

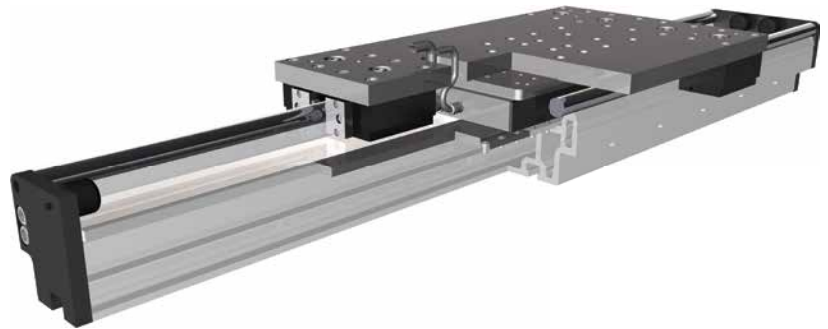
## LINEAR MOTOR DRIVE

ROLLER GUIDE

HEAVY LOAD

HIGH LOAD CAPACITY

LINEAR MOTOR



### Function:

This unit consists of an aluminium profile with hardened steel spindles mounted on top of the profile. The carriage, which has internal linear ball bearings that can be adjusted free of play, moves along the unit. The linear-motor ALLM unit is based on the principle of a linear, synchronous AC motor. The guiding profile is fitted with permanent magnets as stator. The carriage is fitted with the actuator. The magnetic attraction causes a force between carriage and guiding profile also in the absence of current. This force can be used for the initial tension of the bearings. Several carriages can be driven independently on one guiding profile.

### Fitting position:

As required. Max. length 5.000 mm without joints.

### Carriage mounting:

By tapped holes.

### Unit mounting:

By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.

### Carriage support:

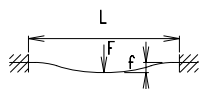
In the standard version, the carriage runs on 8 rollers which can be adjusted and serviced. For longer carriages the number of rollers can be increased. Repeatability  $\pm 0,05$  mm.

Forces and torques	Size	ALLM 203		
	Forces/Torques	static	dynamic	
	$F_y$ (N)	23000	18400	
	$F_z$ (N)	11000	8800	
	$M_x$ (Nm)	1200	950	
	$M_y$ (Nm) Motor 1	3060	2450	
	$M_z$ (Nm) Motor 1	6250	5100	
	$M_y$ (Nm) Motor 2	4010	3210	
	$M_z$ (Nm) Motor 2	8340	6670	
	<b>All forces and torques related to the following:</b>			
	existing values	$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$		
	table values	$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$		
<b>Transverse force without current</b>				
N	35			
Moved mass (g) without motor	43	48		
<b>Speed</b>				
Motor size / weight (kg)	1 / 17,2	2 / 25,5		
(m/s) max	8	8		
<b>Thrust</b>				
permanent (N)	2600	3900		
Max. (N)	4000	6010		
<b>Geometrical moments of inertia of aluminium profile</b>				
$I_x$ mm <sup>4</sup>	2,26 x 10 <sup>7</sup>			
$I_y$ mm <sup>4</sup>	8,75 x 10 <sup>7</sup>			
Elastic modulus N/mm <sup>2</sup>	70000			

For life-time calculation of rollers use our homepage.

Deflection:

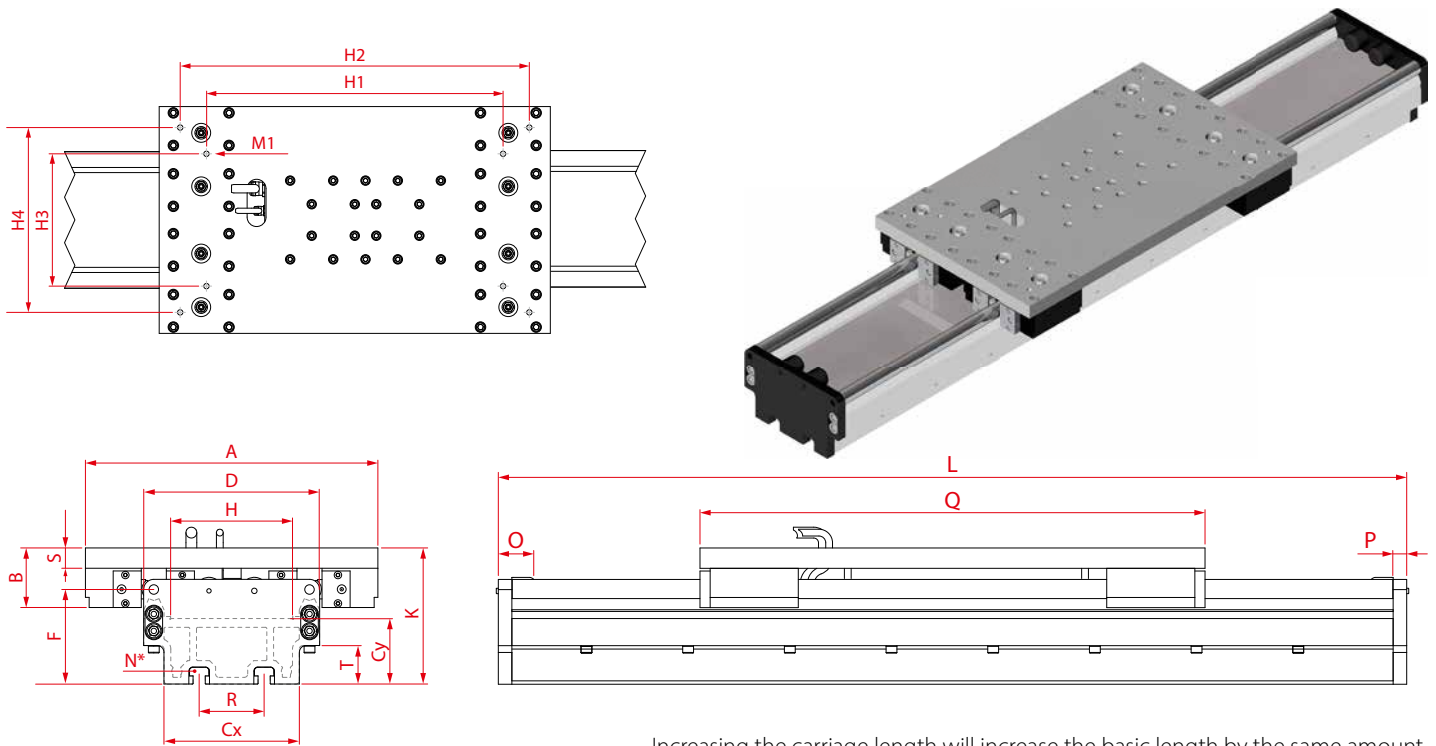
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$



$f$  = deflection (mm)  
 $F$  = load (N)  
 $L$  = free length (mm)  
 $E$  = elastic modulus 70000 (N/mm<sup>2</sup>)  
 $I$  = second moment of area (mm<sup>4</sup>)

# Linear system ALLM 203

Dimensions (mm)



Increasing the carriage length will increase the basic length by the same amount.

Size	Basic length L motor size	A	B	Cx	Cy	D	F	H	K	M1	N for	O	P	R	S	T	Basic weight motor size	Weight per 100 mm
ALLM 203	865	432	88	200	97	260	139,6	180,5	200,6	M12	M16	60	20	96	30	57	110	5,6 kg

Carriage	Q motor size	H1	H2	H3	H4
ALLM 203	745	565	665	252	352

**3** Guide rod size:  
(3) Ø=30 (4) Ø=40

**0** Choice of guide body profile:  
(0) Standard (2) corrosion-protected guide rods and screws  
(4) expanded corrosion-protected version (depending on the availability of components)

**1** Measurement system:  
(1) Measurement system LE100 5V Resolution 0.05 (2) Measurement system LE100 10,5-30V Resolution 0.05 (3) Hall sensor (4) Measurement system provided by customer

**0** Motor size:  
(0) Motor size 1 (2) without Motor, for Motorsize 1

**ALLM 20 3 0 0 1 0 0 0 0 2000** — Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:  
ALLM203, guide rods 30 mm, standard body profile, Measurement system LE100 5V, motor size 1, 1135 mm stroke.