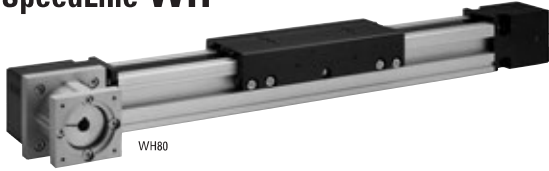




# Linear Units with Belt Drive and Wheel Guide

## Overview

### SpeedLine WH



#### Features

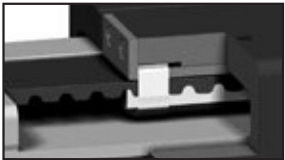
- Can be installed in any orientation
- Speed up to 11 m/s and stroke up to 11 m
- Acceleration up to 40 m/s<sup>2</sup>
- Felt pad wipers cleaning the guides as standard

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		102	104	106

## WH-Series Technical Presentation

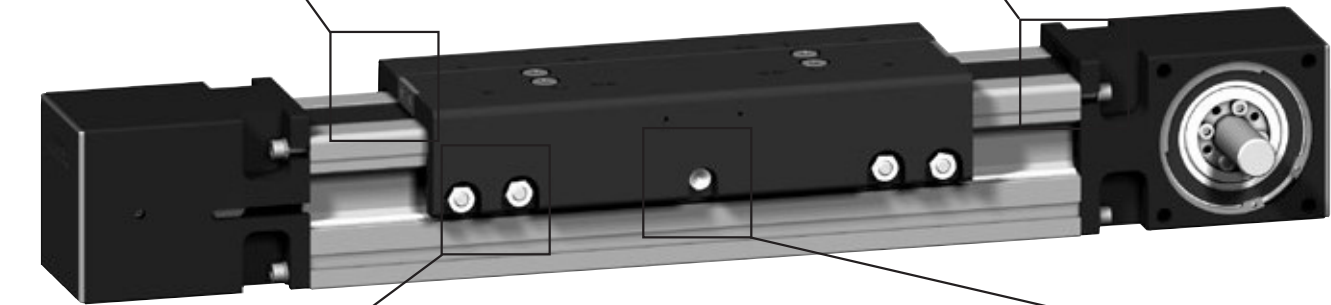
### Belt tensioning

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



# WH50

## Belt Drive, Wheel Guide

» Ordering key - see page 189  
 » Accessories - see page 117  
 » Additional data - see page 174

### 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

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

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 <sup>2</sup> ]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3250
Operation temperature limits	[°C]	0 – 80
Dynamic load (Fx), maximum	[N]	670 <sup>2</sup>
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 <sup>3</sup>	[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

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

<sup>2</sup> See diagram Force Fx.

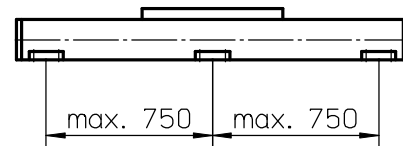
<sup>3</sup> Only relevant for units without RediMount flange.

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

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

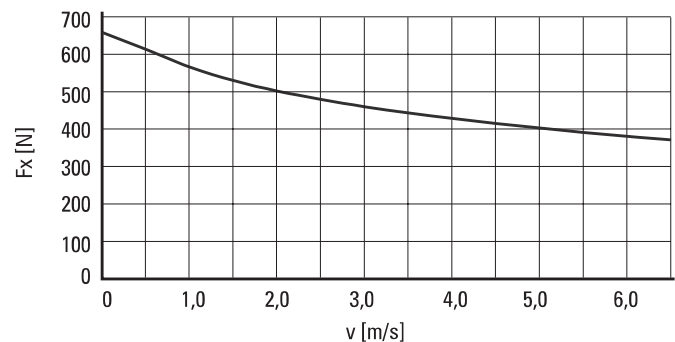
M idle = the input torque needed to move the carriage with no load on it.

### Deflection of the Profile

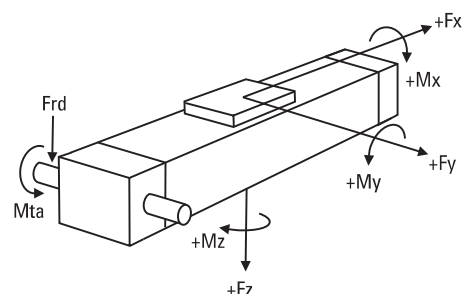


A mounting clamp must be installed at least every 750 mm to be able to operate at maximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information.

### Force Fx as a Function of the Speed




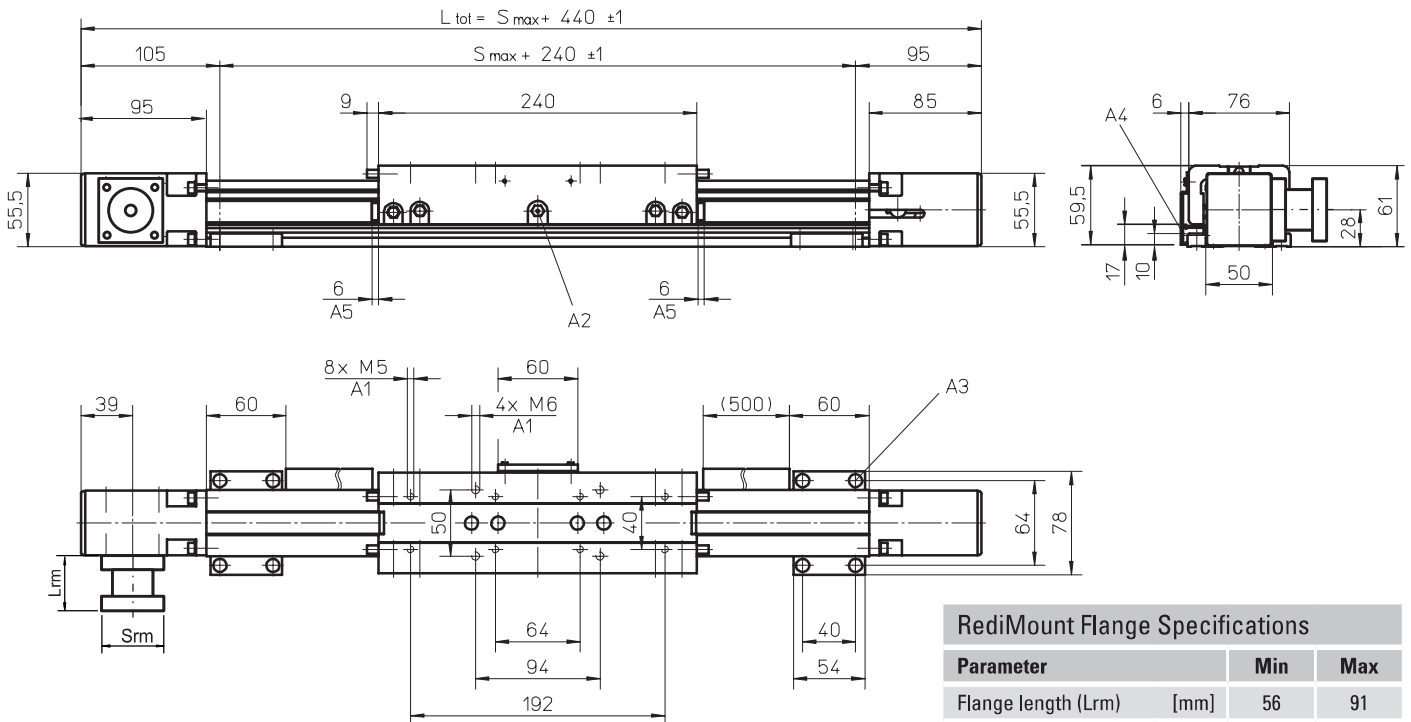
### Definition of Forces



# WH50

## Belt Drive, Wheel Guide

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



- A1: 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 150)
- 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

### Performance Specifications

for Units with Single Long Carriage (L)

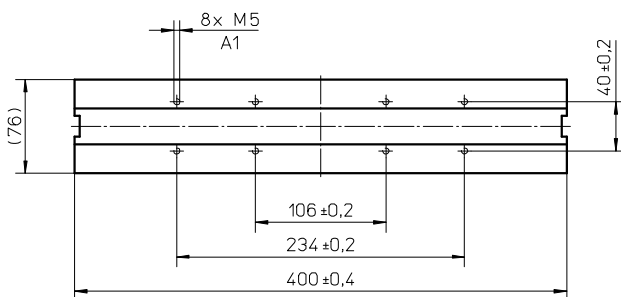
Parameter	WH50
Stroke length (Smax), maximum [mm]	3000
Total length (L tot), maximum [mm]	3600
Carriage length [mm]	400
Dynamic load torque (My), maximum [Nm]	130
Dynamic load torque (Mz), maximum [Nm]	75
Weight [kg]	1,47

### Performance Specifications

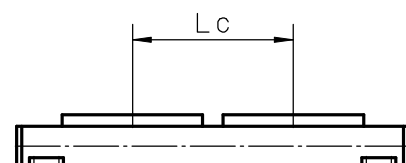
for Units with Double Standard Carriage (Z)

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 <sup>1</sup> × 0,415
Dynamic load torque (Mz), maximum [Nm]	Lc <sup>1</sup> × 0,73
Force required to move second carriage [N]	16
Total length (L tot) [mm]	Smax + 440 + Lc

<sup>1</sup> Value in mm



A1: depth 10





# WH80

## Belt Drive, Wheel Guide

» Ordering key - see page 189  
 » Accessories - see page 117  
 » Additional data - see page 174

### General Specifications

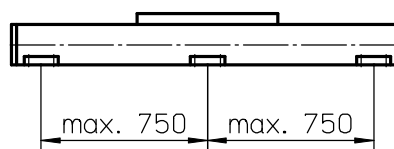
Parameter	WH80
Profile size (w × h) [mm]	80 × 80
Type of belt	32ATL10
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of guiding surfaces
Included accessories	4 × mounting clamps

### 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)<sup>1</sup>

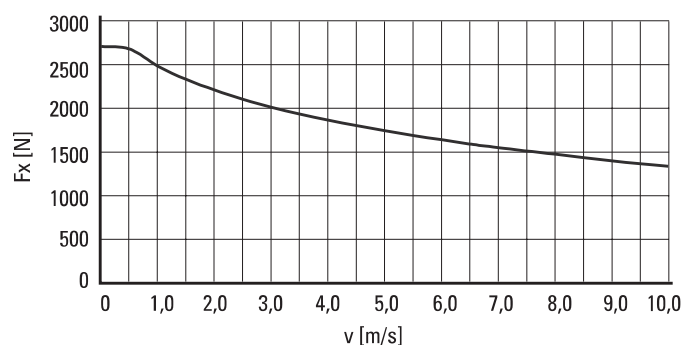
Parameter		WH80
Stroke length ( $S_{max}$ ), maximum	[mm]	11000
Total length ( $L_{tot}$ ), maximum	[mm]	11550
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s <sup>2</sup> ]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load ( $F_x$ ), maximum	[N]	2700 <sup>2</sup>
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 <sup>3</sup>	[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

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

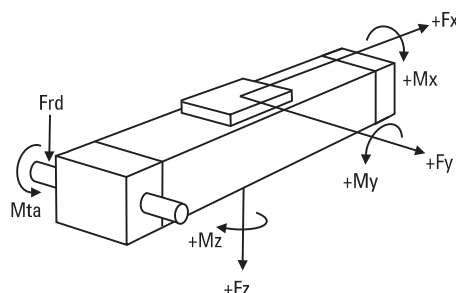
<sup>2</sup> See diagram Force  $F_x$ .

<sup>3</sup> Only relevant for units without RediMount flange.

### Force $F_x$ as a Function of the Speed



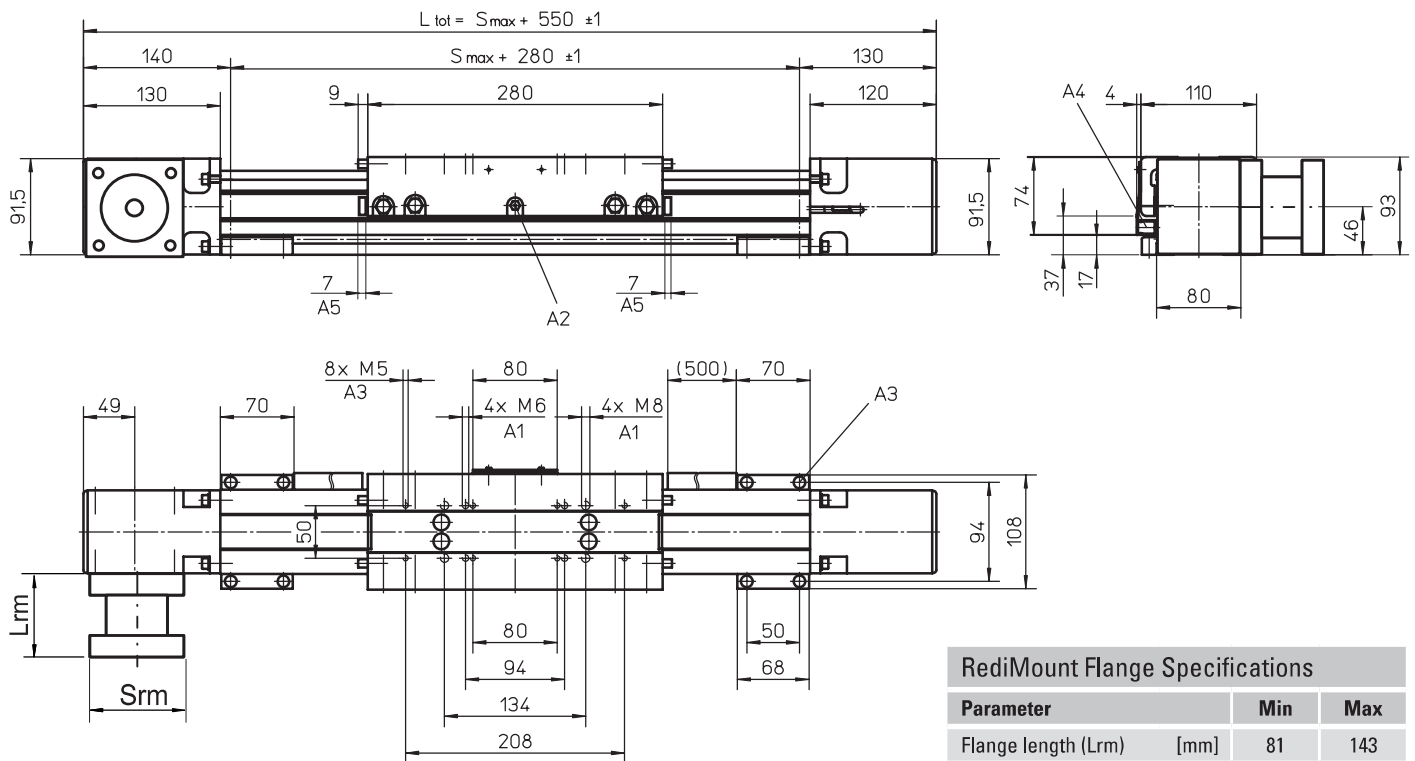
### Definition of Forces



# WH80

## Belt Drive, Wheel Guide

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



- A1: 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 150)
- A5: felt pad wipers on both sides of the carriage

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)

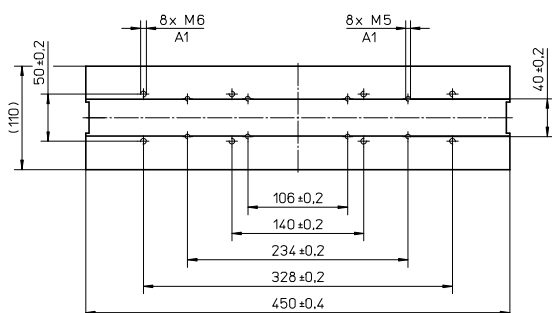
Parameter	WH80
Stroke length (Smax), maximum [mm]	11000
Total length (L tot), maximum [mm]	11720
Carriage length [mm]	450
Dynamic load torque (My), maximum [Nm]	345
Dynamic load torque (Mz), maximum [Nm]	150
Weight [kg]	3,43

### Performance Specifications

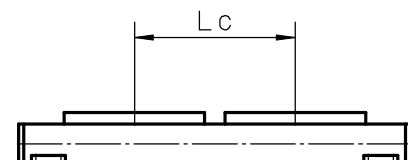
for Units with Double Standard Carriage (Z)

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' × 0,882
Dynamic load torque (Mz), maximum [Nm]	Lc' × 2,1
Force required to move second carriage [N]	20
Total length (L tot) [mm]	Smax + 550 + Lc

<sup>1</sup> Value in mm



A1: depth 12





# WH120

## Belt Drive, Wheel Guide

- » Ordering key - see page 189
- » Accessories - see page 117
- » Additional data - see page 174

### General Specifications

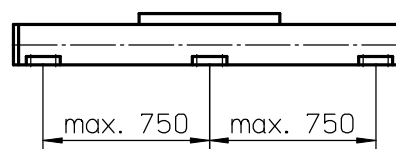
Parameter	WH120
Profile size (w × h) [mm]	120 × 110
Type of belt	50ATL10
Carriage sealing system	none
Adjustable belt tensioning	the belt can be retensioned by the customer if necessary
Lubrication	lubrication of guiding surfaces
Included accessories	4 × mounting clamps

### 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)<sup>1</sup>

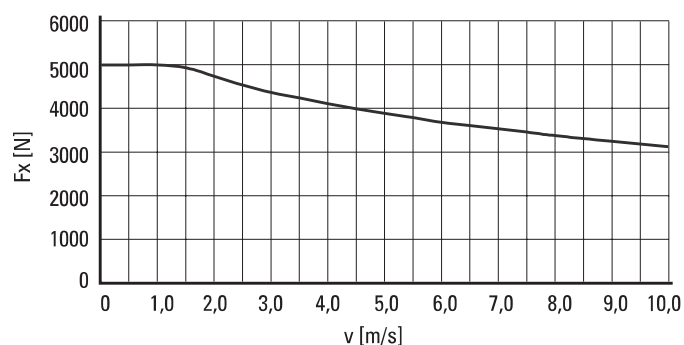
Parameter		WH120
Stroke length ( $S_{max}$ ), maximum	[mm]	11000
Total length ( $L_{tot}$ ), maximum	[mm]	11605
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s <sup>2</sup> ]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	2308
Operation temperature limits	[°C]	0 – 80
Dynamic load ( $F_x$ ), maximum	[N]	5000 <sup>2</sup>
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 <sup>3</sup>	[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

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

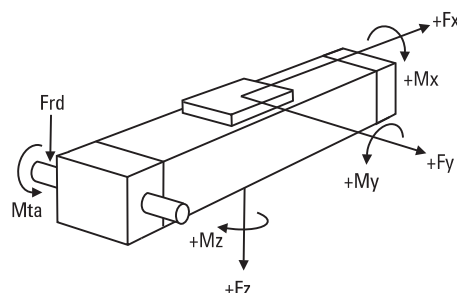
<sup>2</sup> See diagram Force  $F_x$ .

<sup>3</sup> Only relevant for units without RediMount flange.

### Force $F_x$ as a Function of the Speed



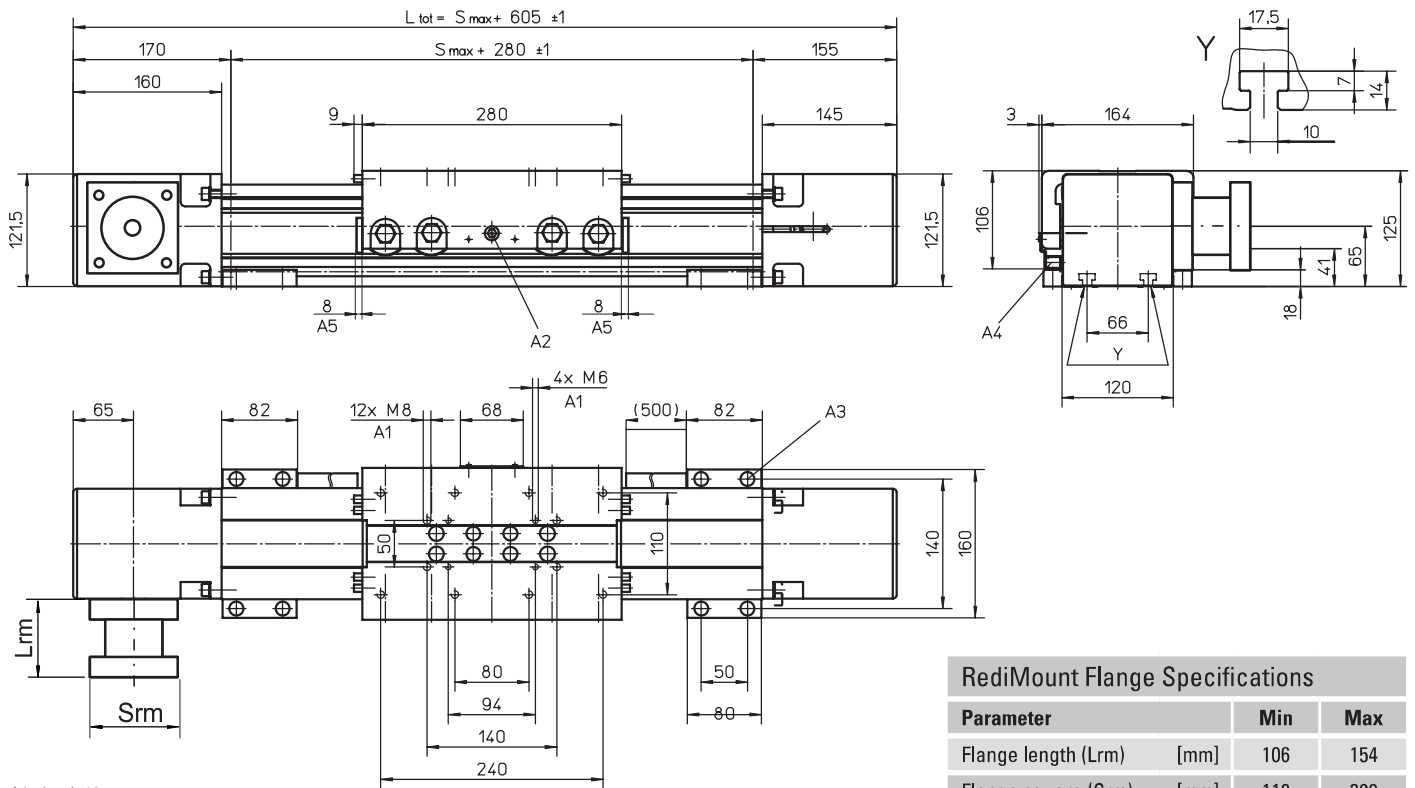
### Definition of Forces



# WH120

## Belt Drive, Wheel Guide

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



- A1: 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 150)
- 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)

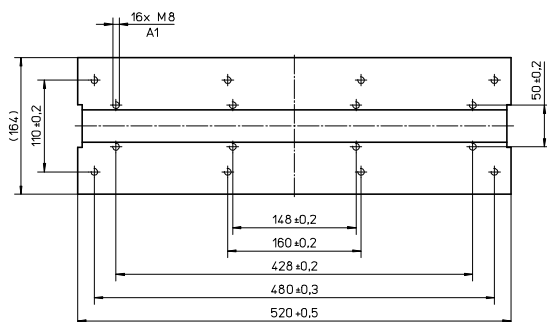
Parameter	WH120
Stroke length (Smax), maximum [mm]	11000
Total length (L tot), maximum [mm]	11845
Carriage length [mm]	520
Dynamic load torque (My), maximum [Nm]	1395
Dynamic load torque (Mz), maximum [Nm]	750
Weight [kg]	8,67

### Performance Specifications

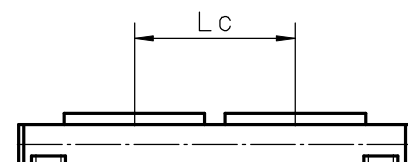
for Units with Double Standard Carriage (Z)

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 <sup>1</sup> × 4,98
Dynamic load torque (Mz), maximum [Nm]	LC <sup>1</sup> × 9,3
Force required to move second carriage [N]	30
Total length (L tot) [mm]	Smax + 605 + Lc

<sup>1</sup> Value in mm

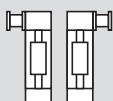
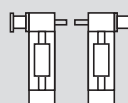
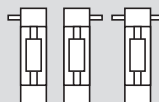


A1: depth 12



# Ordering Keys

## Linear Motion Systems with Belt Drive and Wheel Guides

WH50, WH80, WH120								
1	2	3	4	5	6	7	8	9
WH08Z	LX	BT8	-02300	-02710	N	L	0000	S2
<p><b>1. Type of unit</b>                      WH05Z = WH50 unit                      WH08Z = WH80 unit                      WH12Z = WH120 unit</p> <p><b>2. Transmission type</b>                      LX = inline style, directly coupled, RediMount flange                      SX = inline style, directly coupled, no RediMount flange</p> <p><b>3. RediMount motor ID code</b>                      vvww = alphanumeric motor code for suitable RediMount flange when motor is known                      999 = RediMount code used when motor is unknown                      XXX = for units without RediMount flange</p> <p><b>4. Maximum stroke (Smax)</b>                      -xxxxx = distance in mm</p> <p><b>5. Total length of unit (L tot)</b>                      -yyyyy = distance in mm</p>			<p><b>6. Drive shaft / RediMount flange configuration<sup>1</sup></b>                      A = shaft on left side without key way                      B = shaft on right side without key way                      C = shaft on left side with key way or RediMount                      D = shaft on right side with key way or RediMount                      E = shaft on left side without key way, shaft on right side with key way or RediMount                      F = shaft on left side with key way or RediMount, shaft on right side without key way                      G = shaft on left side without key way, shaft on right side for encoder                      H = shaft on left side for encoder, shaft on right side without key way                      I = shaft on left side with key way or RediMount, shaft on right side for encoder                      J = shaft on left side for encoder, shaft on right side with key way or RediMount                      K = hollow shaft on both sides without clamping unit                      L = shaft on left and right side without key way                      M = shaft on left side with key way or RediMount, shaft on right side with key way                      N = shaft on left side with key way, shaft on right side with key way or RediMount                      V = hollow shaft on both sides for Micron DT/DTR planetary gear option                      W = hollow shaft on both sides with clamping unit</p>			<p><b>7. Carriage configuration</b>                      N = single standard carriage                      L = single long carriage                      Z = double standard carriages</p> <p><b>8. Distance between double carriages</b>                      0000 = always for single carriages                      zzzz = distance in mm</p> <p><b>9. Protection option<sup>2</sup></b>                      S1 = wash down protection                      S2 = enhanced wash down protection</p> <p><sup>1</sup> See below for the definition of shafts.                      Left, right or both sides with shafts with RediMount</p>  <p>Left or right with RediMount and other side a shaft without RediMount</p>  <p>Left or right without RediMount</p>  <p><sup>2</sup> Leave position blank if no additional protection is required.</p>		

Note! for ordering of options type EN, ES, KRG, RT, ADG and MGK, see accessory index on page 131.