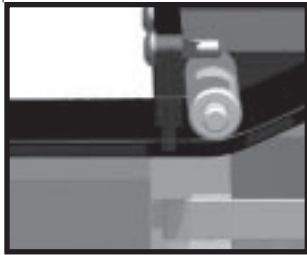
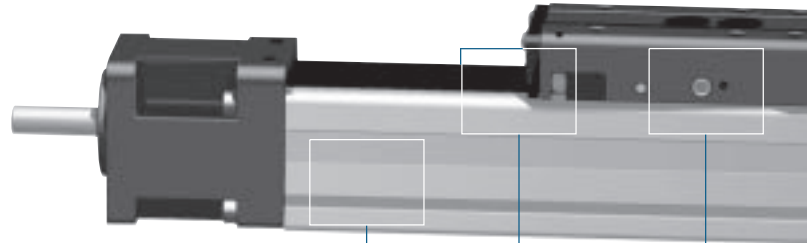


WIESEL™ POWERLine® and WIESEL™ DYNALine® with ball screw drive

Innovative solutions, down to the very last detail.

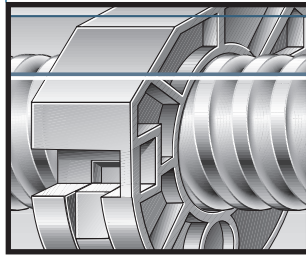
WIESEL™ POWERLine® WM40

The linear drive unit for miniaturized applications. High performance with extremely small dimensions. The Precision Technology USA, Inc. ball screw drive in combination with the high precision linear guide allows precise positioning.



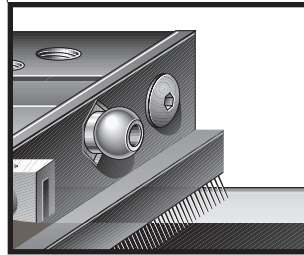
Patented sealing strip

The patented sealing strip protects the mechanism effectively from dirt. The friction for the deviation of the sealing strip is reduced to a minimum.



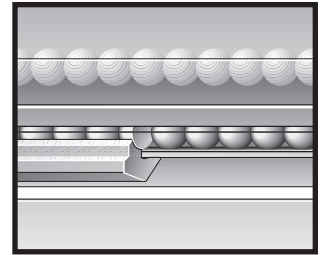
Screw support

The patented screw support system permits high speeds (max. input speed) at long strokes.



Central lubrication

A standard feature. The drive and guide systems are conveniently relubricated from a central point on the power bridge. Whether by hand or automatically, maintenance is now a simple matter.

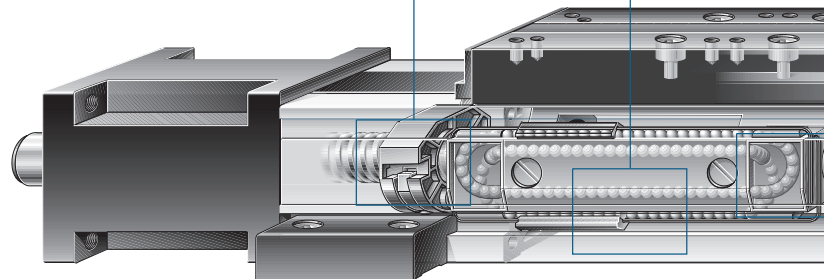


Well proven and patented guide system

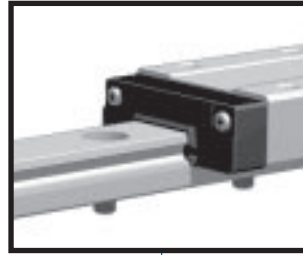
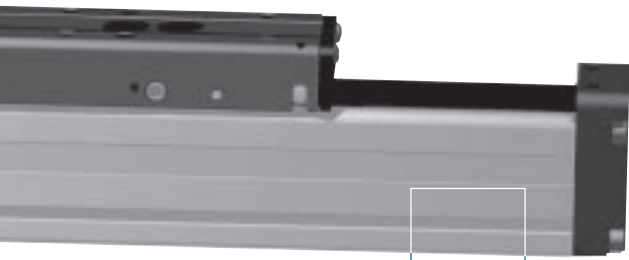
The high-performance linear ball-bearing guide with hardened steel running tracks has been integrated into the aluminum profile. Optimum introduction of forces permits maximum force and torque, as well as optimizing the tensile stresses.

WIESEL™ POWERLine® WM60, WM80, WM120

The WIESEL™ POWERLine® is an extremely powerful linear drive unit with ball screw drive and integrated ball-bearing guide. It allows high feed forces and load moments in all directions.

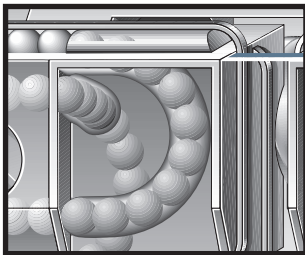


WIESEL™ POWERLine® detail



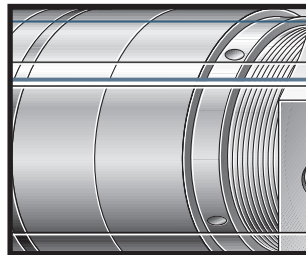
Linear guides

Precise positioning is made possible by a polished linear guide with a high degree of guide accuracy. A small motor can be added thanks to the low coefficient of friction. Rubber wipers protect the mechanism from dirt, thus increasing service life.



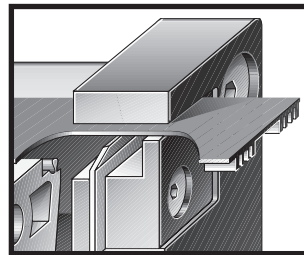
Ball cage

The ball bearings of the linear guides are protected by a ball cage. They can be replaced quickly and safely.



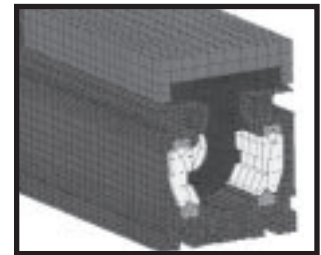
Optimized ball screw

The pre-tensioning of the nut unit can be adjusted by the Precision Technology USA, Inc. service team. This increases the lifetime of the axis.



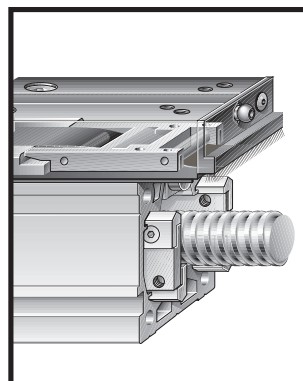
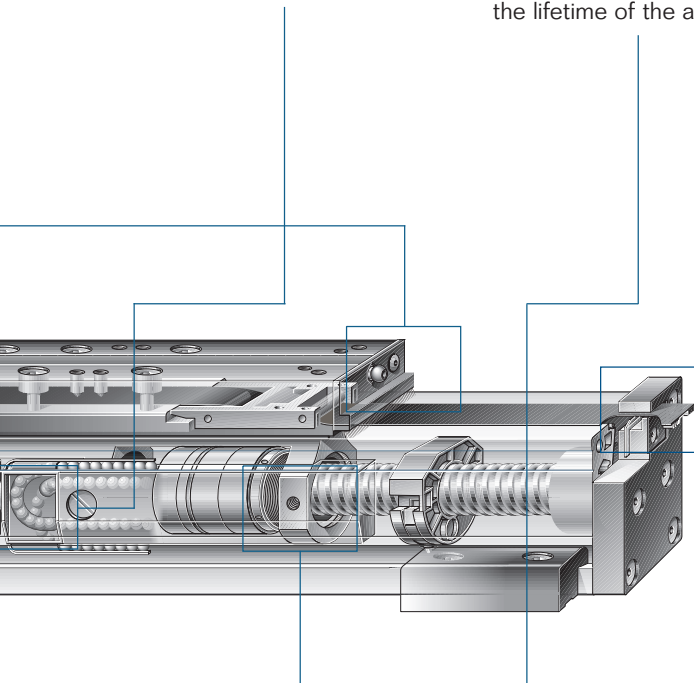
Self-adjusting third-generation cover strip

The patented sealing strip reliably protects the mechanical parts against excessive dirt and is retensioned automatically. Result: the maintenance effort is reduced to virtually zero.



FEA optimized design

Both the profile and the entire linear drive unit have been modeled and optimized by finite element analysis (FEA). Result: maximum performance density and reliability.



**WIESEL™ DYNALine®
WV60, WV80, WV120**

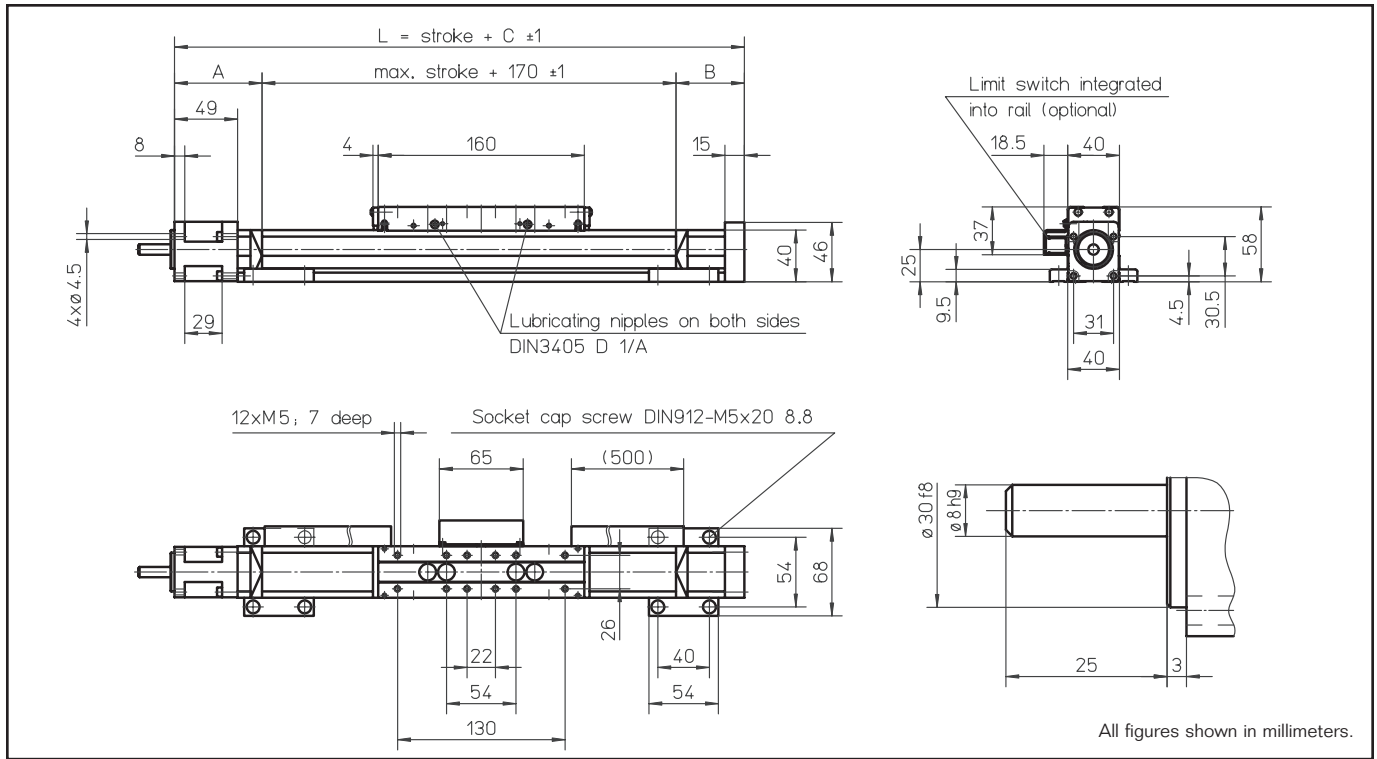
WIESEL™ DYNALine® permits high feed forces, even in combination with long stroke lengths and high speeds. The supported, covered ball screw must be used in combination with external linear guides.

WIESEL™ DYNALine® detail

*only applies to WIESEL™ POWERLine® series

WIESEL™ POWERLine® WM40

with ball screw drive and integrated linear guide



Technical data

Linear speed:max. 0.25 m/s
 Repeatability:± 0.01 mm
 Acceleration:max. 20 m/s²
 Rotational speed:max. 3000 rpm
 Drive element:Ball screw
 Diameter:12 mm
 Lead:5 mm
 Stroke length:up to 2000 mm
 Power bridge:160 or 210 mm long
 see page 62
 Geometrical moment of inertia:ly 10.8 x 10⁴ mm⁴
 lz 13.4 x 10⁴ mm⁴

Weights

Basic unit with zero stroke:1.5 kg
 100 mm stroke:0.3 kg
 Power bridge with carriage:0.36 kg
 Provided:4 pieces KAO mounting
 brackets

Idle torques [Nm]

Rotational speed [rpm]	Lead P [mm]
150	0.3
1500	0.5
3000	0.8

Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	Additional length [mm]
0-500	65	35	270
501-1100	65	45	280
1101-2000	70	60	300

Unit conversions

Length:
 1 m=1000 mm=39.37 inches
 1 inch=25.4 mm

Force:
 1 N=0.225 lbf
 1 lbf=4.45 N

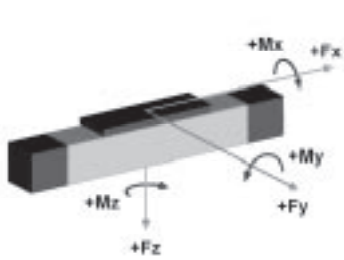
Moment of Force:
 1 Nm=0.738 lb • ft=8.85 lb • inches
 1 lb • ft=1.36 Nm

Geometrical moment of inertia:
 1 m⁴=10¹² mm⁴=2.4025 x 10⁶ in⁴

Mass moment of inertia:
 1 kg • m²=10⁴ kg • cm²=0.738 lb • ft • s²

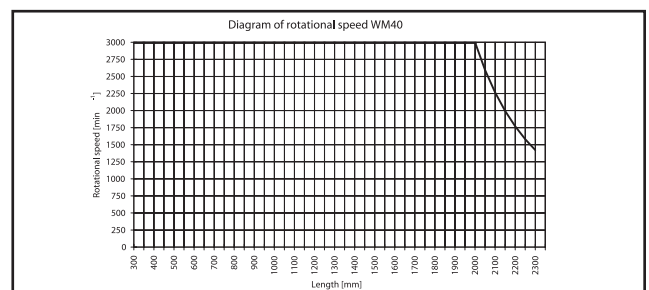
Mass:
 1 kg=2.2 lb

Loads and load moments



Load	dynam. [N]
Fx drive	1000
Fy	450
+/- Fz	600
Load moment	dynam. [Nm]
Mx	10
My ¹⁾	30
Mz ¹⁾	30

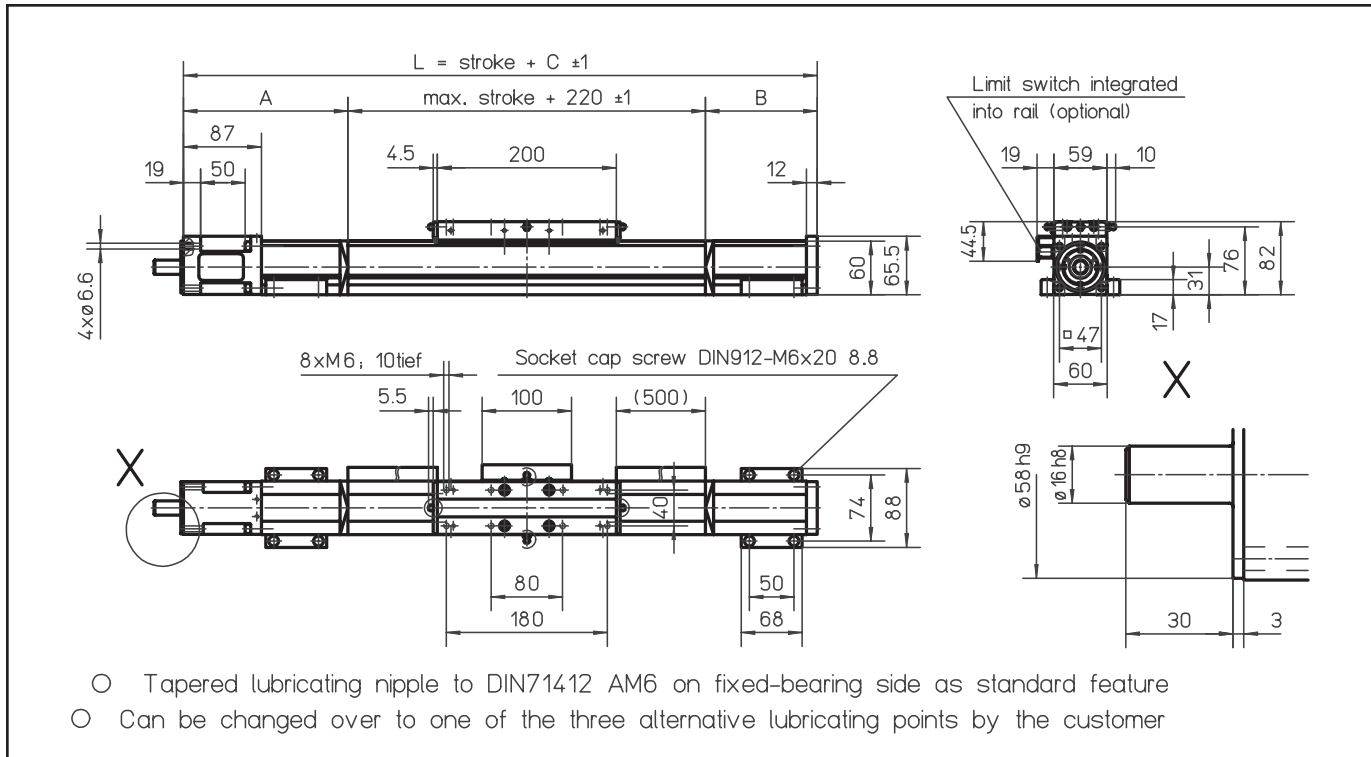
Rotational speed of the screw as a function of the total length



1) Increase of the admissible values by the use of a long power bridge or additional free-sliding power bridge (pages 62 and 63).

WIESEL™ POWERLine® WM60 – 370

with ball screw drive and integrated linear ball-bearing guide



All figures shown in millimeters.

Technical data

Linear speed:max. 2.5 m/s
 Repeatability:± 0.01 mm
 Acceleration:max. 10 m/s²
 Rotational speed:max. 3000 rpm
 Drive element:Pretensioned ball screw drive
 with single nut, no backlash
 Diameter:20 mm
 Lead:5, 20, 50 mm
 Stroke length:up to 5000 mm
 Power bridge:200 mm long
 Geometrical moment of inertia: ..ly 5.8 x 10⁵ mm⁴
 lz 5.9 x 10⁵ mm⁴

Weights

Basic unit with zero stroke:3.8 kg
 100 mm stroke:0.65 kg
 Power bridge with carriage:1.00 kg
 Provided:4 pieces KAO mounting
 brackets

Loads and load moments

Load	dynam. [N]
Fx drive	2800
Fy	1400
± Fz	1400
Load moment	dynam. [Nm]
Mx	50
My	100
Mz	100

Unit conversions

Length:
 1 m=1000 mm=39.37 inches
 1 inch=25.4 mm

Force:
 1 N=0.225 lbf
 1 lbf=4.45 N

Moment of Force:
 1 Nm=0.738 lb · ft=8.85 lb · inches
 1 lb · ft=1.36 Nm

Geometrical moment of inertia:
 1 m⁴=10¹² mm⁴=2.4025 x 10⁶ in⁴

Mass moment of inertia:
 1 kg · m²=10⁴ kg · cm²=0.738 lb · ft · s²

Mass:
 1 kg=2.2 lb

Idle torques [Nm]

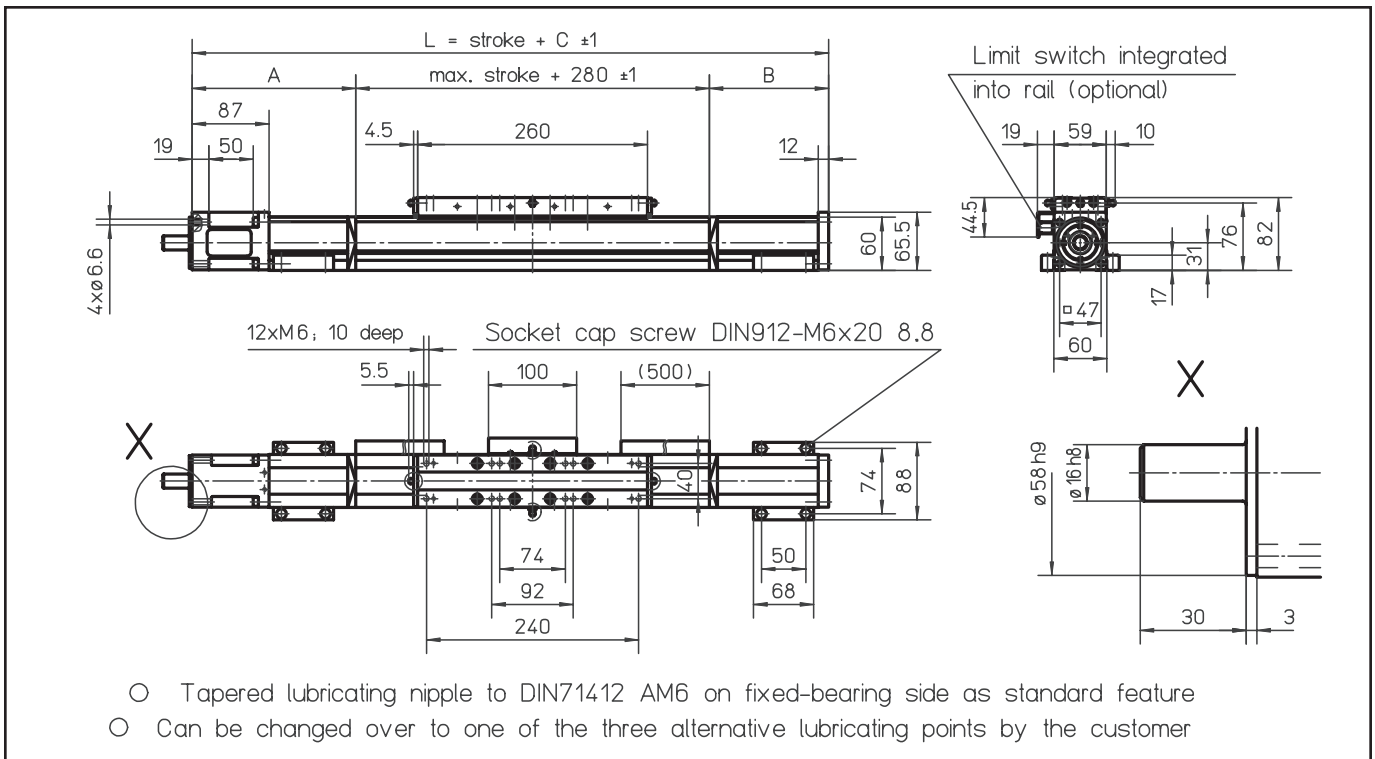
Rotational speed [rpm]	Lead P [mm]		
	5	20	50
150	0.5	0.9	1.2
1500	0.9	1.4	1.8
3000	1.3	1.6	2

Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	Additional length C [mm]
0–580	95	20	335
581–1140	110	60	390
1141–1805	130	80	430
1806–2460	155	105	480
2461–3125	175	125	520
3126–3780	200	150	570
3781–4445	220	170	610
4446–5000	240	190	650

WIESEL™ POWERLine® WM60

with ball screw drive and integrated linear ball-bearing guide



All figures shown in millimeters.

Technical data

Linear speed:max. 2.5 m/s
 Repeatability:± 0.01 mm
 Acceleration:max. 20 m/s²
 Rotational speed:max. 3000 rpm
 Drive element:Pretensioned ball screw drive
 Diameter:20 mm
 Lead:5, 20, 50 mm
 Stroke length:up to 11.000 mm
 with lead 50 mm
 max. 5000 mm

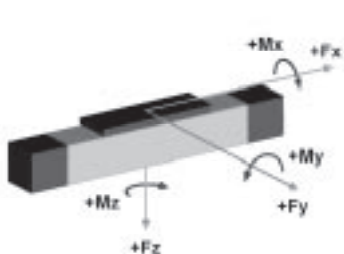
Power bridge:260 or 450 mm long
 see page 62

Geometrical moment of inertia:ly 5.8 x 10⁵ mm⁴
 lz 5.9 x 10⁵ mm⁴

Weights

Basic unit with zero stroke:6.16 kg
 100 mm stroke:0.64 kg
 Power bridge with carriage:1.99 kg
 Provided:4 pieces KAO mounting
 brackets

Loads and load moments



Load	dynam. [N]
Fx drive	4000
Fy	2000
± Fz	2000
Load moment	dynam. [Nm]
Mx	100
My ¹⁾	200
Mz ¹⁾	200

1) Increase of the admissible values by the use of a long power bridge or additional free-sliding power bridge (pages 62 and 63).

Unit conversions

Length: 1 m=1000 mm=39.37 inches 1 inch=25.4 mm	Geometrical moment of inertia: 1 m ⁴ =10 ¹² mm ⁴ =2.4025 x 10 ⁹ in ⁴
Force: 1 N=0.225 lbf 1 lbf=4.45 N	Mass moment of inertia: 1 kg · m ² =10 ⁴ kg · cm ² =0.738 lb · ft · s ²
Moment of Force: 1 Nm=0.738 lb · ft=8.85 lb · inches 1 lb · ft=1.36 Nm	Mass: 1 kg=2.2 lb

Idle torques [Nm]

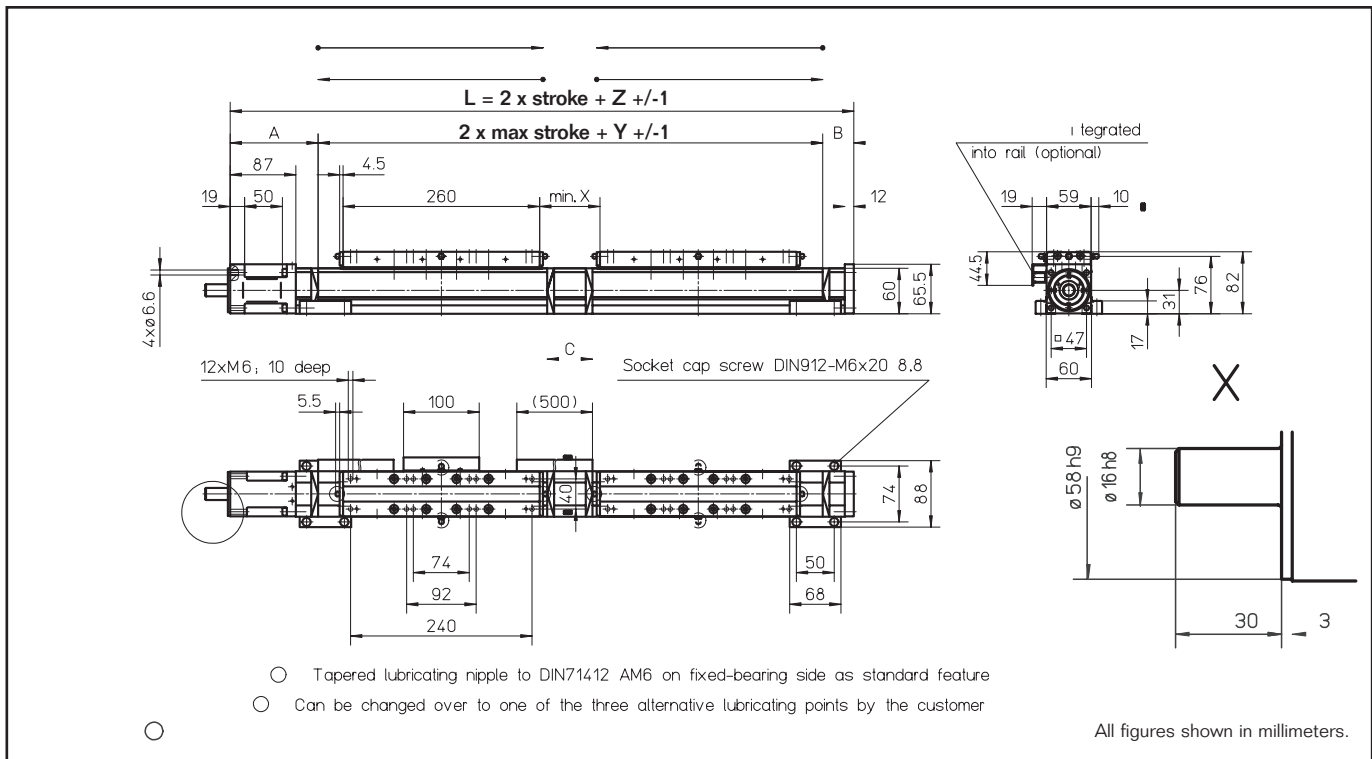
Rotational speed [rpm]	Lead P [mm]		
	5	20	50
150	0.6	1.1	1.5
1500	1.1	1.8	2.3
3000	1.6	2.0	2.5

Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	Additional length C [mm]
0-695	115	65	460
696-1335	165	115	560
1336-2075	185	135	600
2076-2780	210	160	650
2781-3545	230	180	690
3546-4285	250	200	730
4286-5015	275	225	780

WIESEL™ POWERLine® WM60 – 500

with ball screw drive and integrated linear ball-bearing guide in right/left execution



Technical data

Linear speed:max. 2.5 m/s
 Repeatability:± 0.01 mm
 Acceleration:max. 20 m/s²
 Rotational speed:max. 3000 rpm
 Drive element:Pretensioned ball screw drive
 Diameter:20 mm
 Lead:5 mm
 Stroke length:up to 10340 mm referred to both power bridges. max. 5000 mm
 Power bridge:260 or 450 mm long see page 62
 Geometrical moment of inertia:ly 5.8 x 10⁵ mm⁴
lz 5.9 x 10⁵ mm⁴

Weights

Basic unit with zero stroke:10.33 kg
 100 mm stroke:0.64 kg
 Power bridge with carriage:1.99 kg
 Provided:4 pieces KAO mounting brackets

Loads and load moments

Load	dynam. [N]
Fx drive	4000
Fy	2000
± Fz	2000
Load moment	dynam. [Nm]
Mx	100
My	200
Mz	200

Unit conversions

Length:
 1 m=1000 mm=39.37 inches
 1 inch=25.4 mm

Force:
 1 N=0.225 lbf
 1 lbf=4.45 N

Moment of Force:
 1 Nm=0.738 lb · ft=8.85 lb · inches
 1 lb · ft=1.36 Nm

Geometrical moment of inertia:
 1 m⁴=10¹² mm⁴=2.4025 x 10⁶ in⁴

Mass moment of inertia:
 1 kg · m²=10⁴ kg · cm²=0.738 lb · ft · s²

Mass:
 1 kg=2.2 lb

Idle torques [Nm]

Rotational speed [rpm]	Lead P [mm]
150	1.2
1500	2.2
3000	3.2

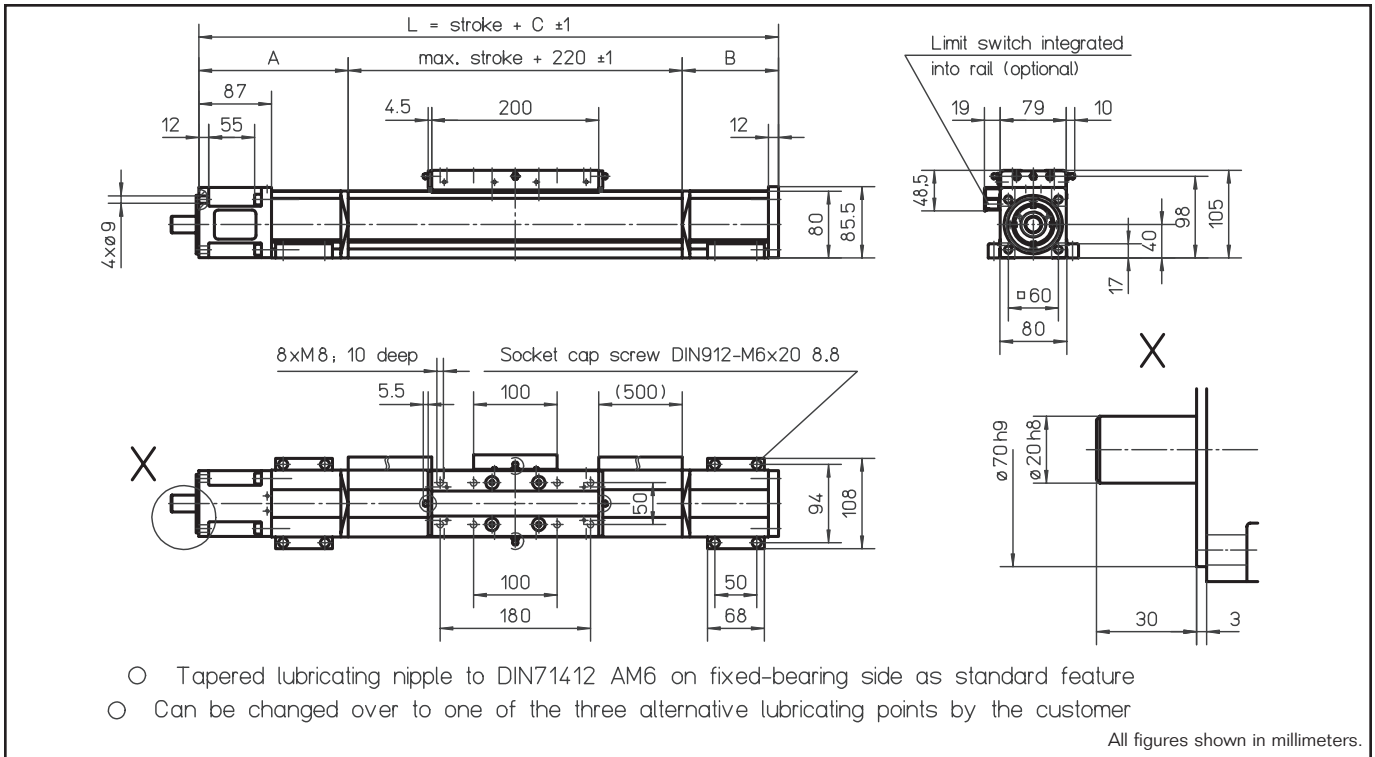
Note: For tube lengths of 5400 mm and over, the tubular profile is composed of two parts. The joint must be adequately supported. It may be possible to position the joint according to customer's wishes. For screw leads > 20 mm, excess lengths cannot be implemented.

Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	C [mm]	X	Y	Z
0-1390	115	65	60	80	620	800
1391-2670	165	115	210	230	770	1050
2671-4150	185	135	250	270	810	1130
4151-5560	210	160	300	320	860	1230

WIESEL™ POWERLine® WM80 – 370

with ball screw drive and integrated linear ball-bearing guide and short guide system



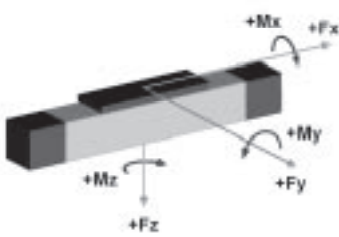
Technical data

Linear speed:max. 2.5 m/s
 Repeatability:± 0.02 mm
 Acceleration:max. 10 m/s²
 Rotational speed:max. 3000 rpm
 Drive element: Pretensioned ball screw with single nut, no backlash
 Diameter:25 mm
 Lead:5, 10, 20, 50 mm
 Stroke length:up to 5000 mm
 Power bridge:200 mm long
 Geometrical moment of inertia:ly 1.9 x 10⁶ mm⁴
 lz 1.9 x 10⁶ mm⁴

Weights

Basic unit with zero stroke:7.00 kg
 100 mm stroke:1.10 kg
 Power bridge with carriage:1.60 kg
 Provided:4 pieces KAO mounting brackets

Loads and load moments



Load	dynam. [N]
Fx drive	3500
Fy	2100
± Fz	2100
Load moment	dynam. [Nm]
Mx	150
My	180
Mz	180

Unit conversions

Length:
 1 m=1000 mm=39.37 inches
 1 inch=25.4 mm

Force:
 1 N=0.225 lbf
 1 lbf=4.45 N

Moment of Force:
 1 Nm=0.738 lb · ft=8.85 lb · inches
 1 lb · ft=1.36 Nm

Geometrical moment of inertia:
 1 m⁴=10¹² mm⁴=2.4025 x 10⁶ in⁴

Mass moment of inertia:
 1 kg · m²=10⁴ kg · cm²=0.738 lb · ft · s²

Mass:
 1 kg=2.2 lb

Idle torques [Nm]

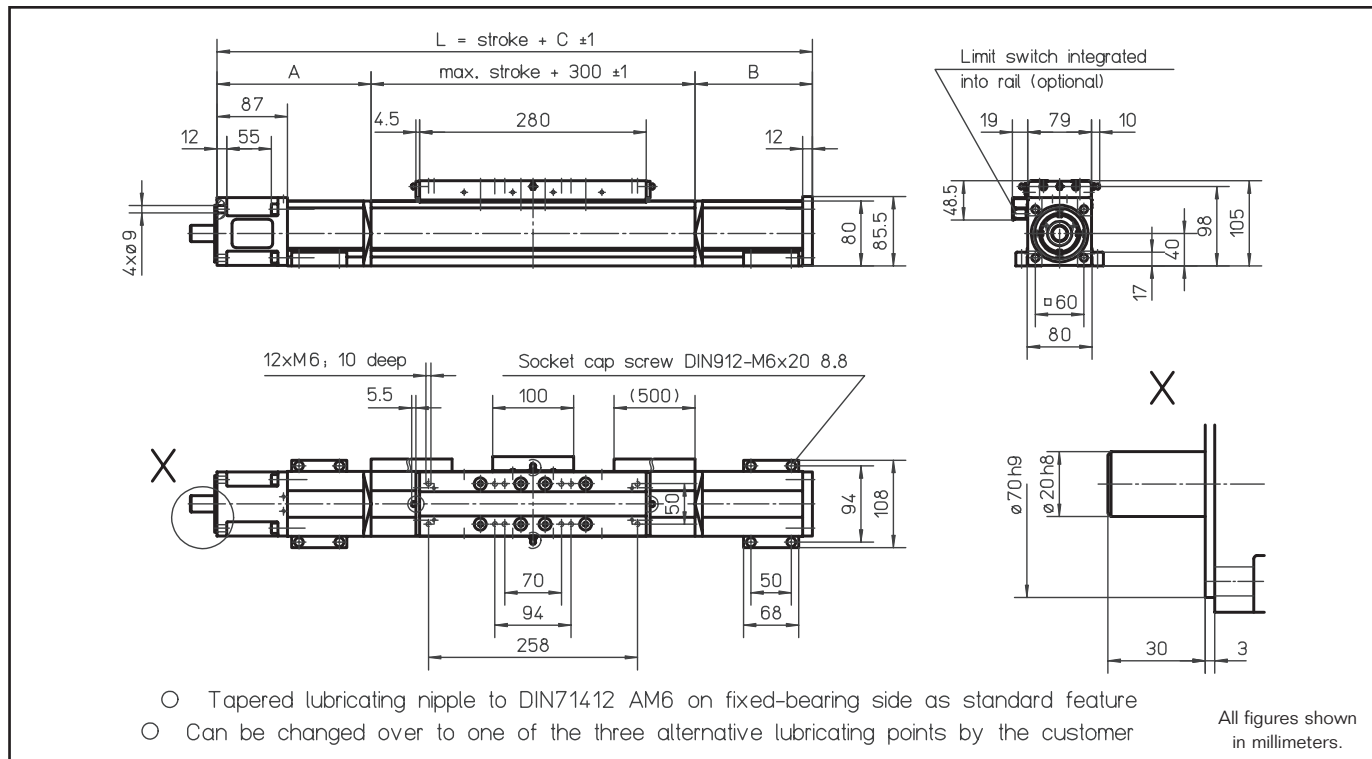
Rotational speed [rpm]	Lead P [mm]			
	5	10	20	50
150	0.6	1.1	1.3	2.8
1500	1.1	1.5	1.6	2.2
3000	1.4	1.8	1.8	2.7

Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	Additional length C [mm]
0-680	95	35	350
681-1310	125	80	425
1311-2065	150	105	475
2066-2830	170	125	515
2831-3590	195	150	565
3591-4355	215	170	605
4356-5000	235	190	645

WIESEL™ POWERLine® WM80

with ball screw drive and integrated linear ball-bearing guide



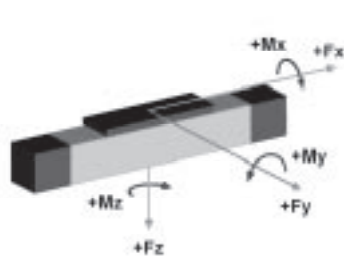
Technical data

Linear speed: max. 2.5 m/s
 Repeatability: ± 0.01 mm
 Acceleration: max. 20 m/s²
 Rotational speed: max. 3000 rpm
 Drive element: Pretensioned ball screw drive
 Diameter: 25 mm
 Lead: 5, 10, 20, 50 mm
 Stroke length: up to 11.000 mm
 with lead 50 mm
 max. 5000 mm
 Power bridge: 280 or 450 mm long
 see page 62
 Geometrical moment of inertia: ..ly 1.9 x 10⁶ mm⁴
 lz 1.9 x 10⁶ mm⁴

Weights

Basic unit with zero stroke: 11.57 kg
 100 mm stroke: 1.08 kg
 Power bridge with carriage: 4.26 kg
 Provided: 4 pieces KAO mounting
 brackets

Loads and load moments



Load	dynam. [N]
F _x drive	5000
F _y	3000
± F _z	3000
Load moment	dynam. [Nm]
M _x	350
M _y ¹⁾	300
M _z ¹⁾	300

1) Increase of the admissible values by the use of a long power bridge or additional free-sliding power bridge (pages 62 and 63).

Unit conversions

Length: 1 m=1000 mm=39.37 inches 1 inch=25.4 mm	Geometrical moment of inertia: 1 m ⁴ =10 ¹² mm ⁴ =2.4025 x 10 ⁶ in ⁴
Force: 1 N=0.225 lbf 1 lbf=4.45 N	Mass moment of inertia: 1 kg · m ² =10 ⁴ kg · cm ² =0.738 lb · ft · s ²
Moment of Force: 1 Nm=0.738 lb · ft=8.85 lb · inches 1 lb · ft=1.36 Nm	Mass: 1 kg=2.2 lb

Idle torques [Nm]

Rotational speed [rpm]	Lead P [mm]			
	5	10	20	50
150	0.8	1.4	1.6	2.3
1500	1.4	1.9	2.0	2.8
3000	1.8	2.3	2.3	3.4

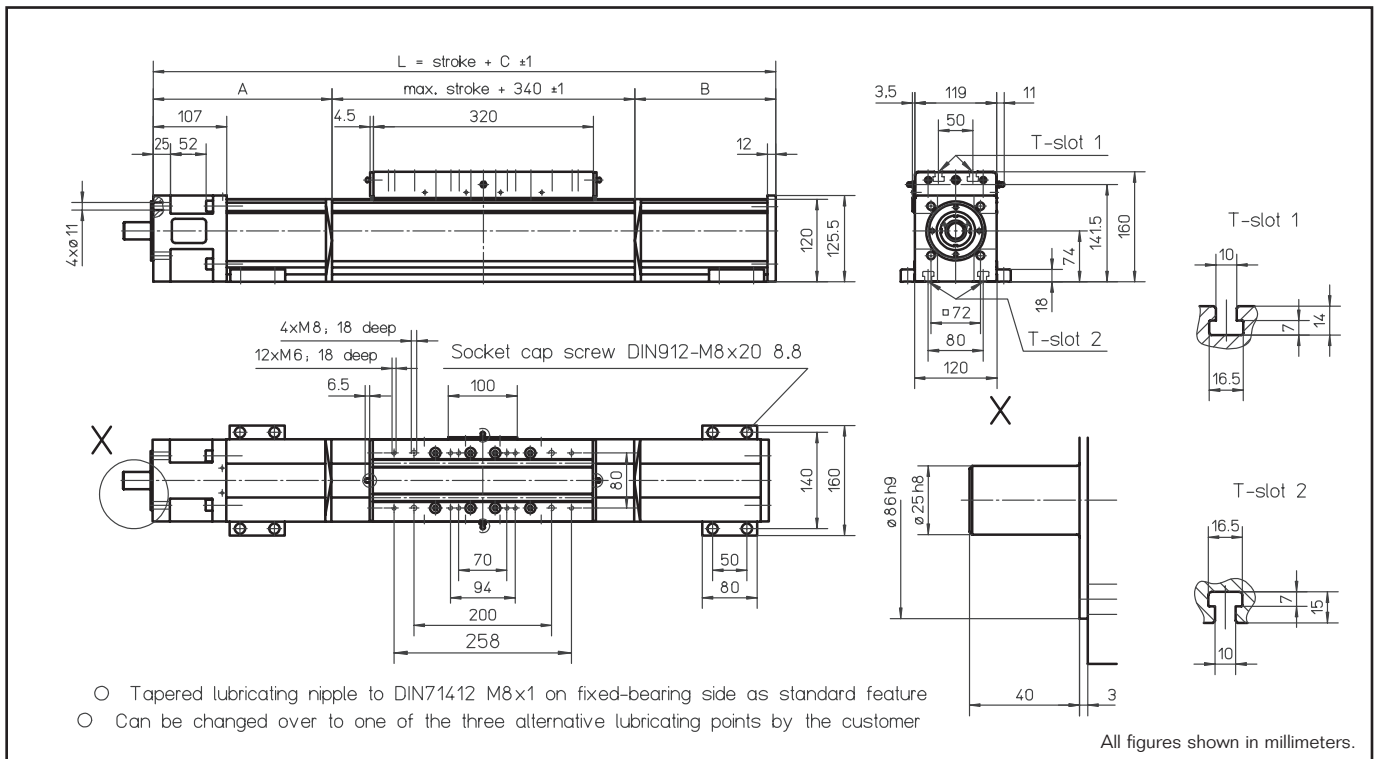
Note: For tube lengths of 5400 mm and over, the tubular profile is composed of two parts. The joint must be adequately supported. It may be possible to position the joint according to customer's wishes. For screw leads > 20 mm, excess lengths cannot be implemented.

Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	Additional length C [mm]
0-780	120	80	500
781-1535	170	125	595
1536-2375	190	145	635
2376-3205	215	170	685
3206-4045	235	190	725
4046-4885	255	210	765
4886-5000	280	235	815

WIESEL™ POWERLine® WM120

with ball screw drive and integrated linear ball-bearing guide



Technical data

Linear speed:max. 2.0 m/s
 Repeatability:± 0.01 mm
 Acceleration:max. 20 m/s²
 Rotational speed:max. 3000 rpm
 Drive element:Pretensioned ball screw drive
 Diameter:32 mm
 Lead:5, 10, 20, 40 mm
 Stroke length:up to 11.000 mm
 with lead 40 mm
 max. 5000 mm

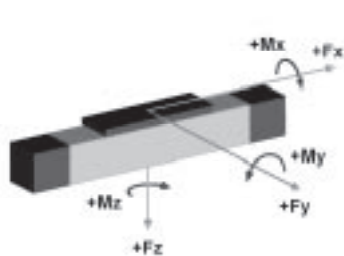
Power bridge:320 or 500 mm long
 see page 62

Geometrical moment of inertia:ly 7.7 x 10⁶ mm⁴
 lz 9.4 x 10⁶ mm⁴

Weights

Basic unit with zero stroke:25.91 kg
 100 mm stroke:1.93 kg
 Power bridge with carriage:9.25 kg
 Provided:4 pieces KAO mounting
 brackets

Loads and load moments



Load	dynam. [N]
Fx drive	12000
Fx drive 3240	8000
Fy	6000
± Fz	6000
Load moment	dynam. [Nm]
Mx	500
My	600
Mz	600

Unit conversions

Length:
 1 m=1000 mm=39.37 inches
 1 inch=25.4 mm

Force:
 1 N=0.225 lbf
 1 lbf=4.45 N

Moment of Force:
 1 Nm=0.738 lb · ft=8.85 lb · inches
 1 lb · ft=1.36 Nm

Geometrical moment of inertia:
 1 m⁴=10¹² mm⁴=2.4025 x 10⁶ in⁴

Mass moment of inertia:
 1 kg · m²=10⁷ kg · cm²=0.738 lb · ft · s²

Mass:
 1 kg=2.2 lb

Idle torques [Nm]

Rotational speed [rpm]	Lead P [mm]			
	5	10	20	40
150	1.2	2.1	1.8	2.4
1500	2.3	3.0	2.8	3.6
3000	2.8	3.8	3.5	4.0

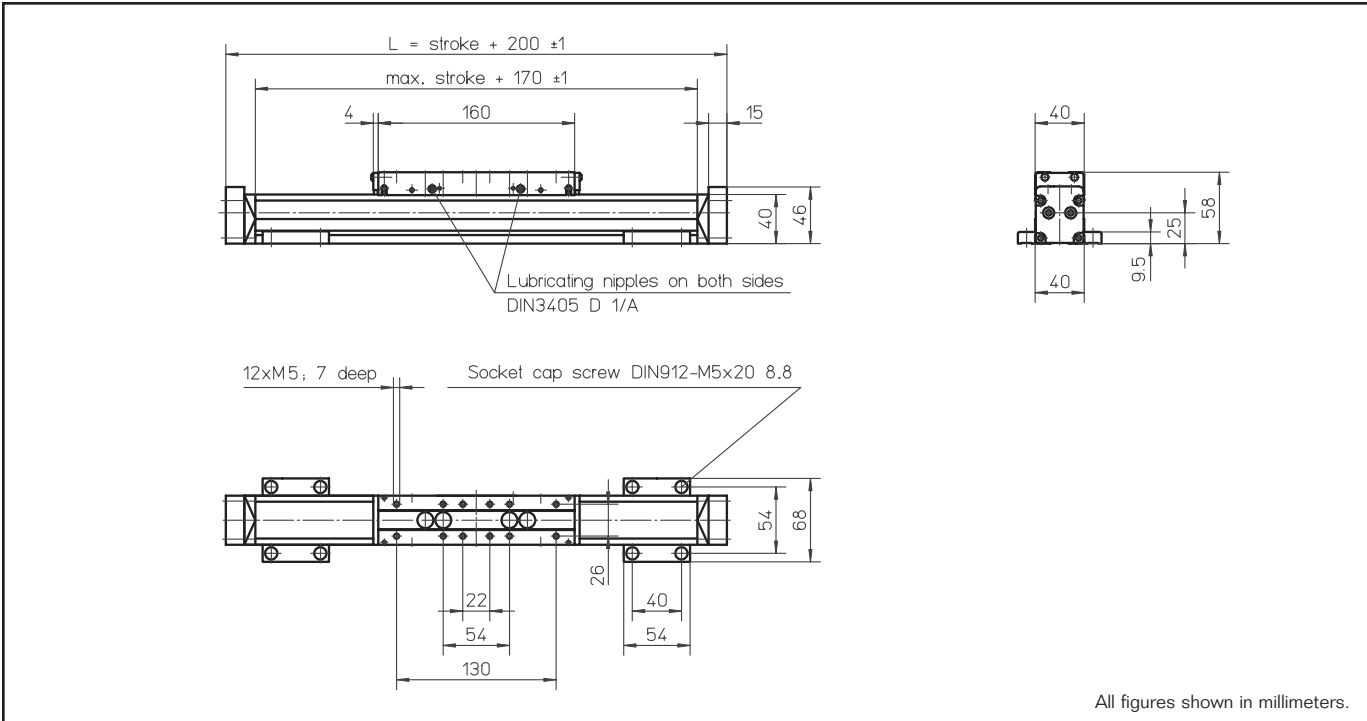
Additional lengths as a function of the stroke

Stroke length [mm]	A [mm]	B [mm]	Additional length C [mm]
0-890	155	100	595
891-1695	225	170	735
1696-2625	260	205	805
2626-3555	295	240	875
3556-4485	330	275	945
4486-5000	365	310	1015

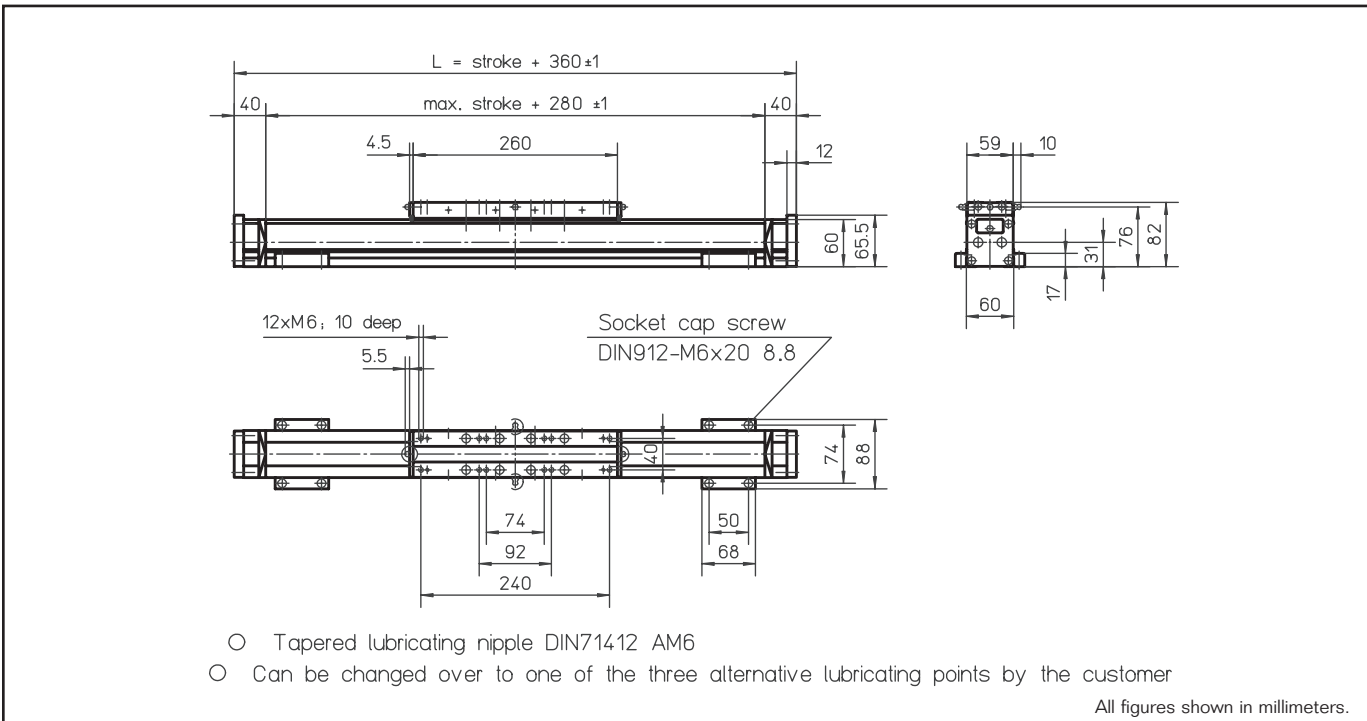
WIESEL™ POWERLine®

Guide tube

WM40-190



WM60-190



Unit conversions

Length:	1 m=1000 mm=39.37 inches 1 inch=25.4 mm	Geometrical moment of inertia:	1 m ⁴ =10 ¹² mm ⁴ =2.4025 x 10 ⁶ in ⁴
Force:	1 N=0.225 lbf 1 lbf=4.45 N	Mass moment of inertia:	1 kg · m ² =10 ⁴ kg · cm ² =0.738 lb · ft · s ²
Moment of Force:	1 Nm=0.738 lb · ft=8.85 lb · inches 1 lb · ft=1.36 Nm	Mass:	1 kg=2.2 lb