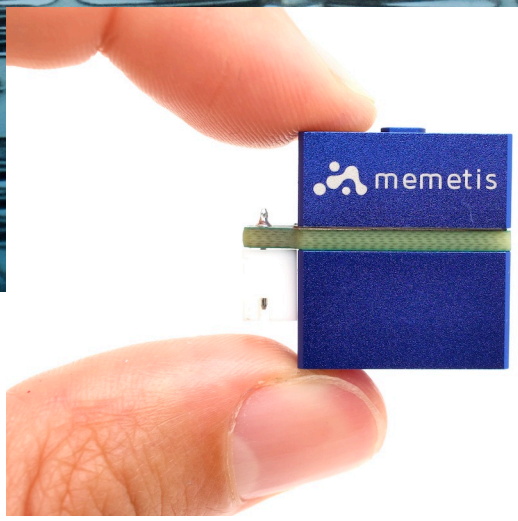
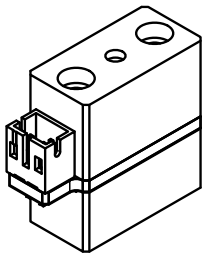
CA0408 Chip-Actuator

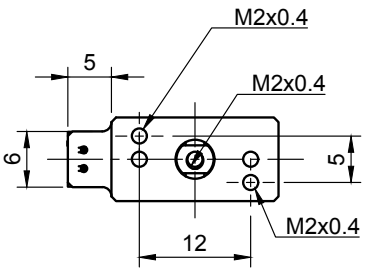


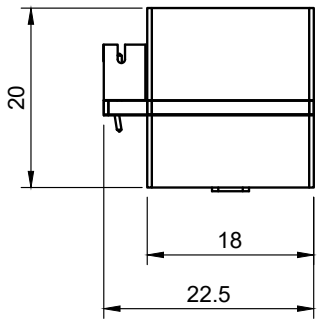
The CA0408 is a high-force, miniature linear actuator specifically engineered to actuate normally-closed (NC) on-chip valves. With its significant push capability of 8 N and a stroke of 0.4 mm, the CA0408 is expertly tailored for applications demanding high force within confined spaces.

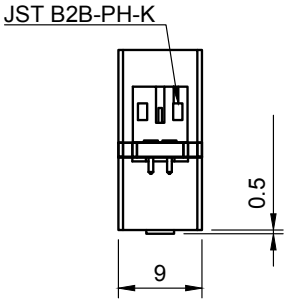
Despite its powerful performance, the CA0408 maintains an incredibly compact form factor, weighing in at just 8 g, making it exceptionally well-suited for seamless integration into a multitude of systems. Additionally, this actuator exhibits a remarkably low power consumption of less than 1 W for position maintenance.

The form factor with 9 mm pitch allows for a dense packaging. A M2 threaded plunger allows the use of customer specific plunger-heads or even the integration of an external stroke sensor.









Dimensions in millimeters

General Information

Model number	CA0408
Type	Monostable linear actuator
Functionality	Push or Pull (normally closed), proportional control possible
Dimensions (WxLxH)	9 mm x 23 mm x 20 mm
Weight	8 g
Electric connector	JST B2B-PH-K-S(LF)(SN)
Mounting interface	Flange mount M2 screws (see drawing)
Cycle life time	10 000 cycles

Performance Data

Stroke	0.4 mm
Normally closed force (passive)*	8 N
Operating temperature	10 °C to 50 °C
Storage temperature	-20 °C to 90 °C
Switching time (on)	0.6 s with 1.5 A (at 20 °C ambient temperature)
Switching time (off)	< 3 s (at 20 °C ambient temperature)
Maximum switching frequency	0.125 Hz

* For higher or lower NC forces, contact us

Housing Material

Housing	Anodized aluminum
Push/Pull Plunger	Anodized aluminum, M2 internal thread interface

Electrical Specifications

Electronic control	Constant current controlled
Electrical connection	JST B2B-PH-K-S(LF)(SN)
Actuator resistance*	0.8 Ω ±10%

Control using current profile

Peak electrical current*	1.5 A for 0.6 s (for full stroke)
Peak electrical power consumption*	1.8 W for 0.6 s (for full stroke)
Continuous current (for holding after peak)*	0.9 A
Continuous electrical power consumption*	0.65 W

Control using continuous constant current

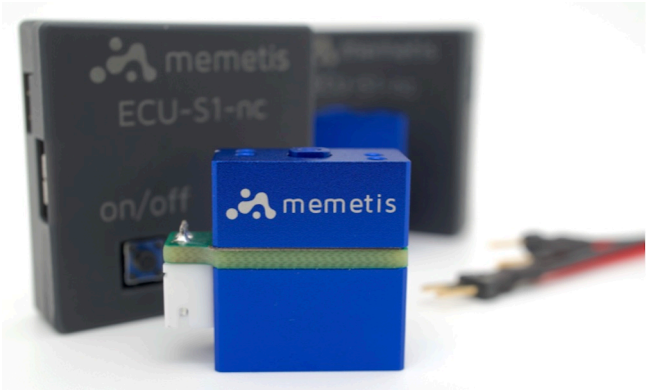
Continuous electrical current*	1.0 A
Continuous electrical power consumption*	0.8 W
Opening time*	5 s (for full stroke)

* Data at 20 °C

⚠ **Please note:**

- The actuators are current-controlled. For easy integration and evaluation we offer electronic control units.
- An electrical overcurrent may reduce cycle life-time.
- We recommend validating the current profiles within your specific application and ambient conditions.
- Do not attempt to operate the actuator at constant voltage!

Use our ECU-S for easy evaluation of our CA0408. With the ECU-S you can either control the CA0408 manually with pressing a button or by interfacing the IO-Pin. We also offer an electronic control unit for integration on your custom PCB. Please contact us for more information.



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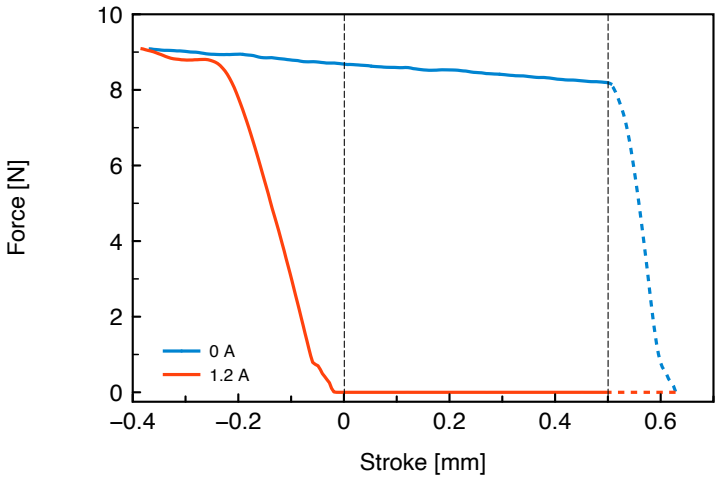
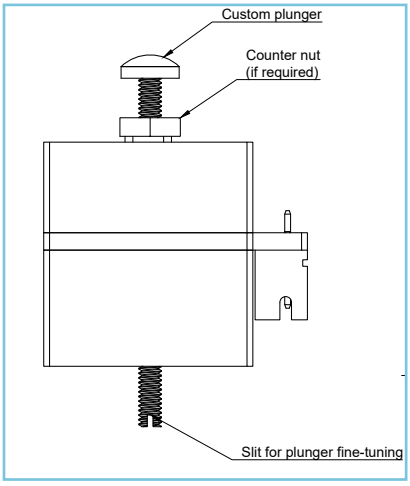
Force Characteristic



Graph 1: Force vs. stroke of the actuator.

Installation Instructions



The memetis chip actuator CA0408 provides a full through-hole for a custom plunger with M2 external threading.

A long plunger (> 20 mm) may be used to:

- Stabilize the vertical plunger alignment
- Fine-tune the plunger length after mounting
- Monitor the plunger position using an external distance sensor (e.g. Laser, Hall-sensor, mechanical switch)

Contact Information

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