

MCE 25

Mini electric cylinder MCE is a mini linear drive with a piston rod. 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 piston rod 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 sidedrive 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 cylinder profile includes T-slots on the bottom for fixing the electric cylinder, as well as side slots for clamping fixtures and magnetic field sensors.

Options, such as female piston rod end and extended piston rod, together with a wide range of accessories make this product highly flexible. There is also an option of the mini electric cylinder without the preassembled motor if an individual motor is required.

For applications, where higher resistance to lateral loads or torsional moments is required, a guiding unit GUC can be used. By using the guiding unit, which offers high precision guiding and positioning, the mini electric cylinders can easily be combined to the multi-axis systems.

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

Note!

All the data of the dynamic load capacities (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 Ball screw drive section, where calculation of the safety factor of the ball screw drive and how the applied load affects the service life are presented.

Dimensions in mm.

Contact us for further information.

Axial Backlash (mm): ≤ 0.05

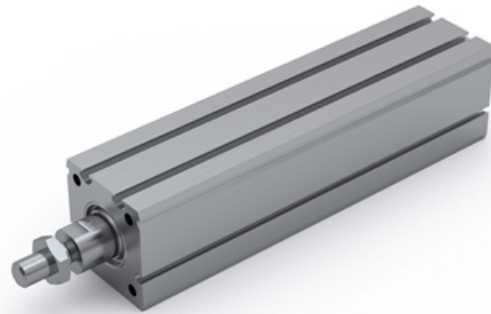
Max. Acceleration (m/s): 20

Protection class: IP40

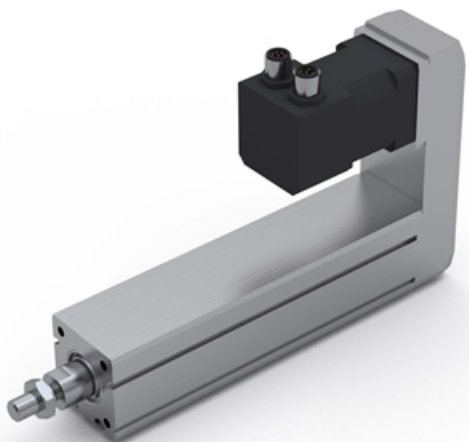
Ambient Temperature (°C): 0 – +50

Duty cycle: 100%

Maintenance: Life-time pre-lubricated



MCE 25



Variant Data

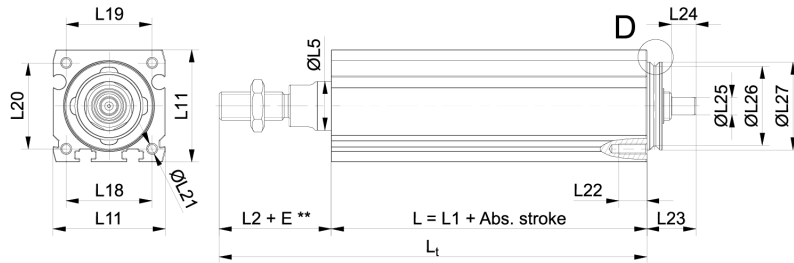
Designation	Description	Ball screw (d x l)	Max. Drive Torque M _p (Nm)	Max. Travel Speed V _{max} (m/s)	Max. Rotational Speed n _{max} (min ⁻¹) (rev/min)
MCE 25 - 6x2	Without motor	6x2 mm	0,06	0,15	4500
MCE 25 - 6x6	Without motor	6x6 mm	0,10	0,45	4500
MCE 25 - VK - 28 - 6x2	With motor size 28 and motor adapter VK	6x2 mm	-	0,10	3000
MCE 25 - VK - 28 - 6x6	With motor size 28 and motor adapter VK	6x6 mm	-	0,30	3000
MCE 25 - MSD - 28 - 6x2	With motor size 28 and motor side drive MSD	6x2 mm	-	0,10	3000
MCE 25 - MSD - 28 - 6x6	With motor size 28 and motor side drive MSD	6x6 mm	-	0,30	3000

Designation	No Load Torque M ₀ (Nm)	Axial Dynamic Load Capacity Ca (N)	Max. angle of piston rod rotation	Max. Repeatability (mm)	Max. Permissible Axial Load F _{pa} (N)	Absolute stroke
MCE 25 - 6x2	0,02	1900	≤ ±1 °	±0.015	170	25, 50, 75, 100, 125, 150, 175, 200
MCE 25 - 6x6	0,02	1700	≤ ±1 °	±0.015	90	25, 50, 75, 100, 125, 150, 175, 200
MCE 25 - VK - 28 - 6x2	-	1900	≤ ±1 °	±0.015	170	25, 50, 75, 100, 125, 150, 175, 200
MCE 25 - VK - 28 - 6x6	-	1700	≤ ±1 °	±0.015	90	25, 50, 75, 100, 125, 150, 175, 200
MCE 25 - MSD - 28 - 6x2	-	1900	≤ ±1 °	±0.015	170	25, 50, 75, 100, 125, 150, 175, 200
MCE 25 - MSD - 28 - 6x6	-	1700	≤ ±1 °	±0.015	90	25, 50, 75, 100, 125, 150, 175, 200

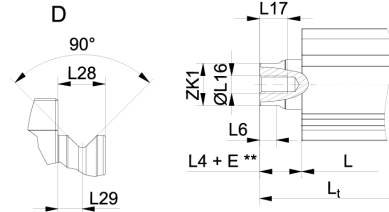
Designation	Max. Permissible Payload Horizontal m _{ph} (kg)	Max. Permissible Payload Vertical m _{pv} (kg)	Max. Permissible Radial Load on Shaft F _{pr} (N)	Motor type	Motor size (mm)
MCE 25 - 6x2	57	14	25	-	-
MCE 25 - 6x6	30	7	25	-	-
MCE 25 - VK - 28 - 6x2	57	14	-	Stepper	28
MCE 25 - VK - 28 - 6x6	13	7,40	-	Stepper	28
MCE 25 - MSD - 28 - 6x2	57	14	-	Stepper	28
MCE 25 - MSD - 28 - 6x6	13	7,40	-	Stepper	28

Dimensions

MCE without a motor

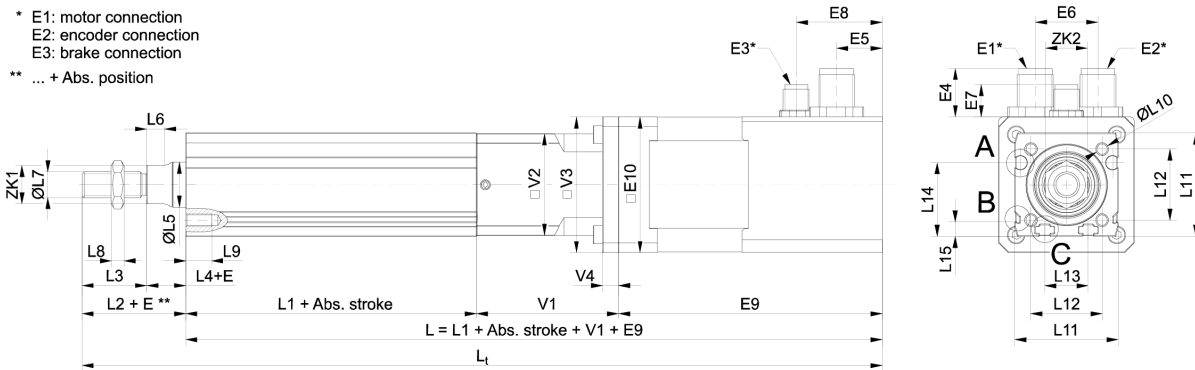


Female thread

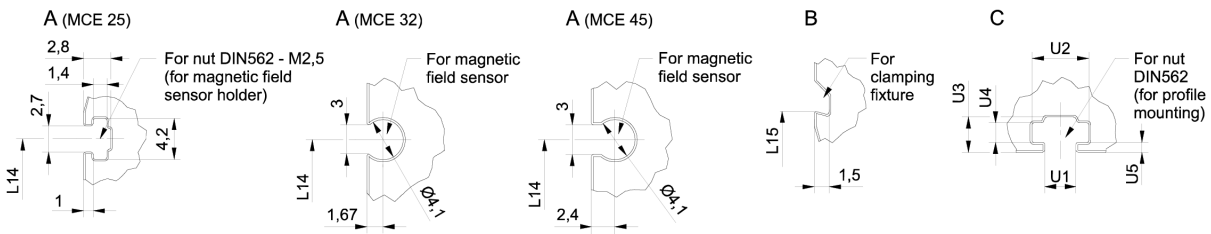


MCE with motor adapter VK

- * E1: motor connection
- E2: encoder connection
- E3: brake connection
- ** ... + Abs. position

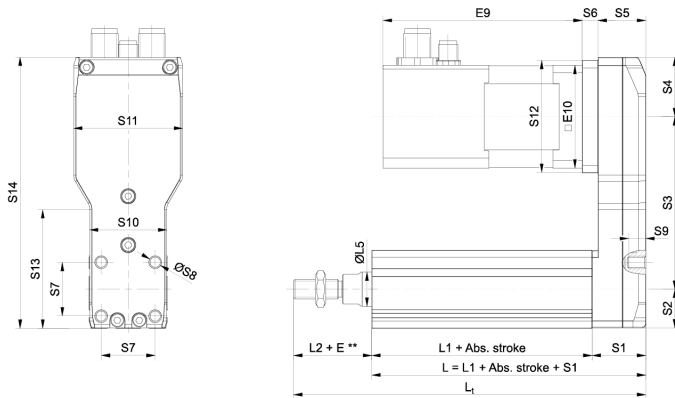


MCE with motor adapter VK



Dimensions

MCE with motor side drive MSD



Designation	L1	L2	L3	L4	L5	L6	L7	L8	ZK1
MCE 25 - 6x2	50	26	16	10	Ø 12	3,50	Ø M6 x 1	3,20	10
MCE 25 - 6x6	50	26	16	10	Ø 12	3,50	Ø M6 x 1	3,20	10
MCE 25 - VK - 28 - 6x2	50	26	16	10	Ø 12	3,50	Ø M6 x 1	3,20	10
MCE 25 - VK - 28 - 6x6	50	26	16	10	Ø 12	3,50	Ø M6 x 1	3,20	10
MCE 25 - MSD - 28 - 6x2	50	26	16	10	Ø 12	3,50	Ø M6 x 1	3,20	10
MCE 25 - MSD - 28 - 6x6	50	26	16	10	Ø 12	3,50	Ø M6 x 1	3,20	10

Designation	ZK2	V1	V2	V3	V4	L9	L10	L11	L12	L13
MCE 25 - 6x2	10	-	-	-	-	8	Ø M2.5	25	21	13,50
MCE 25 - 6x6	10	-	-	-	-	8	Ø M2.5	25	21	13,50
MCE 25 - VK - 28 - 6x2	10	35	24,50	28	5,50	8	Ø M2.5	25	21	13,50
MCE 25 - VK - 28 - 6x6	10	35	24,50	28	5,50	8	Ø M2.5	25	21	13,50
MCE 25 - MSD - 28 - 6x2	10	35	24,50	28	5,50	8	Ø M2.5	25	21	13,50
MCE 25 - MSD - 28 - 6x6	10	35	24,50	28	5,50	8	Ø M2.5	25	21	13,50

Designation	L14	L15	L16	L17	L18	L19	L20	L21	L22	L23
MCE 25 - 6x2	19,25	4,40	Ø M4	8	19	17	18	Ø M2.5	8	14
MCE 25 - 6x6	19,25	4,40	Ø M4	8	19	17	18	Ø M2.5	8	14
MCE 25 - VK - 28 - 6x2	19,25	4,40	Ø M4	8	19	17	18	Ø M2.5	8	14
MCE 25 - VK - 28 - 6x6	19,25	4,40	Ø M4	8	19	17	18	Ø M2.5	8	14
MCE 25 - MSD - 28 - 6x2	19,25	4,40	Ø M4	8	19	17	18	Ø M2.5	8	14
MCE 25 - MSD - 28 - 6x6	19,25	4,40	Ø M4	8	19	17	18	Ø M2.5	8	14

Designation	L24	L25	L26	L27	L28	L29	U1	U2	U3	U4
MCE 25 - 6x2	7	Ø 5 (h7)	Ø 17.6	Ø 20 (h7)	4,50	2,30	2,20	4,20	2,80	1,40
MCE 25 - 6x6	7	Ø 5 (h7)	Ø 17.6	Ø 20 (h7)	4,50	2,30	2,20	4,20	2,80	1,40
MCE 25 - VK - 28 - 6x2	7	Ø 5 (h7)	Ø 17.6	Ø 20 (h7)	4,50	2,30	2,20	4,20	2,80	1,40
MCE 25 - VK - 28 - 6x6	7	Ø 5 (h7)	Ø 17.6	Ø 20 (h7)	4,50	2,30	2,20	4,20	2,80	1,40
MCE 25 - MSD - 28 - 6x2	7	Ø 5 (h7)	Ø 17.6	Ø 20 (h7)	4,50	2,30	2,20	4,20	2,80	1,40
MCE 25 - MSD - 28 - 6x6	7	Ø 5 (h7)	Ø 17.6	Ø 20 (h7)	4,50	2,30	2,20	4,20	2,80	1,40

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Dimensions

Designation	U5	S1	S2	S3	S4	S5	S6	S7	S8	S9
MCE 25 - 6x2	1	-	-	-	-	-	-	-	-	-
MCE 25 - 6x6	1	-	-	-	-	-	-	-	-	-
MCE 25 - VK - 28 - 6x2	1	22	12,50	52.5 (± 0.5)	18,25	19,50	5,50	18	Ø M4	6
MCE 25 - VK - 28 - 6x6	1	22	12,50	52.5 (± 0.5)	18,25	19,50	5,50	18	Ø M4	6
MCE 25 - MSD - 28 - 6x2	1	22	12,50	52.5 (± 0.5)	18,25	19,50	5,50	18	Ø M4	6
MCE 25 - MSD - 28 - 6x6	1	22	12,50	52.5 (± 0.5)	18,25	19,50	5,50	18	Ø M4	6

Designation	S10	S11	S12	S13	S14
MCE 25 - 6x2	-	-	-	-	-
MCE 25 - 6x6	-	-	-	-	-
MCE 25 - VK - 28 - 6x2	24,50	31,50	34	38,50	83,25
MCE 25 - VK - 28 - 6x6	24,50	31,50	34	38,50	83,25
MCE 25 - MSD - 28 - 6x2	24,50	31,50	34	38,50	83,25
MCE 25 - MSD - 28 - 6x6	24,50	31,50	34	38,50	83,25

Mass and mass moment of inertia

Mass and mass moment of inertia

Additional mass of an electric cylinder when combining the motor with the motor adapter VK or the motor side drive MSD

Designation	Motor		Motor without a brake		Motor with a brake	
	Type	Size □ [mm]	Mass of the motor and motor adapter VK m_{VK+m} [kg]	Mass of the motor and motor side drive MSD m_{MSD+m} [kg]	Mass of the motor and motor adapter VK m_{VK+m} [kg]	Mass of the motor and motor side drive MSD m_{MSD+m} [kg]
MCE 25	Stepper	28	Available soon			
MCE 32	Stepper	28	Available soon			
MCE 32	Stepper	42	0,52	0,62	0,65	0,75
MCE 45	Stepper	42	0,57	0,71	0,70	0,84
MCE 45	Stepper	56	1,31	1,49	1,50	1,68

Planar moment of inertia

Designation	Cylinder profile	
	I_y [cm ⁴]	I_z [cm ⁴]
MCE 25	2,10	1,98
MCE 32	6,42	6,58
MCE 45	25,37	25,16

Holding torque of a motor brake

Type	Motor	Holding torque (brake) [Nm]
	Size □ [mm]	
Stepper	28	Available soon
Stepper	42	0,4
Stepper	56	1,0

□ = Square cross section

Designation	Moved Mass (kg)	Mass of the Mini Electric Cylinder mMCE (kg)	Mass moment of inertia JMCE
MCE 25 - 6x2	$0.06 + 0.0004 \times \text{Abs. stroke} + 0.0004 \times E$	$0.15 + 0.0013 \times \text{Abs. stroke} + 0.0004 \times E$	" $0.28 + 0.0007 \times \text{Abs. stroke} + 0.00004 \times E + 0.1013 \times \text{mload}$ (10 ² B2 kg cm ²)"
MCE 25 - 6x6	$0.06 + 0.0004 \times \text{Abs. stroke} + 0.0004 \times E$	$0.15 + 0.0013 \times \text{Abs. stroke} + 0.0004 \times E$	" $0.33 + 0.0011 \times \text{Abs. stroke} + 0.00036 \times E + 0.9119 \times \text{mload}$ (10 ² B2 kg cm ²)"
MCE 25 - VK - 28 - 6x2	-	-	-
MCE 25 - VK - 28 - 6x6	-	-	-
MCE 25 - MSD - 28 - 6x2	-	-	-
MCE 25 - MSD - 28 - 6x6	-	-	-