

Technical Specification for Air-Cooled Scroll Chillers

1. Introduction

Air-cooled scroll chillers are essential components in various industrial and commercial applications where precise cooling is required. This technical specification defines the basic operating principles of air-cooled scroll chillers and provides essential technical data for procurement purposes.

2. Operating Principle

Air-cooled scroll chillers operate on the principle of transferring heat from a process using a refrigeration cycle. Key components include a scroll compressor, condenser, evaporator, water expansion tank, and refrigerant. The process begins with the compressor, which compresses the refrigerant gas, increasing its temperature and pressure. The high-pressure and high-temperature gas flows to the condenser, where it releases heat to the ambient environment and condenses into a liquid. The liquid refrigerant then passes through an expansion valve, where it undergoes pressure reduction, leading to a decrease in temperature. This cold refrigerant circulates through the evaporator, absorbing heat from the process or space being cooled, and then returns to the compressor to repeat the cycle.

3. Technical Data

For the needs of our enterprise and in connection with BG PLAST LTD's participation in the "Cross border business model in industry for energy efficiency implemented by Bimex tel Ltd and BG Plast Ltd. – EnEfProducts" project, we wish to purchase 2 (two) chillers with different cooling capacities. The next-generation chillers are up to 30% more energy efficient compared to the chillers we currently have and will be replaced.

The technical specifications of the two separate cooling systems are as follows:

Chiller 1

Cooling Capacity:

- Minimum: 15 kW

- Maximum: 30 kW

Chiller 2

Cooling Capacity

- Minimum: 25 kW

- Maximum: 50 kW

4. Additional Characteristics

- **Efficiency:** The chillers must be designed for high efficiency to reduce energy and operational costs.
- **Compact Design:** The units should have compact dimensions to optimize space utilization.
- **Noise Level:** The chillers should operate with minimal noise levels to reduce disturbances in the surrounding environment.
- **Control System:** The user interface should be user-friendly while providing advanced monitoring and operational parameter adjustment features.
- **Serviceability:** The units should be easily accessible for maintenance and service, with key components readily available for servicing.