

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	-

Performance Specifications

for Units with Single Standard Carriage (N)¹

Parameter		WHZ50
Stroke length (Smax), 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 (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		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 Fx.

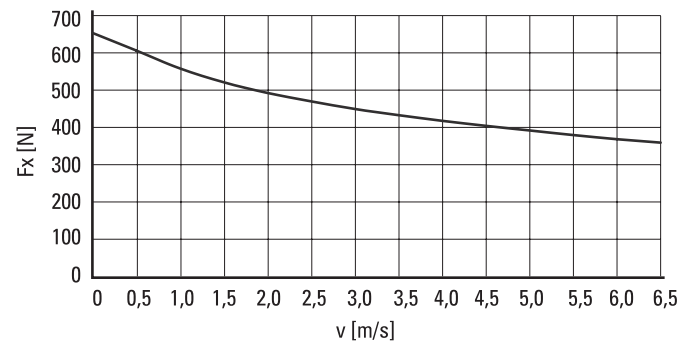
³ Only relevant for units without RediMount flange.

Carriage Idle Torque, (M idle) [Nm]

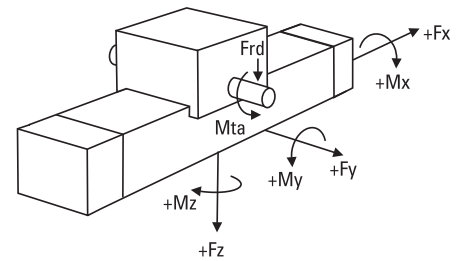
Input speed [rpm]	Idle torque [Nm]
150	1,7
1500	2,4
3250	3,8

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

Force Fx as a Function of the Speed



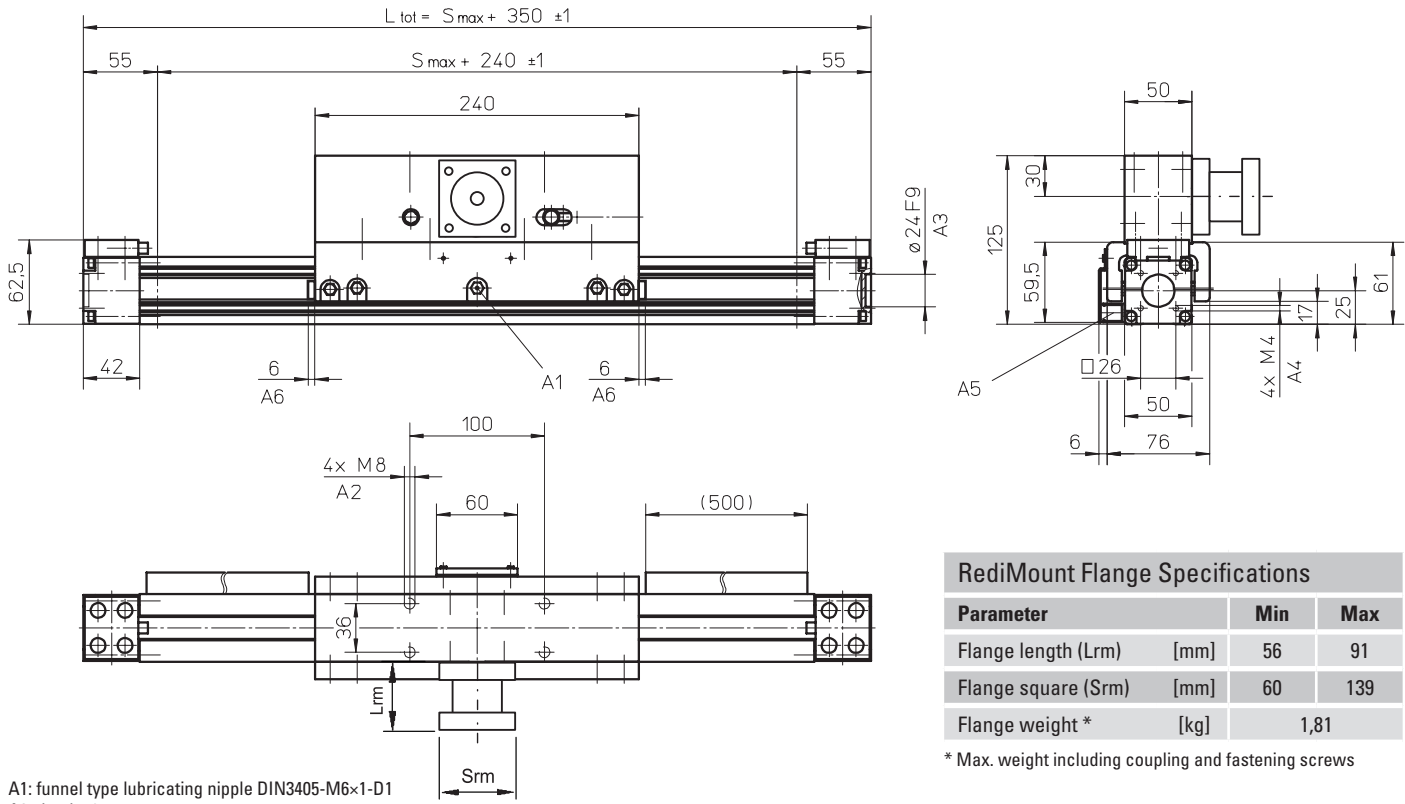
Definition of Forces



WHZ50

Belt Drive, Wheel Guide

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



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

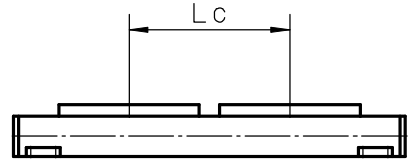
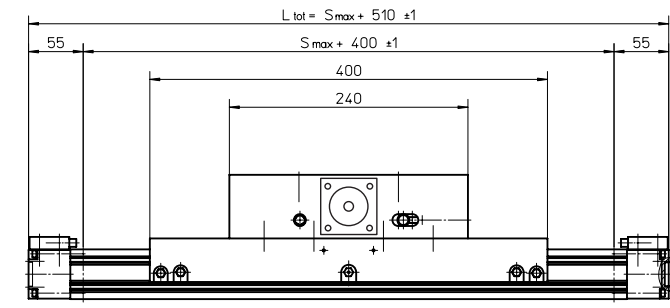
* Max. weight including coupling and fastening screws

- 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	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

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 × 0,415
Dynamic load torque (Mz), maximum [Nm]	Lc ¹ × 0,73
Force required to move second carriage [N]	16
Total length (L_tot) [mm]	Smax + 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	-

Performance Specifications

for Units with Single Standard Carriage (N)¹

Parameter		WHZ80
Stroke length (Smax), 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 (Fx), maximum	[N]	1480 ²
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 ³	[N]	500
Input/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 next page for deviating values of units with other carriage types.

² See diagram Force Fx.

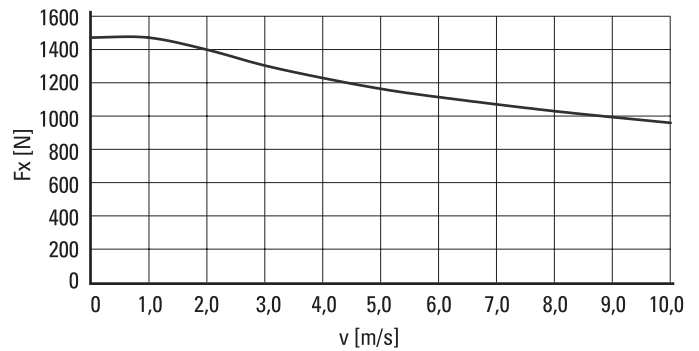
³ Only relevant for units without RediMount flange.

Carriage Idle Torque, (M idle) [Nm]

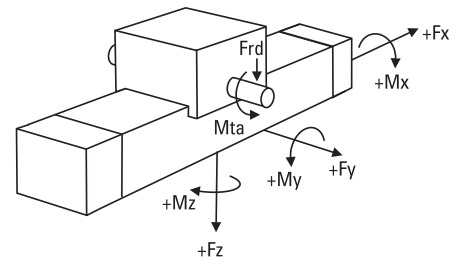
Input speed [rpm]	Idle torque [Nm]
150	2,4
1500	3,5
3000	5,0

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

Force Fx as a Function of the Speed



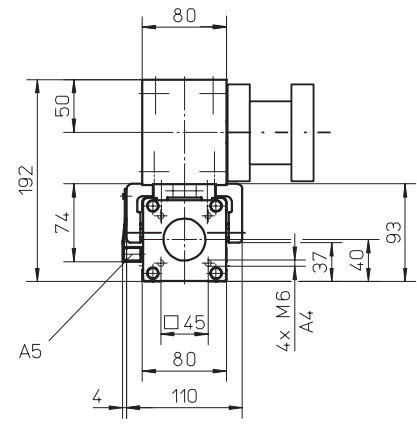
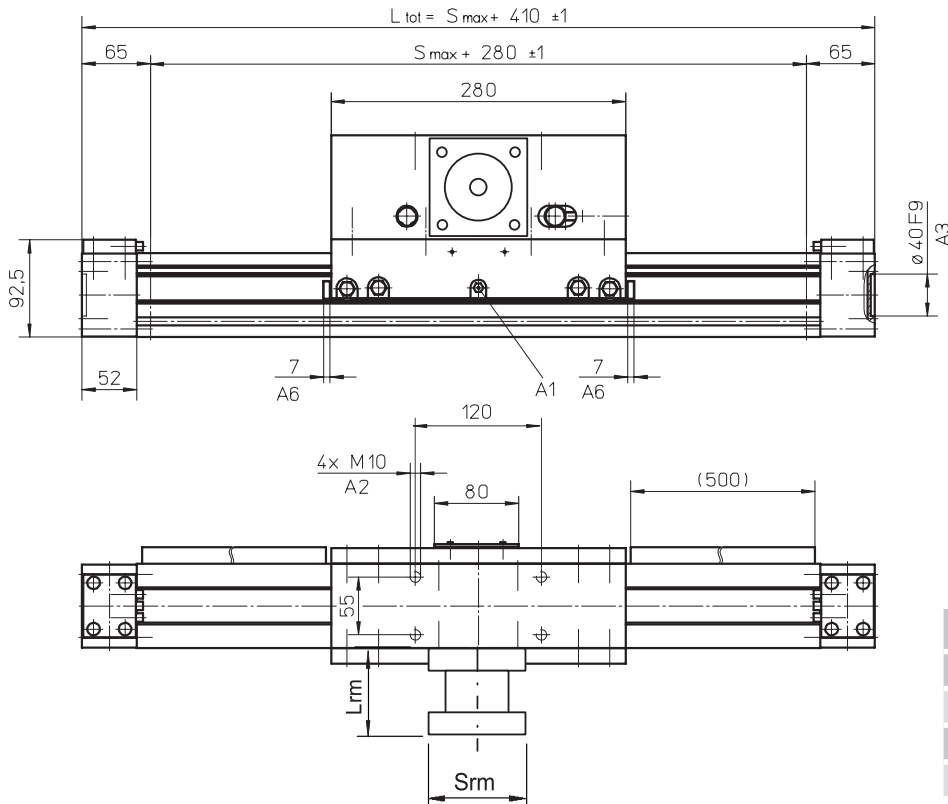
Definition of Forces



WHZ80

Belt Drive, Wheel Guide

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



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

- 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

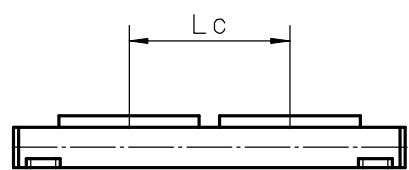
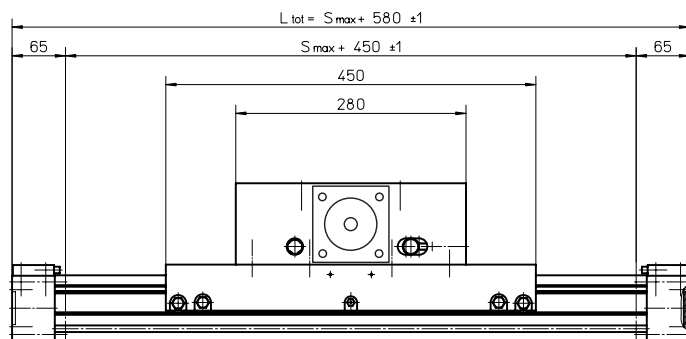
Performance Specifications for Units with Single Long Carriage (L)

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]	$Lc^1 \times 0,882$
Dynamic load torque (Mz), maximum [Nm]	$Lc^1 \times 2,1$
Force required to move second carriage [N]	20
Total length (L tot) [mm]	$S_{max} + 410 + Lc$

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





Accessories

Accessory Index

Mounting Kits.....page 118

- Mounting clamps 118
- Mounting clamps for multi axis systems 120
- Mounting plates for multi axis systems 121
- Adapter plates 121
- T-slot bolts and nuts..... 122

Cover and Protection Kits.....page 123

- Felt pad wipers type FA..... 123
- Shaft protection cover..... 123
- Protective bellows 124
- Protective shrouds..... 125
- Environment protection type S1 and S2..... 126

Motors, Gears and Transmission Kits.....page 128

- Worm gears type TBS40..... 128
- Belt gears type RT and BGM 130
- Planetary gears type Micron DT and DTR..... 136
- Intermediate shafts type VWZ and DSP 138
- Brakes..... 142

Electrical Feedback Devices.....page 143

- Limit switch brackets and limit switches..... 143
- Inductive and magnetic sensors and sensor brackets..... 144
- Encoders 147
- Limit switch kits type ES..... 148
- Sensor rails and kits type ENT, ENF and ENK..... 150
- Encoder kits type ADG..... 152

Non-driven Linear Motion Systems.....page 154

- WHxx non-driven units..... 154
- WMxx non-driven units..... 156
- Mxx non-driven units..... 159

Non-RediMount Linear Motion Systems.....page 160

- WMxx and WVxx non-RediMount units..... 160
- MLSMxx non-RediMount units..... 162
- Mxx ball screw driven non-RediMount units 163
- WH40 non-RediMount units..... 164
- WMxxZ non-RediMount units 165
- Mxx belt driven non-RediMount units..... 166
- MLSM80Z non-RediMount units 167
- M50 belt driven non-RediMount units..... 168
- WHxx non-RediMount units..... 168
- MLSH60Z non-RediMount units 170
- WHZxx non-RediMount units 170