Since 1976, EVAPCO, Incorporated has become a leader in the engineering, manufacturing and supply of quality refrigeration products for the largest food and beverage processors around the world.

EVAPCO is an Employee-Owned Company whose success has been the result of a continual commitment to product development, quality workmanship and a dedication to provide the highest level of customer service in the industry.

With its strong emphasis and annual allocation of resources to Research & Development and modern manufacturing facilities, EVAPCO has earned a reputation for technological innovation and superior product quality. EVAPCO’s product development team continues to focus on the latest needs and concerns of the Industrial Refrigeration end-user with new product designs offering:

- Reduced Energy Requirements
- Durable Materials of Construction
- Easier Maintenance Accessibility
- Clean Hygienic Design

EVAPCO has consistently achieved record sales growth year after year establishing itself as the industry leader and setting the standard for Quality and Service for others to follow.

EVAPCO products are manufactured in 16 facilities located in 7 countries around the world and supplied through a sales network consisting of over 160 offices.

The ST Series Evaporator Product Lines have been expanded to include:

- New coil sizes and larger capacities
- New combinations of coils and fan motors
- New material option with Aluminum tube coils

ST Series Evaporators are well-suited for all types of applications. The ST product lines are the result of extensive low temperature coil research in EVAPCO’s state-of-the-art laboratory. This research coupled with EVAPCO’s extensive product application experience has yielded a new coil design that provides:

- Higher Heat Transfer Efficiency
- Lower Annual Operating Costs
- Reliable Product Operation
- Simplified Maintenance
- Improved Hygiene and Cleanability

**Product Features**

ST Series Evaporators feature a high performance heat exchanger coil. SST Models are constructed of Type 304L Stainless Steel tubing and Aluminum fins as standard equipment. SLT Models are constructed with Aluminum tubing and Aluminum fins. SCT Models are equipped with heat exchanger coils manufactured from Copper tubing with Aluminum fins. The unit casing and drain pan are available in either premium G-235 Hot Dip Galvanized Steel or Type 304 Stainless Steel depending on the product line. ST Series Evaporators are available in several different models with a wide range of capacities to deliver the cold air required in the majority of product applications.
**STM Unit Coolers**

Small to medium size unit coolers for freezers, coolers and docks requiring low, medium and high temperature applications. STM Models offer improved accessibility features, clean cabinet/pan design and corrosion inhibiting materials of construction.

STM Evaporators are offered with Stainless Steel tube (SSTM Models), Aluminum tube (SLTM Models) or Copper tube (SCTM Models) all with Aluminum fins.

STM Evaporators are available in capacities from 1.5 to 56 TR.

**SSTL Product Coolers**

Large product coolers for low and medium temperature freezer or cooler applications. SSTL Models combine high capacity models with maintenance friendly features for the best value in large evaporators.

SSTL Evaporators are only available with Stainless Steel tube with Aluminum fins. SSTL Models are available in capacities from 11 to 86 TR.

**STW Workroom Units**

Low velocity air units for processing rooms. Units feature stainless construction with hinged panels for easy access. STW Evaporators are designed to provide working comfort in high occupancy rooms.

STW Evaporators are offered with Stainless Steel tube (SSTW Models), Aluminum tube (SLTW Models) or Copper tube (SCTW Models) all with Aluminum fins.

STW Evaporators are available in capacities from 2 to 27 TR.

**STD Low Profile Coolers**

Dual coil models for low, medium and high temperature applications in rooms with low ceiling height requirements. STD Models feature a unique clean cabinet/pan design available in durable materials of construction.

STD Evaporators are offered with Stainless Steel tube (SSTD Models), Aluminum tube (SLTD Models) or Copper tube (SCTD Models) all with Aluminum fins.

STD Evaporators are available in capacities from 3 to 33 TR.
HEAT EXCHANGER COIL
Evapco has long been known for its innovation in heat exchanger coil design. Over ten years ago, Evapco introduced the Thermal-Pak® Finned Coil which revolutionized the industry. Evapco has raised the bar again through the strength of field experience and R&D focused on coil technology. ST evaporators are equipped with a high-performance coil designed specifically for industrial applications. The coil tube diameter, geometry and circuiting have been optimized through thousands of hours of theoretical modeling and actual laboratory testing. The result is optimal heat transfer efficiency with the lowest airside pressure drop. The ST evaporators offer superior performance with the lowest available motor horsepower per ton.

OPTIMIZED COIL CIRCUITING
Industrial refrigeration experience demonstrates that coil circuiting must be designed to match the heat transfer load for a specific refrigerant at the operating temperature. The circuiting program used on all Evapco coils has been optimized based on actual coil operation in Evapco’s research lab. Refrigerant flow and pressure drop measurements were matched against coil performance to find the optimum circuiting pattern for a given set of flow and temperature conditions. Optimizing the number of circuits and the circuiting pattern improves the heat transfer efficiency of the coil system and lowers annual operating cost for the end user.

COIL DESIGN
Through the use of computational fluid dynamics (CFD) modeling software, finite element heat transfer analysis and proprietary coil performance calculation methods, Evapco engineers identified significant design elements to improve the finned coil performance. The extensive computer modeling was later refined and verified through coil performance evaluation in Evapco’s research laboratory.

RESEARCH & DEVELOPMENT
Evapco is committed to providing the most innovative products to meet today’s stringent application needs and has dedicated the necessary resources to provide that technology today.

The Evapco Research & Development Center features the industry’s largest low temperature, insulated environmental test chamber. The conditions in the test chamber are controlled by a fully functional ammonia refrigeration system designed to operate at suction temperatures as low as -60°F.

FAN TEST STAND
The ST Series evaporator performance is based on critical analysis of the fan performance. Working in Evapco’s Air Movement and Controls Association (AMCA) style airflow test chamber, fan and motor combinations were matched to each coil/cabinet design to achieve optimum performance.
**Superior Stainless Steel Technology - SST Models**

SST Evaporators are constructed with high grade Type 304L Stainless Steel tubing and Aluminum fins as standard. The stainless steel tubing meets the requirements of ASME B31.5 refrigerant piping code. The tubing is manufactured from high quality Type 304L Stainless Steel, roll formed, continuously welded and annealed. The tube is tested using an eddy current device.

The round tubing is fit into the Aluminum fin plate and hydraulically expanded. This procedure provides more consistent contact between the tube and the fin plate than mechanical expansion. The entire coil is then pressure tested to 400 psig. Lastly, the coil is evacuated and charged with low pressure Nitrogen prior to shipment.

The Stainless Steel tubes are available in 5/8” OD and 1.05” OD. Coils are built in 3, 4 and 6 fpi as standard using a full collar Aluminum fin designed to enable debris to flow through the coil and allow for more efficient cleaning. Variable fin spacing is available as an option.

**Superior Aluminum Technology - SLT Models**

SLT Evaporators are built with seamless 5/8” OD Aluminum tubing. The Aluminum tubes are are fit into the Aluminum fin and expanded for optimum contact between tube and fin. 3, 4 and 6 fpi increments are available with variable spacing as an option.

**Superior Copper Technology - SCT Models**

SCT Evaporators are manufactured with seamless 5/8” OD Copper tubing. The Copper tubes are fit into the Aluminum fin and expanded for optimum contact between tube and fin. Coils are built in 3, 4 and 6 fpi increments with a full collar aluminum fin designed to enable debris to flow through the coil and allow for more efficient cleaning. Variable fin spacing is available as an option.

**Casing**

**STM & SSTL Evaporators**

Standard construction of the casing and drain pan is from G-235 Hot Dip Galvanized Steel with an option for Type 304 Stainless Steel. G-235 is the highest level of mill galvanizing offered in the industry and exceeds the zinc protection that other manufacturers provide when using G-90 mill galvanized steel. The higher level of galvanizing provides a greater level of corrosion protection for a longer product life.

**STW Evaporators**

Workroom units are manufactured with Type 304 Stainless Steel casing panels and pan cover. The shipping supports are constructed from G-235 Hot Dip Galvanized Steel and should be removed after installation.

**STD Evaporators**

Standard construction of the casing and drain pan is from G-235 Hot Dip Galvanized Steel with an option for Type 304 Stainless Steel.

Refer to the product sections in this bulletin for additional construction details.

**Fans**

EVAPCO’s extensive air side research and testing has identified fans with the best combination of efficiency and sound levels. Standard catalog models are selected to provide low sound levels. EVAPCO’s low sound fan selections provide more comfort and a safer working environment for personnel entering the cold space. SSTL Evaporators have cast aluminum fans as standard while cast blades are optional on most other models.
STM Small & Medium Unit Coolers

Small to medium size unit coolers for freezers, coolers and docks for low, medium and high temperature applications. STM Evaporators are equipped with many owner oriented features that increase the ease of maintenance, improve the hygienic design of the evaporator and provide a safer working environment.

- SSTM constructed with heavy wall Stainless Steel tubing
- SLTM constructed with Aluminum tubing
- SCTM constructed with Copper tubing
- Standard Aluminum Fin construction
- One to five fan models
- Capacities from 1.5 to 56 TR
- Clean cabinet design
- Hygienic drain pan design
- Easy installation
ADVANCED MATERIALS OF CONSTRUCTION

STM Evaporators are manufactured as standard with Type 304L Stainless Steel tubing and Aluminum fin heat exchanger coils. SLTM Models are built with Aluminum tube and Aluminum fin coils. SCTM Evaporators are equipped with Copper tubing and Aluminum fin coils. The casing and drain pan are manufactured from G-235 Hot Dip Galvanized steel as standard. Optional materials of construction for the casing and drain pans are Type 304 Stainless steel.

DESIGN FEATURES

STM evaporators are equipped with owner-oriented benefits that solve many operational problems end users have experienced with traditional evaporators. Cleanability, good maintenance access and a safe working environment are important concerns of most end-users. EVAPCO has designed the STM Evaporator to address all of these issues and to provide the easiest evaporator to clean and maintain.

Hinged Fan Panels
The fan panels on all STM Evaporators are hinged to provide access to the fan motors and the air exit side of the coil. This feature facilitates cleaning of the coil and drain pan as well as allowing the operator to perform any maintenance required to the interior of the unit.

Fans & Fan Motors
All fan motors including fractional horsepower fan motors are foot mounted for improved durability in a wide range of operating conditions. EVAPCO worked closely in conjunction with leading motor manufacturers to develop fan motors specifically for evaporator applications. Fan motors on catalog models up to 1-1/2 horsepower are equipped with automatic thermal overload protection and all fan motors are pre-wired to a NEMA 4X junction box. Fan motors are mounted on structural channels designed and built by EVAPCO to operate reliably and are guaranteed against structural failure caused by low temperature conditions.

STM Evaporators are furnished with heavy duty sheet metal fans as standard. EVAPCO has selected these fans specifically for their efficiency as well as for their low sound to improve worker comfort and safety. Optional cast aluminum fan blades are available to meet special low temperature applications.

Sloped Top Panels
The top panels of STM Evaporators are sloped to prevent moisture from condensation or clean-up cycles from accumulating on the top of the unit. Water from the top of the unit will drain into the over-sized, full coverage drain pan, improving the cleanliness of the unit and preventing the possibility of product contamination.

Drain Pans
Sloped Hygienic Design
The drain pans on STM Evaporators are sloped in two directions to prevent water from pooling in the pan. The drain pans are custom engineered and equipped with swaged bottom outlets to ensure complete drainage. The drain pan is factory mounted prior to shipment.

Full Coverage, Fully Accessible
The standard drain pans on STM Evaporators provide full coverage of the entire casing section and coil connections. This design ensures that all moisture from the evaporator collects in the drain pan while preventing any droplets from falling into the refrigerated space. In addition, the drain pans are fully accessible with the wet coil baffles installed. Wet coil baffles are installed in the middle of the coil to prevent air bypass and allow for drain pan access from both sides of the coil.

Ease of Installation
STM Evaporators are designed for greater structural rigidity and easier installation. STM Models ship with sheet metal channels that allow the unit to be easily handled with a forklift. Once the unit is installed, the shipping supports are easily removed.
SSTL Large Product Coolers

Large product coolers for low and medium temperature freezer or cooler applications. Built for larger applications, SSTL Evaporators offer end user oriented features that improve sustainability and facilitate maintenance.

- SSTL constructed with heavy wall Stainless Steel tubing
- Standard Aluminum Fin construction
- One to four fan models
- Capacities from 11 to 86 TR
- Clean cabinet design
- Hygienic drain pan design
- Easy installation
**Advanced Materials of Construction**

SSTL evaporators are manufactured as standard with Type 304L Stainless Steel tubing and Aluminum fin heat exchanger coils. The casing and drain pan are manufactured from G-235 Hot Dip Galvanized steel as standard. Optional materials of construction for the casing and drain pans are Type 304 Stainless steel.

**Design Features**

SSTL evaporators are equipped with owner-oriented benefits that solve many operational problems end users have experienced with traditional evaporators. Cleanability, good maintenance access and a safe working environment are important concerns of most end-users. EVAPCO has designed the SSTL evaporator to address all of these issues.

**Fans & Fan Motors**

All fan motors are foot mounted for improved durability in a wide range of operating conditions. EVAPCO worked closely in conjunction with leading motor manufacturers to develop fan motors specifically for evaporator applications. All fan motors are pre-wired to a NEMA 4X junction box. Fan motors are mounted on structural channels designed and built by EVAPCO to operate reliably and are guaranteed against structural failure caused by low temperature conditions.

SSTL evaporators are furnished with heavy duty cast aluminum fans as standard. EVAPCO has selected these fans specifically for their efficiency as well as for their low sound to improve worker comfort and safety.

**Sloped Top Panels**

The top panels of SSTL evaporators are sloped to prevent moisture from condensation or clean-up cycles from accumulating on the top of the unit. Water from the top of the unit will drain into the drain pan, improving the cleanliness of the unit and preventing the possibility of product contamination.

**Drain Pans**

**Sloped Hygienic Design**

The drain pans on SSTL evaporators are sloped in two directions to prevent water from pooling in the pan. The drain pans are custom engineered and equipped with swaged bottom outlets to ensure complete drainage. The drain pan is factory mounted prior to shipment.

![Cast Aluminum Fan Blades](image)
STW Evaporators are designed for low velocity applications such as processing rooms where the evaporators are located in the same space as operating personnel.

- SSTW constructed with heavy wall Stainless Steel tubing
- SLTW constructed with Aluminum tubing
- SCTW constructed with Copper tubing
- Standard Aluminum Fin construction
- One to five fan models
- Capacities from 2 to 27 TR
- Easy access cabinet design
- Hygienic drain pan design
- Easy installation
ADVANCED MATERIALS OF CONSTRUCTION

SSTW Evaporators are manufactured as standard with Type 304L Stainless Steel tubing and Aluminum fin coils. SLTW Evaporators are built with Aluminum tube and Aluminum fin coils. SCTW Evaporators are built with Copper tubing and Aluminum fins. Casing panels and drain pan covers are also Type 304 Stainless Steel. Fan motor base, inner pan liner and shipping/installation supports are constructed from G-235 Hot Dip Galvanized Steel with options for Type 304 Stainless Steel.

DESIGN FEATURES

The STW evaporators are equipped with owner-oriented benefits that improve the operation of processing rooms. The ease of maintenance and improved accessibility reduces downtime required for clean-up.

Hinged Access Panels

All casing panels on STW Evaporators are hinged to facilitate cleaning. Where most workroom units have removable casing panels, the hinged panels on the STW reduce the time required to service the evaporator.

Fans & Fan Motors

All fan motors including fractional horsepower fan motors are foot mounted for improved durability in a wide range of operating conditions. All fan motors are equipped with automatic thermal overload protection and are pre-wired to a NEMA 4X junction box. Fan motors are mounted on heavy gauge structural channels specifically designed and built by EVAPCO to operate reliably. All catalog models are selected with 870 rpm motors for low air velocity and low sound.

Sloped Top Panels

The top panels of STW Evaporators are sloped to prevent moisture from condensation or clean-up cycles from accumulating on the top of the unit. Any water from this area will drain into the over-sized full coverage drain pans, thereby, improving the cleanliness of the unit and preventing the possibility of food contamination.

Drain Pans

Sloped Hygienic Design

The drain pans on STW Evaporators are sloped in two directions to prevent water from pooling in the pan. The drain pans are custom engineered and equipped with swaged bottom outlets to ensure complete drainage of the pan. The drain pan ships factory mounted on the unit.

Full Coverage, Fully Accessible

The drain pans on STW Evaporators provide full coverage of the entire casing section and coil connections as standard. This ensures that all moisture from the evaporator collects in the drain pan while preventing any water droplets from falling into the refrigerated space. In addition, the drain pans are fully accessible. The operator has access to the entire drain pan for cleaning without any disassembly.

Ease of Installation

STW Evaporators are designed for greater structural rigidity and easier installation. Shipping supports incorporate structural channels that allow them to be safely lifted into position using a forklift. Once the unit is installed, the supports are easily removed. The increased structural integrity of the STW evaporators allow for the elimination of shipping skids and crating disposal expense.
STD Evaporators are designed for freezer and cooler applications requiring a low profile unit or dual airflow from a single unit.

- STD constructed with heavy wall Stainless Steel tubing
- SLTD constructed with Aluminum tubing
- SCTD constructed with Copper tubing
- Standard Aluminum Fin construction
- One to five fan models
- Capacities from 3 to 33 TR
- Easy access cabinet design
- Hygienic drain pan design
- Easy installation

Shown with shipping and installation supports.
**Materials of Construction**

STD Evaporators are manufactured with Type 304L Stainless Steel tubing and Aluminum fin coils as standard. SLTD Models are built with Aluminum tube and Aluminum fin coils. SCTD Evaporators are built with Copper tubing and Aluminum fins. Casing panels and drain pans are G-235 Hot Dip Galvanized steel as standard. Type 304 Stainless steel construction is available as an option.

**Hinged Fan Panels**

The fan panels on all STD Evaporators are hinged to provide access to the fan motors and plenum section of the unit. This feature facilitates cleaning of the inside coil face and the unit housing as well as allowing the operator to perform any maintenance required to the interior of the unit.

**Fan Motors**

All fan motors, including fractional horsepower, are foot mounted on heavy duty steel channels for improved structural integrity. Fan motors on catalog models up to 1-1/2 horsepower are equipped with automatic thermal overload protection. All fan motors are pre-wired to a NEMA 4X junction box. Fan motors are mounted on structural channels designed by EVAPCO.

STD Evaporators are furnished with heavy duty sheet metal fans as standard. Optional cast aluminum fans are available for special low temperature applications.

**Drain Pans**

**Sloped Hygienic Design**

The drain pans on STD Evaporators are sloped in two directions for maximum effectiveness and to prevent any water from pooling in this critical area. The saddle drain connection is installed in the end of the pan to minimize the height of the evaporator piping and to ensure complete drainage.

**Full Coverage, Fully Accessible**

The standard drain pans on STD Evaporators are fully accessible. Wet coil baffles are installed in the middle of the coil. This allows the operator to clean the entire drain pan without any disassembly.

**Interconnecting Piping**

EVAPCO furnishes the interconnecting piping between coils for the inlet and outlet connections. This reduces the cost of installation of the evaporators.

**Unit Configuration**

All dual coil model Evaporators can be constructed for either blow-thru or draw-thru air configuration to match the room application.

**Ease of Installation**

Evaporators are designed for greater structural rigidity and easier installation. STD shipping supports incorporate structural channels that allow the unit to be easily handled with a forklift. Once the unit is installed, the supports should be removed.
**Optional Features**

**Air Discharge Arrangements**

**Long Throw Adapters**
ST Series Evaporators may be equipped with long throw adapters for installations in large rooms or corridors.

**45° or 90° Downblow Configuration**
ST Series Evaporators may be equipped with a 45° downblow option for layout flexibility or with 90° downblow for penthouse applications.

**Defrost**
- **Air**
  ST Series Evaporators with air defrost are equipped with full coverage insulated drain pans.
- **Water**
  ST Series Evaporators with water defrost are equipped with a water distribution system and a special drain pan to prevent water from splashing into the refrigerated space.
- **Hot Gas**
  Hot gas defrost options include the coil only or hot gas coil and pan. For coil only defrost, ST Series Evaporators are equipped with insulated drain pans. For hot gas coil and pan, ST Series Evaporators are equipped with a hot gas coil under the inner drain pan. The unique design of the hot gas drain pan provides for highly efficient defrost. Hot gas defrost units may be piped with either parallel feed to coil and drain pan or series flow from drain pan to coil. Hot gas pan-to-coil piping includes a factory mounted check valve.
- **Electric Defrost**
  Available on STM, STD and STW Models, the electric defrost option incorporates electric resistance heater elements with termination thermostat to defrost the coil. STM and STD electric defrost options are sized based on room temperature. Electric pan heaters included for room temperatures below 32°F. Electric defrost can be supplied with optional heater contractor.

**Fan Motors**
All ST Series Evaporators are supplied with totally enclosed air over (TEAO), foot mounted fan motors with sealed bearings and low temperature grease. Standard motors range from 1/2 horsepower fractional motors to 5 horsepower and are suitable for 230/460 volt, 3 phase, 60 cycle applications. In addition, standard motors are across-the-line start and operate at either 870, 1160 or 1750 rpm. All 870 rpm motors up to 1 hp, all 1160 rpm motors up to 1-1/2 hp and all motors up to 2 hp 1750 rpm are equipped with automatic thermal overload protection. Optional motors are available, some of which are detailed below.
- **Multi-Speed**
  ST Series Evaporators may be equipped with multi-speed fan motors to match equipment capacity to reduced heat load requirements.
- **Inverter Duty**
  ST Series Evaporators may be equipped with VFD duty fan motors for infinite steps of capacity control.
- **Washdown Duty**
  For applications requiring CIP or water clean-up cycles, ST Series Evaporators may be equipped with washdown duty fan motors.

**Coil Options**
- **Reheat Coil**
  Optional reheat coils are available for applications requiring humidity control. A separate heating coil is designed and circuited for refrigerant or an alternate heat source and is installed on the leaving air side of the cooling coil to heat the air to the desired temperature. Consult your EVAPCO Industrial Refrigeration Representative for selection and application assistance.
- **Heavy Fin**
  ST Series Evaporators can be equipped with 0.028” heavy gauge Aluminum fins. 8 times stronger than galvanized steel fins, this option provides heavy duty construction for harsh environments and heavy frost applications.

**Electrical**
Fan Motors on ST Series Evaporators are prewired to a terminal box as standard. Wiring on one and two fan models terminate with leads inside a NEMA 4x junction box. For models with three or more fan motors, a terminal strip is included to which the motor leads are wired. Other electrical options include:
- Prewired to Terminal Strip
- Prewired to a Common Non-Fused Disconnect
**OPTIONAL FEATURES** (Cont.)

- **Canadian Registration Number**
  ST Series Evaporators can be furnished with CRN for Canadian applications.

- **Variable Fin Spacing**
  For applications where heavy frost loads are anticipated, variable fin spacing is available to extend cycles between defrost. Variable fin spacing is available in 1.5/3 fpi or 2/4 fpi in two row increments. Consult your EVAPCO Industrial Refrigeration Representative for selection and application assistance.

- **Drain Pan Options**
  - **Hot Gas Defrost**
    Drain pans equipped with hot gas defrost incorporate a unique tube design mechanically bonded to the underside of the pan liner and secured with a retaining plate. The hot gas coil design provides more heat transfer surface area and results in improved defrost performance with very low pressure drop. The construction features yield a completely flat, easy to clean interior pan surface.

- **Stainless Steel Construction**
  - Inner pan liner, outer pan cover or both

- **Heat Tracing**
  - Inner pan liner
  - Outer pan cover

- **Over-sized Drain Pan**
  Wider and/or longer than standard

**CUSTOM COIL APPLICATIONS**

EVAPCO offers a broad range of unit configurations along with engineering expertise and manufacturing capability to design and build virtually any type of non-cataloged custom coil or special unit, some of which are featured below. We welcome the opportunity to meet with you and discuss your custom coil applications. Please call your EVAPCO Industrial Refrigeration Representative or contact the factory for assistance.

- **Spiral Freezer Evaporator**

- **Custom Coils**
  - Custom fin length, rows deep and/or tubes high
  - Alternate materials of construction
    - Hot Dip Galvanized Steel
    - Stainless Steel Tube and Aluminum Fin
    - Copper Tube and Aluminum Fin
    - Aluminum Tube and Aluminum Fin

- **Stacked Blast Freezer Evaporator**

- **Floor Mount Evaporator**