

Thorlabs Inc.  
43 Sparta Avenue  
Newton, New Jersey 07860  
United States

Phone +1 973 300 3000  
www.thorlabs.com

Menlo Systems GmbH  
Bunsenstraße 5  
82152 Martinsried  
Germany

Phone +49 89 189166 0  
Fax +49 89 189166 111  
www.menlosystems.com

# Press Release

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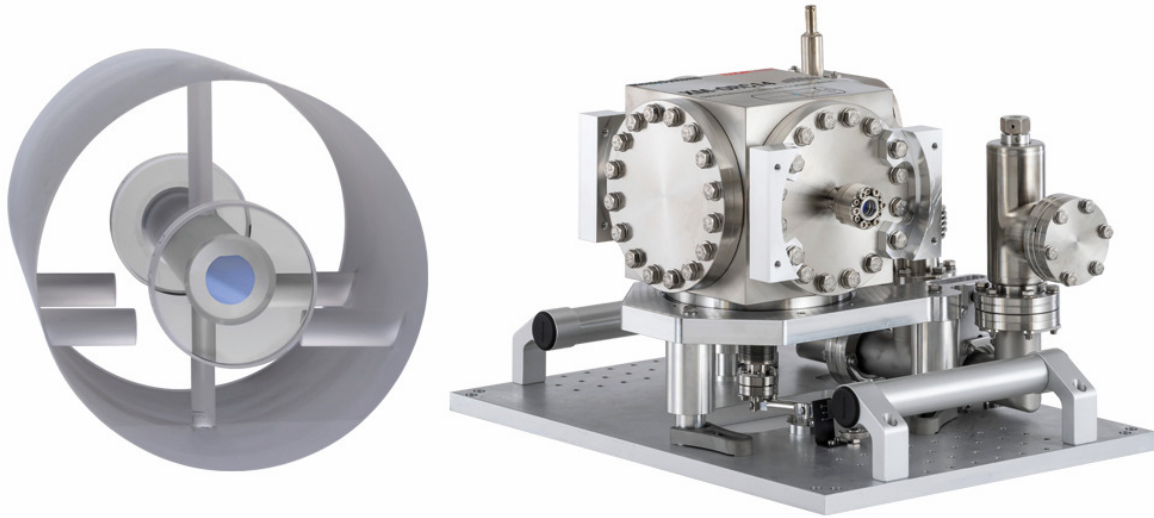
## **XM-ORC Series of optical reference cavities with crystalline mirrors**

Menlo Systems, a leading supplier of precision photonics instruments, and Thorlabs, a global manufacturer of photonics equipment, have jointly announced the release of a co-branded line of high-finesse optical reference cavities comprised of a 12.1 cm long cylindrical ultra-low expansion (ULE) glass spacer incorporating cavity mirrors with high-reflectivity crystalline (xtal stable™) coatings on fused silica substrates, all housed in a stainless steel vacuum chamber. Designed to provide the ultimate in laser stability, the XM-ORC series includes all necessary hardware to stabilize the cavity at its zero-crossing of the thermal expansion coefficient, which is near room temperature.

These optical reference cavities will be brought to market with finesse values either in excess of 300,000 for operation at 1550 nm, 1397 nm, and 1156 nm, or greater than 200,000 for operation at 1064 nm. Other wavelengths are available upon request. Comprising a thermal noise ADEV limit as low as  $1.6 \times 10^{-16}$  and a low linear drift rate of  $\sim 150$  mHz/s, the XM-ORC series is the ultimate reference for cavity-stabilized lasers and is ideal for select applications in high resolution spectroscopy, quantum computing, optical clocks, cooling and trapping of atoms and ions, as well as low-noise microwave generation.

Menlo Systems and Thorlabs have long collaborated on the development of photonics equipment and systems of the highest performance. This joint effort

represents the start of a new phase in their relationship, leveraging their individual expertise to push the boundaries of what is possible in laser stabilization.



**Figure:** Left: 12.1 cm cylindrical ULE spacer with optically contacted xtal stable mirror coatings transferred to fused silica substrates. Right: XM-ORC vacuum chamber housing the mounted cylindrical ultrastable cavity, with ion getter pump included.

## Contact:

### Menlo Systems GmbH

Bunsenstr a e 5  
82152 Martinsried  
Tel.: +49 89 189166 0  
Fax: +49 89 189166 111  
[sales@menlosystems.com](mailto:sales@menlosystems.com)  
[www.menlosystems.com](http://www.menlosystems.com)

### Menlo Systems K.K.

12-5, Chuo Godo Building,  
Naka-ku, Chuo 2-Chome,  
Hamamatsu, Shizuoka, Japan  
[jpsales@menlosystems.com](mailto:jpsales@menlosystems.com)  
[www.menlosystems.jp](http://www.menlosystems.jp)

### Thorlabs Inc.

43 Sparta Avenue  
Newton, New Jersey 07860  
United States  
Phone +1 973 300 3000  
[TCS@thorlabs.com](mailto:TCS@thorlabs.com)  
[www.thorlabs.com](http://www.thorlabs.com)

## About Menlo Systems:

Precision in Photonics. Together we shape light.

### Menlo Systems, Inc.

56 Sparta Avenue  
Newton, NJ 07860, USA  
Phone: +1 973 300 4490  
Fax: +1 973 300 3600  
[ussales@menlosystems.com](mailto:ussales@menlosystems.com)  
[www.menlosystems.com](http://www.menlosystems.com)

### Shanghai Menlo Systems Quantum Laser Technology Co., Ltd.

Room A502, No.100, Lane 2891  
South Qilianshan Road  
Putuo District  
Shanghai 200331, China  
[chinasales@menlosystems.com](mailto:chinasales@menlosystems.com)  
[www.menlosystems.com/cn](http://www.menlosystems.com/cn)

Menlo Systems GmbH is a leading developer and global supplier of instrumentation for high-precision metrology. The company with headquarters in the west of Munich is known for its Nobel Prize winning optical frequency comb technology. With subsidiaries in the US, Japan, and China, and a global distributor network, Menlo Systems is closely connected to its customers from science and industry. The main product lines are optical frequency combs, time and frequency distribution, terahertz systems, ultrafast and ultra-stable lasers, and complete systems for quantum technology applications. Besides standard products, Menlo Systems develops and manufactures tailored solutions for laser-based precision measurements.

**About Thorlabs:**

Thorlabs, a vertically integrated photonics products manufacturer, was founded in 1989 to serve the laser and electro-optics research market. As that market has spawned a multitude of technical innovations, Thorlabs has extended its core competencies in an effort to play an ever-increasing role serving the Photonics Industry at the research end, as well as the industrial, life science, medical, and defense segments. The organization's highly integrated and diverse manufacturing assets include semiconductor fabrication of Fabry-Perot, DFB, and VCSEL lasers; fiber towers for drawing both silica and fluoride glass optical fibers; MBE/MOCVD epitaxial wafer growth reactors; extensive glass and metal fabrication facilities; advanced thin film deposition capabilities; and optomechanical and optoelectronic shops.

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