

CONDENSERS




# Efficient, Long Lasting Evaporative Condensers

Reliable Products With Long-Term,  
Low Cost of Ownership



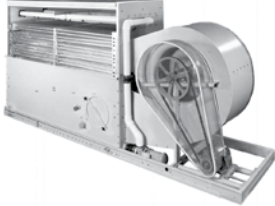


**Frick**<sup>®</sup>  
INDUSTRIAL REFRIGERATION

Specifications

	 <b>ECOSS</b>	 <b>IDCF</b>	 <b>IDC3</b>
Standard Unit Construction	<ul style="list-style-type: none"> <li>Stainless steel condensing coil</li> <li>Stainless steel framework clad with stainless steel panels</li> <li>Welded stainless steel basin</li> </ul>	G-235 (Z700 metric) mill galvanized steel panels and basin. All prime steel condensing coil, hot dip galvanized after fabrication (HDGAF).	G-235 (Z700 metric) mill galvanized steel panels and basin. All prime steel condensing coil, hot dip galvanized after fabrication (HDGAF).
Corrosion Protection (Coil & Casing)	See above	<ul style="list-style-type: none"> <li>Stainless steel coil</li> <li>Stainless steel casing</li> <li>Stainless steel coil and casing</li> </ul>	<ul style="list-style-type: none"> <li>Stainless steel coil</li> <li>Stainless steel casing</li> <li>Stainless steel coil and casing</li> </ul>
Corrosion Protection (Basin)	See above	<ul style="list-style-type: none"> <li>Stainless steel</li> <li>Triple Guard</li> </ul>	<ul style="list-style-type: none"> <li>Stainless steel</li> <li>Triple Guard</li> </ul>
Coil Test Pressure, psig	494	375	375
Max. Working Pressure, psig	380	300	300
Style	Induced draft with multiple EC fan motors.	Induced draft, axial fans with primary surface condensing coil <b>PLUS</b> fill media for enhanced heat rejection & scale reduction.	Induced draft, axial fans with primary surface condensing coil
Capacity Control	Onboard motor management controller	Independent Fan Operation with VFD ready motors.	Independent Fan Operation with VFD ready motors.
Ease of Maintenance Features	Factory supplied access platform for top access to fan motors and nozzles. Access to basin through inlet air louvers.	Inward swinging door for access to motor, mist eliminators and spray nozzles. Access to basin through inlet air louvers.	Inward swinging door for access to motor, mist eliminators and spray nozzles. Access to basin through inlet air louvers.
Access Packages	Factory supplied access platform for top access to fan motors and nozzles. Access to basin through inlet air louvers.	Multiple options: <ul style="list-style-type: none"> <li>Full perimeter handrails</li> <li>Offset platforms</li> <li>Flush platforms</li> </ul>	Multiple options: <ul style="list-style-type: none"> <li>Full perimeter handrails</li> <li>Offset platforms</li> <li>Flush platforms</li> </ul>
Sound Levels	Low sound levels via EC motor technology	Fans located at top of unit directing noise up and away.	Fans located at top of unit directing noise up and away.
Motor Design, Pump & Fan	Brushless DC totally enclosed motor	NEMA AC totally enclosed motors	NEMA AC totally enclosed motors
Factory Testing	Coil shipped charged with air to ensure integrity. Basin water tight tested.	Coil shipped charged with air to ensure integrity. Basin water tight tested.	Coil shipped charged with air to ensure integrity. Basin water tight tested.
Ease of Assembly	No butyl tape required, interlocking water-tight field seams. Factory installed blank-off panels on multi-cell installations.	Factory provided rigging pins for fast basin to coil rig. Improved base-rail for squareness. Factory installed blank-off panels on multi-cell installations.	Factory provided rigging pins for fast basin to coil rig. Improved base-rail for squareness. Factory installed blank-off panels on multi-cell installations.



 <b>XLP2</b>	 <b>ECC</b>	 <b>ECL</b>	<b>Specifications</b>
G-235 (Z700 metric) mill galvanized steel panels and basin. All prime steel condensing coil, hot dip galvanized after fabrication (HDGAF).	G-235 (Z700 metric) mill galvanized steel panels and basin. All prime steel condensing coil, hot dip galvanized after fabrication (HDGAF).	G-235 (Z700 metric) mill galvanized steel panels and basin. All prime steel condensing coil, hot dip galvanized after fabrication (HDGAF).	<b>Standard Unit Construction</b>
<ul style="list-style-type: none"> <li>• Stainless steel coil</li> <li>• Stainless steel casing</li> <li>• Stainless steel coil and casing</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless steel coil</li> <li>• Stainless steel casing</li> <li>• Stainless steel coil and casing</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless steel coil</li> <li>• Stainless steel casing</li> <li>• Stainless steel coil and casing</li> </ul>	<b>Corrosion Protection (Coil &amp; Casing)</b>
<ul style="list-style-type: none"> <li>• Stainless steel</li> <li>• Triple Guard</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless steel</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless steel</li> </ul>	<b>Corrosion Protection (Basin)</b>
375	375	375	<b>Coil Test Pressure, psig</b>
300	300	300	<b>Max. Working Pressure, psig</b>
Forced draft, axial fans with primary surface condensing coil.	Forced draft, centrifugal fans with primary surface condensing coil.	Forced draft, centrifugal fans with primary surface condensing coil, low profile.	<b>Style</b>
Independent Fan Operation with VFD ready motors.	Single drive, VFD ready, motor	Single drive, VFD ready, motor	<b>Capacity Control</b>
Two (2) 30" x 44" Access Doors (one per end) standard to adjust float valve, clean strainer & flush basin. Cold water basin sloped to eliminate water and reduce biological growth.	Internal access to adjust float valve, clean strainer & flush basin. Cold water basin sloped to eliminate water and reduce biological growth	Internal access to adjust float valve, clean strainer & flush basin. Cold water basin sloped to eliminate water and reduce biological growth	<b>Ease of Maintenance Features</b>
Multiple options: <ul style="list-style-type: none"> <li>• Full perimeter handrails</li> <li>• Offset platforms</li> <li>• Flush platforms</li> </ul>	Multiple options: <ul style="list-style-type: none"> <li>• Full perimeter handrails</li> <li>• Offset platforms</li> <li>• Flush platforms</li> </ul>	Multiple options: <ul style="list-style-type: none"> <li>• Full perimeter handrails</li> <li>• Offset platforms</li> <li>• Flush platforms</li> </ul>	<b>Access Packages</b>
Varying levels due to multiple fans.	Low sound centrifugal fan.	Low sound centrifugal fan.	<b>Sound Levels</b>
NEMA AC totally enclosed motors	NEMA AC totally enclosed motors	NEMA AC totally enclosed motors	<b>Motor Design, Pump &amp; Fan</b>
Coil shipped charged with air to ensure integrity. Basin water tight tested.	Coil shipped charged with air to ensure integrity. Basin water tight tested.	Coil shipped charged with air to ensure integrity. Basin water tight tested.	<b>Factory Testing</b>
Standard Unit. Easy Pan to Coil Section Mounting	Standard Unit. Coil and Pan Shipped Assembled, Easy Pan Section Mounting. Containerized version for export shipment	Standard Unit. Coil and Pan Shipped Assembled, Easy Pan Section Mounting	<b>Ease of Assembly</b>

# ECOSS Stainless Steel Evaporative Condenser

Induced draft, stainless steel evaporative condenser with EC motor axial fan assembly is built to withstand the tests of time.

## ECOSS FEATURES

### Overview

ECOSS stainless steel models are induced draft evaporative condensers with axial fans. A single ECOSS unit has a capacity range of 200 - 625 ammonia tons, and can be configured in dual or quad arrangements. Units have exceptional resistance to white rust and corrosive elements. With reduced annual operating costs and an effective life span that is double that of conventional evaporative condensers, ECOSS can deliver up to 70% savings in total life-cycle costs.

### Standard Features

- Induced draft
- Electronically commutated (EC) motors with built-in variable fan speed control (no VFD required)
- Efficient direct drive axial fans
- 304L stainless steel coil (316L SS first pass) frame and basin
- Modular frame design
- Motor control panel
- Hinged fan panels
- UV resistant, corrosion resistant, inlet louvers
- Access package: Ladder with safety cage, external walkway and perimeter railing
- Motor davit(s)
- Internal walkway
- High static stability and 50% less\* operating weight
- Factory on-site support for rigging and startup

### Standard Available Options

- Basin heaters
- Electric water level control
- Remote sump
- ASME "U" stamp
- 316L stainless steel construction

### Unit Specific Options

- 5-year warranty – Coil, powertrain, basin corrosion protection system
- Pre-assembled platform (Top-access)
- Wiring to terminal box system

## ECOSS BENEFITS

### Low Operating Cost

- Energy Savings via:
  - Direct drive fans – Avoids the power losses of belt drive
  - EC fan motors with built-in variable speed control – No additional power losses compared to a NEMA motor with VFD. No resonance speeds to avoid.
  - Low scaling propensity of stainless steel minimizes heat transfer penalties.
- Water Savings – Operation at higher cycles of concentration minimizes blowdown, make-up water requirements, chemical treatments and environmental impact.

### Lower Maintenance Cost

- No Routine Passivation – Stainless steel is self-passivating, therefore reducing labor, water treatment requirements, and environmental impact associated with galvanized steel construction.
- Direct Drive Fans eliminate a number of routine maintenance requirements associated with belt drive systems:
  - NO belt adjustments or belt replacements
  - NO greasing of bearings or replacement of bearings
  - NO belt sheaves to align or replace
  - NO replacement of drive shafts

### Lower Installed Cost

- Lower Weight – 304L stainless steel construction weighs 50% less than G-235 galvanized, requiring less support structure and a smaller crane to assemble.
- "Building block" seam connection – Of the upper and lower coil-fan/basin sections eliminates the use of drift pins, sealer tape, screw tappers, chain come-alongs and associated labor for field assembly.
- Fan Wiring – Direct drive fans are wired to a common power terminal junction box, reducing associated field wiring.
- Motor Management Controller – Control fan speed and system setpoint, eliminating material and labor costs associated with VFDs.

\* 50% lighter construction when compared to an equivalent G-235 galvanized condenser



## ECOSS BENEFITS (Cont.)

### Long Service Life

- Self-Passivating Stainless Steel provides a minimum product life of two times that of G-235.
- Welded Stainless Steel Basin - All factory seams in the basin are fully welded to ensure watertight assembly and are fully warranted against leaks.
- ASME Certified Serpentine Coil - Constructed and fabricated with ANSI rated materials, in compliance with ASME Section VIII, BPV Code. Fabrication to this stringent standard translates into higher reliability overall.
- EC Fan 10+ Year MTBF - With a stainless steel shaft and bearings and an epoxy coated body, this design provides variable speed operation, soft start, and low motor heat, with a Mean Time Between Failures of 10 or more years.



## ECOSS CONSTRUCTION DETAILS

### Heavy Duty Construction

- Full 304L stainless steel construction

### Water Distribution System

- Schedule 40 PVC spray branches
- Large orifice, low pressure, clog-resistant nozzles
- Branch piping is removable for easier maintenance
- Close-coupled, bronze impeller, fitted centrifugal recirculating spray pump
- Totally enclosed fan cooled (TEFC) spray pump motor
- Stainless steel strainer

### Coil

- Fully welded 304L stainless steel tubing
- Pressure tested under water to 494 psig
- Sloped tubes for free drainage of fluid
- ASME code compliant
- A CRN is available upon request for orders shipping into Canada

### Drift Eliminators

- Polyvinyl chloride (PVC)
- Impervious to rot, decay, and biological attack
- Removable for nozzle access

### Direct Drive, Axial Fan System

- Motor Management Controller for controlling fan speed and system setpoint (pressure or temperature)
- Electronically commutated (EC) motors
- F4-2 motor moisture protection; corrosion resistant
- Energy efficient and quiet operation

### Easy Access

- Internal walkway beneath the fan panels
- Hinged fan panels provide quick access to drift eliminators and spray nozzles
- Vertical alignment of inlet louvers for easy basin access

# IDCF Induced Draft Evaporative Condenser

The IDCF is a counterflow, induced draft, axial fan evaporative condenser with patented coil/fill technology.

## IDCF FEATURES

### Overview

IDCF models are the only counterflow, induced draft evaporative condensers with axial fans which use a patterned coil/fill technology to maximize heat rejection.

Incorporating the same robust construction and features found in the IDC3, the use of a secondary heat transfer media in the IDCF delivers less energy consumption, reduced refrigerant charge, significant (50%) coil scale reduction and hence better retain the original unit thermal performance, lighter unit weight, when compared to all the other traditional coil only evaporative condensers on the market. The IDCF has a capacity range of 45 – 2810 ammonia tons in a single unit.

### Standard Features

- Robust Structure – Frame around the coil casing **NEW!**  
Assures squareness during shipping and rigging, and eliminates the need for a shipping skid.
- Rigging pins **NEW!**  
Align coil casing and basin in less than 15 minutes
- Blank-off panels (Multi-cell) **NEW!**
- PVC fill bundles providing secondary heat rejection **NEW!**
- Induced draft
- Axial fan
- HDGAF coil assembly
- Removable louvers
- Independent drive system
- Premium efficient VFD motors
- International Building Code (IBC) compliant

### Standard Available Options

- Basin sweeper system
- Basin heaters
- Electric water level control
- Remote sump
- 304 stainless steel coil
- ASME "U" stamp
- Equipment starters and controls
- Coil circuiting
- TripleGuard™ 5-year warranty basin corrosion protection system
- Stainless steel construction with welded basin
- Vibration cutout switch
- Pre-assembled external platforms, ladder & safety cages
- Variety of access options meeting OSHA requirements
- Structure Upgrade: Certified to withstand up to an  $S_{D5}$  of 3.75g and wind loads up to 200 psf

### Unit Specific Options

- Wiring to terminal box
- Heavy gauge coil
- Extended surface coil
- Redundant fan option on 12'x18' units

## IDCF BENEFITS

### Low Energy Consumption

- Minimizes the energy consumption of the entire system. Owners save money while conserving natural resources and reducing environmental impact.
- High efficiency, low energy axial fans
- Premium, efficient, VFD duty-ready motors
- Efficient fan drive system (Independent direct-drive or belt drive)

### Easy Maintenance

- Water Distribution – Branch removal system requires no tools.
- Hygienic Cold Water Basin – Sloped toward pump suction to eliminate stagnant water and reduce biological growth. Additionally, the suction strainer with removable anti-vortex hood is easily accessible from the louver face to simplify maintenance.
- Mechanical Section – Fan motors are easily accessed via inward swinging doors. Easy bearing lubrication due to externally mounted lube line access points.

### Lower Installed Cost

- Significantly reduced rigging time through the use of factory supplied rigging pins and robust structural frame ensuring squareness.
- Pre-assembled IBC and OSHA approved platform packages reduce installation time (optional).

### Long Service Life

- Superior corrosion protection through the use of optional TripleGuard™ protection or construction materials such as stainless steel.
- Bearings – Minimum  $L_{10}$  bearing life of 100,000 hours delivers years of trouble free service.



Maximizes thermal efficiency, reduces coil scale and refrigerant charge, while incorporating the same robust construction and features found in the IDC3.

## IDCF CONSTRUCTION DETAILS

### Heavy Duty Construction

- G-235 (Z700 metric) mill galvanized steel panels
- Robust structural frame ensures squareness

### Water Distribution System

- Schedule 40 PVC spray branches
- Large orifice, 360° nonclog spray nozzles
- Toolless removal of spray branches
- Nozzles in spray branches use grommet design, snapping in/out for easy maintenance

### Interstitial Coil/Fill

- Continuous serpentine, steel tubing
- Hot-dip galvanized after fabrication (HDGAF)
- Max. allowable working pressure is 300 psig
- Sloped tubes for free drainage of fluid
- Fabricated per ASME B31.5 standards
- Orders shipping into Canada are supplied with a CRN (Canadian Registration Number)
- High efficiency, non-clog polyvinyl chloride (PVC) fill
- Fill enhances heat transfer, reducing scale in the coil section to enhance coil life and better retain unit thermal performance

### Drift Eliminators

- Polyvinyl chloride (PVC)
- Impervious to rot, decay, and biological attack
- Flame spread rating of 5 per ASTM E84
- Assembled in easy to handle sections



### Fan Drive System

- Premium quality, solid-backed, multigroove belt
- Heavy-duty bearings  $L_{10}$  100,000 hours
- Extended lubrication lines
- Premium efficiency/VFD duty fan motors are standard
- 5-year motor and drive warranty

### Low Horsepower Axial Fan(s)

- Corrosion resistant aluminum for high efficiency, quiet operation

### Recirculating Spray Pump

- Close-coupled, bronze impeller, fitted centrifugal pump
- Totally enclosed fan cooled (TEFC) motor
- Bleed line with metering valve installed from pump discharge to overflow

### Basin

- Suction strainer with removable anti-vortex hood accessible from the louver face
- Sloped for easy cleaning
- Rigging pins to simplify alignment

### Access

- Basin access is made simple through easily removed louver sections.
- Inward swinging door(s) allow easy access to water distribution and mechanical (fan-motor) components.

# IDC3 Induced Draft Evaporative Condenser

The IDC3 induced draft, axial fan, evaporative condenser improves on the successful previous generation – the IDC2.

## IDC3 FEATURES

### Overview

By incorporating new features designed to reduce installation time, the IDC3 induced draft, axial fan, evaporative condenser delivers savings to both owners and contractors and is the ideal choice for new or replacement projects. The IDC3 has a capacity range of 41 – 2,734 ammonia tons in a single unit.

### Standard Features

- Robust Structure – Frame around the coil casing **NEW!**  
Assures squareness during shipping and rigging, and eliminates the need for a shipping skid.
- Rigging pins **NEW!**  
Align coil casing and basin in less than 15 minutes
- Blank-off panels (Multi-cell) **NEW!**
- Hot-dip galvanized after fabrication (HDGAF) coil assembly in accordance to ASME B31.5 standards
- Independent direct-drive motors (4'x6' & 4'x12' units only)
- Optimized water distribution system reduces pump horsepower by up to 60%
- Induced draft
- Axial fan
- Premium efficiency VFD-duty motors
- Meets wind and seismic requirements of the International Building Code
- Removable louvers

### Standard Available Options

- Basin sweeper system
- Basin heaters
- Electric water level control
- Remote sump
- 304 stainless steel coil
- ASME "U" stamp
- Equipment starters and controls
- Coil circuiting
- TripleGuard™ 5-year warranty basin corrosion protection system
- Stainless steel construction with welded basin
- Vibration cutout switch
- Pre-assembled external platforms, ladder & safety cages
- Variety of access options meeting OSHA requirements
- Structure Upgrade: Certified to withstand up to an  $S_{DS}$  of 3.10g and wind loads up to 140 psf

### Unit Specific Options

- Wiring to terminal box
- Heavy gauge coil
- Extended surface coil
- Redundant fan option on 12'x18' units

## IDC3 BENEFITS

### Low Energy Consumption

- Minimizes the energy consumption of the entire system. Owners save money while conserving natural resources and reducing environmental impact.
- High efficiency, low energy axial fans
- Premium, efficient, VFD duty-ready motors
- Efficient fan drive system (Independent direct-drive or belt drive)

### Easy Maintenance

- Water Distribution – Branch removal system requires no tools.
- Hygienic Cold Water Basin – Sloped toward pump suction to eliminate stagnant water and reduce biological growth. Additionally, the suction strainer with removable anti-vortex hood is easily accessible from the louver face to simplify maintenance.
- Mechanical Section – Fan motors are easily accessed via inward swinging doors. Easy bearing lubrication due to externally mounted lube line access points.

### Lower Installed Cost

- Significantly reduced rigging time through the use of factory supplied rigging pins and robust structural frame ensuring squareness.
- Pre-assembled IBC and OSHA approved platform packages reduce installation time (optional).

### Long Service Life

- Superior corrosion protection through the use of optional TripleGuard™ protection or construction materials such as stainless steel.
- Bearings – Minimum  $L_{10}$  bearing life of 100,000 hours delivers years of trouble free service.





## IDC3 CONSTRUCTION DETAILS

### Heavy Duty Construction

- G-235 (Z700 metric) mill galvanized steel panels
- Robust structural frame ensures squareness

### Water Distribution System

- Schedule 40 PVC spray branches
- Large orifice, 360° nonclog spray nozzles
- Toolless removal of spray branches
- Nozzles in spray branches use grommet design, snapping in/out for easy maintenance

### Interstitial Coil

- Continuous serpentine, steel tubing
- Hot-dip galvanized after fabrication (HDGAF)
- Max. allowable working pressure is 300 psig
- Sloped tubes for free drainage of fluid
- Fabricated per ASME B31.5 standards
- Orders shipping into Canada are supplied with a CRN

### Drift Eliminators

- Polyvinyl chloride (PVC)
- Impervious to rot, decay, and biological attack
- Flame spread rating of 5 per ASTM E84
- Assembled in easy to handle sections



### Fan Drive System

- Premium quality, solid-backed, multigroove belt
- Heavy-duty bearings  $L_{10}$  100,000 hours
- Extended lubrication lines
- Premium efficiency/VFD duty fan motors are standard
- 5-year motor and drive warranty

### Low Horsepower Axial Fan(s)

- Corrosion resistant aluminum for high efficiency, quiet operation

### Recirculating Spray Pump

- Close-coupled, bronze impeller, fitted centrifugal pump
- Totally enclosed fan cooled (TEFC) motor
- Bleed line with metering valve installed from pump discharge to overflow

### Basin

- Suction strainer with removable anti-vortex hood accessible from the louver face
- Sloped for easy cleaning
- Rigging pins to simplify alignment

### Access

- Basin access is made simple through easily removed louver sections.
- Inward swinging door(s) allow easy access to water distribution and mechanical (fan-motor) components.

# XLP2 Forced Draft Evaporative Condenser

Forced draft evaporative condenser with axial fans designed for energy efficiency, reliability, maintainability, and easy field assembly.

## XLP2 FEATURES

### Overview

XLP2 models are forced draft evaporative condensers with axial fans to minimize energy consumption. Units are designed to address the energy efficiency, reliability, maintainability, and field assembly needs of the market. These benefits provide the end user with long service life, and ease of installation and commissioning for the contractor. The XLP2 has a capacity range of 87 - 1,443 ammonia tons in a single unit.

### Standard Features

- Forced draft
- Corrosion resistant axial fan
- Hot-dip galvanized after fabrication (HDGAF) coil assembly in accordance to ASME B31.5 standards
- Full-size hinged access doors
- Premium efficiency VFD-duty motors
- Independent fan drives provide redundancy and options for capacity control
- International Building Code (IBC) compliant; shake table tested up to  $S_{DS}$  of 1.60g
- Superior corrosion protection
- Mechanical water level control
- Easy assembly

### Standard Available Options

- |                                   |  |
|-----------------------------------|--|
| ■ Basin sweeper system            | ■ Pre-assembled external platforms, ladder & safety cages        |
| ■ Basin heaters                   | ■ TripleGuard™ 5-year warranty basin corrosion protection system |
| ■ Electric water level control    | ■ Stainless steel construction with welded basin                 |
| ■ Redundant pumps                 | ■ Variety of access options meeting OSHA requirements            |
| ■ Remote sump                     |  |
| ■ 304 stainless steel coil        |  |
| ■ ASME "U" stamp                  |  |
| ■ Coil circuiting                 |  |
| ■ Vibration cutout switch         |  |
| ■ Equipment starters and controls |  |

### Unit Specific Options

- Wiring to terminal box
- Subcooling coil
- Extended surface coil

## XLP2 BENEFITS

### Low Energy Consumption

- High efficiency, low horsepower axial fans
- Premium efficiency VFD-duty motors (Standard)
- Variable Frequency Drives (Optional)
- Multiple fan models allow for capacity staging

### Easy Maintenance

- Access Doors – Two 30" x 44" access doors are standard on side blow units and one on end blow units. This allows the interior of the unit to be easily accessed for adjusting the float valve, cleaning the strainer or flushing the basin. A large hinged internal partition door and an external door step are standard on all units.
- Hygienic Cold Water Basin – The cold water basin is sloped toward the pump suction to eliminate stagnant water zones and reduce biological growth. Additionally, the suction strainer is easily removed to simplify maintenance.
- Entire drive system is located outside of the discharge air stream, at the base of the unit for easy, unrestricted access to the motors, bearings, and fans. This also protects the drive system from moisture, condensation and icing.



## XLP2 CONSTRUCTION DETAILS

### Heavy Duty Construction

- G-235 (Z700 metric) mill galvanized steel panels

### Water Distribution System

- Schedule 40 PVC spray branches
- Large orifice, 360° nonclog spray nozzles
- Nozzles in spray branches use grommet design, snapping in/out for easy maintenance

### Coil

- Continuous serpentine, steel tubing
- Hot-dip galvanized after fabrication (HDGAF)
- Max. allowable working pressure is 300 psig
- Sloped tubes for free drainage of fluid
- Fabricated per ASME B31.5 standards
- Orders shipping into Canada are supplied with a CRN

### Drift Eliminators

- Recyclable polyvinyl chloride (PVC)
- Impervious to rot, decay, and biological attack
- Flame spread rating of 5 per ASTM E84
- Assembled in easy to handle sections



### Independent Fan Drive System

- Premium quality, solid-backed, multigroove belt
- Heavy-duty bearings L<sub>10</sub> 94,000 hours
- Extended lubrication lines
- Premium efficiency/VFD duty fan motors are standard
- 5-year motor and drive warranty

### Low Horsepower Axial Fan(s)

- Corrosion resistant

### Recirculating Spray Pump

- Close-coupled, bronze impeller, fitted centrifugal pump
- Totally enclosed fan cooled (TEFC) motor
- Bleed line with metering valve installed from pump discharge to overflow

### Access Door

- Interior of unit is easily accessible:
  - Two 30" x 44" access doors – Standard on side blow units
  - One 30" x 44" access door – Standard on end blow units

### Strainer

- Anti-vortexing design to prevent air entrainment

# ECC Centrifugal Evaporative Condenser

Forced draft evaporative condenser with centrifugal fans designed for both indoor or outdoor applications where external ductwork or other sources of static pressure exist.

## ECC FEATURES

### Overview

ECC models are evaporative condensers with centrifugal fans and are suited to applications where external ductwork or other sources of external static pressure exist. The ECC has a capacity range of 7 - 1,140 ammonia tons in a single unit.

### Standard Features

- Forced draft
- Low sound centrifugal fan
- Hot-dip galvanized after fabrication (HDGAF) coil assembly in accordance to ASME B31.5 standards
- Premium efficiency VFD-duty motors
- Indoor or outdoor applications

### Standard Available Options

- Basin sweeper system
- Basin heaters
- Electric water level controls
- Redundant pump
- Remote sump
- 304 stainless steel coil
- TripleGuard™ 5-year warranty basin corrosion protection system
- ASME "U" stamp
- Equipment starters and controls
- Coil circuiting
- Stainless steel construction with welded basin
- Vibration cutout switch

### Unit Specific Options

- Wiring to terminal box
- Heavy gauge coil
- Extended surface coil
- Desuperheating coil
- Subcooling coil
- Air intake and discharge sound attenuation

## ECC BENEFITS

### Low Energy Consumption

- Premium efficiency VFD-duty motors (Standard)
- Variable Frequency Drives (Optional)

### Easy Maintenance

- 360° spray nozzles are non-clogging, reducing maintenance costs, and ensuring efficient equipment operation
- All moving parts are located near the base of the unit, within easy reach for cleaning, lubrication, or adjustments
- Fans, motors, and drive system are located outside of the moist discharge airstream, protecting them from moisture, condensation and icing.

### Quiet Operation

- Centrifugal fans have inherently low sound characteristics
- Factory designed sound attenuation is available for both the air intake and discharge
- Particularly sound sensitive areas can be accommodated by facing the blankoff panel to the sound sensitive direction



## ECC CONSTRUCTION DETAILS

### Heavy Duty Construction

- G-235 (Z700 metric) mill galvanized steel panels

### Water Distribution System

- Schedule 40 PVC spray branches
- Large orifice, 360° nonclog spray nozzles
- Nozzles in spray branches use grommet design, snapping in/out for easy maintenance

### Coil

- Continuous serpentine, steel tubing
- Hot-dip galvanized after fabrication (HDGAF)
- Max. allowable working pressure is 300 psig
- Sloped tubes for free drainage of fluid
- Fabricated per ASME B31.5 standards
- Orders shipping into Canada are supplied with a CRN

### Drift Eliminators

- Recyclable polyvinyl chloride (PVC)
- Impervious to rot, decay, and biological attack
- Flame spread rating of 5 per ASTM E84
- Assembled in easy to handle sections



### Fan Drive System

- V-belt drive
- Heavy-duty bearings L<sub>10</sub> 40,000 hours
- Premium efficiency VFD duty fan motors are standard
- 5-year motor and drive warranty

### Low Sound Centrifugal Fan(s)

- Quiet operation
- Overcome static pressure

### Recirculating Spray Pump

- Close-coupled, bronze impeller, fitted centrifugal pump
- Totally Enclosed Fan Cooled (TEFC) motor
- Bleed line with metering valve installed from pump discharge to overflow

### Strainer

- Anti-vortexing design to prevent air entrainment

### Access Door

- Round access door(s) allow for easy service of the strainer and water makeup assembly.

# ECL Low Profile Centrifugal Evaporative Condenser

Forced draft evaporative condenser with centrifugal fan(s) designed for low profile to fit into mechanical room with low ceilings or are easily hidden outdoors.

## ECL FEATURES

### Overview

ECL models are centrifugal fan evaporative condensers that are specifically designed with a low profile. These units fit well into mechanical equipment rooms with low ceilings and are easily hidden behind louvered walls on buildings. Low profile models are available in heights from 5' 2¼" to 8'4¾". The ECL has a capacity range of 11 - 210 ammonia tons in a single unit.

### Standard Features

- Forced draft
- Low sound centrifugal fan
- Hot-dip galvanized after fabrication (HDGAF) coil assembly in accordance to ASME B31.5 standards
- Premium efficiency VFD-duty motors
- Indoor or outdoor applications

### Standard Available Options

- Basin sweeper system
- Basin heaters
- Electric water level controls
- Redundant pump
- Remote sump
- 304 stainless steel coil
- TripleGuard™ 5-year warranty basin corrosion protection system
- ASME "U" stamp
- Equipment starters and controls
- Coil circuiting
- Stainless steel construction with welded basin
- Vibration cutout switch

### Unit Specific Options

- Wiring to terminal box
- Heavy gauge coil
- Extended surface coil
- Desuperheating coil
- Subcooling coil
- Air intake and discharge sound attenuation

## ECL BENEFITS

### Low Energy Consumption

- Premium efficiency VFD-duty motors (Standard)
- Variable Frequency Drives (Optional)

### Easy Maintenance

- 360° spray nozzles are non-clogging, reducing maintenance costs, and ensuring efficient equipment operation
- All moving parts are located near the base of the unit, within easy reach for cleaning, lubrication, or adjustments
- Fans, motors, and drive system are located outside of the moist discharge airstream, protecting them from moisture, condensation and icing.

### Quiet Operation

- Centrifugal fans have inherently low sound characteristics
- Factory designed sound attenuation is available for both the air intake and discharge
- Particularly sound sensitive areas can be accommodated by facing the blankoff panel to the sound sensitive direction

### Flexible Installation

- Low profile design fits well into mechanical equipment rooms with low ceilings and are easily hidden behind louvered walls on buildings
- Ships completely assembled



## ECL CONSTRUCTION DETAILS

### Heavy Duty Construction

- G-235 (Z700 metric) mill galvanized steel panels

### Water Distribution System

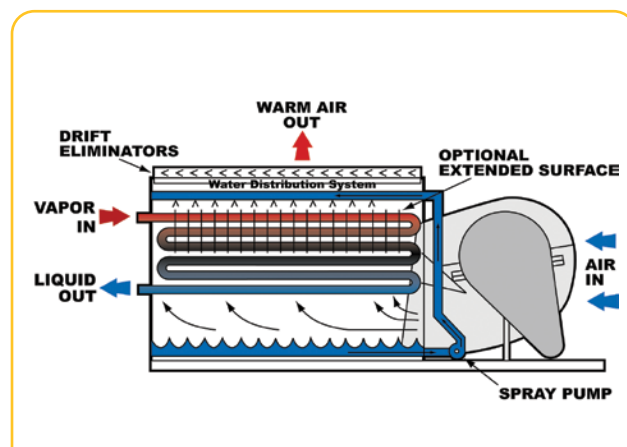
- Schedule 40 PVC spray branches
- Large orifice, 360° nonclog spray nozzles
- Nozzles in spray branches use grommet design, snapping in/out for easy maintenance

### Coil

- Continuous serpentine, steel tubing
- Hot-dip galvanized after fabrication (HDGAF)
- Max. allowable working pressure is 300 psig
- Sloped tubes for free drainage of fluid
- Fabricated per ASME B31.5 standards
- Orders shipping into Canada are supplied with a CRN

### Drift Eliminators

- Recyclable polyvinyl chloride (PVC)
- Impervious to rot, decay, and biological attack
- Flame spread rating of 5 per ASTM E84
- Assembled in easy to handle sections



### Fan Drive System

- V-belt drive
- Heavy-duty bearings L<sub>10</sub> 40,000 hours
- Premium efficiency VFD duty fan motors are standard
- 5-year motor and drive warranty

### Low Sound Centrifugal Fan(s)

- Quiet operation
- Overcome static pressure

### Recirculating Spray Pump

- Close-coupled, bronze impeller, fitted centrifugal pump
- Totally Enclosed Fan Cooled (TEFC) motor
- Bleed line with metering valve installed from pump discharge to overflow

### Strainer

- Anti-vortexing design to prevent air entrainment

### Access Door

- Round access door(s) allow for easy service of the strainer and water makeup assembly.

# Evaporative Condenser Models



Frick® Evaporative Condensers for Industrial Refrigeration.  
Manufacturing a broad product line to ensure your project needs are met.

## Designed to Meet Your Application Needs

Evaporative condensers are used to provide lower condensing temperatures and compressor horsepower savings of up to 15 percent when compared with traditional systems. They provide heat rejection for many types of systems, and the specific application will largely determine which Frick Evaporative Condenser is best suited for a project.

The information contained within this brochure is geared towards the use of evaporative condensers in the industrial refrigeration market. For technical support with a refrigeration application, contact your local Frick Sales Representative.



### ECOSS Induced Draft, Stainless Steel

The full 304L stainless steel construction is self-passivating. Equipped with direct drive EC fans, ECOSS units lower operating and maintenance costs, and increase the overall life of the product.



### XLP2 Forced Draft

A traditional forced draft evaporative condenser with axial fans. Designed for energy efficiency, reliability, maintainability, and easy field assembly.



### IDCF Induced Draft

Incorporating the same robust construction as the IDC3, the IDCF utilizes a secondary heat transfer media to reduce weight and horsepower required.



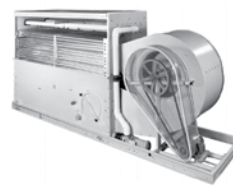
### ECC Forced Draft, Centrifugal

Traditional forced draft evaporative condenser with centrifugal blowers. Designed for applications where external ductwork or other sources of static pressure exist.



### IDC3 Induced Draft

This durable and easy-to-install condenser is a counterflow, induced draft, axial fan unit. The heavy-duty construction is resilient, and designed to meet IBC wind and seismic requirements.



### ECL Forced Draft, Low Profile Centrifugal

Traditional forced draft evaporative condenser with centrifugal blower. The low-profile design fits into mechanical rooms with low ceilings or it can be hidden more easily outdoors.

Form 140.000-SG1 (2016-09)  
Supersedes: 140.000-SG1 (2009-10)  
Subject to change without notice  
Printed in USA • 09/16 • PDF

© 2016 Johnson Controls, Inc. ALL RIGHTS RESERVED



JOHNSON CONTROLS  
100 CV Avenue  
Waynesboro, PA 17268 USA  
Phone: 717-762-2121 • Fax: 717-762-8624  
[www.johnsoncontrols.com/frick](http://www.johnsoncontrols.com/frick)