

M55

Ball Screw Drive, Slide Guide

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General Specifications

Parameter	M55
Profile size (w × h) [mm]	58 × 55
Type of screw	ball screw with single 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		M55
Stroke length (S max), maximum	[mm]	3000
Linear speed, maximum	[m/s]	1,0
Acceleration, maximum	[m/s ²]	8
Repeatability	[± mm]	0,05
Input speed, maximum ball nut units / composite nut units	[rpm]	3000 / 1500
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum ball nut units / composite nut units	[N]	1000 / 500
Dynamic load (Fy), maximum	[N]	400 ¹
Dynamic load (Fz), maximum	[N]	400 ¹
Dynamic load torque (Mx), maximum	[Nm]	9 ¹
Dynamic load torque (My), maximum	[Nm]	23 ¹
Dynamic load torque (Mz), maximum	[Nm]	23 ¹
Drive shaft force (Frd), maximum	[N]	200
Drive shaft torque (Mta), maximum	[Nm]	12
Screw diameter (d0)	[mm]	16
Screw lead (p) ball nut units / composite nut units	[mm]	5, 5,08, 10, 20 / 32
Weight of unit with zero stroke of every 100 mm of stroke of carriage of option single screw support of option double screw supports	[kg]	3,06 0,44 1,20 0,83 1,88

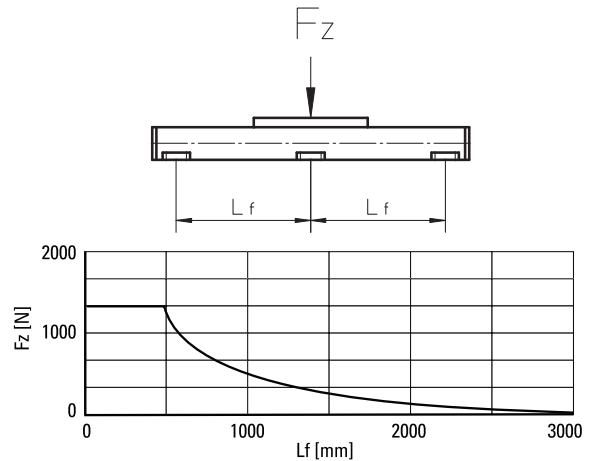
¹ Value for the complete unit

Carriage Idle Torque (M idle) [Nm]

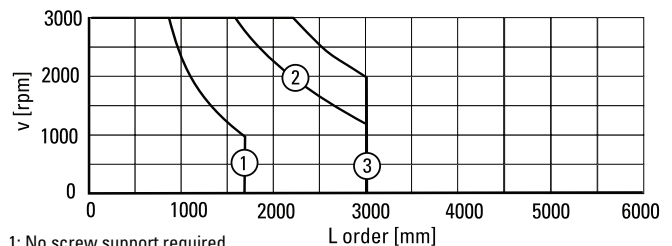
Input speed [rpm]	Screw lead [mm]				
	p = 5	p = 5,08	p = 10	p = 20	p = 32 ¹
500 - no screw supports	0,10	0,10	0,15	0,30	0,80
500 - with screw supports	0,13	0,13	0,27	0,45	1,00

¹ Value for composite nut.
 M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

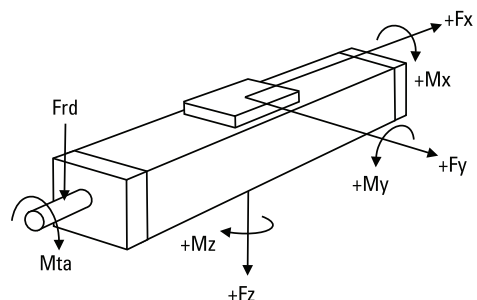


Critical Speed



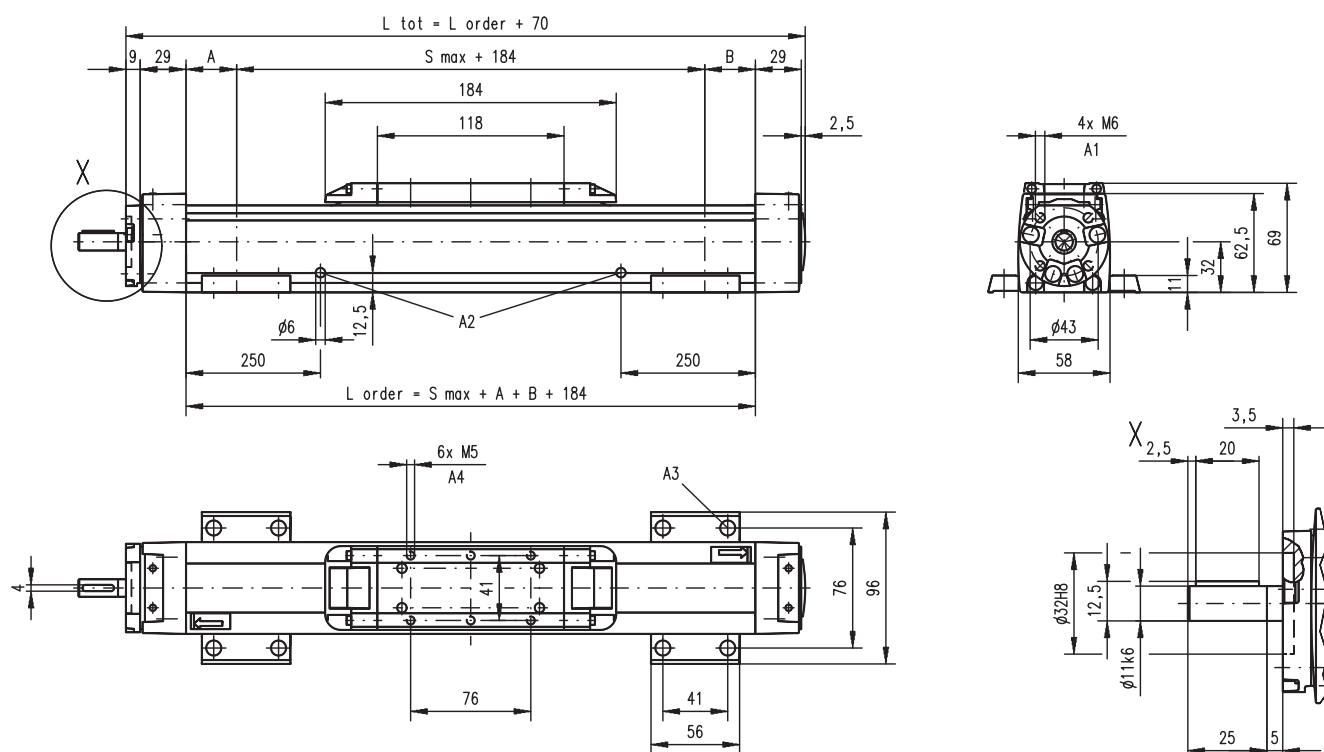
1: No screw support required
 2: Single screw support required
 3: Double screw supports required

Definition of Forces



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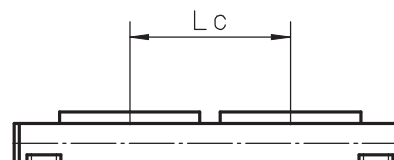
A1: depth 7,5, Heli coil
A2: lubrication holes

A3: ø9,5/ø5,5 for socket head cap screw M5
A4: depth 7,5, Heli coil

Screw support configuration	A [mm]	B [mm]	Ordering length (L order) [mm]	Total length (L tot) [mm]
No screw support	6	6	$L_{order} = S_{max} + A + B + 184$	$L_{tot} = L_{order} + 70$
Single screw support	32	32	$L_{order} = S_{max} + A + B + 184$	$L_{tot} = L_{order} + 70$
Double screw supports	83	83	$L_{order} = S_{max} + A + B + 184$	$L_{tot} = L_{order} + 70$

Double Carriages

Parameter	M55	
Minimum distance between carriages (Lc)	[mm]	200
Dynamic load (Fy), maximum	[N]	600
Dynamic load (Fz), maximum	[N]	600
Dynamic load torque (My), maximum	[Nm]	$L_c^1 \times 0,3$
Dynamic load torque (Mz), maximum	[Nm]	$L_c^1 \times 0,3$
Force required to move second carriage	[N]	35
Weight of unit with zero stroke of carriages	[kg]	5,14 2,40



Screw support configuration	A [mm]	B [mm]	Ordering length (L order) [mm]	Total length (L tot) [mm]
No screw support	6	6	$L_{order} = S_{max} + A + B + L_c + 184$	$L_{tot} = L_{order} + 70$
Single screw support	32	32	$L_{order} = S_{max} + A + B + L_c + 184$	$L_{tot} = L_{order} + 70$
Double screw supports	83	83	$L_{order} = S_{max} + A + B + L_c + 184$	$L_{tot} = L_{order} + 70$

¹ Value in mm