

## MSCE 45

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 above 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 Linear guiding and the Ball screw drive section, 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.

Contact us for further information.

**Axial backlash:**  $\leq 0,06$

**Max. acceleration:** 20 m/s

**Protection class:** IP40

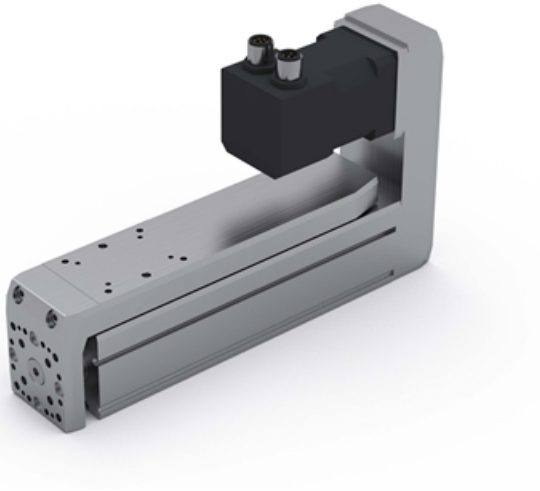
**Ambient temperature:** 0 °C – +50 °C

**Duty cycle:** 100%

**Maintenance:** Life-time pre-lubricated

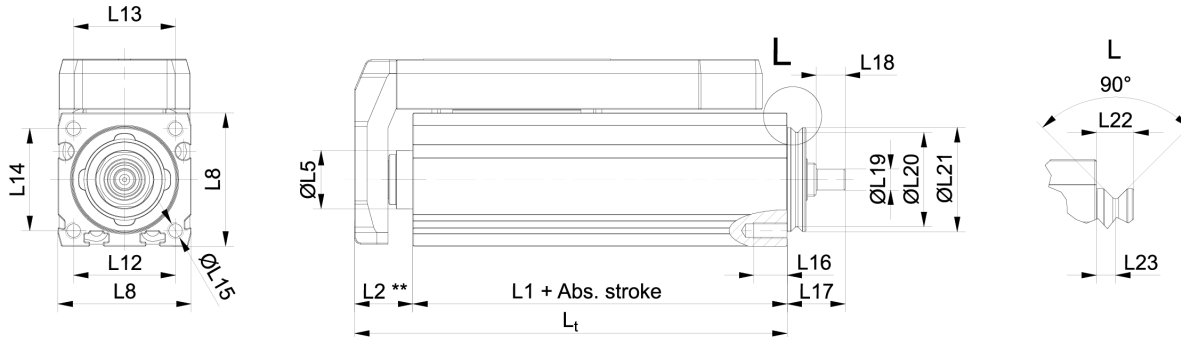


## MSCE 45

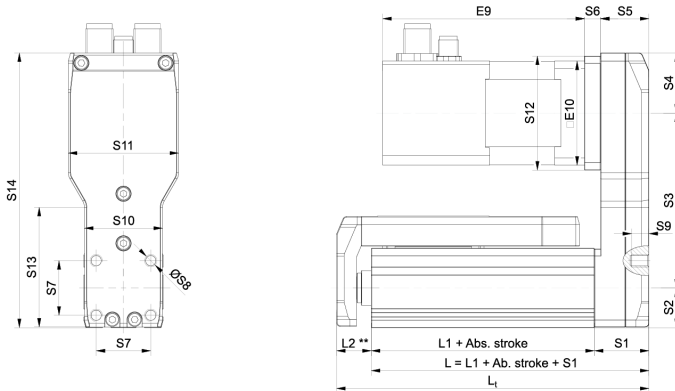


## Variant Data

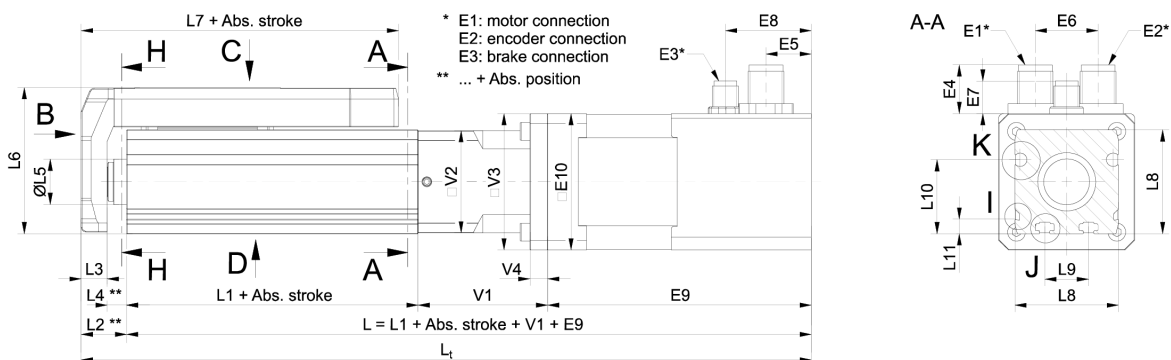
### MSCE without a motor



### MSCE with motor side drive MSD

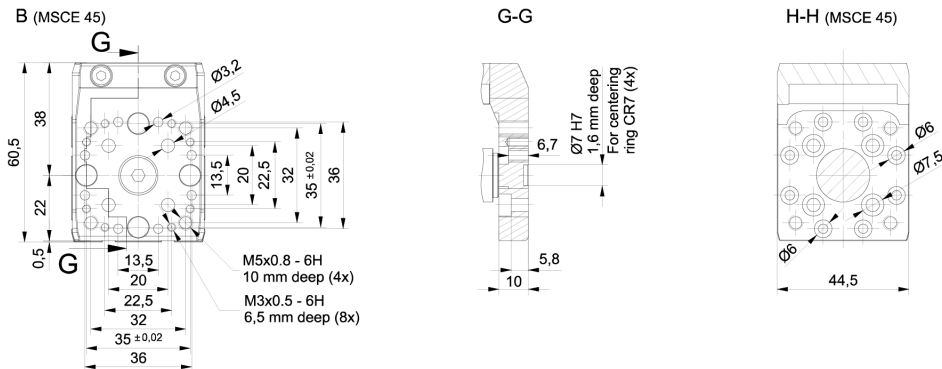


### MSCE with motor adapter VK

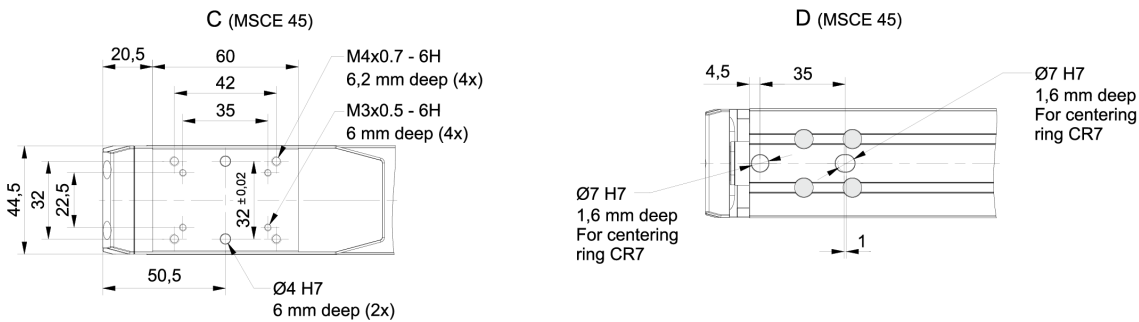


## Variant Data

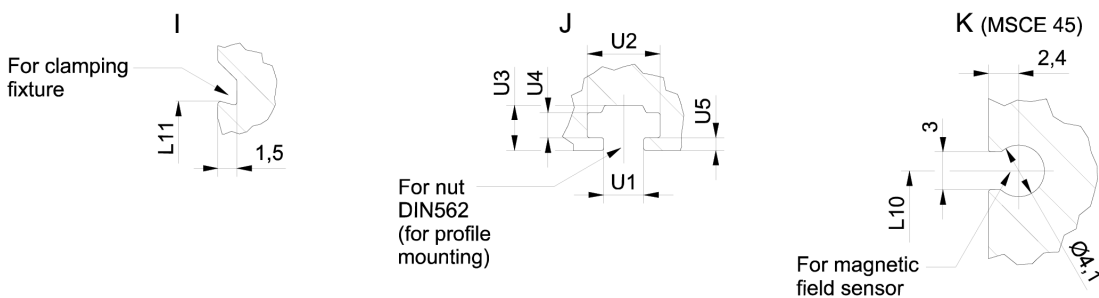
### MSCE 45 with motor adapter VK



### MSCE 45 with motor adapter VK



### MSCE 45 with motor adapter VK



Designation	Description	Ball screw (d x l)	Dynamic Load Capacity C	Max. Drive Torque $M_p$	Max. Travel Speed $V_{max}$
MSCE 45 - 10x3	Without motor	10x3 mm	3240 N	0,37 Nm	0,225 m/s
MSCE 45 - 10x10	Without motor	10x10 mm	3240 N	1,23 Nm	0,750 m/s
MSCE 45 - VK - 42 - 10x3	With motor size 42 and motor adapter VK	10x3 mm	3240 N	-	0,149 m/s

**Variant Data**

Designation	Description	Ball screw (d x l)	Dynamic Load Capacity C	Max. Drive Torque $M_p$	Max. Travel Speed $V_{max}$
<b>MSCE 45 - VK - 42 - 10x10</b>	With motor size 42 and motor adapter VK	10x10 mm	3240 N	-	0,485 m/s
<b>MSCE 45 - VK - 56 - 10x3</b>	With motor size 56 and motor adapter VK	10x3 mm	3240 N	-	0,150 m/s
<b>MSCE 45 - VK - 56 - 10x10</b>	With motor size 56 and motor adapter VK	10x10 mm	3240 N	-	0,500 m/s
<b>MSCE 45 - MSD - 42 - 10x3</b>	With motor size 42 and motor side drive MSD	10x3 mm	3240 N	-	0,146 m/s
<b>MSCE 45 - MSD - 42 - 10x10</b>	With motor size 42 and motor side drive MSD	10x10 mm	3240 N	-	0,457 m/s
<b>MSCE 45 - MSD - 56 - 10x3</b>	With motor size 56 and motor side drive MSD	10x3 mm	3240 N	-	0,150 m/s
<b>MSCE 45 - MSD - 56 - 10x10</b>	With motor size 56 and motor side drive MSD	10x10 mm	3240 N	-	0,500 m/s

Designation	Max. Rotational Speed $n_{max}$ ( $min^{-1}$ )	No Load Torque $M_0$	Axial dynamic load capacity $C_a$	Max. repeatability	Max. permissible axial load $F_{pa}$	Absolute stroke
<b>MSCE 45 - 10x3</b>	4500 rev/min	0,08 Nm	3500 N	±0,015 mm	695 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - 10x10</b>	4500 rev/min	0,10 Nm	3200 N	±0,015 mm	695 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - VK - 42 - 10x3</b>	2980 rev/min	-	3500 N	±0,015 mm	450 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - VK - 42 - 10x10</b>	2910 rev/min	-	3200 N	±0,015 mm	125 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - VK - 56 - 10x3</b>	3000 rev/min	-	3500 N	±0,015 mm	695 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - VK - 56 - 10x10</b>	3000 rev/min	-	3200 N	±0,015 mm	575 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - MSD - 42 - 10x3</b>	2920 rev/min	-	3500 N	±0,015 mm	380 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - MSD - 42 - 10x10</b>	2740 rev/min	-	3200 N	±0,015 mm	115 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - MSD - 56 - 10x3</b>	3000 rev/min	-	3500 N	±0,015 mm	695 N	25, 50, 75, 100, 125, 150, 175, 200
<b>MSCE 45 - MSD - 56 - 10x10</b>	3000 rev/min	-	3200 N	±0,015 mm	450 N	25, 50, 75, 100, 125, 150, 175, 200

Designation	Max. permissible payload horizontal mph	Max. permissible payload vertical mpv	Max. permissible radial load on shaft Fpr	Dynamic moments Mx	Dynamic moments My	Dynamic moments Mz
<b>MSCE 45 - 10x3</b>	233 kg	58 kg	100 N	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - 10x10</b>	233 kg	58 kg	100 N	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - VK - 42 - 10x3</b>	150 kg	37 kg	-	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - VK - 42 - 10x10</b>	21 kg	10 kg	-	20,1 Nm	17,4 Nm	17,4 Nm

**Variant Data**

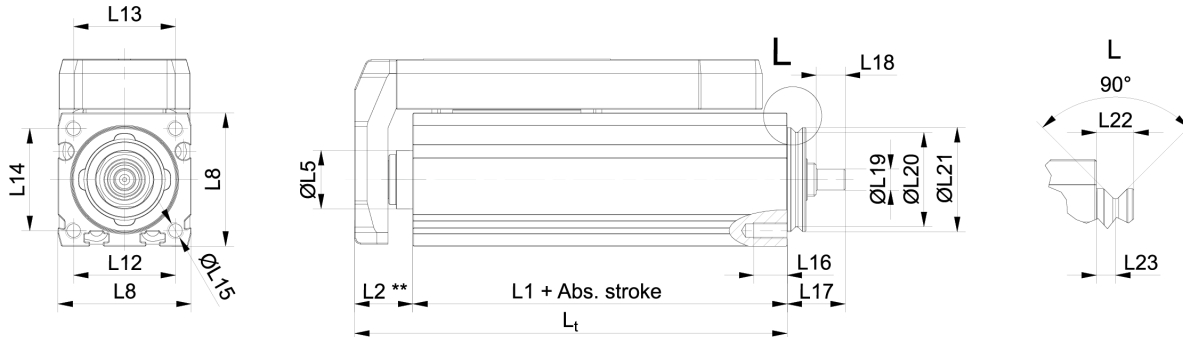
Designation	Max. permissible payload horizontal mph	Max. permissible payload vertical mpv	Max. permissible radial load on shaft Fpr	Dynamic moments Mx	Dynamic moments My	Dynamic moments Mz
<b>MSCE 45 - VK - 56 - 10x3</b>	233 kg	58 kg	-	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - VK - 56 - 10x10</b>	132 kg	48 kg	-	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - MSD - 42 - 10x3</b>	127 kg	31 kg	-	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - MSD - 42 - 10x10</b>	19 kg	9 kg	-	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - MSD - 56 - 10x3</b>	233 kg	58 kg	-	20,1 Nm	17,4 Nm	17,4 Nm
<b>MSCE 45 - MSD - 56 - 10x10</b>	132 kg	37 kg	-	20,1 Nm	17,4 Nm	17,4 Nm

Designation	Max. permissible loads Forces Fpy	Max. permissible loads Forces Fpz	Max. permissible loads Moments Mpx	Max. permissible loads Moments Mpy	Max. permissible loads Moments Mpz	Motor type
<b>MSCE 45 - 10x3</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	-
<b>MSCE 45 - 10x10</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	-
<b>MSCE 45 - VK - 42 - 10x3</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - VK - 42 - 10x10</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - VK - 56 - 10x3</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - VK - 56 - 10x10</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - MSD - 42 - 10x3</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - MSD - 42 - 10x10</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - MSD - 56 - 10x3</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper
<b>MSCE 45 - MSD - 56 - 10x10</b>	1000 N	1000 N	16,3 Nm	16,3 Nm	16,3 Nm	Stepper

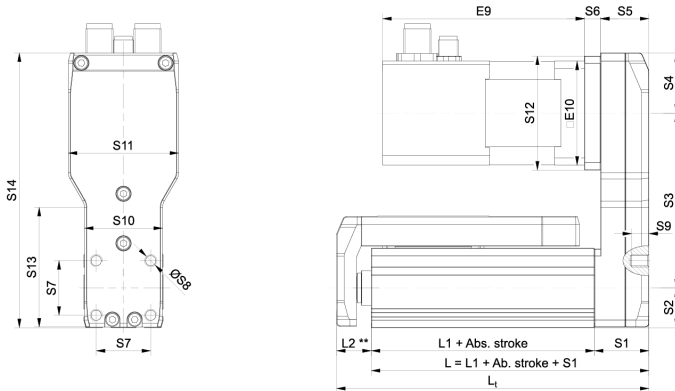
Designation	Motor size (mm)
<b>MSCE 45 - 10x3</b>	-
<b>MSCE 45 - 10x10</b>	-
<b>MSCE 45 - VK - 42 - 10x3</b>	42
<b>MSCE 45 - VK - 42 - 10x10</b>	42
<b>MSCE 45 - VK - 56 - 10x3</b>	56
<b>MSCE 45 - VK - 56 - 10x10</b>	56
<b>MSCE 45 - MSD - 42 - 10x3</b>	42
<b>MSCE 45 - MSD - 42 - 10x10</b>	42
<b>MSCE 45 - MSD - 56 - 10x3</b>	56
<b>MSCE 45 - MSD - 56 - 10x10</b>	56

## Dimensions

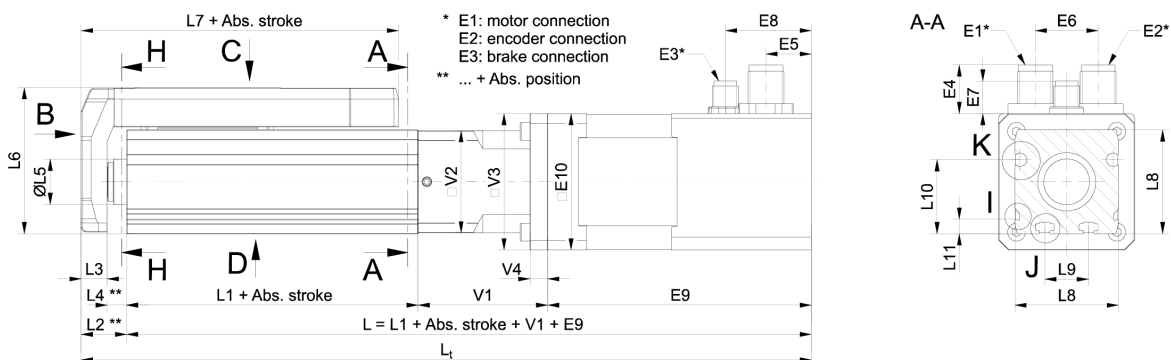
### MSCE without a motor



### MSCE with motor side drive MSD



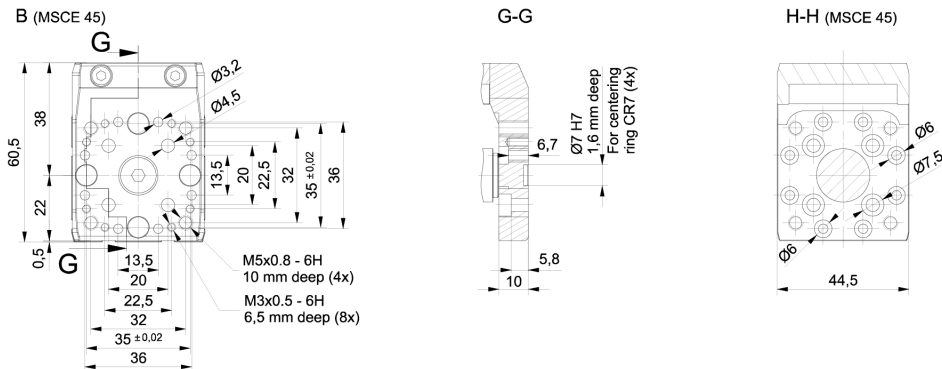
### MSCE with motor adapter VK



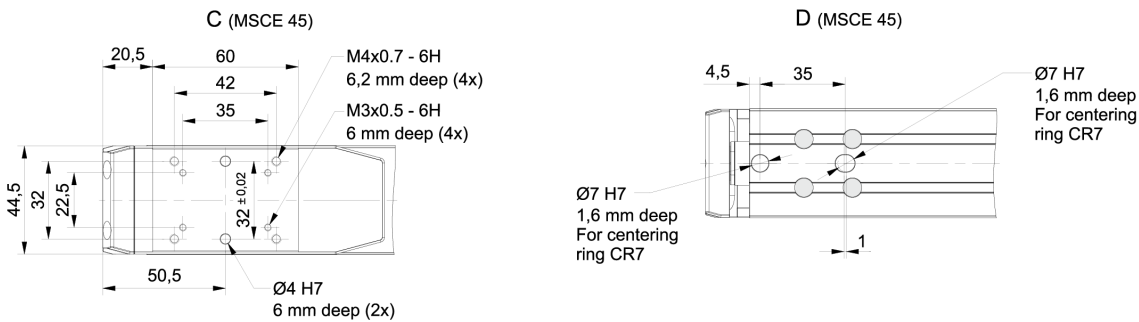


## Dimensions

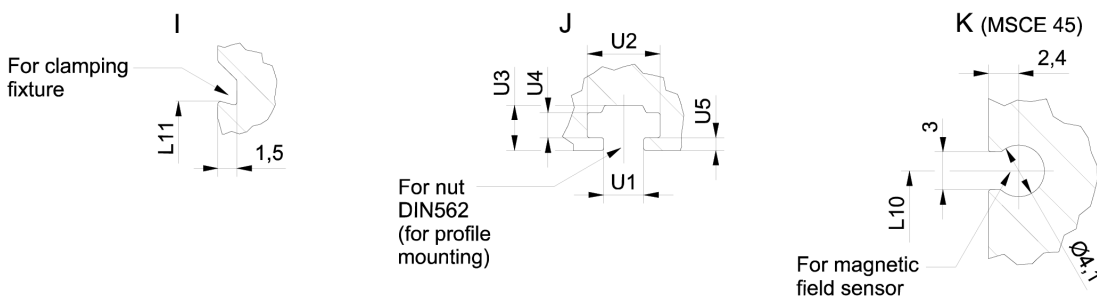
### MSCE 45 with motor adapter VK



### MSCE 45 with motor adapter VK



### MSCE 45 with motor adapter VK



Designation	L1	L2	L3	L4	L5	L6	L7	L8	V1
MSCE 45 - 10x3	80	18	10	8	Ø 18	60,50	91	45	-
MSCE 45 - 10x10	80	18	10	8	Ø 18	60,50	91	45	-
MSCE 45 - VK - 42 - 10x3	80	18	10	8	Ø 18	60,50	91	45	42
MSCE 45 - VK - 42 - 10x10	80	18	10	8	Ø 18	60,50	91	45	42
MSCE 45 - VK - 56 - 10x3	80	18	10	8	Ø 18	60,50	91	45	46
MSCE 45 - VK - 56 - 10x10	80	18	10	8	Ø 18	60,50	91	45	46

## Dimensions

Designation	L1	L2	L3	L4	L5	L6	L7	L8	V1
MSCE 45 - MSD - 42 - 10x3	80	18	10	8	Ø 18	60,50	91	45	42
MSCE 45 - MSD - 42 - 10x10	80	18	10	8	Ø 18	60,50	91	45	42
MSCE 45 - MSD - 56 - 10x3	80	18	10	8	Ø 18	60,50	91	45	46
MSCE 45 - MSD - 56 - 10x10	80	18	10	8	Ø 18	60,50	91	45	46

Designation	V2	V3	V4	L9	L10	L11	L12	L13	L14	L15
MSCE 45 - 10x3	-	-	-	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - 10x10	-	-	-	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - VK - 42 - 10x3	44,50	44,50	0	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - VK - 42 - 10x10	44,50	44,50	0	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - VK - 56 - 10x3	44,50	56,40	9,50	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - VK - 56 - 10x10	44,50	56,40	9,50	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - MSD - 42 - 10x3	44,50	44,50	0	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - MSD - 42 - 10x10	44,50	44,50	0	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - MSD - 56 - 10x3	44,50	56,40	9,50	20	30,50	4,40	34	34	34	Ø M4
MSCE 45 - MSD - 56 - 10x10	44,50	56,40	9,50	20	30,50	4,40	34	34	34	Ø M4

Designation	L16	L17	L18	L19	L20	L21	L22	L23	U1	U2
MSCE 45 - 10x3	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - 10x10	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - VK - 42 - 10x3	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - VK - 42 - 10x10	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - VK - 56 - 10x3	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - VK - 56 - 10x10	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - MSD - 42 - 10x3	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - MSD - 42 - 10x10	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - MSD - 56 - 10x3	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50
MSCE 45 - MSD - 56 - 10x10	10	16	8	Ø 8 (h7)	Ø 31,6	Ø 34 (h7)	4,50	2,30	4,20	7,50

Designation	U3	U4	U5	S1	S2	S3	S4	S5	S6	S7
<b>MSCE 45 - 10x3</b>	4,70	2,50	1,20	-	-	-	-	-	-	-
<b>MSCE 45 - 10x10</b>	4,70	2,50	1,20	-	-	-	-	-	-	-
<b>MSCE 45 - VK - 42 - 10x3</b>	4,70	2,50	1,20	27,50	22,50	81	24,75	24,50	6,50	32
<b>MSCE 45 - VK - 42 - 10x10</b>	4,70	2,50	1,20	27,50	22,50	81	24,75	24,50	6,50	32
<b>MSCE 45 - VK - 56 - 10x3</b>	4,70	2,50	1,20	27,50	22,50	88,50	33,25	24,50	6	32
<b>MSCE 45 - VK - 56 - 10x10</b>	4,70	2,50	1,20	27,50	22,50	88,50	33,25	24,50	6	32
<b>MSCE 45 - MSD - 42 - 10x3</b>	4,70	2,50	1,20	27,50	22,50	81	24,75	24,50	6,50	32
<b>MSCE 45 - MSD - 42 - 10x10</b>	4,70	2,50	1,20	27,50	22,50	81	24,75	24,50	6,50	32
<b>MSCE 45 - MSD - 56 - 10x3</b>	4,70	2,50	1,20	27,50	22,50	88,50	33,25	24,50	6	32
<b>MSCE 45 - MSD - 56 - 10x10</b>	4,70	2,50	1,20	27,50	22,50	88,50	33,25	24,50	6	32

Designation	S8	S9	S10	S11	S12	S13	S14	E1	E2	E3
<b>MSCE 45 - 10x3</b>	-	-	-	-	-	-	-	-	-	-

## Dimensions

Designation	S8	S9	S10	S11	S12	S13	S14	E1	E2	E3
<b>MSCE 45 - 10x10</b>	-	-	-	-	-	-	-	-	-	-
<b>MSCE 45 - VK - 42 - 10x3</b>	Ø M6	7	44,50	44,50	46	0	128,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - VK - 42 - 10x10</b>	Ø M6	7	44,50	44,50	46	0	128,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - VK - 56 - 10x3</b>	Ø M6	7	44,50	59,50	59,50	64,50	144,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - VK - 56 - 10x10</b>	Ø M6	7	44,50	59,50	59,50	64,50	144,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - MSD - 42 - 10x3</b>	Ø M6	7	44,50	44,50	46	0	128,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - MSD - 42 - 10x10</b>	Ø M6	7	44,50	44,50	46	0	128,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - MSD - 56 - 10x3</b>	Ø M6	7	44,50	59,50	59,50	64,50	144,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)
<b>MSCE 45 - MSD - 56 - 10x10</b>	Ø M6	7	44,50	59,50	59,50	64,50	144,25	M12 5-pole	M12 8-pole	– (with brake: M8 3-pole)

Designation	E4	E5	E6	E7	E8	E9	E10
<b>MSCE 45 - 10x3</b>	-	-	-	-	-	-	-
<b>MSCE 45 - 10x10</b>	-	-	-	-	-	-	-
<b>MSCE 45 - VK - 42 - 10x3</b>	14 ± 1	14 ± 0,3	19,50	– (with brake: 9 ± 1)	– (with brake: 27 ± 0,3)	70,4 ± 1 (with brake: 106,4 ± 0,3)	42,30
<b>MSCE 45 - VK - 42 - 10x10</b>	14 ± 1	14 ± 0,3	19,50	– (with brake: 9 ± 1)	– (with brake: 27 ± 0,3)	70,4 ± 1 (with brake: 106,4 ± 0,3)	42,30
<b>MSCE 45 - VK - 56 - 10x3</b>	14 ± 1	13,4 ± 0,3	23	– (with brake: 9 ± 1)	– (with brake: 12 ± 0,3)	98 ± 1 (with brake: 138 ± 0,3)	56,40
<b>MSCE 45 - VK - 56 - 10x10</b>	14 ± 1	13,4 ± 0,3	23	– (with brake: 9 ± 1)	– (with brake: 12 ± 0,3)	98 ± 1 (with brake: 138 ± 0,3)	56,40
<b>MSCE 45 - MSD - 42 - 10x3</b>	14 ± 1	14 ± 0,3	19,50	– (with brake: 9 ± 1)	– (with brake: 27 ± 0,3)	70,4 ± 1 (with brake: 106,4 ± 0,3)	42,30
<b>MSCE 45 - MSD - 42 - 10x10</b>	14 ± 1	14 ± 0,3	19,50	– (with brake: 9 ± 1)	– (with brake: 27 ± 0,3)	70,4 ± 1 (with brake: 106,4 ± 0,3)	42,30
<b>MSCE 45 - MSD - 56 - 10x3</b>	14 ± 1	13,4 ± 0,3	23	– (with brake: 9 ± 1)	– (with brake: 12 ± 0,3)	98 ± 1 (with brake: 138 ± 0,3)	56,40
<b>MSCE 45 - MSD - 56 - 10x10</b>	14 ± 1	13,4 ± 0,3	23	– (with brake: 9 ± 1)	– (with brake: 12 ± 0,3)	98 ± 1 (with brake: 138 ± 0,3)	56,40

## 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]
MSCE 25	Stepper	28	Available soon	Available soon	Available soon	Available soon
MSCE 32	Stepper	28	Available soon	Available soon	Available soon	Available soon
MSCE 32	Stepper	42	0,52	0,62	0,65	0,75
MSCE 45	Stepper	42	0,57	0,71	0,70	0,84
MSCE 45	Stepper	56	1,31	1,49	1,50	1,68

### Planar moment of inertia

Designation	Slide		Base profile	
	$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]	$I_y$ [cm <sup>4</sup> ]	$I_z$ [cm <sup>4</sup> ]
MSCE 25	0,08	0,88	2,10	1,98
MSCE 32	0,18	2,16	6,42	6,58
MSCE 45	0,40	7,34	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	Mass of the mini electric slider mMSCE	Mass moment of inertia JMSCE
<b>MSCE 45 - 10x3</b>	0,36 + 0,0025 x Abs. stroke (kg)	0,88 + 0,0059 x Abs. stroke (kg)	"2,81 + 0,0061 x Abs. stroke + 0,2280 x mload (10 <sup>2</sup> B; B2 kg cm <sup>2</sup> )"
<b>MSCE 45 - 10x10</b>	0,36 + 0,0025 x Abs. stroke (kg)	0,88 + 0,0059 x Abs. stroke (kg)	"3,63 + 0,0121 x Abs. stroke + 2,5330 x mload (10 <sup>2</sup> B; B2 kg cm <sup>2</sup> )"
<b>MSCE 45 - VK - 42 - 10x3</b>	-	-	-
<b>MSCE 45 - VK - 42 - 10x10</b>	-	-	-
<b>MSCE 45 - VK - 56 - 10x3</b>	-	-	-
<b>MSCE 45 - VK - 56 - 10x10</b>	-	-	-
<b>MSCE 45 - MSD - 42 - 10x3</b>	-	-	-
<b>MSCE 45 - MSD - 42 - 10x10</b>	-	-	-
<b>MSCE 45 - MSD - 56 - 10x3</b>	-	-	-
<b>MSCE 45 - MSD - 56 - 10x10</b>	-	-	-

