CRYOGENIC TECHNOLOGY & APPLICATIONS

Quan-Sheng Shu et al.

Science Press of China
1983
(National # 15031.470
SPC # 2944.15-10)

CRYOGENIC TECHNOLOGY & APPLICATIONS

Quan-Sheng Shu etc.

1983

Book Review

Science Press of China
1983

There have been rapid developments in cryogenic technology and its applications, such as cryogenic engineering, petrochemical industry, high energy physics, power industry, space exploration. The book entitled Cryogenic Technology & Applications has focused on the latest development in the fields of cryogenic technologies. It emphasized the practical aspects in the cryogenic temperatures with systematically introducing the helium liquefiers, cryocoolers, and the ultra-low temperature (< 1K) techniques. The advanced research accomplishments in the fields of heat exchangers and cryogenic expanders are also discussed. The cryostats, storage dewars, superinsulation and cryogenic liquid transfer lines are described in details. Finally, the applications of cryogenic engineering in space launches, life sciences and superconducting devices are also introduced briefly.

The purpose of this book is to give readers a general idea of the basic principles, design methodologies and newest developments in cryogenic technology. The book is well written for the engineers, professors, researchers, technical staffs and graduates engaged in cryogenic engineering, physics, petrochemicals, electronics, superconducting technology, space science and life sciences.

(National # 15031.470 and SPC # 2944.15-10)

. 19, 19, t 18 16 101 14 21 31 UTIONIZING THE WAY THE WORLD USES ELECTRICITY™perconductor "nerican 3 format: 7 texts 1092 1/32 February 1983 fi | TH 专キ| 1

NIZINO THE WAY THE WORLD USES ELECTRICITY™ 1E: In the rconductor "rican tool industry, there have been rapid developments in cryogenic technology and its applications in the past ten years. At present, it has penetrated into cryogenic engineering, petrochemical industry, high energy physics, power industry, precision The application of low temperature has strongly promoted the development of low temperature technology in various fields such as instrumentation, computing technology, superconducting technology and medical equipment, from the 4900 liters/hour nitrogen liquefier used for large-scale accelerator superconducting magnets to the popular laboratory Small and automatic nitrogen liquefiers of various types; from large heat exchangers with a total length of 60 meters to sintered copper powder heat exchangers for He-He* dilution refrigerators; from gas bearing turbo expanders with 700,000 revolutions per minute to Miniature refrigerators that can refrigerate only by using waste heat from aerospace; from liquid hydrogen storage tanks with a capacity of thousands of cubic meters to super insulation technology that can prevent small heat leakage and broadcast radio radiation, from large-scale natural gas liquefaction plants to the march to absolute zero Nuclear demagnetization technology has been developed with each passing day. This book focuses on the latest developments and applications of cryogenic technology, focusing on sub-liquid nitrogen temperature and micro-refrigeration, concisely and systematically introducing nitrogen liquefaction technology, ultra-low temperature (1K or less) technology and various micro-refrigerators; tells about the research and development of the key components (expanders and heat exchangers) of the low-temperature refrigeration cycle; discusses the importance of low-temperature insulation, the improvement of modern insulation methods and some typical liquefied gases The storage, transportation and delivery equipment; finally briefly introduce the application of cryogenic technology in electronics, space science, natural gas liquefaction, life science and superconductivity technology. Books on oxygen machines and deep freezing. The purpose of this book is to give readers a general idea of the basic situation and new developments of cryogenic technology. For more readers to read, we do not count Book R as much as possible.