Linear Motion Systems with Belt Drive and Ball Guide

Overview

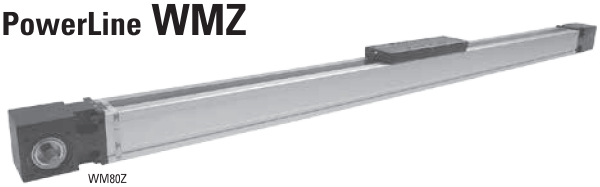
SpeedLine WH

WH40

Features
- Can be installed in any orientation
- Stroke up to 2 m
- Acceleration up to 40 m/s²
- Compact

Parameter		WH40
Profile size (width × height)	[mm]	40 × 40
Stroke length (Smax), maximum	[mm]	2000
Linear speed, maximum	[m/s]	3,0
Dynamic carriage load (Fz), maximum	[N]	600
Remarks		no cover band
Page		82

PowerLine WMZ


WM80Z

Features
- Can be installed in any orientation
- Stroke up to 5,5 m
- Speed up to 5 m/s
- Patented plastic cover band

Parameter		WM60Z	WM80Z
Profile size (width × height)	[mm]	60 × 60	80 × 80
Stroke length (Smax), maximum	[mm]	4000	5500
Linear speed, maximum	[m/s]	2,5	5,0
Dynamic carriage load (Fz), maximum	[N]	1400	2100
Remarks		-	-
Page		84	86, 88

Movopart M

M75

Features
- Can be installed in any orientation
- Self-adjusting stainless steel cover band
- Stroke up to 12 m
- 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]	7000	12000	12000
Linear speed, maximum	[m/s]	5,0	5,0	5,0
Dynamic carriage load (Fz), maximum	[N]	750	1750	4000
Remarks		-	-	-
Page		90	92	94

Linear Motion Systems with Belt Drive and Ball Guide

Overview

ForceLine **MLSM**

MLSM80Z

Features

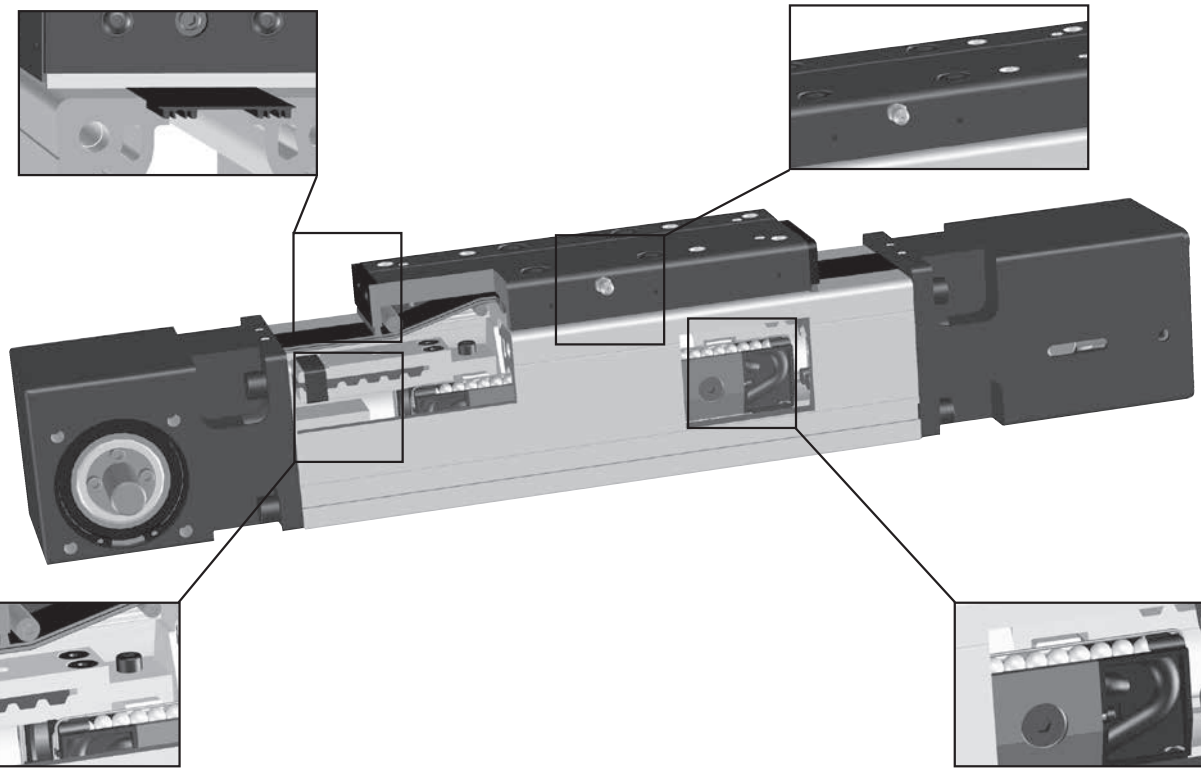
- Can be installed in any orientation
- Patented plastic cover band
- High load capabilities
- Low profile height

Parameter		MLSM80Z
Profile size (width × height)	[mm]	240 × 85
Stroke length (Smax), maximum	[mm]	5900
Linear speed, maximum	[m/s]	5,0
Dynamic carriage load (Fz), maximum	[N]	6400
Remarks		-
Page		96

WMZ-Series Technical Presentation

Cover band
The patented self-adjusting cover band protects the interior of the unit from the penetration of dirt, dust and liquids.

Central lubrication
One central lubrication point on the carriage services the entire unit resulting in a minimum maintenace requirement.



Belt drive
The belt is protected from the outside ensuring long, accurate and safe operation.

Ball guides
Integrated patented ball guides with hardened steel tracks for optimum performance.

WH40

Belt Drive, Ball Guide

» Ordering key - see page 201
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	WH40
Profile size (w × h) [mm]	40 × 40
Type of belt	10 AT 5
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	central lubrication of all parts that require lubrication
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WH40
Stroke length (Smax), maximum	[mm]	2000
Linear speed, maximum	[m/s]	3,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	1800
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	315[1]
Dynamic load (Fy), maximum	[N]	450
Dynamic load (Fz), maximum	[N]	600
Dynamic load torque (Mx), maximum	[Nm]	10
Dynamic load torque (My), maximum	[Nm]	30
Dynamic load torque (Mz), maximum	[Nm]	30
Drive shaft force (Frd), maximum	[N]	100
Drive shaft torque (Mta), maximum	[Nm]	6
Pulley diameter	[mm]	31,83
Stroke per shaft revolution	[mm]	100
Weight of unit with zero stroke of every 100 mm of stroke of each carriage	[kg]	 1,19 0,15 0,28

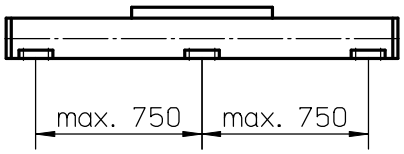
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	0,1
900	0,3
1800	0,6

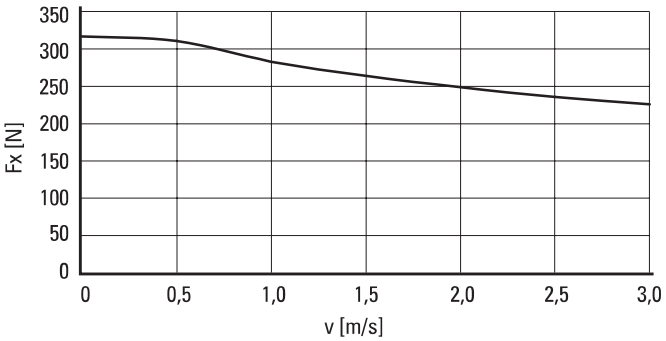
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

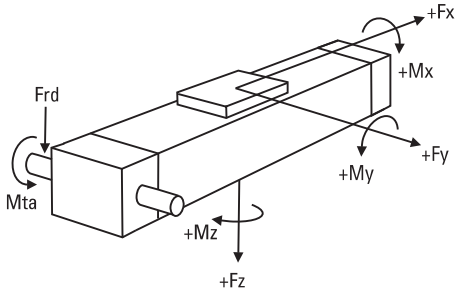


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed

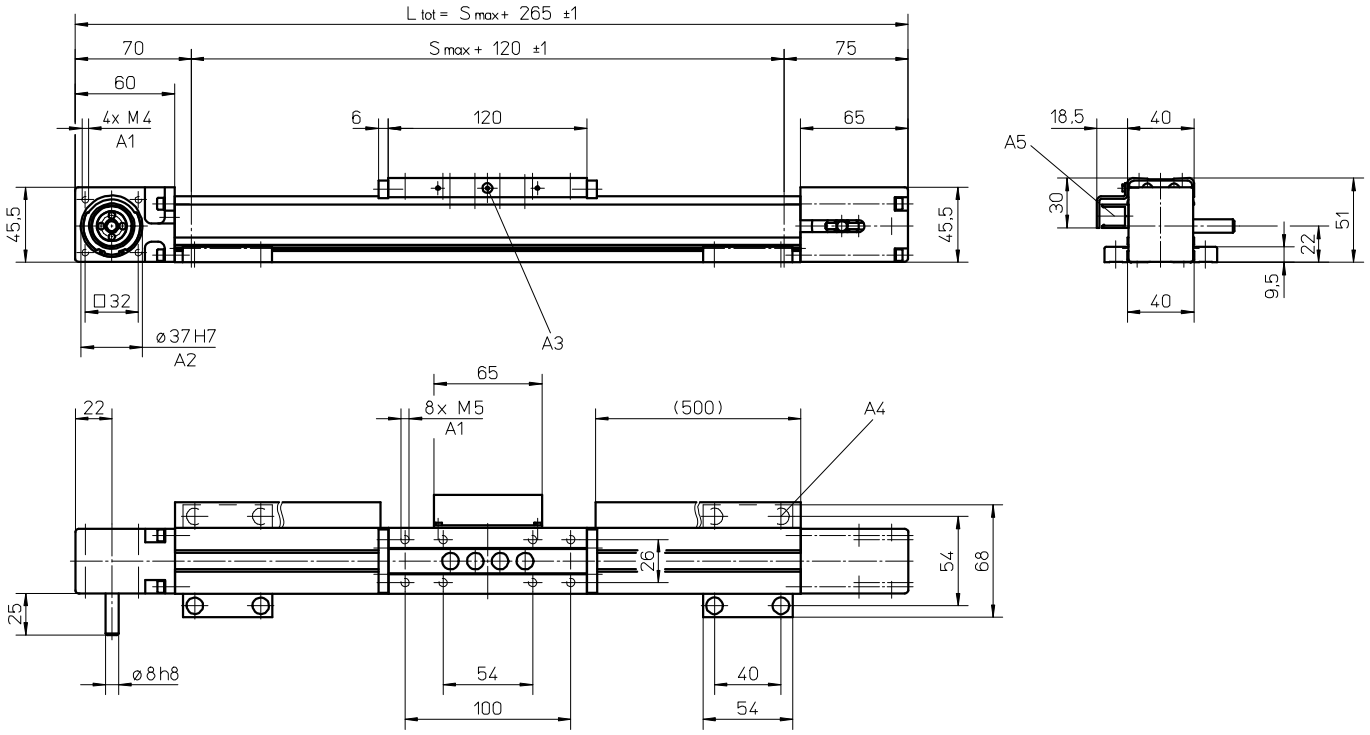


Definition of Forces



WH40

Belt Drive, Ball Guide

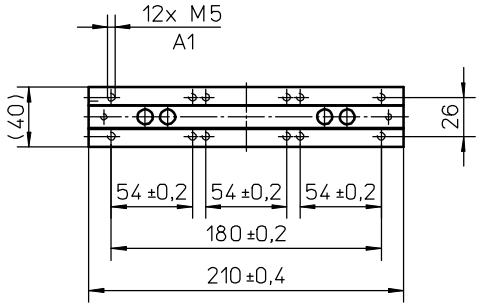


A1: depth 10
A2: depth 3
A3: lubricating nipple on both sides

A4: socket cap screw ISO4762-M5×12 8.8
A5: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

Parameter		WH40
Carriage length	[mm]	210
Dynamic load torque (My), maximum	[Nm]	50
Dynamic load torque (Mz), maximum	[Nm]	50
Weight	[kg]	0,43

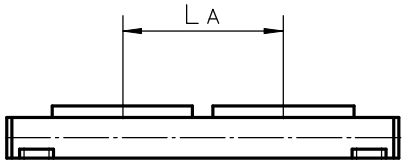


A1: depth 10

Double Carriages

Parameter		WH40
Minimum distance between carriages (L_A)	[mm]	135
Dynamic load (Fy), maximum	[N]	900
Dynamic load (Fz), maximum	[N]	1200
Dynamic load torque (My), maximum	[Nm]	$L_{A^1} \times 0,45$
Dynamic load torque (Mz), maximum	[Nm]	$L_{A^1} \times 0,60$
Force required to move second carriage	[N]	2
Total length (L tot)	[mm]	Smax + 265 + L_A

[1] Value in mm



WM60Z

Belt Drive, Ball Guide, Short Carriage

» Ordering key - see page 202
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	WM60Z
Profile size (w × h) [mm]	60 × 60
Type of belt	20 ATL 5
Carriage sealing system	self-adjusting plastic cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	central lubrication of all parts that require lubrication
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WM60Z
Stroke length (Smax), maximum	[mm]	4000
Linear speed, maximum	[m/s]	2,5
Acceleration, maximum	[m/s²]	20
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	1250
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	850
Dynamic load (Fy), maximum	[N]	1400 [1]
Dynamic load (Fz), maximum	[N]	1400
Dynamic load torque (Mx), maximum	[Nm]	25
Dynamic load torque (My), maximum	[Nm]	50
Dynamic load torque (Mz), maximum	[Nm]	50
Drive shaft force (Frd), maximum	[N]	150
Drive shaft torque (Mta), maximum	[Nm]	17
Pulley diameter	[mm]	38,20
Stroke per shaft revolution	[mm]	120
Weight of unit with zero stroke of every 100 mm of stroke of each carriage	[kg]	 4,30 0,45 1,25

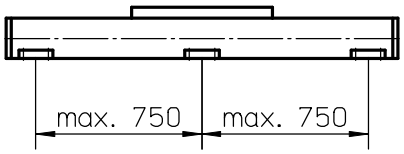
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	1,6
600	2,5
1250	3,0

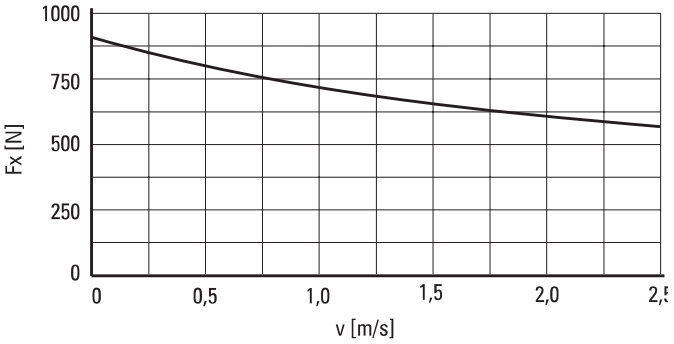
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

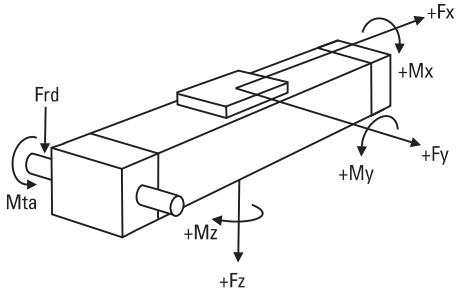


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed



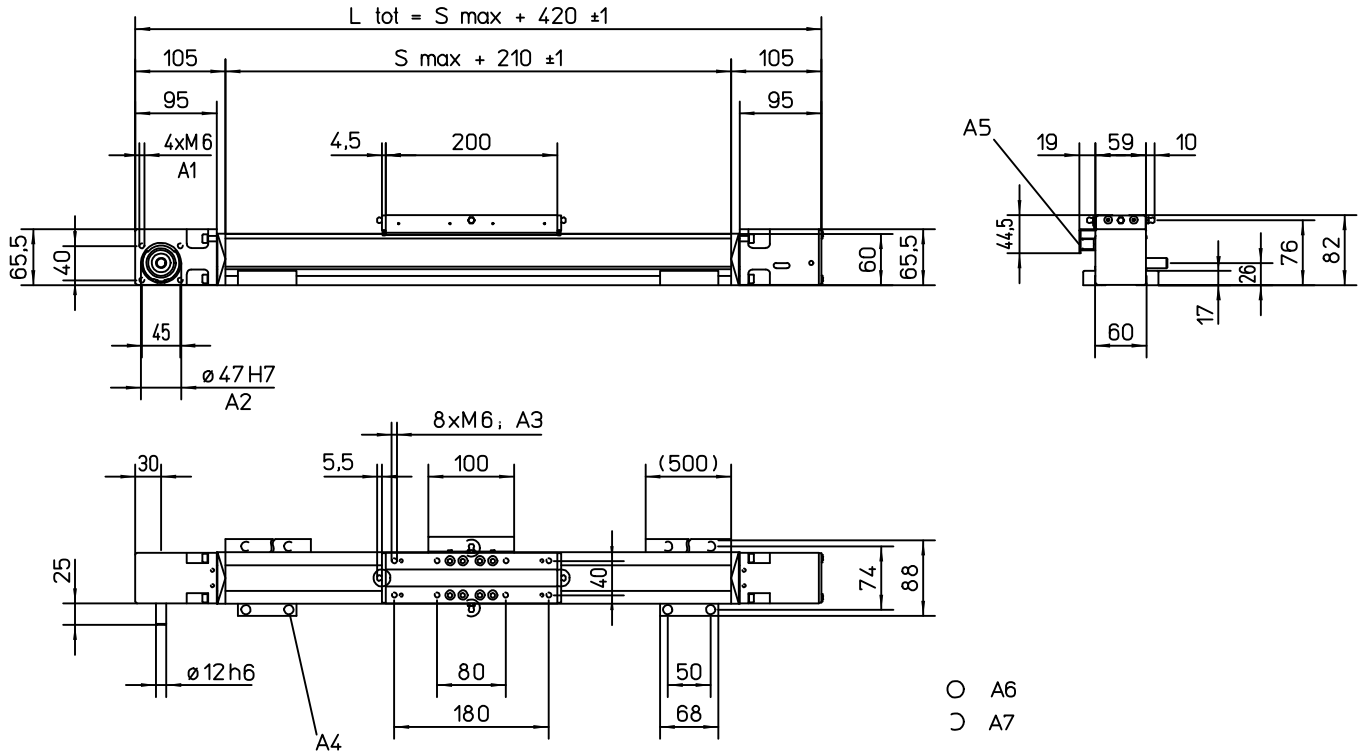
Definition of Forces



WM60Z

Belt Drive, Ball Guide, Short Carriage

Dimensions	Projection
METRIC	



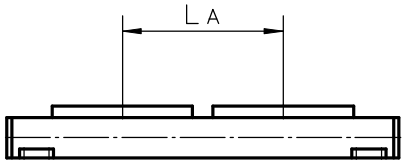
A1: depth 15
A2: depth 4
A3: depth 11
A4: socket cap screw ISO4762-M6×20 8,8

A5: ENF inductive sensor rail kit (optional - see page 172)
A6: tapered lubricating nipple to DIN71412 AM6 on fixed-bearing side as standard feature
A7: can be changed over to one of three alternative lubrications points by the customer

Double Short Carriages

Parameter		WM60Z
Minimum distance between carriages (L_A)	[mm]	255
Dynamic load (Fy), maximum	[N]	2800
Dynamic load (Fz), maximum	[N]	2800
Dynamic load torque (My), maximum	[Nm]	$L_{A^1} \times 1,4$
Dynamic load torque (Mz), maximum	[Nm]	$L_{A^1} \times 1,4$
Force required to move second carriage	[N]	18
Total length (L tot)	[mm]	Smax + 420 + L_A

[1] Value in mm



WM80Z

Belt Drive, Ball Guide, Standard Carriage

» Ordering key - see page 202
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	WM80Z
Profile size (w × h) [mm]	80 × 80
Type of belt	25 AT 10
Carriage sealing system	self-adjusting plastic cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	central lubrication of all parts that require lubrication
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WM80Z
Stroke length (Smax), maximum	[mm]	5400
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	20
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	885
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	1470
Dynamic load (Fy), maximum	[N]	3000 [1]
Dynamic load (Fz), maximum	[N]	3000
Dynamic load torque (Mx), maximum	[Nm]	150
Dynamic load torque (My), maximum	[Nm]	300
Dynamic load torque (Mz), maximum	[Nm]	300
Drive shaft force (Frd), maximum	[N]	600
Drive shaft torque (Mta), maximum	[Nm]	40
Pulley diameter	[mm]	54,11
Stroke per shaft revolution	[mm]	170
Weight of unit with zero stroke of every 100 mm of stroke of each carriage	[kg]	 11,2 0,8 3,4

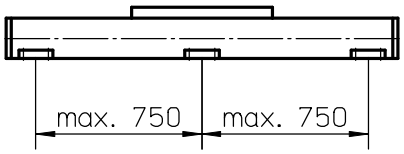
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	6,5
450	7,7
885	9,3

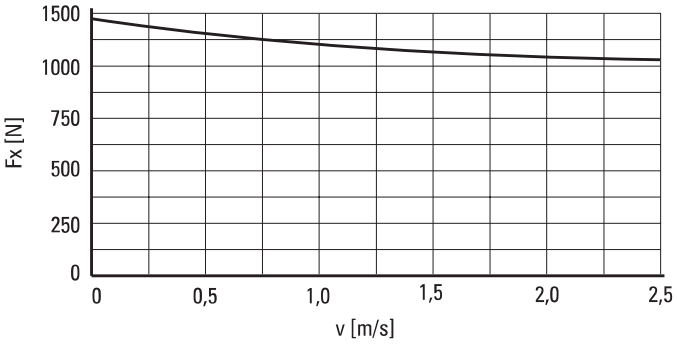
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

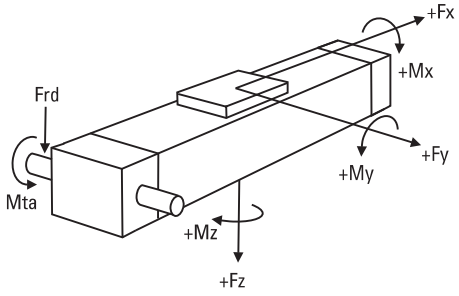


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed



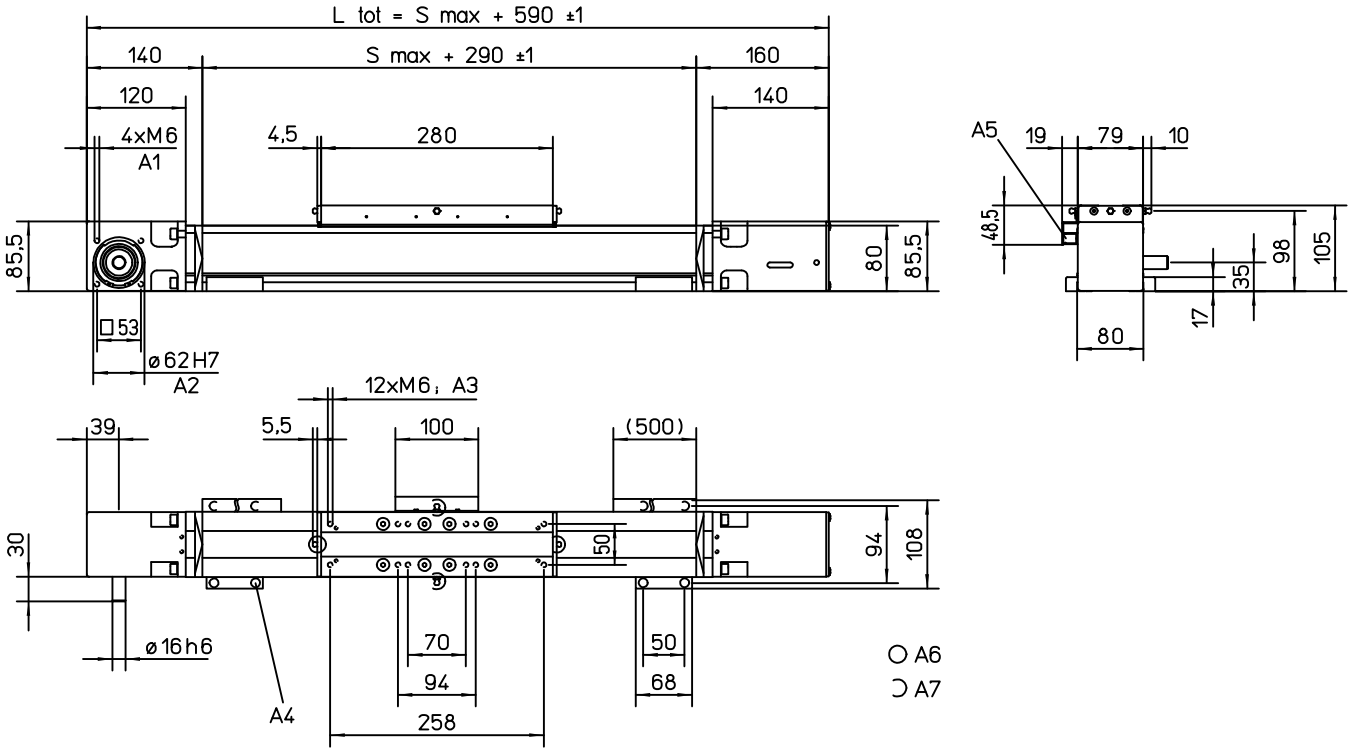
Definition of Forces



WM80Z

Belt Drive, Ball Guide, Standard Carriage

Dimensions	Projection
METRIC	

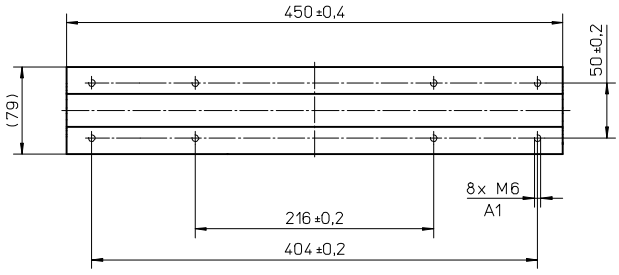


A1: depth 15
A2: depth 2,5
A3: depth 12
A4: socket cap screw ISO4762-M6×20 8,8

A5: ENF inductive sensor rail kit (optional - see page 172)
A6: tapered lubricating nipple to DIN71412 AM6 on fixed-bearing side as standard feature
A7: can be changed over to one of three alternative lubrications points by the customer

Long Carriage

Parameter		WM80Z
Carriage length	[mm]	450
Dynamic load torque (My), maximum	[Nm]	750
Dynamic load torque (Mz), maximum	[Nm]	750
Weight	[kg]	5,1

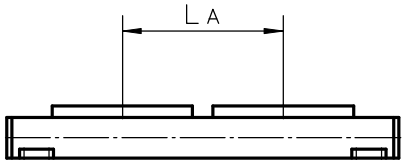


A1: depth 12 mm

Double Carriages

Parameter		WM80Z
Minimum distance between carriages (L_A)	[mm]	360
Dynamic load (Fy), maximum	[N]	6000
Dynamic load (Fz), maximum	[N]	6000
Dynamic load torque (My), maximum	[Nm]	$L_{A^1} \times 3$
Dynamic load torque (Mz), maximum	[Nm]	$L_{A^1} \times 3$
Force required to move second carriage	[N]	25
Total length (L tot)	[mm]	Smax + 590 + L_A

[1] Value in mm



WM80Z

Belt Drive, Ball Guide, Short Carriage

» Ordering key - see page 202
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	WM80Z
Profile size (w × h) [mm]	80 × 80
Type of belt	25 AT 10
Carriage sealing system	self-adjusting plastic cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	central lubrication of all parts that require lubrication
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WM80Z
Stroke length (Smax), maximum	[mm]	5500
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	20
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	885
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	1470
Dynamic load (Fy), maximum	[N]	2100 [1]
Dynamic load (Fz), maximum	[N]	2100
Dynamic load torque (Mx), maximum	[Nm]	68
Dynamic load torque (My), maximum	[Nm]	135
Dynamic load torque (Mz), maximum	[Nm]	135
Drive shaft force (Frd), maximum	[N]	600
Drive shaft torque (Mta), maximum	[Nm]	40
Pulley diameter	[mm]	54,11
Stroke per shaft revolution	[mm]	170
Weight of unit with zero stroke of every 100 mm of stroke of each carriage	[kg]	 9,2 0,8 2,1

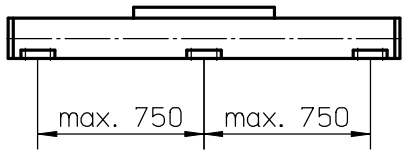
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	4,0
450	5,4
885	6,2

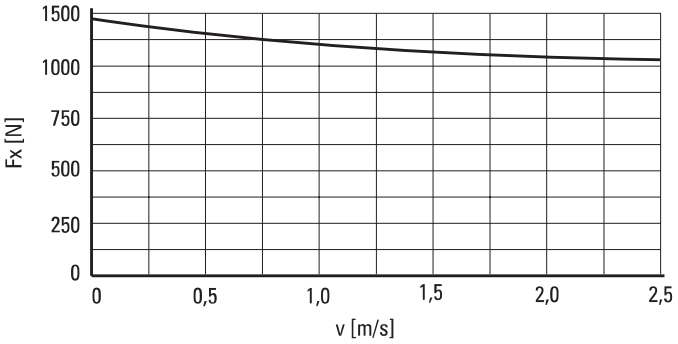
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

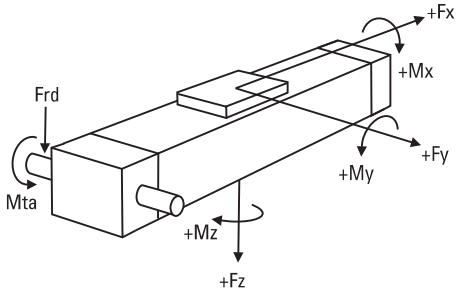


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed



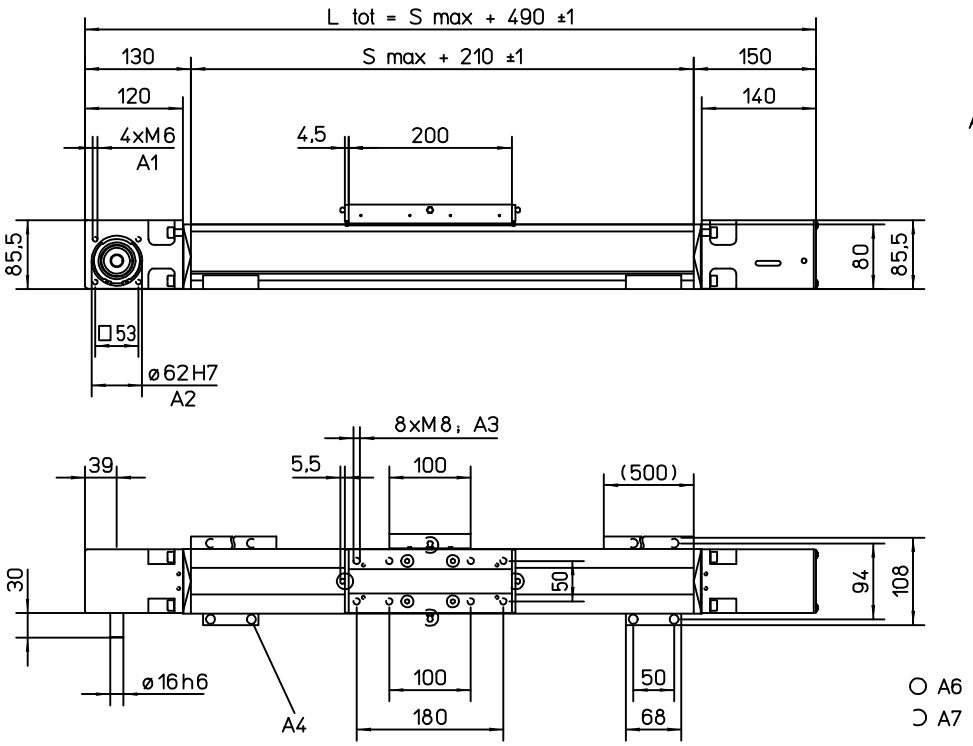
Definition of Forces

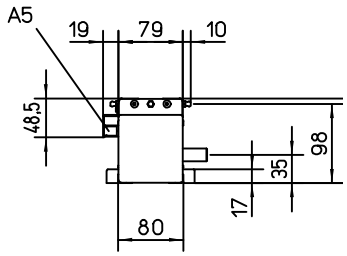


WM80Z

Belt Drive, Ball Guide, Short Carriage

Dimensions	Projection
METRIC	





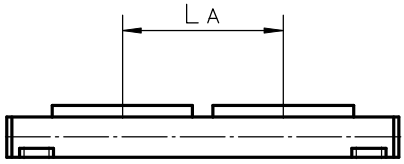
A1: depth 15
A2: depth 2,5
A3: depth 12
A4: socket cap screw ISO4762-M6×20 8,8

A5: ENF inductive sensor rail kit (optional - see page 172)
A6: tapered lubricating nipple to DIN71412 AM6 on fixed-bearing side as standard feature
A7: can be changed over to one of three alternative lubrications points by the customer

Double Short Carriages

Parameter		WM80Z
Minimum distance between carriages (L_A)	[mm]	280
Dynamic load (Fy), maximum	[N]	4200
Dynamic load (Fz), maximum	[N]	4200
Dynamic load torque (My), maximum	[Nm]	L_A[1] × 2,1
Dynamic load torque (Mz), maximum	[Nm]	L_A[1] × 2,1
Force required to move second carriage	[N]	22,5
Total length (L tot)	[mm]	Smax + 490 + L_A

[1] Value in mm



M55

Belt Drive, Ball Guide

» Ordering key - see page 203
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	M55
Profile size (w × h) [mm]	58 × 55
Type of belt	22-STD SM5-HP
Carriage sealing system	self-adjusting steel cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of ball guide carriages
Included accessories	none

Performance Specifications

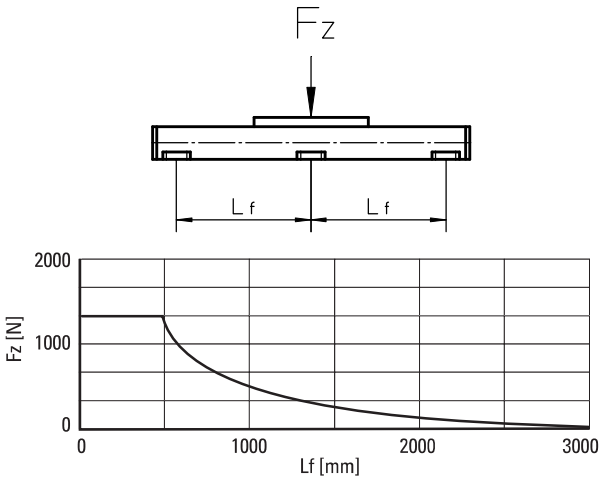
Parameter		M55
Stroke length (Smax), maximum	[mm]	7000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,1
Input speed, maximum	[rpm]	2850
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 400 200
Dynamic load (Fy), maximum	[N]	750
Dynamic load (Fz), maximum	[N]	750
Dynamic load torque (Mx), maximum	[Nm]	5
Dynamic load torque (My), maximum	[Nm]	29
Dynamic load torque (Mz), maximum	[Nm]	29
Drive shaft force (Frd), maximum	[N]	200
Drive shaft torque (Mta), maximum	[Nm]	12
Pulley diameter	[mm]	33,42
Stroke per shaft revolution	[mm]	105
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 4,80 0,53 1,20

Carriage Idle Torque (M idle) [Nm]

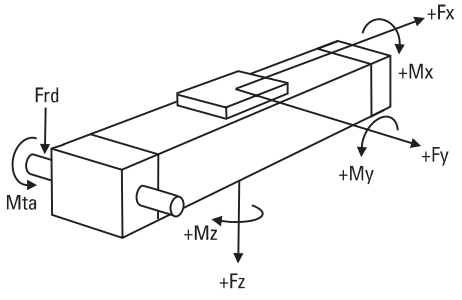
Input speed [rpm]	Single Carriage	Double Carriages
150	1,0	1,9

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

Deflection of the Profile



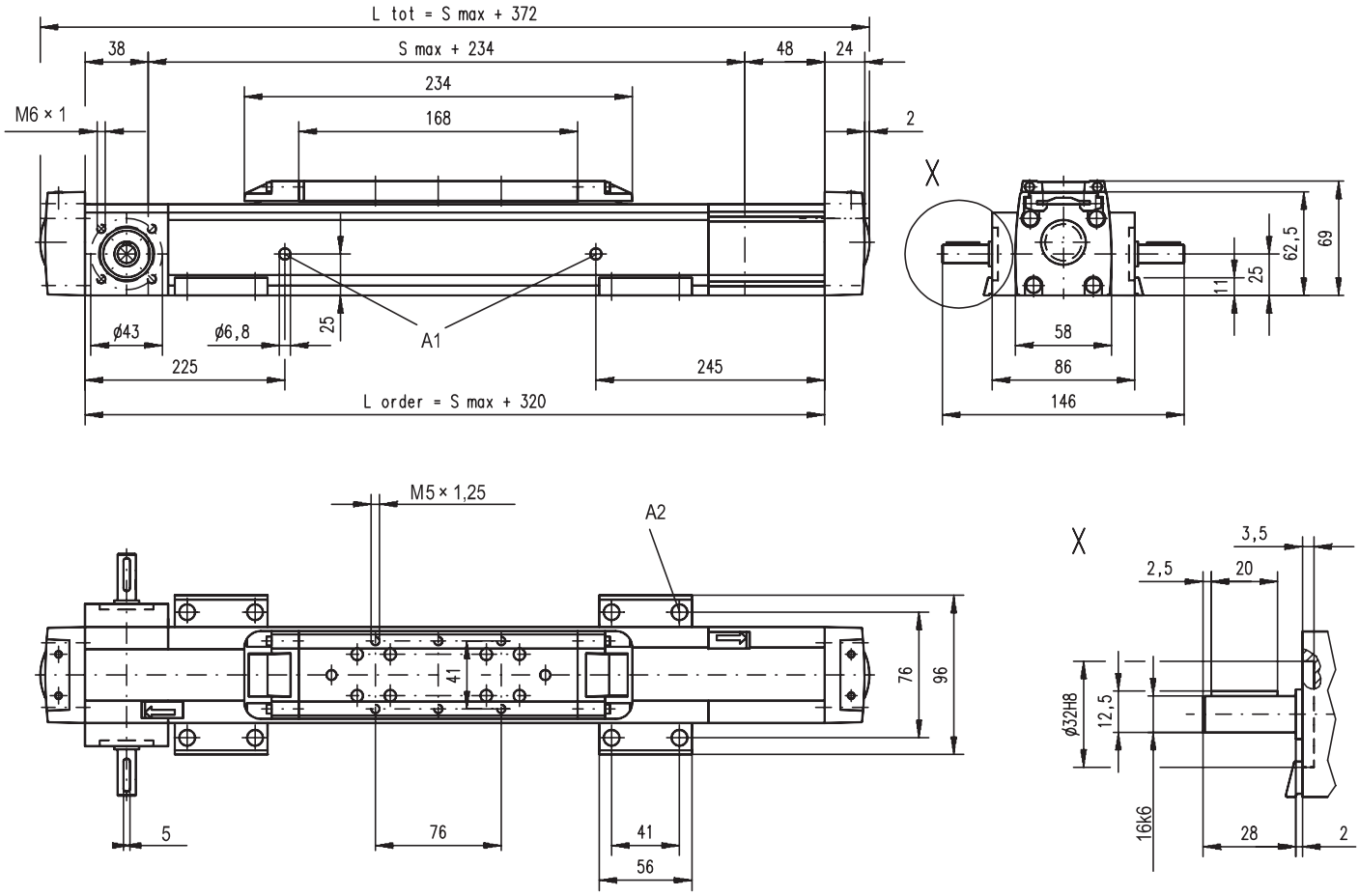
Definition of Forces



M55

Belt Drive, Ball Guide

Dimensions	Projection
METRIC	

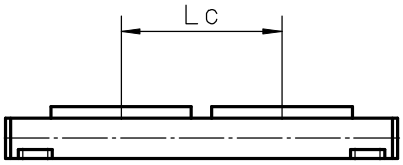


A1: lubrication holes
A2: ø9,5/ø5,5 for socket head cap screw M5

Double Carriages

Parameter		M55
Minimum distance between carriages (Lc)	[mm]	250
Dynamic load (Fy), maximum	[N]	1125
Dynamic load (Fz), maximum	[N]	1125
Dynamic load torque (My), maximum	[Nm]	Lc[1] × 0,56
Dynamic load torque (Mz), maximum	[Nm]	Lc[1] × 0,56
Force required to move second carriage	[N]	2
Ordering length (L order)	[mm]	Smax + Lc + 320
Total length (L tot)	[mm]	L order + 52
Weight of unit with zero stroke of carriages	[kg]	 7,06 2,40

[1] Value in mm



M75

Belt Drive, Ball Guide

» Ordering key - see page 203
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	M75 / T75
Profile size (w × h) [mm]	86 × 75
Type of belt	STD5-40
Carriage sealing system	self-adjusting steel cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of ball guide carriages
Included accessories	none

Performance Specifications

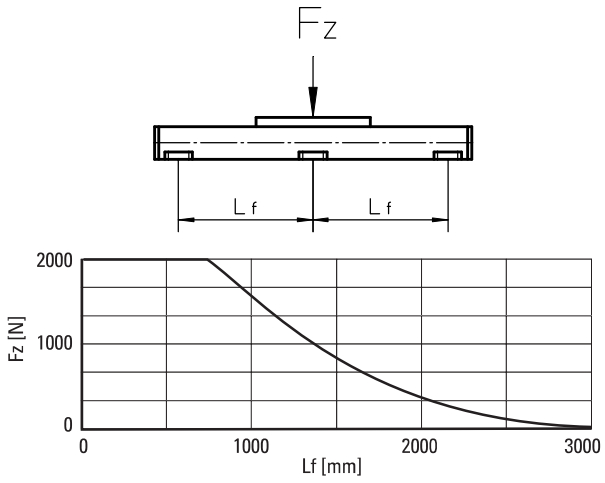
Parameter		M75
Stroke length (Smax), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,1
Input speed, maximum	[rpm]	2300
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 900 450
Dynamic load (Fy), maximum	[N]	1750
Dynamic load (Fz), maximum	[N]	1750
Dynamic load torque (Mx), maximum	[Nm]	16
Dynamic load torque (My), maximum	[Nm]	84
Dynamic load torque (Mz), maximum	[Nm]	84
Drive shaft force (Frd), maximum	[N]	600
Drive shaft torque (Mta), maximum	[Nm]	30
Pulley diameter	[mm]	41,38
Stroke per shaft revolution	[mm]	130
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 7,50 0,88 2,00

Carriage Idle Torque (M idle) [Nm]

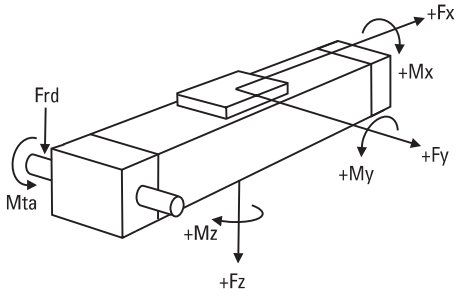
Input speed [rpm]	Single Carriage	Double Carriages
150	1,0	1,9

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

Deflection of the Profile



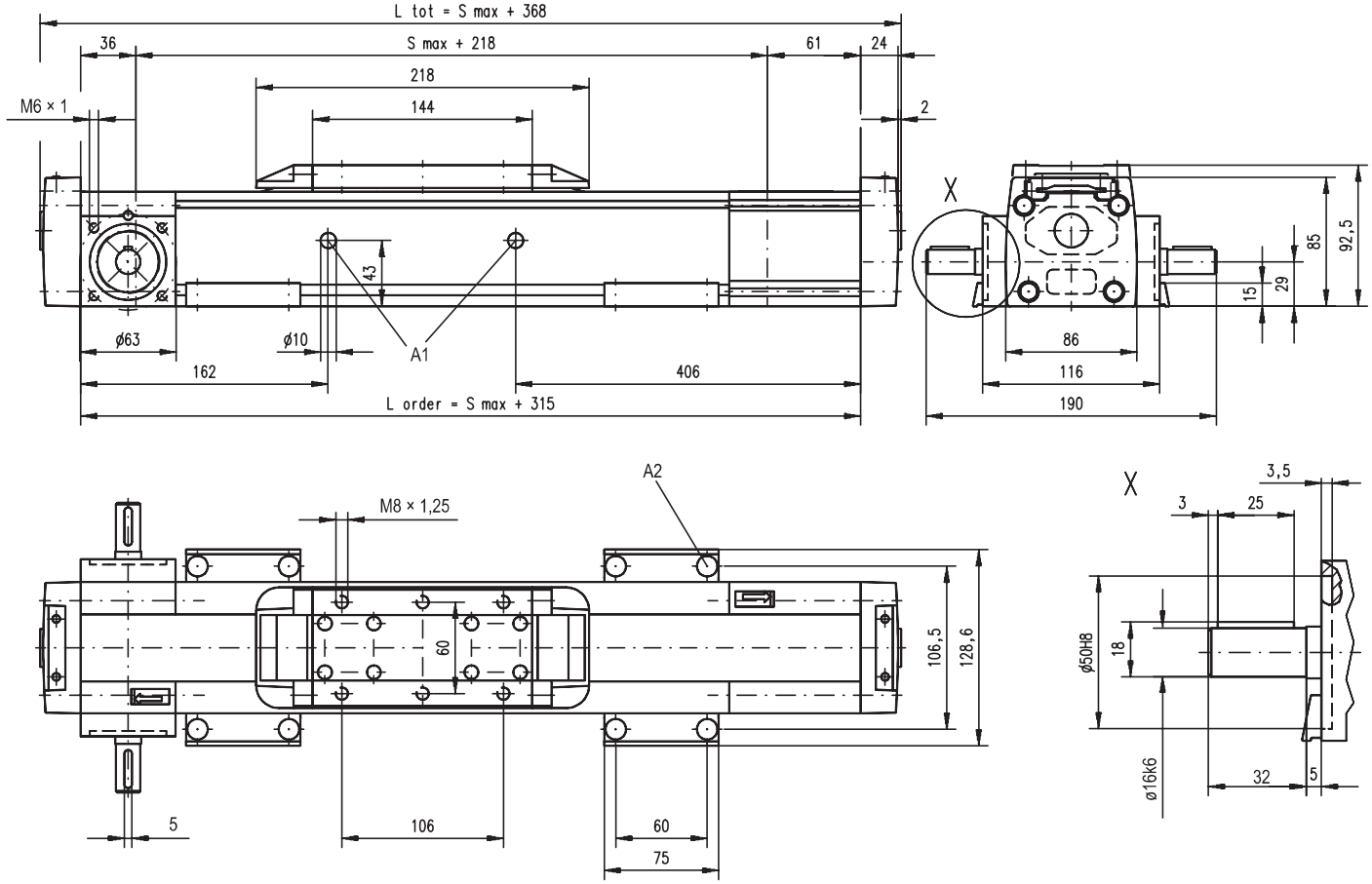
Definition of Forces



M75

Belt Drive, Ball Guide

Dimensions	Projection
METRIC	

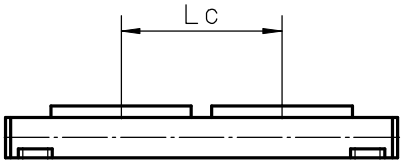


A1: lubrication holes
A2: ø13,5/ø8,5 for socket head cap screw M8

Double Carriages

Parameter		M75
Minimum distance between carriages (Lc)	[mm]	250
Dynamic load (Fy), maximum	[N]	2625
Dynamic load (Fz), maximum	[N]	2625
Dynamic load torque (My), maximum	[Nm]	Lc[1] × 1,313
Dynamic load torque (Mz), maximum	[Nm]	Lc[1] × 1,313
Force required to move second carriage	[N]	2
Ordering length (L order)	[mm]	Smax + Lc + 315
Total length (L tot)	[mm]	L order + 52
Weight of unit with zero stroke of carriages	[kg]	 11,67 4,00

[1] Value in mm



M100

Belt Drive, Ball Guide

» Ordering key - see page 203
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	M100
Profile size (w × h) [mm]	108 × 100
Type of belt	STD8-50
Carriage sealing system	self-adjusting steel cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of ball guide carriages
Included accessories	none

Performance Specifications

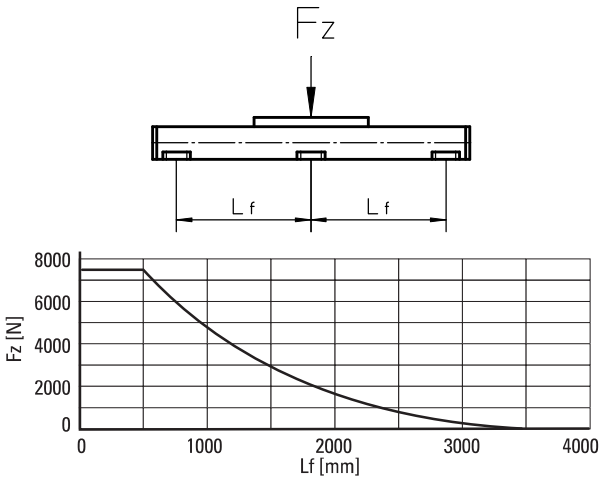
Parameter		M100
Stroke length (Smax), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,1
Input speed, maximum	[rpm]	1700
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 1250 625
Dynamic load (Fy), maximum	[N]	4000
Dynamic load (Fz), maximum	[N]	4000
Dynamic load torque (Mx), maximum	[Nm]	43
Dynamic load torque (My), maximum	[Nm]	280
Dynamic load torque (Mz), maximum	[Nm]	280
Drive shaft force (Frd), maximum	[N]	1000
Drive shaft torque (Mta), maximum	[Nm]	45
Pulley diameter	[mm]	56,02
Stroke per shaft revolution	[mm]	176
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 11,61 1,43 2,20

Carriage Idle Torque (M idle) [Nm]

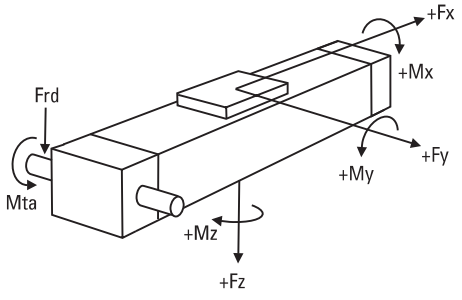
Input speed [rpm]	Single Carriage	Double Carriages
150	1,6	3,1

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

Deflection of the Profile



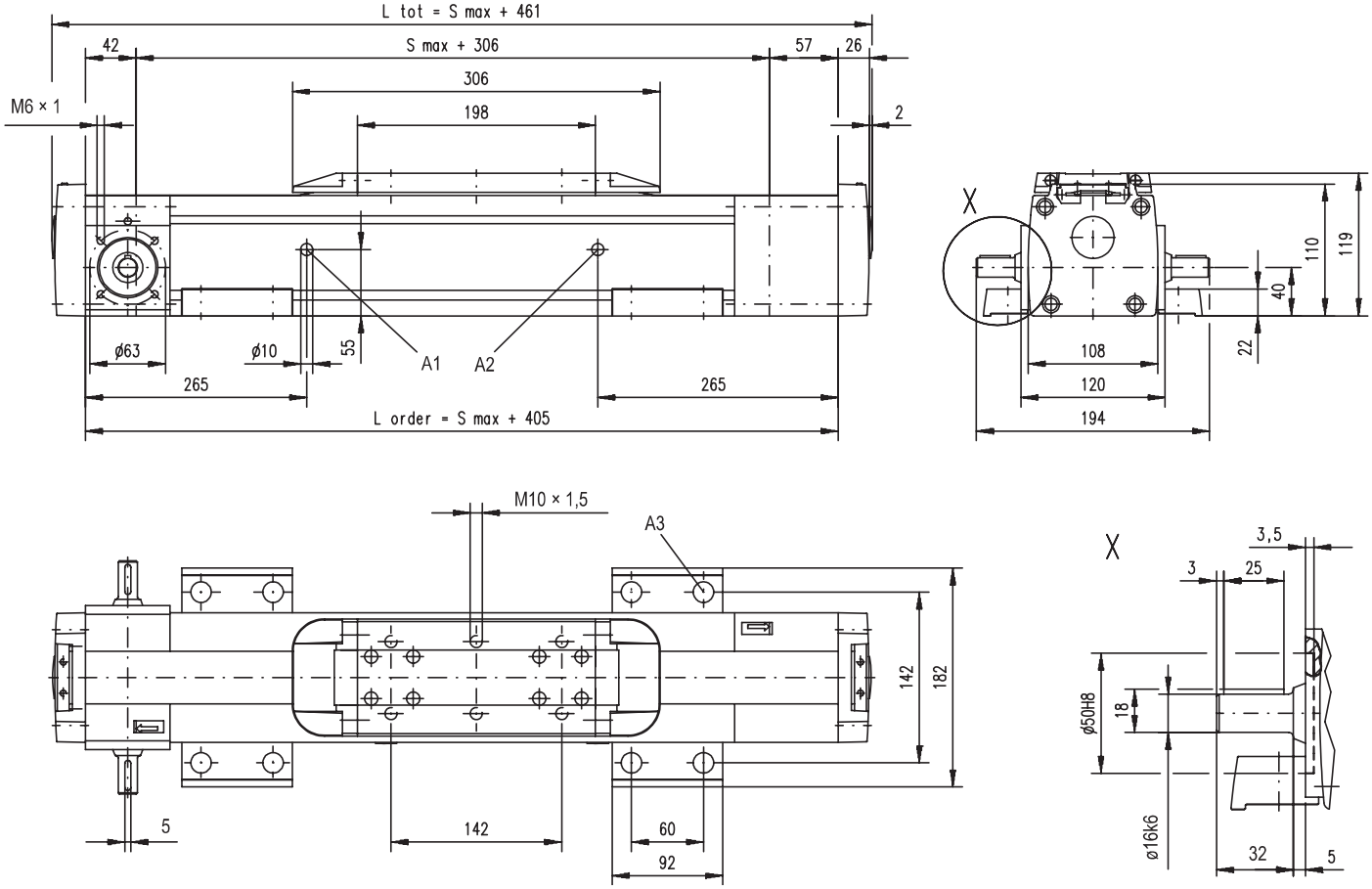
Definition of Forces



M100

Belt Drive, Ball Guide

Dimensions | Projection
METRIC

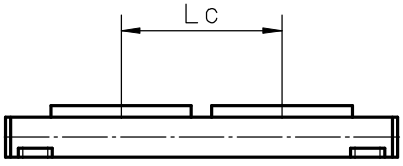


A1: lubrication hole
A2: lubrication hole (no hole if L order is < 856 mm)
A3: ø17/ø10,5 for socket head cap screw M10

Double Carriages

Parameter		M100
Minimum distance between carriages (Lc)	[mm]	350
Dynamic load (Fy), maximum	[N]	6000
Dynamic load (Fz), maximum	[N]	6000
Dynamic load torque (My), maximum	[Nm]	Lc[1] × 3
Dynamic load torque (Mz), maximum	[Nm]	Lc[1] × 3
Force required to move second carriage	[N]	2
Ordering length (L order)	[mm]	Smax + Lc + 405
Total length (L tot)	[mm]	L order + 56
Weight of unit with zero stroke of carriagess	[kg]	 18,92 4,40

[1] Value in mm



MLSM80Z

Belt Drive, Ball Guide

» Ordering key - see page 204
» Accessories - see page 135
» Additional data - see page 183

General Specifications

Parameter	MLSM80Z
Profile size (w × h) [mm]	240 × 85
Type of belt	75 ATL 10
Carriage sealing system	plastic cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	central lubrication of all parts that require lubrication
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		MLSM80Z
Stroke length (Smax), maximum	[mm]	5900
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	20
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	1500
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	5000 [1]
Dynamic load (Fy), maximum	[N]	6400
Dynamic load (Fz), maximum	[N]	6400
Dynamic load torque (Mx), maximum	[Nm]	600
Dynamic load torque (My), maximum	[Nm]	720
Dynamic load torque (Mz), maximum	[Nm]	720
Drive shaft force (Frd), maximum	[N]	700
Drive shaft torque (Mta), maximum	[Nm]	150
Pulley diameter	[mm]	63,66
Stroke per shaft revolution	[mm]	200
Weight	[kg]	
of unit with zero stroke		30,8
of every 100 mm of stroke		2,2
of each carriage		9,6

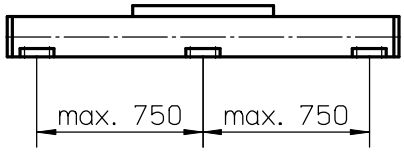
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	8,5
750	12
1500	14,5

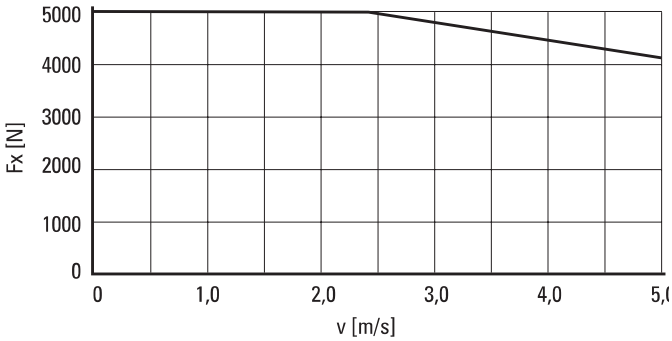
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

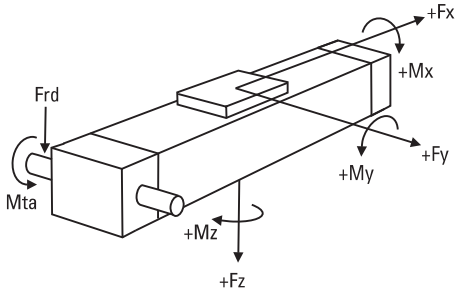


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed



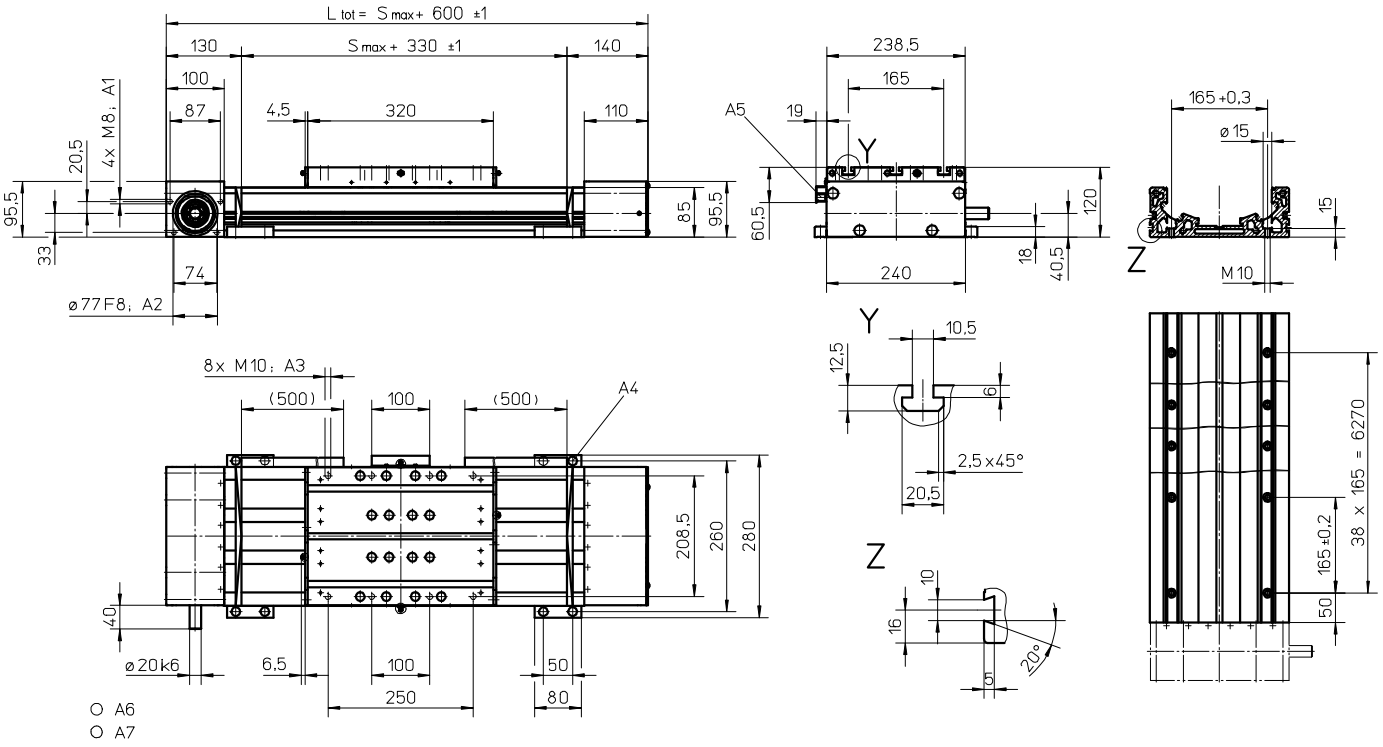
Definition of Forces



MLSM80Z

Belt Drive, Ball Guide

Dimensions	Projection
METRIC	

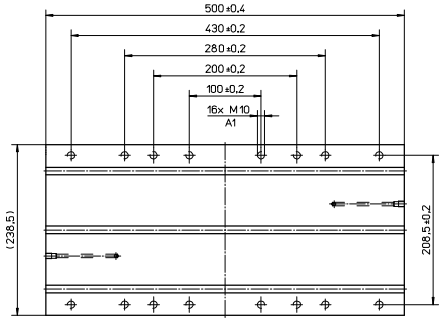


A1: depth 18
A2: depth 4
A3: depth 15
A4: socket cap screw ISO4762-M8×20 8,8

A5: ENF inductive sensor rail kit (optional - see page 172)
A6: tapered lubricating nipple to DIN71412 M8×1 on fixed-bearing side as standard feature
A7: can be changed over to one of the three alternative lubricating points by the customer

Long Carriage

Parameter		MLSM80Z
Carriage length	[mm]	500
Dynamic load torque (My), maximum	[Nm]	1400
Dynamic load torque (Mz), maximum	[Nm]	1400
Weight	[kg]	14

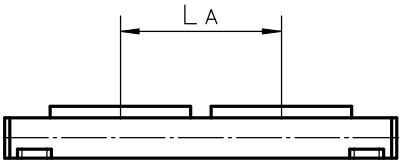


A1: depth 15

Double Carriages

Parameter		MLSM80Z
Minimum distance between carriages (L_A)	[mm]	400
Dynamic load (Fy), maximum	[N]	12800
Dynamic load (Fz), maximum	[N]	12800
Dynamic load torque (My), maximum	[Nm]	$L_{A^1} \times 6,4$
Dynamic load torque (Mz), maximum	[Nm]	$L_{A^1} \times 6,4$
Force required to move second carriage	[N]	35
Total length (L tot)	[mm]	Smax + 600 + L_A

[1] Value in mm



Linear Motion Systems with Belt Drive and Slide Guide

Overview

Movopart M

M50

Features

- Can be installed in any orientation
- Patented self-adjusting prism slide guides
- Resistant to shock loads and vibrations
- Low cost

Parameter		M50
Profile size (width × height)	[mm]	50 × 50
Stroke length (Smax), maximum	[mm]	5000
Linear speed, maximum	[m/s]	5,0
Dynamic carriage load (Fz), maximum	[N]	400
Remarks		no cover band
Page		100

Movopart M

M100

Features

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

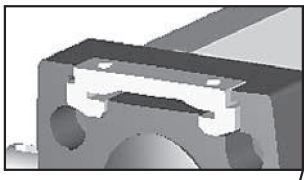
Parameter		M55	M75	M100
Profile size (width × height)	[mm]	58 × 55	86 × 75	108 × 100
Stroke length (Smax), maximum	[mm]	7000	12000	12000
Linear speed, maximum	[m/s]	5,0	5,0	5,0
Dynamic carriage load (Fz), maximum	[N]	400	1485	3005
Remarks		-	-	-
Page		102	104	106

Linear Motion Systems with Belt Drive and Slide Guide

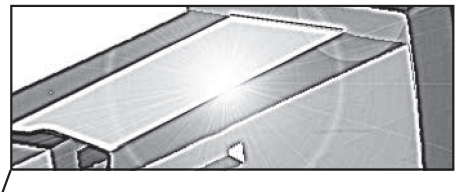
Overview

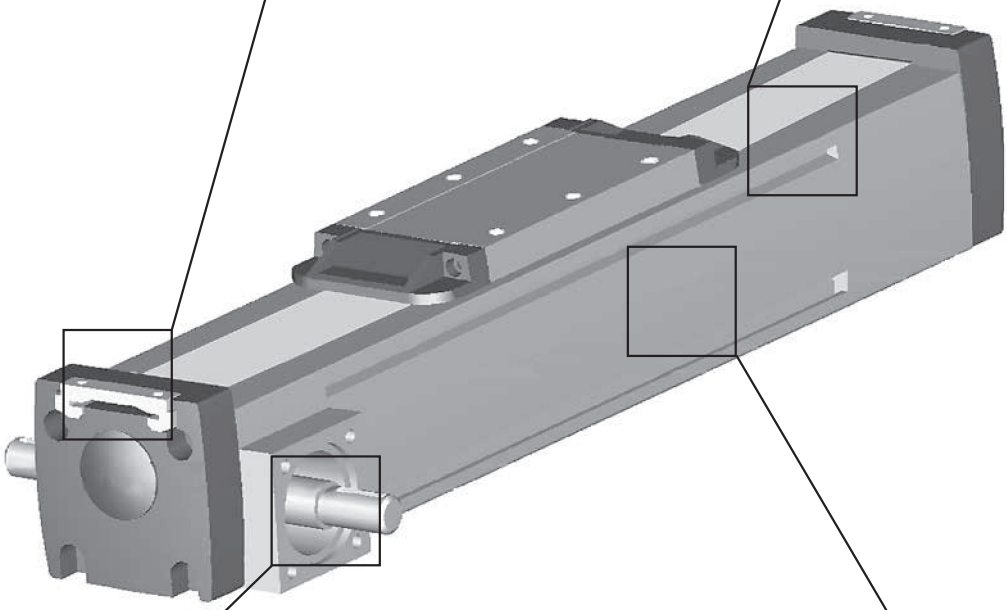
M-Series Technical Presentation

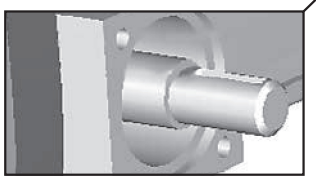
Cover band
The self-adjusting magnetically sealed stainless steel cover band protects the unit from the penetration of dirt, dust and liquids.



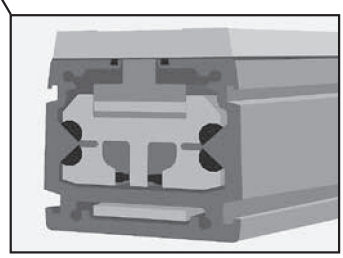
Environmental protection
The standard unit can operate in harsh environments but is also available in wash down or enhanced wash down protected versions for the thoughest environments.







Belt drive
The belt runs on the inside of the profile and can easily be re-tensioned without removing the load from the carriage.



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

M50

Belt Drive, Slide Guide

» Ordering key - see page 205
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	M50
Profile size (w × h) [mm]	50 × 50
Type of belt	GT 5MR-19
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubricated for life
Included accessories	none

Performance Specifications

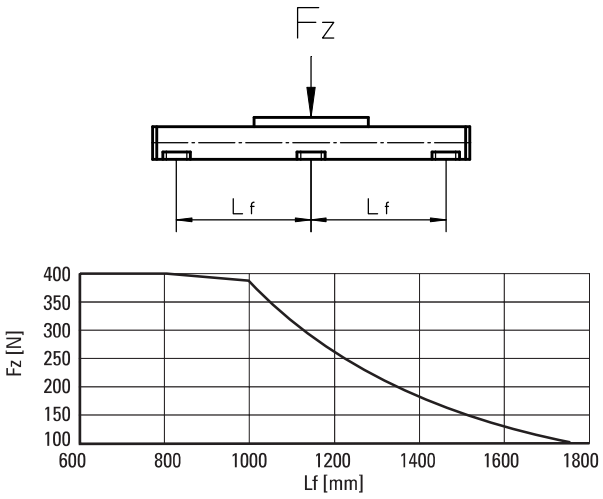
Parameter		M50
Stroke length (Smax), maximum	[mm]	5000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	2300
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 400 200
Dynamic load (Fy), maximum	[N]	400
Dynamic load (Fz), maximum	[N]	400
Dynamic load torque (Mx), maximum	[Nm]	5
Dynamic load torque (My), maximum	[Nm]	21
Dynamic load torque (Mz), maximum	[Nm]	21
Drive shaft force (Frd), maximum	[N]	350
Drive shaft torque (Mta), maximum	[Nm]	10
Pulley diameter	[mm]	41,38
Stroke per shaft revolution	[mm]	130
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 0,71 0,96 0,33

Carriage Idle Torque (M idle) [Nm]

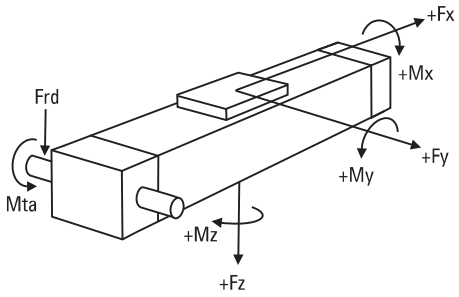
Input speed [rpm]	Idle torque [Nm]
150	2,1

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

Deflection of the Profile



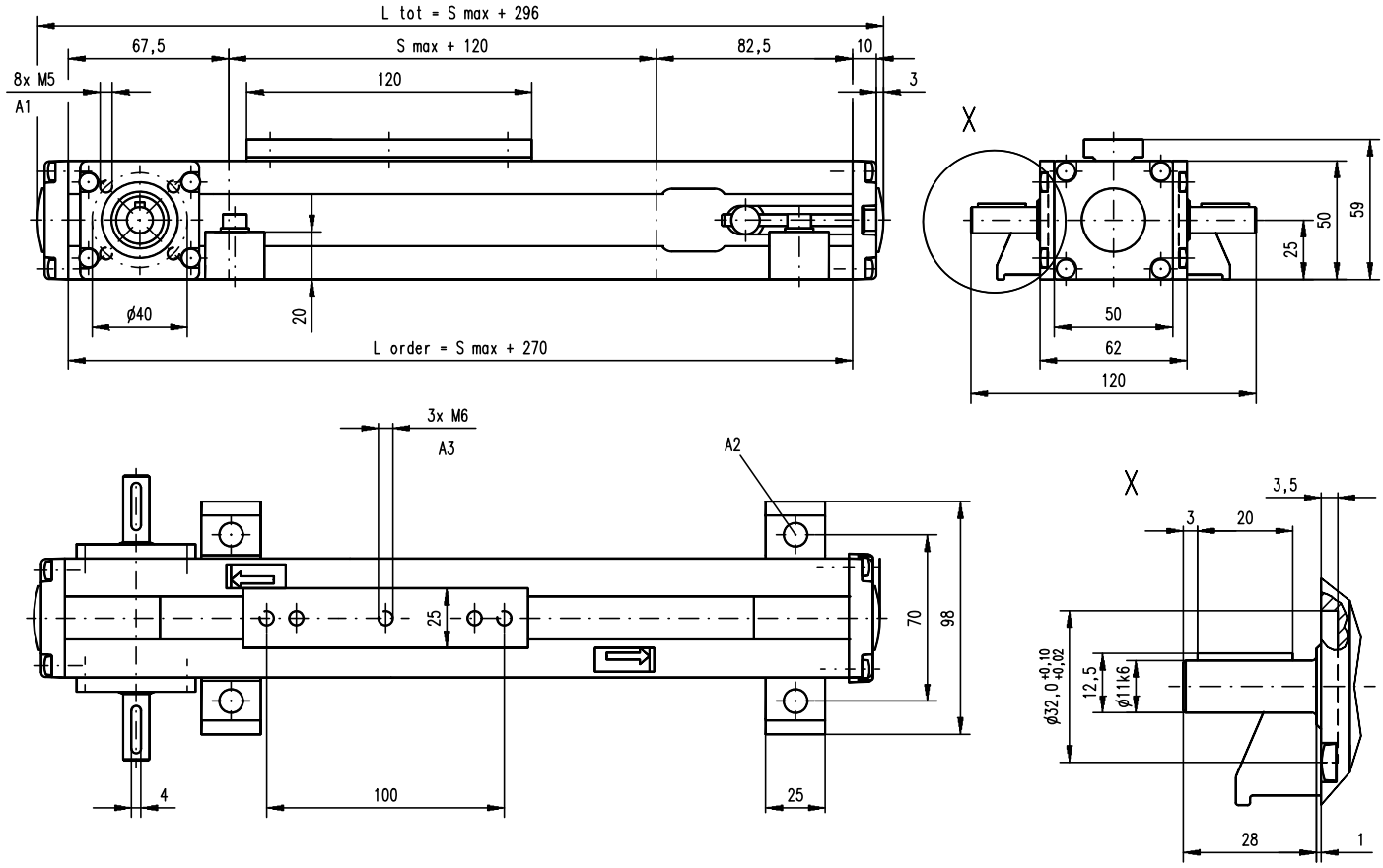
Definition of Forces



M50

Belt Drive, Slide Guide

Dimensions	Projection
METRIC	



A1: depth 8,5
A2: ø6,5 for M6 screw
A3: depth 9, Heli coil

M55

Belt Drive, Slide Guide

» Ordering key - see page 205
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	M55
Profile size (w × h) [mm]	58 × 50
Type of belt	22-STD SM5-HP
Carriage sealing system	self-adjusting steel cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubricated for life
Included accessories	none

Performance Specifications

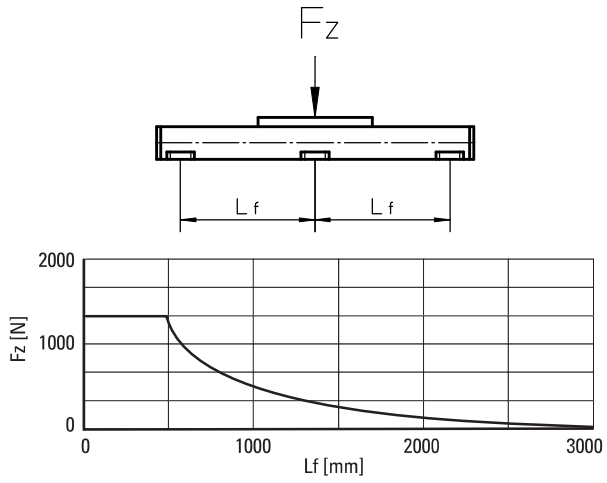
Parameter		M55
Stroke length (Smax), maximum	[mm]	7000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	2850
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 400 200
Dynamic load (Fy), maximum	[N]	400
Dynamic load (Fz), maximum	[N]	400
Dynamic load torque (Mx), maximum	[Nm]	9
Dynamic load torque (My), maximum	[Nm]	21
Dynamic load torque (Mz), maximum	[Nm]	21
Drive shaft force (Frd), maximum	[N]	200
Drive shaft torque (Mta), maximum	[Nm]	7
Pulley diameter	[mm]	33,42
Stroke per shaft revolution	[mm]	105
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 4,10 0,41 1,10

Carriage Idle Torque (M idle) [Nm]

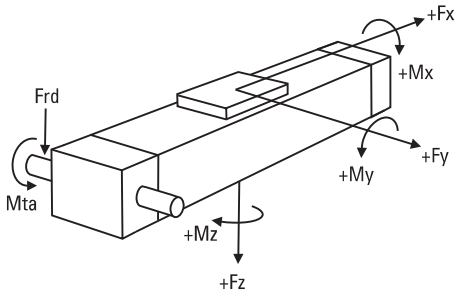
Input speed [rpm]	Single Carriage	Double Carriages
150	2,1	3,8

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

Deflection of the Profile



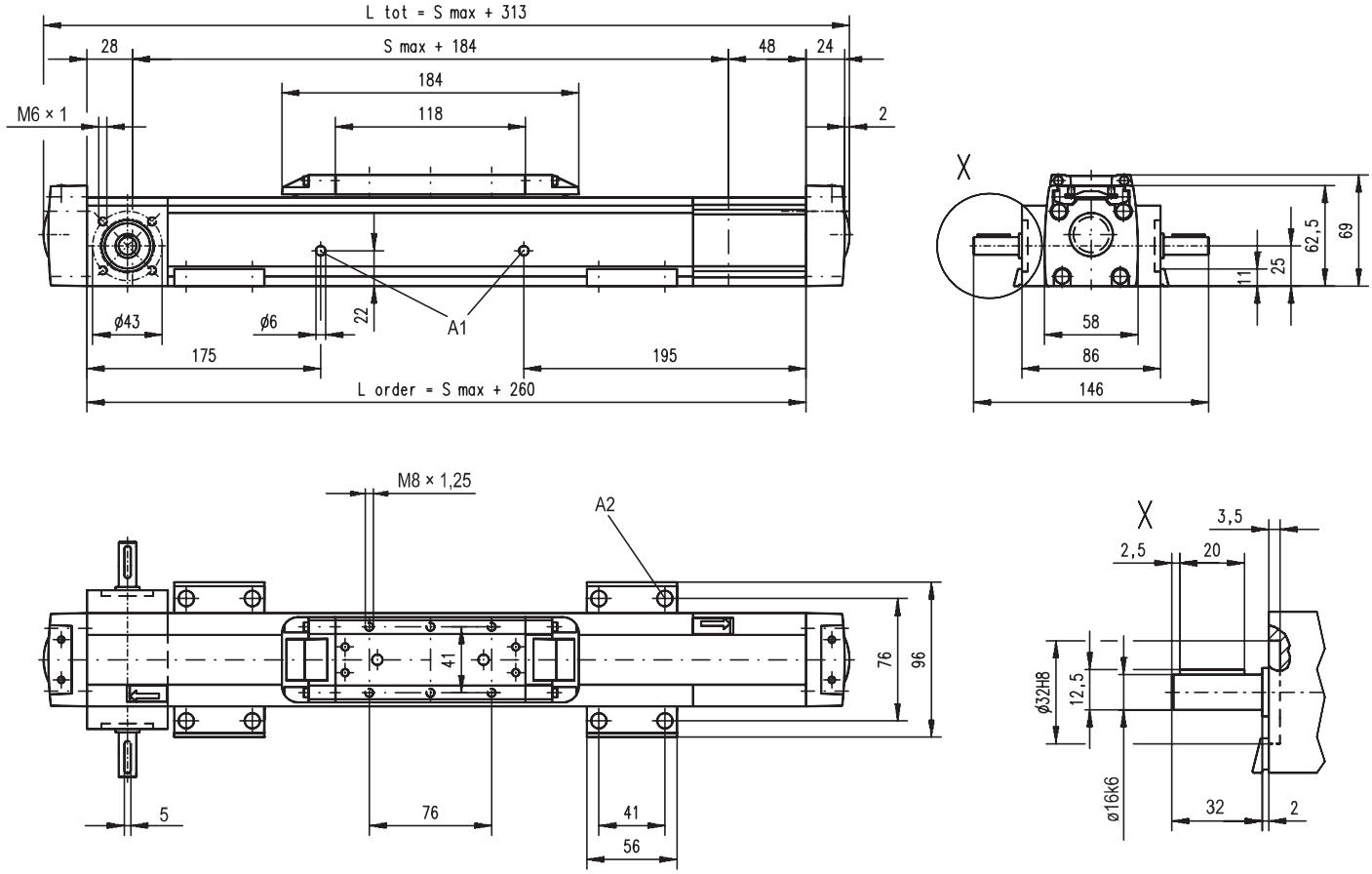
Definition of Forces



M55

Belt Drive, Slide Guide

Dimensions	Projection
METRIC	

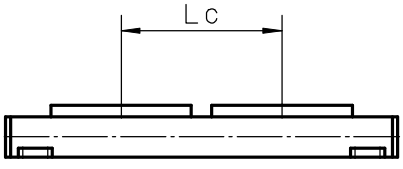


A1: lubrication holes
A2: ø9,5/ø5,5 for socket head cap screw M5

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]	Lc[1] × 0,3
Dynamic load torque (Mz), maximum	[Nm]	Lc[1] × 0,3
Force required to move second carriage	[N]	35
Ordering length (L order)	[mm]	Smax + Lc + 260
Total length (L tot)	[mm]	L order + 53
Weight of unit with zero stroke of carriages	[kg]	 6,00 2,20

[1] Value in mm



M75

Belt Drive, Slide Guide

» Ordering key - see page 205
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	M75
Profile size (w × h) [mm]	86 × 75
Type of belt	STD5-40
Carriage sealing system	self-adjusting steel cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubricated for life
Included accessories	none

Performance Specifications

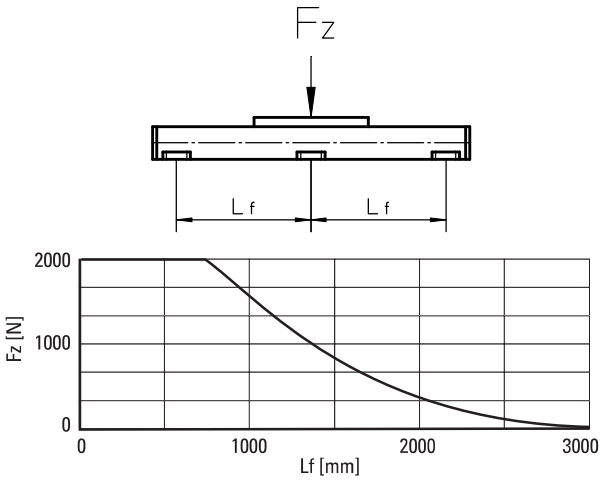
Parameter		M75
Stroke length (Smax), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	2300
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 900 450
Dynamic load (Fy), maximum	[N]	1485
Dynamic load (Fz), maximum	[N]	1485
Dynamic load torque (Mx), maximum	[Nm]	49
Dynamic load torque (My), maximum	[Nm]	85
Dynamic load torque (Mz), maximum	[Nm]	85
Drive shaft force (Frd), maximum	[N]	600
Drive shaft torque (Mta), maximum	[Nm]	30
Pulley diameter	[mm]	41,38
Stroke per shaft revolution	[mm]	130
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 6,30 0,67 1,50

Carriage Idle Torque (M idle) [Nm]

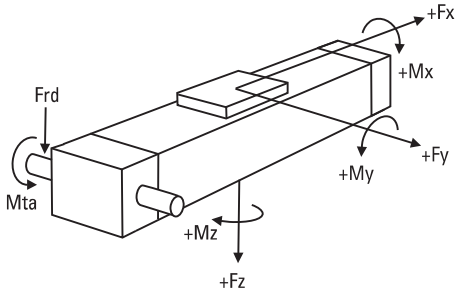
Input speed [rpm]	Single Carriage	Double Carriages
150	2,2	4,0

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

Deflection of the Profile



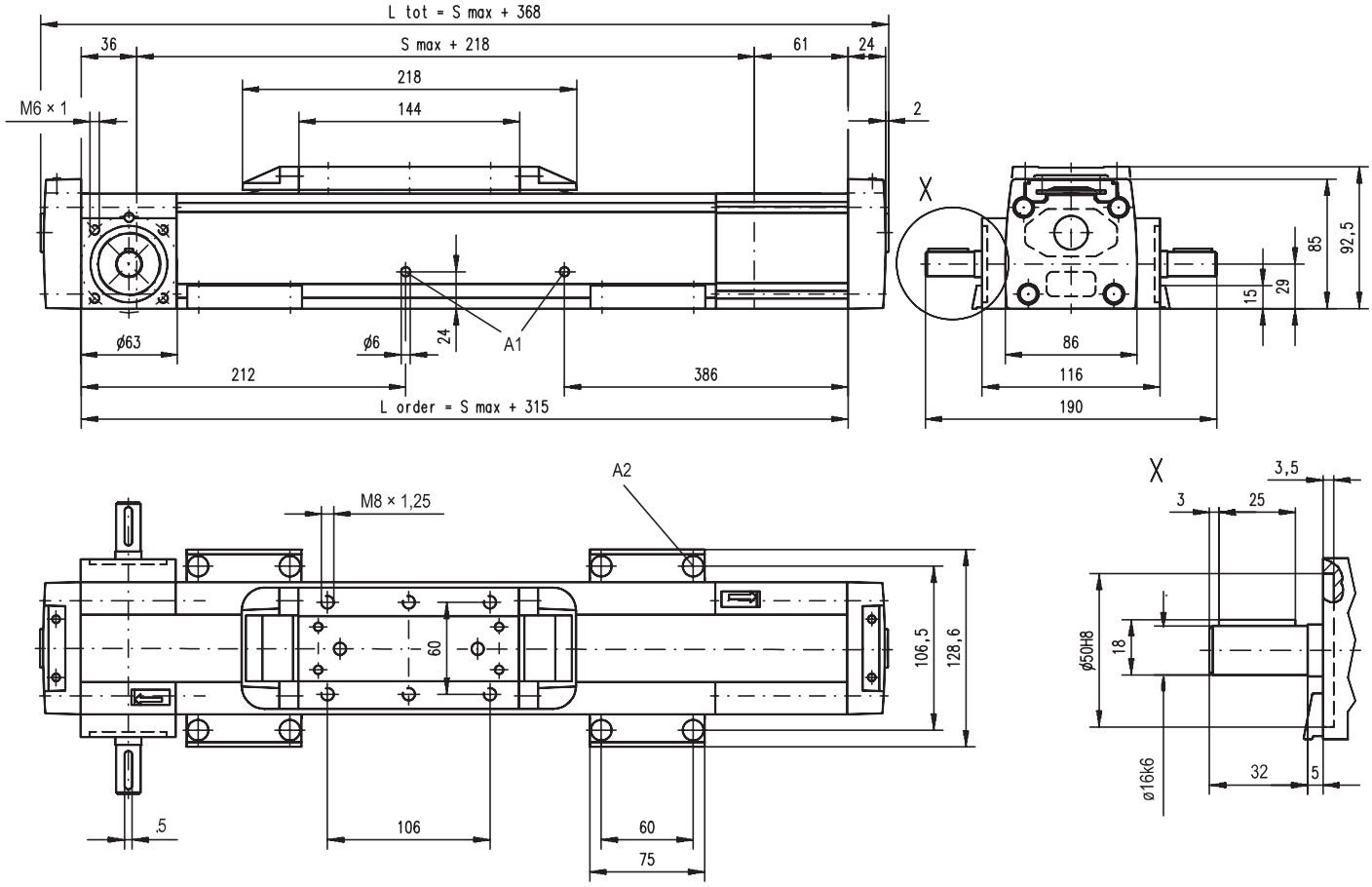
Definition of Forces



M75

Belt Drive, Slide Guide

Dimensions	Projection
METRIC	

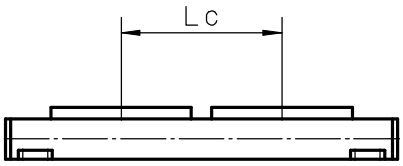


A1: lubrication holes
A2: ø13,5/ø8,5 for socket head cap screw M8

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] × 1,114
Dynamic load torque (Mz), maximum	[Nm]	Lc[1] × 1,114
Force required to move second carriage	[N]	40
Ordering length (L order)	[mm]	Smax + Lc + 315
Total length (L tot]	[mm]	L order + 53
Weight of unit with zero stroke of carriages	[kg]	 9,50 3,00

[1] Value in mm



M100

Belt Drive, Slide Guide

» Ordering key - see page 205
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	M100
Profile size (w × h) [mm]	108 × 100
Type of belt	STD8-50
Carriage sealing system	self-adjusting steel cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubricated for life
Included accessories	none

Performance Specifications

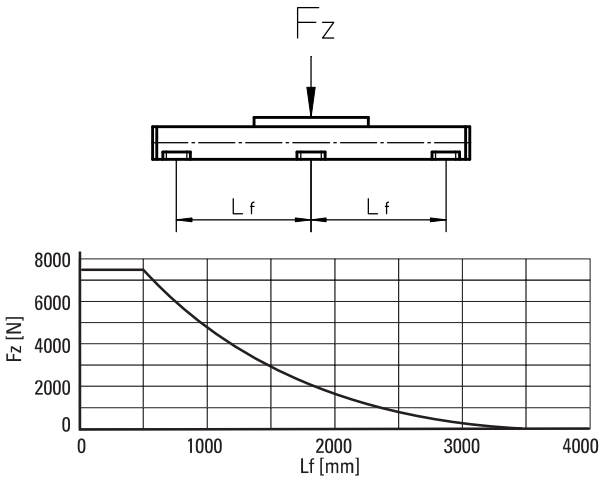
Parameter		M100
Stroke length (Smax), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	1700
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum < 2,5 m/s > 2,5 m/s	[N]	 1250 625
Dynamic load (Fy), maximum	[N]	3005
Dynamic load (Fz), maximum	[N]	3005
Dynamic load torque (Mx), maximum	[Nm]	117
Dynamic load torque (My), maximum	[Nm]	279
Dynamic load torque (Mz), maximum	[Nm]	279
Drive shaft force (Frd), maximum	[N]	1000
Drive shaft torque (Mta), maximum	[Nm]	45
Pulley diameter	[mm]	56,02
Stroke per shaft revolution	[mm]	176
Weight of unit with zero stroke of every 100 mm of stroke of carriage	[kg]	 11,10 1,16 2,40

Carriage Idle Torque (M idle) [Nm]

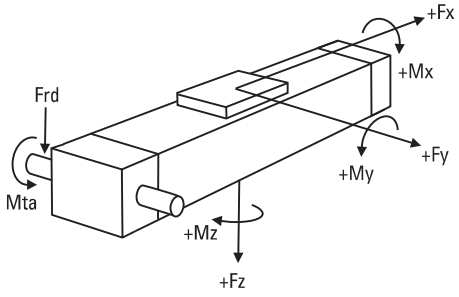
Input speed [rpm]	Single Carriage	Double Carriages
150	3,8	5,8

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

Deflection of the Profile



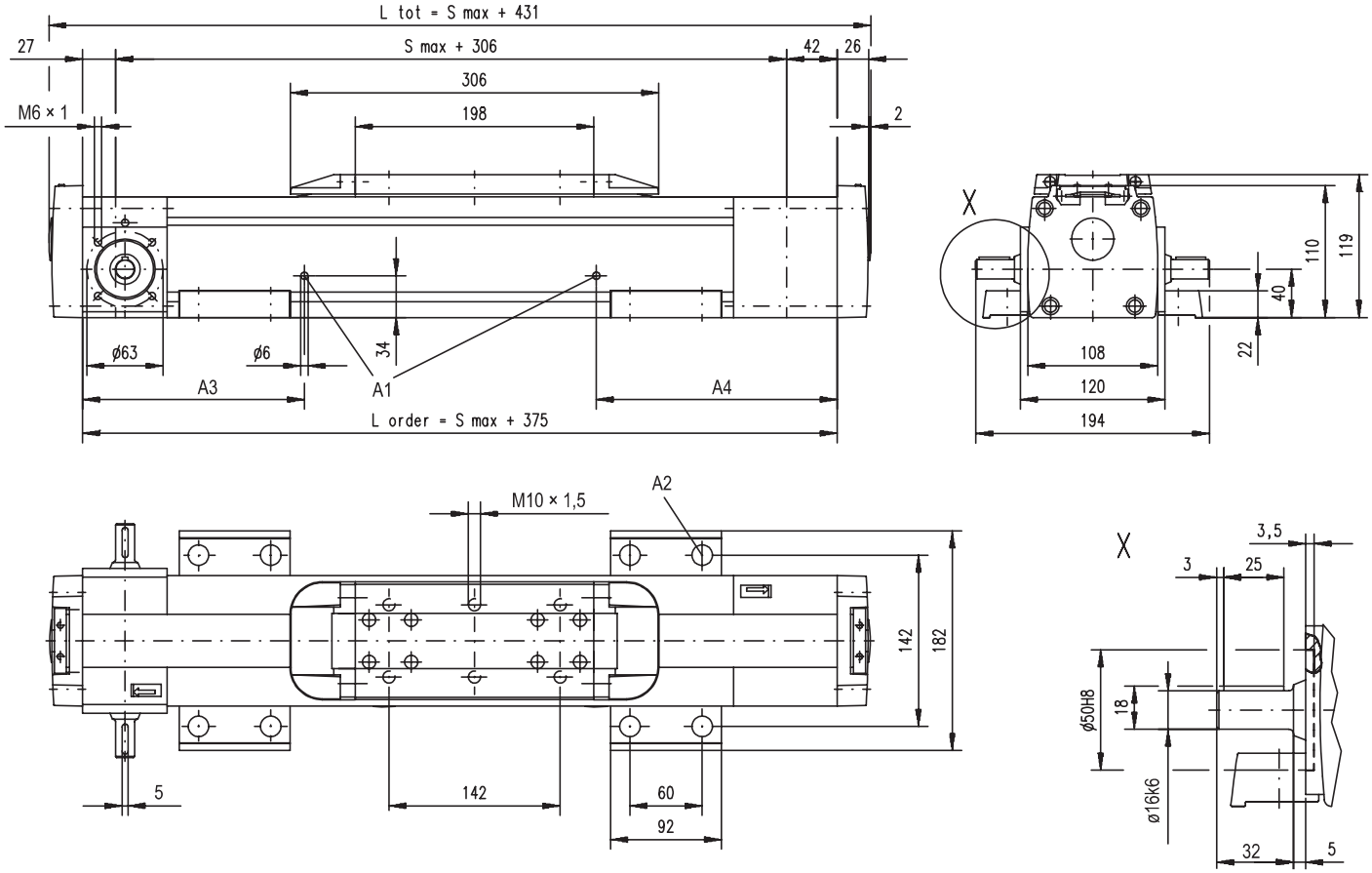
Definition of Forces



M100

Belt Drive, Slide Guide

Dimensions	Projection
METRIC	



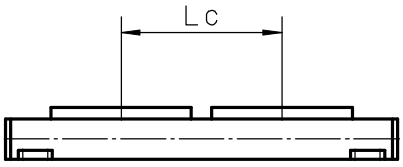
A1: lubrication holes
A2: ø17/ø10,5 for socket head cap screw M10

A3: 170 (L order <= 1 m), 270 (L order > 1 m)
A4: 186 (L order < = 1 m), 436 (L order > 1 m)

Double Carriages

Parameter		M100
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]	Lc[1] × 2,254
Dynamic load torque (Mz), maximum	[Nm]	Lc[1] × 2,254
Force required to move second carriage	[N]	45
Ordering length (L order)	[mm]	Smax + Lc + 375
Total length (L tot]	[mm]	L order + 56
Weight of unit with zero stroke of carriages	[kg]	 17,40 4,80

[1] Value in mm



Linear Units with Belt Drive and Wheel Guide

Overview

SpeedLine WH

WH80

Features

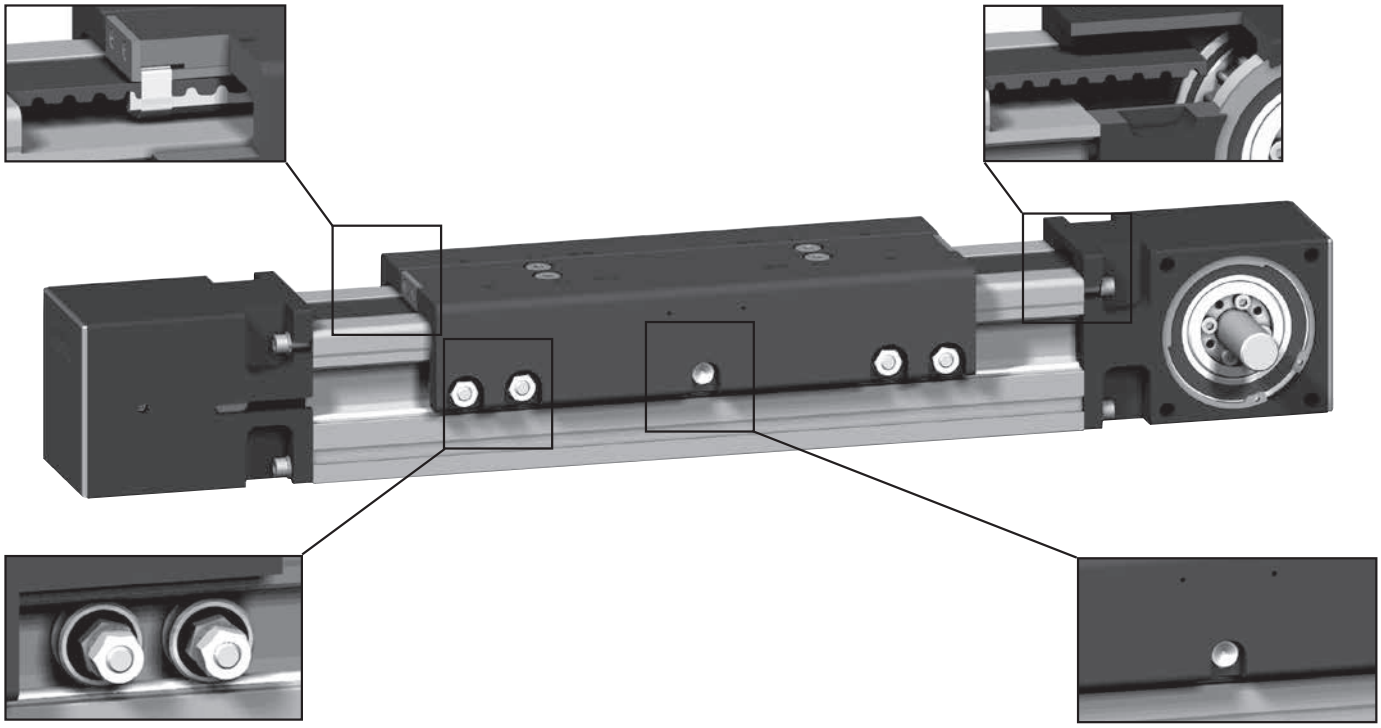
- Can be installed in any orientation
- Speed up to 11 m/s
- Acceleration up to 40 m/s^2
- Stroke up to 11 m

Parameter		WH50	WH80	WH120
Profile size (width × height)	[mm]	50 × 50	80 × 80	120 × 110
Stroke length (Smax), maximum	[mm]	3000	11000	11000
Linear speed, maximum	[m/s]	6,5	10,0	10,0
Dynamic carriage load (Fz), maximum	[N]	730	2100	9300
Remarks		external wheel guides no cover band	external wheel guides no cover band	external wheel guides no cover band
Page		110	112	114

WH-Series Technical Presentation

Belt tensioning
The belt can easily be replaced or re-tensioned from the outside of the unit without the load being removed from the carriage.

Belt drive
The steel reinforced belt is wear resistant, highly efficient and very accurate even at high speeds and loads.



Wheel guides
The H-type arrangement of the guides allows fast moves and high forces and moments.

Central lubrication
The guides are lubricated from a central point that is easy and fast to access.

Linear Units with Belt Drive and Wheel Guide

Overview

ForceLine **MLSH**

MLSH60Z

Features

- Can be installed in any orientation
- Patented plastic cover band
- Speed up to 10 m/s
- Low profile height

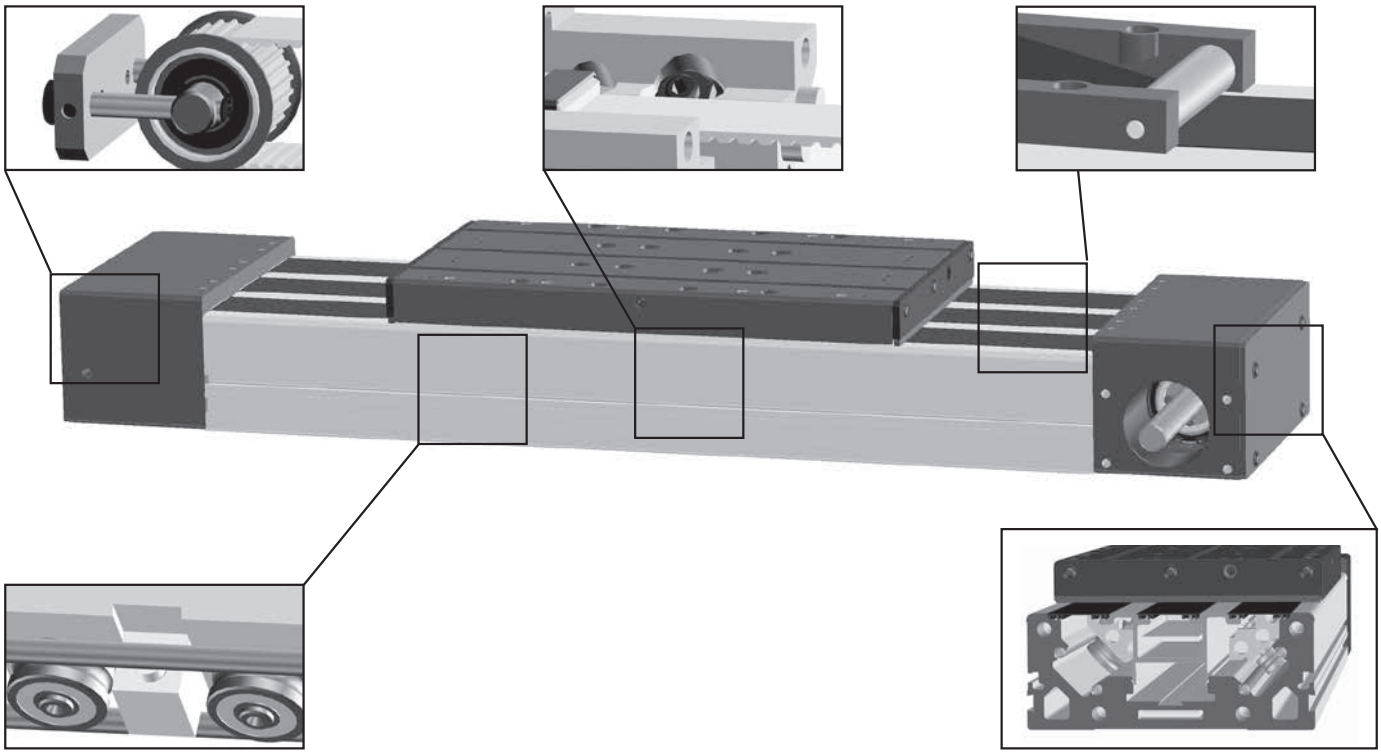
Parameter		MLSH60Z
Profile size (width × height)	[mm]	160 × 65
Stroke length (Smax), maximum	[mm]	5500
Linear speed, maximum	[m/s]	10,0
Dynamic carriage load (Fz), maximum	[N]	3000
Remarks		internal wheel guides
Page		116

MLSH-Series Technical Presentation

Belt tensioning
The belt can easily be re-tensioned from the outside of the unit without the load being removed from the carriage.

Belt drive
The highly dynamic and accurate belt is protected by the cover band ensuring long and trouble free operation.

Cover band
The patented self-adjusting cover band protect the interior of the unit from the penetration of dirt, dust and liquids.



Wheel guides
The robust wheel guides runs inside of the profile providing superior motion dynamics.

Unique profile
The unique design of the profile guarantees the highest performance and protection of the guides and belt.

WH50

Belt Drive, Wheel Guide

» Ordering key - see page 206
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	WH50
Profile size (w × h) [mm]	50 × 50
Type of belt	16ATL5
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication og guiding surfaces
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WH50
Stroke length (Smax), maximum	[mm]	3000
Linear speed, maximum	[m/s]	6,5
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3250
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	670[1]
Dynamic load (Fy), maximum	[N]	415
Dynamic load (Fz), maximum	[N]	730
Dynamic load torque (Mx), maximum	[Nm]	16
Dynamic load torque (My), maximum	[Nm]	87
Dynamic load torque (Mz), maximum	[Nm]	50
Drive shaft force (Frd), maximum	[N]	150
Drive shaft torque (Mta), maximum	[Nm]	17
Pulley diameter	[mm]	38,2
Stroke per shaft revolution	[mm]	120
Weight	[kg]	
of unit with zero stroke		3,50
of every 100 mm of stroke		0,44
of each carriage		0,90

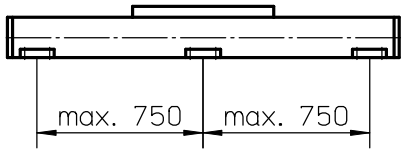
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	1,7
1500	2,4
3250	3,8

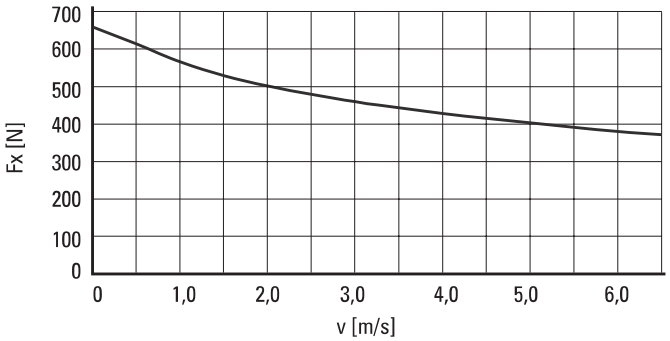
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

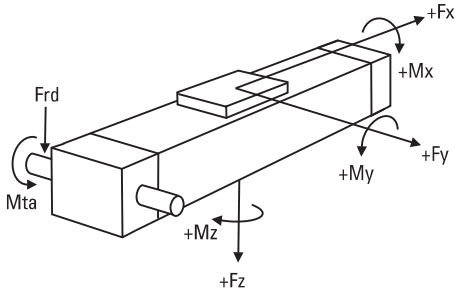


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed



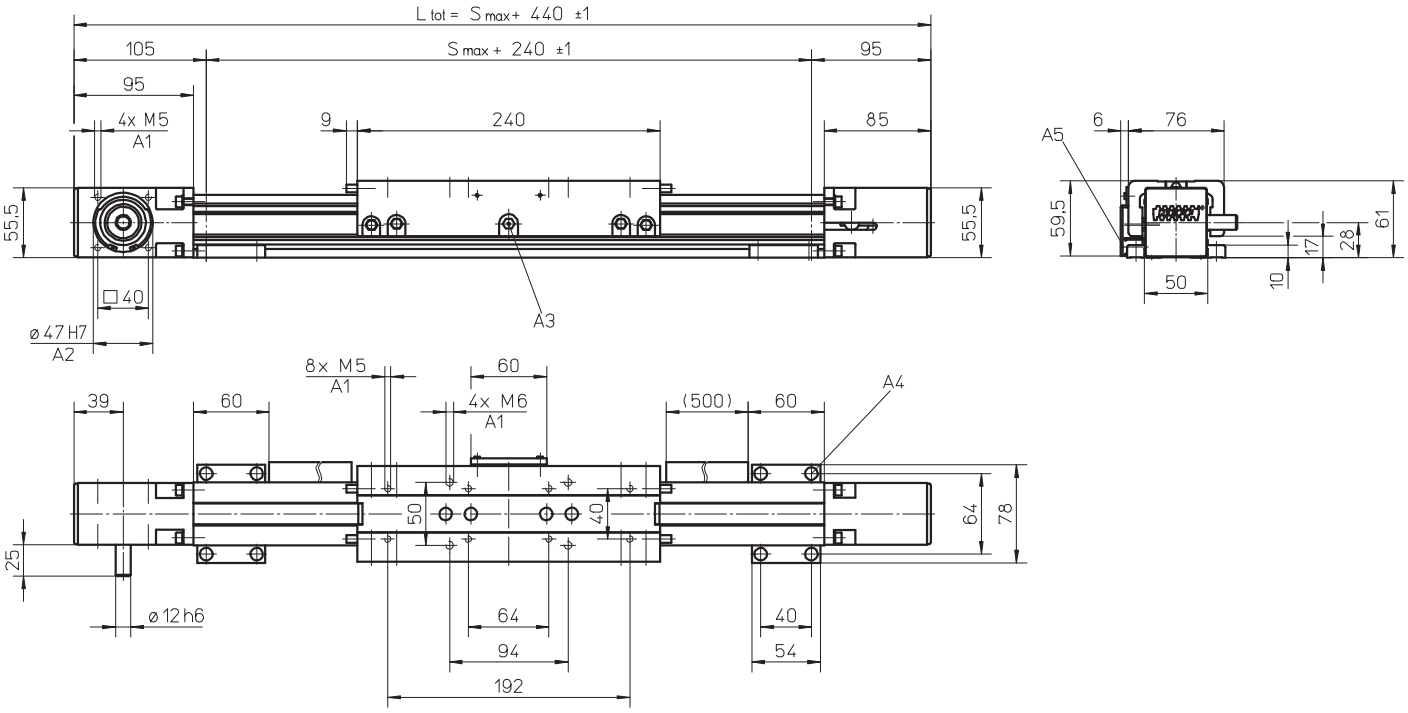
Definition of Forces



WH50

Belt Drive, Wheel Guide

Dimensions	Projection
METRIC	

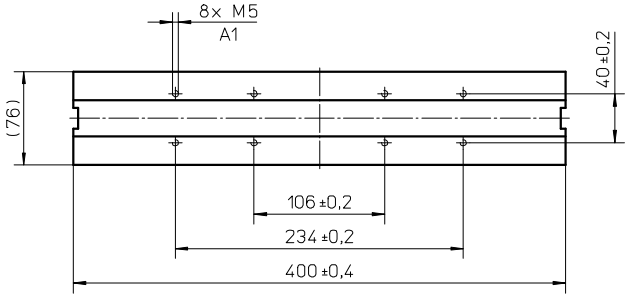


A1: depth 10
A2: depth 3
A3: funnel type lubricating nipple DIN3405-M6×1-D1

A4: socket cap screw ISO4762-M5×12 8.8
A5: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

Parameter		WH50
Carriage length	[mm]	400
Dynamic load torque (My), maximum	[Nm]	130
Dynamic load torque (Mz), maximum	[Nm]	75
Weight	[kg]	1,47

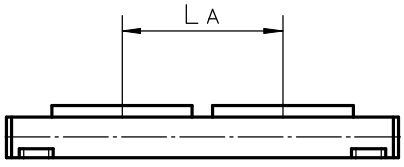


A1: depth 10

Double Carriages

Parameter		WH50
Minimum distance between carriages (L_A)	[mm]	260
Dynamic load (Fy), maximum	[N]	830
Dynamic load (Fz), maximum	[N]	1460
Dynamic load torque (My), maximum	[Nm]	L_A[1] × 0,415
Dynamic load torque (Mz), maximum	[Nm]	L_A[1] × 0,73
Force required to move second carriage	[N]	16
Total length (L tot)	[mm]	Smax + 440 + L_A

[1] Value in mm



WH80

Belt Drive, Wheel Guide

» Ordering key - see page 206
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	WH80
Profile size (w × h) [mm]	80 × 80
Type of belt	32ATL10
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication og guiding surfaces
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WH80
Stroke length (Smax), maximum	[mm]	11000
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	2700 [1]
Dynamic load (Fy), maximum	[N]	882
Dynamic load (Fz), maximum	[N]	2100
Dynamic load torque (Mx), maximum	[Nm]	75
Dynamic load torque (My), maximum	[Nm]	230
Dynamic load torque (Mz), maximum	[Nm]	100
Drive shaft force (Frd), maximum	[N]	500
Drive shaft torque (Mta), maximum	[Nm]	100
Pulley diameter	[mm]	63,66
Stroke per shaft revolution	[mm]	200
Weight	[kg]	
of unit with zero stroke		8,63
of every 100 mm of stroke		0,93
of each carriage		2,75

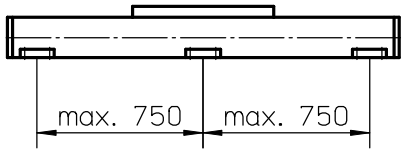
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	2,4
1500	3,5
3000	5,0

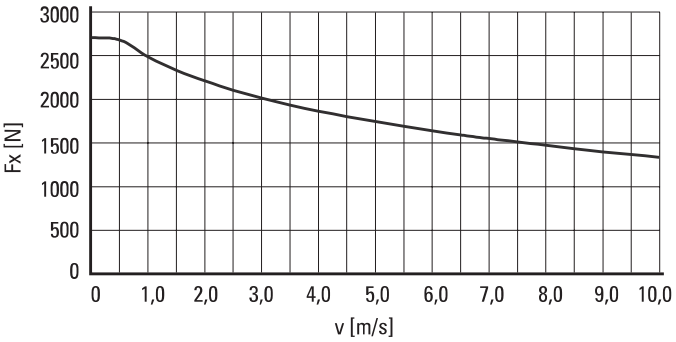
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

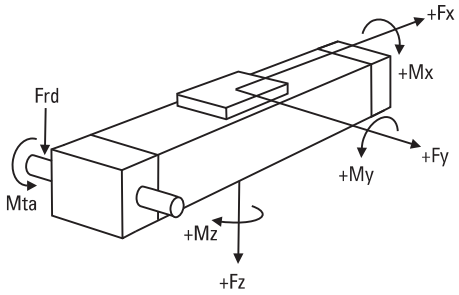


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information. Units with a profile length over 6300 mm consist of two profiles where the joint between the two profiles must be addequately supported on both sides.

Force Fx as a Function of the Speed



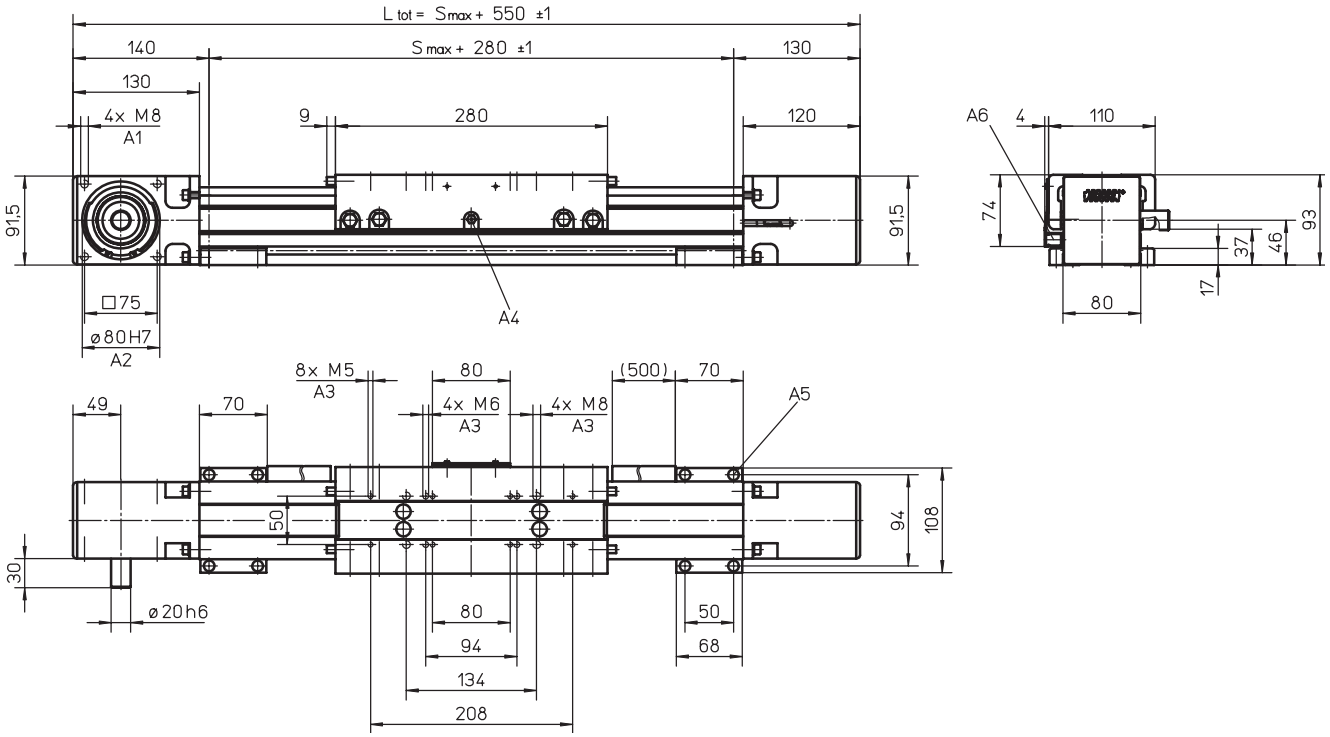
Definition of Forces



WH80

Belt Drive, Wheel Guide

Dimensions	Projection
METRIC	

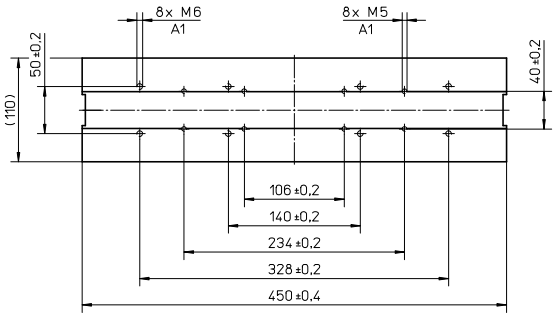


A1: depth 16
A2: depth 2,5
A3: depth 12

A4: funnel type lubricating nipple DIN3405-M6×1-D1
A5: socket cap screw ISO4762-M6×20 8.8
A6: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

Parameter		WH80
Carriage length	[mm]	450
Dynamic load torque (My), maximum	[Nm]	345
Dynamic load torque (Mz), maximum	[Nm]	150
Weight	[kg]	3,43

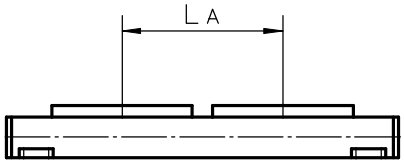


A1: depth 12

Double Carriages

Parameter		WH80
Minimum distance between carriages (L_A)	[mm]	300
Dynamic load (Fy), maximum	[N]	1764
Dynamic load (Fz), maximum	[N]	4200
Dynamic load torque (My), maximum	[Nm]	$L_A^1 \times 0{,}882$
Dynamic load torque (Mz), maximum	[Nm]	$L_A^1 \times 2{,}1$
Force required to move second carriage	[N]	20
Total length (L tot)	[mm]	Smax + 550 + L_A

[1] Value in mm



WH120

Belt Drive, Wheel Guide

» Ordering key - see page 206
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	WH120
Profile size (w × h) [mm]	120 × 110
Type of belt	50ATL10
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication og guiding surfaces
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WH120
Stroke length (Smax), maximum	[mm]	11000
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	2308
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	5000 [1]
Dynamic load (Fy), maximum	[N]	4980
Dynamic load (Fz), maximum	[N]	9300
Dynamic load torque (Mx), maximum	[Nm]	500
Dynamic load torque (My), maximum	[Nm]	930
Dynamic load torque (Mz), maximum	[Nm]	500
Drive shaft force (Frd), maximum	[N]	700
Drive shaft torque (Mta), maximum	[Nm]	200
Pulley diameter	[mm]	82,76
Stroke per shaft revolution	[mm]	260
Weight	[kg]	
of unit with zero stroke		17,00
of every 100 mm of stroke		1,64
of each carriage		5,50

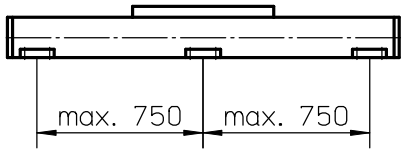
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	4,8
1500	7,0
2308	10,0

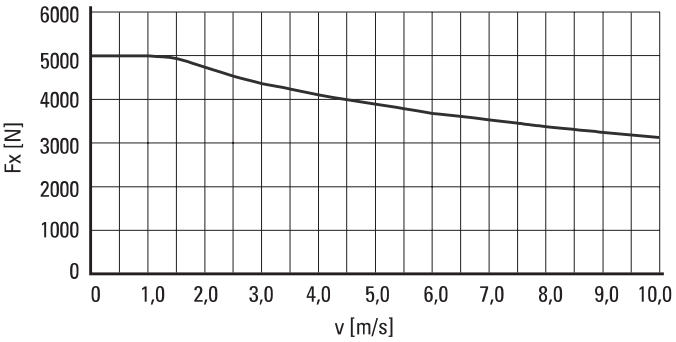
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

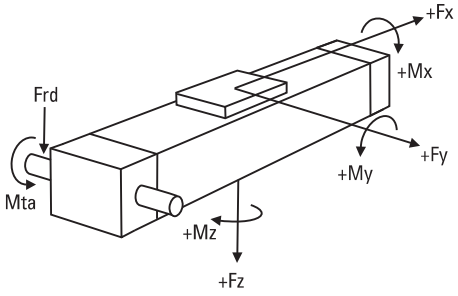


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information. Units with a profile length over 4900 mm consist of two profiles where the joint between the two profiles must be addequately supported on both sides.

Force Fx as a Function of the Speed



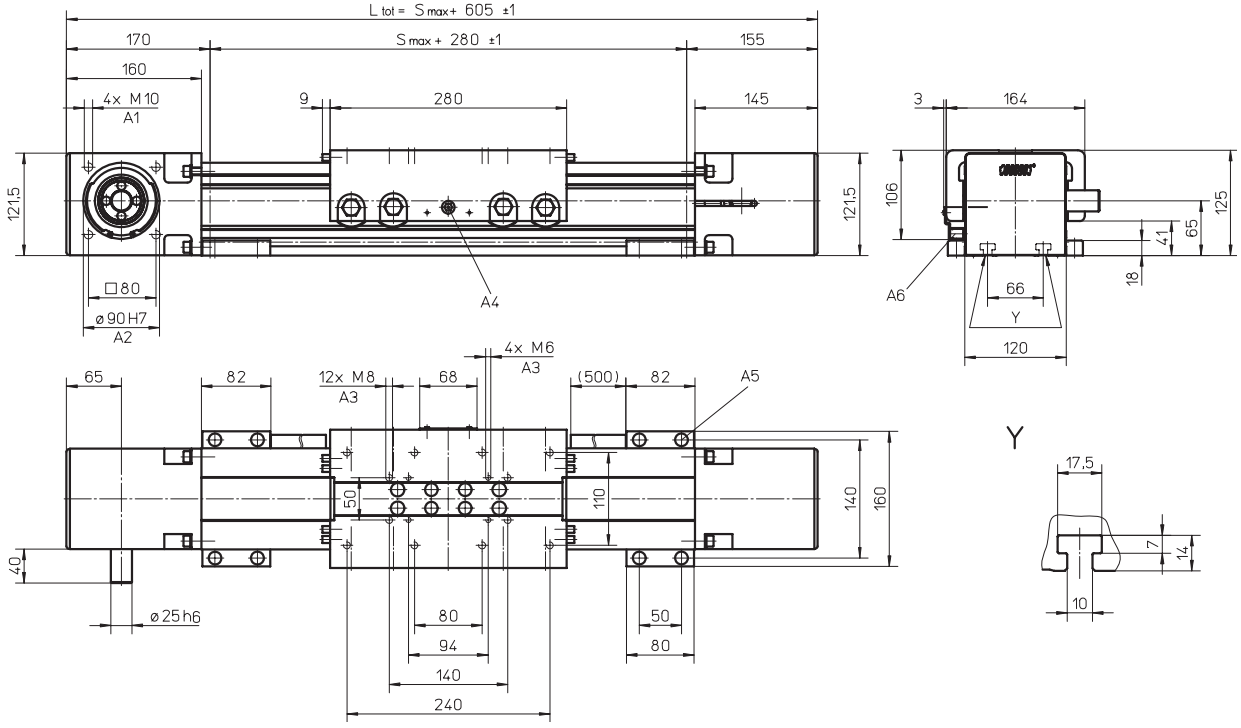
Definition of Forces



WH120

Belt Drive, Wheel Guide

Dimensions	Projection
METRIC	

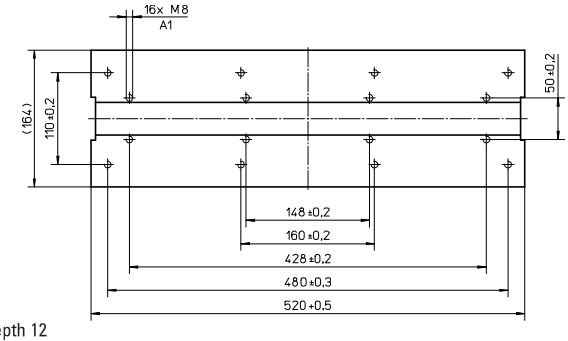


A1: depth 20
A2: depth 7
A3: depth 12

A4: funnel type lubricating nipple DIN3405-M6×1-D1
A5: socket cap screw ISO4762-M8×20 8.8
A6: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

Parameter		WH120
Carriage length	[mm]	520
Dynamic load torque (My), maximum	[Nm]	1395
Dynamic load torque (Mz), maximum	[Nm]	750
Weight	[kg]	8,67

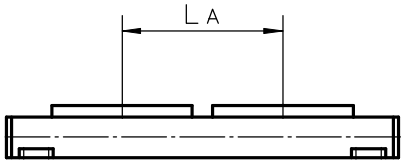


A1: depth 12

Double Carriages

Parameter		WH120
Minimum distance between carriages (L_A)	[mm]	300
Dynamic load (Fy), maximum	[N]	9960
Dynamic load (Fz), maximum	[N]	18600
Dynamic load torque (My), maximum	[Nm]	$L_{A^1} \times 4{,}98$
Dynamic load torque (Mz), maximum	[Nm]	$L_{A^1} \times 9{,}3$
Force required to move second carriage	[N]	30
Total length (L tot)	[mm]	Smax + 605 + L_A

[1] Value in mm



MLSH60Z

Belt Drive, Wheel Guide

» Ordering key - see page 207
» Accessories - see page 135
» Additional data - see page 184

General Specifications

Parameter	MLSH60Z
Profile size (w × h) [mm]	160 × 65
Type of belt	32ATL5
Carriage sealing system	plastic cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	no lubrication required
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		MLSH60Z
Stroke length (Smax), maximum	[mm]	5500
Linear speed, maximum	[m/s]	6,5
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	1480 [1]
Dynamic load (Fy), maximum	[N]	3000
Dynamic load (Fz), maximum	[N]	3000
Dynamic load torque (Mx), maximum	[Nm]	165
Dynamic load torque (My), maximum	[Nm]	310
Dynamic load torque (Mz), maximum	[Nm]	310
Drive shaft force (Frd), maximum	[N]	200
Drive shaft torque (Mta), maximum	[Nm]	45
Pulley diameter	[mm]	42,97
Stroke per shaft revolution	[mm]	135
Weight of unit with zero stroke of every 100 mm of stroke of each carriage	[kg]	 12,60 1,33 3,90

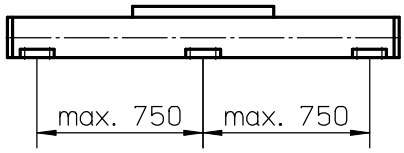
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

Input speed [rpm]	Idle torque [Nm]
150	4,6
1500	9,0
3000	12,0

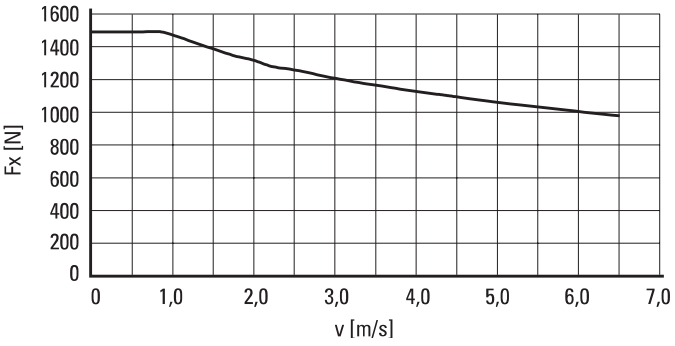
M idle = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

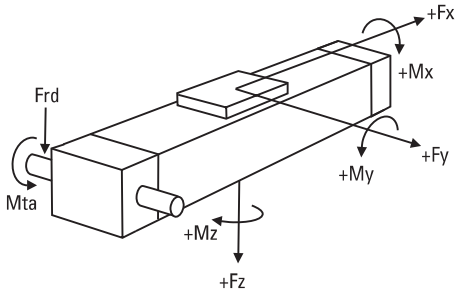


A mounting clamp must be installed at least every 750 mm to be able to operate atmaximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Force Fx as a Function of the Speed



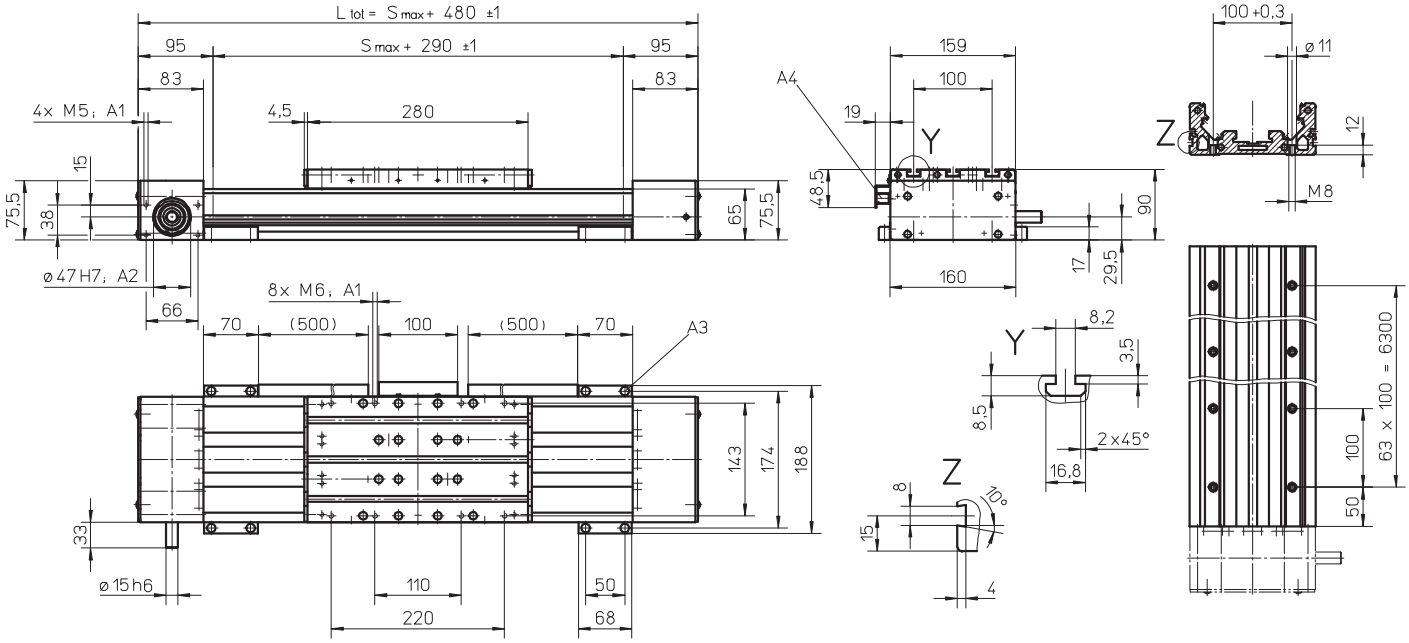
Definition of Forces



MLSH60Z

Belt Drive, Wheel Guide

Dimensions	Projection
METRIC	

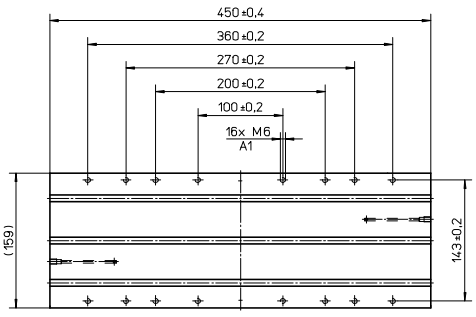


A1: depth 10
A2: depth 4

A3: socket cap screw ISO4762-M6x20 8.8
A4: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

Parameter		MLSH60Z
Carriage length	[mm]	450
Dynamic load torque (My), maximum	[Nm]	585
Dynamic load torque (Mz), maximum	[Nm]	585
Weight	[kg]	6

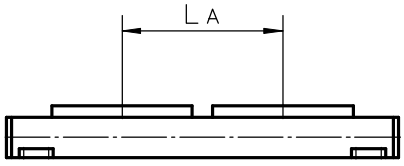


A1: depth 10

Double Carriages

Parameter		MLSH60Z
Minimum distance between carriages (L_A)	[mm]	290
Dynamic load (Fy), maximum	[N]	6000
Dynamic load (Fz), maximum	[N]	6000
Dynamic load torque (My), maximum	[Nm]	L_A[1] × 3
Dynamic load torque (Mz), maximum	[Nm]	L_A[1] × 3
Force required to move second carriage	[N]	10
Total length (L tot)	[mm]	Smax + 480 + L_A

[1] Value in mm



Linear Lifting Units

Overview

SpeedLine WHZ

Features

- Can be installed in any orientation
- Belt drive
- External wheel guides
- Speed up to 10 m/s
- Acceleration up to 40 m/s²

Parameter		WHZ50	WHZ80
Profile size (width × length)	[mm]	50 × 50	80 × 80
Stroke length (Smax), maximum	[mm]	1500	3000
Linear speed, maximum	[m/s]	6,5	10,0
Dynamic load (Fx), maximum	[N]	670	1480
Remarks		The load is always attached to the end of the lifting profile	The load is always attached to the end of the lifting profile
Page		120	122

Linear Lifting Units

Overview

Movo Z

Features

- Telescopic movement
- Ball screw drive
- Internal slide guides
- Load up to 7500 N
- Load torque up to 2000 Nm
- Two end stop limit switches (Z2 only)

Parameter		Z2	Z3
Profile size (width × height)	[mm]	188 × 150	188 × 150
Stroke length (Smax), maximum	[mm]	1500	1500
Linear speed, maximum	[m/s]	1,25	1,25
Dynamic load (Fz), maximum	[N]	7500	7500
Remarks		Can be installed in any direction. The load must be attached at the end of the lifting profile	Can only be installed vertically with motor up. The load must be attached at the end of the lifting profile.
Page		124	126

WHZ50

Belt Drive, Wheel Guide

» Ordering key - see page 208
» Accessories - see page 135
» Additional data - see page 185

General Specifications

Parameter	WHZ50
Profile size (w × h) [mm]	50 × 50
Type of belt	16 ATL 5
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of carriage and guide surfaces
Included accessories	-

Performance Specifications

Parameter		WHZ50
Stroke length (Smax), maximum	[mm]	1500
Linear speed, maximum	[m/s]	6,5
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3250
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	670 [1]
Dynamic load (Fy), maximum	[N]	415
Dynamic load (Fz), maximum	[N]	730
Dynamic load torque (Mx), maximum	[Nm]	16
Dynamic load torque (My), maximum	[Nm]	87
Dynamic load torque (Mz), maximum	[Nm]	50
Drive shaft force (Frd), maximum	[N]	150
Drive shaft torque (Mta), maximum	[Nm]	17
Pulley diameter	[mm]	38,2
Stroke per shaft revolution	[mm]	120
Weight	[kg]	
of unit with zero stroke		4,50
of every 100 mm of stroke		0,42
of each drive station box		2,90

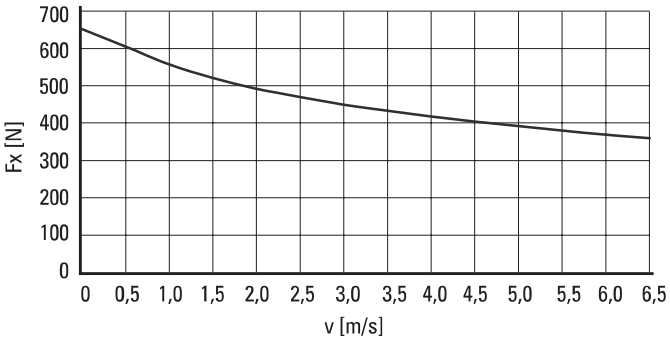
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

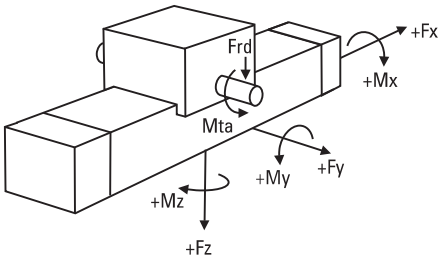
Input speed [rpm]	Idle torque [Nm]
150	1,7
1500	2,4
3250	3,8

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

Force Fx as a Function of the Speed



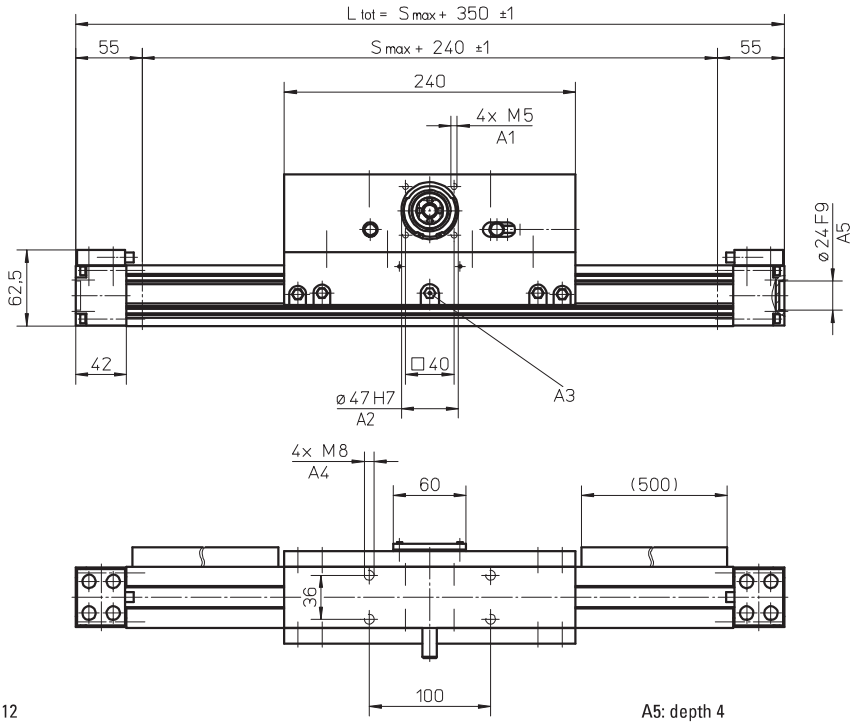
Definition of Forces

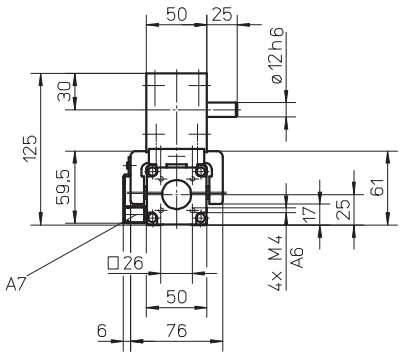


WHZ50

Belt Drive, Wheel Guide

Dimensions	Projection
METRIC	

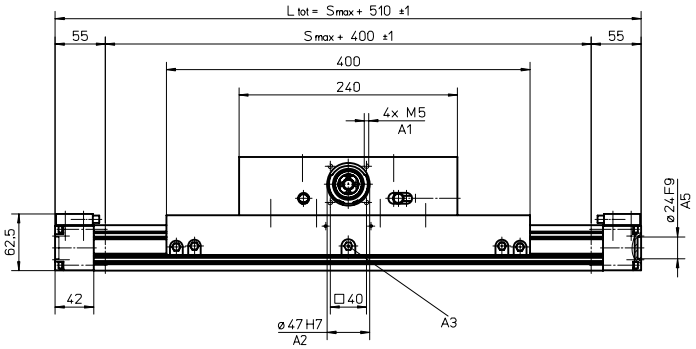




A1: depth 12
A2: depth 3,5
A3: funnel type lubricating nipple DIN3405-M6×1-D1
A4: depth 16
A5: depth 4
A6: depth 8
A7: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

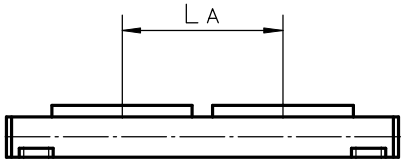
Parameter		WHZ50
Carriage length	[mm]	400
Dynamic load torque (My), maximum	[Nm]	130
Dynamic load torque (Mz), maximum	[Nm]	75
Weight	[kg]	3,3



A1: depth 12
A2: depth 3,5
A3: funnel type lubricating nipple DIN3405-M6×1-D1
A5: depth 4

Double Carriages[2]

Parameter		WHZ50
Minimum distance between carriages (L_A)	[mm]	260
Dynamic load (Fy), maximum	[N]	830
Dynamic load (Fz), maximum	[N]	1460
Dynamic load torque (My), maximum	[Nm]	L_A[1] × 0,415
Dynamic load torque (Mz), maximum	[Nm]	L_A[1] × 0,73
Force required to move second carriage	[N]	16
Total length (L tot)	[mm]	Smax + 350 + L_A



[1] Value in mm
[2] Second carriage is always a long carriage

WHZ80

Belt Drive, Wheel Guide

» Ordering key - see page 208
» Accessories - see page 135
» Additional data - see page 185

General Specifications

Parameter	WHZ80
Profile size (w × h) [mm]	80 × 80
Type of belt	32 ATL 5
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of carriage and guide surfaces
Included accessories	-

Performance Specifications

Parameter		WHZ80
Stroke length (Smax), maximum	[mm]	3000
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	1480 [1]
Dynamic load (Fy), maximum	[N]	882
Dynamic load (Fz), maximum	[N]	2100
Dynamic load torque (Mx), maximum	[Nm]	75
Dynamic load torque (My), maximum	[Nm]	230
Dynamic load torque (Mz), maximum	[Nm]	100
Drive shaft force (Frd), maximum	[N]	500
Drive shaft torque (Mta), maximum	[Nm]	50
Pulley diameter	[mm]	63,66
Stroke per shaft revolution	[mm]	200
Weight	[kg]	
of unit with zero stroke		11,20
of every 100 mm of stroke		0,91
of each drive station box		6,65

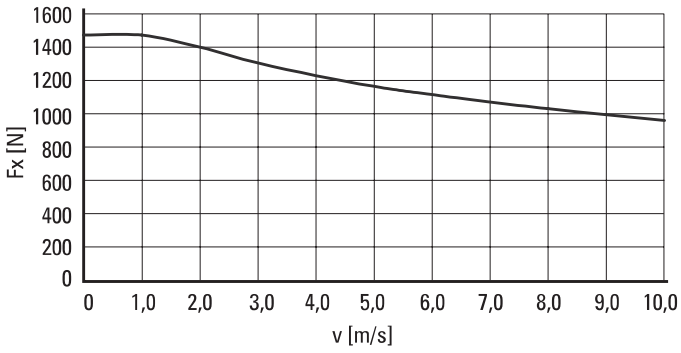
[1] See diagram Force Fx

Carriage Idle Torque, (M idle) [Nm]

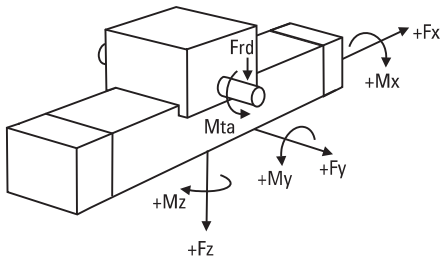
Input speed [rpm]	Idle torque [Nm]
150	2,4
1500	3,5
3000	5,0

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

Force Fx as a Function of the Speed



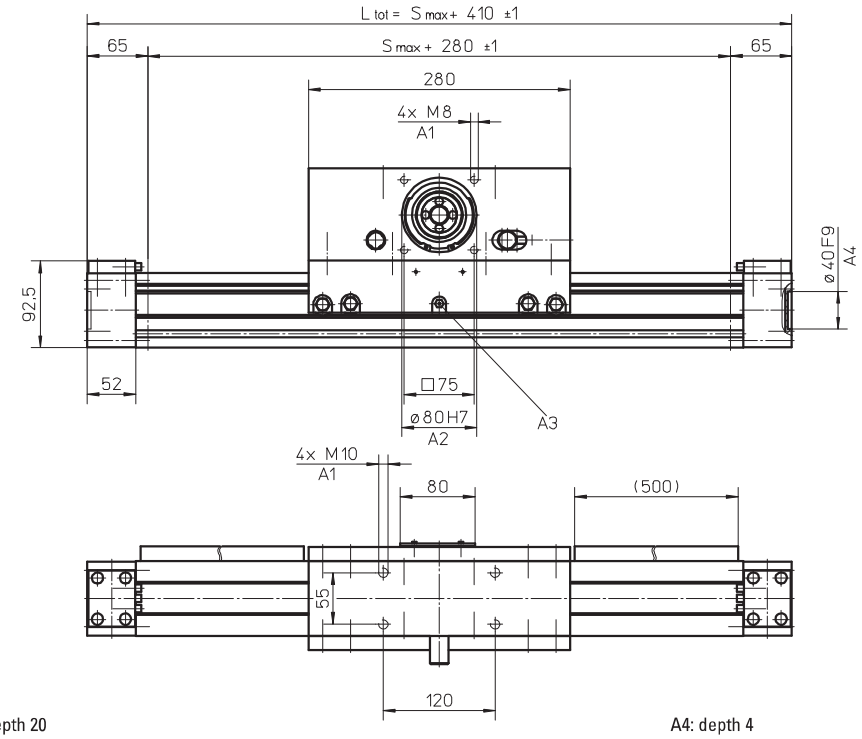
Definition of Forces

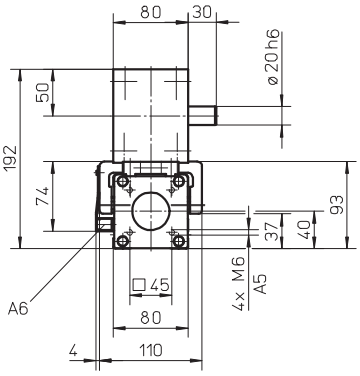


WHZ80

Belt Drive, Wheel Guide

Dimensions	Projection
METRIC	

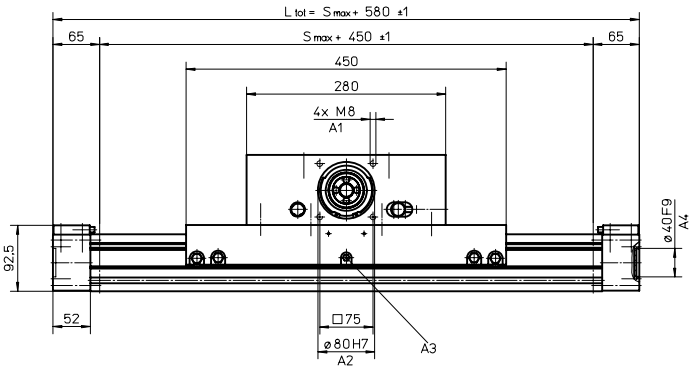




A1: depth 20
A2: depth 3,5
A3: funnel type lubricating nipple DIN3405-M6×1-D1
A4: depth 4
A5: depth 15
A6: ENF inductive sensor rail kit (optional - see page 172)

Long Carriage

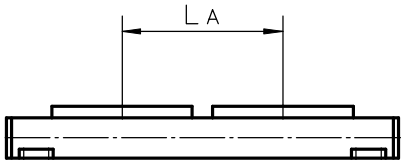
Parameter		WHZ80
Carriage length	[mm]	450
Dynamic load torque (My), maximum	[Nm]	345
Dynamic load torque (Mz), maximum	[Nm]	150
Weight	[kg]	7,4



A1: depth 20
A2: depth 3,5
A3: funnel type lubricating nipple DIN3405-M6×1-D1
A4: depth 4

Double Carriages[2]

Parameter		WHZ80
Minimum distance between carriages (L_A)	[mm]	300
Dynamic load (Fy), maximum	[N]	1764
Dynamic load (Fz), maximum	[N]	4200
Dynamic load torque (My), maximum	[Nm]	L_A[1] × 0,882
Dynamic load torque (Mz), maximum	[Nm]	L_A[1] × 2,1
Force required to move second carriage	[N]	20
Total length (L tot)	[mm]	Smax + 410 + L_A



[1] Value in mm
[2] Second carriage is always a long carriage