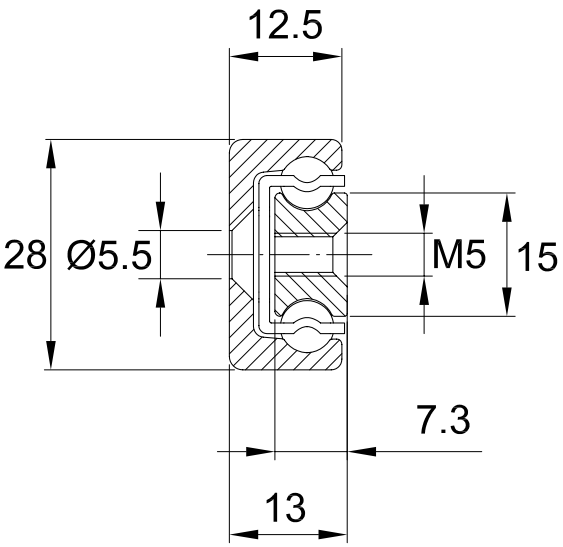
TELESCOPIC RAILS

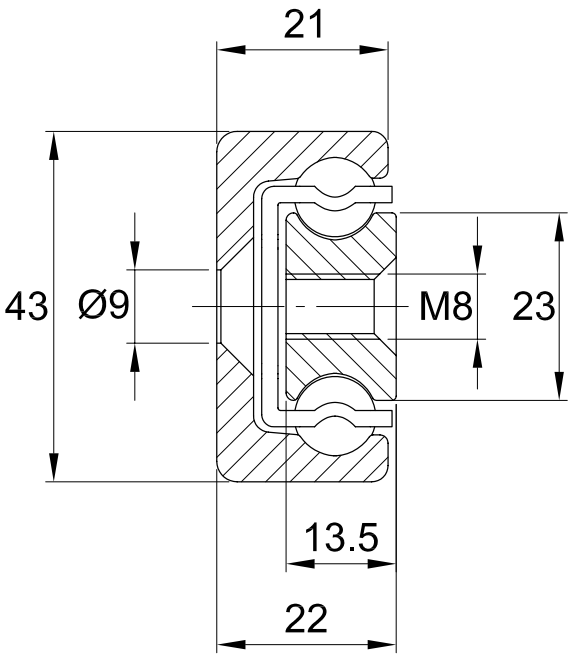
HARDENED TELESCOPIC RAILS FOR HIGHLY DYNAMIC APPLICATIONS

PRODUCT OVERVIEW
TELESCOPIC RAILS

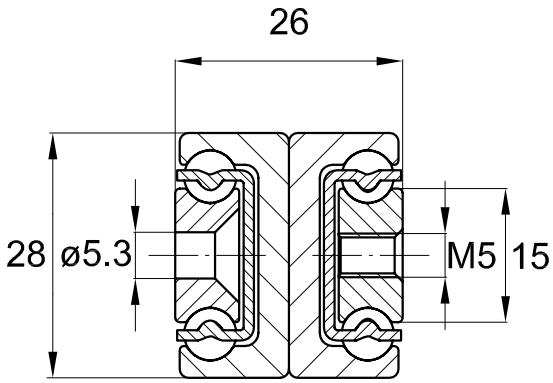
LST28



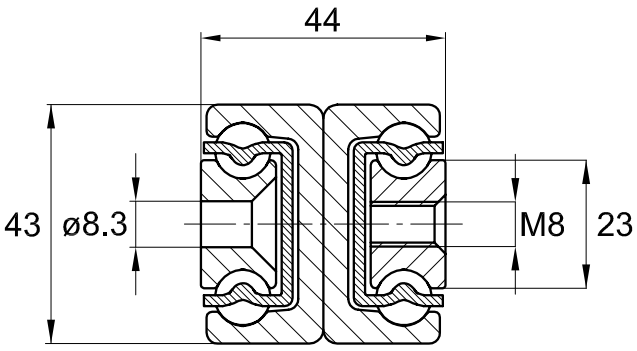
LST43



LSE28

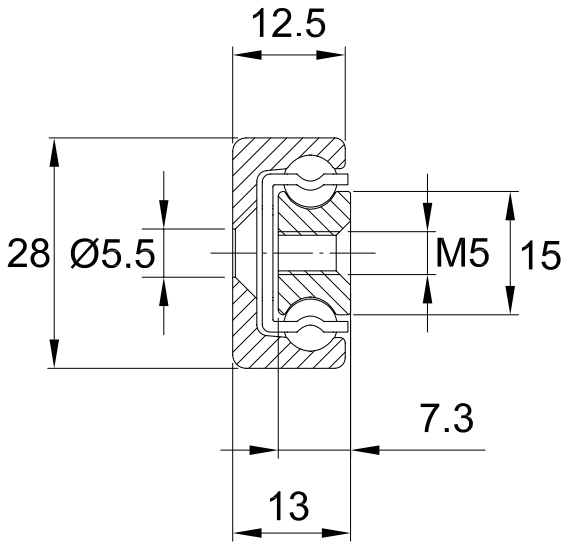


LSE43

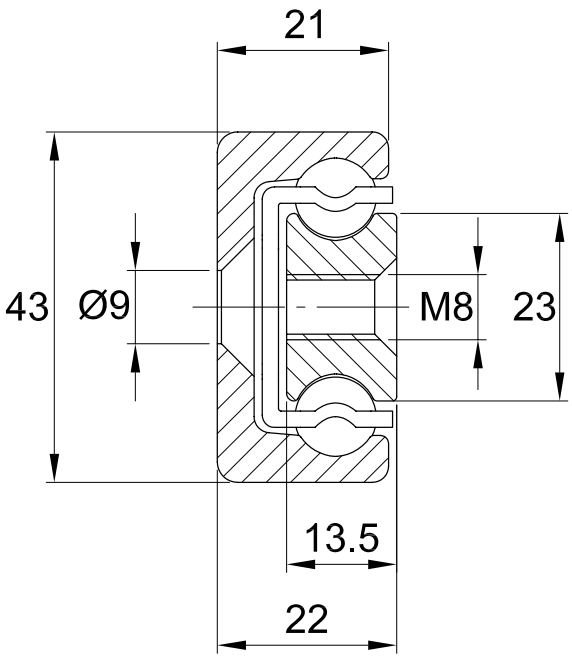


TELESCOPIC RAILS

LSS28



LSS43



TELESCOPIC RAILS
LSS, LST AND LSE

Nadella telescopic rails are ball guided and very compact and flexible products. Made entirely of steel, with profiles cold drawn and raceways induction hardened, enables you to move heavy loads while maintaining excellent rolling features thanks to the robust ball cage interposed between the sliding elements.

The product is composed by the external drawn profile, with C shaped section, the internal slider and the ball-cage:

- Linear guide cold drawn in bearing steel with high durability; internal concave raceways with gothic arch shape, induction hardened for a high wear resistance and durability. The rails are supplied with a standard surface treatment of white zinc plating.

- Internal slider in bearing steel with high durability; internal concave raceways with gothic arch shape, induction hardened for a high wear resistance and durability. Sliders are supplied drilled with a surface treatment of electrolytic white zinc plating.

- Bent steel plate ball-cage with surface treatment of white zinc plating which holds the rolling elements consisting of steel bearing balls, which allows the reciprocal sliding of the elements; the high diameter and the narrow pitch between the balls allow a very high load capacity.

The raceways have a gothic arch shape which increases the load capacity of the system compared with the v shaped raceways.

The proposed range includes three lines:
- Semi-telescopic rails LST, where the slider can escape for more than half its length.

- Telescopic rails LSE, that allow a stroke equal to the length of the closed rail, thanks to the intermediate element that acts as a bridge between the two sliders.

• LSS rails, with one or more sliders which run inside the rail.

Our rails are available in two sizes, 28 and 43, and can be supplied in the standard version according to the present catalogue, or in several different configurations according to the requiring of the applications.

SURFACE TREATMENT

LSS and LST rails are supplied with a surface treatment of electrolytic white zinc plating on all the components (slider, rail and ball-cage). Zinc-plating treatment process is done after drilling the elements.
On request other surface treatments can be supplied (chemical nickel plating, suffix NW, phosphating).

Balls, in bearing steel, hardened, don't have any surface treatment. Upon request the rails can be equipped with balls in stainless steel.

LUBRICATION

For a proper exercise and to ensure an adequate lifetime, a film of lubricant must always be guaranteed in the contact area between the balls and the raceways of the elements (relubricate the raceways periodically according to the own specific working cycle and the environment, in order to always guarantee a layer of lubricant in the contact area between balls and raceways).The guides are provided with raceways lubricated with a bearing grease with a base of soap barium, which allows to work in a temperature range between -20°C and +120°C. Please contact our technical support if you plan application with higher temperatures.

We recommend the lubrication of the raceways at least every 50 000 cycles.

For extreme working temperature, please contact our Technical service.

TELESCOPIC RAILS
LSS, LST AND LSE

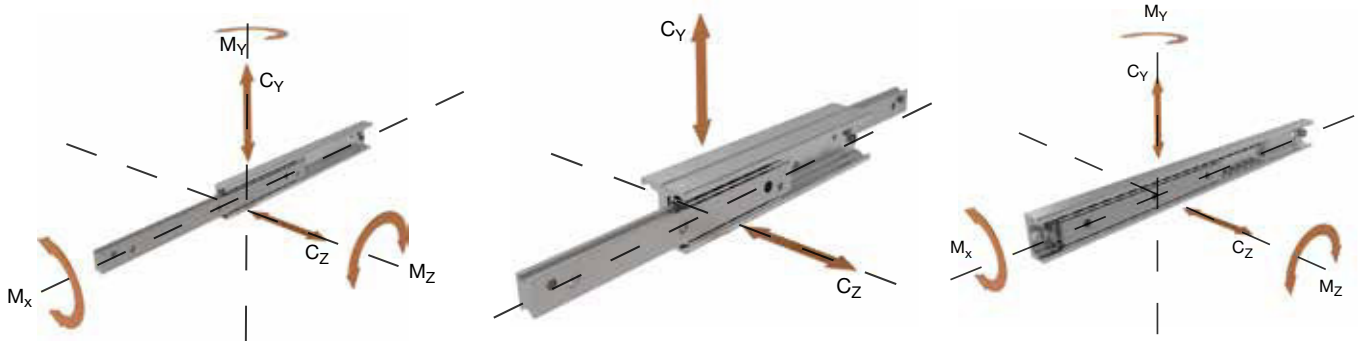
LUBRICATION AND TEMPERATURE
We recommend to use the rails with lubrication on the raceways. During production the rails are equipped with a lubricant which allows to work in a range of temperatures between -20°C and +120°C. Out of this range suitable mounting precautions should be evaluated: use of a lubricant for extreme temperatures, mounting with increased clearance, to remedy to the thermal expansion.

Maximum working temperature is 170°C, for higher temperature the use should happen in consideration of a reduction of the load capacity (at high temperatures the hardened raceways undergo a tempering process, reducing the surface hardness of the elements).

MAXIMUM SPEED
We suggest to work at speed not higher than 0.5 m/s in order to have a correct functioning (for rails LSE maximum speed 0,3 m/s).

These products are suggested for applications with small inversion frequencies and accelerations (please consult the following «Suggestions for a correct mounting» paragraph).

LOAD CAPACITIES
Guide rails with ball cage have preferential load capacity with the mounting on the side (major axis).
Ideal mounting configuration is realised with two parallel guide rails, with the load to be moved uniformly distributed on the moving elements. Mounting of the guide rail to the structure and of the external load to the sliders should involve all available holes of the components.



Load capacities are expressed in N (Newton), torque load capacities are expressed in Nm, refer to the Cartesian axes with origin in the centre of the slider and are valued according to standard ISO 14728-2. Tables of load capacities in the following pages refer to a single slider and are to be intended as maximum static admissible loads for a smooth operation.

In order to choose the correct guide rail we suggest to use the product with the appropriate load capacity by calculating the safety factor Fs. With more loads and torques acting simultaneously in different directions the check of the loads shouldn't be on the single component, but the contemporary action of all the components should be considered (Peq).

$$F_s = \left(\frac{C_y}{P_{eq}} \right) > 1$$

$$P_{eq} = P_1 + \left(\frac{P2}{C_z} + \frac{M1}{M_x} + \frac{M2}{M_y} + \frac{M2}{M_z} \right) x\ C_y$$

with:

Peq equivalent load in Y direction resulting from the combination of all the loads and torques acting contemporary on the slider
P1 load applied in the middle of the slider in Y direction
P2 load applied in the middle of the slider in Z direction
M1 torque applied in the middle of the slider around X axis
M2 torque applied in the middle of the slider around Y axis
M3 torque applied in the middle of the slider around Z axis
Cy maximum admissible static load capacity in Y direction
Cz maximum admissible static load capacity in Z direction
Mx maximum admissible static torque load capacity around X axis
My maximum admissible static torque load capacity around Y axis
Mz maximum admissible static torque load capacity around Z axis

TELESCOPIC RAILS
LSS, LST AND LSE

LIFETIME

Lifetime of the guide rail is the maximum stroke (in km for rails LSS) or maximum number of cycles (for rails LST and LSE), that the guide rail will be able to reach before the appearances of plastic deformation on the raceways.

For rails LSS

$$L_{km} = 100 \times \left(\frac{C_{100}}{P_{eq}} \times \frac{1}{f} \right)^3$$

For rails LST and LSE

$$L_{cycles} = 100000 \times \left(\frac{C_{dyn}}{P_{eq}} \times \frac{1}{f} \right)^3$$

with:

C100 dynamic load in Y direction [N], valued according to standard ISO 14728-1 for the calculation of the lifetime in km (rails LSS)

Cdyn dynamic load in Y direction [N], valued according to standard ISO 14728-1 for calculation of the lifetime in cycles (rails LST and LSE)

Peq equivalent load in Y direction resulting from the combination of all the loads and torques acting contemporary on the slider (see formula above)

f application coefficient

Smooth operation at low speed at constant load without shocks
…… **f = 1 - 1.2**

Smooth operation with load variation
…… **f = 1.2 - 1.5**

Operation with small shocks and vibrations
…… **f = 1.5 - 2**

High accelerations, shocks and vibrations
…… **f = 2 - 4**

DEFLECTION

The deflection is the elastic deformation you can register at the edge of the opened rail when a load is applied.

With semi-telescopic rails LST, that can partially exit from the rail, the deflection will depend almost exclusively on the rigidity of the structures connected to the guide elements.

For telescopic rails LSE, please refer to the values of deflection written in the tables of the load capacities and which refer to the maximum load (Cy) applied in the middle of the opened slider. For applied loads inferior to the maximum load capacity, please reduce the deflection proportionally.

SUGGESTIONS FOR A CORRECT MOUNTING

In guide systems based on ball-cage, the sliding occurs thanks to the simultaneous movement of the slider and of the ball-cage: the slider, moved by a drive system or manually, sets in motion the ball-cage, which will cover half of the stroke done by the slider, until reaching the end-stop.

During operation, with the succession of working cycles and consequent motion reversals, imperceptible displacements of the ball-cage, in relation to the position of the slider, occur, due to the inertia to the movement of the ball-cage that doesn‘t engage immediately when the slider starts its race.
This process, that is defined displacement and leads to a gradual reduction of the stroke and consequent dragging of the ball-cage on the raceways, can be slowed down by a correct use, with races constantly up to the end stops and low speed and acceleration.
The restoration of the proper functioning must be done by setting a forced cycle up to the end stop: when the movement of the slider is commanded by a drive system, we recommend to provide a peak motor torque 10 times higher (friction coefficient in normal condition is 0,01).

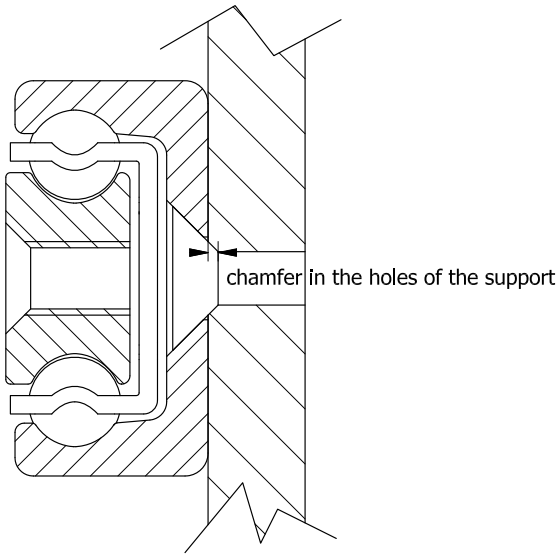
Guide systems based on ball-cages are recommended for movement on the horizontal plane. Movement in the vertical direction is not recommended because the ball-cage tends to fall by gravity, accelerating the process of displacement.

Providing an external end stop is highly recommended in order not to discharge on the screw of the internal stop the arrest of the machine.

TELESCOPIC RAILS
LSS, LST AND LSE

During the mounting of LSS and LST rails we suggest to work the holes in the support in order to avoid any interference between the screws and the sliders (see table below).

Size	Chamfer
LSS28, LST28	1 x 45°
LSS43, LST43	1.5 x 45°



EXTERNAL END STOPS

Provide external end stop in order not to discharge on the screws of the internal stop the arrest of the machine.

Mounting screws of resistance class 10.9 are recommended for mounting.

FRICTION COEFFICIENT

The friction coefficient in normal condition is equal to 0,01.

When the movement of the slider is commanded by a drive system, we recommend to provide a peak motor torque 10 times higher than the standard required due to the process of displacement (see the “Suggestion for a correct mounting” paragraph).

For telescopic rails LSE the force necessary for closing the rails and let the slider go back in central position is increased from the deflection due to the extraction of the moving elements.

NOTES

PART EXTENSIONS
LST

LST 28

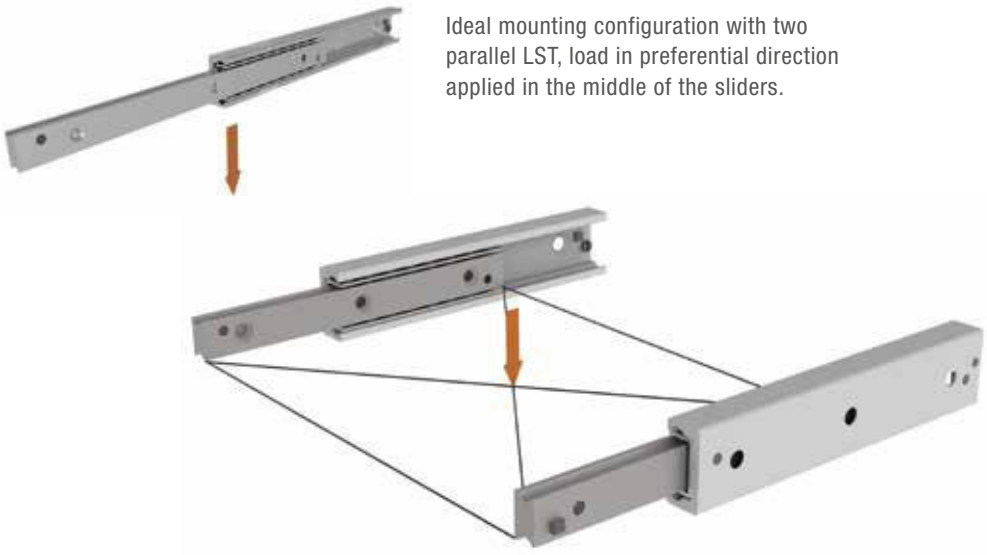
LST 43

Part extensions LST of Nadella allow the partial extraction of the slider which escapes for more than half its length from the edge of the rail, while maintaining a smooth and regular movement through the interposition of a robust metal ball-cage. The perfect solution for all applications requiring a protruding extraction.

LST guide rail is available in two sizes, LST28 and LST43, and several standard lengths (on request different rail lengths can be provided that will be managed as special items).

LOAD CAPACITIES

Part extensions with ball cage have preferential load capacity with the mounting on the side (major axis).
Ideal mounting configuration is realised with two parallel guide rails, with the load to be moved uniformly distributed on the moving elements. Mounting of the guide rail to the structure and of the external load to the sliders should involve all available holes of the components.



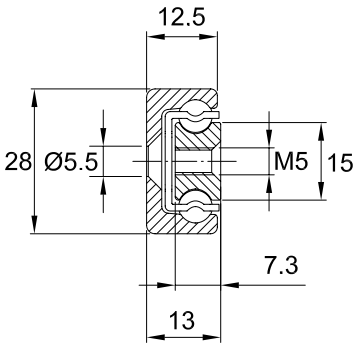
Ideal mounting configuration with two parallel LST, load in preferential direction applied in the middle of the sliders.

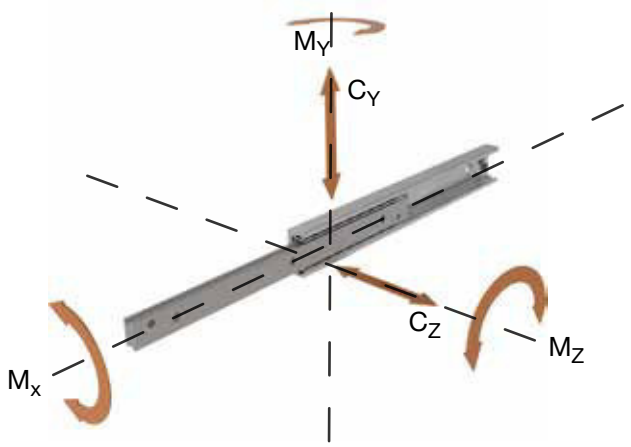
DOUBLE STROKE

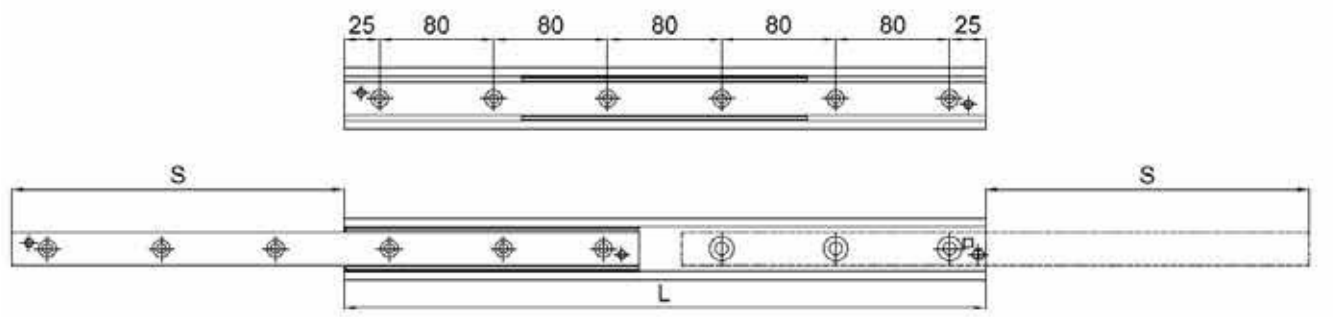
In order to obtain the double stroke and allow the slider to escape in both directions, please remove the screw at the edge of the rail.

Remove the screw at the edge of the rail for double stroke.

PART EXTENSIONS
LST 28







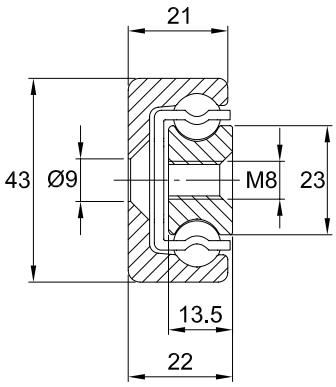
Order Number	L	S	Cy	Cz	Mx	My	Mz	Cdyn (1)	Mass
	[mm]		[N]		[Nm]			[N]	[kg]
LST28-130	130	73	943	660	30	30	43	3451	0.28
LST28-210	210	113	1731	1212	54	86	123	4606	0.45
LST28-290	290	153	2526	1769	78	170	243	5449	0.62
LST28-370	370	193	3320	2325	102	282	403	6119	0.80
LST28-450	450	233	4111	2878	126	422	603	6681	0.97
LST28-530	530	273	4899	3430	150	590	842	7170	1.14
LST28-610	610	323	5215	3651	168	733	1047	6976	1.31
LST28-690	690	363	5994	4197	192	948	1355	7410	1.49
LST28-770	770	398	6771	4741	216	1191	1701	7805	1.66
LST28-850	850	433	8025	5619	246	1532	2188	8687	1.84
LST28-930	930	473	8802	6163	270	1835	2621	8997	2.01
LST28-1010	1010	523	9096	6369	288	2080	2970	8819	2.18
LST28-1090	1090	563	9868	6910	312	2430	3470	9115	2.36
LST28-1170	1170	603	10639	7449	336	2806	4008	9394	2.53

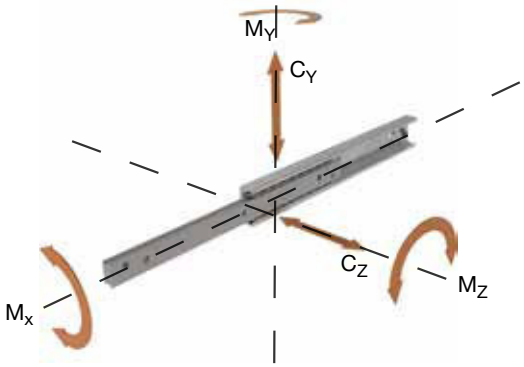
Load capacity for single rail

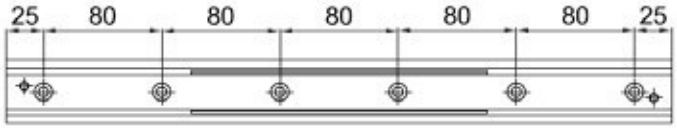
(1) Cdyn is used for lifetime calculation

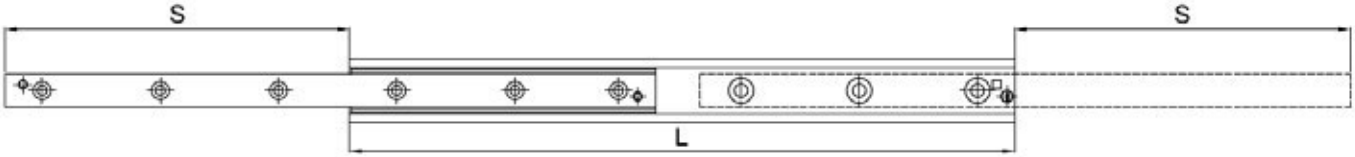
DOUBLE STROKE
In order to obtain the double stroke and allow the slider to escape in both directions, please remove the screw at the edge of the rail.

LST43









Order Number	L	S	Cy	Cz	Mx	My	Mz	Cdyn (1)	Mass
	[mm]		[N]		[Nm]			[N]	[kg]
LST43-210	210	123	2223	1556	115	117	166	7268	1.10
LST43-290	290	158	3945	2762	185	272	389	10337	1.53
LST43-370	370	208	4610	3228	231	412	589	10319	1.95
LST43-450	450	243	6376	4465	300	676	965	12534	2.39
LST43-530	530	278	8187	5733	369	1003	1433	14466	2.82
LST43-610	610	313	10025	7020	439	1394	1991	16178	3.26
LST43-690	690	363	10601	7423	485	1690	2414	15804	3.67
LST43-770	770	398	12428	8702	554	2187	3123	17266	4.11
LST43-850	850	433	14270	9992	623	2746	3922	18609	4.54
LST43-930	930	483	14823	10379	670	3155	4505	18246	4.96
LST43-1010	1010	518	16654	11662	739	3819	5454	19446	5.40
LST43-1090	1090	568	17212	12052	785	4297	6136	19139	5.82
LST43-1170	1170	603	19035	13328	854	5066	7234	20230	6.25
LST43-1250	1250	638	20866	14611	924	5897	8422	21262	6.68
LST43-1330	1330	688	21410	14992	970	6486	9263	20967	7.10
LST43-1410	1410	723	23234	16269	1039	7421	10598	21922	7.54
LST43-1490	1490	758	25065	17551	1108	8418	12022	22835	7.97
LST43-1570	1570	793	26901	18836	1178	9478	13535	23707	8.41
LST43-1650	1650	843	27423	19202	1224	10218	14593	23409	8.82
LST43-1730	1730	878	29253	20483	1293	11381	16254	24231	9.26
LST43-1810	1810	928	29780	20852	1339	12190	17410	23964	9.68
LST43-1890	1890	963	31603	22129	1408	13456	19218	24742	10.11
LST43-1970	1970	1013	32134	22500	1455	14334	20472	24499	10.53

Load capacity for single rail

(1) Cdyn is used for lifetime calculation

DOUBLE STROKE
In order to obtain the double stroke and allow the slider to escape in both directions, please remove the screw at the edge of the rail.

FULL EXTENSIONS
LSE

LSE 28

LSE 43

Full extensions LSE allow a stroke equal to the length of the closed rail, thanks to the intermediate element that acts as a bridge between the two sliders.
LSE guides allow a smooth and regular movement and are the perfect solution for all the applications requiring a total telescopic extraction.

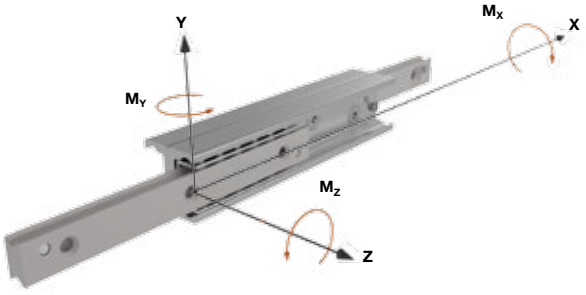
LSE guide rail is available in two sizes, LSE28 and LSE43, and several standard lengths (on request different rail lengths can be provided that will be managed as special items).

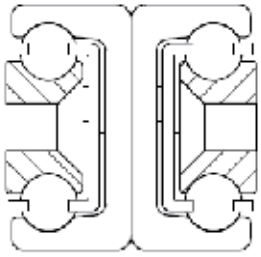
LOAD CAPACITIES

Full extensions with ball cage have preferential load capacity with the mounting on the side (major axis). Ideal mounting configuration is realised with two parallel guide rails, with the load to be moved uniformly distributed on the moving elements. Mounting of the guide rail to the structure and of the external load to the sliders should involve all available holes of the components.

AVAILABLE HOLE CONFIGURATIONS

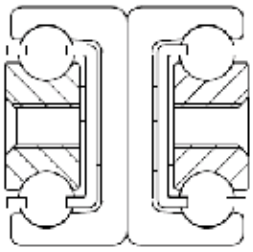
LSE full extensions are available with countersunk holes (suffix V) and threaded holes (suffix F), or in the mixed version (suffix M), with one slider with countersunk holes and one slider with threaded holes.





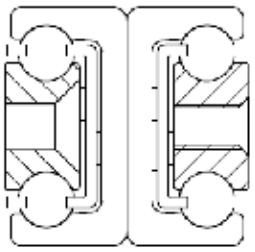
LSE28-...V
LSE43-...V

Code example: LSE28-450 V, full extension LSE size 28, closed length 450 mm, countersunk holes in both sliders



LSE28-...F
LSE43-...F

Code example: LSE43-770 F, full extension LSE size 43, closed length 770 mm, threaded holes in both sliders.



LSE28-...M
LSE43-...M

Code example: LSE43-1170 M, full extension LSE size 43, closed length 1170 mm, threaded holes on one slider and countersunk holes in the opposite one.

DOUBLE STROKE

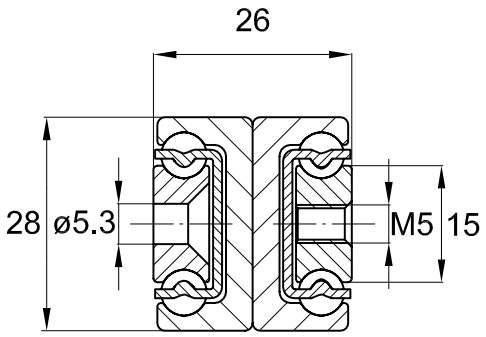
In order to obtain the double stroke and allow the slider to escape in both directions, please remove the screw at the edge of the intermediate element.

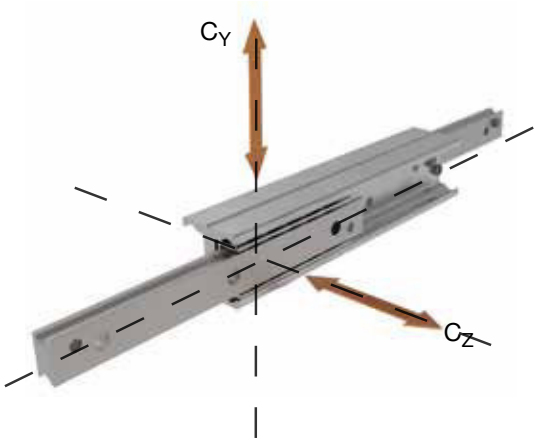
Remove the screw at the edge of the rail for double stroke.

Ideal mounting configuration with two parallel LSE, load in preferential direction applied in the middle of the sliders.

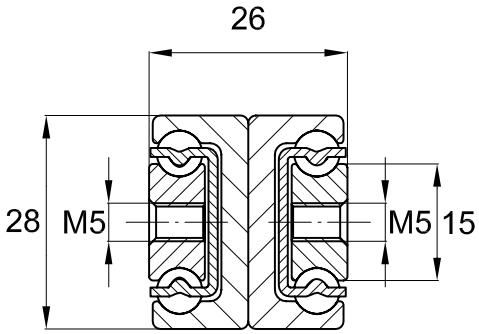
FULL EXTENSIONS
LSE 28

LSE 28-..M

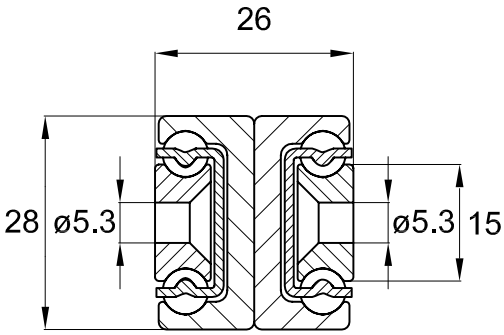




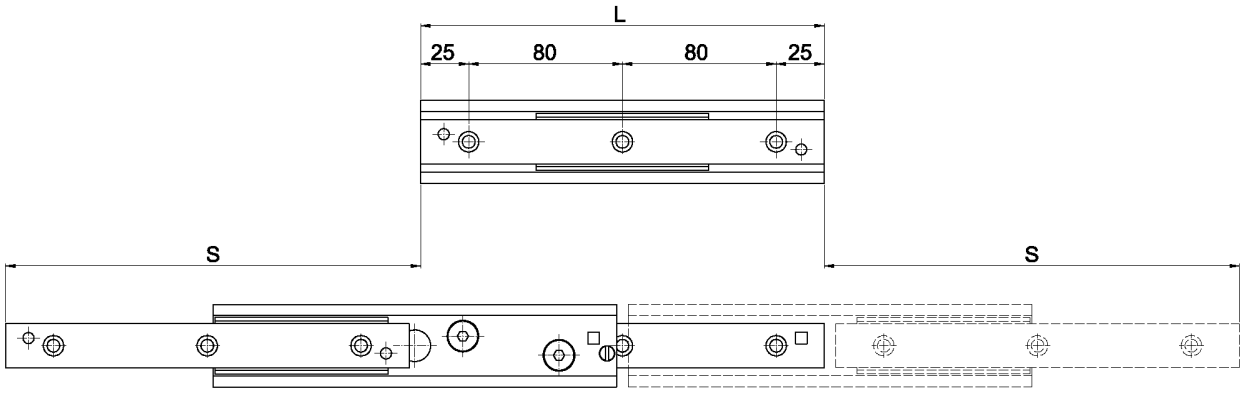
LSE 28-..F



LSE 28-..V



LSE 28



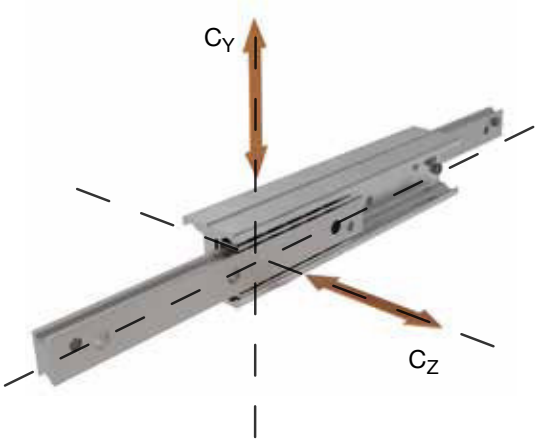
Order Number	L	S	Cy	Cz	Cdyn [1]	Deflection	Mass
	[mm]		[N]			[mm]	[kg]
LSE28-130	130	146	548	487	1006	1	0.55
LSE28-210	210	226	998	617	2115	3	0.90
LSE28-290	290	306	1125	464	2643	4	1.25
LSE28-370	370	386	1108	372	2824	6	1.60
LSE28-450	450	466	1042	310	2817	7	1.94
LSE28-530	530	546	952	266	2714	9	2.29
LSE28-610	610	646	843	219	2536	11	2.63
LSE28-690	690	726	772	196	2420	12	2.98
LSE28-770	770	806	710	177	2305	14	3.32
LSE28-850	850	866	669	169	2225	14	3.68
LSE28-930	930	946	620	155	2126	15	4.02
LSE28-1010	1010	1046	572	138	2025	18	4.36
LSE28-1090	1090	1126	537	129	1951	19	4.71
LSE28-1170	1170	1206	503	120	1895	21	5.06

Load capacity for single rail

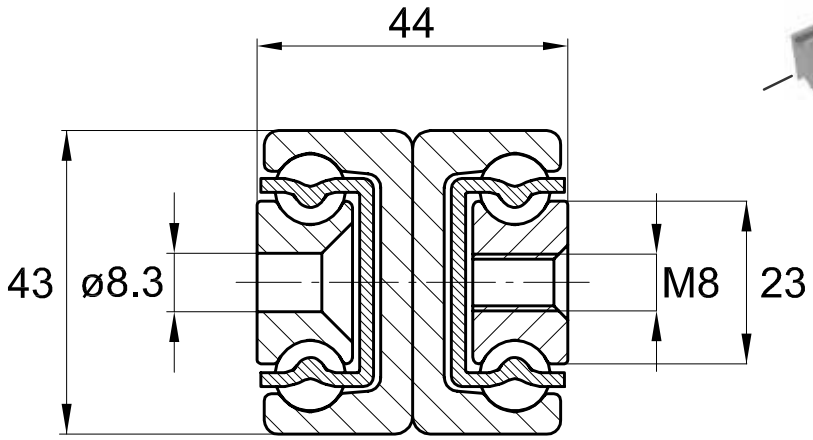
[1] Cdyn is used for lifetime calculation

DOUBLE STROKE
In order to obtain the double stroke and allow the slider to escape in both directions, please remove the screw at the edge of the intermediate element.

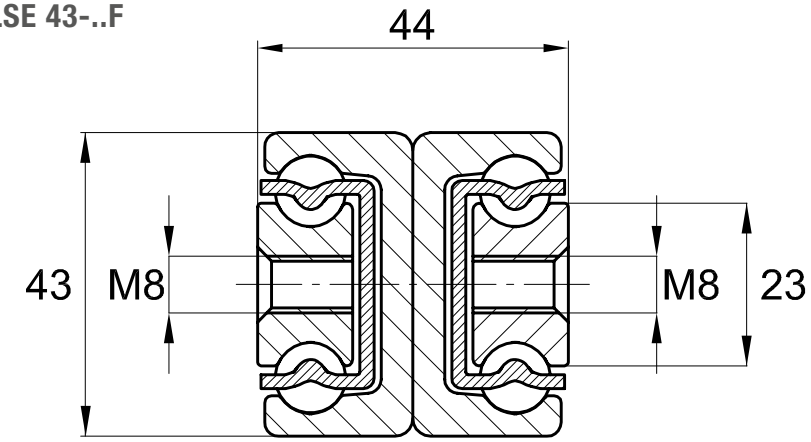
FULL EXTENSIONS
LSE 43



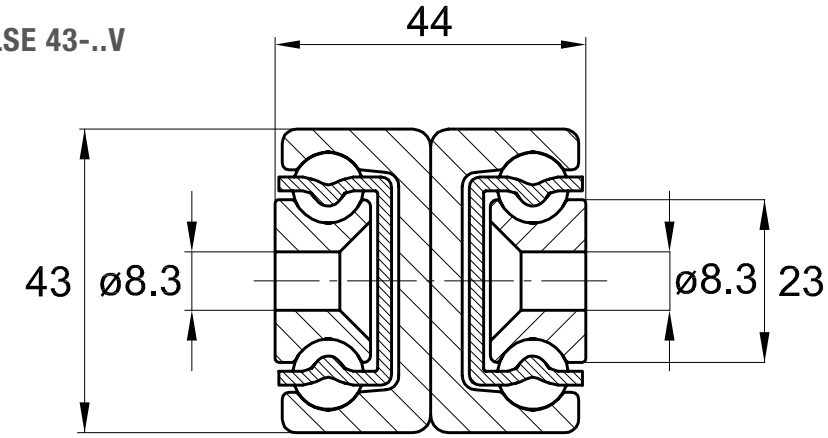
LSE 43-..M



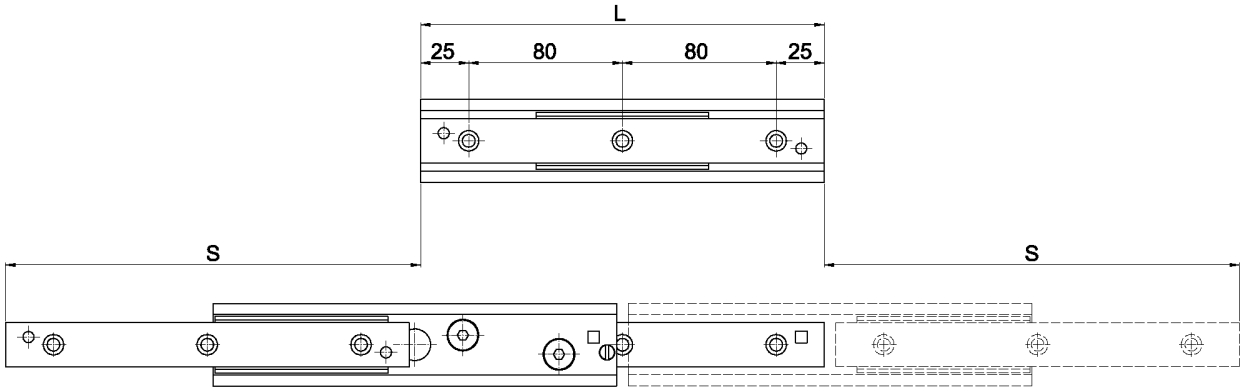
LSE 43-..F



LSE 43-..V



LSE 43



Order Number	L	S	Cy	Cz	Cdyn [1]	Deflection	Mass
	[mm]		[N]			[mm]	[kg]
LSE43-210	210	246	1209	880	2454	3	2.20
LSE43-290	290	316	1982	1549	4480	5	3.07
LSE43-370	370	416	1987	1466	4806	6	3.90
LSE43-450	450	486	2209	1496	5625	7	4.77
LSE43-530	530	556	2326	1392	6195	9	5.64
LSE43-610	610	626	2562	1262	6619	11	6.51
LSE43-690	690	726	2239	1063	6519	12	7.35
LSE43-770	770	796	2237	986	6716	14	8.22
LSE43-850	850	866	2214	918	6834	16	9.10
LSE43-930	930	966	2096	808	6710	18	9.92
LSE43-1010	1010	1036	2056	763	6738	20	10.80
LSE43-1090	1090	1136	1834	685	6511	21	11.63
LSE43-1170	1170	1206	1895	652	6533	24	12.50
LSE43-1250	1250	1276	1850	622	6500	25	13.37
LSE43-1330	1330	1376	1694	570	6364	28	14.20
LSE43-1410	1410	1446	1626	547	6304	29	15.07
LSE43-1490	1490	1516	1562	525	6187	29	15.90
LSE43-1570	1570	1586	1504	506	6143	30	16.81
LSE43-1650	1650	1686	1399	470	5965	33	17.65
LSE43-1730	1730	1756	1352	455	5852	33	18.52
LSE43-1810	1810	1856	1267	426	5690	36	19.36
LSE43-1890	1890	1926	1228	413	5593	37	20.22
LSE43-1970	1970	2026	1157	389	5445	40	21.06

Load capacity for single rail

[1] Cdyn is used for lifetime calculation

DOUBLE STROKE
In order to obtain the double stroke and allow the slider to escape in both directions, please remove the screw at the edge of the intermediate element.

LINEAR GUIDES
LSS

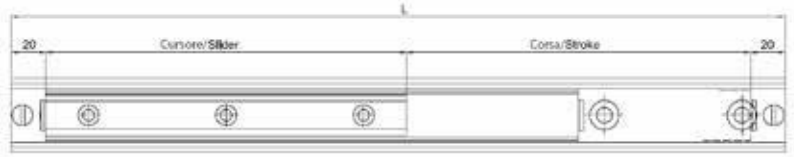
LSS 28

LSS 43

With LSS linear guides the movement is achieved through one or more sliders which run inside the guide rail. Several different combinations are possible and the final product can be configured out according to the application requests.

LSS WITH SINGLE SLIDER

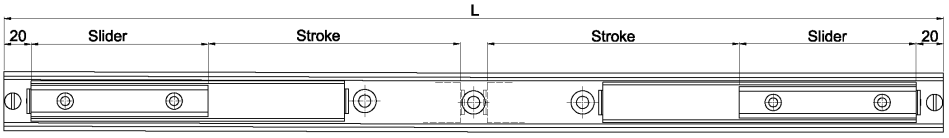
In the standard configuration the final product is composed by the guide rail inside which run a single ball-cage and a single slider.



LSS28-total length L-stroke

LSS WITH TWO INDEPENDENT SLIDERS

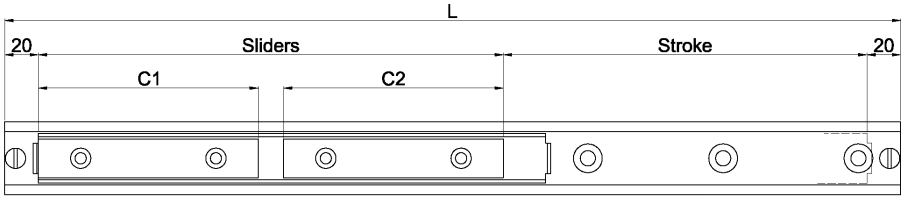
This configuration allows the movement, inside the guide rail, of two ball-cages, inside each ball-cage one or more sliders. The two ball-cages can run in opposing directions.



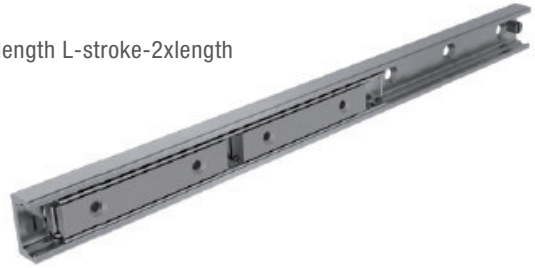
LSS43-total length L-2xstroke

LSS WITH TWO SYNCHRONISED SLIDERS

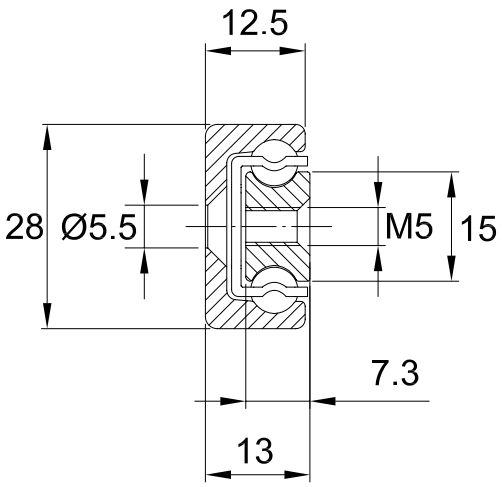
This configuration allows the movement inside the ball-cage of two synchronized sliders.

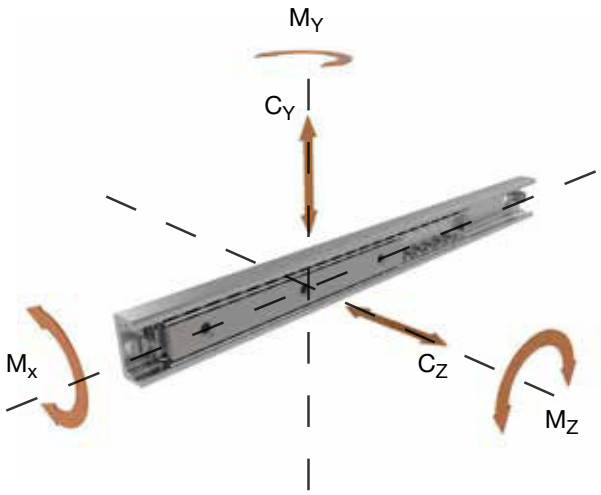


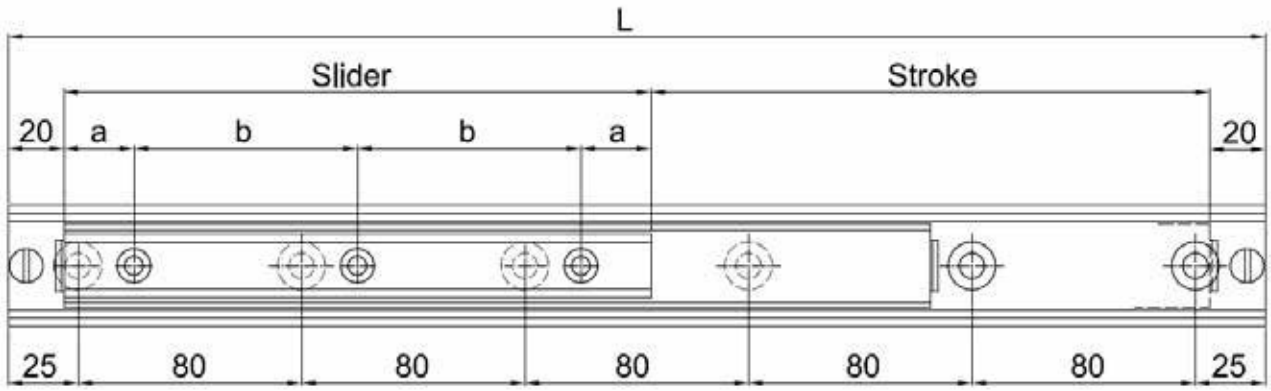
LSS43-total length L-stroke-2xlength of the slider



LINEAR GUIDES
LSS28







Slider	a	b	Cy	Cz	Mx	My	Mz	C_{100} (1)
	[mm]		[N]		[Nm]			[N]
60	10	20	4756	3330	30	30	43	9165
80	10	60	6659	4663	42	55	78	11626
130	25	80	11415	7993	72	145	207	16992
210	25	80	19025	13322	120	387	552	24326
290	25	80	26635	18650	168	730	1043	30801
370	25	80	34245	23979	216	1187	1695	36736
450	25	80	41856	29308	264	1763	2518	42283

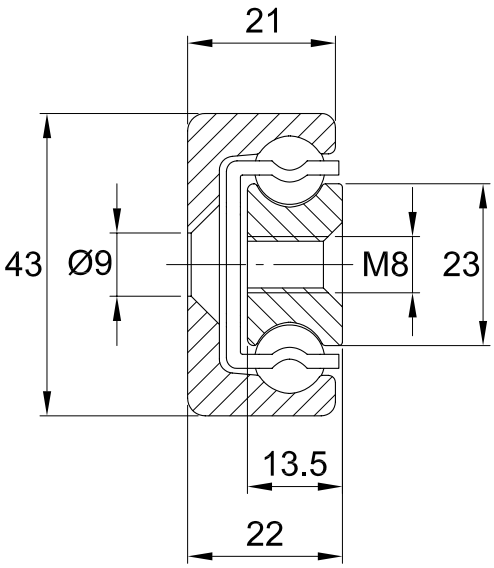
(1) C_{100} is used for lifetime calculation

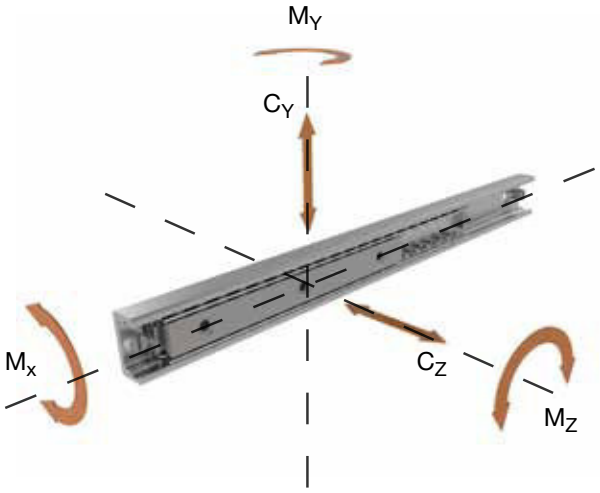
L = AVAILABLE LENGTHS [MM]:
130, 210, 290, 370, 450, 530, 610, 690, 770, 850, 930, 1010, 1170, 1330, 1490, 1650
Other lengths are available on request up to a maximum length of 2000 mm

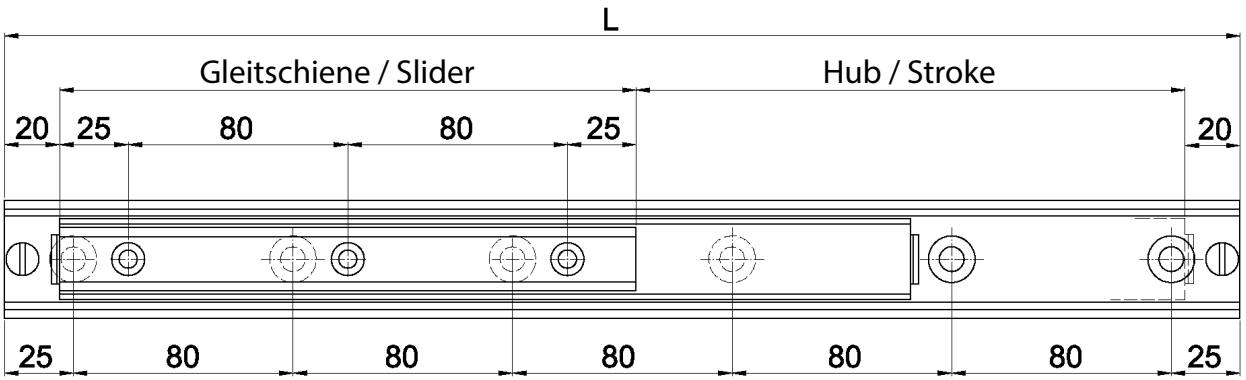
Code example: **LSS28 690 360**
Rail LSS28, length 690 mm, stroke 360 mm (slider length = 290 mm = 690 – 360 mm – stop length 2x20)

LINEAR GUIDES

LSS43







Slider	Cy	Cz	Mx	My	Mz	C_{100} (1)
[mm]	[N]		[Nm]			[N]
130	19909	13940	185	276	394	35532
210	32352	22653	300	682	974	50002
290	47283	33108	439	1394	1993	65273
370	59726	41821	554	2195	3135	76899
450	72169	50533	670	3155	4505	87813
530	87100	60988	808	4543	6489	100188
610	99543	69701	924	5909	8441	110018

(1) C_{100} is used for lifetime. calculation

L = AVAILABLE LENGTHS [MM]:
290, 370, 450, 530, 610, 690, 770, 850, 930, 1010, 1170, 1330, 1490, 1650, 1810, 1970
Other lengths are available on request up to a maximum length of 2000 mm

Code example: **LSS43 690 520**
Rail LSS43, length 690 mm, stroke 520 mm (slider length = 130 mm = 690 – 520 mm – stop length 2x20)

GUIDE RAILS LSS
STANDARD CONFIGURATIONS

Order Number	Guide length	Stroke	Slider length	Mass
	[mm]			[kg]
LSS28-130-30	130	30	60	0,23
LSS28-210-90	210	90	80	0,36
LSS28-210-110	210	110	60	0,34
LSS28-290-120	290	120	130	0,53
LSS28-290-170	290	170	80	0,48
LSS28-290-190	290	190	60	0,46
LSS28-370-200	370	200	130	0,64
LSS28-370-250	370	250	80	0,59
LSS28-370-270	370	270	60	0,57
LSS28-450-200	450	200	210	0,83
LSS28-450-280	450	280	130	0,75
LSS28-450-330	450	330	80	0,70
LSS28-450-350	450	350	60	0,68
LSS28-530-280	530	280	210	0,94
LSS28-530-360	530	360	130	0,86
LSS28-530-410	530	410	80	0,81
LSS28-610-280	610	280	290	1,13
LSS28-610-360	610	360	210	1,05
LSS28-610-440	610	440	130	0,98
LSS28-610-490	610	490	80	0,92
LSS28-690-360	690	360	290	1,25
LSS28-690-440	690	440	210	1,17
LSS28-690-520	690	520	130	1,09
LSS28-770-360	770	360	370	1,44
LSS28-770-440	770	440	290	1,36
LSS28-770-520	770	520	210	1,28
LSS28-770-600	770	600	130	1,19
LSS28-850-440	850	440	370	1,55
LSS28-850-520	850	520	290	1,47
LSS28-850-600	850	600	210	1,39
LSS28-850-680	850	680	130	1,31
LSS28-930-440	930	440	450	1,74
LSS28-930-520	930	520	370	1,66
LSS28-930-600	930	600	290	1,58
LSS28-930-680	930	680	210	1,50
LSS28-930-760	930	760	130	1,42
LSS28-1010-520	1010	520	450	1,85
LSS28-1010-600	1010	600	370	1,77
LSS28-1010-680	1010	680	290	1,69
LSS28-1010-760	1010	760	210	1,61
LSS28-1010-840	1010	840	130	1,54
LSS28-1170-680	1170	680	450	2,08
LSS28-1170-760	1170	760	370	1,99
LSS28-1170-840	1170	840	290	1,92
LSS28-1170-920	1170	920	210	1,83
LSS28-1330-840	1330	840	450	2,30
LSS28-1330-920	1330	920	370	2,22
LSS28-1330-1000	1330	1000	290	2,14
LSS28-1330-1080	1330	1080	210	2,06
LSS28-1490-1000	1490	1000	450	2,52
LSS28-1490-1080	1490	1080	370	2,44
LSS28-1490-1160	1490	1160	290	2,37
LSS28-1650-1160	1650	1160	450	2,75

Order Number	Guide length	Stroke	Slider length	Mass
	[mm]			[kg]
LSS43-290-120	290	120	130	1,27
LSS43-370-200	370	200	130	1,54
LSS43-450-200	450	200	210	2,00
LSS43-450-280	450	280	130	1,79
LSS43-530-280	530	280	130	2,27
LSS43-530-360	530	360	130	2,06
LSS43-610-280	610	280	290	2,74
LSS43-610-360	610	360	210	2,52
LSS43-610-440	610	440	130	2,33
LSS43-690-360	690	360	290	3,01
LSS43-690-440	690	440	210	2,79
LSS43-690-520	690	520	130	2,58
LSS43-770-360	770	360	370	3,47
LSS43-770-440	770	440	290	3,26
LSS43-770-520	770	520	210	3,06
LSS43-770-600	770	600	130	2,85
LSS43-850-440	850	440	370	3,74
LSS43-850-520	850	520	290	3,53
LSS43-850-600	850	600	210	3,31
LSS43-850-680	850	680	130	3,12
LSS43-930-440	930	440	450	4,21
LSS43-930-520	930	520	370	3,99
LSS43-930-600	930	600	290	3,80
LSS43-930-680	930	680	210	3,58
LSS43-930-760	930	760	130	3,37
LSS43-1010-520	1010	520	450	4,48
LSS43-1010-600	1010	600	370	4,27
LSS43-1010-680	1010	680	290	4,05
LSS43-1010-760	1010	760	210	3,85
LSS43-1010-840	1010	840	130	3,64
LSS43-1170-600	1170	600	530	5,21
LSS43-1170-680	1170	680	450	5,00
LSS43-1170-760	1170	760	370	4,79
LSS43-1170-840	1170	840	290	4,59
LSS43-1170-920	1170	920	210	4,38
LSS43-1330-680	1330	680	610	5,95
LSS43-1330-760	1330	760	530	5,74
LSS43-1330-840	1330	840	450	5,52
LSS43-1330-920	1330	920	370	5,32
LSS43-1330-1000	1330	1000	290	5,11
LSS43-1330-1080	1330	1080	210	4,90
LSS43-1490-840	1490	840	610	6,47
LSS43-1490-920	1490	920	530	6,26
LSS43-1490-1000	1490	1000	450	6,06
LSS43-1490-1080	1490	1080	370	5,85
LSS43-1490-1160	1490	1160	290	5,63
LSS43-1490-1240	1490	1240	210	5,43
LSS43-1650-1000	1650	1000	610	6,99
LSS43-1650-1080	1650	1080	530	6,80
LSS43-1650-1160	1650	1160	450	6,58
LSS43-1650-1240	1650	1240	370	6,37
LSS43-1650-1320	1650	1320	290	6,17
LSS43-1650-1400	1650	1400	210	5,96
LSS43-1810-1160	1810	1160	610	7,53
LSS43-1810-1240	1810	1240	530	7,32
LSS43-1810-1320	1810	1320	450	7,10
LSS43-1810-1400	1810	1400	370	6,91
LSS43-1810-1480	1810	1480	290	6,69
LSS43-1970-1320	1970	1320	610	8,05
LSS43-1970-1400	1970	1400	530	7,84