

MSCE

Mini electric slider MSCE is a mini linear drive with an integrated linear guiding system and slide. By using an integrated precision ball screw drive, the rotary motion (rotation) of the drive shaft is converted to the linear motion (translation) of the slide with high mechanical efficiency and low internal friction.

A preassembled standard motor (in-line with a motor adapter and a coupling or in-parallel with a motor side drive and a timing belt) together with the standard drive, makes the system plug and play ready. Compact dimensions and optimally selected motor combinations cover a wide range of applications.

The aluminium base profile includes T-slots on the bottom for fixing the electric slider, as well as side slots for clamping fixtures and magnetic field sensors.

The aluminium slide and the front plate of the electric slider allow a wide range of options for mounting the working tools and attaching additional accessories. There are prepared connection holes on the slide and the front plate for an easy combination of the MSCEs to the multiaxis system, which makes this product highly flexible. There is also an option of the mini electric slider without the preassembled motor if an individual motor is required.

Positioning rod together with the rod seal ensures the protection of the ball screw drive from dust and other contamination.

Each MSCE is optimally pre-lubricated and ready for a maintenance-free operating process.

Note!

All the data of the dynamic load capacities (linear guiding system and ball screw drive) stated in the tables are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety and service life.

We recommend a minimum dynamic safety factor of 5,0 or more. Please refer to the Technical Information document where the calculation of the safety factor of the ball screw drive and the linear guiding system and how the applied load affects the service life are presented.

Dimensions in mm. The scale of the drawings may not be equal.

Please see the attached Technical information document for further information and data.

Contact us if you have questions or need additional information.

Absolute Stroke: 25, 50, 75, 100, 125, 150, 175, 200

Max. Stroke (mm): 200



Max. Repeatability (mm): ± 0.015 (valid for one-directional axial load)

Max. Acceleration (m/s): 20

Width (mm): 25.0 / 32.0 / 45.0 (base profile)

Height (mm): 36.5 / 45.0 / 60.5 (base profile + slide)

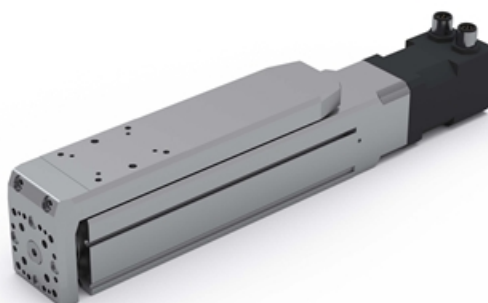
Ambient Temperature (°C): 0 – +50 (0 – +60 without a motor)

Protection Class: IP40

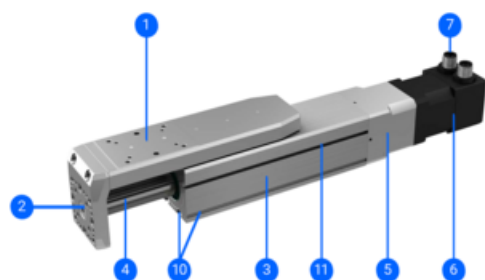
Duty Cycle: 100%

Maintenance: Life-time pre-lubricated

MSCE

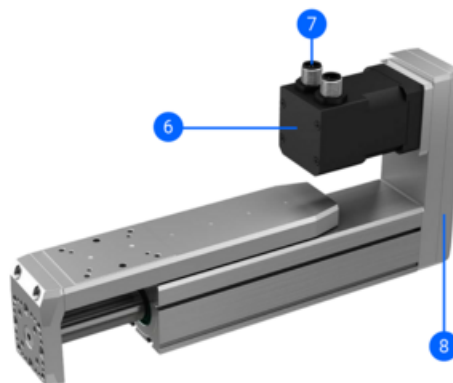


Combination with a standard motor and a motor adapter VK



- 1 - Aluminium slide with an integrated linear guiding system
- 2 - Front plate
- 3 - Compact aluminium base profile
- 4 - Positioning rod
- 5 - Motor adapter VK with a coupling
- 6 - Preassembled motor (with/without a brake)
- 7 - Standard connectors (motor, encoder and a brake - optionally)
- 10 - Slots for mounting
- 11 - Slots for the magnetic field sensors (size 32 and 45) or mounting the sensor holder (size 25)

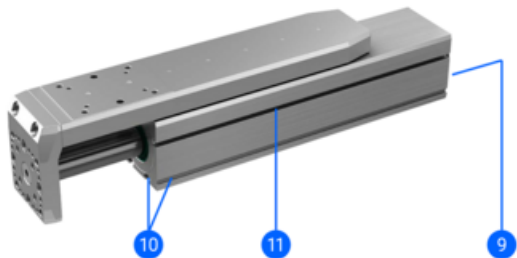
Combination with a standard motor and a motor side drive MSD



- 6 - Preassembled motor (with/without a brake)
- 7 - Standard connectors (motor, encoder and a brake - optionally)
- 8 - Motor side drive with a timing belt

MSCE

Without a motor



9 – Drive shaft of a precision ball screw drive

10 – Slots for mounting

11 – Slots for the magnetic field sensors (size 32 and 45) or mounting the sensor holder (size 25)

General Data

The values dynamic load capacity and dynamic moments of the linear guiding system and dynamic axial load capacity of the ball screw drive are the basis for calculating the service life.

Max. permissible axial load value depends on the selected motor, travel speed and acceleration of the slide.

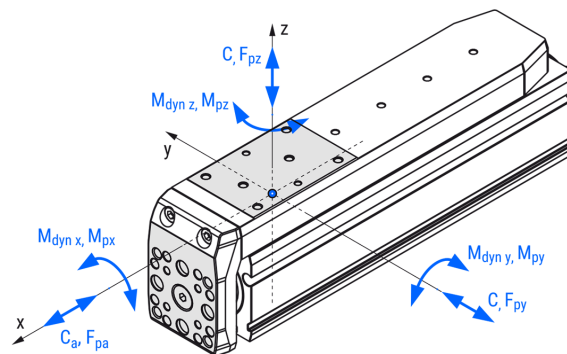
Max. permissible axial load, payload and max. travel speed values are valid for the entire stroke range.

Max. horizontal permissible payload vvalid for the payload to be pushed and supported by an external guiding (coefficient of friction 0,1 is taken into consideration).

The moved mass is already considered in the equation for calculating the mass of the mini electric slider m_{MSCE} and the mass moment of inertia J_{MSCE} . The moved mass includes the mass of the aluminium slide together with the front plate and positioning rod with the ball nut.

For combination with standard motor and motor adapter VK or motor side drive MSD, the mass of the mini electric slider m_{MSCE} should be increased by mass of the motor and motor adapter VK or mass of the motor and motor side drive MSD respectively. See table below.

Abs. stroke	Absolute stroke [mm]
m_{load}	Applied mass to be moved [kg]



Designation	Description	Ball Screw (d x l)	Dynamic Load Capacity C (N)	Max. Drive Torque M_p (Nm)	Max. Travel Speed V_{max} (m/s)
MSCE 25 - 6x2	Without motor	6 × 2 mm	1310	0.06	0.150
MSCE 25 - 6x6	Without motor	6 × 6 mm	1310	0.1	0.450
MSCE 32 - 8x2	Without motor	8 × 2 mm	2135	0.13	0.150
MSCE 32 - 8x8	Without motor	8 × 8 mm	2135	0.53	0.600
MSCE 45 - 10x3	Without motor	10 × 3 mm	3240	0.37	0.225
MSCE 45 - 10x10	Without motor	10 × 10 mm	3240	1.23	0.750

Designation	Max. Rotational Speed n_{max} (min ⁻¹) (rev/min)	No Load Torque M_0 (Nm)	Axial Dynamic Load Capacity C_a (N)	Max. Permissible Axial Load F_{pa} (N)	Max. Permissible Payload Horizontal mp_h (kg)	Max. Permissible Payload Vertical mp_v (kg)
MSCE 25 - 6x2	4500	0.03	1900	170	57	14
MSCE 25 - 6x6	4500	0.03	1700	90	30	7
MSCE 32 - 8x2	4500	0.05	2000	375	125	31
MSCE 32 - 8x8	4500	0.06	1500	375	125	31

General Data

Designation	Max. Rotational Speed n_{max} (min ⁻¹) (rev/min)	No Load Torque M_0 (Nm)	Axial Dynamic Load Capacity C_a (N)	Max. Permissible Axial Load F_{pa} (N)	Max. Permissible Payload Horizontal m_{ph} (kg)	Max. Permissible Payload Vertical m_{pv} (kg)
MSCE 45 - 10x3	4500	0.08	3500	695	233	58
MSCE 45 - 10x10	4500	0.10	3200	695	233	58

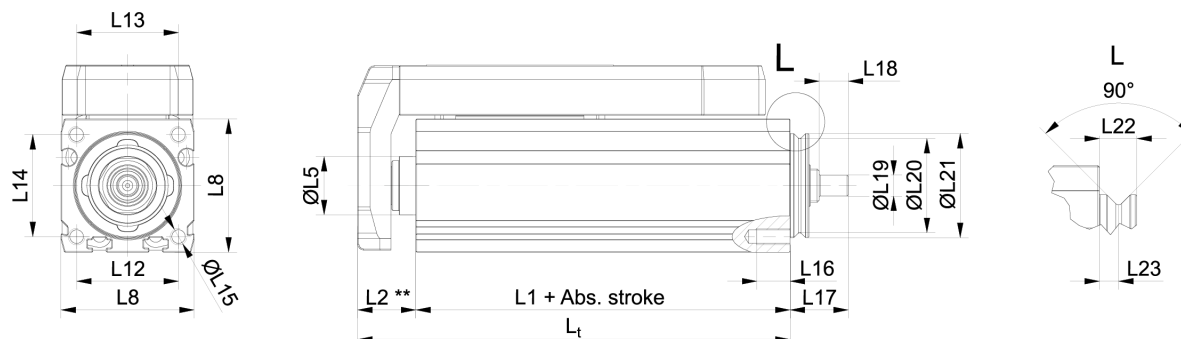
Designation	Max. Permissible Radial Load on Shaft F_{pr} (N)	Dynamic Moment M_x (Nm)	Dynamic Moment M_y (Nm)	Dynamic Moment M_z (Nm)	Max. Permissible Loads Forces F_{py} (N)	Max. Permissible Loads Forces F_{pz} (N)
MSCE 25 - 6x2	25	4.8	4.1	4.1	280	580
MSCE 25 - 6x6	25	4.8	4.1	4.1	280	580
MSCE 32 - 8x2	50	10	6.8	6.8	860	860
MSCE 32 - 8x8	50	10	6.8	6.8	860	860
MSCE 45 - 10x3	100	20.1	17.4	17.4	1000	1000
MSCE 45 - 10x10	100	20.1	17.4	17.4	1000	1000

Designation	Max. Permissible Loads Moments M_{px} (Nm)	Max. Permissible Loads Moments M_{py} (Nm)	Max. Permissible Loads Moments M_{pz} (Nm)	Moved Mass (kg)	Mass of the Mini Electric Slider m_{MSCE} (kg)	Mass Moment of Inertia JMSCE (10 ⁻² kg cm ²)
MSCE 25 - 6x2	4.8	4.1	4.1	$0.10 + 0.0010 \times \text{Abs. stroke}$	$0.20 + 0.0019 \times \text{Abs. stroke}$	$0.29 + 0.0007 \times \text{Abs. stroke} + 0.1013 \times \text{mload}$
MSCE 25 - 6x6	4.8	4.1	4.1	$0.10 + 0.0010 \times \text{Abs. stroke}$	$0.20 + 0.0019 \times \text{Abs. stroke}$	$0.36 + 0.0016 \times \text{Abs. stroke} + 0.9119 \times \text{mload}$
MSCE 32 - 8x2	10	6.8	6.8	$0.18 + 0.0013 \times \text{Abs. stroke}$	$0.40 + 0.0032 \times \text{Abs. stroke}$	$0.71 + 0.0026 \times \text{Abs. stroke} + 0.1013 \times \text{mload}$
MSCE 32 - 8x8	10	6.8	6.8	$0.18 + 0.0013 \times \text{Abs. stroke}$	$0.40 + 0.0032 \times \text{Abs. stroke}$	$0.99 + 0.0047 \times \text{Abs. stroke} + 1.6211 \times \text{mload}$
MSCE 45 - 10x3	16.3	16.3	16.3	$0.36 + 0.0025 \times \text{Abs. stroke}$	$0.88 + 0.0059 \times \text{Abs. stroke}$	$2.81 + 0.0061 \times \text{Abs. stroke} + 0.2280 \times \text{mload}$
MSCE 45 - 10x10	16.3	16.3	16.3	$0.36 + 0.0025 \times \text{Abs. stroke}$	$0.88 + 0.0059 \times \text{Abs. stroke}$	$3.63 + 0.0121 \times \text{Abs. stroke} + 2.5330 \times \text{mload}$

Designation	Planar Moment of Inertia I_y (cm ⁴)	Planar Moment of Inertia I_z (cm ⁴)
MSCE 25 - 6x2	0.08 (slide) / 2.10 (base profile)	0.88 (slide) / 1.98 (base profile)
MSCE 25 - 6x6	0.08 (slide) / 2.10 (base profile)	0.88 (slide) / 1.98 (base profile)
MSCE 32 - 8x2	0.18 (slide) / 6.42 (base profile)	2.16 (slide) / 6.58 (base profile)
MSCE 32 - 8x8	0.18 (slide) / 6.42 (base profile)	2.16 (slide) / 6.58 (base profile)
MSCE 45 - 10x3	0.40 (slide) / 25.37 (base profile)	7.34 (slide) / 25.16 (base profile)
MSCE 45 - 10x10	0.40 (slide) / 25.37 (base profile)	7.34 (slide) / 25.16 (base profile)

Dimensions

MSCE without a motor



Designation	L1	L2	L3	L4	L5	L6	L7	L8	L9
MSCE 25 - 6x2	50	12	6	6	Ø 12	36.5	58	25	13.5
MSCE 25 - 6x6	50	12	6	6	Ø 12	36.5	58	25	13.5
MSCE 32 - 8x2	65	14	8	6	Ø 14	45	73	32	13.5
MSCE 32 - 8x8	65	14	8	6	Ø 14	45	73	32	13.5
MSCE 45 - 10x3	80	18	10	8	Ø 18	60.5	91	45	20
MSCE 45 - 10x10	80	18	10	8	Ø 18	60.5	91	45	20

Designation	L10	L11	L12	L13	L14	L15	L16	L17	L18	L19
MSCE 25 - 6x2	19.25	4.4	19	17	18	Ø M2.5	8	14	7	Ø 5 (h7)
MSCE 25 - 6x6	19.25	4.4	19	17	18	Ø M2.5	8	14	7	Ø 5 (h7)
MSCE 32 - 8x2	22.8	4.4	24.5	24.5	24.5	Ø M3	8	14	7	Ø 5 (h7)
MSCE 32 - 8x8	22.8	4.4	24.5	24.5	24.5	Ø M3	8	14	7	Ø 5 (h7)
MSCE 45 - 10x3	30.5	4.4	34	34	34	Ø M4	10	16	8	Ø 8 (h7)
MSCE 45 - 10x10	30.5	4.4	34	34	34	Ø M4	10	16	8	Ø 8 (h7)

Designation	L20	L21	L22	L23	U1	U2	U3	U4	U5
MSCE 25 - 6x2	Ø 17.6	Ø 20 (h7)	4.5	2.3	2.2	4.2	2.8	1.4	1
MSCE 25 - 6x6	Ø 17.6	Ø 20 (h7)	4.5	2.3	2.2	4.2	2.8	1.4	1
MSCE 32 - 8x2	Ø 22.6	Ø 25 (h7)	4.5	2.3	3.2	5.8	3.6	2	1
MSCE 32 - 8x8	Ø 22.6	Ø 25 (h7)	4.5	2.3	3.2	5.8	3.6	2	1
MSCE 45 - 10x3	Ø 31.6	Ø 34 (h7)	4.5	2.3	4.2	7.5	4.7	2.5	1.2
MSCE 45 - 10x10	Ø 31.6	Ø 34 (h7)	4.5	2.3	4.2	7.5	4.7	2.5	1.2