

## micro DCUBED Release-Nut (uD3RN)

### Specifications



	Premium	Custom
Body Size (L x W x H)	25.5 x 25.5 x 25.5 mm (screw excluded)	Custom x 25.5 mm height (min.)
Mass	~78 g	Variable
Material	1.4404 / 316L	1.4404 / 316L
Operating temperature range	-35 °C to 80 °C	-35°C to 80°C
Release nut dimensions	Ø10 mm x 11 mm length	Ø7 mm x 11 mm length
Maximum axial load (Release direction)	1000 N <sup>1</sup> (TBC)	1000 N <sup>1</sup> (TBC)
Internal load (applied axially to the back of the nut)	20 N (TBC)	20 N (TBC)
Rapid resettability	Yes, re-insertable nut	Yes, re-insertable nut
Redundancy	Yes, secondary actuation line	Yes, secondary actuation line

<sup>1</sup> Achieved with the internal application of a space certified solid lubricant (Molykote 106). Take care when placing optics in proximity to the mechanism.

## Interfaces

### Mechanical Interfaces

The standard mounting configuration for the uD3RN is comprised of two M2 tapped holes (please consult the drawing below).

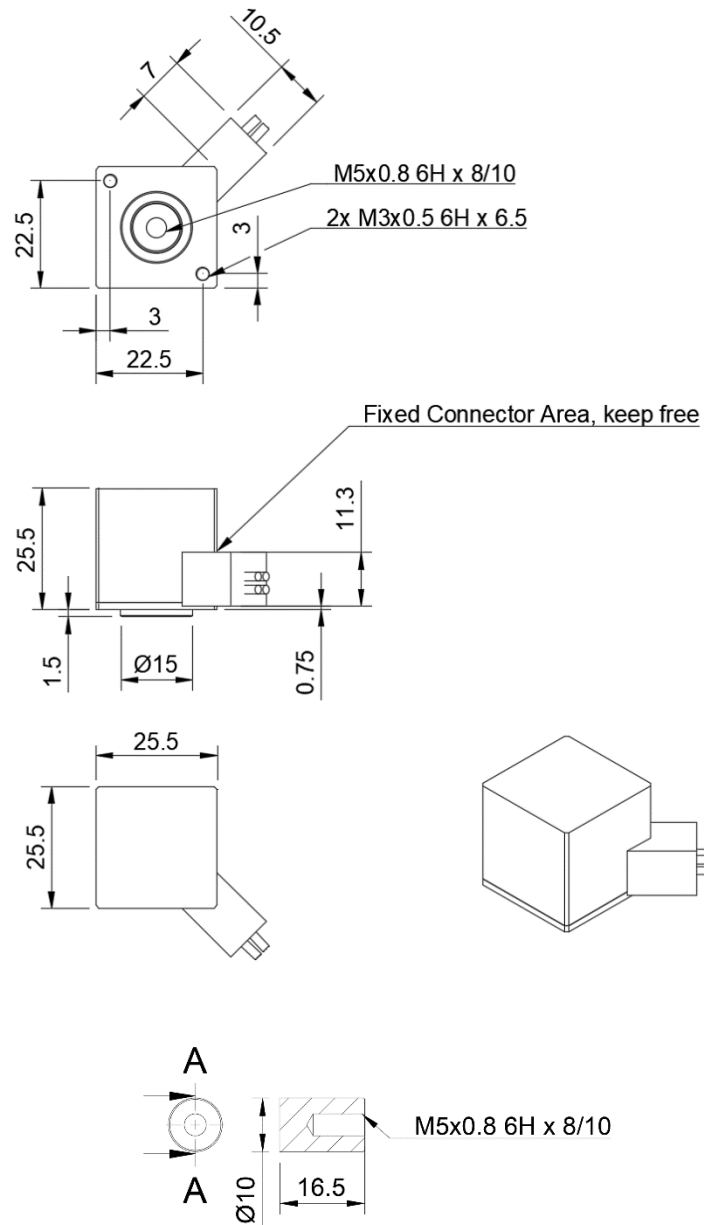


Figure 1 - Dimensions and standard mechanical Interfaces

Interface	Screw type	Max. thread engagement depth
Mounting	M3	6.5 mm
Release Nut	M5x0.8	8 mm

## Electrical Interfaces



Figure 2 - Redundant actuation lines on the uD3RN

To actuate the release nut, a current must be applied across one of its actuation lines. The actuation lines are colour-coded as red and yellow wires (red-red, yellow-yellow). The actuation line behaves like a simple resistor (see the table below), with no specific polarity.

Activation Leads	2 x 2 (2 primary, 2 secondary/redundant)
Wire length	200 mm – 250 mm
Material	Silver-plated copper, PTFE
Wire gauge	24 AWG
Required current	1.6 to 2 A (DC)
Resistance ( $\Omega$ )	$1.2 \pm 0.2 \Omega$

## Loads

The nD3RN is designed to withstand the following external loads.

Load type	Load	Note
Random vibration (x,y,z)	24.3 GRMS $\pm$ 3dB (PSD)	1 <sup>st</sup> Eigenfrequency: >3kHz
Sinusoidal vibration (x,y,z)	20-130 Hz, 20g	
Shock (x,y,z)	100 Hz: 100 g 1000 Hz-10000 Hz: 1000 g (SRS, +3 dB)	
Maximum axial load on the nut	1000 N	

If you have any questions concerning the uD3RN actuator, please feel free to contact us via our official company website (<https://dcubed.space/contact-us/>) or by phone (+49 (0)89 95874160).