

WM120D

Ball Screw Drive, Ball Guide, Double Ball Nuts

- » Ordering key - see page 202
- » Accessories - see page 137
- » Additional data - see page 191

General Specifications

Parameter	WM120D
Profile size (w × h) [mm]	120 × 120
Type of screw	ball screw with double nuts
Carriage sealing system	self-adjusting plastic cover band
Screw supports	included in all units that require screw supports
Lubrication	central lubrication of all parts that require lubrication
Included accessories	4 × mounting clamps

Performance Specifications

Parameter		WM120D
Stroke length (S max), maximum screw lead 5, 10, 20 mm screw lead 40 mm	[mm]	11000 5000
Linear speed, maximum	[m/s]	2,0
Acceleration, maximum	[m/s ²]	20
Repeatability	[± mm]	0,01
Input speed, maximum	[rpm]	3000
Operation temperature limits	[°C]	0 – 80
Dynamic load (F _x), maximum screw lead 5, 10, 20 mm screw lead 40 mm	[N]	12000 8000
Dynamic load (F _y), maximum	[N]	6000 ¹ / 74890 ²
Dynamic load (F _z), maximum	[N]	6000 ¹ / 71670 ²
Dynamic load torque (M _x), maximum	[Nm]	500 ¹ / 2890 ²
Dynamic load torque (M _y), maximum	[Nm]	600 ¹ / 6660 ²
Dynamic load torque (M _z), maximum	[Nm]	600 ¹ / 6960 ²
Drive shaft force (F _{rd}), maximum	[N]	1000
Drive shaft torque (M _{ta}), maximum	[Nm]	80
Ball screw diameter (d ₀)	[mm]	32
Ball screw lead (p)	[mm]	5, 10, 20, 40
Weight of unit with zero stroke of every 100 mm of stroke of each carriage	[kg]	25,91 1,93 9,25

¹ Value for the complete unit

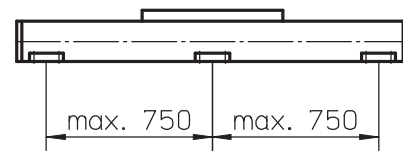
² Value for the ball guide only

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

Input speed [rpm]	Screw lead [mm]			
	p = 5	p = 10	p = 20	p = 40
150	1,4	2,0	2,3	2,4
1500	2,5	3,0	3,3	3,8
3000	3,0	3,7	4,0	4,3

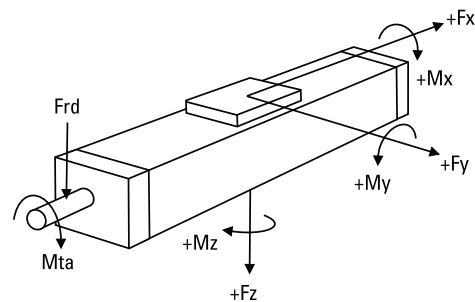
M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile



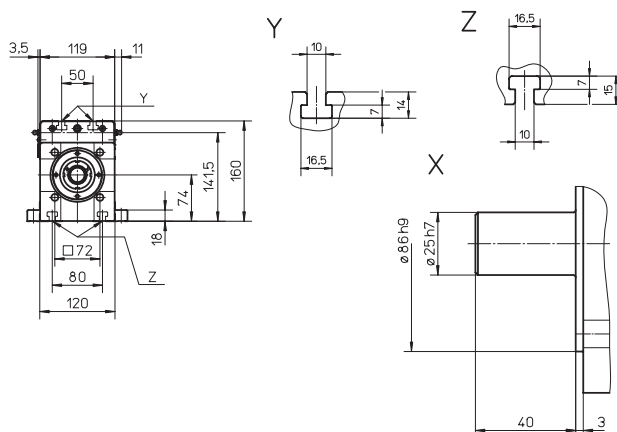
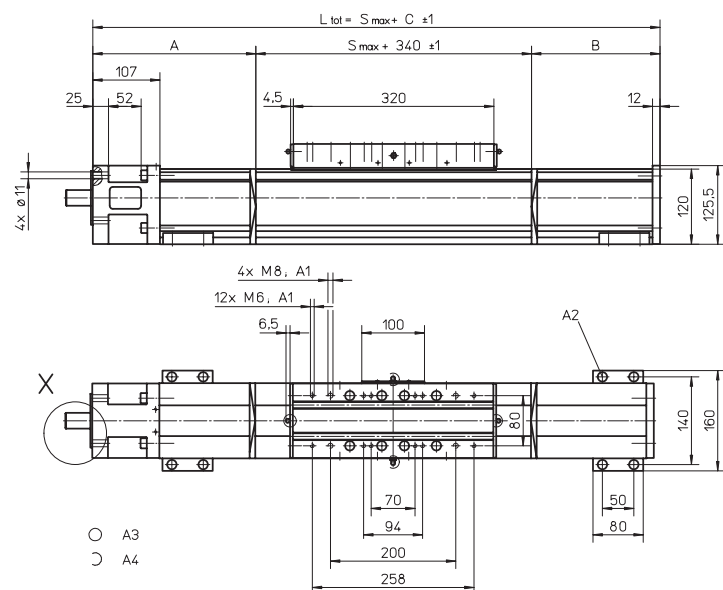
A mounting clamp must be installed at least at every 750 mm to be able to operate the maximum load. Less clamps may be required if less load is being operated, see the additional technical data for more information. Units with a profile length over 5400 mm consists of two profiles where the joint between the two profiles must be adequately supported on both sides.

Definition of Forces



WM120D

Ball Screw Drive, Ball Guide, Double Ball Nuts



A1: depth 22
 A2: socket cap screw ISO4762-M8x20 8.8

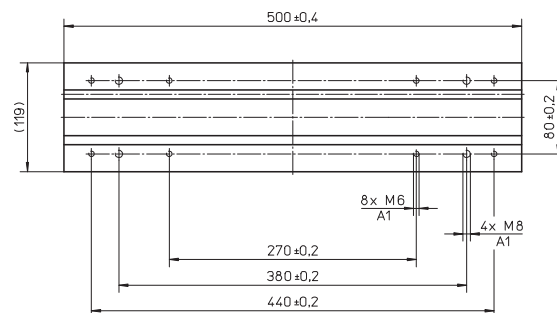
A3: tapered lubricating nipple to DIN71412 M8x1 on fixed-bearing side as standard feature
 A4: can be changed over to one of the three alternative lubricating points by the customer

Stroke length (S max) [mm]	A [mm]	B [mm]	C [mm]
0 - 890 (0 - 710)	155	100	595 (775)
891 - 1695 (711 - 1515)	225	170	735 (815)
1696 - 2625 (1516 - 2445)	260	205	805 (985)
2626 - 3555 (2446 - 3375)	295	240	875 (1055)

Stroke length (S max) [mm]	A [mm]	B [mm]	C [mm]
3556 - 4485 (3376 - 4305)	330	275	945 (1125)
4486 - 5000 (4306 - 4820)	365	310	1015 (1195)
5001 - 11000 (4307 - 10820)	contact customer service		

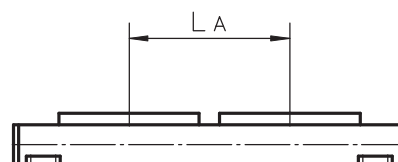
Values between brackets = for units with long carriage

Long Carriage		
Parameter		WM120D
Carriage length	[mm]	500
Dynamic load torque (My), maximum	[Nm]	1500
Dynamic load torque (Mz), maximum	[Nm]	1500
Weight	[kg]	14,2



A1: depth 22

Double Carriages		
Parameter		WM120D
Minimum distance between carriages (LA)	[mm]	450
Dynamic load (Fy), maximum	[N]	12000
Dynamic load (Fz), maximum	[N]	12000
Dynamic load torque (My), maximum	[Nm]	$L A^1 \times 6$
Dynamic load torque (Mz), maximum	[Nm]	$L A^1 \times 6$
Force required to move second carriage	[N]	300
Total length (L tot)	[mm]	$S \text{ max} + C + L A$



¹ Value in mm