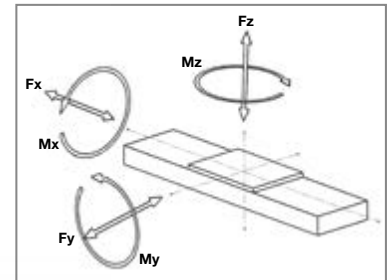


# MLS 1 Linear motor stages

## 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  
 Operating voltage: 600 Vdc, max. 900 Vdc  
 Maximum speed: 9 m/s  
 Maximum acceleration:  $197 \text{ m/s}^2$



## Mechanical specifications

Size		3	3	3	5	5	5	5
Carriage model		0240	0480	0720	0450	0900	1125	1350
C - Carriage length	mm				170	282	328	380
B - Width	mm				206	206	206	206
H - Height	mm				76	76	76	76
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 <sup>3)</sup>	mm				220	220	220	220
M2 - Distance between fixation clamp boreholes <sup>3)</sup>	mm				40	40	40	40
M3 - Max. distance between fixation clamps <sup>3)</sup>	mm				500	500	500	500

### Linear motor features

Maximum speed <sup>1)</sup>	m/s				3	3	3	3
Continuous force aircooled <sup>2)</sup>	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				2025	2700	2700	2700
Fz	N				1350	1800	1800	1800
Mx	Nm				300	400	400	400
My	Nm				400	630	675	900
Mz	Nm				400	630	675	900

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 <sup>4</sup>				4,1x10 <sup>5</sup>	4,1x10 <sup>5</sup>	4,1x10 <sup>5</sup>	4,1x10 <sup>5</sup>
Geometrical moments of inertia Ly	mm <sup>4</sup>				14,4x10 <sup>6</sup>	14,4x10 <sup>6</sup>	14,4x10 <sup>6</sup>	14,4x10 <sup>6</sup>
Elastic module	N/mm <sup>2</sup>				70000	70000	70000	70000

### Weight

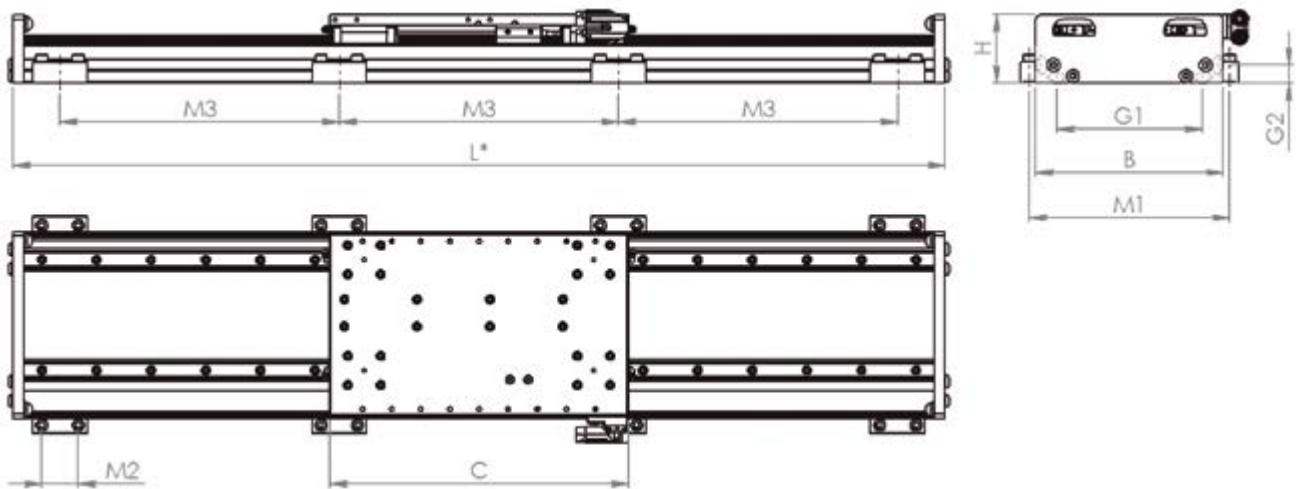
Weight of carriage	kg				3,4	5,4	6,4	7,2
Weight of 100mm	kg				1,65	1,8	1,8	1,8

<sup>1)</sup> For a lifetime >30000 km

<sup>2)</sup> Depending on the application and ambient temperature

<sup>3)</sup> Sinadrives accessory

## Technical Description MLS 1



Drawing available under request.

\* L: Stroke selection on page 7.

### Mechanical specifications

Size		5	5	7	7	7	7
Carriage model		1800	2700	1800	2250	4500	6750
C - Carriage length	mm	508	740				
B - Width	mm	206	206				
H - Height	mm	76	76				
G1 - Distance between profile base grooves	mm	160	160				
G2 - Height of profile lateral grooves	mm	20	20				
M1 - Distance between fixation clamps boreholes <sup>3)</sup>	mm	220	220				
M2 - Distance between fixation clamp boreholes <sup>3)</sup>	mm	40	40				
M3 - Max. distance between fixation clamps <sup>3)</sup>	mm	500	500				

### Linear motor features

Maximum speed <sup>1)</sup>	m/s	3	3				
Continuous force aircooled <sup>2)</sup>	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	4000	4000				
Fz	N	2700	2700				
Mx	Nm	675	675				
My	Nm	1350	1900				
Mz	Nm	1350	1900				

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 <sup>4</sup>	4,1x10 <sup>5</sup>	4,1x10 <sup>5</sup>				
Geometrical moments of inertia Ly	mm <sup>4</sup>	14,4x10 <sup>6</sup>	14,4x10 <sup>6</sup>				
Elastic module	N/mm <sup>2</sup>	70000	70000				

### Weight

Weight of carriage	kg	10	13,7				
Weight of 100mm	kg	1,8	1,8				

<sup>1)</sup> For a lifetime >30000 km

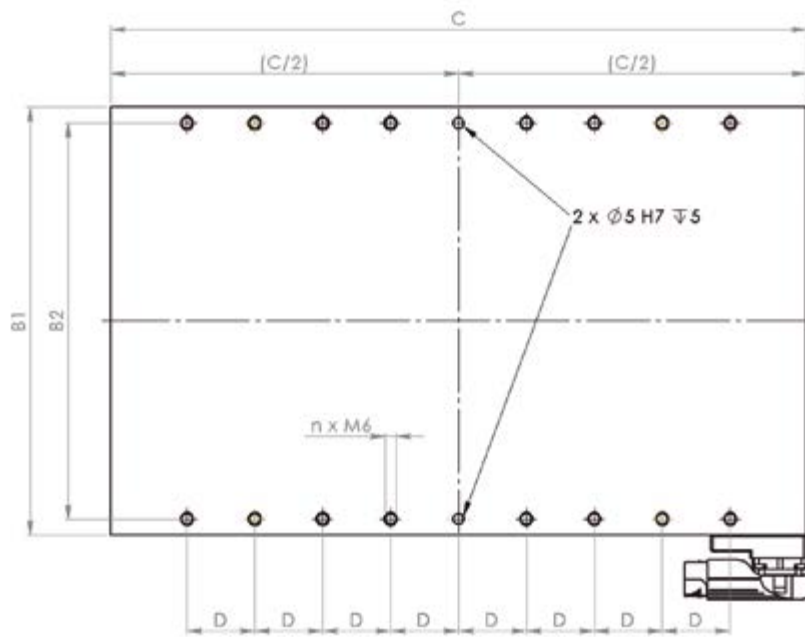
<sup>2)</sup> Depending on the application and ambient temperature

<sup>3)</sup> Sinadrives accessory

## Choice of stroke MLS 1

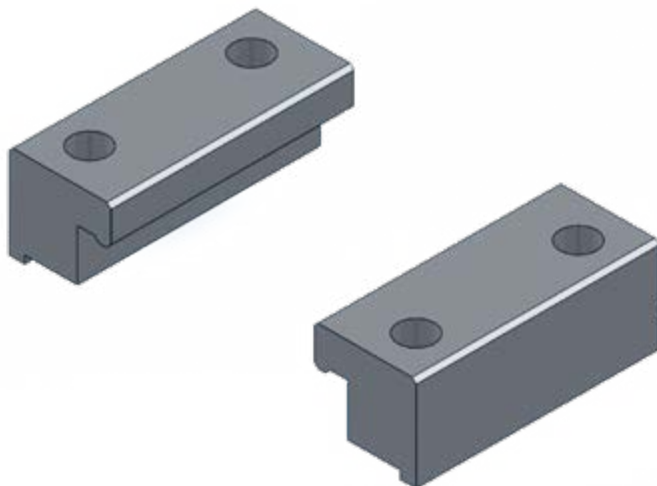
Linear motor stage		MLS15				
Carriage model	450	900	1125	1350	1800	2700
Lenght, L (mm)	Stroke					
270	46	-	-	-	-	-
366	142	30	-	-	-	-
462	238	126	80	28	-	-
558	334	222	176	124	-	-
654	430	318	272	220	92	-
750	526	414	368	316	188	-
846	622	510	464	412	284	52
942	718	606	560	508	380	148
1038	814	702	656	604	476	244
1134	910	798	752	700	572	340
1230	1006	894	848	796	668	436
1326	1102	990	944	892	764	532
1422	1198	1086	1040	988	860	628
1518	1294	1182	1136	1084	956	724
1614	1390	1278	1232	1180	1052	820
1710	1486	1374	1328	1276	1148	916
1806	1582	1470	1424	1372	1244	1012
1902	1678	1566	1520	1468	1340	1108
1998	1774	1662	1616	1564	1436	1204
2094	1870	1758	1712	1660	1532	1300
2190	1966	1854	1808	1756	1628	1396
2286	2062	1950	1904	1852	1724	1492
2382	2158	2046	2000	1948	1820	1588
2478	2254	2142	2096	2044	1916	1684
2574	2350	2238	2192	2140	2012	1780
2670	2446	2334	2288	2236	2108	1876
2766	2542	2430	2384	2332	2204	1972
2862	2638	2526	2480	2428	2300	2068
2958	2734	2622	2576	2524	2396	2164
3054	2830	2718	2672	2620	2492	2260
3150	2926	2814	2768	2716	2588	2356
3246	3022	2910	2864	2812	2684	2452
3342	3118	3006	2960	2908	2780	2548
3438	3214	3102	3056	3004	2876	2644
3534	3310	3198	3152	3100	2972	2740
3630	3406	3294	3248	3196	3068	2836
3726	3502	3390	3344	3292	3164	2932
3822	3598	3486	3440	3388	3260	3028
3918	3694	3582	3536	3484	3356	3124
4014	3790	3678	3632	3580	3452	3220
4110	3886	3774	3728	3676	3548	3316
4206	3982	3870	3824	3772	3644	3412
4302	4078	3966	3920	3868	3740	3508
4398	4174	4062	4016	3964	3836	3604
4494	4270	4158	4112	4060	3932	3700
4590	4366	4254	4208	4156	4028	3796
4686	4462	4350	4304	4252	4124	3892
4782	4558	4446	4400	4348	4220	3988
4878	4654	4542	4496	4444	4316	4084
4974	4750	4638	4592	4540	4412	4180
5070	4846	4734	4688	4636	4508	4276
5166	4942	4830	4784	4732	4604	4372
5262	5038	4926	4880	4828	4700	4468
5358	5134	5022	4976	4924	4796	4564
5454	5230	5118	5072	5020	4892	4660
5550	5326	5214	5168	5116	4988	4756
5646	5422	5310	5264	5212	5084	4852
5742	5518	5406	5360	5308	5180	4948
5838	5614	5502	5456	5404	5276	5044
5934	5710	5598	5552	5500	5372	5140
6030	5806	5694	5648	5596	5468	5236

## MLS 1 Mounting interface



Carriage model	B1 (mm)	B2 (mm)	C (mm)	D (mm)	n / row	Borehole
0450	200	185	170	32	4	M6
0900			282		6	
1125			328		8	
1350			380		10	
1800			508		14	
2700			740		20	

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



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

#### ■ KTM05



#### ■ KTM06



#### ■ KTM08



## MLS 1 Connector options

■ Side connectors YTEC hybrid, steerable  $\pm 90^\circ$  (00)



■ Side connectors M23 backwards (01)



■ Side connectors M23 downwards (02)



■ Side connectors M23 upwards (03)



■ Side connectors M23 backwards (04)



■ Cable output without connectors (05)



■ Cable output with connectors YTEC (06)



# MLS 1 Order Code

## Axis model

MLS 1 - Linear unit with iron core linear motor, fully open base model.

MLS1  S -     -     -     -   A - T    C - A1S - 00  -   X - 00

## Axis model

### Size:

- 3 - MLS13
- 5 - MLS15
- 7 - MLS17

## Length (mm)<sup>5)</sup>

## Motor / Carriage model

### Motor type:

- IT - Iron core motor
- XX - Without motor

### Peak force, N (aircooled)<sup>1)</sup>:

- |              |            |
|--------------|------------|
| <b>MLS23</b> | 02 - 240N  |
|              | 05 - 480N  |
|              | 07 - 720N  |
| <b>MLS25</b> | 04 - 450N  |
|              | 09 - 900N  |
|              | 11 - 1125N |
|              | 13 - 1350N |
|              | 18 - 1800N |
| <b>MLS27</b> | 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
- XXXXX Without encoder

### Supplier<sup>2)</sup>

### Reading head output<sup>4)</sup>:

\* 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<sup>2)</sup>:

- 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<sup>2)</sup>:

- 15 - 15 mm
- 20 - 20 mm

### Number of blocks<sup>2)</sup>:

- 4 - 4 Blocks
- 6 - 6 Blocks

## Lubrication

### Lubrication type:

- 01 - Straight
- 02 - Angled

### Grease type:

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

## Upgrades

### Version:

- S - Standard

### Screws:

- S - Standard
- I - Stainless steel

## Connectors

### Typ:

- 00 - Side connectors YTEC hybrid, steerable  $\pm 90^\circ$ <sup>3)</sup>
- 01 - Side connectors M23 backwards
- 02 - Side connectors M23 downwards
- 03 - Side connectors M23 upwards
- 04 - Side connectors M23 backwards
- 05 - Cable output without connectors
- 06 - Cable output with connectors YTEC<sup>3)</sup>
- XX - Without connector

<sup>1)</sup> Depending on the application and ambient temperature

<sup>2)</sup> Defined by previous selections

<sup>3)</sup> Not available for peak force  $\geq 1800N$

<sup>4)</sup> On request

<sup>5)</sup> Length on page 7