



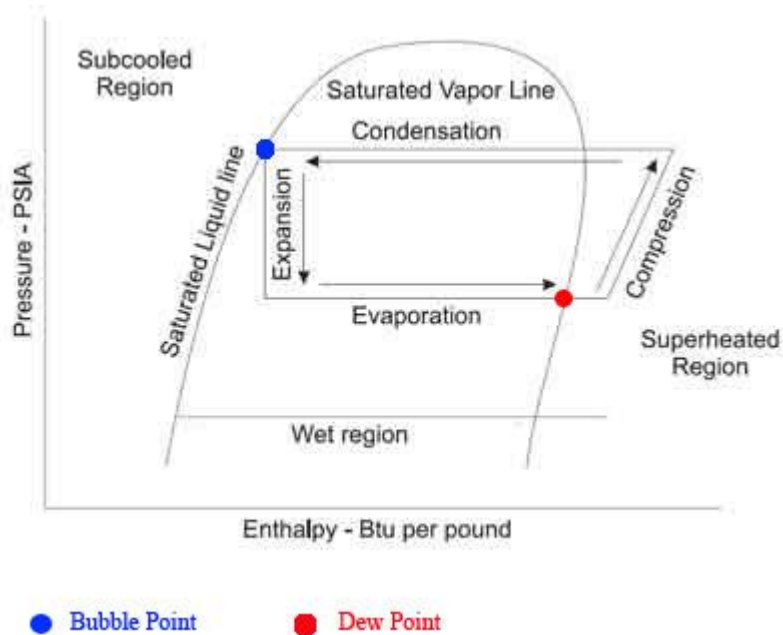
ECOSS

October 17, 2014

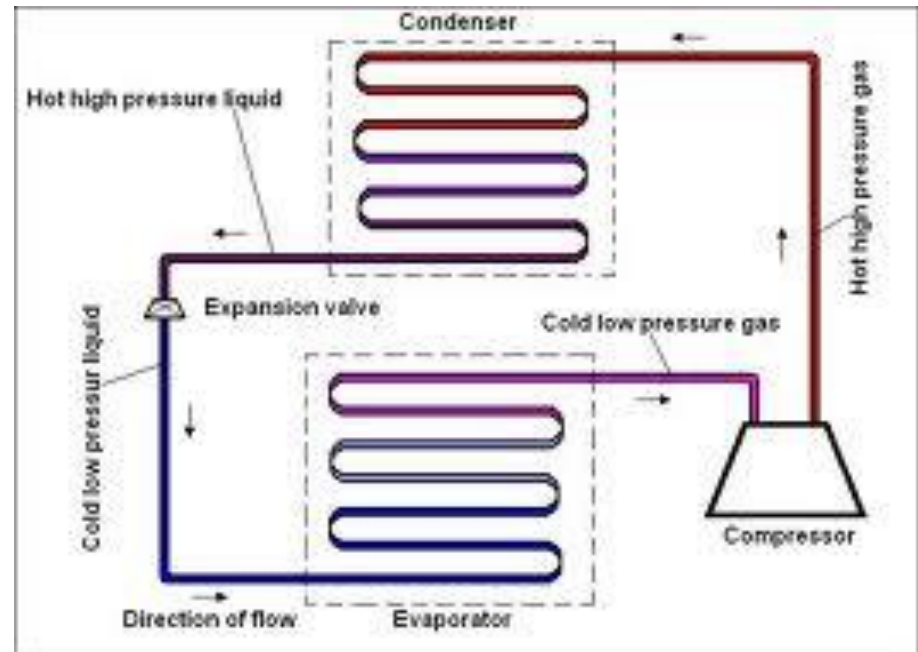


- 1. Guntner Product Portfolio**
- 2. Value Proposition**
  - 2.1 Benefits**
  - 2.2 Return on investment**

# Mechanical Refrigeration Requires Heat Rejection

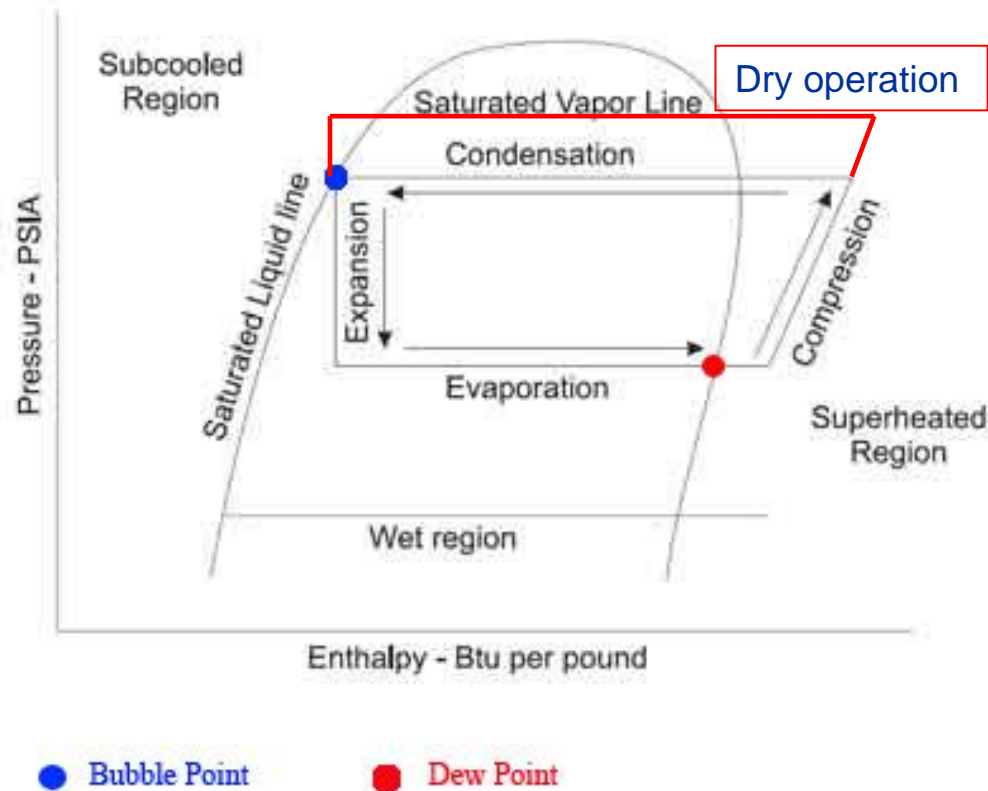


Type of equipment varies upon application, energy use and water use requirements.

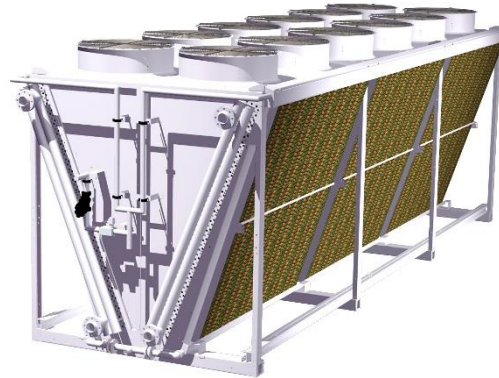


# Heat Rejection Methods

- Wet (based on wet bulb) offers more efficient system
- Dry (based on dry bulb) offers less maintenance



- ECOSS completes the spectrum of dry-to-wet solutions
- Güntner solutions optimize use of energy & water:  
Dry -- Adiabatic – Evaporative



**Energy Use**

**Water Use**

**ECOSS provides**  
**the contractor with lower installation costs while**  
**providing**  
**the owner with drastically increased product life,**  
**and lower operating and maintenance costs.**

# Stainless is Better!

**ECOSS**  
A New Choice in Evaporative Cooling

It's *not*  
complicated





# **ECOSS:**

## ***A New Choice in Evaporative Cooling***

**ECOSS**

A New Choice in Evaporative Cooling

- **Stainless is better**
- **Longer product life**
- **Reduced installation costs**
- **Lower operating costs**
- **Lower maintenance costs**
- **Robust warranty & certifications**





# Stainless is Better than Galvanized

- **Greater corrosion resistance**
- **Freedom from white rust concerns**
- **No need for passivation, nor re-passivation**
- **More tolerant to pH variation**
- **No heavy metals in discharge water**
- **Operate at higher cycles of concentration**

## Key Water Quality Limits

| Parameter                                  | Galva.    | ECOSS        |
|--|-----------|--------------|
| pH   | 7.0 - 8.5 | 6.0 – 9.5    |
| pH for passivation                         | 7.0 - 8.0 | Not required |
| Conductivity ( $\mu\text{mhos}$ )          | 2,400     | 4,000        |
| Alkalinity ( $\text{CaCO}_3, \text{ppm}$ ) | 75 – 400  | <600         |
| Chlorides, $\text{Cl}^-$ (ppm)             | <300      | <500         |

# Longer Product Life

- **Stainless corrosion resistance**
- **Stainless is more forgiving for „upset conditions“:**
  - **Over/under feed of chemicals, acid, softeners**
  - **pH excursions**
  - **Cleaning & de-scaling**
  - **Ammonia in water**
- **Direct-drive fans for evaporative service**
- **Rugged louver and drift eliminator designs**



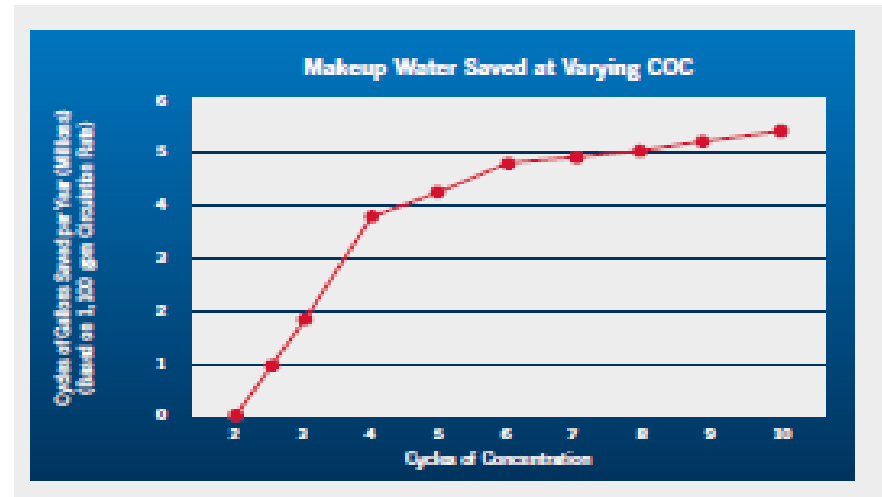
# Reduced Installation Costs

- **Simplified rigging:**
  - **Integral guides**
  - **No sealer tape**
  - **4-point internal bolting**
- **No pre-operation passivation required**
- **Single-point wiring**
- **Plug & play controls**
- **50% lower operating weights**



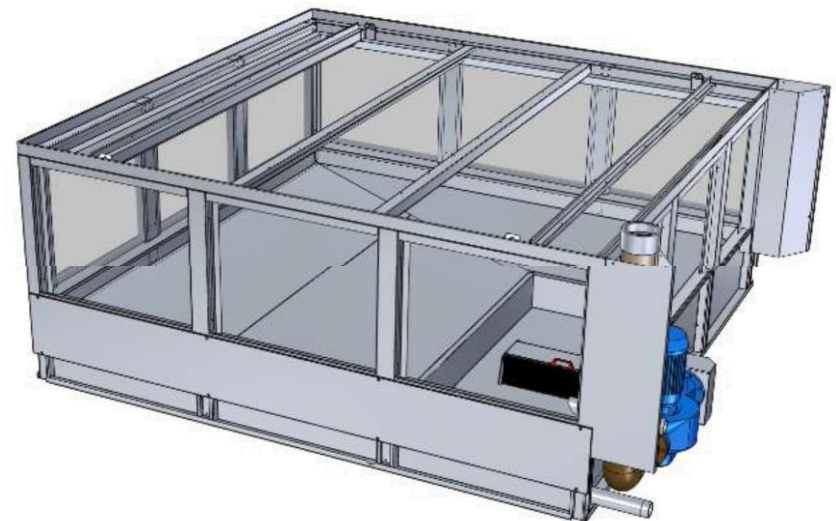
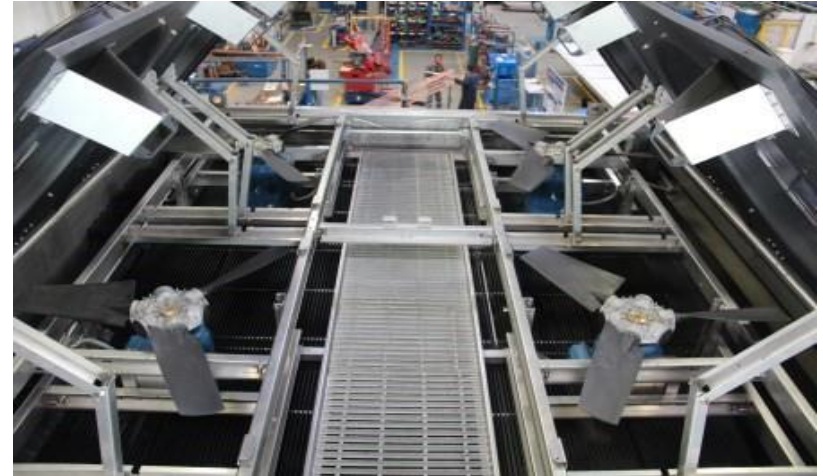
# Lower Operating Costs

- Higher water re-use at higher cycles of concentration
- No monitoring of passivation and no re-passivation
- High efficiency fans, EC option
- Intelligent controls options optimize energy use



# Lower Maintenance Costs

- **Easy access hinged fan panels and integral walkway**
- **Direct drive AC or EC fans**
  - No belt adjustment or replacement
  - No greasing of bearings
  - No fan shaft replacements
  - No sheave alignment issues
- **Large-orifice spray water nozzles minimize clogging**
- **Sloped and fully drainable welded stainless basins for durable water containment**





# Warranty and Certifications

- 5-year leak free guarantee on coil
- 5-year leak free guarantee on welded basin
- Stainless coil in conformance with ASME Boiler & Pressure Vessels, Section VIII
- Condenser test facility per ASHRAE 64
- Thermal performance tests per CTI test standards
- IBC structural compliance



# ***Stainless is Better: Güntner Makes it Affordable***

- **Stainless has always been desirable in evaporative cooling**
- **Historically, the cost has generally exceeded the value**
- **ECOSS changes the equation**





# Return on Investment Examples

|  | Case A   | Case B   |
|--|----------|----------|
| Condenser Capacity (Tons)  | 400      | 600      |
| Installed premium for ECOSS vs. galvanized   | \$18,500 | \$29,400 |
| ECOSS annual O&M cost savings, year 1  | -\$6,100 | -\$8,400 |
| <b>Internal Rate of Return</b> (based on installed cost and operating costs alone) | 34%      | 30%      |
| <b>Internal Rate of Return</b> (including repair and replacement life cycles)      | 38%      | 34%      |

## Comparison Assumptions:

Common fan power in each case  
Evaporation average/design = 50%  
Fan kW average/design = 35%  
Water & chemical cost: \$10/kgal  
Electricity rate = \$0.10/kWh  
Electric demand = \$10/kW/mo

## ECOSS Benefits:

No pre-passivation cost, nor delays  
Cycles of concentration: from 3 to 5  
Average drive efficiency increases 10%  
Life expectancy doubles

**Güntner raises the standard in evaporative cooling**

**Stainless is better**

**Güntner makes it affordable**



*The*  
**A New Choice in Evaporative Cooling**