

CLA2603 – CRYO LINEAR ACTUATOR 2603



Features

- CLA model with highest force output
- Nanometer step size
- Very large driving force
- 20 mK to 375 K, vacuum compatible
- Extreme stability due to self-locking nature
- No power dissipation when "off"
- Robust design for easy handling
- Full ceramic screw and nut
- Position feedback option -COE

Description / Applications

The CLA2603 is the model with the highest force output in the Cryo Linear Actuator (CLA) series. A CLA can be considered as a piezo driven setscrew with high force output and very good stability, ideal for set and forget applications in a cryo-vacuum environment. Piezo ceramics in the disc-shaped head generate torque pulses which cause the connected screw to rotate in the stationary nut, yielding linear motion at the ball tip. Both screw and nut are ceramic and run without coatings or lubrication.

Specifications

General info	
Type of motion	Linear, with rotating ball tip
Dimensions	See drawings below
Operational environmental conditions	20 mK to 375 K, ambient to UHV
Weight	39 g, -COE adds 9 g
Preload	The ball tip must be axially loaded >1 N for proper operation
Stepping motion	
Travel range	12 mm, reduced to 6 mm for -COE
Velocity @ 300 K	25 µm/s
Velocity @ 4 K	15 µm/s
Minimal step size @ 300 K	15 nm
Minimal step size @ 4 K	5 nm
Drive voltage	-30 V to 120 V
Forces and load capacity	
Driving force @ 4K	50 N
Holding force	100 N, self-locking
Axial stiffness	8E7 N/m typical
Materials	
Main body	Stainless steel 316L
Piezo actuator	Low voltage multilayer, ceramic insulated
Screw and nut	Ceramic, thread pitch 250 µm
Model specific information	
-COE	Cryo Optical Encoder, 850 pulses per revolution, equivalent to 294 nm axial displacement
-V, -HV or -UHV	Level of vacuum compatibility, see the glossary on the homepage for details
Electronics CPSC	
Controller Base Cabinet	CAB
Driver for stepping and scanning	CADM
Position readout	OEM

Ordering Information

Available Models

CLA2603-V	Cryo Linear Actuator size 26 High Force
CLA2603-COE-V	Cryo Linear Actuator size 26 High Force-Cryo Optical Encoder

Available Options

-HV	Upgrade to High Vacuum compatibility
-UHV	Upgrade to Ultra High Vacuum compatibility

Accessories

AKM1	Accessory Kit Mechanical 1
AKE1	Accessory Kit Electrical 1

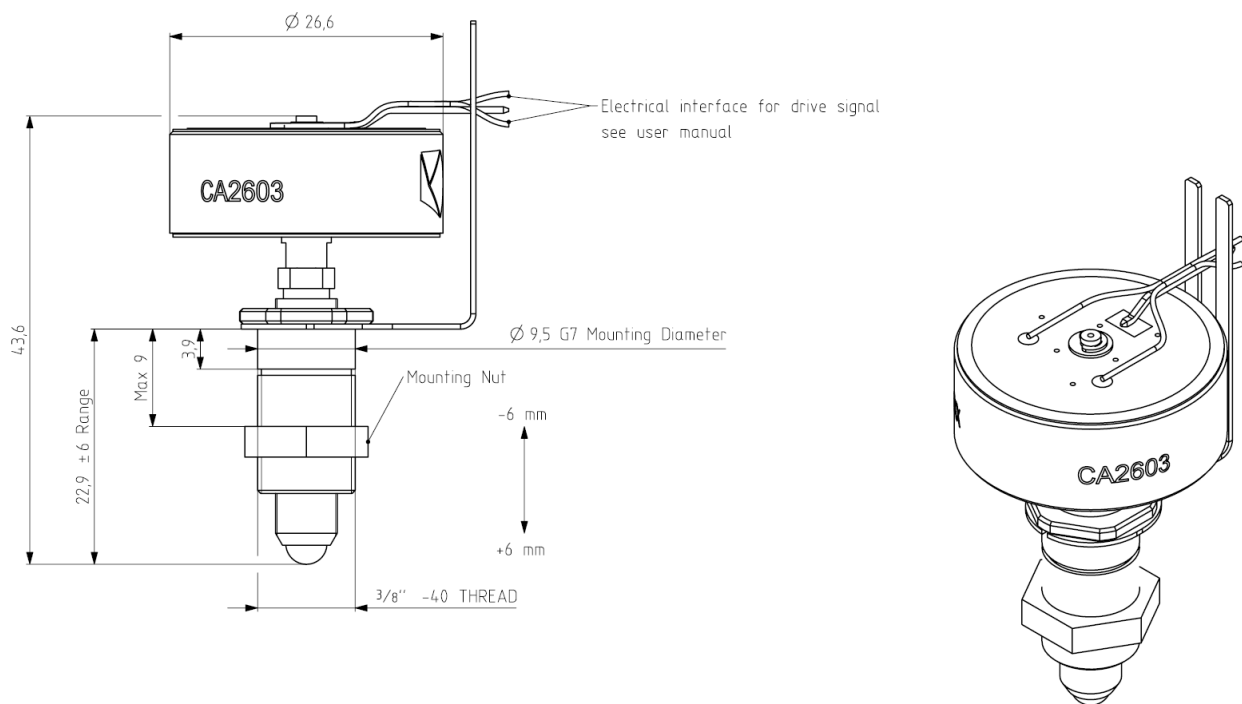
Mechanical and electrical information

Download 3D step files and manuals from:
<https://www.jpe-innovations.com/cryo-nano-products/>

Contact

For quotations, specials, or engineering services, please contact us at:
<https://www.jpe-innovations.com/contact/>

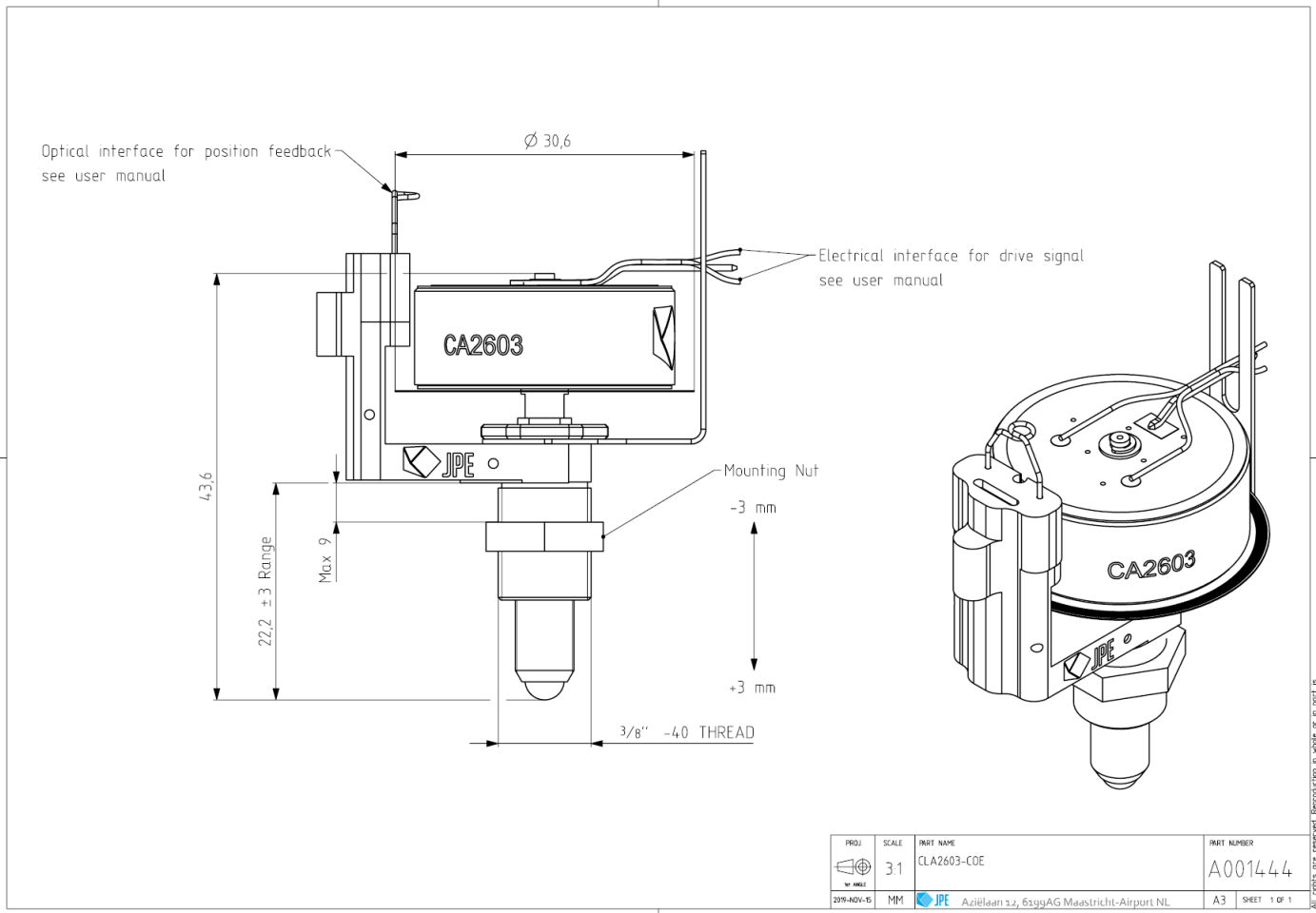
Drawings



PROJ.	SCALE	PART NAME	PART NUMBER
2025-NOV-15	3:1	CLA2603	A001442
MM	JPE	Aziëlaan 12, 6599AG Maastricht-Airport NL	A3 SHEET 1 OF 1

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	3:1	CLA2603-COE	A001444
2015-NOV-12	MM	 Aziëlaan 12, 6199AG Maastricht-Airport NL	A3 SHEET 1 OF 1

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