

Linear Motion Systems with Lead or Ball Screw Drive and Ball Guide

Overview

Movopart M



Features

- Can be installed in any orientation
- Self-adjusting stainless steel cover band
- Internal ball 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]	1,6	1,0	1,25
Dynamic carriage load (Fz), maximum	[N]	400	1450	3000
Remarks		ballscrew driven, single ball nut	ballscrew driven, single ball nut	ballscrew driven, single ball nut
Page		40	42	44

2HB



Features

- Can be installed in any orientation
- High load capabilities
- Low profile height
- Preloaded ballscrew and bearing carriages offer high stiffness / rigidity
- Corrosion resistant options available.

Parameter		2HB10	2HB20
Profile size (width × height)	[mm]	100 × 60	200 × 90
Stroke length (Smax), maximum	[mm]	1375	2760
Linear speed, maximum	[m/s]	0,47	0,95
Dynamic carriage load (Fz), maximum	[N]	8000	34000
Remarks		bellows or shroud options available	bellows or shroud options available
Page		46	48

2RB



Features

- Can be installed in any orientation
- High load capabilities
- Low profile height
- Preloaded ballscrew and Super Smart bearing configuration provides stiffness / rigidity
- Corrosion resistant options available.

Parameter		2RB12	2RB16
Profile size (width × height)	[mm]	130 × 40	160 × 48
Stroke length (Smax), maximum	[mm]	1951	2815
Linear speed, maximum	[m/s]	0,47	0,73
Dynamic carriage load (Fz), maximum	[N]	1760	5176
Remarks		bellows option available	bellows option available
Page		50	52

M55

Ball Screw Drive, Ball Guide

» Ordering key - see page 196
» Accessories - see page 131
» Additional data - see page 188

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)¹

Parameter		M55
Stroke length (S _{max}), maximum	[mm]	2712
Total length (L _{tot}), maximum	[mm]	2975
Linear speed, maximum	[m/s]	1,6
Acceleration, maximum	[m/s ²]	8
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	1000
Dynamic load (F _y), maximum	[N]	900
Dynamic load (F _z), maximum	[N]	900
Dynamic load torque (M _x), maximum	[Nm]	9
Dynamic load torque (M _y), maximum	[Nm]	48
Dynamic load torque (M _z), maximum	[Nm]	48
Drive shaft force (F _{rd}), maximum ²	[N]	200
Input/drive shaft torque (M _{ta}), maximum	[Nm]	12
Screw diameter (d ₀)	[mm]	16
Screw lead (p)	[mm]	5, 10, 20
Weight	[kg]	
of unit with zero stroke		3,90
of every 100 mm of stroke		0,56
of carriage		1,20
of option single screw support		0,83
of option double screw supports		1,88

¹ See next page for deviating values of units with other carriage types.

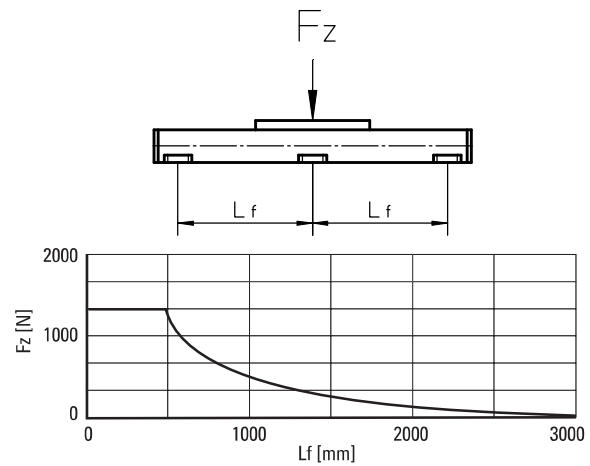
² Only relevant for units without RediMount flange.

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

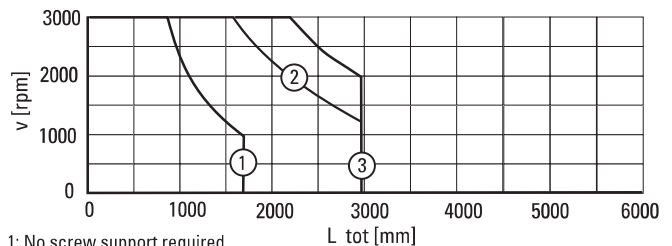
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 10	p = 20
500 - no screw supports	0,02	0,03	0,04
500 - with screw supports	0,03	0,05	0,07

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

Deflection of the Profile

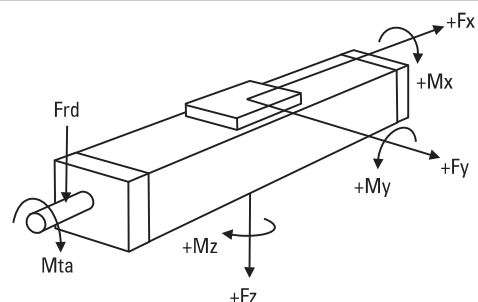


Critical Speed



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

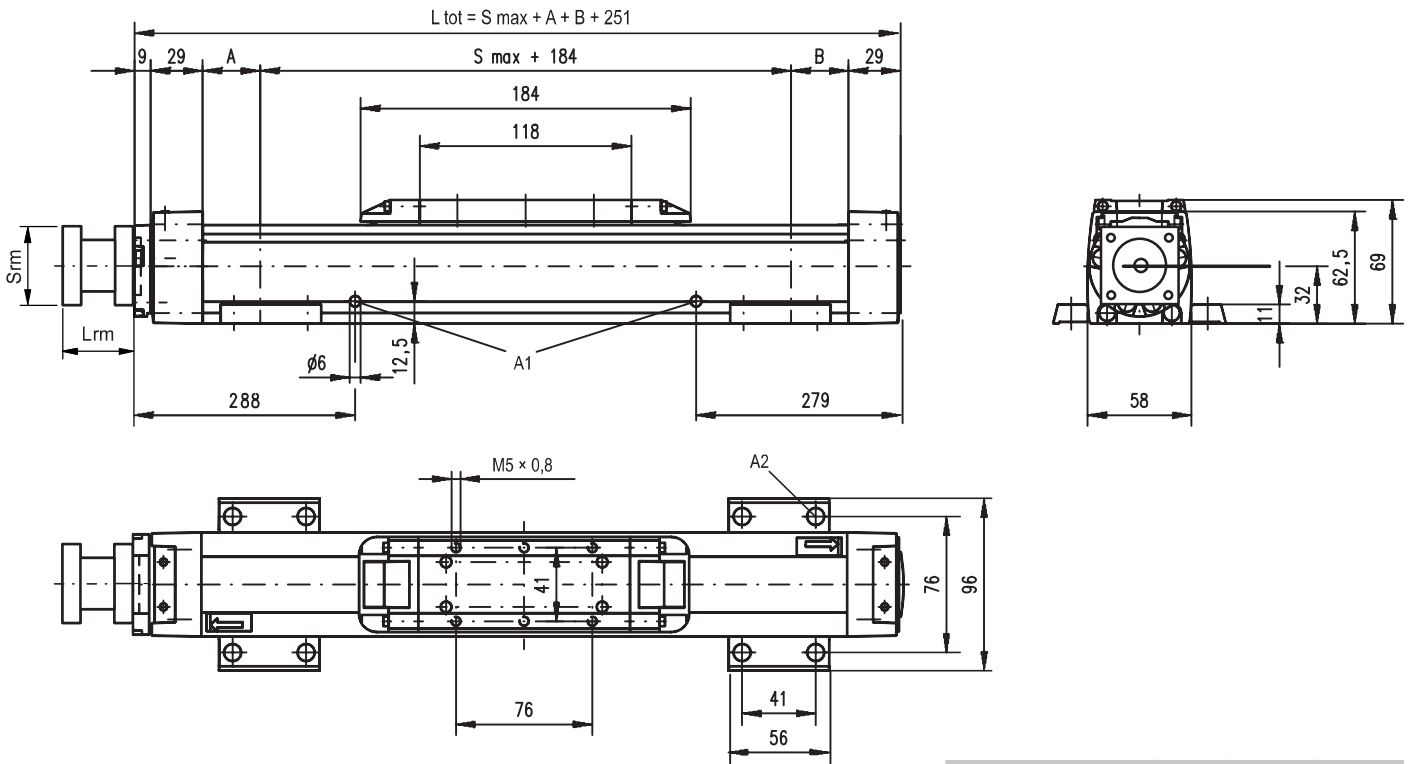
Definition of Forces



M55

Ball Screw Drive, Ball Guide

Dimensions	Projection	Online Sizing & Selection!
METRIC		www.LinearMotioneering.com



A1: lubrication holes
 A2: $\varnothing 9,5/\varnothing 5,5$ 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	40	40	$L_{tot} = S_{max} + A + B + 251$
Double screw supports	92	92	$L_{tot} = S_{max} + A + B + 251$

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

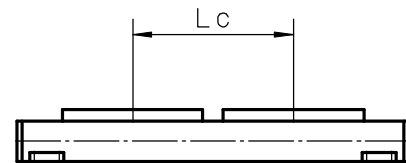
* Max. weight including coupling and fastening screws

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] 1350
Dynamic load (Fz), maximum	[N] 1350
Dynamic load torque (My), maximum	[Nm] $L_c^1 \times 0,675$
Dynamic load torque (Mz), maximum	[Nm] $L_c^1 \times 0,675$
Force required to move second carriage	[N] 2
Weight of unit with zero stroke of carriages	[kg] 6,5 2,4

Screw support configuration	A [mm]	B [mm]	Total length (L tot) [mm]
No screw support	6	6	$L_{tot} = S_{max} + A + B + L_c + 251$
Single screw support	40	40	$L_{tot} = S_{max} + A + B + L_c + 251$
Double screw supports	92	92	$L_{tot} = S_{max} + A + B + L_c + 251$



M75

Ball Screw Drive, Ball Guide

» Ordering key - see page 196
» Accessories - see page 131
» Additional data - see page 188

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)¹

Parameter	M75
Stroke length (S _{max}), maximum screw lead 5, 20 mm screw lead 12,7 mm	[mm] 3772 2665
Total length (L _{tot}), maximum screw lead 5, 20 mm screw lead 12,7 mm	[mm] 4075 2968
Linear speed, maximum	[m/s] 1,0
Acceleration, maximum	[m/s ²] 8
Repeatability	[± mm] 0,05
Input speed, maximum	[rpm] 3000
Operation temperature limits	[°C] -20 – 70
Dynamic load (F _x), maximum	[N] 2500
Dynamic load (F _y), maximum	[N] 2000
Dynamic load (F _z), maximum	[N] 2000
Dynamic load torque (M _x), maximum	[Nm] 18
Dynamic load torque (M _y), maximum	[Nm] 130
Dynamic load torque (M _z), maximum	[Nm] 130
Drive shaft force (F _{rd}), maximum ²	[N] 600
Input/drive shaft torque (M _{ta}), maximum	[Nm] 30
Screw diameter (d ₀)	[mm] 20
Screw lead (p)	[mm] 5, 12,7, 20
Weight	[kg]
of unit with zero stroke	6,90
of every 100 mm of stroke	1,05
of carriage	2,50
of option single screw support	1,70
of option double screw supports	3,58

¹ See next page for deviating values of units with other carriage types.

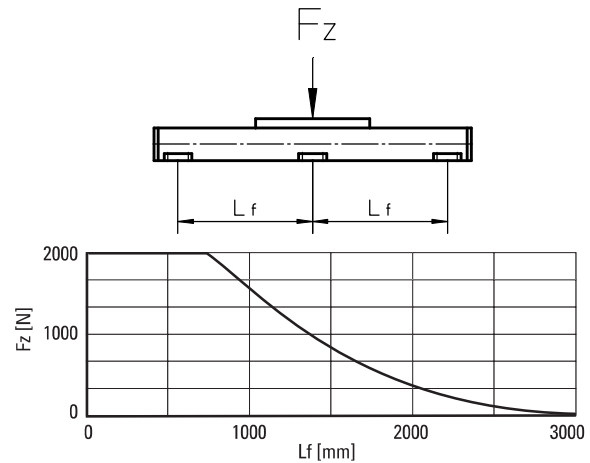
² Only relevant for units without RediMount flange.

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

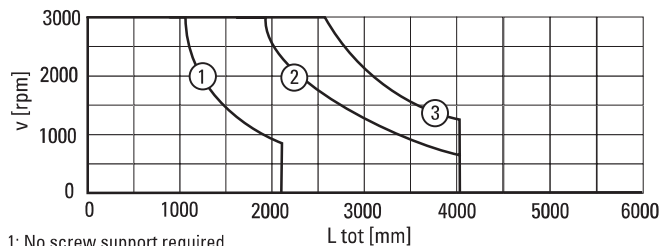
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 12,7	p = 20
500 - no screw supports	0,04	0,1	0,16
500 - with screw supports	0,06	0,12	0,2

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

Deflection of the Profile

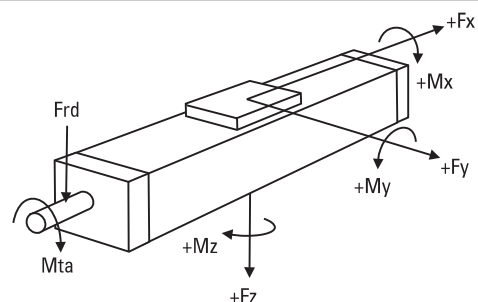


Critical Speed



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

Definition of Forces



M100

Ball Screw Drive, Ball Guide

» Ordering key - see page 196
» Accessories - see page 131
» Additional data - see page 188

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)¹

Parameter		M100
Stroke length (S _{max}), maximum	[mm]	
screw lead 5, 10 mm		5578
screw lead 25 mm		4378
Total length (L _{tot}), maximum	[mm]	
screw lead 5, 10 mm		5974
screw lead 25 mm		4774
Linear speed, maximum	[m/s]	1,25
Acceleration, maximum	[m/s ²]	8
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	5000
Dynamic load (F _y), maximum	[N]	5000
Dynamic load (F _z), maximum	[N]	5000
Dynamic load torque (M _x), maximum	[Nm]	60
Dynamic load torque (M _y), maximum	[Nm]	400
Dynamic load torque (M _z), maximum	[Nm]	400
Drive shaft force (F _{rd}), maximum ²	[N]	1000
Input/drive shaft torque (M _{ta}), maximum	[Nm]	45
Screw diameter (d ₀)	[mm]	25
Screw lead (p)	[mm]	5, 10, 25
Weight	[kg]	
of unit with zero stroke		14,3
of every 100 mm of stroke		1,72
of carriage		4,00
of option single screw support		1,86
of option double screw supports		4,42

¹ See next page for deviating values of units with other carriage types.

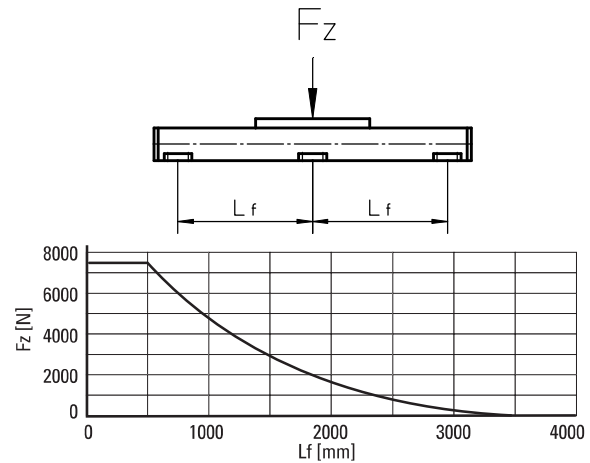
² Only relevant for units without RediMount flange.

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

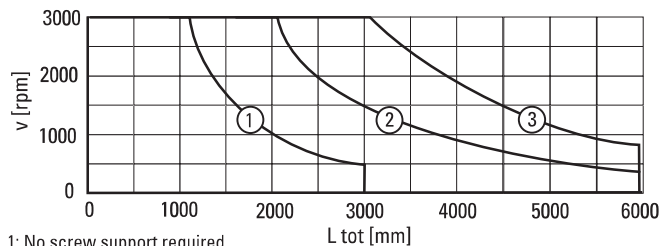
Input speed [rpm]	Screw lead [mm]		
	p = 5	p = 10	p = 25
500 - no screw supports	0,08	0,14	0,32
500 - with screw supports	0,1	0,16	0,37

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

Deflection of the Profile

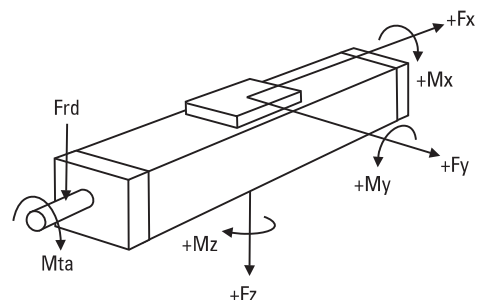


Critical Speed



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

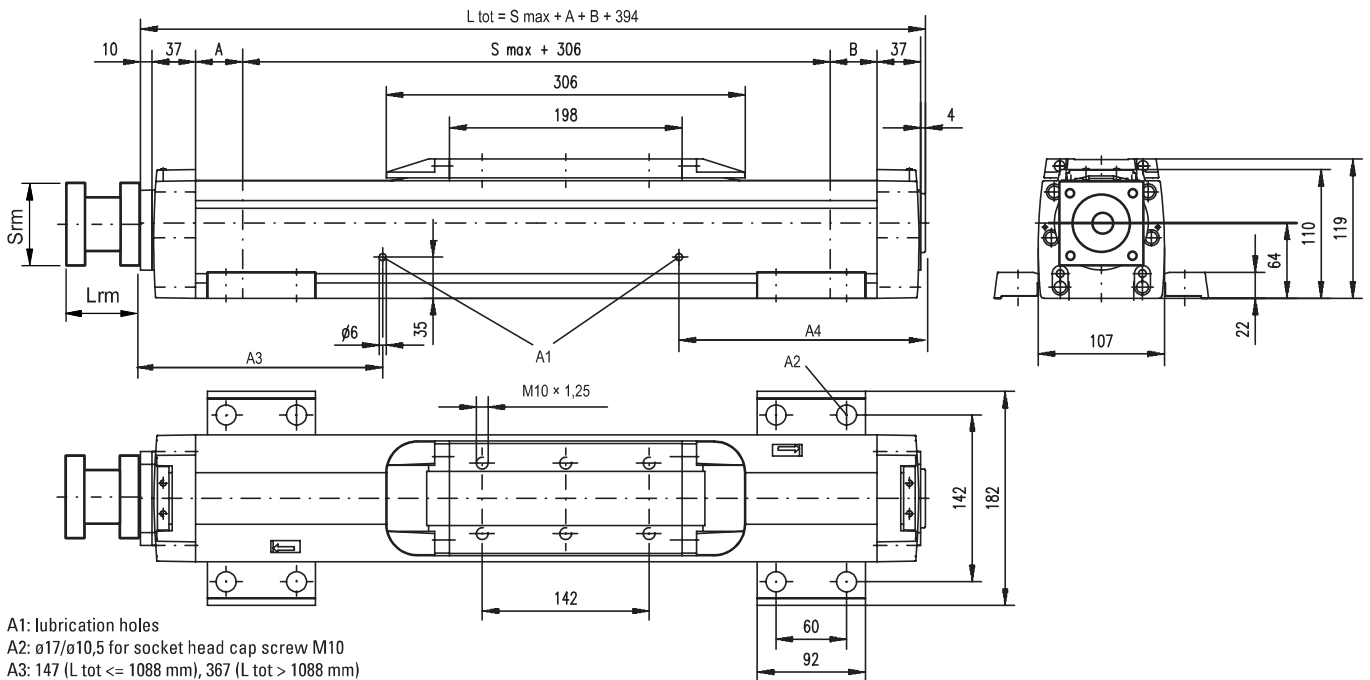
Definition of Forces



M100

Ball Screw Drive, Ball Guide

Dimensions	Projection	Online Sizing & Selection!
METRIC		www.LinearMotioneering.com



A1: lubrication holes
 A2: $\phi 17/\phi 10,5$ for socket head cap screw M10
 A3: 147 (L tot \leq 1088 mm), 367 (L tot $>$ 1088 mm)
 A4: 141 (L tot \leq 1088 mm), 471 (L tot $>$ 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	$L_{tot} = S_{max} + A + B + 394$

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

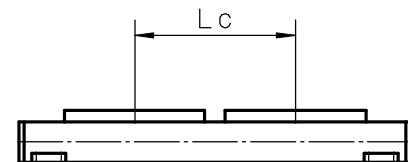
Performance Specifications

for Units with Double Standard Carriage (C)

Parameter	M100
Stroke length (Smax), maximum [mm]	5228 screw lead 5, 10 mm 4028 screw lead 25 mm
Total length (L tot), maximum [mm]	5974 screw lead 5, 10 mm 4774 screw lead 25 mm
Minimum distance between carriages (Lc) [mm]	350
Dynamic load (Fy), maximum [N]	7500
Dynamic load (Fz), maximum [N]	7500
Dynamic load torque (My), maximum [Nm]	$L_c^1 \times 3,75$
Dynamic load torque (Mz), maximum [Nm]	$L_c^1 \times 3,75$
Force required to move second carriage [N]	2
Weight of unit with zero stroke of carriages [kg]	25,3 8,0

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	$L_{tot} = S_{max} + A + B + L_c + 394$

¹ Value in mm



Ordering Keys

Linear Motion Systems with Ball Screw Drive and Ball Guides

M55, M75, M100

1	2	3	4	5	6	7	8	9	10
MF07S	05	LX	MC8	-01000	-01500	X	N	0000	S1

1. Type of unit

MF06S = M55 unit, ball guides, ball screw
MF07S = M75 unit, ball guides, ball screw
MF10S = M100 unit, ball guides, ball screw

2. Screw lead and tolerance class¹

05 = 5 mm
10 = 10 mm
12 = 12,7 mm
20 = 20 mm
25 = 25 mm

3. Transmission type

LX = inline style, directly coupled,
RediMount flange
SX = inline style, directly coupled,
no RediMount flange

4. RediMount motor ID code

vww = 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

5. Maximum stroke (Smax)

- xxxxx = distance in mm

6. Total length of unit (L tot)

- yyyyy = distance in mm

7. Screw supports

X = no screw supports
S = single screw supports
D = double screw supports

8. Carriage configuration

N = single standard carriage
Z = double standard carriages

9. Distance between carriages (Lc)

0000 = for all single standard carriage units
zzzz = distance in mm between carriages

10. Protection option²

S1 = wash down protection

¹ See table below for available combinations of units and ball screw type, lead and tolerance.

Ball screw type	Type of unit		
	M55	M75	M100
05	x	x	x
10	x		x
12		x	
20	x	x	
25			x

² Leave position blank if no additional protection is required.