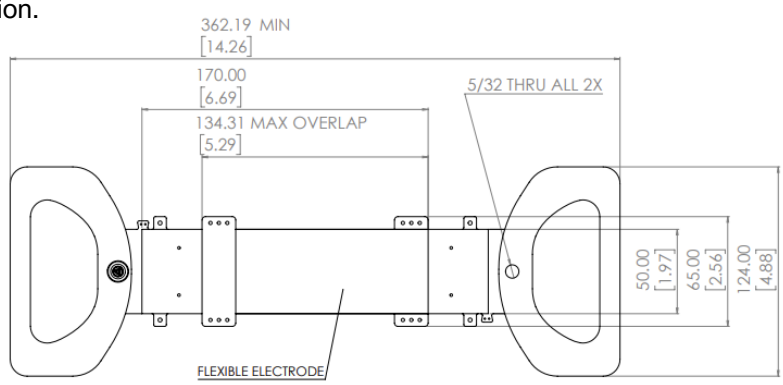
ESTAT
ACTUATION

Compact motion starts—and stops—with us

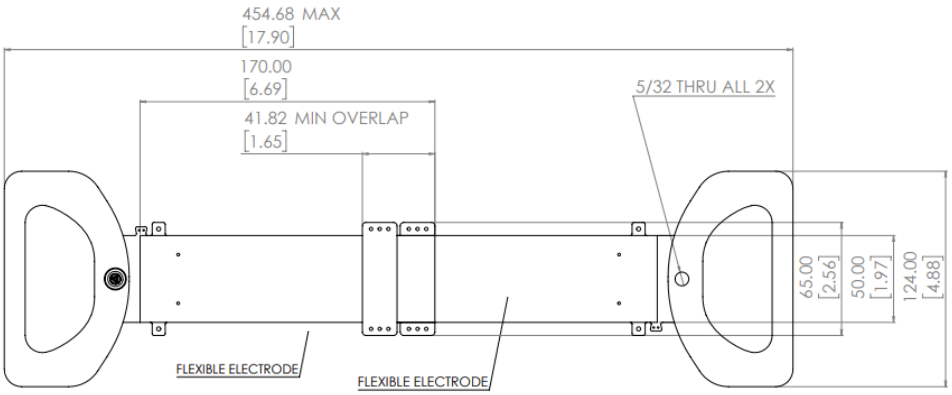
Tensile Linear Clutch Evaluation Unit

The Evaluation Unit includes a flexible linear clutch with handles for instant assessment after unboxing. The **Tensile Linear Clutch** boasts a thickness of only 1.05 mm, making it ideal for wearable robotics applications, walking robots, and general motion control in systems requiring light-weight, power-efficient actuation. The tensile linear clutch is designed to support load unidirectionally and will safely collapse under compressive loading. For custom orders, travel length and dimensions are configurable for each application.

Retracted



Extended



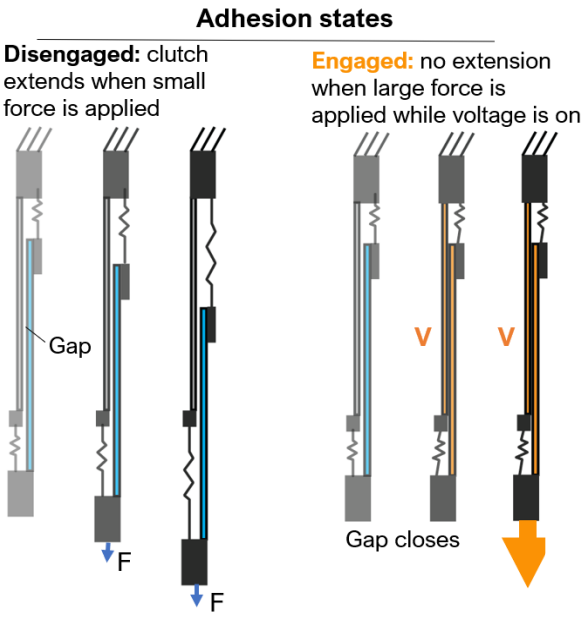
Technical Specifications	Tensile Evaluation Unit
Reliable Holding force — N (lb)	100 (22.5)
Maximum Travel—cm (in)	8.75 (3.44)
Weight: clutch only — g (lb)	28 (0.06)
Weight: with handles — g (lb)	71 (0.16)
Power consumption with 1 Hz cycling — W @ 400 V	< 0.003
Activated maintenance power — **mW** @ 400V	< 0.08
Operating voltage range — V	250—400
Response Time* – msec	< 25
Maximum Hard Stop Load—N (lb)	350 (78.68)
Max tensioner force—N (lb)	16.0 (3.6)

**Response time encompasses both engage and release times. Release time is measured at 400V operating voltage and released under load.*

Device overview:

The **Tensile Linear clutch** allows evaluation within seconds of unboxing. The handles provide simple grips for a tactile experience. Just click “engage” on the battery powered voltage driver (sold separately) to operate.

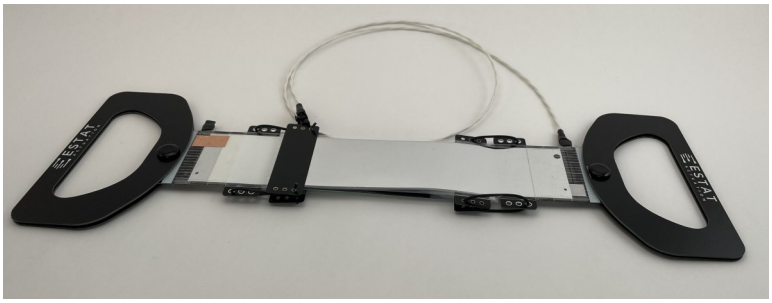
The linear evaluation clutch is extremely compact with an overall thickness of 1.05 mm. ESTAT clutches are composed of structural frames and flexible electrostatic webs. These webs are designed to be flexible and strong to support tensile loads. Multiple clutches can be stacked to increase force capacity.



Adjusting max load:

Maximum force can be adjusted by modulating applied voltage (right). This behavior can be used as a mechanical fuse to provide protection for delicate components or for other force-limiting use cases. If applied force exceeds the maximum holding force, the clutch will slip. This slip is accompanied by a drop in force as the clutch transitions from static to kinetic friction. Try the low, medium and high voltage settings on the included voltage driver to experience this feature.

Operate the evaluation unit in a dry environment, free of metal filings or other debris. Contact info@estat.tech for more information on environmental sealing options.

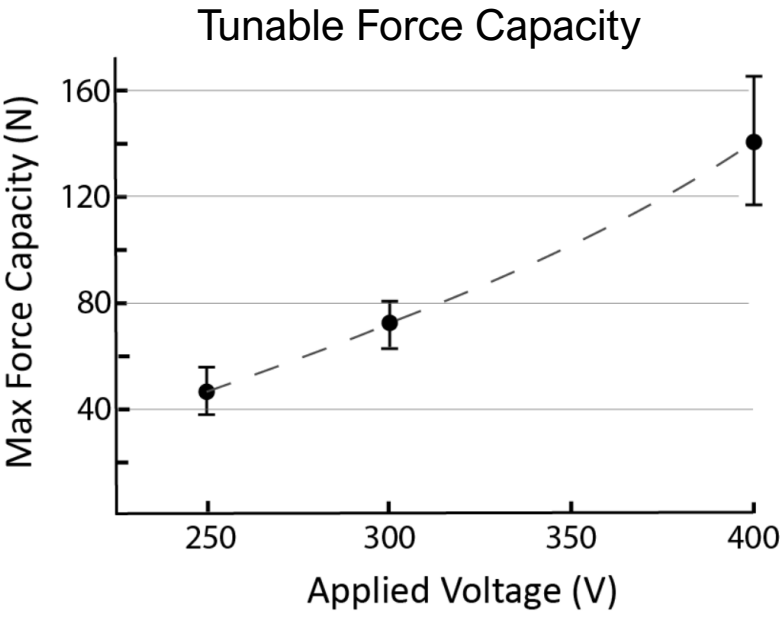


Device operation:

ESTAT clutches are load-bearing capacitors. Applying voltage across the clutch webs causes accumulation of positive charges and negative charges on each side of the clutch. This results in adhesion between the clutch webs which prevents further extension of the clutch. When disengaged, the clutch is free to slide with only minimal resistance from tensioners.

As capacitors, ESTAT clutches require minimal maintenance current to remain engaged (< 10 µA). The clutch disengages when the voltage potential is removed.

Note: The Linear Evaluation Unit is designed to support tensile loads only. For more information on linear models that also support compressive loads, contact info@estat.tech.



*Markers denote low, medium and high battery-powered voltage driver settings. Intermediate voltages result in intermediate forces.

Email **info@estat.tech** for availability, questions, or to place an order.

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