

# Linear Motion Systems with Ball Screw Drive and Slide Guide

## Overview

### Movopart M



#### Features

- Can be installed in any orientation
- Self-adjusting stainless steel cover band
- Patented internal self-adjusting prism slide guides
- Wash down protected versions available.

Parameter		M55	M75	M100
Profile size (width × height)	[mm]	58 × 55	86 × 75	108 × 100
Stroke length (Smax), maximum	[mm]	2712	3772	5578
Linear speed, maximum	[m/s]	1,0	1,6	1,6
Dynamic carriage load (Fz), maximum	[N]	400	1485	3005
Remarks		single ball nut	single ball nut	single ball nut
Page		70	72	74

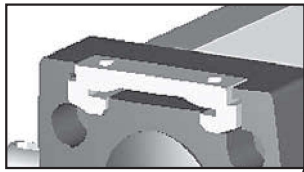
# Linear Motion Systems with Ball Screw Drive and Slide Guide

## Overview

### M-Series Technical Presentation

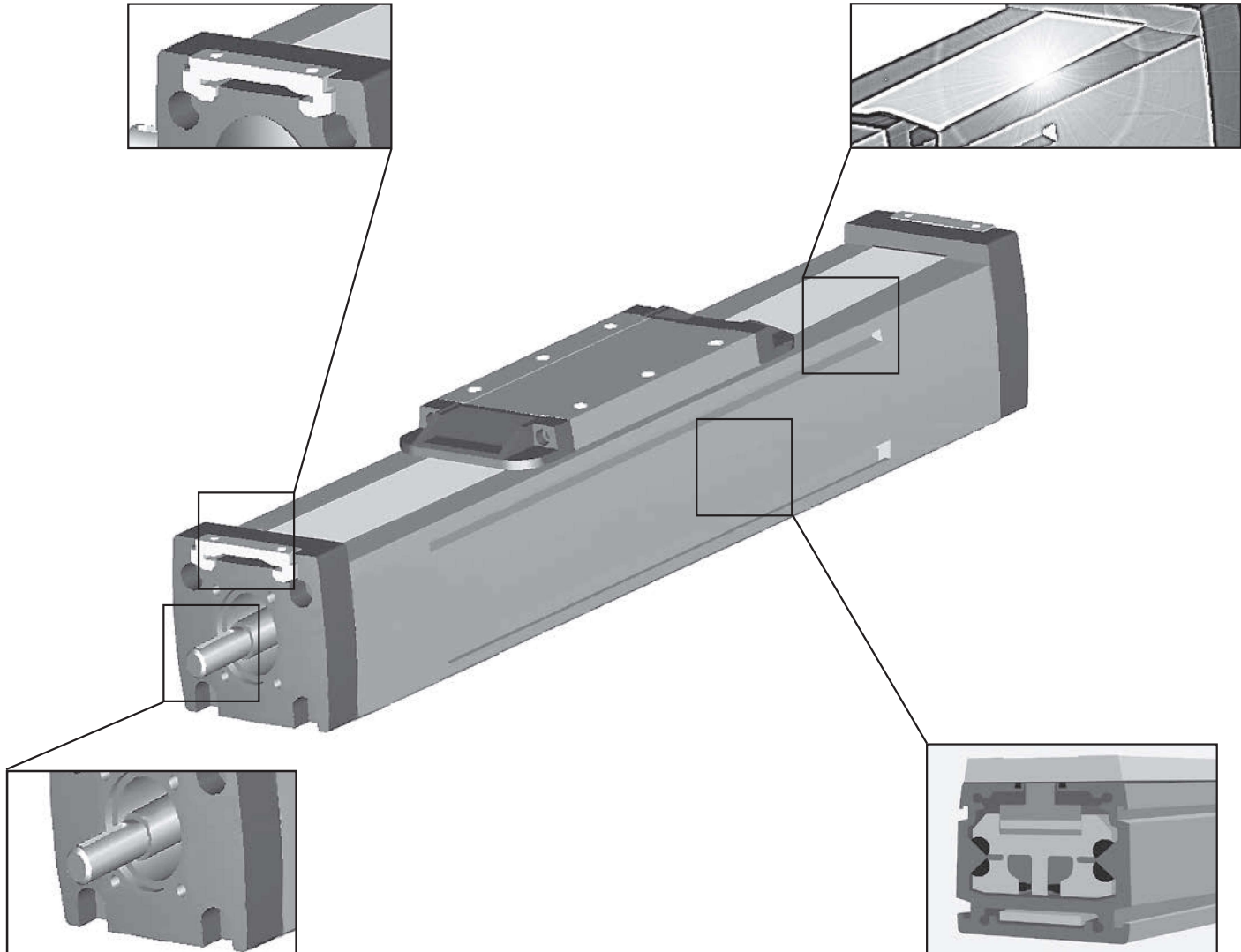
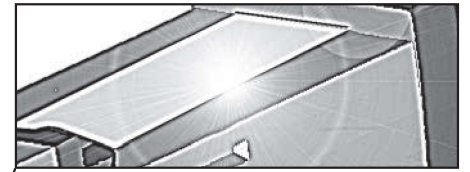
**Cover band**

The self-adjusting magnetically sealed stainless steel cover band protects the unit from the penetration of dirt, dust and liquids.



**Environmental protection**

The standard unit can operate in harsh environments but is also available in a wash down version for environments that are dusty, dirty and/or wet.



**Ball screw drive**

The ball screw ensures high accuracy and efficiency and the optional screw supports enable higher speeds.

**Prism slide guides**

The patented self-aligning prism slide guides are accurate, durable and are resistant to vibrations and shock loads.

**Note!** the unit is pictured without a RediMount™ flange

# M55

## Ball Screw Drive, Slide Guide

» Ordering key - see page 201  
» Accessories - see page 131  
» Additional data - see page 179

### 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

for Units with Single Standard Carriage (A)<sup>1</sup>

Parameter		M55
Stroke length (Smax), maximum	[mm]	2712
Total length (L tot), maximum	[mm]	2975
Linear speed, maximum	[m/s]	1,0
Acceleration, maximum	[m/s <sup>2</sup> ]	8
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum	[N]	1000
Dynamic load (Fy), maximum	[N]	400
Dynamic load (Fz), maximum	[N]	400
Dynamic load torque (Mx), maximum	[Nm]	9
Dynamic load torque (My), maximum	[Nm]	23
Dynamic load torque (Mz), maximum	[Nm]	23
Drive shaft force (Frd), maximum <sup>2</sup>	[N]	200
Input/drive shaft torque (Mta), maximum	[Nm]	12
Screw diameter (d0)	[mm]	16
Screw lead (p)	[mm]	5, 10, 20
Weight	[kg]	
of unit with zero stroke		3,06
of every 100 mm of stroke		0,44
of carriage		1,20
of option single screw support		0,83
of option double screw supports		1,88

<sup>1</sup> See next page for deviating values of units with other carriage types.

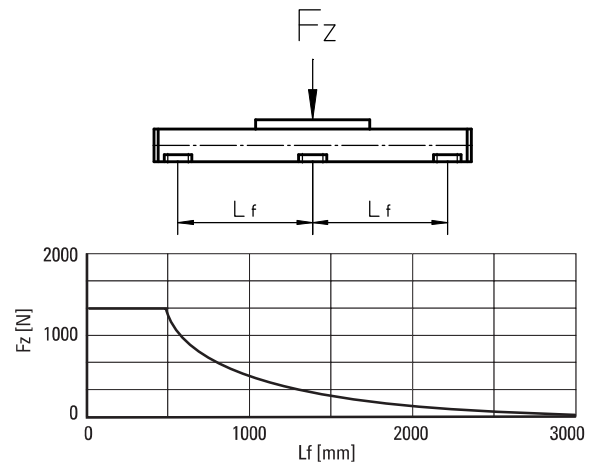
<sup>2</sup> Only relevant for units without RediMount flange.

### Carriage Idle Torque (M idle) [Nm]

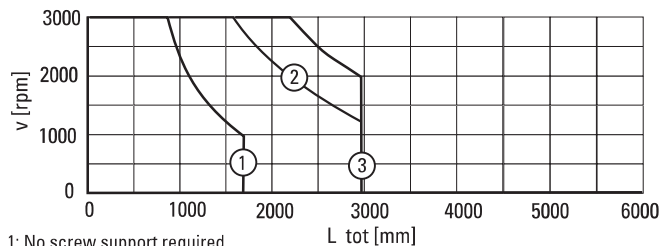
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 10	p = 20
500 - no screw supports	0,10	0,15	0,30
500 - with screw supports	0,13	0,27	0,45

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

### Deflection of the Profile

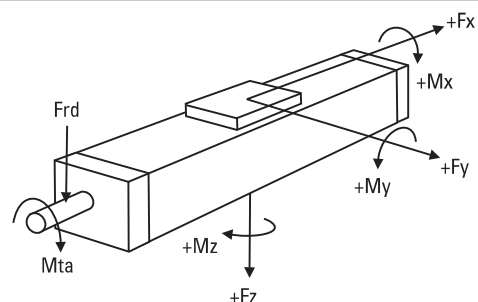


### Critical Speed



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

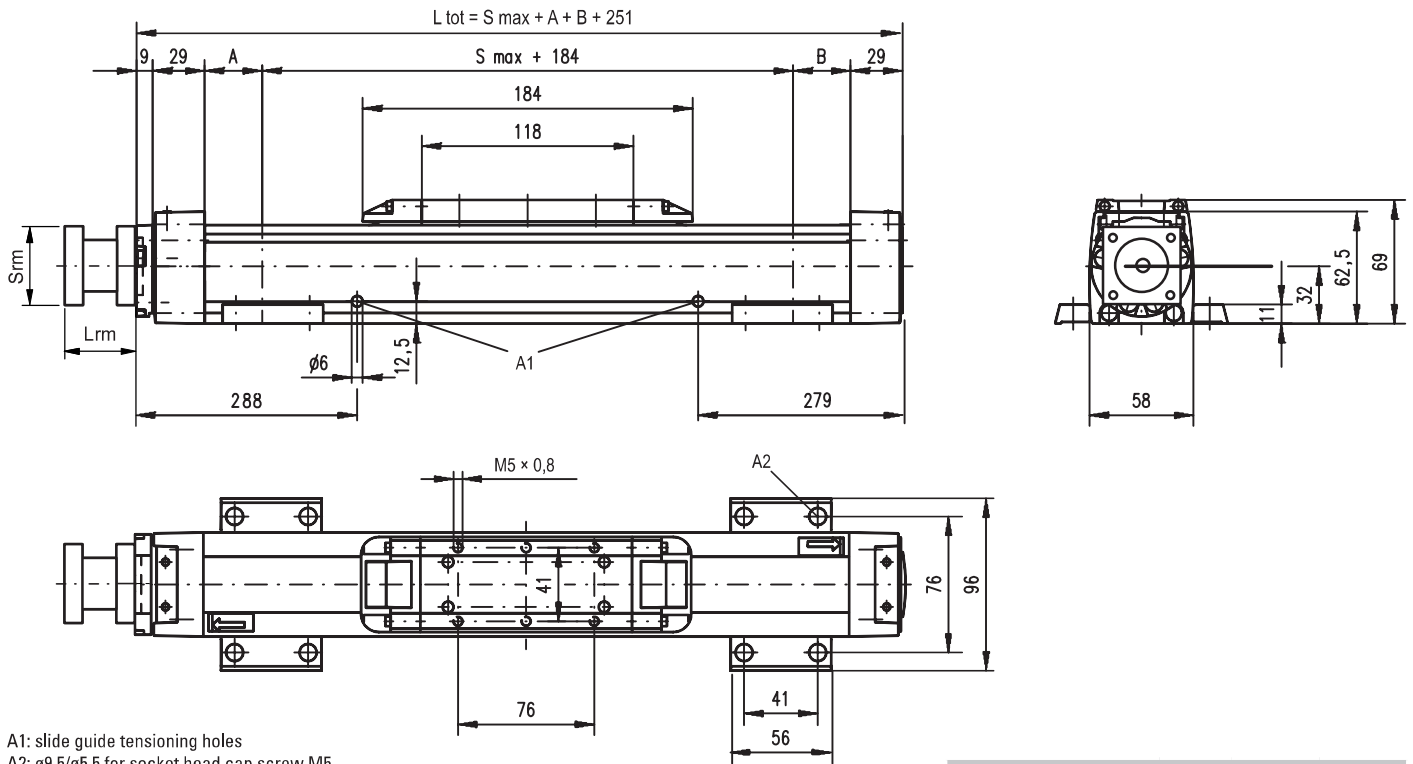
### Definition of Forces



# M55

## Ball Screw Drive, Slide Guide

<b>Dimensions</b>	<b>Projection</b>	<b>Online Sizing &amp; Selection!</b>
METRIC		<a href="http://www.LinearMotioneering.com">www.LinearMotioneering.com</a>



A1: slide guide tensioning holes  
 A2: ø9,5/ø5,5 for socket head cap screw M5

Screw support configuration	A [mm]	B [mm]	Total length (L tot) [mm]
No screw support	6	6	$L_{tot} = S_{max} + A + B + 251$
Single screw support	32	32	$L_{tot} = S_{max} + A + B + 251$
Double screw supports	83	83	$L_{tot} = S_{max} + A + B + 251$

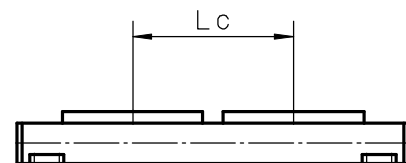
Parameter	Min	Max
Flange length (Lrm) [mm]	57	92
Flange square (Srm) [mm]	60	139
Flange weight* [kg]	1,84	

\* Max. weight including coupling and fastening screws

### Performance Specifications

for Units with Double Standard Carriage (C)

Parameter	M55
Stroke length (Smax), maximum [mm]	2512
Total length (L tot), maximum [mm]	2975
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]	$Lc^1 \times 0,3$
Dynamic load torque (Mz), maximum [Nm]	$Lc^1 \times 0,3$
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]	Total length (L tot) [mm]
No screw support	6	6	$L_{tot} = S_{max} + A + B + Lc + 251$
Single screw support	32	32	$L_{tot} = S_{max} + A + B + Lc + 251$
Double screw supports	83	83	$L_{tot} = S_{max} + A + B + Lc + 251$

<sup>1</sup> Value in mm

# M75

## Ball Screw Drive, Slide Guide

» Ordering key - see page 201  
» Accessories - see page 131  
» Additional data - see page 179

### 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

for Units with Single Standard Carriage (A)<sup>1</sup>

Parameter		M75
Stroke length (S <sub>max</sub> ), maximum	[mm]	
screw lead 5, 20 mm		3772
screw lead 12,7 mm		2665
Total length (L <sub>tot</sub> ), maximum	[mm]	
screw lead 5, 20 mm		4075
screw lead 12,7 mm		2968
Linear speed, maximum	[m/s]	1,6
Acceleration, maximum	[m/s <sup>2</sup> ]	8
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	5000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F <sub>x</sub> ), maximum	[N]	2500
Dynamic load (F <sub>y</sub> ), maximum	[N]	1485
Dynamic load (F <sub>z</sub> ), maximum	[N]	1485
Dynamic load torque (M <sub>x</sub> ), maximum	[Nm]	49
Dynamic load torque (M <sub>y</sub> ), maximum	[Nm]	85
Dynamic load torque (M <sub>z</sub> ), maximum	[Nm]	85
Drive shaft force (F <sub>rd</sub> ), maximum <sup>2</sup>	[N]	600
Input/drive shaft torque (M <sub>ta</sub> ), maximum	[Nm]	30
Screw diameter (d <sub>0</sub> )	[mm]	20
Screw lead (p)	[mm]	5, 12,7, 20
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> See next page for deviating values of units with other carriage types.

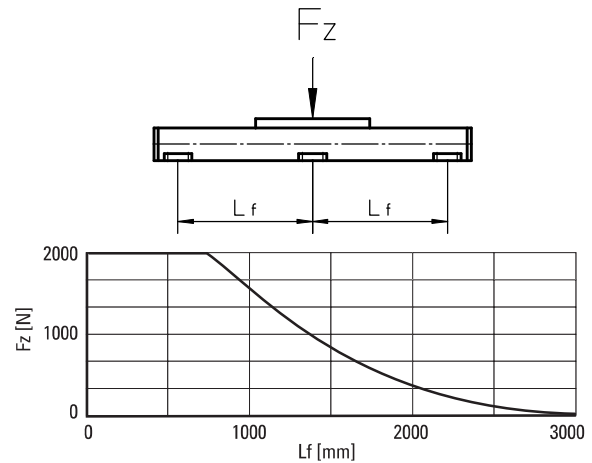
<sup>2</sup> Only relevant for units without RediMount flange.

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

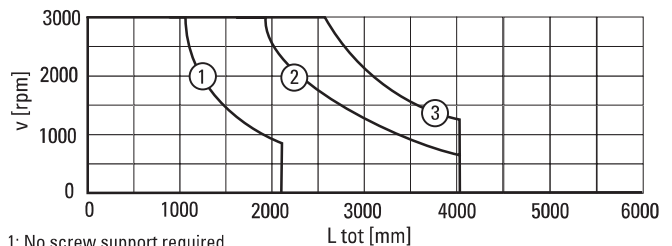
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 12,7	p = 20
500 - no screw supports	0,10	0,24	0,37
500 - with screw supports	0,15	0,39	0,57

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

### Deflection of the Profile

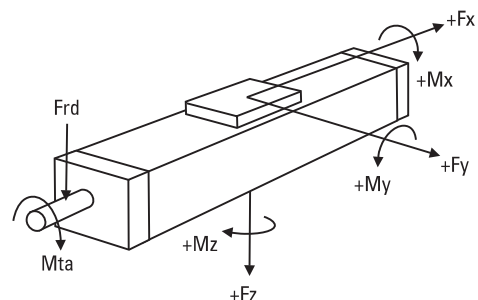


### Critical Speed



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

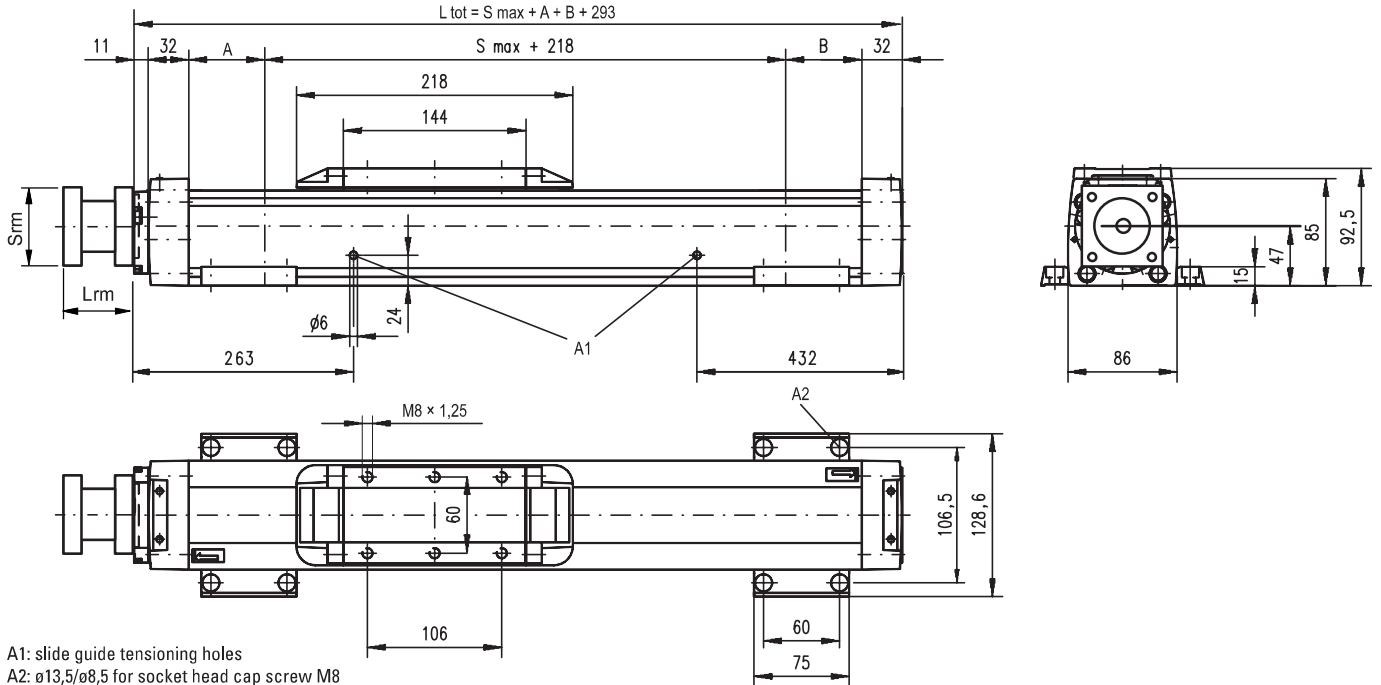
### Definition of Forces



# M75

## Ball Screw Drive, Slide Guide

<b>Dimensions</b>	<b>Projection</b>	<b>Online Sizing &amp; Selection!</b>
METRIC		<a href="http://www.LinearMotioneering.com">www.LinearMotioneering.com</a>



A1: slide guide tensioning holes  
A2: ø13,5/ø8,5 for socket head cap screw M8

Screw support configuration	A [mm]	B [mm]	Total length (L tot) [mm]
No screw support	5	5	$L_{tot} = S_{max} + A + B + 293$
Single screw support	60	60	$L_{tot} = S_{max} + A + B + 293$
Double screw supports	126	126	$L_{tot} = S_{max} + A + B + 293$

RediMount Flange Specifications			
Parameter		Min	Max
Flange length (Lrm)	[mm]	81	143
Flange square (Srm)	[mm]	90	200
Flange weight *	[kg]	5,60	

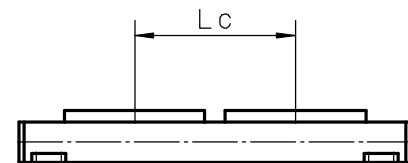
\* Max. weight including coupling and fastening screws

### Performance Specifications

for Units with Double Standard Carriage (C)

Parameter		M75
Stroke length (Smax), maximum	[mm]	3522 screw lead 5, 20 mm 2415 screw lead 12,7 mm
Total length (L tot), maximum	[mm]	4075 screw lead 5, 20 mm 2968 screw lead 12,7 mm
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]	$L_c^1 \times 1,114$
Dynamic load torque (Mz), maximum	[Nm]	$L_c^1 \times 1,114$
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]	Total length (L tot) [mm]
No screw support	5	5	$L_{tot} = S_{max} + A + B + L_c + 293$
Single screw support	60	60	$L_{tot} = S_{max} + A + B + L_c + 293$
Double screw supports	126	126	$L_{tot} = S_{max} + A + B + L_c + 293$



# M100

## Ball Screw Drive, Slide Guide

» Ordering key - see page 201  
» Accessories - see page 131  
» Additional data - see page 179

### General Specifications

Parameter	M100
Profile size (w × h) [mm]	108 × 100
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

for Units with Single Standard Carriage (A)<sup>1</sup>

Parameter		M100
Stroke length (S <sub>max</sub> ), maximum	[mm]	5578
screw lead 5, 10 mm		4378
screw lead 25 mm		
Total length (L <sub>tot</sub> ), maximum	[mm]	5974
screw lead 5, 10 mm		4774
screw lead 25 mm		
Linear speed, maximum	[m/s]	1,6
Acceleration, maximum	[m/s <sup>2</sup> ]	8
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	4000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F <sub>x</sub> ), maximum	[N]	5000
Dynamic load (F <sub>y</sub> ), maximum	[N]	3005
Dynamic load (F <sub>z</sub> ), maximum	[N]	3005
Dynamic load torque (M <sub>x</sub> ), maximum	[Nm]	117
Dynamic load torque (M <sub>y</sub> ), maximum	[Nm]	279
Dynamic load torque (M <sub>z</sub> ), maximum	[Nm]	279
Drive shaft force (F <sub>rd</sub> ), maximum <sup>2</sup>	[N]	1000
Input/drive shaft torque (M <sub>ta</sub> ), maximum	[Nm]	45
Screw diameter (d <sub>0</sub> )	[mm]	25
Screw lead (p)	[mm]	5, 10, 25
Weight	[kg]	
of unit with zero stroke		12,87
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

<sup>1</sup> See next page for deviating values of units with other carriage types.

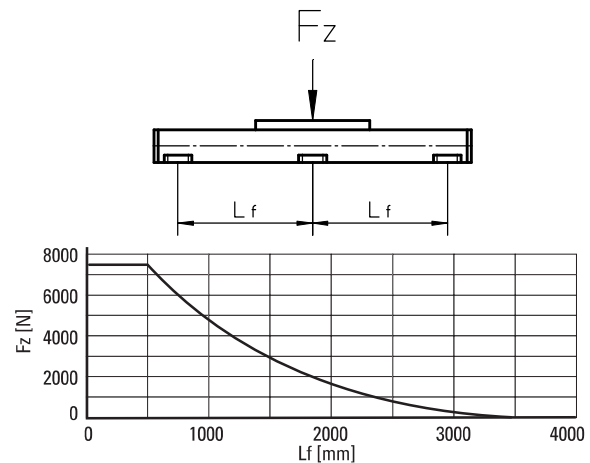
<sup>2</sup> Only relevant for units without RediMount flange.

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

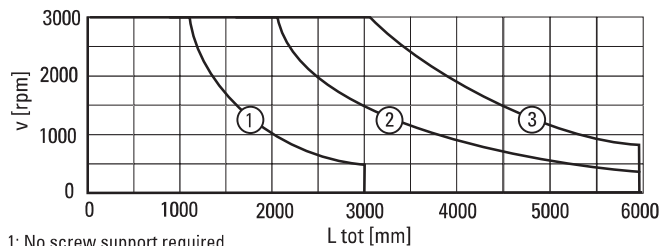
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 10	p = 25
500 - no screw supports	0,15	0,25	0,55
500 - with screw supports	0,25	0,40	0,85

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

### Deflection of the Profile

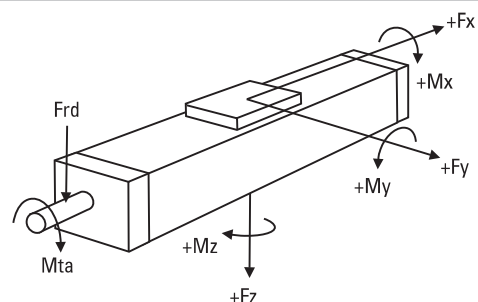


### Critical Speed




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

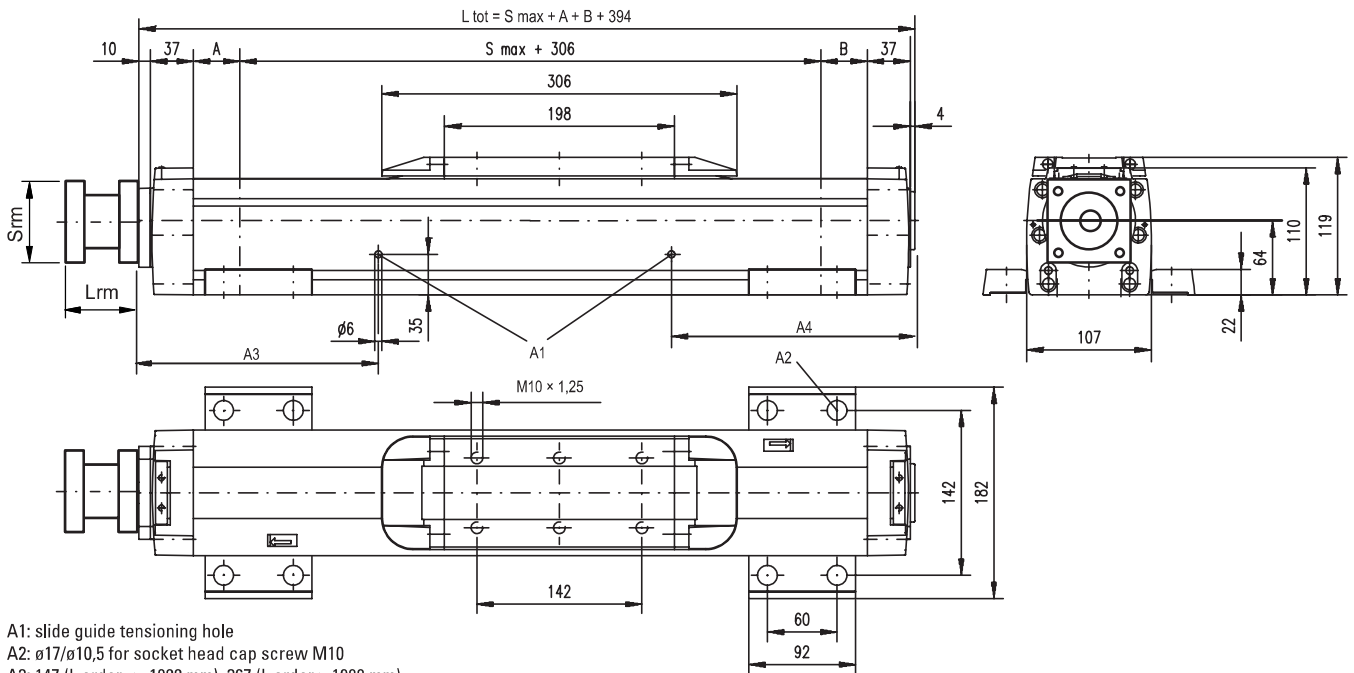
### Definition of Forces



# M100

## Ball Screw Drive, Slide Guide

<b>Dimensions</b>	<b>Projection</b>	<b>Online Sizing &amp; Selection!</b>
METRIC		<a href="http://www.LinearMotioneering.com">www.LinearMotioneering.com</a>



- A1: slide guide tensioning hole
- A2:  $\varnothing 17/\varnothing 10,5$  for socket head cap screw M10
- A3: 147 (L order  $\leq$  1088 mm), 367 (L order  $>$  1088 mm)
- A4: 141 (L order  $\leq$  1088 mm), 471 (L order  $>$  1088 mm)

Screw support configuration	A [mm]	B [mm]	Total length (L tot) [mm]
No screw support	1	1	$L_{tot} = S_{max} + A + B + 394$
Single screw support	31	31	$L_{tot} = S_{max} + A + B + 394$
Double screw supports	86	86	$L_{tot} = S_{max} + A + B + 394$

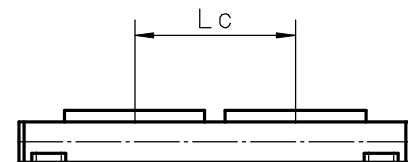
Parameter	Min	Max
Flange length (Lrm)	81	143
Flange square (Srm)	90	200
Flange weight *	5,60	

\* Max. weight including coupling and fastening screws

### Performance Specifications

for Units with Double Standard Carriage (C)

Parameter	M100
Stroke length (Smax), maximum	[mm]
screw lead 5, 10 mm	5228
screw lead 25 mm	4028
Total length (L tot), maximum	[mm]
screw lead 5, 10 mm	5974
screw lead 25 mm	4774
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]
	21,34
	7,00



Screw support configuration	A [mm]	B [mm]	Total length (L tot) [mm]
No screw support	1	1	$L_{tot} = S_{max} + A + B + L_c + 394$
Single screw support	31	31	$L_{tot} = S_{max} + A + B + L_c + 394$
Double screw supports	86	86	$L_{tot} = S_{max} + A + B + L_c + 394$

<sup>1</sup> Value in mm



# Ordering Keys

## Linear Motion Systems with Ball Screw Drive and Slide Guides

M55, M75, M100																																				
1	2	3	4	5	6	7	8	9	10																											
MG07S	05	LX	PP2	-01000	-01500	X	N	0000	S1																											
<p><b>1. Type of unit</b>                      MG06S = M55 unit, slide guides, ball screw                      MG07S = M75 unit, slide guides, ball screw                      MG10S = M100 unit, slide guides, ball screw</p> <p><b>2. Screw lead and tolerance class<sup>1</sup></b>                      05 = 5 mm                      10 = 10 mm                      12 = 12,7 mm                      20 = 20 mm                      25 = 25 mm</p> <p><b>3. Transmission type</b>                      LX = inline style, directly coupled, RediMount flange                      SX = inline style, directly coupled, no RediMount flange</p> <p><b>4. RediMount motor ID code</b>                      vvw = alphanumeric motor code for suitable RediMount flange when motor is known                      999 = RediMount code used when motor is unknown                      XXX = for units without RediMount flange</p>			<p><b>5. Maximum stroke (Smax)</b>                      - xxxxx = distance in mm</p> <p><b>6. Total length of unit (L tot)</b>                      - yyyyy = distance in mm</p> <p><b>7. Screw supports</b>                      X = no screw supports                      S = single screw supports                      D = double screw supports</p> <p><b>8. Carriage configuration</b>                      N = single standard carriage                      Z = double standard carriages</p> <p><b>9. Distance between carriages (Lc)</b>                      0000 = for all single standard carriage units                      zzzz = distance in mm between carriages</p> <p><b>10. Protection option<sup>2</sup></b>                      S1 = wash down protection</p>			<p><sup>1</sup> See table below for available combinations of units and ball screw type, lead and tolerance.</p> <table border="1"> <thead> <tr> <th rowspan="2">Ball screw type</th> <th colspan="3">Type of unit</th> </tr> <tr> <th>M55</th> <th>M75</th> <th>M100</th> </tr> </thead> <tbody> <tr> <td>05</td> <td>x</td> <td>x</td> <td>x</td> </tr> <tr> <td>10</td> <td>x</td> <td></td> <td>x</td> </tr> <tr> <td>12</td> <td></td> <td>x</td> <td></td> </tr> <tr> <td>20</td> <td>x</td> <td>x</td> <td></td> </tr> <tr> <td>25</td> <td></td> <td></td> <td>x</td> </tr> </tbody> </table> <p><sup>2</sup> Leave position blank if no additional protection is required.</p>				Ball screw type	Type of unit			M55	M75	M100	05	x	x	x	10	x		x	12		x		20	x	x		25			x
Ball screw type	Type of unit																																			
	M55	M75	M100																																	
05	x	x	x																																	
10	x		x																																	
12		x																																		
20	x	x																																		
25			x																																	