



# FRIGID COILS

Energy Saving Ammonia Air Cooling Units



COMPACT  
HYGIENIC  
RELIABLE  
ENERGY SAVING

**FRICK INDIA LTD.**

## INTRODUCTION

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Frick India Limited, established in 1962, has an extensive experience in cold and chilled storage, blast freezer and all aspects of heat transfer technology in food processing. Now the company is offering the latest coil manufacturing technology for all your storage and food processing requirements. In the field of ammonia and glycol air cooling units the company pioneered the use of plate finned hot dip galvanized coils.

## APPLICATIONS

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- Chilled ware houses
- Chillers
- Deep / Blast Freezers
- Pre coolers
- High humidity cold storages etc.

## STANDARD AIR COOLING UNITS

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Frick energy saving air cooling units are available in various capacities ranging from 5400 CFM to 42600 CFM. Coil capacity is based on sensible heat removal, medium frosted coil condition. Temperature difference is the temperature of the air entering the coil and the coil evaporating temperature.

## STANDARD FEATURES

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### *Casing*

The unit casing is fabricated with heavy gauge, corrosion resistant galvanized sheet. Casing and panels are easily removed for internal inspection. Fan sections are compartmented to with continuous tube sheets to allow fan cycling and to prevent idle fans from turning in reverse. Fan panels have deep spun orifices for efficient fan performance.

### *Drain Pan*

The drain pan is constructed of heavy gauge galvanized sheet. Drain pans are sloped end to end with a bottom drain at the centre for rapid water drainage.

### *Fan Motors*

Standard motors are the Totally enclosed Fan Cooled (TEFC) type. Bearing are pre-lubricated with low temperature grease.



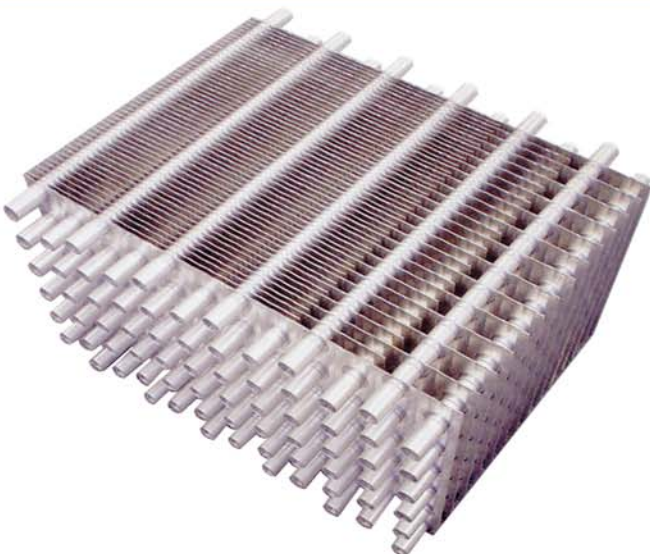
### *Importance and Selection of Fin Spacing*

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**4 Fins per Inch :** 4 Fins per inch coils are the best option because this spacing permits air passage with moderate frost. These coils are widely used for cold storages having 0°C temperature and above.

**3 Fins per Inch :** 3 Fins per inch coils are used for low temperature storage where moisture loads are high or where defrosting is necessary.

**2 Fins per Inch :** 2 Fins per Inch coils are used for low temperature where moisture load is heavy and defrosting is very frequent.



## Coil

The cooling coil is constructed with steel tubes staggered in the direction of air flow to assure maximum air turbulence and coil heat transfer efficiency.

The coil is available with 3 or 4 fins per inch with tubes and fins supported by heavy gauge flanged tube sheets. The entire coil assembly is hot deep galvanized after fabrication. Coils are tested before and after galvanizing with 350 psig air pressure.

Each coil is circuited for the operating conditions to which it will be exposed. This assures proper gas velocities through the tubes and that refrigerant pressure drops will be kept to a minimum.

All coils can be circuited for :

Liquid recirculation      Flooded feed  
Brine circulation.

## Axial Flows Fans

Axial flow fans are made up of heavy duty cast aluminium with adjustable blade. These dynamically balanced Aerofoil design fans are selected for maximum performance to match exact pressure requirements.



## Fin Range and Spacing

4 FPI marginally more efficient and cost effective. 4 FPI is acceptable where moisture load is moderate.

2/3 Fins offers not only wider fin spacing but also greater frost carrying capacity in the form of enhanced secondary surface area. This combination offers the best option where low temperature and heavy moisture loads are anticipated.



## OPTIONAL ARRANGEMENTS

### Insulated Drain Pan

Thermal insulation is placed between the inner drain pan and outer cover. Both the inner drain pan and outer cover are fabricated from galvanized sheet.

### Water Defrost

A spray tree with full coverage non clogging nozzles and an oversized drain pan connection are provided. Spray tree and nozzles are easily accessible.

### Hot Gas Defrost

A multi-circuited pan coil is welded to the underside of the inner pan. The coil design reduces pressure drop, increases hot gas flow and shortens overall defrost times.

### Optional Motors

TEFC motors are available in two speeds where fluctuated air flow is required.



## Technical Data for FAFA/FAHA series for Low temperature / Moderate temperature

S. No.	Model No.	No. of Coils	Row Coils	No. of Fans	Total air flow Cu.M./Hr (Cu.Ft./Mt)	KW (HP) Per Fan	CAPACITIES		Overall dimensions (with accumulator) L x W X H (mm)
							K.CAL/HR/°C/TD (BTU/HR/°F/TD)		
							3FINS/inch	4FINS/inch	
1.	66	1	6	1	9175 (5400)	0.55 (0.75)	1070 (2375)	1146 (2544)	1575 x 1000 x 1350
2.	106	1	6	1	11900 (7000)	1.1 (1.5)	1795 (3985)	1900 (4220)	1900 x 1000 x 1550
3.	134	1	4	2	18690 (11000)	0.55 (0.75)	1436 (3188)	1550 (3438)	2350 x 900 x 1350
4.	136	1	6	2	18350 (10800)	0.55 (0.75)	2140 (4750)	2292 (5088)	2350 x 1000 x 1350
5.	138	1	8	2	17160 (10100)	0.55 (0.75)	2590 (5750)	2730 (6063)	2350 x 1100 x 1350
6.	166	1	6	2	22770 (13400)	1.1 (1.5)	2534 (5625)	2736 (6075)	2350 x 1000 x 1550
7.	168	1	8	2	21750 (12800)	1.1 (1.5)	3277 (7275)	3446 (7650)	2350 x 1100 x 1550
8.	1610	1	10	2	21070 (12400)	1.1 (1.5)	3716 (8250)	3920 (8700)	2350 x 1200 x 1550
9.	186	1	6	2	23280 (13700)	1.1 (1.5)	2800 (6180)	3012 (6650)	3000 x 1000 x 1350
10.	194	1	4	2	27190 (16000)	1.1 (1.5)	2331 (5175)	2534 (5625)	3000 x 900 x 1550
11.	196	1	6	2	24980 (14700)	1.1 (1.5)	3040 (6750)	3252 (7219)	3000 x 1000 x 1550
12.	198	1	8	2	22940 (13500)	1.1 (1.5)	3590 (7969)	3800 (8438)	3000 x 1100 x 1550
13.	1910	1	10	2	22090 (13000)	1.1 (1.5)	4128 (9170)	4747 (10538)	3000 x 1200 x 1550
14.	234	1	4	2	37385 (22000)	1.5 (2.0)	2878 (6390)	3142 (6975)	3000 x 900 x 1700
15.	236	1	6	2	35050 (21000)	1.5 (2.0)	4105 (9113)	4358 (9675)	3000 x 1000 x 1700
16.	238	1	8	2	33985 (20000)	1.5 (2.0)	4916 (10913)	5118 (11363)	3000 x 1100 x 1700
17.	2310	1	10	2	30585 (18000)	1.5 (2.0)	5360 (11900)	5745 (12750)	3000 x 1200 x 1700
18.	306	2	6	4	45540 (26800)	1.1 (1.5)	5068 (11250)	5473 (12150)	5310 x 1000 x 1550
19.	308	2	8	4	43500 (25600)	1.1 (1.5)	6554 (14550)	6892 (15150)	5310 x 1100 x 1550
20.	3010	2	10	4	42140 (24800)	1.1 (1.5)	7432 (16500)	7838 (17400)	5310 x 1200 x 1550
21.	386	2	6	4	60150 (35400)	1.1 (1.5)	6757 (15000)	7180 (15938)	6500 x 1000 x 1550
22.	388	2	8	4	54545 (32100)	1.1 (1.5)	8023 (17813)	8480 (18825)	6500 x 1100 x 1550
23.	3810	2	10	4	50975 (30000)	1.1 (1.5)	9071 (20138)	9493 (21075)	6500 x 1200 x 1550
24.	446	2	6	4	72385 (42600)	1.5 (2.0)	7980 (17719)	8612 (19119)	6500 x 1000 x 1730
25.	448	2	8	4	67290 (39600)	1.5 (2.0)	9656 (21438)	10150 (22531)	6500 x 1100 x 1730
26.	4410	2	10	4	62700 (36900)	1.5 (2.0)	11180 (24821)	11490 (25506)	6500 x 1200 x 1730
27.	22 x 10	1	10	2	42500 (25000)	2.2 (3.0)	6633 (14627)#	-	3000 x 1200 x 2350

Varifin Capacity Correction Factors				
Fin spacing coil condition & type	Factors Rows			Multiply factor by
	Deep			
	6	8	10	
2/3 fpi	0.88	0.90	0.92	3 fpi rating
2/4 fpi	0.85	0.89	0.91	4 fpi rating

Low Suction Temp. Capacity Correction factor					
T.D.	Suction temp °F				
	-10	-20	-30	-40	-50
10	1.00	1.00	0.95	0.90	0.80
15	1.00	1.00	0.93	0.90	0.80
20	0.95	0.95	0.90	0.85	0.75

Correction factor for GLYCOL					
Glycol	Percentage				
	10%	15%	20%	30%	35%
Propylene	0.94	0.90	0.87	0.84	0.75
Ethylene	0.95	0.92	0.88	0.85	0.77

## Technical Data for FATR series Air Cooling Units ( Standard Frigid Coils ) for Cold Storages

Sl. No.	Model	No. of Fans/ (watt each fan)	Number of Coils	CAPACITIES <sup>S</sup> K.CAL/HR/°C/TD(BTU/HR/°F/TD)	Overall dimensions in mm (inch)				Water for Defrost (LPM)
					Length	Width	Height*	Height**	
1.	FATR-26	2 (370W)	1	1590 (3530)	2565 (101)	990 (39)	1372 (54)	1219 (48)	68
2.	FATR-36	3 (370W)	1	2382 (5290)	3175 (125)	990 (39)	1372 (54)	1219 (48)	102
3.	FATR-46	4 (370W)	2	3176 (7050)	4826 (190)	990 (39)	1372 (54)	1219 (48)	136
4.	FATR-56	6 (370W)	2	4765 (10578)	6045 (238)	990 (39)	1372 (54)	1219 (48)	170

## Technical Data for FBTC series Air Cooling Units ( Slim-Line Frigid Coils ) for Cold Storages

Sl. No.	Model	No. of Fans (watt each fan)	Number of Coils	CAPACITIES <sup>S</sup> K.CAL/HR/°C/TD(BTU/HR/°F/TD)	Overall dimensions in mm (inch)				Water for Defrost (LPM)
					Length	Width	Height*	Height**	
1.	FBTC-21	2 (370W)	1	1588 (3525)	3175 (125)	760 (30)	1372 (54)	1219 (48)	102
2.	FBTC-42	4 (370W)	2	3117 (6920)	6045 (238)	760 (30)	1372 (54)	1219 (48)	170

## Technical Data for FATR-W series Air Cooling Units ( Wide-Coil Frigid Coils ) for Cold Storages

Sl. No.	Model	No. of Fans (watt each fan)	Number of Coils	CAPACITIES <sup>S</sup> K.CAL/HR/°C/TD(BTU/HR/°F/TD)	Overall dimensions in mm (inch)				Water for Defrost (LPM)
					Length	Width	Height*	Height**	
1.	FATR-36WL	3 (500W)	1	4023 (8932)	3175 (125)	1700 (67)	1600 (63)	1400 (55)	136
2.	FATR-56WL	6 (500 W)	2	6653 (14770)	6045 (238)	1700 (67)	1600 (63)	1400 (55)	204
3.	FATR-36WH	3 (750 W)	1	4847 (10821)	3175 (125)	1700 (67)	1600 (63)	1400 (55)	136
4.	FATR-56WH	6 (750 W)	2	9026 (18217)	6045 (238)	1700 (67)	1600 (63)	1400 (55)	204

\* Height with Accumulator \*\* Height without Accumulator # 2 Fins/inch All capacities are based on coils with flooded system

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Note : All specifications are subject to change without prior information