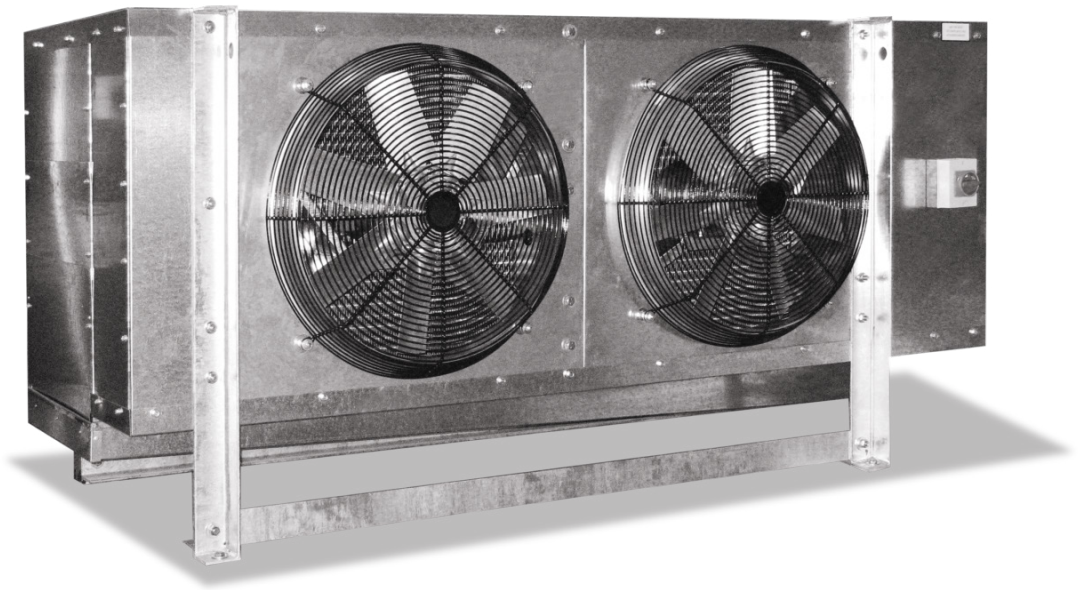
LPC series

UNIT COOLER

engineering data
and specifications



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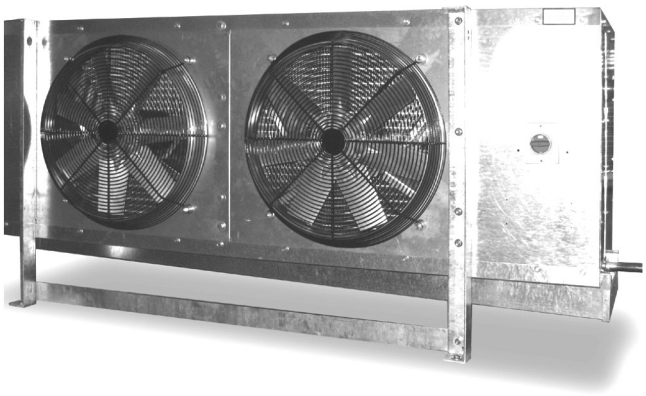
SGS REFRIGERATION

LPC Unit Cooler – Model Key



Model Key

LPC A 4 H –34 10 –4 –1.5 RB A -HGP –HGR –RH –EF

LPC
Low Profile PC

Coil Material
S - Steel Tube/Fin
A - Aluminum Tube/Fin
C - Copper Tube/Fin
B - Stainless Steel Tube/Aluminum Fin

Number of Fans
1 - 5

Fan Speed
L - 1140 RPM
H - 1725 RPM

Face Area
Nominal sq ft

Rows Deep
6, 8, 10, 6/2, 8/2

Fin Spacing
3, 4 FPI

Motor Horsepower
.5, 1, 1.5, 2 hp

Refrigerant Feed
DX - Direct Expansion
RT - Refrigerant Top
RB - Refrigerant Bottom
FL - Flooded
B - Brine/Glycol
C - Chilled Water

Refrigerant
A - Ammonia
R - Brine/Glycol
P - R507
S - R404A
V - R22
W - Chilled Water

Type of Defrost
A - Air Defrost Unit
IA - Air Defrost Unit with Insulated DP
ED - Electric Defrost Only†*
IED - Electric Defrost Coil only with Insulated DP†*
EDL - Electric Defrost Unit†*
HGC - Hot Gas Coil Only
IHGC - Hot Gas Coil Only with Insulated DP
HGP - Hot Gas Unit with Waffle Style DP with PRL Interpiping
HGS - Hot Gas Unit with Waffle Style DP with SRS Interpiping
HTP - Hot Gas Unit with Tube Style DP with PRL Interpiping
HTS - Hot Gas Unit with Tube Style DP with SRS Interpiping
WD - Water Defrost**

Reheat*
HGR - Hot Gas
ERH - Electric

Coil Connection Hand
LH - Left Hand
RH - Right Hand

Coating†
EF - Epoxy ElectroFin
HC - Heresite

† Aluminum coils only
* Not available on 6-fan unit
** Not available on 5-fan unit

The LPC product is designed for applications where ceiling height is limited. Cast aluminum fans for peak performance in all applications. Units available with 2, 4, 5 and 6 fans.

All ratings are for liquid recirculated or flooded feed.

SELECTIONS

- Suitable for use in coolers, freezers and blast freezers.
- Capacity listed is BTUH/°TD (temperature difference) with medium frosted coil for sensible heat removal. The unit will absorb both sensible and latent heat from the space if the TD is adequate for the airflow.
- Maximum TD for catalog rating is 5°F for low temperature and 30°F for medium temperature applications. TD is the temperature difference between the coil saturated suction temperature and the entering air temperature.
- For wet coil rating, variable fin spacing and direct expansion application, see the Capacity Correction Factors listed on page 6.
- For wet coil applications or for room temperature above 32°F, selection should be limited to coil face velocities less than 650 FPM to prevent moisture carryover.
- Shaded ratings indicate selections with face velocities under 650 FPM.
- Ratings listed show 0 and 1/2" external static pressure operation. See application guidelines for details.
- Ratings shown are for liquid recirculated or flooded feeds.
- Brine refrigerants require factory engineered selection. Provide required capacity, brine type, brine concentration, room temperature, entering brine temperature and gpm for selection.
- For 50 Hz applications, contact factory.

APPLICATION

Refrigerant Feeds:

- **DX** - Direct expansion employs a distributor and capillaries to feed each circuit. TEV must be externally equalized. Ammonia TEV feeds are not recommended below 0°F SST or with TD selections less than 12°F. Remove discharge tubes from ammonia TEV.
  The distributor is orificed. Sub-cooled liquid must be specified as circuits may be reduced for rated performance.
- **DX-HG** - Direct expansion hot gas defrost models utilize a side ported distributor, a by-pass tee between TEV and distributor, or by-pass header for halocarbons. Ammonia requires a by-pass header.
- **Recirculated Liquid Overfeed Systems** usually supply liquid refrigerant at SST. Warmer liquid feeds must be specified.

- **Recommended Recirculated Rates**

SST	20	-25	-40
R-717	4 to 1	3 to 1	2.5 to 1
R-404A	2 to 1	2 to 1	1.5 to 1
R-22	3 to 1	2.5 to 1	2 to 1

- **RT** - Recirculated top feed is recommended for air, water, or electric defrost. Refrigerant and oil flows downhill to the suction header.
- **RB** - Recirculated bottom feed is recommended for hot gas defrost. Hot gas enters the suction thru customer's connection. Condensate and oil flow downhill, back-flowing the liquid feed orifices which restrict gas blow-by. Condensate is relieved thru customer's tee located between coil and balancing valve. Defrost condensate relief devices must be located below the liquid connection.
- **FL** - Flooded feeds utilize surge drums with liquid level control. When close coupled, liquid level in drum should be four inches or more above coil. Gas/liquid separation velocities are based on condenser pressure liquid feed. Smaller vessels can be used when liquid is sub-cooled and when hot gas defrost condensate is relieved to other than the drum. Contact factory for surge drum selections.
- **Air Throw**
  - For 1160 RPM motors, air throw is 100 to 120 ft.
  - For 1725 RPM motors, air throw is 120 to 140 ft.
  - Long throw adapters will increase air throw by 30 to 40%. When throwing down long aisles, air throw will increase substantially.
- **Blast Freezing**
  - Blast freezing application should use 1 /2 ESP ratings. It is important that adequate space for air flow is available for blast freezing applications.
  - High capacity and high air flows in confined spaces can produce static pressures exceeding the capabilities of the fan resulting in greatly reduced air flow and less than expected capacity.
  - Units should be located away from the wall a distance equal to the unit height.

- Unit Location
  - Locate units away from walls a distance equivalent to the unit height. This distance should be increased if product is stacked to the unit underside.
  - Air discharge should not be blocked by steelwork, product, or lights. Water defrost models require 24" clearance on the air entering side of the unit for distribution pan removal for cleaning.
  - Since housings are non-insulated, units are to be located in the conditioned space.
- Piping
  - Weight of piping, controls, etc. should be carried by proper pipe supports. Steel suction lines on TEV fed ammonia units should be downsized at the unit and then trapped.
  - The undersized riser should enter the top of a suction main.
- Hot Gas Defrost
  - During hot gas defrost, an evaporator coil can condense at 3 to 4 times its rated cooling capacity. Liquid condensate must be allowed to leave the coil or defrost will be retarded by lack of flow.
  - Defrost condensate relief lines must be connected to the bottom of RT or DX suction lines or traps and to the bottom of RB or FLA liquid lines.
  - Do not back-flow condensate thru hand expansion valves as the orifice will restrict defrost. Defrost relief regulators must be located below the liquid or suction connections.
  - Do not lift refrigerant condensate because defrost of the bottom of the coil will be retarded.
  - When the defrost relief is piped in a fourth pipe to the system intercooler or controlled pressure receiver, the defrost relief regulator may require oversizing because its pressure differential is lower.
  - With multiple evaporators, each is provided with a defrost relief check valve and the regulator is in the common header.
  - The regulator and the common defrost relief header must be sized for the maximum number of units being defrosted at one time.
- Drain Lines
  - Each unit must have a trap (heated when necessary) in the water drain line from each unit.

EFFICIENT COIL DESIGN

Tubes are 3/4" O.D. staggered in the direction of air flow. Turbo-Spacers are located between tubes to provide nominal 3 or 4 fin per inch spacing and improve fin efficiency by turbulating the air flow.

- Coil Construction
  - Hot dipped galvanized steel tubes and fins, copper tube and aluminum fins, stainless steel tubes and aluminum fins, or all aluminum tubes and fins.
  - Coils are constructed and listed in accordance with Underwriters Laboratories Standards. Each coil is tested under water with 350 psig air.
  - For maximum efficiency, each coil is tailor made for its intended duty with the following features:
  - Recirculated coils have graduated liquid feed orifices to balance static head and reduce hot gas blow-by during defrost.
  - Direct expansion coils are circuited to have minimum pressure drop and maintain refrigerant velocity for oil return.
  - Flooded coils are circuited to minimize internal loses while maintaining minimum surge drum operating level.
  - Single phase fluid coils are circuited to produce a proportionate pressure drop compared to the fluid flow rate.
- Coil variations available include:
  - Steel coils with brass distributor for direct expansion halocarbon.
  - Split face or split load circuiting.
  - Copper tube and copper fins.
  - 1.5/3 and 2/4 variable fin spacing.
  - Multiple refrigeration circuits.
  - Reheat options.
- For aluminum tube coils companion steel flanges, isolation kits and gaskets are provided.

HEAVY DUTY HOUSING

Housings are mill galvanized steel for long life and maximum strength. Features include:

- Continuous tube sheets provide maximum rigidity.
- Deep spun orifices insure optimum fan performance.
- Individually compartmented fans prevent reverse fan rotation, if a motor fails.
- Stainless steel is available as an option.

FAN AND MOTORS

- All fans are cast aluminum and selected for maximum efficiency.
- Fans are direct driven at 1160 and 1750 rpm by three phase ODP motors.
- All motors have internal thermal overloads and are wired to a common terminal block in a Nema 4 junction box on the refrigerant connection end of the unit.
- External overload devices are not required.
- Fan guards conform to UL requirement and have a 10-15 mil. fluidic bath coating of black vinyl PVC for corrosion resistance.
- An optional single non-fused disconnect switch is available to be mounted at the factory.

DEFROST OPTIONS

- Air Defrost – above 36° room temperature
  - Units should be selected at low face velocities using the shaded ratings on the capacity data tables to prevent moisture carryover.
  - Drain pan is aluminum for long life and corrosion protection.
- Hot Gas Defrost Coil Only– above 33°F room temperature)
  - Hot gas defrost for the coil with an unheated aluminum drain pan.
- Hot Gas Defrost Unit – below +32°F room temperature
  - The unique "waffle" stainless steel drain pan allows the fastest hot gas defrost available. The design assures maximum pan heat in minimum time.
  - Drain pan is insulated with a mill galvanized steel cover.
  - Interconnecting piping and check valve between the drain pan and coil are factory installed.
- Water Defrost – above 25°F room temperature
  - Water defrost is available on 2, 4 and 6 fan units only.
  - A water distribution pan mounted above each coil section provides full coverage of the entire finned surface. Inlet water temperature should be above 65 °F. Water drip pans are removable from the back of the unit. Overall height is increased 5".
  - Drain pan is aluminum for long life and furnished with an oversized horizontal drain connection.
  - Splash guard provided with unit.
  - For a water defrost application below 25°F room, consult factory.
- Electric Defrost
  - Electric defrost is available on 2, 4 and 5 fan units only with copper, aluminum and stainless steel with aluminum fin.
  - Not for use with flooded ammonia applications.

CONTROL PANEL OPTIONS

- A factory mounted and wired control panel with fused disconnect and fan motor contactor is available. The option reduces field installation costs. Panels carry a UL stamp for industrial control panels. The control voltage transformer can be included or omitted.
- An electrical defrost control panel is available containing an adjustable time clock to initiate and run the defrost cycle including heat connector.

OPTIONAL FEATURES

- Long throw adapters
- 45° discharge down blast
- 90° down penthouse configuration
- Coated coil surface (Copper/Al, Al/Al, SS/Al)
- Electric, hot gas or hot water reheat
- Heat tape in drain pan cover
- Factory mounted or supplied expansion valve
- Various drain pan options
- Forkable skid (shown)

PLEASE SPECIFY

- Quantity and complete model number
- SST-Saturated suction temperature
- Room temperature
- Fan motor voltage
- Control voltage
- Options and accessories
- Sub-cooled liquid DXF Feeds
- Drawings for approval-NOT released for manufacture
- Drawings for Manufacture commences with order approval

Capacity Correction Factors

Capacities calculated for the following conditions:

- Recirculated or Flooded Feed Frosted: Refrigerant R-717, SST -50°F to +24.9°F.
- See Capacity Correction Factors Table below for other rating information.

Multiply Rated Capacity by Factor				
Rating Variation	Rows Deep			Factor Correct Ratings For
	6	8	10	
Variable 1.5/3 Fin Spacing	0.85	0.89	0.91	3 FPI
Variable 2/4 Fin Spacing	0.85	.089	0.91	4 FPI

Capacities Correction Factors Tables:

- SST = Saturated Suction Temperature
- Correction Factors valid for 3 and 4 Fins/Inch

Table 1 - 25°F and Above

	Rows			
	4	6	8	10
3/4" SS/Alum Tube	1.15	1.13	1.10	1.09
3/4" Steel/Copper Tube*	1.00	1.00	1.00	1.00

*R-22 or R-404A

Table 2 - DX Steel with R-22 or R-404A

SST °F	Rows			
	4	6	8	10
-50 to -40.1	0.46	0.51	0.53	0.54
-40 to -30.1	0.52	0.59	0.60	0.62
-30 to -20.1	0.59	0.66	0.68	0.70
-20 to 24.0	0.65	0.73	0.75	0.78
25+	0.74	0.82	0.83	0.84

Use the 4 rows correction factors for 4/2 row coils with reheat

Table 3 - DX Copper or Aluminum with R-22 or R-404A

SST °F	Rows			
	4	6	8	10
-50 to -40.1	0.53	0.58	0.59	0.59
-40 to -30.1	0.60	0.66	0.67	0.68
-30 to -20.1	0.68	0.74	0.75	0.76
-20 to 24.0	0.75	0.83	0.84	0.85
25+	0.85	0.93	0.92	0.92

Table 4 - DX Steel with R-717

SST °F	Rows			
	4	6	8	10
Below 24.9	0.67	0.74	0.76	0.79
25+	0.76	0.83	0.84	0.85

Table 5 - Aluminium with R-717

SST °F	Rows			
	4	6	8	10
Below 24.9	0.77	0.84	0.84	0.86
25+	0.87	0.94	0.93	0.93

Example 1: Calculate capacity for LPC52L-166-3-0.5-RBA

Given:

- Refrigerant R-717
- Room Temperature 36° F
- Suction Temperature 26° F
- ESP 0"

Look up CFM and BTUH from Performance Data Table on pages 7 and 8

- CFM = 10300
- BTU H/TD = 5480
- TD = 36-26 = 10° F
- Unit capacity = 5480 x 10 = 54800 BTUH
- Apply coefficient 1.12 from Table 1
- 54800 x 1.12 = 61376 BTUH - Unit actual capacity

Example 1: Calculate capacity for LPCS2L-166-3-0.5-DXS

Given:

- Refrigerant R-404A
- Room Temperature 36° F
- Suction Temperature 26° F
- ESP 0"

Look up CFM and BTUH from Performance Data Table on pages 7 and 8

- CFM = 10300
- BTU H/TD = 5480
- TD = 36-26 = 10° F
- Unit capacity = 5480 x 10 = 54800 BTUH
- Apply coefficient 0.82 from Table 2
- 54800 x 0.82 = 44936 BTUH - Unit actual capacity

Performance Data – Steel and Copper

Model	Motors No - hp	3 Fins per inch						4 Fins per inch					
		0" ESP			1/2" ESP			0" ESP			1/2" ESP		
		BTUH/ TD	CFM	FPM	BTUH/ TD	CFM	FPM	BTUH/ TD	CFM	FPM	BTUH/ TD	CFM	FPM
2L-166	2 x .5	5480	10300	645				6040	10000	635			
2L-168		6720	10000	635				7280	9600	600			
2L-1610		7800	9500	595				8300	9200	585			
2L-166	2 x 1	6040	12200	755				6540	11800	735			
2L-168		7460	11800	730				7980	11400	710			
2L-1610		8600	11200	710				9180	11000	690			
2H-166	2 x 1.5	6400	13800	850	5500	10600	650	7020	13400	835	6060	10200	635
2H-168		7960	13200	825	6840	10300	635	8560	12800	800	7340	9800	615
2H-1610		9160	12600	790	8000	10000	620	9640	12200	765	8480	9600	600
2H-166	2 x 2	7080	16000	1000	6160	12800	800	7660	15600	975	6760	12400	780
2H-168		8880	15400	965	7600	12200	760	9480	15000	940	8020	11800	740
2H-1610		10120	15000	935	8760	11800	730	10680	14600	910	9280	11400	710
4L-346	4 x .5	10960	20600	645				12080	20000	635			
4L-348		13440	19800	620				14560	19200	600			
4L-3410		15600	19000	595				16600	18400	585			
4L-346	4 x 1	12080	24400	755				13080	23600	735			
4L-348		14920	23600	730				15960	22800	710			
4L-3410		17200	22400	710				18360	22000	690			
4H-346	4 x 1.5	12800	27600	860	11000	21200	650	14040	26800	835	12120	20400	635
4H-348		15920	26400	825	13680	20600	635	17120	25600	800	14680	19600	615
4H-3410		18320	25200	790	16000	20000	620	19280	24400	765	16960	19200	600
4H-346	4 x 2	14160	32000	1000	12320	25600	800	15320	31200	975	13520	24800	780
4H-348		17760	30800	965	15200	24400	760	18960	30000	940	16040	23600	740
4H-3410		20240	30000	935	17520	23600	730	21360	29200	910	18560	22800	710
5L-426	5 x .5	13700	25800	645				15100	25000	635			
5L-428		16800	24700	620				18200	24000	600			
5L-4210		19500	23800	595				20750	23000	585			
5L-426	5 x 1	15100	30500	755				16350	29500	735			
5L-428		18650	29500	730				19850	28500	710			
5L-4210		21500	28000	710				22950	27500	690			
5H-426	5 x 1.5	16000	34500	860	13750	26500	650	17550	33500	835	15150	25500	635
5H-428		19900	33000	825	17100	25500	635	21400	32000	800	18350	24500	615
5H-4210		22900	31500	790	20000	25000	620	24100	30500	765	21200	24000	600
5H-426	5 x 2	17700	40000	1000	15400	32000	800	19150	39000	975	16900	31000	780
5H-428		22200	38500	965	19000	30500	760	23700	37500	940	20050	29500	740
5H-4210		25300	37500	935	21900	29500	735	26700	36500	910	23200	28500	710
6L-496	6 x .5	16440	30900	645				18040	30000	635			
6L-498		20160	29700	620				21840	28800	600			
6L-4910		23400	28500	595				24900	27600	585			
6L-496	6 x 1	18120	36600	755				19620	35400	735			
6L-498		23880	35400	730				23940	34200	710			
6L-4910		25800	33600	710				27540	33000	960			
6H-496	6 x 1.5	19200	41400	860	16500	31800	650	21060	40200	835	18180	30600	635
6H-498		23880	39600	825	20520	30900	635	25680	38400	800	22020	29400	615
6H-4910		27480	37800	790	24000	30000	620	28920	36600	765	25440	28800	600
6H-496	6 x 2	21240	48000	1000	18480	38400	800	22980	46800	975	20280	37200	780
6H-498		26640	46200	965	22800	36600	760	28400	45000	940	24060	35400	740
6H-4910		30360	45000	935	26280	35400	730	32040	43800	910	27840	33200	710

NOTE – Shaded areas show velocities lower than 650 FPM.

Performance Data – Stainless Steel and Aluminum

Model	Motors No - hp	3 Fins per inch						4 Fins per inch					
		0" ESP			1/2" ESP			0" ESP			1/2" ESP		
		BTUH/ TD	CFM	FPM	BTUH/ TD	CFM	FPM	BTUH/ TD	CFM	FPM	BTUH/ TD	CFM	FPM
2L-166	2 x .5	6190	10300	645				6830	10000	635			
2L-168		6700	10000	635				8080	9600	600			
2L-1610		8500	9500	595				9050	9200	585			
2L-166	2 x 1	6830	12200	755				7390	11800	735			
2L-168		8280	11800	730				8860	11400	710			
2L-1610		9370	11200	710				10010	11000	650			
2H-166	2 x 1.5	7230	13800	850	6220	10600	650	7930	13400	8 35	6850	10200	635
2H·168		8840	13200	825	7590	10300	635	9500	12800	800	8150	9800	615
2H·1610		9980	12600	790	8720	10000	620	10510	12200	765	9240	9600	600
2-H 166	2 x 2	8000	16000	1 000	6960	12800	800	8660	15600	975	7640	12400	780
2H-168		9860	15400	965	8400	12200	760	10520	15000	940	8900	11800	740
2H-1610		11030	15000	935	9550	11800	730	11640	14600	910	10120	11400	710
4L·346	4 x .5	12380	20600	645				13650	20000	635			
4L·348		14920	19800	620				16 60	19200	600			
4L-3410		17000	19000	595				18090	18400	585			
4L-346	4 x 1	13650	24400	755				14780	23600	735			
4L-348		16560	23600	730				17720	22800	710			
4L-3410		18750	22400	710				20010	22000	690			
4H·346	4 x 1.5	14460	27600	860	12430	21200	650	15870	26800	835	13700	20400	635
4H·348		17670	26400	825	15180	20600	635	19000	25600	800	16290	19600	615
4H-3410		19970	25200	790	17440	20000	620	21020	24400	765	18490	19200	600
4H-346	4 x 2	16000	32000	1000	13920	25600	800	17 310	31200	975	15280	24800	780
4H-348		19710	30800	965	16 70	24400	760	21050	30000	940	17800	23600	740
4H-3410		22060	30000	935	19100	23600	730	23280	29200	910	20230	22800	710
5L-426	5 x .5	15480	25800	645				17060	25000	635			
5L-428		18650	24700	620				20200	24000	600			
5L-4210		21260	23800	595				22620	23000	585			
5L-426	5 x 1	17060	30500	755				18480	29 00	735			
5L-428		20700	29500	730				22030	28500	710			
5L-4210		23440	28000	710				25020	27500	690			
5H-426	5 x 1.5	18080	34500	860	15540	26500	650	19830	33500	835	17120	25500	635
5H-428		22090	33000	825	18980	25500	635	23750	32000	800	20370	24500	615
5H-4210		24960	31500	790	21800	25000	620	26270	30500	765	23110	24000	600
5H-426	5 x 2	20000	40000	1000	17400	32000	800	21640	39000	975	19100	31000	780
5H·428		24640	38500	965	21090	30500	760	26310	37500	940	22260	29500	740
5H-4210		27580	37500	935	23870	29500	735	29100	36500	910	25290	28500	710
6L-496	6 x .5	18580	30900	645				20390	30000	635			
6L-498		22380	29700	620				24240	28800	600			
6L-4910		25510	28500	595				27140	27600	585			
6L-4 96	6 x 1	20480	36600	755				22170	35400	735			
6L-498		26510	35400	730				26 570	34.200	710			
6L-4910		28120	33600	710				30020	33000	690			
6H-496	6 x 1.5	21 700	41400	860	18650	31800	650	23800	40200	835	20540	30600	635
6H-498		26 510	39600	825	22780	30900	635	28500	38400	800	24440	29400	615
6H•4910		29 950	37800	790	26160	30000	620	31520	36600	765	27730	28800	600
6H-496	6 x 2	24 000	48000	1000	20880	38400	800	25970	46800	975	22920	37200	780
6H-498		29 570	46200	965	25310	36600	760	31520	45000	940	26710	35400	740
6H-4910		33 090	45000	935	28650	35400	735	34920	43800	910	30350	33200	710

NOTE – Shaded areas show velocities lower than 650 FPM.
Capacities are for ammonia only.
For R-22/R-404A/R-507 use copper tube capacities.

Motor Data

Fan Motor Nameplate Total Full Load Amps					
Motor hp	RPM	208/3/60	460/3/60	380/3/50	575/3/60
.50	1140	2.2	1.1	1.1	1.0*
1.0	1140	3.8	1.9	1.9	1.5*
1.5	1725	4.8	3.0	3.0	2.2
2.0	1725	6.0	3.0	3.0	2.2

Physical Data

Base Model	Rows Deep	Face Area sq ft	Fans	Approximate Weight lb			Coil Volume cu ft	Total Surface sq ft		Water Defrost gpm	Drain Size	
				Steel	CU/SS	ALUM		3 FPI	4 FPI		STD	WD
166	6	16.0	2 x 24"	1800	1100	850	1.5	1151	1425	18	2"	3"
168	8			2200	1250	1000	2.0	1534	1899	24		
1610	10			2500	1400	1100	2.5	1918	2374	28		
346	6	32.1	4 x 24"	3400	2000	1700	3.0	2302	2848	36	2"	3"
348	8			4400	2300	1900	4.0	3068	3796	48		
3410	10			5300	2600	2100	5.0	3836	4748	56		
426	6	40.1	5 x 24"	4000	2500	2100	3.8	2877	3560		2"	
428	8			4850	2800	2400	5.1	3835	4747			
4210	10			5700	3100	2600	6.3	4795	5935			
496	6	48.2	6 x 24"	4400	2800	2600	4.6	3453	4272	54	2"	5"
498	8			5600	3100	2800	6.1	4602	5697	72		
4910	10			6700	3400	3000	7.6	5754	7122	84		

Electric Defrost Data

Model	ED						EDL						Heater Removal Dimensions	
	Total kW	Total Amps			Total kW	Total Amps	Total kW	Total Amps			Total kW	Total Amps		
	230/460/575V	230V	460V	575V	380V	380V	230/460/575V	230V	460V	575V	380V	380V	Header End	Return End
166	7.2	18.1	9.0	7.2	6.6	10.0	12.5	31.4	15.7	12.6	11.4	17.3	53"	
168	10.8	27.1	13.6	10.8	9.8	14.9	16.1	40.5	20.2	16.2	14.7	22.3	53"	
346	14.4	36.1	18.1	14.5	13.1	19.9	24.6	61.7	30.9	24.7	22.4	34.0	53"	58"
348	21.6	54.2	27.1	21.7	19.7	29.9	31.8	79.8	39.9	31.9	28.9	43.9	53"	58"
426	18.0	45.2	22.6	18.1	16.4	24.9	30.5	76.6	38.3	30.6	27.8	42.2	70"	77"
428	27.0	67.8	33.9	27.1	24.6	37.3	39.5	99.2	46.6	39.7	36.0	54.6	70"	77"

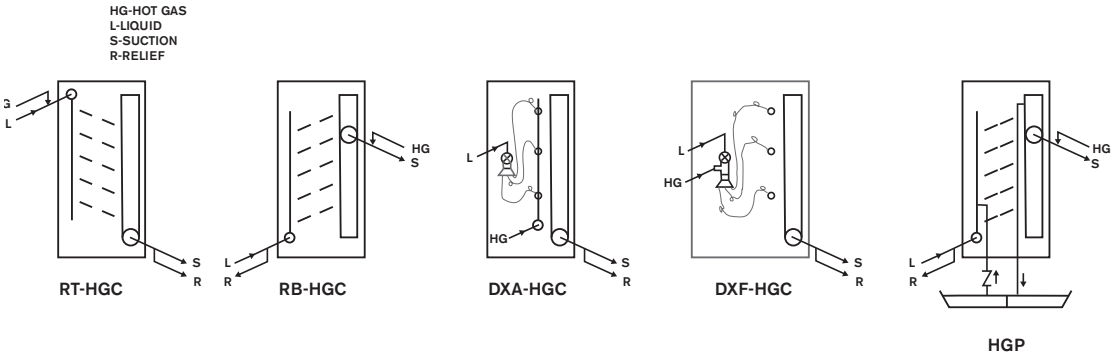
- Available models are limited to aluminum fin coils only.
- Tubular heaters inserted through fin turbo-spacers, efficiently defrost the coil from the inside out.
- Heaters are wired to a junction box located on the front at the refrigerant connection end of the unit.
- When heater capacity exceeds 48.0 Amp, multiple circuits are required.
- ED models, not having drain pan heat, are applied in rooms above freezing.
- EDL models have a tubular heater drain pan grid. Pans are insulated and have a mill galvanized bottom cover.
- Any designated electric defrost model may be EDL, however, 4 FPI is recommended for low temperature application to -20°F.
- Temperature termination thermostats automatically terminate defrost and delay fans until the coil has been re-cooled.
- Thermostat included with evaporator.
- ED or EDL is not available on the 49 model units.

Hot Gas Defrost Piping Arrangements

For rooms below freezing, a unique hot gas pan is utilized.

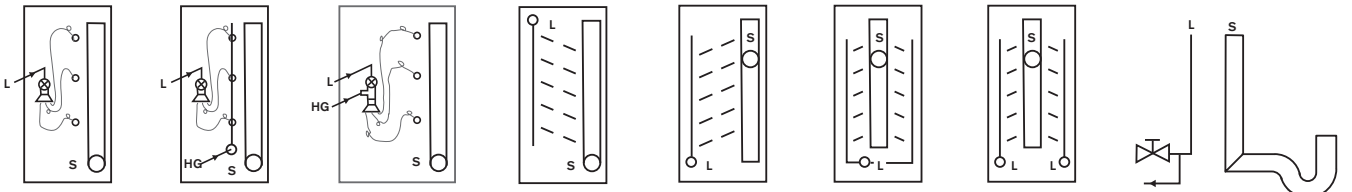
Two seam welded stainless steel sheets are hydraulically expanded forming a coil-less waffle pattern. Pans are insulated with a mill galvanized cover. Pan to coil piping and check valve are factory installed.

CAUTION: It is recommended that all hot gas defrost systems be arranged so that the hot gas supply header is free from condensed liquid and the cycle includes a coil pump-out period with fans-on prior to opening the hot gas solenoid valve.



End View Showing Coil Connection Orientation

- DXF represents all halocarbon refrigerants on this page.



Coil Connection Data

STEEL/ALUMINUM TUBES – REFRIGERANT CONNECTIONS

Design Capacity Tons	Recirculated R-22							DX R-717			
	Liquid Feed	SST °F						Liquid Feed	SST °F		
		30	20	0	-20	-30	-40		30	20	0
5	¾"	1½"	1½"	2"	2½"	2½"	2½"	½"	1"	1"	1¼"
10	1"	2"	2"	2½"	3"	3"	4"	½"	1¼"	1¼"	1½"
15	1¼"	2½"	2½"	3"	4"	4"	4"	¾"	1¼"	1½"	2"
20	1¼"	2½"	3"	3"	4"	4"	5"	¾"	1½"	1½"	2"
25	1¼"	3"	3"	4"	4"	4"	5"	¾"	1½"	2"	2"
30	1½"	3"	3"	4"	4"	5"	5"	¾"	2"	2"	2½"
35	1½"	3"	4"	4"	5"	5"	6"	¾"	2"	2"	2½"
40	2"	4"	4"	5"	5"	5"	6"				
45	2"	4"	4"	5"	5"	6"	6"				
50	2"	4"	4"	5"	5"	6"	6"				
55	2"	4"	4"	5"	5"	6"	6"				
60	2"	4"	4"	5"	5"	6"	6"				

Design Capacity Tons	Recirculated R-717							Flooded R-717						
	Liquid Feed	SST °F						Liquid Feed	SST °F					
		30	20	0	-20	-30	-40		30	20	0	-20	-30	-40
5	¾"	2"	2"	2"	2"	2"	2½"	1½"	2"	2"	2"	2"	2"	2½"
10	¾"	2"	2"	2"	2½"	2½"	3"	2"	2"	2½"	2½"	3"	3"	3"
15	1"	2"	2"	2½"	2½"	3"	3"	2½"	2½"	2½"	3"	3"	4"	4"
20	1"	2"	2"	2½"	3"	4"	4"	3"	3"	3"	3"	4"	4"	4"
25	1"	2"	2½"	2½"	3"	4"	4"	3"	3"	3"	4"	4"	4"	5"
30	1¼"	2½"	2½"	3"	4"	4"	4"	3"	3"	4"	4"	4"	4"	5"
35	1¼"	2½"	2½"	3"	4"	4"	5"	4"	4"	4"	4"	5"	5"	5"
40	1¼"	2½"	2½"	3"	4"	4"	5"	4"	4"	4"	4"	5"	5"	5"
45	1¼"	2½"	3"	4"	4"	4"	5"	4"	4"	4"	4"	5"	5"	6"
50	1¼"	3"	3"	4"	4"	4"	5"	4"	4"	4"	4"	5"	5"	6"
55	1½"	3"	3"	4"	4"	5"	6"	4"	4"	5"	5"	5"	6"	6"
60	1½"	3"	3"	4"	4"	5"	6"	4"	4"	5"	5"	5"	6"	6"

NOTE—See page 13 for notes regarding the above charts.
Liquid feeds may be split into two feeds for low temperature or very large evaporators. Consult factory.

Coil Connection Data

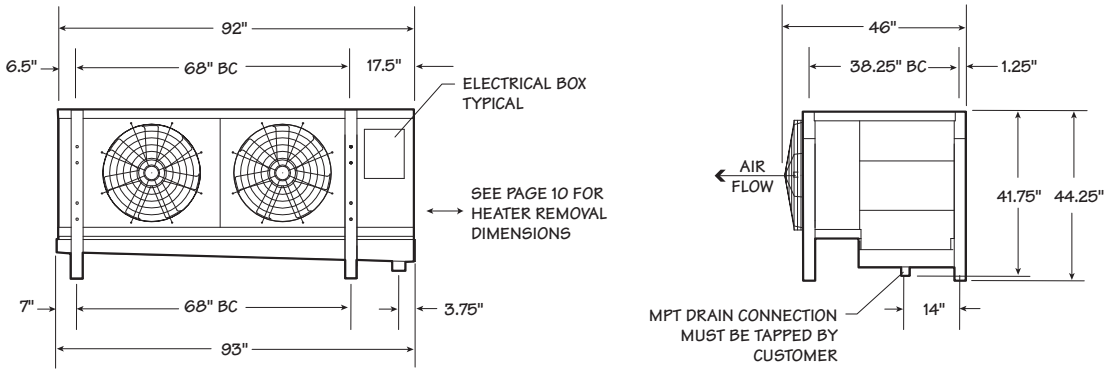
COPPER TUBES – ALUMINUM FIN COILS – REFRIGERANT CONNECTIONS

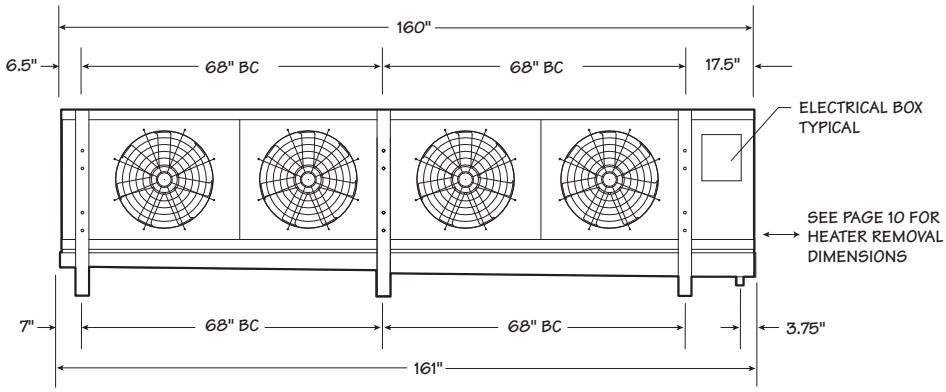
Design Capacity Tons	Direct Expansion R-22						DX R-404A and R-507			
	Liquid Feed	SST °F					Liquid Feed	SST °F		
		30	20	0	-20	-30		0	-20	-30
5	⅝"	1⅜"	1⅜"	1⅝"	2⅛"	2⅛"	⅞"	1⅝"	2⅛"	2⅛"
10	⅞"	1⅝"	1⅝"	2⅛"	2⅛"	2⅝"	⅞"	2⅛"	2⅝"	2⅝"
15	⅞"	2⅛"	2⅛"	2⅝"	2⅝"	3⅛"	1⅛"	2⅝"	3⅛"	3⅛"
20	1⅛"	2⅛"	2⅛"	2⅝"	2⅝"	(2⅝")	1⅛"	2⅝"	(2⅛")	(2⅝")
25	1⅛"	2⅛"	2⅝"	(2⅛")	(2⅝")	(2⅝")	(1⅜")	(2⅛")	(2⅝")	(3⅛")
30	1⅛"	2⅝"	2⅝"	(2⅛")	(2⅝")	(3⅛")	(1⅜")	(2⅛")	(3⅛")	(3⅛")
35	1⅛"	2⅝"	2⅝"	(2⅝")						
40	(1⅜")	(2⅛")	(2⅛")							
45	(1⅜")	(2⅛")	(2⅛")							
50	(1⅜")	(2⅛")	(2⅝")							
55	(1⅜")	(2⅝")	(2⅝")							
60	(1⅜")	(2⅝")	(2⅝")							

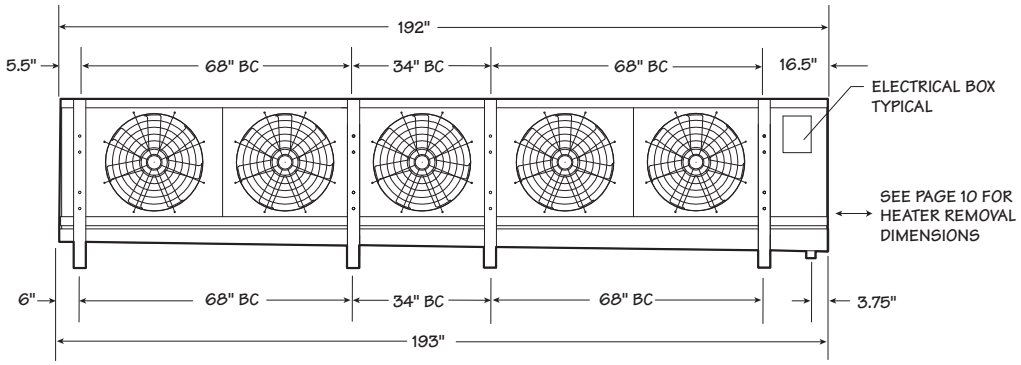
Note

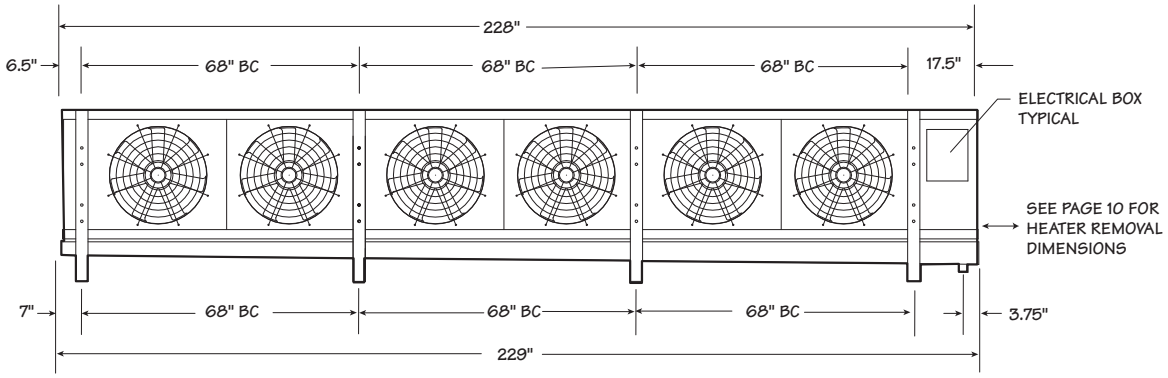
- Refrigerant connection sizes may vary due to actual load, or thermal expansion valve selection.
- Direct expansion halocarbon suction lines must be designed for oil return regardless of connection size.
- Halocarbon connections larger than 3⅛" will be steel unless otherwise specified.
- Halocarbon coils with steel connections 3⅛" and smaller are available.
- Do not back-flow through liquid balancing valves during hot gas defrost cycles. If necessary, use a bypass check valve.
- Connections are based on recirculated liquid temperature being the same as saturated suction temperature
- Connection sizes not listed for expansion require special handling. Consult factory.
- Connection sizes in parenthesis ( ) require two connections of the size shown.

Design Capacity Tons	2 to 1 Recirculated R-22						
	Liquid Feed	SST °F					
		30	20	0	-20	-30	-40
5	⅞"	1⅝"	1⅝"	2⅛"	2⅝"	2⅝"	2⅝"
10	1⅛"	2⅛"	2⅛"	2⅝"	2⅝"	3⅛"	3⅛"
15	1⅛"	2⅝"	2⅝"	2⅝"	3⅛"	4"	4"
20	1⅜"	2⅝"	2⅝"	3⅛"	4"	4"	4"
25	1⅜"	2⅝"	3⅛"	3⅛"	4"	4"	4"
30	1⅜"	3⅛"	3⅛"	4"	4"	4"	5"
35	1⅝"	3⅛"	3⅛"	4"	4"	5"	6"
40	1⅝"	3⅛"	3⅛"	4"	4"	5"	6"
45	1⅝"	3⅛"	4"	4"	5"	5"	6"
50	2⅛"	4"	4"	4"	5"	6"	6"
55	2⅛"	4"	4"	4"	5"	6"	6"
60	2⅛"	4"	4"	4"	5"	6"	6"









For primary layout only, do not use for construction.

- Right hand unit shown
- BC (bolt hole center/hanger)
- Add 5" to overall unit height for water defrost. Drain connection horizontal for water defrost.
- Hanger holes are 1" diameter.
- LTA adds 16" to the total width

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LPC unit cooler

ENGINEERING DATA

SPX