

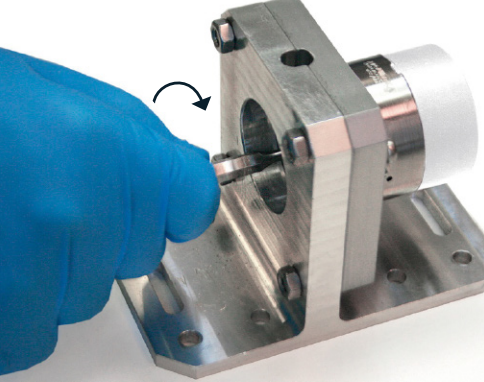


REACT 15KN v2

Resettable Hold-Down
& Release Actuator – HDRA

arquimea.com

 **ARQUIMEA**



Manual Reset

By the user in less than 1 minute

REACT 15KN v2

Resettable Hold-Down & Release Actuator – HDRA

ARQUIMEA's REACT devices are low-shock Hold-Down & Release Actuators which function is to firmly fix a payload during transportation or launch and later release it by electrical activation. REACT implements a redundant trigger with two different motorization options based on Shape Memory Alloys (TiNi and SMARQ®) covering wide actuation temperature ranges and providing manual reset capability to the end user.

Typical applications of REACT include: solar arrays, antennas, booms and masts, reflectors, cover doors, scientific instruments, shutter mechanisms, large structures, launch locks for gimbals, thrusters, stage separation, caging mechanisms, etc.

Operation

REACT actuators are based on a two-stage mechanism: structural and trigger. The Structural assembly is responsible of holding the high external loads in a safe and reliable way, while the trigger is responsible of transforming the system into an unstable structure that is self motorized to effectively release the main bolt.

REACT is electrically activated with a customizable interface. The total amount of energy is effectively transformed into heat to induce the transformation of the Shape Memory Alloy thus motorizing the system with a redundant trigger.

Key Features

- › Low shock
- › Manually field resettable by the end user. No refurbishment required
- › Redundant SMA trigger (two independent initiators)
- › Compatible with standard electrical interfaces
- › Near simultaneous release of multiple hold-down points
- › Three standard mechanical interfaces available
- › Space-qualified parts and materials
- › Custom configurations available under request
- › Full solar array deployment system available: HDRM + cup-cone + hinge
- › ITAR free



	Standard Operation Temp.	Extended Operation Temp.
SMA material	Nitinol	SMARQ®
Ultimate Load Rating	22.5 kN	22.5 kN
Proof Load	18.7 kN	18.7 kN
Release Load	15 kN	15 kN
Shock @ Preload⁽¹⁾	< 1,300 g's @ 15 kN	< 1,300 g's @ 15 kN
Mechanical I/F (main Bolt)	M8 x 1.25 ↓14.6	M8 x 1.25 ↓14.6
Misalignment at release	±2.5°	±2.5°
Electrical Interface (typ)⁽²⁾	4A	25V
Bridge Resistance⁽⁴⁾	1.2 Ω ±10%	19.7 Ω ±10%
Operating Temp.	-90 / +65°C	-90 / +125°C
Life Cycles (min)	10 cycles on ground + 1 in orbit	10 cycles on ground + 1 in orbit
Mass⁽³⁾	268 g	268 g
Part Number	REAC.153.V2.SX	REAC.153.V2.EX

(1) Shock emission dependent of Preload level and support structure

(2) Release can be achieved using a wide range of currents or voltage. Custom I/F available on demand

(3) Mass considering interface A as default, harness and lead wires not included

(4) Initiator resistance, electrical cable resistance should be added.

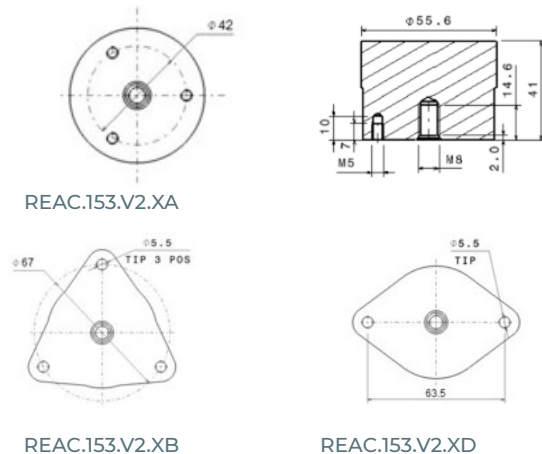
REACT standard set includes:

- › REACT (Hold-Down & Release Actuator)
- › Reset tool (1 tool provided per each 4 REACTs)

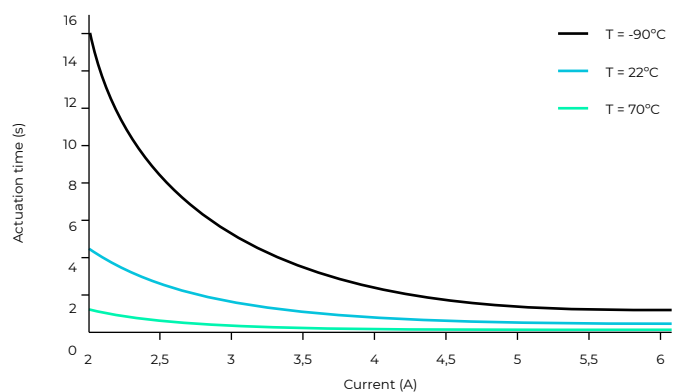
The following accessories can be procured apart:

- › Rod. Different configurations available
- › Screws for the REACT assembly to the spacecraft

Mechanical Interface



Actuation Time (Vacuum)



REACT 15kN Standard Temp - Actuation time (s) vs Current (A)

Quality Levels

EM acceptance tests include:

- › Physical Measurements (envelop dimensions, mass)
- › Electrical Measurements (input resistance, grounding, insulation, dielectric)
- › Actuation Test (applied preload, voltage consumption and supplied current)
- › Actuation Test with Redundant Initiator (applied preload, voltage consumption and supplied current)

FM acceptance tests include EM acceptance tests plus:

- › Vibration (acceptance levels)
- › Thermal Vacuum Activation (actuation time, applied preload, voltage consumption and supplied current)



ABOUT US

ARQUIMEA is a global tech corporation founded in 2005, with headquarters in Madrid (Spain) and international subsidiaries, supplier of innovative solutions for aerospace, defence, security and science. The company specializes in design, development, production and commercialization of hi-rel parts and systems such as rad-hard integrated circuits, flight electronics, space-qualified actuators and mechanisms, robotics, embedded software, UAVs and weapon systems.

In defence, **ARQUIMEA** cooperates with NATO Armed Forces and allied countries all over the World. In space, our technology is present in missions from ESA, NASA and the main satellite operators.

We provide cutting-edge products and services based on continuous R&D and own-proprietary technologies. Our processes and procedures are certified as per the ISO 9001 and 9100 standards.

sales@arquimea.com

For more information
arquimea.com

GLOBAL PRESENCE

ARQUIMEA AEROSPACE & DEFENCE

c/ Margarita Salas 10, 28918
Leganés (Madrid) – ES
Tel.: +34 91 689 80 94

ARQUIMEA DEUTSCHLAND

Im Technologiepark 1,
15236 Frankfurt (Oder) – DE
Tel.: +49 335 557 1717

ARQUIMEA USA

21515 Hawthorne Blvd Suite 200,
Torrance, 90503 (California) – USA

ARQUIMEA SEA

20F, Menara Boustead, 69 Jalan
Raja Chulan – 50200
(Kuala Lumpur) – MY