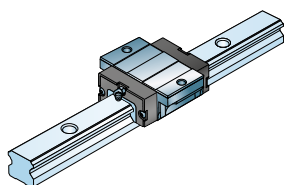


3.1 Carriage data

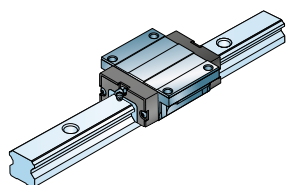


LLTHC ... SA
Flanged carriage, short length, standard height



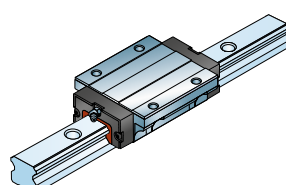
Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	7 830	9 000
20	12 566	14 400
25	18 077	19 600
30	24 768	26 600
35	30 957	34 800
45	–	–

LLTHC ... A
Flanged carriage, standard length, standard height



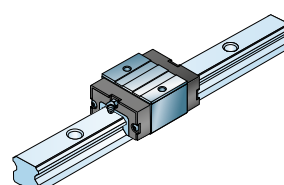
Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	11 374	15 400
20	16 864	24 550
25	25 173	30 700
30	33 669	41 900
35	42 126	54 650
45	65 653	91 100

LLTHC ... LA
Flanged carriage, extended length, standard height



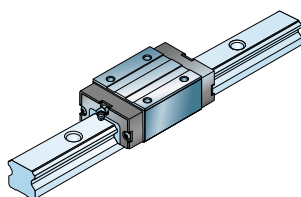
Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	–	–
20	20 672	32 700
25	32 672	44 600
30	43 731	60 800
35	54 630	79 400
45	80 292	121 400

LLTHC ... SU
Slim-line carriage, short length, standard height



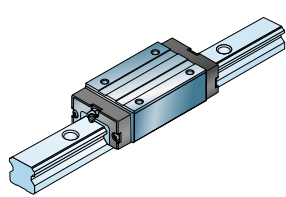
Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	7 830	9 000
20	12 566	14 400
25	18 077	19 600
30	24 768	26 600
35	30 957	34 800
45	–	–

LLTHC ... U
Slim-line carriage, standard length, standard height



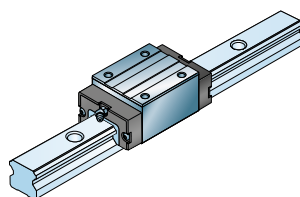
Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	11 374	15 400
20	16 864	24 550
25	25 173	30 700
30	33 669	41 900
35	42 126	54 650
45	65 653	91 100

LLTHC ... LU
Slim-line carriage, extended length, standard height



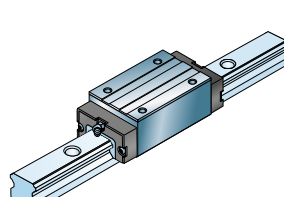
Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	–	–
20 ²⁾	20 672	32 700
25	32 672	44 600
30	43 731	60 800
35	54 630	79 400
45	80 292	121 400

LLTHC ... R
Slim-line carriage, standard length, extended height



Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	11 374	15 400
20	–	–
25	25 173	30 700
30	33 669	41 900
35	42 126	54 650
45	65 653	91 100

LLTHC ... LR
Slim-line carriage, extended length, extended height



Size ¹⁾	Load ratings	
	C	C ₀
–	N	
15	–	–
20 ²⁾	20 672	32 700
25	32 672	44 600
30	43 731	60 800
35	54 630	79 400
45	80 292	121 400

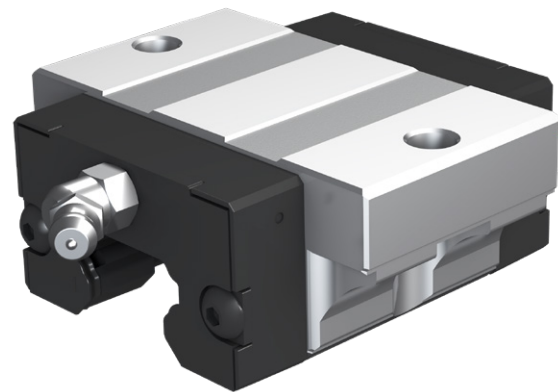
¹⁾ Front seal appearance can slightly deviate by size.

²⁾ LLLTHC 20 LU and LLTHC 20 LR is the same product

3.1.1 Carriage LLTHC ... SA

Flanged carriage, short length, standard height.

Carriages from size 15 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (↳ page 103).



Technical data

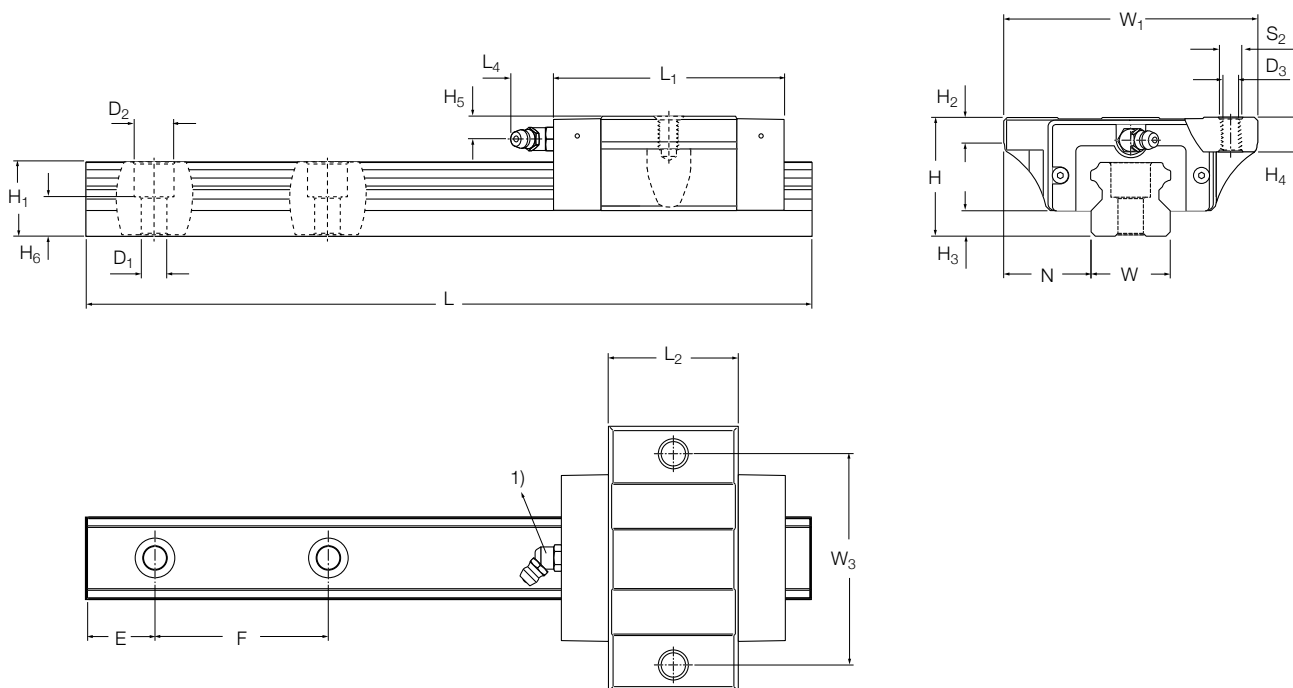
Size	Precision class	Designation ¹⁾ Preload class T0	T1
-		-	
15	P5	LLTHC 15 SA T0 P5	LLTHC 15 SA T1 P5
	P3	LLTHC 15 SA T0 P3	LLTHC 15 SA T1 P3
	P1		LLTHC 15 SA T1 P1
20	P5	LLTHC 20 SA T0 P5	LLTHC 20 SA T1 P5
	P3	LLTHC 20 SA T0 P3	LLTHC 20 SA T1 P3
	P1		LLTHC 20 SA T1 P1
25	P5	LLTHC 25 SA T0 P5	LLTHC 25 SA T1 P5
	P3	LLTHC 25 SA T0 P3	LLTHC 25 SA T1 P3
	P1		LLTHC 25 SA T1 P1
30	P5	LLTHC 30 SA T0 P5	LLTHC 30 SA T1 P5
	P3	LLTHC 30 SA T0 P3	LLTHC 30 SA T1 P3
	P1		LLTHC 30 SA T1 P1
35	P5	LLTHC 35 SA T0 P5	LLTHC 35 SA T1 P5
	P3	LLTHC 35 SA T0 P3	LLTHC 35 SA T1 P3
	P1		LLTHC 35 SA T1 P1

¹⁾ • Preferred range.

- Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions					Carriage dimensions							
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₄	W ₃	H ₄	H ₅	D ₃	S ₂
15	47	16	24	5,7	4,6	48,9	25,6	4,3	38	8	4,3	4,3	M5×0,8
20	63	21,5	30	6,7	5	55,4	32,1	15	53	9	5,7	5,2	M6×1,0
25	70	23,5	36	10,8	7	66,2	38,8	16,6	57	12	6,5	6,7	M8×1,25
30	90	31	42	8,8	9	78	45	14,6	72	11,5	8	8,5	M10×1,5
35	100	33	48	12,1	9,5	88,8	51,4	14,6	82	13	8	8,5	M10×1,5

Size	Rail dimensions					Weight			Load ratings ³⁾		Moments ³⁾						
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5	carriage	rail	dynamic C	static C ₀	dynamic M _{xc}	static M _{xc0}	dynamic M _{yc} =M _{zc}	static M _{yc0} =M _{zc0}
–	mm									kg	kg/m	N		Nm			
15	15	14	8,5	60	4,5	7,5	10	50	3 920	0,12	1,4	7 830	9 000	39	60	21	32
20	20	18	9,3	60	6	9,5	10	50	3 920	0,25	2,3	12 566	14 400	83	130	41	64
25	23	22	12,3	60	7	11	10	50	3 920	0,38	3,3	18 077	19 600	139	202	73	106
30	28	26	13,8	80	9	14	12	70	3 944	0,56	4,8	24 768	26 600	242	335	120	166
35	34	29	17	80	9	14	12	70	3 944	0,83	6,6	30 957	34 800	393	536	182	248

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.2 Carriage LLTHC ... A

Flanged carriage, standard length, standard height.

Carriages from size 15 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (↳ page 103).



Technical data

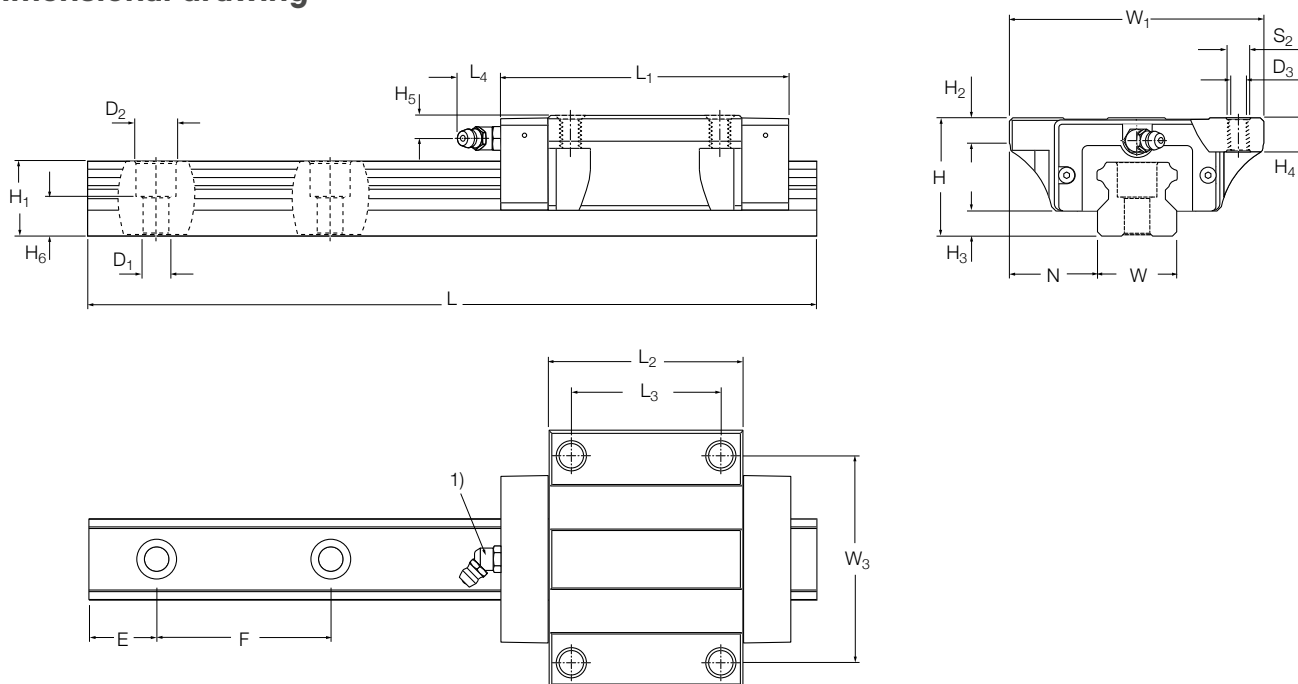
Size	Precision class	Designation ¹⁾ Preload class T0	T1	T2
–		–		
15	P5	LLTHC 15 A T0 P5	LLTHC 15 A T1 P5	LLTHC 15 A T2 P5
	P3	LLTHC 15 A T0 P3	LLTHC 15 A T1 P3	LLTHC 15 A T2 P3
	P1	LLTHC 15 A T0 P1	LLTHC 15 A T1 P1	LLTHC 15 A T2 P1
20	P5	LLTHC 20 A T0 P5	LLTHC 20 A T1 P5	LLTHC 20 A T2 P5
	P3	LLTHC 20 A T0 P3	LLTHC 20 A T1 P3	LLTHC 20 A T2 P3
	P1	LLTHC 20 A T0 P1	LLTHC 20 A T1 P1	LLTHC 20 A T2 P1
25	P5	LLTHC 25 A T0 P5	LLTHC 25 A T1 P5	LLTHC 25 A T2 P5
	P3	LLTHC 25 A T0 P3	LLTHC 25 A T1 P3	LLTHC 25 A T2 P3
	P1	LLTHC 25 A T0 P1	LLTHC 25 A T1 P1	LLTHC 25 A T2 P1
30	P5	LLTHC 30 A T0 P5	LLTHC 30 A T1 P5	LLTHC 30 A T2 P5
	P3	LLTHC 30 A T0 P3	LLTHC 30 A T1 P3	LLTHC 30 A T2 P3
	P1	LLTHC 30 A T0 P1	LLTHC 30 A T1 P1	LLTHC 30 A T2 P1
35	P5	LLTHC 35 A T0 P5	LLTHC 35 A T1 P5	LLTHC 35 A T2 P5
	P3	LLTHC 35 A T0 P3	LLTHC 35 A T1 P3	LLTHC 35 A T2 P3
	P1	LLTHC 35 A T0 P1	LLTHC 35 A T1 P1	LLTHC 35 A T2 P1
45	P5	LLTHC 45 A T0 P5	LLTHC 45 A T1 P5	LLTHC 45 A T2 P5
	P3	LLTHC 45 A T0 P3	LLTHC 45 A T1 P3	LLTHC 45 A T2 P3
	P1	LLTHC 45 A T0 P1	LLTHC 45 A T1 P1	LLTHC 45 A T2 P1

¹⁾ • Preferred range.

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions					Carriage dimensions									
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₃	L ₄	W ₃	H ₄	H ₅	D ₃	S ₂	
15	47	16	24	5,7	4,6	63,3	40	30	4,3	38	8	4,3	4,3	M5×0,8	
20	63	21,5	30	6,7	5	73,3	50	40	15	53	9	5,7	5,2	M6×1,0	
25	70	23,5	36	10,8	7	84,4	57	45	16,6	57	12	6,5	6,7	M8×1,25	
30	90	31	42	8,8	9	100,4	67,4	52	14,6	72	11,5	8	8,5	M10×1,5	
35	100	33	48	12,1	9,5	114,4	77	62	14,6	82	13	8	8,5	M10×1,5	
45	120	37,5	60	12,1	14	136,5	96	80	14,6	100	15	8,5	10,4	M12×1,75	

Size	Rail dimensions									Weight carriage rail	Load ratings ³⁾		Moments ³⁾				
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5		dynamic C	static C ₀	dynamic M _{xC}	static M _{xC₀}	dynamic M _{yC} =M _{zC}	static M _{yC₀} =M _{zC₀}	
-	mm									kg	kg/m	N	Nm				
15	15	14	8,5	60	4,5	7,5	10	50	3 920	0,21	1,4	11 374	15 400	56	103	49	90
20	20	18	9,3	60	6	9,5	10	50	3 920	0,4	2,3	16 864	24 550	112	221	90	179
25	23	22	12,3	60	7	11	10	50	3 920	0,57	3,3	25 173	30 700	194	316	155	254
30	28	26	13,8	80	9	14	12	70	3 944	1,1	4,8	33 669	41 900	329	528	256	410
35	34	29	17	80	9	14	12	70	3 944	1,6	6,6	42 126	54 650	535	842	388	611
45	45	38	20,8	105	14	20	16	90	3 917	2,7	11,3	65 653	91 100	1215	1869	825	1 270

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

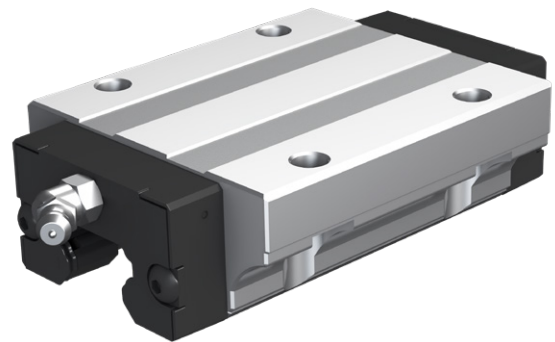
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.3 Carriage LLTHC ... LA

Flanged carriage, extended length, standard height.

Carriages from size 20 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (↳ page 103).



Technical data

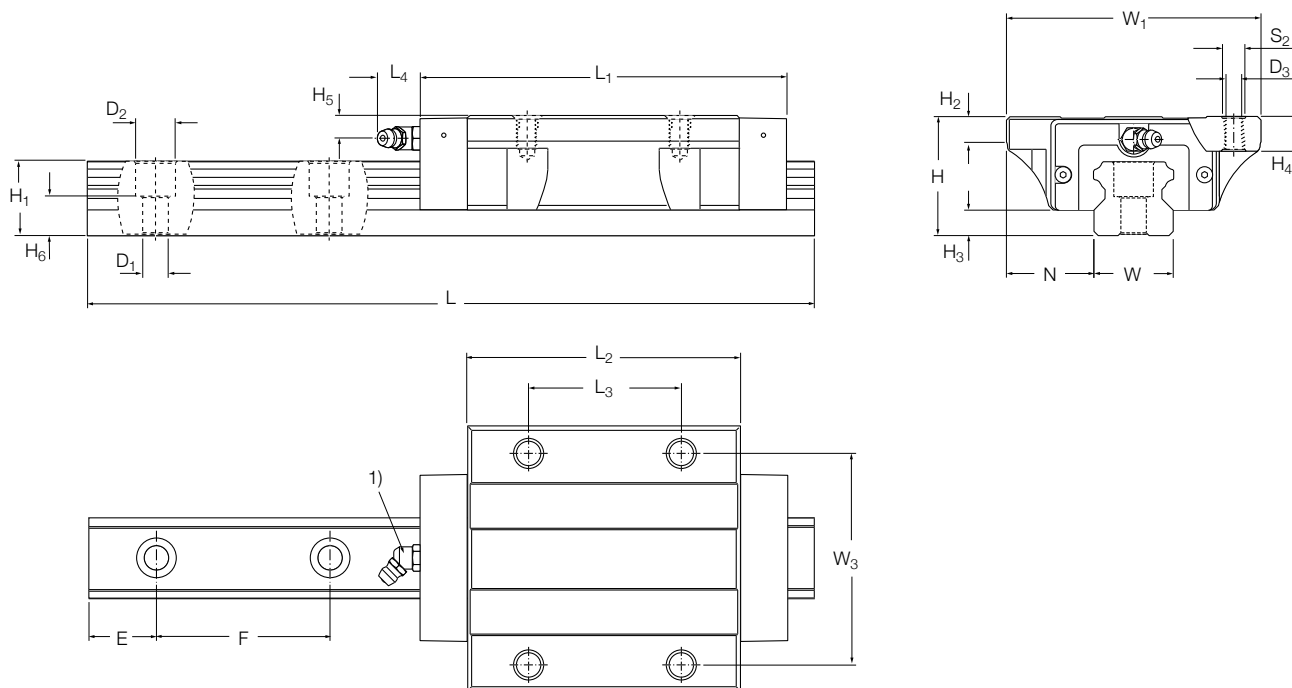
Size	Precision class	Designation ¹⁾ Preload class T0	T1	T2
–		–		
20	P5	LLTHC 20 LA T0 P5	LLTHC 20 LA T1 P5	LLTHC 20 LA T2 P5
	P3	LLTHC 20 LA T0 P3	LLTHC 20 LA T1 P3	LLTHC 20 LA T2 P3
	P1	LLTHC 20 LA T0 P1	LLTHC 20 LA T1 P1	LLTHC 20 LA T2 P1
25	P5	LLTHC 25 LA T0 P5	LLTHC 25 LA T1 P5	LLTHC 25 LA T2 P5
	P3	LLTHC 25 LA T0 P3	LLTHC 25 LA T1 P3	LLTHC 25 LA T2 P3
	P1	LLTHC 25 LA T0 P1	LLTHC 25 LA T1 P1	LLTHC 25 LA T2 P1
30	P5	LLTHC 30 LA T0 P5	LLTHC 30 LA T1 P5	LLTHC 30 LA T2 P5
	P3	LLTHC 30 LA T0 P3	LLTHC 30 LA T1 P3	LLTHC 30 LA T2 P3
	P1	LLTHC 30 LA T0 P1	LLTHC 30 LA T1 P1	LLTHC 30 LA T2 P1
35	P5	LLTHC 35 LA T0 P5	LLTHC 35 LA T1 P5	LLTHC 35 LA T2 P5
	P3	LLTHC 35 LA T0 P3	LLTHC 35 LA T1 P3	LLTHC 35 LA T2 P3
	P1	LLTHC 35 LA T0 P1	LLTHC 35 LA T1 P1	LLTHC 35 LA T2 P1
45	P5	LLTHC 45 LA T0 P5	LLTHC 45 LA T1 P5	LLTHC 45 LA T2 P5
	P3	LLTHC 45 LA T0 P3	LLTHC 45 LA T1 P3	LLTHC 45 LA T2 P3
	P1	LLTHC 45 LA T0 P1	LLTHC 45 LA T1 P1	LLTHC 45 LA T2 P1

¹⁾ • Preferred range.

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions					Carriage dimensions									
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₃	L ₄	W ₃	H ₄	H ₅	D ₃	S ₂	
20	63	21,5	30	6,7	5	89,5	66,2	40	15	53	9	5,7	5,2	M6×1,0	
25	70	23,5	36	10,8	7	106,5	79,1	45	16,6	57	12	6,5	6,7	M8×1,25	
30	90	31	42	8,8	9	125,4	92,4	52	14,6	72	11,5	8	8,5	M10×1,5	
35	100	33	48	12,1	9,5	142,9	105,5	62	14,6	82	13	8	8,5	M10×1,5	
45	120	37,5	60	12,1	14	168,5	128	80	14,6	100	15	8,5	10,4	M12×1,75	

Size	Rail dimensions										Weight		Load ratings ³⁾		Moments ³⁾			
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5			dynamic C	static C ₀	dynamic M _{xc}	static M _{xc0}	dynamic M _{yc} =M _{zc}	static M _{yc0} =M _{zc0}	
–	mm										kg	kg/m	N		Nm			
20	20	18	9,3	60	6	9,5	10	50	3 920	0,52	2,3	20 672	32 700	137	295	150	322	
25	23	22	12,3	60	7	11	10	50	3 920	0,72	3,3	32 672	44 600	252	460	287	525	
30	28	26	13,8	80	9	14	12	70	3 944	1,4	4,8	43 731	60 800	428	767	466	836	
35	34	29	17	80	9	14	12	70	3 944	2	6,6	54 630	79 400	694	1 224	706	1 246	
45	45	38	20,8	105	14	20	16	90	3 917	3,6	11,3	80 292	121 400	1 485	2 491	1 376	2 308	

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

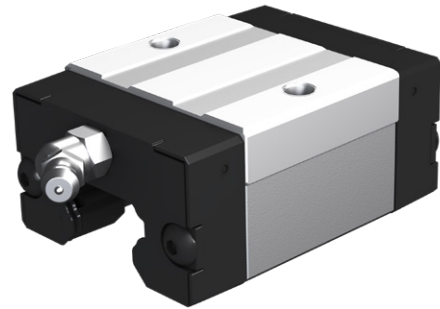
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.4 Carriage LLTHC ... SU

Slim-line carriage, short length,
standard height.

Carriages from size 15 to 30 are also
available with low friction S0 shield.
Dimensions are the same as standard
version. For designation, refer to
Ordering key carriages
(↳ page 103).



Technical data

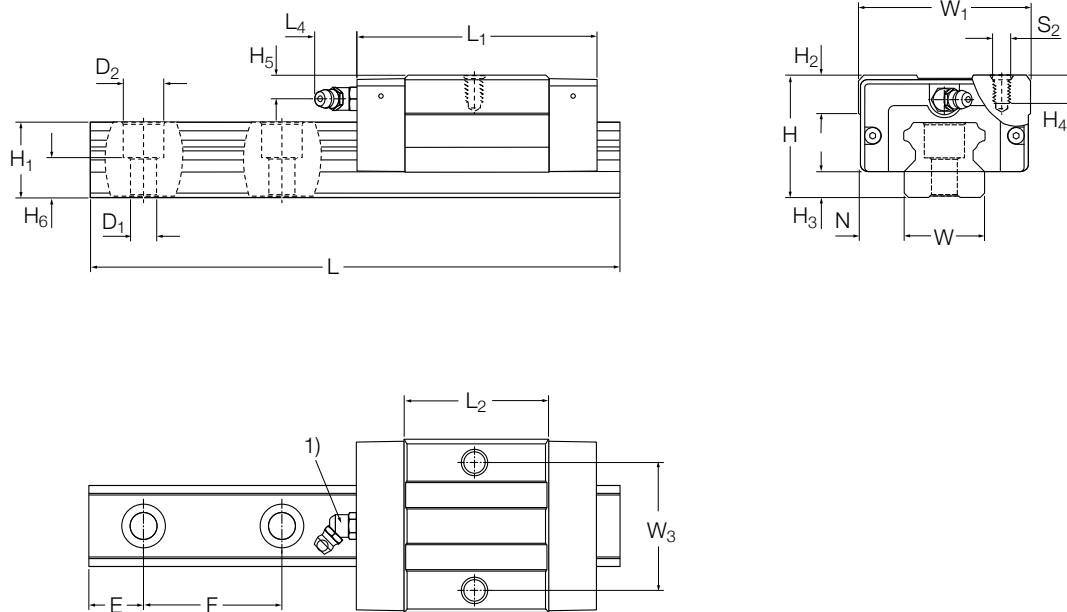
Size	Precision class	Designation ¹⁾ Preload class T0	T1
–		–	
15	P5	LLTHC 15 SU T0 P5	LLTHC 15 SU T1 P5
	P3	LLTHC 15 SU T0 P3	LLTHC 15 SU T1 P3
	P1		LLTHC 15 SU T1 P1
20	P5	LLTHC 20 SU T0 P5	LLTHC 20 SU T1 P5
	P3	LLTHC 20 SU T0 P3	LLTHC 20 SU T1 P3
	P1		LLTHC 20 SU T1 P1
25	P5	LLTHC 25 SU T0 P5	LLTHC 25 SU T1 P5
	P3	LLTHC 25 SU T0 P3	LLTHC 25 SU T1 P3
	P1		LLTHC 25 SU T1 P1
30	P5	LLTHC 30 SU T0 P5	LLTHC 30 SU T1 P5
	P3	LLTHC 30 SU T0 P3	LLTHC 30 SU T1 P3
	P1		LLTHC 30 SU T1 P1
35	P5	LLTHC 35 SU T0 P5	LLTHC 35 SU T1 P5
	P3	LLTHC 35 SU T0 P3	LLTHC 35 SU T1 P3
	P1		LLTHC 35 SU T1 P1

¹⁾ • Preferred range.

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions				Carriage dimensions							
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₄	W ₃	H ₄	H ₅	S ₂
15	34	9,5	24	4,8	4,6	48,9	25,6	4,3	26	4	4,3	M4x0,7
20	44	12	30	9,3	5	55,4	32,1	15	32	6,5	5,7	M5x0,8
25	48	12,5	36	9,6	7	66,2	38,8	16,6	35	6,5	6,5	M6x1,0
30	60	16	42	12,6	9	78	45	14,6	40	8,5	8	M8x1,25
35	70	18	48	12,3	9,5	88,8	51,4	14,6	50	10	8	M8x1,25

Size	Rail dimensions										Weight carriage rail	Load ratings ³⁾		Moments ³⁾			
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5	C		C ₀	dynamic M _{xC}	static M _{xC0}	dynamic M _{yC} =M _{zC}	static M _{yC0} =M _{zC0}	
-	mm										kg	kg/m	N	Nm			
15	15	14	4,5	60	7,5	8,5	10	50	3 920	0,1	1,4	7 830	9 000	39	60	21	32
20	20	18	6	60	9,5	9,3	10	50	3 920	0,17	2,3	12 566	14 400	83	130	41	64
25	23	22	7	60	11	12,3	10	50	3 920	0,21	3,3	18 077	19 600	139	202	73	106
30	28	26	9	80	14	13,8	12	70	3 944	0,48	4,8	24 768	26 600	242	335	120	166
35	34	29	9	80	14	17	12	70	3 944	0,8	6,6	30 957	34 800	393	536	182	248

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

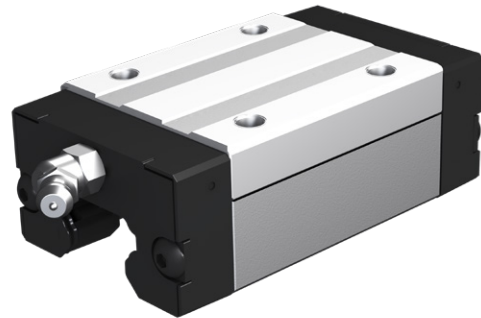
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.5 Carriage LLTHC ... U

Slim-line carriage, standard length, standard height.

Carriages from size 15 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (↳ page 103).



Technical data

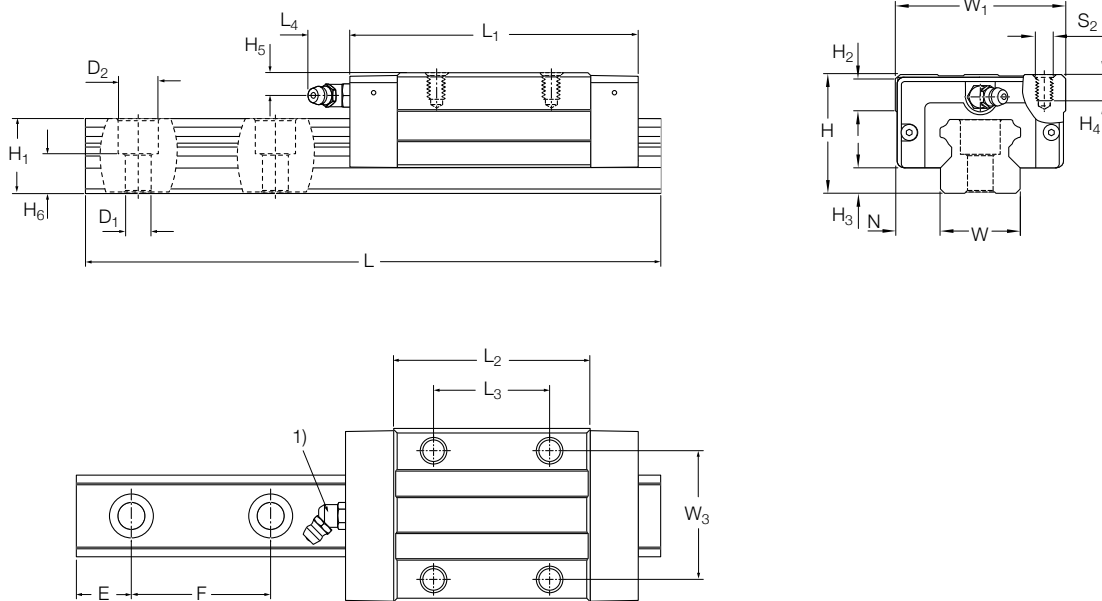
Size	Precision class	Designation ¹⁾ Preload class T0	T1	T2
-		-		
15	P5	LLTHC 15 U T0 P5	LLTHC 15 U T1 P5	LLTHC 15 U T2 P5
	P3	LLTHC 15 U T0 P3	LLTHC 15 U T1 P3	LLTHC 15 U T2 P3
	P1		LLTHC 15 U T1 P1	LLTHC 15 U T2 P1
20	P5	LLTHC 20 U T0 P5	LLTHC 20 U T1 P5	LLTHC 20 U T2 P5
	P3	LLTHC 20 U T0 P3	LLTHC 20 U T1 P3	LLTHC 20 U T2 P3
	P1		LLTHC 20 U T1 P1	LLTHC 20 U T2 P1
25	P5	LLTHC 25 U T0 P5	LLTHC 25 U T1 P5	LLTHC 25 U T2 P5
	P3	LLTHC 25 U T0 P3	LLTHC 25 U T1 P3	LLTHC 25 U T2 P3
	P1		LLTHC 25 U T1 P1	LLTHC 25 U T2 P1
30	P5	LLTHC 30 U T0 P5	LLTHC 30 U T1 P5	LLTHC 30 U T2 P5
	P3	LLTHC 30 U T0 P3	LLTHC 30 U T1 P3	LLTHC 30 U T2 P3
	P1		LLTHC 30 U T1 P1	LLTHC 30 U T2 P1
35	P5	LLTHC 35 U T0 P5	LLTHC 35 U T1 P5	LLTHC 35 U T2 P5
	P3	LLTHC 35 U T0 P3	LLTHC 35 U T1 P3	LLTHC 35 U T2 P3
	P1		LLTHC 35 U T1 P1	LLTHC 35 U T2 P1
45	P5	LLTHC 45 U T0 P5	LLTHC 45 U T1 P5	LLTHC 45 U T2 P5
	P3	LLTHC 45 U T0 P3	LLTHC 45 U T1 P3	LLTHC 45 U T2 P3
	P1		LLTHC 45 U T1 P1	LLTHC 45 U T2 P1

¹⁾ • Preferred range.

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions				Carriage dimensions								
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₃	L ₄	W ₃	H ₄	H ₅	S ₂
15	34	9,5	24	4,8	4,6	63,3	40	26	4,3	26	4	4,3	M4×0,7
20	44	12	30	9,3	5	73,3	50	36	15	32	6,5	5,7	M5×0,8
25	48	12,5	36	9,6	7	84,4	57	35	16,6	35	6,5	6,5	M6×1,0
30	60	16	42	12,6	9	100,4	67,4	40	14,6	40	8,5	8	M8×1,25
35	70	18	48	12,3	9,5	114,4	77	50	14,6	50	10	8	M8×1,25
45	86	20,5	60	12,7	14	136,5	96	60	14,6	60	12	8,5	M10×1,5

Size	Rail dimensions									Weight		Load ratings ³⁾		Moments ³⁾			
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5	carriage static	dynamic	static	dynamic	static	dynamic	static	
–	mm									kg	kg/m	N	Nm				
15	15	14	8,5	60	4,5	7,5	10	50	3 920	0,17	1,4	11 374	15 400	56	103	49	90
20	20	18	9,3	60	6	9,5	10	50	3 920	0,26	2,3	16 864	24 550	112	221	90	179
25	23	22	12,3	60	7	11	10	50	3 920	0,38	3,3	25 173	30 700	194	316	155	254
30	28	26	13,8	80	9	14	12	70	3 944	0,81	4,8	33 669	41 900	329	528	256	410
35	34	29	17	80	9	14	12	70	3 944	1,2	6,6	42 126	54 650	535	842	388	611
45	45	38	20,8	105	14	20	16	90	3 917	2,1	11,3	65 653	91 100	1 215	1 869	825	1 270

¹⁾ For detailed information on grease nipples, please refer to **page 70** .

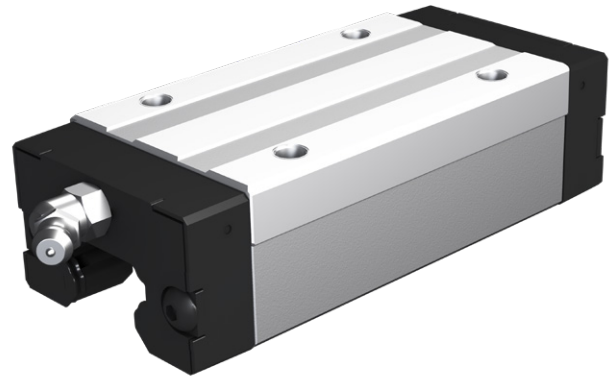
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.6 Carriage LLTHC ... LU

Slim-line carriage, extended length, standard height.

Carriages from size 25 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (→ page 105).



Technical data

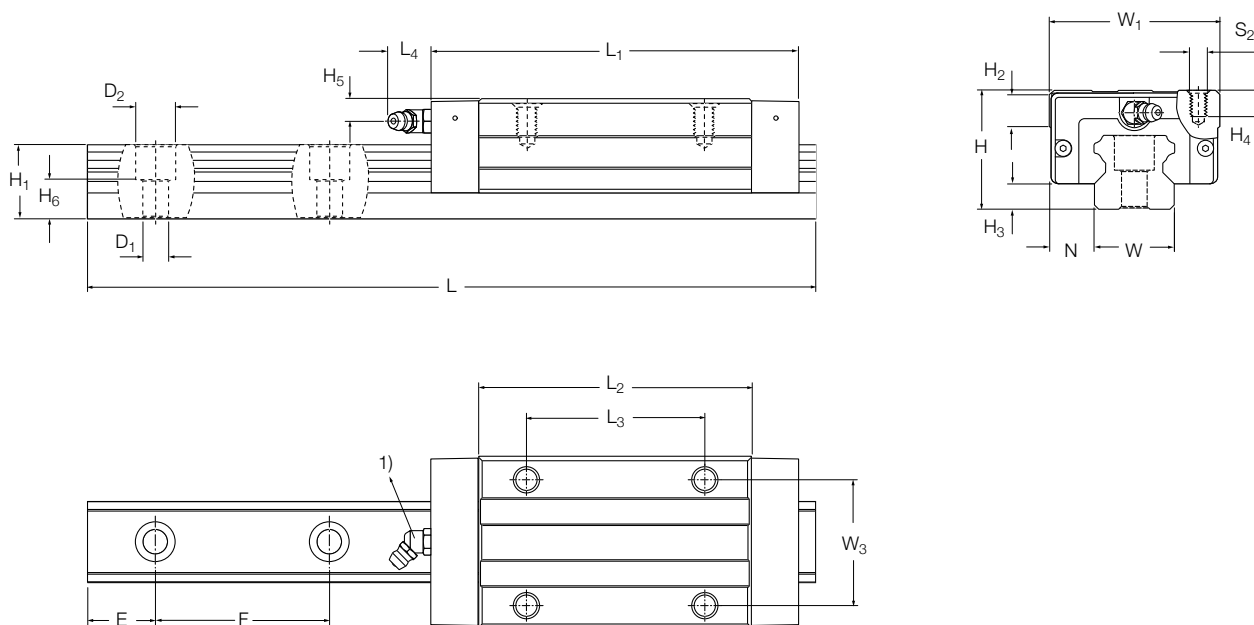
Size	Precision class	Designation ¹⁾ Preload class T0	T1		T2	
-		-				
25	P5	LLTHC 25 LU T0 P5	LLTHC 25 LU T1 P5	LLTHC 25 LU T2 P5		
	P3	LLTHC 25 LU T0 P3	LLTHC 25 LU T1 P3	LLTHC 25 LU T2 P3		
	P1		LLTHC 25 LU T1 P1	LLTHC 25 LU T2 P1		
30	P5	LLTHC 30 LU T0 P5	LLTHC 30 LU T1 P5	LLTHC 30 LU T2 P5		
	P3	LLTHC 30 LU T0 P3	LLTHC 30 LU T1 P3	LLTHC 30 LU T2 P3		
	P1		LLTHC 30 LU T1 P1	LLTHC 30 LU T2 P1		
35	P5	LLTHC 35 LU T0 P5	LLTHC 35 LU T1 P5	LLTHC 35 LU T2 P5		
	P3	LLTHC 35 LU T0 P3	LLTHC 35 LU T1 P3	LLTHC 35 LU T2 P3		
	P1		LLTHC 35 LU T1 P1	LLTHC 35 LU T2 P1		
45	P5	LLTHC 45 LU T0 P5	LLTHC 45 LU T1 P5	LLTHC 45 LU T2 P5		
	P3	LLTHC 45 LU T0 P3	LLTHC 45 LU T1 P3	LLTHC 45 LU T2 P3		
	P1		LLTHC 45 LU T1 P1	LLTHC 45 LU T2 P1		

¹⁾ • Preferred range.

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions					Carriage dimensions								
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₃	L ₄	W ₃	H ₄	H ₅	S ₂	
25	48	12,5	36	9,6	7	106,5	79,1	50	16,6	35	6,5	6,5	M6x1,0	
30	60	16	42	12,6	9	125,4	92,4	60	14,6	40	8,5	8	M8x1,25	
35	70	18	48	12,3	9,5	142,9	105,5	72	14,6	50	10	8	M8x1,25	
45	86	20,5	60	12,7	14	168,5	128	80	14,6	60	12	8,5	M10x1,5	

Size	Rail dimensions										Weight		Load ratings ³⁾		Moments ³⁾			
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5	carriage rail		dynamic C	static C ₀	dynamic M _{xC}	static M _{xC₀}	dynamic M _{yC} =M _{zC}	static M _{yC₀} =M _{zC₀}	
-	mm										kg	kg/m	N		Nm			
25	23	22	12,3	60	7	11	10	50	3 920	0,47	3,3	32 672	44 600	252	460	287	525	
30	28	26	13,8	80	9	14	12	70	3 944	0,82	4,8	43 731	60 800	428	767	466	836	
35	34	29	17	80	9	14	12	70	3 944	1,26	6,6	54 630	79 400	694	1 224	706	1 246	
45	45	38	20,8	105	14	20	16	90	3 917	2,11	11,3	80 292	121 400	1 485	2 491	1 376	2 308	

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

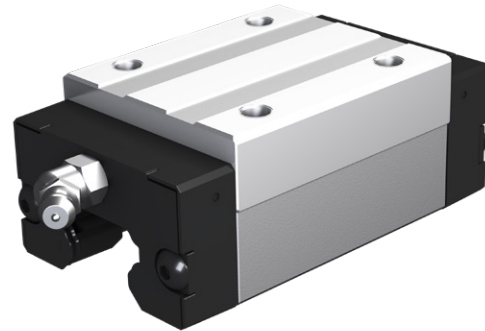
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.7 Carriage LLTHC ... R

Slim-line carriage, standard length, extended height.

Carriages from size 15 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (↳ page 103).



Technical data

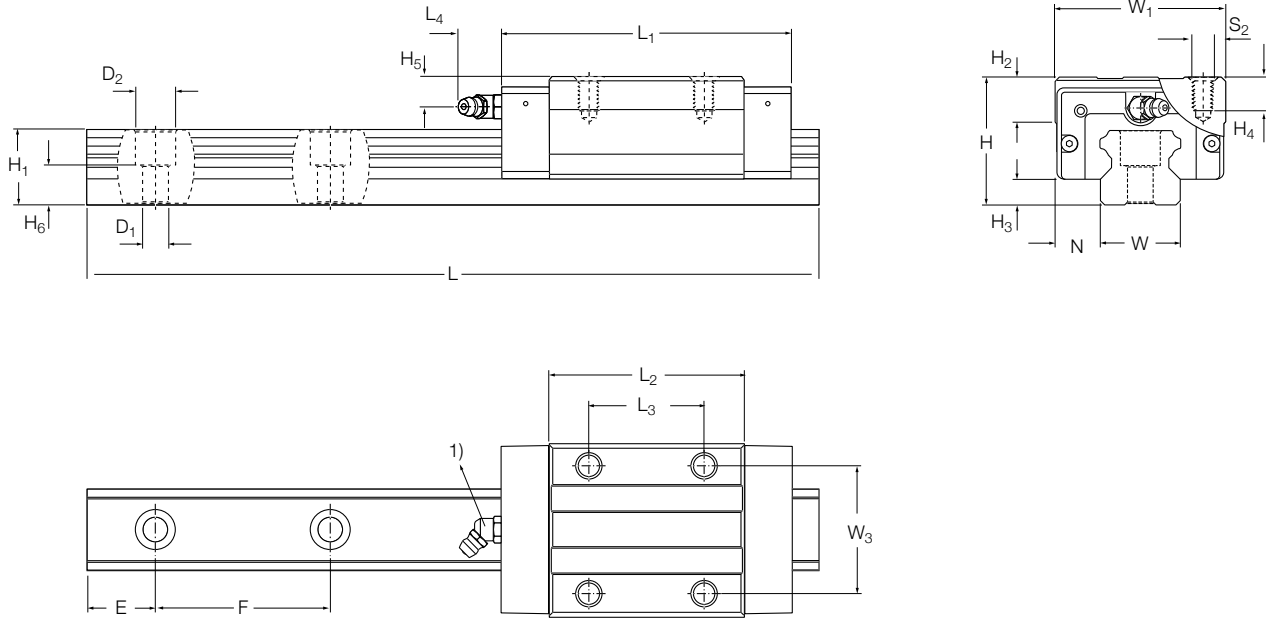
Size	Precision class	Designation ¹⁾ Preload class T0	T1	T2
-		-		
15	P5	LLTHC 15 R T0 P5	LLTHC 15 R T1 P5	LLTHC 15 R T2 P5
	P3	LLTHC 15 R T0 P3	LLTHC 15 R T1 P3	LLTHC 15 R T2 P3
	P1		LLTHC 15 R T1 P1	LLTHC 15 R T2 P1
25	P5	LLTHC 25 R T0 P5	LLTHC 25 R T1 P5	LLTHC 25 R T2 P5
	P3	LLTHC 25 R T0 P3	LLTHC 25 R T1 P3	LLTHC 25 R T2 P3
	P1		LLTHC 25 R T1 P1	LLTHC 25 R T2 P1
30	P5	LLTHC 30 R T0 P5	LLTHC 30 R T1 P5	LLTHC 30 R T2 P5
	P3	LLTHC 30 R T0 P3	LLTHC 30 R T1 P3	LLTHC 30 R T2 P3
	P1		LLTHC 30 R T1 P1	LLTHC 30 R T2 P1
35	P5	LLTHC 35 R T0 P5	LLTHC 35 R T1 P5	LLTHC 35 R T2 P5
	P3	LLTHC 35 R T0 P3	LLTHC 35 R T1 P3	LLTHC 35 R T2 P3
	P1		LLTHC 35 R T1 P1	LLTHC 35 R T2 P1
45	P5	LLTHC 45 R T0 P5	LLTHC 45 R T1 P5	LLTHC 45 R T2 P5
	P3	LLTHC 45 R T0 P3	LLTHC 45 R T1 P3	LLTHC 45 R T2 P3
	P1		LLTHC 45 R T1 P1	LLTHC 45 R T2 P1

¹⁾ • Preferred range.

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions					Carriage dimensions								
	W1	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₃	L ₄	W ₃	H ₄	H ₅	S ₂	
-	mm													
15	34	9,5	28	8,8	4,6	63,3	40	26	15	26	7,5	8,3	M4x0,7	
25	48	12,5	40	13,6	7	84,4	57	35	16,6	35	10	10,5	M6x1,0	
30	60	16	45	15,6	9	100,4	67,4	40	14,6	40	11,2	11	M8x1,25	
35	70	18	55	19,3	9,5	114,4	77	50	14,6	50	17	15	M8x1,25	
45	86	20,5	70	22,7	14	136,5	96	60	14,6	60	20,5	18,5	M10x1,5	

Size	Rail dimensions										Weight		Load ratings ³⁾		Moments ³⁾			
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5		carriage	rail	dynamic C	static C ₀	dynamic M _x C	static M _x C ₀	dynamic M _{yc} =M _{zc}	static M _{yc0} =M _{zc0}
-	mm										kg	kg/m	N		Nm			
15	15	14	8,5	60	4,5	7,5	10	50	3 920	0,19	1,4	11 374	15 400	56	103	49	90	
25	23	22	12,3	60	7	11	10	50	3 920	0,45	3,3	25 173	30 700	194	316	155	254	
30	28	26	13,8	80	9	14	12	70	3 944	0,91	4,8	33 669	41 900	329	528	256	410	
35	34	29	17	80	9	14	12	70	3 944	1,5	6,6	42 126	54 650	535	842	388	611	
45	45	38	20,8	105	14	20	16	90	3 917	2,3	11,3	65 653	91 100	1 215	1 869	825	1 270	

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

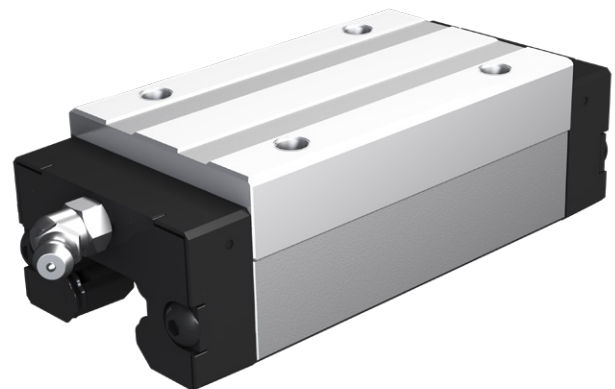
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.1.8 Carriage LLTHC ... LR

Slim-line carriage, extended length, extended height.

Carriages from size 20 to 30 are also available with low friction S0 shield. Dimensions are the same as standard version. For designation, refer to **Ordering key carriages** (↳ page 103).



Technical data

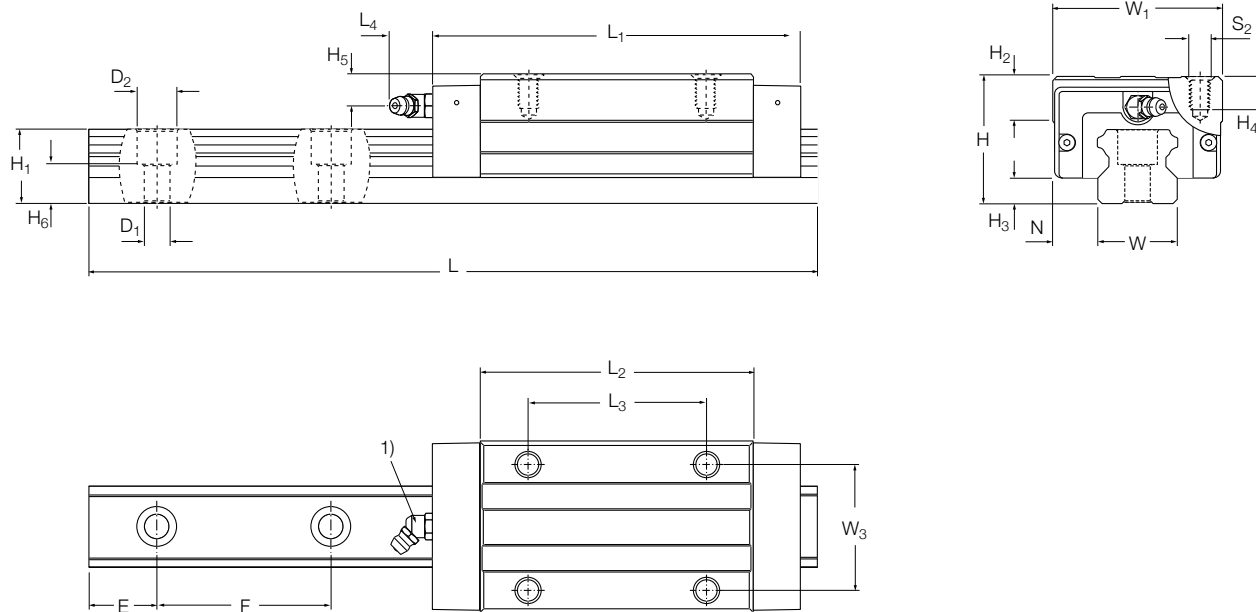
Size	Precision class	Designation ¹⁾		
		Preload class T0	T1	T2
–		–		
20	P5	LLTHC 20 LR T0 P5	LLTHC 20 LR T1 P5	LLTHC 20 LR T2 P5
	P3	LLTHC 20 LR T0 P3	LLTHC 20 LR T1 P3	LLTHC 20 LR T2 P3
	P1		LLTHC 20 LR T1 P1	LLTHC 20 LR T2 P1
25	P5	LLTHC 25 LR T0 P5	LLTHC 25 LR T1 P5	LLTHC 25 LR T2 P5
	P3	LLTHC 25 LR T0 P3	LLTHC 25 LR T1 P3	LLTHC 25 LR T2 P3
	P1		LLTHC 25 LR T1 P1	LLTHC 25 LR T2 P1
30	P5	LLTHC 30 LR T0 P5	LLTHC 30 LR T1 P5	LLTHC 30 LR T2 P5
	P3	LLTHC 30 LR T0 P3	LLTHC 30 LR T1 P3	LLTHC 30 LR T2 P3
	P1		LLTHC 30 LR T1 P1	LLTHC 30 LR T2 P1
35	P5	LLTHC 35 LR T0 P5	LLTHC 35 LR T1 P5	LLTHC 35 LR T2 P5
	P3	LLTHC 35 LR T0 P3	LLTHC 35 LR T1 P3	LLTHC 35 LR T2 P3
	P1		LLTHC 35 LR T1 P1	LLTHC 35 LR T2 P1
45	P5	LLTHC 45 LR T0 P5	LLTHC 45 LR T1 P5	LLTHC 45 LR T2 P5
	P3	LLTHC 45 LR T0 P3	LLTHC 45 LR T1 P3	LLTHC 45 LR T2 P3
	P1		LLTHC 45 LR T1 P1	LLTHC 45 LR T2 P1

¹⁾ • Preferred range,

• Only available as system.

For designation, please refer to designation system.

Dimensional drawing



Size	Assembly dimensions					Carriage dimensions								
	W ₁ mm	N	H	H ₂	H ₃	L ₁ ²⁾	L ₂	L ₃	L ₄	W ₃	H ₄	H ₅	S ₂	
20	44	12	30	9,3	5	89,5	66,2	50	15	32	6,5	5,7	M5×0,8	
25	48	12,5	40	13,6	7	106,5	79,1	50	16,6	35	10	10,5	M6×1,0	
30	60	16	45	15,6	9	125,4	92,4	60	14,6	40	11,2	11	M8×1,25	
35	70	18	55	19,3	9,5	142,9	105,5	72	14,6	50	17	15	M8×1,25	
45	86	20,5	70	22,7	14	168,5	128	80	14,6	60	20,5	18,5	M10×1,5	

Size	Rail dimensions										Weight carriage rail kg	Load ratings ³⁾ dynamic C	static C ₀	Moments ³⁾			
	W	H ₁	H ₆	F	D ₁	D ₂	E _{min} ±0,75	E _{max} ±0,75	L _{max} ±1,5	dynamic M _{xc}				static M _{xc0}	dynamic M _{yc} =M _{zc}	static M _{yc0} =M _{zc0}	
–	mm										kg	kg/m	N	Nm			
20	20	18	9,3	60	6	9,5	10	50	3 920	0,47	2,3	20 672	32 700	137	295	150	322
25	23	22	12,3	60	7	11	10	50	3 920	0,56	3,3	32 672	44 600	252	460	287	525
30	28	26	13,8	80	9	14	12	70	3 944	1,2	4,8	43 731	60 800	428	767	466	836
35	34	29	17	80	9	14	12	70	3 944	1,9	6,6	54 630	79 400	694	1 224	706	1 246
45	45	38	20,8	105	14	20	16	90	3 917	2,8	11,3	80 292	121 400	1 485	2 491	1 376	2 308

¹⁾ For detailed information on grease nipples, please refer to **page 70**.

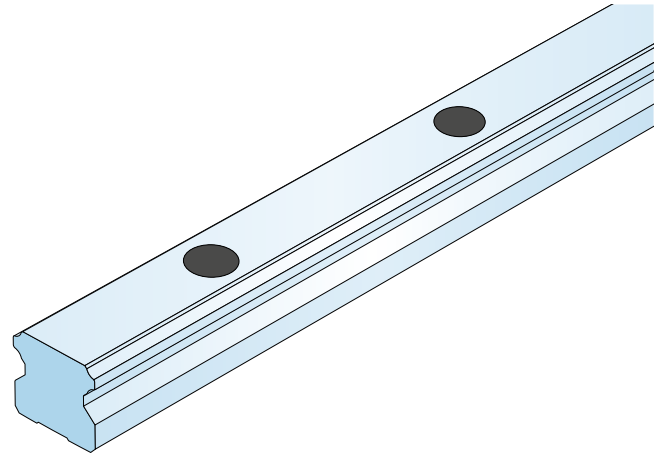
²⁾ The value comprises the portion of the screw head that sticks out.

³⁾ Dynamic load capacities and moments are based on a travel life of 100 km. Please refer to **page 15** for further details.

3.2 Rail data

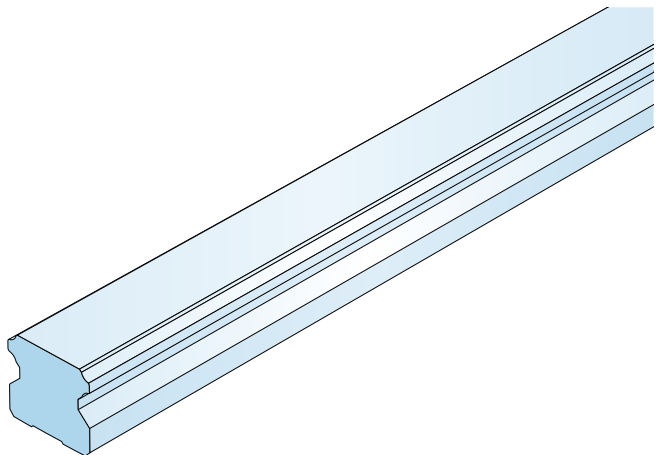
LLTHR rails

Supplied with protective plastic caps for mounting from above.



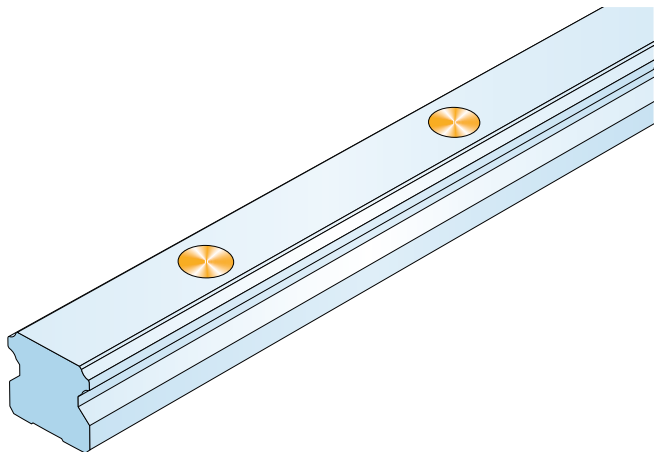
LLTHR ... D4 rails

With blind holes for mounting from below.



LLTHR ... D6 rails

Supplied with protective metal plugs for mounting from above.



3.2.1 LLTHR rails

Rails are supplied with protective plastic caps for mounting from above. For designation, refer to **Ordering key rails** (→ page 104).

NOTE: If a rail length is required that exceeds the maximum length available, jointed rails can be ordered. These rails are manufactured so they match seamlessly to each other.

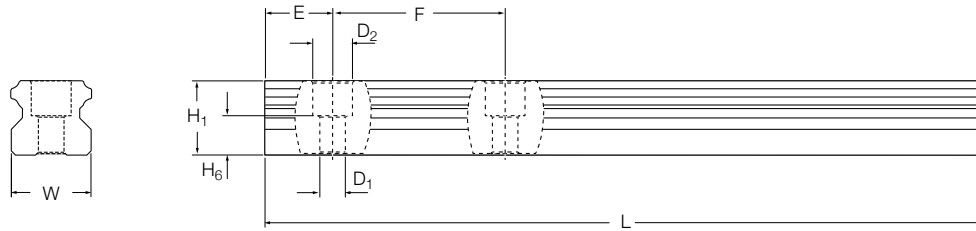


Technical data

Size	Precision class	Designation ¹⁾		Pitch F mm
		One-piece rail	Multi-piece rail	
–	–	–	–	–
15	P5	LLTHR 15 - ... P5	LLTHR 15 - ... P5 A	60
	P3	LLTHR 15 - ... P3	LLTHR 15 - ... P3 A	
	P1	LLTHR 15 - ... P1	LLTHR 15 - ... P1 A	
20	P5	LLTHR 20 - ... P5	LLTHR 20 - ... P5 A	60
	P3	LLTHR 20 - ... P3	LLTHR 20 - ... P3 A	
	P1	LLTHR 20 - ... P1	LLTHR 20 - ... P1 A	
25	P5	LLTHR 25 - ... P5	LLTHR 25 - ... P5 A	60
	P3	LLTHR 25 - ... P3	LLTHR 25 - ... P3 A	
	P1	LLTHR 25 - ... P1	LLTHR 25 - ... P1 A	
30	P5	LLTHR 30 - ... P5	LLTHR 30 - ... P5 A	80
	P3	LLTHR 30 - ... P3	LLTHR 30 - ... P3 A	
	P1	LLTHR 30 - ... P1	LLTHR 30 - ... P1 A	
35	P5	LLTHR 35 - ... P5	LLTHR 35 - ... P5 A	80
	P3	LLTHR 35 - ... P3	LLTHR 35 - ... P3 A	
	P1	LLTHR 35 - ... P1	LLTHR 35 - ... P1 A	
45	P5	LLTHR 45 - ... P5	LLTHR 45 - ... P5 A	105
	P3	LLTHR 45 - ... P3	LLTHR 45 - ... P3 A	
	P1	LLTHR 45 - ... P1	LLTHR 45 - ... P1 A	

¹⁾ • **Preferred range,**
 • Only available as system.
 By rail length in mm, e.g. LLTHR 15 -1000 P5

Dimensional drawing



Size	Dimensions									Weight
	W	H ₁	H ₆	D ₁	D ₂	E _{min}	E _{max}	F	L _{max}	
-	mm									kg/m
15	15	14	8,5	4,5	7,5	10	50	60	3 920	1,4
20	20	18	9,3	6	9,5	10	50	60	3 920	2,3
25	23	22	12,3	7	11	10	50	60	3 920	3,3
30	28	26	13,8	9	14	12	70	80	3 944	4,8
35	34	29	17	9	14	12	70	80	3 944	6,6
45	45	38	20,8	14	20	16	90	105	3 917	11,3

The “E” dimension designates the distance from the rail end to centre of the first attachment hole. If no specific “E” dimension is provided by the customer with the order, the rails are produced according to the following formulae:

Calculation of number of attachment holes in rail guide

(1)
$$n_{\text{real}} = \frac{L}{F}$$

(2) Round down of n_{real} to n

(3) $n + 1 = z$

F = Distance of attachment holes

L = Rail length

n_{real} = Real calculation value number of hole distances

z = Number of attachment holes in rail

Determination of E dimension based on z

(4)
$$E_{\text{real}} = \frac{L - F(z - 1)}{2}$$

E_{real} = Real calculation value for E-dimension

E_{min} = Minimum E-dimension according to catalogue

Comparison with catalogue value of E_{min}

(4.1) If $E_{\text{real}} \geq E_{\text{min}}$
Usage of E_{real} from **formula 4**

(4.2) If $E_{\text{real}} < E_{\text{min}}$
Calculation of E_{real} according to **formula 5**

(5)
$$E_{\text{real}} = \frac{L - F(z - 2)}{2}$$

3.2.2 LLTHR rails ... D4 rails

For mounting from below. For designation, refer to **Ordering key rails** (↳ page 104).

NOTE: If a rail length is required that exceeds the maximum length available, jointed rails can be ordered. These rails are manufactured so they match seamlessly to each other.



Technical data

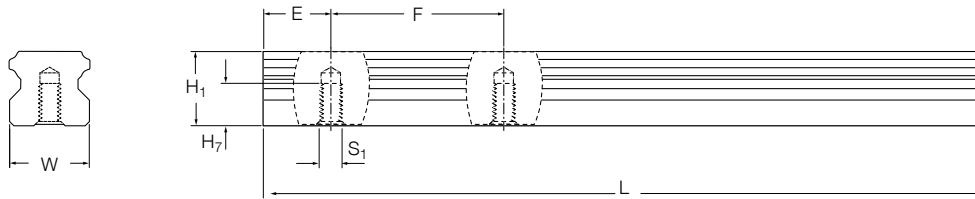
Standard rail size	Precision class	Designation ¹⁾		Pitch F mm
		One-piece rail	Multi-piece rail	
–	–	–	–	–
15	P5	LLTHR 15 - ... P5 D4	LLTHR 15 - ... P5 A D4	60
	P3	LLTHR 15 - ... P3 D4	LLTHR 15 - ... P3 A D4	
	P1	LLTHR 15 - ... P1 D4	LLTHR 15 - ... P1 A D4	
20	P5	LLTHR 20 - ... P5 D4	LLTHR 20 - ... P5 A D4	60
	P3	LLTHR 20 - ... P3 D4	LLTHR 20 - ... P3 A D4	
	P1	LLTHR 20 - ... P1 D4	LLTHR 20 - ... P1 A D4	
25	P5	LLTHR 25 - ... P5 D4	LLTHR 25 - ... P5 A D4	60
	P3	LLTHR 25 - ... P3 D4	LLTHR 25 - ... P3 A D4	
	P1	LLTHR 25 - ... P1 D4	LLTHR 25 - ... P1 A D4	
30	P5	LLTHR 30 - ... P5 D4	LLTHR 30 - ... P5 A D4	80
	P3	LLTHR 30 - ... P3 D4	LLTHR 30 - ... P3 A D4	
	P1	LLTHR 30 - ... P1 D4	LLTHR 30 - ... P1 A D4	
35	P5	LLTHR 35 - ... P5 D4	LLTHR 35 - ... P5 A D4	80
	P3	LLTHR 35 - ... P3 D4	LLTHR 35 - ... P3 A D4	
	P1	LLTHR 35 - ... P1 D4	LLTHR 35 - ... P1 A D4	
45	P5	LLTHR 45 - ... P5 D4	LLTHR 45 - ... P5 A D4	105
	P3	LLTHR 45 - ... P3 D4	LLTHR 45 - ... P3 A D4	
	P1	LLTHR 45 - ... P1 D4	LLTHR 45 - ... P1 A D4	

¹⁾ • Preferred range,

• Only available as system.

replace "... " by rail length in mm, e. g. LLTHR 15 - 1000 P5 D4

Dimensional drawing



Size	Dimensions								Weight
	W	H ₁	H ₇	S ₁	E _{min}	E _{max}	F	L _{max}	
–	mm								kg/m
15	15	14	8	M5	10	50	60	3 920	1,4
20	20	18	10	M6	10	50	60	3 920	2,4
25	23	22	12	M6	10	50	60	3 920	3,4
30	28	26	15	M8	12	70	80	3 944	5,0
35	34	29	17	M8	12	70	80	3 944	6,8
45	45	38	24	M12	16	90	105	3 917	11,8

The “E” dimension designates the distance from the rail end to centre of the first attachment hole. If no specific “E” dimension is provided by the customer with the order, the rails are produced according to the following formulae:

Calculation of number of attachment holes in rail guide

$$(1) \quad n_{\text{real}} = \frac{L}{F}$$

(2) Round down of n_{real} to n

$$(3) \quad n + 1 = z$$

F = Distance of attachment holes

L = Rail length

n_{real} = Real calculation value for number of hole distances

z = Number of attachment holes in rail

Determination of E dimension based on z

$$(4) \quad E_{\text{real}} = \frac{L - F(z - 1)}{2}$$

E_{real} = Real calculation value for E-dimension

E_{min} = Minimum E-dimension according to catalogue

Comparison with catalogue value of E_{min}

(4.1) If $E_{\text{real}} \geq E_{\text{min}}$
Usage of E_{real} from **formula 4**

(4.2) If $E_{\text{real}} < E_{\text{min}}$
Calculation of E_{real} according to **formula 5**

$$(5) \quad E_{\text{real}} = \frac{L - F(z - 2)}{2}$$

3.2.3 LLTHR ... D6 rails

Rails are supplied with protective metal plugs for mounting from above. For designation, refer to

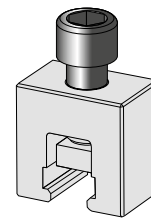
Ordering key rails (→ page 104).

Protective metal plugs ensure that no residues of dirt, swarf, cooling water and other contaminants remain in the area of the attachment holes. After insertion, these plugs align flush with the surface of the profile rail guide to provide effective wiping. The use of additional scraper plates in combination with these protective metal plugs is an option which will further enhance protection (→ page 62).

NOTE: If a rail length is required that exceeds the maximum length available, jointed rails can be ordered. These rails are manufactured so they match seamlessly to each other.



Size-specific mounting tools from Ewellix are needed for installing the protective metal plugs. Please refer to page 104 for ordering the mounting tool.



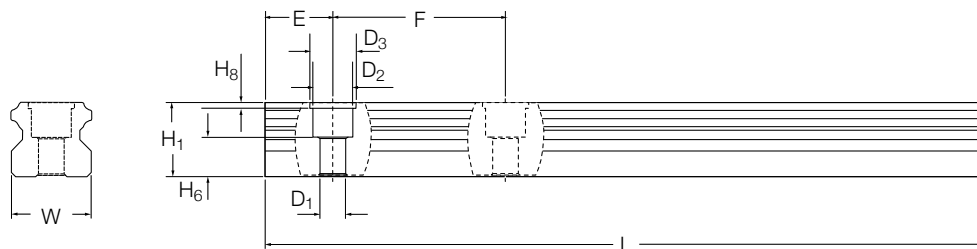
Mounting tool for installing protective metal plugs

Technical data

Standard rail size	Precision class	Designation ¹⁾		Pitch F mm
		One-piece rail	Multi-piece rail	
–	–	–	–	–
25	P5	LLTHR 25 - ... P5 D6	LLTHR 25 - ... P5 A D6	60
	P3	LLTHR 25 - ... P3 D6	LLTHR 25 - ... P3 A D6	
	P1	LLTHR 25 - ... P1 D6	LLTHR 25 - ... P1 A D6	
30	P5	LLTHR 30 - ... P5 D6	LLTHR 30 - ... P5 A D6	80
	P3	LLTHR 30 - ... P3 D6	LLTHR 30 - ... P3 A D6	
	P1	LLTHR 30 - ... P1 D6	LLTHR 30 - ... P1 A D6	
35	P5	LLTHR 35 - ... P5 D6	LLTHR 35 - ... P5 A D6	80
	P3	LLTHR 35 - ... P3 D6	LLTHR 35 - ... P3 A D6	
	P1	LLTHR 35 - ... P1 D6	LLTHR 35 - ... P1 A D6	
45	P5	LLTHR 45 - ... P5 D6	LLTHR 45 - ... P5 A D6	105
	P3	LLTHR 45 - ... P3 D6	LLTHR 45 - ... P3 A D6	
	P1	LLTHR 45 - ... P1 D6	LLTHR 45 - ... P1 A D6	

¹⁾ • Preferred range,
 • Only available as system.
 replace “...” by rail length in mm, e. g. LLTHR 15 - 1000 P5 D4

Dimensional drawing



Size	Dimensions											Weight
	W	H ₁	H ₆	H ₈	D ₁	D ₂	D ₃	E _{min}	E _{max}	F	L _{max}	
-	mm											kg/m
25	23	22	12,3	2,2	7	11	13	10	50	60	3 920	3,3
30	28	26	13,8	2,2	9	14	16	12	70	80	3 944	4,8
35	34	29	17	2,2	9	14	16	12	70	80	3 944	6,6
45	45	38	20,8	2,2	14	20	25	16	90	105	3 917	11,3

The “E” dimension designates the distance from the rail end to centre of the first attachment hole. If no specific “E” dimension is provided by the customer with the order, the rails are produced according to the following formulae:

Calculation of number of attachment holes in rail guide

(1) $n_{real} = \frac{L}{F}$

(2) Round down of n_{real} to n

(3) $n + 1 = z$

F = Distance of attachment holes

L = Rail length

n_{real} = Real calculation value for number of hole distances

z = Number of attachment holes in rail

Determination of E dimension based on z

(4) $E_{real} = \frac{L - F(z - 1)}{2}$

E_{real} = Real calculation value for E-dimension

E_{min} = Minimum E-dimension according to catalogue

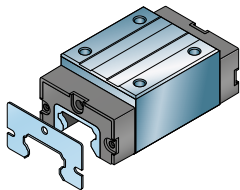
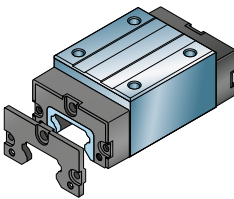
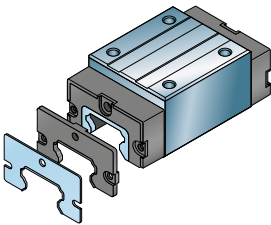
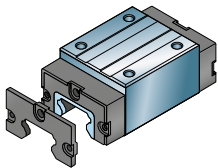
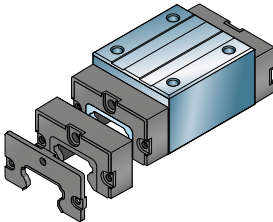
Comparison with catalogue value of E_{min}

(4.1) If $E_{real} \geq E_{min}$
Usage of E_{real} from **formula 4**

(4.2) If $E_{real} < E_{min}$
Calculation of E_{real} according to **formula 5**

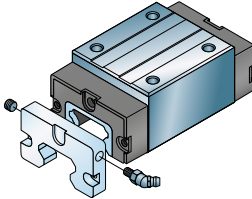
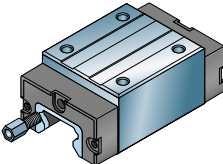
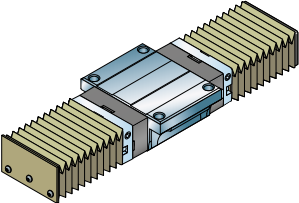
(5) $E_{real} = \frac{L - F(z - 2)}{2}$

3.3 Accessories

Accessories	Illustration ¹⁾	Purpose
Item name		
Scraper plate LLTHZ ... S1		Scraper plates are spring-steel, non-contact components. They protect the front seal from coarse contaminants or hot metal chips.
Additional front seal LLTHZ ... S7		Additional front seals are contact seals that can be attached to the carriage end faces. They are single-lip seals consisting of special heavy-duty material and offer additional protection against liquids and smaller contaminants. An additional front seal, in combination with carriages equipped with a low friction S0 shield, result in a sealed system with lower friction.
Seal kit LLTHZ ... S3		The seal kit consists of a metal scraper and an additional front seal. It is intended for applications involving exposure to coarse and fine dirt as well as liquids.
Low friction shield LLTHZ ... S0		The low friction shield has no contact with the rail. It replaces the standard front seal and results in a reduced friction force. Since the sealing function is not in place at the front ends of the carriage, the lubrication interval is reduced. The low friction shield is available for carriages from size 15 to 30.
Lube element LLTHZ ... S6		The lube element is designed to enhance the service life of a profile rail guide system. It provides an additional lubrication reservoir which consists of foam filled with oil in permanent contact with the raceways at the rail. By capillary attraction of the foam, the oil is constantly dosed in the correct amount. The ball elements roll through the applied oil film, whereby the optimal tribological conditions are maintained. The lube element is mounted on the end plate. The use of the originally delivered front seal keeps the dirt outside and the lubricant inside the carriage.

¹⁾ Appearance can vary slightly depending on the size

Accessories

Item name	Illustration ¹⁾	Purpose
Adapter plate LLTHZ ... PL		Adapter plates provide a side lubrication point, either for a grease nipple or for central lubrication systems. The interface of the adapter plate is the same on both sides. The adapter plate can be mounted on both end sides of the carriage. Usually only one adapter plate is used per carriage. Please note that this accessory is also part of the bellow sets.
Lubrication connector LLTHZ ... VN UA		The lubrication connector is used to provide an interface for central lubrication systems. The lubrication connector can be mounted on both end sides of the carriage. Usually only one lubrication connector is used per carriage. Please note that the lubrication connector cannot be used in combination with additional seals (scraper plate, additional front seal, seal kit and adapter plate).
Bellows LLTHZ ... B		Bellows protect the entire system against solid and liquid contaminants from above. They are suitable for highly contaminated environments like machining centres in the woodworking and metals industries.

¹⁾ Appearance can vary slightly depending on the size

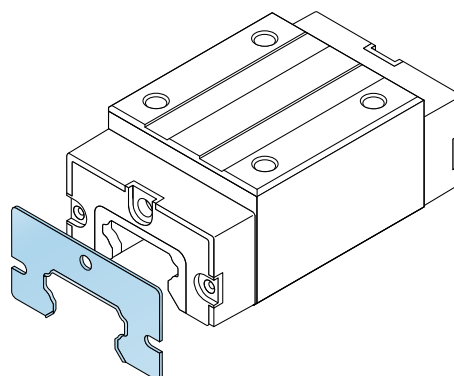
3.3.1 Scraper plate (S1)

- Material: spring steel according to DIN EN 10088
- Appearance: black
- Designed with a specified maximum gap of 0,2 to 0,3 mm

Mounting

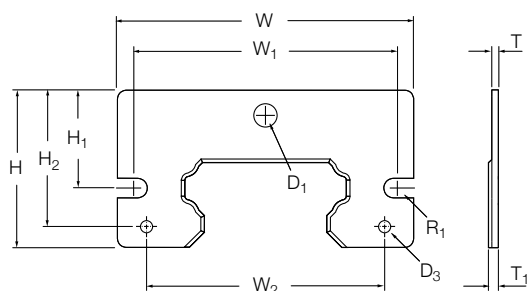
Mounting screws and grease nipple are included. When mounting, be sure there is an even space between the rail and scraper plate.

NOTE: Can be ordered in combination with an additional front seal as a kit. For designation, refer to **Ordering key accessories** (↳ page 104).



Appearance can vary slightly depending on the size.

Dimensional drawing



Size	Part designation	Dimensions										
		D ₁ mm	D ₃	R ₁	W	W ₁	W ₂	H	H ₁	H ₂	T	T ₁
15	LLTHZ 15 S1	3,6	–	1,75	31,6	25,8	–	18,5	12	–	1,5	2,3
20	LLTHZ 20 S1	5,5	–	1,75	42,6	35	–	24,2	14,8	–	1,5	2,3
25	LLTHZ 25 S1	5,5	–	2,25	46,6	39,6	–	27,7	16,8	–	1,5	2,3
30	LLTHZ 30 S1	6,5	–	1,75	57	50	–	30,4	19,3	–	1,5	2,3
35	LLTHZ 35 S1	6,5	3,4	2,25	67,3	59,2	52	36,3	22,1	30,1	1,5	2,3
45	LLTHZ 45 S1	6,5	3,4	2,75	83,3	72	67	44,2	27,5	38,3	1,5	2,3

3.3.2 Additional front seal (S7)

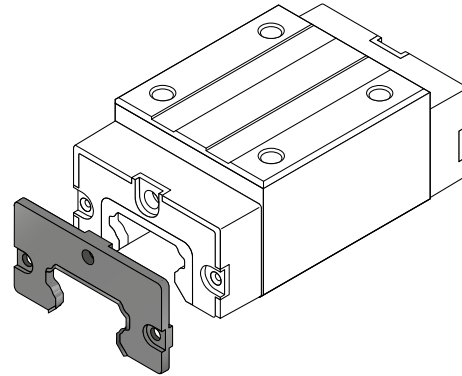
- Material: Elastomer
- Design: single-lip seal

Mounting

Mounting screws and grease nipple are included.

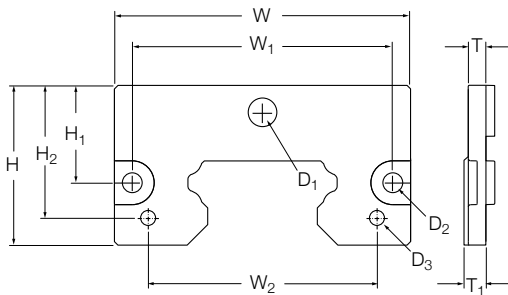
NOTE: Can be ordered in combination with a scraper plate as a kit. For designation, refer to **Ordering key accessories** (↳ page 104).

An additional front seal in combination with carriages equipped with low friction S0 shield results in a sealed system with lower friction.



Appearance can vary slightly depending on the size.

Dimensional drawing



Size	Part designation	Dimensions											
		D ₁ mm	D ₂	D ₃	W	W ₁	W ₂	H	H ₁	H ₂	T	T ₁	
–	–												
15	LLTHZ 15 S7	3,6	3,4	–	31,6	25,8	–	18,5	12	–	3	4	
20	LLTHZ 20 S7	5,5	3,4	–	42,6	35	–	24,2	14,8	–	3	4	
25	LLTHZ 25 S7	5,5	4,5	–	46,6	39,6	–	27,7	16,8	–	3	4	
30	LLTHZ 30 S7	6,5	3,4	–	57,9	50	–	31,5	19,3	–	4	5	
35	LLTHZ 35 S7	6,5	4,5	3,4	67,3	59,2	52	36,3	22,1	30,1	4	5	
45	LLTHZ 45 S7	6,5	5,5	3,4	83,3	72	67	44,2	27,5	38,3	4	5	

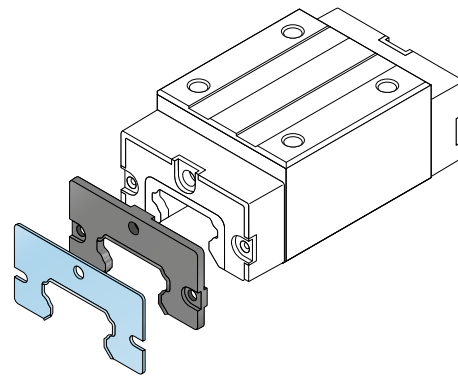
3.3.3 Seal kit (S3)

The seal kit consists of the following components:

- Scraper plate
- Additional front seal

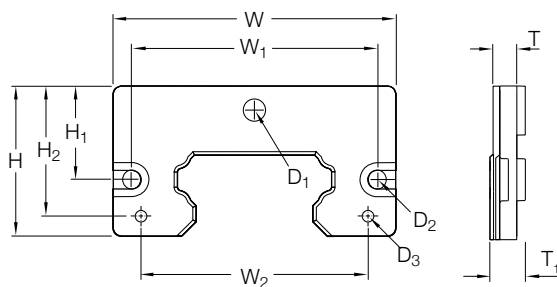
Mounting

Mounting screws and grease nipple are included. For designation, refer to **Ordering key accessories** (→ page 104).



Appearance can vary slightly depending on the size.

Dimensional drawing



Size	Part designation	Dimensions										
		D ₁ mm	D ₂	D ₃	W	W ₁	W ₂	H	H ₁	H ₂	T	T ₁
-	-											
15	LLTHZ 15 S3	3,6	3,4	-	31,6	25,8	-	18,5	12	-	4,5	5,3
20	LLTHZ 20 S3	5,5	3,4	-	42,6	35	-	24,2	14,8	-	4,5	5,3
25	LLTHZ 25 S3	5,5	4,5	-	46,6	39,6	-	27,7	16,8	-	4,5	5,3
30	LLTHZ 30 S3	6,5	3,4	-	57,9	50	-	31,5	19,3	-	5,5	6,3
35	LLTHZ 35 S3	6,5	4,5	3,4	67,3	59,2	52	36,3	22,1	30,1	5,5	6,3
45	LLTHZ 45 S3	6,5	5,5	3,4	83,3	72	67	44,2	27,5	38,3	5,5	6,3

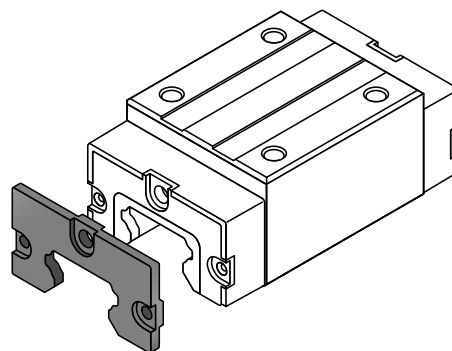
3.3.4 Low friction shield (S0)

- Material: PA6.6
- Size: 15 to 30
- Non-contact component

Mounting

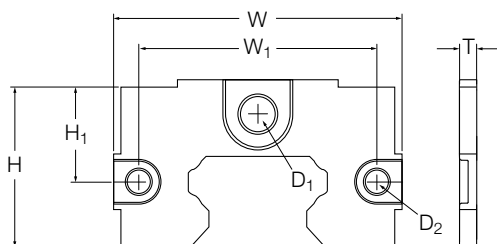
The low friction shield (S0) replaces the standard front seal. The dimensions for the mounting screws and the grease nipple remain unchanged.

NOTE: A low friction shield (S0) combined with the additional front seal (S7) results in a sealed system with lower friction.



Appearance can vary slightly depending on the size.

Dimensional drawing



Size	Part designation	Dimensions						
		D ₁ mm	D ₂	W	W ₁	H	H ₁	T
15	LLTHZ 15 S0	3,4	3,4	31,3	25,8	18,3	11,2	2
20	LLTHZ 20 S0	5,4	3,4	42,4	35	24,1	13,8	2
25	LLTHZ 25 S0	5,4	4,4	46,4	39,6	27,1	15,7	2,5
30	LLTHZ 30 S0	6,3	3,4	57,2	50	31,3	18,1	4

3.3.5 Lube element (S6)

Benefits

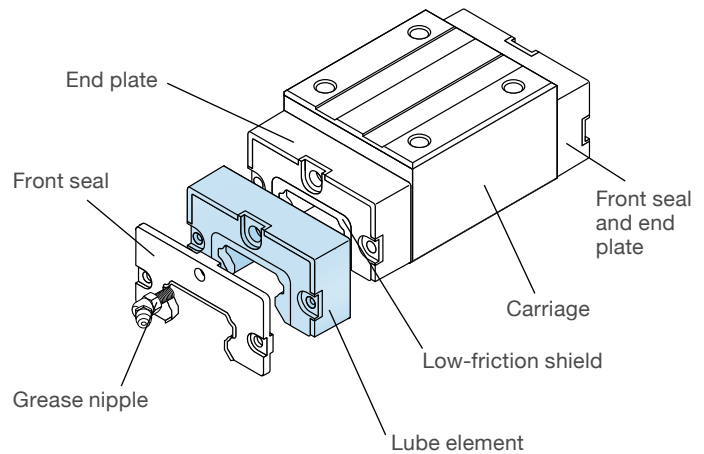
- Longer relubrication intervals
- Less maintenance costs
- Easy mounting and replacement by clicking onto/over the rail
- Applicable for horizontal and vertical mounting
- Can be combined and ordered with standard LLT accessories, such as seal kit
- Suitable for all carriage types of size 15 to 35
- Delivered ready to mount with all needed parts and filled with oil

Technical data

The relubrication interval of 5 000 km with lube element is valid for all sizes and under following pre-conditions:

- Load ratio: $F_m \leq 0,3C$
- Speed: ≤ 1 m/s
- Temperature: +10 up to +50 °C
- Mounting: One lube element per lubricated carriage

The lube element is filled with high quality oil which has the right viscosity and is compatible with the grease of the carriage. Other oil types can be validated by Ewellix on request. The lube element housing is made of POM. By mounting a grease nipple to the lube element, the carriage can be regularly greased. It is not possible to refill the lube element. For ideal function the lube element should be replaced after of



5000 km travel distance, unless regular greasing is given through the grease nipple.

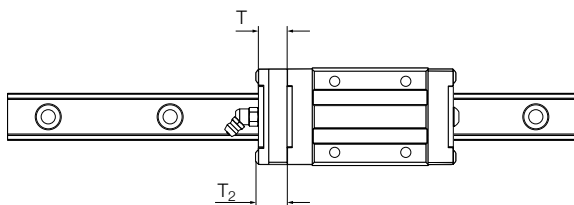
Because of the contact of the foam to the raceways of the rail, a slight increase of friction can occur.

A lube set LLTHZ S6 consists of one low-friction shield (S0), one lube element and two screws. The permissible storage temperature is -15 up to +50 °C. The maximum storage duration in a warehouse is two years under the above mentioned conditions.

In case of different pre-conditions in the application, the performance may differ. Please contact Ewellix for further information.

Dimensional drawing

The carriage length increases by value T_2 , when a lube element is used



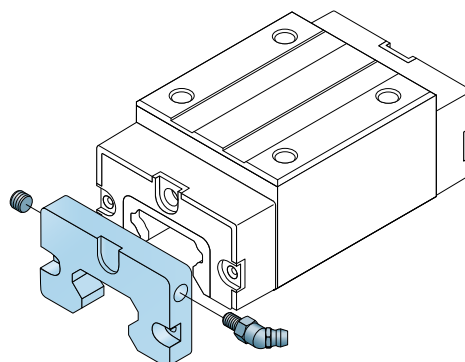
Size	T	T ₂	Tightening torque of mounting screws
-	mm	(including screw head) mm	Nm
15	10,5	11,0	0,20
20	12,5	13,0	0,20
25	14,5	15,0	0,20
30	14,5	15,0	0,38
35	17,5	18,0	0,38

3.3.6 Adapter plate (PL)

- Material: Aluminium
- Appearance: Natural aluminium, non-anodized

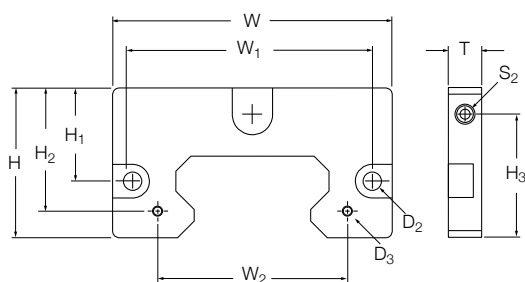
Mounting

Mounting screws, sealing ring and grease nipple are included. For designation, refer to **Ordering key accessories** (↳ page 104).



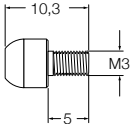
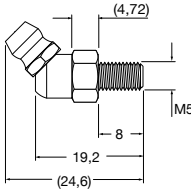
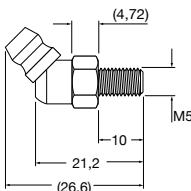
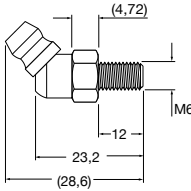
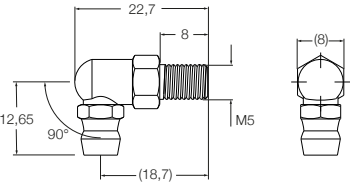
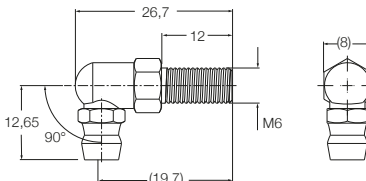
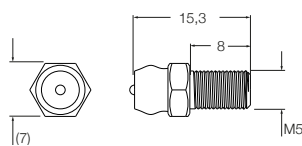
Appearance can vary slightly depending on the size.

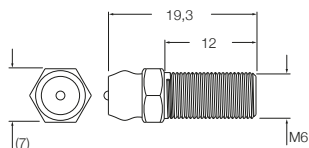
Dimensional drawing



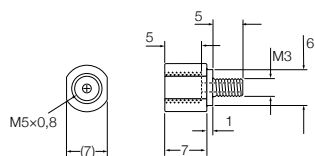
Size	Part designation	Dimensions										
		S ₂ mm	D ₂	D ₃	W	W ₁	W ₂	H	H ₁	H ₂	H ₃	T
15	LLTHZ 15 PL	M5×0,8	3,4	M2×0,4	32	25,8	20	18,9	12,2	16,4	13,7	10
20	LLTHZ 20 PL	M5×0,8	3,4	M3×0,5	43	35	28	24,5	15	20	17,5	10
25	LLTHZ 25 PL	M5×0,8	4,5	M3×0,5	47	39,6	32	28	17	23	22,5	10
30	LLTHZ 30 PL	M6×1,0	3,5	M3×0,5	58,5	50	38	32	19,5	26	25	10
35	LLTHZ 35 PL	M6×1,0	4,5	M3×0,5	68	59,2	45	37	22,5	29,5	30	10
45	LLTHZ 45 PL	M6×1,0	5,5	M3×0,5	84	72	57	45	28	37	37	10

3.3.7 Lubrication connectors

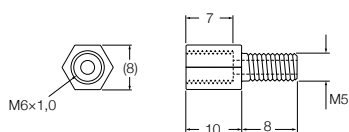
Ordering key	Material	Size	Description
	Steel, coated	15	<ol style="list-style-type: none"> Standard grease nipple for size 15. It cannot be used in combination with additional seals. According to standard JIS 1575:2000 One grease nipple for manual relubrication is supplied along with the carriage, while the opposite side is secured by a set screw.
	Steel, coated	20	<ol style="list-style-type: none"> Standard grease nipple for size 20. It cannot be used in combination with additional seals. According to standard JIS 1575:2000 One grease nipple for manual relubrication is supplied along with the carriage, while the opposite side is secured by a set screw.
	Steel, coated	25	<ol style="list-style-type: none"> Standard grease nipple for size 25. It cannot be used in combination with additional seals. According to standard JIS 1575:2000 One grease nipple for manual relubrication is supplied along with the carriage, while the opposite side is secured by a set screw.
	Steel, coated	30/35/45	<ol style="list-style-type: none"> Standard grease nipple for size 30/35/45. It cannot be used in combination with additional seals. According to standard JIS 1575:2000 One grease nipple for manual relubrication is supplied along with the carriage, while the opposite side is secured by a set screw.
	Steel, coated	20	<ol style="list-style-type: none"> 90 degree grease nipple for size 20 It cannot be used in combination with additional seals. The lubrication connector is used to provide an interface for central lubrication systems
	Steel, coated	30/35/45	<ol style="list-style-type: none"> 90 degree grease nipple for size 30/35/45 It cannot be used in combination with additional seals. The lubrication connector is used to provide an interface for central lubrication systems
	Steel, coated	20	<ol style="list-style-type: none"> Straight grease nipple for size 20 It cannot be used in combination with additional seals. The lubrication connector is used to provide an interface for central lubrication systems



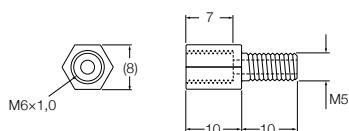
VN-M6-12	Steel, coated	30/35/45	<ol style="list-style-type: none"> 1. Straight grease nipple for size 30/35/45 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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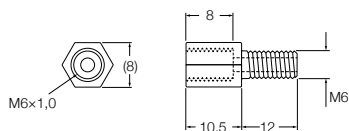
VN-UA-M3-05-01	Steel, coated	15	<ol style="list-style-type: none"> 1. Straight lubrication connectors for size 15 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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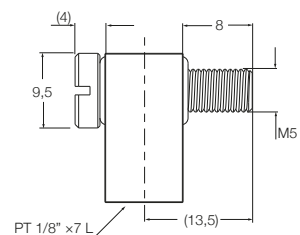
VN-UA-M5-08-01	Steel, coated	20	<ol style="list-style-type: none"> 1. Straight lubrication connectors for size 20 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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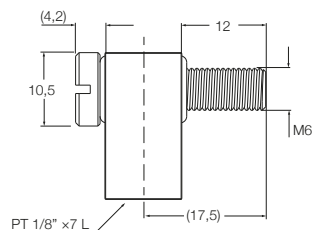
VN-UA-M5-10-01	Steel, coated	25	<ol style="list-style-type: none"> 1. Straight lubrication connectors for size 25 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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VN-UA-M6-12-01	Steel, coated	30/35/45	<ol style="list-style-type: none"> 1. Straight lubrication connectors for size 30/35/45 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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VN-M5-8-OIL	Brass	20	<ol style="list-style-type: none"> 1. 90 degree lubrication connectors for size 20 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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LLTHP30-0G-02	Brass	30/35/45	<ol style="list-style-type: none"> 1. 90 degree lubrication connectors for size 30/35/45 2. It cannot be used in combination with additional seals. 3. The lubrication connector is used to provide an interface for central lubrication systems
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4.8 Ordering key

4.8.1 Ordering key system

LLTH	S	25	A	2	T2	1000	P5	HD	S0	A	B0	D4	E0	M	S1	C	M
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Size _____
 15, 20, 25, 30, 35, 45

Carriage type¹⁾ _____
 SA Flanged carriage, short length, standard height
 A Flanged carriage, standard length, standard height
 LA Flanged carriage, extended length, standard height
 SU Slim-line carriage, short length, standard height
 U Slim-line carriage, standard length, standard height
 LU Slim-line carriage, extended length, standard height
 R Slim-line carriage, standard length, extended height
 LR Slim-line carriage, extended length, extended height

Number of carriages per rail _____
 1, 2, 4, 6, ...

Preload class _____
 T0 Zero preload
 T1 Light preload, 2 % C
 T2 Medium preload, 8 % C

Rail length _____
 80 mm up to maximum rail length (1 mm steps)

Precision class _____
 P5 Standard
 P3 Medium
 P1 High

Coating²⁾³⁾⁴⁾⁵⁾¹¹⁾ (no code for standard: non coated rails and carriages) _____
 HD Thin dense chrome rail with non coated carriage, available in Europe
 HA Thin dense chrome rail with non coated carriage, available in USA/CAN
 HT Trivalent chrome rail with non coated carriage.
 HDN Thin dense chrome rail with nickel plated carriage, available in Europe
 HAN Thin dense chrome rail with nickel plated carriage, available in USA/CAN
 HTN Trivalent chrome rail with nickel plated carriage

Sealing⁹⁾¹⁰⁾ (no code for standard sealing) _____
 S0 Low friction shield

Jointed rail track⁶⁾ (if not selected – no code) _____
 A Yes

Prepared for bellows (if not selected – no code) _____
 B0 Rails prepared for bellows (for ordering the bellow see ordering key bellows), available in Europe

Rail _____
 no code Standard rail with plastic caps
 D4 Rail with blind holes
 D6⁷⁾ Rail with metal plugs
 D Customized rail according to drawing number

Distance between end face and the center of the first mounting hole of the rail
 E0 If no “E” specified, the holes at both rail ends will be positioned equidistantly from either end of the rail (shortest possible “E” dimension)
 Exx “E” dimension to be specified, for calculation and minimum “E” dimension (↳ page 57)

LLTH	S	25	A	2	T2	1000	P5	HD	S0	A	B0	D4	E0	M	S1	C	M
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Carriage mounted on rail (if not selected – no code) _____

M Yes

Additional seals, when part of a system (other and separate available parts see ordering key accessories) _____

- S1 Scraper plate
- S3 Seal kit, additional front seal with scraper plate
- S7 Additional front seal
- S6 Lube element
- 61 Lube element + Scraper plate
- 63 Lube element + Seal kit, additional front seal with scraper plate
- 67 Lube element + Additional front seal

Quantity of additional seals _____

- C (2) seals per carriage
- S (2) seals per system, outer surface of carriages to have seal mounted

Additional seals mounted on carriage ⁸⁾ (if not selected – no code) _____

M Yes

¹⁾ Not all combinations of preload / precision class available for each carriage type. Please refer to **pages 38 to 53**.
²⁾ Available coated carriage types refer to **page 22 (table 7)**.
³⁾ Only available in preload classes T1 and precision class P5.
⁴⁾ Please note: a system with coated rail can have a slightly higher preload and friction. This will be partly eliminated after a short running time. Be aware, that the end of the rail is not normally coated.
⁵⁾ For size 15 and 20, only carriages with low friction S0 shield shall be used. If seal function is needed, a combination with additional front seal S7 is recommended.
⁶⁾ Jointed rail code should be selected if the ordered rail length exceeds the maximum standard rail length (defined in dimension tables, **pages 38 to 53**). Availability defined in **table 8, page 23**.
⁷⁾ Available for size 25–45. Mounting tool needs to be ordered separately (L→ **ordering key accessories**).
⁸⁾ Additional seals can only be mounted on carriage if full system is ordered (Carriage mounted on rail = Yes).
⁹⁾ Not for size 35 and 45.
¹⁰⁾ LLTH 15 and 20 HN are always equipped with S0 as STANDARD.
¹¹⁾ Without lubricant, corrosion protected only.

4.8.2 Ordering key carriages

LLTH	C	25	A	T2	P5	HN	S0
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Size _____

15, 20, 25, 30, 35, 45

Carriage type ¹⁾ _____

- SA Flanged carriage, short length, standard height
- A Flanged carriage, standard length, standard height
- LA Flanged carriage, extended length, standard height
- SU Slim-line carriage, short length, standard height
- U Slim-line carriage, standard length, standard height
- LU Slim-line carriage, extended length, standard height
- R Slim-line carriage, standard length, extended height
- LR Slim-line carriage, extended length, extended height

Preload class _____

- T0 Zero preload
- T1 Light preload, 2 % C
- T2 Medium preload, 8 % C

Precision class _____

- P5 Standard
- P3 Medium
- P1 High

Coating ^{2) 3) 4) 7)} (no code for standard: non coated carriage) _____

HN Nickel plated carriage

Sealing ^{5) 6)} (no code for standard sealing) _____

S0 Low friction shield

¹⁾ Not all combinations of preload / precision class available for each carriage type. Please refer to **pages 38 to 53**.
²⁾ Only available for preload class T1, precision class P5. For an overview of the available carriages with coating, please refer to **page 22, table 7**.
³⁾ Please note: a system with coated rails can have a slightly higher preload and friction. This will be partly eliminated after a short running time.
⁴⁾ For size 15 and 20, only carriages with low friction S0 shield shall be used. If seal function is needed, a combination with additional front seal S7 is recommended.
⁵⁾ Not for size 35 and 45.
⁶⁾ LLTH 15 and 20 HN are always equipped with S0 as STANDARD.
⁷⁾ Without lubricant, corrosion protected only.



4.8.3 Ordering key rails

	LLTH	R	25	1000	P5	HD	A	B0	D4	E0
Size _____ 15, 20, 25, 30, 35, 45										
Rail length _____ 80 mm up to maximum rail length (1 mm steps)										
Precision class _____ P5 Standard P3 Medium P1 High										
Coating ¹⁾²⁾ (no code for standard: non coated rail) _____ HD Thin dense chrome rail, available in Europe HA Thin dense chrome rail, available in USA/CAN HT Trivalent chrome rail, available world wide										
Jointed rail track ³⁾ _____ A Yes										
Prepared for Bellows _____ B0 Rails prepared for bellows. To order, see "ordering key bellows.", available in Europe										
Rail ⁴⁾ _____ no code Standard rail with plastic caps D4 Rail with blind holes D6 ⁵⁾ Rail with metal plugs D Customized rail according to drawing number										
Distance between end face and the center of the first mounting hole of the rail E0 If no "E" specified, the holes at both rail ends will be positioned equidistantly from either end of the rail (shortest possible "E" dimension) Exx "E" dimension to be specified, for calculation and minimum "E" dimension, (↳ page 57)										

¹⁾ Only available in precision class P5.
²⁾ Please note: a system with coated rail can have a slightly higher preload and friction. This will be partly eliminated after a short running time. Be aware that, as standard, the end of the rail is not coated.
³⁾ Jointed rail code should be selected if the ordered rail length exceeds the maximum standard rail length (defined in dimension tables, [pages 38 to 53](#)). Availability defined in [table 8, page 23](#).
⁴⁾ Plastic caps and metal plugs available as spare parts. Please contact Ewellix for further information.
⁵⁾ Available for sizes 25–45. Mounting tool needs to be ordered separately (see ↳ [ordering key accessories](#)).

4.8.4 Ordering key accessories (delivered separately)

	LLTH	Z	25	S1
Size _____ 15, 20, 25, 30, 35, 45				
Accessories (will be delivered as single units) _____ S0 ¹⁾ Low friction shield S1 Scraper plate S3 Seal kit, additional front seal with scraper plate S7 Additional front seal PL Adapter plate, used for side lubrication VN UA ²⁾ Lubrication connector D6 ³⁾ Mounting tool for metal plugs S6 Lube element 61 Lube element + Scraper plate 63 Lube element + Seal kit, additional front seal with scraper plate 67 Lube element + Additional front seal				

¹⁾ Available for sizes 15–30 to replace standard front seal.
²⁾ Fits for all types of carriages (↳ [page 37](#)), but not in combination with additional seals (S1/S3/S7).
³⁾ Available for sizes 25–45.

4.8.5 Ordering key bellows

LLTH	B	25	B	(xxx/xxx/xxx)	LAS
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Size _____
15, 20, 25, 30, 35, 45

Bellows ¹⁾ _____
 B Combination of bellows to cover the complete system
 B2 Kit, type 2 (carriage to the end of the rail)
 B4 Kit, type 4 (between two carriages)
 B9 Bellow as spare part (without any fastening system)

Bellows: definition of number of folds (max 150 folds per single bellow) _____
 xxx Number of folds
 / Splitting of sections
 - No bellows in this section

Bellows material _____
 STD Standard material "PUR", (temperature resistance +90 °C)
 LAS ²⁾ Special material suitable for laser applications – self fading, (temperature resistance +160 °C)
 WEL ³⁾ Special material suitable for welding applications, (temperature resistance +260 °C)

The bellows is only available in Europe.

¹⁾ Will be delivered unmounted

²⁾ Available for sizes 15-30

³⁾ Available for sizes 35-45