

M55

Belt Drive, Ball Guide

- » Ordering key - see page 190
- » Accessories - see page 125
- » Additional data - see page 172

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 (S max), maximum	[mm]	7000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,1
Input speed, maximum	[rpm]	2850
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	
< 2,5 m/s		400
> 2,5 m/s		200
Dynamic load (F _y), maximum	[N]	750 ¹ / 5435 ²
Dynamic load (F _z), maximum	[N]	750 ¹ / 6968 ²
Dynamic load torque (M _x), maximum	[Nm]	5 ¹ / 49 ²
Dynamic load torque (M _y), maximum	[Nm]	29 ¹ / 212 ²
Dynamic load torque (M _z), maximum	[Nm]	29 ¹ / 212 ²
Drive shaft force (F _{rd}), maximum	[N]	200
Drive shaft torque (M _{ta}), maximum	[Nm]	12
Pulley diameter	[mm]	33,42
Stroke per shaft revolution	[mm]	105
Weight	[kg]	
of unit with zero stroke		4,80
of every 100 mm of stroke		0,53
of carriage		1,20

¹ Value for the complete unit

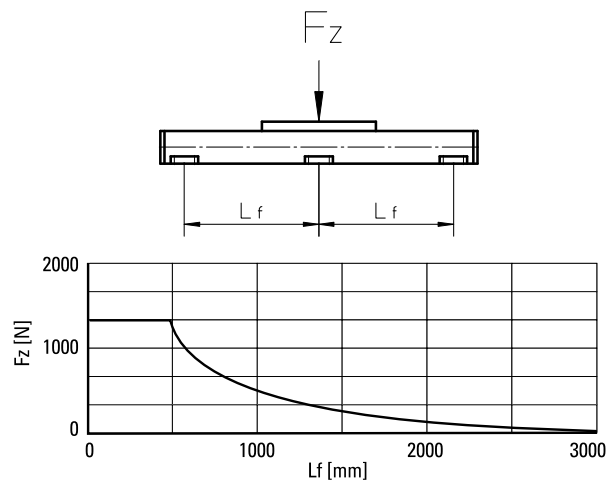
² Value for the ball guide only

Carriage Idle Torque (M_{idle}) [Nm]

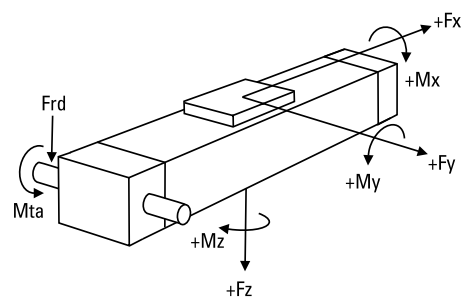
Input speed [rpm]	Single Carriage	Double Carriages
150	1,0	1,9

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

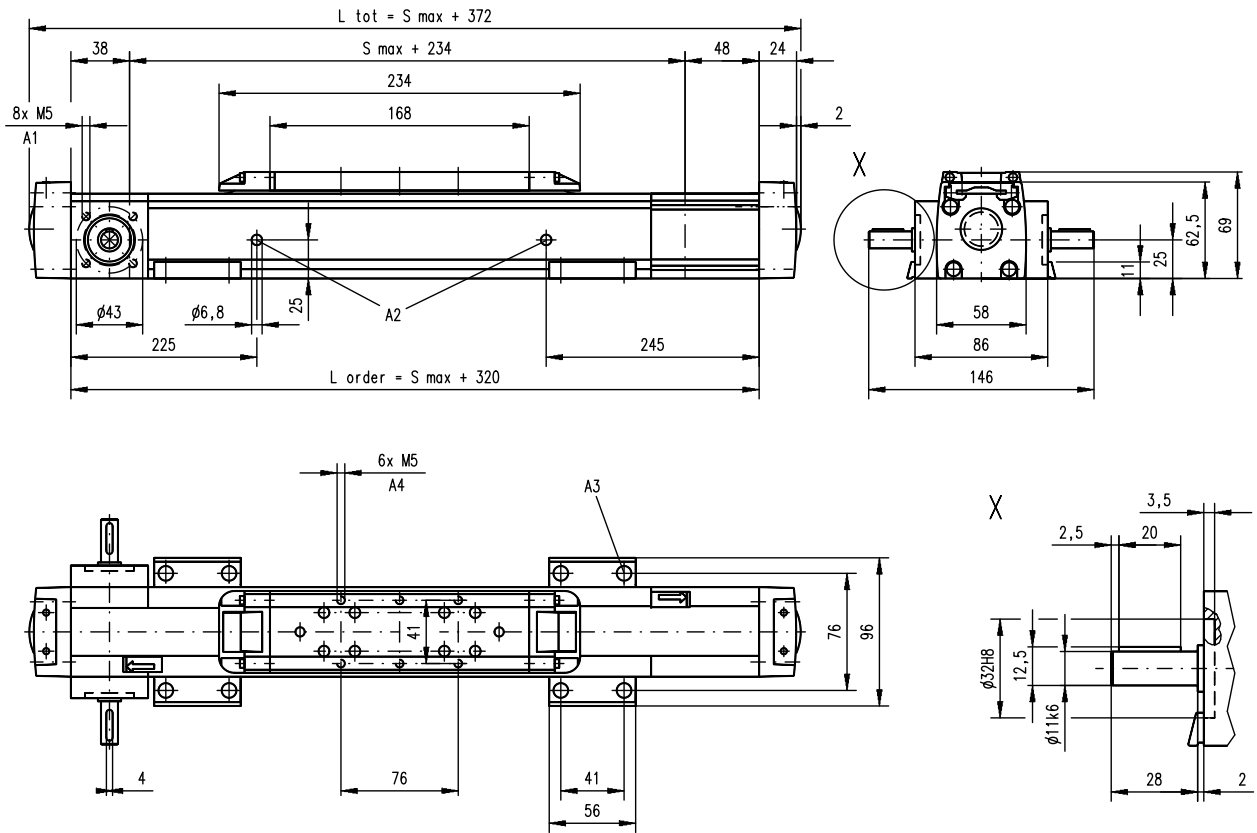


Definition of Forces



M55

Belt Drive, Ball Guide



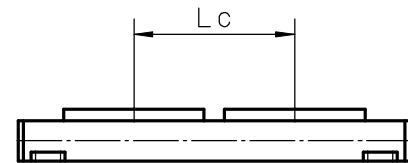
A1: depth 10, Heli coil
A2: lubrication holes

A3: $\emptyset 9,5/\emptyset 5,5$ for socket head cap screw M5
A4: depth 7,5 Heli coil

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]	$L_c^1 \times 0,56$
Dynamic load torque (Mz), maximum	[Nm]	$L_c^1 \times 0,56$
Force required to move second carriage	[N]	2
Ordering length (L order)	[mm]	$S_{max} + L_c + 320$
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

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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	lubrication of ball guide carriages
Included accessories	none

Performance Specifications

Parameter		M75
Stroke length (S max), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,1
Input speed, maximum	[rpm]	2300
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	
< 2,5 m/s		900
> 2,5 m/s		450
Dynamic load (F _y), maximum	[N]	1750 ¹ / 16413 ²
Dynamic load (F _z), maximum	[N]	1750 ¹ / 30968 ²
Dynamic load torque (M _x), maximum	[Nm]	16 ¹ / 150 ²
Dynamic load torque (M _y), maximum	[Nm]	84 ¹ / 743 ²
Dynamic load torque (M _z), maximum	[Nm]	84 ¹ / 787 ²
Drive shaft force (F _{rd}), maximum	[N]	600
Drive shaft torque (M _{ta}), maximum	[Nm]	30
Pulley diameter	[mm]	41,38
Stroke per shaft revolution	[mm]	130
Weight	[kg]	
of unit with zero stroke		7,50
of every 100 mm of stroke		0,88
of carriage		2,00

¹ Value for the complete unit

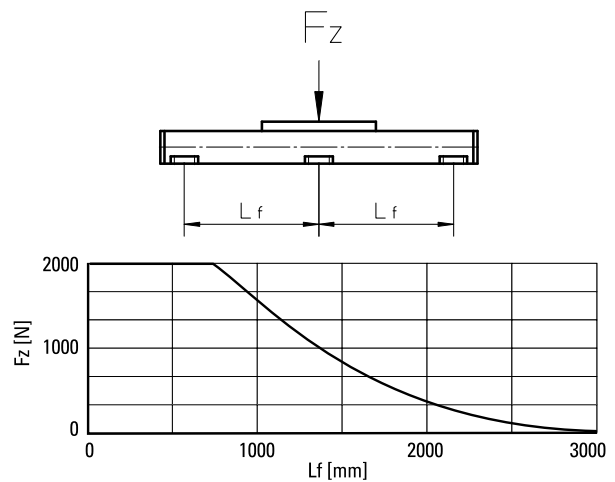
² Value for the ball guide only

Carriage Idle Torque (M_{idle}) [Nm]

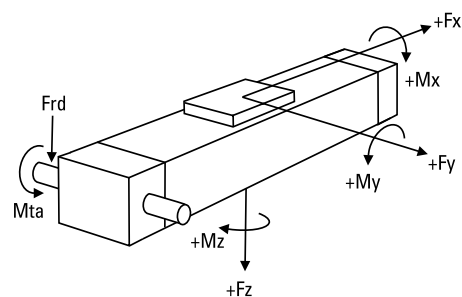
Input speed [rpm]	Single Carriage	Double Carriages
150	1,0	1,9

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

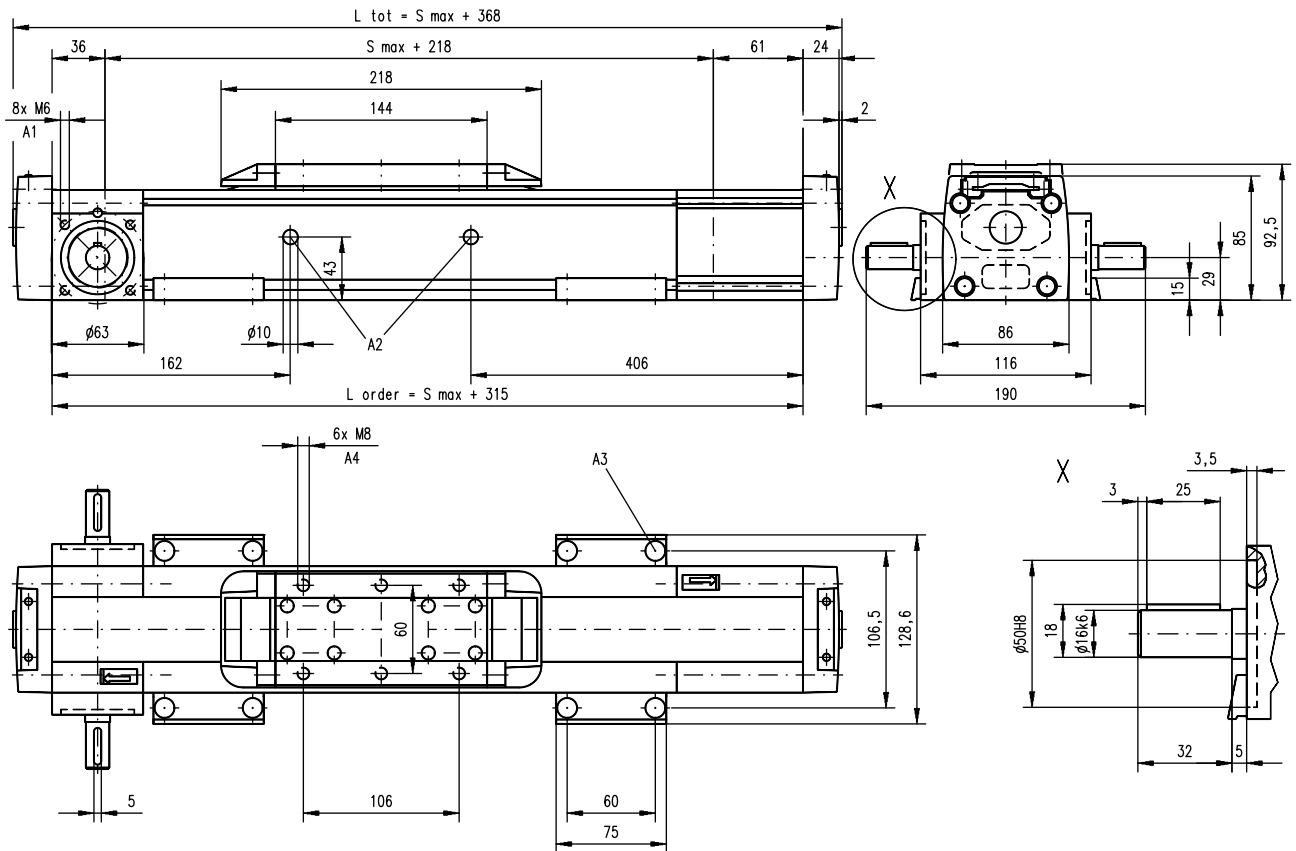


Definition of Forces



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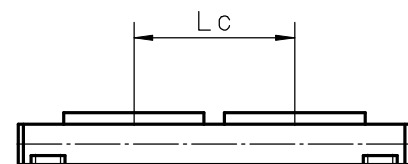


A1: depth 9, Heli coil
A2: lubrication holes

A3: $\phi 13,5/\phi 8,5$ for socket head cap screw M8
A4: depth 8, Heli coil

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]	$Lc^1 \times 1,313$
Dynamic load torque (Mz), maximum	[Nm]	$Lc^1 \times 1,313$
Force required to move second carriage	[N]	2
Ordering length (L order)	[mm]	$S_{max} + Lc + 315$
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

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- » Additional data - see page 172

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

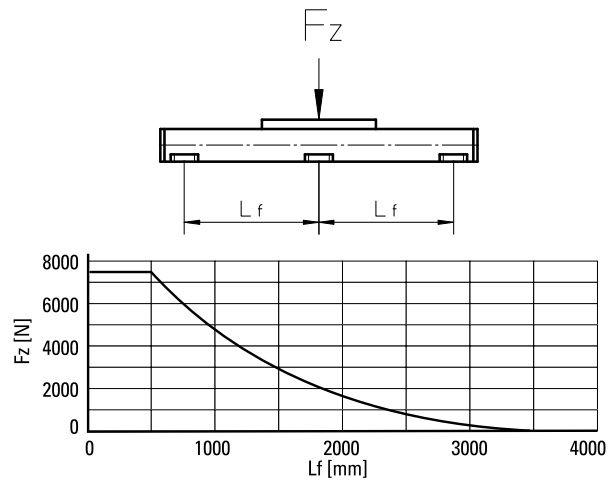
Parameter		M100
Stroke length (S max), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,1
Input speed, maximum	[rpm]	1700
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	
< 2,5 m/s		1250
> 2,5 m/s		625
Dynamic load (F _y), maximum	[N]	4000 ¹ / 26378 ²
Dynamic load (F _z), maximum	[N]	4000 ¹ / 49770 ²
Dynamic load torque (M _x), maximum	[Nm]	43 ¹ / 283 ²
Dynamic load torque (M _y), maximum	[Nm]	280 ¹ / 1742 ²
Dynamic load torque (M _z), maximum	[Nm]	280 ¹ / 1846 ²
Drive shaft force (F _{rd}), maximum	[N]	1000
Drive shaft torque (M _{ta}), maximum	[Nm]	45
Pulley diameter	[mm]	56,02
Stroke per shaft revolution	[mm]	176
Weight	[kg]	
of unit with zero stroke		11,61
of every 100 mm of stroke		1,43
of carriage		2,20

Carriage Idle Torque (M_{idle}) [Nm]

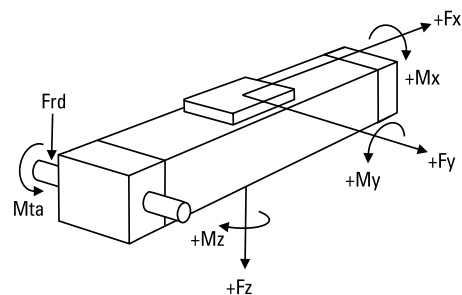
Input speed [rpm]	Single Carriage	Double Carriages
150	1,6	3,1

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

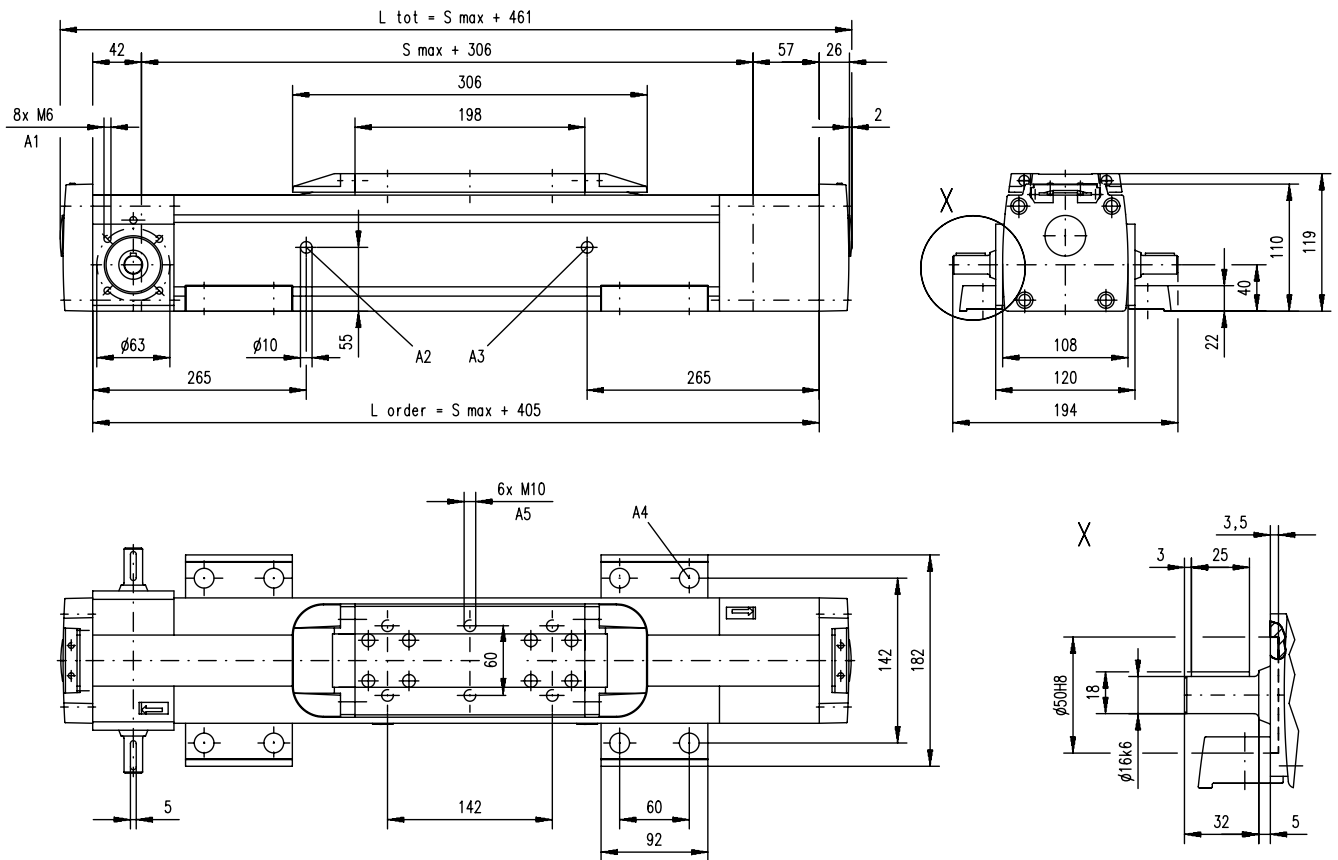


Definition of Forces



M100

Belt Drive, Ball Guide



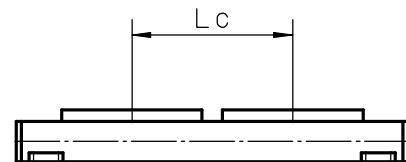
A1: depth 9, Heli coil
A2: lubrication hole

A3: lubrication hole (no hole if L order is < 856 mm)
A4: $\varnothing 17/\varnothing 10,5$ 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]	$Lc^1 \times 3$
Dynamic load torque (Mz), maximum	[Nm]	$Lc^1 \times 3$
Force required to move second carriage	[N]	2
Ordering length (L order)	[mm]	$S_{max} + Lc + 405$
Total length (L tot)	[mm]	$L_{order} + 56$
Weight of unit with zero stroke of carriages	[kg]	18,92 4,40

¹ Value in mm



M50

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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 (S max), maximum	[mm]	5000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	2300
Operation temperature limits	[°C]	-20 – 70
Dynamic load (Fx), maximum	[N]	
< 2,5 m/s		400
> 2,5 m/s		200
Dynamic load (Fy), maximum	[N]	400 ¹
Dynamic load (Fz), maximum	[N]	400 ¹
Dynamic load torque (Mx), maximum	[Nm]	5 ¹
Dynamic load torque (My), maximum	[Nm]	21 ¹
Dynamic load torque (Mz), maximum	[Nm]	21 ¹
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	[kg]	
of unit with zero stroke		0,71
of every 100 mm of stroke		0,96
of carriage		0,33

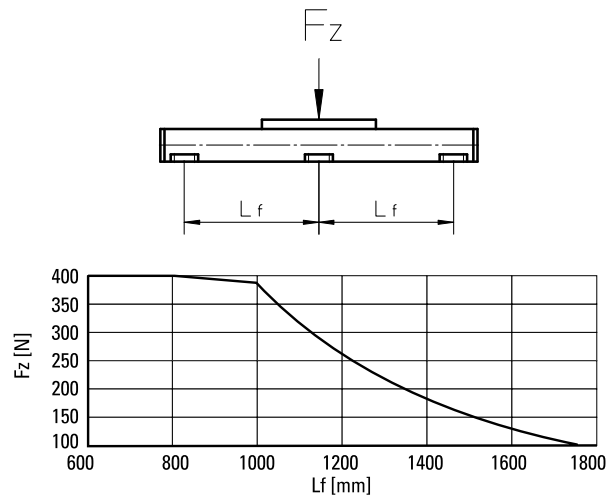
¹ Value for the complete unit

Carriage Idle Torque (M idle) [Nm]

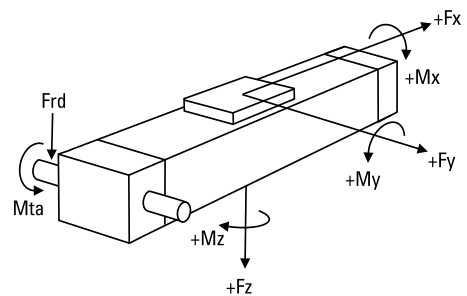
Input speed [rpm]	Idle torque [Nm]
150	2,1

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

Deflection of the Profile

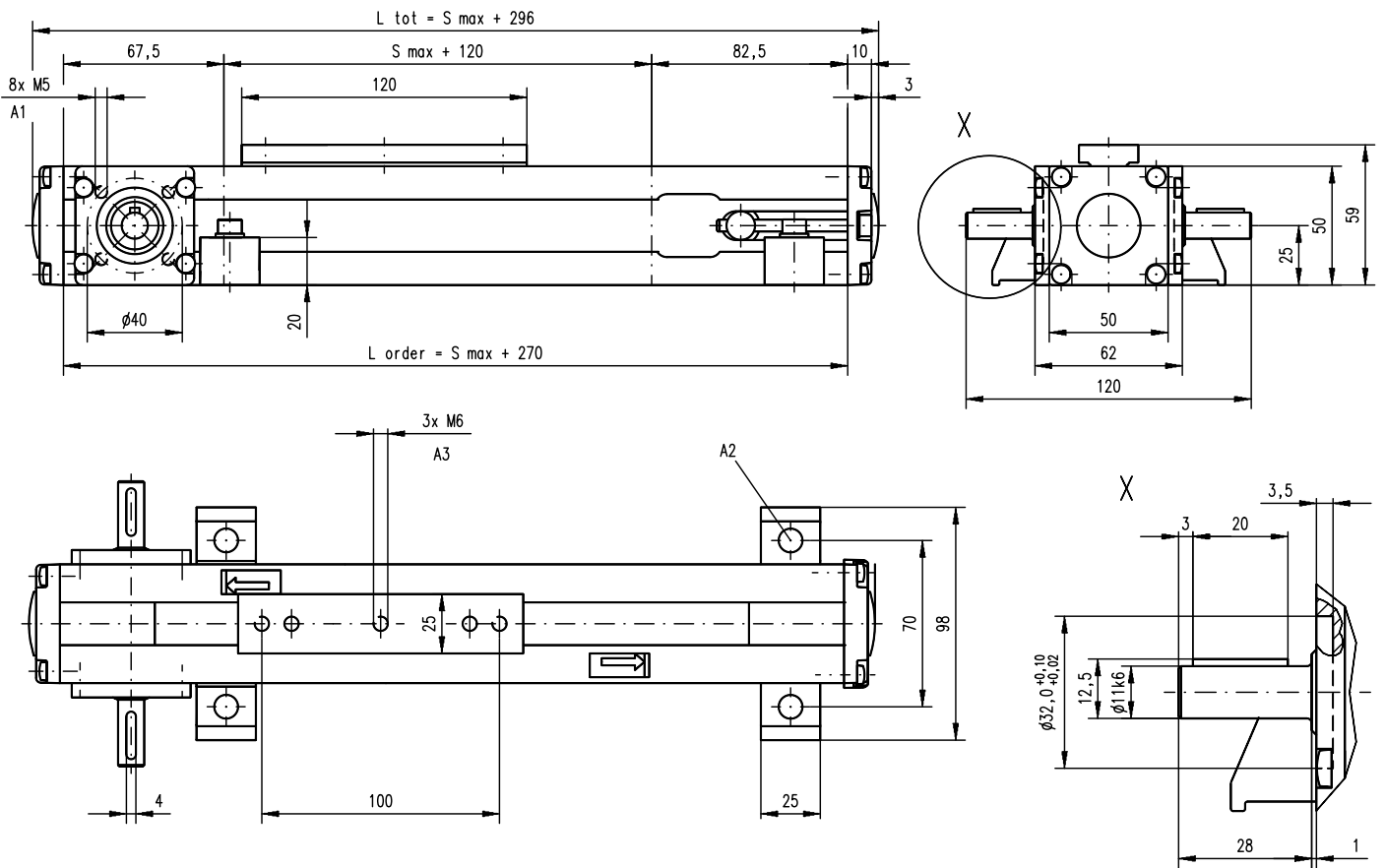


Definition of Forces



M50

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- A1: depth 8,5
- A2: $\phi 6,5$ for M6 screw
- A3: depth 9, Heli coil

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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 (S max), maximum	[mm]	7000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	2850
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	
< 2,5 m/s		400
> 2,5 m/s		200
Dynamic load (F _y), maximum	[N]	400 ¹
Dynamic load (F _z), maximum	[N]	400 ¹
Dynamic load torque (M _x), maximum	[Nm]	9 ¹
Dynamic load torque (M _y), maximum	[Nm]	21 ¹
Dynamic load torque (M _z), maximum	[Nm]	21 ¹
Drive shaft force (F _{rd}), maximum	[N]	200
Drive shaft torque (M _{ta}), maximum	[Nm]	7
Pulley diameter	[mm]	33,42
Stroke per shaft revolution	[mm]	105
Weight	[kg]	
of unit with zero stroke		4,10
of every 100 mm of stroke		0,41
of carriage		1,10

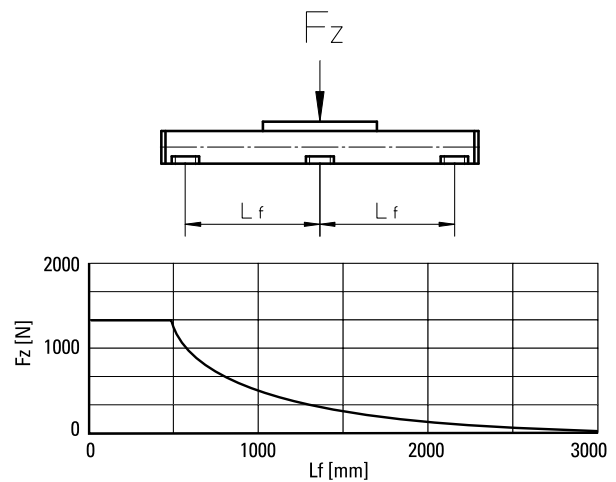
¹ Value for the complete unit

Carriage Idle Torque (M_{idle}) [Nm]

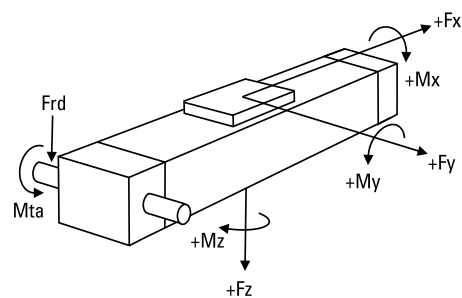
Input speed [rpm]	Single Carriage	Double Carriages
150	2,1	3,8

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

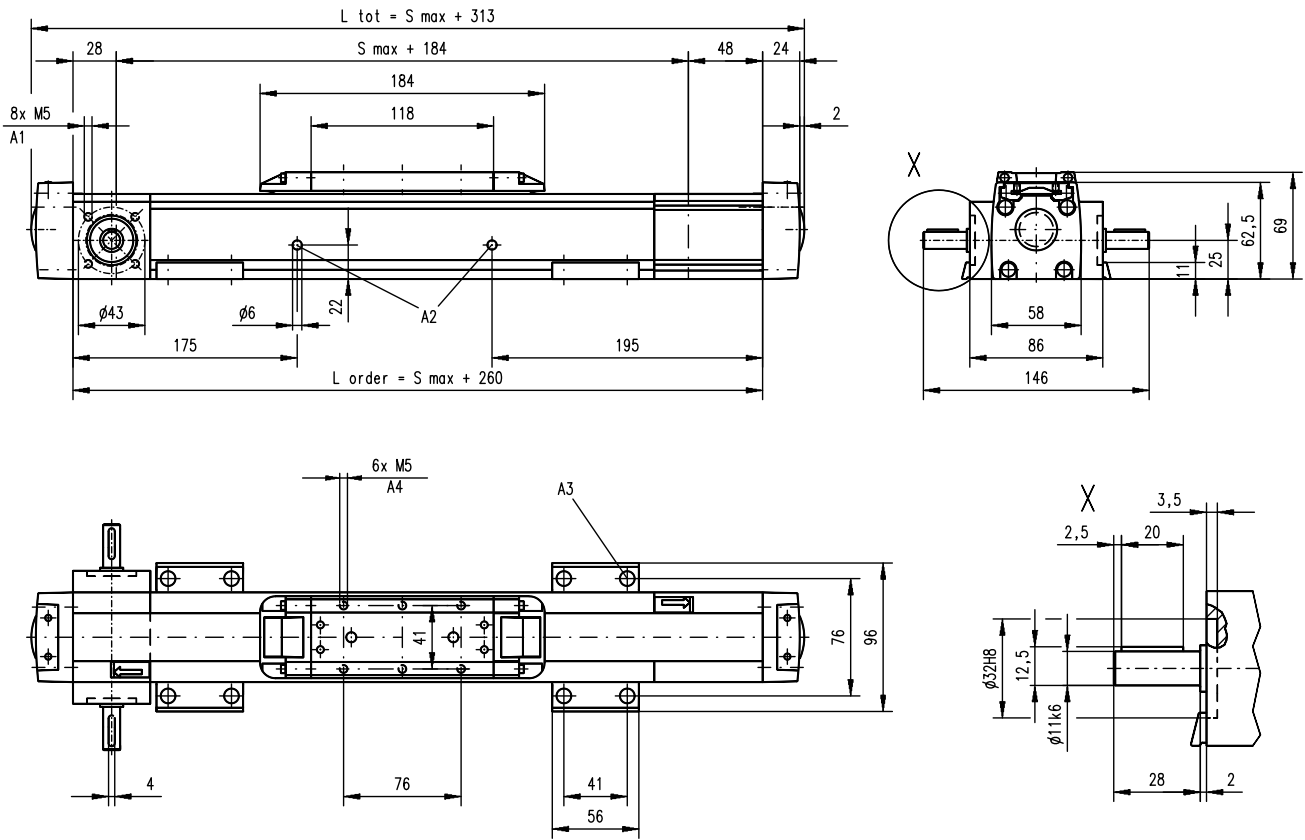


Definition of Forces



M55

Belt Drive, Slide Guide



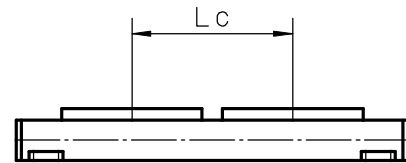
A1: depth 10, Heli coil
A2: lubrication holes

A3: $\varnothing 9,5/\varnothing 5,5$ for socket head cap screw M5
A4: depth 7,5, Heli coil

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]	$L_c^1 \times 0,3$
Dynamic load torque (Mz), maximum	[Nm]	$L_c^1 \times 0,3$
Force required to move second carriage	[N]	35
Ordering length (L order)	[mm]	$S_{max} + L_c + 260$
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

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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 (S max), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	2300
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	
< 2,5 m/s		900
> 2,5 m/s		450
Dynamic load (F _y), maximum	[N]	1485 ¹
Dynamic load (F _z), maximum	[N]	1485 ¹
Dynamic load torque (M _x), maximum	[Nm]	49 ¹
Dynamic load torque (M _y), maximum	[Nm]	85 ¹
Dynamic load torque (M _z), maximum	[Nm]	85 ¹
Drive shaft force (F _{rd}), maximum	[N]	600
Drive shaft torque (M _{ta}), maximum	[Nm]	30
Pulley diameter	[mm]	41,38
Stroke per shaft revolution	[mm]	130
Weight	[kg]	
of unit with zero stroke		6,30
of every 100 mm of stroke		0,67
of carriage		1,50

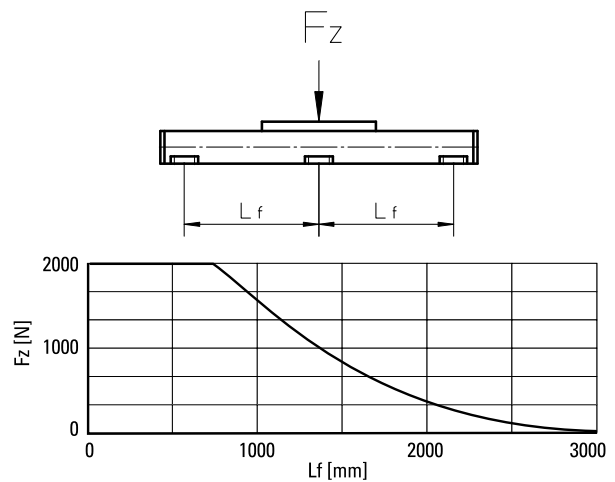
¹ Value for the complete unit

Carriage Idle Torque (M_{idle}) [Nm]

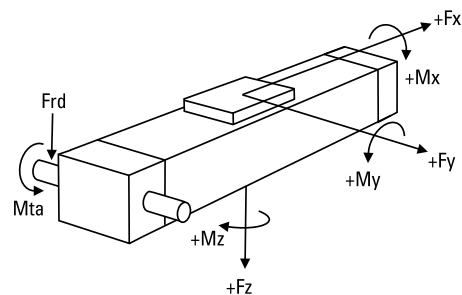
Input speed [rpm]	Single Carriage	Double Carriages
150	2,2	4,0

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

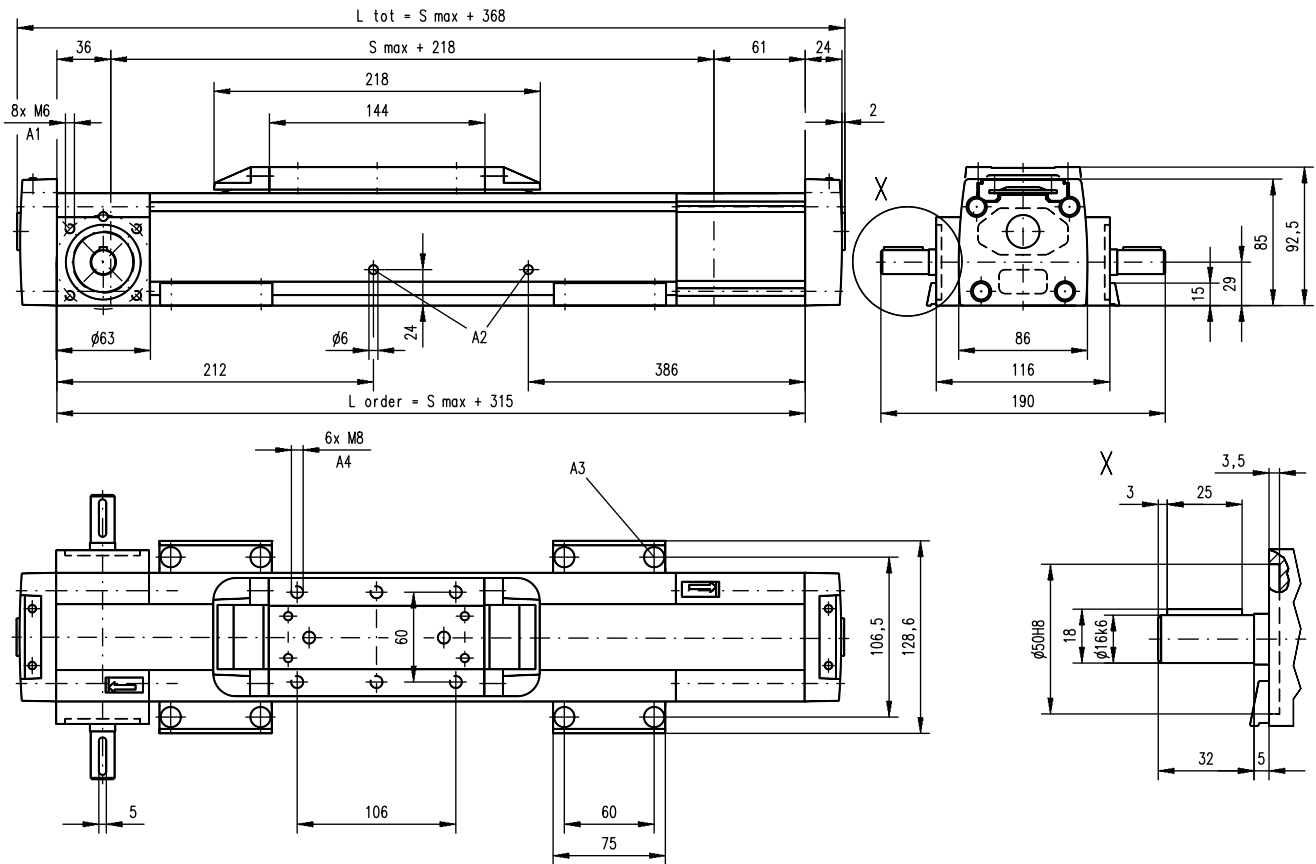


Definition of Forces



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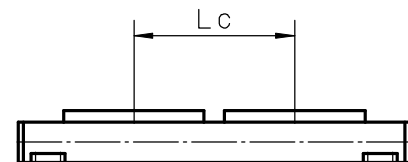


A1: depth 9, Heli coil
A2: lubrication holes

A3: $\phi 13,5/\phi 8,5$ for socket head cap screw M8
A4: depth 8, Heli coil

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]	$Lc^1 \times 1,114$
Dynamic load torque (Mz), maximum	[Nm]	$Lc^1 \times 1,114$
Force required to move second carriage	[N]	40
Ordering length (L order)	[mm]	$S_{max} + Lc + 315$
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

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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 (S max), maximum	[mm]	12000
Linear speed, maximum	[m/s]	5,0
Acceleration, maximum	[m/s ²]	40
Repeatability	[± mm]	0,2
Input speed, maximum	[rpm]	1700
Operation temperature limits	[°C]	-20 – 70
Dynamic load (F _x), maximum	[N]	
< 2,5 m/s		1250
> 2,5 m/s		625
Dynamic load (F _y), maximum	[N]	3005 ¹
Dynamic load (F _z), maximum	[N]	3005 ¹
Dynamic load torque (M _x), maximum	[Nm]	117 ¹
Dynamic load torque (M _y), maximum	[Nm]	279 ¹
Dynamic load torque (M _z), maximum	[Nm]	279 ¹
Drive shaft force (F _{rd}), maximum	[N]	1000
Drive shaft torque (M _{ta}), maximum	[Nm]	45
Pulley diameter	[mm]	56,02
Stroke per shaft revolution	[mm]	176
Weight	[kg]	
of unit with zero stroke		11,10
of every 100 mm of stroke		1,16
of carriage		2,40

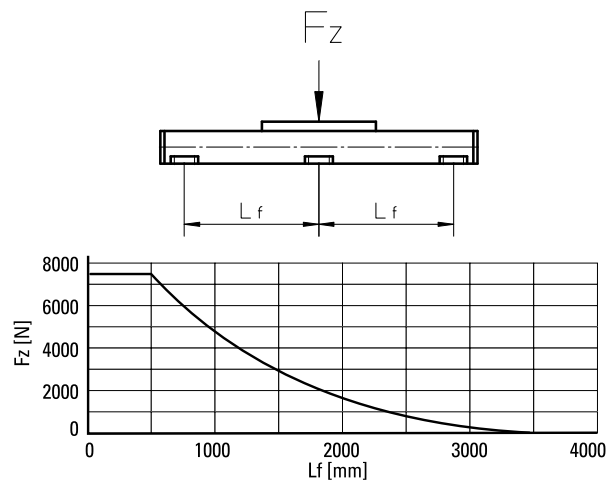
¹ Value for the complete unit

Carriage Idle Torque (M_{idle}) [Nm]

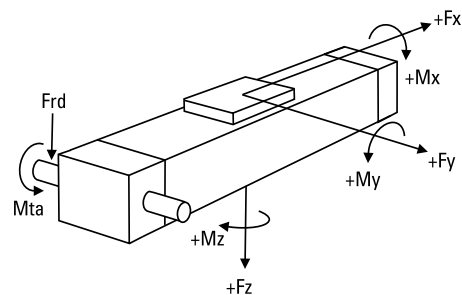
Input speed [rpm]	Single Carriage	Double Carriages
150	3,8	5,8

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

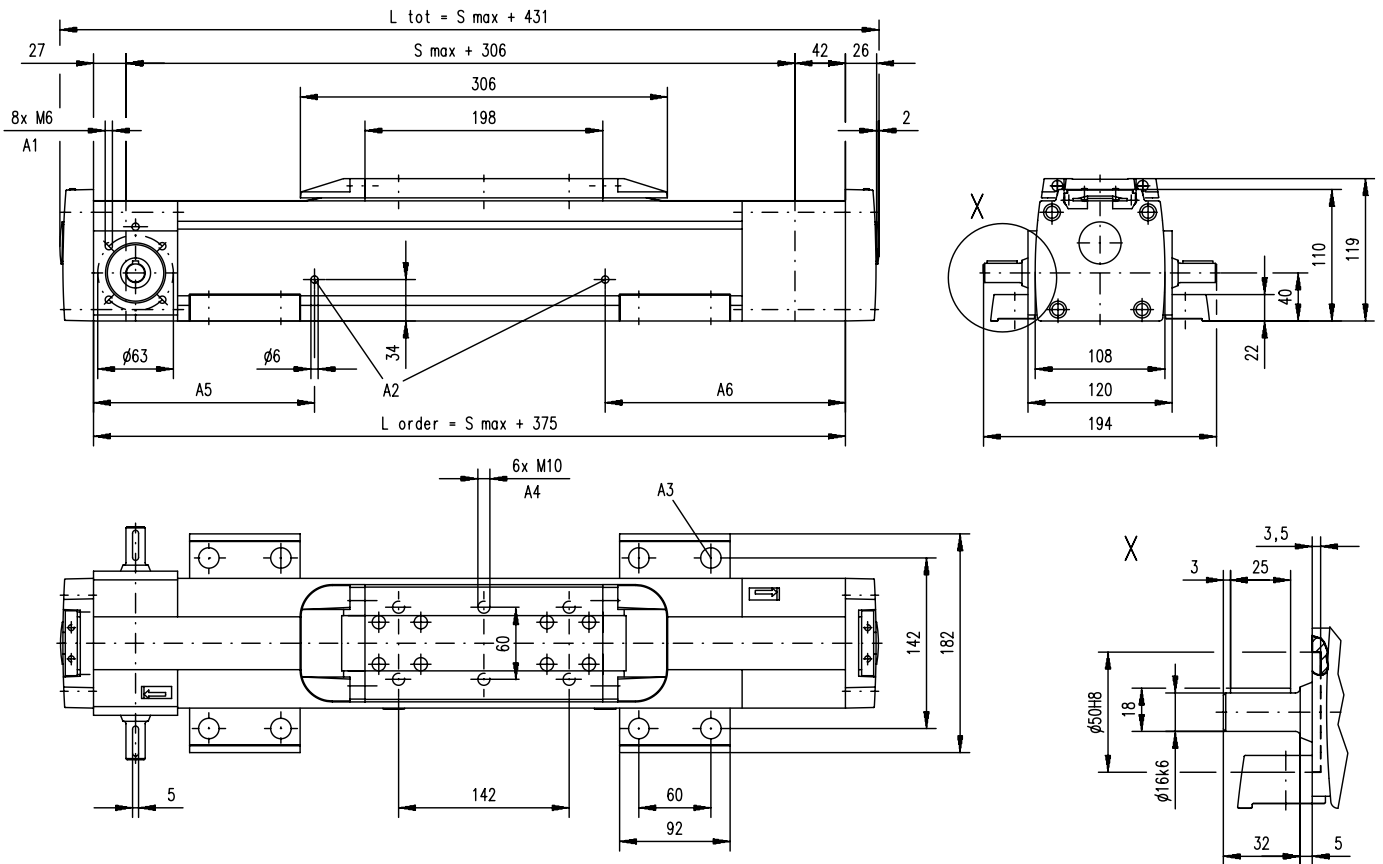


Definition of Forces



M100

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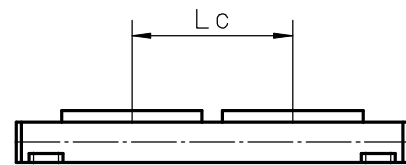


A1: Depth 9, Heli coil
 A2: lubrication holes
 A3: $\phi 17/\phi 10,5$ for socket head cap screw M10

A4: depth 10, Heli coil
 A5: 170 (L order \leq 1 m), 270 (L order $>$ 1 m)
 A6: 186 (L order \leq 1 m), 436 (L order $>$ 1 m)

Double Carriages

Parameter		M100
Minimum distance between carriages (L _c)	[mm]	350
Dynamic load (F _y), maximum	[N]	4508
Dynamic load (F _z), maximum	[N]	4508
Dynamic load torque (M _y), maximum	[Nm]	L _c ¹ × 2,254
Dynamic load torque (M _z), maximum	[Nm]	L _c ¹ × 2,254
Force required to move second carriage	[N]	45
Ordering length (L order)	[mm]	S max + L _c + 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