Leybold

COOLPOWER 10 MD
COOLPOWER 250 MD

Cold heads for cooling cryogenic pumps and cryostats

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COOLPOWER 10 MD and 250 MD

High refrigerating capacity from a very small footprint

The COOLPOWER cold heads from Leybold are gas refrigerating machines for cryogenic temperature generation.

Leybold offers both, pneumatically and mechanically driven cold heads or movement of displacers respectively, based on the Gifford-McMahon principle. Examples for mechanically driven cold heads are the two-stage COOLPOWER 10 MD and the new single-stage COOLPOWER 250 MD.

COOLPOWER cold heads are setting a benchmark regarding efficient and powerful cooling systems.

Besides their excellent refrigerating capacity they excel through very simple operation, highest reliability, lowest vibration levels and a long and maintenance-free service life.

In addition to classic applications like cooling of shields or larger samples and components, the COOLPOWER cold heads are a crucial component in the field of high-temperature superconducting materials (HTSC) within the emerging field of new power technology.

Reliable and efficient cooling systems are decisive when it comes to competitiveness as well as the technological and economic success of these technologies.

The new COOLPOWER 10 MD and COOLPOWER 250 MD are performance-wise optimized products.

Front and side views of the COOLPOWER 10 MD (left) and COOLPOWER 250 MD (right)

Advantages at a glance

- Highest refrigerating capacity from a very small footprint:
  - No space problems, since cold head and compressor unit can be installed and operated separately from each other
  - Operation of the cold head basically independant from their position
- Very simple to operate:
  - Low temperatures at a key-press
  - Simple process and temperature control by computer
  - Speed adaptation of the cold head motor through compressor unit or computer
- No liquid helium and liquid nitrogen are needed
- Low vibration levels
- High reliability
- Long, maintenance-free service life

Typical applications

- Cooling of pumping surfaces in cryogenic pumps for high vacuum and ultrahigh vacuum generation
- Cooling of superconducting magnets, for Magnetic Resonance Tomography in the field of medicinal technology, for example
- Cooling of samples and detectors in particular of
  - high-temperature superconducting materials (HTSC)
  - superconducting and semiconductor components
  - infrared and gamma detectors
- Sensor calibration

Technical characteristics

- COOLPOWER 10 MD:
  two-stage, cooling down to 8 K
  Refrigerating capacity:
  first stage 110 W approx. at 80 K
  second stage 18 W approx. at 20 K
- COOLPOWER 250 MD:
  single-stage, cooling down to 25 K
  Refrigerating capacity:
  first stage 200 W approx. at 80 K,
  first stage 50 W approx. at 30 K

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