

Product Reference Guide



INA USA CORPORATION



TRACK ROLLER LINEAR GUIDANCE SYSTEMS

CORPORATE OFFICES

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This product section has been excerpted from our full Product Reference Guide to reduce download time. Our complete Product Reference Guide is available in print and on CD-ROM. To receive the full version, please contact your nearest INA Sales Office listed on the last page of this file.



FOREWORD

This publication was designed to serve as a quick reference to the standard product series offered by INA USA Corporation (INA) for its domestic market. The guide provides a current overview of INA products, including basic envelope dimensions and capacities, in one publication – it is not an engineering design guide intended to replace INA engineering catalogs. Consequently, the metric and inch conversions are listed to 3 decimal places for easy reference and rapid identification of correct replacement part(s), not 4 decimal places as necessary for quality control purposes.

This publication can be used to narrow the choices between the many different INA product lines and series for new designs. Detailed engineering information for new designs can be found in our traditional catalogs or by contacting the INA Engineering Department.

A significant portion of INA sales are special production sizes. The identification of those parts is sometimes difficult since a comprehensive listing is beyond the intent of this publication. Special part numbers take as many different forms as the series listed here, but the basic system is to use sequential numbers for each new design. Usually the prefix is F or FC but can include VH, INA or the bearing type such as NA. INA maintains a technical help desk to identify sizes not known or to match competitors' parts.

The toll free 800 numbers listed will give you access to INA Customer Service representatives. These representatives can tap into INA Worldwide resources to provide the bearings you need.

Storage Life

Lubricants age naturally due to environmental influences. It is therefore the user's responsibility to follow the directions given by the lubricant manufacturer.

The greases used in INA rolling bearings have a mineral oil base and experience shows that they can be stored for up to 3 years without deteriorating providing the following important conditions are met.

- Closed storage room
- Temperature between 0 °C and 40 °C
- Relative atmospheric humidity 65% or less
- Security from chemical agents (vapors, gases, fluids)
- Sealed rolling bearings

The frictional torque can be considerably higher after longer storage periods than in freshly greased bearings and the lubricity of the grease can also have deteriorated.

INA bearings have many optional features available including:

- ISO series of bearings generally include the standard clearance options CN, C2, C3 and C4.
- ISO bearing series include PN, P6 and P5 precision classes.

- Corrotect plating is available for most bearing designs. Corrotect is a patented process for zinc–iron and zinc–iron–cobalt plating in a thin layer which can be applied to standard components. The protection exceeds stainless steel and the cost is half. Add suffix RR.
- All sealed bearings are supplied pregreased. In most cases the standard lubricant is Shell Alvania 2 or equivalent. Other greases are available, some at extra cost.
- Unsealed bearings may not be greased when shipped.
- Speed limits as published, are based on oil lubrication for open bearings or grease lubrication for sealed bearings. The speed limits are calculated based on a nominal load and heat balance equation. Higher speeds may be allowed depending on the application.
- Dynamic capacities are published based on INA standard usage of ISO and ABMA formulas. New life theory threshold values are published in other INA publications.
- Life calculations and evaluations can be made from INA engineering based catalogs which are available from your INA Sales Representative.
- Other features are available based on current production volumes including heat stabilization of the rings, matched bearing sets, with oil holes and grooves, etc.

ABMA American Bearing Manufacturers Association

ASTM American Society Of Testing And Materials

DIN Deutsches Institut für Normung e.V.

ISO International Standards Organization

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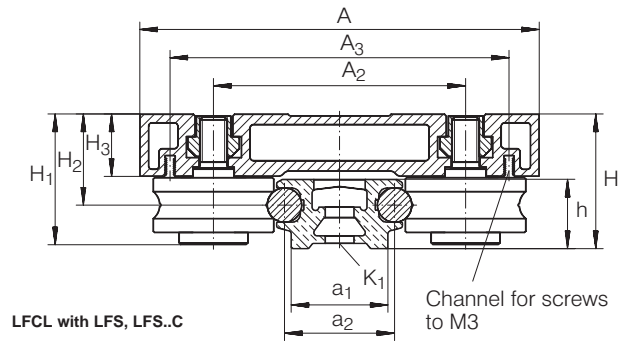


Track Roller Linear Guidance Systems With Hollow Section Carriage

LFCL SERIES

And Guideways

LFS,LFS..C,LFS..CE,LFS..N SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

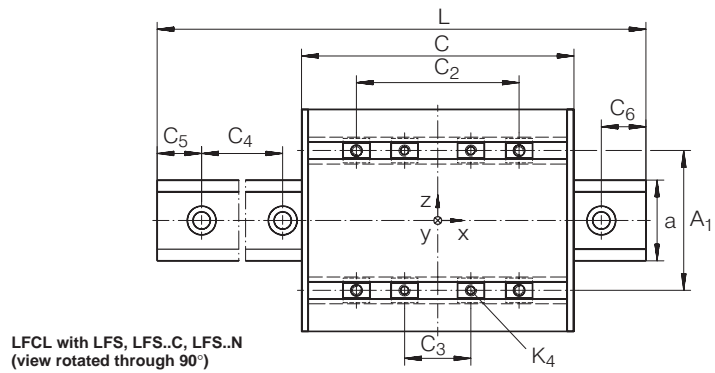
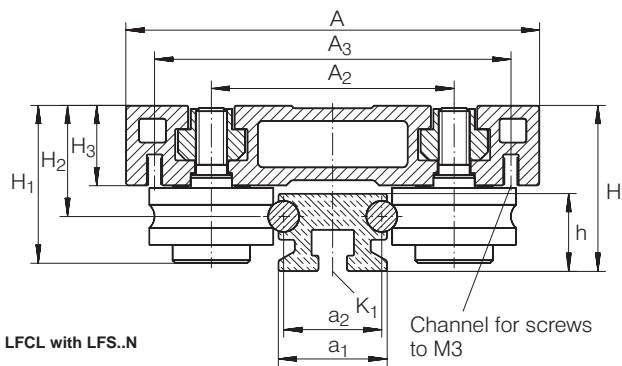
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm													
CARRIAGE ¹⁾	MASS ≈ g	CONTAINS TRACK ROLLER	GUIDEWAYS	MASS ≈ g/m	DIMENSIONS						MOUNTING DIMENSIONS		
					CARRIAGE			GUIDEWAY			A ₁	A ₂	A ₃
					H	A	C	h	a	L ²⁾			
LFCL 25	440	LFR 50/8 KDD	LFS 25	1,100	32	80	110	15	25	2,000	47	47	69
LFCL 25	440	LFR 50/8 KDD	LFS 25 N	1,000	32	80	110	15	25	2,000	47	47	69
LFCL 42	1,000	LFR 5201 KDD	LFS 42 C ¹⁾	2,200	39	116	150	20	42	8,000	73	73	98.5
LFCL 42	1,000	LFR 5201 KDD	LFS 42 CE ¹⁾	2,200	39	116	150	20	42	8,000	73	73	98.5
LFCL 86 ⁷⁾	2,200	LFR 5301 KDD	LFS 86 C ¹⁾	4,400	59	190	235	34	86	8,000	124	124	151.5

Corrosion-resistant executions: LFCL..VA, LFS..VA. Guideway without holes: LFS..OL.

- 1) The shape of the hollow sections is dependent on the size.
- 2) Maximum length of single-piece guideways, longer guideways are supplied as multi-piece guideways and are marked accordingly.
- 3) Dimensions C₅ and C₆ are dependent on the guideway length L.
- 4) For screws to DIN 912-8.8, washers to DIN 433 are required for maximum loading.
- 5) Recommended distance between screws.
- 6) For screws to DIN 931/933-8.8, special washers are included in the delivery.
- 7) Additional T-groove in center of carriage.
- 8) Load carrying capacity table is not valid for LFCL..VA and LFS..VA.

LOAD CARRYING CAPACITY TABLE ⁸⁾										
PART NUMBER	LOADS				MOMENTS					
	F _y max N	F _{0y} max N	F _z max N	F _{0z} max N	M _x max Nm	M _{0x} max Nm	M _y max Nm	M _{0y} max Nm	M _z max Nm	M _{0z} max Nm
LFCL 25 with LFS 25	850	1,400	1,000	1,000	9	15	26	26	22	36
LFCL 25 with LFS 25 N	850	1,400	1,000	1,000	9	15	26	26	22	36
LFCL 42 with LFS 42 C	1,500	2,500	3,000	3,000	27	42	127	127	63	106
LFCL 42 with LFS 42 CE	1,500	2,500	3,500	3,500	27	42	148	148	63	106
LFCL 86 with LFS 86 C	2,400	4,000	4,500	4,500	74	124	360	360	192	320



a ₁	a ₂	C ₂	C ₃		C ₄	C ₅ ³⁾		C ₆ ³⁾		H ₁	H ₂	H ₃	K ₁ ⁴⁾	K ₄	MAXIMUM LENGTH OF MOUNTING SCREW FOR K ₄
			min.	max.		min.	max.	min.	max.						
21	19	52	13	26	62.5	10	54	10	54	30.5	21.5	15.4	M5	M6	10
21	19	52	13	26	62.5 ⁵⁾	–	–	–	–	30.5	21.5	15.4	M5 ⁶⁾	M6	10
28	32	85	15	55	125	12	113	12	113	38.1	26.4	18	M8	M8	12
28	32	85	15	55	62.5	12	51	12	51	38.1	26.4	18	M8	M8	12
71	76	155	18	119	250	17	235	17	235	48.4	33.9	23.4	M12	M10	14

Track Roller Linear Guidance Systems With Open Carriage

LFL..SF SERIES

And Guideways

LFS, LFS..C, LFS..CE, LFS..N, LFS..NZZ, LFS..F, LFS..FE SERIES

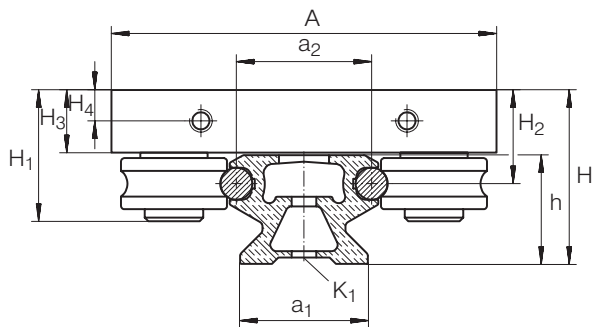
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

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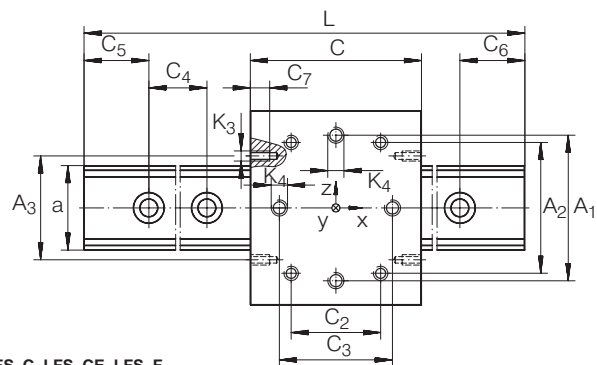
DIMENSION TABLE - Dimensions in mm															
CARRIAGE	MASS ≈ g	CONTAINS TRACK ROLLER	GUIDEWAYS	MASS ≈ g/m	DIMENSIONS						MOUNTING DIMENSIONS				
					CARRIAGE			GUIDEWAY			A ₁	A ₂	A ₃	a ₁	a ₂
					H	A	C	h	a	L ¹⁾					
LFL 20 SF	160	LFR 50/5 KDD-4	LFS 20	600	22	55	50	12.2	20	2,000	40	34	- ⁸⁾	17	16
LFL 32 SF	400	LFR 50/8 KDD	LFS 32 C	1,100	35.5	80	90	20	32	6,000	59	54	56	24	26
LFL 32 SF	400	LFR 50/8 KDD	LFS 32 CE	1,100	35.5	80	90	20	32	6,000	59	54	56	24	26
LFL 32 SF	400	LFR 50/8 KDD	LFS 32 F	1,000	25.5	80	90	10	32	4,000	59	54	56	-	26
LFL 32 SF	400	LFR 50/8 KDD	LFS 32 N	1,400	35.5	80	90	20	32	6,000	59	54	56	24	26
LFL 52 SF	1,000	LFR 5201 KDD	LFS 52 C	3,000	54.3	120	100	34	52	8,000	90	83	65	40	42
LFL 52 SF	1,000	LFR 5201 KDD	LFS 52 CE	3,000	54.3	120	100	34	52	8,000	90	83	65	40	42
LFL 52 SF	1,000	LFR 5201 KDD	LFS 52 F	3,000	44.2	120	100	18	52	4,000	90	83	65	-	42
LFL 52 SF	1,000	LFR 5201 KDD	LFS 52 NZZ	3,900	54.3	120	100	34	52	8,000	90	83	65	46.5	42
LFL 52 E SF	1,900	LFR 5301 KDD	LFS 52 CE	3,000	60.4	135	150	34	52	8,000	105	90	65	40	42
LFL 52 E SF	1,900	LFR 5301 KDD	LFS 52 FE	3,000	44.2	135	150	18	52	4,000	105	90	65	40	42
LFL 52 SF	1,000	LFR 5201 KDD	LFS 52	4,400	54.3	120	100	34	52	8,000	90	83	65	40	42
LFL 52 SF	1,000	LFR 5201 KDD	LFS 52 E	4,400	54.3	120	100	34	52	8,000	90	83	65	40	42

LOAD CARRYING CAPACITY TABLE ⁷⁾											
PART NUMBER	LOADS				MOMENTS						
	F _y max N	F _{0y} max N	F _z max N	F _{0z} max N	M _x max Nm	M _{0x} max Nm	M _y max Nm	M _{0y} max Nm	M _z max Nm	M _{0z} max Nm	
LFL 20 SF with LFS 20	400	660	700	700	4	6	8.6	8.6	4.8	8	
LFL 32 SF with LFS 32 C	850	1,400	930	930	11	18	27	27	26	43	
LFL 32 SF with LFS 32 CE	850	1,400	1,300	1,300	11	18	39	39	26	43	
LFL 32 SF with LFS 32 F	850	1,400	1,000	1,000	11	18	30	30	26	43	
LFL 32 SF with LFS 32 N	850	1,400	1,000	1,000	11	18	30	30	26	43	
LFL 52 SF with LFS 52 C	1,500	2,500	2,000	2,000	33	52	60	60	47	78	
LFL 52 SF with LFS 52 CE	1,500	2,500	3,500	3,500	33	52	105	105	47	78	
LFL 52 SF with LFS 52 F	1,500	2,500	2,500	2,500	33	52	75	75	47	78	
LFL 52 SF with LFS 52 NZZ	1,500	2,500	2,500	2,500	33	52	75	75	47	78	
LFL 52 E SF with LFS 52 CE	2,400	4,000	4,000	4,000	51	84	208	208	126	210	
LFL 52 E SF with LFS 52 FE	2,400	4,000	4,000	4,000	51	84	208	208	126	210	





LFL..SF with LFS, LFS..C, LFS..CE

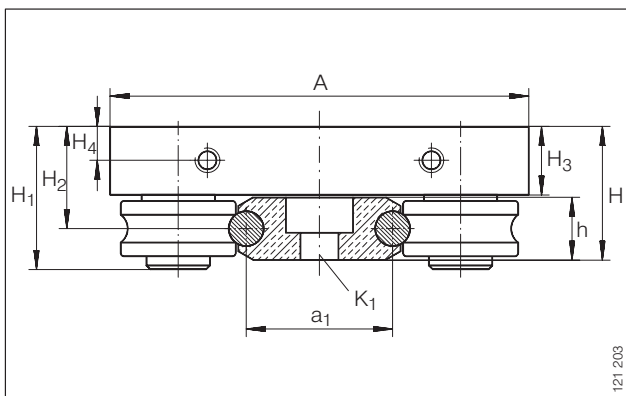


LFL..SF with LFS, LFS..C, LFS..CE, LFS..F, LFS..FE, LFS..N, LFS..NZZ (view rotated through 90°)

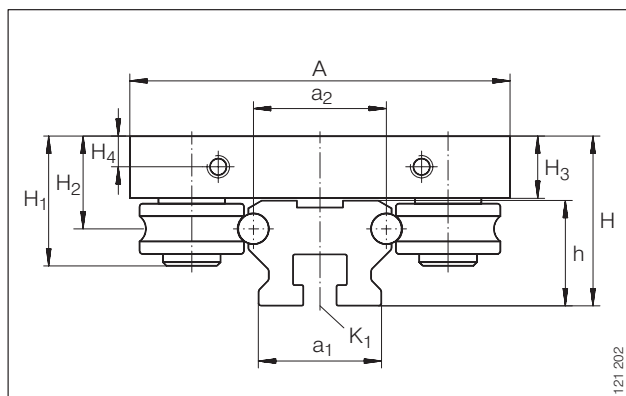
C ₂	C ₃ ± 0.2	C ₄	C ₅ ²⁾		C ₆ ²⁾		C ₇	H ₁ max.	H ₂	H ₃	H ₄	K ₁ ³⁾	K ₃	K ₄	M _A ⁴⁾	
			min.	max.	min.	max.									STANDARD Nm	CORROSION- RESISTANT Nm
24	38	62.5	9	54	9	54	—	20.5	13	9	—	M4	M3 ⁸⁾	M5	2.5	2.5
60	70	125	11	116	11	116	7	31.9	20.4	14	7	M6	M6	M8	15	12
60	70	62.5	11	52	11	52	7	31.9	20.4	14	7	M6	M6	M8	15	12
60	70	125	11	116	11	116	7	31.9	20.4	14	7	M6 ⁹⁾	M6	M8	15	12
60	70	125 ⁵⁾	—	—	—	—	7	31.9	20.4	14	7	M6 ⁶⁾	M6	M8	15	12
60	70	250	17	235	17	235	12	46.3	29.2	19.5	9.75	M10	M6	M10	40	23
60	70	125	17	110	17	110	12	46.3	29.2	19.5	9.75	M10	M6	M10	40	23
60	70	250	17	235	17	235	12	46.3	29.2	19.5	9.75	M10 ⁹⁾	M6	M10	40	23
60	70	250 ⁵⁾	—	—	—	—	12	46.3	29.2	19.5	9.75	M10 ⁶⁾	M6	M10	40	23
105	110	125	17	110	17	110	12	53.7	35.2	24	12	M10	M6	M10	40	23
105	110	125	17	110	17	110	12	53.7	35.2	24	12	M10	M6	M10	40	23
60	70	250	17	235	17	235	12	53.5	29.2	19.5	9.75	M10	M6	M10	40	23
60	70	125	17	110	17	110	12	53.5	29.2	19.5	9.75	M10	M6	M10	40	23

Corrosion-resistant executions: LFL..VA, LFS..VA. Guideway without holes: LFS..OL.

- 1) Maximum length of single-piece guideways, longer guideways are supplied as multi-piece guideways and are marked accordingly.
- 2) Dimensions C₅ and C₆ are dependent on the guideway length L.
- 3) For screws to DIN 912-8.8, washers to DIN 433 are required for maximum loading.
- 4) Tightening torque for LFZ and LFE, bolts LFZ are supplied tightened to M_A.
- 5) Recommended distance between screws.
- 6) For screws to DIN 931/933-8.8, special washers are included in the delivery.
- 7) Load carrying capacity table is not valid for LFL..VA and LFS..VA.
- 8) Holes for mounting from below for AB LFL 20.
- 9) Countersink depth for screws to DIN 6 912.



LFL..SF with LFS..F, LFS..FE



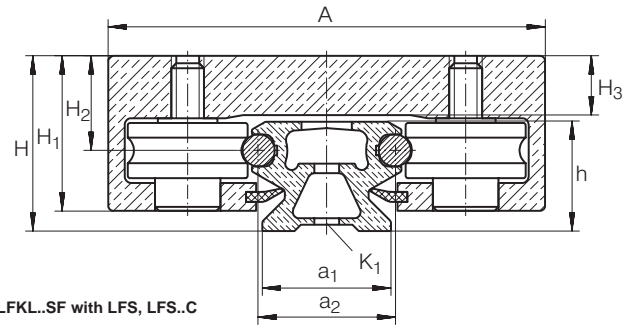
LFL..SF with LFS..N, LFS..NZZ

Track Roller Linear Guidance Systems With Compact Carriage

LFKL..SF SERIES

And Guideways

LFS, LFS..C, LFS..CE, LFS..CEE, LFS..F, LFS..FE, LFS..N, LFS..NZZ SERIES



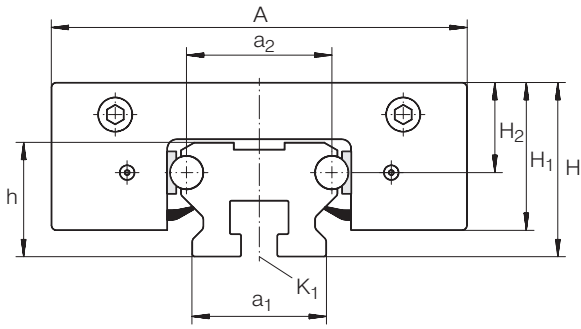
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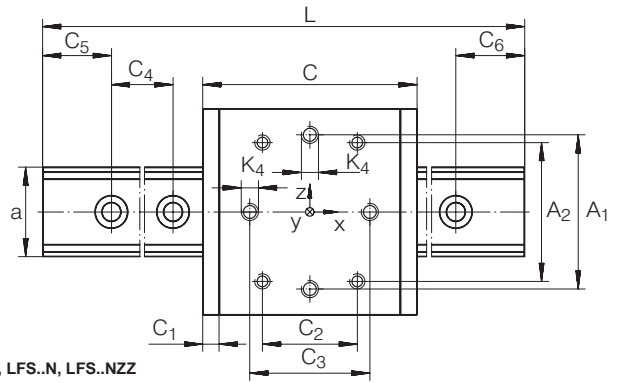
DIMENSION TABLE - Dimensions in mm														
CARRIAGE	MASS ≈g	CONTAINS TRACK ROLLER	GUIDEWAYS	MASS ≈g/m	DIMENSIONS						MOUNTING DIMENSIONS			
					CARRIAGE			GUIDEWAY			A ₁	A ₂	a ₁	a ₂
					H	A	C	h	a	L ¹⁾				
LFKL 20 SF ⁵⁾	200	LFR 50/5 KDD-4	LFS 20	600	22	56	69	12.2	20	2,000	39	34	17	16
LFKL 25 SF ⁵⁾	300	LFR 50/5 KDD	LFS 25	1,100	25	65	85	15	25	2,000	50	40	21	19
LFKL 25 SF ⁵⁾	300	LFR 50/5 KDD	LFS 25 N	1,000	25	65	85	15	25	2,000	50	40	21	19
LFKL 32 SF	700	LFR 50/8 KDD	LFS 32 C	1,100	35.5	86	112	20	32	6,000	59	54	24	26
LFKL 32 SF	700	LFR 50/8 KDD	LFS 32 CE	1,100	35.5	86	112	20	32	6,000	59	54	24	26
LFKL 32 SF	700	LFR 50/8 KDD	LFS 32 F	1,000	25.5	86	112	10	32	4,000	59	54	—	26
LFKL 32 SF	700	LFR 50/8 KDD	LFS 32 N	1,400	35.5	86	112	20	32	6,000	59	54	24	26
LFKL 52 SF	1,500	LFR 5201 KDD	LFS 52 C	3,000	54.3	130	136	34	52	8,000	90	83	40	42
LFKL 52 SF	1,500	LFR 5201 KDD	LFS 52 CE	3,000	54.3	130	136	34	52	8,000	90	83	40	42
LFKL 52 SF	1,500	LFR 5201 KDD	LFS 52 F	3,000	38.2	130	136	18	52	4,000	90	83	—	42
LFKL 52 SF	1,500	LFR 5201 KDD	LFS 52 NZZ	3,900	54.3	130	136	34	52	8,000	90	83	46.5	42
LFKL 52 E SF	2,900	LFR 5301 KDD	LFS 52 CE	3,000	60.4	145	186	34	52	8,000	105	90	40	42
LFKL 52 E SF	2,900	LFR 5301 KDD	LFS 52 FE	3,000	38.2	145	186	18	52	4,000	105	90	—	42
LFKL 52 EE SF	3,900	LFR 5302 KDD	LFS 52 CEE	4,300	60.4	155	205	34	52	8,000	115	95.3	40	42

LOAD CARRYING CAPACITY TABLE ⁸⁾											
PART NUMBER	LOADS				MOMENTS						
	F _y max N	F _{0y} max N	F _z max N	F _{0z} max N	M _x max Nm	M _{0x} max Nm	M _y max Nm	M _{0y} max Nm	M _z max Nm	M _{0z} max Nm	
LFKL 20 SF with LFS 20	400	660	700	700	4	6	12	12	6.8	11.4	
LFKL 25 SF with LFS 25	400	660	700	700	4	6	16	16	9	15	
LFKL 25 SF with LFS 25 N	400	660	700	700	4	6	16	16	9	15	
LFKL 32 SF with LFS 32 C	850	1,400	930	930	11	18	27	27	26	43	
LFKL 32 SF with LFS 32 CE	850	1,400	1,300	1,300	11	18	39	39	26	43	
LFKL 32 SF with LFS 32 F	850	1,400	1,000	1,000	11	18	30	30	26	43	
LFKL 32 SF with LFS 32 N	850	1,400	1,000	1,000	11	18	30	30	26	43	
LFKL 52 SF with LFS 52 C	1,500	2,500	2,000	2,000	33	52	60	60	47	78	
LFKL 52 SF with LFS 52 CE	1,500	2,500	3,500	3,500	33	52	105	105	47	78	
LFKL 52 SF with LFS 52 F	1,500	2,500	2,500	2,500	33	52	75	75	47	78	
LFKL 52 SF with LFS 52 NZZ	1,500	2,500	2,500	2,500	33	52	75	75	47	78	
LFKL 52 E SF with LFS 52 CE	2,400	4,000	4,000	4,000	51	84	208	208	126	210	
LFKL 52 E SF with LFS 52 FE	2,400	4,000	4,500	4,500	51	84	236	236	126	210	
LFKL 52 EE SF with LFS 52 CEE	4,800	8,000	6,500	6,500	101	166	390	390	288	480	





LFKL..SF with LFS..N

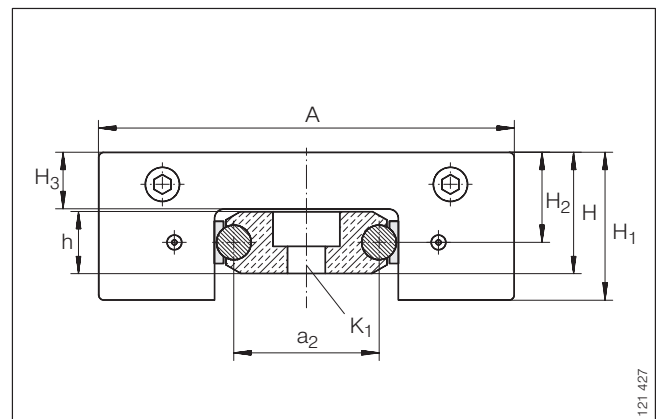


LFKL..SF with LFS, LFS..C, LFS..N, LFS..NZZ
(view rotated through 90°)

C ₁	C ₂	C ₃	C ₄	C ₅ ²⁾		C ₆ ³⁾		H ₁	H ₂	H ₃	K ₁ ³⁾	K ₄	M _A ⁴⁾	
				min.	max.	min.	max.						STANDARD Nm	CORROSION-RESISTANT Nm
5	34	49	62.5	9	54	9	54	20.5	13	8.7	M4	M5	2.5	2.5
5	45	60	62.5	10	54	10	54	23.5	14.4	9	M5	M5	2.5	2.5
5	45	60	62.5 ⁶⁾	—	—	—	—	23.5	14.4	9	M5 ⁷⁾	M5	2.5	2.5
7	60	70	125	11	116	11	116	32	20.5	14	M6	M8	15	12
7	60	70	62.5	11	52	11	52	32	20.5	14	M6	M8	15	12
7	60	70	125	11	116	11	116	32	20.5	14	M6 ⁸⁾	M8	15	12
7	60	70	125 ⁶⁾	—	—	—	—	32	20.5	14	M6 ⁷⁾	M8	15	12
10	60	70	250	17	235	17	235	46.1	29.2	19.4	M10	M10	40	23
10	60	70	125	17	110	17	110	46.1	29.2	19.4	M10	M10	40	23
10	60	70	250	17	235	17	235	46.1	29.2	19.4	M10	M10	40	23
10	60	70	250 ⁶⁾	—	—	—	—	46.1	29.2	19.4	M10 ⁷⁾	M10	40	23
10	105	110	125	17	110	17	110	53.8	35.3	24	M10	M10	40	23
10	105	110	125	17	110	17	110	53.8	35.3	24	M10 ⁸⁾	M10	40	23
10	120	140	62.5	17	49	17	49	55	35.3	24	M10	M12	70	39

Corrosion-resistant executions: LFKL..VA, LFS..VA.
Guideway without holes: LFS..OL.

- 1) Maximum length of single-piece guideways, longer guideways are supplied as multi-piece guideways and are marked accordingly.
- 2) Dimensions C₅ and C₆ are dependent on the guideway length L.
- 3) For screws to DIN 912-8.8, washers to DIN 433 are required for maximum loading; for guideways LFS..F and LFS..FE, countersink depth for screws to DIN 6 912.
- 4) Tightening torque for track roller bolts, concentric bolts supplied tightened to M_A.
- 5) Without lubricating nipples, relubrication possible via end face holes.
- 6) Recommended distance between screws.
- 7) For screws to DIN 931/933-8.8, special washers are included in the delivery.
- 8) Load carrying capacity table is not valid for LFKL..VA and LFS..VA.



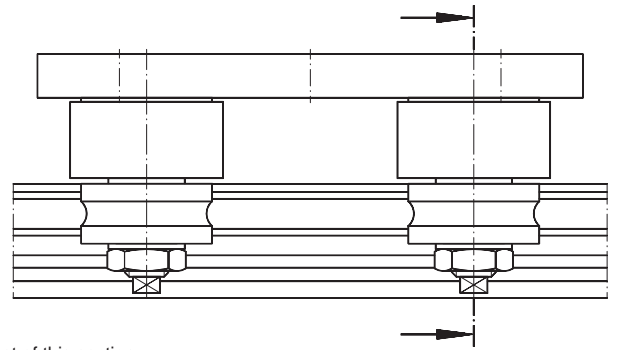
LFKL..SF with LFS..F



Track Roller Linear Guidance Systems With Bogie Carriage

LFDL SERIES

LFS..R SERIES



LFDL with LFS..R

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

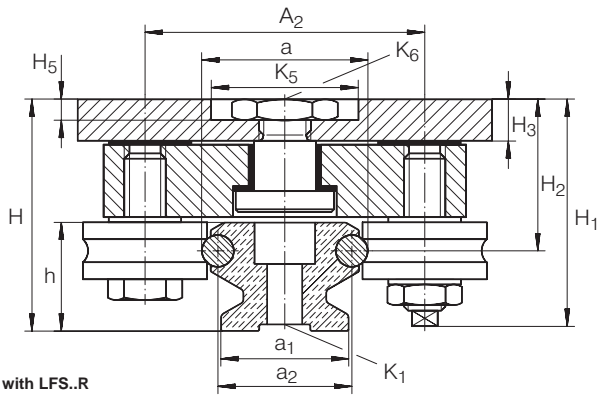
DIMENSION TABLE - Dimensions in mm										
CARRIAGE	MASS ≈ g	CONTAINS TRACK ROLLER	GUIDEWAYS CURVED ELEMENT	MASS ≈ g	DIMENSIONS					
					CARRIAGE			GUIDEWAY		
					H	A	C	h	a	β
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-100/ 90	500	43.5	80	100	20	32	90●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-100/180	1,000	43.5	80	100	20	32	180●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-100/360	2,000	43.5	80	100	20	32	360●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-300/ 90	1,700	43.5	80	100	20	32	90●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-300/180	3,400	43.5	80	100	20	32	180●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-300/360	6,800	43.5	80	100	20	32	360●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-500/ 90	2,900	43.5	80	100	20	32	90●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-500/180	5,800	43.5	80	100	20	32	180●
LFDL 32	1,500	LFR 50/8 KDD	LFS 32 R-500/360	11,600	43.5	80	100	20	32	360●
LFDL 52	1,500	LFR 5201 KDD	LFS 52 R-150/ 90	2,000	66.1	120	150	34	52	90●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-150/180	4,000	66.1	120	150	34	52	180●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-150/360	8,000	66.1	120	150	34	52	360●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-300/ 90	4,500	66.1	120	150	34	52	90●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-300/180	9,000	66.1	120	150	34	52	180●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-300/360	18,000	66.1	120	150	34	52	360●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-500/ 90	7,800	66.1	120	150	34	52	90●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-500/180	15,600	66.1	120	150	34	52	180●
LFDL 52	2,500	LFR 5201 KDD	LFS 52 R-500/360	31,200	66.1	120	150	34	52	360●

Corrosion-resistant executions: LFDL..VA, LFS..R VA. Guideway without holes: LFS..R OL.

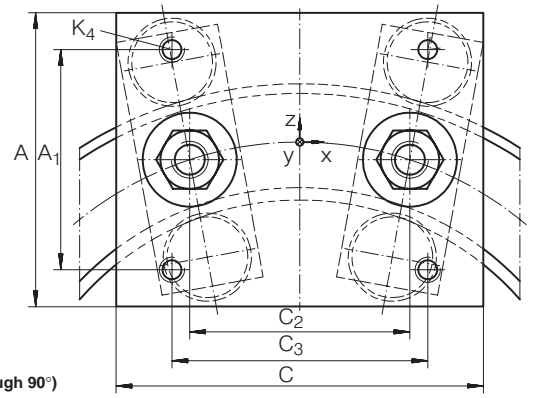
- 1) For screws to DIN 912-8.8.
- 2) Number of holes on reference circle r_1 .
- 3) Tightening torque for bolts LFZ and LFE, bolts LFZ are supplied tightened to M_A .

LOAD CARRYING CAPACITY TABLE										
PART NUMBER	LOADS				MOMENTS					
	$F_{y \max}$ N	$F_{0y \max}$ N	$F_{z \max}$ N	$F_{0z \max}$ N	$M_{x \max}$ Nm	$M_{0x \max}$ Nm	$M_{y \max}$ Nm	$M_{0y \max}$ Nm	$M_{z \max}$ Nm	$M_{0z \max}$ Nm
LFDL 32 with LFS 32 R-100/ 90	850	1,400	1,000	1,000	11	18	13	13	11	18
LFDL 32 with LFS 32 R-100/180	850	1,400	1,000	1,000	11	18	13	13	11	18
LFDL 32 with LFS 32 R-300/ 90	850	1,400	1,000	1,000	11	18	13	13	11	18
LFDL 32 with LFS 32 R-300/180	850	1,400	1,000	1,000	11	18	13	13	11	18
LFDL 32 with LFS 32 R-500/ 90	850	1,400	1,000	1,000	11	18	13	13	11	18
LFDL 32 with LFS 32 R-500/180	850	1,400	1,000	1,000	11	18	13	13	11	18
LFDL 52 with LFS 52 R-150/ 90	1,500	2,500	2,500	2,500	31	31	41	41	25	25
LFDL 52 with LFS 52 R-150/180	1,500	2,500	2,500	2,500	31	31	41	41	25	25
LFDL 52 with LFS 52 R-300/ 90	1,500	2,500	2,500	2,500	31	31	41	41	25	25
LFDL 52 with LFS 52 R-300/180	1,500	2,500	2,500	2,500	31	31	41	41	25	25
LFDL 52 with LFS 52 R-500/ 90	1,500	2,500	2,500	2,500	31	31	41	41	25	25
LFDL 52 with LFS 52 R-500/180	1,500	2,500	2,500	2,500	31	31	41	41	25	25





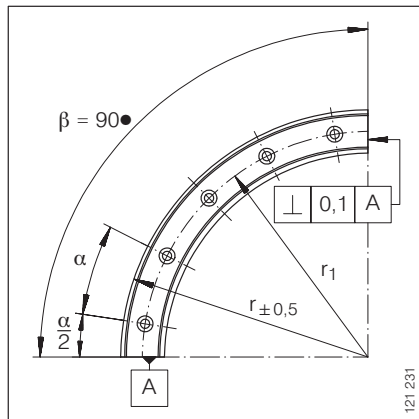
LFDL with LFS..R



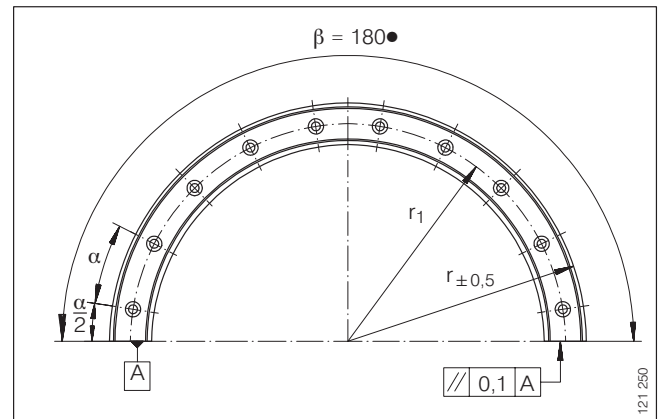
LFDL with LFS..R
(view rotated through 90°)

MOUNTING DIMENSIONS

A ₁	A ₂	a ₁	a ₂	C ₂	C ₃	H ₁	H ₂	H ₃	H ₅	K ₁ ¹⁾	K ₄	K ₅	K ₆	x ²⁾	r ₁	α	α/2	M _A ³⁾	
																		STANDARD Nm	CORROSION RESISTANT Nm
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	3	84	30	15	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	6	84	30	15	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	12	84	30	-	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	4	284	22.5	11.25	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	8	284	22.5	11.25	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	12	284	22.5	-	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	5	484	18	9	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	10	484	18	9	15	12
60	54	24	26	60	70	43	29.2	9	5	M6	M8	30	M10	12	484	18	-	15	12
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	3	124	30	15	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	6	124	30	15	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	12	124	30	-	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	4	274	22.5	11.25	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	8	274	22.5	11.25	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	12	274	22.5	-	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	5	474	18	9	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	10	474	18	9	40	23
90	83	40	42	76	90	65.3	41	11	6	M10	M10	34	M12	12	474	18	-	40	23



LFS..R-./90

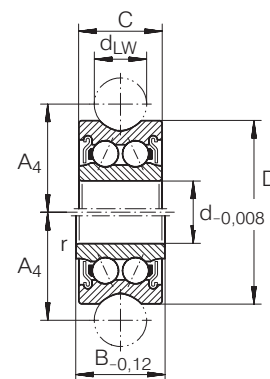


LFS..R-./180



Track Rollers

LFR SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE – TRACK ROLLER · Dimensions in mm													
PART NUMBER		MASS g	DIMENSIONS							BASIC LOAD RATINGS			
			A ₄	B	C	D	d	d _{LW}	r to DIN 620	AS TRACK ROLLER			
										dyn. C _w (10 ⁵ m) N	stat. C _{0w} N	F _{rperm} N	F _o rperm N
LFR 50/5	KDD-4	10	9	8	7	16	5	4	0.2	1,200	860	1,300	1,780
LFR 50/5	KDD	10	10.5	8	7	17	5	6	0.2	1,270	890	1,300	1,780
LFR 50/8	KDD	20	14	–	11	24	8	6	0.3	3,670	2,280	1,300	4,560
LFR 5201	KDD	80	20.65	–	15.9	35	12	10	0.6	8,500	5,100	5,100	10,200
LFR 5301	KDD	100	24	–	19	42	12	10	0.6	13,000	7,700	7,500	14,200
LFR 5201-12	KDD	80	21.75	–	15.9	35	12	12	0.6	8,400	5,000	5,100	10,000
LFR 5302	KDD	170	26.65	–	19	47	15	10	1	16,200	9 200	6 200	18 400
LFR 5204-16	KDD	230	31.5	22.6	20.6	52	20	16	1	16,800	9,500	12,100	16,600
LFR 5206-20	KDD	250	41	25.8	23.8	72	25	20	1	24,500	16,600	20,700	33,200
LFR 5206-25	KDD	250	43.5	25.8	23.8	72	25	25	1	29,200	16,400	23,100	32,800
LFR 5207-30	KDD	660	51	29	27	80	30	30	1	38,000	20,800	21,400	36,200
LFR 5208-40	KDD	1,360	62.5	38	36	98	40	40	1.1	54,800	29,000	55,000	58,000

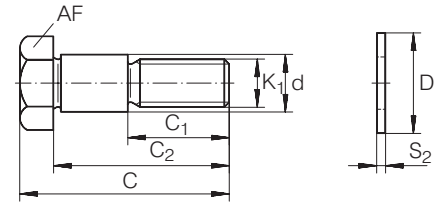
Track rollers LFR with an outside diameter of 52 mm or greater can be relubricated through the inner ring.

Track rollers in corrosion-resistant execution:
LFR...NPP VA.

1) Available on request.

Bolts

LFZ SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE – CONCENTRIC BOLTS - Dimensions in mm										
PART NUMBER	MASS ≈ g	DIMENSIONS								SUITABLE FOR TRACK ROLLER
		C	C ₁	C ₂	D	d	K ₁	S ₂	AF	
LFZ 5 ¹⁾	10	19.5	9.5	16	- ¹⁾	5	M4	- ¹⁾	3 ²⁾	LFR 50/5..-4
LFZ 5 ¹⁾	10	19.5	9.5	16	- ¹⁾	5	M4	- ¹⁾	3 ²⁾	LFR 50/5
LFZ 8	20	28.3	14	24.3	14	8	M8	1	13	LFR 50/8
LFZ 12	40	43	22	36	21	12	M10	1.8	17	LFR 5201
LFZ 12/M12	60	50.8	24	43.8	19	12	M12	1.8	17	LFR 5301
LFZ 15	60	50.8	26	43.8	21	15	M12	1.8	19	LFR 5302

Concentric bolts in corrosion-resistant execution: LFZ..VA.

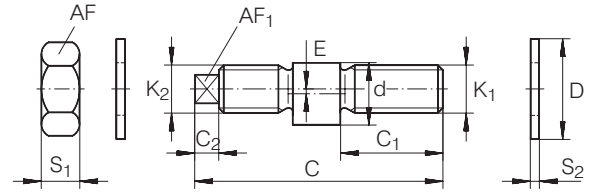
Washers included in the delivery.

1) No washers required.

2) Hexagonal socket. Outside diameter of head 10 mm.

Bolts

LFE SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE – ECCENTRIC BOLTS - Dimensions in mm														
PART NUMBER	MASS ≈ g	DIMENSIONS												SUITABLE FOR TRACK ROLLER
		C	C ₂	C ₁	D	d	E	K ₁	K ₂	S ₁	S ₂	AF	AF ₁	
LFE 5-0.5 ¹⁾	10	20.5	–	9	– ¹⁾	5	0.5	M4	M4	2.9	– ¹⁾	7	2 ²⁾	LFR 50/5..-4
LFE 5-0.5 ¹⁾	10	20.5	–	9	– ¹⁾	5	0.5	M4	M4	2.9	– ¹⁾	7	2 ²⁾	LFR 50/5
LFE 8-1	20	33.2	3.5	13.7	14	8	1	M8	M8 × 0.75	4	1	13	5	LFR 50/8
LFE 12-1	40	50	5	19.5	21	12	1	M10	M10	8	1.8	17	6	LFR 5201
LFE 12-1/M12	60	57	5	24	19	12	1	M12	M12	6.5	1.8	17	6	LFR 5301
LFE 15-1	60	57	5	24	21	15	1	M12	M12	6.5	1.8	19	6	LFR 5302

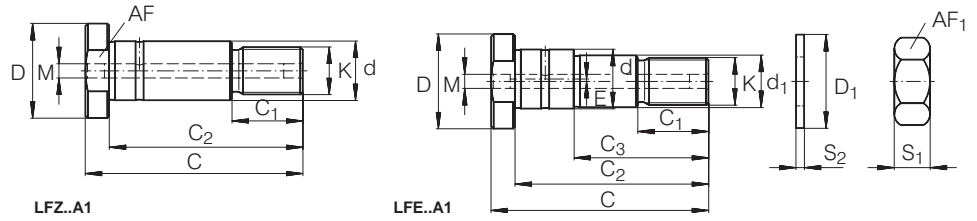
Eccentric bolts in corrosion-resistant execution: LFE..VA.

The nut and washer are included in the delivery.

- 1) No washers required.
- 2) Hexagonal socket.

Bolts

LFZ..A1, LFE..A1 SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																	
PART NUMBER	MASS g	DIMENSIONS														SUITABLE FOR TRACK ROLLER	
		d	C	C ₁	C ₂	C ₃	D	D ₁	d ₁ h9	E	K	M	S ₁	S ₂	AF		AF ₁
LFZ 12 × 45 A1	40	12	50	16	45	—	20	21	—	—	M10 × 1.5	—	8	2	17	17	LFR 5201-12 KDD
LFE 12 × 45 A1	40	12	50	16	45	30	20	21	10	0.75	M10 × 1.5	—	8	2	17	17	LFR 5201-12 KDD
LFZ 20 × 67 A1	200	20	75	23	67	—	30	30	—	—	M16 × 1.5	5.9	13	3	27	24	LFR 5204-16 KDD
LFE 20 × 67 A1	200	20	75	23	67	45	30	30	17	1	M16 × 1.5	5.9	13	3	27	24	LFR 5204-16 KDD
LFZ 25 × 82 A1	400	25	92	30	82	—	40	37	—	—	M20 × 1.5	5.9	16	3	36	30	LFR 5206-20, 25 KDD
LFE 25 × 82 A1	400	25	92	30	82	57	40	37	22	1	M20 × 1.5	5.9	16	3	36	30	LFR 5206-20 25 KDD
LFZ 30 × 95 A1	620	30	107	32	95	—	45	44	—	—	M24 × 1.5	5.9	19	4	41	36	LFR 5207-30 KDD
LFE 30 × 95 A1	620	30	107	32	95	67	45	44	27	1	M24 × 1.5	5.9	19	4	41	36	LFR 5207-30 KDD
LFZ 40 × 107 A1	1,100	40	117	42	107	—	55	56	36	—	M30 × 1.5	5.9	24	4	46	46	LFR 5208-40
LFE 40 × 107 A1	1,100	40	117	42	107	72	55	56	36	1	M30 × 1.5	5.9	24	4	46	46	LFR 5208-40

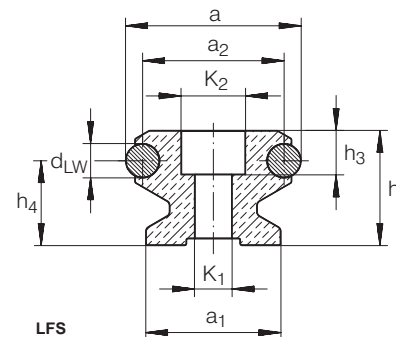
Bolts LFZ 40..A1 and LFE 40..A1 suitable for track roller LFR 5208 are available on request.

Bolts in corrosion-resistant execution: suffix VA.

The nut and washer are included in the delivery.

Guideways

LFS, LFS..C...,LFS..F. SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

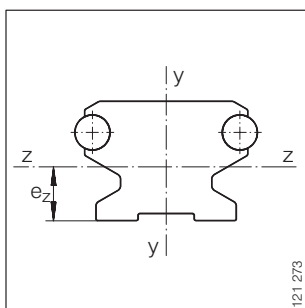
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm												
PART NUMBER	MASS ≈g/m	DIMENSIONS			MOUNTING DIMENSIONS							
		a	h	L ¹⁾	a ₁	a ₂	C ₄	C ₅ ²⁾		C ₆ ²⁾		d _{LW}
								min.	max.	min.	max.	
LFS 20	600	20	12.2	2,000	17	16	62.5	9	54	9	54	4
LFS 25	1,100	25	15	2,000	21	19	62.5	10	54	10	54	6
LFS 32	1,600	32	20	6,000	24	26	125	11	116	11	116	6
LFS 32 E	1,600	32	20	6,000	24	26	62.5	11	52	11	52	6
LFS 32 C ⁴⁾	1,100	32	20	6,000	24	26	125	11	116	11	116	6
LFS 32 CE ⁴⁾	1,100	32	20	6,000	24	26	62.5	11	52	11	52	6
LFS 32 F	1,000	32	10	4,000	-	26	125	11	116	11	116	6
LFS 42 C ⁴⁾	2,200	42	20	8,000	28	32	125	12	113	12	113	10
LFS 42 CE ⁴⁾	2,200	42	20	8,000	28	32	62.5	12	51	12	51	10
LFS 42 F	1,000	42	15	4,000	-	32	125	12	51	12	51	10
LFS 52	4,400	52	34	8,000	40	42	250	17	235	17	235	10
LFS 52 E	4,400	52	34	8,000	40	42	125	17	110	17	110	10
LFS 52 EE	4,400	52	34	8,000	40	42	62.5	17	49	17	49	10
LFS 52 C ⁴⁾	3,000	52	34	8,000	40	42	250	17	235	17	235	10
LFS 52 CE ⁴⁾	3,000	52	34	8,000	40	42	125	17	110	17	110	10
LFS 52 CEE ⁴⁾	3,000	52	34	8,000	40	42	62.5	17	49	17	49	10
LFS 52 F	3,000	52	18	4,000	-	42	250	17	235	17	235	10
LFS 52 FE	3,000	52	18	4,000	-	42	125	17	110	17	110	10
LFS 86 C ⁴⁾	4,400	86	34	8,000	71	76	250	17	235	17	235	10
LFS 86 CE ⁴⁾	4,400	86	34	8,000	71	76	125	17	110	17	110	10

Guideway in corrosion-resistant execution: LFS..VA.

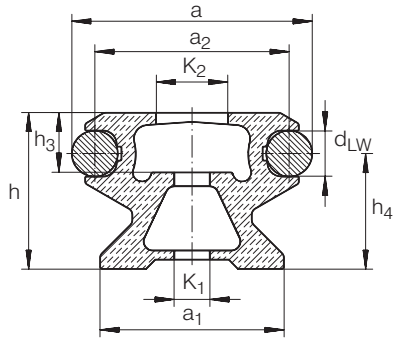
Guideways LFS, LFS..C and LFS..F available without holes: LFS..OL, LFS..C OL, LFS..F OL.

- 1) Maximum length of single-piece guideways, longer guideways are supplied as multi-piece guideways and are marked accordingly.
- 2) Dimensions C₅ and C₆ are dependent on the guideway length L.
- 3) For maximum loading F_Z or F_{0Z}, washers to DIN 433 are required.
- 4) The shape of the hollow sections is dependent on the size.
- 5) Countersink depth for screws to DIN 6 912.
- 6) If washers to DIN 433 are used, screws to DIN 6 912 are recommended.

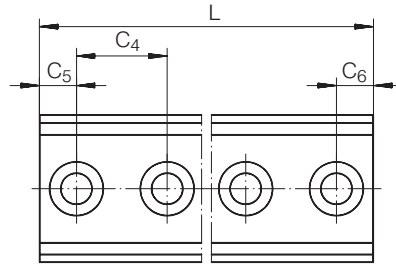


Neutral axes

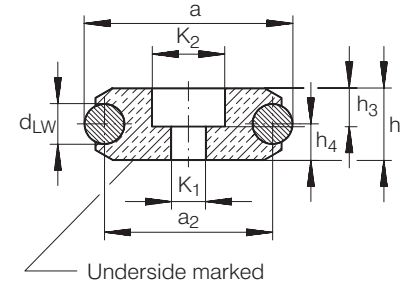




LFS..C



LFS, LFS..C, LFS..F
(view rotated through 90°)

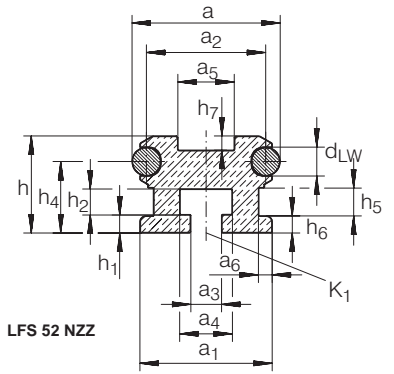
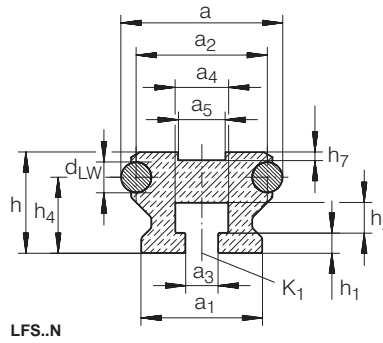


LFS..F

				MODULUS OF ELASTICITY N/mm ²	SURFACE DATA					
h ₄	h ₃	K ₁ ³⁾	K ₂		CROSS-SECTIONAL AREA mm ²	NEUTRAL AXIS				
						y-y		z-z		
						I _y mm ⁴	W _y mm ³	e _z mm	I _z mm ⁴	W _z mm ³
9	4.6	4.5	8	72,000	165	3,065	362	6.4	2,053	324
10.6	6.5	5.5	10	72,000	237	6,390	608	7.5	4,510	600
15	8	6.6	12	72,000	440	20,100	1,440	10.4	14,100	1,360
15	8	6.6	12	72,000	440	20,100	1,440	10.4	14,100	1,360
15	8	6.5	12	72,000	261	18,305	1,165	10.1	10,072	995
15	8	6.5	12	72,000	261	18,305	1,165	10.1	10,072	995
5	6.5 ⁵⁾	6.5	12	72,000	230	11,300	810	5	2,190	438
12.6	8 ⁶⁾	9	15	72,000	358	33,929	1,858	10.1	14,052	1,391
12.6	8 ⁶⁾	9	15	72,000	358	33,929	1,858	10.1	14,052	1,391
7.5	7 ⁵⁾	9	15	72,000	370	29,280	1,864	7.5	16,200	2,160
25.1	13	11	19	72,000	1,170	138,624	5,878	17.8	113,037	6,350
25.1	13	11	19	72,000	1,170	138,624	5,878	17.8	113,037	6,350
25.1	15	11	19	72,000	1,170	138,624	5,878	17.8	113,037	6,350
25.1	13	11	19	72,000	649	113,821	4,896	17.1	74,878	4,378
25.1	13	11	19	72,000	649	113,821	4,896	17.1	74,878	4,378
25.1	13	11	19	72,000	649	113,821	4,896	17.1	74,878	4,378
9	10 ⁵⁾	11	19	72,000	670	84,000	3,610	9	19,900	2,211
9	10 ⁵⁾	11	19	72,000	670	84,000	3,610	9	19,900	2,211
25.1	13 ⁶⁾	13	21	72,000	1,185	613,720	16,587	17.5	155,160	8,866
25.1	13 ⁶⁾	13	21	72,000	1,185	613,720	16,587	17.5	155,160	8,866

Guideways

LFS..N, LFS..NZZ, LFS..M, LFS..ZZ SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

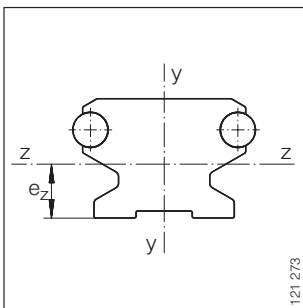
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																
PART NUMBER	MASS ≈ g/m	DIMENSIONS			MOUNTING DIMENSIONS											
		a	h	L ¹⁾	a ₁	a ₂	a ₃ ²⁾	a ₄	a ₅	a ₆	a ₇	C ₄ ³⁾	d _{LW}	h ₁	h ₂	h ₃
LFS 25 N	1,000	25	15	2,000	21	19	5.5	8.2	-	-	-	62.5	6	3	5	-
LFS 25 M	3,500	25	46	2,000	56	19	-	26.5	5.2	30	-	-	6	-	22	-
LFS 32 N	1,400	32	20	6,000	24	26	6.5	10.5	10.5	-	-	125	6	4	6	-
LFS 32 M	6,400	32	66.5	6,000	75	26	-	-	10.2	43	-	-	6	-	25	-
LFS 52 NZZ	3,900	52	34	8,000	46.5	42	11	18.5	18.5	4.7	-	250	10	6.4	9	-
LFS 52 M	11,200	52	98.6	8,000	112	42	18	44	10.2	80	52	-	10	-	25	-
LFS 120 ZZ	7,900	120	25	6,000	100	110	-	-	18	68	28	250 ⁵⁾	10	-	-	13

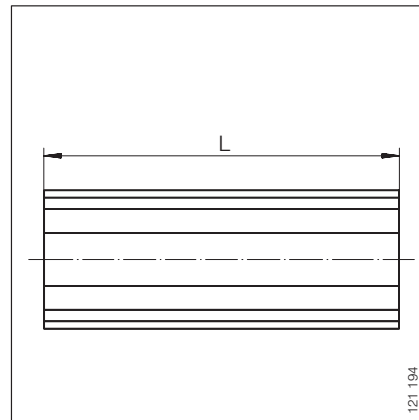
Guideway in corrosion-resistant execution: LFS..VA.

Guideway LFS 120 NZZ available without holes: LFS 120 NZZ OL.

- 1) Maximum length of single-piece guideways, longer guideways are supplied as multi-piece guideways and are marked accordingly.
- 2) For screws to DIN 931/933-8.8, special washers are included in the delivery for guideways LFS..N and LFS 52 NZZ.
- 3) Recommended distance between screws.
- 4) Core hole M8 centrally, distance from bottom edge of guideway: 57.5 mm.
- 5) C_{5 min}, C_{6 min} = 17 mm, C_{5 max}, C_{6 max} = 235 mm.

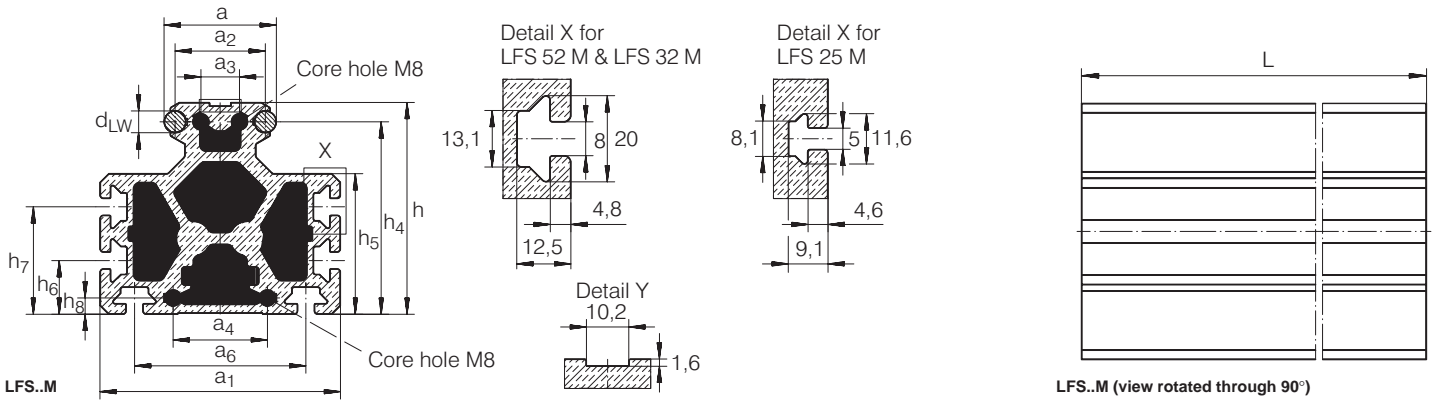


Neutral axes

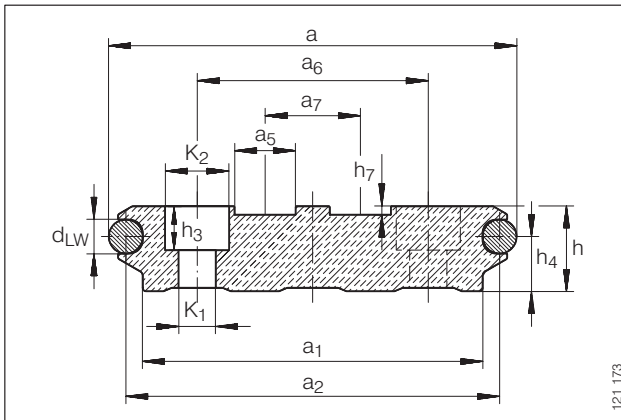


LFS..N, LFS 52 NZZ
(view rotated through 90°)

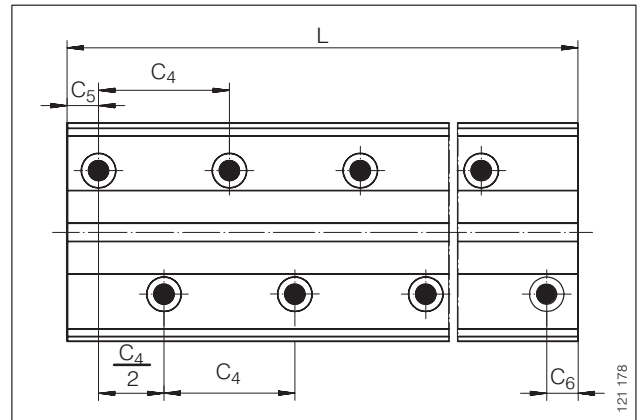




							MODULUS OF ELASTICITY N/mm ²	CROSS- SECTIONAL AREA mm ²	SURFACE DATA				
h ₄	h ₅	h ₆	h ₇	h ₈	K ₁	K ₂			NEUTRAL AXIS				
									y-y		z-z		
									l _y mm ⁴	W _y mm ³	e _z mm	I _z mm ⁴	W _z mm ³
10.6	-	-	-	-	M5	-	72,000	192	5,980	570	8	4,420	530
41.6	31.5	-	1.6	-	-	-	72,000	1,156	314,429	11,230	19.4	186,693	9,623
15	-	-	1.6	-	M6	-	72,000	360	19,600	1,400	11.1	12,600	1,135
61	47	-	1.6	-	-	-	72,000	2,206	1,000,234	26,672	36.8	762,105	20,707
25.1	10	6	5	-	M10	-	72,000	994	170,350	7,327	16.8	82,786	4,927
89.7	65.4	-	1.8	7.5	-	-	72,000	3,691	3,717,250	66,380	42.6	3,014,470	55,462
16.1	-	-	2.5	7.5	∅ 11	∅ 19	72,000	2,468	2,330,980	40,751	12.5	117,074	9,365



LFS 120 ZZ



LFS 120 ZZ⁵⁾
(view rotated through 90°)



Guideways

LFS..CH, LFS..FH SERIES

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

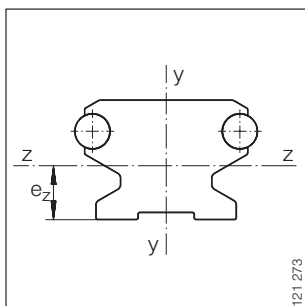
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm												
PART NUMBER	MASS ≈ g/m	DIMENSIONS			MOUNTING DIMENSIONS							
		a	h	L ¹⁾	a ₁	a ₂	a ₆	C ₄	C ₅ ²⁾		C ₆ ²⁾	
									min.	max.	min.	max.
LFS 32 CH	900	26	20	4,000	24	23	13	125	11	116	11	116
LFS 32 CHE	900	26	20	4,000	24	23	13	62.5	11	52	11	52
LFS 32 FH	800	26	10	4,000	–	23	13	125	11	116	11	116
LFS 32 FHE	800	26	10	4,000	–	23	13	62.5	11	52	11	52
LFS 52 CH	2,100	42	34	8,000	36	37	21	250	17	235	17	235
LFS 52 CHE	2,100	42	34	8,000	36	37	21	125	17	110	17	110
LFS 52 CHEE	2,100	42	34	8,000	36	37	21	62.5	17	49	17	49
LFS 52 FH	2,300	42	18	8,000	–	37	21	250	17	235	17	235
LFS 52 FHE	2,300	42	18	8,000	–	37	21	125	17	110	17	110
LFS 52 FHEE	2,300	42	18	8,000	–	37	21	62.5	17	49	17	49

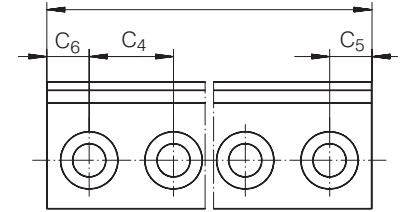
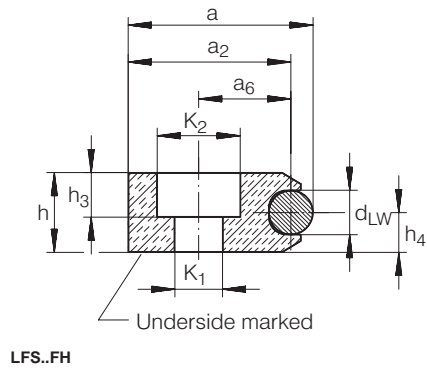
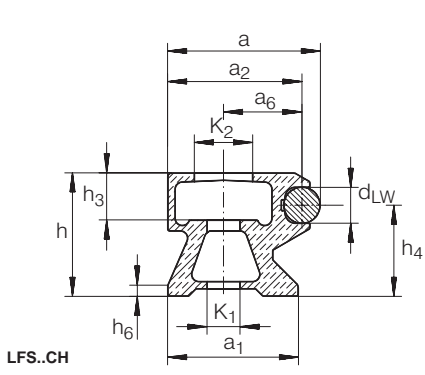
Guideway in corrosion-resistant execution: LFS..VA.

Guideways LFS..CH and LFS..FH available without holes: LFS..CH OL, LFS..FH OL.

- 1) Maximum length of single-piece guideways, longer guideways are supplied as multi-piece guideways and are marked accordingly.
- 2) Dimensions C₅ and C₆ are dependent on the guideway length L.
- 3) For screws to DIN 912-8.8, washers to DIN 433 are required for maximum loading.
- 4) Countersink depth for screws to DIN 6 912.



Neutral axes



LFS..CH

LFS..FH

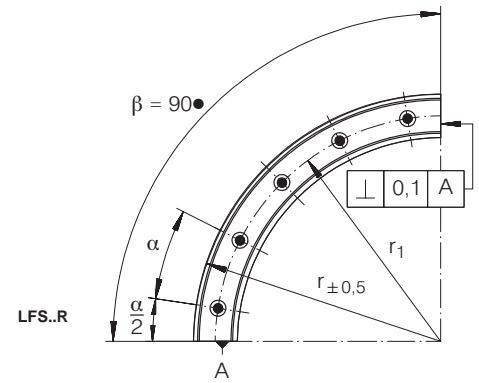
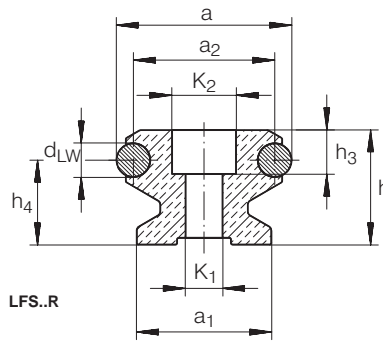
LFS..CH, LFS..FH
view rotated through 90°)

						SURFACE DATA						
d _{LW}	h ₃	h ₄	h ₆	K ₁ ³⁾	K ₂	MODULUS OF ELASTICITY N/mm ²	CROSS-SECTIONAL AREA mm ²	NEUTRAL AXIS				
								y-y		z-z		
								I _y mm ⁴	W _y mm ³	e _z mm	I _z mm ⁴	W _z mm ³
6	8	15	2	6.5	12	72,000	220	12,374	1,267	11.4	9,118	799
6	8	15	2	6.5	12	72,000	220	12,374	1,267	11.4	9,118	799
6	6.5	5	-	6.5	12	72,000	216	8,681	790	5	1,897	379
6	6.5	5	-	6.5	12	72,000	216	8,681	790	5	1,897	379
10	13	25.1	3	11	19	72,000	555	75,367	4,558	16	62,469	3,904
10	13	25.1	8	11	19	72,000	555	75,367	4,558	16	62,469	3,904
10	13	25.1	8	11	19	72,000	555	75,367	4,558	16	62,469	3,904
10	10 ⁴⁾	9	-	11	19	72,000	629	66,642	3,765	9	17,798	1,977
10	10 ⁴⁾	9	-	11	19	72,000	629	66,642	3,765	9	17,798	1,977
10	10 ⁴⁾	9	-	11	19	72,000	629	66,642	3,765	9	17,798	1,977



Curved Guideways

LFS..R SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

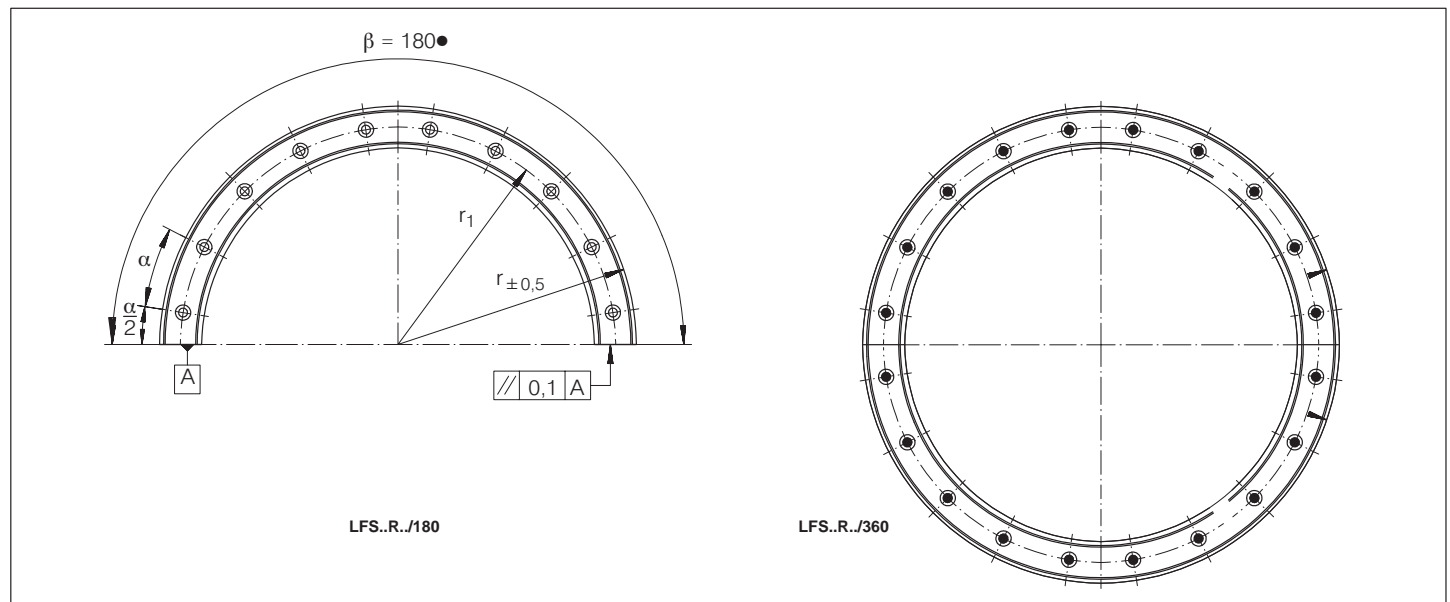
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																
PART NUMBER CURVED ELEMENT	MASS g	DIMENSIONS														
		a	h	β	a ₁	a ₂	d _{LW}	h ₃	h ₄	K ₁ ¹⁾	K ₂	x ²⁾	r	r ₁	α	$\alpha/2$
LFS 32 R 100/ 90	500	32	20	90°	24	26	6	6.5	15	6.5	12	3	100	84	30	15
LFS 32 R 100/180	1,000	32	20	180°	24	26	6	6.5	15	6.5	12	6	100	84	30	15
LFS 32 R 100/360	2,000	32	20	360°	24	26	6	6.5	15	6.5	12	12	100	84	30	-
LFS 32 R 300/ 90	1,700	32	20	90°	24	26	6	6.5	15	6.5	12	4	300	284	22.5	11.25
LFS 32 R 300/180	3,400	32	20	180°	24	26	6	6.5	15	6.5	12	8	300	284	22.5	11.25
LFS 32 R 300/360	6,800	32	20	360°	24	26	6	6.5	15	6.5	12	12	300	284	22.5	-
LFS 32 R 500/ 90	2,900	32	20	90°	24	26	6	6.5	15	6.5	12	5	500	484	18	9
LFS 32 R 500/180	5,800	32	20	180°	24	26	6	6.5	15	6.5	12	10	500	484	18	9
LFS 32 R 500/360	11,600	32	20	360°	24	26	6	6.5	15	6.5	12	12	500	484	18	-
LFS 52 R 150/ 90	2,000	52	34	90°	40	42	10	13	25.1	11	19	3	150	124	30	15
LFS 52 R 150/180	4,000	52	34	180°	40	42	10	13	25.1	11	19	6	150	124	30	15
LFS 52 R 150/360	8,000	52	34	360°	40	42	10	13	25.1	11	19	12	150	124	30	-
LFS 52 R 300/ 90	4,500	52	34	90°	40	42	10	13	25.1	11	19	4	300	274	22.5	11.25
LFS 52 R 300/180	9,000	52	34	180°	40	42	10	13	25.1	11	19	8	300	274	22.5	11.25
LFS 52 R 300/360	9,000	52	34	360°	40	42	10	13	25.1	11	19	12	300	274	22.5	-
LFS 52 R 500/ 90	7,800	52	34	90°	40	42	10	13	25.1	11	19	5	500	474	18	9
LFS 52 R 500/180	15,600	52	34	180°	40	42	10	13	25.1	11	19	10	500	474	18	9
LFS 52 R 500/360	15,600	52	34	360°	40	42	10	13	25.1	11	19	12	500	474	18	-

Guideway LFS..R in corrosion-resistant execution: LFS..R VA.

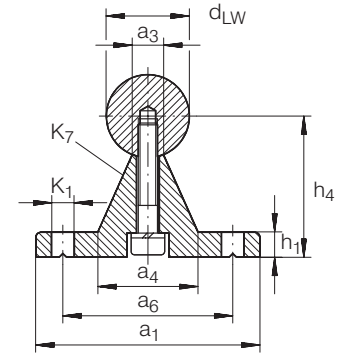
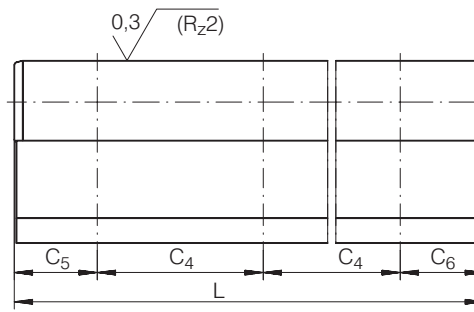
Guideway LFS..R without holes: LFS..R OL.

- 1) For screws to DIN 912-8.8.
- 2) Number of holes on curved section r₁.



Shaft And Support Rail Units

TSNW SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm														
SHAFT DIAMETER d_{LW} h_6	PART NUMBER	MASS kg/m	DIMENSIONS			MOUNTING DIMENSIONS								
			a_1	h_4 ¹⁾ ± 0.02	L ²⁾ ± 3	a_3	a_4	a_6	C_4	C_5/C_6 ³⁾ min.	C_5/C_6 ³⁾ max.	h_1	K_1 ⁴⁾	K_7
			DIN 6 912											
12	TSNW 12	1.67	40	22	6,000	5.4	15	29	75	20	69	5	4.5	M4 × 20
16	TSNW 16	2.95	45	26	6,000	7	19	33	100	20	93	5	5.5	M5 × 20
20	TSNW 20	3.95	52	32	6,000	8.1	23	37	100	20	92	6	6.6	M6 × 25
25	TSNW 25	5.6	57	36	6,000	10.3	26	42	120	20	110	6	6.6	M8 × 30
30	TSNW 30	7.88	69	42	6,000	11	29	51	150	20	139	7	9	M10 × 35
40	TSNW 40	12.83	73	50	6,000	15	36	55	200	20	189	8	9	M10 × 40
50	TSNW 50	19.38	84	60	6,000	19	40	63	200	20	188	9	11	M12 × 45

1) With reference to the nominal shaft diameter, measured while clamped.

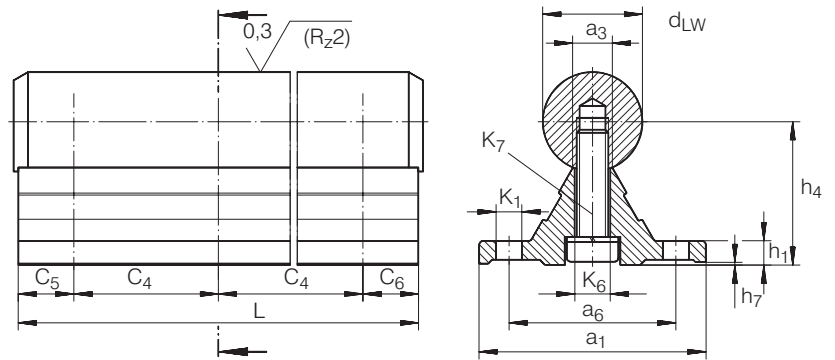
2) Maximum length of single-piece units, longer units are supplied as several pieces. Depending on the length of the shaft and support rail unit, the support rail is composed of several pieces.

3) Dimensions C_5 and C_6 are dependent on the length of the shaft and support rail unit.

4) For fixing screws to DIN 6 912 and spring washers to DIN 7 980.

Shaft And Support Rail Units

TSNW..G4 $d \leq 25\text{mm}$,
TSNW..G5 $d > 25\text{mm}$ SERIES



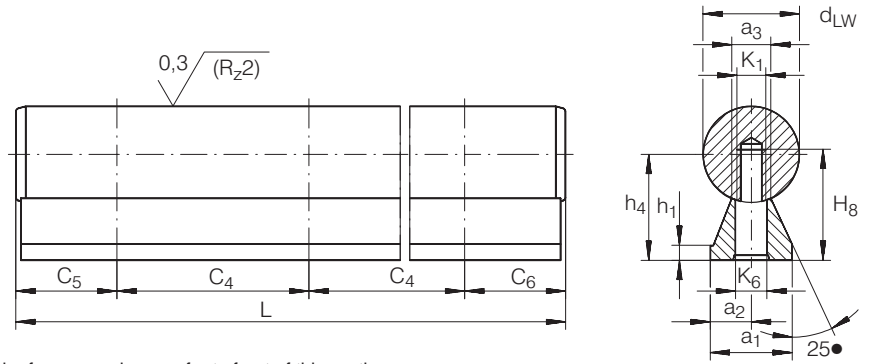
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																
SHAFT DIAMETER d_{LW}	PART NUMBER	MASS	DIMENSIONS			MOUNTING DIMENSIONS										
			a_1	$h_4^{1)}$	$L^{2)}$	a_3	a_6	C_4	$C_5/C_6^{3)}$	$C_5/C_6^{3)}$	h_1	h_7	$K_1^{4)}$	K_6	K_7	ACCURACY CLASS ⁵⁾
h_6		kg/m			± 2				min.	max.					DIN 6 912	
12	TSNW 12 G4	1.6	40	22 ± 0.1	4,000	5	29	75	20	69	5	0.2	4.5	4.5	M4 × 18	G4 0.03
16	TSNW 16 G4	2.5	45	26 ± 0.1	4,000	6.8	33	100	20	93	5	0.2	5.5	5.5	M5 × 20	G4 0.03
20	TSNW 20 G4	3.8	52	32 ± 0.1	4,000	7.8	37	100	20	92	6	0.2	6.6	6.6	M6 × 25	G4 0.03
25	TSNW 25 G4	5.3	57	36 ± 0.1	4,000	9.8	42	120	20	110	6	0.3	6.6	9	M8 × 30	G4 0.03
30	TSNW 30 G5	7.5	69	42 ± 0.15	4,000	11	51	150	20	139	7	0.3	9	11	M10 × 35	G5 0.04
40	TSNW 40 G5	12.4	73	50 ± 0.15	4,000	14.5	55	200	20	189	8	0.3	9	11	M10 × 40	G5 0.04
50	TSNW 50 G5	18.9	84	60 ± 0.15	4,000	18.5	63	200	20	188	9	0.3	11	13.5	M12 × 45	G5 0.05

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of single-piece units, the shaft protrudes beyond the support rail by about 2.5 mm at each end; longer units are supplied as several pieces.
- 3) Dimensions C_5 and C_6 are dependent on the length of the shaft and support rail unit.
- 4) For fixing screws to DIN 6 912 and spring washers to DIN 7 980.
- 5) Value for the maximum variation of dimension h_4 , measured on the same rail over a distance of 1 000 mm.

Shaft And Support Rail Units TSUW SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

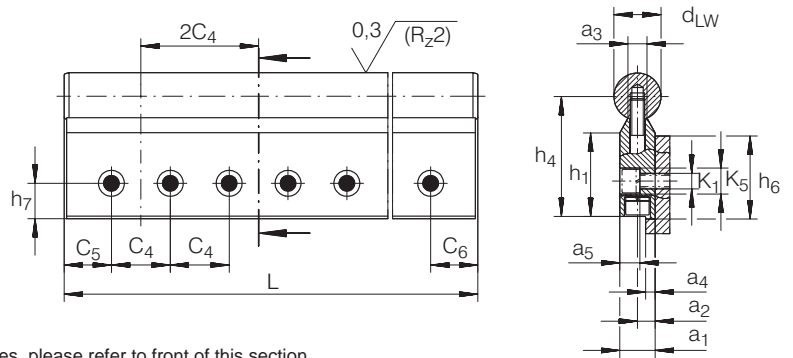
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm														
SHAFT DIAMETER d_{LW}	PART NUMBER	MASS kg/m	DIMENSIONS			MOUNTING DIMENSIONS								
			a_1	$h_4^{1)}$ ± 0.02	$L^{2)}$ ± 3	$a_2^{3)}$	a_3	C_4	$C_5/C_6^{4)}$ min.	$C_5/C_6^{4)}$ max.	h_1	K_1	K_6	H_8
12	TSUW 12	1.1	11	14.5	6,000	5.5	5.4	75	20	70	3	M4	4.5	16
16	TSUW 16	1.88	14	18	6,000	7	7	75	20	70	3	M5	5.5	19
20	TSUW 20	2.92	17	22	6,000	8.5	8.1	75	20	69	3	M6	6.6	23
25	TSUW 25	4.42	21	26	6,000	10.5	10.3	75	20	68	3	M8	9	28.5
30	TSUW 30	6.22	23	30	6,000	11.5	11	100	20	92	3	M10	11	32
40	TSUW 40	11.03	30	39	6,000	15	15	100	20	91	4	M12	13.5	39.5
50	TSUW 50	16.98	35	46	6,000	17.5	19	100	20	90	5	M14	15.5	46

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of single-piece units (TSUW 12: $L = 1600 \pm 1.2$ mm), longer units are supplied as several pieces.
Depending on the length of the shaft and support rail unit, the support rail is composed of several pieces.
- 3) Available on request with $a_2 \pm 0.02$.
- 4) Dimensions C_5 and C_6 are dependent on the length of the shaft and support rail unit.

Shaft and Support Rail Units

TSSW SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																		
SHAFT DIAMETER d_{LW}	PART NUMBER	MASS kg/m	DIMENSIONS			MOUNTING DIMENSIONS												
			a_1	$h_4^{1)}$ ± 0.01	$L^{2)}$ ± 3	$a_2^{1)}$ ± 0.012	a_3	a_4	$a_5^{3)}$	C_4	$C_5/C_6^{4)}$ min.	$C_5/C_6^{4)}$ max.	h_1	h_6	h_7 ± 0.15	$K_1^{3)}$	$K_5^{3)}$	
h_6																		
20	TSSW 20	4.12	15	52	6,000	7.5	8.1	4	8.5	50	20	42	36.5	30	15	6.6	11	
25	TSSW 25	5.98	20	62	6,000	10	10.3	5.5	11	60	20	50	38.5	36	18	9	15	
30	TSSW 30	8.68	25	72	6,000	12.5	11	7	13.5	75	20	64	43	42	21	11	18	
40	TSSW 40	14.3	30	88	6,000	15	15	8.5	16	100	20	88	53	50	25	13.5	20	
50	TSSW 50	21.47	35	105	6,000	17.5	19	9	18.5	100	20	86	64.5	60	30	15.5	24	

1) With reference to the nominal shaft diameter, measured while clamped.

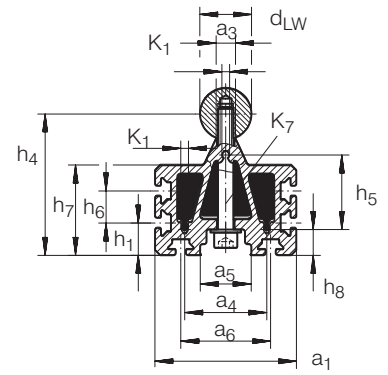
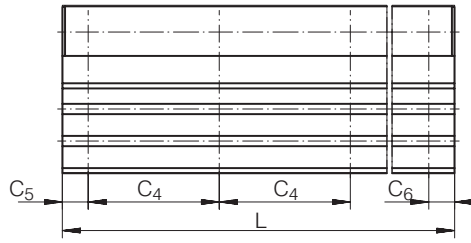
2) Maximum length of single-piece units, longer units are supplied as several pieces.
Depending on the length of the shaft and support rail unit, the support rail is composed of several pieces.

3) For fixing screws to DIN 912-8.8 and spring washers to DIN 7980.

4) Dimensions C_5 and C_6 are dependent on the length of the shaft and support rail unit

Shaft And Support Rail Units

TSMW SERIES

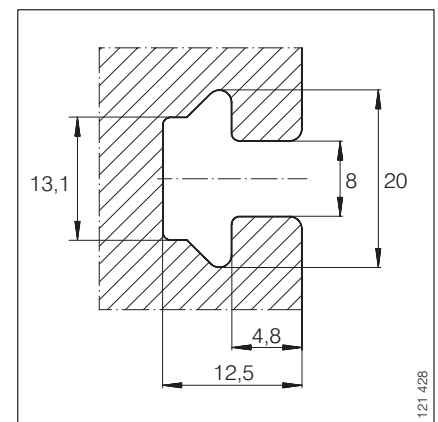


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																			
SHAFT DIAMETER d_{LW}	PART NUMBER	MASS	DIMENSIONS																
			a_1	$h_4^{1)}$	$L^2)$	a_3	a_4	a_5	a_6	C_4	$C_5/C_6^4)$ min.	$C_5/C_6^4)$ max.	h_1	h_5	h_6	h_7	h_8	K_1	K_7
h_6		kg/m			± 3														
20	TSMW 20	6.3	65	65	6,000	7.8	30	14	40	75	20	42	25	29	-	44	18	4.65	M6
25	TSMW 25	8.9	75	75	6,000	10	40	18	45	75	20	50	25	34	-	47	18	4.65	M8
30	TSMW 30	12.3	90	90	6,000	11	50	32	60	100	20	64	25	43	-	57	20	5.5	M10
40	TSMW 40 ³⁾	20.3	110	110	6,000	14.5	64	40	70	100	20	88	25	58	25	70	20	5.5	M12

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of single-piece units, longer units are supplied as several pieces.
Shaft and support rail units up to the maximum length are supplied with a single-piece support rail.
- 3) Available on request.
- 4) Dimensions C_5 and C_6 are dependent on the length of the shaft and support rail unit



T-grooves

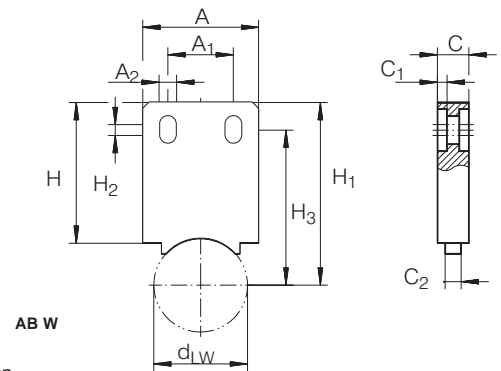


Lubrication And Wiper Units

AB W SERIES

Cap Wipers

AB LFR, AB LFL SERIES



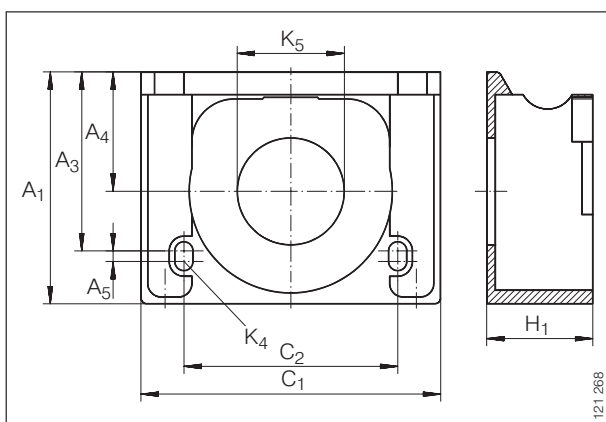
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

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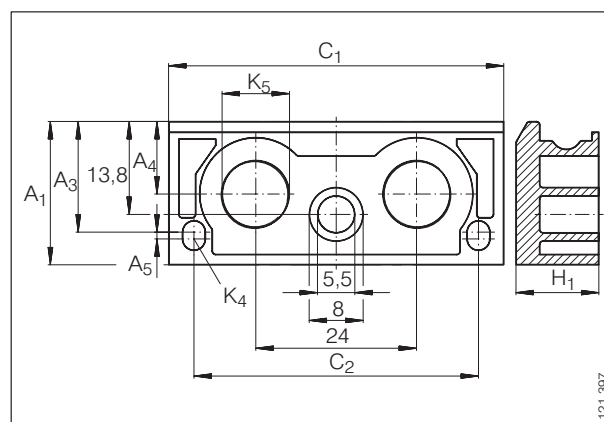
DIMENSION TABLE - Dimensions in mm													
PART NUMBER	MASS kg	DIMENSIONS											SUITABLE FOR TRACK ROLLER LFR
		d _{LW}	A	C	H	A ₁ ±0.1	A ₂	C ₁	C ₂	H ₁	H ₂	H ₃	
AB W 10	0.03	10	22.5	10	45	10	4.5	3	5	49	4	40.3	LFR 5201-10 KDD
AB W 12	0.03	12	22.5	10	45	10	4.5	3	5	51	4	42.3	LFR 5201-12 KDD
AB W 16	0.03	16	22.5	10	45	10	4.5	3	5	52	4	43.3	LFR 5204-16 KDD
AB W 20	0.03	20	22.5	10	45	10	4.5	3	5	54	4	45.3	LFR 5206-20 KDD
AB W 25	0.03	25	37	10	45	21	5.5	3	5	54	3.5	45.3	LFR 5206-25 KDD
AB W 30	0.03	30	37	10	45	21	5.5	3	5	59	3.5	50.3	LFR 5207-30 KDD
AB W 40	0.03	40	37	10	45	21	5.5	3	5	71	3.5	62.3	LFR 5208-40 KDD

DIMENSION TABLE - Dimensions in mm													
PART NUMBER	MASS g	DIMENSIONS									SUITABLE FOR		
		A ₁	A ₃	A ₄	A ₅	C ₁	C ₂ ±0.1	H ₁	K ₄	K ₅ +0.1	TRACK ROLLER	CARRIAGE	
AB LFL 20	9	21.3	16.5	10.8	1	50	42.5	11.5	M3	10	LFR 50/..4	LFL 20	
AB LFL 20	9	21.3	16.5	10.8	1	50	42.5	11.5	M3	10	LFR 50/5	-	
AB LFR 50/8	20	31.6	25.9	15.6	2	51	28.5	15	M3	15	LFR 50/8	LFCL 25	
AB LFR 5201	20	43.3	33.4	22.3	2	56	40	21.3	M3	20	LFR 5201	-	
AB LFR 5201-LFCL	20	43.3	33.4	22.3	2	56	40	19.8	M3	20	-	LFCL 42	
AB LFR 5301	30	50	38.7	26	2	76	46	25	M3	20	LFR 5301	LFCL 86	
AB LFR 5302 ¹⁾	-	-	-	-	-	-	-	-	-	-	LFR 5302	-	

¹⁾ Please consult INA engineering service.



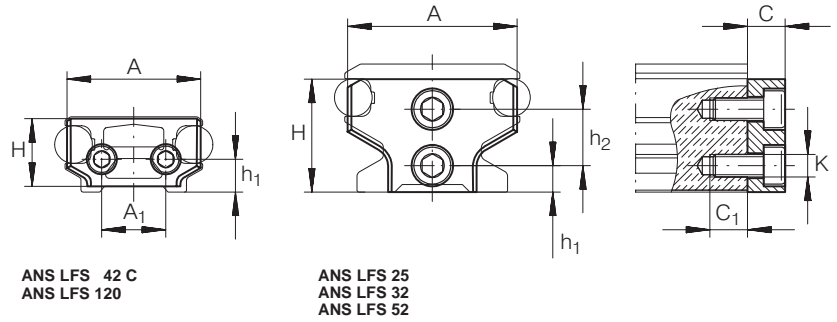
AB LFR



AB LFL 20

End Plates

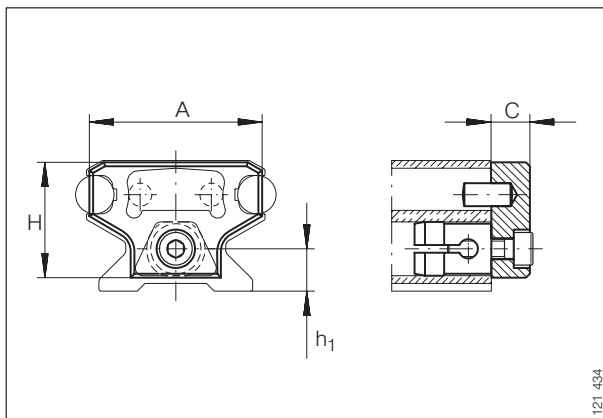
ANS LFS SERIES



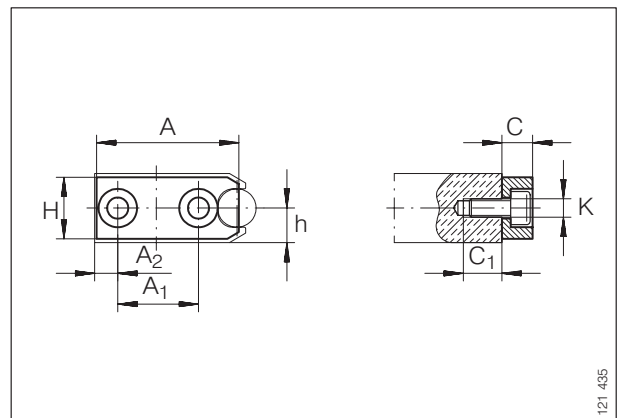
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

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DIMENSION TABLE - Dimensions in mm										
PART NUMBER	DIMENSIONS									SUITABLE FOR GUIDEWAY
	A	A ₁	A ₂	C	C ₁	H	h ₁	h ₂	K	
ANS LFS 20	14.5	-	-	6	12	11	6.2	-	M5	LFS 20
ANS LFS 25	20	-	-	5	7	14	4	7	M3	LFS 25
ANS LFS 32	30	-	-	6	7	20	5	10	M4	LFS 32
ANS LFS 32 F	26	11	-	6	7	9	5	-	M4	LFS 32 F
ANS LFS 32 FH	22	9	9	6	7	9	5	-	M3	LFS 32 FH
ANS LFS 32 N	26	11	-	6	7	9	15	-	M4	LFS 32 N
ANS LFS 42 C	35.5	17	-	8	7	18	8	-	M4	LFS 42 C
ANS LFS 52	45	-	-	10	10	30	7	15	M6	LFS 52
ANS LFS 52 F	42	21	-	8	10	16	9	-	M5	LFS 52 F
ANS LFS 52 FH	37	6.5	21	8	10	16	9	-	M5	LFS 52 FH
ANS LFS 52 NZZ	42	21	-	8	10	16	24	-	M4	LFS 52 NZZ
ANS LFS 86C	80	54	-	8	10	30	17.5	-	M5	LFS 86 C
ANS LFS 120	114	80	-	5	10	16	8	-	M6	LFS 120



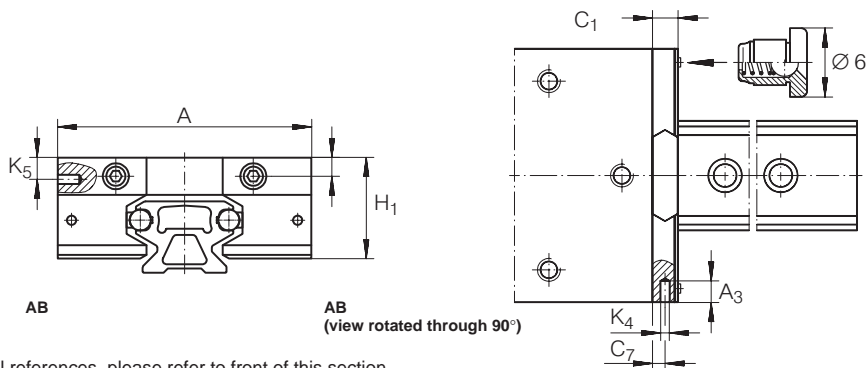
ANS LFS 52 C



ANS LFS..FH



Lubrication And Wiper Units AB SERIES Side Plates ABAL SERIES

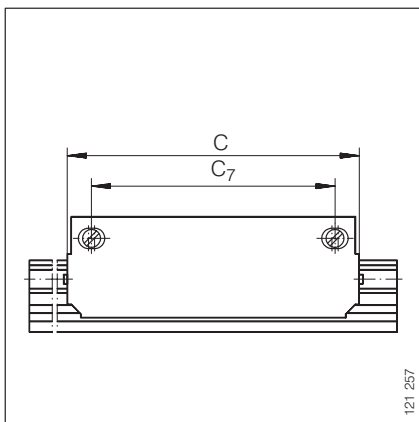


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

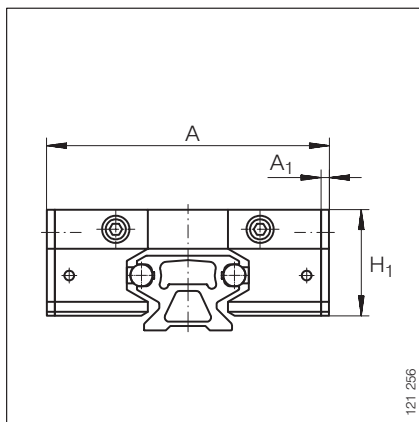
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DIMENSION TABLE - Dimensions in mm										
PART NUMBER	MASS ≈ g	DIMENSIONS								SUITABLE FOR TRACK ROLLER
		A	A ₃	C ₁	C ₇	H ₁	H ₄	H ₅	K ₄ for screws to DIN 7 972	
AB 32	30	80	6	11	5	32	7	7	St 2.9	LFL 32
AB 32	30	80	6	11	5	32	7	7	St 2.9	LFDL 32
AB 52	100	120	20	18	8.5	49.5	9.5	15	St 4.8	LFL 52
AB 52	100	120	20	18	8.5	49.5	9.5	15	St 4.8	LFDL 52
AB 52/1	130	135	20	18	8.5	55	12	20.6	St 4.8	LFL 52 E

DIMENSION TABLE - Dimensions in mm							
PART NUMBER	MASS ≈ g	DIMENSIONS					SUITABLE FOR CARRIAGE
		A	A ₁	C	C ₇	H ₁	
ABAL 32	30	86	3	112	100	32	LFL 32
ABAL 52	40	130	5	136	117	49.5	LFL 52
ABAL 52/1	50	145	5	186	167	55	LFL 52 E



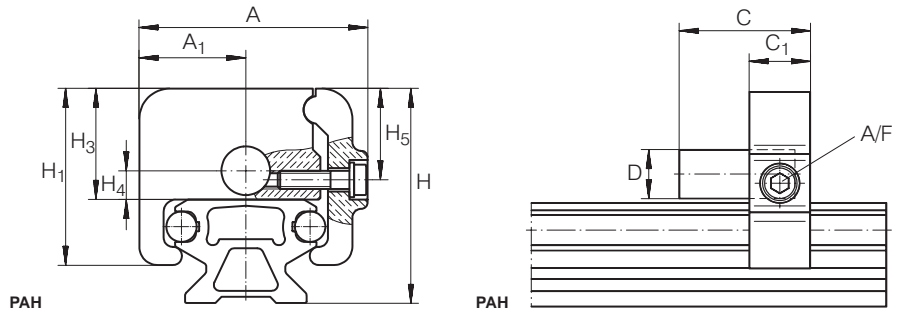
ABAL



ABAL

End Stops

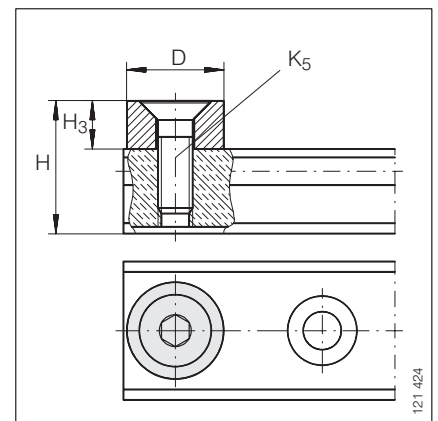
PAH, PASTP SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.
 For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm													
PART NUMBER	MASS g	DIMENSIONS											SUITABLE FOR GUIDEWAY
		A	A ₁	C	C ₁	D	H	H ₁	H ₃	H ₄	H ₅	A/F	
PAH 32	50	46	21	30	15	10	39	32	19	7	14	5	LFS 32 C, N
PAH 52	170	75	35	43	20	16	70.5	58	36.5	9.5	30	6	LFS 52 C, NZZ

DIMENSION TABLE - Dimensions in mm						
PART NUMBER	MASS g	DIMENSIONS				SUITABLE FOR GUIDEWAY
		D	H ₃	K ₅	H	
PASTP 20	8	20	7	M5	22.2	LFS 20
PASTP 25	8	20	7	M5	25	LFS 25
PASTP 32	10	16	11	M6	31	LFS 32
PASTP 42	10	16	11	M6	31	LFS 42 C
PASTP 52	10	20	11	M8	45	LFS 52
PASTP 86	10	20	11	M8	45	LFS 86 C



PASTP

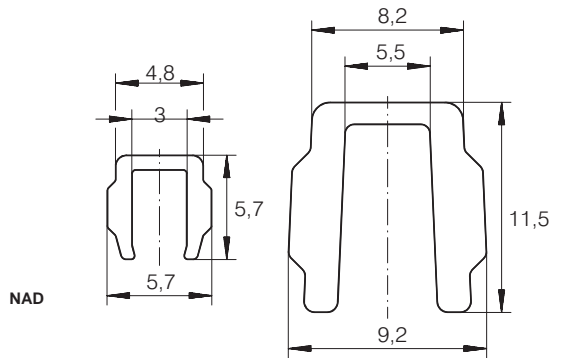


Groove Strips

NAD SERIES

End Covers

KA LFS..C, KA LFS..M SERIES

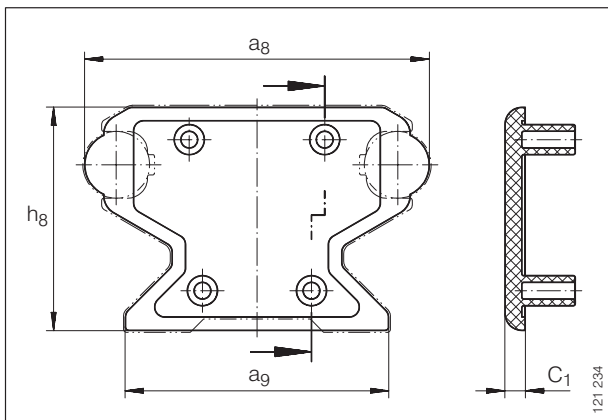


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

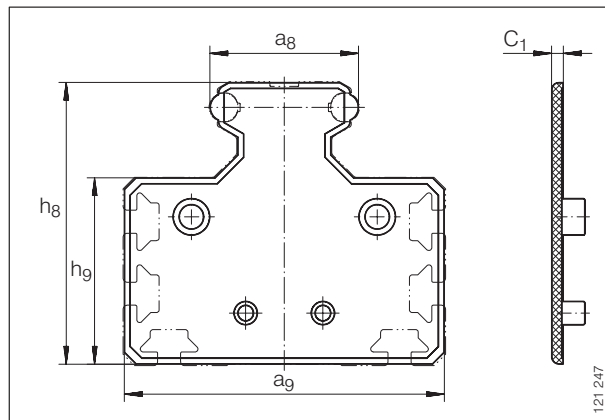
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm		
PART NUMBER	MASS ≈ g/m	SUITABLE FOR GUIDEWAY
NAD 5 × 5,7	12	LFS 25 M
NAD 8 × 11,5	27	LFS 32 M
NAD 8 × 11,5	27	LFS 52 M

DIMENSION TABLE - Dimensions in mm							
PART NUMBER	MASS ≈ g	DIMENSIONS					SUITABLE FOR GUIDEWAY
		a _g	a _g	c ₁	h _g	h _g	
KA LFS 25 M	10	24.4	55.4	3	45.4	30.9	LFS 25 M
KA LFS 32 C	10	31.4	23.4	3	19.4	—	LFS 32 C
KA LFS 32 M	12	31.4	74.4	3	59.9	46.4	LFS 32 M
KA LFS 42 C	12	41.4	27.4	3	19.4	—	LFS 42 C
KA LFS 52 C	13	51.6	39.4	3	33.4	—	LFS 52 C
KA LFS 52 M	15	51.6	111.4	4	98	64.8	LFS 52 M
KA LFS 86 C	15	85.6	70.4	4	33.4	—	LFS 86 C



KA LFS..C

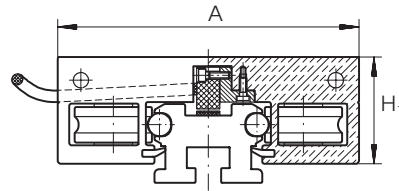


KA LFS..M

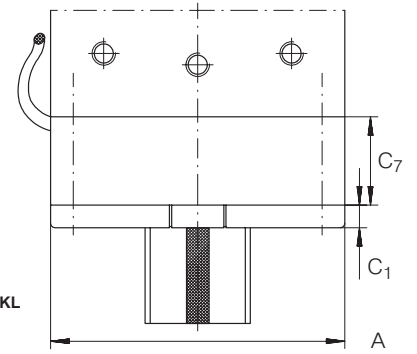


Adapter

ABTKO LFKL SERIES



ABTKO LFKL



ABTKO LFKL

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm						
PART NUMBER	MASS g	DIMENSIONS				SUITABLE FOR CARRIAGE
		A	H ₁	C ₇	C ₁	
ABTKO LFKL 32	200	86	32	39	7	LFKL 32
ABTKO LFKL 52	400	130	46.1	39	10	LFKL 52
ABTKO LFKL 52 E	500	145	53.8	39	10	LFKL 52 E
ABTKO LFKL 52 EE	500	155	55	39	10	LFKL 52 EE

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