.50	5.50	5.50
LLRHS 25 U	48	23	12.5	85.6	57.8	36	29.90	24.45	24.25	7.5	35	35	38.30	11.50	17.45	18.60	5.50	5.50
LLRHS 25 LU	48	23	12.5	107.3	79.5	36	29.90	24.45	24.25	7.5	35	50	38.30	11.50	20.80	21.95	5.50	5.50
LLRHS 30 SU	60	28	16.0	74.8	45.0	42	35.35	28.55	28.35	7.0	40	-	48.40	14.60	28.80	30.50	6.05	6.05
LLRHS 30 U	60	28	16.0	97.2	67.4	42	35.35	28.55	28.35	7.0	40	40	48.40	14.60	20.00	21.70	6.05	6.05
LLRHS 30 LU	60	28	16.0	119.2	89.4	42	35.35	28.55	28.35	7.0	40	60	48.40	14.60	21.00	22.70	6.05	6.05
LLRHS 35 SU	70	34	18.0	84.4	51.4	48	40.40	32.15	31.85	8.0	50	-	58.00	17.35	32.70	34.20	6.90	6.90
LLRHS 35 U	70	34	18.0	110.0	77.0	48	40.40	32.15	31.85	8.0	50	50	58.00	17.35	20.50	22.00	6.90	6.90
LLRHS 35 LU	70	34	18.0	138.5	105.5	48	40.40	32.15	31.85	8.0	50	72	58.00	17.35	23.75	25.25	6.90	6.90
LLRHS 45 U*	86	45	20.5	137.6	97.0	60	50.30	40.15	39.85	10.0	60	60	69.80	20.90	27.30	29.30	8.20	8.20
LLRHS 45 LU*	86	45	20.5	174.1	133.5	60	50.30	40.15	39.85	10.0	60	80	69.80	20.90	35.50	37.50	8.20	8.20

¹⁾ With rail cover strip

²⁾ Without rail cover strip

* In preparation



Legend:

a) For O-ring

Size 15: $\varnothing 4 \times 1.0$ (mm)

Size 20-35: $\varnothing 5 \times 1.0$ (mm)

Open lube bore as required.

See Accessories:

Mounting lubrication adapter.

b) Lube nipple, size 15 and 20:

Funnel-type nipple

Type A – Thread size M3, DIN 3405

$B_2 = 1.6$ mm

Size 25 to 35: AM 6 DIN 71412

$B_2 = 9.5$ mm

Connection possible at all sides.

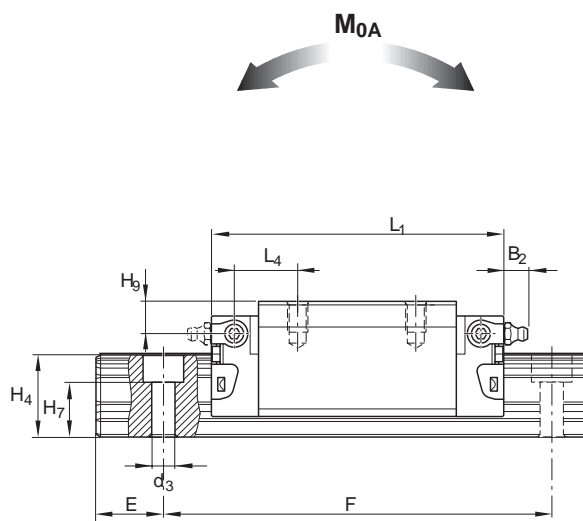
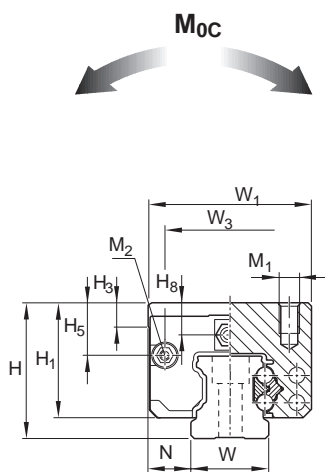
Designations	Dimensions		Basic load ratings								Mass
	H ₇	M ₁	d ₃	M ₂	E _{min}	F	C	C ₀	M _{0A/0B}	M _{0C}	
	mm						N		Nm		kg
LLRHS 15 SU	10.65	M4×6.0	4.4	M2.5-3.5 deep	10	60	5400	8100	28	80	0.10
LLRHS 15 U	10.65	M4×6.0	4.4	M2.5-3.5 deep	10	60	7800	13500	71	130	0.15
LLRHS 15 LU	10.65	M4×6.0	4.4	M2.5-3.5 deep	10	60	10000	20000	150	190	0.20
LLRHS 20 SU	13.35	M5×7.5	6.0	M3-5 deep	10	60	12400	13600	58	170	0.40
LLRHS 20 U	13.35	M5×7.5	6.0	M3-5 deep	10	60	18800	24400	165	310	0.50
LLRHS 20 LU	13.35	M5×7.5	6.0	M3-5 deep	10	60	24400	35200	330	450	0.65
LLRHS 25 SU	15.55	M6×9.0	7.0	M3-5 deep	10	60	15900	18200	94	260	0.55
LLRHS 25 U	15.55	M6×9.0	7.0	M3-5 deep	10	60	22800	30400	240	430	0.70
LLRHS 25 LU	15.55	M6×9.0	7.0	M3-5 deep	10	60	30400	45500	510	650	0.90
LLRHS 30 SU	17.35	M8×12.0	9.0	M3-5 deep	12	80	22100	24800	150	430	0.75
LLRHS 30 U	17.35	M8×12.0	9.0	M3-5 deep	12	80	31700	41300	380	720	1.00
LLRHS 30 LU	17.35	M8×12.0	9.0	M3-5 deep	12	80	40000	57800	715	1000	1.30
LLRHS 35 SU	20.85	M8×13.0	9.0	M3-5 deep	12	80	29300	32400	220	700	1.10
LLRHS 35 U	20.85	M8×13.0	9.0	M3-5 deep	12	80	41900	54000	565	1160	1.40
LLRHS 35 LU	28.85	M8×13.0	9.0	M3-5 deep	12	80	55600	81000	1215	1740	2.00
LLRHS 45 U*	23.5	M10×18.0	14.0	M4-7 deep	16	105	68100	85700	1130	2310	2.40
LLRHS 45 LU*	23.5	M10×18.0	14.0	M4-7 deep	16	105	90400	128500	2425	3470	3.20

2 Guiding systems

Profile rail guides

LLRHS .. R

LLRHS .. LR



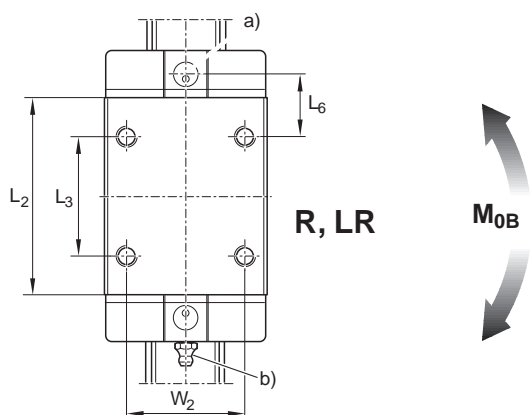
R, LR

Designations	Dimensions																	
	W ₁	W	N	L ₁	L ₂	H	H ₁	H ₄ ¹⁾	H ₄ ²⁾	H ₃	W ₂	L ₃	W ₃	H ₅	L ₆	L ₄	H ₈	H ₉
mm																		
LLRHS 15 R	34	15	9.5	58.2	39.2	28	23.90	16.30	16.20	5.0	26	26	24.55	10.70	10.00	11.60	7.20	7.20
LLRHS 25 R	48	23	12.5	85.6	57.8	40	33.90	24.45	24.25	7.5	35	35	38.30	15.50	17.45	18.60	9.50	9.50
LLRHS 25 LR	48	23	12.5	107.3	79.5	40	33.90	24.45	24.25	7.5	35	50	38.30	15.50	20.80	21.95	9.50	9.50
LLRHS 30 R	60	28	16.0	97.2	67.4	45	38.35	28.55	28.35	7.0	40	40	48.40	17.60	20.00	21.70	9.05	9.05
LLRHS 30 LR	60	28	16.0	119.2	89.4	45	38.35	28.55	28.35	7.0	40	60	48.40	17.60	21.00	22.70	9.05	9.05
LLRHS 35 R	70	34	18.0	110.0	77.0	55	47.40	32.15	31.85	8.0	50	50	58.00	24.35	20.50	22.00	13.90	13.90
LLRHS 35 LR	70	34	18.0	138.5	105.5	55	47.40	32.15	31.85	8.0	50	72	58.00	24.35	23.75	25.25	13.90	13.90
LLRHS 45 R*	86	45	20.5	137.6	97.0	70	60.30	40.15	39.85	10.0	50	60	69.80	30.90	27.30	29.30	18.20	18.20
LLRHS 45 LR*	86	45	20.5	174.1	133.5	70	60.30	40.15	39.85	10.0	60	80	69.80	30.90	35.50	37.50	18.20	18.20

¹⁾ With rail cover strip

²⁾ Without rail cover strip

* In preparation



Legend:

a) For O-ring

Size 15: $\varnothing 4 \times 1.0$ (mm)

Size 20 - 35: $\varnothing 5 \times 1.0$ (mm)

Open lube bore as required.

See Accessories:

Mounting lubrication adapter.

b) Lube nipple, size 15 and 20:

Funnel-type nipple

Type A – Thread size M3, DIN 3405

$B_2 = 1.6$ mm

Size 25 to 35: AM 6 DIN 71412

$B_2 = 9.5$ mm

Connection possible at all sides.

Designations	Dimensions				Basic load ratings						Mass
	H_7	M_1	d_3	M_2	E_{min}	F	C	C_0	$M_{0A/0B}$	M_{0C}	
	mm				N						kg
LLRHS 15 R	10.65	M4×6.0	4.4	M2.5 - 3.5 deep	10	60	7800	13500	71	130	0.20
LLRHS 25 R	15.55	M6×9.0	7.0	M3 - 5 deep	10	60	22800	30400	240	430	0.75
LLRHS 25 LR	15.55	M6×9.0	7.0	M3 - 5 deep	10	60	30400	45500	510	650	1.00
LLRHS 30 R	17.35	M8×12.0	9.0	M3 - 5 deep	12	80	31700	41300	380	720	1.10
LLRHS 30 LR	17.35	M8×12.0	9.0	M3 - 5 deep	12	80	40000	57800	715	1000	1.45
LLRHS 35 R	20.85	M8×13.0	9.0	M3 - 5 deep	12	80	41900	54000	565	1160	1.70
LLRHS 35 LR	28.85	M8×13.0	9.0	M3 - 5 deep	12	80	55600	81000	1215	1740	2.40
LLRHS 45 R*	23.5	M10×18.0	14.0	M4 - 7 deep	16	105	68100	85700	1130	2310	3.00
LLRHS 45 LR*	23.5	M10×18.0	14.0	M4 - 7 deep	16	105	90400	128500	2425	3470	4.10

2 Guiding systems

Miniature profile rail guides

Miniature profile rail guides

In response to the market trend for increased performance with a minimum of mounting space, SKF has extended its product range by miniature profile rail guides (→ fig 24).

These newly developed linear guides are designed above all for applications in precision mechanics, medical engineering, microassembly and the optics industry.

The close co-operation with numerous customers combined with SKF's experience has resulted in a range of miniature rail guides that sets new standards: especially when the mounting space is limited, SKF miniature profile rail guides are an excellent choice, as they have a high load-carrying capacity combined with a compact design.

SKF offers its customers an excellent technical advisory service on the spot as well as a vast modular range for the performance increase of machines and installations.

SKF Linear Motion offers these profile rail guides in four sizes (7, 9, 12 and 15 mm) and various slide options to cover most application requirements.

Compact design: Thanks to their simple structure, miniature profile rail guides are compact and favourable in price. This small and lightweight product is very suitable for high-speed linear motion up to 3 m/sec.

Long-life: gothic arch grooves at the raceway contacts enable the slide to sustain loads and moments from any direction.

The raceway shape offers a large load capacity and a long-life time due to the contact between the raceways and the balls.

Corrosion resistant: all parts of the system are made of stainless steel or plastic material and are thus resistant to corrosion.

Easy to maintain: oil holes in the end caps of the carriage make it easy to relubricate the system.

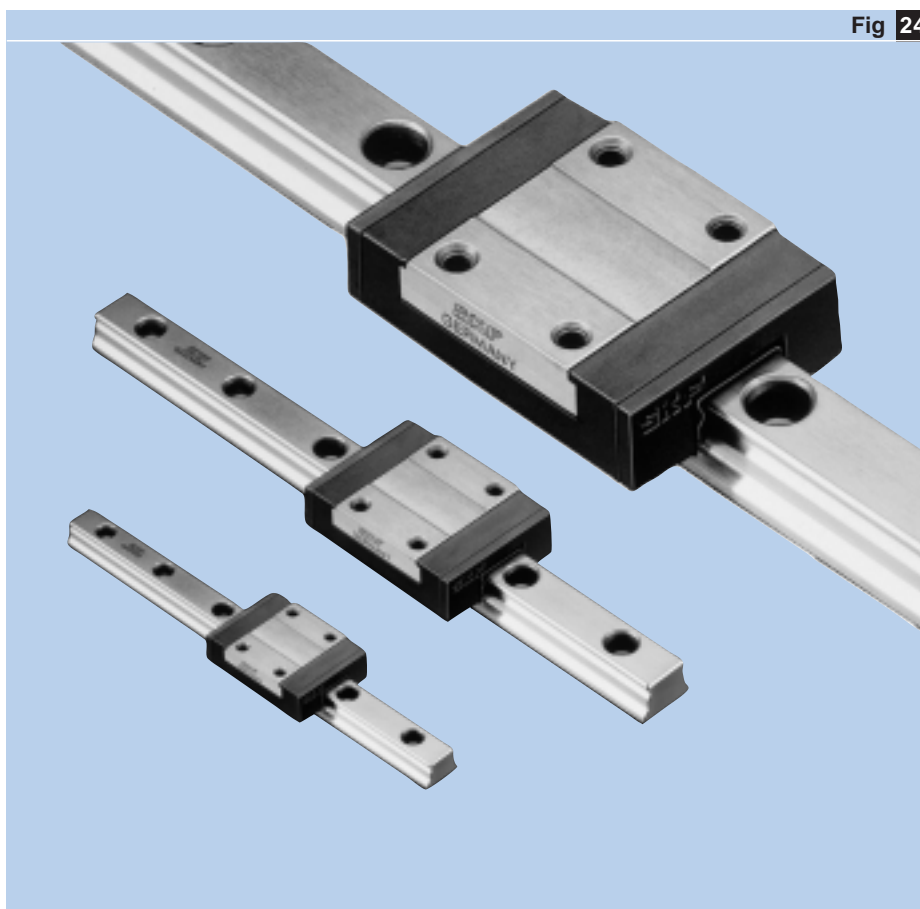


Fig 24

Structure: Four-point contact ball recirculation system with identical load angles and 2 ball recirculation paths per carriage for unlimited stroke.

Range: Four different types (7, 9, 12, 15) comprising different widths and carriage lengths (→ fig 25).

The preload possibilities for carriage are given in **Table 16**, and the technical data in **Table 17**.

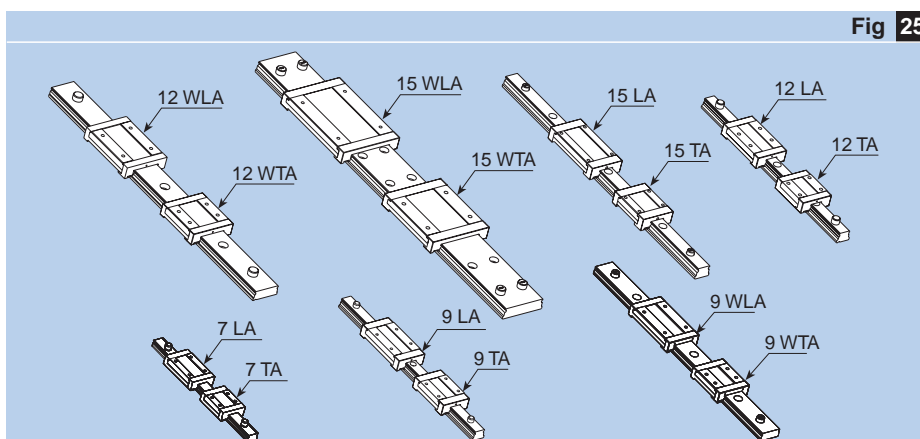


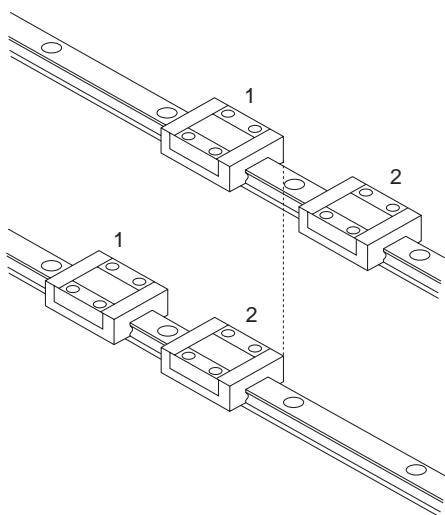
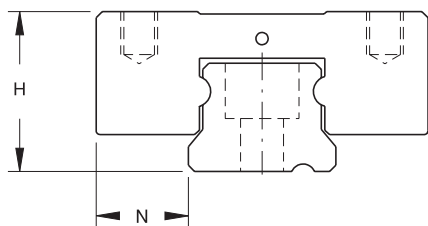
Fig 25

Table 16

	T0*	T1*	T2*
TA	×	×	×
LA	×	×	×
TA R	×	×	×
LA R	×	×	×

* T0 = standard - light preload
 * T1 = medium preload
 * T2 = heavy preload

Preload possibilities for carriage



The running parallelism accuracy in operation of paired systems are given in **Table 19**.

The positioning (distance) tolerance of rail attachment holes can be seen from **fig 26**.

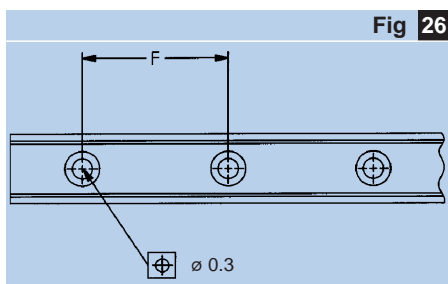


Table 17

Rail material:	Stainless steel 1.4037
Carriage material:	Stainless steel 1.4037 with return zones of POM
Ball material:	Stainless steel 1.4037
Sealing material:	Desmopan
Temperature range:	from - 20 °C up to + 80 °C
Speed:	up to 3 m/s max.
Acceleration:	up to 80 m/s ² max.

Technical data

The system accuracy and the system tolerance of different guidance system are given in **Table 18**.

System accuracy and tolerance of different guidance systems

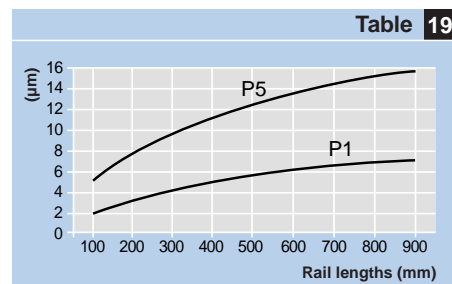
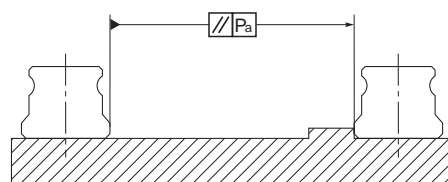
Table 18

Dimension	Class		
	P1	P5	
	µm	µm	
H*	Dimension tolerance	± 10	± 20
N*	Dimension tolerance	± 15	± 25
ΔH ₁ **	Maximum tolerance for paired systems or carriages at identical rail position	± 7	± 15
ΔN**	Maximum tolerance for paired systems or carriages at identical rail position	± 7	± 15

* The tolerances apply over the entire guide length for any combination of carriage and rail.
 ** The dimensions ΔH and ΔN relate to the ideal centre of the carriage. Each dimension is derived from the mean value of two measured points with identical centre distance.

The running parallelism accuracy in operation of paired systems are given in **Table 19**.

The positioning (distance) tolerance of rail attachment holes can be seen from **fig 26**.



Running parallelism accuracy

2 Guiding systems
Miniature profile rail guides

Ordering key



Type

Rail type:
 Standard rail H
 Wide rail W

Product code:
 System (rail + carriage) S
 Carriage C
 Rail R

Size:
 (7, 9, 12, 15)

Carriage types:
 Standard carriage TA
 Long carriage LA

Option:
 Carriage with seals R
 Carriage without seal no sign

Number of carriages

Preload:
 Light preload (standard) T0
 Medium preload T1
 Heavy preload T2

Length of rail track:
 Max 1000 mm

Precision class:
 Low precision P5
 High precision P1

Number of rail track used in parallel:
 One rail alone W1
 Two rails in parallel W2

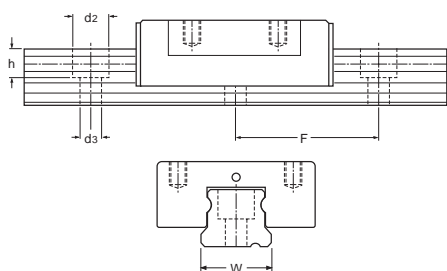
Auxiliary symbols:
 Plastic end-stop no sign
 Steel end-stop M

Distance between end face and the first hole [mm]:
 Symmetric holes standard E = 0

Example: **LLM H S** **12** **TA R** **2** **T0** - **700** **P1** **W2** / **M** **E=0**

LLMHR

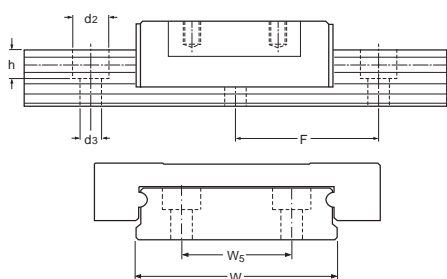
Standard rails



Designations	Dimensions					Max. length
	W	F	d ₂	d ₃	h	
	mm					mm
LLMHR 7	7	15	4.5	2.5	2.5	1000
LLMHR 9	9	20	6	3.5	3.5	1000
LLMHR 12	12	25	6	3.5	4.5	1000
LLMHR 15	15	40	6	3.5	4.5	1000

LLMWR

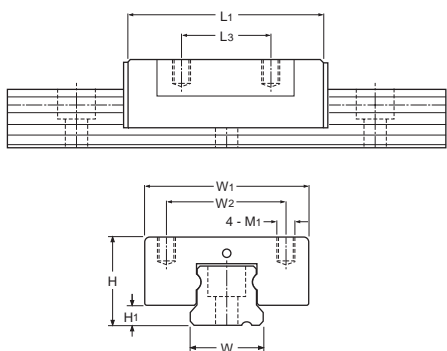
Wide rails



Designations	Dimensions						Max. length
	W	W ₅	F	d ₂	d ₃	h	
	mm						mm
LLMWR 9	18	0	30	6	3.5	4.5	1000
LLMWR 12	24	0	40	8	4.5	4.5	1000
LLMWR 15	42	23	40	8	4.5	4.5	1000

LLMHC ..TA R

Standard carriages



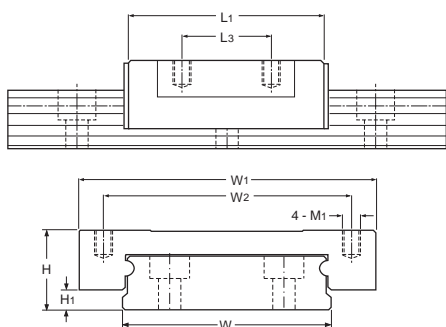
Designations	Dimensions								Load-carrying capacities	
	W	W ₁	W ₂	H	L ₁	L ₃	M ₁	H ₁	C	C ₀
	mm								N	
LLMHC 7 TA R	7	17	12	8	22	8	M2×2.5	1.5	860	1670
LLMHC 9 TA R	9	20	15	10	30	10	M3×3	2	1850	3130
LLMHC 12 TA R	12	27	20	13	33	15	M3×3.5	3	2550	4000
LLMHC 15 TA R	15	32	25	16	41.5	20	M3×4	4	2880	5390

2 Guiding systems

Miniature profile rail guides / Precision rail guides

LLMWC ..TA R

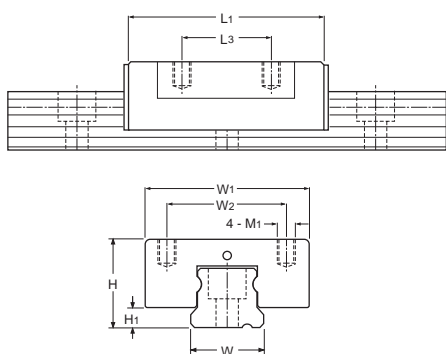
Carriages for wide rails



Designations	Dimensions								Load-carrying capacities	
	W	W ₁	W ₂	H	L ₁	L ₃	M ₁	H ₁	C	C ₀
	mm								N	
LLMWC 9 TA R	18	30	21	12	36.5	12	M3×3	2	1785	3330
LLMWC 12 TA R	24	40	28	14	42.5	15	M3×3.5	3	3300	5780
LLMWC 15 TA R	42	60	45	16	51.2	20	M4×4.5	4	3890	7060

LLMHC ..LA R

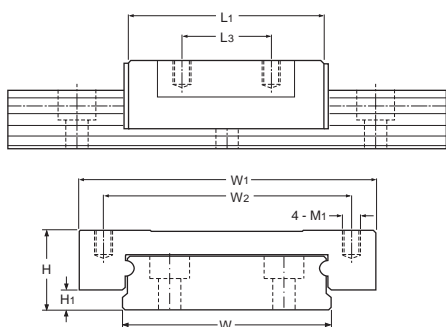
Standard carriages



Designations	Dimensions								Load-carrying capacities	
	W	W ₁	W ₂	H	L ₁	L ₃	M ₁	H ₁	C	C ₀
	mm								N	
LLMHC 7 LA R	7	17	12	8	29.5	12	M2×2.5	1.5	1400	2700
LLMHC 9 LA R	9	20	15	10	38.5	15	M3×3	2	2295	4270
LLMHC 12 LA R	12	27	20	13	45	20	M3×3.5	3	3470	6225
LLMHC 15 LA R	15	32	25	16	57.5	25	M3×4	4	4670	8720

LLMWC ..LA R

Long carriages for wide rails



Designations	Dimensions								Load-carrying capacities	
	W	W ₁	W ₂	H	L ₁	L ₃	M ₁	H ₁	C	C ₀
	mm								N	
LLMWC 9 LA R	18	30	23	12	48.5	24	M3×3	2	2640	4900
LLMWC 12 LA R	24	40	28	14	56	28	M3×3.5	3	4150	8000
LLMWC 15 LA R	42	60	45	16	70.5	35	M4×4.5	4	5830	10600

Precision rail guides

Modular range rail guides

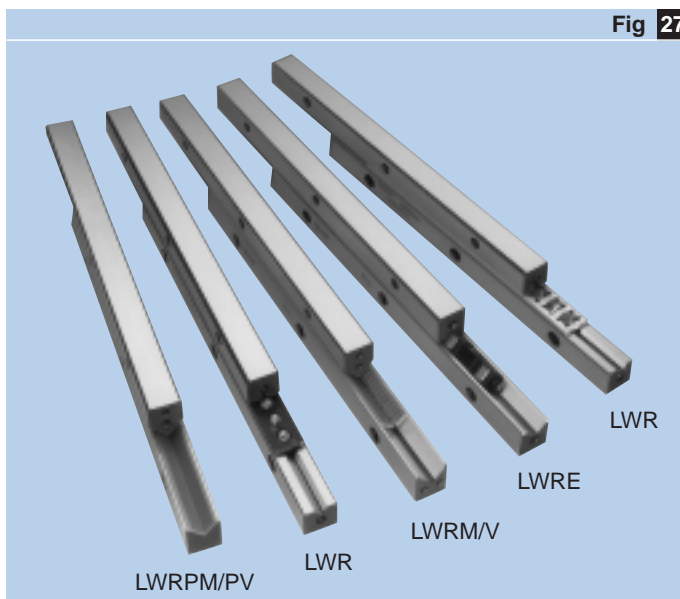
The modular range (→ fig 27) consists of a matrix range of rail guide modules which enable an individual choice of combinations of rails and rolling element assemblies. Different requirements for the guides do not call for changes in the design or mechanical environment. Selection of the right rail guide is made depending on the mechanical conditions of the application in question.

The operating requirements are covered by five different models which may be defined as rail guides with:

- crossed roller cage assemblies of the standard LWR series
- ball cage assemblies of the LWR series
- crossed roller cage assemblies of the optimised LWRE series
- needle roller cage assemblies of the LWRM/LWRV series
- slideway liners of the LWRPM/LWRPV series.

Precision rail guides are suitable for applications with limited strokes requiring high stiffness and positioning accuracy.

The modular range series of rails makes it possible to select internal design and/or rolling assemblies to suit application requirements without changing the envelope dimensions of the rails.



Anti-creeping systems (ACS systems)

The ACS system prevents cage creeping (→ fig 28). It is available for any product from the LWRE range.

The modular rail range, which is completely interchangeable, is given in Table 20. This range is suitable for applications with limited strokes requiring high stiffness and positioning accuracy.

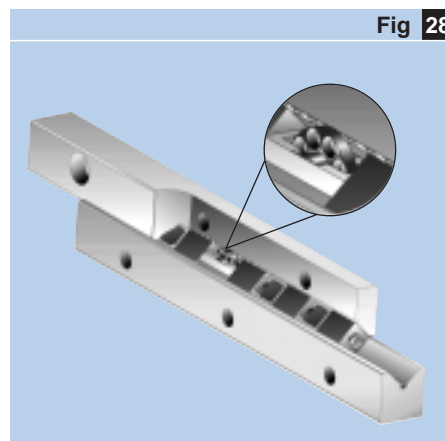


Table 20

Modular range: interchangeable rail programme	Basic load rating	Speed	Noise	Stiffness	Precision
Crossed rollers LWR	<div style="width: 25%; background-color: #4F81BD;"></div>	<div style="width: 75%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>
Crossed rollers LWRE	<div style="width: 75%; background-color: #4F81BD;"></div>	<div style="width: 75%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>	<div style="width: 75%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>
Needle rollers	<div style="width: 100%; background-color: #4F81BD;"></div>	<div style="width: 50%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>	<div style="width: 100%; background-color: #4F81BD;"></div>	<div style="width: 75%; background-color: #4F81BD;"></div>
Sliding liners	<div style="width: 10%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>	<div style="width: 10%; background-color: #4F81BD;"></div>	<div style="width: 75%; background-color: #4F81BD;"></div>	<div style="width: 25%; background-color: #4F81BD;"></div>

2 Guiding systems

Precision rail guides

Ordering key

Type

Designation type:

Rail guide (modular range) (sizes: 1/2/3/6/9/12/15/18/24)	R
Plastic ball-retaining cage (sizes: 1/2/3/6/9/12)	JK
Brass ball cage (sizes: 1/2/3/6/9/12/15/18/24)	JJ
Crossed rollers in plastic cage (sizes: 1/2/3)	AK
Crossed rollers in aluminium cage (sizes: 6/9/12)	AL
Crossed rollers in brass cage (sizes: 3/6/9/12/15/18/24)	DD
Crossed rollers in steel cage (sizes: 3/15)	AA
End piece for low load and horizontal mounting (sizes: 1/2/3/6/9/12/15/18/24)	ERA
End piece for high load and vertical mounting (sizes: 1/2/3/6/9/12/15/18/24)	ERB
End piece with a felt wiper with a sealing lip (sizes: 3/6/9/12/15/18/24)	ERC
Special attachment screw (sizes: 3/4/6/9/12/15/18/24)	GD

Rail guide (modular range) (sizes old designation: 3/4/6/9)	RE*
Rail guide (modular range) (sizes new designation: 1808/2211/2512/3115/4422)	RE*
Flexible crossed roller plastic cages (sizes: 3/4/6/9/221)	AKE
End piece for general use (sizes: 3/4/6/9/2211)	ERE
End piece with plastic wiper (sizes: 4/6/9)	EREC
Special attachment screw (sizes: 3/4/6/9/2211)	GD

Rail guide for needle roller assemblies (modular range) (sizes: 6/9)	RM
Rail guide for needle roller assemblies (modular range) (sizes: 6/9)	RV
Needle rollers in plastic cage (sizes: 6/9)	HV
Needle rollers in aluminium cage (sizes: 6/9)	HW
End piece for general use (sizes: 6/9)	ERM
End piece for general use (sizes: 6/9)	ERV
End piece with plastic wiper for general use (sizes: 6/9)	EARM
End piece with plastic wiper for general use (sizes: 6/9)	EARV
Special attachment screw (sizes: 6/9)	GD

Size**:

Specific values are reported on designation type

Length rail guide [mm]:

For R	20-1000
For RE*	50-1000
For RM	100-1000
For RV	100-1000

Option:

For R { for size 3/6/9	KIT
For RE { for size 3/4/6/9	KIT
anti-creeping system	ACS
for size 3/4/6/9	ACS-KIT

Designation		Length	
New	Old	A	B
RE 1808	RE 3	18	08
RE 2211	—	22	11
RE 2512	RE 4	25	12
RE 3115	RE 6	31	15
RE 4422	RE 9	44	22

** Sizes 3 (1808), 2211; 4 (2512); 6 (3115) = 3 digits for length of rail; example: . . . 050
 100

 Size 9 (4422) = 4 digits for length of rail; example: . . . 0050
 0100

 1000

Continued

Example 1, rail guide: **LW** **RE** **6** **350** **ACS**

Example 2, cage: **LW** **AKE** **6** **350**

Example 3, end piece: **LW** **ERE** **6** × **24**

Example 4, screws: **LW** **GD** **6**

Ordering key (Continued)



Type

Designation type:

Rail guide with dry sliding liner (modular range) (sizes: 3/6/9)	RPM
Rail guide with dry sliding liner (modular range) (sizes: 3/6/9)	RPV
Special attachment screw (sizes: 3/6/9)	GD
Rail guide (sizes: 3015/4020/5025/6030/7040/8050)	M
Rail guide (sizes: 3015/4020/5025/6030/7040/8050)	V
Needle rollers in plastic cage (sizes: 10/15/20/25/30)	HV
Needle rollers in aluminium cage (sizes: 10/15/20/25/30)	HW
End piece for general use (sizes: 3015/4020/5025/6030/7040/8050)	EM
End piece for general use (sizes: 3015/4020/5025/6030/7040/8050)	EV
End piece with wiper for general use (sizes: 3015/4020/5025/6030/7040/8050)	EAM
End piece with wiper for general use (sizes: 3015/4020/5025/6030/7040/8050) DIN 84	EAV
Attachment screw (sizes: M3/M5/M6)	EAV
Rail guide (sizes: 2025/2535/3045/3555)	N
Rail guide (sizes: 2025/2535/3045/3555)	O
Needle rollers in plastic cage (sizes: 15/20/25/30)	HV
Needle rollers in aluminium cage (sizes: 15/20/25/30)	HW
End piece for general use (sizes: 2025/2535/3045/3555)	EN
End piece for general use (sizes: 2025/2535/3045/3555)	EV
End piece with wiper for general use (sizes: 2025/2535/3045/3555)	EAN
End piece with wiper for general use (sizes: 2025/2535/3045/3555)	EAV
Special attachment screw (sizes: 2025/2535/3045/3555)	GD
Rail guide (sizes: non standard)	ML
Rail guide (sizes: 412/612/624/1024/1434)	F
Rail guide (sizes: 412/612/624/1024/1434)	G

Size:**

Specific values are reported on designation type

Length rail guide [mm]:

For RPM	50-1000
For RPV	50-1000
For M	100-1000
For V	100-1000
For N	200-500
For O	200-500
For F	200-600
For G	200-600

Option:

No option with these designations

** Size 3015 3 digits for length of rail;
 example: . . . 3015100
 3015150

 bigger sizes 4 digits for length of rail!;
 example: . . . 25350100

2 Guiding systems Precision rail guides

LWR ..

LWR rail guides are well-proven, limited-travel, linear guides used in numerous applications. They consist of two identical rails between which crossed roller assemblies or ball assemblies are inserted, depending on the application.

LWR rail guides with crossed roller assembly are robust linear bearings with high load-carrying capacity. Their

special characteristics make them suitable for a large proportion of linear bearing arrangements with limited travel.

LWR rail guides with ball assembly can be used to advantage where loads are light and easy running is required.

Rails longer than 1200 mm are supplied in sections.

Each part of an LWR rail guide system must be ordered separately, because of the large number of possible

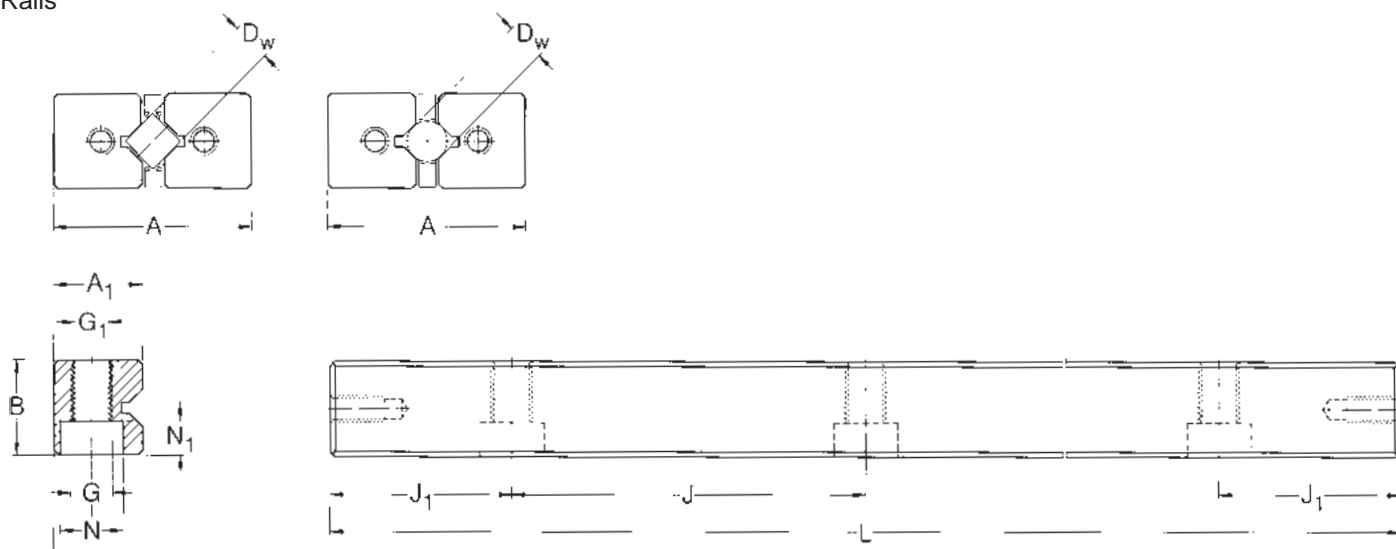
combinations of

- 4 rails LWR
- 2 crossed roller cage assemblies LWAL
- 8 end pieces LWERB.

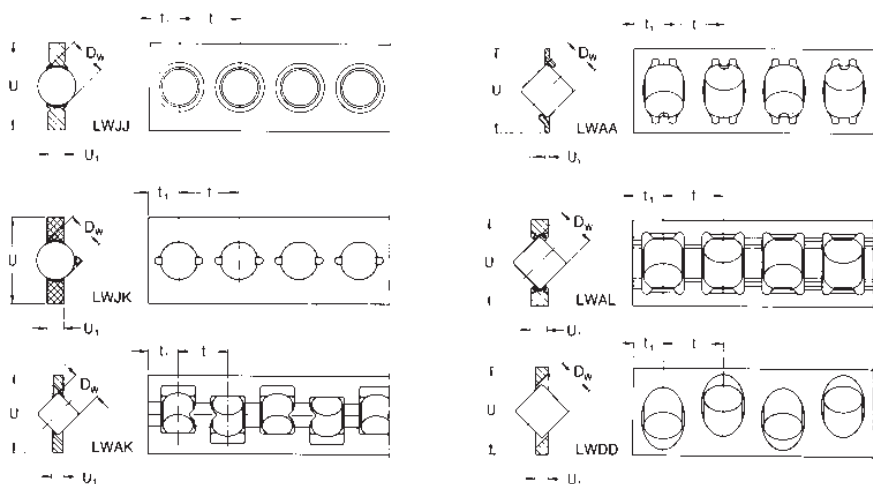
LWR .. KIT

The KIT package for the modular range is a unique service provided only by SKF.

Rails



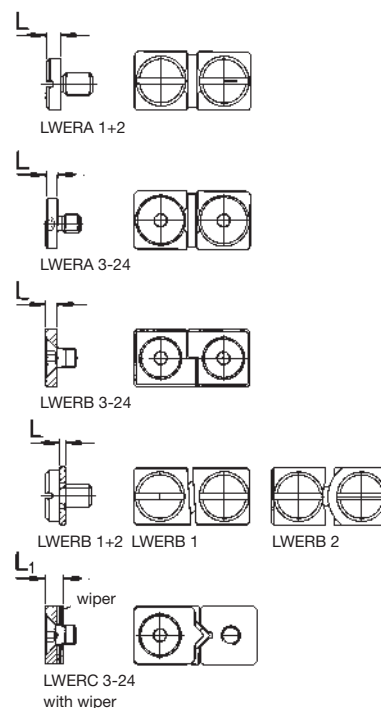
Ball and crossed roller assemblies



Special attachment screw



End pieces



LWR 3/6/9 .. KIT

4 rail guides LWR
2 crossed roller cage assemblies
LWAL/LWAK
8 end pieces LWERA

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀	min.	max.		
	N		mm			
LWR 3050 KIT	999	1120	26	33	LWR 3050	LWAK 3×7
LWR 3075 KIT	1422	1760	36	50	LWR 3075	LWAK 3×11
LWR 3100 KIT	1811	2400	46	67	LWR 3100	LWAK 3×15
LWR 3125 KIT	2088	2880	66	83	LWR 3125	LWAK 3×18
LWR 3150 KIT	2442	3520	76	100	LWR 3150	LWAK 3×22
LWR 3175 KIT	2781	4160	86	117	LWR 3175	LWAK 3×26
LWR 3200 KIT	3110	4800	96	133	LWR 3200	LWAK 3×30

* Load ratings for 10 rolling elements
Including 8 end stops LWERA 3

See page 76 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀	min.	max.		
	N		mm			
LWR 6100 KIT	4915	5440	50	67	LWR 6100	LWAL 6×8
LWR 6150 KIT	6744	8160	78	100	LWR 6150	LWAL 6×12
LWR 6200 KIT	8441	10880	106	133	LWR 6200	LWAL 6×16
LWR 6250 KIT	10045	13600	134	167	LWR 6250	LWAL 6×20
LWR 6300 KIT	11955	17000	144	200	LWR 6300	LWAL 6×25
LWR 6350 KIT	13422	19720	172	233	LWR 6350	LWAL 6×29
LWR 6400 KIT	14846	22440	200	267	LWR 6400	LWAL 6×33
LWR 6450 KIT	16231	25160	228	300	LWR 6450	LWAL 6×37
LWR 6500 KIT	17537	27880	256	333	LWR 6500	LWAL 6×41

* Load ratings for 10 rolling elements
Including 8 end stops LWERA 6

See page 76 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀	min.	max.		
	N		mm			
LWR 90200 KIT	17000	18300	110	133	LWR 90200	LWAL 9×10
LWR 90300 KIT	24528	29280	142	200	LWR 90300	LWAL 9×16
LWR 90400 KIT	30324	38430	202	267	LWR 90400	LWAL 9×21
LWR 90500 KIT	35820	47580	262	333	LWR 90500	LWAL 9×26

* Load ratings for 10 rolling elements
Including 8 end stops LWERA 3

See page 76 for drawing

2 Guiding systems

Precision rail guides

LWR 1

Designations	Dimensions															Load ratings*	
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	U	U ₁	t	C	C ₀
	mm															N	
Rails																	
LWR 1020	8.5	4	20		10	5	M2	1.7	3	1.4	3.9						
LWR 1030	8.5	4	30		10	5	M2	1.7	3	1.4	3.9						
LWR 1040	8.5	4	40		10	5	M2	1.7	3	1.4	3.9						
LWR 1050	8.5	4	50		10	5	M2	1.7	3	1.4	3.9						
LWR 1060	8.5	4	60		10	5	M2	1.7	3	1.4	3.9						
Roller assemblies																	
LWAK 1												1.5	3.75	0.5	3	365	585
LWJK 1												1.5	3.5	0.5	2.2	305	170
End pieces																	
LWERB 1				0.5	–												
LWERA 1				1	–												

* Load ratings for 10 rolling elements

See page 76
for drawing

LWR 2

Designations	Dimensions															Load ratings*	
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	U	U ₁	t	C	C ₀
	mm															N	
Rails																	
LWR 2030	12	6	30		15	7.5	M3	2.6	4.4	2	5.5						
LWR 2045	12	6	45		15	7.5	M3	2.6	4.4	2	5.5						
LWR 2060	12	6	60		15	7.5	M3	2.6	4.4	2	5.5						
LWR 2075	12	6	75		15	7.5	M3	2.6	4.4	2	5.5						
LWR 2090	12	6	90		15	7.5	M3	2.6	4.4	2	5.5						
LWR 2105	12	6	105		15	7.5	M3	2.6	4.4	2	5.5						
LWR 2120	12	6	120		15	7.5	M3	2.6	4.4	2	5.5						
Roller assemblies																	
LWAK 2												2	5.5	0.7	4	540	680
LWJK 2												2	5	0.7	3.9	570	300
End pieces																	
LWERB 2				0.5	–												
LWERA 2				1.5	–												

* Load ratings for 10 rolling elements

See page 76
for drawing

LWR 3

Designations	Dimensions														Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	U	U ₁	t	C	C ₀	
	mm														N			
Rails																		
LWR 3050	18	8	50	25	13	M4	3.3	6	3.2	8.2								
LWR 3075	18	8	75	25	13	M4	3.3	6	3.2	8.2								
LWR 3100	18	8	100	25	13	M4	3.3	6	3.2	8.2								
LWR 3125	18	8	125	25	13	M4	3.3	6	3.2	8.2								
LWR 3150	18	8	150	25	13	M4	3.3	6	3.2	8.2								
LWR 3175	18	8	175	25	13	M4	3.3	6	3.2	8.2								
LWR 3200	18	8	200	25	13	M4	3.3	6	3.2	8.2								
LWR 3250	18	8	250	25	13	M4	3.3	6	3.2	8.2								
LWR 3300	18	8	300	25	13	M4	3.3	6	3.2	8.2								
Roller assemblies																		
LWAK 3												3	7.5	1	5	1320	1600	
LWJK 3												3	7	1	4.2	1340	680	
LWAA 3												3	7	0.5	5	1320	1600	
End pieces																		
LWERA 3			2.5	–														
LWERB 3			2	–														
LWERC 3			2	5														
Special attachment screw																		
LWGD 3																		
* Load ratings for 10 rolling elements																		

See page 76
for drawing

LWR 6

Designations	Dimensions														Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	U	U ₁	t	C	C ₀	
	mm														N			
Rails																		
LWR 6100	31	15	100	50	25	M6	5.2	9.5	5.2	14								
LWR 6150	31	15	150	50	25	M6	5.2	9.5	5.2	14								
LWR 6200	31	15	200	50	25	M6	5.2	9.5	5.2	14								
LWR 6250	31	15	250	50	25	M6	5.2	9.5	5.2	14								
LWR 6300	31	15	300	50	25	M6	5.2	9.5	5.2	14								
LWR 6350	31	15	350	50	25	M6	5.2	9.5	5.2	14								
LWR 6400	31	15	400	50	25	M6	5.2	9.5	5.2	14								
LWR 6450	31	15	450	50	25	M6	5.2	9.5	5.2	14								
LWR 6500	31	15	500	50	25	M6	5.2	9.5	5.2	14								
Roller assemblies																		
LWAL 6												6	14.8	2.7	9	5850	6800	
LWJK 6												6	14	2.5	9	5850	2700	
End pieces																		
LWERA 6			3	–														
LWERB 6			3	–														
LWERC 6			3	6														
Special attachment screw																		
LWGD 6																		
* Load ratings for 10 rolling elements																		

See page 76
for drawing

2 Guiding systems

Precision rail guides

LWR 9

Designations	Dimensions														Load ratings*		
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	U	U ₁	t	C	C ₀
	mm														N		
Rails																	
LWR 90200	44	22	200	100	50	M8	6.8	11	6.2	20							
LWR 90300	44	22	300	100	50	M8	6.8	11	6.2	20							
LWR 90400	44	22	400	100	50	M8	6.8	11	6.2	20							
LWR 90500	44	22	500	100	50	M8	6.8	11	6.2	20							
LWR 90600	44	22	600	100	50	M8	6.8	11	6.2	20							
LWR 90700	44	22	700	100	50	M8	6.8	11	6.2	20							
Roller assemblies																	
LWAL 9												9	20	4	14	17000	18300
LWJK 9												9	20	3.5	14	14000	6100
End pieces																	
LWERA 9			4	—													
LWERB 9			4	—													
LWERC 9			4	7													
Special attachment screw																	
LWGD 9																	
* Load ratings for 10 rolling elements																	

See page 76
for drawing

LWR 12

Designations	Dimensions														Load ratings*		
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	U	U ₁	t	C	C ₀
	mm														N		
Rails																	
LWR 120300	58	28	300	100	50	M10	8.5	14	8.2	26							
LWR 120400	58	28	400	100	50	M10	8.5	14	8.2	26							
LWR 120500	58	28	500	100	50	M10	8.5	14	8.2	26							
LWR 120600	58	28	600	100	50	M10	8.5	14	8.2	26							
Roller assemblies																	
LWAL 12												12	25	5	18	30000	30500
LWJK 12												12	20	4	15.5	25000	10800
End pieces																	
LWERA 12			5	—													
LWERB 12			5	—													
LWERC 12			5	8													
Special attachment screw																	
LWGD 12																	
* Load ratings for 10 rolling elements																	

See page 76
for drawing

LWRE ..

LWRE rail guides are a logical development of the proven LWR rail guides.

Within the modular range system the LWRE rail guides offer an outstanding price/performance ratio.

Alongside the familiar characteristics of the LWR series, the new LWRE rail guides offer the advantages of a fivefold increase in load-carrying capacity and a doubling of the stiffness, achieved through optimised internal geometry in conjunction with larger roller diameters.

LWRE rail guides offer a greatly increased safety margin, thus a very

much smaller LWRE rail guide can be used in a given design space, maintaining the same load-carrying capacity as the LWR.

The mounting and attachment dimensions of the LWRE 3, 6, 9 rail guides conform to those of all SKF modular range rail guides presented in this catalogue.

It is recommended to make rail guides longer than 1200 mm up of sections.

LWRE rail guides are optimised with large rollers and improved internal geometry providing high load-carrying capacity and stiffness. They are available with ACS.

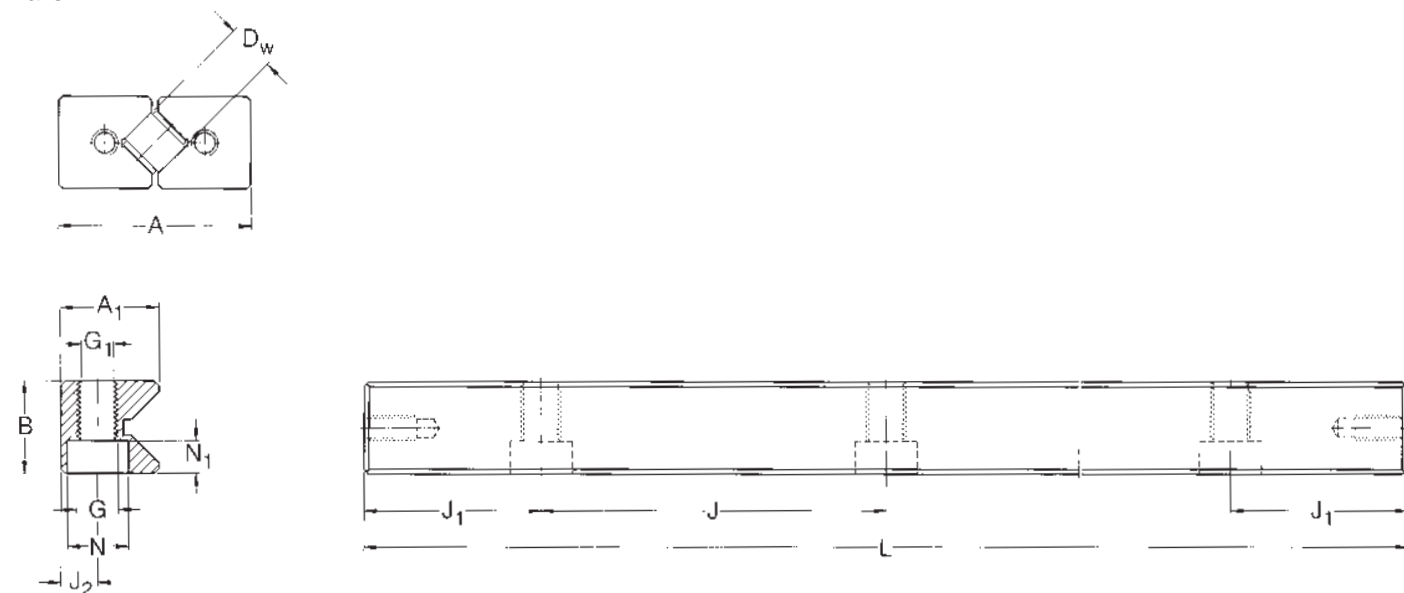
Each part of a LWRE rail guide system must be ordered separately, because of the large number of possible combinations of:

- 4 rail guides LWRE
- 2 crossed roller assemblies LWAKE
- 8 end pieces LWERE

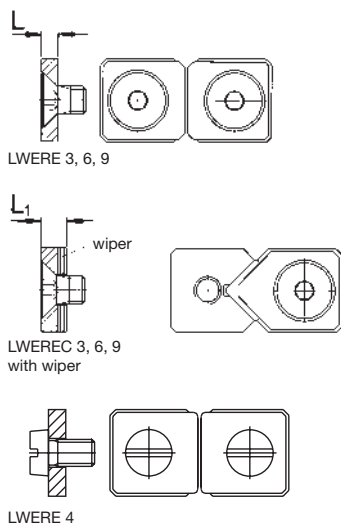
LWRE .. KIT

The KIT package for the modular range is a unique service provided only by SKF.

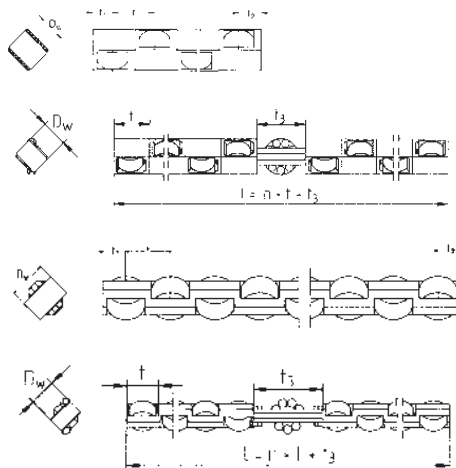
Rails



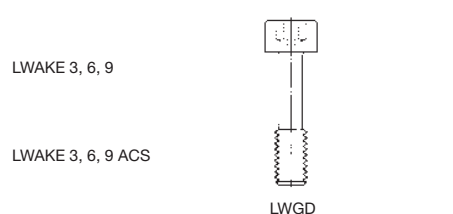
End pieces



Crossed roller assemblies



Special attachment screw



2 Guiding systems

Precision rail guides

LWRE 3/4/6/9 .. KIT

4 rail guides LWRE
2 crossed roller assemblies LWAKE
8 end pieces LWERE

See page 81 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 3050 KIT	4230	5100	25	33	LWRE 3050	LWAKE 3×6
LWRE 3075 KIT	5803	7650	38	50	LWRE 3075	LWAKE 3×9
LWRE 3100 KIT	7263	10200	50	67	LWRE 3100	LWAKE 3×12
LWRE 3125 KIT	8644	12750	63	83	LWRE 3125	LWAKE 3×15
LWRE 3150 KIT	9964	15300	75	100	LWRE 3150	LWAKE 3×18
LWRE 3175 KIT	11238	17850	88	117	LWRE 3175	LWAKE 3×21
LWRE 3200 KIT	12471	20400	100	133	LWRE 3200	LWAKE 3×24

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 3

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 4100 KIT	17300	20800	39	67	LWRE 4100	LWAKE 4×10
LWRE 4150 KIT	23735	31200	62	100	LWRE 4150	LWAKE 4×15
LWRE 4200 KIT	28541	39520	95	133	LWRE 4200	LWAKE 4×19
LWRE 4250 KIT	34246	49920	118	167	LWRE 4250	LWAKE 4×24
LWRE 4300 KIT	38622	58240	152	200	LWRE 4300	LWAKE 4×28
LWRE 4350 KIT	43902	68640	169	233	LWRE 4350	LWAKE 4×33
LWRE 4400 KIT	49009	79040	192	267	LWRE 4400	LWAKE 4×38

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 4

See page 81 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 6100 KIT	25743	27300	46	67	LWRE 6100	LWAKE 6×7
LWRE 6150 KIT	34000	39000	80	100	LWRE 6150	LWAKE 6×10
LWRE 6200 KIT	44204	54600	92	133	LWRE 6200	LWAKE 6×14
LWRE 6250 KIT	51431	66300	126	167	LWRE 6250	LWAKE 6×17
LWRE 6300 KIT	58382	78000	160	200	LWRE 6300	LWAKE 6×20
LWRE 6350 KIT	67304	93600	172	233	LWRE 6350	LWAKE 6×24
LWRE 6400 KIT	73781	105300	208	267	LWRE 6400	LWAKE 6×27

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 6

See page 81 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 90200 KIT	78000	78000	80	133	LWRE 90200	LWAKE 9×10
LWRE 90300 KIT	112540	124800	88	200	LWRE 90300	LWAKE 9×16
LWRE 90400 KIT	139132	163800	128	267	LWRE 90400	LWAKE 9×21

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 9

See page 81 for drawing

LWRE 3/4/6/9 .. ACS - KIT

4 rail guides LWRE ACS
2 crossed roller assemblies LWAKE
8 end pieces LWERE

See page 81 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 3050 ACS-KIT	4230	5100	20	33	LWRE 3050 ACS	LWAKE 3×6 ACS-C
LWRE 3075 ACS-KIT	5294	6800	30	50	LWRE 3075 ACS	LWAKE 3×6 ACS
LWRE 3100 ACS-KIT	6300	8500	45	67	LWRE 3100 ACS	LWAKE 3×10 ACS
LWRE 3125 ACS-KIT	7731	11050	62	83	LWRE 3125 ACS	LWAKE 3×13 ACS
LWRE 3150 ACS-KIT	9090	13600	79	100	LWRE 3150 ACS	LWAKE 3×16 ACS
LWRE 3175 ACS-KIT	9964	15300	94	117	LWRE 3175 ACS	LWAKE 3×18 ACS
LWRE 3200 ACS-KIT	11653	18700	100	133	LWRE 3200 ACS	LWAKE 3×22 ACS

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 3

2

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 4100 ACS-KIT	14536	16640	40	67	LWRE 4100 ACS	LWAKE 4×8 ACS
LWRE 4150 ACS-KIT	19944	24960	79	100	LWRE 4150 ACS	LWAKE 4×12 ACS
LWRE 4200 ACS-KIT	26170	35360	96	133	LWRE 4200 ACS	LWAKE 4×17 ACS
LWRE 4250 ACS-KIT	30859	43680	129	167	LWRE 4250 ACS	LWAKE 4×21 ACS
LWRE 4300 ACS-KIT	36452	54080	152	200	LWRE 4300 ACS	LWAKE 4×26 ACS
LWRE 4350 ACS-KIT	41813	64480	175	233	LWRE 4350 ACS	LWAKE 4×31 ACS
LWRE 4400 ACS-KIT	45964	72800	203	267	LWRE 4400 ACS	LWAKE 4×35 ACS

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 4

See page 81 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 6100 ACS-KIT	22826	23400	37	67	LWRE 6100 ACS	LWAKE 6×6 ACS
LWRE 6150 ACS-KIT	31318	35100	71	100	LWRE 6150 ACS	LWAKE 6×9 ACS
LWRE 6200 ACS-KIT	39196	46800	105	133	LWRE 6200 ACS	LWAKE 6×12 ACS
LWRE 6250 ACS-KIT	49056	62400	117	167	LWRE 6250 ACS	LWAKE 6×16 ACS
LWRE 6300 ACS-KIT	56093	74100	151	200	LWRE 6300 ACS	LWAKE 6×19 ACS
LWRE 6350 ACS-KIT	65107	89700	163	233	LWRE 6350 ACS	LWAKE 6×23 ACS
LWRE 6400 ACS-KIT	71640	101400	197	267	LWRE 6400 ACS	LWAKE 6×36 ACS

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 6

See page 81 for drawing

Designations	Load ratings*		Stroke		Rail designations	Cage designations
	dynamic	static	min.	max.		
	C	C ₀				
	N		mm			
LWRE 90200 ACS-KIT	65540	62400	100	133	LWRE 90200 ACS	LWAKE 6×8 ACS
LWRE 90300 ACS-KIT	95713	101400	140	200	LWRE 90300 ACS	LWAKE 6×13 ACS
LWRE 90400 ACS-KIT	123369	140400	180	267	LWRE 90400 ACS	LWAKE 6×18 ACS

* Load ratings for 10 rolling elements
Including 8 end stops LWERE 9

See page 81 for drawing

2 Guiding systems

Precision rail guides

LWRE 3

Designations	Dimensions												Load ratings*				
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	C	C ₀		
	mm												N				
Rails																	
LWRE 3050	18	8	50	25	13	M4	3.3	6	3.2	8.7							
LWRE 3075	18	8	75	25	13	M4	3.3	6	3.2	8.7							
LWRE 3100	18	8	100	25	13	M4	3.3	6	3.2	8.7							
LWRE 3125	18	8	125	25	13	M4	3.3	6	3.2	8.7							
LWRE 3150	18	8	150	25	13	M4	3.3	6	3.2	8.7							
LWRE 3175	18	8	175	25	13	M4	3.3	6	3.2	8.7							
LWRE 3200	18	8	200	25	13	M4	3.3	6	3.2	8.7							
Crossed roller assemblies																	
LWAKE 3												4	6.25	6300	8500		
End pieces																	
LWERE 3			2	–													
LWEREC 3			–	4													
Special attachment screw																	
LWGD 3																	

* Load ratings for 10 rolling elements

See page 81
for drawing

LWRE 2211

Designations	Dimensions													Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	t ₁	t ₂	C	C ₀
	mm													N			
Rails																	
LWRE 22110080	22	11	80	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110120	22	11	120	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110160	22	11	160	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110200	22	11	200	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110240	22	11	240	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110280	22	11	280	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110320	22	11	320	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110360	22	11	360	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
LWRE 22110400	22	11	400	40	20	M5	4.3	7.5	4.1	11	4	6.25	2.65	3.6	6300	8500	
Crossed roller assemblies																	
LWAKE 3												4	6.25		6300	8500	
End pieces																	
LWERE 3			2	–													
LWEREC 3			–	4													

* Load ratings for 10 rolling elements

See page 81
for drawing

LWRE 4

Designations	Dimensions												Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	C	C ₀	
	mm												N			
Rails																
LWRE 4100	25	12	100	25	13	M4	3.3	6	3.2	12						
LWRE 4150	25	12	150	25	13	M4	3.3	6	3.2	12						
LWRE 4200	25	12	200	25	13	M4	3.3	6	3.2	12						
LWRE 4250	25	12	250	25	13	M4	3.3	6	3.2	12						
LWRE 4300	25	12	300	25	13	M4	3.3	6	3.2	12						
LWRE 4400	25	12	400	25	13	M4	3.3	6	3.2	12						
Crossed roller assemblies																
LWAKE 4												6.5	8	17300	20800	
End pieces																
LWERE 4			4													
Special attachment screw																
LWGD 4																
* Load ratings for 10 rolling elements																

See page 81
for drawing

LWRE 6

Designations	Dimensions												Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	C	C ₀	
	mm												N			
Rails																
LWRE 6100	31	15	100	50	25	M6	5.2	9.5	5.2	15						
LWRE 6150	31	15	150	50	25	M6	5.2	9.5	5.2	15						
LWRE 6200	31	15	200	50	25	M6	5.2	9.5	5.2	15						
LWRE 6250	31	15	250	50	25	M6	5.2	9.5	5.2	15						
LWRE 6300	31	15	300	50	25	M6	5.2	9.5	5.2	15						
LWRE 6400	31	15	400	50	25	M6	5.2	9.5	5.2	15						
Crossed roller assemblies																
LWAKE 6												8	11	34000	39000	
End pieces																
LWERE 6			3													
LWEREC 6					5											
Special attachment screw																
LWGD 6																
* Load ratings for 10 rolling elements																

See page 81
for drawing

2 Guiding systems

Precision rail guides

LWRE 9

Designations	Dimensions													Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	C	C ₀		
	mm													N			
Rails																	
LWRE 90200	44	22	200	100	50	M8	6.8	11	6.2	22							
LWRE 90300	44	22	300	100	50	M8	6.8	11	6.2	22							
LWRE 90400	44	22	400	100	50	M8	6.8	11	6.2	22							
LWRE 90500	44	22	500	100	50	M8	6.8	11	6.2	22							
LWRE 90600	44	22	600	100	50	M8	6.8	11	6.2	22							
LWRE 90700	44	22	700	100	50	M8	6.8	11	6.2	22							
Crossed roller assemblies																	
LWAKE 9												12	16	78000	78000		
End pieces																	
LWERE 9			3	–													
LWEREC 9			–	6													
Special attachment screw																	
LWGD 9																	

* Load rating for 10 rolling elements

See page 81
for drawing

LWRE 3 ACS

Designations	Dimensions													Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	t ₃	C	C ₀	
	mm													N			
Rails																	
LWRE 3050 ACS	18	8	50	25	13	M4	3.3	6	3.2	8.7				9			
LWRE 3075 ACS	18	8	75	25	13	M4	3.3	6	3.2	8.7				9			
LWRE 3100 ACS	18	8	100	25	13	M4	3.3	6	3.2	8.7				9			
LWRE 3125 ACS	18	8	125	25	13	M4	3.3	6	3.2	8.7				9			
LWRE 3150 ACS	18	8	150	25	13	M4	3.3	6	3.2	8.7				9			
LWRE 3175 ACS	18	8	175	25	13	M4	3.3	6	3.2	8.7				9			
LWRE 3200 ACS	18	8	200	25	13	M4	3.3	6	3.2	8.7				9			
Crossed roller assemblies																	
LWAKE 3 ACS												4	6.25	6300	8500		
End pieces																	
LWERE 3			2	–													
LWEREC 3			–	4													
Special attachment screw																	
LWGD 3																	

* Load rating for 10 rolling elements

See page 81
for drawing

LWRE 2211 ACS

Designations	Dimensions													Load ratings* dynamic static		
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	t ₃	C	C ₀
	mm													N		
Rails																
LWRE 22110080 ACS	22	11	80	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110120 ACS	22	11	120	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110160 ACS	22	11	160	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110200 ACS	22	11	200	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110240 ACS	22	11	240	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110280 ACS	22	11	280	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110320 ACS	22	11	320	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110360 ACS	22	11	360	40	20	M5	4.3	7.5	4.1	11				9		
LWRE 22110400 ACS	22	11	400	40	20	M5	4.3	7.5	4.1	11				9		
Crossed roller assemblies																
LWAKE 3 ACS												4	6.25		6300	8500
End pieces																
LWERE 3. LWEREC 3																
* Load ratings for 10 rolling elements																

See page 81 for drawing

LWRE 4 ACS

Designations	Dimensions													Load ratings* dynamic static				
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	t ₃	C	C ₀		
	mm													N				
Rails																		
LWRE 4100 ACS	25	12	100	25	13	M4	3.3	6	3.2	12				17				
LWRE 4150 ACS	25	12	150	25	13	M4	3.3	6	3.2	12				17				
LWRE 4200 ACS	25	12	200	25	13	M4	3.3	6	3.2	12				17				
LWRE 4250 ACS	25	12	250	25	13	M4	3.3	6	3.2	12				17				
LWRE 4300 ACS	25	12	300	25	13	M4	3.3	6	3.2	12				17				
LWRE 4350 ACS	25	12	350	25	13	M4	3.3	6	3.2	12				17				
LWRE 4400 ACS	25	12	400	25	13	M4	3.3	6	3.2	12				17				
Crossed roller assemblies																		
LWAKE 4 ACS												6.5	8		17300	20800		
End pieces																		
LWERE 4																		
			4	-														
Special attachment screw																		
LWGD 4																		
* Load ratings for 10 rolling elements																		

See page 81 for drawing

2 Guiding systems

Precision rail guides

LWRE 6 ACS

Designations	Dimensions													Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	t ₃	C	C ₀	
	mm													N			
Rails																	
LWRE 6100 ACS	31	15	100		50	25	M6	5.2	9.5	5.2	15					15.3	
LWRE 6150 ACS	31	15	150		50	25	M6	5.2	9.5	5.2	15					15.3	
LWRE 6200 ACS	31	15	200		50	25	M6	5.2	9.5	5.2	15					15.3	
LWRE 6250 ACS	31	15	250		50	25	M6	5.2	9.5	5.2	15					15.3	
LWRE 6300 ACS	31	15	300		50	25	M6	5.2	9.5	5.2	15					15.3	
LWRE 6400 ACS	31	15	400		50	25	M6	5.2	9.5	5.2	15					15.3	
Crossed roller assemblies																	
LWAKE 6 ACS													8	11		34000	39000
End pieces																	
LWERE 6					3												
LWEREC 6																5	
Special attachment screw																	
LWGD 6																	
* Load ratings for 10 rolling elements																	

See page 81
for drawing

LWRE 9 ACS

Designations	Dimensions													Load ratings*			
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	D _W	t	t ₃	C	C ₀	
	mm													N			
Rails																	
LWRE 90200 ACS	44	22	200		100	50	M8	6.8	11	6.2	22					22	
LWRE 90300 ACS	44	22	300		100	50	M8	6.8	11	6.2	22					22	
LWRE 90400 ACS	44	22	400		100	50	M8	6.8	11	6.2	22					22	
LWRE 90500 ACS	44	22	500		100	50	M8	6.8	11	6.2	22					22	
LWRE 90600 ACS	44	22	600		100	50	M8	6.8	11	6.2	22					22	
LWRE 90700 ACS	44	22	700		100	50	M8	6.8	11	6.2	22					22	
Crossed roller assemblies																	
LWAKE 9 ACS													12	16		78000	78000
End pieces																	
LWERE 9					3												
LWEREC 9																6	
Special attachment screw																	
LWGD 9																	
* Load ratings for 10 rolling elements																	

See page 81
for drawing

LWRM .. / LWRV ..

Guiding systems with high load carrying capacity and maximum stiffness

Needle roller assemblies for LWRM/LWRV rail guides

LWHV needle roller assemblies consisting of a plastic cage with retained needle rollers, are available for rail guides of sizes 6 and 9. The elastic connection between the two cage sections for the two roller rows enables the cage to bend at any angle.

LWHW needle roller assemblies have aluminium cages which provide retention of the needle rollers. They are available for size 9 units.

When ordering, the appropriate cage length in mm must be stated after the cage designation, e. g: LWHV 10 × 225.

End pieces for LWRM/LWRV rail guides.

End pieces serve to restrict the drift of the needle roller assemblies from the loaded zone.

LWERM and LWERV end pieces are suitable for both horizontal and vertical applications.

LWEARM and LWEARV end pieces are fitted with a plastic wiper with a sealing lip serving to reduce the risk of contamination of the raceways.

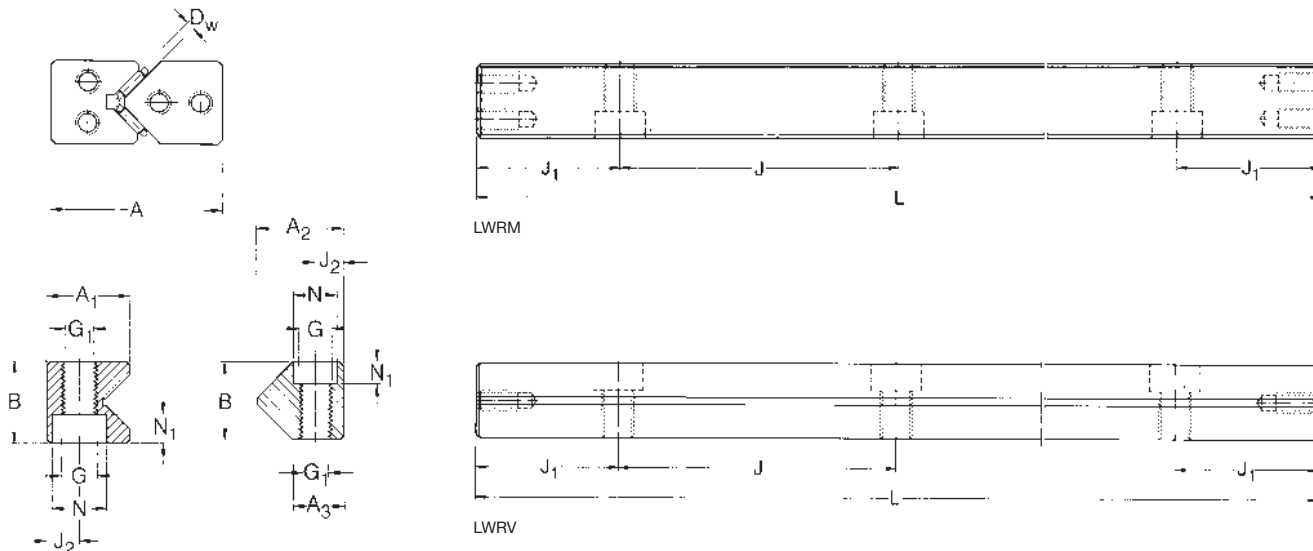
All end pieces are supplied with the necessary attachment screws.

The mounting and attachment dimensions of the LWRM/LWRV rail guides conform to those of the other SKF modular range rail guides included in this catalogue.

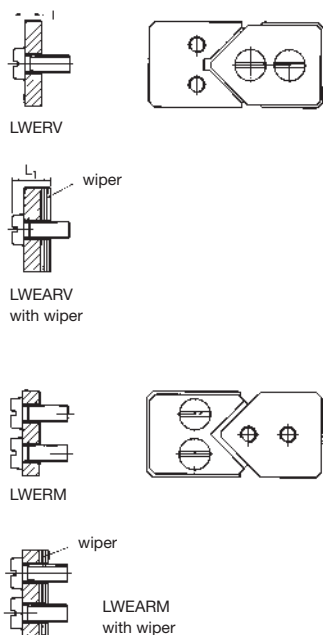
Because of the large number of possible combinations, all components of LWRM/ LWRV rail guides must be ordered separately, e.g.:

- 2 rail guides LWRM
- 2 rail guides LWRV
- 2 needle roller assemblies LWHW
- 2 end pieces LWERM.

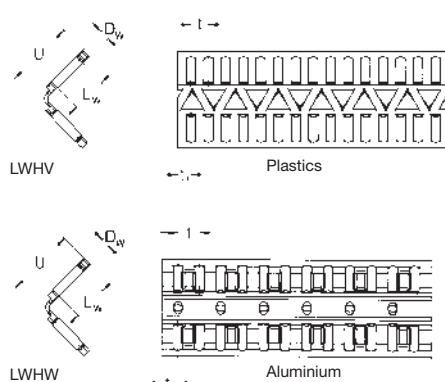
Rails



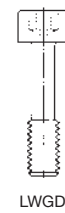
End pieces



Rolling element assemblies



Special attachment screw



2 Guiding systems

Precision rail guides

LWRM 6 / LWRV 6

Designations	Dimensions															Load ratings*						
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀				
	mm															N						
Rails																						
LWRM/LWRV 6100	31	15	100	50	25	M6	5.2	9.5	5.2	17	18	11										
LWRM/LWRV 6150	31	15	150	50	25	M6	5.2	9.5	5.2	17	18	11										
LWRM/LWRV 6200	31	15	200	50	25	M6	5.2	9.5	5.2	17	18	11										
LWRM/LWRV 6250	31	15	250	50	25	M6	5.2	9.5	5.2	17	18	11										
LWRM/LWRV 6300	31	15	300	50	25	M6	5.2	9.5	5.2	17	18	11										
LWRM/LWRV 6400	31	15	400	50	25	M6	5.2	9.5	5.2	17	18	11										
Needle roller assemblies																						
LWHV 10																	2	10	3.75	10400	25500	
End pieces																						
LWERM 6			4																			
LWEARM 6																						6
LWERV 6			4																			
LWEARV 6																						6
Special attachment screw																						
LWGD 6																						

See page 89
for drawing

* For 10 needle rollers per row

LWRM 9 / LWRV 9

Designations	Dimensions															Load ratings*							
	A	B	L	L ₁	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀					
	mm															N							
Rails																							
LWRM/LWRV 90200	44	22	200	100	50	M8	6.8	11	6.2	23.1	27	17											
LWRM/LWRV 90300	44	22	300	100	50	M8	6.8	11	6.2	23.1	27	17											
LWRM/LWRV 90400	44	22	400	100	50	M8	6.8	11	6.2	23.1	27	17											
LWRM/LWRV 90500	44	22	500	100	50	M8	6.8	11	6.2	23.1	27	17											
Needle roller assemblies																							
LWHW 15																		2	15	4.5	16300	4500	
LWHV 15																			2	15	3.75	16300	4500
End pieces																							
LWERM 9			6.3																				
LWEARM 9																						8.3	
LWERV 9			6.3																				
LWEARV 9																						8.3	
Special attachment screw																							
LWGD 9																							

See page 89
for drawing

* For 10 needle rollers per row

LWRPM .. / LWRPV ..

Linear rail guides for limited travel, with slideway liners made of Turcite-B^{®1)}.

This material, based on PTFE, is self-lubricating and possesses excellent sliding properties.

The dry sliding liner is attached to the unhardened LWRPM rail with adhesive, and the surface is then ground.

In order to avoid damage to the sliding surface, the leading edges of the LWRPV rails are slightly rounded.

The dimensions of these rails are the same as those of the LWRV series.

LWRPM/LWRPV rail guides are the best choice where, because of external

influences, rail guides incorporating rolling element assemblies are unsuitable.

Such applications include those where high shock loads occur which could cause indentation of the rolling elements in the raceways, or where extremely short strokes are required.

The unfavourable tribological conditions produced by such operating conditions would give rise to raceway pitting in a rolling element rail guide.

The mounting and attachment dimensions of the LWRPM/LWRPV rail guides conform to those of the SKF modular range rail guides included in this catalogue.

LWRPM/LWRPV rail guides are characterised by:

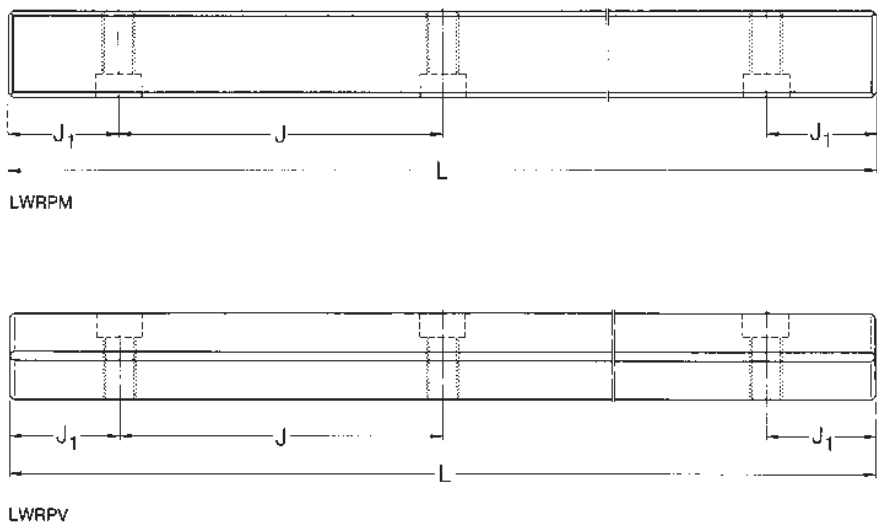
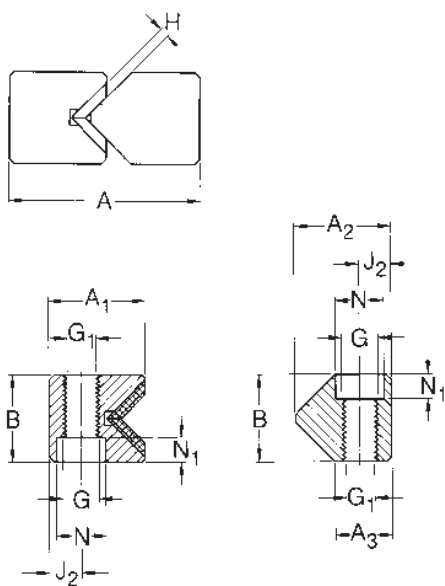
- stick-slip-free operation
- smooth running
- good emergency running properties
- low wear and high reliability
- insensitivity to contamination
- very good vibration damping properties.

When ordering, the individual components of the rail guides must be specified, e. g.:

- 2 rails LWRPM 6300
- 2 rails LWRPV 6300

1) Turcite-B[®] is a registered trademark of Busak & Shamban GmbH.

Rails



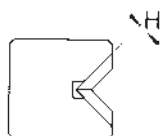
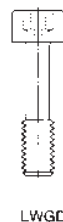
End pieces

Because of their design, rail guides of these series do not normally require end pieces.

Slide liners

The raceways of LWRPM rail guides are provided with liners which are attached using adhesive and subsequently ground to size. No special instructions are required for ordering the liner material.

Special attachment screw



2 Guiding systems

Precision rail guides

LWRPM 3

Designations	Dimensions													Dynamic load-carrying capacities*
	A	B	L	H	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	
	mm													N
Rails														
LWRPM 3050	18	8	50	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	300 N / 100 mm
LWRPM 3075	18	8	75	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	
LWRPM 3100	18	8	100	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	
LWRPM 3125	18	8	125	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	
LWRPM 3150	18	8	150	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	
LWRPM 3175	18	8	150	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	
LWRPM 3200	18	8	200	0.7	25	13	M4	3.3	6	3.2	9.5	9.6	6.5	
Special attachment screw														
LWGD 3														

See page 91
for drawing

* For a surface loading of approx. 1 N/mm² (momentary loads of up to 6 N/mm² are permissible)

LWRPV 3

Designations	Dimensions											
	A	B	L	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃
	mm											
Rails												
LWRPV 3050	18	8	50	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
LWRPV 3075	18	8	75	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
LWRPV 3100	18	8	100	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
LWRPV 3125	18	8	125	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
LWRPV 3150	18	8	150	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
LWRPV 3175	18	8	175	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
LWRPV 3200	18	8	200	25	13	M4	3.3	6	3.2	9.5	9.6	6.5
Special attachment screw												
LWGD 3												

See page 91
for drawing

LWRPM 6

Designations	Dimensions													Dynamic load-carrying capacities*
	A	B	L	H	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	
	mm													N
Rails														
LWRPM 6100	31	15	100	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	700 N / 100 mm
LWRPM 6150	31	15	150	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPM 6200	31	15	200	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPM 6250	31	15	250	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPM 6300	31	15	300	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPM 6400	31	15	400	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPM 6500	31	15	500	1.7	50	25	M6	5.2	9.5	5.2	17	18	11	
Special attachment screw														
LWGD 6														

See page 91
for drawing

* For a surface loading of approx. 1 N/mm² (momentary loads of up to 6 N/mm² are permissible)

LWRPV 6

Designations	Dimensions												
	A	B	L	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	
	mm												
Rails													
LWRPV 6100	31	15	100	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPV 6150	31	15	150	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPV 6200	31	15	200	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPV 6250	31	15	250	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPV 6300	31	15	300	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPV 6400	31	15	400	50	25	M6	5.2	9.5	5.2	17	18	11	
LWRPV 6500	31	15	500	50	25	M6	5.2	9.5	5.2	17	18	11	
Special attachment screw													
LWGD 6													

See page 91 for drawing

LWRPM 9

Designations	Dimensions													Dynamic load-carrying capacities*
	A	B	L	H	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	
	mm													N
Rails														
LWRPM 90200	44	22	200	1.7	100	50	M8	6.8	11	6.2	23	27	17	1200 N / 100 mm
LWRPM 90300	44	22	300	1.7	100	50	M8	6.8	11	6.2	23	27	17	
LWRPM 90400	44	22	400	1.7	100	50	M8	6.8	11	6.2	23	27	17	
LWRPM 90500	44	22	500	1.7	100	50	M8	6.8	11	6.2	23	27	17	
Special attachment screw														
LWGD 9														
* For a surface loading of approx. 1 N/mm ² (momentary loads of up to 6 N/mm ² are permissible)														

See page 91 for drawing

LWRPV 9

Designations	Dimensions												
	A	B	L	J	J ₁	G	G ₁	N	N ₁	A ₁	A ₂	A ₃	
	mm												
Rails													
LWRPV 90200	44	22	200	100	50	M8	6.8	11	6.2	23	27	17	
LWRPV 90300	44	22	300	100	50	M8	6.8	11	6.2	23	27	17	
LWRPV 90400	44	22	400	100	50	M8	6.8	11	6.2	23	27	17	
LWRPV 90500	44	22	500	100	50	M8	6.8	11	6.2	23	27	17	
Special attachment screw													
LWGD 9													

See page 91 for drawing

2 Guiding systems Precision rail guides

LWM .. / LWV ..

These rail guides enable the design of linear guiding systems for heavy loads with maximum stiffness. The internal geometry is identical with that of the modular range rails of the LWRM/LWRV series. As the same needle roller assembly is used, the load bearing characteristics are identical. The external dimensions of the LWM/LWV rail guides, however, differ slightly from those of the LWRM/LWRV modular range dimensions.

LWM/LWV rail guides are widely used in machine tools. LWM/LWV rail guides have as standard attachment hole type 15, i.e. through hole with countersinking.

If attachment hole type 13 is ordered, corresponding threaded inserts are supplied along with the guide.

For new designs the choice of LWRM/LWRV rail guides is recommended. These offer the advantage of being interchangeable with other rail guides of the modular range.

Needle roller assemblies for LWM/LWV rail guides

LWHV needle roller assemblies have a plastic cage with retained needle rollers. The elastic connection between the two cage sections for the two roller rows enables the cage to bend at any angle.

LWHW needle roller assemblies comprise an aluminium cage with

needle rollers arranged at right angles to each other. The needle rollers are retained by the cage.

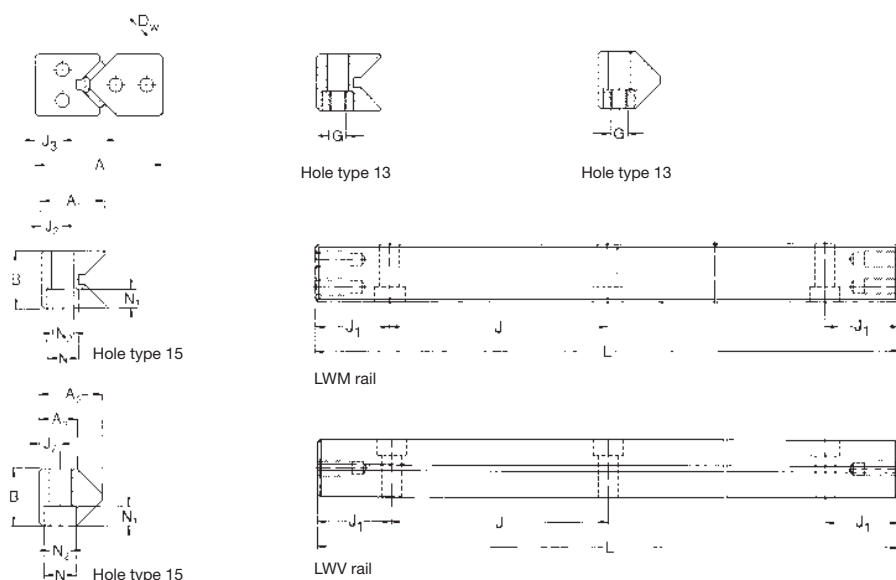
End pieces for LWM/LWV rail guides

End pieces serve to prevent drift of the cage from the loaded zone. LWEM and LWEV end pieces are suitable for horizontally and vertically mounted rail guides.

In addition, LWEAM and LWEAV end pieces are fitted with a plastic wiper with sealing lip which serves to keep the track free from dirt.

All end pieces are supplied together with attachment screws. It is recommended that rail guides longer than 1200 mm should be made up of sections. If, for design reasons, single-piece rails are required, these can be supplied to special order.

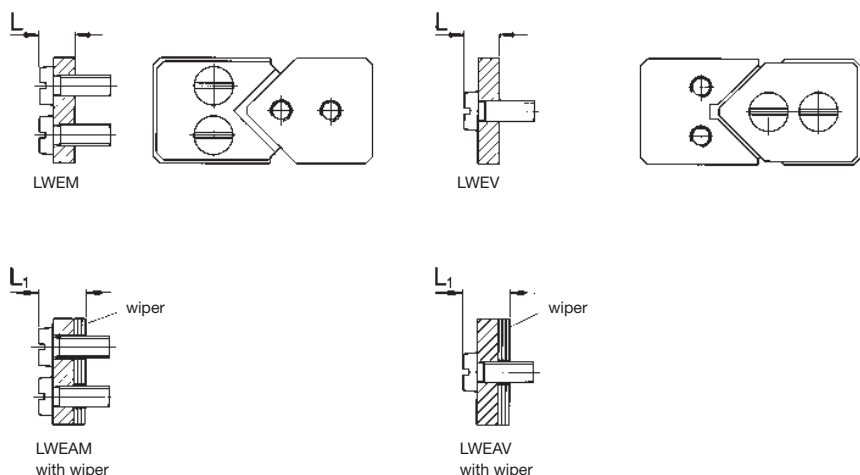
Rails



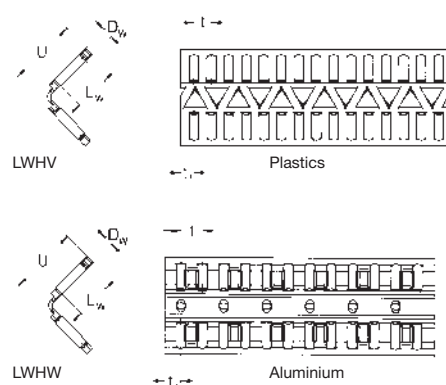
Special attachment screw



End pieces



Rolling element assemblies



**LWM 3015 /
LWV 3015**

Designations	Dimensions														Load ratings*				
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀	
	mm														N				
Rails																			
LWM/LWV 3015100	30	15	100	40	15	M4	8.5	4.5	5.3	16	17	11							
LWM/LWV 3015150	30	15	150	40	15	M4	8.5	4.5	5.3	16	17	11							
LWM/LWV 3015200	30	15	200	40	15	M4	8.5	4.5	5.3	16	17	11							
LWM/LWV 3015300	30	15	300	40	15	M4	8.5	4.5	5.3	16	17	11							
Needle roller assemblies																			
LWHV10															2	10	3.75	10400	25500
End pieces																			
LWEM 3015				4		–													
LWEAM 3015				–		6													
LWEV 3015				4		–													
LWEAV 3015				–		6													
Appropriate attachment screw																			
M3 DIN 84																			
* For 10 needle rollers per row																			

See page 94
for drawing**LWM 4020 /
LWV 4020**

Designations	Dimensions														Load ratings*				
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀	
	mm														N				
Rails																			
LWM/LWV 4020100	40	20	100	80	15	M6	12	6.8	7.5	22	22	14							
LWM/LWV 4020150	40	20	150	80	15	M6	12	6.8	7.5	22	22	14							
LWM/LWV 4020200	40	20	200	80	15	M6	12	6.8	7.5	22	22	14							
LWM/LWV 4020300	40	20	300	80	15	M6	12	6.8	7.5	22	22	14							
LWM/LWV 4020400	40	20	400	80	15	M6	12	6.8	7.5	22	22	14							
Needle roller assemblies																			
LWHW 15															2	15	4.5	16300	45000
LWHV 15															2	15	3.75	16300	45000
End pieces																			
LWEM 4020				6.3		–													
LWEAM 4020				–		8.3													
LWEV 4020				6.3		–													
LWEAV 4020				–		8.3													
Appropriate attachment screw																			
M5 DIN 84																			
* For 10 needle rollers per row																			

See page 94
for drawing

2 Guiding systems

Precision rail guides

LWM 5025 / LWV 5025

Designations	Dimensions														Load ratings*				
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀	
	mm														N				
Rails																			
LWM/LWV 50250100	50	25	100		80	20	M6	12	6.8	7.5	28	28	17						
LWM/LWV 50250200	50	25	200		80	20	M6	12	6.8	7.5	28	28	17						
LWM/LWV 50250300	50	25	300		80	20	M6	12	6.8	7.5	28	28	17						
LWM/LWV 50250400	50	25	400		80	20	M6	12	6.8	7.5	28	28	17						
LWM/LWV 50250500	50	25	500		80	20	M6	12	6.8	7.5	28	28	17						
Needle roller assemblies																			
LWHW 15															2	15	4.5	16300	45000
LWHV 15															2	15	3.75	16300	45000
End pieces																			
LWEM 5025				6.9		–													
LWEAM 5025				–		8.9													
LWEV 5025				6.9		–													
LWEAV 5025				–		8.9													
Appropriate attachment screw																			
M6 DIN 84																			
* For 10 needle rollers per row																			

See page 94
for drawing

LWM 6035 / LWV 6035

(On request)

Designations	Dimensions														Load ratings*				
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀	
	mm														N				
Rails																			
LWM/LWV 60350200	60	35	200		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350300	60	35	300		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350400	60	35	400		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350500	60	35	500		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350600	60	35	600		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350700	60	35	700		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350800	60	35	800		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60350900	60	35	900		100	20	M8	15	9	10	36	36	20						
LWM/LWV 60351000	60	35	1000		100	20	M8	15	9	10	36	36	20						
Needle roller assemblies																			
LWHW 20															2.5	20	5.5	32000	88000
LWHV 20															2.5	20	5	32000	88000
End pieces																			
LWEM 6035				6.9		–													
LWEAM 6035				–		8.9													
LWEV 6035				6.9		–													
LWEAV 6035				–		8.9													
Appropriate attachment screw																			
M6 DIN 84																			
* For 10 needle rollers per row																			

See page 94
for drawing

**LWM 7040 /
LWV 7040**

(On request)

Designations	Dimensions															Load ratings*		
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀
	mm															N		
Rails																		
LWM/LWV 70400200	70	40	200	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400300	70	40	300	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400400	70	40	400	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400500	70	40	500	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400600	70	40	600	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400700	70	40	700	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400800	70	40	800	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70400900	70	40	900	100	20	M10	19	11	13	40	42	24						
LWM/LWV 70401000	70	40	1000	100	20	M10	19	11	13	40	42	24						
Needle roller assemblies																		
LWHW 25													3	25	6	52000	143000	
End pieces																		
LWEM 7040				6.9	–													
LWEAM 7040				–	8.9													
LWEV 7040				6.9	–													
LWEAV 7040				–	8.9													
Appropriate attachment screw																		
M6 DIN 84																		
* For 10 needle rollers per row																		

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for drawing

**LWM 8050 /
LWV 8050**

(On request)

Designations	Dimensions															Load ratings*		
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀
	mm															N		
Rails																		
LWM/LWV 80500200	80	50	200	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500300	80	50	300	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500400	80	50	400	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500500	80	50	500	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500600	80	50	600	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500700	80	50	700	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500800	80	50	800	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80500900	80	50	900	100	20	M12	20	13	14	45	49	26						
LWM/LWV 80501000	80	50	1000	100	20	M12	20	13	14	45	49	26						
Needle roller assemblies																		
LWHW 30													3.5	30	7	76500	212000	
End pieces																		
LWEM 8050				6.9	–													
LWEAM 8050				–	8.9													
LWEV 8050				6.9	–													
LWEAV 8050				–	8.9													
Appropriate attachment screw																		
M6 DIN 84																		
* For 10 needle rollers per row																		

See page 94
for drawing

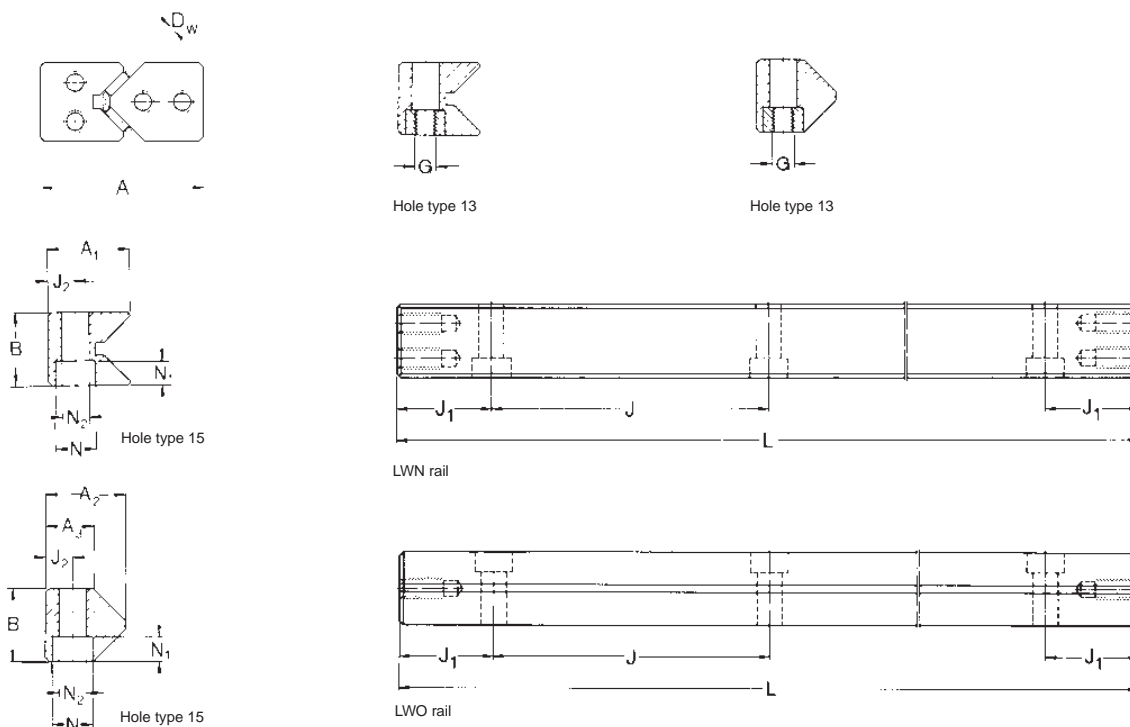
2 Guiding systems Precision rail guides

LWN .. / LWO ..

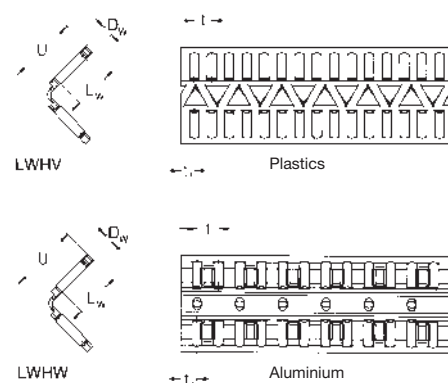
Differ from the LWM/LWV rail guides only in height, width and attachment holes. The internal geometry of the two

series is the same and their load ratings are identical. LWN/LWO rail guides are supplied to tolerance P10, P5 and P2 to order.

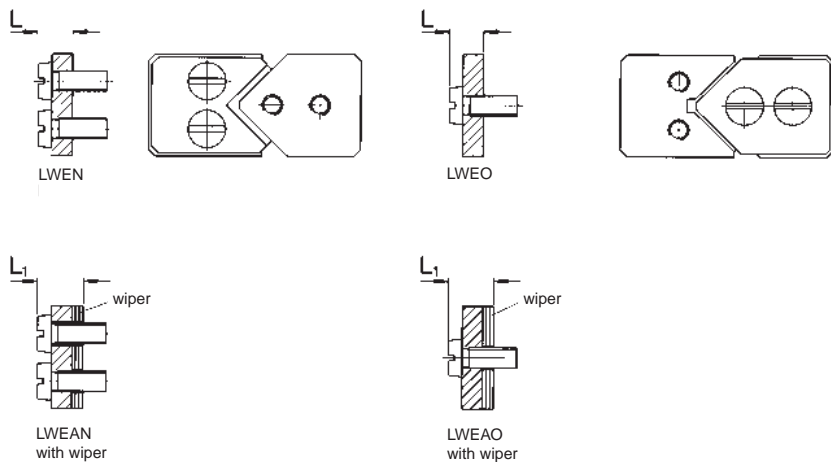
Rails



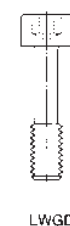
Rolling element assemblies



End pieces



Special assembly screw



LWN 2025 / LWO 2025

(On request)

Designations	Dimensions*															Load ratings*			
	A	B	L	L ₁	J	J ₁	G	N	N ₁	N ₂	A ₁	A ₂	A ₃	D _W	U	t	C	C ₀	
	mm															N			
Rails																			
LWN/LWO 20250200	52	25	200		1×100	50	M10	14	8.2	8.5	28	29	18						
LWN/LWO 20250300	52	25	300		1×100	50	M10	14	8.2	8.5	28	29	18						
LWN/LWO 20250400	52	25	400		1×100	50	M10	14	8.2	8.5	28	29	18						
LWN/LWO 20250500	52	25	500		1×100	50	M10	14	8.2	8.5	28	29	18						
Needle roller assemblies																			
LWHW 15															2	15	4.5	16300	45000
LWHV 15															2	15	3.75	16300	45000
End pieces																			
LWEN 2025		31	24																5.5
LWEAN 2025		31	24																8.5
LWEO 2025		30	24																5.5
LWEAO 2025		30	24																8.5
Special attachment screw																			
LWGD 2025																			

* For 10 needle rollers per row

See page 98 for drawing

For information on the following products please contact our customer service:

- LWN / LWO (sizes 2535-, 3045- and 3555-)
- LWML series
- LWF / LWG series (sizes 412-, 612-, 624-, 1024- and 1434- on request)

