ECOSS
Evaporative Condenser Stainless Steel

0.3 – 2.5 MW

The Best Choice In Evaporative Cooling
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The Güntner ECOSS stainless steel evaporative condenser product line is proof of our ecological commitment to environmental and industry concerns and enables us to offer a product that will exceed the expectations of the facility owners, operators, and installers.

**Highest thermal performance**
- lower operating costs
- lower maintenance costs
- lower installation costs

Galvanized coatings for evaporative condensers have been used in industry since the 1950s. A lot has changed since the 1950s. More stringent environmental discharge concerns have led to the reduction or elimination of effective chemicals in both the galvanizing process and in water treatment programs. Facility owners need to consider water usage restrictions, source water quality, discharge permits, and which chemicals they are willing to allow at their prospective facility site prior to making any investment decision.

The ECOSS stainless steel evaporative condenser product line makes these decisions a lot easier. Stainless steel coils and casing do not leach zinc or lead into the water system, do not require costly and time consuming passivation treatments, and do not risk the occurrence of premature failure due to “white rust”. They do offer superior corrosion resistance to reduce water and chemical usage, a reduced propensity to scale on the smooth walled stainless steel, and a more forgiving material for long life even when faced with eventual water quality “upset conditions.”

The benefits of the ECOSS stainless steel condenser are leveraged using the Güntner control technology which addresses the environmental and economic impacts of strained water resources. This eco-friendly control technology minimizes water treatment requirements and allows for operation at higher cycles of concentration, with reduced blowdown and lower make-up water requirements.

Güntner expertise in heat transfer design and stainless steel construction allows us to provide these benefits in a cost effective manner which boosts the return on investment for all-stainless construction to unprecedented levels. The total cost of ownership is reduced through long equipment life, low operating costs, low maintenance costs, and sustainable thermal performance, making the ECOSS stainless steel evaporative condenser the new choice in evaporative cooling.
The occurrence of corrosive damage to galvanized steel condensers has increased dramatically in recent decades. Chromates have been all but eliminated and zinc treatments are restricted in many locations today. White rust damage to evaporative condensers and more specifically galvanized steel condenser coils is almost 5 times more damaging than it was 15 years ago. Galvanized steel surfaces must be passivated at start-up and routine maintenance intervals, requiring valuable man hours and associated chemical costs. Improper or no passivation at start up can destroy a galvanized steel condenser within a year. Stainless steel coils and surfaces are self-passivating!

304L/316 Stainless Steel Construction
- Stainless steel coil
- Stainless steel frame and covers
- Fully welded stainless steel basin

Longer Product Life
- Self passivating stainless steel provides a significantly longer product life than galvanized steel
- Fans and drives are designed for evaporative service
- EC fan models have stainless steel shafts and bearings
- More likely to survive water quality upset conditions

Capacity Range
- 0.3 – 2.5 MW per unit
- Scalable frame design with dual and quad arrangements
- More than 45 unit variants available

Compact Design
- High power density through optimized water distribution over entire coil surface
- 50 % lower operating weight
- Reduced refrigerant charge
- Reduced expense for substructure

High efficiency fans
- AC or EC motor technology
- Low noise characteristics
- Multiple fan motors provide increased redundancy

Simplified Rigging
- Quick and easy assembly
- Dimensionally stable and rigid segments
- Reduced installation costs
- No heat treatment, no warping

Inlet Louvers
- Prevents water splash out
- Sight tight
- UV resistant
- Corrosion resistant

Certifications
- ISO-9001 quality assurance
- Certification of the thermal capacity of cooling towers in acc. with CTI STD-201
- PED 2014/68/EU Certification
- CE Marking

Plug-and-play GMM EC
- Integrated Motor Management and integrated capacity control
- Does not require any additional software
- GHM water management available
Lower operational cost

Premium materials and components provide a platform to reduce operating costs by reducing energy consumption, reducing water usage, and reducing water treatment costs.

Energy Savings
- High-efficiency, direct drive fan systems
- EC fan technology alternatives to further reduce power consumption

Intelligent Control System
- Güntner Motor Management as standard with EC fans
- Selective fan shutdown
- Easy integration into customers system
- Record of all energy data
- Messages and warnings are shown on controller display

Water Savings
- Greater corrosion resistance can permit higher cycles of concentration and reduce water usage
- Güntner Motor Management (GMM) and Güntner Hydro Management (GHM) for optimal water management

Less Chemical Usage
- Stainless steel construction eliminates passivation treatment costs and delays associated with galvanized steel
- Greater corrosion resistance can reduce water and chemical usage, permit higher cycles of concentration

Lower maintenance cost

Hinged fan nozzles, a service walkway located within the fan deck compartment, optimized perimeter access and a stepped basin design located on the side of the unit are just some of the features which make the Güntner ECOSS evaporative condenser a preference to service and/or maintain.

Self Passivation
- Stainless steel is self-passivating in normal service
- No need for start-up passivation
- No ongoing monitoring and periodic passivation

Easy Access
- Hinged fan panels for access to drift eliminators and spray nozzles
- Walkway beneath fan guards
- Vertical alignment of inlet louvers for easy access to basin

Direct Drive Fans
- Eliminate all routine maintenance
- NO belt adjustments or replacements
- NO belt sheaves to align or replace
- NO greasing of bearings or replacement of bearings
- NO replacement of drive shafts

Reliable Spray Water System
- Removable spray nozzles
- Large orificed nozzles prevent clogging
- Riser pipe from pump positioned to prevent breakage
- Stainless steel strainer
- Fully drainable basin
Significantly reduced installation labor

Factory wiring, plug-and-play control options, and designs for quick and trouble-free assembly of sections will reduce installation labor and site construction time. The upper and lower sections fit tightly together with an inter-locking structural design which ensures proper alignment and prevents water leakage at the field seams. The robust modular frame ensures the sections remain square during transportation and allow for trouble-free alignment during assembly, reducing man hours and access requirements associated with assembly. The integral positioning guide points and field seam design do not require drift pins or sealer tape for proper, quick, and watertight assembly.

Proven field experience

ECOSS has met the challenges of poor water quality, passivation, scale, and corrosion head-on with a 100% success rate. In many of our global installations there are no anti-scale or anti-corrosion water treatment services provided. This is firsthand knowledge as we have visited hundreds of units in operation to assure the owner is experiencing the benefits of ECOSS.
Stay clean!

The most important objective using an evaporative cooling system is, in addition to reliable functioning, its hygienic operation. It begins with the planning of the plant as well as the selection and construction of components. These accepted rules of engineering are summarized in different Directives such as VDI 2047-3, ICPE 2921 and HSE 278. The key requirements are outlined below.

The benefits we offer

- Risk analysis of the evaporative condenser
- Design
- Installation instructions
- Technical documentation
- Water specification

- Well designed unit
- Quick, easy assembly
- Good accessibility for inspection and cleaning
- Technical documentation
- Water specification

- Risk analysis of the evaporative cooler
- Training of the operating staff
- Water specification
- Water Management Controller Günther GHM pump

- Good accessibility for inspection and maintenance
- Range of services (inspection, cleaning, repeated training)

Planners

Requirements:
- Providing accessibility for maintenance measures
- Preventing regions of stagnation of the wetting water
- Ensuring the drainability of the wetting water circuit
- Risk analysis of the entire plant

Plant contractors

Requirements:
- Water analysis, cleaning, initial inspection
- Coordination of commissioning including water treatment
- Training of the operating staff
- Commissioning

Operators

Requirements:
- Preparing a risk assessment from the hygienic point of view stating authorities
- Training of the operating staff
- Water analysis and microbiological testing
- Prevention of conditions encouraging uncontrolled microbiological multiplication

- Inspection and maintenance of all the required components, including: Water treatment, checking and adjustment of water quality, evaporative cooler
- Monitoring the microbiological condition and implementing relevant measures if threshold values are exceeded
Performance reliability

To ensure evaporative cooling performance our heat rejection ratings are based on verified lab test data. Our state of the art environmental test chamber is fully equipped with modern computerized and automated data acquisition systems and is built according to ASHRAE Standard 64, Methods of Laboratory Testing Remote Mechanical-Draft Evaporative Refrigerant Condensers.

Thermal performance ratings are based on test evaluations per CTI ATC-106, Acceptance Test Code for Mechanical Draft Evaporative Vapor Condensers and CTI ATC-105, Acceptance Test Code for Closed Circuit Cooling Towers. Verifying performance and accuracy of equipment ratings are a cornerstone to delivering maximum system efficiency.

Technical details

<table>
<thead>
<tr>
<th>Applications</th>
<th>4 – 12 fans</th>
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<tbody>
<tr>
<td>Capacity</td>
<td>300 kW – 2.5 MW</td>
</tr>
<tr>
<td>Refrigerant</td>
<td>NH₃, HFC, water, glycol</td>
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<tr>
<td>Casing</td>
<td>Stainless Steel AISI 316/ 304L</td>
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<tr>
<th>Certification</th>
<th>ISO 9001, STD-201</th>
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<tr>
<td>Dimensions</td>
<td>Length 3.2 – 7.8 m, Width 1.2 – 2.3 m, Height 3.9 – 4.2 m</td>
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<tr>
<td>Operating weight</td>
<td>2 – 12 t</td>
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Operation at Higher Cycles of Concentration

The Güntner ECOSS evaporative condenser with stainless steel coil, frame, basin and cabinet, allows for operation at higher cycles of concentration when compared to a galvanized coil and casing construction, which means less overall water consumption and chemical treatment and an extreme reduction in scaling and corrosion. Utilizing components with greater corrosion resistance can permit operation at higher cycles of concentration, which can significantly reduce water usage, water blow-down, and chemical usage.
Bidfood
Gillman, Adelaide, South Australia

Bidfood has had positive experience with the ECOSS technology from a former project. This is why the Australian wholesaler that supplies bulk consumers opted for another ECOSS evaporative condenser for heat dissipation in its logistics centre for food in Adelaide. A compact ECOSS with a capacity of 790 kW dissipates non-visible heat from an ammonia primary cooling circuit. The unit meets not only the requirements placed on sustainable refrigeration plants with low refrigerant charge and excellent partial load performance – it also fulfils the Australian demand for high-level chemical dosing thanks to its design fully made of stainless steel. Furthermore, the unit’s EC fans ensure a low noise level.

Frango Bomgosto
Brazlandia, Brazil

The refrigeration plant of the Brazilian broiler slaughterhouse Frango Bomgosto in Brazlandia uses ammonia as refrigerant. An ECOSS 3000 serves as condenser that, compared to refrigerating plants equipped with standard technology, annually saves 6,000 litres of water and the related costs for operation. These savings are possible thanks to the Güntner Motor Management, partial-load operation and EC fans. The eco-friendly design also minimizes water treatment requirements.

Cervecería Cuauhtémoc-Moctezuma
Heineken México
Monterrey, Mexico

In the context of an energy efficiency directive, the Cuauhtémoc-Moctezuma Heineken México brewery opted for two ECOSS condensers for its central ammonia refrigerating circuit. Reconstruction works needed to be carried out at the building before the ECOSS units could be installed; the energy management upgrades of the plant resulted in total electrical energy savings of 1.5 MWh already during the first 5 months.

Qualtia Alimentos
Monterrey, Mexico

The Mexican food producer Qualtia Alimentos uses the refrigerant ammonia and an ECOSS evaporative condenser with a capacity of 1,500 kW in its meat processing plant’s primary circuit. The unit replaces a galvanized evaporative condenser. Chemical treatment of the cooling water is not required thanks to an osmosis system, and the EC fans and the GMM Güntner Motor Management save energy.

Rio Grande Food Park
Edinburg, Texas, USA

The waste heat generated by produce storage of the US food production chain at Rio Grande Food Park is dissipat ed via two ECOSS units. The ECOSS evaporative condensers of the plant are part of the primary refrigeration circuit using the refrigerant R-404A. Altogether, the units have a cooling capacity of approx. 1.87 MW.

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