TRANE®

Product Catalog

Blower Coil Air Handler

Air Terminal Devices - 400 to 3000 cfm

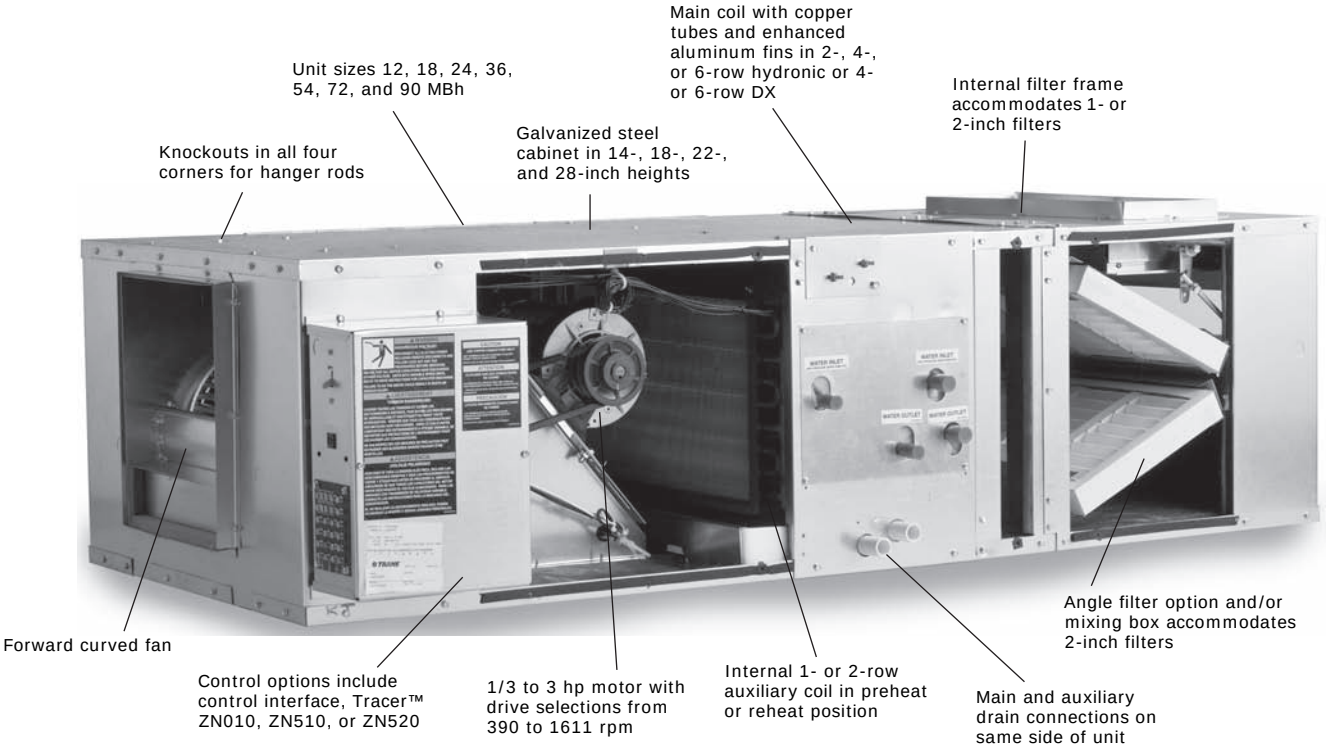
BCHC
BCVC

December 2008

UNT-PRC003-EN

Introduction

Trane Blower Coils — Factory Packaged How You Need It — When You Need It



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Features and Benefits

Factory Packaged – What You Need – When You Need It

The Trane blower coil air handler, model BCHC/BCVC, accommodates a variety of applications while providing a low-cost method of air conditioning and/or heating buildings. These compact, low-profile units can fit in small spaces and are floor or ceiling mounted. With a minimum of effort, they can be relocated within the building as needs change.

BCHC/BCVC units are light-duty air handlers, ranging from 1.0 to 7.5 tons nominal capacity. They are typically used in schools, hospitals, offices, stores, and similar applications. These units are UL/CUL listed for all 60 hertz motor voltages.

Figure 1. Horizontal blower coil

Factory Packaged Means Single Source Responsibility

Trane is the single source of responsibility because we ship BCHC/BCVC units from the factory as a total package. Included in the package are factory-mounted coils, filters, controls, motors, drive kits, and duct collars. Also, factory-provided piping packages are an available option. Because we provide the total package, this helps reduce job site labor and installation time.

Piping Packages

All blower coil air handlers are available with factory-built piping package options for field installation using field-supplied interconnecting piping. Basic or deluxe piping package options are available with a variety of control valve options:

- two- or three-way
- 1/2", 1", or 1-1/4"
- two-position or modulating

The basic piping package consists of two shutoff ball valves. The deluxe piping package has one shutoff ball valve, a strainer, and a circuit setter balancing valve. Basic or deluxe piping packages with a three-way control valve also include a balancing fitting on the bypass line.

Controls

Trane offers a broad array of control options, from a simple control interface to the Tracer™ DDC controllers.

The control interface option consists of a 9-1/2 x 13-inch control box mounted on the drive side. This option also includes a disconnect switch (for non-electric heat units), fused transformer, contactor(s), and terminal strip.

The Tracer™ controls family is the latest in control technology and includes the Tracer ZN010, ZN510, and ZN520 controllers. These controllers automatically determine the unit's correct operating mode (heat/cool) by utilizing a proportional/integral (PI) control algorithm to maintain the space temperature at the active setpoint.

Entering water temperature sampling eliminates the need for inefficient bleed lines to sense automatic changeover on two-pipe changeover units. The random start-up feature helps reduce electrical demand peaks by randomly staggering multiple units at startup. Occupied/unoccupied operation allows the controller to utilize unoccupied temperature setpoints for energy savings. Warm-up and cool-down energy features are standard with Trane controls.

Continuous fan or fan cycling is available with Tracer™ ZN010 or ZN510. Unit operation can be monitored using Tracer Summit® building management system with ZN510 or ZN520. To customize unit control, Tracer Summit or Rover™ service software will allow field modification of ZN510 and ZN520 default settings. To field-modify ZN010, use Rover service software to change default settings. To maximize blower coil efficiency with free cooling, economizers and modulating valves are available on units with Tracer ZN520.

Optional factory-mounted end devices such as a condensate float switch, freezestat, fan status switch, control valves, and actuators are available. Factory-installed and -wired electric heat features single-point power connection.

Flexibility

The Trane blower coil is available in either horizontal (model BCHC) or vertical (model BCVC) configurations. Horizontal units are typically ceiling suspended via threaded rods. Knockouts are provided in all four corners to pass the rods through the unit. Horizontal units can also be floor mounted. Vertical units are typically floor mounted. They have a side inlet for easy duct connection, and do not require a field-fabricated inlet plenum. Vertical units ship in two pieces and can be set up in either a pre-swirl or counter-swirl configuration.

The coil, drain pan, and motor/drive assembly can easily be field-converted from right- to left-hand configurations or vice versa.

In addition, blower coils have acoustical benefits because they are typically located outside the occupied space, either in the ceiling or in a closet. This limits the amount of sound transmission (radiated) directly from the unit to the occupant. These units are applied with discharge ductwork, which is frequently lined to help reduce the sound transmission (discharge) through the ductwork into the occupied space. For optimal acoustical performance, use three phase motors.

Coil Options

The Trane blower coil features a wide variety of coil options that include:

- two-, four-, or six-row hydronic cooling or heating
- three-,four-, or six-row DX coils
- high capacity hydronic coils for cooling or heating
- one- or two-row heating coil in either the preheat or reheat position
- one-row steam preheat

Filter Placement Options

All hydronic units have an internal flat filter frame for 1- or 2-inch filters. Other filter placement options include:

- angle filter box for 2-inch filters
- combination angle filter/mixing box

- bottom or top access filter box that accommodates 2-inch filters. This option allows easy filter access through a hinged door, from the bottom of the unit on horizontal units, and from the top on vertical units.

Motor and Drive Options

Belt-drive motors range from 1/3 to 3 horsepower in a wide range of voltages. All motors have internal thermal and current overloads, permanently sealed ball bearings, and a resilient cradle mount to reduce noise and vibration transmission.

Variable pitch sheave drive kit options help make it possible to more accurately select design static pressure.

For additional flexibility, 115 volt single-phase, two-speed motors are optional.

Indoor Air Quality

Indoor air quality is becoming a greater concern every day. That's why Trane provides the most complete indoor air quality options of any manufacturer.

Drain Pans

The Trane blower coil uses a polymer or optional stainless steel drain pan, sloped in both directions to drain properly. See Figure 2.

Figure 2. Double-sloped, polymer or optional stainless steel drain pans are easily removable and cleanable. Also, main and auxiliary connections are on the same side.

Accessibility and Cleanability

Trane blower coils have 1-inch dual density insulation that meets NFPA90A and UL181, which is designed to withstand high velocities. Trane optionally offers 1-inch foil faced insulation that meets NFPA90A, UL181, and bacteriological standard ASTM C 665.

Coils mount above—not in—the drain pan and are not a structural part of the unit. The coils are easily removable, sliding in and out on rails for cleaning. The drain pan is also easily removable for cleaning.

Filtration

All units have an internal flat filter frame that can accommodate 1- or 2-inch filters. An optional bottom (horizontal units) or top (vertical units) filter access box is also available to improve accessibility.

An optional angle filter box (2-inch only), or combination angle filter/mixing box, provides extra filter face area, which results in extremely low face velocities and low pressure drop. With increased face area, the angle filters have substantially more dust-holding capacity than conventional flat filters. Thirty percent efficiency pleated angle or flat filters options are available.

Ventilation

The optional mixing box delivers ventilation air directly to each unit. When the unit is equipped with a Tracer™ ZN520 controller, the mixing box functions as a zero to 100 percent economizer to improve energy efficiency. For units configured to automatically switch between high and low fan speeds, the Tracer ZN520 controller automatically adjusts the mixing box damper to provide the correct amount of fresh air to the space at all fan speeds.

Blower coil units are draw-thru configurations that use higher horsepower, belt-driven fan motors. This makes them an excellent choice for use in an air supply ductwork system with diffusers—rather than a direct discharge system—because it enhances the space air mixing and ventilation effectiveness.

Dehumidification

For direct control of space humidity, a BCHC/BCVC unit can be configured with a hydronic heating coil in the reheat position and equipped with a Tracer™ ZN520 controller. This controller can independently modulate the cooling and heating coils to directly control both temperature and humidity in the space.

Easy to Service

The coils, motor, and drive are easily replaced within minutes, even when the unit is suspended. Coils slide in and out by removing the coil access panel and a few screws at the rear of the unit. With the bottom filter access option, filters are easily accessed from the bottom of the unit. If the motor requires servicing, only the drive side requires access.

Durability

Trane blower coils use durable materials, including heavy gage, galvanized steel for the casing.

Optional Accessory Sections

These accessory sections make the BCHC/BCVC product more flexible:

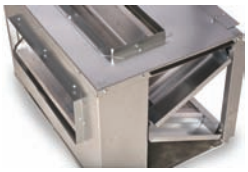
- mixing box
- angle filter box
- angle filter and mixing box section
- bottom or top hinged access filter box
- electric heat box
- steam coil box

Mixing Box

The mixing box option ships separately and has internal low leak aluminum dampers and access panels on both sides. The mixing box is insulated in the same as the main unit: matte or foil, as ordered. Mixing box easily located in field to allow "back/bottom" dampers. See Figure 3.

Figure 3. Mixing box

Angle Filter Box & Combination Angle Filter & Mixing Box



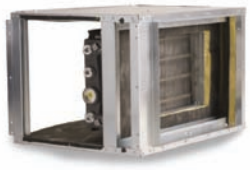
Filter box options include an angle filter box and a bottom/top access filter box that are factory-installed. The angle filter can be combined with the mixing box as one accessory module. The flat filter frame can accommodate 1- or 2-inch filters. The angle filter frame accommodates only 2-inch filters. See Figure 4.

Figure 4. Angle filter and mixing box

Electric Heat

A factory installed open-wire electric heater is available in a wide variety of voltages and kW's. All units have a single point power connection. Optional heater fuses, mercury or magnetic contactors, and a heater door interlocking disconnect switch are available.

Steam Coil



A steam coil box with one-row coil is available in the preheat position. Module includes a filter rack for 1-inch flat filters. See Figure 5.

Figure 5. Steam coil module

Application Considerations

Application Flexibility

The Trane blower coil air handler offers a wide range of application flexibility between the Fan–Coil unit and the Packaged Climate Changer.

Units are available in seven nominal capacities ranging from 1.0 to 7.5 tons cooling and 400 to 3000 cfm airflow. The basic unit is available in horizontal (model BCHC) as well as a vertical (model BCVC) configuration.

The single-zone, constant volume applications discussed in this section are:

- two-pipe hydronic
- two-pipe hydronic with electric heat
- four-pipe hydronic
- economizer

Other applications of the BCHC/BCVC are:

- DX cooling
- two-pipe hydronic with steam heating

Two-Pipe Units

The standard BCHC/BCVC unit is equipped with a hydronic coil. The unit can perform cooling only, heating and cooling (changeover system), or heating only. In a changeover system, the unit cools during the spring, summer, and fall seasons (summer mode) and heats during the winter season (winter mode).

Use the Trane Official Product Selection System, TOPSS™ , program for specific design criteria such as flow rate, temperature rise/drop, pressure drop, glycol mixtures, and capacity.

When selecting two-pipe changeover units, note that TOPSS™ will only provide output that meets both the cooling and heating capacity requirements. Because cooling and heating capacity requirements for a given unit may differ significantly, a given coil may be optimally sized for one load and over/under sized for the other load.

Two-Pipe Units With Electric Heat

With the addition of electric heat, the two-pipe system can heat or cool. In the non-changeover system, the main coil is always used for cooling and the electric heater is always used for heating. In the changeover system, during the summer mode (spring, summer and fall), the main coil is used for cooling and electric heater is used for heating. During the winter mode, the main coil is used for heating and the electric heater is disabled.

Two-pipe systems with electric heat are an economical solution to intermediate season (spring and fall) comfort problems associated with straight two-pipe systems. In moderate climates or where electric rates are low, non-changeover systems are typically used. In climates with significant heating loads and/or high electric rates, a changeover system—to allow hydronic heating—is typically used.

Changeover in Two-Pipe Systems

Changing between cooling and heating modes in a two-pipe system requires energy to heat or cool the mass of water in the piping system at switchover. ASHRAE Standard 90.1–2001 defines specific requirements for minimizing the energy impact of this switchover:

- The system must allow a deadband between changeover from one mode to the other of at least 15°F (8°C) outdoor-air temperature.
- The system must include controls that allow the system to operate in one mode for at least four hours before changing to the other mode.

- Reset controls must be provided to allow heating and cooling supply-water temperatures, at the changeover point, to be no more than 30°F (17°C) apart.

Four-Pipe Units

The addition of a one-row or two-row heating coil to the basic BCHC/BCVC unit makes it compatible for a four-pipe cooling and heating system. The heating coil is available factory installed in either the preheat or reheat position.

Four-pipe systems solve the intermediate season (spring and fall) comfort problems associated with straight two-pipe systems because they only either cool or heat year-round. However, they do require chiller and boiler operation to be available to operate year-round.

When making the choice between a two or four-pipe system, also consider:

- cooling/heating loads in perimeter zones of the building
- the importance of temperature and humidity control for the zone
- first cost

TOPSS™ allows independent selection of the cooling and heating coils for flexibility in flow rates, pressure drops, temperature rise/drop, and fluid type.

DX Cooling Units

A BCHC/BCVC unit with a DX cooling coil will often be connected to an air-cooled condensing unit. Some condensing units have two, independent refrigeration circuits, while the DX coil in the BCHC/BCVC unit is single-circuited.

Note: *Do not manifold two independent refrigeration circuits into a single-circuited DX (evaporator) coil.*

Dehumidification

The BCHC/BCVC has two methods for improving the dehumidification performance of the constant-volume unit.

Automatic Fan Speed Adjustment

When equipped with a Tracer™ ZN520 controller, the BCHC/BCVC unit can be operated in the AUTO fan speed setting that operates the fan at the lowest speed possible, while maintaining space temperature setpoint. As the cooling load decreases, the first control step is to switch the fan to operate at low speed. Upon a further drop in cooling load, the control valve modulates to further reduce the unit's cooling capacity. This results in improved dehumidification performance because less air passes through the coil and, therefore, leaves the coil at a cooler, drier condition.

To provide the proper amount of outdoor air to the space at all fan speeds, the Tracer™ ZN520 controller automatically adjusts the position of the economizer damper when the fan switches speeds. Fan-speed adjustment has an added acoustical advantage in that operating the fan at low speed results in quieter operation.

Four-Pipe Unit with Reheat

BCHC/BCVC units equipped with a Tracer™ ZN520 controller and a hydronic heating coil in the reheat position will provide direct control of space humidity. If the space humidity level does not exceed the desired upper limit, the unit responds to reduced cooling load by modulating the control valve and, if in AUTO mode, switching between fan speeds. However, if the space humidity level rises above the upper limit, the capacity of the cooling coil is increased, overcooling the air to maintain the space humidity below the upper limit. Then, the capacity of the heating coil modulates, adding a small amount of heat to temper the air and avoid overcooling the space.

The Tracer™ ZN520 controller responds to a signal from a humidity sensor installed in the space or a signal from a building automation system, and independently modulates the cooling and heating coils to directly control both temperature and humidity in the space. While this

configuration can directly control indoor humidity levels, it does require the boiler (or other source of heat) to be available year-round.

Impact of Chilled-Water Reset

In many constant-flow pumping systems, the leaving chilled-water temperature setpoint is reset based on either outdoor dry-bulb temperature or some indication of cooling load. Use caution when implementing a chilled-water reset strategy because space humidity control can be compromised if the water gets too warm.

A BCHC/BCVC unit equipped with a Tracer™ ZN520 can accept an input signal from a humidity sensor in the space. A building automation system will continually poll the humidity level in all spaces, or in a single representative space, to limit the amount of chilled-water reset and maintain space humidity levels.

Airside Economizer

Adding a mixing box with a damper actuator allows economizer or free cooling applications. When using blower coils for these applications, Trane highly recommends using a freeze protection device to protect the coil(s). If the unit has a Tracer™ ZN520 controller, you must have an outside air temperature signal from either a hardwired outside air sensor or from the building automation system, such as Tracer Summit®.

Location and Installation

Avoid locating the unit directly above spaces where sound levels may be critical, such as areas near the occupied space. Install horizontal units over false ceilings in service areas such as corridors or storage rooms. Install vertical units in closets or mechanical rooms.

Horizontal units are installed by suspending the corners of the unit with threaded rods. Use suitable vibration isolators and take the following precautions to comply with generally accepted installation practices.

- Use flexible duct connectors or supply and return sides (if ducted).
- Use acoustic lining on the inside of main supply duct for noise control.
- Do not attach ceiling suspension wires to unit or through ducts.
- Locate return air grilles as far as possible from the unit to avoid noise transmission.
- Design and install ductwork as per ASHRAE guides, SMACNA, and local code requirements.

Acoustics

Controlling outdoor and equipment noise within the occupied space is increasingly important to system designers and building occupants/owners. Therefore, give proper consideration to this subject in the application of the BCHC/BCVC unit.

Selecting fan and coil combinations is inherently flexible for sound-sensitive applications. In such instances, a fan running at low speed with a high capacity coil normally yields satisfactory results. It also may be desirable to select a larger nominal capacity unit and operate it at less than nominal airflow for further acoustic benefit.

BCHC/BCVC sound power, Lw, data for ducted discharge, inlet + casing, and casing radiated components is available from TOPSS™ . This sound power data is useful in estimating the sound levels in the occupied space for a given application.

Note: *All sound power data is based on three-phase motors. Trane recommends three-phase motors for sound-sensitive applications to avoid potential single-phase motor hum.*

Operating Limitations

Reference the General Data section for minimum and maximum operating limits. Units must not operate above maximum fan rpm or unit airflow. Unit operation above the maximum fan rpm will drastically reduce bearing life and may result in catastrophic failure. Operating the unit above the

maximum airflow in the cooling mode may result in unsatisfactory operation due to water carryover from the coil. In addition, it is often uneconomical to operate a unit at its maximum rpm due to greater motor power requirements.

The unit may not perform at an optimal acoustical performance level if it operates in the fan's traditional stall region.

Do not operate units with electric heat below the minimum airflow limit to prevent excessive leaving air temperatures and electric heat limit trips.

Do not operate hydronic and electric heat simultaneously to prevent excessive leaving air temperatures and limit trips. Electric heat units have a lockout switch to disable the electric heater if the temperature off the hydronic coil is greater than 95°F.

Do not operate units with a leaving air temperature above 130°F, unless fitted with special higher insulation class motors.

Do not operate coils above the water flow limits to prevent erosion and noise. A minimum or "self-venting" water flow rate is also listed in the General Data Section. If the coil is set to operate below this flow rate, vent it periodically by flushing at a higher flow rate.

Do not operate piping packages and water valves above the water flow limit to prevent erosion and noise. Water valves supplied with the BCHC/BCVC units as accessories are intended for use in "treated" closed loop chilled or hot water systems.

Note: *Do not use valves with open or potable water systems. Untreated water may cause scaling and particulate collection interference with the valve function, and reduce the life and effectiveness of the valve.*

Typical Blower Coil Applications

Figure 6. Four-pipe (preheat) typical application

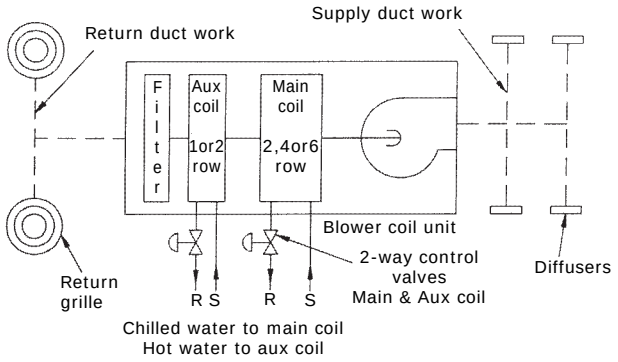


Figure 7. Two-pipe with electric heat and mixing box typical application

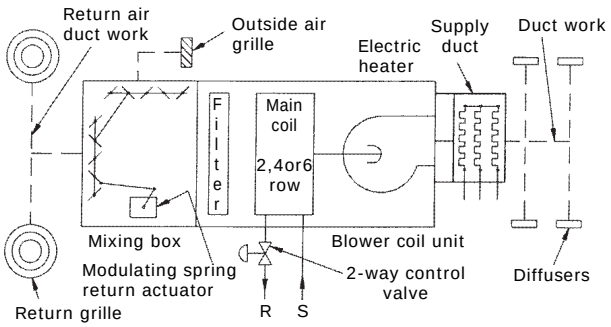


Figure 8. Two-pipe with changeover typical application

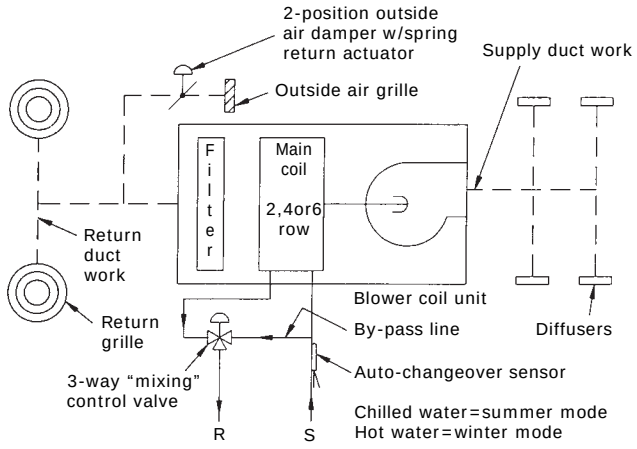


Figure 9. Four-pipe vertical with changeover typical application

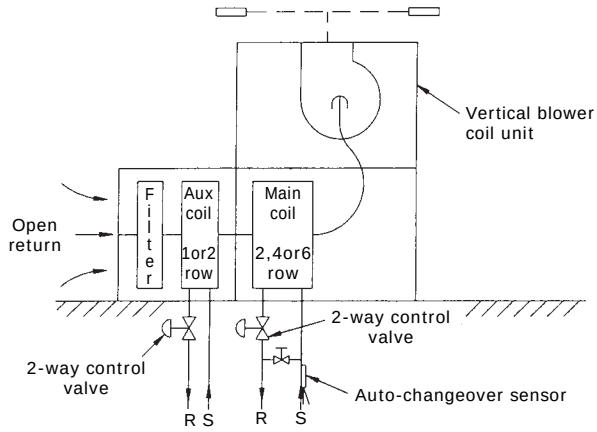
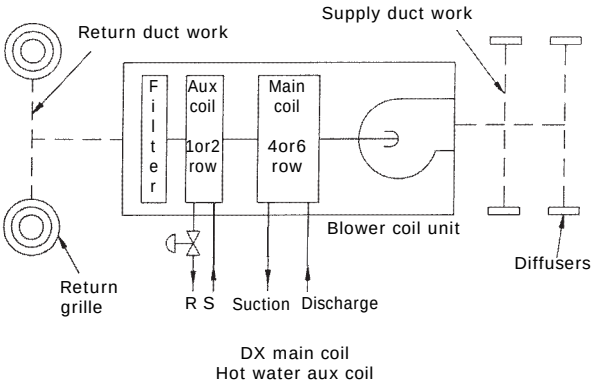


Figure 10. DX with hot water preheat typical application



Selection Procedure

These selection procedures are for manual computations using the general data and capacity tables in this catalog. For particular design conditions not in this catalog, use the Trane Official Product Selection System, TOPSS™, or contact your local Trane office.

Step 1. Determine unit capacity

Reference unit capacities on p. 40–p. 62 to determine unit size needed for cooling and/or heating. Interpolate between given values when necessary.

Step 2. Verify air and water flow operating limits

If design airflow equals the unit rated airflow with the chosen coil, use the waterflow rate shown in the appropriate performance table. If using interpolation to determine capacity, determine waterflow using the formula: gpm = total capacity (MBh) / [(0.5) x (water temperature rise)]

Airflow and water flow must fall within the unit operating limits in general data Table 1, p. 19 or you must reselect the unit.

Heating coils only: If entering air and water conditions are different than 60/180°F or 60/120°F respectively, refer to the associated correction factors in Table 28, p. 61. Divide the required capacity by the correction factor and then refer to the table to locate the corrected capacity.

Step 3. Calculate the water pressure drop (hydronic coils only)

Determine water pressure drop using the appropriate figure on p. 31–p. 39.

Step 4. Check fan performance requirements

Reference fan performance data by unit size and configuration on pages p. 31–p. 39. These tables and curves include pressure drops from the casing only. Reference air pressure drop for coils, filters, and accessories using Table 5, p. 22 and Table 6, p. 23.

Step 5. Calculate total static pressure requirements

Add the external static pressure (ESP) of the coil, filter, and accessories to the system esp to obtain the total fan static pressure requirement. Then determine bhp and fan rpm requirements using the fan performance curves.

Step 6. Determine motor and drive size

Check bhp and fan rpm requirements to determine the correct motor and drive size. Drive sets are factory installed and field adjustable. Select drive sets based on the adjustment range.

Cooling Selection Example

Job example:

- horizontal blower coil
- 2-inch pleated media filters
- mixing box with dampers
- total capacity required: 53.0 MBh
- sensible capacity required: 42.9 MBh
- airflow: 2000 cfm, 0.25” ESP
- entering air conditions: 80°F DB/67°F WB
- entering water: 45°F
- water temperature rise: 10°F

Step 1: Determine unit capacity

Using Table 17, p. 40, the capacity of a BCHC 54 with a six-row coil, 10°F ΔT at 1800 cfm, is 74.51 MBh total and 52.3 MBh sensible. At 2250 cfm, it is 88.7 MBh total and 63.4 MBh sensible.

Interpolate between these values for 2000 cfm to obtain 80.9 MBh total and 56.7 sensible.

Step 2: Verify cfm and gpm limits

Using Table 17, p. 40, the water flow rate = 16.1 gpm. Reference Table 1, p. 19 for airflow and water limits. Both the water flow rate (16.1 gpm) and airflow (2000 cfm) fall within the range specified for a BCHC054 with a six-row cooling coil.

Step 3: Calculate wpd

From Table 17, p. 40, the water pressure drop for a size 54 unit, six-row coil at 16.1 gpm = 4.8 feet of water.

Step 4: Check fan performance requirements

Calculate the air pressure drop for all components using Table 5, p. 22 and Table 6, p. 23, air pressure drop adjustment. Interpolate for 2000 cfm as follows:

6-row coil	0.934″ wg
2″ pleated filter	0.175″ wg
mix. box/dampers	0.026″ wg
	1.135″ wg

Step 5: Calculate tsp

Unit apd 1.135″ wg + 0.25″ wg ESP= 1.385″ wg total static pressure.

Step 6: Determine motor and drive size

Using Table 11 (fan performance), p. 35, interpolate for 2000 cfm at 1.385″ wg total static pressure to obtain 945 rpm and 0.77 bhp. Therefore, using Table 41, p. 79, select a 1 hp motor with drive E for 60 hz and drive F for 50 hz applications.

Heating Selection Example

Select a heating coil for the BCHC054, selected in the cooling selection example. Operating conditions are:

- 2000 cfm
- EWT = 170°F
- EAT = 60°F
- LAT = 120°F

Step 1: Determine unit capacity

Required capacity = cfm x 1.085 x (LAT - EAT) = 2000 x 1.085 x (120 - 60) = 130,200 Btu (130.2 MBh)

	10°F ΔT	15°F ΔT
@1800 cfm	136.4 MBh	131.3 MBh
	4.9 gpm	13.1 gpm
@2250 cfm	156.9 MBh	150.7 MBh
	6.4 gpm	15.1 gpm
@2000 cfm	145.5 MBh	139.9 MBh
	5.6 gpm	14.0 gpm

The capacity correction factor for a two-row coil is 0.917 for EAT = 60°F and EWT = 170°F.

Corrected capacity required = 130.2/0.917 = 142.0 MBh

Step 2: Verify water flow and airflow limits

Reference Table 1, p. 19 for water flow limits and Table 2, p. 20 for cfm limits. Both the water flow rate (10.9 gpm) and airflow (2000 cfm) fall within the range specified for a BCHC 054 with a 2-row heating coil.

Step 3: Calculate water pressure drop (wpd)

From Figure 24, p. 29, the water pressure drop for a size 54 unit is 20 feet of water. The wpd correction factor for the average water temperature through the coil from Table 28, p. 61 is 1.01. Corrected water pressure drop = 2.0 x 1.01 = 2.02 feet of water.

Step 4: Calculate total static pressure and determine motor and drive size

From Table 5, p. 22, air pressure drop for a BCHC054 two-row coil is 0.222″ wg.

Adding this pressure drop to the total static pressure (calculated in the cooling example) gives a total static pressure of 1.356″ wg. From Table 11, p. 35, interpolating for 2000 cfm and 1.446″ wg, we obtain 0.75 bhp and 930 rpm. Therefore, select a 0.75 hp motor with drive E for 60 hz and drive F for 50 hz applications.

Model Number Descriptions

Following is a complete description of the blower coil model number. Each digit in the model number has a corresponding code that identifies specific unit options.

Digits 1, 2, 3, 4 — Unit Model

BCHC= Horizontal Blower Coil
BCVC= Vertical Blower Coil

Digits 5, 6, 7 — Unit Size

012	024	054	
018	036	072	090

Digit 8 — Unit Voltage

A	=	115/60/1	G	=	460/60/3
B	=	208/60/1	H	=	575/60/3
C	=	230/60/1	J	=	220/50/1
D	=	277/60/1	K	=	240/50/1
E	=	208/60/3	L	=	380/50/3
F	=	230/60/3	M	=	415/50/3
			N		190/50/3
P	=	Two-Speed, 115/60/1			
0	=	No Motor, Ctrls, Elec Ht.			

Digit 9 —Insulation Type

1 = 1″ Matte-Faced
2 = 1″ Foil-Faced

Digits 10, 11 — Design Sequence

A0 = A

Digit 12 — Motor, Drive, and Control Box Location

A = Same Side as Coil Connections, Horizontal or Counterswirl Only
B = Opposite Side from Coil Connections, Horizontal or Counterswirl Only
C = Same Side as Coil Connections, Pre-Swirl Only
D = Opposite Side from Coil Connections, Pre-Swirl Only
R = Right-Hand Access
L = Left-Hand Access

Digit 13 — Drain Pan Type, Coil & Drain Connection Side

0 = None
1 = Polymer Drain Pan & Right-Hand Connections
2 = Polymer Drain Pan & Left-Hand Connections
3 = Stainless Steel Drain Pan & Right-Hand Connections
4 = Stainless Steel Drain Pan & Left-Hand Connections

Digit 14 — Unit Coil #1*

Note: *All coils are hydronic unless stated otherwise.*

0 = None
A = 1-Row Preheat
L = 2-Row Hydronic High-Capacity Preheat
F = 4-Row Hydronic
G = 6-Row Hydronic
J = 4-Row Hydronic, Autochangeover
K = 6-Row Hydronic, Autochangeover
M = 4-Row Hydronic High-Capacity
N = 6-Row Hydronic High-Capacity
R = 4-Row Hydronic High-Capacity, Autochangeover
T = 6-Row Hydronic High-Capacity, Autochangeover
1 = 3-Row DX, 3/16″ Distributor (0.032)
2 = 4-Row DX, 3/16″ Distributor (0.032)
3 = 6-Row DX, 3/16″ Distributor (0.032)
4 = 3-Row DX, 3/16″ Distributor (0.049)
5 = 4-Row DX, 3/16″ Distributor (0.049)
6 = 6-Row DX, 3/16″ Distributor (0.049)

Digit 15 — Unit Coil #2*

Note: *All coils are hydronic unless stated otherwise.*

0 = None
A = 1-Row Reheat
L = 2-Row Hydronic High-Capacity Reheat
F = 4-Row Hydronic
G = 6-Row Hydronic
H = 2-Row Hydronic, Autochangeover
J = 4-Row Hydronic, Autochangeover
K = 6-Row Hydronic, Autochangeover
M = 4-Row Hydronic High-Capacity
N = 6-Row Hydronic Hhigh-Capacity
P = 2-Row Hydronic High-Capacity, Autochangeover
R = 4-row Hydronic High-Capacity, Autochangeover
T = 6-Row Hydronic High-Capacity, Autochangeover
1 = 3-Row DX, 3/16″ Distributor (0.032)
2 = 4-Row DX, 3/16″ Distributor (0.032)
3 = 6-Row DX, 3/16″ Distributor (0.032)
4 = 3-Row DX, 3/16″ Distributor (0.049)
5 = 4-Row DX, 3/16″ Distributor (0.049)
6 = 6-Row DX, 3/16″ Distributor (0.049)

Digit 16 — Motor Horsepower

0	=	None	5	=	1 hp
1	=	1/3 hp	6	=	1-1/2 hp
2	=	1/2 hp	6	=	2 hp
3	=	3/4 hp	7	=	3 hp

Digit 17 — Motor Drives

0 = None
A = 390–552 rpm / 60 Hz
B = 478–678 rpm / 60 Hz
C = 540–765 rpm / 60 Hz
D = 619–878 rpm / 60 Hz
E = 727–1029 rpm / 60 Hz
F = 879–1245 rpm / 60 Hz
G = 1000–1417 rpm / 60 Hz
H = 1200–1700 rpm / 60 Hz
J = 1313–1859 rpm / 60 Hz
K = 1615–2288 rpm / 60 Hz
L = 678–877 rpm / 60 Hz
M = 765–990 rpm / 60 Hz
N = 878–1136 rpm / 60 Hz
P = 1029–1332 rpm / 60 Hz
R = 1245–1611 rpm / 60 Hz
T = 1174–1519 rpm / 50 Hz

Digit 18 — Electric Heat Stages

0 = None
1 = 1-Stage
2 = 2-Stage

Digits 19, 20, 21 — Electric Heat

000	=	None	100	=	10.0 kW
010	=	1.0 kW	110	=	11.0 kW
015	=	1.5 kW	120	=	12.0 kW
020	=	2.0 kW	130	=	13.0 kW
025	=	2.5 kW	140	=	14.0 kW
030	=	3.0 kW	150	=	15.0 kW
035	=	3.5 kW	160	=	16.0 kW
040	=	4.0 kW	170	=	17.0 kW
045	=	4.5 kW	180	=	18.0 kW
050	=	5.0 kW	190	=	19.0 kW
055	=	5.5 kW	200	=	20.0 kW
060	=	6.0 kW	210	=	21.0 kW
065	=	6.5 kW	220	=	22.0 kW
070	=	7.0 kW	240	=	24.0 kW
075	=	7.5 kW	260	=	26.0 kW
080	=	8.0 kW	280	=	28.0 kW
090	=	9.0 kW	300	=	30.0 kW

Digit 22 — Electric Heat Controls

0 = None
A = 24 Volt Magnetic Contactors
B = 24 Volt Mercury Contactors

Digit 23 — Electric Heat Options

0 = None
A = Electric Heat with Heater Fuse
B = Electric Heat Interlocking Non-fused Disconnect
C = A & B

Digit 24 — Filters

0 = None
A = 1″ Throwaway
B = 2″ Pleated Throwaway

Digit 25 — Accessory Section

0 = None
A = Mixing Box Only
B = Angle Filter Box
C = Angle Filter/Mixing Nox
D = Top Access Filter Box
E = Bottom Access Filter
F = A & D
G = A & E
H = Steam Coil
J = A & H
K = B & H
L = C & H
M = D & H
N = E & H
P = A, D, & H
R = A, E, & H

Digit 26 — Control Type

0 = No Controls (4 x 4 Junction Box)
1 = Control Interface
2 = Tracer™ ZN010
3 = Tracer ZN510
4 = Tracer ZN520

Digit 27 — Unit Coil #1 Control Valve

0 = None
A = 2-Way, 2-Position, N.C.
B = 2-Way, 2-Position, N.O.
C = 3-Way, 2-Position, N.C.
D = 3-Way, 2-Position, N.O.
E = 2-Way Modulating
F = 3-Way Modulating
G = Field-Supplied Valve, 2-Pos., N.C.
H = Field-Supplied Valve, 2-Pos., N.O.
J = Field-Supplied Modulating Valve

Digit 28 — Unit Coil #1 Control Valve Cv

0 = None
A = 3.3 Cv, 1/2" Valve & Pipe
B = 3.3 Cv, 1/2" Valve & 3/4" Pipe
C = 3.8 Cv, 1/2" Valve & 3/4" Pipe
D = 6.6 Cv, 1" Valve & Pipe
E = 7.4 Cv, 1" Modulating Valve & Pipe
F = 8.3 Cv, 1-1/4" Modulating Valve & Pipe
G = 3.5 Cv, 1/2" Valve & Pipe
H = 4.4 Cv, 1/2" Valve & Pipe
J = 7.0 Cv, 3-Way Valve OR 6.0 Cv, 2-Way Valve, 1" Valve & Pipe
K = 8.0 Cv, 1" Valve & Pipe
L = 7.4 Cv, 1" 2-Position Valve & Pipe
M = 8.3 Cv, 1-1/4" 2-Position Valve & Pipe
Q = 1.3 Cv, 1/2" Valve, 3/4" Pipe
R = 1.8 Cv, 1/2" Vvalve, 3/4" Pipe
T = 2.3 Cv, 1/2" Valve, 3/4" Pipe
U = 2.7 Cv, 1/2" Valve, 3/4" Pipe

Digit 29 — Unit Coil #1 Piping Package

0 = None
1 = Basic Piping Package
2 = Deluxe Piping Package

Digit 30 — Unit Coil #2 Control Valve

0 = None
A = 2-Way, 2-Position, N.C.
B = 2-Way, 2-Position, N.O.
C = 3-Way, 2-Position, N.C.
D = 3-Way, 2-Position, N.O.
E = 2-Way Modulating
F = 3-Way Modulating
G = Field-Supplied Valve, 2-Pos., N.C.
H = Field-Supplied Valve, 2-Pos., N.O.
J = Field-Supplied Modulating Valve

Digit 31 — Unit Coil #2 Control Valve Cv

0 = None
A = 3.3 Cv, 1/2" Valve & Pipe
B = 3.3 Cv, 1/2" Valve & 3/4" Pipe
C = 3.8 Cv, 1/2" Valve & 3/4" Pipe
D = 6.6 Cv, 1" Valve & Pipe
E = 7.4 Cv, 1" Modulating Valve & Pipe
F = 8.3 Cv, 1-1/4" Modulating Valve & Pipe
G = 3.5 Cv, 1/2" Valve & Pipe
H = 4.4 Cv, 1/2" Valve & Pipe
J = 7.0 Cv, 3-Way Valve OR 6.0 Cv, 2-Way Valve, 1" Valve & Pipe
K = 8.0 Cv, 1" Valve & Pipe
L = 7.4 Cv, 1" 2-Position Valve & Pipe
M = 8.3 Cv, 1-1/4" 2-Position Valve & Pipe
Q = 1.3 Cv, 1/2" Valve, 3/4" Pipe
R = 1.8 Cv, 1/2" Valve, 3/4" Pipe
T = 2.3 Cv, 1/2" Valve, 3/4" Pipe
U = 2.7 Cv, 1/2" Valve, 3/4" Pipe

Digit 32 — Unit Coil #2 Piping Package

0 = None
1 = Basic Piping Package
2 = Deluxe Piping Package

Digit 33 — Remote Heat Options

0 = None
1 = Staged Electric Heat
2 = 2-Position Hot Water, N.C.

Digit 34 — Mixing Box Damper Actuator

Note: *The back damper is the control damper when actuators are ordered. The back damper is N.C. (normally closed) or N.O. (normally open) as selected.*

0 = None
1 = 2-Position, N.O., Ship Loose
2 = Modulating, N.C.
3 = Modulating, N.O.
4 = Modulating, Ship Loose
5 = Field-Supplied 2-Position, N.O.
6 = Field-Supplied 2-Position, N.C.
7 = Field-Supplied Modulating

Digit 35 — Factory Mounted Control Options

0 = None
A = Fan Statu
C = Condensate Overflow
D = Low Limit
F = A & C
G = A & D
K = C & D
N = A, C, & D

Digit 36 — Control Options 2

0 = None
A = Outside Air Sensor, Field-Mounted
B = Discharge Air Sensor
C = A & B

Digit 37 — Control Options 3

0 = None
A = Dehumidification with Communicated Value
B = Dehumidification with Local Humidity Sensor

Digit 38 — Zone Sensors

0 = None
1 = Off/Auto, Setpoint Knob, On/Cancel, COMM
2 = Off/Auto/High/Low, Setpoint Knob, On/Cancel, COMM
3 = Wall Mtd. Zone Sensor (Set Point, Occ, COMM)
4 = Wall Mtd. Zone Sensor (Occ, COMM)
5 = Wall Mtd. Zone Temp Sensor
A = Digital Zone Sensor (O, A, H, L; SP; OCC; COMM)
B = Digital Zone Sensor (CPS; OCC; COMM)
C = Wireless Zone Sensor (Setpoint Only)

Digit 39 — Extra Belt

0 = None
1 = Ship Loose Extra Belt

Digit 40 — Extra Filter

0 = None
1 = Ship Loose Extra 1" Throwaway Filter
2 = Ship Loose Extra 2" Pleated Throwaway

General Data

Table 1. BCHC/BCVC coil general data

Unit Size	12	18	24	36	54	72	90
Nominal cfm	**400**	**600**	**800**	**1200**	**1800**	**2400**	**3000**
Hydronic & DX coil data							
Area - ft^2	0.89	1.11	1.67	2.67	4.00	5.00	6.67
Width - in. (a), (b)	8	8	12	12	18	18	24
Length - in. (d)	16	20	20	32	32	40	40
Velocity - ft/min.	450	540	480	450	450	480	450
Hydronic coil data							
• High-capacity							
Area - ft^2	0.89	1.11	1.67	2.67	3.89	4.86	6.25
Width - in. (a), (c)	8	8	12	12	17.5	17.5	22.5
Length - in. (d)	16	20	20	32	32	40	40
Velocity - ft/min.	450	540	480	450	463	494	480
1-row coil							
Minimum gpm (e)	1.0	1.0	1.0	1.0	6.1	6.1	7.9
Maximum gpm (f)	5.2	5.2	5.2	5.2	32.6	32.6	42.0
Dry coil weight - lb	4.4	5.2	6.6	9.3	17.6	20.4	25.8
Wet coil weight - lb	5.1	6.0	7.8	11.0	22.4	26.0	32.9
Internal volume - in^3	19.4	22.2	33.2	47.1	132.9	155.1	196.6
2-row coil							
• High-capacity							
Minimum gpm (e)	1.0	1.0	2.0	2.0	6.1	6.1	7.9
Maximum gpm (f)	5.2	5.2	10.4	10.4	32.6	32.6	42.0
Dry coil weight - lb	5.9	7.0	9.9	14.1	27.2	32.1	39.4
Wet coil weight - lb (kg)	7.2	8.4	12.3	17.6	36.1	42.5	52.6
Internal volume - in^3	36.0	38.8	66.5	96.9	246.5	288.0	365.5
4-row coil							
• Standard capacity							
Minimum gpm (e)	N/A	N/A	N/A	N/A	8.8	8.8	11.7
Maximum gpm (f)	N/A	N/A	N/A	N/A	47.0	47.0	62.6
Dry coil weight - lb (g)	N/A	N/A	N/A	N/A	37.2	44.5	58.5
Wet coil weight - lb (g)	N/A	N/A	N/A	N/A	48.3	57.7	77.0
Internal volume - in^3 (g)	N/A	N/A	N/A	N/A	307.4	365.5	512.3
• High-capacity							
Minimum gpm (e)	2.0	2.0	2.9	2.9	6.1	6.1	7.9
Maximum gpm (f)	10.4	10.4	15.7	15.7	32.6	32.6	42.0
Dry coil weight - lb	10.5	12.4	17.7	25.5	47.0	56.3	73.1
Wet coil weight - lb	13.1	15.5	22.5	32.5	62.7	74.9	97.9
Internal volume - in^3	72.0	85.8	132.9	193.8	433.0	516.7	688.3
6-row coil							
• Standard capacity							
Minimum gpm (e)	N/A	N/A	N/A	N/A	8.8	8.8	11.7
Maximum gpm (f)	N/A	N/A	N/A	N/A	47.0	47.0	62.6
Dry coil weight - lb (g)	N/A	N/A	N/A	N/A	52.4	63.1	82.7
Wet coil weight - lb (g)	N/A	N/A	N/A	N/A	68.1	82.0	108.7
Internal volume - in^3 (g)	N/A	N/A	N/A	N/A	434.8	523.4	720.0
• High-capacity							
Minimum gpm (e)	2.0	2.0	2.9	2.9	6.1	6.1	7.9
Maximum gpm (f)	10.4	10.4	15.7	15.7	32.6	32.6	42.0
Dry coil weight - lb	14.6	17.4	24.7	36.1	65.4	78.6	101.5
Wet coil weight - lb	18.2	21.8	31.5	46.1	87.8	105.6	137.0
Internal volume - in^3	99.7	121.8	188.3	276.9	620.4	745.9	983.1
Steam coil data							
Area - ft^2	0.71	0.88	1.75	2.75	4.13	5.13	6.83
Width - in. (a)	6	6	12	12	18	18	24
Length - in. (d)	17	21	21	33	33	41	41
Velocity - ft/min.	26	25	18	17	17	16	16
1-row coil	3	3	5	5	14	14	9
Minimum steam press - psig	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Maximum steam press - psig	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Dry coil weight - lb	16.7	18.7	32.5	41.1	57.4	64.8	84.9
Wet coil weight - lb	18.2	20.4	36.0	45.8	64.5	73.2	96.1
Internal volume - in^3	41.7	47.7	95.3	130.8	196.1	231.6	308.7

(a) Coil width = Length in the direction of a coil header, typically vertical.

(b) "**Hydronic and DX coil data**" width dimensions apply only to DX coils (all unit sizes), 1-row standard capacity hydronic coils (unit sizes 012 through 036), and 4- and 6-row standard capacity hydronic coils (054 through 090).
(c) "**High-capacity hydronic coil data**" width dimensions apply only to 1-row standard capacity hydronic coils (unit sizes 054 through 090) and 2-, 4-, and 6-row high capacity hydronic coils (all unit sizes).
(d) Coil length = Length of coil in direction of the coil tubes, typically horizontal and perpendicular to airflow.
(e) The minimum waterflow at 1.5 fps tubeside velocity is to ensure the coil self-vents properly. There is no minimum waterflow limit for coils that do not require self venting.
(f) Maximum gpm limits are to prevent erosion and noise problems.
(g) DX coil height and width dimensions are same as comparable hydronic coils. Four- and six-row DX coil dry weight dimensions are same as comparable 4- and 6-row hydronic coils. A 3-row DX coil dry weight is 25% less than a comparable 4-row hydronic coil. Internal volumes are approximately 6% less than comparable hydronic coils.

Table 2. BCHC/BCVC fan, filter, and mixing box general data

Unit Size	**12**	**18**	**24**	**36**	**54**	**72**	**90**
Nominal cfm	**400**	**600**	**800**	**1200**	**1800**	**2400**	**3000**
Air flow							
Minimum cfm	250	375	500	750	1125	1500	1875
Maximum cfm	500	675	1000	1600	2400	3000	4000
Fan data							
Fan wheel, in. (dia. x width)	9.5 x 4.5	9.5 x 4.5	9.5 x 9.5	9.5 x 9.5	12.6 x 9.5	12.6 x 9.5	12.6 x 9.5
Maximum rpm	2300	2300	1800	1800	1500	1500	1500
Motor hp	0.33–1.0	0.33–1.0	0.33–1.0	0.33–1.5	0.33–2.0	0.33–3.0	0.33–3.0
Unit flat filter							
Qty. - size, in.	1 - 12 x 24	1 - 12 x 24	1 - 16 x 25	2 - 16 x 20	2 - 20 x 20	1 - 20 x 20 1 - 20 x 25	3 - 16 x 25
Area, sq. ft	2.000	2.000	2.778	4.444	5.556	6.250	8.333
Velocity, ft/min.	200	300	288	270	324	384	360
Angle filter							
Qty. - size, in.	2 - 12 x 24	2 - 12 x 24	2 - 12 x 24	2 - 20 x 20	4 - 16 x 20	4 - 16 x 20	4 - 20 x 20
Area, sq. ft	4.000	4.000	4.000	5.556	8.889	8.889	11.111
Velocity, ft/min.	100	150	200	216	203	270	270
Bottom / top access filter box							
Qty. - size, in.	1 - 12 x 20	1 - 12 x 24	1 - 16 x 25	1 - 16 x 20 1 - 16 x 16	1 - 16 x 20 1 - 20 x 20	1 - 20 x 25 1 - 20 x 20	2 - 16 x 25 1 - 14 x 25
Area, sq. ft	1.700	2.000	2.800	4.000	5.000	6.300	8.000
Velocity, ft/min.	240	300	288	300	360	384	375
Mixing box							
Damper opening width, in.	15.5	19.5	19.5	31.5	31.5	31.5	31.5
Damper opening height, in.	7	7	7	7	12.75	12.75	12.75
Area, sq. ft	0.753	0.948	0.948	1.531	2.789	2.789	2.789
Velocity, ft/min.	531	633	844	784	645	861	1076

Note: Minimum air flow limits apply to units with hot water or electric heat only. There is no minimum airflow limit on cooling on units. Maximum airflow limits are to help prevent moisture carryover.

Table 3. BCBH/BCVC valve package waterflow limits

Tube Size (in.)	gpm
1/2	8.6
3/4	19.3
1	34.3
1-1/4	53.5

Figure 11. Single refrigerant coil

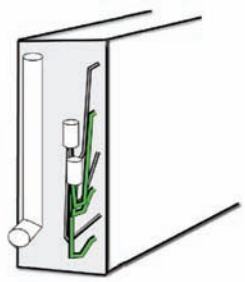


Figure 12. Horizontal face split DX coil

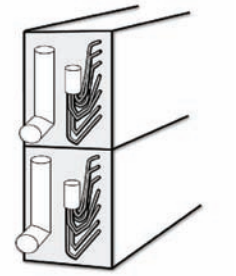


Table 4. Number of circuits per coil

No. of Rows	Application Type[a]	Coil Type	Unit Size						
			12	18	24	36	54	72	90
1	**Heating**	Standard capacity	2	2	2	2	7	7	9
2	**Heating**	High-capacity	2	2	4	4	7	7	9
3	**Refrigerant**	DX	2	2	3	6	9	9	12
4	**Hydronic**	Standard capacity	N/A				18	18	18
		High-capacity	4	4	6	6	7	7	9
	Refrigerant	DX	2	2	3	6	9	9	12
6	**Hydronic**	Standard capacity	N/A				18	18	18
		High-capacity	2	2	4	4	7	7	9
	Refrigerant	DX	4	4	6	6	9	9/9[b]	12/12[b]

(a) Hydronic and refrigerant coils can be applied as heating or cooling.
(b) All refrigerant coils are single-circuit coils, except for sizes 72 and 90 with a 6-row coil, where there are two circuits that are face split.

Performance Data

Table 5. Coil air pressure drop adjustments (in. wg)

Unit Size	cfm	Coil Face Velocity	2-Row	4-Row		6-Row		DX Cooling			Hydronic Heating Coil		Steam Coil	Electric Heat	
			Hi-Cap	Std Cap	Hi-Cap	Std Cap	Hi-Cap	3-Row	4-Row	6-Row	1-Row	2-Row	1-Row	Discharge Velocity	Delta P
12	250	300	0.098	—	0.197	—	0.320	0.112	0.197	0.320	0.036	0.071	0.092	490	0.028
	300	360	0.135	—	0.273	—	0.444	0.158	0.273	0.444	0.048	0.096	0.126	588	0.034
	350	420	0.176	—	0.360	—	0.586	0.210	0.360	0.586	0.062	0.124	0.164	686	0.039
	400	480	0.219	—	0.451	—	0.734	0.268	0.451	0.734	0.077	0.154	0.207	784	0.405
	450	540	0.265	—	0.547	—	0.891	0.331	0.547	0.891	0.093	0.187	0.254	882	0.050
	500	600	0.312	—	0.649	—	1.057	0.397	0.649	1.057	0.111	0.222	0.305	980	0.056
18	375	360	0.142	—	0.287	—	0.453	0.239	0.287	0.453	0.048	0.096	0.129	735	0.042
	450	432	0.194	—	0.396	—	0.626	0.331	0.396	0.626	0.065	0.130	0.176	882	0.050
	525	504	0.250	—	0.513	—	0.812	0.432	0.513	0.812	0.083	0.167	0.230	1029	0.059
	600	576	0.309	—	0.637	—	1.009	0.538	0.637	1.009	0.104	0.208	0.290	1176	0.067
	675	648	0.369	—	0.763	—	1.209	0.647	0.763	1.209	0.126	0.252	0.356	1324	0.076
24	500	288	0.106	—	0.232	—	0.366	0.192	0.232	0.366	0.039	0.079	0.064	571	0.033
	600	346	0.146	—	0.322	—	0.509	0.269	0.322	0.509	0.053	0.107	0.088	686	0.039
	700	403	0.190	—	0.421	—	0.666	0.353	0.421	0.666	0.069	0.137	0.114	800	0.046
	800	461	0.236	—	0.526	—	0.833	0.444	0.526	0.833	0.086	0.171	0.144	914	0.052
	900	518	0.285	—	0.637	—	1.009	0.538	0.637	1.009	0.104	0.208	0.176	1029	0.059
	1000	576	0.336	—	0.748	—	1.186	0.635	0.748	1.186	0.124	0.247	0.211	1143	0.065
36	750	270	0.106	—	0.218	—	0.334	0.171	0.218	0.334	0.036	0.071	0.059	857	0.049
	900	324	0.146	—	0.303	—	0.464	0.239	0.303	0.464	0.048	0.096	0.081	1029	0.059
	1050	378	0.191	—	0.399	—	0.613	0.315	0.399	0.613	0.062	0.124	0.105	1200	0.069
	1200	432	0.238	—	0.499	—	0.768	0.398	0.499	0.768	0.077	0.154	0.133	1371	0.078
	1350	486	0.288	—	0.604	—	0.932	0.485	0.604	0.932	0.093	0.187	0.163	1543	0.092
	1500	540	0.339	—	0.715	—	1.104	0.574	0.715	1.104	0.111	0.222	0.195	1714	0.118
54	1125	289	0.124	0.181	0.249	0.317	0.373	0.171	0.249	0.317	0.053	0.089	0.059	960	0.055
	1350	347	0.168	0.257	0.336	0.441	0.503	0.239	0.336	0.441	0.073	0.118	0.081	1152	0.066
	1575	405	0.215	0.345	0.430	0.583	0.645	0.315	0.430	0.583	0.096	0.151	0.105	1344	0.077
	1800	463	0.265	0.438	0.530	0.732	0.795	0.398	0.530	0.732	0.122	0.187	0.133	1536	0.091
	2025	521	0.317	0.535	0.634	0.889	0.952	0.485	0.634	0.889	0.149	0.226	0.163	1728	0.121
	2250	579	0.371	0.637	0.741	1.054	1.112	0.574	0.741	1.054	0.180	0.269	0.195	1920	0.156
72	1500	309	0.138	0.229	0.277	0.365	0.415	0.184	0.277	0.365	0.060	0.099	0.067	1280	0.073
	1800	370	0.186	0.319	0.373	0.508	0.559	0.257	0.373	0.508	0.082	0.131	0.091	1536	0.091
	2100	432	0.238	0.418	0.476	0.665	0.714	0.338	0.476	0.665	0.108	0.167	0.119	1792	0.132
	2400	494	0.293	0.523	0.585	0.833	0.878	0.426	0.585	0.833	0.136	0.207	0.150	2048	0.182
	2700	555	0.349	0.634	0.698	1.009	1.047	0.517	0.698	1.009	0.167	0.252	0.184	2304	0.241
	3000	617	0.407	0.746	0.813	1.186	1.220	0.611	0.813	1.186	0.202	0.300	0.220	2560	0.311
90	1875	300	0.132	0.203	0.264	0.325	0.397	0.169	0.264	0.325	0.057	0.095	0.060	1600	0.100
	2250	360	0.178	0.284	0.356	0.452	0.534	0.237	0.356	0.452	0.078	0.125	0.082	1920	0.156
	2625	420	0.228	0.374	0.456	0.597	0.683	0.313	0.456	0.597	0.102	0.160	0.107	2240	0.225
	3000	480	0.280	0.470	0.561	0.748	0.841	0.394	0.561	0.748	0.130	0.198	0.134	2560	0.311
	3375	540	0.335	0.571	0.670	0.908	1.005	0.481	0.670	0.908	0.159	0.240	0.164	2880	0.412
	3750	600	0.391	0.677	0.781	1.077	1.172	0.570	0.781	1.077	0.192	0.286	0.197	3200	0.531

Notes:
1. Cooling coil APD is for a typical coil running at 80/67°F EAT and 45°F EWT with 10°F water temperature.
2. Heating coil APD is for dry fin surface.
3. Four- and six-row heating coil APD is equal to 4–6 times the 1-row heating coil APD.

Table 6. Filter and mixing box air pressure drop adjustments (in. wg)

		Flat Filters			Angle Filters		Mixing Box	
Unit Size	**cfm**	**Velocity**	**1" T/A**	**2" Pleat.**	**Velocity**	**2" Pleat.**	**Velocity**	**apd**
12	250	125	0.030	0.031	63	0.010	332	0.006
	300	150	0.039	0.042	75	0.013	398	0.008
	350	175	0.048	0.054	88	0.017	465	0.011
	400	200	0.058	0.067	100	0.022	531	0.015
	450	225	0.068	0.081	113	0.026	598	0.018
	500	250	0.078	0.096	125	0.031	664	0.022
18	375	188	0.053	0.060	94	0.019	396	0.008
	450	225	0.068	0.081	113	0.026	475	0.012
	525	263	0.083	0.104	131	0.034	554	0.016
	600	300	0.100	0.130	150	0.042	633	0.020
	675	338	0.117	0.158	169	0.051	712	0.026
24	500	180	0.050	0.056	125	0.031	527	0.014
	600	216	0.064	0.076	150	0.042	633	0.020
	700	252	0.079	0.098	175	0.054	738	0.028
	800	288	0.095	0.122	200	0.067	844	0.036
	900	324	0.111	0.147	225	0.081	949	0.045
	1000	360	0.128	0.175	250	0.096	1055	0.055
36	750	169	0.046	0.051	135	0.035	490	0.013
	900	203	0.059	0.068	162	0.047	588	0.018
	1050	236	0.072	0.088	189	0.061	686	0.024
	1200	270	0.087	0.109	216	0.076	784	0.031
	1350	304	0.102	0.133	243	0.092	882	0.039
	1500	338	0.117	0.158	270	0.109	980	0.047
54	1125	202	0.059	0.068	127	0.032	403	0.009
	1350	243	0.075	0.092	152	0.043	484	0.012
	1575	283	0.093	0.118	177	0.055	565	0.016
	1800	324	0.111	0.147	202	0.068	645	0.021
	2025	364	0.130	0.179	228	0.083	726	0.027
	2250	405	0.150	0.212	253	0.098	807	0.033
72	1500	240	0.074	0.090	169	0.051	538	0.015
	1800	288	0.095	0.122	202	0.068	645	0.021
	2100	336	0.117	0.156	236	0.088	753	0.029
	2400	384	0.140	0.195	270	0.109	861	0.037
	2700	432	0.164	0.236	304	0.133	768	0.046
	3000	480	0.189	0.281	337	0.158	1076	0.057
90	1875	225	0.068	0.081	169	0.051	672	0.023
	2250	270	0.087	0.109	203	0.068	807	0.033
	2625	315	0.107	0.141	236	0.088	941	0.044
	3000	360	0.128	0.175	270	0.109	1076	0.057
	3750	450	0.150	0.212	304	0.133	1210	0.071
	3375	405	0.173	0.252	338	0.158	1345	0.087

Note: Data based on clean filters.

Figure 13. Two-way basic piping package water pressure drop

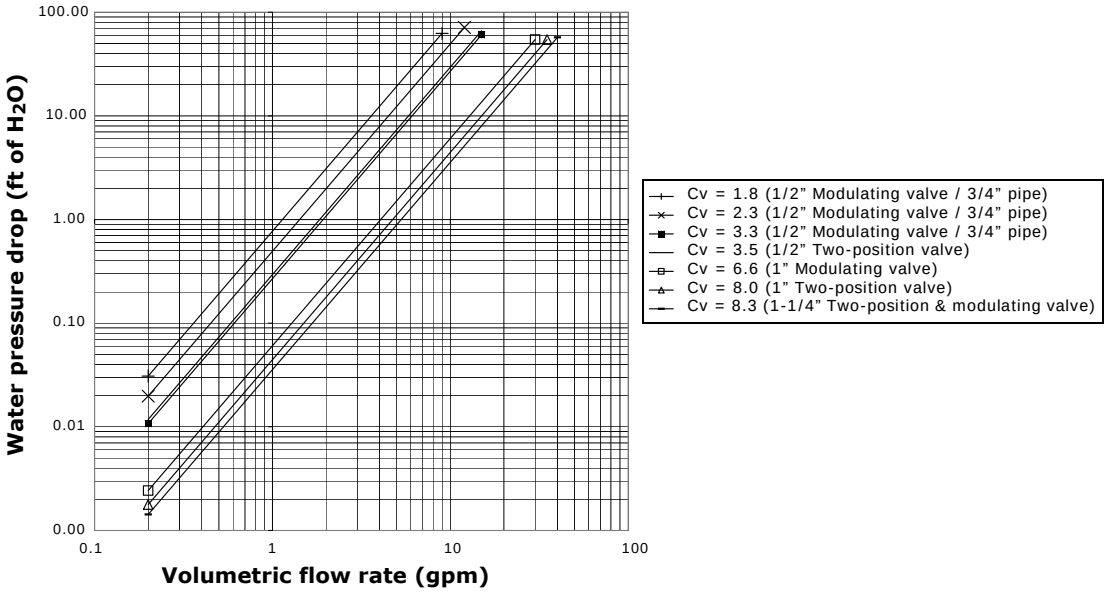


Figure 14. Two-way deluxe piping package water pressure drop

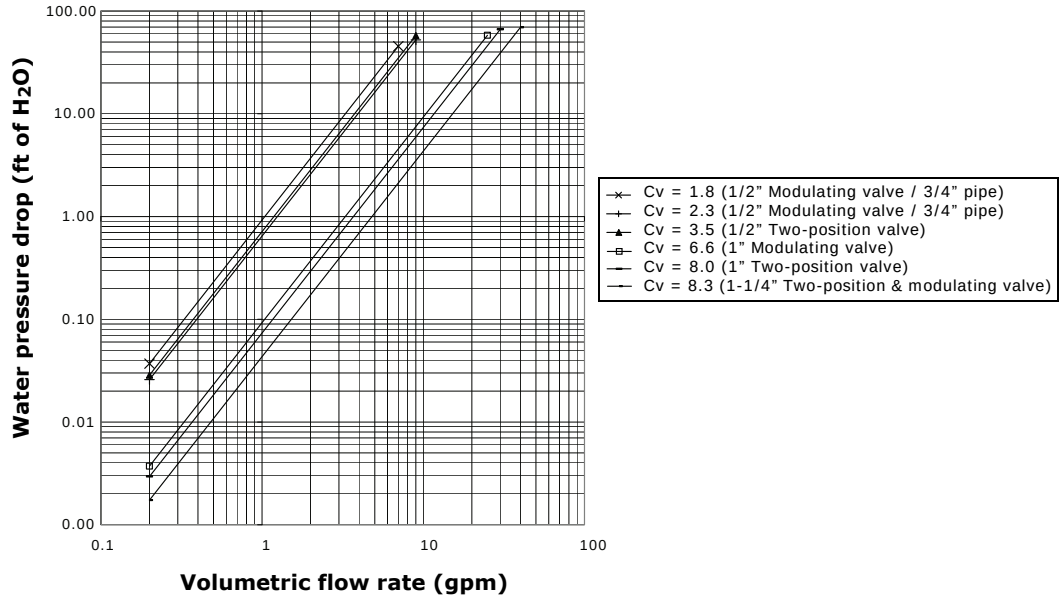


Figure 15. Three-way basic piping package water pressure drop

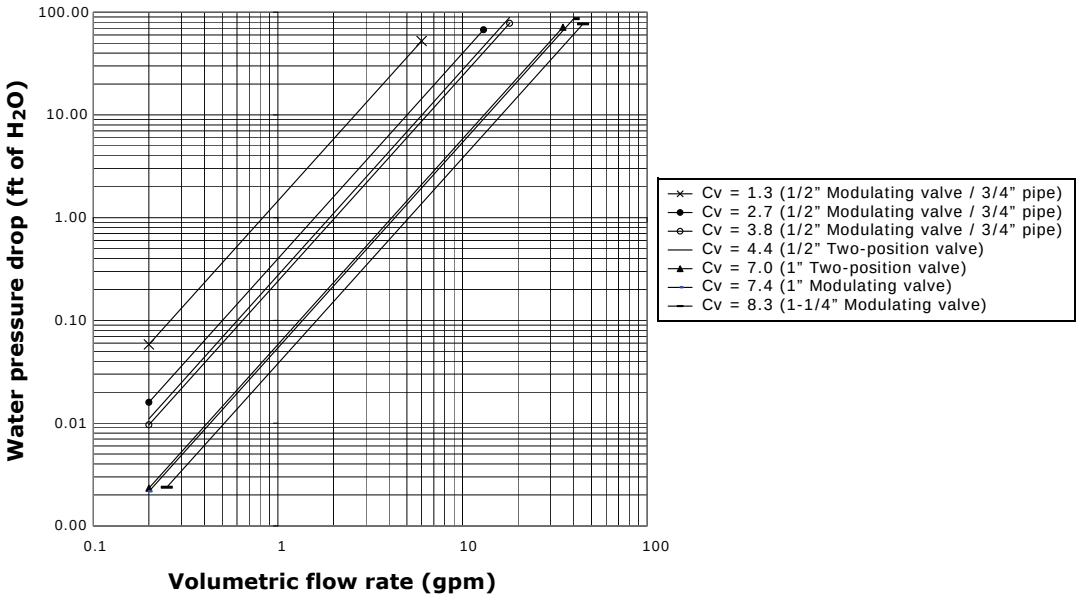


Figure 16. Three-way deluxe piping package water pressure drop

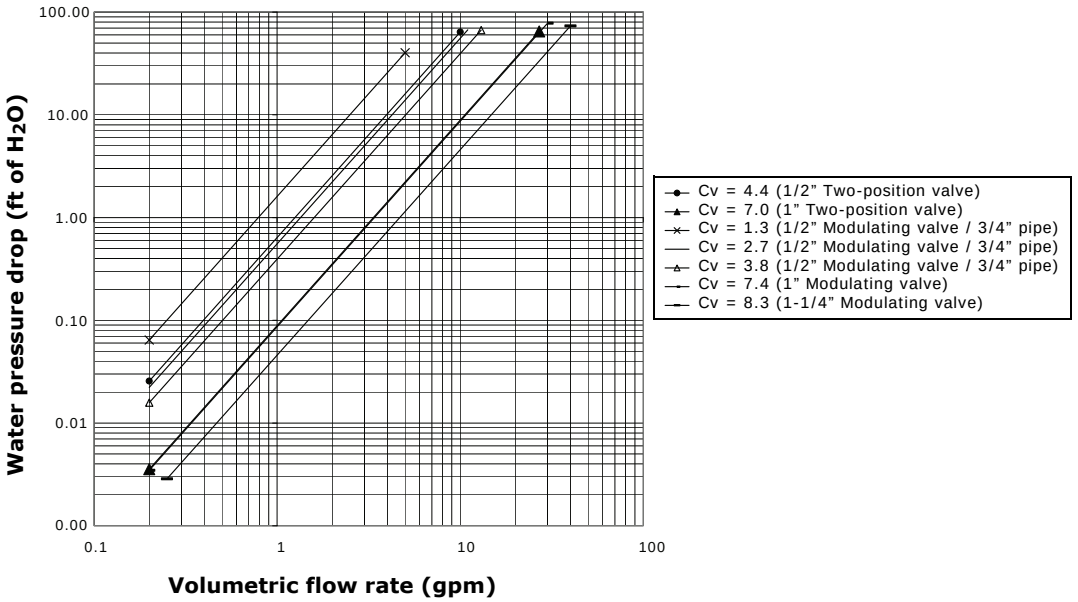


Figure 17. Four-row standard cooling coil water pressure drop

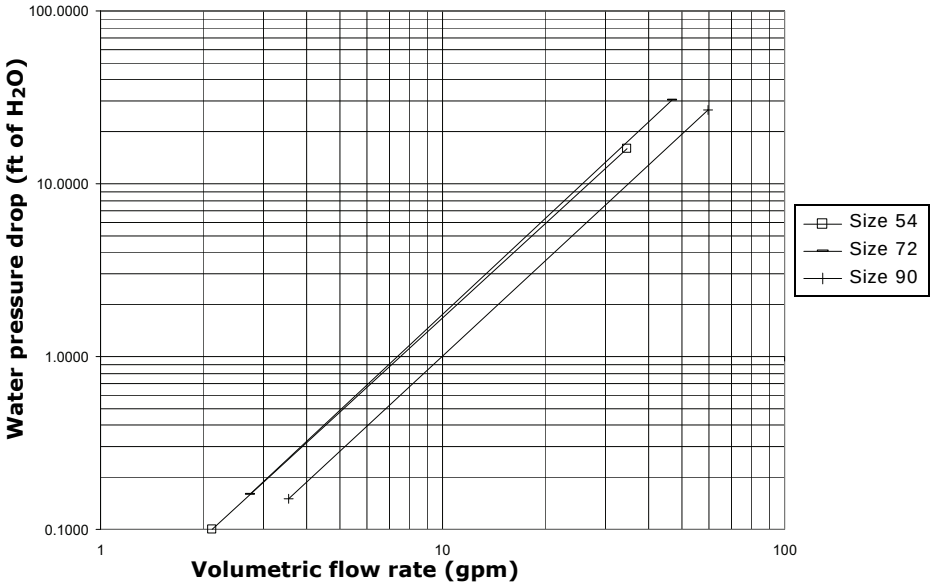


Figure 18. Six-row standard cooling coil water pressure drop

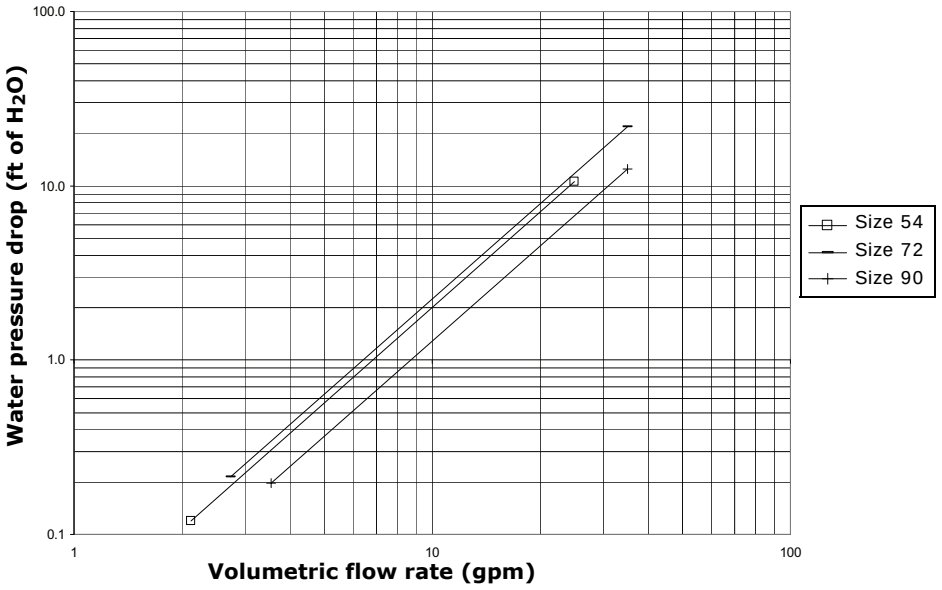


Figure 19. Four-row high-capacity cooling coil water pressure drop

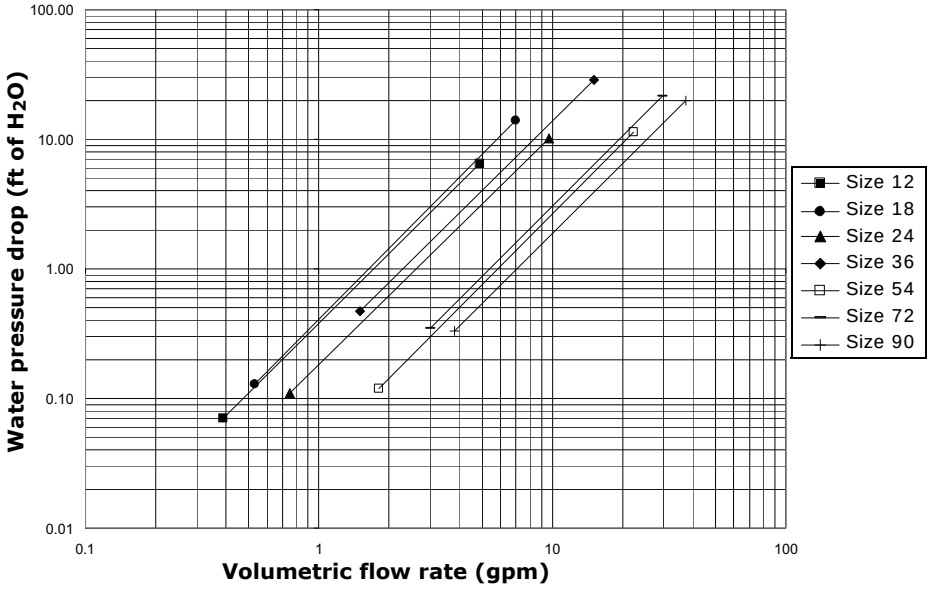


Figure 20. Six-row high-capacity cooling coil water pressure drop

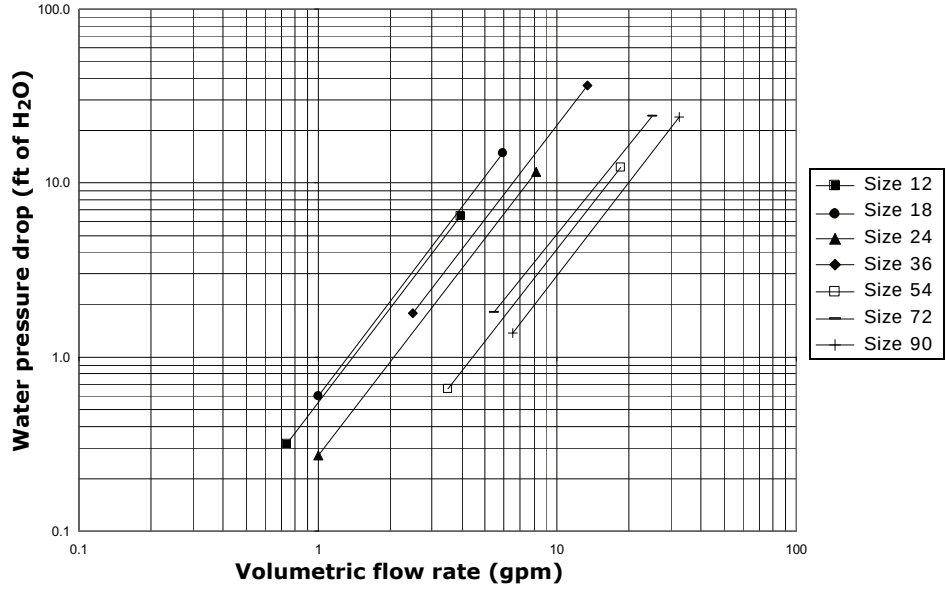


Figure 21. One-row standard heating coil water pressure drop

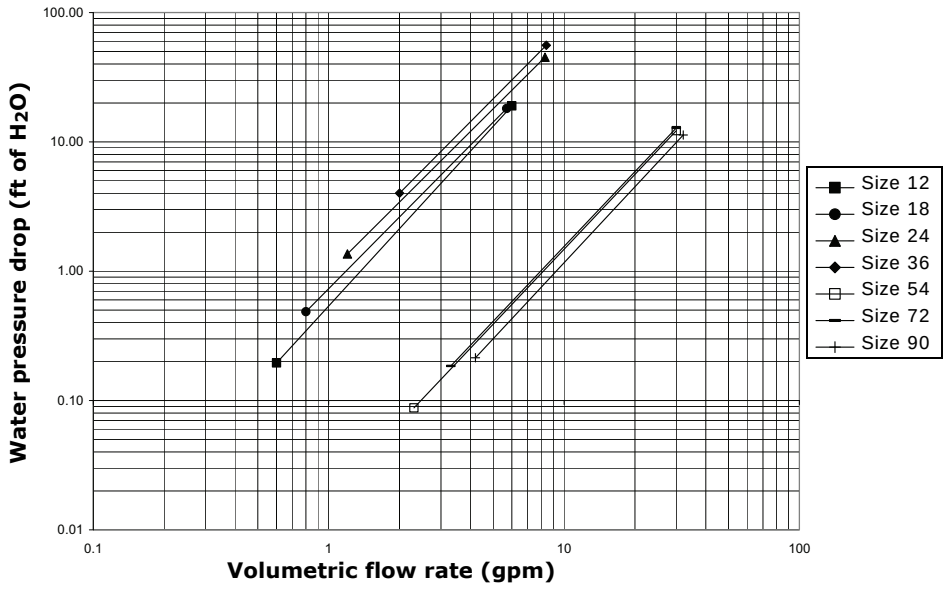


Figure 22. Four-row standard heating coil water pressure drop

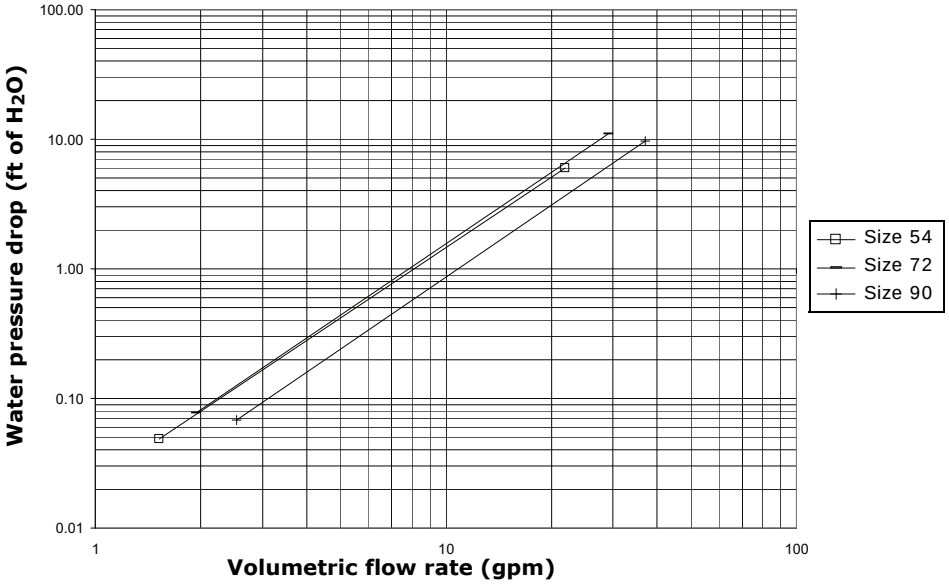


Figure 23. Six-row standard heating coil water pressure drop

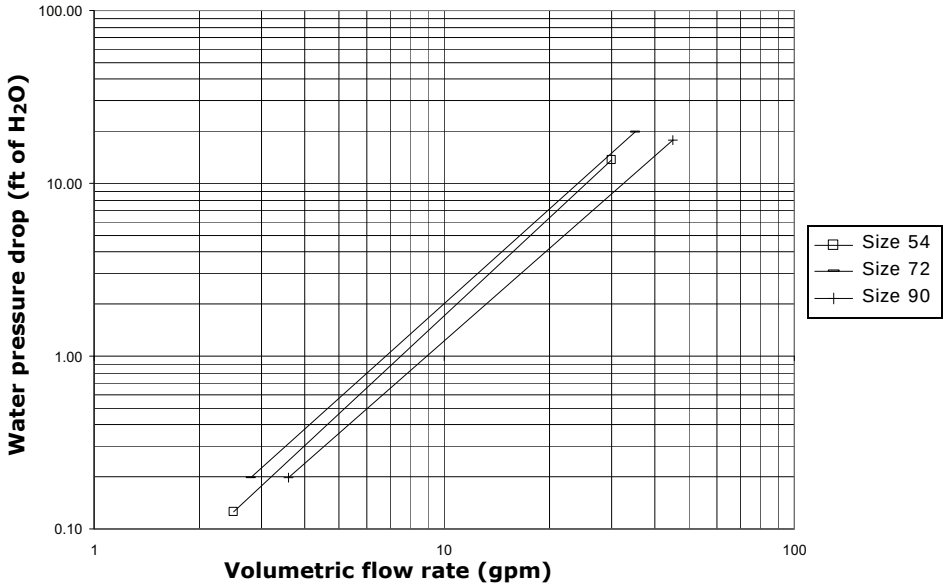


Figure 24. Two-row high-capacity heating coil water pressure drop

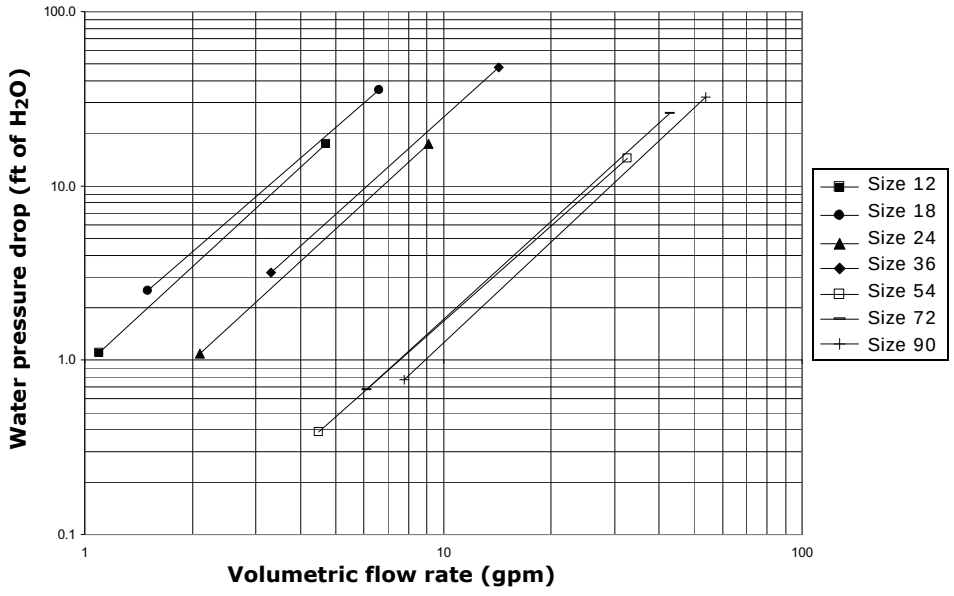


Figure 25. Four-row high-capacity heating coil water pressure drop

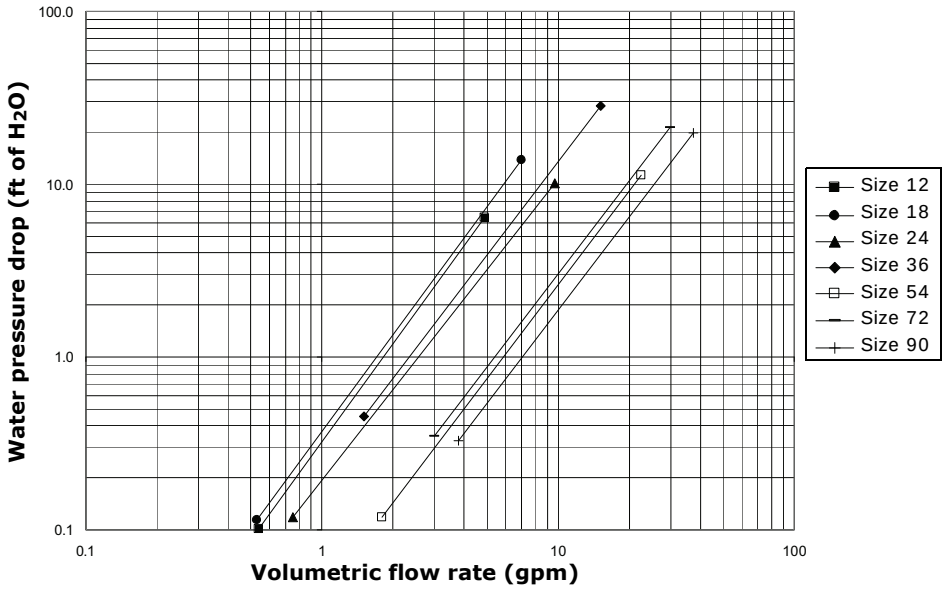


Figure 26. Six-row high-capacity heating coil water pressure drop

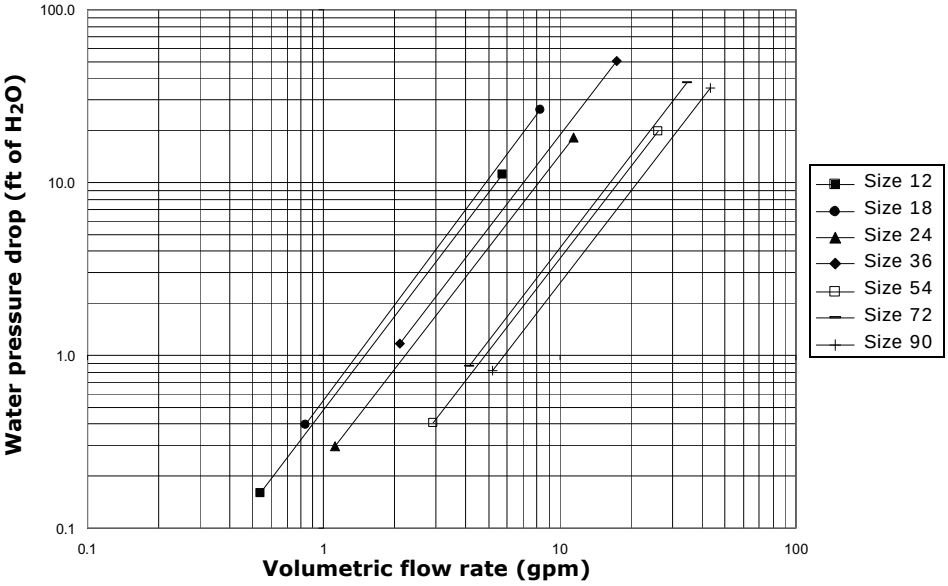


Figure 27. Fan performance for size 12 and 18 horizontal units

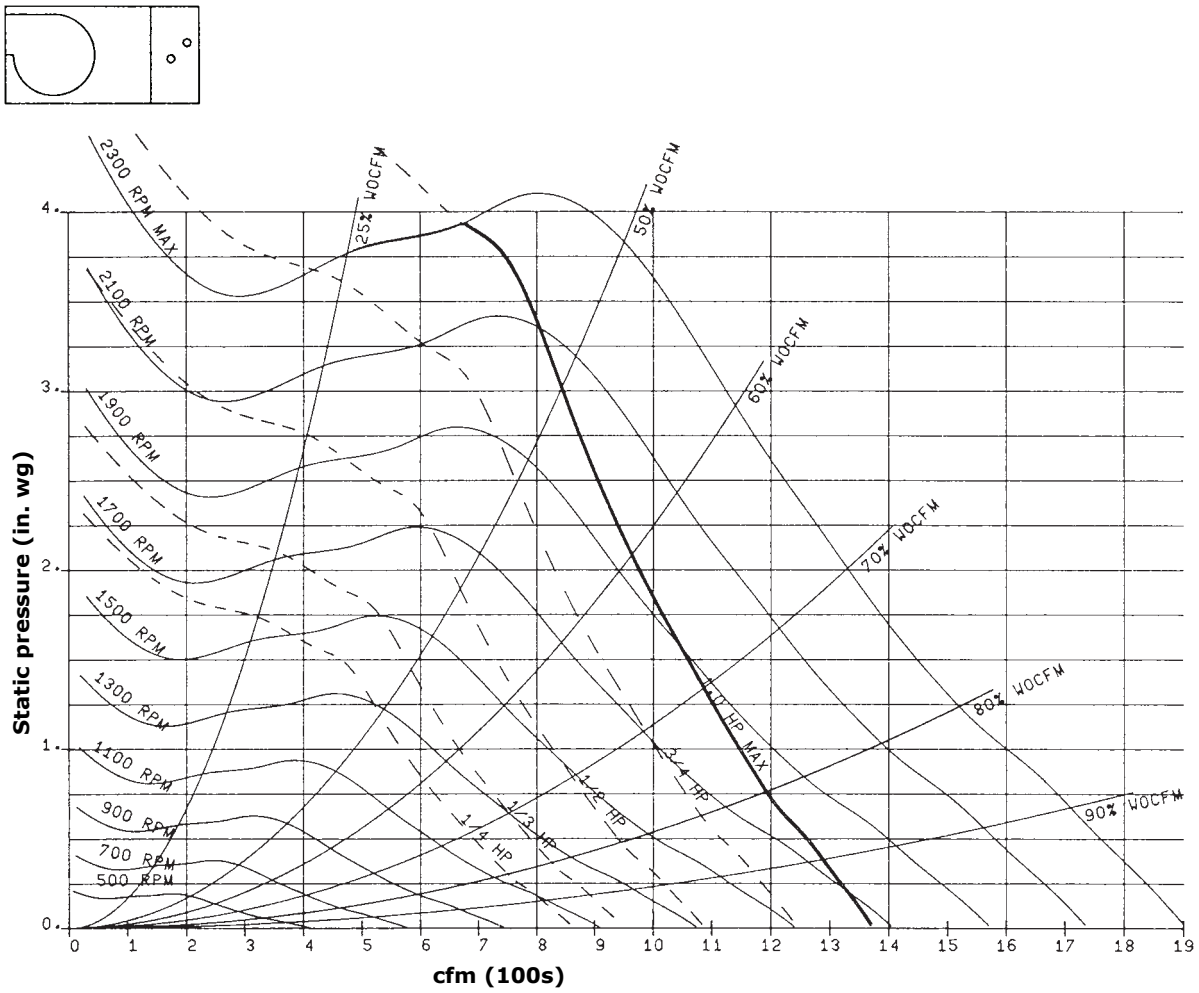


Table 7. Horizontal units, size 12 and 18

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.5		0.75		1.0		1.25		1.5		2.0		2.5	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
12	250	490	593	0.03	815	0.05	1016	0.08	1183	0.11	1337	0.15	—	—	—	—	—	—
	300	588	639	0.03	807	0.05	1001	0.08	1171	0.12	1316	0.16	1451	0.20	—	—	—	—
	350	686	690	0.05	836	0.07	984	0.09	1154	0.13	1306	0.17	1437	0.21	1674	0.31	—	—
	400	784	740	0.06	880	0.09	1004	0.11	1278	0.28	1285	0.18	1427	0.23	1661	0.33	1868	0.44
	450	882	791	0.07	930	0.11	1041	0.14	1136	0.14	1270	0.20	1401	0.24	1651	0.35	1856	0.46
	500	980	844	0.09	981	0.13	1087	0.17	1152	0.17	1287	0.23	1392	0.27	1629	0.37	1846	0.49
18	375	735	716	0.05	857	0.08	991	0.10	1140	0.13	1229	0.18	—	—	—	—	—	—
	450	882	791	0.07	930	0.11	1041	0.14	1152	0.17	1270	0.20	1401	0.24	—	—	—	—
	525	1029	870	0.10	1006	0.14	1112	0.18	1207	0.22	1301	0.25	1399	0.29	1615	0.38	—	—
	600	1176	948	0.14	1082	0.19	1189	0.23	1278	0.28	1361	0.32	1443	0.36	1613	0.44	1800	0.54
	675	1324	1025	0.18	1160	0.24	1264	0.29	1355	0.34	1433	0.39	1507	0.44	1653	0.53	1805	0.62

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 28. Fan performance for size 24 and 36 horizontal units

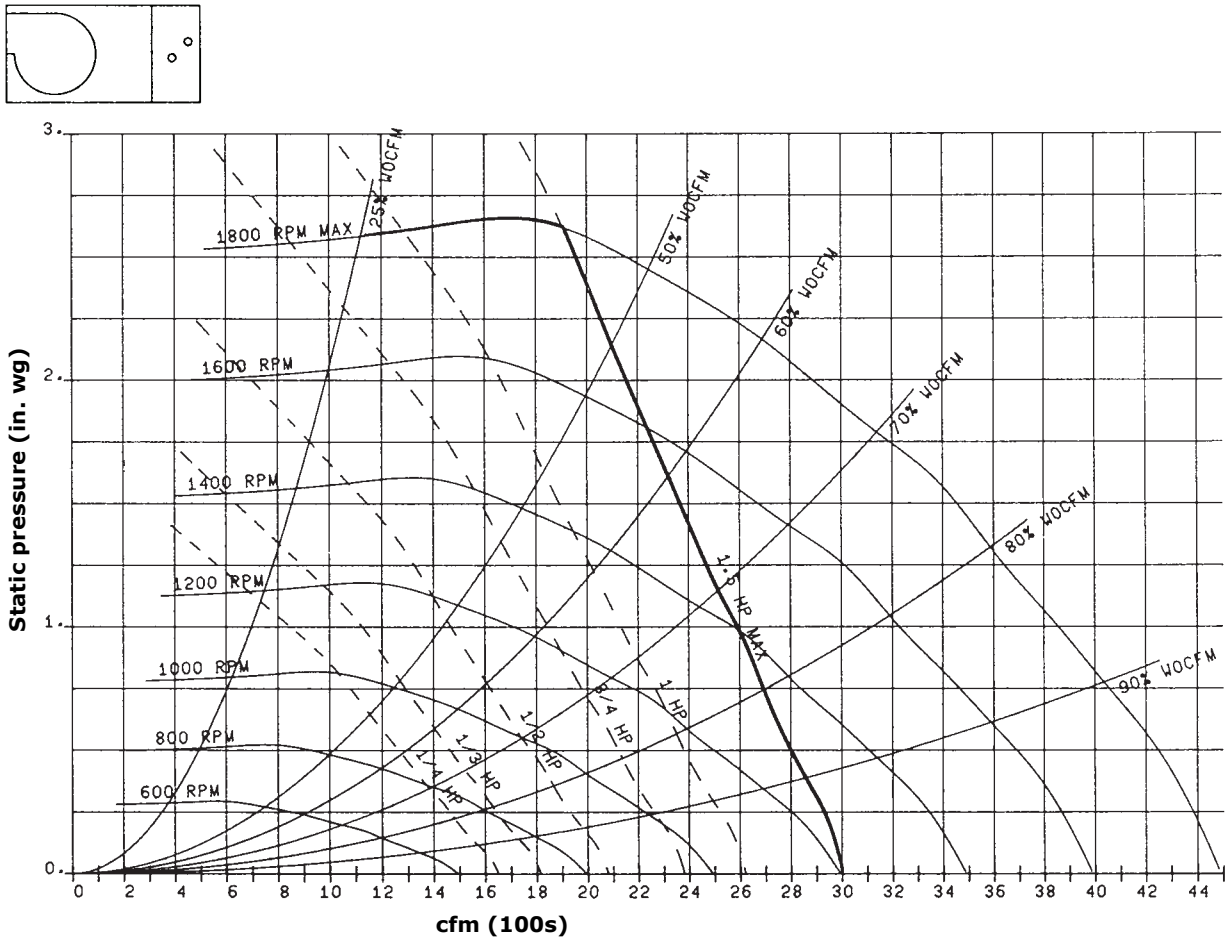


Table 8. Horizontal units, size 24 and 36

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg) 0.25 rpm	0.25 bhp	0.5 rpm	0.5 bhp	0.75 rpm	0.75 bhp	1.0 rpm	1.0 bhp	1.25 rpm	1.25 bhp	1.5 rpm	1.5 bhp	2.0 rpm	2.0 bhp	2.5 rpm	2.5 bhp
24	500	571	553	0.04	791	0.08	974	0.12	—	—	—	—	—	—	—	—	—	—
	600	686	557	0.05	786	0.09	970	0.14	1123	0.20	1258	0.26	—	—	—	—	—	—
	700	800	572	0.06	781	0.10	965	0.16	1120	0.22	1255	0.28	—	—	—	—	—	—
	800	914	589	0.07	783	0.12	960	0.17	1115	0.24	1251	0.31	1373	0.38	—	—	—	—
	900	1029	609	0.09	795	0.14	956	0.20	1109	0.26	1246	0.33	1369	0.41	1587	0.57	—	—
	1000	1143	631	0.11	811	0.17	961	0.22	1105	0.29	1240	0.37	1364	0.45	1583	0.62	1774	0.80
36	750	857	581	0.06	781	0.11	962	0.17	1117	0.23	1253	0.29	1375	0.36	—	—	—	—
	900	1029	609	0.09	795	0.14	956	0.20	1109	0.26	1246	0.33	1369	0.41	1587	0.57	—	—
	1050	1200	644	0.12	819	0.18	966	0.24	1104	0.31	1238	0.38	1362	0.46	1581	0.64	1772	0.83
	1200	1371	679	0.16	846	0.23	989	0.29	1114	0.36	1235	0.44	1354	0.52	1573	0.71	1766	0.91
	1350	1543	717	0.21	878	0.28	1014	0.36	1136	0.44	1247	0.51	1354	0.60	1565	0.78	1758	0.99
	1500	1714	763	0.27	913	0.35	1042	0.43	1161	0.52	1269	0.60	1369	0.69	1562	0.88	1750	1.09

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 29. Fan performance for size 24 and 36 vertical units, pre-swirl

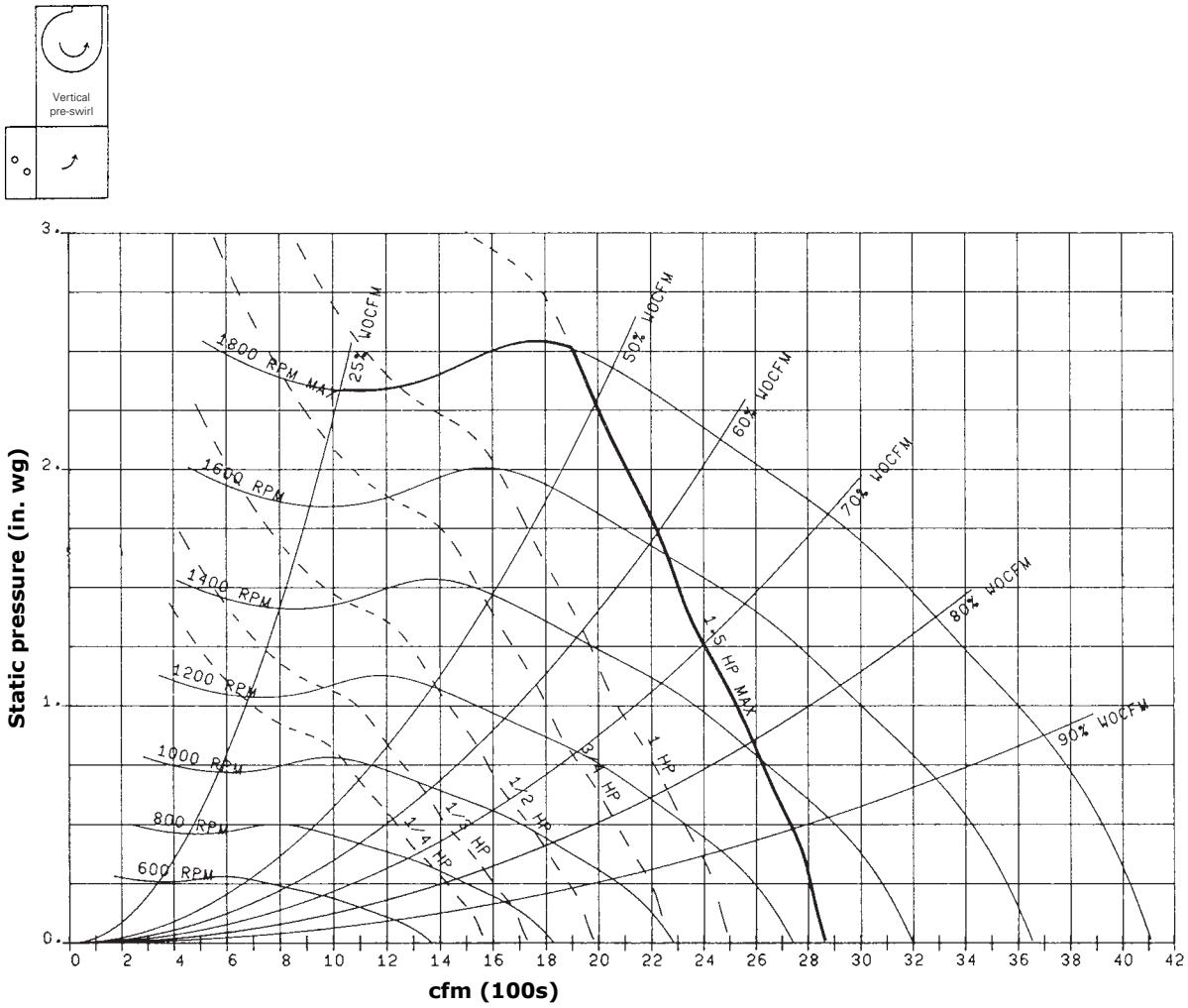


Table 9. Vertical pre-swirl units, size 24 and 36

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.5		0.75		1.0		1.25		1.5		2.0		2.25	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
24	500	571	570	0.04	833	0.09	1014	0.14	—	—	—	—	—	—	—	—	—	—
	600	686	568	0.05	828	0.10	1020	0.16	1173	0.22	—	—	—	—	—	—	—	—
	700	800	585	0.06	808	0.11	1017	0.18	1178	0.25	1314	0.32	—	—	—	—	—	—
	800	914	607	0.07	799	0.12	1002	0.19	1175	0.27	1318	0.35	1441	0.44	—	—	—	—
	900	1029	630	0.09	810	0.15	982	0.21	1162	0.29	1314	0.38	1443	0.48	1663	0.66	—	—
	1000	1143	652	0.12	830	0.17	980	0.23	1140	0.31	1300	0.41	1438	0.51	1667	0.71	1766	0.81
36	750	857	596	0.07	800	0.11	1011	0.19	1178	0.26	1317	0.34	1438	0.42	—	—	—	—
	900	1029	630	0.09	810	0.15	982	0.21	1162	0.29	1314	0.38	1443	0.48	1663	0.66	—	—
	1050	1200	664	0.13	840	0.19	985	0.25	1132	0.32	1289	0.42	1432	0.53	1666	0.74	1768	0.84
	1200	1371	705	0.17	873	0.23	1011	0.31	1135	0.38	1264	0.46	1401	0.56	1655	0.80	1763	0.92
	1350	1543	751	0.22	907	0.30	1043	0.37	1160	0.45	1271	0.53	1383	0.62	1626	0.85	1743	0.99
	1500	1714	799	0.28	943	0.37	1077	0.45	1191	0.54	1295	0.63	1395	0.71	1600	0.92	1710	1.04

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 30. Fan performance for size 24 and 36 vertical units, counter-swirl

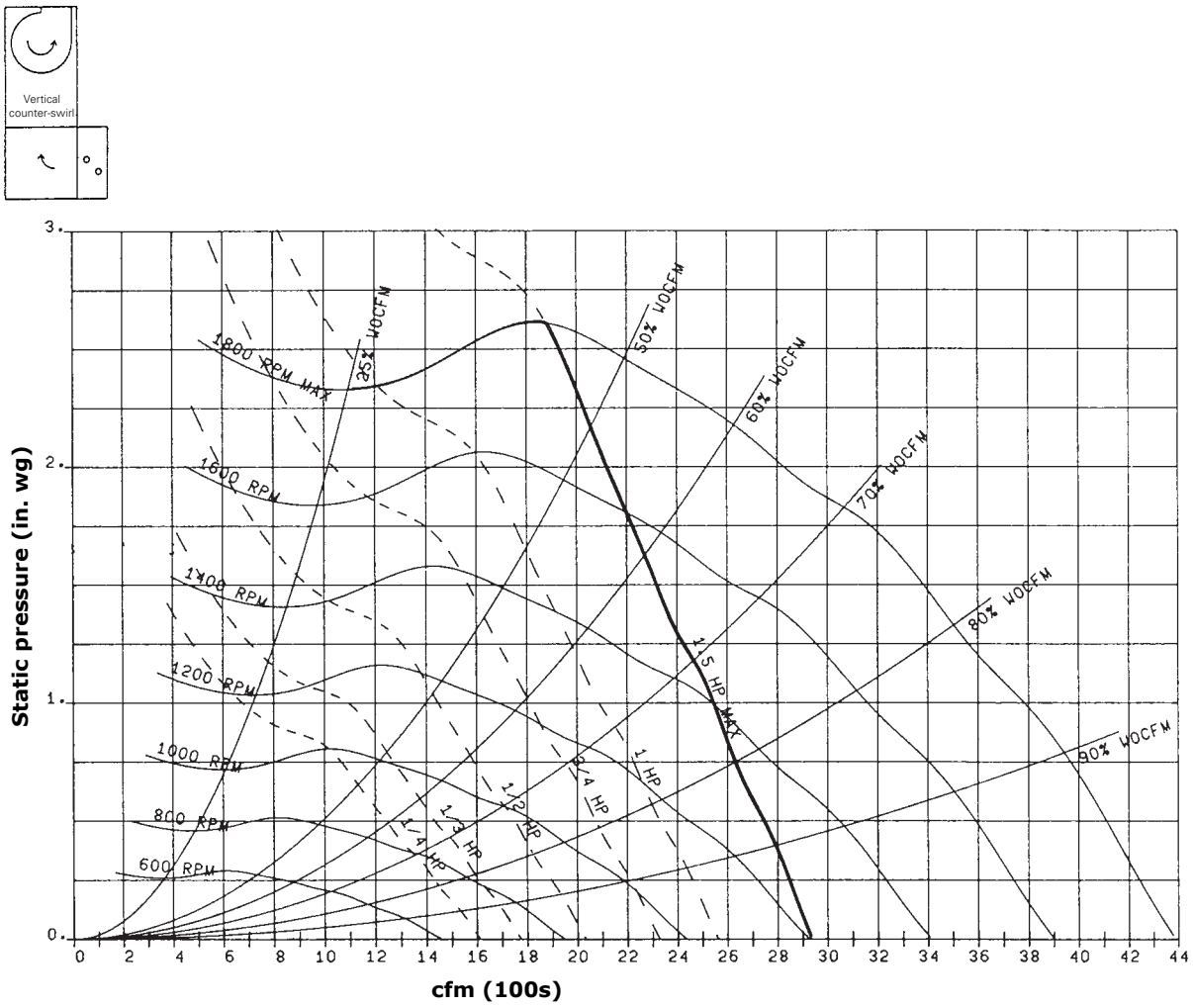


Table 10. Vertical counter-swirl units, size 24 and 36

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg) 0.25 rpm	0.25 bhp	0.50 rpm	0.50 bhp	0.75 rpm	0.75 bhp	1.00 rpm	1.00 bhp	1.25 rpm	1.25 bhp	1.50 rpm	1.50 bhp	2.00 rpm	2.00 bhp	2.25 rpm	2.25 bhp
24	500	571	566	0.04	834	0.09	—	—	—	—	—	—	—	—	—	—	—	—
	600	686	559	0.05	827	0.10	1022	0.17	—	—	—	—	—	—	—	—	—	—
	700	800	574	0.06	802	0.11	1017	0.18	1180	0.26	—	—	—	—	—	—	—	—
	800	914	592	0.07	787	0.12	998	0.20	1175	0.28	1319	0.36	—	—	—	—	—	—
	900	1029	612	0.09	796	0.14	973	0.21	1159	0.30	1313	0.39	1444	0.49	—	—	—	—
	1000	1143	637	0.11	814	0.17	965	0.23	1132	0.31	1297	0.42	1437	0.52	1669	0.73	1769	0.84
36	750	857	583	0.07	792	0.11	1010	0.19	1179	0.27	1319	0.35	—	—	—	—	—	—
	900	1029	612	0.09	796	0.14	973	0.21	1159	0.30	1313	0.39	1444	0.49	1666	0.68	—	—
	1050	1200	649	0.13	823	0.18	968	0.24	1121	0.32	1284	0.43	1430	0.54	1668	0.76	1770	0.87
	1200	1371	681	0.16	850	0.23	992	0.30	1117	0.37	1249	0.46	1393	0.57	1653	0.82	1763	0.95
	1350	1543	725	0.22	884	0.29	1019	0.37	1139	0.44	1250	0.52	1365	0.62	1618	0.87	1738	1.01
	1500	1714	774	0.28	920	0.36	1047	0.45	1166	0.53	1272	0.62	1371	0.70	1583	0.92	1698	1.06

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 31. Fan performance for size 54 and 72 horizontal units

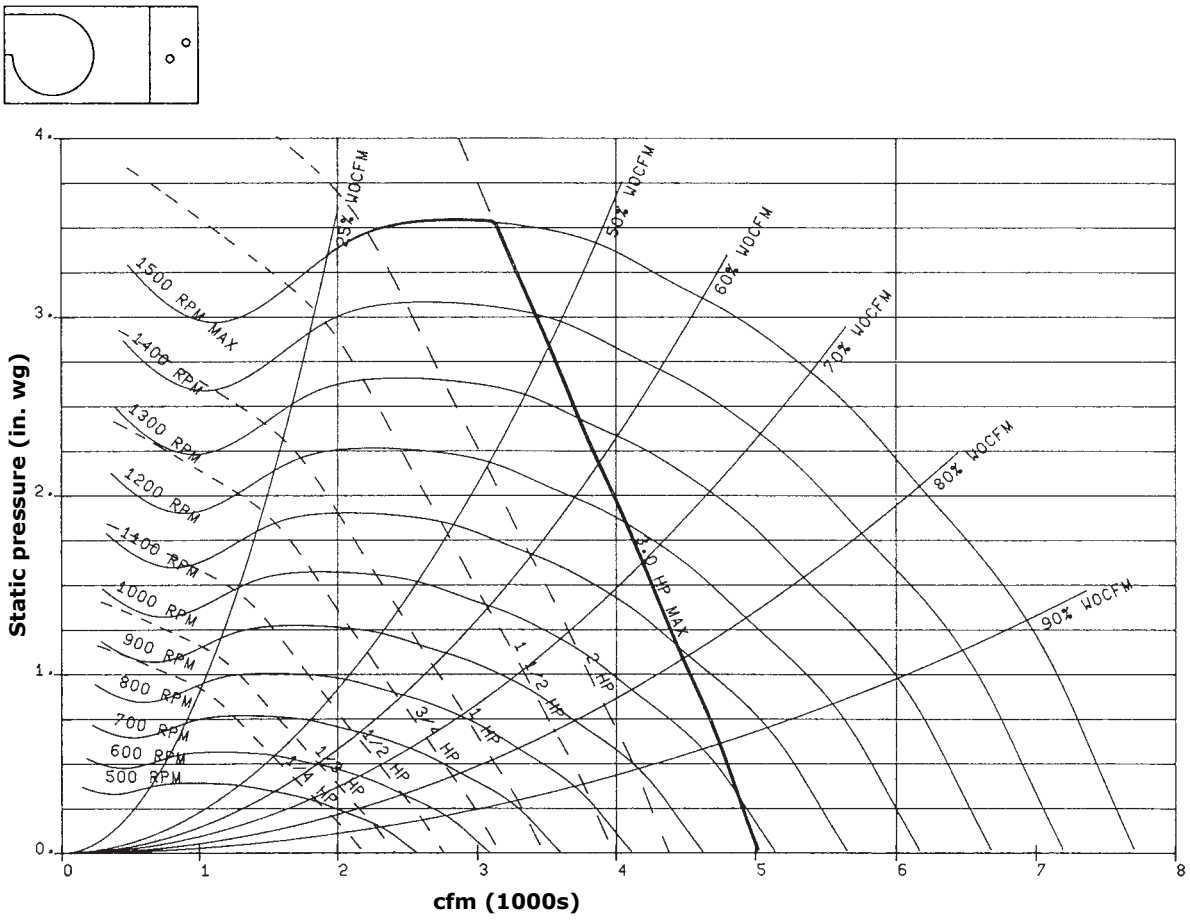


Table 11. Horizontal units size 54 and 72

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.50		0.75		1.00		1.25		1.50		2.00		2.50	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
54	1125	960	412	0.09	564	0.15	693	0.22	810	0.30	925	0.39	1032	0.49	1218	0.71	—	—
	1350	1152	429	0.12	568	0.19	690	0.27	799	0.35	899	0.44	996	0.54	1183	0.76	—	—
	1575	1344	450	0.17	580	0.25	694	0.33	797	0.42	892	0.51	980	0.61	1148	0.83	1311	1.09
	1800	1536	476	0.22	597	0.31	702	0.41	801	0.51	892	0.61	976	0.71	1132	0.93	1279	1.18
	2025	1728	505	0.29	616	0.39	718	0.50	808	0.60	896	0.71	978	0.83	1128	1.06	1265	1.31
	2250	1920	537	0.37	638	0.48	735	0.60	822	0.71	903	0.83	982	0.96	1128	1.21	1261	1.47
72	1500	1280	442	0.15	575	0.23	692	0.31	797	0.40	893	0.49	983	0.58	1158	0.80	1324	1.06
	1800	1536	476	0.22	597	0.31	702	0.41	801	0.51	892	0.61	976	0.71	1132	0.93	1279	1.18
	2100	1792	516	0.31	623	0.42	724	0.53	812	0.64	898	0.75	979	0.87	1127	1.11	1263	1.36
	2400	2048	558	0.43	654	0.55	747	0.67	834	0.80	911	0.92	987	1.05	1130	1.32	1260	1.59
	2700	2304	602	0.58	692	0.71	775	0.84	856	0.98	934	1.13	1003	1.26	1137	1.55	1263	1.86
	3000	2560	650	0.76	734	0.91	808	1.06	883	1.20	956	1.36	1026	1.52	1150	1.83	1270	2.15

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 32. Fan performance for size 54 and 72 vertical units, pre-swirl

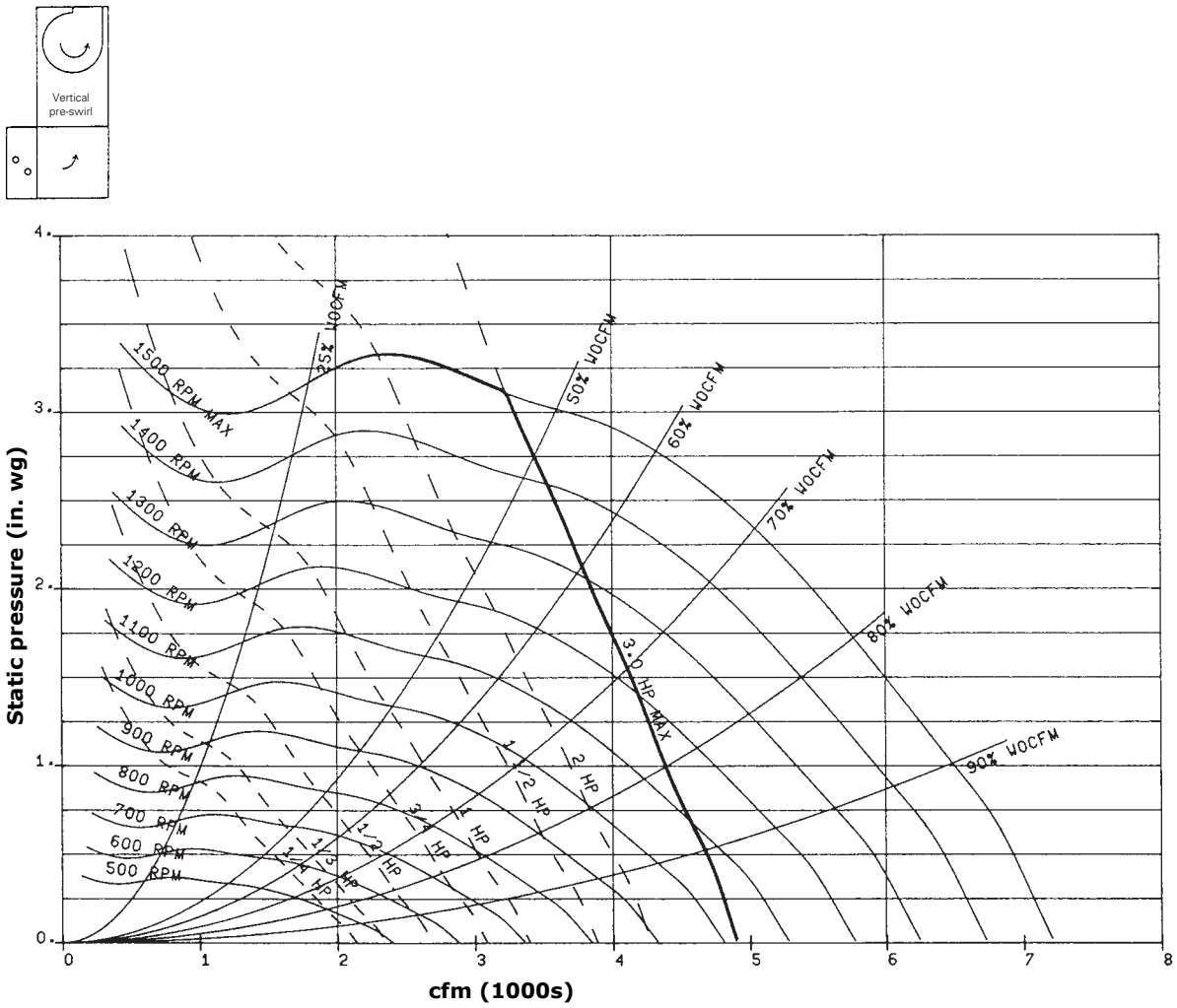


Table 12. Vertical units, pre-swirl arrangement, sizes 54 and 72

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.50		0.75		1.00		1.25		1.50		2.00		2.50	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
54	1125	960	437	0.09	590	0.16	712	0.22	830	0.30	943	0.39	1045	0.50	1222	0.72	—	—
	1350	1152	456	0.13	604	0.21	720	0.28	823	0.36	922	0.44	1019	0.54	1201	0.78	1360	1.04
	1575	1344	481	0.18	616	0.26	736	0.35	833	0.44	922	0.52	1007	0.62	1175	0.84	1335	1.11
	1800	1536	511	0.24	633	0.33	748	0.43	848	0.53	934	0.63	1013	0.73	1163	0.94	1310	1.19
	2025	1728	544	0.31	656	0.41	760	0.52	861	0.64	949	0.75	1026	0.86	1167	1.08	1300	1.32
	2250	1920	580	0.40	683	0.51	779	0.63	872	0.75	962	0.88	1042	1.01	1179	1.25	1304	1.50
72	1500	1280	472	0.16	612	0.24	731	0.33	829	0.41	920	0.49	1009	0.59	1183	0.82	1344	1.08
	1800	1536	511	0.24	633	0.33	748	0.43	848	0.53	934	0.63	1013	0.73	1163	0.94	1310	1.19
	2100	1792	556	0.34	664	0.44	766	0.56	864	0.67	954	0.79	1032	0.91	1170	1.14	1301	1.38
	2400	2048	604	0.47	702	0.58	794	0.71	882	0.84	969	0.97	1050	1.11	1189	1.38	1312	1.64
	2700	2304	654	0.63	745	0.76	829	0.90	910	1.05	988	1.19	1065	1.33	1209	1.65	1331	1.94
	3000	2560	706	0.82	791	0.98	868	1.12	943	1.28	1016	1.44	1086	1.60	1224	1.93	1351	2.28

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 33. Fan performance for size 54 and 72 vertical units, counter-swirl

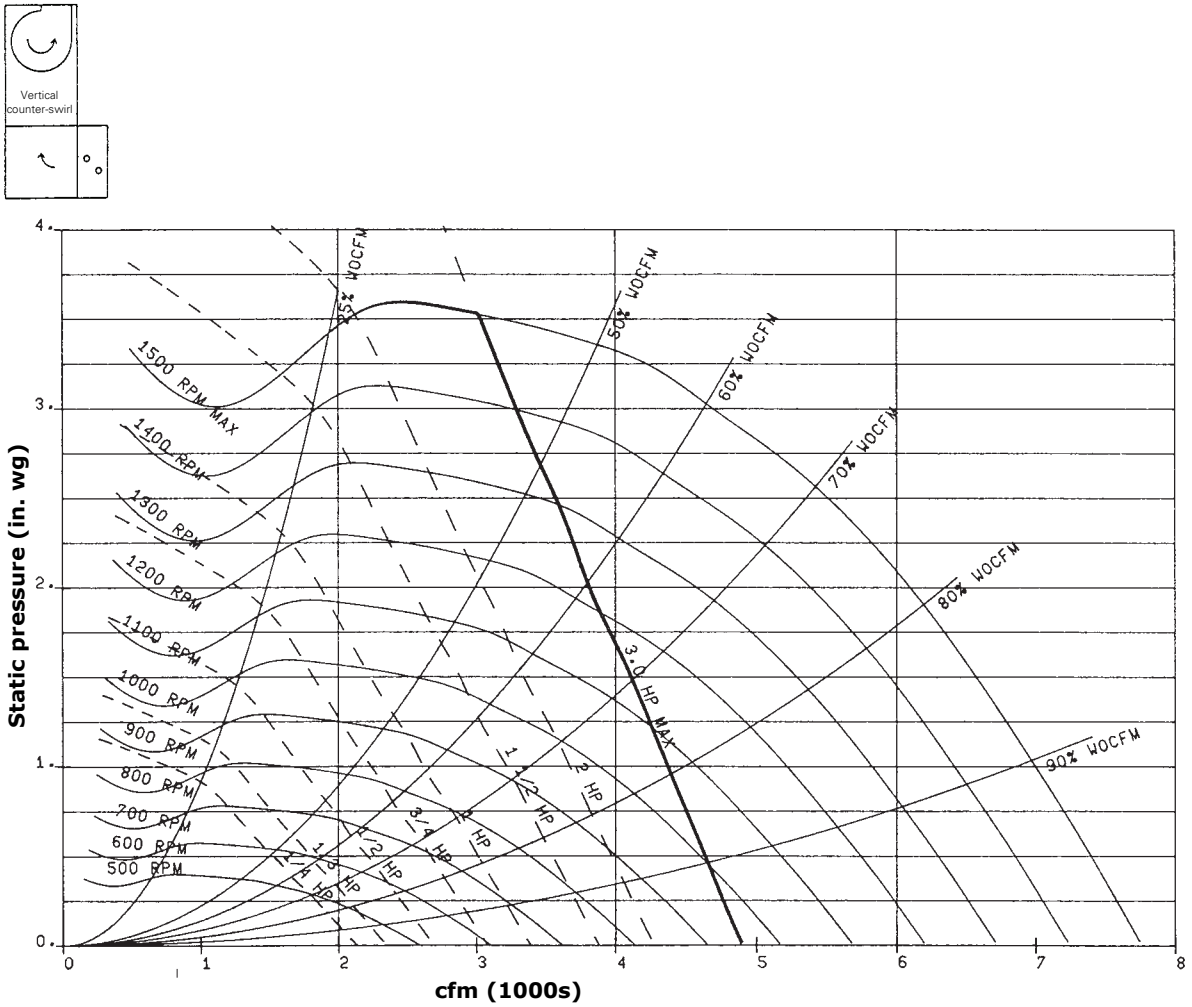


Table 13. Vertical units, counter-swirl arrangement, sizes 54 and 72

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.50		0.75		1.00		1.25		1.50		2.00		2.50	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
54	1125	960	413	0.09	564	0.16	685	0.22	799	0.30	914	0.39	1021	0.49	—	—	—	—
	1350	1152	433	0.13	572	0.21	690	0.28	792	0.36	887	0.45	983	0.54	1169	0.77	1336	1.02
	1575	1344	455	0.18	583	0.26	698	0.35	798	0.44	887	0.53	969	0.63	1132	0.84	1295	1.10
	1800	1536	482	0.24	600	0.34	707	0.43	805	0.53	893	0.64	973	0.74	1119	0.96	1262	1.20
	2025	1728	511	0.31	623	0.42	720	0.52	814	0.64	900	0.75	980	0.87	1122	1.10	1251	1.35
	2250	1920	544	0.40	645	0.52	740	0.64	825	0.76	910	0.89	988	1.01	1129	1.27	1255	1.53
72	1500	1280	447	0.16	579	0.24	695	0.33	796	0.41	885	0.50	971	0.60	1143	0.81	1309	1.07
	1800	1536	482	0.24	600	0.34	707	0.43	805	0.53	893	0.64	973	0.74	1119	0.96	1262	1.20
	2100	1792	522	0.34	630	0.45	726	0.56	818	0.68	903	0.80	982	0.91	1124	1.15	1251	1.40
	2400	2048	567	0.47	662	0.59	755	0.73	836	0.85	917	0.98	994	1.12	1133	1.39	1259	1.66
	2700	2304	615	0.64	701	0.77	785	0.91	865	1.07	936	1.20	1008	1.34	1144	1.65	1268	1.95
	3000	2560	664	0.84	742	0.99	819	1.14	894	1.30	965	1.47	1029	1.62	1158	1.94	1278	2.28

Note: Shaded data provided for interpolation purposes only: below 25% wide-open cfm.

Figure 34. Fan performance for size 90 horizontal units

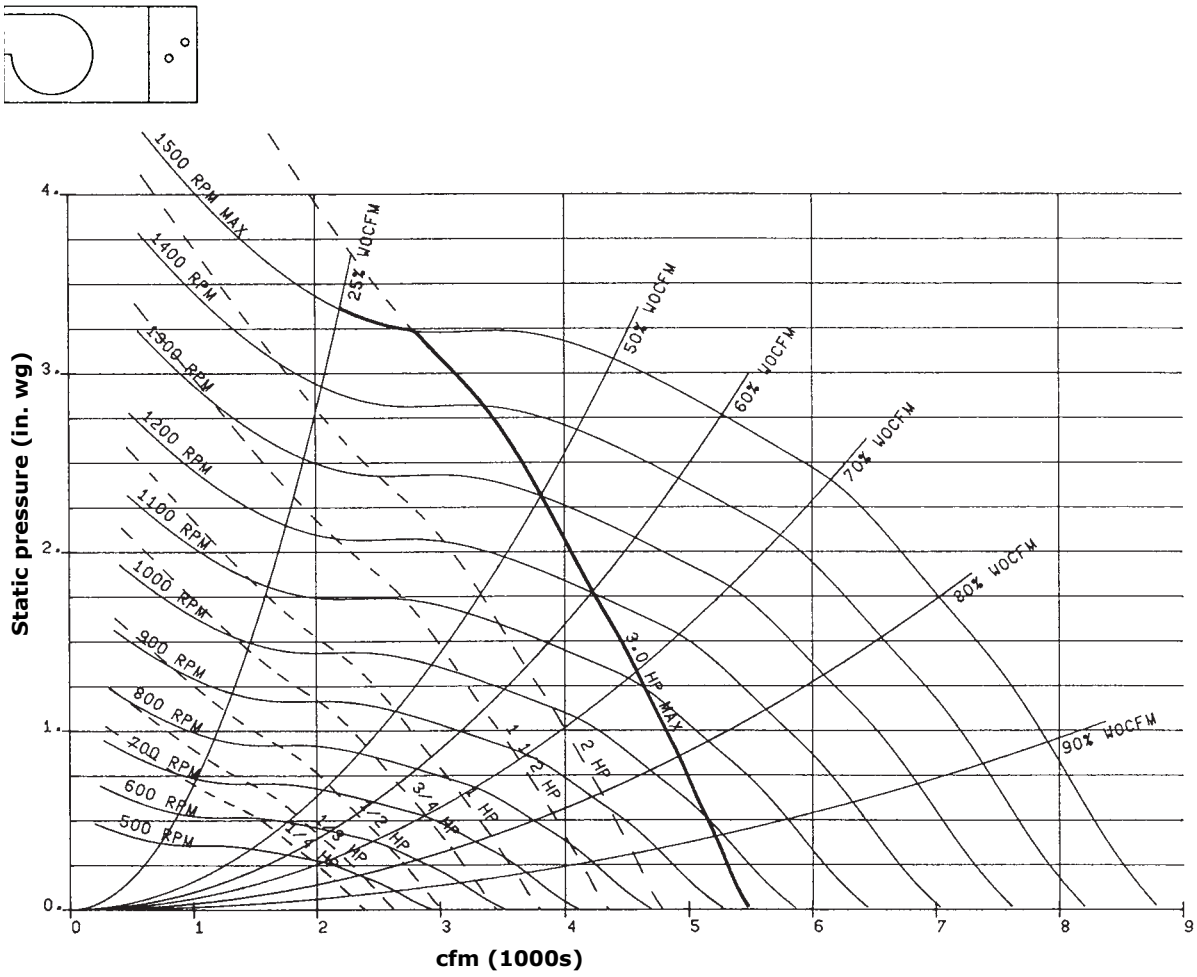


Table 14. Horizontal units, size 90

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.50		0.75		1.00		1.25		1.50		2.00		2.50	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
90	1875	1600	475	0.22	611	0.33	725	0.45	833	0.60	933	0.76	1021	0.94	1168	1.30	1293	1.68
	2250	1920	514	0.32	638	0.45	745	0.59	841	0.73	932	0.89	1021	1.08	1180	1.48	1313	1.91
	2625	2240	563	0.46	668	0.60	771	0.76	862	0.92	946	1.08	1025	1.26	1179	1.68	1320	2.14
	3000	2560	613	0.64	705	0.80	801	0.97	888	1.15	968	1.33	1042	1.52	1183	1.92	1318	2.39
	3375	2880	666	0.87	751	1.04	832	1.23	918	1.42	995	1.63	1066	1.83	1199	2.25	1323	2.71
	3750	3200	723	1.15	801	1.34	872	1.54	948	1.74	1024	1.97	1094	2.20	1221	2.64	—	—

Figure 35. Fan performance for size 90 vertical units, pre-swirl

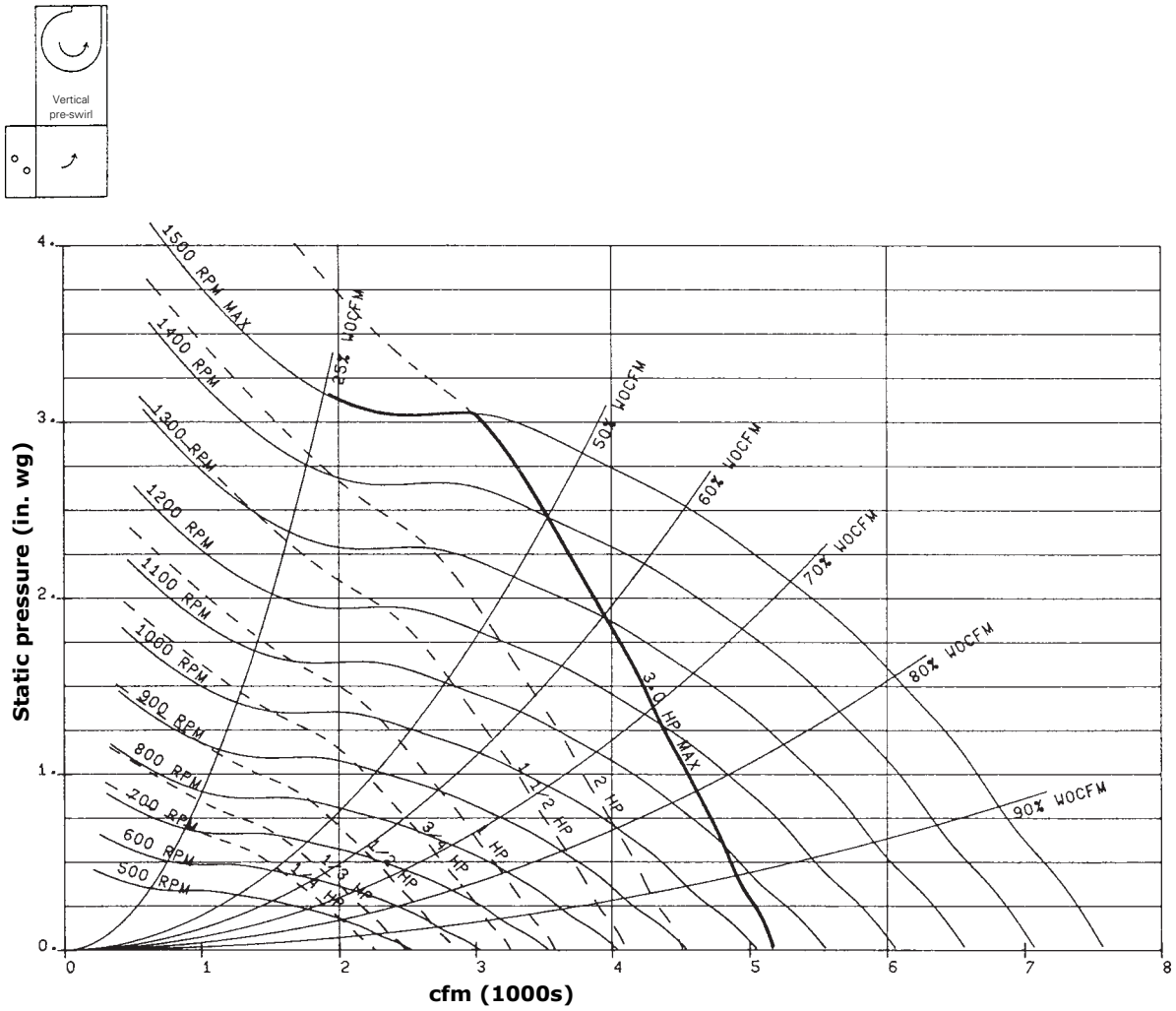


Table 15. Vertical units, pre-swirl arrangement size 90

Unit Size	cfm	Outlet Velocity (ft/min.)	Total Static Pressure (in. wg)															
			0.25		0.50		0.75		1.00		1.25		1.50		2.00		2.50	
			rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
90	1875	1600	523	0.24	654	0.36	766	0.48	864	0.61	960	0.78	1053	0.96	1215	1.36	1348	1.78
	2250	1920	574	0.37	692	0.49	797	0.63	892	0.78	976	0.93	1056	1.10	1215	1.51	1361	1.98
	2625	2240	631	0.53	737	0.68	833	0.82	923	0.99	1006	1.16	1081	1.33	1220	1.72	1358	2.18
	3000	2560	692	0.74	785	0.90	876	1.07	958	1.25	1037	1.43	1112	1.63	1246	2.02	1368	2.46
	3375	2880	758	1.01	840	1.19	922	1.38	1001	1.56	1073	1.76	1144	1.97	1277	2.40	1395	2.85
	3750	3200	826	1.35	899	1.53	972	1.74	1046	1.95	1117	2.15	1182	2.38	1308	2.85	—	—

Table 16. Chilled water cooling capacities, EAT = 80°F DB / 67°F WB and EWT = 40°F EWT

Unit Size	Rows of Coil	Air Flow	Water Temperature Rise - °F											
			10°F						12°F					
			TC	SC	LDB	LWB	GPM	WPD	TC	SC	LDB	LWB	GPM	WPD
54	4	1350	53.82	38.0	54.5	54.0	10.7	1.8	35.5	30.8	59.3	58.8	5.9	0.6
		1800	68.93	49.0	55.3	54.6	13.7	2.8	32.1	31.4	63.8	61.6	5.3	0.7
		2250	81.44	58.8	56.3	55.4	16.2	3.8	41.2	40.3	63.4	61.4	6.9	1.0
	6	1350	75.48	47.9	47.8	47.7	15.0	4.3	67.6	44.3	50.2	50.1	11.2	2.5
		1800	96.06	61.7	48.9	48.8	19.1	6.6	87.1	57.7	50.9	50.8	14.5	4.0
		2250	114.15	74.2	50.1	49.9	22.7	9.1	104.0	69.8	51.9	51.6	17.3	5.5
72	4	1800	81.28	54.5	52.5	52.1	16.2	4.2	69.0	49.4	55.1	54.6	11.5	2.2
		2400	100.83	69.0	53.9	53.3	20.1	6.2	87.9	63.6	56.0	55.2	14.6	3.4
		3000	117.18	81.7	55.3	54.4	23.3	8.3	103.3	76.1	57.0	56.0	17.2	4.6
	6	1800	104.85	65.8	46.9	46.8	20.9	8.7	97.6	62.4	48.6	48.5	16.2	5.4
		2400	132.19	84.0	48.2	48.1	26.3	13.2	123.3	80.0	49.8	49.6	20.5	8.3
		3000	156.14	100.6	49.6	49.3	31.1	18.0	145.8	96.0	51.0	50.7	24.2	11.3
90	4	2250	102.87	68.8	52.3	51.8	20.5	3.7	86.6	62.0	55.0	54.6	14.4	1.9
		3000	128.39	87.4	53.6	53.0	25.6	5.5	111.4	80.3	55.7	55.1	18.5	3.0
		3750	149.80	103.9	54.9	54.0	29.8	7.3	131.7	96.4	56.7	55.8	21.9	4.1
	6	2250	132.37	82.8	46.6	46.5	26.4	7.6	123.0	78.5	48.4	48.3	20.4	4.7
		3000	167.60	106.2	47.9	47.8	33.4	11.7	156.3	101.0	49.4	49.3	25.9	7.3
		3750	198.63	127.5	49.2	49.0	39.6	15.9	185.4	121.6	50.6	50.4	30.8	10.0

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry-bulb temperature (°F)
LWB = Leaving wet-bulb temperature (°F)
GPM = Water flow rate, gallons per minute
WPD = Water pressure drop @ average water density (ft H_2O)

Notes:
1. Some of the volumetric flow rates are less than those required for self-venting (Table 1, p. 19).
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps self-venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means the gpm is below the ARI limits (1.0 fps tubeside velocity).

Table 17. Chilled water cooling capacities, EAT = 80°F DB / 67°F WB and EWT = 45°F

Unit Size	Rows of Coil	Air Flow	Water Temperature Rise - °F											
			10°F						12°F					
			TC	SC	LDB	LWB	GPM	WPD	TC	SC	LDB	LWB	GPM	WPD
54	4	1350	36.10	31.0	59.2	58.7	7.2	0.84	28.3	28.2	61.1	60.6	4.7	0.38
		1800	49.14	41.3	59.2	58.5	9.8	1.48	32.1	31.4	63.8	61.6	5.3	0.70
		2250	59.42	50.3	59.7	58.8	11.8	2.11	41.2	40.3	63.4	61.4	6.9	0.96
	6	1350	58.24	40.3	52.9	52.8	11.6	2.62	48.6	36.4	55.5	55.4	8.1	1.35
		1800	74.51	52.3	53.6	53.5	14.9	4.11	64.4	48.2	55.7	55.5	10.7	2.25
		2250	88.68	63.4	54.5	54.2	17.7	5.66	77.8	59.0	56.2	56.0	12.9	3.18
72	4	1800	60.49	46.0	56.8	56.3	12.1	2.40	46.0	40.5	59.6	59.1	7.6	1.03
		2400	76.05	58.9	57.7	57.0	15.2	3.67	62.4	53.7	59.7	58.9	10.4	1.81
		3000	89.01	70.5	58.7	57.7	17.7	4.91	75.2	65.2	60.3	59.2	12.5	2.55
	6	1800	82.97	56.0	51.8	51.7	16.5	5.58	74.4	52.4	53.6	53.5	12.4	3.27
		2400	104.49	71.8	52.8	52.7	20.8	8.51	94.7	67.8	54.4	54.2	15.7	5.07
		3000	123.21	86.4	53.9	53.6	24.6	11.50	112.2	81.9	55.2	55.0	18.6	6.92
90	4	2250	76.22	57.8	56.7	56.2	15.2	2.08	56.0	50.1	59.8	59.3	9.3	0.84
		3000	96.60	74.4	57.5	56.8	19.3	3.21	78.3	67.4	59.6	58.9	13.0	1.56
		3750	113.57	89.3	58.4	57.5	22.6	4.33	95.2	82.3	60.1	59.1	15.8	2.23
	6	2250	104.74	70.4	51.6	51.5	20.9	4.89	93.7	65.7	53.5	53.4	15.6	2.86
		3000	132.54	90.7	52.6	52.4	26.4	7.50	119.9	85.4	54.2	54.0	19.9	4.47
		3750	156.82	109.3	53.6	53.3	31.3	10.20	142.6	103.5	55.0	54.7	23.7	6.13

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry-bulb temperature (°F)
LWB = Leaving wet-bulb temperature (°F)
GPM = Water flow rate, gallons per minute
WPD = Water pressure drop @ average water density (ft H_2O)

Notes:
1. Some of the volumetric flow rates are less than those required for self-venting (Table 1, p. 19).
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps self-venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means the gpm is below the ARI limits (1.0 fps tubeside velocity).

Table 18. Chilled water high-capacity cooling capacities, EAT = 80°F DB / 67°F WB and EWT = 40°F

Unit Size	Rows of Coil	Air Flow	Water Temperature Rise - °F											
			10°F						12°F					
			TC	SC	LDB	LWB	GPM	WPD	TC	SC	LDB	LWB	GPM	WPD
12	4	300	12.6	8.7	53.7	53.2	2.51	2.15	10.3	7.8	56.6	56.1	1.7	1.1
		400	15.7	11.1	54.9	54.2	3.14	3.23	13.2	10.0	57.2	56.5	2.2	1.7
		500	18.4	13.2	56.1	55.2	3.66	4.29	15.6	12.1	58.1	57.1	2.6	2.3
	6	300	16.9	10.7	47.6	47.5	3.37	4.93	15.5	10.1	49.6	49.5	2.6	3.0
		400	21.4	13.7	48.8	48.7	4.27	7.54	19.7	12.9	50.6	50.5	3.3	4.6
		500	25.4	16.5	50.0	49.8	5.06	10.26	23.3	15.6	51.7	51.5	3.9	6.3
18	4	450	20.0	13.4	52.9	52.4	3.98	5.43	17.6	12.5	54.9	54.3	2.9	3.1
		600	24.4	16.8	54.6	53.8	4.85	7.82	21.7	15.7	56.3	55.4	3.6	4.5
		750	28.1	19.8	56.0	55.0	5.59	10.13	25.1	18.6	57.5	56.4	4.2	5.9
	6	450	25.7	16.2	47.3	47.2	5.12	11.51	24.1	15.4	48.9	48.8	4.0	7.3
		600	32.1	20.6	48.9	48.7	6.40	17.23	30.0	19.6	50.3	50.1	5.0	10.9
		750	37.7	24.5	50.3	50.0	7.51	23.08	35.2	23.4	51.7	51.4	5.8	14.6
24	4	600	27.4	18.3	52.3	51.9	5.46	4.10	24.1	16.9	54.4	54.0	4.0	2.3
		800	33.8	23.1	53.9	53.2	6.73	5.98	29.9	21.5	55.7	55.0	5.0	3.4
		1000	39.1	27.3	55.3	54.3	7.79	7.80	34.9	25.5	56.8	55.9	5.8	4.5
	6	600	35.0	22.0	46.8	46.7	6.97	8.83	32.8	20.9	48.4	48.3	5.4	5.6
		800	44.1	28.0	48.2	48.1	8.78	13.32	41.2	26.7	49.7	49.5	6.8	8.5
		1000	52.0	33.6	49.6	49.3	10.37	17.96	48.6	32.0	50.9	50.7	8.1	11.4
36	4	900	46.8	30.0	49.7	49.4	9.32	13.68	43.5	28.6	51.2	50.8	7.2	8.6
		1200	57.5	37.6	51.6	51.0	11.45	19.85	53.5	35.9	52.9	52.3	8.9	12.5
		1500	66.7	44.4	53.1	52.3	13.29	25.95	61.9	42.4	54.4	53.5	10.3	16.3
	6	900	56.1	34.6	45.1	45.0	11.17	26.50	53.7	33.5	46.2	46.1	8.9	17.7
		1200	70.9	44.3	46.5	46.4	14.13	40.35	67.7	42.8	47.7	47.5	11.2	26.6
		1500	84.3	53.2	47.8	47.6	16.78	54.95	80.0	51.3	49.0	48.8	13.3	36.0
54	4	1350	62.7	41.8	51.9	51.6	12.53	4.50	56.7	39.2	53.6	53.2	9.4	2.7
		1800	76.5	52.4	53.6	53.1	15.31	6.45	69.6	49.5	55.1	54.5	11.6	3.8
		2250	88.1	62.0	55.0	54.3	17.62	8.32	80.2	58.7	56.3	55.6	13.3	5.0
	6	1350	78.9	49.5	46.8	46.7	15.78	9.42	74.6	47.5	48.1	48.0	12.4	6.1
		1800	98.9	63.1	48.2	48.1	19.79	14.13	93.3	60.5	49.5	49.4	15.5	9.0
		2250	116.6	75.5	49.6	49.4	23.32	18.99	109.5	72.3	50.9	50.7	18.2	12.0
72	4	1800	86.2	56.8	51.4	51.0	17.23	9.08	79.8	54.0	52.8	52.4	13.3	5.6
		2400	104.8	71.0	53.2	52.6	20.95	12.93	96.8	67.6	54.5	53.9	16.1	7.9
		3000	120.4	83.6	54.7	54.0	24.08	16.63	111.0	79.7	55.9	55.1	18.4	10.2
	6	1800	106.6	66.7	46.4	46.3	21.32	18.54	101.6	64.3	47.6	47.5	16.9	12.1
		2400	133.5	84.8	48.0	47.9	26.70	27.76	126.6	81.6	49.2	49.0	21.0	17.9
		3000	157.1	101.4	49.4	49.2	31.43	37.22	148.5	97.4	50.5	50.4	24.6	23.8
90	4	2250	111.8	72.8	50.7	50.3	22.35	9.00	103.9	69.3	52.1	51.7	17.2	5.6
		3000	136.6	91.2	52.5	51.9	27.32	12.92	126.6	86.8	53.8	53.2	21.0	8.0
		3750	157.6	107.6	54.0	53.3	31.52	16.72	145.6	102.5	55.2	54.4	24.2	10.3
	6	2250	136.5	84.9	45.8	45.7	27.30	18.06	130.5	81.9	47.0	46.9	21.7	11.8
		3000	171.8	108.3	47.3	47.2	34.36	27.26	163.4	104.4	48.4	48.3	27.1	17.7
		3750	203.0	129.7	48.6	48.5	40.61	36.79	192.3	124.8	49.8	49.6	31.9	23.7

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry-bulb temperature (°F)
LWB = Leaving wet-bulb temperature (°F)
GPM = Water flow rate, gallons per minute
WPD = Water pressure drop @ average water density (ft H_2O)

Notes:

1. Some of the volumetric flow rates are less than those required for self-venting (Table 1, p. 19).
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means the gpm is below the ARI limits (1.0 fps tubeside velocity).
4. Capacities calculated with 0.00000 tube-side fouling factor.
5. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Note 6).
6. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Table 18. Chilled water high-capacity cooling capacities, EAT = 80°F DB / 67°F WB and EWT = 40°F (continued)

Unit Size	Rows of Coil	Air Flow	Water Temperature Rise - °F											
			16°F						20°F					
			TC	SC	LDB	LWB	GPM	WPD	TC	SC	LDB	LWB	GPM	WPD
12	4	300	7.9	6.8	59.3	58.8	0.98	0.39	6.9	6.5	60.4	59.9	0.69	0.21
		400	8.9	8.4	60.9	60.1	1.11	0.49	8.2	8.2	61.5	60.7	0.88	0.32
		500	10.0	10.0	61.8	60.9	1.31	0.65	8.5	8.3	64.6	61.9	0.85	0.45
	6	300	11.6	8.4	54.6	54.5	1.44	1.06	9.7	7.6	56.9	56.8	0.96	0.51
		400	15.2	11.1	54.9	54.7	1.90	1.73	11.1	9.5	58.5	58.3	1.11	0.66
		500	18.4	13.5	55.4	55.2	2.29	2.42	12.3	11.2	59.6	59.4	1.23	0.79
18	4	450	11.3	10.0	59.9	59.2	1.40	0.81	9.4	9.3	61.3	60.6	0.93	0.39
		600	15.2	13.2	60.1	59.2	1.89	1.39	10.5	10.0	64.6	61.7	1.05	0.52
		750	18.3	16.0	60.6	59.5	2.28	1.95	11.5	11.2	66.2	62.4	1.14	0.66
	6	450	19.9	13.6	52.5	52.4	2.48	3.09	14.2	11.3	57.1	57.0	1.42	1.13
		600	25.1	17.5	53.5	53.3	3.13	4.68	19.0	15.1	57.2	57.0	1.90	1.90
		750	29.6	21.0	54.5	54.2	3.68	6.28	23.0	18.5	57.7	57.3	2.29	2.67
24	4	600	15.2	13.4	59.7	59.1	1.89	0.61	13.3	12.8	60.7	60.2	1.33	0.32
		800	20.4	17.7	59.9	59.1	2.54	1.03	14.7	14.7	63.4	61.4	1.43	0.37
		1000	25.0	21.7	60.3	59.3	3.11	1.47	16.4	15.6	65.6	62.0	1.64	0.51
	6	600	27.0	18.4	52.2	52.1	3.36	2.38	18.7	15.1	57.2	57.1	1.87	0.84
		800	34.4	23.7	53.1	52.9	4.28	3.65	25.5	20.2	57.1	56.9	2.55	1.44
		1000	40.7	28.7	54.0	53.7	5.07	4.94	31.3	24.9	57.4	57.1	3.12	2.07
36	4	900	35.9	25.3	54.5	54.0	4.47	3.63	25.4	21.2	58.7	58.2	2.53	1.31
		1200	44.7	32.2	55.7	55.0	5.56	5.36	33.9	27.9	58.9	58.2	3.38	2.18
		1500	52.0	38.3	56.8	55.9	6.47	7.03	40.7	33.9	59.5	58.6	4.05	3.02
	6	900	48.2	30.9	48.8	48.7	6.00	8.66	40.8	27.7	52.1	52.0	4.07	4.32
		1200	60.5	39.5	50.1	50.0	7.53	12.97	51.7	35.7	53.0	52.8	5.15	6.56
		1500	71.2	47.3	51.4	51.2	8.87	17.34	61.1	43.1	54.0	53.7	6.09	8.83
54	4	1350	41.2	33.0	57.8	57.4	5.15	0.90	25.9	25.9	62.6	61.2	2.59	0.26
		1800	52.9	42.9	58.4	57.8	6.61	1.41	29.6	29.6	65.1	62.0	2.96	0.33
		2250	60.9	50.7	60.0	59.1	7.61	1.82	39.5	39.5	64.1	61.7	3.95	0.56
	6	1350	63.7	42.6	51.4	51.3	7.96	2.75	49.4	36.7	55.3	55.2	4.94	1.17
		1800	79.9	54.7	52.5	52.3	9.99	4.12	64.0	48.2	55.8	55.6	6.40	1.85
		2250	93.9	65.7	53.5	53.4	11.73	5.48	76.3	58.6	56.4	56.2	7.63	2.53
72	4	1800	64.6	47.8	55.9	55.5	8.08	2.30	45.1	40.3	59.7	59.2	4.51	0.81
		2400	79.6	60.6	57.1	56.5	9.94	3.34	59.7	53.1	60.0	59.3	5.97	1.33
		3000	91.8	72.2	58.2	57.4	11.48	4.32	71.2	64.4	60.6	59.7	7.12	1.82
	6	1800	89.8	59.0	50.3	50.2	11.22	5.84	75.1	52.7	53.4	53.3	7.51	2.84
		2400	111.4	74.9	51.7	51.6	13.92	8.56	94.2	67.8	54.4	54.3	9.42	4.24
		3000	129.8	89.4	53.0	52.8	16.23	11.25	110.4	81.5	55.4	55.2	11.04	5.62
90	4	2250	84.7	61.3	55.3	54.9	10.59	2.34	60.2	51.8	59.1	58.7	6.02	0.85
		3000	104.6	77.9	56.5	55.9	13.08	3.40	79.3	68.1	59.4	58.8	7.93	1.38
		3750	121.0	92.7	57.6	56.8	15.13	4.41	94.4	82.5	60.0	59.2	9.44	1.89
	6	2250	115.9	75.4	49.6	49.5	14.49	5.78	97.6	67.4	52.8	52.7	9.76	2.85
		3000	144.4	95.9	51.0	50.9	18.05	8.54	122.7	86.7	53.8	53.7	12.27	4.27
		3750	168.9	114.6	52.3	52.1	21.11	11.28	144.2	104.4	54.8	54.6	14.42	5.68

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry-bulb temperature (°F)
LWB = Leaving wet-bulb temperature (°F)
GPM = Water flow rate, gallons per minute
WPD = Water pressure drop @ average water density (ft H_2O)

Notes:

1. Some of the volumetric flow rates are less than those required for self-venting (Table 1, p. 19).
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means the gpm is below the ARI limits (1.0 fps tubeside velocity).
4. Capacities calculated with 0.00000 tube-side fouling factor.
5. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Note 6).
6. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Table 19. Chilled water high-capacity cooling capacities, EAT = 80°F DB / 67°F WB and EWT = 45°F

Unit Size	Rows of Coil	Air Flow	Water Temperature Rise - °F											
			10°F						12°F					
			TC	SC	LDB	LWB	GPM	WPD	TC	SC	LDB	LWB	GPM	WPD
12	4	300	9.2	7.3	57.8	57.4	1.83	1.19	7.1	6.6	60.1	59.6	1.19	0.54
		400	11.6	9.4	58.6	57.9	2.32	1.84	9.2	8.5	60.7	59.9	1.52	0.85
		500	13.7	11.4	59.4	58.4	2.73	2.48	11.2	10.4	61.1	60.1	1.85	1.22
	6	300	13.2	9.1	52.6	52.5	2.64	3.11	11.6	8.4	54.6	54.5	1.93	1.77
		400	16.7	11.7	53.5	53.3	3.34	4.75	14.8	10.9	55.2	55.1	2.46	2.74
		500	19.8	14.1	54.4	54.1	3.95	6.45	17.7	13.3	56.0	55.7	2.93	3.76
18	4	450	15.1	11.5	56.9	56.3	3.02	3.24	12.8	10.5	58.7	58.1	2.12	1.7
		600	18.6	14.5	58.1	57.2	3.70	4.70	16.0	13.5	59.6	58.7	2.65	2.55
		750	21.5	17.2	59.2	58.0	4.28	6.13	18.7	16.2	60.5	59.3	3.1	3.4
	6	450	20.4	13.8	52.1	52.0	4.06	7.47	18.6	13.1	53.7	53.5	3.08	4.53
		600	25.4	17.6	53.4	53.1	5.06	11.10	23.2	16.7	54.7	54.5	3.85	6.75
		750	29.7	21.1	54.5	54.1	5.93	14.78	27.2	20.1	55.7	55.4	4.52	9.01
24	4	600	20.7	15.6	56.5	56.0	4.13	2.45	17.3	14.2	58.5	58.0	2.87	1.27
		800	25.7	19.8	57.6	56.8	5.12	3.60	21.9	18.3	59.2	58.5	3.64	1.94
		1000	29.9	23.6	58.6	57.6	5.95	4.73	25.8	22.0	60.0	59.0	4.29	2.61
	6	600	27.8	18.7	51.7	51.6	5.54	5.76	25.3	17.7	53.3	53.2	4.2	3.5
		800	34.9	24.0	52.8	52.6	6.95	8.63	31.8	22.7	54.3	54.1	5.29	5.27
		1000	41.1	28.8	53.9	53.6	8.19	11.57	37.5	27.4	55.2	54.9	6.24	7.08
36	4	900	36.8	25.7	54.1	53.7	7.33	8.74	33.4	24.3	55.5	55.1	5.55	5.29
		1200	45.1	32.3	55.6	54.9	8.99	12.62	41.2	30.8	56.7	56.1	6.84	7.69
		1500	52.1	38.4	56.8	55.9	10.39	16.39	47.7	36.6	57.9	57.0	7.92	10.02
	6	900	45.4	29.7	50.1	50.0	9.05	17.88	42.8	28.5	51.2	51.1	7.11	11.6
		1200	57.0	38.0	51.3	51.1	11.37	26.88	53.6	36.5	52.4	52.2	8.91	17.33
		1500	67.4	45.7	52.4	52.1	13.43	36.24	63.1	43.9	53.5	53.2	10.49	23.19
54	4	1350	48.1	35.7	56.0	55.6	9.61	2.75	42.1	33.4	57.6	57.2	7	1.54
		1800	58.9	45.3	57.2	56.6	11.78	3.96	52.3	42.7	58.5	57.9	8.68	2.27
		2250	67.9	53.9	58.3	57.5	13.59	5.13	60.7	51.1	59.4	58.6	10.09	2.97
	6	1350	62.9	42.3	51.6	51.5	12.58	6.19	58.2	40.3	52.9	52.8	9.67	3.83
		1800	78.5	54.1	52.8	52.7	15.70	9.19	72.7	51.6	54.0	53.9	12.07	5.69
		2250	92.1	64.9	53.8	53.7	18.42	12.24	85.1	62.1	55.0	54.8	14.14	7.55
72	4	1800	67.2	48.8	55.4	55.0	13.43	5.72	60.9	46.3	56.7	56.2	10.11	3.4
		2400	81.5	61.4	56.8	56.2	16.29	8.09	74.2	58.5	57.9	57.3	12.32	4.85
		3000	93.5	72.8	58.0	57.2	18.70	10.38	85.2	69.6	59.0	58.1	14.16	6.22
	6	1800	85.5	57.1	51.2	51.1	17.11	12.31	80.2	54.8	52.4	52.3	13.32	7.8
		2400	106.5	72.8	52.5	52.4	21.29	18.21	99.4	69.8	53.6	53.5	16.52	11.45
		3000	124.7	87.3	53.6	53.4	24.95	24.20	116.2	83.7	54.7	54.5	19.3	15.12
90	4	2250	87.4	62.4	54.9	54.4	17.48	5.70	79.4	59.2	56.1	55.7	13.2	3.41
		3000	106.5	78.6	56.3	55.6	21.29	8.13	97.2	74.9	57.4	56.7	16.14	4.89
		3750	122.6	93.3	57.4	56.6	24.52	10.48	111.9	89.1	58.5	57.6	18.59	6.3
	6	2250	109.9	72.7	50.7	50.6	21.98	12.07	103.3	69.8	51.9	51.8	17.17	7.7
		3000	137.4	92.9	51.9	51.8	27.49	17.99	128.7	89.1	53.1	52.9	21.37	11.37
		3750	161.6	111.6	53.0	52.8	32.33	24.07	150.9	107.0	54.1	53.9	25.06	15.1

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry-bulb temperature (°F)
LWB = Leaving wet-bulb temperature (°F)
GPM = Water flow rate, gallons per minute
WPD = Water pressure drop @ average water density (ft H_2O)

Notes:

1. Some of the volumetric flow rates are less than those required for self-venting (Table 1, p. 19).
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means the gpm is below the ARI limits (1.0 fps tubeside velocity).
4. Capacities calculated with 0.00000 tube-side fouling factor.
5. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Note 6).
6. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Performance Data

High-Capacity Chilled Water Cooling Capacities

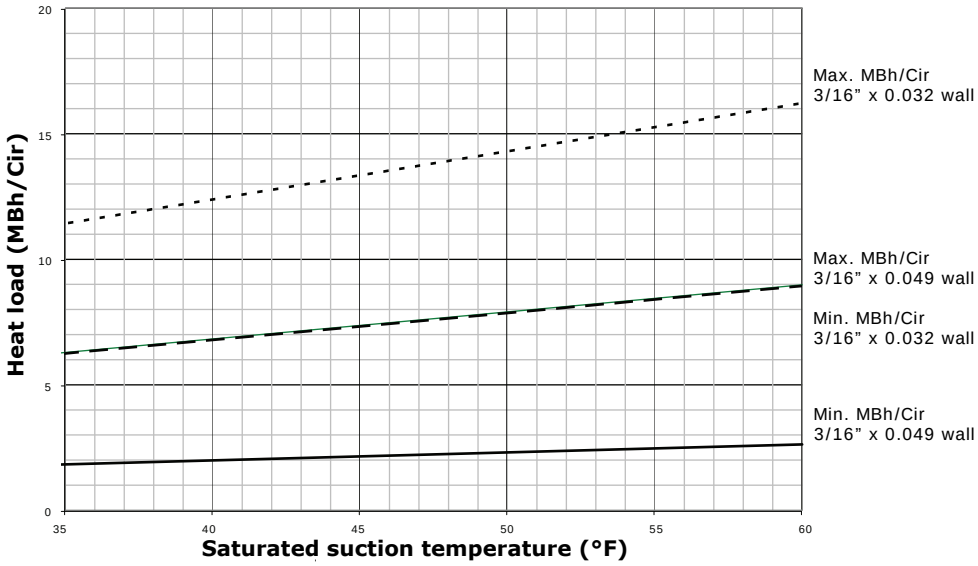
Table 19. Chilled water high-capacity cooling capacities, EAT = 80°F DB / 67°F WB and EWT = 45°F (continued)

Unit Size	Rows of Coil	Air Flow	Water Temperature Rise - °F											
			16°F						20°F					
			TC	SC	LDB	LWB	GPM	WPD	TC	SC	LDB	LWB	GPM	WPD
12	4	300	6.3	6.2	61.1	60.6	0.79	0.26	5.4	5.4	64.2	61.6	0.54	0.11
		400	7.1	7.1	63.9	61.6	0.89	0.32	6.2	6.2	66.0	62.4	0.62	0.17
		500	7.9	7.9	65.7	62.3	0.98	0.38	6.8	6.8	67.7	62.9	0.68	0.20
	6	300	8.5	7.2	58.2	58.1	1.06	0.61	7.4	6.8	59.4	59.3	0.74	0.32
		400	10.3	9.2	59.2	59.0	1.29	0.85	8.7	8.6	60.5	60.4	0.86	0.42
		500	7.9	7.9	65.7	62.3	0.98	0.38	9.8	9.8	62.3	61.0	1.01	0.55
18	4	450	8.4	8.2	63.1	61.3	1.05	0.74	7.4	7.4	65.2	62.1	0.73	0.25
		600	9.7	9.7	65.4	62.1	1.21	1.18	8.4	8.4	67.4	62.8	0.83	0.31
		750	10.8	10.8	66.9	62.7	1.28	0.67	9.1	9.1	69.0	63.4	0.91	0.37
	6	450	14.2	11.3	57.2	57.0	1.77	1.66	10.3	9.9	60.1	60.0	1.02	0.62
		600	18.2	14.8	57.7	57.4	2.27	2.60	12.9	12.8	60.6	60.4	1.31	0.97
		750	21.7	18.0	58.3	57.9	2.71	3.56	15.9	15.8	60.9	60.5	1.60	1.37
24	4	600	12.0	12.0	61.8	60.9	1.55	0.42	10.4	10.4	64.7	61.7	1.04	0.29
		800	13.9	13.9	64.3	61.7	1.77	0.53	11.9	11.9	66.5	62.5	1.19	0.26
		1000	16.4	16.4	65.1	62.0	2.05	1.13	13.1	13.1	68.2	63.1	1.30	0.31
	6	600	19.0	15.1	57.1	57.0	2.36	1.26	14.5	13.5	59.7	59.5	1.44	0.52
		800	24.8	19.9	57.4	57.2	3.08	2.01	16.6	16.6	61.3	60.7	1.65	0.66
		1000	29.7	24.3	57.9	57.7	3.71	2.78	21.2	21.2	60.8	60.5	2.14	1.05
36	4	900	25.5	21.2	58.6	58.1	3.18	1.94	16.1	16.1	63.8	61.6	1.61	0.58
		1200	32.5	27.4	59.3	58.6	4.05	2.99	21.2	21.2	64.0	61.6	2.11	0.93
		1500	38.3	33.0	60.0	59.1	4.78	4.02	26.9	26.9	63.8	61.6	2.68	1.43
	6	900	36.5	25.9	53.9	53.8	4.54	5.21	28.6	22.8	57.0	56.9	2.86	2.28
		1200	45.9	33.3	54.8	54.6	5.73	7.84	37.1	29.9	57.4	57.2	3.70	3.60
		1500	54.2	40.2	55.7	55.4	6.75	10.51	44.4	36.5	58.0	57.7	4.43	4.94
54	4	1350	25.53	25.5	62.9	61.2	3.19	0.38	20.7	20.7	66.1	62.4	2.07	0.18
		1800	35.01	35.0	62.4	61.1	4.38	0.66	23.5	23.5	68.2	63.1	2.35	0.22
		2250	49.54	47.6	61.1	60.2	6.20	1.22	25.5	25.5	69.7	63.6	2.55	0.25
	6	1350	46.32	35.5	56.2	56.1	5.79	1.54	36.2	33.7	58.7	58.6	3.61	0.69
		1800	63.10	45.9	55.9	55.8	7.87	2.67	43.5	40.5	59.6	59.5	4.35	0.92
		2250	69.86	56.3	57.3	57.2	8.73	3.19	53.4	50.2	59.8	59.7	5.34	1.32
72	4	1800	52.63	34.2	58.0	57.5	6.56	0.78	26.6	26.6	66.6	62.6	2.66	0.31
		2400	64.20	50.4	59.2	58.5	8.00	1.53	38.2	38.2	65.6	62.2	3.82	0.59
		3000	73.79	72.7	60.3	59.4	9.20	2.64	43.9	55.1	66.8	63.1	4.39	0.64
	6	1800	67.40	49.6	55.0	54.9	8.42	3.45	54.2	44.7	57.4	57.3	5.42	1.80
		2400	84.13	63.8	55.9	55.8	10.52	5.11	67.6	57.5	58.3	58.2	6.76	2.32
		3000	98.27	76.5	57.0	56.8	12.28	6.75	80.4	69.9	58.9	58.7	8.04	3.15
90	4	2250	60.23	51.8	59.1	58.7	7.53	1.25	40.3	39.5	63.9	61.4	4.03	1.80
		3000	76.23	67.0	59.8	59.1	9.53	1.90	51.0	51.0	64.6	61.9	5.10	0.62
		3750	89.48	80.7	60.5	59.6	11.19	2.54	63.9	63.9	64.6	61.8	6.39	0.93
	6	2250	87.29	63.2	54.5	54.4	10.91	3.44	68.5	55.8	57.5	57.4	6.85	1.50
		3000	109.30	81.4	55.4	55.3	13.66	5.12	88.2	73.2	57.9	57.8	8.82	2.34
		3750	128.13	97.8	56.5	56.3	16.02	6.80	105.0	89.6	58.3	58.2	10.50	3.19

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry-bulb temperature (°F)
LWB = Leaving wet-bulb temperature (°F)
GPM = Water flow rate, gallons per minute
WPD = Water pressure drop @ average water density (ft H_2O)

Notes:
1. Some of the volumetric flow rates are less than those required for self-venting (Table 1, p. 19).
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means the gpm is below the ARI limits (1.0 fps tubeside velocity).
4. Capacities calculated with 0.00000 tube-side fouling factor.
5. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Note 6).
6. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Figure 36. R-22 Blower coil distributor selection



Select distributor size using MBh/Cir based on system analysis with matching condensing unit operating

Table 20. R-22, 3-row DX cooling capacities

Unit Size	Air Flow	Suct. Temp	Entering Air Temperature - Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
12	300	40	11.3	8.0	50.5	49.6	14.2	9.2	52.0	51.2	17.3	10.2	53.8	53.0
		45	8.6	6.9	54.1	53.1	11.6	8.1	55.5	54.5	14.8	9.2	57.0	56.0
		50	6.0	5.8	57.3	56.3	8.7	6.9	59.0	58.0	11.9	8.1	60.5	59.4
		55	4.4	4.4	61.7	58.2	6.0	5.9	62.1	60.9	8.6	7.0	64.0	62.8
	400	40	13.6	9.9	52.4	51.2	16.9	11.2	54.4	53.1	20.4	12.4	56.7	55.4
		45	10.4	8.6	55.5	54.2	13.9	10.0	57.3	55.9	17.6	11.3	59.3	57.9
		50	7.4	7.2	58.2	56.9	10.4	8.6	60.4	58.9	14.2	10.1	62.2	60.7
		55	5.5	5.5	62.6	58.5	7.3	7.3	63.4	61.4	10.4	8.7	65.3	63.7
	500	40	15.4	11.5	53.9	52.4	19.0	13.0	56.3	54.7	22.8	14.3	59.0	57.3
		45	11.8	10.1	56.7	55.0	15.7	11.7	58.8	57.1	19.7	13.1	61.2	59.4
		50	8.6	8.5	59.4	57.3	11.9	10.2	61.5	59.7	16.0	11.8	63.7	61.8
		55	6.4	6.4	63.4	58.8	8.5	8.5	64.5	61.8	11.8	10.3	66.3	64.4
18	450	40	15.7	11.4	51.9	50.8	19.3	12.8	54.1	53.0	23.0	14.1	56.6	55.4
		45	12.3	10.0	54.8	53.7	16.2	11.5	56.7	55.5	20.1	12.9	58.9	57.7
		50	8.9	8.6	57.6	56.4	12.4	10.1	59.7	58.4	16.6	11.6	61.6	60.2
		55	6.6	6.6	61.7	58.2	8.8	8.7	62.4	61.0	12.5	10.2	64.5	63.1
	600	40	18.2	13.8	54.0	52.5	22.2	15.3	56.7	55.1	26.1	10.0	59.7	58.0
		45	14.5	12.2	56.4	54.9	18.7	14.0	58.8	57.2	23.0	15.5	61.5	59.7
		50	10.7	10.7	58.8	57.1	14.6	12.4	61.2	59.5	19.2	14.1	63.6	61.8
		55	8.1	8.1	62.8	58.6	10.7	10.6	63.9	61.6	14.7	12.6	66.0	64.1
	750	40	20.1	15.8	55.7	53.9	24.3	17.5	58.7	56.7	28.5	18.9	62.0	59.9
		45	16.1	14.2	57.7	55.8	20.6	16.1	60.5	58.4	25.3	17.8	63.5	61.3
		50	12.2	12.2	60.2	57.6	16.3	14.5	62.5	60.3	21.2	16.3	65.2	63.0
		55	9.4	9.4	63.6	58.9	12.3	12.3	65.1	62.0	16.5	14.8	67.2	64.9
24	600	40	22.0	15.7	51.0	50.1	27.1	17.7	53.0	52.1	32.4	19.5	55.3	54.4
		45	17.2	13.7	54.2	53.2	22.7	15.9	55.9	54.8	28.2	17.9	57.9	56.8
		50	12.3	11.7	57.2	56.2	17.3	13.8	59.1	57.9	23.3	16.0	60.8	59.6
		55	9.0	9.0	61.4	58.1	12.2	11.9	62.0	60.8	17.4	13.9	64.0	62.7
	800	40	25.8	19.2	53.1	51.8	31.5	21.4	55.6	54.3	37.2	14.5	58.5	57.0
		45	20.4	16.9	55.8	54.4	26.5	19.4	57.9	56.5	32.8	21.6	60.4	58.9
		50	14.9	14.7	58.3	56.8	20.6	17.1	60.6	59.0	27.2	19.6	62.8	61.2
		55	11.2	11.2	62.3	58.4	14.8	14.8	63.2	61.4	20.7	17.3	65.4	63.7
	1000	40	28.6	22.1	54.9	53.2	34.8	24.5	57.7	55.9	40.9	26.5	60.8	58.9
		45	22.9	19.7	57.0	55.3	29.5	22.4	59.6	57.8	36.2	24.9	62.4	60.5
		50	17.1	17.1	59.5	57.3	23.2	20.0	61.8	59.9	30.2	22.7	64.4	62.4
		55	13.0	13.0	63.2	58.7	17.1	17.1	64.5	61.8	23.3	20.4	66.6	64.5
36	900	40	35.4	24.8	49.8	49.0	44.4	28.3	51.3	50.4	53.7	31.6	53.0	52.2
		45	27.2	21.2	53.5	52.6	36.4	24.9	54.8	53.9	46.1	28.4	56.3	55.3
		50	19.0	17.9	56.9	55.9	27.3	21.3	58.5	57.4	37.3	24.9	59.8	58.8
		55	13.7	13.6	61.2	58.0	18.7	18.1	61.7	60.6	27.3	21.4	63.5	62.3
	1200	40	42.7	30.6	51.7	50.5	53.1	34.7	53.6	52.4	63.9	38.4	55.8	54.6
		45	32.8	26.4	55.0	53.7	43.8	30.8	56.6	55.3	55.0	34.8	58.6	57.2
		50	23.2	22.5	57.9	56.5	32.9	26.6	59.9	58.4	44.7	30.9	61.6	60.1
		55	17.1	17.1	62.1	58.3	23.0	22.9	62.7	61.2	32.9	26.8	64.8	63.2
	1500	40	48.5	35.7	53.3	51.8	59.9	40.1	55.6	54.0	71.8	44.2	58.2	56.6
		45	37.5	31.0	56.2	54.5	49.6	35.9	58.2	56.5	62.0	40.4	60.5	58.8
		50	26.9	26.8	58.7	57.0	37.6	31.3	61.0	59.2	50.6	36.2	63.1	61.3
		55	20.1	20.1	62.8	58.6	26.7	26.7	63.9	61.6	37.5	31.6	65.9	63.9

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 36, p. 45.
5. TC and SC values do not include heat generated by the fan and motor.

Table 20. R-22, 3-row DX cooling capacities (continued)

Unit Size	Air Flow	Suct. Temp	Entering Air Temperature - Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
54	1350	40	53.1	37.2	49.8	49.0	66.6	42.4	51.3	50.4	80.6	47.3	53.0	52.2
		45	40.8	31.8	53.5	52.6	54.5	37.3	54.8	53.9	69.2	42.6	56.3	55.3
		50	28.5	26.8	56.9	55.9	41.0	31.9	58.5	57.4	55.9	37.4	59.8	58.8
		55	20.6	20.4	61.2	58.0	28.1	27.2	61.7	60.6	41.0	32.1	63.5	62.3
	1800	40	64.0	45.9	51.7	50.5	79.6	52.0	53.6	52.4	95.8	57.6	55.8	54.6
		45	49.2	39.6	55.0	53.7	65.6	46.2	56.6	55.3	82.5	52.2	58.6	57.2
		50	34.8	33.8	57.9	56.5	49.4	39.8	59.9	58.4	67.1	46.4	61.6	60.1
		55	25.7	25.7	62.1	58.3	34.5	34.4	62.7	61.2	49.4	40.1	64.8	63.2
	2250	40	72.7	53.5	53.3	51.8	89.9	60.2	55.6	54.0	107.7	66.3	58.2	56.6
		45	56.2	46.5	56.2	54.5	74.4	53.9	58.2	56.5	93.0	60.5	60.5	58.8
		50	40.3	40.2	58.7	57.0	56.4	46.9	61.0	59.2	76.0	54.2	63.1	61.3
		55	30.2	30.2	62.8	58.6	40.1	40.0	63.9	61.6	56.3	47.4	65.9	63.9
72	1800	40	68.5	48.4	50.4	49.5	84.3	54.5	52.4	51.4	100.8	60.2	54.5	53.6
		45	53.8	42.0	53.7	52.7	70.6	48.7	55.3	54.3	87.9	54.9	57.3	56.2
		50	38.4	35.7	56.9	55.9	54.3	42.3	58.7	57.5	72.7	49.0	60.3	59.1
		55	27.9	27.9	60.9	57.9	37.9	36.2	61.7	60.5	54.6	42.6	63.6	62.3
	2400	40	80.8	59.0	52.6	51.3	98.7	66.0	54.9	53.6	114.6	44.0	58.2	56.6
		45	64.1	51.9	55.3	53.9	83.2	59.6	57.4	56.0	102.7	66.6	59.8	58.3
		50	46.4	44.8	58.0	56.6	64.6	52.4	60.2	58.6	85.5	60.1	62.3	60.7
		55	34.6	34.6	34.6	61.9	46.1	45.6	62.7	61.1	65.0	53.0	65.0	63.3
	3000	40	90.2	68.1	54.3	52.6	109.6	75.7	57.0	55.3	126.6	80.0	60.6	58.5
		45	72.0	60.5	56.6	54.9	92.8	69.0	59.1	57.3	113.9	76.6	61.8	59.9
		50	53.3	53.1	58.9	57.1	72.8	61.4	61.4	59.5	95.2	69.8	63.9	61.9
		55	40.5	40.5	40.5	62.8	53.2	53.1	63.9	61.6	73.3	62.2	66.2	64.1
90	2250	40	87.6	61.5	50.0	49.1	108.1	69.5	51.8	50.9	129.5	76.8	53.9	53.0
		45	68.7	53.3	53.4	52.5	90.4	61.9	54.9	53.9	112.7	69.9	56.7	55.7
		50	48.9	45.2	56.7	55.7	69.4	53.6	58.3	57.3	93.1	62.3	59.8	58.8
		55	45.3	43.8	57.3	56.3	65.0	51.9	59.0	57.9	88.7	60.7	60.5	59.4
	3000	40	104.0	75.4	52.1	50.9	127.3	84.4	54.3	53.1	156.1	94.1	56.3	55.1
		45	82.3	66.0	54.9	53.6	107.2	76.1	56.9	55.6	132.5	85.1	59.2	57.8
		50	59.4	56.8	57.8	56.4	83.0	66.7	59.8	58.4	110.1	76.7	61.8	60.3
		55	55.4	55.3	58.2	56.9	77.9	64.8	60.4	58.9	105.2	74.9	62.3	60.8
	3750	40	116.7	87.2	53.8	52.2	142.0	97.1	56.4	54.8	174.2	107.9	58.7	57.0
		45	93.2	77.3	56.2	54.6	120.0	88.2	58.6	56.9	147.6	98.2	61.2	59.4
		50	68.3	67.4	58.6	56.9	94.0	78.2	61.0	59.2	123.1	89.2	63.4	61.5
		55	51.6	51.6	62.5	58.5	68.1	67.9	63.6	61.5	94.5	79.2	65.9	63.9

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 36, p. 45.
5. TC and SC values do not include heat generated by the fan and motor.

Table 21. R-22, 4-row DX cooling capacities

Unit Size	Air Flow	Suct. Temp	Entering Air Temperature - Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
12	300	40	12.5	8.7	48.3	48.0	15.5	9.9	49.8	49.5	18.6	11.0	51.7	51.3
		45	9.9	7.6	52.0	51.6	13.0	8.8	53.2	52.8	16.2	10.0	54.7	54.3
		50	7.0	6.4	55.5	55.1	10.0	7.6	56.9	56.4	13.4	8.9	58.1	57.6
		55	5.0	5.0	59.8	57.5	7.0	6.5	60.3	59.8	10.1	7.7	61.8	61.3
	400	40	15.1	10.8	50.2	49.7	18.5	12.2	52.3	51.7	22.0	13.4	54.6	54.0
		45	11.9	9.5	53.4	52.7	15.6	11.0	55.0	54.4	19.3	12.3	57.1	56.4
		50	8.6	8.2	56.4	55.7	12.1	9.6	58.2	57.5	16.1	11.1	59.9	59.2
		55	6.3	6.3	60.6	57.8	8.6	8.3	61.2	60.4	12.2	9.7	63.0	62.3
	500	40	17.0	12.7	51.9	51.1	20.7	14.1	54.3	53.5	24.5	15.4	57.0	56.1
		45	13.6	11.2	54.6	53.7	17.6	12.8	56.7	55.8	21.6	14.3	59.0	58.1
		50	10.0	9.8	57.2	56.3	13.8	11.4	59.3	58.4	18.1	13.0	61.4	60.5
		55	7.5	7.5	61.4	58.1	10.0	10.0	61.9	60.9	13.9	11.5	64.1	63.1
18	450	40	16.8	12.2	50.3	49.8	20.4	13.5	52.5	52.0	24.1	14.8	55.1	54.5
		45	13.7	10.8	53.1	52.5	17.5	12.4	55.0	54.4	21.4	13.7	57.2	56.7
		50	10.1	9.4	56.0	55.4	14.0	11.0	57.8	57.2	18.1	12.5	59.7	59.1
		55	7.5	7.5	60.0	57.5	10.1	9.6	60.7	60.1	14.2	11.1	62.6	61.9
	600	40	19.4	14.8	52.5	51.7	23.4	16.3	55.2	54.4	27.2	17.5	58.3	57.4
		45	16.0	13.4	54.7	53.9	20.2	15.1	57.1	56.3	24.5	16.6	59.8	58.9
		50	12.2	11.8	57.0	56.2	16.4	13.6	59.4	58.5	20.9	15.3	61.8	60.9
		55	9.3	9.3	61.0	57.9	12.2	12.1	61.7	60.8	16.7	13.9	64.1	63.1
	750	40	21.4	17.1	54.3	53.2	25.3	18.6	57.4	56.3	29.5	20.0	60.6	59.4
		45	17.8	15.6	56.0	55.0	22.2	17.5	58.8	57.7	26.4	18.9	62.0	60.8
		50	13.9	13.9	58.1	56.8	18.3	16.0	60.7	59.5	23.0	17.8	63.5	62.2
		55	10.8	10.8	61.9	58.3	14.0	14.0	63.0	61.3	18.6	16.3	65.3	64.0
24	600	40	23.6	16.8	49.4	49.0	28.7	18.7	51.5	51.1	33.9	20.5	53.8	53.4
		45	19.1	14.8	52.4	52.0	24.5	17.0	54.1	53.7	30.1	19.0	56.2	55.7
		50	14.0	12.8	55.6	55.1	19.5	15.0	57.2	56.7	25.5	17.2	58.9	58.4
		55	10.2	10.2	59.6	57.4	14.0	13.0	60.4	59.8	19.8	15.2	62.0	61.5
	800	40	27.6	20.5	51.6	50.9	33.3	22.7	54.1	53.4	38.8	24.4	57.0	56.3
		45	22.6	18.4	54.0	53.3	28.7	20.9	56.2	55.5	34.9	23.1	58.8	58.0
		50	17.0	16.2	56.6	55.9	23.1	18.7	58.7	58.0	29.7	21.2	61.0	60.2
		55	12.7	12.7	60.5	57.8	17.0	16.5	61.3	60.5	23.5	19.0	63.4	62.6
	1000	40	30.5	23.7	53.3	52.4	36.6	26.2	56.2	55.2	42.4	28.0	59.4	58.4
		45	25.3	21.6	55.3	54.4	31.8	24.2	57.9	57.0	38.4	26.7	60.8	59.7
		50	19.5	19.3	57.5	56.5	25.9	22.0	60.0	59.0	32.9	24.7	62.6	61.5
		55	15.0	15.0	61.4	58.1	19.6	19.6	62.3	61.0	26.4	22.5	64.7	63.5
36	900	40	39.2	27.0	47.6	47.2	48.4	30.6	49.0	48.6	58.1	33.9	50.6	50.3
		45	30.9	23.3	51.4	51.0	40.6	27.1	52.5	52.1	50.7	30.7	53.9	53.5
		50	22.1	19.6	55.1	54.7	31.4	23.4	56.3	55.9	41.9	27.3	57.4	57.0
		55	15.6	15.6	59.3	57.3	21.8	19.8	60.0	59.5	31.7	23.5	61.3	60.8
	1200	40	47.4	33.5	49.5	48.9	58.1	37.6	51.4	50.8	69.2	41.4	53.5	53.0
		45	37.6	29.2	52.8	52.2	49.0	33.8	54.3	53.7	60.7	37.9	56.2	55.6
		50	27.2	25.0	56.0	55.4	38.2	29.5	57.6	57.0	50.6	34.1	59.2	58.5
		55	19.7	19.7	60.1	57.6	27.0	25.4	60.8	60.1	38.5	29.7	62.5	61.8
	1500	40	53.9	39.2	51.1	50.4	65.6	43.7	53.4	52.6	77.4	47.5	56.0	55.2
		45	43.1	34.6	54.0	53.1	55.7	39.6	55.9	55.1	68.5	44.2	58.2	57.3
		50	31.6	29.9	56.8	56.0	43.7	35.0	58.8	57.9	57.3	40.0	60.8	59.8
		55	23.3	23.3	60.9	57.9	31.4	30.5	61.6	60.6	44.2	35.4	63.6	62.6

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 36, p. 45.
5. TC and SC values do not include heat generated by the fan and motor.

Table 21. R-22, 4-row DX cooling capacities (continued)

Unit Size	Air Flow	Suct. Temp	Entering Air Temperature - Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
54	1350	40	58.8	40.5	47.6	47.2	72.6	45.8	49.0	48.6	87.1	50.8	50.6	50.3
		45	46.4	34.9	51.4	51.0	60.8	40.7	52.5	52.1	76.0	46.1	53.9	53.5
		50	33.1	29.4	55.1	54.7	47.1	35.1	56.3	55.9	62.9	40.9	57.4	57.0
		55	23.4	23.4	59.3	57.3	32.8	29.8	60.0	59.5	47.6	35.3	61.3	60.8
	1800	40	71.1	50.3	49.5	48.9	87.1	56.5	51.4	50.8	103.8	62.1	53.5	53.0
		45	56.4	43.9	52.8	52.2	73.5	50.7	54.3	53.7	91.0	56.9	56.2	55.6
		50	40.8	37.5	56.0	55.4	57.3	44.2	57.6	57.0	75.8	51.1	59.2	58.5
		55	29.5	29.5	60.1	57.6	40.4	38.0	60.8	60.1	57.8	44.6	62.5	61.8
	2250	40	80.8	58.8	51.1	50.4	98.5	65.6	53.4	52.6	116.1	71.2	56.0	55.2
		45	64.7	51.9	54.0	53.1	83.5	59.4	55.9	55.1	102.7	66.3	58.2	57.3
		50	47.3	44.9	56.8	56.0	65.6	52.5	58.8	57.9	86.0	60.0	60.8	59.8
		55	35.0	35.0	60.9	57.9	47.0	45.7	61.6	60.6	66.3	53.1	63.6	62.6
72	1800	40	73.8	51.8	48.7	48.3	89.7	57.9	50.6	50.2	106.4	63.5	52.8	52.4
		45	59.7	45.6	51.9	51.4	76.7	52.4	53.5	53.0	94.2	58.5	55.4	54.9
		50	43.8	39.0	55.2	54.8	60.9	46.0	56.7	56.2	79.6	52.9	58.3	57.8
		55	31.3	31.3	59.2	57.2	43.6	39.5	60.1	59.5	62.0	46.5	61.6	61.0
	2400	40	87.0	63.4	50.9	50.2	105.0	70.3	53.3	52.6	121.2	74.9	56.5	55.6
		45	71.1	56.6	53.5	52.8	90.4	64.4	55.6	54.9	110.1	71.3	58.0	57.2
		50	53.2	49.4	56.3	55.5	72.6	57.4	58.2	57.5	93.7	65.2	60.3	59.5
		55	39.3	39.3	60.1	57.6	53.1	50.2	61.0	60.2	73.9	58.2	63.0	62.2
	3000	40	97.1	73.5	52.6	51.8	114.0	79.2	55.9	54.7	133.6	85.7	58.9	57.7
		45	79.9	66.3	54.8	53.9	100.8	74.8	57.3	56.3	118.8	80.0	60.6	59.4
		50	61.1	58.8	57.1	56.2	81.7	67.6	59.5	58.5	104.4	76.1	62.0	60.9
		55	46.4	46.4	61.0	57.9	61.2	60.1	61.8	60.8	83.1	68.7	64.2	63.1
90	2250	40	94.5	65.8	48.3	47.9	115.1	73.7	50.1	49.7	136.6	81.0	52.2	51.8
		45	76.2	57.8	51.6	51.2	98.3	66.5	53.0	52.6	120.9	74.5	54.9	54.4
		50	55.8	49.3	55.0	54.6	77.8	58.3	56.4	56.0	102.0	67.1	57.9	57.4
		55	51.8	47.7	55.7	55.2	73.5	56.6	57.1	56.7	97.8	65.5	58.5	58.1
	3000	40	112.0	80.9	50.4	49.8	135.5	89.9	52.7	52.1	168.2	101.2	54.2	53.6
		45	91.4	72.0	53.1	52.5	116.4	82.0	55.1	54.4	142.1	91.1	57.4	56.7
		50	68.0	62.5	56.0	55.4	93.3	73.0	57.9	57.2	120.7	83.0	59.9	59.1
		55	63.5	60.7	56.6	55.9	88.3	71.1	58.5	57.8	115.9	81.3	60.4	59.7
	3750	40	125.5	94.0	52.1	51.3	159.3	107.0	53.9	53.1	187.9	116.4	56.6	55.7
		45	103.1	84.5	54.5	53.6	130.4	95.6	56.8	55.9	158.2	105.6	59.4	58.5
		50	78.4	74.6	56.9	56.0	105.5	86.0	59.2	58.2	135.1	97.1	61.5	60.5
		55	59.0	59.0	60.7	57.8	78.4	76.1	61.6	60.6	107.3	87.4	63.9	62.9

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 36, p. 45.
5. TC and SC values do not include heat generated by the fan and motor.

Table 22. R-22, 6-row DX cooling capacities

Unit Size	Air Flow	Suct. Temp	Entering Air Temperature - Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
12	300	40	14.6	9.8	45.1	45.0	18.4	11.3	45.5	45.4	22.5	12.8	46.1	46.0
		45	11.3	8.3	49.7	49.6	15.1	9.8	50.1	50.0	19.2	11.3	50.6	50.5
		50	7.9	6.8	54.2	54.1	11.4	8.3	54.8	54.7	15.5	9.8	55.2	55.1
		55	5.4	5.4	58.6	57.0	7.7	6.9	59.1	59.0	11.5	8.3	59.8	59.7
	400	40	18.4	12.6	46.3	46.2	23.1	14.4	47.0	46.9	28.2	16.2	48.0	47.9
		45	14.2	10.7	50.6	50.5	19.0	12.6	51.3	51.2	24.1	14.4	52.1	51.9
		50	9.9	8.9	54.7	54.6	14.4	10.7	55.7	55.5	19.5	12.6	56.4	56.2
		55	7.0	6.9	59.2	57.2	9.8	8.9	59.6	59.4	14.4	10.7	60.7	60.5
	500	40	21.7	15.1	47.5	47.3	27.3	17.2	48.5	48.3	33.1	19.3	49.8	49.7
		45	16.8	12.9	51.5	51.3	22.4	15.1	52.5	52.2	28.4	17.3	53.5	53.3
		50	11.8	10.8	55.3	55.0	16.9	12.9	56.5	56.2	22.9	15.1	57.5	57.2
		55	8.4	8.4	59.7	57.4	11.6	11.1	59.9	59.8	17.0	13.0	61.4	61.2
18	450	40	21.3	14.4	45.7	45.6	26.4	16.4	46.7	46.6	31.9	18.3	47.8	47.7
		45	16.7	12.3	49.9	49.8	22.0	14.4	50.7	50.6	27.7	16.5	51.6	51.5
		50	11.9	10.3	54.1	54.0	17.0	12.4	54.9	54.8	22.8	14.5	55.7	55.6
		55	8.2	8.2	58.4	56.9	11.8	10.4	59.0	58.9	17.2	12.4	59.9	59.8
	600	40	26.2	18.1	47.4	47.2	32.4	20.5	48.7	48.5	38.8	22.7	50.4	50.2
		45	20.7	15.7	51.1	50.9	27.1	18.3	52.3	52.0	33.9	20.7	53.6	53.4
		50	14.8	13.3	54.8	54.6	21.0	15.8	56.0	55.8	28.0	18.4	57.2	56.9
		55	10.5	10.5	59.1	57.2	14.7	13.4	59.7	59.4	21.2	15.9	61.0	60.7
	750	40	30.3	21.5	48.8	48.5	37.2	24.2	50.6	50.3	44.4	26.6	52.7	52.4
		45	24.1	18.8	52.2	51.8	31.4	21.7	53.6	53.3	38.9	24.4	55.4	55.1
		50	17.4	16.1	55.5	55.2	24.4	18.9	57.0	56.7	32.3	21.9	58.5	58.2
		55	12.6	12.6	59.7	57.4	17.3	16.3	60.3	59.9	24.7	19.1	61.9	61.5
24	600	40	29.1	19.5	45.2	45.1	36.2	22.3	46.0	45.9	43.8	25.0	46.9	46.8
		45	22.9	16.7	49.5	49.4	30.1	19.6	50.2	50.1	37.9	22.4	50.9	50.8
		50	16.2	13.9	53.9	53.8	23.3	16.8	54.5	54.4	31.2	19.7	55.2	55.1
		55	11.2	11.1	58.1	56.8	16.0	14.0	58.8	58.7	23.5	16.8	59.6	59.5
	800	40	36.2	24.8	46.7	46.5	44.9	28.2	47.8	47.7	53.9	31.3	49.3	49.2
		45	28.5	21.4	50.6	50.4	37.4	24.9	51.6	51.4	47.0	28.3	52.7	52.6
		50	20.4	18.0	54.5	54.4	29.0	21.5	55.6	55.4	38.7	25.0	56.5	56.4
		55	14.3	14.2	58.8	57.1	20.1	18.2	59.4	59.2	29.3	21.6	60.5	60.3
	1000	40	42.2	29.5	48.0	47.8	52.0	33.3	49.6	49.4	62.2	36.8	51.5	51.2
		45	33.4	25.7	51.6	51.3	43.7	29.7	52.9	52.6	54.4	33.5	54.4	54.2
		50	24.0	21.8	55.1	54.9	33.9	25.8	56.5	56.2	45.1	29.9	57.8	57.5
		55	17.2	17.2	59.4	57.3	23.8	22.1	59.9	59.6	34.2	26.0	61.4	61.1
36	900	40	41.8	28.4	46.1	46.0	50.7	31.8	47.7	47.6	60.1	35.0	49.5	49.4
		45	34.2	25.0	49.6	49.5	43.7	28.8	50.8	50.7	53.5	32.2	52.4	52.3
		50	25.4	21.3	53.4	53.3	35.1	25.2	54.5	54.4	45.6	29.0	55.6	55.5
		55	17.5	17.5	57.4	56.5	25.4	21.5	58.3	58.2	36.0	25.5	59.3	59.2
	1200	40	50.4	35.4	48.0	47.9	60.7	39.3	50.1	49.9	71.4	42.9	52.4	52.3
		45	41.6	31.6	51.0	50.8	52.7	35.9	52.7	52.5	64.0	39.9	54.7	54.6
		50	31.4	27.3	54.2	54.1	42.8	32.0	55.7	55.6	55.0	36.4	57.4	57.2
		55	22.4	22.4	58.1	56.8	31.4	27.7	59.0	58.8	43.9	32.4	60.5	60.3
	1500	40	57.1	41.5	49.7	49.5	68.4	45.9	52.1	51.9	79.4	49.3	55.0	54.7
		45	47.6	37.5	52.2	52.0	59.8	42.3	54.3	54.1	72.2	46.7	56.7	56.4
		50	36.5	32.9	55.0	54.8	49.1	38.1	56.9	56.6	62.3	43.0	59.0	58.7
		55	26.8	26.8	58.8	57.1	36.6	33.5	59.7	59.4	50.3	38.7	61.6	61.3

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.
Light shade = 3/16" x 0.032 wall distributor tubes.
Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 36, p. 45.
5. TC and SC values do not include heat generated by the fan and motor.

Table 22. R-22, 6-row DX cooling capacities (continued)

Unit Size	Air Flow	Suct. Temp	Entering Air Temperature - Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
54	1350	40	62.7	42.6	46.1	46.0	76.1	47.8	47.7	47.6	90.1	52.5	49.5	49.4
		45	51.3	37.5	49.6	49.5	65.5	43.1	50.8	50.7	80.3	48.3	52.4	52.3
		50	38.1	32.0	53.4	53.3	52.7	37.9	54.5	54.4	68.5	43.6	55.6	55.5
		55	26.2	26.2	57.4	56.5	38.1	32.3	58.3	58.2	54.0	38.2	59.3	59.2
	1800	40	75.5	53.1	48.0	47.9	91.0	59.0	50.1	49.9	107.1	64.4	52.4	52.3
		45	62.5	47.4	51.0	50.8	79.1	53.9	52.7	52.5	96.1	59.9	54.7	54.6
		50	47.1	41.0	54.2	54.1	64.2	48.0	55.7	55.6	82.5	54.6	57.4	57.2
		55	33.6	33.6	58.1	56.8	47.1	41.6	59.0	58.8	65.9	48.6	60.5	60.3
	2250	40	85.6	62.3	49.7	49.5	102.6	68.8	52.1	51.9	119.0	73.9	55.0	54.7
		45	71.5	56.2	52.2	52.0	89.7	63.4	54.3	54.1	108.3	70.0	56.7	56.4
		50	54.7	49.4	55.0	54.8	73.6	57.2	56.9	56.6	93.5	64.5	59.0	58.7
		55	40.2	40.2	58.8	57.1	55.0	50.3	59.7	59.4	75.5	58.1	61.6	61.3
72	1800	40	89.6	59.7	44.6	44.5	111.3	68.2	45.3	45.2	134.5	76.4	46.2	46.1
		45	70.8	51.1	49.1	49.0	92.9	59.9	49.6	49.5	116.7	68.4	50.3	50.2
		50	50.4	42.5	53.5	53.4	72.0	51.2	54.1	54.0	96.1	60.0	54.6	54.5
		55	34.1	33.9	57.8	56.7	49.9	42.7	58.4	58.3	73.0	51.3	59.1	59.0
	2400	40	112.0	76.0	46.0	45.9	138.8	86.4	47.1	46.9	166.6	96.0	48.4	48.3
		45	88.6	65.4	50.1	50.0	116.0	76.3	51.0	50.8	145.2	86.7	52.0	51.9
		50	63.4	54.9	54.2	54.0	90.0	65.6	55.1	54.9	119.9	76.6	56.0	55.8
		55	43.1	42.8	58.7	57.1	62.7	55.3	59.1	58.9	91.1	65.9	60.1	59.9
	3000	40	131.3	90.7	47.4	47.1	161.6	102.4	48.8	48.6	193.3	113.2	50.5	50.3
		45	104.1	78.6	51.1	50.8	135.9	91.3	52.3	52.0	168.9	103.0	53.7	53.5
		50	74.9	66.6	54.8	54.5	105.7	79.1	56.0	55.7	140.4	91.8	57.2	56.9
		55	53.1	53.1	58.9	57.1	74.2	67.3	59.6	59.3	106.9	79.5	61.0	60.6
90	2250	40	113.4	75.3	44.4	44.3	140.8	86.1	45.0	44.9	170.3	96.5	45.8	45.7
		45	89.6	64.3	48.9	48.8	117.5	75.5	49.4	49.3	147.7	86.3	50.0	49.9
		50	63.7	53.4	53.4	53.3	91.1	64.4	53.9	53.8	121.7	75.6	54.4	54.3
		55	58.6	51.3	54.2	54.1	85.5	62.2	54.8	54.7	116.1	73.4	55.3	55.2
	3000	40	142.3	96.1	45.7	45.6	176.4	109.4	46.6	46.5	212.2	121.9	47.9	47.8
		45	112.6	82.6	49.9	49.7	147.4	96.5	50.6	50.5	184.8	109.9	51.6	51.5
		50	80.3	69.1	54.0	53.9	114.3	82.8	54.9	54.7	152.4	96.8	55.6	55.5
		55	74.1	66.6	54.8	54.6	107.4	80.1	55.7	55.5	145.3	94.0	56.5	56.3
	3750	40	167.4	115.0	47.0	46.8	206.5	130.1	48.3	48.1	247.3	144.1	49.9	49.7
		45	132.6	99.4	50.8	50.6	173.3	115.6	51.9	51.6	215.9	130.8	53.2	53.0
		50	95.2	84.0	54.6	54.4	134.7	100.0	55.7	55.5	179.0	116.2	56.8	56.6
		55	67.1	67.1	58.8	57.1	94.3	84.8	59.5	59.2	136.2	100.5	60.7	60.4

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

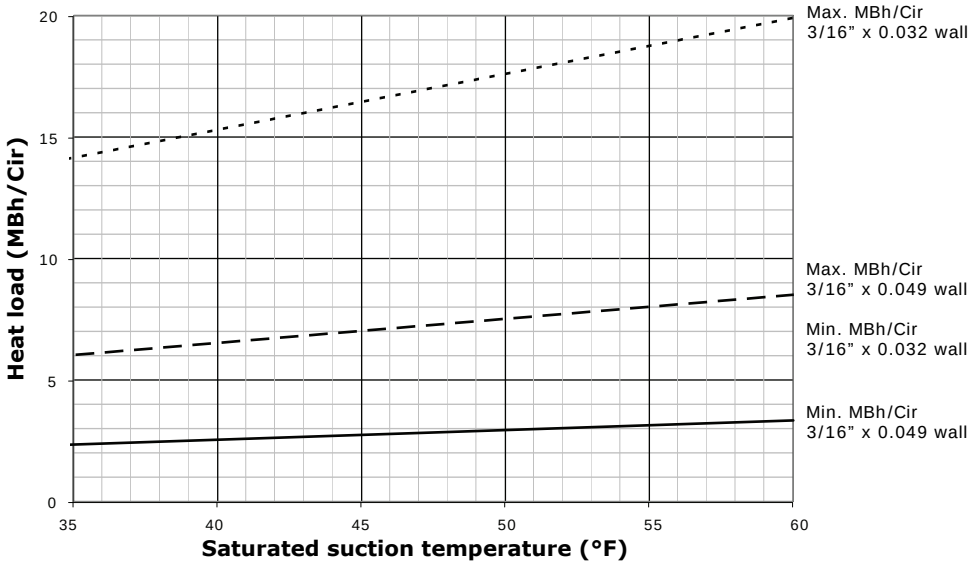
No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 36, p. 45.
5. TC and SC values do not include heat generated by the fan and motor.

Figure 37. R-410A Blower coil distributor selection



Select distributor size using MBh/Cir based on system analysis with matching condensing unit operating

Table 23. R-410A, 3-row DX cooling capacities

Unit Size	Air Flow	Suct. Temp	Entering Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
12	300	40	11.8	8.3	49.8	49.0	14.9	9.5	51.2	50.3	18.2	10.6	52.7	51.8
		45	9.0	7.0	53.7	52.7	12.1	8.3	54.8	53.9	15.4	9.5	56.2	55.3
		50	6.1	5.9	57.2	56.1	9.0	7.1	58.6	57.6	12.4	8.3	59.9	58.8
		55	4.7	4.6	60.8	57.9	6.4	6.0	61.6	60.5	9.0	7.1	63.6	62.4
	400	40	14.3	10.2	51.6	50.4	17.9	11.7	53.4	52.2	21.8	13.0	55.3	54.1
		45	10.9	8.8	55.0	53.7	14.6	10.3	56.6	55.3	18.6	11.7	58.4	57.1
		50	7.6	7.5	58.0	56.7	10.9	8.8	59.9	58.5	14.9	10.3	61.6	60.1
		55	5.8	5.8	61.8	58.2	7.5	7.5	62.9	61.3	10.9	8.9	64.9	63.3
	500	40	16.3	12.0	53.2	51.7	20.4	13.6	55.3	53.7	24.8	15.1	57.5	56.0
		45	12.5	10.3	56.2	54.6	16.6	12.0	58.1	56.5	21.0	13.6	60.3	58.5
		50	8.9	8.9	58.9	57.1	12.5	10.4	61.1	59.3	16.9	12.1	63.1	61.2
		55	6.5	6.5	63.1	58.7	8.8	8.8	64.0	61.6	12.4	10.5	66.0	64.0
18	450	40	16.9	11.9	50.8	49.8	20.9	13.5	52.6	51.5	25.3	15.0	54.6	53.5
		45	13.1	10.3	54.2	53.0	17.3	12.0	55.8	54.6	21.7	13.6	57.6	56.4
		50	9.3	8.7	57.3	56.1	13.2	10.3	59.1	57.8	17.7	12.0	60.7	59.4
		55	6.7	6.7	61.5	58.1	9.2	8.9	62.1	60.8	13.2	10.4	64.0	62.6
	600	40	20.0	14.5	52.9	51.4	24.7	16.4	55.1	53.6	29.7	18.1	57.5	56.0
		45	15.5	12.7	55.8	54.2	20.4	14.6	57.8	56.2	25.6	16.5	60.0	58.3
		50	11.2	10.9	58.4	56.8	15.6	12.8	60.6	58.9	20.9	14.7	62.7	60.9
		55	8.3	8.3	62.4	58.5	11.1	11.1	63.2	61.4	15.7	12.9	65.5	63.6
	750	40	22.4	16.8	54.5	52.7	27.6	18.9	57.1	55.2	33.5	20.8	59.6	57.6
		45	17.5	14.8	57.0	55.1	22.9	17.0	59.4	57.4	28.6	19.0	62.0	59.9
		50	12.9	12.9	59.4	57.3	17.6	15.0	61.9	59.8	23.4	17.1	64.3	62.1
		55	9.8	9.8	63.2	58.8	12.9	12.8	64.5	61.8	17.6	15.1	66.7	64.4
24	600	40	23.4	16.4	50.0	49.1	29.2	18.7	51.6	50.7	35.3	20.8	53.4	52.5
		45	18.2	14.1	53.6	52.5	24.1	16.5	55.0	54.0	30.3	18.7	56.6	55.6
		50	12.8	11.9	56.9	55.9	18.3	14.2	58.5	57.4	24.7	16.5	60.0	58.8
		55	9.5	9.4	60.7	57.8	12.6	12.1	61.7	60.5	18.4	14.3	63.5	62.2
	800	40	28.0	20.1	52.0	50.7	34.7	22.8	54.0	52.7	41.8	25.2	56.3	55.0
		45	21.8	17.5	55.1	53.7	28.7	20.3	56.9	55.5	36.0	22.9	59.0	57.5
		50	15.6	15.0	58.0	56.5	21.9	17.6	60.0	58.5	29.4	20.4	61.9	60.3
		55	11.5	11.5	62.0	58.3	15.5	15.2	62.7	61.1	22.0	17.8	64.9	63.2
	1000	40	31.7	23.4	53.7	52.0	39.1	26.3	56.0	54.3	47.5	29.1	58.4	56.7
		45	24.7	20.5	56.4	54.6	32.4	23.6	58.6	56.8	40.5	26.5	60.9	59.1
		50	18.0	17.8	58.8	57.0	24.8	20.7	61.2	59.3	33.1	23.7	63.5	61.5
		55	13.5	13.5	62.8	58.6	17.9	17.9	63.8	61.6	24.9	20.9	66.1	64.0
36	900	40	36.6	25.3	49.3	48.5	45.8	28.9	50.6	49.8	55.8	32.4	52.1	51.3
		45	28.1	21.6	53.1	52.2	37.5	25.3	54.3	53.4	47.5	28.9	55.7	54.8
		50	19.5	18.0	56.7	55.7	28.3	21.6	58.1	57.1	38.4	25.4	59.4	58.3
		55	14.4	14.3	60.4	57.7	19.2	18.3	61.6	60.4	28.3	21.7	63.1	62.0
	1200	40	44.3	31.3	51.1	50.0	55.3	35.7	52.9	51.7	67.2	39.8	54.8	53.6
		45	34.0	26.9	54.6	53.3	45.3	31.4	56.2	54.8	57.2	35.7	57.9	56.6
		50	24.0	22.8	57.7	56.3	34.2	27.0	59.5	58.1	46.2	31.5	61.2	59.7
		55	18.0	17.8	61.4	58.1	23.7	23.2	62.5	61.0	34.2	27.2	64.5	62.9
	1500	40	50.6	36.6	52.7	51.2	63.1	41.5	54.8	53.2	76.5	46.1	57.0	55.4
		45	39.0	31.6	55.8	54.2	51.7	36.7	57.7	56.0	65.1	41.6	59.8	58.1
		50	27.8	27.2	58.5	56.8	39.0	31.8	60.7	58.9	52.5	36.8	62.7	60.9
		55	20.6	20.6	62.5	58.5	27.6	27.5	63.4	61.4	39.0	32.1	65.6	63.7

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 37, p. 52.
5. TC and SC values do not include heat generated by the fan and motor.

Table 23. R-410A, 3-row DX cooling capacities (continued)

Unit Size	Air Flow	Suct. Temp	Entering Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
54	1350	40	54.9	38.0	49.3	48.5	68.7	43.4	50.6	49.8	83.7	48.7	52.1	51.3
		45	42.2	32.4	53.1	52.2	56.3	38.0	54.3	53.4	71.3	43.4	55.7	54.8
		50	29.2	27.1	56.7	55.7	42.5	32.4	58.1	57.1	57.6	38.0	59.4	58.3
		55	21.7	21.5	60.4	57.7	28.9	27.4	61.6	60.4	42.5	32.6	63.1	62.0
	1800	40	66.4	47.0	51.1	50.0	83.0	53.5	52.9	51.7	100.8	59.7	54.8	53.6
		45	51.1	40.4	54.6	53.3	67.9	47.1	56.2	54.8	85.8	53.5	57.9	56.6
		50	36.0	34.2	57.7	56.3	51.3	40.5	59.5	58.1	69.3	47.2	61.2	59.7
		55	26.9	26.7	61.4	58.1	35.6	34.8	62.5	61.0	51.3	40.8	64.5	62.9
	2250	40	75.9	54.9	52.7	51.2	94.7	62.2	54.8	53.2	114.7	69.2	57.0	55.4
		45	58.4	47.4	55.8	54.2	77.5	55.1	57.7	56.0	97.7	62.3	59.8	58.1
		50	41.7	40.7	58.5	56.8	58.5	47.8	60.7	58.9	78.8	55.3	62.7	60.9
		55	30.9	30.9	62.5	58.5	41.4	41.3	63.4	61.4	58.4	48.1	65.6	63.7
72	1800	40	72.1	50.1	49.6	48.7	89.6	56.9	51.1	50.3	108.3	63.4	52.9	52.0
		45	56.3	43.1	53.2	52.2	74.1	50.2	54.6	53.6	93.1	57.0	56.2	55.2
		50	39.8	36.3	56.6	55.6	56.8	43.2	58.2	57.0	76.1	50.3	59.6	58.5
		55	28.4	28.4	60.7	57.8	39.4	36.7	61.5	60.3	57.2	43.4	63.1	61.9
	2400	40	86.4	61.5	51.6	50.3	107.0	69.5	53.6	52.3	128.8	77.1	55.7	54.5
		45	67.6	53.4	54.7	53.4	88.6	61.8	56.6	55.1	110.9	69.7	58.6	57.1
		50	48.4	45.6	57.7	56.3	68.0	53.7	59.7	58.1	90.7	62.0	61.5	60.0
		55	35.5	35.5	35.5	61.6	48.0	46.3	62.5	60.9	68.2	54.1	64.6	62.9
	3000	40	97.9	71.5	53.3	51.7	120.9	80.4	55.6	53.9	143.8	87.0	58.5	56.5
		45	76.7	62.4	56.0	54.3	100.3	71.9	58.2	56.4	125.1	80.8	60.5	58.7
		50	55.7	54.0	58.6	56.8	77.1	62.9	60.9	59.0	102.3	72.3	63.1	61.1
		55	41.7	41.7	41.7	62.4	55.3	55.0	63.4	61.4	77.2	63.5	65.8	63.7
90	2250	40	92.0	63.6	49.2	48.3	114.4	72.3	50.6	49.8	138.4	80.7	52.3	51.5
		45	71.9	54.6	52.9	51.9	94.7	63.7	54.2	53.2	118.9	72.4	55.7	54.7
		50	50.7	45.9	56.4	55.4	72.6	54.8	57.8	56.8	97.2	63.9	59.2	58.1
		55	46.8	44.4	57.1	56.0	68.0	53.0	58.6	57.5	92.6	62.1	59.9	58.8
	3000	40	110.8	78.4	51.1	50.0	137.3	88.7	53.0	51.8	165.6	98.5	55.1	53.9
		45	86.7	67.9	54.4	53.1	113.7	78.7	56.1	54.8	142.4	89.0	58.0	56.7
		50	61.9	57.8	57.5	56.1	87.3	68.3	59.3	57.9	116.5	79.0	61.1	59.6
		55	57.5	56.1	58.0	56.6	81.8	66.2	59.9	58.5	110.9	77.0	61.7	60.2
	3750	40	126.1	91.3	52.8	51.3	155.8	102.9	55.0	53.4	192.1	115.2	56.9	55.3
		45	98.7	79.6	55.7	54.0	129.2	91.8	57.7	56.0	161.2	103.3	60.0	58.2
		50	71.4	68.6	58.3	56.7	99.2	80.2	60.6	58.8	132.0	92.3	62.7	60.8
		55	53.2	53.2	62.1	58.4	70.8	69.8	63.1	61.2	99.4	80.9	65.5	63.5

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 37, p. 52.
5. TC and SC values do not include heat generated by the fan and motor.

Table 24. R-410A, 4-row DX cooling capacities

Unit Size	Air Flow	Suct. Temp	Entering Dry Bulb / Wet Bulb (°F) 75/63 TC	SC	LDB	LWB	80/67 TC	SC	LDB	LWB	85/71 TC	SC	LDB	LWB
12	300	40	13.4	9.1	47.2	46.8	16.7	10.4	48.2	47.9	20.2	11.7	49.5	49.2
		45	10.4	7.8	51.3	50.9	13.8	9.2	52.1	51.7	17.4	10.5	53.2	52.8
		50	7.3	6.5	55.3	54.8	10.5	7.8	56.2	55.8	14.2	9.2	57.2	56.7
		55	5.3	5.3	59.0	57.2	7.2	6.6	60.1	59.6	10.6	7.9	61.2	60.7
	400	40	16.4	11.4	48.9	48.3	20.3	13.0	50.4	49.9	24.5	14.4	52.1	51.6
		45	12.8	9.9	52.5	51.9	16.8	11.5	53.8	53.2	21.1	13.0	55.4	54.7
		50	9.1	8.3	56.0	55.4	12.9	9.9	57.5	56.8	17.3	11.5	58.8	58.1
		55	6.4	6.4	60.4	57.7	9.0	8.4	60.8	60.1	13.0	10.0	62.4	61.6
	500	40	18.8	13.4	50.4	49.7	23.3	15.2	52.3	51.5	28.0	16.8	54.4	53.6
		45	14.7	11.7	53.7	52.9	19.4	13.5	55.3	54.5	24.2	15.3	57.2	56.3
		50	10.6	10.0	56.8	55.9	14.9	11.8	58.6	57.6	19.9	13.6	60.3	59.3
		55	7.7	7.7	61.0	57.9	10.5	10.2	61.5	60.6	15.0	11.9	63.5	62.4
18	450	40	18.8	13.1	48.4	48.0	23.1	14.8	50.1	49.6	27.7	16.3	51.9	51.5
		45	15.0	11.4	51.9	51.4	19.5	13.2	53.3	52.8	24.2	14.9	54.9	54.4
		50	10.8	9.7	55.4	54.9	15.2	11.5	56.8	56.2	20.1	13.3	58.2	57.6
		55	7.7	7.7	59.5	57.4	10.7	9.8	60.3	59.6	15.4	11.5	61.7	61.1
	600	40	22.4	16.1	50.5	49.8	27.4	18.0	52.6	51.8	32.8	19.8	54.9	54.1
		45	18.0	14.2	53.5	52.7	23.2	16.3	55.3	54.5	28.7	18.2	57.4	56.6
		50	13.2	12.2	56.5	55.6	18.3	14.3	58.3	57.4	23.9	16.4	60.2	59.3
		55	9.6	9.6	60.4	57.7	13.1	12.4	61.2	60.3	18.4	14.5	63.2	62.2
	750	40	25.3	18.7	52.2	51.2	30.9	20.8	54.6	53.6	36.7	22.8	57.2	56.2
		45	20.4	16.6	54.8	53.7	26.1	19.0	57.0	55.9	32.2	21.1	59.4	58.3
		50	15.2	14.6	57.3	56.2	20.7	16.9	59.6	58.4	26.9	19.2	61.8	60.6
		55	11.4	11.4	61.2	58.0	15.2	14.9	62.0	60.8	20.9	17.1	64.4	63.1
24	600	40	26.1	17.9	47.6	47.3	32.1	20.3	49.1	48.7	38.6	22.5	50.8	50.4
		45	20.7	15.5	51.4	50.9	27.0	18.1	52.6	52.1	33.6	20.4	54.0	53.6
		50	14.9	13.1	55.1	54.6	21.1	15.6	56.3	55.8	27.9	18.2	57.5	57.0
		55	10.4	10.4	59.3	57.3	14.8	13.3	59.9	59.4	21.4	15.7	61.2	60.7
	800	40	31.4	22.2	49.6	49.0	38.5	25.0	51.5	50.9	46.0	27.5	53.7	53.0
		45	25.1	19.5	52.8	52.2	32.5	22.4	54.5	53.8	40.3	25.2	56.4	55.7
		50	18.3	16.7	56.0	55.3	25.5	19.6	57.7	56.9	33.5	22.6	59.3	58.6
		55	13.2	13.2	60.0	57.6	18.2	16.9	60.8	60.0	25.8	19.8	62.6	61.7
	1000	40	35.7	25.9	51.3	50.5	43.5	29.0	53.6	52.7	51.9	31.7	56.0	55.1
		45	28.6	22.9	54.1	53.2	36.9	26.2	56.1	55.2	45.5	29.3	58.3	57.4
		50	21.2	19.9	56.9	55.9	29.1	23.2	58.9	57.9	38.0	26.5	60.9	59.9
		55	15.7	15.7	60.8	57.8	21.1	20.3	61.6	60.5	29.4	23.5	63.7	62.6
36	900	40	41.3	27.9	46.6	46.3	51.3	31.9	47.6	47.3	62.1	35.6	48.8	48.5
		45	32.3	23.9	50.8	50.3	42.6	28.0	51.6	51.2	53.5	31.9	52.7	52.3
		50	22.8	19.9	54.8	54.4	32.8	24.0	55.8	55.3	43.9	28.0	56.7	56.2
		55	16.2	16.1	58.6	57.0	22.6	20.1	59.7	59.2	33.2	24.0	60.8	60.2
	1200	40	50.6	35.0	48.3	47.8	62.7	39.7	49.8	49.2	75.6	44.2	51.4	50.9
		45	39.8	30.2	52.1	51.5	52.2	35.1	53.3	52.7	65.3	39.8	54.8	54.2
		50	28.4	25.5	55.7	55.0	40.3	30.3	57.0	56.3	53.6	35.2	58.3	57.6
		55	20.1	20.1	59.8	57.5	28.1	25.8	60.5	59.8	40.6	30.5	62.0	61.2
	1500	40	58.4	41.2	49.9	49.1	72.2	46.6	51.7	50.9	86.8	51.6	53.6	52.9
		45	46.0	35.8	53.2	52.4	60.1	41.4	54.8	54.0	75.0	46.8	56.6	55.8
		50	33.1	30.6	56.5	55.6	46.4	36.0	58.2	57.2	61.7	41.6	59.8	58.9
		55	24.0	24.0	60.5	57.7	32.8	31.0	61.2	60.3	46.7	36.3	63.1	62.1

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 37, p. 52.
5. TC and SC values do not include heat generated by the fan and motor.

Table 24. R-410A, 4-row DX cooling capacities (continued)

Unit Size	Air Flow	Suct. Temp	Entering Dry Bulb / Wet Bulb (°F)											
			75/63				80/67				85/71			
			TC	SC	LDB	LWB	TC	SC	LDB	LWB	TC	SC	LDB	LWB
54	1350	40	61.9	41.9	46.6	46.3	77.0	47.8	47.6	47.3	93.1	53.4	48.8	48.5
		45	48.5	35.9	50.8	50.3	63.9	42.0	51.6	51.2	80.3	47.9	52.7	52.3
		50	34.3	29.9	54.8	54.4	49.2	36.0	55.8	55.3	65.9	42.1	56.7	56.2
		55	24.6	24.2	58.6	57.0	33.9	30.2	59.7	59.2	49.8	36.1	60.8	60.2
	1800	40	76.0	52.5	48.3	47.8	94.1	59.6	49.8	49.2	113.5	66.2	51.4	50.9
		45	59.6	45.3	52.1	51.5	78.2	52.7	53.3	52.7	98.0	59.7	54.8	54.2
		50	42.6	38.2	55.7	55.0	60.4	45.5	57.0	56.3	80.4	52.8	58.3	57.6
		55	30.1	30.1	59.8	57.5	42.2	38.6	60.5	59.8	60.8	45.7	62.0	61.2
	2250	40	87.7	61.9	49.9	49.1	108.3	69.9	51.7	50.9	130.2	77.4	53.6	52.9
		45	69.0	53.7	53.2	52.4	90.1	62.1	54.8	54.0	112.5	70.1	56.6	55.8
		50	49.7	45.8	56.5	55.6	69.7	54.0	58.2	57.2	92.5	62.4	59.8	58.9
		55	36.0	36.0	60.5	57.7	49.2	46.5	61.2	60.3	70.1	54.4	63.1	62.1
72	1800	40	80.4	54.8	47.1	46.8	99.0	62.0	48.5	48.1	118.8	68.8	50.1	49.7
		45	64.0	47.5	50.9	50.5	83.2	55.1	52.1	51.6	103.5	62.3	53.4	53.0
		50	46.2	40.0	54.8	54.3	65.1	47.7	55.9	55.4	86.0	55.3	57.0	56.6
		55	32.0	32.0	58.8	57.1	45.8	40.4	59.6	59.1	66.1	47.9	60.8	60.3
	2400	40	97.2	68.0	49.1	48.5	119.2	76.5	50.9	50.3	140.7	83.1	53.3	52.6
		45	77.7	59.4	52.4	51.7	100.5	68.5	54.0	53.3	124.5	77.0	55.8	55.1
		50	56.7	50.8	55.7	55.0	78.9	59.9	57.3	56.6	103.7	68.9	58.9	58.1
		55	40.6	40.6	59.6	57.4	56.4	51.4	60.6	59.8	80.0	60.3	62.2	61.4
	3000	40	110.9	79.6	50.8	49.9	135.4	89.0	52.9	52.1	159.6	96.2	55.7	54.6
		45	88.9	70.1	53.7	52.8	114.5	80.3	55.6	54.7	141.3	89.8	57.8	56.8
		50	65.7	60.6	56.6	55.7	90.3	70.8	58.5	57.5	118.0	81.0	60.5	59.4
		55	48.3	48.3	60.4	57.7	65.3	61.6	61.4	60.3	91.2	71.5	63.4	62.3
90	2250	40	102.5	69.5	46.7	46.4	126.2	78.7	48.0	47.7	151.5	87.5	49.5	49.2
		45	81.5	60.0	50.6	50.2	106.0	69.8	51.7	51.3	132.0	79.0	53.0	52.6
		50	58.7	50.5	54.6	54.1	82.9	60.3	55.6	55.2	109.6	70.0	56.7	56.2
		55	54.1	48.6	55.3	54.9	78.0	58.4	56.4	55.9	104.8	68.2	57.4	57.0
	3000	40	124.5	86.5	48.6	48.1	152.8	97.4	50.3	49.8	182.7	107.7	52.3	51.7
		45	99.4	75.4	52.1	51.4	128.7	87.1	53.5	52.9	159.6	98.0	55.2	54.6
		50	72.4	64.2	55.5	54.8	101.0	75.9	57.0	56.3	132.9	87.6	58.5	57.8
		55	67.1	62.2	56.1	55.5	95.2	73.7	57.7	57.0	127.1	85.4	59.1	58.4
	3750	40	142.5	101.5	50.3	49.5	174.3	113.7	52.3	51.6	216.2	128.2	53.7	53.0
		45	114.2	89.2	53.3	52.5	147.2	102.4	55.1	54.3	181.9	114.6	57.2	56.3
		50	84.1	76.8	56.3	55.5	115.9	90.0	58.2	57.3	151.8	103.2	60.0	59.1
		55	61.3	61.3	60.2	57.6	83.6	78.0	61.1	60.2	117.2	90.8	63.1	62.0

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 37, p. 52.
5. TC and SC values do not include heat generated by the fan and motor.

Table 25. R-410A, 6-row DX cooling capacities

Unit Size	Air Flow	Suct. Temp	Entering Dry Bulb / Wet Bulb (°F) 75/63 TC	75/63 SC	75/63 LDB	75/63 LWB	80/67 TC	80/67 SC	80/67 LDB	80/67 LWB	85/71 TC	85/71 SC	85/71 LDB	85/71 LWB
12	300	40	15.0	10.0	44.5	44.4	18.9	11.6	44.8	44.7	23.1	13.1	45.1	45.0
		45	11.5	8.4	49.5	49.4	15.5	10.0	49.6	49.5	19.8	11.5	49.8	49.7
		50	8.5	7.1	53.4	53.3	12.1	8.5	54.0	53.9	16.0	10.0	54.7	54.6
		55	5.8	5.7	57.5	56.6	8.4	7.1	58.4	58.3	12.2	8.5	59.1	59.0
	400	40	19.1	12.9	45.6	45.5	24.0	14.8	46.1	46.0	29.3	16.7	46.8	46.7
		45	14.6	10.8	50.2	50.1	19.6	12.9	50.7	50.5	25.0	14.8	51.2	51.1
		50	10.6	9.1	54.1	54.0	14.8	10.9	55.3	55.1	20.2	12.9	55.8	55.6
		55	7.4	7.4	58.2	56.8	10.5	9.2	59.0	58.8	14.9	10.9	60.3	60.1
	500	40	22.7	15.5	46.7	46.5	28.5	17.8	47.5	47.3	34.7	20.0	48.5	48.3
		45	17.4	13.2	51.0	50.8	23.3	15.5	51.7	51.5	29.6	17.8	52.6	52.3
		50	12.0	10.9	55.1	54.9	17.6	13.2	56.0	55.8	23.9	15.5	56.8	56.5
		55	8.9	8.9	58.8	57.1	12.5	11.2	59.6	59.3	17.7	13.2	61.0	60.7
18	450	40	22.2	14.9	44.8	44.7	27.8	17.0	45.4	45.3	33.7	19.1	46.1	46.0
		45	17.4	12.6	49.4	49.3	23.0	14.9	49.8	49.7	29.0	17.0	50.4	50.3
		50	12.1	10.4	53.9	53.8	17.6	12.6	54.4	54.3	23.8	14.9	54.9	54.8
		55	8.6	8.6	57.6	56.6	12.5	10.6	58.5	58.3	17.9	12.7	59.4	59.3
	600	40	27.8	18.9	46.2	46.0	34.6	21.5	47.2	47.0	41.9	24.1	48.3	48.2
		45	21.8	16.2	50.4	50.2	28.7	18.9	51.2	51.0	36.1	21.6	52.2	52.0
		50	15.4	13.5	54.5	54.3	22.1	16.2	55.4	55.2	29.5	18.9	56.3	56.0
		55	11.0	11.0	58.3	56.9	15.2	13.6	59.4	59.1	22.3	16.3	60.4	60.2
	750	40	32.6	22.5	47.5	47.3	40.5	25.6	48.8	48.6	48.8	28.5	50.3	50.1
		45	25.6	19.4	51.4	51.1	33.6	22.6	52.5	52.2	42.1	25.7	53.8	53.5
		50	18.2	16.4	55.1	54.8	25.9	19.5	56.3	56.0	34.5	22.7	57.5	57.2
		55	12.9	12.9	59.4	57.3	18.0	16.6	59.9	59.6	26.1	19.6	61.3	60.9
24	600	40	30.3	20.1	44.3	44.2	37.8	23.1	44.8	44.7	45.9	26.0	45.4	45.3
		45	23.6	17.0	49.1	49.0	31.3	20.1	49.4	49.3	39.6	23.1	49.8	49.7
		50	17.2	14.3	53.2	53.1	24.0	17.1	54.1	54.0	32.4	20.1	54.4	54.3
		55	11.7	11.6	57.3	56.5	17.1	14.3	58.2	58.1	24.4	17.1	59.1	59.0
	800	40	38.2	25.7	45.6	45.4	47.5	29.4	46.4	46.3	57.6	32.9	47.4	47.2
		45	29.8	21.9	50.0	49.8	39.4	25.8	50.6	50.5	49.6	29.4	51.4	51.3
		50	20.9	18.2	54.3	54.1	30.3	22.0	55.0	54.8	40.6	25.8	55.7	55.5
		55	15.0	14.9	58.0	56.8	20.7	18.4	59.1	59.0	30.6	22.0	60.0	59.8
	1000	40	45.0	30.8	46.8	46.6	56.0	35.1	47.9	47.7	67.6	39.1	49.2	49.0
		45	35.3	26.5	50.9	50.6	46.4	30.9	51.8	51.6	58.3	35.2	52.9	52.7
		50	25.0	22.2	54.8	54.5	35.7	26.5	55.8	55.6	47.8	31.0	56.8	56.6
		55	18.1	17.9	58.6	57.0	24.7	22.4	59.6	59.3	36.1	26.7	60.8	60.5
36	900	40	45.6	30.2	44.2	44.1	56.0	34.3	45.2	45.1	67.0	38.1	46.3	46.2
		45	36.7	26.1	48.5	48.4	47.5	30.4	49.2	49.1	58.9	34.5	50.0	49.9
		50	26.7	21.9	52.9	52.8	37.6	26.2	53.4	53.3	49.4	30.5	54.1	54.0
		55	18.1	18.0	56.8	56.3	26.6	22.0	57.8	57.7	38.5	26.4	58.4	58.3
	1200	40	56.6	38.3	45.8	45.7	69.2	43.1	47.1	47.0	82.6	47.7	48.7	48.6
		45	45.8	33.4	49.6	49.5	58.9	38.6	50.6	50.5	72.8	43.5	52.0	51.8
		50	33.7	28.3	53.5	53.4	46.9	33.6	54.5	54.3	61.3	38.8	55.5	55.4
		55	23.0	23.0	57.6	56.6	33.6	28.5	58.4	58.3	47.9	33.8	59.4	59.2
	1500	40	65.9	45.5	47.3	47.1	80.2	51.0	48.9	48.8	95.3	55.9	50.9	50.7
		45	53.6	40.0	50.7	50.4	68.6	45.9	52.1	51.8	84.3	51.5	53.7	53.5
		50	39.7	34.2	54.2	54.0	54.8	40.4	55.5	55.3	71.2	46.3	56.9	56.7
		55	27.9	27.9	58.1	56.8	39.6	34.6	59.0	58.8	55.9	40.7	60.4	60.1

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 37, p. 52.
5. TC and SC values do not include heat generated by the fan and motor.

Table 25. R-410A, 6-row DX cooling capacities (continued)

Unit Size	Air Flow	Suct. Temp	Entering Dry Bulb / Wet Bulb (°F) 75/63 TC	SC	LDB	LWB	80/67 TC	SC	LDB	LWB	85/71 TC	SC	LDB	LWB
54	1350	40	68.4	45.3	44.2	44.1	83.9	51.4	45.2	45.1	100.5	57.1	46.3	46.2
		45	55.1	39.2	48.5	48.4	71.2	45.6	49.2	49.1	88.3	51.7	50.0	49.9
		50	40.1	32.8	52.9	52.8	56.4	39.4	53.4	53.3	74.1	45.8	54.1	54.0
		55	27.1	26.9	56.8	56.3	39.9	33.0	57.8	57.7	57.7	39.5	58.4	58.3
	1800	40	84.9	57.5	45.8	45.7	103.8	64.7	47.1	47.0	123.9	71.5	48.7	48.6
		45	68.7	50.1	49.6	49.5	88.4	57.9	50.6	50.5	109.2	65.2	52.0	51.8
		50	50.5	42.4	53.5	53.4	70.4	50.4	54.5	54.3	91.9	58.2	55.5	55.4
		55	34.5	34.5	57.6	56.6	50.3	42.7	58.4	58.3	71.9	50.7	59.4	59.2
	2250	40	98.8	68.2	47.3	47.1	120.4	76.5	48.9	48.8	142.9	83.9	50.9	50.7
		45	80.3	60.0	50.7	50.4	102.8	68.9	52.1	51.8	126.5	77.2	53.7	53.5
		50	59.6	51.4	54.2	54.0	82.3	60.5	55.5	55.3	106.8	69.5	56.9	56.7
		55	41.8	41.8	58.1	56.8	59.4	51.9	59.0	58.8	83.9	61.0	60.4	60.1
72	1800	40	92.6	61.2	43.9	43.8	115.3	70.1	44.3	44.2	139.7	78.8	44.9	44.8
		45	72.9	52.0	48.6	48.5	95.9	61.2	48.9	48.8	120.7	70.2	49.4	49.3
		50	52.3	43.0	53.1	53.0	74.2	52.1	53.6	53.5	99.3	61.3	54.0	53.9
		55	35.6	35.4	57.0	56.4	52.3	43.2	58.1	57.9	75.4	52.1	58.7	58.6
	2400	40	117.0	78.4	45.1	45.0	145.4	89.5	45.9	45.8	175.9	100.3	46.8	46.7
		45	92.1	66.9	49.5	49.4	120.9	78.4	50.2	50.0	151.8	89.5	51.0	50.8
		50	65.3	55.7	53.9	53.7	93.5	67.0	54.6	54.4	124.7	78.5	55.2	55.1
		55	45.5	45.1	57.8	56.7	64.7	56.0	58.8	58.6	94.7	67.2	59.6	59.4
	3000	40	138.3	94.0	46.3	46.1	171.6	106.9	47.4	47.2	207.2	119.3	48.6	48.5
		45	109.0	80.7	50.4	50.2	142.6	94.1	51.4	51.1	178.8	107.1	52.5	52.2
		50	77.8	67.7	54.4	54.2	110.4	80.9	55.4	55.2	146.9	94.2	56.4	56.1
		55	54.4	54.0	58.5	57.0	77.0	68.3	59.3	59.0	111.6	81.2	60.4	60.1
90	2250	40	116.9	77.0	43.7	43.6	145.6	88.4	44.0	43.9	176.5	99.4	44.5	44.4
		45	92.0	65.4	48.4	48.3	121.1	77.1	48.7	48.6	152.4	88.4	49.1	49.0
		50	67.9	54.9	52.7	52.6	93.7	65.4	53.5	53.4	125.4	77.1	53.8	53.7
		55	63.0	52.8	53.5	53.4	87.9	63.1	54.4	54.3	119.6	74.8	54.7	54.6
	3000	40	148.3	99.0	44.8	44.7	184.3	113.2	45.5	45.4	223.1	126.8	46.3	46.2
		45	116.7	84.4	49.3	49.2	153.2	99.0	49.9	49.7	192.5	113.2	50.6	50.4
		50	82.6	70.0	53.7	53.6	118.6	84.5	54.3	54.2	158.3	99.1	54.9	54.8
		55	76.0	67.3	54.6	54.4	111.3	81.6	55.2	55.1	150.9	96.2	55.8	55.7
	3750	40	175.9	119.0	46.0	45.8	218.4	135.6	46.9	46.8	263.8	151.4	48.1	47.9
		45	138.5	102.0	50.2	50.0	181.5	119.1	51.0	50.8	227.7	135.7	52.0	51.8
		50	98.7	85.3	54.3	54.0	140.5	102.2	55.2	54.9	187.0	119.3	56.1	55.8
		55	70.3	69.8	58.0	56.8	97.7	86.0	59.2	58.9	142.0	102.5	60.2	59.9

TC = Total capacity (MBh)
SC = Sensible capacity (MBh)
LDB = Leaving dry bulb temperature (°F)
LWB = Leaving wet bulb temperature (°F)

Notes:

1. Values shown in this table are based on a liquid condensing temperature of 105°F. Capacities at liquid condensing temperatures between 90°F and 120°F will generally be within ± 5% of capacities shown in this table.
2. Distributor selection is based on TC capacities divided by number of circuits (see Table 4, p. 21).
3. To select the correct distributor size at conditions exactly matching those shown on this table, use the shading legend below:

No shade = 3/16" x 0.049 wall distributor tubes.

Light shade = 3/16" x 0.032 wall distributor tubes.

Dark shade = Distributor load (MBh) per circuit is under the minimum for 3/16" x 0.049 distributor or over the maximum for 3/16" x 0.032 distributor. Use only for interpolation.

4. To select the correct distributor size at conditions other than exactly shown in this table interpolate to calculate the TC MBh, divide it by the number of circuits (see Table 4, p. 21) and plot the result on Figure 37, p. 52.
5. TC and SC values do not include heat generated by the fan and motor.

Table 26. One-row hot water heating capacities, EAT = 60°F and EWT = 180°F

Unit Size	Air Flow	Water Temperature Drop - °F											
		10°F				15°F				20°F			
		TC	LAT	GPM	WPD	TC	LAT	GPM	WPD	TC	LAT	GPM	WPD
12	300	16.3	110.2	3.3	6.0	15.5	107.6	2.1	2.5	14.6	105.0	1.5	1.3
	400	18.8	103.4	3.8	7.9	17.8	101.1	2.4	3.3	16.8	98.8	1.7	1.7
	500	20.9	98.5	4.2	9.6	19.8	96.4	2.6	4.0	18.7	94.4	1.9	2.1
18	450	22.6	106.4	4.5	11.9	21.6	104.2	2.9	5.0	20.5	102.0	2.0	2.7
	600	25.9	99.9	5.2	15.4	24.7	98.0	3.3	6.5	23.5	96.1	2.3	3.4
	750	28.7	95.2	5.7	18.6	27.3	93.5	3.6	7.8	25.9	91.8	2.6	4.1
24	600	32.5	110.0	6.5	29.3	31.3	108.0	4.2	12.7	30.0	106.1	3.0	6.9
	800	37.5	103.2	7.5	38.2	36.0	101.4	4.8	16.5	34.5	99.7	3.4	8.9
	1000	41.5	98.3	8.3	46.4	39.8	96.7	5.3	20.0	38.2	95.2	3.8	10.8
36	900	51.0	112.3	10.2	82.1	49.3	110.5	6.6	36.1	47.6	108.7	4.8	19.8
	1200	58.9	105.3	11.8	107.5	56.9	103.7	7.6	47.2	54.9	102.2	5.5	25.9
	1500	65.4	100.2	13.1	131.0	63.1	98.8	8.4	57.4	60.9	97.4	6.1	31.4
54	1350	75.5	111.5	15.1	3.3	70.7	108.3	9.4	1.3	66.0	105.1	6.6	0.7
	1800	87.1	104.6	17.4	4.4	81.5	101.7	10.9	1.7	76.0	98.9	7.6	0.9
	2250	96.8	99.7	19.3	5.4	90.5	97.1	12.0	2.1	84.2	94.5	8.4	1.1
72	1800	99.0	110.7	19.8	5.9	93.5	107.9	12.5	2.4	88.1	105.1	8.8	1.2
	2400	114.2	103.9	22.8	7.7	107.7	101.4	14.3	3.2	101.3	98.9	10.1	1.6
	3000	126.8	99.0	25.3	9.5	119.4	96.7	15.9	3.9	112.2	94.5	11.2	2.0
90	2250	125.5	111.4	25.1	7.1	118.5	108.6	15.8	2.9	111.6	105.7	11.2	1.5
	3000	144.8	104.5	28.9	9.4	136.6	102.0	18.2	3.8	128.5	99.5	12.8	1.9
	3750	160.9	99.6	32.1	11.6	151.6	97.3	20.2	4.7	142.5	95.0	14.2	2.4

TC = Total capacity MBh
LAT = Leaving air temperature
Fluid flow in gpm
Fluid PD in feet of water
Useful formulas: LAT = EAT + (TC x 922.1) / cfm
LWT = EWT - (TC x 2.0) / cfm

Notes:

1. Capacities calculated with 0.00025 fouling factor.
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps self-venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means LAT must be less than 130°F to avoid overheating the motor.
4. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Table 28, p. 61).
5. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Table 26. One-row hot water heating capacities, EAT = 60°F and EWT = 180°F (continued)

Unit Size	Air Flow	Water Temperature Drop - °F											
		25°F				30°F				40°F			
		TC	LAT	GPM	WPD	TC	LAT	GPM	WPD	TC	LAT	GPM	WPD
12	300	13.8	102.4	1.1	0.8	12.9	99.8	0.9	0.5	11.2	94.3	0.6	0.2
	400	15.9	96.5	1.3	1.0	14.9	94.3	1.0	0.6	12.9	89.7	0.6	0.3
	500	17.5	92.4	1.4	1.2	16.4	90.3	1.1	0.8	14.3	86.4	0.7	0.4
18	450	19.4	99.8	1.6	1.6	18.4	97.7	1.2	1.0	16.3	93.4	0.8	0.5
	600	22.2	94.2	1.8	2.0	21.0	92.3	1.4	1.3	18.7	88.7	0.9	0.6
	750	24.5	90.1	2.0	2.5	23.2	88.5	1.5	1.6	20.6	85.3	1.0	0.7
24	600	28.7	104.1	2.3	4.2	27.4	102.1	1.8	2.8	24.8	98.2	1.2	1.4
	800	33.0	98.0	2.6	5.4	31.5	96.3	2.1	3.6	28.6	93.0	1.4	1.8
	1000	36.5	93.6	2.9	6.6	34.8	92.1	2.3	4.3	31.7	89.2	1.6	2.1
36	900	45.8	107.0	3.7	12.3	44.1	105.2	2.9	8.2	40.5	101.5	2.0	4.1
	1200	52.8	100.6	4.2	16.0	50.8	99.0	3.4	10.6	46.9	96.0	2.3	5.4
	1500	58.6	96.0	4.7	19.4	56.3	94.6	3.8	12.9	52.1	92.0	2.6	6.6
54	1350	61.3	101.9	4.9	0.4	56.6	98.7	3.8	0.2	45.5	91.1	2.3	0.1
	1800	70.5	96.1	5.6	0.5	65.0	93.3	4.3	0.3	53.1	87.2	2.7	0.1
	2250	78.1	92.0	6.2	0.6	71.9	89.5	4.8	0.4	59.3	84.3	3.0	0.1
72	1800	82.6	102.3	6.6	0.7	77.2	99.5	5.1	0.4	66.2	93.9	3.3	0.2
	2400	94.9	96.5	7.6	0.9	88.5	94.0	5.9	0.6	76.3	89.3	3.8	0.2
	3000	105.1	92.3	8.4	1.1	97.9	90.1	6.5	0.7	84.5	86.0	4.2	0.3
90	2250	104.8	102.9	8.4	0.8	97.9	100.1	6.5	0.5	83.9	94.4	4.2	0.2
	3000	120.4	97.0	9.6	1.1	112.3	94.5	7.5	0.7	96.8	89.8	4.8	0.3
	3750	133.4	92.8	10.7	1.4	124.3	90.6	8.3	0.8	107.2	86.4	5.4	0.4

TC = Total capacity MBh
LAT = Leaving air temperature
Fluid flow in gpm
Fluid PD in feet of water
Useful formulas: LAT = EAT + (TC x 922.1) / cfm
LWT = EWT - (TC x 2.0) / cfm

Notes:

1. Capacities calculated with 0.00025 fouling factor.
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps self-venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means LAT must be less than 130°F to avoid overheating the motor.
4. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Table 28, p. 61).
5. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Table 27. Two-row high-capacity hot water heating capacities, EAT = 60°F and EWT = 180°F

Unit Size	Air Flow	Water Temperature Drop - °F																			
		15°F				20°F				25°F				30°F				40°F			
		TC	LAT	GPM	WPD	TC	LAT	GPM	WPD	TC	LAT	GPM	WPD	TC	LAT	GPM	WPD	TC	LAT	GPM	WPD
12	300	25.3	137.8	3.4	9.5	24.6	135.5	2.5	5.3	23.8	133.1	1.9	3.3	23.0	130.6	1.5	2.2	21.3	125.3	1.1	1.1
	400	30.7	130.7	4.1	13.6	29.7	128.4	3.0	7.5	28.7	126.1	2.3	4.7	27.6	123.7	1.8	3.1	25.5	118.8	1.3	1.6
	500	35.2	124.9	4.7	17.5	34.0	122.7	3.4	9.6	32.8	120.5	2.6	6.0	31.6	118.2	2.1	4.0	29.0	113.5	1.5	2.0
18	450	36.1	134.1	4.8	20.0	35.1	131.9	3.5	11.1	34.0	129.8	2.7	7.0	33.0	127.5	2.2	4.7	30.7	122.8	1.5	2.5
	600	43.3	126.5	5.8	28.0	42.0	124.5	4.2	15.5	40.6	122.4	3.2	9.7	39.3	120.3	2.6	6.5	36.4	116.0	1.8	3.4
	750	49.4	120.7	6.6	35.8	47.8	118.8	4.8	19.8	46.2	116.8	3.7	12.3	44.6	114.8	3.0	8.2	41.2	110.7	2.1	4.2
24	600	49.5	136.1	6.6	9.5	48.0	133.7	4.8	5.2	46.4	131.2	3.7	3.2	44.7	128.7	3.0	2.1	41.2	123.4	2.1	1.1
	800	59.7	128.8	8.0	13.5	57.7	126.5	5.8	7.4	55.7	124.2	4.4	4.5	53.6	121.7	3.6	3.0	49.2	116.7	2.5	1.5
	1000	68.3	123.0	9.1	17.4	65.9	120.8	6.6	9.5	63.5	118.5	5.1	5.8	61.0	116.2	4.1	3.8	55.9	111.5	2.8	1.9
36	900	77.0	138.9	10.3	25.8	75.1	136.9	7.5	14.4	73.0	134.8	5.8	9.0	70.9	132.7	4.7	6.1	66.5	128.2	3.3	3.2
	1200	93.4	131.8	12.4	37.1	90.8	129.8	9.1	20.6	88.2	127.8	7.1	12.9	85.5	125.7	5.7	8.7	79.9	121.4	4.0	4.5
	1500	107.2	125.9	14.3	48.1	104.1	124.0	10.4	26.5	100.9	122.1	8.1	16.5	97.7	120.1	6.5	11.1	91.1	116.0	4.6	5.7
54	1350	112.1	136.5	14.9	3.4	108.0	133.8	10.8	1.8	103.9	131.0	8.3	1.1	99.7	128.1	6.6	0.7	90.9	122.1	4.5	0.4
	1800	136.4	129.9	18.2	4.9	131.3	127.2	13.1	2.7	126.0	124.5	10.1	1.6	120.6	121.8	8.0	1.1	109.4	116.0	5.5	0.5
	2250	156.9	124.3	20.9	6.4	150.7	121.7	15.1	3.4	144.4	119.2	11.5	2.1	138.0	116.5	9.2	1.4	124.7	111.1	6.2	0.7
72	1800	148.3	136.0	19.7	6.3	143.5	133.5	14.3	3.4	138.6	131.0	11.1	2.1	133.5	128.4	8.9	1.4	122.9	123.0	6.1	0.7
	2400	179.9	129.1	24.0	9.0	173.7	126.8	17.4	4.9	167.4	124.3	13.4	3.0	161.0	121.9	10.7	2.0	147.6	116.7	7.4	1.0
	3000	206.2	123.4	27.5	11.7	198.9	121.1	19.9	6.4	191.4	118.8	15.3	3.9	183.7	116.5	12.2	2.6	168.0	111.6	8.4	1.3
90	2250	186.9	136.6	24.9	7.6	180.9	134.1	18.1	4.1	174.7	131.6	14.0	2.5	168.4	129.0	11.2	1.7	155.1	123.6	7.8	0.8
	3000	227.2	129.8	30.3	11.0	219.4	127.4	21.9	6.0	211.5	125.0	16.9	3.6	203.4	122.5	13.6	2.4	186.6	117.4	9.3	1.2
	3750	260.8	124.1	34.7	14.3	251.5	121.8	25.1	7.7	242.1	119.5	19.4	4.7	232.5	117.2	15.5	3.1	212.6	112.3	10.6	1.5

TC = Total capacity MBh
LAT = Leaving air temperature
Fluid flow in gpm
Fluid PD in feet of water
Useful formulas: LAT = EAT + (TC x 922.1) / cfm
LWT = EWT - (TC x 2.0) / cfm

Notes:

1. Capacities calculated with 0.00025 fouling factor.
2. Values lightly shaded means the gpm is below the minimum (<1.5 fps self-venting velocity) or above the maximum (>10 ft wg) recommended for most applications.
3. Values darkly shaded means LAT must be less than 130°F to avoid overheating the motor.
4. High-capacity coils applicable where higher water pressure differentials are acceptable and are also recommended for Earthwise™ applications (see Table 28).
5. Earthwise™ is a trademark of Trane to identify equipment designed for applications requiring greater water temperature rises, lower entering water temperatures (EWT) and lower air supply temperatures (LDB).

Table 28. Correction factors for Table 26–Table 27

Capacity correction factors: use the correction factors listed below for different entering air conditions.

EAT - EWT (°F) =	180	170	160	150	140	130	120	110	100	90	80	70	60	50	40	30	20
Correction factor =	1.500	1.417	1.333	1.250	1.167	1.083	1.000	0.917	0.833	0.750	0.667	0.583	0.500	0.417	0.333	0.250	0.167

Water pressure drop (WPD) correction factors: use the correction factors listed below for entering water temperatures different than 180°F.

Average water temp. °F =	190	180	170	160	150	140	130	120	110	100	90	80
Correction factor =	1.000	1.000	1.010	1.010	1.020	1.030	1.040	1.060	1.070	1.090	1.110	1.140

Table 29. Steam coil capacity data, EAT = 60°F

Unit Size	Air Flow	Q/ITD	Steam Pressure 2 TC	2 LAT	2 APD	5 TC	5 LAT	5 APD	10 TC	10 LAT	10 APD	15 TC	15 LAT	15 APD
12	300	0.123	19.38	120	0.11	20.46	123	0.11	21.98	128	0.11	23.26	131	0.11
	400	0.142	22.36	112	0.18	23.61	114	0.18	25.38	118	0.18	26.86	122	0.18
	500	0.157	24.80	106	0.26	26.19	108	0.26	28.15	112	0.26	29.81	115	0.26
18	450	0.168	26.49	114	0.15	27.96	117	0.15	30.05	122	0.15	31.81	125	0.15
	600	0.192	30.33	107	0.25	32.04	109	0.25	34.44	113	0.25	36.47	116	0.25
	750	0.212	33.44	101	0.36	35.33	103	0.36	37.99	107	0.36	40.24	109	0.36
24	600	0.278	44.13	128	0.08	46.53	132	0.08	49.94	137	0.08	52.83	141	0.08
	800	0.321	50.77	119	0.14	53.54	122	0.14	57.54	126	0.14	60.91	130	0.14
	1000	0.366	57.78	113	0.21	60.93	116	0.21	65.50	120	0.21	69.36	124	0.21
36	900	0.430	68.19	130	0.08	71.91	134	0.08	77.18	139	0.08	81.64	144	0.08
	1200	0.496	78.46	120	0.13	82.74	124	0.13	88.92	128	0.13	94.13	132	0.13
	1500	0.566	89.49	115	0.18	94.37	118	0.18	101.46	122	0.18	107.43	126	0.18
54	1350	0.645	102.28	130	0.08	107.86	134	0.08	115.77	139	0.08	122.45	144	0.08
	1800	0.744	117.68	120	0.13	124.10	124	0.13	133.38	128	0.13	141.20	132	0.13
	2250	0.849	134.23	115	0.18	141.55	118	0.18	152.19	122	0.18	161.15	126	0.18
72	1800	0.840	133.06	128	0.08	140.32	132	0.08	150.61	137	0.08	159.31	142	0.08
	2400	0.968	153.10	119	0.14	161.45	122	0.14	173.56	127	0.14	183.76	131	0.14
	3000	1.103	174.21	114	0.21	183.71	116	0.21	197.57	121	0.21	209.23	124	0.21
90	2250	1.077	170.67	130	0.08	179.98	134	0.08	193.17	139	0.08	204.33	144	0.08
	3000	1.242	196.37	120	0.13	207.08	124	0.13	222.58	128	0.13	235.64	132	0.13
	3750	1.417	223.95	115	0.18	236.17	118	0.18	253.95	122	0.18	268.93	126	0.18

EAT = Entering air temperature
APD = Air pressure drop
LAT = Leaving air temperature
TC = Total capacity (MBh)
ITD = Saturated steam temp entering coil - entering air temperature
Q/ITD = TC / (sat. steam temp - EAT)

Shaded data shown only to allow performance calculations. Do not operate at this condition, LAT > 130°F.

Notes:

1. To determine heating capacities at different entering steam pressures or a different entering air temperature, compute the new ITD and multiply it by the Q/ITD.
2. LAT = (capacity, MBh)*(1000 Btu/h/MBh)/[(cfm)*(60 min/h)*(0.075 lb dry air/ft^3)*(0.241 Btu/(lb))] + (EAT)

Controls

Control Options

Blower coil air handlers are available without controls or with one of four different control options:

- control interface
- Tracer™ ZN010 controller
- Tracer ZN510 controller
- Tracer ZN520 controller

Units without controls have a junction box mounted on the drive side for motor power wire terminations. Control option descriptions follow below. A complete list of controller inputs and outputs are in Table 30, p. 67. See Table 31, p. 68 for information on end device options.

Control Interface

The control interface is for use with a field-supplied low-voltage thermostat. It includes a control box with a transformer, motor contactor, and disconnect switch (disconnect switch comes with non-electric heat units). All hot leads to the motor are disconnected at the contactor and disconnect switch to eliminate the risk of shock during service. The end devices are mounted with the wires pulled and terminated inside the two-sided terminal strip. All field connections, other than power, are on the outside of the terminal strip.

Tracer Controllers

The Tracer™ family of controllers—Tracer ZN010, ZN510, and ZN520—offer Trane's combined advantages of simple and dependable operation. Standard control features include options normally available on more elaborate control systems. All control options are available factory-configured or can be field-configured using Rover™ service software. For more detailed information, refer to the Trane publication CNT-IOP-1 or CNT-SVX04A-EN.

Tracer™ ZN010 is a stand-alone microprocessor controller. Tracer ZN510 or ZN520 function as either a stand-alone or as part of a Trane Integrated Comfort™ System (ICS).

In the stand-alone configuration, the Tracer™ controller receives operation commands from the zone sensor and/or the auto changeover sensor (on auto changeover units). The entering water temperature is read from the auto changeover sensor and determines if the unit is capable of cooling or heating. The zone sensor module is capable of transmitting the following information to the controller:

- timed override on/cancel request
- zone setpoint
- current zone temperature
- fan mode selection (off-auto-high-low)

Blower coil air handlers with Tracer™ ZN510 or ZN520 can operate as part of an Integrated Comfort™ System (ICS) building automation system controlled by Tracer Summit®. The controller is linked directly to the Summit control panel via a twisted pair communication wire, requiring no additional interface device (i.e., a command unit). The Trane ICS system can monitor or override Tracer controller control points. This includes such points as temperature and output positions.

Rover Service Software

This Windows-based software package option allows field service personnel to easily monitor, save, download, and configure Tracer™ controllers through a communication link from a portable computer. When connected to the communication link, Rover™ can view any Tracer controller that is on the same communication link.

Pre-Packaged Solutions

The majority of Trane blower coil air handlers can be selected using one of the Pre-Packaged Solution Option for Controls available from Trane. By selecting a pre-packaged solution when configuring the air handler, the control points and controller will be included in the equipment selection. This will result in the all the necessary end devices and controllers being installed according to standard point locations along with a number of supporting documents and software to aid in the installation, commissioning, and start up of the air handler. These include the commissioning sheets, system graphics, control sequencing, Tracer™ Graphic Programming (TGP) language, and Rover™ setup files. All of these tools are available through Integrated Comfort™ Systems (ICS) at your local Trane Sales Office.

Figure 38. Tracer ZN510 control board

Figure 39. Tracer ZN520 control board

Control Features

The following control functions are standard features on units with Tracer™ ZN010, ZN510, or ZN520.

Entering Water Temperature Sampling Function

Using the entering water temperature sampling function, the controller provides accurate two-pipe system changeover—without sacrificing the benefits of two-way control valves. Also, it eliminates inefficient bleed or bypass lines that can allow unnecessary waterflow through the system.

The entering water temperature sampling function prevents a two-way control valve from sensing the incorrect entering water temperature during long periods when the control valve is closed. If the demand for heating or cooling does not exist for a long period, the entering water will eventually approach ambient temperature.

This function periodically samples the entering water temperature by opening the hydronic valve. The valve opens for 20 seconds to allow the water temperature to stabilize. Then the controller reads the entering water temperature for up to three minutes to see if the correct water temperature is available for the selected operating mode.

The entering water temperature must be five degrees or more above the space temperature to allow hydronic heating and five degrees or more below the space temperature to allow hydronic cooling. If the correct water temperature for the operating mode is available, the unit begins normal heating or cooling operation. If the correct water temperature is not available, the controller closes the control valve and waits 60 minutes before attempting to sample the entering water temperature again.

A factory-provided thermistor senses the entering water temperature on change-over cooling/heating coil units. The sensor is wired to the controller for field-installation on the entering water pipe. This sensor must detect accurate water temperature for proper changeover.

Automatic Heat/Cool Mode Determination

The controller automatically determines whether heating or cooling is needed—based on space and system conditions.

Utilizing a proportional/integral (PI) control algorithm to maintain the space temperature at the active heating or cooling setpoint. The controller measures the space temperature and active setpoint temperature to determine the unit's heating or cooling capacity (zero to 100%).

Occupied/Unoccupied Operation

The occupancy input utilizes a binary switch (i.e. motion sensor, timeclock, etc.) that allows the zone sensor to utilize its unoccupied internal setpoints.

Random Start

This feature randomly staggers multiple unit startup to reduce electrical demand spikes.

Warm-up

The two-position mixing box damper option closes during the occupied mode when the space temperature is three degrees or more below the heating setpoint temperature. The damper remains closed during warm-up until the space temperature is within two degrees of the heating setpoint temperature.

Cool-down

The two-position mixing box damper option closes during the occupied mode when the space temperature is three degrees or more above the cooling setpoint temperature. The damper remains closed during cool-down until the space temperature is within two degrees of the cooling setpoint temperature.

Manual Output Test Function

This feature is an invaluable tool for troubleshooting a unit. By simply pressing the controller's test button, service personnel can manually exercise outputs in a pre-defined sequence.

Peer-to-Peer Communication (Tracer ZN510 and ZN520)

Peer to peer communication allows multiple units in one space to share the same zone sensor and provide simultaneous heating and cooling. The Tracer™ ZN510 or ZN520 controller can share information between units on the same communication link using a twisted pair wire in the field. Unit configuration must be modified with Rover™ service tool.

Tracer ZN520 Additional Features

Automatic Ventilation Reset

To ensure proper ventilation rates, the controller is configured with two fresh air damper minimum position setpoints for occupied operation. For units with two-speed motors, as the fan switches speeds, the damper adjusts to maintain the correct ventilation rate for the space.

Economizing Control

With the Tracer™ ZN520 controller configured for economizing control, it will calculate the required cooling capacity every ten seconds and modulate the damper option open to the calculated position. If the setpoint is not satisfied, the damper will continue to open until the setpoint condition is met or the damper is 100% open. If this still does not satisfy the setpoint, the cooling valve option will begin to open to satisfy the load requirements. Once capacity exceeds the load requirements, the valve begins to close until the setpoint is reached or the damper reaches its minimum position. The minimum position is field-adjustable. This option uses a three-wire, floating point damper actuator.

When the controller is economizing or using cascade temperature control, it utilizes a thermistor to sense discharge air. It is factory-mounted on blower coils without electric heat near the last coil's discharge. The sensor is field-installed in the ductwork when blower coils have electric heat. Tracer Summit® can also utilize this temperature value as a read-only point. Cascade temperature control uses both the zone and discharge air temperatures to more accurately to calculate the required unit capacity.

A thermistor to sense fresh air is factory-provided for field mounting at the unit's fresh air opening for use in economizer applications or as a read-only point for Summit. If the fresh air temperature is a read-only value, it will not impact the control algorithm. In an economizer application, a fresh air temperature signal must be provided either by this thermistor or Tracer Summit®.

Fan Status

The Tracer™ ZN520 controller monitors the fan output status to determine if the fan is operating.

Filter Maintenance Status

The controller has an adjustable timer that indicates through Summit or Rover™ when filter maintenance is necessary. Filter maintenance status is based on cumulative fan run hours.

Dehumidification

When the unit is equipped with a reheat coil and humidity sensor, the controller will keep humidity levels within an acceptable range. This feature helps reduce the risk of microbial growth and damage to building interiors.

Water Valve Override

Using Summit or Rover™, the water valve override function drives all water valves in every unit fully open simultaneously. This helps reduce the time required for waterside balancing.

Cascade Control

The controller maintains discharge air temperature using a cascade control algorithm. The discharge air temperature is based on the difference between the space temperature and setpoint. Unit capacity modulates to achieve the discharge air temperature.

Interoperability

The Tracer™ ZN520 controller can be used with a Tracer Summit® system or on other control systems that support LonTalk and the scC profile.

Evaporator Defrost (DX units)

A frost-sensing device, Frostat™, is provided on units with a DX cooling coil and either a control interface or Tracer™ ZN520 controls. The Frostat is factory-installed on the DX coil to indicate and help prevent possible frost conditions.

When a frost condition exists, the Frostat™ disables the Tracer™ ZN520 controller compressor operation by opening the controller's triac output off. Fan and economizer damper operation continue to operate, defrosting the coil.

The Frostat™ automatically resets when the coil temperature returns to a normal value, closing the compressor triac output circuit. The Tracer™ ZN520 controller senses the defrost device reset and immediately returns to normal cooling control, clearing the defrosting and compressor lockout status, and sending out a normal diagnostic message. The minimum compressor off-time is obeyed, so the compressor may not turn on immediately when the defrost condition ends.

Table 30. Tracer controller input/output summary

	Tracer™ controller		
	ZN010	**ZN510**	**ZN520**
Binary outputs			
2-speed fan	•	•	•
2-position hydronic valve	•	•	•
2-position mixing box damper	•	•	
1-stage electric heat	•	•	•
Modulating mixed air damper			•
Modulating hydronic valve			•
2-stage electric heat			•
Reheat (hydronic)			•
Generic	•	•	•
Binary inputs			
Condensate overflow detection	•	•	•
Low temperature detection	•	•	•
Occupancy	•	•	•
Generic input	•	•	•
Analog inputs			
Zone temperature	•	•	•
Setpoint	•	•	•
Fan mode: auto, high, low	•	•	•
Entering water	•	•	•
Discharge air	•	•	•
Outside air			•
Generic			

Note: The generic input and output are for use with a Tracer Summit® systems only.

Table 31. Tracer controller function summary

	Tracer™ controller		
	ZN010	**ZN510**	**ZN520**
Control functions			
Entering water temp. sampling (purge)	•	•	•
Timed override	•	•	•
Auto changeover	•	•	•
Fan cycling	•	•	
Warm-up	•	•	•
Pre-cool	•	•	•
Data sharing (master/slave)		•	•
Random start	•	•	•
Dehumidification			•
Staged capacity (2-stage electric supplementary)			•
DX cooling			•
Other Functions			
Manual test	•	•	•
Filter maintenance timer	•	•	•
Setpoint limits	•	•	•

Tracer Controls Sequence of Operation

Fan Speed Switch (units with 2-speed fan only)

Off: Fan is turned off; two-position damper option spring-returns closed.

High or Low: Fan runs continuously at the selected speed. The two-position mixing box damper option opens to an adjustable mechanical stop-position.

Tracer ZN010 and ZN510

Off: Fan is off; control valves and the low air temperature detection option are still active.

Auto (Fan Cycling): The fan and mixing box damper cycle with control valve option to maintain setpoint temperature. If the unit has a two-speed fan, in cooling mode the fan cycles from off to high and in heating mode it cycles from off to low (factory default that can be field-adjusted using Rover™ service software). When no heating or cooling is required, the fan is off and the mixing box damper option closes. Units with two-speed fans can also be field-configured using Rover to run at a defined speed when the fan speed switch is in the auto position.

Low or High (Continuous Fan): The fan operates continuously while control valve option cycles to maintain setpoint temperature. The mixing damper option is open.

Tracer ZN520

Off: Fan is off; control valve options and mixing box damper options close. The low air temperature detection option is still active.

Auto: Fan speed control in the auto setting allows the modulating control valve option and single- or two-speed fan to work cooperatively to meet precise capacity requirements, while minimizing fan speed (motor/energy/acoustics) and valve position (pump energy/chilled water reset). As the capacity requirement increases at low fan speed, the water valve opens. When the low fan speed capacity switch point is reached, the fan switches to high speed and the water valve repositions to maintain an equivalent capacity. The reverse sequence takes place with a decrease in required capacity.

Units with two-speed fans on low or high: The fan runs continuously at the selected speed and the valve option cycles to meet setpoint.

End Device Options

See Table 32, p. 71 for a complete list of end device options.

Two-Position Mixing Box Damper Actuator (available with all control options except Tracer ZN520)

This damper actuator uses a 24V signal. It allows zero to 50% fresh air. The damper will drive open to an adjustable mechanical stop-position whenever the fan is running during occupied mode and will spring-return closed when the fan turns off. The two-position damper ships separate for field installation.

Note: *Trane highly recommends using the low temperature detection option with mixing box dampers to detect possible freeze conditions.*

Low Temperature Detection

When the low temperature detection device senses an entering air temperature of 36°F to the hydronic coil, the normally-closed switch opens a corresponding set of binary input terminals. The fan disables, control valves open, and the fresh air damper closes.

The low temperature detection device is an averaging type capillary tube and will reset when it detects an entering air temperature of at least 44°F.

Condensate Overflow Detection

A float switch is factory-installed in the drain pan to detect a high condensate water level. When the float switch rises, the normally-closed input opens a corresponding set of binary input terminals. This also causes the fan to disable, and the control valve and fresh air damper options to close. Although the float switch closes when the high condensate level recedes, you must manually reset the controller before normal unit operation can occur. If you're using a Tracer™ ZN510 or ZN520 controller, you can reset using Tracer Summit®. Use Rover™ service software to reset units with Tracer ZN010, ZN510, or ZN520.

Fan Status Switch

The fan status switch is a normally-open differential pressure device that senses the differential between the inlet and discharge of the fan housing to verify fan operation. Nominal trip pressure is 0.15 in. wg, with the maximum trip pressure slightly less than the minimum operating static pressure of the unit.

Discharge Air Sensor

The discharge air sensor is factory-mounted on the fan housing downstream of the coils for use as a status point or with other control algorithms. On units with optional electric heat, the sensor is field-mounted in the ductwork, downstream of the unit discharge.

End Devices On Tracer ZN520 Controllers

The following end device options are only available on blower coil air handlers with Tracer™ ZN520:

- economizer damper actuator
- humidity
- outside air

Economizer Damper Actuator

This option is a modulating, spring-return damper actuator and is factory-wired and mounted to the mixing box damper assembly. When the controller enables the economizer damper and the unit is in occupied mode, the damper modulates between its minimum position (configurable) and the full open position to maintain setpoint temperature. If economizer operation stops or if the unit is in the heating mode, the damper adjusts to its minimum position.

Note: *Trane highly recommends using the low temperature detection option with a mixing box damper to detect possible freeze conditions.*

Humidity Sensor

The humidity sensor is available only on blower coils with Tracer™ ZN520 and communicated value or with a local humidity sensor.

Outside Air Sensor

The outside air sensor is field-mounted to sense the outside air temperature, primarily for use in economizer applications or as a status value when available for other applications.

Table 32. End device option availability

Device	Tracer™ ZN010	Tracer ZN510	Tracer ZN520	Control Interface
Condensate float switch	•	•	•	•
Low limit	•	•	•	•
Filter status				•
Filter run-time diagnostic	•	•	•	•
Fan status			•	•
Positive proof fan status switch			•	•
2-position control valves	•	•	•	•
Modulating control valves			•	•
2-position mixing box actuator	•	•		•
Modulating mixing box actuator			•	•
1-stage electric heat	•	•	•	•
2-stage electric heat			•	•
Frostat™ protection (DX coils)			•	•

Notes:
1. The Tracer ZN010, Tracer ZN510, and Tracer ZN520 are factory-provided controls that control the end devices listed in the table.
2. The control interface option is the wiring tied back to a terminal strip to be controlled by a field-supplied controller.
3. Units with a DX coil are provided with a DX cool relay if unit has the control interface or Tracer controls.

Zone Sensor Options

A variety of wall-mounted zone sensors are available for design flexibility. Zone sensors have an internal thermistor and operate on 24 Vac. Options with setpoint knobs are available in Fahrenheit or Celsius. See Figure 40–Figure 45 for available options and model number references.

Figure 40. Zone sensor with off/auto fan speeds, setpoint knob, on/cancel, and COMM jack. Fahrenheit: Digit 38 = 1

Figure 41. Zone sensor with off/auto/high/low fan speeds, setpoint knob, on/cancel, and COMM jack. Fahrenheit: Digit 38 = 2

Figure 42. Zone sensor with setpoint knob, on/cancel, and COMM jack. Digit 38 = 3

Figure 43. Zone sensor with on/cancel and COMM jack. Digit 38 = 4

Figure 44. Zone sensor only. Digit 38 = 5

Figure 45. Wireless zone sensor and receiver. Digit 38 = C

Control Valves

Blower coil air handlers with either the control interface or any of the Tracer™ controllers (Tracer ZN010, ZN510, or ZN520) are available with chilled and/or hot water control valves for each coil configuration. Control valve options are available as:

- modulating
- two-position, normally-open or -closed (n.o. or n.c.)
- two- or three-way configurations
- with sweat connections
- in sizes 1/2", 1", and 1-1/4"

See Table 33–Table 37, p. 75 for a complete list of available valve options by size.

Three-way valve options allow either full waterflow through the coil or diverted waterflow through the bypass.

See the section titled "How to Choose the Correct Control Valve," p. 74 to help you select the proper valve.

Two-Position Control Valves

Two-position valve options are available on blower coils with either Tracer™ ZN010, ZN510, ZN520, or the control interface. See Table 34, p. 75 for complete list of valve types, options, and sizes.

Two-position valve options are spring-return and non-spring-return types. See Table 34, p. 75 for a complete list of valve types by size. Spring-return valves respond to a 24V signal and will either fully open or close. Also, these valves cannot be driven or actuated to a partially open or closed position. If the spring-return type control valve loses power, the valve returns to its de-energized position. Valves that are not spring-return will stop in their last position when they lose power.

Refer to Figure 13, p. 24–Figure 16, p. 25 for the pressure drop across the respective piping packages associated with these valve Cv values. For a complete list of two-position valve options and sizes, see Table 34, p. 75. See the section titled "How to Choose the Correct Control Valve," p. 74 to help you select the proper valve.

Modulating Control Valves (Tracer ZN520 only)

Modulating control valves offer an alternative for more precise capacity control by modulating or varying the water flow through the coil. The valve responds to a 24V triac signal from the controller, which determines the valve position by a control algorithm. If the valve loses power, it remains in the position it was in when the power loss occurred.

The pressure drop across the modulating valve should fall within 25–70% of the pressure drop across the branch circuit. Table 35, p. 75 shows the unit size, coil figuration, valve type, and the recommended valve Cv. If a different size and/or Cv is preferred, Table 36 on page 75 shows the valve size, valve type, and available Cv values. Refer to Figure 13, p. 24–Figure 16, p. 25 for the pressure drop across the respective piping packages associated with these valve Cv values.

For a complete list of modulating valve options and sizes, see Table 36 on page 75. See the section titled "How to Choose the Correct Control Valve," p. 74 to help you select the proper valve.

Field-Supplied Valves

When using field-supplied valves, choose this option so the unit controller is factory-configured for the valve's normal position. For more descriptive information on this option, see "Model Number Descriptions," p. 17.

Note: *Trane does not recommend wild coil applications.*

How to Choose the Correct Control Valve

Valve options are available in a variety of sizes and Cv values as discussed in the previous paragraphs. See Table 33–Table 37, p. 75 for a complete list of valve recommendations and sizes.

Select the proper control valve using these parameters:

1. **Valve flow coefficient or Cv**, which is represented by the following formula: Cv = Q/square root of Δ**P = Q/**$\sqrt{\Delta}$**P**
2. **Branch authority or** β **(modulating valves only)**, which is represented by the following formula: β = pressure drop across the valve divided by the pressure drop across the *branch circuit** x 100% = Δ**P valve/**Δ**P branch circuit**.
   a. * **Branch circuit** includes the coil and piping package (control valve, circuit setter, ball valves, fittings, and piping) between the supply and return riser.

   Note: *For good control,* β *should be between 25% and 70%.*
3. **Consider the valve close-off pressure (two-way valves only)** to ensure close-off pressures are not exceeded by pump discharge pressure necessary to overcome system pipe resistance. See the recommendations in Table 33 and Table 34, p. 75, which are based on 100 ft of 1-1/4" system piping plus branch circuit piping.

Two-Position Valve Cv Selection

The Cv value of the two-position control valve is less critical than for the modulating valve and should be as high as available to minimize branch circuit pressure drop.Table 33, p. 75 shows the recommended valve size for each unit size and coil configuration. However, if a different Cv is preferred, see Table 34, p. 75 for the options listed by size, type, and associated Cv values. Note that the 1-1/4", two-way, n.o. valves are not available. Refer to Figure 13, p. 24–Figure 16, p. 25 for the pressure drop across the respective piping packages associated with the valve Cv values.

Modulating Valve Cv Selection

For good capacity control, the pressure drop across the valve should fall within 25%–70% of the pressure drop across the branch circuit. Table 35, p. 75 shows the unit size, coil configuration, valve type and recommended valve Cv value. If a different size and/or Cv value is preferred, see Table 36, p. 75 for valve size, type, and available Cv values. Refer to Figure 13, p. 24–Figure 16, p. 25 for the pressure drop across the respective piping packages associated with these valve Cv values.

Table 33. Two-position valve Cv recommendations

	Unit Size													
	12		18		24		36		54		72		90	
Coil	2-Way	3-Way	2-Way	3-Way	2-Way	3-Way	2-Way	3-Way	2-Way	3-Way	2-Way	3-Way	2-Way	3-Way
1-row	3.5	4.4	3.5	4.4	3.5	4.4	3.5	4.4	3.5	4.4	3.5	7.0	8.0	7.0
2-row	3.5	4.4	3.5	4.4	3.5	4.4	3.5	4.4	8.0	7.0	8.0	7.0	6.6	7.4
4-row	3.5	4.4	3.5	4.4	8.0	7.0	8.0	7.0	8.0	7.0	8.0	7.4	8.3	7.4
6-row	3.5	4.4	3.5	4.4	8.0	7.0	8.0	7.4	6.6	7.4	6.6	7.4	8.3	7.4

Table 34. Two-position valve Cv options

	2-Way			3-Way		
Valve Size (in.)	Valve Type	Cv	Close-Off ΔP (psig)	Valve Type	Cv	Close-Off ΔP (psig)
1/2	normally open / normally closed	3.5	20	spring return	4.4	25
1	normally open / normally closed	8.0	90	spring return	7.0	9
1	2-way, normally closed	6.6	60	non-spring return	7.4	60
1-1/4	2-way, normally closed	8.3	60	non-spring return	8.3	60

Table 35. Modulating valve Cv recommendations

	Unit Size			
	12, 18, & 36		54, 72, & 90	
Coil	2-Way	3-Way	2-Way	3-Way
1-row	1.8*	1.3*	8.3	8.3
4-row	N/A	N/A	8.3	8.3
6-row	N/A	N/A	8.3	8.3

Note: * 1/2" valve with 3/4" pipe.

Table 36. Modulating valve Cv recommendations (high-capacity coil)

	Unit Size					
	12 & 18		24 & 36		54, 72, & 90	
Coil	2-Way	3-Way	2-Way	3-Way	2-Way	3-Way
2-row	1.8*	1.3*	2.3*	2.7*	6.6	8.3
4-row	1.8*	2.7*	2.3*	2.7*	6.6	8.3
6-row	1.8*	2.7*	2.3*	2.7*	6.6	8.3

Note: * 1/2" valve with 3/4" pipe

Table 37. Modulating valve Cv options

Valve size (in.)	2-Way	3-Way
1/2	1.8	2.7
	2.3	3.8
	3.3	N/A
1	6.6	7.4
1-1/4	8.3	8.3

Electrical Data

Minimum Circuit Ampacity (MCA) and Maximum Fuse Size (MFS) Calculations for Units with Electric Heat

Heater amps = (heater kW x 1000) / heater voltage

Notes: *Use 120V heater voltage for 115V units.*
Use 240V heater voltage for 230V units.
Use 480V heater voltage for 460V units.
Use 600V heater voltage for 575V units.

MCA = 1.25 x (heater amps + all motor FLAs)
MFS or HACR type circuit breaker = (2.25 x largest motor FLA) + second motor FLA + heater amps (if applicable)

HACR (Heating, Air-Conditioning, and Refrigeration) type circuit breakers are required in the branch circuit wiring for all units with electric heat.

See Table 40, p. 77 for motor FLAs.

Select a standard fuse size equal to the MCA. Use the next larger standard size if the MCA does not equal a standard size.

Standard fuse sizes: 15, 20, 25, 30, 35, 40, 45, 50, 60 amps

Useful Formulas

kW = (cfm x ΔT) / 3145
ΔT = (kW x 1000) / voltage
Single phase amps = (kw x 1000) / voltage
Three phase amps = (kw x 1000) / (voltage x 1.73)
Electric heat MBh = (Heater kW) (3.413)

Table 38. Available electric heat (kW)

Electrical heat (kW)	Voltage											
	115/60/1	208/60/1	220/50/1	230/60/1	240/50/1	277/60/1	208/60/3	230/60/3	380/50/3	460/60/3	415/50/3	575/60/3	190/50/3
1.0	Sizes 12–90												
1.5													
2.0, 2.5, 3.0													
3.5, 4.0													
4.5	Sizes 18–90									Sizes 24–90			
5.0													
5.5, 6.0													
6.5, 7.0, 7.5, 8.0													
9.0, 10.0, 11.0	Sizes 36–90												
12.0													
13.0, 14.0, 15.0, 16.0	Sizes 54–90												
17.0, 18.0, 19.0, 20.0										Sizes 72–90			
21.0													
22.0, 24.0, 26.0, 28.0	Size 90												
30.0													

Notes:
1. Magnetic contactors are standard. Mercury contactors are available on horizontal units only.
2. Units with electric heat are available with or without door interlocking disconnect switch.
3. Units with electric heat are available with or without line fuses.
4. Units with electric heat must not be run below the minimum cfm listed in "General Data," p. 19.
5. Electric heat is balanced staging: 1 stage = 100%, 2 stages = 50%/50%.
6. Electric heat is not available on 190/50/3 units.

Table 39. Available motor horsepower

		Motor Horsepower						
Motor	**Unit Voltage**	**0.33**	**0.50**	**0.75**	**1.00**	**1.50**	**2.00**	**3.00**
2-speed	115/60/1			•	•			
60 Hz	115/1	•	•	•	•			
	208/1	•	•	•	•			
	230/1	•	•	•	•			
	277/1	•	•	•	•			
	208/3		•	•	•	•	•	•
	230/3		•	•	•	•	•	•
	460/3		•	•	•	•	•	•
	575/3			•	•	•	•	•
50 Hz	220/1	•	•	•	•			
	240/1	•	•	•	•			
	380/3	•	•	•	•	•	•	
	415/3	•	•	•	•	•	•	
	190/3	•	•	•	•	•	•	

Table 40. Motor electrical data

Voltage	Voltage range	rpm	Rated hp	lb	FLA	LRA
115/60/1	104–126	1750	1/3	18	5.8	22.8
			1/2	21	7.2	30.4
			3/4	29	12.0	58.4
			1.0	29	12.8	58.4
Two-speed						
115/60/1	104–126	1750/1160	3/4	40	8.9/6.1	42.0
			1.0	41	11.5/8.1	58.2
208–230/60/1	187–253	1750	1/3	18	3.1	11.4
			1/2	21	3.6	15.2
			3/4	29	6.0	29.2
			1.0	29	6.4	29.2
277/60/1	249–305	1750	1/3	15.5	2.5	12.1
			1/2	21.5	3.6	19.3
			3/4	25	4.3	25.3
			1.0	29	5.6	32.6
208/60/3	187–229	1750	1/2	22	2.3	11.4
			3/4	26	2.9	15.9
			1.0	28	3.5	20.2
			`1.5	29	4.8	30.0
			2.0	34	6.2	38.5
			3.0	49	8.6	55.1

Table 40. Motor electrical data (continued)

Voltage	Voltage range	rpm	Rated hp	lb	FLA	LRA
230/60/3	207–253	1750	1/2	22	2.4	12.8
			3/4	26	3.0	18.6
			1.0	28	3.6	23.0
			1.5	29	4.8	33.4
			2.0	34	6.2	43.6
			3.0	49	8.6	62.0
460/60/3	414–506	1750	1/2	22	1.2	6.4
			3/4	26	1.5	9.3
			1.0	28	1.8	11.5
			1.5	29	2.4	16.7
			2.0	34	3.1	21.8
			3.0	49	4.3	31.0
575/60/3	518–632	1750	3/4	20.5	1.1	7.5
			1.0	22.5	1.4	9.0
			1.5	31	1.9	13.3
			2.0	36	2.5	17.9
			3.0	49	3.3	23.7
220/50/1	198–242	1450	1/3	20.5	3.0	15.6
			1/2	25	3.6	20.5
			3/4	29	5.2	25.6
			1.0	38	9.3	52.2
240/50/1	216–264	1450	1/3	20.5	3.3	17.1
			1/2	25	4.0	22.7
			3/4	29	5.5	39.1
			1.0	38	10.6	57.8
190/50/3	171–209	1450	1/3	22	1.1	5.6
380/50/3	342–418		1/2	26	1.4	7.8
			3/4	28	1.7	9.8
			1.0	29	2.1	14.6
			1.5	34	2.8	18.7
			2.0	49	3.6	27.2
415/50/3	374–456	1450	1/3	22	1.2	6.8
			1/2	26	1.5	9.4
			3/4	28	1.9	11.0
			1.0	29	2.5	17.4
			1.5	34	3.1	22.6
			2.0	49	3.6	32.3

Table 41. Motor drive selections

		Motor Horsepower						
Unit Size	**Drive**	**0.33**	**0.50**	**0.75**	**1.00**	**1.50**	**2.00**	**3.00**
12, 18	D–H	■	■	■	■			
	J	■	■	■	■			
	K	O	■	■	■			
24, 36	A–F	■	■	■	■	■		
	G	■	■	■	■	■		
	H	O	■	■	■	■		
	J		O	■	■	■		
	K			O	O	O		
54, 72, 90	A–D	■	■	■	■	■		
	E	■	■	■	■	■		
	F	O	O	■	■	■		
	G		O	O	■	■		
	H			O	O	O		
	J					O		
	L–R						■	■
	T						O	O

■ Valid for 50 and 60 Hz motors.

O Valid for 50 Hz motors only.

Figure 46. Size 12–90 drives, 60 Hz motors

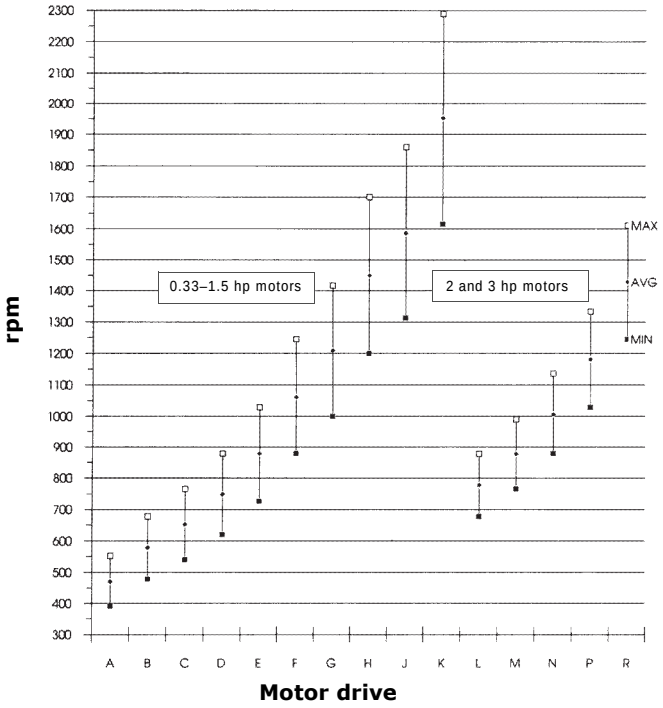
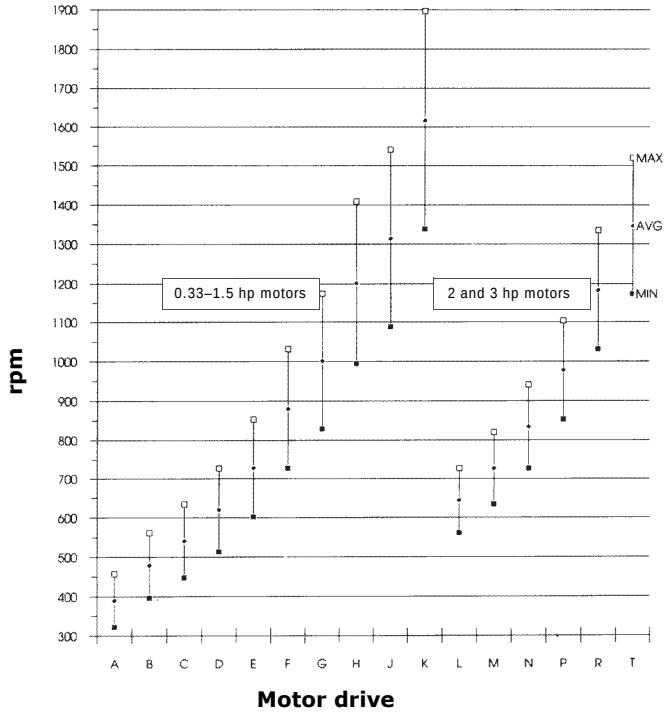


Figure 47. Size 12–90 drives, 50 Hz motors



Dimensions and Weights

Horizontal Blower Coil

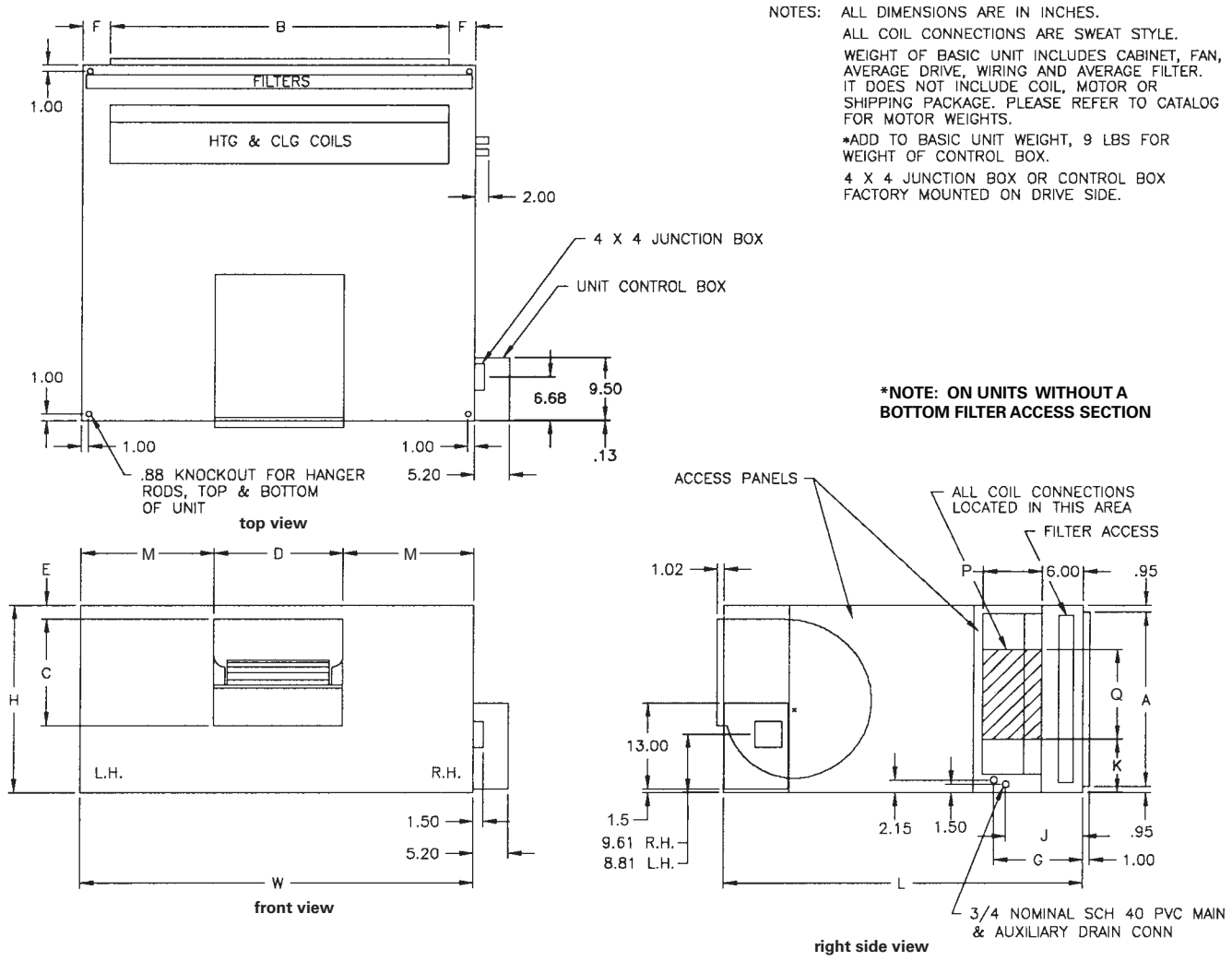


Table 42. Horizontal blower coil dimensions (in.) and weights (lb)

Unit Size	H	W	L	A	B	C	D	E	F	G (RH)	G (LH)	J (RH)	J (LH)	K	M	P	Q	Basic Unit Weight
12	14.00	24.00	39.75	12.09	18.00	10.56	7.09	0.55	3.00	11.42	13.42	9.42	11.42	4.20	8.46	9.00	5.75	70.40
18	14.00	28.00	39.75	12.09	22.00	10.56	7.09	0.55	3.00	11.42	13.42	9.42	11.42	4.20	10.46	9.00	5.75	76.10
24	18.00	28.00	44.00	16.09	22.00	13.56	12.56	1.30	3.00	11.42	13.42	9.42	11.42	6.20	7.72	9.00	5.75	98.90
36	18.00	40.00	44.00	16.09	34.00	13.56	12.56	1.30	3.00	11.42	13.42	9.42	11.42	6.20	13.72	9.00	5.75	116.10
54	22.00	40.00	47.00	20.09	34.00	13.56	12.56	0.72	3.00	11.42	13.42	9.42	11.42	7.43	13.72	11.00	7.27	138.90
72	22.00	48.00	47.00	20.09	40.00	13.56	12.56	0.72	4.00	11.42	13.42	9.42	11.42	7.43	17.72	11.00	7.27	152.20
90	28.00	48.00	52.00	26.09	40.00	13.56	12.56	1.66	4.00	12.79	14.79	10.79	12.79	8.24	17.72	11.25	11.64	174.80

Vertical Blower Coil

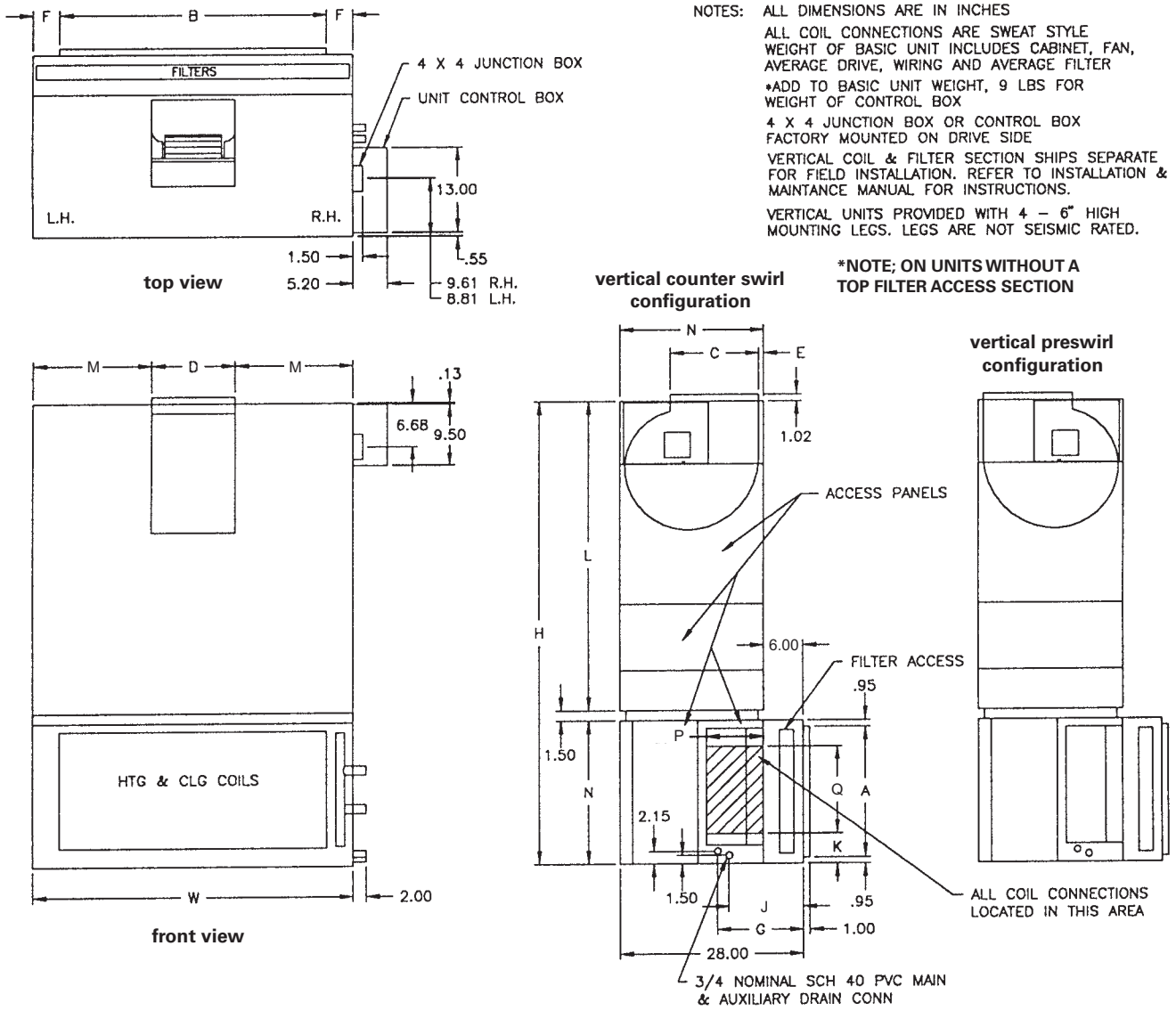
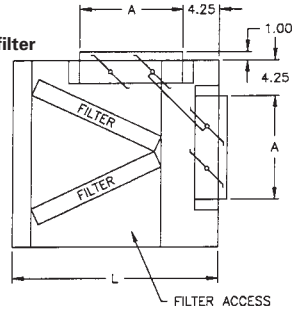


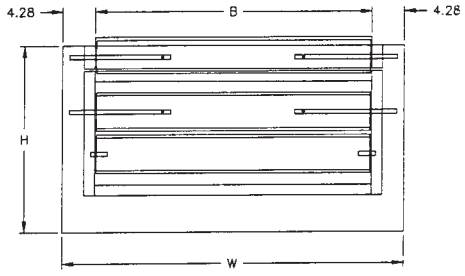
Table 43. Vertical blower coil dimensions (in.) and weights (lb)

Unit Size	H	W	L	A	B	C	D	E	F	G (RH)	G (LH)	J (RH)	J (LH)	K	M	N	P	Q	R	Basic Unit Weight
24	63.50	28.00	44.00	16.09	22.00	13.56	12.56	1.30	3.00	11.42	13.42	9.42	11.42	6.20	5.50	18.00	9.00	5.50	28.00	150.30
36	63.50	40.00	44.00	16.09	34.00	13.56	12.56	1.30	3.00	11.42	13.42	9.42	11.42	6.20	5.50	18.00	9.00	5.50	28.00	180.40
54	72.50	40.00	47.00	20.09	34.00	13.56	12.56	0.72	3.00	11.42	13.42	9.42	11.42	4.21	10.43	22.00	11.00	7.27	30.00	206.40
72	72.50	48.00	47.00	20.09	40.00	13.56	12.56	0.72	4.00	11.42	13.42	9.42	11.42	4.18	10.43	22.00	11.00	7.27	30.00	228.20
90	81.50	48.00	50.00	26.09	40.00	13.56	12.56	1.66	4.00	12.79	14.79	10.79	12.79	4.81	15.61	28.00	11.25	11.64	30.00	258.40

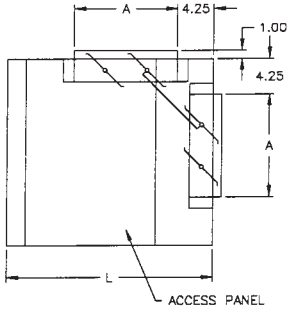
Angle Filter and Mixing Box

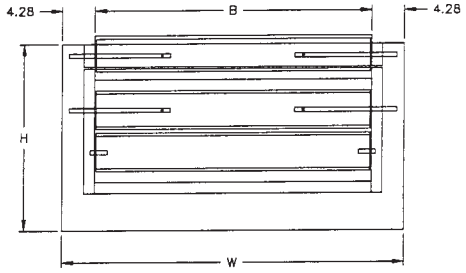
combination angle filter & mixing box



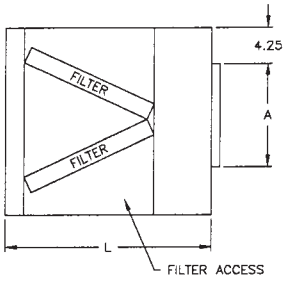


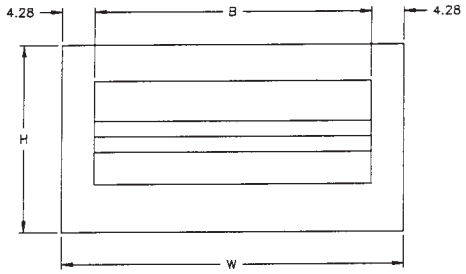
mixing box





angle filter box



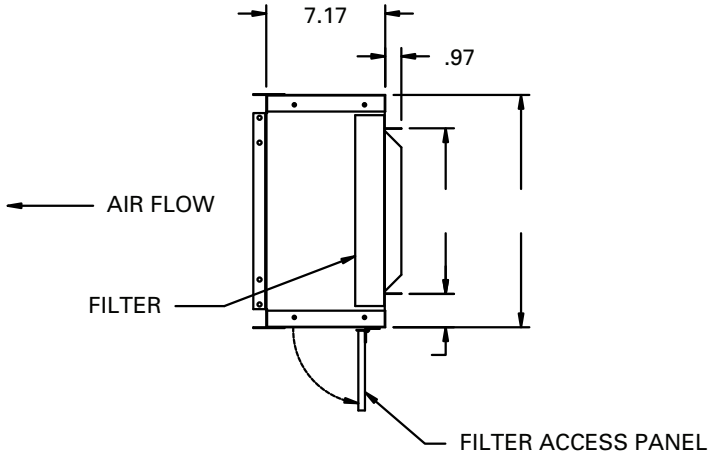


NOTES:
1. ALL DIMENSIONS ARE IN INCHES.
2. MIXING BOX SHIPS ASSEMBLED FOR FIELD INSTALLATION
3. LINKAGE BETWEEN DAMPERS FACTORY INSTALLED INSIDE MIXING BOX OPPOSITE DRIVE SIDE.
4. DRIVE ROD ON BACK DAMPER MAY BE EXTENDED THRU KNOCKOUT FOR EXTERNALLY MOUNTED ACTUATOR. TO ADJUST LOSSEN HEX HD SET SCREW ON BLADE.
5. UNIT SIZE 36 HAS ONLY ONE ANGLED FILTER TRACK. ALL OTHER UNIT SIZES HAVE TWO FILTER TRACKS AS SHOWN.

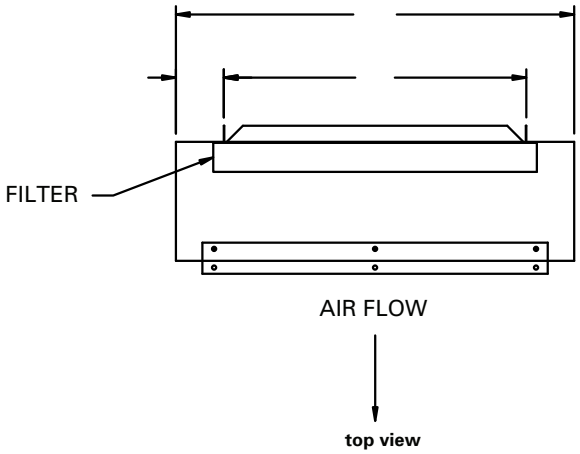
Table 44. Angle filter and mixing box dimensions (in.) and weights (lb)

Unit Size	H	L	W	A	B	Weight
12	14.12	22.00	24.11	7.06	15.56	36.0
16	14.12	22.00	28.11	7.06	19.56	41.0
24	18.12	19.50	28.11	7.06	19.56	43.0
36	18.12	24.50	40.11	7.06	31.56	56.0
54	22.12	23.50	40.11	12.81	31.56	72.0
72	22.00	23.50	48.00	12.81	32.56	72.5
90	27.90	27.56	48.00	12.85	31.56	84.1

Bottom or Top Access Filter Box



right side view



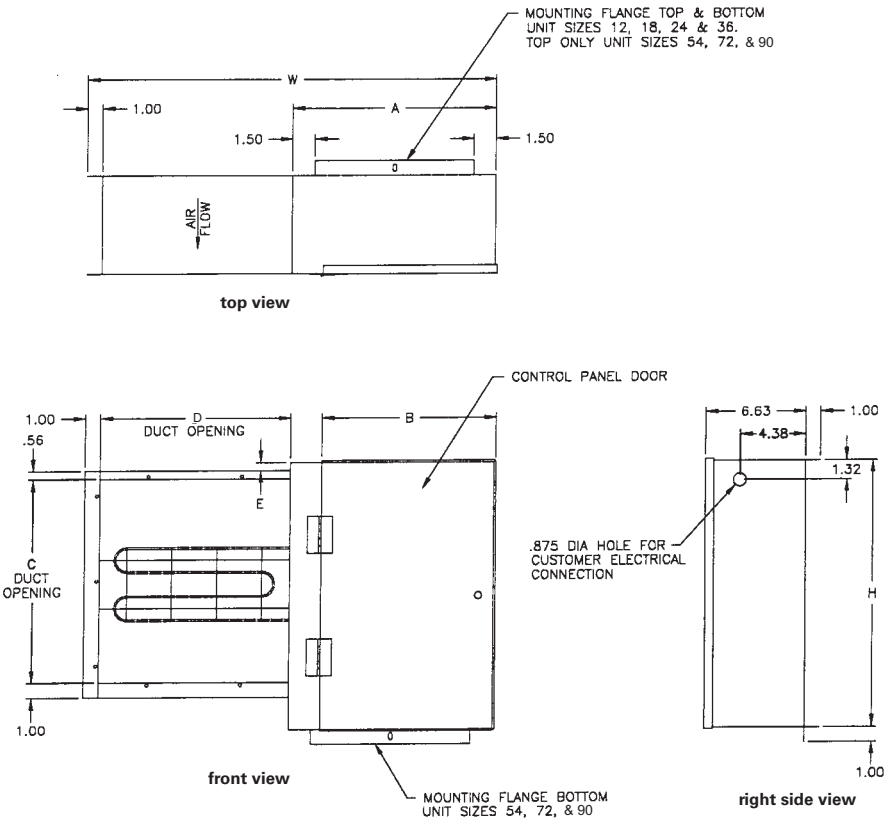
top view

NOTES;
1. DIMENSIONS ARE IN INCHES.
2. ROTATE 180° FOR TOP ACCESS.
3. SECTIONS SHIPS ATTACHED TO THE UNIT.

Table 45. Bottom or top access filter box dimensions (in.) and weights (lb)

Unit Size	H	W	A	B	C	D	Weight
12	14.00	24.00	9.98	2.01	18.23	2.88	15
18	14.00	28.00	9.98	2.01	21.98	3.01	17
24	18.00	28.00	14.23	1.89	23.23	2.38	18
36	18.00	40.00	14.23	1.89	33.73	3.13	25
54	22.00	40.00	18.23	1.89	33.73	3.13	28
72	22.00	48.00	18.23	1.89	42.73	2.63	32
90	28.00	48.00	23.23	1.89	41.23	3.38	37

Electric Heat



NOTES:
- ALL DIMENSIONS ARE IN INCHES.
- ELECTRIC HEATER IS FACTORY MOUNTED ON UNIT DISCHARGE FACE & WIRED TO UNIT CONTROL BOX.
- RIGHT HAND HEATER SHOWN. LEFT HAND HEATER IS MIRROR IMAGE OF RIGHT HAND.
- CONTROL PANEL DOOR IS HINGED AT BOTTOM ON UNIT SIZES 12, 18, 24 & 36. UNIT SIZES 54, 72, & 90 ARE HINGED AT SIDE AS SHOWN.
- HEATER MAY BE MOUNTED WITH HORIZONTAL OR VERTICAL UP AIRFLOW.
- OPTIONAL MERCURY CONTACTORS CANNOT BE USED WITH VERTICAL UP AIRFLOW.
- ELECTRIC HEAT MAY NEED FIELD-SUPPLIED EXTERNALLY-WRAPPED INSULATION IF THE UNIT IS INSTALLED IN AN UNCONDITIONED SPACE OR IF SWEATING IS AN ISSUE.

Table 46. Electric heat dimensions (in.) and weights (lb)

Unit Size	H	W	A	B	C	D	E	Weight
12	14.06	17.88	8.13	6.79	10.50	7.75	0.03	10.0
18	14.06	19.88	10.13	8.79	10.50	7.75	0.03	10.8
24	18.06	21.25	7.63	6.29	13.50	12.63	0.80	11.3
36	18.06	27.25	13.63	12.29	13.50	12.63	0.80	12.8
54	18.06	27.25	13.63	11.67	13.50	12.63	0.22	16.0
72	18.06	27.25	13.63	11.67	13.50	12.63	0.22	17.4
90	18.06	27.25	13.63	11.67	13.50	12.63	1.16	19.2

Steam Coil

NOTES:
1. FILTER ACCESS & ACCESS PANEL LOCATED ON BOTH SIDES.
2. WEIGHT INCLUDES CABINET WITH AVERAGE FILTER, BUT DOES NOT INCLUDE CIOL WEIGHT. SEE GENERAL DATA SECTION FOR COIL WEIGHTS.

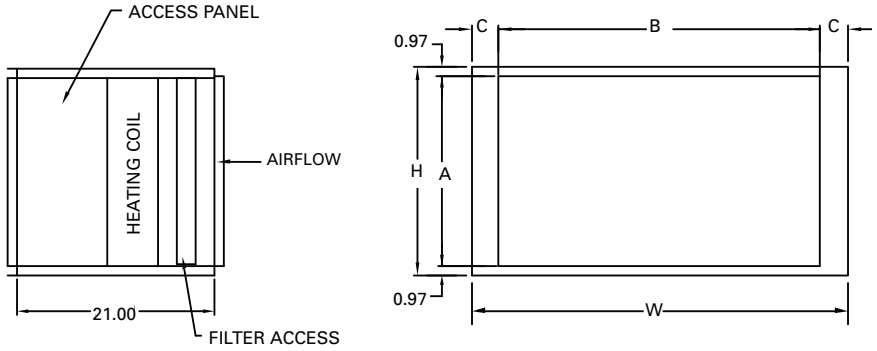


Table 47. Steam coil box dimensions (in.) and weights (lb)

							Coil Connections, NPT	
Unit Size	**H**	**W**	**A**	**B**	**C**	**Weight**	**Supply**	**Return**
12	14.00	24.00	12.06	18.04	2.98	34	1	3/4
18	14.00	28.00	12.06	22.04	2.98	37	1	3/4
24	18.00	28.00	16.06	22.04	2.98	40	1-1/2	1
36	18.00	40.00	16.06	34.04	2.98	48	1-1/2	1
54	22.00	40.00	20.06	34.04	2.98	50	2	1
72	22.00	48.00	20.06	42.04	2.98	56	2	1
90	28.00	48.00	26.06	40.04	3.98	63	2-1/2	1-1/4

Coil Connections

Table 48. Hydronic coil connection sizes, OD (in.)

	Standard Capacity			High Capacity		
Unit Size	**1-Row**	**4-Row**	**6-Row**	**2-Row**	**4-Row**	**6-Row**
12	5/8	—	—	5/8	7/8	7/8
18	5/8	—	—	5/8	7/8	7/8
24	5/8	—	—	7/8	1-1/8	1-1/8
36	5/8	—	—	7/8	1-1/8	1-1/8
54	1-1/8	1-3/8	1-3/8	1-1/8	1-1/8	1-1/8
72	1-1/8	1-3/8	1-3/8	1-1/8	1-1/8	1-1/8
90	1-1/8	1-5/8	1-5/8	1-1/8	1-1/8	1-1/8

Table 49. DX coil connection sizes, OD (in.)

	3- & 4-Row		6-Row	
Unit Size	**Suction**	**Liquid**	**Suction**	**Liquid**
12	5/8	5/8	5/8	5/8
18	5/8	5/8	5/8	5/8
24	5/8	5/8	7/8	5/8
36	7/8	5/8	7/8	5/8
54	1-1/8	7/8	1-1/8	7/8
72	1-1/8	7/8	1-1/8	7/8
90	1-3/8	7/8	1-1/8	7/8

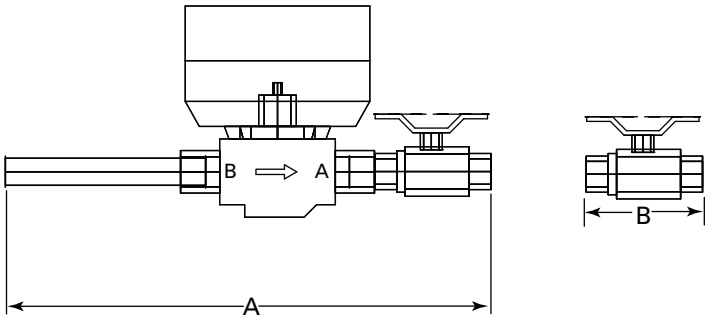
Table 50. Steam coil connection sizes, female connection, NPT (in.)

Unit Size	Supply	Return
12	1	3/4
18	1	3/4
24	1-1/2	1
36	1-1/2	1
54	2	1
72	2	1
90	2-1/2	1-1/4

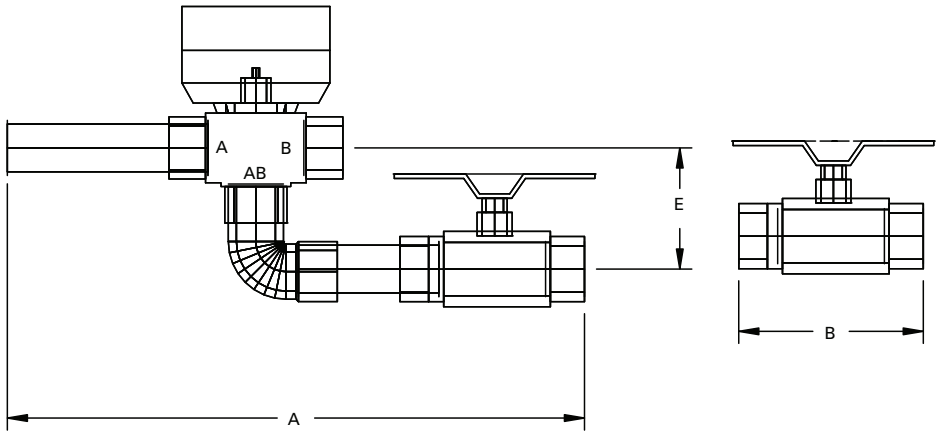
Piping Packages

Basic Piping

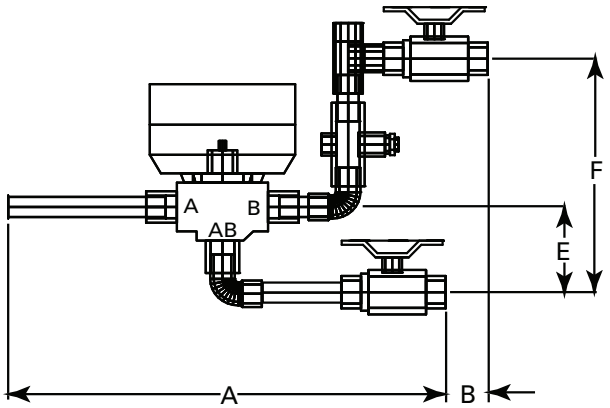
Two-way, 1/2” and 1” valve basic piping package



Two-way, 1-1/4” valve basic piping package

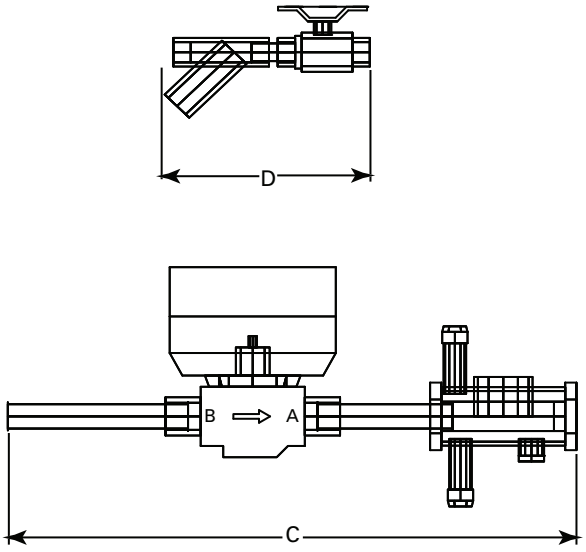


Three-way, 1/2” and 1” valve basic piping package

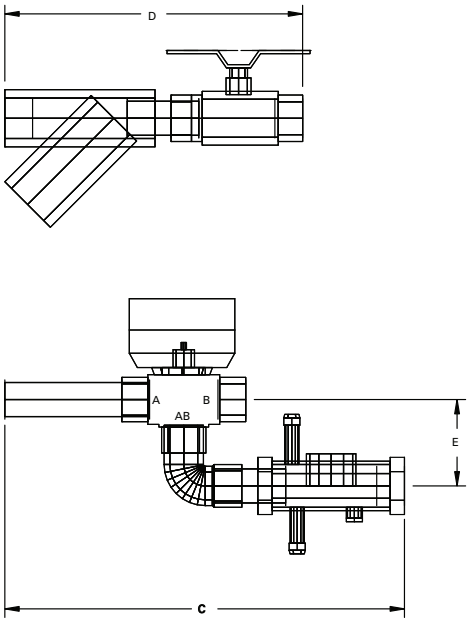


Deluxe Piping

Two-way, 1/2” and 1” valve deluxe piping package



Two-way 1-1/4” valve deluxe piping package



Three-way, 1/2” and 1” valve deluxe piping package

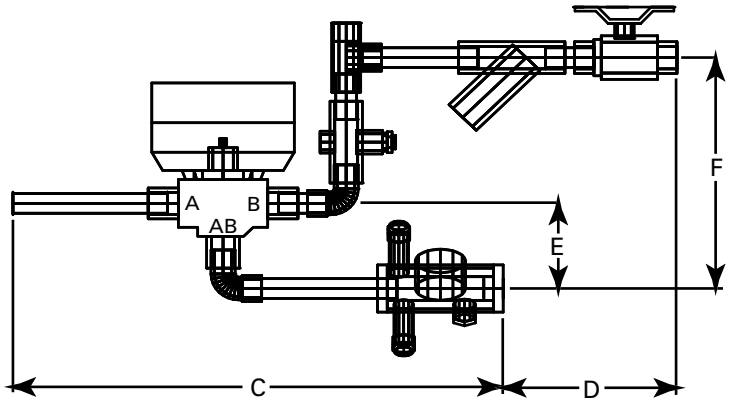


Table 51. Piping package dimensions (in.)

Piping Package	Nominal Tube Size	Actual Size	A	B	C	D	E	F
2-way	1/2	5/8	12.025	2.650	12.625	5.650	N/A	N/A
	1	1-1/8	13.295	4.260	13.220	9.288	3.020	N/A
3-way	1/2	5/8	12.088	2.097	12.688	4.497	6.351	6.351
	3/4	7/8	15.623	1.750	15.313	6.290	6.701	6.701
	1	1-1/8	13.370	3.690	13.210	9.060	9.813	9.813
	1-1/4	1-3/8	16.885	3.738	16.410	10.023	3.052	10.520

Mechanical Specifications

General

The product line consists of horizontal and vertical air handling units and mixing boxes. Units are tested in accordance with ARI 430 and ARI 260. The unit complies with NFPA 90A and is UL listed in the U.S. and Canada.

Air handlers consist of a hydronic and/or DX coil, drain pan, and centrifugal fan with motor and drive mounted in a common cabinet. Drive location and coil connections are independent for the same or opposite side location.

Air handlers are provided with knockouts in all four corners for installing the unit suspended from the ceiling with threaded rods.

Unit and accessories are insulated with 1", 1-1/2 lb/cu ft density fiberglass insulation. One-inch foil-faced insulation is also available.

Large motor access panels are provided on both sides of the unit and accessories. Vertical units ship in two pieces.

Casings

Casings (structural components) are constructed of heavy-gauge galvanized steel, insulated with one-inch, 1-1/2 lb density fiberglass fire resistant and odorless glass fiber material to provide thermal and acoustical insulation. Fan housing sides are directly attached to the air handler top and bottom panels strengthening the entire unit assembly. Coil access panels are located on both sides of the air handler and allow easy removal of the internal coils and drain pan. Main access panels provide generous access to the fan, motor and drive from both sides of the air handler.

Water Coils

Cooling coils are four- or six-row, chilled water. Heating coils are one- or two-row hot water. They are available factory-installed in the preheat or reheat position. All water coils are 12 fins per inch. All water coils use highly efficient aluminum fins, mechanically bonded to seamless copper tubes. All coils are specifically designed and circuited for water use. All coils are factory tested with 450 psi air under water. Maximum standard operating conditions are: 300 psig, 200°F. Sweat type connections are standard.

Direct Expansion (DX) Coils

DX coils use refrigerant 22 or 410A, have 3/8" OD x 0.014" W round seamless copper tubes expanded into full fin collars for permanent fin-tube bond. Three-, four-, and six-row DX coils use highly efficient aluminum fins mechanically bonded to stainless copper tubes with 12 fins per inch fin spacing.

The coil casing is 16-gauge galvanized steel. A foam sealing strip between the casing (top and bottom) channels and fins helps eliminate air bypass and reduce potential water carryover. Coils have round, seamless, copper pipe liquid lines and suction headers with male sweat connections. Suction headers have bottom connections to aid drainage of any oil that may collect in the coil. Liquid line and suction connections are outside the unit casing (on the same side of the unit) to facilitate field piping. Connections are clearly labeled to ensure coils are piped correctly. Coils have a venturi-type distributor assembly designed with a vertical downflow feed for low pressure drops.

Coils are proof tested at 715 psig and leak tested at 650 psig air-under-water. Coils are dehydrated and sealed with a dry air charge. Maximum standard operating conditions are 650 psig at 127°F with R-22 and 410A. Coils are rated in accordance with ARI Standard 410.

Steam Coils (Type NS)

A one-row steam distributing coil section is available in the pre-heat position. Steam coils are non-freezing and are pitched to ensure adequate condensate drainage. Coils have 1" OD x 0.031" W round seamless copper condensing tubes expanded into full fin collars for permanent fin-tube bond. Coil headers are cast iron for permanent leak-tight joints. Coils have continuous Sigma-Flo® aluminum fins with full fin collars for maximum fin-tube contact and accurate spacing at 6 fpi. The

coil casing is 16-gauge galvanized steel. Coil headers are gray cast iron with NPT internal thread connections.

Supply, return, and vacuum breaker connections are located at the same end of the unit and clearly labeled to ensure coils are piped correctly. Distributor tubes are 11/16" OD copper. Also, they have die-formed, accurately-spaced directional kinetic orifices that discharge steam in the direction of condensate flow (toward the return connection) to ensure even steam distribution across the coil face area and push out condensate. Distributor tubes are located concentrically within condensing tubes using corrosion resistant support clips. Supply header steam deflectors prevent impingement of steam into tubes in supply connection area.

Coils are proof tested at 300 psig and leak tested at 200 psig air-under-water. Maximum standard operating conditions are 15 psig at 400°F. Coils are rated in accordance with ARI Standard 410.

Fan

Fans are forward curved, centrifugal blower type equipped with heavy-duty adjustable speed V-belt drive. The fan shaft is supported by heavy-duty, permanently sealed ball bearings. All fans are dynamically balanced. All air handlers have a single fan.

Drain Pan

The drain pan is noncorrosive and double-sloped to allow condensate drainage. The drainpan construction is polymer or optional stainless steel. Coils mount above the drain pan—not in the drain pan—thus allowing the drain pan to be fully inspected and cleaned. The drain pan can also be removed for cleaning. The polymer drain pan connections are unthreaded 3/4" schedule 40 PVC for solvent bonding. The stainless steel drain pan connection is 3/4" NPT schedule 40 stainless steel pipe. The main drain connection is at the lowest point of the drain pan. An auxiliary drain connection is provided on the same side as the main connection.

Filters

One-inch standard efficiency throwaway and two-inch pleated standard efficiency (30%) are available on all blower coil units. Units have a standard flat filter rack that is sized for less that 500 feet per minute at nominal airflow. An optional angle filter rack is available; this is sized for less than 300 feet per minute at nominal airflow. All units and filter racks use standard filter sizes.

Motors

Single-phase motors are available in 60 Hz for 115, 208–230, 277, or 220–240 voltage operation. Three-phase motors are available for 208–230, 460, 575, or 190/380–415 voltage operation. All motors have a plus or minus 10% voltage utilization range. All standard motors are open drip-proof with permanently sealed ball bearings, internal current and thermal overload protection, a minimum 1.15 service factor and 56 frame resilient bases. Motors are factory-installed and wired to the air handler junction box.

Two-Speed Motors

Two-speed motors are available for 115/60/1, 1800/1200 rpm motor has a plus or minus 10% voltage utilization range. The motor is open drip-proof with permanently sealed ball bearings, internal overload protection, and minimum 1.15 service factor and size 56 resilient base frames. The motor is factory-installed and wired to the air handler junction box.

Mixing Box

Mixing boxes are constructed of heavy-gauge galvanized steel. They are complete with two low-leak parallel blade dampers that are factory-linked together. A 1/2" extendible drive rod is provided that can be used for actuator connection, either internally or externally. Damper blades are extruded aluminum having interlocked PVC extruded edge seals. Damper frame seals are PVC extruded forms interlocked to the damper frame and provided with a continuous edge seal to the blades. Damper seals are stable in the temperature range of -50°F to 230°F.

Mixing boxes also include two side access panels as standard to provide access to the unit's internal components.

Piping Packages

The maximum entering fluid temperature to the water valves is 200°F. Insulation on the piping package is by others. The stop valves are ball type.

Electric Heater

The heater is a UL recognized resistance open-wire heater with disc-type automatic and manual reset-type thermal safety devices. The electric heater is factory-mounted and an air handler with this heater is a UL/CUL product. One or two stages of control are available. A single-point power connection to the unit is provided. Optional mercury contactors, heater fuses, and a heater door interlocking disconnect switch are available.

Controls

Controls options are: 4 x 4 handy box, control interface, Tracer™ ZN010, ZN510, and ZN520. A variety of inputs and outputs are available for the control interface and Tracer controller options. A disconnect switch (for non-electric heat units), fused transformer, contactor(s), and terminal strip are provided with the control interface and Tracer controller options. For specifics on the Tracer ZN010, ZN510, and ZN520 please refer to the control section of this catalog.

Control Interface

The control interface is intended to be used with a field-supplied, low-voltage thermostat or controller. The control box contains a line voltage to 24 volt transformer; a one, two, or three-pole contactor; and a disconnect switch. The wires from the fan contactor and the low voltage side of the transformer are pulled and terminated on the inside of the two-sided terminal strip. All customer connections other than power are on the outside of the two-sided terminal strips.

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For more information, contact your local Trane office or e-mail us at comfort@trane.com

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