

# **Cryocooler Market with COVID-19 Impact and Analysis by Type (GM, PT, JT, Stirling, Brayton), Offering (Hardware, Services), Heat Exchanger (Recuperative, Regenerative) Operating Cycle (Open,Closed loop), Application, and Geography - Global Forecast to 2025**

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## **Abstracts**

The cryocooler market is estimated to be worth USD 2.3 billion in 2020 and is projected to reach USD 3.1 billion by 2025, at a CAGR of 6.0%. The cryocooler market has a promising growth potential owing to several factors such as surging adoption of cryocoolers in MRI, NMR equipment, and proton therapy in healthcare sector, high rate of depletion of helium, growing demand for liquefied natural gas and increasing adoption of cryocoolers in semiconductor industry, superconducting magnets, and power systems.

The cryocooler market is at a promising stage and is expected to see a strong growth during the forecast period. High technology applications such as semiconductors, hard disk drives, flat panel displays, lighting, solar cells, and thermal and general vacuum coating systems typically use cryopumps or cryocoolers as a part of their critical processes. The growing adoption of cryocoolers in the semiconductor industry and superconducting magnets is expected to increase their demand in the coming years.

The market for space application is estimated to grow at highest CAGR during the forecast period

The market for the space application is expected to grow at the highest CAGR from 2020 to 2025. Growing space exploration projects in developed parts of the world are likely to increase the deployment of cryocoolers in these projects at a rapid pace. Further, the rising focus of developing countries including China and India on space

missions is further expected to boost the demand for cryocoolers from the space vertical.

The market for GM type of cryocoolers is estimated to account for the largest share between 2020 and 2025

The cryocooler market for hardware is expected to flourish at the significant growth rate and estimated to hold the dominant position during the forecast period. The GM type cryocoolers are used in wide application use cases including military applications for cooling down the IR sensors used in missiles and satellite monitoring. In addition, they are used for superconductivity applications in magnetic levitation trains, MRI systems, and semiconductor fabrication units.

The market for closed-loop cycle type is estimated to grow at highest CAGR from 2020 to 2025

The cryocooler market for the closed-loop cycle type is expected to grow at the highest CAGR during the forecast period. This is majorly due to their broader application areas, which include IR detectors/ sensors, thermal cameras, magnetic resonance imaging (MRI), surgical probes, night vision systems, superconducting devices, and commercial refrigerators. Recent technological advancements have led to the development of high-temperature infrared detectors with a cooling range between 150 and 200 K. Closed-cycle systems such as JT cryocoolers are being used in a wide range of applications in night vision systems due to the absence of mechanical parts, miniature size, and rapid cooling capacity.

Cryocooler market in the APAC region is expected to witness a robust growth during 2020-2025

The market in APAC is expected to grow at the highest CAGR during the forecast period. This market growth in APAC can be attributed to the increasing adoption of various cryocoolers such as GM, PT, JT, Stirling, and Brayton for producing very low temperatures required in various applications across sectors such as medical, space, commercial, environmental, transport, and energy.

The breakup of primaries conducted during the study is depicted below:

By Company Type: Tier 1 – 55 %, Tier 2 – 20%, and Tier 3 –25%

By Designation: C-Level Executives – 75%, and Managers – 25%

By Region: Americas– 40%, Europe – 30%, APAC – 20%, and RoW – 10%

The major players in the cryocooler market are Advanced Research Systems, (US), Brooks Automation, (US), Chart Industries, (US), Cryomech, (US), DH Industries (Netherlands), Janis Research Company, (US), RICOR – Cryogenic & Vacuum Systems (Israel), Sumitomo Heavy Industries (Japan), Sunpower, (US), and Superconductor Technologies, (US).

### Research Coverage

The report segments the cryocooler market and forecasts its size, by volume and value, based on region (Americas, Europe, Asia Pacific, and RoW), Offering (Hardware, and Services), Heat Exchanger Type (Recuperative Heat Exchangers and Regenerative Heat Exchangers), Operating Cycle (Open-loop cycle and closed-loop cycle), Type (GIFFORD-MCMAHON, Pulse-Tube, Stirling, JOULE-THOMSON, and BRAYTON) Application (Military, Medical, Commercial, Environmental, Energy, Research and Development, Transport, Agriculture & Biology, Space, Mining and Metal, and Others)

The report also provides a comprehensive review of market drivers, restraints, opportunities, and challenges in the cryocooler market. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

### Key Benefits of Buying This Report

This report includes the market statistics pertaining to offering, heat exchanger type, operating cycle, cryocooler type, application and region

An in-depth value chain analysis has been done to provide deep insight into the cryocooler market.

Major market drivers, restraints, challenges, and opportunities have been detailed in this report.

The report includes an in-depth analysis and market share of key players.

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\* Business Overview, Products Offered, Recent Developments, SWOT Analysis, and MnM View might not be captured in case of unlisted companies.

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