

# M75

## Ball Screw Drive, Slide Guide

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### General Specifications

Parameter	M75
Profile size (w × h) [mm]	86 × 75
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		M75
Stroke length (S max), maximum	[mm]	4000
Linear speed, maximum	[m/s]	1,6
Acceleration, maximum	[m/s <sup>2</sup> ]	8
Repeatability	[± mm]	0,05
Input speed, maximum ball nut units / composite nut units	[rpm]	5000 / 1500
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum ball nut units / composite nut units	[N]	2500 / 1250
Dynamic load (Fy), maximum	[N]	1485 <sup>1</sup>
Dynamic load (Fz), maximum	[N]	1485 <sup>1</sup>
Dynamic load torque (Mx), maximum	[Nm]	49 <sup>1</sup>
Dynamic load torque (My), maximum	[Nm]	85 <sup>1</sup>
Dynamic load torque (Mz), maximum	[Nm]	85 <sup>1</sup>
Drive shaft force (Frd), maximum	[N]	600
Drive shaft torque (Mta), maximum	[Nm]	30
Screw diameter (d <sub>0</sub> )	[mm]	20
Screw lead (p) ball nut units / composite nut units	[mm]	5, 12,7, 20 / 5
Weight	[kg]	
of unit with zero stroke		6,07
of every 100 mm of stroke		0,82
of carriage		1,70
of option single screw support		1,70
of option double screw supports		3,58

<sup>1</sup> Value for the complete unit

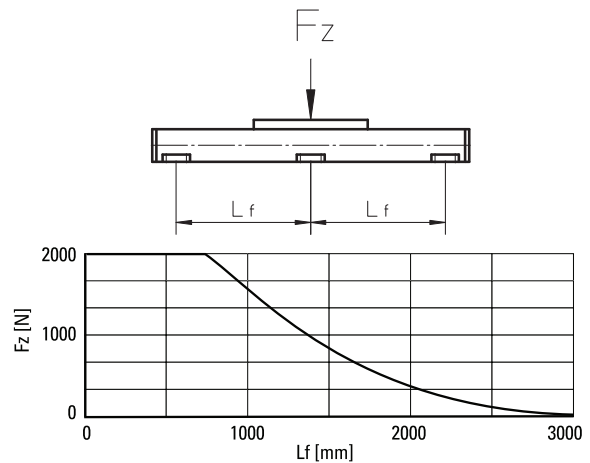
### Carriage Idle Torque (M<sub>idle</sub>) [Nm]

Input speed [rpm]	Screw lead [mm]			
	p = 5	p = 5 <sup>1</sup>	p = 12,7	p = 20
500 - no screw supports	0,10	0,20	0,24	0,37
500 - with screw supports	0,15	0,50	0,39	0,57

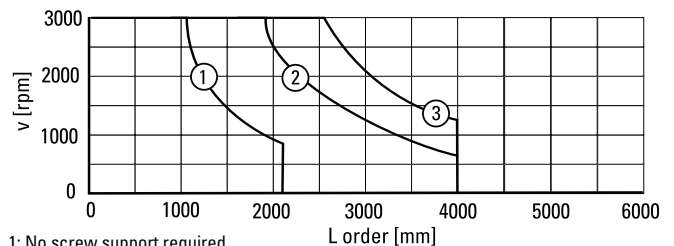
<sup>1</sup> Value for composite nut.

M<sub>idle</sub> = the input torque needed to move the carriage with no load on it.

### Deflection of the Profile

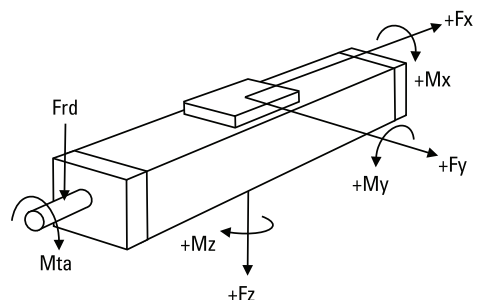


### Critical Speed



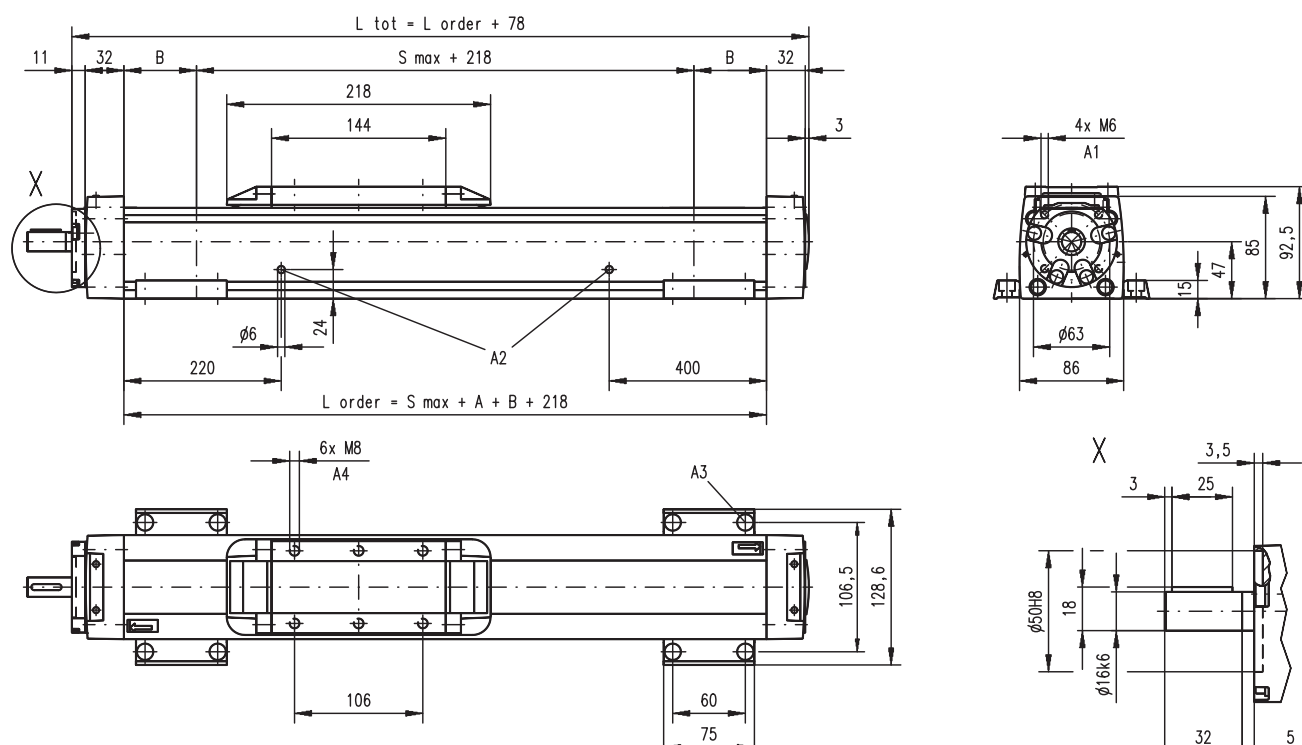
- 1: No screw support required
- 2: Single screw support required
- 3: Double screw supports required

### Definition of Forces



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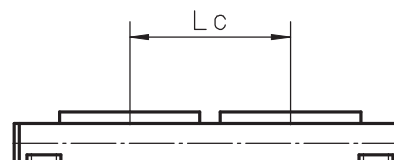
A1: depth 9, Heli coil  
A2: lubrication holes

A3: ø13,5/ø8,5 for socket head cap screw M8  
A4: depth 8, Heli coil

Screw support configuration	A [mm]	B [mm]	Ordering length (L order) [mm]	Total length (L tot) [mm]
No screw support	5	5	$L_{order} = S_{max} + A + B + 218$	$L_{tot} = L_{order} + 78$
Single screw support	60	60	$L_{order} = S_{max} + A + B + 218$	$L_{tot} = L_{order} + 78$
Double screw supports	126	126	$L_{order} = S_{max} + A + B + 218$	$L_{tot} = L_{order} + 78$

### Double Carriages

Parameter		M75
Minimum distance between carriages (Lc)	[mm]	250
Dynamic load (Fy), maximum	[N]	2227
Dynamic load (Fz), maximum	[N]	2227
Dynamic load torque (My), maximum	[Nm]	$Lc^1 \times 1,114$
Dynamic load torque (Mz), maximum	[Nm]	$Lc^1 \times 1,114$
Force required to move second carriage	[N]	40
Weight of unit with zero stroke of carriages	[kg]	9,82 3,40



Screw support configuration	A [mm]	B [mm]	Ordering length (L order) [mm]	Total length (L tot) [mm]
No screw support	5	5	$L_{order} = S_{max} + A + B + Lc + 218$	$L_{tot} = L_{order} + 78$
Single screw support	60	60	$L_{order} = S_{max} + A + B + Lc + 218$	$L_{tot} = L_{order} + 78$
Double screw supports	126	126	$L_{order} = S_{max} + A + B + Lc + 218$	$L_{tot} = L_{order} + 78$

<sup>1</sup> Value in mm