

ARMEC COOLING SYSTEM LIMITED

Ammonia Chilling Plant



Expandable, Fully Automatic, Ammonia Chillers

- Legislation is in place to phase out chlorofluorocarbons (CFCs) and hydro-chlorofluorocarbons refrigerants due to their harmful effect on the earth's ozone layer. This has led to the development of a new range of synthetic hydro-fluorocarbon refrigerants. The effect of these refrigerants on global warming, when released into the atmosphere is thousands of times greater than carbon dioxide. This has resulted in tighter legislations on the sale and usage of HFC refrigerants.
- The ARMEC made Chiller overcomes these environmental and long term availability concerns. Ammonia is naturally occurring refrigerant, with zero ozone depletion potential and zero global warming potential.
- The unit comes pre-charged and tested, to simplify site installation works and minimizing commissioning time. It is ideally suited for applications including chemical process cooling. There are many models of water cooled Ammonia Chiller with nominal capacities ranging from 20 TR to 500 TR based on cooling water at +5°C Alternative secondary fluids including glycol enable Ammonia Chiller to operate at fluid temperatures down to -10°C to -40°C without modification to the standard design.

Advantages of our chilling plant

- ✓ It saves up to 40% power in comparison to conventional Chilling plant.
- ✓ Factory tested, Portable and ready to install.
- ✓ Fully automatic.
- ✓ No need of operator
- ✓ Very less gas required (6 times) compared to conventional chilling plant.
- ✓ Required 1/3 space than conventional chilling plant.
- ✓ Oil return from oil separator is also automatic.
- ✓ Variable capacity in single chiller.
- ✓ Automatically adjustable capacity as per heat load.
- ✓ Can be expanded as per the need and load.
- ✓ Useful in applications where temperature requirement ranges from -40°C to +25°C.
- ✓ Chiller capacity ranges from 20TR to 500TR.
- ✓ Less maintenance.

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Technical Description

- ARMEC continuing with its never ending Endeavour to provide the latest and most advanced technology, now introduces for the first time in India, the fully Automatic, Expandable, Ammonia Chiller
- Ammonia chiller is naturally Expandable without much change to the standard design. The ammonia chiller can expand up to 30% of the actual of the plant.
- Ammonia chiller has been designed to meet the space constraints of a new or existing plant. All necessary components are mounted on the package, eliminating the need for additional site wiring or ammonia piping work installation. Optional heat recovery from the oil cooling circuit takes waste heat from the compression process and can be used for applications such as heating of glycol.
- Bringing down 1kW/1TR to just 0.8- the best in its own class, this saves power up to 40% as compared to conventional system.
- In addition to this, some sparkling advantages of the machine will make you feel that having any other requirement for your cooling needs will be a compromise.
- Unlike conventional chillers, this chiller operates at a wide range of capacities
- By ensuring consistent quality of the product, end user can provide the constant temperature to the process, starting at zero load and adjust to the process load, ensuring almost no breakdown of the components resulting in longer life.
- Designed for extreme ambient conditions (up to +50°C), considering highest engineering standards.
- The fully automatic expandable ammonia chiller is 40% power saving compared to conventional chilling system.

ARMEC COOLING SYSTEM LIMITED

ARMEC MADE reciprocating chiller

- We Design and Manufacture Ammonia based Packaged Chillers/Chilling Plants up to (-) 40° C, at our Factory situated at Changodar, Ahmedabad, which is one of the Developed Industrial Areas of Gujarat. The System is designed in accordance with latest National and International Standards.



- We offer range of Packaged Chiller/Chilling Plant with Water Cooled Type
- Condenser, Hermetic, Semi Hermetic, Open Type Reciprocating, Screw etc. type compressors, Evaporators, Complete Control Panel, Expansion Valve, Electrical Panel with Complete Interlocking System and fault Indication. The Packaged Chillers are tested for more than 48 hours under our stringent quality control System. Physical inspection and performance run trial of Packaged Chillers, is always insisted to the Client before dispatch.

Technical Description

- ✓ **Optimum Operating Parameters**
With ARMEC Chillers Capacities, Temperature, Refrigerant and the choice of ancillaries can be tailored to individual requirements.
- ✓ **Variable Packaged Contents**
Dependent of customer wishes the Packaged can include components say for example the Compressor, Drive Motors, Pumps, Panels etc.
- ✓ **Compact Package**
ARMEC Packages are delivered complete with internal piping, instrumentation, and wiring and ready for connection to the customer system immediately on arrival at site.
- ✓ **Simple Operating System**
All Operation and maintenance elements are accessible from one side for easy operation and maintenance.
- ✓ **On Site Utilities**
ARMEC Packages does not require any site and are ready to use type.

ARMEC COOLING SYSTEM LIMITED

ARMEC MADE Screw chillers

- We manufacture and supply wide Ammonia based Screw Chillers, with Water Cooled with variety of (Low / Medium) temperature range up to (-) 40 Deg C.
- We provide varied range and makes of **Screw Compressors** with Single and Twin Screw arrangements and with required fittings.
- We Provide Screw Chillers with Environment Friendly and HFC Free Refrigerant Ammonia.
- Selection of Excellent and first grade Raw material and fittings, and Experienced, Excellent and Quality workmanship is the key to guaranteeing Screw Chiller **Quality**.



Characteristics

- ✓ Full Product Range Suitable for Low Temperature and Medium Temperature Applications
- ✓ High Performance Compressors manufactured by specialized manufacturer like (JE HALL, BITZER, REFCOMP, FUSHENG, etc.), is adopted to ensure that the Chiller is Economical and durable.
- ✓ Precise Capacity Control 3 Steps/ 4 Steps or Continuous – Step less Capacity Control System. Both the Capacity Control System consists of Modulation Slide Valve, piston rod, cylinder and piston rings.
- ✓ Advanced control algorithm is adopted to control chiller in advance and hence avoid frequent stoppage.
- ✓ High Efficiency, Energy Saving & Low Operating Cost.
- ✓ Wide Operating Range.
- ✓ Automatic PLC Control.
- ✓ Robust and Simplified Structure, high reliability.
- ✓ Top Level Efficiency, Energy Efficient Performance and Long Lasting Reliability.
- ✓ Maximum Accessibility and Total Connectivity.
- ✓ **High Energy Efficiency** Variation in the Load of the Plant, whether seasonal or Daily, mean that the Chiller functions mainly with partial loads. The high number of capacity Steps available, the capacity to supply a load that meets the needs of the Chiller with less power absorption and the optimization of performance with partial loads distinctive features of these chillers, allow attainment of the high level of EER energy efficiency. High Energy efficiency means more respect for the environment and more cost savings. Conforming to ASME, TEMA Standards.

ARMEC COOLING SYSTEM LIMITED



Freon Chillers Plant

Advantages

- ✓ Large size chiller and condenser for any environmental conditions.
- ✓ A number of safety interlocks including functional controls of compressor, fan, pumps etc.
- ✓ Comfort in high operation, easy maintenance and less number of switching operations.
- ✓ Available with touch screen programmable logical control (PLC), easy in function, digital indication and fault details for troubleshooting operations.
- ✓ Chiller is made for any type of industrial applications
- ✓ User friendly operations of electrical as well as refrigeration
- ✓ Total independent refrigeration circuit
- ✓ Antifreeze protection
- ✓ Can sense pressure of system digitally
- ✓ Anti vibrators for compressors
- ✓ PID based temperature controller
- ✓ With over load protections for compressor, pump, fan etc.

ARMEC COOLING SYSTEM LIMITED

Screw chillers

- We manufacture and supply wide range of Freon based Screw Chillers, with Water Cooled and Air Cooled with variety of (Low / Medium) temperature range up to (-) 40 Deg C.
- We provide varied range and makes of **Screw Compressors** with Single and Twin Screw arrangements and with required fittings.
- We Provide Screw Chillers with Environment Friendly and HFC Free Refrigerants like Freon R134a, R407c, R507A, R404a.
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- ✓ Maximum Accessibility and Total Connectivity.
- ✓ Air Cooled and Water Cooled Options.
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Scroll chillers

ARMEC designs and manufacture High Efficiency Freon Based Scroll Chillers, with Deafness / Copeland make Scroll Compressors.



- Chillers are offered with Air Cooled and Water Cooled Options.
- ARMEC Manufactures Scroll Chillers starting from 5TR Capacity up to 20TR Capacity with Single Compressor System, and then after we offer multiple Compressor System, as per requirement. Chillers are available with varied range of Refrigerants like Freon R 22, R 404a, R 407c, R 507, R 134a etc.
- Chillers are provided with wide operating range, Low Noise, Low Vibration, Low Failure rate, and in compact design and maximum accessibility and total connectivity.
- Energy-efficient chillers to suit Indian conditions.
- Scroll Chillers design ensures that they operate efficiently even at high ambient temperatures that are frequently encountered in many parts of India / Abroad. These chillers are not only easy to install and commission but also ideally suited for handling varying load applications due to their multiple compressor configuration.

Features

- ✓ Reliable and highly energy-efficient scroll compressors
- ✓ Mega power savings with tandem scroll models
- ✓ Tropicalised design for high ambient temperatures up to 52° C
- ✓ Auto distribution of load for efficient running of the chiller
- ✓ Capacity modulation ensures that only required number of compressors operate to handle the load, thus saving power
- ✓ Lower electrical infrastructure cost
- ✓ Quiet operation

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ARMEC made Reciprocating Chilling Plant

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UCM



Advantages

- ✓ Aesthetic and innovative design not only to match your main machine standards, but also operator friendly
- ✓ Provides easy to work environment
- ✓ Power saving up to 30% compared to other conventional chilling plants, economy through simplicity
- ✓ UCM System is most powerful and reliable system which saves your electricity bill.
- ✓ Easy to operate, with all ultra-modern facility through touch screen operations, online help etc. available with plug & play (Optional) control panel
- ✓ Designed for Indian operating conditions
- ✓ It is High Side Dry Cooling System, so no requirement of water

ARMEC COOLING SYSTEM LIMITED

Air Chiller



It is the state of the art cooling technology for air blown film lines.

The control of constant temperature and air flow parameters is providing finished product with stable properties under any environmental conditions

Bubble cooling: bubble cooling is one of the major factors to consider during the extrusion process; the introduction of the internal bubble cooling system (IBC) and outer bubble cooling system (OBC) has allowed considerable progress by precise control of air temperature for cooling the external air ring.

Precise control of the air ring temperature ensures that the geometric shape of the bubble, the “neck”, the “frost line” position and the bubble’s diameter is maintained

AFD by supplying chilled air to the blown film extrusion line, grants a production increase up to 30%

AFD integrates the advantages being already part of the AFD system with a few technical pluses further increasing its performances and energy saving.

- ✓ With VFD which saves 30% energy than hot gas bypass system.
- ✓ Direct DX System.
- ✓ Fine accuracy of temperature, which can be adjustable at $\pm 1^{\circ}\text{C}$
- ✓ Multiple compressor design with scroll technology.
- ✓ 100% independent refrigeration and controls.
- ✓ Controlled by Programmable Logical Controller(PLC)
- ✓ Including Pressure Transmitter which senses the perfect pressure of system.

Advantages of Air Chiller

- ✓ Lower air temperature
- ✓ Reduce the power cost
- ✓ Precise temperature control ensures uniform air temperature throughout the process.
- ✓ Direct setting of air temperature.

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Air chillers control the temperature at air ring of $\pm 1^{\circ}\text{C}$ which provides the following advantages

- ✓ Consistent, high quality film
- ✓ Negligible temperature tolerance.
- ✓ Low temperature cooling increases shine in blown film.
- ✓ Increased productivity by up to 20%
- ✓ It can maintain properties of blown film plants under any environmental conditions.
- ✓ The direct air cooling system by direct expansion of the gas grants saving up to 50%, if compared to the standard chiller + heat exchanger system and up to 30% compared to any hot gas by pass system.