

## nano DCUBED Pin-Puller (nD3PP)



### Specifications

	Basic	Premium	Custom
Body Size (L x W x H)	17 x 17 x 17 mm (Standard Interface)	17 x 17 x 17 mm (Standard Interface)	Custom x 17 mm height (min.)
Mass	~25 g	~25 g	Variable
Material	1.4404 / 316L	1.4404 / 316L	1.4404 / 316L
Operating temperature range	-35°C to 80°C	-35°C to 80°C	-35°C to 80°C
Pin dimensions	Ø4 mm x 6.5 mm protrusion	Ø4 mm x 6.5 mm protrusion	Modifiable
Stroke	6.5 mm	6.5 mm	Modifiable
Bushing dimensions	Ø6 mm x 3 mm depth	Ø6 mm x 3 mm depth	Modifiable
Maximum actuation side-load	50 N <sup>1</sup>	50 N <sup>1</sup>	50 N <sup>1</sup>
Rapid resettability	Yes, using Ø2.5 mm hole in the back	Yes, using Ø2.5 mm hole in the back	Yes, using Ø2.5 mm hole in the back
Redundancy	Yes, the secondary actuation line	Yes, the secondary actuation line	Yes, the secondary actuation line
Internal actuation sensor	No	Yes (Leads: AWG 28)	If Requested
Shock Pad	No	Yes	If Requested

<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 nD3PP is comprised of two M2 tapped holes (please consult the drawing below).

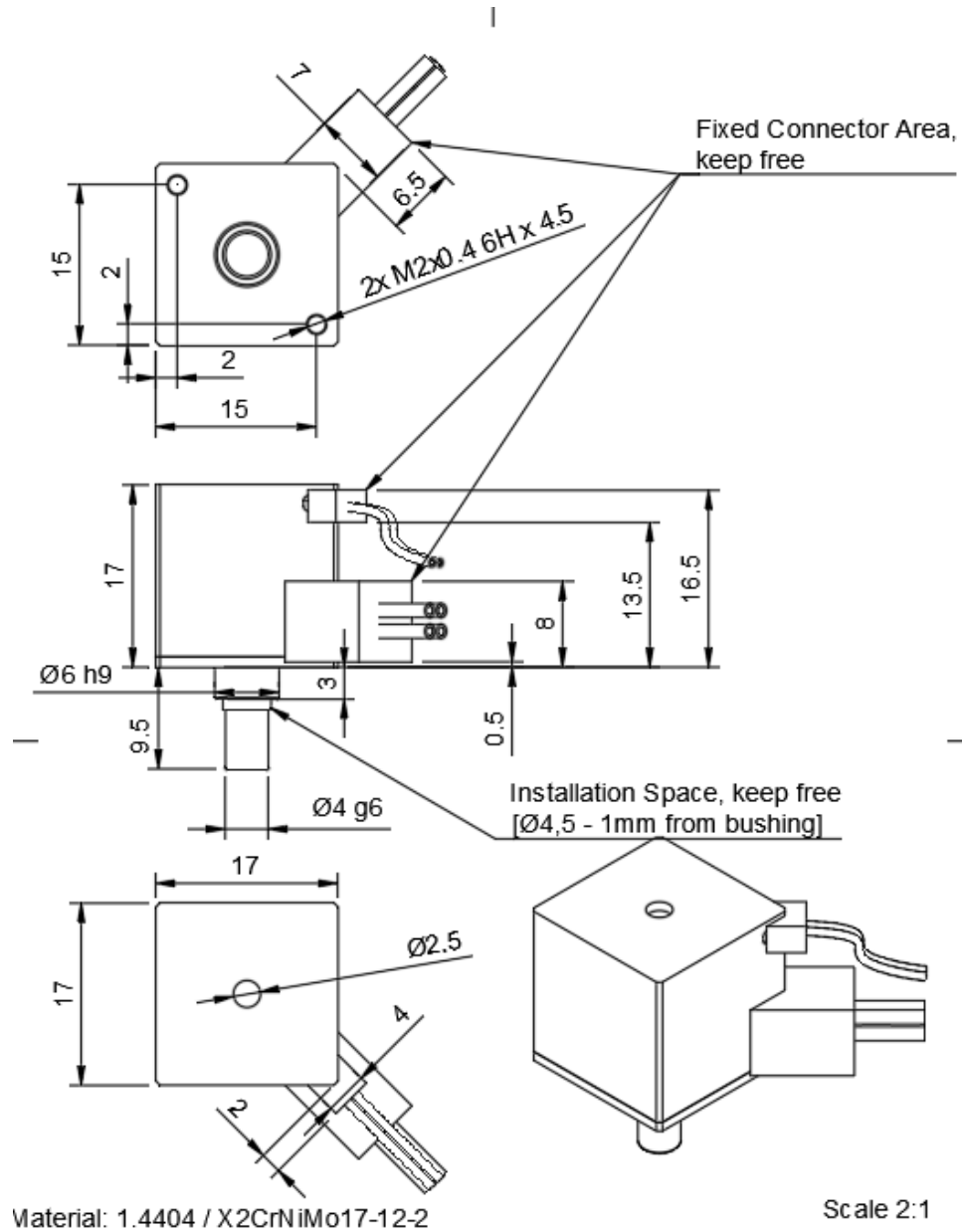


Figure 1 - Dimensions and standard mechanical interfaces

## Electrical Interfaces

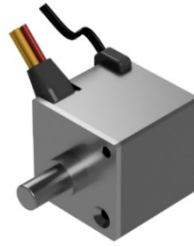


Figure 2 - Redundant actuation lines on the nD3PP

To actuate the pin puller, 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.

The black wires are for the optional actuation sensor, which produces a pulse signal following actuation.

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 ( $\Omega$ )		$0.9 \pm 0.2 \Omega$
Time to release at 1.6 A	0°C	~ 6 s
	20°C	~ 3 s
	60°C	~ 1.5 s

## Loads

The nD3PP is designed to withstand the following external loads.

Load type	Load level	Note
Random vibration (x,y,z)	24.3 GRMS $\pm$ 3 dB (PSD)	1 <sup>st</sup> Eigenfrequency: >3kHz
Sinusoidal vibration (x,y,z)	20-130 Hz, 20 g	
Shock (x,y,z)	100 Hz: 100 g 1000 Hz-10000 Hz: 1000 g (SRS, +3 dB)	
Maximum actuation side-load	50 N	
Peak pull-in force	25 N	
Survival loads	85 N push-in 150 N Side-load	

If you have any questions concerning the nD3PP actuator, please feel free to contact us via our official company website (<https://dcubed.space/contact-us/>) or by phone (+49 (0)89 95874160).