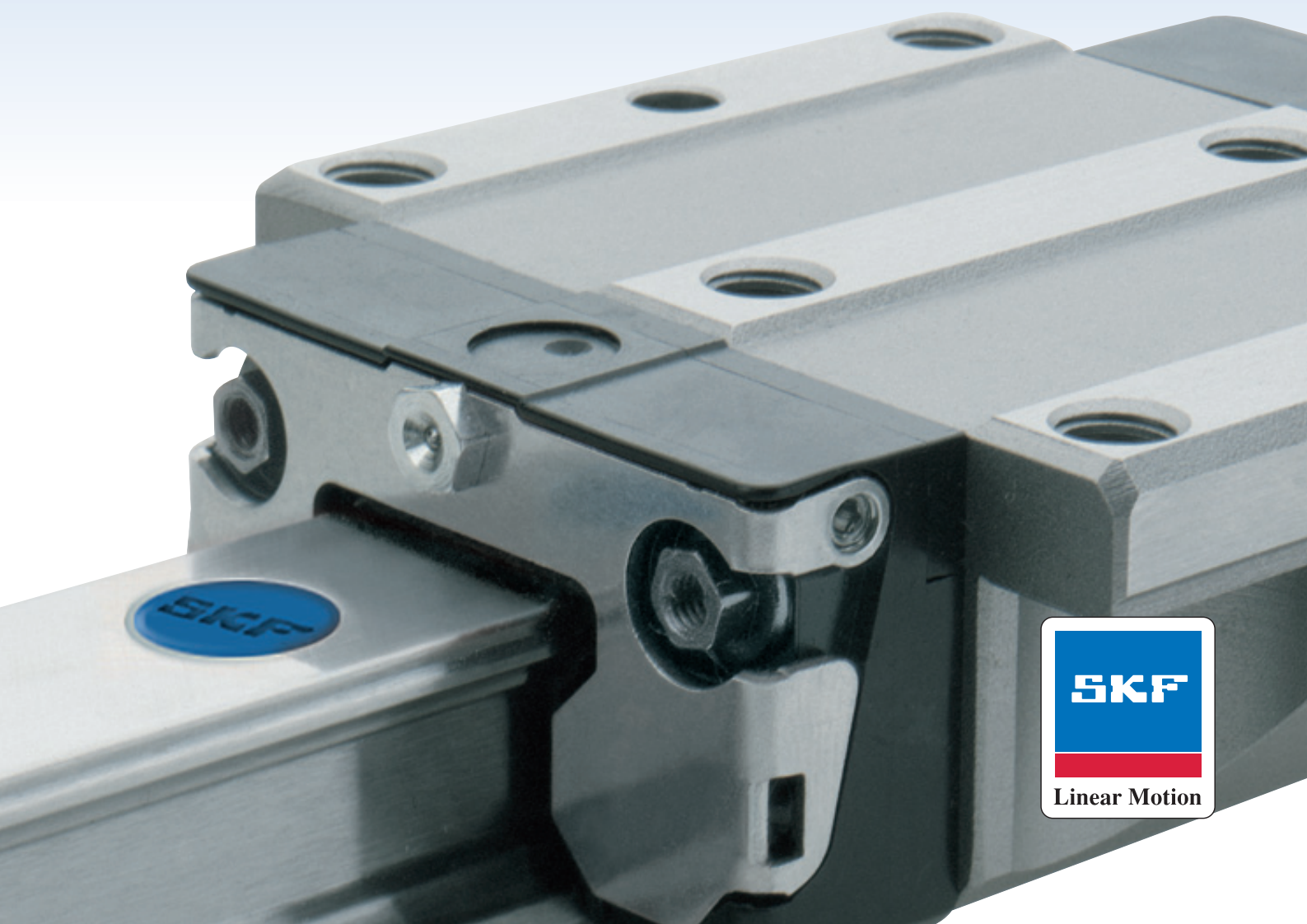
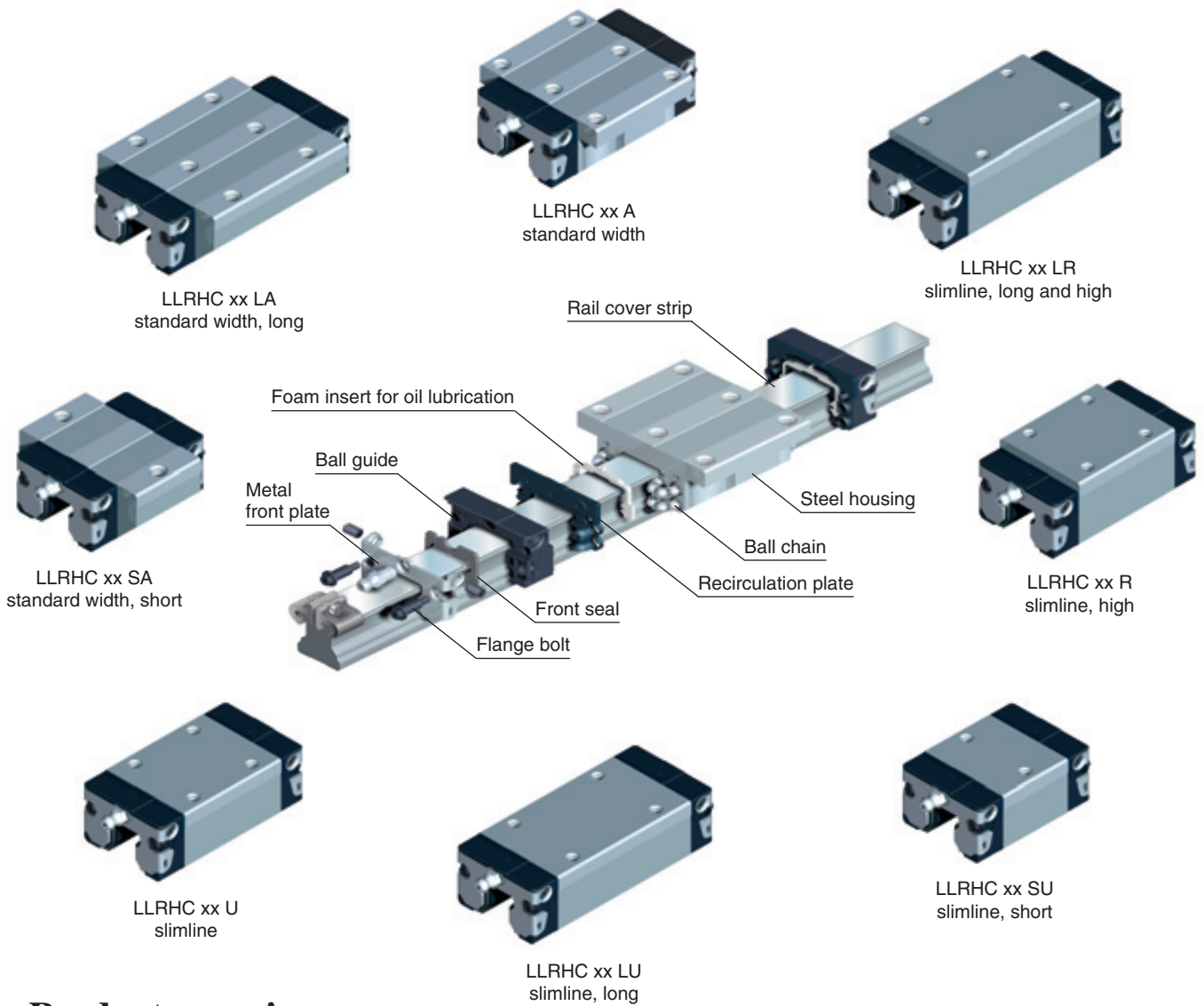


SKF

Profile rail guides



Carriages overview



Product overview

- ▶ Carriages with and without ball chain
- ▶ High load capacities in all main directions and high moment load capacities
- ▶ High dynamic performances:
 $v = 5 \text{ m/s}$; $a_{\text{max}} = 500 \text{ m/s}^2$
- ▶ Low noise, smooth, light running due to optimised ball recirculation and ideal ball chain geometry
- ▶ Long term lubrication system
- ▶ Lube ports with metal threads on all sides
- ▶ Full interchangeability due to standardized rail, with or without rail seal cover strip, for all carriage versions
- ▶ Wide range of accessories fully available
- ▶ SKF worldwide service network
- ▶ Improved rigidity under lift off and side loading conditions when additional mounting screws are used for the holes in the centre of the carriage
- ▶ System also available with surface protection as option
- ▶ Integrated all-round sealing
- ▶ Various preload classes
- ▶ Load carrying capacities 8% reduced if ball chain is used

Order code

LLR HS 30 AB 2 T0 - 3820 P5 W2 C

Profile rail guide

Product Code:

HS = designation for a complete system

HC = carriage only

HR = rail only

Size: 15, 20, 25, 30, 35, 45*

Carriage type SA_, A_, LA_, SU_, U_, LU_, R_, LR_

B = ball retainer

Number of carriages per rail track

Preload classes T0, T1, T2*, T3*

Rail length [mm]

Accuracy class [for carriage and rail]

P001*, P01*, P1*, P3, P5

Number of parallel rail tracks

W1, W2

Accessories & Option symbols:

A = Joint rail track

B = System with Bellows

C1 = Rail seal, mounting hole cover strip (plastic protective caps)

C2 = Rail seal, mounting hole cover strip (aluminium protective caps)

D = Rail according to drawing (e.g. customized E dimension, see dws.)

E = Seal kit (two piece front seal & scraper plate, two per carriage)

F = Scraper plate (two per carriage)

M = Carriage mounted on rail

V = Two piece front seal (two per carriage)

*on request

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

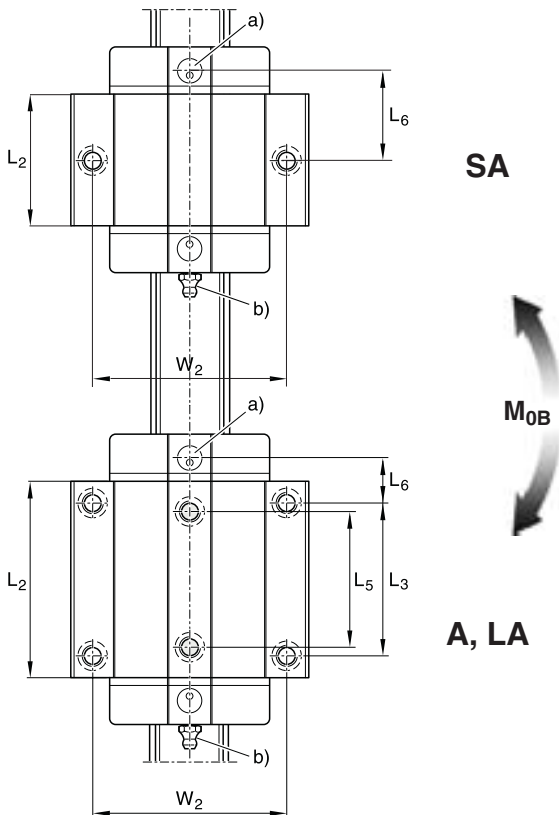
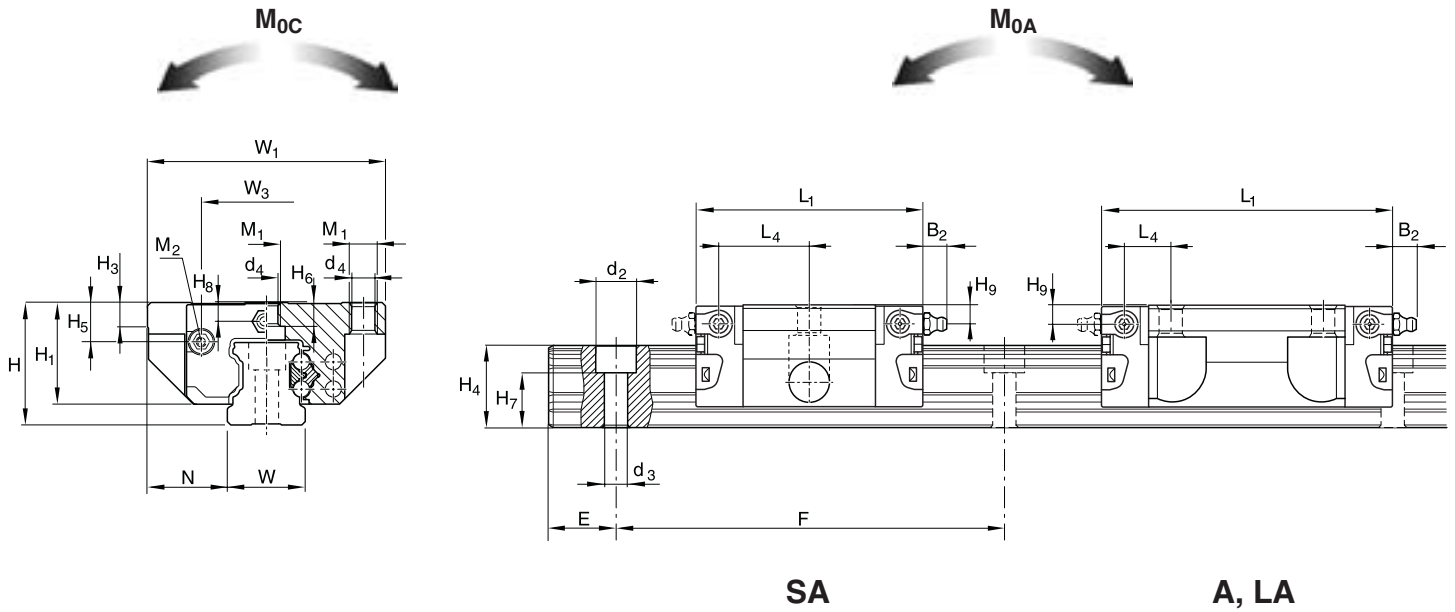
Designations	Dimensions									Basic load ratings				Mass
	H ₆	H ₇	d ₄	M ₁	d ₂	d ₃	M ₂	E _{min}	F	C	C ₀	M _{0A/0B}	M _{0C}	
	mm									N	Nm		kg	
LLRHS 15 SA	-	10.65	4.3	M5x5.2	7.4	4.4	M2.5-3.5 deep	10	60	5 400	8 100	28	80	0.15
LLRHS 15 A	4.4	10.65	4.3	M5x5.2	7.4	4.4	M2.5-3.5 deep	10	60	7 800	13 500	71	130	0.20
LLRHS 15 LA	4.4	10.65	4.3	M5x5.2	7.4	4.4	M2.5-3.5 deep	10	60	10 000	20 000	150	190	0.40
LLRHS 20 SA	-	13.35	5.3	M6x7.7	9.4	6.0	M3-5 deep	10	60	12 400	13 600	58	170	0.40
LLRHS 20 A	5.2	13.35	5.3	M6x7.7	9.4	6.0	M3-5 deep	10	60	18 800	24 400	165	310	0.60
LLRHS 20 LA	5.2	13.35	5.3	M6x7.7	9.4	6.0	M3-5 deep	10	60	24 400	35 200	330	450	0.80
LLRHS 25 SA	-	15.55	6.7	M8x9.3	11.0	7.0	M3-5 deep	10	60	15 900	18 200	94	260	0.60
LLRHS 25 A	7.0	15.55	6.7	M8x9.3	11.0	7.0	M3-5 deep	10	60	22 800	30 400	240	430	0.80
LLRHS 25 LA	7.0	15.55	6.7	M8x9.3	11.0	7.0	M3-5 deep	10	60	30 400	45 500	510	650	1.15
LLRHS 30 SA	-	17.35	8.5	M10x11.0	15.0	9.0	M3-5 deep	12	80	22 100	24 800	150	430	0.95
LLRHS 30 A	7.9	17.35	8.5	M10x11.0	15.0	9.0	M3-5 deep	12	80	31 700	41 300	380	720	1.20
LLRHS 30 LA	7.9	17.35	8.5	M10x11.0	15.0	9.0	M3-5 deep	12	80	40 000	57 800	715	1 000	1.70
LLRHS 35 SA	-	20.5	8.5	M10x12.0	15.0	9.0	M3-5 deep	12	80	29 300	32 400	220	700	1.40
LLRHS 35 A	10.2	20.5	8.5	M10x12.0	15.0	9.0	M3-5 deep	12	80	41 900	54 000	565	1 160	1.75
LLRHS 35 LA	10.2	20.5	8.5	M10x12.0	15.0	9.0	M3-5 deep	12	80	55 600	81 000	1 215	1 740	2.55
LLRHS 45 A*	14.4	23.50	10.4	M12x15.0	20.0	14.0	M4-7 deep	16	105	68 100	85 700	1 130	2 310	3.00
LLRHS 45 LA*	12.4	23.50	10.4	M12x15.0	20.0	14.0	M4-7 deep	16	105	90 400	128 500	2 425	3 470	4.30

* In preparation

LLRHS .. SA

LLRHS .. A

LLRHS .. LA



- a) For O-ring
Size 15: Ø 4 x 1.0 (mm)
Size 20-35: Ø 5 x 1.0 (mm)
Open lube bore as required.
- b) Lube nipple, size 15 and 20:
Funnel-type nipple
Type A – Thread size M3, DIN 3405
B₂ = 1.6 mm
Size 25 to 35: AM 6 DIN 71412
B₂ = 9.5 mm
Connection possible at all sides.

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

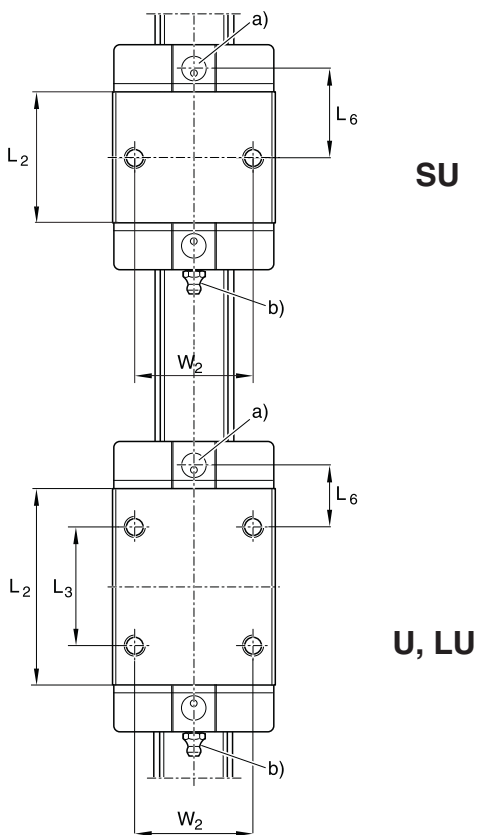
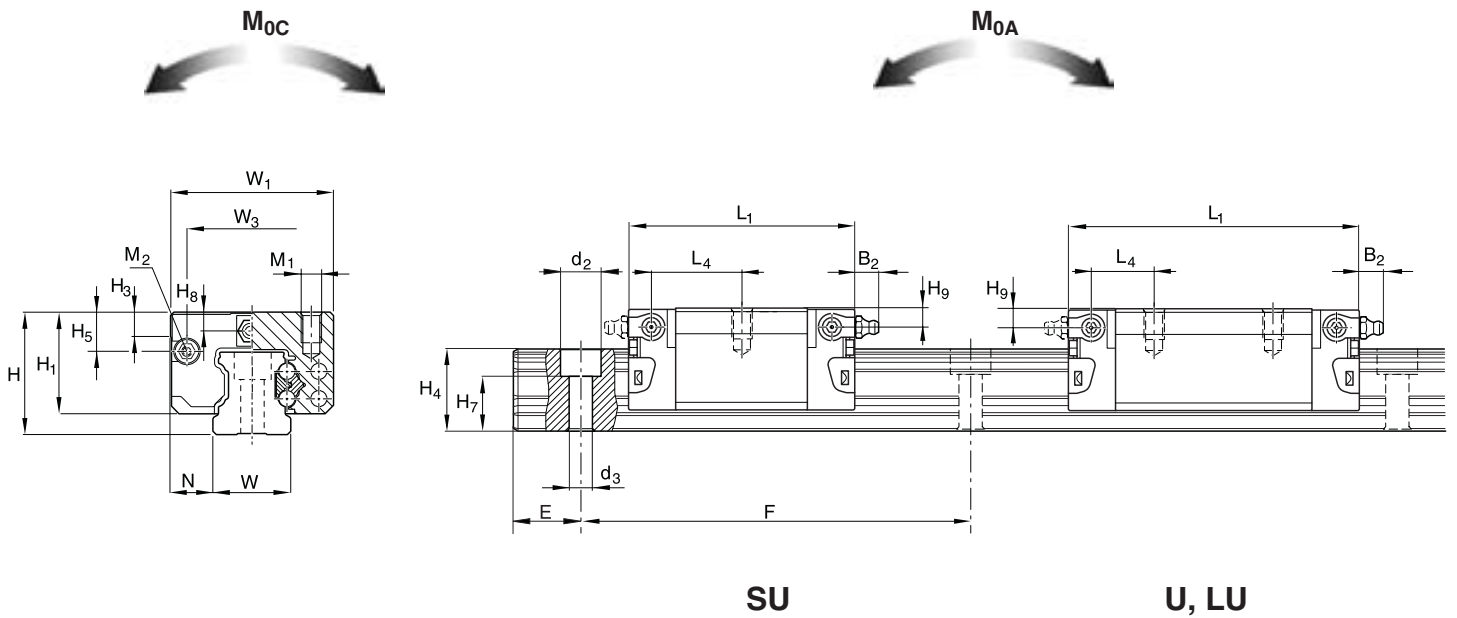
Designations	Dimensions							Basic load ratings				Mass
	H ₇	M ₁	d ₂	d ₃	M ₂	E _{min}	F	C	C ₀	M _{0A/0B}	M _{0C}	
	mm							N		Nm		kg
LLRHS 15 SU	10.65	M4x6.0	7.4	4.4	M2.5-3.5 deep	10	60	5 400	8 100	28	80	0.10
LLRHS 15 U	10.65	M4x6.0	7.4	4.4	M2.5-3.5 deep	10	60	7 800	13 500	71	130	0.15
LLRHS 15 LU	10.65	M4x6.0	7.4	4.4	M2.5-3.5 deep	10	60	10 000	20 200	150	190	0.20
LLRHS 20 SU	13.35	M5x7.5	9.4	6.0	M3-5 deep	10	60	12 400	13 600	58	170	0.40
LLRHS 20 U	13.55	M5x7.5	9.4	6.0	M3-5 deep	10	60	18 800	24 400	165	310	0.50
LLRHS 20 LU	13.35	M5x7.5	9.4	6.0	M3-5 deep	10	60	24 400	35 200	330	450	0.65
LLRHS 25 SU	15.55	M6x9.0	11.0	7.0	M3-5 deep	10	60	15 900	18 200	94	260	0.55
LLRHS 25 U	15.55	M6x9.0	11.0	7.0	M3-5 deep	10	60	22 800	30 400	240	430	0.70
LLRHS 25 LU	15.55	M6x9.0	11.0	7.0	M3-5 deep	10	60	30 400	45 500	510	650	0.90
LLRHS 30 SU	17.35	M8x12.0	15.0	9.0	M3-5 deep	12	80	22 100	24 800	150	430	0.75
LLRHS 30 U	17.35	M8x12.0	15.0	9.0	M3-5 deep	12	80	31 700	41 300	380	720	1.00
LLRHS 30 LU	17.35	M8x12.0	15.0	9.0	M3-5 deep	12	80	40 000	57 800	715	1 000	1.30
LLRHS 35 SU	20.5	M8x13.0	15.0	9.0	M3-5 deep	12	80	29 300	32 400	220	700	1.10
LLRHS 35 U	20.5	M8x13.0	15.0	9.0	M3-5 deep	12	80	41 900	54 000	565	1 160	1.40
LLRHS 35 LU	20.5	M8x13.0	15.0	9.0	M3-5 deep	12	80	55 600	81 000	1 215	1 740	2.00
LLRHS 45 U*	23.50	M10x18.0	20.0	14.0	M4-7 deep	16	105	68 100	85 700	1 130	2 310	2.40
LLRHS 45 LU*	23.50	M10x18.0	20.0	14.0	M4-7 deep	16	105	90 400	128 500	2 425	3 470	3.20

* In preparation

LLRHS .. SU

LLRHS .. U

LLRHS .. LU



- a) For O-ring
Size 15: $\text{Ø } 4 \times 1.0$ (mm)
Size 20-35: $\text{Ø } 5 \times 1.0$ (mm)
Open lube bore as required.
- 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.

LLRHS .. R

LLRHS .. 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	60	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

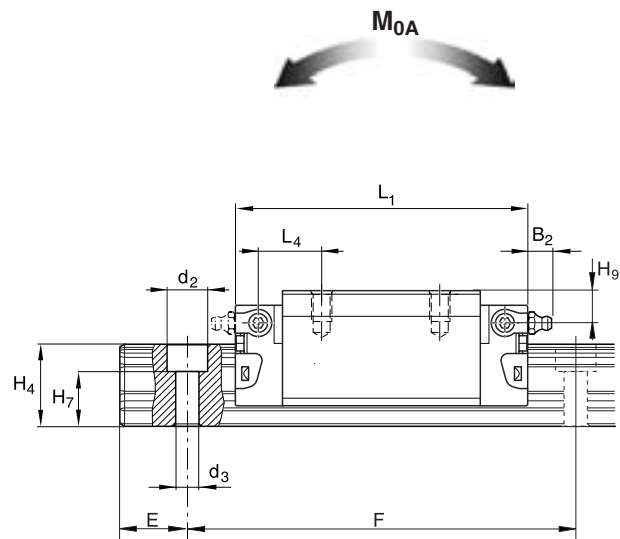
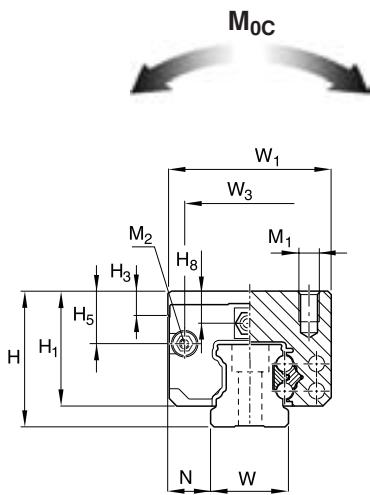
²⁾ Without rail cover strip

* In preparation

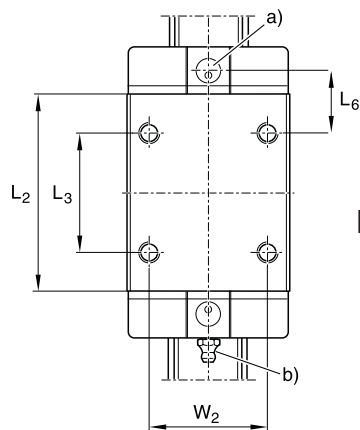
Designations	Dimensions							Basic load ratings				Mass
	H ₇	M ₁	d ₂	d ₃	M ₂	E _{min}	F	C	C ₀	M _{0A/0B}	M _{0C}	
	mm							N		Nm		kg
LLRHS 15 R	10.65	M4x6.0	7.4	4.4	M2.5-3.5 deep	10	60	7 800	13 500	71	130	0.20
LLRHS 25 R	15.55	M6x9.0	11.0	7.0	M3-5 deep	10	60	22 800	30 400	240	430	0.75
LLRHS 25 LR	15.55	M6x9.0	11.0	7.0	M3-5 deep	10	60	30 400	45 500	510	650	1.00
LLRHS 30 R	17.35	M8x12.0	15.0	9.0	M3-5 deep	12	80	31 700	41 300	380	720	1.10
LLRHS 30 LR	17.35	M8x12.0	15.0	9.0	M3-5 deep	12	80	40 000	57 800	715	1 000	1.45
LLRHS 35 R	20.85	M8x13.0	15.0	9.0	M3-5 deep	12	80	41 900	54 000	565	1 160	1.70
LLRHS 35 LR	20.85	M8x13.0	15.0	9.0	M3-5 deep	12	80	55 600	81 000	1 215	1 740	2.40
LLRHS 45 R*	23.50	M10x18.0	20.0	14.0	M4-7 deep	16	105	68 100	85 700	1 130	2 310	3.00
LLRHS 45 LR*	23.50	M10x18.0	20.0	14.0	M4-7 deep	16	105	90 400	128 500	2 425	3 470	4.10

* In preparation

LLRHS .. R
LLRHS .. LR



R, LR



R, LR



- a) For O-ring
 Size 15: $\text{Ø } 4 \times 1.0$ (mm)
 Size 25-35: $\text{Ø } 5 \times 1.0$ (mm)
 Open lube bore as required.
 See Accessories:
 Mounting lubrication adapter.
- b) Lube nipple, size 15:
 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.



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Linear Motion

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