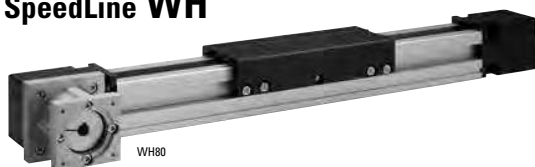




Linear Units with Belt Drive and Wheel Guide

Overview

SpeedLine WH



Features

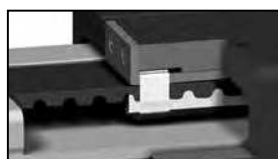
- Can be installed in any orientation
- Speed up to 11 m/s and stroke up to 11 m
- Acceleration up to 40 m/s²
- Felt pad wipers cleaning the guides as standard

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		106	108	110

WH-Series Technical Presentation

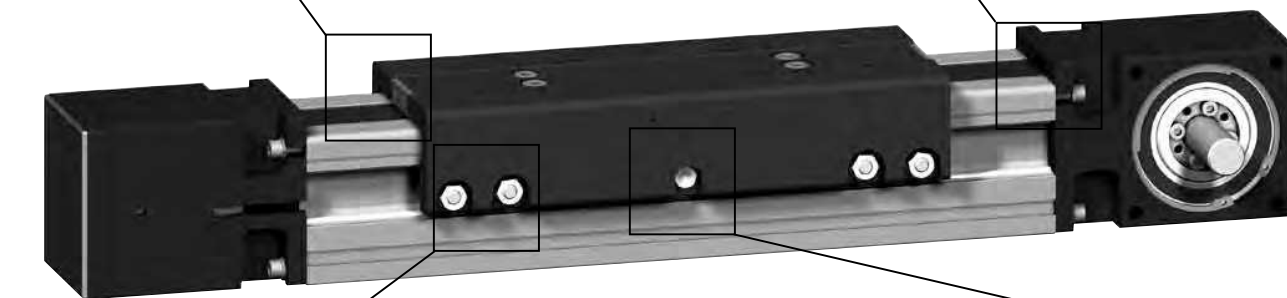
Belt tensioning

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.

Note! the unit is pictured without a RediMount™ flange

Linear Units with Belt Drive and Wheel Guide

Overview

ForceLine MLSH



Features

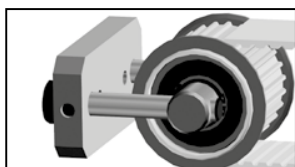
- Can be installed in any orientation
- Patented plastic cover band
- Speed up to 10 m/s
- Low profile height

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		112

MLSH-Series Technical Presentation

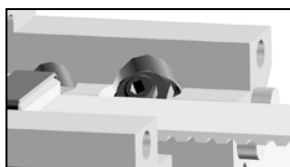
Belt tensioning

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



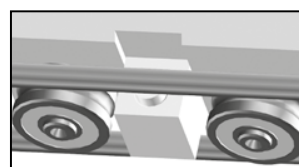
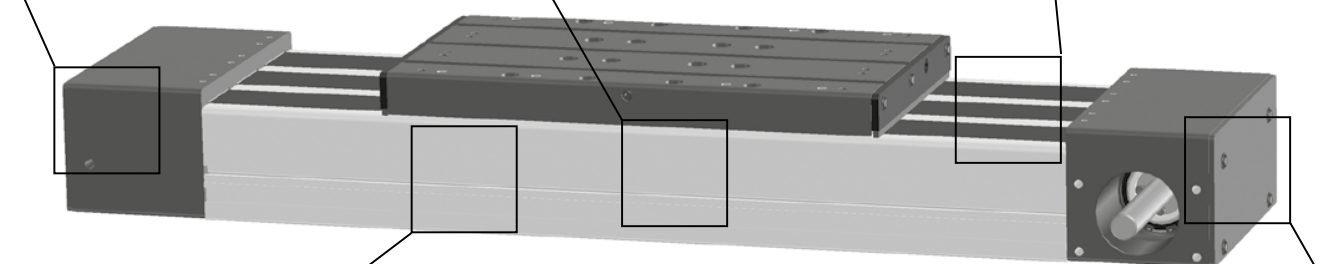
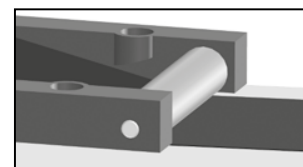
Belt drive

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



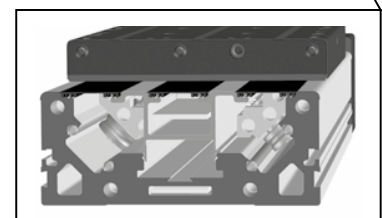
Cover band

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



Wheel guides

The robust wheel guides run 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.

Note! the unit is pictured without a RediMount™ flange

www.thomsonlinear.com



WH50

Belt Drive, Wheel Guide

- » Ordering key - see page 207
- » Accessories - see page 131
- » Additional data - see page 180

General Specifications

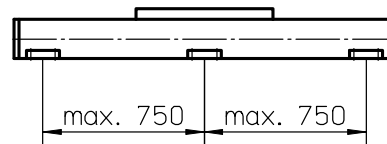
Parameter	WH50
Profile size (w × h) [mm]	50 × 50
Type of belt	16ATL5
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication og guiding surfaces
Included accessories	4 × mounting clamps

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 at maximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Performance Specifications

for Units with Single Standard Carriage (N)¹

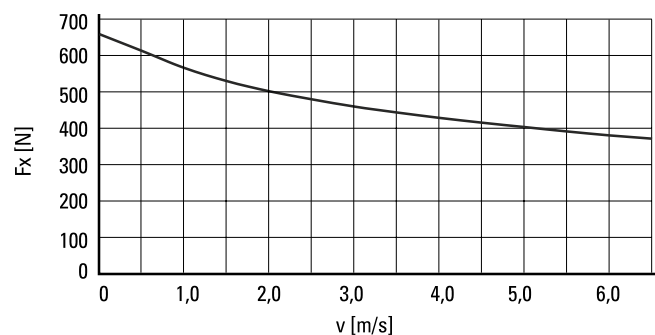
Parameter		WH50
Stroke length (Smax), maximum	[mm]	3000
Total length (L tot), maximum	[mm]	3440
Linear speed, maximum	[m/s]	6,5
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3250
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	670 ²
Dynamic 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 ³	[N]	150
Input/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 next page for deviating values of units with other carriage types.

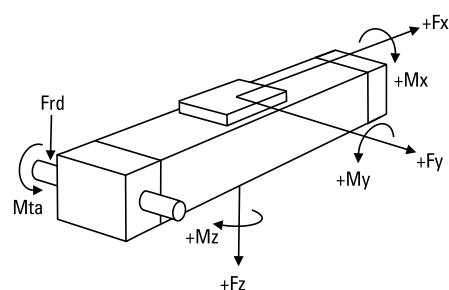
² See diagram Force Fx.

³ Only relevant for units without RediMount flange.

Force Fx as a Function of the Speed



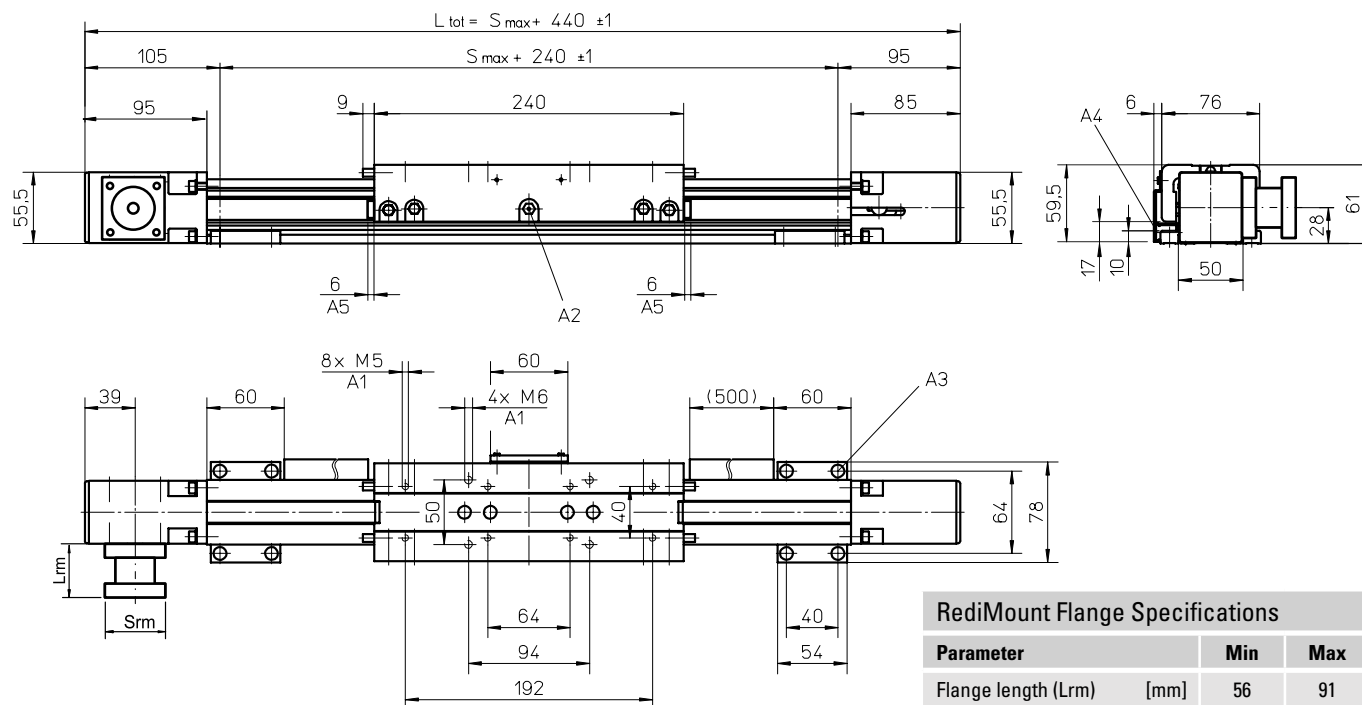
Definition of Forces



WH50

Belt Drive, Wheel Guide

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



- A1: depth 10
- A2: funnel type lubricating nipple DIN3405-M6×1-D1
- A3: socket cap screw ISO4762-M5×12 8.8
- A4: ENF inductive sensor rail kit (optional - see page 166)
- A5: felt pad wipers on both sides of the carriage

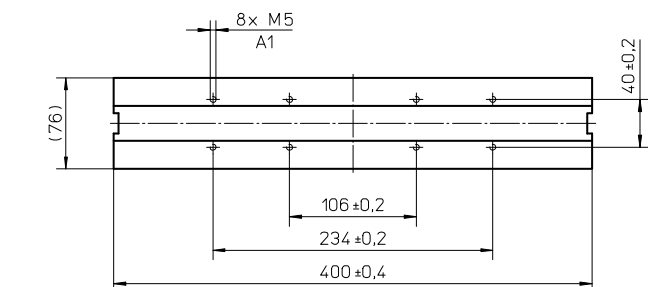
Parameter	Min	Max
Flange length (Lrm) [mm]	56	91
Flange square (Srm) [mm]	60	139
Flange weight * [kg]	1,81	

* Max. weight including coupling and fastening screws

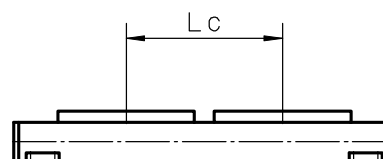
Parameter	WH50
Stroke length (Smax), maximum [mm]	3000
Total length (L tot), maximum [mm]	3600
Carriage length [mm]	400
Dynamic load torque (My), maximum [Nm]	130
Dynamic load torque (Mz), maximum [Nm]	75
Weight [kg]	1,47

Parameter	WH50
Stroke length (Smax), maximum [mm]	2900
Total length (L tot), maximum [mm]	3600
Minimum distance between carriages (Lc) [mm]	260
Dynamic load (Fy), maximum [N]	830
Dynamic load (Fz), maximum [N]	1460
Dynamic load torque (My), maximum [Nm]	Lc' × 0,415
Dynamic load torque (Mz), maximum [Nm]	Lc' × 0,73
Force required to move second carriage [N]	16
Total length (L tot) [mm]	Smax + 440 + Lc

¹ Value in mm



A1: depth 10



WH80

Belt Drive, Wheel Guide

- » Ordering key - see page 207
- » Accessories - see page 131
- » Additional data - see page 180

General Specifications

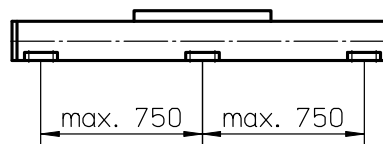
Parameter	WH80
Profile size (w × h) [mm]	80 × 80
Type of belt	32ATL10
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of guiding surfaces
Included accessories	4 × mounting clamps

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 at maximum 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 adequately supported on both sides.

Performance Specifications

for Units with Single Standard Carriage (N)¹

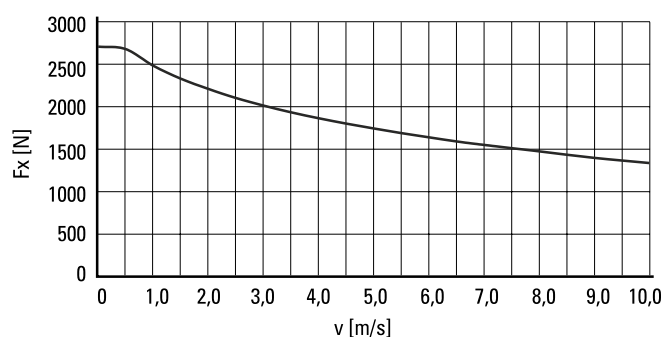
Parameter		WH80
Stroke length (S _{max}), maximum	[mm]	11000
Total length (L _{tot}), maximum	[mm]	11550
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (F _x), maximum	[N]	2700 ²
Dynamic load (F _y), maximum	[N]	882
Dynamic load (F _z), maximum	[N]	2100
Dynamic load torque (M _x), maximum	[Nm]	75
Dynamic load torque (M _y), maximum	[Nm]	230
Dynamic load torque (M _z), maximum	[Nm]	100
Drive shaft force (F _{rd}), maximum ³	[N]	500
Input/drive shaft torque (M _{ta}), 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 next page for deviating values of units with other carriage types.

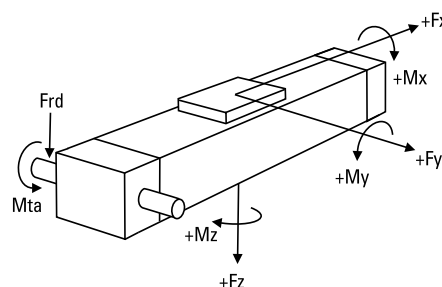
² See diagram Force F_x.

³ Only relevant for units without RediMount flange.

Force F_x as a Function of the Speed



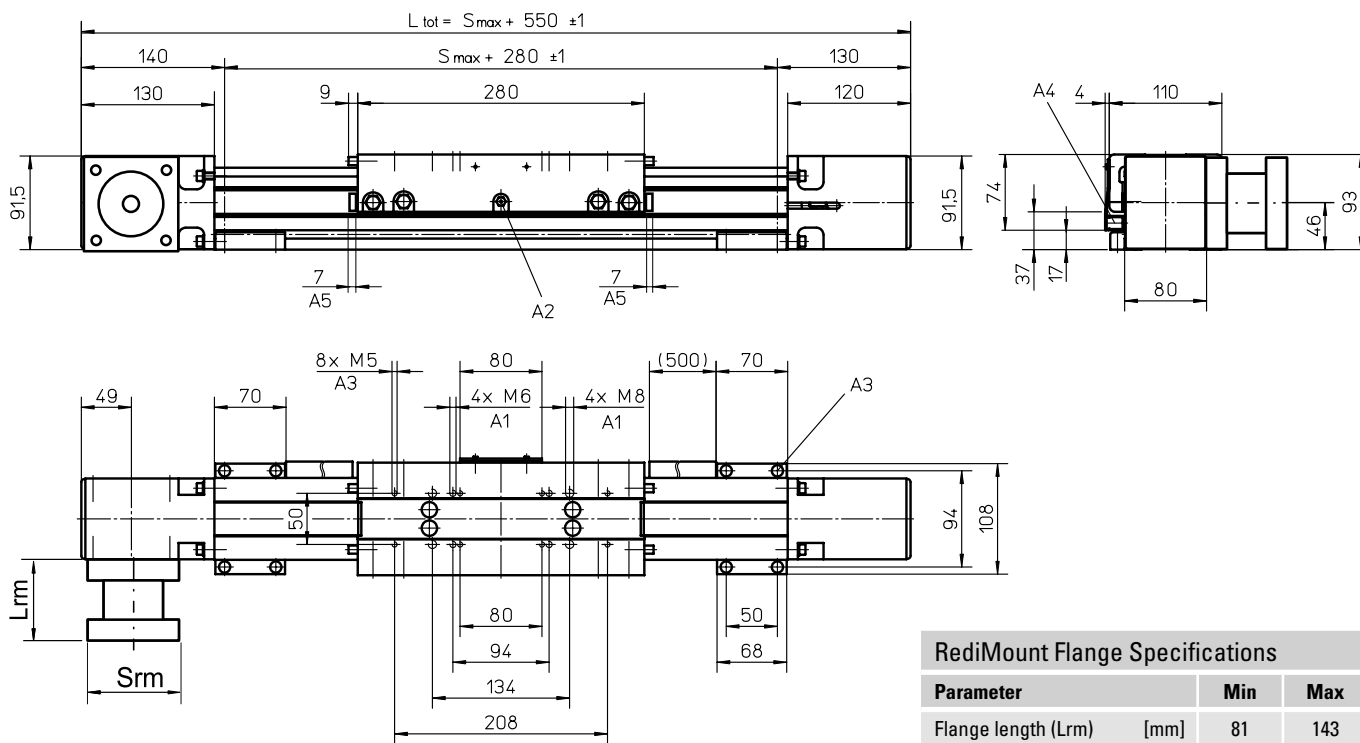
Definition of Forces



WH80

Belt Drive, Wheel Guide

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



- A1: depth 12
- A2: funnel type lubricating nipple DIN3405-M6x1-D1
- A3: socket cap screw ISO4762-M6x20 8.8
- A4: ENF inductive sensor rail kit (optional - see page 166)
- A5: felt pad wipers on both sides of the carriage

RediMount Flange Specifications

Parameter	Min	Max
Flange length (Lrm) [mm]	81	143
Flange square (Srm) [mm]	90	200
Flange weight * [kg]	5,70	

* Max. weight including coupling and fastening screws

Performance Specifications

for Units with Single Long Carriage (L)

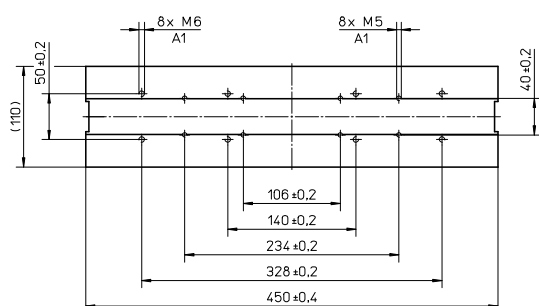
Parameter	WH80
Stroke length (Smax), maximum [mm]	11000
Total length (L tot), maximum [mm]	11720
Carriage length [mm]	450
Dynamic load torque (My), maximum [Nm]	345
Dynamic load torque (Mz), maximum [Nm]	150
Weight [kg]	3,43

Performance Specifications

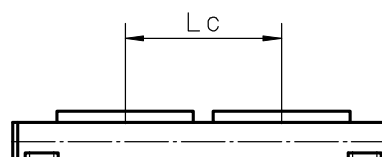
for Units with Double Standard Carriage (Z)

Parameter	WH80
Stroke length (Smax), maximum [mm]	10870
Total length (L tot), maximum [mm]	11720
Minimum distance between carriages (Lc) [mm]	300
Dynamic load (Fy), maximum [N]	1764
Dynamic load (Fz), maximum [N]	4200
Dynamic load torque (My), maximum [Nm]	$Lc^1 \times 0,882$
Dynamic load torque (Mz), maximum [Nm]	$Lc^1 \times 2,1$
Force required to move second carriage [N]	20
Total length (L tot) [mm]	$Smax + 550 + Lc$

¹ Value in mm



A1: depth 12



WH120

Belt Drive, Wheel Guide

- » Ordering key - see page 207
- » Accessories - see page 131
- » Additional data - see page 180

General Specifications

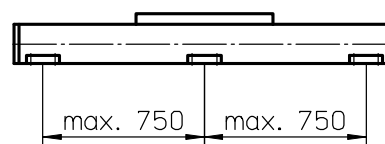
Parameter	WH120
Profile size (w × h) [mm]	120 × 110
Type of belt	50ATL10
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication og guiding surfaces
Included accessories	4 × mounting clamps

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 at maximum 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 adequately supported on both sides.

Performance Specifications

for Units with Single Standard Carriage (N)¹

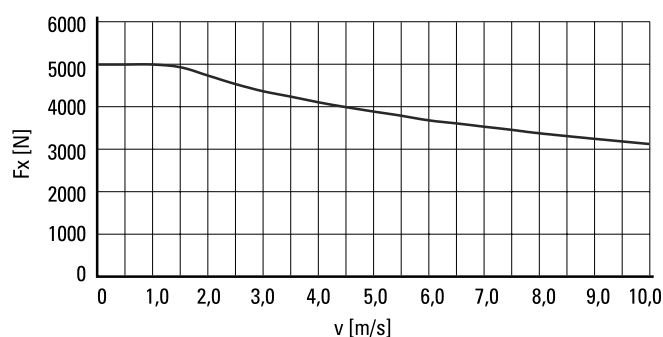
Parameter		WH120
Stroke length (S _{max}), maximum	[mm]	11000
Total length (L _{tot}), maximum	[mm]	11605
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	2308
Operation temperature limits	[°C]	0 – 80
Dynamic load (F _x), maximum	[N]	5000 ²
Dynamic load (F _y), maximum	[N]	4980
Dynamic load (F _z), maximum	[N]	9300
Dynamic load torque (M _x), maximum	[Nm]	500
Dynamic load torque (M _y), maximum	[Nm]	930
Dynamic load torque (M _z), maximum	[Nm]	500
Drive shaft force (F _{rd}), maximum ³	[N]	700
Input/drive shaft torque (M _{ta}), 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 next page for deviating values of units with other carriage types.

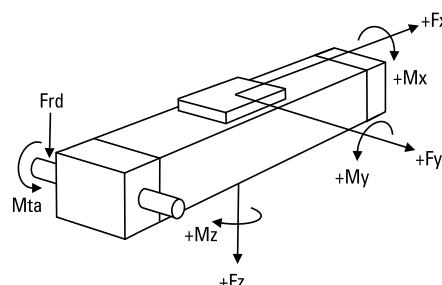
² See diagram Force F_x.

³ Only relevant for units without RediMount flange.

Force F_x as a Function of the Speed



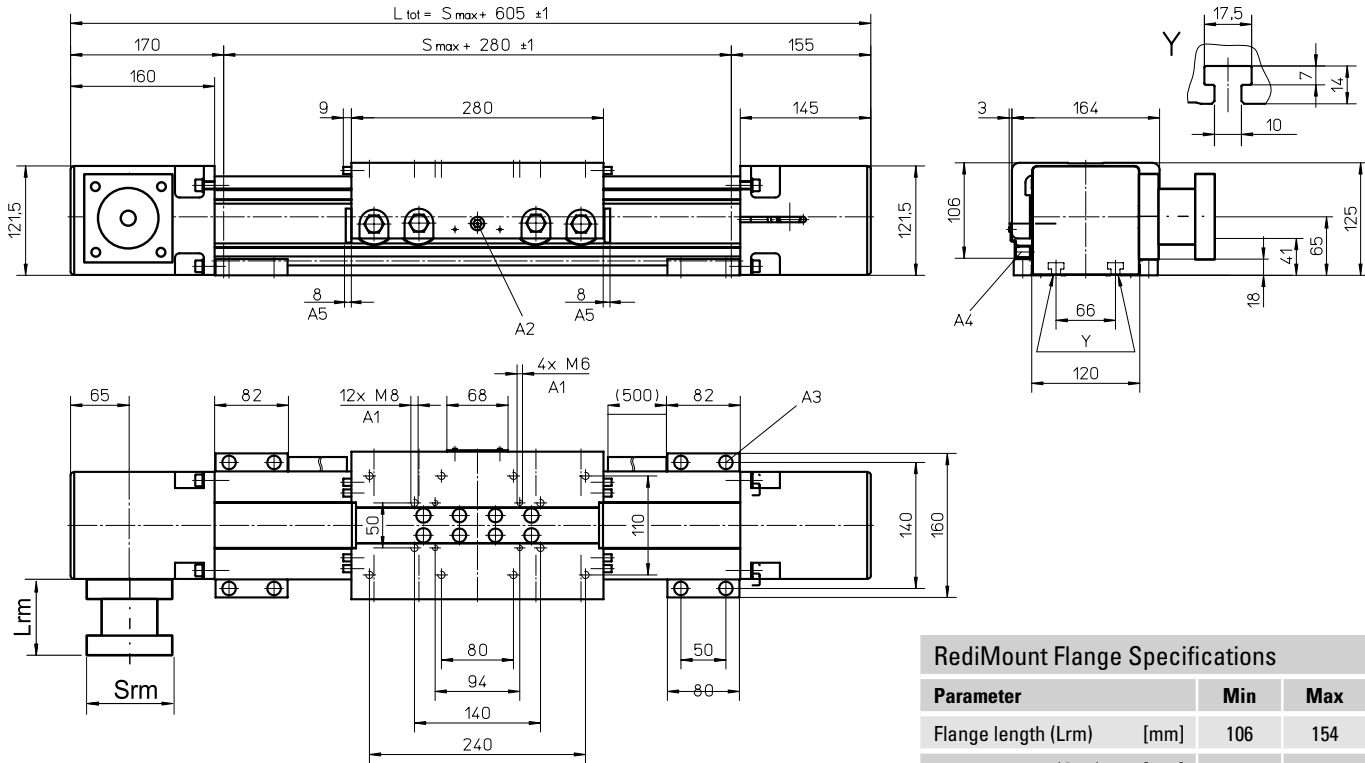
Definition of Forces



WH120

Belt Drive, Wheel Guide

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



- A1: depth 12
- A2: funnel type lubricating nipple DIN3405-M6x1-D1
- A3: socket cap screw ISO4762-M8x20 8.8
- A4: ENF inductive sensor rail kit (optional - see page 166)
- A5: felt pad wipers on both sides of the carriage

Parameter	Min	Max
Flange length (Lrm) [mm]	106	154
Flange square (Srm) [mm]	110	200
Flange weight * [kg]	5,97	

* Max. weight including coupling and fastening screws

Performance Specifications

for Units with Single Long Carriage (L)

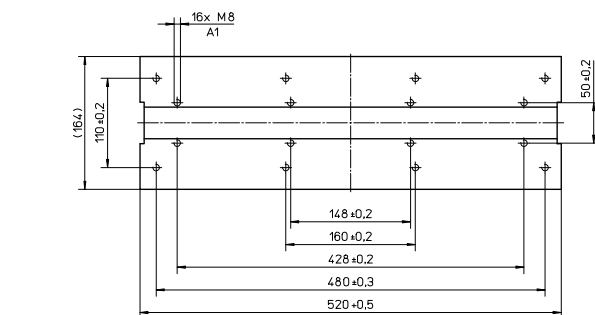
Parameter	WH120
Stroke length (Smax), maximum [mm]	11000
Total length (L tot), maximum [mm]	11845
Carriage length [mm]	520
Dynamic load torque (My), maximum [Nm]	1395
Dynamic load torque (Mz), maximum [Nm]	750
Weight [kg]	8,67

Performance Specifications

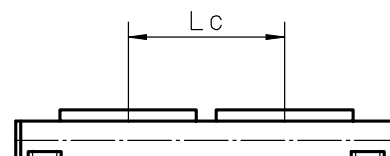
for Units with Double Standard Carriage (Z)

Parameter	WH120
Stroke length (Smax), maximum [mm]	10940
Total length (L tot), maximum [mm]	11845
Minimum distance between carriages (Lc) [mm]	300
Dynamic load (Fy), maximum [N]	9960
Dynamic load (Fz), maximum [N]	18600
Dynamic load torque (My), maximum [Nm]	$Lc^1 \times 4,98$
Dynamic load torque (Mz), maximum [Nm]	$Lc^1 \times 9,3$
Force required to move second carriage [N]	30
Total length (L tot) [mm]	$S_{max} + 605 + Lc$

¹ Value in mm



A1: depth 12



MLSH60Z

Belt Drive, Wheel Guide

- » Ordering key - see page 208
- » Accessories - see page 131
- » Additional data - see page 180

General Specifications

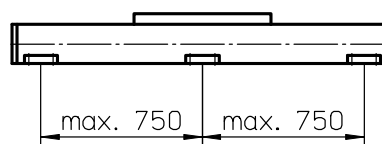
Parameter	MLSH60Z
Profile size (w × h) [mm]	160 × 65
Type of belt	32ATL5
Carriage sealing system	plastic cover band
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	no lubrication required
Included accessories	4 × mounting clamps

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 at maximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

Performance Specifications

for Units with Single Standard Carriage (N)¹

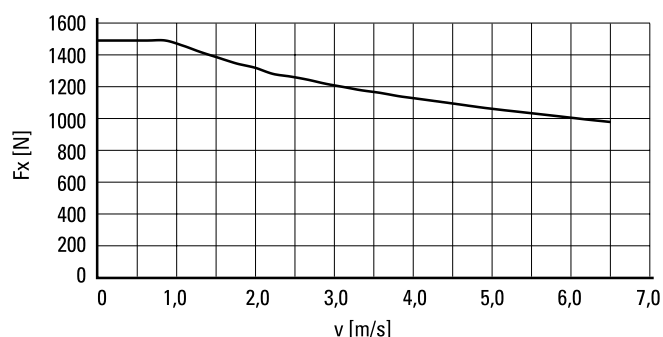
Parameter		MLSH60Z
Stroke length (S_{max}), maximum	[mm]	5500
Total length (L_{tot}), maximum	[mm]	5980
Linear speed, maximum	[m/s]	6,5
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (F_x), maximum	[N]	1480 ²
Dynamic load (F_y), maximum	[N]	3000
Dynamic load (F_z), maximum	[N]	3000
Dynamic load torque (M_x), maximum	[Nm]	165
Dynamic load torque (M_y), maximum	[Nm]	310
Dynamic load torque (M_z), maximum	[Nm]	310
Drive shaft force (F_{rd}), maximum ³	[N]	200
Input/drive shaft torque (M_{ta}), maximum	[Nm]	45
Pulley diameter	[mm]	42,97
Stroke per shaft revolution	[mm]	135
Weight	[kg]	
of unit with zero stroke		12,60
of every 100 mm of stroke		1,33
of each carriage		3,90

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

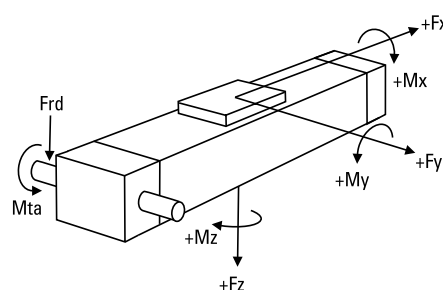
² See diagram Force F_x .

³ Only relevant for units without RediMount flange.

Force F_x as a Function of the Speed



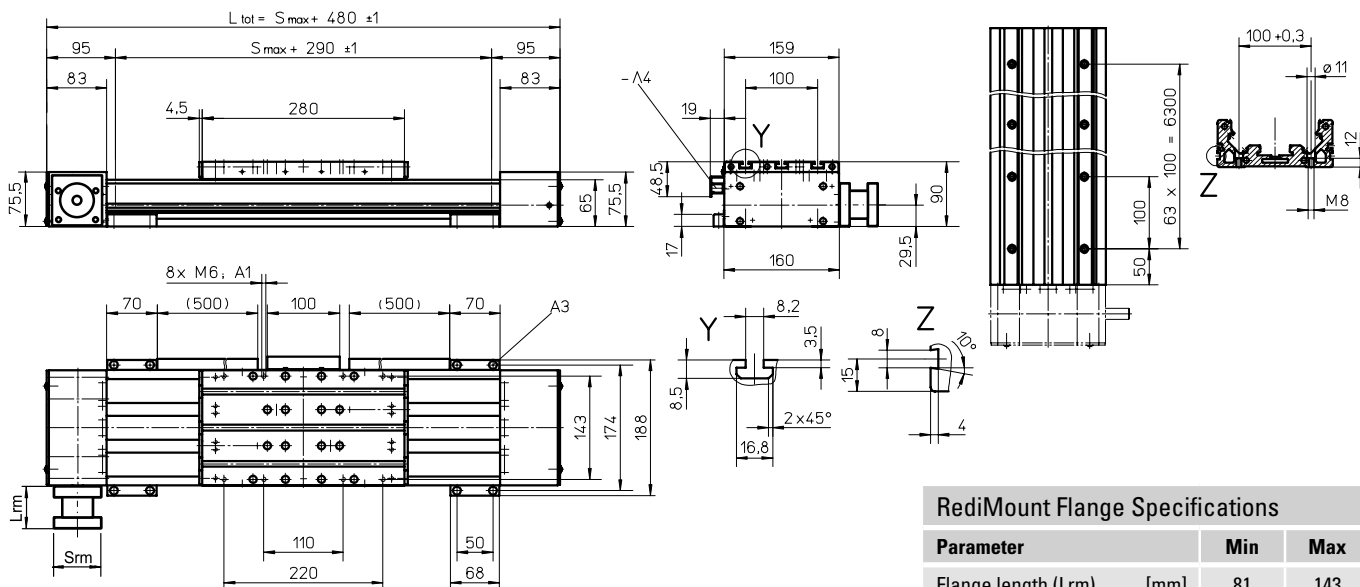
Definition of Forces



MLSH60Z

Belt Drive, Wheel Guide

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



A1: depth 10
 A2: depth 4
 A3: socket cap screw ISO4762-M6x20 8.8
 A4: ENF inductive sensor rail kit (optional - see page 166)

RediMount Flange Specifications

Parameter	Min	Max
Flange length (Lrm) [mm]	81	143
Flange square (Srm) [mm]	90	200
Flange weight * [kg]	5,58	

* Max. weight including coupling and fastening screws

Performance Specifications

for Units with Single Long Carriage (L)

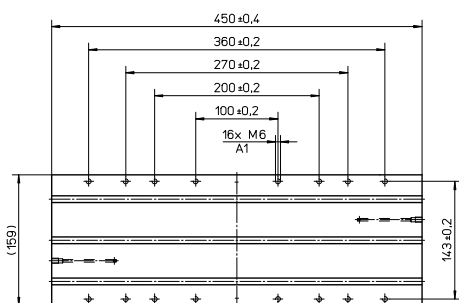
Parameter	MLSH60Z
Stroke length (Smax), maximum [mm]	5500
Total length (L tot), maximum [mm]	6150
Carriage length [mm]	450
Dynamic load torque (My), maximum [Nm]	585
Dynamic load torque (Mz), maximum [Nm]	585
Weight [kg]	6

Performance Specifications

for Units with Double Standard Carriage (Z)

Parameter	MLSH60Z
Stroke length (Smax), maximum [mm]	5380
Total length (L tot), maximum [mm]	6150
Minimum distance between carriages (Lc) [mm]	290
Dynamic load (Fy), maximum [N]	6000
Dynamic load (Fz), maximum [N]	6000
Dynamic load torque (My), maximum [Nm]	Lc' × 3
Dynamic load torque (Mz), maximum [Nm]	Lc' × 3
Force required to move second carriage [N]	10
Total length (L tot) [mm]	Smax + 480 + Lc

¹ Value in mm



A1: depth 10

