

gevasol Xpress

April | 2020

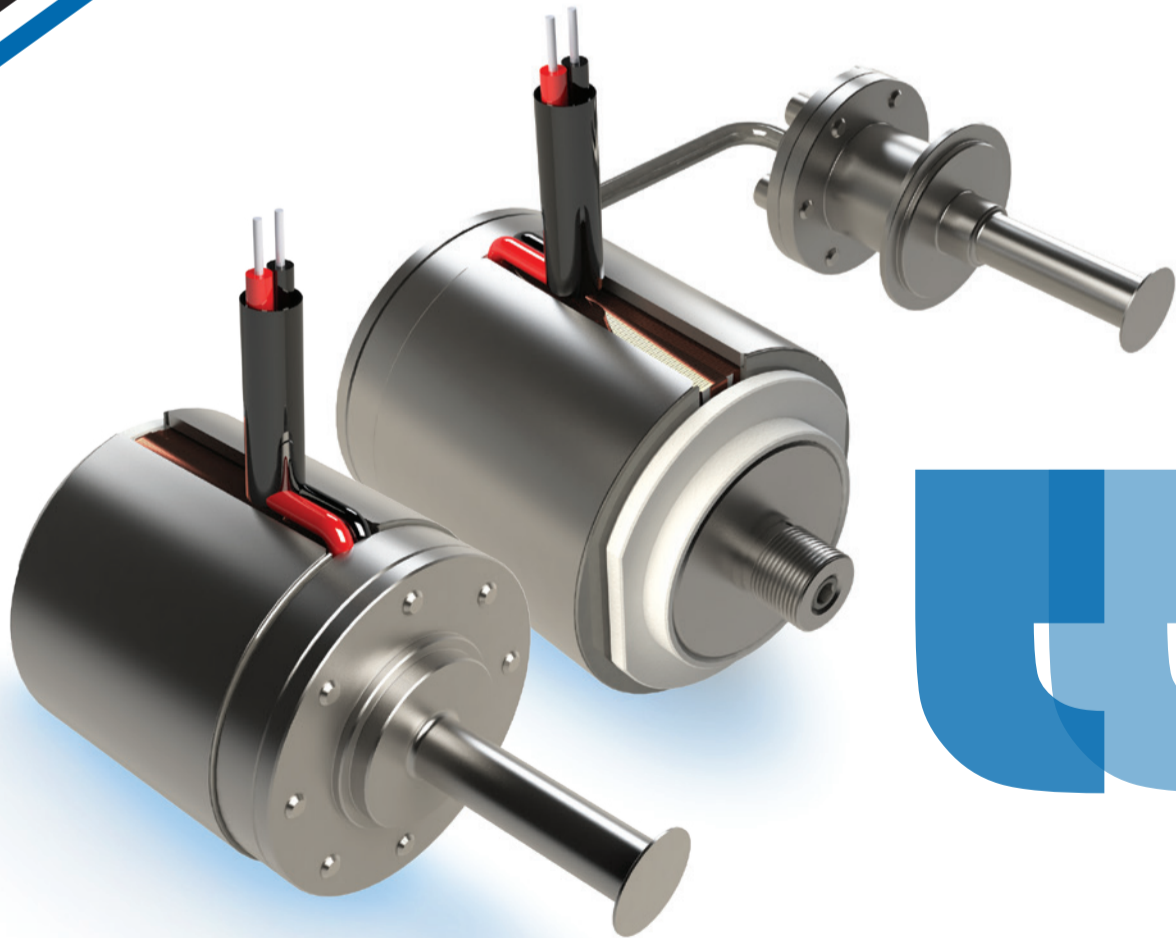
No.17

cryoTech
Gevasol Group

Exposure *
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**Commercially graded,
long life, affordable,
low weight, size
and power split and
integral Stirling
cryocoolers**



Who We Are

Gevasol is a family-owned industrial group. We have six R&D centers and eight manufacturing facilities around the world.

Beyond Standard is our core value. Build-to-need (BTN) is how we serve our OEM customers. Fluid and motion control components and sub-systems are what we do.

We welcome people from different cultures, listen to each other, and learn from our differences. Our engineering team is an incredible mixture of people from diverse countries, backgrounds, and training. We try to encourage them to bring their unique personality to the R&D process.

Together, we bring about the singular approach and innovative solutions that are Gevasol's signature.

Founded: 2002

Type of Company: Private

Partners: Yadin Family 100%

Company Head Office: Voorhout, The Netherlands

R&D Electronics: Switzerland, Israel

R&D Mechanical: Switzerland, Israel

Employees: Over 400

Production Sites: The Netherlands, Israel, India
(6 in Total)

Quality Standards: ISO 13485, ISO 9001,
AS 9100, ISO 14001

Activities: Fluid Control, Motion Control

Family

We like to keep things simple.

We love technology and are happy to go to work every day.

We are a family-owned company and it is our family that gives us the strength to move forward.

They serve as a constant reminder that, at the end of the day, it's all about people.



“People, knowledge, alliances, and lean operations are the foundations on which we built Gevasol.”

Gideon Yadin | CEO

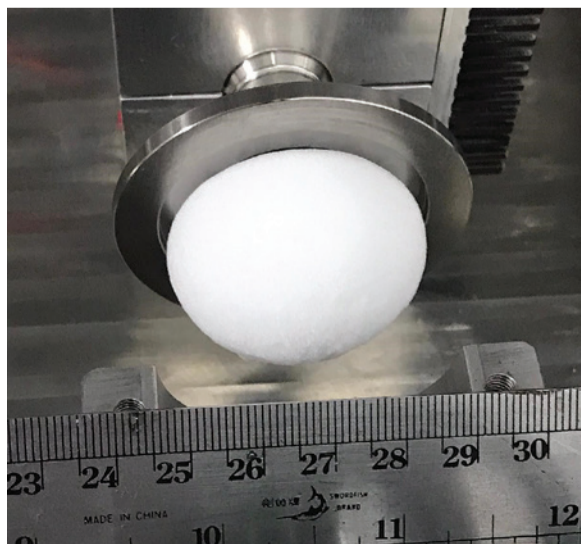
CryoTech is a young startup company, founded in 2018; it is the first startup member of the Gevasol Group.

Ultimate cryocooler for commercial IR imaging

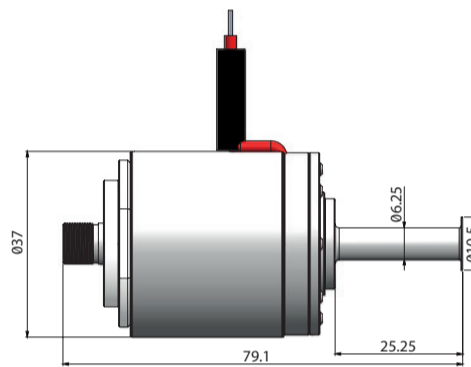
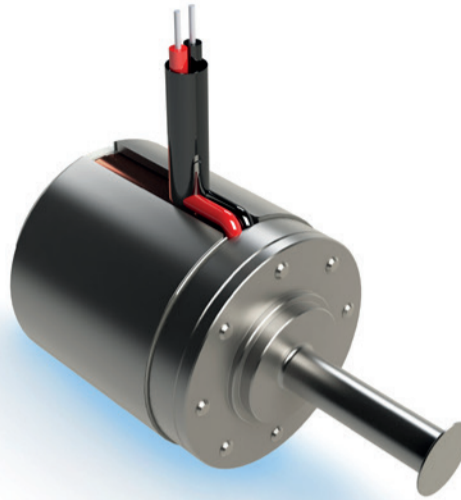
- Micro-miniature military graded cryo-refrigerators are widely used in long-range and high-resolution infrared imaging. Their high ownership cost, however, prevents from wide use in commercial marketplace.
- CryoTech Ltd mission is development, manufacturing and deployment of affordable low size, weight and power cryocoolers for commercial infrared imaging.
- The ultimate three-digit price goal along with long life and ease of integration/replacement should make this product attractive for existing marketplace and, as we hope, will generate additional sectors in high edge infrared imaging such as: gas leak detecting, extended vision systems (EVS) for airplane landing, advanced driver-assistance systems (ADAS) for heavy trucks, buses and trains, quadcopter borne flying cameras, etc
- In July 2019, CryoTech achieved a significant milestone. Both split and integral cryocoolers relying on newly patented topologies have shown significant frost buildup during "open air" test. The successful feasibility study test allows CryoTech to advance to the next steps of testing cryocoolers inside simulation Dewar with purpose of characterization and optimization.
- These cryocoolers are the perfect match for commercial marketplace requirements in terms of low ownership costs, high reliability and long life span, ease of integration and replacement, adaptation to different power sources, low size weight and power, low noise signature and vibration export.
- Along with these lines, CryoTech originated initial commercial relationships with the major market players that already have shown great interest in the concept.

Design features

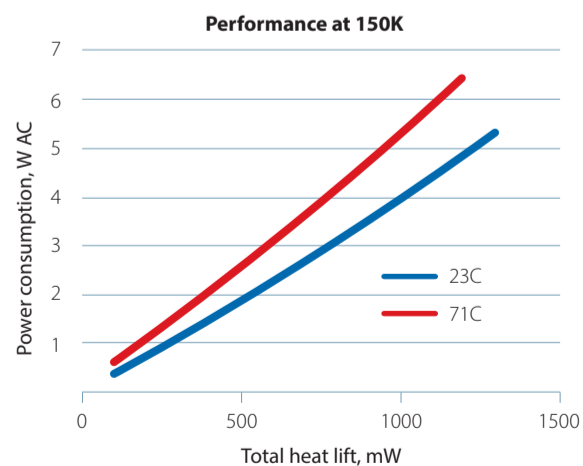
- High driving frequency – 130Hz
- Single-piston "moving cylinder" compressor with lightweight moving assembly
- Low cost "moving magnet" actuator
- Replaceable external stator
- Low side forces, friction and seals wear by geometry optimization
- Cold finger: OD=6.3mm, L=23mm
- Cold finger wall thickness 130um (standard)
- Cold finger material: Ti 6Al-4V ELI
- Optional low weight tuned dynamic absorber
- Industrial COTS PWM H-bridge programmable driver



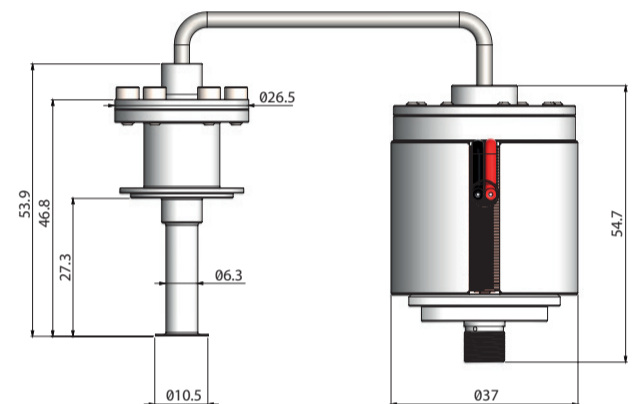
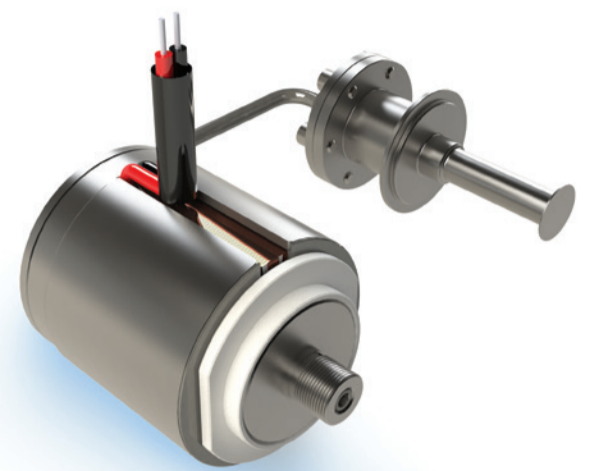
Integral Linear Stirling



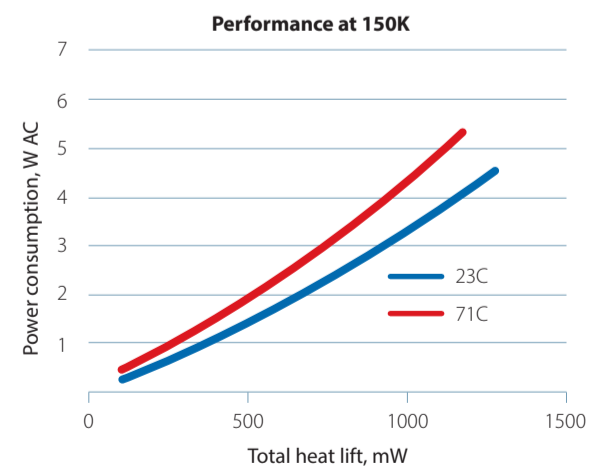
Driving frequency, Hz	130
Power at 150K@200mW @23C, W AC	0.5
Power at 150K@1200mW@23C, W AC	3.2
Environmental temperature range, C°	-40 to +71
Minimum temperature, K°	115
Size, mm	L69; Ø36
Cold finger, mm	L25; Ø6
Weight, including cold finger, gr	200
MTTF baseline, hours	40,000
Optional tuned dynamic absorber, gr	50
Environmental qualification	IEC 60068



Split Linear Stirling



Driving frequency, Hz	130
Power at 150K@200mW @23C, W AC	0.6
Power at 150K@1200mW@23C, W AC	4.8
Environmental temperature range, C°	-40 to +71
Minimum temperature, K°	115
Size: compressor, mm	L47; Ø36
Size: cold head, mm	L54; Ø30
Cold finger, mm	L27; Ø6
Weight, compressor + cold head (including cold finger), gr	200+30
MTTF baseline, hours	40,000
Optional tuned dynamic absorber, gr	50
Environmental qualification	IEC 60068



Ultimate Cryocooler for Commercial IR Imaging

Newly established Israeli startup company CRYOTECH Ltd is focusing on development and manufacturing of affordable micro cryogenic solutions for the rapidly growing commercial infrared vision markets.



Frost buildup



Quadcopter borne flying infrared camera



Enhanced vision systems for airplane landing



Advanced driver-assistance systems (ADAS)



Advanced driver-assistance systems (ADAS)



CryoTech staff
 Mr Rami Refaeli | CEO
 Dr Alexander Veprik | CTO
 Mr Semion Zechtser | OM
 Mr Adam Daniels | Research Engineer



Gas leak detection

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News and Stories From
 the Gevasol Group

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Netherlands | Headquarters
 Nijverheidsweg 22a
 2215 MH, Voorhout
 The Netherlands
T +31 252 344 995
W www.gevasol.com



Gevasol Switzerland
 Avenue du Mont Blanc 31
 1196 Gland, Switzerland
T +41 (0) 22 364 65 85
W www.gevasol.com



Gevasol Group Israel
 Emek Ha'mayanot Regional Council
 Beit Shean Valley 11710, Israel
T +972 4 6065881
W www.gevasol.com



Gevasol Industries Pvt. Ltd
 S. No - 74 + 84, Plot No - 16, Middle Lane
 No - 3 & 4, Ramtekdi Industrial Area,
 Ramtekdi Pune - 411028, India
T +91 8983241515
M +91 9764327429
E ori.ronen@gevasol.com
W www.gevasol.com



Gevasol USA, Inc.
 961 E Rock Springs Rd. NE #A
 Atlanta, GA, 30306, USA
M +1 404 425 0194
E yuval.makover@gevasol.com
W www.gevasol.com