

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)

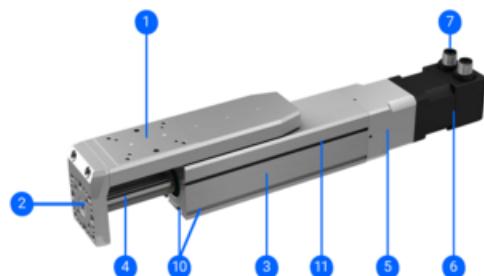
Protection Class: IP40

Duty Cycle: 100%

Maintenance: Life-time pre-lubricated

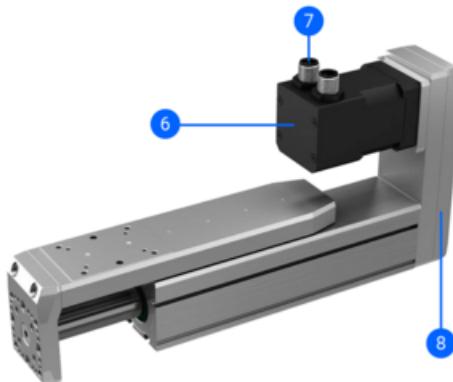


Combination with a standard motor and a motor adapter VK



- 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)

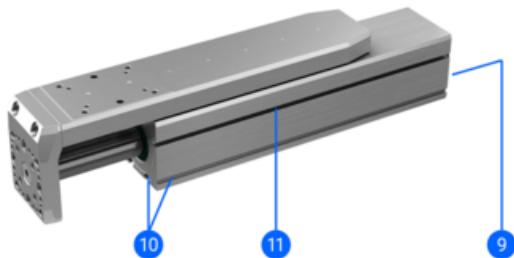
Combination with a standard motor and a motor side drive MSD



- 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.

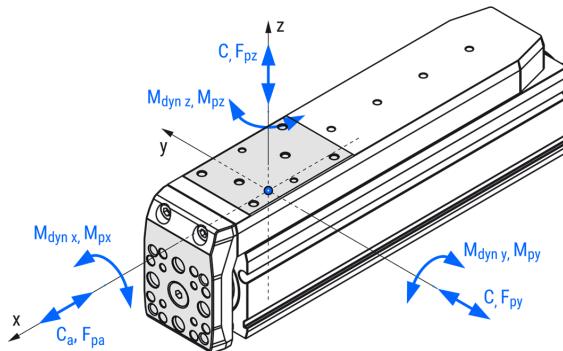
Max. permissible axial load, payload and max. travel speed values are valid for the entire stroke range.

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 Vmax (m/s) |
|------------------------|---------------|--------------------|-----------------------------|----------------------------|------------------------------|
| MSCE 25 - 6x2 | Without motor | 6 x 2 mm | 1310 | 0.06 | 0.150 |
| MSCE 25 - 6x6 | Without motor | 6 x 6 mm | 1310 | 0.1 | 0.450 |
| MSCE 32 - 8x2 | Without motor | 8 x 2 mm | 2135 | 0.13 | 0.150 |
| MSCE 32 - 8x8 | Without motor | 8 x 8 mm | 2135 | 0.53 | 0.600 |
| MSCE 45 - 10x3 | Without motor | 10 x 3 mm | 3240 | 0.37 | 0.225 |
| MSCE 45 - 10x10 | Without motor | 10 x 10 mm | 3240 | 1.23 | 0.750 |

| Designation | Max. Rotational Speed nmax (min⁻¹) (rev/min) | No Load Torque Mo (Nm) | Axial Dynamic Load Capacity Ca (N) | Max. Permissible Axial Load Fpa (N) | Max. Permissible Payload Horizontal mph (kg) | Max. Permissible Payload Vertical mpv (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 nmax (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 mph (kg) | Max. Permissible Payload Vertical mpv (kg) |
|------------------------|---|------------------------------------|--|---|--|--|
| MSCE 45 - 10x3 | 4500 | 0.08 | 3500 | 695 | 233 | 58 |
| MSCE 45 - 10x10 | 4500 | 0.10 | 3200 | 695 | 233 | 58 |

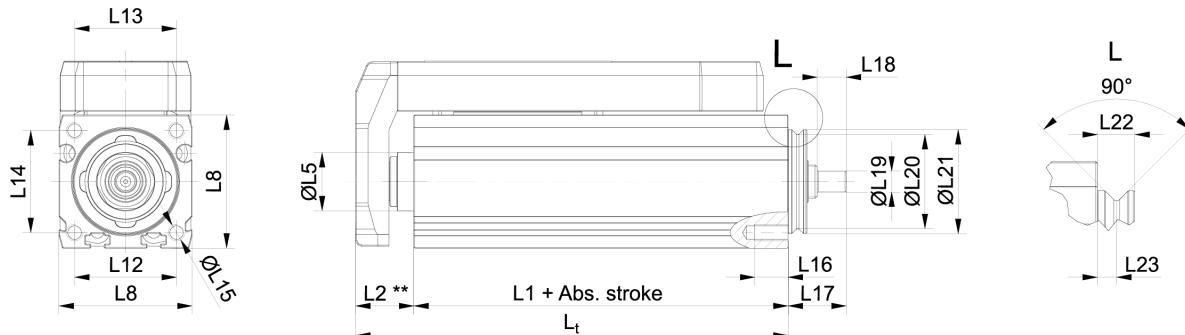
| Designation | Max. Permissible Radial Load on Shaft F _{pr} (N) | Dynamic Moment M _x (Nm) | Dynamic Moment M _y (Nm) | Dynamic Moment M _z (Nm) | Max. Permissible Loads Forces F _{py} (N) | Max. Permissible Loads Forces F _{pz} (N) |
|------------------------|---|------------------------------------|------------------------------------|------------------------------------|---|---|
| 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 mMSCE (kg) | Mass Moment of Inertia JMSCE (10 ⁻² kg cm ²) |
|------------------------|---|---|---|-----------------------------|---|---|
| MSCE 25 - 6x2 | 4.8 | 4.1 | 4.1 | 0.10 + 0.0010 × Abs. stroke | 0.20 + 0.0019 × Abs. stroke | 0.29 + 0.0007 × Abs. stroke + 0.1013 × mload |
| MSCE 25 - 6x6 | 4.8 | 4.1 | 4.1 | 0.10 + 0.0010 × Abs. stroke | 0.20 + 0.0019 × Abs. stroke | 0.36 + 0.0016 × Abs. stroke + 0.9119 × mload |
| MSCE 32 - 8x2 | 10 | 6.8 | 6.8 | 0.18 + 0.0013 × Abs. stroke | 0.40 + 0.0032 × Abs. stroke | 0.71 + 0.0026 × Abs. stroke + 0.1013 × mload |
| MSCE 32 - 8x8 | 10 | 6.8 | 6.8 | 0.18 + 0.0013 × Abs. stroke | 0.40 + 0.0032 × Abs. stroke | 0.99 + 0.0047 × Abs. stroke + 1.6211 × mload |
| MSCE 45 - 10x3 | 16.3 | 16.3 | 16.3 | 0.36 + 0.0025 × Abs. stroke | 0.88 + 0.0059 × Abs. stroke | 2.81 + 0.0061 × Abs. stroke + 0.2280 × mload |
| MSCE 45 - 10x10 | 16.3 | 16.3 | 16.3 | 0.36 + 0.0025 × Abs. stroke | 0.88 + 0.0059 × Abs. stroke | 3.63 + 0.0121 × Abs. stroke + 2.5330 × 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 |