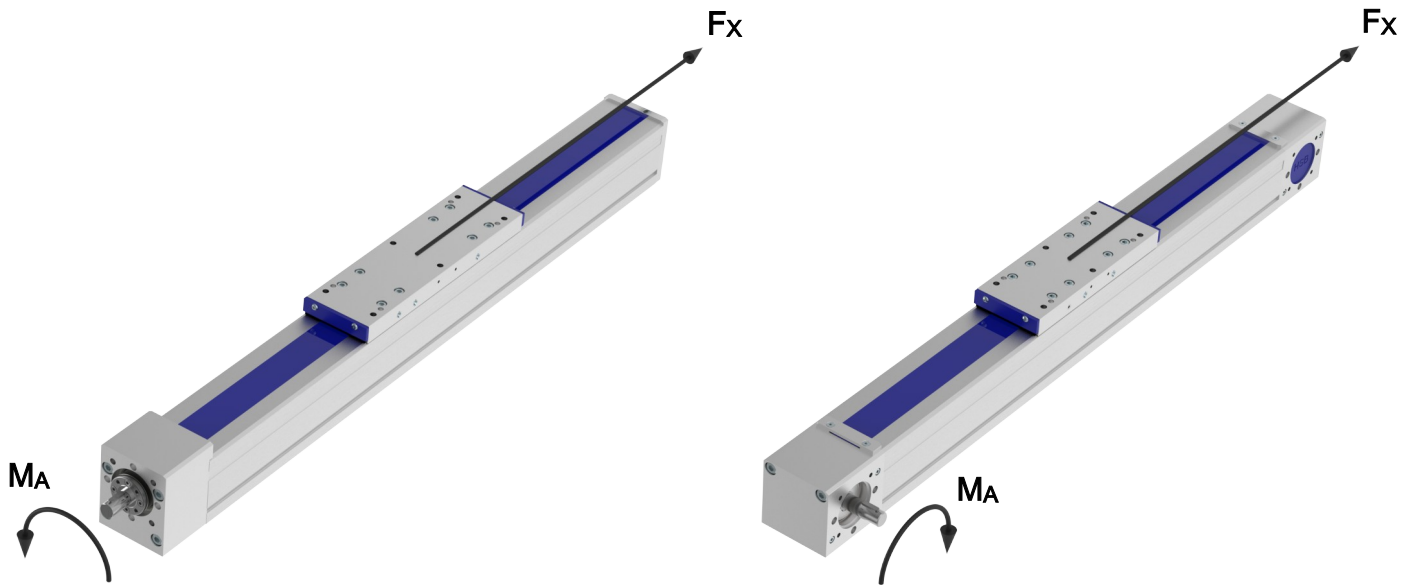


# Drive Dimensions for Mechanical Linear Drives

with screw drive or toothed belt drive



Required drive torque\*  $M_A$  [Nm]:

$$M_A = M_{load} + M_{idle}$$

Definitions:

- $M_A$  : Required drive torque [Nm]
- $M_{load}$  : Load torque [Nm]
- $M_{idle}$  : See data sheets [Nm]
- $F_x$  : Feed force in horizontal application [N]  
Feed force in vertical application [N]

$$M_{load} = \frac{F_x \cdot p}{2 \cdot \pi \cdot 1000}$$

$$F_x = m \cdot g \cdot \mu + m \cdot a$$

$$F_x = m \cdot (g + a)$$

- $\mu$  : Friction coefficient for linear guide  $\mu = 0.006$   
Friction coefficient for roller guide  $\mu = 0.002$   
Friction coefficient for sliding guide  $\mu = 0.1$
- $g$  : Gravitational acceleration [ $m/s^2$ ]  $g = 9.81 m/s^2$
- $a$  : Acceleration [ $m/s^2$ ]
- $m$  : Transport weight [kg]
- $p$  : Spindle pitch [mm] (screw drive) or stroke per revolution [mm] (toothed belt drive)

\* (rough estimate)