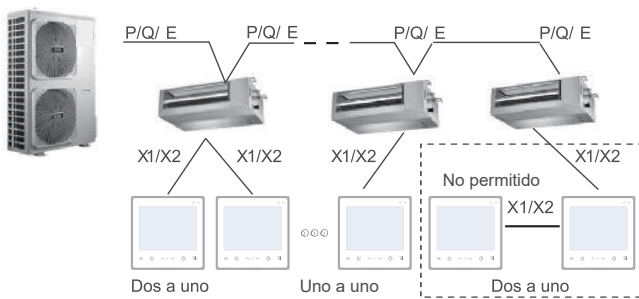


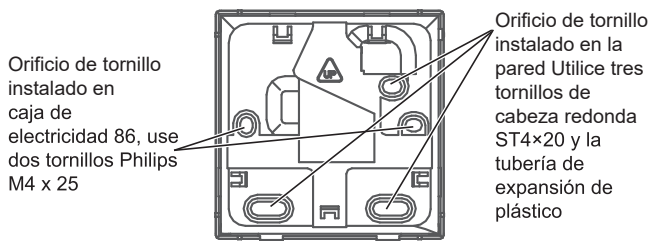
Instalación

Dos a uno

- Aplicable a la comunicación bidireccional entre el controlador cableado y la IDU.
- Dos a uno: dos controladores cableados controlan una IDU. Los parámetros mostrados en el controlador cableado se actualizan en tiempo real de acuerdo con los cambios en los parámetros de la IDU.
- Dos a uno: el controlador cableado debe configurarse como principal o secundario.
- Consulte "Configuración del parámetro C00"
- La longitud de cableado máxima permitida del sistema es de 200 m.

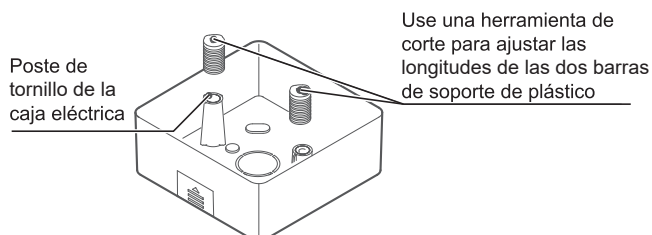


4.2.2 Instalación de la cubierta inferior del controlador cableado



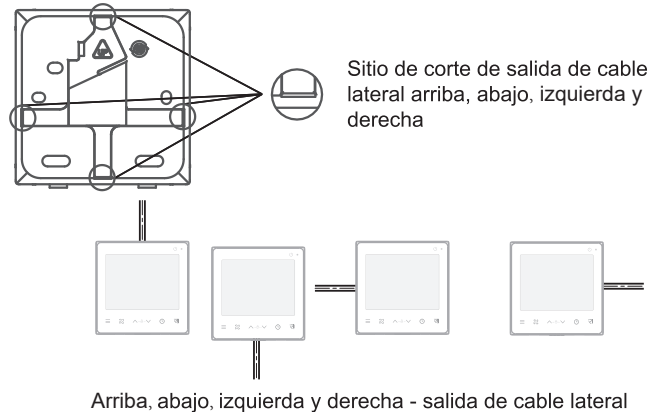
Al estar instalado en la caja eléctrica 86:

Ajuste las longitudes de las dos barras de soporte de plástico en el paquete de accesorios. Asegúrese de que la cubierta inferior del controlador cableado se mantenga nivelada con la pared en la instalación en el poste de tornillo de la caja eléctrica.

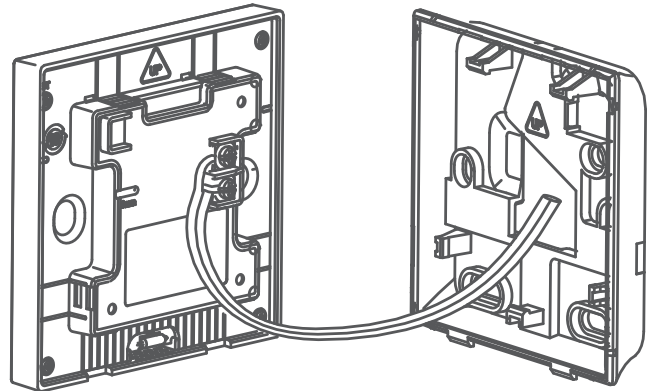


En instalación en pared:

El cable puede colocarse en la salida o en el interior. La salida del cable tiene cuatro lados para seleccionar.



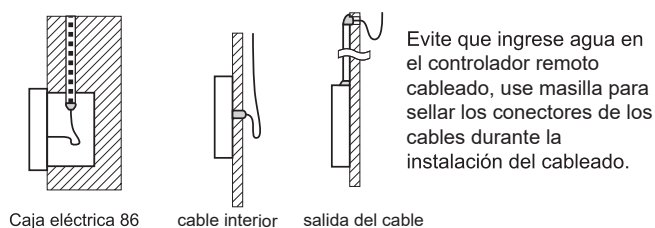
4.2.3 Lleve el cable apantallado de 2 polos a través del orificio de cableado en la cubierta inferior del controlador cableado, y use tornillos para ajustar firmemente el cable apantallado en las terminales X1 y X2. Luego, fije la cubierta inferior del controlador cableado en la caja eléctrica con los tornillos de cabeza troncocónica.



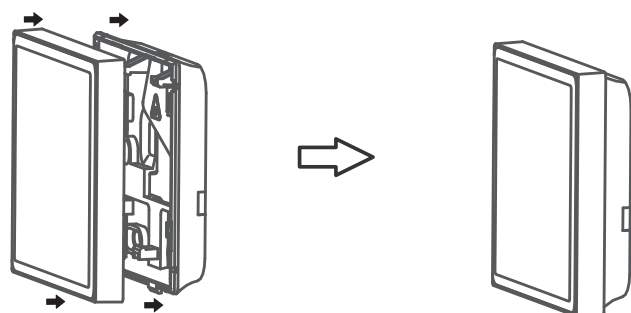
Nota

No realice operaciones de cableado en piezas energizadas. Asegúrese de extraer el controlador cableado antes de proceder. De lo contrario, podría dañarse.

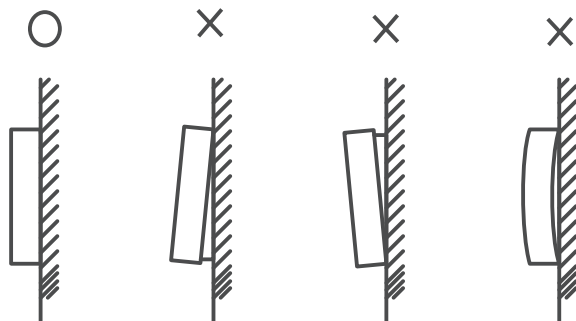
No ajuste por demás los tornillos de cabeza troncocónica; de lo contrario, la cubierta inferior del controlador cableado puede deformarse y no podrá nivelarse en la superficie de la pared, lo que dificulta la instalación o genera una mala instalación.



4.2.4 Enganche el controlador cableado y la cubierta trasera, tal como se muestra en la siguiente figura.



Enganchados correctamente



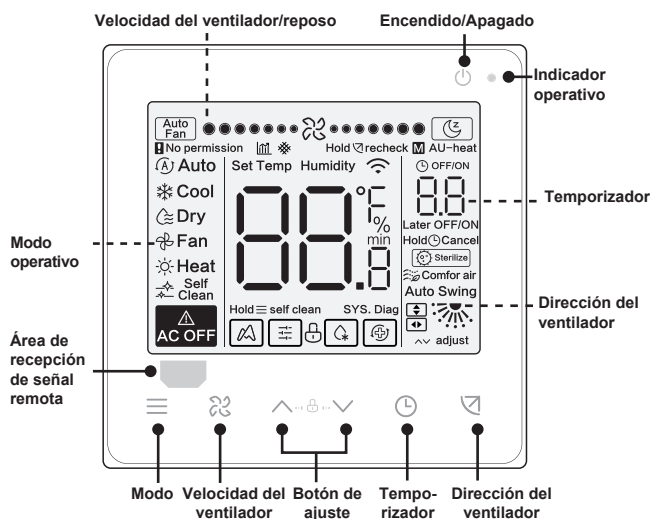
Nota

Asegúrese de que no haya ningún cable aprisionado al enganchar el controlador cableado con la cubierta inferior.

El controlador cableado y la cubierta inferior deben instalarse correctamente. De lo contrario, pueden aflojarse y desprenderse.

5. Instrucciones operativas

5.1 Explicación del panel de control



5.2 Explicación de la pantalla

N.º	Ícono	Nombre	Descripción
1		Atenuación de eficiencia energética	Titilará cuando se atenúe la eficiencia energética de la IDU. Cuando la "Configuración de parámetro C17" esté configurada en "yes" (Si), la pantalla mostrará el porcentaje de Atenuación de eficiencia energética cuando el controlador cableado esté en modo apagado. Se mostrará el porcentaje de Eficiencia energética y el porcentaje de bloqueo de filtro en forma alternada en modo apagado si la "Configuración de parámetro C17 y C18" está configurada en "yes".
2		Modo de reposo	Se iluminará cuando la unidad esté en modo de reposo
3		Función ETA de Trane	Se iluminará cuando se active la función ETA de Trane.
4		Bloqueo de tecla	Consulte la página 24
5		Modo descongelamiento	Consulte la página 24
6		Modo de bloqueo	Se iluminará cuando se bloquee el modo del controlador.
7		Modo de respaldo	Titilará cuando la IDU esté en estado de respaldo.
8		Bloqueo de filtro	Consulte la página 25
9		Principal/ Secundario	Se iluminará cuando se configure el controlador como controlador principal.

Instrucciones operativas

5.3 Instrucciones operativas

Encendido/Apagado



Presione "⏻" para encender o apagar la IDU.

⚠ Información

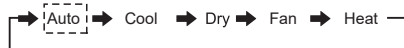
La pantalla y el indicador operativo se atenúan cuando se apaga la unidad.

 Se muestra el ícono cuando la IDU está apagada.

Selección de modo



Cada vez que se presiona "≡", el modo operativo cambia según el orden que aparece a continuación (El modo Auto es específico de algunos modelos):



Temperatura configurada



Excepto por el modo ventilador, presione "▲" o "▼" para ajustar la temperatura interior configurada.

Mantener presionado el botón puede aumentar o disminuir rápidamente el valor de la temperatura.

5.3.1 Configuración de la temperatura en modo Auto

En modo Auto, presione "▲" y "▼". Titilarán los íconos "Cool" y "Heat". Presione "↕" para seleccionar la temperatura configurada para enfriamiento o calentamiento. Titila la pantalla digital en el área de visualización de la temperatura. Presione "▲" y "▼" para ajustar la temperatura y presione "↕" para confirmar la temperatura, o la temperatura se confirmará automáticamente 3 segundos más tarde, y luego se sale de esta pantalla.

En modo Auto, el controlador cableado muestra Auto/Cool o Auto/Heat. Cuando la IDU funciona para el enfriamiento en modo Auto, se iluminarán los íconos "Auto" y "Cool"; cuando la IDU funciona para el calentamiento en modo Auto, se iluminarán los íconos "Auto" y "Heat".

5.3.2 Función de limpieza automática

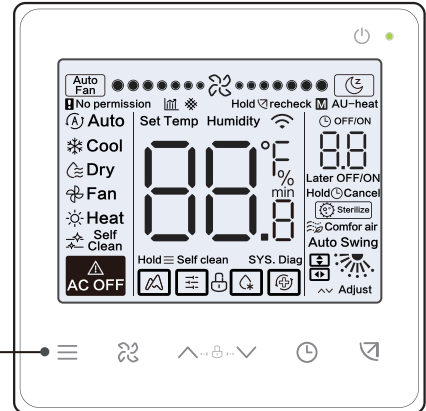
Función de limpieza automática



Presione y mantenga presionado "≡" por 2 segundos para iniciar la función de limpieza automática.

El proceso de limpieza automática tarda unos 50 minutos y se divide en cuatro pasos:

Procesando → Congelando → Derritiendo y limpiando → Secando



Mantenga presionado por 2 segundos

Cuando se completa la función de limpieza automática, la IDU se apaga.

⚠ Información

Para salir de la función de limpieza automática durante el funcionamiento, presione "⏻".

Algunos modelos no tienen la función de limpieza automática.

Para más información, consulte el manual de la IDU.

Cuando se habilita la función de limpieza automática, todas las unidades interiores (que comparten la misma unidad exterior) comienzan el proceso de función de limpieza automática.

Durante el proceso de la función de limpieza automática, la IDU podría expulsar aire frío o caliente.

5.3.3 Configuración de la velocidad y dirección del ventilador

Ajuste de la velocidad del ventilador



Presione "⌘" para ajustar la velocidad del ventilador, que abarca desde Auto, 7 velocidades y modo de reposo.



⚠ Información

Una vez que transcurran 8 horas en modo de reposo, se atenúa el ícono "☾" y la unidad saldrá del modo automáticamente.

Presione el botón de velocidad del ventilador para salir del modo de reposo.

En modo Auto y modo Dry, la velocidad del ventilador es automática de manera predeterminada, y la velocidad del ventilador no puede ajustarse.

Según los modelos de IDU, se puede configurar una velocidad de 3 o de 7.

La IDU puede ajustar las velocidades del ventilador según la temperatura interior, manteniendo la eficiencia. Por lo tanto, es normal si la velocidad del ventilador en tiempo real difiere de la velocidad del ventilador configurada, o se detendrá el ventilador.

Cuando se configure la velocidad del ventilador, la IDU tardará un tiempo en responder. Es normal si la IDU no responde de inmediato a la configuración.

Configuración de oscilación Al presionar "↕", la dirección del ventilador cambia en esta secuencia:



⚠ Información

Se aplica a las IDU con paneles eléctricos de salida de aire.

Cuando se cierra la unidad, el controlador cableado cierra automáticamente las rejillas de los paneles de salida de aire.

Para las unidades con la función de oscilación arriba/abajo e izquierda/derecha, siga los pasos a continuación para cambiar el ángulo de oscilación.

Al presionar "↕", "↕" se ilumina, y titila el ángulo de oscilación hacia arriba y abajo de 2 Hz. Presione "∧" y "∨" para cambiar el ángulo, y se envía el código después de 0,5 segundos. Al presionar "↕", "↕" se ilumina, y titila el ángulo de oscilación hacia la izquierda y derecha de 2 Hz.

Presione "∧" y "∨" para cambiar el ángulo, y se envía el código después de 0,5 segundos. Luego, presione "↕" para salir de la configuración de ángulo de oscilación. La interfaz muestra el ángulo configurado hacia arriba y abajo. En este momento, se ilumina "↕" y se atenúa "↕".

↕ oscilación arriba/abajo:

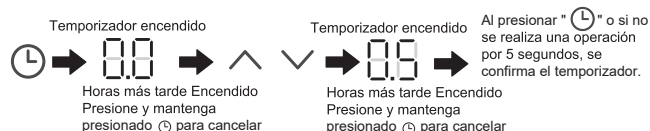


↔ oscilación arriba/abajo:

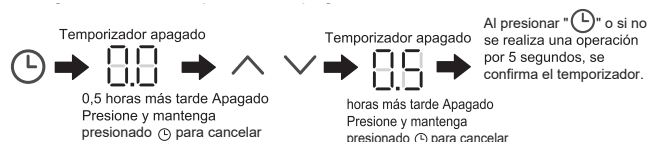


5.3.4 Configuración del temporizador

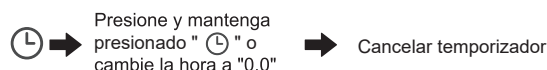
Configuración de Temporizador encendido:



Configuración de Temporizador apagado:



Cancelación de la función de temporizador:



⚠ Información

Se puede configurar el Temporizador apagado cuando la IDU esté encendida y el Temporizador encendido puede configurarse cuando la IDU está apagada.

5.3.5 Calentador auxiliar encendido/apagado

Esta función opera en modo calentamiento.

Calentador auxiliar automático encendido:

En modo calentamiento, el calentador auxiliar se habilitará automáticamente según la temperatura ambiente y, en esta instancia, la IDU funciona en modo Calentador auxiliar automático encendido.

Calentador auxiliar encendido:



Calentador auxiliar apagado:



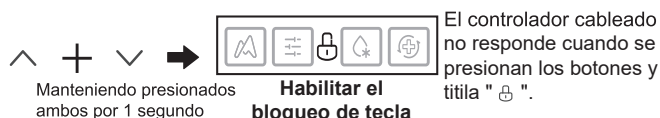
Instrucciones operativas

! Información

El calentador auxiliar es un componente de calefacción auxiliar para la IDU, pero aumenta el consumo energético cuando comienza a funcionar.

5.3.6 Configuración del bloqueo de las teclas

Habilitar el bloqueo de tecla:



Deshabilitar el bloqueo de tecla:



5.3.7 Recordatorio de descongelamiento



Cuando se acumula escarcha en la superficie de la unidad exterior, el efecto de calentamiento se verá comprometido. En este caso, la unidad comienza a descongelar automáticamente.

5.3.8 Recordatorio de limpieza de filtro

Cuando el tiempo operativo alcanza el tiempo preconfigurado, el ícono de Filtro "❌" titilará para recordarle al usuario que limpie el filtro.

- Presione y mantenga presionado el botón "↶" por 3 segundos para borrar el ícono de Filtro "❌".
- Vaya a "Configuración de parámetro C03" para activar/desactivar esta función o preestablecer el tiempo de esta función.
- El controlador cableado no tiene una función de recordatorio de limpieza de filtro.

Pantalla de bloqueo del filtro de la IDU

Después de abrir la función de pantalla de bloqueo de filtro de la IDU desde "Configuración de parámetro C18", cuando el controlador cableado está en modo apagado, la pantalla mostrará el porcentaje de bloqueo del filtro de la IDU.

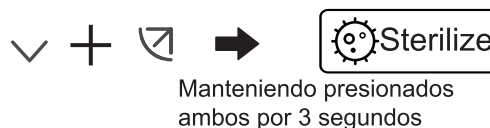
Nota

Si se selecciona el flujo de aire constante para la IDU, se establecerá la resistencia del filtro a través del controlador cableado. Cuanto menor sea este valor, mayor será la frecuencia en la que deberá limpiar el filtro. Sin embargo, esta acción ahorra más energía y es más saludable. Si el valor configurado es demasiado alto, su unidad funcionará por más tiempo sin realizar ningún mantenimiento. No obstante, consumirá más energía y acumulará más polvo.

5.3.9 Modo esterilización

Solo funciona con una IDU que contiene un módulo de esterilización.

Habilitar el modo esterilización:



Deshabilitar el modo esterilización:



! Información

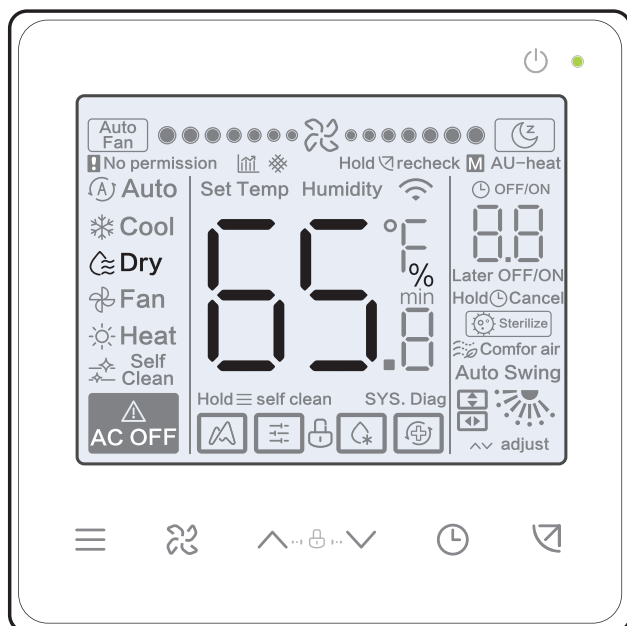
En la página de Puesta en marcha del proyecto, podrá habilitar o deshabilitar la función de esterilización.

El parámetro N42 de la página de configuración de ingeniería le permite configurar el módulo de esterilización.

Funciona solo con la IDU que tenga la función de esterilización.

El módulo de esterilización se detiene cuando se habilita la función de oscilación, y no reanuda la operación hasta que se deshabilite la función de oscilación.

5.3.10 Configuración de humedad



En modo Dry, presione "∧" y "∨" para cambiar la humedad en el rango 35-75 %.

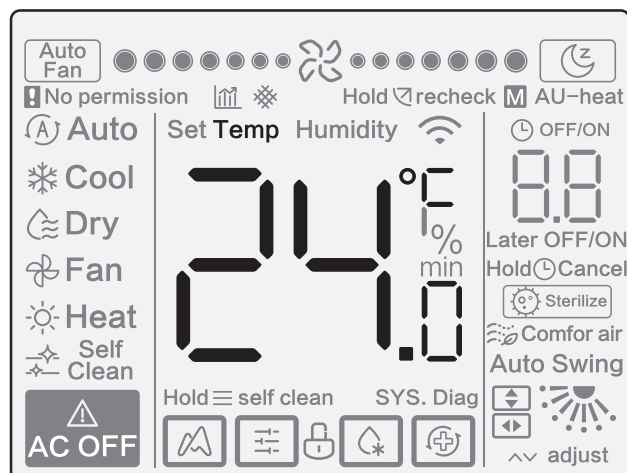
⚠ Información

Esta función solo se aplica cuando se usa un sensor de humedad.

La humedad es del 65 % de manera predeterminada cuando el controlador cableado se enciende por primera vez.

Cada vez que presione "∧" y "∨", el valor cambia en un 1 %. Mantenga presionado el botón para acelerar su operación.

5.3.11 Pantalla de temperatura interior

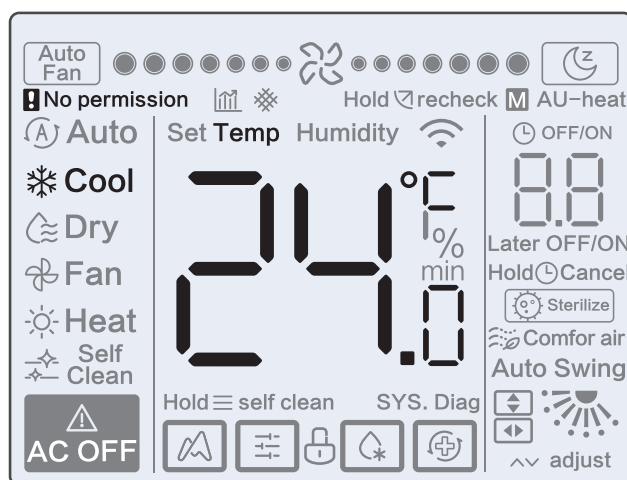


- Se puede configurar esta función a través del controlador cableado estableciendo el parámetro C05 "si se visualiza la temperatura ambiente interior".
- Presione cualquier botón en la pantalla para volver a la página anterior.

5.3.12 Funciones del controlador cableado principal/secundario

- Cuando dos controladores cableados controlan una unidad interior al mismo tiempo (sistema 2 a 1), un controlador será el Principal y el otro el Secundario.
- El controlador cableado principal, y no el secundario, le permite configurar el temporizador y los parámetros de la IDU.

5.4 Recordatorio de conflicto de modos



Cuando la unidad interior detecta un conflicto de modos, el ícono "No permission" titila con la pantalla del modo actual.

5.5 Puesta en marcha del proyecto

5.5.1 Restablecimiento de la configuración de fábrica

- Al mantener presionado "∞", "⏻" y "↶" al mismo tiempo por 5 segundos, se puede reiniciar y restablecer la configuración del parámetro del controlador cableado.

5.5.2 Identificación automática de modelos

- El controlador cableado puede identificar automáticamente el modelo de la IDU. Sobre esta base, el controlador cableado actualiza automáticamente la información, como la condición de verificación de punto y el código de error de la IDU.

5.5.3 Consulta de dirección de la IDU

- Si la unidad interior no tiene una dirección, el controlador cableado mostrará el error U38.
- Presione y mantenga presionado " y " al mismo tiempo por 5 segundos para ingresar a la interfaz de consulta de dirección de la IDU. Presione " para salir de la interfaz.
- Una vez que esté en la página de consulta de direcciones, el controlador cableado muestra la dirección actual si la unidad interior tiene una dirección.
- Se pueden configurar las direcciones para permitir el control de una IDU a través de un controlador o dos controladores (puede establecer en el controlador cableado principal, no en el controlador cableado secundario). Presione y mantenga presionado " y " por 5 segundos para ingresar a la interfaz de configuración y consulta de dirección de la IDU. Luego, presione " y el área de números comenzará a titilar. Presione " y " para cambiar la dirección y presione " para confirmar sus cambios. El controlador cableado saldrá automáticamente de la página de configuración de dirección si no se realiza una operación en 60 segundos, o puede presionar " para salir de esta página.

Información

En el estado de configuración y consulta de dirección, el controlador cableado no responde a ninguna señal de control remoto, ni tampoco envía una.

5.5.4 Configuración de parámetros del controlador cableado

- Se pueden configurar los parámetros en el estado de encendido o apagado.
- Mantenga presionado " y " por 3 segundos para ingresar a la interfaz de la configuración de parámetros.
- Luego de ingresar a la configuración de la interfaz de parámetros, la ODU muestra u00, la IDU muestra n00-n63 y el controlador cableado muestra CC. Presione " y " para cambiar el código del parámetro. Configure los parámetros de acuerdo con la Tabla de configuración de parámetros. Presione "Swing" (Oscilar) para ingresar a la interfaz de parámetros. Luego, presione " y " para cambiar el valor y presione " para guardar los cambios.
- Presione el botón " para regresar a la página anterior hasta salir de la configuración de parámetros o salir de la configuración de parámetros después de 60 segundos sin ninguna operación.
- Cuando ingrese a la página de configuración de parámetros, el controlador cableado no responde a ninguna señal del controlador remoto.
- Cuando está en la página de configuración de parámetros, el modo, la velocidad del ventilador y los botones del interruptor no son válidos.
- El parámetro C14 le permite volver a la pantalla de inicio después de presionar ".

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
C00	Configuración del controlador cableado principal y secundario	0 indica el controlador cableado principal y 1 indica el controlador cableado secundario	0	Si hay dos controladores cableados que controlan una IDU, las direcciones para los dos controladores cableados deben ser diferentes. El usuario no puede configurar parámetros de la IDU a través del controlador cableado secundario (dirección 1), pero puede configurar el controlador cableado.
C01	Configuración solo enfriamiento / Enfriamiento y calentamiento	00: Enfriamiento y calentamiento 01: Solo enfriamiento	00	El modo calentamiento no está disponible en la configuración solo enfriamiento
C02	Configuración de la función de memoria de falla energética para el controlador cableado	00: Ninguno 01: Disponible	00	Para un controlador cableado de dos vías, se usa este parámetro para almacenar el estado de Sígueme.
C03	Tiempo para recordarle al usuario que limpie el filtro del controlador cableado	00/01/02/03/04	01	00: No hay un recordatorio para limpiar el filtro 01: 500 h, 02: 1000 h 03: 2500 h 04: 5000 h
C04	Configuración para el receptor infrarrojo del controlador cableado	00: Deshabilitar 01: Habilitar	01	Cuando "Deshabilitar el receptor infrarrojo del controlador cableado" está activado, el controlador cableado no puede recibir la señal del controlador remoto.
C05	Si se visualiza la temperatura ambiente interior	00: No 01: Sí	00	
C06	Indicador LED del controlador cableado	00: Apagado 01: Encendido	01	Cuando está encendido, el indicador LED muestra el estado encendido/apagado de la unidad interior. Cuando está apagado, el indicador LED está apagado.
C07	Corrección de la temperatura Sígueme del controlador cableado	-5,0 a 5,0 °C	Celsius: -1,0	Nota: La precisión es de 0,5 °C.
C08	Límite inferior de la temperatura de enfriamiento	16 °C a 30 °C	IDU TVR Connect e IDU de 3ª generación: 16 °C FAPU: 13 °C Kit de AUH: 10 °C	
C09	Límite superior de temperatura de enfriamiento	16 °C a 30 °C	30 °C	
C10	Límite inferior de la temperatura de calentamiento	TVR Connect : °C: 16 °C -30 °C ((predeterminado 16 °C) TVR Ultra: °C: 17 °C -30 °C ((predeterminado 17 °C)	TVR Connect: 16 °C TVR Ultra: 17 °C FAPU: 13 °C Kit de AUH: 10 °C	

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
C11	Límite superior de la temperatura de calentamiento	16 °C a 30 °C	30 °C	
C12	Configurado para mostrar 0,5 °C	00/01	01	00: No 01: Sí
C13	Configuración de la luz del botón del controlador cableado	00/01	01	00: Apagado 01: Encendido
C14	Envía los parámetros de configuración almacenados en el controlador cableado hacia la IDU en un clic	00/01/02/03/04	01	Los últimos parámetros de configuración almacenados en el controlador cableado cambiarán luego del encendido por dos horas o después de que cambien los parámetros de configuración del controlador cableado. Nota: 1: Aplicable a un escenario de uno a uno 2: Solo para IDU de segunda generación
C15	Timbre de los sonidos del controlador cableado	00/01	01	00: No 01: Sí
C16	Hora con luz de fondo	00/01/02	00	00: 15 s 01: 30 s 02: 60 s
C17	Si se muestra la atenuación de eficiencia energética al apagarse	00/01	00	00: No 01: Sí
C18	Si se muestra el bloqueo del filtro de la IDU al apagarse	00/01	00	00: No 01: Sí
C19	Selección de temperatura T1	F0/F1/F2/F3/...#IDU	F1	F0: Sensor de temperatura T1 de la IDU F1: Sígueme, N.º de IDU (IDU conectadas al sistema, de 0 a 63) (Nota: el controlador cableado secundario no responde a Sígueme) F2: Segundo sensor de temperatura (reservado) F3: Sensor de tierra (reservado)
C20	Configuración de dirección de oscilación	00/01	00	00: Avance (Predeterminado) 01: Retroceso

5.5.5 Configuración de parámetros de IDU (IDU de 2° generación)

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N00	Configuración de presión estática de la IDU	Nivel de presión estática de la IDU: 00/01/02/03/04/05/06/ 07/08/0 9/~19/FF	02	La IDU establece la presión estática correspondiente seleccionada (unidad VRF: DIP del panel principal de la IDU, otros modelos: reservado)
N01	Configuración de la función de memoria de falla energética de la IDU	00/01	01	00: Ninguno 01: Disponible
N02	Configuración de oscilación hacia arriba/abajo de la IDU	00/01	01	00: Ninguno 01: Disponible
N03	Configuración de oscilación hacia la derecha/izquierda de la IDU	00/01	01	00: Ninguno 01: Disponible
N04	Si el panel de visualización de la IDU recibe las señales del controlador remoto	00/01	00	00: Sí 01: No
N05	Timbre de los sonidos de la IDU	00/01	01	00: No 01: Sí
N06	Configuración de luz (panel de visualización)	00/01	01	00: Apagado 01: Encendido
N07	Unidad de temperatura	00/01	00	00: Celsius 01: Fahrenheit
N08	Intervalo de tiempo de conversión de modo en modo automático (mín.)	00/01/02/03	00	00: 15 min. 01: 30 min. 02: 60 min. 03: 90 min.
N10	Si la IDU tiene un calentador auxiliar	00/01	01	00: Ninguno 01: Disponible
N11	Configura el valor de la temperatura exterior cuando el calentador auxiliar está encendido	-5 a 20 °C	15 °C	Nota: La precisión es de 1 °C.
N16	Calentador auxiliar encendido/apagado	00/01/02	00	00: Auto 01: Forzado encendido 02: Forzado apagado

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N17	Configuración de temperatura de prevención de corriente de aire fresco de la IDU	00/01/02/03/FF	00	IDU común: 00: 15 °C, 01: 20 °C, 02: 24 °C, 03: 26 °C, FF: DIP de panel principal de la IDU FAPU: 00: 14 °C, 01: 12 °C, 02: 16 °C, 03: 18 °C, FF: reservado
N20	Configuración de la velocidad del ventilador en modo reserva de calentamiento	0/1/14	0	0: Térmico 1: Velocidad 1 14: Velocidad del ventilador antes de ingresar al modo reserva
N21	Hora para apagar el ventilador de la IDU (térmico)	00/01/02/03/04/FF	01	00: Ventilador encendido 01: 4 min. 02: 8 min. 03: 12 min. 04: 16 min. FF: DIP de panel principal de la IDU
N22	Selección de la apertura de la EXV en modo reserva de calentamiento	00/01/02	01	00: 56 P 01: 72 P 02: 0P FF: DIP de panel principal de la IDU
N23	Temperatura de la diferencia del retorno de enfriamiento	00/01/02/03/04	00	00: 1 °C 01: 2 °C 02: 0,5 °C 03: 1,5 °C 04: 2,5 °C
N25	Compensación de temperatura de calentamiento de la IDU	00/01/02/03/04	00	Unidad VRF: 00: 6 °C, 01: 2 °C, 02: 4 °C, 03: 6 °C, 04: 0 °C, FF: DIP de panel principal de la IDU Unidad split: 00: 6 °C, 01: 2 °C, 02: 4 °C, 03: 8 °C, 04: 0 °C, FF: reservado Unidad VRF Mini: 00: 6 °C, 01: 2 °C, 02: 4 °C, 03: 8 °C, 04: 0 °C, FF: reservado Nota: El controlador cableado envía solo el nivel de velocidad en vez de otros valores a la IDU

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N26	Compensación de temperatura del enfriamiento de la IDU	00/01/02/03/04/FF	00	<p>Unidad VRF: 00/01/FF, 00: 0 °C, 01: 2 °C, FF: DIP de panel principal de la IDU</p> <p>Unidad split: 00/01/02/03/FF, 00: °C, 01: 1 °C, 02: 2 °C, 03: 3 °C, FF: reservado</p> <p>Unidad VRF Mini: 00/01/02/03/04/FF, 00: °C, 01: 1 °C, 02: 2 °C, 03: 3 °C, 04: -1 °C, FF: reservado</p> <p>Nota: El controlador cableado envía solo el nivel de velocidad en vez de otros valores a la IDU</p>
N28	Límite superior de la velocidad automática del ventilador en modo enfriamiento	4/5/6/7	5	<p>4: Velocidad 4</p> <p>5: Velocidad 5</p> <p>6: Velocidad 6</p> <p>7: Velocidad 7</p>
N29	Límite superior de la velocidad automática del ventilador en modo calentamiento	4/5/6/7	6	<p>4: Velocidad 4</p> <p>5: Velocidad 5</p> <p>6: Velocidad 6</p> <p>7: Velocidad 7</p>
N30	Selección de flujo de aire constante	00/01	01	00: Velocidad constante 01: Flujo de aire constante
N42	Configuración de la función de esterilización	00/01	00	00: Sin función de esterilización (predeterminado) 01: Desinfección plasmática
N43	Configuración de esterilización	01/02	02	01: encendido 02: apagado
N44	Configuración de modo silencioso	00/01	00	00: Apagado 01: Encendido
N45	ECO	00/01	01	00: Apagado 01: Encendido
N46	Tiempo de secado en limpieza automática	0/1/2/3	0	<p>0: 10 min.</p> <p>1: 20 min.</p> <p>2: 30 min.</p> <p>3: 40 min.</p>
N57	Factor de ajuste de la velocidad del ventilador en el sitio	00/01	00	<p>00: 1</p> <p>01: 1,1</p>

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N58	Detección de presión estática inicial	00/01	00	00: No restablecido 01: Restablecido
N61	Contacto seco de aire fresco 1	00/01	00	Función de 2° generación 00: Desconectar; 01: Iniciar
N62	Contacto seco de aire fresco 2	00/01	00	Función de 2° generación 00: Desconectar; 01: Iniciar
N63	Contacto seco de aire fresco 3	00/01	00	Función de 2° generación 00: Desconectar; 01: Iniciar

5.5.6 Configuración de parámetros de IDU (IDU TVR Connect e IDU de 3° generación)

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N00	Presión estática de la IDU	Nivel de presión estática de la IDU: 00/01/02/03/04/05/06/07/08/09/~19	02	La IDU establece la presión estática correspondiente seleccionada (unidad VRF: DIP del panel principal de la IDU, otros modelos: reservado)
N01	Configuración de la función de memoria de falla energética de la IDU	00/01	01	00: Ninguno 01: Disponible
N02	Configuración de oscilación hacia arriba/abajo de la IDU	00/01/02/03/04	01	00: Ninguno 01: Disponible 02/03: Reservado 04: Cuatro ventilaciones de aire Q4/Qmin Nota: la IDU puede identificar automáticamente la oscilación hacia arriba/abajo, por lo que esta función es inválida
N03	Configuración de oscilación hacia la derecha/izquierda de la IDU	00/01	01	00: Ninguno 01: Disponible Nota: la IDU puede identificar automáticamente la oscilación hacia arriba/abajo, por lo que esta función es inválida

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N04	Si el panel de visualización de la IDU recibe las señales del controlador remoto	00/01	00	00: Sí 01: No
N05	Timbre de los sonidos de la IDU	00/01/02	02	00: No 01: Sí 02: solo controladores remotos
N06	Configuración de luz (panel de visualización)	00/01	01	00: Apagado 01: Encendido
N07	Unidad de temperatura	00/01	00	00: Celsius 01: Fahrenheit
N08	Intervalo de tiempo de conversión de modo en modo automático (mín.)	00/01/02/03	00	00: 15 min. 01: 30 min. 02: 60 min. 03: 90 min.
N11	Configura el valor de la temperatura exterior cuando el calentador auxiliar está encendido	-25~20 °C	0 °C	Nota: los valores son exactos en 1 °C o 1 °F °F: (-13)~68 °F
N12	Temperatura interior cuando el calentador auxiliar está encendido	10 °C a 30 °C	24 °C	(La precisión es de 1 °C)
N13	Diferencia de temperatura T1 cuando el calentador auxiliar está encendido	0-7	4	0-7 indica 0 - 7 °C (La precisión es de 1 °C)
N14	Diferencia de temperatura T1 cuando el calentador auxiliar está apagado	0-10	6	0-10 indica -4 - 6 °C (La precisión es de 1 °C)
N15	Calentador auxiliar utilizado solo	00/01	00	00: No 01: Sí
N16	Calentador auxiliar encendido/apagado	00/01/02	00	00: Auto 01: Forzado encendido 02: Forzado apagado

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N17	Configuración de temperatura de prevención de corriente de aire fresco de la IDU	00/01/02/03/04	00	IDU común: 00: 15, 01: 20, 02: 24, 03: 26, 04: antiaire frío inválido FAPU: 00: 14, 01: 12, 02: 16, 03: 18, 04: antiaire frío inválido Unidad tipo Fan Coil: 00: 32 °C, 01: 34 °C, 02: 36 °C, 03: 38 °C, 04: antiaire frío inválido, temperatura de entrada de agua.
N18	Configuración de la velocidad del ventilador en modo reserva de enfriamiento	00/01/02/03/04/ 05/06/07/14	01	00: Retardo de arranque/detención 01: Velocidad 1 02: Velocidad 2 03: Velocidad 3 04: Velocidad 4 05: Velocidad 5 06: Velocidad 6 07: Velocidad 7 14: Velocidad del ventilador antes de ingresar al modo reserva
N19	Rango L1 de velocidad del ventilador en reserva en modo seco	00/01/02/03	01	00: Ventilador apagado 01: L1 02: L2 03: Velocidad 1
N20	Configuración de la velocidad del ventilador en modo reserva de calentamiento	0/1/14	0	0: Térmico 1: Velocidad 1 14: Fijado a velocidad 1
N21	Hora para apagar el ventilador de la IDU (térmico)	00/01/02/03/04	01	00: Apagado del ventilador 01: 4 min. 02: 8 min. 03: 12 min. 04: 16 min.
N22	Selección de la apertura de la EXV en modo reserva de calentamiento	00/01/02/14	14	00: 224 P 01: 288 P 02: 0P 14: Regulación automática

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N23	Temperatura de la diferencia del retorno de enfriamiento	00/01/02/03/04	00	00: 1 °C 01: 2 °C 02: 0,5 °C 03: 1,5 °C 04: 2,5 °C
N24	Temperatura de la diferencia del retorno de calentamiento	00/01/02/03/04	00	00: 1 °C 01: 2 °C 02: 0,5 °C 03: 1,5 °C 04: 2,5 °C
N25	Compensación de temperatura de calentamiento de la IDU	00/01/02/03/04	00	00: 6 °C 01: 2 °C 02: 4 °C 03: 8 °C 04: 0 °C
N26	Compensación de temperatura del enfriamiento de la IDU	00/01/02/03/04	00	00: 0 °C 01: 1 °C 02: 2 °C 03: 3 °C 04: -1 °C
N27	Caída D3 máxima de la temperatura interior en modo seco	00/01/02/03/04	01	00: 3 °C 01: 4 °C 02: 5 °C 03: 6 °C 04: 7 °C
N28	Límite superior de la velocidad automática del ventilador en modo enfriamiento	4/5/6/7	5	4: Velocidad 4 5: Velocidad 5 6: Velocidad 6 7: Velocidad 7
N29	Límite superior de la velocidad automática del ventilador en modo calentamiento	4/5/6/7	5	4: Velocidad 4 5: Velocidad 5 6: Velocidad 6 7: Velocidad 7
N30	Configuración de flujo de aire constante	00/01	01	00: Velocidad constante 01: Flujo de aire constante

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N31	Configuración de techos altos	00/01/02	00	Configura la altura de la IDU, 00: 3 m 01: 4 m 02: 4,5 m
N32	Configuración 1 de la salida de aire Q4/ Q4min	00/01	00	00 - Control libre 01 - Apagado
N33	Configuración 2 de la salida de aire Q4/ Q4min	00/01	00	00 - Control libre 01 - Apagado
N34	Configuración 3 de la salida de aire Q4/ Q4min	00/01	00	00 - Control libre 01 - Apagado
N35	Configuración 4 de la salida de aire Q4/ Q4min	00/01	00	00 - Control libre 01 - Apagado
N36	Solo enfriamiento para la IDU	00/01	00	00: Enfriamiento y calentamiento 01: Solo enfriamiento
N37	Uno o más controladores cableados habilitados	00/01	00	00: No 01: Sí
N38	Configuración de la función de encendido/apagado de larga distancia	00/01	00	00: Apaga la IDU al cerrarse 01: Apaga la IDU al abrirse Nota: al apagarse la IDU mediante el puerto de encendido/apagado de larga distancia, el controlador cableado de la IDU TVR Connect y la IDU de 3° generación mostrará d6
N39	Configuración de temporizador de retardo (utilizando el puerto de encendido/apagado para apagar la IDU)	00/01/.../06	00	00 - Sin retardo 01 - 1 min. de retardo 02 - 2 min. 03 - 3 min. 04 - 4 min. 05 - 5 min. 06 - 10 min.
N40	Configuración de función de alarma de larga distancia	00/01	00	00: Alarma al cerrarse 01: Alarma al abrirse
N41	Configuración de modo enfriamiento más rápido	00/01	00	00: Apagado 01: Encendido
N42	Función de esterilización	00/01	00	00: Sin función de esterilización (predeterminado) 01: Desinfección plasmática

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N43	Configuración de esterilización	00/01/02	00	00: Automático encendido 01: Forzado encendido 02: Forzado apagado
N44	Configuración de modo silencioso	00/01	00	00: Apagado 01: Encendido
N45	ECO	00/01	00	00: Apagado 01: Encendido
N46	Tiempo de secado en limpieza automática	0/1/2/3	0	0: 10 min. 1: 20 min. 2: 30 min. 3: 40 min.
N47	Duración de la operación del ventilador a prueba de moho (apagado en enfriamiento/ modo seco, excepto apagado por fallas)	00/01/02/03	00	00 - Inválido (predeterminado) 01 - 60 s 02 - 90 s 03 - 120 s
N48	Prueba de suciedad para el techo	00/01	00	00: Inválido 01: Válido
N49	Prueba de condensación	00/01	00	00: Inválido 01: Válido
N50	Sensor de detección de personas	00/01/02	00	00: Inválido 01: Utilizado para ajustar la temperatura configurada cuando no hay supervisión 02: Utilizado para apagar la unidad cuando no hay supervisión
N51	Configuración del intervalo de ajuste de temperatura si no hay supervisión	00/01/02/03/04/05	00	00: 15 min. 01: 30 min. 02: 45 min. 03: 60 min. 04: 90 min. 05: 120 min.
N52	Configuración del ajuste de temperatura máxima si no hay supervisión	00/01/02/03	00	00: 1 °C 01: 2 °C 02: 3 °C 03: 4 °C

Instrucciones operativas

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N53	Detener el retardo si no hay supervisión	00/01/02/03/04/05	01	00: 15 min. 01: 30 min. 02: 45 min. 03: 60 min. 04: 90 min. 05: 120 min.
N54	Configuración de la función ETA de Trane	00/01	00	00: Apagado 01: Encendido
N55	Calificación energética del enfriamiento ETA de Trane	00/01/02	00	00: Nivel 1 01: Nivel 2 02: Nivel 3
N56	Calificación energética de la calefacción ETA de Trane	00/01/02	00	00: Nivel 1 01: Nivel 2 02: Nivel 3
N57	Factor de ajuste de la velocidad del ventilador en el sitio	00/01/02/03/ 04/05/06	00	00: 1 01: 1,1 02: 1,05 03: 1,15 04: 0,95 05: 0,9 06: 0,85
N58	Detección de presión estática inicial	00/01	00	00: No restablecido 01: Restablecido
N59	Configuración de presión estática final-inicial del filtro	00/01/.../19	00	00-10 Pa/01-20 Pa/02-30 Pa ~19-200 Pa
N60	Temperatura ambiente cuando la precalificación está encendida	00/01/02	02	00: 5 °C 01: 0 °C 02: (-5) °C
N61	Contacto seco de aire fresco 1	00/01	00	Función de 2° generación 00: Desconectar; 01: Iniciar
N62	Contacto seco de aire fresco 2	00/01	00	Función de 2° generación 00: Desconectar; 01: Iniciar
N63	Contacto seco de aire fresco 3	00/01	00	Función de 2° generación 00: Desconectar; 01: Iniciar

Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
N64	Opción del calentador eléctrico en modo calentamiento con válvulas abiertas/ cerradas	00/01	00	0: Modo calentamiento con válvulas abiertas 01: Modo calentamiento con válvulas cerradas, solo aplicable a las FCU
N65	Punto de ajuste de la temperatura de antiaire caliente para la IDU en modo enfriamiento [temperatura de antiaire caliente de la FCU de la plataforma vieja]	00/01/02/03/04	00	FCU (unidad fan coil): 00: 0 °C 01: -2 °C 02: -4 °C 03: -6 °C 04: Prevención de aire caliente no válida, temperatura del agua de entrada - temperatura ambiente interior
N66	Función de modo seco automático	00/01	00	00: Inválido (predeterminado) 01: Válido Nota: Solo aplicable a operaciones en modo Cool (Frio) o Auto (Automático)
N67	Humedad relativa objetivo - Modo seco automático	40 %/41 %/42 %/..... /70 %	65 %	
N68	Restablecimiento de falla de pérdida de refrigerante	00/01	00	00: No restablecido; 01: Restablecido

5.5.7 Configuración de parámetros de la ODU

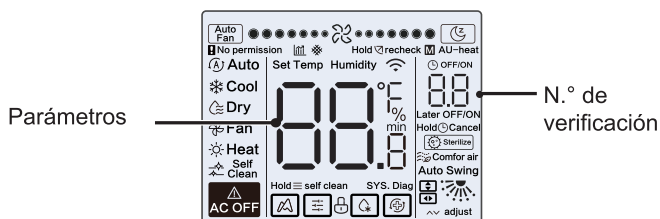
Código de parámetro	Nombre del parámetro	Rango de parámetro	Valor predeterminado	Indicaciones
U0	Clasificación energética de la ODU	40-100 %, para cada 1%	100 %	
U1	Nivel de silencio de la ODU	00/01/.../14	00	Nivel 0-14
U2	Dirección de la unidad interior VIP	0~63	0xFF	Cuando hay más de una unidad controlada por un controlador cableado, el controlador solo puede configurar la IDU físicamente conectada a él, la cual será la IDU VIP.
U3	Suministro de aire y calentamiento habilitados al mismo tiempo	00/01	00	00: Apagado 01: Encendido

Información

La configuración de parámetros de los controladores cableados principal y secundario son mutuamente independientes y no se afectan entre sí. No es posible configurar los parámetros de la IDU y ODU a través del controlador cableado secundario.

Instrucciones operativas

5.5.8 Operaciones de consultas del controlador cableado



- En la pantalla de inicio, presione y mantenga presionados "≡" y "∧" al mismo tiempo por dos segundos para ingresar a la interfaz de consulta, y u00-u03 indica las ODU, n00-n63 indica las IDU y CC indica el controlador cableado. Presione "∧" y "∨" para cambiar el código del parámetro. Presione "Swing" (Oscilar) para ingresar a la página de consulta de parámetros.
- Presione "⏏" para salir de la página de consulta. La página de consulta de parámetros se cierra automáticamente si no se presiona un botón dentro de los 60 segundos.
- Presione "∧" o "∨" para consultar los parámetros, que pueden consultarse cíclicamente.
- En la parte superior de la página de consulta, el "Área de temporizador" muestra el número de serie de la lista de verificación y el "Área de temperatura" muestra los parámetros de la lista de verificación.

- La información de consulta de la lista de verificación aparece de la siguiente manera: La información puede variar según el modelo de unidad. Lista de verificación de los parámetros aplicados a las unidades VRF y unidades mini VRF de TVR Ultra (incluidas IDU y ODU), el split inversor de TVR Ultra (incluidas IDU y ODU) y las IDU y ODU solo de TVR Connect.

Contenido de la lista de verificación:

- Consulta de la dirección del controlador cableado.

Código de parámetro	Nombre del parámetro	Indicaciones
1	Consulta de direcciones de IDU activas para el controlador cableado (uno a más)	Cada dirección se muestra por 1,5 segundos. Las direcciones se muestran en forma alternante. Para borrar las direcciones históricas, restablezca el controlador cableado a la configuración de fábrica.
2	Consulta de registro histórico de las direcciones de la IDU para el controlador cableado (uno a más)	
3	N.º de versión de programa del controlador cableado	

- Lista de verificación de la IDU de 2º generación.

1	Lista de verificación de la IDU de 2º generación	Dirección de IDU	Dirección de IDU	Dirección de la IDU (00)
2		Capacidad de HP de la IDU	Capacidad de HP de la IDU	Capacidad de la IDU (kW)
3		Dirección de red de la unidad interior	Dirección de red de la unidad interior	Dirección de red de la IDU (00)
4		Temperatura configurada real Ts	Temperatura configurada real Ts	Temperatura configurada actual
5		Temperatura interior real T1	Temperatura interior real T1	Temperatura ambiente interior T1
6		Temperatura interior real T2	Temperatura interior real T2	Temperatura de la tubería interior T2
7		Temperatura interior real T2A	Temperatura interior real T2A	--
8		Temperatura interior real T2B	Temperatura interior real T2B	--
9		Temperatura de la FAPU, Ta	Temperatura de la FAPU, Ta	--
10		Temperatura de descarga del compresor	Temperatura de descarga del compresor	Temperatura de descarga del compresor
11		Súper calentamiento objetivo	Súper calentamiento objetivo	--
12		Apertura de EXV (apertura real / 8)	Apertura de EXV (apertura real / 8)	--
13		N.º de versión de software	N.º de versión de software	N.º de versión de software
14		Código de error	Código de error	Código de error

3. Lista de verificación de la IDU TVR Connect e IDU de 3° generación

N.º	Contenido visualizado	N.º	Contenido visualizado
1	Dirección de IDU	10	Humedades relativas configuradas reales
2	Capacidad de HP de la IDU	11	Humedad interior de humedad relativa real
3	Temperatura configurada real Ts	12	Temperatura real de suministro de aire de la unidad de procesamiento de aire fresco TA
4	Temperatura configurada de la unidad que funciona actualmente, Ts (Comentarios: la temperatura visualizada es la temperatura configurada real Ts)	13	Temperatura de la tubería de expulsión de aire
		14	Temperatura de descarga del compresor
		15	Súper calentamiento objetivo
5	Temperatura interior real T1	16	Apertura de EXV (apertura real / 8)
6	Temperatura interior modificada T1_modify	17	N.º de versión de software
7	Temperatura intermedia del termocambiador T2	18	Código de error histórico (reciente)
8	Temperatura de la tubería para líquidos del termocambiador T2A	19	Código de error histórico (subreciente)
9	Temperatura de la tubería para gas del termocambiador T2B	20	Se muestra [– – –]

4. Lista de verificación de la ODU

Pantalla	Unidad VRF TVR Ultra	Unidad VRF Mini TVR Ultra	Split inversor	Unidad VRF TVR Connect	Descripción
1	Dirección de ODU	Dirección de ODU	Dirección de la ODU (00) Capacidad de la unidad	Dirección de ODU	0 a 3
2	Capacidad de la unidad	Capacidad de la unidad	Número de ODU	Capacidad de ODU	Unidad: HP
3	Número de ODU	Número de ODU		Cantidad de ODU	1 a 4
4	--	--	--	Configuración de cantidad de IDU	
5	Demanda de la capacidad de la ODU	Demanda de la capacidad de la ODU	Objetivo de carga de la ODU	Demanda de la capacidad de la ODU	Solo visualizado en la unidad principal, mientras que la unidad auxiliar muestra 0.
6	Frecuencia del compresor 1	Frecuencia del compresor 1	Frecuencia operativa	Frecuencia real del compresor 1	Frecuencia real
7	Frecuencia del compresor 2	--	--	Frecuencia real del compresor 2	Frecuencia real

Instrucciones operativas

Pantalla	Unidad VRF TVR Ultra	Unidad VRF Mini TVR Ultra	Split inversor	Unidad VRF TVR Connect	Descripción
8	Modo operativo	Modo operativo	Modo operativo	Modo operativo	0: Apagado
					2: Enfriamiento
					3: Calentamiento
					5: Enfriamiento híbrido
					6: Calentamiento híbrido
9	Prioridad de modo	Modo de prioridad	--	--	
10	Velocidad del ventilador CC A/A1	Velocidad operativa del ventilador	Velocidad operativa del ventilador CC	Velocidad del ventilador 1	Velocidad del ventilador
11	Velocidad del ventilador CC B/B1			Velocidad del ventilador 2	Velocidad del ventilador
12	Temperatura promedio T2 (corregida)	Temperatura promedio T2 (corregida)	Temperatura de la tubería interior	T2 promedio	Temperatura real
13	Temperatura promedio T2B (corregida)	Temperatura promedio T2B (corregida)	Temperatura de la tubería interior	T2B promedio	Temperatura real
14	Temperatura de la tubería de condensación T3	Temperatura de la tubería T3	Temperatura de la tubería exterior T3	T3	Temperatura real
15	Temperatura ambiente T4	Temperatura ambiente T4	Temperatura ambiente exterior	T4	Temperatura real
16	--	--	--	T5	Temperatura real
17	Temperatura de entrada del termocambiador de placa T6A	--	--	T6A	Temperatura real
18	Temperatura de salida del termocambiador de placa T6B	--	--	T6B	Temperatura real
19	Temperatura de descarga del compresor del inversor A	Temperatura de descarga T5	Temperatura de descarga	T7C1	Temperatura real
20	Temperatura de descarga del compresor del inversor B	--	--	T7C2	Temperatura real
21	--	--	--	T71	Temperatura real
22	--	--	--	T72	Temperatura real

Instrucciones operativas

Pantalla	Unidad VRF TVR Ultra	Unidad VRF Mini TVR Ultra	Split inductor	Unidad VRF TVR Connect	Descripción
23	--	--	--	T8	Temperatura real
24	Temperatura A del módulo del inductor Tf1	Temperatura del módulo Tf	--	Ntc (Temp. del módulo del inductor)	Temperatura real
25	Temperatura B del módulo del inductor Tf2 (reservado)	--	--		
26	--	--	--	T9	Temperatura real
27	--	Temperatura de tubería de enfriamiento de refrigerante TL	--	TL	Temperatura real
28	Grado de supercalentamiento de la descarga del sistema	--	--	Grado de recalentamiento de la descarga	Temperatura real
29	--	--	--	Corriente primaria	
30	Corriente A del compresor del inductor	Valor de corriente real	Valor de corriente	Corriente del compresor	C1 orriente real
31	Corriente B del compresor del inductor	--	--	Corriente del compresor 2	
32	Apertura de la válvula de expansión electrónica A	Apertura de la EXV	Apertura de la válvula de expansión	Apertura de la EXVA	Unidad VRF TVR Ultra: apertura = valor visualizado × 4 Unidad mini VRF TVR Ultra: apertura = valor visualizado × 8 Split inductor: apertura = valor visualizado × 8 Unidad VRF TVR Connect : apertura = valor visualizado × 24
33	Apertura de la válvula de expansión electrónica B	--	--	Apertura de la EXVB	
34	Apertura de la válvula de expansión electrónica C	--	--	Apertura de la EXVC	Apertura = Valor visualizado × 4
35	--	--	--	Apertura de la EXVD	
36	Alta presión del sistema	--	--	Presión alta	Presión = Valor visualizado / 100

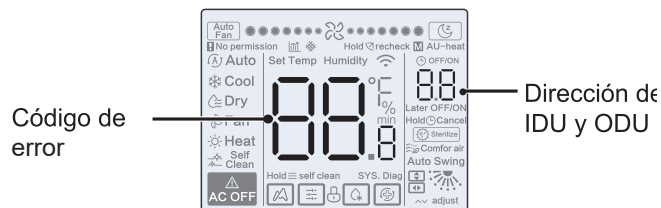
Instrucciones operativas

Pantalla	Unidad VRF TVR Ultra	Unidad VRF Mini TVR Ultra	Split inversor	Unidad VRF TVR Connect	Descripción
37	Baja presión del sistema (reservado)	--	--	Presión baja	Presión = Valor visualizado / 100
38	--	--	--	Cantidad de IDU en línea	/
39	Número de unidades interiores funcionando (en caso de direcciones virtuales, este es el número de unidades con las direcciones virtuales incluidas)	Cantidad de IDU funcionando		Cantidad de IDU funcionando	Cantidad real
40	Dirección de la unidad interior VIP	Dirección de la unidad interior VIP		/	
41	--	--		Estado del termocambiador	0: Termocambiador apagado
	--	--			1: C1
	--	--			2: D1
	--	--			3: D2
	--	--			4: E1
	--	--			5: F1
	--	--			6: F2
42	--	--		Estado de arranque del sistema	[0] Sin modo especial
	--	--			[1] Retorno de aceite
	--	--			[2] Descongelamiento
	--	--			[3] Arranque
	--	--			[4] Parada
	--	--			[5] Verificación rápida
	--	--			[6] Limpieza automática

Instrucciones operativas

Pantalla	Unidad VRF TVR Ultra	Unidad VRF Mini TVR Ultra	Split inverter	Unidad VRF TVR Connect	Descripción
43	--	--		Configuración de modo silencioso	0 a 15 se relaciona con el nivel de ruido
44	--	--	--	Configuración de presión estática	0: 0 Pa
	--	--	--		1: 20 Pa
	--	--	--		2: 40 Pa
	--	--	--		3: 60 Pa
	--	--	--		4: 80 Pa
	--	--	--		5: 100 Pa
	--	--	--		6: 120 Pa
45	--	--	--	TES	Temperatura real
46	--	--	--	TCS	Valor visualizado - 25
47	--	--	--	Tensión CC	Tensión real = Valor visualizado x 10
48	--	--	--	Tensión CA	Tensión real = Valor visualizado x 2
49	--	--	--	Bloqueo de ODU	0 a 10
50	N.º de versión de programa	N.º de versión de programa	--	Versión de software	
51	Último mal funcionamiento	Último error o código de protección	--	Último mal funcionamiento	

5.5.9 Pantalla de error



- Cuando ocurre una falla de comunicación entre el controlador cableado y cualquiera de las IDU, el controlador cableado reporta "C51". Si la IDU no tiene una dirección, el controlador cableado del sistema TVR Connect muestra "U38".
- En caso de falla de una IDU, se muestra la dirección de la IDU en el área del temporizador, y el código de falla se visualiza en el área de temperatura. En caso de falla de una ODU, se muestra la dirección de la ODU en el área del temporizador, y el código de falla se visualiza en el área de temperatura.
- Informe al distribuidor sobre el código de error. NO desmantele, modifique ni repare la IDU sin autorización.

Explicación de códigos y errores del controlador cableado.

Código	Explicación
C51	Error de comunicación entre la unidad interior y el controlador cableado
C76	Error de comunicación del controlador cableado de la unidad principal
E31	Falla del sensor de temperatura del controlador cableado

- Para leer la explicación de códigos y errores de la IDU y ODU, consulte el manual de instrucciones de la IDU y ODU.

Trane – de Trane Technologies (NYSE:TT), una empresa mundial de tecnología climática, ambientes interiores cómodos y energéticamente eficientes para aplicaciones comerciales y residenciales. Para obtener más información, visite trane.com o tranetechnologies.com.

Trane tiene una política de mejora continua de producto y de datos de producto, y se reserva el derecho a modificar el diseño y las especificaciones sin previo aviso. Estamos comprometidos en utilizar prácticas de impresión respetuosas con el medio ambiente.



MANUAL DE INSTALACIÓN Y OPERACIÓN

Sistema TVR™ Ultra DC Inverter - Unidad de Control Alámbrico TCONTKJRUT86ED



⚠ ADVERTENCIA DE SEGURIDAD

Solo personal calificado debe instalar y dar servicio al equipo. La instalación, el arranque y el servicio al equipo de calefacción, ventilación y aire acondicionado puede resultar peligroso por cuyo motivo requiere de conocimientos y capacitación específica. El equipo instalado, ajustado o alterado inapropiadamente por personas no capacitadas podría provocar la muerte o lesiones graves. Al trabajar sobre el equipo, observe todas las indicaciones de precaución contenidas en la literatura, en las etiquetas, y otras marcas de identificación adheridas al equipo.



- Lea este manual cuidadosamente y asegúrese de entender la información antes de intentar usar el controlador.
- Mantenga este manual en un lugar de fácil acceso después de leerlo.
- Si otro usuario opera el controlador en el futuro, asegúrese de entregar este manual al nuevo usuario.

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Instalación

Precauciones de seguridad

Lea atentamente estas precauciones de seguridad antes de instalar el controlador con cable.

Este manual clasifica las precauciones en ADVERTENCIA y PRECAUCIÓN. Ambos contienen información importante sobre la seguridad. Asegúrese de seguir todas las siguientes precauciones.

Identificador	Significado
⚠ ADVERTENCIA	No cumplir adecuadamente con estas instrucciones puede resultar en lesiones personales o pérdida de vida.
⚠ PRECAUCIÓN	El incumplimiento de estas instrucciones puede dar lugar a daños materiales o lesiones personales, que pueden ser graves de acuerdo con las circunstancias.
Importante	Indica una sugerencia útil o información adicional.

- Después de completar la instalación, realice una operación de prueba para verificar si hay fallas y explíquelo al cliente cómo hacer funcionar el controlador con la ayuda del manual de funcionamiento. Pídale al cliente que guarde el manual de instalación junto con el manual de funcionamiento para futuras referencias.

⚠ ADVERTENCIA

- Pídale a su distribuidor o personal cualificado que lleve a cabo los trabajos de instalación.
No intente instalar el controlador con cable usted mismo. Una instalación inadecuada puede provocar fugas, descargas eléctricas o incendios.
- Consulte a su distribuidor local con respecto a la reubicación y reinstalación del controlador con cable.
Un trabajo de instalación inadecuado puede provocar riesgos de fugas, descargas eléctricas o incendios.
- Instale el controlador con cable de acuerdo con las instrucciones de este manual.
Una instalación inadecuada puede provocar fugas de agua, descargas eléctricas o incendios.
- Asegúrese de usar solo los accesorios y piezas especificados para el trabajo de instalación.
Si no se utilizan las piezas especificadas, la unidad puede caerse o pueden ocurrir fugas de agua, descargas eléctricas o incendios.
- Instale el controlador con cable sobre una base lo suficientemente fuerte como para soportar el peso del controlador con cable.
La fuerza insuficiente puede provocar que el controlador con cable se caiga y cause lesiones.
- El trabajo eléctrico debe realizarse de acuerdo con las regulaciones locales y nacionales pertinentes y con las instrucciones de este manual.
Asegúrese de utilizar solo un circuito de fuente de alimentación dedicado. La capacidad insuficiente del circuito de alimentación y la mano de obra inadecuada pueden provocar descargas eléctricas o incendios.
- Realice siempre el trabajo de instalación con la alimentación apagada.
Presionar las piezas eléctricas puede provocar descargas eléctricas.
- No desarme, reconstruya o repare.
Esto puede provocar descargas eléctricas o incendios.
- Asegúrese de que todo el cableado esté asegurado, que se utilicen los cables especificados y que no haya tensión en las conexiones de terminal o en los cables.
La conexión o la sujeción inadecuada de los cables puede provocar una acumulación de calor anormal o un incendio.
- La elección de los materiales e instalaciones debe cumplir con las normas nacionales e internacionales disponibles.

Instalación

⚠ PRECAUCIÓN

- Para evitar fugas y descargas eléctricas debido a la entrada de agua o insectos, llene el cableado a través del agujero con masilla.
- Para evitar descargas eléctricas, no opere con las manos mojadas.
- No lave el controlador con cable con agua, ya que esto puede provocar descargas eléctricas o incendios.
- Cuando se utilice la función de seguimiento del controlador con cable, seleccione la ubicación de instalación y tenga en cuenta que debe ser un lugar:
 1. Donde se pueda detectar la temperatura promedio de la habitación.
 2. Que no esté expuesto a la luz solar directa.
 3. Que no esté cerca de una fuente de calor.
 4. Que no se vea afectado por el aire exterior o la corriente de aire debido, por ejemplo, a la apertura/cierre de puertas, la salida de aire de la unidad interior o similares.

Accesorios

- Por favor, compruebe que tiene todas las siguientes piezas.

Tabla 1

N.º	Nombre	Imagen	Cantidad	Observaciones
1	Tornillo Philips, M4x25 mm		2	Se utiliza para instalar el controlador con cable en la caja eléctrica
2	Barra de soporte de plástico de Ø5x16 mm		2	Se utiliza para instalar el controlador con cable en la caja eléctrica
3	Manual de instalación y funcionamiento		1	/

- Prepare las siguientes piezas en el sitio.

Tabla 2

N.º	Nombre	Cantidad	Observaciones
1	86 caja eléctrica	1	Especificación general para la caja eléctrica, que está incrustada en la pared.
2	Cables de cobre blindados de 2 núcleos	1	2*AWG16-AWG20, preincrustados en la pared. La longitud más larga del cableado es de 200 metros.
3	Tubos de cableado (conjunto de aislamiento)	1	Preincrustados en la pared.
4	Destornillador grande Phillips	1	Para instalar los tornillos Philips.
5	Destornillador plano pequeño	1	Para desmontar la tapa inferior del controlador con cable.

Procedimiento de instalación

Determine dónde instalar el controlador con cable

Asegúrese de referirse a “Precauciones de seguridad” para determinar la ubicación.

Dimensiones estructurales

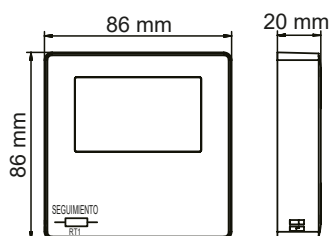


Figura 1

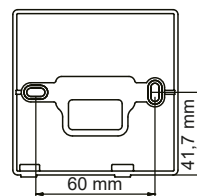


Figura 2

Instalación de la tapa trasera

Inserte un pequeño destornillador de cabeza plana en la ranura inferior del controlador con cable y gire en la dirección indicada para retirar la tapa trasera del controlador con cable. Preste atención a la dirección de rotación para evitar cualquier daño a la tapa trasera del controlador con cable. (vea la Figura 3)

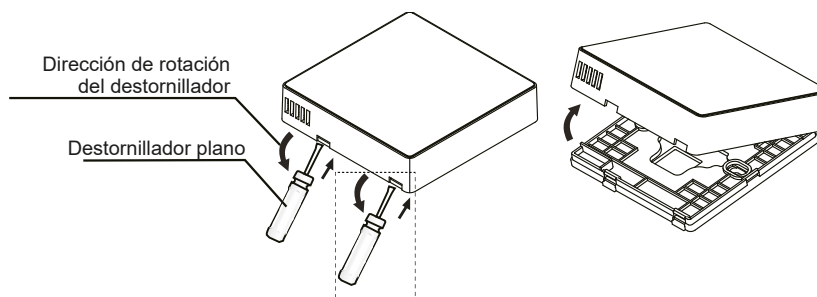


Figura 3

⚠ Advertencia

- Cuando utilice el destornillador plano pequeño para abrir la tapa trasera del controlador con cable, tenga cuidado de no dañar la PCB en el interior.
- No toque la PCB del controlador con cable.

Utilice una herramienta de corte para ajustar la altura de las dos barras de soporte de plástico (accesorio 2) para que coincida con la longitud estándar de los pilares de tornillo de la caja eléctrica a la superficie de la pared. Asegúrese de que las barras de soporte estén niveladas en la pared cuando se coloquen los pilares de tornillo de la caja eléctrica. (vea la Figura 4)

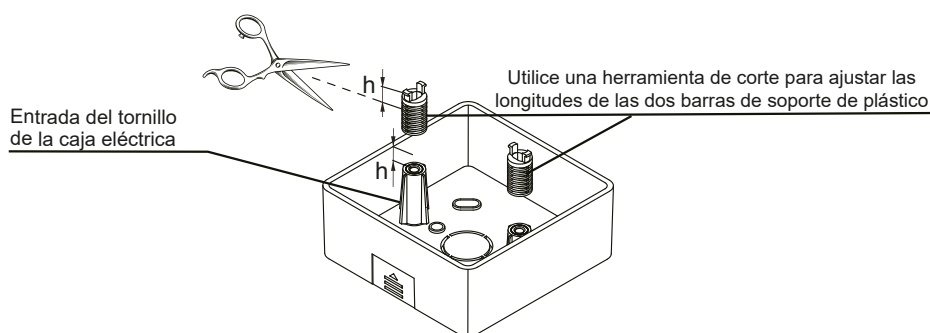


Figura 4

Instalación

Una vez que se hayan ajustado las alturas de las barras de soporte de plástico, fije las barras en la tapa trasera. (vea la Figura 5)

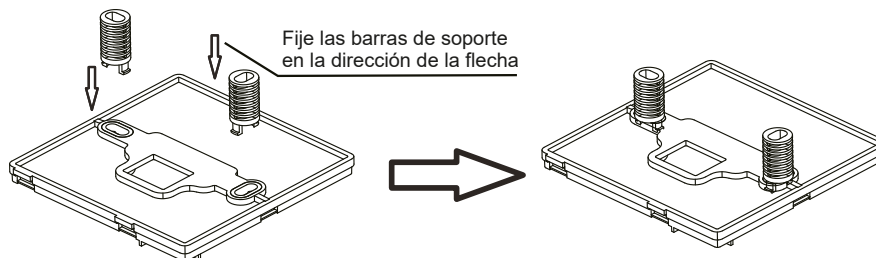


Figura 5

Tome el cableado blindado que se ha preincrustado en la pared y enrósquelo a través del orificio de cable de la tapa trasera. Utilice los tornillos Philips (accesorio 1) para fijar la tapa trasera del controlador con cable a la caja eléctrica a través de las barras de soporte. Asegúrese de que la tapa trasera no esté deformada después de su instalación (vea la Figura 6).

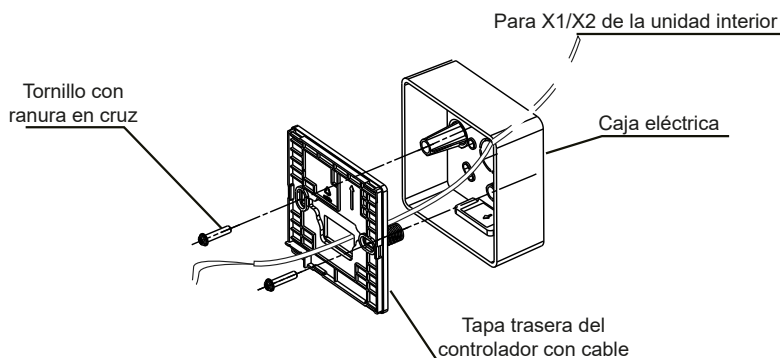


Figura 6

Importante

- La tapa trasera puede deformarse si el tornillo está demasiado ajustado.

Cableado

⚠ PRECAUCIÓN

- Prepare la caja eléctrica y el cable de cobre blindado de 2 núcleos en el sitio.
- No toque la PCB del controlador con cable.

Especificaciones de cableado

Tabla 3

Tipo	Cable de cobre blindado de 2 núcleos
Diámetro	AWG 16-20
Longitud	Máximo 200 m

Cableado de comunicación

- La comunicación entre la unidad interior y el controlador con cable es la comunicación bidireccional. Los parámetros mostrados en el controlador con cable se actualizan en tiempo real de acuerdo con los cambios en los parámetros de la unidad interior.
- X1 y X2 son terminales para conectar la unidad interior y el controlador con cable. No hay polaridad entre X1 y X2.
- La longitud más larga de cableado entre el controlador con cable y la unidad interior es de 200 metros.

Método de conexión de un controlador a una unidad interior

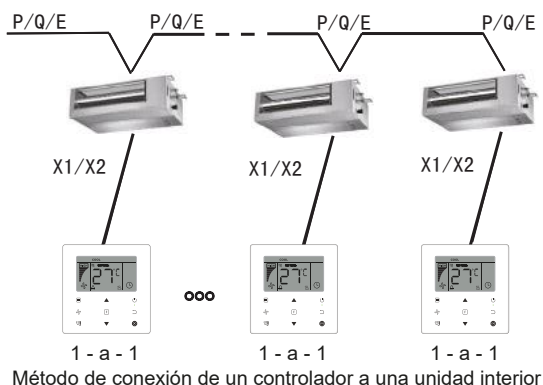


Figura 7

Método de conexión de dos controladores a una unidad interior

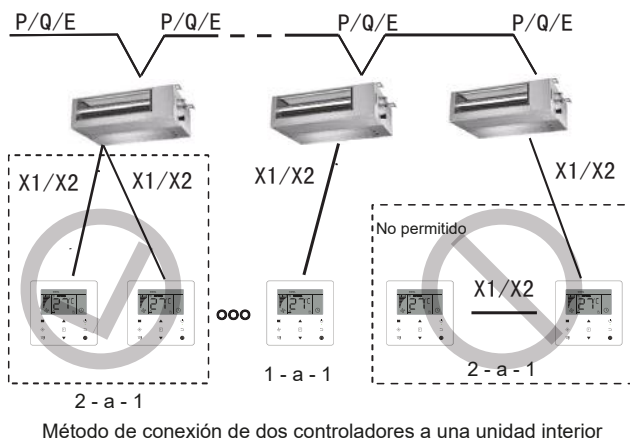


Figura 8

- Para el método de conexión de dos controladores a una unidad interior, dos controladores con cable controlan la misma unidad interior, donde un controlador será el **"Principal"** y el otro será el **"Secundario"**. Consulte **"Ajuste de campo"**. La configuración predeterminada del controlador con cable se establece en el controlador principal.
- Este método solo está disponible para dos controladores con cable de WDC-86E/KD.

Instalación

Instale el cuerpo principal del controlador con cable

Tome el cableado blindado que ha sido preincrustado en la pared y páselo a través del orificio de cableado de la tapa trasera del controlador con cable. Una vez conectado, conecte el cableado al terminal X1/X2 (CN2) del controlador con cable y fije el controlador con cable a la tapa trasera. (vea la Figura 9)

Fije el controlador con cable correcta y firmemente a la tapa trasera para que el controlador con cable no se caiga. (vea la Figura 10)

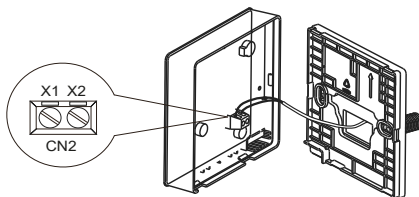


Figura 9

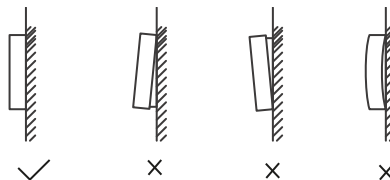


Figura 10

PRECAUCIÓN

- Durante la instalación, reserve una cierta longitud para el cableado blindado de conexión para facilitar la extracción del controlador con cable para el mantenimiento.

Funcionamiento

Precauciones de seguridad

Este controlador no está destinado a que lo utilicen personas, incluidos niños, con capacidades físicas, sensoriales o mentales reducidas o que tengan falta de experiencia y conocimientos, a menos que una persona responsable de su seguridad las supervise o les haya dado instrucciones sobre el uso del controlador.

Se debe supervisar a los niños para garantizar que no juegan con el controlador.

Lea atentamente las precauciones de seguridad antes de utilizar el controlador con cable.

- Las Precauciones de seguridad clasifican las precauciones en ADVERTENCIA y PRECAUCIÓN.

Ambos contienen información importante sobre la seguridad. Asegúrese de seguir todas las siguientes precauciones.

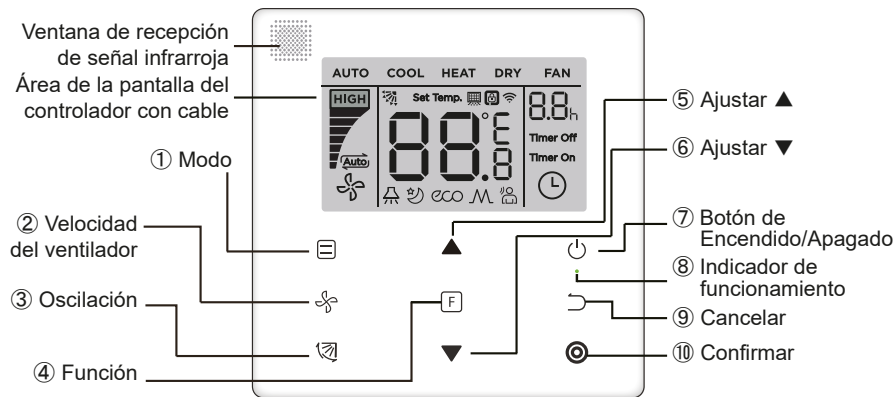
Identificador	Significado
⚠ ADVERTENCIA	No cumplir adecuadamente con estas instrucciones puede resultar en lesiones personales o pérdida de vida.
⚠ PRECAUCIÓN	El incumplimiento de estas instrucciones puede dar lugar a daños materiales o lesiones personales, que pueden ser graves de acuerdo con las circunstancias.

⚠ Advertencia

- No instale el controlador con cable usted mismo.**
Una instalación incorrecta puede provocar descargas eléctricas o incendios.
Consulte con su distribuidor.
- No modifique ni repare el controlador con cable.**
Esto puede provocar descargas eléctricas o incendios.
Consulte con su distribuidor.
- No reubique ni vuelva a instalar el controlador con cable usted mismo.**
Una instalación incorrecta puede provocar descargas eléctricas o incendios.
Consulte con su distribuidor.
- No utilice materiales inflamables (por ejemplo, laca para el cabello o insecticida) cerca del controlador.**
No limpie el controlador con disolventes orgánicos como disolventes de pintura.
El uso de disolventes orgánicos puede causar daños de grietas al controlador, descargas eléctricas o incendios.

⚠ Precaución

- No juegues con el controlador con cable.**
Una operación accidental por parte de un niño puede provocar un deterioro de las funciones corporales y dañar la salud.
- Nunca desmonte el controlador con cable.**
Presionar las partes interiores puede provocar descargas eléctricas o incendios.
Consulte con su distribuidor o contratista autorizado para realizar inspecciones internas y ajustes.
Para evitar descargas eléctricas, no opere con las manos mojadas.
- No lave el controlador con cable.**
- Si lo hace, puede provocar fugas eléctricas y provocar descargas eléctricas o incendios.**
No deje el controlador con cable donde haya riesgo de que se moje.
- Si el agua entra en el controlador con cable, existe el riesgo de fugas eléctricas y daños en los componentes electrónicos.**

Partes del controlador con cable

Figura 11
Tabla 4

Botón	Funciones
1.  Modo	Para configurar el modo de funcionamiento: Auto Cool (Enfriamiento) Heat (Calefacción) Dry (Seco) Fan (Ventilador)
2.  Velocidad del ventilador	Para ajustar la velocidad del ventilador.
3.  Oscilación	Para establecer la función de oscilación.
4.  Función	Para cambiar a funciones que se pueden configurar en el modo actual.
5.  Ajustar hacia arriba	Para ajustar la temperatura y el tiempo (para el temporizador) hacia arriba.
6.  Ajustar hacia abajo	Para ajustar la temperatura y el tiempo (para el temporizador) hacia abajo.
7.  Encendido/ Apagado	Para encender/apagar la unidad
8.  Indicador de funcionamiento	Para indicar el estado de Encendido/Apagado de la unidad interior.
9.  Cancelar	Para apagar el temporizador, visualización LED IDU/ Modo Silencio/ECO/función de calefacción auxiliar ¹ ; para cancelar el temporizador.
10.  Confirmar	Para encender el temporizador, visualización LED IDU/ Modo Silencio/ECO/función de calefacción auxiliar ¹ ; para confirmar el temporizador.

Nota 1: La función de calefacción auxiliar está reservada.

Iconos en la pantalla

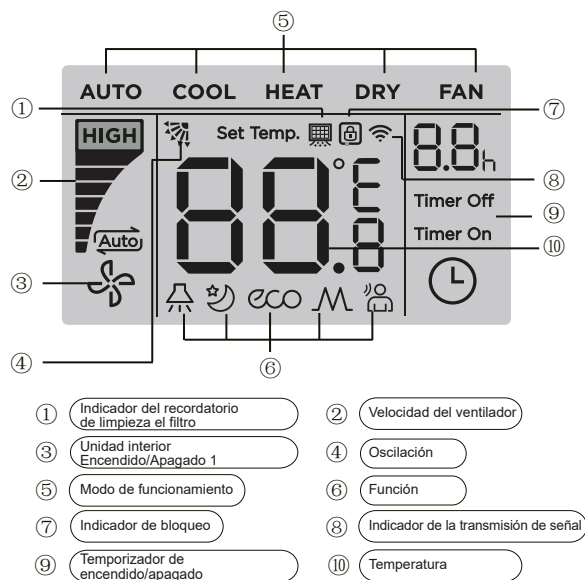


Figura 12

Nota 1: Cuando la unidad interior está encendida, el icono “” gira; cuando la unidad interior está apagada, el icono “” no gira.

Guía de funcionamiento

Ajuste de Encendido/Apagado

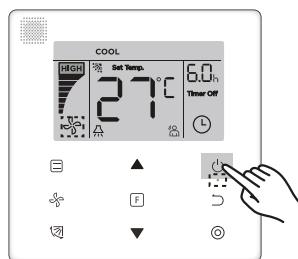


Figura 13

1. Presione el botón  (Encendido/Apagado) y el indicador de funcionamiento “●” del controlador con cable se encenderá, mientras que el icono de Encendido/Apagado “” de la unidad interior de la pantalla girará para indicar que la unidad interior ha comenzado a funcionar. (vea la Figura 13)
2. Vuelva a presionar el botón  (Encendido/Apagado) y el indicador de funcionamiento “●” del controlador con cable se apagará y el icono de pantalla “” dejará de girar mientras la unidad interior deja de funcionar.

Funcionamiento

Ajuste de modo

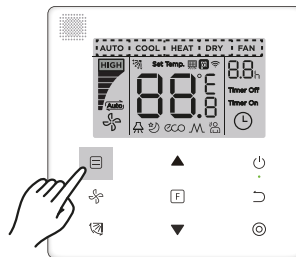


Figura 14

Presione el botón  (Modo). Cada vez que presione este botón, el modo de funcionamiento cambiará a su vez como se muestra en la Figura 15.

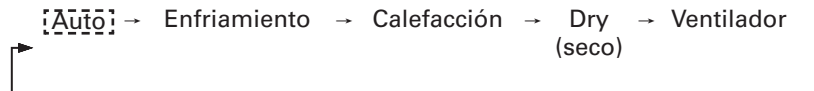


Figura 15

En los modos **"Auto"**, **"Cool"** (Enfriamiento), **"Dry"** (Seco) o **"Heat"** (Calefacción), presione los botones  y  para configurar a la temperatura de ajuste. (vea la Figura 16)

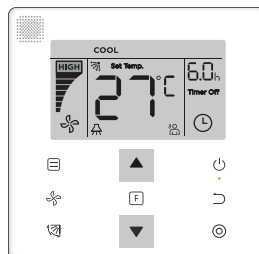


Figura 16

Nota

- El modo **"Auto"** no está disponible para todos los modelos de aire acondicionado.
- El ajuste de temperatura no está disponible en el modo **"Fan"** (Ventilador).
- Los modos **"Dry"** (Seco) y **"Auto"** no están disponibles para FAPU.

Configuración de la velocidad del ventilador

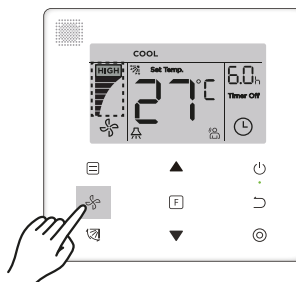


Figura 17

En el modo **"Cool"** (Enfriamiento), **"Heat"** (Calefacción) o **"Fan"** (Ventilador), presione el botón  (Velocidad del ventilador) para ajustar la velocidad de funcionamiento del ventilador (vea la Figura 17).

Si el controlador con cable está configurado con siete velocidades del ventilador, presione el botón  (Velocidad del ventilador) para ajustar la velocidad del ventilador a su vez como se muestra en la Figura 18.



Figura 18

Si el controlador con cable está configurado con tres velocidades del ventilador, presione el botón  (Velocidad del ventilador) para ajustar la velocidad del ventilador a su vez como se muestra en la Figura 19.

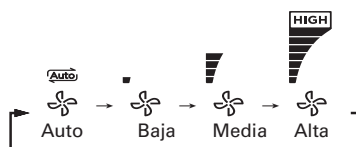


Figura 19

Nota

- En los modos “Auto” y “Dry” (Seco), la velocidad del ventilador se establece en “Auto”, y no cambiará ni siquiera al presionar el botón .
- La velocidad predeterminada del ventilador es de 7 velocidades, consulte “Ajuste de campo” para ajustar la velocidad predeterminada del ventilador.

Ajuste de oscilación

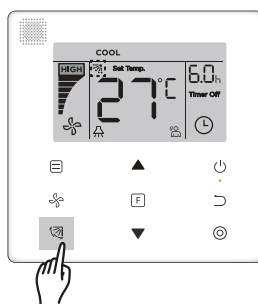


Figura 20

Presione el botón  (Oscilación) para controlar la oscilación de la rejilla vertical de la unidad interior (vea la Figura 20). Cuando la unidad está encendida, el icono de pantalla muestra el ángulo de oscilación de la rejilla actual.

Presione el botón  (Oscilación) y la rejilla cambia del ángulo actual a los ángulos uno por uno, como se muestra en la Figura 21.



Figura 21

Cuando la rejilla esté en estado “Auto”, presione de nuevo el botón  (Oscilación) y la rejilla se detendrá en el ángulo de funcionamiento actual, y el icono de pantalla mostrará el ángulo actual de la rejilla después de 10 segundos.

Funcionamiento

Nota

- La función de oscilación solo está disponible para unidades interiores configuradas con la rejilla vertical.
- Cuando la unidad está apagada, el botón  (Oscilación) es inválido y el controlador con cable apaga automáticamente la función de oscilación, y el icono de pantalla ya no mostrará el ángulo de oscilación.
- Este controlador con cable no puede controlar la oscilación horizontal en la unidad interior.

Ajuste de funciones

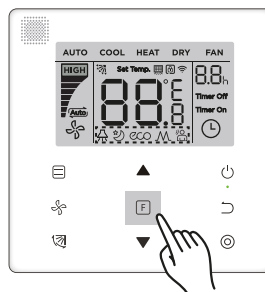


Figura 22

Presione el botón  (Función) para cambiar a la función que se pueda configurar en el modo actual (vea la Figura 22).

- Presione el botón  (Función) para ir al ajuste de la función y la pantalla del controlador con cable mostrará por turnos: "", "", "", "" (reservado). Alternativamente, puede presionar los botones  y  para cambiar a la función seleccionada. (vea la Figura 23)



Figura 23

- Presione el botón  (Función) para ir a los ajustes de funciones. Presione el botón  (Función) cada vez para seleccionar la función y el icono de la función seleccionada parpadeará. Presione el botón  (Confirmar) para confirmar la función o el botón  (Cancelar) para cancelar la función.

Visualización LED IDU

La función "**Visualización LED IDU**" se utiliza para controlar el estado de encendido/apagado de la pantalla en la unidad interior.

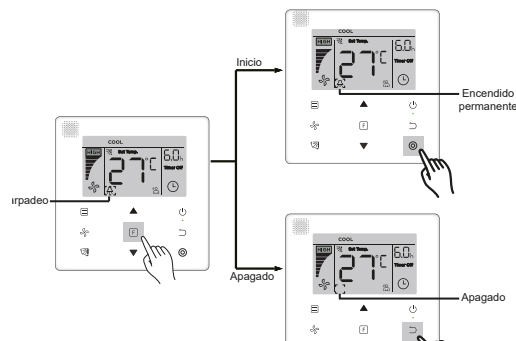


Figura 24

Presione el botón  (Función) para ir a la página de ajustes de funciones. Presione el botón  (Función) de nuevo para seleccionar "" y el icono de **Visualización LED IDU** "" parpadeará. A continuación, presione el botón  (Confirmar) para confirmar y "" se encenderá o presione el botón  (Cancelar) para cancelar y la función "**Visualización LED IDU**" se desactivará. (vea la Figura 24)

Silent (Silencioso)

La función **"Silencio"** se utiliza para enviar la señal de control **"Silencio"** a la unidad interior. La unidad interior optimiza automáticamente el ruido que genera cuando se encuentra en estado **"Silencio"**.

- Para activar y desactivar la función **"Silencio"**: presione el botón **[F]** (Función) para cambiar a la función **"Silencio"** ("" parpadea) y presione el botón **[⊙]** (Confirmar) para activar la función o el botón **[⏏]** (Cancelar) para desactivar la función (vea la Figura 25).

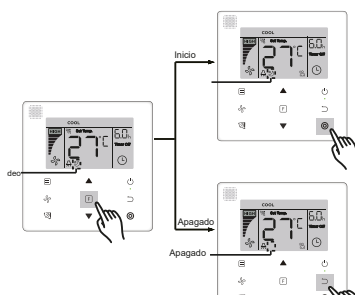


Figura 25

Nota

- La función **"Silencio"** se cancelará y deberá restablecerse cuando la unidad se apague manualmente.
- Una vez que haya estado funcionando durante 8 horas, el icono Silencio "" ya no se encenderá y la unidad saldrá del estado de funcionamiento de **"Silencio"**.
- Las funciones **"Silencio"** y **"ECO"** no se pueden ajustar al mismo tiempo.

ECO

La función **"ECO"** se utiliza para enviar la señal de control **"ECO"** a la unidad interior. La unidad interior funcionará en el modo de ahorro de energía cuando esté en el estado **"ECO"**.

- Para activar y desactivar la función **"ECO"**: Presione el botón **[F]** (Función) para cambiar a la función **"ECO"** ("" parpadea) y presione el botón **[⊙]** (Confirmar) para activar la función o el botón **[⏏]** (Cancelar) para desactivar la función (vea la Figura 26).

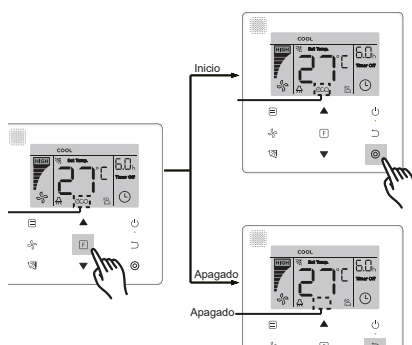


Figura 26

Nota

- Al cambiar los modos o apagar la unidad, la unidad saldrá de la función **"ECO"**.
- Una vez que haya estado funcionando durante 8 horas, el icono ECO "" ya no se encenderá, y la unidad saldrá del estado de funcionamiento **"ECO"**.
- Las funciones **"Silencio"** y **"ECO"** no se pueden ajustar al mismo tiempo.

Calefacción auxiliar (reservado)

Seguimiento

La función **"Seguimiento"** del controlador con cable está activada de forma predeterminada y su icono se ilumina cuando la función está activada.

1. Para desactivar **"Seguimiento"**: Presione los botones  (Oscilación) y  (Confirmar) al mismo tiempo y manténgalos presionados durante 5 segundos para desactivar la función **"Seguimiento"** y su icono desaparecerá.
2. Para activar **"Seguimiento"**: Cuando la función **"Seguimiento"** esté desactivada, presione los botones  (Oscilación) y  (Confirmar) al mismo tiempo, manténgalos presionados durante 5 segundos para iniciar de nuevo la función **"Seguimiento"** y se mostrará su icono  (vea la Figura 27).

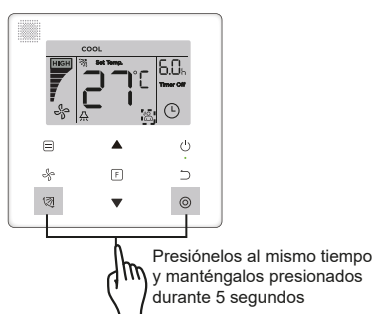


Figura 27

Nota

- Cuando las funciones **"Seguimiento"** del control remoto y del controlador con cable están activadas al mismo tiempo, la prioridad de la función **"Seguimiento"** se asigna al controlador con cable.

Temporizador

El **"Temporizador"** se utiliza para ajustar el estado de encendido/apagado temporizado de la unidad interior.

- Presione el botón  (Función) para cambiar a la función **"Temporizador"**. Cuando la unidad interior esté encendida, primero complete los ajustes de **"Temporizador de apagado"** y luego los ajustes de **"Temporizador de encendido"**. Cuando la unidad interior esté apagada, primero complete los ajustes de **"Temporizador de encendido"** y luego los ajustes de **"Temporizador de apagado"**.
- Cuando la unidad interior está apagada:
 1. Ajuste de **"Temporizador de encendido"**: Presione el botón  (Función) para ir al ajuste **"Temporizador de encendido"**, la pantalla mostrará **"0.0h Time On"** (Tiempo de encendido 0:0 h), y las palabras **"Time On"** (Tiempo de encendido) parpadearán, luego presione el botón  (Confirmar) para ir al ajuste del temporizador. Presione los botones  y  para ajustar la hora y presione el botón  (Confirmar) para completar el ajuste del temporizador (vea la Figura 28).

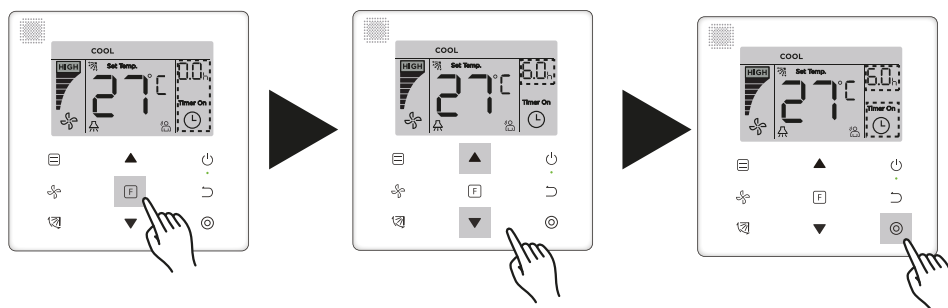


Figura 28

2. Ajuste de **“Temporizador de apagado”**: Una vez completado el ajuste **“Temporizador de encendido”**, presione el botón **[F]** (Función) para ir al ajuste **“Temporizador de apagado”**, la pantalla mostrará **“0.0h Time Off”** (Temporizador de apagado 0:0 h) y las palabras **“Time Of”** (Temporizador de apagado) parpadearán. Presione el botón **[C]** (Confirmar) para ir al ajuste del temporizador, y presione los botones **▲** y **▼** para ajustar la hora, a continuación, presione el botón **[C]** (Confirmar) para completar el ajuste del temporizador.
- Cuando la unidad interior esté encendida: Consulte las operaciones anteriores para configurar los ajustes de **“Temporizador de encendido”** y **“Temporizador de apagado”**.
3. Al ajustar los pasos de sincronización, mantenga presionados los botones **▲** y **▼** durante más de 1 segundo para ajustar rápidamente los valores de los pasos de sincronización.
- Función **“Cancelar temporizador”**: Presione el botón **[F]** (Función) para ir al ajuste del temporizador, presione **[C]** (Cancelar) o **[P]** (Encendido/Apagado) o establezca el valor de tiempo en cero para cancelar los ajustes del temporizador. Vuelve a la página principal.

Nota

- Cuando la unidad esté encendida, el controlador con cable se puede utilizar para ajustar la información del temporizador para **“Temporizador de apagado”** y **“Temporizador de encendido”** y cuando se cancela **“Temporizador de apagado”**, también se cancelará **“Temporizador de encendido”**. Cuando la unidad esté apagada, se puede ajustar la información del temporizador para **“Temporizador de encendido”** y **“Temporizador de apagado”**, y cuando se cancela **“Temporizador de encendido”**, **“Temporizador de apagado”** también se cancelará.
- Una vez que el controlador con cable haya configurado la información del temporizador, el icono del Temporizador en la pantalla de la unidad interior no se iluminará hasta que el controlador con cable envíe la señal de Encendido/Apagado a la unidad interior.
- El controlador secundario con cable no tiene función de temporizador.

Recordatorio de Limpieza del filtro

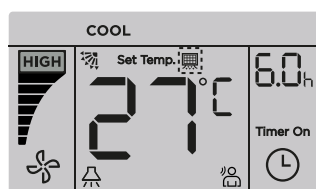


Figura 29

- Cuando el tiempo de funcionamiento alcanza el tiempo preestablecido, el icono **Filtro** “” se ilumina para recordar a los usuarios que deben limpiar el filtro.
- Mantenga presionado el botón **[Oscilación]** durante 5 segundos para quitar el icono de **Filtro** “”.
- Vaya a **“Ajuste de campo”** para activar/desactivar esta función o predeterminar la hora de esta función.
- El controlador con cable secundario no tiene función de recordatorio de limpieza de filtro .

Función de bloqueo

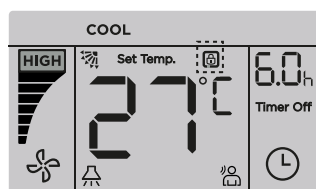


Figura 30

Funcionamiento

- Cuando el sistema contiene el controlador centralizado y el controlador con cable al mismo tiempo, el controlador centralizado puede bloquear la unidad interior para que algunas de sus funciones no estén disponibles. Si la unidad interior está bloqueada por el controlador centralizado, y el icono de pantalla del controlador con cable "Ⓜ" está encendido, y algunas operaciones no responden, compruebe el ajuste correspondiente del controlador centralizado.
- Cuando el controlador con cable bloquea el rango de temperatura por sí mismo, el icono "Ⓜ" se iluminará, pero el marco exterior "□" estará apagado. Cuando el rango de temperatura está bloqueado por el controlador centralizado, el icono de bloqueo "Ⓜ" y el marco exterior "□" se iluminarán al mismo tiempo. Cuando existen dos bloqueos, el intervalo para la visualización alterna es de 5 segundos.
- Una o más de las siguientes funciones de la unidad interior están bloqueadas cuando el icono "Ⓜ" se enciende en la pantalla: el control remoto inalámbrico, el estado de encendido/apagado, la temperatura de enfriamiento más baja establecida, la temperatura más alta establecida, el modo, la velocidad del ventilador, el bloqueo del controlador con cable.
- Cuando el controlador centralizado y el controlador con cable ejecutan la función de bloqueo en el controlador con cable al mismo tiempo, se asigna prioridad al controlador centralizado.

Controlador con cable principal/secundario

- Cuando dos controladores con cable controlan una unidad interior al mismo tiempo, un controlador será el "Principal" y el otro será el "Secundario".
- Vaya a "Ajuste de campo" para configurar el controlador "Principal" y el controlador "Secundario". El ajuste predeterminado se establece en el controlador con cable principal.

Nota

- El controlador con cable principal puede ajustar el "Temporizador", el "Filtro" y el "Parámetro de puesta en marcha de la unidad interior", pero no el control remoto secundario.
- La función "Seguimiento" del controlador con cable principal es efectiva, pero el controlador con cable secundario no tiene esta función.
- Si se utiliza cualquiera de los controladores para cambiar el estado de funcionamiento de la unidad interior, el cambio será

Ajuste de campo

Restaurar a valor predeterminado de fábrica

- En cualquier momento, mantenga presionados los botones  (Modo),  (Función),  y  al mismo tiempo durante 5 segundos, y el controlador con cable se restablecerá.

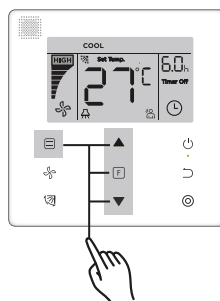


Figura 31

Consultar y establecer la dirección de la unidad interior

- Si la unidad interior no tiene dirección, la pantalla mostrará "FE" y el controlador con cable mostrará un error E9.
- Mantenga presionados los botones  y  durante 8 segundos para ir a la página y establecer la dirección de la unidad interior. Presione el botón  (Cancelar) para salir de la página de ajustes.

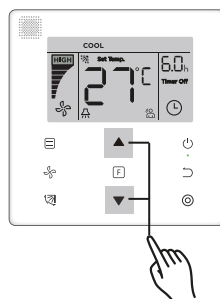


Figura 32

- Consultar y establecer la dirección de la unidad interior está permitido en la página de ajustes de direcciones.
- En la página de ajuste de direcciones, el controlador con cable muestra la dirección actual si la unidad interior tiene una dirección. Si la unidad interior no tiene dirección, presione los botones  y  para ajustar la dirección al valor requerido (el intervalo de direcciones es de 0-63). Presione el botón (Confirmar) para enviar el valor de dirección actual a la unidad interior. En 60 segundos, el controlador con cable saldrá de la página de ajustes de direcciones o presione el botón  (Cancelar) para salir de la página de ajustes de direcciones.
- En la página de ajustes de direcciones, el controlador con cable no responderá a ninguna señal del control remoto.

Ajustes del parámetro de puesta en marcha

- El parámetro de puesta en marcha se puede ajustar cuando la unidad está encendida o apagada.
- Mantenga presionados los botones  (Función) y  (Modo) durante 5 segundos para ir a la página de los ajustes del parámetro de puesta en marcha.

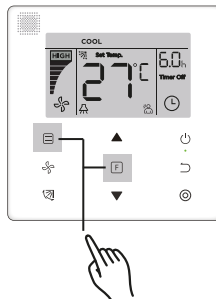


Figura 33

- Vaya a la página de ajustes del parámetro de puesta en marcha. Compruebe que **"C0"** se muestre en el área de visualización de la temperatura. Presione los botones  y  para cambiar el **"Código del parámetro de puesta en marcha"**.
- Una vez seleccionado el **"Código del parámetro de puesta en marcha"**, presione el botón  (Confirmar) para ir a los ajustes específicos del parámetro de puesta en marcha y, a continuación, presione los botones  y  para ajustar el valor. Presione el botón  (Confirmar) para guardar el valor y completar el ajuste del parámetro de puesta en marcha.
- Presione el botón  (Cancelar) para volver a la página anterior hasta que salga del ajuste del parámetro de puesta en marcha. Alternativamente, el sistema saldrá de la página de ajuste del parámetro de puesta en marcha si no existe operación durante 60 segundos.
- Cuando se encuentra en la página del ajuste del parámetro de puesta en marcha, el controlador con cable no responde a ninguna señal del control remoto.
- En la página del ajuste del parámetro de puesta en marcha, los botones  (Modo),  (Velocidad del ventilador),  (Oscilación),  (Función) y  (Encendido/Apagado) no están disponibles.

Tabla 5

Código de parámetro	Contenido del parámetro	Seleccionar parámetros	Valor predeterminado	Observaciones
C0	Ajustes de dirección	F0: Controlador con cable principal	F0	Si dos controladores con cables controlan una unidad interior, la dirección debe ser diferente
		F1: Controlador con cable secundario		
C1	Ajuste de Solo enfriamiento/ Enfriamiento y calefacción	00: Enfriamiento y calefacción	00	El modo de calefacción no está disponible en el ajuste de solo enfriamiento.
		01: Solo enfriamiento		
C2	Reservado	/	/	/
C3	Establece el tiempo para recordar a los usuarios que limpien el filtro	00 / 01 / 02 / 03 / 04	02	00: No hay recordatorio de limpieza del filtro
				01: 1250 h
				02: 2500 h
				03: 5000 h
				04: 10000 h
C4	Ajustes para el receptor infrarrojo del controlador con cable	00: Deshabilitar	01	Cuando se selecciona "Deshabilitar", el controlador con cable no puede recibir la señal de control remoto□
		01: Habilitar		
C5 ¹	Configuración de la velocidad del ventilador en el controlador con cable	00: 3 velocidades de ventilador	02	El valor predeterminado es 7 velocidades de ventilador. La comunicación bidireccional identifica automáticamente 3 velocidades de ventilador o 7 velocidades de ventilador.
		01: 4 velocidades de ventilador		
		02: 7 velocidades de ventilador		
C6	Reservado	/	/	/
C7	Muestra la temperatura ambiente interior	00: N.º	00	Si se selecciona "00", el controlador con cable mostrará la temperatura de ajuste cuando la luz de fondo esté apagada. Si se selecciona "01", el controlador con cable mostrará la temperatura ambiente cuando la luz de fondo esté apagada.
		01: Sí		

Ajuste de campo

Código de parámetro	Contenido del parámetro	Seleccionar parámetros	Valor predeterminado	Observaciones					
C8	Ajustes para encender/apagar el indicador de funcionamiento	00: Apagado	01	Seleccione "Encendido" y el indicador de funcionamiento mostrará el estado de Encendido/Apagado de la unidad interior. Seleccione "Apagado" y el indicador de funcionamiento siempre estará apagado independientemente de si la unidad interior está encendida o apagada.					
		01: Encendido							
C9 ¹	Ajuste de presión estática de la unidad interior	A5 ² : 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08 / 09 / FF H-DUCT ³ , FAPU ⁴ : 00 / 01 / ~ / 19 / FF	01	La unidad interior establece la presión estática correspondiente seleccionada. Consulte la unidad interior para obtener valores específicos de presión estática. FF: el valor inicial se basa en los datos de la unidad interior leídos por el controlador con cable.					
C10 ¹	Establece el retardo de tiempo para detener el ventilador de la unidad interior.	00 / 01 / 02 / 03 / FF	00	Parámetro	00	01	02	03	FF
				El valor representa	4 min	8 min	12 min	16 min	Basado en los interruptores de dial en la PCB principal de la unidad interior
C11 ¹	Unidad interior: ajustes de temperatura de prevención para las corrientes de frío	00 / 01 / 02 / 03 / FF	00	Parámetro	00	01	02	03	FF
				Unidad interior común	15 °C/ 59 °F	20 °C/ 68 °F	24 °C/ 75 °F	26 °C/ 79 °F	Basado en los interruptores de dial en la PCB principal de la unidad interior
				FAPU	14 °C/ 57 °F	12 °C/ 54 °F	16 °C/ 61 °F	18 °C/ 64 °F	Basado en los interruptores de dial en la PCB principal de la unidad interior

Ajuste de campo

Código de parámetro	Contenido del parámetro	Seleccionar parámetros	Valor predeterminado	Observaciones						
C12 ^{1 y 5}	Ajuste de compensación de temperatura de calefacción de la unidad interior	00 / 01 / 02 / 03 / 04 / FF	00	Parámetro	00	01	02	03	04	FF
				El valor representa	6 °C/ 43 °F	2 °C/ 36 °F	4 °C/ 39 °F	6 °C/ 43 °F	0 °C/ 32 °F	Basado en los interruptores de dial en la PCB principal de la unidad interior
C13 ^{1 y 5}	Enfriamiento de la unidad interior: Ajuste de compensación de temperatura	00 / 01 / FF	00	Parámetro	00		01		FF	
				El valor representa	0 °C/32 °F		2 °C/36 °F		Basado en los interruptores de dial en la PCB principal de la unidad interior	
C14 ⁵	Ajuste de la calefacción auxiliar de la unidad interior	00: Ninguno	Unidad interior común: 01 FAPU: 00							
		01: Disponible								
C15 ¹	Ajuste de reinicio automático de la unidad interior	00: Ninguno	01							
		01: Disponible								
C16 ⁵	Ajuste de oscilación vertical de la unidad interior	00: Ninguno	Unidad interior común: 01 FAPU: 00							
		01: Disponible								

Ajuste de campo

Código de parámetro	Contenido del parámetro	Seleccionar parámetros	Valor predeterminado	Observaciones				
C17 ^s	Ajuste de oscilación horizontal de la unidad interior	00: Ninguno 01: Disponible	Unidad interior común: 01 FAPU: 00					
C18	Pantalla de la unidad interior para recibir las señales del control remoto	00: N.º 01: Sí	01					
C19	Timbre de los anillos de la unidad interior	00: N.º	01					
		01: Sí						
C20	Corrección de Seguimiento de la temperatura del controlador con cable	Celsius: -5,0~5,0 °C Fahrenheit: -9,0~9,0 °F	Celsius: -3,0 °C Fahrenheit: -6,0 °F	La precisión es de 0,5 °C/1 °F.				
C21	Ajusta el valor de temperatura ambiente exterior cuando el calefactor auxiliar está encendido	Celsius: -5~20 °C Fahrenheit: 23-68 °F	Celsius: 15 °C Fahrenheit: 59 °F	La precisión es de 1 °C/1 °F.				
C22	Intervalo del selector de modo en modo Auto	00/01/02/03	00	Parámetro	00	01	02	03
				El valor representa	15 min	30 min	60 min	90 min

Código de parámetro	Contenido del parámetro	Seleccionar parámetros	Valor predeterminado	Observaciones			
C23	Selecciona la apertura de la válvula de expansión electrónica en modo Calefacción o en modo En espera	00 / 01 / FF	01	Parámetro	00	01	FF
				El valor representa	72	96	Basado en los interruptores de dial en la PCB principal de la unidad interior
C24	Unidad de temperatura	00/01	00	00: Celsius 01: Fahrenheit			
C25	Establece el límite más bajo de la temperatura de enfriamiento	Celsius: 30 °C - 17 °C (el valor predeterminado es 17 °C) Fahrenheit: 86 °F - 62 °F (el valor predeterminado es 62 °F)	Celsius: 17 °C Fahrenheit: 62 °F	Solo disponible para el controlador con cable.			
C26	Establece el límite más alto de la temperatura de calefacción	Celsius: 30 °C - 17 °C (el valor predeterminado es 17 °C) Fahrenheit: 86 °F - 62 °F (el valor predeterminado es 62 °F)	Celsius: 30 °C Fahrenheit: 86 °F	Solo disponible para el controlador con cable.			
C27	Establecido para mostrar 0,5 °C	00/01	00	00: Muestra 1 °C 01: Muestra 0,5 °C			

- Una vez que la unidad interior y el controlador con cable se comunican correctamente, los parámetros predeterminados de la tabla anterior se sincronizarán con los ajustes de la unidad interior.
- Solo para una unidad de conducto estática media

Capacidad	00	01	02	03	04	05	06	07	08	09
1,8 - 7,1 kW	0 Pa	10 Pa	20 Pa	30 Pa	40 Pa	50 Pa	50 Pa	50 Pa	50 Pa	50 Pa
8,0 - 12,5 kW	10 Pa	20 Pa	30 Pa	40 Pa	50 Pa	60 Pa	70 Pa	80 Pa	90 Pa	100 Pa
14,0 kW	30 Pa	40 Pa	50 Pa	60 Pa	70 Pa	80 Pa	90 Pa	100 Pa	125 Pa	150 Pa

- Solo para una unidad de conducto estática alta

Capacidad	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
7,1 - 16,0 kW	30 Pa	50 Pa	60 Pa	70 Pa	80 Pa	90 Pa	100 Pa	110 Pa	120 Pa	130 Pa	140 Pa	150 Pa	160 Pa	170 Pa	180 Pa	190 Pa	200 Pa	200 Pa	200 Pa	200 Pa
20,0 - 28,0 kW	30 Pa	50 Pa	60 Pa	70 Pa	80 Pa	90 Pa	100 Pa	110 Pa	120 Pa	130 Pa	140 Pa	150 Pa	160 Pa	170 Pa	180 Pa	190 Pa	200 Pa	210 Pa	230 Pa	250 Pa
40,0 - 56,0 kW	100 Pa	120 Pa	140 Pa	160 Pa	180 Pa	200 Pa	220 Pa	240 Pa	260 Pa	270 Pa	280 Pa	290 Pa	300 Pa	310 Pa	320 Pa	330 Pa	340 Pa	360 Pa	380 Pa	400 Pa

Ajuste de campo

Solo para modelos FAPU

Capacidad	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
14,0 kW	100 Pa	110 Pa	120 Pa	130 Pa	140 Pa	150 Pa	160 Pa	170 Pa	180 Pa	190 Pa	200 Pa	210 Pa	220 Pa	230 Pa	240 Pa	250 Pa	250 Pa	250 Pa	250 Pa	250 Pa
20,0 - 28,0 kW	100 Pa	120 Pa	140 Pa	160 Pa	180 Pa	200 Pa	220 Pa	240 Pa	260 Pa	270 Pa	280 Pa	290 Pa	300 Pa	310 Pa	320 Pa	330 Pa	340 Pa	360 Pa	380 Pa	400 Pa
45,0 - 56,0 kW	100 Pa	120 Pa	140 Pa	160 Pa	180 Pa	200 Pa	220 Pa	240 Pa	260 Pa	270 Pa	280 Pa	290 Pa	300 Pa	310 Pa	320 Pa	330 Pa	340 Pa	360 Pa	380 Pa	400 Pa

4. Este parámetro no está disponible para los modelos FAPU.

Nota

- El controlador con cable secundario solo puede realizar los ajustes de parámetros para C0-C8 y C24-C27.

Operaciones de consulta

En la página principal, mantenga presionados los botones  (Velocidad del ventilador) y  (Confirmar) al mismo tiempo durante 5 segundos para ir a la página de consulta. Puede consultar los parámetros de operación de comprobación de las unidades exteriores e interiores, así como la versión del programa del controlador con cable.

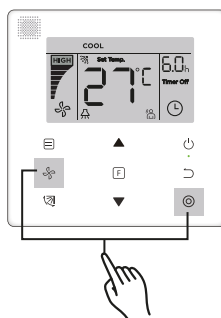


Figura 34

Presione los botones  y  para seleccionar la unidad interior o exterior: o00-o03 para la unidad exterior; n00-n63 para la unidad interior.

- presione el botón  (Confirmar) para consultar el parámetro o el botón  (Cancelar) para salir de la función de consulta.

En la página de consulta, presione los botones  y  para consultar los parámetros. Los parámetros se pueden consultar uno a la vez.

- Se muestra el **"Check No."** (N.º de comprobación) en el área del temporizador en la parte superior de la página de consulta, y el contenido del parámetro seleccionado se muestra en el área de temperatura.

Tabla 6

N.º	Parámetro mostrado en el controlador con cable durante la comprobación aleatoria de la ODU
1	Dirección de la ODU
2	Temperatura ambiente exterior (T4) (°C)
3	Temperatura promedio T2/T2B (corregida) (°C)
4	Temperatura de la tubería del termocambiador principal (T3) (°C)
5	Temperatura de descarga del compresor A (°C)
6	Temperatura de descarga del compresor A (°C)
7	Corriente del compresor A del inversor (A)
8	Corriente del compresor B del inversor (A)
9	Reservado
10	Velocidad del ventilador
11	Posición de EXVA/4
12	Posición de EXVB/4
13	Posición de EXVC/4
14	Modo de funcionamiento
15	Modo de prioridad
16	Corrección del requisito de capacidad total de la unidad interior
17	Número de unidades exteriores
18	Capacidad total de la unidad exterior
19	Temperatura del disipador térmico del módulo inversor. A (°C)
20	Temperatura del disipador térmico del módulo inversor. B (°C) (reservado)
21	Reservado
22	--
23	Temperatura de salida del termocambiador de placas (T6B) (°C)
24	Temperatura de entrada del termocambiador de placas (T6A) (°C)
25	Grado de sobrecalentamiento de descarga del sistema
26	--
27	Número de unidades internas en funcionamiento (en el caso de direcciones virtuales, este es el número de unidades con las direcciones virtuales incluidas)

Ajuste de campo

N.º	Parámetro mostrado en el controlador con cable durante la comprobación aleatoria de la ODU
28	--
29	Alta presión del sistema
30	Baja presión del sistema (reservado)
31	Código de protección o error más reciente
32	Frecuencia del compresor del inversor A
33	Frecuencia del compresor del inversor B
34	Capacidad de la unidad
35	Versión del programa N.º
36	Dirección de la unidad interior VIP
37	Reservado 2
38	Reservado 2

Tabla 7

N.º	Parámetro mostrado en el controlador con cable durante la comprobación aleatoria de la unidad interior (IDU)
1	Dirección de comunicación de la IDU
2	Capacidad (kW) de la IDU
3	Dirección de red de la IDU (igual que la dirección de comunicación)
4	Establece la temperatura Ts
5	Temperatura ambiente T1
6	Temperatura interior T2 real
7	Temperatura interior T2A real
8	Temperatura interior T2B real
9	Temperatura Ta (FAPU)
10	Temperatura de descarga del compresor (muestra la temperatura de descarga alta)
11	Grado de sobrecalentamiento específico (reservado)
12	Posición EXV/8
13	Versión del software N.º
14	Código de error

Visualización de errores

- Cuando existe un error de comunicación entre el controlador con cable y la unidad interior, el controlador con cable mostrará el código de error "E9" y una indicación de un falla de comunicación en el controlador con cable.
- Cuando la unidad interior o exterior falla, la pantalla del controlador con cable muestra la dirección de las unidades defectuosas en el área del temporizador y el código de error en la zona de temperatura.

Tabla 8

Lista de códigos de errores de la IDU:

Código de error	Definición y descripción del error
FE	La unidad interior no tiene dirección
E0	Error de conflicto de modo
E1	Error de comunicación entre la unidad interior y la exterior
E2	Error del sensor T1
E3	Error del sensor T2
E4	Error del sensor T2B
E5	Error del sensor T2A (reservado)
E6	Error del ventilador en la unidad interior
E7	Error de EEPROM
Ed	Error de la unidad exterior
EE	Error de alarma de nivel de agua
Eb	La válvula de expansión electrónica de la unidad interior tiene un error

Tabla 9

Lista de códigos de errores de la ODU:

Código de error	Definición y descripción del error	Código de error	Definición y descripción del error
E0	Falla de comunicación de la ODU	XF1	Error de PTC
E1	Protección de fase de la fuente de alimentación trifásica	F3	Error en el sensor de temperatura en la salida del termocambiador de placas T6B
E2	Error de comunicación entre la unidad interior y la exterior	F5	Error en el sensor de temperatura en la entrada del termocambiador de placas T6A
E4	Error en el sensor de temperatura del condensador (T3) o en el sensor de temperatura ambiente (T4)	P0	Protección de la temperatura superior del compresor del inversor

Ajuste de campo

Código de error	Definición y descripción del error	Código de error	Definición y descripción del error
E5	Protección de voltaje	P1	Protección de presión alta
E7	Falla del sensor de temperatura de descarga	P2	Protección de presión baja
E8	Error de dirección de la ODU	XP3	Protección contra sobrecorriente del compresor
XE9	Falla de coincidencia de la unidad	P4	Protección contra la temperatura de descarga excesiva del compresor
EL	Reservado	P5	Protección del condensador contra temperaturas altas
XH4	Falla de protección del módulo inversor	XL0	Falla del módulo inversor
H5	3 fallas de protección de P2 en 60 minutos	XL1	Protección de bajo voltaje de bus de DC
H6	3 fallas de protección de P4 en 100 minutos	XL2	Protección de alto voltaje de bus de DC
H7	Error de disminución de la cantidad de la IDU	XL3	Reservado
H8	Falla del sensor de presión alta	XL4	Sincronización/bucle cerrado/falla del MCE
H9	3 fallas de protección de P9 en 60 minutos	XL5	Protección de velocidad cero
Hb	Falla del sensor de presión baja	XL7	Protección contra errores de secuencia de fase
C7	3 fallas de protección de PL en 100 minutos	XL8	Protección contra cambios bruscos de velocidad en el compresor > 15 Hz
F0	3 fallas de protección de PP en 100 minutos	XL9	Protección para evitar la diferencia entre el ajuste de velocidad y la velocidad de funcionamiento real del compresor > 15 Hz

Solución de problemas

Tabla 10

Código de error y descripción		Posibles causas	Posibles soluciones
No hay visualización en el controlador con cable		IDU no está encendido	Encienda la IDU.
		Error de conexión del controlador con cable	Primero apague la IDU y, a continuación, compruebe si la conexión del controlador con cable es correcta. Consulte la sección 3.4 sobre los requisitos de cableado.
		Controlador con cable dañado	Reemplace el controlador con cable.
		Fallo de la fuente de alimentación de la PCB principal de IDU	Reemplace la PCB principal de IDU.
E9	Falla del controlador con cable y de comunicación de la IDU	La IDU no tiene dirección o la dirección de la IDU está duplicada	Establezca una dirección para la IDU; las direcciones IDU duplicadas no están permitidas en el mismo sistema.
		Controlador con cable dañado	Reemplace el controlador con cable.
		Falla de la PCB principal de la IDU	Reemplace la PCB principal de IDU.
Algunas funciones de la unidad interior no se pueden controlar, como el Encendido/Apagado, la temperatura, el modo, la velocidad del ventilador y el bloqueo del controlador con cable.		El icono “🔒” en el controlador con cable está siempre encendido.	Compruebe si el controlador centralizado ha bloqueado la unidad interior.







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Somos conscientes del medio ambiente
cuando realizamos prácticas de impresión en
un esfuerzo por reducir los residuos.





R410A

Commercial Air Conditioners

Service Manual



4TVY0077H8000AA

4TVY0192H8000AA

4TVY0096H8000AA

4TVY0210H8000AA

4TVY0115H8000AA

4TVY0229H8000AA

4TVY0140H8000AA

4TVY0249H8000AA

4TVY0155H8000AA

4TVY0268H8000AA

4TVY0170H8000AA

4TVY0290H8000AA

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Part 1

General Information

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1 Indoor and Outdoor Unit Capacities

1.1 Indoor Units

1.1.1 Standard indoor units

Table 1-1.1: Standard indoor unit abbreviation codes

Abbreviation code	Type
Q1	One-way Cassette
Q2	Two-way Cassette
Q4C	Compact Four-way Cassette
Q4	Four-way Cassette
T2	Medium Static Pressure Duct

Abbreviation code	Type
T1	High Static Pressure Duct
G	Wall-mounted
DL	Ceiling & Floor
F	Floor Standing

Table 1-1.2: Standard indoor unit capacity range

Capacity		Capacity index	Q1	Q2	Q4C	Q4	T2	T1	G	DL	F
kW	HP										
1.8	0.6	18	18	—	—	—	—	—	—	—	—
2.2	0.8	22	22	22	22	—	22	—	22	—	22
2.8	1	28	28	28	28	28	28	—	28	—	28
3.6	1.25	36	36	36	36	36	36	—	36	36	36
4.5	1.6	45	45	45	45	45	45	—	45	45	45
5.6	2	56	56	56	—	56	56	—	56	56	56
7.1	2.5	71	71	71	—	71	71	71	71	71	71
8.0	3	80	—	—	—	80	80	80	80	80	80
9.0	3.2	90	—	—	—	90	90	90	90	90	—
10.0	3.6	100	—	—	—	100	—	—	—	—	—
11.2	4	112	—	—	—	112	112	112	—	112	—
14.0	5	140	—	—	—	140	140	140	—	140	—
16.0	6	160	—	—	—	—	—	160	—	160	—
20.0	7	200	—	—	—	—	—	200	—	—	—
25.0	9	250	—	—	—	—	—	250	—	—	—
28.0	10	280	—	—	—	—	—	280	—	—	—
40.0	14	400	—	—	—	—	—	400	—	—	—
45.0	16	450	—	—	—	—	—	450	—	—	—
56.0	20	560	—	—	—	—	—	560	—	—	—

1.1.2 Fresh air processing unit

Table 1-1.3: Fresh air processing unit capacity range

Capacity	12.5kW	14kW	20kW	25kW	28kW	45kW	56kW
Capacity index	125	140	200	250	280	450	560

1.2 Heat recovery ventilator

Table 1-1.4: Heat recovery ventilator capacity range

Capacity	200m ³ /h	300m ³ /h	400m ³ /h	500m ³ /h	800m ³ /h	1000m ³ /h	1500m ³ /h	2000m ³ /h
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1.3 Outdoor Units

Table 1-1.5: Outdoor unit capacity range

Capacity	Model Name	Combination Type
8HP	4TVY0077H8000AA	/
10HP	4TVY0096H8000AA	/
12HP	4TVY0115H8000AA	/
14HP	4TVY0140H8000AA	/
16HP	4TVY0155H8000AA	/
18HP	4TVY0170H8000AA	/
20HP	4TVY0192H8000AA	/
22HP	4TVY0210H8000AA	/
24HP	4TVY0229H8000AA	/
26HP	4TVY0249H8000AA	/
28HP	4TVY0268H8000AA	/
30HP	4TVY0290H8000AA	/
32HP	4TVY0310H8000AA	16HP+16HP
34HP	4TVY0325H8000AA	22HP+12HP
36HP	4TVY0347H8000AA	20HP+16HP
38HP	4TVY0365H8000AA	22HP+16HP
40HP	4TVY0384H8000AA	24HP+16HP
42HP	4TVY0404H8000AA	26HP+16HP
44HP	4TVY0423H8000AA	28HP+16HP
46HP	4TVY0445H8000AA	30HP+16HP
48HP	4TVY0459H8000AA	26HP+22HP
50HP	4TVY0478H8000AA	28HP+22HP
52HP	4TVY0500H8000AA	30HP+22HP
54HP	4TVY0517H8000AA	28HP+26HP
56HP	4TVY0536H8000AA	28HP+28HP
58HP	4TVY0558H8000AA	30HP+28HP
60HP	4TVY0580H8000AA	30HP+30HP
62HP	4TVY0600H8000AA	30HP+16HP+16HP
64HP	4TVY0614H8000AA	26HP+22HP+16HP
66HP	4TVY0633H8000AA	28HP+22HP+16HP
68HP	4TVY0655H8000AA	30HP+22HP+16HP
70HP	4TVY0672H8000AA	28HP+26HP+16HP
72HP	4TVY0691H8000AA	28HP+28HP+16HP
74HP	4TVY0713H8000AA	30HP+28HP+16HP
76HP	4TVY0735H8000AA	30HP+30HP+16HP
78HP	4TVY0746H8000AA	28HP+28HP+22HP
80HP	4TVY0768H8000AA	30HP+28HP+22HP
82HP	4TVY0790H8000AA	30HP+30HP+22HP
84HP	4TVY0804H8000AA	28HP+28HP+28HP
86HP	4TVY0826H8000AA	30HP+28HP+28HP
88HP	4TVY0848H8000AA	30HP+30HP+28HP
90HP	4TVY0870H8000AA	30HP+30HP+30HP

Notes:

- The combinations of units shown in the table are factory-recommended. Other combinations of units are also possible.

2 External Appearance

2.1 Indoor Units

2.1.1 Standard indoor unit

Table 1-2.1: Standard indoor unit appearance

<div>One-way Cassette</div> <div>Q1</div> <div>  </div>	<div>Two-way Cassette</div> <div>Q2</div> <div>  </div>
<div>Compact Four-way Cassette</div> <div>Q4C</div> <div>  </div>	<div>Four-way Cassette</div> <div>Q4</div> <div>  </div>
<div>Medium Static Pressure Duct</div> <div>T2</div> <div>  </div>	<div>High Static Pressure Duct</div> <div>T1</div> <div>  </div>
<div>Wall-mounted</div> <div>G</div> <div>  </div>	<div>Ceiling & Floor</div> <div>DL</div> <div>  </div>
<div>Floor Standing</div> <div>F</div> <div>  </div>	

2.1.2 Fresh air processing unit

Table 1-2.2: Fresh air processing unit appearance

<div>Fresh Air Processing Unit</div> <div>FA</div> <div>  </div>

2.2 Heat Recovery Ventilator

Table 1-2.3: Heat recovery ventilator appearance

<div>Heat Recovery Ventilator</div> <div>  </div>
--

2.3 Outdoor Units

2.3.1 Single units

Table 1-2.4: Single outdoor unit appearance

8/10/12/14/16HP (with single fan)	18/20/22HP (with dual fans)	24/26/28/30 (with dual fans)
		

2.3.2 Combinations of units

Table 1-2.5: Combination outdoor unit appearance

32HP	34/36/38/HP
	
40/42/44/46HP	48/50/52HP
	
54/56/58/60HP	62HP
	
64/66/68HP	70/72/74/76HP
	

TVR Pro CO 50/60Hz



78/80/82HP



84/86/88/90HP



3 Outdoor Unit Combinations

Table 1-3.1: Outdoor unit combinations

System capacity		Number of units	Modules ¹												Outdoor branch joint kit ²
kW	HP		8	10	12	14	16	18	20	22	24	26	28	30	
22.4	8	1	•												—
28.0	10	1		•											
33.5	12	1			•										
40.0	14	1				•									
45.0	16	1					•								
50.0	18	1						•							
56.0	20	1							•						
61.5	22	1								•					
67.0	24	1									•				
73.0	26	1										•			
78.5	28	1											•		
85.0	30	1												•	
90.0	32	2					••								TODK02UTHP
95.0	34	2			•					•					
101.0	36	2					•		•						
106.5	38	2					•			•					
112.0	40	2					•				•				
118.0	42	2					•					•			
123.5	44	2					•						•		
130.0	46	2					•							•	
134.5	48	2								•		•			
140.0	50	2								•			•		
146.5	52	2								•				•	
151.5	54	2										•	•		
157.0	56	2											••		
163.5	58	2											•	•	
170.0	60	2												••	
175.0	62	3					••							•	TODK03UTHP
179.5	64	3					•			•		•			
185.0	66	3					•			•			•		
191.5	68	3					•			•				•	
196.5	70	3					•					•	•		
202.0	72	3					•						••		
208.5	74	3					•						•	•	
215.0	76	3					•							••	
218.5	78	3								•			••		
225.0	80	3								•			•	•	
231.5	82	3								•				••	
235.5	84	3											•••		
242.0	86	3											••	•	
248.5	88	3											•	••	
255.0	90	3												•••	

Notes:

1. The combinations of units shown in the table are factory-recommended. Other combinations of units are also possible.
2. For systems with two or more outdoor units, outdoor branch joints (sold separately) are required.

4 Combination Ratio

$$\text{Combination ratio} = \frac{\text{Sum of capacity indexes of the indoor units}}{\text{Capacity index of the outdoor units}}$$

Table 1-4.1: Indoor and outdoor unit combination ratio limitations

Type	Minimum combination ratio	Maximum combination ratio		
		Standard indoor units only	Fresh air processing units only	Fresh air processing units and standard indoor units together
TVR Pro CO series ODU	50%	130% ¹	100%	100% ²

Notes:

- The total capacity of the indoor units can be up to a maximum of 130% of the combined capacity of the outdoor unit for a system where not all the indoor units are operating at the same time.
- When fresh air processing units are installed together with standard indoor units, the total capacity of the fresh air processing units must not exceed 30% of the total capacity of the outdoor units and the combination ratio must not exceed 100%.

Table 1-4.2: Combinations of Indoor and outdoor units

Outdoor unit capacity			Sum of capacity indexes of connected indoor units (standard indoor units only)	Sum of capacity indexes of connected indoor units (fresh air processing units and standard indoor units together)	Maximum number of connected indoor units
kW	HP	Capacity index			
22.4	8	224	112 to 291.2	112 to 224	13
28	10	280	140 to 364	140 to 280	16
33.5	12	335	167.5 to 435.5	167.5 to 335	20
40	14	400	200 to 520	200 to 400	23
45	16	450	225 to 585	225 to 450	26
50	18	500	250 to 650	250 to 500	29
56	20	560	280 to 728	280 to 560	33
61.5	22	615	307.5 to 799.5	307.5 to 615	36
67	24	670	335 to 871	335 to 670	39
73	26	730	365 to 949	365 to 730	43
78.5	28	785	392.5 to 1020.5	392.5 to 785	46
85	30	850	425 to 1105	425 to 850	50
90	32	900	450 to 1170	450 to 900	53
95	34	950	475 to 1235	475 to 950	56
101	36	1010	505 to 1313	505 to 1010	59
106.5	38	1065	532.5 to 1384.5	532.5 to 1065	63
112	40	1120	560 to 1456	560 to 1120	64
118	42	1180	590 to 1534	590 to 1180	
123.5	44	1235	617.5 to 1605.5	617.5 to 1235	
130	46	1300	650 to 1690	650 to 1300	
134.5	48	1345	672.5 to 1748.5	672.5 to 1345	
140	50	1400	700 to 1820	700 to 1400	
146.5	52	1465	732.5 to 1904.5	732.5 to 1465	
151.5	54	1515	757.5 to 1969.5	757.5 to 1515	
157	56	1570	785 to 2041	785 to 1570	
163.5	58	1635	817.5 to 2125.5	817.5 to 1635	
170	60	1700	850 to 2210	850 to 1700	
175	62	1750	875 to 2275	875 to 1750	
179.5	64	1795	897.5 to 2333.5	897.5 to 1795	
185	66	1850	925 to 2405	925 to 1850	
191.5	68	1915	957.5 to 2489.5	957.5 to 1915	
196.5	70	1965	982.5 to 2554.5	982.5 to 1965	
202	72	2020	1010 to 2626	1010 to 2020	
208.5	74	2085	1042.5 to 2710.5	1042.5 to 2085	
215	76	2150	1075 to 2795	1075 to 2150	
218.5	78	2185	1092.5 to 2840.5	1092.5 to 2185	
225	80	2250	1125 to 2925	1125 to 2250	
231.5	82	2315	1157.5 to 3009.5	1157.5 to 2315	
235.5	84	2355	1177.5 to 3061.5	1177.5 to 2355	
242	86	2420	1210 to 3146	1210 to 2420	
248.5	88	2485	1242.5 to 3230.5	1242.5 to 2485	
255	90	2550	1275 to 3315	1275 to 2550	

Part 2

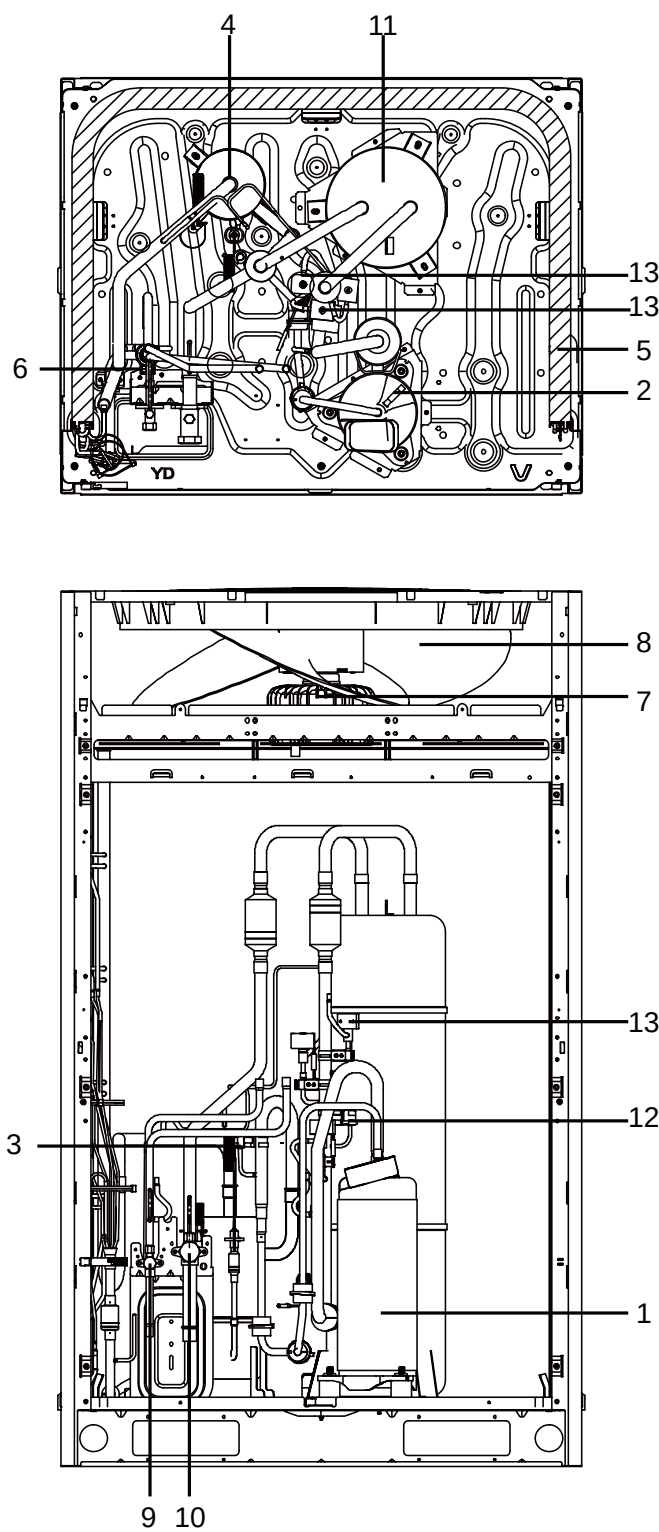
Component Layout and Refrigerant Circuits

1	Layout of Functional Components	12
2	Piping Diagrams	15
3	Refrigerant Flow Diagrams	19

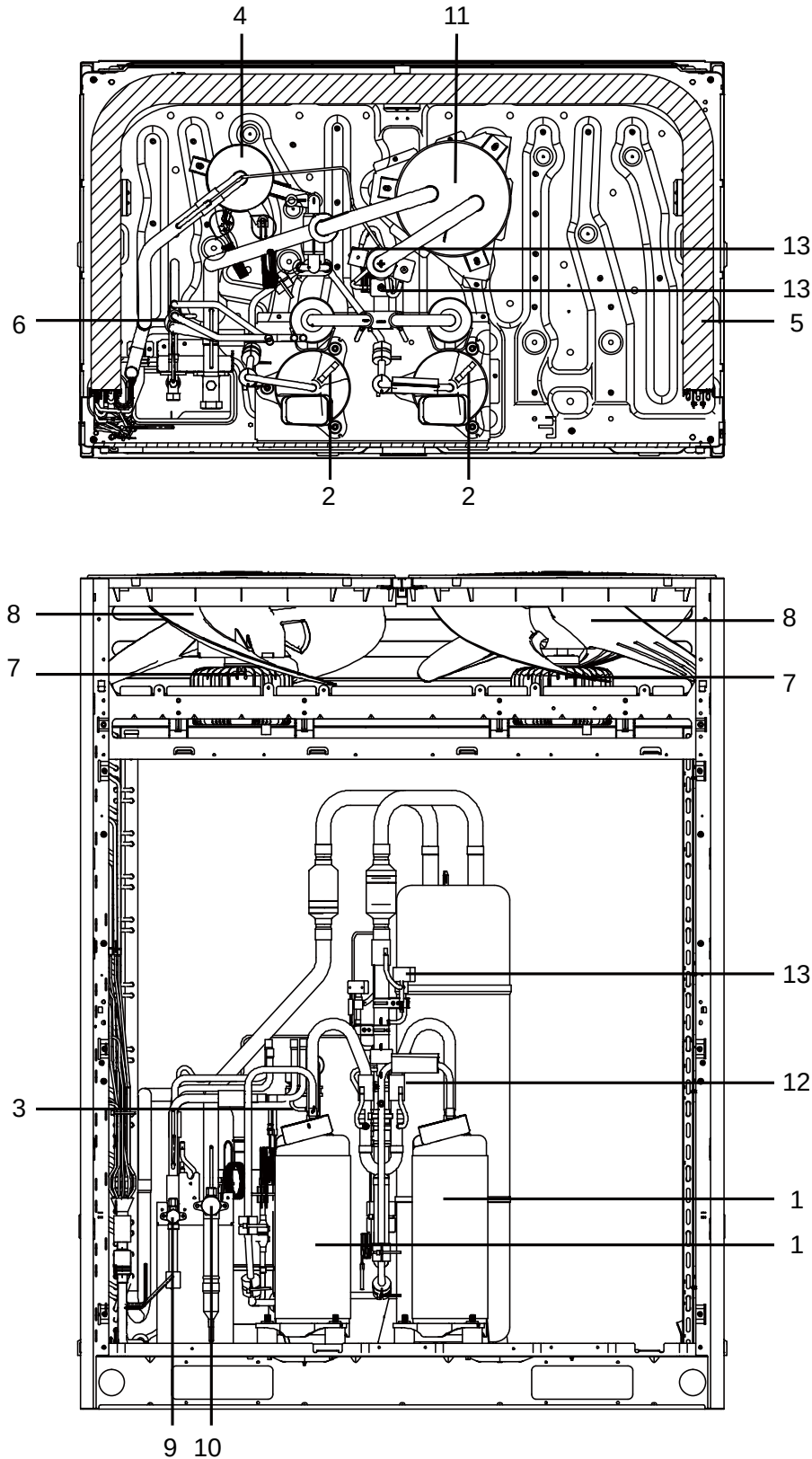
1 Layout of Functional Components

8-16HP

Figure 2-1.1: 8-16HP layout of functional components



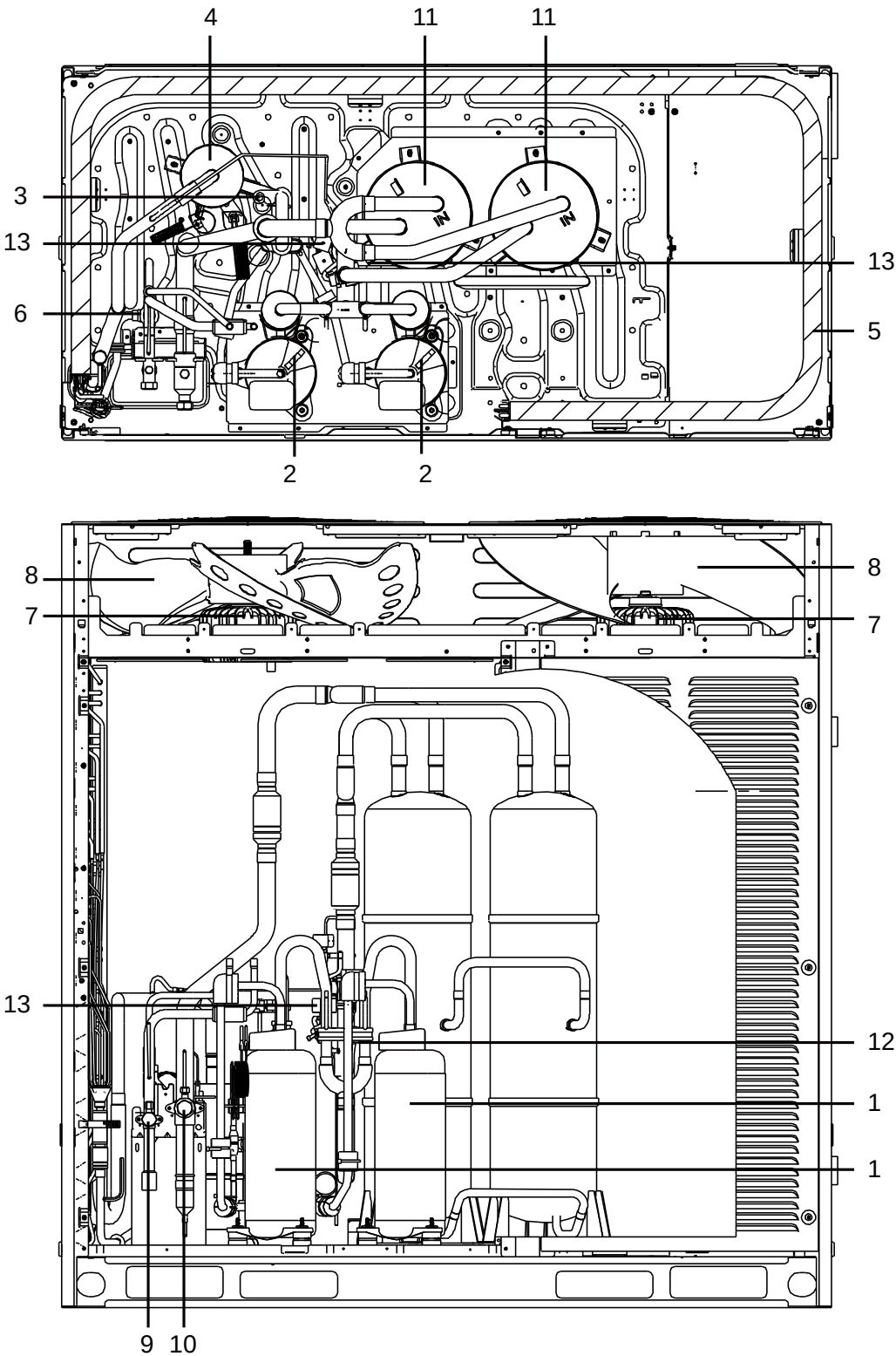
Legend	
No.	Parts name
1	Compressor
2	Discharge temperature sensor
3	High pressure sensor
4	Oil separator
5	Heat exchanger
6	Electronic expansion valve (EXV)
7	Fan motor
8	Fan
9	Stop valve (liquid side)
10	Stop valve (gas side)
11	Accumulator
12	Low pressure switch
13	Solenoid valve

18-22HP
Figure 2-1.2: 18-22HP layout of functional components


Legend	
No.	Parts name
1	Compressor
2	Discharge temperature sensor
3	High pressure sensor
4	Oil separator
5	Heat exchanger
6	Electronic expansion valve (EXV)
7	Fan motor
8	Fan
9	Stop valve (liquid side)
10	Stop valve (gas side)
11	Accumulator
12	Low pressure switch
13	Solenoid valve

24-30HP

Figure 2-1.3: 24-30HP layout of functional components

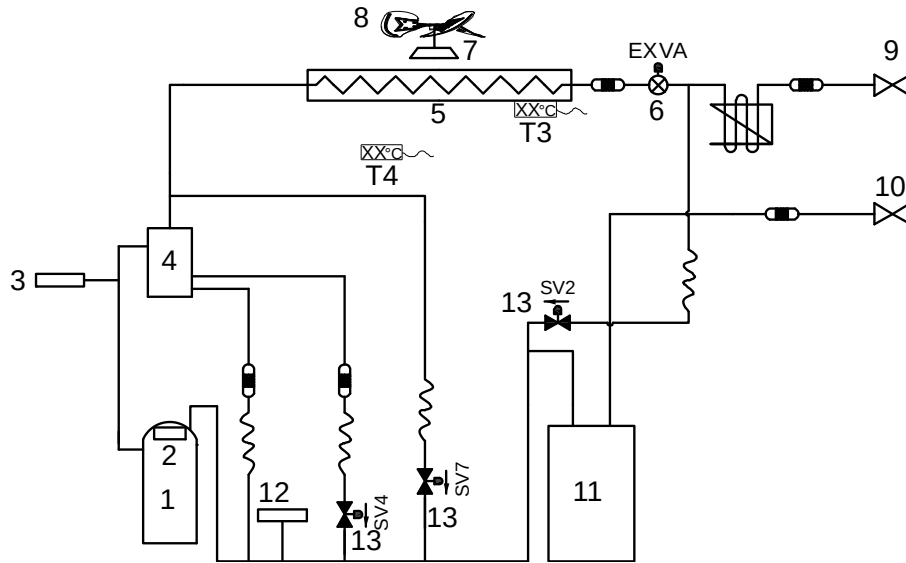


Legend	
No.	Parts name
1	Compressor
2	Discharge temperature sensor
3	High pressure sensor
4	Oil separator
5	Heat exchanger
6	Electronic expansion valve (EXV)
7	Fan motor
8	Fan
9	Stop valve (liquid side)
10	Stop valve (gas side)
11	Accumulator
12	Low pressure switch
13	Solenoid valve

2 Piping Diagrams

8-16HP

Figure 2-2.1: 8-16HP piping diagram



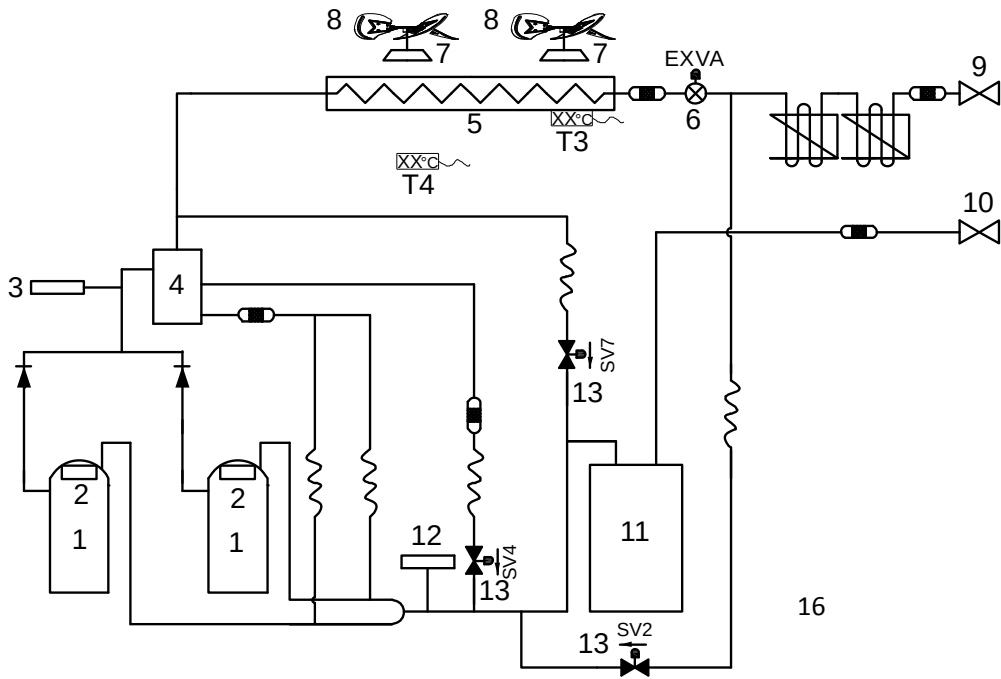
Legend			
No.	Parts name	No.	Parts name
1	Compressor	10	Stop valve (gas side)
2	Discharge temperature sensor	11	Accumulator
3	High pressure sensor	12	Low pressure switch
4	Oil separator	13	Solenoid valve
5	Heat exchanger	T3	Heat exchanger temperature sensor
6	Electronic expansion valve (EXV)	T4	Outdoor ambient temperature sensor
7	Fan motor	SV2	Liquid injection valve
8	Fan	SV4	Oil return valve
9	Stop valve (liquid side)	SV7	Pressure valve

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18-22HP



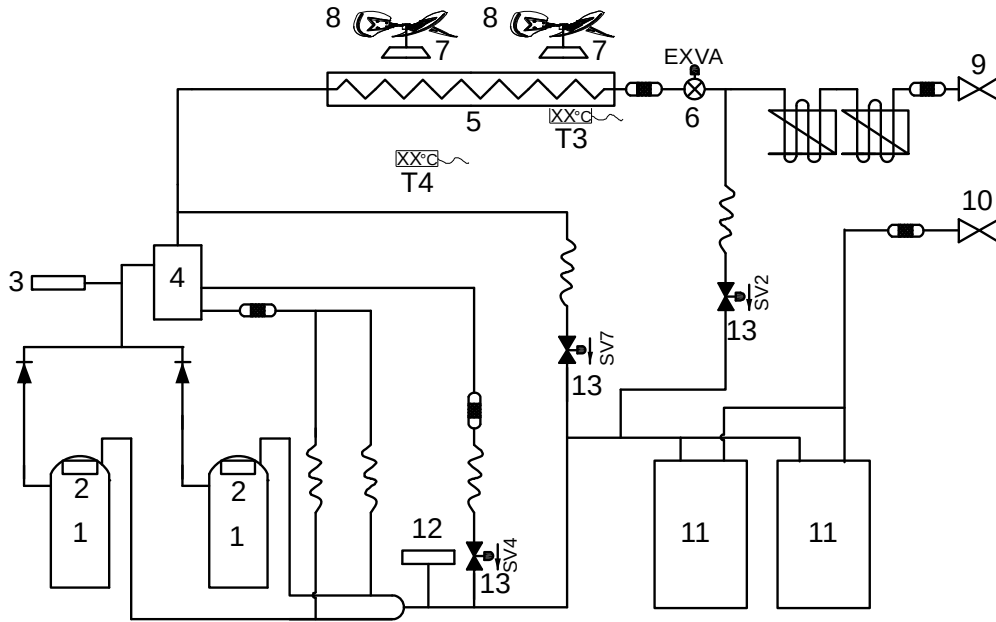
Figure 2-2.2: 18-22HP piping diagram



Legend			
No.	Parts name	No.	Parts name
1	Compressor	10	Stop valve (gas side)
2	Discharge temperature sensor	11	Accumulator
3	High pressure sensor	12	Low pressure switch
4	Oil separator	13	Solenoid valve
5	Heat exchanger	T3	Heat exchanger temperature sensor
6	Electronic expansion valve (EXV)	T4	Outdoor ambient temperature sensor
7	Fan motor	SV2	Liquid injection valve
8	Fan	SV4	Oil return valve
9	Stop valve (liquid side)	SV7	Pressure valve

24-30HP

Figure 2-2.3: 24-30HP piping diagram



Legend			
No.	Parts name	No.	Parts name
1	Compressor	10	Stop valve (gas side)
2	Discharge temperature sensor	11	Accumulator
3	High pressure sensor	12	Low pressure switch
4	Oil separator	13	Solenoid valve
5	Heat exchanger	T3	Heat exchanger temperature sensor
6	Electronic expansion valve (EXV)	T4	Outdoor ambient temperature sensor
7	Fan motor	SV2	Liquid injection valve
8	Fan	SV4	Oil return valve
9	Stop valve (liquid side)	SV7	Pressure valve

Key components:

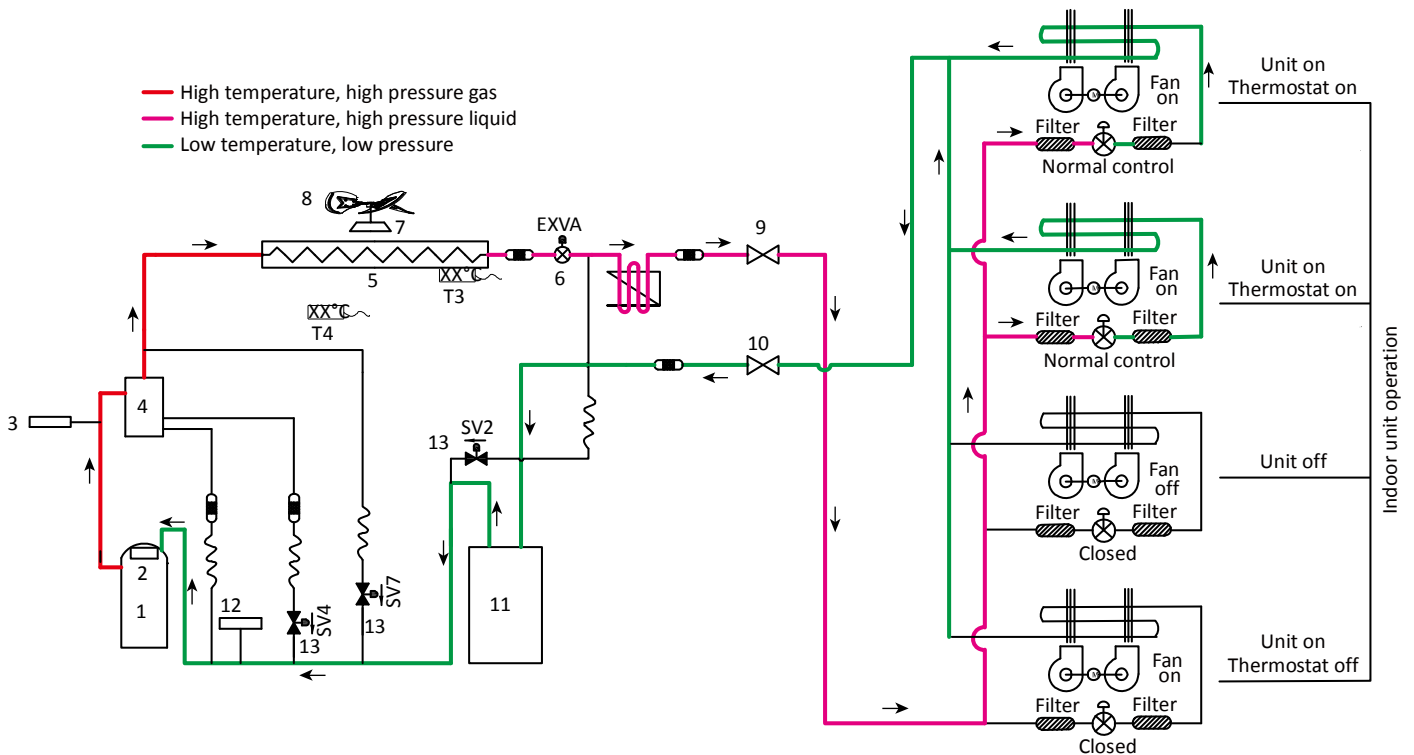
1. **Oil separator:**
Separates oil from gas refrigerant pumped out of the compressor and quickly returns it to the compressor. Separation efficiency is up to 99%.
2. **Accumulator:**
Stores liquid refrigerant and oil to protect compressor from liquid hammering.
3. **Electronic expansion valve (EXV):**
Controls refrigerant flow and reduces refrigerant pressure.
4. **Solenoid valve SV2:**
Protects the compressor. If compressor discharge temperature rises above 100°C, SV2 opens and sprays a small amount of liquid refrigerant to cool the compressor. SV2 closes again once the discharge temperature has fallen below 90°C.
5. **Solenoid valve SV4:**
Returns oil to the compressor. Opens once the compressor has run for 200 seconds and closes 600 seconds later and then opens for 3 minutes every 20 minutes.
6. **Solenoid valve SV7:**
Allows refrigerant to return directly to the compressor. Opens when indoor air temperature is close to the set temperature to avoid frequent compressor on/off. Opens when superheat degree is insufficient to avoid liquid hammer to compressor.
7. **Low pressure switches:**
Regulate system pressure. When system pressure falls below the lower limit, the low pressure switches turn off, stopping the compressor. After 10 minutes, the compressor restarts.

3 Refrigerant Flow Diagrams

8-16HP

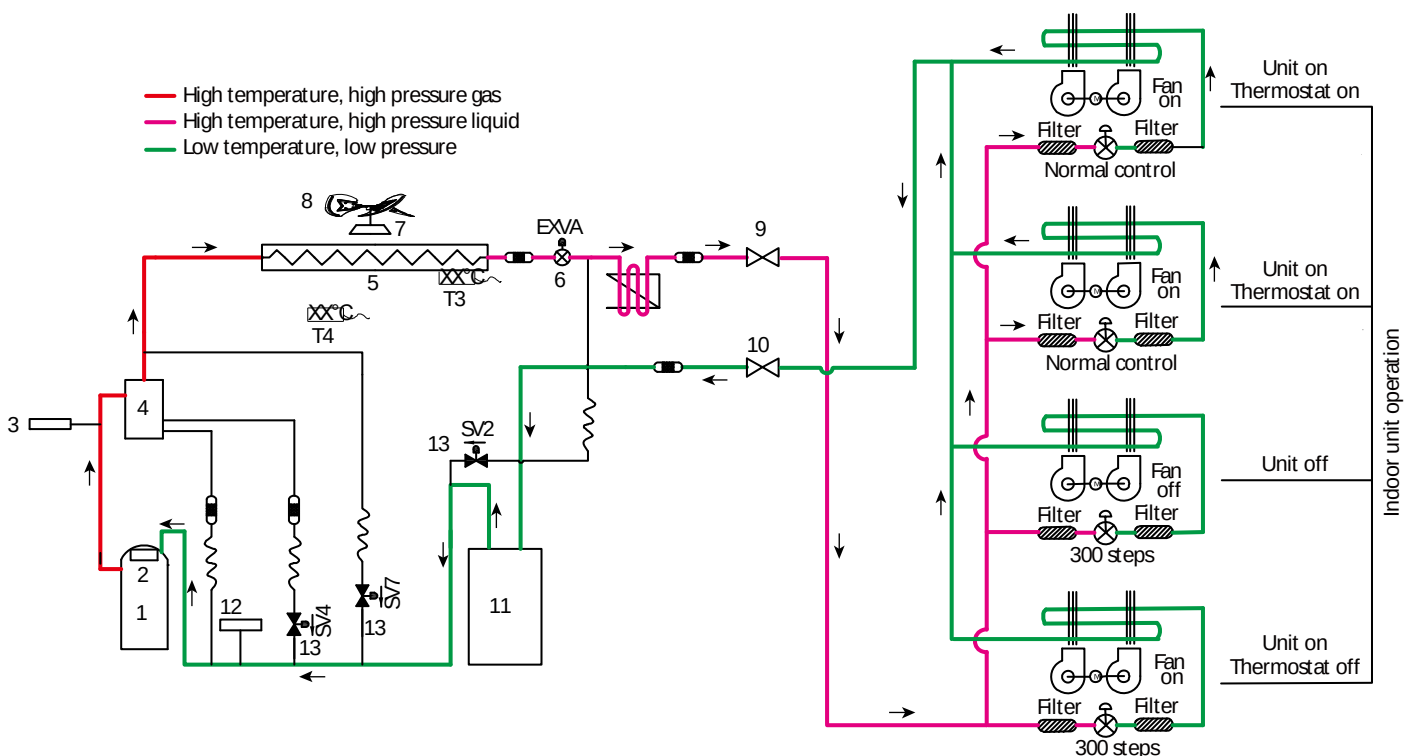
Cooling operation

Figure 2-3.1: 8-16HP refrigerant flow during cooling operation



Oil return operation in cooling mode

Figure 2-3.2: 8-16HP refrigerant flow during oil return operation in cooling mode

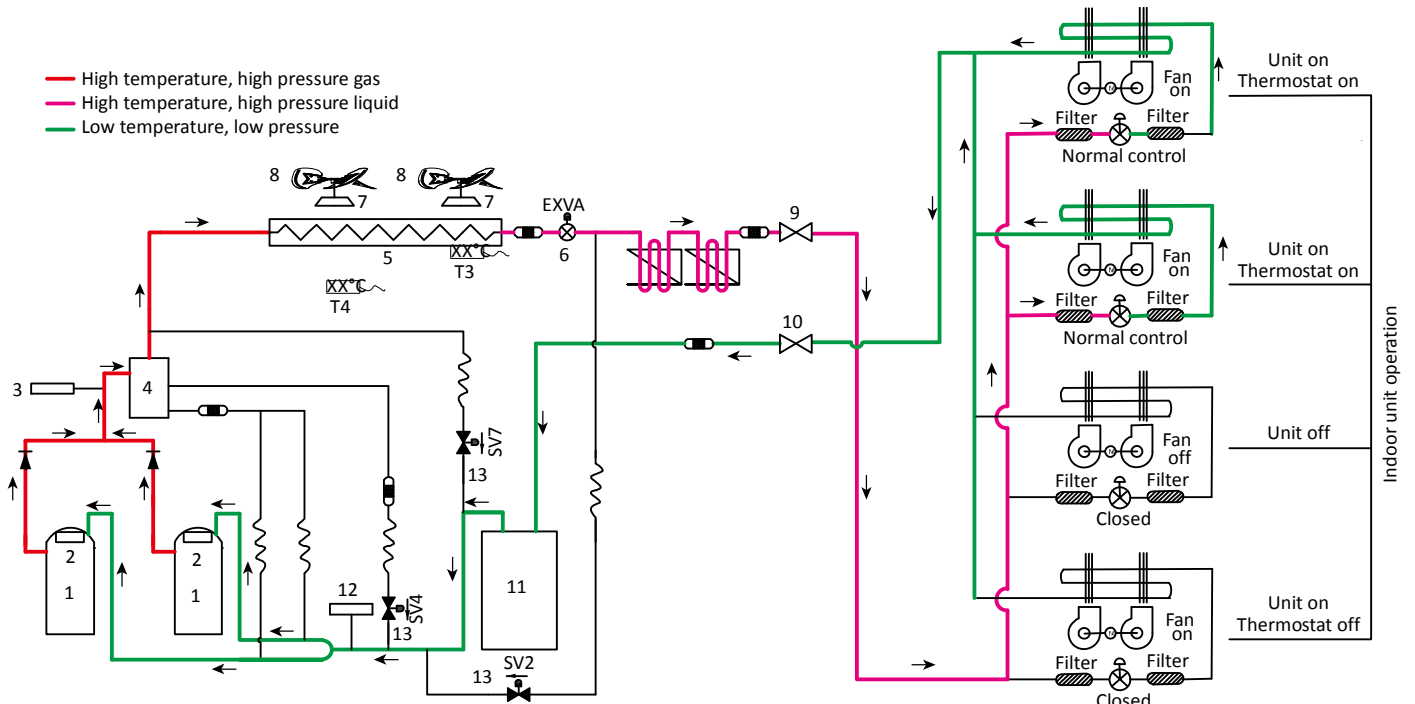


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18-22HP

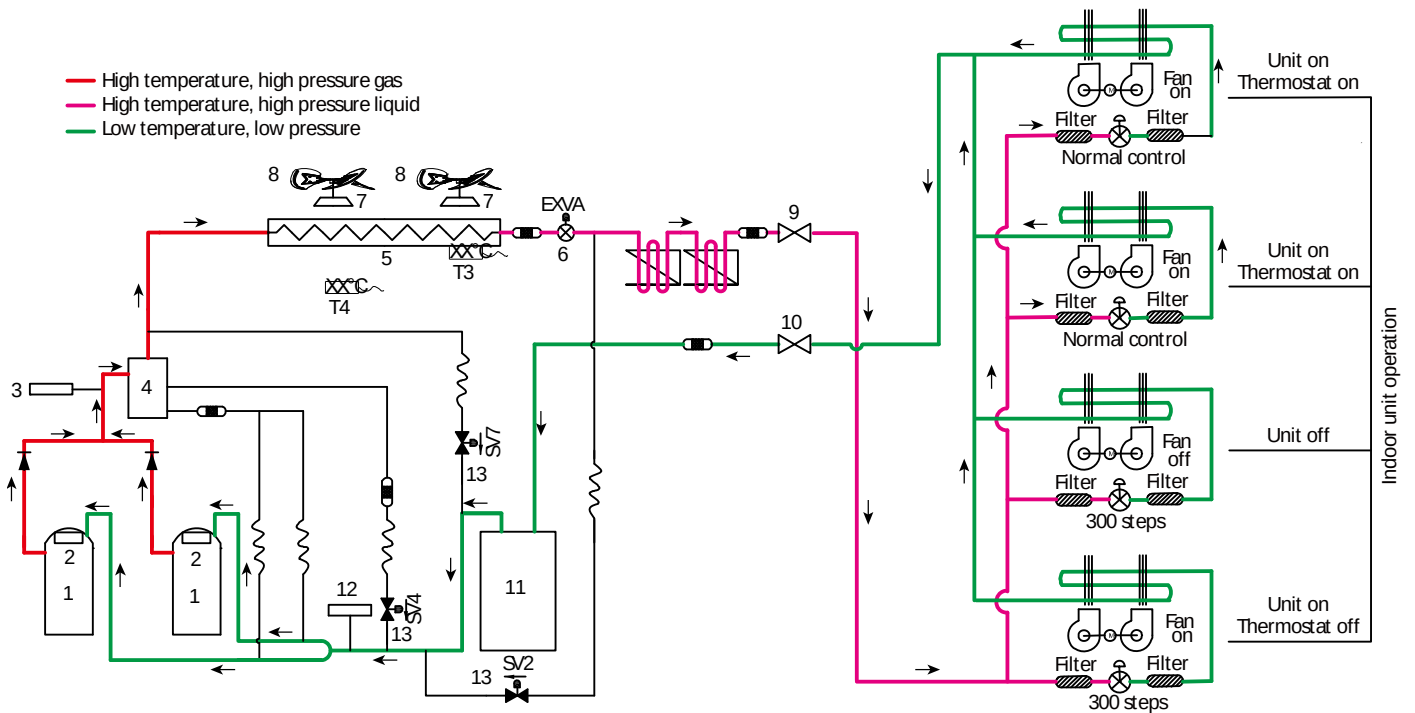
Cooling operation

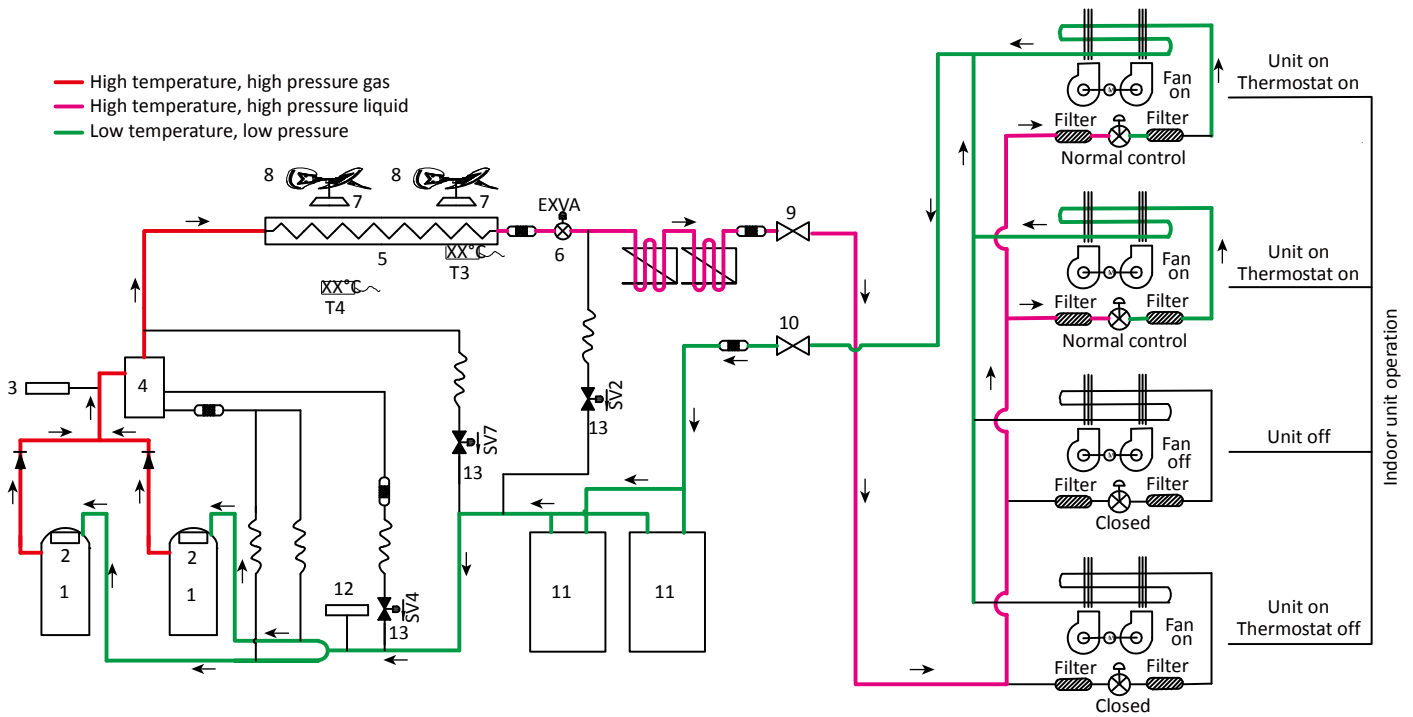
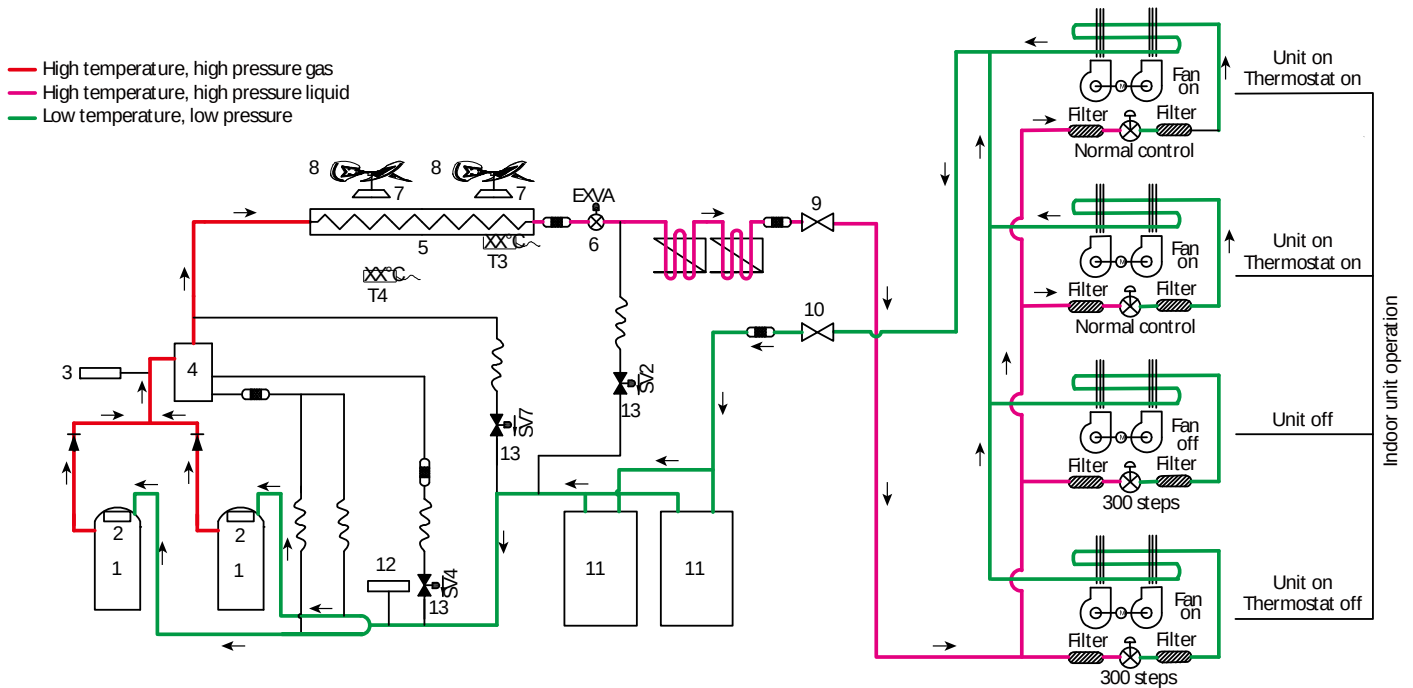
Figure 2-3.3: 18-22HP refrigerant flow during cooling operation



Oil return operation in cooling mode

Figure 2-3.4: 18-22HP refrigerant flow during oil return operation in cooling mode



24-30HP
Cooling operation
Figure 2-3.5: 24-30HP refrigerant flow during cooling operation

Oil return operation in cooling mode
Figure 2-3.6: 24-30HP refrigerant flow during oil return operation in cooling mode


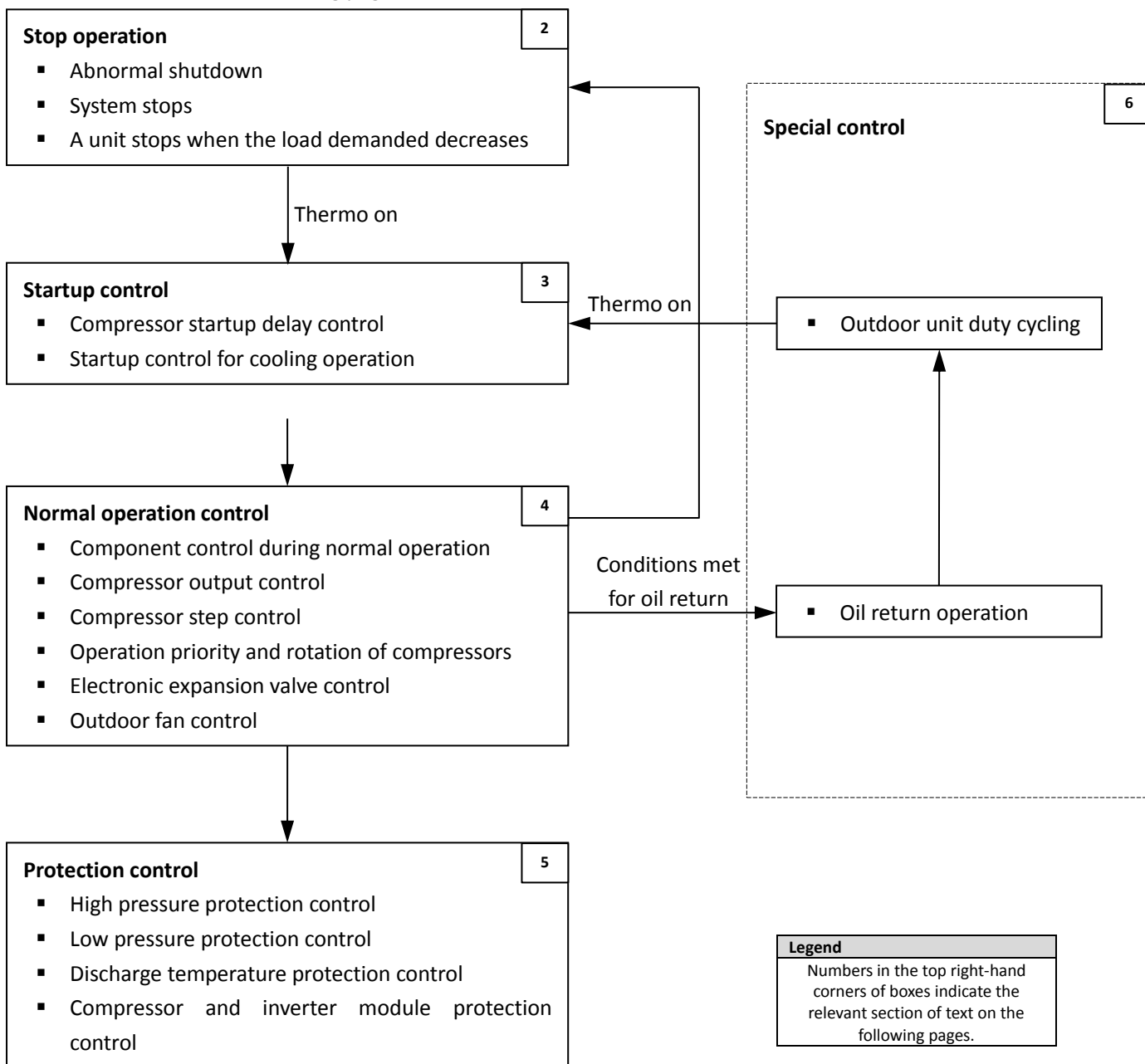
Part 3

Control

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2 Stop Operation.....	25
3 Startup Control	25
4 Normal Operation Control.....	26
5 Protection Control.....	29
6 Special Control	31

1 General Control Scheme Flowchart

Sections 3-2 to 3-6 on the following pages detail when each of the controls in the flowchart below is activated.



2 Stop Operation

The stop operation occurs for one of the three following reasons:

1. Abnormal shutdown: in order to protect the compressors, if an abnormal state occurs the system makes a 'stop with thermo off' operation and an error code is displayed on the outdoor unit digital displays.
2. The system stops when the set temperature has been reached.
3. A unit stops when the load demanded by the indoor units decreases and can be handled by fewer outdoor units.

3 Startup Control

3.1 Compressor Startup Delay Control

In initial startup control, compressor startup is delayed for 12 minutes in order to let the master unit search for the indoor units' addresses. In restart control (except in oil return operation), compressor startup is delayed such that a minimum of 7 minutes has elapsed since the compressor stopped, in order to prevent frequent compressor on/off and to equalize the pressure within the refrigerant system.

3.2 Startup Control for Cooling Operation

Table 3-3.1: Component control during startup in cooling mode

Component	Wiring diagram label	8-12HP	14-16HP	18-22HP	24-30HP	Control functions and states
Inverter compressor A	BP1	•	•	•	•	Controlled according to load requirement, operating frequency increased by 1 step / sec
Inverter compressor B	BP2			•	•	
DC fan motor A	FAN1	•	•	•	•	Fan speed controlled according to discharge pressure (P_c): <ul style="list-style-type: none"> ▪ At initial speed for 90 seconds. ▪ Subsequently, P_c checked every 10 seconds: <ul style="list-style-type: none"> • $P_c \geq 2.7\text{MPa} \Rightarrow$ 1 step increase. • $P_c \leq 2.1\text{MPa} \Rightarrow$ 1 step decrease.
DC fan motor B	FAN2			•	•	
Electronic expansion valve A	EXVA	•	•	•	•	Position (steps) from 0 (fully closed) to 3000 (fully open), controlled according to discharge temperature
Solenoid valve (Liquid injection)	SV2	•	•	•	•	Controlled according to discharge temperature
Solenoid valve (oil balance)	SV4	•	•	•	•	Closed for 200 secs, open for 600 secs, then closed
Solenoid valve (refrigerant bypass)	SV7	•	•	•	•	Controlled according to load requirement and discharge pressure

4 Normal Operation Control

4.1 Component Control during Normal Operation

Table 3-4.1: Component control during normal cooling operation

Component	Wiring diagram label	8-12HP	14-16HP	18-22HP	24-30HP	Control functions and states
Inverter compressor A	BP1	•	•	•	•	Controlled according to load requirement
Inverter compressor B	BP2			•	•	
DC fan motor A	FAN1	•	•	•	•	Controlled according to discharge pressure
DC fan motor B	FAN2			•	•	
Electronic expansion valve A	EXVA	•	•	•	•	Position (steps) from 0 (fully closed) to 3000 (fully open), controlled according to discharge temperature
Solenoid valve (Liquid injection)	SV2	•	•	•	•	Controlled according to discharge temperature
Solenoid valve (oil balance)	SV4	•	•	•	•	Open regularly
Solenoid valve (refrigerant bypass)	SV7	•	•	•	•	Controlled according to ambient temperature, discharge pressure, compressor running frequency, discharge superheating degree, load requirement, discharge temperature and discharge pressure.

4.2 Compressor Output Control

The compressor rotation speed is controlled according to the load requirement. Before compressor startup, the outdoor units first estimate the indoor unit load requirement according to the nominal capacity of indoor units currently running, and then correct for ambient temperature. The compressors then start up according to the corrected load requirement.

During operation the compressors are controlled according to the nominal capacity of indoor units currently running and the indoor unit heat exchanger temperatures. If the actual load requirement can be provided by one unit alone, then only one unit starts up. If the actual load requirement requires all outdoor unit modules to operate, the weighted average actual load requirement is sent to each module and each module operates according to this distributed load requirement.

4.3 Compressor Step Control

The compressor speed can be altered in increments of 1 rps (rotations per second) and decrease of 2rps.

4.4 Operating Priority and Rotation of Compressors

Figures 3-4.1 to 3-4.3 show the compressor operating priority and rotation in systems with one, two and three outdoor units. In units with two compressors, inverter compressor A (BP1) operates in priority to inverter compressor B (BP2). In multi-unit systems, units operate in rotation. In Figures 3-4.2 and 3-4.3 the master unit and slave units 1 and 2 are shown from left to right in that order, and the circled numbers (①, ②, ③) indicate the rotation sequence.

Figure 3-4.1: Compressor priority and rotation – one outdoor unit



Figure 3-4.2: Compressor priority and rotation – two outdoor units

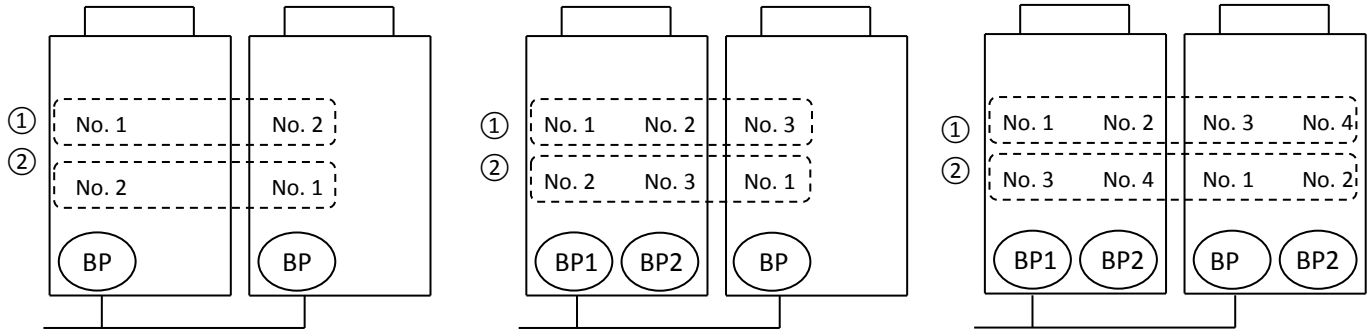
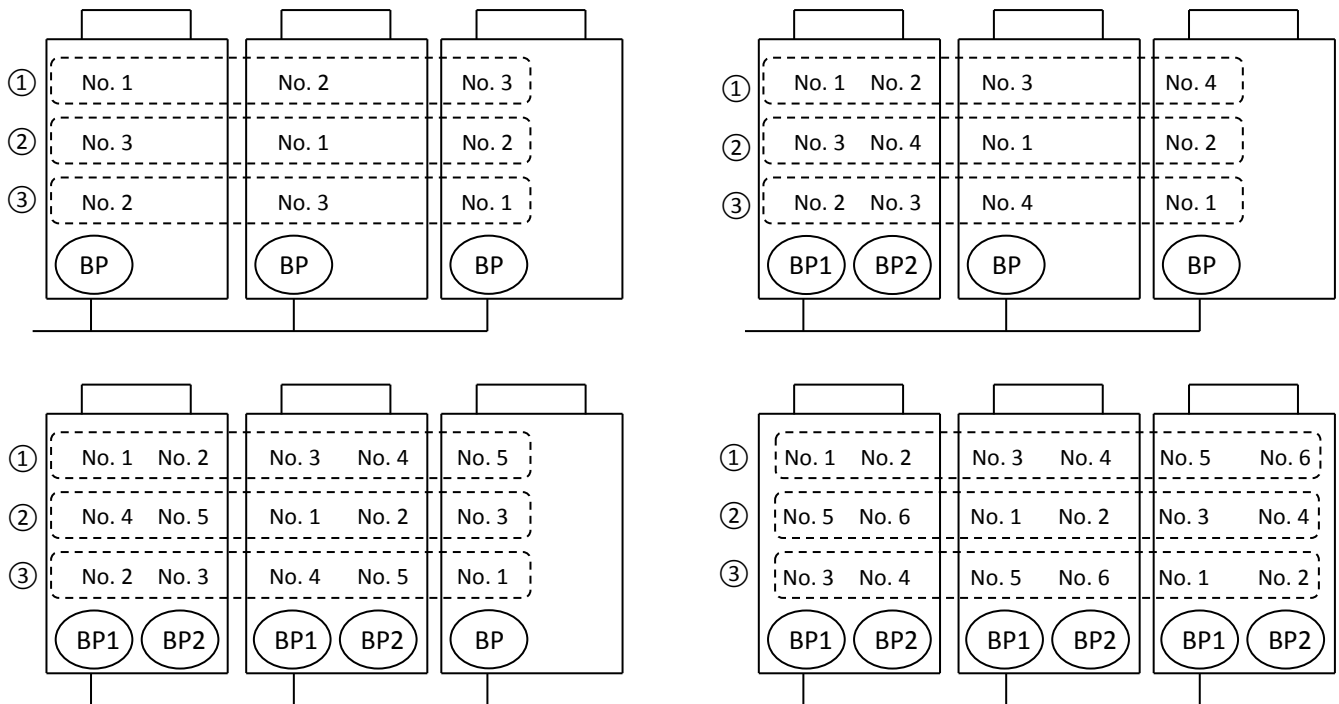


Figure 3-4.3: Compressor priority and rotation – three outdoor units



4.5 Electronic Expansion Valve Control

EXVA control

The position of electronic expansion valve EXVA is controlled in steps from 0 (fully closed) to 3000 (fully open).

In cooling mode:

- When all outdoor units are in standby:
 - All EXVAs are at position 352×6 (steps).
- When some outdoor units are running and some outdoor units are in standby:
 - EXVAs on running outdoor units are controlled according to discharge temperature. EXVAs of units in standby are

fully closed.

- When all outdoor units are running:
 - All EXVAs are controlled according to discharge temperature.

4.6 Outdoor Fan Control

The speed of the outdoor unit fans is adjusted in steps, as shown in Table 3-4.2.

Table 3-4.2: Outdoor fan speed steps

Fan speed index	Fan speed (rpm)		
	8-16HP	18-22HP	24-30HP
		FANA / FANB	FANA / FANB
0	0	0 / 0	0 / 0
1	120	150 / 0	120 / 0
2	150	190 / 0	150 / 0
3	170	230 / 0	170 / 0
4	190	270 / 0	190 / 0
5	210	310 / 0 (150 / 150)	210 / 0
6	230	350 / 0 (180 / 180)	230 / 0
7	250	380 / 0 (210 / 210)	250 / 0 (120 / 120)
8	270	410 / 0 (240 / 240)	270 / 0 (150 / 150)
9	290	280 / 280	330 / 0 (170 / 170)
10	310	320 / 320	370 / 0 (190 / 190)
11	330	360 / 360	210 / 210
12	350	400 / 400	230 / 230
13	370	440 / 440	250 / 250
14	390	480 / 480	270 / 270
15	410	520 / 520	290 / 290
16	430	560 / 560	310 / 310
17	450	600 / 600	330 / 330
18	470	640 / 640	350 / 350
19	490	680 / 680	370 / 370
20	510	720 / 720	400 / 400
21	530	750 / 750	430 / 430
22	560	780 / 780	470 / 470
23	580	800 / 800	510 / 510
24	600	840 / 840	550 / 550
25	630	880 / 880	600 / 600
26	650	910 / 880	650 / 650
27	700	910 / 910	680 / 680
28	750	940 / 910	700 / 700
29	800	940 / 940	750 / 750
30	850	980 / 940	780 / 780
31	880	980 / 980	800 / 800
32	910	1000 / 980	830 / 830
33	930	1000 / 1000	850 / 850
34	960	1020 / 1000	870 / 870
35	1000	1020 / 1020	890 / 890
36	1050	1050 / 1050	920 / 920
37	1100	1100 / 1100	950 / 950

Note:

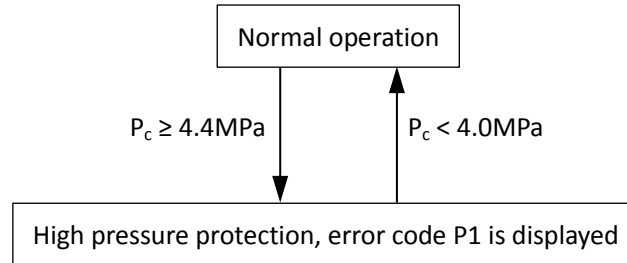
1. For 18-22HP unit fan speed 5 to 8 and 24-30HP unit fan speed 7 to 10, when fan speed decreases, the fan speed is shown in the bracket; when fan speed increases, the fan speed is shown without bracket.

5 Protection Control

5.1 High Pressure Protection Control

This control protects the system from abnormally high pressure and protects the compressors from transient spikes in pressure.

Figure 3-5.1: High pressure protection control



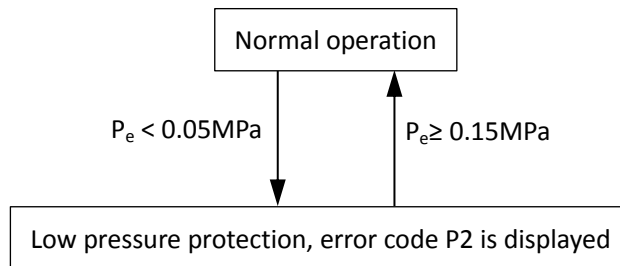
Notes:

1. P_c : Discharge pressure

5.2 Low Pressure Protection Control

This control protects the system from abnormally low pressure and protects the compressors from transient drops in pressure.

Figure 3-5.2: Low pressure protection control



Notes:

1. P_e : Suction pressure

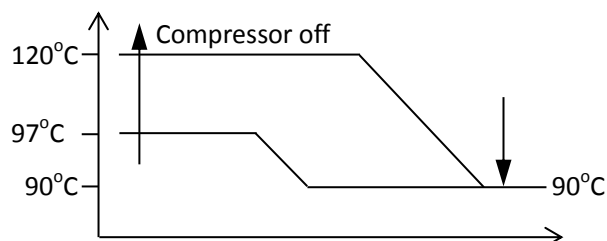
When P2 protection occurs 3 times in 60 minutes, the H5 error is displayed. When an H5 error occurs, a manual system restart is required before the system can resume operation.

5.3 Discharge Temperature Protection Control

This control protects the compressors from abnormally high temperatures and transient spikes in temperature. It is performed for each compressor.

Figure 3-5.3: Discharge temperature protection control

Discharge temperature

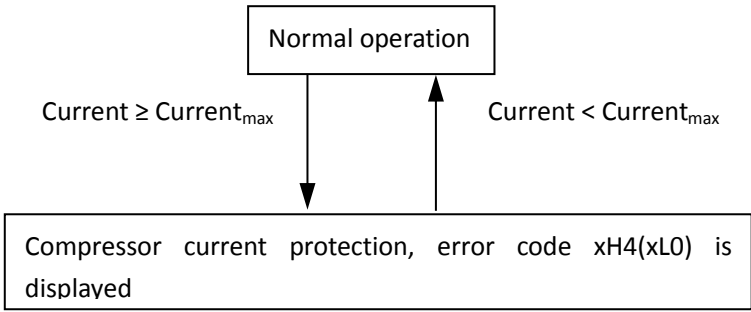


When the discharge temperature rises above 120°C the system displays P4 protection and all units stop running. When P4 protection occurs 3 times in 100 minutes, the H6 error is displayed. When an H6 error occurs, a manual system restart is required before the system can resume operation.

5.4 Compressor and Inverter Module Protection Control

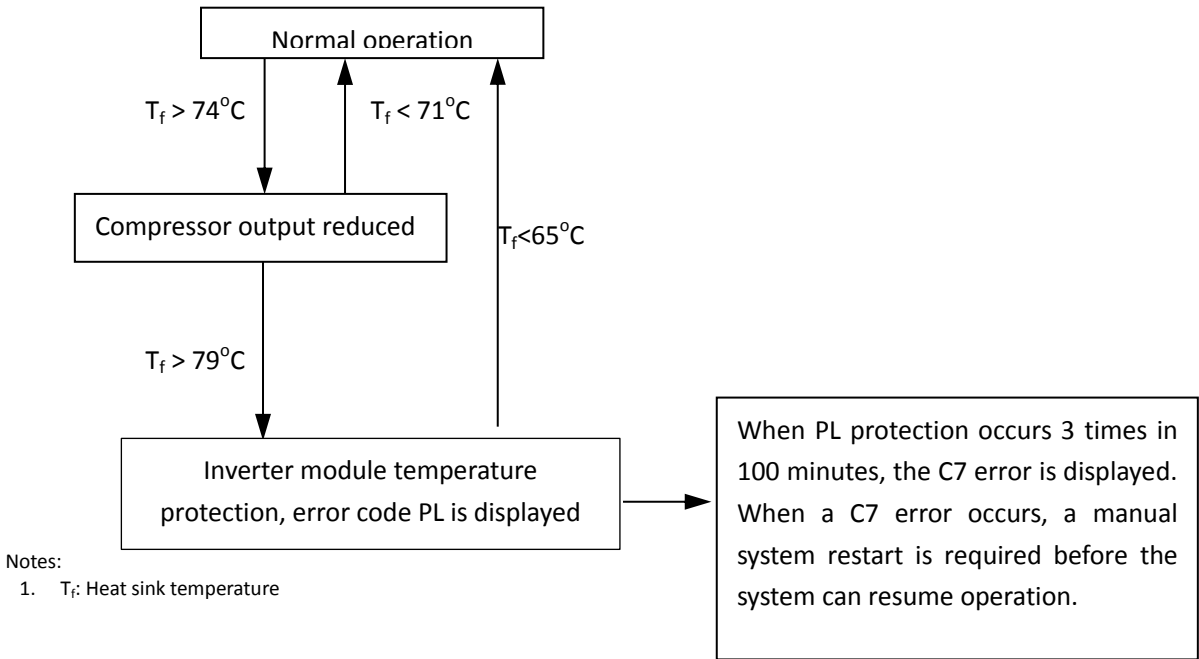
This control protects the compressors from abnormally high currents and protects the inverter modules from abnormally high temperatures. It is performed for each compressor and inverter module.

Figure 3-5.4: Compressor current protection control



Compressor model	LNB53	LNB65
Current _{max}	45	51

Figure 3-5.5: Inverter module temperature protection control



6 Special Control

6.1 Outdoor Unit Duty Cycling

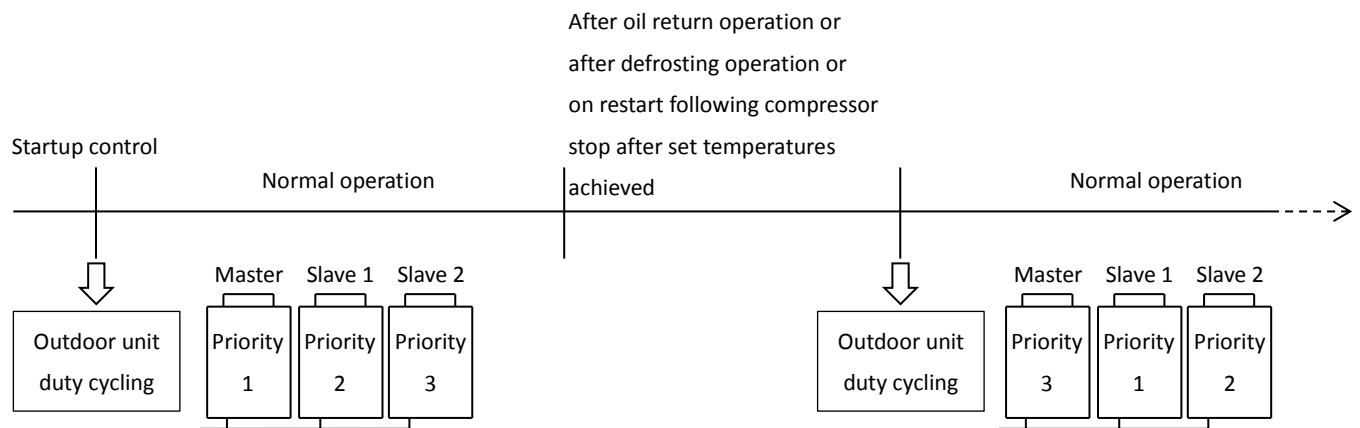
In systems with multiple outdoor units, outdoor unit duty cycling is used to prevent compressor burn out due to unbalanced oil levels between outdoor units.

Timing of outdoor unit duty cycling:

- After oil return operation.
- On restart following compressor stop after set temperatures achieved.

Figure 3-6.1 shows an example of duty cycling in a system with 3 outdoor units.

Figure 3-6.1: Duty cycling in a system with 3 outdoor units¹



Notes:

1. The address settings on the outdoor unit main PCBs for "master unit", "slave unit 1", and "slave unit 2" do not change.

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6.2 Oil Return Operation

In order to prevent compressors from running out of oil, the oil return operation is conducted to recover oil that has flowed out of the compressor(s) and into the piping system. This operation is performed for all units including units that are in standby. When the outdoor unit is running in oil return, the digital display on outdoor main PCB will display “d0”.

Timing of oil return operation:

- When the initial cumulative operating time reaches 140 minutes and then every 8 hours.

Tables 3-6.1 and 3-6.2 show component control during oil return operation in cooling mode.

Table 3-6.1: Outdoor unit component control during oil return operation in cooling mode

Component	Wiring diagram label	8-12HP	14-16HP	18-22HP	24-30HP	Control functions and states
Inverter compressor A	BP1	●	●	●	●	Fixed frequency
Inverter compressor B	BP2			●	●	
DC fan motor A	FAN1	●	●	●	●	Controlled according to discharge pressure
DC fan motor B	FAN2			●	●	
Electronic expansion valve A	EXVA	●	●	●	●	Position 480 (steps)
Solenoid valve (Liquid injection)	SV2	●	●	●	●	Normal control
Solenoid valve (oil balance)	SV4	●	●	●	●	Normal control
Solenoid valve (refrigerant bypass)	SV7	●	●	●	●	Normal control

Table 3-6.2: Indoor unit component control during oil return operation in cooling mode

Component	Unit state	Control functions and states
Fan	Thermo on	Remote controller setting
	Standby	Off
	Thermo off	Off
Electronic expansion valve	Thermo on	Normal control
	Standby	300 (steps)
	Thermo off	300 (steps)

Part 4

Field Settings

1	Outdoor Unit Field Settings	34
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1 Outdoor Unit Field Settings

1.1 PCB Switches and Switch Settings

Figure 4-1.1: Outdoor unit main PCB switches

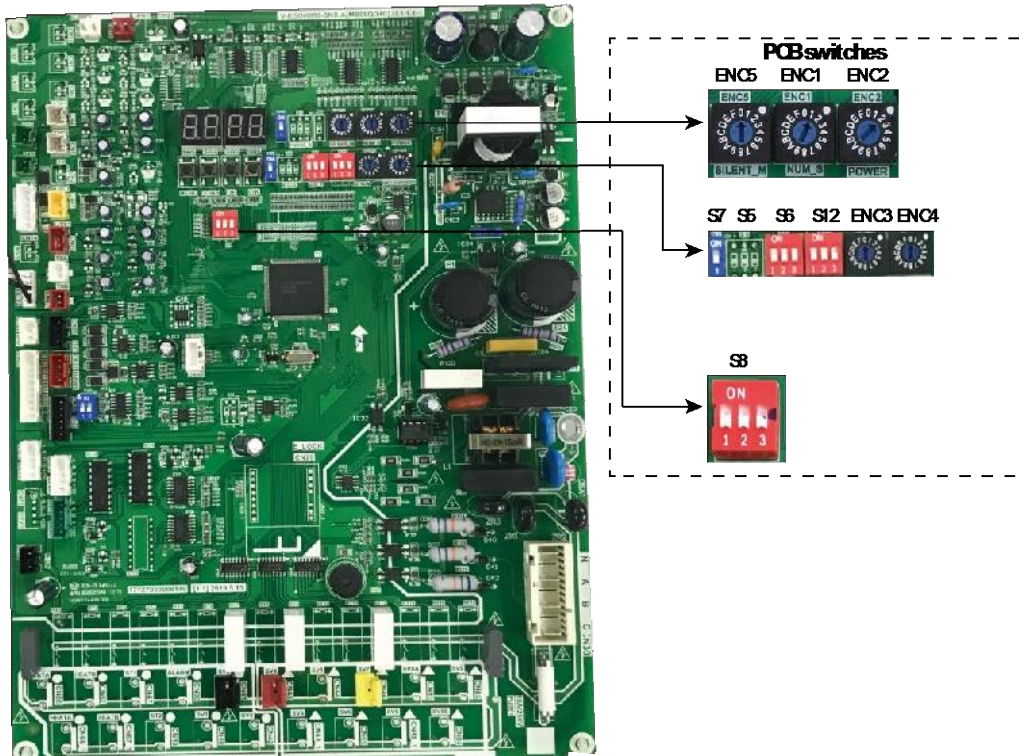


Table 4-1.1: Outdoor unit main PCB switch settings

Switch	Setting	Switch positions ¹	Description
S5	Reserved		
S6-1	Reserved	ON 	Reserved
S6-2	Clear indoor unit addresses	ON 	No action (default)
		ON 	Clear indoor unit addresses
S6-3	Addressing mode	ON 	Auto addressing (default)
		ON 	Manual addressing
S8-1	Reserved	ON 	Reserved
S8-2	Start-up time	ON 	Start-up time is 12 minutes (default)
		ON 	Start-up time is 7 minutes
S8-3	Reserved	ON 	Reserved
S7	Reserved		
S9	Reserved		
ENC1	Outdoor unit address		Only 0, 1, 2 should be selected (default is 0) 0 is for master unit; 1 and 2 are for slave units
ENC2	Outdoor unit capacity ²		Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B should be selected 0: 8HP; 1: 10HP; 2: 12HP; 3: 14HP; 4: 16HP; 5: 18HP; 6: 20HP; 7: 22HP; 8: 24HP; 9: 26HP; A: 28HP; B: 30HP
ENC4	Network address		Only 0, 1, 2, 3, 4, 5, 6, 7 should be selected (default is 0)

Table continued on next page ...

Table 4-1.1: Outdoor unit main PCB switch settings (continued)

Switch	Setting	Switch positions ¹	Description
	Number of indoor units		The number of indoor units is in the range 0-15 0-9 on ENC3 indicate 0-9 indoor units; A-F on ENC3 indicate 10-15 indoor units
			The number of indoor units is in the range 16-31 0-9 on ENC3 indicate 16-25 indoor units; A-F on ENC3 indicate 26-31 indoor units
			The number of indoor units is in the range 32-47 0-9 on ENC3 indicate 32-41 indoor units; A-F on ENC3 indicate 42-47 indoor units
			The number of indoor units is in the range 48-63 0-9 on ENC3 indicate 48-57 indoor units; A-F on ENC3 indicate 58-63 indoor units
			The number of indoor units is 64 0 on ENC3 indicate 64 indoor units
	Silent mode ³	0	Night silent time is 6h/10h (default)
		1	Night silent time is 6h/12h
		2	Night silent time is 8h/10h
		3	Night silent time is 8h/12h
		4	No silent mode
		5	Silent mode 1 (only limit max. fan speed)
		6	Silent mode 2 (only limit max. fan speed)
		7	Silent mode 3 (only limit max. fan speed)
		8	Super silent mode 1 (limit max. fan speed and compressor frequency)
		9	Super silent mode 2 (limit max. fan speed and compressor frequency)
		A	Super silent mode 3 (limit max. fan speed and compressor frequency)
		B	Super silent mode 4 (limit max. fan speed and compressor frequency)
		F	Set silent mode via centralized controller

Notes:

1. Black denotes the switch position.
2. Switch ENC2 is factory-set and its setting should not be changed.
3. Refer to Part 4, 1.2.1 "Silent mode setting".

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1.2 Modes Set on Main PCB

1.2.1 Silent time setting

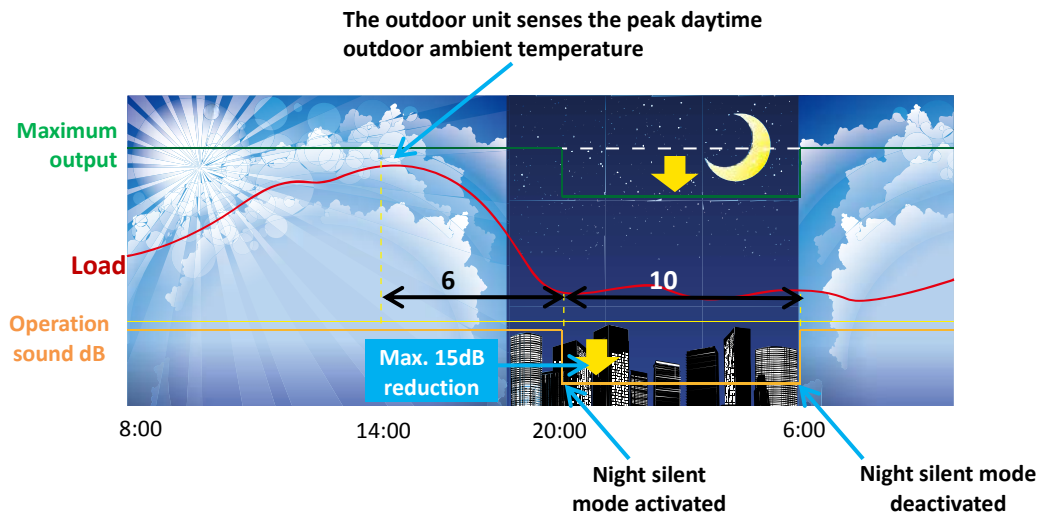
1.2.1.1 Night silent time setting

Night silent mode is activated X hours after the peak daytime temperature, and is deactivated after Y hours, where X and Y are as specified in Table 4-1.2.

Table 4-1.2: Night silent time setting

Switch	Switch positions	Description	X	Y
	0	Night silent time is 6h/10h (default)	6	10
	1	Night silent time is 6h/12h	6	12
	2	Night silent time is 8h/10h	8	10
	3	Night silent time is 8h/12h	8	12

Figure 4-1.4: Night silent mode example (default setting, 6h/10h)



1.2.1.2 Silent mode setting

In silent mode 1 / 2 / 3 and night silent mode, the outdoor fan speed decreases gradually. In super silent mode 1 / 2 / 3 / 4, not only the fan speed decreases gradually, but also the compressor frequency decreases gradually.

Table 4-1.3: Silent mode setting

Switch	Switch positions	Description
 ENC5	5	Silent mode 1 (only limit max. fan speed)
	6	Silent mode 2 (only limit max. fan speed)
	7	Silent mode 3 (only limit max. fan speed)
	8	Super silent mode 1 (limit max. fan speed and compressor frequency)
	9	Super silent mode 2 (limit max. fan speed and compressor frequency)
	A	Super silent mode 3 (limit max. fan speed and compressor frequency)
	B	Super silent mode 4 (limit max. fan speed and compressor frequency)

1.2.1.3 Maximum fan speed and capacity output control in different silent mode

Table 4-1.4: Maximum fan speed and capacity output control in different silent mode

ENC5 Switch positions	Description	Max. fan speed index ¹							Max. capacity output
		8-10HP	12HP	14-16HP	18HP	20-22HP	24-26HP	28-30HP	
0	Night silent time is 6h/10h (default)	28	28	30	29	29	31	31	100%
1	Night silent time is 6h/12h								
2	Night silent time is 8h/10h								
3	Night silent time is 8h/12h								
4	No silent mode	29	30	33	33	35	33	35	
5	Silent mode 1	28	28	30	31	31	31	31	
6	Silent mode 2	26	26	28	29	29	29	29	
7	Silent mode 3	24	24	27	27	27	27	27	80%
8	Super silent mode 1	28	28	29	23	23	28	28	
9	Super silent mode 2	27	27	28	22	22	27	27	
A	Super silent mode 3	26	26	27	21	21	26	26	
B	Super silent mode 4	25	25	26	20	20	25	25	50%

Notes:

1. Fan speed (rpm) for different fan speed index refers to Table 3-4.2 in Part 3, 4.6 "Outdoor Fan Control".
2. If the system pressure is over 3.5MPa, the system exits silent mode automatically.

Part 5

Electrical Components and Wiring Diagrams

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1 Outdoor Unit Electric Control Box Layout

8-16HP

Figure 5-1.1: 8-16HP top layer of electric control box

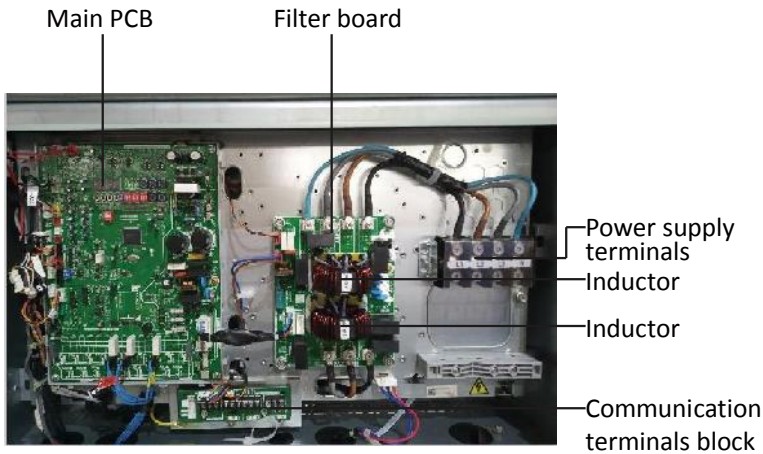


Figure 5-1.2: 8-16HP bottom layer of electric control box

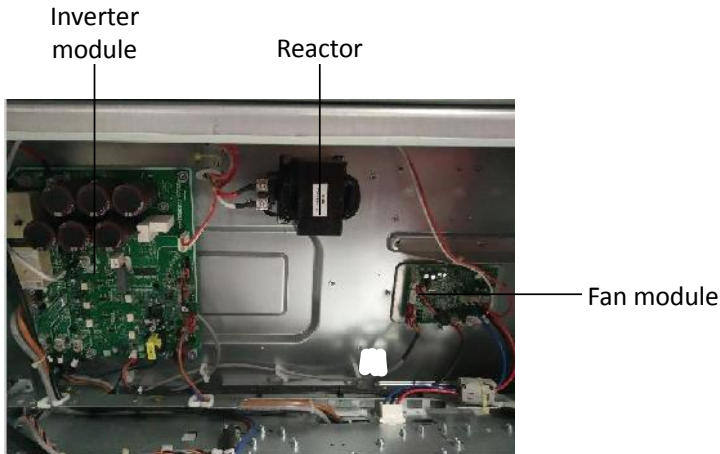


Figure 5-1.3: 18-30HP top layer of electric control box

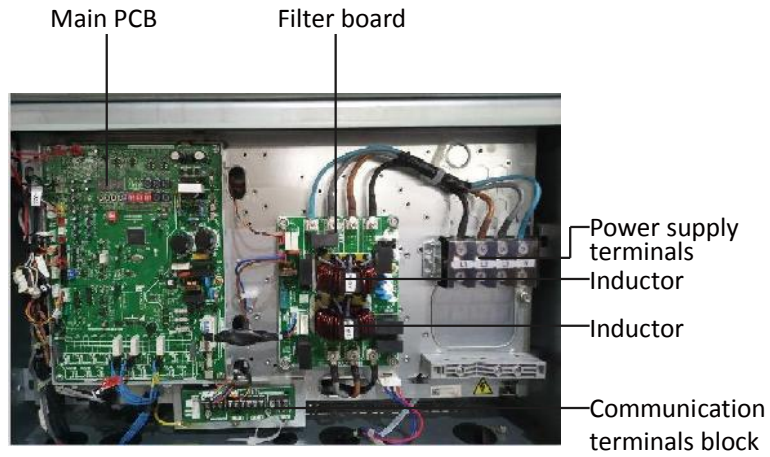
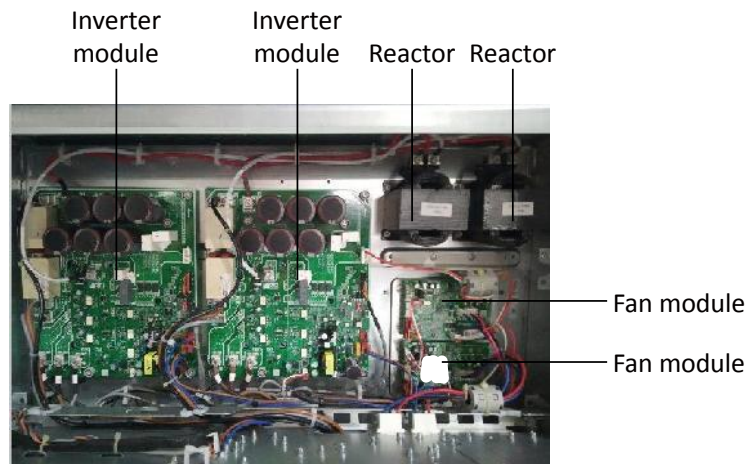


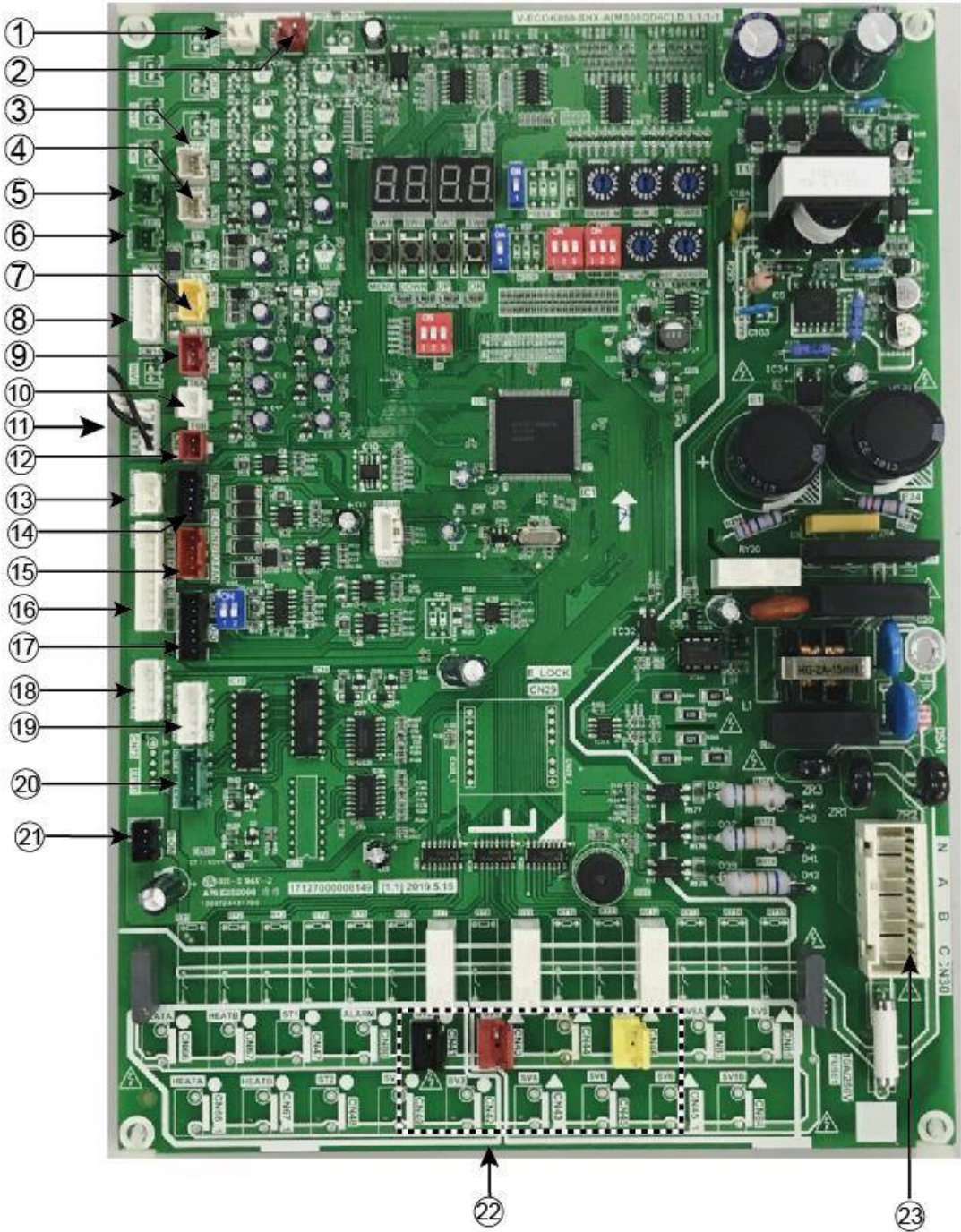
Figure 5-1.4: 18-30HP bottom layer of electric control box



2 Outdoor Unit Main PCB

2.1 Ports

Figure 5-2.1: Outdoor unit main PCB ports¹



- Notes:
1. Label descriptions are given in Table 5-2.1.

Table 5-2.1: Main PCB ports

Label	Port code	Content	Port voltage
1	CN18	Reserved	/
2	CN19	Low pressure switch connection	0V or 5V DC
3	CN4	Compressor top temperature sensor (single compressor units) or compressor A compressor top temperature sensor (dual compressor units) connection	0-5V DC (varying)
4	CN5	Discharge pipe temperature sensor (single compressor units) or compressor B compressor top temperature sensor (dual compressor units) connection	0-5V DC (varying)
5	CN3	Inverter module temperature sensor A connection	0-5V DC (varying)
6	CN3_1	Inverter module temperature sensor B connection	0-5V DC (varying)
7	CN17	High pressure sensor connection	0-5V DC (varying)
8	CN15	Reserved	/
9	CN16	Reserved	/
10	CN8	Reserved	/
11	CN1	Outdoor ambient temperature sensor and outdoor heat exchanger temperature sensor connections	0-5V DC (varying)
12	CN8_1	Reserved	/
13	CN20	Communication port to outdoor units	2.5-2.7V DC
14	CN26	Communication port to compressor drive board	2.5-2.7V DC
15	CN27	Communication port to fan drive board	2.5-2.7V DC
16	CN25	Communication port to communication terminal block	2.5-2.7V DC
17	CN28	Reserved	/
18	CN71	Reserved	/
19	CN70	EXVA drive port	0V or 12V DC
20	CN72	Reserved	/
21	CN82	Control port of relay for AC filter board	0V or 12V DC
22	CN41, CN43, CN46	Solenoid valve drive ports	0V or 220V AC
23	CN30	Power input of main board	220V AC between A/B/C and N; 380V AC between A,B and C

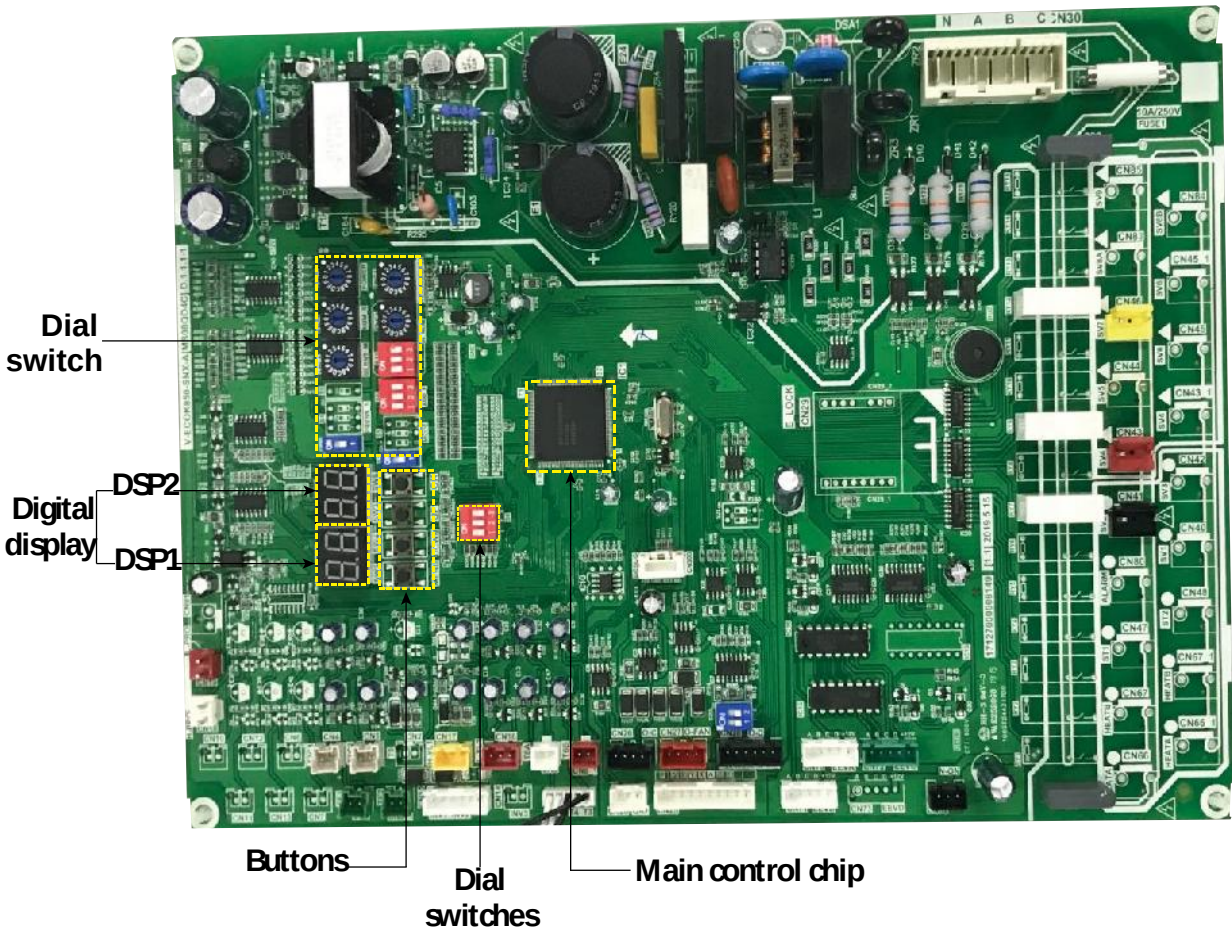
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2.2 Components

2.2.1 Layout

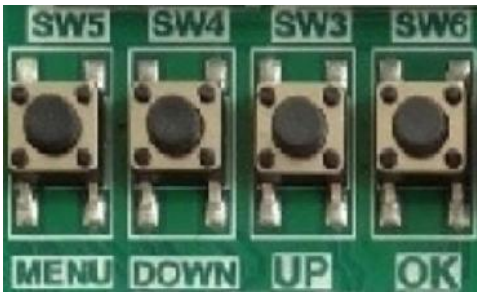
Figure 5-2.2: Outdoor unit main PCB components



2.2.2 Function of buttons SW3 to SW6

Table 5-2.2: Function of buttons SW3 to SW6

Button	Function
SW3 (UP)	In menu mode: previous and next buttons for menu modes.
SW4 (DOWN)	Not in menu mode: previous and next buttons for system check information.
SW5 (MENU)	Enter / exit menu mode.
SW6 (OK)	Confirm to enter specified menu mode.

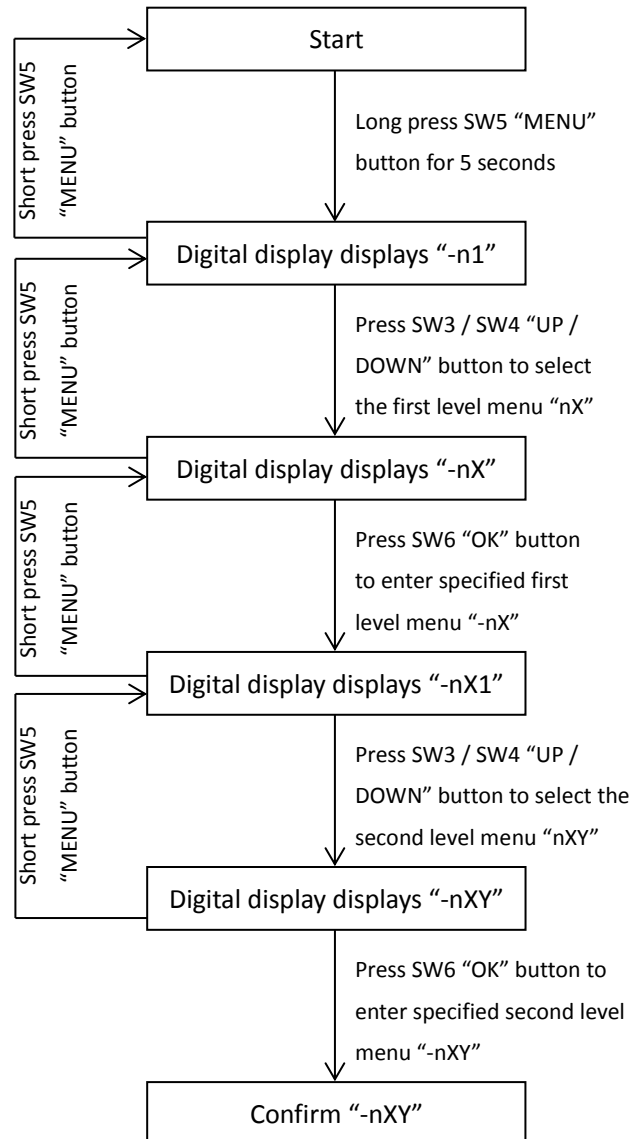


2.2.3 Menu mode

Only master unit has the full menu functions, slaves units only have error codes check and cleaning functions.

1. Long press SW5 "MENU" button for 5 seconds to enter menu mode, and the digital display displays "n1";
2. Press SW3 / SW4 "UP / DOWN" button to select the first level menu "n1", "n2", "n3", "n4" or "nb";
3. Press SW6 "OK" button to enter specified first level menu, for example, enter "n4" mode;
4. Press SW3 / SW4 "UP / DOWN" button to select the second level menu from "n41" to "n47";
5. Press SW6 "OK" button to enter specified second level menu, for example, enter "n43" mode;

Menu mode selection flowchart:



Menu mode function:

Table 5-2.3: Menu mode function

Digital display content	Menu mode	Remarks
n14	Debug mode	Only available for the master unit (all indoor units running in cooling mode)
n16	Maintenance mode	Only available for the master unit, the system does not check the indoor units' number.
n24	Reserved	
n25	Reserved	
n26	Backup run	Only available for outdoor unit with two compressors. If one of the two compressors is fail, the other compressor will keep running for up to 4 days and then stop automatically.
n27	Vacuum mode	It is only used in maintenance process. The digital display displays "R006", all solenoid valves are open and EXVs are open to the maximum steps.
n31	History error codes	Display recent ten history error codes
n32	Cleaning history error codes	
n33	Reserved	
n34	Factory reset	Only available for the master unit
n41	Power limitation mode 1	Only available for the master unit, 100% capacity output
n42	Power limitation mode 2	Only available for the master unit, 90% capacity output
n43	Power limitation mode 3	Only available for the master unit, 80% capacity output
n44	Power limitation mode 4	Only available for the master unit, 70% capacity output
n45	Power limitation mode 5	Only available for the master unit, 60% capacity output
n46	Power limitation mode 6	Only available for the master unit, 50% capacity output
n47	Power limitation mode 7	Only available for the master unit, 40% capacity output
nb1	Fahrenheit degree setting (°F)	Only available for the master unit
nb2	Celsius degree setting (°C)	Only available for the master unit
nb3	Exit auto power save mode ¹	Only available for the master unit
nb4	Enter auto power save mode ¹	Only available for the master unit
nb5	Auto snow-blowing mode 1 (customized)	According to outdoor ambient temperature (T4), the outdoor fan(s) periodically stop for 15 minutes and run for 2 minute
nb6	Auto snow-blowing mode 2 (customized)	According to outdoor ambient temperature (T4), the outdoor fan(s) periodically stop for 30 minutes and run for 2 minute
nb7	Exit auto snow-blowing mode	
nb8	VIP address setting	The digital display will display "IdXX", "XX" stands for VIP address, use UP / DOWN button to change the VIP address and press OK button to confirm the specified VIP address.
nF1	Reserved	
nF2	Reserved	

Notes:

1. Auto power save mode means EMS mode, the evaporating temperature (in cooling) is automatically adjusted according to both indoor and outdoor temperature to maximize the comfort and energy efficiency. Exit auto power save mode, the evaporating temperature (in cooling) is
2. fixed.

How to exit specified menu mode:

Table 5-2.4: Exit specified menu mode method:

Menu mode	Manual exit method	Automatic exit method	System restart
Debug mode	Long press SW6 "OK" button when the digital display is not in menu selection state	After running 120 minutes	Invalid
Maintenance mode	/	After running 60 minutes	Invalid
Backup run	/	After running 4 days or both two compressors are failed	Invalid
Vacuum mode	Long press SW6 "OK" button when the digital display is not in menu selection state	After running 8 hours	Invalid
Power limitation mode	Select power limitation mode 1 "n41"	/	Valid
Auto power save mode	Select "nb3"	/	Valid
Auto snow-blowing mode 1 (2)	Select "nb7"	/	Valid
VIP address setting	/	/	Valid
°F / °C setting	/	/	Valid

2.2.4 UP / DOWN system check button

Before pressing UP or DOWN button, allow the system to operate steadily for more than an hour. On pressing UP or DOWN button, the parameters listed in Table 5-2.5 will be displayed in sequence.

Table 5-2.5: System check

DSP1 content	Parameters displayed on DSP2	Remarks
0.--	Unit address	Master unit: 0; slave units: 1, 2
1.--	Unit capacity	Refer to Note 1
2.--	Number of outdoor units	Displayed on master unit PCB only
3.--	Number of indoor units as set on PCB	Displayed on master unit PCB only
4.--	Total capacity of outdoor unit	Only available for master unit, displayed on slave units has no sense
5.--	Total capacity requirement of indoor units	Displayed on master unit PCB only
6.--	Total corrected capacity requirement of master units	Displayed on master unit PCB only
7.--	Operating mode	Refer to Note 2
8.--	Outdoor unit actual operating capacity	
9.--	Fan A speed index	Refer to Note 3
10.--	Fan B speed index	Refer to Note 3
11.--	Indoor heat exchanger pipe (T2/T2B) temperature (°C)	Actual value = value displayed
12.--	Main heat exchanger pipe (T3) temperature (°C)	Actual value = value displayed
13.--	Outdoor ambient (T4) temperature (°C)	Actual value = value displayed
14.--	Inverter compressor A discharge temperature (°C)	Actual value = value displayed
15.--	Inverter compressor B discharge temperature (°C)	Actual value = value displayed
16.--	Inverter module A heatsink temperature (°C)	Actual value = value displayed
17.--	Inverter module B heatsink temperature (°C)	Actual value = value displayed
18.--	Discharge superheat degree (°C)	Actual value = value displayed
19.--	Reserved	
20.--	Reserved	
21.--	EXVA position	Refer to Note 4
22.--	Compressor discharge pressure (MPa)	Actual value = value displayed × 0.1
23.--	Reserved	
24.--	Number of indoor units currently in communication with master unit	Actual value = value displayed
25.--	Number of indoor units currently operating	Displayed on master unit PCB only
26.--	Reserved	
27.--	Silent mode	Refer to Note 5
28.--	Static pressure mode	Refer to Note 6
29.--	Reserved	
30.--	Reserved	
31.--	DC voltage A	Actual value = value displayed × 10
32.--	DC voltage B	Actual value = value displayed × 10
33.--	Reserved	

Table continued on next page ...

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Table 5-2.5: System check (continued)

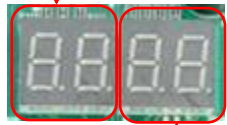
DSP1 content	Parameters displayed on DSP2	Remarks
34.--	Address of VIP indoor unit	
35.--	Reserved	
36.--	Reserved	
37.--	Refrigerant quantity	Refer to Note 7
38.--	Reserved	
39.--	Power mode	Refer to Note 8
40.--	Most recent error or protection code	"--" is displayed if no error or protection events have occurred since start-up
--	--	End

Notes:

- Outdoor unit capacity setting:
 - 0: 8HP; 1: 10HP; 2: 12HP; 3: 14HP; 4: 16HP; 5: 18HP; 6: 20HP; 7: 22HP; 8: 24HP; 9: 26HP; A: 28HP; B: 30HP; C: 30HP.
- Operating mode:
 - 0: off; 2: cooling; 3: null; 4: forced cooling.
- The fan speed index is related to the fan speed in rpm and can take any integer value in the range 1 (slowest) to 37 (fastest).
- 480P: steps = value displayed × 4; 3000P: steps = value displayed × 24.
- Silent mode:
 - 0: night silent time 6h/10h; 1: night silent time 6h/12h; 2: night silent time 8h/10h; 3: night silent time 8h/12h; 4: no silent mode; 5: silent mode 1; 6: silent mode 2; 7: silent mode 3; 8: super silent mode 1; 9: super silent mode 2; 10: super silent mode 3; 11: super silent mode 4.
- Static pressure mode:
 - 0: standard static pressure; 1: low static pressure; 2: medium static pressure; 3: high static pressure; 4: super high static pressure.
- Refrigerant quantity:
 - 0: normal; 1: slightly excessive; 2: significantly excessive; 3: slightly insufficient; 4: significantly insufficient; 5: critically insufficient.
- Power mode:
 - 0: 100% capacity output; 1: 90% capacity output; 2: 80% capacity output; 3: 70% capacity output; 4: 60% capacity output; 5: 50% capacity output; 6: 40% capacity output; 10: auto power save mode, 100% capacity output; 11: auto power save mode, 90% capacity output; 12: auto power save mode, 80% capacity output; 13: auto power save mode, 70% capacity output; 14: auto power save mode, 60% capacity output; 15: auto power save mode, 50% capacity output; 16: auto power save mode, 40% capacity output;

2.2.5 Digital display output

Table 5-2.6: Digital display output in different operating states

Outdoor unit state		Parameters displayed on DSP1	Parameters displayed on DSP2	
Standby		Unit's address	The number of indoor units in communication with the outdoor units	
Normal operation	For single compressor units	--	Running speed of the compressor in rotations per second	
	For dual compressor units	Running speed of compressor A in rotations per second	Running speed of compressor B in rotations per second	
Error or protection		-- or placeholder	Error or protection code	
In menu mode		Refer to Table 5-2.3	Refer to Table 5-2.3	
System check		Refer to Table 5-2.5	Refer to Table 5-2.5	

3 Compressor Inverter Module

3.1 Ports

Figure 5-3.1: Compressor inverter module ports

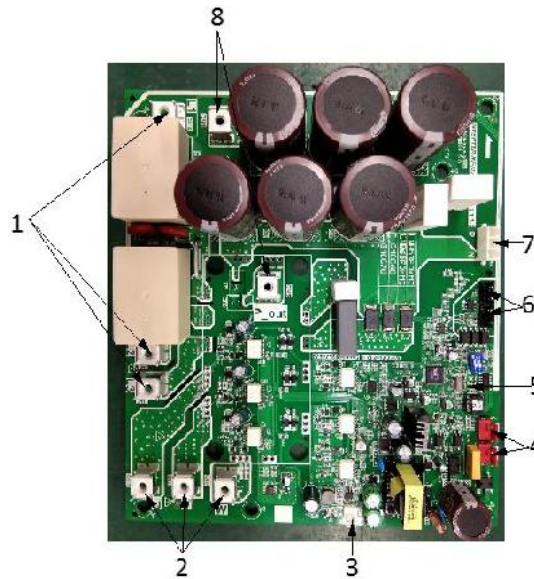
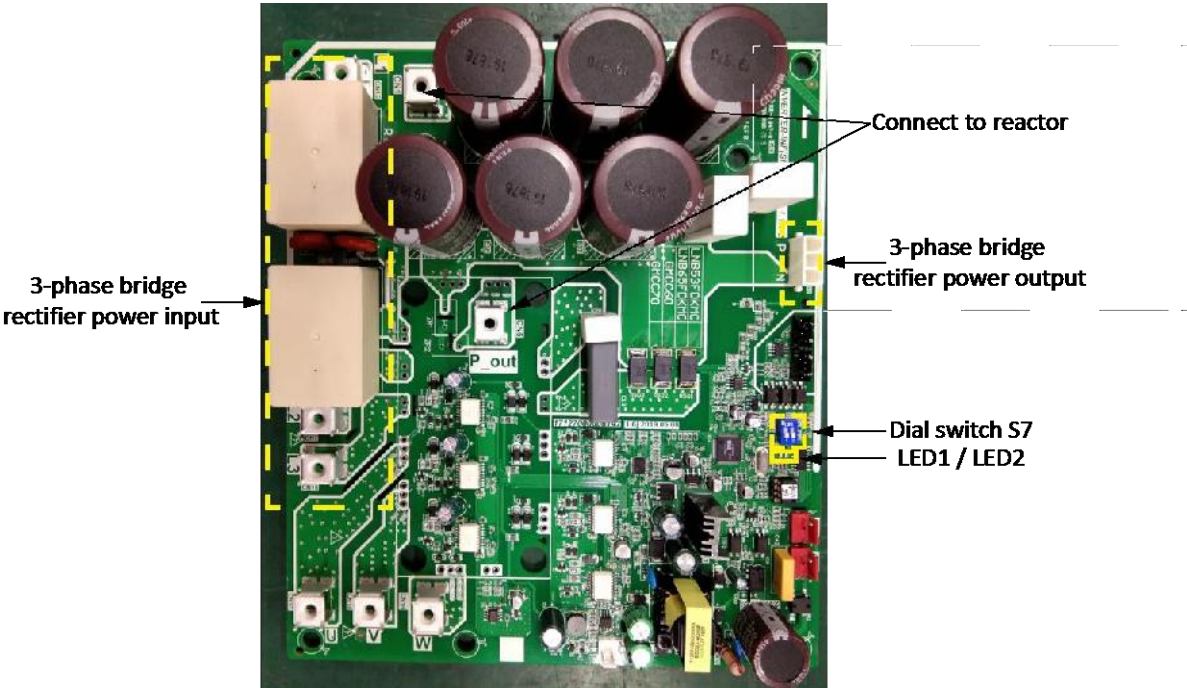


Table 5-3.1: Compressor inverter module PCB ports

Label	Port code	Content	Port voltage
1	CN7\CN15\CN16	3-phase power supply port to inverter module	380V AC
2	CN17\CN18\CN19	Inverter module power output port to compressor U V W	/
3	CN20	Fan module power output port	18-22V DC
4	CN4\CN6	Inverter module control port	220V AC
5	LED1\LED2	Inverter module operating indicator LED1 Inverter module error indicator LED2	0-3.3V DC (varying)
6	CN8\CN9	Communication port to main board	0-5V DC (varying)
7	CN38	Power supply port to fan module IPM	485-645V DC
8	CN1\CN5	Connect to reactor	/

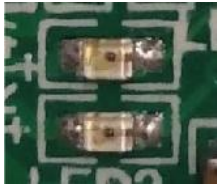
3.2 Layout

Figure 5-3.2: Compressor inverter module components



3.2.1 LED indicators LED1 and LED2

Table 5-3.2: LED indicators LED1 and LED2

Indicator	LED indicator function and status	
LED 1	Inverter module operating indicator. Continuously on if the compressor is running normally and flashing if an inverter module error has occurred ¹ .	
LED 2	Inverter module error indicator. Continuously on if an inverter module error has occurred ¹ .	

Note:

1. If an inverter module error occurs, refer to Part 6, “Xh4 Troubleshooting”. The error code is displayed on the digital display.

3.2.2 Dial switch S7 setting

Dial switch S7 is used to set compressor inverter module A/B address. The compressor inverter module A/B location refers to the wiring diagram.

S7 on inverter module	Inverter module address
	0 for compressor inverter module A
	1 for compressor inverter module B

4 Fan Module

4.1 Ports

Figure 5-4.1: Compressor inverter module ports

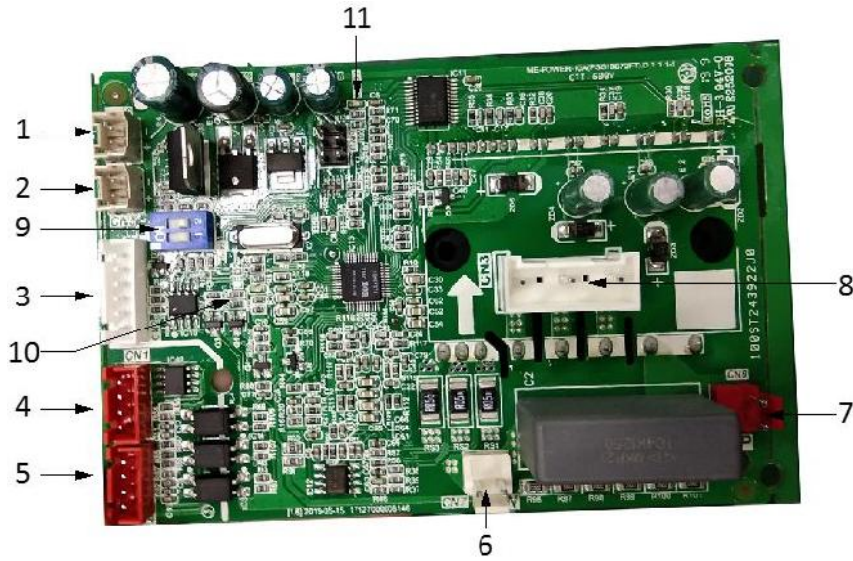


Table 5-4.1: Fan module PCB ports

Label in	Port code	Content	Port voltage
1	CN6	Power supply port to fan module control part	18-22V DC
2	CN5	Power supply port to fan module control part	18-22V DC
3	CN2	Program upgrade port	/
4	CN1	Communication port to main board	0-5V DC (varying)
5	CN4	Communication port to main board	0-5V DC (varying)
6	CN7	Power supply port "N" to fan module IPM	Voltage between P and N is 485-645V
7	CN8	Power supply port "P" to fan module IPM	Voltage between P and N is 485-645V
8	CN3	Connect to fan motor	/
9	SW1	Fan module address dial switch ¹	Note 1
10	LED2	Fan module error indicator	/
11	LED1	Fan module operating indicator	/

Notes:

- This dial switch is used to set fan module A/B address. The fan module A/B location refers to the wiring diagram.

Dial switch on fan module	Fan module address
	0 for fan module A
	1 for fan module B

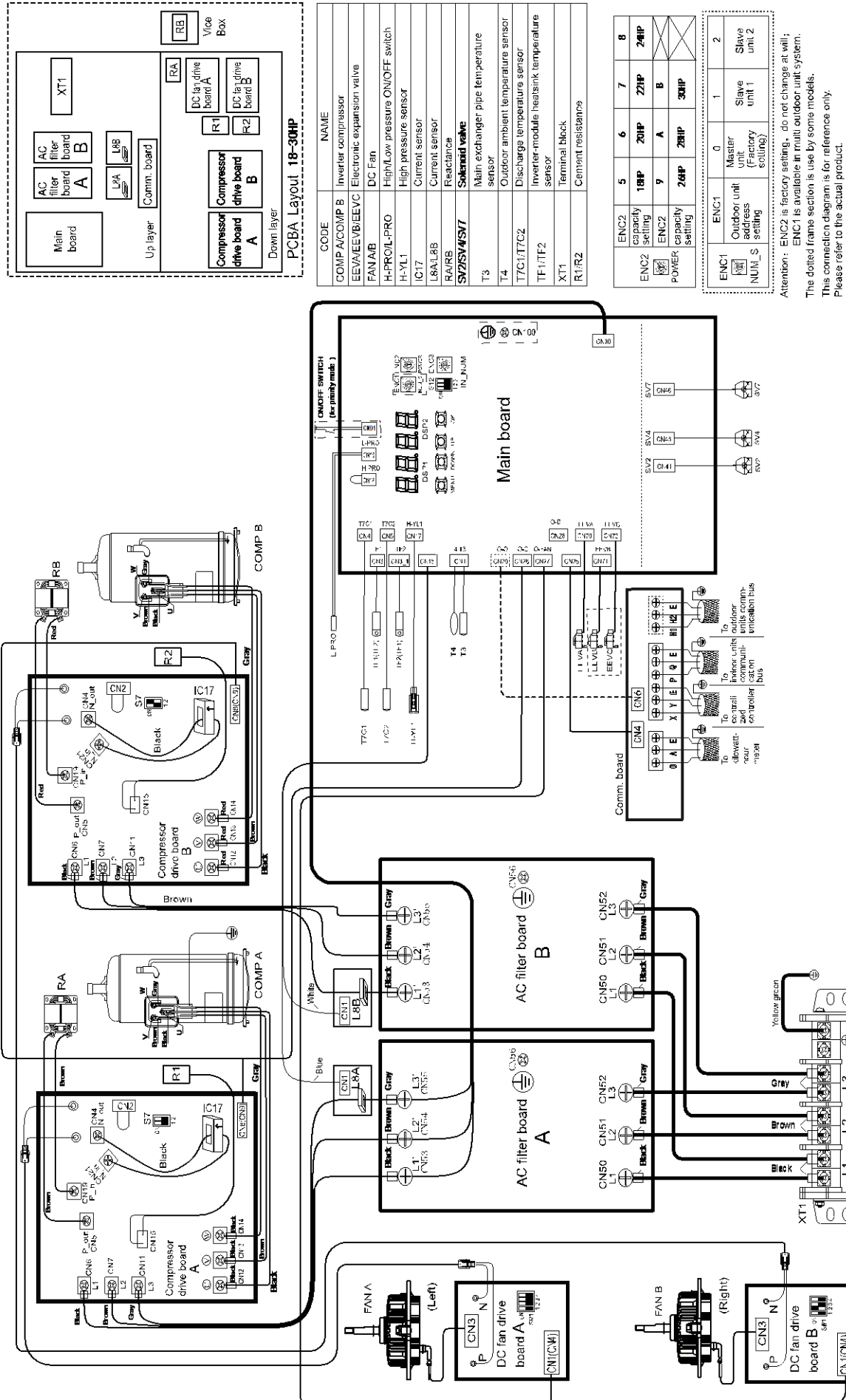
8-16HP

Figure 5-5.1: 8-16HP wiring diagram



18-30HP

Figure 5-5.2: 18-30HP wiring diagram



Part 6

Diagnosis and Troubleshooting

1 Error Code Table.....	56
2 Troubleshooting	57
3 Appendix to Part 6	112

1 Error Code Table

Table 6-1.1: Error code table

Error code ¹	Content	Remarks	Manual re-start required ²
E0	Communication error between outdoor units	Only displayed on the slave unit with the error	No
E1	Phase sequence error	Displayed on the unit with the error	Yes
E2	Communication error between indoor and master unit	Only displayed on the master unit	No
E4	Outdoor heat exchanger temperature sensor (T3) error or outdoor ambient temperature sensor (T4) error	Displayed on the unit with the error	No
E5	Abnormal power supply voltage	Displayed on the unit with the error	No
E7	Compressor top or discharge pipe temperature sensor (T7C1/T7C2) error	Displayed on the unit with the error	Yes
E8	Outdoor unit address error	Displayed on the unit with the error	Yes
xE9	EEPROM mismatch	Displayed on the unit with the error	Yes
xF1	DC bus voltage error	Displayed on the unit with the error	No
XF6	Electronic expansion valve connection error	Displayed on the unit with the error Refer to Note 3	Yes
xH0	Communication error between main control chip and inverter driver chip	Displayed on the unit with the error	No
H2	Number of slave units detected by master unit has decreased	Only displayed on the master unit	No
H3	Number of slave units detected by master unit has increased	Only displayed on the master unit	No
xH4	Inverter module protection	Displayed on the unit with the error	Yes
H5	P2 protection appears three times in 60 minutes	Displayed on the unit with the error	Yes
H6	P4 protection appears three times in 100 minutes	Displayed on the unit with the error	Yes
H7	Number of indoor units detected by master unit not same as number set on main PCB	Only displayed on the master unit	No
H8	High pressure sensor error	Displayed on the unit with the error	No
xH9	P9 protection appears ten times in 120 minutes	Displayed on the unit with the error	Yes
yHd	Slave unit malfunction	Only displayed on the master unit	No
C7	PL protection appears three times in 100 minutes	Displayed on the unit with the error	Yes
P1	Discharge pipe high pressure protection	Displayed on the unit with the error	No
P2	Suction pipe low pressure protection	Displayed on the unit with the error	No
xP3	Compressor current protection	Displayed on the unit with the error	No
P4	Discharge temperature protection	Displayed on the unit with the error	No
P5	Outdoor heat exchanger temperature protection	Displayed on the unit with the error	No
xP9	Fan module protection	Displayed on the unit with the error	No

Table continued on next page ...

Table 6-1.1: Error code table (continued)

Error code ¹	Content	Remarks	Manual re-start required ²
PL	Inverter module temperature protection	Displayed on the unit with the error	No
PP	Compressor discharge insufficient superheat protection	Displayed on the unit with the error	No
xL0	Inverter module protection	Displayed on the unit with the error	Yes
xL1	DC bus low voltage protection	Displayed on the unit with the error	Yes
xL2	DC bus high voltage protection	Displayed on the unit with the error	Yes
xL4	MCE error	Displayed on the unit with the error	Yes
xL5	Zero speed protection	Displayed on the unit with the error	Yes
xL7	Phase sequence error	Displayed on the unit with the error	Yes
xL8	Compressor frequency variation greater than 15Hz within one second protection	Displayed on the unit with the error	Yes
xL9	Actual compressor frequency differs from target frequency by more than 15Hz protection	Displayed on the unit with the error	Yes

Notes:

- 'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B. 'y' is a placeholder for the address (1 or 2) of the slave unit with the error.
- For some error codes, a manual restart is required before the system can resume operation.
- Once the EXV has been connected properly, the error code will flash to indicate that the connection has been re-established. A manual restart is then required before the system can resume operation.

2 Troubleshooting

2.1 Warning

Warning



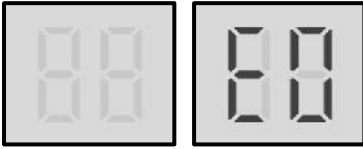
- All electrical work must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation (all national, local and other laws, standards, codes, rules, regulations and other legislation that apply in a given situation).
- Power-off the outdoor units before connecting or disconnecting any connections or wiring, otherwise electric shock (which can cause physical injury or death) may occur or damage to components may occur.

TVR Pro CO 50/60Hz



2.2 E0: Communication error between outdoor units

2.2.1 Digital display output



2.2.2 Description

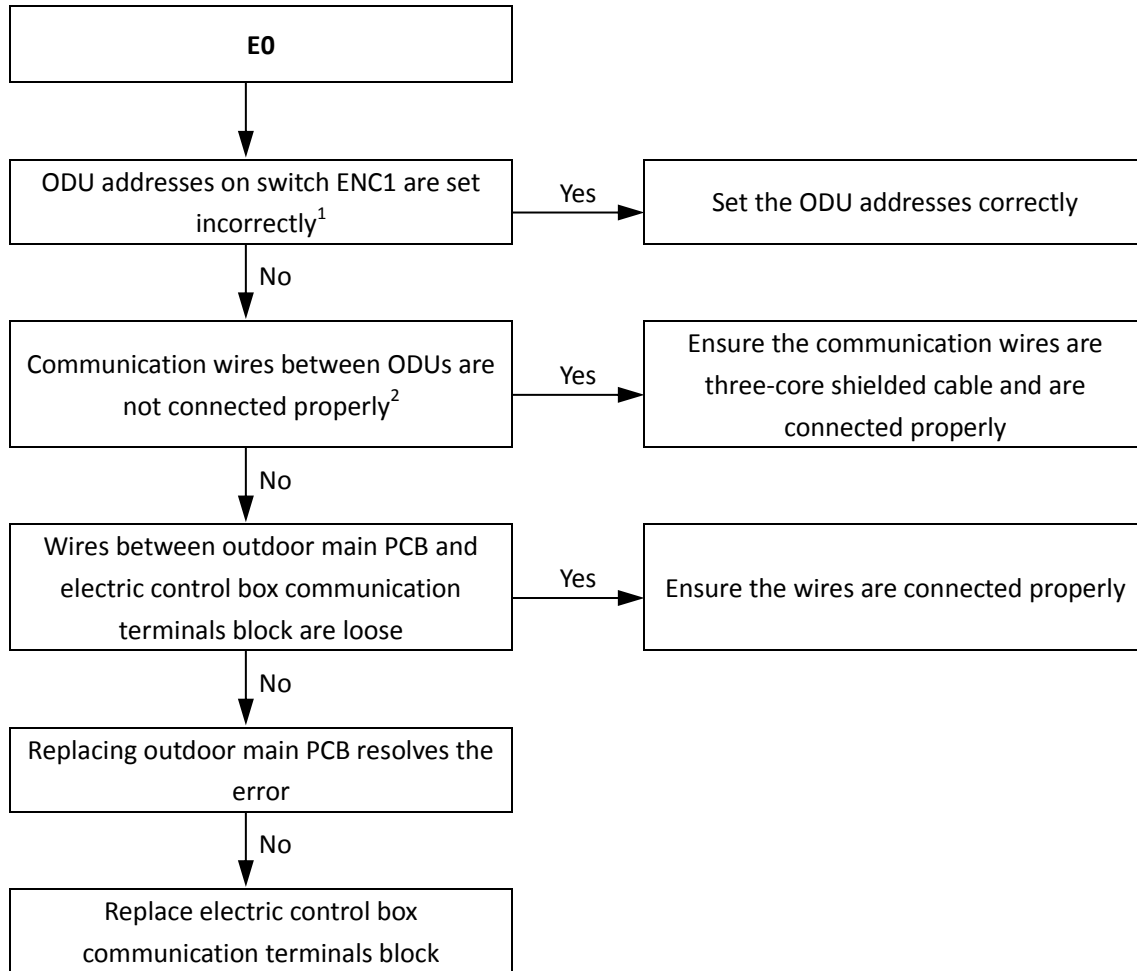
- Communication error between outdoor units.
- All units stop running.
- Error code is only displayed on the slave unit with the error.

2.2.3 Trigger / recover condition

- Trigger condition: Slave unit cannot receive signal from master unit for 60s.
- Recover condition: Slave unit can receive signal from master unit.
- Reset method: Resume automatically.

2.2.4 Possible causes

- Incorrect outdoor unit address setting.
- Communication wires between outdoor units not connected properly.
- Loosened wiring within electric control box.
- Damaged main PCB or electric control box communication terminals block.

2.2.5 Procedure

Notes:

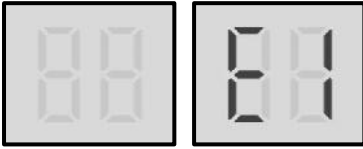
1. The master unit address should be set as 0, slave units addresses should be set from 1 to 2, and the addresses should not be repeated within one system.
2. All the wires for H1, H2, E connections should be three-core shielded cable, the wiring should be connected according to polarity (H1 to H1, etc), the wiring should not be open or short circuited.

TVR Pro CO 50/60Hz



2.3 E1: Phase sequence error

2.3.1 Digital display output



2.3.2 Description

- Phase sequence error.
- All units stop running.
- Error code is only displayed on the unit with the error.

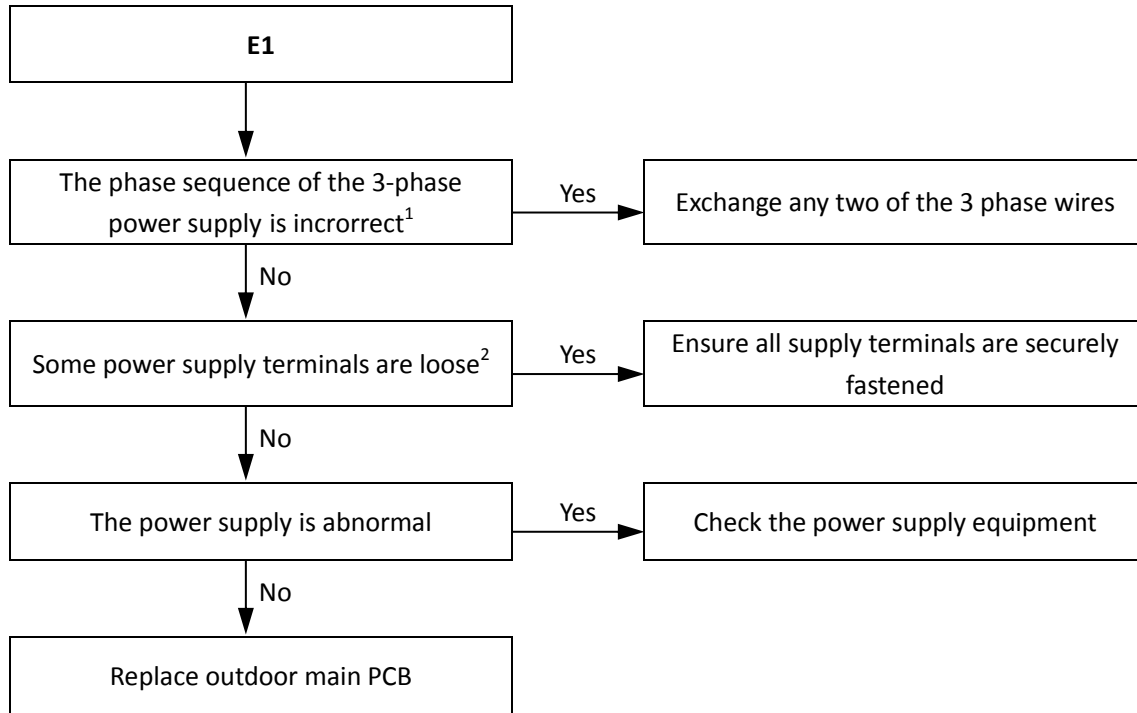
2.3.3 Trigger / recover condition

- Trigger condition: Wrong phase connection for 1.6s or phase missing for 48s.
- Recover condition: Correct phase connection.
- Reset method: Manually restart.

2.3.4 Possible causes

- Power supply phases not connected in correct sequence.
- Power supply terminals loose.
- Power supply abnormal.
- Main PCB damaged.

2.3.5 Procedure



Notes:

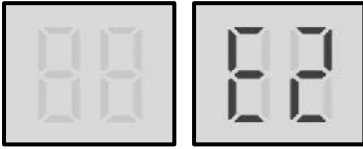
1. The A, B, C terminals of the 3-phase power supply should match compressor phase sequence requirements. If the phase sequence is inverted, the compressor will operate inversely. If the wiring connection of each outdoor unit is in A, B, C phase sequence, and multiple units are connected, the current difference between C phase and A, B phases will be very large as the power supply load of each outdoor unit will be on C phase. This can easily lead to tripped circuits and terminal wiring burnout. Therefore if multiple units are to be used, the phase sequence should be staggered, so that the current is distributed among the three phases equally.
2. Loose power supply terminals can cause the compressors to operate abnormally and compressor current to be very large.

TVR Pro CO 50/60Hz



2.4 E2: Communication error between indoor and master unit

2.4.1 Digital display output



2.4.2 Description

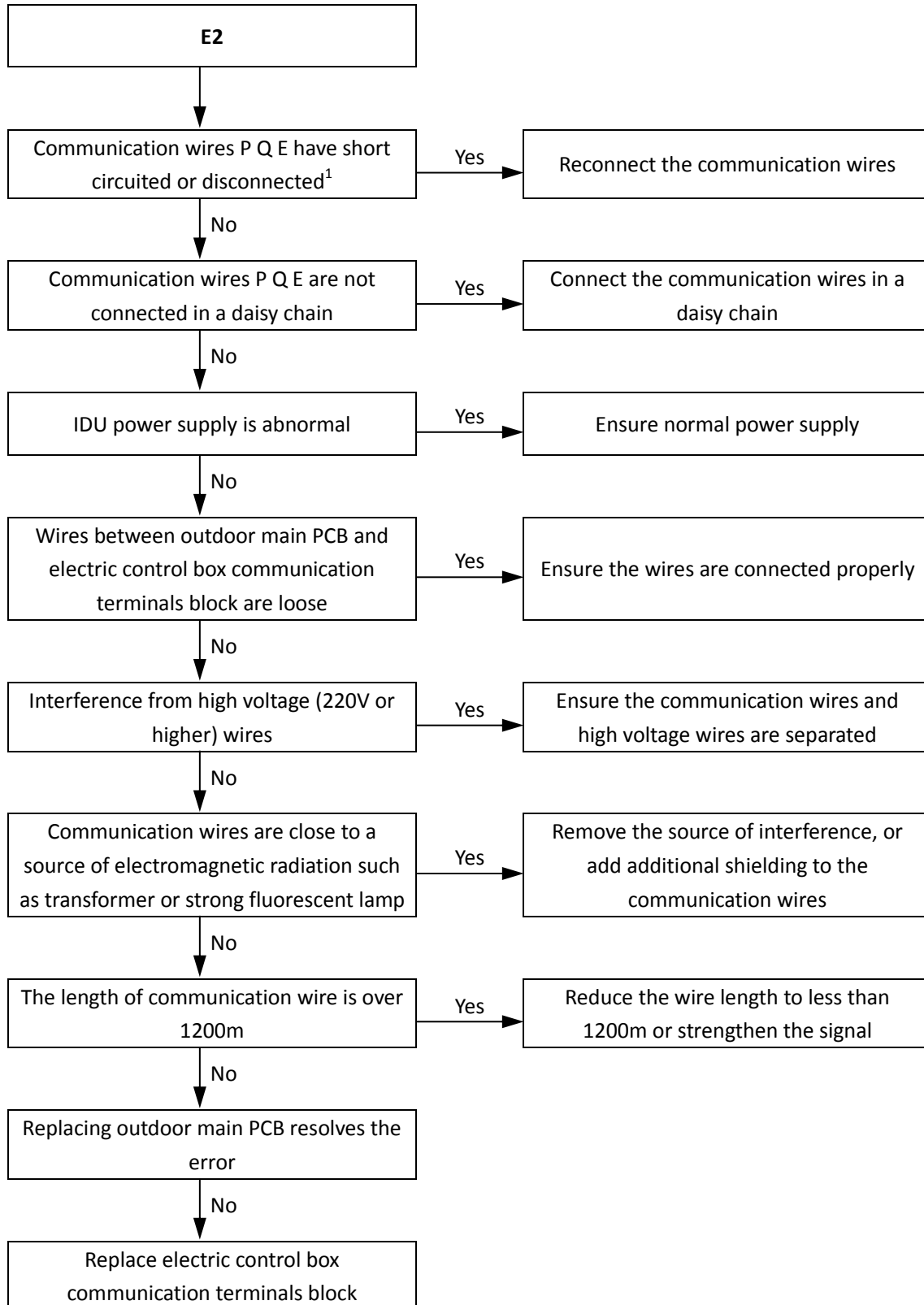
- Communication error between indoor and master unit.
- All units stop running.
- Error code is only displayed on the master unit.

2.4.3 Trigger / recover condition

- Trigger condition: Indoor units and outdoor units cannot communication for 2 minutes after the system power on 20 minutes.
- Recover condition: Communication go back to normal.
- Reset method: Resume automatically.

2.4.4 Possible causes

- Communication wires between indoor and outdoor units not connected properly.
- Indoor unit power supply abnormal.
- Loosened wiring within electric control box.
- Interference from high voltage wires or other sources of electromagnetic radiation.
- Communication wire too long.
- Damaged main PCB or electric control box communication terminals block.

2.4.5 Procedure

Notes:

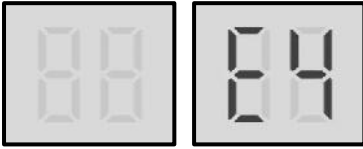
1. Measure the resistance among P, Q and E. The normal resistance between P and Q is 120Ω, between P and E is infinite, between Q and E is infinite.

TVR Pro CO 50/60Hz



2.5 E4: Temperature sensor (T3/T4) error

2.5.1 Digital display output



2.5.2 Description

- Outdoor heat exchanger temperature sensor (T3) error or outdoor ambient temperature sensor (T4) error.
- All units stop running.
- Error code is only displayed on the unit with the error.

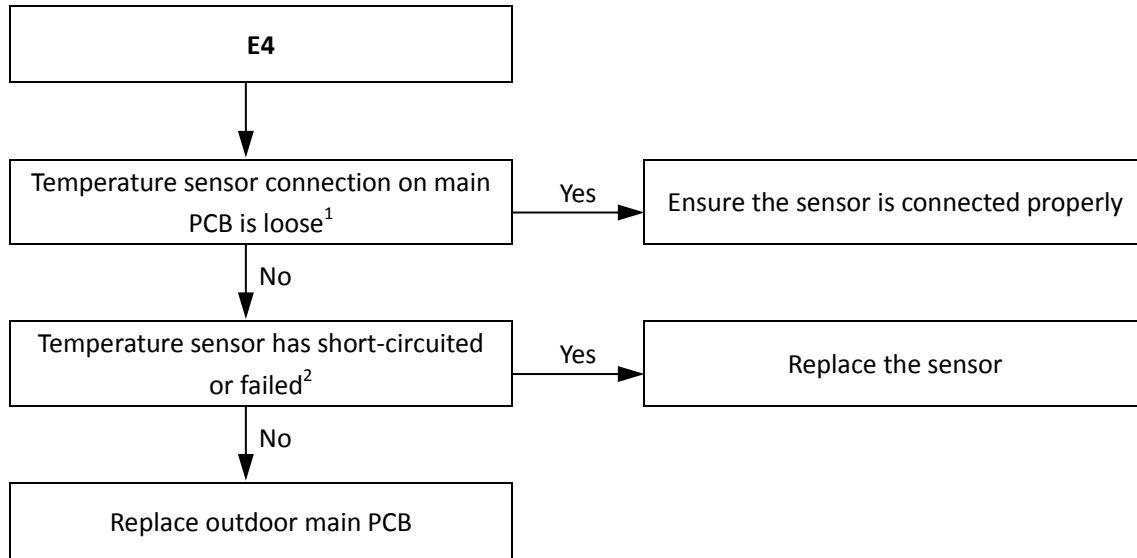
2.5.3 Trigger / recover condition

- Trigger condition: The main control board cannot receive the feedback signal of temperature sensor T3 or T4.
- Recover condition: The main control board can receive the feedback signal of temperature sensor T3 or T4.
- Reset method: Resume automatically.

2.5.4 Possible causes

- Temperature sensor not connected properly or has malfunctioned.
- Damaged main PCB.

2.5.5 Procedure



Notes:

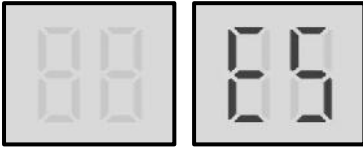
1. Outdoor ambient temperature sensor (T4) and heat exchanger temperature sensor (T3) connection is port CN1 on the main PCB (labeled 11 in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure sensor resistance. If the resistance is too low, the sensor has short-circuited. If the resistance is not consistent with the sensor's resistance characteristics table, the sensor has failed. Refer to Table 6-3.1 in Part 6, 3.1 "Temperature Sensor Resistance Characteristics".

TVR Pro CO 50/60Hz



2.6 E5: Abnormal power supply voltage

2.6.1 Digital display output



2.6.2 Description

- Abnormal power supply voltage.
- All units stop running.
- Error code is only displayed on the unit with the error.

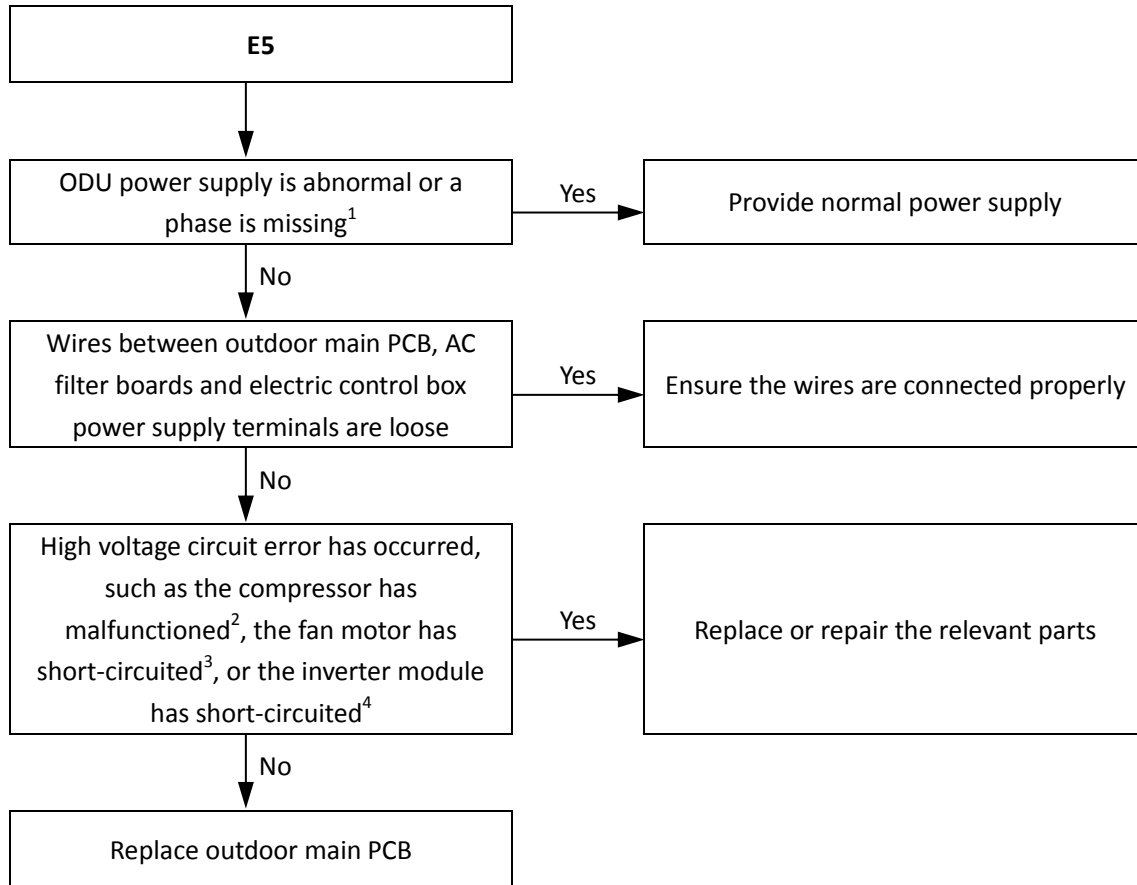
2.6.3 Trigger / recover condition

- Trigger condition: Outdoor unit power supply phase voltage < 165V.
- Recover condition: Outdoor unit power supply phase voltage is > 180V.
- Reset method: Resume automatically.

2.6.4 Possible causes

- Outdoor unit power supply voltage is abnormal or a phase is missing.
- Loosened wiring within electric control box.
- High voltage circuit error.
- Main PCB damaged.

2.6.5 Procedure



Notes:

1. The normal voltage between A and N, B and N, and C and N is 198-242V.
2. The normal resistances of the inverter compressor are 0.7-1.5Ω among U V W and infinite between each of U V W and ground. If any of the resistances differ from these specifications, the compressor has malfunctioned.
3. The normal resistances of the fan motor coil among U V W are less than 10Ω. If a measured resistance is 0Ω, the fan motor has short-circuited.
4. Set a multi-meter to buzzer mode and test any two terminals of P N U V W of the inverter module. If the buzzer sounds, the inverter module has short-circuited.

Figure: Inverter module terminals

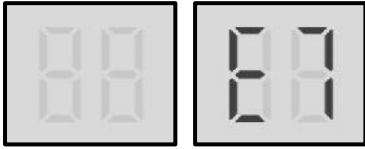


TVR Pro CO 50/60Hz



2.7 E7: Temperature sensor (T7C1/2) error

2.7.1 Digital display output



2.7.2 Description

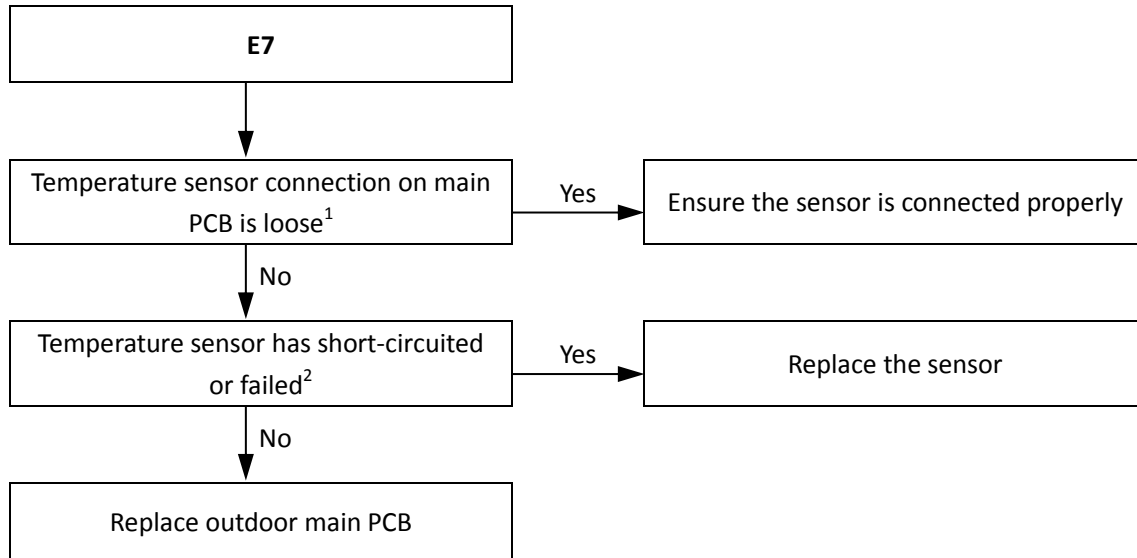
- A compressor top temperature sensor or discharge pipe temperature sensor (T7C1/2) error.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.7.3 Trigger / recover condition

- Trigger condition: Discharge pressure $\geq 3\text{MPa}$ and discharge temperature $< 15^{\circ}\text{C}$ for 2 minutes.
- Recover condition: Discharge pressure and temperature go back to normal.
- Reset method: Manually restart.

2.7.4 Possible causes

- Temperature sensor not connected properly or has malfunctioned.
- Damaged main PCB.

2.7.5 Procedure

Notes:

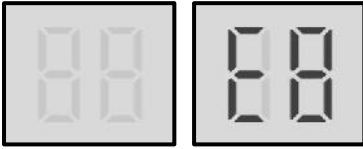
1. Compressor top temperature sensor and discharge pipe temperature sensor connections are ports CN4 and CN5 on the main PCB (labeled 3 and 4, respectively, in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure sensor resistance. If the resistance is too low, the sensor has short-circuited. If the resistance is not consistent with the sensor's resistance characteristics table, the sensor has failed. Refer to Table 6-3.2 in Part 6, 3.1 "Temperature Sensor Resistance Characteristics".

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2.8 E8: Outdoor unit address error

2.8.1 Digital display output



2.8.2 Description

- Outdoor unit address error.
- All units stop running.
- Error code is only displayed on the unit with the error.

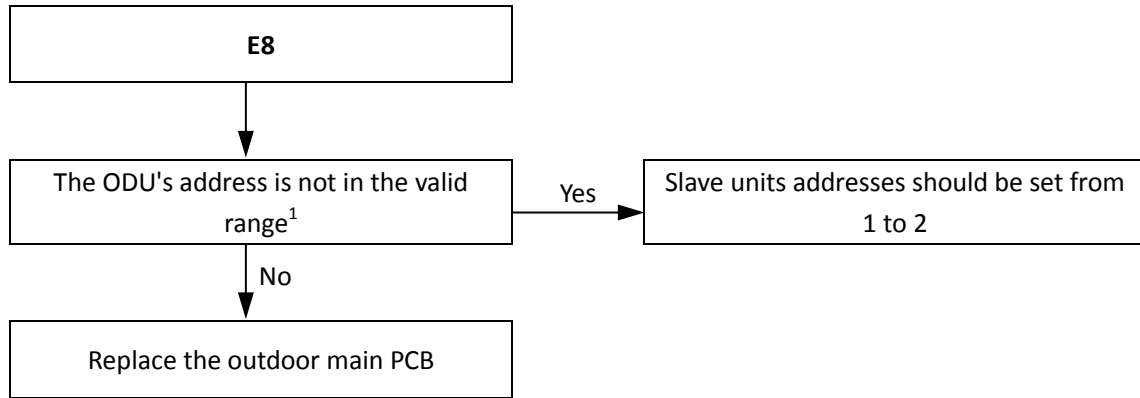
2.8.3 Trigger / recover condition

- Trigger condition: Outdoor unit address is set more than 2.
- Recover condition: Outdoor unit addresses are set from 0 to 2.
- Reset method: Manually restart.

2.8.4 Possible causes

- Invalid outdoor unit address.
- Main PCB damaged.

2.8.5 Procedure



Notes:

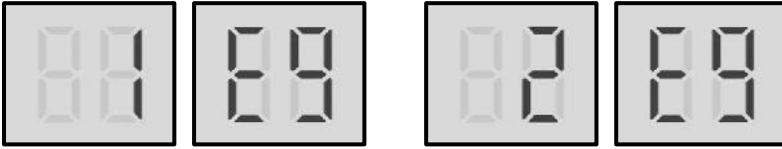
1. The master unit address should be set as 0, slave units addresses should be set from 1 to 2, and the addresses should not be repeated within one system.

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2.9 xE9: EEPROM mismatch

2.9.1 Digital display output



In the error code, 'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

2.9.2 Description

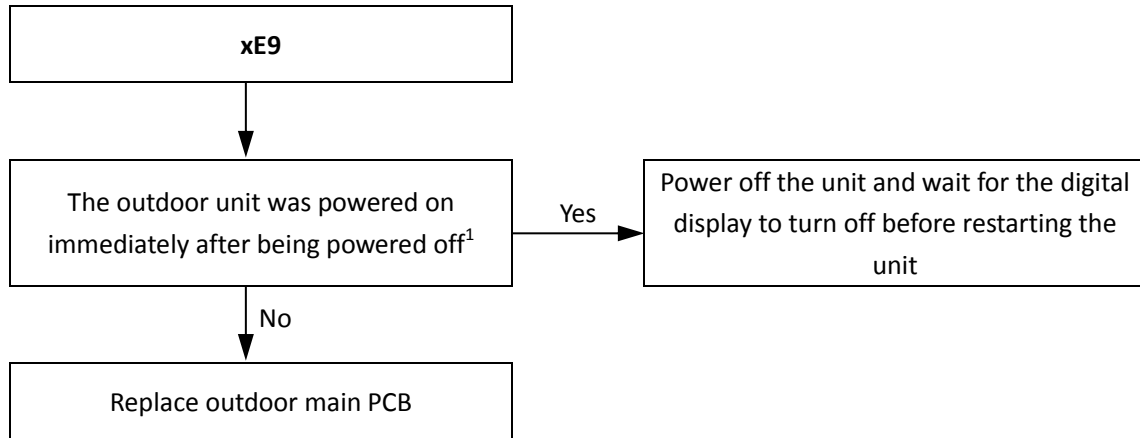
- 1E9 indicates a compressor A EEPROM mismatch.
- 2E9 indicates a compressor B EEPROM mismatch.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.9.3 Trigger / recover condition

- Trigger condition: Compressor drive parameter is mismatch.
- Recover condition: Compressor drive parameter is match.
- Reset method: Manually restart.

2.9.4 Possible causes

- Outdoor unit was powered on immediately after being powered off.
- Main PCB damaged.

2.9.5 Procedure

Notes:

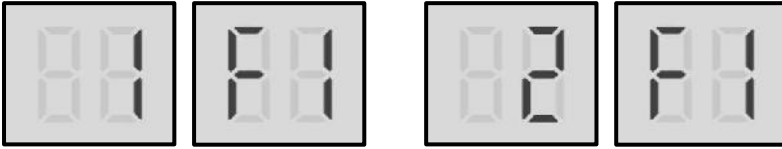
1. When performing a manual restart of an outdoor unit, once the unit has been powered off it should not be powered on again until the digital display has turned off.

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2.10 xF1: DC bus voltage error

2.10.1 Digital display output



'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

2.10.2 Description

- 1F1 indicates compressor A DC bus voltage error; 2F1 indicates compressor B DC bus voltage error.
- All units stop running.
- Error code is only displayed on the unit with the error.

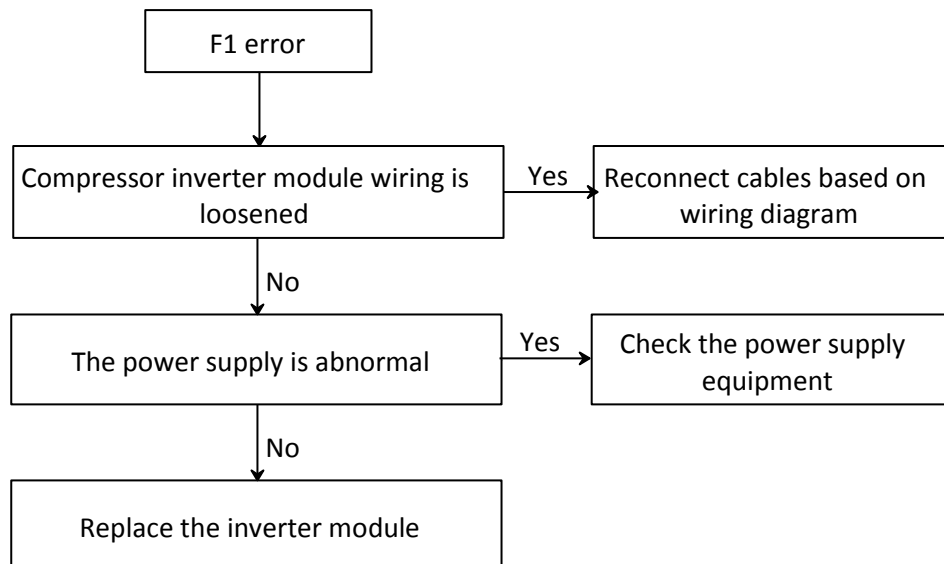
2.10.3 Trigger / recover condition

- Trigger condition: DC bus voltage < 350V or DC bus voltage > 700V continuously for 10 seconds.
- Recover condition: DC bus voltage goes back to normal.
- Reset method: Restart automatically.

2.10.4 Possible causes

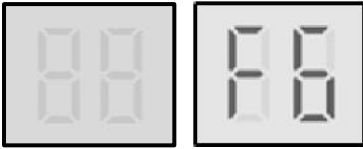
- Loosened wiring of the compressor inverter module.
- Incorrect wiring of the reactor and DC bus wire.
- Abnormal power supply.
- Inverter module damaged.

2.10.5 Procedure



2.11 F6: Electronic expansion valve connection error

2.11.1 Digital display output



2.11.2 Description

- Electronic expansion valve connection error.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.11.3 Trigger / recover condition

- Trigger condition: The main control board cannot receive the feedback signal of EXV.
- Recover condition: The main control board can receive the feedback signal of EXV.
- Reset method: When the main control board can receive the feedback signal of EXV, F6 flashes, a manual system restart is required before the system can resume operation.

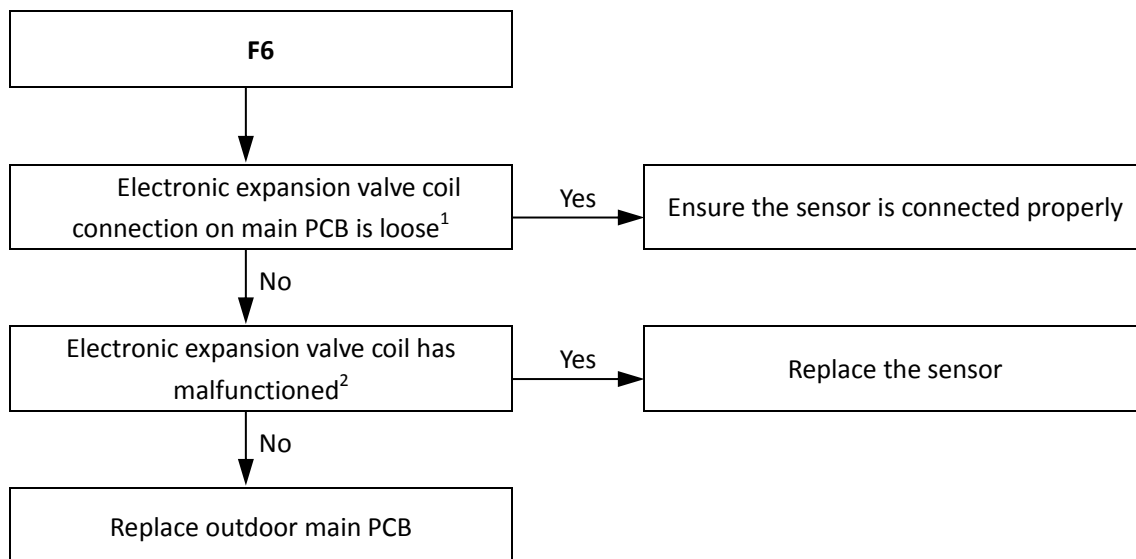
2.11.4 Possible causes

- Electronic expansion valve coil not connected properly or has malfunctioned.
- Damaged main PCB.

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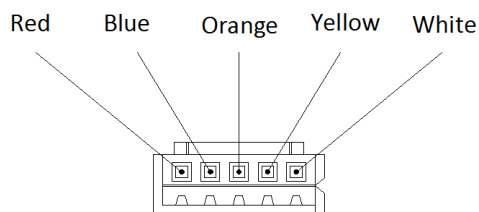
2.11.5 Procedure



Notes:

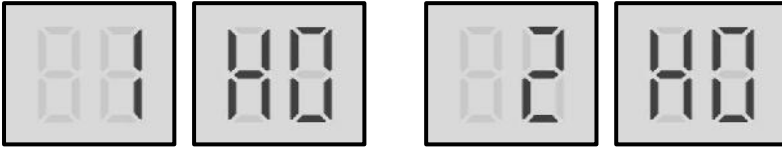
1. Electronic expansion valve coil connections is port CN70 on the main PCB (labeled 19 in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. The normal resistances between EXV coil wiring terminals RED and white / yellow / orange / blue are 40-50Ω. If any of the resistances differ from the value, the EXV coil has malfunctioned.

Figure: EXV coil wiring terminals



2.12 xH0: Communication error

2.12.1 Digital display output



In the error code, 'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

2.12.2 Description

- 1H0 indicates a communication error between the main control chip and the compressor A inverter driver chip.
- 2H0 indicates a communication error between the main control chip and the compressor B inverter driver chip.
- All units stop running.
- Error code is only displayed on the unit with the error.

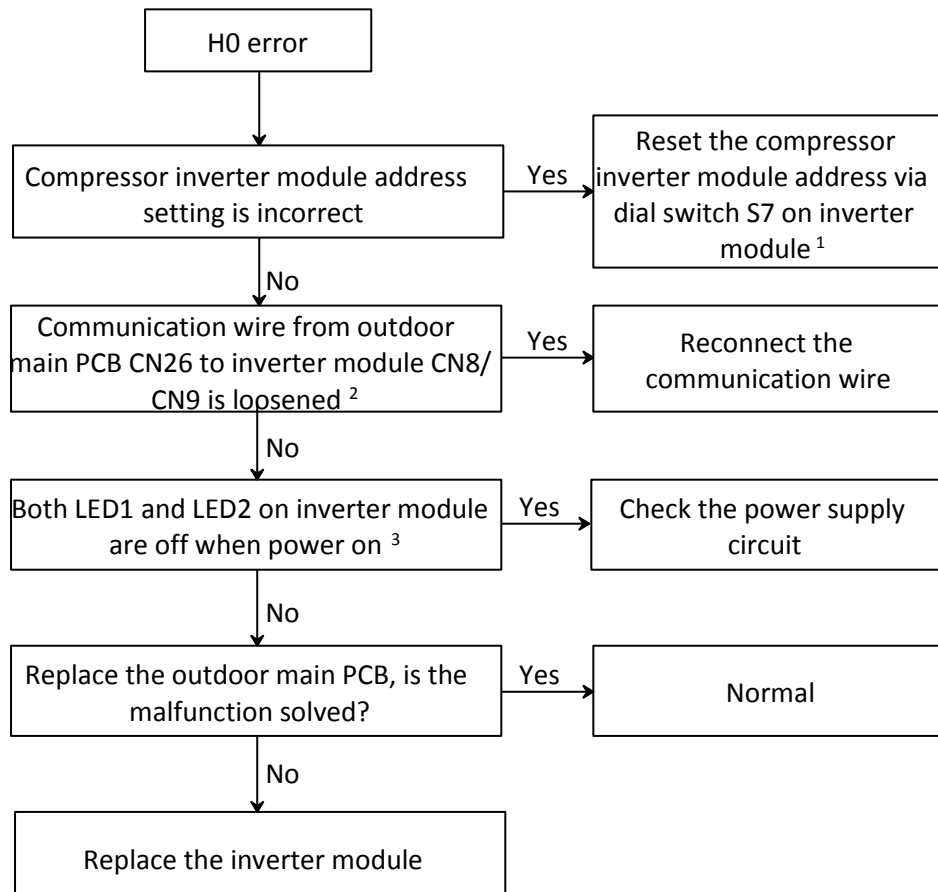
2.12.3 Trigger / recover condition

- Trigger condition: Main control chip and inverter driver chip cannot communication for 2 minutes.
- Recover condition: Communication go back to normal.
- Reset method: Resume automatically.

2.12.4 Possible causes

- Incorrect compressor inverter module address setting.
- Loosened communication wiring from the main PCB to the inverter module.
- Bridge rectifier damaged.
- Main PCB damaged.
- Compressor inverter module damaged.

2.12.5 Procedure



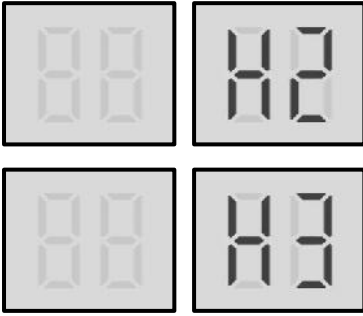
- Notes:
- Compressor inverter module address is set through dial switch S7 on the inverter module. The compressor inverter module A/B location refers to the wiring diagram.

S7 on inverter module	Inverter module address
	0 for compressor inverter module A
	1 for compressor inverter module B

- Communication wire from outdoor main PCB CN26 to inverter module CN8/CN9.
- LED1/2 on inverter module

2.13 H2, H3: Slave units decreased/increased

2.13.1 Digital display output



2.13.2 Description

- H2 indicates that the number of slave units detected by master unit has decreased.
- H3 indicates that the number of slave units detected by master unit has increased.
- All units stop running.
- Error code is only displayed on the master unit.

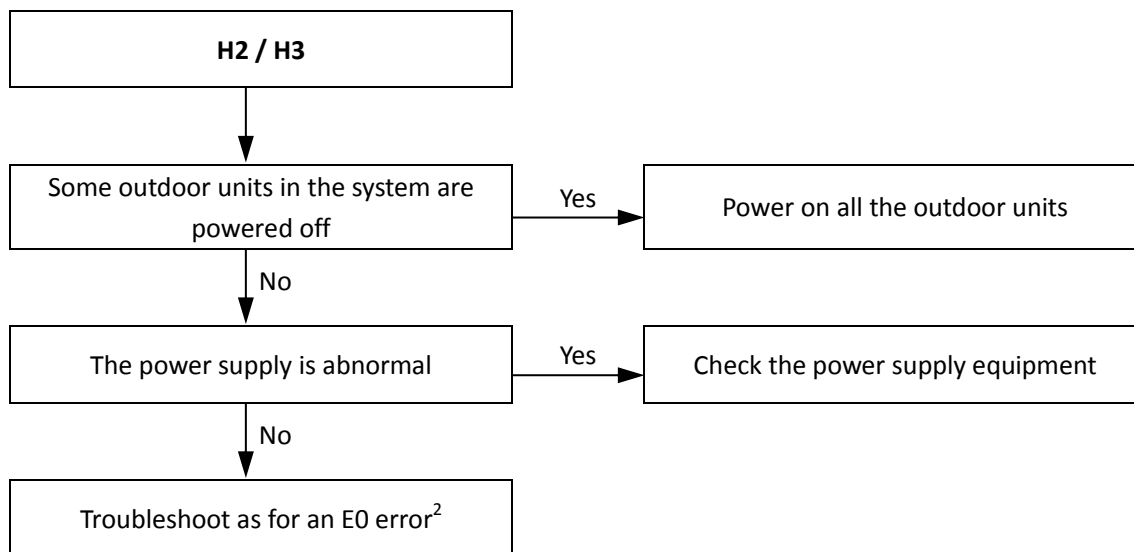
2.13.3 Trigger / recover condition

- Trigger condition: Number of slave units detected by master unit has decreased or increased.
- Recover condition: Number of slave units detected by master unit goes back to normal.
- Reset method: Resume automatically.

2.13.4 Possible causes

- Some outdoor units are powered off.
- Power supply abnormal.
- Incorrect outdoor unit address setting.
- Communication wires between outdoor units not connected properly.
- Loosened wiring within electric control box.
- Damaged main PCB or electric control box communication terminals block.

2.13.5 Procedure

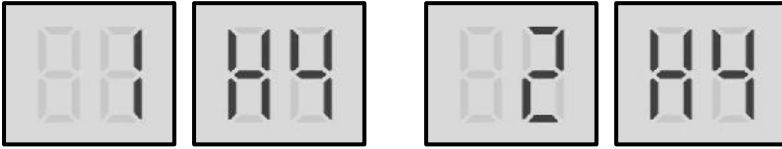


Notes:

1. See "E0 Troubleshooting".

2.14 xH4: Inverter module protection

2.14.1 Digital display output



In the error code, 'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

2.14.2 Description

- 1H4 indicates compressor A inverter module protection.
- 2H4 indicates compressor B inverter module protection.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.14.3 Trigger / recover condition

- Trigger condition: Compressor appears three inverter module protections.
- Recover condition: Inverter module goes back to normal.
- Reset method: Manually restart.

2.14.4 Possible causes

- Inverter module protection.
- DC bus low or high voltage protection.
- MCE error.
- Zero speed protection.
- Phase sequence error.
- Excessive compressor frequency variation.
- Actual compressor frequency differs from target frequency.

2.14.5 Specific error codes for xH4 inverter module protection

If an xH4 error code is displayed, enter menu mode "n31" (refer to Part 5, 2.2.3 "menu mode") to check the history error code to check the following specific error code: xL0, xL1, xL2, xL4, xL5, xL7, xL8, xL9.

Table 6-2.1: Specific error codes for error xH4

Specific error code ¹	Content
xL0	Inverter module protection
xL1	DC bus low voltage protection
xL2	DC bus high voltage protection
xL4	MCE error
xL5	Zero speed protection
xL7	Phase sequence error
xL8	Compressor frequency variation greater than 15Hz within one second protection
xL9	Actual compressor frequency differs from target frequency by more than 15Hz protection

Notes:

1. 'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

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The specific error codes xL0, xL1, xL2 and xL4 can also be obtained from the inverter module LED indicators. If an inverter module error has occurred, LED2 is continuously on and LED1 flashes.

Figure: LED indicators LED1 and LED2 on inverter module

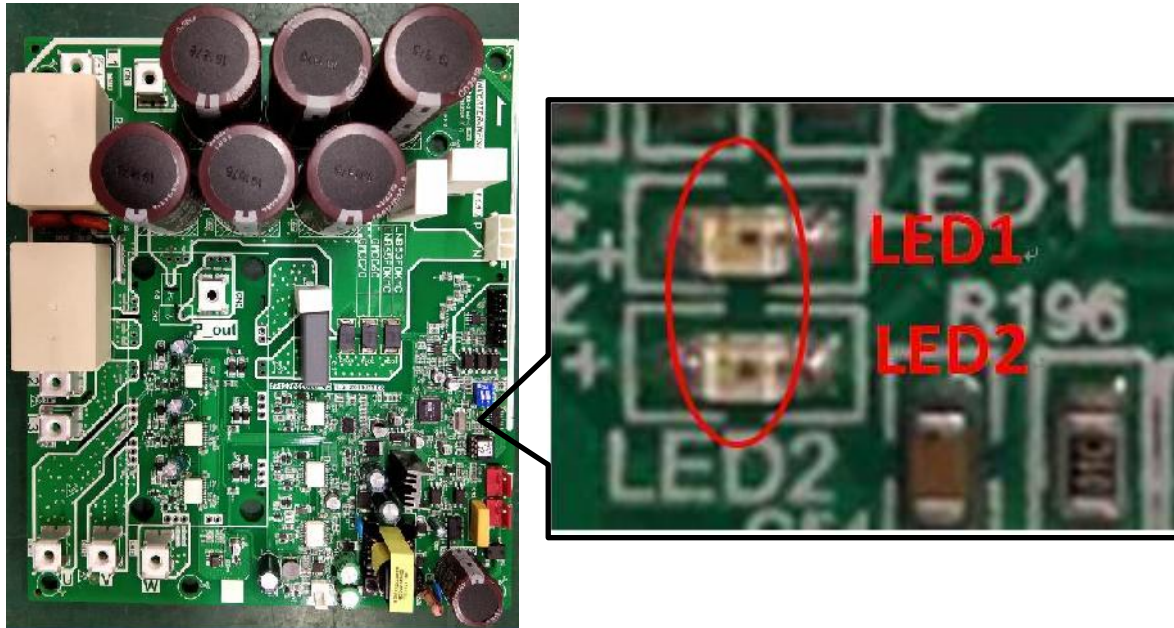
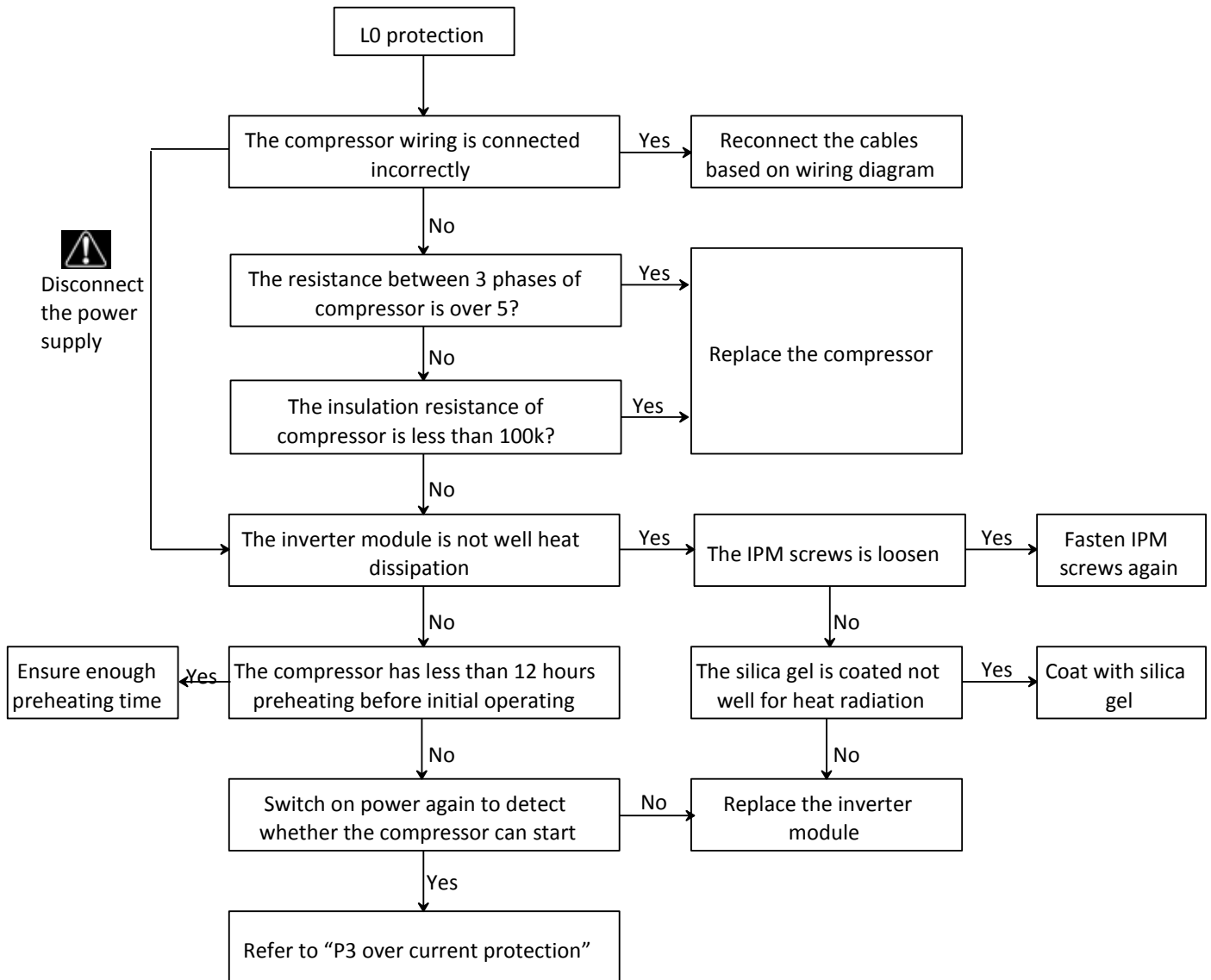
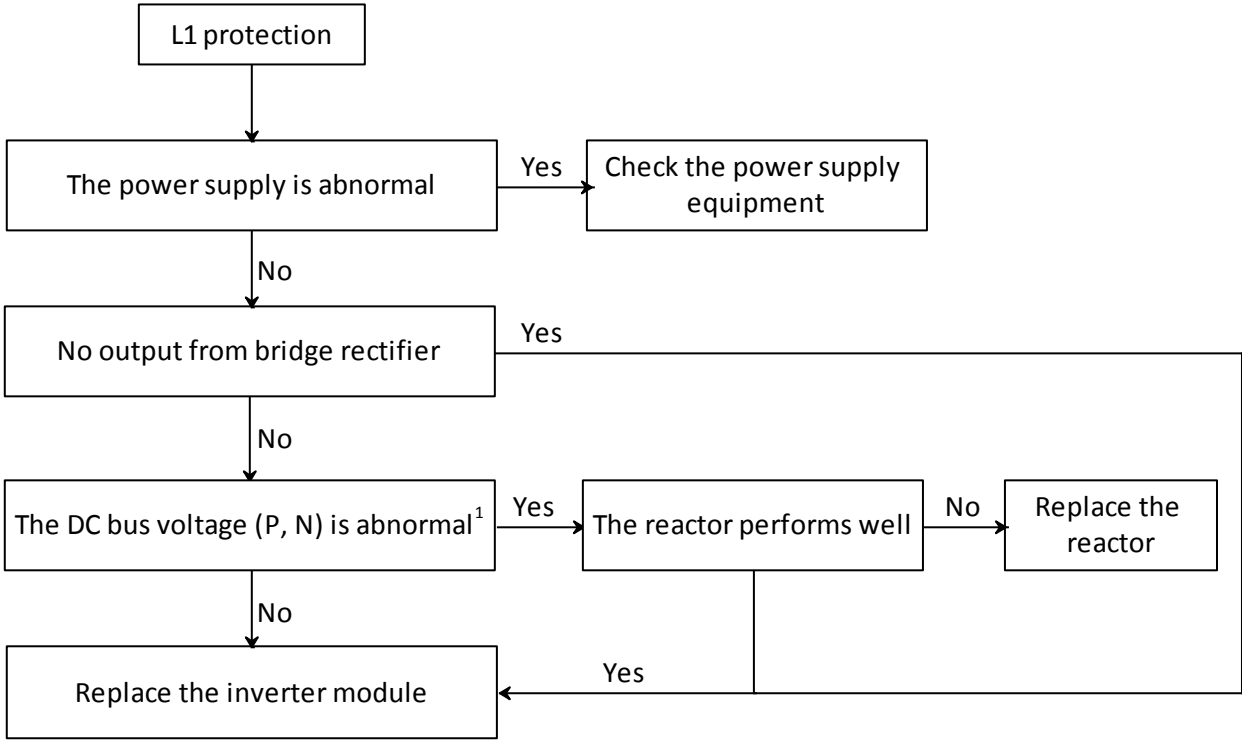


Table 5-3.2: Errors indicated on LED1

LED1 flashing pattern	Corresponding error
Flashes 8 times and stops for 1 second, then repeats	xL0 - Inverter module protection
Flashes 9 times and stops for 1 second, then repeats	xL1 - DC bus low voltage protection
Flashes 10 times and stops for 1 second, then repeats	xL2 - DC bus high voltage protection
Flashes 12 times and stops for 1 second, then repeats	xL4 - MCE error
Flashes 13 times and stops for 1 second, then repeats	xL5- Zero speed protection
Flashes 15 times and stops for 1 second, then repeats	xL7- Phase sequence error
Flashes 16 times and stops for 1 second, then repeats	xL8-Compressor frequency variation greater than 15Hz within one second protection
Flashes 17 times and stops for 1 second, then repeats	xL9-Actual compressor frequency differs from target frequency by more than 15Hz protection

2.14.6 L0: Inverter module protection



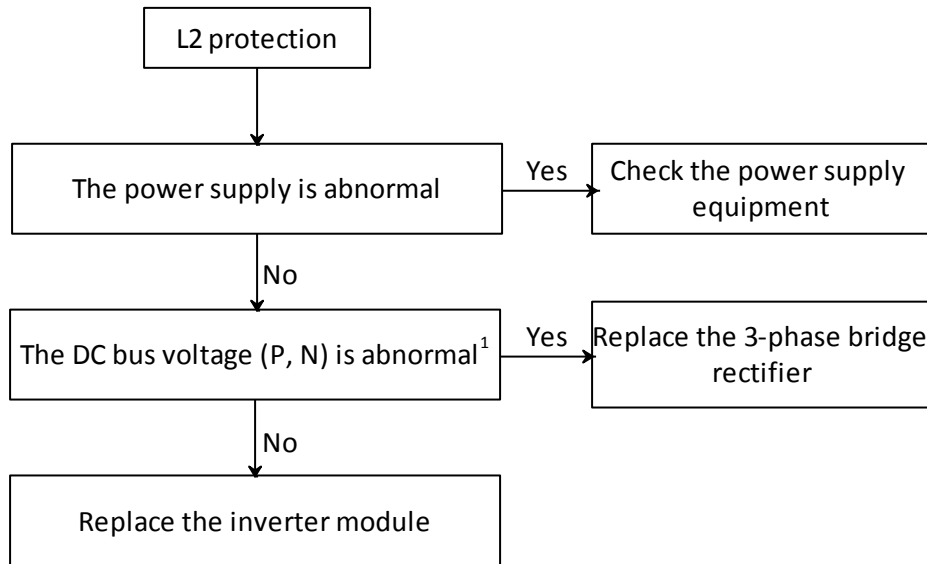


Note:

1. The normal DC voltage between terminals P and N on inverter module should be 450-650V. When the voltage is lower than 350V, L1 protection will be appeared.

Figure: Inverter module terminals



2.14.8 L2: DC bus high voltage protection


Note:

1. The normal DC voltage between terminals P and N on inverter module should be 450-650V. When the voltage is higher than 700V, L2 protection will be appeared.

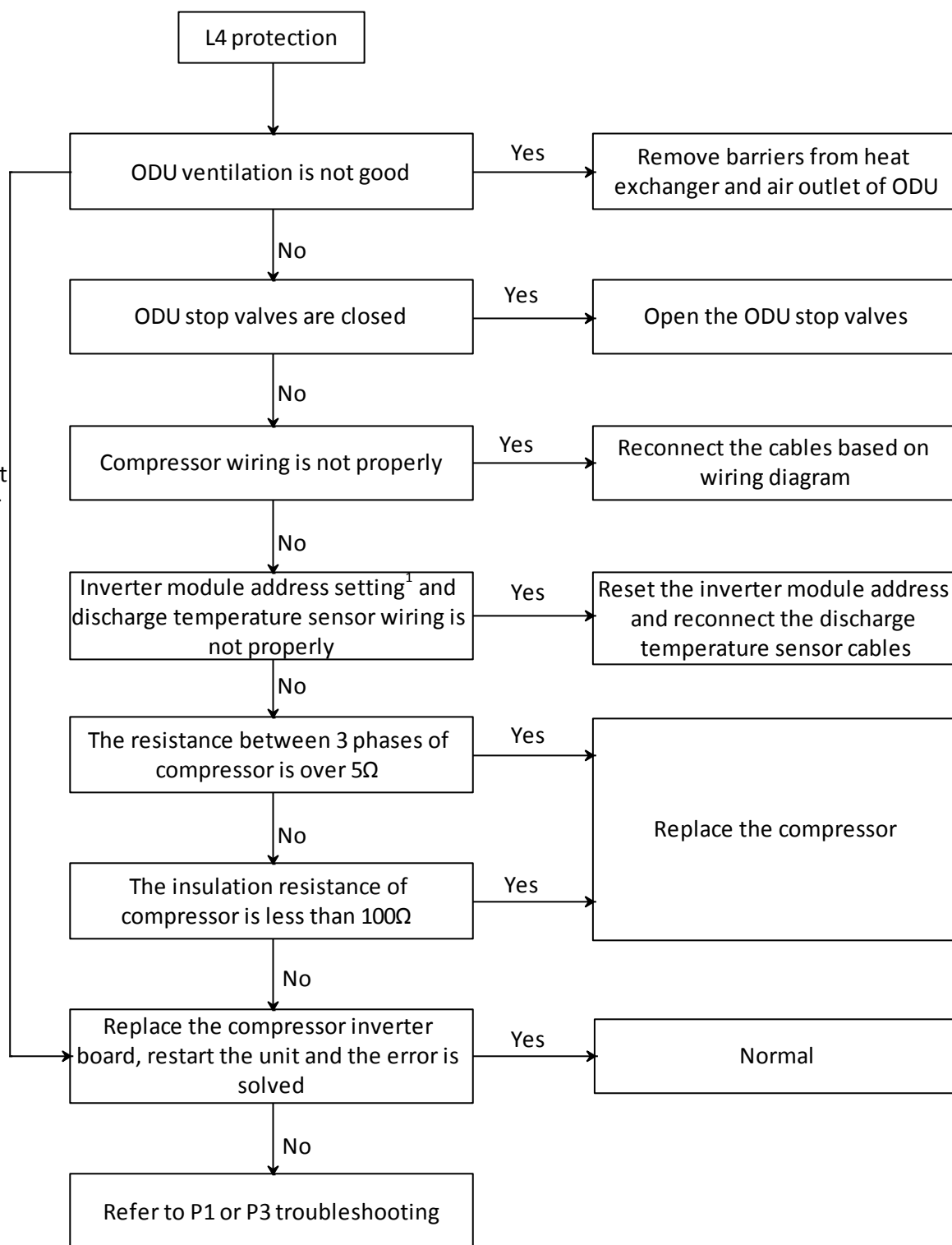
Figure: Inverter module terminals



2.14.9 L4: MCE error



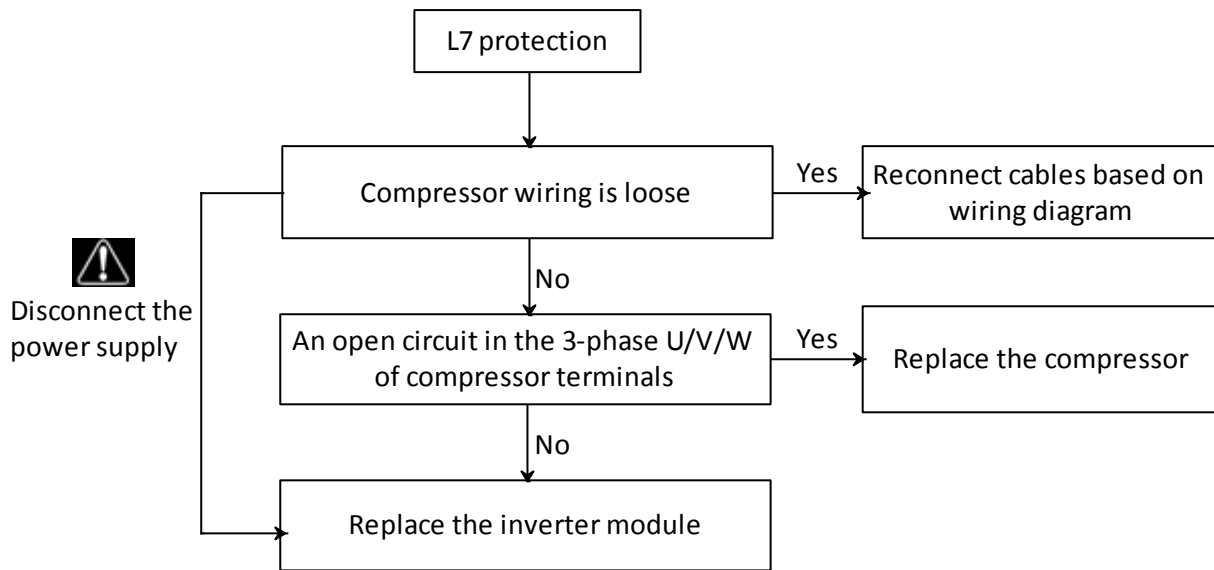
Disconnect
the power
supply



Notes:

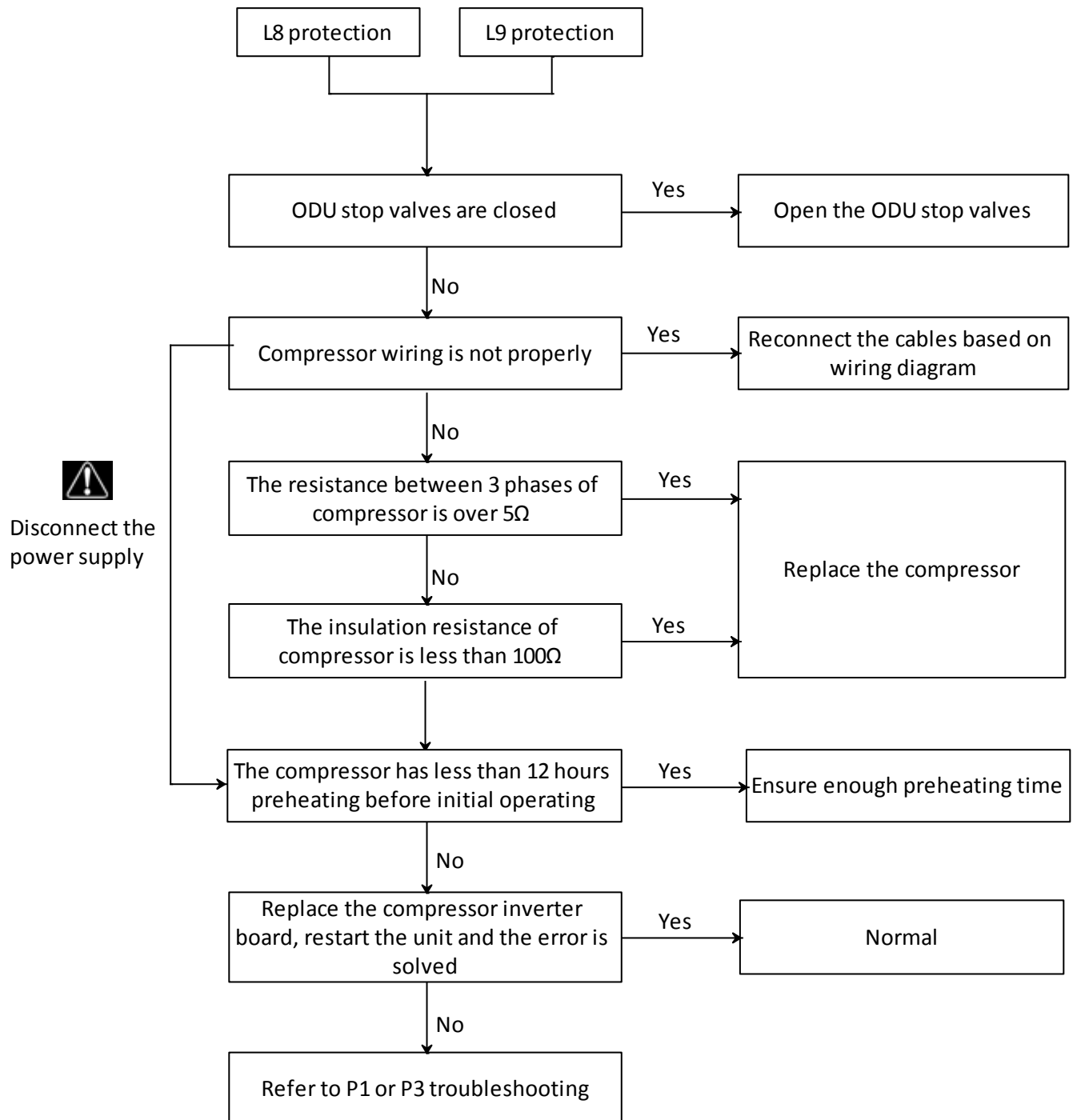
- Compressor inverter module address is set through dial switch S7 on the inverter module. The compressor inverter module A/B location refers to the wiring diagram.

S7 on inverter module	Inverter module address
	0 for compressor inverter module A
	1 for compressor inverter module B

2.14.10 L7: Phase sequence error


2.14.11 L8: Compressor frequency variation greater than 15Hz within one second protection

L9: Actual compressor frequency differs from target frequency by more than 15Hz protection



2.14.12 Compressor replacement procedure**Step 1: Remove faulty compressor and remove oil**

- Remove the faulty compressor from the outdoor unit.
- Before removing the oil, shake the compressor so as to not allow impurities to remain settled at the bottom.
- Drain the oil out of the compressor and retain it for inspection. Normally the oil can be drained out from the compressor discharge pipe.

Step 2: Inspect oil from faulty compressor

- The oil should be clear and transparent. Slightly yellow oil is not an indication of any problems. However, if the oil is dark, black or contains impurities, the system has problems and the oil needs to be changed. If the compressor oil has been spoiled, the compressor will not be being lubricated effectively. Abrasion will lead to a larger load and higher current. More electric energy will get dissipated as heat and the temperature of the motor will become increasingly high. Finally, compressor damage or burnout will result.

Step 3: Check oil in other compressors in the system

- If the oil drained from the faulty compressor is clean, go to Step 6.
- If the oil drained from the faulty compressor is only lightly spoiled, go to Step 4.
- If the oil drained from the faulty compressor is heavily spoiled, check the oil in the other compressors in the system. Drain the oil from any compressors where the oil has been spoiled. Go to Step 4.

Step 4: Replace oil separator(s) and accumulator(s)

- If the oil from a compressor is spoiled (lightly or heavily), drain the oil from the oil separator and accumulator in that unit and then replace them.

Step 5: Check filters(s)

- If the oil from a compressor is spoiled (lightly or heavily), check the filter between the gas stop valve and the 4-way valve in that unit. If it is blocked, clean with nitrogen or replace.

Step 6: Replace the faulty compressor and re-fit the other compressors

- Replace the faulty compressor.
- If the oil had been spoiled and was drained from the non-faulty compressors in Step 3, use clean oil to clean them before re-fitting them into the units. To clean, add oil into the compressor through the discharge pipe using a funnel, shake the compressor, and then drain the oil. Repeat several times and then re-fit the compressors into the units. (The discharge pipe is connected to the oil pool of the compressor by the inner oil balance pipe.)

Step 7: Add compressor oil

- Add 2.3L of oil to each of the compressors from which oil was drained in Step 3.
- Only use FV50S oil. Different compressors require different types of oil. Using the wrong type of oil leads to various problems.
- Add additional oil to the accumulators such that the total amount of oil is 4L in 8-12HP units, 5L in 14-16HP units 6L in 18-22HP units and 9L in 24-30HP units.

Step 8: Vacuum drying and refrigerant charging

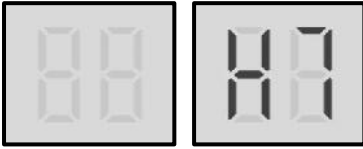
- Once all the compressors and other components have been fully connected, vacuum dry the system and recharge refrigerant. Refer to the V6 Engineering Data Book, Part 3.

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2.15 H7: Unmatched total number of indoor units

2.15.1 Digital display output



2.15.2 Description

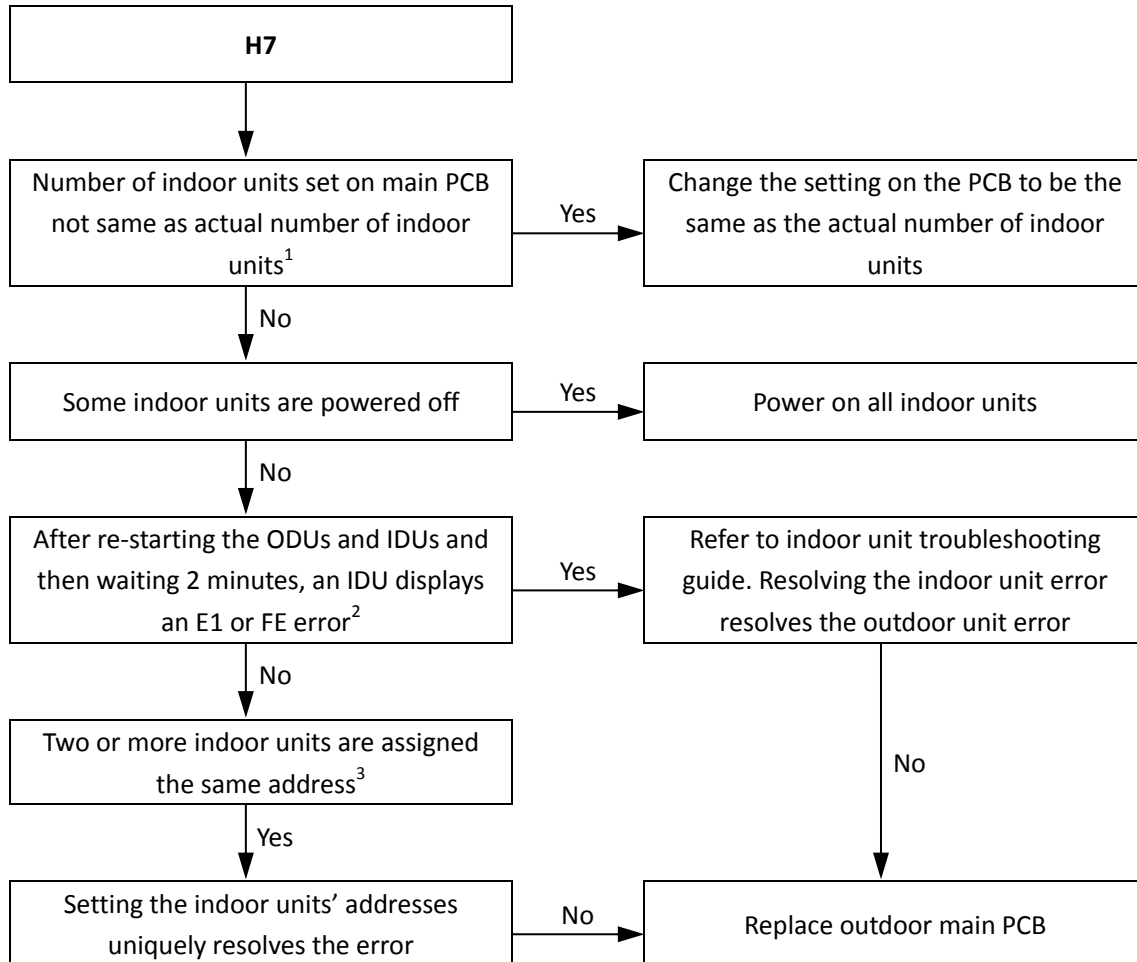
- Number of indoor units detected by master unit not same as number set on main PCB.
- All units stop running.
- Error code is only displayed on the master unit.

2.15.3 Trigger / recover condition

- Trigger condition: Only one indoor unit cannot be detected by master unit for 8 hours or more than one indoor unit cannot be detected by master unit for 3 minutes.
- Recover condition: Number of indoor units detected by master unit is same as number set on main PCB.
- Reset method: Resume automatically.

2.15.4 Possible causes

- Number of indoor units set on main PCB not same as actual number of indoor units.
- Some indoor units are powered off.
- Communication wires between indoor and outdoor units not connected properly.
- Indoor unit PCB damaged.
- Indoor unit without address or indoor unit address duplicated.
- Main PCB damaged.

2.15.5 Procedure

Notes:

1. The number of indoor units can be set on switches EN3 and S12 on the main PCB.
2. Indoor unit error code E1 indicates a communication error between indoor and master unit. Indoor unit error code FE indicates that an indoor unit has not been assigned an address.
3. Indoor unit addresses can be checked and manually assigned using indoor unit remote/wired controllers. Alternatively, indoor unit addresses can be automatically assigned by the master outdoor unit.

2.16 H8: High pressure sensor error

2.16.1 Digital display output



2.16.2 Description

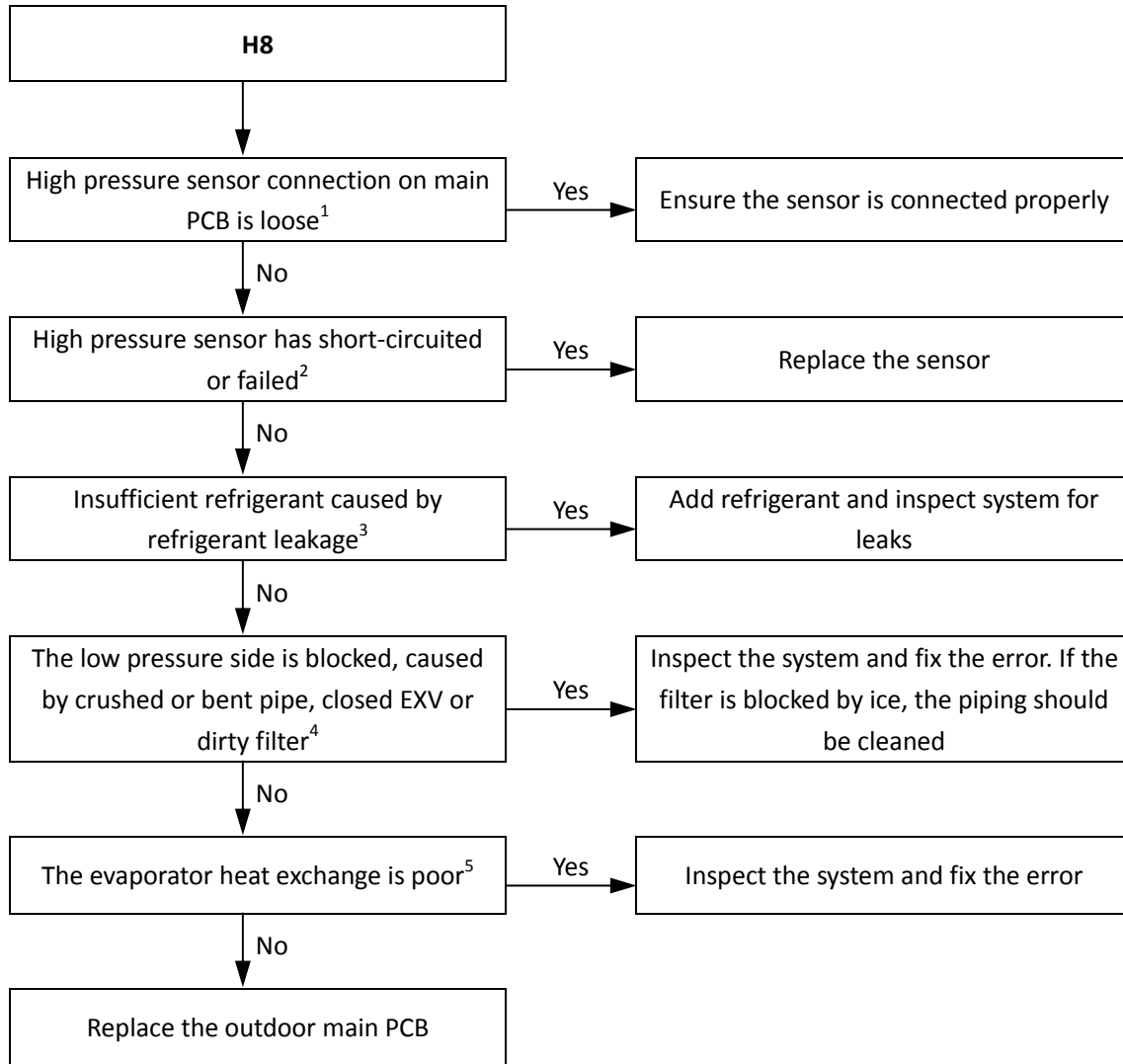
- High pressure sensor error.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.16.3 Trigger / recover condition

- Trigger condition: Discharge pressure $\leq 0.3\text{MPa}$.
- Recover condition: Discharge pressure $> 0.3\text{MPa}$.
- Reset method: Resume automatically.

2.16.4 Possible causes

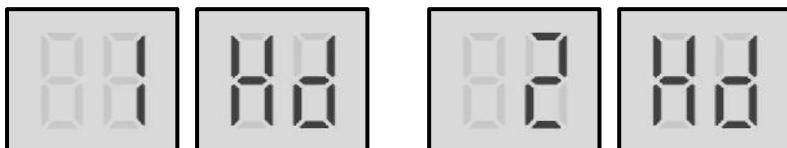
- Pressure sensor not connected properly or has malfunctioned.
- Insufficient refrigerant.
- Low pressure side blockage.
- Poor evaporator heat exchange.
- Main PCB damaged.

2.16.5 Procedure

Notes:

1. High pressure sensor connection is port CN17 on the main PCB (labeled 7 in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure the resistance among the three terminals of the pressure sensor. If the resistance is of the order of mega Ohms or infinite, the pressure sensor has failed.
3. An insufficiency of refrigerant causes compressor discharge temperature to be higher than normal, discharge and suction pressures to be lower than normal and compressor current to be lower than normal, and may cause frosting to occur on the suction pipe. These issues disappear once sufficient refrigerant has been charged into the system. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
4. A low pressure side blockage causes compressor discharge temperature to be higher than normal, suction pressure to be lower than normal and compressor current to be lower than normal, and may cause frosting to occur on the suction pipe. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
5. In cooling mode check indoor heat exchangers, fans and air outlets for dirt/blockages. In heating mode check outdoor heat exchangers, fans and air outlets for dirt/blockages.

2.17 yHd: Slave unit malfunction

2.17.1 Digital display output



In the error code, 'y' is a placeholder for the address (1 or 2) of the slave unit with the error.

2.17.2 Description

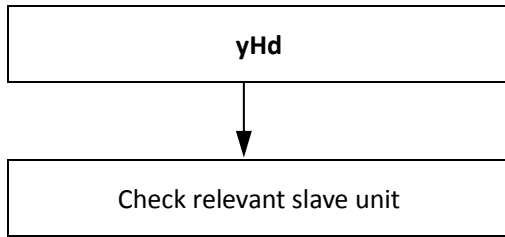
- 1Hd indicates an error on the slave unit with address 1.
- 2Hd indicates an error on the slave unit with address 2.
- All units stop running.
- Error code is only displayed on the master unit.

2.17.3 Trigger / recover condition

- Trigger condition: Slave unit is malfunction.
- Recover condition: Slave unit goes back to normal.
- Reset method: Resume automatically.

2.17.4 Possible causes

- Slave unit malfunction.

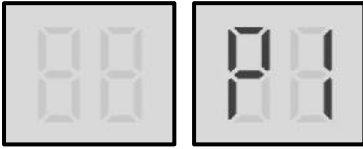
2.17.5 Procedure

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2.18 P1: Discharge pipe high pressure protection

2.18.1 Digital display output



2.18.2 Description

- All units stop running.
- Error code is only displayed on the unit with the error.

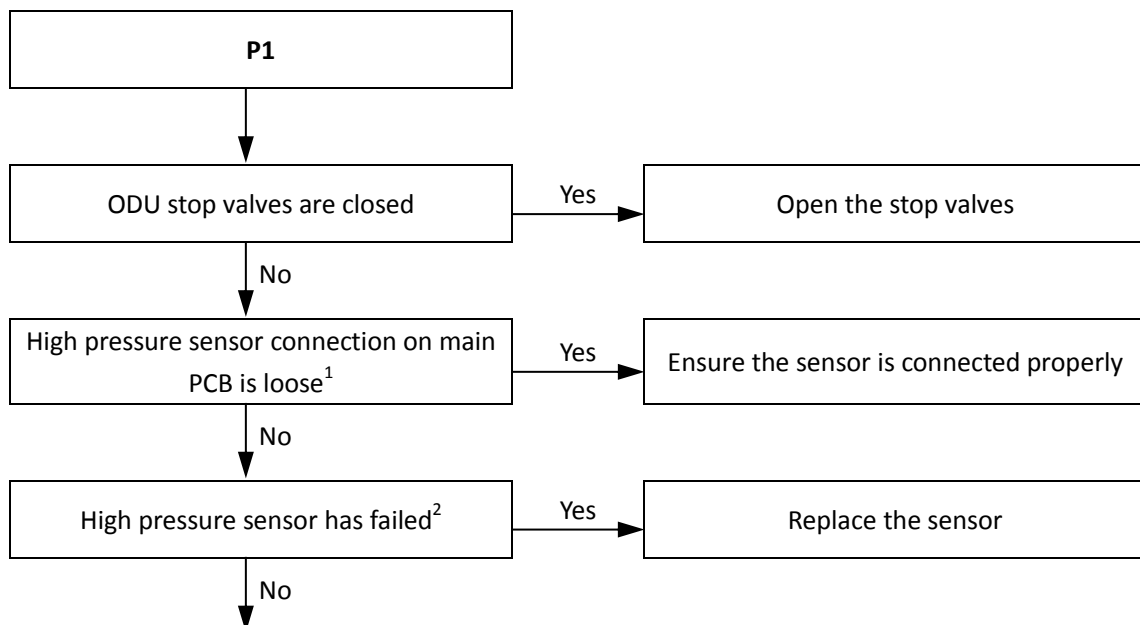
2.18.3 Trigger / recover condition

- Trigger condition: Discharge pressure $\geq 4.3\text{MPa}$.
- Recover condition: Discharge pressure $\leq 4.0\text{MPa}$ for 2 minutes.
- Reset method: Resume automatically.

2.18.4 Possible causes

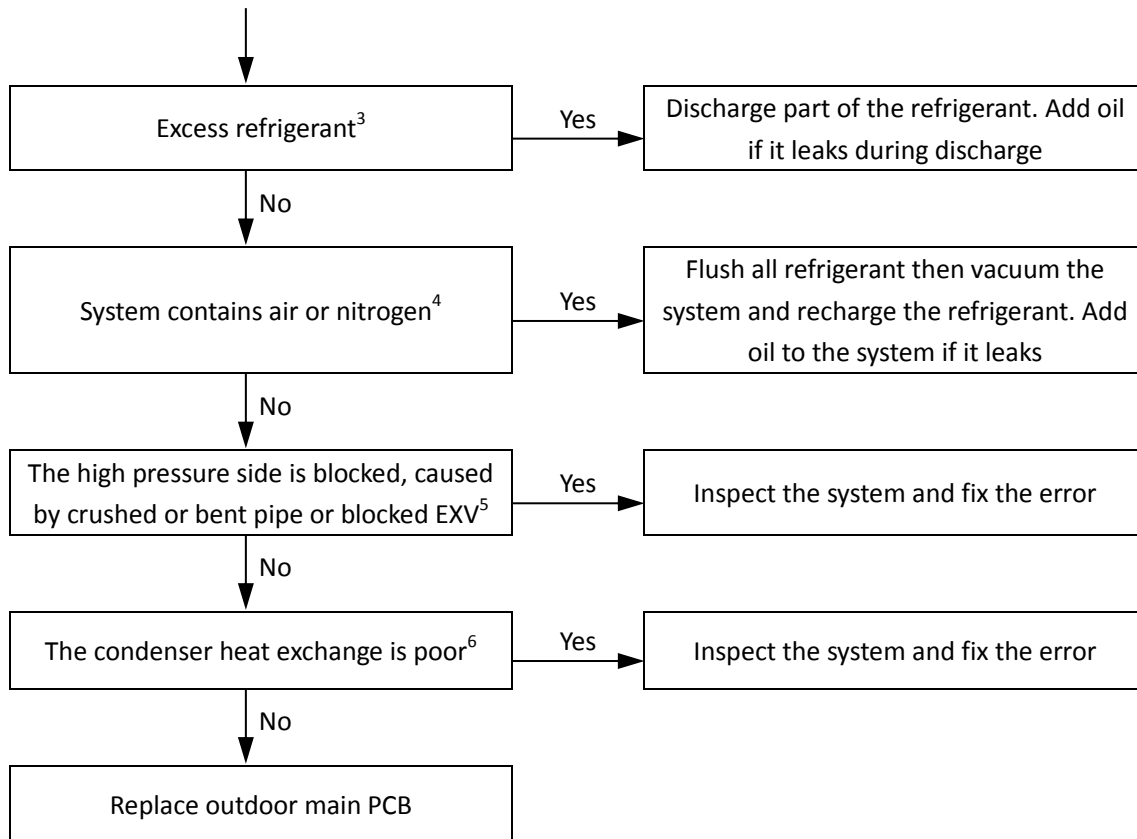
- Outdoor unit stop valves are closed.
- High pressure sensor not connected properly or has malfunctioned.
- Excess refrigerant.
- System contains air or nitrogen.
- High pressure side blockage.
- Poor condenser heat exchange.
- Main PCB damaged.

2.18.5 Procedure



Flowchart continued on next page ...

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Notes:

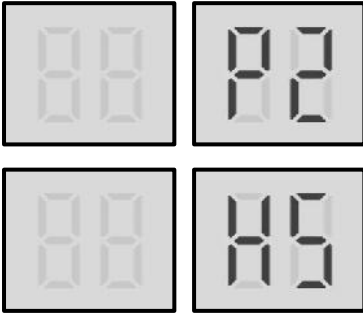
1. The high pressure sensor connection is port CN17 on the main PCB (labeled 7 in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure the resistance among the three terminals of the high pressure sensor. If the resistance is of the order of mega Ohms or infinite, the high pressure sensor has failed.
3. Excess refrigerant causes discharge temperature to be lower than normal, discharge pressure to be higher than normal and suction pressure to be higher than normal. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
4. Air or nitrogen in the system causes discharge temperature to be higher than normal, discharge pressure to be higher than normal, compressor current to be higher than normal, abnormal compressor noise and an unsteady pressure meter reading. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
5. High pressure side blockage causes discharge temperature to be higher than normal, discharge pressure to be higher than normal and suction pressure to be lower than normal. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
6. In cooling mode check outdoor heat exchangers, fans and air outlets for dirt/blockages. In heating mode check indoor heat exchangers, fans and air outlets for dirt/blockages.

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2.19 P2, H5: Suction pipe low pressure protection

2.19.1 Digital display output



2.19.2 Description

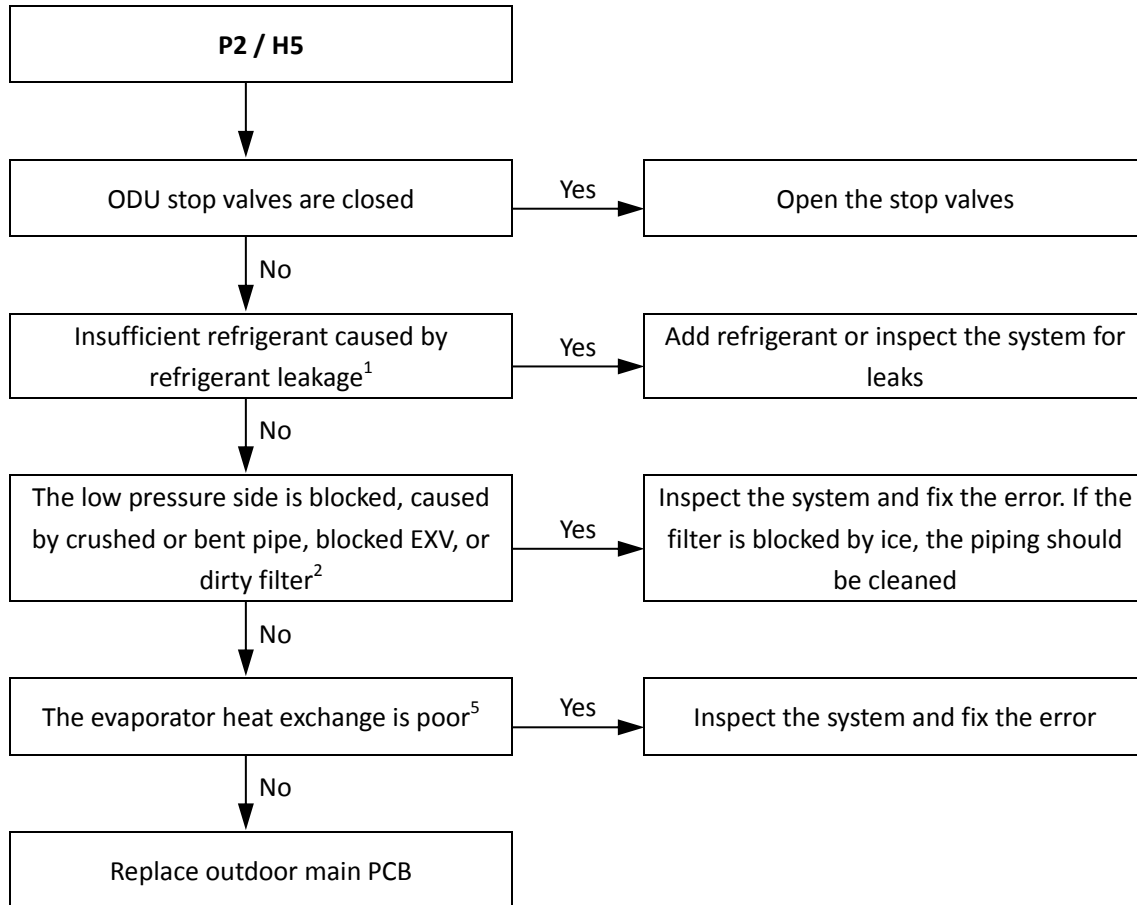
- All units stop running.
- Error code is only displayed on the unit with the error.

2.19.3 Trigger / recover condition

- Trigger condition:
 - For P2 protection: Suction pressure $\leq 0.05\text{MPa}$.
 - For H5 protection: P2 protection appears three times in 60 minutes.
- Recover condition: Suction pressure $\geq 0.15\text{MPa}$.
- Reset method:
 - For P2 protection: Resume automatically.
 - For H5 protection: Manually restart.

2.19.4 Possible causes

- Outdoor unit stop valves are closed.
- Insufficient refrigerant.
- Low pressure side blockage.
- Poor evaporator heat exchange.
- Main PCB damaged.

2.19.5 Procedure

Notes:

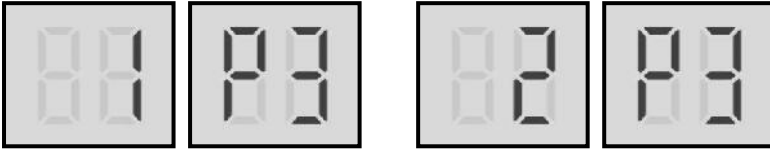
1. An insufficiency of refrigerant causes compressor discharge temperature to be higher than normal, discharge and suction pressures to be lower than normal and compressor current to be lower than normal, and may cause frosting to occur on the suction pipe. These issues disappear once sufficient refrigerant has been charged into the system. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
2. A low pressure side blockage causes compressor discharge temperature to be higher than normal, suction pressure to be lower than normal and compressor current to be lower than normal, and may cause frosting to occur on the suction pipe. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
3. In cooling mode check indoor heat exchangers, fans and air outlets for dirt/blockages. In heating mode check outdoor heat exchangers, fans and air outlets for dirt/blockages.

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2.1 xP3: Compressor current protection

2.1.1 Digital display output



'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

2.1.2 Description

- 1P3 indicates current protection on compressor A; 2P3 indicates current protection on compressor B.
- All units stop running.
- Error code is only displayed on the unit with the error.

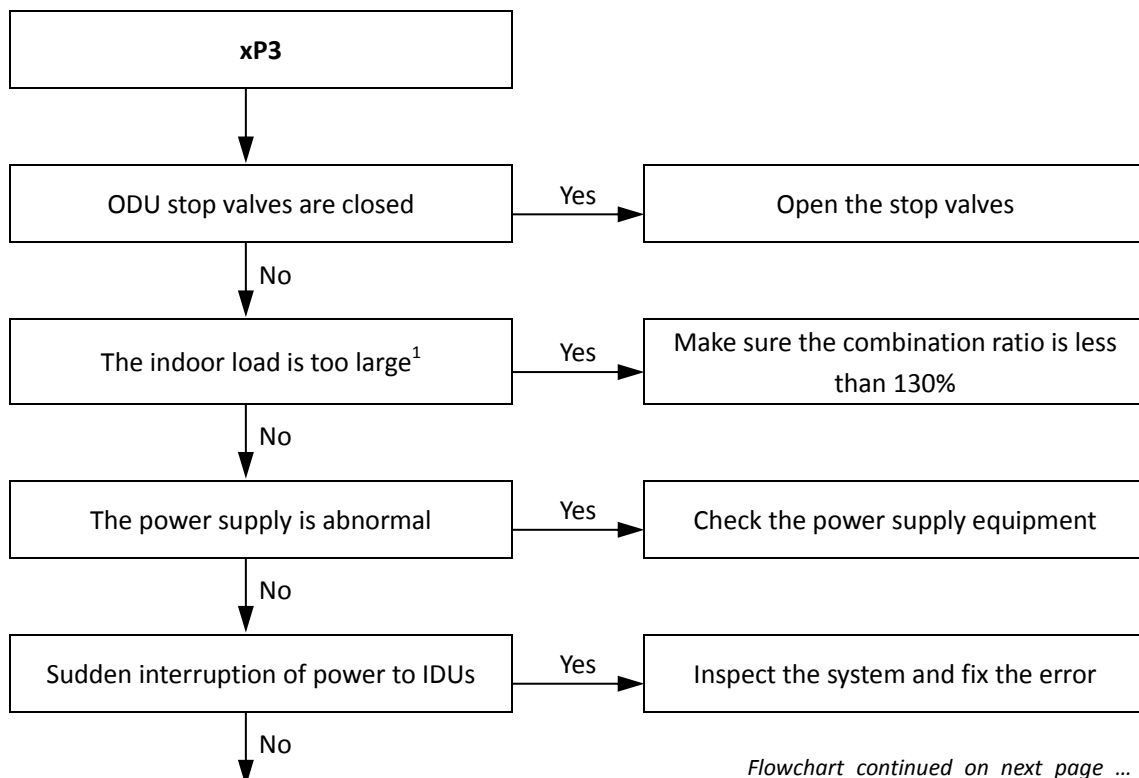
2.1.3 Trigger / recover condition

- Trigger condition: Current of compressor AA55PHDG-A1Y2 $\geq 41A$ or DC65PHDG-A1Y2 $\geq 49A$.
- Recover condition: Current of compressor AA55PHDG-A1Y2 $< 41A$ or DC65PHDG-A1Y2 $< 49A$.
- Reset method: Resume automatically.

2.1.4 Possible causes

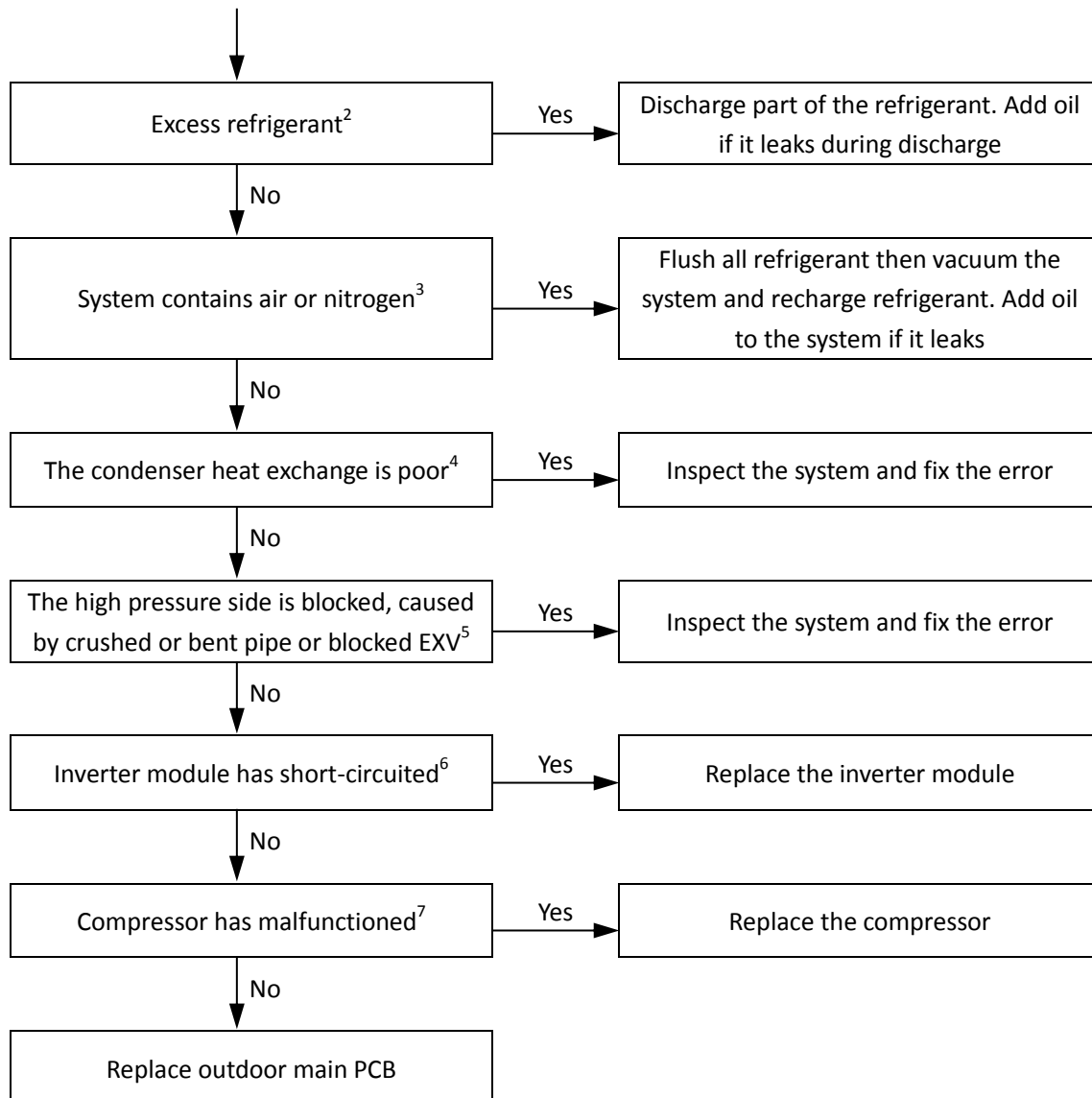
- Outdoor unit stop valves are closed.
- Indoor load too large.
- Power supply abnormal.
- Sudden interruption of power to IDUs.
- Excess refrigerant.
- System contains air or nitrogen.
- Poor condenser heat exchange.
- High pressure side blockage.
- Inverter module damaged.
- Compressor damaged.
- Main PCB damaged.

2.1.5 Procedure



Flowchart continued on next page ...

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Notes:

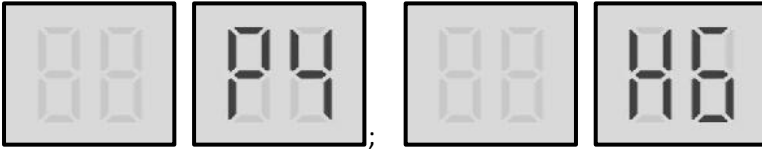
1. An indoor load that is too large causes suction and discharge temperatures to be higher than normal. For normal system parameters refer to Table 6-3.4 and 6-3.5 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
2. Excess refrigerant causes discharge temperature to be lower than normal, discharge pressure to be higher than normal and suction pressure to be higher than normal. For normal system parameters refer to Table 6-3.4 and 6-3.5 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
3. Air or nitrogen in the system causes discharge temperature to be higher than normal, discharge pressure to be higher than normal, compressor current to be higher than normal, abnormal compressor noise and an unsteady pressure meter reading. For normal system parameters refer to Table 6-3.4 and 6-3.5 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
4. In cooling mode check outdoor heat exchangers, fans and air outlets for dirt/blockages. In heating mode check indoor heat exchangers, fans and air outlets for dirt/blockages.
5. High pressure side blockage causes discharge temperature to be higher than normal, discharge pressure to be higher than normal and suction pressure to be lower than normal. For normal system parameters refer to Table 6-3.4 and 6-3.5 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
6. Set a multi-meter to buzzer mode and test any two terminals of P N U V W of the inverter module. If the buzzer sounds, the inverter module has short-circuited.
7. The normal resistances of the inverter compressor are 0.05-0.15Ω among U V W and infinite between each of U V W and ground. If any of the resistances differ from these specifications, the compressor has malfunctioned.

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2.2 P4, H6: Discharge temperature protection

2.2.1 Digital display output



2.2.2 Description

- Discharge temperature protection.
- All units stop running.
- Error code is only displayed on the unit with the error.

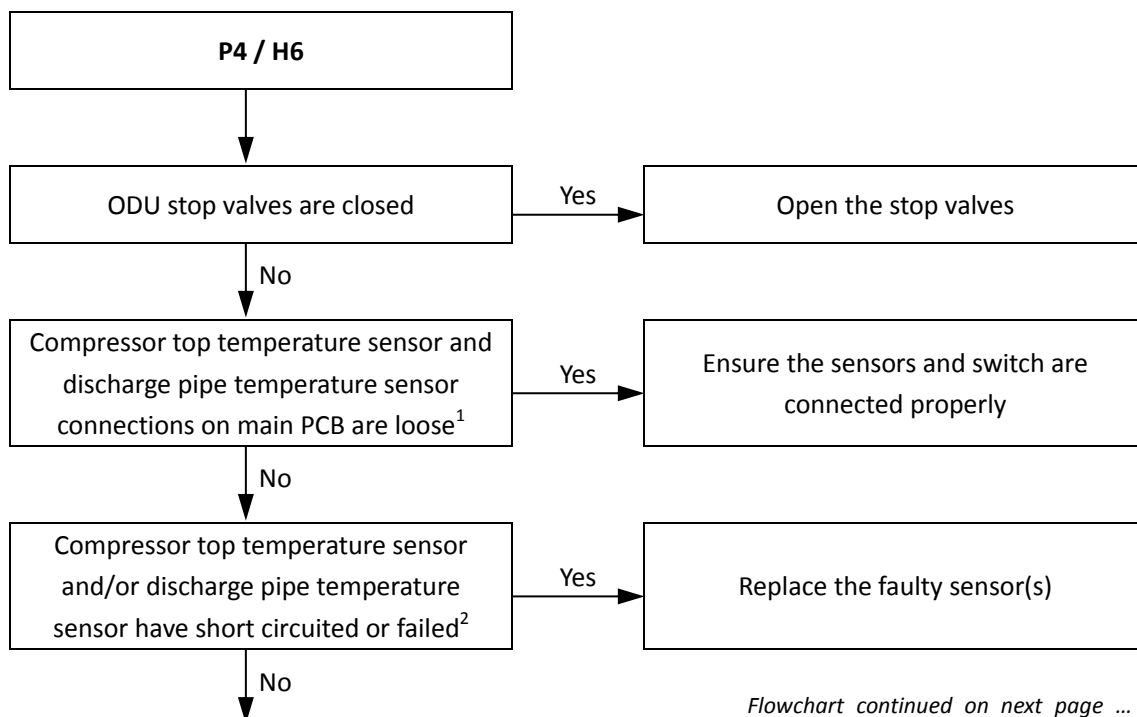
2.2.3 Trigger / recover condition

- Trigger condition:
For P4 protection: Discharge temperature ($T7C1/2$) $\geq 120^{\circ}\text{C}$.
For H6 protection: P4 protection appears three times in 100 minutes.
- Recover condition: Discharge temperature ($T7C1/2$) $\leq 90^{\circ}\text{C}$.
- Reset method:
For P4 protection: Resume automatically.
For H6 protection: Manually restart.

2.2.4 Possible causes

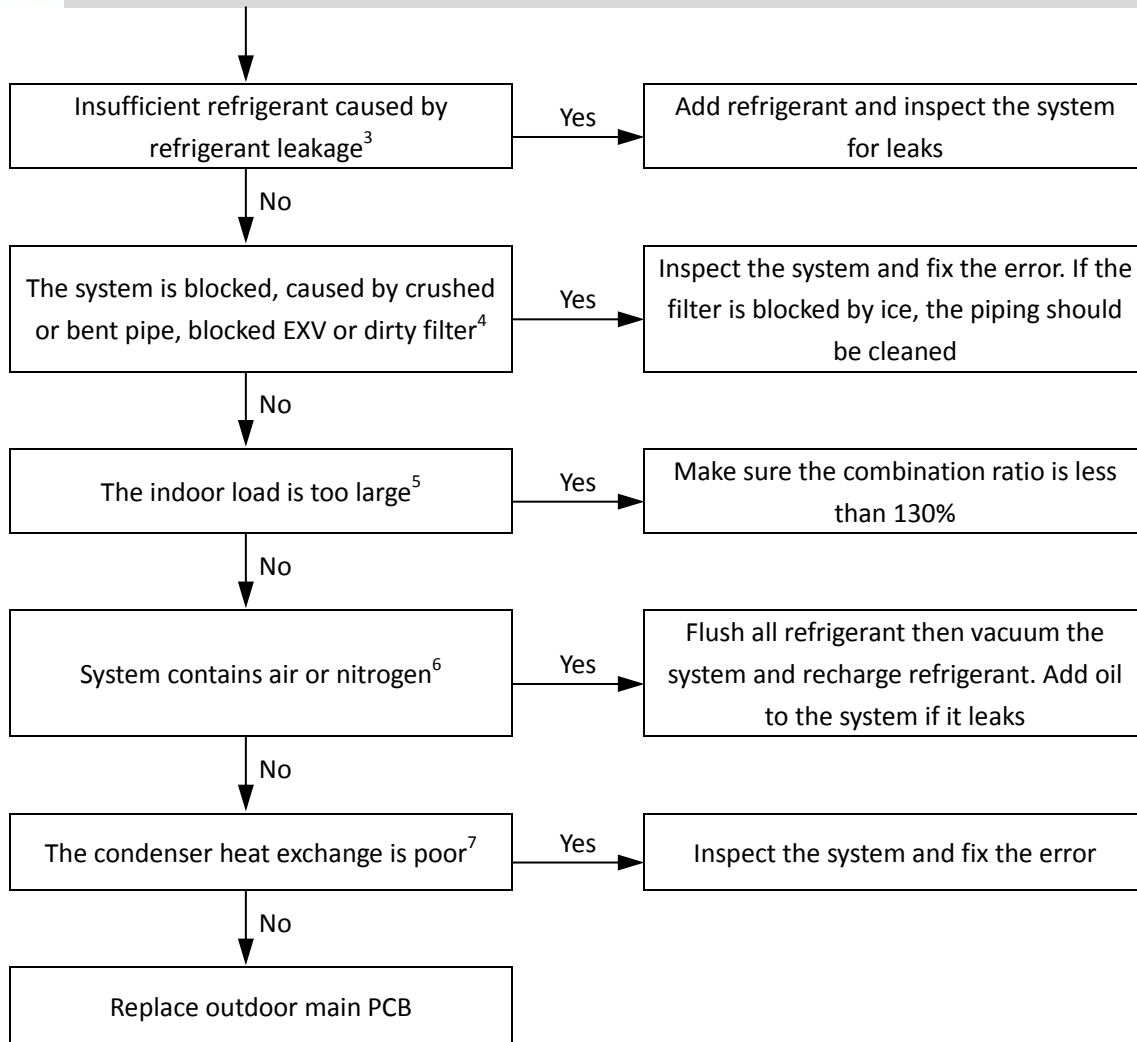
- Outdoor unit stop valves are closed.
- Temperature sensor/switch not connected properly or has malfunctioned.
- Insufficient refrigerant.
- System blockage.
- Indoor load too large.
- System contains air or nitrogen.
- Poor condenser heat exchange.
- Main PCB damaged.

2.2.5 Procedure



Flowchart continued on next page ...

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Notes:

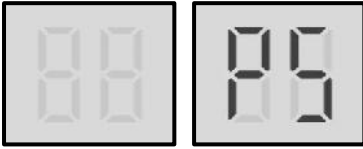
1. Compressor top temperature sensor and discharge pipe temperature sensor connections are ports CN4 and CN5 on the main PCB (labeled 3 and 4, respectively, in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure sensor resistance. If the resistance is too low, the sensor has short-circuited. If the resistance is not consistent with the sensor's resistance characteristics table, the sensor has failed. Refer to Table 6-3.2 in Part 6, 3.1 "Temperature Sensor Resistance Characteristics".
3. An insufficiency of refrigerant causes compressor discharge temperature to be higher than normal, discharge and suction pressures to be lower than normal and compressor current to be lower than normal, and may cause frosting to occur on the suction pipe. These issues disappear once sufficient refrigerant has been charged into the system. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
4. A low pressure side blockage causes compressor discharge temperature to be higher than normal, suction pressure to be lower than normal and compressor current to be lower than normal, and may cause frosting to occur on the suction pipe. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
5. An indoor load that is too large causes suction and discharge temperatures to be higher than normal. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
6. Air or nitrogen in the system causes discharge temperature to be higher than normal, discharge pressure to be higher than normal, compressor current to be higher than normal, abnormal compressor noise and an unsteady pressure meter reading. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
7. In cooling mode check outdoor heat exchangers, fans and air outlets for dirt/blockages. In heating mode check indoor heat exchangers, fans and air outlets for dirt/blockages.

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2.3 P5: Outdoor heat exchanger temperature protection

2.3.1 Digital display output



2.3.2 Description

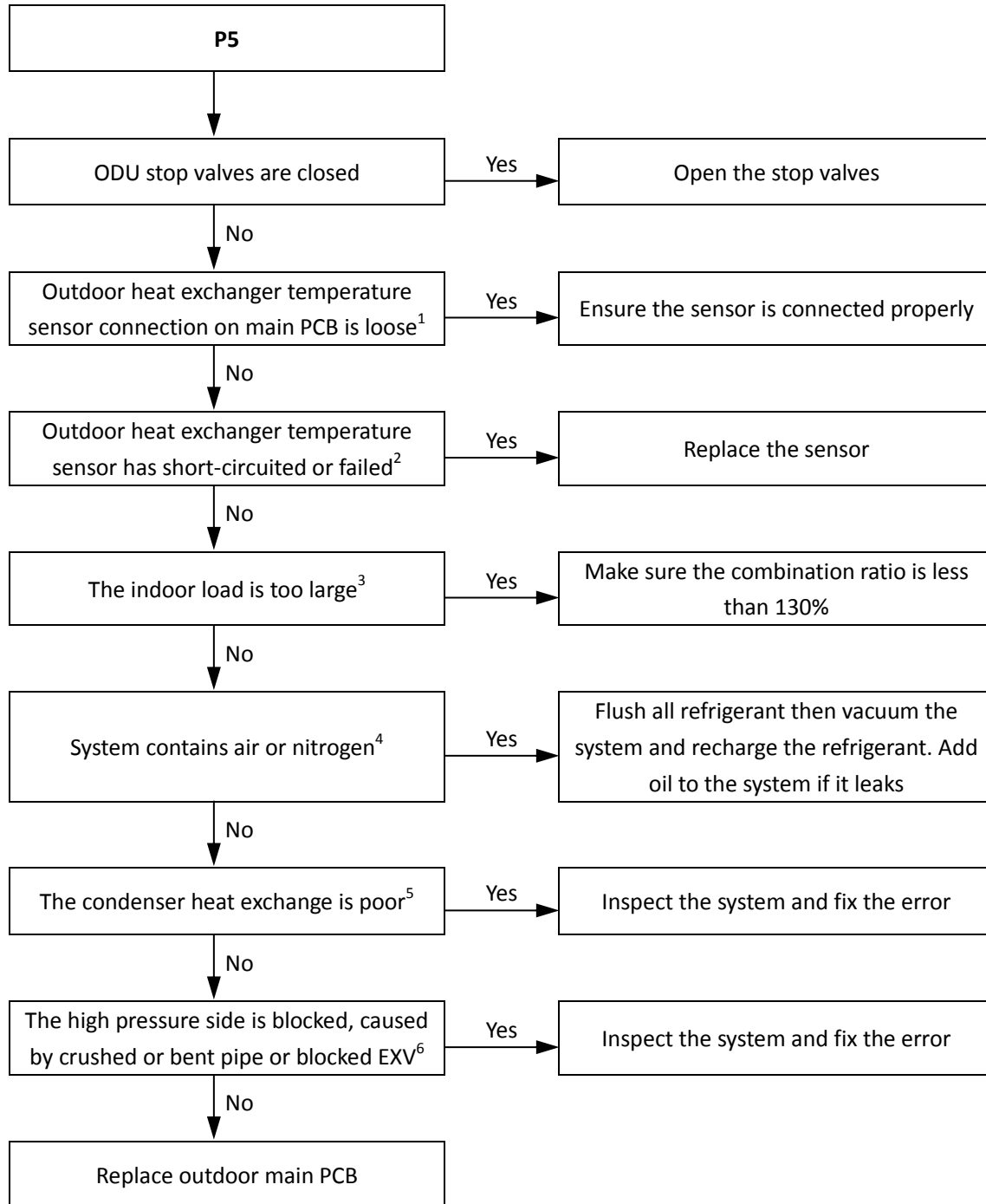
- Outdoor heat exchanger temperature protection.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.3.3 Trigger / recover condition

- Trigger condition: Outdoor heat exchanger temperature (T3) $\geq 65^{\circ}\text{C}$.
- Recover condition: Outdoor heat exchanger temperature (T3) $< 55^{\circ}\text{C}$.
- Reset method: Resume automatically.

2.3.4 Possible causes

- Outdoor unit stop valves are closed.
- Temperature sensor not connected properly or has malfunctioned.
- Indoor load too large.
- System contains air or nitrogen.
- Poor condenser heat exchange.
- High pressure side blockage.
- Main PCB damaged.

2.3.5 Procedure

Notes:

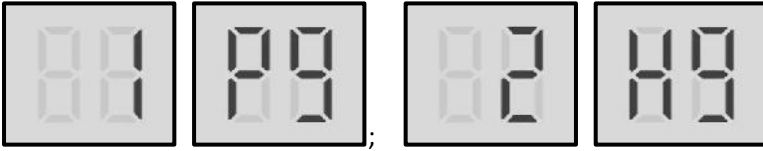
1. Outdoor heat exchanger temperature sensor connection is port CN1 on the main PCB (labeled 11 in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure sensor resistance. If the resistance is too low, the sensor has short-circuited. If the resistance is not consistent with the sensor's resistance characteristics table, the sensor has failed. Refer to Table 6-3.1 in Part 6, 3.1 "Temperature Sensor Resistance Characteristics"
3. An indoor load that is too large causes suction and discharge temperatures to be higher than normal. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
4. Air or nitrogen in the system causes discharge temperature to be higher than normal, discharge pressure to be higher than normal, compressor current to be higher than normal, abnormal compressor noise and an unsteady pressure meter reading. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
5. In cooling mode check outdoor heat exchangers, fans and air outlets for dirt/blockages. In heating mode check indoor heat exchangers, fans and air outlets for dirt/blockages.
6. High pressure side blockage causes discharge temperature to be higher than normal, discharge pressure to be higher than normal and suction pressure to be lower than normal. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".

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2.4 xP9, xH9: Fan module protection

2.4.1 Digital display output



'x' is a placeholder for the fan motor system (fan motor and related electrical components), with 1 representing fan motor system A and 2 representing fan motor system B.

2.4.2 Description

- Fan module protection.
- All units stop running.
- Error code is only displayed on the unit with the error.

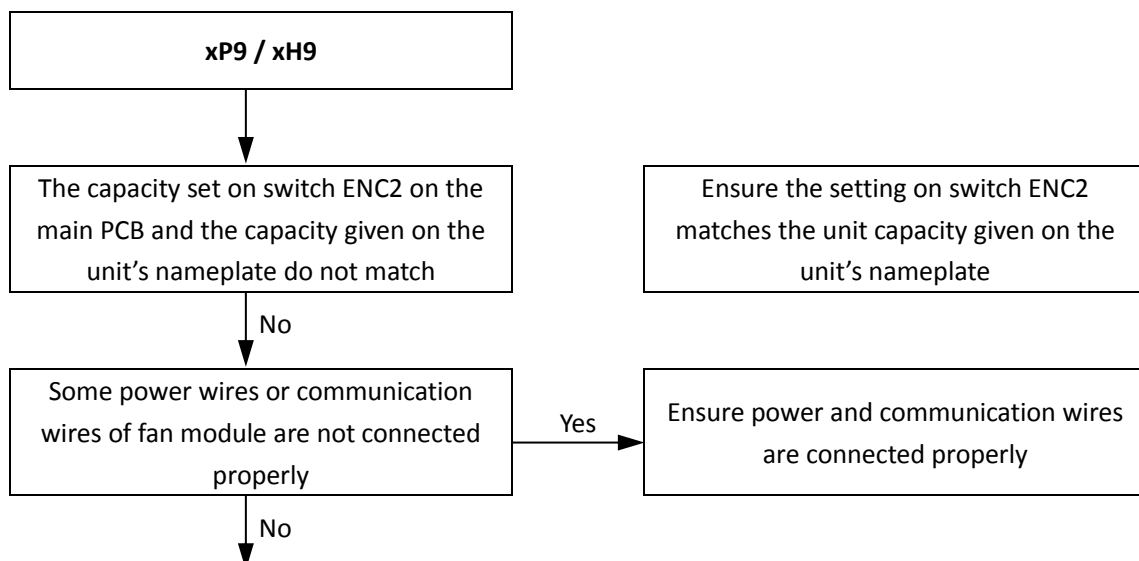
2.4.3 Trigger / recover condition

- Trigger condition:
For P9 protection: Fan speed is too low.
For H9 protection: P9 protection appears ten times in 120 minutes.
- Recover condition: Fan speed go back to normal.
- Reset method:
For P9 protection: Resume automatically; For H9 protection: Manually restart.

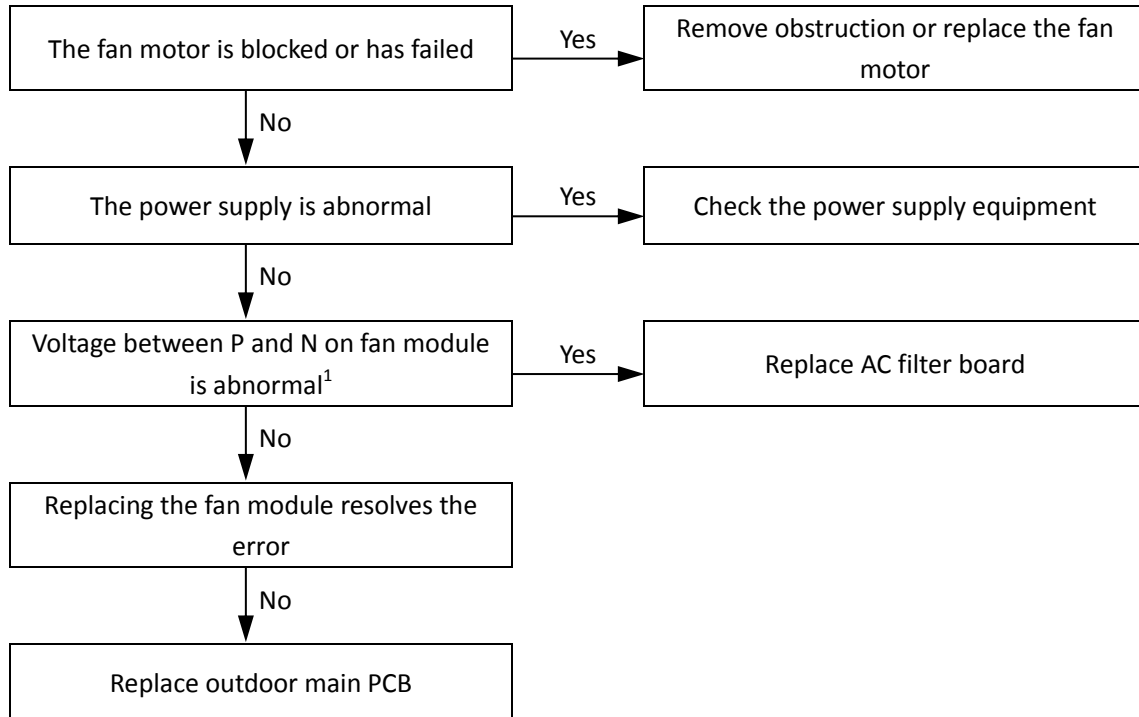
2.4.4 Possible causes

- Switch ENC2 incorrectly set.
- Power or communication wires not connected properly.
- Fan motor blocked or has failed.
- Power supply abnormal.
- AC filter board damaged.
- Fan module damaged.
- Main PCB damaged.

2.4.5 Procedure



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Notes:

1. The normal voltage between P and N on the fan module is 540V DC.

Figure: Fan module P N terminals

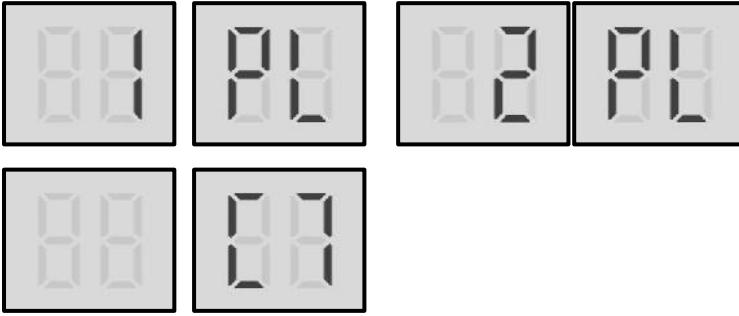


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2.5 PL, C7: Inverter module temperature protection

2.5.1 Digital display output



'x' is a placeholder for the compressor system (compressor and related electrical components), with 1 representing compressor system A and 2 representing compressor system B.

2.5.2 Description

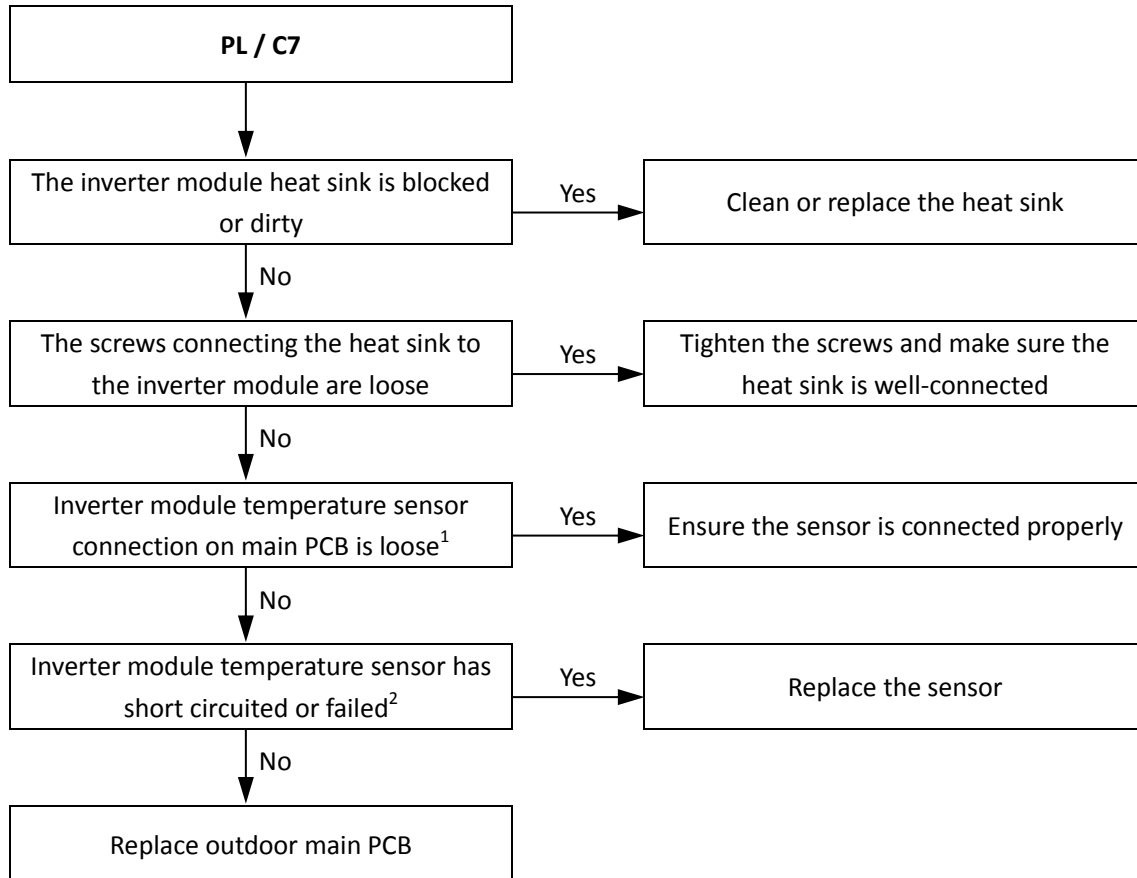
- 1PL indicates inverter module A temperature protection.
- 2PL indicates inverter module B temperature protection.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.5.3 Trigger / recover condition

- Trigger condition:
For PL protection: Inverter module heat sink temperature (TF1/2) $\geq 80^{\circ}\text{C}$.
For C7 protection: PL protection appears three times in 100 minutes.
- Recover condition: Inverter module heat sink temperature (TF1/2) $< 65^{\circ}\text{C}$
- Reset method:
For PL protection: Resume automatically.
For C7 protection: Manually restart.

2.5.4 Possible causes

- Blocked, dirty or loose heat sink.
- Temperature sensor not connected properly or has malfunctioned.
- Main PCB damaged.

2.5.5 Procedure

Notes:

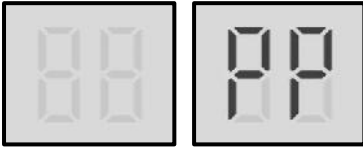
1. Inverter module temperature sensor connection is port CN3 and CN3_1 on the main PCB (labeled 5 and 6, respectively, in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure sensor resistance. If the resistance is too low, the sensor has short-circuited. If the resistance is not consistent with the sensor's resistance characteristics table, the sensor has failed. Refer to Table 6-3.3 in Part 6, 3.1 "Temperature Sensor Resistance Characteristics".

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2.6 PP: Compressor discharge insufficient superheat protection

2.6.1 Digital display output



2.6.2 Description

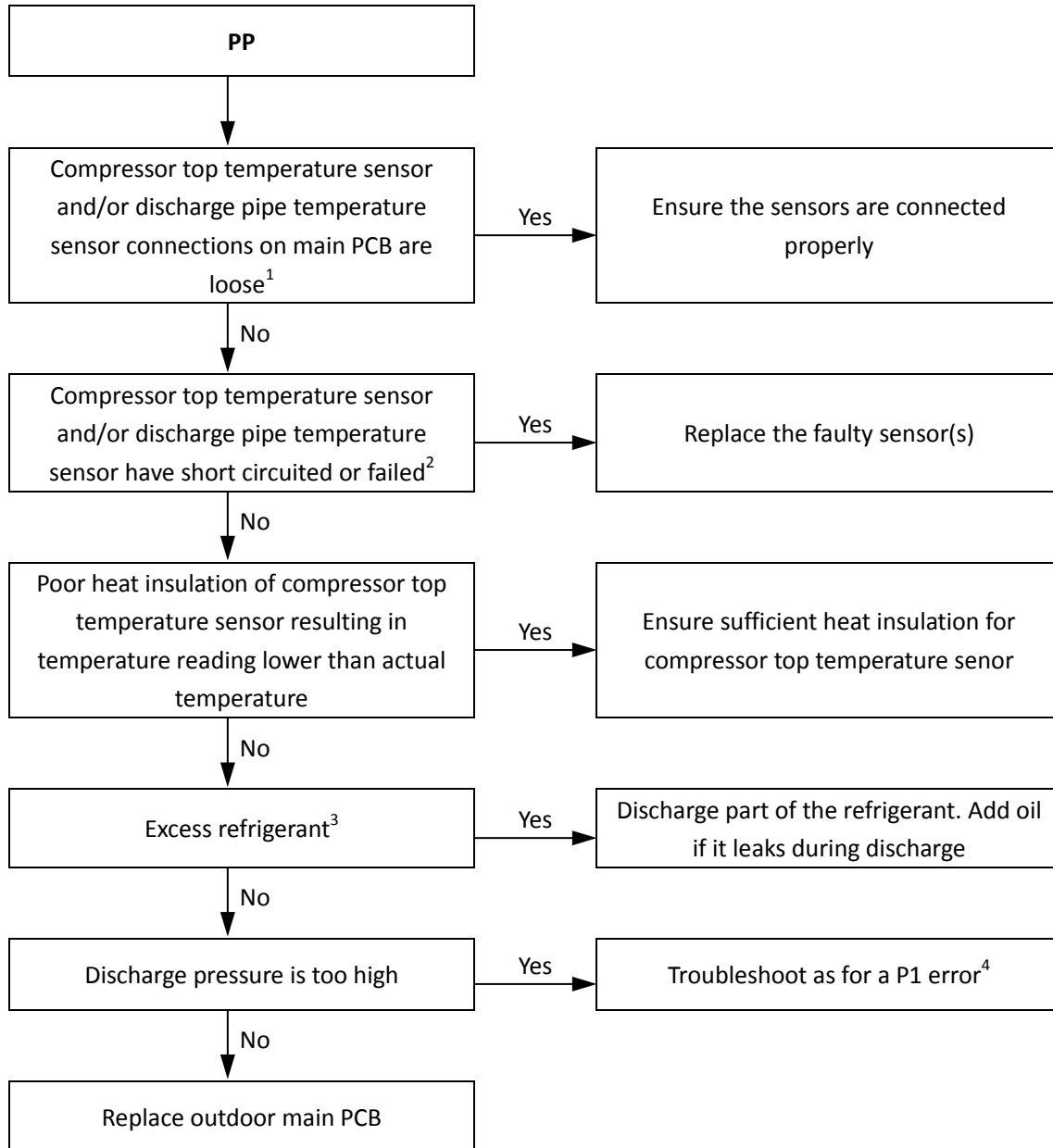
- Compressor discharge insufficient superheat protection.
- All units stop running.
- Error code is only displayed on the unit with the error.

2.6.3 Trigger / recover condition

- Trigger condition: Discharge gas superheat is $\leq 0^{\circ}\text{C}$ for 20 minutes or $\leq 5^{\circ}\text{C}$ for 60 minutes.
- Recover condition: Discharge gas superheat go back to normal value.
- Reset method: Resume automatically.

2.6.4 Possible causes

- Temperature sensor not connected properly or has malfunctioned.
- Poor temperature sensor heat insulation.
- Excess refrigerant.
- Discharge pressure too high.
- Main PCB damaged.

2.6.5 Procedure

Notes:

1. Compressor top temperature sensor and discharge pipe temperature sensor connections are ports CN4 and CN5 on the main PCB (labeled 3 and 4, respectively, in Figure 5-2.1 in Part 5, 2.1 "Ports").
2. Measure sensor resistance. If the resistance is too low, the sensor has short-circuited. If the resistance is not consistent with the sensor's resistance characteristics table, the sensor has failed. Refer to Table 6-3.2 in Part 6, 3.1 "Temperature Sensor Resistance Characteristics".
3. Excess refrigerant causes discharge temperature to be lower than normal, discharge pressure to be higher than normal and suction pressure to be higher than normal. For normal system parameters refer to Table 6-3.4 in Part 6, 3.2 "Normal Operating Parameters of Refrigerant System".
4. See "P1 Troubleshooting".

3 Appendix to Part 6

3.1 Temperature Sensor Resistance Characteristics

Table 6-3.1: Outdoor ambient temperature sensor and outdoor heat exchanger temperature sensor resistance characteristics

Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)
-20	115.3	20	12.64	60	2.358	100	0.6297
-19	108.1	21	12.06	61	2.272	101	0.6115
-18	101.5	22	11.50	62	2.191	102	0.5939
-17	96.34	23	10.97	63	2.112	103	0.5768
-16	89.59	24	10.47	64	2.037	104	0.5604
-15	84.22	25	10.00	65	1.965	105	0.5445
-14	79.31	26	9.551	66	1.896	106	0.5291
-13	74.54	27	9.124	67	1.830	107	0.5143
-12	70.17	28	8.720	68	1.766	108	0.4999
-11	66.09	29	8.336	69	1.705	109	0.4860
-10	62.28	30	7.971	70	1.647	110	0.4726
-9	58.71	31	7.624	71	1.591	111	0.4596
-8	56.37	32	7.295	72	1.537	112	0.4470
-7	52.24	33	6.981	73	1.485	113	0.4348
-6	49.32	34	6.684	74	1.435	114	0.4230
-5	46.57	35	6.400	75	1.387	115	0.4116
-4	44.00	36	6.131	76	1.341	116	0.4006
-3	41.59	37	5.874	77	1.291	117	0.3899
-2	39.82	38	5.630	78	1.254	118	0.3796
-1	37.20	39	5.397	79	1.2133	119	0.3695
0	35.20	40	5.175	80	1.174	120	0.3598
1	33.33	41	4.964	81	1.136	121	0.3504
2	31.56	42	4.763	82	1.100	122	0.3413
3	29.91	43	4.571	83	1.064	123	0.3325
4	28.35	44	4.387	84	1.031	124	0.3239
5	26.88	45	4.213	85	0.9982	125	0.3156
6	25.50	46	4.046	86	0.9668	126	0.3075
7	24.19	47	3.887	87	0.9366	127	0.2997
8	22.57	48	3.735	88	0.9075	128	0.2922
9	21.81	49	3.590	89	0.8795	129	0.2848
10	20.72	50	3.451	90	0.8525	130	0.2777
11	19.69	51	3.318	91	0.8264	131	0.2708
12	18.72	52	3.192	92	0.8013	132	0.2641
13	17.80	53	3.071	93	0.7771	133	0.2576
14	16.93	54	2.959	94	0.7537	134	0.2513
15	16.12	55	2.844	95	0.7312	135	0.2451
16	15.34	56	2.738	96	0.7094	136	0.2392
17	14.62	57	2.637	97	0.6884	137	0.2334
18	13.92	58	2.540	98	0.6682	138	0.2278
19	13.26	59	2.447	99	0.6486	139	0.2223

Table 6-3.2: Compressor top temperature sensor and discharge pipe temperature sensor resistance characteristics

Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)
-20	542.7	20	68.66	60	13.59	100	3.702
-19	511.9	21	65.62	61	13.11	101	3.595
-18	483.0	22	62.73	62	12.65	102	3.492
-17	455.9	23	59.98	63	12.21	103	3.392
-16	430.5	24	57.37	64	11.79	104	3.296
-15	406.7	25	54.89	65	11.38	105	3.203
-14	384.3	26	52.53	66	10.99	106	3.113
-13	363.3	27	50.28	67	10.61	107	3.025
-12	343.6	28	48.14	68	10.25	108	2.941
-11	325.1	29	46.11	69	9.902	109	2.860
-10	307.7	30	44.17	70	9.569	110	2.781
-9	291.3	31	42.33	71	9.248	111	2.704
-8	275.9	32	40.57	72	8.940	112	2.630
-7	261.4	33	38.89	73	8.643	113	2.559
-6	247.8	34	37.30	74	8.358	114	2.489
-5	234.9	35	35.78	75	8.084	115	2.422
-4	222.8	36	34.32	76	7.820	116	2.357
-3	211.4	37	32.94	77	7.566	117	2.294
-2	200.7	38	31.62	78	7.321	118	2.233
-1	190.5	39	30.36	79	7.086	119	2.174
0	180.9	40	29.15	80	6.859	120	2.117
1	171.9	41	28.00	81	6.641	121	2.061
2	163.3	42	26.90	82	6.430	122	2.007
3	155.2	43	25.86	83	6.228	123	1.955
4	147.6	44	24.85	84	6.033	124	1.905
5	140.4	45	23.89	85	5.844	125	1.856
6	133.5	46	22.89	86	5.663	126	1.808
7	127.1	47	22.10	87	5.488	127	1.762
8	121.0	48	21.26	88	5.320	128	1.717
9	115.2	49	20.46	89	5.157	129	1.674
10	109.8	50	19.69	90	5.000	130	1.632
11	104.6	51	18.96	91	4.849		
12	99.69	52	18.26	92	4.703		
13	95.05	53	17.58	93	4.562		
14	90.66	54	16.94	94	4.426		
15	86.49	55	16.32	95	4.294		
16	82.54	56	15.73	96	4.167		
17	78.79	57	15.16	97	4.045		
18	75.24	58	14.62	98	3.927		
19	71.86	59	14.09	99	3.812		

Table 6-3.3: Inverter module temperature sensor resistance characteristics

Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)	Temperature (°C)	Resistance (kΩ)
-30	971.4	10	109.0	50	19.70	90	5.000
-29	912.8	11	103.9	51	18.97	91	4.855
-28	858.2	12	99.02	52	18.26	92	4.705
-27	807.3	13	94.44	53	17.59	93	4.566
-26	759.7	14	90.11	54	16.94	94	4.431
-25	715.3	15	86.00	55	16.32	95	4.301
-24	673.6	16	82.09	56	15.73	96	4.176
-23	634.7	17	78.38	57	15.16	97	4.055
-22	598.2	18	74.87	58	14.62	98	3.938
-21	564.1	19	71.53	59	14.10	99	3.825
-20	532.2	20	68.36	60	13.60	100	3.716
-19	502.2	21	65.34	61	13.12	101	3.613
-18	474.1	22	62.47	62	12.65	102	3.514
-17	447.7	23	59.75	63	12.22	103	3.418
-16	423.0	24	57.17	64	11.79	104	3.326
-15	399.8	25	54.71	65	11.39	105	3.235
-14	378.0	26	52.36	66	10.99	106	3.148
-13	357.5	27	50.13	67	10.62	107	3.063
-12	338.2	28	48.01	68	10.25	108	2.982
-11	320.1	29	45.99	69	9.909	109	2.902
-10	303.1	30	44.07	70	9.576	110	2.826
-9	287.1	31	42.23	71	9.253	111	2.747
-8	272.0	32	40.48	72	8.947	112	2.672
-7	257.8	33	38.81	73	8.646	113	2.599
-6	244.4	34	37.23	74	8.362	114	2.528
-5	231.9	35	35.71	75	8.089	115	2.460
-4	220.0	36	34.27	76	7.821	116	2.390
-3	208.7	37	32.89	77	7.569	117	2.322
-2	198.2	38	31.58	78	7.323	118	2.256
-1	188.2	39	30.33	79	7.088	119	2.193
0	178.8	40	29.13	80	6.858	120	2.132
1	169.9	41	27.98	81	6.640	121	2.073
2	161.5	42	26.89	82	6.432	122	2.017
3	153.6	43	25.85	83	6.230	123	1.962
4	146.1	44	24.85	84	6.033	124	1.910
5	139.1	45	23.90	85	5.847	125	1.859
6	132.3	46	22.98	86	5.667		
7	126.0	47	22.10	87	5.492		
8	120.0	48	21.26	88	5.322		
9	114.3	49	20.47	89	5.159		

3.2 Normal Operating Parameters of Refrigerant System

Under the following conditions, the operating parameters given in Tables 6-3.4 should be observed:

- The master outdoor unit can detect all the indoor units.
- The number of indoor units displayed on DSP2 is steady and is equal to the actual number of indoor units installed.
- All stop valves are open and all indoor unit EXVs are connected to their unit's PCB.
- If the combination ratio is 100% or less, all the indoor units are currently running and if the combination ratio is more than 100%, indoor units with total capacity equal to the total capacity of the outdoor units are currently running.
- The system is being run in cooling mode with the following settings: temperature 17°C; fan speed high.
- The system has been running normally for more than 30 minutes.

Table 6-3.4: Outdoor unit cooling mode operating parameters

Outdoor ambient temperature	°C	< 10	10 to 26	26 to 31	31 to 41	> 41
Discharge temperature	°C	60-76	62-78	65-82	67-92	69-92
Discharge superheat	°C	17-30	17-33	17-34	17-36	10-32
Discharge pressure	MPa	2.3-2.8	2.3-2.8	2.4-3.6	2.6-3.8	3.1-4.2
Suction pressure	MPa	0.6-0.7	0.7-0.9	0.8-1.0	1.0-1.2	1.2-1.4



Product Catalog

Split System Air Conditioners

Odyssey™ with Symbio™ Controls

Cooling Condenser, 6 to 25 Tons, 60 Hz

Air Handler, 5 to 25 Tons, 60 Hz





Introduction



Odyssey™ Split Systems offer a wide range of options, allowing you to easily match unit tonnage with the right load requirements.

When a project calls for the convenience and cost efficiency of a unitary product, where a rooftop unit isn't right, Odyssey may be the answer. It provides heating and cooling in a split configuration that's unique in its versatility while staying true to our standards for efficiency and reliability. And with the Symbio® digital controller on board, Odyssey introduces smart building capabilities that take service, comfort and sustainability beyond the expected.

With wide network availability, flexible applications, installation ease, built-in reliability and easy servicing, Odyssey will meet any number of customer applications. Add to that Trane's outstanding customer service and you have the formula to make Odyssey the clear choice for continued customer satisfaction.

Wide Network Availability

A broad distribution network provides owners, maintenance personnel, contractors, etc., the means to get their hands on equipment when they need it. Whether it's an emergency replacement or a new construction project in its infancy stages, Odyssey products meet an array of needs at the right time and right price.

Flexible Applications

No matter what the application, Odyssey provides the solution. A broad array of models and tonnages are available with single or dual compressors, single or dual circuits and numerous accessories. Condensing units can be installed on the ground or on a rooftop along with extended piping runs, while air handlers can be free discharge on the ground or horizontally suspended with long duct runs from a ceiling. Should application challenges arise, Odyssey delivers.

Easy to Install

Small footprints and low weights combined with factory installed components like TXVs, filter driers, etc., reduce installation time and cost. Colored connectors and wiring, as well as factory-tested units make Odyssey the right choice.

Built-in Reliability

Keeping in mind that productivity only occurs when equipment is operational, Trane has taken the steps to ensure that Odyssey is up and running. Early indicators such as phase/reversal monitors and loss of charge protection provide diagnostics which prevent failure and provide years of worry-free service and operation.

Easy to Service

When preventive maintenance or service is required, technicians will find efficient access to both air handlers and condensers. Panels provide complete, easy access coupled with standardized cabinets in which all components are located in proximity. Odyssey's improved design results in minimum service times and costs.

With these capabilities, Odyssey provides customers high efficiency and superior performance for the best all-around value in the market today.

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Revision History

- Updated Coil Guard information in Features, Accessories, Model Number Description and Mechanical Specifications chapters.
- General Data, Performance Data and Electrical Data chapters are updated.
- Capacity curves added in Performance Data chapter.
- Symbio™ jobsite connections are updated with new note and Warning.
- Hail Guard information is updated in Dimensional Data chapter.
- Minor edits.



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Features

Split System Overview

Unlike typical split systems on the market, Odyssey offers easy servicing, built-in reliability, ease of installation and outstanding customer service. And because today's owners are very cost-conscious when it comes to service and maintenance, the Odyssey Split System was designed with direct input from service contractors. This valuable information helped to design a product that would get the service person off the job quicker and save the owner money.

Flexible Applications

Odyssey offers outstanding standard features enhanced by a variety of factory and field installed options, multiple control options, rigorously tested proven designs and superior product and technical support. Because of this, Odyssey offers ultimate flexibility. Units are built to order in our standard "shortest in the industry" ship cycle time. Odyssey is available with single, dual and manifolded compressor options. Single compressor outdoor units feature a single refrigeration circuitry, lowering job installation costs by requiring only one set of refrigerant lines.

Equally important, Odyssey offers single refrigerant circuit/capacity unloading models. The unloading units feature dual manifolded scroll compressors with two stages of capacity modulation and a single refrigeration circuit. Dual compressor/dual circuit models give true stand-by protection - if one compressor fails, the second will automatically start-up. Also, the first compressor can be serviced without shutting down the unit since the refrigerant circuits are independent. Dual compressor models also save on energy costs. During light load conditions, only one compressor will operate to save energy.

Factory installed VFD is standard with most units. These 2-Speed and Single Zone VAV (SZVAV) solutions, combined with condensing units that have multiple compressors, provide increased part load performance (IEER) when conditions are not at the max design condition. Additionally, some states have adopted codes that require this type of performance. Odyssey units are built with installation in mind. With a smaller footprint, the outdoor unit takes up less space and weighs less, making its installation more efficient and economical. Our indoor air handlers are built to be installed in confined spaces, fitting through standard doorways and freight elevators.

Unmatched Product Support

One of our finest assets, Trane Sales Representatives are a support group that can assist you with:

- Product
- Application
- Service
- Training
- Special Applications
- Specifications
- Computer Programs and much more

Rigorous Testing

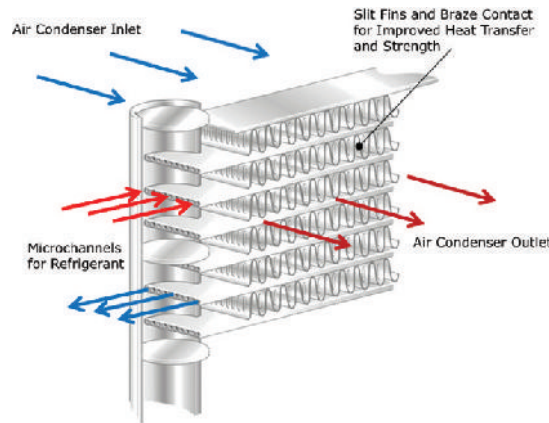
Our units are rigorously rain tested to ensure water integrity. Actual shipping tests are performed to determine packaging requirements. Units are test shipped around the country to determine the best packaging. Factory shake and drop tests are used as part of the package design process to help assure that the unit arrives at the job site in top condition. Rigging tests include lifting a unit into the air and letting it drop one foot, assuring that the lifting lugs and rails hold up under stress. A 100% coil leak test is performed at the factory. The condenser coils are leak tested at 660 psig and evaporators to 450 psig. All parts are inspected at the point of final assembly. Sub-standard parts are identified and rejected immediately. Every unit receives a 100% unit run test before leaving the production line to ensure it lives up to rigorous Trane requirements.

Other Features

Microchannel Condenser Coil

Microchannel condensing coils are all-aluminum coils with fully-brazed construction. This design reduces risk of leaks and provides increased coil rigidity — making them more rugged on the jobsite. Their flat streamlined tubes with small ports and metallurgical tube-to-fin bond allow for exceptional heat transfer. Microchannel all-aluminum construction provides several additional benefits:

- Light weight (simplifies coil handling)
- Easy to recycle
- Minimize galvanic corrosion



Standard and Optional Features

Figure 1. Compressors

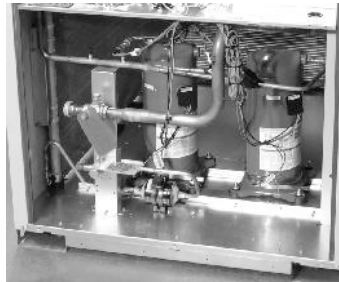
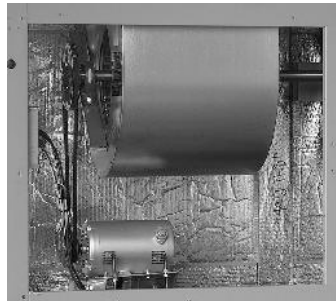


Figure 2. Belt drive motor



2-Speed VFD — A variable frequency drive is used to reduce the supply fan motor speed to 66% of its full capacity during part load cooling conditions.

Airflow Distribution — Odyssey can replace an older machine with old ductwork and, in many cases, improve the comfort through better air distribution.

Anti-Short Cycle Timing — The Symbio™ 700 controller provides a 3 minute minimum “ON” time and 3 minute “OFF” time for compressors to enhance compressor reliability by assuring proper oil return.

Belt Drive Motors — For additional static requirements, Odyssey Split Systems offer standard belt drive motors to meet and exceed a wide range of airflow needs.

Coil Guards — Coil Guards are standard with all condensers. This feature protects the condenser coil from vandalism and/or hail damage. When ordered factory installed, it also adds additional shipping protection.



Features

Colored Connectors and Wiring — Interconnecting wiring between components is standardized using colored and keyed connectors and colored wires, helping to save time and money tracing wires and diagnosing the unit.

Compressors — Odyssey Split Systems contain the best compressor technology available to achieve the highest possible performance. Dual compressors perform very well under part load cooling conditions and system back-up applications. Dual compressors are available on 6-25 ton models and allow for efficient cooling utilizing 2-stages of compressor operation.

Complete Coat™ Microchannel Condenser Coil — This cathodic, epoxy-type electro-disposition coating is formulated for high edge builds and provides excellent resistance and durability in potentially corrosive environments due to alkalis, acids, alcohols, petroleum, seawater, salty air, etc. Available for Microchannel units only.

Convertible Units — The air handlers ship in a horizontal configuration. They can be easily converted to vertical by simply repositioning the drain pan.

Crankcase Heaters — These band heaters provide improved compressor reliability by warming the oil to prevent migration during off-cycles or low ambient conditions.

Dual Sloped Drain Pans — Every Odyssey unit has a non-corrosive, removable, double sloped drain pan that's easy to clean and reversible to allow installation of drain trap in two positions on either side of the unit.

Duct flanges — An optional field installed kit that can save time and money.

Easy Access Low Voltage Connections — Thermostat and other low voltage control wiring connections are made directly to the Symbio 700 and other boards in the system. Screw-type pressure connectors are detachable from the boards for easy connection of control wires – saving cost and time.

Electric Heaters — Electric heat modules are available in a variety of voltages and capacities.

Foil Faced Insulation — All internal air handler surfaces have cleanable foil-faced insulation. All edges are either captured or sealed to ensure insulation fibers do not get into the airstream.

High Static Motor — This high static motor accessory extends the capability of the standard unit.

High and Low Voltage Control Panel — High voltage components and connections are isolated from low voltage and covered with a sheet metal panel. This allows setup and test parameters at the Symbio™ 700 display and the VFD keypad display to be safely viewed and adjusted in the low voltage section of the control panel.

High Pressure Control — All units include High Pressure Control as standard.

Low Ambient Cooling — All Odyssey units have cooling capabilities down to 0°F as standard. At temperatures below 50°F, some reduction in cooling capacity can be expected. When the optional Low Ambient Accessory kit is field installed, the full capacity of the unit is available down to 0°F.

Low Voltage Connections — Low voltage wiring connects directly to the control boards in the unit via detachable connectors. This makes it easy for the installer to attach the wires and then snap the connectors into place.

Phase Monitor/Reversal Protection — Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitors are equipped with an LED that provides an ON or FAULT indicator.

ID Fan Fail — The Symbio™ 700 controller provides a ID fan fail feature caused by belt failure and motor freewheeling under no load. The Variable Frequency Drive records the motor torque and if below a certain value shuts the unit. Fan Fail error is displayed on controller display.

Quick-Access Panels — Remove a few screws for access to the standardized internal components and wiring.

Single Point Power — A single electrical connection powers the unit.

Single Side Service — Single side service is standard on all units.

Single Zone Variable Air Volume (SZVAV) — A variable frequency drive is used in conjunction with the Symbio™ 700 to provide supply fan motor speed modulation. For SZVAV control, the drive will accelerate or decelerate as required to meet the Zone Cooling demand. In order to maximize energy savings, the VFD will be held at minimum speed until the load in the zone requires the speed to

increase. The supply fan speed will be reduced to a minimum of 58%¹ during ventilation and part load cooling demands, and 80% during full load cooling demands with the ability to fully modulate. The commissioning maximum and minimum airflow points can be easily set by programming these parameters at the display on the Symbio control board.

Standardized Components — Components are placed in the same location on all Odyssey units. Because of these standardized components throughout the Odyssey line, contractors/owners can stock fewer parts.

Symbio™ 700 — Standard on Odyssey condensers, the Symbio™ 700 controller provides exceptional machine control with a focus on system reliability and application flexibility. The Symbio controller provides direct access to the Symbio Service and Installation mobile application for easy setup and troubleshooting with no special tools. A wide range of system integration options (Non-communicating, BACnet®, LonTalk®, etc.) provide options to meet the needs of your application.

Thermal Expansion Valve with Bypass Check Valves — This feature is standard on all indoor units.

Unit Cabinet — The compact cabinet takes up less room and is less costly to ship. The design also ensures water integrity.

¹. 64% for part load and 83% for full load if a max speed of less than 44.5 Hz is desired.

Table 1. Odyssey features – standard and optional

	Standard Features	Options ^(a)	
		Factory Installed	Field Installed
1-year Limited Parts Warranty	X		
5-year Limited Compressor Warranty	X		
2-Speed Variable Frequency Drive		X	
Belt Drive Motors	X		
Coil Guards	X		
Colored Connectors and Wiring	X		
Complete Coat™ Microchannel Condenser Coil		X	
Compressor Discharge Temperature Limit (DTL)	X		
Convertible Airflow	X		
Crankcase Heaters	X		
Easy Access Low Voltage Connections	X		
Electric Heaters			X
Filters	X		
Filters – 2" MERV 13			X
Foil-Faced and Edge Captured Insulation	X		
High Pressure Control	X		
High Static Motor Kit ^(b)			X
Hot Gas Bypass			X
IAQ Dual Sloped and Removable Drain Pans	X		
Low Ambient Cooling			X
Liquid Line Refrigerant Drier	X		
Low Pressure Control	X		
Low Static Motor Kit ^(b)			X
Low Voltage Circuit Protection	X		
Phase Loss/Reversal Monitor	X		
Quick Access Panels	X		
Scroll Compressors	X		
Single Point Power	X		
Single Side Service	X		
Single Zone Variable Air Volume (SZVAV / 2-Speed Fan)		X	
Standardized Components	X		
Symbio™ Controls	X		
Thermal Expansion Valve	X		
Vibration Isolators			X

^(a) Refer to model number description for option availability or contact Product Support.

^(b) Available on constant volume units only. See Accessories chapter for more information.

Standard Controls

Symbio™ 700 Controls

Figure 3. Symbio 700 board



Symbio 700 controls provide unit control for heating, cooling, and ventilating, utilizing input from sensors that measure outdoor and indoor temperature. Symbio also provides outputs for building automation systems and expanded diagnostics. Quality and reliability are enhanced through Symbio control and logic:

- Prevents the unit from short cycling, considerably improving compressor life.
- Ensures the compressor will run for a specific amount of time which allows oil to return for better lubrication, enhancing the reliability of the compressor.
- Reduces the number of components required to operate the unit, reducing possibilities for component failure.

Installation and Service

The Symbio™ 700 control platform provides a user-friendly, onboard interface that makes setup and continued operation easy – or users can take advantage of the Symbio™ Service and Installation Mobile App for setup, troubleshooting, and operation. Both the Symbio onboard user interface and mobile app simplify troubleshooting by displaying active alarms. Symbio eliminates the need for field-installed, anti-short cycle timer and time delay relays. The wiring of the low voltage connections to the unit and zone sensors is simple, making installation easy.

Testing

Symbio™ 700 requires no special tools to run the unit through its paces. Simply navigate to the 'Service' section of the user interface or the 'Utilities' section of the Symbio™ Service and Installation Mobile App and enter the test section. Here the unit can be placed in the desired operating condition for a pre-determined amount of time supporting troubleshooting efforts in the field. The Symbio 700 will return to normal control when the user exits test mode or when the pre-determined, user-selected Service Test time has expired.

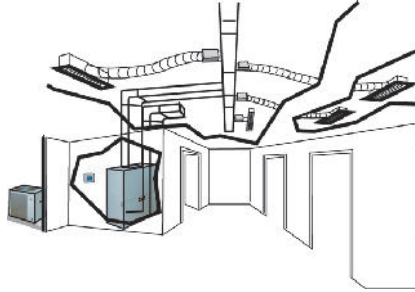
Other Benefits

- Symbio™ 700 built-in anti-shortcycle timer, time delay relay and minimum "on" time control functions are factory tested to assure proper operation.
- Symbio 700 softens electrical "spikes" by staging on fans, compressors and heaters.
- Intelligent Fallback is a benefit to the building occupant. If a component goes astray, the unit will continue to operate at predetermined temperature setpoint.

- Intelligent Anticipation is a standard feature. It functions continuously as Symbio 700 and zone sensor(s) work together in harmony to provide much tighter comfort control than conventional electromechanical thermostats.
- The Symbio 700 design is standardized across the board, ensuring a lower cost to owners.

Additional Controls

VariTrac® Building Automation System — When Trane's changeover VAV System for light commercial applications is coupled with the unit, it provides the latest in technological advances for comfort management systems and can allow thermostat control in every zone served by VariTrac.



Frostat™ — This control (a standard feature on all air handlers) utilizes a capillary bulb embedded in the face of the evaporator coil which monitors coil temperature to inhibit evaporator icing and protect the compressor. Useful for applications with low leaving air temperatures, low airflow and/or high latent load applications.

LonTalk® Communications Interface — The LonTalk communications interface allows the unit to communicate as a Tracer LON® device or directly with generic LonTalk Network Building Automation System Controls.

BACnet® Communication Interface (BCI) — The BACnet Communication Interface allows the unit to communicate directly with a generic open protocol BACnet MS/TP or IP Network Building Automation Control System.

Zone Sensors/Thermostats — Available in programmable, automatic and manual styles.

Table 2. Odyssey control options – standard and optional

	Standard Features	Options ^(a)	
		Factory Installed	Field Installed
BACnet® Communication Interface (BCI)		X	
Frostat™ - Evaporator Defrost Control (EDC)	X		
LonTalk® Communications Interface (LCI)		X	X
Symbio™ 700 Microprocessor Controls	X		
Thermostat			X
Zone Sensor			X

^(a) Refer to model number description for option availability or contact Product Support.



Accessories

Cooling Condenser

Table 3. TTA accessories

Model	Used With
Universal Hot Gas Bypass Kit	
BAYHGBP010*	All models
Rubber Isolators	
BAYISLT004* (blue)	TTA072, TTA090
BAYISLT005* (black)	TTA120
BAYISLT009* (red)	TTA150, TTA180
BAYISLT010* (green)	TTA240, TTA300
Steel Spring Isolators	
BAYISLT023* (red)	TTA072, TTA090, TTA120**A
BAYISLT024* (black)	TTA120**C/D, TTA150, TTA180
BAYISLT025* (yellow)	TTA240, TTA300
Service Valve Kit	
BAYVALV001*	TTA0724*A, TTA0904*A, TTA1204*A/C
BAYVALV003*	TTA0724*D, TTA0904*D, TTA1204*D
BAYVALV004*	TTA1504*D
BAYVALV005*	TTA1804*D, TTA2404*D
BAYVALV007*	TTA1804*C, TTA2404*C
BAYVALV008*	TTA3004*C
Low Ambient — On/Off Fan Control^(a) ^(b)	
BAYLOAMS10* (External Mount, small cabinets) ^(c)	(all voltages) TTA072, TTA090, TTA120, TTA150
BAYLOAMS20* (Internal mount, large cabinets)	(all voltages) TTA180, TTA240, TTA300
Transducer Kit for Head Pressure Control (BAYLOAMS10*)	
BAYLOTR001* ^(d)	TTA072**D, TTA090**D, TTA120**D, TTA150**D
LonTalk Communications Interface^(e)	
BAYLTCI005*	All Models
Expansion Module Kit	
BAYMODU002* (XM30)	All Models
BAYMODU004* (XM32)	All Models

^(a) Cycles fan on/off (no modulating).

^(b) When BAYLOAM is used, the Evaporator Defrost Control (EDC) must be disabled in the Symbio 700 controller configuration.

^(c) Kit mounts external to the outdoor unit and operates by sensing ambient temperature and discharge pressure.

^(d) BAYLOTR001* required when BAYLOAMS10* kits are used with units that have 2 compressors (dual circuit) and 1 condenser fan.

^(e) Field installed LonTalk interface requires installation of Symbio control board with Advanced Diagnostics (not included).



Accessories

Air Handler

Table 4. TWE Accessories

Model	Used With
Base (Subbase)	
BAYBASE009*	TWE060
BAYBASE0010*	TWE072, TWE090
BAYBASE0011*	TWE120
BAYBASE0012*	TWE150, TWE180
BAYBASE0013*	TWE240, TWE300
Drip Kit	
BAYDRKT006*	TWE060
BAYDRKT007*	TWE072, TWE090
BAYDRKT008*	TWE120
BAYDRKT009*	TWE150, TWE180
BAYDRKT010*	TWE240, TWE300
Duct Flange Kit	
BAYDUCT010*	TWE051, TWE060, TWE072, TWE076, TWE090, TWE101, TWE120
BAYDUCT020*	TWE126, TWE150, TWE156, TWE180, TWE201, TWE240, TWE251, TWE300
Filters – 2" MERV 13	
BAYFILT001*	TWE060
BAYFILT002*	TWE072, TWE090
BAYFILT003*	TWE120
BAYFILT004*	TWE150, TWE180
BAYFILT005*	TWE240, TWE300
Rubber Isolators^{(a) (b) (c)}	
BAYISLT004* (Floor — Blue)	TWE060, TWE072, TWE090, TWE120
BAYISLT009* (Floor — Red) ^(d)	TWE150, TWE180
BAYISLT010* (Floor — Green) ^{(d)(a)}	TWE240, TWE300
BAYISLT012* (Suspended — Red/Green)	TWE150, TWE180
BAYISLT013* (Suspended — Red/Green) ^(c)	TWE060
BAYISLT014* (Suspended — Green) ^(c)	TWE072, TWE090
BAYISLT015* (Suspended — Green/Black) ^(c)	TWE120
BAYISLT016* (Suspended — Red/Green)	TWE240, TWE300
Steel Spring Isolators^(b)	
BAYISLT019* (Floor — Red) ^{(c)(a)}	TWE060, TWE072, TWE090, TWE120
BAYISLT021* (Floor — Black) ^{(c)(a)}	TWE150, TWE180
BAYISLT032* (Floor — Black/Yellow) ^{(c)(a)}	TWE240, TWE300
BAYISLT028* (Suspended — Tan)	TWE060
BAYISLT029* (Suspended — Red)	TWE072, TWE090, TWE120
BAYISLT030* (Suspended — Black)	TWE150, TWE180
BAYISLT031* (Suspended — Black/Yellow)	TWE240, TWE300
Plenum^(e)	
BAYPLNM015* (Discharge Plenum & Grille) ^(e)	TWE060
BAYPLNM016* (Discharge Plenum & Grille) ^(e)	TWE072, TWE090
BAYPLNM017* (Discharge Plenum & Grille) ^(e)	TWE120
BAYPLNM018* (Discharge Plenum/Hydronic Coil Plenum & Grille) ^(e)	TWE150, TWE180
BAYPLNM019* (Discharge Plenum/Hydronic Coil Plenum & Grille) ^(e)	TWE240, TWE300
BAYPLNM020* (Hydronic Coil Discharge Plenum & Grille) ^(e)	TWE060
BAYPLNM021* (Hydronic Coil Discharge Plenum & Grille) ^(e)	TWE072, TWE090
BAYPLNM022* (Hydronic Coil Discharge Plenum & Grille) ^(e)	TWE120
BAYPLNM030* (Electric Heat Discharge Plenum & Grille) ^(e)	TWE060
BAYPLNM031* (Electric Heat Discharge Plenum & Grille) ^(e)	TWE072, TWE090

Table 4. TWE Accessories (continued)

Model	Used With
BAYPLNM032* (Electric Heat Discharge Plenum & Grille) ^(e)	TWE120
BAYPLNM033* (Electric Heat Discharge Plenum & Grille) ^(e)	TWE150, TWE180
BAYPLNM034* (Electric Heat Discharge Plenum & Grille) ^(e)	TWE240, TWE300
Return Air Grille	
BAYGRLE001*	TWE060
BAYGRLE002*	TWE072, TWE090
BAYGRLE003*	TWE120
BAYGRLE004*	TWE150, TWE180
BAYGRLE005*	TWE240, TWE300
Symbio™ Options Module Kit	
BAYMODU001*	All TWE units with Digit 15 = 1 and Electric heater installed
Transformer	
BAYTFMR018* - 100 VA Transformer (208-230V)	All TWE072 – TWE300, 208-230V units
BAYTFMR019* - 100 VA Transformer (460V)	All TWE072 – TWE120, 460V units
BAYTFMR020* - 100 VA Transformer (575V)	All TWE072 – TWE120, 575V units
BAYTFMR021* - 100 VA Transformer (400 V)	All TWE072 – TWE120 380V/60 Hz unit
Water Kits	
BAYWATR022* (Steam Coil Enclosure) ^(e)	TWE060
BAYWATR023* (Steam Coil Enclosure) ^(e)	TWE072, TWE090
BAYWATR024* (Steam Coil Enclosure) ^(e)	TWE120
BAYWATR025* (Steam Coil Enclosure) ^(e)	TWE150, TWE180
BAYWATR026* (Steam Coil Enclosure) ^(e)	TWE240, TWE300
BAYWATR027* (Hot Water Coil Enclosure) ^(e)	TWE060
BAYWATR028* (Hot Water Coil Enclosure) ^(e)	TWE072, TWE090
BAYWATR029* (Hot Water Coil Enclosure) ^(e)	TWE120
BAYWATR030* (Hot Water Coil Enclosure) ^(e)	TWE150, TWE180
BAYWATR031* (Hot Water Coil Enclosure) ^(e)	TWE240, TWE300
Wire Kit — 180° Blower Discharge Reversal Kit^(f)	
BAYWRKT002*	TWE060, TWE072, TWE090, TWE120

^(a) Requires use of subbase accessory.

^(b) In units with steam or hot water coils applied vertically or horizontally, check IOM for proper Isolator Kit selection.

^(c) Do not use if blower will operate less than 600 RPM.

^(d) When the air handler is in the vertical position and close proximity trapping of condensate is required, use of subbase is required.

^(e) When installed horizontally, plenum/water coil must be self-supported. When adding vibration isolators, see Isolator Installation Guide (ACC-SVN92*-EN) for isolator and location matrix.

^(f) Cannot be used on TWE150-300, due to motor mount location.

Note: See HUB case DOC-209462 for high-static and low-static drive kits (available only for constant volume air handlers).

Electric Heaters

Table 5. Electric heaters

Model	Used With
6–10 Ton Electric Heater Selection	
BAYHTRN106* — 4.33/5.76 kW Heater 208/240/1 Phase	TWE060*1, TWE090*1, TWE120*1
BAYHTRR112* — 8.65/11.52 kW Heater 208/240/1 Phase	TWE060*1, TWE090*1, TWE120*1
BAYHTRS117* — 12.98/17.28 kW Heater 208/240/1 Phase	TWE060*1, TWE090*1, TWE120*1
BAYHTRR123* — 17.31/23.04 kW Heater 208/240/1 Phase	TWE060*1, TWE090*1, TWE120*1
BAYHTRN129* — 21.63/28.80 kW Heater 208/240/1 Phase	TWE090*1, TWE120*1
BAYHTRN305* — 3.76/5.00 kW Heater 208/240/3 Phase	TWE060*3 (CV & OS MTR), TWE072*3B, TWE090*3, TWE120*3 (VFD)
BAYHTRR310* — 7.48/9.96 kW Heater 208/240/3 Phase	TWE060*3 (CV & OS MTR), TWE072*3B, TWE090*3, TWE120*3 (VFD)

Table 5. Electric heaters (continued)

Model	Used With
BAYHTRR315* — 11.24/14.96 kW Heater 208/240/3 Phase	TWE060*3 (CV & OS MTR), TWE072*3B, TWE090*3, TWE120*3 (VFD)
BAYHTRN325* — 18.72/24.92 kW Heater 208/240/3 Phase	TWE060*3 (CV & OS MTR), TWE072*3B, TWE090*3, TWE120*3 (VFD)
BAYHTRN335* — 26.20/34.88 kW Heater 208/240/3 Phase	TWE090*3, TWE120*3 (VFD)
BAYHTRN405* — 5.00 kW Heater 460/3 Phase	TWE060*4 (CV & OS MTR), TWE072*4*****C/D, TWE090*4*****C/D, TWE120*4*****C/D
BAYHTRR410* — 9.96 kW Heater 460/3 Phase	TWE060*4 (CV & OS MTR), TWE072*4*****C/D, TWE090*4*****C/D, TWE120*4*****C/D
BAYHTRR415* — 14.96 kW Heater 460/3 Phase	TWE060*4 (CV & OS MTR), TWE072*4*****C/D, TWE090*4*****C/D, TWE120*4*****C/D
BAYHTRN425* — 24.92 kW Heater 460/3 Phase	TWE060*4 (CV & OS MTR), TWE072*4*****C/D, TWE090*4*****C/D, TWE120*4*****C/D
BAYHTRN435* — 34.88 kW Heater 460/3 Phase	TWE090*4*****C/D, TWE120*4*****C/D
BAYHTRNW05* — 5 kW Heater 575/3 Phase	TWE060*W (CV & OS MTR), TWE072*W, TWE090*W, TWE120*W (VFD)
BAYHTRRW10* — 9.96 kW Heater 575/3 Phase	TWE060*W (CV & OS MTR), TWE072*W, TWE090*W, TWE120*W (VFD)
BAYHTRRW15* — 14.96 kW Heater 575/3 Phase	TWE060*W (CV & OS MTR), TWE072*W, TWE090*W, TWE120*W (VFD)
BAYHTRNW25* — 24.92 kW Heater 575/3 Phase	TWE060*W (CV & OS MTR), TWE072*W, TWE090*W, TWE120*W (VFD)
BAYHTRNW35* — 34.88 kW Heater 575/3 Phase	TWE090*W, TWE120*W (VFD)
12.5–25 Ton Electric Heater Selection	
BAYHTRP310* — 7.51/10.0 kW Heater 208/230 3 Phase	TWE150*3, TWE180*3, TWE240*3, TWE300*3 (VFD)
BAYHTRP320* — 14.96/19.92 kW Heater 208/230 3 Phase	TWE150*3, TWE180*3, TWE240*3, TWE300*3 (VFD)
BAYHTRP330* — 22.47/29.92 kW Heater 208/230 3 Phase	TWE150*3, TWE180*3, TWE240*3, TWE300*3 (VFD)
BAYHTRP350* — 37.44/49.84 kW Heater 208/230 3 Phase	TWE150*3, TWE180*3, TWE240*3, TWE300*3 (VFD)
BAYHTRP410* — 10.0 kW Heater 460/3 Phase	TWE150*4*****C/D, TWE180*4*****C/D, TWE240*4 (VFD), TWE300*4 (VFD)
BAYHTRP420* — 19.92 kW Heater 460/3 Phase	TWE150*4*****C/D, TWE180*4*****C/D, TWE240*4 (VFD), TWE300*4 (VFD)
BAYHTRP430* — 29.92 kW Heater 460/3 Phase	TWE150*4*****C/D, TWE180*4*****C/D, TWE240*4 (VFD), TWE300*4 (VFD)
BAYHTRP450* — 49.84 kW Heater 460/3 Phase	TWE150*4*****C/D, TWE180*4*****C/D, TWE240*4 (VFD), TWE300*4 (VFD)
BAYHTRPW10* — 10.0 kW Heater 575/3 Phase	TWE150*W, TWE180*W, TWE240*W, TWE300*W (VFD)
BAYHTRPW20* — 19.92 kW Heater 575/3 Phase	TWE150*W, TWE180*W, TWE240*W, TWE300*W (VFD)
BAYHTRPW30* — 29.92 kW Heater 575/3 Phase	TWE150*W, TWE180*W, TWE240*W, TWE300*W (VFD)
BAYHTRPW50* — 49.84 kW Heater 575/3 Phase	TWE150*W, TWE180*W, TWE240*W, TWE300*W (VFD)

Note: Electric Heaters not available for 380/60Hz.



Application Considerations

Application of this product should be within the cataloged airflow and performance considerations.

Clearance Requirements

The recommended clearances identified with unit dimensions should be maintained to assure adequate serviceability, maximum capacity and peak operating efficiency. Actual clearances which appear inadequate should be reviewed with the local representative.

180° Blower Rotation

The 5, 6, 7.5, and 10 ton constant volume air handler blower section can be rotated 180° to change the discharge pattern. This modification must be done in the field and requires an additional kit. See unit installation guide.

Low Ambient Cooling

As manufactured, all Odyssey units have cooling capabilities down to 0°F. At temperatures below 50°F, some reduction in cooling capacity can be expected. When the optional Low Ambient Accessory kit is field installed, the full capacity of the unit is available down to 0°F. When using these units with control systems such as bypass changeover Variable Air Volume, make sure to consider the requirement for a head pressure control to allow low ambient cooling.

Figure 4. Typical split system application

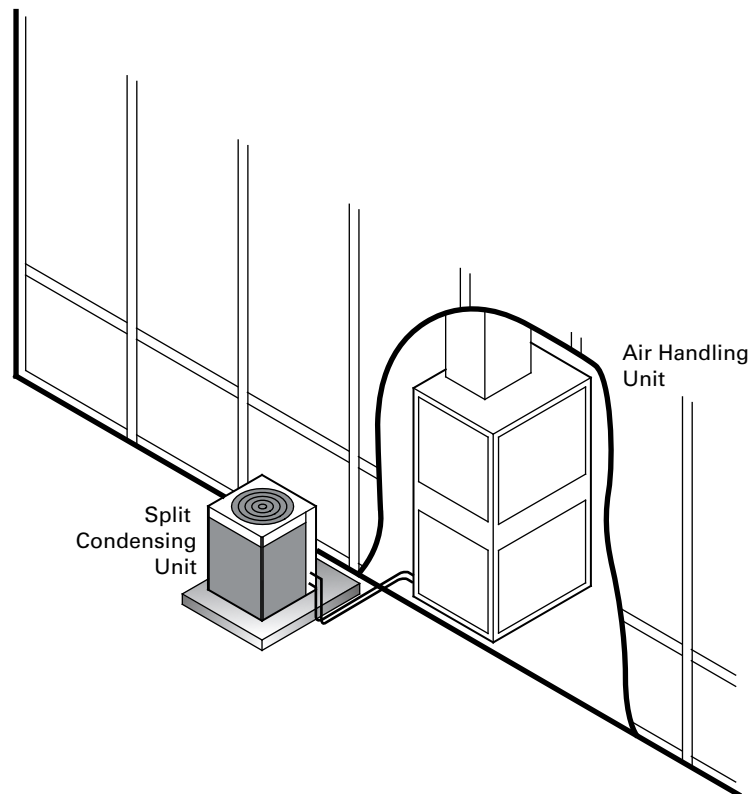


Figure 5. Typical horizontal air handler application

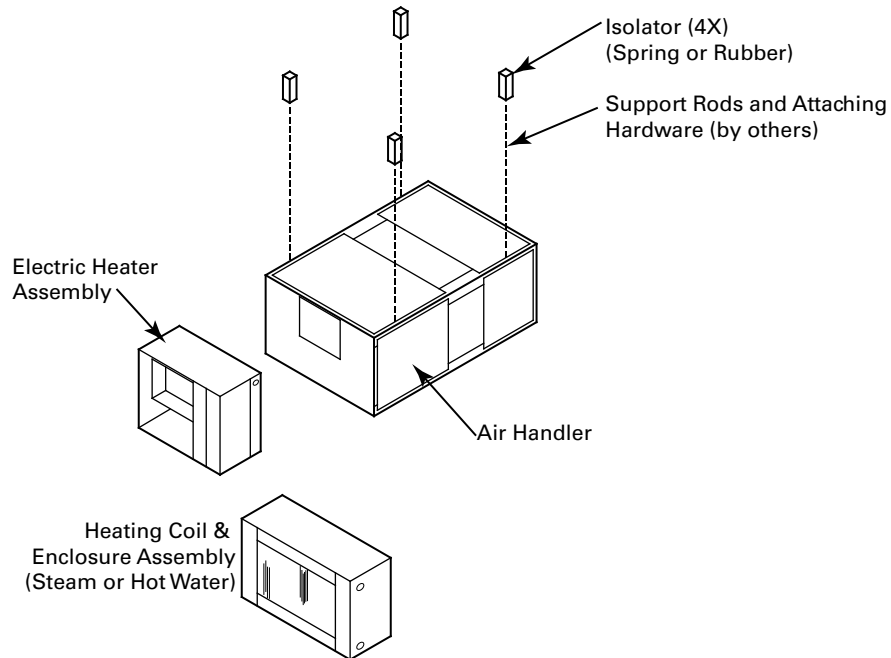
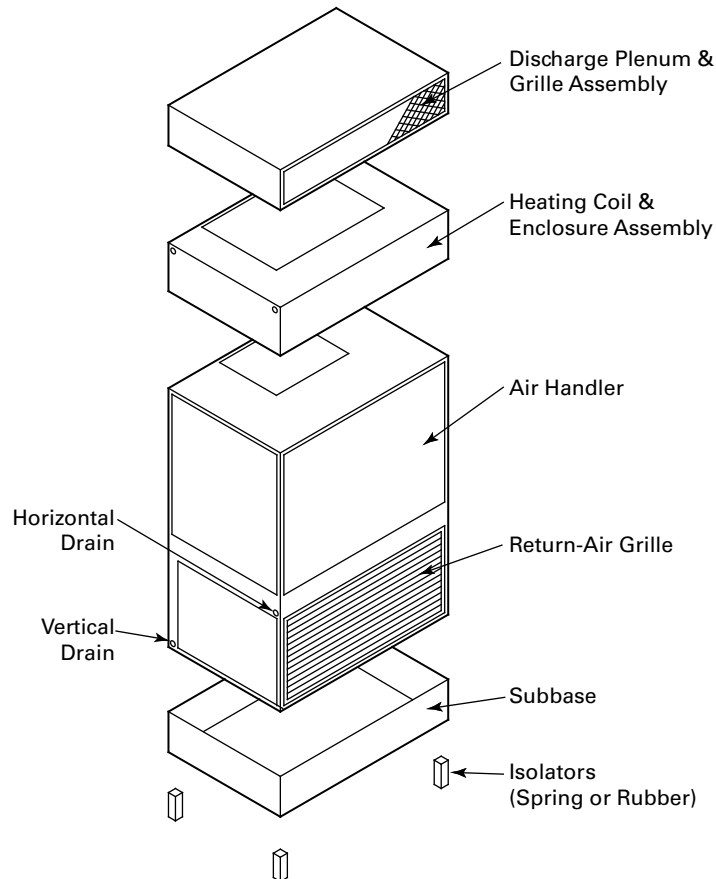


Figure 6. Typical vertical air handler application





Selection Procedure

Cooling Capacity

1. Calculate the building's total and sensible cooling loads at design conditions, using standardized calculation methods.
2. Size the equipment using the gross cooling capacity tables. Match the cooling loads at design conditions. For example, if the following specifies the building cooling requirements:
Electrical Characteristics: 460/60/3
Summer Design Conditions: Entering Evap Coil—80°F DB/67°F WB , Outdoor Ambient—95°F
Total Cooling Load: 86 MBh
Sensible Cooling Load: 60 MBh
Airflow: 3000 cfm
External Static Pressure: 0.77 inches of water gauge
3. Use to determine that TTA09043A with TWE09043A has a gross cooling capacity of 97.7 MBh and 74.6 MBh sensible capacity at 95°F DB ambient and 3000 cfm with 80°F DB/67° F WB air entering the evaporator.
4. To find the net cooling capacities, fan motor heat must be subtracted. Determine the total unit static pressure:
External Static Duct System: 0.77
Standard Filter: 0.10 in.
Supplementary Electric Heat: 0.23 in.
Total Static Pressure: 1.10 in.

Notes:

- *The Evaporator Fan Performance Table has included the effect of a 1 in. filter already. Therefore, the actual Total Static Pressure is $1.10 - 0.10 = 1.00$ in. . With 3000 cfm and 1.00 in., Table 50, p. 67 shows 1.97 Bhp (high static drive kit required).*
- *This formula can be used to calculate Fan Motor Heat:*
$$3.15 \times \text{Bhp} = \text{MBh}$$
$$3.15 \times 1.97 = 6.2 \text{ MBh}$$
$$\text{Net Total Cooling Capacity} = 97.7 \text{ MBh} - 6.2 \text{ MBh} = 91.5 \text{ MBh}$$
$$\text{Net Sensible Cooling Capacity} = 74.6 \text{ MBh} - 6.2 \text{ MBh} = 68.4 \text{ MBh}$$

Heating Capacity

1. Calculate the building heating load using the Trane calculation form or any other standard accepted method.
2. Size the equipment using to match the heating loads at design conditions. For example, if the following specifies the building heating requirements:
Total Heating Load: 97.0 MBh
Airflow: 2625 cfm
Supplementary Electric Heaters
3. Use to determine that the 34.88 kW heater has a capacity of 119,045 Btuh.
4. From the Electrical Characteristics table, the 34.88 kW heater at 460V indicates the heater model is BAYHTRN435A.



Selection Procedure

Air Delivery

1. The external static pressure drop through the air distribution system is 0.77 inches of water gauge, use to determine that the static pressure drop through the electric heater is 0.23 inches of water ($0.77 + 0.23 = 1.00$ in.).
2. Enter [Table 50, p. 67](#) for TWE09043A at 2625 cfm and 1.00 static pressure. The high static motor at 995 RPM gives the desired airflow.



Model Number Description

Cooling Condenser

Digit 1, 2, 3— Unit Function

TTA = Split System Cooling

Digit 4, 5, 6 — Tonnage

072 = 6 Tons (60 Hz)

090 = 7.5 Tons (60 Hz)

120 = 10 Tons (60 Hz)

150 = 12.5 Tons (60 Hz)

180 = 15 Tons (60 Hz)

240 = 20 Tons (60 Hz)

300 = 25 Tons (60Hz)

Digit 7 — Refrigerant

4 = R-410A

Digit 8 — Voltage

3 = 208-230 Vac - 3 PH (60Hz)

4 = 460 Vac - 3 PH (60Hz)

W = 575 Vac - 3 PH (60Hz)

K = 380 Vac - 3 PH (60Hz)

Digit 9 — Refrigeration Circuit/Stage

A = 1 Compressor/1 Line/1 Stage (Single)

C = 2 Compressors/1 Line/2 Stage (Manifold)

D = 2 Compressors/2 Line/2 Stage (Dual)

Digit 10 — Major Design Sequence

A = Rev A

B = Rev B

Digit 11 — Minor Design Sequence

A = Rev A

Digit 12, 13 — Service Digits

**

Digit 14 — Efficiency Generation

A = Generation A

B = Generation B

Digit 15 — Controls

S = Symbio™

Digit 16 — None

0 = None

Digit 17 — Coil Protection

1 = Standard Coil w/ Coil Guard

5 = Complete Coat Condenser Coil with Coil Guard (MCHE)

Digit 18, 19, 20 — None

0 = None

Digit 21 — Communications Options

0 = No Option

1 = Advanced Diagnostics and BACnet® BAS

2 = Advanced Diagnostics and LonTalk® Communications Interface (LCI)

Digit 22 to 40 — None

0 = None



Model Number Description

Air Handler

Digit 1, 2, 3 — Unit Function

TWE = Air Handler

Digit 4, 5, 6 — Tonnage

060 = 5 Tons (60 Hz)

072 = 6 Tons (60Hz)

090 = 7.5 Tons (60 Hz)

120 = 10 Tons (60 Hz)

150 = 12.5 Tons (60 Hz)

180 = 15 Tons (60 Hz)

240 = 20 Tons (60 Hz)

300 = 25 Tons (60 Hz)

Digit 7 — Refrigerant

4 = R-410A

Digit 8 — Voltage

1 = 208-230 Vac - 1 PH (60 Hz)

3 = 208-230 Vac - 3 PH (60 Hz)

4 = 460 Vac - 3 PH (60 Hz)

K = 380 Vac - 3 PH (60 Hz)

W = 575 Vac - 3 PH (60 Hz)

Digit 9 — Refrigeration Circuit/Stage

A = Single Circuit

B = Dual Circuit

Digit 10 — Major Design Sequence

A = Rev A

Digit 11 — Minor Design Sequence

A = Rev A

B = Rev B

Digit 12, 13 — Service Digits

**

Digit 14 — Efficiency Generation

A = Generation A

B = Generation B

Digit 15 — Controls

1 = Constant Volume

C = 2 Stage Airflow (Electromechanical Cond Only)

D = 2 Stage Airflow/Single Zone VAV (Symbio Cond Only)

Digit 16 — Indoor Fan Sizes

0 = Standard Motor

4 = High Static – (Oversized Motor for VFD Units)

Digit 17 to 40 — None

0 = None



General Data

Table 6. General data — 6-7.5 tons (TTA0724*A*-TTA0904*D*) condensing units — 60 Hz

	6 Tons	6 Tons	7.5 Tons	7.5 Tons
	Single Compressor TTA0724*A*	Dual Compressor TTA0724*D*	Single Compressor TTA0904*A*	Dual Compressor TTA0904*D*
Cooling Performance - Gross Cooling Capacity				
Matched Air Handler	TWE0904*A*	TWE0724*B*	TWE0904*A*	TWE0904*B*
AHRI Rated Airflow	2,400	2,400	3,000	3000
Gross Cooling Capacity - System	78,000	77,000	98,000	96,000
Condensing Unit Only	70,000	68,000	92,000	92,000
AHRI Net Cooling Capacity	76,000	75,000	95,000	93,000
Efficiency				
Matched Air Handler (EER)	11.5	11.5	11.5	11.5
Condensing Unit Only (EER)	13.6	12.0	12.7	12.8
System (IEER)	14.8	14.8	14.8	14.8
System kW/Condensing Unit kW	5.5 / 4.9	5.7 / 5.2	8.1 / 7.1	8.0 / 7.0
Compressor				
Type	Scroll	Scroll	Scroll	Scroll
No./Tons	1 / 5.1	2 / 2.4	1 / 6.9	2 / 3.3
System Data				
No. Refrigerant Circuits ^(a)	1	2	1	2
Suction Line Connection (in.) OD ^(a)	1 1/8	7/8	1 3/8	1 1/8
Liquid Line Connection (in.) OD ^(a)	1/2	1/2	1/2	1/2
Outdoor Coil				
Type	MCHE	MCHE	MCHE	MCHE
Tube Size OD/Coil Width MCHE (in.)	0.8	0.8	0.8	0.8
Face Area (sq ft)	18.5	17.4	18.5	17.4
Rows/FPI (Fins per inch)	1/23	1/23	1/23	1/23
Outdoor Fan				
Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter (in.)	1/26	1/26	1/26	1/26
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM	5,700	5,700	5,700	5,700
No. Motor/HP	1/0.5	1/0.5	1/0.5	1/0.5
Motor RPM	1,100	1,100	1,100	1,100
Refrigerant Charge (Field Supplied)				
lbs of R-410A	10.0	7.0 / 7.0	10.4	7.1 / 7.5
Shipping Dimensions				
HxVxD (in.)	45" x 45.25" x 39"	45" x 45.25" x 39"	45" x 45.25" x 39"	45" x 45.25" x 39"

Notes:

- 6 - 10 ton and 20 - 25 ton condensing units are tested in accordance with AHRI Standard 365.
- 12.5 and 15 ton condensing units are AHRI Certified to AHRI Standard 365.
- 6 - 20 ton units are AHRI Certified to AHRI Standard 340-360 (I-P). Rating conditions are 95°F outdoor air temperature, 80°F entering dry bulb, 67°F entering wet bulb with 25ft of interconnecting refrigerant piping with minimum external static pressure as determined by rating standard.
- 25 ton units are tested in accordance with AHRI Standard 340-360.

^(a) Refer to refrigerant piping applications manual for line sizing and line length.



General Data

Table 7. General data — 10-12.5 tons (TTA1204*D*-TTA1504*D*) condensing units — 60 Hz

	10 Tons	10 Tons	12.5 Tons
	Dual Compressor TTA1204*D*	Manifolded Compressor TTA1204*C*	Dual Compressor TTA1504*D*
Cooling Performance - Gross Cooling Capacity			
Matched Air Handler	TWE1204*B*	TWE1204*A*	TWE1504*B*
AHRI Rated Airflow	4,000 ^(a)	4,000 ^(a)	5,000
Gross Cooling Capacity - System	120,000	126,000	159,000
Condensing Unit Only	112,000	116,000	150,000
AHRI Net Cooling Capacity	116,000	122,000 ^(b)	155,000
Efficiency			
Matched Air Handler (EER)	11.5	11.5	11.2
Condensing Unit Only (EER)	12.7	12.5	12.0
System (IEER)	14.8	14.8	14.2
System kW/Condensing Unit kW	9.6 / 8.4	10.0 / 8.8	13.4 / 12.0
Compressor			
Type	Scroll	Manifolded Scrolls	Scroll
No./Tons	2 / 4.1	2 / 4.3	2 / 5.6
System Data			
No. Refrigerant Circuits ^(c)	2	1	2
Suction Line Connection (in.) OD ^(c)	1 1/8	1 3/8	1 1/8
Liquid Line Connection (in.) OD ^(c)	1/2	1/2	1/2
Outdoor Coil			
Type	MCHE	MCHE	MCHE
Tube Size OD/Coil Width MCHE (in.)	0.8	0.8	1.0
Face Area (sq ft)	22.7	23.8	27.0
Rows/FPI (Fins per inch)	1/23	1/23	1/23
Outdoor Fan			
Type	Propeller	Propeller	Propeller
No. Used/Diameter (in.)	1/28	1/28	1/28
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1
CFM	8,800	8,800	8,800
No. Motor/HP	1/1	1/1	1/1
Motor RPM	1,125	1,125	1,125
Refrigerant Charge (Field Supplied)			
lbs of R-410A	8.2 / 8.4	13.1	10.4/10.4
Shipping Dimensions			
HxWxD (in.)	45" x 55" x 42"	45" x 55" x 42"	52.1" x 55" x 42"

Notes:

1. 6 - 10 ton and 20 - 25 ton condensing units are tested in accordance with AHRI Standard 365.
2. 12.5 and 15 ton condensing units are AHRI Certified to AHRI Standard 365.
3. 6 - 20 ton units are AHRI Certified to AHRI Standard 340-360 (I-P). Rating conditions are 95°F outdoor air temperature, 80°F entering dry bulb, 67°F entering wet bulb with 25ft of interconnecting refrigerant piping with minimum external static pressure as determined by rating standard.
4. 25 ton units are tested in accordance with AHRI Standard 340-360.

^(a) For single phase application, AHRI Rated Airflow will be 3,500

^(b) For single phase application, AHRI Net Cooling Capacity will be 121,000 Btu/hr

^(c) Refer to refrigerant piping applications manual for line sizing and line length.

Table 8. General data — 15-25 tons (TTA1804*D*-TTA3004*C*) condensing units — 60 Hz

	15 Tons	15 Tons	20 Tons	20 Tons	25 Ton
	Dual Compressor TTA1804*D*	Manifolded Compressor TTA1804*C*	Dual Compressor TTA2404*D*	Manifolded Compressor TTA2404*C*	Manifolded Compressor TTA3004*C*
Cooling Performance - Gross Cooling Capacity					
Matched Air Handler	TWE1804*B*	TWE1804*B*	TWE2404*B*	TWE2404*B*	TWE3004*B*
AHRI Rated Airflow	6,000	6,000	8,000	8,000	8,750
Gross Cooling Capacity - System	198,000	194,000	254,000	258,000	308,000
Condensing Unit Only	190,000	182,000	252,000	266,000	316,000
AHRI Net Cooling Capacity	193,000	188,000	246,000	250,000	297,000
Efficiency					
Matched Air Handler (EER)	11.2	11.2	10.2	10.2	10.1
Condensing Unit Only (EER)	12.7	12.8	12.5	12.1	11.7
System (IEER)	14.2	14.2	13.2	13.2	13.2
System kW/Condensing Unit kW	15.8 / 14.2	15.1 / 13.3	21.2 / 18.9	23.4 / 21.2	28.6 / 25.5
Compressor					
Type	Scroll	Manifolded Scrolls	Scroll	Manifolded Scroll	Manifolded Scrolls
No./Tons	2 / 6.9	1 / 7.6, 1 / 5.6	1 / 10.2, 1 / 8.7	2 / 10.0	2 / 11.8
System Data					
No. Refrigerant Circuits ^(a)	2	1	2	1	1
Suction Line Connection (in.) OD ^(a)	1 3/8	1 5/8	1 3/8	1 5/8	2 1/8
Liquid Line Connection (in.) OD ^(a)	1/2	5/8	1/2	5/8	5/8
Outdoor Coil					
Type	MCHE	MCHE	MCHE	MCHE	MCHE
Tube Size OD/Coil Width MCHE (in.)	0.8	0.8	0.8	0.8	1.0
Face Area (sq ft)	44.3	44.3	44.3	44.3	51.3
Rows/FPI (Fins per inch)	1/23	1/23	1/23	1/23	1/23
Outdoor Fan					
Type	Propeller	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter (in.)	2/28	2/28	2/28	2/28	2/28
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1	Direct/1
CFM	17,000	17,000	17,000	17,000	17,000
No. Motor/HP	2/1	2/1	2/1	2/1	2/1
Motor RPM	1,125	1,125	1,125	1,125	1,125
Refrigerant Charge (Field Supplied)					
lbs of R-410A	11.5 / 11.5	22.5	11.2 / 11.2	23.8	29.8
Shipping Dimensions					
HxWxD (in.)	51.1" x 96" x 48"	51.1" x 96" x 48"	51.1" x 96" x 48"	51.1" x 96" x 48"	57.1" x 96" x 48"

Notes:

- 6 - 10 ton and 20 - 25 ton condensing units are tested in accordance with AHRI Standard 365.
- 12.5 and 15 ton condensing units are AHRI Certified to AHRI Standard 365.
- 6 - 20 ton units are AHRI Certified to AHRI Standard 340-360 (I-P). Rating conditions are 95°F outdoor air temperature, 80°F entering dry bulb, 67°F entering wet bulb with 25ft of interconnecting refrigerant piping with minimum external static pressure as determined by rating standard.
- 25 ton units are tested in accordance with AHRI Standard 340-360.

^(a) Refer to refrigerant piping applications manual for line sizing and line length.



General Data

Table 9. General data - 6-10 tons (TWE0724*B* - TWE1204*B*) SZVAV and 2-speed VFD air handler - 60hz

	6 Tons	7.5 Tons	7.5 Tons	10 Tons	10 Tons
	Dual Circuit TWE07243B*, 4B*, WB*	Single Circuit TWE09043A*, 4A*, WA*	Dual Circuit TWE09043B*, 4B*, WB*	Single Circuit TWE12043A*, 4A*, WA*	Dual Circuit TWE12043B*, 4B*, WB*
System Data					
No. Refrigerant Circuits	2	1	2	1	2
Suction Line Connection (in.) OD	1-1/8	1-3/8	1-1/8	1-3/8	1-1/8
Liquid Line Connection (in.) OD	1/2	1/2	1/2	1/2	1/2
Indoor Coil					
Type	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined
Tube Size (in.)	0.375	0.375	0.375	0.375	0.375
Face Area (sq. ft.)	8.1	8.1	8.1	11.2	11.2
Rows/FPI (Fins per inch)	4/14	4/14	4/14	4/14	4/14
Refrigerant Control	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve
Drain Connection Size (in.)	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC
Indoor Fan					
Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
No. Used/Diameter x Width (in.)	1/15x15	1/15x15	1/15x15	1/15x15	1/15x15
Drive Type/No. Speeds	Belt/VFD Variable	Belt/VFD Variable	Belt/VFD Variable	Belt/VFD Variable	Belt/VFD Variable
CFM (Nominal)	2400	3000	3000	4000	4000
No. Motors	1	1	1	1	1
Motor HP - Standard/Oversized	2.0/3.0	2.0/3.0	2.0/3.0	2.0/3.0	2.0/3.0
Motor RPM	1725	1725	1725	1725	1725
Motor Frame Size	56 H	56 H	56 H	56 H	56 H
Filters^(a)					
Type/Furnished	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes
(No.)/Size Recommended	(3) 16x25x1	(3) 16x25x1	(3) 16x25x1	(4) 16x25x1	(4) 16x25x1
MERV 13 (No.)/Size Recommended	(3) 16x25x2	(3) 16x25x2	(3) 16x25x2	(4) 16x25x2	(4) 16x25x2
Shipping Dimensions					
HxWxD (in.)	61.2" x 30.5" x 53"	61.2" x 30.5" x 53"	61.2" x 30.5" x 53"	61.2" x 30.5" x 69"	61.2" x 30.5" x 69"

^(a) One inch, throw-away filters shall be standard on TWE060, TWE072, TWE090, TWE120 model air handlers from the factory. The filter rack can be field converted to two inch capability. Two inch, throw-away filters shall be standard on TWE1504*B, TWE1804*B, and TWE2404*B models.

Table 10. General data - 12.5-25 tons (TWE1504*B* - TWE3004*B*) SZVAV and 2-speed VFD air handler - 60hz

	12.5 Tons	15 Tons	20 Tons	25 Tons
	Dual Circuit TWE15043B*, 4B*, WB*	Dual Circuit TWE18043B*, 4B*, WB*	Dual Circuit TWE24043B*, 4B*, WB*	Dual Circuit TWE30043B*, 4B*, WB*
System Data				
No. Refrigerant Circuits	2	2	2	2
Suction Line Connection (in.) OD	1-3/8	1-3/8	1-3/8	1-3/8
Liquid Line Connection (in.) OD	1/2	1/2	5/8	5/8
Indoor Coil				
Type	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Face Split
Tube Size (in.)	0.375	0.375	0.375	0.375
Face Area (sq. ft.)	16.3	16.3	21.7	21.7
Rows/FPI (Fins per inch)	4/14	4/14	3/14	4/14
Refrigerant Control	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve
Drain Connection Size (in.)	1 PVC	1 PVC	1 PVC	1 PVC
Indoor Fan				
Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal
No. Used/Diameter x Width (in.)	2/15x15	2/15x15	2/15x15	2/15x15
Drive Type/No. Speeds	Belt/VFD Variable	Belt/VFD Variable	Belt/VFD Variable	Belt/VFD Variable
CFM (Nominal)	5000	6000	8000	8750

Table 10. General data - 12.5-25 tons (TWE1504*B* - TWE3004*B*) SZVAV and 2-speed VFD air handler - 60hz (continued)

No. Motors	1	1	1	1
Motor HP - Standard/Oversized	2.0/5.0	3.0/5.0	5.0/7.5	7.5 ^(a)
Motor RPM	1725/3450	1725/3450	3450	3450
Motor Frame Size	56 H	56 H	56 H/184 T	184 T
Filters^(b)				
Type/Furnished	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes
(No.)/Size Recommended	(8) 15x20x2	(8) 15x20x2	(4) 16x25x2 (4) 16x20x2	(4) 16x25x2 (4) 16x20x2
MERV 13 (No.)/Size Recommended	(8) 15x20x2	(8) 15x20x2	(4) 16x25x2 (4) 16x20x2	(4) 16x25x2 (4) 16x20x2
Shipping Dimensions				
HxWxD (in.)	76.3" x 33.3" x 85"	76.3" x 33.3" x 85"	79.1" x 35.8" x 95"	79.1" x 35.8" x 95"

^(a) Standard motor only

^(b) One inch, throw-away filters shall be standard on TWE060, TWE072, TWE090, TWE120 model air handlers from the factory. The filter rack can be field converted to two inch capability. Two inch, throw-away filters shall be standard on TWE150, TWE180, TWE240, and TWE300 models.

Table 11. General data - 5-7.5 tons (TWE0604*A* - TWE0904*B*) constant volume air handler - 60hz

		5 Tons	5 Tons	6 Tons	7.5 Tons	7.5 Tons
		Single Circuit TWE06043A*, 4A*, WA*, KA*, 1A*	Dual Circuit TWE06043B*, 4B*, 1B*	Dual Circuit TWE0724KB*	Single Circuit TWE09041A*, KA*	Dual Circuit TWE09041B*, KB*
System Data						
No. Refrigerant Circuits		1	2	2	1	2
Suction Line Connection (in.) OD		1-1/8	1-1/8	1-1/8	1-3/8	1-1/8
Liquid Line Connection (in.) OD		1/2	1/2	1/2	1/2	1/2
Indoor Coil						
Type		Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined
Tube Size (in.)		0.375	0.375	0.375	0.375	0.375
Face Area (sq. ft.)		5	5	8.1	8.1	8.1
Rows/FPI (Fins per inch)		4/14	4/14	3/14	4/14	4/14
Refrigerant Control		Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve
Drain Connection Size (in.)		1 PVC	1 PVC	1 PVC	1 PVC	1 PVC
Indoor Fan						
Type		Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
No. Used/Diameter x Width (in.)		1/12x12	1/12x12	1/15x15	1/15x15	1/15x15
Drive Type/No. Speeds		Belt/Adjustable	Belt/Adjustable	Belt/Adjustable	Belt/Adjustable	Belt/Adjustable
CFM (Nominal)		2000	2000	2400	3000	3000
No. Motors		1	1	1	1	1
Motor HP - Standard/Oversized		0.75/1.5	0.75/1.5	1.5 ^(a)	1.5/2.0 ^(b)	1.5/2.0 ^(b)
Motor RPM		1725	1725	1725	1725	1725
Motor Frame Size		56 H	56 H	56 H	56 H	56 H
Filters^(c)						
Type/Furnished		Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes
(No.)/Size Recommended		(1) 16x20x1 (1) 20x20x1	(1) 16x20x1 (1) 20x20x1	(3) 16x25x1	(3) 16x25x1	(3) 16x25x1
MERV 13 (No.)/Size Recommended		(1) 16x20x2 (1) 20x20x2	(1) 16x20x2 (1) 20x20x2	(3) 16x25x2	(3) 16x25x2	(3) 16x25x2
Shipping Dimensions						
HxWxD (in.)		55.1" x 27.5" x 43.5"	55.1" x 27.5" x 43.5"	61.2" x 30.5" x 53"	61.2" x 30.5" x 53"	61.2" x 30.5" x 53"

(a) Standard motor only ; 4KB* does not have any oversize motor

(b) 2hp oversized motor for 41A/B only

(c) One inch, throw-away filters shall be standard on TWE060, TWE072, TWE090, TWE120 model air handlers from the factory. The filter rack can be field converted to two inch capability.
Two inch, throw-away filters shall be standard on TWE150, TWE180, TWE240 & TWE300 models

Table 12. General data -10-25 tons (TWE1204A* - TWE3004KB*) constant volume air handler - 60hz

	10 Tons	10 Tons	12.5 Tons	15 Tons	20 Tons	25 Tons
	Single Circuit TWE12041A*, KA*	Dual Circuit TWE12041B*, KB*	Dual Circuit TWE1504KB*	Dual Circuit TWE1804KB*	Dual Circuit TWE2404KB*	Dual Circuit TWE3004KB*
System Data						
No. Refrigerant Circuits	1	2	2	2	2	2
Suction Line Connection (in.) OD	1-3/8	1-1/8	1-3/8	1-3/8	1-3/8	1-3/8
Liquid Line Connection (in.) OD	1/2	1/2	1/2	1/2	5/8	5/8
Indoor Coil						
Type	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Intertwined	Lanced/Face Split
Tube Size (in.)	0.375	0.375	0.375	0.375	0.375	0.375
Face Area (sq. ft.)	11.2	11.2	16.3	16.3	21.7	21.7
Rows/FPI (Fins per inch)	4/14	4/14	4/14	4/14	3/14	4/14
Refrigerant Control	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve
Drain Connection Size (in.)	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC
Indoor Fan						
Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
No. Used/Diameter x Width (in.)	1/15x15	1/15x15	2/15x15	2/15x15	2/15x15	2/15x15
Drive Type/No. Speeds	Belt/Adjustable	Belt/Adjustable	Belt/Adjustable	Belt/VFD Variable	Belt/VFD Variable	Belt/VFD Variable
CFM (Nominal)	4000	4000	5000	6000	8000	8750
No. Motors	1	1	1	1	1	1
Motor HP - Standard/Oversized	2.0 ^(a)	2.0 ^(a)	2.0 ^(b)	3.0 ^(b)	5.0 ^(b)	7.5 ^(b)
Motor RPM	1725	1725	1725	1725	1725	3450
Motor Frame Size	56 H	56 H	56 H	56 H	56 H	184 T
Filters^(c)						
Type/Furnished	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes
(No.)/Size Recommended	(4) 16x25x1	(4) 16x25x1	(8) 15x20x2	(8) 15x20x2	(4) 16x25x2 (4) 16x20x2	(4) 16x25x2 (4) 16x20x2
MERV 13 (No.)/Size Recommended	(4) 16x25x2	(4) 16x25x2	(8) 15x20x2	(8) 15x20x2	(4) 16x25x2 (4) 16x20x2	(4) 16x25x2 (4) 16x20x2
Shipping Dimensions						
HxWxD (in.)	61.2" x 30.5" x 69"	61.2" x 30.5" x 69"	76.3" x 33.3" x 85"	76.3" x 33.3" x 85"	79.1" x 35.8" x 95"	79.1" x 35.8" x 95"

^(a) Standard motor only, 1204(1) does not have any oversize motor.

^(b) Standard motor only; 4KB* does not have any oversize motor.

^(c) One inch, throw-away filters shall be standard on TWE060, TWE072, TWE090, TWE120 model air handlers from the factory. The filter rack can be field converted to two inch capability. Two inch, throw-away filters shall be standard on TWE180 and TWE240 models.



Performance Data

Gross Cooling Capacities

Table 13. Gross cooling capacities (MBH) 6 tons TTA0724*A condensing unit with 7.5 tons TWE0904*A air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2160	75	72.8	61.9	79.9	47.5	87.0	32.0	70.0	60.5	76.8	46.2	83.6	30.8	66.9	59.0	73.3	44.8	80.0	29.5
	80	73.5	73.5	79.8	59.0	86.7	43.9	70.9	70.9	76.7	57.6	83.4	42.7	68.2	68.2	73.3	56.2	79.7	41.4
	85	77.1	77.1	80.0	70.5	86.5	55.6	74.5	74.5	76.9	69.2	83.1	54.3	71.8	71.8	73.6	67.7	79.5	52.9
	90	80.8	80.8	80.8	80.8	86.4	67.0	78.0	78.0	78.2	78.2	83.0	65.8	75.2	75.2	75.3	75.3	79.4	64.4
2400	75	74.2	65.6	81.1	49.7	88.0	32.5	71.3	64.2	77.8	48.4	84.6	31.3	68.1	62.7	74.3	47.0	80.9	30.0
	80	75.7	75.7	81.0	62.3	87.7	45.7	73.1	73.1	77.8	61.0	84.3	44.5	70.4	70.4	74.4	59.5	80.6	43.3
	85	79.5	79.5	81.3	75.2	87.5	58.6	76.8	76.8	78.2	73.8	84.1	57.3	74.0	74.0	74.8	72.4	80.4	55.9
	90	83.1	83.1	83.2	83.2	87.4	71.3	80.3	80.3	80.4	80.4	84.0	70.0	77.3	77.3	77.4	77.4	80.3	68.6
2640	75	75.4	69.3	82.1	51.7	88.8	33.0	72.4	67.9	78.7	50.6	85.4	31.8	69.2	66.4	75.2	48.9	81.6	30.6
	80	77.7	77.7	82.0	65.6	88.6	47.6	75.0	75.0	78.8	64.3	85.1	46.4	72.1	72.1	75.3	62.8	81.3	45.1
	85	81.5	81.5	82.5	79.8	88.3	61.5	78.7	78.7	79.3	78.5	84.8	60.2	75.8	75.8	76.0	76.0	81.1	58.8
	90	85.0	85.0	85.2	85.2	88.2	75.6	82.2	82.2	82.3	82.3	84.8	74.3	79.1	79.1	79.1	79.1	81.1	72.9
2880	75	76.4	72.9	82.9	53.7	89.5	33.5	73.4	71.5	79.5	52.3	86.0	32.4	70.2	70.0	76.0	50.8	82.2	31.1
	80	79.4	79.4	82.9	68.9	89.3	49.4	76.7	76.7	79.6	67.5	85.8	48.3	73.7	73.7	76.1	66.1	81.9	47.0
	85	83.2	83.2	83.5	83.5	88.9	64.4	80.3	80.3	80.5	80.5	85.4	63.1	77.3	77.3	77.3	77.3	81.6	61.7
	90	86.7	86.7	86.8	86.8	89.1	79.9	83.7	83.7	83.8	83.8	85.4	78.5	80.5	80.5	80.5	80.5	81.7	77.1
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						135					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2160	75	63.6	57.4	69.6	43.4	76.2	28.2	60.0	55.7	65.5	41.8	71.8	26.7						
	80	65.4	65.4	69.7	54.7	75.9	40.1	62.2	62.2	65.8	53.0	71.5	38.6						
	85	68.8	68.8	70.1	66.2	75.7	51.5	65.6	65.6	66.2	64.6	71.4	49.9						
	90	72.1	72.1	72.2	72.2	75.6	62.9	68.7	68.7	68.8	68.8	71.4	61.3						
2400	75	64.7	61.1	70.5	45.5	76.9	28.7	61.1	59.4	66.6	43.6	72.6	27.2						
	80	67.4	67.4	70.8	58.0	76.7	41.9	64.1	64.1	66.8	56.3	72.2	40.5						
	85	70.8	70.8	71.3	70.9	76.5	54.4	67.4	67.4	67.5	67.5	72.2	52.8						
	90	74.1	74.1	74.2	74.2	76.4	67.2	70.5	70.5	70.6	70.6	72.2	65.6						
2640	75	65.8	64.8	71.5	47.3	77.6	29.2	62.2	62.2	67.3	45.5	73.1	27.8						
	80	69.0	69.0	71.6	61.3	77.3	43.8	65.6	65.6	67.5	59.6	72.8	42.3						
	85	72.5	72.5	72.6	72.6	77.1	57.3	68.9	68.9	69.0	69.0	72.7	55.7						
	90	75.7	75.7	75.8	75.8	77.1	71.4	72.0	72.0	72.0	72.0	72.8	69.8						
2880	75	66.8	66.8	72.1	49.2	78.2	29.8	63.3	63.3	67.9	47.5	73.6	28.3						
	80	70.5	70.5	72.3	64.5	77.9	45.7	66.9	66.9	68.2	62.8	73.3	44.2						
	85	73.9	73.9	74.0	74.0	77.6	60.3	70.2	70.2	70.3	70.3	73.2	58.6						
	90	77.0	77.0	77.1	77.1	77.7	75.7	73.1	73.1	73.2	73.2	73.4	73.4						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 14. Gross cooling capacities (MBH) 6 tons TTA0724*D condensing unit with 6 tons TWE0724*B air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2160	75	71.0	61.4	79.2	47.3	88.7	32.6	67.7	59.8	75.4	45.8	84.7	31.2	64.2	58.2	71.4	44.2	80.3	29.6
	80	72.0	72.0	79.1	59.0	88.4	44.6	69.2	69.2	75.5	57.5	84.3	43.2	66.3	66.3	71.5	55.9	80.0	41.6
	85	76.2	76.2	79.5	70.8	88.1	56.5	73.4	73.4	75.9	69.3	84.1	55.0	70.3	70.3	72.0	67.6	79.8	53.4
	90	80.8	80.8	80.8	80.8	88.2	68.2	77.7	77.7	77.8	77.8	84.3	66.7	74.5	74.5	74.6	74.6	80.0	65.1
2400	75	72.5	65.2	80.6	49.6	90.1	33.2	69.1	63.7	76.7	48.1	86.0	31.8	65.5	62.0	72.6	46.5	81.5	30.3
	80	74.6	74.6	80.6	62.6	89.8	46.6	71.7	71.7	76.9	61.0	85.6	45.1	68.5	68.5	72.8	59.3	81.2	43.6
	85	79.0	79.0	81.1	75.7	89.6	59.8	76.0	76.0	77.5	74.2	85.5	58.2	72.8	72.8	73.6	72.5	81.2	56.6
	90	83.6	83.6	83.8	83.8	89.8	72.8	80.5	80.5	80.7	80.7	85.8	71.3	77.2	77.2	77.3	77.3	81.5	69.7
2640	75	73.8	69.1	81.7	51.9	91.3	33.9	70.3	67.5	77.8	50.3	87.0	32.4	66.7	65.8	73.7	48.6	82.4	30.9
	80	76.8	76.8	81.9	66.1	91.0	48.5	73.8	73.8	78.1	64.5	86.7	47.1	70.5	70.5	73.9	62.8	82.1	45.6
	85	81.5	81.5	82.7	80.6	90.9	62.9	78.4	78.4	79.0	78.9	86.7	61.4	75.0	75.0	75.2	75.2	82.2	59.8
	90	86.2	86.2	86.4	86.4	91.2	77.3	83.1	83.1	83.2	83.2	87.1	75.8	79.6	79.6	79.7	79.7	82.7	74.2
2880	75	75.0	72.8	82.8	54.0	92.3	34.5	71.5	71.2	78.8	52.4	87.9	33.0	67.9	67.8	74.5	50.7	83.3	31.5
	80	78.8	78.8	83.0	69.5	92.0	50.5	75.7	75.7	79.1	67.9	87.6	49.0	72.3	72.3	74.9	66.2	83.0	47.4
	85	83.7	83.7	84.1	84.1	92.0	66.1	80.4	80.4	80.6	80.6	87.7	64.5	76.9	76.9	77.0	77.0	83.2	62.9
	90	88.6	88.6	88.7	88.7	92.4	81.8	85.3	85.3	85.4	85.4	88.2	80.3	81.7	81.7	81.8	81.8	83.8	78.7
CFM		Ambient Temperature (°F)						Ambient Temperature (°F)											
		115						125											
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)											
		61		67		73		61		67		73							
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC						
2160	60.6	56.5	67.2	42.5	75.6	28.0	-	-	-	-	70.6	26.3							
	63.1	63.1	67.4	54.1	75.2	40.0	-	-	62.9	52.3	70.2	38.3							
	67.0	67.0	68.0	66.0	75.2	51.7	63.5	63.5	64.0	62.8	70.4	49.9							
	71.1	71.1	71.2	71.2	75.5	63.5	67.4	67.4	67.6	67.6	70.7	61.7							
2400	61.8	60.3	68.3	44.7	76.6	28.6	-	-	63.5	42.7	71.5	26.9							
	65.2	65.2	68.6	57.6	76.3	42.0	61.2	61.2	64.1	55.7	71.2	40.2							
	69.3	69.3	69.7	69.1	76.4	54.9	65.6	65.6	65.7	65.7	71.4	53.1							
	73.6	73.6	73.7	73.7	76.8	68.0	69.7	69.7	69.9	69.9	71.9	66.2							
2640	63.0	62.5	69.3	46.8	77.5	29.2	-	-	64.5	44.8	72.2	27.5							
	67.0	67.0	69.6	61.0	77.2	43.8	63.2	63.2	65.1	59.2	72.1	42.0							
	71.3	71.3	71.5	71.5	77.5	58.0	67.5	67.5	67.6	67.6	72.4	56.2							
	75.8	75.8	75.9	75.9	78.0	72.5	71.8	71.8	71.9	71.9	73.0	70.7							
2880	64.3	64.3	70.0	48.8	78.2	29.8	-	-	65.2	46.9	72.8	28.0							
	68.6	68.6	70.5	64.5	78.0	45.6	64.7	64.7	65.9	62.6	72.8	43.7							
	73.1	73.1	73.2	73.2	78.3	61.2	69.1	69.1	69.2	69.2	73.2	59.3							
	77.8	77.8	77.9	77.9	79.1	77.0	73.6	73.6	73.7	73.7	74.2	73.8							

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 15. Gross cooling capacities (MBH) 7.5 tons TTA0904*A condensing unit with 7.5 tons TWE0904*A air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	92.7	77.9	101.4	59.7	109.7	40.1	88.3	75.8	96.6	57.7	104.5	38.2	83.5	73.5	91.3	55.5	98.9	36.2
	80	93.7	92.6	101.4	74.2	109.6	55.0	89.5	89.5	96.6	72.2	104.4	53.1	85.2	85.2	91.4	69.9	98.8	51.1
	85	97.7	97.7	101.8	88.6	109.6	69.8	93.9	93.9	97.1	86.6	104.4	67.9	89.6	89.6	92.0	84.4	98.8	65.8
	90	102.8	102.8	102.8	102.8	109.6	84.2	98.2	98.2	98.4	98.4	104.4	82.2	93.8	93.8	94.0	94.0	98.9	80.1
3000	75	94.4	82.5	102.8	62.3	110.9	40.7	89.9	80.4	97.8	60.3	105.5	38.8	85.0	78.0	92.5	58.2	99.8	36.8
	80	95.9	95.9	102.8	78.4	110.8	57.2	92.0	92.0	98.0	76.3	105.5	55.3	87.7	87.7	92.7	74.0	99.8	53.4
	85	100.6	100.6	103.3	94.4	110.8	73.6	96.6	96.6	98.6	92.3	105.4	71.6	92.1	92.1	93.4	90.1	99.7	69.4
	90	105.1	105.1	105.3	105.3	110.8	89.5	100.9	100.9	101.0	101.0	105.5	87.5	96.3	96.3	96.4	96.4	99.9	85.3
3300	75	95.8	87.1	103.9	65.0	111.8	41.3	91.2	84.9	98.9	63.0	106.4	39.4	86.3	82.6	93.4	60.9	100.6	37.4
	80	98.4	98.4	104.0	82.5	111.8	59.5	94.3	94.3	99.1	80.4	106.4	57.6	89.8	89.8	93.7	78.1	100.6	55.6
	85	103.1	103.1	104.7	100.2	111.7	77.3	98.8	98.8	99.8	98.1	106.3	75.2	94.2	94.2	94.7	94.7	100.5	73.1
	90	107.5	107.5	107.6	107.6	112.1	94.9	103.1	103.1	103.2	103.2	106.5	92.8	98.2	98.2	98.3	98.3	100.7	90.6
3600	75	97.1	91.6	104.9	67.6	112.7	41.9	92.4	89.5	99.8	65.7	107.2	40.0	87.4	87.1	94.2	63.5	101.3	38.0
	80	100.4	100.4	105.0	86.5	112.6	61.7	96.2	96.2	100.0	84.4	107.1	59.9	91.6	91.6	94.6	82.2	101.2	57.9
	85	105.1	105.1	105.9	105.9	112.7	81.0	100.7	100.7	101.1	101.1	107.0	78.9	95.9	95.9	96.0	96.0	101.1	76.7
	90	109.5	109.5	109.6	109.6	113.3	100.3	104.9	104.9	105.0	105.0	107.2	98.1	99.8	99.8	99.9	99.9	101.4	95.9
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	78.3	71.0	85.6	53.2	92.7	34.0	72.7	68.3	79.2	50.7	86.0	31.7						
	80	80.7	80.7	85.8	67.5	92.7	48.9	75.6	75.6	79.6	64.9	86.0	46.6						
	85	84.9	84.9	86.4	82.0	92.7	63.4	79.7	79.7	80.4	79.4	86.0	60.9						
	90	88.9	88.9	89.1	89.1	92.8	77.7	83.5	83.5	83.6	83.6	86.2	75.2						
3000	75	79.7	75.5	86.6	55.9	93.6	34.7	73.9	72.8	80.2	53.1	86.7	32.3						
	80	83.0	83.0	86.9	71.6	93.6	51.2	77.7	77.7	80.6	68.9	86.7	48.9						
	85	87.2	87.2	87.8	87.7	93.5	67.1	81.7	81.7	81.8	81.8	86.7	64.5						
	90	91.1	91.1	91.2	91.2	93.7	83.0	85.3	85.3	85.4	85.4	87.0	80.5						
3300	75	80.9	80.1	87.4	58.6	94.3	35.3	75.1	75.1	81.0	55.5	87.4	33.0						
	80	84.9	84.9	87.8	75.7	94.3	53.5	79.4	79.4	81.4	73.0	87.3	51.2						
	85	89.1	89.1	89.2	89.2	94.2	70.7	83.4	83.4	83.4	83.4	87.3	68.2						
	90	92.8	92.8	92.9	92.9	94.4	88.3	86.8	86.8	86.9	86.9	87.6	85.7						
3600	75	82.1	82.1	88.1	61.2	94.9	35.9	76.5	76.5	81.6	58.0	87.9	33.6						
	80	86.5	86.5	88.6	79.7	94.9	55.8	80.8	80.8	82.2	77.0	87.8	53.5						
	85	90.6	90.6	90.7	90.7	94.7	74.4	84.7	84.7	84.8	84.8	87.7	71.8						
	90	94.3	94.3	94.3	94.3	95.1	93.5	88.0	88.0	88.1	88.1	88.3	88.3						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 16. Gross cooling capacities (MBH) 7.5 tons TTA0904*D condensing unit with 7.5 tons TWE0904*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	91.5	77.8	99.9	59.1	109.3	40.1	87.2	75.8	95.1	57.2	102.7	37.7	82.5	73.7	90.0	55.1	96.9	35.7
	80	92.2	90.8	99.7	73.8	108.0	54.5	88.3	88.2	94.9	71.8	102.4	52.5	84.2	84.2	89.8	69.8	96.7	50.5
	85	96.3	96.3	99.8	88.4	107.8	69.3	92.4	92.4	95.1	86.4	102.2	67.3	88.2	88.2	90.1	84.4	96.4	65.3
	90	102.0	100.9	102.0	100.9	107.6	83.9	96.3	96.3	96.4	96.4	103.4	82.4	91.9	91.9	92.0	92.0	96.4	79.9
3000	75	93.1	82.5	101.1	61.8	109.5	40.3	88.6	80.5	96.2	59.8	103.8	38.3	83.9	78.4	91.0	57.8	97.8	36.3
	80	94.3	94.3	102.5	78.7	110.4	57.2	90.7	90.7	96.0	76.0	103.5	54.8	86.5	86.5	90.9	74.0	97.6	52.8
	85	99.0	99.0	101.2	94.2	109.0	73.2	94.9	94.9	96.4	92.3	103.3	71.2	90.5	90.5	91.3	89.9	97.4	69.2
	90	103.1	103.1	103.3	103.3	109.0	89.5	98.7	98.7	98.9	98.9	103.3	87.5	94.1	94.1	94.2	94.2	97.5	85.4
3300	75	94.4	87.2	103.8	65.0	110.5	40.9	89.9	85.1	97.1	62.4	104.6	38.9	85.1	83.0	91.8	60.4	98.6	36.9
	80	96.9	96.9	101.9	82.2	110.3	59.1	92.8	92.8	97.0	80.2	104.4	57.1	88.4	88.4	91.7	78.2	98.4	55.0
	85	102.6	102.6	102.3	100.1	110.1	77.1	96.9	96.9	97.5	96.6	104.2	75.1	92.3	92.3	92.4	92.3	98.2	73.0
	90	105.7	105.7	105.8	105.8	110.1	95.0	101.0	101.0	101.1	101.1	104.3	93.0	96.1	96.1	96.2	96.2	98.3	90.9
3600	75	95.6	91.8	104.6	67.6	111.4	41.6	91.0	89.8	97.8	65.0	105.4	39.5	86.2	85.3	92.4	63.0	99.2	37.5
	80	98.9	98.9	102.9	86.4	112.3	61.7	94.6	94.6	99.6	85.1	105.2	59.4	90.0	90.0	92.4	82.4	99.0	57.3
	85	103.2	103.2	103.8	103.6	110.9	81.0	98.6	98.6	98.9	98.9	104.9	78.9	93.7	93.7	93.9	93.9	98.8	76.8
	90	107.8	107.8	108.9	108.9	111.2	100.6	103.0	103.0	104.2	104.2	105.2	98.5	97.8	97.8	97.9	97.9	99.1	96.4
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	77.8	71.5	84.7	53.1	90.8	33.5	72.6	69.2	78.9	50.8	84.2	31.3						
	80	80.0	80.0	84.5	67.7	90.5	48.4	75.4	75.4	78.8	65.4	84.0	46.2						
	85	83.8	83.8	84.9	82.3	90.3	63.2	78.9	78.9	79.3	77.6	83.8	60.9						
	90	87.1	87.1	87.2	87.2	90.3	77.8	81.9	81.9	81.9	81.9	83.8	75.5						
3000	75	79.0	76.2	85.6	55.7	91.5	34.2	73.7	72.2	79.7	53.5	84.8	31.9						
	80	82.1	82.1	85.5	71.9	91.3	50.7	77.3	77.3	79.7	69.6	84.6	48.4						
	85	85.8	85.8	86.0	85.1	91.1	67.0	80.6	80.6	80.7	80.7	84.3	64.7						
	90	89.0	89.0	89.1	89.1	91.3	83.2	83.4	83.4	83.5	83.5	84.6	81.0						
3300	75	80.1	78.8	86.2	58.3	92.2	34.8	75.0	75.0	80.3	56.0	85.2	32.5						
	80	83.8	83.8	86.2	76.0	92.0	52.9	78.8	78.8	80.4	73.8	85.1	50.7						
	85	87.3	87.3	87.4	87.4	91.8	70.8	81.9	81.9	82.0	82.0	84.9	68.5						
	90	90.8	90.8	90.8	90.8	92.0	88.7	84.8	84.8	84.8	84.8	85.3	83.1						
3600	75	81.3	81.3	86.8	60.8	92.7	35.4	76.3	76.3	80.8	58.5	85.7	33.1						
	80	85.3	85.3	86.9	80.2	92.5	55.2	80.0	80.0	80.9	78.0	85.5	52.9						
	85	88.6	88.6	88.6	88.6	92.3	74.7	84.9	84.9	82.9	82.9	85.4	72.3						
	90	92.2	92.2	92.2	92.2	94.4	91.6	85.9	85.9	85.9	85.9	86.0	86.0						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 17. Gross cooling capacities (MBH) 7.5 tons TTA0904*A condensing unit with 10 tons TWE1204*A air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	94.6	78.9	103.2	60.8	111.4	41.1	90.2	76.8	98.5	58.9	106.5	39.3	85.4	74.5	93.3	56.8	101.2	37.5
	80	95.5	93.6	103.3	75.1	111.4	56.0	91.3	91.3	98.7	73.1	106.5	54.3	86.9	86.9	93.6	70.9	101.1	52.4
	85	99.4	99.4	103.5	89.5	111.3	70.7	95.7	95.7	99.0	87.5	106.4	68.8	91.5	91.5	94.0	85.4	101.1	66.7
	90	104.3	104.1	104.3	104.1	111.4	84.9	99.9	99.9	100.1	100.1	106.3	83.0	95.7	95.7	95.8	95.8	101.0	80.9
3000	75	96.3	83.5	104.7	63.5	112.7	41.7	91.8	81.4	99.9	61.5	107.7	40.0	86.9	79.0	94.5	59.5	102.3	38.1
	80	97.7	97.7	104.7	79.2	112.7	58.3	93.8	93.8	100.0	77.2	107.7	56.6	89.6	89.6	94.8	75.0	102.2	54.8
	85	102.3	102.3	105.0	95.2	112.7	74.3	98.4	98.4	100.5	93.2	107.5	72.3	94.1	94.1	95.4	91.1	102.1	70.3
	90	106.6	106.6	106.8	106.8	113.0	90.3	102.6	102.6	102.7	102.7	107.4	88.2	98.2	98.2	98.3	98.3	102.0	86.1
3300	75	97.7	88.0	105.9	65.9	113.8	42.4	93.2	85.9	101.0	63.9	108.8	40.6	88.2	83.5	95.7	61.6	103.2	38.8
	80	100.1	100.1	105.9	83.2	113.8	60.6	96.2	96.2	101.1	81.2	108.7	58.9	91.7	91.7	95.9	79.0	103.2	57.1
	85	104.7	104.7	106.3	100.8	113.9	78.0	100.7	100.7	101.7	98.9	108.4	75.9	96.2	96.2	96.7	96.7	102.8	73.8
	90	109.0	109.0	109.1	109.1	114.4	95.7	104.8	104.8	104.9	104.9	108.4	93.4	100.2	100.2	100.2	100.2	102.7	91.3
3600	75	98.9	92.5	106.9	68.3	114.8	43.0	94.4	90.3	102.0	66.3	109.6	41.3	89.4	88.0	96.5	64.0	104.0	39.5
	80	102.2	102.2	106.8	87.2	114.7	63.0	98.1	98.1	102.0	85.2	109.6	61.3	93.6	93.6	96.8	83.0	104.0	59.4
	85	106.7	106.7	107.5	106.5	115.0	81.7	102.6	102.6	102.9	102.9	109.0	79.4	97.9	97.9	98.0	98.0	103.4	77.4
	90	111.3	111.3	111.4	111.4	115.6	101.0	106.6	106.6	106.7	106.7	109.4	98.7	101.8	101.8	101.9	101.9	103.4	96.5
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	80.1	71.9	87.3	54.5	95.1	35.4	74.4	69.2	80.7	52.0	88.3	33.1						
	80	82.4	82.4	87.9	68.5	95.1	50.4	77.3	77.3	81.6	65.8	88.3	48.1						
	85	86.8	86.8	88.5	83.0	95.1	64.4	81.6	81.6	82.4	80.3	88.5	61.9						
	90	90.9	90.9	91.0	91.0	95.1	78.7	85.5	85.5	85.6	85.6	88.6	76.2						
3000	75	81.5	76.4	88.7	56.7	96.1	36.1	75.7	73.7	82.2	53.9	89.2	33.8						
	80	84.8	84.8	89.1	72.5	96.1	52.7	79.5	79.5	82.7	69.8	89.1	50.4						
	85	89.2	89.2	89.9	88.7	96.0	68.0	83.7	83.7	83.8	83.8	89.3	65.4						
	90	93.2	93.2	93.3	93.3	96.0	83.9	87.5	87.5	87.6	87.6	89.4	81.4						
3300	75	82.7	80.9	89.7	59.1	97.0	36.8	76.9	76.9	83.1	56.2	89.8	34.5						
	80	86.8	86.8	90.1	76.5	96.9	55.1	81.3	81.3	83.6	73.8	89.8	52.8						
	85	91.2	91.2	91.3	91.3	96.7	71.5	85.5	85.5	85.6	85.6	89.9	68.9						
	90	95.0	95.0	95.1	95.1	96.8	89.1	89.1	89.1	89.2	89.2	90.1	86.5						
3600	75	83.9	83.9	90.5	61.4	97.7	37.4	78.3	78.3	83.8	58.6	90.4	35.1						
	80	88.5	88.5	90.9	80.5	97.7	57.4	82.8	82.8	84.4	77.8	90.4	55.1						
	85	92.8	92.8	92.8	92.8	97.3	75.0	86.9	86.9	87.0	87.0	90.5	72.5						
	90	96.4	96.4	96.5	96.5	97.4	94.2	90.4	90.4	90.5	90.5	90.7	90.7						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 18. Gross cooling capacities (MBH) 10 tons TTA1204*D condensing unit with 10 tons TWE1204*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
3500	75	111.9	97.9	123.7	74.4	134.3	49.4	107.1	95.7	118.4	72.3	128.8	47.4	102.0	93.5	112.8	70.1	123.0	45.4
	80	113.2	113.2	123.4	93.4	134.0	68.6	109.3	109.3	118.1	91.3	128.6	66.7	105.0	105.0	112.5	89.1	122.7	64.7
	85	119.5	119.5	123.6	112.4	133.8	87.8	115.3	115.3	118.5	110.3	128.3	85.9	110.8	110.8	113.0	108.1	122.5	83.9
	90	125.6	125.6	125.6	125.6	133.6	106.8	121.0	121.0	121.2	121.2	128.1	104.9	116.4	116.4	116.6	116.6	122.3	102.9
4000	75	114.5	105.9	125.9	78.9	136.1	50.4	109.6	103.7	120.4	76.8	130.3	48.4	104.4	101.4	114.7	74.6	124.4	46.4
	80	117.9	117.9	125.6	100.6	135.9	72.4	113.6	113.6	120.2	98.5	130.0	70.5	109.0	109.0	114.5	96.3	124.1	68.5
	85	124.1	124.1	126.2	122.4	135.6	94.4	119.7	119.7	121.0	120.1	129.8	92.4	114.9	114.9	115.5	115.5	123.8	90.4
	90	129.9	129.9	130.0	130.0	135.6	116.1	125.3	125.3	125.4	125.4	129.7	114.0	120.3	120.3	120.5	120.5	123.9	112.0
4400	75	116.3	112.2	127.2	82.5	137.3	51.3	111.3	110.0	121.7	80.4	131.2	49.2	106.0	106.0	115.9	78.2	125.2	47.2
	80	120.9	120.9	127.0	106.3	137.1	75.5	116.4	116.4	121.6	104.2	130.9	73.4	111.6	111.6	115.8	102.0	124.9	71.5
	85	127.1	127.1	128.0	128.0	136.8	99.6	122.5	122.5	122.8	122.8	130.7	97.5	117.5	117.5	117.6	117.6	124.7	95.5
	90	132.6	132.6	132.8	132.8	137.0	123.5	127.9	127.9	128.0	128.0	130.9	121.4	122.7	122.7	122.8	122.8	124.8	119.3
4800	75	117.9	117.9	128.3	86.0	138.3	52.1	112.9	112.9	122.8	83.9	132.1	50.0	107.7	107.7	116.9	81.7	125.9	48.0
	80	123.5	123.5	128.2	112.0	138.0	78.5	118.8	118.8	122.8	109.9	131.8	76.5	113.9	113.9	116.9	107.7	125.6	74.5
	85	129.6	129.6	129.8	129.8	137.8	104.8	124.8	124.8	124.9	124.9	131.5	102.6	119.7	119.7	119.6	119.6	125.3	100.6
	90	135.1	135.1	135.2	135.2	138.1	130.9	129.9	129.9	130.0	130.0	131.9	128.8	124.6	124.6	124.7	124.7	125.7	124.9
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)											
		115						125											
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)											
		61		67		73		61		67		73							
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC						
3500	75	96.7	91.1	106.9	67.8	116.7	43.3	91.1	88.6	100.5	65.4	110.0	41.0						
	80	100.4	100.4	106.7	86.8	116.5	62.6	95.4	95.4	100.4	84.3	109.7	60.3						
	85	106.0	106.0	107.3	105.8	116.2	81.7	100.8	100.8	101.3	101.3	109.4	79.4						
	90	111.4	111.4	111.5	111.5	116.1	100.7	105.9	105.9	106.1	106.1	109.4	98.4						
4000	75	98.9	98.9	108.6	72.3	118.0	44.3	93.4	93.4	102.0	69.9	111.1	42.0						
	80	104.1	104.1	108.5	93.9	117.8	66.3	98.8	98.8	102.1	91.5	110.8	64.1						
	85	109.8	109.8	109.9	109.9	117.5	88.2	104.3	104.3	104.4	104.4	110.6	85.9						
	90	115.0	115.0	115.1	115.1	117.6	109.9	109.2	109.2	109.3	109.3	110.8	107.6						
4400	75	100.8	100.8	109.7	75.9	118.8	45.1	95.3	95.3	103.0	73.4	111.8	42.9						
	80	106.5	106.5	109.7	99.6	118.5	69.4	101.0	101.0	103.2	97.2	111.6	67.1						
	85	112.2	112.2	112.4	112.4	118.2	93.3	106.5	106.5	106.6	106.6	111.3	91.0						
	90	117.2	117.2	117.3	117.3	118.5	116.9	111.2	111.2	111.2	111.2	111.8	111.7						
4800	75	102.6	102.6	110.6	79.4	119.4	45.9	97.2	97.2	103.8	76.9	112.4	43.7						
	80	108.6	108.6	110.8	105.3	119.2	72.4	102.9	102.9	104.2	102.9	112.1	70.1						
	85	114.2	114.2	114.3	114.3	118.9	98.4	108.3	108.3	108.4	108.4	111.9	96.1						
	90	118.9	118.9	119.0	119.0	119.4	118.9	112.7	112.7	112.7	112.7	112.8	112.8						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 19. Gross cooling capacities (MBH) one compressor - 10 tons TTA1204*C condensing unit with 10 tons TWE1204*A air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
3500	75	71.0	71.0	75.6	55.1	82.5	32.2	68.6	68.6	72.7	53.9	79.2	31.1	66.1	66.1	69.7	52.7	75.6	30.0
	80	75.1	75.1	76.0	73.9	81.9	51.5	72.6	72.6	73.2	72.7	78.5	50.4	70.0	70.0	70.3	70.3	74.9	49.2
	85	79.1	79.1	79.2	79.2	82.0	69.1	76.5	76.5	76.6	76.6	79.0	68.0	73.8	73.8	73.9	73.9	75.9	66.9
	90	82.8	82.8	82.8	82.8	82.8	82.8	80.0	80.0	80.1	80.1	80.2	80.2	77.2	77.2	77.3	77.3	77.4	77.4
4000	75	72.9	72.9	76.5	59.2	83.2	33.3	70.4	70.4	73.6	58.0	79.7	32.2	67.8	67.8	70.5	56.7	75.9	31.0
	80	77.2	77.2	77.2	77.2	82.6	55.3	74.5	74.5	74.6	74.6	79.0	54.2	71.8	71.8	71.9	71.9	75.3	53.0
	85	81.1	81.1	81.1	81.1	82.8	75.3	78.4	78.4	78.5	78.5	79.8	74.2	75.6	75.6	75.7	75.7	76.7	73.0
	90	84.8	84.8	84.9	84.9	85.0	85.0	81.8	81.8	81.9	81.9	81.9	81.9	78.9	78.9	78.9	78.9	79.0	79.0
4400	75	74.2	74.2	77.1	62.4	83.6	34.2	71.6	71.6	74.1	61.2	80.0	33.0	68.9	68.9	71.0	59.9	76.1	31.8
	80	78.5	78.5	78.5	78.5	83.0	58.4	75.8	75.8	75.9	75.9	79.3	57.3	73.0	73.0	73.0	73.0	75.5	56.1
	85	82.3	82.3	82.4	82.4	83.4	80.3	79.6	79.6	79.7	79.7	80.4	79.1	76.7	76.7	76.8	76.8	77.3	77.3
	90	86.3	86.3	86.3	86.3	86.4	86.4	83.1	83.1	83.1	83.1	83.2	83.2	79.9	79.9	80.0	80.0	80.0	80.0
4800	75	75.3	75.3	77.6	65.7	83.9	35.0	72.7	72.7	74.6	64.4	80.2	33.9	69.9	69.9	71.5	63.1	76.3	32.7
	80	79.6	79.6	79.6	79.6	83.2	61.5	76.9	76.9	76.9	76.9	80.9	58.2	74.0	74.0	74.0	74.0	75.6	59.1
	85	83.4	83.4	83.4	83.4	84.0	84.0	80.6	80.6	80.7	80.7	80.7	80.7	77.7	77.7	77.7	77.7	77.8	77.8
	90	87.5	87.5	87.6	87.6	87.6	87.6	84.2	84.2	84.3	84.3	84.3	84.3	80.9	80.9	80.9	80.9	81.0	81.0
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
3500	75	63.5	63.5	66.5	51.3	71.7	28.8	60.7	60.7	63.2	49.9	67.7	27.5						
	80	67.2	67.2	67.3	67.3	71.1	48.0	64.2	64.2	64.3	64.3	67.0	46.8						
	85	70.9	70.9	71.0	71.0	72.6	65.6	67.8	67.8	67.9	67.9	69.0	64.3						
	90	74.3	74.3	74.4	74.4	74.4	74.4	71.1	71.1	71.2	71.2	71.2	71.2						
4000	75	65.0	65.0	67.3	55.3	72.0	29.8	62.1	62.1	63.9	53.9	67.9	28.5						
	80	68.9	68.9	68.9	68.9	71.3	51.8	65.8	65.8	65.8	65.8	67.2	50.6						
	85	72.6	72.6	72.7	72.7	73.4	71.8	69.4	69.4	69.5	69.5	69.9	69.9						
	90	75.9	75.9	75.9	75.9	76.0	76.0	72.6	72.6	72.6	72.6	72.7	72.7						
4400	75	66.1	66.1	67.8	58.5	72.2	30.6	63.0	63.0	64.3	57.0	68.0	29.3						
	80	70.0	70.0	70.1	70.1	71.5	54.9	66.8	66.8	66.9	66.9	67.3	53.6						
	85	73.7	73.7	73.8	73.8	74.0	74.0	70.4	70.4	70.5	70.5	70.5	70.5						
	90	76.9	76.9	76.9	76.9	76.9	76.9	73.5	73.5	73.5	73.5	73.6	73.6						
4800	75	67.0	67.0	68.2	61.7	72.3	31.4	63.8	63.8	64.8	60.1	68.0	30.1						
	80	71.0	71.0	71.0	71.0	71.5	57.9	67.7	67.7	67.7	67.7	67.3	56.6						
	85	74.6	74.6	74.7	74.7	74.7	74.7	71.3	71.3	71.3	71.3	71.4	71.4						
	90	77.6	77.6	77.7	77.7	77.7	77.7	74.2	74.2	74.3	74.3	74.3	74.3						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 20. Gross cooling capacities (MBH) both compressors - 10 tons TTA1204*C condensing unit with 10 tons TWE1204*A air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
3500	75	117.6	100.1	129.0	76.7	139.8	51.3	113.1	97.9	124.1	74.7	134.6	49.5	108.4	95.6	118.9	72.6	129.0	47.5
	80	118.5	118.5	128.7	95.3	139.3	70.6	114.3	114.3	123.8	93.2	134.0	68.7	110.0	110.0	118.6	91.0	128.5	66.8
	85	123.6	123.6	128.6	113.8	138.9	89.7	119.7	119.7	123.8	111.7	133.5	87.6	115.5	115.5	118.7	109.6	128.0	85.5
	90	129.6	129.6	129.6	129.6	138.4	108.1	125.0	125.0	125.2	125.2	133.1	106.0	120.7	120.7	120.9	120.9	127.5	103.9
4000	75	120.3	107.8	131.3	81.2	142.0	52.5	115.7	105.6	126.2	79.2	136.3	50.5	110.8	103.3	120.8	77.1	130.6	48.5
	80	122.4	122.4	131.0	102.2	141.4	74.5	118.4	118.4	125.9	100.1	135.8	72.5	114.1	114.1	120.6	97.8	130.1	70.6
	85	128.3	128.3	131.2	123.5	141.0	95.9	124.1	124.1	126.2	121.4	135.3	93.7	119.6	119.6	121.1	119.2	129.5	91.6
	90	133.7	133.7	133.9	133.9	140.8	117.1	129.3	129.3	129.5	129.5	134.8	114.9	124.7	124.7	124.8	124.8	129.1	112.7
4400	75	122.1	113.9	132.7	84.6	143.5	53.4	117.4	111.7	127.6	82.5	137.4	51.3	112.5	109.4	122.1	80.7	131.6	49.4
	80	125.5	125.5	132.4	107.7	142.9	77.6	121.3	121.3	127.3	105.5	136.9	75.6	116.8	116.8	122.0	103.3	131.1	73.6
	85	131.3	131.3	132.9	131.2	142.5	100.9	126.9	126.9	127.9	127.9	136.3	98.6	122.3	122.3	122.8	122.8	130.4	96.4
	90	136.6	136.6	136.8	136.8	142.5	124.3	132.0	132.0	132.1	132.1	136.2	122.0	127.1	127.1	127.3	127.3	130.1	119.7
4800	75	123.7	119.9	134.0	87.9	144.7	54.3	119.0	117.7	128.8	85.8	138.4	52.2	114.0	114.0	123.1	84.3	132.5	50.2
	80	128.1	128.1	133.6	113.1	144.1	80.7	123.7	123.7	128.5	111.0	137.9	78.7	119.1	119.1	123.1	108.7	132.0	76.7
	85	133.8	133.8	134.5	134.5	143.8	105.9	129.3	129.3	129.5	129.5	137.3	103.5	124.5	124.5	124.6	124.6	131.2	101.3
	90	139.4	139.3	139.5	139.5	143.9	131.6	134.2	134.2	134.3	134.3	137.5	129.2	129.1	129.1	129.2	129.2	131.0	126.8
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)											
		115						125											
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)											
		61		67		73		61		67		73							
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC						
3500	75	103.3	93.2	113.2	70.4	123.1	45.5	97.9	90.6	107.1	68.0	116.6	43.2						
	80	105.6	105.6	113.1	88.6	122.5	64.7	100.8	100.8	107.0	86.0	116.0	62.5						
	85	110.9	110.9	113.3	107.2	122.1	83.3	105.9	105.9	107.4	104.7	115.6	80.8						
	90	116.0	116.0	116.1	116.1	121.6	101.7	110.7	110.7	110.9	110.9	115.2	99.2						
4000	75	105.6	100.8	115.0	74.9	124.6	46.5	100.1	98.2	108.9	71.9	117.9	44.3						
	80	109.5	109.5	115.0	95.5	124.0	68.5	104.4	104.4	108.8	92.9	117.3	66.3						
	85	114.8	114.8	115.6	115.6	123.5	89.3	109.5	109.5	109.7	109.7	116.8	86.8						
	90	119.6	119.6	119.8	119.8	123.1	110.5	114.1	114.1	114.2	114.2	116.5	108.0						
4400	75	107.2	106.9	116.4	77.8	125.5	47.4	101.6	101.6	110.0	75.2	118.8	45.1						
	80	112.0	112.0	116.2	100.9	125.0	71.6	106.7	106.7	110.0	98.3	118.2	69.4						
	85	117.3	117.3	117.4	117.4	124.3	94.2	111.8	111.8	111.9	111.9	117.6	91.7						
	90	121.9	121.9	122.0	122.0	124.0	117.5	116.1	116.1	116.2	116.2	117.4	115.0						
4800	75	108.7	108.7	117.4	81.0	126.3	48.2	103.2	103.2	111.0	78.4	119.5	46.0						
	80	114.2	114.2	117.3	106.3	125.8	74.7	108.7	108.7	111.0	103.7	118.9	72.5						
	85	119.3	119.3	119.4	119.4	125.0	99.0	113.6	113.6	113.7	113.7	118.2	96.5						
	90	123.7	123.7	123.8	123.8	124.8	124.5	117.6	117.6	117.7	117.7	118.2	118.2						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 21. Gross cooling capacities (MBH) 12.5 tons TTA1504*D condensing unit with 12.5 tons TWE1504*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
4500	75	150.9	129.3	165.1	98.2	177.4	65.1	144.0	126.1	157.7	95.2	169.4	62.3	136.3	122.7	149.4	91.9	160.5	59.2
	80	152.4	150.1	164.8	122.8	177.1	90.0	145.9	145.9	157.3	119.8	169.1	87.2	139.4	139.4	149.1	116.5	160.2	84.1
	85	159.2	159.2	164.9	147.2	176.8	114.7	153.2	153.2	157.6	144.2	168.8	111.9	146.5	146.5	149.5	140.9	159.9	108.8
	90	166.5	166.5	166.5	166.5	176.5	139.3	160.0	160.0	160.2	160.2	168.5	136.5	152.9	152.9	153.1	153.1	159.7	133.4
5000	75	153.5	137.2	167.2	102.6	179.3	66.1	146.5	134.0	159.6	99.6	170.8	63.2	138.7	130.6	151.1	96.4	161.8	60.2
	80	156.4	156.4	166.9	129.9	179.0	93.8	150.3	150.3	159.3	126.9	170.5	90.9	143.5	143.5	150.9	123.6	161.5	87.8
	85	163.8	163.8	167.3	157.1	178.6	121.3	157.5	157.5	159.9	154.1	170.2	118.4	150.4	150.4	151.7	149.1	161.2	115.3
	90	170.6	170.6	170.8	170.8	178.4	148.5	164.0	164.0	164.2	164.2	170.0	145.6	156.6	156.6	156.8	156.8	161.0	142.4
5500	75	155.8	145.1	168.9	107.0	180.8	67.1	148.6	141.9	161.1	104.0	172.0	64.2	140.6	135.8	152.6	100.8	162.7	61.1
	80	160.3	160.3	168.6	136.9	180.5	97.5	153.9	153.9	160.9	133.9	171.7	94.6	146.8	146.8	152.4	130.6	162.4	91.5
	85	167.6	167.6	169.4	166.7	180.2	127.8	161.0	161.0	162.0	158.7	171.4	124.8	153.6	153.6	154.0	153.8	162.1	121.6
	90	174.2	174.2	174.3	174.3	180.1	157.7	167.2	167.2	167.4	167.4	171.4	154.7	159.4	159.4	159.6	159.6	162.1	151.5
6000	75	157.8	152.9	170.2	111.4	182.2	68.2	150.4	146.3	162.4	108.4	173.1	65.2	142.8	141.2	153.7	105.2	163.5	62.0
	80	163.5	163.5	170.0	144.0	181.8	101.4	157.0	157.0	162.3	141.0	172.8	98.3	149.6	149.6	153.7	137.7	163.2	95.2
	85	170.7	170.7	171.3	171.3	181.5	134.3	163.9	163.9	164.1	164.1	172.4	131.2	156.2	156.2	156.3	156.3	162.8	128.0
	90	177.1	177.1	177.3	177.3	181.8	167.0	169.8	169.8	169.9	169.9	172.7	163.9	161.7	161.7	161.7	161.7	163.1	159.6
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
4500	75	128.0	118.9	140.2	88.3	150.8	55.9	118.6	113.3	130.0	84.4	139.9	52.2						
	80	132.2	132.2	140.0	112.8	150.5	80.8	124.0	124.0	129.8	108.8	139.6	77.1						
	85	138.9	138.9	140.6	137.4	150.2	105.5	130.4	130.4	130.9	130.8	139.3	101.8						
	90	145.0	145.0	145.2	145.2	150.0	130.0	136.0	136.0	136.2	136.2	139.3	126.2						
5000	75	130.0	124.8	141.8	92.8	151.8	56.8	121.1	118.8	131.4	88.9	140.8	53.2						
	80	135.9	135.9	141.6	119.9	151.5	84.5	127.3	127.3	131.4	116.0	140.5	80.8						
	85	142.5	142.5	143.0	141.5	151.2	111.9	133.5	133.5	133.6	133.6	140.2	108.1						
	90	148.2	148.2	148.4	148.4	151.2	139.1	138.7	138.7	138.8	138.8	140.1	132.4						
5500	75	132.3	130.3	143.1	97.2	152.7	57.8	123.2	123.2	132.5	93.2	141.5	54.1						
	80	138.9	138.9	143.0	127.0	152.4	88.2	130.0	130.0	132.6	123.0	141.2	84.5						
	85	145.3	145.3	145.5	145.5	152.0	118.2	136.0	136.0	136.0	136.0	140.9	114.5						
	90	150.7	150.7	150.8	150.8	152.0	144.5	140.7	140.7	140.8	140.8	141.2	137.8						
6000	75	133.9	133.9	144.1	101.5	153.3	58.7	125.5	125.5	133.4	97.5	142.1	55.1						
	80	141.4	141.4	144.2	134.1	153.0	91.9	132.2	132.2	133.7	130.1	141.8	88.3						
	85	147.6	147.6	147.3	147.3	152.7	124.6	137.9	137.9	138.0	138.0	141.4	120.9						
	90	152.5	152.5	152.6	152.6	153.1	150.1	142.1	142.1	142.1	142.1	142.2	142.2						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 22. Gross cooling capacities (MBH) 15 tons TTA1804*D condensing unit with 15 tons TWE1804*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	184.1	155.9	204.3	120.0	224.8	82.1	175.9	152.0	195.4	116.3	215.3	78.7	167.2	147.9	185.8	112.4	205.1	74.9
	80	185.4	181.9	203.8	149.3	224.3	111.8	178.0	176.9	194.9	145.5	214.8	108.3	170.0	170.0	185.4	141.6	204.5	104.6
	85	194.0	194.0	203.8	178.3	223.7	141.4	187.1	187.1	195.1	174.6	214.2	137.9	179.7	179.7	185.8	170.7	204.0	134.2
	90	205.5	202.3	205.5	202.3	223.3	170.7	196.9	196.9	197.6	197.5	213.8	167.1	189.2	189.2	189.5	189.5	203.7	163.4
6000	75	187.7	165.5	207.7	125.6	227.9	83.6	179.4	161.6	198.5	121.9	218.2	80.1	170.4	157.5	188.7	117.9	207.7	76.4
	80	190.4	190.4	207.2	158.1	227.4	116.6	183.3	183.3	198.1	154.3	217.7	113.1	175.6	175.6	188.4	150.3	207.2	109.4
	85	200.6	200.6	207.6	190.5	226.8	149.4	193.4	193.4	198.8	186.8	217.1	146.0	185.6	185.6	189.3	182.8	206.6	142.2
	90	210.8	210.8	211.2	211.2	226.5	181.9	203.4	203.4	203.7	203.7	216.8	178.3	195.4	195.4	195.7	195.7	206.6	174.6
6600	75	190.9	175.0	210.5	131.1	230.5	84.9	182.4	171.1	201.1	127.4	220.6	81.4	173.3	167.0	191.1	123.4	209.9	77.7
	80	195.8	195.8	210.1	166.7	229.9	121.3	188.4	188.4	200.8	162.9	220.0	117.8	180.5	180.5	190.8	158.9	209.4	114.1
	85	206.3	206.3	210.9	202.5	229.3	157.4	198.8	198.8	202.0	198.8	219.5	153.8	190.6	190.6	192.5	192.5	208.9	150.0
	90	216.7	216.7	217.0	217.0	229.1	193.0	209.0	209.0	209.3	209.3	219.4	189.5	200.6	200.6	200.9	200.9	209.0	185.7
7200	75	193.7	184.5	212.8	136.5	232.7	86.3	185.1	180.6	203.3	132.8	222.6	82.8	175.9	175.7	193.0	128.8	211.7	79.1
	80	200.5	200.5	212.5	175.3	232.1	125.9	192.9	192.9	203.0	171.5	222.0	122.5	184.7	184.7	193.0	167.4	211.1	118.7
	85	211.3	211.3	214.0	212.8	231.5	165.2	203.5	203.5	205.0	205.0	221.5	161.6	195.0	195.0	195.6	195.6	210.8	157.8
	90	221.8	221.8	222.1	222.1	231.5	204.1	213.8	213.8	214.0	214.0	221.7	200.6	205.1	205.1	205.3	205.3	211.2	196.8
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	157.9	143.6	175.7	108.3	194.1	71.0	148.1	139.0	164.7	103.9	182.5	66.9						
	80	162.2	162.2	175.3	137.4	193.6	100.7	153.8	153.8	164.5	132.9	181.9	96.6						
	85	171.6	171.6	176.0	166.6	193.0	130.3	163.0	163.0	165.6	162.3	181.5	126.1						
	90	181.0	181.0	181.3	181.3	192.9	159.4	172.1	172.1	172.4	172.4	181.5	155.2						
6000	75	161.0	153.1	178.3	113.8	196.5	72.4	151.0	148.6	167.0	109.4	184.6	68.3						
	80	167.5	167.5	178.1	146.0	196.0	105.5	158.7	158.7	167.0	141.6	184.0	101.4						
	85	177.2	177.2	179.4	178.3	195.5	138.2	168.2	168.2	169.2	169.2	183.7	133.9						
	90	186.7	186.7	187.0	187.0	195.6	170.6	177.4	177.4	177.7	177.7	184.0	166.4						
6600	75	163.8	162.6	180.4	119.2	198.5	73.8	153.7	153.0	169.1	114.7	186.3	69.7						
	80	172.0	172.0	180.4	154.7	197.9	110.2	162.9	162.9	169.2	150.2	185.8	106.0						
	85	182.0	182.0	182.7	182.7	197.6	146.0	172.5	172.5	172.8	172.8	185.5	141.7						
	90	191.6	191.6	191.8	191.8	197.9	181.7	181.8	181.8	182.0	182.0	185.0	174.9						
7200	75	166.3	166.1	182.3	124.5	200.1	75.2	156.5	156.5	170.8	119.9	187.7	71.0						
	80	175.9	175.9	182.5	163.2	199.6	114.8	166.5	166.5	171.2	158.7	187.1	110.7						
	85	186.0	186.0	186.3	186.3	199.3	153.8	176.3	176.3	176.5	176.5	187.0	149.5						
	90	195.7	195.7	195.9	195.9	200.0	192.8	185.5	185.5	185.7	185.7	187.5	181.9						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 23. Gross Cooling Capacities (MBH) one compressor - 15 Tons TTA1804*C Condensing Unit with 15 Tons TWE1804*B Air Handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	121.6	121.6	132.9	92.5	148.0	56.1	116.1	116.1	125.6	89.8	139.8	53.4	110.6	110.6	118.5	87.2	131.9	50.8
	80	129.8	129.8	133.6	122.0	147.9	85.9	123.9	123.9	126.5	119.3	139.7	83.2	118.1	118.1	119.4	117.0	131.8	80.7
	85	138.2	138.2	138.4	138.4	148.0	115.5	131.9	131.9	132.1	132.1	139.9	112.8	125.8	125.8	125.9	125.9	132.0	110.4
	90	146.9	146.9	146.9	146.9	149.2	145.3	140.1	140.1	140.3	140.3	141.4	141.4	133.6	133.6	130.2	130.2	134.1	134.1
6000	75	124.7	124.7	134.4	97.9	149.5	57.5	118.9	118.9	127.0	95.1	141.2	54.8	113.2	113.2	119.7	92.4	133.1	52.2
	80	133.3	133.3	135.5	130.7	149.4	90.6	127.1	127.1	127.2	127.2	141.1	87.9	120.9	120.9	121.1	121.1	133.0	85.3
	85	142.0	142.0	142.1	142.1	149.6	123.5	135.4	135.4	135.6	135.6	141.4	120.8	128.9	128.9	129.1	129.1	133.5	118.2
	90	150.6	150.6	148.2	148.2	151.5	151.5	143.7	143.7	143.9	143.9	144.1	144.1	137.0	137.0	131.6	131.6	137.3	137.3
6600	75	127.5	127.5	135.7	103.1	150.7	58.8	121.4	121.4	128.1	100.3	142.3	56.1	115.4	115.4	120.7	97.9	134.1	53.5
	80	136.3	136.3	136.4	136.4	150.7	95.3	129.8	129.8	129.9	129.9	142.2	92.6	123.4	123.4	123.5	123.5	134.0	90.0
	85	145.2	145.2	145.4	145.4	151.0	131.4	138.4	138.4	138.5	138.5	142.6	129.0	131.6	131.6	131.8	131.8	134.6	126.5
	90	153.9	153.9	154.1	154.1	154.3	154.3	146.8	146.8	146.9	146.9	147.1	147.1	139.8	139.8	132.2	132.2	140.1	140.1
7200	75	129.8	129.8	136.8	108.4	151.8	60.1	123.5	123.5	129.0	105.8	143.2	57.5	117.4	117.4	121.6	103.2	134.9	54.9
	80	138.9	138.9	139.0	139.0	151.7	99.9	132.2	132.2	132.3	132.3	143.1	97.2	125.6	125.6	125.7	125.7	134.8	94.6
	85	148.0	148.0	148.1	148.1	152.2	139.3	140.9	140.9	141.0	141.0	143.8	137.1	134.0	134.0	134.1	134.1	135.7	134.5
	90	156.7	156.7	156.8	156.8	157.0	157.0	149.4	149.4	149.5	149.5	149.6	149.6	142.1	142.1	132.5	132.5	142.4	142.4
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	104.9	104.9	111.4	84.5	123.9	48.3	98.9	98.9	104.0	81.9	115.7	45.7						
	80	112.1	112.1	112.8	112.8	123.9	78.1	105.8	105.8	105.9	105.9	115.7	75.5						
	85	119.5	119.5	119.6	119.6	124.1	107.9	112.9	112.9	113.0	113.0	116.2	105.1						
	90	127.0	127.0	122.0	122.0	127.4	127.4	120.1	120.1	113.1	113.1	120.4	120.4						
6000	75	107.3	107.3	112.5	89.9	125.0	49.7	101.0	101.0	105.0	87.3	116.7	47.1						
	80	114.7	114.7	114.8	114.8	124.9	82.8	108.2	108.2	108.3	108.3	116.6	80.2						
	85	122.4	122.4	122.5	122.5	125.4	116.0	115.5	115.5	115.6	115.6	117.4	113.0						
	90	130.1	130.1	122.7	122.7	130.4	130.4	122.9	122.9	123.0	123.0	123.1	123.1						
6600	75	109.3	109.3	113.4	95.3	125.9	51.0	102.9	102.9	105.8	92.6	117.4	48.4						
	80	117.0	117.0	117.1	117.1	125.8	87.4	110.2	110.2	110.3	110.3	117.4	84.8						
	85	124.8	124.8	125.0	125.0	126.8	123.5	117.7	117.7	117.8	117.8	118.6	118.6						
	90	132.7	132.7	123.0	123.0	132.9	132.9	125.2	125.2	125.3	125.3	117.5	117.5						
7200	75	111.1	111.1	114.2	100.6	126.6	52.3	104.5	104.5	106.7	97.5	118.1	49.7						
	80	118.9	118.9	119.0	119.0	126.6	91.9	112.0	112.0	112.0	112.0	118.0	89.5						
	85	127.0	127.0	127.1	127.1	127.2	127.2	119.6	119.6	119.7	119.7	119.5	119.5						
	90	134.9	134.9	123.1	123.1	126.6	126.6	127.2	127.2	127.3	127.3	124.6	124.6						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 24. Gross cooling capacities (MBH) both compressors - 15 tons TTA1804*C condensing unit with 15 tons TWE1804*B air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	180.2	154.6	200.1	118.5	219.3	80.4	172.1	150.9	191.0	114.8	209.5	77.0	163.7	147.1	181.5	111.1	199.3	73.4
	80	182.5	182.5	200.0	148.0	219.2	110.2	175.0	175.0	190.9	144.3	209.4	106.8	167.5	167.5	181.5	140.6	199.3	103.2
	85	191.6	191.6	200.3	177.4	219.1	139.9	184.5	184.5	191.5	173.8	209.4	136.5	177.1	177.1	182.3	170.1	199.2	132.9
	90	202.8	202.8	202.8	202.8	219.0	169.5	194.3	194.3	194.7	194.7	209.3	166.0	186.7	186.7	187.0	187.0	199.2	162.5
6000	75	183.7	164.3	203.2	124.0	222.0	81.7	175.4	160.5	193.9	120.3	212.0	78.3	166.7	156.7	184.2	116.6	201.6	74.7
	80	187.5	187.5	203.2	156.8	221.9	114.8	180.3	180.3	193.8	153.1	211.9	111.4	172.8	172.8	184.1	149.3	201.5	107.8
	85	197.9	197.9	204.0	189.6	221.8	147.8	190.5	190.5	194.9	186.0	211.9	144.4	182.7	182.7	185.6	182.2	201.5	140.8
	90	208.2	208.2	208.5	208.5	221.8	180.7	200.5	200.5	200.8	200.8	211.9	177.2	192.4	192.4	192.7	192.7	201.6	173.7
6600	75	186.8	173.8	205.8	129.5	224.2	83.0	178.3	170.1	196.3	125.8	214.0	79.6	169.4	166.2	186.4	122.0	203.4	76.0
	80	192.7	192.7	205.8	165.5	224.1	119.4	185.2	185.2	196.2	161.8	213.9	116.0	177.4	177.4	186.4	158.0	203.4	112.4
	85	203.4	203.4	207.1	201.7	224.0	155.7	195.6	195.6	198.0	198.0	213.9	152.3	187.5	187.5	187.7	187.7	203.3	148.7
	90	213.7	213.7	213.9	213.9	224.1	191.8	205.6	205.6	205.9	205.9	214.1	188.4	197.2	197.2	197.4	197.4	203.7	184.8
7200	75	189.5	183.4	208.0	134.9	226.0	84.3	180.9	179.6	198.3	131.2	215.7	80.8	172.0	172.0	188.2	127.4	204.9	77.3
	80	197.3	197.3	207.9	174.1	225.9	124.0	189.5	189.5	198.3	170.4	215.6	120.6	181.3	181.3	188.4	166.6	204.8	117.0
	85	208.1	208.1	208.3	208.3	225.8	163.6	200.0	200.0	200.3	200.3	215.5	160.2	191.6	191.6	191.8	191.8	204.8	156.6
	90	218.3	218.3	218.6	218.6	226.1	202.9	209.9	209.9	210.2	210.2	216.0	199.5	201.1	201.1	201.3	201.3	205.5	195.9
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	154.6	143.0	171.5	107.1	188.6	69.7	144.9	138.7	160.6	102.9	176.8	65.7						
	80	159.8	159.8	171.4	136.6	188.5	99.5	151.4	151.4	160.5	132.4	176.8	95.5						
	85	169.2	169.2	172.6	166.2	188.5	129.2	160.4	160.4	161.9	161.9	176.7	125.2						
	90	178.4	178.4	178.7	178.7	188.6	158.8	169.4	169.4	169.6	169.6	177.0	154.7						
6000	75	157.5	152.6	173.9	112.6	190.7	71.0	147.5	147.5	162.7	108.4	178.7	67.0						
	80	164.7	164.7	173.8	145.4	190.6	104.1	155.9	155.9	162.8	141.1	178.6	100.1						
	85	174.4	174.4	175.8	175.8	190.5	137.1	165.2	165.2	165.4	165.4	178.5	133.1						
	90	183.7	183.7	184.0	184.0	190.9	170.0	174.2	174.2	174.4	174.4	179.1	165.9						
6600	75	160.1	160.1	175.9	118.0	192.3	72.3	150.2	150.2	164.5	113.8	180.2	68.3						
	80	169.0	169.0	176.0	154.0	192.3	108.8	159.7	159.7	164.9	149.7	180.1	104.7						
	85	178.8	178.8	179.0	179.0	192.2	145.1	169.2	169.2	169.4	169.4	180.0	141.0						
	90	188.1	188.1	188.3	188.3	192.9	181.1	178.1	178.1	178.3	178.3	181.0	177.1						
7200	75	162.5	162.5	177.5	123.4	193.7	73.6	153.3	153.3	166.0	119.1	181.4	69.6						
	80	172.6	172.6	177.9	162.6	193.6	113.3	163.1	163.1	166.6	158.4	181.3	109.3						
	85	182.5	182.5	182.7	182.7	193.5	152.9	172.6	172.6	172.8	172.8	181.2	148.8						
	90	191.8	191.8	190.8	190.8	194.6	192.2	181.3	181.3	180.0	180.0	182.7	182.7						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 25. Gross cooling capacities (MBH) 15 tons TTA1804*D condensing unit with 20 tons TWE2404*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	183.1	155.8	202.5	119.7	220.9	81.1	175.1	152.1	193.9	116.3	211.9	77.9	166.6	148.1	184.6	112.6	202.2	74.5
	80	184.0	184.0	201.9	149.1	220.4	110.9	176.5	174.6	193.4	145.5	211.4	107.7	168.9	168.9	184.2	141.7	201.6	104.3
	85	191.4	191.4	201.7	177.8	219.9	140.6	184.8	184.8	193.2	174.2	210.9	137.4	177.6	177.6	184.2	170.4	201.1	134.0
	90	202.6	199.8	202.6	199.8	219.4	169.7	193.9	193.9	195.0	195.0	210.4	166.3	186.5	186.5	186.9	186.9	200.7	162.7
6000	75	186.5	165.2	205.6	125.3	223.6	82.4	178.3	161.4	196.8	121.8	214.4	79.2	169.5	157.4	187.3	118.2	204.5	75.8
	80	188.4	188.4	205.1	157.6	223.1	115.6	181.2	181.2	196.4	154.0	213.9	112.4	173.7	173.7	187.0	150.2	203.9	109.0
	85	197.5	197.5	204.9	189.6	222.6	148.5	190.6	190.6	196.4	186.0	213.3	145.3	183.0	183.0	187.3	182.3	203.4	141.7
	90	206.9	206.9	207.4	207.4	222.1	180.5	199.8	199.8	200.0	200.0	212.9	177.2	192.0	192.0	192.3	192.3	203.0	173.6
6600	75	189.3	174.5	208.2	130.8	225.8	83.7	180.9	170.7	199.2	127.3	216.4	80.5	172.1	166.7	189.5	123.6	206.3	77.1
	80	192.9	192.9	207.8	166.1	225.3	120.2	185.8	185.8	198.9	162.4	215.9	117.0	178.2	178.2	189.3	158.6	205.8	113.6
	85	202.8	202.8	207.8	201.4	224.8	156.2	195.5	195.5	199.2	197.8	215.4	152.8	187.7	187.7	190.1	190.1	205.3	149.2
	90	212.1	212.1	212.4	212.4	224.3	191.4	204.7	204.7	204.9	204.9	214.9	188.0	196.6	196.6	196.8	196.8	204.8	184.4
7200	75	191.8	183.8	210.3	136.2	227.6	85.0	183.4	180.0	201.2	132.6	218.1	81.8	174.5	174.5	191.4	128.8	207.9	78.4
	80	197.3	197.3	210.0	174.5	227.1	124.8	190.0	190.0	200.9	170.8	217.6	121.6	182.1	182.1	191.2	166.9	207.3	118.2
	85	207.2	207.2	210.4	210.4	226.6	163.8	199.7	199.7	201.7	201.7	217.1	160.4	191.6	191.6	192.6	192.6	206.8	156.7
	90	216.5	216.5	216.8	216.8	226.0	202.2	208.8	208.8	209.0	209.0	216.5	198.8	200.5	200.5	200.7	200.7	206.4	195.2
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	157.6	143.9	174.8	108.7	191.6	70.9	148.2	139.5	164.2	104.6	180.2	67.0						
	80	160.9	160.9	174.4	137.6	191.1	100.7	152.9	152.9	164.0	133.3	179.7	96.8						
	85	169.8	169.8	174.7	166.4	190.6	130.2	161.5	161.5	164.5	162.2	179.2	126.1						
	90	178.5	178.5	178.8	178.8	190.3	158.9	169.8	169.8	170.0	170.0	178.9	154.7						
6000	75	160.4	153.2	177.1	114.3	193.7	72.2	150.8	148.8	166.3	110.0	182.0	68.3						
	80	165.8	165.8	177.0	146.1	193.2	105.4	157.4	157.4	166.3	141.7	181.5	101.5						
	85	174.9	174.9	177.6	177.0	192.7	137.8	166.1	166.1	167.4	167.4	181.1	133.6						
	90	183.6	183.6	183.8	183.8	192.3	169.7	174.4	174.4	174.6	174.6	180.8	165.6						
6600	75	162.9	161.8	179.1	119.5	195.4	73.5	153.2	153.2	168.2	115.1	183.5	69.6						
	80	170.0	170.0	179.1	154.5	194.9	110.0	161.2	161.2	168.1	150.1	183.0	106.1						
	85	179.2	179.2	180.4	180.4	194.4	145.3	170.0	170.0	170.5	170.5	182.6	141.1						
	90	187.9	187.9	188.0	188.0	192.0	180.5	178.2	178.2	178.4	178.4	182.4	176.4						
7200	75	165.2	165.2	180.9	124.6	196.8	74.8	155.8	155.8	169.8	120.2	184.8	70.9						
	80	173.6	173.6	180.9	162.8	196.2	114.7	164.5	164.5	169.7	158.4	184.2	110.6						
	85	182.9	182.9	183.3	183.3	195.8	152.8	173.4	173.4	173.5	173.5	183.8	148.6						
	90	191.4	191.4	191.5	191.5	195.6	191.3	181.3	181.3	181.5	181.5	183.9	183.9						

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 26. Gross cooling capacities (MBH) 20 tons TTA2404*D condensing unit with 20 tons TWE2404*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	236.9	204.7	261.2	156.2	284.0	104.4	227.3	200.2	250.7	152.0	272.6	100.4	217.0	195.4	239.3	147.5	260.2	96.1
	80	237.6	235.5	260.4	195.5	283.3	144.2	228.6	225.5	250.0	191.1	272.0	140.2	219.2	219.2	238.6	186.4	259.6	135.9
	85	247.0	247.0	260.1	233.8	282.7	183.9	238.9	238.9	249.7	229.4	271.4	179.9	229.9	229.9	238.4	224.7	258.9	175.6
	90	261.2	256.0	261.2	256.0	282.1	222.8	250.2	250.2	251.8	250.0	270.7	218.6	240.8	240.8	241.5	241.5	258.3	214.1
8000	75	241.1	217.2	265.1	163.5	287.6	106.2	231.3	212.7	254.3	159.3	275.6	102.1	220.6	207.8	242.6	154.8	262.9	97.8
	80	243.2	243.1	264.4	206.9	286.9	150.5	234.3	234.3	253.7	202.5	275.0	146.4	224.8	224.8	242.0	197.7	262.3	142.1
	85	254.5	254.5	264.1	249.5	286.2	194.6	245.9	245.9	253.5	245.0	274.3	190.5	236.5	236.5	241.9	236.6	261.5	186.0
	90	266.2	266.2	267.2	267.2	285.7	237.5	257.2	257.2	257.5	257.5	273.8	233.1	247.4	247.4	247.2	247.2	261.0	228.5
8800	75	244.7	229.6	268.3	170.8	290.6	108.0	234.5	225.0	257.3	166.6	278.3	103.9	223.7	218.8	245.3	162.1	265.1	99.5
	80	248.5	248.5	267.7	218.1	289.9	156.8	239.9	239.9	256.7	213.7	277.6	152.6	230.5	230.5	244.8	208.9	264.5	148.2
	85	260.8	260.8	267.5	261.3	289.2	205.1	251.8	251.8	256.7	253.3	276.8	200.7	242.0	242.0	245.1	244.3	263.8	196.0
	90	272.5	272.5	272.5	272.5	288.8	252.1	263.1	263.1	263.4	263.4	276.4	247.6	252.8	252.8	253.0	253.0	263.2	242.9
9600	75	247.7	241.3	270.9	178.0	293.1	109.8	237.5	233.7	259.8	173.8	280.5	105.6	226.5	225.4	247.6	169.2	267.1	101.2
	80	252.9	252.9	270.4	229.3	292.4	163.0	245.0	245.0	259.2	224.9	279.8	158.8	235.2	235.2	247.1	220.0	266.3	154.4
	85	266.2	266.2	270.5	269.2	291.7	215.3	256.9	256.9	259.6	259.6	279.2	210.9	246.7	246.7	247.8	247.8	265.7	206.1
	90	277.8	277.8	278.1	278.1	291.3	266.6	268.1	268.1	268.3	268.3	275.9	255.2	257.3	257.3	257.5	257.5	265.2	256.1
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						135					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	205.9	190.3	227.0	142.7	246.6	91.4	194.2	185.0	213.7	137.6	231.8	86.4	194.2	185.0	213.7	137.6	231.8	86.4
	80	209.4	209.3	226.4	181.4	246.0	131.3	199.3	199.3	213.1	176.0	231.1	126.2	199.3	199.3	213.1	176.0	231.1	126.2
	85	220.2	220.2	226.2	219.2	245.2	170.9	209.5	209.5	213.2	209.3	230.4	165.5	209.5	209.5	213.2	209.3	230.4	165.5
	90	230.6	230.6	230.8	230.8	244.7	209.1	219.2	219.2	219.4	219.4	229.8	203.7	219.2	219.2	219.4	219.4	229.8	203.7
8000	75	209.3	202.7	230.0	150.0	249.0	93.1	197.3	194.1	216.3	144.8	233.9	88.1	197.3	194.1	216.3	144.8	233.9	88.1
	80	215.3	215.3	229.4	192.6	248.4	137.4	204.6	204.6	215.8	187.1	233.2	132.4	204.6	204.6	215.8	187.1	233.2	132.4
	85	226.2	226.2	229.6	227.2	247.6	181.0	214.9	214.9	216.2	214.7	232.5	175.5	214.9	214.9	216.2	214.7	232.5	175.5
	90	236.5	236.5	236.7	236.7	247.1	223.5	224.4	224.4	224.6	224.6	231.9	218.1	224.4	224.4	224.6	224.6	231.9	218.1
8800	75	212.2	210.1	232.4	157.2	251.0	94.8	200.0	196.9	218.2	151.7	235.5	89.7	200.0	196.9	218.2	151.7	235.5	89.7
	80	220.3	220.3	231.9	203.7	250.3	143.5	209.1	209.1	218.0	198.2	234.8	138.5	209.1	209.1	218.0	198.2	234.8	138.5
	85	231.2	231.2	232.4	231.2	249.6	191.0	219.3	219.3	220.0	220.0	234.1	185.5	219.3	219.3	220.0	220.0	234.1	185.5
	90	241.3	241.3	241.5	241.5	249.0	237.9	228.6	228.6	228.8	228.8	233.6	227.7	228.6	228.6	228.8	228.8	233.6	227.7
9600	75	214.8	212.6	234.3	164.0	252.6	96.4	202.9	202.9	220.1	158.4	236.9	91.4	202.9	202.9	220.1	158.4	236.9	91.4
	80	224.6	224.6	234.0	214.8	251.9	149.7	213.0	213.0	219.8	209.2	236.2	144.6	213.0	213.0	219.8	209.2	236.2	144.6
	85	235.5	235.5	236.1	236.1	251.2	201.0	223.1	223.1	223.0	223.0	235.5	195.5	223.1	223.1	223.0	223.0	235.5	195.5
	90	245.4	245.4	245.5	245.5	250.7	245.7	232.0	232.0	232.2	232.2	234.9	228.7	232.0	232.0	232.2	232.2	234.9	228.7

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 27. Gross cooling capacities (MBH) one compressor - 20 tons TTA2404*C condensing unit with 20 tons TWE2404*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	152.7	152.7	167.3	118.4	182.8	69.9	146.8	146.8	159.9	116.1	175.0	67.3	140.3	140.3	151.4	113.0	166.0	64.4
	80	162.2	162.2	167.7	156.5	182.7	109.1	156.3	156.3	160.5	153.7	174.9	106.6	149.4	149.4	152.3	150.5	166.0	103.7
	85	171.9	171.9	172.0	172.0	182.7	147.2	165.6	165.6	165.8	165.8	174.9	144.5	158.4	158.4	158.5	158.5	166.0	141.4
	90	180.7	180.7	180.7	180.7	183.2	183.2	174.0	174.0	174.1	174.1	175.6	175.6	166.3	166.3	160.9	160.9	167.1	167.1
8000	75	156.1	156.1	169.0	125.8	184.0	71.5	150.2	150.2	161.5	123.1	176.1	69.0	143.4	143.4	152.8	120.0	167.1	66.1
	80	166.1	166.1	169.7	167.6	184.0	115.1	159.9	159.9	162.5	162.5	176.1	112.6	152.7	152.7	154.2	154.2	167.0	109.7
	85	175.8	175.8	175.9	175.9	183.9	157.1	169.2	169.2	169.4	169.4	176.0	154.4	161.7	161.7	161.8	161.8	167.0	151.4
	90	183.8	183.8	180.2	180.2	184.7	184.7	176.8	176.8	172.0	172.0	177.2	177.2	168.7	168.7	162.3	162.3	168.3	168.3
8800	75	159.3	159.3	170.4	132.9	185.0	73.1	153.1	153.1	162.8	130.1	177.1	70.6	146.1	146.1	154.0	127.0	168.0	67.7
	80	169.4	169.4	169.6	169.6	184.9	121.1	163.0	163.0	163.1	163.1	177.0	118.6	155.6	155.6	155.7	155.7	167.9	115.7
	85	178.9	178.9	179.0	179.0	184.7	167.0	172.1	172.1	172.2	172.2	176.8	164.4	164.3	164.3	164.4	164.4	167.8	161.3
	90	186.0	186.0	186.0	186.0	186.1	186.1	178.7	178.7	173.4	173.4	178.6	178.6	170.0	170.0	163.1	163.1	170.0	170.0
9600	75	162.0	162.0	171.6	139.8	185.8	74.8	155.7	155.7	163.9	137.1	177.8	72.2	148.4	148.4	155.0	133.9	168.6	69.4
	80	172.3	172.3	172.4	172.4	185.7	127.1	165.6	165.6	165.7	165.7	177.7	124.6	158.0	158.0	158.1	158.1	168.6	121.7
	85	181.4	181.4	181.4	181.4	185.4	177.0	174.4	174.4	174.5	174.5	177.5	174.3	166.4	166.4	166.4	166.4	168.5	168.5
	90	187.7	187.7	187.8	187.8	187.9	187.9	179.8	179.8	179.9	179.9	180.2	180.2	170.8	170.8	170.8	170.8	170.8	170.8
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						125					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	132.9	132.9	142.0	109.6	156.0	61.2	124.9	124.9	132.2	106.0	145.3	57.8	132.9	132.9	142.0	109.6	156.0	61.2
	80	141.6	141.6	143.3	143.3	155.9	100.5	133.3	133.3	133.4	133.4	145.2	97.1	133.3	133.3	133.4	133.4	145.2	97.1
	85	150.2	150.2	150.3	150.3	156.0	138.0	141.4	141.4	141.5	141.5	145.4	134.4	141.4	141.4	141.5	141.5	145.4	134.4
	90	157.4	157.4	150.3	150.3	157.6	157.6	147.6	147.6	138.9	138.9	147.7	147.7	147.6	147.6	138.9	138.9	147.7	147.7
8000	75	135.7	135.7	143.3	116.6	156.9	62.9	127.5	127.5	133.3	113.0	146.1	59.5	135.7	135.7	143.3	116.6	156.9	62.9
	80	144.7	144.7	144.8	144.8	156.9	106.5	136.0	136.0	136.1	136.1	146.0	103.1	144.7	144.7	144.8	144.8	156.9	106.5
	85	153.2	153.2	153.3	153.3	157.0	148.0	143.9	143.9	144.0	144.0	146.3	144.3	143.9	143.9	144.0	144.0	146.3	144.3
	90	159.2	159.2	151.1	151.1	159.3	159.3	148.5	148.5	148.4	148.4	148.4	148.4	148.5	148.5	148.4	148.4	148.4	148.4
8800	75	138.1	138.1	144.3	123.5	157.7	64.5	129.7	129.7	134.2	119.9	146.8	61.2	138.1	138.1	144.3	123.5	157.7	64.5
	80	147.2	147.2	147.3	147.3	157.6	112.5	138.3	138.3	138.4	138.4	146.7	109.1	147.2	147.2	147.3	147.3	157.6	112.5
	85	155.5	155.5	155.5	155.5	157.8	157.8	145.8	145.8	145.9	145.9	145.9	145.9	145.8	145.8	145.9	145.9	145.9	145.9
	90	159.9	159.9	159.8	159.8	160.4	160.4	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2
9600	75	140.2	140.2	145.2	130.5	158.3	66.2	131.6	131.6	134.9	126.9	147.3	62.8	140.2	140.2	145.2	130.5	158.3	66.2
	80	149.4	149.4	149.5	149.5	158.3	118.5	140.2	140.2	140.3	140.3	147.3	115.1	149.4	149.4	149.5	149.5	158.3	118.5
	85	157.2	157.2	157.2	157.2	157.3	157.3	147.2	147.2	147.2	147.2	146.7	146.7	157.2	157.2	157.2	157.2	157.3	157.3
	90	160.3	160.3	160.3	160.3	160.4	160.4	148.6	148.6	148.6	148.6	148.6	148.6	160.3	160.3	160.3	160.3	160.4	160.4

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 28. Gross cooling capacities (MBH) both compressors - 20 tons TTA2404*C condensing unit with 20 tons TWE2404*B air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	243.0	205.7	266.3	157.0	285.9	104.8	232.9	201.0	254.8	152.3	271.6	99.7	221.3	195.6	241.5	147.1	255.5	94.1
	80	243.6	243.6	266.2	195.8	285.8	144.0	233.9	233.9	254.7	191.1	271.5	138.9	223.0	223.0	241.4	185.8	255.5	133.3
	85	251.9	251.9	266.2	233.9	285.7	183.0	243.2	243.2	254.7	229.1	271.4	178.0	233.0	233.0	241.5	223.6	255.4	172.4
	90	267.0	267.0	267.0	267.0	285.5	221.8	253.9	253.9	256.0	256.0	271.3	216.5	242.7	242.7	243.4	243.4	255.3	210.7
8000	75	247.4	218.1	269.7	164.0	289.3	106.5	236.9	213.3	257.8	159.3	274.3	101.3	224.9	207.8	244.1	153.9	257.8	95.6
	80	248.9	248.9	269.6	207.1	289.2	150.1	239.1	239.1	257.7	202.2	274.2	144.9	228.3	228.3	244.0	196.6	257.7	139.2
	85	259.3	259.3	269.6	249.1	289.2	193.5	249.9	249.9	257.7	244.2	274.2	188.3	238.9	238.9	244.0	238.6	257.6	182.6
	90	270.2	270.2	271.4	271.4	289.0	236.1	259.9	259.9	260.2	260.2	274.1	230.7	247.5	247.5	247.6	247.6	257.6	224.8
8800	75	251.0	230.3	272.4	170.9	292.3	108.2	240.2	225.4	260.1	166.1	276.8	103.0	227.8	219.8	246.0	160.7	259.7	97.2
	80	253.8	253.8	272.3	218.0	292.2	156.1	244.2	244.2	260.0	213.0	276.7	150.9	233.4	233.4	245.9	207.4	259.6	145.1
	85	265.4	265.4	272.3	264.2	292.1	203.9	255.3	255.3	260.0	259.2	276.6	198.6	243.5	243.5	246.2	246.2	259.4	192.6
	90	275.4	275.4	275.6	275.6	292.0	250.5	264.2	264.2	263.9	263.9	276.6	245.0	250.6	250.6	250.8	250.8	259.5	239.0
9600	75	254.1	242.4	274.6	177.7	294.8	109.9	242.9	237.4	261.9	172.9	278.8	104.6	230.2	230.2	247.5	167.4	261.2	98.8
	80	258.8	258.8	274.5	228.8	294.7	162.2	249.1	249.1	261.9	223.7	278.7	156.9	237.7	237.7	247.4	218.0	261.1	151.1
	85	270.2	270.2	274.5	274.5	294.4	214.2	259.6	259.6	262.1	262.1	278.6	208.6	246.9	246.9	248.0	248.0	261.0	202.5
	90	280.1	280.1	280.4	280.4	294.6	264.9	268.2	268.2	268.5	268.5	278.7	259.2	254.4	254.4	254.6	254.6	261.0	253.1
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						135					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	208.6	189.8	227.1	141.4	238.1	88.1	195.7	183.9	212.1	135.5	220.1	82.0	195.7	183.9	212.1	135.5	220.1	82.0
	80	211.5	211.5	227.0	179.9	238.1	127.3	200.2	200.2	212.1	173.9	220.1	121.2	200.2	200.2	212.1	173.9	220.1	121.2
	85	221.6	221.6	227.1	217.7	238.0	166.4	209.3	209.3	212.2	211.6	220.0	160.3	209.3	209.3	212.2	211.6	220.0	160.3
	90	229.9	229.9	230.0	230.0	237.9	204.4	215.6	215.6	215.6	215.6	219.9	198.0	215.6	215.6	215.6	215.6	219.9	198.0
8000	75	211.8	201.9	229.2	148.1	239.9	89.6	198.4	195.9	213.7	142.3	221.1	83.4	198.4	195.9	213.7	142.3	221.1	83.4
	80	216.9	216.9	229.1	190.6	239.8	133.2	205.0	205.0	213.7	184.5	221.1	127.0	205.0	205.0	213.7	184.5	221.1	127.0
	85	226.5	226.5	229.3	229.3	239.7	176.4	213.1	213.1	214.1	214.1	221.0	169.9	213.1	213.1	214.1	214.1	221.0	169.9
	90	233.1	233.1	233.2	233.2	239.7	218.5	217.5	217.5	217.6	217.6	220.9	211.8	217.5	217.5	217.6	217.6	220.9	211.8
8800	75	214.4	213.8	230.7	154.9	241.2	91.1	201.0	201.0	214.9	148.9	221.8	84.7	201.0	201.0	214.9	148.9	221.8	84.7
	80	221.5	221.5	230.6	201.3	241.1	139.0	208.8	208.8	214.7	195.0	221.8	132.7	208.8	208.8	214.7	195.0	221.8	132.7
	85	230.1	230.1	231.1	231.1	241.1	186.2	215.5	215.5	215.5	215.5	221.7	179.4	215.5	215.5	215.5	215.5	221.7	179.4
	90	236.0	236.0	236.1	236.1	241.0	232.5	219.7	219.7	219.8	219.8	221.5	221.5	219.7	219.7	219.8	219.8	221.5	221.5
9600	75	216.8	216.8	231.8	161.6	242.2	92.5	203.3	203.3	215.7	155.6	222.3	86.1	203.3	203.3	215.7	155.6	222.3	86.1
	80	225.1	225.1	231.7	211.9	242.1	144.9	211.6	211.6	215.5	205.5	222.2	138.4	211.6	211.6	215.5	205.5	222.2	138.4
	85	232.5	232.5	232.6	232.6	242.1	195.9	216.5	216.5	216.6	216.6	222.1	189.0	216.5	216.5	216.6	216.6	222.1	189.0
	90	238.9	238.9	239.0	239.0	242.0	242.0	221.4	221.4	221.4	221.4	221.9	221.9	221.4	221.4	221.4	221.4	221.9	221.9

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 29. Gross cooling capacities (MBH) one compressor - 25 tons TTA3004*C condensing unit with 25 tons TWE3004*B air handler (IP)

CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
8750	75	180.9	180.9	198.7	144.1	219.4	84.2	174.2	174.2	190.2	140.3	210.0	81.2	166.6	166.6	180.2	137.3	199.2	77.7
	80	192.0	192.0	198.3	190.6	218.5	132.7	185.1	185.1	189.9	187.4	209.1	129.6	177.0	177.0	180.3	180.3	198.3	126.1
	85	203.2	203.2	203.4	203.4	217.8	179.7	195.9	195.9	196.1	196.1	208.4	176.5	187.4	187.4	187.6	187.6	197.7	172.9
	90	214.3	214.3	214.3	214.3	217.8	217.8	206.5	206.5	201.1	201.1	208.8	208.8	197.5	197.5	197.7	197.7	198.6	198.6
10000	75	186.3	186.3	201.5	154.5	221.8	87.0	179.3	179.3	192.5	152.1	212.2	83.9	171.3	171.3	182.4	148.5	201.2	80.4
	80	197.8	197.8	197.9	197.9	220.9	142.4	190.5	190.5	190.6	190.6	211.3	139.3	182.0	182.0	182.1	182.1	200.3	135.8
	85	209.3	209.3	209.4	209.4	220.2	195.9	201.6	201.6	201.7	201.7	210.6	192.7	192.7	192.7	192.8	192.8	199.7	189.0
	90	220.0	220.0	220.2	220.2	221.0	221.0	211.8	211.8	204.3	204.3	212.1	212.1	202.4	202.4	192.5	192.5	201.2	201.2
11000	75	189.9	189.9	203.3	163.2	223.2	89.2	182.7	182.7	194.1	161.1	213.6	86.1	174.4	174.4	183.8	157.4	202.5	82.6
	80	201.7	201.7	201.8	201.8	222.3	150.2	194.1	194.1	194.2	194.2	212.7	147.1	185.3	185.3	185.4	185.4	201.6	143.6
	85	213.3	213.3	213.4	213.4	221.6	208.8	205.3	205.3	205.4	205.4	211.9	205.5	196.1	196.1	196.2	196.2	201.0	201.0
	90	223.6	223.6	223.7	223.7	223.7	223.7	215.0	215.0	205.7	205.7	214.1	214.1	205.2	205.2	205.2	205.2	203.9	203.9
12000	75	193.0	193.0	204.6	173.3	224.4	91.4	185.6	185.6	195.5	170.0	214.7	88.3	177.1	177.1	185.4	164.5	203.5	84.8
	80	205.0	205.0	205.2	205.2	223.6	157.9	197.2	197.2	197.3	197.3	213.8	154.8	188.2	188.2	188.3	188.3	202.6	151.3
	85	216.6	216.6	216.8	216.8	216.9	216.9	208.4	208.4	208.5	208.5	208.6	208.6	198.9	198.9	199.0	199.0	202.2	202.2
	90	226.3	226.3	226.4	226.4	225.6	225.6	217.4	217.4	217.4	217.4	216.5	216.5	207.1	207.0	207.1	207.1	205.9	205.9
CFM	Ent DB (°F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						135					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
8750	75	157.9	157.9	169.3	133.3	187.3	73.8	149.0	149.0	158.4	128.1	174.9	69.9	149.0	149.0	158.4	128.1	174.9	69.9
	80	168.0	168.0	168.1	168.1	186.4	122.2	158.6	158.6	158.7	158.7	174.0	118.3	149.0	149.0	158.4	128.1	174.9	69.9
	85	177.9	177.9	178.1	178.1	185.8	168.8	168.0	168.0	168.1	168.1	173.5	164.7	149.0	149.0	158.4	128.1	174.9	69.9
	90	187.5	187.5	187.6	187.6	187.6	187.6	176.7	176.7	165.0	165.0	175.0	175.0	149.0	149.0	158.4	128.1	174.9	69.9
10000	75	162.1	162.1	171.2	144.5	189.0	76.6	152.8	152.8	159.8	140.4	176.4	72.6	149.0	149.0	158.4	128.1	174.9	69.9
	80	172.5	172.5	172.6	172.6	188.1	132.0	162.6	162.6	162.8	162.8	175.5	128.0	149.0	149.0	158.4	128.1	174.9	69.9
	85	182.7	182.7	182.8	182.8	187.7	184.9	172.2	172.2	172.3	172.3	172.4	172.4	149.0	149.0	158.4	128.1	174.9	69.9
	90	191.6	191.6	191.7	191.7	190.0	190.0	180.0	180.0	180.0	180.0	180.0	180.0	149.0	149.0	158.4	128.1	174.9	69.9
11000	75	165.0	165.0	172.5	153.4	190.2	78.8	155.4	155.4	160.9	149.3	177.4	74.8	149.0	149.0	158.4	128.1	174.9	69.9
	80	175.5	175.5	175.6	175.6	189.2	139.7	165.3	165.3	165.4	165.4	176.5	135.8	149.0	149.0	158.4	128.1	174.9	69.9
	85	185.7	185.7	185.8	185.8	186.0	186.0	174.8	174.8	174.9	174.9	175.0	175.0	149.0	149.0	158.4	128.1	174.9	69.9
	90	193.8	193.8	193.8	193.8	192.2	192.2	181.3	181.3	181.2	181.2	179.5	179.5	149.0	149.0	158.4	128.1	174.9	69.9
12000	75	167.5	167.5	173.5	162.2	191.1	81.0	157.6	157.6	161.8	158.1	178.2	77.0	149.0	149.0	158.4	128.1	174.9	69.9
	80	178.1	178.1	178.2	178.2	190.2	147.5	167.6	167.6	167.7	167.7	177.3	143.5	149.0	149.0	158.4	128.1	174.9	69.9
	85	188.3	188.3	188.4	188.4	187.6	187.6	177.0	177.0	177.1	177.1	177.6	177.6	149.0	149.0	158.4	128.1	174.9	69.9
	90	195.0	195.0	179.6	179.6	193.8	193.8	181.5	181.5	181.4	181.4	180.7	180.7	149.0	149.0	158.4	128.1	174.9	69.9

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity

Table 30. Gross cooling capacities (MBH) both compressors- 25 tons TTA3004*C condensing unit with 25 tons TWE3004*B air handler (IP)

CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		85						95						105					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
8750	75	291.7	250.6	322.8	191.6	349.1	127.9	279.4	244.9	308.8	186.0	332.9	122.2	265.6	238.5	293.2	179.7	314.6	115.7
	80	291.2	291.2	322.0	239.5	348.4	176.3	279.5	279.5	307.8	233.8	332.1	170.6	266.5	266.5	292.2	227.4	313.8	164.2
	85	301.6	301.6	321.3	286.4	347.6	224.6	291.1	291.1	307.3	280.6	331.3	218.8	279.2	279.2	291.7	274.1	313.0	212.4
	90	321.2	321.2	321.2	321.2	346.8	272.2	305.0	305.0	307.9	307.9	330.5	266.3	292.4	292.4	293.3	293.3	312.2	259.6
10000	75	298.7	270.5	329.1	203.2	353.0	130.2	285.8	264.6	314.5	197.5	336.0	124.3	271.3	258.1	298.1	191.1	316.7	117.8
	80	299.5	299.5	328.1	257.6	352.3	185.6	287.7	287.7	313.5	251.7	335.2	179.7	274.3	274.3	297.3	245.1	315.9	173.1
	85	313.5	313.5	327.6	311.2	351.5	240.7	302.2	302.2	313.0	305.2	334.4	234.8	289.3	289.3	296.7	296.7	315.1	228.3
	90	328.0	328.0	329.2	329.2	350.7	294.7	315.8	315.8	315.9	315.9	333.6	288.5	301.8	301.8	302.1	302.1	314.3	281.7
11000	75	303.2	286.3	333.0	212.3	355.2	132.0	289.9	280.3	318.0	206.5	337.6	126.0	275.0	273.6	301.2	200.1	317.7	119.3
	80	305.8	305.8	332.1	271.9	354.4	192.9	293.7	293.7	317.1	265.9	336.8	186.9	282.0	282.0	300.4	259.2	316.9	180.3
	85	321.4	321.4	331.6	330.8	353.7	253.6	309.4	309.4	316.6	316.6	336.1	247.3	295.8	295.8	299.9	299.9	316.2	240.4
	90	335.5	335.5	334.9	334.9	352.8	312.5	322.4	322.4	321.7	321.7	335.1	306.3	307.4	307.4	306.5	306.5	315.1	299.3
12000	75	307.1	301.8	336.2	221.3	357.0	133.8	293.5	293.5	320.8	215.4	338.7	127.7	278.2	278.2	303.7	209.0	318.6	121.0
	80	312.8	312.8	335.4	286.0	356.2	200.3	301.0	301.0	320.0	279.9	337.9	194.2	287.7	287.7	302.9	273.2	317.6	187.5
	85	328.1	328.1	334.8	334.8	355.3	266.0	315.4	315.4	319.5	319.5	337.2	259.7	301.0	301.0	303.0	303.0	316.9	252.6
	90	341.5	341.5	341.8	341.8	354.6	330.5	327.6	327.6	327.8	327.8	336.2	324.1	311.3	311.3	311.4	311.4	315.9	315.9
CFM	Ent DB (° F)	Ambient Temperature (°F)						Ambient Temperature (°F)						Ambient Temperature (°F)					
		115						125						135					
		Entering Wet Bulb (°F)						Entering Wet Bulb (°F)						Entering Wet Bulb (°F)					
		61		67		73		61		67		73		61		67		73	
		MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
8750	75	251.1	231.8	276.5	173.2	294.8	108.9	238.1	226.0	260.3	166.9	274.7	102.1	238.1	226.0	260.3	166.9	274.7	102.1
	80	253.3	253.3	275.6	220.6	294.0	157.3	242.3	242.3	259.5	214.1	273.9	150.5	238.1	226.0	260.3	166.9	274.7	102.1
	85	266.3	266.3	275.1	267.3	293.2	205.5	253.5	253.5	258.9	258.9	273.3	198.7	238.1	226.0	260.3	166.9	274.7	102.1
	90	278.4	278.4	278.6	278.6	292.3	252.4	264.2	264.2	264.4	264.4	272.2	245.2	238.1	226.0	260.3	166.9	274.7	102.1
10000	75	256.0	251.2	280.8	184.4	296.0	110.8	242.4	242.4	263.9	178.0	274.9	103.8	238.1	226.0	260.3	166.9	274.7	102.1
	80	262.3	262.3	280.0	238.2	295.1	166.1	249.8	249.8	263.1	231.5	274.0	159.1	238.1	226.0	260.3	166.9	274.7	102.1
	85	275.3	275.3	279.4	279.4	294.5	220.9	261.2	261.2	263.1	263.1	273.4	213.5	238.1	226.0	260.3	166.9	274.7	102.1
	90	286.3	286.3	286.4	286.4	293.4	274.3	269.9	269.9	270.0	270.0	272.0	266.8	238.1	226.0	260.3	166.9	274.7	102.1
11000	75	259.2	259.2	283.4	193.3	296.3	112.2	245.1	245.1	266.0	186.8	274.9	105.2	238.1	226.0	260.3	166.9	274.7	102.1
	80	268.3	268.3	282.6	252.2	295.5	173.2	254.7	254.7	265.3	245.4	274.0	166.2	238.1	226.0	260.3	166.9	274.7	102.1
	85	280.9	280.9	282.7	282.7	294.8	232.9	265.8	265.8	265.9	265.9	273.2	225.5	238.1	226.0	260.3	166.9	274.7	102.1
	90	290.4	290.4	290.4	290.4	293.5	291.8	271.9	271.9	271.9	271.9	272.0	272.0	238.1	226.0	260.3	166.9	274.7	102.1
12000	75	262.1	262.1	285.5	202.2	297.0	114.0	247.1	247.1	267.7	195.6	275.1	106.9	238.1	226.0	260.3	166.9	274.7	102.1
	80	273.3	273.3	284.7	266.1	296.2	180.5	259.1	259.1	267.0	259.2	274.3	173.4	238.1	226.0	260.3	166.9	274.7	102.1
	85	285.3	285.3	285.6	285.6	295.3	245.2	269.1	269.1	269.2	269.2	273.3	237.7	238.1	226.0	260.3	166.9	274.7	102.1
	90	292.7	292.7	292.7	292.7	294.3	294.3	271.9	271.9	271.8	271.8	272.2	272.2	238.1	226.0	260.3	166.9	274.7	102.1

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity, SHC = Sensible Heat Capacity



Performance Data

Table 31. Gross cooling capacities (MBH) 6 tons TTA0724*A condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	239.6	243.9	248.3	252.8	257.4	261.9
	Capacity (Btuh/1000)	63.9	70.1	76.9	84.2	92.0	100.5
	Unit Power (kW)	3.6	3.7	3.7	3.7	3.8	3.8
75	Head Press (psig)	276.0	280.4	284.9	289.5	294.2	298.8
	Capacity (Btuh/1000)	60.7	66.7	73.1	79.9	87.4	95.3
	Unit Power (kW)	4.0	4.1	4.1	4.2	4.2	4.3
85	Head Press (psig)	316.1	320.6	325.2	329.8	334.5	339.1
	Capacity (Btuh/1000)	57.5	63.1	69.2	75.7	82.7	90.2
	Unit Power (kW)	4.5	4.5	4.6	4.6	4.7	4.7
95	Head Press (psig)	359.9	364.5	369.2	373.9	378.6	383.2
	Capacity (Btuh/1000)	54.0	59.4	65.1	71.3	77.9	85.0
	Unit Power (kW)	5.0	5.1	5.1	5.1	5.2	5.2
105	Head Press (psig)	407.6	412.3	417.1	421.8	426.4	431.0
	Capacity (Btuh/1000)	50.5	55.6	61.0	66.8	73.1	79.7
	Unit Power (kW)	5.6	5.7	5.7	5.7	5.8	5.8
115	Head Press (psig)	459.4	464.1	468.8	473.5	478.1	482.5
	Capacity (Btuh/1000)	46.8	51.6	56.7	62.3	68.2	74.5
	Unit Power (kW)	6.3	6.4	6.4	6.4	6.4	6.5
125	Head Press (psig)	515.7	520.1	524.6	529.0	533.3	537.4
	Capacity (Btuh/1000)	42.9	47.5	52.4	57.6	63.2	69.2
	Unit Power (kW)	7.1	7.2	7.2	7.2	7.2	7.2

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 7. TTA0724*A capacity curve

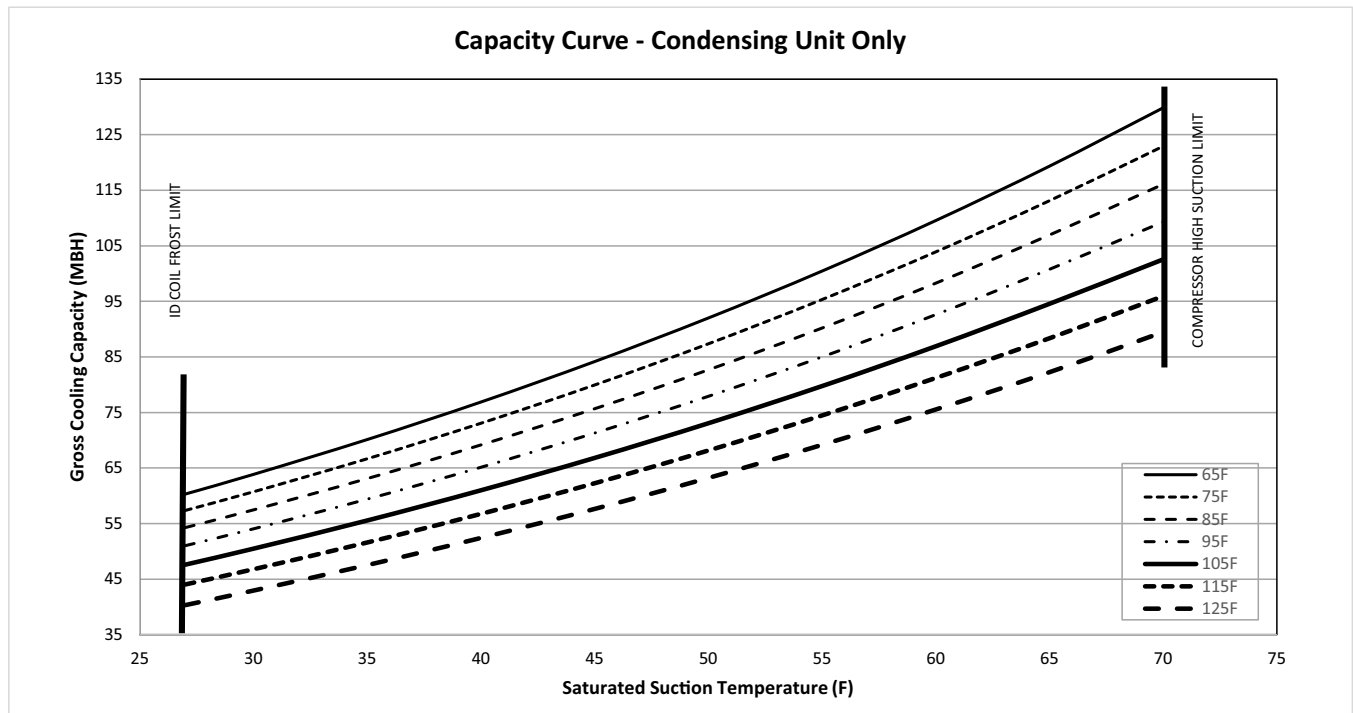
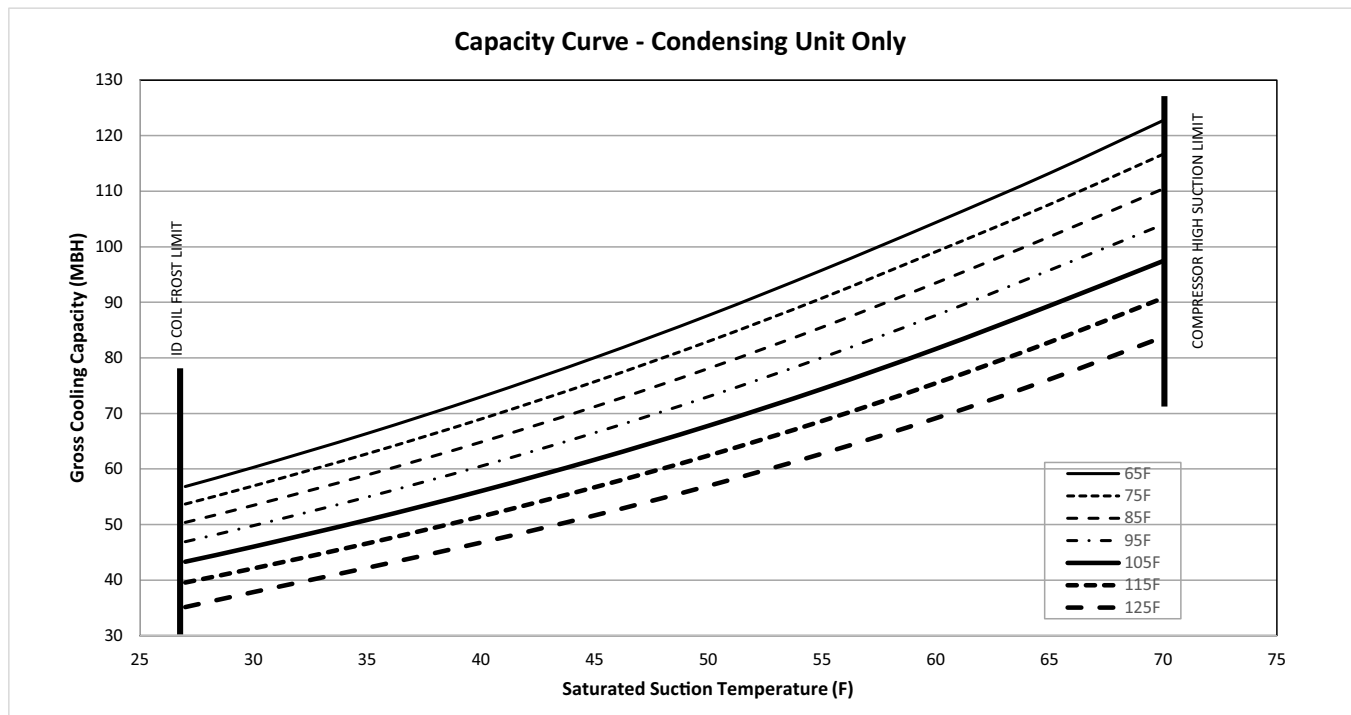


Table 32. Gross cooling capacities (MBH) 6 tons TTA0724*D condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	250.1	253.8	257.4	260.7	263.9	266.7
	Capacity (Btuh/1000)	60.3	66.4	73.0	80.0	87.6	95.8
	Unit Power (kW)	3.9	3.9	3.9	3.9	3.9	4.0
75	Head Press (psig)	290.0	294.1	298.0	301.7	305.0	307.8
	Capacity (Btuh/1000)	57.0	62.7	69.0	75.7	83.0	90.8
	Unit Power (kW)	4.4	4.4	4.5	4.5	4.5	4.5
85	Head Press (psig)	333.8	338.5	342.9	346.9	350.4	353.2
	Capacity (Btuh/1000)	53.5	58.9	64.8	71.2	78.1	85.5
	Unit Power (kW)	5.0	5.0	5.0	5.0	5.0	5.0
95	Head Press (psig)	381.7	387.0	391.9	396.5	400.3	403.3
	Capacity (Btuh/1000)	49.8	54.9	60.5	66.5	73.0	80.1
	Unit Power (kW)	5.6	5.6	5.7	5.7	5.7	5.7
105	Head Press (psig)	433.8	439.8	445.5	450.6	454.9	458.2
	Capacity (Btuh/1000)	46.0	50.8	56.0	61.7	67.8	74.4
	Unit Power (kW)	6.3	6.4	6.4	6.4	6.4	6.4
115	Head Press (psig)	490.6	497.1	503.4	509.3	514.2	517.9
	Capacity (Btuh/1000)	42.1	46.6	51.4	56.7	62.4	68.6
	Unit Power (kW)	7.2	7.2	7.2	7.3	7.3	7.3
125	Head Press (psig)	555.7	559.7	566.1	572.4	577.9	582.0
	Capacity (Btuh/1000)	37.8	42.2	46.7	51.6	57.0	62.8
	Unit Power (kW)	8.2	8.2	8.2	8.2	8.2	8.2

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 8. TTA0724*D capacity curve




Performance Data

Table 33. Gross cooling capacities (MBH) 7.5 tons TTA0904*A condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	259.1	265.2	271.4	277.7	284.1	290.5
	Capacity (Btuh/1000)	83.7	92.0	100.9	110.6	121.1	132.4
	Unit Power (kW)	5.1	5.2	5.3	5.4	5.6	5.7
75	Head Press (psig)	296.2	302.4	308.6	315.0	321.3	327.6
	Capacity (Btuh/1000)	79.5	87.4	95.9	105.0	114.9	125.5
	Unit Power (kW)	5.7	5.8	5.9	6.0	6.1	6.2
85	Head Press (psig)	337.0	343.1	349.4	355.7	362.0	368.2
	Capacity (Btuh/1000)	75.3	82.7	90.7	99.3	108.5	118.5
	Unit Power (kW)	6.3	6.4	6.5	6.6	6.7	6.8
95	Head Press (psig)	381.5	387.6	393.8	400.0	406.1	412.2
	Capacity (Btuh/1000)	70.9	77.8	85.3	93.3	102.0	111.3
	Unit Power (kW)	7.0	7.1	7.2	7.2	7.3	7.4
105	Head Press (psig)	429.8	435.8	441.8	447.9	453.8	459.6
	Capacity (Btuh/1000)	66.3	72.8	79.7	87.2	95.3	104.1
	Unit Power (kW)	7.8	7.8	7.9	8.0	8.1	8.2
115	Head Press (psig)	481.8	487.6	493.4	499.1	504.8	510.3
	Capacity (Btuh/1000)	61.6	67.6	74.1	81.1	88.6	96.7
	Unit Power (kW)	8.6	8.7	8.8	8.8	8.9	9.0
125	Head Press (psig)	537.6	542.9	548.2	553.4	558.5	563.4
	Capacity (Btuh/1000)	56.7	62.3	68.3	74.8	81.9	89.4
	Unit Power (kW)	9.6	9.6	9.7	9.7	9.8	9.8

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 9. TTA0904*A capacity curve

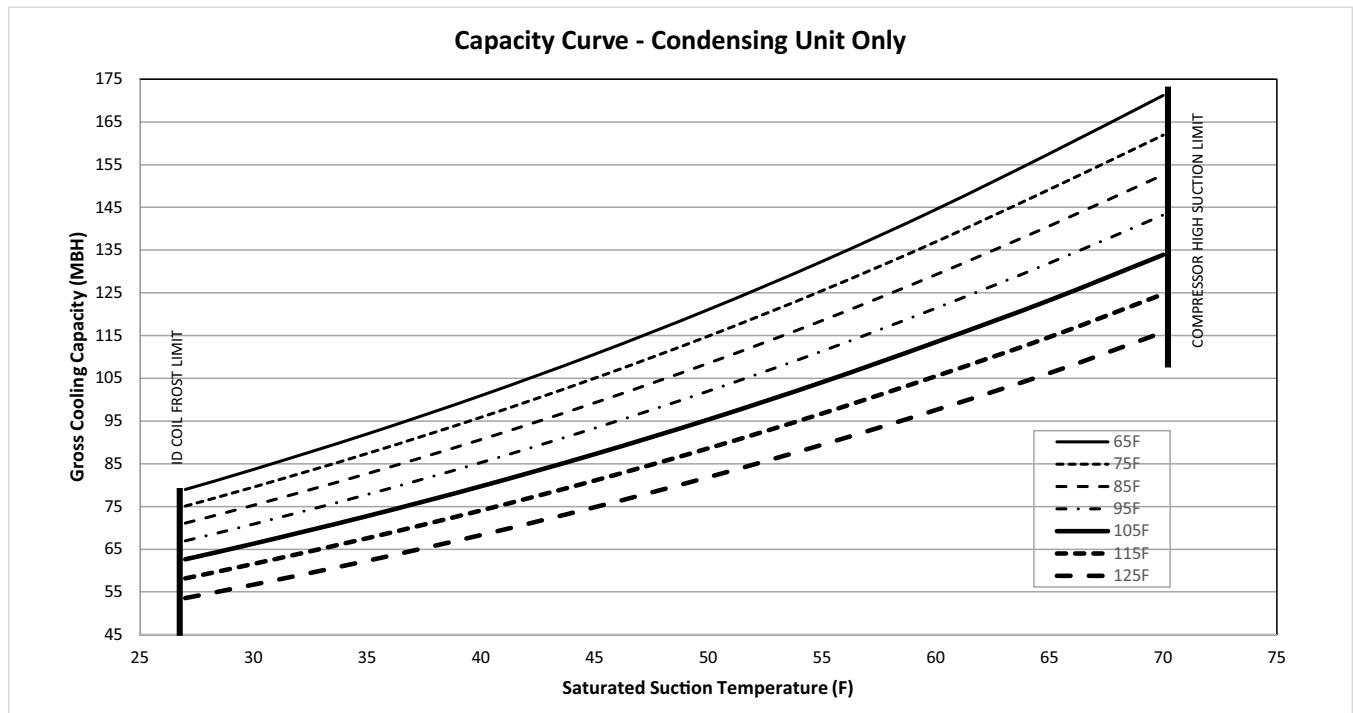
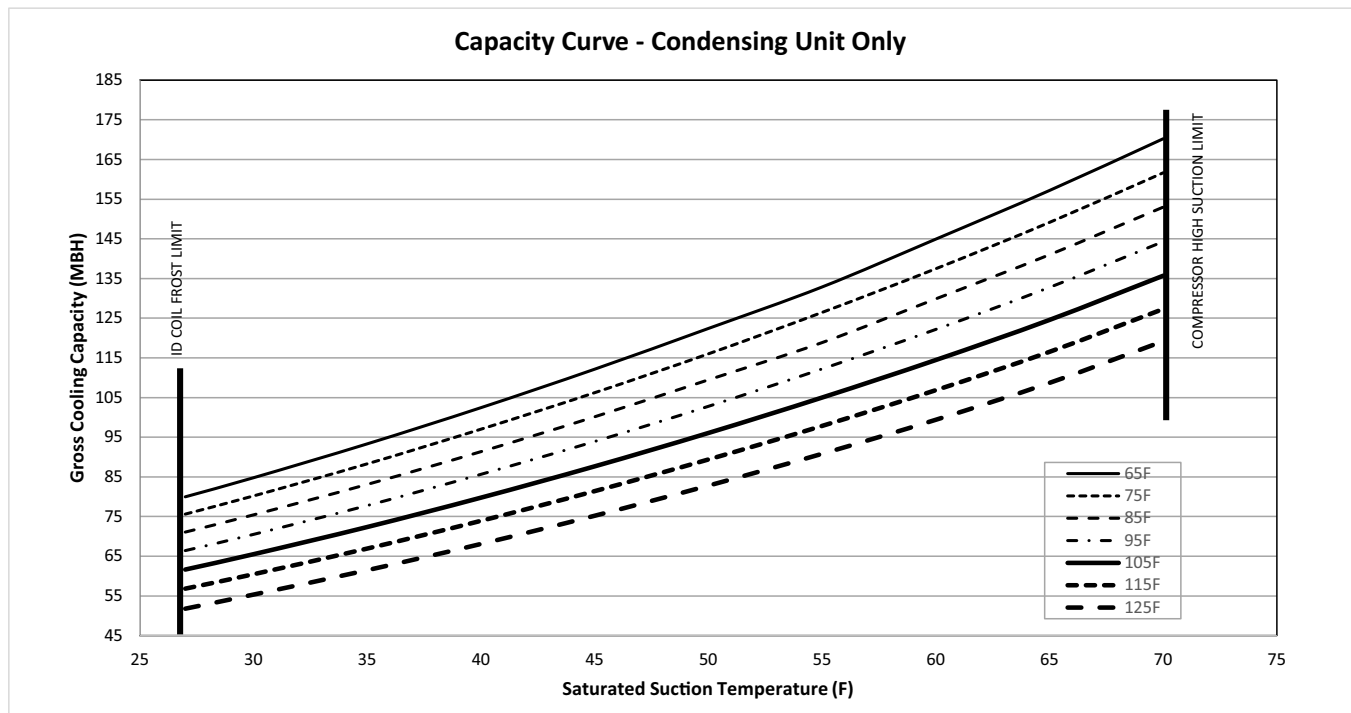


Table 34. Gross cooling capacities (MBH) 7.5 tons TTA0904*D condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	263.6	268.1	272.7	278.0	283.8	294.0
	Capacity (Btuh/1000)	84.8	93.3	102.4	112.1	122.4	132.9
	Unit Power (kW)	5.1	5.2	5.2	5.3	5.3	5.4
75	Head Press (psig)	301.1	306.1	310.5	316.2	321.9	326.9
	Capacity (Btuh/1000)	80.2	88.3	97.0	106.2	116.0	126.5
	Unit Power (kW)	5.7	5.7	5.8	5.8	5.9	5.9
85	Head Press (psig)	342.4	347.5	352.3	357.7	363.4	374.5
	Capacity (Btuh/1000)	75.4	83.1	91.4	100.1	109.5	118.9
	Unit Power (kW)	6.3	6.4	6.4	6.5	6.5	6.6
95	Head Press (psig)	387.6	392.7	397.1	403.0	408.5	413.5
	Capacity (Btuh/1000)	70.5	77.8	85.6	93.9	102.8	112.2
	Unit Power (kW)	7.0	7.1	7.1	7.2	7.2	7.3
105	Head Press (psig)	436.5	441.8	446.6	451.9	457.2	462.2
	Capacity (Btuh/1000)	65.5	72.4	79.8	87.7	96.1	105.0
	Unit Power (kW)	7.8	7.9	8.0	8.0	8.1	8.1
115	Head Press (psig)	489.6	494.8	499.5	504.4	509.3	514.2
	Capacity (Btuh/1000)	60.5	66.9	73.9	81.4	89.4	97.8
	Unit Power (kW)	8.8	8.8	8.9	8.9	9.0	9.0
125	Head Press (psig)	548.1	552.2	556.4	560.5	564.6	568.8
	Capacity (Btuh/1000)	55.3	61.5	68.1	75.2	82.8	90.8
	Unit Power (kW)	9.8	9.9	9.9	10.0	10.0	10.0

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 10. TTA0904*D capacity curve




Performance Data

Table 35. Gross cooling capacities (MBH) 10 tons TTA1204*D condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	251.8	256.1	260.1	263.7	266.7	269.3
	Capacity (Btuh/1000)	100.2	110.2	121.0	132.7	145.5	159.4
	Unit Power (kW)	6.5	6.5	6.6	6.7	6.7	6.8
75	Head Press (psig)	289.1	293.5	297.7	301.3	304.3	306.8
	Capacity (Btuh/1000)	95.1	104.6	114.9	126.1	138.2	151.4
	Unit Power (kW)	7.1	7.2	7.2	7.3	7.3	7.3
85	Head Press (psig)	330.1	334.7	338.9	342.5	345.4	347.8
	Capacity (Btuh/1000)	89.8	98.8	108.6	119.2	130.7	143.2
	Unit Power (kW)	7.8	7.9	7.9	8.0	8.0	8.0
95	Head Press (psig)	375.0	379.7	383.9	387.5	390.4	392.7
	Capacity (Btuh/1000)	84.2	92.8	102.1	112.1	123.1	134.9
	Unit Power (kW)	8.7	8.7	8.8	8.8	8.8	8.9
105	Head Press (psig)	423.9	428.8	433.0	436.6	439.3	441.4
	Capacity (Btuh/1000)	78.6	86.7	95.5	105.0	115.3	126.5
	Unit Power (kW)	9.6	9.6	9.7	9.7	9.8	9.8
115	Head Press (psig)	477.2	482.0	486.2	489.6	492.2	494.0
	Capacity (Btuh/1000)	72.9	80.6	88.8	97.8	107.6	118.2
	Unit Power (kW)	10.5	10.6	10.7	10.8	10.8	10.8
125	Head Press (psig)	536.4	539.7	543.6	546.6	548.8	550.1
	Capacity (Btuh/1000)	67.0	74.4	82.2	90.7	99.9	109.9
	Unit Power (kW)	11.6	11.7	11.8	11.8	11.9	11.9

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 11. TTA1204*D capacity curve

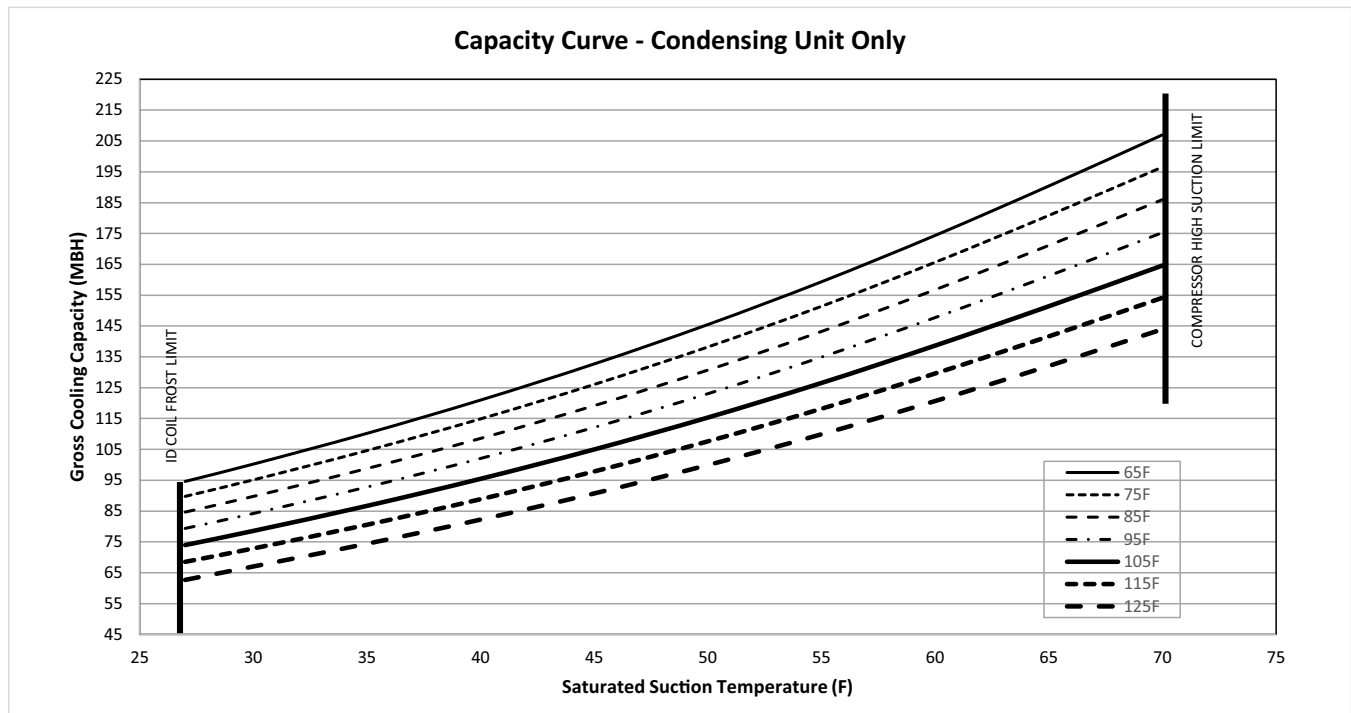
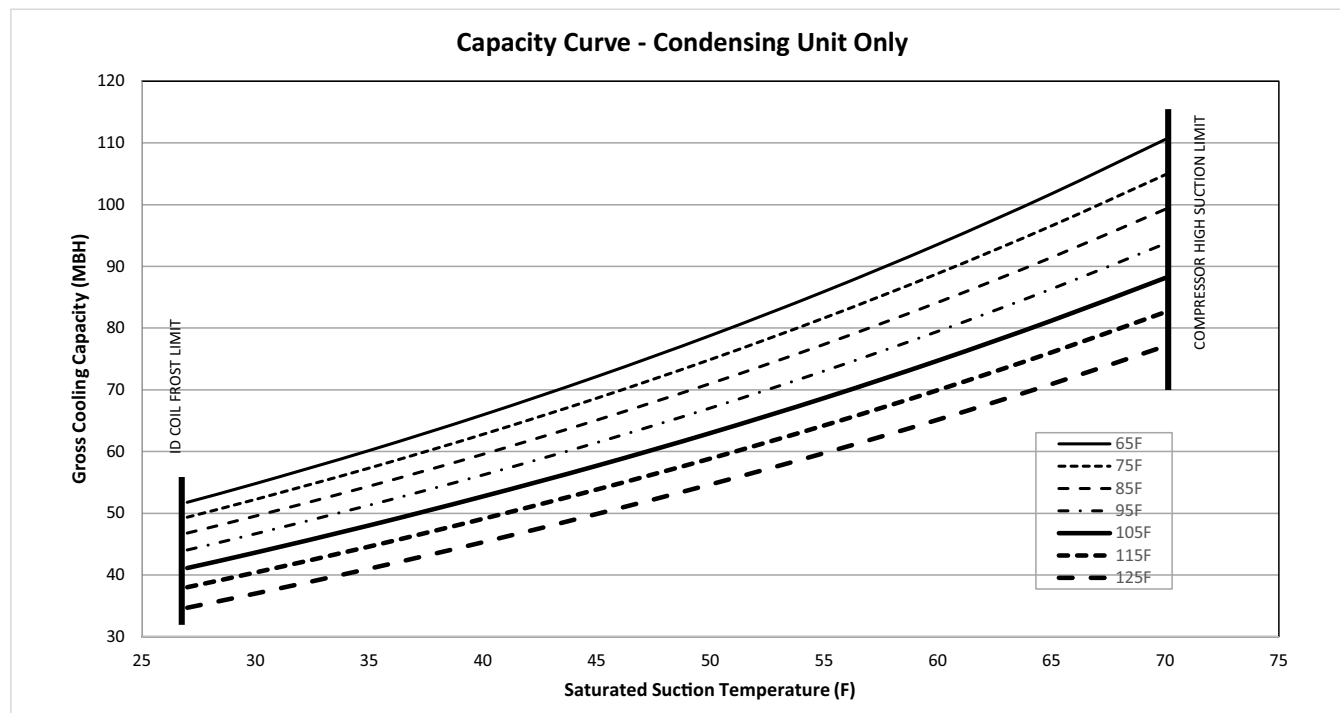


Table 36. Gross cooling capacities (MBH) one compressor - 10 tons TTA1204*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	222.4	225.2	228.3	231.5	234.9	238.4
	Capacity (Btuh/1000)	54.8	60.2	65.9	72.1	78.8	85.9
	Unit Power (kW)	3.5	3.5	3.6	3.6	3.6	3.6
75	Head Press (psig)	257.9	260.9	264.1	267.4	270.9	274.4
	Capacity (Btuh/1000)	52.2	57.3	62.8	68.6	74.9	81.6
	Unit Power (kW)	3.9	3.9	3.9	3.9	4.0	4.0
85	Head Press (psig)	297.6	300.3	303.6	307.1	310.6	314.1
	Capacity (Btuh/1000)	49.5	54.4	59.5	65.1	71.0	77.4
	Unit Power (kW)	4.2	4.3	4.3	4.3	4.3	4.4
95	Head Press (psig)	341.7	343.9	347.2	350.7	354.3	357.9
	Capacity (Btuh/1000)	46.7	51.3	56.2	61.4	67.0	73.0
	Unit Power (kW)	4.7	4.7	4.7	4.7	4.8	4.8
105	Head Press (psig)	390.4	392.5	395.1	398.6	402.2	405.8
	Capacity (Btuh/1000)	43.6	48.0	52.7	57.7	63.0	68.7
	Unit Power (kW)	5.2	5.2	5.2	5.2	5.2	5.3
115	Head Press (psig)	444.1	446.1	448.1	451.0	454.6	458.0
	Capacity (Btuh/1000)	40.4	44.6	49.1	53.8	58.9	64.2
	Unit Power (kW)	5.8	5.8	5.8	5.8	5.8	5.8
125	Head Press (psig)	503.9	505.4	506.9	508.4	511.2	514.5
	Capacity (Btuh/1000)	37.0	41.0	45.3	49.9	54.7	59.7
	Unit Power (kW)	6.5	6.5	6.4	6.4	6.4	6.4

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 12. TTA1204*C - one compressor - capacity curve




Performance Data

Table 37. Gross cooling capacities (MBH) both compressors - 10 tons TTA1204*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	254.3	259.6	264.9	270.2	275.4	280.6
	Capacity (Btuh/1000)	107.7	118.2	129.6	141.9	155.2	169.6
	Unit Power (kW)	6.6	6.7	6.8	6.9	7.0	7.1
75	Head Press (psig)	291.1	296.4	301.8	307.0	312.1	317.1
	Capacity (Btuh/1000)	102.2	112.2	122.9	134.5	147.0	160.4
	Unit Power (kW)	7.3	7.4	7.5	7.6	7.7	7.8
85	Head Press (psig)	331.5	336.9	342.2	347.4	352.4	357.2
	Capacity (Btuh/1000)	96.6	106.0	116.1	127.1	138.8	151.5
	Unit Power (kW)	8.1	8.2	8.3	8.4	8.5	8.6
95	Head Press (psig)	375.6	381.0	386.4	391.5	396.4	401.1
	Capacity (Btuh/1000)	90.7	99.7	109.3	119.6	130.7	142.5
	Unit Power (kW)	9.1	9.1	9.2	9.3	9.4	9.4
105	Head Press (psig)	423.5	429.0	434.3	439.4	444.1	448.6
	Capacity (Btuh/1000)	84.7	93.1	102.2	112.0	122.5	133.6
	Unit Power (kW)	10.1	10.2	10.2	10.3	10.4	10.4
115	Head Press (psig)	475.3	480.7	486.0	490.9	495.5	499.8
	Capacity (Btuh/1000)	78.4	86.5	95.1	104.4	114.3	124.8
	Unit Power (kW)	11.3	11.4	11.4	11.5	11.5	11.6
125	Head Press (psig)	531.1	536.3	541.2	545.8	550.1	554.0
	Capacity (Btuh/1000)	72.0	79.7	88.0	96.8	106.1	116.1
	Unit Power (kW)	12.7	12.7	12.8	12.8	12.8	12.8

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 13. TTA1204*C - both compressors - capacity curve

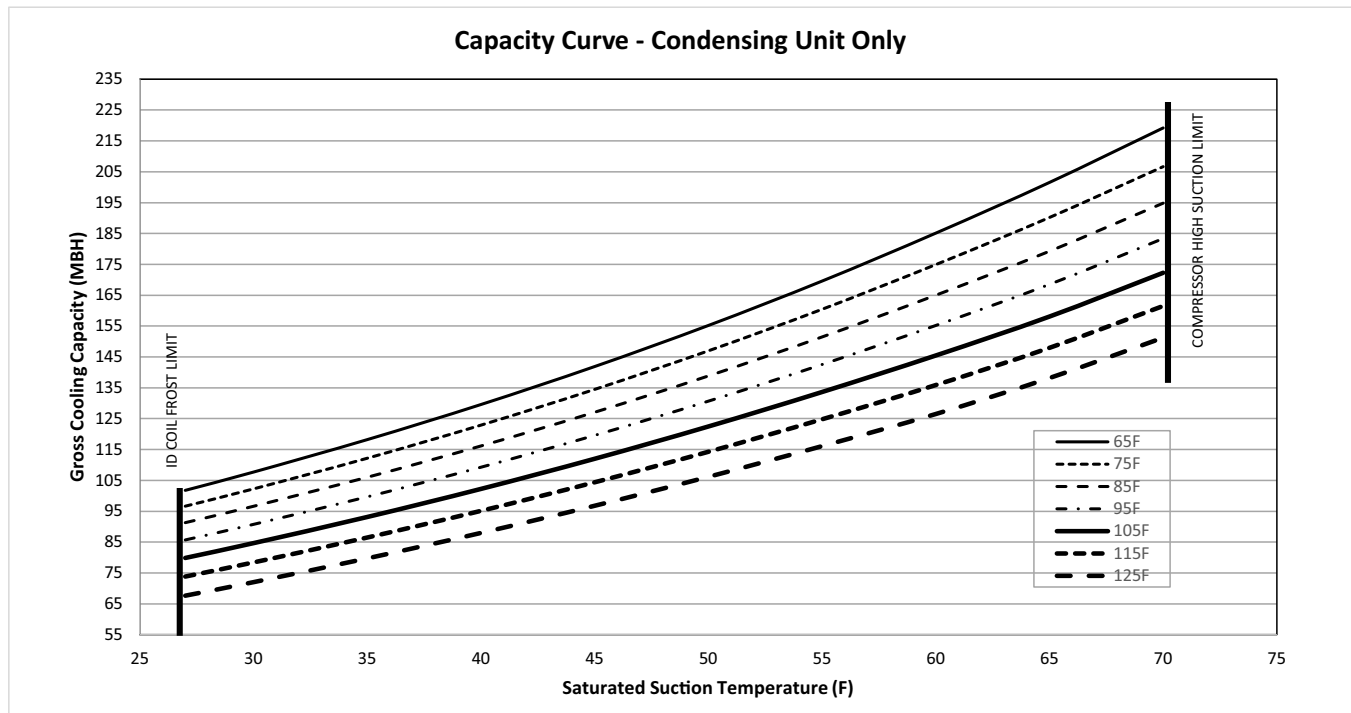
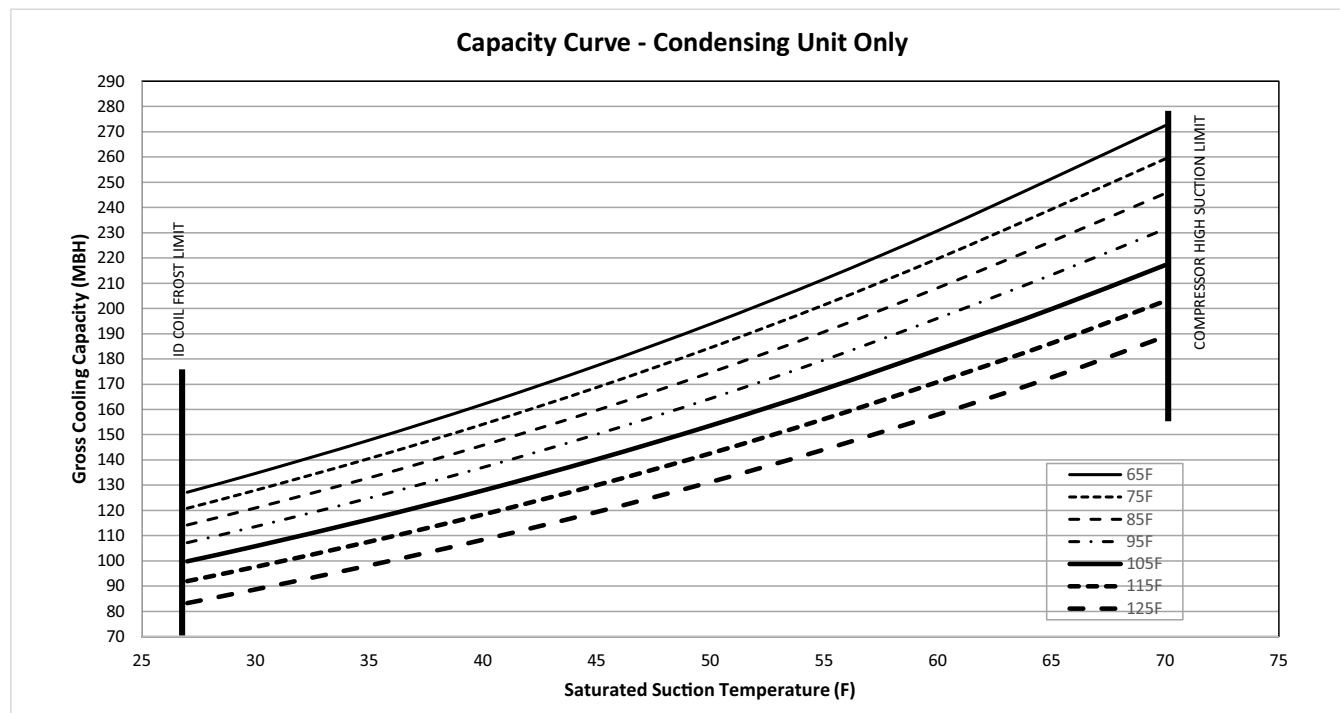


Table 38. Gross cooling capacities (MBH) 12.5 tons TTA1504*D condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	263.4	269.0	274.8	280.4	285.9	290.9
	Capacity (Btuh/1000)	134.7	147.8	162.0	177.3	193.8	211.6
	Unit Power (kW)	8.8	9.0	9.1	9.2	9.4	9.6
75	Head Press (psig)	301.6	307.4	313.3	319.1	324.6	329.7
	Capacity (Btuh/1000)	128.0	140.6	154.1	168.7	184.4	201.4
	Unit Power (kW)	9.8	9.9	10.1	10.2	10.3	10.5
85	Head Press (psig)	343.3	349.3	355.3	361.1	366.6	371.7
	Capacity (Btuh/1000)	121.0	132.9	145.8	159.6	174.6	190.7
	Unit Power (kW)	10.9	11.0	11.1	11.3	11.4	11.5
95	Head Press (psig)	388.7	394.7	400.7	406.5	412.0	417.0
	Capacity (Btuh/1000)	113.6	124.9	137.0	150.1	164.3	179.6
	Unit Power (kW)	12.1	12.2	12.4	12.5	12.6	12.7
105	Head Press (psig)	437.7	443.7	449.6	455.3	460.6	465.4
	Capacity (Btuh/1000)	105.8	116.4	127.9	140.2	153.6	168.0
	Unit Power (kW)	13.5	13.6	13.8	13.9	14.0	14.1
115	Head Press (psig)	490.9	496.4	501.9	507.2	512.1	516.6
	Capacity (Btuh/1000)	97.6	107.6	118.4	130.0	142.6	156.2
	Unit Power (kW)	15.0	15.1	15.3	15.4	15.5	15.6
125	Head Press (psig)	550.1	553.9	558.2	562.5	566.6	570.2
	Capacity (Btuh/1000)	88.7	98.2	108.4	119.4	131.2	144.1
	Unit Power (kW)	16.7	16.8	17.0	17.1	17.2	17.3

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 14. TTA1504*D capacity curve




Performance Data

Table 39. Gross cooling capacities (MBH) 15 tons TTA1804*D condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	241.9	245.3	249.7	254.3	259.0	263.9
	Capacity (Btuh/1000)	173.3	189.2	206.1	224.4	244.1	265.3
	Unit Power (kW)	11.1	11.3	11.5	11.7	12.0	12.2
75	Head Press (psig)	278.8	282.3	286.4	291.2	296.0	300.9
	Capacity (Btuh/1000)	165.2	180.5	196.9	214.4	233.3	253.7
	Unit Power (kW)	12.1	12.2	12.4	12.7	12.9	13.2
85	Head Press (psig)	319.5	323.1	326.7	331.6	336.6	341.5
	Capacity (Btuh/1000)	156.4	171.1	186.9	203.7	221.9	241.4
	Unit Power (kW)	13.2	13.4	13.5	13.7	14.0	14.2
95	Head Press (psig)	364.3	367.8	371.4	375.8	380.8	385.8
	Capacity (Btuh/1000)	147.0	161.1	176.3	192.5	209.9	228.6
	Unit Power (kW)	14.5	14.6	14.8	15.0	15.2	15.4
105	Head Press (psig)	413.6	417.0	420.5	424.0	429.1	434.0
	Capacity (Btuh/1000)	137.3	150.7	165.3	180.9	197.5	215.3
	Unit Power (kW)	15.9	16.1	16.2	16.4	16.6	16.8
115	Head Press (psig)	467.9	471.0	474.2	477.4	481.3	486.1
	Capacity (Btuh/1000)	127.3	140.1	154.0	168.9	184.9	201.9
	Unit Power (kW)	17.6	17.7	17.9	18.0	18.1	18.3
125	Head Press (psig)	528.1	530.6	533.0	535.5	538.0	541.8
	Capacity (Btuh/1000)	117.2	129.4	142.6	156.8	172.2	188.5
	Unit Power (kW)	19.6	19.7	19.7	19.8	19.9	20.1

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 15. TTA1804*D capacity curve

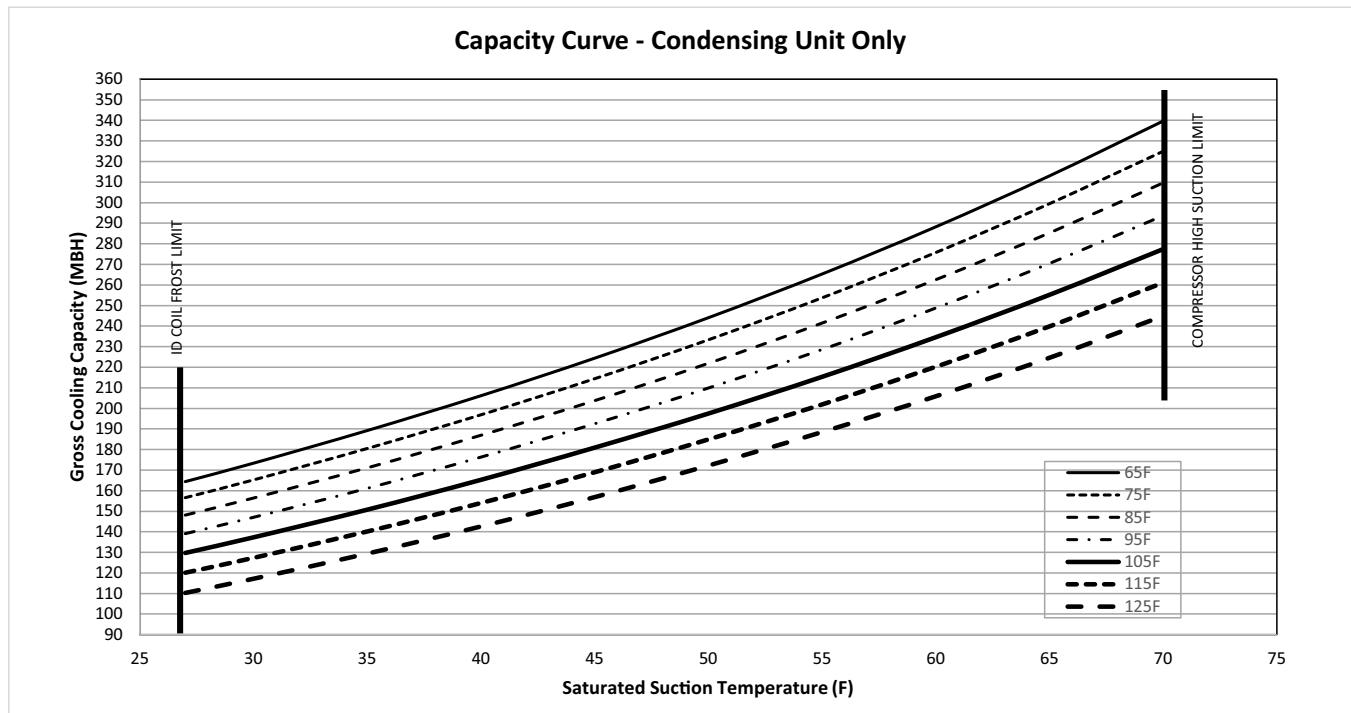
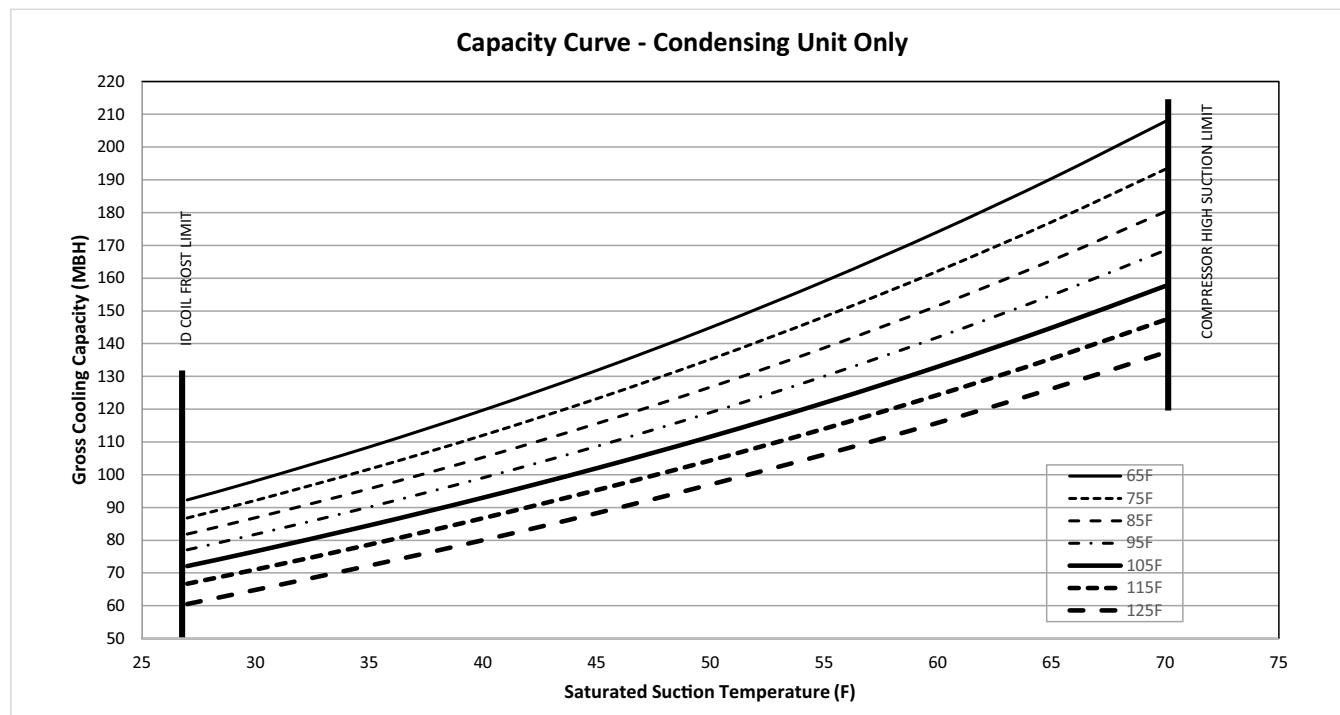


Table 40. Gross cooling capacities (MBH) one compressor - 15 tons TTA1804*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	218.8	221.6	224.6	227.8	231.3	235.1
	Capacity (Btuh/1000)	98.1	108.5	119.7	131.8	144.9	159.0
	Unit Power (kW)	6.6	6.6	6.7	6.8	6.8	6.9
75	Head Press (psig)	253.7	256.5	259.5	262.8	266.3	270.0
	Capacity (Btuh/1000)	92.2	101.7	112.0	123.2	135.2	148.2
	Unit Power (kW)	7.1	7.1	7.2	7.3	7.3	7.4
85	Head Press (psig)	292.6	295.5	298.5	301.8	305.4	309.1
	Capacity (Btuh/1000)	86.9	95.7	105.3	115.6	126.7	138.7
	Unit Power (kW)	7.6	7.7	7.8	7.8	7.9	8.0
95	Head Press (psig)	336.1	338.7	341.8	345.1	348.7	352.4
	Capacity (Btuh/1000)	81.8	90.1	99.0	108.6	119.0	130.0
	Unit Power (kW)	8.3	8.3	8.4	8.5	8.5	8.6
105	Head Press (psig)	384.7	386.8	389.5	392.9	396.4	400.1
	Capacity (Btuh/1000)	76.6	84.5	93.0	102.0	111.6	121.9
	Unit Power (kW)	9.0	9.0	9.1	9.2	9.3	9.3
115	Head Press (psig)	438.4	440.5	442.6	445.2	448.8	452.4
	Capacity (Btuh/1000)	71.1	78.6	86.7	95.3	104.3	114.0
	Unit Power (kW)	9.8	9.9	9.9	10.0	10.1	10.1
125	Head Press (psig)	498.8	500.2	501.9	503.8	505.7	509.2
	Capacity (Btuh/1000)	64.8	72.2	80.0	88.2	97.0	106.1
	Unit Power (kW)	10.8	10.9	10.9	11.0	11.0	11.1

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 16. TTA1804*C - one compressor - capacity curve




Performance Data

Table 41. Gross cooling capacities (MBH) both compressors - 15 tons TTA1804*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	238.7	243.2	247.8	252.6	257.5	262.3
	Capacity (Btuh/1000)	166.9	183.8	202.0	221.7	243.1	266.1
	Unit Power (kW)	10.7	10.8	10.9	11.0	11.1	11.2
75	Head Press (psig)	274.5	279.0	283.7	288.5	293.3	298.1
	Capacity (Btuh/1000)	157.8	173.6	190.7	209.1	229.1	250.6
	Unit Power (kW)	11.6	11.7	11.8	12.0	12.1	12.2
85	Head Press (psig)	314.2	318.8	323.5	328.3	333.0	337.6
	Capacity (Btuh/1000)	149.0	163.9	180.0	197.3	216.0	236.1
	Unit Power (kW)	12.7	12.8	12.9	13.0	13.1	13.2
95	Head Press (psig)	357.8	362.5	367.2	372.0	376.7	381.2
	Capacity (Btuh/1000)	140.2	154.3	169.5	185.8	203.4	222.3
	Unit Power (kW)	13.9	14.0	14.1	14.2	14.3	14.4
105	Head Press (psig)	405.4	410.2	415.0	419.7	424.3	428.7
	Capacity (Btuh/1000)	131.0	144.5	158.9	174.3	190.9	208.8
	Unit Power (kW)	15.2	15.3	15.4	15.6	15.7	15.8
115	Head Press (psig)	457.1	462.0	466.8	471.5	475.9	480.1
	Capacity (Btuh/1000)	121.3	134.2	148.0	162.7	178.5	195.4
	Unit Power (kW)	16.7	16.9	17.0	17.1	17.2	17.2
125	Head Press (psig)	513.1	517.9	522.5	527.0	531.2	535.2
	Capacity (Btuh/1000)	111.0	123.5	136.7	150.8	165.9	182.0
	Unit Power (kW)	18.4	18.5	18.6	18.7	18.8	18.9

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 17. TTA1804*C - both compressors - capacity curve

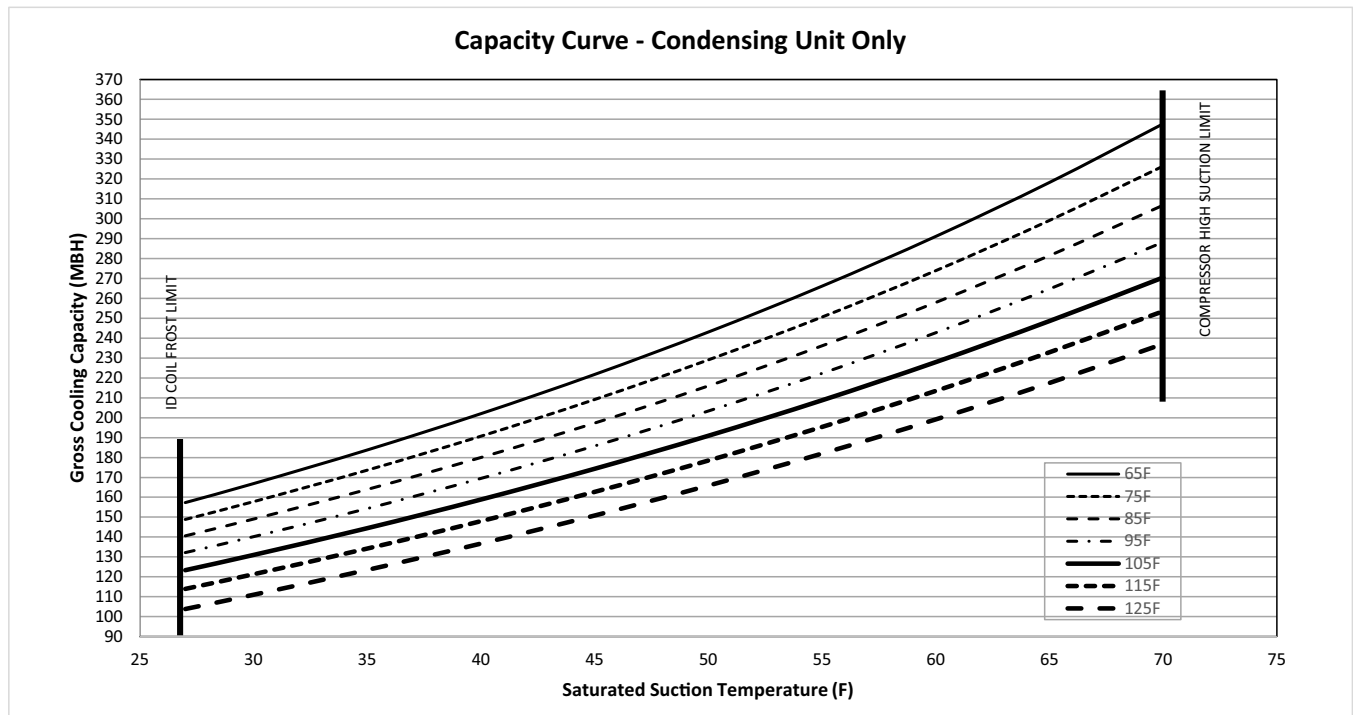
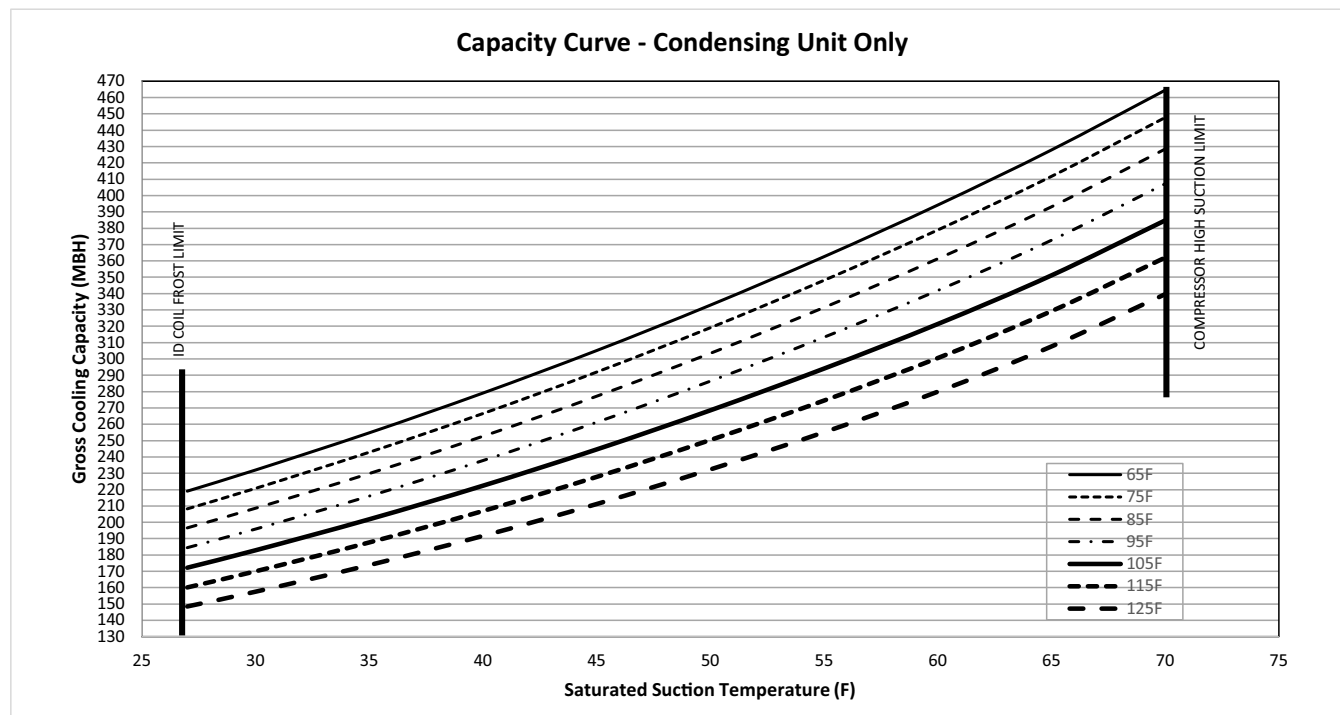


Table 42. Gross cooling capacities (MBH) 20 tons TTA2404*D condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	258.5	264.0	269.6	275.0	280.2	285.2
	Capacity (Btuh/1000)	232.0	254.8	279.1	305.1	332.9	362.6
	Unit Power (kW)	14.7	15.1	15.4	15.8	16.1	16.5
75	Head Press (psig)	295.5	301.3	307.0	312.6	318.0	323.1
	Capacity (Btuh/1000)	220.8	242.9	266.6	291.9	319.1	348.1
	Unit Power (kW)	16.1	16.4	16.7	17.0	17.4	17.7
85	Head Press (psig)	335.8	341.8	347.7	353.5	358.9	364.3
	Capacity (Btuh/1000)	208.6	229.8	252.7	277.2	303.4	331.5
	Unit Power (kW)	17.6	17.9	18.2	18.5	18.8	19.1
95	Head Press (psig)	379.9	385.9	391.9	397.7	403.2	408.8
	Capacity (Btuh/1000)	195.8	216.0	237.8	261.2	286.4	313.3
	Unit Power (kW)	19.2	19.6	19.9	20.2	20.4	20.7
105	Head Press (psig)	427.8	433.8	439.7	445.5	450.9	456.8
	Capacity (Btuh/1000)	182.9	201.8	222.4	244.6	268.5	294.1
	Unit Power (kW)	21.1	21.4	21.7	22.0	22.3	22.6
115	Head Press (psig)	479.8	485.6	491.2	496.7	502.0	507.9
	Capacity (Btuh/1000)	170.0	187.7	206.9	227.8	250.4	274.5
	Unit Power (kW)	23.2	23.5	23.8	24.1	24.4	24.6
125	Head Press (psig)	535.9	541.1	546.3	551.3	556.1	561.5
	Capacity (Btuh/1000)	157.5	173.8	191.7	211.2	232.4	255.1
	Unit Power (kW)	25.5	25.8	26.1	26.4	26.6	26.9

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 18. TTA2404*D capacity curve




Performance Data

Table 43. Gross cooling capacities (MBH) one compressor - 20 tons TTA2404*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	233.9	235.9	237.7	239.7	243.8	247.6
	Capacity (Btuh/1000)	124.0	137.2	151.4	166.4	181.9	198.3
	Unit Power (kW)	8.6	8.7	8.9	9.0	9.2	9.4
75	Head Press (psig)	272.2	274.0	275.7	277.0	281.0	284.8
	Capacity (Btuh/1000)	119.0	131.6	145.2	159.6	174.5	190.2
	Unit Power (kW)	9.2	9.3	9.4	9.6	9.7	9.9
85	Head Press (psig)	314.7	316.4	317.8	318.8	321.8	325.6
	Capacity (Btuh/1000)	113.1	125.3	138.2	152.0	166.3	181.2
	Unit Power (kW)	9.9	10.0	10.1	10.3	10.4	10.6
95	Head Press (psig)	361.9	363.3	364.3	364.8	366.4	370.1
	Capacity (Btuh/1000)	106.5	118.0	130.3	143.5	157.2	171.3
	Unit Power (kW)	10.8	10.9	11.0	11.1	11.2	11.4
105	Head Press (psig)	414.6	415.3	415.6	415.4	414.9	418.4
	Capacity (Btuh/1000)	98.9	109.8	121.5	134.0	147.3	160.5
	Unit Power (kW)	11.8	11.9	12.0	12.1	12.2	12.3
115	Head Press (psig)	474.3	473.5	472.6	471.2	469.3	470.7
	Capacity (Btuh/1000)	90.4	100.8	111.9	123.8	136.4	149.2
	Unit Power (kW)	13.0	13.1	13.1	13.2	13.2	13.3
125	Head Press (psig)	548.5	542.4	537.8	533.6	529.4	527.0
	Capacity (Btuh/1000)	80.8	91.1	101.8	113.3	125.4	137.9
	Unit Power (kW)	14.6	14.5	14.5	14.4	14.4	14.4

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 19. TTA2404*C - One compressor - capacity curves

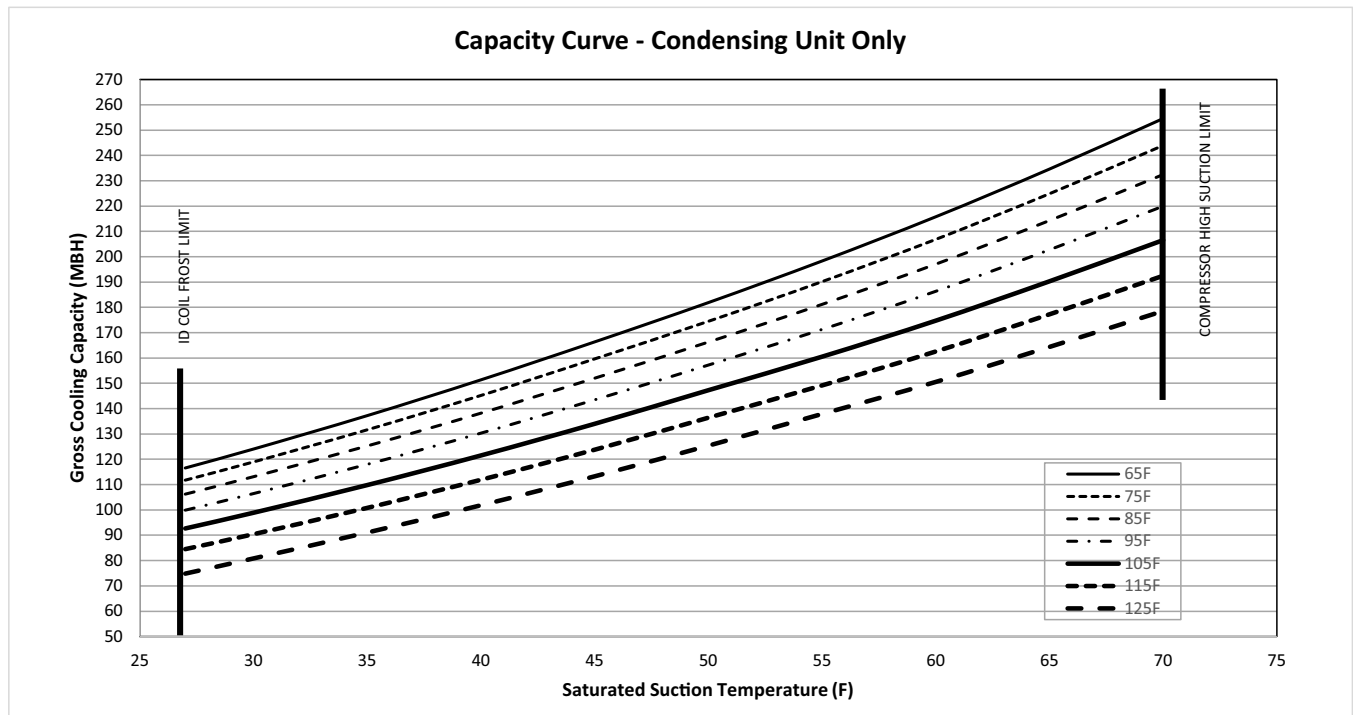
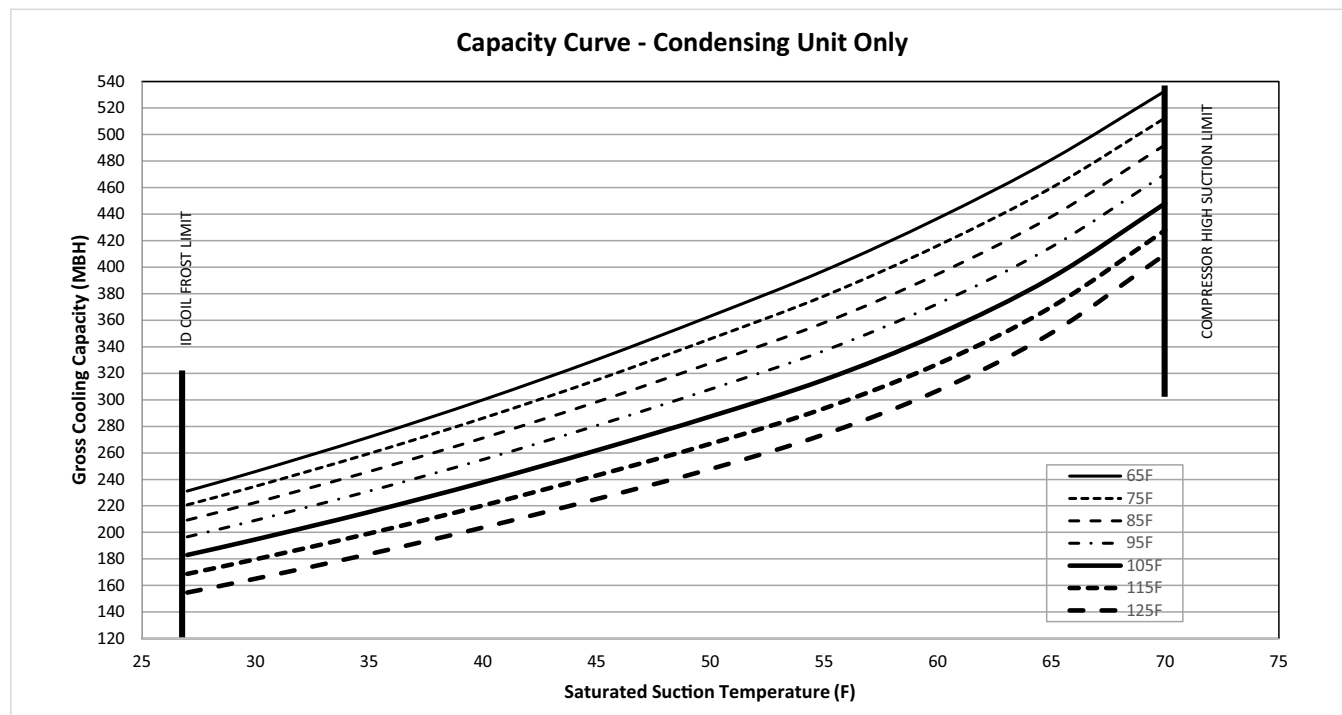


Table 44. Gross cooling capacities (MBH) both compressors - 20 tons TTA2404*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	265.1	271.0	276.2	280.2	282.8	288.9
	Capacity (Btuh/1000)	245.9	271.9	300.0	330.3	363.1	397.4
	Unit Power (kW)	16.3	16.7	17.1	17.5	17.8	18.3
75	Head Press (psig)	303.0	309.0	314.0	317.8	320.2	326.4
	Capacity (Btuh/1000)	234.8	259.5	286.1	314.9	345.9	378.3
	Unit Power (kW)	17.6	18.0	18.4	18.8	19.1	19.6
85	Head Press (psig)	344.4	350.3	355.1	358.6	360.9	367.3
	Capacity (Btuh/1000)	222.5	245.9	271.2	298.4	327.6	358.1
	Unit Power (kW)	19.2	19.6	20.0	20.3	20.6	21.1
95	Head Press (psig)	389.1	394.9	399.5	402.6	405.2	411.4
	Capacity (Btuh/1000)	209.1	231.2	254.9	280.6	308.0	337.0
	Unit Power (kW)	20.9	21.3	21.7	22.0	22.3	22.7
105	Head Press (psig)	437.3	442.8	447.0	449.8	452.7	458.4
	Capacity (Btuh/1000)	194.7	215.4	237.8	261.9	287.4	315.1
	Unit Power (kW)	22.9	23.3	23.6	23.9	24.1	24.5
115	Head Press (psig)	489.0	494.1	497.9	500.2	503.2	508.0
	Capacity (Btuh/1000)	179.7	199.2	220.3	243.0	266.8	293.5
	Unit Power (kW)	25.1	25.4	25.7	25.9	26.2	26.5
125	Head Press (psig)	544.8	549.3	552.3	554.0	556.8	560.1
	Capacity (Btuh/1000)	165.1	183.7	203.7	225.2	247.8	273.9
	Unit Power (kW)	27.5	27.7	27.9	28.1	28.3	28.6

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 20. TTA2404*C - both compressors - capacity curves




Performance Data

Table 45. Gross cooling capacities (MBH) one compressor - 25 tons TTA3004*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	246.4	248.7	250.8	252.6	253.9	256.2
	Capacity (Btuh/1000)	142.4	157.0	172.7	189.5	207.4	226.2
	Unit Power (kW)	10.2	10.3	10.4	10.5	10.6	10.7
75	Head Press (psig)	286.2	288.4	290.3	291.9	292.9	294.3
	Capacity (Btuh/1000)	136.5	150.6	165.8	182.0	199.3	217.5
	Unit Power (kW)	11.0	11.1	11.2	11.3	11.4	11.6
85	Head Press (psig)	330.6	332.5	334.1	335.3	335.8	336.0
	Capacity (Btuh/1000)	129.6	143.2	157.7	173.3	189.9	207.6
	Unit Power (kW)	11.9	12.0	12.2	12.3	12.4	12.5
95	Head Press (psig)	380.2	381.6	382.6	383.1	382.9	382.0
	Capacity (Btuh/1000)	121.7	134.6	148.5	163.4	179.3	196.3
	Unit Power (kW)	13.0	13.1	13.3	13.4	13.5	13.6
105	Head Press (psig)	436.1	436.4	436.3	435.8	434.5	432.5
	Capacity (Btuh/1000)	112.6	124.9	138.1	152.2	167.4	183.7
	Unit Power (kW)	14.3	14.4	14.5	14.6	14.7	14.7
115	Head Press (psig)	501.4	499.1	496.9	494.3	491.3	487.6
	Capacity (Btuh/1000)	102.3	114.1	126.7	140.2	154.7	170.3
	Unit Power (kW)	15.9	15.9	16.0	16.0	16.0	16.1
125	Head Press (psig)	601.8	580.9	570.2	562.1	555.0	548.1
	Capacity (Btuh/1000)	89.3	101.9	114.6	127.9	142.0	157.0
	Unit Power (kW)	18.4	17.9	17.7	17.6	17.5	17.5

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 21. TTA3004*C - one compressors - capacity curves

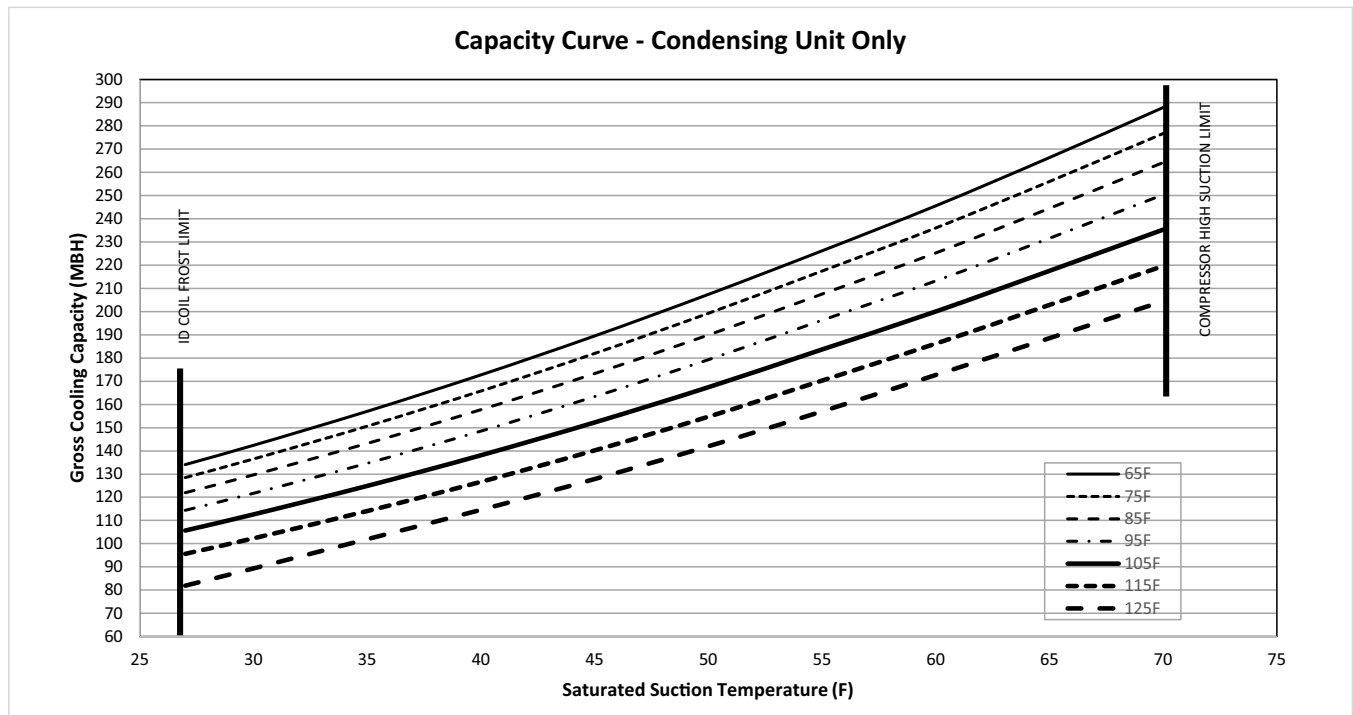
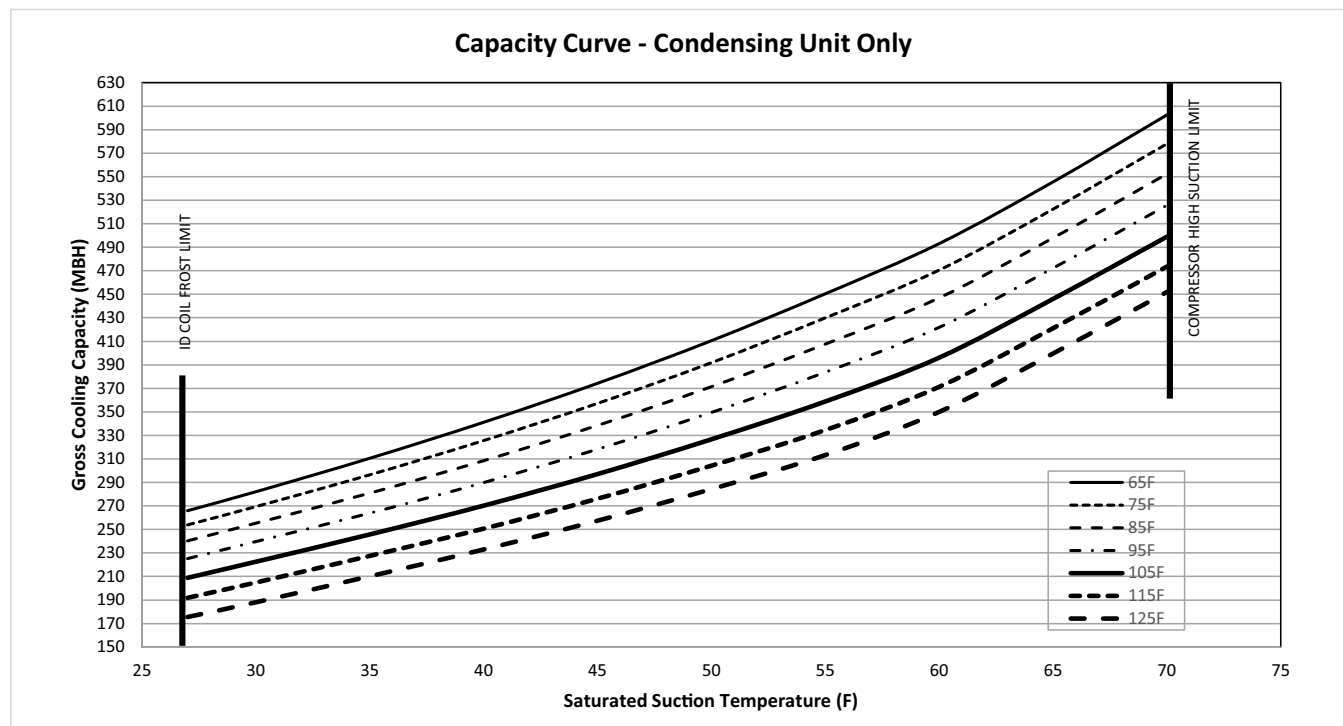


Table 46. Gross cooling capacities (MBH) both compressors - 25 tons TTA3004*C condensing unit only (IP)

Outdoor Temp (°F)		Saturated Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	279.0	286.9	294.4	300.5	304.5	305.9
	Capacity (Btuh/1000)	282.1	310.5	341.1	374.3	410.5	450.4
	Unit Power (kW)	19.8	20.3	20.8	21.2	21.6	21.8
75	Head Press (psig)	318.0	326.0	333.3	339.2	342.7	343.5
	Capacity (Btuh/1000)	269.4	296.5	325.6	357.2	391.8	429.9
	Unit Power (kW)	21.5	22.0	22.5	23.0	23.3	23.6
85	Head Press (psig)	360.4	368.4	375.5	380.9	383.9	384.3
	Capacity (Btuh/1000)	255.3	280.9	308.5	338.5	371.4	407.6
	Unit Power (kW)	23.4	23.9	24.4	24.9	25.2	25.5
95	Head Press (psig)	406.6	414.0	420.8	425.7	428.0	428.3
	Capacity (Btuh/1000)	239.7	263.9	289.8	318.2	349.5	383.7
	Unit Power (kW)	25.5	26.1	26.6	27.0	27.3	27.6
105	Head Press (psig)	457.6	463.0	469.3	473.5	475.1	475.6
	Capacity (Btuh/1000)	222.5	245.8	270.2	297.1	326.7	358.8
	Unit Power (kW)	28.0	28.4	28.9	29.3	29.6	29.8
115	Head Press (psig)	513.2	515.3	520.9	524.3	525.1	525.6
	Capacity (Btuh/1000)	204.9	227.5	250.7	276.2	304.2	334.5
	Unit Power (kW)	30.7	31.0	31.4	31.8	32.0	32.2
125	Head Press (psig)	575.1	573.6	576.2	578.6	578.3	578.1
	Capacity (Btuh/1000)	188.1	210.2	233.0	257.4	284.3	313.2
	Unit Power (kW)	33.8	33.8	34.1	34.4	34.5	34.7

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 22. TTA3004*C - both compressors - capacity curves




Performance Data

Fan Performance

Important: Additional external static pressure from accessories must be added to the design static pressure from the accessory pressure tables.

Table 47. Evaporator fan performance —TWE060 — constant volume air handler

External Static Pressure (Inches of Water Gauge)																						
0.10"			0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"		1.10"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3/4 HP Standard Motor																			1.5 HP High Static			
																			Motor			
1600	—	—	738	0.33	790	0.38	840	0.44	888	0.50	936	0.56	980	0.62	1025	0.69	1070	0.76	1111	0.83	1152	0.91
1700	719	0.33	771	0.38	821	0.44	869	0.50	914	0.56	959	0.62	1003	0.68	1047	0.75	1089	0.82	1129	0.90	1170	0.98
1800	756	0.39	804	0.44	853	0.50	898	0.56	942	0.62	985	0.69	1028	0.75	1068	0.82	1109	0.89	1149	0.97	1187	1.05
1900	792	0.45	838	0.51	884	0.57	928	0.63	971	0.69	1012	0.76	1052	0.83	1092	0.90	1131	0.97	1170	1.05	1207	1.13
2000	829	0.52	873	0.58	917	0.64	959	0.71	1000	0.77	1040	0.84	1079	0.91	1117	0.98	1155	1.06	1192	1.14	1227	1.21
2100	866	0.60	908	0.66	950	0.72	991	0.79	1030	0.86	1069	0.93	1106	1.00	1144	1.08	1179	1.15	1215	1.23	1250	1.31
2200	903	0.68	944	0.74	983	0.81	1023	0.88	1061	0.95	1099	1.02	1134	1.10	1170	1.18	1206	1.26	1241	1.34	1274	1.42
2300	940	0.78	979	0.84	1017	0.90	1055	0.97	1093	1.05	1129	1.13	1164	1.21	1198	1.28	1232	1.37	1266	1.45	1299	1.53
2400	978	0.88	1015	0.94	1052	1.01	1089	1.08	1125	1.16	1160	1.24	1194	1.32	1227	1.40	1259	1.48	1292	1.57	—	—
External Static Pressure (Inches of Water Gauge)																						
1.20"			1.30"		1.40"																	
CFM	RPM	BHP	RPM	BHP	RPM	BHP																
1.5 HP High Static Motor																						
1600	1191	0.99	1229	1.07	1264	1.14																
1700	1208	1.06	1246	1.14	1281	1.22																
1800	1226	1.13	1263	1.22	1300	1.30																
1900	1245	1.21	1281	1.30	1317	1.39																
2000	1265	1.30	1300	1.39	1335	1.48																
2100	1285	1.39	1319	1.48	—	—																
2200	1308	1.50	—	—	—	—																
2300	—	—	—	—	—	—																
2400	—	—	—	—	—	—																

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 48. Evaporator fan performance —TWE0724KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)																			
0.10"			0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	
	1.5 HP Standard Motor with Field Supplied Low Static Sheave and Belt						1.5 HP Standard Motor												
1920	456	0.23	518	0.29	578	0.37	635	0.46	688	0.55	737	0.65	782	0.75	824	0.85	863	0.95	
2040	474	0.26	536	0.33	592	0.41	648	0.50	700	0.60	748	0.70	793	0.80	835	0.91	874	1.02	
2160	492	0.30	555	0.38	608	0.46	661	0.55	711	0.65	759	0.75	804	0.86	846	0.97	886	1.08	
2280	512	0.34	574	0.43	625	0.51	675	0.60	724	0.70	771	0.81	815	0.92	857	1.03	896	1.15	
2400	532	0.38	594	0.48	642	0.56	689	0.66	737	0.76	783	0.87	826	0.98	868	1.10	907	1.22	
2520	553	0.43	614	0.54	661	0.63	705	0.72	751	0.82	795	0.94	838	1.05	879	1.18	918	1.30	
2640	575	0.49	634	0.60	679	0.69	722	0.79	765	0.89	809	1.01	850	1.13	891	1.25	929	1.38	
2760	597	0.55	651	0.66	698	0.76	740	0.86	780	0.96	822	1.08	863	1.21	903	1.33	941	1.46	
2880	619	0.62	669	0.73	718	0.84	758	0.94	797	1.05	837	1.16	877	1.29	915	1.42	953	1.55	
External Static Pressure (Inches of Water Gauge)																			
1.00"			1.10"		1.20"		1.30"		1.40"		1.50"		1.60"						
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP					
	1.5 HP Standard Motor with Field Supplied High Static Sheave and Belt																		
1920	900	1.05	934	1.15	967	1.25	998	1.36	1027	1.46	1056	1.56	1082	1.65					
2040	911	1.12	946	1.23	979	1.34	1011	1.45	1041	1.55	1069	1.66	—	—					
2160	923	1.20	958	1.31	991	1.42	1023	1.54	1053	1.65	—	—	—	—					
2280	934	1.27	969	1.39	1003	1.51	1035	1.63	—	—	—	—	—	—					
2400	945	1.35	980	1.47	1014	1.60	1046	1.72	—	—	—	—	—	—					
2520	955	1.43	991	1.56	1025	1.69	—	—	—	—	—	—	—	—					
2640	966	1.51	1002	1.64	—	—	—	—	—	—	—	—	—	—					
2760	978	1.60	—	—	—	—	—	—	—	—	—	—	—	—					
2880	989	1.69	—	—	—	—	—	—	—	—	—	—	—	—					

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. For 380/60Hz models: Performance is limited to standard motor CFM/static range. No high static or oversized motors are available.
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 49. Evaporator fan performance - TWE0724** - 2-speed VFD, SZVAV air handler

External Static Pressure (Inches of Water Gauge)																																							
0.10"				0.20"				0.30"				0.40"				0.50"				0.60"				0.70"				0.80"				0.90"				1.00"			
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP						
2 HP Standard Drive																																							
1920	—	—	—	518	28	0.29	578	31	0.37	635	34	0.46	688	37	0.55	737	40	0.65	782	42	0.75	824	44	0.85	863	46	0.95	900	48	1.05	934	50	1.15						
2040	474	25	0.26	536	29	0.33	592	32	0.41	648	35	0.50	700	38	0.60	748	40	0.70	793	43	0.80	835	45	0.91	874	47	1.02	911	49	1.12	945	51	1.22						
2160	492	26	0.30	555	30	0.38	608	33	0.46	661	35	0.55	711	38	0.65	759	41	0.75	804	43	0.86	846	45	0.97	886	48	1.08	923	50	1.20	957	52	1.30						
2280	512	27	0.34	574	31	0.43	625	34	0.51	675	36	0.60	724	39	0.70	771	41	0.81	815	44	0.92	857	46	1.03	896	48	1.15	934	50	1.27	968	52	1.37						
2400	532	29	0.38	594	32	0.48	642	34	0.56	689	37	0.66	737	40	0.76	783	42	0.87	826	44	0.98	868	47	1.10	907	49	1.22	945	51	1.35	979	53	1.45						
2520	553	30	0.43	614	33	0.54	661	35	0.63	705	38	0.72	751	40	0.82	795	43	0.94	838	45	1.05	879	47	1.18	918	49	1.30	955	51	1.43	989	53	1.53						
2640	575	31	0.49	634	34	0.60	679	36	0.69	722	39	0.79	765	41	0.89	809	43	1.01	850	46	1.13	891	48	1.25	929	50	1.38	966	52	1.51	1000	54	1.61						
2760	597	32	0.55	651	35	0.66	698	37	0.76	740	40	0.86	780	42	0.96	822	44	1.08	863	46	1.21	903	48	1.33	941	51	1.46	978	52	1.60	1012	54	1.70						
2880	619	33	0.62	669	36	0.73	718	39	0.84	758	41	0.94	797	43	1.05	837	45	1.16	877	47	1.29	915	49	1.42	953	51	1.55	989	53	1.69	1024	55	1.78						
3 HP High Static Drive																																							
1920	934	50	1.15	967	52	1.25	998	54	1.36	1027	55	1.46	1056	57	1.56	1082	58	1.65	1108	59	1.75	1132	50	1.84	1156	51	1.94	1179	52	2.03	1203	53	2.12						
2040	946	51	1.23	979	53	1.34	1011	54	1.45	1041	56	1.55	1069	57	1.66	1097	59	1.77	1124	60	1.87	1148	51	1.98	1172	52	2.08	1195	53	2.18	1218	54	2.28						
2160	958	51	1.31	991	53	1.42	1023	55	1.54	1053	57	1.65	1082	58	1.77	1110	60	1.88	1137	50	1.99	1163	51	2.11	1188	53	2.22	1212	54	2.33	1235	55	2.43						
2280	969	52	1.39	1003	54	1.51	1035	56	1.63	1065	57	1.75	1095	59	1.87	1123	60	1.99	1150	51	2.11	1176	52	2.23	1202	53	2.35	1226	54	2.47	1249	55	2.57						
2400	980	53	1.47	1014	54	1.60	1046	56	1.72	1077	58	1.85	1107	59	1.98	1135	60	2.10	1163	51	2.23	1189	53	2.36	1215	54	2.48	1240	55	2.61	1264	56	2.71						
2520	991	53	1.56	1025	55	1.69	1057	57	1.82	1088	58	1.95	1118	60	2.08	1147	61	2.22	1175	52	2.35	1202	53	2.48	1227	54	2.61	1252	55	2.75	1275	56	2.89						
2640	1002	54	1.64	1036	56	1.78	1068	57	1.92	1099	59	2.05	1130	60	2.19	1158	61	2.33	1186	52	2.47	1213	54	2.61	1240	55	2.75	1265	56	2.89	1289	57	3.03						
2760	1013	54	1.74	1046	56	1.87	1079	58	2.02	1111	59	2.16	1140	60	2.30	1170	61	2.45	1198	53	2.59	1225	54	2.74	1251	55	2.89	1277	56	3.03	1301	57	3.17						
2880	1024	55	1.83	1057	57	1.97	1090	58	2.12	1121	59	2.27	1151	60	2.42	1181	61	2.57	1209	53	2.72	1236	55	2.87	1263	56	3.02	1288	57	3.17	1312	58	3.31						
2 HP Standard Drive																																							
1920	934	50	1.15	967	52	1.25	998	54	1.36	1027	55	1.46	1056	57	1.56	1082	58	1.65	1108	59	1.75	1132	50	1.84	1156	51	1.94	1179	52	2.03	1203	53	2.12						
2040	946	51	1.23	979	53	1.34	1011	54	1.45	1041	56	1.55	1069	57	1.66	1097	59	1.77	1124	60	1.87	1148	51	1.98	1172	52	2.08	1195	53	2.18	1218	54	2.28						
2160	958	51	1.31	991	53	1.42	1023	55	1.54	1053	57	1.65	1082	58	1.77	1110	60	1.88	1137	50	1.99	1163	51	2.11	1188	53	2.22	1212	54	2.33	1235	55	2.43						
2280	969	52	1.39	1003	54	1.51	1035	56	1.63	1065	57	1.75	1095	59	1.87	1123	60	1.99	1150	51	2.11	1176	52	2.23	1202	53	2.35	1226	54	2.47	1249	55	2.57						
2400	980	53	1.47	1014	54	1.60	1046	56	1.72	1077	58	1.85	1107	59	1.98	1135	60	2.10	1163	51	2.23	1189	53	2.36	1215	54	2.48	1240	55	2.61	1264	56	2.71						
2520	991	53	1.56	1025	55	1.69	1057	57	1.82	1088	58	1.95	1118	60	2.08	1147	61	2.22	1175	52	2.35	1202	53	2.48	1227	54	2.61	1252	55	2.75	1275	56	2.89						
2640	1002	54	1.64	1036	56	1.78	1068	57	1.92	1099	59	2.05	1130	60	2.19	1158	61	2.33	1186	52	2.47	1213	54	2.61	1240	55	2.75	1265	56	2.89	1289	57	3.03						
2760	1013	54	1.74	1046	56	1.87	1079	58	2.02	1111	59	2.16	1140	60	2.30	1170	61	2.45	1198	53	2.59	1225	54	2.74	1251	55	2.89	1277	56	3.03	1301	57	3.17						
2880	1024	55	1.83	1057	57	1.97	1090	58	2.12	1121	59	2.27	1151	60	2.42	1181	61	2.57	1209	53	2.72	1236	55	2.87	1263	56	3.02	1288	57	3.17	1312	58	3.31						
3 HP High Static Drive																																							
1920	1202	53	2.13	1224	54	2.23	1246	55	2.33	1267	56	2.42	1287	57	2.52	1307	58	2.62	1327	59	2.72	1347	60	2.82	1367	61	2.92	1387	62	3.02	1407	63	3.12						
2040	1218	54	2.28	1240	55	2.38	1262	56	2.48	1283	57	2.59	1303	58	2.69	1323	59	2.79	1343	60	2.89	1363	61	2.99	1383	62	3.09	1403	63	3.19	1423	64	3.29						
2160	1234	55	2.43	1257	56	2.54	1278	57	2.65	1299	57	2.75	1319	58	2.85	1339	59	2.95	1359	60	3.05	1379	61	3.15	1399	62	3.25	1419	63	3.35	1439	64	3.45						
2280	1250	55	2.59	1273	56	2.71	1295	57	2.82	1316	58	2.93	1336	59	3.03	1356	60	3.13	1376	61	3.23	1396	62	3.33	1416	63	3.43	1436	64	3.53	1456	65	3.63						
2400	1264	56	2.74	1287	57	2.86	1310	58	2.99	1332	59	3.11	1354	60	3.23	1376	61	3.35	1398	62	3.47	1420	63	3.59	1442	64	3.71	1464	65	3.83	1486	66	3.95						
2520	1277	56	2.88	1300	58	3.01	1324	59	3.15	1347	60	3.29	1370	61	3.43	1393	62	3.57	1416	63	3.71	1439	64	3.85	1462	65	3.99	1485	66	4.13	1508	67	4.27						
2640	1289	57	3.03	1313	58	3.17	1337	59	3.31	1360	60	3.45	1383	61	3.59	1406	62	3.73	1429	63	3.87	1452	64	4.01	1475	65	4.15	1498	66	4.29	1521	67	4.43						
2760	1302	58	3.18	1326	59	3.32	1349	60	3.46	1372	61	3.60	1395	62	3.74	1418	63	3.88	1441	64	4.02	1464	65	4.16	1487	66	4.30	1510	67	4.44	1533	68	4.58						
2880	1315	59	3.30	1339	60	3.44	1362	61	3.58	1385	62	3.72	1408	63	3.86	1431	64	4.00	1454	65	4.14	1477	66	4.28	1500	67	4.42	1523	68	4.56	1546	69	4.70						

Notes:

- 2-Speed VFD or SZVAV applications are capable of running below 320 cfm/ton during low speed airflow operation, but "full" airflow must be set to 320 cfm/ton or higher.
- Check General Data for indoor fan motor HP availability.
- Data includes pressure drop due to wet coil and 1-inch filter.

Table 50. Evaporator fan performance —TWE09041B, 4KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)																				
	0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	1.5 HP Standard Motor with Field Supplied Sheave and Belt				1.5 HP Standard Motor										1.5 Hp Standard Motor with Field Supplied High Satic Sheave/Belt					
2400	532	0.38	594	0.48	642	0.56	689	0.66	737	0.76	783	0.87	826	0.98	868	1.10	907	1.22	945	1.35
2550	558	0.45	618	0.55	665	0.64	709	0.74	754	0.84	799	0.95	841	1.07	882	1.19	921	1.32	958	1.45
2700	587	0.52	643	0.63	689	0.73	731	0.82	773	0.93	816	1.04	857	1.17	897	1.29	935	1.42	972	1.55
2850	613	0.60	664	0.71	713	0.82	753	0.92	792	1.02	833	1.14	873	1.27	912	1.40	950	1.53	986	1.67
3000	643	0.70	688	0.80	737	0.92	777	1.03	814	1.14	852	1.25	891	1.38	928	1.51	965	1.65	1001	1.79
3150	671	0.79	711	0.90	762	1.04	800	1.15	837	1.26	872	1.37	909	1.50	945	1.63	981	1.78	1016	1.92
3300	701	0.91	736	1.01	786	1.15	824	1.27	860	1.39	894	1.51	928	1.63	963	1.77	998	1.91	1032	2.06
3450	729	1.03	763	1.13	808	1.27	849	1.41	883	1.53	916	1.65	949	1.78	982	1.91	1015	2.06	1049	2.21
3600	756	1.15	790	1.26	831	1.40	874	1.56	908	1.69	940	1.81	971	1.94	1002	2.07	1034	2.22	—	—
External Static Pressure (Inches of Water Gauge)																				
	1.10"		1.20"		1.30"		1.40"		1.50"											
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP										
	1.5 Hp Standard Motor with Field Supplied High Satic Sheave/Belt						2 HP High Static Motor													
2400	980	1.47	1014	1.60	1046	1.72	1077	1.85	1107	1.98										
2550	994	1.58	1028	1.71	1060	1.84	1091	1.98	1121	2.11										
2700	1007	1.69	1041	1.83	1074	1.97	1105	2.11	—	—										
2850	1021	1.81	1055	1.95	1087	2.09	1119	2.24	—	—										
3000	1035	1.93	1069	2.08	1101	2.23	—	—	—	—										
3150	1050	2.07	1083	2.22	—	—	—	—	—	—										
3300	1065	2.21	—	—	—	—	—	—	—	—										
3450	—	—	—	—	—	—	—	—	—	—										
3600	—	—	—	—	—	—	—	—	—	—										

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
5. For 380/60Hz models: Performance is limited to standard motor CFM/static range. No high static or oversized motors are available.

Table 51. Evaporator fan performance - TWE0904** - 2-speed VFD, SZVAV air handler

External Static Pressure (Inches of Water Gauge)																														
0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"												
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP									
2 HP Standard Drive																														
2400	532	29	0.38	594	32	0.48	642	34	0.56	689	37	0.66	737	40	0.76	783	42	0.87	826	44	0.98	868	47	1.10	907	49	1.22	945	51	1.35
2550	558	30	0.45	618	33	0.55	665	36	0.64	709	38	0.74	754	40	0.84	799	43	0.95	841	45	1.07	882	47	1.19	921	49	1.32	958	51	1.45
2700	587	31	0.52	643	34	0.63	689	37	0.73	731	39	0.82	773	41	0.93	816	44	1.04	857	46	1.17	897	48	1.29	935	50	1.42	972	52	1.55
2850	613	33	0.60	664	36	0.71	713	38	0.82	753	40	0.92	792	43	1.02	833	45	1.14	873	47	1.27	912	49	1.40	950	51	1.53	986	53	1.67
3000	643	35	0.70	688	37	0.80	737	40	0.92	777	42	1.03	814	44	1.14	852	46	1.25	891	48	1.38	928	50	1.51	965	52	1.65	1001	54	1.79
3150	671	36	0.79	711	38	0.90	762	41	1.04	800	43	1.15	837	45	1.26	872	47	1.37	909	49	1.50	945	51	1.63	981	53	1.78	1016	55	1.92
3300	701	38	0.91	736	40	1.01	786	42	1.15	824	44	1.27	860	46	1.39	894	48	1.51	928	50	1.63	963	52	1.77	998	54	1.91	1032	56	2.06
3450	729	39	1.03	763	41	1.13	808	43	1.27	849	46	1.41	883	47	1.53	916	49	1.65	949	51	1.78	982	53	1.91	1015	55	2.06	1049	57	2.21
3600	756	41	1.15	790	42	1.26	831	45	1.40	874	47	1.56	908	49	1.69	940	51	1.81	971	53	1.94	1002	55	2.07	1034	57	2.22	1066	59	2.37
External Static Pressure (Inches of Water Gauge)																														
1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90"		2.00"												
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP									
3 HP High Static Drive																														
2400	980	53	1.47	1014	54	1.60	1046	56	1.72	1077	58	1.85	1107	59	1.98	1135	61	2.10	1163	63	2.23	1189	65	2.36	1215	67	2.48	1240	69	2.61
2550	994	53	1.58	1028	55	1.71	1060	57	1.84	1091	59	1.98	1121	60	2.11	1150	62	2.25	1178	64	2.38	1204	66	2.51	1230	68	2.65	1256	70	2.78
2700	1007	54	1.69	1041	56	1.83	1074	58	1.97	1105	60	2.11	1135	62	2.25	1164	64	2.39	1192	66	2.53	1219	68	2.67	1245	70	2.82	1271	72	2.96
2850	1021	55	1.81	1055	57	1.95	1087	59	2.09	1119	61	2.24	1149	63	2.39	1178	65	2.54	1206	67	2.69	1234	69	2.84	1260	71	2.99	1285	73	3.14
3000	1035	56	1.93	1069	58	2.08	1101	60	2.23	1132	62	2.38	1162	64	2.54	1192	66	2.69	1220	68	2.85	1247	70	3.00	1274	72	3.16	1300	74	3.31
3150	1050	57	2.07	1083	59	2.22	1115	61	2.37	1146	63	2.53	1176	65	2.69	1205	67	2.85	1233	69	3.01	1261	71	3.17	1288	73	3.33	1315	75	3.49
3300	1065	47	2.21	1097	49	2.36	1129	50	2.52	1160	51	2.68	1190	53	2.85	1219	54	3.01	1247	55	3.17	1274	56	3.33	1300	57	3.49	1325	58	3.65
3450	1081	48	2.36	1113	49	2.52	1144	51	2.68	1174	52	2.85	1204	53	3.02	1232	54	3.18	1259	55	3.34	1285	56	3.50	1310	57	3.66	1335	58	3.82
3600	1098	49	2.53	1129	50	2.69	1159	51	2.86	1189	53	3.02	1217	54	3.19	1244	55	3.36	1270	56	3.52	1295	57	3.68	1320	58	3.84	1345	59	4.00
External Static Pressure (Inches of Water Gauge)																														
2.10"		2.20"		2.30"																										
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP																		
3 HP High Static Drive																														
2400	1264	56	2.74	1287	57	2.86	1310	58	2.99	1332	59	3.11																		
2550	1280	57	2.92	1304	58	3.05	1327	59	3.19	1349	60	3.32																		
2700	1295	57	3.10	1319	58	3.24	1342	59	3.38	1364	60	3.51																		
2850	1310	58	3.29	1334	59	3.43	1356	60	3.57	1377	61	3.70																		
3000	1325	59	3.48	1349	60	3.62	1370	61	3.76	1390	62	3.89																		
3150	1340	60	3.67	1363	61	3.81	1383	62	3.95	1402	63	4.08																		
3300	1355	61	3.86	1376	62	4.00	1395	63	4.14	1413	64	4.27																		
3450	1370	62	4.05	1396	63	4.19	1414	64	4.33	1431	65	4.46																		
3600	1385	63	4.24	1411	64	4.38	1428	65	4.51	1443	66	4.64																		

- Notes:
- 2-Speed VFD or SZVAV applications are capable of running below 320 cfm/ton during low speed airflow operation, but "full" airflow must be set to 320 cfm/ton or higher.
 - Check General Data for indoor fan motor HP availability.
 - Data includes pressure drop due to wet coil and 1-inch filter.

Table 52. Evaporator fan performance —TWE12041B, 4KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)														
CFM	0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2 HP Standard Motor														
3200	570	0.60	616	0.69	657	0.80	695	0.90	731	1.00	766	1.10	800	1.21
3400	601	0.71	643	0.80	684	0.92	720	1.02	755	1.13	788	1.24	821	1.35
3600	631	0.84	670	0.92	710	1.04	746	1.16	779	1.27	812	1.39	843	1.50
3800	662	0.98	699	1.06	738	1.19	772	1.31	805	1.43	836	1.55	866	1.67
4000	695	1.14	728	1.21	765	1.34	799	1.47	831	1.60	861	1.72	890	1.85
4200	727	1.31	757	1.38	792	1.50	826	1.65	857	1.78	887	1.91	915	2.05
4400	757	1.49	788	1.58	820	1.69	853	1.84	884	1.98	913	2.12	940	2.26
4600	788	1.69	818	1.78	849	1.89	881	2.04	911	2.20	—	—	—	—
4800	824	1.93	849	2.01	877	2.11	908	2.26	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)														
CFM	0.80"		0.90"		1.00"		1.10"		1.20"		1.30"		1.40"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2 HP Standard Motor with Field Supplied Sheave/Belt														
3200	834	1.33	867	1.45	900	1.58	933	1.70	964	1.83	993	1.96	1022	2.09
3400	854	1.46	886	1.59	917	1.72	947	1.85	978	1.99	1008	2.12	1037	2.26
3600	874	1.62	905	1.74	935	1.87	965	2.01	993	2.15	1023	2.29	—	—
3800	896	1.79	925	1.91	954	2.05	983	2.19	—	—	—	—	—	—
4000	919	1.98	947	2.10	975	2.24	—	—	—	—	—	—	—	—
4200	943	2.18	970	2.31	—	—	—	—	—	—	—	—	—	—
4400	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 53. Evaporator fan performance - TWE1204 - 2-speed VFD, SZVAV air handler**

CFM		External Static Pressure (Inches of Water Gauge)																2 HP Standard Drive			
		0.10"				0.20"				0.30"				0.40"				0.50"			
		RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz
3200	570	37	0.60	616	40	0.69	657	43	0.80	695	45	0.90	731	48	1.00	766	50	1.10	800	52	1.21
3400	601	39	0.71	643	42	0.80	684	45	0.92	720	47	1.02	755	49	1.13	788	52	1.24	821	54	1.35
3600	631	41	0.84	670	44	0.92	710	46	1.04	746	49	1.16	779	51	1.27	812	53	1.39	843	55	1.50
3800	662	43	0.98	699	46	1.06	738	48	1.19	772	50	1.31	805	53	1.43	836	55	1.55	866	57	1.67
4000	695	45	1.14	728	48	1.21	765	50	1.34	799	52	1.47	831	54	1.60	861	56	1.72	890	58	1.85
4200	727	47	1.31	757	50	1.38	792	52	1.50	826	54	1.65	857	56	1.78	887	58	1.91	915	60	2.05
4400	757	49	1.49	788	52	1.58	820	54	1.69	853	56	1.84	884	58	1.98	913	60	2.12	940	62	2.26
4600	788	52	1.69	818	55	1.78	849	57	1.89	881	58	2.04	911	60	2.20	939	62	2.34	966	64	2.48
4800	824	54	1.93	849	57	2.01	877	59	2.11	908	60	2.26	937	62	2.42	966	64	2.58	992	66	2.73
CFM		External Static Pressure (Inches of Water Gauge)																3 HP High Static Drive			
		1.10"				1.20"				1.30"				1.40"				1.50"			
		RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz
3200	933	49	1.70	964	51	1.83	993	53	1.96	1022	54	2.09	1050	56	2.22	1077	57	2.36	1103	58	2.49
3400	947	50	1.85	978	52	1.99	1008	53	2.12	1037	55	2.26	1064	56	2.40	1091	58	2.54	1117	59	2.68
3600	965	51	2.01	993	53	2.15	1023	54	2.29	1051	56	2.44	1079	57	2.58	1106	59	2.73	1132	60	2.88
3800	983	52	2.19	1011	54	2.33	1039	55	2.47	1066	56	2.62	1094	58	2.78	1120	59	2.93	—	—	—
4000	1002	53	2.38	1029	54	2.52	1056	56	2.67	1083	57	2.82	1109	59	2.98	1135	60	3.14	—	—	—
4200	1023	54	2.58	1049	56	2.73	1075	57	2.88	1101	58	3.04	1126	60	3.20	—	—	—	—	—	—
4400	1045	55	2.82	1069	57	2.96	1095	58	3.11	—	—	—	—	—	—	—	—	—	—	—	—
4600	1067	56	3.07	1091	58	3.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:

1. 2-Speed VFD or SZVAV applications are capable of running below 320 cfm/ton during low speed airflow operation, but "full" airflow must be set to 320 cfm/ton or higher.
2. Check General Data for indoor fan motor HP availability.
3. Data includes pressure drop due to wet coil and 1-inch filter.

Table 54. Evaporator fan performance —TWE1504KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)																									
		0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"		1.10"		1.20"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	
2 HP Standard Motor																2 HP Standard Motor w/Field Supplied Sheave/Belt									
	4000	—	—	—	—	584	0.82	631	0.96	674	1.09	715	1.23	753	1.36	789	1.51	825	1.65	859	1.80	891	1.95	922	2.10
	4200	—	—	548	0.78	598	0.91	645	1.05	687	1.19	727	1.33	765	1.47	800	1.62	835	1.77	869	1.93	901	2.08	932	2.24
	4400	—	—	564	0.87	613	1.01	659	1.15	701	1.29	740	1.44	777	1.59	812	1.74	846	1.90	879	2.06	911	2.22	—	—
	4600	—	—	580	0.96	628	1.11	673	1.26	714	1.41	753	1.56	790	1.72	824	1.88	858	2.03	889	2.19	—	—	—	—
	4800	548	0.92	597	1.07	643	1.22	687	1.37	728	1.53	766	1.69	802	1.85	837	2.01	870	2.18	—	—	—	—	—	—
	5000	565	1.02	614	1.18	659	1.34	702	1.49	742	1.66	780	1.82	815	1.99	849	2.16	—	—	—	—	—	—	—	—
	5200	585	1.14	631	1.30	675	1.46	717	1.63	756	1.80	793	1.97	829	2.14	862	2.31	—	—	—	—	—	—	—	—
	5400	604	1.27	648	1.43	692	1.60	732	1.77	771	1.94	808	2.12	842	2.30	—	—	—	—	—	—	—	—	—	—
	5600	622	1.40	666	1.56	708	1.74	748	1.92	786	2.10	822	2.28	—	—	—	—	—	—	—	—	—	—	—	—
5800	641	1.54	684	1.71	725	1.90	763	2.08	800	2.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
6000	662	1.70	702	1.88	741	2.06	779	2.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Notes:

1. Data includes pressure drop due to wet coil and 2" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. For 380/60Hz models: Performance is limited to standard motor CFM/static range. No high static or oversized motors are available.
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 55. Evaporator fan performance - TWE1504 - 2-speed VFD, SZVAV air handler**

External Static Pressure (Inches of Water Gauge)																														
0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"												
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP
4000	474	31	0.57	532	35	0.69	584	38	0.82	631	41	0.96	674	44	1.09	715	47	1.23	753	49	1.36	789	52	1.51	825	54	1.65	859	56	1.80
4200	492	32	0.64	548	36	0.78	598	39	0.91	645	42	1.05	687	45	1.19	727	48	1.33	765	50	1.47	800	52	1.62	835	55	1.77	869	57	1.93
4400	510	33	0.73	564	37	0.87	613	40	1.01	659	43	1.15	701	46	1.29	740	48	1.44	777	51	1.59	812	53	1.74	846	55	1.90	879	58	2.06
4600	528	35	0.82	580	38	0.96	628	41	1.11	673	44	1.26	714	47	1.41	753	49	1.56	790	52	1.72	824	54	1.88	858	56	2.03	889	45	2.19
4800	548	36	0.92	597	39	1.07	643	42	1.22	687	45	1.37	728	48	1.53	766	50	1.69	802	53	1.85	837	55	2.01	870	44	2.18	901	45	2.34
5000	565	37	1.02	614	40	1.18	659	43	1.34	702	46	1.49	742	49	1.66	780	51	1.82	815	53	1.99	849	43	2.16	882	44	2.33	913	46	2.50
5200	585	38	1.14	631	41	1.30	675	44	1.46	717	47	1.63	756	50	1.80	793	52	1.97	829	42	2.14	862	43	2.31	894	45	2.49	925	47	2.67
5400	604	40	1.27	648	42	1.43	692	45	1.60	732	48	1.77	771	39	1.94	808	41	2.12	842	42	2.30	875	44	2.48	907	46	2.66	938	47	2.84
5600	622	41	1.40	666	44	1.56	708	46	1.74	748	38	1.92	786	40	2.10	822	41	2.28	856	43	2.46	889	45	2.65	920	46	2.84	950	48	3.02
5800	641	42	1.54	684	45	1.71	725	37	1.90	763	39	2.08	800	40	2.26	836	42	2.45	870	44	2.64	902	46	2.83	933	47	3.02	963	49	3.22
6000	662	33	1.70	702	46	1.88	741	37	2.06	779	39	2.25	816	41	2.44	851	43	2.63	884	45	2.83	916	46	3.03	947	48	3.22	976	49	3.42
External Static Pressure (Inches of Water Gauge)																														
1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90"		2.00"												
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP
4000	891	58	1.95	922	60	2.10	951	48	2.25	979	49	2.40	1006	51	2.55	1032	52	2.70	1057	53	2.85	1081	55	3.00	1105	56	3.14	1127	57	3.29
4200	901	59	2.08	932	47	2.24	961	48	2.40	990	50	2.55	1017	51	2.71	1043	53	2.87	1068	54	3.03	1093	55	3.18	1116	56	3.34	1139	57	3.49
4400	911	46	2.22	942	47	2.38	971	49	2.55	1000	50	2.71	1027	52	2.88	1053	53	3.04	1079	54	3.21	1103	56	3.37	1127	57	3.53	1150	58	3.70
4600	921	46	2.36	951	48	2.53	981	49	2.70	1010	51	2.87	1037	52	3.05	1064	54	3.22	1089	55	3.39	1114	56	3.56	1138	57	3.74	1161	59	3.90
4800	931	47	2.51	961	48	2.69	991	50	2.86	1020	51	3.04	1047	53	3.22	1074	54	3.40	1099	55	3.58	1124	57	3.76	1148	58	3.94	1172	59	4.12
5000	943	48	2.68	972	49	2.85	1001	50	3.03	1029	52	3.22	1057	53	3.40	1083	55	3.59	1109	56	3.78	1134	57	3.96	1158	58	4.15	1182	60	4.34
5200	955	48	2.85	984	50	3.03	1011	51	3.21	1039	52	3.40	1067	54	3.59	1093	55	3.79	1119	56	3.98	1144	58	4.17	1168	59	4.37	1192	60	4.56
5400	967	49	3.03	996	50	3.22	1023	52	3.40	1050	53	3.59	1077	54	3.79	1103	56	3.99	1129	57	4.19	1154	58	4.39	1178	59	4.59	—	—	—
5600	979	49	3.22	1008	51	3.41	1035	52	3.60	1061	54	3.80	1087	55	3.99	1113	56	4.19	1139	57	4.40	1164	59	4.61	1188	60	4.82	—	—	—
5800	992	50	3.42	1020	51	3.61	1047	53	3.81	1073	54	4.01	1099	55	4.22	1124	57	4.42	1149	58	4.63	1174	59	4.84	1198	60	5.06	—	—	—
6000	1005	51	3.63	1032	52	3.83	1059	53	4.04	1085	55	4.24	1111	56	4.45	1135	57	4.66	1160	58	4.87	1184	60	5.08	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																														
2.10"		2.20"		2.30"																										
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP																		
4000	1149	58	3.44	1170	59	3.57	1191	60	3.71																					
4200	1161	59	3.65	1183	60	3.80	—	—	—																					
4400	1173	59	3.86	1194	60	4.02	—	—	—																					
4600	1184	60	4.08	—	—	—	—	—	—																					
4800	1194	60	4.30	—	—	—	—	—	—																					
5000	—	—	—	—	—	—	—	—	—																					
5200	—	—	—	—	—	—	—	—	—																					
5400	—	—	—	—	—	—	—	—	—																					
5600	—	—	—	—	—	—	—	—	—																					
5800	—	—	—	—	—	—	—	—	—																					
6000	—	—	—	—	—	—	—	—	—																					

Table 56. Evaporator fan performance —TWE1804KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)																				
CFM	0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	3 HP Standard Motor w/ Field Supplied Low Static Sheave/Belt						3 HP Standard Motor										3 HP Standard Motor w/ Field Supplied High Static Sheave/Belt			
4800	548	0.92	597	1.07	643	1.22	687	1.37	728	1.53	766	1.69	802	1.85	837	2.01	870	2.18	901	2.34
5100	576	1.08	623	1.24	667	1.40	709	1.56	749	1.72	787	1.89	822	2.06	856	2.23	888	2.41	919	2.58
5400	604	1.27	648	1.43	692	1.60	732	1.77	771	1.94	808	2.12	842	2.30	875	2.48	907	2.66	938	2.84
5700	633	1.47	674	1.64	716	1.82	756	2.00	793	2.18	829	2.36	863	2.55	895	2.74	927	2.93	957	3.12
6000	662	1.70	702	1.88	741	2.06	779	2.25	816	2.44	851	2.63	884	2.83	916	3.03	947	3.22	976	3.42
6300	690	1.95	728	2.12	767	2.32	804	2.52	839	2.72	873	2.92	905	3.12	937	3.33	—	—	—	—
6600	721	2.24	757	2.41	793	2.61	828	2.81	863	3.02	896	3.24	928	3.45	—	—	—	—	—	—
6900	748	2.51	784	2.71	819	2.92	853	3.14	887	3.36	—	—	—	—	—	—	—	—	—	—
7200	778	2.84	812	3.04	846	3.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																				
CFM	1.10"		1.20"		1.30"		1.40"		1.50"											
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP										
	3 HP Standard Motor w/ Field Supplied High Static Sheave/Belt																			
4800	931	2.51	961	2.69	991	2.86	1020	3.04	1047	3.22										
5100	949	2.76	978	2.94	1006	3.12	1034	3.31	—	—										
5400	967	3.03	996	3.22	1023	3.40	—	—	—	—										
5700	986	3.32	—	—	—	—	—	—	—	—										
6000	—	—	—	—	—	—	—	—	—	—										
6300	—	—	—	—	—	—	—	—	—	—										
6600	—	—	—	—	—	—	—	—	—	—										
6900	—	—	—	—	—	—	—	—	—	—										
7200	—	—	—	—	—	—	—	—	—	—										

Notes:

1. Data includes pressure drop due to wet coil and 2" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. For 380/60Hz models: Performance is limited to standard motor CFM/static range. No high static or oversized motors are available.
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 57. Evaporator fan performance - TWE1804 - 2-speed VFD, SZVAV air handler**

External Static Pressure (Inches of Water Gauge)																								
CFM	0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"									
	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz							
3 HP Standard Drive																								
4800	548	38	0.92	597	42	1.07	643	45	1.22	687	48	1.37	728	51	1.53	766	54	1.69	802	56	1.85	837	59	2.01
5100	576	40	1.08	623	44	1.24	667	47	1.40	709	50	1.56	749	53	1.72	787	55	1.89	822	58	2.06	856	60	2.23
5400	604	42	1.27	648	46	1.43	692	49	1.60	732	51	1.77	771	54	1.94	808	57	2.12	842	59	2.30	875	44	2.48
5700	633	44	1.47	674	47	1.64	716	50	1.82	756	53	2.00	793	56	2.18	829	58	2.36	863	61	2.55	895	45	2.74
6000	662	46	1.70	702	49	1.88	741	52	2.06	779	55	2.25	816	57	2.44	851	60	2.63	884	45	2.83	916	46	3.03
6300	690	49	1.95	728	51	2.12	767	54	2.32	804	56	2.52	839	59	2.72	873	44	2.92	905	46	3.12	937	47	3.33
6600	721	51	2.24	757	53	2.41	793	56	2.61	828	58	2.81	863	43	3.02	896	45	3.24	928	47	3.45	958	48	3.66
6900	748	53	2.51	784	55	2.71	819	58	2.92	853	43	3.14	887	45	3.36	919	46	3.57	950	48	3.79	980	49	4.02
7200	778	55	2.84	812	57	3.04	846	43	3.26	879	44	3.49	911	46	3.71	943	47	3.95	973	49	4.17	1002	50	4.40
External Static Pressure (Inches of Water Gauge)																								
CFM	0.90"		1.00"		1.10"		1.20"		1.30"		1.40"		1.50"		1.60"									
	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz							
5 HP High Static Drive																								
4800	870	44	2.18	901	45	2.34	931	47	2.51	961	48	2.69	991	50	2.86	1020	51	3.04	1047	53	3.22	1074	54	3.40
5100	888	45	2.41	919	46	2.58	949	48	2.76	978	49	2.94	1006	51	3.12	1034	52	3.31	1062	53	3.50	1088	55	3.69
5400	907	46	2.66	938	47	2.84	967	49	3.03	996	50	3.22	1023	52	3.40	1050	53	3.59	1077	54	3.79	1103	56	3.99
5700	927	47	2.93	957	48	3.12	986	50	3.32	1014	51	3.51	1041	52	3.71	1067	54	3.91	1093	55	4.10	1118	56	4.31
6000	947	48	3.22	976	49	3.42	1005	51	3.63	1032	52	3.83	1059	53	4.04	1085	55	4.24	1111	56	4.45	1135	57	4.66
6300	967	49	3.54	996	50	3.75	1024	52	3.96	1052	53	4.17	1078	54	4.38	1104	56	4.60	1129	57	4.81	1153	58	5.03
6600	988	50	3.87	1016	51	4.09	1044	53	4.31	1071	54	4.53	1097	55	4.75	1123	57	4.98	1147	58	5.20	—	—	—
6900	1009	51	4.25	1037	52	4.47	1065	54	4.69	1091	55	4.92	1117	56	5.16	—	—	—	—	—	—	—	—	—
7200	1031	52	4.63	1059	53	4.86	1085	55	5.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																								
CFM	1.70"		1.80"		1.90"		2.00"		2.10"															
	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP												
5 HP High Static Drive																								
4800	1099	55	3.58	1124	57	3.76	1148	58	3.94	1172	59	4.12	1194	60	4.30									
5100	1114	56	3.88	1139	57	4.07	1163	59	4.26	1187	60	4.45	—	—	—									
5400	1129	57	4.19	1154	58	4.39	1178	59	4.59	—	—	—	—	—	—									
5700	1144	58	4.51	1169	59	4.72	1193	60	4.94	—	—	—	—	—	—									
6000	1160	58	4.87	1184	60	5.08	—	—	—	—	—	—	—	—	—									
6300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									
6600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									
6900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									

Notes:

- 2-Speed VFD or SZVAV applications are capable of running below 320 cfm/ton during low speed airflow operation, but "full" airflow must be set to 320 cfm/ton or higher.
- Check General Data for indoor fan motor HP availability.
- Data includes pressure drop due to wet coil and 2-inch filter.

Table 58. Evaporator fan performance — TWE2404KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)																				
CFM	0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5 HP Standard Motor with Field Supplied Low Static Sheave/Belt											5 HP Standard Motor									
6400	619	1.56	656	1.70	691	1.84	724	1.98	756	2.12	786	2.26	816	2.41	845	2.56	873	2.72	900	2.87
6800	654	1.86	688	2.00	722	2.15	754	2.30	784	2.44	814	2.59	842	2.74	869	2.90	897	3.07	924	3.23
7200	687	2.17	721	2.34	753	2.49	784	2.65	813	2.81	842	2.96	869	3.12	895	3.29	921	3.46	947	3.62
7600	721	2.54	754	2.72	784	2.87	814	3.04	843	3.21	870	3.38	896	3.53	922	3.71	947	3.88	972	4.06
8000	757	2.96	788	3.13	817	3.30	845	3.48	872	3.65	899	3.82	925	4.00	950	4.16	974	4.35	998	4.53
8400	790	3.37	820	3.57	849	3.76	877	3.95	903	4.13	929	4.32	953	4.49	978	4.67	1002	4.86	1025	5.05
8800	826	3.88	854	4.07	881	4.26	908	4.46	933	4.65	959	4.85	982	5.04	1006	5.22	1030	5.42	1052	5.61
9200	863	4.44	889	4.64	915	4.84	939	5.02	965	5.24	989	5.43	1012	5.62	—	—	—	—	—	—
9600	897	5.01	922	5.20	948	5.44	971	5.63	—	—	—	—	—	—	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																				
CFM	1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90"		2.00"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5 HP Standard Motor										5 HP Standard Motor with Field Supplied High Static Sheave/Belt										
6400	927	3.03	952	3.19	977	3.34	1001	3.48	1024	3.63	1050	3.80	1075	3.98	1098	4.15	1120	4.31	1139	4.47
6800	949	3.40	974	3.57	999	3.74	1022	3.90	1045	4.05	1067	4.21	1090	4.36	1114	4.55	1138	4.74	—	—
7200	972	3.80	997	3.97	1021	4.15	1044	4.34	1067	4.51	1089	4.68	1110	4.84	1131	5.00	—	—	—	—
7600	996	4.24	1020	4.42	1044	4.60	1067	4.80	1089	4.99	1111	5.18	1132	5.36	—	—	—	—	—	—
8000	1021	4.72	1044	4.91	1067	5.10	1090	5.29	1112	5.49	1134	5.69	—	—	—	—	—	—	—	—
8400	1047	5.24	1069	5.43	1091	5.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:

1. Data includes pressure drop due to wet coil and 2" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. For 380/60Hz models: Performance is limited to standard motor CFM/static range. No high static or oversized motors are available.
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 59. Evaporator fan performance - TWE2404 - 2-speed VFD, SZVAV air handler**

External Static Pressure (Inches of Water Gauge)																														
0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"		1.00"												
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP									
5 HP Standard Drive																														
6400	619	33	1.56	656	35	1.70	691	36	1.84	724	38	1.98	756	40	2.12	786	41	2.26	816	43	2.41	845	45	2.56	873	46	2.72	900	47	2.87
6800	654	34	1.86	688	36	2.00	722	38	2.15	754	40	2.30	784	41	2.44	814	43	2.59	842	44	2.74	869	46	2.90	897	47	3.07	924	49	3.23
7200	687	36	2.17	721	38	2.34	753	40	2.49	784	41	2.65	813	43	2.81	842	44	2.96	869	46	3.12	895	47	3.29	921	49	3.46	947	50	3.62
7600	721	38	2.54	754	40	2.72	784	41	2.87	814	43	3.04	843	44	3.21	870	46	3.38	896	47	3.53	922	49	3.71	947	50	3.88	972	51	4.06
8000	757	40	2.96	788	42	3.13	817	43	3.30	845	45	3.48	872	46	3.65	899	47	3.82	925	49	4.00	950	50	4.16	974	51	4.35	998	53	4.53
8400	790	42	3.37	820	43	3.57	849	45	3.76	877	46	3.95	903	48	4.13	929	49	4.32	953	50	4.49	978	52	4.67	1002	53	4.86	1025	47	5.05
8800	826	38	3.88	854	39	4.07	881	40	4.26	908	41	4.46	933	42	4.65	959	44	4.85	982	45	5.04	1006	46	5.22	1030	47	5.42	1052	48	5.61
9200	863	39	4.44	889	40	4.64	915	42	4.84	939	43	5.02	965	44	5.24	989	45	5.43	1012	46	5.62	1036	47	5.83	1058	48	6.02	1080	49	6.22
9600	897	41	5.01	922	42	5.20	948	43	5.44	971	44	5.63	996	45	5.84	1019	46	6.05	1042	47	6.27	1065	48	6.47	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																														
1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90"		2.00"												
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP									
5 HP Standard Drive																														
6400	927	49	3.03	952	50	3.19	977	51	3.34	1001	53	3.48	1024	54	3.63	1050	55	3.80	1075	57	3.98	1098	50	4.15	1120	51	4.31	1139	52	4.47
6800	949	50	3.40	974	51	3.57	999	53	3.74	1022	54	3.90	1045	55	4.05	1067	56	4.21	1090	50	4.36	1114	51	4.55	1138	52	4.74	1160	53	4.92
7200	972	51	3.80	997	53	3.97	1021	54	4.15	1044	55	4.34	1067	56	4.51	1089	49	4.68	1110	50	4.84	1131	51	5.00	1152	52	5.17	1175	53	5.36
7600	996	52	4.24	1020	54	4.42	1044	55	4.60	1067	56	4.80	1089	57	4.99	1111	50	5.18	1132	51	5.36	1153	52	5.53	1173	53	5.70	1193	54	5.88
8000	1021	54	4.72	1044	55	4.91	1067	48	5.10	1090	50	5.29	1112	51	5.49	1134	52	5.69	1155	52	5.89	1175	53	6.09	1195	54	6.28	1215	55	6.46
8400	1047	48	5.24	1069	49	5.43	1091	50	5.63	1113	51	5.83	1135	52	6.04	1156	53	6.24	1177	53	6.45	1198	54	6.67	1217	55	6.87	1237	56	7.08
8800	1074	49	5.81	1095	50	6.01	1117	51	6.22	1138	52	6.42	1159	53	6.63	1180	54	6.84	1200	55	7.06	1220	55	7.28	1240	56	7.49	1259	57	7.71
9200	1101	50	6.42	1122	51	6.63	1143	52	6.84	1163	53	7.05	1183	54	7.27	1204	55	7.49	1224	56	7.71	—	—	—	—	—	—	—	—	
9600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
External Static Pressure (Inches of Water Gauge)																														
2.10"		2.20"		2.30"		2.40"																								
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP																		
7.5 HP High Static Drive																														
6400	1158	53	4.62	1177	53	4.78	1195	54	4.93	1213	55	5.08																		
6800	1181	54	5.09	1200	55	5.26	1218	55	5.43	1236	56	5.59																		
7200	1198	54	5.56	1220	55	5.76	1240	56	5.95	1259	57	6.13																		
7600	1213	55	6.05	1234	56	6.25	1256	57	6.46	1277	58	6.67																		
8000	1234	56	6.64	1253	57	6.82	1272	58	7.01	1292	59	7.20																		
8400	1256	57	7.28	1275	58	7.48	1293	59	7.66	—	—	—																		
8800	—	—	—	—	—	—	—	—	—	—	—	—																		
9200	—	—	—	—	—	—	—	—	—	—	—	—																		
9600	—	—	—	—	—	—	—	—	—	—	—	—																		

Notes:

- 2-Speed VFD or SZVAV applications are capable of running below 320 cfm/ton during low speed airflow operation, but "full" airflow must be set to 320 cfm/ton or higher.
- Check General Data for indoor fan motor HP availability.
- Data includes pressure drop due to wet coil and 2-inch filter.

Table 60. Evaporator fan performance —TWE3004KB — constant volume air handler

External Static Pressure (Inches of Water Gauge)																		
CFM	0.10"		0.20"		0.30"		0.40"		0.50"		0.60"		0.70"		0.80"		0.90"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7.5 HP Standard Motor and Low Static Drive Field Supplied Sheave					7.5 HP Standard Motor													
8000	781	3.09	811	3.27	840	3.44	868	3.63	895	3.80	921	3.97	947	4.15	972	4.33	996	4.52
8500	827	3.69	855	3.87	882	4.05	909	4.25	935	4.43	960	4.62	985	4.81	1008	4.99	1032	5.19
9000	869	4.31	899	4.57	925	4.75	951	4.95	974	5.13	999	5.34	1023	5.54	1046	5.73	1068	5.93
9500	918	5.11	940	5.27	967	5.50	992	5.73	1016	5.94	1039	6.14	1062	6.35	1084	6.55	1105	6.75
10000	959	5.85	988	6.16	1011	6.35	1033	6.55	1056	6.78	1080	7.03	1101	7.22	1123	7.46	1143	7.66
10500	1006	6.78	1033	7.09	1054	7.28	1076	7.51	1100	7.77	1120	7.96	1141	8.21	1162	8.44	1183	8.69
11000	1049	7.71	1076	8.06	1097	8.29	1120	8.55	—	—	—	—	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																		
CFM	1.00"		1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7.5 HP Standard Motor							7.5 HP Standard Motor and High Static Drive Field Supplied Sheave											
8000	1019	4.70	1043	4.89	1066	5.09	1089	5.28	1111	5.48	1133	5.69	1154	5.89	1175	6.08	1195	6.28
8500	1054	5.38	1076	5.58	1099	5.78	1120	5.98	1142	6.19	1164	6.40	1185	6.62	1205	6.83	1225	7.04
9000	1091	6.14	1112	6.34	1133	6.55	1154	6.77	1175	6.98	1195	7.20	1216	7.42	1236	7.64	1255	7.86
9500	1127	6.97	1148	7.19	1168	7.40	1189	7.63	1208	7.85	1228	8.07	1248	8.31	1267	8.53	—	—
10000	1165	7.89	1185	8.11	1205	8.34	1224	8.56	—	—	—	—	—	—	—	—	—	—
10500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
External Static Pressure (Inches of Water Gauge)																		
CFM	1.90"		2.00"		2.10"		2.20"		2.30"		2.40"							
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP						
7.5 HP Standard Motor and High Static Drive Field Supplied Sheave																		
8000	1215	6.46	1235	6.65	1254	6.83	1273	7.02	1293	7.22	1314	7.44						
8500	1245	7.26	1264	7.47	1283	7.67	1301	7.86	1319	8.05	1337	8.25						
9000	1275	8.10	1294	8.32	1313	8.56	—	—	—	—	—	—						
9500	—	—	—	—	—	—	—	—	—	—	—	—						
10000	—	—	—	—	—	—	—	—	—	—	—	—						
10500	—	—	—	—	—	—	—	—	—	—	—	—						
11000	—	—	—	—	—	—	—	—	—	—	—	—						

Notes:

1. Data includes pressure drop due to wet coil and 2" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Check General Data for indoor fan motor HP availability.
4. For 380/60Hz models: Performance is limited to standard motor CFM/static range. No high static or oversized motors are available.
5. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

Table 61. Evaporator fan performance - TWE3004 - 2-speed VFD, SZVAV air handler**

External Static Pressure (Inches of Water Gauge)																								
0.10"			0.20"			0.30"			0.40"			0.50"			0.60"			0.70"			0.80"			
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP
7.5 HP Standard Drive																								
8000	781	41	3.09	811	42	3.27	840	44	3.44	868	45	3.63	895	47	3.80	921	48	3.97	947	49	4.15	972	51	4.33
8500	827	43	3.69	855	45	3.87	882	46	4.05	909	47	4.25	935	49	4.43	960	50	4.62	985	51	4.81	1008	53	4.99
9000	869	45	4.31	899	47	4.57	925	48	4.75	951	50	4.95	974	51	5.13	999	52	5.34	1023	53	5.54	1046	54	5.73
9500	918	48	5.11	940	49	5.27	967	50	5.50	992	52	5.73	1016	53	5.94	1039	54	6.14	1062	55	6.35	1084	56	6.55
10000	959	50	5.85	988	51	6.16	1011	53	6.35	1033	54	6.55	1056	55	6.78	1080	56	7.03	1101	57	7.22	1123	58	7.46
10500	1006	52	6.78	1033	54	7.09	1054	55	7.28	1076	56	7.51	1100	57	7.77	1120	58	7.96	—	—	—	—	—	—
11000	1049	55	7.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
External Static Pressure (Inches of Water Gauge)																								
0.90"			1.00"			1.10"			1.20"			1.30"			1.40"			1.50"			1.60"			
CFM	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP	RPM	Hz	BHP
7.5 HP Standard Drive																								
8000	996	52	4.52	1019	53	4.70	1043	54	4.89	1066	56	5.09	1089	57	5.28	1111	58	5.48	1133	59	5.69	1154	60	5.89
8500	1032	54	5.19	1054	55	5.38	1076	56	5.58	1099	57	5.78	1120	58	5.98	1142	59	6.19	—	—	—	—	—	—
9000	1068	56	5.93	1091	57	6.14	1112	58	6.34	1133	59	6.55	1154	60	6.77	—	—	—	—	—	—	—	—	—
9500	1105	58	6.75	1127	59	6.97	1148	60	7.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10000	1143	60	7.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:

1. 2-Speed VFD or SZVAV applications are capable of running below 320 cfm/ton during low speed airflow operation, but "full" airflow must be set to 320 cfm/ton or higher.
2. Check General Data for indoor fan motor HP availability.
3. Data includes pressure drop due to wet coil and 2-inch filter.

Table 62. Standard fan motors - constant volume air handlers

Model	Motor	Motor Sheave Turns Open	Nominal RPM	Required Field Supplied Components		
				Motor Sheave	Blower Sheave	Belt
TWE060	Standard Motor 0.75 HP	0	1071	N/A	N/A	N/A
		1	1000			
		2	928			
		3	857			
		4	785			
		5	714			
TWE072	Standard Motor 1.5 HP	0	847	N/A	N/A	N/A
		1	791			
		2	734			
		3	678			
		4	621			
		5	565			
TWE072	Standard Motor with Field Supplied Components - 1.5 HP (Low Static)	1	589	Variable Pitch (1.9 - 2.9 Inch Pitch Diameter), 0.625 Inch Bore, Single Groove, Browning 1VP34	Fixed pitch (8.5 Inch Pitch Diameter), 1 Inch Bore, Single Groove, Browning BK95	Browning A52
		2	548			
		3	507			
		4	466			
		5	426			
		6	385			
TWE072	Standard Motor with Field Supplied Components - 1.5 HP (High Static)	1	863	Variable Pitch (3-4 Inch Pitch Diameter), 0.625 Inch Bore, Single Groove, Browning 1VP44	Fixed Pitch (6 Inch Pitch Diameter), 1 Inch Bore, Single Groove, Browning BK70	Browning A50
		2	920			
		3	978			
		4	1035			
		5	1093			
		6	1150			
TWE090	Standard Motor 1.5 HP	0	847	N/A	N/A	N/A
		1	791			
		2	734			
		3	678			
		4	621			
		5	565			
TWE090	Standard Motor with Field Supplied Components - 1.5 HP (Low Static)	1	589	Variable Pitch (1.9 - 2.9 Inch Pitch Diameter), 0.625 Inch Bore, Single Groove, Browning 1VP34	Fixed pitch (8.5 Inch Pitch Diameter), 1 Inch Bore, Single Groove, Browning BK95	Browning A52
		2	548			
		3	507			
		4	466			
		5	426			
		6	385			
TWE090	Standard Motor with Field Supplied Components - 1.5 HP (High Static)	1	863	Variable Pitch (3-4 Inch Pitch Diameter), 0.625 Inch Bore, Single Groove, Browning 1VP44	Fixed Pitch (6 Inch Pitch Diameter), 1 Inch Bore, Single Groove, Browning BK70	Browning A50
		2	920			
		3	978			
		4	1035			
		5	1093			
		6	1150			
TWE120	Standard Motor 2 HP	0	818	N/A	N/A	N/A
		1	773			
		2	727			
		3	682			
		4	636			
		5	591			
TWE120	Standard Motor with Field Supplied Components - 2 HP (High Static)	1	772	Variable Pitch (3-4 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VP44	Fixed Pitch (6.7 Inch Pitch Diameter), 1 Inch Bore, Single Groove, Browning AK71	Browning A51
		2	824			
		3	875			
		4	927			
		5	978			
		6	1030			
TWE150	Standard Motor 2 HP	0	768	N/A	N/A	N/A
		1	725			
		2	683			
		3	640			
		4	598			
		5	555			



Performance Data

Table 62. Standard fan motors - constant volume air handlers (continued)

Model	Motor	Motor Sheave Turns Open	Nominal RPM	Required Field Supplied Components		
				Motor Sheave	Blower Sheave	Belt
TWE150	Standard Motor with Field Supplied Components 2 HP (High Static)	0	913	Variable Pitch (2.4 - 3.4 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VL40	Fixed pitch (6.7 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning AK71	Browning A55
		1	862			
		2	806			
		3	749			
		4	693			
		5	659			
TWE180	Standard Motor 3 HP	0	845	N/A	N/A	N/A
		1	812			
		2	728			
		3	745			
		4	711			
		5	678			
		6	644			
TWE180	Standard Motor with Field Supplied Components 3 HP (Low Static)	0	649	Variable Pitch (2.4 - 3.4 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VL40	Fixed Pitch (9.5 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK105	Browning AX59
		1	613			
		2	557			
		3	500			
		4	444			
		5	469			
TWE180	Standard Motor with Field Supplied Components - 3 HP (High Static)	1	887	Variable Pitch (3.6-4.6 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VP50	Fixed Pitch (7 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK80	Browning A58
		2	936			
		3	986			
		4	1035			
		5	1084			
		6	1134			
TWE240	Standard Motor 5 HP	0	966	N/A	N/A	N/A
		1	932			
		2	899			
		3	865			
		4	831			
		5	798			
		6	764			
TWE240	Standard Motor with Field Supplied Components 5 HP (High Static)	1	1119	Variable Pitch (3.4 - 4.4 Inch Pitch Diameter), 1.125 Inch Bore, Single Groove, Browning 1VP50	Fixed Pitch (7.4 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK80	Browning BX56
		2	1072			
		3	1026			
		4	979			
		5	932			
		6	886			
TWE240	Standard Motor with Field Supplied Components - 5 HP (Low Static)	1	633	Variable Pitch (3.2-4.2 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VP44	Fixed Pitch (8.9 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK95	Browning BX58
		2	672			
		3	712			
		4	751			
		5	791			
		6	831			
TWE300	Standard Motor 7.5 HP	0	1068	N/A	N/A	N/A
		1	1016			
		2	964			
		3	912			
		4	859			
		5	807			
TWE300	Standard Motor with Field Supplied Components 7.5 HP (Low Static)	1	717	Variable Pitch (3.2-4.2 inch pitch diameter), 1.125 Inch Bore, Single Groove, Browning 1VL44	Fixed Pitch (15.4 inch pitch diameter), 1.4375 Inch Bore, Single Groove, Browning BK160	Browning BX70
		2	762			
		3	806			
		4	851			
		5	896			
		6	941			
TWE300	Standard Motor with Field Supplied Components 7.5 HP (High Static)	1	1053	Variable Pitch (4.7-5.9 Inch Pitch Diameter), 1.125 Inch Bore, Single Groove, Browning 1VP60	Fixed Pitch (15.4 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK160	Browning BX72
		2	1098			
		3	1142			
		4	1187			

Table 62. Standard fan motors - constant volume air handlers (continued)

Model	Motor	Motor Sheave Turns Open	Nominal RPM	Required Field Supplied Components		
				Motor Sheave	Blower Sheave	Belt
		5	1232			
		6	1276			
		7	1322			

Table 63. High static fan motors - constant volume air handlers

Model	Motor	Motor Sheave Turns Open	Nominal RPM	Required Field Supplied Components		
				Motor Sheave	Blower Sheave	Belt
TWE060	High Static Motor 1.5 HP	0	1346	N/A	N/A	N/A
		1	1279			
		2	1212			
		3	1144			
		4	1077			
		5	1010			
TWE090	High Static Motor 2 HP	0	1094	N/A	N/A	N/A
		1	1039			
		2	984			
		3	930			
		4	875			
		5	820			



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Table 64. Discharge plenum and grille assembly throw distance (ft) — air handler (60 Hz)

Tons	Model No.	CFM	Louver Angle Deflection Position			
			Straight	20°	40°	55°
5	TWE0604*A/B	1600	42	31	26	20
		1800	46	37	29	22
		2000	48	43	33	24
		2200	51	50	36	25
		2400	54	57	39	29
6	TWE0724*B	1920	48	33	30	27
		2160	50	38	32	28
		2400	52	43	35	29
		2640	54	47	38	30
		2880	57	51	41	32
7.5	TWE0904*A/B	2400	52	43	35	29
		2700	55	48	38	31
		3000	58	53	42	32
		3300	62	57	46	35
		3600	66	60	50	37
10	TWE1204*A/B	3200	56	46	38	30
		3600	62	51	42	33
		4000	66	57	47	35
		4400	71	62	52	38
		4800	76	67	56	42
12.5	TWE1504*B	4900	47	38	32	25
		5400	52	44	37	29
		6000	57	49	41	32
		6600	61	53	43	34
		7200	65	57	46	35
15	TWE1804*B	4900	47	38	32	25
		5400	52	44	37	29
		6000	57	49	41	32
		6600	61	53	43	34
		7200	65	57	46	35
20	TWE2404*B	6400	56	46	38	30
		7200	62	51	42	33
		8000	66	57	47	35
		8800	71	62	52	38
		9600	76	67	56	42
25	TWE3004*B	8000	66	57	47	35
		9000	72	63	53	39
		10000	78	70	59	43
		11000	84	76	65	46
		12000	90	83	71	50

Notes:

1. Assumes incompressible and adiabatic flow through grille.
2. Throw distance values are based on a terminal velocity of 75 FPM.
3. Throw distance values at other terminal velocities may be established by multiplying throw distances in the table above by throw factor as follows: for 50 FPM terminal velocity, multiply by 1.50 throw factor; for 100 FPM terminal velocity, multiply by 0.75 throw factor; for 150 FPM terminal velocity, multiply by 0.50 throw factor.
4. SZVAV/2-Speed VFD available for 6–25 ton only.

Table 65. Electric heat discharge plenum and grille airflow (CFM) - constant volume air handler (60Hz)

Tons	Unit Model No.	Electric Heater Model No.	Airflow (CFM)	
			Minimum	Maximum
5	TWE06041A, B	BAYHTRS117*	2000	2400
	TWE06043A, B	BAYHTRR315*	2000	2400
	TWE06044A, B	BAYHTRR415*	2000	2400
6	TWE07243B	BAYHTRR315*	2000	2880
	TWE07243B	BAYHTRN325*	2000	2880
	TWE07244B	BAYHTRR415*	2000	2880
	TWE07244B	BAYHTRN425*	2000	2880
7.5	TWE09041A, B	BAYHTRS117*	3000	3600
	TWE09041A, B	BAYHTRR123*	3375	3600
7.5	TWE09043A, B	BAYHTRR315*	2625	3600
	TWE09043A, B	BAYHTRN325*	3000	3600
	TWE09044A, B	BAYHTRR415*	2625	3600
	TWE09044A, B	BAYHTRN425*	2625	3600
10	TWE12041A, B	BAYHTRS117*	3500	4800
	TWE12041A, B	BAYHTRR123*	4000	4800
10	TWE12043A, B	BAYHTRR315*	4000	4800
	TWE12043A, B	BAYHTRN325*	3500	4800
	TWE12044A, 4B	BAYHTRR415*	3500	4800
	TWE12044A, 4B	BAYHTRN425*	3500	4800
12.5	TWE15043B	BAYHTRP330*	5250	6000
	TWE15044B	BAYHTRP430*	5250	6000
15	TWE18043B	BAYHTRP330*	5250	7200
	TWE18044B	BAYHTRP430*	5250	7200
20	TWE24043B	BAYHTRP330*	7000	9600
	TWE24044B	BAYHTRP430*	7000	9600
25	TWE30043B	BAYHTRP330*	8750	12000
	TWE30044B	BAYHTRP430*	8750	12000

Note: SZVAV/2-Speed VFD available for 6–25 ton only.

Table 66. Static pressure drop through accessories (inches of water column) - air handler (60Hz)

Tons	Unit Model No.	CFM	Return Grille	Discharge Plenum & Grille	2" MERV 13 Filter	Electric Heaters (kW)				Hydronic Coils	
						5–10	15–20	25–30	35–50	Steam	Hot Water
5	TWE0604*A/B	1600	0.12	0.21	0.22	0.08	0.08	0.14	—	0.44	0.31
		2000	0.18	0.33	0.29	0.13	0.13	0.19	—	0.62	0.44
		2400	0.28	0.47	0.36	0.19	0.19	0.37	—	0.80	0.59
6	TWE0724*B	1920	0.04	0.20	0.15	0.01	0.03	0.04	0.06	0.31	0.16
		2400	0.08	0.27	0.19	0.03	0.06	0.08	0.12	0.38	0.23
		2880	0.12	0.37	0.24	0.05	0.11	0.15	0.21	0.48	0.31
7.5	TWE0904*A/B	2400	0.08	0.27	0.19	0.03	0.06	0.08	0.12	0.38	0.23
		3000	0.13	0.40	0.25	0.06	0.12	0.17	0.23	0.50	0.33
		3600	0.18	0.58	0.31	0.08	0.16	0.24	0.32	0.66	0.44
10	TWE1204*A/B	3200	0.07	0.43	0.19	0.06	0.13	0.19	0.26	0.42	0.40
		4000	0.11	0.66	0.25	0.10	0.20	0.30	0.40	0.59	0.56
		4800	0.15	0.95	0.31	0.14	0.28	0.42	0.57	0.76	0.75
12.5	TWE1504*B	4000	0.06	0.16	0.15	0.02	0.02	0.04	0.08	0.28	0.24
		5000	0.10	0.25	0.20	0.03	0.03	0.08	0.12	0.44	0.38



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Table 66. Static pressure drop through accessories (inches of water column) - air handler (60Hz) (continued)

Tons	Unit Model No.	CFM	Return Grille	Discharge Plenum & Grille	2" MERV 13 Filter	Electric Heaters (kW)				Hydronic Coils	
						5-10	15-20	25-30	35-50	Steam	Hot Water
		6000	0.14	0.36	0.25	0.04	0.05	0.12	0.17	0.64	0.54
15	TWE1804*B	4800	0.09	0.23	0.19	0.03	0.03	0.06	0.08	0.46	0.38
		6000	0.15	0.34	0.25	0.06	0.06	0.12	0.17	0.64	0.54
		7200	0.20	0.49	0.31	0.08	0.08	0.16	0.24	0.82	0.72
20	TWE2404*B	6400	0.11	0.43	0.22	0.06	0.06	0.13	0.19	0.50	0.41
		8000	0.17	0.66	0.29	0.10	0.10	0.20	0.30	0.70	0.58
		9600	0.23	0.95	0.36	0.14	0.14	0.28	0.42	0.89	0.78
25	TWE3004*B	8000	0.17	0.66	0.29	0.10	0.10	0.20	0.30	0.70	0.58
		10000	0.25	1.03	0.37	0.15	0.15	0.30	0.45	0.94	0.83
		12000	0.32	1.49	0.47	0.20	0.20	0.42	0.62	1.16	1.14

Notes:

1. SZVAV/2-Speed VFD available for 6-25 ton only.
2. Return air filter ESP included in Fan Performance Table data.
3. Discharge plenum and grille - at lower opening angle of 42 degrees. For ESP at other angle openings, see accessory installation instructions.

Table 67. Auxiliary electric heat capacity - air handler (60Hz)

Unit Model No.	Total kW	No. of Stages	Stage 1		Stage 2		Total	
			kW Input	BTUH Output	kW Input	BTUH Output	kW Input	BTUH Output
TWE06041A, TWE06041B	5.76	1	5.76	19659	—	—	5.76	19659
	11.52	1	11.52	39318	—	—	11.52	39318
	17.28	1	17.28	58977	—	—	17.28	58977
	23.04	2	11.52	39318	11.52	39318	23.04	78636
TWE06043A, TWE06044A, TWE0604WA, TWE06043B, TWE06044B	5.00	1	5.00	17065	—	—	5.00	17065
	9.96	1	9.96	33993	—	—	9.96	33993
	14.96	1	14.96	51058	—	—	14.96	51058
	24.92	2	14.96	51058	9.96	33993	24.92	85051
TWE07243B, TWE07244B, TWE0724WB	5.00	1	5.00	17065	—	—	5.00	17065
	9.96	1	9.96	33993	—	—	9.96	33993
	14.96	1	14.96	51058	—	—	14.96	51058
	24.92	2	14.96	51058	9.96	33993	24.92	85051
TWE09041A, TWE09041B	5.76	1	5.76	19659	—	—	5.76	19659
	11.52	1	11.52	39318	—	—	11.52	39318
	17.28	1	17.28	58977	—	—	17.28	58977
	23.04	2	11.52	39318	11.52	39318	23.04	78636
	28.80	2	17.28	58977	11.52	39318	28.80	98295
TWE09043A, TWE09043B, TWE0904WA, TWE0904WB	5.00	1	5.00	17065	—	—	5.00	17065
	9.96	1	9.96	33993	—	—	9.96	33993
	14.96	1	14.96	51058	—	—	14.96	51058
	24.92	2	14.96	51058	9.96	33993	24.92	85051
	34.88	2	19.92	67987	14.96	51058	34.88	119045
TWE09043B, TWE09044B, TWE0904WB	5.00	1	5.00	17065	—	—	5.00	17065
	9.96	1	9.96	33993	—	—	9.96	33993
	14.96	1	14.96	51058	—	—	14.96	51058
	24.92	2	14.96	51058	9.96	33993	24.92	85051
	34.88	2	19.92	67987	14.96	51058	34.88	119045
TWE12041A, TWE12041B	5.76	1	5.76	19659	—	—	5.76	19659
	11.52	1	11.52	39318	—	—	11.52	39318
	17.28	1	17.28	58977	—	—	17.28	58977
	23.04	2	11.52	39318	11.52	39318	23.04	78636
	28.80	2	17.28	58977	11.52	39318	28.80	98295
TWE12043A, TWE1204WA, TWE12044A, TWE12044B, TWE12043B, TWE1204WB	5.00	1	5.00	17065	—	—	5.00	17065
	9.96	1	9.96	33993	—	—	9.96	33993
	14.96	1	14.96	51058	—	—	14.96	51058

Table 67. Auxiliary electric heat capacity - air handler (60Hz) (continued)

Unit Model No.	Total kW	No. of Stages	Stage 1		Stage 2		Total	
			kW Input	BTUH Output	kW Input	BTUH Output	kW Input	BTUH Output
TWE15043B, TWE1504WB	24.92	2	14.96	51058	9.96	33993	24.92	85051
	34.88	2	19.92	67987	14.96	51058	34.88	119045
	10.00	1	10.00	34130	—	—	10.00	34130
	19.92	1	19.92	67987	—	—	19.92	67987
TWE15043B, TWE15044B, TWE1504WB	29.92	2	19.92	67987	10.00	34130	29.92	102117
	49.84	2	29.92	102117	19.92	67987	49.84	170104
	10.00	1	10.00	34130	—	—	10.00	34130
	19.92	1	19.92	67987	—	—	19.92	67987
TWE18043B, TWE1804WB	29.92	2	19.92	67987	10.00	34130	29.92	102117
	49.84	2	29.92	102117	19.92	67987	49.84	170104
	10.00	1	10.00	34130	—	—	10.00	34130
	19.92	1	19.92	67987	—	—	19.92	67987
TWE18043B, TWE18044B, TWE1804WB	29.92	2	19.92	67987	10.00	34130	29.92	102117
	49.84	2	29.92	102117	19.92	67987	49.84	170104
	10.00	1	10.00	34130	—	—	10.00	34130
	19.92	1	19.92	67987	—	—	19.92	67987
TWE2404*B	29.92	2	19.92	67987	10.00	34130	29.92	102117
	49.84	2	29.92	102117	19.92	67987	49.84	170104
	10.00	1	10.00	34130	—	—	10.00	34130
	19.92	1	19.92	67987	—	—	19.92	67987
TWE3004*B	29.92	2	19.92	67987	10.00	34130	29.92	102117
	49.84	2	29.92	102117	19.92	67987	49.84	170104
	10.00	1	10.00	34130	—	—	10.00	34130
	19.92	1	19.92	67987	—	—	19.92	67987

Notes:

- Heaters are rated at 240V, 480V, and 600V. For other than rated voltage, capacity = (Voltage/Related Voltage)² x Rated Capacity.
- SZVAV/2-Speed VFD available for 6–25 ton only.

Table 68. Steam heating coil capacity – air handler steam pressure (PSIG) (60Hz)

Unit Model No.	Airflow (CFM)	EAT (°F)	Steam Pressure (PSIG)														
			2 PSI			5 PSI			10 PSI			15 PSI			25 PSI		
			LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr
TWE0604*A, TWE0604*B	1600	40	97	99	103	100	104	108	104	111	117	108	117	124	113	127	136
		60	111	88	91	114	93	97	118	100	105	121	106	112	127	116	124
		80	125	77	80	127	82	85	131	89	94	135	95	101	140	105	112
	2000	40	90	108	112	93	114	118	96	122	128	99	129	136	104	139	149
		60	104	96	100	107	102	106	111	110	115	114	116	123	119	127	136
		80	119	84	87	121	90	93	125	98	102	128	104	110	133	115	123
	2400	40	85	116	120	87	123	127	90	131	137	93	138	146	98	150	160
		60	100	104	107	102	110	114	105	118	124	108	125	132	113	137	146
		80	115	91	94	117	97	100	120	105	110	123	112	118	127	123	132
TWE072*B	1920	40	106	151	157	112	159	165	116	169	178	121	179	189	126	194	207
		60	120	134	139	124	141	147	128	153	160	133	162	172	139	177	189
		80	133	117	121	136	125	131	140	136	143	145	144	152	151	159	170
	2400	40	102	162	168	106	171	177	110	182	191	114	192	203	120	208	222
		60	115	144	149	119	152	158	123	164	172	127	174	184	133	190	203
		80	129	126	130	132	134	140	136	146	153	140	155	164	146	171	183
	2880	40	96	174	180	100	183	190	104	196	205	107	206	218	113	223	239
		60	110	154	159	113	163	170	117	176	184	121	186	197	126	204	218



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Table 68. Steam heating coil capacity – air handler steam pressure (PSIG) (60Hz) (continued)

Unit Model No.	Airflow (CFM)	EAT (°F)	Steam Pressure (PSIG)														
			2 PSI			5 PSI			10 PSI			15 PSI			25 PSI		
			LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr
		80	124	135	140	127	144	150	131	157	164	134	166	176	140	184	197
TWE0904*A, TWE0904*B	2400	40	102	162	168	106	171	177	110	182	191	114	192	203	120	208	222
		60	115	144	149	119	152	158	123	164	172	127	174	184	133	190	203
		80	129	126	130	132	134	140	136	146	153	140	155	164	146	171	183
	3000	40	95	178	183	97	187	194	101	200	209	105	210	222	110	228	244
		60	109	158	163	111	167	174	115	180	188	119	190	201	124	208	222
		80	122	138	143	125	147	153	129	160	168	132	170	180	138	188	201
	3600	40	89	191	197	91	201	208	95	215	225	97	226	239	103	245	262
		60	103	170	175	106	180	187	110	193	203	112	205	216	117	224	239
		80	118	149	154	121	158	164	124	172	180	127	183	194	132	202	216
TWE1204*A, TWE1204*B	3200	40	99	203	210	102	214	222	106	229	240	109	241	254	115	261	279
		60	112	181	187	115	191	199	119	206	216	123	218	230	129	238	255
		80	126	158	164	129	169	175	133	183	192	136	195	206	142	215	230
	4000	40	91	222	229	94	234	243	98	250	262	101	264	278	106	286	306
		60	106	198	204	108	209	217	112	225	236	115	239	252	120	261	279
		80	120	173	179	123	184	192	126	200	210	129	214	226	134	236	252
	4800	40	86	239	246	88	251	261	92	269	282	94	284	299	99	307	329
		60	101	212	219	103	225	233	107	242	254	109	257	271	114	280	300
		80	116	186	192	118	198	206	121	215	226	124	230	243	129	253	271
TWE1504*B	4000	40	103	274	283	106	288	299	111	308	323	115	325	343	121	352	376
		60	116	244	252	119	258	268	124	277	291	128	294	310	134	321	343
		80	129	213	220	132	227	236	137	247	259	141	263	278	147	290	310
	5000	40	95	300	309	98	316	328	102	337	354	106	356	346	111	286	412
		60	109	267	275	112	282	293	116	304	318	119	322	340	125	352	376
		80	123	234	241	126	249	259	130	270	283	133	288	305	139	318	340
	6000	40	90	322	332	92	339	352	96	363	380	99	383	404	104	415	444
		60	104	287	296	107	303	315	110	327	342	113	347	366	118	379	405
		80	119	251	259	121	268	278	125	291	305	128	310	328	133	342	366
TWE1804*B	4800	40	97	295	304	100	310	322	104	332	348	107	350	369	113	379	406
		60	110	262	271	113	278	288	117	299	313	121	317	334	126	346	370
		80	124	230	237	127	245	254	131	266	279	134	284	299	140	313	334
	6000	40	90	322	332	92	339	352	96	363	380	99	383	404	104	415	444
		60	104	287	296	107	303	315	110	327	343	113	347	366	118	379	405
		80	119	251	259	121	268	278	125	291	305	128	310	328	133	342	366
	7200	40	84	346	356	87	364	378	90	390	408	93	411	434	97	446	477
		60	99	308	318	102	326	338	105	351	368	108	373	393	112	407	435
		80	115	270	278	117	287	299	120	313	327	123	334	352	127	368	394
TWE2404*B	6400	40	95	379	391	97	399	414	102	427	447	105	450	475	110	488	522
		60	109	337	348	111	357	371	115	384	403	119	408	430	124	445	476
		80	123	295	305	125	315	327	129	342	358	133	365	385	138	402	430
	8000	40	88	414	426	90	436	452	94	467	488	97	492	519	102	534	571
		60	102	368	380	105	390	405	108	420	440	111	446	470	116	487	521
		80	117	322	333	120	344	357	123	374	392	126	399	421	131	440	471
	9600	40	83	443	457	85	468	485	88	501	524	91	529	558	95	574	613
		60	98	395	407	100	418	434	103	451	473	106	479	505	110	524	560
		80	113	346	357	115	369	383	119	402	421	121	429	453	125	473	506
TWE3004*B	8000	40	88	414	426	90	436	452	94	467	488	97	492	519	102	534	571
		60	102	368	380	105	390	405	108	420	440	111	446	470	116	487	521
		80	117	322	333	120	344	357	123	374	392	126	399	421	131	440	471

Table 68. Steam heating coil capacity – air handler steam pressure (PSIG) (60Hz) (continued)

Unit Model No.	Airflow (CFM)	EAT (°F)	Steam Pressure (PSIG)														
			2 PSI			5 PSI			10 PSI			15 PSI			25 PSI		
			LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr	LAT	MBh	Cond. lb/hr
	10000	40	82	450	464	84	475	492	87	509	533	90	537	567	94	583	623
		60	97	401	413	99	425	441	102	459	480	105	487	513	109	532	569
		80	112	352	363	115	375	389	118	408	427	120	436	460	124	481	514
	12000	40	77	479	493	79	509	527	82	546	571	84	577	608	88	627	669
		60	93	430	443	95	456	473	98	492	515	100	523	551	104	572	611
		80	109	377	389	111	402	418	114	438	459	116	468	494	120	517	553

Notes:

1. Type NS Coil, 1 Row, 1" OD, SF Fins, 132 Fins per Foot.
2. SZVAV/2-Speed VFD available for 6–25 ton only.
3. LAT = Leaving Air Temperature (°F)
4. MBh Capacity= BTU/HR/1000
5. Cond. Lb/Hr = Condensate pound per hour

Table 69. Hot water heating coil capacity - air handler (60Hz)

Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (°F)	Entering Water Temperature (°F)								
				180								
				Water Temperature Drop (°F)								
				20			30			40		
				GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT
5	TWE0604*A, TWE0604*B	1600	40	10.9	106.1	101.0	6.6	96.5	96.0	4.5	87.4	90.0
			60	9.0	88.3	111.0	5.4	79.1	106.0	3.6	70.3	100.0
			80	7.2	70.6	121.0	4.2	61.8	116.0	2.7	53.4	111.0
		2000	40	12.3	119.8	95.0	7.4	108.6	90.0	5.0	97.9	851.0
			60	10.2	99.6	106.0	6.1	88.8	101.0	4.0	78.6	96.0
			80	8.1	79.5	117.0	4.7	69.2	112.0	3.0	59.6	107.0
		2400	40	13.5	132.0	91.0	8.1	119.2	86.0	5.5	107.1	811.0
			60	11.2	109.6	102.0	6.6	97.4	97.0	4.4	85.9	931.0
			80	9.0	87.4	114.0	5.2	75.7	109.0	3.3	64.9	105.0
6	TWE072*B	1920	40	15.4	150.3	112.5	9.4	137.6	106.4	6.4	124.9	100.2
			60	12.8	124.9	120.2	7.6	111.3	113.7	5.2	101.5	109.0
			80	10.2	99.6	128.0	6.0	87.8	122.4	3.9	76.1	116.7
		2400	40	17.0	165.9	104.0	10.4	152.3	98.0	7.1	139.2	93.0
			60	14.2	138.4	113.0	8.5	125.2	108.0	5.7	112.5	103.0
			80	11.4	111.1	123.0	6.7	98.3	118.0	4.4	86.1	113.0
		2880	40	18.7	182.5	98.7	11.5	168.4	94.1	7.7	150.3	88.3
			60	15.6	152.3	109.0	9.2	134.7	103.3	6.4	124.9	100.2
			80	12.5	122.0	119.2	7.2	105.4	113.9	4.7	91.7	109.5
7.5	TWE0904*A, TWE0904*B	2400	40	17.0	165.9	104.0	10.4	152.3	98.0	7.1	139.2	93.0
			60	14.2	138.4	113.0	8.5	125.2	108.0	5.7	112.5	103.0
			80	11.4	111.1	123.0	6.7	98.3	118.0	4.4	86.1	113.0
		3000	40	19.3	187.9	98.0	11.7	171.9	93.0	8.0	156.5	88.0
			60	16.1	156.7	108.0	9.6	141.1	103.0	6.4	126.3	991.0
			80	12.9	125.5	119.0	7.5	110.6	114.0	4.9	96.5	110.0
		3600	40	21.2	207.3	93.0	12.9	189.1	88.0	8.8	171.6	84.0
			60	17.7	172.7	104.0	10.6	155.0	100.0	7.1	138.3	95.0
			80	14.2	138.2	115.0	8.3	121.2	111.0	5.4	105.4	107.0
10	TWE1204*A, TWE1204*B	3200	40	24.5	239.1	109.0	14.3	210.0	100.0	9.1	178.7	91.0
			60	20.2	197.3	117.0	11.5	168.4	108.0	6.9	134.8	99.0
			80	15.9	155.6	125.0	8.6	126.1	116.0	4.0	78.7	103.0
		4000	40	27.8	271.7	103.0	16.2	237.5	95.0	10.3	201.9	86.0
			60	22.9	223.8	112.0	13.0	190.3	104.0	7.8	153.3	95.0



Performance Data

Table 69. Hot water heating coil capacity - air handler (60Hz) (continued)

Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (°F)	Entering Water Temperature (°F)								
				180								
				Water Temperature Drop (°F)								
				20			30			40		
				GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT
12.5	TWE1504*B	4800	80	18.1	176.2	121.0	9.7	142.6	113.0	5.0	97.3	102.0
			40	30.7	300.0	98.0	17.8	261.3	90.0	11.3	221.7	82.0
			60	25.3	246.9	107.0	14.3	209.1	100.0	8.6	168.9	92.0
			80	19.9	194.0	117.0	10.7	156.7	110.0	5.6	110.2	101.0
		5000	40	31.7	318.0	113.3	19.2	287.7	106.3	12.8	256.5	99.1
			60	26.4	264.4	120.9	15.6	234.4	114.0	10.2	203.2	106.9
			80	21.1	210.9	128.6	12.1	181.1	121.7	7.4	148.9	114.3
		6000	40	36.0	360.6	106.5	21.7	325.2	100.0	14.4	288.8	93.3
			60	29.9	299.6	115.3	17.6	264.5	108.8	11.4	228.3	102.1
			80	23.8	238.7	124.0	13.6	203.8	117.6	8.4	167.5	110.9
		6000	40	39.7	397.0	101.0	23.8	357.0	94.9	15.8	316.1	88.6
			60	32.9	329.6	110.7	19.3	290.0	104.6	12.5	249.5	98.3
			80	26.2	262.3	120.3	14.9	223.1	114.3	9.1	182.8	108.1
15	TWE1804*B	4800	40	35.2	343.9	106.0	21.2	310.3	100.0	14.1	276.3	93.0
			60	29.3	285.7	115.0	17.2	252.7	108.0	11.2	218.5	102.0
			80	23.3	227.7	124.0	13.3	195.0	117.0	8.2	159.9	111.0
		6000	40	40.0	390.3	100.0	23.9	350.8	94.0	15.9	311.4	88.4
			60	33.3	323.9	110.0	19.5	285.3	104.0	12.6	246.2	98.0
			80	26.4	257.7	120.0	15.0	219.9	114.0	9.2	180.5	108.0
		7200	40	44.2	431.3	95.0	26.4	386.5	89.0	17.5	342.1	84.0
			60	36.6	357.6	106.0	21.4	313.9	100.0	13.8	270.6	95.0
			80	29.1	284.2	116.0	16.5	241.6	111.0	10.1	198.3	105.0
		6400	40	46.8	456.2	106.0	28.4	416.5	100.0	19.3	376.7	94.0
			60	39.0	380.2	115.0	23.3	341.2	109.0	15.4	301.7	103.0
			80	31.2	304.5	124.0	18.2	266.0	118.0	11.6	227.0	113.0
20	TWE2404*B	8000	40	53.0	517.5	100.0	32.1	470.9	94.0	21.7	424.5	89.0
			60	44.2	430.9	110.0	26.3	385.2	104.0	17.4	339.6	99.0
			80	35.3	344.6	120.0	20.5	299.8	115.0	13.0	255.2	109.0
		9600	40	58.6	572.0	94.0	35.4	519.1	90.0	23.9	466.8	85.0
			60	48.8	475.9	106.0	28.9	424.2	101.0	19.1	373.3	96.0
			80	39.0	380.2	116.0	22.5	329.6	112.0	14.3	280.0	107.0
		8000	40	52.0	520.2	100.0	31.6	474.4	94.7	21.4	427.6	89.3
			60	43.3	433.6	110.0	25.9	388.2	104.7	17.1	341.6	99.4
			80	34.7	347.0	120.0	20.1	301.9	114.8	12.8	255.3	109.4
		10000	40	57.9	579.4	93.4	35.1	526.9	88.6	23.7	473.6	83.7
			60	48.2	482.5	104.5	28.7	430.6	99.7	18.9	377.7	94.8
			80	38.5	385.7	115.6	22.3	334.3	110.8	14.1	281.6	106.0
25	TWE3004*B	12000	40	62.8	628.6	88.3	38.0	570.5	83.8	25.6	511.7	79.3
			60	52.3	523.2	100.2	31.0	465.8	95.8	20.4	407.5	91.3
			80	41.7	417.9	112.2	24.1	361.2	107.8	15.2	303.3	103.3
Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (°F)	Entering Water Temperature (°F)								
				200								
				Water Temperature Drop (°F)								
				20			30			40		
				GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT
5	TWE0604*A, TWE0604*B	1600	40	12.9	124.9	112.0	7.9	115.4	106.0	5.5	106.3	101.0
			60	11.0	107.0	122.0	6.7	97.8	116.0	4.6	88.9	111.0
			80	9.2	89.1	131.0	5.5	80.2	126.0	3.7	71.7	121.0
		2000	40	4.5	141.3	105.0	8.9	130.1	100.0	6.1	119.4	95.0

Table 69. Hot water heating coil capacity - air handler (60Hz) (continued)

Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (° F)	Entering Water Temperature (°F)										
				200										
				Water Temperature Drop (°F)										
				20			30			40				
				GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT		
			60	12.4	120.9	116.0	7.5	110.1	111.0	5.1	99.7	106.0		
			80	10.4	100.6	126.0	6.2	90.2	122.0	4.1	80.3	117.0		
		2400	40	6.0	155.8	100.0	9.8	143.1	95.0	6.7	131.0	90.0		
			60	3.7	133.3	111.0	8.3	120.9	106.0	5.6	109.2	102.0		
			80	11.4	110.8	123.0	6.8	98.9	118.0	4.5	87.8	114.0		
6	TWE072*B	1920	40	17.9	174.7	124.3	11.2	164.0	119.1	7.9	154.2	114.4		
			60	15.6	152.3	133.4	9.6	140.5	127.8	6.5	126.9	121.2		
			80	13.0	126.9	141.2	8.0	117.1	136.5	5.4	105.4	130.8		
		2400	40	20.0	194.8	115.0	12.4	181.2	110.0	8.6	168.2	105.0		
			60	17.2	167.1	124.0	10.6	153.9	119.0	7.2	141.2	114.0		
			80	14.4	139.6	134.0	8.7	126.8	129.0	5.9	114.3	124.0		
		2880	40	21.9	213.7	108.7	13.7	200.6	104.5	9.6	187.4	100.2		
			60	19.0	185.4	119.6	11.7	171.3	115.1	8.0	156.2	110.2		
			80	15.8	154.2	129.6	9.7	142.0	125.7	6.5	126.9	120.8		
		7.5	TWE0904*A, TWE0904*B	2400	40	20.0	194.8	115.0	12.4	181.2	110.0	8.6	168.2	105.0
					60	17.2	167.1	124.0	10.6	153.9	119.0	7.2	141.2	114.0
					80	14.4	139.6	134.0	8.7	126.8	129.0	5.9	114.3	124.0
3000	40			22.7	220.9	108.0	14.0	204.9	103.0	9.7	189.6	98.0		
	60			9.5	189.4	118.0	11.9	173.9	113.0	8.2	159.0	109.0		
	80			16.3	158.1	129.0	9.8	143.0	124.0	6.6	128.5	119.0		
3600	40			25.1	244.0	102.0	15.5	225.7	981.0	0.7	208.4	93.0		
	60			21.5	209.1	113.0	13.1	191.4	109.0	9.0	174.4	105.0		
	80			17.9	174.3	125.0	10.8	157.1	120.0	7.2	140.9	116.0		
10	TWE1204*A, TWE1204*B			3200	40	29.3	284.7	122.0	17.6	256.8	114.0	11.7	228.6	106.0
					60	25.0	242.6	130.0	14.7	215.2	122.0	9.6	186.9	114.0
					80	20.6	200.6	138.0	11.9	173.6	130.0	7.4	144.3	122.0
		4000	40	33.4	324.1	115.0	19.9	291.0	107.0	13.3	258.2	99.0		
			60	28.4	275.8	124.0	16.7	243.6	116.0	10.8	211.0	109.0		
			80	23.4	227.7	132.0	13.4	196.2	125.0	8.4	163.2	118.0		
		4800	40	36.9	358.3	109.0	22.0	320.7	102.0	14.6	283.7	94.0		
			60	31.4	304.7	118.0	18.4	268.1	111.0	11.9	231.6	104.0		
			80	25.9	251.3	128.0	14.8	215.6	121.0	9.2	179.4	114.0		
		12.5	TWE1504*B	4000	40	37.3	374.5	126.3	23.0	345.9	119.7	15.8	316.5	113.0
					60	32.0	320.9	134.0	19.4	292.5	127.4	13.1	263.1	120.7
					80	26.6	267.4	141.6	15.9	293.1	135.1	10.5	209.7	128.3
5000	40			42.4	425.4	118.5	26.0	391.7	112.2	17.8	357.2	105.9		
	60			36.3	364.3	127.2	22.0	330.8	121.0	14.8	296.5	114.7		
	80			30.2	303.2	135.9	17.9	269.9	129.8	11.8	235.8	123.5		
6000	40			46.7	468.8	112.0	28.6	430.6	106.2	19.5	391.7	100.2		
	60			40.0	401.2	121.7	24.2	363.3	115.8	16.2	324.8	109.9		
	80			33.2	333.6	131.3	19.7	296.1	125.5	12.9	257.8	119.6		
15	TWE1804*B			4800	40	41.8	406.0	118.0	25.6	373.4	112.0	17.5	341.0	105.0
					60	35.8	347.5	127.0	21.6	315.4	121.0	14.6	283.4	114.0
					80	29.8	289.1	135.0	17.7	257.6	129.0	11.6	225.7	123.0
		6000	40	7.5	461.4	111.0	29.0	423.0	105.0	19.8	385.0	99.0		
			60	40.6	394.6	121.0	24.5	356.9	115.0	16.4	319.6	109.0		
			80	33.8	327.9	130.0	19.9	291.0	125.0	13.1	254.3	119.0		
		7200	40	52.5	510.4	105.0	32.0	466.7	100.0	21.8	423.8	94.0		
			60	44.9	436.3	116.0	27.0	393.5	110.0	18.0	351.4	105.0		

Performance Data

Table 69. Hot water heating coil capacity - air handler (60Hz) (continued)

Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (° F)	Entering Water Temperature (°F)								
				200								
				Water Temperature Drop (°F)								
				20			30			40		
GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT				
			80	37.3	362.2	126.0	22.0	320.5	121.0	14.3	279.5	116.0
20	TWE2404*B	6400	40	55.2	536.5	117.0	34.1	497.8	112.0	23.6	459.4	106.0
			60	47.4	460.2	126.0	28.9	422.1	121.0	19.7	384.2	115.0
			80	39.5	384.0	135.0	23.8	346.5	130.0	15.9	308.9	124.0
		8000	40	62.7	609.2	110.0	38.6	563.8	105.0	26.6	518.8	100.0
			60	53.8	522.2	120.0	32.7	477.6	115.0	22.2	433.3	110.0
			80	44.8	435.4	130.0	26.8	391.5	125.0	17.9	347.9	120.0
		9600	40	69.4	673.9	105.0	42.7	622.3	100.0	29.3	571.5	95.0
			60	59.4	577.4	115.0	36.1	526.8	111.0	24.5	476.7	106.0
			80	49.5	481.0	126.0	29.6	431.4	121.0	19.6	382.6	117.0
25	TWE3004*B	8000	40	60.9	611.5	110.5	37.7	567.6	105.4	26.1	523.0	100.3
			60	52.3	524.6	120.5	32.0	481.1	115.5	21.8	436.7	110.3
			80	43.6	437.8	130.5	26.2	394.6	125.5	17.5	350.3	120.4
		10000	40	67.9	681.6	102.9	42.0	631.2	98.2	28.9	580.2	93.5
			60	58.2	584.4	113.9	35.5	534.5	109.3	24.1	483.9	104.6
			80	48.6	487.4	124.9	29.1	437.9	120.4	19.3	387.5	115.7
		12000	40	73.7	740.0	96.9	45.5	684.0	92.6	31.3	627.7	88.2
			60	63.2	634.2	108.7	38.5	578.9	104.5	26.1	523.0	100.2
			80	52.7	528.6	120.6	31.5	473.8	116.4	20.9	418.3	112.1
Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (° F)	Entering Water Temperature (°F)								
				210								
				Water Temperature Drop (°F)								
				20			30			40		
GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT				
5	TWE0604*A, TWE0604*B	1600	40	13.9	134.3	117.0	8.6	124.8	112.0	6.0	115.8	107.0
			60	12.0	116.3	127.0	7.4	107.1	122.0	5.1	98.3	117.0
			80	10.2	98.4	137.0	6.1	89.5	132.0	4.2	80.9	127.0
		2000	40	15.7	152.0	110.0	9.7	140.9	105.0	6.7	130.2	100.0
			60	13.6	131.6	121.0	8.3	120.7	116.0	5.7	110.5	111.0
			80	11.5	111.2	131.0	6.9	100.7	126.0	4.7	90.7	122.0
		2400	40	17.3	167.7	104.0	10.6	155.0	99.0	7.4	142.9	95.0
			60	15.0	145.1	116.0	9.1	132.8	111.0	6.2	121.0	106.0
			80	12.6	122.6	127.0	7.6	110.6	122.0	5.1	99.3	118.0
6	TWE072*B	1920	40	19.5	190.3	131.8	12.0	175.7	124.7	8.5	165.9	120.0
			60	16.8	164.0	139.1	10.4	152.3	133.4	7.3	142.5	128.7
			80	14.5	141.5	148.2	8.8	128.8	142.1	5.9	115.2	135.5
		2400	40	21.6	209.2	120.0	13.4	195.7	115.0	9.4	182.7	110.0
			60	18.7	181.5	130.0	11.6	168.3	125.0	8.0	155.6	120.0
			80	15.9	153.9	139.0	9.7	141.0	134.0	6.6	128.6	129.0
		2880	40	23.9	233.3	115.0	14.7	215.2	109.2	10.3	201.1	104.6
			60	20.6	201.1	124.6	12.7	185.9	119.8	8.8	171.8	115.2
			80	17.7	172.8	135.5	10.6	155.2	129.9	7.1	138.6	124.6
7.5	TWE0904*A, TWE0904*B	2400	40	21.6	209.2	120.0	13.4	195.7	115.0	9.4	182.7	110.0
			60	18.7	181.5	130.0	11.6	168.3	125.0	8.0	155.6	120.0
			80	15.9	153.9	139.0	9.7	141.0	134.0	6.6	28.6	129.0
		3000	40	24.5	237.4	113.0	15.2	221.5	108.0	10.6	206.2	103.0
			60	21.2	205.8	123.0	13.1	190.3	118.0	9.0	175.4	114.0
			80	18.0	174.4	134.0	10.9	159.2	129.0	7.4	144.7	124.0
		3600	40	27.1	262.3	107.0	16.8	244.1	102.0	11.7	226.8	98.0

Table 69. Hot water heating coil capacity - air handler (60Hz) (continued)

Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (°F)	Entering Water Temperature (°F)								
				210								
				Water Temperature Drop (°F)								
				20			30			40		
				GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT
10	TWE1204*A, TWE1204*B		60	23.4	227.3	118.0	14.4	209.6	114.0	9.9	192.6	109.0
			80	19.8	192.4	129.0	12.0	175.2	125.0	8.2	158.7	121.0
		3200	40	31.7	307.4	129.0	19.2	279.9	121.0	13.0	252.6	113.0
			60	27.4	265.1	136.0	16.4	238.2	129.0	10.9	211.0	121.0
			80	23.0	223.0	144.0	13.5	196.5	137.0	8.7	169.1	129.0
		4000	40	36.1	350.2	121.0	21.8	317.6	113.0	14.7	285.5	106.0
			60	31.1	301.7	130.0	18.5	269.9	122.0	12.3	238.2	115.0
			80	26.1	253.4	138.0	15.3	222.3	131.0	9.8	190.8	124.0
		4800	40	40.0	387.4	114.0	24.1	350.3	107.0	16.2	313.9	100.0
			60	34.4	333.6	124.0	20.4	297.3	117.0	13.5	261.7	110.0
			80	28.9	279.9	134.0	16.8	244.6	127.0	10.8	209.5	120.0
12.5	TWE1504*B	4000	40	40.1	402.7	132.8	24.9	374.7	126.4	17.2	346.1	119.8
			60	34.7	349.1	140.5	21.3	321.3	134.1	14.6	292.7	127.5
			80	29.4	295.5	148.1	17.8	267.8	141.7	11.9	239.2	135.1
		5000	40	45.5	457.6	124.4	28.2	424.6	118.3	19.5	391.0	112.1
			60	39.4	396.4	133.1	24.1	363.7	127.1	16.5	330.2	120.9
			80	33.4	335.3	141.8	20.1	302.7	135.8	13.4	269.4	129.7
		6000	40	50.2	504.5	117.5	31.0	467.1	111.8	21.4	429.1	105.9
			60	43.5	436.8	127.1	26.5	399.7	121.4	18.0	362.0	115.6
			80	36.7	369.2	136.7	22.1	332.4	131.1	14.7	294.9	125.3
		4800	40	45.1	437.0	124.0	27.8	404.7	118.0	19.2	372.9	112.0
			60	39.0	378.3	133.0	23.8	346.6	127.0	16.2	315.2	120.0
			80	33.0	319.8	141.0	19.8	288.6	135.0	13.3	257.5	129.0
15	TWE1804*B	6000	40	51.3	496.8	116.0	31.5	458.9	110.0	21.7	421.5	105.0
			60	44.4	429.9	126.0	27.0	392.6	120.0	18.3	355.8	115.0
			80	37.5	363.0	136.0	22.4	326.5	130.0	14.9	290.3	125.0
		7200	40	56.7	549.8	110.0	34.8	506.7	105.0	23.9	464.3	99.0
			60	49.1	475.5	121.0	29.8	433.1	115.0	20.2	391.5	110.0
			80	41.4	401.3	131.0	24.7	359.8	126.0	16.4	319.0	121.0
		4800	40	59.5	576.5	123.0	37.0	538.3	118.0	25.8	500.5	112.0
			60	51.6	500.0	132.0	31.8	462.4	127.0	21.9	425.0	121.0
			80	43.7	423.7	141.0	26.6	386.6	136.0	18.0	349.7	130.0
		8000	40	67.6	654.9	115.0	41.9	610.0	110.0	29.1	565.7	105.0
			60	58.6	567.8	125.0	36.0	523.6	120.0	24.7	479.9	115.0
			80	49.6	480.7	135.0	30.0	437.3	130.0	20.3	394.2	125.0
20	TWE2404*B	9600	40	74.8	724.6	110.0	46.3	673.8	105.0	32.1	623.6	100.0
			60	64.8	628.0	120.0	39.7	578.0	115.0	27.2	528.4	111.0
			80	54.8	531.4	131.0	33.1	482.2	126.0	22.3	433.5	122.0



Performance Data

Table 69. Hot water heating coil capacity - air handler (60Hz) (continued)

Tons	Unit Model No.	Airflow (CFM)	Enter Air Temp (°F)	Entering Water Temperature (°F)								
				210								
				Water Temperature Drop (°F)								
				20			30			40		
				GPM	MBh	LAT	GPM	MBh	LAT	GPM	MBh	LAT
25	TWE3004*B	8000	40	65.4	656.9	115.7	40.7	613.8	110.8	28.4	570.1	105.7
			60	56.7	569.9	125.7	35.0	527.2	120.8	24.1	483.8	115.8
			80	48.1	483.1	135.7	29.3	440.6	130.8	19.8	397.3	125.8
		10000	40	72.9	732.5	107.5	45.3	683.0	103.0	31.5	633.0	98.4
			60	63.2	635.2	118.6	38.9	586.2	114.1	26.7	536.5	109.5
			80	53.5	538.0	129.6	32.5	489.4	125.1	21.9	440.0	120.6
		12000	40	79.2	795.5	101.1	49.2	740.5	96.9	34.1	685.1	92.7
			60	68.6	689.5	113.0	42.2	635.1	108.8	28.9	580.3	104.6
			80	58.1	583.7	124.9	35.2	529.9	120.7	23.7	475.4	116.5

Notes:

1. SZVAV/2-Speed VFD available for 6–25 ton only.
2. GPM = Gallons Per Minute
3. MBh Capacity: BTU/HR/1000
4. LAT = Leaving Air Temperature (°F)

Table 70. Hot water heating coil - water side pressure drop @ 180°F entering water temperature - air handler (60Hz)

Tons	Unit Model No.	Gallons Per Minute (GPM)																		
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
		Pressure Drop (Ft. of Water)																		
5	TWE0604*A/B	0.02	0.07	0.15	0.26	0.40	0.56	0.75	0.97	1.22	1.49	1.78	-	-	-	-	-	-	-	-
6	TWE0724*B	-	-	0.06	0.11	0.16	0.23	0.30	0.39	0.48	0.58	0.70	0.82	0.95	1.09	1.24	1.40	1.57	-	-
7.5	TWE0904*A,B	-	-	0.06	0.11	0.16	0.23	0.30	0.39	0.48	0.58	0.70	0.82	0.95	1.09	1.24	1.40	1.57	-	-
10	TWE1204*A,B	-	-	-	0.06	0.09	0.13	0.17	0.22	0.27	0.33	0.39	0.46	0.54	0.62	0.70	0.79	0.89	0.99	1.10
12.5	TWE1504*B	-	-	-	-	0.11	0.15	0.20	0.26	0.32	0.39	0.47	0.55	0.64	0.73	0.83	0.94	1.05	1.17	1.29
15	TWE1804*B	-	-	-	-	0.11	0.15	0.20	0.26	0.32	0.39	0.47	0.55	0.64	0.73	0.83	0.94	1.05	1.17	1.29
20	TWE2404*B	-	-	-	-	-	0.17	0.23	0.30	0.37	0.45	0.53	0.63	0.72	0.83	0.94	1.06	1.19	1.32	1.46
25	TWE3004*B	-	-	-	-	-	0.17	0.23	0.30	0.37	0.45	0.53	0.63	0.72	0.83	0.94	1.06	1.19	1.32	1.46
Tons	Unit Model No.	Gallons Per Minute (GPM)																		
		40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76
		Pressure Drop (Ft. of Water)																		
5	TWE0604*A/B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	TWE0724*B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.5	TWE0904*A,B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	TWE1204*A,B	1.21	1.32	1.44	1.57	1.70	1.84	-	-	-	-	-	-	-	-	-	-	-	-	-
12.5	TWE1504*B	1.42	1.56	1.70	1.85	2.00	2.16	2.33	2.50	2.67	2.86	3.04	3.24	3.44	3.64	3.85	4.07	-	-	-
15	TWE1804*B	1.42	1.56	1.70	1.85	2.00	2.16	2.33	2.50	2.67	2.86	3.04	3.24	3.44	3.64	3.85	4.07	-	-	-
20	TWE2404*B	1.61	1.76	1.92	2.09	2.26	2.44	2.63	2.82	3.02	3.22	3.43	3.65	3.87	4.10	4.34	4.58	4.83	5.08	5.34
25	TWE3004*B	1.61	1.76	1.92	2.09	2.26	2.44	2.63	2.82	3.02	3.22	3.43	3.65	3.87	4.10	4.34	4.58	4.83	5.08	5.34

Note: SZVAV/2-Speed VFD available for 6-25 ton only.



Zone Controls

Zone Sensors

Zone Sensors are the building occupant's comfort control devices. Zone sensors are required for SZVAV applications. The following zone sensor options are available for units with Symbio 700 control.

Manual Changeover	Heat, Cool or Off System Switch. Fan Auto or Off Switch. One temperature setpoint lever.
Manual/Automatic Changeover	Auto, Heat, Cool or Off System Switch. Fan Auto or Off Switch. Two temperature setpoint levers.
Manual/Automatic Changeover	Auto, Heat, Cool or Off System Switch. Fan Auto or Off Switch. Two temperature setpoint levers.
Integrated Comfort™ System	Sensor(s) available with optional temperature adjustment and override buttons to provide central control through a Trane Integrated Comfort™ system.
Remote Sensor	Sensor(s) available for all zone sensors to provide remote sensing capabilities.

Conventional Thermostats

Note: All thermostats may be used with Symbio 700 units.

Non-Programmable Thermostats	
TCONT102* (1H/1C) Common terminal not required	Auto-changeover Backlit Display and Keys Filter Reminder Keypad Lock
TCONT103* (2H/1C) Common terminal required	Auto-changeover Backlit Display & Keys Filter Reminder Keypad Lock Outdoor Temp Sensor Available
TCONT402* (3H/2C) Common terminal required	Auto-changeover Backlit Display & Keys Filter Reminder Keypad Lock Outdoor Temp Sensor Included
Programmable Thermostats	
TCONT202* (1H/1C) Common terminal preferred, not required	5/2 or 5/1/1 Programming Actual and Setpoint temps displayed simultaneously
TCONT203* (4H/2C) Common terminal preferred, not required	5/2 or 5/1/1 Programming Actual and Setpoint temps displayed simultaneously
TCONT302* (4H/2C) Common terminal preferred, not required	Interactive touchscreen Large display Real time clock
TCONT303* (4H/2C) Humidity Sensor Common terminal preferred, not required	Interactive touchscreen Large display Real time clock Built-in humidity sensor



Electrical Data

Cooling Condenser

Table 71. Electrical characteristics — compressor and condenser fan motors — 60 Hz

Tons	Unit Model Number	Compressor Motors						Condenser Fan Motor				
		Volts	Phase	Compressor 1		Compressor 2		No.	Volts	Phase	Amps	
				Amps		Amps					FLA	LRA
				RLA	LRA	RLA	LRA					
6	TTA07243A	208-230	3	19.6	136	N/A	N/A	1	208-230	3	2.3	8.4
	TTA07244A	460	3	8.2	66	N/A	N/A	1	460	3	1.1	4.2
	TTA0724WA	575	3	6.6	55	N/A	N/A	1	575	3	1.0	3.6
	TTA0724KA	380	3	10.3	83	N/A	N/A	1	380	3	1.4	5.2
6	TTA07243D	208-230	3	9.0	71	9.0	71	1	208-230	3	2.3	8.4
	TTA07244D	460	3	5.7	38	5.7	38	1	460	3	1.1	4.2
	TTA0724WD	575	3	3.8	37	3.8	37	1	575	3	1.0	3.6
	TTA0724KD	380	3	5.5	45	5.5	45	1	575	3	1.4	5.2
7.5	TTA09043A	208-230	3	26.9	164	N/A	N/A	1	208-230	3	2.3	8.4
	TTA09044A	460	3	12.0	94	N/A	N/A	1	460	3	1.1	4.2
	TTA0904WA	575	3	9.0	65	N/A	N/A	1	575	3	1.0	3.6
	TTA0904KA	380	3	13.9	94	N/A	N/A	1	380	3	1.4	5.2
7.5	TTA09043D	208-230	3	14.0	83	14.0	83	1	208-230	3	2.3	8.4
	TTA09044D	460	3	6.4	41	6.4	41	1	460	3	1.1	4.2
	TTA0904WD	575	3	4.6	33	4.6	33	1	575	3	1.0	3.6
	TTA0904KD	380	3	7.6	52	7.6	52	1	380	3	1.4	5.2
10	TTA12043D	208-230	3	16.2	110	16.2	110	1	208-230	3	4.3	19.4
	TTA12044D	460	3	7.6	52	7.6	52	1	460	3	2.2	10.1
	TTA1204WD	575	3	5.3	39	5.3	39	1	575	3	1.8	8.0
	TTA1204KD	380	3	8.5	66	8.5	66	1	380	3	2.6	11.9
10	TTA12043C	208-230	3	16.0	110	16.0	110	1	208-230	3	4.3	19.4
	TTA12044C	460	3	7.8	52	7.8	52	1	460	3	2.2	10.1
	TTA1204WC	575	3	5.7	39	5.7	39	1	575	3	1.8	8.0
12.5	TTA15043D	208-230	3	20.3	167	20.3	167	1	208-230	3	4.3	19.4
	TTA15044D	460	3	9.9	69	9.9	69	1	460	3	2.2	10.1
	TTA1504WD	575	3	7.6	55	7.6	55	1	575	3	1.8	8.0
	TTA1504KD	380	3	11.3	88	11.3	88	1	380	3	2.6	11.9
15	TTA18043D	208-230	3	25.0	164	25.0	164	2	208-230	3	4.3	19.4
	TTA18044D	460	3	12.2	100	12.2	100	2	460	3	2.2	10.1
	TTA1804WD	575	3	9.2	78	9.2	78	2	575	3	1.8	8.0
	TTA1804KD	380	3	13.9	94	13.9	94	2	380	3	2.6	11.9
15	TTA18043C	208-230	3	27.6	191	22.4	149	2	208-230	3	4.3	19.4
	TTA18044C	460	3	12.8	100	10.6	75	2	460	3	2.2	10.1
	TTA1804WC	575	3	9.6	78	7.7	54	2	575	3	1.8	8.0
	TTA1804KC	380	3	15.4	123	11.3	88	2	380	3	2.6	11.9
20	TTA24043D	208-230	3	35.4	240	32.6	240	2	208-230	3	4.3	19.4
	TTA24044D	460	3	16.5	140	14.8	130	2	460	3	2.2	10.1
	TTA2404WD	575	3	12.9	108	11.1	94	2	575	3	1.8	8.0
	TTA2404KD	380	3	21.2	152	16.0	135	2	380	3	2.6	11.9
20	TTA24043C	208-230	3	39.1	267	39.1	267	2	208-230	3	4.3	19.4
	TTA24044C	460	3	18.6	142	18.6	142	2	460	3	2.2	10.1
	TTA2404WC	575	3	15.4	103	15.4	103	2	575	3	1.8	8.0
	TTA2404KC	380	3	22.4	160	22.4	160	2	380	3	2.6	11.9
25	TTA30043C	208-230	3	41.0	304	41.0	304	2	208-230	3	4.3	19.4
	TTA30044C	460	3	19.4	147	19.4	147	2	460	3	2.2	10.1
	TTA3004WC	575	3	16.7	122	16.7	122	2	575	3	1.8	8.0
	TTA3004KC	380	3	23.8	168	23.8	168	2	380	3	2.6	11.9

Note: Electrical characteristics reflect nameplate values and are calculated in accordance with cULus specifications.

Table 72. Unit wiring — condensing units — 60 Hz

Tons	Unit Model Number	Volts	Minimum Circuit Ampacity	Maximum Fuse or Circuit Breaker Size
6	TTA07243A	187-253	27	45
	TTA07244A	414-506	11	15
	TTA0724WA	518-632	9	15
	TTA0724KA	342-418	14	20

Table 72. Unit wiring — condensing units — 60 Hz (continued)

Tons	Unit Model Number	Volts	Minimum Circuit Ampacity	Maximum Fuse or Circuit Breaker Size
6	TTA07243D	187-253	23	30
	TTA07244D	414-506	14	15
	TTA0724WD	518-632	10	15
	TTA0724KD	342-418	14	15
7.5	TTA09043A	187-253	36	60
	TTA09044A	414-506	16	25
	TTA0904WA	518-632	12	20
	TTA0904KA	342-418	19	30
7.5	TTA09043D	187-253	34	45
	TTA09044D	414-506	16	20
	TTA0904WD	518-632	11	15
	TTA0904KD	342-418	19	25
10	TTA12043D	187-253	41	50
	TTA12044D	414-506	19	25
	TTA1204WD	518-632	14	15
	TTA1204KD	342-418	22	30
10	TTA12043C	187-253	40	50
	TTA12044C	414-506	20	25
	TTA1204WC	518-632	15	20
12.5	TTA15043D	187-253	50	70
	TTA15044D	414-506	25	30
	TTA1504WD	518-632	19	25
	TTA1504KD	342-418	28	35
15	TTA18043D	187-253	65	80
	TTA18044D	414-506	32	40
	TTA1804WD	518-632	24	30
	TTA1804KD	342-418	36	50
15	TTA18043C	187-253	66	90
	TTA18044C	414-506	31	40
	TTA1804WC	518-632	23	30
	TTA1804KC	342-418	36	50
20	TTA24043D	187-253	85	110
	TTA24044D	414-506	40	50
	TTA2404WD	518-632	31	40
	TTA2404KD	342-418	48	60
20	TTA24043C	187-253	97	125
	TTA24044C	414-506	46	60
	TTA2404WC	518-632	38	50
	TTA2404KC	342-418	56	70
25	TTA30043C	187-253	101	125
	TTA30044C	414-506	48	60
	TTA3004WC	518-632	41	50
	TTA3004KC	342-418	59	80



Electrical Data

Air Handler

Table 73. Voltage operating range (all air handlers)

Model Number: Digit 8	Electrical Characteristics	Unit Operating Voltage Range
1	208-230/60/1	187-253
3	208-230/60/3	187-253
4	460/60/3	414-506
W	575/60/3	518-632
K	380/60/3	342-418

Table 74. Electrical characteristics — 5–25 ton standard motor — 60 Hz constant volume air handler

Tons	Unit Model Number	Standard Evaporator Fan Motor							
		No.	Volts	Phase	HP	Amps		MCA	MOP
						FLA	LRA		
5	TWE06041A/B	1	208-230	1	0.75	6.0	43.0	8	15
	TWE06043A/B	1	208-230	3	0.75	2.8	13.0	4	15
	TWE0604KA	1	380	3	0.75	1.9	12	2	15
	TWE06044A/B	1	460	3	0.75	1.4	6.0	2	15
	TWE0604WA	1	575	3	0.75	1.4	5.0	2	15
6	TWE072KB	1	380	3	1.5	3	20	4	15
7.5	TWE09041A/B	1	208-230	1	1.5	7.5	53.0	9	15
	TWE0904KA/B	1	380	3	2	3.0	20.0	4	15
10	TWE12041A/B	1	208-230	1	2	10.5	48.0	13	20
	TWE1204KA/B	1	380	3	2.0	3.7	28.0	5	15
12.5	TWE1504KB	1	380	3	2	3.7	28.0	5	15
15	TWE1804KB	1	380	3	3	5.6	49.0	7	15
20	TWE2404KB	1	380	3	5	9.1	64.0	11	20
25	TWE3004KB	1	380	3	7.5	10.7	76.0	13	20

Table 75. Electrical characteristics — 5–25 ton high static motor — 60 Hz constant volume air handler

Tons	Unit Model Number	High Static Evaporator Fan Motor							
		No.	Volts	Phase	HP	Amps		MCA	MOP
						FLA	LRA		
5	TWE06041A/B	1	208-230	1	1.5	7.5	53.0	9	15
	TWE06043A/B	1	208-230	3	1.5	6.4	33.0	8	15
	TWE0604KA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE06044A/B	1	460	3	1.5	3.0	17.0	4	15
	TWE0604WA	1	575	3	1.5	1.9	14.0	2	15
7.5	TWE09041A/B	1	208-230	1	2	10.5	48.0	13	20
	TWE09043A/B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE0904KA/B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE09044A/B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE0904WA/B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 76. Electrical characteristics — standard and oversized motors — 6–25 ton SZVAV and 2-Speed VFD air handler — 60 Hz

Tons	Unit Model Number	Standard Evaporator Fan Motor								Oversized Evaporator Fan Motor							
		No.	Volts	Phase	HP	Amps		MCA	MOP	No.	Volts	Phase	HP	Amps		MCA	MOP
						FLA	LRA							FLA	LRA		
6	TWE07243B	1	208-230	3	2	6.8	54.0	8	15	1	208-230	3	3	10.0	74.0	13	20
	TWE07244B	1	460	3	2	3.3	27.2	4	15	1	460	3	3	4.9	37.0	6	15
	TWE0724WB	1	575	3	2	2.5	18.0	3	15	1	575	3	3	3.9	35.0	5	15
7.5	TWE09043A/B	1	208-230	3	2	6.8	54.0	8	15	1	208-230	3	3	10.0	74.0	13	20
	TWE09044A/B	1	460	3	2	3.3	27.2	4	15	1	460	3	3	4.9	37.0	6	15
	TWE0904WA/B	1	575	3	2	2.5	18.0	3	15	1	575	3	3	3.9	35.0	5	15
10	TWE12043A/B	1	208-230	3	2	6.8	54.0	8	15	1	208-230	3	3	10.0	74.0	13	20
	TWE12044A/B	1	460	3	2	3.3	27.0	4	15	1	460	3	3	4.9	37.0	6	15
	TWE1204WA/B	1	575	3	2	2.5	18.0	3	15	1	575	3	3	3.9	35.0	5	15
12.5	TWE15043B	1	208-230	3	2	6.8	54.0	8	15	1	208-230	3	5	15.1	105.0	19	30
	TWE15044B	1	460	3	2	3.3	27.0	4	15	1	460	3	5	7.1	52.0	9	15
	TWE1504WB	1	575	3	2	2.5	18.0	3	15	1	575	3	5	5.7	46.0	7	15
15	TWE18043B	1	208-230	3	3	10.0	74.0	13	20	1	208-230	3	5	15.1	105.0	19	30
	TWE18044B	1	460	3	3	4.9	37.0	6	15	1	460	3	5	7.1	52.0	9	15
	TWE1804WB	1	575	3	3	3.9	35.0	5	15	1	575	3	5	5.7	46.0	7	15
20	TWE24043B	1	208-230	3	5	15.1	105.0	19	30	1	208-230	3	7.5	22.8	141.0	29	50
	TWE24044B	1	460	3	5	7.1	52.0	9	15	1	460	3	7.5	10.0	62.0	12	20
	TWE2404WB	1	575	3	5	5.7	46.0	7	15	1	575	3	7.5	8.2	60.0	10	15
25	TWE30043B	1	208-230	3	7.5	22.8	141.0	29	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE30044B	1	460	3	7.5	10.0	62.0	12	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE3004WB	1	575	3	7.5	8.2	60.0	10	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 77. Unit wiring with electric heat (single point connection) — 5-25 ton constant volume air handlers — 60 Hz

Tons	Used With	Heater Model Number	Heater kW Rating	Unit Power Supply	Control Stages	Standard Evap Motor		High Static Evap Motor	
						MCA	MOP	MCA	MOP
5	TWE06041A/B	BAYHTRN106*	4.33	208/1/60	1	34	35	35	40
		BAYHTRR112*	8.65		1	59	60	61	70
		BAYHTRS117*	12.98		1	86	90	87	90
		BAYHTRR123*	17.31		2	111	125	113	125
5	TWE06041A/B	BAYHTRN106*	5.76	230/1/60	1	38	40	39	40
		BAYHTRR112*	11.52		1	68	70	69	70
		BAYHTRS117*	17.28		1	98	100	99	100
		BAYHTRR123*	23.04		2	128	150	129	150
5	TWE06043A/B	BAYHTRN305*	3.76	208/3/60	1	17	20	21	25
		BAYHTRR310*	7.48		1	29	30	34	35
		BAYHTRR315*	11.24		1	43	45	47	50
		BAYHTRN325*	18.72		2	69	70	73	80
5	TWE06043A/B	BAYHTRN305*	5	230/3/60	1	19	20	23	25
		BAYHTRR310*	9.96		1	33	35	38	40
		BAYHTRR315*	14.96		1	49	50	53	60
		BAYHTRN325*	24.92		2	79	80	83	90
5	TWE06044A/B	BAYHTRN405*	5	460/3/60	1	9	15	11	15
		BAYHTRR410*	9.96		1	17	20	19	20
		BAYHTRR415*	14.96		1	24	25	26	30
		BAYHTRN425*	24.92		2	39	40	41	45



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Table 77. Unit wiring with electric heat (single point connection) — 5-25 ton constant volume air handlers — 60 Hz (continued)

Tons	Used With	Heater Model Number	Heater kW Rating	Unit Power Supply	Control Stages	Standard Evap Motor		High Static Evap Motor	
						MCA	MOP	MCA	MOP
5	TWE0604WA	BAYHTRNW05*	5	575/3/60	1	8	15	8	15
		BAYHTRRW10*	9.96		1	14	15	14	15
		BAYHTRRW15*	14.96		1	20	20	20	25
		BAYHTRNW25*	24.92		2	32	35	32	35
7.5	TWE09041A/B	BAYHTRN106*	4.33	208/1/60	1	35	40	39	40
		BAYHTRR112*	8.65		1	61	70	65	70
		BAYHTRS117*	12.98		1	87	90	91	100
		BAYHTRR123*	17.31		2	113	125	117	125
		BAYHTRN129*	21.63		2	139	150	143	150
7.5	TWE09041A/B	BAYHTRN106*	5.76	230/1/60	1	39	40	43	45
		BAYHTRR112*	11.52		1	69	70	73	80
		BAYHTRS117*	17.28		1	99	100	103	110
		BAYHTRR123*	23.04		2	129	150	133	150
		BAYHTRN129*	28.8		2	159	175	163	175
10	TWE12041A/B	BAYHTRN106*	4.33	208/1/60	1	37	40	N/A	N/A
		BAYHTRR112*	8.65		1	63	70	N/A	N/A
		BAYHTRS117*	12.98		1	89	90	N/A	N/A
		BAYHTRR123*	17.31		2	115	125	N/A	N/A
		BAYHTRN129*	21.63		2	141	150	N/A	N/A
10	TWE12041A/B	BAYHTRN106*	5.76	230/1/60	1	41	45	N/A	N/A
		BAYHTRR112*	11.52		1	71	80	N/A	N/A
		BAYHTRS117*	17.28		1	101	110	N/A	N/A
		BAYHTRR123*	23.04		2	131	150	N/A	N/A
		BAYHTRN129*	28.8		2	161	175	N/A	N/A

Table 78. Unit wiring with electric heat (single point connection) — 6-25 ton SZVAV and 2-Speed VFD air handlers — 60 Hz

Tons	Used With	Heater Model Number	Heater KW Rating	Unit Power Supply	Control Stages	MCA	Maximum Fuse or Circuit Breaker Size
6	TWE07243*****BC0, D0	BAYHTRN305*	3.76	208/3/60	1	22	25
		BAYHTRR310*	7.48		1	34	35
		BAYHTRR315*	11.24		1	48	50
		BAYHTRN325*	18.72		2	74	80
6	TWE07243*****BC0, D0	BAYHTRN305*	5.00	230/3/60	1	24	25
		BAYHTRR310*	9.96		1	38	40
		BAYHTRR315*	14.96		1	54	60
		BAYHTRN325*	24.92		2	84	90
6	TWE07243*****BC4, D4	BAYHTRN305*	3.76	208/3/60	1	26	30
		BAYHTRR310*	7.48		1	38	40
		BAYHTRR315*	11.24		1	52	60
		BAYHTRN325*	18.72		2	78	80
6	TWE07243*****BC4, D4	BAYHTRN305*	5.00	230/3/60	1	28	30
		BAYHTRR310*	9.96		1	42	45
		BAYHTRR315*	14.96		1	58	60
		BAYHTRN325*	24.92		2	88	90
6	TWE07244*****BC0, D0	BAYHTRN405*	5.00	460/3/60	1	12	15
		BAYHTRR410*	9.96		1	19	20

Table 78. Unit wiring with electric heat (single point connection) — 6-25 ton SZVAV and 2-Speed VFD air handlers — 60 Hz (continued)

Tons	Used With	Heater Model Number	Heater KW Rating	Unit Power Supply	Control Stages	MCA	Maximum Fuse or Circuit Breaker Size
6	TWE07244*****BC4, D4	BAYHTRR415*	14.96	460/3/60	1	27	30
		BAYHTRN425*	24.92		2	42	45
		BAYHTRN405*	5.00		1	14	15
		BAYHTRR410*	9.96		1	21	25
		BAYHTRR415*	14.96		1	29	30
		BAYHTRN425*	24.92		2	44	45
6	TWE0724W*****BC0, D0	BAYHTRNW05*	5.00	575/3/60	1	9	15
		BAYHTRRW10*	9.96		1	15	20
		BAYHTRRW15*	14.96		1	21	25
		BAYHTRNW25*	24.92		2	33	35
		BAYHTRNW05*	5.00		1	11	15
		BAYHTRRW10*	9.96		1	17	20
6	TWE0724W*****BC4, D4	BAYHTRRW15*	14.96	575/3/60	1	23	25
		BAYHTRNW25*	24.92		2	35	35
		BAYHTRN305*	3.76	208/3/60	1	22	25
		BAYHTRR310*	7.48		1	34	35
		BAYHTRR315*	11.24		1	48	50
		BAYHTRN325*	18.72		2	74	80
7.5	TWE09043*****BC0, D0	BAYHTRN335*	26.20		2	100	100
		BAYHTRN305*	5.00	230/3/60	1	24	25
		BAYHTRR310*	9.96		1	38	40
		BAYHTRR315*	14.96		1	54	60
		BAYHTRN325*	24.92		2	84	90
		BAYHTRN335*	34.88		2	113	125
7.5	TWE09043*****BC4, D4	BAYHTRN305*	3.76	208/3/60	1	26	30
		BAYHTRR310*	7.48		1	38	40
		BAYHTRR315*	11.24		1	52	60
		BAYHTRN325*	18.72		2	78	80
		BAYHTRN335*	26.20		2	104	110
		BAYHTRN305*	5.00	230/3/60	1	28	30
7.5	TWE09043*****BC4, D4	BAYHTRR310*	9.96		1	42	45
		BAYHTRR315*	14.96		1	58	60
		BAYHTRN325*	24.92		2	88	90
		BAYHTRN335*	34.88		2	118	125
		BAYHTRN405*	5.00	460/3/60	1	12	15
		BAYHTRR410*	9.96		1	19	20
7.5	TWE09044*****BC0, D0	BAYHTRR415*	14.96		1	27	30
		BAYHTRN425*	24.92		2	42	45
		BAYHTRN435*	34.88		2	57	60
		BAYHTRN405*	5.00	460/3/60	1	14	15
		BAYHTRR410*	9.96		1	21	25
		BAYHTRR415*	14.96		1	29	30
7.5	TWE09044*****BC4, D4	BAYHTRN425*	24.92		2	44	45
		BAYHTRN435*	34.88		2	59	60
		BAYHTRNW05*	5.00	575/3/60	1	9	15
		BAYHTRRW10*	9.96		1	15	20
		BAYHTRRW15*	14.96		1	21	25



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Table 78. Unit wiring with electric heat (single point connection) — 6-25 ton SZVAV and 2-Speed VFD air handlers — 60 Hz (continued)

Tons	Used With	Heater Model Number	Heater KW Rating	Unit Power Supply	Control Stages	MCA	Maximum Fuse or Circuit Breaker Size
		BAYHTRNW25*	24.92		2	33	35
		BAYHTRNW35*	34.88		2	45	50
7.5	TWE0904W*****BC4, D4	BAYHTRNW05*	5.00	575/3/60	1	11	15
		BAYHTRRW10*	9.96		1	17	20
		BAYHTRRW15*	14.96		1	23	25
		BAYHTRNW25*	24.92		2	35	35
		BAYHTRNW35*	34.88		2	47	50
10	TWE12043*****BC0, D0	BAYHTRN305*	3.76	208/3/60	1	22	25
		BAYHTRR310*	7.48		1	34	35
		BAYHTRR315*	11.24		1	48	50
		BAYHTRN325*	18.72		2	74	80
		BAYHTRN335*	26.20		2	100	100
10	TWE12043*****BC0, D0	BAYHTRN305*	5.00	230/3/60	1	24	25
		BAYHTRR310*	9.96		1	38	40
		BAYHTRR315*	14.96		1	54	60
		BAYHTRN325*	24.92		2	84	90
		BAYHTRN335*	34.88		2	113	125
10	TWE12043*****BC4, D4	BAYHTRN305*	3.76	208/3/60	1	26	30
		BAYHTRR310*	7.48		1	38	40
		BAYHTRR315*	11.24		1	52	60
		BAYHTRN325*	18.72		2	78	80
		BAYHTRN335*	26.20		2	104	110
10	TWE12043*****BC4, D4	BAYHTRN305*	5.00	230/3/60	1	28	30
		BAYHTRR310*	9.96		1	42	45
		BAYHTRR315*	14.96		1	58	60
		BAYHTRN325*	24.92		2	88	90
		BAYHTRN335*	34.88		2	118	125
10	TWE12044*****BC0, D0	BAYHTRN405*	5.00	460/3/60	1	12	15
		BAYHTRR410*	9.96		1	19	20
		BAYHTRR415*	14.96		1	27	30
		BAYHTRN425*	24.92		2	42	45
		BAYHTRN435*	34.88		2	57	60
10	TWE12044*****BC4, D4	BAYHTRN405*	5.00	460/3/60	1	14	15
		BAYHTRR410*	9.96		1	21	25
		BAYHTRR415*	14.96		1	29	30
		BAYHTRN425*	24.92		2	44	45
		BAYHTRN435*	34.88		2	59	60
10	TWE1204W*****BC0, D0	BAYHTRNW05*	5.00	575/3/60	1	9	15
		BAYHTRRW10*	9.96		1	15	20
		BAYHTRRW15*	14.96		1	21	25
		BAYHTRNW25*	24.92		2	33	35
		BAYHTRNW35*	34.88		2	45	50
10	TWE1204W*****BC4, D4	BAYHTRNW05*	5.00	575/3/60	1	11	15
		BAYHTRRW10*	9.96		1	17	20
		BAYHTRRW15*	14.96		1	23	25
		BAYHTRNW25*	24.92		2	35	35
		BAYHTRNW35*	34.88		2	47	50

Table 78. Unit wiring with electric heat (single point connection) — 6-25 ton SZVAV and 2-Speed VFD air handlers — 60 Hz (continued)

Tons	Used With	Heater Model Number	Heater KW Rating	Unit Power Supply	Control Stages	MCA	Maximum Fuse or Circuit Breaker Size
12.5	TWE15043*****BC0, D0	BAYHTRP310*	7.51	208/3/60	1	35	35
		BAYHTRP320*	14.96		1	60	70
		BAYHTRP330*	22.47		2	87	90
		BAYHTRP350*	37.44		2	139	150
12.5	TWE15043*****BC0, D0	BAYHTRP310*	10.00	230/3/60	1	39	40
		BAYHTRP320*	19.92		1	68	70
		BAYHTRP330*	29.92		2	99	100
		BAYHTRP350*	49.84		2	159	175
12.5	TWE15043*****BC4, D4	BAYHTRP310*	7.51	208/3/60	1	45	50
		BAYHTRP320*	14.96		1	71	80
		BAYHTRP330*	22.47		2	97	100
		BAYHTRP350*	37.44		2	149	150
12.5	TWE15043*****BC4, D4	BAYHTRP310*	10.00	230/3/60	1	49	50
		BAYHTRP320*	19.92		1	79	80
		BAYHTRP330*	29.92		2	109	110
		BAYHTRP350*	49.84		2	169	175
12.5	TWE15044*****BC0, D0	BAYHTRP410*	10.00	460/3/60	1	19	20
		BAYHTRP420*	19.92		1	34	35
		BAYHTRP430*	29.92		2	49	50
		BAYHTRP450*	49.84		2	79	80
12.5	TWE15044*****BC4, D4	BAYHTRP410*	10.00	460/3/60	1	24	25
		BAYHTRP420*	19.92		1	39	40
		BAYHTRP430*	29.92		2	54	60
		BAYHTRP450*	49.84		2	84	90
12.5	TWE1504W*****BC0, D0	BAYHTRPW10*	10.00	575/3/60	1	15	20
		BAYHTRPW20*	19.92		1	27	30
		BAYHTRPW30*	29.92		2	39	40
		BAYHTRPW50*	49.84		2	63	70
12.5	TWE1504W*****BC4, D4	BAYHTRPW10*	10.00	575/3/60	1	19	20
		BAYHTRPW20*	19.92		1	31	35
		BAYHTRPW30*	29.92		2	43	45
		BAYHTRPW50*	49.84		2	67	70
15	TWE18043*****BC0, D0	BAYHTRP310*	7.51	208/3/60	1	39	40
		BAYHTRP320*	14.96		1	64	70
		BAYHTRP330*	22.47		2	91	100
		BAYHTRP350*	37.44		2	143	150
15	TWE18043*****BC0, D0	BAYHTRP310*	10.00	230/3/60	1	43	45
		BAYHTRP320*	19.92		1	72	80
		BAYHTRP330*	29.92		2	103	110
		BAYHTRP350*	49.84		2	163	175
15	TWE18043*****BC4, D4	BAYHTRP310*	7.51	208/3/60	1	45	50
		BAYHTRP320*	14.96		1	71	80
		BAYHTRP330*	22.47		2	97	100
		BAYHTRP350*	37.44		2	149	150
15	TWE18043*****BC4, D4	BAYHTRP310*	10.00	230/3/60	1	49	50
		BAYHTRP320*	19.92		1	79	80
		BAYHTRP330*	29.92		2	109	110



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Table 78. Unit wiring with electric heat (single point connection) — 6-25 ton SZVAV and 2-Speed VFD air handlers — 60 Hz (continued)

Tons	Used With	Heater Model Number	Heater KW Rating	Unit Power Supply	Control Stages	MCA	Maximum Fuse or Circuit Breaker Size
		BAYHTRP350*	49.84		2	169	175
15	TWE18044*****BC0, D0	BAYHTRP410*	10.00	460/3/60	1	21	25
		BAYHTRP420*	19.92		1	36	40
		BAYHTRP430*	29.92		2	51	60
		BAYHTRP450*	49.84		2	81	90
15	TWE18044*****BC4, D4	BAYHTRP410*	10.00	460/3/60	1	24	25
		BAYHTRP420*	19.92		1	39	40
		BAYHTRP430*	29.92		2	54	60
		BAYHTRP450*	49.84		2	84	90
15	TWE1804W*****BC0, D0	BAYHTRPW10*	10.00	575/3/60	1	17	20
		BAYHTRPW20*	19.92		1	29	30
		BAYHTRPW30*	29.92		2	41	45
		BAYHTRPW50*	49.84		2	65	70
15	TWE1804W*****BC4, D4	BAYHTRPW10*	10.00	575/3/60	1	19	20
		BAYHTRPW20*	19.92		1	31	35
		BAYHTRPW30*	29.92		2	43	45
		BAYHTRPW50*	49.84		2	67	70
20	TWE24043*****BC0, D0	BAYHTRP310*	7.51	208/3/60	1	45	50
		BAYHTRP320*	14.96		1	71	80
		BAYHTRP330*	22.47		2	97	100
		BAYHTRP350*	37.44		2	149	150
20	TWE24043*****BC0, D0	BAYHTRP310*	10.00	230/3/60	1	49	50
		BAYHTRP320*	19.92		1	79	80
		BAYHTRP330*	29.92		2	109	110
		BAYHTRP350*	49.84		2	169	175
20	TWE24043*****BC4, D4	BAYHTRP310*	7.51	208/3/60	1	55	70
		BAYHTRP320*	14.96		1	80	90
		BAYHTRP330*	22.47		2	107	110
		BAYHTRP350*	37.44		2	159	175
20	TWE24043*****BC4, D4	BAYHTRP310*	10.00	230/3/60	1	59	70
		BAYHTRP320*	19.92		1	88	90
		BAYHTRP330*	29.92		2	119	125
		BAYHTRP350*	49.84		2	179	200
20	TWE24044*****BC0, D0	BAYHTRP410*	10.00	460/3/60	1	24	25
		BAYHTRP420*	19.92		1	39	40
		BAYHTRP430*	29.92		2	54	60
		BAYHTRP450*	49.84		2	84	90
20	TWE24044*****BC4, D4	BAYHTRP410*	10.00	460/3/60	1	28	30
		BAYHTRP420*	19.92		1	42	45
		BAYHTRP430*	29.92		2	58	60
		BAYHTRP450*	49.84		2	87	90
20	TWE2404W*****BC0, D0	BAYHTRPW10*	10.00	575/3/60	1	19	20
		BAYHTRPW20*	19.92		1	31	35
		BAYHTRPW30*	29.92		2	43	45
		BAYHTRPW50*	49.84		2	67	70
20	TWE2404W*****BC4, D4	BAYHTRPW10*	10.00	575/3/60	1	22	25
		BAYHTRPW20*	19.92		1	34	35

Table 78. Unit wiring with electric heat (single point connection) — 6-25 ton SZVAV and 2-Speed VFD air handlers — 60 Hz (continued)

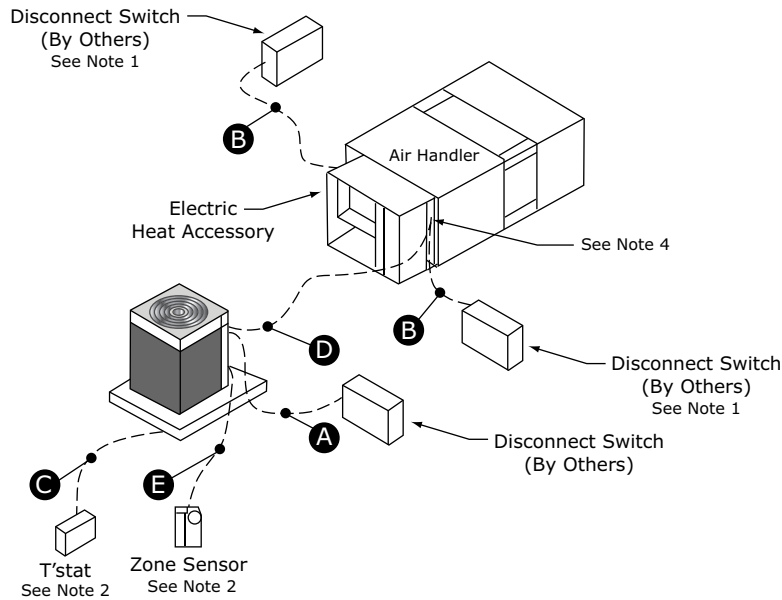
Tons	Used With	Heater Model Number	Heater KW Rating	Unit Power Supply	Control Stages	MCA	Maximum Fuse or Circuit Breaker Size
		BAYHTRPW30*	29.92		2	46	50
		BAYHTRPW50*	49.84		2	70	80
25	TWE30043*****BC0, D0	BAYHTRP310*	7.51	208/3/60	1	55	70
		BAYHTRP320*	14.96		1	80	90
		BAYHTRP330*	22.47		2	107	110
		BAYHTRP350*	37.44		2	159	175
25	TWE30043*****BC0, D0	BAYHTRP310*	10.00	230/3/60	1	59	70
		BAYHTRP320*	19.92		1	88	90
		BAYHTRP330*	29.92		2	119	125
		BAYHTRP350*	49.84		2	179	200
25	TWE30044*****BC0, D0	BAYHTRP410*	10.00	460/3/60	1	28	30
		BAYHTRP420*	19.92		1	42	45
		BAYHTRP430*	29.92		2	58	60
		BAYHTRP450*	49.84		2	87	90
25	TWE3004W*****BC0, D0	BAYHTRPW10*	10.00	575/3/60	1	22	25
		BAYHTRPW20*	19.92		1	34	35
		BAYHTRPW30*	29.92		2	46	50
		BAYHTRPW50*	49.84		2	70	80

Jobsite Connections

Symbio™ Controls

Wiring shown with dashed lines is to be furnished and installed by the customer. All customer supplied wiring must be copper only and must conform to NEC and local electrical codes. Codes may require line of sight between disconnect switch and unit.

Figure 23. Symbio™ jobsite connections



Power Wires

A. 3 wires, line voltage for 3 phase, 1 grounding wire**

B. 3 wires, line voltage for 3 phase, (2 wires for single phase) 1 grounding wire**

Control Wires

C. Cooling only (or Cooling with Heat) thermostat: 4 to 7 wires depending on stages of cooling and electric heat

D. Wiring between indoor and outdoor unit: 5 to 11 wires depending on unit control options*

E. Zone Sensor: 4 to 7 wires depending on zone sensor model*

Communication signal wires require shielded twisted pairs.

Use factory-supplied 165 ft. length of Comlink cable with a PVC jacket, 18/1 PR, stranded shield, 25 PF/ FT plenum rated for the field communication signal wiring.

Notes:

1. When electric heater accessory is used, single point power entry or dual point power entry is field optional. Single point power entry option is through electric heater only.
2. *Choose only one of the following; Thermostat, Mechanical Zone Sensor, Programmable Zone Sensor Panel or BAS Zone Sensor.
3. **

⚠ WARNING
Electrical Shock Hazard!

Failure to follow instructions below could result in death or serious injury.

Properly connect the system's oversized protective earthing (grounding) terminal.

4. Once power wire connections are complete inside the air handler control box, seal the sheet metal entry points of the control box by using parts (neoprene gasket, grommet, and plug) shipped along with the air handler unit package.

Important: For the EDC switch to be functional and thereby facilitate reliable unit operation, make the EDC connections from the indoor to the outdoor control boxes.

Table 79. Recommended thermostat wire size

Wire Size	Maximum Wire Length
(Gauge)	Physical distance between Unit & T'stat
22	30 Feet
20	50 Feet
18	75 Feet
16	125 Feet
14	200 Feet

Table 80. Zone sensor module wiring

Distance from Unit to Control	Recommended Wire Size
0-150 feet (0-45.7 m)	22 gauge (0.33 mm ²)
151-240 feet (46-73.1 m)	20 gauge (0.50 mm ²)
241-305 feet (73.5-117.3 m)	18 gauge (0.75 mm ²)
386-610 feet (117.7-185.9 m)	16 gauge (1.31 mm ²)
611-970 feet (186.2-295.7 m)	14 gauge (2.08 mm ²)

Dimensional Data

Cooling Condenser

Figure 24. 6, 7.5 ton condensing, single compressor – in (mm)

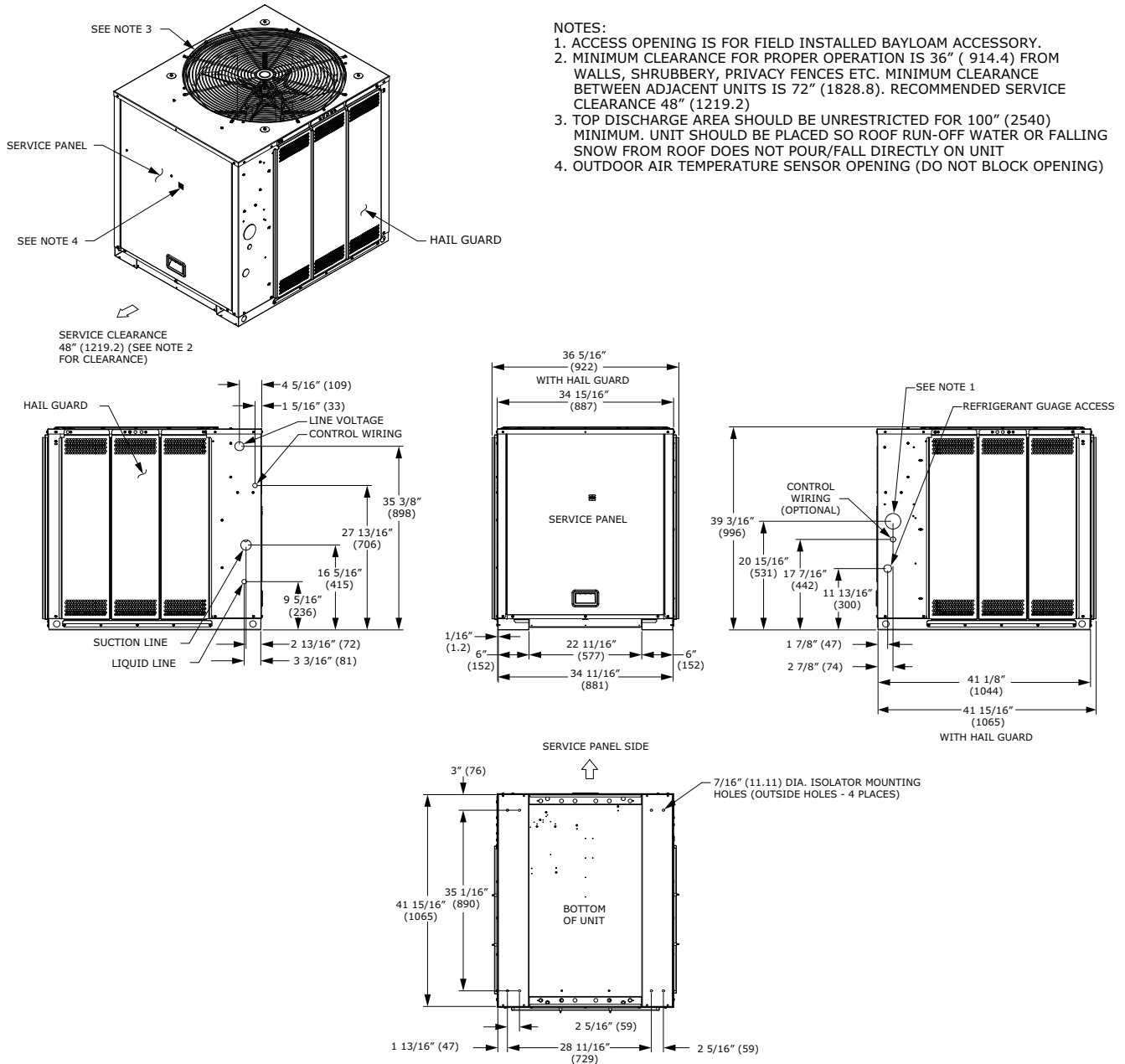


Figure 25. 6, 7.5 ton condensing, dual compressor – in (mm)

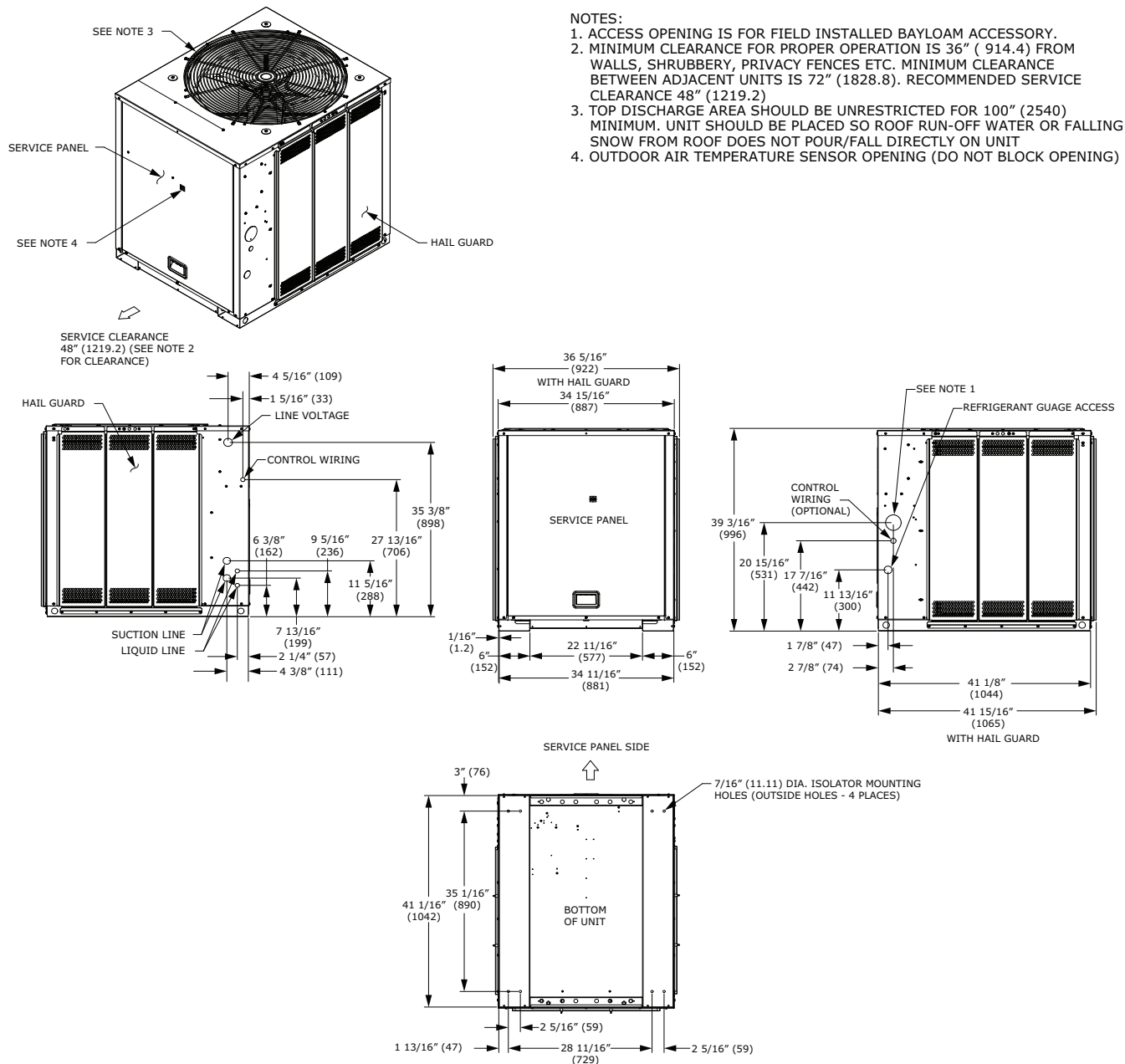


Figure 26. 10 ton condensing, manifolded compressor – in (mm)

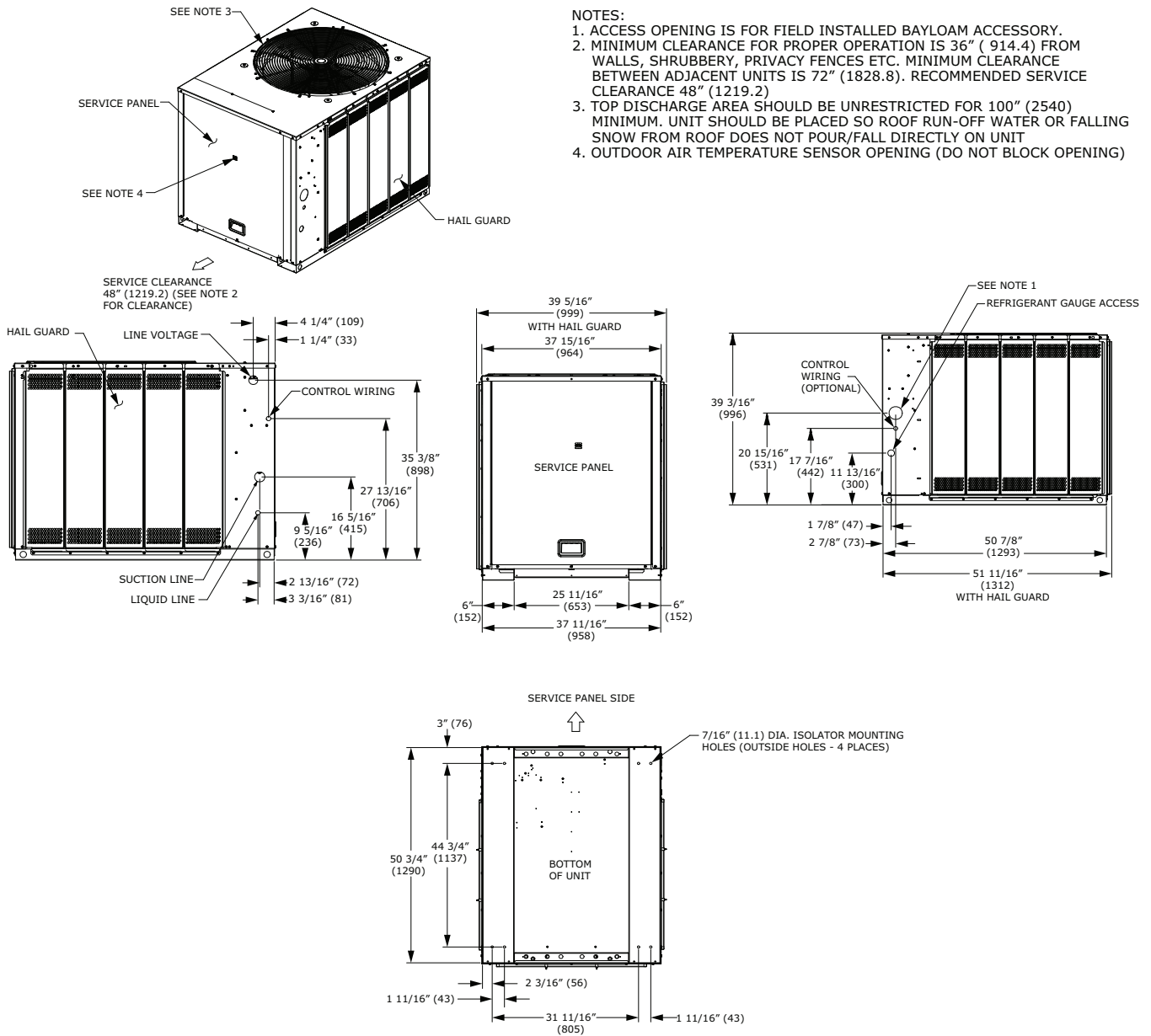


Figure 27. 10 ton condensing, dual compressor – in (mm)

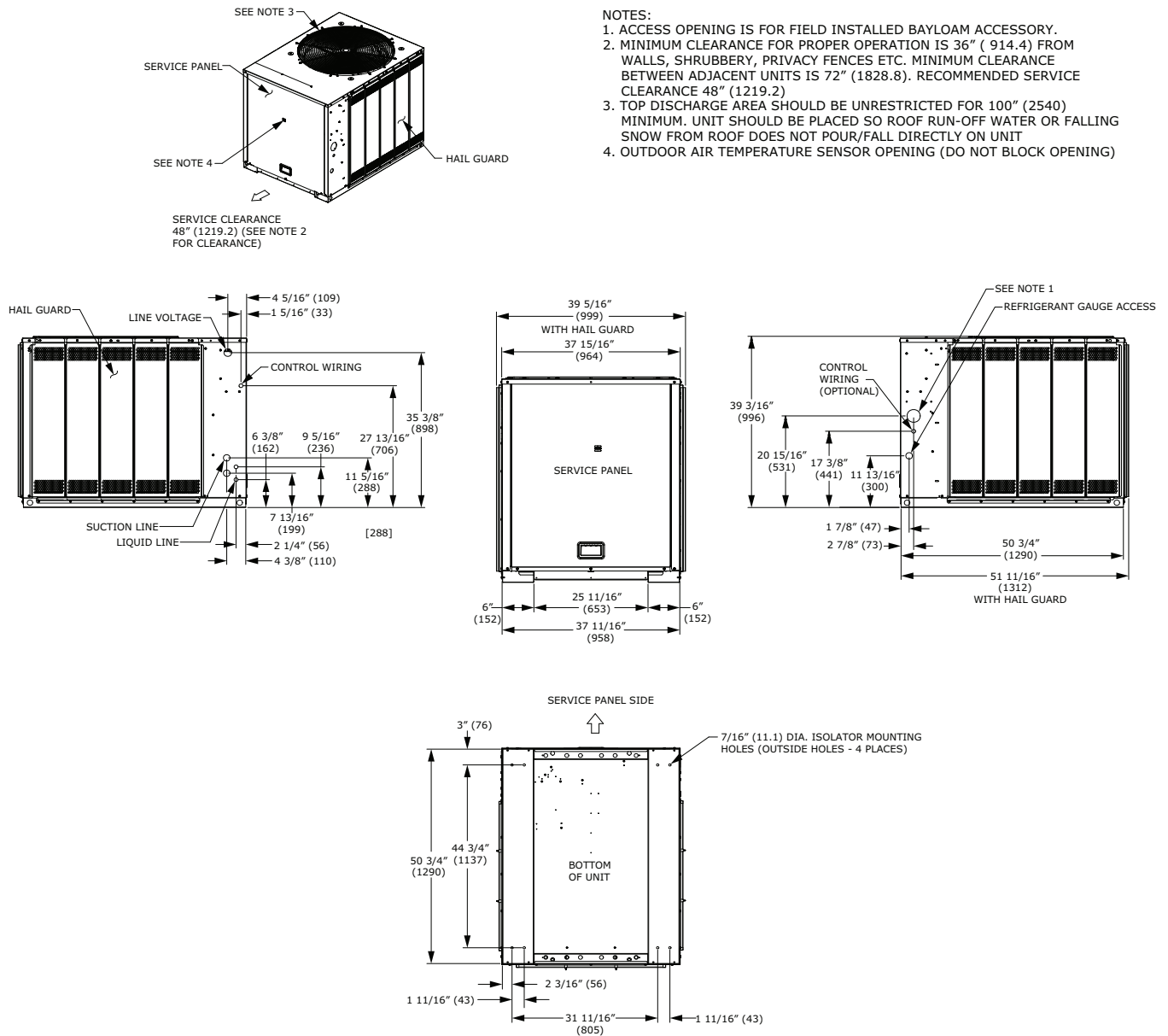


Figure 28. 12.5 ton condensing, dual compressor – in (mm)

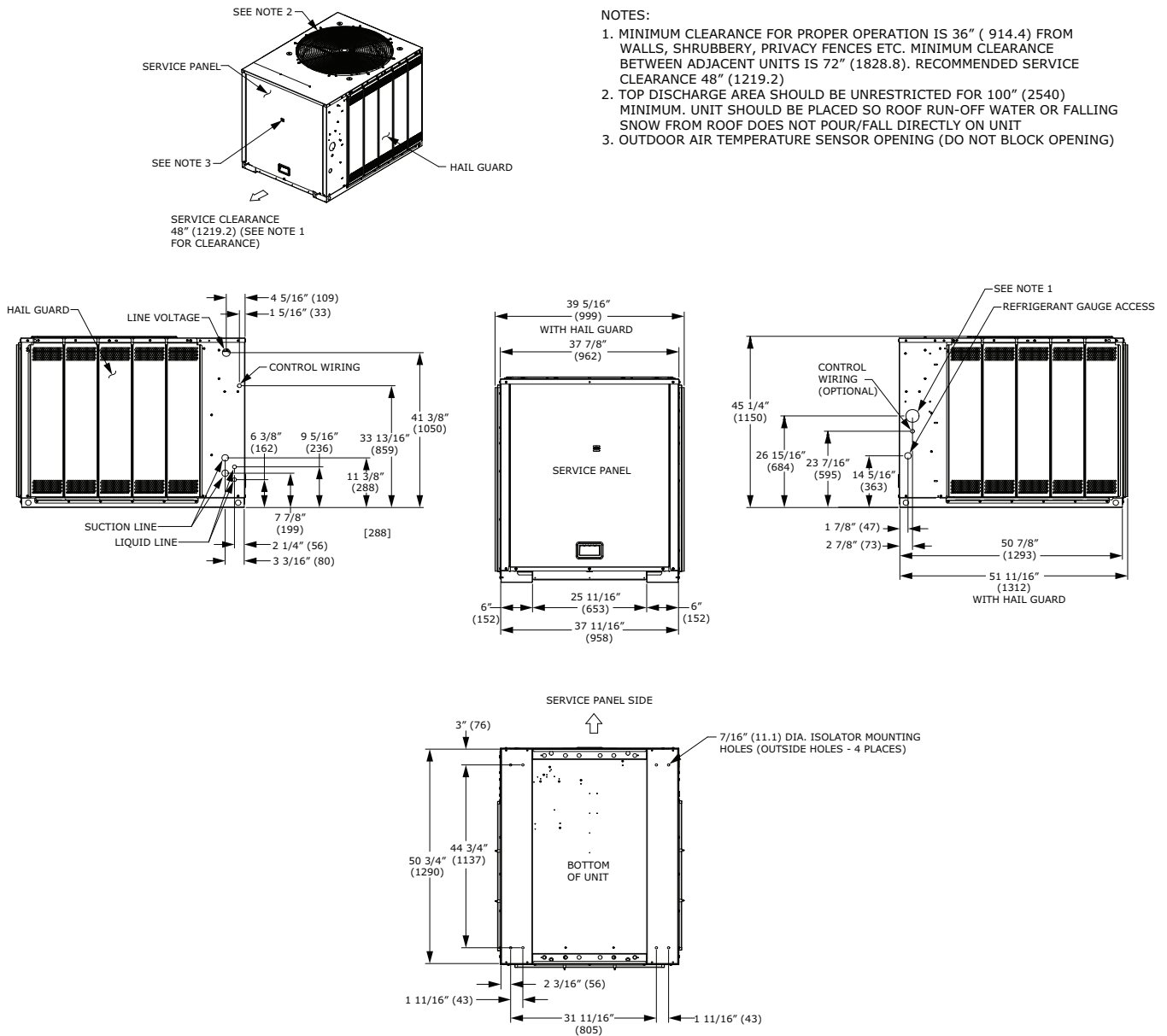


Figure 29. 15, 20 ton condensing, dual compressor – in (mm)

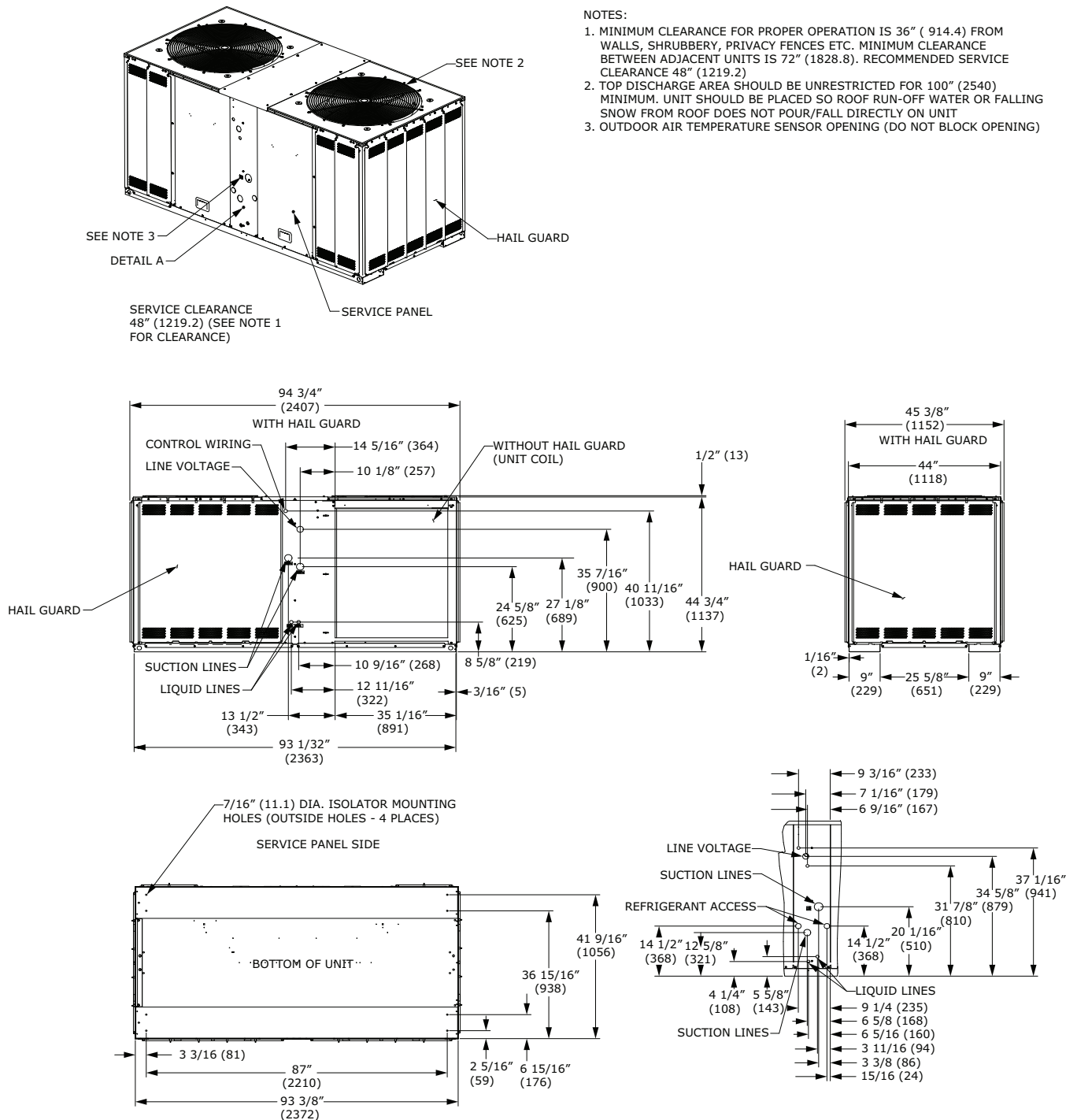


Figure 30. 15, 20 ton condensing, manifolded compressor – in (mm)

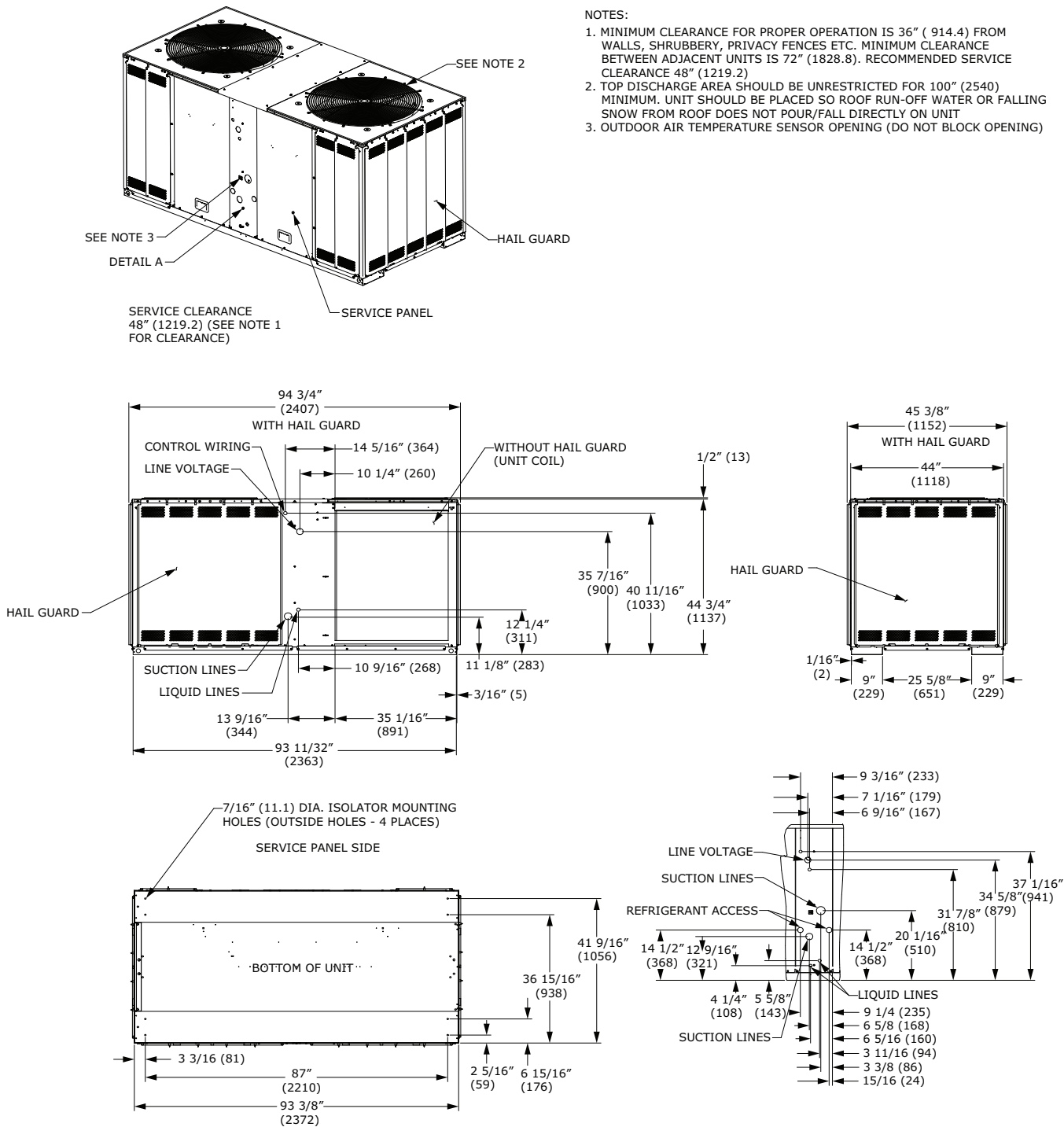
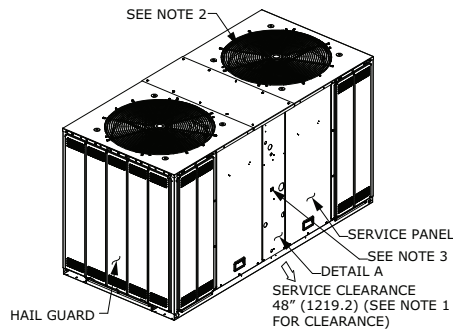
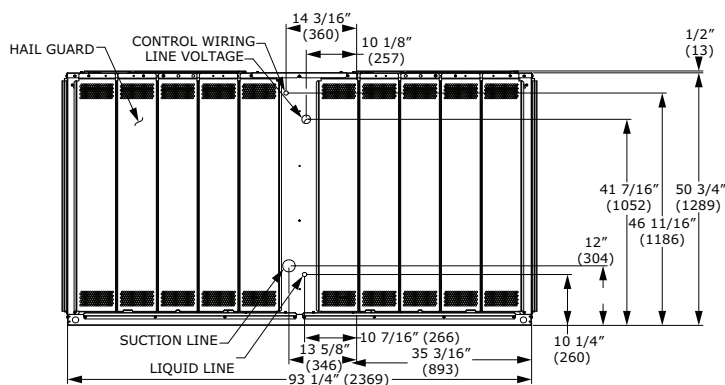
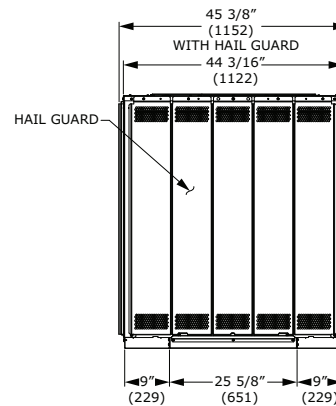
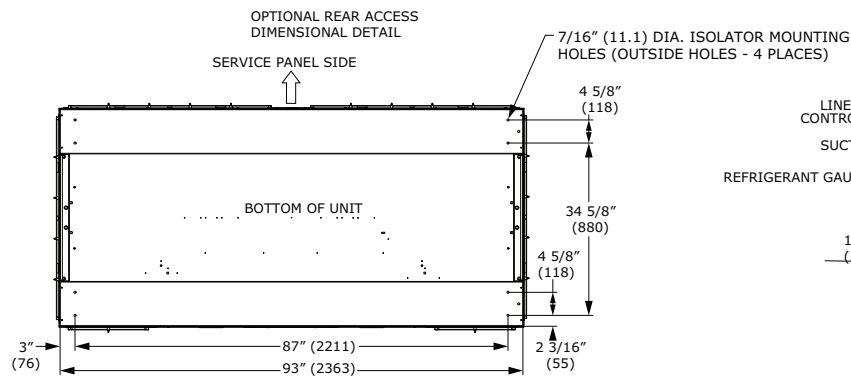
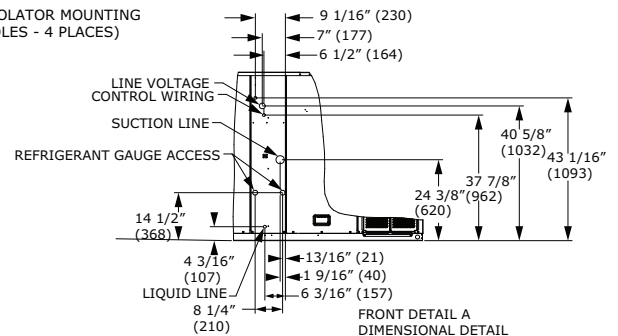


Figure 31. 25 ton condensing, manifolded compressor – in (mm)



NOTES:

1. MINIMUM CLEARANCE FOR PROPER OPERATION IS 36" (914.4) FROM WALLS, SHRUBBERY, PRIVACY FENCES ETC. MINIMUM CLEARANCE BETWEEN ADJACENT UNITS IS 72" (1828.8). RECOMMENDED SERVICE CLEARANCE 48" (1219.2)
2. TOP DISCHARGE AREA SHOULD BE UNRESTRICTED FOR 100" (2540) MINIMUM. UNIT SHOULD BE PLACED SO ROOF RUN-OFF WATER OR FALLING SNOW FROM ROOF DOES NOT POUR/FALL DIRECTLY ON UNIT
3. OUTDOOR AIR TEMPERATURE SENSOR OPENING (DO NOT BLOCK OPENING)



Air Handler

Figure 32. 5 ton air handler, single circuit – in. (mm)

Note: Duct flange is a field-installed accessory.

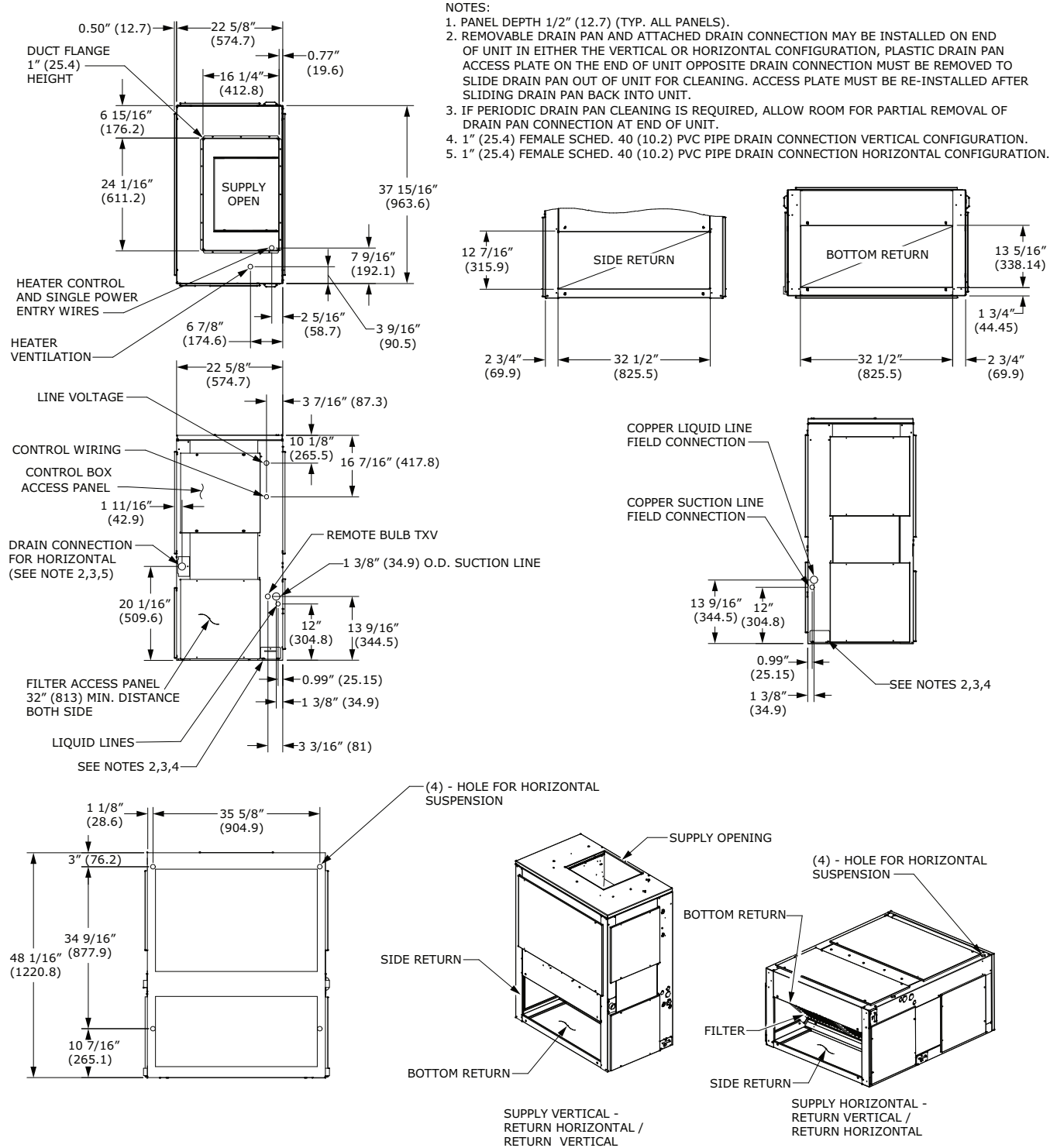


Figure 33. 5 ton air handler, dual circuit – in. (mm)

Note: Duct flange is a field-installed accessory.

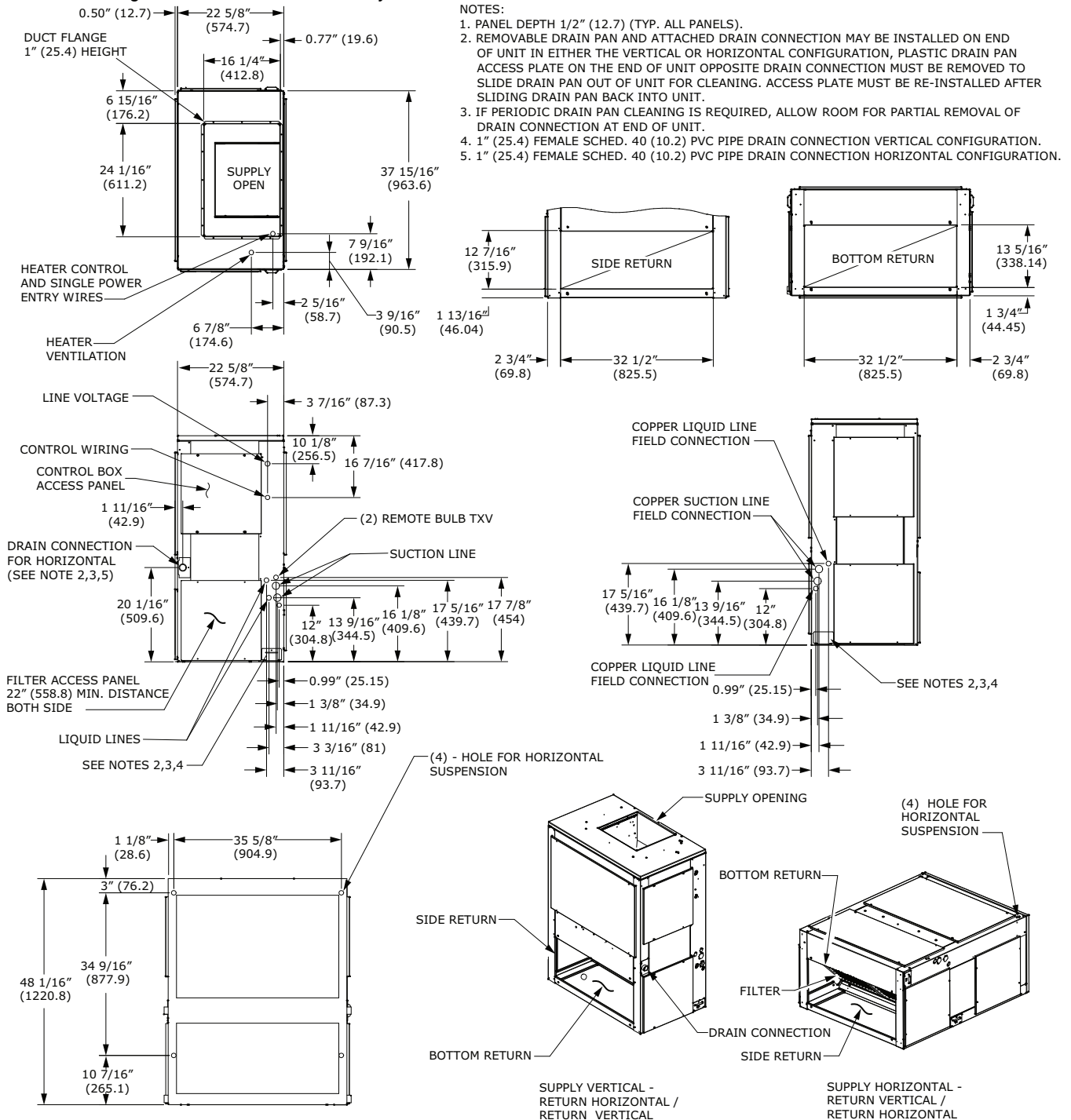
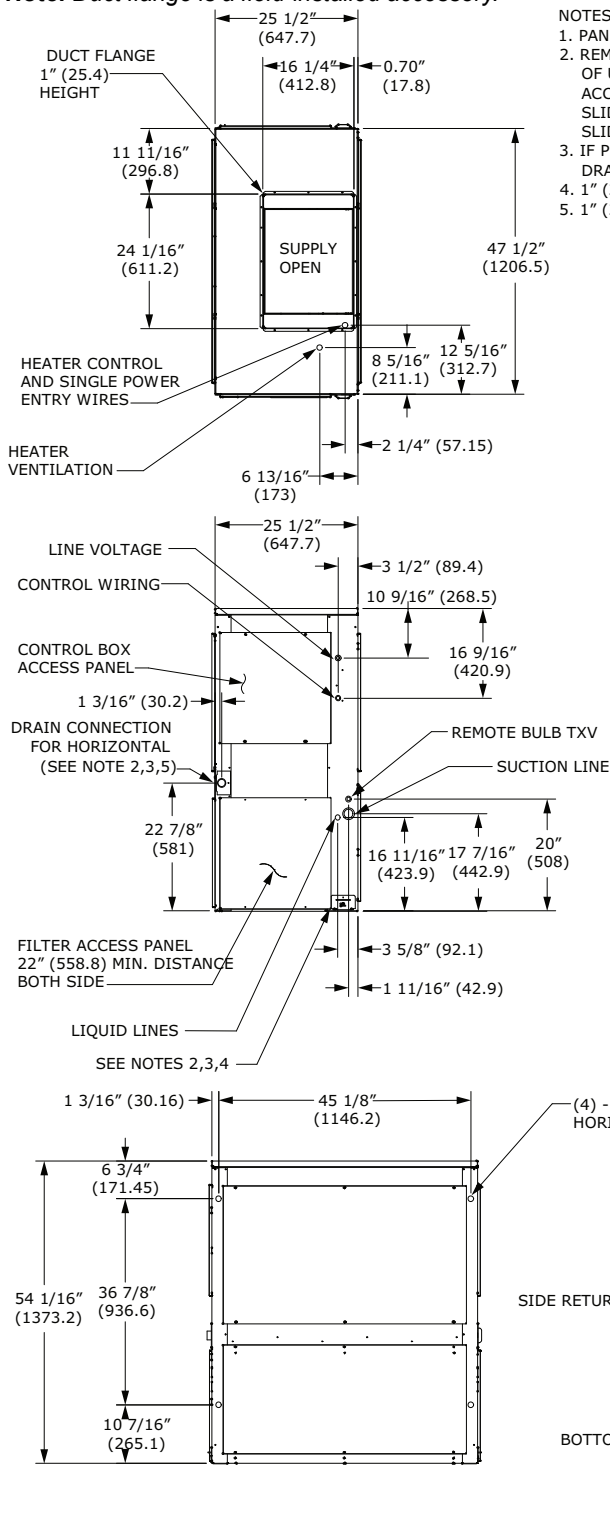


Figure 34. 7.5 ton air handler, single circuit – in. (mm)

Note: Duct flange is a field-installed accessory.



NOTES:

1. PANEL DEPTH 1/2" (12.7) (TYP. ALL PANELS).
2. REMOVABLE DRAIN PAN AND ATTACHED DRAIN CONNECTION MAY BE INSTALLED ON END OF UNIT IN EITHER THE VERTICAL OR HORIZONTAL CONFIGURATION, PLASTIC DRAIN PAN ACCESS PLATE ON THE END OF UNIT OPPOSITE DRAIN CONNECTION MUST BE REMOVED TO SLIDE DRAIN PAN OUT OF UNIT FOR CLEANING. ACCESS PLATE MUST BE RE-INSTALLED AFTER SLIDING DRAIN PAN BACK INTO UNIT.
3. IF PERIODIC DRAIN PAN CLEANING IS REQUIRED, ALLOW ROOM FOR PARTIAL REMOVAL OF DRAIN PAN CONNECTION AT END OF UNIT.
4. 1" (25.4) FEMALE SCHED. 40 (10.2) PVC PIPE DRAIN CONNECTION VERTICAL CONFIGURATION.
5. 1" (25.4) FEMALE SCHED. 40 (10.2) PVC PIPE DRAIN CONNECTION HORIZONTAL CONFIGURATION.

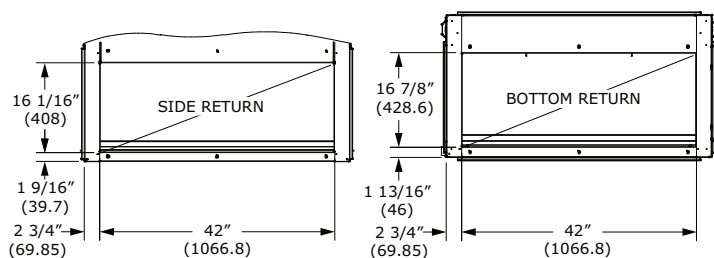
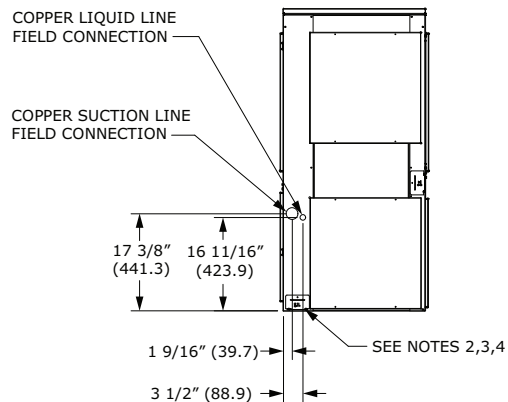
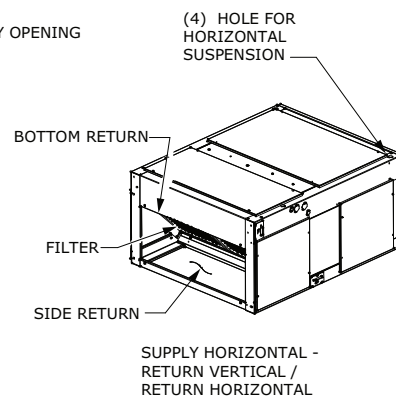


Figure 35. 6, 7.5 ton air handler, dual circuit – in. (mm)

Note: Duct flange is a field-installed accessory.

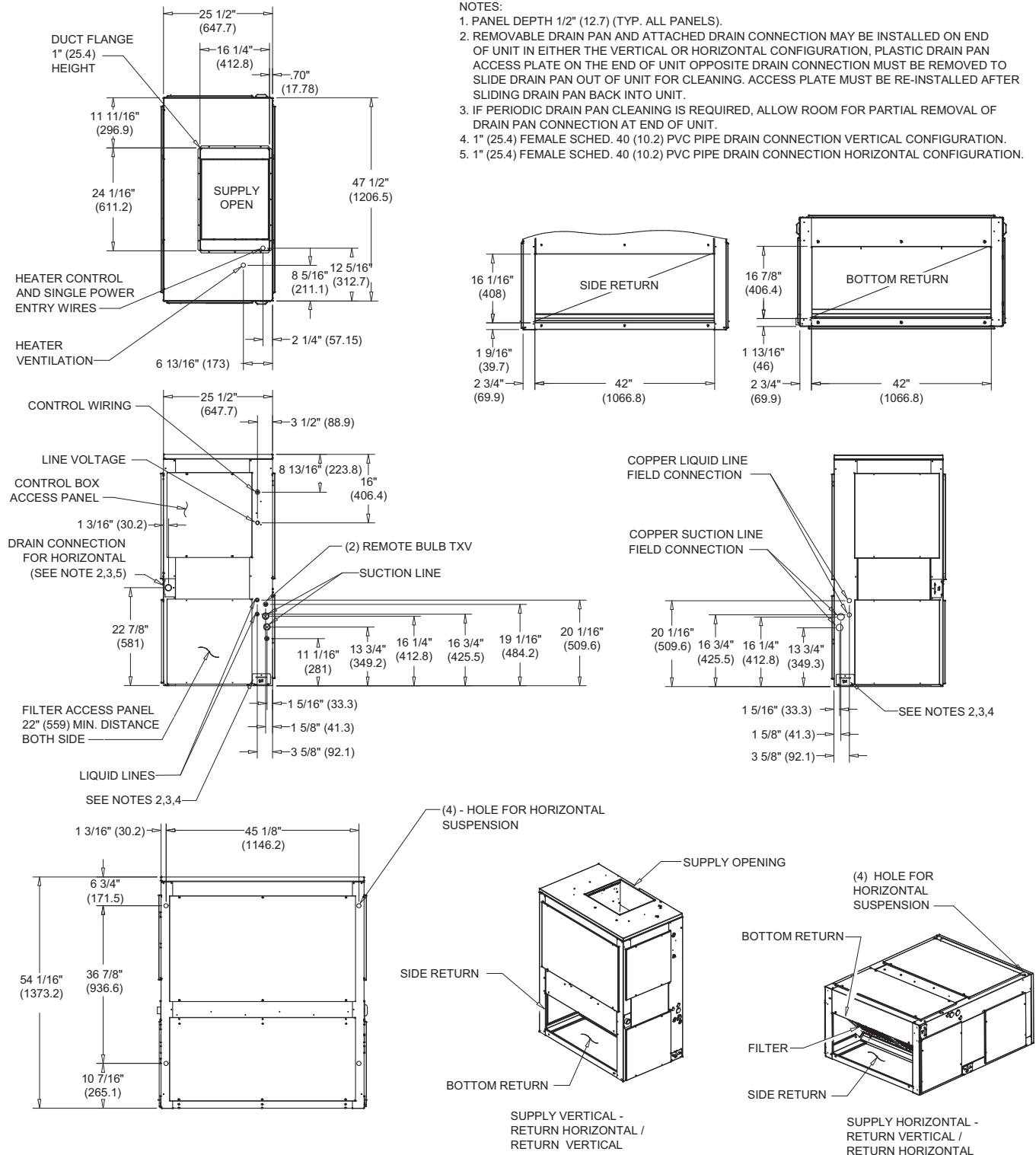


Figure 36. 10 ton air handler, single circuit – in. (mm)

Note: Duct flange is a field-installed accessory.

NOTES:

1. PANEL DEPTH 1/2" (12.7) (TYP. ALL PANELS).
2. REMOVABLE DRAIN PAN AND ATTACHED DRAIN CONNECTION MAY BE INSTALLED ON END OF UNIT IN EITHER THE VERTICAL OR HORIZONTAL CONFIGURATION, PLASTIC DRAIN PAN ACCESS PLATE ON THE END OF UNIT OPPOSITE DRAIN CONNECTION MUST BE REMOVED TO SLIDE DRAIN PAN OUT OF UNIT FOR CLEANING. ACCESS PLATE MUST BE RE-INSTALLED AFTER SLIDING DRAIN PAN BACK INTO UNIT.
3. IF PERIODIC DRAIN PAN CLEANING IS REQUIRED, ALLOW ROOM FOR PARTIAL REMOVAL OF DRAIN PAN CONNECTION AT END OF UNIT.
4. 1" (25.4) FEMALE SCHED. 40 (10.2) PVC PIPE DRAIN CONNECTION VERTICAL CONFIGURATION.
5. 1" (25.4) FEMALE SCHED. 40 (10.2) PVC PIPE DRAIN CONNECTION HORIZONTAL CONFIGURATION.

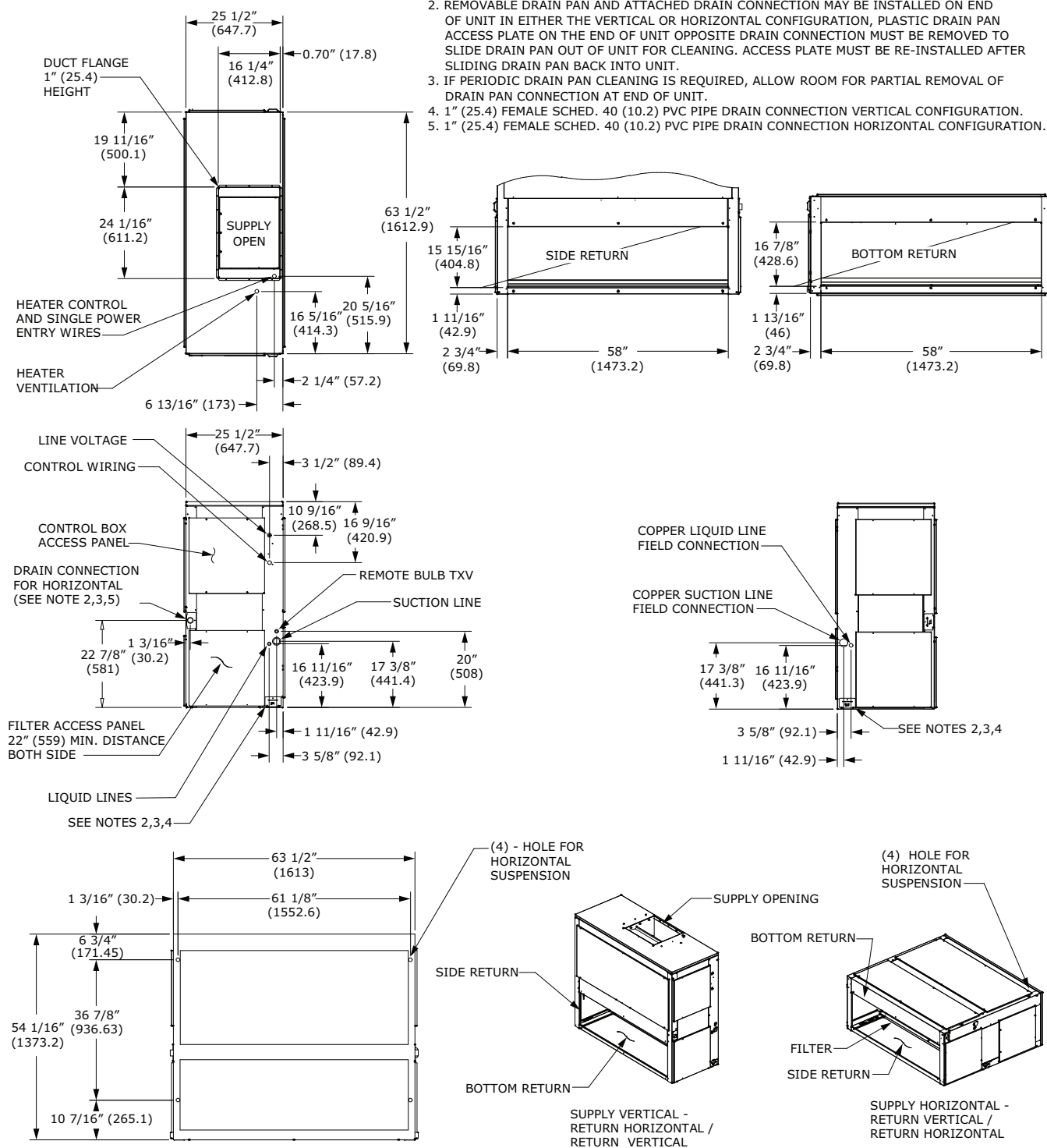


Figure 37. 10 ton air handler, dual circuit – in. (mm)

Note: Duct flange is a field-installed accessory.

NOTES:

1. PANEL DEPTH 1/2" (12.7) (TYP. ALL PANELS).
2. REMOVABLE DRAIN PAN AND ATTACHED DRAIN CONNECTION MAY BE INSTALLED ON END OF UNIT IN EITHER THE VERTICAL OR HORIZONTAL CONFIGURATION, PLASTIC DRAIN PAN ACCESS PLATE ON THE END OF UNIT OPPOSITE DRAIN CONNECTION MUST BE REMOVED TO SLIDE DRAIN PAN OUT OF UNIT FOR CLEANING. ACCESS PLATE MUST BE RE-INSTALLED AFTER SLIDING DRAIN PAN BACK INTO UNIT.
3. IF PERIODIC DRAIN PAN CLEANING IS REQUIRED, ALLOW ROOM FOR PARTIAL REMOVAL OF DRAIN PAN CONNECTION AT END OF UNIT.
4. 1" (25.4) FEMALE SCHED. 40 (10.2) PVC PIPE DRAIN CONNECTION VERTICAL CONFIGURATION.
5. 1" (25.4) FEMALE SCHED. 40 (10.2) PVC PIPE DRAIN CONNECTION HORIZONTAL CONFIGURATION.

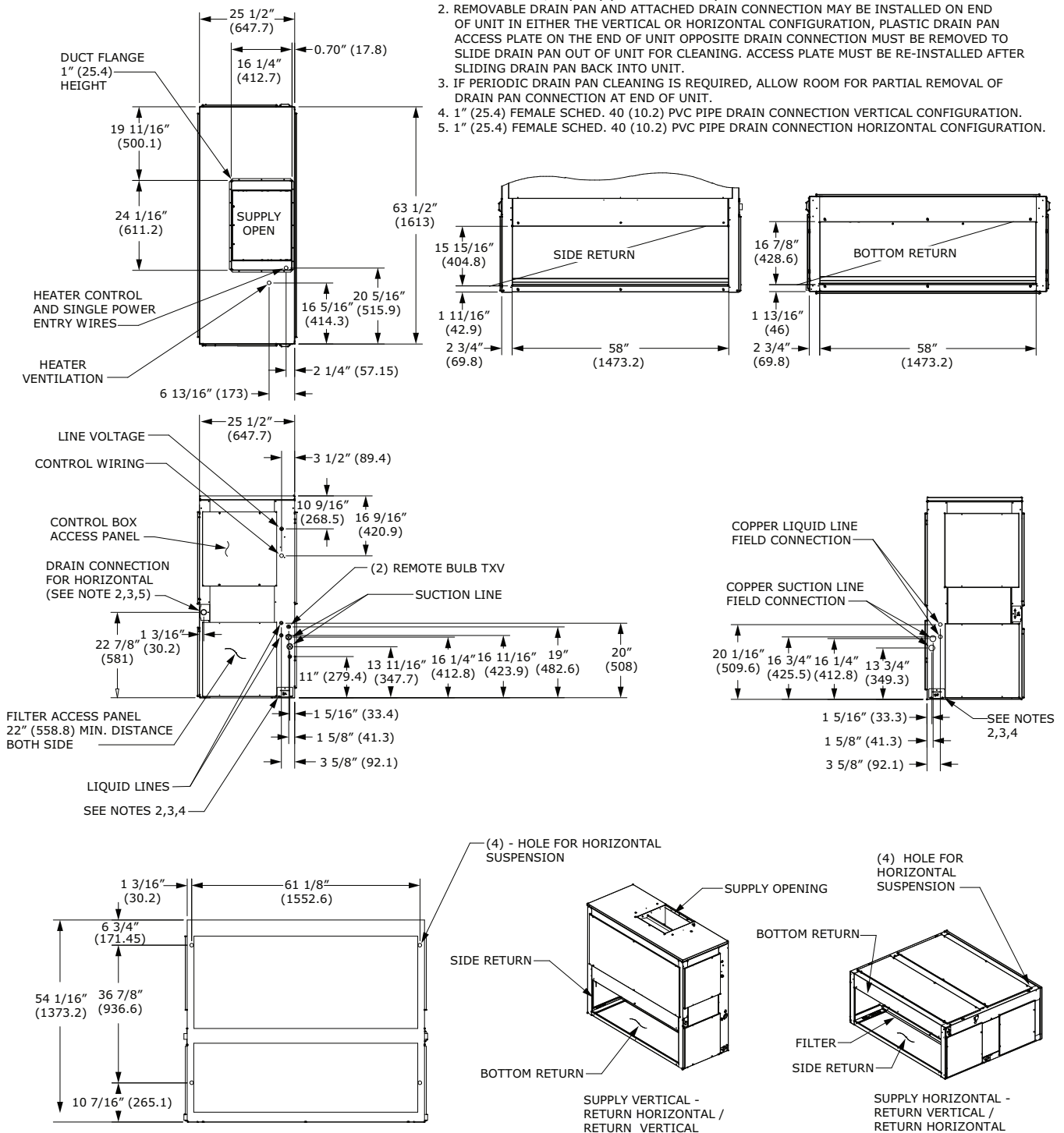


Figure 38. 12.5, 15 ton air handler, dual circuit – in. (mm)

Note: Duct flange is a field-installed accessory.

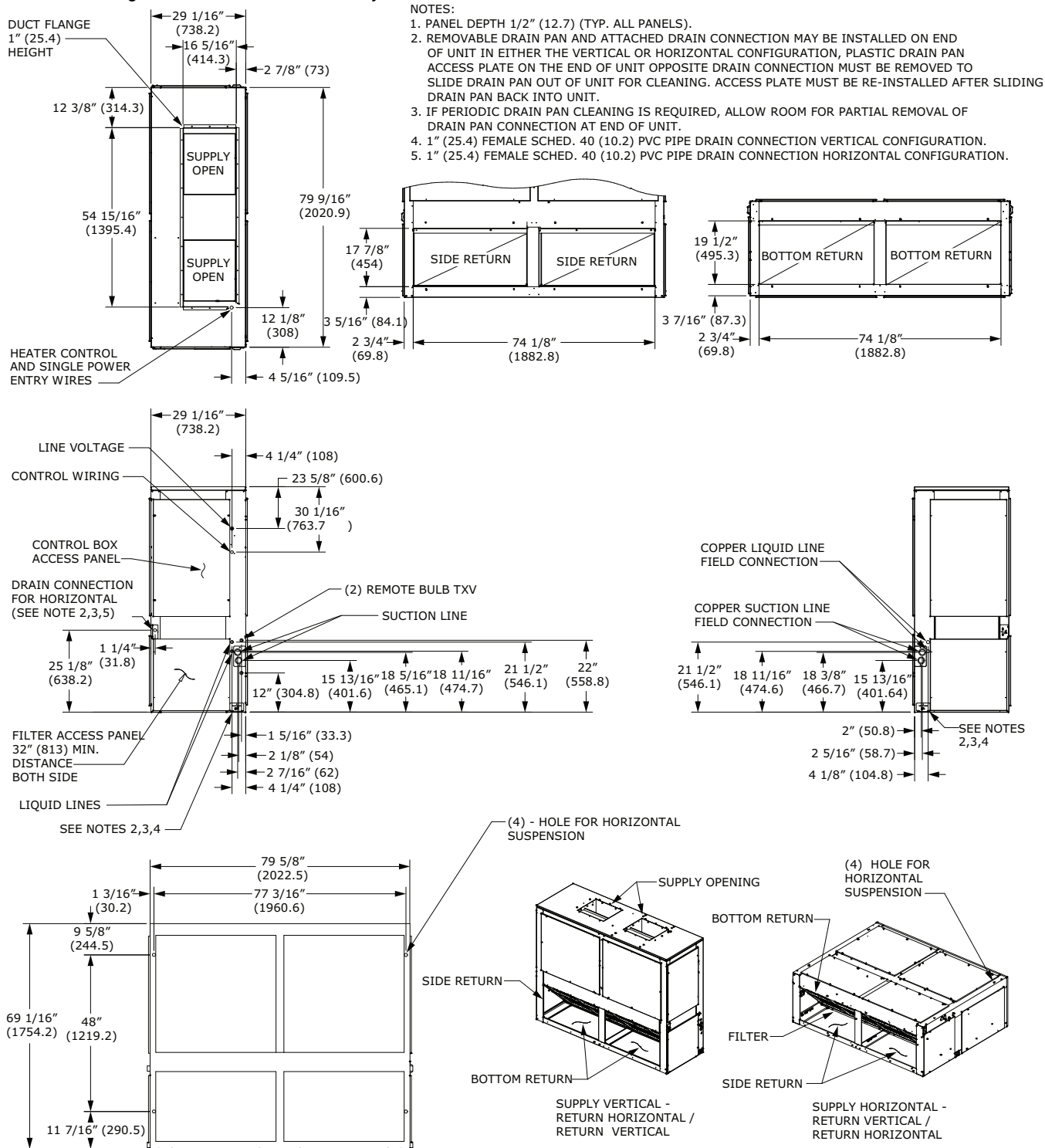
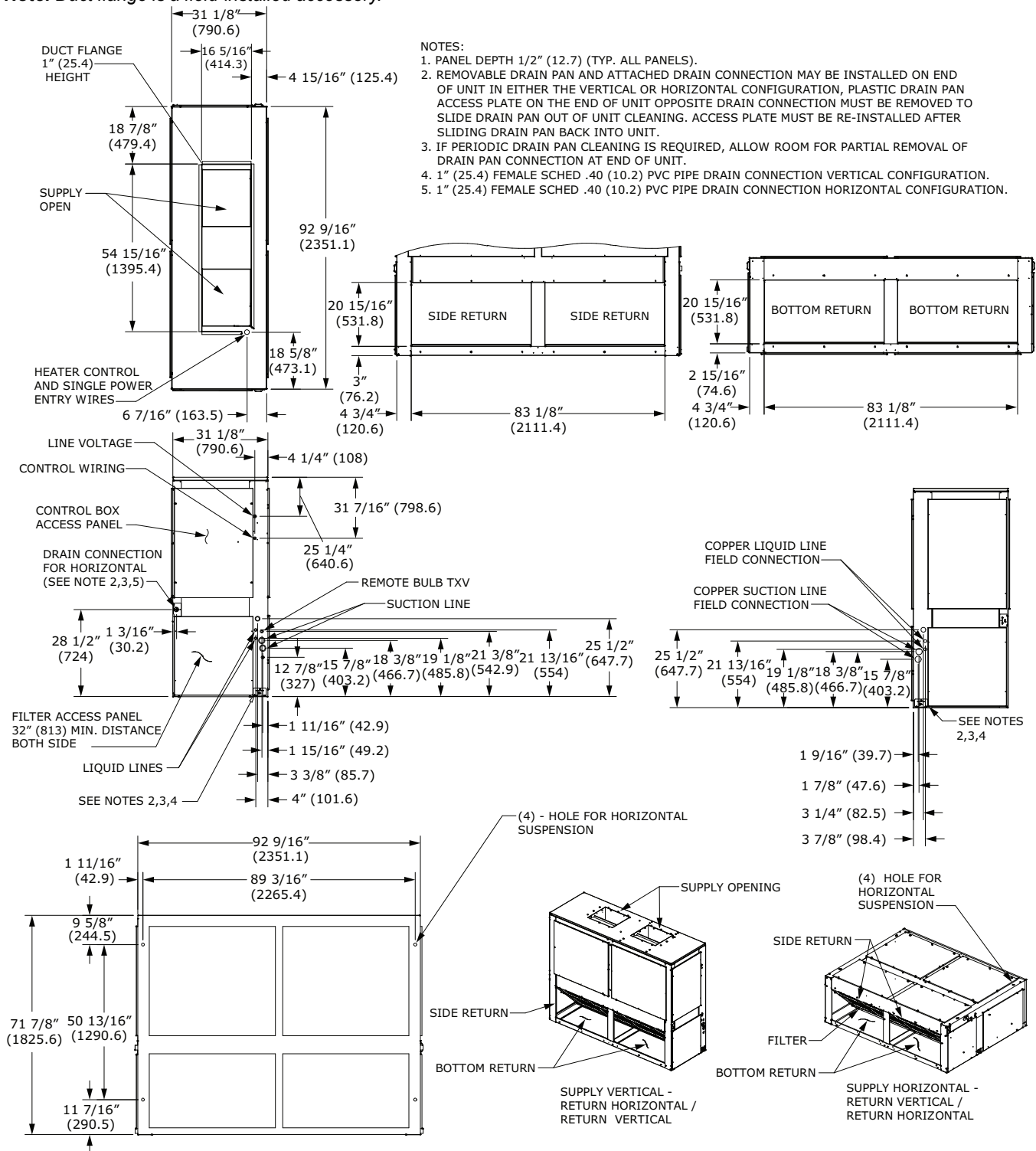


Figure 39. 20, 25 ton air handler, dual circuit – in. (mm)

Note: Duct flange is a field-installed accessory.



Accessories

Figure 40. Rubber isolator accessory dimensions

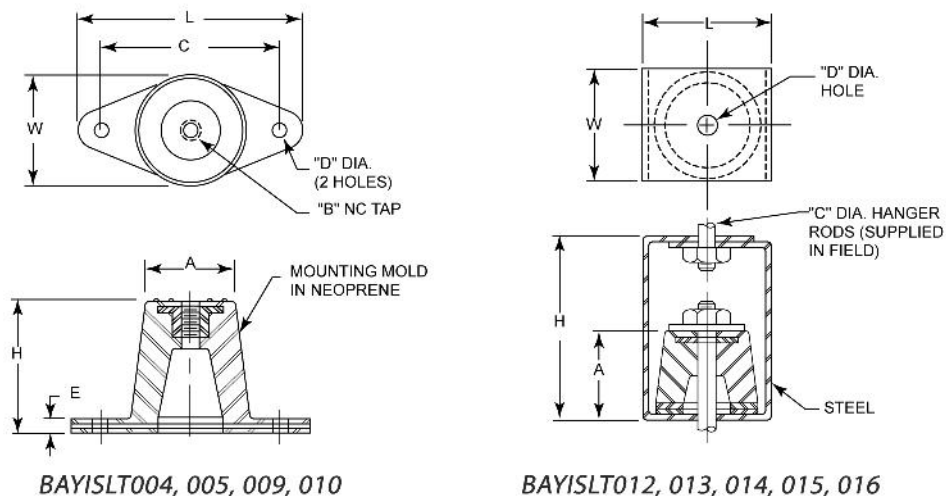


Table 81. Rubber isolator accessory dimensions – in (mm)

Model No.	L	W	H	A	B	C	D	E
BAYISLT004	3-1/8 (79.375)	1-3/4 (44.45)	1-1/4 (31.75)	1-1/4 (31.75)	3/8 (9.525)	2-3/8 (60.325)	3/8 (9.525)	1/4 (6.35)
BAYISLT005	3-7/8 (98.425)	2-3/8 (60.325)	1-3/4 (44.45)	1-3/4 (44.45)	3/8 (9.525)	3 (76.2)	3/8 (9.525)	1/4 (6.35)
BAYISLT009	3-7/8 (98.425)	2-3/8 (60.325)	1-3/4 (44.45)	1-3/4 (44.45)	3/8 (9.525)	3 (76.2)	3/8 (9.525)	1/4 (6.35)
BAYISLT010	3-7/8 (98.425)	2-3/8 (60.325)	1-3/4 (44.45)	1-3/4 (44.45)	3/8 (9.525)	3 (76.2)	3/8 (9.525)	1/4 (6.35)
BAYISLT013	2-1/4 (57.15)	2 (50.8)	3 (76.2)	1-3/8 (34.925)	3/4 (19.05)	3/8 (9.525)	1/2 (12.7)	—
BAYISLT014	2-1/4 (57.15)	2 (50.8)	3 (76.2)	1-3/8 (34.925)	3/4 (19.05)	3/8 (9.525)	1/2 (12.7)	—
BAYISLT015	2-1/4 (57.15)	2 (50.8)	3 (76.2)	1-3/8 (34.925)	3/4 (19.05)	3/8 (9.525)	1/2 (12.7)	—
BAYISLT012	3 (76.2)	2-1/4 (57.15)	4-1/2 (114.3)	1-7/8 (47.625)	1/4 (6.35)	5/8 (15.875)	3/4 (19.05)	—
BAYISLT015(a)	3 (76.2)	2-1/4 (57.15)	4-1/2 (114.3)	1-7/8 (47.625)	1/4 (6.35)	5/8 (15.875)	3/4 (19.05)	—
BAYISLT016	3 (76.2)	2-1/4 (57.15)	4-1/2 (114.3)	1-7/8 (47.625)	1/4 (6.35)	5/8 (15.875)	3/4 (19.05)	—

Note: BAYISLT015 contains a quantity 2 of the 2-1/4 x 2 x 3 isolators and quantity of 3 of the 3 x 2-1/4 x 4-1/2 isolators.

Figure 41. Spring isolator accessory dimensions – in (mm)

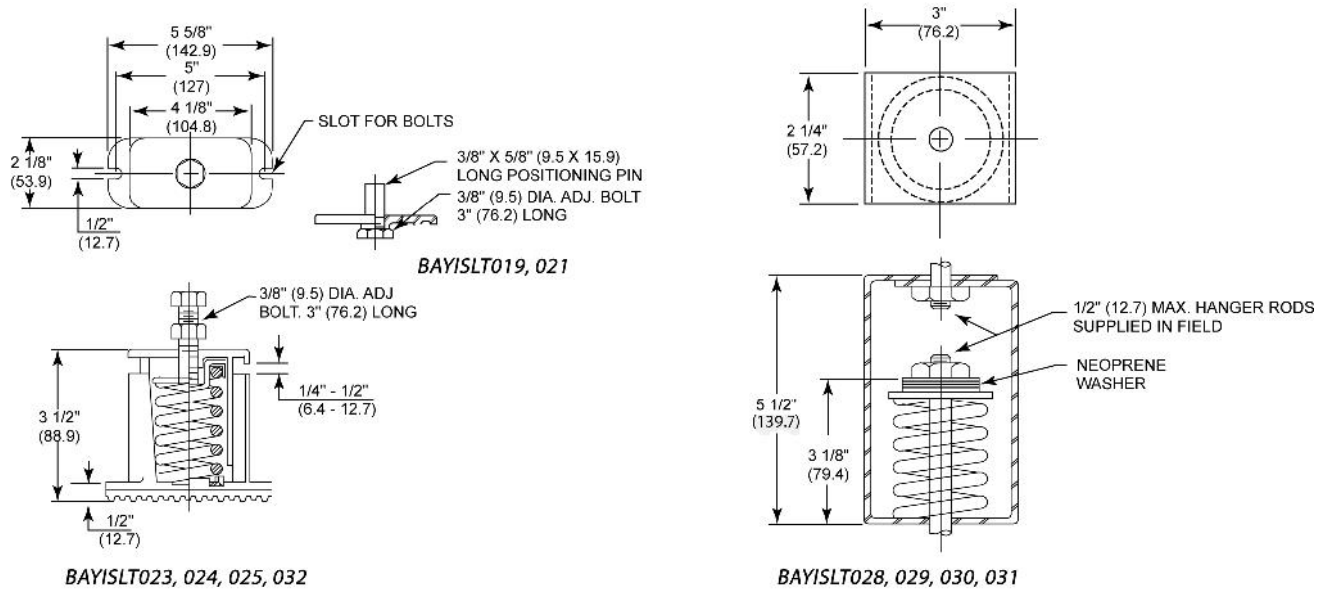
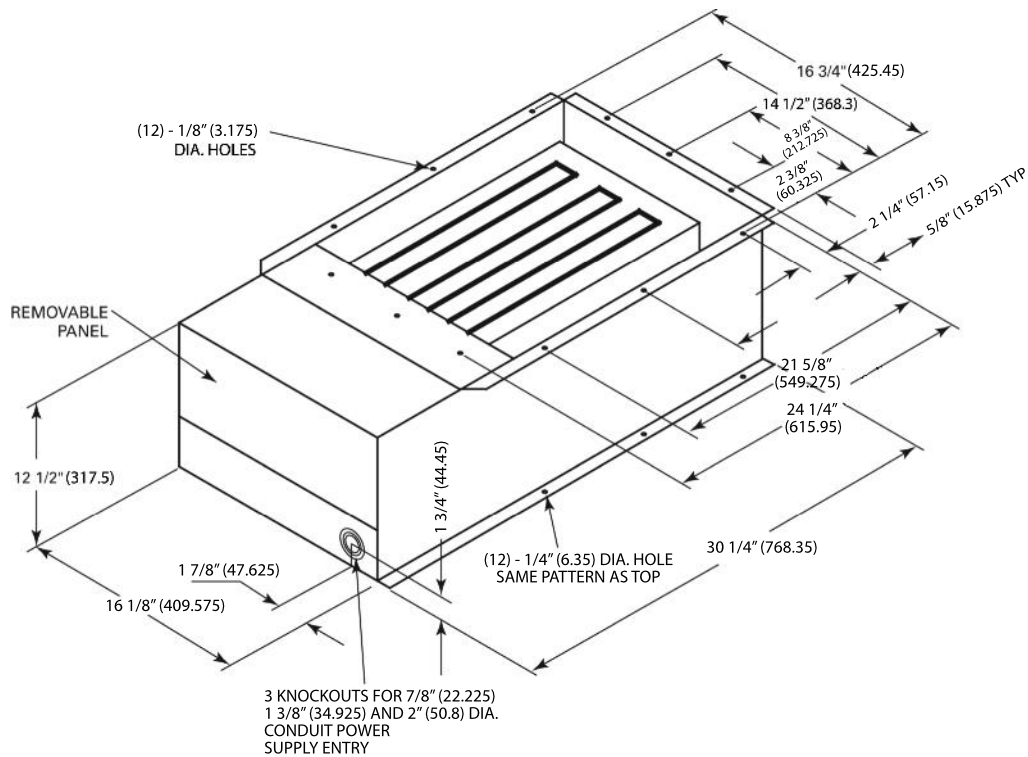


Figure 42. Electric heater accessory for 5-10 ton air handlers – in (mm)





Dimensional Data

Figure 43. Electric heater accessory for 12.5-25 ton air handlers – in (mm)

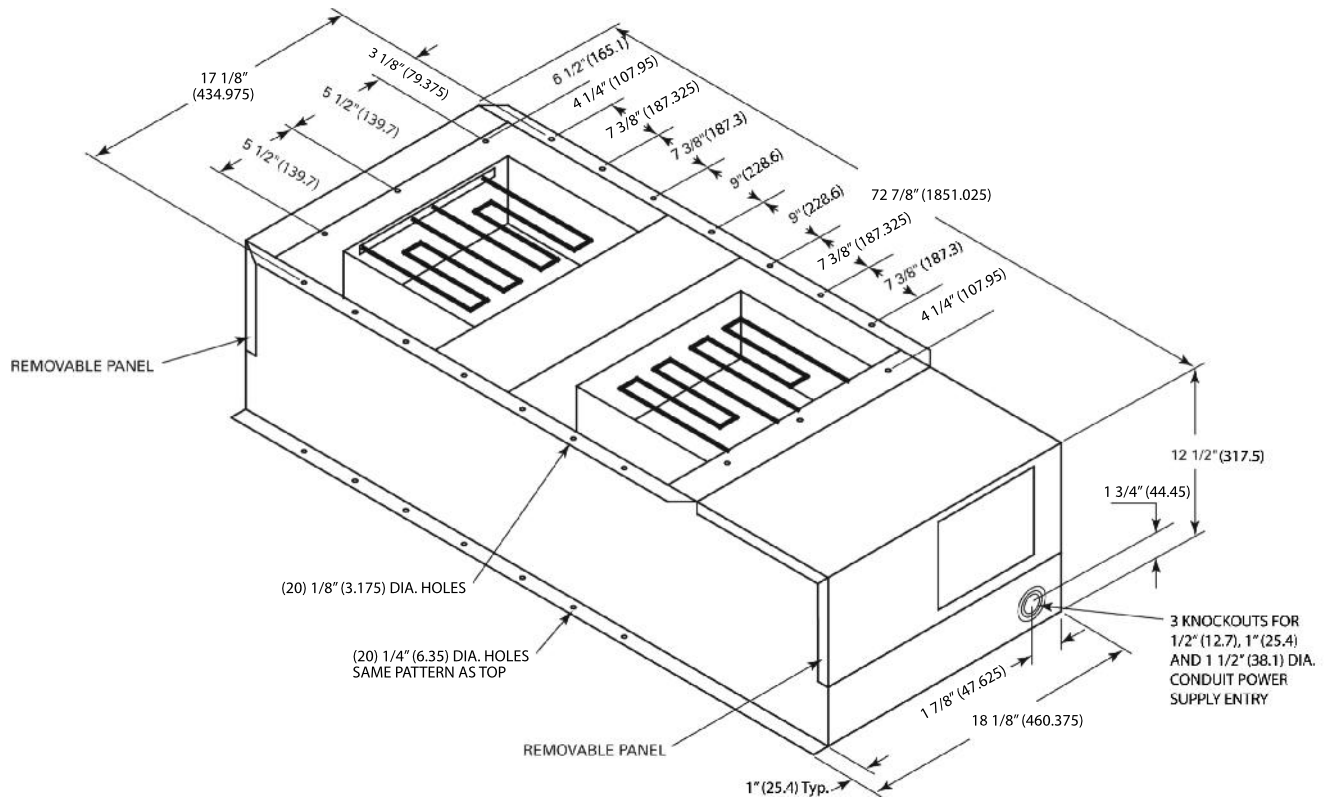
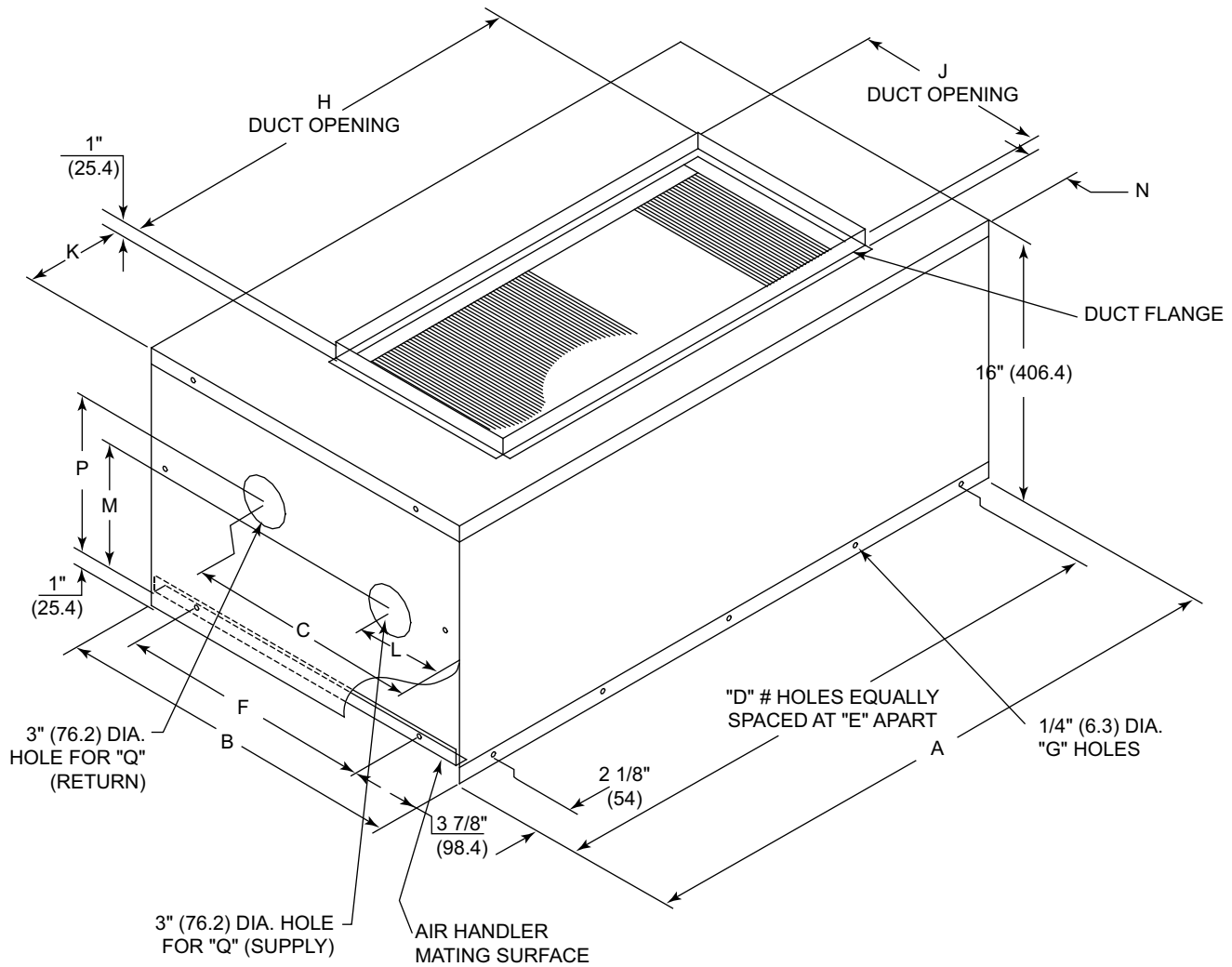


Figure 44. Hot water coil accessory – in (mm)



Note: Duct flange available as kit. See accessories chapter for details.

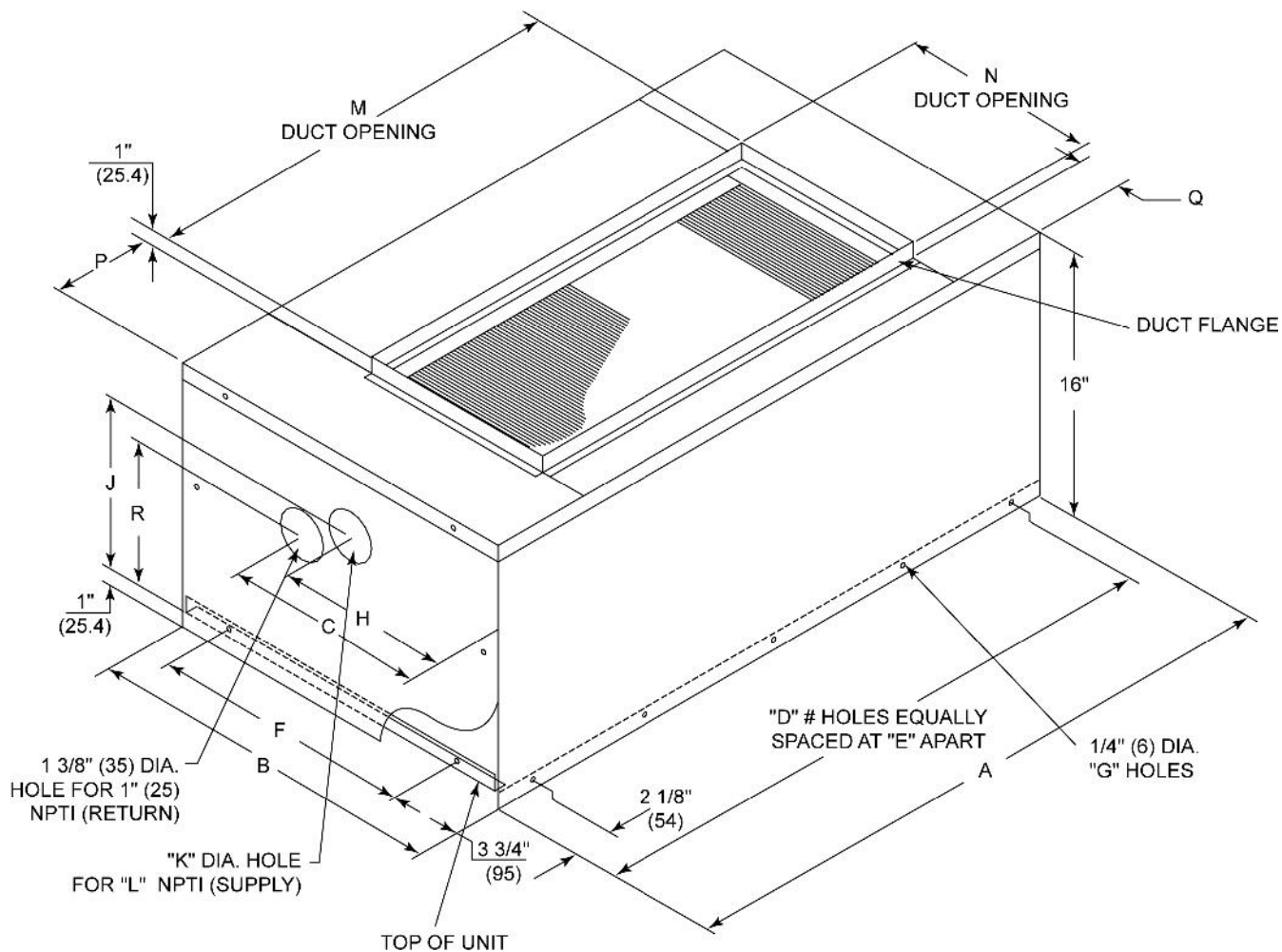
Table 82. Hot water coil accessory – in (mm)

Model No.	A	B	C	D	E	F	G	H
BAYWATR027	38.14 (969)	22.74 (576)	13.74 (349)	5 (127)	9 (229)	13.65 (347)	16 (406)	26 (660)
BAYWATR028	47.74 (1213)	25.74 (654)	15.95 (405)	5 (127)	10.84 (275)	17.17 (436)	16 (406)	30 (762)
BAYWATR029	63.84 (1621)	25.74 (654)	15.95 (405)	6 (152)	11.84 (301)	17.16 (436)	18 (457)	36 (914)
BAYWATR030	79.74 (2025)	29.18 (741)	14.36 (365)	8 (203)	10.85 (276)	19.67 (500)	22 (559)	51 (1295)
BAYWATR031	92.74 (2356)	31.24 (793)	16.48 (419)	8 (203)	10.85 (276)	19.67 (500)	22 (559)	64 (1626)
Model No.	J	K	L	M	N	P	Q	
BAYWATR027	12 (305)	6 (152)	4.94 (125)	7.79 (198)	2.88 (73)	10.24 (260)	2 NPT (51) NPTI	
BAYWATR028	18 (457)	8.88 (225)	8.45 (215)	10.27 (261)	2.88 (73)	7.77 (197)	2.5 NPTI (64) NPTI	
BAYWATR029	18 (457)	13.88 (352)	8.45 (215)	10.03 (255)	2.88 (73)	7.58 (192)	2.5 NPTI (64) NPTI	
BAYWATR030	18 (457)	14.25 (362)	6.86 (174)	9.91 (252)	1.88 (48)	7.41 (188)	2.5 NPTI (64) NPTI	

Table 82. Hot water coil accessory – in (mm) (continued)

Note: Hot Water Coil Dimensions - inches (millimeters)

Figure 45. Steam coil accessory – in (mm)



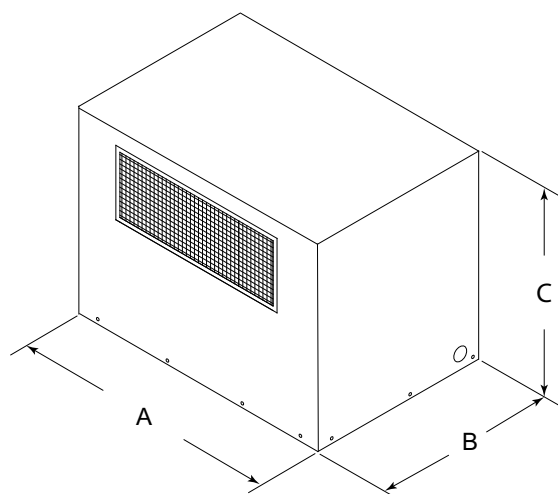
Note: Duct flange available as kit. See accessories chapter for details.

Table 83. Steam coil accessory – in (mm)

Model No.	A	B	C	D	E	F	G	H	J	K
BAYWATR022	38.14 (969)	22.74 (577)	14.32 (364)	5 (127)	9 (229)	13.67 (347)	16 (406)	10.88 (276)	11.17 (284)	2 (51)
BAYWATR023	47.74 (1212)	25.74 (654)	20.14 (511)	5 (127)	10.84 (275)	17.17 (436)	16 (406)	10.88 (276)	11.17 (284)	2 (51)
BAYWATR024	63.84 (1621)	25.74 (654)	20.14 (511)	6 (152)	11.87 (301)	17.16 (436)	18 (457)	13.70 (348)	10.57 (268)	2.5 (64)
BAYWATR025	79.74 (2025)	29.18 (741)	18.55 (471)	8 (203)	10.85 (275)	19.67 (500)	22 (559)	12.11 (308)	10.05 (255)	2.5 (64)
BAYWATR026	92.74 (2355)	31.24 (793)	20.67 (525)	8 (203)	10.85 (275)	19.67 (500)	22 (559)	14.23 (361)	10.01 (254)	2.5 (64)

Table 83. Steam coil accessory – in (mm) (continued)

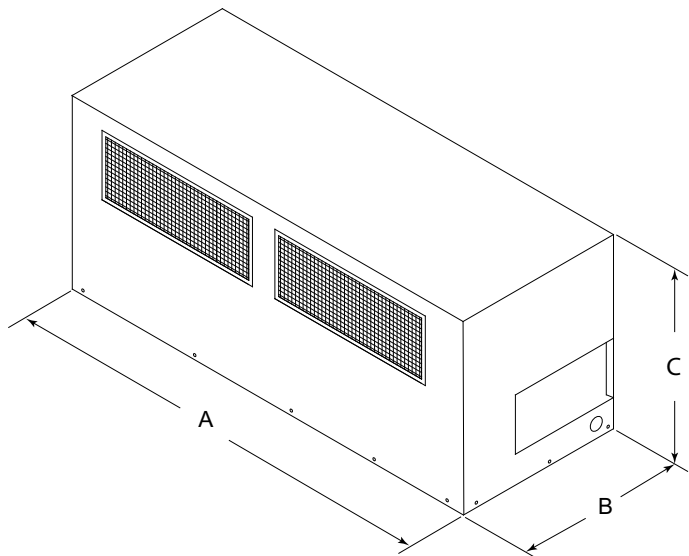
Model No.	L	M	N	P	Q	R
BAYWATR022	1.5 (38)	26 (660)	12 (305)	6 (152)	2.87 (73)	9.95 (253)
BAYWATR023	2 (51)	30 (762)	18 (457)	8.87 (225)	2.87 (73)	9.95 (253)
BAYWATR024	2 (51)	36 (914)	18 (457)	13.87 (352)	2.87 (73)	9.13 (232)
BAYWATR025	2 (51)	51 (1295)	18 (457)	14.12 (359)	1.87 (48)	8.61 (219)
BAYWATR026	2 (51)	64 (1626)	18 (457)	14.12 (359)	3.75 (95)	8.58 (218)

Figure 46. Discharge plenum and grille accessory

Table 84. Discharge plenum and grille dimensions – no heat – in (mm)

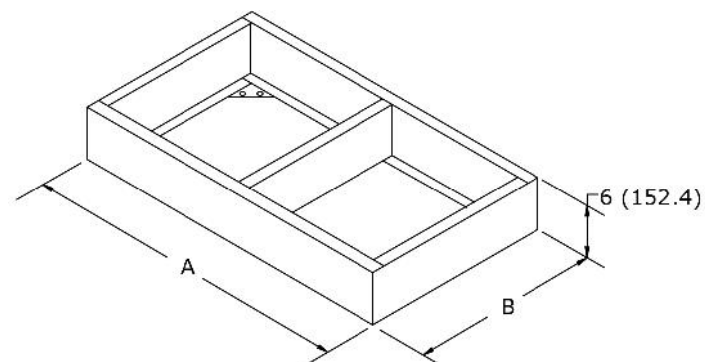
Unit	Model No. ^(a)	A	B	C
TWE060	BAYPLNM015	37.94 (963.6)	21.94 (557.2)	28 (711.2)
TWE072, TWE090	BAYPLNM016	47.5 (1206.5)	24.99 (634.7)	28 (711.2)
TWE120	BAYPLNM017	63.5 (1612.9)	24.99 (634.7)	28 (711.2)
TWE180	BAYPLNM018 ^(b)	79.5 (2019.3)	27.63 (701.8)	22 (558.8)
TWE240, TWE300	BAYPLNM019 ^(b)	92.5 (2349.5)	30.43 (772.9)	24 (609.6)
TWE060	BAYPLNM020	37.91 (962.9)	21.91 (556.5)	14.75 (374.65)
TWE090	BAYPLNM021	47.5 (1206.5)	24.99 (634.7)	14.75 (374.65)
TWE120	BAYPLNM022	63.5 (1612.9)	24.99 (634.7)	14.75 (374.65)

^(a) When installed horizontally, plenum/water coil must be self-supported.

^(b) For use with hydronic heat or no heat.

Figure 47. Discharge plenum and grille accessory

Table 85. Discharge plenum and grille dimensions (for use with electric heat) – in (mm)

Tons	Model No.	A	B	C
TWE060	BAYPLNM030	38.07 (967)	22.69 (576.3)	29.05 (738)
TWE072, TWE090	BAYPLNM031	47.86 (1216)	25.69 (652.5)	29.05 (738)
TWE120	BAYPLNM032	63.86 (1622)	25.69 (652.5)	29.05 (738)
TWE150, TWE180	BAYPLNM033	80.14 (2036)	29.10 (739.1)	35.11 (892)
TWE240, TWE300	BAYPLNM034	92.96 (2361)	31.10 (789.9)	35.05 (890)

Figure 48. Subbase accessory – in (mm)

Table 86. Subbase dimensions – in (mm)

Tons	Model No.	A	B
TWE060	BAYBASE009	38 (965.2)	22.63 (574.8)
TWE072, TWE090	BAYBASE010	47.5 (1206.5)	25.51 (648.0)
TWE120	BAYBASE011	63.5 (1612.9)	25.52 (648.2)
TWE150,TWE180	BAYBASE012	79.5 (2019.3)	29.04 (737.6)
TWE240, TWE300	BAYBASE013	92.5 (2349.5)	31.14 (791.0)



Weights

Cooling Condenser

Table 87. TTA R-410A unit and corner weights — lbs (60 Hz)

Tons	Model No.	Shipping Max (lbs)	Net Max (lbs)	Corner Weights			
				1	2	3	4
6	TTA0724*A	324	287	84	89	55	59
	TTA0724*D	344	307	97	89	64	57
7.5	TTA0904*A	342	305	87	94	59	65
	TTA0904*D	380	343	107	100	70	66
10	TTA1204*D	436	391	113	112	84	82
	TTA1204*C	473	428	127	127	87	87
12.5	TTA150*D	504	459	138	137	92	92
15	TTA1804*D	806	705	194	195	158	158
	TTA1804*C	806	705	192	192	161	160
20	TTA2404*D	872	771	214	214	171	172
	TTA2404*C	879	778	218	220	169	171
25	TTA3004*C	1013	912	258	260	196	198

Figure 49. TTA072, 090, 120, 150

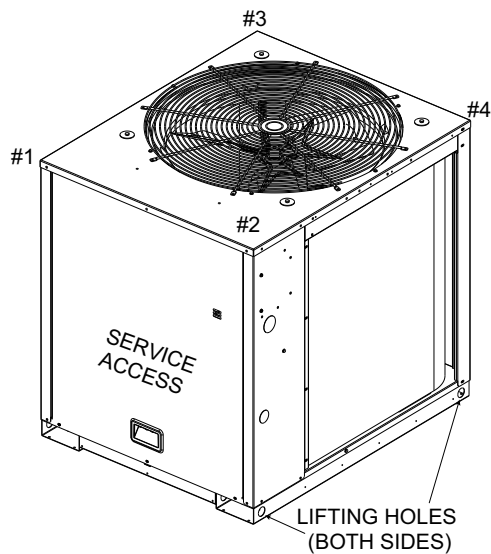
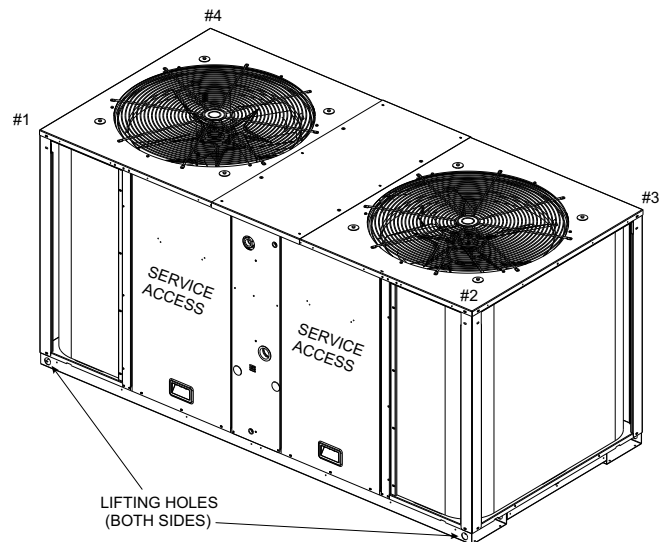


Figure 50. TTA180, 240, 300



Air Handler

Table 88. Constant volume air handler (TWE) — unit and corner weights - (60 Hz)

Tons	Model Number	Shipping Max (lbs)	Net Max (lbs)	Corner Weights - Vertical				Corner Weights - Horizontal			
				1	2	3	4	1	2	3	4
5	TWE0604(3,4,W,1,K)A TWE0604(3,4,1)B	285	232	55	71	51	55	54	67	50	61
6	TWE0724KB	385	323	67	99	75	82	56	92	87	88
7.5	TWE0904(1, K)A/B	385	323	67	99	75	82	56	92	87	88
10	TWE1204(1, K)A/B	441	393	77	121	110	85	79	118	77	119
12.5	TWE1504KB	753	676	168	192	181	135	196	164	145	171
15	TWE1804KB	752	675	167	192	181	135	196	163	145	171
20	TWE2404KB	912	818	258	168	161	231	256	181	146	235
25	TWE3004KB	993	899	211	229	184	275	272	176	228	223

Table 89. SZVAV and 2-Speed VFD air handler (TWE) — unit and corner weights - (60 Hz)

Tons	Model Number	Shipping Max (lbs)	Net Max (lbs)	Corner Weights - Vertical				Corner Weights - Horizontal			
				1	2	3	4	1	2	3	4
6	TWE0724*B	398	336	70	102	78	86	59	95	90	92
7.5	TWE0904*A/B	398	336	70	102	78	86	59	95	90	92
10	TWE1204*A/B	454	406	80	124	113	89	82	121	80	123
12.5	TWE1504*B	766	689	171	195	184	139	199	167	148	175
15	TWE1804*B	765	688	170	195	184	139	199	166	148	175
20	TWE2404*B	925	831	261	171	164	235	259	184	149	239
25	TWE3004*B	1015	921	217	235	189	280	278	182	233	228

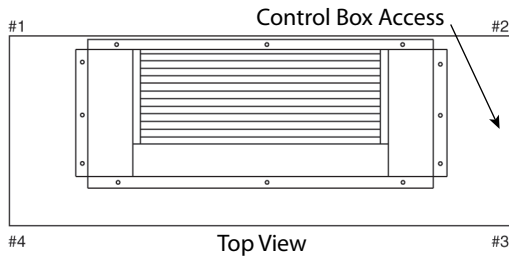
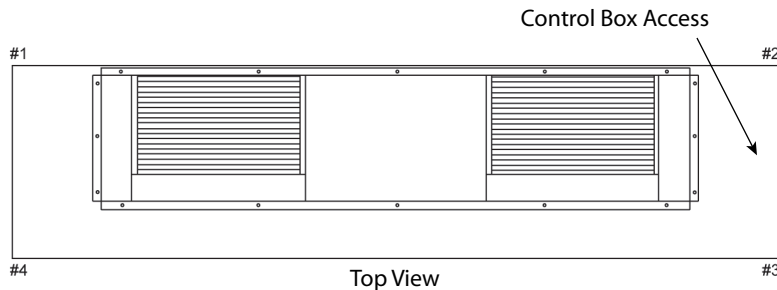
Figure 51. Vertical — TWE060, 072, 090, 120

Figure 52. Vertical — TWE150, 180, 240, 300


Figure 53. Horizontal — TWE060, 072, 090, 120

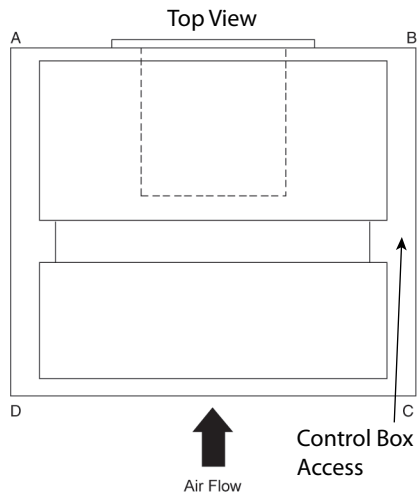
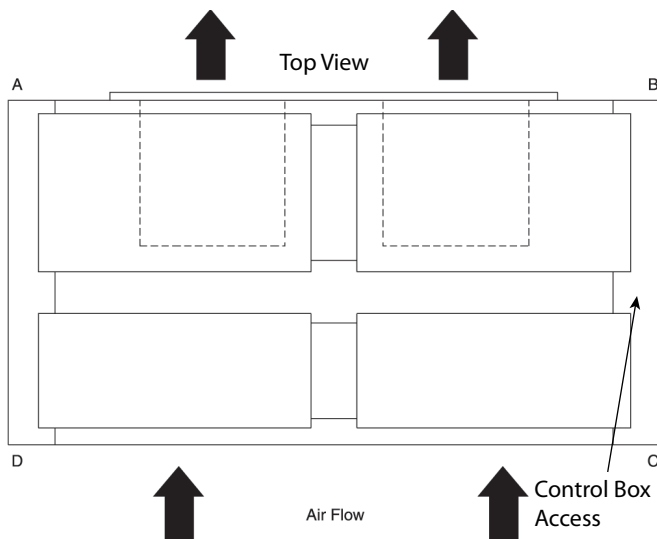


Figure 54. Horizontal — TWE150, 180, 240, 300





Weights

Accessories

Table 90. Accessory weights (net lbs.)

Unit Used w/ Tons	Hot Water Coil	Steam Coil	Discharge Plenum and Grille with Hydronic Heat	Discharge Plenum and Grille without Heat	Discharge Plenum and Grille with Electric Heat	Return Air Grille	Electric Heat Min/Max	Subbase	Oversized Motor	RIS Isolator Floor Mount
6	116	131	78	73	160	5	27/45	19.4	48	2
7.5	116	131	78	73	160	5	27/45	19.4	48	2
10	165	148	97	92	195	7	27/45	23.5	50	2
12.5	211	234	—	230	235	10	79/100	28.4	80	2
15	211	234	—	230	235	10	79/100	28.4	80	2
20	242	261	—	145	265	12	79/100	31.7	88	2
25	242	261	—	145	265	12	79/100	31.7	—	2
RIS Isolator Suspended Mount	Steel Spring Isolator Floor Mount	Steel Spring Isolator Suspended Mount	Hail Guard	Control Transformer	Sensors	Expansion Module	Low Ambient	Service Valve		
6	12	6	21	4	1	13	13	5		
6	12	6	21	4	1	13	13	5		
7	12	6	28	4	1	13	13	5		
7	12	6	33	4	1	13	13	5		
7	12	6	55	4	1	2	2	5		
9	12	6	55	4	1	2	2	5		
9	12	6	71	4	1	2	2	5		



Mechanical Specifications

Condensing Units

Standard Features

General

- Weatherproofed steel mounting/lifting rails
- Hermetic scroll compressors
- Microchannel condenser coils
- Fans and motors
- Standard operating range 50-125°F (min. 0°F with low ambient accessory)
- Nitrogen holding charge
- Certified and rated in accordance with AHRI and DOE standards
- Certified to UL 1995
- Capacities and efficiencies for split systems are rated within the scope of the Air-Conditioning, Heating, & Refrigeration Institute (AHRI) certification program and display the AHRI Standard 340-360 (I-P) mark. This standard applies to units between 65,000 and 250,000 btu/hr.
- Capacities and efficiencies for split system cooling condensers are rated within the scope of the Air-Conditioning, Heating, & Refrigeration Institute (AHRI) certification program and display the AHRI Standard 365 (I-P) mark. This standard applies to cooling units between 135,000 and 250,000 btu/hr.

Casing

- Zinc coated, heavy gauge, galvanized steel
- Weather resistant baked enamel finish
- Meets ASTM B117, 672 hour salt spray test
- Removable single side maintenance access panels
- Lifting handles in maintenance access panels
- Unit base provisions for forklift and/or crane lifting

Refrigeration System - Single Compressor (TTA072**A, TTA090**A)

- Single refrigeration circuit with integral subcooling circuit
- Single direct drive hermetic scroll compressor
- Suction gas-cooled motor w/ $\pm 10\%$ voltage utilization range of unit nameplate voltage
- Crankcase heater
- Internal temperature and current sensitive motor overloads
- No compressor suction and/or discharge valves (reduced vibration/sound)
- Factory installed liquid line filter drier
- Phase loss/reverse rotation monitor
- External high pressure cutout device
- External low pressure cutout device
- Evaporator defrost control
- Loss of charge protection (discharge temperature limit)

Refrigeration System - Dual Compressor (TTA072**D, TTA090**D, TTA120**D, TTA150**D, TTA180**D, TTA240**D)

- Two (2) separate and independent refrigerant circuits
- Each refrigeration circuit equipped with integral subcooling circuit
- Front or rear refrigerant line connections (TTA180**D/240**D)
- Two (2) direct drive hermetic scroll compressor
- Suction gas-cooled motors w/ $\pm 10\%$ voltage utilization range of unit nameplate voltage
- Crankcase Heaters
- Internal temperature and current sensitive motor overloads
- Factory installed liquid line filter driers
- Phase loss/reverse rotation monitor



Mechanical Specifications

- No compressor suction and/or discharge valves (reduced vibration/sound)
- External high pressure cutout devices
- External low pressure cutout devices
- Evaporator defrost control
- Loss of charge protection (discharge temperature limits)

Refrigeration System - Dual Manifolded Compressors (TTA120C, TTA180**C, TTA240**C, TTA300**C)**

- Single refrigerant circuit with integral subcooling circuit
- Two (2) direct drive hermetic scroll compressor
- Suction gas-cooled motors w/ $\pm 10\%$ voltage utilization range of unit nameplate voltage
- Crankcase Heaters
- Internal temperature and current sensitive motor overloads
- No compressor suction and/or discharge valves (reduced vibration/sound)
- Factory installed liquid line filter drier
- Phase loss/reverse rotation monitor
- External high pressure cutout devices
- External low pressure cutout devices
- Evaporator defrost control
- Loss of charge protection (discharge line thermostats)
- Front or rear refrigerant line connections (TTA 180**C/240**C/300**C only)

Condenser Coil (Microchannel)

- Microchannel coils burst tested by the manufacturer
- Coils shall be leak tested to ensure the pressure integrity
- Factory pressure and leak tested to 660 psig
- Perforated steel hail guards available (factory installed option or field installed accessory)

Condenser Fan

- 26" or 28" propeller fan(s)
- Direct drive
- Statically and dynamically balanced

Condenser Motor(s)

- Permanently lubricated totally enclosed or open construction
- Built-in current and thermal overloads
- Ball or sleeve bearing type

Controls

- Centralized microprocessor
- Indoor and outdoor temperature sensors drive algorithms, making decisions for all heating, cooling, and ventilation
- Integrated anti-short cycle timer
- Integrated time delay between compressors
- Completely internally wired
- Colored and keyed connectors and colored wires
- Contactor pressure lugs or terminal block
- Unit external mounting location for disconnect device
- Single point power entry
- Front or rear electrical connections (TTA 180**C/D, 240**C/D, 300**C only)

Coil Guards

- Condenser coil protection from hail, vandals, etc.
- Perforated, painted galvanized steel
- Factory or field installed

Factory Installed Options

Complete Coat™ Microchannel Condenser Coil

- Available on Microchannel units only
- Cathodic, epoxy-type, electro-disposition coating formulated for high edge build
- Coating provides excellent resistance and durability to corrosive effects of alkalies, acids, alcohols, petroleum, seawater, salty air and other corrosive environments

BACnet Communication Options

- BACnet MS/TP -BACnet IP
- Allows unit communication with Trane or generic BACnet building automation controls

Advanced Diagnostics and LonTalk Communication Interface

- Factory or field installed
- Allows unit communication as a Tracer Lon® device
- Allows unit communication with generic LonTalk® Network building automation controls

Field Installed Options

Low Ambient (Fan ON/OFF)

- Provides unit cooling operation to outdoor ambient of 0°F
- Low cost solution
- Discharge pressure controls condenser fan operation

Service Valves

- Liquid line service valve (with gauge port)
- Suction line service valve (with gauge port)

Vibration Isolators

- Neoprene-in-shear or spring flex choice
- Reduce vibration transmission to building structures, equipment, and adjacent spaces
- Reduce noise transmission to building structures, equipment, and adjacent spaces

Hot Gas Bypass

- Provides capacity modulation solution

Zone Sensor

- Interfaces with microprocessor units
- Manual or automatic programmable
- System malfunction lights
- Remote sensor options

Thermostat

- 1H/1C available
- 2H/1C available
- Manual or automatic changeover available
- Programmable and non-programmable solutions available

LonTalk Communication Interface

- Factory or field installed
- Allows unit communication as a Tracer Lon® device
- Allows unit communication with generic LonTalk® Network building automation controls



Air Handlers

Standard Features

General

- Completely factory assembled
- Convertible for horizontal or vertical configuration
- Convertible for cooling only or heat pump application
- Convertible for left or right external connections (refrigerant and/or electrical)
- Convertible for front or bottom air return
- Nitrogen holding charge
- Certified to UL 1995 for indoor blower coil units

Casing

- Zinc coated, heavy gauge, galvanized steel
- Weather resistant baked enamel finish
- Access panels with captive screws
- Completely insulated with foil faced, cleanable, fire retardant, permanent, odorless glass fiber material
- Captured or sealed insulation edges
- Electrical connection bushings or plugs
- Refrigerant connection bushings or plugs
- Withstand elevated internal static pressure

Refrigeration System

- Single or dual circuit
- Distributor(s)
- Thermal expansion valves (TXVs)

Evaporator Coil

- 3/8" internally enhanced copper tube mechanically bonded to lanced aluminum plate fins
- Factory pressure and leak tested to 449 psig.
- Draw-through airflow
- Dual circuits are interlaced/intertwined
- Double sloped, removable, cleanable, composite drain pan
- Four drain pan positions

Indoor Fan

- Double inlet, double width, forward curved, centrifugal type fan
- Dual fans on 12.5 – 25 ton air handlers
- Adjustable belt drive
- Permanently lubricated bearings

Indoor Motor

- Adjustable motor sheaves (constant volume units)
- Fixed motor sheaves (SZVAV and 2-Speed VFD)
- Thermal overload protection
- Permanently lubricated bearings
- Meet energy policy of 1992 (EPACT)
- Optional oversized motors for high static applications

Controls

- Completely internally wired
- Colored and keyed connectors, colored wires
- Magnetic indoor fan contactor
- Detachable low voltage connectors

- Single point power entry
- Evaporator defrost control

Filters

- Access from side coil panels
- Filters slide on rack
- One inch (1"), throwaway filters on 5 - 10 ton units
- Filter rack convertible to two inch (2") capability on 5 - 10 ton units
- Two inch (2"), throwaway filters on 12.5 – 25 ton units

Factory Installed Options**Constant Volume Airflow**

Factory installed high static motor available

2-Speed VFD Control (Pairing with Legacy Electromechanical Condensers)

- 2-Speed airflow
- Variable Frequency Drive (VFD)
- Motor soft start — avoids start up belt noise and increases belt life
- Programmable keypad accessible outside of airstream
- VFD rated motor
- Factory installed high static motor available

Single Zone Variable Air Volume / 2-Speed Airflow

- Variable Frequency Drive (VFD)
- Motor soft start — avoids start up belt noise and increases belt life
- Programmable VFD keypad accessible outside of airstream
- Airflow adjustment via display/keypad on Symbio™ 700 controller in condenser
- Discharge air sensor
- Symbio 700 Options Module
- VFD rated motor
- Factory installed oversized motor available

Field Installed Options**Electric Heaters**

- Heavy duty nickel chromium elements
- Agency approved
- Installs directly on fan discharge
- One or two stage control (dependent upon capacity)
- Single point power entry
- Terminal strip connections
- 460V Heaters
 - Internally wye connected
 - Automatic line break high limit controls with secondary single action disc limits
- 230V Heaters
 - Internally delta connected
 - Automatic reset of high limit controls through pilot duty with secondary backup fuse links

Hydronic Heat Coils

- One row steam
- Two row hot water
- Installs directly on fan discharge
- Heavy gauge sheet metal casing matches air handler
- Convertible for horizontal or vertical configurations

Discharge Plenums and Grilles

- Vertical, free discharge applications
- Heavy gauge sheet metal casing matches air handler
- Satin-finished, 4-way adjustable louver grilles

Return Air Grilles

- Vertical, free discharge applications
- Satin-finished, non-adjustable louver grilles
- Replaces front lower access panel

Mounting Sub-Base

- Vertical floor mount configuration requirement
- Heavy gauge sheet metal casing matches air handler
- Provides additional clearance for condensate drain trapping
- Required when isolators are used

Vibration Isolators

- Neoprene-in-shear or spring flex choice
- Floor or suspended applications
- Reduce vibration transmission to building structures, equipment, and adjacent spaces
- Reduce noise transmission to building structures, equipment, and adjacent spaces

Oversize Motors

- High static applications
- Motor, sheaves, belt included

Filters

- 2 inch, MERV 13 high efficiency filters



The AHRI Certified mark indicates Trane U.S. Inc. participation in the AHRI Certification program. For verification of individual certified products, go to ahridirectory.org.

Trane - by Trane Technologies (NYSE: TT), a global innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

Trane has a policy of continuous product and product data improvements and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

CERTIFICACION

Ref: CONTRATO DE OBRA POR EL SISTEMA DE PRECIOS UNITARIOS FIJOS PARA REALIZAR EL SUMINISTRO E INSTALACIÓN DE AIRES ACONDICIONADOS CONFORME A COTIZACIÓN, EN CUMPLIMIENTO Y EJECUCION DEL CONTRATO N° BGA-044-2024 celebrado entre el CONSORCIO INFRAESTRUCTURA A&V y CONSEJO SUPERIOR DE JUDICATURA, DIRECCIÓN SECCIONAL DE ADMINISTRACIÓN JUDICIAL BUCARAMANGA

JOSE DANIEL RODRIGUEZ MORA con cedula de ciudadanía No. 1.093.774.594, representante legal del establecimiento de comercio ENERGY BROTHER S.A.S con NIT. 901.872.228-1 certifica que el CONSORCIO INFRAESTRUCUTRA A&V identificación con NIT 901.863.382 se encuentra a PAZ Y SALVO en obligaciones con esta empresa.

Cordialmente,



JOSE DANIEL RODRIGUEZ MORA

Representante legal
EBRO CLIMA Y ENERGIA



CERTIFICACION

YULY ANDREA MONROY JIMENEZ con cedula de ciudadanía No. 1.098.743.599, representante legal del establecimiento de comercio ANVAR CONSTRUCCIONES S.A.S con NIT. 901.649.112 certifica que el CONSORCIO INFRAESTRUCUTRA A&V identificación con NIT 901.863.382 se encuentra a PAZ Y SALVO en obligaciones con esta empresa y que en el tiempo en el que se mantuvo la relación comercial se caracterizó por su responsabilidad y cumplimiento.

Cordialmente,

YULY ANDREA MONROY JIMENEZ
Representante legal
ANVAR CONSTRUCCIONES S.A.S.
NIT 901.649.112

Paz y Salvo Laboral

En ANVAR CONSTRUCCIONES SAS, con NIT 901649112, ubicada en CL 83 # 58 - 37, a través de la presente se expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: DEIBY GIOVANNY PEREZ DIAZ

Cédula de ciudadanía: 1098823056

Cargo desempeñado: AUXILIAR DE OBRA

Fecha de ingreso: 17 DIC 2024

Fecha de retiro:

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

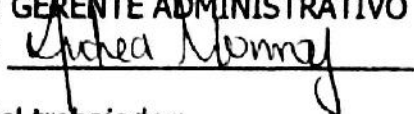
1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal (EPP):** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes.

Firma del representante legal de la empresa:

Nombre: YULY ANDREA MONROY JIMENEZ

Cargo: GERENTE ADMINISTRATIVO

Firma: 

Firma del trabajador:

Nombre: DEIBY GIOVANNY PEREZ DIAZ

Firma: 

Paz y Salvo Laboral

En ANVAR CONSTRUCCIONES SAS, con NIT 901649112, ubicada en CL 83 # 58 - 37, a través de la presente se expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: DEYBI YAHIR MONROY RODRIGUEZ

Cédula de ciudadanía: 1095811846

Cargo desempeñado: OFICIAL DE OBRA

Fecha de ingreso: 23 DIC 2024

Fecha de retiro:

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

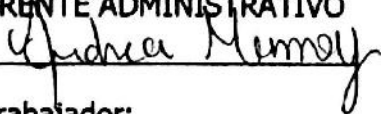
1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal (EPP):** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes.

Firma del representante legal de la empresa:

Nombre: YULY ANDREA MONROY JIMENEZ

Cargo: GERENTE ADMINISTRATIVO

Firma: 

Firma del trabajador:

Nombre: DEYBI YAHIR MONROY RODRIGUEZ

Firma: 

Paz y Salvo Laboral

En ANVAR CONSTRUCCIONES SAS, con NIT 901649112, ubicada en CL 83 # 58 - 37, a través de la presente se expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: MIGUEL ANGEL ROMERO ROMERO

Cédula de ciudadanía: 1096193789

Cargo desempeñado: AUXILIAR DE OBRA

Fecha de ingreso: 19 DIC 2024

Fecha de retiro:

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal (EPP):** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes.

Firma del representante legal de la empresa:

Nombre: YULY ANDREA MONROY JIMENEZ

Cargo: GERENTE ADMINISTRATIVO

Firma: Yuly Andrea Monroy Jimenez

Firma del trabajador:

Nombre: MIGUEL ANGEL ROMERO ROMERO

Firma: Miguel Angel Romero

Paz y Salvo Laboral

En ANVAR CONSTRUCCIONES SAS, con NIT 901649112, ubicada en CL 83 # 58 - 37, a través de la presente se expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: MARLON ANDRES MOSQUERA CASTRO

Cédula de ciudadanía: 1098713857

Cargo desempeñado: OFICIAL DE OBRA

Fecha de ingreso: 18 DIC 2024

Fecha de retiro:

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

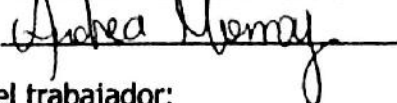
1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal (EPP):** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes.

Firma del representante legal de la empresa:

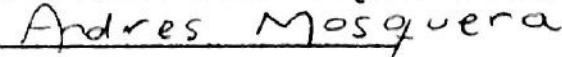
Nombre: YULY ANDREA MONROY JIMENEZ

Cargo: GERENTE ADMINISTRATIVO

Firma: 

Firma del trabajador:

Nombre: MARLON ANDRES MOSQUERA CASTRO

Firma: 

Paz y Salvo Laboral

En ANVAR CONSTRUCCIONES SAS, con NIT 901649112, ubicada en CL 83 # 58 - 37, a través de la presente se expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: ANDRES MAURICIO VARGAS AYALA

Cédula de ciudadanía: 1095929680

Cargo desempeñado: MAESTRO DE OBRA

Fecha de ingreso: 02 OCT 2024

Fecha de retiro:

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

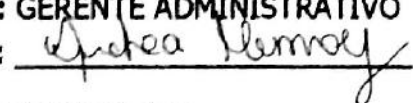
1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal (EPP):** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes.

Firma del representante legal de la empresa:

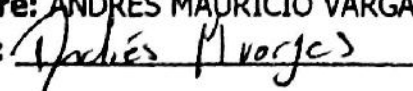
Nombre: YULY ANDREA MONROY JIMENEZ

Cargo: GERENTE ADMINISTRATIVO

Firma: 

Firma del trabajador:

Nombre: ANDRES MAURICIO VARGAS AYALA

Firma: 

Paz y Salvo Laboral

En CONSORCIO INFRAESTRUTURA A&V , con NIT 901863382-1, ubicada en la calle 9 4-19 Ofi. 603, a través de la presente se expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: ALEXANDER RAMIREZ MARQUEZ

Cédula de ciudadanía: 77.179.645

Cargo desempeñado: RESIDENTE DE OBRA

Fecha de ingreso: 27 DE SEPTIEMBRE DE 2025

Fecha de retiro: 30 ABRIL DE 2025

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal (EPP):** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes.

Firma del representante legal de la empresa:

Nombre: FRANCISCO JAVIER VILLANUEVA

Cargo: GERENTE

Firma:  _____

Firma del trabajador:

Nombre: ALEXANDER RAMIREZ MARQUEZ

 _____

Firma: _____

CERTIFICACIÓN

OSCAR ALEXANDER JEREZ LIZCANO, identificado con cedula de ciudadanía 91.527.892 expedida en Bucaramanga, Representante Legal del establecimiento de comercio LA CASA DEL MULTIMUEBLE S.A.S. con Nit: 901.085.828 - 4, debidamente inscrito en la cámara de comercio de Bucaramanga, certifica que la empresa CORSORCIO INFRAESTRUCTURA A&V identificado con Nit: 901863382-1 se encuentra a PAZ y SALVO en obligaciones con esta empresa y que durante el tiempo en el cual se mantuvo relación comercial se caracterizó por su responsabilidad y cumplimiento.

Se expide a solicitud del interesado a los 02 días del mes de mayo del año 2025.



OSCAR ALEXANDER JEREZ LIZCANO

Representante Legal

LA CASA DEL MULTIMUEBLE S.A.S.

901.085.828 - 4

Bucaramanga, Santander, Colombia

Paz y Salvo Laboral

El Consorcio Infraestructura A&V, con NIT 901.863.382-1, ubicada en la Ciudad de Neiva en el Edificio las Américas, a través de la presente expide el siguiente Paz y Salvo a favor de:

Nombre del trabajador: Elva Viviana Ramírez Leal

Cédula de ciudadanía: 63.506.940

Cargo desempeñado: Tecnóloga SST

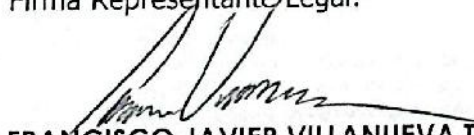
Periodo laborado: 01 Octubre al 30 Diciembre de 2024 – Del 04 de Febrero al 02 De Abril de 2025.

Se certifica que el trabajador ha cumplido con todas las obligaciones laborales que le competen y la empresa ha cumplido con sus responsabilidades, específicamente en lo siguiente:

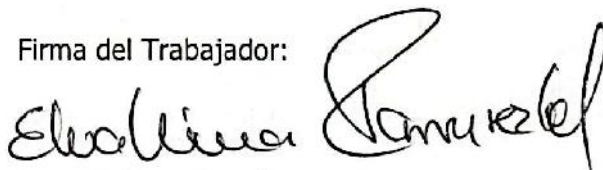
1. **Salario:** La empresa ha pagado de manera puntual y completa el salario correspondiente al trabajador, según lo establecido en su contrato de trabajo y conforme a la legislación vigente, hasta la fecha de su retiro.
2. **Seguridad Social:** La empresa ha cumplido con el pago oportuno de los aportes a seguridad social, incluyendo pensión, salud y riesgos laborales, conforme a lo estipulado en la normatividad colombiana.
3. **Entrega de Equipos de Protección Personal Y Dotación:** La empresa ha entregado de manera adecuada y oportuna los equipos de protección personal necesarios para la seguridad y bienestar del trabajador durante el desempeño de sus funciones, y ha recibido la correspondiente firma de recepción de los mismos.

Por lo anterior, se expide este Paz y Salvo para que surta los efectos legales correspondientes el día 15 de Abril de 2025.

Firma Representante Legal:


FRANCISCO JAVIER VILLANUEVA TOVAR
C.C. 12.370.591 de Rivera Huila
R.L CONSORCIO INFRAESTRUCTURA A&V
NIT. 901.863.382-1

Firma del Trabajador:


Elva Viviana Ramírez Leal
C.C. 63.506.940
SST. 63506940 B/ra.



CONTIENE:

SISTEMA DE AIRE
ACONDICIONADO

DISEÑÓ:

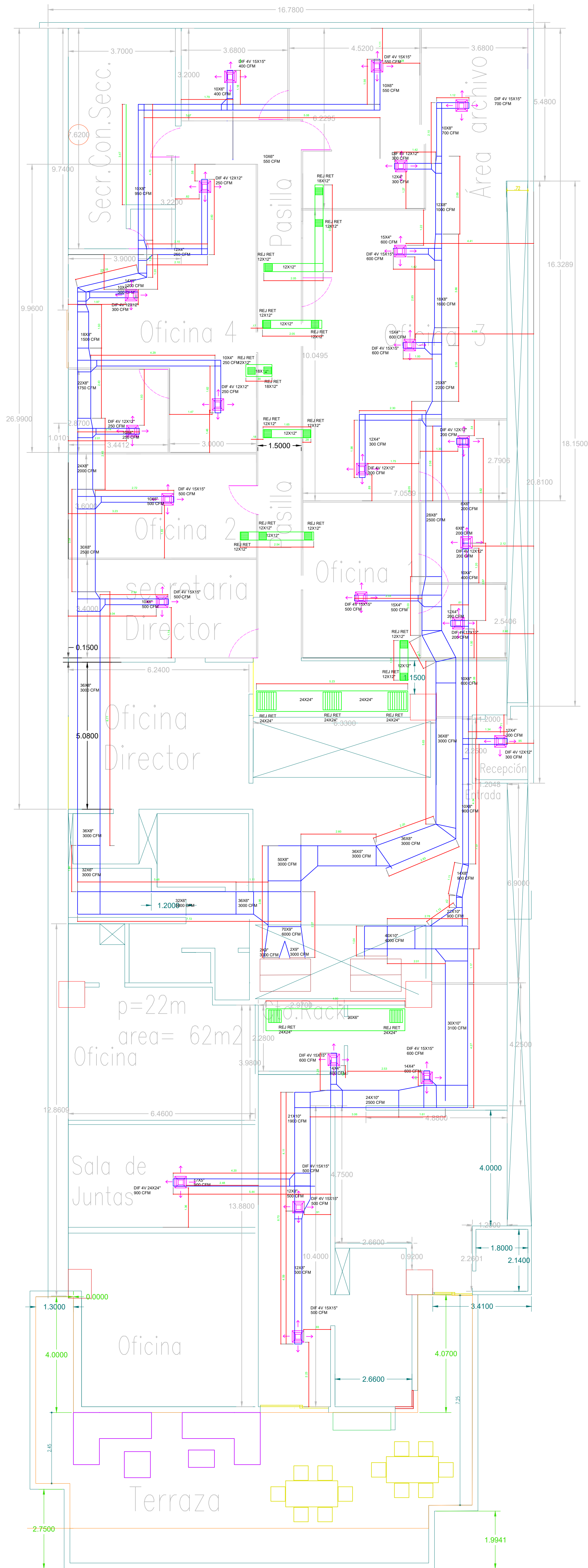
Ing. JOSE RODRIGUEZ

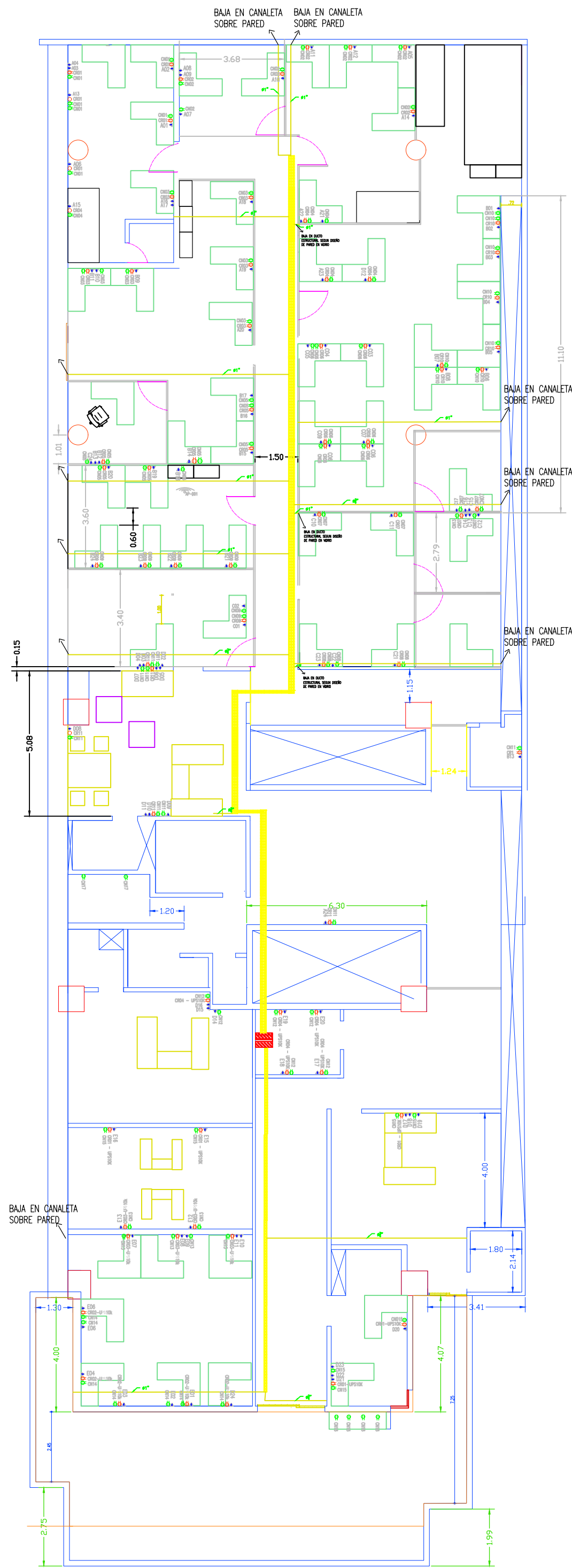
NOTAS:

FECHA: 28/01/2025

ESCALA 1:75

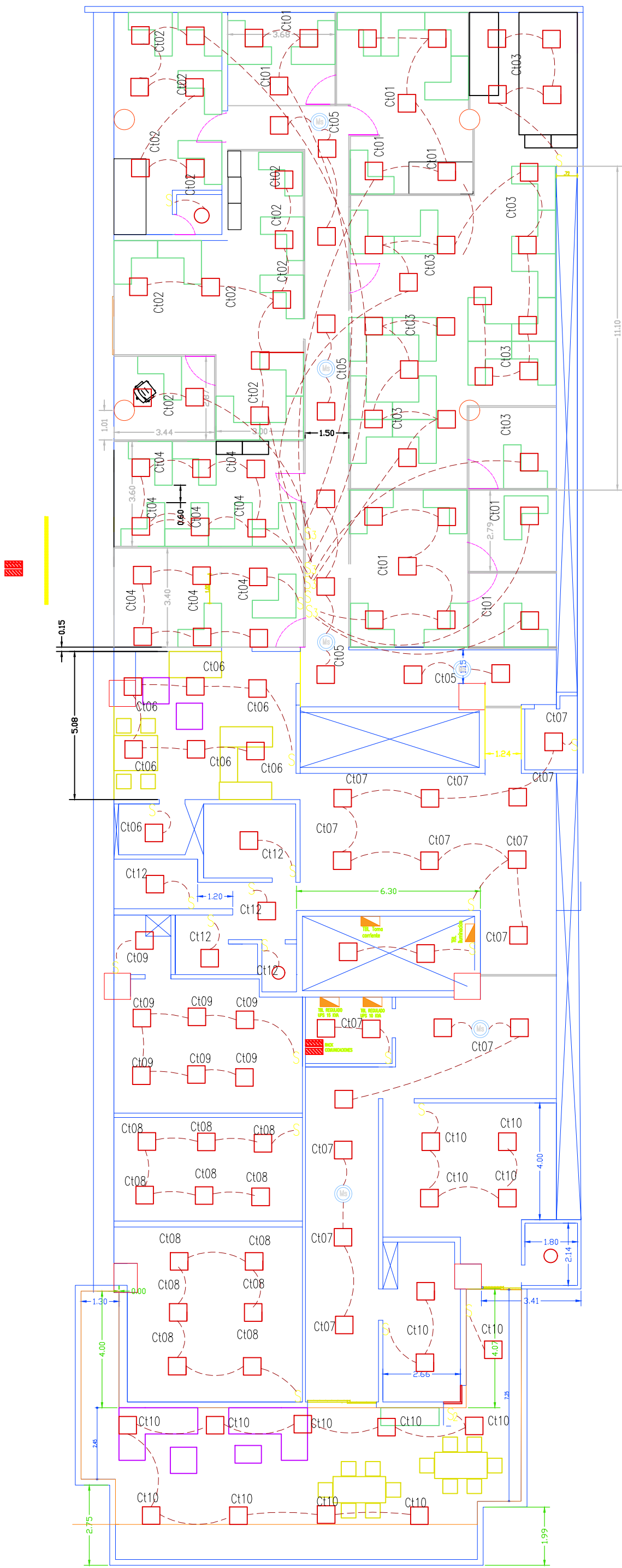
PLANO No.
1 DE 1





PLANO DE RED DATOS

	71
	11
	19



PLANO DE ILUMINACIÓN



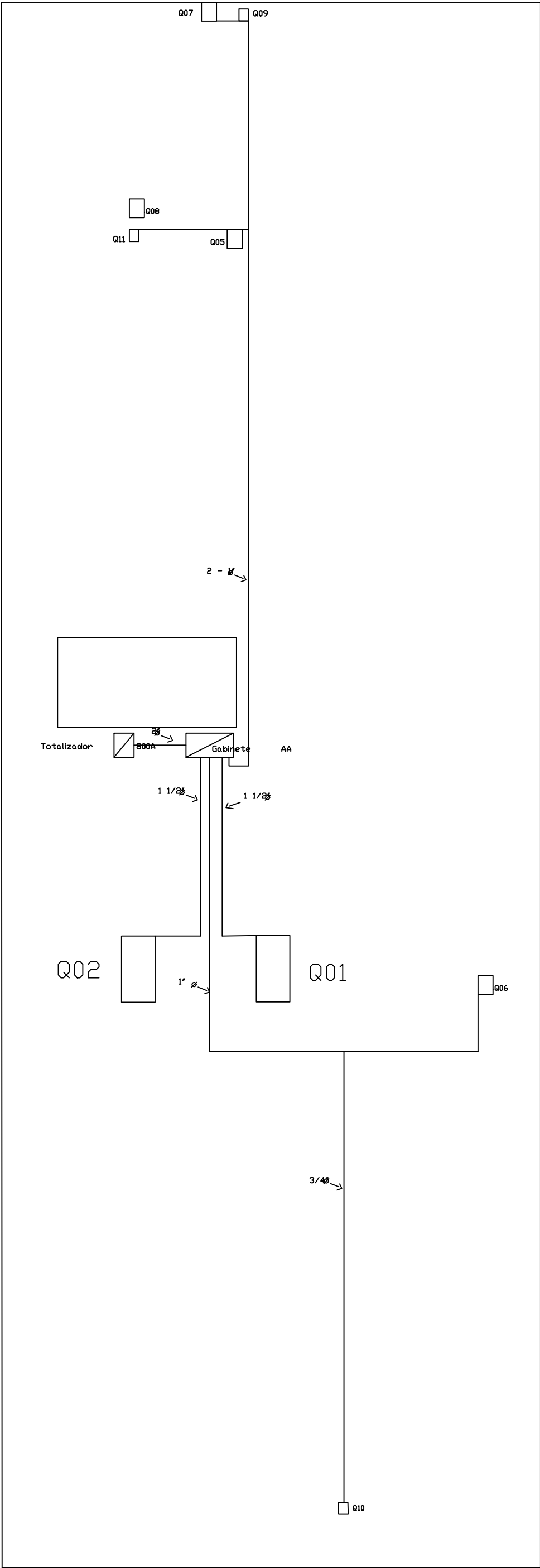
PROYECTO: PALACIO DE JUSTICIA
DE VILLAVICENCIO
META
LOCALIZACIÓN: CARRERA 11 No. 34- 52; 5° PISO.

CONTIENE: PLANO DE REDES DE DATOS Y PLANO DE ILUMINACION

DISEÑO: ALIRIO ZULETA YATE
INGENIERO ELECTRICISTA
CL205: 120520
MATRICULA PROF:

PROPIETARIO: MUNICIPIO DE BUCARAMANGA
CONSTRUCTOR: CONSORCIO INFRAESTRUCTURA A&V

FECHA DE ACTUALIZACIÓN	DESCRIPCIÓN DEL CAMBIO	LOGO	DIGITALIZÓ:	CÓDIGO DEL PLANO:
XXXXXXXXXXXX	ACTUALIZACION DE XXXXXXXXXXXX			PLANOS RECORD_BGA.dwg
				VERSIÓN: 2
				ESCALA:
				PLANCHA:
			FECHA IMPRESIÓN:	1_100 1 DE 2



PLANO DE ILUMINACIÓN

DIAGRAMA UNIFILAR

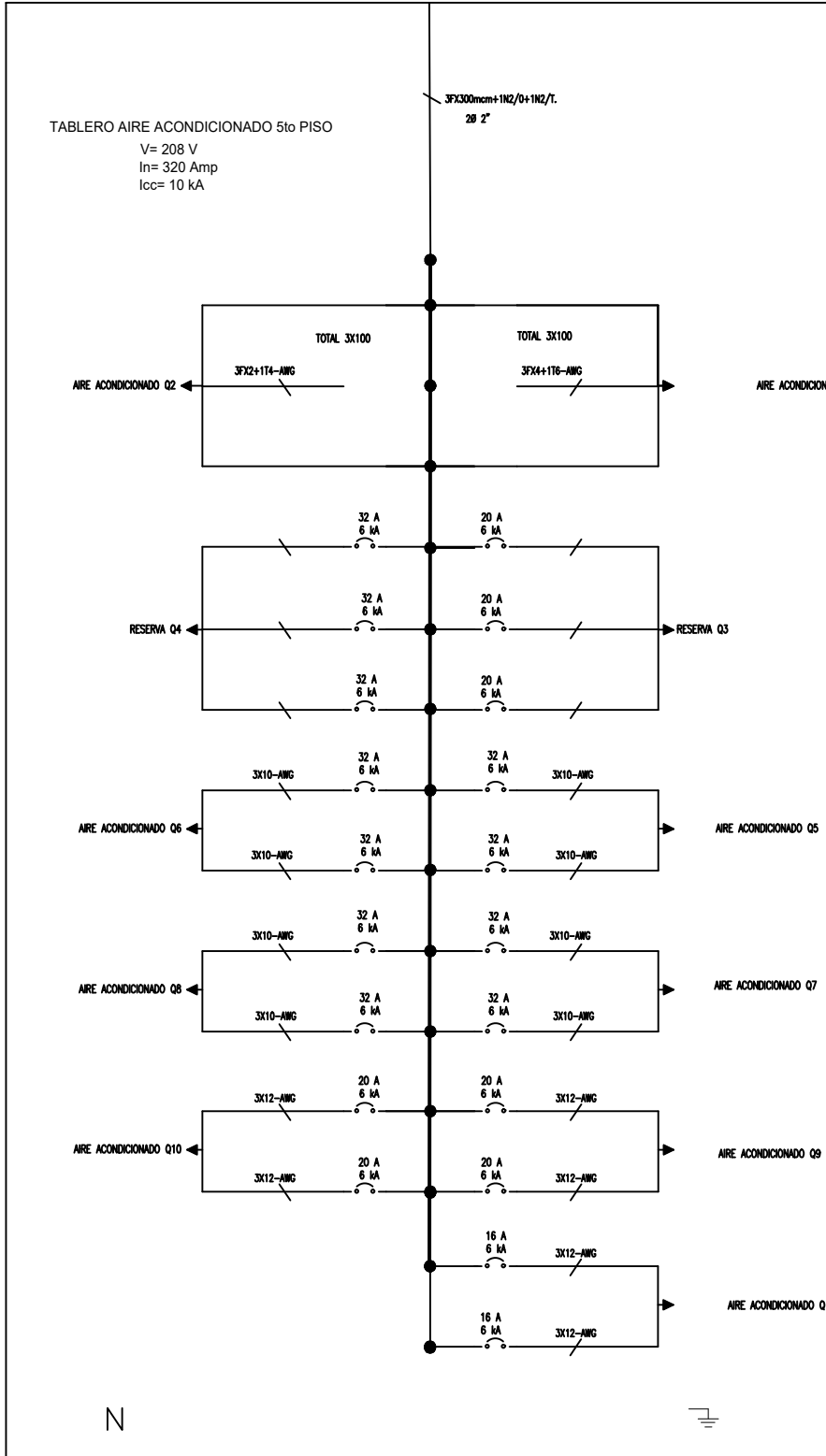
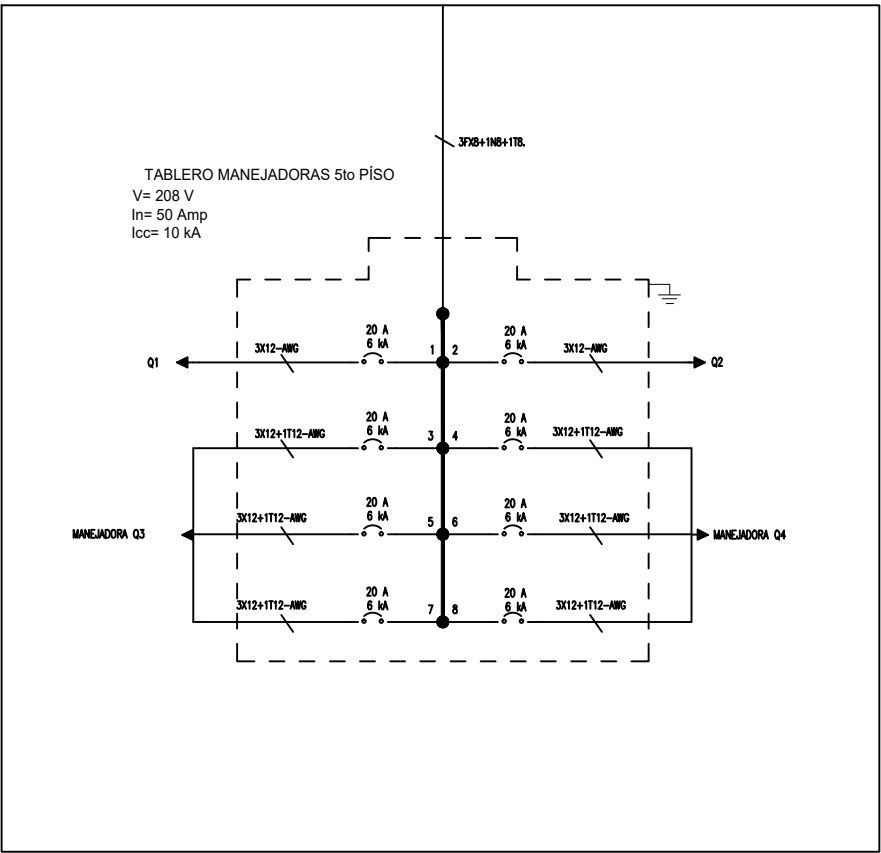
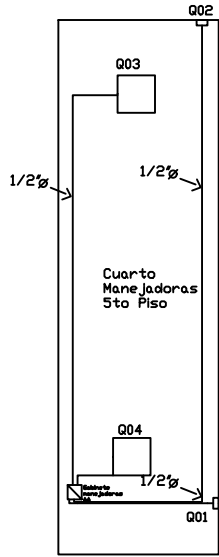
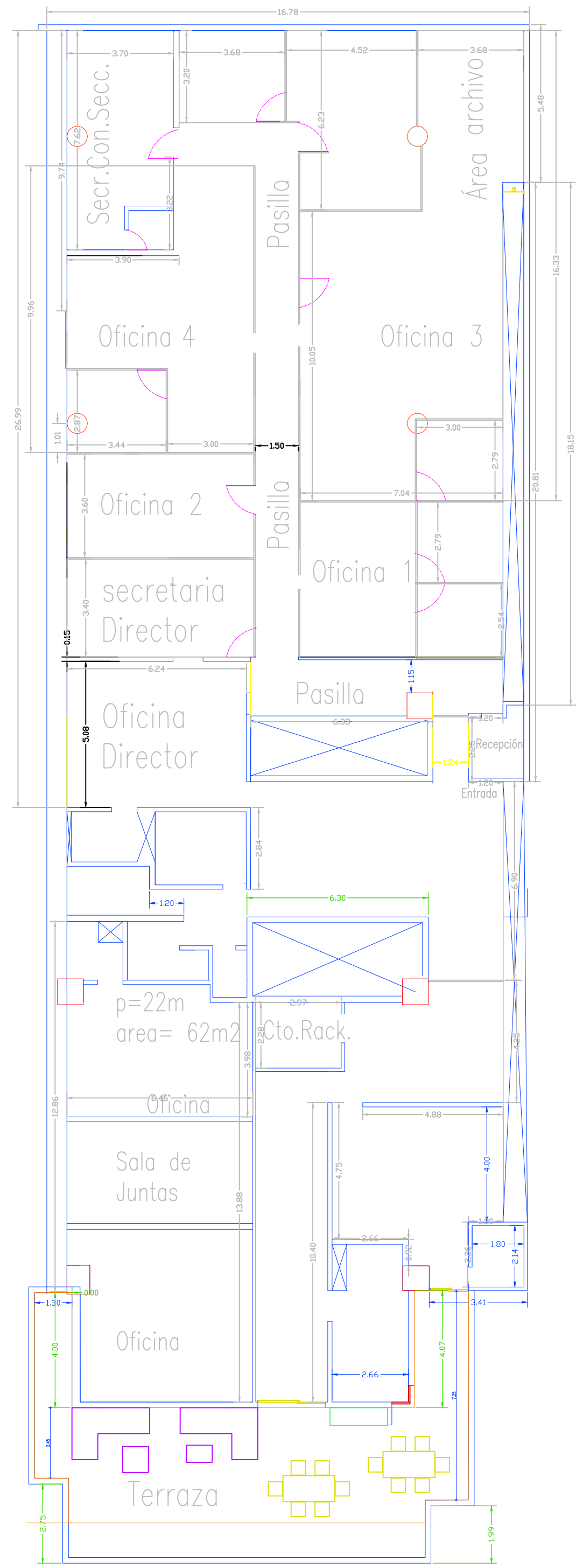


DIAGRAMA UNIFILAR TABLERO MANEJADORAS 5to PISO



PROYECTO: PALACIO DE JUSTICIA DE VILLAVICENCIO META				
LOCALIZACIÓN: CARRERA 11 No. 34- 52; 5º PISO.				
CONTIENE: PLANO DE ACOMETIDA ELÉCTRICA DE SISTEMA VRF				
DISEÑO: ALIRIO ZULETA YATE INGENIERO ELECTRICISTA CL205: 120520 MATRÍCULA PROF:			PROPIETARIO: MUNICIPIO DE BUCARAMANGA CONSTRUCTOR: CONSORCIO INFRAESTRUCTURA	
FECHA DE ACTUALIZACIÓN	DESCRIPCIÓN DEL CAMBIO	LOGO	DIGITALIZÓ:	CÓDIGO DEL PLANO: PLANOS RECORD_BGA.dwg
XXXXXXXXXXXXXX	ACTUALIZACION DE XXXXXXXXXXXX		FECHA IMPRESIÓN:	VERSIÓN: 2
				ESCALA:
				PLANCHA:
			1_100	2 DE 2



PLANO PLANTA DISTRIBUCIÓN DE OFICINAS



PROYECTO: PALACIO DE JUSTICIA
DE VILLAVICENCIO
META
LOCALIZACIÓN: CARRERA 11 No. 34- 52; 5° PISO.

CONTIENE: PLANO DE DISTRIBUCIÓN DE OFICINAS

PROPIETARIO: MUNICIPIO DE BUCARAMANGA
CONSTRUCTOR: CONSORCIO INFRAESTRUCTURA A&V

CL205: 120520
MATRÍCULA PROF:

FECHA DE ACTUALIZACIÓN
XXXXXXXXXXXXXX

DESCRIPCIÓN DEL CAMBIO
ACTUALIZACION DE XXXXXXXXXXXX

LOGO

DIGITALIZÓ:

FECHA IMPRESIÓN:

CÓDIGO DEL PLANO:
PLANOS RECORD_BGA.dwg

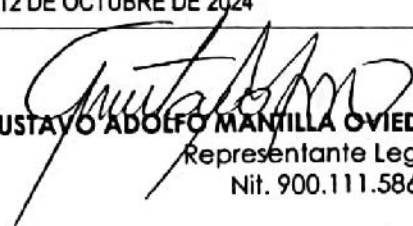
VERSIÓN: 2

ESCALA:
1_100

PLANCHA:
1 DE 1

CONSTANCIA DE DISPOSICIÓN FINAL DE RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN
No. BOT314-1807

DATOS BÁSICOS DEL GESTOR	
Número único asignado para el gestor por parte de la autoridad ambiental por proyecto	
Gestor	DISPOSICIÓN FINAL
DATOS BÁSICOS DEL GENERADOR	
Número único asignado para el generador por parte de la autoridad ambiental competente por proyecto	
Nombre o razón social	CONSORCIO INFRAESTRUCTURA A&V
Documento de identificación o NIT	901.863.382-1
Representante Legal	FRANCISCO JAVIER VILLANUEVA TOVAR
Dirección domicilio	CALLE 19 No. 4 - 19 OFICINA 603, NEIVA HUILA
Teléfono	315 8487874
Correo electrónico	consorcioinfraestructuraav@gmail.com
Dirección de generación de RCD	CRA 11 No. 34 - 52 FASE II ALCALDIA DE BUCARAMANGA PISO 5 CONSEJO SUPERIOR DE JUDICATURA RAMA JUDICIAL
CANTIDADES DE RCD RECIBIDOS DEL GENERADOR POR TIPO	
Tipo de Residuo	Cantidad de RCD recibidos del generador (t)
1. Residuos de construcción y demolición - RCD susceptibles de aprovechamiento:	
1.1 Productos de excavación y sobrantes de la adecuación del terreno: coberturas vegetales, tierras, limos y materiales pétreos productos de la excavación, entre otros.	
1.2 Productos de cimentaciones y pilotajes: arcillas, bentonitas y demás.	
1.3 Pétreos: hormigón, arenas, gravas, gravillas, cantos, pétreos asfálticos, trozos de ladrillos y bloques, cerámicas, sobrantes de mezcla de cementos y concretos hidráulicos, entre otros.	
1.4 No pétreos: vidrio, metales como acero, hierro, cobre, aluminio, con o sin recubrimiento de zinc o estaño, plásticos como: PVC, polietileno, policarbonato, acrílico, espumas de poliestireno y de poliuretano, gomas y cauchos, madera y compuestos de madera, cartón-yeso (drywall), entre otros.	22,4 t
2. Residuos de construcción y demolición - RCD no susceptibles de aprovechamiento:	
2.2. Los que por su estado no pueden ser aprovechados.	
Total RCD recibidos (t)	22,4 t
Fecha de recepción de los RCD	12 DE OCTUBRE DE 2024


GUSTAVO ADOLFO MANTILLA OVIEDO
 Representante Legal
 Nit. 900.111.586-5

Nota: 1m3 equivale a 1,4t

* Certificado ajustado a la Resolución 1257 de 2021

**CONSTANCIA DE DISPOSICIÓN FINAL DE RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN
No. BOT270-1813**

DATOS BÁSICOS DEL GESTOR	
Número único asignado para el gestor por parte de la autoridad ambiental por proyecto	
Gestor	DISPOSICIÓN FINAL
DATOS BÁSICOS DEL GENERADOR	
Número único asignado para el generador por parte de la autoridad ambiental competente por proyecto	
Nombre o razón social	CONSORCIO INFRAESTRUCTURA A&V
Documento de identificación o NIT	901.863.382-1
Representante Legal	FRANCISCO JAVIER VILLANUEVA TOVAR
Dirección domicilio	CALLE 19 No. 4 - 19 OFICINA 603, NEIVA HUILA
Teléfono	315 8487874
Correo electrónico	consorcioinfraestructuraav@gmail.com
Dirección de generación de RCD	CRA 11 No. 34 - 52 FASE II ALCALDIA DE BUCARAMANGA PISO 5 CONSEJO SUPERIOR DE JUDICATURA RAMA JUDICIAL
CANTIDADES DE RCD RECIBIDOS DEL GENERADOR POR TIPO	
Tipo de Residuo	Cantidad de RCD recibidos del generador (t)
1. Residuos de construcción y demolición - RCD susceptibles de aprovechamiento:	
1.1 Productos de excavación y sobrantes de la adecuación del terreno: coberturas vegetales, tierras, limos y materiales pétreos productos de la excavación, entre otros.	
1.2 Productos de cimentaciones y pilotajes: arcillas, bentonitas y demás.	
1.3 Pétreos: hormigón, arenas, gravas, gravillas, cantos, pétreos asfálticos, trozos de ladrillos y bloques, cerámicas, sobrantes de mezcla de cementos y concretos hidráulicos, entre otros.	
1.4 No pétreos: vidrio, metales como acero, hierro, cobre, aluminio, con o sin recubrimiento de zinc o estaño, plásticos como: PVC, polietileno, policarbonato, acrílico, espumas de poliestireno y de poliuretano, gomas y cauchos, madera y compuestos de madera, cartón-yeso (drywall), entre otros.	6,4 t
2. Residuos de construcción y demolición - RCD no susceptibles de aprovechamiento:	
2.2. Los que por su estado no pueden ser aprovechados.	
Total RCD recibidos (t)	6,4 t
Fecha de recepción de los RCD	19 DE OCTUBRE DE 2024

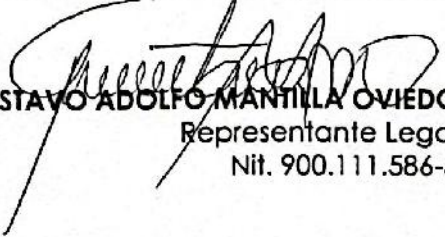

GUSTAVO ADOLFO MANTILLA OVIEDO
 Representante Legal
 Nit. 900.111.586-5

Nota: 1m3 equivale a 1.6t

* Certificado ajustado a la Resolución 1257 de 2021

**CONSTANCIA DE DISPOSICIÓN FINAL DE RESIDUOS DE CONSTRUCCIÓN Y DEMOLICIÓN
No. BOT314-2103**

DATOS BÁSICOS DEL GESTOR	
Número único asignado para el gestor por parte de la autoridad ambiental por proyecto	
Gestor	DISPOSICIÓN FINAL
DATOS BÁSICOS DEL GENERADOR	
Número único asignado para el generador por parte de la autoridad ambiental competente por proyecto	
Nombre o razón social	CONSORCIO INFRAESTRUCTURA A&V
Documento de identificación o NIT	901.863.382-1
Representante Legal	FRANCISCO JAVIER VILLANUEVA TOVAR
Dirección domicilio	CALLE 19 No. 4 - 19 OFICINA 603, NEIVA HUILA
Teléfono	315 8487874
Correo electrónico	consorcioinfraestructuraav@gmail.com
Dirección de generación de RCD	CRA 11 No. 34 - 52 FASE II ALCALDÍA DE BUCARAMANGA PISO 5 CONSEJO SUPERIOR DE JUDICATURA RAMA JUDICIAL
CANTIDADES DE RCD RECIBIDOS DEL GENERADOR POR TIPO	
Tipo de Residuo	Cantidad de RCD recibidos del generador (t)
1. Residuos de construcción y demolición - RCD susceptibles de aprovechamiento:	
1.1 Productos de excavación y sobrantes de la adecuación del terreno: coberturas vegetales, tierras, limos y materiales pétreos productos de la excavación, entre otros.	
1.2 Productos de cimentaciones y pilotajes: arcillas, bentonitas y demás.	
1.3 Pétreos: hormigón, arenas, gravas, gravillas, cantos, pétreos asfálticos, trozos de ladrillos y bloques, cerámicas, sobrantes de mezcla de cementos y concretos hidráulicos, entre otros.	11,2 t
1.4 No pétreos: vidrio, metales como acero, hierro, cobre, aluminio, con o sin recubrimiento de zinc o estaño, plásticos tales como: PVC, polietileno, policarbonato, acrílico, espumas de poliestireno y de poliuretano, gomas y cauchos, madera y compuestos de madera, cartón-yeso (drywall), entre otros.	
2. Residuos de construcción y demolición - RCD no susceptibles de aprovechamiento:	
2.2. Los que por su estado no pueden ser aprovechados.	
Total RCD recibidos (t)	11,2 t
Fecha de recepción de los RCD	17 DE DICIEMBRE DEL 2024


GUSTAVO ADOLFO MANTILLA OVIEDO
 Representante Legal
 Nit. 900.111.586-5

Nota: 1m3 equivale a 1,6t

* Certificado ajustado a la Resolución 1257 de 2021