

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 (S _{max}), maximum	[mm]	1500	3000
Linear speed, maximum	[m/s]	6,5	10,0
Dynamic load (F _x), 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		112	114



WHZ50

Belt Drive, Wheel Guide

» Ordering key - see page 191
 » Accessories - see page 117
 » Additional data - see page 175

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	-

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.

Performance Specifications

for Units with Single Standard Carriage (N)¹

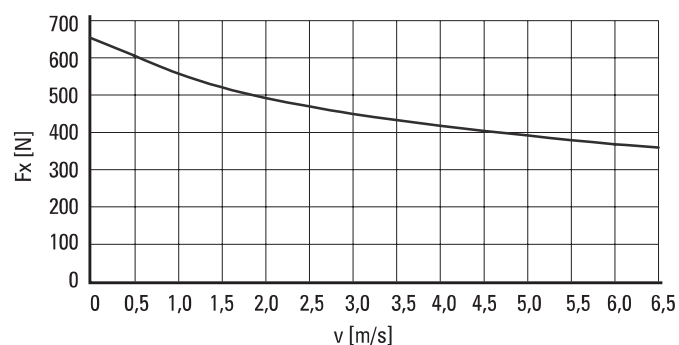
Parameter		WHZ50
Stroke length (S_{max}), maximum	[mm]	1500
Total length (L_{tot}), maximum	[mm]	1850
Linear speed, maximum	[m/s]	6,5
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3250
Operation temperature limits	[°C]	0 – 80
Dynamic load (F_x), maximum	[N]	670 ²
Dynamic load (F_y), maximum	[N]	415
Dynamic load (F_z), maximum	[N]	730
Dynamic load torque (M_x), maximum	[Nm]	16
Dynamic load torque (M_y), maximum	[Nm]	87
Dynamic load torque (M_z), maximum	[Nm]	50
Drive shaft force (F_{rd}), maximum ³	[N]	150
Input/drive shaft torque (M_{ta}), 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 next page for deviating values of units with other carriage types.

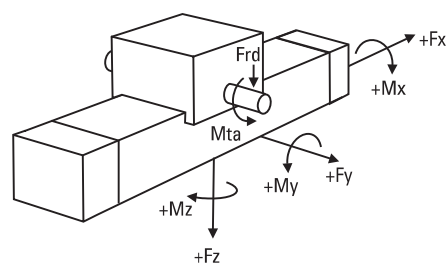
² See diagram Force F_x .

³ Only relevant for units without RediMount flange.

Force F_x as a Function of the Speed



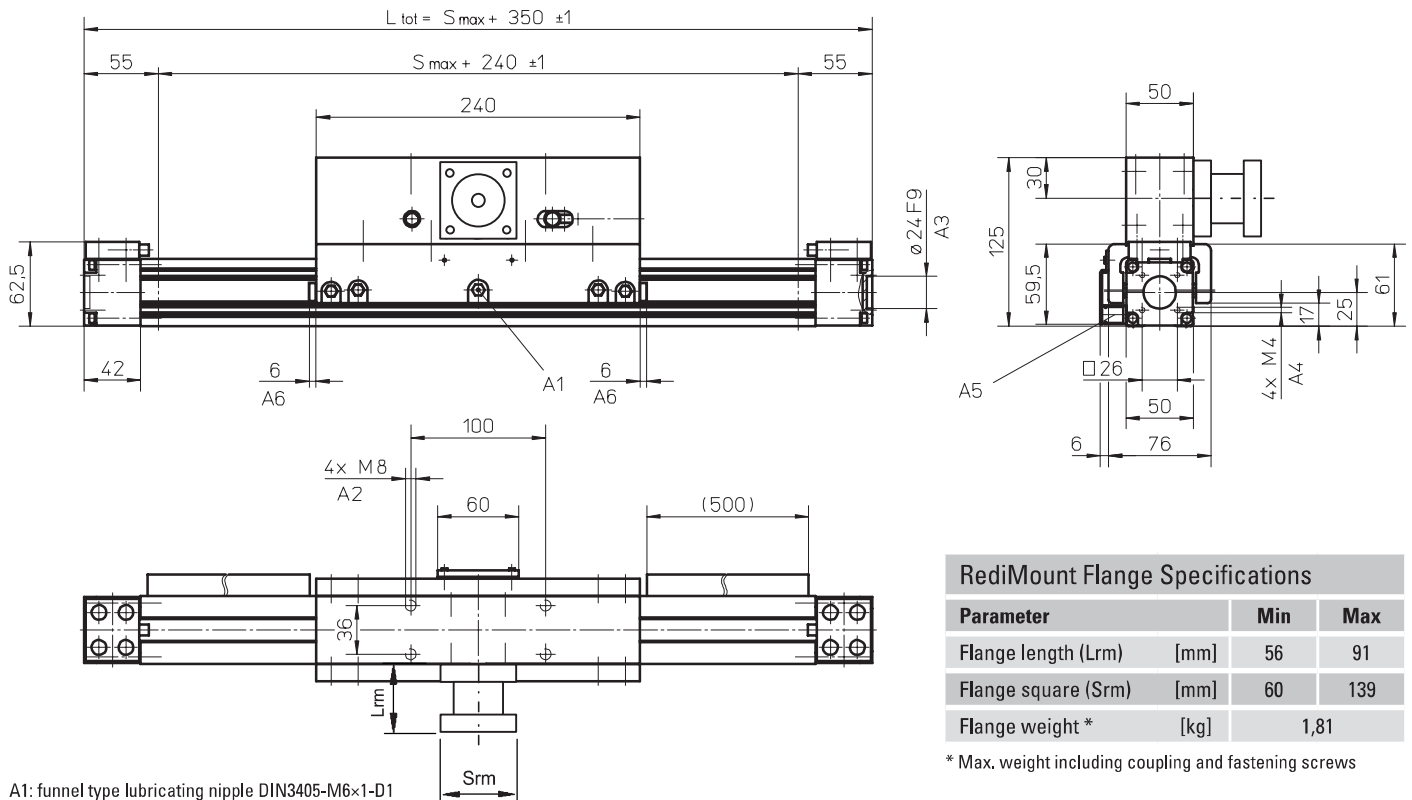
Definition of Forces



WHZ50

Belt Drive, Wheel Guide

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



- A1: funnel type lubricating nipple DIN3405-M6x1-D1
- A2: depth 16
- A3: depth 4
- A4: depth 8
- A5: ENF inductive sensor rail kit (optional - see page 150)
- A6: 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

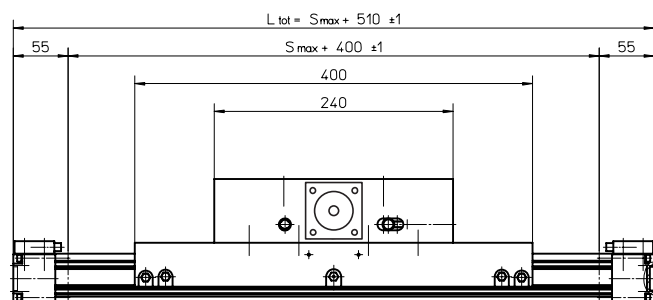
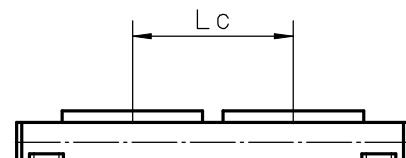
Performance Specifications for Units with Single Long Carriage (L)

Parameter	WHZ50
Stroke length (Smax), maximum [mm]	1500
Total length (L tot), maximum [mm]	2010
Carriage length [mm]	400
Dynamic load torque (My), maximum [Nm]	130
Dynamic load torque (Mz), maximum [Nm]	75
Weight [kg]	3,3

Performance Specifications for Units with Double Standard Carriage (Z)

Parameter	WHZ50
Stroke length (Smax), maximum [mm]	1400
Total length (L tot), maximum [mm]	2010
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]	$Lc^1 \times 0,415$
Dynamic load torque (Mz), maximum [Nm]	$Lc^1 \times 0,73$
Force required to move second carriage [N]	16
Total length (L tot) [mm]	$S_{max} + 350 + Lc$

¹ Value in mm





WHZ80

Belt Drive, Wheel Guide

» Ordering key - see page 191
 » Accessories - see page 117
 » Additional data - see page 175

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	-

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.

Performance Specifications

for Units with Single Standard Carriage (N)¹

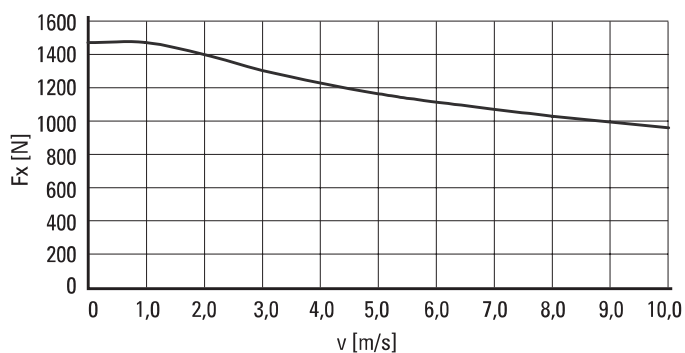
Parameter		WHZ80
Stroke length (S_{max}), maximum	[mm]	3000
Total length (L_{tot}), maximum	[mm]	3410
Linear speed, maximum	[m/s]	10,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,05
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (F_x), maximum	[N]	1480 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]	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 next page for deviating values of units with other carriage types.

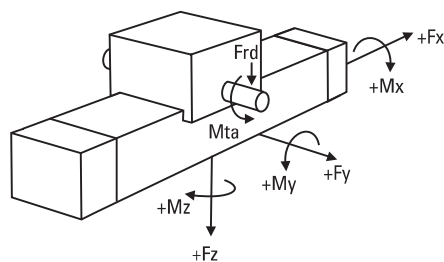
² See diagram Force F_x .

³ Only relevant for units without RediMount flange.

Force F_x as a Function of the Speed




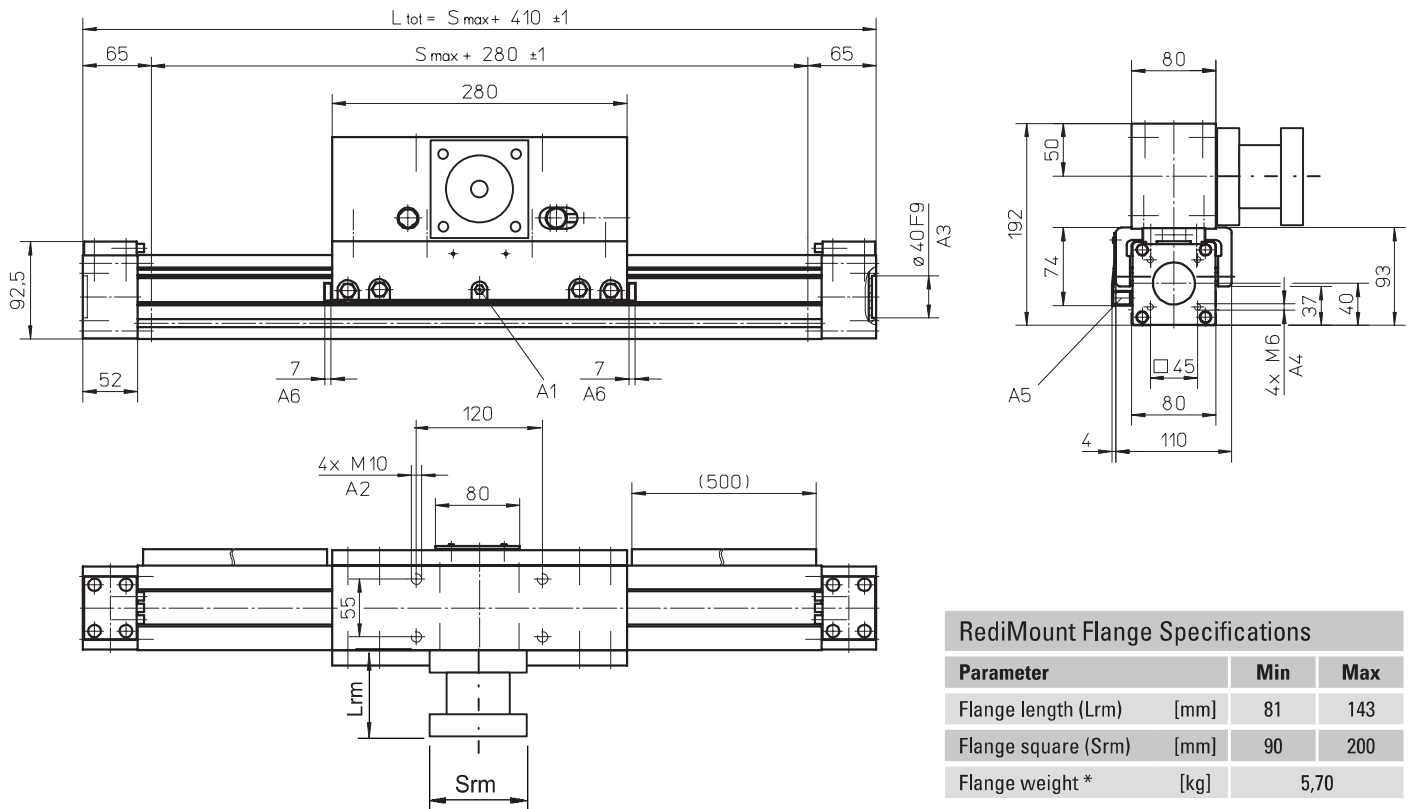
Definition of Forces



WHZ80

Belt Drive, Wheel Guide

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



- A1: funnel type lubricating nipple DIN3405-M6x1-D1
- A2: depth 4
- A3: depth 15
- 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	WHZ80
Stroke length (Smax), maximum [mm]	3000
Total length (L tot), maximum [mm]	3580
Carriage length [mm]	450
Dynamic load torque (My), maximum [Nm]	345
Dynamic load torque (Mz), maximum [Nm]	150
Weight [kg]	7,4

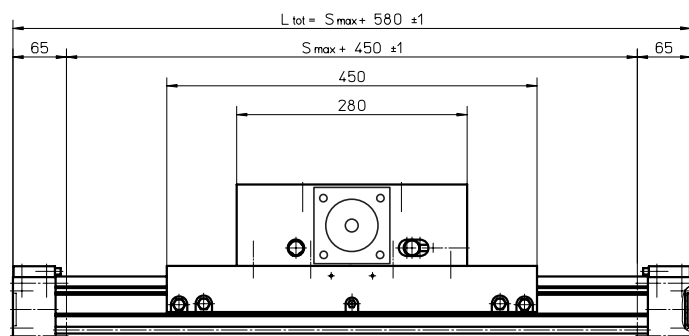
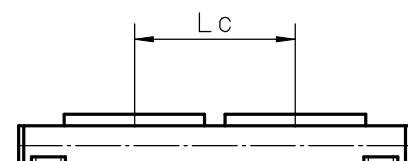
Performance Specifications

for Units with Double Standard Carriage (Z)

Parameter	WHZ80
Stroke length (Smax), maximum [mm]	2870
Total length (L tot), maximum [mm]	3580
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 × 0,882
Dynamic load torque (Mz), maximum [Nm]	Lc ¹ × 2,1
Force required to move second carriage [N]	20
Total length (L tot) [mm]	Smax + 410 + Lc

¹ Value in mm

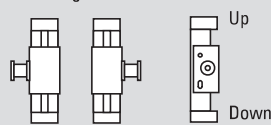
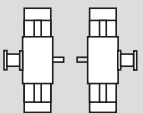
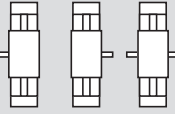
² Second carriage is always a long carriage



Ordering Keys

Linear Lifting Units

WHZ50, WHZ80

1	2	3	4	5	6	7	8	9
WHZ05Z	LX	KB5	-01000	-01410	A	N	0000	
<p>1. Type of unit WHZ05Z = WHZ50 unit WHZ08Z = WHZ80 unit</p> <p>2. Transmission type LX = inline style, directly coupled, RediMount flange SX = inline style, directly coupled, no RediMount flange</p> <p>3. RediMount motor ID code vww = alphanumeric motor code for suitable RediMount flange when motor is known 999 = RediMount code used when motor is unknown XXX = for units without RediMount flange</p> <p>4. Maximum stroke (Smax) - xxxxx = distance in mm</p> <p>5. Total length of unit (L tot) - yyyyy = distance in mm</p> <p><small>Note! for ordering of options type EN, ES, KRG, RT, ADG and MGK, see accessory index on page 131.</small></p>	<p>6. Drive shaft / RediMount flange configuration¹ 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 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>7. Carriage configuration N = single standard carriage L = single long carriage Z = double standard carriages</p> <p>8. Distance between double carriages 0000 = always for single carriages zzzz = distance in mm</p> <p>9. Protection option² S1 = wash down protection</p> <p>¹ See below for the definition of shafts. Left or right with RediMount</p>  <p>Left or right with RediMount and other side a shaft without RediMount</p>  <p>Left, right or both sides with shafts without RediMount</p>  <p>² Blank if no additional protection is required.</p>						