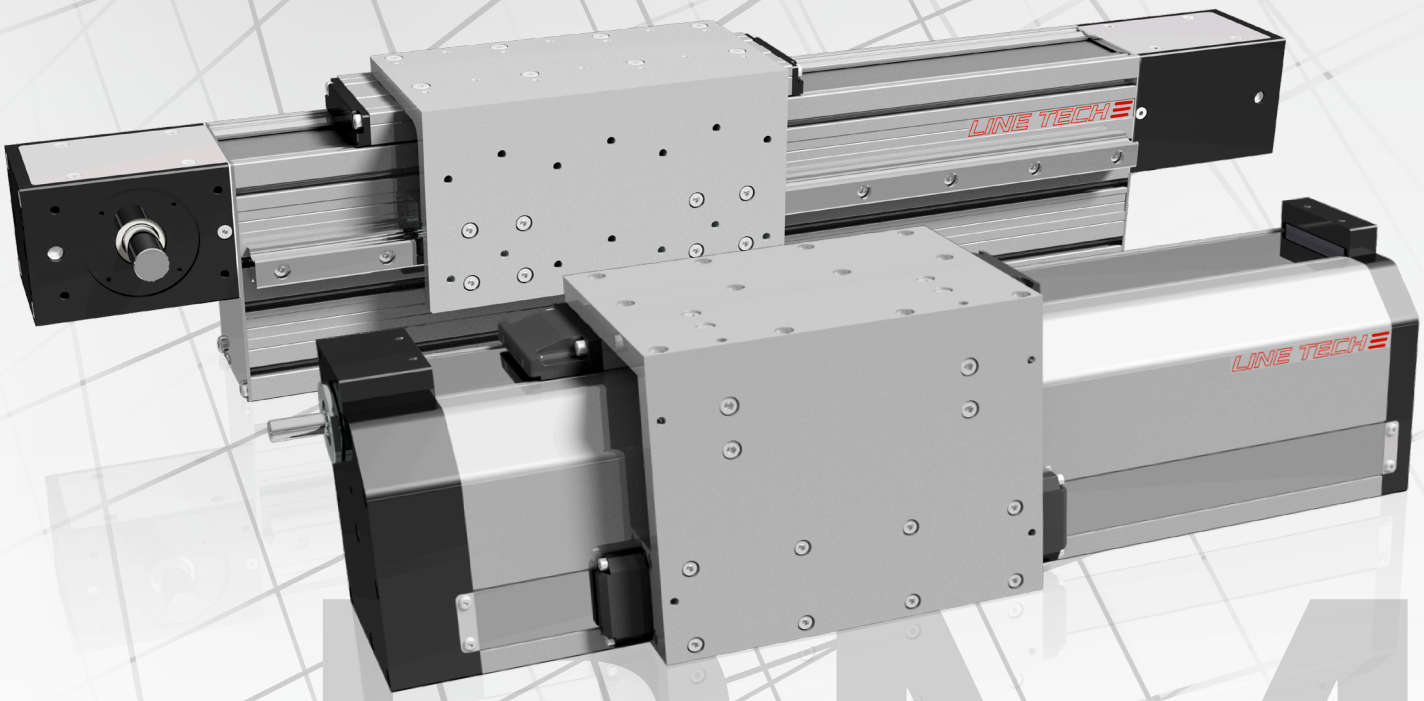
LINE TECH



BM

BRIDGE MODULES

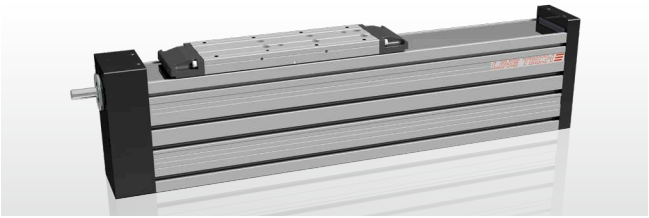
PRODUCT CATALOGUE

SWISS MADE LINEAR TECHNOLOGY

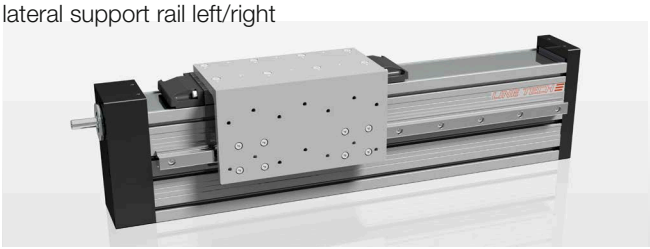
BRIDGE MODULES

Product overview / Content

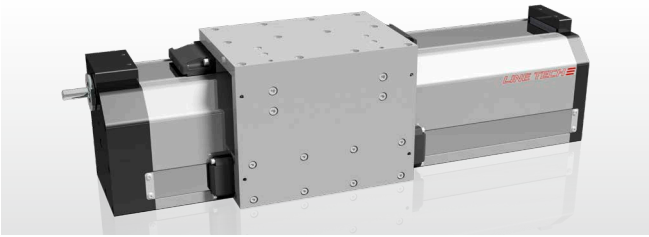
BM4...R...N
Bridge module with ball screw drive



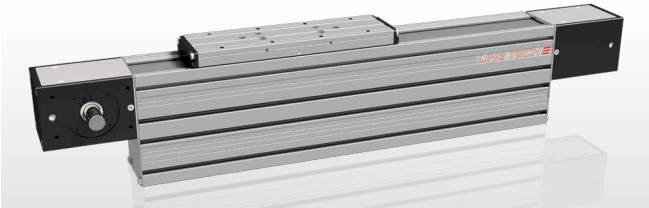
BM4...R...L/R
Bridge module with ball screw drive and lateral support rail left/right



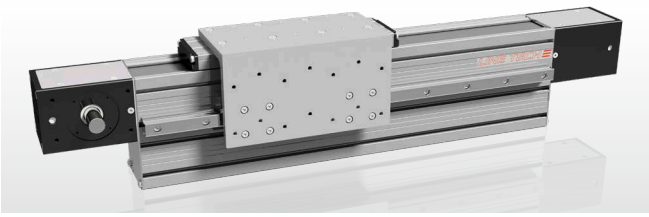
BM4...R...V/W
Bridge module with ball screw drive and lateral profile left/right



BM4...Z...N
Bridge module with toothed belt drive



BM4...Z...L/R
Bridge module with toothed belt drive and lateral support rail left/right



Content

BRIDGE MODULES

Product overview

LINE TECH bridge modules are precision, ready-to-install, modular linear systems with linear guide and two drive variants, ball screw and toothed belt drive. Cantilever axles and axles with higher intrinsic inertia are specific application areas. One size (BM**4**) is currently available.

Advantages

- Compact dimensions
- Optimum running performance together with high load ratings and high level of rigidity with either one or two integrated, no-play linear guides
- Either ball screw or toothed belt drive
- Simple motor mounting by centering and thread on driving head
- Greasing by central grease points
- Design aligned to application possible

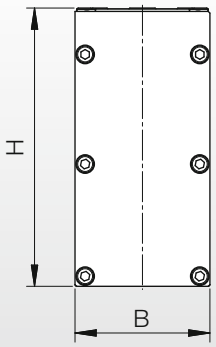
Structure

- Compact aluminium base profile
- Ready-to-install bridge modules in any lengths
- Carriages made of aluminium

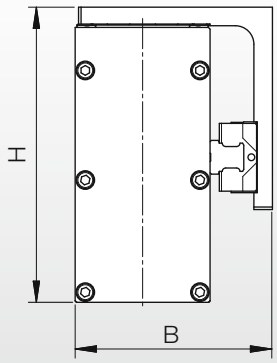
Customised options

- Motor mounting
- Limit switch
- Multi-axis systems

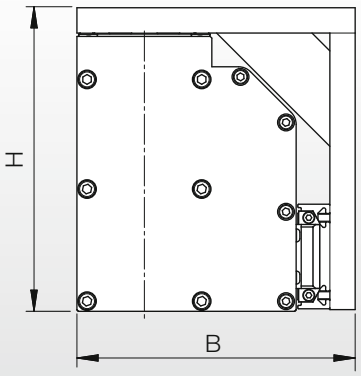
BM4...N



BM4...L/R



BM4...V/W



Bridge module	Dimensions	Load ratings	
Type	B x H [mm]	C_0 [kN]	C [kN]
BM4...N	80 x 165	59.9	34.2
BM4...L/R	117 x 174	119.9	68.4
BM4...V/W	165 x 180	119.9	68.4

See pages 6 to 11 for further technical data.

BRIDGE MODULES

Design fundamentals / Lubrication / Maintenance

LINE TECH bridge modules

LINE TECH bridge modules with ball screw or toothed belt drive are modular, ready-to-install linear units with drive. Sealed rail guiding elements are employed.
Guides and drive are protected from external factors (such as dirt and chippings) by a steel strip / the toothed belt.
The base profile as well as the lateral profile are made of aluminium alloy and manufactured with the extrusion process.
Additional limit switches fitted on the outside, in conjunction with motors and a controller, ensure correct positioning of the carriage and provide protection against overrun.
The selected design provides for a high level of performance with the most compact dimensions.

Lubrication

LINE TECH bridge modules are lubricated with Microlube GBU Y 131 at the factory. This quality grease offers outstanding properties for the guidance and screw drive elements as well.
Greasing should be carried out at regular intervals, depending on the load and area of operation. On an average, re-greasing is required every 500 hours.
All roller bearings are greased for life and thus do not require any maintenance.
Correct and adequate greasing can substantially prolong the life of bridge modules.

Note: Also follow here the instructions on the grease points, page 36.

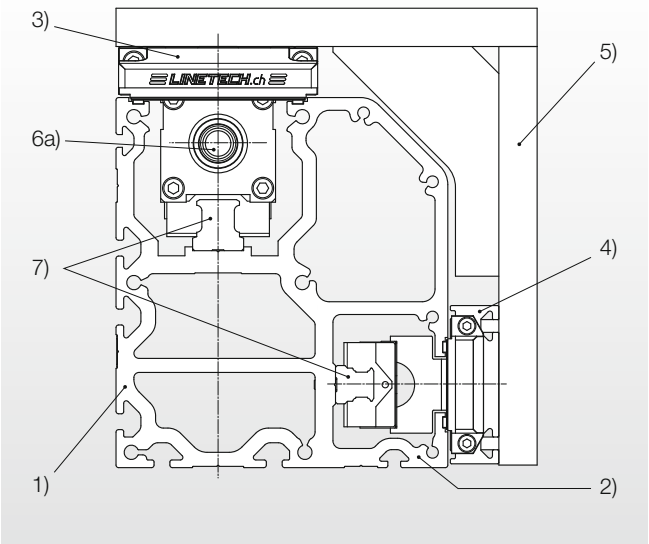
Maintenance

LINE TECH bridge modules are maintenance-free (apart from re-greasing required).

Service temperature

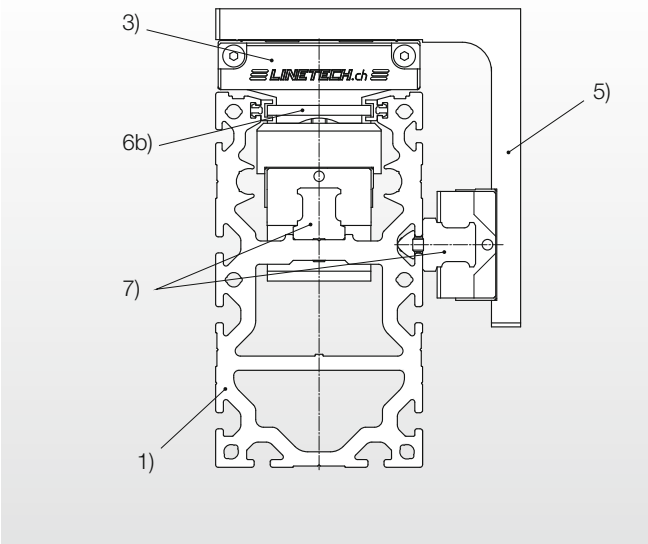
The permissible operating temperature (between 5 and 80 °C) is determined by the synthetic materials used.
The specifications of the relevant manufacturers apply for motors and control units.

BM4...R...
with ball screw drive



1) Base profile
2) Lateral profile
3) Top carriage
4) Lateral carriage
5) Angle

BM4...Z...
with toothed belt drive

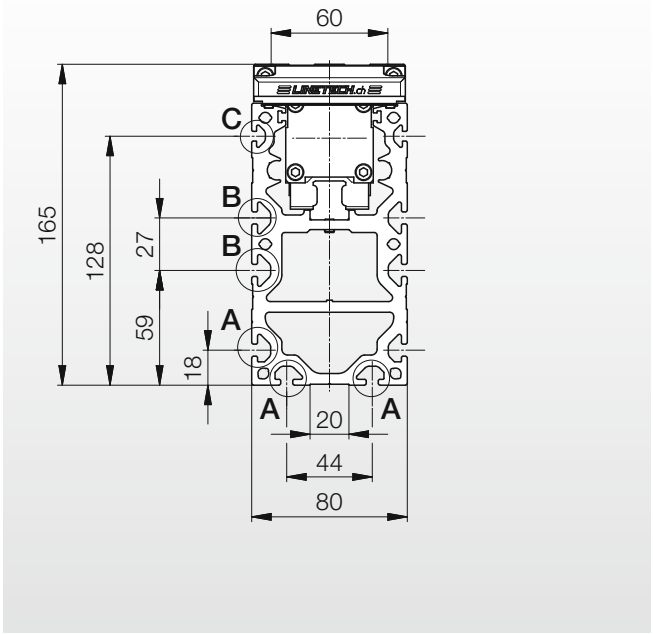


6a) Ball screw drive
6b) Toothed belt drive
7) Linear guides

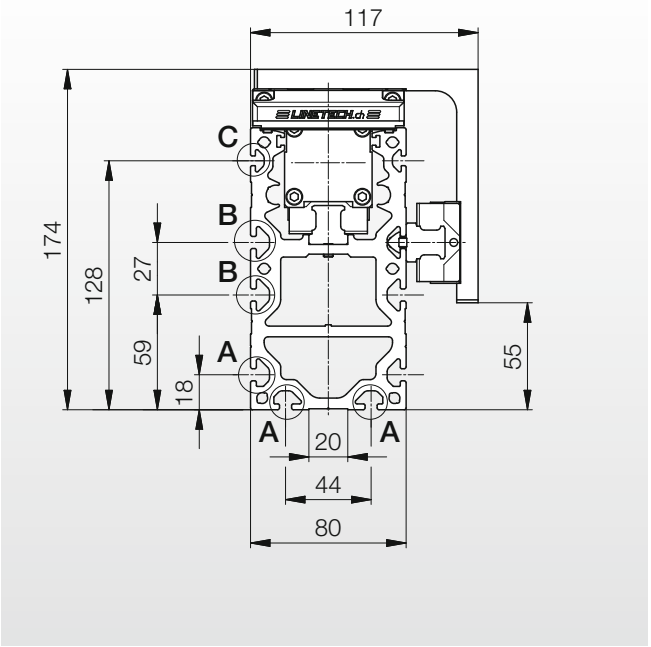
BRIDGE MODULES

Profile cross-sections BM4...R/Z...

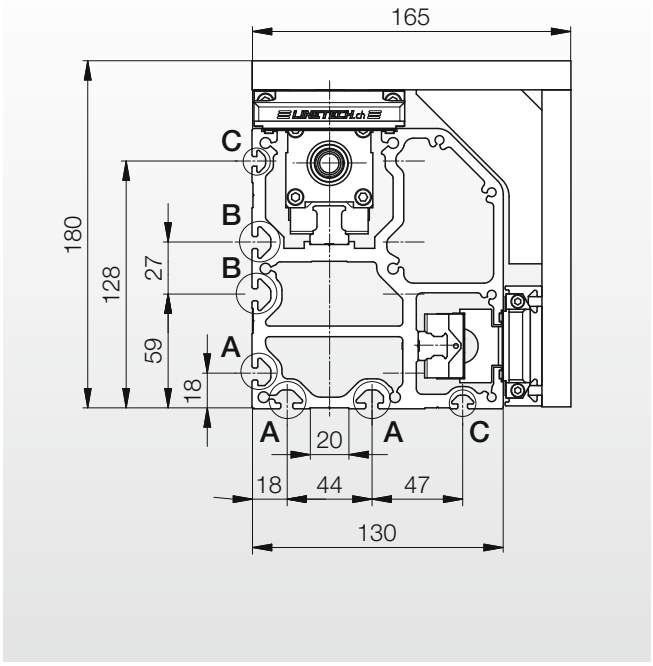
BM4...R/Z...N



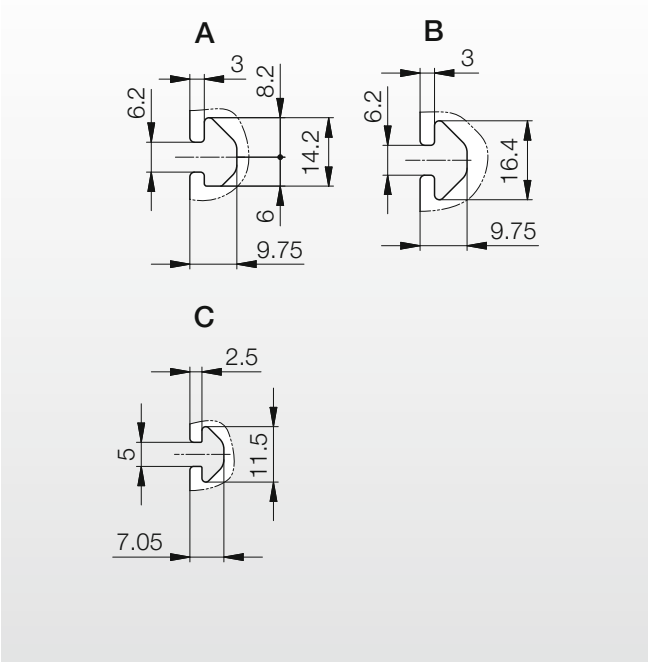
BM4...R/Z...L/R
with lateral support rail left/right



BM4...R...V/W
with lateral profile left/right

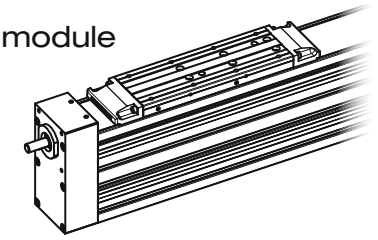


T-sluts BM4...



BRIDGE MODULES WITH BALL SCREW DRIVE

Details for ball screw drive / general technical details for bridge module



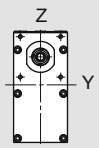
Details for ball screw drive (BSD)

BM	BSD	Axial load rates		Positioning accuracy	Repeating accuracy	Accelera-tion	Axial play		Idle torque
Size	d x p [mm]	C_0 [N]	C_{dyn} [N]	[µm/mm]	[mm]	a_{max} [m/s²]	Type	Axial play [mm]	[Nm]
BM4...R...	20x20	5705	4912	52/300	< 0.05 [1]	10.0	A	< 0.20	0.200
					< 0.03 [1]		R	< 0.02	
					< 0.01 [1]		V	—	0.400

d x p = screw diameter x thread pitch
[1] backlash not factored in
A = axial play
R = reduced play
V = preloaded

General technical details for bridge module with ball screw drive

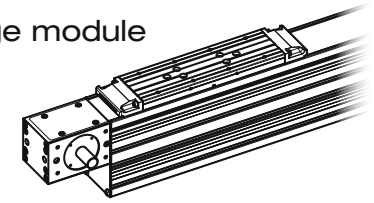
BM	Movement speed		Moments of inertia		Stroke max.	Steel strip	Feed and friction force	Moved mass
Type	Guide v_{max} [m/s]	Drive v_{max} [m/s]	I_Y [cm⁴]	I_Z [cm⁴]	[mm]		F_V [N]	m_b [kg]
BM4...R...N	5.0	[2]	708	332	3000	without	25.00	2.500
						with	35.00	
BM4...R...L/R	5.0	[2]	721	401	3000	without	50.00	4.390
						with	60.00	
BM4...R...V/W	5.0	[2]	1074	834	3000	without	50.00	6.820
						with	70.00	



[2] for ball screw drive, dependent on rotational speed characteristics, spindle length and relevant critical rotational speed.

BRIDGE MODULES WITH TOOTHED BELT DRIVE

Details for toothed belt drive / general technical details for bridge module



Details for toothed belt drive

BM	Toothed belt drive				Axial load	Positioning accuracy	Repeating accuracy	Accel-eration
Size	Type/division	Pinion $d_3 \times l_R$ [mm]	Stroke/rev [mm]	Tension [3] [mm/m]	F [N]	[µ/mm]	…/1000 mm [mm]	a_{max} [m/s²]
BM4…Z…	HTD5M	65.25 x 45	205	0.105	… [1]	200/1000 [2]	< 0.20 [2]	50.0 [1]

$d_3 \times l_R$ = pinion diameter x pinion width
[1] depending on speed and load → see diagram on page 10
[2] backlash not factored in
[3] belt tension/metre [mm/m] per 100 N tensile force

General technical details for bridge module with toothed belt drive

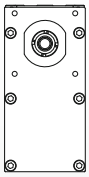
BM	Movement speed		Moments of inertia		Stroke max.	Steel strip	Feed and friction force	Moved mass
Type	Guide v_{max} [m/s]	Drive v_{max} [m/s]	I_Y [cm⁴]	I_Z [cm⁴]	[mm]		F_V [N]	m_b [kg]
BM4…Z…N	5.0	[4]	708	332	6180	without	25.00	2.150
						with	35.00	2.170
BM4…Z…L/R	5.0	[4]	721	401	6180	without	50.00	4.080
						with	60.00	4.100

[4] for toothed belt drive, dependent on load and speed and permissible movement speed of the linear guide
→ see diagram on page 10

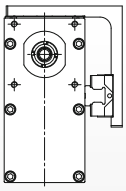
BRIDGE MODULES WITH BALL SCREW DRIVE

Load ratings and torques

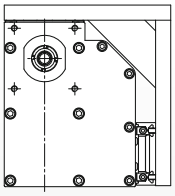
BM4...R...N



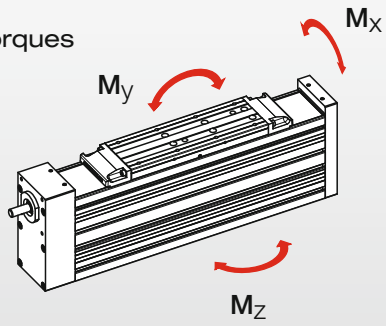
BM4...R...L/R
with lateral support rail

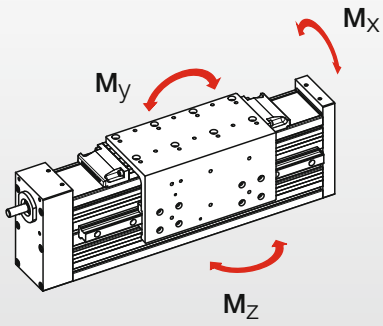


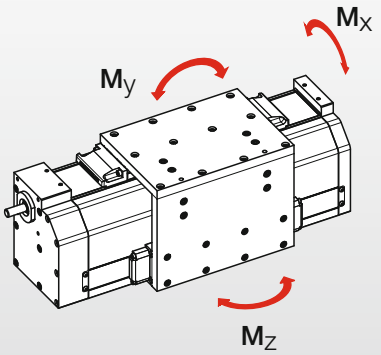
BM4...R...V/W
with lateral profile



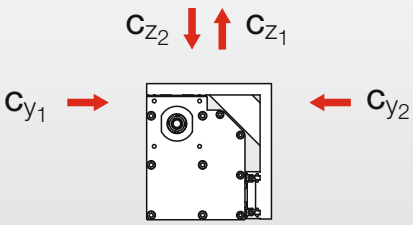
Torques







Load ratings



Bridge module	Maximum permissible load [kN]				Maximum permissible torque [Nm]					
Type	static		dynamic		static			dynamic		
	$C_{y_{0\,1,2}}$	$C_{z_{0\,1,2}}$	$C_{y_{1,2}}$	$C_{z_{1,2}}$	M_{x_0}	M_{y_0}	M_{z_0}	M_x	M_y	M_z
BM4...R...N	59.9	59.9	34.2	34.2	646	1107	1107	400	1069	1069
BM4...R...L/R	119.9	119.9	68.4	68.4	3030	3395	3395	1868	3056	3056
BM4...R...V/W	119.9	119.9	68.4	68.4	4296	3523	3523	3060	3150	3150

Note on dynamic load ratings and torques

The determination of dynamic load ratings and torques is based on a 50,000 m stroke. If comparative values must be calculated for a 100,000 m stroke, the values for M_x, M_y, M_z and C must be divided by the factor 1.26.

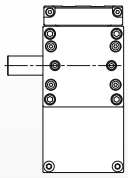
Expedient load

With a view to serviceable life, loads of less than 20% of the dynamic load ratings have generally proved to be expedient.

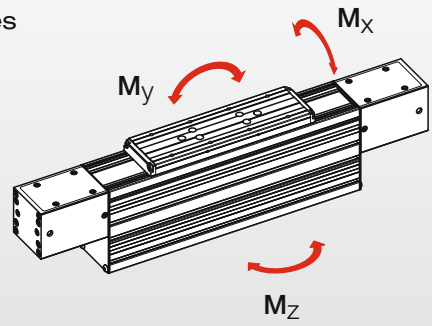
BRIDGE MODULES WITH BELT DRIVE

Load ratings and torques

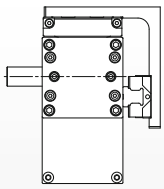
BM4...Z...N

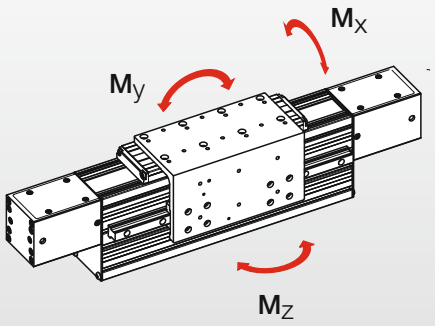


Torques

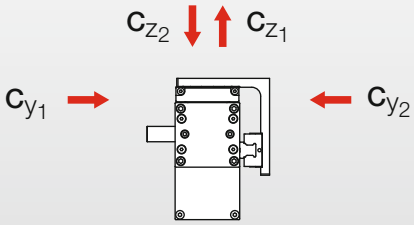


BM4...Z...L/R
with lateral support rail





Load ratings



Bridge module	Maximum permissible load [kN]				Maximum permissible torque [Nm]					
Type	static		dynamic		static			dynamic		
	$C_{y0\,1,2}$	$C_{z0\,1,2}$	$C_{y1,2}$	$C_{z1,2}$	M_{x0}	M_{y0}	M_{z0}	M_x	M_y	M_z
BM4...Z...N	59.9	59.9	34.2	34.2	646	1573	1573	400	1446	1446
BM4...Z...L/R	119.9	119.9	68.4	68.4	3030	3860	3860	1868	2432	2432
BM4...Z...V/W	119.9	119.9	68.4	68.4	4926	4844	4844	3060	4210	4210

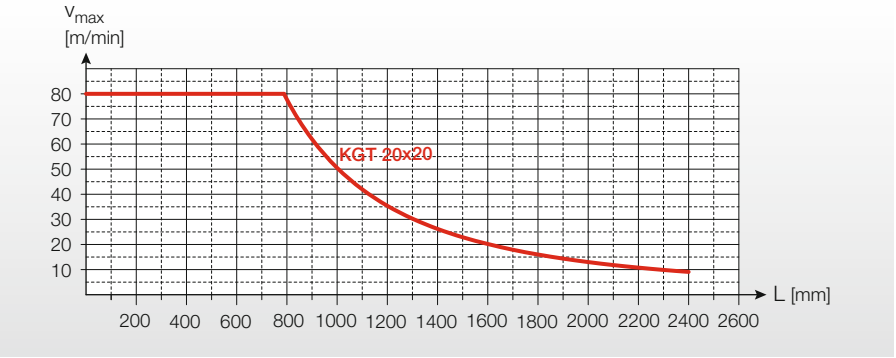
BRIDGE MODULES

Permissible speeds

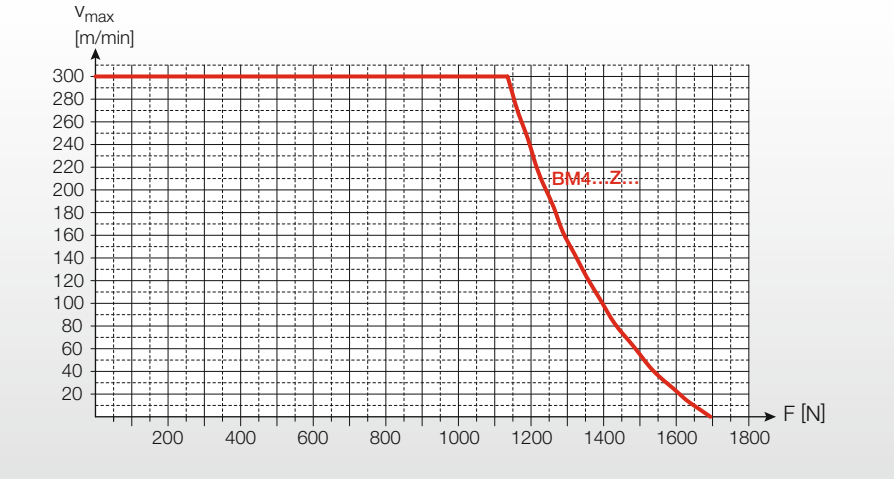
Permissible speeds...

Caution:
For ball screw drive, note the rotational speed characteristics, spindle length and relevant critical rotational speed.

... for bridge module with ball screw drive (BM4...R...) [1)]



... for bridge module with toothed belt drive (BM4...Z...) [1)]



Caution:
For toothed belt drive, the permitted movement speed of the linear guide, and load, are authoritative.

Please also pay attention to the motor speeds.

[1)] greater accuracy on request
L = overall length of the bridge module
F = axial load

Permissible deflection

Permissible deflection

Bridge modules may be assembled self-supporting. However, the deflection (which limits the possible load) must be taken into consideration.

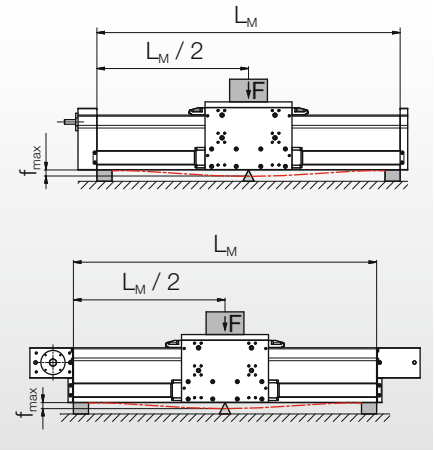
If the maximum permissible deflection is exceeded, the bridge modules must be additionally supported.

The maximum permissible deflection is limited by the maximum deflection angle of 5'. Exceeding this value without support will have a negative effect on the unit's service life.

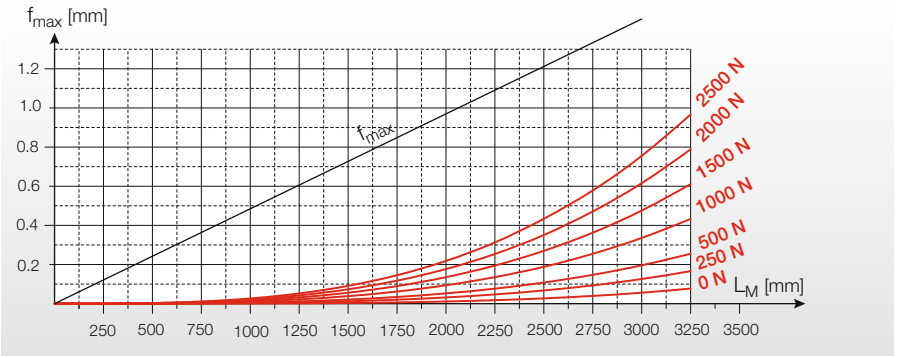
If increased demands are made on system accuracy we recommend supporting the bridge module along its entire length.

The following diagrams apply for:
– firm clamping (40–50 mm per side)
– 3–4 screws per side
– solid base

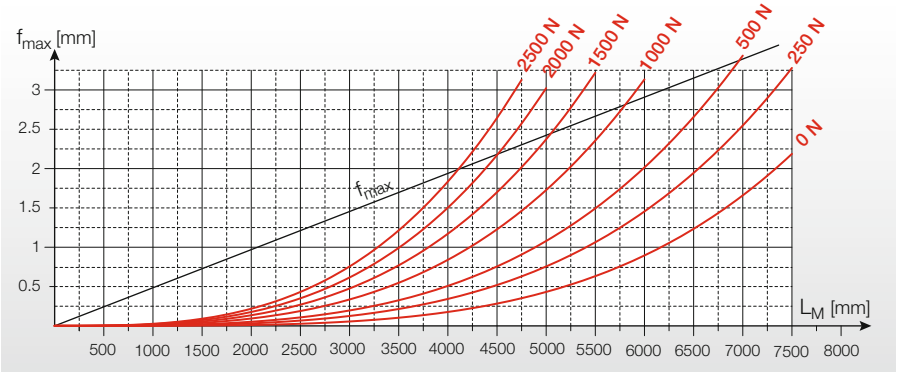
Mounting positions: horizontal



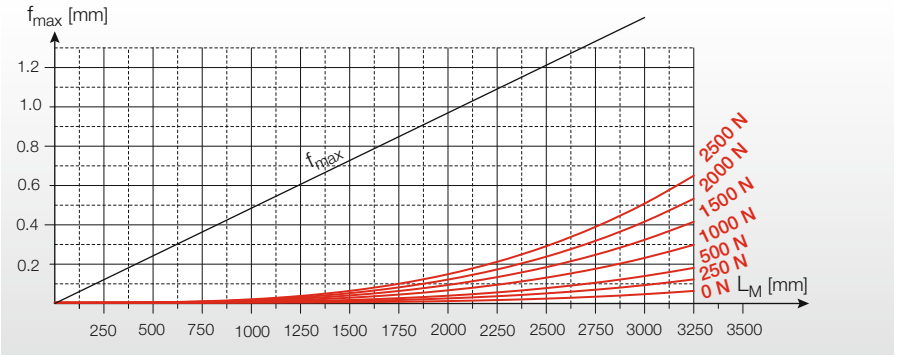
BM4...N resp. BM4...L/R with ball screw drive



BM4...N resp. BM4...L/R with toothed belt drive



BM4...V/W with ball screw drive



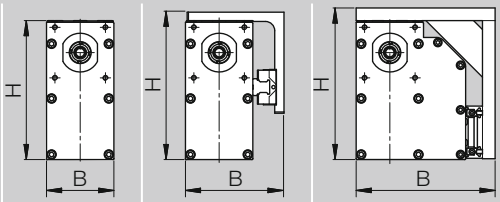
BRIDGE MODULES WITH BALL SCREW DRIVE

Designation system

Bridge module (designation example) BM 4 . 2 . 0500 B R 020 . 1 .

Design
BM = bridge module with linear guide

Size
4 = size 80 mm



Type	BM4...N	BM4...L/R	BM4...V/W
B x H [mm]	80 x 165	117 x 174	165 x 180

Configuration
2 = 2 runner blocks (1 carriage) ***
... = special execution [1)]

Stroke absolut [mm]

Protective covering
B = with steel strip ***
N = without protective strip

Drive
R = rolled ball screw ***
N = without drive

Stroke per revolution [mm]
020 = ball screw with pitch 20 mm ***
... = other pitch [1)]

Limit switches
0 = without limit switch
1 = 2 limit switches, reference point at front (drive side)
2 = 2 limit switches, reference point at rear (opposite drive side)
3 = 2 limit switches + additional reference switch at front (drive side)
4 = 2 limit switches + additional reference switch at rear (opposite drive side)

* seen from motor opposite side towards motor
** available for lateral motor mounting only
*** standard version
[1)] on request

02 . 0 F - S 7 V L N N

5 8 3 _ _ _ → 583... = drawing type

Lateral support rail / profile

N = without lateral support rail / profile ***
L = lateral support rail left
R = lateral support rail right
V = lateral profile left
W = lateral profile right

Connector box

N = without connector box (loose cable L = 2.0 m) ***
S = with connector box

Mounting position of limit switches / connector box

N = without limit switches / connector box ***
L = limit switches / connector box mounting left *
R = limit switches / connector box mounting right *

Preload ball screw drive (BSD)

V = BSD preloaded ***
R = BSD with reduced axial play
N = without drive

Tolerance class ball screw drive (BSD)

7 = Tolerance class BSD: T7 (52 µm/300 mm) ***
N = without drive

Material protective strip

S = stainless steel strip ***
N = without protective strip

Motor mounting

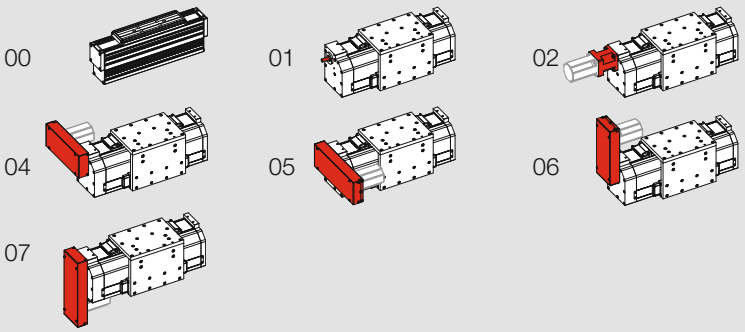
N = without motor mounting ***
F = mounting plate for standard motor
S = mounting plate for special motor

Reduction

0 = without reduction (1:1) ***
1 = reduction 1:1.5 **
2 = reduction 1:2 **

Delivery condition

00 = without drive
01 = free spindle end ***
02 = with coupling and intermediate plate
04 = set up for lateral motor mounting right *
05 = set up for lateral motor mounting left *
06 = set up for lateral motor mounting top
07 = set up for lateral motor mounting bottom



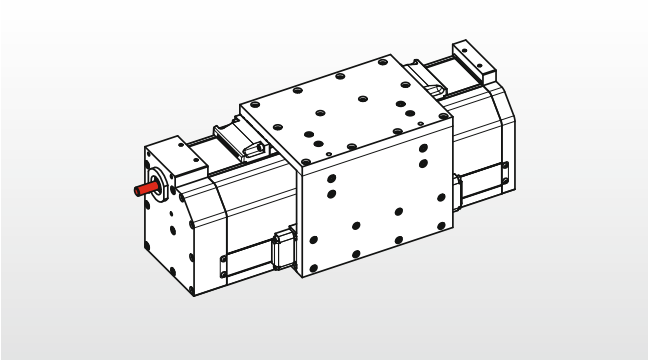
BRIDGE MODULES WITH BALL SCREW DRIVE

Information for selection » Motor mounting preparation

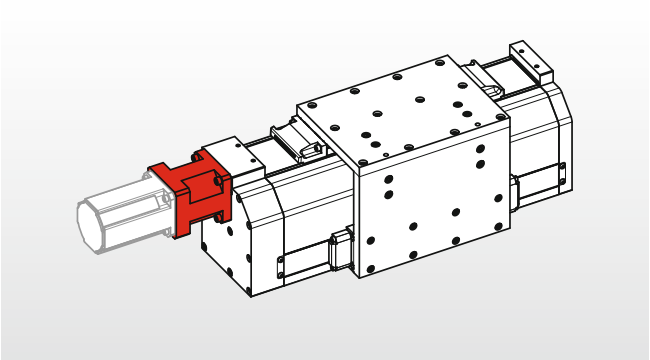
Motor fitting preparation – assembly stages with ball screw drive

LINE TECH bridge modules with ball screw drive can be ordered in various delivery conditions in preparation for motor mounting.
Refer to pages 30/31 for dimensions.

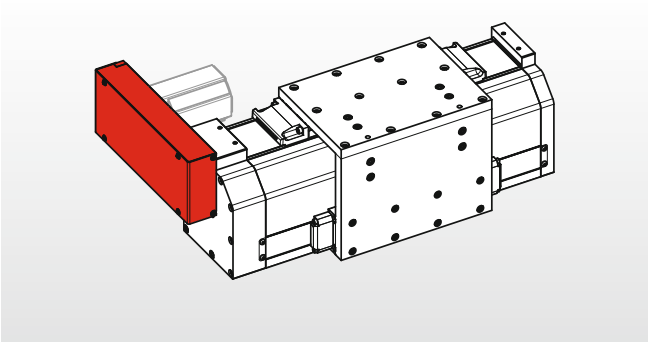
Delivery condition 01
Free spindle end



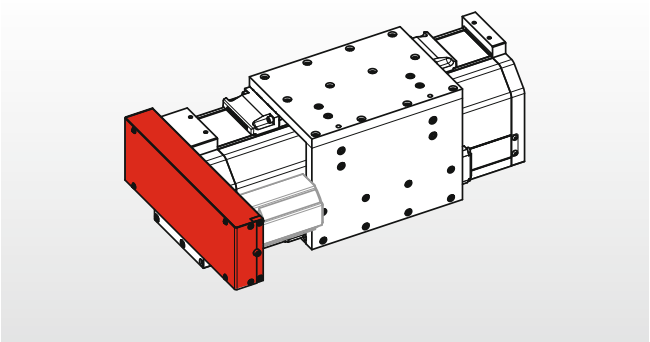
Delivery condition 02
With coupling and intermediate plate



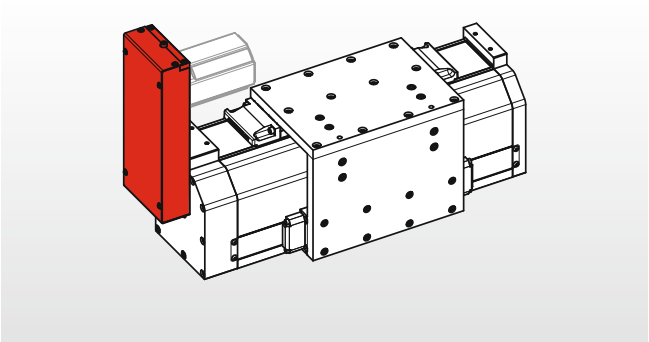
Delivery condition 04
Belt drive housing for lateral motor mounting right



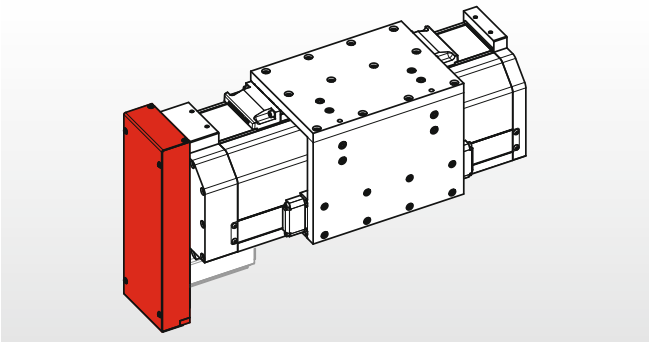
Delivery condition 05
Belt drive housing for lateral motor mounting left



Delivery condition 06
Belt drive housing for lateral motor mounting top

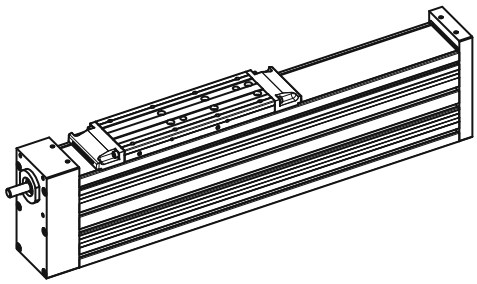


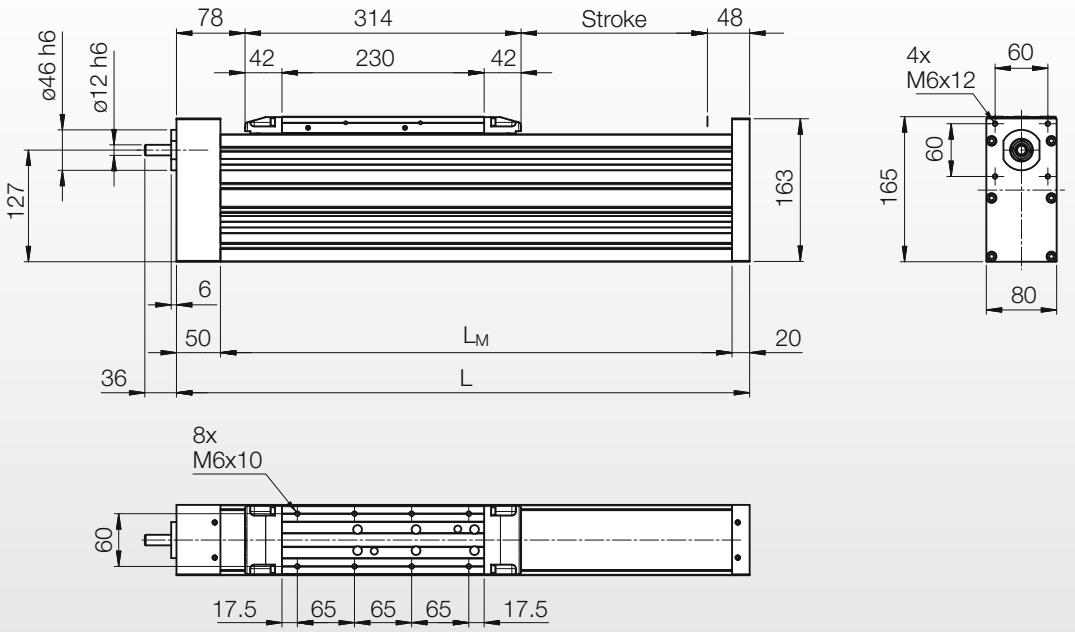
Delivery condition 07
Belt drive housing for lateral motor mounting bottom



BRIDGE MODULE BM4...BR...N

with ball screw drive, with steel strip

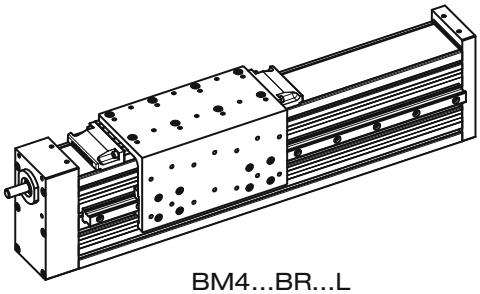




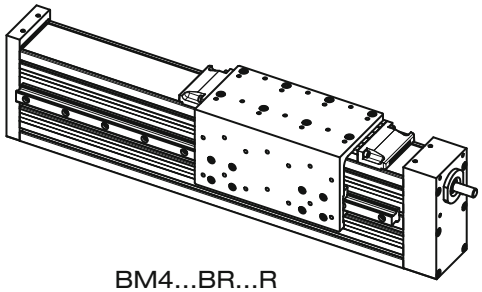
Nominal size	Dimensions				
Designation	L [mm]	L_M [mm]	Length ball screw [mm]	Length steel strip [mm]	Weight [kg]
BM4...BR...N	Stroke + 440	L – 70	L + 30	L – 36	11.24 kg + 1.55 kg/100 mm Stroke

BRIDGE MODULE BM4...BR...L/R

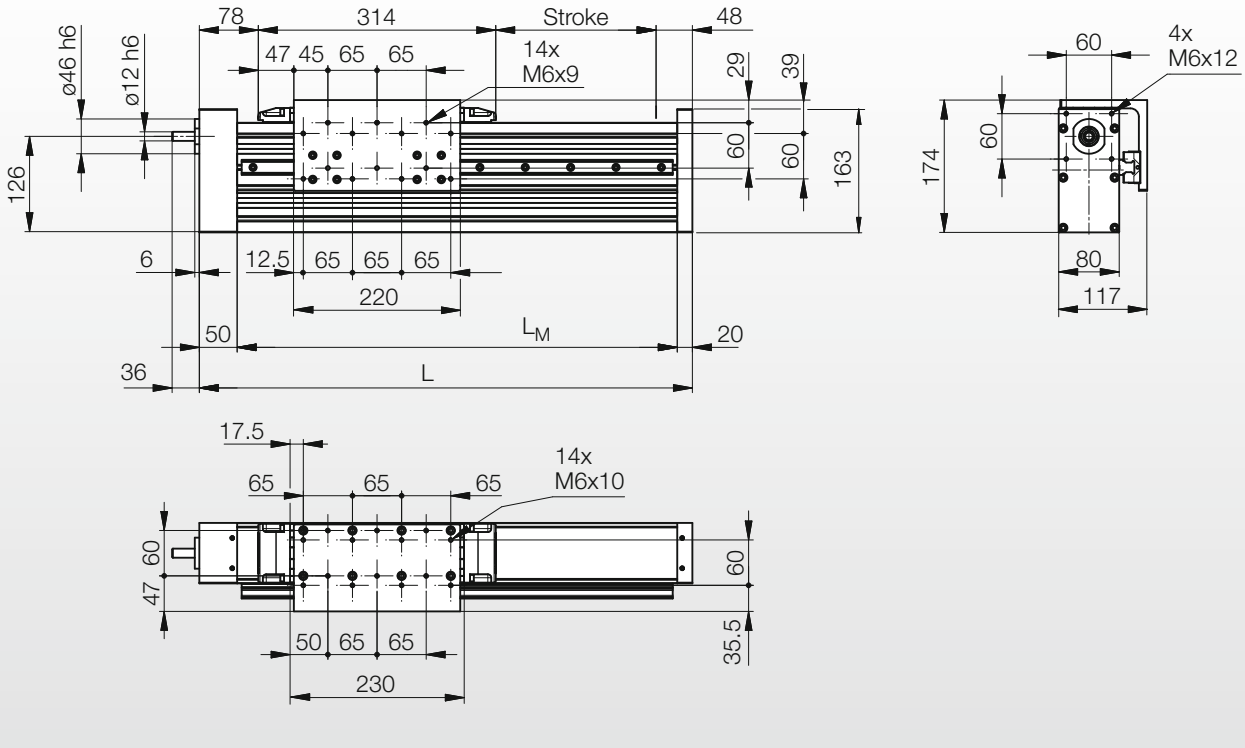
with ball screw drive and lateral support rail left/right, with steel strip



BM4...BR...L



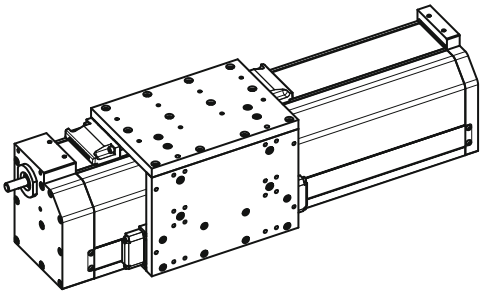
BM4...BR...R



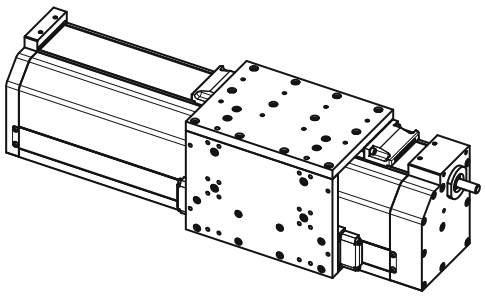
Nominal size	Dimensions				
Designation	L [mm]	L_M [mm]	Length ball screw [mm]	Length steel strip [mm]	Weight [kg]
BM4...BR...L/R	Stroke + 440	L – 70	L + 30	L – 36	14.00 kg + 1.80 kg/100 mm Stroke

BRIDGE MODULE BM4...BR...V/W

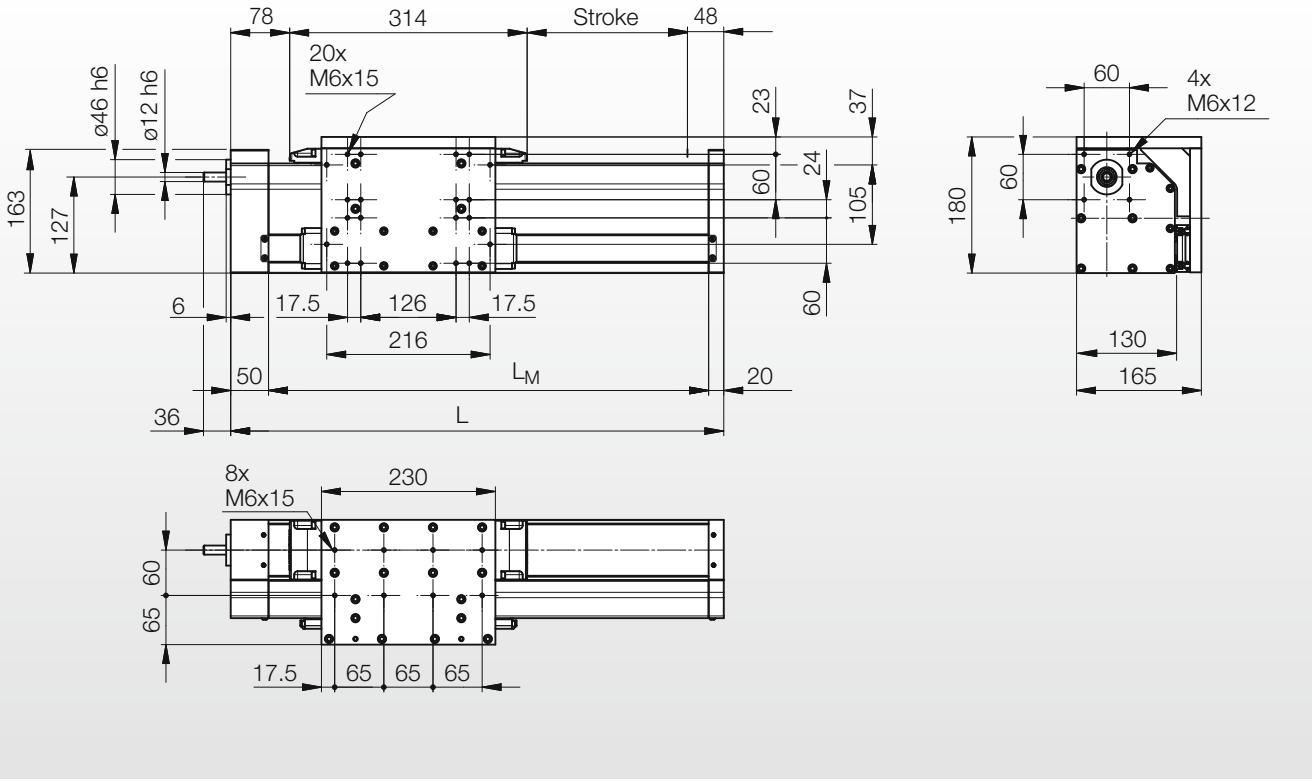
with ball screw drive and lateral profile left/right, with steel strip



BM4...BR...V



BM4...BR...W



Nominal size	Dimensions				
Designation	L [mm]	L_M [mm]	Length ball screw [mm]	Length steel strip [mm]	Weight [kg]
BM4...BR...V/W	Stroke + 440	L – 70	L + 30	L – 36	19.04 kg + 2.13 kg/100 mm Stroke

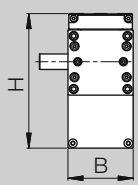
BRIDGE MODULES WITH TOOTHED BELT DRIVE

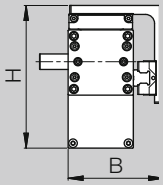
Designation system

Bridge module (designation example) BM 4 . 2 . 0500 N Z 205 . 1 .

Design
BM = bridge module with linear guide

Size
4 = size 80 mm





Type	BM4...N	BM4...L/R
B x H [mm]	80 x 165	117 x 174

Configuration
2 = 2 runner blocks (1 carriage) ***
... = special execution [1)]

Stroke absolut [mm]

Protective covering
B = steel strip
N = without protective strip ***

Drive
Z = toothed belt drive ***
N = without drive

Stroke per revolution [mm]
205 = toothed belt with 205 mm stroke per revolution ***
... = other stroke per revolution [1)]

Limit switches
0 = without limit switch
1 = 2 limit switches, reference point at front (drive side)
2 = 2 limit switches, reference point at rear (opposite drive side)
3 = 2 limit switches + additional reference switch at front (drive side)
4 = 2 limit switches + additional reference switch at rear (opposite drive side)

* seen from motor opposite side towards motor
** available for lateral motor mounting only
*** standard version
1) on request
2) details see gear mounting, page 33

12 . 0 N - S N N L N N

5 8 3 _ _ _ → 583... = drawing type

Lateral support rail
N = without lateral support rail ***
L = lateral support rail left
R = lateral support rail right

Connector box
N = without connector box (loose cable L = 2.0 m) ***
S = with connector box

Mounting position of limit switches / connector box
N = without limit switches / connctor box ***
L = limit switches / connctor box mounting left *
R = limit switches / connctor box mounting right *

Gearbox mounting
N = without gear ***
D = top / rear
E = top / front
F = back / bottom
G = rear / top
H = front / top
K = front / bottom
L = bottom / front
M = bottom / back

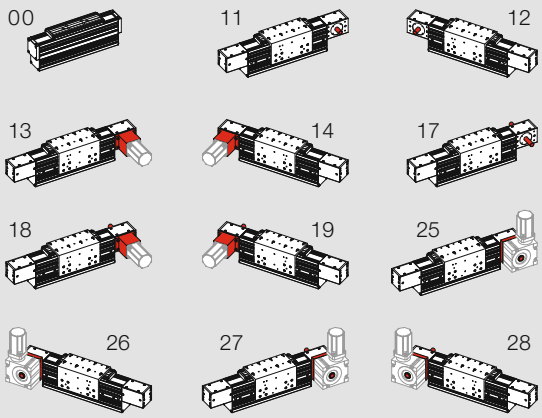
Drive shaft
N = standard drive shaft ***
H = shaft for angular gearbox HPG [2)]
O = without drive shaft

Material protective strip
N = without protective strip ***
S = stainless steel strip

Motor mounting
N = without motor mounting ***
F = mounting plate for LINE TECH motor
S = mounting plate for special motor

Reduction
0 = without reduction ***
X = i = _____ (in conjunction with gear type HPG) [2)]

Delivery condition
00 = without drive
11 = free shaft end right *
12 = free shaft end left *
13 = shaft end right with coupling and intermediate plate *
14 = shaft end left with coupling and intermediate plate *
17 = free shaft ends on both sides (passing shaft)
18 = shaft end on both sides, with coupling and intermediate flange right *
19 = shaft end on both sides, with coupling and intermediate flange left *
25 = shaft end right with gear mounting *
26 = shaft end left with gear mounting *
27 = shaft end on both sides, right with gear mounting *
28 = shaft end on both sides, left with gear mounting *



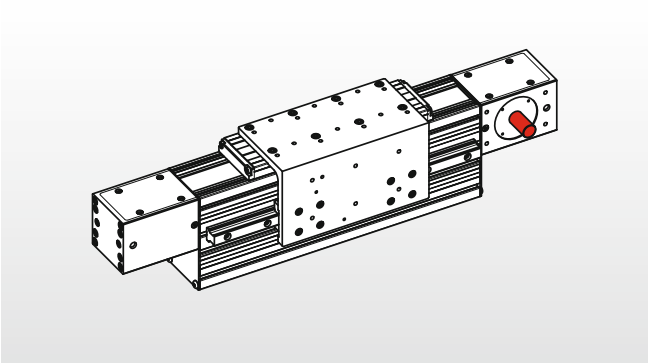
BRIDGE MODULES WITH BELT DRIVE

Information for selection » Motor mounting preparation (1/3)

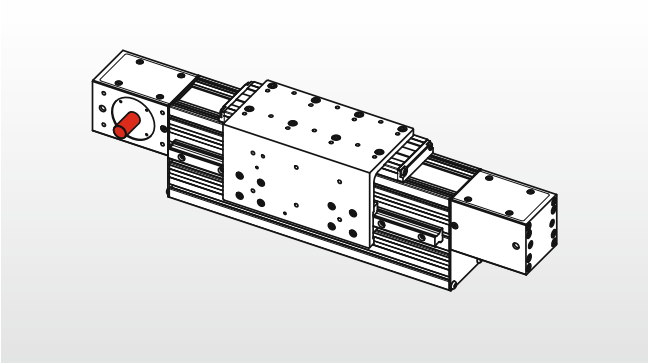
Motor mounting preparation – delivery conditions with toothed belt drive

LINE TECH bridge modules with toothed belt drive can be ordered in various delivery conditions in preparation for motor mounting. Refer to pages 32/33 for dimensions.

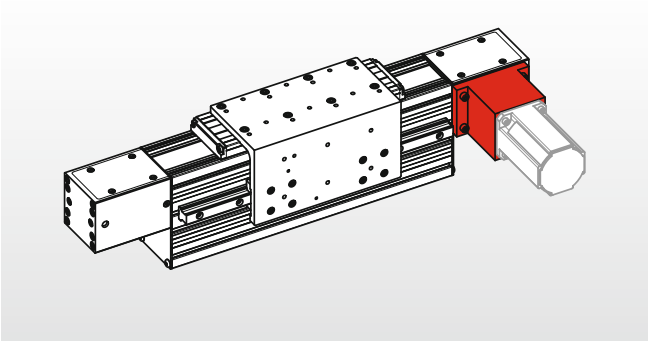
Delivery condition 11
Free shaft end right*



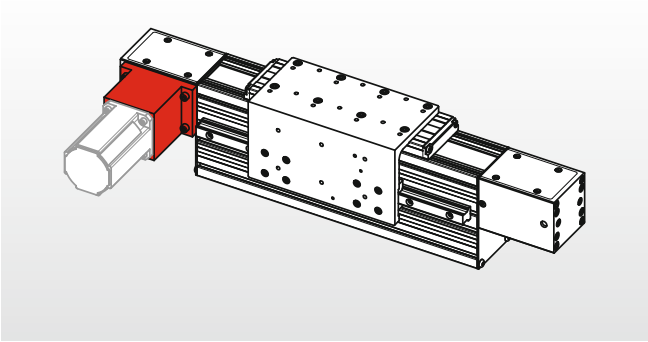
Delivery condition 12
Free shaft end left*



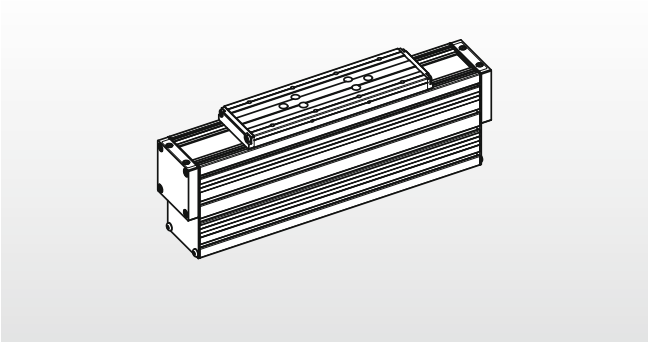
Delivery condition 13
Shaft end right* with coupling and intermediate flange



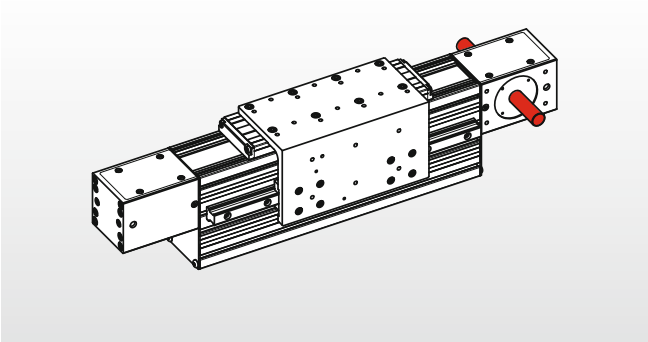
Delivery condition 14
Shaft end left* with coupling and intermediate flange



Delivery condition 00
Without drive



Delivery condition 17
Free shaft ends on both sides

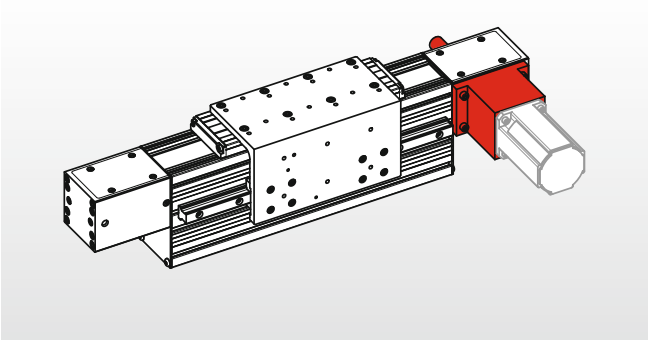


* seen from motor opposite side towards motor

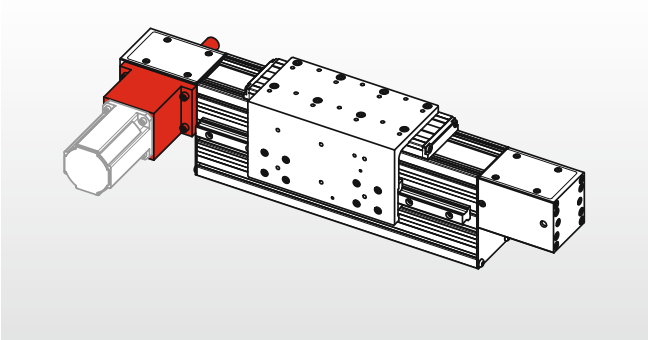
BRIDGE MODULES WITH BELT DRIVE

Information for selection » Motor mounting preparation (2/3)

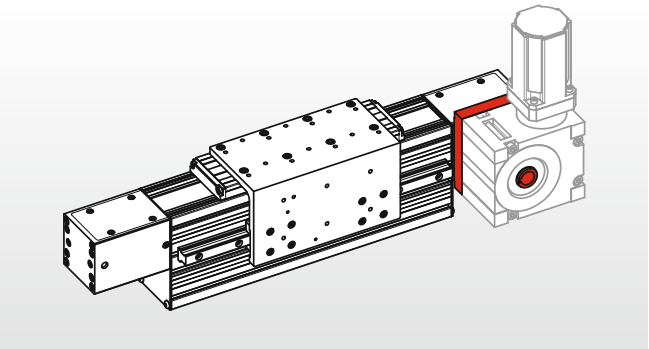
Delivery condition 18
Shaft ends on both sides, right* with coupling and intermediate flange



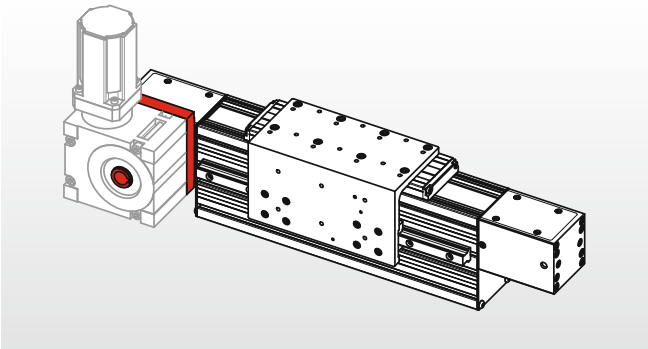
Delivery condition 19
Shaft ends on both sides, left* with coupling and intermediate flange



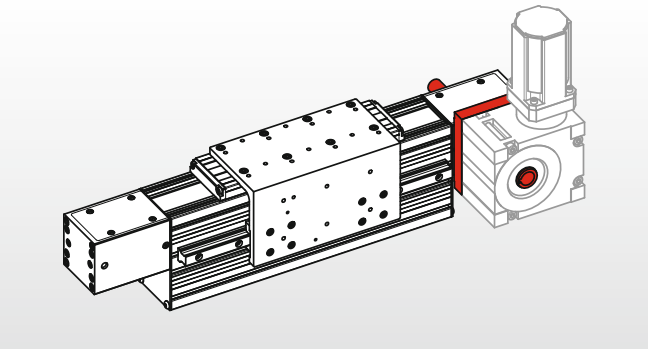
Delivery condition 25
Shaft end right* with gear mounting plate



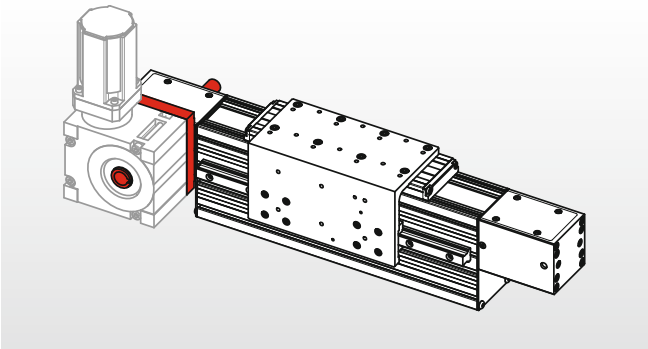
Delivery condition 26
Shaft end left* with gear mounting plate



Delivery condition 27
Shaft ends on both sides, right* with gear mounting plate



Delivery condition 28
Shaft ends on both sides, left* with gear mounting plate



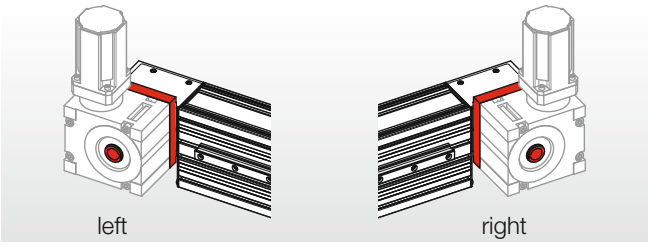
* seen from motor opposite side towards motor

Information for selection » Motor mounting preparation (3/3)

Motor mounting preparation – mounting options (alignment) of angular gearboxes

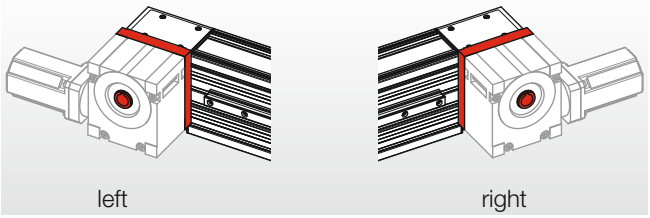
For delivery conditions 25 to 28 (see page 21), the gear mounting plate can be pre-mounted differently depending on gearbox mounting and motor orientation required:

Gearbox mounting D
Gear towards back* and top



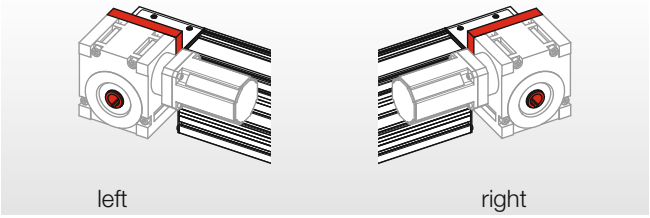
Gearbox mounting E
Gear towards front* and top

Gearbox mounting F
Gear towards back* and bottom

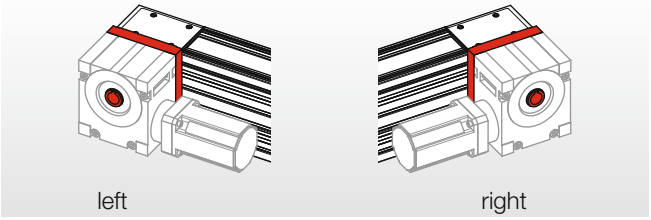


Gearbox mounting G
Gear towards back* and top

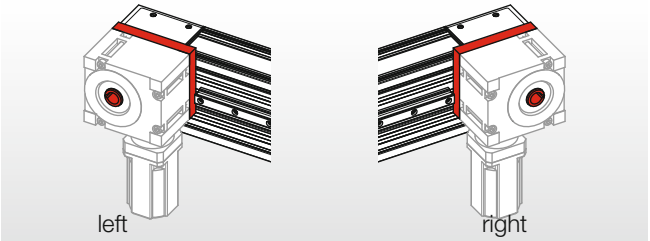
Gearbox mounting H
Gear towards front* and top



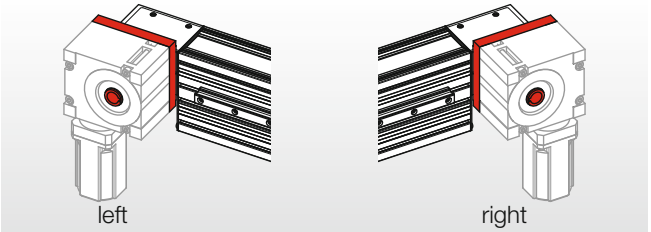
Gearbox mounting K
Gear towards front* and bottom



Gearbox mounting L
Gear towards front* and bottom



Gearbox mounting M
Gear towards back* and bottom

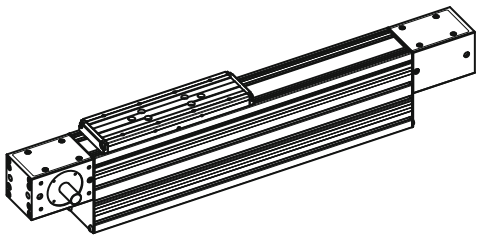


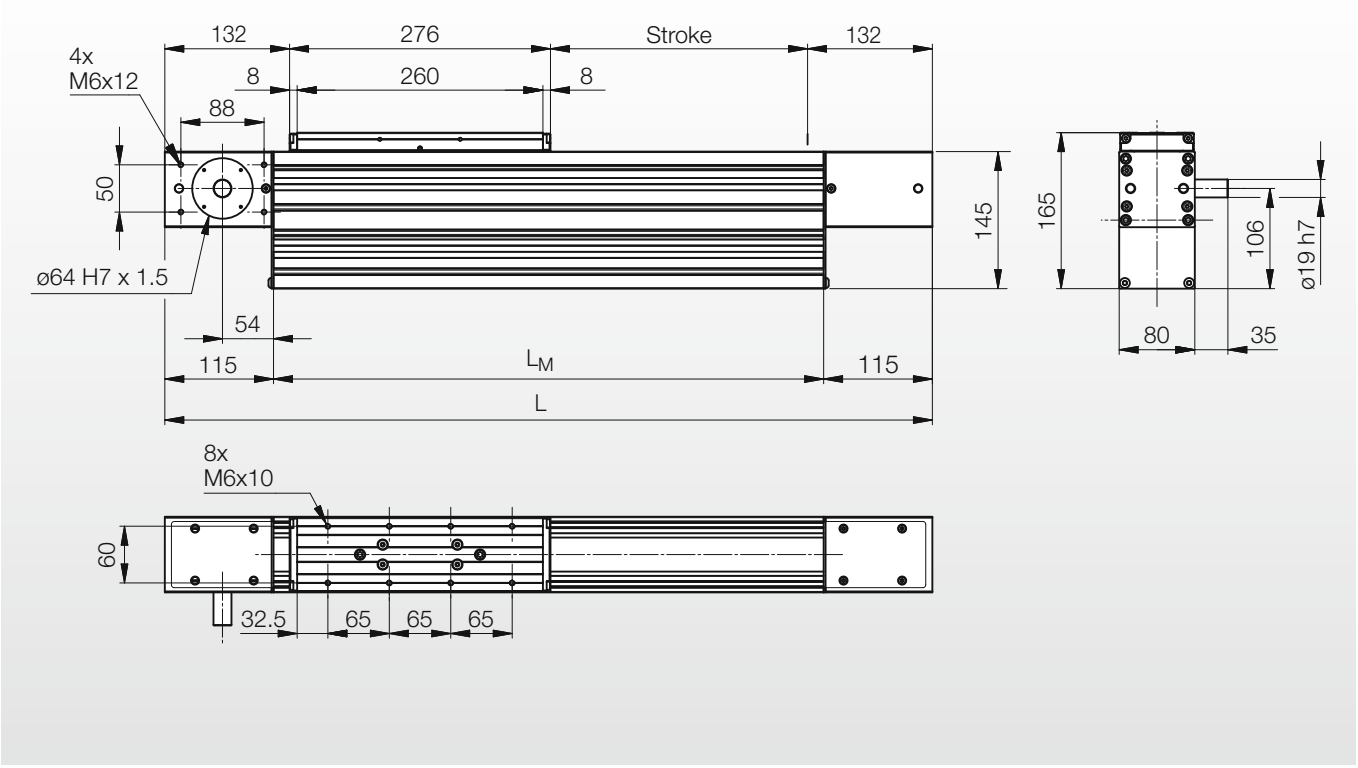
* seen from motor opposite side towards motor

NOTES

BRIDGE MODULE BM4...NZ...N

with toothed belt drive, without protective strip

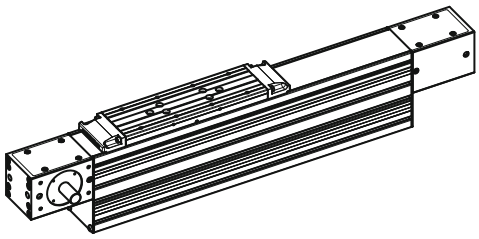


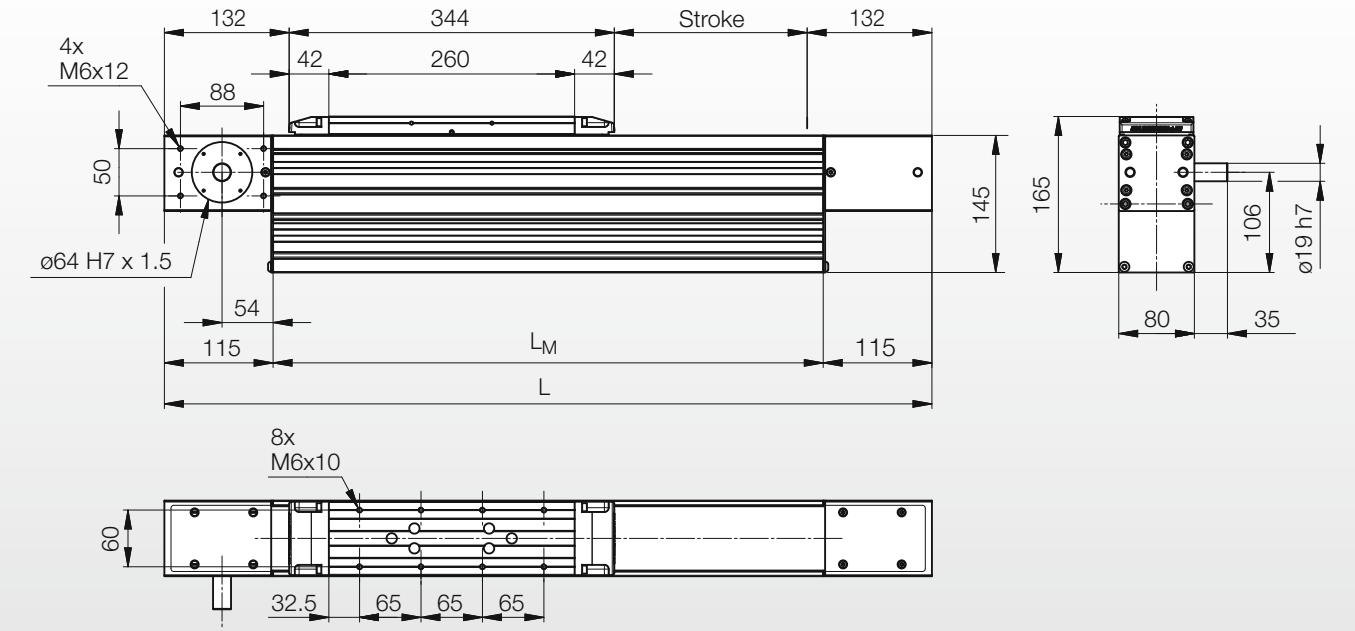


Nominal size	Dimensions			
Designation	L [mm]	L_M [mm]	Belt length [mm]	Weight [kg]
BM4...NZ...N	Stroke + 540	L – 230	2 x Stroke + 900	9.70 kg + 1.36 kg/100 mm Stroke

BRIDGE MODULE BM4...BZ...N

with toothed belt drive, with steel strip

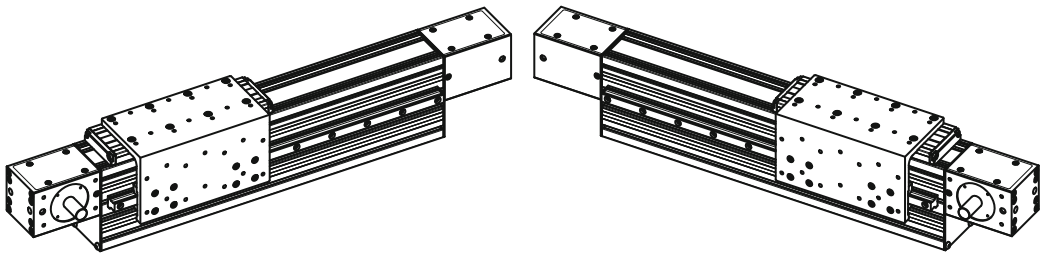




Nominal size	Dimensions				
Designation	L [mm]	L_M [mm]	Belt length [mm]	Length steel strip [mm]	Weight [kg]
BM4...BZ...N	Stroke + 608	L – 230	2 x Stroke + 1040	L – 12	10.70 kg + 1.38 kg/100 mm Stroke

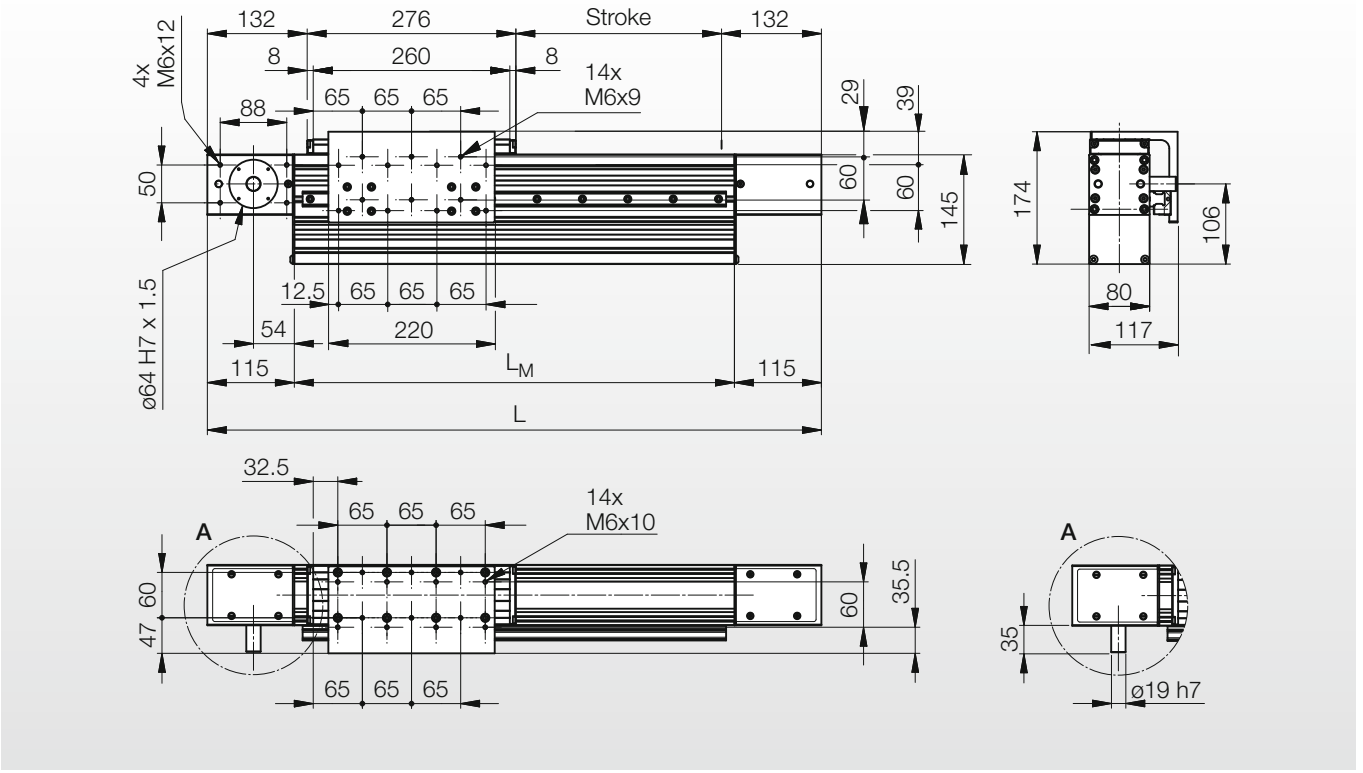
BRIDGE MODULE BM4...NZ...L/R

with toothed belt drive and lateral support rail left/right, without protective strip



BM4...NZ...L

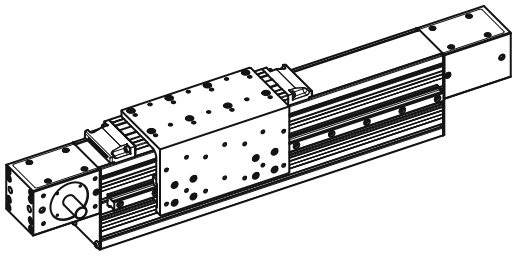
BM4...NZ...R



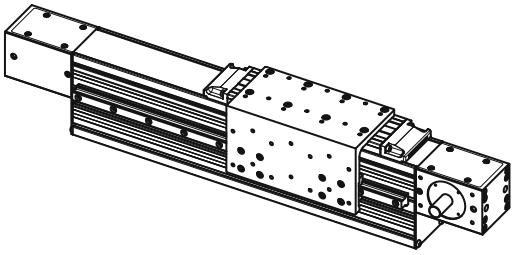
Nominal size	Dimensions			
Designation	L [mm]	L_M [mm]	Belt length [mm]	Weight [kg]
BM4...NZ...L/R	Stroke + 540	L – 230	2 x Stroke + 900	12.39 kg + 1.59 kg/100 mm Stroke

BRIDGE MODULE BM4...BZ...L/R

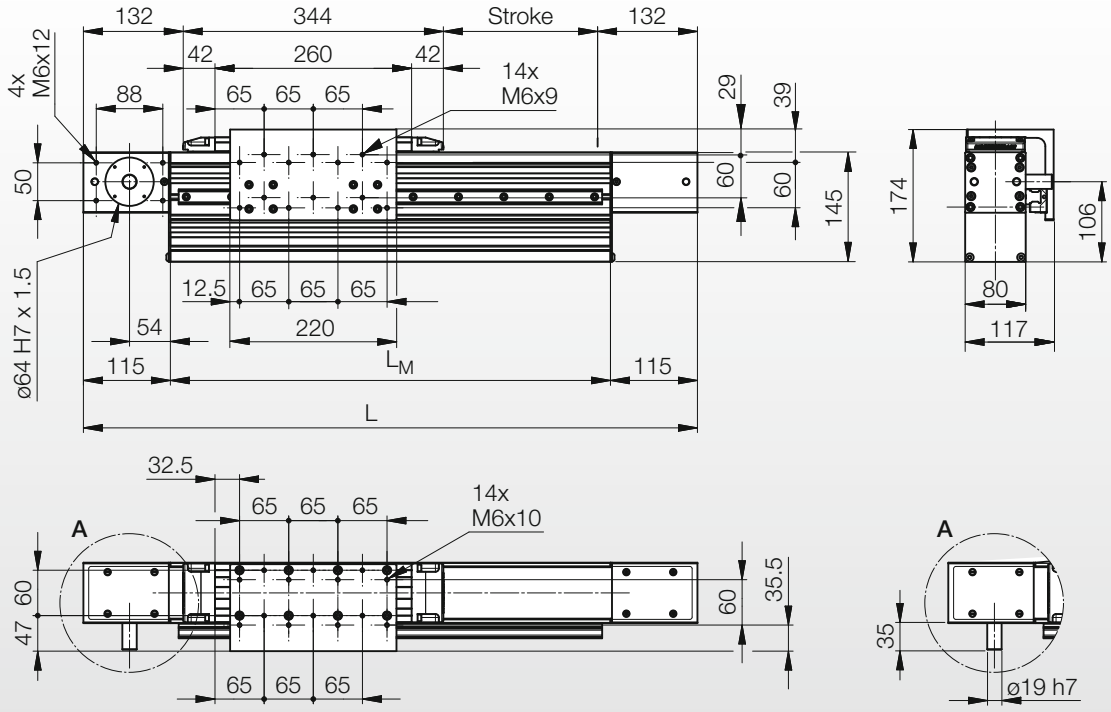
with toothed belt drive and lateral support rail left/right, with steel strip



BM4...BZ...L



BM4...BZ...R



Nominal size	Dimensions				
Designation	L [mm]	L_M [mm]	Belt length [mm]	Length steel strip [mm]	Weight [kg]
BM4...BZ...L/R	Stroke + 608	L – 230	2 x Stroke + 1040	L – 12	13.54 kg + 1.61 kg/100 mm Stroke

Limit switch mounting

Limit switches

The limit switches are used in conjunction with a control unit to limit the stroke (prevent overrunning of the carriage) and to define the reference position.

LINE TECH employs the following standard inductive limit switches:

– PNP openers (PNP-NC)
  Supply: 10...30 V DC
  Current consumption off-load: < 10 mA
  Load: max. 200 mA

On request the following non standard limit switches are available:

– PNP make type (PNP-NO)
– NPN break type (NPN-NC)
– NPN make type (NPN-NO)
– Reed switches
– Mechanical switches

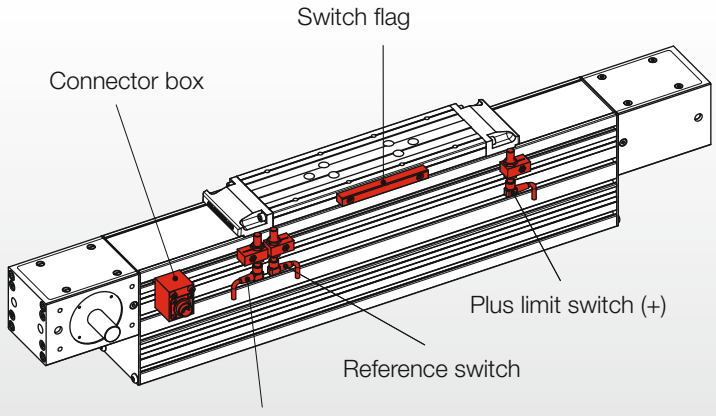
Note: At the factory the plus and minus limit switches are preset to a nominal stroke of 0 to +5 mm.

Fitting position of limit switches

The following diagrams show the mounting position of the limit switches. The reference position can be allocated either to the plus (+) or to the minus (-) limit switch.

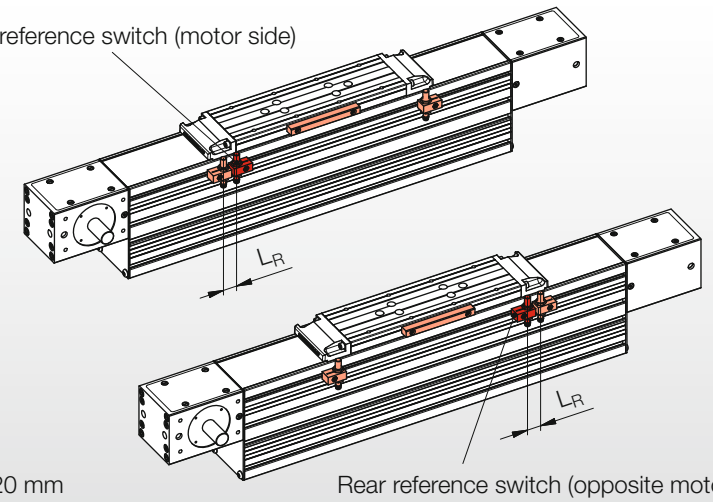
Special applications often require a separate reference point switch to be mounted between the positive and negative limit switches. The limit switch closest to the motor mounting (limit switch controller interface) is known as the forward limit switch.

Limit switches / reference switch mounting overview



Note: If a lateral support rail (type LM… L/R) or a lateral profile (type BM...V/W) is selected, the limit switches can only be fitted on the opposite side.

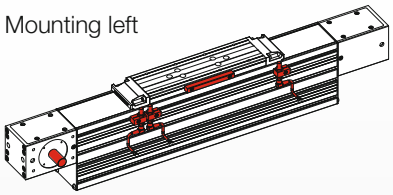
Position of reference switch (L_R)



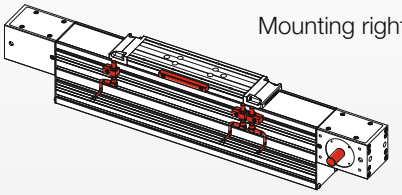
L_R = 20 mm

Limit switch mounting

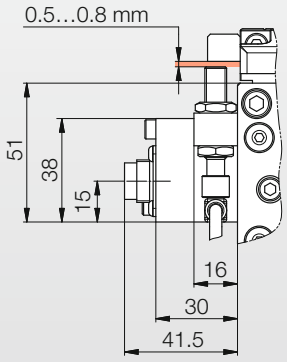
Mounting left



Mounting right



Dimensions / switch gap



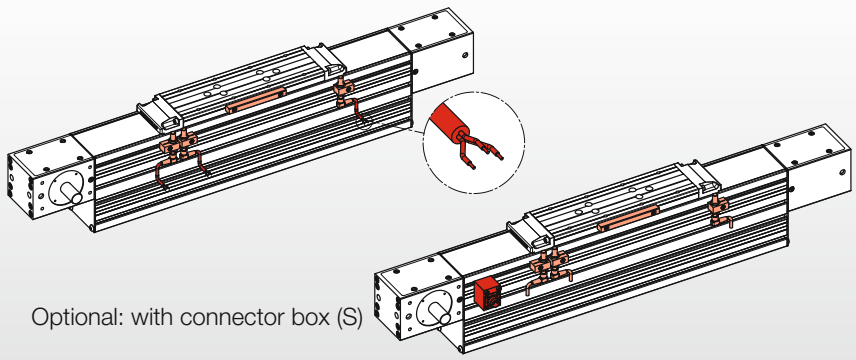
Limit switch with/without connector box

Limit switch preparation

Limit switches are supplied as standard without connector box with 2 metre long cables (order code N); a connector box with completed cabling is available as an option (order code S).

Limit switch mating connectors and cables are not included in the delivery but can be ordered ready-made from LINE TECH.

Standard: without connector box (N), with loose connector cables (L = 2 m)



Optional: with connector box (S)

Plug connector

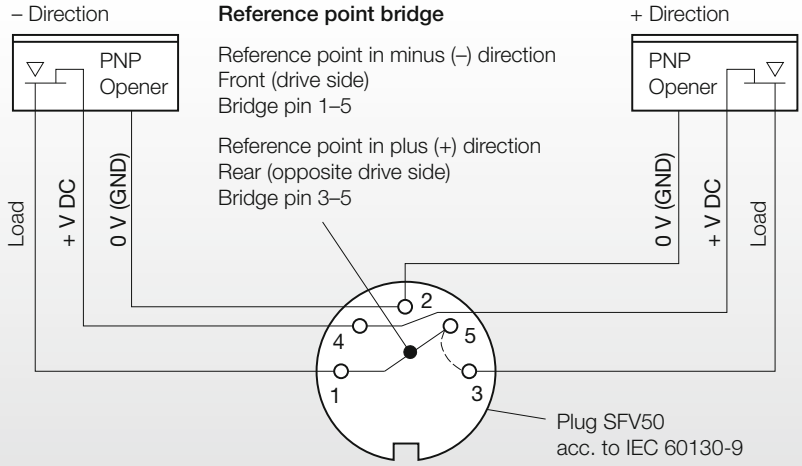
The connector pin assignment when using a connector box is shown in the diagram on the right. The individual pins are assigned as follows:

Pin 1	Minus (–) direction (load)
Pin 2	0 V (GND)
Pin 3	Plus (–) direction (load)
Pin 4	+10...30 V (DC)
Pin 5	Reference (load)

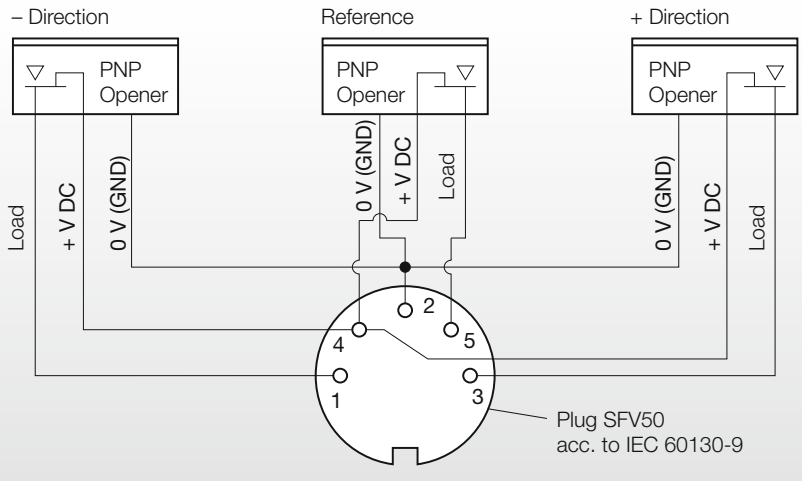
Colour code key for the diagrams:

Load	= black
+V DC	= brown
0 V (GND)	= blue

Plug connector with reference point bridge

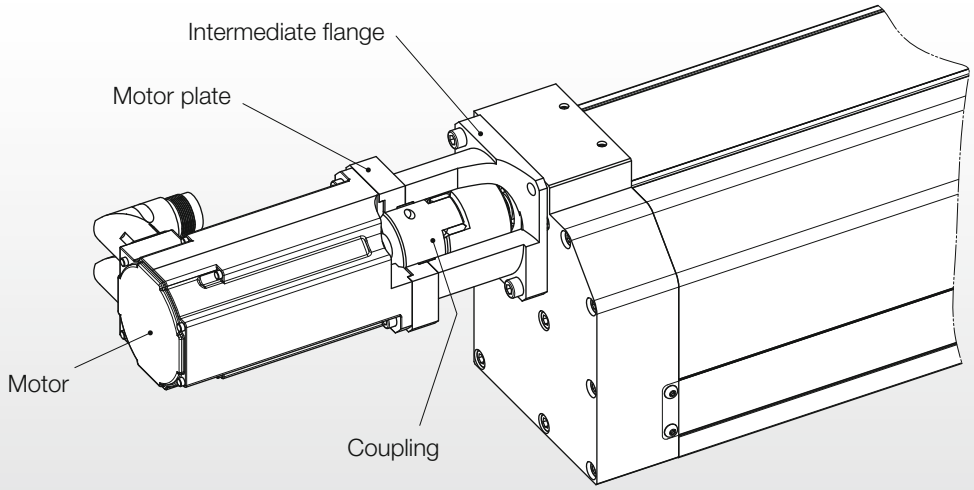


Plug connector with additional reference switch

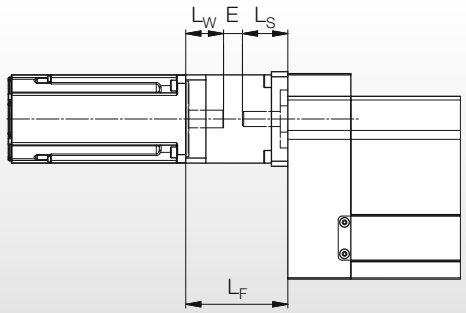


Dimensions for motor mounting; straight fit

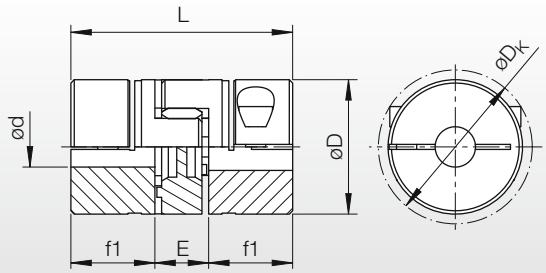
Straight motor mounting



Length of motor mounting



Coupling

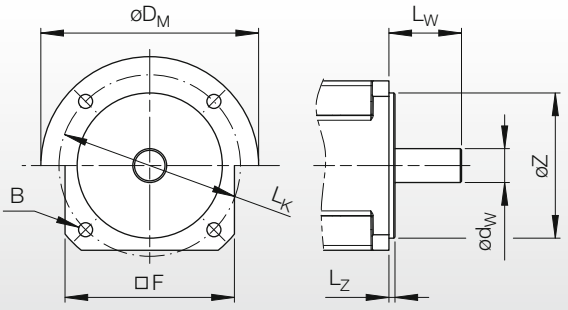


Nominal size	Dimensions			Coupling
	L_F ±2 [mm]	L_S [mm]	Weight * [kg]	when $L_W > f1$
BM4...	$L_S + E + L_W$	35	1.200	Size 19

* flange including coupling

Dimensions [mm]							Drive torque [Nm]	
Size	L	øD	ød	f1	E	$øD_K$	T_N	T_{max}
19	66	40	≤20	25	16	43	17	34

Motor dimensions **

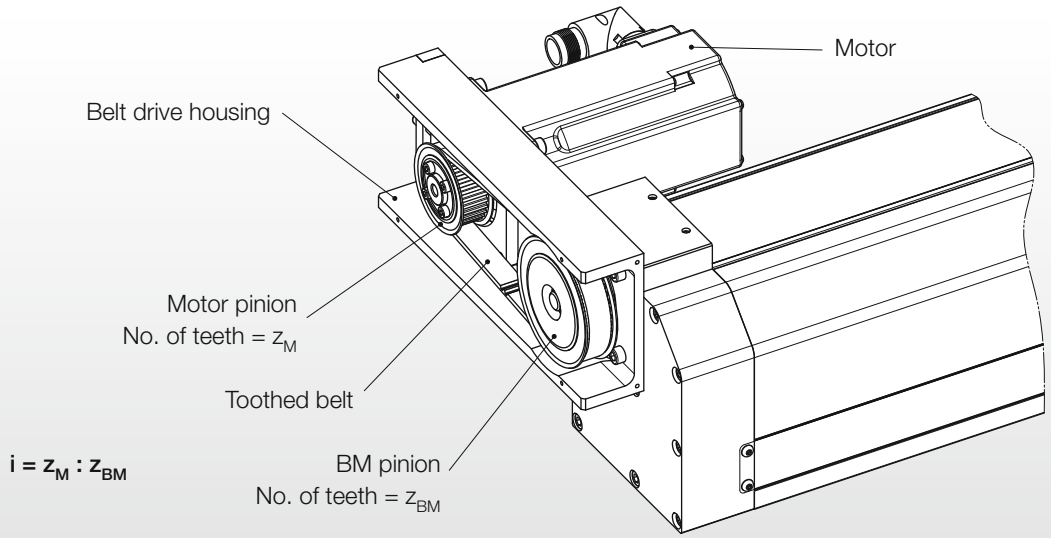


** the following dimensions are required to determine the motor mounting:

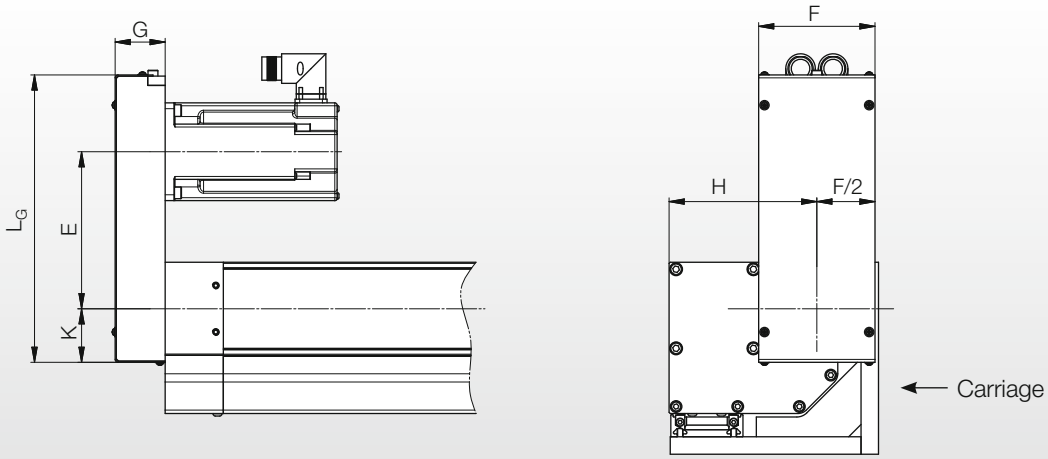
$øD_M$ _____ [mm]		L_W _____ [mm]	
B _____ [mm]		$ød_W$ _____ [mm]	
□F _____ [mm]		L_Z _____ [mm]	
L_K _____ [mm]		øZ _____ [mm]	

Dimensions for motor mounting; lateral fit

Lateral motor mounting



Dimensions for lateral motor mounting

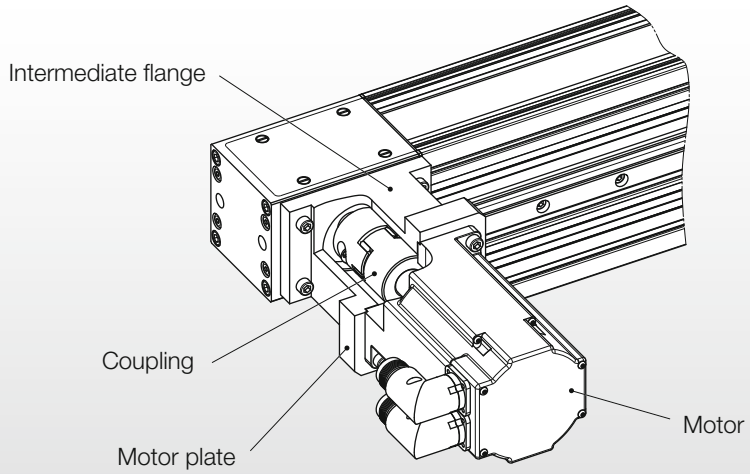


Nominal size	Dimensions [mm]							No. of teeth		Max.	Belt length	Weight
	i	E	F	G*	H	K	L_G	z_M	z_{BM}	ød_W	[mm]	[kg]
	1:1	130…135 (132.5)						32	32	ø19	425	1.600
BM4…	1:1.5	131…139 (135)	100	43	126	46	247	32	48	ø19	475	1.800
	1:2	131.5…135.5 (133.5)						24	48	ø12	450	1.700

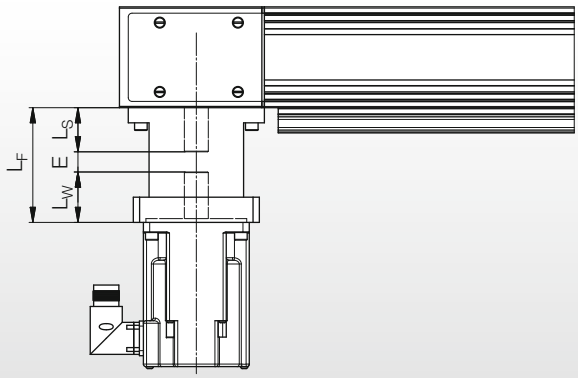
BRIDGE MODULES WITH BELT DRIVE

Dimensions for motor mounting; straight fit

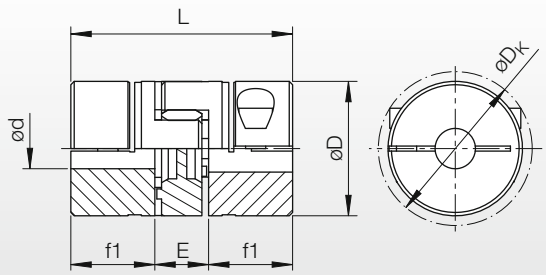
Straight motor mounting



Length of motor mounting



Coupling

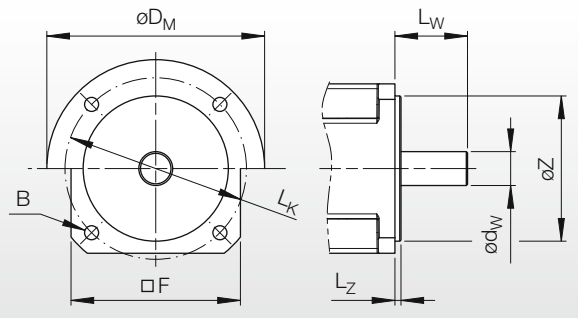


Nominal size	Dimensions			Coupling
	$L_{F\ \pm 2}$ [mm]	L_S [mm]	Weight * [kg]	when $L_W > f1$
BM4...	$L_S + E + L_W$	35	1.200	Size 19

* flange including coupling

Dimensions [mm]							Drive torque [Nm]	
Size	L	ø D	ø d	f1	E	ø D_K	T_N	T_{max}
19	66	40	≤ 20	25	16	43	17	34

Motor dimensions **

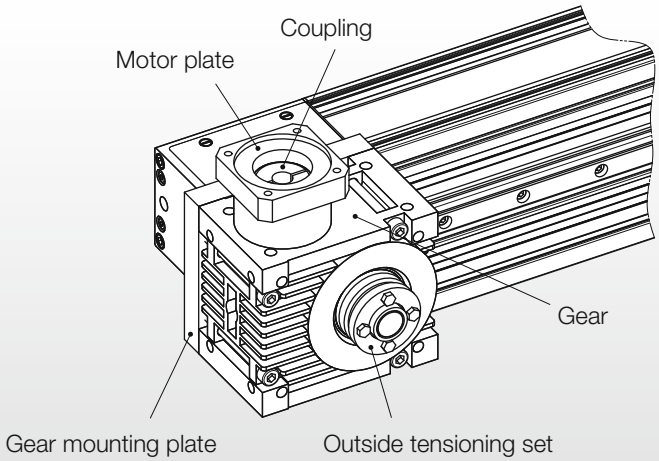


** the following dimensions are required to determine the motor mounting:

ø D_M _____ [mm]		L_W _____ [mm]	
B _____ [mm]		ø d_W _____ [mm]	
□F _____ [mm]		L_Z _____ [mm]	
L_K _____ [mm]		øZ _____ [mm]	

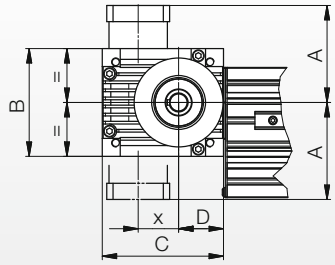
Dimensions for motor mounting; gear mounting

Angular gearboxe HPG [1)]

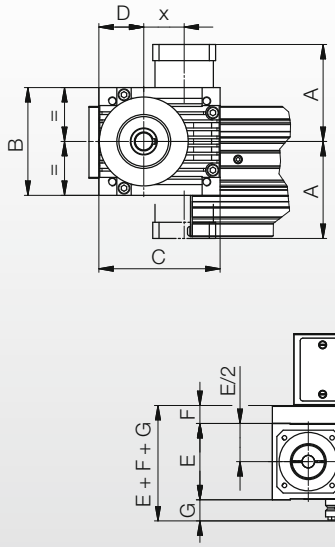


Dimensions for gear mounting

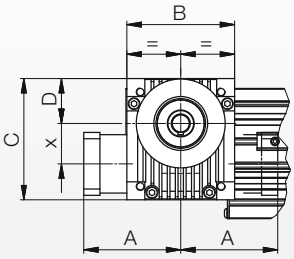
Assembly direction: D + M



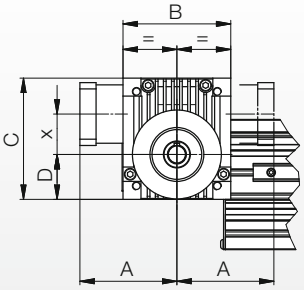
Assembly direction: E + L



Assembly direction: F + K



Assembly direction: G + H



Nominal size	Gearbox type	Casing dimensions [mm]									Weight	Gear
		x	L_W	A	B	C	D	E	F	G*	[kg]	[kg]
BM4…	HPG [1)]	45	20…33	98	120	135	50	85	20	23.5	1.300	4.100
			33…43	108								4.200

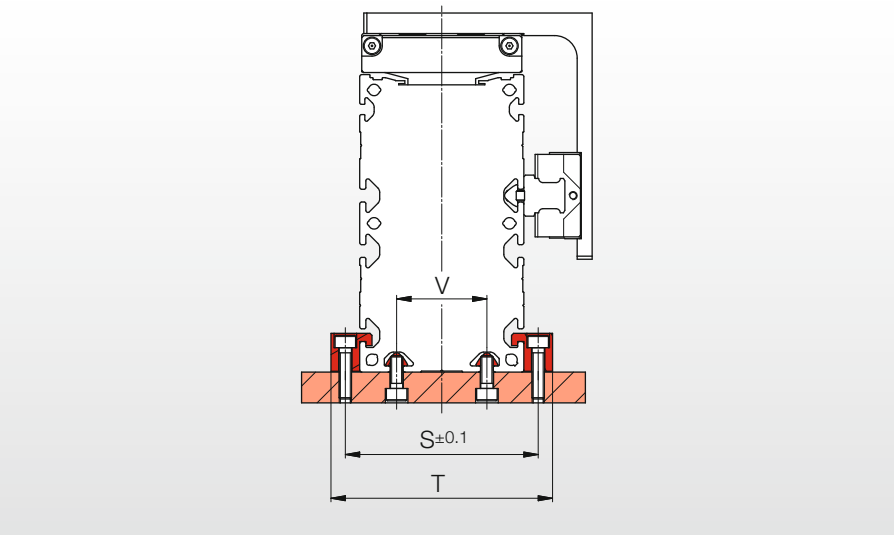
[1)] Possible gear reductions: 1:2/3/4/5/6/8/10/13.33/16/24/30/47/60

Attachment accessories; clamps

Mounting options

The bridge modules are secured with clamps or sliding blocks.

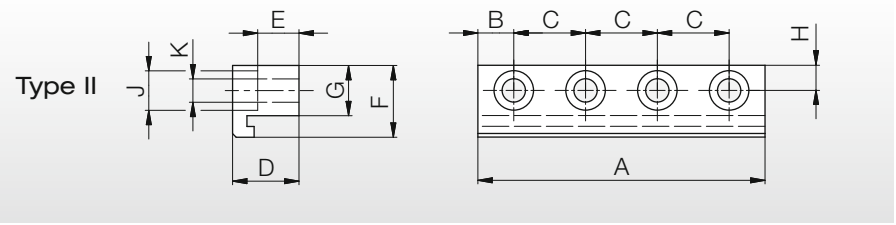
Caution: Only attach and support bridge modules on the base profile, not on the end plates.



Nominal size	Dimensions [mm]		
	S	T	V
BM4...	94	108	44

Clamps

Recommended number of clamps:
4 per metre and side.

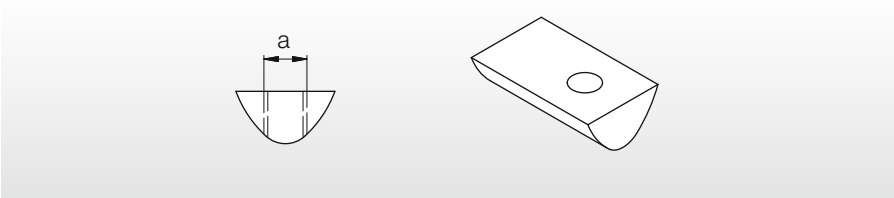


Nominal size	Dimensions [mm]											Weight	Item no.
	Type	A	B	C	D	E	F	G*	H	J	K	[kg]	
BM4...	II	80	10	20	17.8	10.8	20	14	7	ø11	ø6.5	0.148	M-40357

Attachment accessories; T-slut nuts

T-slot nuts

T-nuts properly sized for the corresponding T-slot can be used for fastening attachments and add-ons to the base profile.



Depending on the T-slot width (see profile cross sections, page 5), T-nuts type NS5 or NS6 can be used.
The T-nuts are available from LINE TECH. The size, material, and threading must be defined as the ordering number as per the ordering system below.
The available types are listed on the right.

Dimensions [mm]		Material
T-slot width	a (thread)	
5	M3 / M4 / M5	Steel
6	M4 / M5 / M6	Steel

Ordering system for T-slot nuts

	Basic key			
Designation example:	NS	6	St	M5

NS = T-slot nut

T-slot width » see profile cross sections, page 5
5 = T-slot 5
6 = T-slot 6

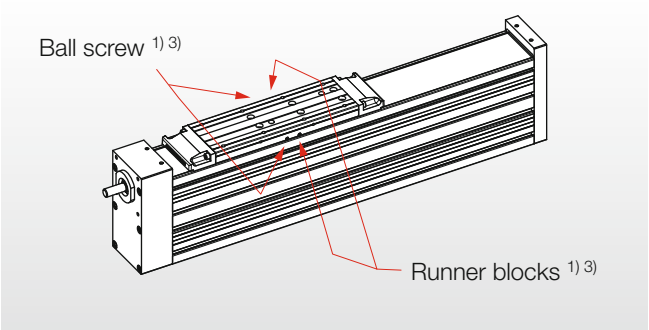
Thread » size a as per table above
M3 / M4 / M5 / M6

Material
St = steel

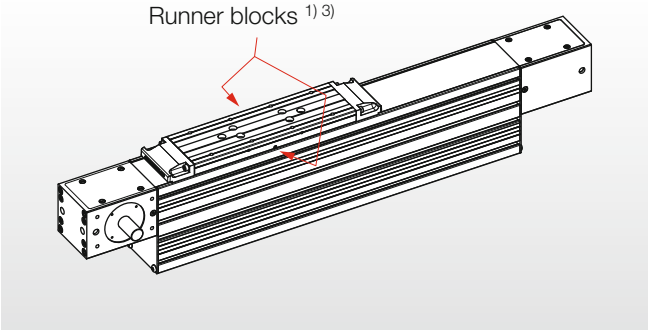
BRIDGE MODULES

Grease points

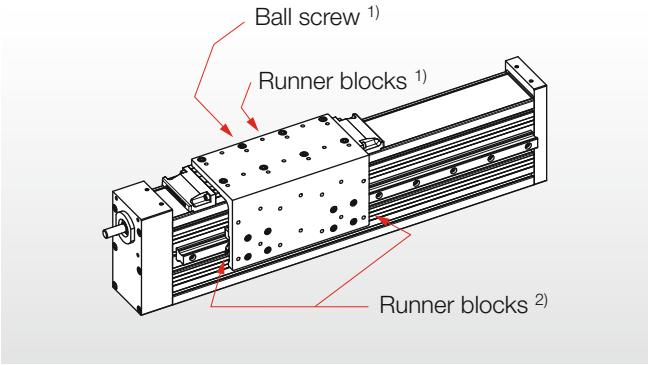
BM..R..N



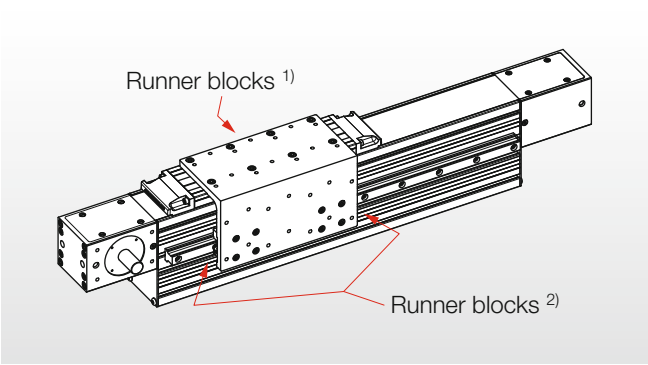
BM..Z..N



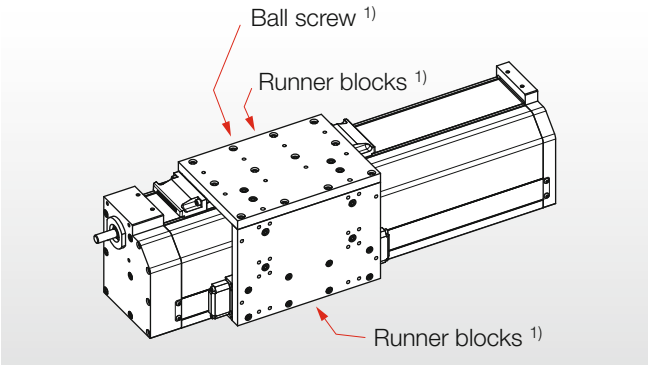
BM..R..L/R



BM..Z..L/R



BM..R..V/W



Grease points

Different lubricating nipples are on the bridge module carriages:

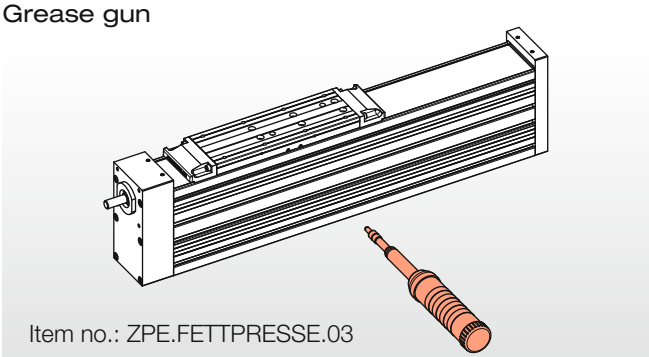
1) Lubricating nipple to DIN 3405
2) Lubricating nipple to DIN 71412
3) Lubrication either on left or right side

Greasing positions are not dependent on stroke.

Standard grease

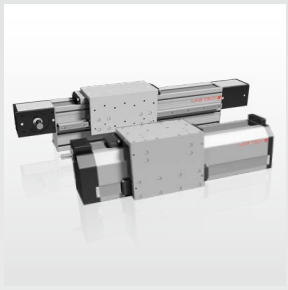
LINE TECH recommends the following grease for lubrication:
Microlube GBU Y 131

Grease gun



NOTES









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