



TRIBOLOGY AND MECHANICAL TESTING

ROT-COOL-40

REC-COOL-40

Removable Temperature Chambers to -40°C

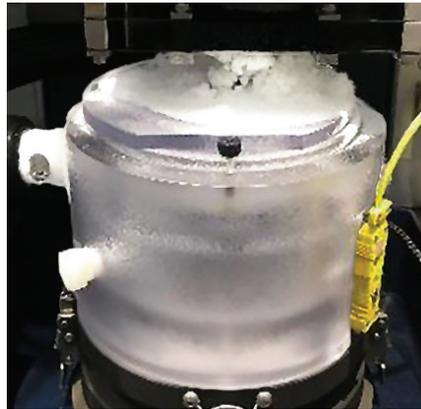
Temperature significantly influences wear and friction behavior of materials. The UMT TriboLab™ platform can be equipped with a cooling unit and chamber that allows testing at temperatures as low as -40°C. When paired with the rotary (ROT) or reciprocating drive (REC), the ROT/REC-COOL-40 chambers expand the capabilities of UMT TriboLab even further, enabling easy and reliable low-temperature testing across a wide range of industrial applications.

ROT/REC-COOL-40 Features

The system maintains a uniform and stable temperature around the sample and its counter material with a continuous flow of cold air. For precise temperature monitoring, a thermocouple is strategically placed near the point of contact. These features enable:

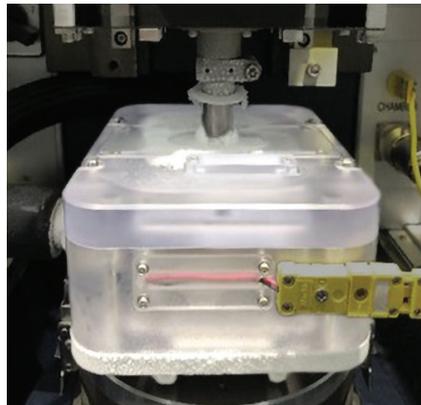
- Non-cryogenic cooling to -40°C
- Fast cooling with clean dry air (CDA)
- Precise atmosphere control (N₂, inert gas, etc.)

a



Rotary Drive

b



Reciprocating Drive

FIGURE 1. The (a) ROT-COOL-40 and (b) REC-COOL-40 chambers installed on the UMT TriboLab platform.

Ideal Applications

The ROT/REC-COOL-40 removable temperature chambers accommodate a wide range of low-temperature conditions, crucial for evaluating how materials perform in cold environments. This enhances the UMT TriboLab platform's applicability for research and testing in:

- Automotive and aerospace
- Lubricants and coatings
- Oil and gas
- Electronics and computing

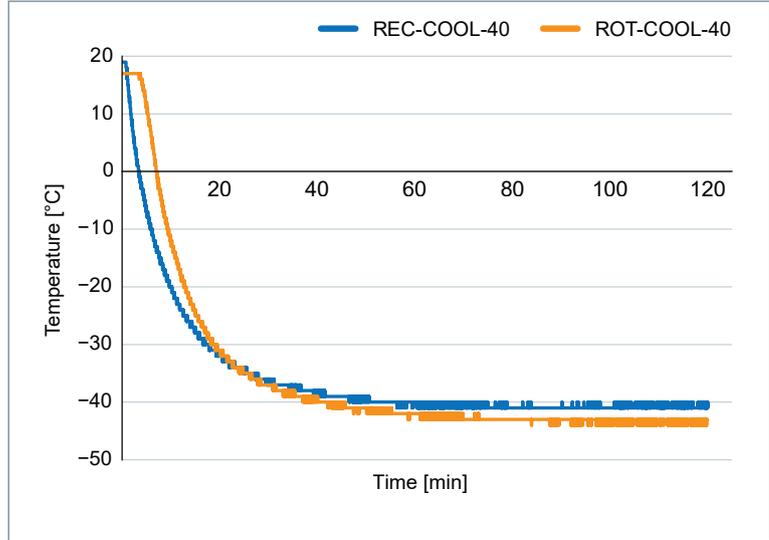


FIGURE 2.
Temperature profile for cooling of the REC-COOL-40 and ROT-COOL-40 chambers.

Specifications

Temperature range	Room temperature to -40°C (Cooling rate subject to environmental conditions, e.g., room humidity, temp, and CDA flow rate)
Peripherals required	Low-temperature controller (Chiller) Air dryer (CD-25) Heat exchanger
Facility requirements	Compressed dry air

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