

Technical information

Mini electric cylinder MCE

Operating conditions

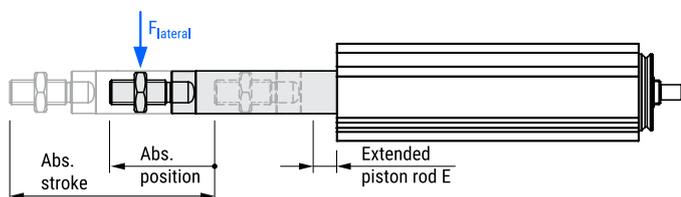
Ambient temperature	0 °C ~ +50 °C
Ambient temperature without a motor	0 °C ~ +60 °C
Protection class	IP40
Duty cycle	100 %
Maintenance	Life-time pre-lubricated

Maximum lateral loading as a function of the piston rod absolute position

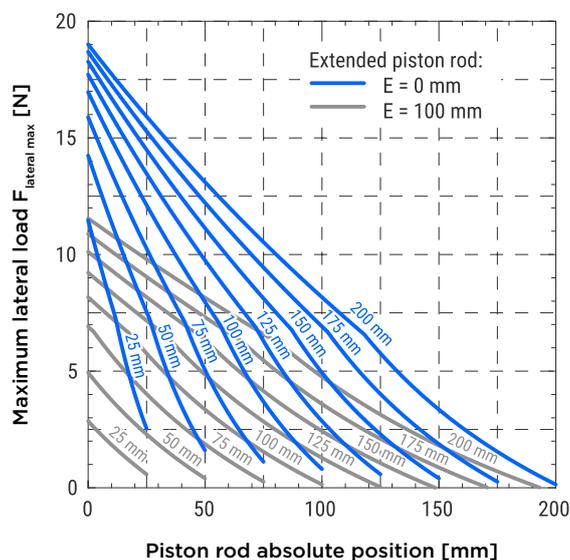
On the following diagrams, the maximum lateral loads acting on the piston rod end as a function of the piston rod absolute position for different values of the absolute stroke are presented. There is also an extended piston rod (E) taken into consideration.

Values on the curves represent an absolute stroke of the cylinder. Diagrams consider the maximum travel speed of the particular size of the cylinder. When operating with lower travel speeds, the maximum lateral load may be higher.

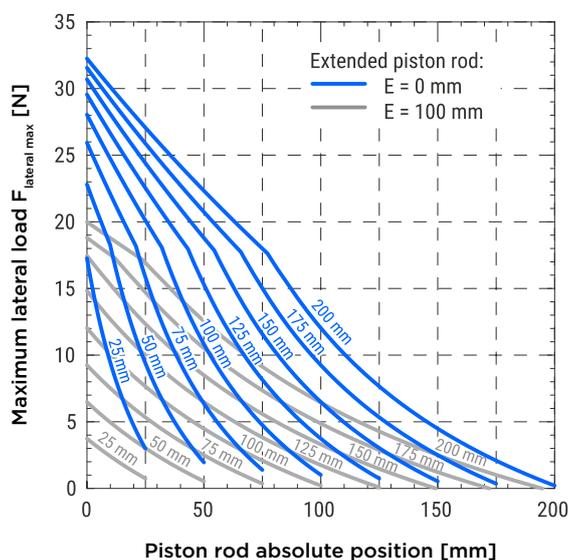
Diagrams consider the maximum travel speed of the particular size of the cylinder. When operating with lower travel speeds, the maximum lateral load may be higher.



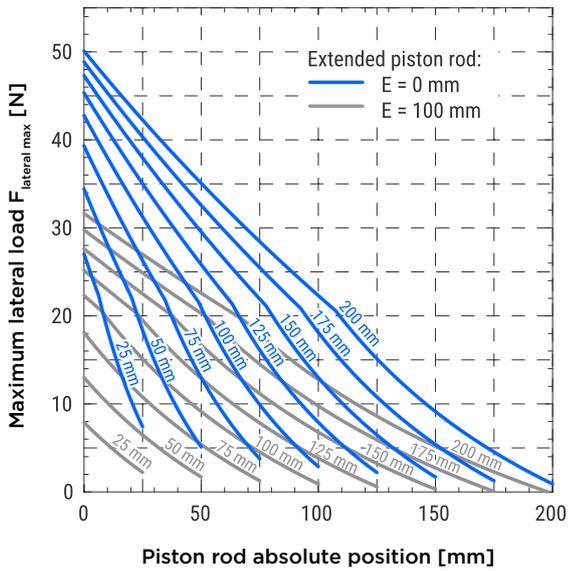
MCE 25



MCE 32



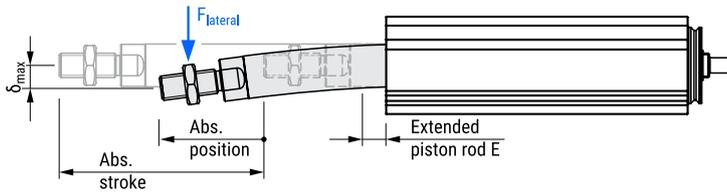
MCE 45



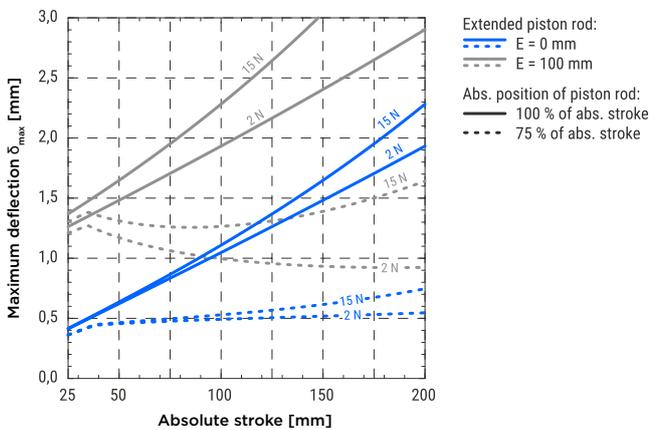
Maximum deflection of the piston rod end as a function of the cylinder absolute stroke

On the following diagrams, the maximum deflections of the piston rod end subjected to different lateral loads for different absolute positions (defined as a portion of the absolute stroke) are presented. There is also an extended piston rod (E) taken into consideration.

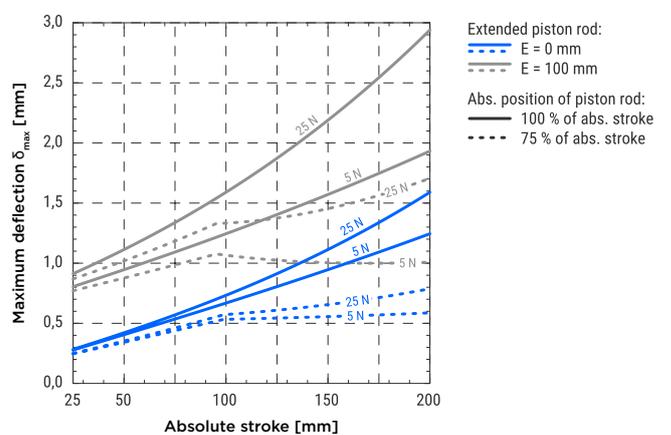
Values on the curves represent lateral load applied to the piston rod end.



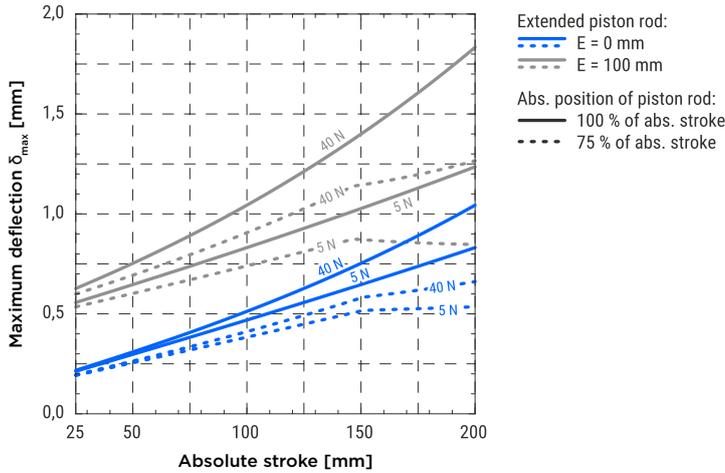
MCE 25



MCE 32



MCE 42

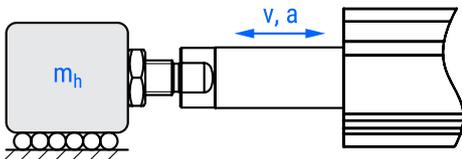


Maximum horizontal payload as a function of the travel speed and acceleration of the piston rod

On the following diagrams, the maximum horizontal payloads applied to the piston rod as a function of the travel speed for different accelerations, different ball screw leads and different combinations of the standard motors are presented. Motor adapter VK and a motor side drive MSD are also considered.

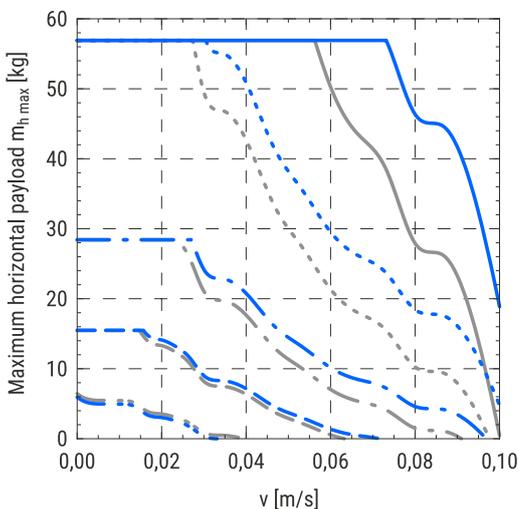
Diagrams are valid when the payload is supported by an external guiding (coefficient of friction 0,1 has been considered).

It should be noted that the diagrams are also valid for the case where a guiding unit GUC is considered.

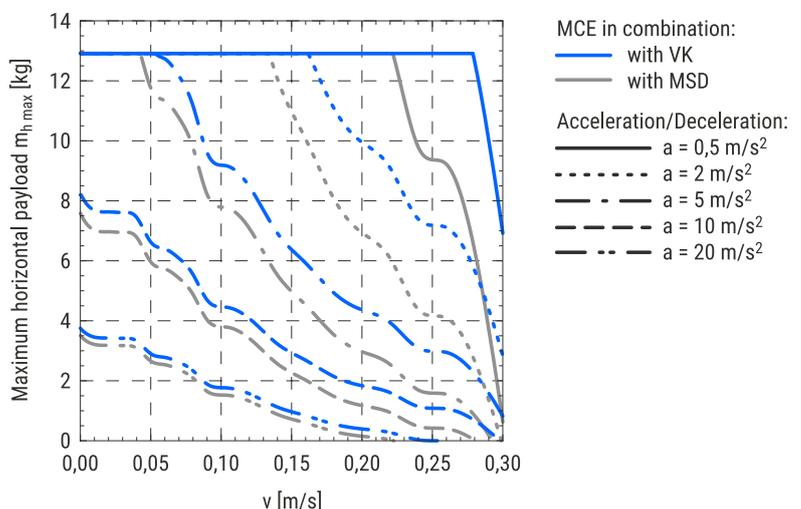


MCE 25

6 × 2 with a stepper motor □28

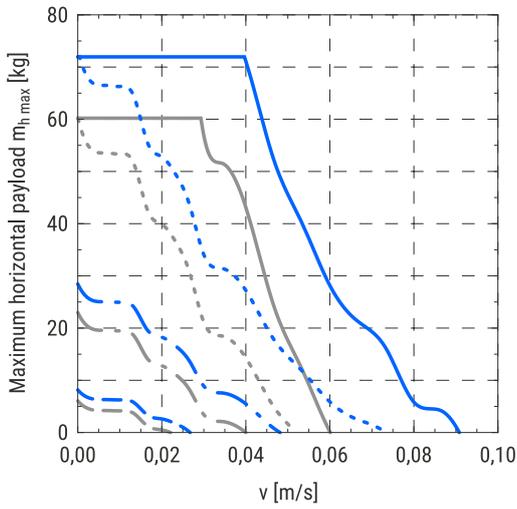


6 × 6 with a stepper motor □28

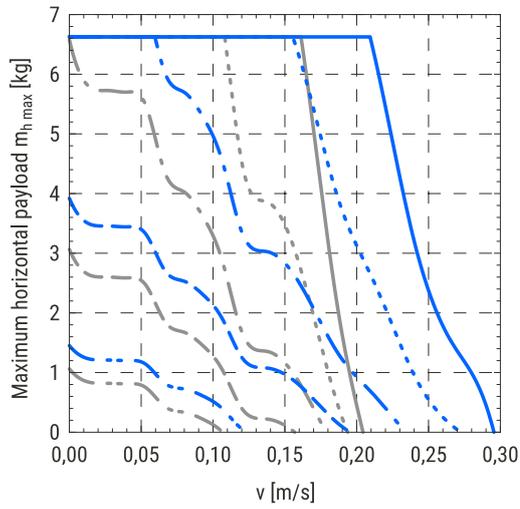


MCE 32

8 × 2 with a stepper motor □28



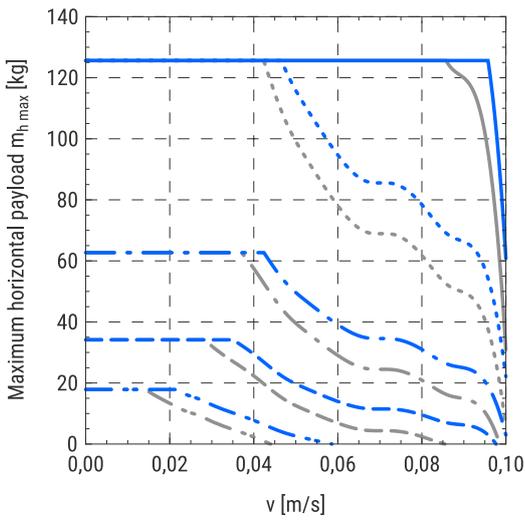
8 × 8 with a stepper motor □28



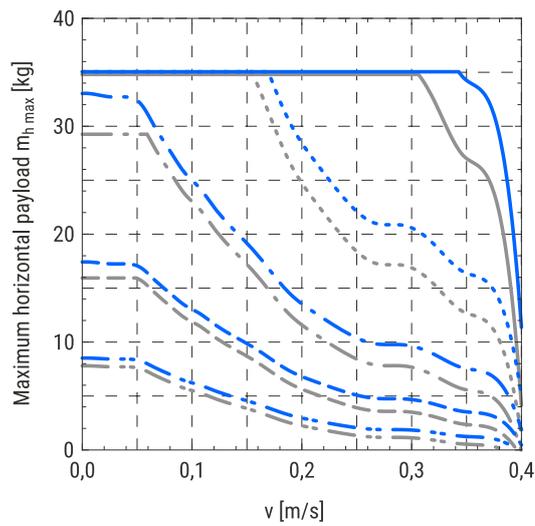
MCE in combination:
 — with VK
 — with MSD

Acceleration/Deceleration:
 — a = 0,5 m/s²
 - - - a = 2 m/s²
 - · - a = 5 m/s²
 - - - a = 10 m/s²
 - · - a = 20 m/s²

8 × 2 with a stepper motor □42



8 × 8 with a stepper motor □42

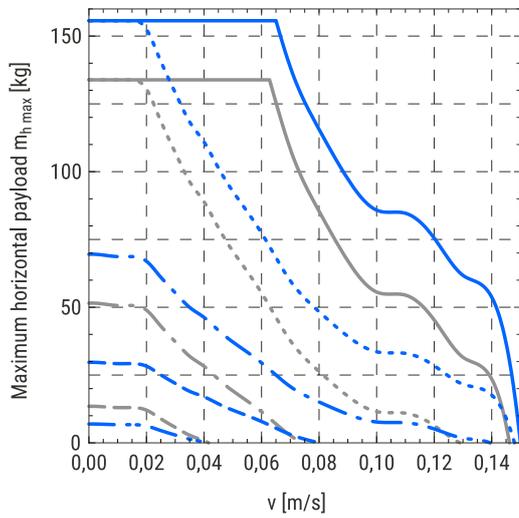


MCE in combination:
 — with VK
 — with MSD

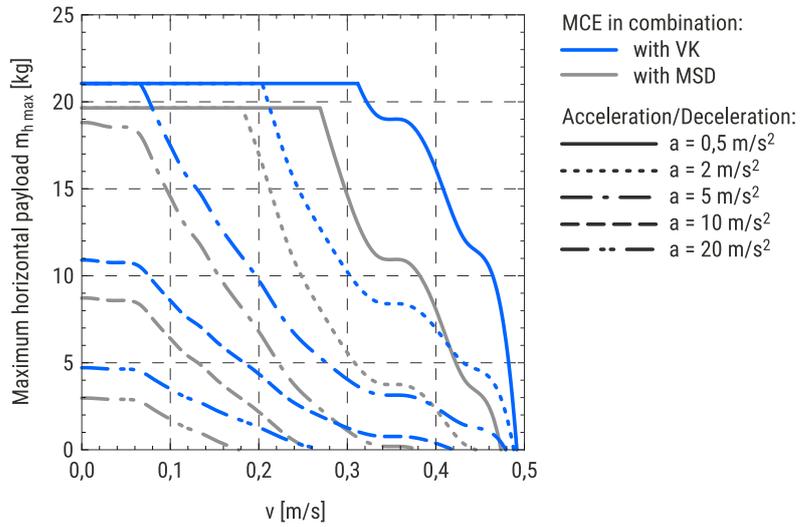
Acceleration/Deceleration:
 — a = 0,5 m/s²
 - - - a = 2 m/s²
 - · - a = 5 m/s²
 - - - a = 10 m/s²
 - · - a = 20 m/s²

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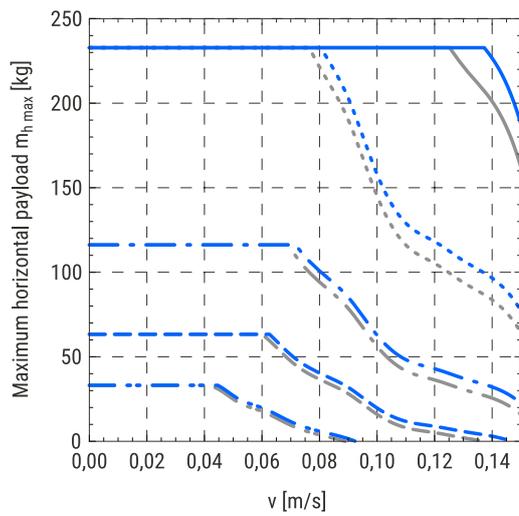
10 × 3 with a stepper motor □42



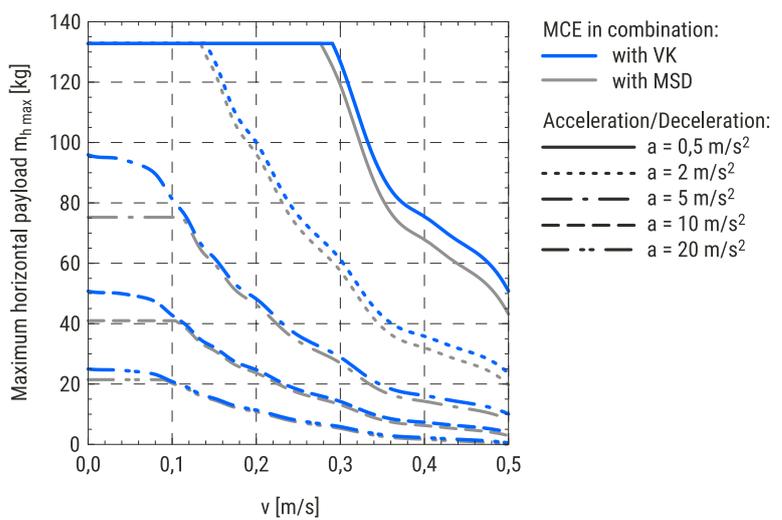
10 × 10 with a stepper motor □42



10 × 3 with a stepper motor □56



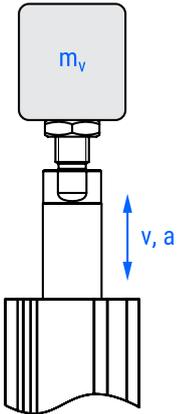
10 × 10 with a stepper motor □56



Maximum vertical payload as a function of the travel speed and acceleration of the piston rod

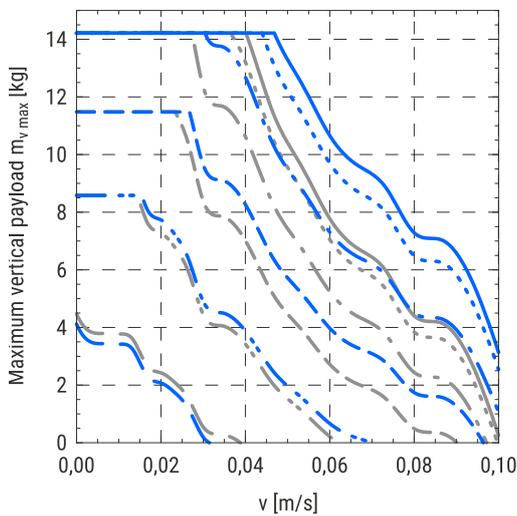
On the following diagrams, the maximum vertical payloads applied to the piston rod as a function of the travel speed for different accelerations, different ball screw leads and different combinations of the standard motors are presented. Motor adapter VK and a motor side drive MSD are also considered.

For the case that guiding unit GUC is taken into consideration, the value obtained from the diagram should be decreased by the moving mass of the guiding unit (please refer to the Guiding unit section).

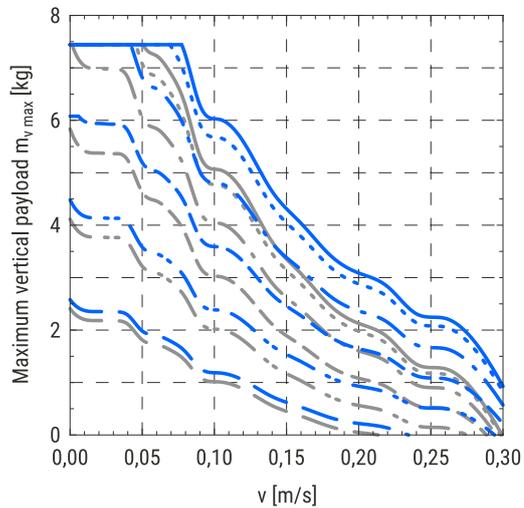


MCE 25

6 × 2 with a stepper motor □28



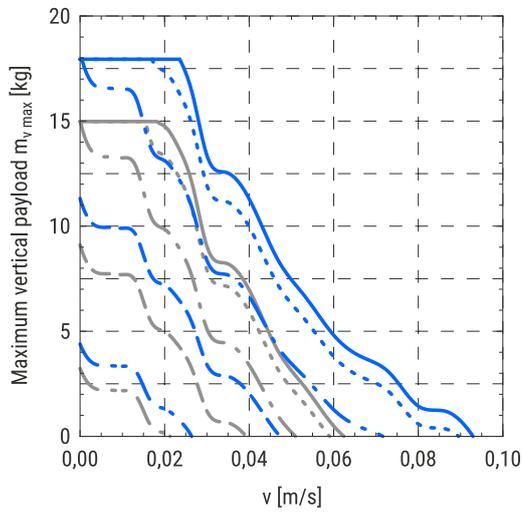
6 × 6 with a stepper motor □28



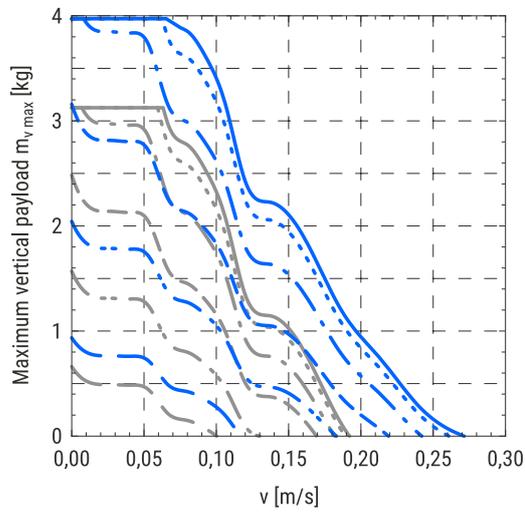
- MCE in combination:
- with VK
 - - - with MSD
- Acceleration/Deceleration:
- $a = 0 \text{ m/s}^2$
 - · - · $a = 0,5 \text{ m/s}^2$
 - - - $a = 2 \text{ m/s}^2$
 - · - · $a = 5 \text{ m/s}^2$
 - · - · $a = 10 \text{ m/s}^2$
 - - - $a = 20 \text{ m/s}^2$

MCE 32

8 × 2 with a stepper motor □28



8 × 8 with a stepper motor □28



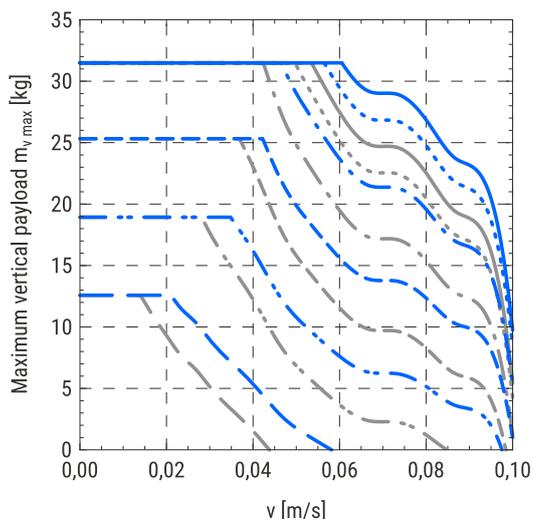
MCE in combination:

— with VK
— with MSD

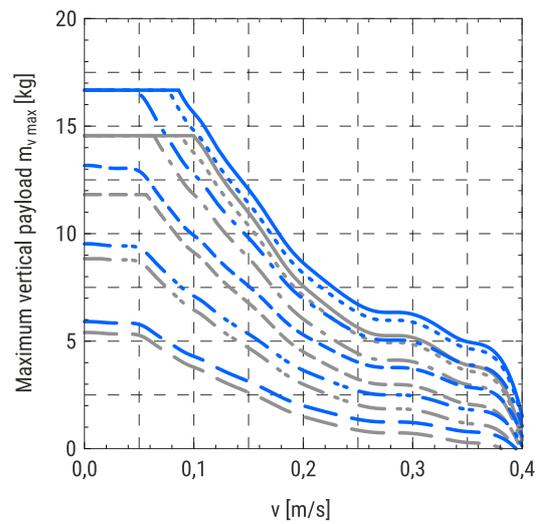
Acceleration/Deceleration:

— $a = 0 \text{ m/s}^2$
 - - - $a = 0,5 \text{ m/s}^2$
 - · - $a = 2 \text{ m/s}^2$
 - - - $a = 5 \text{ m/s}^2$
 - · - $a = 10 \text{ m/s}^2$
 - - - $a = 20 \text{ m/s}^2$

8 × 2 with a stepper motor □42



8 × 8 with a stepper motor □42



MCE in combination:

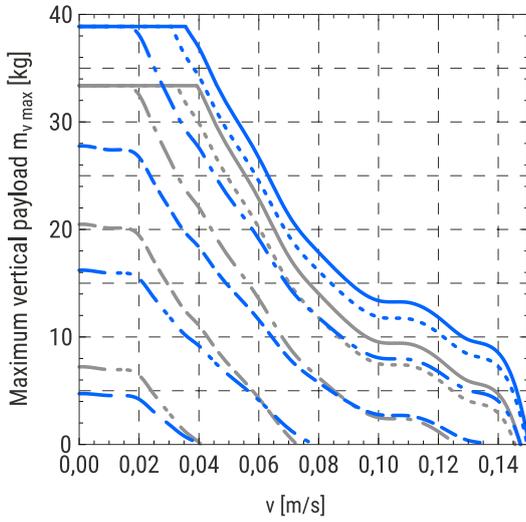
— with VK
— with MSD

Acceleration/Deceleration:

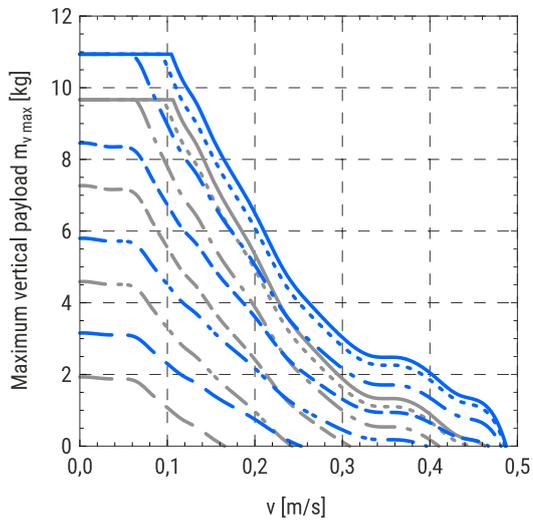
— $a = 0 \text{ m/s}^2$
 - - - $a = 0,5 \text{ m/s}^2$
 - · - $a = 2 \text{ m/s}^2$
 - - - $a = 5 \text{ m/s}^2$
 - · - $a = 10 \text{ m/s}^2$
 - - - $a = 20 \text{ m/s}^2$

MCE 45

10 × 3 with a stepper motor □42



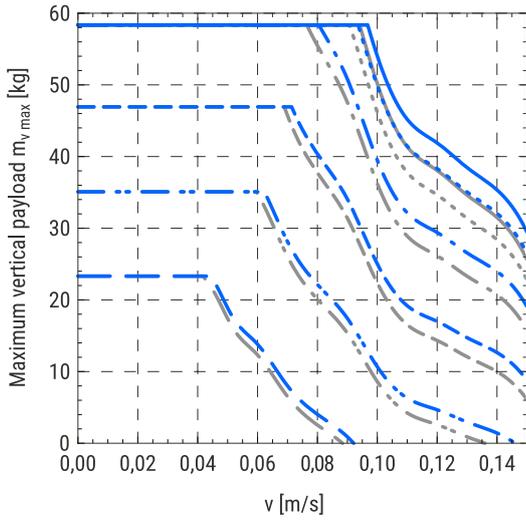
10 × 10 with a stepper motor □42



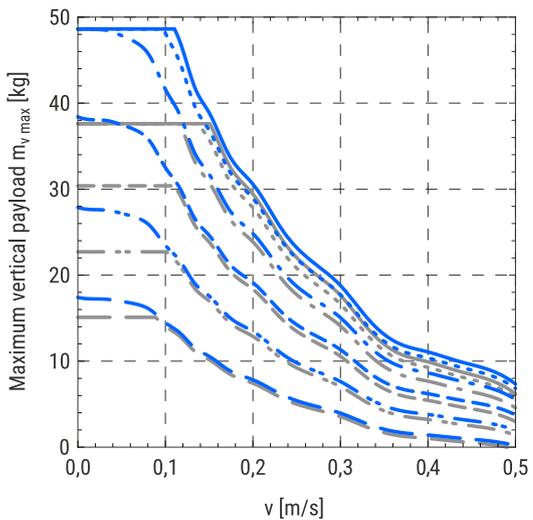
MCE in combination:
 — with VK
 — with MSD

Acceleration/Deceleration:
 — $a = 0 \text{ m/s}^2$
 - - - $a = 0,5 \text{ m/s}^2$
 - · - $a = 2 \text{ m/s}^2$
 - - - $a = 5 \text{ m/s}^2$
 - · - $a = 10 \text{ m/s}^2$
 - - - $a = 20 \text{ m/s}^2$

10 × 3 with a stepper motor □56



10 × 10 with a stepper motor □56



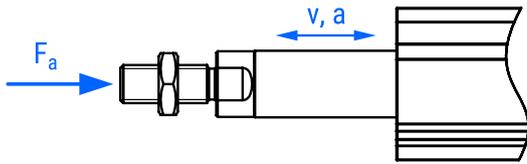
MCE in combination:
 — with VK
 — with MSD

Acceleration/Deceleration:
 — $a = 0 \text{ m/s}^2$
 - - - $a = 0,5 \text{ m/s}^2$
 - · - $a = 2 \text{ m/s}^2$
 - - - $a = 5 \text{ m/s}^2$
 - · - $a = 10 \text{ m/s}^2$
 - - - $a = 20 \text{ m/s}^2$

Maximum axial load as a function of the travel speed and acceleration of the piston rod

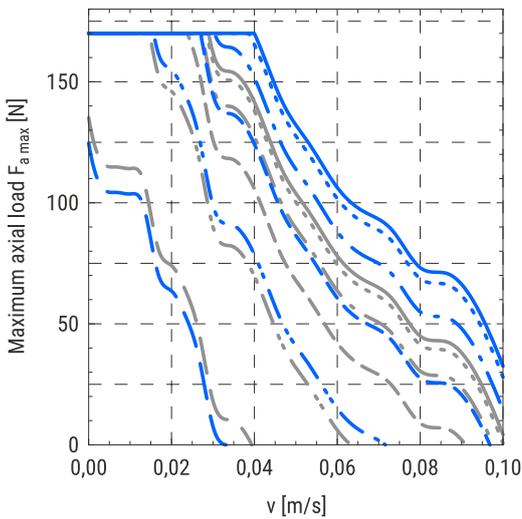
On the following diagrams, the maximum axial load applied to the piston rod as a function of the travel speed for different accelerations, different ball screw leads and different combinations of the standard motors is presented. Motor adapter VK and a motor side drive MSD are also considered.

For the case where a guiding unit GUC is used, the value obtained from the diagram should be decreased by the moving mass of the guiding unit (please refer to the Guiding unit section) multiplied by the acceleration of the piston rod.

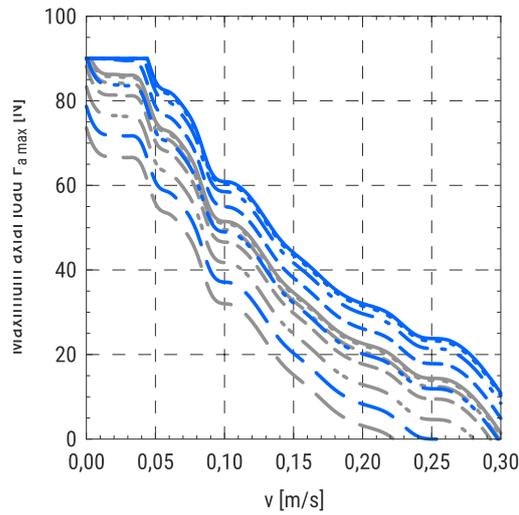


MCE 25

6 × 2 with a stepper motor □28



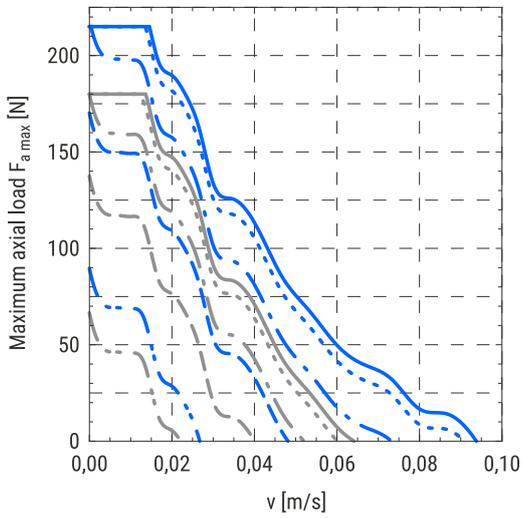
6 × 6 with a stepper motor □28



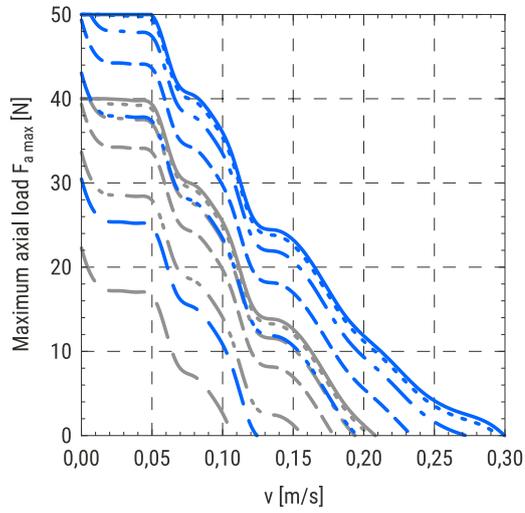
- MCE in combination:
- with VK
 - with MSD
- Acceleration/Deceleration:
- $a = 0 \text{ m/s}^2$
 - - - $a = 0,5 \text{ m/s}^2$
 - · - $a = 2 \text{ m/s}^2$
 - - - $a = 5 \text{ m/s}^2$
 - · - $a = 10 \text{ m/s}^2$
 - - - $a = 20 \text{ m/s}^2$

MCE 32

8 × 2 with a stepper motor □28

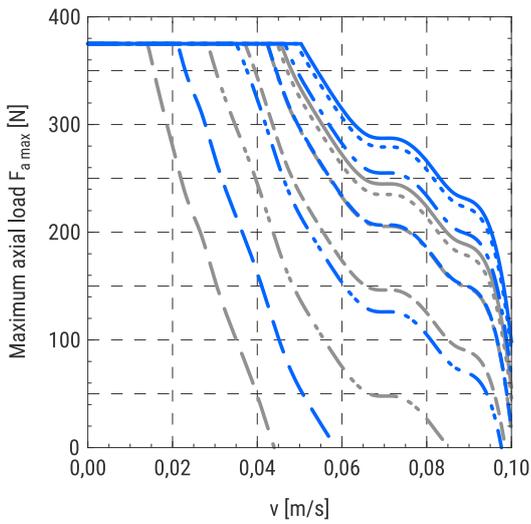


8 × 8 with a stepper motor □28

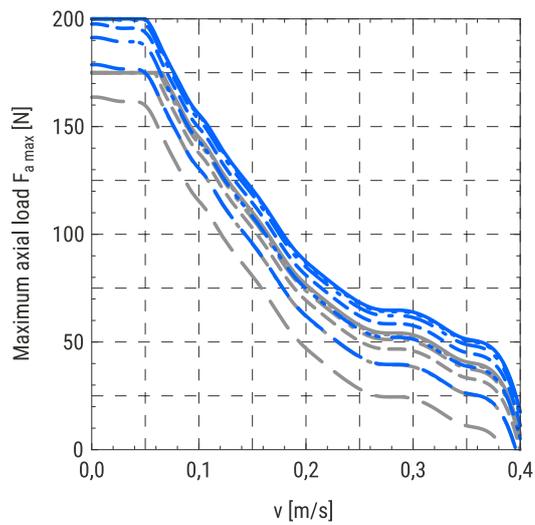


- MCE in combination:
- with VK
 - with MSD
- Acceleration/Deceleration:
- a = 0 m/s²
 - a = 0,5 m/s²
 - · - a = 2 m/s²
 - - - a = 5 m/s²
 - · · a = 10 m/s²
 - - - a = 20 m/s²

8 × 2 with a stepper motor □42



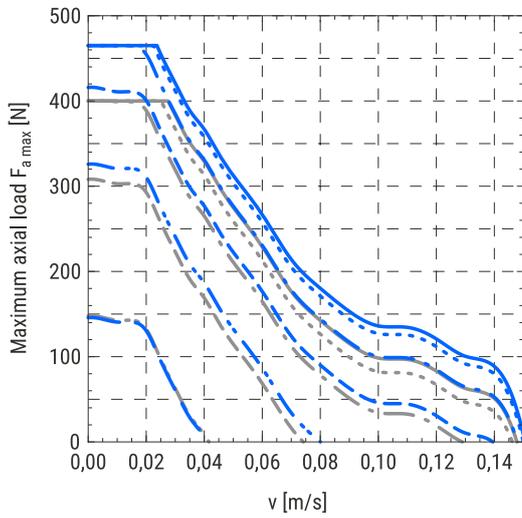
8 × 8 with a stepper motor □42



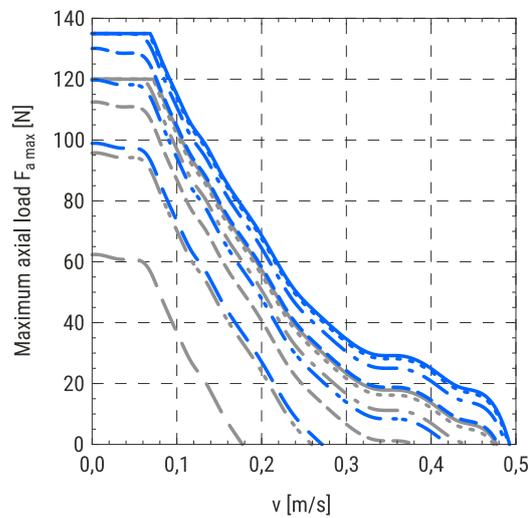
- MCE in combination:
- with VK
 - with MSD
- Acceleration/Deceleration:
- a = 0 m/s²
 - a = 0,5 m/s²
 - · - a = 2 m/s²
 - - - a = 5 m/s²
 - · · a = 10 m/s²
 - - - a = 20 m/s²

MCE 45

10 × 3 with a stepper motor □42

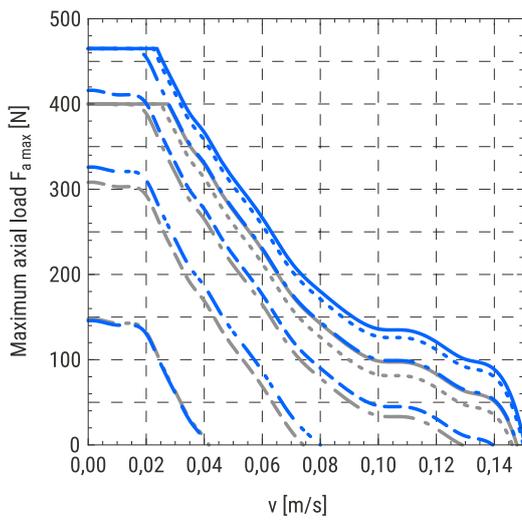


10 × 10 with a stepper motor □42

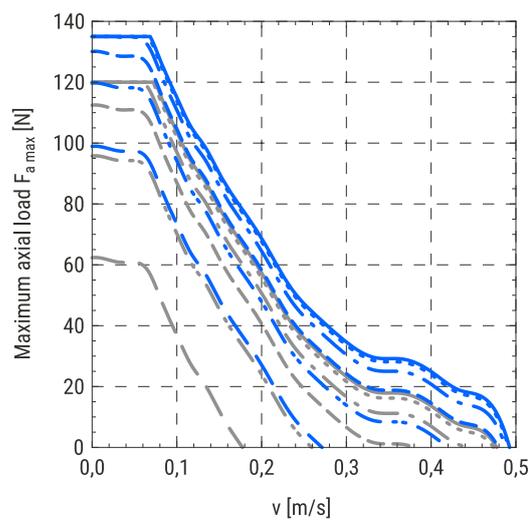


- MCE in combination:
- with VK
 - with MSD
- Acceleration/Deceleration:
- a = 0 m/s²
 - a = 0,5 m/s²
 - · - a = 2 m/s²
 - - - a = 5 m/s²
 - · · a = 10 m/s²
 - - - a = 20 m/s²

10 × 3 with a stepper motor □56



10 × 10 with a stepper motor □56



- MCE in combination:
- with VK
 - with MSD
- Acceleration/Deceleration:
- a = 0 m/s²
 - a = 0,5 m/s²
 - · - a = 2 m/s²
 - - - a = 5 m/s²
 - · · a = 10 m/s²
 - - - a = 20 m/s²

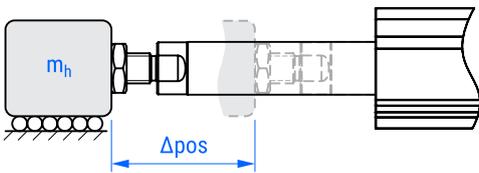
Maximum horizontal payload as a function of change of the position and positioning time of the piston rod

The following diagrams show the maximum payload that can be moved by a certain horizontal distance within a positioning time frame. Acceleration/deceleration time of 100 ms is taken into account.

Diagrams depend on the ball screw leads and different combinations of the standard motors. Motor adapter VK and a motor side drive MSD are also considered.

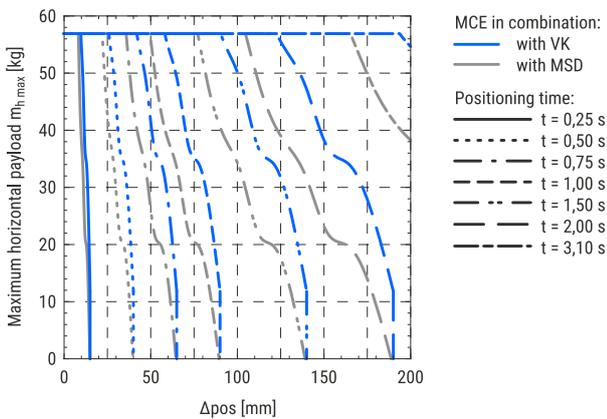
Diagrams are valid when the payload is supported by an external guiding (coefficient of friction 0,1 has been considered).

It should be noted that the diagrams are also valid for the case where a guiding unit GUC is considered.

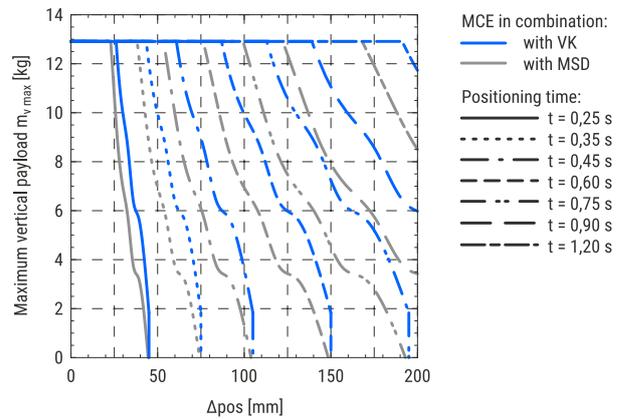


MCE 25

6 × 2 with a stepper motor □28

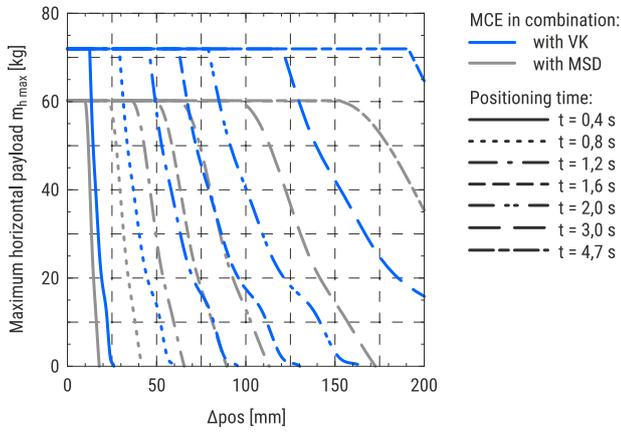


6 × 6 with a stepper motor □28

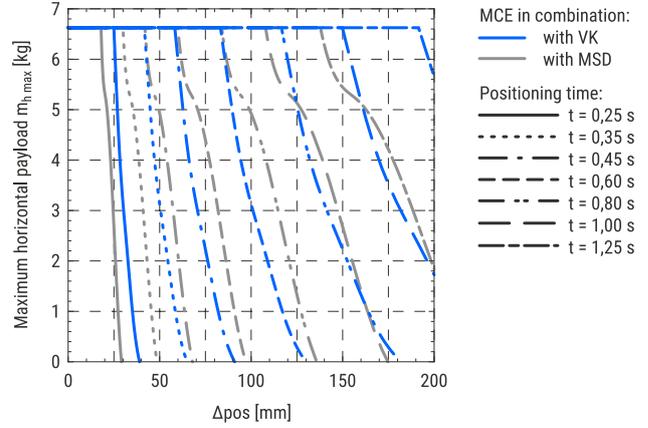


MCE 32

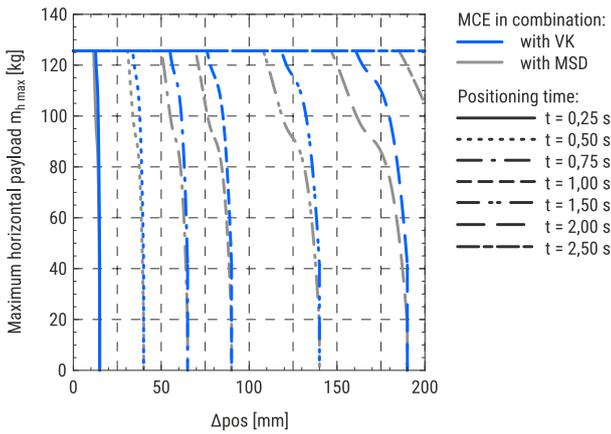
8 × 2 with a stepper motor □28



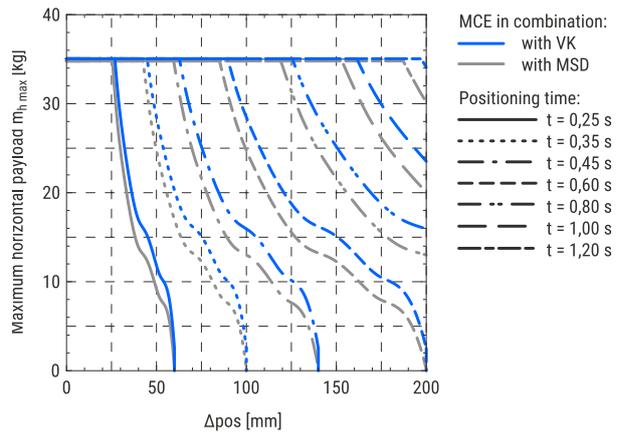
8 × 8 with a stepper motor □28



8 × 2 with a stepper motor □42

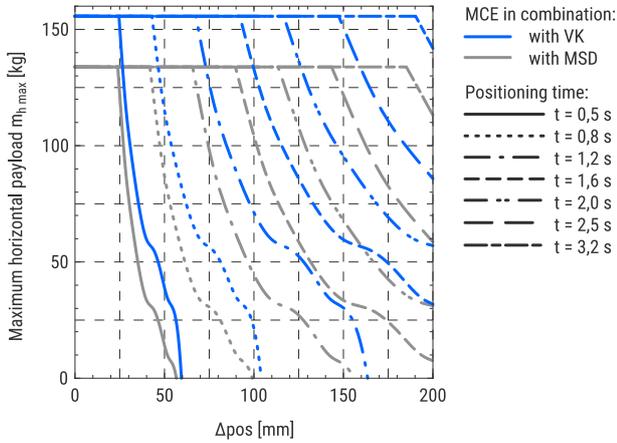


8 × 8 with a stepper motor □42

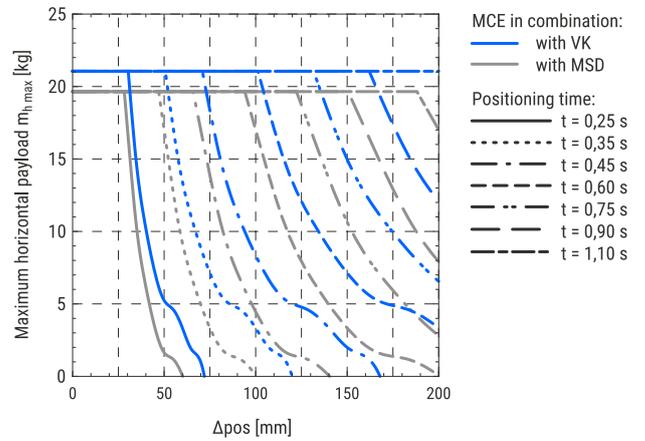


MCE 45

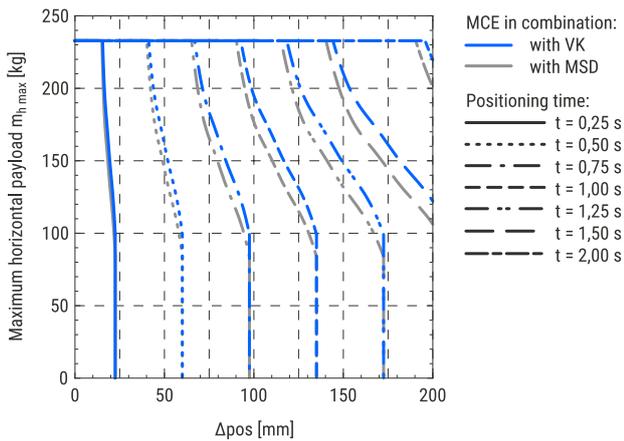
10 × 3 with a stepper motor □42



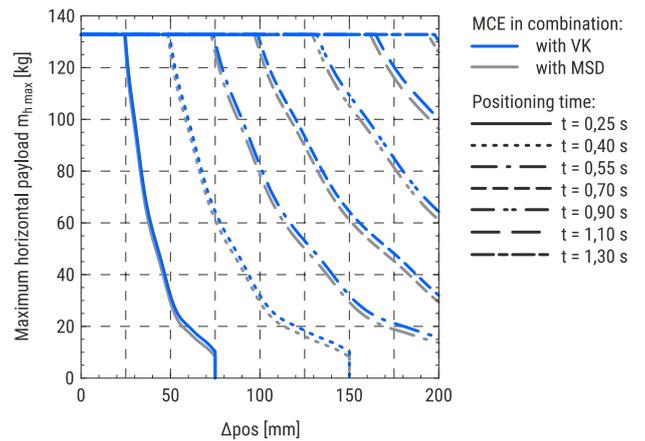
10 × 10 with a stepper motor □42



10 × 3 with a stepper motor □56



10 × 10 with a stepper motor □56

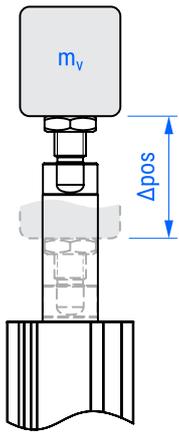


Maximum vertical payload as a function of change of the position and positioning time of the piston rod

The following diagrams show the maximum payload that can be moved by a certain vertical distance within a positioning time frame. Acceleration/deceleration time of 100 ms is taken into account.

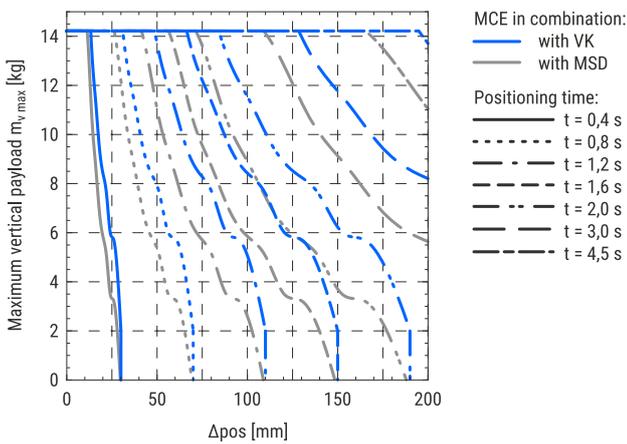
Diagrams depend on the ball screw leads and different combinations of the standard motors. Motor adapter VK and a motor side drive MSD are also considered.

For the case where a guiding unit GUC is used, the value obtained from the diagram should be decreased by the moving mass of the guiding unit (please refer to the Guiding unit section).

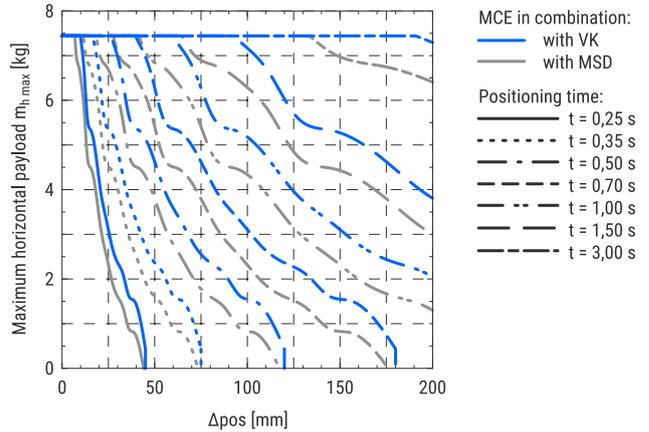


MCE 25

6 × 2 with a stepper motor □28

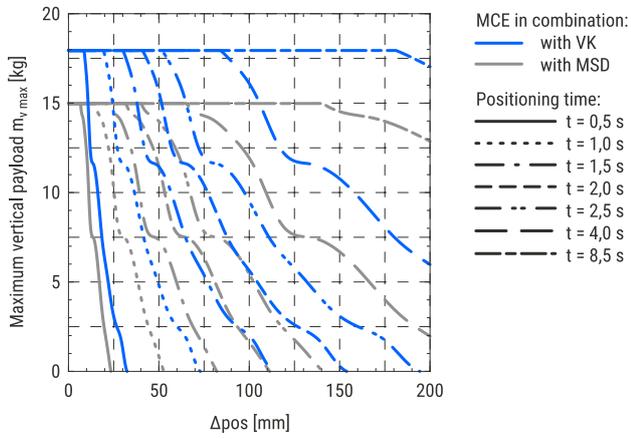


6 × 6 with a stepper motor □28

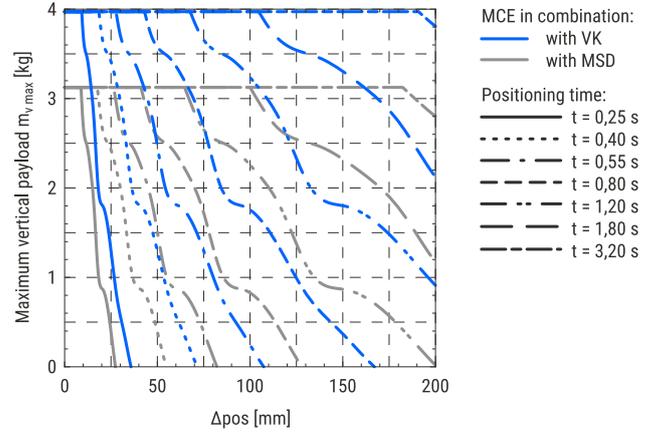


MCE 32

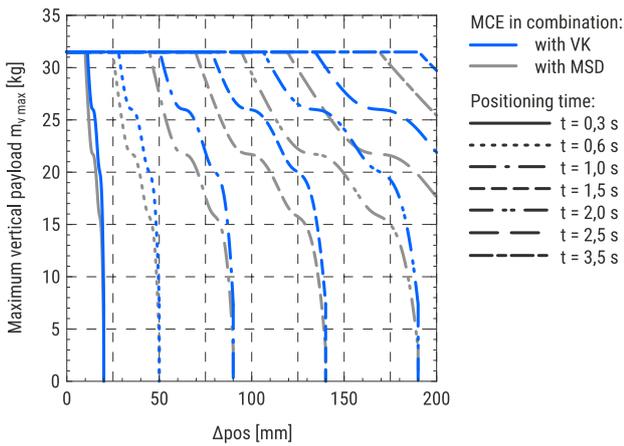
8 × 2 with a stepper motor □28



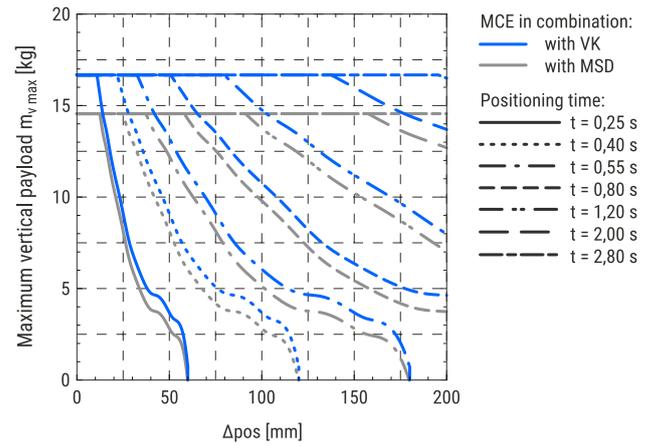
8 × 8 with a stepper motor □28



8 × 2 with a stepper motor □42

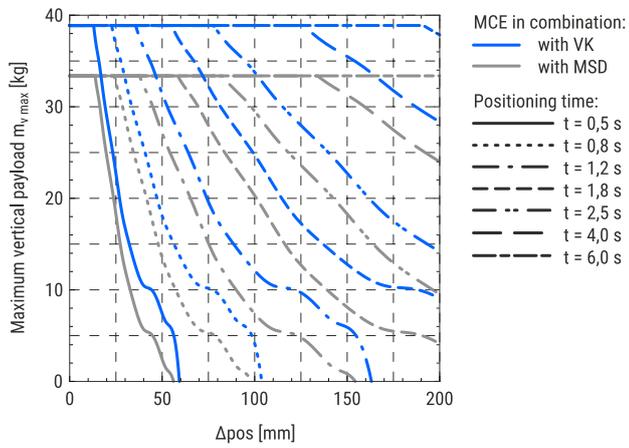


8 × 8 with a stepper motor □42

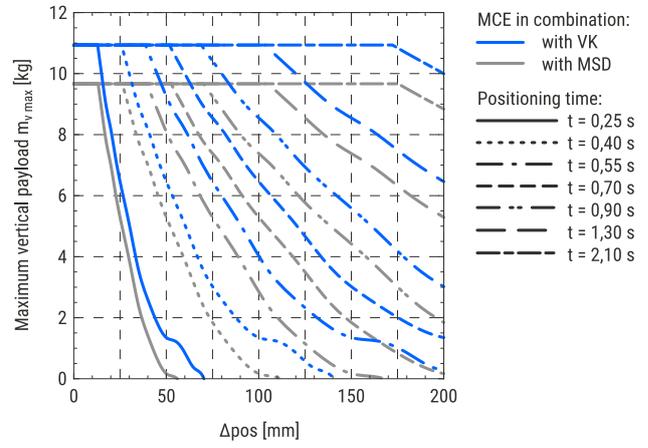


MCE 45

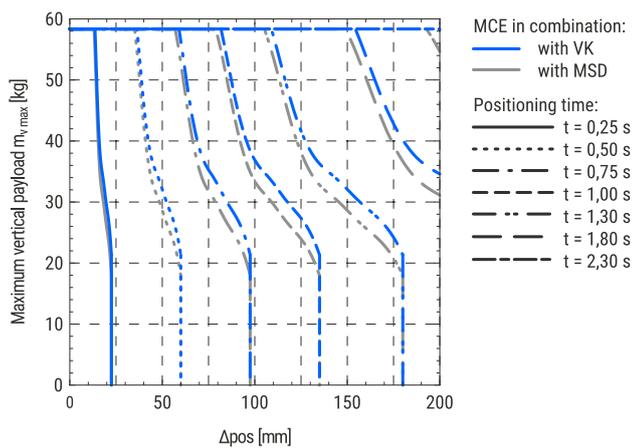
10 × 3 with a stepper motor □42



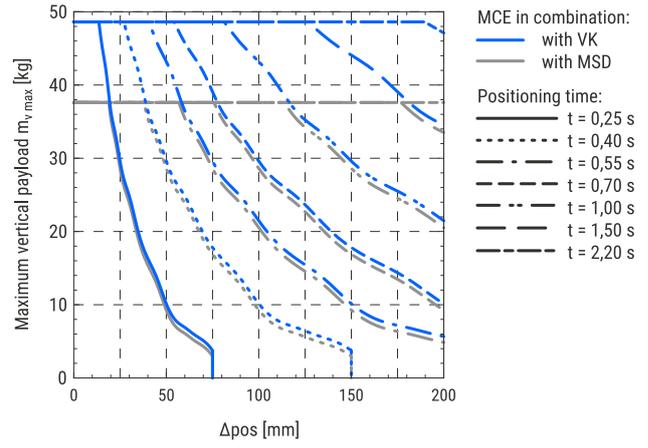
10 × 10 with a stepper motor □42



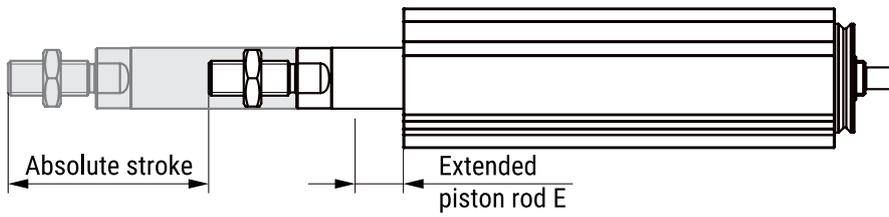
10 × 3 with a stepper motor □56



10 × 10 with a stepper motor □56



Absolute stroke and length of the MCE definition



Absolute stroke definition

Absolute stroke = Effective stroke + 2 × Safety stroke

The electric cylinder MCE does not include any safety stroke.

Length definition

$L_t = L + L_2 + E + \text{Abs. position}$

Female thread:

$L_t = L + L_4 + E + \text{Abs. position}$

Abs. stroke	Absolute stroke [mm]
Abs. position	Absolute position [mm]
E	Extended piston rod [mm]
L	Length [mm]
L_t	Total length [mm]

$E_{\text{max}} = 100 \text{ mm.}$