



FRICK INDIA

EVAPORATIVE CONDENSER



Stainless Steel Coil



Hot Dip Galvanized Coil

About Us

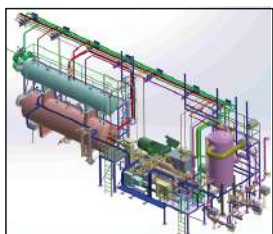


Frick India Limited espouses all the values associated with over 60+ years of legacy in manufacturing and industrial innovation, offering a diverse product range that includes rotary screw compressors, high-speed reciprocating compressors, evaporative condensers (coil type and plate type), air cooling units, falling film chillers, refrigerant pumps, plate freezers, plate ice machines, gas compression packages, electrical control panels, and various refrigeration equipment.

Our state-of-the-art manufacturing facilities ensure timely order fulfillment. We have continually modernized our manufacturing processes by regularly upgrading our technology and processes. Our new products offer the most energy-efficient systems for all industrial refrigeration applications.

We are highly committed to delivering quality products and service facilities to our clients. Our processes and procedures guarantee that our products meet all regulatory standards.

ALL INDUSTRIAL REFRIGERATION SOLUTIONS UNDER ONE ROOF



Designing



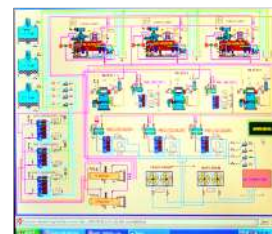
Manufacturing



Installation & Commissioning

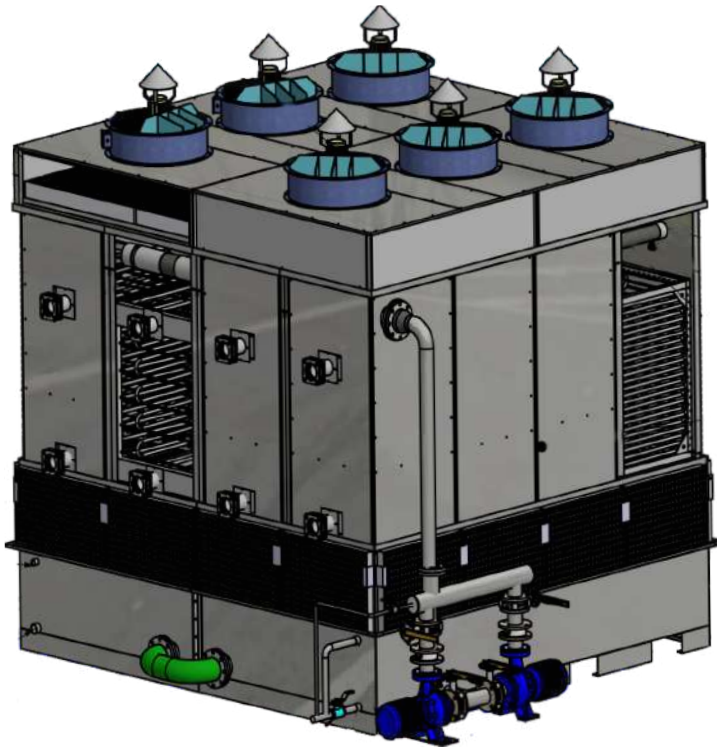


Servicing



Automation

Innovative Design



Frick India has ingenious design fans made entirely of heavy-duty aluminium cast alloy, which is not only lightweight but also prevents corrosion. The axial fans are directly driven by a motor with IP 55 protection.

Our condensers are available in a nominal range of 96 kW to 2830 kW of heat rejection capacity for a single unit at 28 °C WBT and 40 °C SDT.

The condensers are specially designed to meet fluctuating loads and seasonal loads. They are used with all common refrigerants for normally wet or dry operation at low ambient temperatures. They can be installed on any new or existing system.

Coils designed for low pressure drops and good refrigeration drainage

Coils are stainless steel / hot dip galvanized

Sprinkler system inside / outside PVC pipes

Two step 360 Deg Spray System

Brass float valve to control tank water level. Automatic solenoid valve with level transmitter as optional

Additional water connection for compressor cooling, if required

Vertical space saver design if required

Hot Dip Galvanized and Stainless Steel Condenser



HOT DIP GALVANIZED CONDENSERS

Frick India Evaporative Condensers are available in a nominal capacity range of 96 kW to 2398 kW for a single unit. Customized constructions are available for higher capacities.

The condensers are specially designed to meet fluctuating and seasonal loads. They are used with all common refrigerants for normally wet operation or dry operation at low ambient temperatures.

The standard refrigerant coils are constructed of an ERW pipe. These coils are hot dip galvanized after fabrication.

The coil is designed for low pressure drop with sloping tubes for free drainage of fluids.

Advantages:

- ❑ Condenser coils are constructed using heavy-duty pipe with an outer diameter of 26.45 mm x 3.25 mm thick, which has good heat and mass transfer characteristics.
- ❑ Each coil is pneumatically tested at 305 psig (2,100 kPa) and meets ANSI B31.5 requirements.
- ❑ The coils are hot-dip galvanized after fabrication to give them extra protection against corrosion.
- ❑ Coils are delivered filled with nitrogen at a pressure of 0.5 bar.

STAINLESS STEEL CONDENSERS

Frick India Stainless Steel Condenser Coils are efficiently designed for various applications in the refrigeration cycle. The stainless steel condenser coil is very useful in various industries, including food and beverages, oil and gas, etc. They are mainly used to reduce the possibility of leaks and corrosion.

We manufacture bespoke condensers as per client requirements. Low carbon content in the coil helps them resist intergranular corrosion and gives superior performance. SS coils come with high tensile strength and are available at a very affordable price.

Advantages:

- ❑ Easy to maintain and durable, it can last a really long time.
- ❑ SS304L stainless steel tube size is 19.05 mm and 1.2 mm thick.
- ❑ It had good corrosion resistance and greater resistance to leakage.
- ❑ It reduces long-term operating costs.
- ❑ The speed of cooling water on stainless steel tubes can be increased, which can improve the heat coefficient and help impurities in the cooling tube wash away.

Condenser Parts

CASING

The standard casing of the Evaporative Condensers is heavy-duty galvanised plain sheet (coated with 275 GSM). We also provide stainless steel casing upon customer demand.



AIR INLET LOUVERS

Air Inlet Louvres are provided with anti-corrosive material of SS 304 or PVC and easy removal for cleaning. It is designed to eliminate splashing, dirt, and sun light, greatly reducing the potential for algae formation inside the water tank. It is UV and corrosion resistant.



FAN

The condensers use heavy-duty cast aluminium axial flow fans directly driven by motors with IP 55 protection. The fans are designed to run at low rpm to reduce wear and noise. The fan casing is made of hot-dip galvanised steel for long durability.



DRIFT ELIMINATORS

The multiple-break design of the eliminators provides very efficient removal of water droplets and mist from the air stream. The eliminators are constructed of non-corroding PVC material for maximum protection.

WATER RE-CIRCULATION PUMP

The Water Circulating Pump is provided with high-quality materials and a long service life for trouble-free circulation of water with IP-55 protection.



WATER PAN SECTION

The entire pan assembly is zinc-sprayed metalized after fabrication. Also available in fibre-coated steel and stainless steel for extra-long durability.

FEW MOVING PARTS

Less maintenance is an inherent benefit of Frick Evaporative Condensers, as there are a minimum number of moving parts.

TROUBLE-FREE WATER DISTRIBUTION SYSTEM

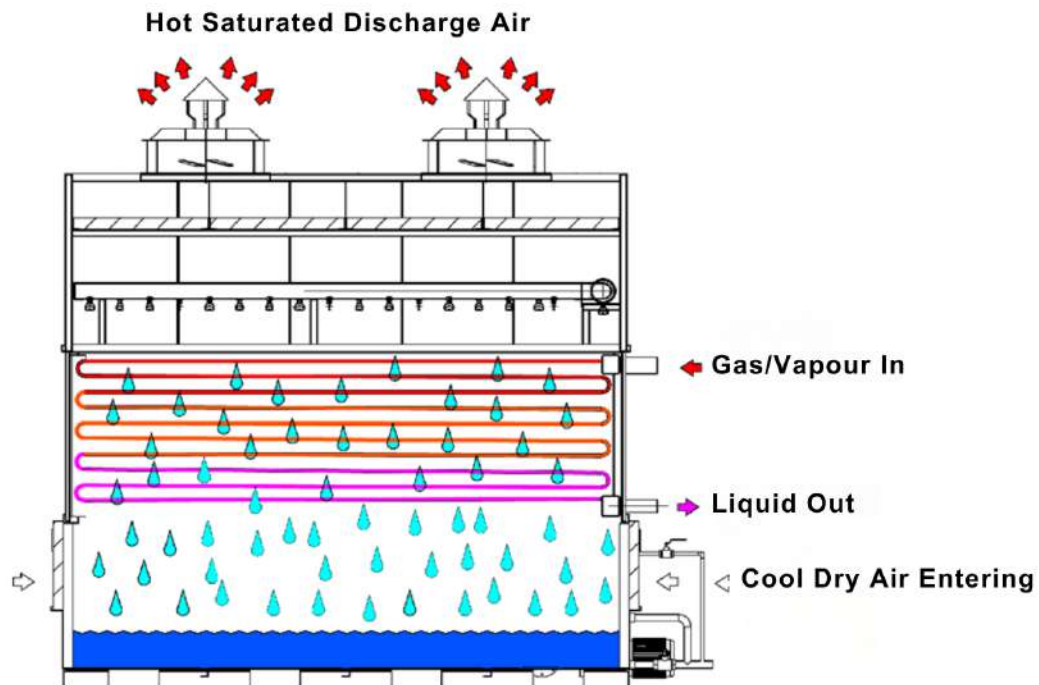
The spray nozzle pattern ensures proper water spray in 360 degrees and covers all surfaces of the coils.

360-degree spray nozzles have a large orifice, are non-clogging, and require less maintenance.

The branches for spray nozzles are too few due to the evenly distributed water with high velocity; scale formation has been reduced during operating conditions.



Principle of Operation



The process fluid is circulated through the coil of the evaporative condenser. Heat from the process fluid is dissipated through the coil tubes, with the water cascading downward over the tubes. At the same time, air is drawn in through the air inlet louvers at the base of the cooler and travels upward over the coil opposite the water flow.

A small portion of the water is evaporated, which removes the heat. The warm, moist air is drawn to the top of the closed-circuit cooler by the fan and discharged into the atmosphere. The remaining water falls to the sump at the bottom of the cooler, where it is recirculated by the pump up through the water distribution system and back down over the coils.



Electrically Commutated Fans

Frick India Electrically Commutated (EC) fans are capable of intelligent speed control, further reducing energy consumption.

Compared with AC motors, the motors of EC fans have no winding but a permanent magnet instead. Due to that fact, there are no induction losses or slip losses, especially for speed-controlled allocations.

EC Technology offers a large variety of benefits, such as low-capacity motor management, automatic parameterization, function, and selective fan shutdown.

Installation



Frick India site engineers thoroughly reviewed installation procedures until commissioning. Their presence on the site ensures the safety of the equipment and installation of the machine without damage.

Shipping

We assemble evaporative condensers in the factory before shipping them to the site to ensure uniform quality with a minimum field assembly fault. As standard, all parts ship separately to avoid transit damage.

Pre-Rigging Checks

When the condenser is delivered to the job site, we check thoroughly to ensure all required items have been received and are free of any shipping damage. Also, check the nitrogen pressure drop in the coil.

Lifting

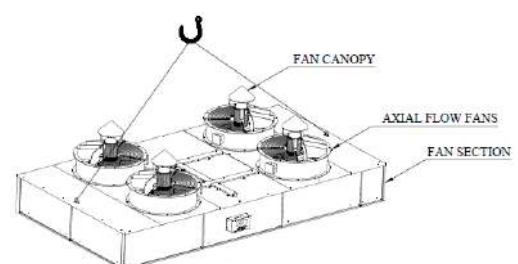
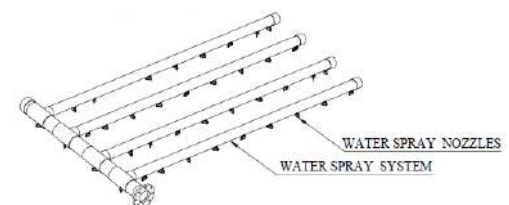
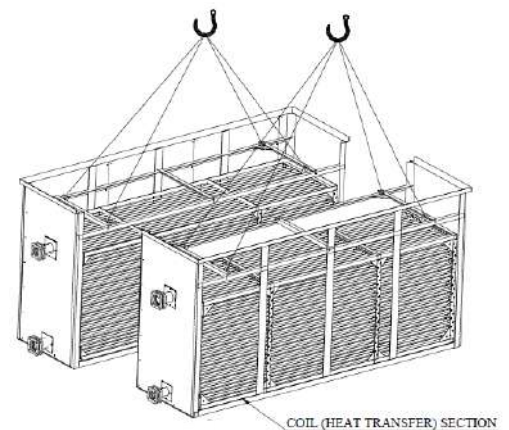
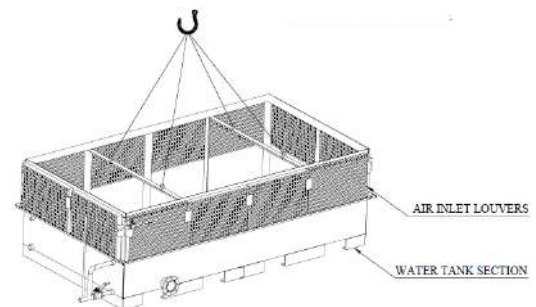
We recommend single-piece lifts by using slings in the vertical dimension "H" from the lifting device to the spreader bar and placing safety slings under the unit to prevent damage.

Assembly

Our site engineers thoroughly review the drawing and assemble each unit part on the foundation. After a complete unit setup, check alignment and connect all pipes to the refrigeration system.

Testing

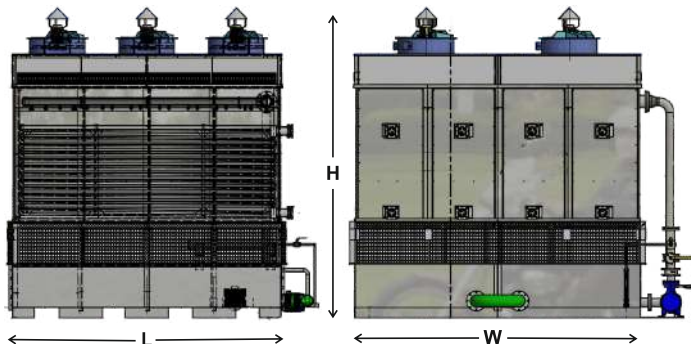
After assembly, we test the functioning of the unit using high air pressure to ensure that there will be no leakage. Our site engineers never compromise with our standards.



Capacity and Dimensions

Series	Model	Heat Rejection Capacity (NH3)		Total Air Flow	Fan & Motor			Pump Rating		Make Up Water	Dimension (MM)			Shipping Weight	Operating Weight
		TR (kW) @28°C WBT & 38°C SDT (Cond).	TR (kW) @28°C WBT & 40°C SDT (Cond).		CFM(CMH)	Dia	HP	Nos.	GPM (LPS)		HP	GPM (LPS)	L		
HOT-DIP GALVANIZED EVAPORATIVE CONDENSER															
FHGE	FHGE-44S	51 (179)	60 (211)	13500 (22937)	24"	1.5	2	270 (17.03)	2.0	1.4 (0.088)	2282	982	4026	2860	3550
	FHGE-71M	79 (277)	93 (327)	18000 (30582)	24"	2.0	2	270 (17.03)	2.0	1.7 (0.107)	2782	1092	4026	3950	4850
	FHGE-103L	116 (408)	137 (481)	24000 (40776)	30"	2.0	2	355 (22.39)	3.0	2.0 (0.126)	3782	1067	4059	5100	6300
	FHGE-138M2	169 (594)	199 (701)	35000 (59465)	24"	2.0	4	355 (22.39)	3.0	2.6 (0.164)	2782	2102	4026	6750	8550
	FHGE-204L2	229 (805)	270 (950)	46000 (78155)	30"	2.0	4	585 (36.90)	5.0	3.6 (0.227)	3782	2052	4159	8600	11800
	FHGE-304L3	337 (1185)	398 (1398)	69000 (117232)	30"	2.0	6	585 (36.90)	5.0	6.0 (0.370)	3782	3037	4159	11600	16200
	FHGE-408L4	455 (1600)	537 (1888)	96000 (163105)	30"	3.0	6	815 (51.41)	7.5	8.0 (0.504)	3782	4022	4210	16300	23900
	FHGE-508XL3	547 (1924)	645 (2270)	128000 (217473)	30"	3.0	8	815 (51.41)	7.5	10.0 (0.631)	5582	3037	4210	19500	28100
FHGE-608XL4	682 (2398)	805 (2830)	144000 (244658)	39"	5.0	6	1170 (73.81)	5*2	11.0 (0.694)	5582	3777	4318	22500	33950	
STAINLESS STEEL EVAPORATIVE CONDENSER															
FSSE	FSSE-44S	51 (179)	60 (211)	13500 (22937)	24"	1.5	2	270 (17.03)	2.0	1.4 (0.088)	2132	1128	4132	2000	2750
	FSSE-71M	79 (277)	93 (327)	18000 (30582)	24"	2.0	2	270 (17.03)	2.0	1.7 (0.107)	2782	1138	4026	2800	3800
	FSSE-103L	116 (408)	137 (481)	24000 (40776)	30"	2.0	2	355 (22.39)	3.0	2.0 (0.126)	3782	1046	4059	3600	4850
	FSSE-138M2	169 (594)	199 (701)	35000 (59465)	24"	2.0	4	355 (22.39)	3.0	2.6 (0.164)	2782	2194	4026	4650	6500
	FSSE-204L2	229 (805)	270 (950)	46000 (78155)	30"	2.0	4	585 (36.90)	5.0	3.6 (0.227)	3782	2010	4159	5300	8400
	FSSE-304L3	337 (1185)	398 (1398)	69000 (117232)	30"	2.0	6	585 (36.90)	5.0	6.0 (0.370)	3782	2974	4159	6500	11050
	FSSE-408L4	455 (1600)	537 (1888)	96000 (163105)	30"	3.0	6	815 (51.41)	7.5	8.0 (0.504)	3782	3938	4210	8800	16300
	FSSE-508XL3	547 (1924)	645 (2270)	128000 (217473)	30"	3.0	8	815 (51.41)	7.5	10.0 (0.631)	5582	2974	4210	10600	19450
FSSE-608XL4	682 (2398)	805 (2830)	144000 (244658)	39"	5.0	6	1170 (73.81)	5*2	11.0 (0.694)	5582	3938	4210	12000	23700	
HOT-DIP GALVANIZED AND STAINLESS STEEL EVAPORATIVE CONDENSER															
FAE/FAES	FAES-47	21 (74)	27 (96)	6000 (10194)	24"	1	1	132 (8.33)	1.0	0.23 (0.015)	1312	744	4277	1036	1475
	FAES-70	30 (106)	39 (137)	7000 (11893)	24"	1.5	1	176 (11.1)	1.5	0.84 (0.053)	1312	1136	4277	1316	2059
	FAES-85	37 (130)	48 (169)	9000 (15291)	24"	2.0	1	176 (11.1)	1.5	0.98 (0.062)	2312	744	4277	1509	2363
	FAES-105	45 (158)	59 (206)	14000 (23786)	24"	1.5	2	176 (11.1)	1.5	1.04 (0.066)	2312	826	4277	1688	2558
	FAES-125	51 (179)	66 (233)	14000 (23786)	24"	1.5	2	269 (16.97)	2.0	1.3 (0.082)	2312	909	4277	1825	2882
	FAES-130	59 (207)	77 (270)	18000 (30582)	24"	2.0	2	269 (16.97)	2.0	1.36 (0.086)	2312	1086	4277	2009	3252
	FAES-144	67 (236)	87 (306)	18000 (30582)	24"	2.0	2	269 (16.97)	2.0	1.5 (0.095)	3712	792	4277	2359	3806
	FAES-165	75 (264)	98 (343)	18000 (30582)	24"	2.0	2	269 (16.97)	2.0	1.6 (0.101)	3712	868	4277	2547	4004
	FAES-180	83 (292)	108 (379)	18000 (30582)	24"	2.0	2	269 (16.97)	2.0	1.6 (0.101)	3712	968	4277	2685	4433
	FAES-240	116 (408)	151 (530)	24000 (40776)	30"	2.0	2	423 (26.69)	3.0	1.6 (0.101)	2312	1336	4277	3174	4776
FAES-270	130 (457)	169 (594)	27000 (45873)	24"	2.0	3	423 (26.69)	3.0	1.8 (0.114)	3712	1436	4277	3402	5807	
HOT-DIP GALVANIZED AND STAINLESS STEEL EVAPORATIVE CONDENSER															
HCU/HCUS	HCUS-100	150 (528)	195 (686)	27000 (45873)	24"	2.0	3	423 (26.69)	3.0	2.1 (0.132)	3712	1652	4379	4200	7800
	HCUS-120	181 (635)	235 (826)	36000 (61164)	30"	2.0	3	423 (26.69)	3.0	2.5 (0.158)	3712	1936	4379	4750	8876
	HCUS-145	216 (759)	281 (987)	48000 (81553)	30"	2.0	4	423 (26.69)	3.0	3.0 (0.189)	3712	2372	4379	5300	10815
	HCUS-170	251 (883)	327 (1148)	48000 (81553)	30"	2.0	4	660 (41.64)	5.5	3.5 (0.221)	3712	2772	4379	5845	11685
	HCUS-200	297 (1046)	387 (1360)	54000 (91747)	24"	2.0	6	660 (41.64)	5.5	4.2 (0.265)	5512	2172	4379	6745	13560
	HCUS-240	350 (1232)	455 (1602)	72000 (122329)	30"	2.0	6	660 (41.64)	5.5	4.9 (0.309)	5512	2572	4379	7550	15700
	HCUS-290	426 (1499)	554 (1949)	72000 (122329)	30"	2.0	6	925 (58.33)	7.5	6.0 (0.379)	5512	3084	4477	8875	20615
HCUS-340	506 (1778)	657 (2312)	96000 (163105)	30"	2.0	8	925 (58.33)	7.5	7.0 (0.442)	5512	3708	4477	10500	23800	

Dimensions



FHGE - Frick Hot Dip Galvanized Condenser Coils are rigid in construction with heavy duty pipes (3.25 mm thick), Hot Dip Structure & Fan Housing with Aluminium Fan, Metalized Tank, 275 GSM GP Casing

FSSE - Frick SS Condenser coils are rigid in construction with Anti - Corrosive tubes (19.05mm x1.2mm thick), Hot Dip Structure & Fan Housing with Aluminium Fan, Metalized Tank, 275 GSM GP Casing

FAE - Frick Hot Dip Galvanized Condenser Coils are rigid in construction with heavy duty pipes (3.25 mm thick), Hot Dip Structure & Fan Housing with Aluminium Fan, Metalized Tank, 275 GSM GP Casing

FAES - Frick SS Condenser coils are rigid in construction with Anti - Corrosive tubes (19.05mm x1.2mm thick), Hot Dip Structure & Fan Housing with Aluminium Fan, Metalized Tank, 275 GSM GP Casing

HCU - Frick Hot Dip Galvanized Condenser Coils are rigid in construction with heavy duty pipes (3.25 mm thick), Hot Dip Structure & Fan Housing with Aluminium Fan, Metalized Tank, 275 GSM GP Casing

HCUS - Frick SS Condenser coils are rigid in construction with Anti - Corrosive tubes (19.05mm x1.2mm thick), Hot Dip Structure & Fan Housing with Aluminium Fan, Metalized Tank, 275 GSM GP Casing

REMARKS:

i) The above mentioned specifications are based on Ammonia (R-717) refrigerant. It is also suitable for refrigerants like R-22, Propane, R-134A, R-404A & R-507A. If Propane is used as a refrigerant, Flame proof Motor and Pump should be used.

ii) All specifications are subjected to change without any prior notice. For Different Operating conditions and refrigerants, Please contact factory for further assistance.



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