MIDSTATES
REFRIGERATION
SUPPLY

Industrial Duty Ammonia Refrigeration Systems

midstatesrefrigsupply.com

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About Mid States Refrigeration Supply

With over 30 years of experience in the refrigeration industry, Mid States Refrigeration Supply has built a reputation for reliability, expertise, and exceptional customer service.

As a trusted partner to contractors, technicians, and businesses across the region, we offer an extensive inventory of industrial refrigeration and HVAC supplies, parts, and equipment to keep your operations running smoothly. Our knowledgeable team brings decades of hands-on industry experience to every interaction, ensuring you get the right products and solutions — when you need them most.

At Mid States Refrigeration Supply, we're more than a supplier; we're a partner you can count on.

Built for Industry. Engineered to Perform.

Industrial Duty Ammonia Refrigeration Systems

Modular Natural Refrigerant Solutions for Cold Storage & Food Processing

Mid-States Refrigeration Supply, in partnership with Budzar Industries, offers rugged industrial ammonia (R717) refrigeration systems engineered for reliability, efficiency, and long service life in demanding refrigeration environments.

Designed for modern cold storage, food processing, and industrial refrigeration facilities, these modular outdoor refrigeration systems combine high-efficiency components with advanced PLC control technology to deliver dependable performance and simplified operation.

The MRS LTA Series ammonia refrigeration systems utilize proven screw compressor technology and intelligent capacity control to maintain optimal operating conditions while minimizing energy consumption.

These units are purpose-built for industrial environments and are engineered for outdoor installation with integrated condenser systems, heavy-duty enclosures, and advanced safety controls.

BUDZAR INDUSTRIES, LLC.

KEY ADVANTAGES

Industrial Reliability
Heavy-duty carbon steel frames and insulated aluminum enclosures provide long service life and protection from outdoor conditions.

High Efficiency Operation
Advanced condenser technologies and EC propeller fans provide efficient heat rejection and reduced energy consumption.

Advanced Capacity Control
Sliding valve screw compressors automatically modulate capacity based on system load, allowing the system to operate closer to design conditions.

Modular System Design
Factory-built refrigeration modules reduce field installation time, improve system quality, and simplify project execution.

Low Maintenance Design
Integrated system layouts simplify piping, electrical connections, and long-term service requirements.

Ideal Applications

- Food & Beverage
- Distribution
- Cold Storage
- Industrial Refrigeration

TYPICAL OPERATING CONDITIONS

- Refrigerant: R717 Ammonia (NH3)
- Freezer Evaporation Temperature: -20°F
- Cooler Evaporation Temperature: +20°F
- Ambient Operating Range: -20°F to 95°F

These systems are ideal for facilities requiring dependable refrigeration across multiple temperature zones.

ENGINEERED FOR INDUSTRIAL PERFORMANCE

Each MRS outdoor refrigeration module is a fully integrated refrigeration system designed for simplified installation and reliable operation.

Core System Components

Screw Compressors

Industrial MYCOM open-drive screw compressors provide the heart of the refrigeration circuit with multiple capacity control methods including:

- Variable Frequency Drive capacity control
- Compressor staging for multi-compressor systems
- Slide valve modulation
- Hot gas bypass capacity control

This combination allows refrigeration systems to operate efficiently across varying load conditions.

Integrated Refrigeration Circuit

System components are designed to maximize operational reliability and efficiency:

- Low pressure surge drum / accumulator
- Ammonia pumps (for recirculated systems)
- Oil separator with heaters and controls
- Liquid receiver
- Suction accumulator
- Filter driers and moisture indicators
- Pressure transmitters and RTDs
- Dual pressure relief valves with manual switchover
- Refrigerant safety controls

NH3 EVAPORATOR FEED OPTIONS

MRS refrigeration systems support multiple ammonia feed strategies, allowing the system designer to optimize performance for each application.

Direct Expansion (DX)

DX systems meter liquid ammonia directly into the evaporator coil through electronic or thermostatic expansion valves.

Benefits

- Lower system ammonia charge
- Reduced vessel requirements
- Simplified system design
- Lower installation cost
- Ideal for low charge ammonia systems

DX systems are commonly applied in:

- Cold storage warehouses
- Distribution centers
- Medium temperature refrigeration systems

Flooded Evaporator Systems

Flooded evaporator systems maintain a constant liquid ammonia level inside the evaporator to maximize heat transfer performance.

Benefits

- Excellent heat transfer efficiency
- Stable evaporator temperatures
- Improved compressor efficiency
- Ideal for high load refrigeration systems

Typical applications include:

- Industrial refrigeration plants
- Food processing facilities
- Large cold storage operations

Recirculated (Overfeed) Systems

Recirculated ammonia systems use pumps to circulate liquid ammonia through evaporators at controlled overfeed ratios.

Benefits

- Reliable evaporator performance
- Uniform liquid distribution across coils
- Improved heat transfer efficiency
- Ideal for facilities with multiple evaporators

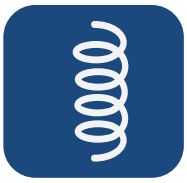
Recirculated systems are widely used in:

- Large cold storage warehouses
- Blast freezers
- Food processing plants
- Industrial refrigeration facilities

EVAPORATOR TECHNOLOGY & CONTROL

Modern evaporator technology plays a critical role in improving refrigeration system efficiency, reducing energy consumption, and maintaining stable product temperatures.

MRS systems integrate advanced evaporator control strategies similar to those used in high-performance industrial evaporator designs.



High Efficiency Coil Design

Industrial evaporators used in these systems incorporate advanced heat transfer coil technology including:

- High surface area fin designs
- Optimized tube geometry
- Enhanced refrigerant distribution
- Improved air-side heat transfer

These features maximize heat transfer while minimizing energy consumption.

EC Fan Motor Technology

Electronically Commutated (EC) fan motors provide high efficiency airflow control.

Advantages

- Up to 70% lower fan energy consumption
- Variable speed airflow control
- Reduced heat load in refrigerated spaces
- Quiet operation
- Longer motor life
- Soft start motor operation

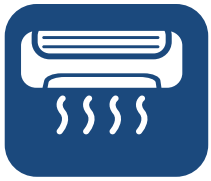
Fan speed can be controlled based on room temperature, suction pressure, or evaporator load demand.

Partner with Us for a Smarter Refrigeration Solution

At MRS, we combine engineering expertise, industry-leading components, and a customer-first approach to deliver a refrigeration system that truly fits your needs—not just what fits in a catalog.

Let's Build Your Custom System Today!

INTELLIGENT DEFROST STRATEGIES



Modern evaporators utilize advanced defrost control methods to maintain coil performance while minimizing energy use.

Available defrost options include:

Electric Defrost

- Reliable defrost method for medium temperature applications
- Time or demand-based defrost initiation

Hot Gas Defrost

- Uses compressor discharge gas to defrost coils
- Rapid defrost cycles
- Reduced electrical consumption
- Ideal for freezer environments

Demand Defrost

- Sensors monitor frost accumulation on coils
- Defrost occurs only when necessary
- Reduces defrost frequency
- Improves temperature stability

Smart Evaporator Control Integration

The system PLC coordinates evaporator operation with refrigeration system performance.

Integrated control functions include:

- EC fan speed modulation
- Defrost scheduling and sequencing
- Coil temperature monitoring
- Room temperature control
- Alarm monitoring and diagnostics

CONDENSING OPTIONS

MRS refrigeration systems can be paired with multiple condenser technologies depending on climate, water availability, and energy efficiency goals.

Air-Cooled Condensers

Air-cooled condensers provide a simple and reliable heat rejection method.

Advantages

- No water consumption
- Lower maintenance requirements
- Simplified installation
- Ideal for water-restricted locations

Evaporative Condensers

Evaporative condensers provide the highest heat rejection efficiency and are commonly used in large industrial refrigeration plants.

Advantages

- Lower condensing temperatures
- Reduced compressor energy consumption
- Superior performance in high ambient climates
- Proven industrial refrigeration technology

Adiabatic Condensers

Adiabatic condensers combine air-cooled operation with water-assisted cooling during high ambient temperatures.

Advantages

- Reduced water usage compared to evaporative systems
- Improved efficiency compared to standard air-cooled condensers
- Lower condensing temperatures during peak loads

ADVANCED CONTROL PLATFORM

Each refrigeration system includes a PLC-based control platform with a 12-inch touchscreen interface.

System monitoring includes:

- Compressor pressures and temperatures
- Refrigerant flow conditions
- Suction and discharge pressures
- Subcooling and superheat monitoring
- Compressor run-time tracking
- Alarm and safety monitoring

The Allen-Bradley CompactLogix PLC platform provides industrial reliability with Ethernet communications capability for remote monitoring.

SYSTEM CAPACITY OPTIONS

MRS modular refrigeration systems are available in multiple capacities designed to match refrigeration loads for cold storage and food processing facilities.

Low Temperature Freezer Systems (-20°F SST)

Model	Capacity	Compressors
LTA-60T	60 Tons	1
LTA-90T	90 Tons	1
LTA-120T	120 Tons	1
LTA-160T	160 Tons	1
LTA-180T	180 Tons	2
LTA-240T	240 Tons	2

Medium Temperature Cooler Systems (+20°F SST)

Model	Capacity	Compressors
LTA-60T	60 Tons	1
LTA-90T	90 Tons	1
LTA-120T	120 Tons	1
LTA-160T	160 Tons	1
LTA-180T	180 Tons	2
LTA-240T	240 Tons	2

Dual Temperature Refrigeration Systems

Model	Freezer	Cooler	Configuration
LTA-120 / 60	120 Tons	60 Tons	1 LT / 1 MT
LTA-160 / 90	160 Tons	90 Tons	1 LT / 1 MT

OPTIONAL HEAT RECOVERY PACKAGE

An optional heat recovery system can be integrated to capture compressor discharge heat.

Typical applications include:

- Freezer floor heating
- Facility hot water generation
- Process heating applications

This improves overall system energy efficiency while reducing facility operating costs.

PROJECT TIMELINE

Typical manufacturing schedule:

- Engineering drawings issued: 4–6 weeks after order
- Equipment shipment: 26–30 weeks after drawing approval

MID-STATES REFRIGERATION SUPPLY
Industrial Refrigeration Systems & Natural Refrigerant Solutions

Providing engineered refrigeration systems

- Cold Storage Facilities
- Food Processing Plants
- Blast Freezer Operations
- Distribution Warehouses
- Industrial Refrigeration Plants

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