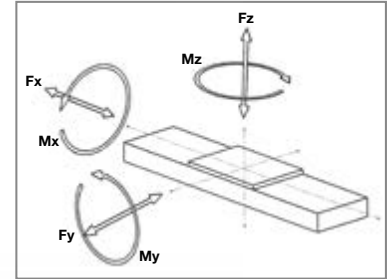


MLS 3 Linear motor stages

Technical Description

Repeatability of measuring system: $\pm 0,5 \mu\text{m}$
 Repeatability of linear unit: $\pm 5 \mu\text{m}$
 Maximum length without joints: up to 6000 mm ^{4) 5)}
 Operating voltage: 600 Vdc, max. 900 Vdc
 Maximum speed: 9m/s
 Maximum acceleration: 158m/s²



Mechanical specifications

Size		3	3	3	5	5	5	5
Carriage model		0240	0480	0720	0450	0900	1125	1350
C - Carriage length ⁶⁾	mm				182	260	306	352
B - Width	mm				206	206	206	206
H - Height	mm				103	103	103	103
G1 - Distance between profile base grooves	mm				160	160	160	160
G2 - Height of profile lateral grooves	mm				20	20	20	20
M1 - Distance between fixation clamps boreholes ³⁾	mm				220	220	220	220
M2 - Distance between fixation clamp boreholes ³⁾	mm				40	40	40	40
M3 - Max. distance between fixation clamps ³⁾	mm				500	500	500	500

Linear motor features

Maximum speed ¹⁾	m/s				3	3	3	3
Continuous force aircooled ²⁾	N				200	400	500	600
Peak force	N				450	900	1125	1350
Nominal current	A				2,3	4,5	4,7	6,8
Peak current	A				6,5	13,1	13,5	19,6

Guidance features (max.)

Fy	N				2000	2000	2000	2000
Fz	N				1500	1500	1500	1500
Mx	Nm				340	450	450	450
My	Nm				450	700	750	1000
Mz	Nm				450	700	750	1000

For the sum of all forces and moments: $\frac{F_{ye}}{F_y} + \frac{F_{ze}}{F_z} + \frac{M_{xe}}{M_x} + \frac{M_{ye}}{M_y} + \frac{M_{ze}}{M_z} < 1$ (Xxe = calculated value)
 (Xx = max. catalogue value)

Structure profile features

Geometrical moments of inertia Lx	mm ⁴				4,5x10 ⁵	4,5x10 ⁵	4,5x10 ⁵	4,5x10 ⁵
Geometrical moments of inertia Ly	mm ⁴				20,5x10 ⁶	20,5x10 ⁶	20,5x10 ⁶	20,5x10 ⁶
Elastic module	N/mm ²				70000	70000	70000	70000

Weight

Weight of carriage	kg				4,3	6,8	7,9	8,9
Weight of 100mm	kg				1,9	2,1	2,1	2,1

¹⁾ For a lifetime >30000 km

²⁾ Depending on the application and ambient temperature

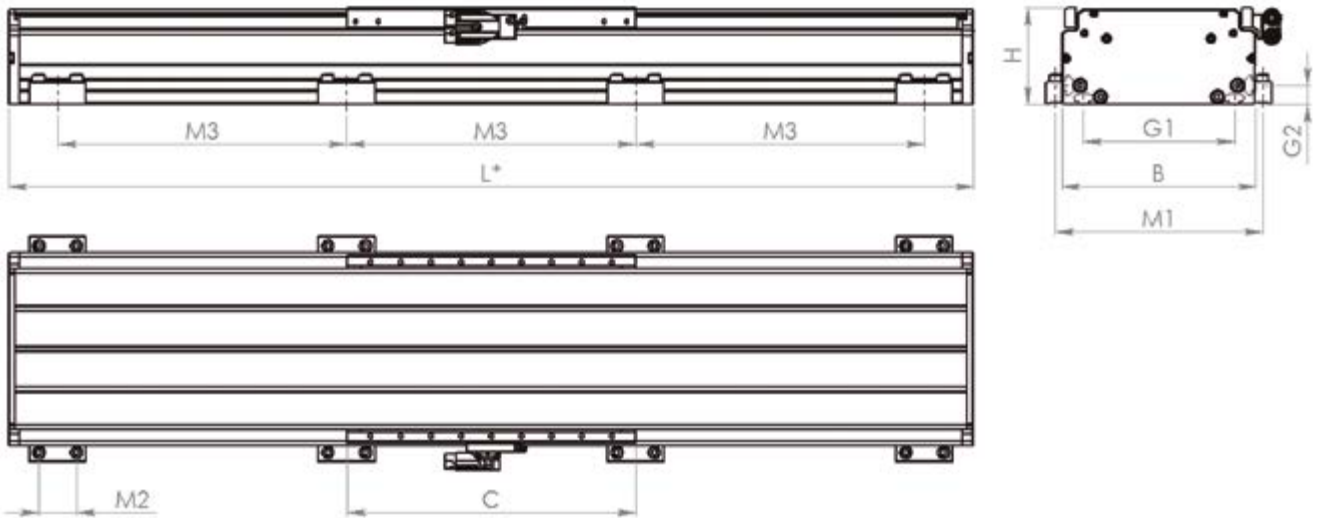
³⁾ Sinadrives accessory

⁴⁾ Cover supports are required for lengths over 2500mm

⁵⁾ Lateral profile supports are provided for lengths over 1500 mm

⁶⁾ On ISO3 option, the carriage is 30mm longer (less stroke)

Technical Description MLS 3



Drawing available under request.

* L: Stroke selection on page 19.

Mechanical specifications

Size		5	5	7	7	7	7
Carriage model		1800	2700	1800	2250	4500	6750
C - Carriage length ^①	mm	484	720				
B - Width	mm	206	206				
H - Height	mm	103	103				
G1 - Distance between profile base grooves	mm	160	160				
G2 - Height of profile lateral grooves	mm	20	20				
M1 - Distance between fixation clamps boreholes ^③	mm	220	220				
M2 - Distance between fixation clamp boreholes ^③	mm	40	40				
M3 - Max. distance between fixation clamps ^③	mm	500	500				

Linear motor features

Maximum speed ¹⁾	m/s	3	3				
Continuous force aircooled ²⁾	N	800	1200				
Peak force	N	1800	2700				
Nominal current	A	9,0	13,6				
Peak current	A	26,2	39,2				

Guidance features (max.)

Fy	N	3000	3000				
Fz	N	1750	1750				
Mx	Nm	750	750				
My	Nm	1500	2100				
Mz	Nm	1500	2100				

For the sum of all forces and moments:

$$\frac{F_{ye}}{F_y} + \frac{F_{ze}}{F_z} + \frac{M_{xe}}{M_x} + \frac{M_{ye}}{M_y} + \frac{M_{ze}}{M_z} < 1$$

(Xxe = calculated value)
(Xx = max. catalogue value)

Structure profile features

Geometrical moments of inertia Lx	mm ⁴	4,5x10 ⁵	4,5x10 ⁵				
Geometrical moments of inertia Ly	mm ⁴	20,5x10 ⁶	20,5x10 ⁶				
Elastic module	N/mm ²	70000	70000				

Weight

Weight of carriage	kg	12,4	17				
Weight of 100mm	kg	2,1	2,1				

¹⁾ For a lifetime >30000 km

²⁾ Depending on the application and ambient temperature

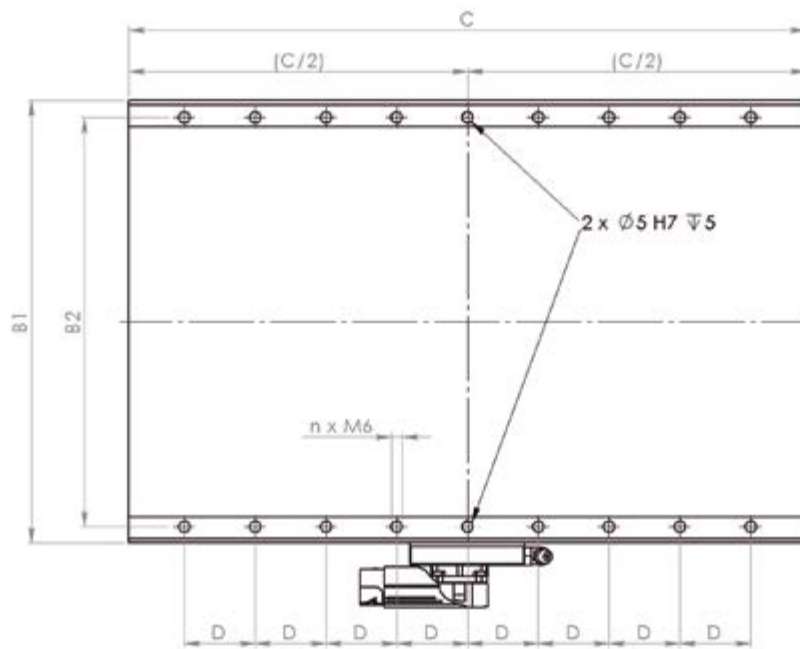
³⁾ Sinadrives accessory

^① On ISO3 option, the carriage is 30mm longer (less stroke)

Choice of stroke MLS 3

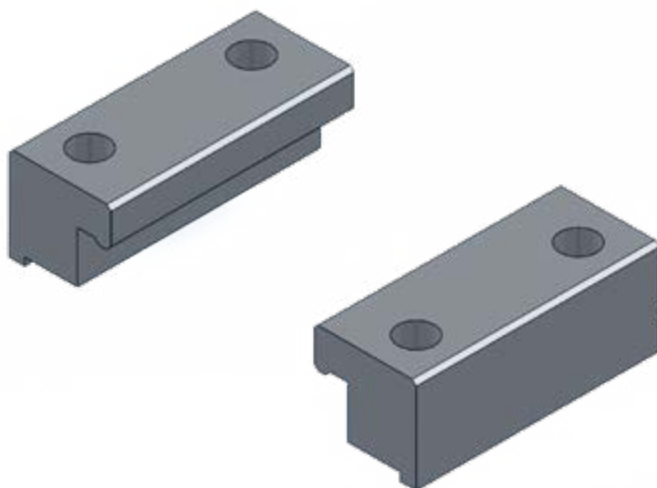
Linear motor stage		MLS35				
Carriage model	450	900	1125	1350	1800	2700
Lenght, L (mm)	Stroke					
270	34	-	-	-	-	-
366	130	52	6	-	-	-
462	226	148	102	56	-	-
558	322	244	198	152	20	-
654	418	340	294	248	116	-
750	514	436	390	344	212	-
846	610	532	486	440	308	72
942	706	628	582	536	404	168
1038	802	724	678	632	500	264
1134	898	820	774	728	596	360
1230	994	916	870	824	692	456
1326	1090	1012	966	920	788	552
1422	1186	1108	1062	1016	884	648
1518	1282	1204	1158	1112	980	744
1614	1378	1300	1254	1208	1076	840
1710	1474	1396	1350	1304	1172	936
1806	1570	1492	1446	1400	1268	1032
1902	1666	1588	1542	1496	1364	1128
1998	1762	1684	1638	1592	1460	1224
2094	1858	1780	1734	1688	1556	1320
2190	1954	1876	1830	1784	1652	1416
2286	2050	1972	1926	1880	1748	1512
2382	2146	2068	2022	1976	1844	1608
2478	2242	2164	2118	2072	1940	1704
2574	2338	2260	2214	2168	2036	1800
2670	2434	2356	2310	2264	2132	1896
2766	2530	2452	2406	2360	2228	1992
2862	2626	2548	2502	2456	2324	2088
2958	2722	2644	2598	2552	2420	2184
3054	2818	2740	2694	2648	2516	2280
3150	2914	2836	2790	2744	2612	2376
3246	3010	2932	2886	2840	2708	2472
3342	3106	3028	2982	2936	2804	2568
3438	3202	3124	3078	3032	2900	2664
3534	3298	3220	3174	3128	2996	2760
3630	3394	3316	3270	3224	3092	2856
3726	3490	3412	3366	3320	3188	2952
3822	3586	3508	3462	3416	3284	3048
3918	3682	3604	3558	3512	3380	3144
4014	3778	3700	3654	3608	3476	3240
4110	3874	3796	3750	3704	3572	3336
4206	3970	3892	3846	3800	3668	3432
4302	4066	3988	3942	3896	3764	3528
4398	4162	4084	4038	3992	3860	3624
4494	4258	4180	4134	4088	3956	3720
4590	4354	4276	4230	4184	4052	3816
4686	4450	4372	4326	4280	4148	3912
4782	4546	4468	4422	4376	4244	4008
4878	4642	4564	4518	4472	4340	4104
4974	4738	4660	4614	4568	4436	4200
5070	4834	4756	4710	4664	4532	4296
5166	4930	4852	4806	4760	4628	4392
5262	5026	4948	4902	4856	4724	4488
5358	5122	5044	4998	4952	4820	4584
5454	5218	5140	5094	5048	4916	4680
5550	5314	5236	5190	5144	5012	4776
5646	5410	5332	5286	5240	5108	4872
5742	5506	5428	5382	5336	5204	4968
5838	5602	5524	5478	5432	5300	5064
5934	5698	5620	5574	5528	5396	5160
6030	5794	5716	5670	5624	5492	5256

MLS 3 Mounting interface



Carriage model	B1 (mm)	B2 (mm)	C (mm)	D (mm)	n / row	Borehole
0450	200	185	182	32	4	M6
0900			260		6	
1125			306		8	
1350			352		10	
1800			484		12	
2700			720		20	

Mounting set (2 u. / set); Ref. AC03-0501



T-slot nuts set (10 u. / set)

■ KTM05



■ KTM06



■ KTM08



MLS 3 Connector options

■ Side connectors Hybrid YTEC Steerable $\pm 90^\circ$ (00)



■ Side connectors M23 backwards (01)



■ Side connectors M23 downwards (02)



■ Side connectors M23 upwards (03)



■ Side connectors M23 frontwards (11)



MLS 3 Order Code

Axis model

MLS 3 - Linear unit with iron core linear motor, covered model.

MLS3 S - - - - A - T - A1S - 00 - A - 00

Axis model

Size:

- 3 - MLS33
- 5 - MLS35
- 7 - MLS37

Lenght (mm) ⁵⁾

Motor / Carriage model

Motor type:

- IT - iron core motor
- XX - without motor

Peak force, N (aircooled) ¹⁾:

- | | |
|--------------|------------|
| MLS23 | 02 - 240N |
| | 05 - 480N |
| | 07 - 720N |
| MLS25 | 04 - 450N |
| | 09 - 900N |
| | 11 - 1125N |
| | 13 - 1350N |
| | 18 - 1800N |
| MLS27 | 27 - 2700N |
| | 18 - 1800N |
| | 22 - 2250N |
| | 45 - 4500N |
| | 67 - 6750N |

Motor winding:

- N - Standard motor
- H - High-speed motor
- I - Low voltage motor
- X - Without winding

Encoder

Technology:

- 0 - Inductive incremental
- 1 - Optic incremental
- 2 - Magnetic incremental
- 3 - Inductive absolute
- 4 - Optic absolute
- 5 - Magnetic absolute
- XXXX Without encoder

Supplier ²⁾

Reading head output ⁴⁾:

* Incremental:

- 0 - 1 Vpp
- 4 - TTL

* Absolut:

- E - Endat 2.2
- B - Biss/C
- D - Drivecliq
- F - Fanuc
- H - Hiperface
- L - DSL
- M - Mitsubishi
- P - Panasonic
- S - SSI

Measurement system ²⁾:

- 4C - 40 µm
- 1U - 1 µm
- 2M - 2 mm
- 2H - 0,25 µm
- 1H - 0,1 µm
- 1S - 0,1 µm + Safety function
- 1Y - 1 µm + Safety function

Guiding

Size ²⁾:

- 15 - 15 mm
- 20 - 20 mm

Number of blocks ²⁾:

- 4 - 4 Blocks
- 6 - 6 Blocks

Block type:

- A - With caged balls
- B - Without caged balls

Lubrication

Grease type:

- S - Standard
- C - Clean room
- F - Food grade
- L - Low temperature

Upgrades

Version:

- S - Standard
- C - Clean room

Screws:

- S - Standard
- I - Stainless steel

Connectors

Typ:

- 00 - Side connectors Hybrid YTEC Steerable ± 90° ³⁾
- 01 - Side connectors M23 backwards
- 02 - Side connectors M23 downwards
- 03 - Side connectors M23 upwards
- 11 - Side connectors M23 frontwards
- XX - Without connector

¹⁾ Depending on the application and ambient temperature

²⁾ Defined by previous selections

³⁾ Not available for peak force ≥ 1800N

⁴⁾ On request

⁵⁾ Length on page 19