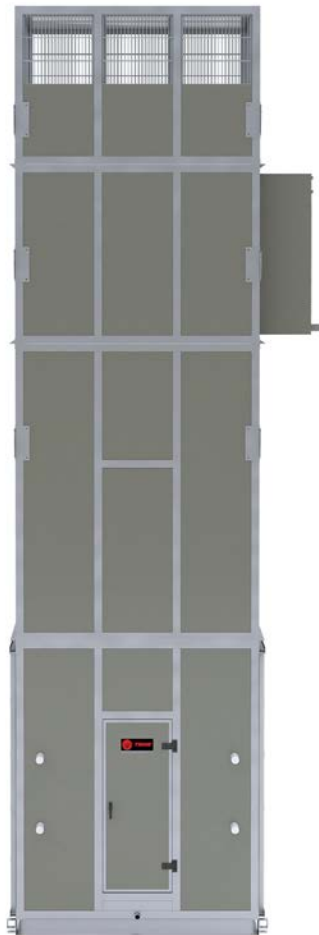




Product Catalog

Air Rotation Unit (ARU)



Indoor Unit



Introduction

Trane Air Rotation Units (ARU)

Trane air rotation units are the ideal solution for heating and cooling large open spaces. Air rotation units are the perfect product for conditioning warehouses, fulfillment centers, and manufacturing facilities.

Air rotation units eliminate stratification, eliminate roof tops units, reduce building structural steel, lower maintenance and energy costs, and provide complete temperature control.

Additional Air Rotation Benefits

- Elimination of RTUs
- Less structural support on roof
- Units maintained at floor level: coils and filters
- Limited unit static = Lower fan BHP
- Even temperatures in space for valuable product
- Eliminates maintenance and installation associated with ductwork
- Available in four cabinet sizes: A, B, C, D

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Features and Benefits

Standard Features

- Indoor Units
- 4,000 to 108,000 CFM Range
- Chilled Water or DX Cooling
- Indirect Fired Gas Heat
- Direct Drive Propeller Fans
- Two Inch Foam Panel Construction
- Aluminum Tubular Framing
- Sloped Drain Pans to ensure complete condensate removal for IAQ
- Single Point Power
- Fully integrated, Factory-installed, and Commissioned controls
- Trane Variable Frequency Drive
- Hinged Access Doors

Other Benefits

- Outdoor Units
- Outside Air Conditioned Through the ARU
- Economizer Operation
- Additional Heating Options
- Custom Filtration for IAQ
- Custom Unit Heights
- Airfoil Supply Air Diffusers
- Stainless Steel Sloped Drain Pan
- DDC Controls
- Painted Exterior – Custom Colors



Model Number Description

Digits 1, 2, 3 - Unit Model

ARU = Air Rotation Unit

Digit 4, 5 - Design Sequence

AA

Digits 6 - Base Size

A = 5 x 5

B = 9 x 7

C = 13 x 7

D = 17 x 7

Z = Custom

Digit 7, 8, 9 - KCFM

Digit 10 - Mode

C = Cooling

H = Heating

B = Both

Digits 11, 12, 13, 14 - MBH

Digit 15 - Indoor/Outdoor

I = Indoor

O = Outdoor

Digit 16 - Voltage

A = 208V/230V

B = 460V

C = 575V

Digit 17 - Coil Type

1 = CW

2 = DX

Digit 18, 19, 20 - Tonnage

Digit 21 - Fan Size

1 = 36"

2 = 54"

C = Custom

Digit 22 - Fan Quantity

Digit 23 - Controls Options

0 = None

1 = Stand Alone

2 = DDC

Digit 24 - Dampers

0 = None

1 = Econo Split

2 = Full Eco

3 = OA

Digit 25 - Grilles

S = Stamped

A = Airfoil

D = Ducted

Digit 26 - Discharge Module

0 = No

1 = Yes

Digit 27 - Paint

0 = No

1 = Yes

Digit 28 - Drain Pan

G = Galvanized

S = Stainless

Digit 29 - Filter Type

A = 2" MERV 8

B = 2" MERV 13

C = Custom

Digit 30- Grill Config

1

2

3

4

Digit 31 - Unit Height

A = 17' Cooling only

B = 25'

C = Custom

Digits 32-39

Reserved for future expansion

Digit 40

0 = N/A

S = Design Special



Performance Data

Table 1. Heating and cooling cabinet (A)

Cooling Performance	
Cooling Type	CW or DX
Tonnage Range (Tons)	See Factory
Number of Coils	See Factory
Fan Performance	
Fan Type	See Factory
CFM Range	See Factory
Number of Fans	See Factory
Number of VFDs	See Factory
Fan Horse Power Range (per fan)	See Factory
Fan Diameter (per fan)	See Factory
Heating Performance	
Heater Type	Indirect
Number of Heaters (minimum/maximum)	1 to 2
Gas Type	LP or NG
Turndown (minimum/maximum)	2:1 / 4:1
Heating Input (minimum/maximum)	200 / 200
Filters	
Type Furnished	MERV 8
Filter Dimensions	25" W x 16" H x 2" D
Electrical (Based on Heating and Cooling Unit)	
MCA (minimum/maximum) 460v	See Factory
MOP (minimum/maximum) 460v	See Factory
MCA (minimum/maximum) 208v	See Factory
MOP (minimum/maximum) 208v	See Factory

Table 2. Heating and cooling cabinet (B)

Cooling Performance	
Cooling Type	CW or DX
Tonnage Range (Tons)	80 to 160
Number of Coils	2
Fan Performance	
Fan Type	Direct Drive Prop
CFM Range	25,000 to 54,000
Number of Fans	1
Number of VFDs	1
Fan Horse Power Range (per fan)	20 to 30 HP
Fan Diameter (per fan)	36" or 54"
Heating Performance	
Heater Type	Indirect
Number of Heaters (minimum/maximum)	2 to 3
Gas Type	LP or NG
Turndown (minimum/maximum)	4:1 to 15:1
Heating Input (minimum/maximum)	1200 / 1800
Filters	
Type Furnished	MERV 8
Filter Dimensions	25" W x 16" H x 2" D
Electrical (Based on Heating and Cooling Unit)	
MCA (minimum/maximum) 460v	39 / 57
MOP (minimum/maximum) 460v	60 / 90
MCA (minimum/maximum) 208v	82 / 125
MOP (minimum/maximum) 208v	125 / 200



Performance Data

Table 3. Heating and cooling cabinet (C)

Cooling Performance	
Cooling Type	CW or DX
Tonnage Range (Tons)	160 to 240
Number of Coils	2
Fan Performance	
Fan Type	Direct Drive Prop
CFM Range	55,000 to 86,000
Number of Fans	2
Number of VFDs	2
Fan Horse Power Range (per fan)	20 to 25 HP
Fan Diameter (per fan)	36" or 54"
Heating Performance	
Heater Type	Indirect
Number of Heaters (minimum/maximum)	4 to 5
Gas Type	LP or NG
Turndown (minimum/maximum)	20:1 to 25:1
Heating Input (minimum/maximum)	2400 / 3000
Filters	
Type Furnished	MERV 8
Filter Dimensions	25" W x 16" H x 2" D
Electrical (Based on Heating and Cooling Unit)	
MCA (minimum/maximum) 460v	76 / 96
MOP (minimum/maximum) 460v	90 / 110
MCA (minimum/maximum) 208v	164 / 212
MOP (minimum/maximum) 208v	200 / 250

Table 4. Heating and cooling cabinet (D)

Cooling Performance	
Cooling Type	CW or DX
Tonnage Range (Tons)	240 to 300
Number of Coils	2
Fan Performance	
Fan Type	Direct Drive Prop
CFM Range	87,000 to 108,000
Number of Fans	2
Number of VFDs	2
Fan Horse Power Range (per fan)	25 to 30 HP
Fan Diameter (per fan)	36" or 54"
Heating Performance	
Heater Type	Indirect
Number of Heaters (minimum/maximum)	6
Gas Type	LP or NG
Turndown (minimum/maximum)	20:1 to 30:1
Heating Input (minimum/maximum)	3600
Filters	
Type Furnished	MERV 8
Filter Dimensions	25" W x 16" H x 2" D
Electrical (Based on Heating and Cooling Unit)	
MCA (minimum/maximum) 460v	96 / 111
MOP (minimum/maximum) 460v	110 / 125
MCA (minimum/maximum) 208v	212 / 245
MOP (minimum/maximum) 208v	250 / 300



Dimensions

Heating and Cooling Cabinet (B)

Figure 1. Indoor heat and cool

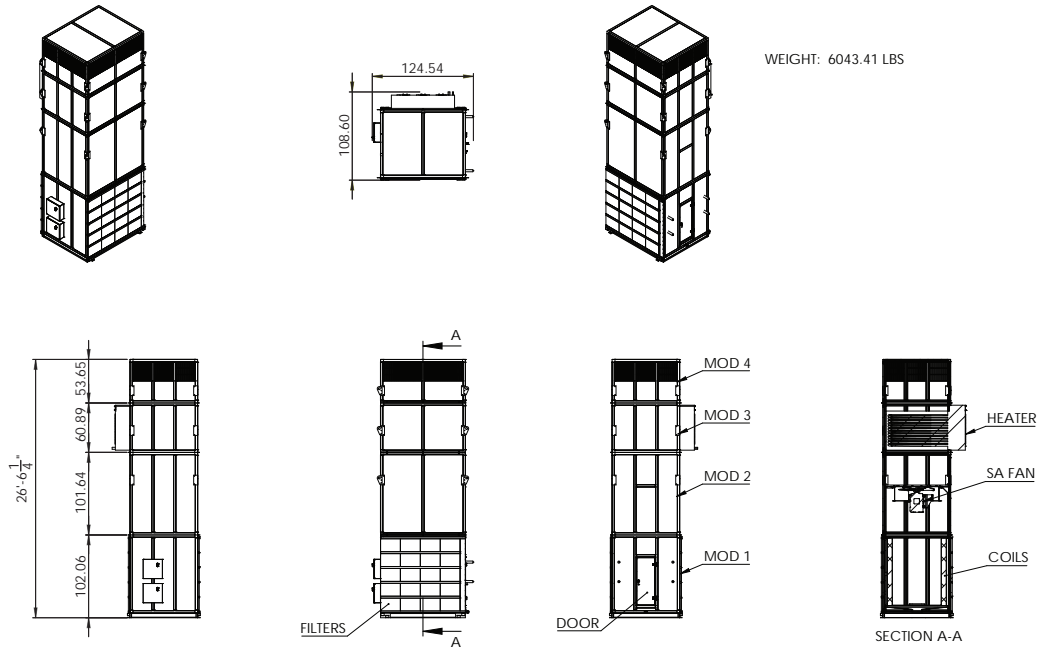
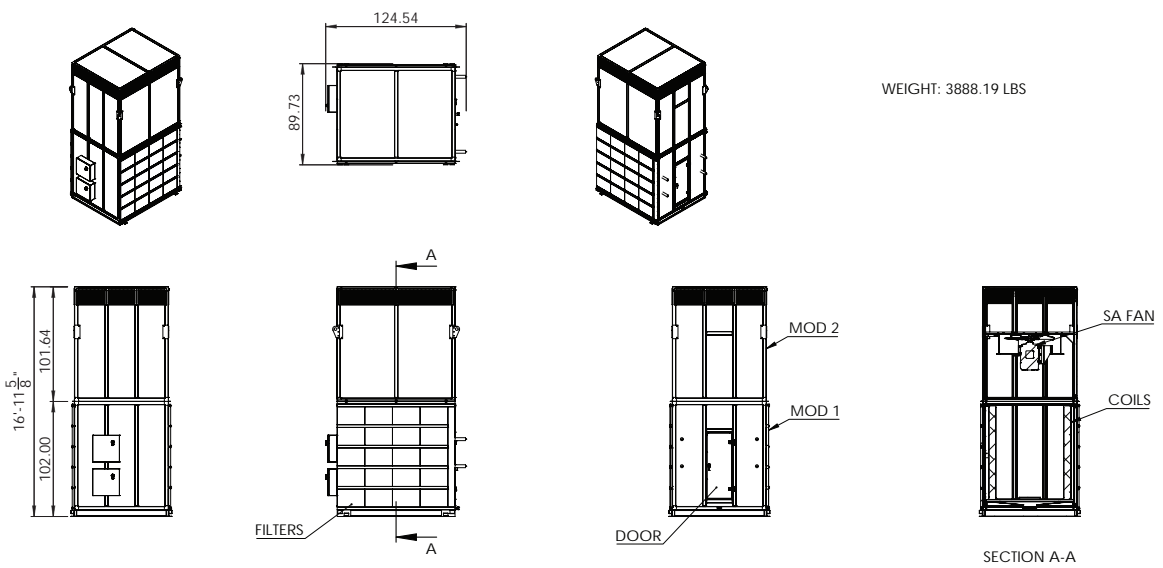


Figure 2. Indoor cooling



Note: Standard dimensions shown. Spacer modules available for extended unit heights with 2, 6, and 10 feet options.

Heating and Cooling Cabinet (C)

Figure 3. Indoor heat and cool

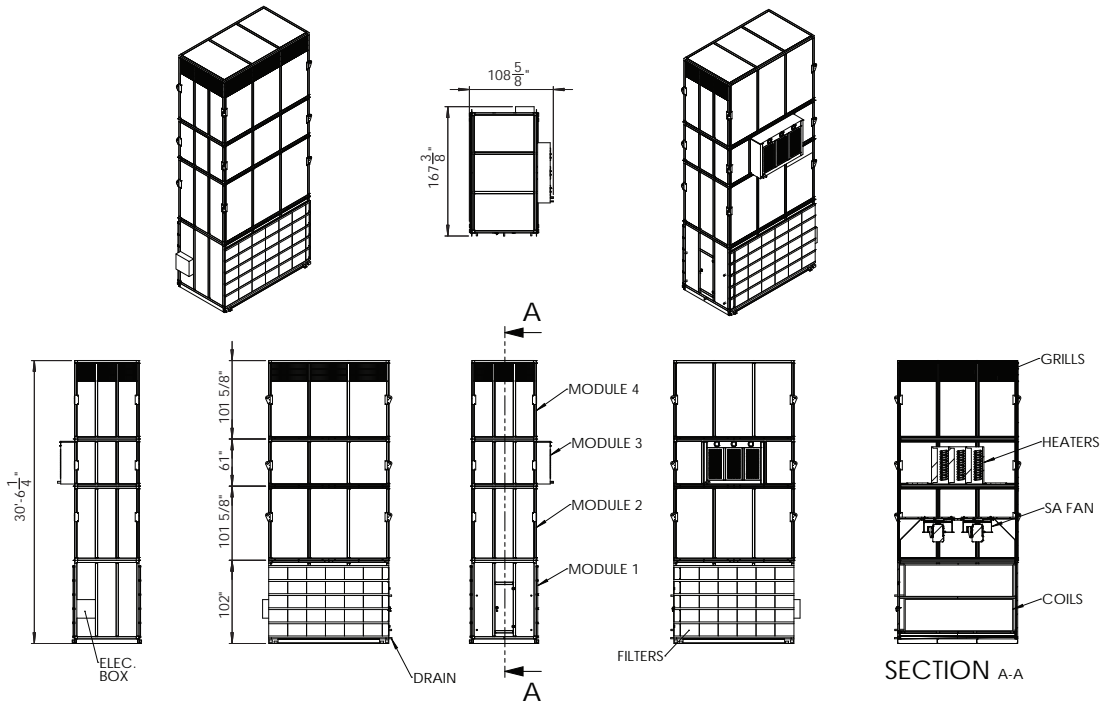
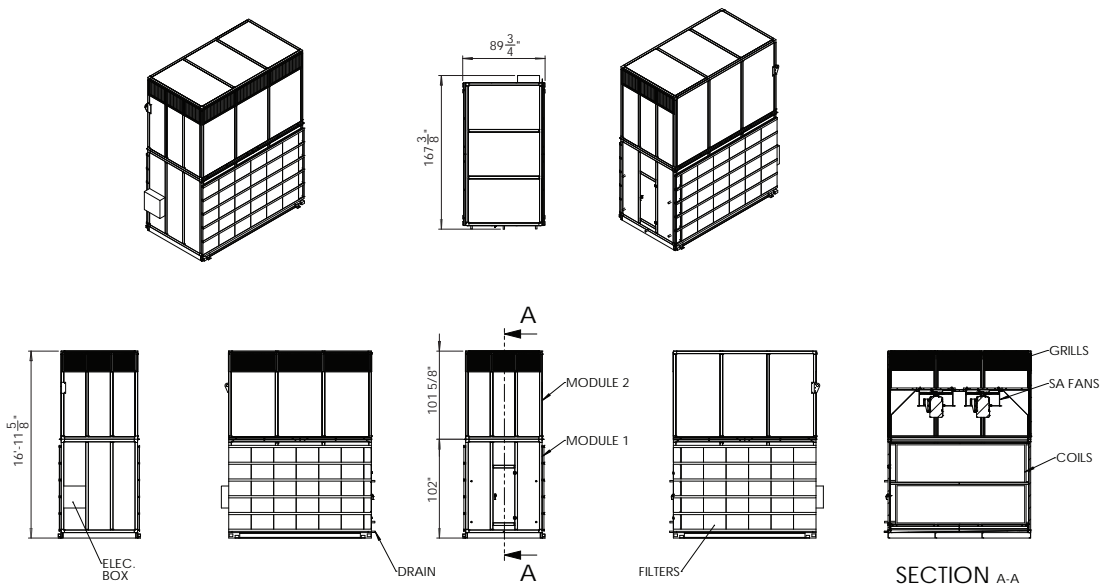


Figure 4. Indoor cooling



Note: Standard dimensions shown. Spacer modules available for extended unit heights with 2, 6, and 10 feet options.

Heating and Cooling Cabinet (D)

Figure 5. Indoor heat and cool

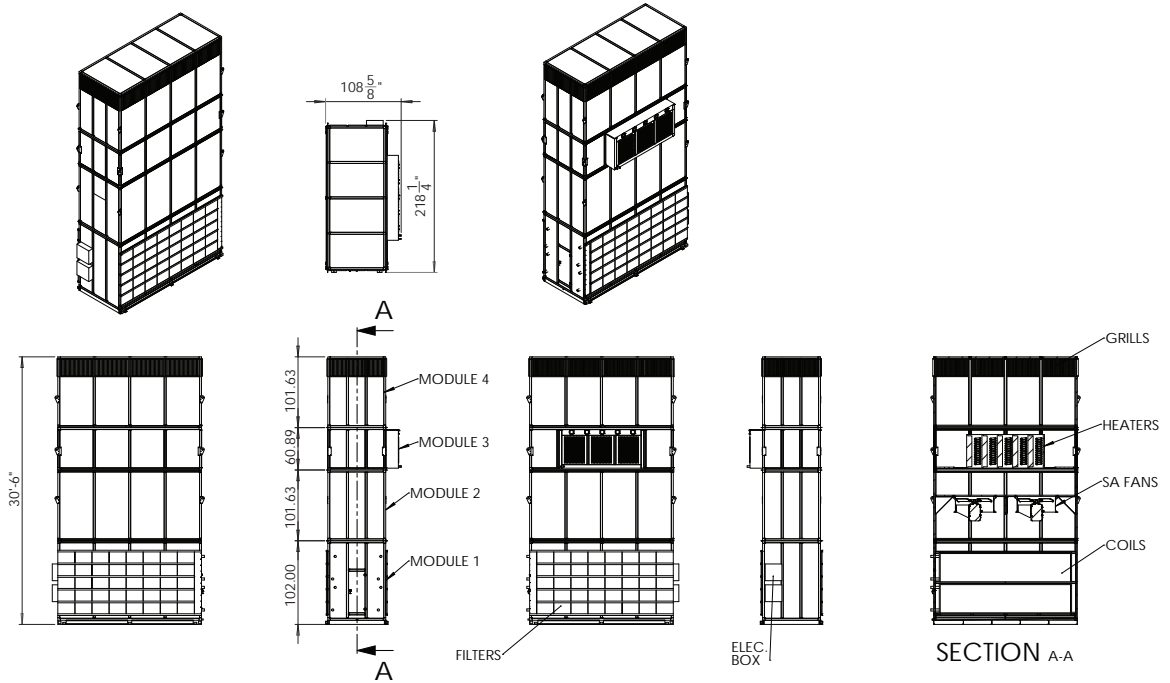
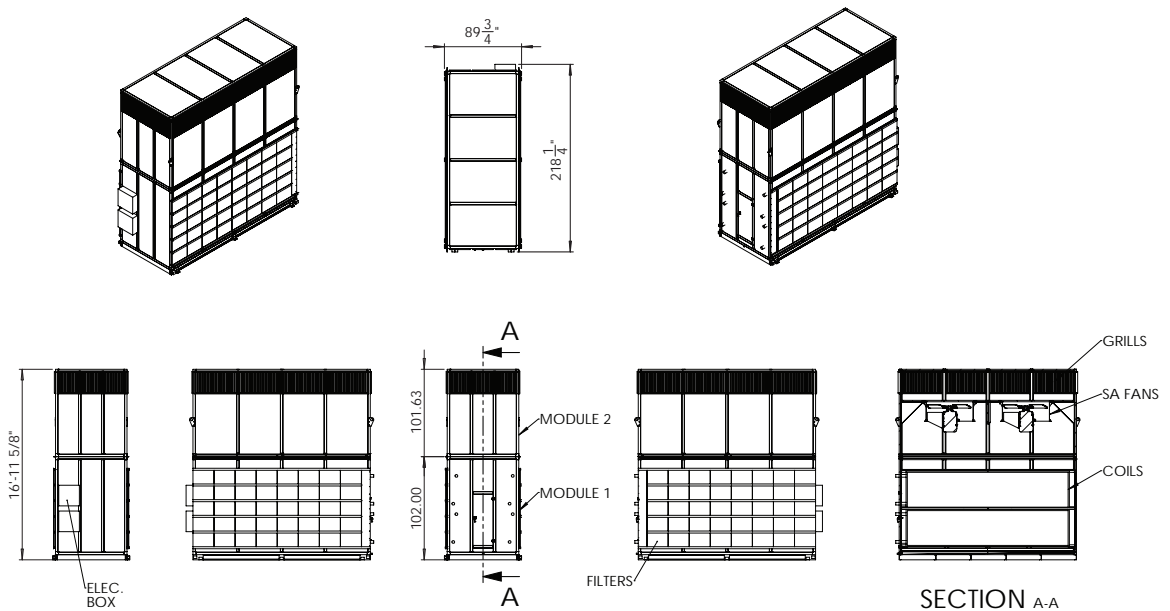


Figure 6. Indoor cool



Note: Standard dimensions shown. Spacer modules available for extended unit heights with 2, 6, and 10 feet options.



Weights

Table 1. ARU heating and cooling weights (based on catalog drawing)

Model Number	Total Unit Weights - Cooling Only	Total Unit Weight (lbs) - Heating and Cooling
ARU A	See Factory	See Factory
ARU B	4,889	6,044
ARU C	6,630	10,273
ARU D	8,800	13,420



Mechanical Specifications

General

ARU Construction Section Includes:

- Cabinet
 - Access Doors
 - Structural Base
- Propeller Fans
 - Motors
 - VFD
- Chilled Water Coils
- DX Coils
- Gas Heaters
- Dampers
- Filters
- Air Distribution Grilles
- Controls

Cabinet

- Unit structure is constructed of an extruded aluminum tubular framing system.
- Structural panel construction consists of a 2-inch thick insulating foam core with R-14 insulation value surrounded on both sides by water resistant stabilizers sandwiched between aluminum sheets with an exterior painted finish.

Access Doors

The unit access doors are constructed of the same insulating panels as the rest of the unit and are designed to match the construction of the unit. Access doors are hinged and swing out for proper access. A secondary safety door will be installed if immediate danger is present past the access door. The safety door shall require tools to bypass.

Structural Bases

The unit base frame is constructed from structural steel c-channel around the entire perimeter of the unit and is provided with intermediate structural steel members, channel, and angle iron as required to support all internal components. All tubing, channel, lift lugs, and angle joints are metal inert gas welded.

Propeller Fans

- Direct drive propeller fans for increased efficiency.
- Aluminum anti-sparking blades.
- Dynamic balancing as an assembly.

Motors

Direct drive propeller fans are provided with high efficiency totally enclosed, fan-cooled (TEFC) electric motors.

Variable Frequency Drives (VFDs)

Propeller fans are equipped with Trane vfd's. Integral disconnect and primary fusing. Variable frequency drives and are tested in the factory for reliable startup.

Chilled Water Coils

- Chilled water coils are of the aluminum plate ripple fin 0.006 inches extended surface rated in accordance with AHRI 410 for water, steam, or ethylene/propylene glycol water mixture. The tubes are 5/8 inch and have a minimum 0.017-inch wall thickness or 1/2 inch tube 0.016 wall thickness. Seamless copper expanded into the fin collars to provide a permanent mechanical bond. Coil headers shall be non-ferrous seamless copper, and provided with brass or copper pipe connections. Each coil is provided with capped vent and drain connections. All coils are fully drainable with no trapped tubes.
- Coil casings are G90 galvanized steel with formed 1-1/2 inch flanges on all sides of the coil.
- All coils are leak tested under water at 350 psig and rated for 250 psig working pressures.
- Coil supply and return piping connections extending through the cabinet wall is sealed by rubber grommets with caulking on the exterior of the casing.

DX Coils

- The tubes are 1/2 inch tube with 0.016 wall thickness. Coil casings are G90 galvanized steel with formed 1-1/2 inch flanges on all sides of the coil with the tube sheets having pressed or extruded tube holes. The coil casing is reinforced so that the maximum unsupported length is 44 inches. The reinforcements are of the same material as the casing.
- All coils are safety listed with 750 psig rating.
- Coil supply and return piping connections extending through the cabinet wall are sealed by rubber grommets with caulking on the exterior of the casing. Coils shipped with dry nitrogen holding charge to prevent moisture intrusion and verify leak free arrival.

Indirect Fired Gas Heaters (In-shot Burners)

- Indirect fired heaters will have 80% minimum thermal efficiency and incorporate listed Gas-fired components. The duct furnace models are listed by Intertek Testing Services (ITS/ETL) for operation on natural or propane gas to the current edition of ANSI Z83.8 Standard for Gas-Fired Duct Furnaces. Duct furnaces are for installation on the positive pressure side of the circulating air blower only.
- The duct furnace module employs an aluminized steel cabinet with 1-inch thick thermal insulation for exterior cabinets, stainless steel tubular heat exchanger assembly, and a combustion blower to provide positive venting of flue gas.
- Air pressure switches to prove air supply for combustion before operation of the gas valve. Patented in-shot gas burners with integral carryovers and direct spark ignition of the gas burners with remote flame sensor to prove carryover across all burners.
- Duct furnace modules are listed for application downstream of refrigeration and cooling systems and provides means for removal of condensate that occurs in the tubes during cooling operation. Heat exchanger tubes (integral formed dimpled restrictors; formed turbulators) provides for an unobstructed drainage path and a positive pitch to promote condensate drainage. Drainage is configured so that burners and burner surfaces are not exposed to condensate.

Dampers

- Standard dampers are opposed blade actuated spring return galvanized frames.
- Low leakage up to 5-inch differential pressure.
- Velocity up to 3000 fpm.
- -40°F to 250°F operating range.
- Stainless jam seals.
- TPE blade seals.

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