

M100D

Ball Screw Drive, Slide Guide, Double Ball Nuts

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General Specifications

Parameter	M100D
Profile size (w × h) [mm]	108 × 100
Type of screw	ball screw with double nut
Carriage sealing system	self-adjusting steel cover band
Screw supports	number of screw supports to be specified by customer at order
Lubrication	lubrication of ball screw
Included accessories	none

Performance Specifications

Parameter		M100D
Stroke length (S max), maximum	[mm]	6000
Linear speed, maximum	[m/s]	1,6
Acceleration, maximum	[m/s ²]	8
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	4000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum	[N]	5000
Dynamic load (Fy), maximum	[N]	3005 ¹
Dynamic load (Fz), maximum	[N]	3005 ¹
Dynamic load torque (Mx), maximum	[Nm]	117 ¹
Dynamic load torque (My), maximum	[Nm]	279 ¹
Dynamic load torque (Mz), maximum	[Nm]	279 ¹
Drive shaft force (Frd), maximum	[N]	100
Drive shaft torque (Mta), maximum	[Nm]	45
Screw diameter (d ₀)	[mm]	25
Screw lead (p)	[mm]	5, 10, 25
Weight	[kg]	
of unit with zero stroke		13,87
of every 100 mm of stroke		1,42
of carriage		3,50
of option single screw support		1,86
of option double screw supports		4,42

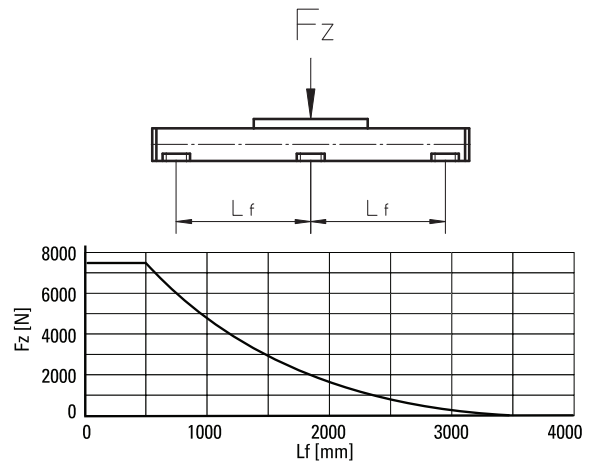
¹ Value for the complete unit

Carriage Idle Torque (M_{idle}) [Nm]

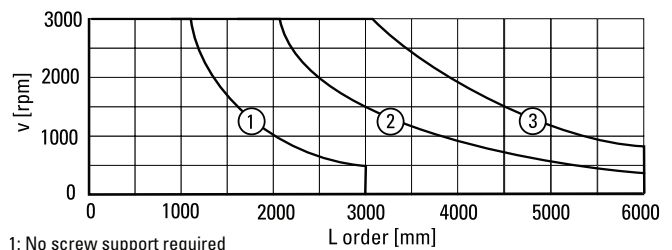
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 10	p = 25
500 - no screw supports	0,2	0,4	0,8
500 - with screw supports	0,4	0,6	1,3

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

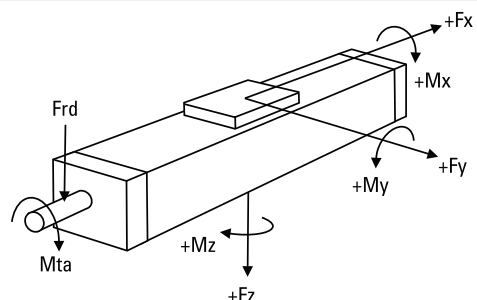


Critical Speed



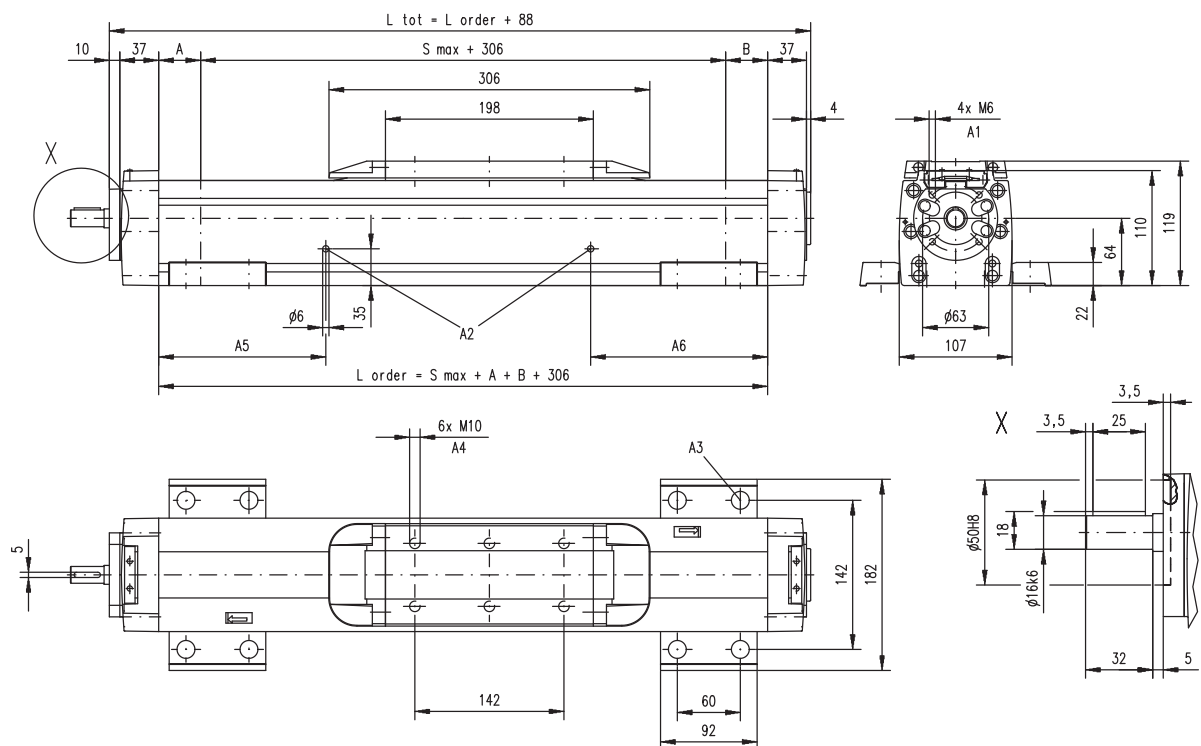
- 1: No screw support required
- 2: Single screw support required
- 3: Double screw supports required

Definition of Forces



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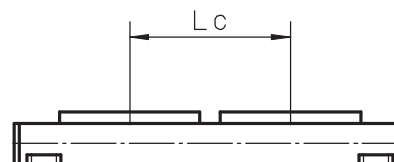
A1: depth 9, Heli coil
 A2: lubrication holes
 A3: $\phi 17/\phi 10,5$ for socket head cap screw M10

A4: depth 10, Heli coil
 A5: 100 (L order \leq 1 m), 320 (L order $>$ 1 m)
 A6: 100 (L order \leq 1 m), 430 (L order $>$ 1 m)

Screw support configuration	A [mm]	B [mm]	Ordering length (L order) [mm]	Total length (L tot) [mm]
No screw support	1	59	$L_{order} = S_{max} + A + B + 306$	$L_{tot} = L_{order} + 88$
Single screw support	31	117	$L_{order} = S_{max} + A + B + 306$	$L_{tot} = L_{order} + 88$
Double screw supports	86	172	$L_{order} = S_{max} + A + B + 306$	$L_{tot} = L_{order} + 88$

Double Carriages

Parameter	M100D
Minimum distance between carriages (Lc) [mm]	350
Dynamic load (Fy), maximum [N]	4508
Dynamic load (Fz), maximum [N]	4508
Dynamic load torque (My), maximum [Nm]	$L_c^1 \times 2,254$
Dynamic load torque (Mz), maximum [Nm]	$L_c^1 \times 2,254$
Force required to move second carriage [N]	45
Weight of unit with zero stroke of carriages [kg]	15,43
	7,00



Screw support configuration	A [mm]	B [mm]	Ordering length (L order) [mm]	Total length (L tot) [mm]
No screw support	1	59	$L_{order} = S_{max} + A + B + L_c + 306$	$L_{tot} = L_{order} + 88$
Single screw support	31	117	$L_{order} = S_{max} + A + B + L_c + 306$	$L_{tot} = L_{order} + 88$
Double screw supports	86	172	$L_{order} = S_{max} + A + B + L_c + 306$	$L_{tot} = L_{order} + 88$

¹ Value in mm