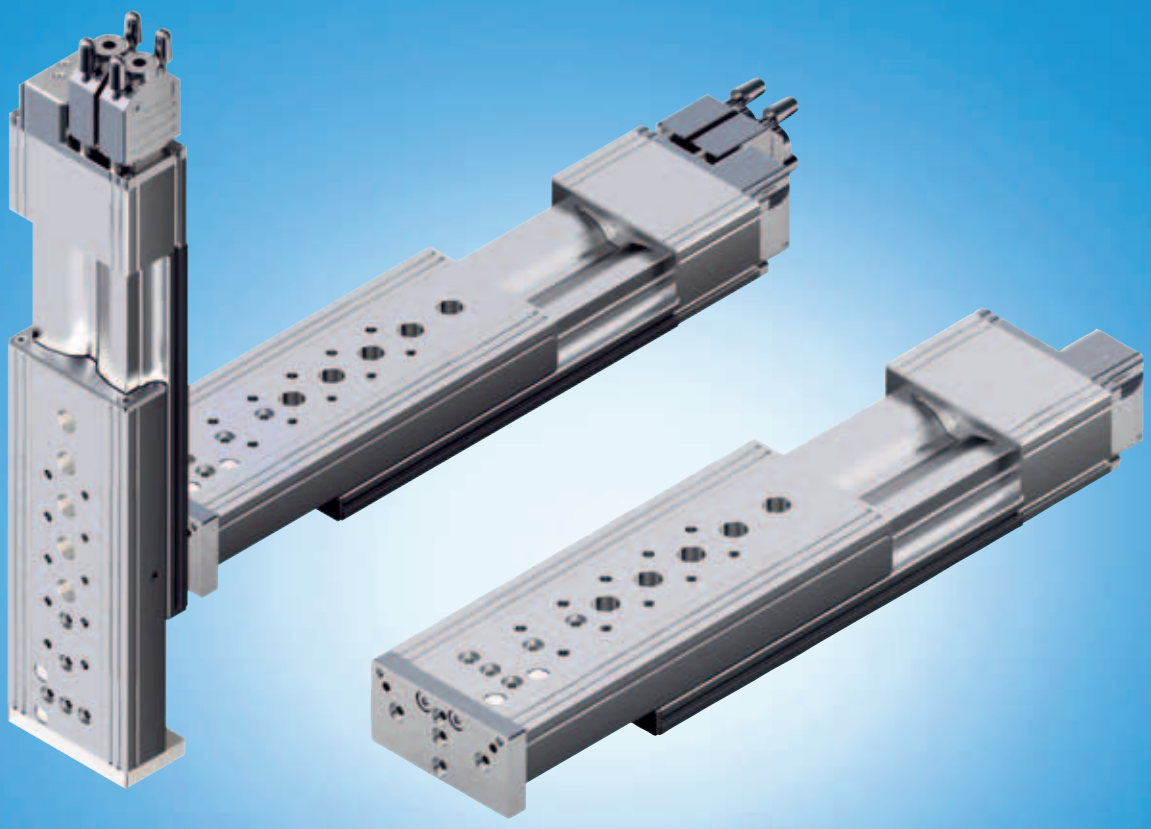
Rexroth
Bosch Group

Electric Mini Slides MSC-EL

R310EN 2604 (2011.08)

The Drive & Control Company



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Product Description

Mini Slides, the compact electrically driven Linear Motion Systems from Bosch Rexroth, are economical, ready-to-install solutions.

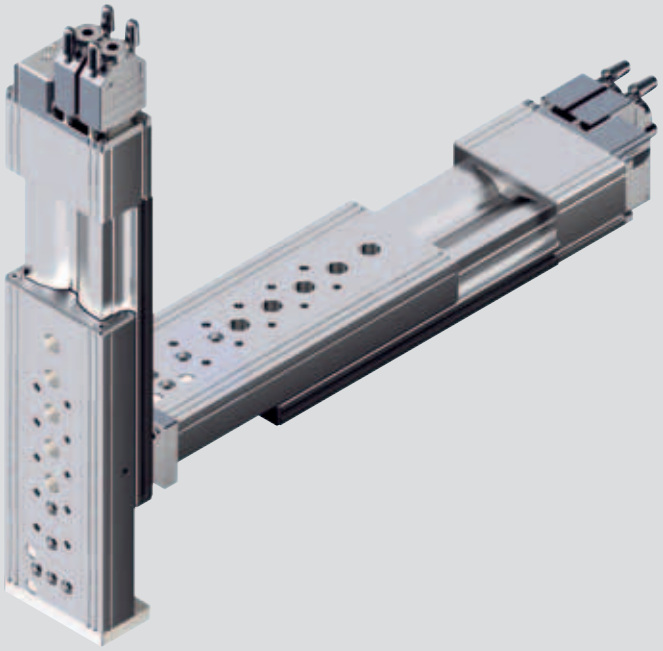
The advantages:
- High power density of the drive, referred to the overall dimensions
- Integrated drive (ball screw, timing belt side drive, motor)
- Maintenance-free, brushless, electronically commutated DC motor
- The Mini Slide can be mounted in any orientation
- Available in various standard lengths
- All sizes are available with a holding brake as an option
- Electric Mini Slides (MSC-EL) and Pneumatic Mini Slides have identical cross-sectional dimensions
- Interchangeable with Pneumatic MSC thanks to identical mounting hole patterns and connection dimensions
- Pre-assembled cable sets and standard accessories offer ready-to-install solutions
- Rapid and easy start-up
- Convenient parameter setting of the sequencing control through predefined axis-specific basic parameters
- With Easy-2-Combine interface in the carriage, in the front plate, and the underside of the frame (main body)
- Can be integrated into the camoLINE building system, thus enabling a variety of multiple-axis system solutions
- Maintenance-free due to long-term prelubrication
- Can be integrated into higher-level controls via digital inputs and outputs
- Energy-efficient electromechanical drive

Application areas:
- Positioning tasks with up to 15 freely programmable positions
- Applications with high positioning and repeatability requirements
- Mechatronic solutions for handling tasks

MSC-EL without holding brake

Front plate for end-face mounting with Easy-2-Combine interface

MSC-EL with holding brake



MSC-EL as a multiple-axis solution

Selection Guide

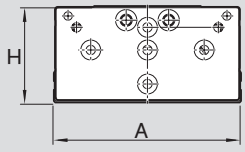
What you need to know before starting: Travel range, payload

The selection guide will help you to generate a proposed solution for your specific system. If the result does not meet all of your requirements, simply contact us. We will be glad to assist you.

Selection steps	
1.	Select the size from the table and the dimension drawings as appropriate for your application (e.g. travel, payload or thrust).
2.	Read off the positioning time from the performance chart.
3.	Check the permissible overall load (take note of the sections on Calculations and Mounting orientation). Overall load: – Permitted: selected size can be used. – Not permitted: select the next max. travel range for the same size (allowing higher max. permissible moments) or the next size (see “Technical Data” table), and repeat the selection steps.

Size	Maximum travel[1] (mm)	Maximum payload $m_{ex\ max}$ (kg)		Dimensions (mm)	
		Horizontal	Vertical	A	H
MSC-EL-12	50; 80	4.0	2.0	66	34
MSC-EL-16	50; 100; 150	5.0	2.5	76	40
MSC-EL-20	100; 150; 200	6.0	3.0	92	50
MSC-EL-25	100; 150; 200	9.0	4.5	112	60

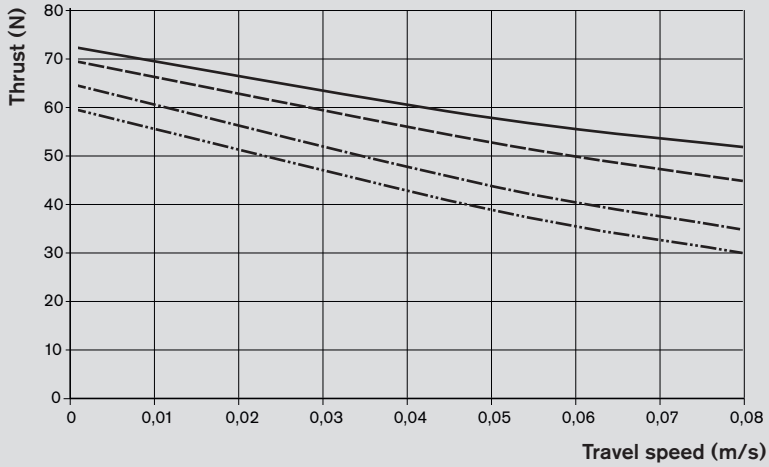
1) Maximum travel = effective stroke + 2 • excess travel (see dimension drawings)
For travel < 10 mm take note of the lubricating stroke.



Maximum thrust

Horizontal

MSC-EL-12
MSC-EL-16
MSC-EL-20
MSC-EL-25



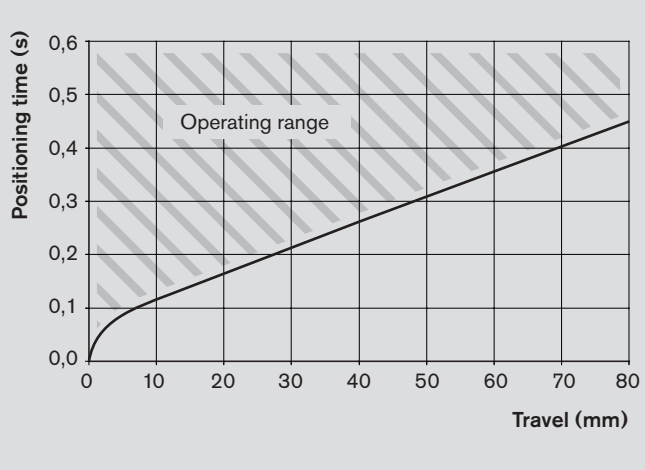
Vertical

When determining the maximum vertical thrust, consider the horizontal thrust and the moved masses (mass of system plus payload).

Performance Charts sizes 12 and 16

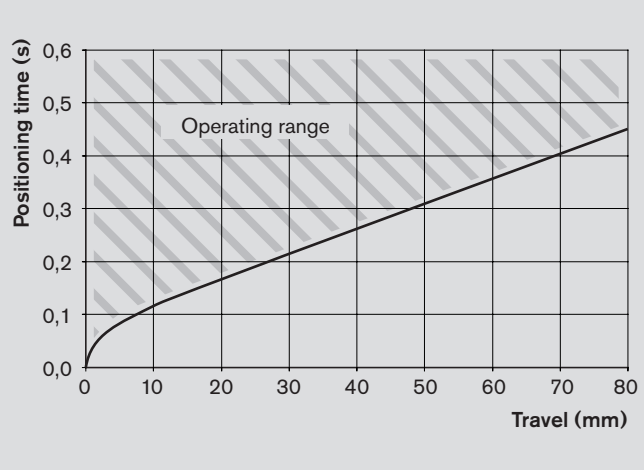
The characteristic curves show the fastest possible positioning time in relation to the travel.
(For a duty cycle of 100%)

MSC-EL-12 horizontal



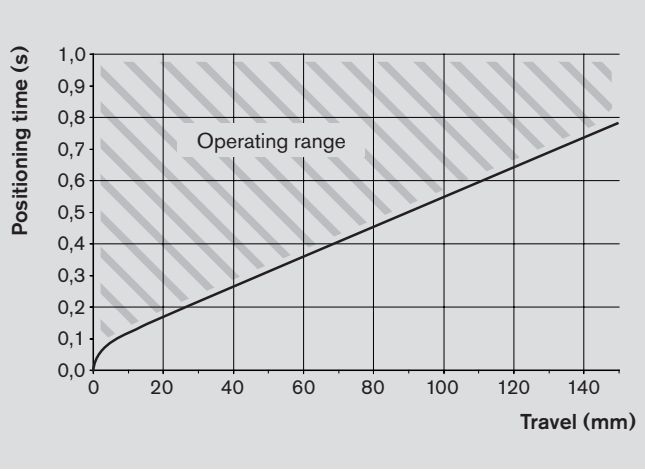
– payload m_{ex} 4 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.21\ m/s$

MSC-EL-12 vertical



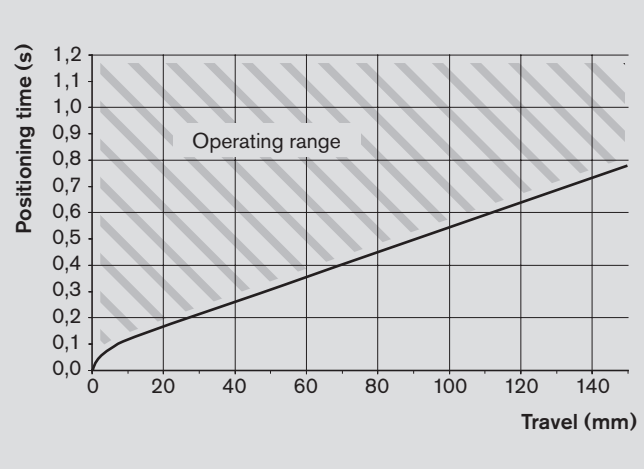
– payload m_{ex} 2.00 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.21\ m/s$

MSC-EL-16 horizontal



– payload m_{ex} 5 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.21\ m/s$

MSC-EL-16 vertical

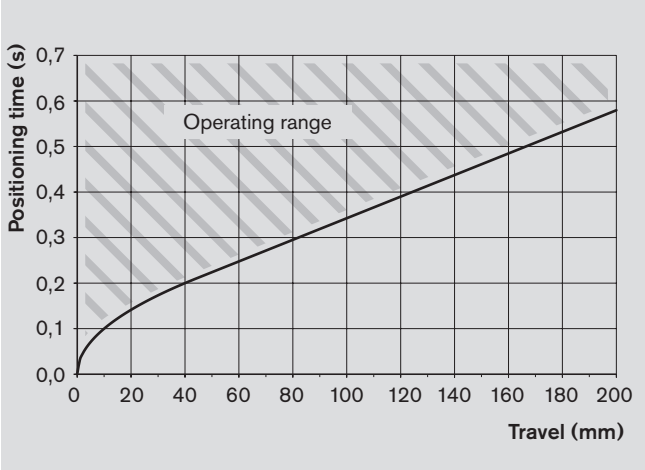


– payload m_{ex} 2.50 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.21\ m/s$

Performance Charts sizes 20 and 25

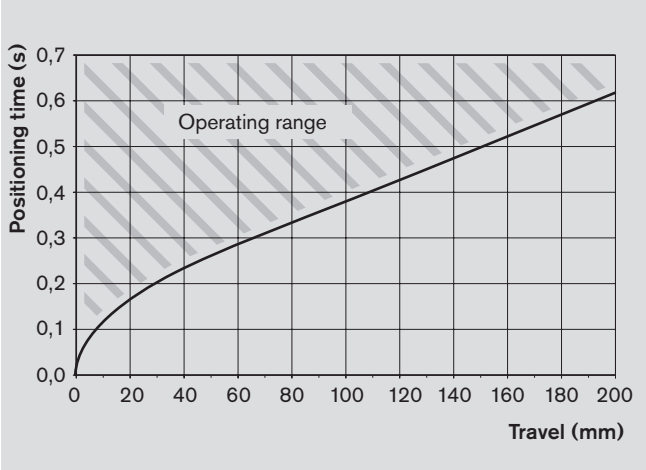
The characteristic curves show the fastest possible positioning time in relation to the travel.
(For a duty cycle of 100%)

MSC-EL-20 horizontal



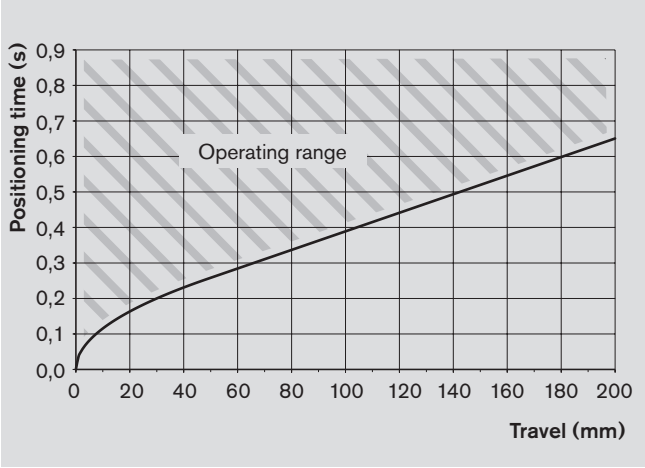
– payload m_{ex} 6.0 kg; $a_{max} = 4.0\ m/s^2$; $v = 0.422\ m/s$

MSC-EL-20 vertical



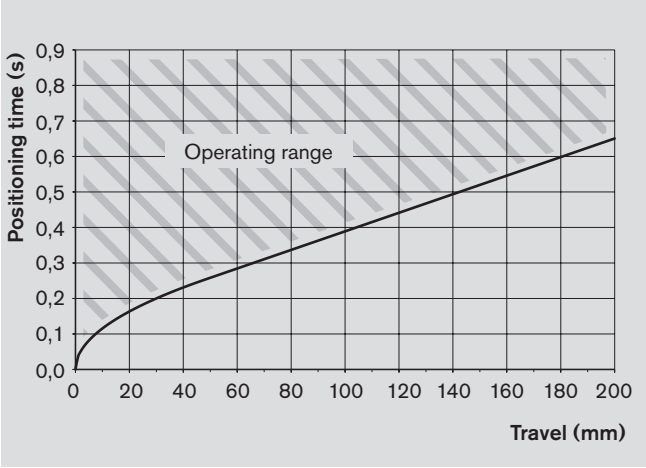
– payload m_{ex} 3.0 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.422\ m/s$

MSC-EL-25 horizontal



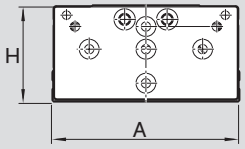
– payload m_{ex} 9.0 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.382\ m/s$

MSC-EL-25 vertical

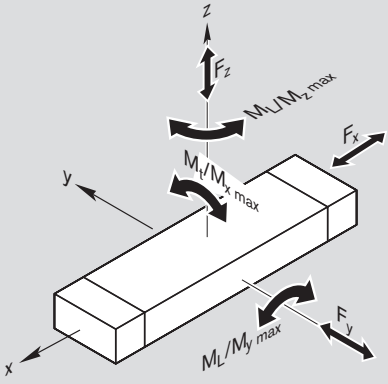


– payload m_{ex} 4.5 kg; $a_{max} = 3.0\ m/s^2$; $v = 0.382\ m/s$

Technical Data



Size	Max. travel (mm)	Width A (mm)	Height H (mm)	Recommended excess travel s_e (mm) Horizontal	Vertical	Ball screw d_0 x P (mm)	Repeatability (mm)	Max. travel speed v_{mech} (m/s) max.	min.	Acceleration a_{max} (m/s^2) Horizontal	Vertical
MSC-EL-12	50	66	34	4.0	5.0	8 x 2.5	±0.01	0.21	0.001	3.0	3.0
	80										
MSC-EL-16	50	76	40	4.0	5.0						
	100										
	150										
MSC-EL-20	100	92	50	9.0	10.0	12 x 10	±0.01	0.42		4.0	3.0
	150										
	200										
MSC-EL-25	100	112	60	10.0	12.0		±0.01	0.38		3.0	3.0
	150										
	200										



Size	Max. travel (mm)	Max. permissible forces (N) $F_{y\,max}$ $F_{z\,max}$	Max. permissible moments (Nm) $M_{x\,max}$	$M_{y\,max}$ $M_{z\,max}$	Max. payload $m_{ex\,max}$ (kg) Horizontal	Vertical	Mass without brake (kg)	Mass with brake (kg)	Moved mass of system m_{ca} (kg)
MSC-EL-12	50	211	11	4	4.0	2.0	1.1	1.2	0.33
	80	313	16	9			1.4	1.5	0.43
MSC-EL-16	50	211	11	4	5.0	2.5	1.4	1.5	0.49
	100	344	19	14			2.0	2.1	0.75
	150	457	25	28			2.6	2.7	1.10
MSC-EL-20	100	344	24	14	6.0	3.0	3.3	3.7	1.20
	150	457	32	28			4.2	4.6	1.60
	200	559	40	47			5.1	5.5	2.00
MSC-EL-25	100	344	28	14	9.0	4.5	4.8	5.3	1.65
	150	457	38	28			6.1	6.6	2.20
	200	559	47	47			7.5	8.0	2.80

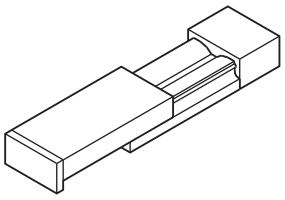
d_0 = nominal diameter of ball screw
P = lead of ball screw
The minimum life expectancy is 10 million full cycles when all catalog specifications are complied with.

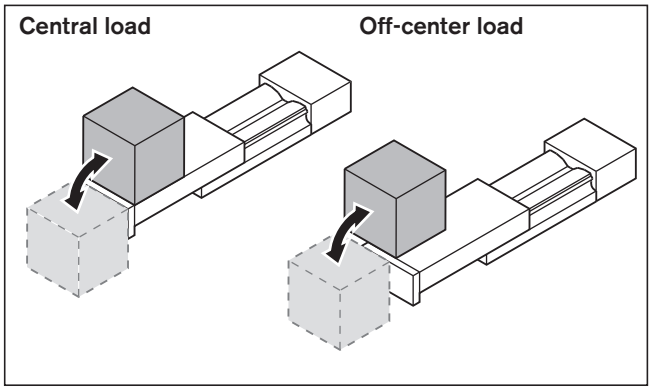
Mounting Orientations and Calculations

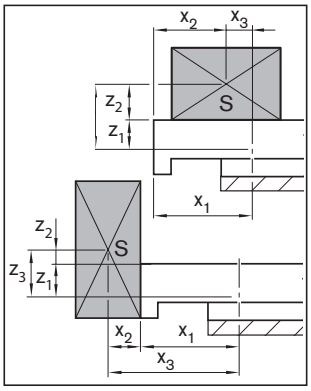
Mounting orientations

Effect of load

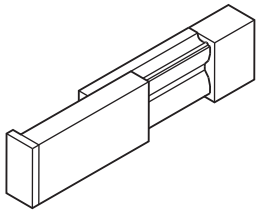
Horizontal

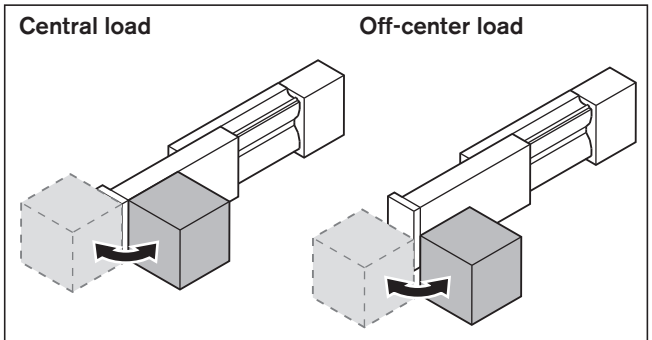


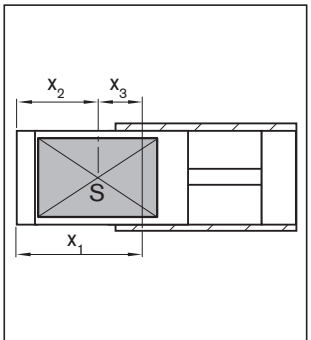




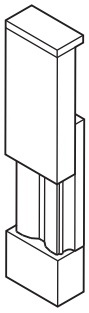
Transverse

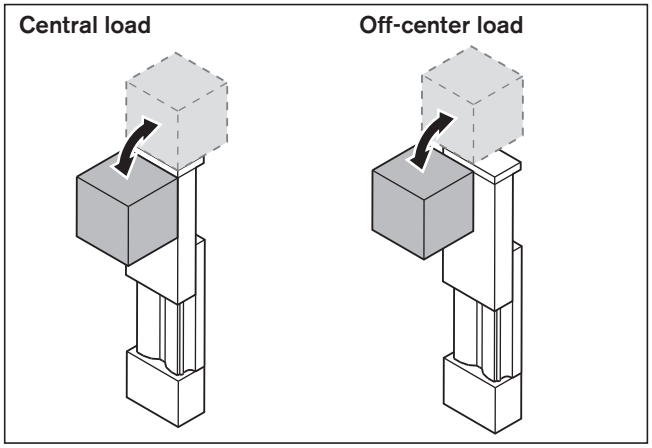


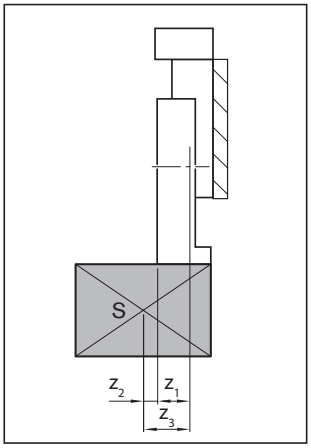




Vertical

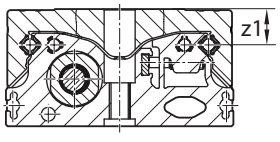






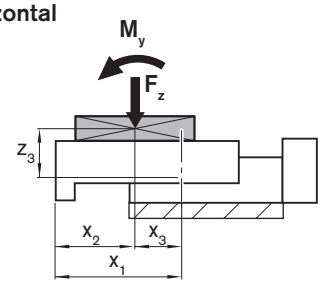
Size	Max travel (mm)	x_1 (m)	z_1 (m)
MSC-EL-12	50	0.094	0.011
	80	0.134	
MSC-EL-16	50	0.096	0.014
	100	0.162	
	150	0.230	
MSC-EL-20	100	0.162	0.0164
	150	0.230	
	200	0.298	
MSC-EL-25	100	0.162	0.0194
	150	0.230	
	200	0.298	

Distance z_1 from the carriage upper edge to the application point (balls) of the effective force

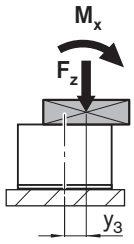


Moment calculations

Horizontal



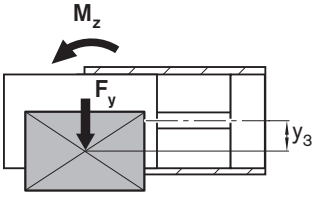
$M_y = F_z \cdot x_3 + m_{ex} \cdot a \cdot z_3$



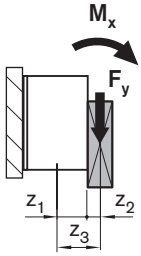
$M_x = F_z \cdot y_3$

$M_z = m_{ex} \cdot a \cdot y_3$

Transverse



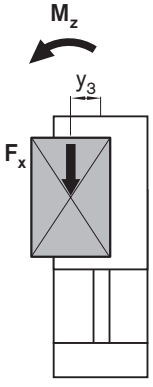
$M_z = F_y \cdot x_3 + m_{ex} \cdot a \cdot y_3$



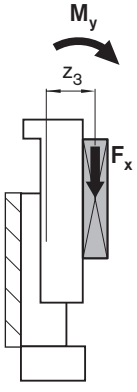
$M_x = F_y \cdot z_3$

$M_y = m_{ex} \cdot a \cdot z_3$

Vertical



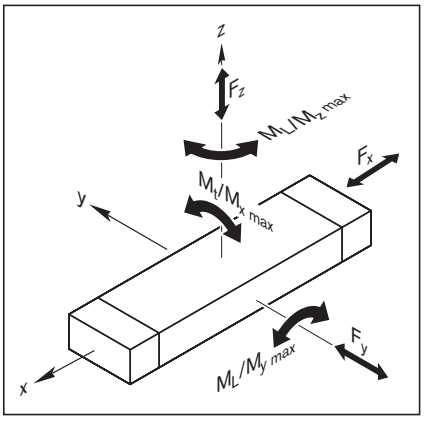
$M_z = F_x \cdot y_3 + m_{ex} \cdot a \cdot y_3$



$M_y = F_x \cdot z_3 + m_{ex} \cdot a \cdot z_3$

$M_x = 0$

☞ Take account of the moved mass m_{ca} of the system.



F_x = force in x-direction (N)
F_y = force in y-direction (N)
F_z = force in z-direction (N)
m_{ex} = moved external load (kg)
M_L = dynamic longitudinal moment load capacity (Nm)
M_t = dynamic torsional moment load capacity (Nm)
M_x = torsional moment about the x-axis (Nm)
M_y = torsional moment about the y-axis (Nm)
M_z = torsional moment about the z-axis (Nm)
S = load center of gravity
z_1 = distance from the carriage upper edge to the application point of the effective force in z-direction (m)
z_2 = distance from the carriage upper edge to the load center of gravity (m)
x_3, y_3, z_3 = distances for calculation of moments (m)
x_1 = application point of the effective force in y-direction (m)
x_2 = Distance from the front plate to the load center of gravity (m)
a = acceleration (m/s^2)
g = gravitational acceleration (m/s^2)

Checking the permissible total load

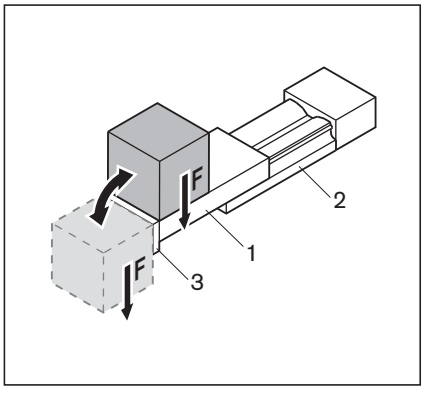
$$\frac{|F_z|}{F_{z\,max}} + \frac{|F_y|}{F_{y\,max}} + \frac{|M_x|}{M_{x\,max}} + \frac{|M_y|}{M_{y\,max}} + \frac{|M_z|}{M_{z\,max}} \leq 1$$

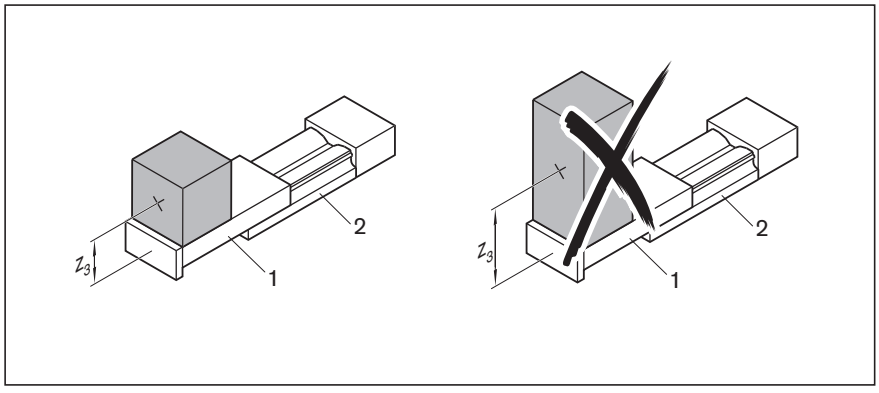
☞ When installing the MSC-EL in multi-axis systems, the passive acceleration of the MSC-EL must be factored into the moment calculations.

Mounting

General

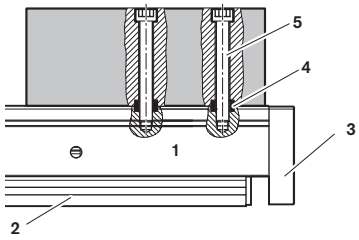
☞ Take note of the Instructions for the MSC-EL. Fasten the MSC-EL only by the frame (2). Fasten the MSC-EL or accessories/ attachments or payloads to plane surfaces only. Attachments or payloads may only be attached to the carriage (1) or the front plate (3). Mount the attachments or payloads so that the tilting moment resulting from the mass and the leverage z remains small. Take note of the Calculations section.



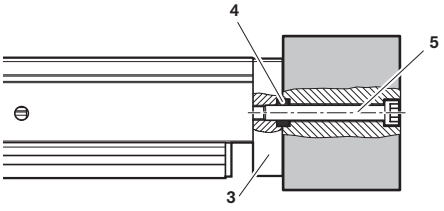


Mounting of attachments or payloads to the MSC-EL

Attachments or payloads should be fastened using centering rings (4) and screws.



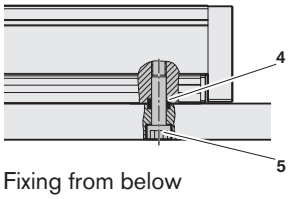
Fastening using centering rings and screws



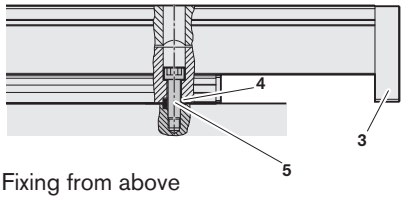
End-face fastening using centering rings and screws

Mounting the MSC-EL

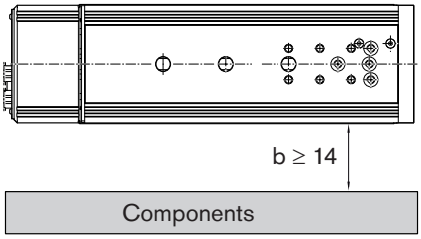
The MSC-EL should be fastened using centering rings (4) and screws.
Maintain distance b (≥ 14 mm) from components located alongside (e.g. magnetically conductive materials, iron, solenoids, neighboring systems, etc.) to assure reliability of the switch activation points.



Fixing from below



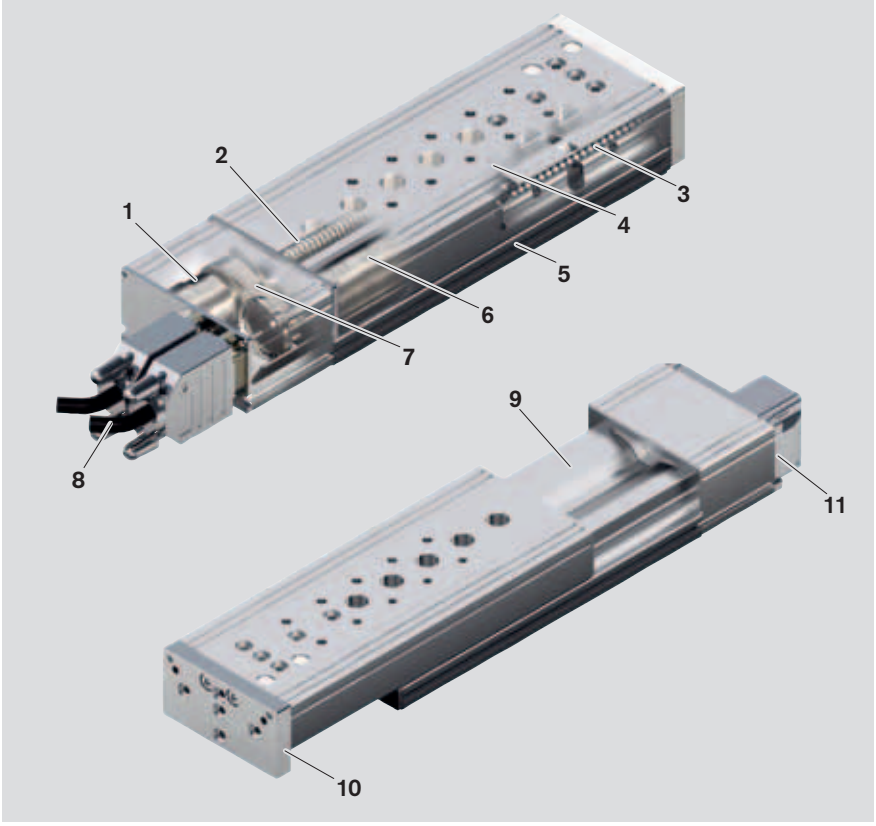
Fixing from above



1) Carriage
2) Frame
3) Front plate
4) Centering rings
5) Screw

Structural Design MSC-EL

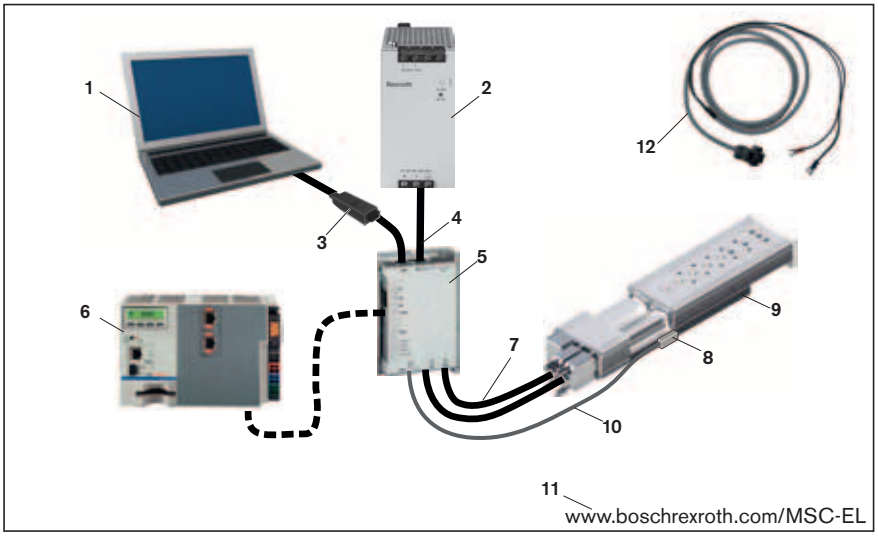
1 Ball screw end bearing
2 Ball screw
3 Ball recirculation raceway
4 Carriage
5 T-slot for switches
6 Motor
7 Timing belt side drive
8 Cable set (Accessories)
9 Frame with cover for ball screw and ball recirculation raceway
10 Front plate
11 Version with holding brake



Start-up

☞ Before starting up the system electrically, read the Instructions for MSC-EL.

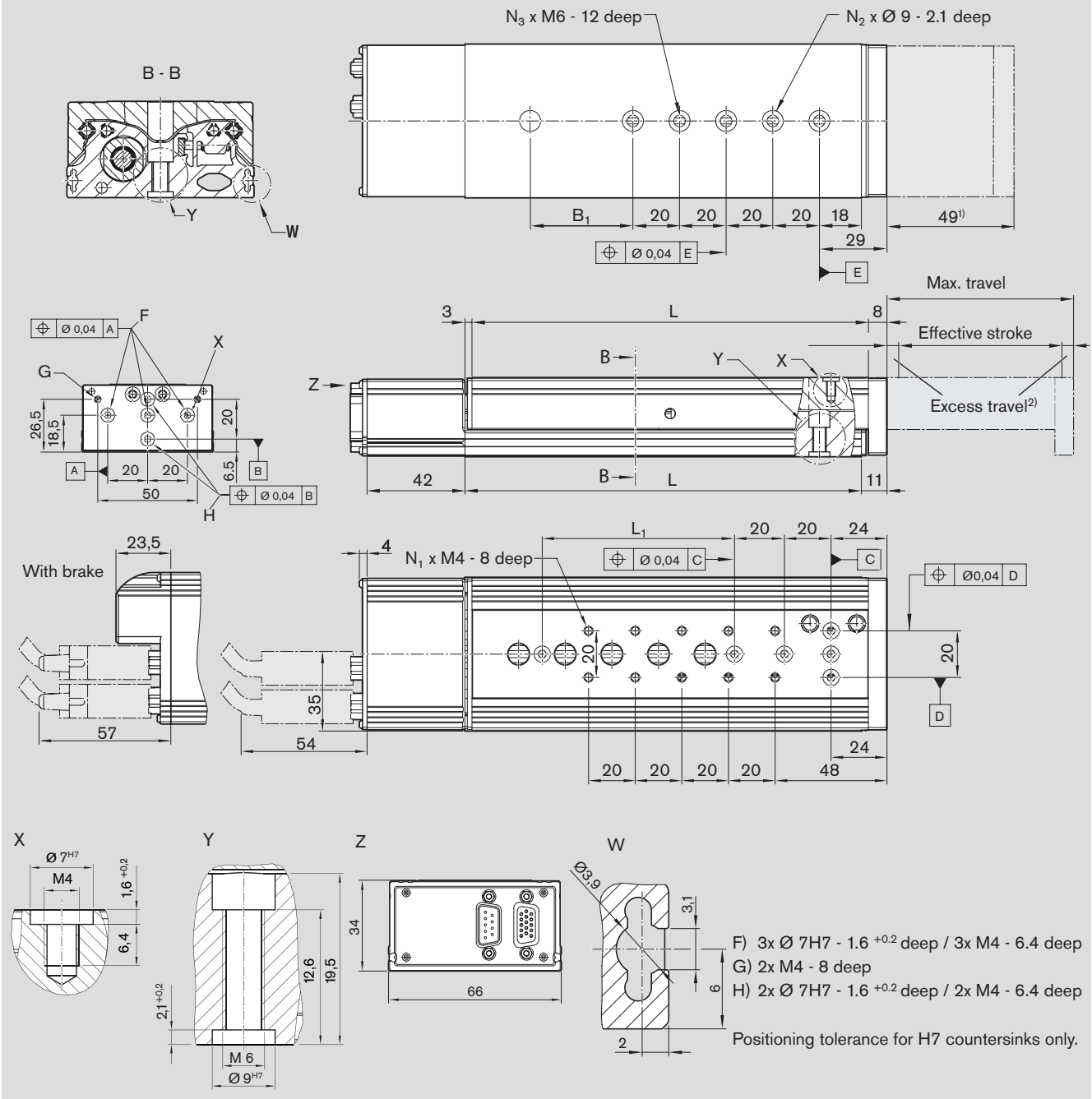
1. Download start-up software from http://www.boschrexroth.com/msc-el.
2. Connect up the MSC-EL electrically (using pre-assembled plug connectors)
3. Select the MSC-EL in the software user interface.
4. Enter the data for application-specific motion profiles.



1 PC/Notebook
2 Multi-range power unit
3 USB adapter
4 24 V DC connection
5 Drive amplifier BLP14
6 Customer control commands via digital inputs and outputs.
7 Cable set
8 Magnetic field sensor
9 MSC-EL
10 Extension cable for magnetic field sensor
11 Software can be downloaded from the Internet
12 Mounting cable for releasing the holding brake for MSC-EL model with brake.

Dimensions, Ordering, MSC-EL-12

All dimensions in mm. Drawings not to scale.



F) 3x Ø 7H7 - 1.6 +0.2 deep / 3x M4 - 6.4 deep
G) 2x M4 - 8 deep
H) 2x Ø 7H7 - 1.6 +0.2 deep / 2x M4 - 6.4 deep

Positioning tolerance for H7 countersinks only.

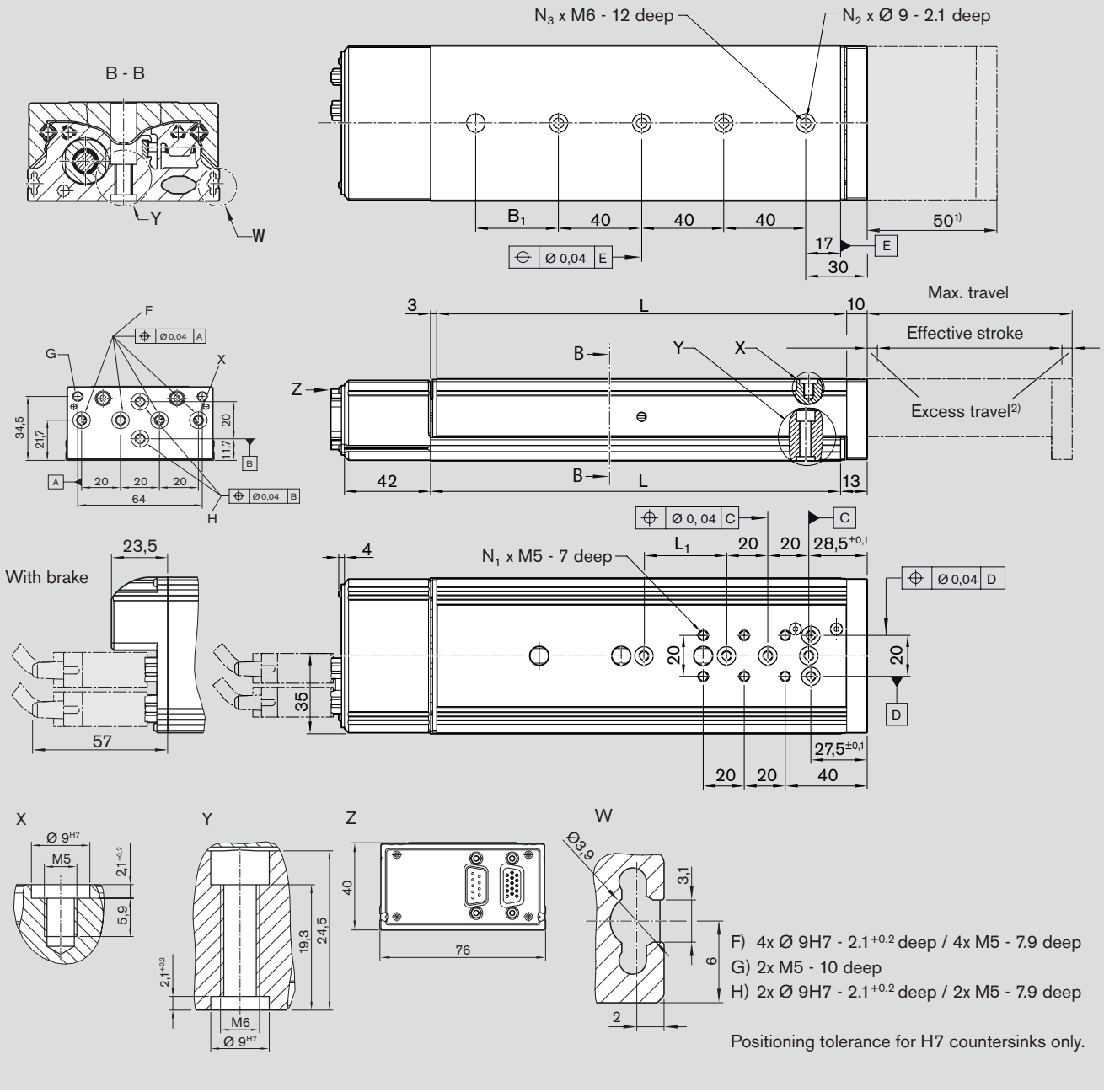
Maximum travel (mm)	B_1	**L** (mm)	L_1	N_1	N_2	N_3	**Part number MSC-EL**	
							without brake	**with brake**
50	0	122	40	6	5	3	R0250 201 05	R0250 201 55
80	40	170	80	10	5	5	R0250 201 08	R0250 201 58

1) Clearance needed for mounting (it must be possible to move the carriage of the MSC-EL during mounting).

2) For excess travel, see Technical Data

Dimensions, Ordering, MSC-EL-16

All dimensions in mm. Drawings not to scale.



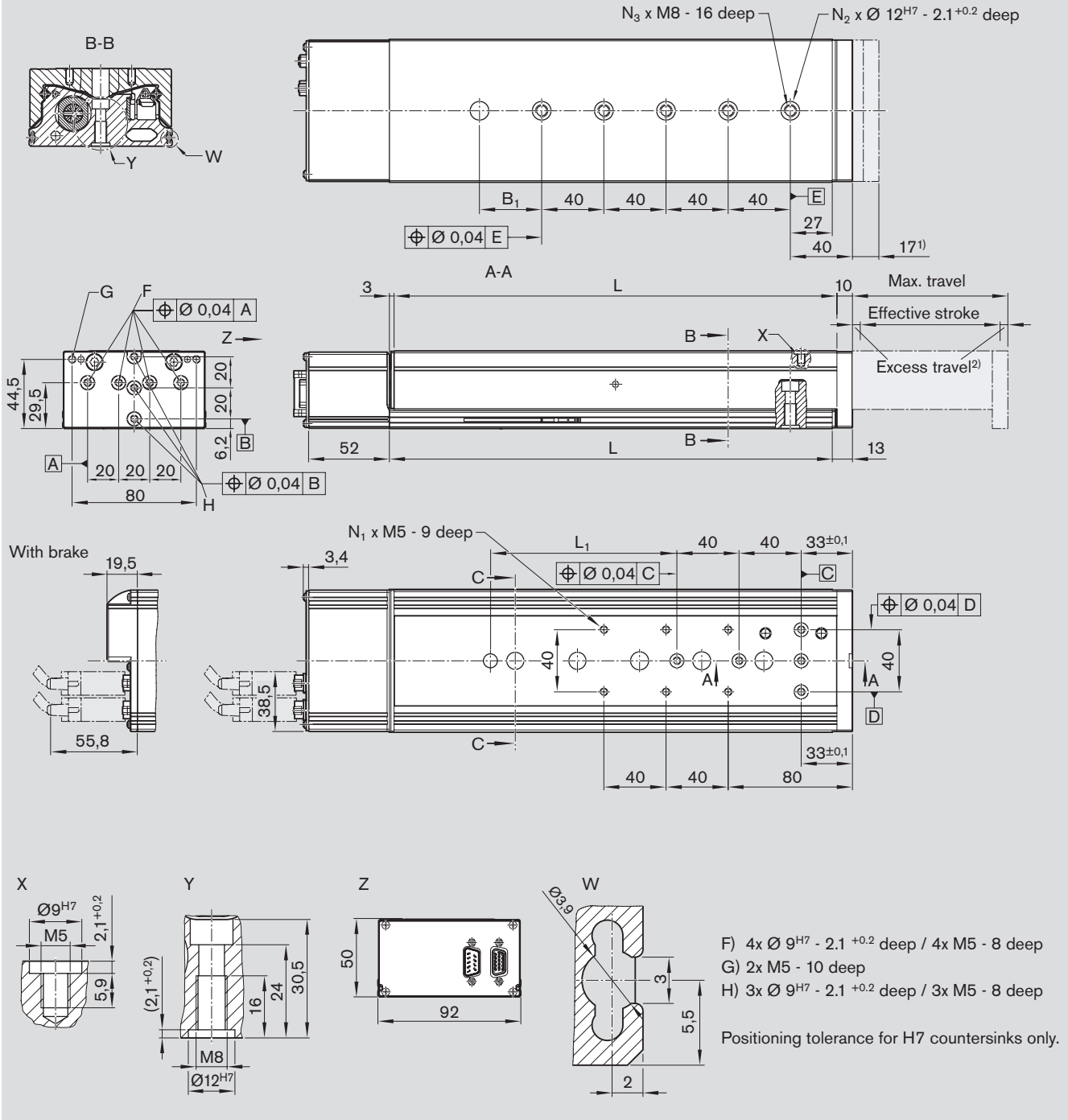
Maximum travel (mm)	B_1	**L** (mm)	L_1	N_1	N_2	N_3	**Part number MSC-EL**	
							without brake	**with brake**
50	0	122	40	4	3	2	R0250 301 05	R0250 301 55
100	40	200	120	6	5	3	R0250 301 10	R0250 301 60
150	40	285	200	8	7	5	R0250 301 15	R0250 301 65

1) Clearance needed for mounting (it must be possible to move the carriage of the MSC-EL during mounting).

2) For excess travel, see Technical Data

Dimensions, Ordering MSC-EL-20

All dimensions in mm. Drawings not to scale.



F) 4x Ø 9^{H7} - 2.1 $^{+0.2}$ deep / 4x M5 - 8 deep
G) 2x M5 - 10 deep
H) 3x Ø 9^{H7} - 2.1 $^{+0.2}$ deep / 3x M5 - 8 deep

Positioning tolerance for H7 countersinks only.

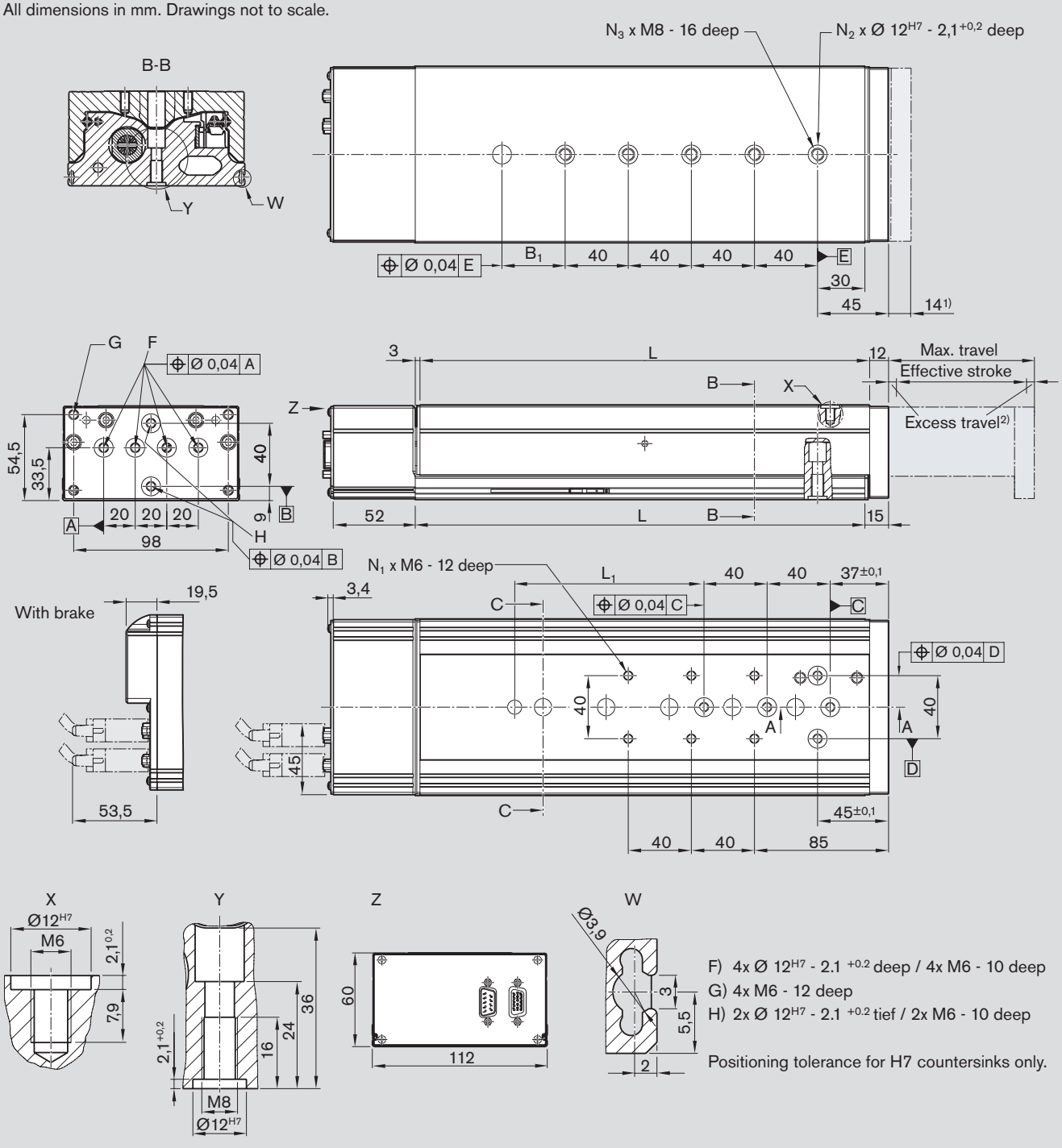
Maximum travel (mm)	B_1 (mm)	L (mm)	L_1 (mm)	N_1	N_2	N_3	**Part number MSC-EL**	
							without brake	**with brake**
100	80	200	80	4	4	3	R0250 400 10	R0250 400 60
150	40	285	120	6	6	5	R0250 400 15	R0250 400 65
200	40	370	200	6	8	7	R0250 400 20	R0250 400 70

1) Clearance needed for mounting (it must be possible to move the carriage of the MSC-EL during mounting).

2) For excess travel, see Technical Data

Dimensions, Ordering MSC-EL-25

All dimensions in mm. Drawings not to scale.



Maximum travel (mm)	B_1 (mm)	L (mm)	L_1 (mm)	N_1	N_2	N_3	**Part number MSC-EL**	
							without brake	**with brake**
100	80	200	80	4	3	3	R0250 500 10	R0250 500 60
150	40	285	120	6	6	5	R0250 500 15	R0250 500 65
200	40	370	200	6	8	7	R0250 500 20	R0250 500 70

1) Clearance needed for mounting (it must be possible to move the carriage of the MSC-EL during mounting).

2) For excess travel, see Technical Data

Accessories

Sensors

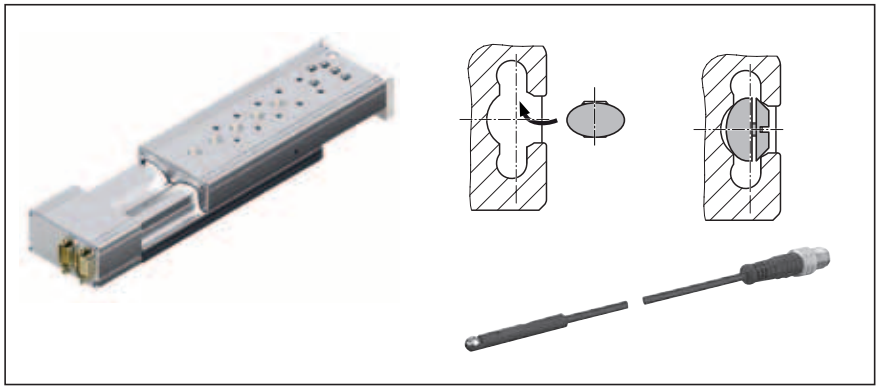
☞ One sensor (not included in delivery) is needed as a reference switch when starting up the axis.

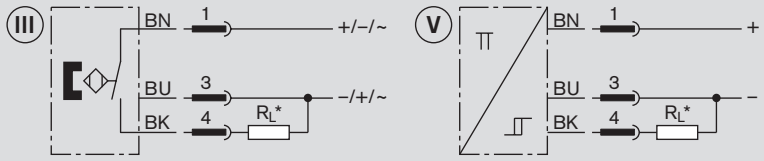
There are sensor slots on both sides of the frame.
Switch activation is direct via a magnetic field sensor (no switching cam required).

- Up to 3 sensors can be mounted per side.
- The sensors are inserted sideways into the sensor slot and fixed in place with a screw (LH thread).
- The sensor is connected directly to the drive amplifier (extension cable).

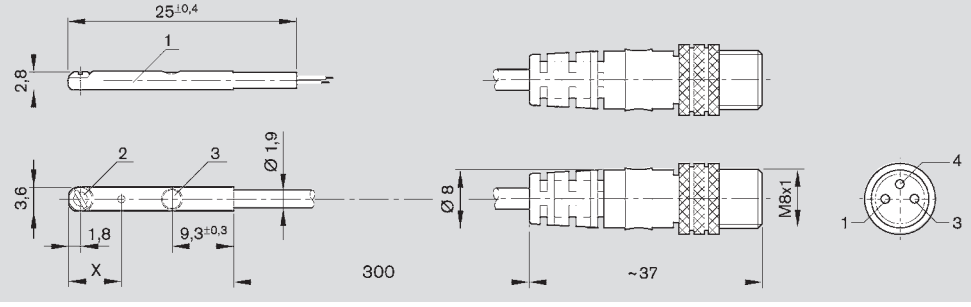
BN = brown, BK = black, BU = blue

* Note on the protective circuit in the case of an inductive load: DC voltage = diode or Z diode; AC voltage = resistor and capacitor or varistor





Part number for magnetic field sensor	R4120 045 77	R4120 045 80	R3476 026 03 (recommendation)
Contact type	Reed sensor NO	Sensor contactless PNP NO	Sensor contactless PNP NC
Symbol	III (3-wire)	V (3-wire)	V (3-wire)
Material	PUR	PUR	PUR
Connection type	M8 x 1	M8 x 1	M8 x 1
Thermal operating range	–25 °C to +75°C	–25 °C to +75°C	–25 °C to +75°C
Operating voltage	AC/DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Switching current I_{max}	100 mA	70 mA	70 mA
Switching capacity max.	3 W / 5 VA	3 W / 5 VA	2 W
R_s	15 Ω	–	–
Voltage drop U at I_{max}	I x R_s	< 2.5 V	≤ 2.5 V
Operating current (w/o load) not switched	–	< 8 mA	< 8 mA
Operating current (w/o load) switched	< 5 mA	< 20 mA	< 20 mA
Switching frequency max.	0.5 kHz	1.0 kHz	1.0 kHz
Short-circuit protection	No	Yes	No
Polarity safe	Yes	Yes	Yes



1 Sensor element
2 Clamping screw
3 LED
X PNP approx. 6 mm
Reed approx. 11 mm

General characteristics:

- Degree of protection: IP 67 – IEC 60529 (DIN VDE 0470)
- Switching point accuracy (at constant temperature): ±0.1 mm
- Indicator: LED (yellow = operating status: switched)
- Material of body: polyamide

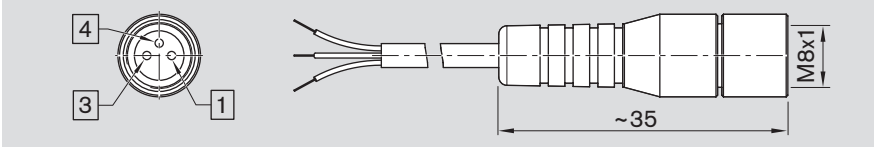
Reed:

- R_s = protective resistor for reed contact
- Shock resistance max.: 30 g / 11 ms (contact closes)
- Vibration resistance: 10 - 55 Hz, 1 mm
- Switching response times ON / OFF: ~ 0.5 ms / ~ 0.1 ms

Extension cable for sensor (Reed / Hall)

The extension cable is supplied complete with a female connector M8x1 for connection to the sensor.

Part number:
Length 5 m R3476 025 03



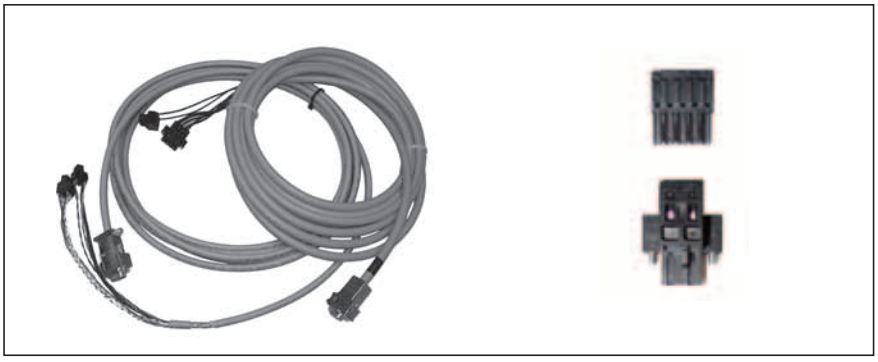
	1	3	4	Protection class
Connector contact wiring	brown (+ 3.8 ...30 VDC)	blue (0 V ground)	black (output)	IP 66 when connected

Cable set with brake cores

(for MSC-EL with or without holding brake)

Consisting of:
- Power cable (orange sheath)
- Signal cable for motor encoder and hall sensors of the motor (green sheath), with connector CN3.
- Connectors (supplied loose):
  CN1 power supply
  CN4 advanced I/O signal interface

Part number:
Length 5 m R1130 695 97
Length 10 m R1130 696 01
Length 15 m R1130 696 03



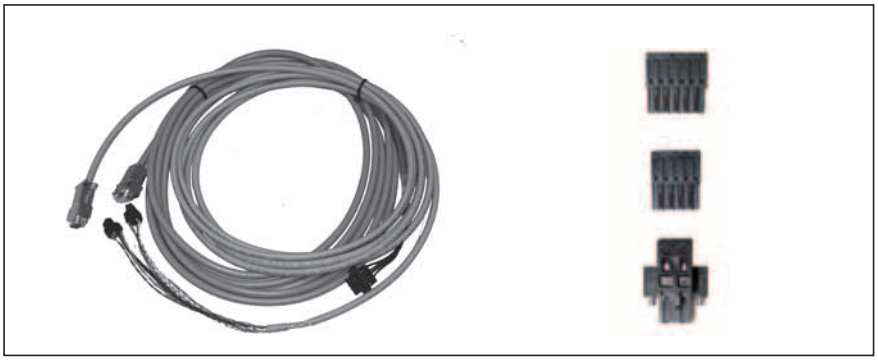
	Power cable (orange)	Signal cable (green)
Cable diameter d (mm)	8.8	8.9
Number of bending cycles	5 million	
Bending radius, dynamic (mm)	7.5 · d	10 · d
Bending radius, static (mm)	4 · d	7.5 · d

Cable set without brake cores

(for MSC-EL without holding brake)

Consisting of:
- Power cable (gray sheath)
- Signal cable for motor encoder and hall sensors of the motor (green sheath)
- Connectors (supplied loose):
  CN1 power supply
  CN3 I/O signal interface
  CN4 advanced I/O signal interface

Part number:
Length 5 m R1130 695 98



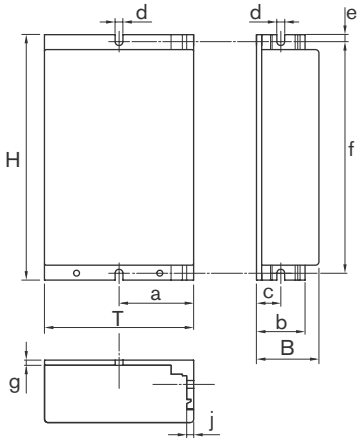
	Power cable (gray)	Signal cable (green)
Cable diameter d (mm)	7.4	8.9
Number of bending cycles	5 million	
Bending radius, dynamich (mm)	7.5 · d	10 · d
Bending radius, static (mm)	4 · d	7.5 · d

Accessories

Drive amplifier
Bosch Rexroth version BLP14
(with digital I/O interfaces)

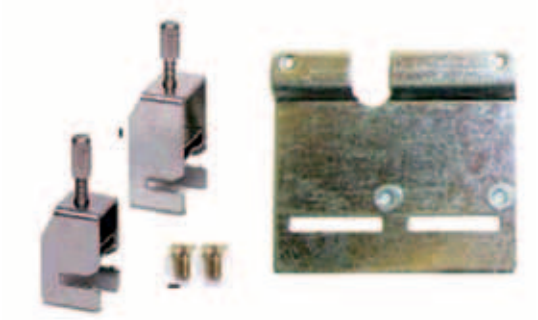
Connection data:
– 24 V DC
Features:
– 15 free positioning data sets
– 10 digital inputs
– 4 digital outputs
– 2 analog outputs
– CANopen
– Enclosure protection class IP 20
– Pulse width modulation PWM 80kHz

Part number:
R1130 016 01



Dimensions (mm)											Weight (kg)	Cooling method
H	B	T	a	b	c	d	e	f	g	i		
141.5	36	86	43	28	14	4.5	4	133.5	3	4	0.38	Free convection

Cable holder EMC-KIT
Part number:
R3486 045 01



Top-hat rail adapter
for BLP14

Part number:
R3486 044 01

Multi-range power unit

Tested and approved for all MSC-EL sizes and mounting orientations.

Connection data:
- 24 V DC power supply (complies with PELV requirements)
- Type: VAP01.1H-W23-024-010-NN:
- Output 24 Volt DC, 10 Amp.
- Input AC 100-120 / 200-240 V
- Mounting to top-hat rail TX 7.5 x 35 (EN 50022)

Take note of mounting and start-up instructions (provided)

Part number:
R9111 710 65

Dimensions (mm)		
H	B	T
130	60	120

USB adapter

For programming via PC during start-up. Adapter with USB plug and RJ45 socket

Part number:
R9130 119 46
Length 2.5 m

Mounting cable

For releasing the holding brake in order to shift the carriage manually when mounting the MSC-EL model with brake. This allows free access to the mounting holes.
24 V DC required

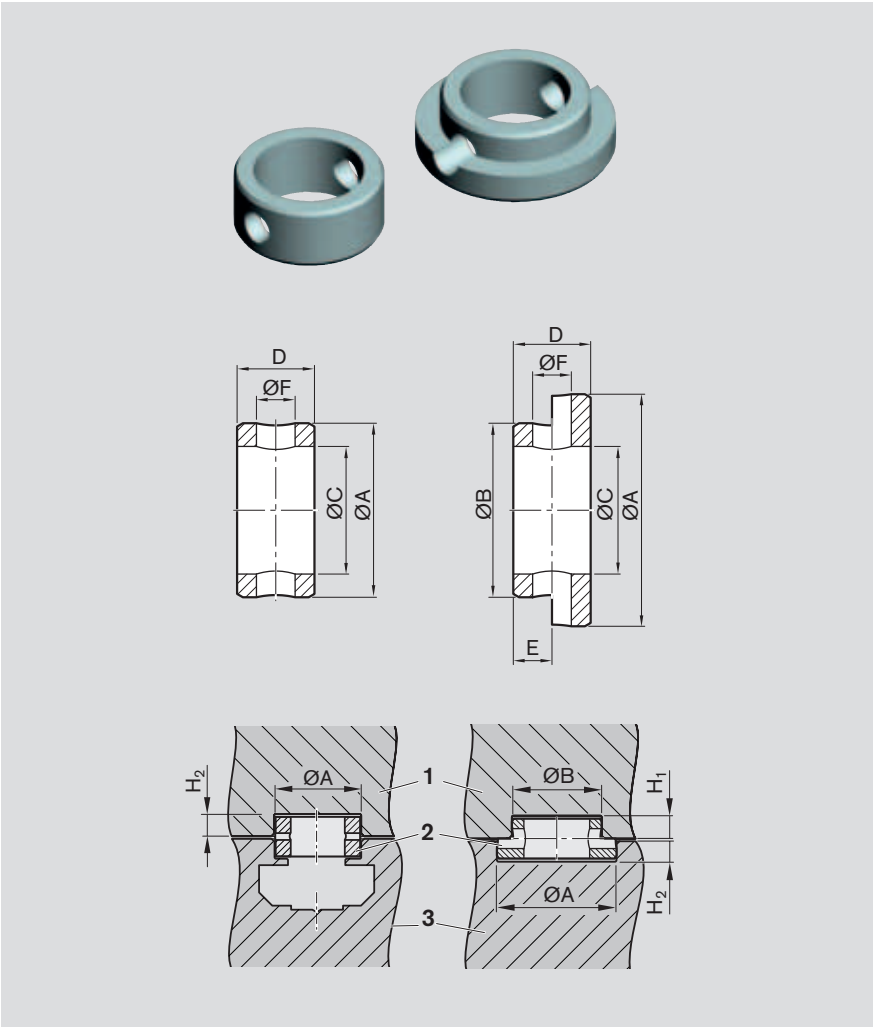
Part number:
R1130 696 00
Length 2 m

Accessories

Centering rings (Easy-2-Combine interface)

Centering rings serve as an alignment and positioning aid for mounting:
- the MSC-EL to the mounting base
- attachments to the carriage or the front plate

They also establish positive-locking connections between the components.
Material: steel (corrosion-resistant)



1 Adjoining structure
2 Centering ring
3 MSC-EL (carriage, front plate or frame)

Ø	Dimensions (mm)								Part number
	A	B	C	D	E	ØF	H_1	H_2	
(mm)	H7/k6	H7/k6	±0.1	−0.2	+0.2		+0.2	+0.2	
5	5	–	3.4	3.0	–	1.6	–	1.6	R0396 605 42
7	7	–	5.5	3.0	–	1.6	–	1.6	R0396 605 43
9	9	–	6.6	4.0	–	2.0	–	2.1	R0396 605 44
12	12	–	9.0	4.0	–	2.0	–	2.1	R0396 605 45
16	16	–	11.0	6.0	–	3.0	–	3.1	R0396 605 46
7 - 5	7	5	3.4	3.0	1.5	1.6	1.6	1.6	R0396 605 47
9 - 5	9	5	3.4	3.5	1.5	1.6	1.6	2.1	R0396 605 48
9 - 7	9	7	5.5	3.5	1.5	1.6	1.6	2.1	R0396 605 49
12 - 7	12	7	5.5	3.5	1.5	1.6	1.6	2.1	R0396 605 77
12 - 9	12	9	6.6	4.0	2.0	2.0	2.1	2.1	R0396 605 50
16 - 12	16	12	9.0	5.0	2.0	2.0	2.1	3.1	R0396 605 51

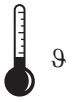
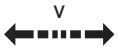
Extraction tool for centering rings

The tool is used to grip the centering ring through the cross-holes for easy extraction.

Part number:
R3305 259 16

Maintenance

Normal operating conditions

Ambient temperature must not fall below dew point	0 °C ... 40 °C	
Load	See technical data	
Travel speed	MSC-EL 12 ≥ 0,001 (m/s) < 0.21 (m/s) MSC-EL 16 ≥ 0,001 (m/s) < 0.21 (m/s) MSC-EL 20 ≥ 0,001 (m/s) < 0.42 (m/s) MSC-EL 25 ≥ 0,001 (m/s) < 0.38 (m/s)	
Travel distance	> 10 mm	
Protection class	IP20	
Contamination	Not permitted	

Lubrication

The prelubrication of the ball recirculation raceway and the ball screw assembly (BS) assures maintenance-free operation without any relubrication.
The service life of the prelubrication is 10 million full cycles under normal operating conditions.
Prelubrication with Dynalub 510 is carried out by the manufacturer prior to shipment.

Lubricating stroke

For applications with a stroke < 10 mm, the unit should be traversed over the maximum travel range (lubricating stroke) before shutting down.

Further information

on:

- Project planning manuals
- Parameter files
- Start-up software
- Instructions
- Catalog in PDF format
- 3D CAD generator

can be found on the Internet at
www.boschrexroth.com/MSC-EL

Ordering example

Description	Part number
MSC-EL, size 12, travel range 50 mm, with holding brake	R0250 201 55
BLP14 EC motor drive amplifier	R1130 016 01
Cable set with brake cores (for MSC-EL with holding brake) 5 m	R1130 695 97
Cable holder EMC-KIT	R3486 045 01
Top-hat rail adapter for BLP14	R3486 044 01
Multi-range power unit	R9111 710 65
Sensor, contactless PNP NC (preferred version as reference switch)	R3476 026 03
Extension cable for sensor (Reed/Hall)	R3476 025 03
USB adapter, “black” with cable	R9130 119 46
Mounting cable for releasing the holding brake	R1130 696 00

Inquiry / Order

Bosch Rexroth AG
Linear Motion and Assembly Technologies
D-97419 Schweinfurt, Germany

Telephone +49-9721-937-0

Telefax +49-9721-937-350
(direct)

Rexroth Mini Slide MSC-EL

To be completed by customer: Inquiry ☐ / Order ☐

Description	Part number

Quantity **Order of:**_____ **pcs,** _____ **per month** _____ **per year, per order, or** _____

Comments:

Sender

Company: _____ **Name:** _____

Address: _____ **Department:** _____

_____ **Telephone:** _____

_____ **Telefax:** _____

Notes

Rexroth
Bosch Group

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Subject to technical modifications

Printed in Germany
R310EN 2604 (2011.08)
EN • DC-IA/MKT