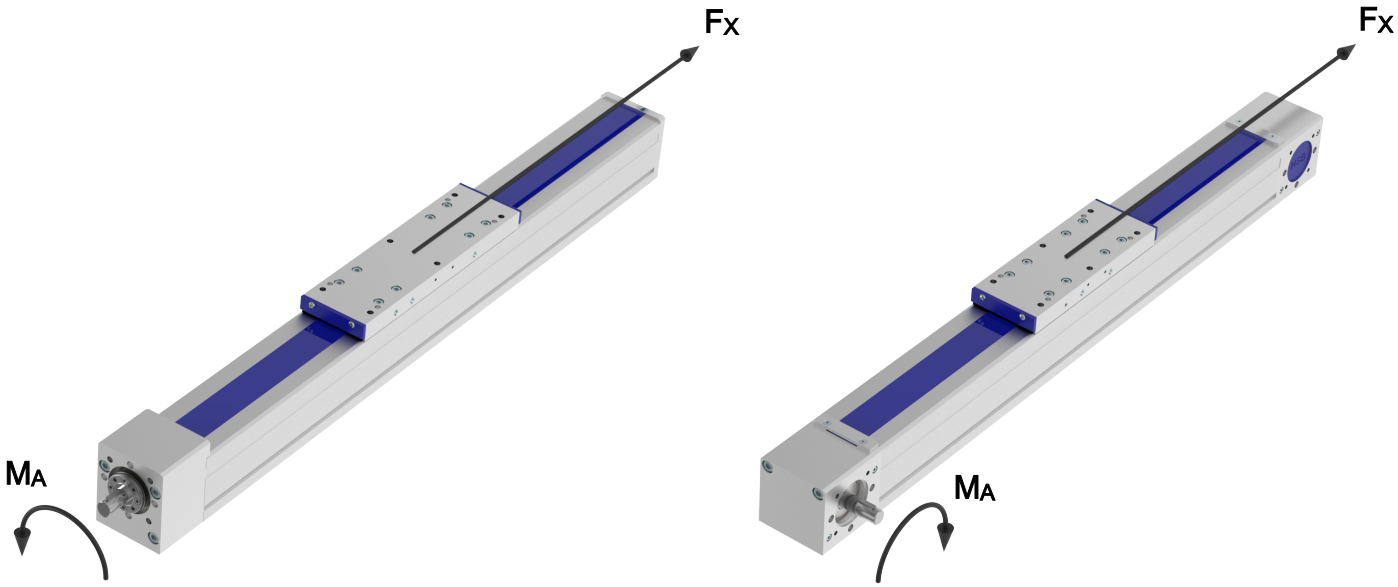
Drive Dimensions for Mechanical Linear Drives

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]

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

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

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

μ	:	Friction coefficient for linear guide	μ = 0.05
		Friction coefficient for roller guide	μ = 0.02
		Friction coefficient for sliding guide	μ = 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)

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