Application Guide
Trane XR Style Condensing Units and Heat Pumps

SSC-APG002-EN
Low Outdoor Ambient Operation
Unit Mounting
Minimum Clearances

Trane XR Style Outdoor Models
The purpose of this bulletin is to provide application criteria as related to the Trane residential XR style condensing units and heat pump units.

This bulletin discusses:
I. Terms and definitions
II. Off season cooling operation
III. Unit mounting
IV. Minimum operating clearances
V. Clearance from vents
VI. Nameplate electrical data

**POSITION STATEMENT:**
Trane has always recommended installing Trane approved, matched indoor and outdoor systems. The benefits of installing approved matched systems are maximum efficiency, optimum performance, and best overall system reliability.

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**WARNING** – Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION** – Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**CAUTION** – Indicates a situation that may result in equipment or property-damage-only accidents.

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ISSUED BY:
Product Application Engineering Department
Trane
Tyler, Texas

SSC-APG002-EN

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Section I - Terms and Definitions:
Definitions and information:

**CCHT** - Compressor Crankcase Heater, sometimes called a compressor sump heater. This device is designed to warm the compressor crankcase (or sump) in order to prevent or deter refrigerant migration during the compressor off cycle. Compressor crankcase heaters are required for low ambient cooling operation.

**TXV** - Thermostatic Expansion Valve. This is a type of refrigerant flow control device designed to maintain constant superheat throughout the operating envelope. For low ambient cooling applications, a non-bleed TXV is required.

**Bleed TXV**: This type of TXV will allow the refrigerant pressures between the high side and low side to equalize through the valve during the off cycle.

**Non Bleed TXV**: This type of TXV will not allow the refrigerant pressures between the high side and low side to equalize through the valve during the off cycle. When using this type of valve on single phase units with reciprocating style compressors, compressor start components are required. Check product data specifications for most current information.

**Head pressure controller** - A device that is field installed on a condensing unit or heat pump designed to maintain system head pressure that will allow safe system operation without indoor coil icing in colder outdoor ambient temperatures. The BAYLOAM103 will cycle the condenser fan motor in order to achieve adequate operating head pressure. The control is adjustable.

**Evaporator Defrost Control** - A device that is field installed on the system’s indoor coil in order to prevent the system from running during the cooling cycle when the indoor coil approaches or reaches a temperature in which frost will form on the coil surface. When the indoor coil approaches a safe temperature for cooling operation, the control will close and allow the outdoor unit to restart. This controller makes and breaks the control voltage to the condensing unit.

**Quick Start Component** - This component may be factory installed or offered as a field installed accessory (BAYKSKT***). A quick start kit consist of a capacitor with a high microfarad rating and a potential relay. It is installed so that the start capacitor is wired in parallel with the compressor’s run capacitor. Prior to start-up the potential relay contacts are closed, therefore placing the start capacitor in the compressor circuit, as the compressor motor reaches operating speed, electrical current flows through the potential relay’s coil and the the relay contacts are opened, thus taking the start capacitor out of the system until the next compressor start up.
**Section III - Off Season Cooling Operation:**

The Trane XR models, as well as the 3 phase models may be operated in the cooling mode to 55°F as shipped from the factory when applied with an indoor TXV. Where required, these units, with appropriate accessories, may be applied to operate at outdoor temperatures below 55°F.

Please refer to Table 1 or Table 2 below to determine if the desired model unit will operate at the specified conditions and required accessories.

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**Table 1 - Required accessories for the XR13 and XR15 applied between 30°F and 55°F outdoor ambient**

<table>
<thead>
<tr>
<th>Model Family</th>
<th>55°F</th>
<th>45°F</th>
<th>30°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>4TTR3</td>
<td>As Shipped</td>
<td>TXV</td>
<td>CCHT*</td>
</tr>
<tr>
<td>4TWR3</td>
<td>As Shipped</td>
<td>TXV</td>
<td>CCHT*</td>
</tr>
<tr>
<td>4TTR5-E</td>
<td>As Shipped</td>
<td>TXV</td>
<td>CCHT*</td>
</tr>
<tr>
<td>4TWR5-E</td>
<td>As Shipped</td>
<td>TXV</td>
<td>CCHT*</td>
</tr>
</tbody>
</table>

* Unit requires a compressor crankcase heater and start accessory only if it is not factory installed. Check general specifications located in product data to determine if unit is equipped with factory installed quick start components.

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**Table 2 - Required accessories for XR13 / XR15 units applied in low outdoor ambient cooling operation below 30°F**

<table>
<thead>
<tr>
<th>Model Family</th>
<th>Approved for 0°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>4TTR3</td>
<td>BAYLOAM103 AY28X079 CCHT* Quick Start Accessory Solenoid Valve**</td>
</tr>
<tr>
<td>4TWR3</td>
<td>BAYLOAM103 AY28X084 CCHT* Quick Start Accessory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Family</th>
<th>Approved for +20°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>4TTR5018 - 060E</td>
<td>BAYLOAM103 AY28X079 CCHT* Quick Start Accessory Solenoid Valve**</td>
</tr>
<tr>
<td>4TWR / 4TTR5049E</td>
<td>NOT APPROVED</td>
</tr>
<tr>
<td>4TWR / 4TTR5061E</td>
<td>NOT APPROVED</td>
</tr>
<tr>
<td>4TWR5-E</td>
<td>BAYLOAM103 AY28X084 CCHT* Quick Start Accessory</td>
</tr>
</tbody>
</table>

* *Solenoid valve required if:*
1. Liquid line is one size larger than factory connection. (example: factory connection is 3/8” and the existing liquid line is 1/2”) Please refer to publication SS-APG006-EN or latest edition for approved line sizes.
2. Off cycle time will be longer than 30 minutes during low ambient cooling operation.

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**Compressor Crankcase Heaters:**
- Reciprocating Compressor: BAYCCHT300
- Large Scroll Compressor: BAYCCHT301
- Small Scroll Compressor: BAYCCHT302

**Evaporator Defrost Control Kits (EDC):**
- AY28X079: Cooling only
- AY28X084: Heat pumps

**Head Pressure Controller:**
- BAYLOAM103: Approved for heat pumps and cooling units

**More Information about low ambient controls:**
As noted in the above table, systems may be operated lower than 55°F, by applying the BAYLOAM103 head pressure controller and other required accessories. The BAYLOAM103 controller cycles the outdoor fan as needed to maintain liquid line temperature as set by the DIP switches located on the control. There is no need to change the outdoor fan motor on approved products since the controller does not vary the frequency to the motor. For more information, publication number 18-HE46D1-1or latest version, should be consulted.

In addition to the current head pressure control, Trane offers two types of EDC controllers. One being the traditional field ordered accessories and the other is on board controls in the GAM5 and TAM7 fan coil units.
Low ambient cooling utilizing thermostatic control found in the AY28X079 and AY28X084.

How it works:
These controls are thermally controlled contacts with a capillary style sensor. The capillary tube is inserted into the coil fins in between the tube rows. When the sensor detects 25°F, the contacts open. The contacts close when the coil temperature reaches 60°F. When wired as shown in figures 3 and 4, the outdoor unit is de-energized when the EDC contact open and re-energizes when the EDC contact closes.

Low ambient cooling utilizing the frost control in GAM5 and TAM4 indoor units:
The GAM5 and TAM7 fan coil units utilize an electronic expansion valve (EEV). This device is not new to the industry, however, new to Trane fan coil units. With this enhancement the controls that monitor the EEV also allow us to take advantage of monitoring coil temperature.

How it works:
The on-board electronic controls include a relay that will open when the indoor coil begins to frost. When this occurs, the contacts to the YO circuit will open and de-energize the outdoor unit, provided figure 5 and 6 are followed. When the YO circuit opens the outdoor unit is taken off line; however, the indoor blower continues to operate, thus clearing the indoor coil of frost build-up.

Windshields:
If low ambient cooling operation is required, windshields are a must in order to block prevailing winds from impacting system performance at low outdoor temperatures. Reference figure 2.

Figure 1 - Windshield Construction Information

NOTE: National Electrical Code requires minimum three feet clearance from the service panel. Some local building departments will allow a removeable panel in front of the unit service access area. Otherwise the distance between the windshield and the unit’s service access is required to be a minimum of three feet. Reference page 15 of this document for National Electric Code information.
Typical wiring when using the evaporator defrost control (EDC):

Figure 3 - Cooling Split System and AY28X079 Evaporator Defrost Control

Figure 4 - Heat Pump Split System and AY28X084 Evaporator Defrost Control

Warning! High voltage present in the outdoor unit and indoor unit. Assure high voltage power is disconnected using lockout / tag-out procedures if applicable prior to connecting low voltage wiring.
Typical wiring the frost control located in GAM5 or TAM7 fan coil unit

Figure 5
Cooling split system and GAM5 or TAM7 fan Coil Unit

Figure 6
Heat pump split system and GAM5 or TAM7 fan coil unit

*NOTE:
Y2 and BK is present on TAM7 units and not present on GAM5.

Warning! High voltage present in the outdoor unit and indoor unit. Assure high voltage power is disconnected using lockout / tag-out procedures if applicable prior to connecting low voltage wiring.
Section IV- Unit Mounting:
This section describes appropriate methods for mounting and securing the XR. However, if these units are to be mounted in a region where high winds are an issue, a Trane BAYECMT*** extreme conditions mounting kit may be utilized. Otherwise, a local P.E. (professional engineer) and restraining method approved by the authority having jurisdiction may be required. In regions where seismic restraint is a requirement, approval from a local P.E. may be required for the restraining method. (reference figures 5, 6, and 7 for possible mounting configuration examples)

A. For mounting or securing the Trane condensing units and heat pumps please observe the following:
   1. If the unit is to be supported from the edge, the supporting material must extend two inches minimum under the perimeter of the unit’s base.
   2. The mounting hole locations are molded in the basepan, however, must be drilled through.
      a) Hole locations are identified in figures 8 and 9.
   3. Washers should be placed in between the fastener head and the basepan.
   4. Trane recommends supporting the center of the unit as shown in figures 6, 8, and 9.
   5. Base size 3 and 4 pans have four mounting holes - see figures 8 and 9.
   6. For hurricane or high wind applications, if using the BAYECMT*** kit, the bolt hardness and diameter is specified in the BAYECMT*** installation guide.
      a) Bolt length is determined by the authority having jurisdiction and / or local P.E.
      b) Mounting surface composition and weight shall be determined by the authority having jurisdiction and / or local P.E.
      c) For non-ground installations, refer to a local P.E.
      d) A local P.E. may be required if the BAYECMT*** kit is used or not.

Figure 7

Figure 8

Figure 9

Drawings for illustration purposes only,
BASE PAN MOUNTING HOLE LOCATIONS
(location only, holes must be drilled)

support must extend in 2” from the basepan perimeter

support center of unit

support must extend in 2” from the basepan perimeter

support center of unit

Measurements are provided in MM and (Inches)

If supporting the base pan from the perimeter, the support must extend under the base pan at least 2”. Trane recommends supporting the middle of the base pan with a cross member.
Section V - Minimum Operating Clearances

This section discusses installing the XR13 and the XR15 style condensing unit / heat pump where spacing is limited. When installing Trane outdoor units in a location where clearance to other units, walls, fences, etc. is limited, the concerns listed below must be addressed:

1. System Operation - Adequate airflow must be provided to and away from the condensing unit / heat pump in order to enable appropriate heat transfer. If this is accomplished, head pressure will remain within an effective operating range.
2. System Service - Sufficient working space must be allowed for the HVAC service technician to properly maintain the condensing unit / heat pump. Furthermore, space must be allowed for major component change out in the event of a failure. Working space is determined by the Local, State and National Codes. (See National Electric Code Table 110.26 for explanation.)
3. Space Maintenance - Appropriate space must be allowed in order for personnel to maintain the ground area where the units are positioned to prohibit foliage growth around the unit(s) and debris from collecting on the panels.
4. State, Local Codes, and National Codes shall prevail. Check with the local jurisdiction before installation to assure compliance.

Many projects require consideration of minimum clearances between outdoor units and adjacent walls, fences and other units. The obstruction in question is usually one of the following:
   1. One or more walls of an adjacent building.
   2. Fences or barriers provided to reduce sound transmission or visually screen the equipment.
   3. Other outdoor units in a multi-unit installation.
   4. A combination of the above.
   5. Overhangs

The prime considerations involved in establishing minimum clearances are:
   1. Adequate airflow to the outdoor coil with minimum recirculation.
   2. Service access to the equipment.
   3. Compliance with the National Electric Code and other applicable codes.
   4. Design temperature - Design temperatures greater than 105°F require additional consideration.

I. In order to ensure adequate airflow reaches the condensing unit, size free air passages at 300 Feet Per Minute maximum velocity. See condensing unit airflow performance on page 19 of this document.

II. The importance of providing proper service access to equipment cannot be overemphasized. The HVAC service technician’s job may be performed with greater ease and lower cost if adequate service space is allowed.

III. Knowledge of the National Electric Code and other applicable codes for the job site location is a necessity in order to satisfy local inspectors. These codes are in place for serviceability as well as safety.

IV. Be sure to read all provisions and footnotes contained in this document.

V. Where ASHRAE design temperatures exceed 105°F, minimum operating clearances may increase.
1. Installation of a single condensing unit / heat pump with one side facing wall, fence, or other obstruction with free air space on top. *(See Figure 10)*

   A) For locations where the ASHRAE design ambient temperature is below 110°F:
      1) 6.0 inches clearance on 1 side. Three feet minimum clearance required from other three sides from any obstructions.
      2) Service access side - 3 feet minimum clearance required. Consult Local, State, and National Electric Codes for minimum service clearance.

   B) For locations where the ASHRAE design ambient temperature exceeds 110°F:
      Do not restrict any one side less than 1.0 foot. Refer to the unit’s installation manual or the following pages of this document for more information regarding unit clearances.

   ![Figure 12](image12)

   ![Figure 13](image13)

2. Installation of multiple condensing units / heat pump units with one side facing wall, fence, or other obstruction with free air space on top. *(See Figure 11)*

   A) For locations where the ASHRAE design ambient temperature is below 110°F:
      1) 6.0 inches clearance on 1 side. Three feet minimum clearance required from other three sides from any obstructions.
      2) Service access side - 3 feet minimum clearance required. Consult Local, State, and National Electric Codes for minimum service clearance.

   B) For locations where the ASHRAE design ambient temperature exceeds 110°F:
      Do not restrict any one side less than 1.0 foot. Refer to the unit’s installation manual or the following pages of this document for more information regarding unit clearances.
3. **Installation of a single unit in a corner with free air space on top.** *(See Figure 12)*

A) For locations where the design ambient temperature is below 105°F:
   1) 1.0 foot clearance on 2 sides - If foliage is to be placed by the unit’s other side, then allow 1.0 foot minimum clearance from the unit.
   2) Service access side - 3 feet minimum clearance required. Consult Local, State, and National Electric Codes for minimum service clearance.

B) For locations where the design ambient temperature exceeds 105°F:
   1) 1.5 feet clearance on 2 walls. - If foliage is to be placed by the unit’s other side, then allow 1.0 foot minimum clearance from the unit.
   2) Service access side - 3 feet minimum clearance required.

C) If unit is located in such a way that service panel is facing the wall
   1) NEC requires 3 feet minimum clearance between the unit and the wall
      a) This space may be increased to 3 1/2 feet. Consult the National Electric Code for more information regarding minimum clearances for working spaces.

4. **Installation of two or more units where two adjacent walls form a corner.** *(See Figure 13)*

A) For locations where the design ambient temperature is below 105°F:
   1) Note the unit base size and obtain the minimum clearance values from the table below.

B) For locations where the design ambient temperature exceeds 105°F:
   1) 2.0 feet clearance from both walls.
   2) 3.0 feet clearance in between units, unless service panels face each other. (if service panels face each other, this clearance may be increased to 4 feet per NEC)

C) If unit’s are located with the service panels facing the wall
   1) NEC requires minimum 3 feet between the unit and the wall
      a) This space may be increased to 3 1/2 feet. Consult the most current edition of the National Electric Code for more information regarding minimum clearances for working spaces.

![Figure 14](image_url)

5 feet minimum unrestricted top clearance shall be provided.

![Figure 15](image_url)

**Table 3 - Minimum Clearances**

<table>
<thead>
<tr>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>Service Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1.2'</td>
<td>1.2'</td>
<td>36&quot;</td>
</tr>
<tr>
<td>4</td>
<td>1.5'</td>
<td>1.4'</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>

5 feet minimum unrestricted top clearance shall be provided.
5. **Units surrounded on all four sides:** *(See Figure 14, 15, 16, 17 and 18)*

A. If installed unit(s) is / are surrounded by 2 walls and a solid fence, fence height on two sides shall be no higher than the height of the unit. In this application knockouts or louvers shall be provided on two sides minimum with free area to provide maximum 300 FPM velocity. Cutting a portion of the lower fence on two sides to accomplish 300 FPM maximum velocity is acceptable provided debris, dirt, and grass is prohibited from accumulating or growing to obstruct the opening. Refer to page 19 of this document for outdoor unit airflow. Please refer to table below for minimum clearances.

**Table 3 - Minimum Clearances**

<table>
<thead>
<tr>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>Service Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1.2’</td>
<td>1.2’</td>
<td>36”</td>
</tr>
<tr>
<td>4</td>
<td>1.5’</td>
<td>1.4’</td>
<td>36”</td>
</tr>
</tbody>
</table>

*If removable panels are used and acceptable to local inspection agency, the clearance to the removable panel may be reduced to (1.5 X the A dimension from Table 4)*

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**Figure 16**

**Figure 17**

**Figure 18**

**Figure 19**

**Figure 20**

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**Solid Fence:** If fence height is taller than unit(s), provide openings in fence that will provide maximum 300 FPM air velocity. These openings shall be located at the lower portion of the fence. If acceptable, the fence may be raised to provide open bottom clearance of fence height above the unit.
6. **Installation of multiple units on a pad / rooftop where the top clearance is open.** (See Figure 19)

A) Refer to minimum clearance table in the lower corner of this page for clearances.

B) National Electric Code requires 3 feet minimum (4 feet if certain conditions are present) clearance between service access panel and adjacent unit. If service access panel faces the wall, the required space between the wall and the unit shall be minimum 3 feet. (May require as much as 3 1/2 feet)

C) Walls shall not be higher than top of units.

D) National, State, and Local Codes must be observed.

E) If design outdoor dry bulb exceeds 105°F (40.6°C) add 1.0 Ft. to all dimensions.

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Table 3 - Minimum Clearances

<table>
<thead>
<tr>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>Service Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1.2’</td>
<td>1.2’</td>
<td>36”</td>
</tr>
<tr>
<td>4</td>
<td>1.5’</td>
<td>1.4’</td>
<td>36”</td>
</tr>
</tbody>
</table>
Electrical Code Information

Compliance with Local, State, and National Codes is a must on every HVAC Installation. This page discusses the criteria regarding minimum working spaces as defined in the 2008 National Electric Code. The main concern is the safety of the HVAC service / maintenance person. Minimum working clearances are specified in the National Electric Code (NEC) Article 110.26

For electrical equipment that from ground to power the voltage is 600 volts or less:
The National Electric Code specifically states that service area around electrical equipment shall provide sufficient access, and shall be properly maintained in order to permit safe operation and maintenance of the equipment. Figure 20 includes Table 110.26 from the National Electrical Code as well as Condition 1, 2, and 3 beside table 110.26. Conditions 1, 2, and 3 describe the minimum clearance for proper service and access to electrical equipment.

Trane residential and light commercial condensing units ranging from 1 to 6 ton require access to the side service panel as indicated on the previous pages as well those listed in Condition 1, 2, or 3 to gain access to the electrical controls.

Table 110.26(A)(1) Working Clearances

<table>
<thead>
<tr>
<th>Nominal Voltage to Ground</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-150</td>
<td>900 mm (3FT)</td>
<td>900 mm (3FT)</td>
<td>900 mm (3FT)</td>
</tr>
<tr>
<td>151-600</td>
<td>900 mm (3FT)</td>
<td>1 M (3.5FT)</td>
<td>1.2 mm (4FT)</td>
</tr>
</tbody>
</table>

Condition 1 - Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating materials. Insulated wire or insulated busbars operating at not over 300 volts to ground shall not be considered live parts.

Condition 2 - Exposed live parts on one side and grounded parts on the other side. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 - Exposed live parts on both sides of the work space (not guarded as provided in Condition 1) with the operator between.

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Section VI - Minimum Clearances From Vents: *(See Figure 21)*

This section deals specifically with installations in which a dryer vent, kitchen exhaust vent, or furnace vent is located near the condensing unit / heat pump unit.

A. Condensing units and heat pumps shall be located not less than five feet from clothes dryer vents.
   1. Do not locate the condensing unit / heat pump unit directly below a clothes dryer vent.

B. Condensing units and heat pumps units shall be located not less than three feet from any kitchen exhaust vent.
   1. Do not locate the condensing unit directly under a kitchen exhaust vent.

C. Condensing units and heat pump unit shall be located not less than three feet vertically from any natural gas appliance vent outlet or inlet in which the condensing unit / heat pump unit is within a 10 foot diameter of the appliance vent termination.

D. Code Compliance:
   1. Local, State and National codes shall be adhered to for all installations.

E. Manufacturers Instructions:
   1. Always consult the manufacturers instructional manuals. These manuals contain information specific to the device or appliance being installed.

F. Vents other than discussed in this document:
   1. The intent of this document is not to discuss every possible venting device nor all types of gasses, vapors, and spaces that are mechanically vented or naturally vented by draft. Please consult local, state and national codes. In the absence of codes, or if the installer is unfamiliar with local, state and national codes, a professional engineer or local building department should be utilized as a resource.
## Unit Dimensions for XR13 4TTR3 and 4TWR3

**Figure 24**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Model Number</th>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
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</thead>
<tbody>
<tr>
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<td>730 mm 282 3/4”</td>
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<td>730 mm 28 3/4”</td>
<td>829 mm 32 5/8”</td>
<td>756 mm 29 3/4”</td>
</tr>
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<td>4TTR3024D1</td>
<td>3</td>
<td>832 mm 32 3/4”</td>
<td>829 mm 32 5/8”</td>
<td>756 mm 29 3/4”</td>
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<td>832 mm 32 3/4”</td>
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<td>4TTR3036D1</td>
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<td>841 mm 33 1/8”</td>
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<td>946 mm 37 1/4”</td>
<td>870 mm 34 1/4”</td>
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<td>870 mm 34 1/4”</td>
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<td>1045 mm 41 1/8”</td>
<td>946 mm 37 1/4”</td>
<td>870 mm 34 1/4”</td>
</tr>
</tbody>
</table>

Table 4 - XR13 unit dimensions *(reference figure 22)*
## Unit dimensions XR15
4TTR5 and 4TWR5

**Table 5 - XR15 dimensions (reference figure 23)**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Model Number</th>
<th>Base Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4TTR5018E1000A</td>
<td>3</td>
<td>730 mm</td>
<td>829 mm</td>
<td>756 mm</td>
<td>4TWR5018E1000A</td>
<td>4</td>
<td>841 mm</td>
<td>946 mm</td>
<td>870 mm</td>
</tr>
<tr>
<td>4TTR5024E1000A</td>
<td></td>
<td>32 3/4&quot;</td>
<td>32 5/8&quot;</td>
<td>29 3/4&quot;</td>
<td>4TWR5024E1000A</td>
<td></td>
<td>33 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5030E1000A</td>
<td>4</td>
<td>841 mm</td>
<td>946 mm</td>
<td>870 mm</td>
<td>4TWR5030E1000A</td>
<td>4</td>
<td>1045 mm</td>
<td>946 mm</td>
<td>870 mm</td>
</tr>
<tr>
<td>4TTR5042E1000A</td>
<td></td>
<td>33 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5042E1000A</td>
<td></td>
<td>41 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5036E1000A</td>
<td>4</td>
<td>1045 mm</td>
<td>946 mm</td>
<td>870 mm</td>
<td>4TWR5036E1000A</td>
<td>4</td>
<td>1045 mm</td>
<td>946 mm</td>
<td>870 mm</td>
</tr>
<tr>
<td>4TTR5042E1000A</td>
<td></td>
<td>41 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5042E1000A</td>
<td></td>
<td>41 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5048E1000A</td>
<td>4</td>
<td>1147 mm</td>
<td>946 mm</td>
<td>870 mm</td>
<td>4TWR5048E1000A</td>
<td>4</td>
<td>1147 mm</td>
<td>946 mm</td>
<td>870 mm</td>
</tr>
<tr>
<td>4TTR5049E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5049E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5060E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5060E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5061E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5061E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5060E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5060E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
<tr>
<td>4TTR5061E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
<td>4TWR5061E1000A</td>
<td></td>
<td>45 1/8&quot;</td>
<td>37 1/4&quot;</td>
<td>34 1/4&quot;</td>
</tr>
</tbody>
</table>

Figure 25
Example:

Given:
Qty of 4 units in a mechanical yard, surrounded by a fence. Units are 4TTR5042E1000A’s -

Required:
Determine free air opening space required in fence -

Solution:
4420 CFM X Qty of 4 = 17,680 CFM
17680 CFM / 300 FPM = 58.9 square feet
Round 58.9 to 59 square feet of free air opening in the 4 fence sections surrounding the mechanical yard.

Table 6 - XR13 and XR15 Outdoor Unit Airflow

<table>
<thead>
<tr>
<th>XR13 Cooling Units</th>
<th>XR13 Heat Pump Units</th>
<th>XR15 Cooling Units</th>
<th>XR15 Heat Pump Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Model Number</td>
<td>CFM</td>
<td>Unit Model Number</td>
<td>CFM</td>
</tr>
<tr>
<td>4TTR3018D1000A</td>
<td>2745</td>
<td>4TWR3018B1000A</td>
<td>2769</td>
</tr>
<tr>
<td>4TTR3024D1000A</td>
<td>2745</td>
<td>4TWR3024B1000A</td>
<td>2693</td>
</tr>
<tr>
<td>4TTR3030D1000A</td>
<td>2745</td>
<td>4TWR3030B1000A</td>
<td>2635</td>
</tr>
<tr>
<td>4TTR3036D1000A</td>
<td>2805</td>
<td>4TWR3036B1000A</td>
<td>4303</td>
</tr>
<tr>
<td>4TTR3042D1000A</td>
<td>4170</td>
<td>4TWR3042B1000A</td>
<td>4385</td>
</tr>
<tr>
<td>4TTR3048D1000A</td>
<td>3870</td>
<td>4TWR3048B1000A</td>
<td>4762</td>
</tr>
<tr>
<td>4TTR3060D1000A</td>
<td>4340</td>
<td>4TWR3060B1000A</td>
<td>4748</td>
</tr>
<tr>
<td>4TTR5049E1000A</td>
<td>4240</td>
<td>4TTR5049E1000A</td>
<td>4240</td>
</tr>
<tr>
<td>4TTR5061E1000A</td>
<td>4740</td>
<td>4TTR5061E1000A</td>
<td>4740</td>
</tr>
</tbody>
</table>

Required Opening = CFM / 300 FPM
VII. Nameplate Electrical Data

Figure 26

Voltage Range - Units are tested at 10% below the lowest rated voltage and 10% above the highest rated voltage.

Ph - 1 for single phase, 3 denotes three phase

Hz - Frequency

Minimum Circuit Ampacity - the lowest current in which the branch circuit conductor shall be rated. Reference National Electrical Code, local electrician or local building authority for assistance with wire sizing. (reference NEC Article 440.35)

Minimum Fuse / Breaker (HACR) - if this marking is present on the nameplate indicates the lowest rated overcurrent branch circuit protection device allowed for the appliance. (reference NEC Article 440.22)

Maximum Fuse / Breaker (HACR) - the largest rated overcurrent branch circuit protection device allowed for the appliance.

Please note that all installations shall comply to the codes adopted by the authority having jurisdiction. Questions regarding adopted codes should be directed to the local building department prior to installation. Articles from the National Electric Code include but are not limited to:

- Article 210 - Branch Circuits
- Article 240 - Overcurrent Protection
- Article 310 - Conductors for General Wiring
- Article 422 - Appliances
- Article 424 - Fixed Electric Space Heating Equipment
- Article 430 - Motors, Motor Circuits, and Controllers
- Article 440 - Air Conditioning and Refrigerating Equipment

Figure for reference only