UNIKA

HDRM PRELOAD DEVICE



Get faster in the new space race.



The UNIKA tensioning device is designed for applications requiring up to 50 kN of axial preload. Typical use is for preload of **Hold Down and Release Mechanisms** on spacecraft solar array or other deployables. Preload is achieved electronically by controlled heating of the Shape Memory Alloy.

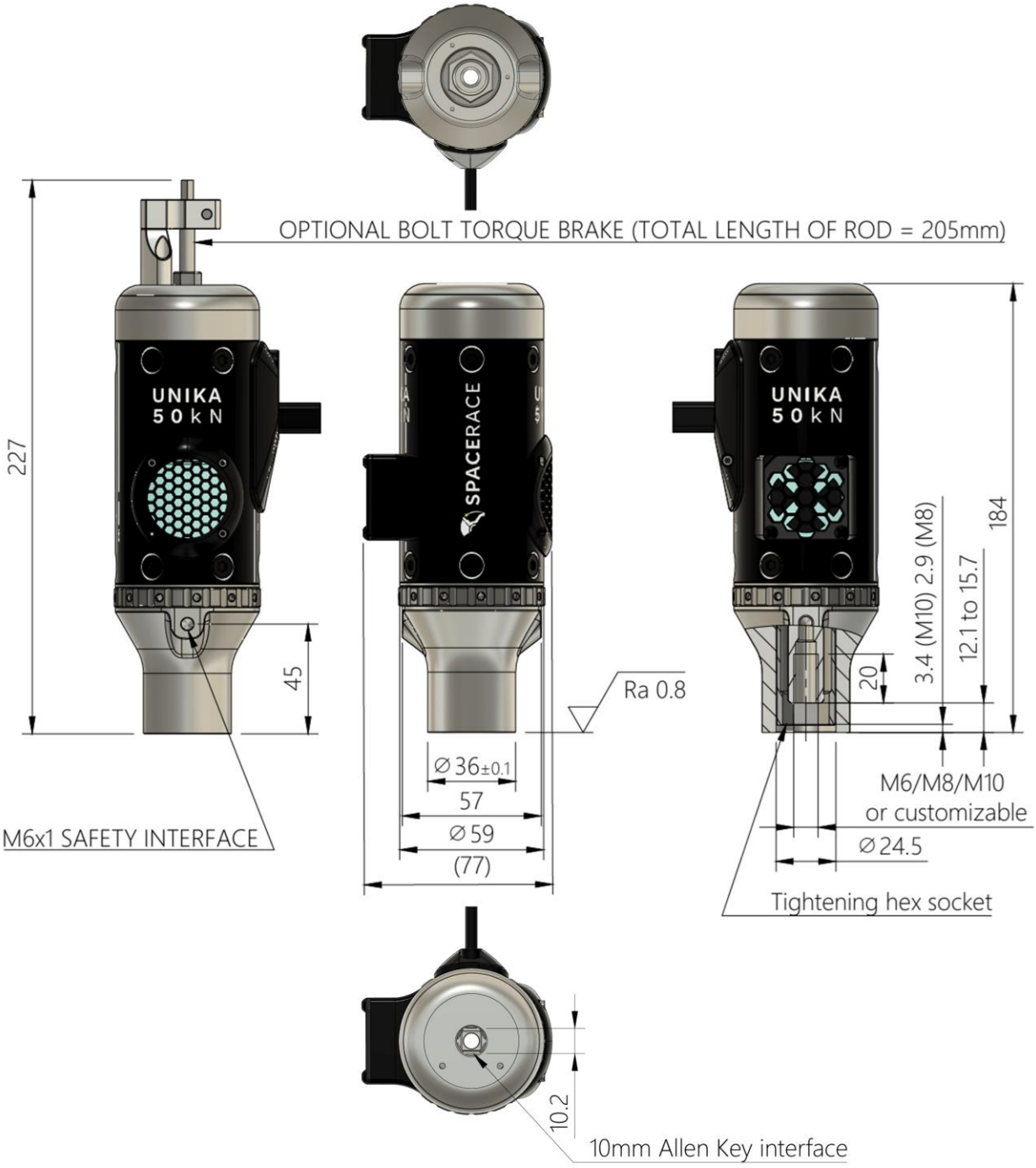
The device is corrosion resistive, clean, without use of any fluid. It can be safely operated in **clean room environment**. The device is light and **mobile** and designed to be operated in **small and difficult to access locations.** Final tightening of the nut is achieved through the device itself (**no side access to the nut is required)** with easy control over the tightening force. The development was presented at ESMATS 2025.

Except cleanrooms, UNIKA can be operated hand held out-door in severe environmental conditions of other industries.

UNIKA features	
Mechanical interface	User customized mating head
Release bolt thread	User customized up to M10
Generated preload	Up to 50 kN @ max 3 mm travel
Mass	2 kg (without harness and power source)
Preload control	Handheld display (regulation by build-in load cell)
Reset	By supplied docking station after 10 preloads TBC*
Life of the SMA element	> 100 guaranteed preloads
Preload time	5 minutes preload + 10 minutes cooldown*
Preload accuracy	Better than 0.25% of target load
Power at max. preload	Max 150 W peak
Power supply	120 Wh battery in rugged mobile enclosure (2 kg)
Safety features	Enclosed body, energy dissipation foam, safety I/F, automatic prevention of overload and overheat

*use case dependent

UNIKA 50kN DEFAULT INTERFACES



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