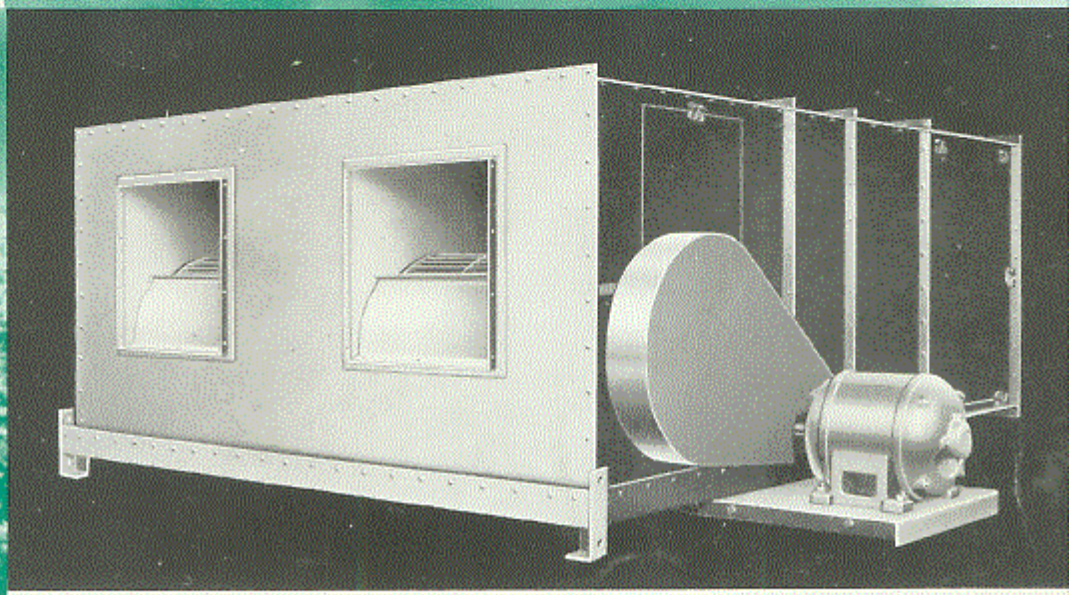
CATALOG 1309-B

CLARAGE



Central Station Air Conditioning Units

DRAW-THRU MULTITHERMS® *Design One*

HORIZONTAL and VERTICAL ARRANGEMENTS

Table of Contents

Definition of Terms

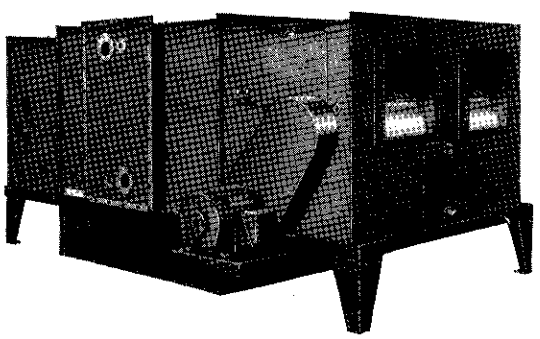
A. Definition of Terms

Multitherm performance and selection is based on the following data (all temperatures are degrees Fahrenheit):

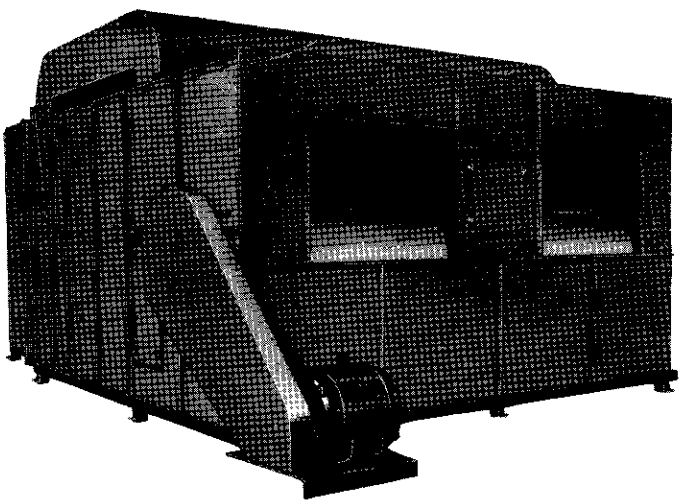
1. CFM (std) = Cubic feet of air per minute at Standard Air Conditions.
   Density 0.075 lbs./cu. ft. — 70°F — 29.92" Hg. Bar.
2. DB_E = Dry Bulb *Entering* air temperature at conditioner coil.
   DB_L = Dry Bulb *Leaving* air temperature from coil without sprays.
   DBs = Dry Bulb leaving air temperature from coil when *Sprayed* with recirculated water.
3. WB_E = Wet Bulb *Entering* air temperature to coil.
   WB_L = Wet Bulb *Leaving* air temperature from coil.
4. CT = Effective Coil Surface Temperature.
   RST = Saturated Refrigerant Suction Temperature at coil outlet.
   EWT = Entering Water Temperature at conditioner coil.
   LWT = Leaving Water Temperature at conditioner coil.
   WTD = Water Temperature Difference.
   MED = Mean Effective Temperature Difference between air and water temperatures, as shown in Table 8, page 14.
5. GSH = Gross Sensible Heat (BTU/hr.) transferred by conditioner coil = Sum of sensible heat loads of conditioned space and fresh air introduced.
   GTH = Gross Total Heat (BTU/hr. based on Enthalpy) transferred by conditioner coil = Sum of total heat loads of conditioned space and fresh air introduced.
6. SP = Static Pressure in inches W.G. external to the conditioning unit at standard air density, plus or minus corrections per page 15.
   d = Density at dry bulb temperature, wet bulb temperature, and barometric pressure.
   FA = Face Area of coil, see Table 3, page 6.
   FV = Face Velocity of coil = CFM (std) ÷ FA.

B. Related Terms — See also Sample Problem on Page 37.

1. $\text{CFM (std)} = \text{CFM (density d)} \times \frac{d}{0.075}$
2. $DB_E = DB_L \pm \text{(cooling) (heating)} \frac{GSH}{CFM\ (std) \times 1.085}$
   $DB_L = DB_E \pm \text{(heating) (cooling)} \frac{GSH}{CFM\ (std) \times 1.085}$
3. WB_E (cooling) corresponds to $h_E = h_L + \frac{GTH}{CFM\ (std) \times 4.50}$
   WB_L (cooling) corresponds to $h_L = h_E - \frac{GTH}{CFM\ (std) \times 4.50}$
   h_E is Enthalpy corresponding to WB_E from page 35.
   h_L is Enthalpy corresponding to WB_L from page 35.
4. $\text{LWT (heating)} = EWT - \frac{GSH}{500 \times GPM}$
   $\text{LWT (cooling)} = EWT + \frac{GTH}{500 \times GPM}$
5. GSH (heating) = $(DB_L - DB_E) \times$ CFM (std) x 1.085
   GSH (cooling) = $(DB_E - DB_L) \times$ CFM (std) x 1.085
   GTH (cooling) = $(h_E - h_L) \times$ CFM (std) x 4.50



Horizontal Sprayed Coil Multitherm as built in Size 1215.



Horizontal General Purpose Multitherm as built in Size 5190 with optional external by-pass duct.

General Information

Distinct advantages have established Clarage Design 1 Draw-Thru Multitherms as recognized leaders in the air conditioning field. These central station units are available in both vertical and horizontal arrangements.

TWO BASIC TYPES OFFERED

Design 1 Draw-Thru Multitherms are built in two types: (1) Units whose coils are not sprayed — known as General Purpose Multitherms. (2) Units in which recirculated water is continuously sprayed on the cooling coils — known as Sprayed Coil Multitherms. Both types are offered in horizontal and vertical arrangements.

General Purpose Multitherms are used for the majority of applications. Sprayed Coil Multitherms are recommended for applications requiring extremely close control of both the temperature and humidity, or where continuous flushing of coil surfaces is desired.

OTHER MEMBERS OF THE MULTITHERM FAMILY

Hi-Static Multitherms are available for higher pressure systems, resistances to 8" SP.

Blow-Thru Multitherms are offered for multi-zone applications, providing for individual control of each zone.

EXCEPTIONAL VERSATILITY

For all air conditioning purposes — cooling, dehumidifying, heating, humidifying, filtering, ventilating — the Multitherm can be arranged to meet the requirements exactly with an arrangement of standard components. This unusually versatile equipment, therefore, can be selected for applications ranging from simple ventilation to multi-function conditioning.

WIDE PERFORMANCE RANGE

Horizontal General Purpose Multitherms are available in 12 unit sizes with capacities from 600 CFM to 37,000 CFM. Vertical General Purpose Multitherms and horizontal and vertical Sprayed Coil Multitherms are offered in 11 sizes ranging from 600 CFM to 31,000 CFM. This wide range of sizes permits efficient selection closely matching the application requirements. Multitherm cooling capacities range from ½ ton to 200 tons, and heating capacity extends over a correspondingly broad range.

SPACE-SAVING ARRANGEMENT

Horizontal General Purpose Multitherms are furnished for floor or platform mounting in all sizes, and for suspended mounting in all sizes except the No. 4160 and No. 5190. To meet restricted floor space and duct conditions, Vertical General Purpose Multitherms are offered for floor mounting in all sizes but the No. 5190.

Sprayed Coil Multitherms are available in horizontal and vertical arrangements for floor mounting in all sizes except the No. 5190.

For additional adaptability to close-quarter space conditions, all Multitherms can be furnished for either horizontal or vertical air discharge and the drive motor may be mounted in various locations.

Internally all Multitherms are designed and arranged for maximum compactness consistent with good aerodynamic flow and uniformity of coil velocity. Forward curved blade fans are used in all sizes. By a duplex arrangement of two fans, in all sizes except the No. 1205 and No. 1210, the unit height is held to a minimum, permitting the use of coils of minimum height.

UNEXCELLED QUIETNESS

Vitally important is smooth, quiet operation. Here, too, the Clarage Multitherm is unsurpassed. Among the reasons for this superiority: (1) a *heavy gauge* pan extends under *all* components of the unit except the filters to provide a rigid foundation and to serve additionally as a drip pan. (2) Fan housings and bearings are attached to strong structural supports mounted on the pan — they are *not* attached to the casing. This superior construction contributes substantially to the vibration-free operation of the Multitherm. These efficient, low speed fans are distinguished by unusually rugged construction and a design *perfected* for air conditioning unit application. (3) Each Clarage Multitherm is thoroughly inspected and tested at full operating speed following assembly.

CHOICE OF COMPONENTS

A wide variety of standard components designed to answer virtually any operating condition can be provided in the Multitherm. Steam and hot water coils, water cooling coils, and direct expansion cooling coils are offered in numerous arrangements for each unit size

In addition, a broad selection of filters, humidifiers, by-pass dampers, mixing boxes, and other accessories is available.

ARRANGEMENT OF COMPONENTS

Along with the wide range of available components, the Multitherm's unique construction and design permits a variety of internal arrangements. Heating coils may be located either upstream or downstream from the cooling coils, coils may be by-passed as required, and the sectionalized design permits the choice of variable arrangements and components as indicated on page 29.

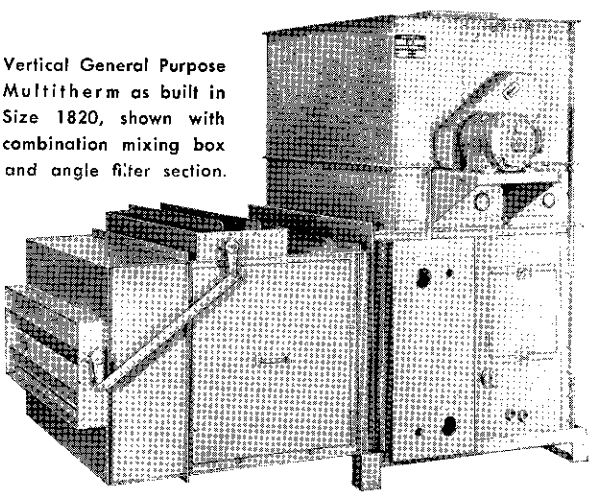
READY ACCESSIBILITY

Fan bearings are ball type factory prelubricated and do not require additional lubrication under normal conditions. Sleeve bearings with oil piping and externally located filler cups are available upon request.

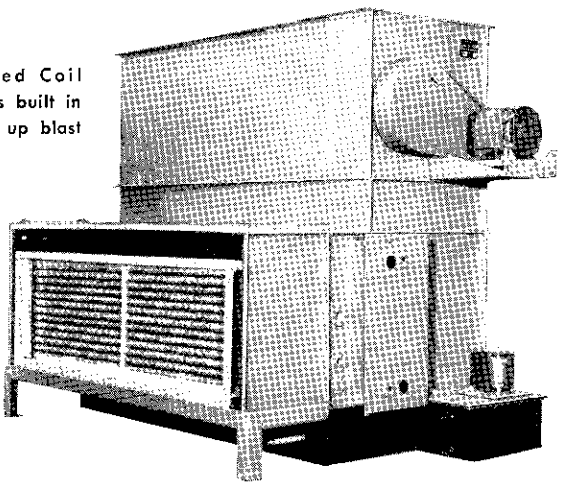
When internal maintenance is required, convenient access to the unit's interior is possible. The appropriate sidesheet or topsheet of the individual section of the casing can be removed, and no bracing or supporting of the remainder of the unit is required.

Quick-latch access panels are furnished as standard to facilitate the removal of filters and on sprayed coil units to permit access to the spray system.

Utmost care is taken in the engineering and manufacture of Clarage Multitherms to assure a top quality product requiring minimum maintenance.



Vertical General Purpose Multitherm as built in Size 1820, shown with combination mixing box and angle filter section.

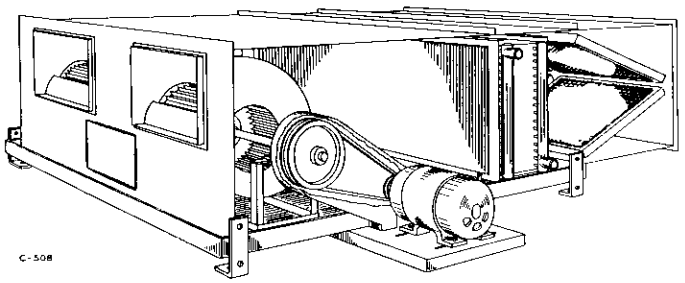


Vertical Sprayed Coil Multitherm as built in Size 1840 with up blast fan discharge.

Construction and Components

CASINGS

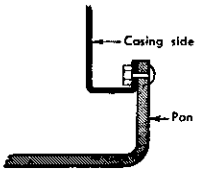
Pan — One of the important advantages offered by the horizontal Multitherm is the extra-heavy pan which gives rigid support to all components except the filter section. This integral construction simplifies installation, and in addition assures quiet, vibration-free operation. Positive drainage and installation convenience is achieved by drains located at each side of the bottom of the pan. A motor base is rigidly attached to this pan on horizontal units, with motor adjustment provided to maintain belt tension.



Similar construction marks the vertical Multitherm, except that the fans, coils, and motor bracket are supported by a heavy structural frame mounted on the pan and extending to the fan section.

Sprayed Coil Multitherms differ in that the pan is deeper under the sprayed coil section to provide for recirculated spray water.

Sides and Top — are formed of bolted sections varied in depth and sequence to accommodate a variety of component arrangements. Section panels of zinc coated steel are removable for ready access. On General Purpose Multitherms an integral trap (see sketch) to catch any external condensation and drain it to the pan is an *exclusive* Clarage feature which effectively prevents dripping on the floor.



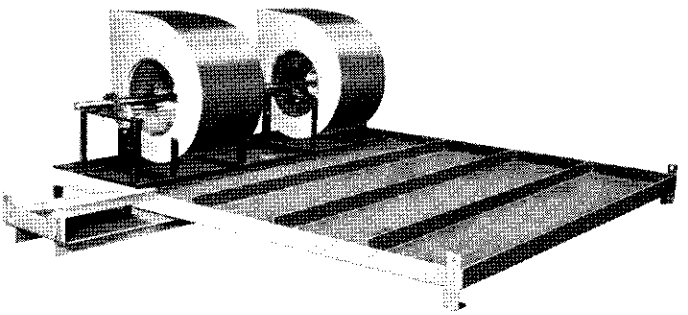
FANS

Assuring exceptional performance of the Multitherm are the well-known Clarage Type DF fans which are distinguished as heavy-duty forward curved blade wheels . . . advanced aerodynamic design for steady, pulse-free performance...low power requirement...precision machine balance, both static and dynamic . . . large diameter shaft having first critical speed well above maximum operating speed . . . large capacity, pre-lubricated ball bearings are standard, sleeve bearings on request . . . rigid bearing mounting frame attached directly to the pan . . . fan housings mounted to bearing frame and isolated from the unit's casing.

General Purpose Multitherm fan wheels and housings are made from heavy gauge steel coated with special corrosion resistant paint.

Fan wheels and housings for Sprayed Coil Multitherms are galvanized.

Heavy gauge pan used as foundation directly supports rotating assembly and adjustable motor bracket. Ribs across the pan between sections further strengthen an already sturdy construction which easily supports the weight of personnel for maintenance and inspection.



COILS

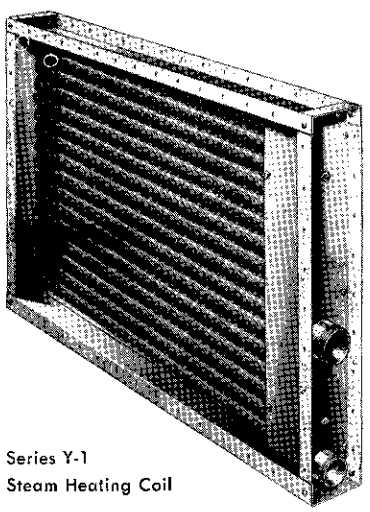
Top ranking heating and cooling coils, with smooth fins having a permanent bond to the ⅝" outside diameter heavy wall tubes, are furnished in all Multitherms. These coils have extremely high heat transfer efficiency, and are available in copper tube construction with copper or aluminum fins. Aluminum fins are not recommended for Sprayed Coil Multitherms.

Steam Coils — are inner steam distributing tube non-freeze type, Series SDT, for uniform air temperature distribution across the face. These coils are supplied in single or multiple depths in the direction of air flow to meet specific application requirements very closely.

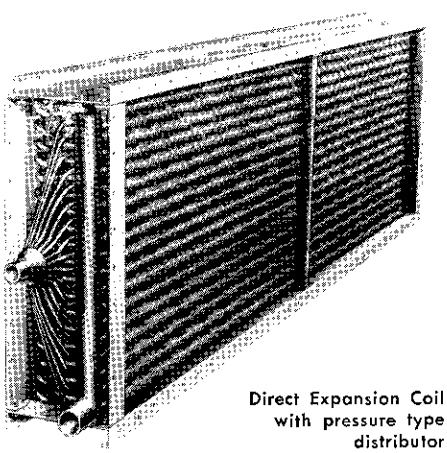
Direct Expansion Coils — are available in Series DXM (high capacity type) for General Purpose Multitherms and Series DXS (⅛" fin spacing) for Sprayed Coil Multitherms. Refrigerant distributing headers of proper design for the service involved are furnished on all direct expansion coils.

Water Coils — are available in Series CWM (high capacity type) for General Purpose Multitherms and Series CWS (⅛" fin spacing) for Sprayed Coil Multitherms. Standard coils are furnished in serpentine construction in the direction of air flow. Cleanable tube type coils are available if required, and multiple circuiting can be provided to match optimum heat transfer with minimum water pressure drop.

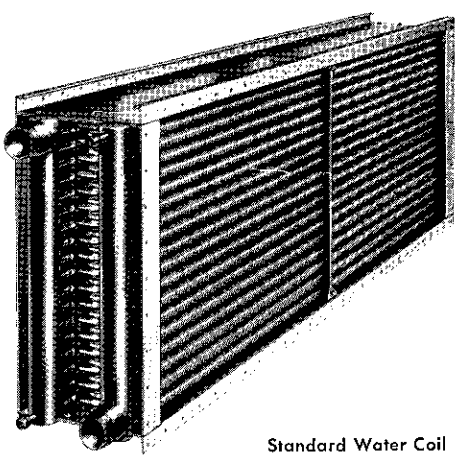
Large Area and Small Area Coils — Coils of large face area are used where maximum unit performance is required. Coils of small face area are used when internal by-pass is furnished or when less than full coil area is indicated.



Series Y-1
Steam Heating Coil



Direct Expansion Coil with pressure type distributor

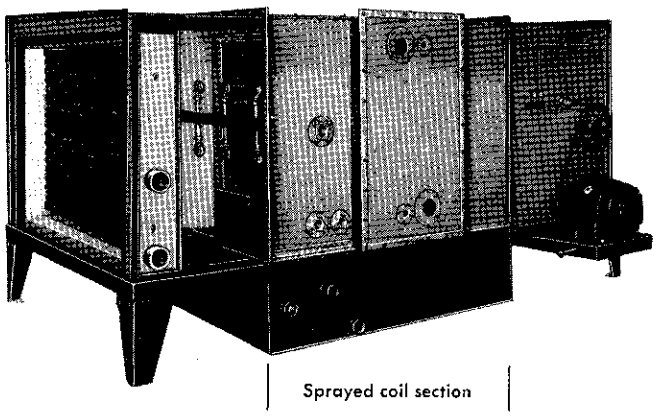


Standard Water Coil

COOLING COIL SECTION FOR SPRAYED COIL MULTITHERMS

This section contains the following components:

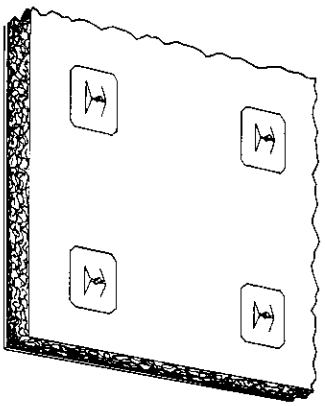
1. The spray system providing a fine spray pattern over the full cooling coil surface. Galvanized piping and brass nozzles are standard.
2. The cooling coils with intermediate drain pans provided between the stacked coils to remove excess spray water. Copper tube and fin construction is standard and available through 8 rows deep.
3. The eliminators of formed zinc-coated plates with 3 bends and 2 hooks. These plates, 6" in depth, effectively remove entrained moisture.
4. The welded tank with a pump and mounting plate, bronze screen, side drain, and trap type overflow. It is protected by a hard finish asphaltum coating. A ball-cock and float valve and quick fill are located in the casing adjacent to the tank.



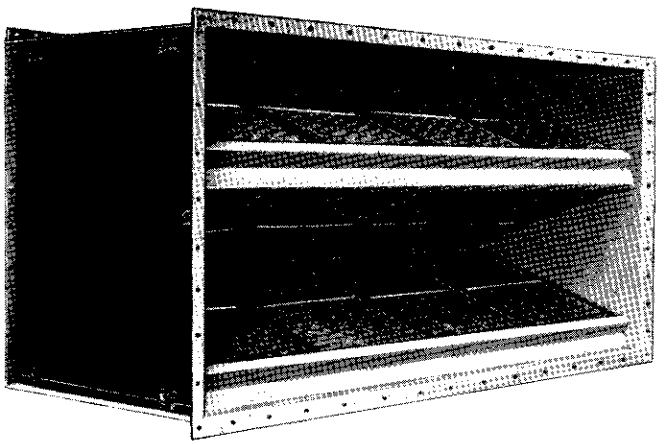
Sprayed coil section

INSULATION

Internal insulation can be furnished on the casing surfaces as required to prevent condensation and heat loss. The standard insulation is ½" thick, waterproofed board type. It is cemented to the pan and it is attached individually to each section panel (as shown here) to facilitate removal and re-assembly of the sections in the field.



On Sprayed Coil Multitherms, internal insulation is not furnished in the spray section. If insulation is desired, it should be applied externally after installation in order to prevent damage during shipment and erection.



FILTERS

Two types of filter sections can be furnished: a flat type for lower volume ranges and an angular type for higher volume ranges. Easily removable, sealed access panels are provided on each side of unit to facilitate servicing the filters. Throw-Away, Permanent Viscous, and Permanent High Velocity type filter cells are available as required.

MIXING BOXES

Fresh air and return air mixing boxes, containing balanced multi-blade dampers, are extremely compact in design and construction. The Universal type provides simplified connection for any location of approaching ductwork. The Rectangular type provides for inlet connections from either the vertical or horizontal directions, or both.

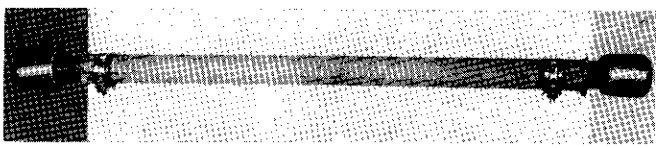
FACE AND BY-PASS DAMPERS

Dampers are the balanced multi-blade type and are separately framed. Two types are available: (1) Face and external by-pass dampers requiring an external duct for use with large area coils. (2) Face and internal by-pass dampers for use only with small area coils.

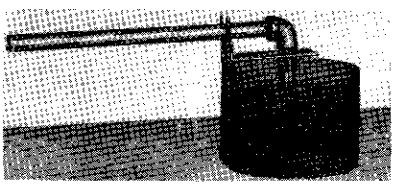
ACCESS PANELS

A 15" wide quickly removable panel mounted in a separate 19" section can be furnished if required for internal access and inspection on horizontal units.

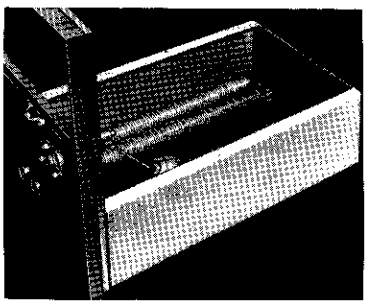
HUMIDIFIERS



The Grid type is a perforated pipe, covered with a sleeve of inert material, and uses steam as the humidifying medium. Mounted in the fan section, it is suitable where steam does not contain odor-causing impurities.



The Spray type, mounted in the fan section, requires heated water which is sprayed through an atomizing nozzle and targeted at a screen-covered enclosure to prevent spray entrainment.



The Pan type consists of a water pan containing a steam heating coil and a float control to regulate the water level. This humidifier is mounted in a separate 19" section on horizontal units. On vertical units it is located in the base section.

Size Selection for General Purpose and Sprayed Coil Multitherms

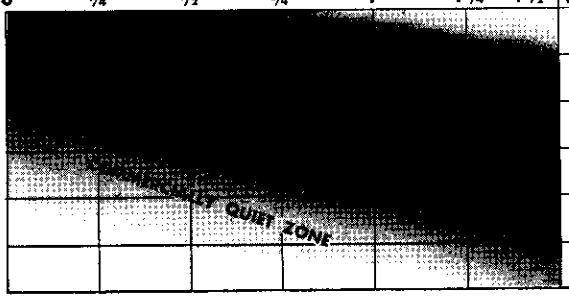
UNIT SIZE SELECTION

1. Data Required for Selection:
   a. CFM (std) and External Static Pressure
   b. Quietness Requirements
2. Obtain Unit Size from Table 1. Enter Quietness Selection Guide at required External Static Pressure, move downward to desired Quietness Zone, then horizontally to required CFM (std) and vertically to corresponding Unit Size.

TABLE 1 — QUIETNESS GUIDE AND SIZE SELECTOR

QUIETNESS SELECTION GUIDE

External SP



QUICK SIZE SELECTOR

CFM (std) for indicated Unit Size

Fan Outlet Velocity	1205	1210	1215	1820	1830	1840	2450	3060	3680	4120	4160	5190
1200	640	1360	1800	2710	3080	4900	5920	6960	9440	12370	18600	19440
1400	740	1580	2100	3160	3600	5710	6900	8120	11020	14430	21700	22680
1600	850	1808*	2400	3620	4110	6530	7890	9280	12590	16500	24800	25920
1800	950	2030*	2700	4070*	4630	7340	8870	10440	14170	18560	27900	29160
2000	1060*	2260*	3000*	4520*	5140	8160*	9860*	11600*	15740*	20620	31000*	32400
2200	1170*	2490*	3300*	4970*	5650*	8980*	10850*	12760*	17310*	22680*	34100*	35640

* Indicates Large Area Coil Face Velocity over 600 FPM

Quiet Operating Zone:
This classification applies to public and commercial buildings where noise level in conditioned space is low. Fans operate in the range of maximum efficiency.

Moderately Quiet Zone:
This classification is permissible in buildings where internal noise level is moderately low and when future requirements may dictate choice of an over-size unit.

Commercially Quiet Zone:
This classification applies to commercial and industrial buildings where internal ambient noise level is normally higher.

Caution:
Sound level transmitted to the conditioned space is only partially dependent on Unit Size Selection. Equal attention must be given to duct rigidity and isolation, proper duct turns, connections and grilles, unit foundations, and acoustical characteristics of the conditioned space itself.

3. Check Coil Face Velocity
   a. Face Velocity $= \frac{\text{CFM (std)}}{\text{Coil Face Area from Table 3}}$
   b. Check Coil Face Velocity to be within the range shown in Table 2.
   c. Where selected Coil Face Velocity for coils is above this range, select next larger Unit Size.

TABLE 2 — SUGGESTED COIL VELOCITIES

	Suggested Coil Velocities	(ft./min.)
Cooling	Sprayed Coil or Heavy Dehumidification	400-550
Cooling	Light Dehumidification	400-600
Cooling	No Dehumidification	400-1000
Heating	Steam or Hot Water	400-1200

TABLE 3 — GENERAL DATA (FANS, COILS, FILTERS)

Unit Size	Fan Data		Large Area Coils				Small Area Coils				Flat Filter Section				Angle Filter Section			
	No. and Size	Total Outlet Area	Steam Htg.	Water Coils		DE Coils	Steam Htg.	Water Coils		DE Coils	No.	Size	CFM (Std.) Nominal		No.	Size	CFM (Std.) Nominal	
			Series SDT	Series CWM and CWS		Series DXM & DXS	Series SDT	Series CWM and CWS		Series DXM & DXS			Perm. or Throw-away	Perm. Hi-Vel.			Perm. or Throw-away	
			Face area	Tube face	Face area	Face area	Face area	Tube face	Face area	Face area								
1205	1 No.5/6	0.53	1.7	12	1.6	1.6	1.5				1	20 x 25	1000	1500				
1210	1 No.7/8	1.13	2.8	12	2.6	2.7	2.3				2	16 x 20	1280	1920	2	20 x 25	2000	
1215	2 No.3/4	1.50	4.9	12	4.7	4.8	4.1				2	20 x 25	2000	3000	4	20 x 25	4000	
1820	2 No.7/8	2.26	6.3	18	6.1	6.1	5.2	15	5.0	5.1	2	20 x 25	2000	3000	4	20 x 25	4000	
1830	2 No.1	2.57	9.5	18	9.2	9.2	7.9	15	7.7	7.7	3	20 x 25	3000	4500	6	20 x 25	6000	
1840	2 No.1 1/4	4.08	12.6	18	12.4	12.4	10.5	15	10.3	10.4	4	20 x 25	4000	6000	8	20 x 25	8000	
2450	2 No.1 3/8	4.93	15.4	24	15.1	15.1	13.5	21	13.2	13.2	8	20 x 20	6400	9600	12	20 x 25	12000	
3060	2 No.1 1/2	5.80	18.2	24	17.9	17.9	15.9	21	15.7	15.7	8	20 x 20	6400	9600	12	20 x 25	12000	
3680	2 No.1 3/4	7.87	25.2	36	24.8	24.8	21.0	30	20.6	20.7	8	20 x 25	8000	12000	16	20 x 25	16000	
4120	2 No.2	10.31	36.8	42	36.2	36.2	31.6	36	31.1	31.1	12	20 x 25	12000	18000	20	20 x 25	20000	
4160	2 No.2 1/4	15.50	49.0	42	48.5	48.5	42.0	36	41.6	41.6	21	20 x 20	16800	25200	28	20 x 25	28000	
5190	2 No.2 1/2	16.20	52.5	51*	58.9*	58.9	45.5	45‡	52.0‡	52.0	21	20 x 20	16800	25200	35	20 x 25	35000	

*Cooling only. For water heating use 45 tube face, 52 sq. ft face area.

‡Cooling only. For water heating use 39 tube face, 45.1 sq. ft. face area.

NOTES:

1. Size 5190 is not available in Vertical General Purpose Multitherm nor in Sprayed Coil Multitherm.
2. Series SDT, CWM, and DXM coils for General Purpose Multitherms are furnished with copper tube and aluminum fin or with copper tube and copper fin.
3. Series CWS and DXS coils for Sprayed Coil Multitherms are furnished with copper tube and copper fin construction only.
4. Where face and by-pass dampers are desired, external by-pass duct must be used with Large Area Coils; internal by-pass may be used only with Small Area Coils.
5. Small Area Coils should be selected for full fan volume within the face velocity suggestions of Table 2.
6. Only Small Area Reheat coils are used in Vertical General Purpose and Vertical Sprayed Coil Multitherms.
7. For quiet operation, internal by-pass is not recommended where coil face velocity exceeds 550 FPM.
8. External by-passes are sized for full volume.

Unit Type Selection

Unit Type Selection

1. Select General Purpose Multitherm (without sprays) for most applications.
2. Select Sprayed Coil Multitherm for applications requiring the following:
   a. More precise humidity control resulting from nearly saturated leaving conditions.
   b. Heavy-duty humidification requirements, obtained by use of air preheater, spray water heater, or a combination of both.
   c. Continuously water flushed coils.

Unit Arrangement

1. Selection of horizontal or vertical arrangements, motor position, etc., will depend on:
   a. Ceiling height or under-unit clearance for suspended horizontal arrangement.
   b. Floor space available for floor mounted arrangement.
   c. Connecting ductwork geometry.
   d. Interference with other structures and machinery.

Check dimensions, pages 28 to 32, for best suited arrangement for specific application.

Filters

1. Select Throw-Away, Permanent Viscous, or Permanent High Velocity types as suited to specific application.
2. Select flat type or angular type filter section by comparing nominal filter CFM (std) from Table 3, page 6 with required unit CFM (std).

Humidifiers for General Purpose Multitherms
Select type suited to available source of heat.

1. Grid type — mounts in fan section — requires odor-free steam.
2. Spray type — mounts in fan section — requires hot water or steam water heater.
3. Pan type — requires its own 19" section — uses steam coil to heat water in pan.

Steam Heating Coil Selection for General Purpose and Sprayed Coil Multitherms

1. **Data Required for Coil Selection.**
   a. CFM (std) and Heating Coil Face Area.
   b. DB_E and DB_L. Use DB_E applying to preheat or reheat coil being selected.
2. **Coil Face Velocity** $= \dfrac{\text{CFM (std)}}{\text{Heating Coil Face Area}}$ (Table 3)
3. **Equivalent Temperature Rise** $= \dfrac{(DB_L - DB_E)}{\text{Factor (Table 4)}}$
4. **Select the Series Surface** from Table 5 producing the next larger Equivalent Temperature Rise.
5. **Lbs. Condensate/hr.** $= \dfrac{(DB_L - DB_E) \times \text{CFM (std)} \times 1.085}{\text{Latent Heat of Steam (Table 4)}}$

TABLE 4 — TEMPERATURE RISE FACTORS

DB_E	Steam Pressure—PSIG							
	0#	2#	5#	10#	25#	50#	75#	100#
−10	.977	1.006	1.044	1.098	1.218	1.355	1.453	1.531
0	.933	.962	1.000	1.054	1.174	1.310	1.409	1.487
10	.889	.918	.956	1.010	1.130	1.266	1.365	1.443
20	.845	.874	.912	.966	1.086	1.223	1.321	1.399
30	.801	.830	.868	.922	1.042	1.179	1.277	1.355
40	.757	.786	.824	.877	.998	1.134	1.233	1.311
50	.713	.742	.780	.834	.954	1.091	1.189	1.267
60	.669	.698	.736	.790	.910	1.046	1.145	1.224
70	.625	.654	.692	.746	.866	1.003	1.101	1.179
80	.581	.610	648	.702	.822	.959	1.057	1.135
	LATENT HEAT OF STEAM—BTU/LB.							
	970.3	966.2	960.5	952.5	933.6	911.2	894.2	880.8

TABLE 5—EQUIVALENT AIR TEMPERATURE RISE

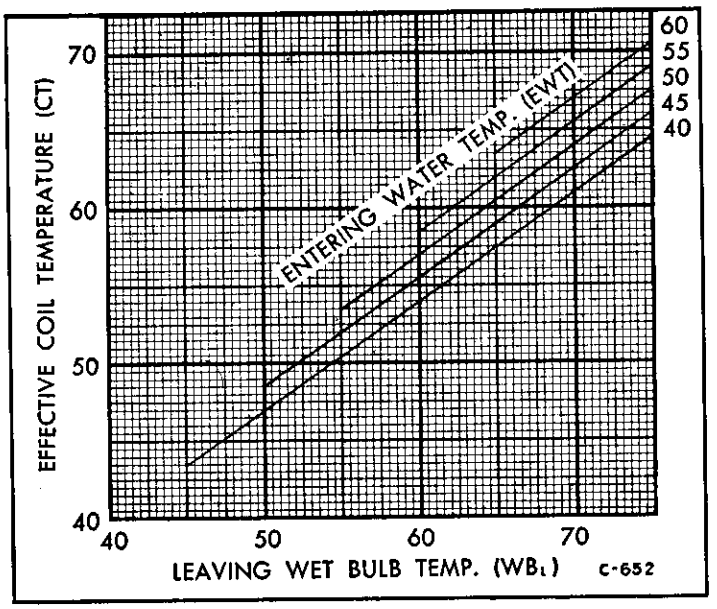
Based on 5 lbs. PSIG Steam and 0°DB_E

SERIES SURFACE	COIL FACE VELOCITY				
	400	500	600	700	800
31B	39.1	36.0	33.8	31.9	30.2
N1	46.4	42.0	38.8	36.1	33.6
71B	56.7	52.4	49.7	47.3	45.0
W1	67.2	60.2	55.1	51.2	48.0
81B	68.0	62.0	57.5	54.0	51.0
X1	77.2	68.3	62.2	57.8	53.9
Y1	94.0	84.0	76.8	71.0	66.6
72B	100.6	93.2	88.1	84.4	80.6
82B	114.6	107.1	101.2	96.3	92.4
W2	131.7	119.0	109.5	102.0	96.0
X2	136.8	124.8	116.0	108.4	102.7

Water Cooling and Water Heating Coil Selection for General Purpose Multitherms

CHART 1 — EFFECTIVE COIL TEMPERATURE (CT)

SERIES CWM COILS (High Capacity Type)



A. COOLING WITH DEHUMIDIFICATION

1. Data Required for Selection of Coil:

a. CFM (std), Coil Face Area, and Unit Size.

b. WB_E, WB_L, DB_E, DB_L, GTH, and GSH.

2. Check Cooling Conditions:

a. Choose Entering Water Temperature (EWT). Usually EWT ranges from 40° — 50° for refrigerated water.

b. Obtain Effective Coil Temperature (CT) from Chart 1, using WB_L and EWT.

c. Draw the Cooling Line on Chart 2 from point of DB_E and WB_E to point CT on saturation line as indicated.

d. Read DB_L where the Cooling Line intersects the required WB_L.

e. If this DB_L produced by the coil is too high with respect to the required DB_L, CT must be raised; if too low, CT should be lowered. This is done by changing EWT accordingly.

3. Determine GPM Required:

Assume WTD, normally 8° — 12°.

a. $GPM = \frac{GTH}{500 \times (WTD)}$

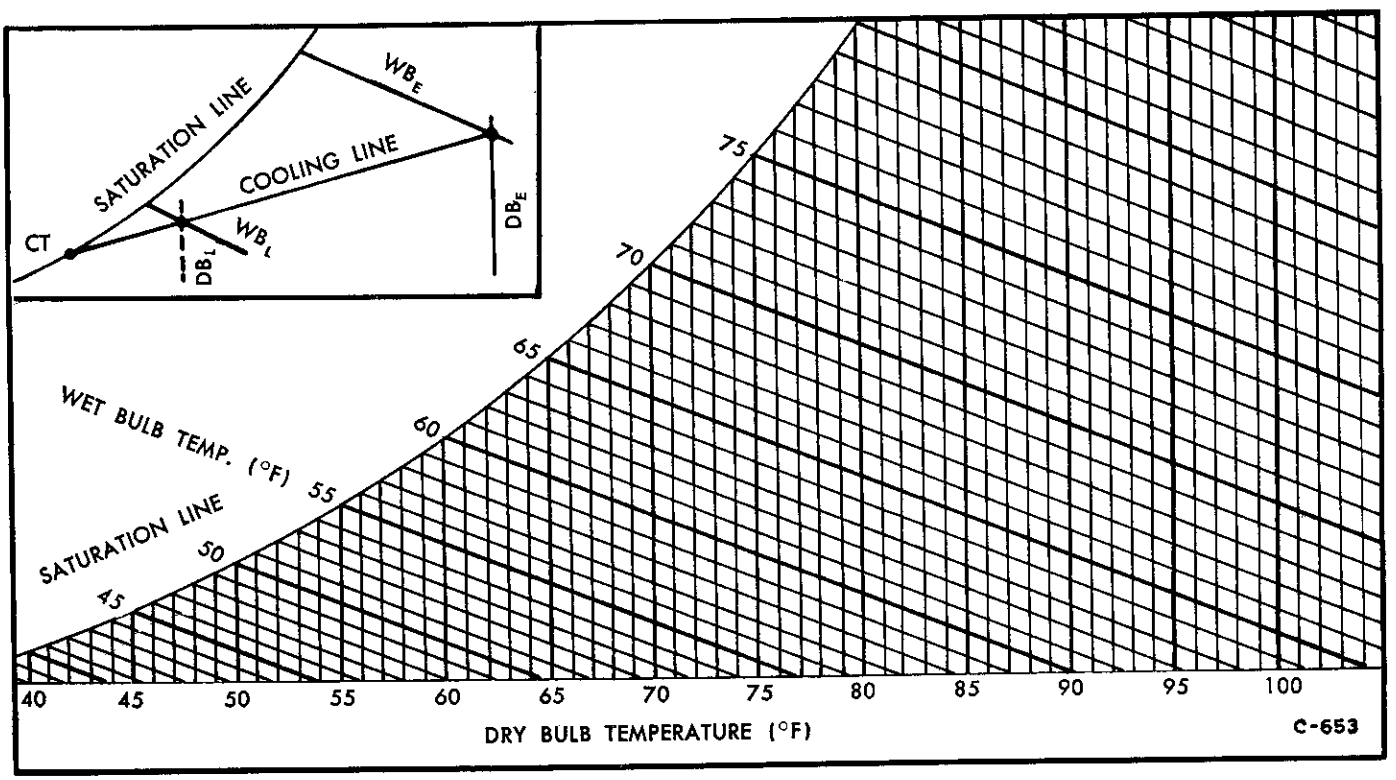
4. Determine MED:

a. Calculate: LWT = EWT + WTD.

b. Calculate Differences (DB_E — LWT) and (DB_L — EWT).

c. Find MED from Table 8 page 14, using these Differences.

CHART 2 — LEAVING DRY BULB TEMPERATURE (DB_L)



5. Determine K Factor:

a. Calculate: Face Velocity $= \frac{\text{CFM (std)}}{\text{Water Coil Face Area}}$

b. Find Tube Water Velocity from Chart 3, using GPM and Tube Face corresponding to Unit Size. For normal applications, velocity about 4 FPS produces high transfer with reasonable pressure drop. Alternate circuiting shown in Chart 3 permits adjustment to this value. Water pressure drop is shown in Chart 4.

c. Find K Factor from Chart 5, using Face Velocity and Tube Water Velocity.

6. Determine M Factor:

a. Calculate: Heat Ratio $= \frac{\text{GSH}}{\text{GTH}}$

b. Find M Factor from Chart 6, using Water Velocity and Heat Ratio.

7. Determine No. Rows of Coil Required:

a. No. Rows $= \frac{\text{GSH}}{\text{K x M x MED x FA}}$

B. HEATING

1. Data Required for Selection of Coil:

a. CFM (std), Coil FA, and Unit Size.

b. DB_E, DB_L, and GSH.

2. Choose Entering Water Temperature (EWT):

a. Normally EWT ranges from 160° – 200°.

3. Calculate GPM Required:

Assume WTD normally 15° – 25°.

a. GPM $= \frac{\text{GSH}}{500 \text{ x (WTD)}}$

4. Determine MED:

a. Calculate: LWT = EWT – WTD

b. Calculate Differences (EWT – DB_L) and (LWT – DB_E).

c. Find MED from Table 8, page 14 using these Differences.

5. Determine K Factor:

a. Calculate Face Velocity $= \frac{\text{CFM (std)}}{\text{Water Coil Face Area}}$

b. Find Tube Water Velocity from Chart 3 using GPM and Tube Face corresponding to Unit Size. Multiply this actual velocity by 2.3 to obtain Effective Tube Water Velocity (for Heating only).

c. Find K Factor from Chart 5 using Face Velocity and Effective Tube Water Velocity.

6. Determine No. Rows of Coil Required:

a. Calculate: No. Rows $= \frac{\text{GSH}}{\text{K x MED x FA}}$

CHART 4 – WATER PRESSURE DROP

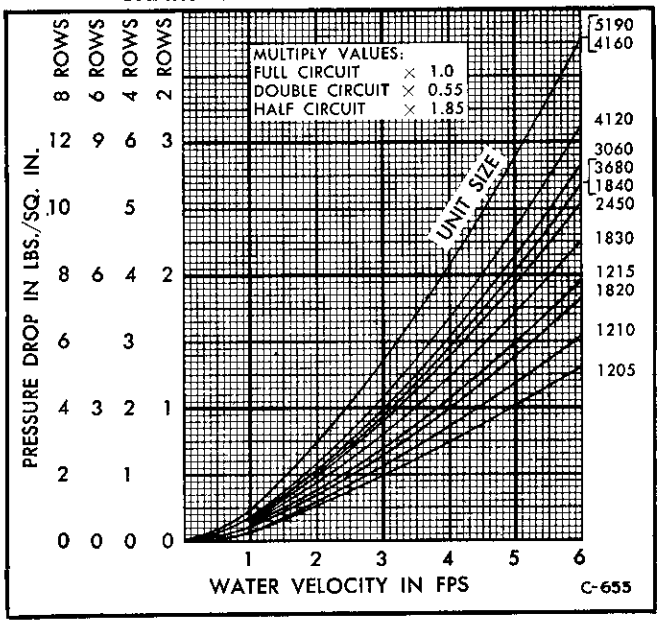


CHART 5 – K FACTOR Series CWM Coils

(High Capacity Type)

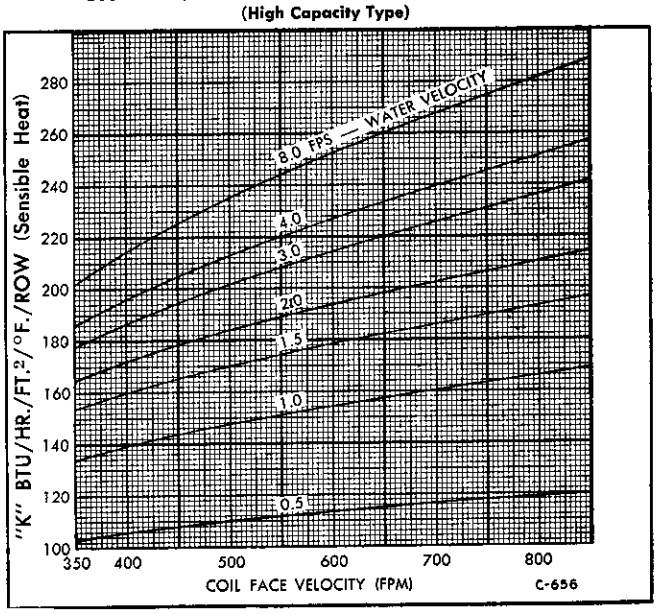
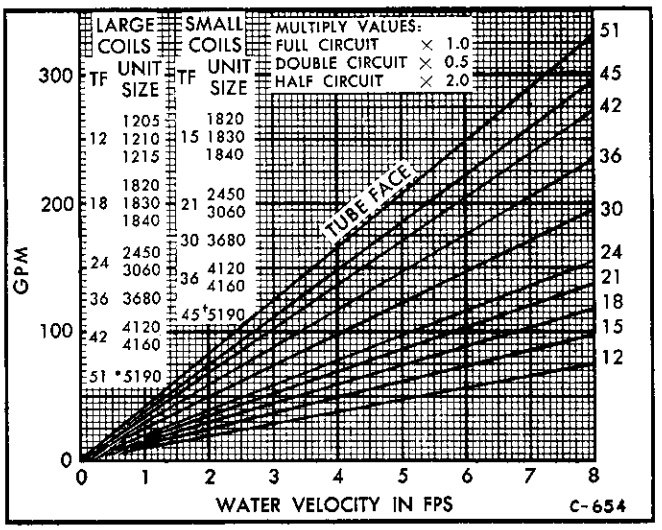


CHART 3 – TUBE WATER VELOCITY

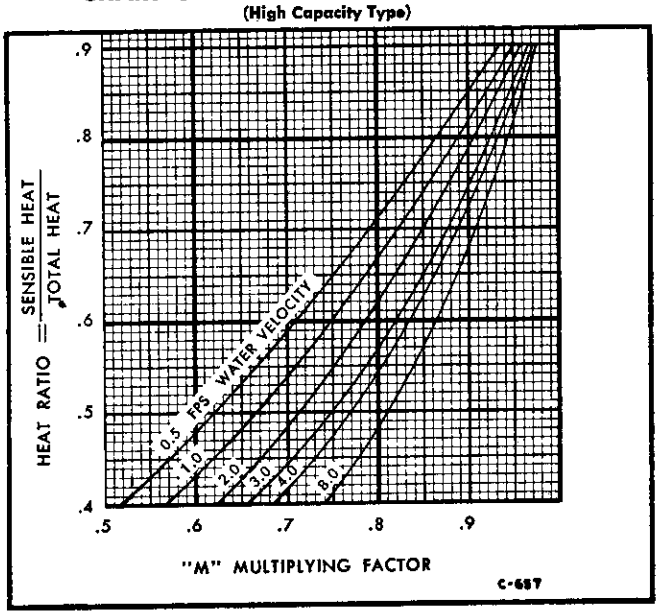


*Cooling only, for heating use 45 Tube Face.

†Cooling only, for heating use 39 Tube Face.

CHART 6 – M FACTOR Series CWM Coils

(High Capacity Type)



Direct Expansion Coil Selection for General Purpose Multitherms

A. DETERMINE NO. ROWS REQUIRED

1. **Data Required for Selection:**
   a. CFM (std) and Face Area of DE Coil.
   b. WB_E, WB_L, DB_E, DB_L, and GTH.

2. **Face Velocity** $= \frac{\text{CFM (std)}}{\text{Face Area}}$

3. **Choose Refrigerant Suction Temperature;** usually $40° - 50°$ is most economic range.
4. **Obtain No. Rows of Coil required.**

   Using Refrigerant Suction Temperature, Face Velocity, WB_E, and WB_L, obtain No. rows from Table 6.

5. **Find DB_L** from page 11.
6. **Check Coil Loading,** Table 7, page 11.

TABLE 6 — LEAVING WET BULB TEMPERATURE (WB_L) — SERIES DXM

(High Capacity Type)

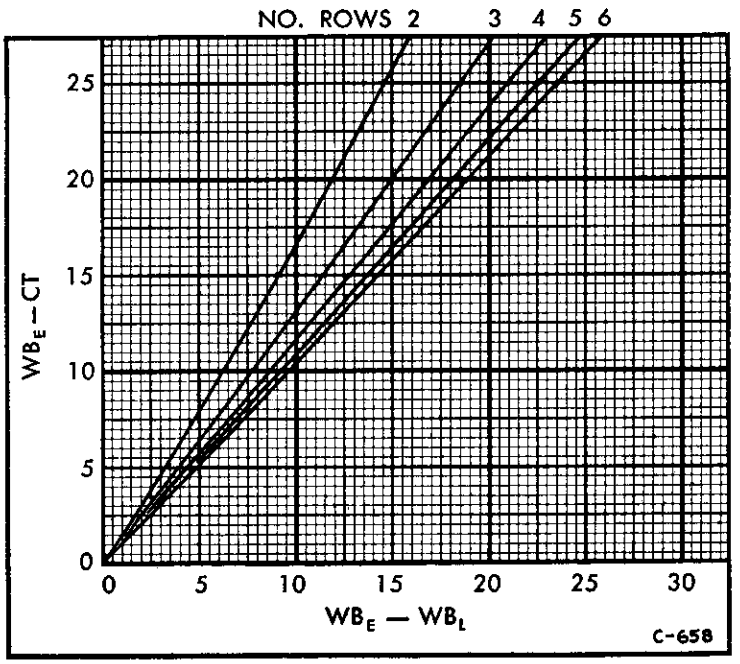
WBE Entering Wet Bulb	ROWS DEEP	35°F SUCTION TEMP. Face Velocity—FPM				40°F SUCTION TEMP. Face Velocity—FPM				45°F SUCTION TEMP. Face Velocity—FPM				50°F SUCTION TEMP. Face Velocity—FPM			
		400	500	600	700	400	500	600	700	400	500	600	700	400	500	600	700
64°F	2	54.8	55.8	56.6	57.3	56.4	57.2	57.9	58.4	57.9	58.6	59.2	59.6	59.5	60.1	60.5	60.8
	3	51.2	52.6	53.6	54.5	53.3	54.6	55.5	56.1	55.8	56.6	57.2	57.8	57.9	58.6	59.1	59.5
	4	48.5	50.0	51.2	52.1	51.3	52.5	53.5	54.3	54.1	54.9	55.8	56.4	56.7	57.4	58.0	58.4
	5	46.5	47.8	49.1	50.1	49.6	50.7	51.8	52.7	52.7	53.6	54.5	55.1	55.7	56.4	57.0	57.5
	6	44.8	46.3	47.5	48.6	48.3	49.4	50.4	51.4	51.6	52.6	53.5	54.1	55.0	55.7	56.3	56.8
66°F	2	56.3	57.4	58.3	59.0	57.9	58.8	59.5	60.1	59.5	60.2	60.8	61.3	61.0	61.6	62.1	62.5
	3	52.6	53.9	55.1	56.0	54.8	56.0	56.9	57.7	57.0	58.0	58.7	59.4	59.2	59.9	60.5	61.0
	4	49.7	51.2	52.5	53.5	52.5	53.7	54.8	55.7	55.1	56.1	57.0	57.7	57.8	58.5	59.2	59.8
	5	47.4	49.0	50.3	51.4	50.6	51.9	53.0	53.9	53.6	54.7	55.6	56.4	56.6	57.4	58.2	58.7
	6	45.7	47.2	48.6	49.7	49.2	50.4	51.5	52.5	52.5	53.5	54.5	55.2	55.8	56.6	57.3	57.9
68°F	2	57.9	59.1	60.0	60.7	59.5	60.4	61.2	61.9	61.0	61.8	62.4	63.0	62.5	63.2	63.7	64.1
	3	54.0	55.5	56.7	57.7	56.2	57.5	58.4	59.3	58.4	59.4	60.2	60.9	60.5	61.3	61.9	62.5
	4	50.9	52.5	53.9	55.0	53.6	55.0	56.2	57.1	56.3	57.4	58.4	59.2	58.9	59.8	60.5	61.1
	5	48.5	50.1	51.6	52.8	51.6	53.0	54.3	55.2	54.6	55.8	56.8	57.7	57.7	58.5	59.4	59.9
	6	46.6	48.2	49.7	51.0	50.0	51.4	52.6	53.8	53.4	54.6	55.5	56.4	56.7	57.6	58.4	59.0
70°F	2	59.5	60.8	61.7	62.5	61.1	62.1	62.9	63.7	62.6	63.5	64.1	64.7	64.1	64.8	65.3	65.8
	3	55.4	57.0	58.3	59.3	57.6	58.9	60.0	60.9	59.7	60.9	61.8	62.5	61.9	62.7	63.5	64.1
	4	52.1	53.9	55.3	56.6	54.8	56.3	57.6	58.6	57.5	58.7	59.7	60.6	60.1	61.1	61.9	62.5
	5	49.5	51.3	52.9	54.2	52.6	54.1	55.5	56.6	55.7	57.0	58.1	58.9	58.7	59.7	60.6	61.3
	6	47.5	49.3	50.9	52.2	50.9	52.5	53.8	55.0	54.3	55.6	56.7	57.6	57.5	58.5	59.5	60.2
72°F	2	61.2	62.5	63.5	64.3	62.7	63.8	64.6	65.4	64.1	65.1	65.8	66.4	65.6	66.4	67.0	67.5
	3	56.8	58.5	59.9	60.9	59.0	60.4	61.6	62.6	61.1	62.3	63.3	64.1	63.2	64.2	65.0	65.6
	4	53.4	55.2	56.8	58.1	56.1	57.6	59.0	60.1	58.7	60.0	61.1	62.1	61.2	62.3	63.2	64.0
	5	50.7	52.6	54.2	55.6	53.7	55.4	56.8	58.0	56.7	58.1	59.3	60.3	59.7	60.8	61.8	62.6
	6	48.5	50.4	52.1	53.6	51.9	53.5	55.0	56.2	55.2	56.6	57.8	58.8	58.4	59.6	60.6	61.4
74°F	2	62.9	64.3	65.3	66.0	64.4	65.5	66.4	67.2	65.8	66.7	67.5	68.2	67.2	68.0	68.6	69.2
	3	58.4	60.1	61.6	62.7	60.5	62.0	63.3	64.3	62.6	63.9	64.9	65.7	64.6	65.7	66.5	67.2
	4	54.7	56.7	58.3	59.7	57.4	59.0	60.5	61.7	60.0	61.4	62.6	63.6	62.5	63.7	64.7	65.5
	5	51.8	53.8	55.6	57.0	54.9	56.6	58.2	59.4	57.8	59.4	60.7	61.7	60.8	62.0	63.1	64.0
	6	49.5	51.6	53.4	54.9	52.8	54.7	56.2	57.6	56.2	57.8	59.0	60.2	59.4	60.7	61.8	62.7
76°F	2	64.6	66.0	67.0	68.0	66.0	67.2	68.2	69.0	67.4	68.5	69.3	70.0	68.8	69.7	70.4	71.0
	3	59.9	61.7	63.2	64.4	62.0	63.6	64.9	65.9	63.9	65.4	66.5	67.4	66.0	67.2	68.1	68.8
	4	56.1	58.2	59.9	61.3	58.7	60.5	62.0	63.3	61.2	62.8	64.1	65.1	63.7	65.0	66.1	66.9
	5	53.1	55.2	57.0	58.6	56.0	58.0	59.6	60.9	59.0	60.6	62.0	63.2	61.9	63.2	64.4	65.3
	6	50.6	52.8	54.7	56.3	54.0	55.9	57.5	58.9	57.2	58.9	60.3	61.5	60.4	61.8	63.0	64.0
78°F	2	66.3	67.7	68.9	69.8	67.7	69.0	70.0	70.8	69.1	70.2	71.1	71.8	70.5	71.4	72.2	72.7
	3	61.5	63.4	65.0	66.2	63.5	65.2	66.5	67.7	65.5	67.0	68.1	69.1	67.4	68.7	69.7	70.5
	4	57.7	59.6	61.5	63.0	60.0	62.0	63.6	64.9	62.6	64.3	65.6	66.7	65.1	66.4	67.6	68.5
	5	54.3	56.6	58.6	60.2	57.3	59.3	61.0	62.4	60.2	61.9	63.4	64.7	63.1	64.5	65.8	66.8
	6	51.7	54.1	56.0	57.8	55.0	57.2	58.9	60.4	58.2	60.0	61.6	62.9	61.5	63.0	64.3	65.3
80°F	2	68.1	69.6	70.8	71.8	69.5	70.8	71.9	72.7	70.8	72.0	72.9	73.7	72.2	73.2	74.0	74.6
	3	63.1	65.1	66.7	68.0	65.0	66.9	68.3	69.4	67.0	68.6	69.8	70.9	69.0	70.3	71.4	72.2
	4	59.0	61.2	63.1	64.6	61.5	63.5	65.1	66.6	63.9	65.7	67.1	68.3	66.3	67.9	69.1	70.1
	5	55.6	58.0	60.1	61.8	58.5	60.7	62.5	64.0	61.4	63.2	64.8	66.1	64.2	65.8	67.2	68.3
	6	52.8	55.4	57.5	59.3	56.1	58.4	60.2	61.8	59.4	61.3	62.9	64.2	62.5	64.1	65.5	66.7

B. DETERMINE LEAVING DRY BULB TEMP. (DB_L)

1. Enter Chart 7, using ($WB_E - WB_L$) and no. of rows selected, then read value of ($WB_E - CT$).
2. Obtain CT by subtracting this value from WB_E.
3. Draw the Cooling Line on Chart 2, page 8 from point of DB_E and WB_E to point CT on Saturation Line.
4. Read DB_L where the Cooling Line intersects the required WB_L.
5. Where this DB_L is too high with respect to the required DB_L, choose a higher Refrigerant Suction Temperature and reselect coil.

CHART 7 — EFFECTIVE COIL TEMPERATURE (CT)

Series DXM Coils (High Capacity Type)



C. CHECK SELECTED COIL FOR LOADING

1. Tons Load $= \frac{GTH}{12{,}000}$
2. Check Tons Load against Minimum and Maximum Tons as shown in Table 7 below.
3. If Tons Load does not fall within table limits, adjustment of CFM (std) or selection of a different Unit Size is suggested.

TABLE 7 — MINIMUM AND MAXIMUM LOADS

DXM (High Capacity Type) and DXS (⅛" Fin Spacing) Coils

Unit Size	Min. Tons to Obtain Table Ratings: LARGE AREA COILS No. of Rows 2	3	4 & 5	6	SMALL AREA COILS No. of Rows 2	3	4 & 5	6	Max. Tons for Distribution: Large Coils	Small Coils
1205	2	2	2	2	....	....	....	....	21	....
1210	2	2	2	2	....	....	....	....	21	....
1215	3	3	6	6	....	....	....	....	21	....
1820	4.5	4.5	4.5	9	3.75	3.75	3.75	7.50	31	26
1830	4.5	9	9	9	3.75	7.50	7.50	7.50	31	26
1840	9	9	9	9	7.50	7.50	7.50	7.50	31	26
2450	6	12	12	12	5.25	10.5	10.5	10.5	42	36.5
3060	12	12	12	12	10.5	10.5	10.5	10.5	42	36.5
3680	18	18	18	18	15	15	15	15	62	52
4120	21	21	21	21	18	18	18	18	73	62
4160	21	21	21	21	18	18	18	18	73	62
5190	25.5	25.5	25.5	25.5	22.5	22.5	22.5	22.5	88	78

Coil Selection for Sprayed Coil Multitherms

A. HEATING COIL SELECTION (NOT SPRAYED), (STEAM OR HOT WATER)

1. Use coils and coil selection for General Purpose Multitherm from page 7 for steam or from page 9 for water.

B. COOLING COILS (WITH SPRAYS)

1. Series CWS and DXS (⅛" Fin Spacing) Copper Tube and Fin Coils are recommended for sprayed coil service. Series CWS and DXS coils are physically identical to series CWM and DXM coils, except for secondary surface. All physical data, but not thermodynamic performance data, apply to both series.

C. WATER COIL SELECTION — COOLING (WITH SPRAYS)

1. **Data Required for Selection of Coil:**
   a. CFM (std), Coil FA, and Unit Size
   b. WB_E, WB_L, DB_E, DB_L, and GTH.

2. **Find DB_L (Sprays Off):**
   a. Choose Entering Water Temperature (EWT); usually EWT ranges from 40° — 50° for refrigerated water.
   b. Obtain Effective Coil Temperature (CT) from Chart 8 using EWT and WB_L.
   c. Draw the Cooling Line on Chart 2, page 8, from point of DB_E and WB_E to point CT on Saturation Line.
   d. Read DB_L (Sprays Off) where Cooling Line intersects WB_L.

3. **Determine GPM Required:**
   WTD is normally 8° — 12° for refrigerated water.
   a. $GPM = \dfrac{GTH}{500 \times (WTD)}$

4. **Determine MED:**
   a. Calculate: LWT = EWT + WTD.
   b. Calculate Temperature Differences (DB_E — LWT) and (DB_L — EWT) where DB_L is obtained from 2-d.
   c. Obtain MED from Table 8, page 14, using these Differences.

5. **Determine K Factor:**
   a. Calculate: Face Velocity $= \dfrac{\text{CFM (std)}}{\text{Water Coil Face Area}}$.
   b. Find Tube Water Velocity from Chart 9 using GPM and Tube Face corresponding to Unit Size. For normal applications, velocity about 4 FPS produces high transfer with reasonable pressure drop. Alternate circuiting shown in Chart 9 permits adjustment to this value. Water pressure drop is shown in Chart 4, page 9.
   c. Find K Factor from Chart 10 using Face Velocity and Tube Water Velocity.

6. **Determine M Factor (Sprays Off):**
   a. Calculate: GSH = (DB_E — DB_L) x 1.085 x CFM (std), using

CHART 8 — EFFECTIVE COIL TEMPERATURE (CT)
Series CWS Coils (⅛" Fin Spacing)

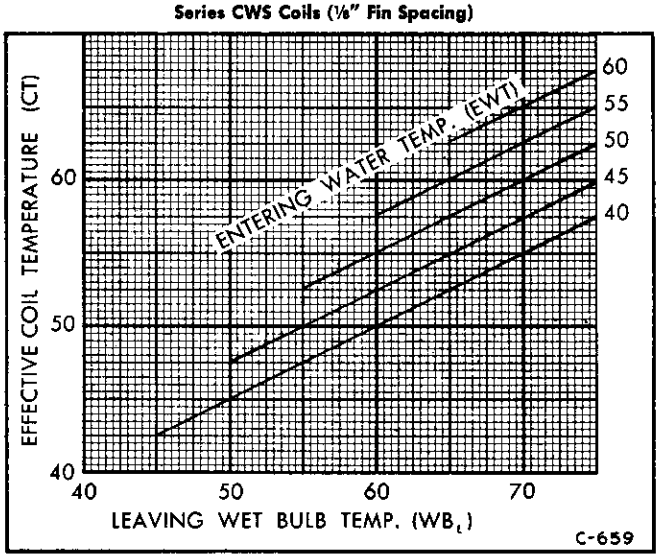


CHART 9 — TUBE WATER VELOCITY

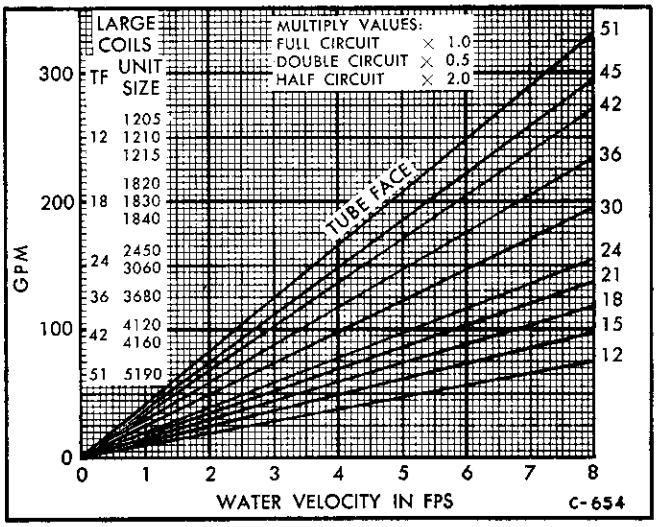


CHART 10 — K FACTOR
Series CWS Coils (⅛" Fin Spacing)

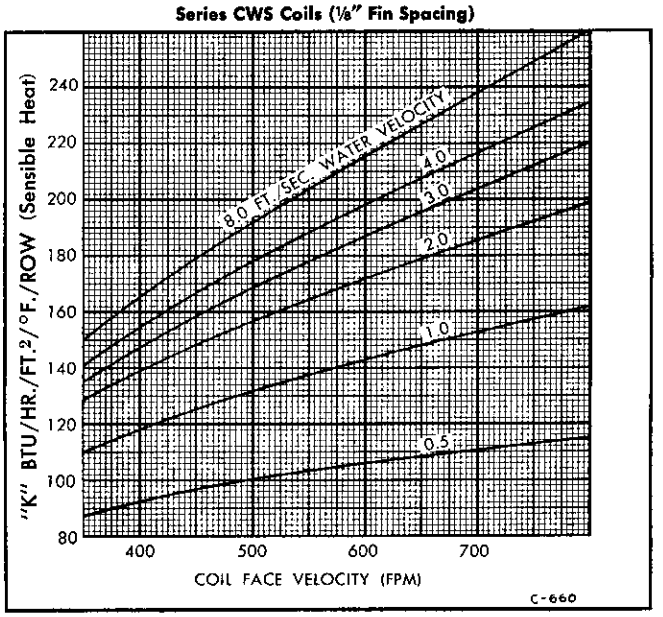


CHART 11 — M FACTOR
Series CWS Coils (⅛" Fin Spacing)

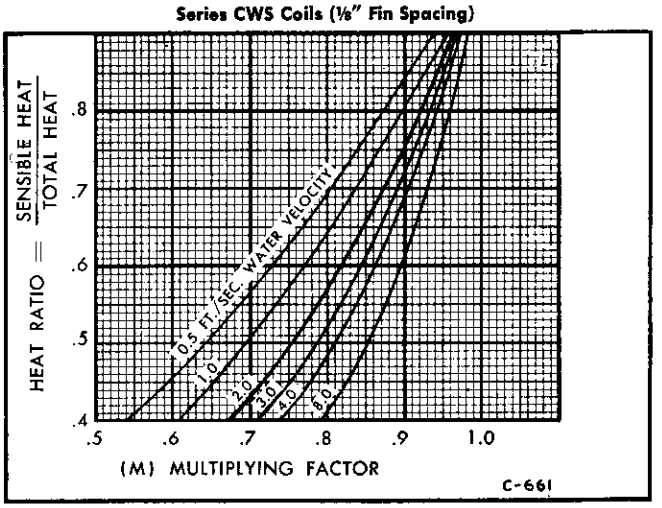


CHART 12 — LEAVING DRY BULB. SPRAYS ON (DB_S)

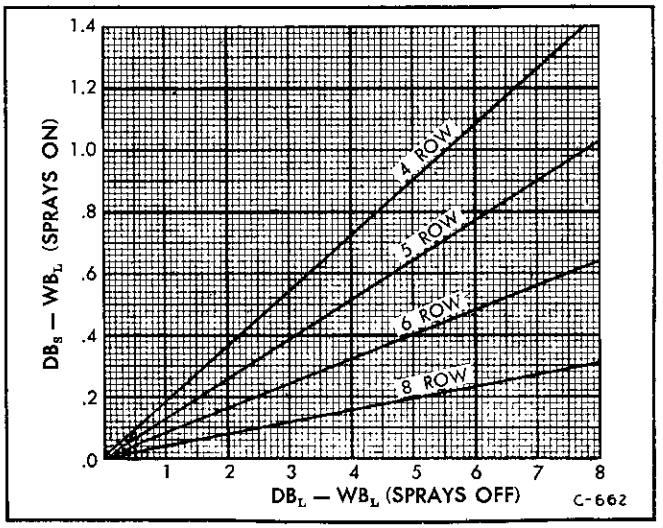


CHART 13 — R_D FACTOR

Series DXS Coils (⅛" Fin Spacing)

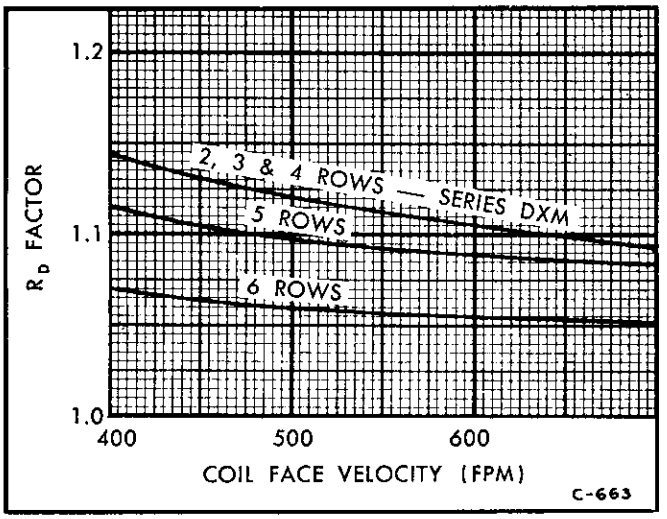
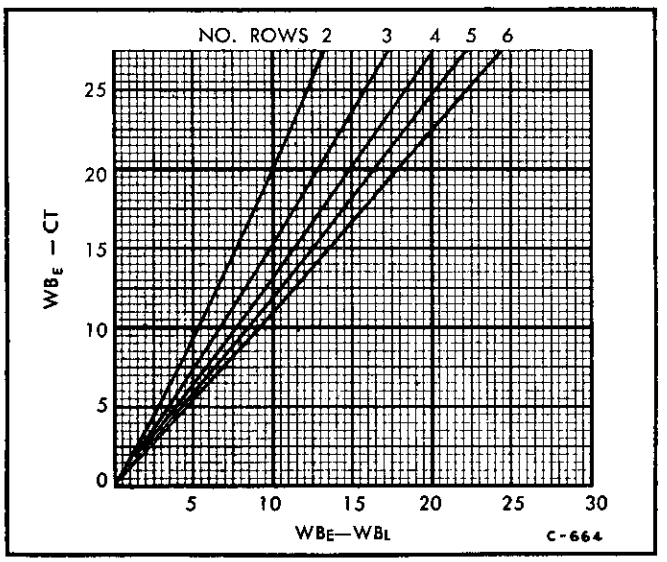


CHART 14 — EFFECTIVE COIL TEMPERATURE (CT)

Series DXS Coils (⅛" Fin Spacing)



DBL from 2-d on preceding page.

b. Calculate: Heat Ratio $= \frac{GSH}{GTH}$.

c. Find M Factor from Chart 11 using Tube Water Velocity and Heat Ratio.

7. Determine No. Rows of Coil Required:

a. No. Rows $= \frac{GSH \text{ (from 6a)}}{K \times M \times MED \times FA}$

8. Leaving Dry Bulb Temperature with Sprays ON (DBS):

a. Calculate: (DBL — WBL) using DBL from 2-d.

b. Enter Chart 12 using (DBL — WBL) and No. Rows selected. then read value of (DBs — WBL).

c. Obtain DBs by adding this value to WBL.

D. DIRECT EXPANSION COIL SELECTION

1. No. Rows of Coil Required:

a. Data Required for Selection:
   1. CFM (std) and Face Area of DE Coil.
   2. WBE, WBL, DBE, DBL, and GTH.

b. Face Velocity $= \frac{CFM \text{ (std)}}{\text{Face Area}}$

c. Choose Refrigerant Suction Temperature; usually 40° — 50° is most economic range.

d. Obtain No. Rows of Series DXM Multitherm coil required from Table 6, page 10. Interpolate to obtain fractional No. Rows necessary to produce required WBL.

e. Calculate: No. Rows Series DXS = No. Rows Series DXM x RD; obtain RD from Chart 13. Use next higher integral No. Rows.

2. Leaving Dry Bulb Temperature with Sprays ON (DBS):

a. Enter Chart 14, using (WBE — WBL) and No. Rows, then read value of (WBE — CT).

b. Obtain CT by subtracting this value from WBE.

c. Draw the Cooling Line on Chart 2 from point of DBE and WBE to CT on Saturation Line.

d. Read DBL (Sprays OFF) where the Cooling Line intersects WBL.

e. Calculate: (DBL — WBL) using DBL from 2-d.

f. Enter Chart 12 using (DBL — WBL) and No. Rows, then read value of (DBs — WBL)

g. Obtain DBS by adding this value to WBL.

3. Check Selected Coil for Loading:

a. Tons Load $= \frac{GTH}{12{,}000}$

b. Check Tons Load against Minimum and Maximum Tons shown in Table 7, page 11.

c. If Tons Load does not fall within table limits, adjustment of CFM (std) or Selection of a different Unit Size is suggested.

Table 8—Mean Effective Temperature Differences (MED)

GREATEST DIFFERENCE	LEAST DIFFERENCE																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1.00																													
2	1.44	2.00																												
3	1.82	2.46	3.00																											
4	2.16	2.84	3.30	4.00																										
5	2.48	3.27	3.90	4.78	5.00																									
6	2.79	3.64	4.26	4.93	5.48	6.00																								
7	3.07	3.99	4.71	5.36	5.98	6.48	7.00																							
8	3.37	4.33	5.09	5.68	6.37	6.96	7.49	8.00																						
9	3.64	4.65	5.46	6.16	6.80	7.38	7.94	8.48	9.00																					
10	3.91	4.97	5.80	6.55	7.20	7.80	8.40	8.96	9.50	10.00																				
11	4.17	5.28	6.15	6.92	7.60	8.25	8.84	9.46	9.90	10.50	11.0																			
12	4.43	5.58	6.50	7.28	8.00	8.64	9.26	9.85	10.43	10.95	11.5	12.0																		
13	4.68	5.92	6.80	7.64	8.36	9.03	9.71	10.32	10.90	11.42	12.0	12.5	13.0																	
14	4.90	6.16	7.12	7.98	8.72	9.45	10.08	10.71	11.30	11.88	12.5	13.0	13.5	14.0																
15	5.17	6.45	7.46	8.32	9.10	9.82	10.50	11.12	11.74	12.32	12.9	13.4	14.0	14.5	15.0															
16	5.41	6.73	7.77	8.66	9.45	10.18	10.88	11.53	12.16	12.75	13.3	13.9	14.5	15.0	15.5	16.0														
17	5.65	7.02	8.05	9.00	9.80	10.55	11.28	11.95	12.57	13.15	13.7	14.3	14.9	15.4	16.0	16.5	17.0													
18	5.89	7.28	8.37	9.30	10.15	10.91	11.64	12.32	12.98	13.60	14.2	14.8	15.3	15.9	16.4	17.0	17.5	18.0												
19	6.11	7.55	8.73	9.64	10.47	11.29	12.03	12.72	13.41	14.00	14.6	15.2	15.8	16.4	16.9	17.4	18.0	18.5	19.0											
20	6.34	7.82	9.00	9.94	10.82	11.61	12.36	13.10	13.72	14.42	15.1	15.6	16.2	16.8	17.4	17.9	18.5	19.0	19.5	20.0										
21	6.57	8.08	9.21	10.24	11.15	11.97	12.73	13.49	14.13	14.82	15.5	16.1	16.6	17.2	17.8	18.4	18.9	19.5	20.0	20.5	21.0									
22	6.79	8.34	9.55	10.56	11.47	12.30	13.09	13.85	14.49	15.20	15.9	16.5	17.1	17.6	18.3	18.8	19.3	20.0	20.5	21.0	21.5	22.0								
23	7.01	8.58	9.80	10.87	11.78	12.68	13.43	14.17	14.93	15.60	16.3	16.9	17.5	18.1	18.7	19.3	19.9	20.4	20.9	21.5	22.0	22.5	23.0							
24	7.23	8.86	10.10	11.15	12.10	13.00	13.79	14.58	15.30	16.00	16.7	17.3	17.9	18.5	19.1	19.5	20.2	20.8	21.5	21.9	22.4	22.9	23.5	24.0						
25	7.46	9.20	10.39	11.51	12.42	13.30	14.08	14.91	15.50	16.37	17.1	17.7	18.3	18.9	19.5	20.2	20.7	21.2	21.8	22.4	22.9	23.5	24.0	24.5	25.0					
26	7.67	9.36	10.63	11.98	12.75	13.65	14.35	15.29	16.02	16.73	17.5	18.1	18.7	19.4	19.9	20.6	21.2	21.6	22.3	22.8	23.4	24.0	24.5	25.0	25.4	26.0				
27	7.89	9.58	10.92	12.11	13.05	14.05	14.80	15.60	16.39	17.10	17.8	18.4	19.1	19.7	20.4	21.0	21.6	22.1	22.8	23.3	23.8	24.4	24.9	25.5	26.0	26.4	27.0			
28	8.10	9.80	11.20	12.30	13.35	14.25	15.16	15.97	16.73	17.45	18.2	18.9	19.6	20.2	20.8	21.4	21.9	22.6	23.2	23.8	24.4	24.9	25.3	26.0	26.5	27.0	27.4	28.0		
29	8.32	10.08	11.47	12.62	13.65	14.60	15.50	16.32	17.10	17.62	18.5	19.2	19.9	20.6	21.2	21.8	22.4	23.0	23.6	24.2	24.8	25.3	25.9	26.4	27.0	27.4	28.0	28.4	29.0	
30	8.53	10.34	11.70	12.91	13.95	14.91	15.78	16.64	17.33	18.20	18.9	19.6	20.4	21.0	21.6	22.2	22.9	23.5	24.0	24.6	25.2	25.7	26.4	26.9	27.4	28.0	28.4	29.0	29.4	30.0
31	8.74	10.58	11.97	13.18	14.30	15.19	16.13	16.97	17.78	18.50	19.3	20.0	20.7	21.4	22.0	22.6	23.3	23.9	24.5	25.1	25.6	26.1	26.7	27.3	27.9	28.4	28.9	29.4	30.0	30.4
32	8.95	10.82	12.25	13.47	14.65	15.53	16.45	17.31	18.10	18.90	19.7	20.3	21.0	21.8	22.4	23.1	23.7	24.3	24.9	25.5	26.1	26.6	27.2	27.8	28.4	28.9	29.4	30.0	30.4	31.0
33	9.16	11.06	12.50	13.73	14.95	15.83	16.80	17.68	18.45	19.25	20.0	20.8	21.4	22.2	22.8	23.4	24.2	24.8	25.3	25.9	26.3	27.0	27.6	28.2	28.9	29.5	29.8	30.5	30.9	31.4
34	9.35	11.30	12.80	14.03	15.20	16.13	17.08	18.06	18.78	19.60	20.4	21.1	21.8	22.5	23.2	23.9	24.5	25.1	25.8	26.4	27.0	27.5	28.1	28.7	29.2	29.9	30.4	30.8	31.4	31.9
35	9.56	11.54	13.01	14.30	15.36	16.45	17.40	18.32	19.10	19.95	20.7	21.5	22.2	22.9	23.5	24.3	24.9	25.6	26.2	26.8	27.4	28.0	28.6	29.1	29.7	30.2	30.8	31.4	31.9	32.4
36	9.77	11.78	13.29	14.58	15.70	16.76	17.70	18.62	19.43	20.30	21.1	21.8	22.6	23.3	24.0	24.6	25.4	26.0	26.6	27.2	27.8	28.4	29.0	29.5	30.1	30.7	31.3	31.9	32.4	32.9
37	9.97	12.02	13.53	14.83	15.98	17.10	18.00	18.98	19.80	20.65	21.4	22.2	22.9	23.7	24.4	25.0	25.7	26.4	27.0	27.6	28.3	28.8	29.4	30.0	30.5	31.2	31.7	32.3	32.9	33.4
38	10.17	12.24	13.73	15.10	16.26	17.45	18.32	19.29	20.18	20.95	21.7	22.6	23.2	24.0	24.7	25.4	26.0	26.8	27.5	28.0	28.8	29.2	29.9	30.4	31.0	31.5	32.1	32.8	33.4	33.9
39	10.38	12.44	14.03	15.40	16.55	17.80	18.65	19.61	20.47	21.30	22.0	22.9	23.6	24.4	25.1	25.8	26.4	27.2	27.8	28.4	29.2	29.7	30.3	30.8	31.5	32.0	32.6	33.1	33.7	34.3
40	10.58	12.68	14.30	15.63	16.83	18.03	18.98	19.90	20.78	21.63	22.1	23.2	24.0	24.7	25.4	26.2	26.9	27.4	28.3	28.9	29.4	30.1	30.8	31.3	31.9	32.4	33.0	33.6	34.2	34.8
42	10.98	13.14	14.70	16.16	17.37	18.51	19.52	20.53	21.37	22.30	23.1	24.0	24.7	25.5	26.2	26.9	27.6	28.3	29.0	29.7	30.3	30.9	31.5	32.2	32.7	33.3	33.9	34.5	35.0	35.6
44	11.37	13.58	15.24	16.70	17.92	19.10	20.22	21.13	22.05	22.95	23.8	24.6	25.4	26.2	27.0	27.7	28.4	29.1	30.0	30.4	31.1	31.7	32.2	33.0	33.6	34.2	34.8	35.3	36.0	36.5
46	11.75	14.04	15.75	17.15	18.47	19.62	20.85	21.78	22.67	23.55	24.4	25.4	26.1	26.9	27.7	28.4	29.4	29.8	30.5	31.2	31.9	32.5	33.2	33.8	34.5	35.1	35.7	36.2	36.8	37.3
48	12.00	14.61	16.46	17.82	19.00	20.21	21.31	22.41	23.42	24.16	25.0	26.2	26.8	27.8	28.4	29.3	29.8	30.7	31.3	32.2	32.7	33.5	34.0	34.9	35.2	36.0	36.5	37.2	37.6	38.4
50	12.51	15.01	16.81	18.22	19.45	20.82	21.82	23.00	24.00	24.72	25.8	26.8	27.4	28.5	29.2	30.0	30.5	31.6	32.1	33.0	33.4	34.3	34.8	35.6	36.0	36.9	37.4	38.0	38.4	39.2
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

NOTE:
Where either difference is greater than shown, divide both differences by 10, find MED from table, then multiply this value by 10.

Air Moving Performance

THE SPEED AND HORSEPOWER TABLES for each size unit on the following pages show static pressures external to the unit, i.e., system resistances external to the unit.

Internal pressure losses are inherently included in the tables as follows:

a. Entrance to unit casing and fans.

b. 2 to 10 rows of coils as tabulated, Series CWM or DXM.

c. Large coils, without condensation.

d. Clean filters.

For internal unit conditions differing from the above basic conditions, modifications to external static pressure to obtain speeds and horsepowers from the tables must be made as indicated on Charts 15 through 18.

NOTE: ACTUAL EXTERNAL static pressure should always be specified although fan speed and horsepower are determined using adjusted static pressure as indicated above.

CHART 16 — SPRAYED COILS IN SPRAYED COIL MULTITHERMS

For Selected Number Rows of Coil
ADD chart values to external static pressure

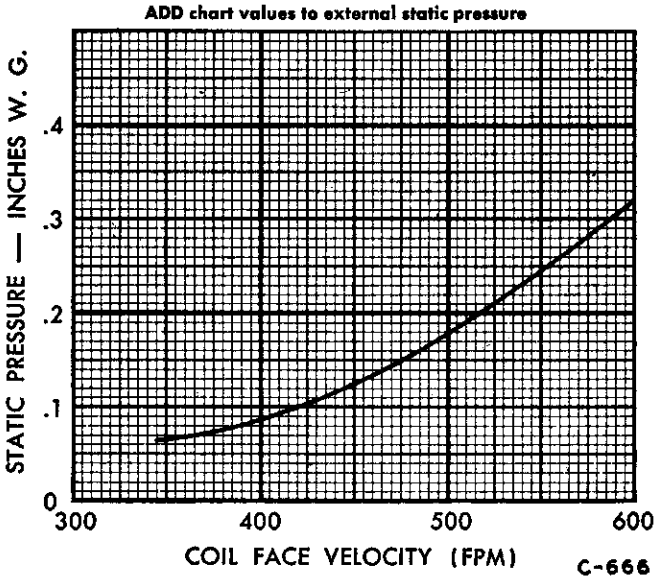


CHART 17 — SMALL COILS

For General Purpose Multitherms
ADD chart values to external static pressure

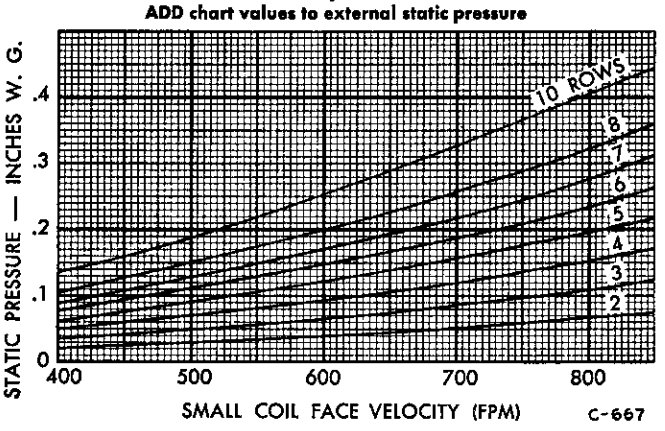


CHART 15 — CONDENSATION ON COOLING COIL SURFACE

For General Purpose Multitherms
ADD chart values to external static pressure

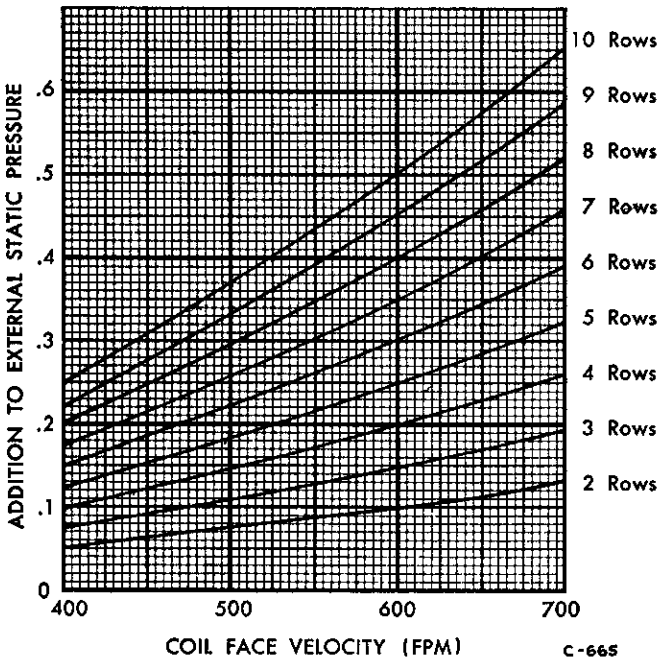
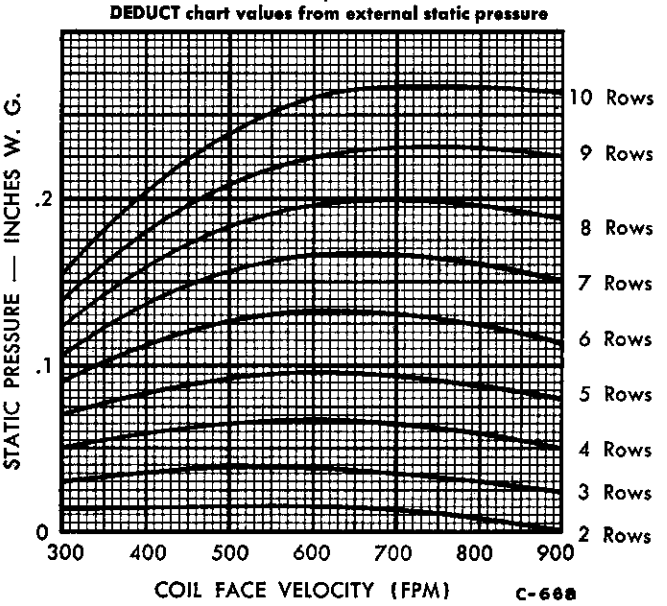


CHART 18 — SERIES CWS AND DXS (⅛" Fin Spacing) COILS

For General Purpose Multitherms
DEDUCT chart values from external static pressure



Size 1205—Speed and Horsepower Table

TOTAL OUTLET AREA — 0.53 SQ. FT. **LARGE COIL FACE AREA — 1.6 SQ. FT.**

MAX. RPM — 2070

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		583		636		689		742		795		848		901		954		1007	
Outlet Vel.		1100		1200		1300		1400		1500		1600		1700		1800		1900	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	808	.06	843	.07	881	.08	924	.10	963	.12	1009	.14	1052	.16	1101	.18	1153	.21
	½"	1002	.10	1030	.11	1060	.12	1089	.14	1120	.16	1150	.18	1191	.20	1230	.22	1270	.26
	¾"	1202	.14	1218	.15	1233	.17	1249	.19	1269	.21	1292	.23	1323	.25	1357	.28	1392	.31
	1"	1395	.18	1407	.20	1401	.22	1403	.24	1410	.26	1427	.28	1450	.30	1477	.33	1506	.39
	1¼"	1575	.22	1584	.25	1550	.27	1550	.29	1559	.32	1573	.34	1590	.36	1610	.39	1634	.43
	1½"	1730	.28	1728	.30	1715	.32	1703	.34	1701	.36	1707	.40	1715	.44	1729	.48	1748	.50
2	¼"	850	.07	899	.08	935	.10	979	.11	1025	.13	1076	.15	1125	.18	1176	.21	1233	.25
	½"	1052	.10	1080	.12	1108	.13	1145	.15	1181	.18	1222	.20	1264	.23	1305	.26	1349	.30
	¾"	1245	.14	1270	.16	1274	.18	1299	.20	1330	.22	1362	.25	1392	.28	1427	.31	1461	.35
	1"	1437	.19	1467	.21	1442	.23	1456	.25	1475	.28	1499	.31	1525	.33	1553	.37	1589	.41
	1¼"	1610	.24	1628	.26	1610	.28	1609	.31	1620	.34	1638	.36	1652	.39	1675	.43	1706	.47
	1½"	1760	.29	1764	.30	1770	.33	1765	.36	1765	.39	1768	.42	1777	.46	1790	.50	1828	.54
3	¼"	895	.07	940	.09	985	.11	1035	.13	1086	.15	1134	.17	1190	.20	1242	.24	1304	.28
	½"	1090	.11	1126	.13	1155	.15	1199	.17	1238	.20	1279	.22	1323	.25	1368	.29	1420	.33
	¾"	1285	.15	1320	.18	1320	.20	1350	.22	1386	.24	1420	.28	1456	.30	1493	.34	1540	.38
	1"	1476	.20	1510	.22	1489	.25	1510	.27	1529	.30	1554	.33	1582	.36	1620	.40	1661	.44
	1¼"	1643	.25	1665	.27	1655	.30	1661	.33	1676	.36	1694	.39	1715	.42	1742	.47	1780	.51
	1½"	1788	.30	1795	.32	1814	.35	1821	.39	1821	.42	1821	.45	1840	.49	1851	.53	1890	.58
4	¼"	930	.03	981	.10	1034	.12	1092	.14	1143	.17	1196	.19	1250	.22	1310	.26	1374	.31
	½"	1130	.12	1170	.14	1202	.16	1248	.19	1292	.22	1340	.24	1385	.28	1427	.32	1492	.36
	¾"	1325	.16	1370	.19	1369	.21	1401	.24	1439	.26	1475	.30	1515	.32	1554	.37	1609	.42
	1"	1510	.21	1549	.24	1538	.26	1561	.29	1582	.32	1612	.35	1650	.38	1681	.44	1730	.48
	1¼"	1675	.26	1700	.28	1700	.31	1712	.35	1726	.38	1745	.42	1770	.45	1809	.50	1845	.55
	1½"	1815	.31	1827	.34	1860	.37	1871	.41	1876	.44	1879	.48	1890	.51	1919	.57	1952	.62
5	¼"	975	.09	1023	.11	1080	.13	1137	.15	1200	.18	1257	.21	1318	.25	1380	.29	1445	.34
	½"	1165	.13	1215	.15	1250	.17	1298	.20	1346	.23	1396	.27	1446	.30	1501	.35	1560	.39
	¾"	1363	.17	1410	.20	1411	.22	1452	.25	1494	.28	1537	.32	1580	.36	1621	.41	1680	.45
	1"	1543	.22	1585	.25	1587	.27	1609	.31	1634	.34	1670	.38	1709	.42	1750	.47	1800	.52
	1¼"	1705	.27	1734	.29	1745	.32	1761	.37	1778	.40	1800	.44	1831	.49	1868	.53	1910	.59
	1½"	1842	.32	1860	.35	1890	.38	1921	.43	1928	.46	1935	.50	1957	.55	1986	.61	2020	.66
6	¼"	1020	.10	1064	.12	1126	.14	1199	.17	1254	.19	1316	.24	1388	.28	1452	.32	1514	.37
	½"	1210	.14	1262	.16	1298	.19	1350	.22	1402	.25	1460	.29	1515	.33	1578	.38	1632	.43
	¾"	1400	.18	1452	.21	1454	.24	1504	.27	1548	.30	1598	.35	1650	.39	1702	.44	1750	.49
	1"	1576	.23	1625	.26	1634	.29	1661	.33	1689	.37	1732	.41	1772	.46	1813	.51	1873	.56
	1¼"	1735	.28	1763	.31	1790	.34	1821	.39	1842	.43	1862	.47	1898	.52	1938	.57	1983	.64
	1½"	1866	.33	1892	.36	1931	.40	1970	.45	1981	.49	2000	.53	2020	.58	2053	.65		
7	¼"	1062	.10	1111	.13	1172	.15	1250	.18	1304	.22	1373	.26	1441	.30	1511	.35	1580	.40
	½"	1245	.14	1308	.18	1346	.20	1403	.23	1456	.27	1514	.31	1576	.36	1638	.41	1704	.47
	¾"	1437	.19	1500	.22	1510	.25	1556	.29	1602	.33	1650	.37	1702	.42	1754	.48	1820	.53
	1"	1610	.24	1659	.27	1675	.30	1713	.34	1742	.39	1782	.44	1830	.49	1873	.54	1937	.61
	1¼"	1764	.29	1790	.32	1833	.36	1873	.41	1893	.45	1916	.50	1952	.55	1999	.61	2051	.68
	1½"	1890	.34	1922	.37	1965	.41	2019	.47	2031	.51	2050	.56						
8	¼"	1103	.11	1157	.14	1220	.17	1290	.20	1360	.24	1430	.28	1502	.32	1577	.38	1650	.44
	½"	1285	.15	1355	.19	1389	.22	1454	.25	1510	.29	1570	.34	1632	.38	1700	.44	1771	.51
	¾"	1480	.20	1542	.23	1557	.27	1605	.30	1652	.35	1703	.40	1760	.45	1813	.51	1885	.58
	1"	1643	.25	1688	.28	1717	.32	1763	.36	1795	.41	1834	.46	1886	.52	1936	.58	1996	.65
	1¼"	1795	.30	1818	.33	1872	.37	1926	.43	1944	.47	1968	.52	2008	.58	2061	.65		
	1½"	1913	.35	1950	.38	1997	.43	2062	.49										
10	¼"	1163	.13	1249	.16	1308	.19	1391	.23	1461	.28	1540	.32	1624	.38	1703	.45	1792	.52
	½"	1364	.17	1424	.21	1477	.24	1546	.28	1612	.33	1680	.38	1753	.44	1827	.51	1903	.59
	¾"	1550	.22	1598	.26	1647	.30	1700	.34	1752	.39	1810	.45	1875	.51	1940	.58	2010	66
	1"	1705	.27	1750	.30	1800	.34	1857	.41	1897	.45	1943	.51	2003	.58	2065	.65		
	1¼"	1840	.32	1883	.36	1933	.40	1985	.47	2034	.51								
	1½"	1963	.37	2010	.41	2060	.46												

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.)

Size 1210—Speed and Horsepower Table

TOTAL OUTLET AREA — 1.13 SQ. FT. **LARGE COIL FACE AREA — 2.7 SQ. FT.**

MAX. RPM — 1478

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		1017		1130		1243		1356		1409		1582		1695		1808	
Outlet Vel.		900		1000		1100		1200		1300		1400		1500		1600	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	527	.09	553	.11	579	.14	608	.17	638	.20	669	.23	702	.28	735	.32
	½"	687	.18	706	.18	715	.21	730	.23	748	.28	776	.31	800	.36	833	.41
	¾"	831	.25	846	.26	850	.29	858	.32	866	.37	882	.41	899	.45	924	.51
	1"	974	.31	984	.34	987	.38	990	.41	990	.45	993	.51	999	.56	1013	.62
	1¼"	1101	.40	1105	.43	1105	.47	1105	.51	1105	.56	1105	.61	1105	.67	1109	.73
	1½"	1201	.48	1204	.52	1205	.57	1205	.61	1205	.66	1206	.72	1206	.78	1206	.84
2	¼"	566	.12	600	.13	623	.16	653	.19	690	.23	726	.27	762	.32	801	.39
	½"	720	.19	741	.20	758	.24	777	.26	802	.31	830	.36	861	.42	896	.48
	¾"	863	.26	885	.28	898	.32	912	.35	920	.40	936	.46	953	.51	984	.58
	1"	1005	.33	1018	.36	1030	.41	1041	.45	1044	.49	1047	.56	1057	.62	1075	.69
	1¼"	1122	.42	1132	.45	1141	.51	1152	.55	1155	.60	1156	.66	1163	.74	1175	.81
	1½"	1225	.50	1233	.55	1241	.61	1249	.65	1255	.71	1260	.78	1267	.85	1267	.92
3	¼"	598	.14	640	.15	665	.18	696	.22	735	.27	776	.32	817	.37	863	.45
	½"	751	.21	779	.22	798	.26	822	.29	849	.35	882	.41	916	.47	952	.55
	¾"	893	.28	918	.30	938	.34	958	.38	970	.44	987	.51	1013	.58	1042	.65
	1"	1031	.34	1049	.38	1063	.44	1080	.48	1090	.54	1099	.61	1114	.69	1136	.77
	1¼"	1145	.43	1155	.47	1171	.54	1188	.58	1200	.65	1213	.72	1225	.80	1237	.88
	1½"	1246	.52	1252	.57	1262	.64	1286	.69	1290	.76	1306	.83	1320	.92	1326	1.00
4	¼"	630	.15	675	.17	709	.21	743	.24	783	.31	828	.36	873	.43	924	.51
	½"	781	.22	815	.24	836	.28	875	.33	904	.39	934	.46	972	.53	1010	.62
	¾"	925	.29	955	.32	980	.37	1000	.42	1023	.48	1044	.56	1075	.64	1105	.73
	1"	1057	.36	1079	.41	1098	.46	1118	.52	1138	.59	1154	.66	1181	.75	1200	.85
	1¼"	1167	.45	1189	.50	1209	.57	1226	.62	1241	.70	1255	.78	1274	.87	1295	.96
	1½"	1260	.54	1277	.60	1296	.67	1312	.73	1330	.81	1350	.89	1367	.99	1388	1.09
5	¼"	660	.16	712	.19	747	.23	787	.28	834	.34	882	.41	930	.49	980	.58
	½"	805	.23	849	.26	884	.31	919	.36	955	.43	990	.51	1029	.59	1068	.69
	¾"	950	.30	990	.34	1016	.40	1046	.46	1075	.52	1100	.61	1133	.70	1167	.80
	1"	1076	.38	1102	.43	1133	.49	1157	.56	1186	.63	1210	.72	1239	.82	1265	.92
	1¼"	1188	.46	1208	.53	1231	.60	1255	.67	1277	.75	1303	.83	1329	.94	1355	1.05
	1½"	1280	.56	1301	.63	1324	.70	1348	.77	1369	.86	1394	.96	1420	1.06	1450	1.18
6	¼"	694	.18	743	.20	792	.25	839	.31	887	.38	936	.46	987	.55	1040	.65
	½"	836	.25	885	.28	927	.34	968	.40	1010	.47	1049	.56	1088	.66	1137	.76
	¾"	983	.32	1021	.37	1057	.43	1095	.50	1125	.57	1158	.66	1194	.77	1230	.88
	1"	1103	.40	1129	.45	1161	.52	1196	.60	1226	.68	1260	.78	1294	.89	1325	1.00
	1¼"	1210	.48	1231	.55	1259	.63	1290	.71	1320	.80	1350	.89	1385	1.01	1417	1.13
	1½"	1296	.58	1319	.65	1350	.74	1375	.82	1402	.91	1436	1.02	1468	1.14	1506	1.27
7	¼"	719	.19	785	.22	841	.28	892	.34	943	.42	994	.51	1045	.61	1102	.72
	½"	860	.26	919	.30	961	.36	1011	.44	1056	.52	1101	.61	1149	.72	1198	.84
	¾"	997	.33	1043	.39	1086	.46	1127	.54	1169	.62	1211	.72	1255	.84	1295	.96
	1"	1123	.41	1155	.48	1191	.55	1229	.64	1266	.73	1308	.84	1350	.96	1385	1.09
	1¼"	1229	.49	1252	.58	1287	.66	1318	.75	1355	.85	1396	.95	1435	1.09		
	1½"	1311	.60	1341	.68	1369	.77	1400	.86	1440	.96						
8	¼"	760	.21	823	.24	882	.30	942	.37	997	.45	1049	.56	1104	.61	1178	.80
	½"	900	.28	955	.32	1010	.40	1061	.48	1108	.55	1158	.66	1212	.79	1260	.91
	¾"	1035	.35	1079	.41	1122	.49	1175	.57	1217	.66	1262	.78	1312	.91	1359	1.04
	1"	1150	.43	1186	.50	1217	.59	1274	.68	1310	.78	1354	.89	1400	1.03	1445	1.17
	1¼"	1248	.52	1276	.60	1312	.69	1352	.79	1396	.90	1436	1.01				
	1½"	1324	.62	1364	.70	1400	.80	1424	.90	1479	1.01						
10	¼"	813	.24	884	.27	959	.36	1026	.44	1092	.54	1157	.66	1223	.81	1289	.95
	½"	957	.31	1020	.36	1079	.45	1143	.54	1200	.65	1262	.78	1323	.93	1375	1.07
	¾"	1085	.38	1135	.45	1181	.55	1234	.64	1293	.76	1350	.89	1411	1.05	1473	1.22
	1"	1194	.47	1234	.55	1280	.65	1334	.75	1380	.88	1436	1.01				
	1¼"	1284	.56	1325	.65	1371	.75	1416	.87	1465	1.00						
	1½"	1353	.66	1401	.75	1446	.86										

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.)

Size 1215—Speed and Horsepower Table

TOTAL OUTLET AREA — 1.50 SQ. FT. **LARGE COIL FACE AREA — 4.8 SQ. FT.**

MAX. RPM — 1723

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		1800		1950		2100		2250		2400		2550		2700		2850		3000		3150	
Outlet Vel.		1200		1300		1400		1500		1600		1700		1800		1900		2000		2100	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	704	.21	735	.24	769	.29	803	.33	842	.38	880	.45	921	.52	959	.59	1002	.68	1039	.77
	½"	867	.31	886	.35	910	.40	939	.46	969	.51	1002	.58	1030	.66	1064	.74	1097	.83	1135	.93
	¾"	1022	.44	1028	.48	1043	.52	1060	.59	1082	.64	1107	.73	1136	.81	1167	.99	1196	.99	1229	1.09
	1"	1175	.57	1175	.62	1181	.68	1193	.75	1204	.80	1224	.88	1242	.96	1267	1.06	1297	1.15	1323	1.26
	1¼"	1321	.71	1315	.78	1313	.83	1315	.90	1321	.97	1331	1.04	1346	1.12	1367	1.23	1387	1.32	1411	1.44
	1½"	1464	.85	1451	.93	1439	.99	1434	1.07	1437	1.14	1443	1.23	1451	1.32	1464	1.41	1479	1.52	1495	1.62
2	¼"	737	.23	775	.27	811	.32	852	.37	891	.44	938	.51	979	.59	1020	.68	1061	.77	1105	.87
	½"	897	.33	922	.38	948	.44	983	.50	1016	.56	1048	.64	1086	.73	1117	.82	1156	.93	1197	1.04
	¾"	1054	.46	1066	.51	1083	.57	1107	.64	1131	.71	1163	.80	1193	.88	1222	.98	1251	1.09	1287	1.21
	1"	1206	.59	1204	.66	1221	.72	1233	.80	1250	.86	1273	.95	1295	1.03	1322	1.14	1349	1.26	1380	1.37
	1¼"	1353	.74	1346	.81	1357	.88	1357	.96	1367	1.04	1386	1.12	1406	1.22	1420	1.33	1444	1.44	1469	1.56
	1½"	1489	.88	1489	.97	1482	1.04	1478	1.13	1480	1.22	1490	1.31	1508	1.41	1519	1.52	1539	1.64	1559	1.76
3	¼"	775	.25	811	.29	852	.35	897	.42	938	.48	986	.56	1030	.66	1073	.76	1117	.86	1163	.98
	½"	928	.35	957	.42	987	.47	1021	.54	1056	.61	1095	.71	1133	.80	1173	.90	1215	1.02	1256	1.14
	¾"	1086	.49	1099	.55	1121	.61	1145	.70	1173	.77	1209	.86	1239	.95	1275	1.06	1310	1.19	1347	1.32
	1"	1234	.62	1238	.69	1256	.76	1272	.84	1293	.93	1317	1.02	1346	1.11	1376	1.24	1405	1.37	1433	1.49
	1¼"	1384	.77	1383	.84	1393	.93	1396	1.01	1409	1.10	1428	1.20	1449	1.31	1472	1.44	1498	1.55	1525	1.68
	1½"	1515	.92	1515	1.01	1515	1.09	1516	1.19	1522	1.28	1535	1.39	1550	1.51	1570	1.63	1592	1.76	1619	1.89
4	¼"	807	.27	846	.32	889	.38	937	.46	984	.53	1032	.62	1081	.73	1126	.84	1171	.96	1228	1.09
	½"	964	.38	992	.45	1025	.51	1066	.59	1102	.67	1143	.77	1183	.87	1226	.99	1269	1.12	1314	1.25
	¾"	1120	.52	1137	.59	1159	.66	1193	.75	1217	.82	1253	.93	1289	1.03	1329	1.15	1367	1.29	1404	1.43
	1"	1264	.66	1281	.73	1293	.81	1313	.90	1336	1.00	1363	1.09	1399	1.20	1428	1.34	1460	1.48	1491	1.62
	1¼"	1418	.80	1425	.89	1428	.97	1434	1.07	1451	1.17	1476	1.28	1499	1.40	1525	1.54	1554	1.67	1584	1.82
	1½"	1540	.96	1559	1.05	1549	1.14	1555	1.25	1563	1.35	1579	1.48	1601	1.60	1619	1.75	1652	1.89	1678	2.04
5	¼"	839	.29	886	.35	927	.42	978	.50	1026	.58	1079	.69	1129	.79	1178	.92	1228	1.05	1282	1.19
	½"	1000	.41	1028	.48	1063	.55	1103	.64	1146	.72	1190	.83	1233	.94	1278	1.07	1323	1.21	1372	1.36
	¾"	1152	.54	1172	.62	1199	.70	1230	.79	1262	.88	1297	1.00	1339	1.11	1377	1.25	1420	1.39	1461	1.54
	1"	1297	.69	1308	.77	1328	.85	1352	.96	1377	1.06	1409	1.17	1442	1.30	1479	1.44	1511	1.58	1550	1.74
	1¼"	1442	.83	1451	.93	1461	1.02	1474	1.12	1493	1.24	1523	1.37	1547	1.50	1576	1.64	1608	1.80	1642	1.96
	1½"	1572	.99	1577	1.08	1585	1.19	1595	1.30	1604	1.42	1624	1.56	1642	1.69	1668	1.86	1699	2.02		
6	¼"	876	.32	922	.38	966	.45	1021	.54	1071	.63	1126	.75	1179	.86	1193	1.00	1285	1.14	1343	1.30
	½"	1030	.44	1066	.51	1100	.59	1151	.69	1189	.78	1236	.89	1283	1.02	1332	1.16	1379	1.31	1430	1.48
	¾"	1183	.57	1204	.66	1236	.74	1271	.84	1306	.95	1346	1.07	1392	1.20	1431	1.35	1474	1.50	1520	1.66
	1"	1333	.72	1346	.81	1365	.89	1390	1.01	1421	1.12	1454	1.24	1493	1.39	1530	1.55	1568	1.70	1610	1.88
	1¼"	1475	.86	1489	.97	1497	1.06	1514	1.18	1535	1.30	1565	1.44	1594	1.59	1628	1.75	1662	1.92	1701	2.10
	1½"	1609	1.03	1607	1.12	1622	1.24	1638	1.36	1648	1.49	1668	1.64	1693	1.79	1721	1.97				
7	¼"	909	.34	957	.41	1005	.49	1062	.59	1114	.69	1173	.81	1229	.94	1287	1.08	1342	1.24	1403	1.41
	½"	1061	.47	1097	.55	1140	.63	1189	.74	1233	.84	1282	.97	1336	1.10	1386	1.26	1434	1.42	1489	1.60
	¾"	1213	.60	1238	.69	1275	.79	1312	.89	1350	1.02	1395	1.14	1439	1.29	1483	1.46	1530	1.62	1577	1.80
	1"	1366	.75	1383	.84	1403	.94	1431	1.07	1464	1.19	1501	1.33	1541	1.49	1581	1.65	1625	1.83	1679	2.03
	1¼"	1510	.90	1521	1.01	1535	1.11	1554	1.24	1578	1.37	1607	1.53	1642	1.68	1680	1.86	1716	2.05		
	1½"	1650	1.06	1652	1.16	1660	1.29	1675	1.42	1693	1.56	1714	1.73								
8	¼"	945	.36	989	.44	1046	.52	1103	.63	1159	.74	1219	.88	1277	1.01	1337	1.17	1396	1.34	1460	1.53
	½"	1093	.49	1132	.60	1175	.68	1230	.79	1275	.90	1328	1.04	1385	1.18	1435	1.36	1489	1.54	1547	1.73
	¾"	1244	.63	1270	.72	1313	.83	1352	.96	1393	1.08	1440	1.21	1489	1.38	1533	1.56	1584	1.75	1636	1.94
	1"	1397	.78	1415	.88	1439	.99	1474	1.12	1505	1.26	1550	1.42	1590	1.58	1632	1.76	1681	1.97		
	1¼"	1542	.93	1550	1.04	1573	1.16	1596	1.30	1620	1.44	1652	1.61	1689	1.78						
	1½"	1659	1.10	1663	1.20	1690	1.34	1711	1.49												
10	¼"	1005	.42	1061	.51	1119	.61	1182	.73	1243	.85	1308	1.01	1372	1.18	1438	1.37	1499	1.56	1569	1.78
	½"	1158	.55	1204	.66	1255	.76	1303	.88	1361	1.03	1421	1.18	1481	1.36	1535	1.57	1596	1.77	1661	2.00
	¾"	1305	.69	1345	.81	1381	.92	1426	1.06	1474	1.21	1526	1.37	1581	1.56	1633	1.77	1689	1.99		
	1"	1450	.84	1482	.97	1515	1.09	1552	1.23	1587	1.39	1632	1.57	1683	1.77						
	1¼"	1576	1.00	1607	1.12	1637	1.26	1668	1.41	1703	1.58										
	1½"	1682	1.16	1715	1.29																

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 1820—Speed and Horsepower Table

TOTAL OUTLET AREA — 2.26 SQ. FT.

MAX. RPM — 1478

LARGE COIL FACE AREA — 6.1 SQ. FT.

(SMALL COIL FACE AREA — 5.1 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		2260		2486		2712		2938		3164		3390		3616		3842		4068	
Outlet Vel.		1000		1100		1200		1300		1400		1500		1600		1700		1800	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	569	.24	595	.28	622	.35	654	.41	685	.49	716	.56	749	.66	782	.77	815	.89
	½"	726	.38	735	.43	751	.54	772	.56	796	.66	824	.76	853	.85	882	.97	912	1.09
	¾"	885	.55	882	.60	882	.70	891	.75	905	.84	925	.95	950	1.06	969	1.18	1000	1.32
	1"	1025	.72	1017	.79	1014	.87	1013	.96	1020	1.05	1026	1.16	1038	1.27	1061	1.41	1089	1.56
	1¼"	1098	.89	1143	.99	1145	1.07	1143	1.18	1134	1.27	1134	1.38	1141	1.52	1151	1.66	1171	1.80
	1½"	1250	1.11	1251	1.20	1251	1.31	1251	1.39	1248	1.50	1244	1.64	1242	1.77	1245	1.91	1255	2.07
2	¼"	603	.27	630	.32	662	.41	697	.46	731	.56	769	.65	807	.76	842	.89	882	1.03
	½"	767	.42	777	.49	793	.58	812	.63	843	.73	872	.83	907	.96	943	1.10	982	1.24
	¾"	917	.58	916	.65	921	.75	933	.82	950	.93	974	1.04	998	1.18	1028	1.32	1061	1.48
	1"	1051	.76	1055	.84	1058	.93	1059	1.04	1066	1.13	1076	1.26	1091	1.40	1115	1.56	1145	1.73
	1¼"	1174	.94	1175	1.05	1176	1.15	1178	1.26	1181	1.37	1184	1.49	1195	1.64	1208	1.83	1227	1.99
	1½"	1276	1.16	1279	1.25	1287	1.37	1288	1.48	1290	1.61	1292	1.75	1296	1.91	1306	2.07	1323	2.26
3	¼"	634	.29	665	.36	697	.46	735	.52	775	.62	817	.73	860	.86	901	1.00	942	1.17
	½"	788	.45	803	.52	825	.63	852	.69	884	.81	919	.93	956	1.07	993	1.22	1029	1.38
	¾"	941	.62	950	.69	966	.80	982	.89	1000	1.01	1021	1.13	1046	1.30	1078	1.46	1113	1.64
	1"	1073	.79	1083	.89	1092	.98	1101	1.11	1110	1.22	1124	1.36	1144	1.52	1167	1.71	1197	1.89
	1¼"	1191	.99	1199	1.09	1206	1.21	1216	1.34	1226	1.46	1235	1.62	1249	1.77	1262	1.97	1281	2.16
	1½"	1298	1.20	1305	1.31	1314	1.43	1324	1.57	1334	1.71	1340	1.86	1350	2.04	1362	2.23	1370	2.44
4	¼"	667	.32	698	.40	734	.51	775	.57	817	.69	866	.82	907	.96	952	1.12	998	1.31
	½"	824	.49	840	.56	861	.68	893	.76	926	.89	964	1.02	1003	1.18	1044	1.36	1085	1.53
	¾"	968	.65	987	.73	1003	.85	1015	.96	1038	1.09	1066	1.23	1097	1.42	1132	1.60	1167	1.79
	1"	1098	.83	1113	.94	1127	1.04	1142	1.19	1155	1.32	1175	1.48	1196	1.64	1220	1.86	1250	2.06
	1¼"	1214	1.03	1229	1.14	1239	1.27	1256	1.41	1271	1.56	1286	1.74	1302	1.91	1321	2.12	1339	2.33
	1½"	1315	1.23	1328	1.36	1344	1.50	1360	1.65	1376	1.81	1391	1.99	1402	2.18	1416	2.39	1429	2.63
5	¼"	695	.36	731	.44	766	.56	810	.63	857	.77	906	.91	956	1.07	1003	1.26	1052	1.46
	½"	856	.52	874	.60	903	.73	935	.83	971	.96	1008	1.11	1051	1.29	1092	1.49	1136	1.71
	¾"	998	.69	1019	.78	1040	.90	1060	1.04	1083	1.18	1113	1.34	1145	1.53	1181	1.75	1219	1.97
	1"	1120	.86	1142	.98	1155	1.10	1189	1.26	1204	1.41	1223	1.59	1241	1.77	1277	2.01	1307	2.24
	1¼"	1233	1.07	1251	1.19	1267	1.34	1288	1.49	1310	1.66	1328	1.85	1353	2.05	1376	2.27	1399	2.53
	1½"	1334	1.27	1349	1.41	1366	1.57	1386	1.74	1406	1.91	1429	2.12	1451	2.32	1470	2.56		
6	¼"	731	.39	767	.48	808	.62	851	.69	903	.84	953	.99	1000	1.18	1052	1.39	1108	1.62
	½"	887	.55	911	.64	946	.78	975	.90	1011	1.04	1052	1.22	1098	1.40	1145	1.64	1192	1.88
	¾"	1027	.72	1051	.83	1077	.96	1107	1.11	1132	1.27	1163	1.45	1198	1.65	1236	1.89	1275	2.14
	1"	1146	.90	1166	1.04	1194	1.17	1220	1.34	1247	1.51	1271	1.71	1303	1.91	1335	2.16	1365	2.42
	1¼"	1252	1.11	1275	1.24	1300	1.41	1326	1.58	1353	1.76	1378	1.97	1404	2.19	1429	2.43	1462	2.72
	1½"	1351	1.32	1372	1.47	1397	1.64	1424	1.82	1450	2.02	1475	2.23						
7	¼"	761	.42	800	.51	840	.67	893	.76	946	.92	1002	1.09	1055	1.30	1108	1.54	1164	1.78
	½"	917	.58	945	.68	979	.83	1019	.97	1061	1.13	1103	1.32	1151	1.53	1197	1.79	1244	2.05
	¾"	1050	.76	1078	.87	1111	1.02	1142	1.19	1176	1.36	1213	1.56	1252	1.79	1294	2.04	1334	2.32
	1"	1166	.94	1197	1.09	1227	1.24	1259	1.41	1290	1.60	1322	1.83	1353	2.06	1392	2.32	1428	2.61
	1¼"	1276	1.16	1298	1.30	1326	1.47	1359	1.66	1391	1.86	1422	2.09	1455	2.33				
	1½"	1368	1.36	1394	1.52	1423	1.71	1452	1.90										
8	¼"	788	.45	835	.55	884	.72	935	.83	995	.99	1046	1.20	1101	1.43	1157	1.68	1210	1.95
	½"	941	.62	981	.73	1021	.89	1063	1.05	1104	1.22	1154	1.43	1202	1.67	1252	1.93	1302	2.22
	¾"	1073	.79	1104	.92	1142	1.08	1181	1.26	1219	1.45	1260	1.67	1302	1.93	1344	2.19	1394	2.50
	1"	1187	.99	1223	1.13	1256	1.31	1296	1.49	1331	1.70	1368	1.94	1407	2.20	1448	2.48		
	1¼"	1298	1.20	1323	1.35	1355	1.54	1392	1.74	1428	1.95	1465	2.20						
	1½"	1386	1.40	1418	1.58	1448	1.78												
10	¼"	877	.54	930	.67	992	.83	1050	1.03	1113	1.23	1175	1.47	1237	1.77	1310	2.08	1370	2.44
	½"	1019	.71	1067	.86	1117	1.03	1170	1.24	1226	1.47	1281	1.73	1343	2.03	1407	2.35	1468	2.74
	¾"	1134	.90	1187	1.06	1233	1.25	1285	1.47	1335	1.72	1391	2.00	1448	2.30				
	1"	1248	1.10	1289	1.27	1334	1.49	1386	1.72	1436	1.98								
	1¼"	1346	1.31	1385	1.50	1428	1.72	1475	1.97										
	1½"	1432	1.52	1474	1.73														

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 1830—Speed and Horsepower Table

TOTAL OUTLET AREA — 2.57 SQ. FT.

MAX. RPM — 1292

LARGE COIL FACE AREA — 9.2 SQ. FT.

(SMALL COIL FACE AREA — 7.7 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		3598		3855		4112		4369		4626		4883		5140		5397		5654		5911	
Outlet Vel.		1400		1500		1600		1700		1800		1900		2000		2100		2200		2300	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	571	.48	602	.57	630	.67	661	.77	692	.88	721	1.00	750	1.14	778	1.29	809	1.46	839	1.65
	½"	680	.67	698	.77	722	.87	746	.99	771	1.11	797	1.26	821	1.41	848	1.57	873	1.75	901	1.93
	¾"	777	.89	793	1.00	811	1.11	831	1.23	849	1.37	872	1.52	893	1.67	916	1.85	939	2.04	963	2.24
	1"	875	1.14	886	1.26	899	1.37	913	1.50	928	1.64	945	1.79	964	1.96	986	2.14	1009	2.35	1029	2.56
	1¼"	976	1.41	980	1.53	987	1.66	997	1.79	1008	1.94	1020	2.09	1035	2.26	1053	2.45	1072	2.65	1091	2.88
	1½"	1073	1.70	1072	1.83	1076	1.97	1081	2.11	1087	2.26	1095	2.41	1104	2.60	1120	2.77	1135	2.97	1154	3.22
2	¼"	598	.52	629	.62	656	.72	687	.84	721	.97	751	1.12	782	1.27	815	1.45	846	1.63	879	1.83
	½"	704	.72	723	.83	747	.94	774	1.07	799	1.21	828	1.36	854	1.54	884	1.72	913	1.91	940	2.13
	¾"	801	.96	819	1.07	836	1.18	856	1.32	877	1.46	899	1.62	923	1.80	952	1.99	980	2.20	1005	2.43
	1"	903	1.20	911	1.32	924	1.45	940	1.59	957	1.73	977	1.89	998	2.09	1022	2.30	1046	2.52	1069	2.77
	1¼"	1000	1.49	1006	1.62	1013	1.75	1023	1.90	1034	2.06	1048	2.22	1064	2.41	1086	2.62	1110	2.85	1132	3.10
	1½"	1095	1.76	1095	1.92	1100	2.05	1107	2.20	1114	2.38	1124	2.55	1137	2.74	1155	2.94	1175	3.18	1193	3.44
3	¼"	620	.56	652	.67	686	.79	716	.92	753	1.06	785	1.23	816	1.39	850	1.58	885	1.78	916	2.00
	½"	724	.77	750	.88	773	1.01	803	1.15	830	1.30	860	1.48	887	1.66	919	1.86	947	2.08	977	2.31
	¾"	821	1.00	843	1.12	862	1.26	886	1.40	910	1.55	933	1.73	956	1.93	986	2.14	1018	2.38	1043	2.64
	1"	922	1.27	939	1.39	952	1.54	970	1.68	988	1.84	1009	2.02	1032	2.22	1055	2.44	1079	2.69	1106	2.96
	1¼"	1020	1.54	1028	1.68	1040	1.82	1054	1.98	1067	2.16	1083	2.34	1100	2.57	1122	2.77	1144	3.02	1170	3.31
	1½"	1119	1.82	1117	1.98	1125	2.14	1131	2.31	1145	2.51	1158	2.68	1174	2.90	1190	3.12	1209	3.38	1230	3.66
4	¼"	645	.60	677	.73	701	.84	746	.98	780	1.14	817	1.33	849	1.52	884	1.72	918	1.94	952	2.18
	½"	746	.82	773	.95	789	1.08	830	1.23	859	1.40	891	1.59	823	1.78	954	2.00	986	2.25	1022	2.49
	¾"	847	1.05	869	1.20	890	1.34	913	1.50	936	1.68	966	1.86	995	2.07	1022	2.30	1051	2.56	1080	2.83
	1"	946	1.33	954	1.48	967	1.63	999	1.79	1017	1.96	1039	2.16	1060	2.39	1087	2.62	1116	2.87	1140	3.17
	1¼"	1078	1.61	1051	1.76	1054	1.92	1065	2.10	1095	2.30	1114	2.49	1131	2.71	1155	2.94	1180	3.21	1207	3.52
	1½"	1140	1.89	1136	2.06	1137	2.23	1146	2.41	1162	2.64	1181	2.84	1202	3.08	1224	3.31	1245	3.58	1265	3.87
5	¼"	668	.66	702	.78	736	.90	775	1.06	808	1.23	847	1.42	881	1.64	916	1.85	956	2.10	991	2.37
	½"	769	.87	797	1.00	825	1.16	857	1.31	887	1.49	920	1.68	950	1.90	986	2.14	1024	2.40	1056	2.70
	¾"	867	1.12	893	1.26	917	1.42	940	1.58	966	1.76	996	1.97	1021	2.20	1055	2.45	1087	2.72	1119	3.03
	1"	967	1.38	980	1.54	1000	1.70	1022	1.88	1044	2.08	1069	2.30	1094	2.53	1121	2.78	1152	3.06	1181	3.37
	1¼"	1063	1.66	1070	1.83	1085	2.01	1104	2.20	1124	2.41	1143	2.63	1165	2.88	1188	3.12	1218	3.42	1242	3.74
	1½"	1161	1.94	1163	2.12	1168	2.32	1184	2.52	1200	2.74	1217	2.97	1239	3.24	1258	3.50	1278	3.79		
6	¼"	693	.70	724	.83	762	.97	803	1.14	840	1.33	876	1.53	917	1.75	952	2.00	993	2.26	1031	2.58
	½"	791	.93	820	1.07	851	1.23	885	1.39	916	1.59	950	1.79	984	2.04	1021	2.30	1056	2.57	1093	2.90
	¾"	888	1.16	917	1.33	940	1.50	968	1.68	995	1.87	1024	2.08	1052	2.33	1086	2.60	1120	2.89	1156	3.23
	1"	989	1.44	1009	1.62	1027	1.80	1051	1.99	1075	2.20	1099	2.41	1124	2 64	1155	2.90	1186	3.21	1219	3.59
	1¼"	1086	1.73	1098	1.91	1114	2.10	1132	2.31	1153	2.53	1173	2.76	1200	3.00	1224	3.26	1250	3.57	1278	3.96
	1½"	1183	2.02	1182	2.20	1188	2.41	1207	2.64	1229	2.87	1246	3.11	1269	3.38						
7	¼"	715	.74	750	.91	791	1.06	831	1.23	868	1.42	909	1.64	945	1.88	989	2.15	1031	2.44	1071	2.78
	½"	814	.98	845	1.13	877	1.30	913	1.49	948	1.70	983	1.92	1017	2.18	1056	2.47	1094	2.74	1136	3.11
	¾"	914	1.25	940	1.41	967	1.59	1000	1.78	1025	2.00	1058	2.24	1087	2.51	1122	2.79	1159	3.09	1195	3.45
	1"	1012	1.52	1035	1.70	1055	1.88	1081	2.10	1106	2.32	1130	2.56	1158	2.84	1192	3.14	1225	2.46	1257	3.83
	1¼"	1110	1.79	1121	1.99	1140	2.19	1161	2.42	1181	2.66	1207	2.91	1235	3.21	1261	3.50	1287	3.85		
	1½"	1204	2.08	1207	2.28	1220	2.51	1239	2.75	1259	3.03	1278	3.30								
8	¼"	734	.79	775	.96	815	1.11	857	1.31	897	1.51	938	1.75	976	2.02	1022	2.30	1064	2.62	1106	2.97
	½"	834	1.04	869	1.20	903	1.38	941	1.58	975	1.80	1013	2.04	1049	2.32	1087	2.62	1128	2.93	1171	3.32
	¾"	934	1.30	964	1.48	990	1.18	1020	1.88	1054	2.11	1087	2.35	1117	2.64	1155	2.94	1193	3.29	1230	3.67
	1"	1032	1.57	1053	1.77	1079	1.97	1105	2.20	1132	2.44	1161	2.70	1188	3.00	1225	3.30	1258	3.67		
	1¼"	1129	1.85	1143	2.06	1161	2.28	1184	2.52	1209	2.78	1234	3.06	1260	3.37						
	1½"	1224	2.14	1234	2.36	1247	2.61	1265	2.85	1284	3.14										
10	¼"	780	.89	823	1.07	857	1.26	911	1.48	954	1.72	999	1.98	1040	2.29	1087	2.60	1135	2.97	1180	3.37
	½"	877	1.15	918	1.33	952	1.55	993	1.77	1032	2.04	1072	2.29	1112	2.61	1155	2.94	1200	3.31	1242	3.73
	¾"	977	1.41	1011	1.62	1041	1.84	1076	2.09	1113	2.36	1146	2.64	1180	2.98	1224	3.31	1266	3.71		
	1"	1073	1.70	1100	1.91	1126	2.14	1156	2.41	1189	2.70	1220	3.00	1253	3.34						
	1¼"	1172	1.99	1185	2.20	1205	2.46	1234	2.74	1275	3.04										
	1½"	1265	2.29	1275	2.53																

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 1840—Speed and Horsepower Table

TOTAL OUTLET AREA — 4.08 SQ. FT.

MAX. RPM — 1034

LARGE COIL FACE AREA — 12.4 SQ. FT.

(SMALL COIL FACE AREA — 10.4 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		4488		4896		5304		5712		6120		6528		6936		7344		7752		8160	
Outlet Vel.		1100		1200		1300		1400		1500		1600		1700		1800		1900		2000	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	418	.45	436	.58	453	.70	474	.83	497	.97	520	1.12	544	1.30	568	1.50	595	1.71	622	1.94
	½"	521	.76	530	.87	540	1.00	555	1.13	573	1.29	592	1.46	611	1.65	632	1.87	653	2.10	676	2.37
	¾"	619	1.10	622	1.22	630	1.35	641	1.49	653	1.65	666	1.84	682	2.04	698	2.27	716	2.53	735	2.81
	1"	716	1.45	716	1.59	718	1.74	722	1.90	728	2.07	736	2.27	747	2.48	760	2.71	776	2.97	794	3.27
	1¼"	807	1.81	802	1.99	798	2.15	798	2.33	801	2.52	806	2.72	815	2.94	824	3.18	835	3.45	850	3.75
	1½"	888	2.22	883	2.38	880	2.58	877	2.78	875	2.78	875	3.21	880	3.45	887	3.71	896	3.99	907	4.28
2	¼"	437	.52	457	.65	479	.78	502	.92	528	1.08	552	1.27	578	1.47	602	1.69	627	1.95	655	2.23
	½"	541	.82	553	.94	567	1.09	584	1.24	602	1.41	622	1.62	643	1.83	665	2.09	688	2.36	713	2.65
	¾"	638	1.16	642	1.29	652	1.44	664	1.62	677	1.80	694	2.10	710	2.23	729	2.49	750	2.77	772	3.09
	1"	734	1.56	733	1.70	737	1.86	745	2.03	754	2.23	767	2.44	781	2.68	796	2.94	812	3.24	830	3.56
	1¼"	822	1.90	818	2.07	818	2.26	821	2.46	828	2.67	836	2.91	846	3.17	857	3.45	870	3.78	883	4.10
	1½"	900	2.30	899	2.48	899	2.69	900	2.90	899	3.14	903	3.40	909	3.68	916	3.97	927	4.31	942	4.65
3	¼"	454	.59	476	.70	502	.84	525	1.02	552	1.20	578	1.42	606	1.66	636	1.90	663	2.18	693	2.50
	½"	558	.89	570	1.02	588	1.17	608	1.36	628	1.54	649	1.77	672	2.02	697	2.29	722	2.58	749	2.94
	¾"	657	1.22	663	1.38	674	1.55	688	1.74	704	1.96	722	2.18	742	2.44	763	2.72	786	3.02	808	3.39
	1"	752	1.59	754	1.76	760	1.96	769	2.17	780	2.41	796	2.66	810	2.93	825	3.22	844	3.53	863	3.89
	1¼"	837	1.96	837	2.15	839	2.36	845	2.59	852	2.84	869	3.12	875	3.40	890	3.71	906	4.05	922	4.42
	1½"	912	2.38	912	2.58	914	2.80	919	3.04	924	3.32	931	3.60	940	3.92	953	4.26	966	4.63	978	5.01
4	¼"	475	.64	499	.78	525	.94	552	1.12	582	1.32	610	1.55	639	1.80	669	2.09	699	2.42	729	2.78
	½"	578	.96	595	1.11	612	1.28	633	1.47	656	1.68	679	1.91	704	2.19	730	2.50	757	2.85	786	3.22
	¾"	676	1.30	687	1.47	699	1.66	716	1.86	732	2.10	753	2.36	774	2.64	796	2.96	820	3.32	844	3.70
	1"	770	1.66	776	1.85	784	2.06	794	2.30	806	2.56	821	2.84	838	3.13	858	3.45	879	3.84	901	4.23
	1¼"	852	2.04	855	2.27	860	2.50	869	2.76	878	3.02	891	3.32	905	3.64	923	3.99	940	4.39	957	4.79
	1½"	925	2.45	930	2.69	935	2.93	942	3.19	950	3.48	959	3.80	969	4.15	982	4.53	996	4.95	1010	5.38
5	¼"	495	.70	520	.85	547	1.01	578	1.21	607	1.44	638	1.68	667	1.97	699	2.29	731	2.65	766	3.04
	½"	596	1.02	615	1.19	635	1.38	659	1.59	683	1.83	709	2.09	734	2.38	762	2.72	793	3.11	822	3.55
	¾"	696	1.38	705	1.56	722	1.77	740	1.99	760	2.25	780	2.54	802	2.86	826	3.20	853	3.59	879	4.07
	1"	788	1.72	794	1.94	803	2.17	816	2.43	830	2.71	847	3.03	864	3.35	883	3.71	906	4.09	935	4.61
	1¼"	867	2.11	870	2.35	879	2.61	890	2.88	904	3.17	918	3.49	934	3.84	951	4.26	971	4.70	993	5.16
	1½"	937	2.53	944	2.78	952	3.04	963	3.33	975	3.64	985	4.00	998	4.38	1011	4.79	1026	5.26		
6	¼"	513	.76	542	.92	571	1.12	603	1.33	636	1.56	666	1.82	698	2.14	733	2.51	767	2.92	800	3.34
	½"	615	1.08	636	1.28	661	1.50	686	1.73	711	1.98	738	2.26	766	2.59	795	2.97	824	3.39	857	3.86
	¾"	713	1.44	725	1.65	743	1.89	764	2.14	785	2.42	808	2.74	835	3.07	860	3.46	887	3.90	914	4.38
	1"	805	1.80	811	2.03	823	2.29	839	2.57	857	2.88	876	3.21	899	3.60	922	4.01	947	4.46	971	4.95
	1¼"	880	2.19	888	2.44	899	2.70	912	3.01	928	3.36	946	3.72	964	4.10	983	4.52	1004	5.00	1027	5.52
	1½"	950	2.61	962	2.87	973	3.16	987	3.48	1000	3.84	1015	4.22	1028	4.64						
7	¼"	533	.82	564	.99	595	1.20	628	1.44	662	1.72	695	2.03	729	2.37	764	2.74	800	3.18	836	3.65
	½"	631	1.15	655	1.35	682	1.58	708	1.84	738	2.14	767	2.46	797	2.82	828	3.22	861	3.68	894	4.17
	¾"	733	1.50	748	1.72	768	1.98	789	2.27	811	2.58	837	2.94	865	3.33	893	3.74	921	4.22	952	4.74
	1"	821	1.87	832	2.11	847	2.39	864	2.70	883	3.05	904	3.43	927	3.85	952	4.29	980	4.78	1005	5.30
	1¼"	895	2.27	907	2.54	922	2.84	938	3.18	955	3.52	973	3.93	992	4.37	1014	4.85				
	1½"	963	2.69	977	2.97	993	3.29	1007	3.65	1025	4.02										
8	¼"	564	.88	591	1.07	622	1.30	656	1.57	691	1.88	726	2.21	761	2.57	797	3.00	835	3.46	872	3.98
	½"	653	1.22	674	1.43	703	1.68	730	1.97	760	2.31	791	2.66	822	3.04	855	3.49	892	3.99	930	4.53
	¾"	753	1.58	766	1.82	786	2.08	812	2.40	836	2.74	863	3.12	894	3.55	923	4.01	953	4.53	988	5.10
	1"	841	1.95	853	2.22	867	2.52	887	2.86	908	3.22	933	3.63	957	4.06	983	4.57	1010	5.11		
	1¼"	915	2.35	927	2.66	943	2.97	960	3.32	980	3.69	999	4.11	1020	4.61						
	1½"	1000	2.76	1008	3.09	1021	3.42	1034	3.79												
10	¼"	589	1.00	624	1.23	661	1.50	700	1.81	741	2.15	778	2.56	816	3.02	857	3.52	899	4.05	949	4.62
	½"	690	1.34	717	1.60	747	1.89	781	2.24	819	2.62	852	3.04	890	3.52	927	4.04	968	4.60	1010	5.20
	¾"	793	1.72	808	2.00	831	2.33	858	2.67	888	3.03	917	3.50	949	4.00	983	4.58	1018	5.18		
	1"	876	2.09	889	2.40	907	2.75	930	3.13	959	3.52	984	4.02	1011	4.52						
	1¼"	939	2.51	961	2.84	983	3.19	1005	3.58	1030	4.02										
	1½"	1001	2.92	1020	3.26																

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.)

Size 2450—Speed and Horsepower Table

TOTAL OUTLET AREA — 4.93 SQ. FT.

MAX. RPM — 940

LARGE COIL FACE AREA — 15.1 SQ. FT.

(SMALL COIL FACE AREA — 13.2 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		5423		5916		6409		6902		7395		7888		8321		8874		9367		9860	
Outlet Vel.		1100		1200		1300		1400		1500		1600		1700		1800		1900		2000	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	380	.59	391	.69	410	.82	428	.97	449	1.13	469	1.32	490	1.52	513	1.76	538	2.03	559	2.29
	½"	470	.92	479	1.04	492	1.19	506	1.34	521	1.53	539	1.74	553	1.96	573	2.23	590	2.51	610	2.80
	¾"	562	1.32	565	1.46	572	1.61	579	1.77	590	1.97	604	2.19	618	2.43	632	2.72	649	3.01	664	3.32
	1"	648	1.73	648	1.92	649	2.09	653	2.28	659	2.48	667	2.70	676	2.93	690	3.23	706	3.55	718	3.89
	1¼"	734	2.19	733	2.39	725	2.57	724	2.80	727	3.02	732	3.26	740	3.50	748	3.82	757	4.14	775	4.46
	1½"	807	2.69	803	2.88	803	3.10	795	3.34	794	3.59	793	3.85	798	4.11	805	4.45	814	4.77	821	5.10
2	¼"	394	.64	413	.77	434	.91	453	1.08	475	1.28	497	1.50	520	1.72	543	2.00	567	2.30	592	2.61
	½"	487	.99	500	1.13	513	1.28	529	1.48	546	1.69	567	1.92	583	2.16	604	2.49	612	2.74	649	3.13
	¾"	579	1.39	585	1.56	593	1.73	604	1.93	615	2.15	630	2.39	644	2.64	663	2.98	680	3.32	698	3.68
	1"	673	1.84	667	2.01	670	2.21	673	2.44	680	2.68	690	2.93	703	3.18	719	3.54	734	3.87	752	4.23
	1¼"	752	2.29	751	2.48	747	2.71	748	2.96	751	3.22	760	3.51	767	3.77	778	4.14	790	4.48	803	4.87
	1½"	828	2.76	825	2.99	824	3.23	820	3.51	818	3.78	820	4.11	824	4.40	835	4.78	845	5.15	853	5.53
3	¼"	424	.70	440	.84	459	1.01	482	1.20	503	1.43	525	1.67	549	1.92	575	2.26	598	2.58	626	2.96
	½"	506	1.07	519	1.23	534	1.41	551	1.61	570	1.85	590	2.10	613	2.38	633	2.73	656	3.09	679	3.48
	¾"	597	1.43	604	1.66	614	1.86	626	2.09	639	2.33	564	2.60	670	2.89	690	3.26	711	3.62	732	4.04
	1"	688	1.92	686	2.12	690	2.35	698	2.59	708	2.87	719	3.15	731	3.45	748	3.84	763	4.22	783	4.64
	1¼"	765	2.38	767	2.60	769	2.86	769	3.12	776	3.43	783	3.75	793	4.05	806	4.47	819	4.86	845	5.30
	1½"	835	2.88	838	3.11	840	3.38	840	3.66	840	3.99	845	4.36	854	4.67	865	5.12	876	5.53	891	5.99
4	¼"	431	.77	452	.91	476	1.10	501	1.32	526	1.56	564	1.83	577	2.13	606	2.50	632	2.87	659	3.29
	½"	523	1.14	539	1.32	556	1.52	575	1.75	595	2.02	616	2.30	639	2.60	659	2.99	686	3.39	715	3.84
	¾"	614	1.56	622	1.76	636	2.00	649	2.24	665	2.52	684	2.82	702	3.14	720	3.55	744	3.96	764	4.41
	1"	703	1.99	707	2.23	711	2.48	720	2.76	731	3.07	747	3.39	762	3.73	779	4.16	798	4.58	817	5.05
	1¼"	779	2.48	784	2.72	788	2.98	792	3.30	798	3.63	809	3.99	820	4.34	836	4.80	850	5.25	865	5.72
	1½"	849	2.96	853	3.23	860	3.53	862	3.85	865	4.20	871	4.59	882	4.98	893	5.46	905	5.93	917	6.42
5	¼"	446	.83	470	1.00	495	1.21	521	1.43	549	1.71	578	2.00	605	2.32	632	2.72	662	3.14	690	3.60
	½"	540	1.22	557	1.42	576	1.64	596	1.88	618	2.17	643	2.50	664	2.82	690	3.26	717	3.68	745	4.17
	¾"	630	1.64	640	1.86	654	2.10	670	2.38	688	2.70	707	3.03	726	3.38	747	3.83	773	4.28	793	4.79
	1"	718	2.09	723	2.33	729	2.59	741	2.91	754	3.24	773	3.62	788	3.98	808	4.46	824	4.92	847	5.21
	1¼"	794	2.54	799	2.82	802	3.11	811	3.45	819	3.82	827	4.22	845	4.60	863	5.11	881	5.60	896	6.15
	1½"	866	3.05	871	3.33	876	3.64	884	4.00	890	4.40	896	4.82	909	5.24	920	5.79	932	6.30		
6	¼"	465	.90	490	1.09	517	1.31	546	1.56	574	1.87	604	2.19	631	2.55	664	2.99	692	3.45	726	3.97
	½"	556	1.30	577	1.52	598	1.76	618	2.05	644	2.35	667	2.71	693	3.08	721	3.55	749	4.03	778	4.56
	¾"	649	1.72	659	1.97	674	2.25	691	2.56	714	2.90	733	3.27	754	3.65	781	4.16	803	4.65	827	5.20
	1"	733	2.17	743	2.45	751	2.75	765	3.08	780	3.45	798	3.85	817	4.27	837	4.80	858	5.31	881	5.91
	1¼"	806	2.66	816	2.94	823	3.26	838	3.61	845	4.03	856	4.46	875	4.90	891	5.46	912	6.03	930	6.62
	1½"	872	3.15	881	3.47	888	3.80	899	4.15	906	4.63	922	5.08	932	5.53						
7	¼"	484	.98	511	1.19	541	1.43	570	1.71	597	2.04	630	2.40	659	2.78	694	3.28	726	3.77	757	4.34
	½"	575	1.39	595	1.62	620	1.89	645	2.22	670	2.55	696	2.94	725	3.33	752	3.86	792	4.38	810	4.98
	¾"	667	1.77	679	2.09	697	2.37	715	2.74	736	3.10	760	3.51	783	3.93	809	4.48	834	5.04	860	5.63
	1"	748	2.27	757	2.54	770	2.88	787	3.26	801	3.66	824	4.10	845	4.55	868	5.15	890	5.71	917	6.28
	1¼"	818	2.75	832	3.07	846	3.42	859	3.81	870	4.24	881	4.71	898	5.20	917	5.82	939	6.41		
	1½"	880	3.23	895	3.59	909	3.96	924	4.38	935	4.84										
8	¼"	502	1.04	531	1.28	562	1.54	592	1.85	623	222.	655	2.61	689	3.02	721	3.55	757	4.12	793	4.76
	½"	592	1.46	613	1.72	639	2.02	663	2.34	693	2.74	724	3.16	750	3.60	781	4.15	812	4.75	845	5.41
	¾"	685	1.89	694	2.17	715	2.51	736	2.88	760	3.30	783	3.75	809	4.21	837	4.80	869	5.42	900	6.09
	1"	760	2.35	774	2.66	794	3.02	808	3.43	827	3.85	849	4.35	868	4.84	895	5.42	919	6.11		
	1¼"	829	2.84	847	3.26	864	3.55	881	3.99	895	4.44	907	4.96	927	5.47						
	1½"	891	3.34	907	3.77	926	4.11	943	4.57												
10	¼"	535	1.20	567	1.47	600	1.77	636	1.96	671	2.56	707	3.03	742	3.52	777	4.15	819	4.79	850	5.52
	½"	625	1.62	650	1.93	677	2.26	707	2.66	737	3.11	770	3.61	802	4.13	835	4.79	870	5.47	906	6.23
	¾"	713	2.05	734	2.39	755	2.76	779	3.19	804	3.68	834	4.21	859	4.76	889	5.46	918	6.17		
	1"	788	2.51	809	2.88	829	3.28	851	3.73	870	4.25	895	4.82	919	5.40						
	1¼"	852	3.02	874	3.39	895	3.84	917	4.35	937	4.86										
	1½"	913	3.53	942	3.93																

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 3060—Speed and Horsepower Table

TOTAL OUTLET AREA — 5.80 SQ. FT.

MAX. RPM — 862

LARGE COIL FACE AREA — 17.9 SQ. FT.

(SMALL COIL FACE AREA — 15.7 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		6380		6960		7540		8120		8700		9280		9860		10440		11020		11600	
Outlet Vel.		1100		1200		1300		1400		1500		1600		1700		1800		1900		2000	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	349	.68	363	.83	379	.99	397	1.17	414	1.35	433	1.56	455	1.84	473	2.12	496	2.42	516	2.76
	½"	433	1.09	442	1.25	453	1.41	466	1.61	481	1.82	497	2.06	512	2.36	529	2.67	547	3.00	563	3.33
	¾"	518	1.56	521	1.73	526	1.91	534	2.12	543	2.35	557	2.59	546	2.91	583	3.23	599	3.60	614	3.99
	1"	603	2.07	602	2.27	602	2.47	603	2.71	610	2.94	618	3.21	628	3.53	637	3.86	649	4.22	663	4.65
	1¼"	676	2.58	672	2.81	670	3.07	668	3.32	671	3.57	676	3.87	682	4.22	689	4.56	697	4.92	710	5.32
	1½"	746	3.11	743	3.39	738	3.68	735	3.95	734	4.25	734	4.56	738	4.92	743	5.29	750	5.66	757	6.07
2	¼"	362	.76	381	.92	399	1.09	418	1.30	438	1.52	458	1.77	481	2.08	502	2.39	523	2.75	546	3.15
	½"	449	1.18	459	1.35	474	1.53	488	1.76	506	2.00	522	2.29	540	2.61	557	2.96	577	3.34	595	3.76
	¾"	533	1.66	539	1.86	548	2.06	554	2.30	567	2.55	581	2.86	596	3.18	611	3.55	629	3.95	647	4.38
	1"	618	2.15	613	2.38	619	2.64	622	2.90	628	3.16	638	3.48	652	3.83	662	4.20	678	4.62	692	5.07
	1¼"	690	2.69	688	2.95	687	3.20	688	3.52	692	3.81	699	4.17	706	4.54	717	4.91	728	5.34	740	5.81
	1½"	755	3.20	754	3.51	753	3.82	754	4.16	754	4.53	757	4.88	762	5.26	769	5.68	779	6.13	789	6.58
3	¼"	378	.83	398	1.00	418	1.20	440	1.44	462	1.69	484	1.97	505	2.30	528	2.66	552	3.08	573	3.54
	½"	466	1.26	477	1.45	493	1.73	509	1.93	526	2.18	544	2.50	564	2.86	583	3.25	604	3.68	626	4.16
	¾"	549	1.74	555	1.96	568	2.20	587	2.48	588	2.76	604	3.09	620	3.45	636	3.87	655	4.33	672	4.79
	1"	630	2.25	629	2.50	632	2.77	641	3.09	651	3.40	664	3.74	677	4.13	688	4.55	703	5.03	720	5.50
	1¼"	701	2.79	702	3.09	703	3.38	706	3.71	712	4.04	722	4.44	732	4.85	743	5.26	755	5.74	768	6.26
	1½"	764	3.35	767	3.66	768	3.97	771	4.37	776	4.68	777	5.15	790	5.58	798	6.05	806	6.57	816	7.10
4	¼"	394	.90	416	1.09	439	1.31	459	1.52	483	1.85	509	2.18	534	2.53	557	2.93	584	3.41	610	3.91
	½"	482	1.34	497	1.56	512	1.83	527	2.10	546	2.37	567	2.72	588	3.13	612	3.55	636	4.05	657	4.56
	¾"	562	1.82	573	2.07	583	2.35	596	2.66	608	2.97	628	3.35	646	3.79	663	4.21	683	4.69	703	5.23
	1"	645	2.35	649	2.62	654	2.93	660	3.26	672	3.61	685	4.01	702	4.44	717	4.92	734	5.44	751	5.97
	1¼"	717	2.89	719	3.21	722	3.53	725	3.91	734	4.28	743	4.71	756	5.16	768	5.63	785	6.20	800	6.77
	1½"	780	3.46	783	3.81	785	4.14	792	4.57	777	4.94	801	5.42	812	5.91	822	6.45	833	7.02	847	7.61
5	¼"	411	.98	432	1.19	456	1.43	480	1.70	502	2.03	527	2.39	575	2.76	583	3.22	612	3.74	639	4.27
	½"	497	1.43	513	1.67	530	1.93	547	2.26	568	2.57	590	2.96	613	3.42	637	3.88	663	4.41	686	4.90
	¾"	580	1.92	589	2.19	602	2.50	616	2.82	632	2.18	649	3.61	671	4.03	689	4.55	710	5.08	732	5.67
	1"	659	2.45	664	2.74	674	3.09	683	3.44	693	3.83	711	4.29	727	4.75	743	5.29	761	5.84	781	6.45
	1¼"	725	2.98	732	3.32	738	3.69	744	4.08	755	4.52	765	4.99	780	5.48	793	6.04	811	6.66	827	7.30
	1½"	791	3.58	796	3.93	802	4.33	807	4.75	814	5.20	821	5.69	832	6.24	844	6.84	859	7.47		
6	¼"	428	1.06	450	1.29	477	1.55	500	1.86	528	2.21	554	2.60	582	3.02	611	3.54	640	4.10	668	4.69
	½"	512	1.53	531	1.80	550	2.08	570	2.42	591	2.79	614	3.21	659	3.71	663	4.22	688	4.78	715	5.39
	¾"	597	2.03	606	2.31	622	2.65	638	3.01	655	3.41	674	3.88	694	4.34	717	4.89	740	5.46	763	6.17
	1"	674	2.55	684	2.89	692	3.24	703	3.64	715	4.07	732	4.56	750	5.06	768	5.67	790	6.30	810	7.01
	1¼"	739	3.12	747	3.47	757	3.84	767	4.28	774	4.76	785	5.28	800	5.80	818	6.45	837	7.12	856	7.83
	1½"	800	3.69	808	4.10	818	4.50	828	4.95	838	5.45	845	6.00								
7	¼"	445	1.14	469	1.39	495	1.69	521	2.02	550	2.40	578	2.85	607	3.33	638	3.86	667	4.47	696	5.11
	½"	527	1.62	546	1.91	571	3.23	591	2.60	614	3.00	640	3.48	664	3.99	690	4.56	717	5.19	744	5.88
	¾"	612	2.13	628	2.42	639	2.80	654	3.18	676	3.64	697	4.15	720	4.68	743	5.28	768	5.98	792	6.67
	1"	686	2.66	696	3.03	711	3.40	721	3.83	736	4.31	755	4.85	775	5.41	797	6.06	817	6.75		
	1¼"	751	3.27	764	3.60	778	4.02	788	4.46	798	5.00	812	5.58	827	6.15	845	6.89				
	1½"	806	3.80	819	4.23	834	4.67	848	5.15	859	5.71										
8	¼"	460	1.23	488	1.51	515	1.82	542	2.19	573	2.60	602	3.09	633	3.62	663	4.20	695	4.87	726	5.60
	½"	544	1.71	562	2.02	587	2.37	611	2.78	639	3.22	663	3.74	692	4.27	718	4.89	746	5.61	775	6.37
	¾"	628	2.23	640	2.52	658	2.92	676	3.35	697	3.87	721	4.44	746	5.02	769	5.67	797	6.42	822	7.18
	1"	700	2.77	715	3.16	728	3.56	741	4.03	758	4.55	778	5.15	798	5.78	819	6.45	846	7.22		
	1¼"	762	3.30	777	3.73	793	3.20	803	4.64	818	5.24	833	5.89	852	6.52						
	1½"	818	3.93	833	4.37	848	4.85														
10	¼"	490	1.42	521	1.72	552	2.10	584	2.54	618	3.02	650	3.58	685	4.22	717	4.94	749	5.73	784	6.51
	½"	573	1.92	596	2.26	622	2.68	649	3.15	673	3.66	703	4.26	737	4.92	768	5.67	800	6.47	833	7.35
	¾"	653	2.42	674	2.81	693	3.26	715	3.76	741	4.34	766	4.99	792	5.67	820	6.43	848	7.29		
	1"	722	2.96	742	3.39	762	3.86	783	4.42	803	5.01	822	5.69	847	6.44						
	1¼"	779	3.55	799	4.00	822	4.54	838	5.10												
	1½"	836	4.14	856	4.66																

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 3680—Speed and Horsepower Table

TOTAL OUTLET AREA — 7.87 SQ. FT.

MAX. RPM — 739

LARGE COIL FACE AREA — 24.8 SQ. FT.

(SMALL COIL FACE AREA — 20.7 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		9444		10231		11018		11805		12592		13379		14166		14953		15740		16527	
Outlet Vel.		1200		1300		1400		1500		1600		1700		1800		1900		2000		2100	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	303	1.10	318	1.32	333	1.53	348	1.85	362	2.12	379	2.51	396	2.87	413	3.32	430	3.81	450	4.29
	½"	366	1.60	377	1.80	390	2.08	405	2.42	414	2.73	431	3.14	444	3.55	462	4.06	475	4.56	490	5.10
	¾"	431	2.25	436	2.37	443	2.67	452	2.98	463	3.34	475	3.77	491	4.21	503	4.72	516	5.30	529	5.88
	1"	493	2.96	494	3.07	498	3.33	503	3.67	510	4.03	519	4.45	528	4.90	540	5.44	553	6.03	566	6.64
	1¼"	561	3.81	556	3.95	553	4.15	553	4.43	558	4.77	564	5.19	571	5.69	580	6.22	592	6.83	602	7.44
	1½"	627	4.66	622	4.80	615	5.00	610	5.30	607	5.66	609	6.04	613	6.55	621	7.05	629	7.68	636	8.31
2	¼"	317	1.20	334	1.44	348	1.72	366	2.02	384	2.37	402	2.78	418	3.19	438	3.68	456	4.23	473	4.88
	½"	380	1.75	391	1.97	404	2.25	418	2.58	433	2.95	447	3.39	465	3.87	480	4.38	500	4.99	515	5.57
	¾"	444	2.38	449	2.60	454	2.87	468	3.20	480	3.59	494	4.03	506	4.55	517	5.09	539	5.71	547	6.29
	1"	520	3.13	515	3.28	516	3.54	520	3.88	528	4.28	538	4.75	548	5.27	562	5.83	574	6.48	588	7.15
	1¼"	583	3.97	575	4.24	574	4.50	570	4.82	575	5.15	583	5.52	592	6.06	601	6.70	613	7.31	624	7.97
	1½"	637	4.85	639	5.15	637	5.45	635	5.75	632	6.10	639	6.50	636	6.93	642	7.56	651	8.20	659	8.89
3	¼"	330	1.29	348	1.56	366	1.81	384	2.20	403	2.59	423	3.04	441	3.51	460	4.05	478	4.64	500	5.30
	½"	394	1.79	406	2.07	420	2.40	435	2.76	450	3.13	468	3.66	484	4.18	503	4.77	522	5.41	540	6.09
	¾"	457	2.47	464	2.70	475	3.01	485	3.41	498	3.86	511	4.36	526	4.91	542	5.52	559	6.17	574	6.85
	1"	527	3.27	529	3.54	533	3.85	539	4.20	546	4.56	556	5.08	568	5.64	582	6.26	596	6.97	609	7.67
	1¼"	594	4.13	592	4.40	594	4.70	596	5.04	600	5.41	602	5.89	611	6.45	623	7.08	635	7.83	647	8.55
	1½"	651	5.00	652	5.33	652	5.67	653	6.02	654	6.42	655	6.84	660	7.38	663	7.99	674	8.70	684	9.48
4	¼"	343	1.38	362	1.67	380	1.95	399	2.38	421	2.81	441	3.29	462	3.82	482	4.41	504	5.10	526	5.79
	½"	406	1.97	420	2.21	435	2.57	452	2.96	467	3.40	485	3.92	503	4.49	522	5.10	542	5.82	561	6.54
	¾"	470	2.58	479	2.87	489	3.22	501	3.62	515	4.09	530	4.57	545	5.21	563	5.85	581	6.60	597	7.35
	1"	538	3.35	540	3.70	547	4.06	554	4.41	563	4.93	575	5.45	588	6.00	603	6.67	618	7.43	632	8.20
	1¼"	600	4.20	602	4.55	604	4.95	607	5.35	614	5.76	620	6.35	630	6.93	644	7.54	652	8.32	670	9.13
	1½"	658	5.13	660	5.53	662	5.95	665	6.36	666	6.85	670	7.34	672	7.90	684	8.51	695	9.27	706	10.0
5	¼"	355	1.48	374	1.79	395	2.11	416	2.55	437	3.00	459	3.54	480	4.10	500	4.72	525	5.50	546	6.24
	½"	419	2.02	433	2.34	449	2.74	466	3.16	484	3.64	503	4.19	523	4.80	541	5.44	564	6.26	584	7.02
	¾"	487	2.75	491	3.05	504	3.42	518	3.84	531	4.34	547	4.92	564	5.56	581	6.21	602	7.05	618	7.85
	1"	560	3.55	562	3.92	565	4.30	571	4.68	580	5.15	592	5.71	607	6.35	621	7.05	641	7.93	655	8.76
	1¼"	617	4.49	619	4.87	623	5.26	627	5.70	632	6.12	636	6.75	649	7.35	660	8.05	678	8.81	692	9.68
	1½"	675	5.43	675	5.82	678	6.28	683	6.80	686	7.30	689	7.86	696	8.50	700	9.20	716	9.90	729	10.7
6	¼"	368	1.59	389	1.91	410	2.25	432	2.74	455	3.24	478	3.81	501	4.43	524	5.13	553	5.92	585	7.07
	½"	433	2.10	448	2.50	465	2.91	483	3.39	502	3.90	521	4.49	542	5.14	570	5.88	595	6.70	621	7.91
	¾"	506	2.80	506	3.24	520	3.60	534	4.10	549	4.62	565	5.24	584	5.93	604	6.71	630	7.55	656	8.81
	1"	565	3.61	569	4.05	575	4.50	585	5.00	597	5.52	611	6.10	627	6.77	645	7.55	667	8.42	692	9.72
	1¼"	628	4.52	633	5.00	638	5.50	643	6.03	651	6.61	655	7.11	669	7.75	684	8.54	704	9.40	729	10.7
	1½"	690	5.49	691	6.02	696	6.63	700	7.20	703	7.81	711	8.41	720	8.94	730	9.62	745	10.5		
7	¼"	386	1.70	403	2.05	425	2.42	448	2.94	471	3.47	496	4.09	522	4.77	544	5.52	570	6.37	593	7.27
	½"	445	2.29	462	2.67	480	3.10	500	3.60	520	4.17	540	4.81	563	5.54	584	6.31	608	7.18	629	8.09
	¾"	521	3.15	525	3.49	534	3.88	550	4.40	567	4.94	585	5.58	604	6.34	625	7.14	645	8.07	670	9.01
	1"	585	4.01	592	4.46	600	4.91	608	5.42	620	5.95	629	6.55	649	7.28	665	8.12	681	8.95	699	9.94
	1¼"	641	4.81	650	5.35	657	5.86	665	6.45	675	7.05	680	7.67	695	8.34	706	9.09	722	10.0		
	1½"	707	5.64	712	6.24	716	6.81	719	7.57	730	8.25	737	8.94								
8	¼"	395	1.80	417	2.18	441	2.59	465	3.15	489	3.73	515	4.37	539	5.09	565	5.90	590	6.79	614	7.75
	½"	458	2.44	477	2.83	496	3.30	517	3.82	537	4.42	558	5.11	581	5.89	605	6.73	628	7.71	651	8.65
	¾"	526	3.33	538	3.76	552	4.23	566	4.75	584	5.26	604	5.94	624	6.70	646	7.58	666	8.60	687	9.58
	1"	594	4.18	605	4.66	617	5.19	630	5.77	640	6.33	654	7.00	666	7.74	686	8.56	704	9.49	722	10.5
	1¼"	650	4.99	662	5.57	674	6.19	685	6.85	696	7.47	707	8.15	720	8.88	732	9.67				
	1½"	702	5.82	714	6.46	722	7.17	735	7.88												
10	¼"	421	2.03	445	2.46	471	2.94	497	3.61	523	4.21	550	4.98	580	5.85	605	6.74	633	7.78	660	8.53
	½"	490	2.81	503	3.21	525	3.73	548	4.33	571	4.99	598	5.76	623	6.67	646	7.59	674	8.69	696	9.46
	¾"	549	3.67	568	4.19	589	4.75	608	5.36	630	5.92	650	6.69	670	7.67	690	8.58	711	9.61	732	10.42
	1"	618	4.51	634	5.10	650	5.73	667	6.45	680	7.15	699	7.92	711	8.83						
	1¼"	669	5.29	685	5.97	700	6.72	716	7.48	732	8.32										
	1½"	740	6.16	731	6.90																

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 4120—Speed and Horsepower Table

TOTAL OUTLET AREA — 10.31 SQ. FT. **LARGE COIL FACE AREA — 36.2 SQ. FT.**

MAX. RPM — 646 **(SMALL COIL FACE AREA — 31.1 SQ. FT.)**

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		14434		15465		16496		17527		18558		19589		20620		21651		22682		23713	
Outlet Vel.		1400		1500		1600		1700		1800		1900		2000		2100		2200		2300	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	291	2.05	303	2.41	317	2.82	331	3.26	343	3.76	358	4.33	372	4.96	386	5.63	401	6.34	416	7.16
	½"	339	2.70	351	3.13	363	3.60	376	4.10	387	4.63	401	5.24	415	5.90	427	6.63	440	7.43	454	8.25
	¾"	390	3.48	395	3.93	403	4.38	415	4.92	425	5.51	437	6.18	450	6.87	461	7.67	476	8.52	487	9.35
	1"	435	4.35	439	4.76	446	5.28	454	5.81	462	6.42	473	7.12	482	7.85	495	8.71	505	9.61	518	10.5
	1¼"	484	5.49	483	5.80	487	6.25	491	6.79	499	7.43	506	8.12	515	8.89	525	9.77	536	10.7	546	11.7
	1½"	543	6.88	536	7.10	532	7.43	531	7.92	536	8.50	543	9.22	549	10.0	557	10.9	565	11.9	575	12.9
2	¼"	303	2.21	318	2.60	332	3.06	347	3.55	362	4.11	378	4.75	394	5.40	408	6.16	425	7.01	441	7.88
	½"	351	2.89	363	3.33	376	3.83	389	4.38	403	4.99	417	5.66	432	6.42	445	7.19	460	8.07	477	9.02
	¾"	398	3.68	407	4.15	417	4.65	427	5.23	439	5.87	452	6.57	466	7.37	479	8.22	494	9.13	507	10.2
	1"	446	4.60	452	5.02	459	5.56	467	6.16	476	6.81	487	7.53	499	8.36	511	9.25	522	10.2	536	11.2
	1¼"	500	5.84	496	6.13	500	6.60	506	7.15	515	7.85	522	8.60	531	9.43	542	10.3	552	11.3	565	12.4
	1½"	557	7.17	548	7.44	544	7.83	546	8.36	551	8.96	557	9.71	565	10.6	573	11.5	583	12.5	594	13.6
3	¼"	315	2.36	330	2.80	345	3.29	361	3.81	378	4.43	395	5.11	412	5.88	428	6.69	445	7.52	463	8.58
	½"	362	3.06	374	3.53	389	4.06	402	4.65	417	5.30	432	6.05	447	6.85	463	7.71	479	8.64	495	9.68
	¾"	410	3.87	419	4.36	429	4.92	441	5.52	454	6.21	467	7.00	480	7.80	496	8.73	510	9.70	525	10.8
	1"	457	4.83	463	5.29	471	5.84	480	6.50	490	7.19	502	7.98	513	8.83	525	9.77	540	10.8	553	11.9
	1¼"	515	6.16	511	6.52	514	6.93	520	7.54	528	8.23	537	9.08	546	9.97	558	10.9	569	11.9	583	13.1
	1½"	567	7.46	562	7.90	558	8.35	559	8.86	564	9.43	572	10.2	581	11.1	590	12.1	600	13.2	611	14.3
4	¼"	326	2.52	342	2.99	360	3.53	377	4.11	394	4.77	412	5.53	429	6.32	447	7.24	464	8.19	483	9.33
	½"	373	3.24	386	3.74	400	4.31	415	4.95	431	5.64	446	6.44	463	7.30	480	8.25	498	9.28	515	10.4
	¾"	420	4.07	431	4.59	442	5.19	456	5.84	467	6.57	483	7.39	496	8.31	511	9.30	528	10.3	543	11.5
	1"	467	5.10	475	55.7	484	6.16	494	6.81	505	7.60	517	8.43	528	9.35	543	10.3	557	11.5	573	12.6
	1¼"	528	6.38	524	6.87	525	7.30	532	7.94	541	8.67	552	9.53	563	10.5	575	11.5	587	12.7	601	13.9
	1½"	578	7.68	573	8.19	572	8.70	574	9.26	579	9.96	587	10.8	596	11.7	606	12.7	618	13.9	631	15.2
5	¼"	336	2.67	353	3.18	371	3.74	389	4.37	407	5.09	426	5.90	445	6.79	464	7.74	482	8.76	503	10.0
	½"	383	3.42	397	3.94	412	4.55	427	5.22	443	5.96	462	6.80	478	7.72	496	8.75	512	9.82	531	11.1
	¾"	431	4.28	442	4.82	454	5.46	467	6.15	480	6.92	496	7.80	510	8.77	526	9.78	543	10.9	560	12.2
	1"	479	5.36	486	5.85	495	6.48	506	7.15	518	7.96	531	8.85	544	9.87	558	10.9	572	12.0	589	13.4
	1¼"	540	6.65	537	7.21	540	7.70	546	8.34	555	9.12	567	10.0	578	11.0	590	12.1	604	13.3	618	14.6
	1½"	588	8.06	588	8.55	589	9.10	592	9.77	596	10.4	602	11.3	611	12.3	624	13.3	634	14.6		
6	¼"	348	2.83	365	3.37	384	3.97	402	4.65	422	5.40	440	6.26	460	7.23	480	8.24	500	9.39	521	10.7
	½"	394	3.61	410	4.18	424	4.82	441	5.53	458	6.32	476	7.23	494	8.22	512	9.28	531	10.4	550	11.8
	¾"	442	4.50	454	5.07	466	5.72	480	6.51	496	7.32	510	8.26	526	9.27	543	10.4	560	11.6	578	12.9
	1"	495	5.73	498	6.16	508	6.80	520	7.54	532	8.37	546	9.34	560	10.4	574	11.5	590	12.8	607	14.2
	1¼"	550	7.06	549	7.53	552	8.08	559	8.76	570	9.58	581	10.6	594	11.6	607	12.7	621	14.1	636	15.5
	1½"	601	8.40	603	8.90	605	9.50	608	10.2	612	10.8	617	11.9	625	12.9	638	14.1				
7	¼"	357	2.99	377	3.57	396	4.23	415	4.95	436	5.75	457	6.67	476	7.67	496	8.76	518	9.98	539	11.3
	½"	405	3.79	421	4.41	437	5.09	455	5.84	471	6.70	491	7.65	509	8.70	528	9.83	549	11.1	567	12.4
	¾"	452	4.74	465	5.33	479	6.04	494	6.81	509	7.72	525	8.73	543	9.81	560	11.0	578	12.2	596	13.6
	1"	503	6.00	509	6.49	521	7.16	532	7.94	546	8.82	561	9.83	575	11.0	590	12.2	607	13.5	626	14.9
	1¼"	563	7.35	565	8.02	569	8.64	575	9.26	583	10.1	595	11.1	609	12.2	624	13.4	638	14.7		
	1½"	609	8.72	612	9.41	617	10.1	621	10.9	626	11.7	631	12.6	644	13.7						
8	¼"	368	3.16	389	3.77	405	4.43	428	5.24	449	6.10	471	7.10	491	8.18	513	9.31	536	10.6	557	12.0
	½"	416	3.99	433	4.62	449	5.36	467	6.18	486	7.07	505	8.08	525	9.21	543	10.4	563	11.7	584	13.2
	¾"	463	4.99	477	5.61	491	6.35	507	7.18	523	8.10	540	9.25	558	10.4	576	11.6	593	12.9	614	14.5
	1"	519	6.34	525	6.90	534	7.54	546	8.38	561	9.39	575	10.4	592	11.5	608	12.8	626	14.2	644	15.8
	1¼"	575	7.71	578	8.35	584	9.14	588	9.81	596	10.6	608	11.7	625	12.9	639	14.1				
	1½"	623	9.10	626	9.76	632	10.5	637	11.4	644	12.3	650	13.2								
10	¼"	390	3.53	411	4.21	432	4.99	454	5.84	476	6.80	499	7.91	522	9.18	542	10.4	567	12.0	590	13.4
	½"	437	4.42	456	5.11	475	5.92	494	6.81	515	7.84	532	8.99	554	10.2	576	11.6	597	13.1	621	14.7
	¾"	488	5.59	499	6.21	516	7.04	532	7.94	550	8.96	570	10.1	588	11.4	608	12.8	628	14.4		
	1"	546	6.93	551	7.69	562	8.43	571	9.26	587	10.3	604	11.4	622	12.7	641	14.1				
	1¼"	593	8.23	602	9.12	611	10.0	621	11.0	631	11.9	642	12.9								
	1½"	645	9.49																		

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Size 4160—Speed and Horsepower Table

TOTAL OUTLET AREA — 15.50 SQ. FT.

MAX. RPM — 573

LARGE COIL FACE AREA — 48.5 SQ. FT.

(SMALL COIL FACE AREA — 41.6 SQ. FT.)

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

Performances are based on high capacity coils (DXM and CWM).

CFM		18600		20150		21700		23250		24800		26350		27900		29450		31000	
Outlet Vel.		1200		1300		1400		1500		1600		1700		1800		1900		2000	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	222	1.97	232	2.36	244	2.79	256	3.32	267	3.89	278	4.47	291	5.19	303	5.95	315	6.79
	½"	279	2.85	280	3.26	284	3.70	296	4.25	304	4.84	312	5.55	323	6.36	335	7.19	346	8.09
	¾"	331	4.08	330	4.42	330	4.92	332	5.46	334	6.09	340	6.79	350	7.56	366	8.47	377	9.43
	1"	384	5.62	381	5.85	381	6.34	381	6.83	382	7.47	385	8.16	387	8.91	398	9.86	408	10.8
	1¼"	427	7.16	424	7.46	422	7.90	422	8.45	422	9.06	424	9.78	427	10.6	428	11.4	437	12.3
	1½"	469	8.82	468	9.27	466	9.17	466	10.4	466	11.0	466	11.6	465	12.3	464	13.1	467	14.1
2	¼"	232	2.11	242	2.55	253	3.05	265	3.68	278	4.25	291	4.99	305	5.81	320	6.63	335	7.57
	½"	284	3.10	291	3.57	299	4.07	309	4.70	309	5.37	328	6.09	340	6.96	353	7.92	366	8.90
	¾"	341	4.36	341	4.79	344	5.33	346	5.93	351	6.57	360	7.30	370	8.18	385	9.24	397	10.3
	1"	393	5.93	394	6.28	392	6.83	393	7.42	394	8.13	401	8.94	404	9.66	419	10.7	425	11.7
	1¼"	438	7.51	438	7.98	438	8.51	438	9.11	438	9.73	440	10.5	447	11.3	448	12.3	455	13.5
	1½"	480	9.18	480	9.79	480	10.4	480	11.0	480	11.8	480	12.6	481	13.3	482	14.1	486	14.9
3	¼"	242	2.27	250	2.70	260	3.32	272	4.01	284	4.62	307	5.36	316	6.39	335	7.26	351	8.39
	½"	294	3.33	302	3.84	311	4.40	322	5.07	333	5.82	344	6.65	348	7.51	369	8.60	382	9.67
	¾"	353	4.71	352	5.15	355	5.75	360	6.41	367	7.15	380	8.01	389	8.90	401	9.95	412	11.1
	1"	403	6.26	405	6.67	407	7.33	410	7.93	412	8.66	419	9.55	425	10.4	432	11.5	442	12.6
	1¼"	448	7.88	449	8.41	449	9.01	450	9.71	455	10.5	458	11.3	464	12.2	466	13.2	472	14.1
	1½"	490	9.51	492	10.2	493	10.9	494	11.8	497	12.5	500	13.4	502	14.3	503	15.3	505	16.3
4	¼"	252	2.53	267	3.05	279	3.60	296	4.39	310	5.16	325	5.99	340	6.95	355	7.98	370	9.14
	½"	308	3.62	313	4.12	325	4.74	336	5.46	346	6.31	362	7.25	372	8.14	387	9.31	402	10.5
	¾"	366	5.05	366	5.50	372	6.17	377	6.89	385	7.69	397	8.70	405	9.62	418	10.8	430	12.0
	1"	412	6.58	414	7.06	418	7.73	422	8.51	428	9.35	436	10.3	445	11.3	451	12.4	459	13.7
	1¼"	455	8.15	457	8.88	460	9.51	464	10.3	470	11.2	475	12.0	482	13.1	485	14.3	490	15.5
	1½"	494	10.2	498	10.8	501	11.5	507	12.4	511	13.3	515	14.2	520	15.2	521	16.4	525	17.7
5	¼"	262	2.69	278	3.30	293	3.90	309	4.73	322	5.50	338	6.41	354	7.46	370	8.65	387	9.89
	½"	319	3.89	324	4.41	333	5.09	346	5.93	358	6.77	372	7.81	386	8.89	402	10.1	417	11.3
	¾"	376	5.36	381	5.85	385	6.59	393	7.42	400	8.21	412	9.35	422	10.4	433	11.6	447	12.9
	1"	422	6.89	424	7.46	428	8.20	435	9.06	444	9.98	453	10.9	462	12.0	472	13.0	479	14.7
	1¼"	464	8.51	474	9.27	474	10.1	482	11.0	485	12.0	491	13.1	500	14.2	504	15.4	511	16.7
	1½"	505	10.3	508	11.1	512	12.0	519	12.9	525	14.0	529	15.1	534	16.3	541	17.6	544	18.9
6	¼"	277	2.94	291	3.57	304	4.21	314	5.09	329	5.96	349	6.99	366	8.06	386	9.40	407	10.7
	½"	334	4 20	341	4.79	351	5.51	360	6.35	372	7.27	388	8.51	403	9.55	418	10.9	436	12.3
	¾"	386	5.71	392	6.28	397	7.10	406	7.95	416	8.84	430	10.1	441	11.3	452	12.5	465	14.0
	1"	433	7.23	438	7.98	443	8.77	450	9.77	460	10.7	469	11.9	478	13.1	486	14.4	496	15.7
	1¼"	474	8.94	478	9.79	484	10.7	492	11.7	502	12.7	509	14.0	517	15.2	524	16.6	531	17.9
	1½"	512	10.6	518	11.5	523	12.5	531	13.6	538	14.8	546	16.1	554	17.4	561	18.9	567	20.4
7	¼"	284	3.19	301	3.84	318	4.58	336	5.41	353	6.44	369	7.60	387	8.73	405	10.2	422	11.6
	½"	345	4.42	352	5.15	362	5.96	376	6.93	391	7.88	407	9.11	422	10.4	436	11.8	453	13.3
	¾"	398	6.00	405	6.67	412	7.51	421	8.52	432	9.56	446	10.8	457	12.1	471	13.5	484	15.1
	1"	442	7.61	448	8.41	456	9.29	466	10.3	477	11.5	488	12.7	497	14.1	507	15.5	516	17.1
	1¼"	481	9.29	491	10.3	497	11.3	509	12.4	516	13.5	525	14.9	537	16.3	543	17.7	551	19.3
	1½"	518	11.0	525	11.9	535	13.1	543	14.3	552	15.7	561	17.0						
8	¼"	299	3.40	316	4.12	333	4.95	351	5.88	367	6.92	382	8.19	401	9.45	419	11.0	436	12.6
	½"	358	4.79	366	5.48	378	6.35	393	7.42	407	8.46	424	9.82	440	11.1	454	12.6	471	14.3
	¾"	407	6.30	414	7.15	423	8.10	435	9.10	449	10.3	459	11.8	478	13.0	490	14.5	504	16.2
	1"	450	7.88	459	8.78	466	9.77	477	11.0	489	12.3	500	13.6	514	15.1	526	16.8	537	18.4
	1¼"	489	9.64	498	10.7	509	11.7	517	12.9	529	14.3	539	15.7	551	17.3	563	19.1		
	1½"	527	11.3	534	12.4	544	13.6	554	14.8	564	16.3	572	17.9						
10	¼"	323	3.94	340	4.79	359	5.78	377	6.83	394	8.12	417	9.57	435	11.0	454	12.7	475	14.6
	½"	378	5.45	392	6.30	407	7.25	422	8.49	439	9.71	457	11.3	475	12.8	490	14.6	508	16.4
	¾"	424	7.01	437	7.98	450	9.03	465	10.3	480	11.7	497	13.3	512	15.0	526	16.8	542	18.8
	1"	468	8.68	481	9.80	489	10.9	506	12.4	519	13.8	534	15.4	550	17.2	564	19.1		
	1¼"	505	10.3	517	11.5	528	12.8	543	14.3	556	15.9	569	17.6						
	1½"	541	12.1	551	13.3	562	14.7												

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92"Hg. Bar.).

Size 5190—Speed and Horsepower Table

TOTAL OUTLET AREA — 16.20 SQ. FT. **LARGE COIL FACE AREA — 58.9 SQ. FT.**

MAX. RPM — 517 **(SMALL COIL FACE AREA — 52.0 SQ. FT.)**

Static Pressure shown is external to unit.

For adjustment of External Static Pressure, see page 15 for Small Area Coils, Sprayed Coils and Condensation on Coils.

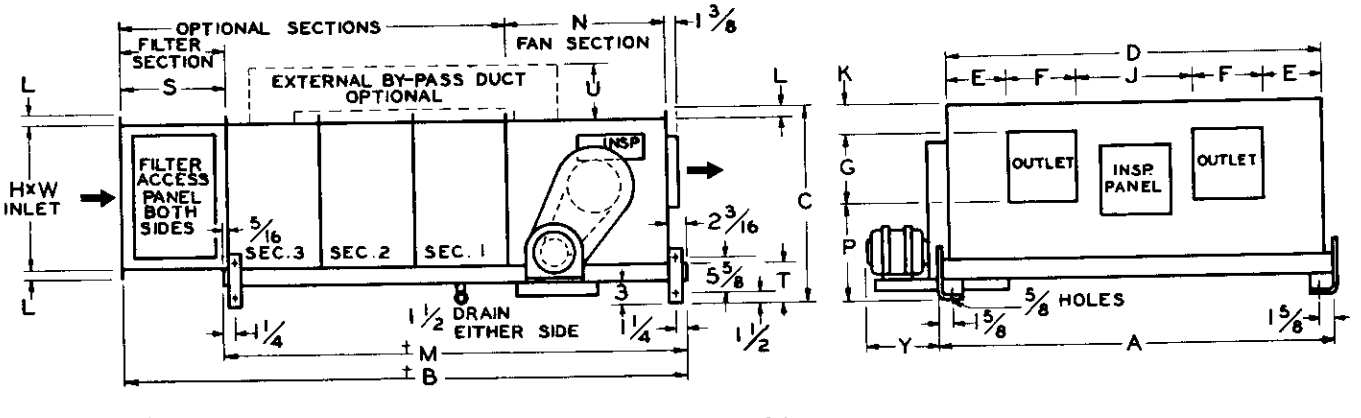
Performances are based on high capacity coils (DXM and CWM).

CFM		22680		24300		25920		27540		29160		30780		32400		34020		35640		37260	
Outlet Vel.		1400		1500		1600		1700		1800		1900		2000		2100		2200		2300	
Rows	Ext. SP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1	¼"	226	3.00	236	3.54	246	4.19	256	4.90	266	5.61	277	6.44	287	7.37	298	8.34	309	9.47	321	10.8
	½"	263	4.07	271	4.67	281	5.36	290	6.11	300	6.93	310	7.88	318	8.82	329	9.93	337	11.1	350	12.4
	¾"	302	5.25	308	5.86	313	6.53	321	7.44	330	8.30	338	9.29	347	10.3	357	11.5	368	12.7	370	14.1
	1"	342	6.57	343	7.20	346	7.89	352	8.72	358	9.63	366	10.7	376	11.8	385	13.0	394	14.4	404	15.8
	1¼"	380	8.31	376	8.76	377	9.30	383	10.2	387	11.1	395	12.1	402	13.3	409	14.6	417	16.0	425	17.5
	1½"	416	10.4	412	10.6	412	11.1	414	11.9	418	12.8	422	13.9	427	15.1	436	16.4	442	17.7	449	19.2
2	¼"	240	3.20	248	3.81	256	4.49	269	5.27	280	6.09	292	7.00	304	7.98	316	9.10	329	10.3	340	11.6
	½"	273	4.31	282	4.91	291	5.70	301	6.51	310	7.39	323	8.37	332	9.43	345	10.6	357	11.9	368	13.3
	¾"	312	5.49	317	6.13	324	6.92	332	7.81	341	8.77	350	9.82	360	11.0	370	12.2	382	13.6	393	15.1
	1"	350	6.87	351	7.50	353	8.28	362	9.15	370	10.2	378	11.2	387	12.5	397	13.8	407	15.3	417	16.8
	1¼"	391	8.61	387	9.00	387	9.70	392	10.6	398	11.7	404	12.8	413	14.1	421	15.4	432	16.9	440	18.5
	1½"	427	10.8	422	11.0	422	11.6	423	12.5	428	13.4	432	14.6	439	15.9	447	17.2	455	18.7	464	20.3
3	¼"	247	3.43	257	4.08	268	4.83	280	5.67	294	6.57	305	7.53	318	8.62	330	9.86	343	11.2	359	12.6
	½"	282	4.56	290	5.22	300	6.04	311	6.90	323	7.88	336	8.94	347	10.1	355	11.4	370	12.8	382	14.3
	¾"	318	5.78	325	6.43	333	7.31	342	8.25	351	9.30	362	10.4	374	11.6	383	13.0	395	14.5	408	16.1
	1"	359	7.25	361	7.90	370	8.68	371	9.60	381	10.7	391	11.8	400	13.2	409	14.6	418	16.2	430	17.8
	1¼"	399	9.01	393	9.48	397	10.3	403	11.2	408	12.3	418	13.6	424	14.9	432	16.3	440	17.9	453	19.5
	1½"	441	11.2	436	11.5	435	12.2	435	13.1	438	14.1	442	15.3	449	16.7	459	18.1	465	19.7	476	21.4
4	¼"	253	3.67	264	4.35	277	5.17	290	6.09	305	7.05	316	8.10	331	9.25	343	10.5	359	12.1	375	13.6
	½"	288	4.81	298	5.53	310	6.39	321	7.35	335	8.38	347	9.57	359	10.8	372	12.1	385	13.7	398	15.3
	¾"	325	6.07	332	6.76	339	7.71	352	8.70	361	9.84	374	11.0	385	12.3	396	13.8	408	15.3	420	17.1
	1"	368	7.63	368	8.30	372	9.12	381	10.1	391	11.3	403	12.5	412	13.9	418	15.4	432	17.0	444	18.8
	1¼"	412	9.41	403	10.0	408	10.9	414	11.8	420	12.9	428	14.3	437	15.7	447	17.2	457	18.8	468	20.6
	1½"	452	11.6	449	12.1	447	12.8	448	13.7	449	14.8	455	16.0	464	17.5	470	19.0	479	20.6	488	22.5
5	¼"	258	3.91	273	4.68	286	5.51	300	6.50	315	7.53	330	8.68	343	9.95	358	11.3	372	13.0	387	14.6
	½"	301	5.06	308	5.85	316	6.74	330	7.77	344	8.87	357	10.1	370	11.5	381	12.9	391	14.6	412	16.3
	¾"	332	6.36	343	7.12	351	8.11	362	9.16	372	10.3	387	11.6	397	13.0	408	14.5	420	16.2	436	18.1
	1"	377	8.05	376	8.70	382	9.56	391	10.6	402	11.9	412	13.2	422	14.7	433	16.2	444	17.9	457	19.9
	1¼"	409	9.91	412	10.5	418	11.4	423	12.4	430	13.6	439	15.0	448	16.4	458	18.0	467	19.7	479	21.7
	1½"	456	12.0	456	12.6	458	13.4	459	14.3	463	15.5	467	16.8	475	18.3	483	19.9	490	21.6	500	23.6
6	¼"	270	4.15	282	4.97	293	5.86	309	6.88	327	8.01	341	9.28	356	10.6	369	12.1	386	13.8	402	15.7
	½"	305	5.33	315	6.17	328	7.11	340	8.21	355	9.36	367	10.7	381	12.2	396	13.7	411	15.5	426	17.4
	¾"	345	6.67	352	7.47	359	8.51	371	9.65	382	10.9	397	12.3	407	13.7	421	15.3	436	17.1	449	19.1
	1"	383	8.50	386	9.20	391	10.1	402	11.2	412	12.5	422	13.9	434	15.4	447	17.1	456	18.9	470	21.0
	1¼"	421	10.4	422	11.0	426	12.0	434	13.1	441	14.3	451	15.8	459	17.2	470	18.9	480	20.7	491	22.8
	1½"	468	12.4	467	13.1	468	14.0	469	15.1	473	16.3	479	17.7	488	19.2	494	20.8	504	22.7	514	24.8
7	¼"	273	4.38	289	5.23	302	6.21	320	7.27	336	8.49	353	9.85	367	11.3	385	12.9	401	14.7	417	16.7
	½"	315	5.61	323	6.50	335	7.49	350	8.66	363	9.91	379	11.3	393	12.9	407	14.5	422	16.4	438	18.5
	¾"	357	7.04	361	7.83	367	8.91	380	10.1	392	11.4	406	12.9	419	14.4	432	16.1	446	14.0	462	20.2
	1"	397	8.96	399	9.70	404	10.6	412	11.8	422	13.1	434	14.6	445	16.2	458	18.0	470	19.9	484	22.1
	1¼"	438	10.9	437	11.6	439	12.5	446	13.7	452	15.0	462	16.5	473	18.1	483	19.9	493	21.8	506	24.0
	1½"	479	12.8	479	13.8	479	14.8	480	16.0	484	17.2	490	18.6	500	20.2	508	21.8	516	23.8		
8	¼"	283	4.64	298	5.53	313	6.55	330	7.70	345	8.97	362	10.4	378	12.0	394	13.7	412	15.6	429	17.7
	½"	325	5.89	336	6.83	348	7.88	361	9.11	375	10.5	391	11.9	406	13.6	420	15.3	437	17.3	453	19.6
	¾"	369	7.42	368	8.25	377	9.33	391	10.6	403	12.0	418	13.5	432	15.2	445	17.0	458	19.0	474	21.3
	1"	407	9.45	409	10.2	415	11.2	423	12.4	433	13.7	446	15.3	457	17.6	469	18.9	481	20.9	494	23.2
	1¼"	450	11.4	451	12.2	453	13.1	458	14.4	464	15.7	474	17.3	484	19.0	494	20.9	506	22.9	517	25.2
	1½"	486	13.5	487	14.5	488	15.6	491	16.8	495	18.1	500	19.6	510	21.2						
10	¼"	299	5.16	313	6.12	329	7.25	348	8.58	366	9.92	383	11.4	402	13.2	418	15.2	437	17.3	456	19.7
	½"	337	6.50	350	7.48	364	8.63	378	9.98	394	11.5	412	13.1	427	14.9	443	16.9	459	19.0	477	21.6
	¾"	374	8.19	385	9.09	397	10.3	409	11.6	424	13.2	439	14.9	453	16.8	469	18.8	483	21.0	500	23.5
	1"	422	10.3	425	11.2	433	12.3	443	13.5	454	15.0	467	16.7	480	18.6	493	20.7	507	23.0		
	1¼"	468	12.3	470	13.3	474	14.4	479	15.7	487	17.3	495	18.9	504	20.8	517	22.8				
	1½"	500	14.5	504	15.7	509	17.0	516	18.3												

All capacities are based on standard air (density 0.075 lbs. per cu. ft.—70°F—29.92" Hg. Bar.).

Dimensions—Horizontal General Purpose Multitherms

Top Horizontal Discharge



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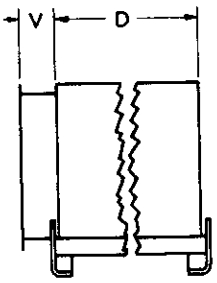
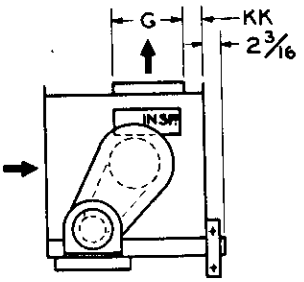
EXTENSION FOR D.E. COIL HEADER



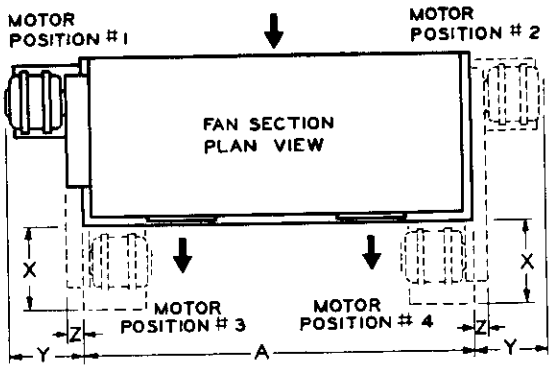
FRONT VIEW

UBD-OPTIONAL



FAN SECTION SIDE VIEW

OPTIONAL MOTOR POSITIONS



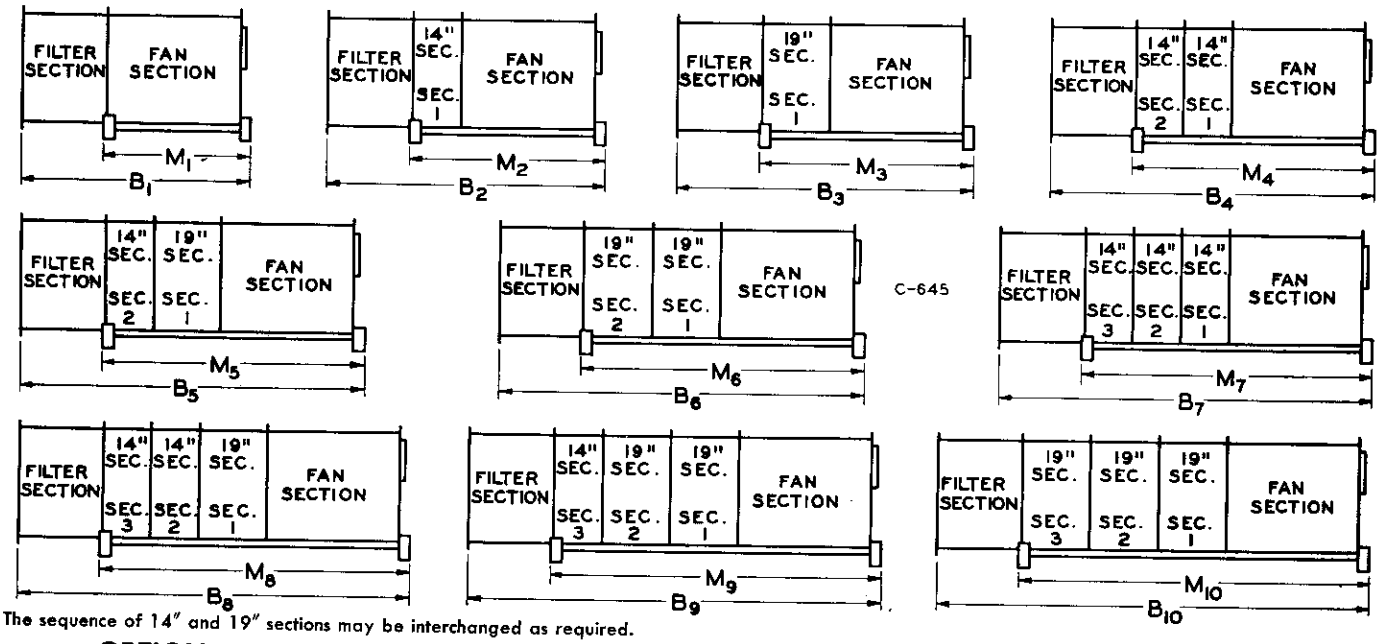
All dimensions are in inches.
†For dimensions B and M—see page 29.

UNIT SIZE	A	C	D	E	F	G	H Height	W Width	J	K	KK	L	N	P	S_1 Flat	S_2 Angle	T	U	V	X	Y	Z	Basic Weight
1205	30	28 7/16	27 1/2	9	9 1/2	9 1/8	22	25	—	5 3/16	1 5/16	1 1/4	18 1/16	14 1/8	6	—	5 1/8	10	—	12 1/4	10 3/8	2 1/2	600
1210	40	28 7/16	37 1/2	11 9/16	14 3/8	12 1/2	22	35	—	2 1/16	1 5/16	1 1/4	23 1/16	13 7/8	6	24	5 1/8	11	—	15 1/4	13 3/8	2 1/2	800
1215	57	28 7/16	54 1/2	8 5/8	11 1/4	10 7/8	22	52	14 3/4	2 1/16	1 5/16	1 1/4	23 1/16	15 1/2	6	24	5 1/8	12	3 1/4	15 1/4	13 3/8	3	1050
1820	51	36 7/16	48 1/2	5 13/16	14 3/8	12 1/2	30	46	8 1/8	5 5/16	1 5/16	1 1/4	23 1/16	18 5/8	6	28	5 1/8	12	3 3/4	15 1/4	13 3/8	3	1200
1830	70 1/8	36 1/2	67 1/2	10 5/16	14 3/8	14 1/8	30	65	18 1/8	3 11/16	1 5/16	1 1/4	27 1/16	18 11/16	6	28	5 3/16	13	3 3/4	17 1/4	17 1/2	3	1600
1840	90 1/4	37 9/16	87 1/2	13 7/16	18 1/8	17 1/2	30	85	24 3/8	2 1/8	1 5/16	1 1/4	33 1/16	17 15/16	6	28	6 1/4	15	3 3/4	17 1/4	17 3/4	3 1/2	2000
2450	85 1/4	47 9/16	82 1/2	11 3/16	20 1/8	19 1/8	40	80	19 1/8	4 5/16	1 5/16	1 1/4	33 1/16	24 1/8	6	28	6 1/4	15	—	20 1/2	21 1/8	3 1/4	2350
3060	95 1/4	47 9/16	92 1/2	12 15/16	21 3/8	20 3/4	40	90	23 3/8	2 3/4	1 5/16	1 1/4	39 1/16	24 1/16	6	28	6 1/4	15	3 3/4	20 1/2	24	4	2750
3680	90 1/4	66 9/16	87 1/2	10 1/16	24 7/8	24 1/4	59	85	17 5/8	9 3/4	1 15/16	1 1/4	45 1/16	32 9/16	6	28	6 1/4	21	3 3/4	20 1/2	24	4	3650
4120	105 1/4	75 3/4	102 3/8	12 5/16	28 1/4	27 3/4	68	100	21 3/4	15	4 3/8	1 7/16	54 1/16	33	7 1/4	28	6 1/4	21	3 9/16	20 1/2	24	5	4900
4160	144 1/2	75 7/8	142 7/8	17 11/16	37 1/2	31 1/4	68	140	32 1/2	7 11/16	2 5/8	1 7/16	60 1/16	36 15/16	7 1/4	28	6 1/4	21	—	25	27	5	7100
5190	144 1/2	80 7/8	142 7/8	18 13/16	35 1/4	34 1/2	73	140	34 3/4	4 1/2	2 5/8	1 9/16	64 1/16	41 7/8	7 1/4	29 1/4	6 1/4	21	—	25	30	6	8550

Notes:

1. Dimensions are not certified for construction.
2. Sizes 1205 thru 4120 may be suspended, platform mounted, or floor mounted. Sizes 4160 and 5190 may be floor or platform mounted.
3. Motors 20 HP and smaller are mounted on units. Motors 25 HP and larger must be mounted independent of unit: mount and drive guard not furnished by Clarage Fan Co.
4. For optional sections and internal components—see page 29.
5. Casing extension is required for DE coils as shown by V.
6. Dimensions X, Y, and Z are for largest motor required for published performance.
7. Basic weight includes: insulated fan section with fans, motor bracket, V-belt drive and guard; insulated 19" coil section with 4 row DE coil and 2 row steam coil; angle filter section with throw-away cells. Add for motor, added optional sections and other auxiliaries.
8. Height of vibration eliminators when required under mounting brackets of floor or platform mountings is:
   Sizes 1205 thru 1820: 1 15/16" Sizes 1830 thru 5190: 3"
9. Coil and humidifier connections are on motor side unless otherwise requested.
10. Service connections are shown on page 36.

Dimensions — Optional Sections for Horizontal General Purpose Multitherm Units



The sequence of 14" and 19" sections may be interchanged as required.

OPTIONAL SECTION COMPONENTS Each section can contain one of the listed functional components

	Section
HEATING	
1. 1 or 2 row Steam coil	14"
2. Two 1 or 2 row Steam coils	14"
3. 1 to 6 row Water coil	14"
COOLING	
4. 2 to 6 row Water or Direct Expansion coil	14"
5. 7 to 10 row Water coil	19"
6. 7 and 8 row Direct Expansion coil	19"
7. 2 to 8 row Water or Direct Expansion coil for Size 5190 only	48"
HEATING and COOLING	
8. 1 or 2 row Steam coil and 2 to 6 row Water or Direct Expansion coil	19"
DAMPERS	
9. Face dampers and *internal* by-pass	14"
10. 1 or 2 row Steam coil with face dampers and *internal* by-pass	14"
11. 1 to 6 row Water heating or Water cooling coil or Direct Expansion coil with face dampers and *internal* by-pass	19"
12. Face dampers and *external* by-pass:	
For sizes 1205 thru 1215	14"
For sizes 1820 thru 3060	19"
For sizes 3680 thru 5190. Two sections required:	
Face damper section	14"
Adjacent by-pass section	19"
13. 1 or 2 row Steam coil with face dampers and *external* by-pass:	
For sizes 1205 thru 1215	19"
For sizes 1820 thru 3060. Two sections required:	
Coil and face damper section	14"
Adjacent by-pass section	14"
For sizes 3680 thru 5190. Two sections required:	
Coil and face damper section	14"
Adjacent by-pass section	19"
14. 1 to 6 row Water heating or Water cooling coil or Direct Expansion coil and *external* by-pass:	
For sizes 1205 thru 3060. Two sections required:	
Coil and face damper section	19"
Adjacent by-pass section	14"
For sizes 3680 thru 5190. Two sections required:	
Coil and face damper section	19"
Adjacent by-pass section	19"
MISCELLANEOUS	
15. Access section with 15" wide access panel	19"
16. Pan humidifier. Sizes 1215 and smaller have removable casing side sheet for access. Sizes 1820 and larger have access panel in side sheet.	19"

DIMENSIONS WITH ANGLE FILTERS*

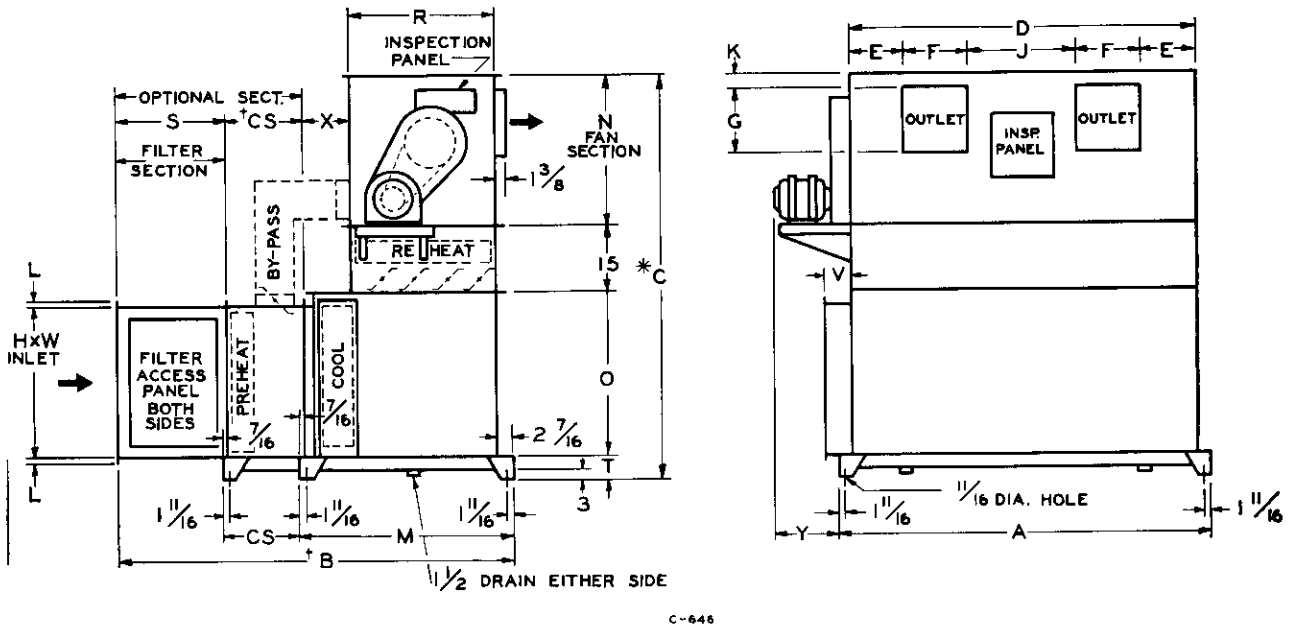
UNIT SIZE	B_1	M_1	B_2	M_2	B_3	M_3	B_4	M_4	B_5	M_5	B_6	M_6	B_7	M_7	B_8	M_8	B_9	M_9	B_{10}	M_{10}	WT. in LBS. 19" Sect.	WT. in LBS. 14" Sect.
1205*	26¼	20 9/16	40¼	34 9/16	45¼	39 9/16	54¼	48 9/16	59¼	53 9/16	64¼	58 9/16	68¼	62 9/16	73¼	67 9/16	78¼	72 9/16	83¼	77 9/16	40	30
1210	49¼	25 9/16	63¼	39 9/16	68¼	44 9/16	77¼	53 9/16	82¼	58 9/16	87¼	63 9/16	91¼	67 9/16	96¼	72 9/16	101¼	77 9/16	106¼	82 9/16	50	38
1215	49¾	25 9/16	63¼	39 9/16	68¼	44 9/16	77¼	53 9/16	82¼	58 9/16	87¼	63 9/16	91¼	67 9/16	96¼	72 9/16	101¼	77 9/16	106¼	82 9/16	69	52
1820	53¼	25 9/16	67¼	39 9/16	72¼	44 9/16	81¼	53 9/16	86¼	58 9/16	91¼	63 9/16	95¼	67 9/16	100¼	72 9/16	105¼	77 9/16	110¼	82 9/16	66	49
1830	57¼	29 9/16	71¼	43 9/16	76¼	48 9/16	85¼	57 9/16	90¼	62 9/16	95¼	67 9/16	99¼	71 9/16	104¼	76 9/16	109¼	81 9/16	114¼	86 9/16	104	77
1840	63¼	35 9/16	77¼	49 9/16	82¼	54 9/16	91¼	63 9/16	96¼	68 9/16	101¼	73 9/16	105¼	77 9/16	110¼	82 9/16	115¼	87 9/16	120¼	92 9/16	132	97
2450	63¼	35 9/16	77¼	49 9/16	82¼	54 9/16	91¼	63 9/16	96¼	68 9/16	101¼	73 9/16	105¼	77 9/16	110¼	82 9/16	115¼	87 9/16	120¼	92 9/16	126	93
3060	69¼	41 9/16	83¼	55 9/16	88¼	60 9/16	97¼	69 9/16	102¼	74 9/16	107¼	79 9/16	111¼	83 9/16	116¼	88 9/16	121¼	93 9/16	126¼	98 9/16	141	103
3680	75¼	47 9/16	89¼	61 9/16	94¼	66 9/16	103¼	75 9/16	108¼	80 9/16	113¼	85 9/16	117¼	89 9/16	122¼	94 9/16	127¼	99 9/16	132¼	104 9/16	141	104
4120	84¼	56 9/16	98¼	70 9/16	103¼	75 9/16	112¼	84 9/16	117¼	89 9/16	122¼	94 9/16	126¼	98 9/16	131¼	103 9/16	136¼	108 9/16	141¼	113 9/16	199	147
4160	90¼	62 9/16	104¼	76 9/16	109¼	81 9/16	118¼	90 9/16	123¼	95 9/16	128¼	100 9/16	132¼	104 9/16	137¼	109 9/16	142¼	114 9/16	147¼	119 9/16	266	197
5190†	95½	66 9/16	109½	80 9/16	114½	85 9/16	123½	94 9/16	128½	99 9/16	133½	104 9/16	137½	108 9/16	142½	113 9/16	147½	118 9/16	152½	123 9/16	268	198

Notes:

1. Dimensions are not certified for construction.
*2. Dimension B is for flat filters on Size 1205. For flat filters on other sizes deduct: 18" for sizes 1210 and 1215, 22" for sizes 1820 thru 3680, 20¾" for sizes 4120 and 4160, 22" for size 5190.
†3. Size 5190 requires a 48" section for cooling coils only in place of a standard 14" or 19" section: Add 34" or 29" respectively to M and B dimensions.
4. Large and small area coils may not be combined in same section.

Dimensions—Vertical General Purpose Multitherms

Top Horizontal Discharge



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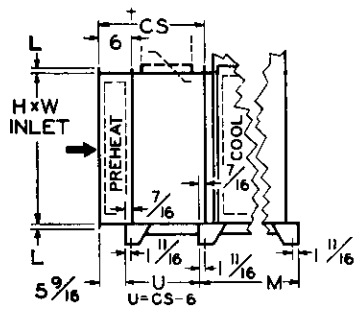
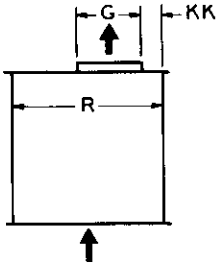
SIZES 3680 THRU 4160



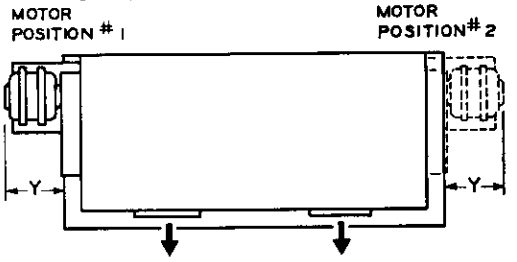
CS SECTION-SIDE VIEW

UBD-OPTIONAL



FAN SECTION-SIDE VIEW

OPTIONAL MOTOR POSITIONS



FAN SECTION-PLAN VIEW

All dimensions are in inches.

UNIT SIZE	A	†B1 Max. Flat	†B2 Max. Angle	*C Max.	D	E	F	G	H Height	W Width	J	K	KK	L	M	N	O	R	S1 Flat	S2 Angle	T	V	X	Y	†CS Max.	Basic Weight
1205	29⅜	53⅞	—	66⅜16	27½	9	9½	9⅛	22	25	—	1¼	9¾	1¼	34¼	21⁹⁄16	24½	25	6	—	5⅛	3¾	6⁷⁄16	10⅜	14	700
1210	39⅜	53⅞	71⅞	67¹¹⁄16	37½	11⁹⁄16	14⅜	12½	22	35	—	1⅜16	3¾	1¼	34¼	23¹⁄16	24½	25	6	24	5⅛	3¾	6⁷⁄16	13⅜	14	900
1215	56⅜	53⅞	71⅞	67¹¹⁄16	54½	8⅝	11¼	10⅞	22	52	14¾	1⅝16	3⁵⁄16	1¼	34¼	23¹⁄16	24½	25	6	24	5⅛	3¾	6⁷⁄16	13⅜	14	1250
1820	50¾	67³⁄16	89³⁄16	76¼	49	6¹⁄16	14⅜	12½	30	46	8⅛	1⁷⁄16	10½	1¼	42⅝	23¹⁄16	33	34	6	28	5³⁄16	3½	5¾	17½	19	1400
1830	69¾	67³⁄16	89³⁄16	79¼	68	10⁹⁄16	14⅜	14⅛	30	65	18⅛	1⅝16	10½	1¼	42⅝	26¹⁄16	33	34	6	28	5³⁄16	3½	5¾	17½	19	1800
1840	89¾	67³⁄16	89³⁄16	86¹⁄16	88	13¹¹⁄16	18⅛	17½	30	85	24⅜	1⁷⁄16	4½	1¼	42⅝	31¹³⁄16	33	34	6	28	6³⁄16	3½	5¾	17¾	19	2450
2450	84⅞	75¾	97¾	96⁹⁄16	83	11⁷⁄16	20⅛	19⅛	40	80	19⅜	1⅝16	9½	1¼	51¼	33¹³⁄16	41½	43	6	28	6¼	3½	5⅝16	21⅛	19	2850
3060	94⅞	75¾	97¾	99⁹⁄16	93	13³⁄16	21⅝	20¾	40	90	23⅜	1¼	6½	1¼	51¼	36¹³⁄16	41½	43	6	28	6¼	3½	5⅝16	24	19	3400
3680	89⅞	99½	121½	127⅝16	89	10¹³⁄16	24⅞	24¼	59	85	17⅝	1⅝16	15½	1¼	69	43¹⁄16	63	64	6	28	6¼	3	2	24	25	4350
4120	104⅞	109¾	131¼	140¹³⁄16	104	12⅞	28¼	27¾	68	100	21¾	1⁹⁄16	17½	1⁷⁄16	78	48¹⁄16	71½	73	7¼	28	6¼	3	2	24	25	5900
4160	144⅞	109¾	131¼	152¹³⁄16	144	18¼	37½	31¼	68	140	32½	4	17½	1⁷⁄16	78	60¹⁄16	71½	73	7¼	28	6¼	3	2	27	25	7550

*Reduce C Max. dimension 5″ for omitting either Reheat coil or face dampers or both.

†Reduce B Max. and CS Max. dimensions for omitting the following:

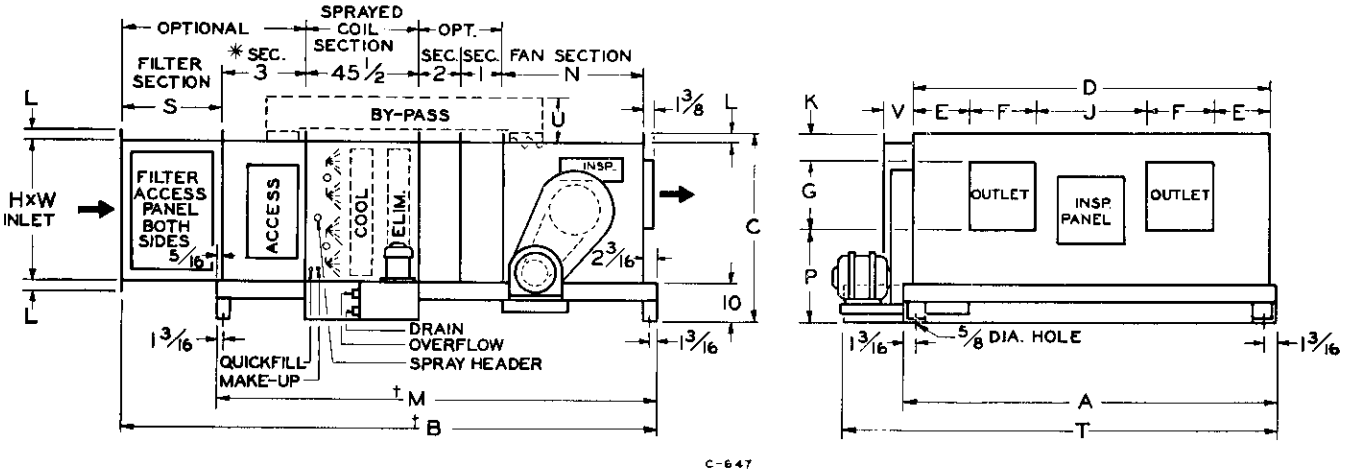
SIZES	EXTERNAL BY-PASS	PREHEAT COIL	BOTH BY-PASS and PREHEAT
1205 thru 1215	8″	0″	14″
1820 thru 3060	13″	5″	19″
3680 thru 4160	19″	6″	25″

Notes:

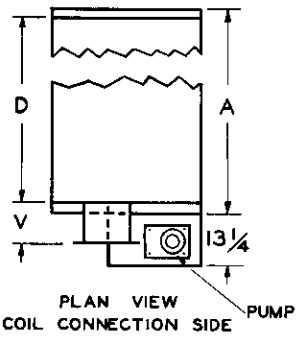
1. Dimensions are not certified for construction.
2. Motors 20 HP and smaller are mounted on units. Motors 25 HP and larger must be mounted independent of unit: mount and drive guard not furnished by Clarage Fan Company.
3. Dimension Y is for largest motor required for published performance.
4. Outer leg is omitted when CS dimension is 6 inches or less.
5. Coil selections are:
   Cooling—2 to 8 row water or direct expansion.
   Preheat—1 or 2 row steam or hot water.
   Reheat—1 or 2 row steam or hot water (small area coils only).
6. Basic weight includes: insulated fan section with fans, motor bracket, V-belt drive and guard; insulated heating section with 2 row steam coil; insulated base section with 4 row cooling coil; and angle filter section with throw-away cells. Add weight of motor, selected optional sections or other auxiliaries.
7. Height of optional vibration eliminators under mounting brackets is:
   Sizes 1205 thru 1820: 1 15⁄16″
   Sizes 1830 thru 4160: 3″
8. Service connections are on motor side unless otherwise requested.
9. Service connection sizes are shown on page 36.

Dimensions — Horizontal Sprayed Coil Multitherms

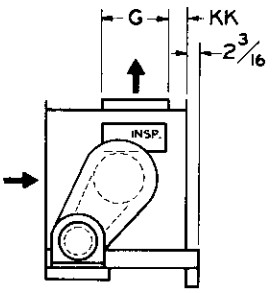
Top Horizontal Discharge



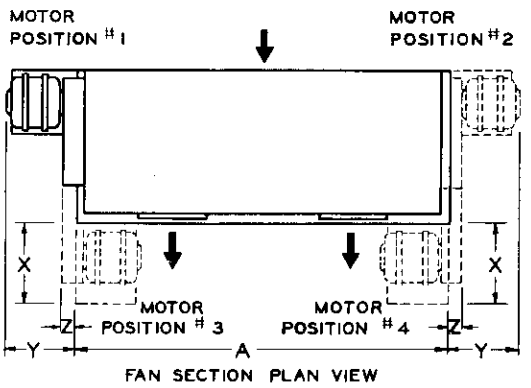
EXTENSION FOR COOLING COIL HEADER



UBD-OPTIONAL



OPTIONAL MOTOR POSITIONS



All dimensions are in inches.

UNIT SIZE	A	†B1 Max. Flat	†B2 Max. Angle	C Max.	D	E	F	G	H Height	W Width	J	K	KK	L	†M Max.	N	P	S1 Flat	S2 Angle	T	U	V	X	Y	Z	Basic Weight
1205	29¼	128¾	—	33 5/16	27½	9	9½	9⅛	22	25	—	5 5/16	1 5/16	1¼	123 1/16	18 1/16	19	6	—	42½	10	6¾	12⅛	10⅜	2½	1150
1210	39¼	133¾	151¾	33 5/16	37½	11 9/16	14⅜	12½	22	35	—	2 1/16	1 5/16	1¼	128 1/16	23 1/16	18¾	6	24	52½	11	6¾	15¼	13⅜	2½	1450
1215	56¼	133¾	151¾	33 5/16	54½	8⅝	11¼	10⅞	22	52	14¾	2 1/16	1 5/16	1¼	128 1/16	23 1/16	20⅜	6	24	69½	12	6¾	15¼	13⅜	3	1850
1820	50¼	133¾	155¾	41 5/16	48½	5 13/16	14⅜	12½	30	46	8⅛	5 5/16	1 5/16	1¼	128 1/16	23 1/16	23½	6	28	63½	12	6¾	15¼	13⅜	3	2000
1830	69⅜	137¾	159¾	41 5/16	67½	10 5/16	14⅜	14⅛	30	65	18⅛	3 11/16	1 5/16	1¼	132 1/16	27 1/16	23½	6	28	82⅝	13	6¾	17¼	17½	3	2500
1840	89½	143¾	165¾	41 5/16	87½	13 7/16	18⅛	17½	30	85	24⅜	2⅛	1 5/16	1¼	138 1/16	33 1/16	21 11/16	6	28	102¾	15	6¾	17¼	17¾	3½	3100
2450	84½	143¾	165¾	51 5/16	82½	11 3/16	20⅛	19⅛	40	80	19⅞	4 5/16	1 5/16	1¼	138 1/16	33 1/16	27⅞	6	28	97¾	15	6¾	20½	21⅛	3¾	3500
3060	94½	149¾	171¾	51 5/16	92½	12 15/16	21⅝	20¾	40	90	23⅜	2¾	1 5/16	1¼	144 1/16	39 1/16	27 13/16	6	28	107¾	15	6¾	20½	24	4	3950
3680	89½	155¾	177¾	70 5/16	87½	10 1/16	24⅞	24¼	59	85	17⅝	9¾	1 15/16	1¼	150 1/16	45 1/16	36 5/16	6	28	102¾	21	6¾	20½	24	4	5000
4120	104½	166	186¾	79½	102⅞	12 5/16	28¼	27¾	68	100	21¾	15	4⅝	1 7/16	159 1/16	54 1/16	36¾	7¼	28	117¾	21	6 9/16	20½	24	5	6500
4160	143¾	172	192¾	79 9/16	142⅞	17 11/16	37½	31¼	68	140	32½	7 11/16	2⅝	1 7/16	165 1/16	60 1/16	40⅝	7¼	28	157	21	6 9/16	25	27	5	8000

Sections 1, 2 and 3 may be 14″ or 19″ or omitted as required. Refer to page 29 for section sizes to contain desired components.

†Dimensions M Max. and B Max. are based on 19″ each for sections 1, 2 and 3. Reduce both dimensions appropriately when 14″ sections are substituted or when sections are omitted.

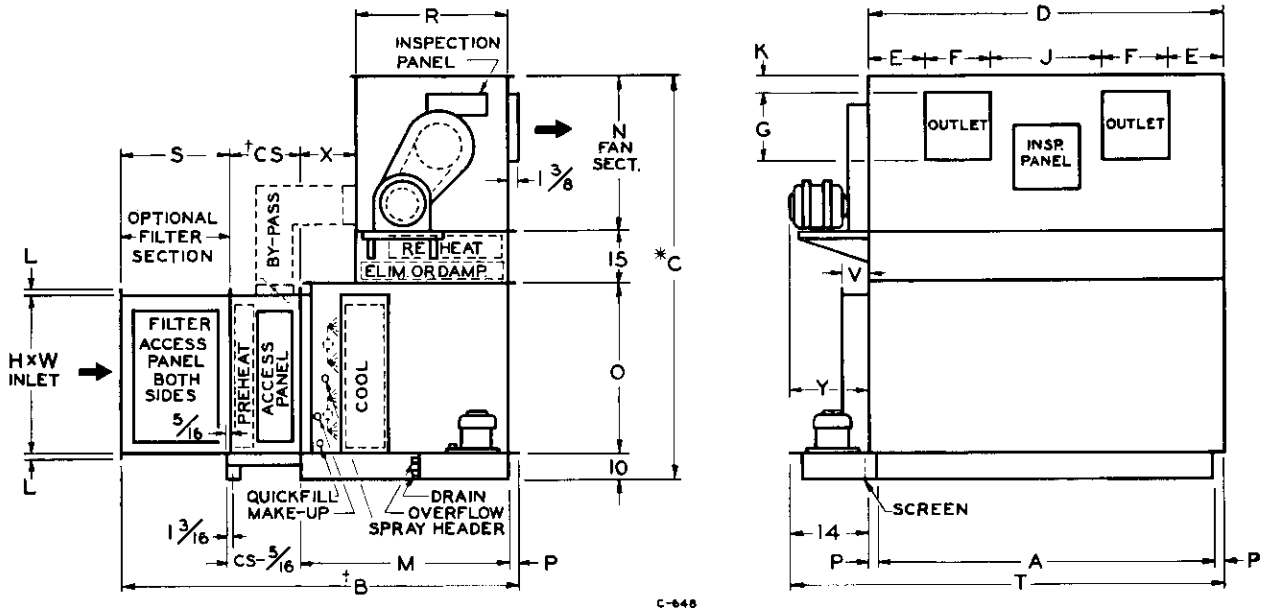
*19″ Section 3 is recommended for access to sprays when filter is on unit.

Notes:

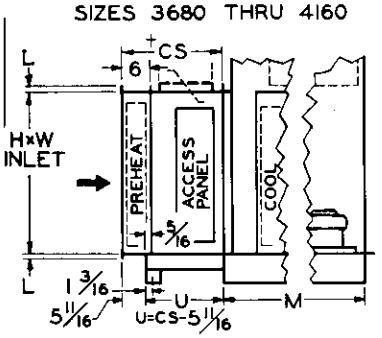
1. Dimensions are not certified for construction.
2. Units are for floor or platform mounting.
3. Motors 20 HP and smaller are mounted on units. Motors 25 HP and larger must be mounted independent of unit: mount and drive guard not furnished by Clarage Fan Company.
4. Select desired optional components, other than sprayed coil section, from page 29.
5. Sprayed Coil section is uninsulated. Where insulation is required, external insulation should be applied after installation.
6. Basic weight includes: insulated fan section with fans, motor bracket, V-belt drive and guard; insulated heating coil section with 2 row steam coil; sprayed coil section with 4 row cooling coil; and angle filter section with throw-away cells. Add weight of motor, selected optional sections or other auxiliaries, and weight of water.
7. Dimensions X, Y and Z are for largest motor required for published performance.
8. Service connections extend on motor side unless otherwise requested.
9. Service connection sizes are shown on page 36.

Dimensions — Vertical Sprayed Coil Multitherms

Top Horizontal Discharge

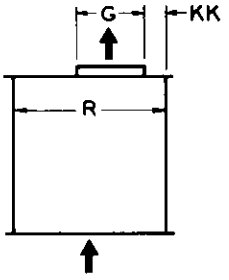


SIZES 3680 THRU 4160



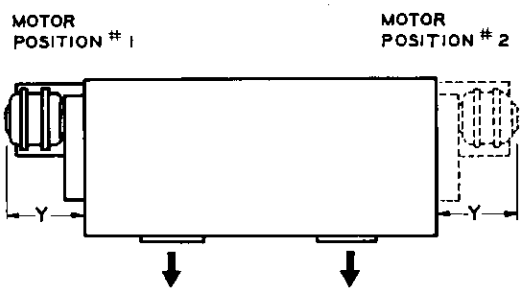
CS SECTION—SIDE VIEW

UBD—OPTIONAL



FAN SECTION—SIDE VIEW

OPTIONAL MOTOR POSITIONS



FAN SECTION PLAN VIEW

All dimensions are in inches.

UNIT SIZE	A	†B1 Max. Flat	†B2 Max. Angle	*C Max.	D	E	F	G	H Height	W Width	J	K	KK	L	M	N	O	P	R	S1 Flat	S2 Angle	T	†CS Max.	V	X	Y	Basic Weight
1205	25½	64 13/16	—	71 1/16	27½	9	9½	9⅛	22	25	—	1¼	9¾	1¼	38¾	21 9/16	24½	1 1/16	25	6	—	41⅝	19	3¾	13⅝	10⅜	1250
1210	35½	64 13/16	82 13/16	72 9/16	37½	11 9/16	14⅜	12½	22	35	—	1 3/16	3¾	1¼	38¾	23 1/16	24½	1 1/16	25	6	24	51⅝	19	3¾	13⅝	13⅜	1500
1215	52½	64 13/16	82 13/16	72 9/16	54½	8⅝	11¼	10⅞	22	52	14¾	1 5/16	3 5/16	1¼	38¾	23 1/16	24½	1 1/16	25	6	24	68⅝	19	3¾	13⅝	13⅜	1850
1820	46½	73 1/16	95 1/16	81 1/16	49	6 1/16	14⅜	12½	30	46	8⅛	1 7/16	10½	1¼	46¾	23 1/16	33	1 5/16	34	6	28	63⅛	19	3½	12 9/16	17½	2050
1830	65½	73 1/16	95 1/16	84 1/16	68	10 9/16	14⅜	14⅛	30	65	18⅛	1 5/16	10½	1¼	46¾	26 1/16	33	1 5/16	34	6	28	85⅛	19	3½	12 9/16	17½	2550
1840	85½	73 1/16	95 1/16	89 13/16	88	13 11/16	18⅛	17½	30	85	24⅜	1 7/16	4½	1¼	46¾	31 13/16	33	1 5/16	34	6	28	102⅛	19	3½	12 9/16	17¾	3250
2450	80½	81 5/16	103 5/16	100 5/16	83	11 7/16	20⅛	19⅛	40	80	19⅞	1 5/16	9½	1¼	55	33 13/16	41½	1 5/16	43	6	28	97⅛	19	3½	11¾	21⅛	3700
3060	90½	81 5/16	103 5/16	103 5/16	93	13 1/16	21⅜	20¾	40	90	23⅜	1¼	6½	1¼	55	36 13/16	41½	1 5/16	43	6	28	107⅛	19	3½	11¾	24	4250
3680	85½	104 5/16	126 5/16	131 1/16	89	10 13/16	24⅞	24¼	59	85	17⅞	1 5/16	15½	1¼	71½	43 1/16	63	1 13/16	64	6	28	102⅛	25	3	7¼	24	5400
4120	100½	113 13/16	135 13/16	144 9/16	104	12⅞	28¼	27¾	68	100	21¾	1 9/16	17½	1 7/16	79¾	48 1/16	71½	1 13/16	73	7¼	28	118⅛	25	3	6½	24	7050
4160	140½	113 13/16	135 13/16	156 9/16	144	18¼	37½	31¼	68	140	32½	4	17½	1 7/16	79¾	60 1/16	71½	1 13/16	73	7¼	28	158⅛	25	3	6½	27	8700

Eliminators are furnished only when Reheat coil is omitted.

*Reduce C Max. dimension 5″ for omitting face damper or both face damper and Reheat coil.

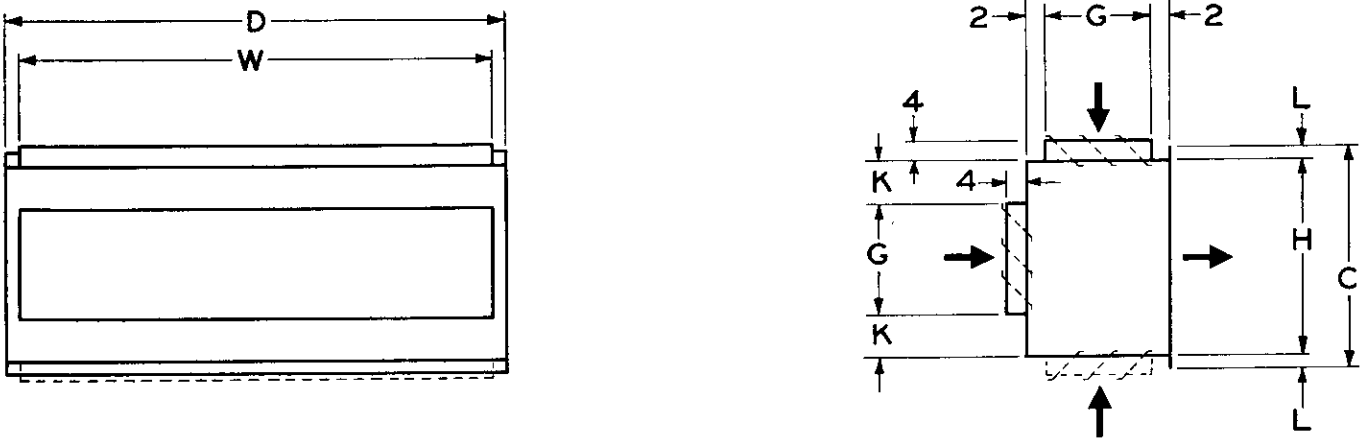
†Reduce B Max. and CS Max. dimensions for omitting the following:

SIZES	EXTERNAL BY-PASS	PREHEAT COIL	BOTH BY-PASS and PREHEAT
1205 thru 3060	0″	5″	5″
3680 thru 4160	6″	6″	11″

Notes:

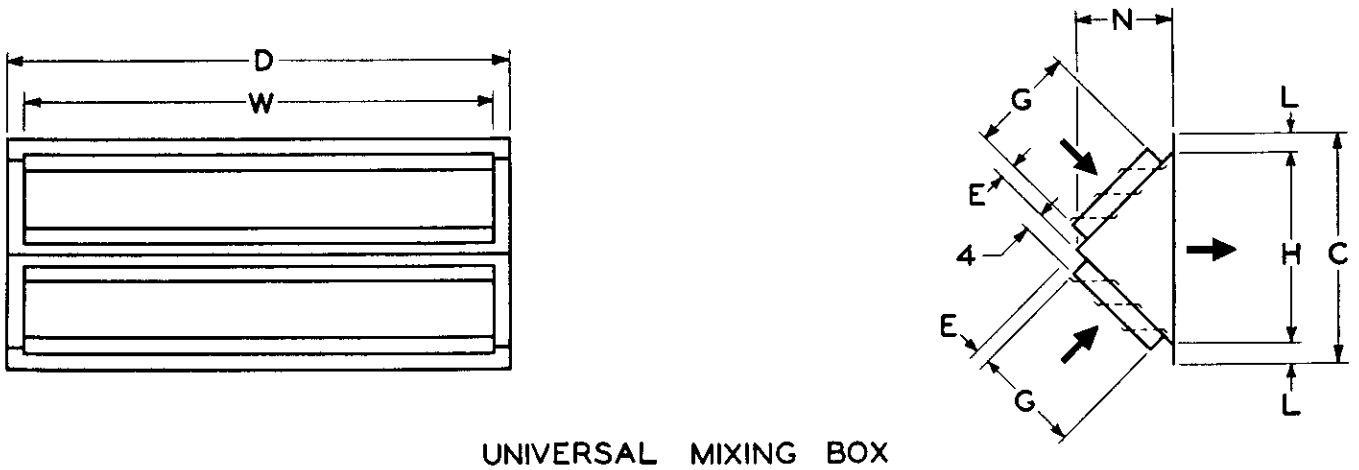
1. Dimensions are not certified for construction.
2. Motors 20 HP and smaller are mounted on units. Motors 25 HP and larger must be mounted independent of unit: mount and drive guard not furnished by Clarage Fan Company.
3. Dimension Y is for largest motor required for published performance.
4. Coil selections are:
   Preheat—1 or 2 row steam or hot water.
   Reheat—1 or 2 row steam or hot water. (Small area coils only)
   Cooling—2 to 8 row water or direct expansion (copper fin and tube only).
5. Basic weight includes: insulated fan section with fans, motor bracket, V-belt drive and guard; heating section with two row steam coil and eliminators; base section with 4 row cooling coil and sprays; angle filter section with throw-away cells. Add weight of motor, selected optional sections or other auxiliaries, and weight of water.
6. Service connections extend on motor side unless otherwise requested.
7. Service connection sizes are shown on page 36.
8. Base section is uninsulated. Where insulation is required, external insulation should be applied after installation.

Dimensions—Mixing Boxes



RECTANGULAR MIXING BOX

C-649



UNIVERSAL MIXING BOX

All dimensions are in inches.

UNIT SIZE	C	D	E	G	W	H	K	L	M	N	WEIGHT IN LBS.	
											Rectangular	Universal
1205	24½	27½	2¾	10	25⅛	22	6	1¼	14	11	50	45
1210	24½	37½	2¾	10	35⅛	22	6	1¼	14	11	60	50
1215	24½	54½	2¾	10	52⅛	22	6	1¼	14	11	75	65
1820	32½	48½	3 11/16	14½	46⅛	30	7¾	1¼	18½	15	80	70
1830	32½	67½	3 11/16	14½	65⅛	30	7¾	1¼	18½	15	90	80
1840	32½	87½	3 11/16	14½	85⅛	30	7¾	1¼	18½	15	110	100
2450	42½	82½	4⅞	18½	80⅛	40	10¾	1¼	22½	20	130	110
3060	42½	92½	4⅞	18½	90⅛	40	10¾	1¼	22½	20	150	130
3680	61½	87½	5¼	27½	85⅛	59	15¾	1¼	31½	29½	180	160
4120	70⅞	102⅞	8¾	30½	90⅛	68	18¾	1 7/16	34½	34	245	220
4160	70⅞	142⅞	8¾	30½	135	68	18¾	1 7/16	34½	34	305	270
5190	75⅞	142⅞	5¾	39⅞	135	73	16 9/16	1 7/16	43⅞	36½	350	315

Notes:
1. Dimensions are not certified for construction.
2. Opening positions may be top, back or bottom.
3. Damper control lever extends on motor side unless otherwise requested.

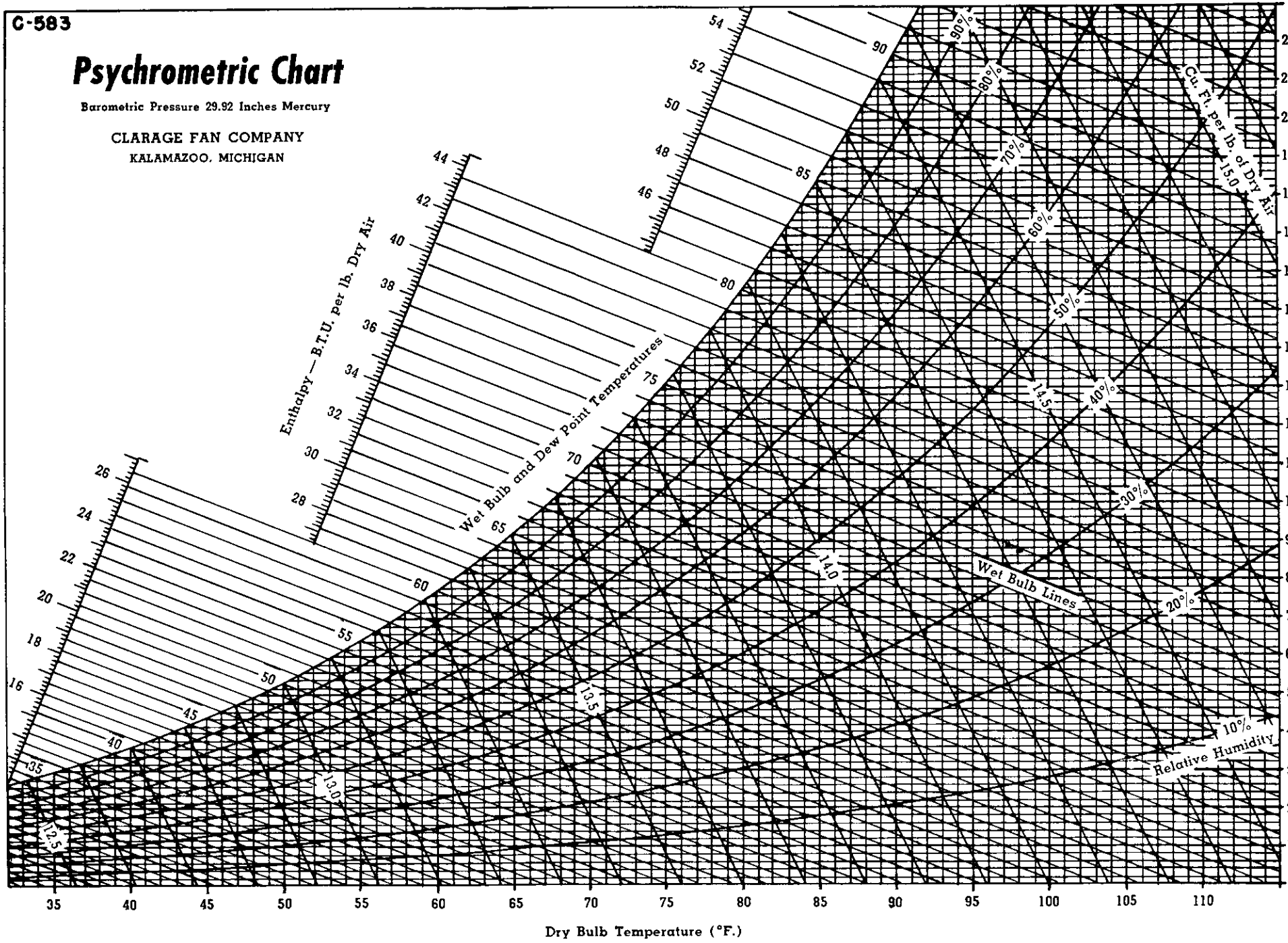

C-583
Psychrometric Chart
Barometric Pressure 29.92 Inches Mercury
CLARAGE FAN COMPANY
KALAMAZOO, MICHIGAN
Enthalpy — B.T.U. per lb. Dry Air
Wet Bulb and Dew Point Temperatures
Wet Bulb Lines
Relative Humidity
Cu. Ft. per lb. of Dry Air
Grains of Moisture per lb. Dry Air
Dry Bulb Temperature (°F.)

Table 9 — Enthalpy of Air to Tenths of a Degree

Btu per pound of dry air with vapor to saturate it

WB	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
35	13.01	13.05	13.09	13.14	13.18	13.22	13.27	13.31	13.35	13.40
36	13.44	13.48	13.53	13.57	13.61	13.66	13.70	13.74	13.79	13.83
37	13.87	13.92	13.96	14.01	14.05	14.10	14.14	14.19	14.23	14.27
38	14.32	14.36	14.41	14.46	14.50	14.55	14.59	14.64	14.68	14.73
39	14.77	14.82	14.86	14.91	14.96	15.00	15.05	15.09	15.14	15.18
40	15.23	15.28	15.32	15.37	15.42	15.46	15.51	15.56	15.60	15.65
41	15.70	15.75	15.79	15.84	15.89	15.94	15.98	16.03	16.08	16.13
42	16.17	16.22	16.27	16.32	16.37	16.42	16.46	16.51	16.56	16.61
43	16.66	16.71	16.76	16.81	16.85	16.90	16.95	17.00	17.05	17.10
44	17.15	17.20	17.25	17.30	17.35	17.40	17.45	17.50	17.55	17.60
45	17.65	17.70	17.75	17.80	17.85	17.91	17.96	18.01	18.06	18.11
46	18.16	18.21	18.27	18.32	18.37	18.42	18.47	18.52	18.58	18.63
47	18.68	18.73	18.79	18.84	18.89	18.95	19.00	19.05	19.11	19.16
48	19.21	19.27	19.32	19.37	19.43	19.48	19.54	19.59	19.64	19.70
49	19.75	19.81	19.86	19.92	19.97	20.03	20.08	20.14	20.19	20.25
50	20.30	20.36	20.41	20.47	20.53	20.58	20.64	20.69	20.75	20.81
51	20.86	20.92	20.98	21.03	21.09	21.15	21.21	21.26	21.32	21.38
52	21.44	21.49	21.55	21.61	21.67	21.73	21.79	21.85	21.90	21.96
53	22.02	22.08	22.14	22.20	22.26	22.32	22.38	22.44	22.50	22.56
54	22.62	22.68	22.74	22.80	22.86	22.92	22.98	23.04	23.10	23.16
55	23.22	23.28	23.34	23.41	23.47	23.53	23.59	23.65	23.72	23.78
56	23.84	23.90	23.97	24.03	24.10	24.16	24.22	24.29	24.35	24.42
57	24.48	24.54	24.61	24.67	24.74	24.80	24.86	24.93	24.99	25.06
58	25.12	25.19	25.25	25.32	25.38	25.45	25.52	25.58	25.65	25.71
59	25.78	25.85	25.92	25.98	26.05	26.12	26.19	26.26	26.32	26.39
60	26.46	26.53	26.60	26.67	26.74	26.81	26.87	26.94	27.01	27.08
61	27.15	27.22	27.29	27.36	27.43	27.50	27.57	27.64	27.71	27.78
62	27.85	27.92	27.99	28.07	28.14	28.21	28.28	28.35	28.43	28.50
63	28.57	28.64	28.72	28.79	28.87	28.94	29.01	29.09	29.16	29.24
64	29.31	29.38	29.46	29.53	29.61	29.69	29.76	29.84	29.91	29.99
65	30.06	30.14	30.21	30.29	30.37	30.45	30.52	30.60	30.68	30.75
66	30.83	30.91	30.99	31.07	31.15	31.23	31.30	31.38	31.46	31.54
67	31.62	31.70	31.78	31.86	31.94	32.02	32.10	32.18	32.26	32.34
68	32.42	32.50	32.59	32.67	32.75	32.84	32.92	33.00	33.08	33.17
69	33.25	33.33	33.42	33.50	33.59	33.67	33.75	33.84	33.92	34.01
70	34.09	34.18	34.26	34.35	34.43	34.52	34.61	34.69	34.78	34.86
71	34.95	35.04	35.13	35.21	35.30	35.39	35.48	35.57	35.65	35.74
72	35.83	35.92	36.01	36.10	36.19	36.29	36.38	36.47	36.56	36.65
73	36.74	36.83	36.92	37.02	37.11	37.20	37.29	37.38	37.48	37.57
74	37.66	37.75	37.85	37.94	38.04	38.14	38.23	38.33	38.42	38.52
75	38.61	38.71	38.80	38.90	38.99	39.09	39.19	39.28	39.38	39.47
76	39.57	39.67	39.77	39.87	39.97	40.07	40.17	40.27	40.37	40.47
77	40.57	40.67	40.77	40.87	40.97	41.08	41.18	41.28	41.38	41.48
78	41.58	41.68	41.79	41.89	42.00	42.10	42.20	42.31	42.41	42.52
79	42.62	42.73	42.83	42.94	43.05	43.16	43.26	43.37	43.48	43.58
80	43.69	43.80	43.91	44.02	44.13	44.24	44.34	44.45	44.56	44.67
81	44.78	44.89	45.00	45.12	45.23	45.34	45.45	45.56	45.68	45.79
82	45.90	46.01	46.13	46.24	46.36	46.47	46.58	46.70	46.81	46.93
83	47.04	47.16	47.28	47.39	47.51	47.63	47.74	47.87	47.98	48.10
84	48.22	48.34	48.46	48.58	48.70	48.83	48.95	49.07	49.19	49.31

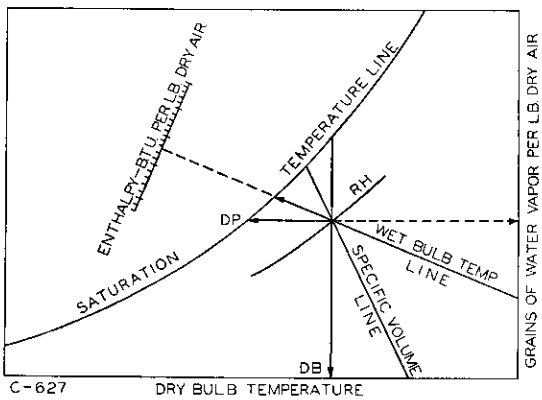
Interpolated from 1955 ASHAE Guide.

PSYCHROMETRIC CHART on preceding page shows the interrelationship between and gives direct readings of air dry bulb temperature, wet bulb temperature, dew point temperature, relative humidity and volume. Figure below shows how readings of total heat, and grains of water vapor per pound of dry air may be obtained from this chart.

DRY BULB TEMPERATURES are represented by vertical lines with values indicated on the bottom edge of the chart.

WET BULB TEMPERATURES are represented by oblique lines with values indicated at their intersection with the curved saturation line. These lines project beyond this point to the Enthalpy scale.

DEW POINT TEMPERATURES are represented by horizontal lines with values indicated at their intersection with the curved saturation line.



RELATIVE HUMIDITY percentages are represented by curved lines with values indicated thereon.

ENTHALPY in Btu/lb. of dry air with vapor to saturate it, is read by projecting from the intersection of the wet bulb temperature line with the saturation line, to the scale at the left hand edge of the projected lines. If desired, values may be read with greater accuracy from the table which is presented above.

VOLUMES (cubic feet of mixture per pound of dry air) are represented by oblique lines with values indicated thereon.

GRAINS OF WATER VAPOR per pound of dry air is read by projecting horizontally to the scale at the right hand edge of the chart.

Physical Data

COIL CONNECTIONS—General Purpose and Sprayed Coil Multitherms

Unit Size	LARGE AREA STEAM COILS Type SDT				SMALL AREA STEAM COILS Type SDT				LARGE AREA WATER COILS Type CWM and Type CWS				LARGE AREA DIRECT EXPANSION COILS Type DXM and Type DXS	
	1 ROW		2 ROW		1 ROW		2 ROW		FULL, ½ & ⅓ circuiting		DOUBLE circuiting			
	SUP.	RET.	SUP.	RET.	SUP.	RET.	SUP.	RET.	SUP.	RET.	SUP.	RET.	LIQUID	SUCTION
1205	1½"	1"	2"	1½"	1"	¾"	1¼"	1¼"	2"	2"	2½"	2½"	1⅛"	1⅝"
1210	1½"	1"	2"	1½"	1"	¾"	1¼"	1¼"	2"	2"	2½"	2½"	1⅛"	1⅝"
1215	1½"	1"	2"	1½"	1"	¾"	1¼"	1¼"	2"	2"	2½"	2½"	1⅛"	2⅛"
1820	2"	1¼"	2"	1½"	1½"	1¼"	2"	1½"	2"	2"	2½"	2½"	1⅛"	2⅛"
1830	2"	1¼"	2"	1½"	1½"	1¼"	2"	1½"	2"	2"	2½"	2½"	1⅛"	2⅛"
1840	2"	1¼"	2"	1½"	1½"	1¼"	2"	1½"	2"	2"	2½"	2½"	1⅛"	2⅛"
2450	2"	1¼"	2½"	1½"	2"	1¼"	2½"	1½"	2"	2"	2½"	2½"	(2) 1⅛"	(2) 2⅛"
3060	2"	1¼"	2½"	1½"	2"	1¼"	2½"	1½"	2"	2"	2½"	2½"	(2) 1⅛"	(2) 2⅛"
3680	(2) 2"	(2) 1¼"	(2) 2"	(2) 1½"	(2) 1½"	(2) 1¼"	(2) 2"	(2) 1½"	(2) 2"	(2) 2"	(2) 2½"	(2) 2½"	(2) 1⅛"	(2) 2⅛"
4120	(2) 2"	(2) 1¼"	2" & 2½"	(2) 1½"	(2) 2"	(2) 1¼"	(2) 2"	(2) 1½"	(2) 2"	(2) 2"	(2) 2½"	(2) 2½"	(4) 1⅛"	(4) 2⅛"
4160	(2) 2"	(2) 1¼"	(2) 2½"	(2) 1½"	(2) 2"	(2) 1¼"	(2) 2"	(2) 1½"	(2) 2"	(2) 2"	(2) 2½"	(2) 2½"	(4) 1⅛"	(4) 2⅛"
5190	(2) 2"	(2) 1¼"	(2) 2½"	(2) 1½"	(2) 2"	(2) 1¼"	2"&2½"	(2) 1½"	(3) 2"	(3) 2"	(3) 2½"	(3) 2½"	(3) 1⅛"	(3) 2⅛"

SPRAYED COIL SECTION CONNECTIONS—Sprayed Coil Multitherms Only

Unit Size	Spray Water G. P. M.	Header Size	Make Up Connect.	Over Flow Connect	Quick Fill Connect.	Drain Connect.	Recirculating Pump		
							Motor HP	Motor RPM	Connect.
1205	2	1"	¾"	1½"	1"	1½"	¼	1725	¾
1210	3	1"	¾"	1½"	1"	1½"	¼	1725	¾
1215	5	1"	¾"	1½"	1"	1½"	¼	1725	¾
1820	6	1"	¾"	1½"	1"	1½"	¼	1725	¾
1830	9	1¼"	¾"	1½"	1"	1½"	¼	1725	¾
1840	12	1¼"	¾"	1½"	1"	1½"	¼	1725	¾
2450	15	1¼"	¾"	2"	1"	2"	¼	3500	¾
3060	18	1¼"	¾"	2"	1"	2"	¼	3500	¾
3680	24	(2) 1¼"	¾"	2"	1"	2"	¼	3500	¾
4120	37	(2) 1½"	¾"	2"	1"	2"	½	3500	1
4160	48	(2) 2"	¾"	2"	1"	2"	½	3500	1

HUMIDIFIER CONNECTIONS
General Purpose Multitherms Only

Connection	Humidifier Type		
	Grid	Pan	Spray
Steam	1" min.	1" min.	
Return		1" min.	
Water		½"	⅜"

DIRECT EXPANSION DATA

CAPACITY OF LIQUID, SUCTION AND HOT GAS LINES EXPRESSED IN TONS

Size Copper Tubing O. D. Inches	LIQUID* Freon-12 Length of Line			SUCTION** Freon-12 Length of Line			HOT GAS*** Freon-12 Length of Line		
	50'	100'	150'	50'	100'	150'	50'	100'	300'
¼	.5								
⅜	1.8	1.3	1.1						
½	4.3	3.	2.5	.4			.7	.5	
⅝	8.1	5.7	4.7	.7	.5	.4	1.5	1.1	.6
¾	13.4	9.5	7.9	1.2	.8	.7	2.4	1.8	1.0
⅞	20.9	14.8	12.2	1.8	1.3	1.1	3.7	2.6	1.5
1⅛	40.	28.5	23.6	3.6	2.5	2.1	7.5	5.3	3.0
1⅜	67.	47.1	39.	5.9	4.2	3.4	12.0	8.3	4.8
1⅝	102.	72.	60.	9.	6.3	5.2	18.0	13.0	7.3
2⅛	201.	142.	117.	17.8	12.5	10.2	35.0	25.0	14.0
2⅝		244.	202.	30.5	21.6	17.6	60.0	45.0	25.0
3⅛				47.8	33.7	27.5	95.0	67.0	39.0
3⅝				69.	48.8	40.	140.0	97.0	56.0
4⅛				95.5	67.5	55.		140.0	78.0
5⅛				166.	117.	96.			140.0
6⅛					184.	150.			

*Based on 90°F with 5 lbs./sq. in. drop.
**Based on 40°F with 2°F drop.
***Based on 90°F Cond. Temp. and 40°F Suction Temp. with 2°F drop.
Note: Nominal Pipe Sizes ⅛" less than O.D. Sizes Listed in Table.

PRESSURE DROP IN LBS. PER SQ. INCH THRU DISTRIBUTORS

Unit Size	Tons of Refrigeration Load								
	2-6	6-12	12-21	21-31	31-42	42-52	52-62	62-73	73-88
1205	1.0	2.9	7.8						
1210	1.0	2.9	7.8						
1215	1.0	2.9	7.8						
1820	1.0	2.9	7.8	17.2					
1830	1.0	2.9	7.8	17.2					
1840		2.9	7.8	17.2					
2450	0.4	1.0	2.3	4.4	7.8				
3060		1.0	2.3	4.4	7.8				
3680			2.3	4.4	7.8	12.0			
4120				2.2	3.8	5.3	7.6	12.0	
4160				1.4	2.3	3.4	4.5	5.9	8.0
5190				2.2	3.8	5.3	7.8	10.2	16.0

Pressure drop through distributors must be added to coil pressure drop (use maximum of 12 lbs. for coil pressure drop) in making expansion valve selections.

LBS. OF REFRIGERANT REQUIRED PER ROW OF COIL AT MAX. CAPACITY

Unit Size	Lbs. of Refrig. per row	
	Large Coils	Small Coils
1205	0.57	
1210	0.91	
1215	1.60	
1820	2.06	1.73
1830	3.10	2.59
1840	4.13	3.46
2450	5.06	4.45
3060	5.98	5.26
3680	8.26	6.86
4120	12.06	10.32
4160	16.08	13.76
5190	19.48	17.28

CHANGE IN SUCTION LINE CAPACITY WITH SUCTION TEMPERATURE
(See Table above)

Multiply above values by these figures:										
Suction Temp. °F	50	45	40	35	30	25	20	10	0	-10
Freon-12	1.16	1.07	1.00	.91	.83	.76	.69	.58	.48	.39

MINIMUM REFRIGERANT SUCTION TEMPERATURES FOR FROST PREVENTION

WBL °F	Coil Face Velocity Ft. per Min.			
	400	500	600	700
45°	31°	30°	29°	29°
50°	30°	29°	28°	28°
55°	29°	28°	27°	26°
60°	28°	27°	26°	25°

Sample Problem

PROBLEM: Select a General Purpose Multitherm for quiet operation at 1" External Static Pressure using Steam Heating and Water Cooling Coils. Select alternately the same unit with Water Heating and Direct Expansion Cooling Coils. Or select alternately a Sprayed Coil Multitherm with either Sprayed Water or Sprayed Direct Expansion Cooling Coils. Conditions applying are shown in the table below.

	Summer Conditions					Winter Conditions			
Total CFM (Std) Circulated	Outside Air Vent Rate	Space Load Total Heat BTU/Hr.	Space Load Sens. Heat BTU/Hr.	Space Cond. Design	Outside Cond. Design	Space Load Sens. Heat BTU/Hr.	Space Cond. Design	Outside Cond. Design	Steam Press. Avail. PSIG
7000	20%	178,000	137,000	80°DB 67°WB	95°DB 78°WB	150,000	72°DB	0°DB	10

Normally Total CFM circulated and Fresh Air Ventilation Rate are determined at standard air conditions (CFM std).

Since Unit Performance and Selection are based on air conditions entering and leaving the Coils in the unit, it is required to determine these conditions as follows:

A. Cooling

1. Lv. Dry Bulb (DB_L) = Space Dry Bulb $-$ $\dfrac{\text{Space Sens. Ht.}}{\text{CFM (std)} \times 1.085}$
$= 80° - \dfrac{137{,}000}{7000 \times 1.085} = 80° - 18° = 62°$
2. Lv. Wet Bulb (WB_L);
$h_L = h_S - \dfrac{\text{Space Total Heat;}}{\text{CFM (std)} \times 4.50}$ where h_L and h_S are enthalpys from Table 9 corresponding to WB_L and Space Wet Bulb Temps. respectively.
$= 31.62 - \dfrac{178{,}000}{7000 \times 4.5} = 31.62 - 5.65 = 25.97$ BTU/lb.
Or 59.3° WB_L. Where WB_L corresponds to h_L (from Table 9)
3. Ent. Dry Bulb (DB_E); Mixing of Outside and Return Air;
DB_E = (% Return Air x Space Dry Bulb) + (% Outside Air x Outside Dry Bulb)
$= (.8 \times 80°) + (.2 \times 95°) = 64° + 19° = 83°$
4. Ent. Wet Bulb (WB_E); Mixing of Outside and Return Air;
h_E = (% Return Air x Enthalpy corresponding to Space Wet Bulb) + (% Outside Air x Enthalpy corresponding to Outside Wet Bulb)
$= (.8 \times 31.62) + (.2 \times 41.58) = 25.30 + 8.32 = 33.62$ BTU/lb. or 69.4° WB_E.
5. Sens. Heat Transferred by Coil (GSH);
$= (DB_E - DB_L) \times$ CFM (std) $\times 1.085$
$= (83° - 62°) \times 7000 \times 1.085 = 160{,}000$ BTU/hr.
6. Total Heat Transferred by Coil (GTH);
$= (h_E - h_L) \times$ CFM (std) $\times 4.50$
$= (33.62 - 25.97) \times 7000 \times 4.50 = 241{,}000$ BTU/hr.

B. Heating

It is characteristic of fans when connected to a given duct system and operating at constant speed that the CFM capacity will remain constant even though the air density may vary. In draw-through type units such as the General Purpose Multitherm and Sprayed Coil Multitherm, the conditioning coils are located up stream with respect to the fans. The fans, therefore, handle air at the density corresponding to the Leaving Coil Conditions. For summer cooling, the air density leaving the coil is close to standard air density; in this representative sample problem, the specific volume at 62° DB_L and 59.4° WB_L is 13.37 cu. ft. per lb. of dry air as compared to 13.35 for standard air. This slight deviation is normally ignored. For winter operation, where DB_L may range from 80° – 125° maximum, the air density deviation from standard may vary more widely. For instance, at 125° DB_L and at unchanged fan speed and duct system, the unit's fans would deliver 7000 CFM, but

$$\text{CFM (std)} = \text{CFM (at 29.92" Hg)} \times \frac{(460° + 70°)}{(460° + 125°)} = 7000 \times \frac{530}{585}$$

CFM (std) = 6350 or about 10% maximum reduction in capacity. An adjustment can be made for this reduction by specifying a correspondingly larger temperature rise from the heating coil.

1. Leaving Dry Bulb Temp. (DB_L)
$= \text{Space Dry Bulb} + \dfrac{\text{Space Sensible Heat}}{\text{CFM (std)} \times 1.085}$
$= 72° + \dfrac{150{,}000}{7000 \times 1.085} = 72.° + 19.8° = 91.8°$
2. Entering Dry Bulb Temp. (DB_E), Mixing of Outside and Return Air.
DB_E = (% Return Air x Space DB) + (% Outside Air x Outside DB)
$= (.8 \times 72°) + (.2 \times 0°) = 57.6°$
3. Sensible Heat Transferred by Coil (GSH)
$= (DB_L - DB_E) \times$ CFM (std) $\times 1.085$
$= (91.8 - 57.6) \times 7000 \times 1.085 = 260{,}000$ BTU/hr.

C. Size Selection — Page 6.

1. Following the instructions for the Quick Selector Chart and using 1" SP (external), Quiet Zone and 7000 CFM (std), Unit Size 1840 is determined.
2. From Table 3, Large Coil Face Area for Size 1840 is found to be 12.4 sq. ft.
3. Coil Face Velocity $= \dfrac{\text{CFM (std)}}{\text{Face Area}} = \dfrac{7000}{12.4} = 565$ FPM
4. Checking 565 FPM against Table 2 recommendations, this Face Velocity is found to be acceptable for moderate dehumidification.

D. Steam Heating Coil Selection — Page 7.

1. Coil Face Velocity $= \dfrac{\text{CFM (std)}}{\text{Htg. Coil F.A. (Table 3)}}$
$= \dfrac{7000}{12.6} = 555$ FPM
2. Equiv. Temp. Rise
$= \dfrac{DB_L - DB_E}{\text{Multiplier (from Table 4 for 10 psig. \& 57.6° } DB_E)}$
$= \dfrac{(91.8° - 57.6°)}{.801} = 42.7°$
3. Choose W_1 series surface Series STD Steam Coil having 56.9° Equiv. Temp. Rise from Table 5. It is noted this excess capacity compensates for the correction indicated in B.
4. Lbs. Cond./hr. $= \dfrac{\text{GSH}}{\text{Latent Heat of Steam (from Table 4 at 10 psig.)}}$
$= \dfrac{260{,}000}{952.5} = 263$ lbs./hr.

E. Water Heating Coil — Alternate Selection — Page 9

1. Choose Ent. Water Temp. (EWT) at 180° and 20° Temp. Diff. (WDT)
2. GPM $= \dfrac{\text{GSH}}{\text{(WDT)} \times 500} = \dfrac{260{,}000}{20 \times 500} = 26.0$ GPM
3. MED.
a. EWT – $DB_L = 180° - 91.8° = 88.2°$
b. LWT – $DB_E = 160° - 57.6° = 102.4°$
MED from Table 8 = 95.1°
4. K-Factor
a. Face Velocity $= \dfrac{\text{CFM (std)}}{\text{Cooling Coil F.A. (Table 3)}} = \dfrac{7000}{12.4}$
$= 565$ FPM
b. Tube Water Velocity from Chart 3 at 26.0 GPM and Size 1840 Large Coil = 1.7 FPS. Effective Tube Water Velocity $= 1.7 \times 2.3 = 3.9$ FPS.
c. K-Factor for 3.9 FPS and 565 FPM from Chart 5 = 221 BTU/hr/sq. ft./°MED.
5. No. Rows of Coil
$= \dfrac{\text{GSH}}{\text{K} \times \text{MED} \times \text{F.A.}} = \dfrac{260{,}000}{221 \times 95.1 \times 12.4} = 0.99$
Use 1 row of Series CWM Water Heating Coil.

F. Water Cooling Coil Selection — Page 8

1. Check cooling conditions.
a. Choose Ent. Water Temp. (EWT) = 45°.
b. Obtain Eff. Coil Temp. (CT) from Chart 1 using 59.3° WB_L and 45° W_E = 55.0°.
c. Obtain DB_L from Chart 2 using 83° DB_E, 69.4° WB_E, 55.0° CT and 59.3° DB_L = 62.1°.
Since this is very close to Required 62° DB_L, cooling conditions check, the selection of EWT is satisfactory at 45°.
2. GPM
a. Choose Water Temp. Diff. (WTD) = 10°.
b. GPM $= \dfrac{\text{GTH}}{\text{WTD} \times 500} = \dfrac{241{,}000}{10 \times 500} = 48.2$

Sample Problem (CONTINUED)

3. MED

   a. Difference (DB_E — LWT) = (83° — 55°) = 28°.
   Difference (DB_L — EWT) = (62° — 45°) = 17°.

   b. MED from Table 8 = 21.9°.

4. K-Factor

   a. Coil Face Velocity = $\frac{\text{CFM (std)}}{\text{Water Coil F.A.}} = \frac{7000}{12.4}$ = 565 FPM.

   b. Tube Water Velocity (from Chart 3) with 48.2 GPM and Size 1840 Large Coil = 3.25 FPS.

   c. K-Factor from Chart 5 with 565 FPM and 3.25 FPS = 214 BTU/hr./sq. ft./° MED

5. M-Factor

   a. Heat Ratio (R) = $\frac{\text{GSH}}{\text{GTH}} = \frac{160{,}000}{241{,}000}$ = .664.

   b. M-Factor from Chart 6 using .664 R and 3.25 FPS = .862.

6. No. Rows of Coil = $\frac{\text{GSH}}{\text{K x M x MED x F.A.}}$
   $= \frac{160{,}000}{214 \times .862 \times 21.9 \times 12.4} = 3.19.$
   Use 4 Rows of Series CWM Water Coil.

G. Direct Expansion Coil — Alternate Selection — Page 10

1. Choose 40° Refrigerant Suction Temp.

2. Coil Face Velocity = $\frac{\text{CFM (std)}}{\text{DE Coil Face Area (Table 3)}}$
   $= \frac{7000}{12.4}$ = 565 FPM.

3. No. Rows from Table 6—using 40° suction Temp., 565 FPM Face Velocity, 69.4° WB_E, obtain 3 rows of Coil required for 59.3° WB_L.

4. Leaving Dry Bulb Temp. (DB_L)

   a. (WB_E — WB_L) = 69.4° — 59.3° = 10.1°; from Chart 7 for 3 rows WB_E — CT = 13.2° and CT = 69.4° — 13.2° = 56.2°.

   b. From Chart 2 with 83° DB_E, 69.4° WB_E, 56.2° CT and 59.3° WB_L, DB_L = 61.8°. Since this value is very close to the required 62° DB_L, selection is satisfactory.

5. Min. and Max. Load Check

   a. Tons Load = $\frac{241{,}000}{12{,}000}$ = 20.1 Tons. This value is within the limits of 9 and 31 tons shown in Table 7 for Size 1840 Large Coils.

6. The 3.0 row Series DXM Direct Expansion coil checks out for Loading and DB_L and is, therefore, selected.

H. Sprayed Coil — Alternate Selection — Page 12.

When the application requires a Sprayed Coil Unit and a higher degree of saturation, with the same conditions applying except for 60° DB_L, coil selection is made as follows:

1. Water Cooling Coil Selection.

   a. DB_L (Sprays OFF)

      1. Choose 45° W_E
      2. CT = 52.1° from Chart 8 using 45° W_E and 59.3° WB_L.
      3. DB_L = 63.5° from Chart 2 using 83° DB_E, 69.4° WB_E, 52.1° CT and 59.3° WB_L.

   b. GPM

      1. Choose WTD = 10°
      2. GPM = $\frac{\text{GTH}}{\text{(WTD) x 500}} = \frac{241{,}000}{10 \times 500} = 48.2$

   c. MED
   (DB_E — LWT) = (83° — 55°) = 28°
   (DB_L — EWT) = 63.5° — 45° = 18.5°
   MED = 22.9°

   d. K-Factor

      1. Coil Face Velocity = $\frac{\text{CFM (std)}}{\text{Water Coil F.A.}}$
      $= \frac{7000}{12.4}$ = 565 FPM.
      2. Tube Water Velocity = 3.25 FPS from Chart 9 using 48.2 GPM and Unit 1840 with Large Coils.
      3. K-Factor = 184 BTU/hr./sq.ft./° MED from Chart 10 using 565 FV and 3.25 WV.

   e. M-Factor

      1. GSH = (DB_E — DB_L) x CFM (std) x 1.085
      = (83 — 63.5) x 7000 x 1.085 = 148,000 BTU/hr.
      2. Heat Ratio (R) = $\frac{\text{GSH}}{\text{GTH}} = \frac{148{,}000}{241{,}000}$ = .614.
      3. M-Factor = .860 from Chart 11 using .614 R and 3.25 WV.

   f. No. Rows = $\frac{\text{GSH}}{\text{K x M x MED x F.A.}}$
   $= \frac{148{,}000}{184 \times .860 \times 22.9 \times 12.4} = 3.29.$
   Use 4 rows Series CWS Water Cooling Coil (Sprayed).

   g. DB_S (Leaving Dry Bulb, Sprays ON)

      1. (DB_L — WB_L) = (63.5° — 59.3°) = 4.2°.
      2. (DB_S — WB_L) = .8 from Chart 12 using 4 Rows and (DB_L — WB_L) = 4.2°.
      3. DB_S = WB_L + .8 = 59.3 + .8 = 60.1

The overall Sensible Heat removed by coil and spray combination = (DB_E — DB_S) x CFM (std) x 1.085 = (83 — 60.1) x 7000 x 1.085 = 174,000 BTU/hr. Of this amount 148,000 BTU/hr. (SH) is removed by the 48.2 GPM circulated within the coil and the remainder, 26,000 BTU/hr. is due to the evaporative cooling effect of the sprays. It is to be noted that the Total Heat (GTH) removed by the coil and spray combination is the same with sprays OFF or ON.

2. Direct Expansion Coil Selection

   a. No. Rows

      1. Coil Face Velocity = $\frac{\text{CFM (std)}}{\text{DE Coil F.A.}} = \frac{7000}{12.4}$ = 565 FPM
      2. Choose 40° Refrig. Suction Temp.
      3. No. Rows, Series DXM Coils, from G-6 is 3.0
      4. R_D factor = 1.11 from Chart 13 using 3 rows and 565 F.V.
      5. No. Rows Series DXS = 3.0 x 1.11 = 3.33; use 4 rows Series DXS Direct Expansion Coil (sprayed).

   b. DB_S (Leaving Dry Bulb — Sprays ON)

      1. (WB_E — WB_L) = (69.4° — 59.3°) = 10.1°.
      2. (WB_E — CT) = 13.3° from Chart 14 using 10.1° and 4 rows.
      3. CT = 69.4° — 13.3° = 56.1°.
      4. DB_L = 61.8° from Chart 2 using 83° DB_E, 69.4° WB_E, 56.1° CT and 59.3° WB_L.
      5. (DB_L — WB_L) = 61.8° — 59.3° = 2.5°.
      6. (DB_S — WB_L) = .5° from Chart 12 using 2.5° and 4 rows.
      7. DB_S = 59.3° + .5° = 59.8°.

I. Air Moving Performance — pages 15 and 21 (For 1840 General Purpose Multitherm — no sprays). Summary of Coil Selections: Series SDT — W_1 (one row) Steam Htg. Coil, 4 row Series CWM Water Cooling Coil — Condensing, both large coils.

   a. 4 row Water Coil — condensing; add .18" from Chart 15 to 1" External Static Pressure.

   b. Fan RPM = 917, Fan BHP = 3.77, from page 21 using 1.18" adjusted External Static Pressure 7000 CFM (std) and 5 rows of coil.

Typical Specification

Central Station Air Conditioning Units shall be Multitherms as manufactured by Clarage Fan Company or similar equipment as manufactured by (list other approved manufacturers). Each unit shall be in accordance with the following specifications and shall be of the type, size, capacity and have components as shown in the schedule.

SPECIFICATION FOR GENERAL PURPOSE MULTITHERM

1. **Unit Casing** shall be built in sections to accomodate the various components and each section panel shall be removable. Panels shall be galvanized steel not less than 18 gauge for unit sizes 1215 and smaller and 16 gauge for 1820 and larger.

Unit pan shall extend under the fan and cooling coil sections and these components shall be supported from the pan or equivalently rigid structure. The unit pan shall be not less than 10 gauge steel, shall extend beyond the casing and shall contain 1½" or larger drain. The interior of the pan shall be protected with Asphaltum paint and the exterior of the unit shall be finished with Zinc Chromate enamel.

2. **Insulation** shall be ½" board type, or equivalent, properly treated to be water resistant and shall be applied to the inside of the fan section and coil section panels. It shall also be applied with mastic coating to the interior of the unit pan.

3. **Fan section** shall be furnished with motor, adjustable speed V-belt drive, and removable belt guard. A motor support shall be furnished for all motors through 20 HP size and shall be rigidly attached to the fan section. The section shall house forward curved, slow speed, multiblade, centrifugal fans finished with Zinc Chromate enamel. The fan housings shall not be less than 18 gauge. The fan wheels shall be individually statically and dynamically balanced. Bearings shall be pre-lubricated anti-friction type. The rotating assembly shall be built with the necessary rigidity and strength to withstand a wheel tip speed of 4400 fpm and the unit shall be run at operating speed before shipment.

4. **Filters** shall be mounted in angle or flat sections as required and as indicated in the schedule. The filter section shall be arranged so that filter cells may be removed from either end through quick access panels. Filter cells shall be 2" thick and type shall be:

(a) Throw-Away
(b) Permanent
(c) Permanent Hi-Velocity
} choose one

Additional Components (Where desired components are not listed in the schedule, the Engineer should specify such components and the units to which they apply. For still other features or components not lised below, see catalog pages and specify accordingly.)

5. **Coils** shall be furnished of the type, capacity, face velocity, and number of rows shown in the schedule. Each coil shall have ⅝" OD copper tubes with smooth aluminum (or copper) fins and shall be encased in galvanized channel frames.

(a) Heating Coils—steam distributing tube type with high capacity fin spacing and steel headers.

(b) Heating Coils — hot water, high capacity fin spacing with steel headers.

(c) Water Cooling Coils — serpentine type with high capacity fin spacing and steel headers.

(d) Direct Expansion Coils—high capacity fin spacing with proper refrigerant distributing headers.

6. **Dampers,** either mixing or face, shall be of the multiblade type rotating in bronze bushings and interlocked with a single control bar.

7. **Humidifier** shall be of the type shown in the schedule and constructed as follows:

(a) Spray type — galvanized header with brass nozzles spraying into bronze eliminator screens.

(b) Grid type — perforated galvanized pipe encased in fabric.

(c) Pan type — copper steam coil mounted in galvanized pan and furnished with water make-up control valve.

8. **Vibration Isolator Mounts** shall be rubber-in-shear type designed for the type, arrangement and unit mounting shown in the schedule.

SPECIFICATION FOR SPRAYED COIL MULTITHERM

The unit shall consist of the fan section and other components as specified in the preceding, *but with modifications as follows:*

Item 1. Insert at the end: The **Unit** shall contain an integral sprayed cooling coil section, which shall contain the cooling coil, spray system, galvanized steel eliminator plates, galvanized inlet diffuser screen, ball cock and float valve, and quick fill connection. The unit pan under this section shall be deepened to not less than 10" to form the recirculating water tank. This tank shall be furnished with 1½" or larger drain, trap type overflow, bronze suction screen, and pump with mounting plate.

Item 2. Replace with: Insulation shall be ½" board type or equivalent properly treated to be water resistant and shall be applied to the inside of the fan and heating sections. ½" insulation shall be applied to the exterior of the sprayed coil section after unit installation.

Item 3. Replace third sentence with: The section shall house forward curved slow speed multiblade, centrifugal fans with wheels and housings hot dip galvanized after fabrication.

Item 5. Replace items (c) and (d) with:

(c) Water cooling coils — serpentine type with copper fins spaced not less than ⅛".

(d) Direct expansion coils with copper fins spaced not less than ⅛" and shall have proper refrigerant distributing headers.

Item 7. Not required.

SIZE AND ACCESSORY SCHEDULE

System No.	Unit Size	Unit Type	Unit Arrangement	CFM (Standard Air)	Maximum Outlet Velocity	Maximum Face Velocity	External SP	Motor HP	Filter Section	Other Features
1a	1840	Gen. Pur.	Horizontal	7000	1720	565	1"	5	Angle	External By-Pass

UNIT COOLING COIL SCHEDULE

System No.	Ent. Air DB	Ent. Air WB	Lv. Air DB	Lv. Air WB	Cooling Medium: Water Temp. Ent.	Water Temp. Lv.	GPM	DE Suct.	Coil Type	Min. No. Rows
1a	83	69.4	62	59.3	45	55	48.2	—	Water	4

UNIT HEATING COIL SCHEDULE

System No.	DB Temperatures Ent.	DB Temperatures Lv.	Heating Medium: Ent. Temp. or PSIG	GPM	Coil Type	Min. No. Rows
1a	57.6	91.8	10 lb.	—	STD.	1