

Tranquility® Console (TRC) Series

Submittal Data

Models TRC09-18 60Hz - HFC-410A



LC386

Rev.: June 6, 2023



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TRC Console Series



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THE TRANQUILITY® CONSOLE (TRC) SERIES

The Tranquility® Console (TRC) Series unit provides a high efficiency WSHP “ductless” solution for spaces where individual, quiet control of the heating and cooling system is important. Tranquility TRC units are especially ideal where ceiling height and space are limited, or when preserving the integrity of an existing structure. The Tranquility TRC exceeds ASHRAE 90.1 efficiencies, yet maintains small cabinet dimensions. Using EarthPure® HFC-410A refrigerant, the Tranquility TRC not only protects the environment, it does so while delivering unprecedented comfort, efficiency, and reliability.

Available in sizes 3/4 ton (2.64 kW) through 1-1/2 tons (5.3 kW) with numerous cabinet, water piping and control choices, the Tranquility TRC offers a wide range of units for most any installation. The Tranquility TRC has an extended range refrigerant circuit, capable of ground loop (geothermal) applications as well as water loop (boiler-tower) applications. Standard features are many. Microprocessor controls, galvanized steel cabinet, polyester powder coat paint and TXV refrigerant metering device are just some of the features of the flexible Tranquility TRC.

Compressors are mounted on specially engineered sound-tested EPDM grommets for quiet operation. Options such as coated air coil, DDC controls, internal pump and factory-installed water solenoid valves allow customized design solutions.

iGate® 2 technology provides technicians an interface into the operation of the system in real time without the need for hard tooling. On board advanced controls communicate the key operating system temperatures enabling technicians to start-up, commission, and service the equipment remotely by smart phone or website via the cloud. Communication can also be done at the unit via a communicating thermostat or handheld service tool. Not only does iGate 2 monitor current performance, it also allows the functionality to make system adjustments and captures operating conditions at time of fault. All this information is displayed in an easy to read format maximizing the usability of the experience.

The Tranquility Console (TRC) Series console water-source heat pumps are designed to meet the challenges of today’s HVAC demands with a low cost/high value “ductless” solution.

Features, Options and Accessories

FEATURES

- Sizes 09 (3/4 ton, 2.64 kW) through 18 (1-1/2 ton, 5.3 kW)
- Environmentally-friendly EarthPure® (HFC-410A) zero ozone depletion refrigerant
- High Efficiency Rotary compressors
- Exceeds ASHRAE 90.1 efficiencies
- iGate® 2 Communicating Controls Powered by CXM2
 - Multiple communication pathways,
 - o Cloud-based connectivity via iGate 2 Wi-Fi communicating color touch screen thermostat for remote monitoring, access, and diagnosis. Including the new functionality for contractors/building engineers to monitor and make mass changes on multi-unit systems
 - o Connect directly to the system with use of a handheld service tool
 - Provides real-time unit operating conditions
 - Reduces start-up, commissioning, and service time by removing the need for hard tooling to take temperature measurements
 - Captures operating conditions in the event of a safety shutdown
- Two-piece chassis/cabinet design
- Galvanized steel cabinet with durable Polar Ice powder coat finish
- Slope top/aluminum rigid bar supply air grille
- TXV metering device
- Microprocessor controls with 8 standard safeties
- Right or left-hand piping arrangement
- Front or bottom return air configuration
- Unit Performance Sentinel performance monitoring system

OPTIONS

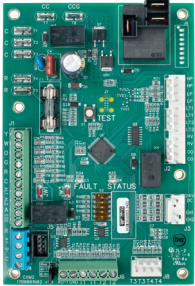
- Unit subbase with black matte finish
 - Available with or without fresh air motorized damper
- UltraQuiet sound attenuation package
- Digital auto change-over unit mounted controls with temperature display and high/low fan speed selection
- Remote-mounted controls
- Advanced DXM2.5 communicating controller
- BACnet (MSTP), Modbus and Johnson N2 compatibility options for DDC controls
- Unit integrated power disconnect
- Easy to clean rust prohibitive stainless steel drain pans
- Extended range insulation for geothermal applications
- Auto flow regulators that limit water flow to the unit preventing system over pumping
- Two-way motorized water valves that prevent water flow through the unit when it is not in operation increasing system pumping efficiency
- Internally mounted water pump for single pipe systems
- Corrosive resistant cupro-nickel water heat exchanger
- E-Coated air coils for added protection
- 115/60/1 voltage
 - With or without 20 AMP plug and cord
- Locking control door
- No cabinet, chassis only replacements
- Extended cabinets

ACCESSORIES

- Louvered, painted black “matte” finish subbase decorative grille for field-installation.
- Accessory subbases

iGate[®] 2 Communicating Controls Powered by CXM2

iGate[®] 2 Communication – Cloud connected, web-enabled information gateway to monitor, control, and diagnose your system



Tranquility[®] Console (TRC) Series is equipped with industry-first, iGate[®] 2 communication information gateway that allows users to interact with their water-source system in easy to read clear language.

Monitor/Configure – Installers can configure from the myUplink PRO website, mobile app, iGate 2

Communicating (AWC) Thermostat, or diagnostic tool, including: Unit family, size, accessory configuration, and demand reduction (optional, to limit unit operation during peak times). Users can look up the current system status: temperature sensor readings and operational status of the blower.

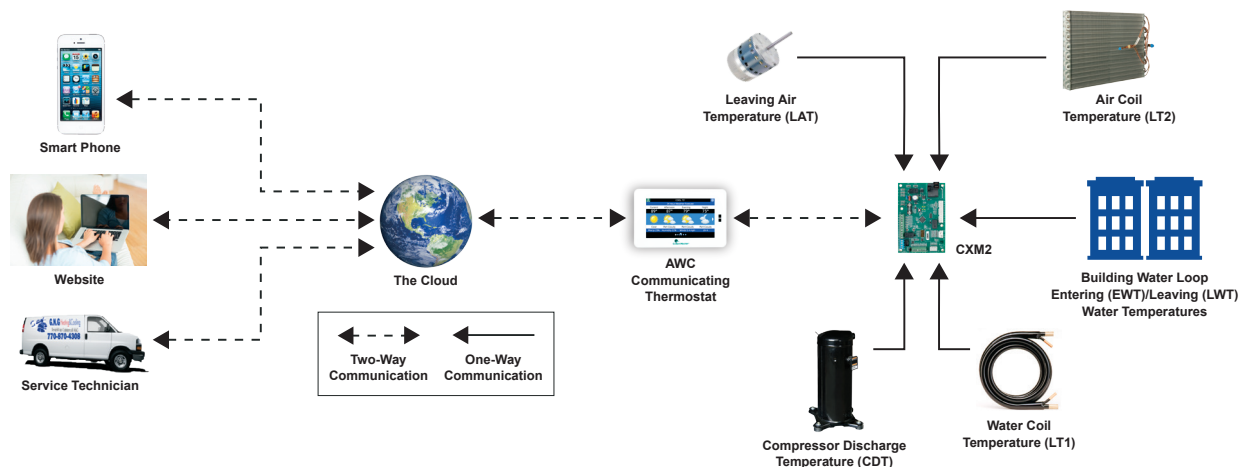
Precise Control – The new CXM2 board enables intelligent, 2-way communication between the CXM2 board and smart components like the communicating thermostat and diagnostic tool. The advanced CXM2 board uses information received from the temperature sensors to precisely control operation to deliver high efficiency, reliability and increased comfort.

Diagnostics – iGate 2 takes diagnosing water source heat pump units to a next level of simplicity, by providing a dashboard of system and fault information, in clear language, on the AWC Communicating Thermostat, handheld service tool and the web portal/mobile app on the internet.

iGate 2 Thermostat Service Warnings notify the homeowner and contractor of a fault and displays fault descriptions by app notifications/email with possible causes. Additionally, the current system status can be viewed graphically on the web portal and mobile app.

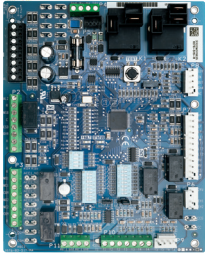
In iGate 2 Service Mode, the service personnel can access fault description, possible causes and most importantly, the conditions (temp, flow, i/o conditions, configuration) at the time of the fault. Manual Operation mode allows the service personnel to manually command operation for any of the thermostat outputs, blower speed, to help troubleshoot specific components. This operation can either be conducted at the unit with a communicating thermostat/diagnostic tool or remotely with mobile app/website when the AWC Communicating Thermostat controls are used.

With an iGate 2 communicating system, users and contractors have a web-enabled gateway to system information never before available and exclusive to ClimateMaster products.



iGate® 2 Communicating Controls Powered by DXM2.5

iGate® 2 Communication – Cloud connected, web-enabled information gateway to monitor, control, and diagnose your system



Tranquility® Console (TRC) Series is equipped with industry-first, iGate® 2 communication information gateway that allows users to interact with their water-source system in easy to read clear language AND delivers improved reliability/efficiency by precisely controlling smart components.

Monitor/Configure – Installers can configure from the myUplink PRO website, mobile app, iGate 2 Communicating AWC Thermostat, or diagnostic tool, including: unit family, size, accessory configuration, and demand reduction (optional, to limit unit operation during peak times). Users can look up the current system status: temperature sensor readings and operational status of the blower.

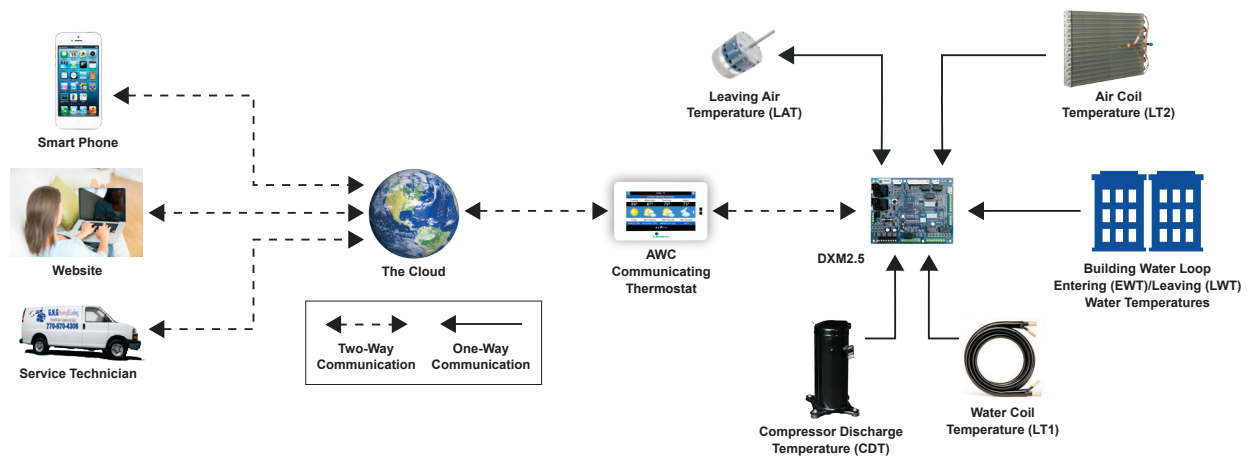
Precise Control – The new DXM2.5 board enables intelligent, 2-way communication between the DXM2.5 board and smart components like the communicating thermostat/diagnostic tool. The advanced DXM2.5 board uses information received from the temperature sensors to precisely control operation to deliver high efficiency, reliability and increased comfort.

Diagnostics – iGate 2 takes diagnosing water source heat pump units to a next level of simplicity, by providing a dashboard of system and fault information, in clear language, on the AWC Communicating Thermostat, handheld service tool and the web portal/mobile app on the internet.

iGate 2 Thermostat Service Warnings notify the homeowner and contractor of a fault and displays fault descriptions by app notifications/email with possible causes. Additionally, the current system status can be viewed graphically on the web portal and mobile app.

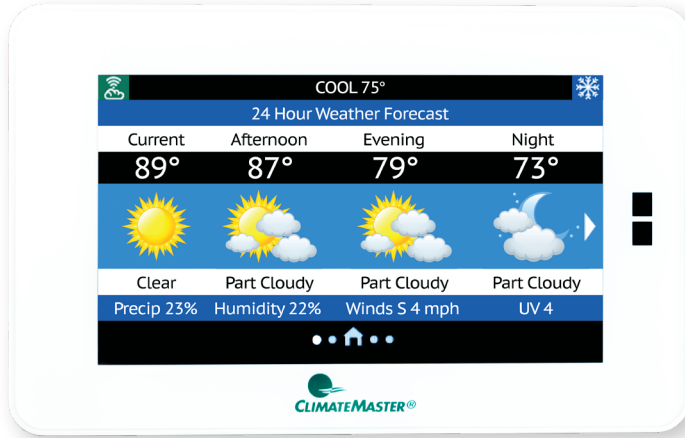
In iGate 2 Service Mode, the service personnel can access fault description, possible causes and most importantly, the conditions (temp, flow, i/o conditions, configuration) at the time of the fault. Manual Operation mode allows the service personnel to manually command operation for any of the thermostat outputs, blower speed, to help troubleshoot specific components. This operation can either be conducted at the unit with a communicating thermostat/diagnostic tool or remotely with mobile app/website when the AWC Communicating Thermostat controls are used.

With an iGate 2 communicating system, users and contractors have a web-enabled gateway to system information never before available and exclusive to ClimateMaster products.



iGate® 2 Communicating (AWC) Thermostat

iGate® 2 Communication – Cloud connected, web-enabled information gateway to monitor, control, and diagnose your system



The iGate® 2 Communicating (AWC) Thermostat is innovating the future of comfort technology, one building at a time. The inspired design of the touch screen interface allows you to see real-time data for the efficiency and health of your system, with early warnings for potential system faults. The cloud based information gateway allows technicians to remotely diagnose system issues before occupants even know there is a problem. Control and monitor the system in your home or business from anywhere in the world with an easy to use app on your phone.

Features with Efficiency in Mind



Touch Screen Interface

A brilliantly customizable touch screen monitor for simple control.



Seamless Integration

Between your iGate® 2 Communicating (AWC) Thermostat and Tranquility comfort system.



(Mobile) Remote System Control

Control temperature and schedule from anywhere in the world.



Early Fault Warnings

Alerts you and your contractor of potential system faults in the future.



Remote Diagnostics

Enable the contractor to remotely diagnose system issues, adjust system settings, and reset faults.



Real-Time Operations Data & System Schematics

Access simply via the myUplink Pro Account and web portal to view system diagrams with current operating temperatures.

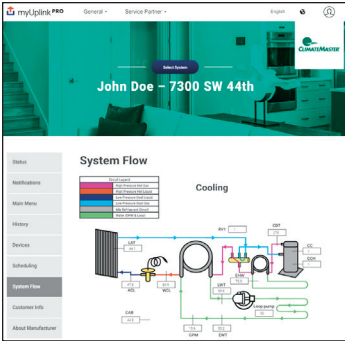


Revenue Stream

HVAC professionals can offer owners service contracts with remote monitoring and diagnosis capabilities without the large expense of a building management system.



HVAC Professional | User Experience



The iGate® 2 is more than just a smart thermostat for your residential or commercial customer, it's a business opportunity. Our new thermostat works with your customers' Tranquility comfort systems to provide the most efficient link between their system and

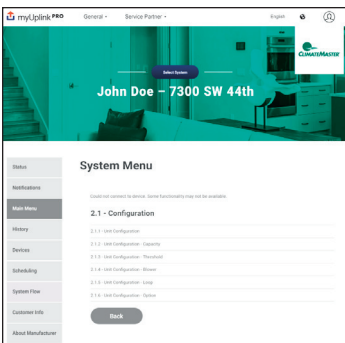
your services. The customization of monitoring from the myUplink PRO web portal or phone app account allows for continuous system monitoring, analysis, repair recognition, and early warnings for potential system faults that are sent to you and your customer.



Benefits

- Remote login from anywhere, anytime from any internet connected device
- View system fault history with possible root causes
- Information is available for contractors to troubleshoot and diagnosis systems remotely
- Secure internet connection keeps homeowner information private
- Access thermostat(s) through Android and iPhone mobile apps

Homeowner | User Experience



The iGate® 2 combines a Wi-Fi thermostat and advanced unit controls to communicate the systems operation information to the cloud. From any internet connected device or smart phone, homeowners can control and monitor their systems from anywhere in the

world. iGate 2 offers homeowners peace of mind their systems are operating at peak performance with advanced operational performance issue notifications. HVAC professionals get notifications when systems are operating out of range. They can log in remotely to check system faults, review current operating conditions, and diagnosis issues remotely. This gives the HVAC technician the upper hand when showing up to perform service, saving time which in turn saves money.



Benefits

- Communicates personal settings and reminders through the iGate 2 communication system
- Easy-to-use, full-color, high-resolution interface
- Sleek, intuitive button control
- Secure internet connection keeps your information private
- Contains unit model, serial number and your HVAC professionals contact information
- System monitoring automatically contacts HVAC system providers when service is needed

Selection Procedure

Reference Calculations

HEATING	
$LWT = EWT - \frac{HE}{GPM \times 500}$	
$LAT = EAT + \frac{HC}{CFM \times 1.08}$	

COOLING	
$LWT = EWT + \frac{HR}{GPM \times 500}$	$LC = TC - SC$
$LAT (DB) = EAT (DB) - \frac{SC}{CFM \times 1.08}$	$S/T = \frac{SC}{TC}$

Conversion Table - to convert inch-pound (English) to S-I (Metric)

Airflow	Water Flow	Est Static Pressure	Water Pressure Drop
Airflow (L/s) = CFM x 0.472	Water Flow (L/s) = gpm x 0.0631	ESP (Pa) = ESP (in of wg) x 249	PD (kPa) = PD (ft of hd) x 2.99

Legend and Glossary of Abbreviations

Abbreviations	Descriptions
BTUH	BTU (British Thermal Unit) per hour
CDT	Compressor discharge temperature
CFM	Airflow, cubic feet per minute
COP	Coefficient of performance = BTUH output/BTUH input
CT ECM	Electronic commutated constant torque fan motor
CV ECM	Electronic commutated constant volume fan motor
DB	Dry bulb temperature, °F
EAT	Entering air temperature
EER	Energy efficient ratio = BTUH output/Watt input
ESP	External static pressure, inches w.g.
EWT	Entering water temperature
FPT	Female pipe thread
GPM	Water flow in U.S., gallons per minute
HC	Air heating capacity, BTUH
HE	Total heat of extraction, BTUH
HR	Total heat of rejection, BTUH
HWC	Hot water generator (desuperheater) capacity, Mbtuh
KW	Total power unit input, kilowatts
LAT	Leaving air temperature, °F
LC	Latent cooling capacity, BTUH
LOC	Loss of charge
LWT	Leaving water temperature, °F
MBTUH	1,000 BTU per hour
MPT	Male pipe thread
MWV	Motorized water valve
PSC	Permanent split capacitor
SC	Sensible cooling capacity, BTUH
S/T	Sensible to total cooling ratio
TC	Total cooling capacity, BTUH
TD or delta T	Temperature differential
VFD	Variable frequency drive
WB	Wet bulb temperature, °F
WPD	Waterside pressure drop, psi or feet of head
WSE	Waterside economizer

Selection Procedure

- Step 1** Determine the actual heating and cooling loads at the desired dry bulb and wet bulb conditions.
- Step 2** Obtain the following design parameters: Entering water temperature, water flow rate in GPM, air flow in CFM, water flow pressure drop and design wet and dry bulb temperatures. Air flow CFM should be between 300 and 450 CFM per ton. Unit water pressure drop should be kept as close as possible to each other to make water balancing easier. Go to the appropriate tables and find the proper indicated water flow and water temperature.
- Step 3** Select a unit based on total and sensible cooling conditions. Select a unit which is closest to, but no larger than, the actual cooling load.
- Step 4** Enter tables at the design water flow and water temperature. Read the total and sensible cooling capacities (Note: interpolation is permissible, extrapolation is not).
- Step 5** Read the heating capacity. If it exceeds the design criteria it is acceptable. It is quite normal for Water-Source Heat Pumps to be selected on cooling capacity only since the heating output is usually greater than the cooling capacity.
- Step 6** Determine the correction factors associated with the variable factors of dry bulb and wet bulb.

 Corrected Total Cooling =
 tabulated total cooling x wet bulb correction.

 Corrected Sensible Cooling =
 tabulated sensible cooling x wet/dry bulb correction.
- Step 7** Compare the corrected capacities to the load requirements. Normally if the capacities are within 10% of the loads, the equipment is acceptable. It is better to undersize than oversize, as undersizing improves humidity control, reduces sound levels and extends the life of the equipment.
- Step 8** When completed, calculate water temperature rise and assess the selection. If the units selected are not within 10% of the load calculations, then review what effect changing the GPM, water temperature and/or air flow and air temperature would have on the corrected capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure. Remember, when in doubt, undersize slightly for best performance.

Example Equipment Selection For Cooling Step 1 Load Determination:

Assume we have determined that the appropriate cooling load at the desired dry bulb 80°F and wet bulb 65°F conditions is as follows:

Total Cooling	10,200 BTUH
Sensible Cooling.....	8,350 BTUH
Entering Air Temp.....	80°F Dry Bulb / 65°F Wet Bulb

Step 2 Design Conditions:

Similarly, we have also obtained the following design parameters:

Entering Water Temp	90°F
Water Flow (Based upon 12°F rise in temp.).....	2.3 GPM
Airflow	350 CFM

Steps 3, 4 & 5 HP Selection:

After making our preliminary selection (TRC12), we enter the tables at design water flow and water temperature and read Total Cooling, Sens. Cooling and Heat of Rej. capacities:

Total Cooling	10,800 BTUH
Sensible Cooling.....	9,200 BTUH
Heat of Rejection.....	13,900 BTUH

Steps 6 & 7 Entering Air and Airflow Corrections:

Next, we determine our correction factors.

	Table	Ent Air	Air Flow	Corrected
Corrected Total Cooling =	10,800	x 0.976	x 0.954	= 10,056
Corrected Sens Cooling =	9,200	x 1.071	x 0.927	= 9,134
Corrected Heat of Reject =	13,900	x 0.979	x 0.958	= 13,037

Step 8 Water Temperature Rise Calculation and Assessment:

Actual Temperature Rise.....	11.3°F
------------------------------	--------

When we compare the Corrected Total Cooling and Corrected Sensible Cooling figures with our load requirements stated in Step 1, we discover that our selection is within +/- 10% of our sensible load requirement. Furthermore, we see that our Corrected Total Cooling figure is slightly undersized as recommended, when compared to the actual indicated load.

TRC Series Nomenclature

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

TRC 09 B G C A S S C S R S

MODEL TYPE
TRC = Console

UNIT SIZE
09, 12, 15, 18

REVISION LEVEL
B = Current Revision

VOLTAGE
G = 208-230/60/1
A = 115/60/1
E = 265/60/1

CONTROLS
C = ACO Unit Mounted Tstat w/CXM2
D = ACO Unit Mounted Tstat w/DXM2.5
R = Remote Mounted Tstat w/CXM2
S = Remote Mounted Tstat w/DXM2.5
N = Remote Mounted w/CXM2 & MPC
P = Remote Mounted w/DXM2.5 & MPC

POWER TERMINATION & OPTIONS

OPTION	FIELD CONNECTED (HARD WIRE)	20 Amp PLUG & CORD	DISCONNECT SWITCH	BREAKER	RECEPTACLE
A	X	-	-	-	-
B	-	X	-	-	-
D	-	-	-	X	-
F	-	-	X	-	-
K	-	X	X	-	X

STANDARD
S = Standard

PIPING CONNECTIONS
R = Right Piping
L = Left Piping
V = Left Piping w/SS Drain Pan
W = Right Piping w/SS Drain Pan

WATER CIRCUIT OPTIONS

	SWEAT	FPT	MPT
None	S	F	M
Motorized Water Valve	A	G	N
Autoflow (2.25 Gpm/Ton)	B	H	P
Autoflow (3.0 Gpm/Ton)	C	J	Q
Motorized Water Valve & Afr (2.25)	D	K	R
Motorized Water Valve & Afr (3.0)	E	L	T
Secondary Circulation Pump	U	V	W

HEAT EXCHANGER OPTIONS
A = Copper Water Coil w/e-Coated Air Coil
C = Copper Water Coil
J = Cupro-nickel Water Coil w/e-Coated Air Coil
N = Cupro-nickel Water Coil
V = Copper Water Coil w/e-Coated Air Coil & Extended Range Insulation
E = Copper Water Coil w/Extended Range Insulation
M = Cupro-nickel Water Coil w/e-Coated Air Coil & Extended Range Insulation
F = Cupro-nickel Water Coil w/Extended Range Insulation

SUBBASE
S = 5" Subbase
H = 5" Subbase w/Motorized Damper
N = None
1 = 5" Subbase for Chassis Only Options
2 = 5" Subbase w/Motorized Damper for Chassis Only Options
3 = 5" Subbase for Extended Length Cabinets
4 = 5" Subbase w/Motorized Damper for Extended Length Cabinets

CABINET CONSTRUCTION

With UltraQuiet	Without UltraQuiet
M = Bottom Return	S = Bottom Return
D = Bottom Return w/Locking Control Door	L = Bottom Return w/Locking Control Door
B = Front Return	F = Front Return
E = Front Return w/Locking Control Door	G = Front Return w/Locking Control Door
C = No Cabinet BR Chassis Only	N = No Cabinet BR Chassis Only
J = No Cabinet FR Chassis Only	H = No Cabinet FR Chassis Only
A = Bottom Return w/Extended Cabinet	R = Bottom Return w/Extended Cabinet
K = Bottom Return w/Locking Control Door w/Extended Cabinet	T = Bottom Return w/Locking Control Door w/Extended Cabinet
P = Front Return w/Extended Cabinet	U = Front Return w/Extended Cabinet
Q = Front Return w/Locking Control Door w/Extended Cabinet	V = Front Return w/Locking Control Door w/Extended Cabinet

Performance Data – ASHRAE/AHRI/ISO 13256-1

ASHRAE/AHRI/ISO 13256-1. English (I-P) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 77°F		Heating 32°F	
	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
TRC09	8,600	13.3	11,400	4.6	9,200	18.6	9,500	4.0	8,800	14.9	7,300	3.3
TRC12	11,300	12.8	14,100	4.5	12,500	18.7	11,800	3.9	11,800	14.5	9,300	3.3
TRC15	13,700	12.8	17,500	5.1	15,700	19.4	14,600	4.0	14,500	14.7	11,400	3.3
TRC18	15,600	12.2	20,100	4.5	17,200	17.9	16,500	3.9	16,100	13.8	13,200	3.3

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
 Heating capacities based upon 68°F DB, 59°F WB entering air temperature
 All air flow is rated on high speed, Units factory shipped on medium and low motor taps.
 All ratings based upon operation at lower voltage of dual voltage rated models

ASHRAE/AHRI/ISO 13256-1. Metric (S-I) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Cooling 25°C		Heating 0°C	
	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
TRC09	2.52	3.9	3.34	4.6	2.70	5.5	2.78	4.0	2.58	4.4	2.14	3.3
TRC12	3.31	3.8	4.13	4.5	3.66	5.5	3.46	3.9	3.46	4.3	2.73	3.3
TRC15	4.02	3.8	5.13	5.1	4.60	5.7	4.28	4.0	4.25	4.3	3.34	3.3
TRC18	4.57	3.6	5.89	4.5	5.04	5.3	4.84	3.9	4.72	4.0	3.87	3.3

Cooling capacities based upon 27°C DB, 19°C WB entering air temperature
 Heating capacities based upon 20°C DB, 15°C WB entering air temperature
 All air flow is rated on high speed, Units factory shipped on medium and low motor taps.
 All ratings based upon operation at lower voltage of dual voltage rated models

Performance Data – Selection Notes

For operation in the shaded area when water is used in lieu of an antifreeze solution, the LWT (Leaving Water Temperature) must be calculated. Flow must be maintained to a level such that the LWT is maintained above 42°F [5.6°C] when the JW3 jumper is not clipped (see example below). Otherwise, appropriate levels of a proper antifreeze solution should be used in systems with leaving water temperatures of 42°F [5.6°C] or below and the JW3 jumper should be clipped. This is due to the potential of the refrigerant temperature being as low as 32°F [0°C] with 40°F [4.4°C] LWT, which may lead to a nuisance cutout due to the activation of the Low Temperature Protection. JW3 should never be clipped for standard range equipment or systems without antifreeze.

Example:

At 50°F EWT (Entering Water Temperature) and 1.5 gpm/ton, a 3 ton unit has a HE of 22,500 Btuh. To calculate LWT, rearrange the formula for HE as follows:

$HE = TD \times GPM \times 500$, where HE = Heat of Extraction (Btuh);
 TD = temperature difference (EWT - LWT) and GPM = U.S. Gallons per Minute.

$$TD = HE / (GPM \times 500)$$

$$TD = 22,500 / (4.5 \times 500)$$

$$TD = 10^\circ\text{F}$$

$$\text{LWT} = \text{EWT} - \text{TD}$$

$$\text{LWT} = 50 - 10 = 40^\circ\text{F}$$

In this example, a higher flow rate will be required for EWTs at or below 50°F without antifreeze. At 2 gpm/ton, the calculation above results in a TD of 7.5. $\text{LWT} = 50 - 7.5 = 42.5^\circ\text{F}$, which is above 42°F EWT, and is acceptable for this application.

		Heating - EAT 70°F				
	EER	HC	kW	HE	LAT	COP
10.9	26.7	6.0	0.51	4.3	93.1	3.44
10.9	29.9	6.3	0.52	4.5	94.1	3.55
10.9	31.7	6.4	0.52	4.7	94.8	3.62
10.8	22.9	6.9	0.53	5.1	96.5	3.79
10.9	25.8	7.2	0.54	5.4	97.9	3.91
10.9	27.4	7.4	0.55	5.6	98.6	3.97
10.9	19.6	7.8	0.56	5.9	100.0	4.10
10.9	22.1	8.2	0.57	6.3	101.6	4.23
10.9	24.7	8.4	0.57	6.5	102.4	4.30
10.9	27.4	8.7	0.58	6.7	103.6	4.37

Performance Data – TRC09

350 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD*		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/ Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
20	2.2	5.0	11.6	Operation not recommended						6.3	0.67	4.0	86.6	2.72
30	1.1	1.6	3.7	9.2	6.7	0.73	0.44	10.7	20.6	6.9	0.69	4.6	88.2	2.94
	1.6	2.6	6.0	8.9	6.6	0.74	0.43	10.4	20.7	7.2	0.69	4.8	89.0	3.04
	2.2	4.5	10.4	8.8	6.5	0.74	0.43	10.2	20.6	7.3	0.69	5.0	89.4	3.11
40	1.1	1.4	3.2	9.4	6.9	0.73	0.47	11.1	19.9	7.9	0.70	5.5	90.9	3.29
	1.6	2.3	5.3	9.3	6.8	0.73	0.45	10.9	20.5	8.3	0.71	5.9	91.8	3.41
	2.2	4.2	9.7	9.2	6.7	0.73	0.45	10.7	20.6	8.5	0.71	6.1	92.4	3.48
50	1.1	1.2	2.8	9.5	7.0	0.74	0.51	11.3	18.5	8.9	0.72	6.5	93.7	3.63
	1.6	2.2	5.1	9.5	6.9	0.73	0.49	11.1	19.5	9.3	0.73	6.9	94.7	3.76
	2.2	3.8	8.8	9.4	6.9	0.73	0.47	11.1	19.9	9.6	0.73	7.1	95.4	3.84
60	1.1	1.1	2.5	9.4	7.1	0.76	0.56	11.3	16.7	10.0	0.74	7.5	96.4	3.95
	1.6	2.1	4.9	9.5	7.0	0.74	0.53	11.3	17.9	10.4	0.75	7.9	97.6	4.08
	2.2	3.7	8.5	9.5	7.0	0.74	0.51	11.2	18.6	10.7	0.75	8.1	98.3	4.16
70	1.1	1.0	2.3	9.0	7.1	0.79	0.62	11.2	14.5	11.0	0.76	8.4	99.0	4.23
	1.6	2.0	4.6	9.3	7.1	0.77	0.58	11.3	15.9	11.4	0.77	8.8	100.2	4.36
	2.2	3.5	8.1	9.4	7.1	0.76	0.56	11.3	16.7	11.7	0.77	9.1	101.0	4.43
80	1.1	1.0	2.3	8.5	7.0	0.82	0.69	10.9	12.3	11.9	0.78	9.2	101.4	4.47
	1.6	1.9	4.4	8.8	7.1	0.80	0.65	11.1	13.7	12.3	0.79	9.6	102.6	4.58
	2.2	3.2	7.4	9.0	7.1	0.79	0.62	11.2	14.5	12.6	0.80	9.9	103.4	4.64
85	1.1	1.0	2.2	8.1	6.9	0.84	0.73	10.6	11.1	12.3	0.79	9.6	102.5	4.56
	1.6	1.9	4.4	8.5	7.0	0.82	0.68	10.9	12.5	12.7	0.80	10.0	103.6	4.66
	2.2	3.1	7.2	8.8	7.0	0.80	0.66	11.0	13.3	13.0	0.81	10.2	104.3	4.71
90	1.1	0.9	2.1	7.8	6.7	0.87	0.77	10.4	10.1	12.7	0.80	10.0	103.5	4.66
	1.6	1.9	4.4	8.2	6.9	0.84	0.72	10.7	11.4	13.1	0.81	10.3	104.6	4.74
	2.2	3.0	6.9	8.5	7.0	0.82	0.69	10.9	12.2	13.3	0.82	10.5	105.2	4.77
100	1.1	0.9	2.1	6.9	6.3	0.91	0.86	9.8	7.9	Operation not recommended				
	1.6	1.8	4.2	7.4	6.6	0.89	0.81	10.2	9.1					
	2.2	2.9	6.7	7.7	6.7	0.87	0.78	10.4	9.9					
110	1.1	0.9	2.1	5.8	5.6	0.97	0.96	9.1	6.0					
	1.6	1.8	4.2	6.4	6.0	0.94	0.91	9.5	7.0					
	2.2	2.9	6.7	6.7	6.2	0.92	0.87	9.7	7.7					
120	1.1	0.9	2.1	4.5	4.6	1.00	1.07	8.2	4.2					
	1.6	1.8	4.2	5.1	5.1	1.00	1.02	8.6	5.0					
	2.2	2.8	6.5	5.5	5.4	0.98	0.98	8.9	5.6					

*WPD Adder for Motorized Valve, TRC09 (Cv = 4.9, MOPD = 150 psi)		
GPM	WPD Adder	
	PSI	FT
1.1	0.3	0.6
1.6	0.6	1.3
2.2	1.2	2.7

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
 AHR/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
 Table does not reflect fan or pump power corrections for AHR/ISO conditions.
 All performance is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
 Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 See Performance Data Selection Notes for operation in the shaded areas.

Performance Data – TRC12

400 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD*		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/ Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
20	3.0	7.8	18.0	Operation not recommended						7.3	0.79	4.7	85.1	2.71
30	1.5	2.1	4.9	12.6	8.2	0.65	0.56	14.5	22.4	8.1	0.81	5.4	86.7	2.96
	2.3	4.5	10.4	12.4	8.0	0.65	0.53	14.2	23.3	8.5	0.81	5.7	87.5	3.06
	3.0	6.8	15.7	12.3	8.0	0.65	0.52	14.0	23.6	8.7	0.82	5.9	87.9	3.12
40	1.5	2.0	4.6	12.7	8.4	0.67	0.61	14.7	20.7	9.4	0.83	6.7	89.4	3.35
	2.3	4.2	9.7	12.6	8.2	0.65	0.58	14.6	21.9	9.9	0.83	7.1	90.4	3.48
	3.0	6.1	14.1	12.6	8.2	0.65	0.56	14.5	22.4	10.2	0.84	7.3	90.9	3.56
50	1.5	1.8	4.2	12.5	8.7	0.70	0.67	14.8	18.7	10.8	0.85	8.0	92.3	3.74
	2.3	3.8	8.8	12.6	8.5	0.68	0.63	14.8	20.0	11.4	0.86	8.5	93.5	3.91
	3.0	5.8	13.4	12.7	8.4	0.67	0.61	14.7	20.7	11.7	0.86	8.8	94.1	4.00
60	1.5	1.7	3.9	12.1	9.0	0.74	0.73	14.6	16.6	12.2	0.87	9.3	95.1	4.14
	2.3	3.7	8.5	12.4	8.8	0.71	0.69	14.7	17.9	12.9	0.87	9.9	96.5	4.32
	3.0	5.2	12.0	12.5	8.7	0.70	0.67	14.8	18.6	13.2	0.88	10.2	97.2	4.41
70	1.5	1.5	3.5	11.6	9.2	0.79	0.80	14.4	14.5	13.6	0.88	10.6	97.9	4.50
	2.3	3.5	8.1	12.0	9.1	0.76	0.76	14.5	15.8	14.3	0.89	11.2	99.4	4.69
	3.0	4.9	11.3	12.1	9.0	0.74	0.73	14.6	16.5	14.6	0.90	11.6	100.1	4.79
80	1.5	1.4	3.2	11.0	9.2	0.83	0.89	14.1	12.5	14.8	0.90	11.8	100.5	4.84
	2.3	3.2	7.4	11.4	9.2	0.81	0.83	14.3	13.7	15.5	0.91	12.4	101.9	5.01
	3.0	4.8	11.1	11.6	9.2	0.79	0.81	14.4	14.4	15.8	0.91	12.7	102.6	5.10
85	1.5	1.4	3.1	10.7	9.1	0.85	0.93	13.9	11.5	15.4	0.90	12.3	101.6	4.98
	2.3	3.1	7.2	11.1	9.2	0.83	0.88	14.1	12.7	16.0	0.91	12.9	102.9	5.13
	3.0	4.7	10.7	11.3	9.2	0.81	0.85	14.2	13.4	16.3	0.92	13.1	103.5	5.20
90	1.5	1.3	3.0	10.4	9.1	0.87	0.98	13.7	10.6	15.9	0.91	12.8	102.7	5.11
	2.3	3.0	6.9	10.8	9.2	0.85	0.92	13.9	11.7	16.5	0.92	13.3	103.9	5.25
	3.0	4.5	10.4	11.0	9.2	0.84	0.89	14.1	12.3	16.7	0.92	13.6	104.4	5.31
100	1.5	1.3	3.0	9.7	8.7	0.90	1.08	13.4	9.0	Operation not recommended				
	2.3	2.9	6.7	10.1	9.0	0.88	1.02	13.6	9.9					
	3.0	4.3	9.9	10.3	9.0	0.88	0.99	13.7	10.5					
110	1.5	1.2	2.8	9.0	8.2	0.91	1.20	13.1	7.5					
	2.3	2.9	6.7	9.4	8.5	0.90	1.13	13.3	8.4					
	3.0	4.2	9.7	9.6	8.7	0.90	1.09	13.4	8.8					
120	1.5	1.2	2.8	8.4	7.5	0.89	1.33	12.9	6.3					
	2.3	2.8	6.5	8.7	7.9	0.91	1.25	13.0	7.0					
	3.0	4.1	9.5	8.9	8.1	0.91	1.21	13.1	7.4					

*WPD Adder for Motorized Valve, TRC12 (Cv = 4.9, MOPD = 150 psi)		
GPM	WPD Adder	
	PSI	FT
1.5	0.5	1.0
2.3	1.2	2.7
3.0	2.2	5.0

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
 AHR/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
 Table does not reflect fan or pump power corrections for AHR/ISO conditions.
 All performance is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
 Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 See Performance Data Selection Notes for operation in the shaded areas.

Performance Data – TRC15

520 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD*		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/ Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
20	3.7	5.1	11.8	Operation not recommended						8.9	0.92	5.8	85.9	2.86
30	1.9	1.5	3.5	16.9	11.0	0.65	0.62	19.0	27.1	10.0	0.94	6.8	87.8	3.11
	2.8	3.0	6.9	16.5	10.4	0.63	0.58	18.5	28.6	10.5	0.95	7.2	88.6	3.22
	3.7	4.7	10.9	16.3	10.1	0.62	0.56	18.2	29.2	10.7	0.96	7.5	89.1	3.28
40	1.9	1.2	2.8	16.9	11.4	0.67	0.70	19.3	24.1	11.7	0.98	8.4	90.8	3.51
	2.8	2.6	6.0	16.9	11.2	0.65	0.65	19.1	26.2	12.3	0.99	8.9	91.9	3.64
	3.7	4.3	9.9	16.9	11.0	0.65	0.62	19.0	27.1	12.6	0.99	9.2	92.4	3.71
50	1.9	1.0	2.3	16.6	11.5	0.69	0.79	19.3	21.0	13.4	1.01	10.0	93.9	3.91
	2.8	2.3	5.3	16.9	11.5	0.68	0.73	19.4	23.1	14.1	1.02	10.7	95.2	4.06
	3.7	3.9	9.0	16.9	11.4	0.67	0.70	19.3	24.2	14.5	1.03	11.0	95.9	4.15
60	1.9	0.9	2.1	15.9	11.3	0.71	0.89	18.9	17.9	15.2	1.04	11.7	97.1	4.29
	2.8	2.1	4.9	16.4	11.4	0.70	0.82	19.2	19.9	16.0	1.05	12.4	98.5	4.46
	3.7	3.5	8.1	16.6	11.5	0.69	0.79	19.3	21.0	16.4	1.06	12.8	99.3	4.56
70	1.9	0.9	2.1	15.0	10.9	0.73	0.99	18.4	15.2	16.9	1.06	13.3	100.1	4.66
	2.8	2.0	4.6	15.6	11.2	0.72	0.92	18.8	16.9	17.8	1.08	14.1	101.6	4.84
	3.7	3.3	7.6	15.9	11.3	0.71	0.89	18.9	17.9	18.2	1.08	14.5	102.5	4.93
80	1.9	0.9	2.1	14.0	10.5	0.75	1.10	17.8	12.7	18.5	1.09	14.8	103.0	4.99
	2.8	1.8	4.2	14.6	10.8	0.74	1.03	18.2	14.2	19.4	1.10	15.6	104.5	5.17
	3.7	3.1	7.2	15.0	10.9	0.73	1.00	18.4	15.0	19.8	1.10	16.1	105.3	5.26
85	1.9	0.9	2.0	13.4	10.3	0.77	1.16	17.4	11.6	19.2	1.10	15.5	104.3	5.14
	2.8	1.8	4.0	14.1	10.5	0.75	1.09	17.8	13.0	20.1	1.11	16.3	105.8	5.31
	3.7	3.0	6.9	14.4	10.7	0.74	1.05	18.0	13.8	20.5	1.11	16.7	106.5	5.40
90	1.9	0.8	1.8	12.9	10.0	0.78	1.22	17.0	10.5	20.0	1.11	16.2	105.6	5.29
	2.8	1.7	3.9	13.5	10.3	0.76	1.15	17.5	11.8	20.8	1.12	17.0	107.0	5.45
	3.7	2.9	6.7	13.9	10.5	0.75	1.11	17.7	12.5	21.2	1.12	17.3	107.7	5.53
100	1.9	0.8	1.8	11.7	9.6	0.82	1.35	16.3	8.7	Operation not recommended				
	2.8	1.6	3.7	12.4	9.8	0.80	1.27	16.7	9.7					
	3.7	2.8	6.5	12.7	10.0	0.78	1.23	17.0	10.3					
110	1.9	0.8	1.8	10.6	9.2	0.87	1.48	15.7	7.2					
	2.8	1.6	3.7	11.2	9.4	0.84	1.40	16.0	8.0					
	3.7	2.7	6.2	11.5	9.5	0.83	1.37	16.2	8.4					
120	1.9	0.7	1.6	9.6	9.0	0.94	1.62	15.1	5.9					
	2.8	1.5	3.5	10.1	9.1	0.90	1.54	15.4	6.5					
	3.7	2.7	6.2	10.4	9.2	0.88	1.51	15.5	6.9					

*WPD Adder for Motorized Valve, TRC15 (Cv = 4.9, MOPD = 150 psi)		
GPM	WPD Adder	
	PSI	FT
1.9	0.7	1.7
2.8	1.7	4.0
3.7	3.3	7.6

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
 AHR/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
 Table does not reflect fan or pump power corrections for AHR/ISO conditions.
 All performance is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
 Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 See Performance Data Selection Notes for operation in the shaded areas.

Performance Data – TRC18

620 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD*		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/ Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
20	4.5	7.5	17.3	Operation not recommended						13.9	1.24	9.8	90.8	3.29
30	2.3	2.2	5.1	18.6	12.3	0.66	0.72	21.0	25.7	15.3	1.28	11.0	92.8	3.51
	3.4	4.4	10.2	17.6	11.6	0.66	0.69	19.9	25.3	15.7	1.28	11.3	93.4	3.57
	4.5	6.9	15.9	16.9	11.1	0.66	0.68	19.3	24.8	15.8	1.29	11.5	93.7	3.61
40	2.3	2.0	4.6	19.3	13.2	0.68	0.80	22.1	24.2	16.6	1.30	12.2	94.8	3.74
	3.4	4.1	9.5	19.0	12.8	0.67	0.75	21.6	25.3	16.9	1.30	12.4	95.2	3.79
	4.5	6.3	14.6	18.8	12.5	0.67	0.73	21.3	25.6	17.0	1.31	12.6	95.4	3.81
50	2.3	1.8	4.2	19.1	13.5	0.70	0.90	22.2	21.4	17.5	1.31	13.0	96.1	3.91
	3.4	3.8	8.8	19.3	13.3	0.69	0.84	22.2	23.1	17.7	1.31	13.2	96.4	3.95
	4.5	6.0	13.9	19.4	13.2	0.68	0.81	22.1	23.9	17.8	1.31	13.3	96.5	3.97
60	2.3	1.6	3.7	18.4	13.3	0.72	1.01	21.8	18.2	18.2	1.31	13.8	97.2	4.07
	3.4	3.6	8.3	18.9	13.4	0.71	0.94	22.1	20.1	18.5	1.31	14.0	97.6	4.12
	4.5	5.6	12.9	19.1	13.5	0.70	0.91	22.2	21.0	18.6	1.31	14.2	97.8	4.15
70	2.3	1.5	3.5	17.2	12.8	0.75	1.13	21.1	15.3	19.3	1.32	14.8	98.8	4.27
	3.4	3.4	7.9	17.9	13.1	0.73	1.06	21.5	17.0	19.7	1.33	15.2	99.5	4.36
	4.5	5.2	12.0	18.2	13.3	0.73	1.02	21.7	17.9	20.0	1.33	15.5	99.9	4.40
80	2.3	1.4	3.2	15.9	12.1	0.76	1.25	20.2	12.7	21.0	1.35	16.4	101.3	4.55
	3.4	3.2	7.4	16.7	12.6	0.75	1.18	20.7	14.1	21.8	1.37	17.1	102.6	4.68
	4.5	5.0	11.6	17.0	12.7	0.75	1.14	21.0	14.9	22.3	1.38	17.6	103.3	4.75
85	2.3	1.4	3.1	15.3	11.7	0.77	1.32	19.8	11.6	22.2	1.38	17.6	103.2	4.73
	3.4	3.1	7.15	16.0	12.2	0.76	1.25	20.3	12.9	23.3	1.40	18.6	104.9	4.88
	4.5	4.9	11.35	16.4	12.4	0.76	1.21	20.6	13.6	24.0	1.42	19.2	105.9	4.97
90	2.3	1.3	3.0	14.6	11.3	0.77	1.39	19.4	10.5	23.5	1.40	18.7	105.1	4.91
	3.4	3.0	6.9	15.3	11.8	0.77	1.32	19.8	11.6	24.9	1.43	20.0	107.2	5.08
	4.5	4.8	11.1	15.7	12.0	0.76	1.28	20.1	12.3	25.7	1.45	20.8	108.4	5.18
100	2.3	1.3	3.0	13.5	10.5	0.78	1.53	18.8	8.8	Operation not recommended				
	3.4	2.9	6.7	14.1	10.9	0.78	1.46	19.1	9.6					
	4.5	4.6	10.6	14.4	11.1	0.77	1.42	19.2	10.1					
110	2.3	1.2	2.8	12.8	9.8	0.77	1.67	18.5	7.6					
	3.4	2.8	6.5	13.1	10.1	0.77	1.60	18.6	8.2					
	4.5	4.5	10.4	13.3	10.3	0.78	1.56	18.7	8.5					
120	2.3	1.2	2.8	12.6	9.4	0.74	1.82	18.9	6.9					
	3.4	2.8	6.5	12.6	9.5	0.76	1.75	18.6	7.2					
	4.5	4.4	10.2	12.7	9.7	0.76	1.71	18.5	7.4					

*WPD Adder for Motorized Valve, TRC18 (Cv = 4.9, MOPD = 150 psi)		
GPM	WPD Adder	
	PSI	FT
2.3	0.2	0.6
3.4	0.6	1.3
4.5	1.1	2.5

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
 AHR/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
 Table does not reflect fan or pump power corrections for AHR/ISO conditions.
 All performance is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
 Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 See Performance Data Selection Notes for operation in the shaded areas.

Performance Data – Correction Tables

Air Flow Correction Table

Airflow % of Rated	Cooling				Heating		
	Total Capacity	Sensible Capacity	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
73%	0.946	0.898	0.971	0.951	0.967	1.084	0.937
78%	0.954	0.927	0.976	0.958	0.976	1.062	0.954
83%	0.964	0.953	0.981	0.967	0.983	1.042	0.968
89%	0.974	0.974	0.987	0.977	0.990	1.026	0.981
94%	0.987	0.990	0.993	0.988	0.995	1.012	0.991
100%	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106%	1.015	1.002	1.008	1.014	1.004	0.991	1.007
111%	1.031	0.996	1.016	1.028	1.006	0.985	1.011

Entering Air Correction Tables

Heating			
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
60	1.036	0.910	1.068
65	1.019	0.955	1.035
68	1.008	0.982	1.014
70	1.000	1.000	1.000
75	0.980	1.046	0.964
80	0.960	1.091	0.927

Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F							Power	Heat of Rejection
		65	70	75	80	80.6	85	90		
		60	0.926	0.632	0.820	1.004	1.182	*		
65	0.976		0.615	0.856	1.071	1.095	1.260	*	1.000	0.979
66.2	0.990		0.555	0.807	1.030	1.055	1.224	*	1.000	0.992
67	1.000		0.507	0.765	1.000	1.017	1.188	*	1.000	1.000
70	1.039			0.620	0.865	0.893	1.076	1.252	1.001	1.032
75	1.113				0.566	0.597	0.805	1.013	1.002	1.089

* = Sensible capacity equals total capacity
 AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1
 and Heating - 68°F DB/59°F WB entering air temperature

Antifreeze Correction Table

EWT	Antifreeze Type	Antifreeze %	Cooling			Heating		WPD
			Total Cap	Sensible Cap	Watts	Total Cap	Watts	
90	Water	0%	1.000	1.000	1.000	1.000	1.000	1.000
	Ethanol	5%	0.998	0.998	1.002	0.996	0.999	1.025
		10%	0.996	0.996	1.003	0.991	0.997	1.048
		15%	0.994	0.994	1.005	0.987	0.996	1.098
		20%	0.991	0.991	1.006	0.982	0.994	1.142
		25%	0.986	0.986	1.009	0.972	0.991	1.207
		30%	0.981	0.981	1.012	0.962	0.988	1.265
		35%	0.977	0.977	1.015	0.953	0.985	1.312
		40%	0.972	0.972	1.018	0.943	0.982	1.370
		45%	0.966	0.966	1.023	0.931	0.978	1.431
	50%	0.959	0.959	1.027	0.918	0.974	1.494	
	Ethylene Glycol	5%	0.998	0.998	1.002	0.996	0.999	1.021
		10%	0.996	0.996	1.003	0.991	0.997	1.040
		15%	0.994	0.994	1.004	0.987	0.996	1.079
		20%	0.991	0.991	1.005	0.982	0.995	1.114
		25%	0.988	0.988	1.008	0.976	0.993	1.146
		30%	0.985	0.985	1.010	0.969	0.990	1.175
		35%	0.982	0.982	1.012	0.963	0.988	1.208
		40%	0.979	0.979	1.014	0.956	0.986	1.243
		45%	0.976	0.976	1.016	0.950	0.984	1.278
	50%	0.972	0.972	1.018	0.943	0.982	1.314	
	Methanol	5%	0.997	0.997	1.002	0.993	0.998	1.039
		10%	0.993	0.993	1.004	0.986	0.996	1.075
		15%	0.990	0.990	1.007	0.979	0.994	1.116
		20%	0.986	0.986	1.009	0.972	0.991	1.154
		25%	0.982	0.982	1.012	0.964	0.989	1.189
		30%	0.978	0.978	1.014	0.955	0.986	1.221
		35%	0.974	0.974	1.017	0.947	0.984	1.267
		40%	0.970	0.970	1.020	0.939	0.981	1.310
		45%	0.966	0.966	1.023	0.930	0.978	1.353
	50%	0.961	0.961	1.026	0.920	0.975	1.398	
	Propylene Glycol	5%	0.995	0.995	1.003	0.990	0.997	1.065
		10%	0.990	0.990	1.006	0.980	0.994	1.119
		15%	0.986	0.986	1.009	0.971	0.991	1.152
		20%	0.981	0.981	1.012	0.962	0.988	1.182
		25%	0.978	0.978	1.014	0.956	0.986	1.227
		30%	0.975	0.975	1.016	0.950	0.984	1.267
		35%	0.972	0.972	1.018	0.944	0.982	1.312
		40%	0.969	0.969	1.020	0.938	0.980	1.356
		45%	0.965	0.965	1.023	0.929	0.977	1.402
	50%	0.960	0.960	1.026	0.919	0.974	1.450	

Table Continued on Next Page

Antifreeze Correction Table

Table Continued from Previous Page

EWT	Antifreeze Type	Antifreeze %	Cooling			Heating		WPD
			Total Cap	Sensible Cap	Watts	Total Cap	Watts	
30	Water	0%	1.000	1.000	1.000	1.000	1.000	1.000
	Ethanol	5%	0.991	0.991	1.006	0.981	0.994	1.140
		10%	0.981	0.981	1.012	0.961	0.988	1.242
		15%	0.973	0.973	1.018	0.944	0.983	1.295
		20%	0.964	0.964	1.024	0.927	0.977	1.343
		25%	0.959	0.959	1.028	0.917	0.974	1.363
		30%	0.954	0.954	1.031	0.907	0.970	1.383
		35%	0.949	0.949	1.035	0.897	0.967	1.468
		40%	0.944	0.944	1.038	0.887	0.964	1.523
		45%	0.940	0.940	1.041	0.880	0.962	1.580
		50%	0.936	0.936	1.043	0.872	0.959	1.639
	Ethylene Glycol	5%	0.997	0.997	1.002	0.993	0.998	1.040
		10%	0.993	0.993	1.004	0.986	0.996	1.075
		15%	0.990	0.990	1.006	0.980	0.994	1.122
		20%	0.987	0.987	1.008	0.973	0.992	1.163
		25%	0.983	0.983	1.011	0.966	0.990	1.195
		30%	0.979	0.979	1.013	0.958	0.987	1.225
		35%	0.976	0.976	1.016	0.951	0.985	1.279
		40%	0.972	0.972	1.018	0.943	0.982	1.324
		45%	0.969	0.969	1.021	0.937	0.980	1.371
	Methanol	5%	0.995	0.995	1.004	0.989	0.997	1.069
		10%	0.989	0.989	1.007	0.978	0.993	1.127
		15%	0.984	0.984	1.011	0.968	0.990	1.164
		20%	0.979	0.979	1.014	0.957	0.986	1.197
		25%	0.975	0.975	1.017	0.949	0.984	1.216
		30%	0.971	0.971	1.019	0.941	0.981	1.235
		35%	0.967	0.967	1.022	0.933	0.979	1.286
		40%	0.963	0.963	1.025	0.924	0.976	1.323
		45%	0.959	0.959	1.028	0.917	0.974	1.360
	Propylene Glycol	5%	0.995	0.995	1.004	0.989	0.997	1.071
		10%	0.989	0.989	1.007	0.978	0.993	1.130
		15%	0.985	0.985	1.010	0.968	0.990	1.206
		20%	0.980	0.980	1.013	0.958	0.987	1.270
		25%	0.974	0.974	1.017	0.947	0.983	1.359
		30%	0.968	0.968	1.021	0.935	0.979	1.433
		35%	0.963	0.963	1.025	0.924	0.976	1.522
		40%	0.957	0.957	1.029	0.913	0.972	1.614
		45%	0.949	0.949	1.034	0.898	0.967	1.712
	50%	0.941	0.941	1.039	0.882	0.962	1.816	

Blower Performance and Electrical Data

Blower Performance

Model	Rated CFM	SCFM		
		Low Speed	Medium Speed	High Speed
TRC09	350	270	310	350
TRC12	450	290	360	450
TRC15	520	360	440	520
TRC18	620	400	500	620

Fan speed is user selectable

All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units

All units AHRI/ISO/ASHRAE 13256-1 rated on high fan speed

All units are designed and rated for zero external static pressure (non-ducted) application

Electrical Data

Model	Voltage Code	Voltage	Min/Max Voltage	Compressor		Fan Motor FLA	Pump Option FLA	Total Unit FLA	Min Circuit Amps	Max Fuse Amps
				RLA	LRA					
TRC09	A	115/60/1	104-126	8.0	50.0	0.6	N/A	8.60	10.60	15
							1.0	9.60	11.60	15
	G	208-230/60/1	197-254	3.7	22.0	0.5	N/A	4.20	5.13	15
							0.8	5.00	5.93	15
	E	265/60/1	239-292	3.5	22.0	0.4	N/A	3.90	4.78	15
							0.7	4.60	5.48	15
TRC12	A	115/60/1	104-126	9.5	50.0	1.0	N/A	10.50	12.88	20
							1.4	11.90	14.28	20
	G	208-230/60/1	197-254	4.7	25.0	0.6	N/A	5.30	6.48	15
							1.07	6.37	7.55	15
	E	265/60/1	239-292	4.2	22.0	0.4	N/A	4.60	5.65	15
							1.3	5.90	6.95	15
TRC15	G	208-230/60/1	197-254	5.6	29.0	0.7	N/A	6.30	7.70	15
							1.07	7.37	8.77	15
	E	265/60/1	239-292	5.0	28.0	0.6	N/A	5.60	6.85	15
							1.3	6.90	8.15	15
TRC18	G	208-230/60/1	197-254	6.6	33.0	0.7	N/A	7.30	8.95	15
							1.07	8.37	10.02	15
	E	265/60/1	239-292	5.6	28.0	0.6	N/A	6.20	7.60	15
							1.3	7.50	8.90	15

Physical Data

Model	09	12	15	18
Compressor (1 Each)	Rotary			
Factory Charge HFC-410A (oz) [kg]	28 [0.794]	29 [0.822]	33 [0.907]	39 [1.105]
Blower Wheel				
Blower Wheel Size (dia x w) - (in) [mm] - Qty 2	5.25 x 6.25 [133 x 159]			
Water Connection Size				
O.D. Sweat (in) [mm]	1/2 [12.7]		3/4 [19.1]	
Optional FPT Fittings (in)	1/2		3/4	
Optional MPT Fittings (in)	1/2		3/4	
Coax Volume				
Volume US Gal [Liters]	.09 [.34]	.09 [.34]	.23 [.87]	.26 [.98]
Condensate Connection Size				
I.D. Vinyl Hose (In) [mm]	5/8 [15.9]			
Air Coil Size				
Dimensions (h x w) - (in) [mm]	8 x 26 [203 x 660]	10 x 26 [254 x 660]	10 x 32 [254 x 812]	
Filter Size				
Bottom Return (in) [mm]	1 - 10 x 30 x 1 [254 x 762 x 25]		1 - 10 x 36 x 1 [254 x 914 x 25]	
Front Return (In) [mm]	1 - 7 x 29.5 x 1/8 [178 x 749 x 3.2]		1 - 7 x 35.5 x 1/8 [178 x 902 x 3.2]	
Unit Size				
Bottom Return (Std. 5" Base) (W x H x D) - (In) [mm]	48 x 26 x 12 [1219 x 660 x 305]		54 x 26 x 12 [1372 x 660 x 305]	
Front Return (No Subbase) (W x H x D) - (In) [mm]	48 x 21 x 12 [1219 x 533 x 305]		54 x 21 x 12 [1372 x 533 x 305]	
Unit Weight				
Weight - Operating, (lbs) [kg]	175 [79]	180 [82]	190 [86.2]	220 [99.8]
Weight - Packaged, (lbs) [kg]	185 [83.9]	190 [86]	200 [90.8]	232 [105.2]

All units have rubber grommet compressor mountings and TXV expansion devices.

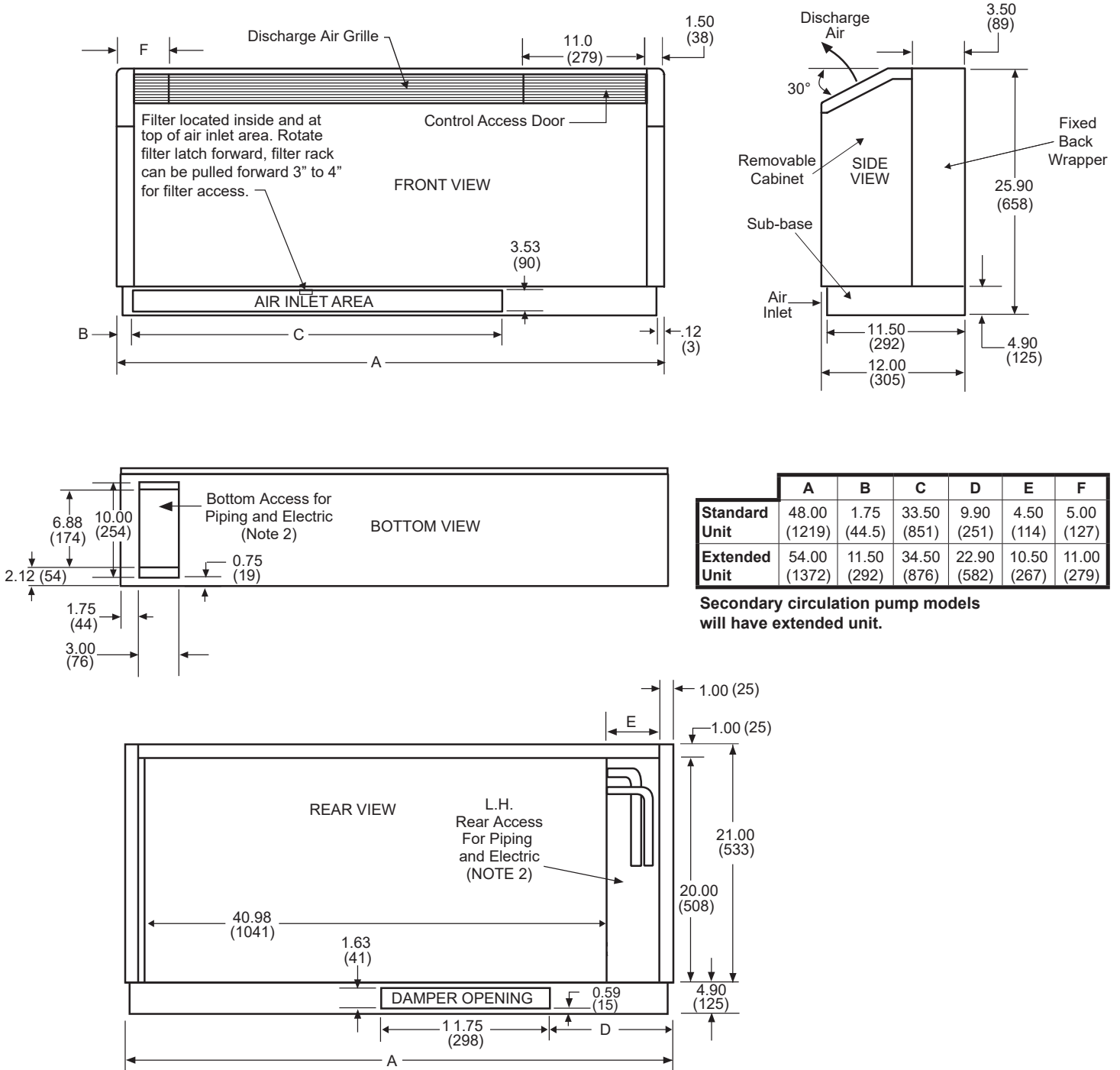
Unit Maximum Water Working Pressure	
Options	Max Pressure PSIG [kPa]
Base Unit	500 [3,445]
Internal Secondary Pump (ISP)	145 [999]
Internal Motorized Water Valve (MWV)	300 [2,068]
Internal Auto Flow Valve	500 [3,445]

Use the lowest maximum pressure rating when multiple options are combined.
Optional hoses have pressure rating of 400 PSIG (2758 kPa)

Optional Factory Installed Auto Flow Regulator GPM [LPS]		
Model	2.25 GPM/Ton	3 GPM/Ton
9	2.0 [.126]	2.5 [.158]
12	2.5 [.158]	3.0 [.189]
15	3.0 [.189]	3.5 [.221]
18	3.5 [.221]	4.0 [.252]

Console Cabinet Dimensions – Sizes 09-15: Bottom Return – Left Hand Piping

Left Hand Bottom Return

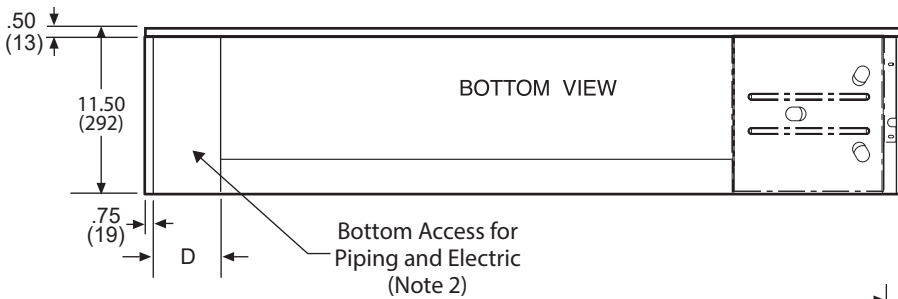
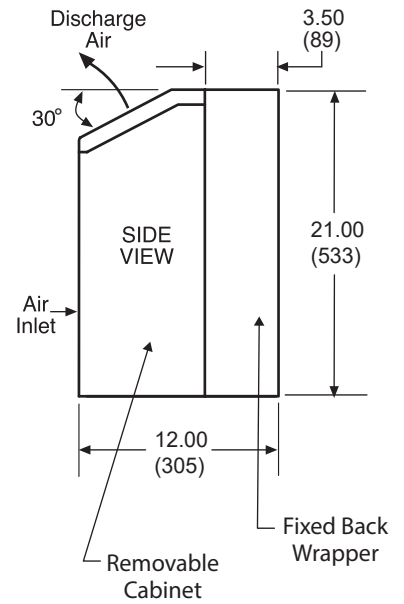
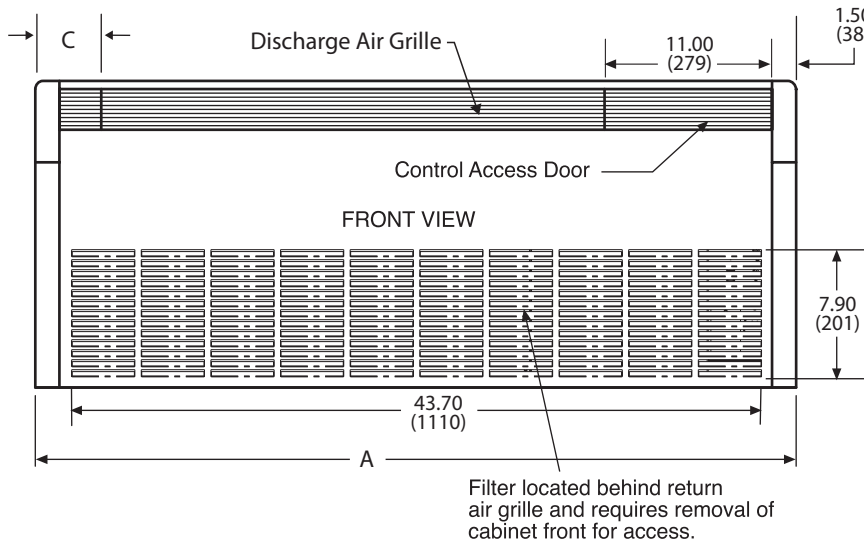


NOTES:

1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is 1" (25) thick fiberglass throwaway.
5. All bottom return units require a subbase.

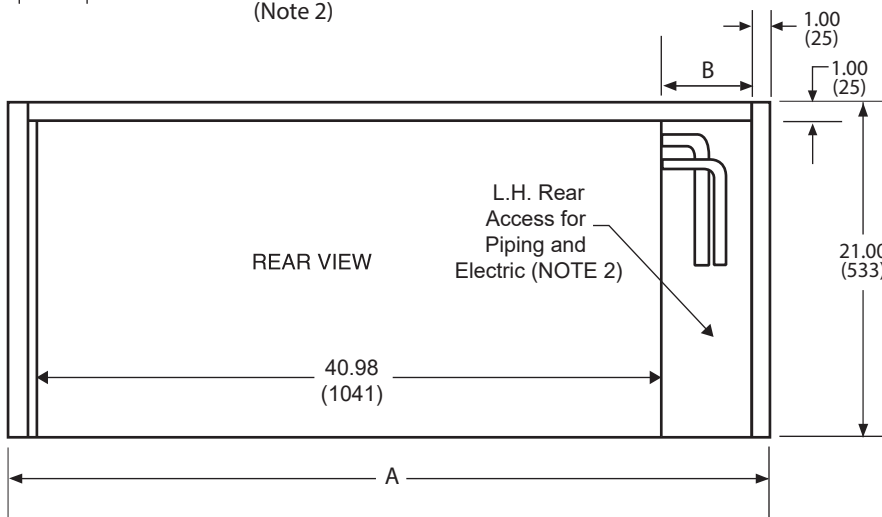
Console Cabinet Dimensions – Sizes 09-15: Front Return – Left Hand Piping

Left Hand Front Return



	A	B	C	D
Standard Unit	48.00 (1219)	4.50 (114)	5.00 (127)	4.12 (105)
Extended Unit	54.00 (1372)	10.50 (267)	11.00 (279)	10.12 (257)

Secondary circulation pump models will have extended unit.

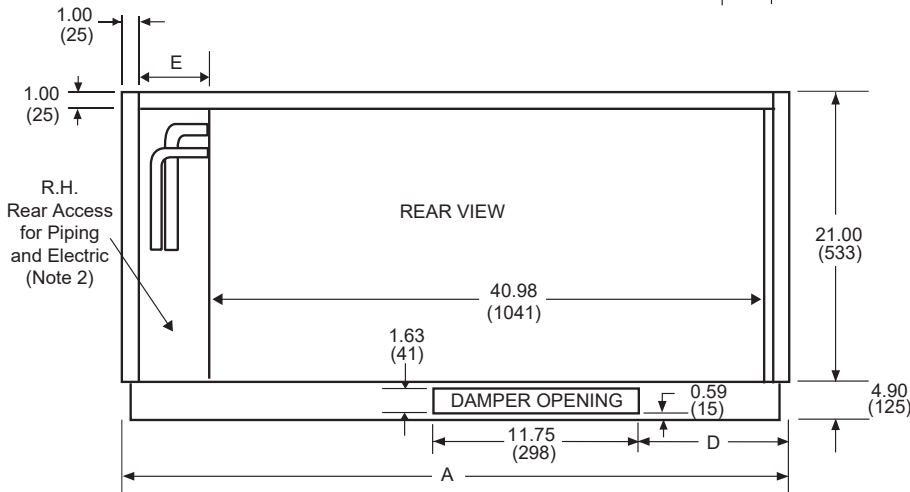
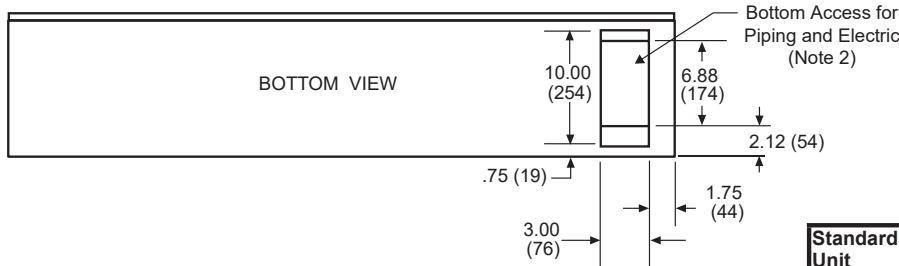
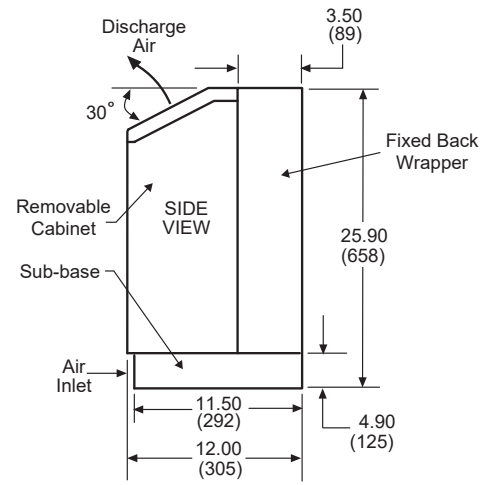
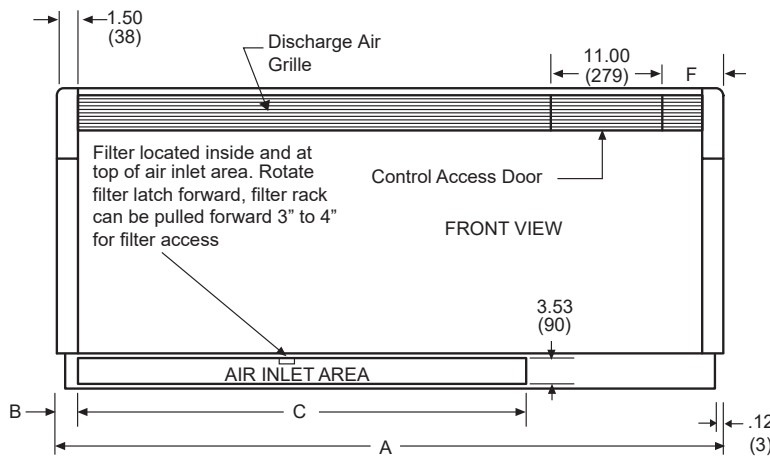


NOTES:

1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is a cleanable polypropylene mesh.

Console Cabinet Dimensions – Sizes 09-15: Bottom Return – Right Hand Piping

Right Hand Bottom Return



	A	B	C	D	E	F
Standard Unit	48.00 (1219)	1.75 (44.5)	33.50 (851)	9.90 (251)	4.50 (114)	5.00 (127)
Extended Unit	54.00 (1372)	1.75 (44.5)	33.72 (856)	12.85 (326)	10.50 (267)	11.00 (279)

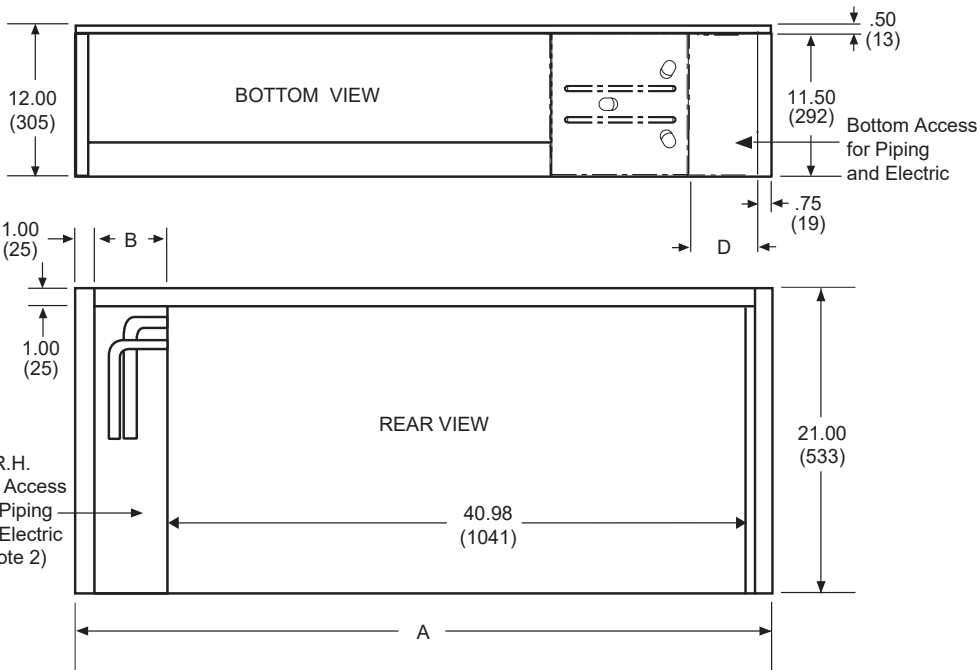
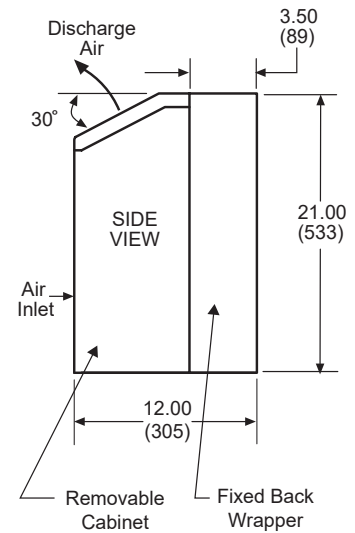
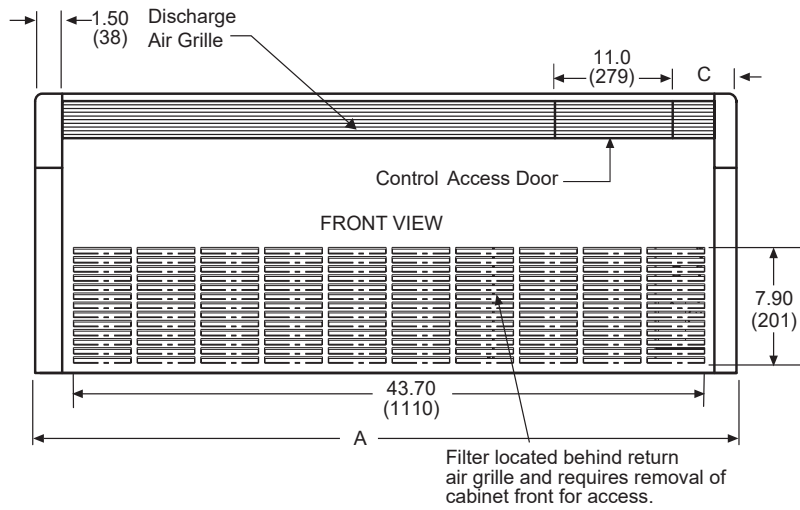
Secondary circulation pump models will have extended unit.

NOTES:

1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is 1" (25) thick fiberglass throwaway.
5. All bottom return units require a subbase.

Console Cabinet Dimensions – Sizes 09-15: Front Return – Right Hand Piping

Right Hand Front Return



	A	B	C	D
Standard Unit	48.00 (1219)	4.50 (114)	5.00 (127)	4.12 (105)
Extended Unit	54.00 (1372)	10.50 (267)	11.00 (279)	10.12 (257)

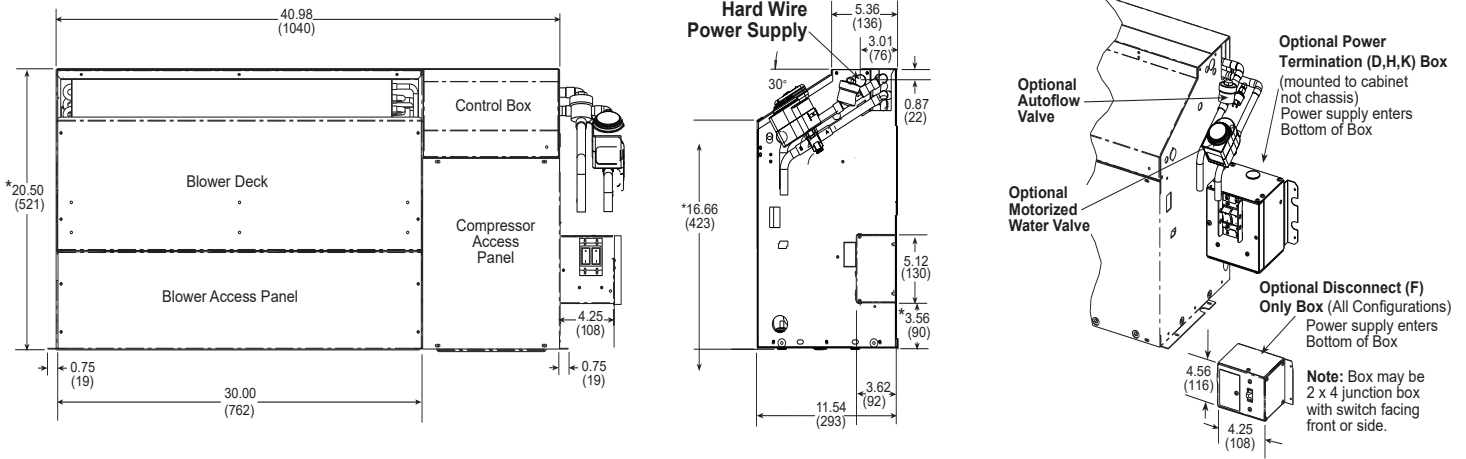
Secondary circulation pump models will have extended unit.

NOTES:

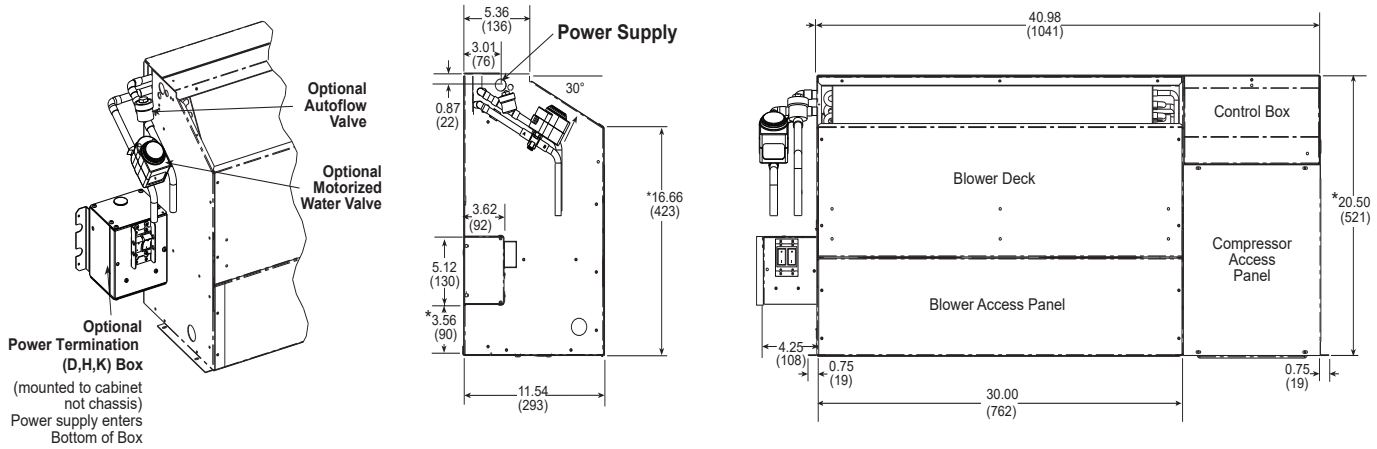
1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is a cleanable polypropylene mesh.

Console Chassis Dimensions – Sizes 09-15: Bottom Return

Right Hand Configuration (Bottom Return)



Left Hand Configuration (Bottom Return)

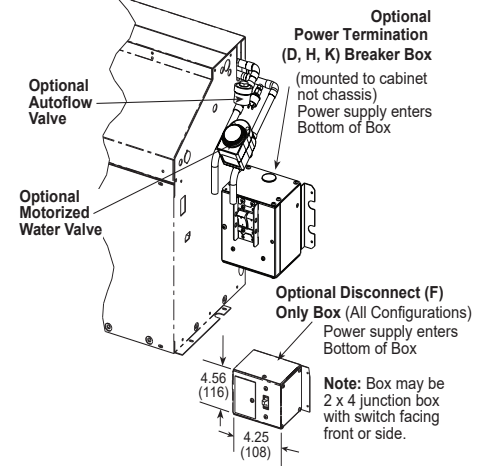
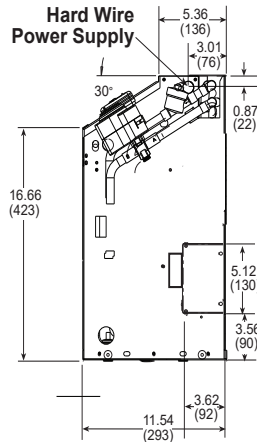
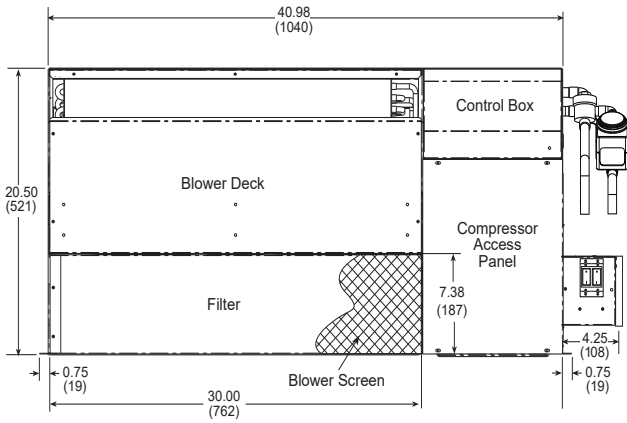


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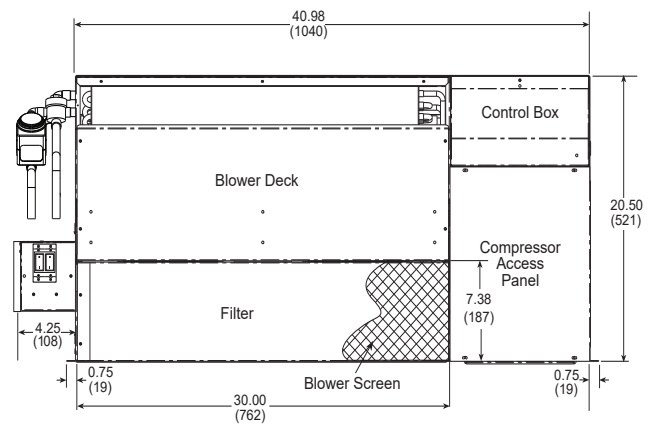
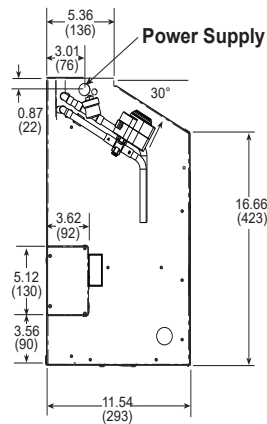
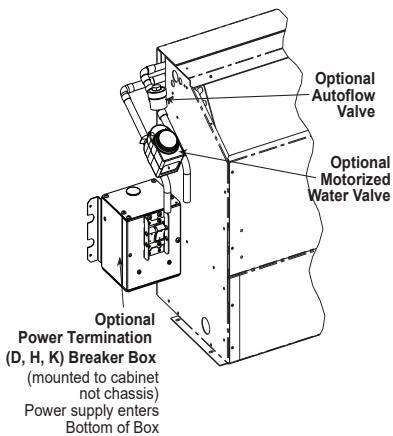
1. Chassis replacements are intended to reuse existing console front cover and subbase (optional).
2. Option to order subbase attached (not shown). If factory attached subbase is ordered, for installed dimensions add 4.9" (124mm) to dimensions shown for a 5" subbase.
3. Optional autoflow valve, motorized water valve and disconnect box are shown.
4. If the replacement chassis is mounted to an existing 3 inch subbase, unit will not be able to use low fan speed setting. When using a 5 inch subbase, low fan speed setting is allowed.

Console Chassis Dimensions – Sizes 09-15: Front Return

Right Hand Configuration (Front Return)



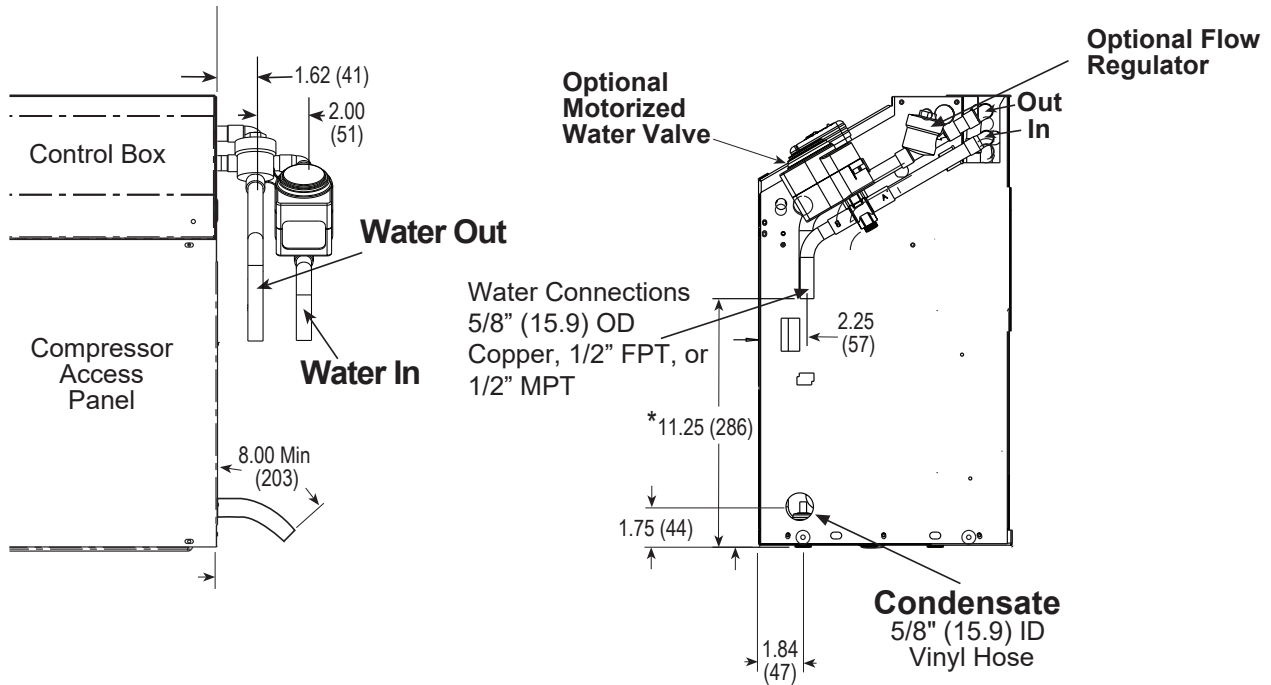
Left Hand Configuration (Front Return)



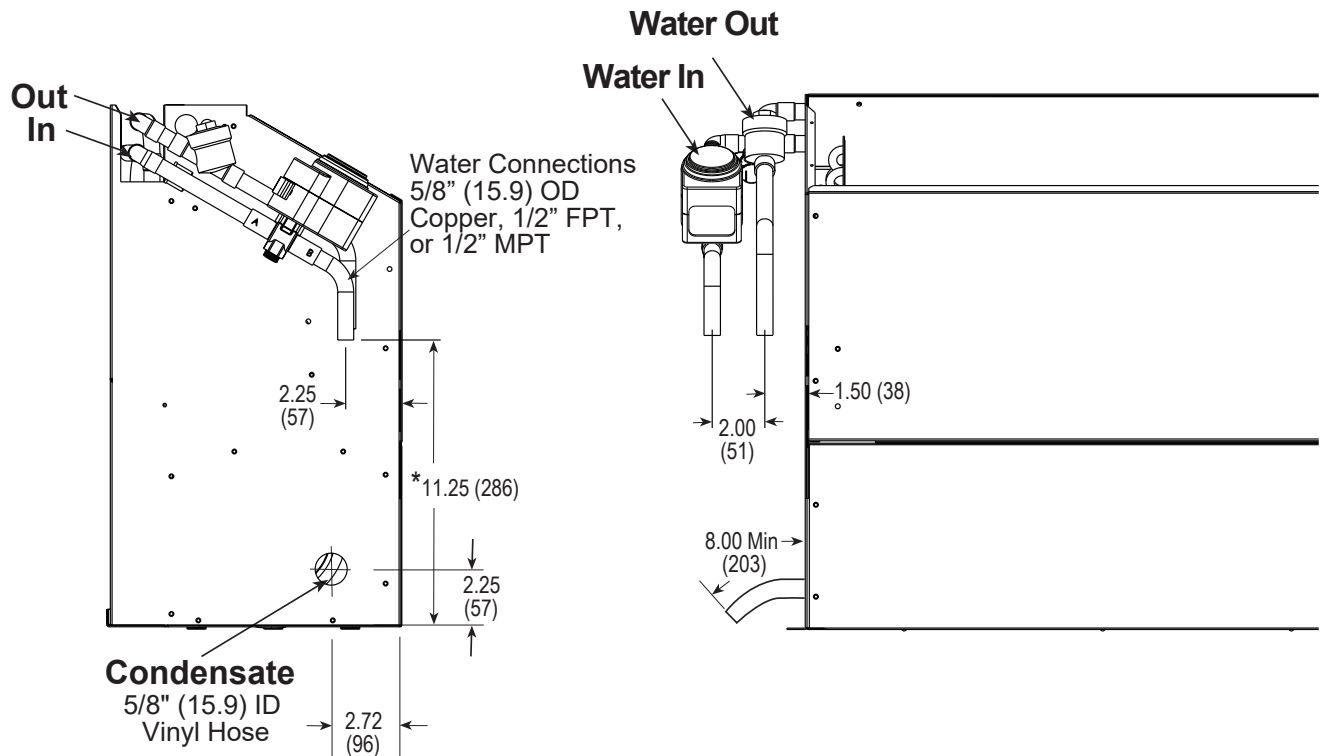
NOTES:

1. Chassis replacements are intended to reuse existing console front cover.
2. Chassis can mount directly on floor.
3. Optional autoflow valve, motorized water valve and disconnect box are shown.

Right Hand Configuration



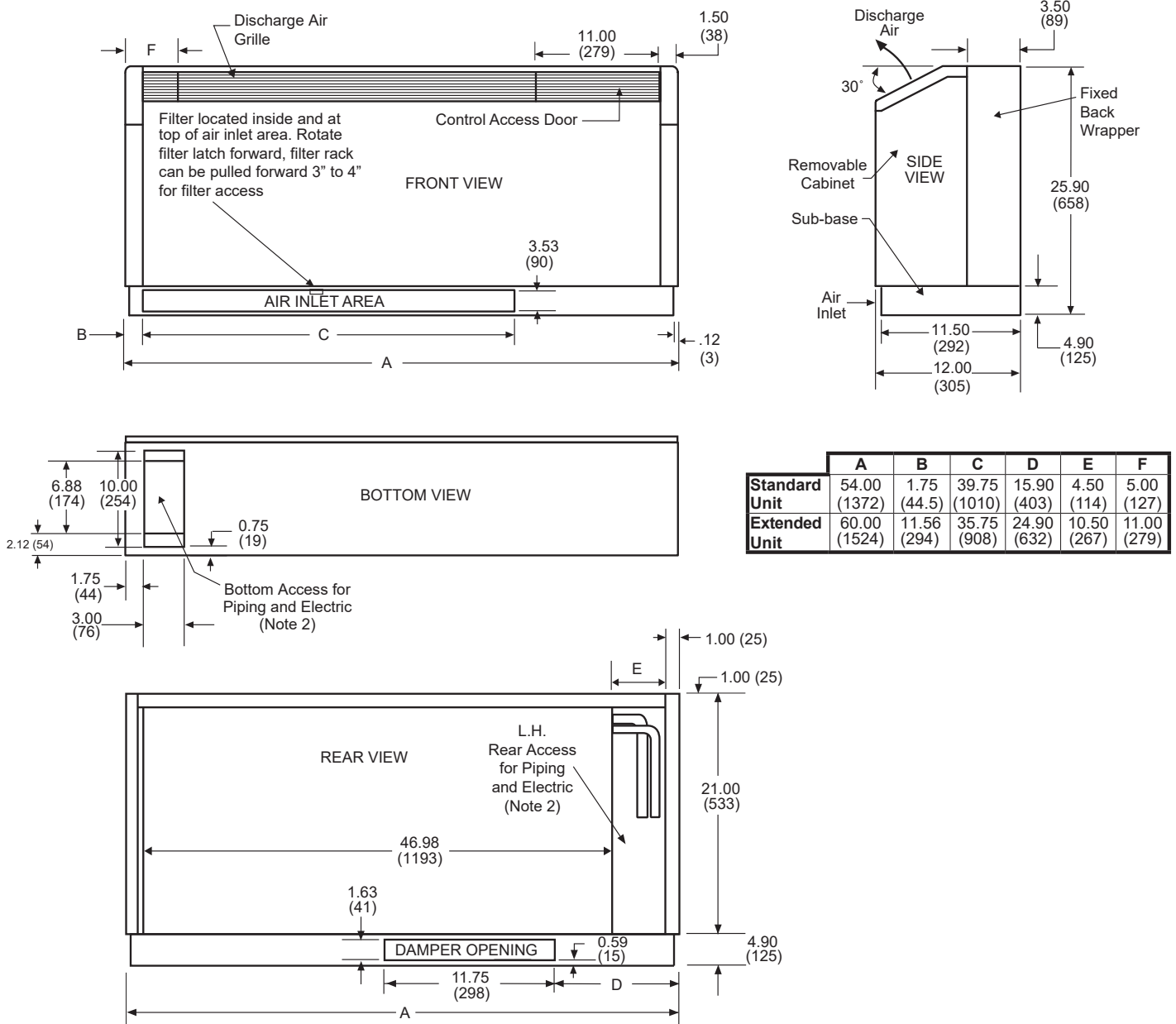
Left Hand Configuration



Notes: *Dimension reduced by fitting if selected.

Console Cabinet Dimensions – Size 18: Bottom Return – Left Hand Piping

Left Hand Bottom Return

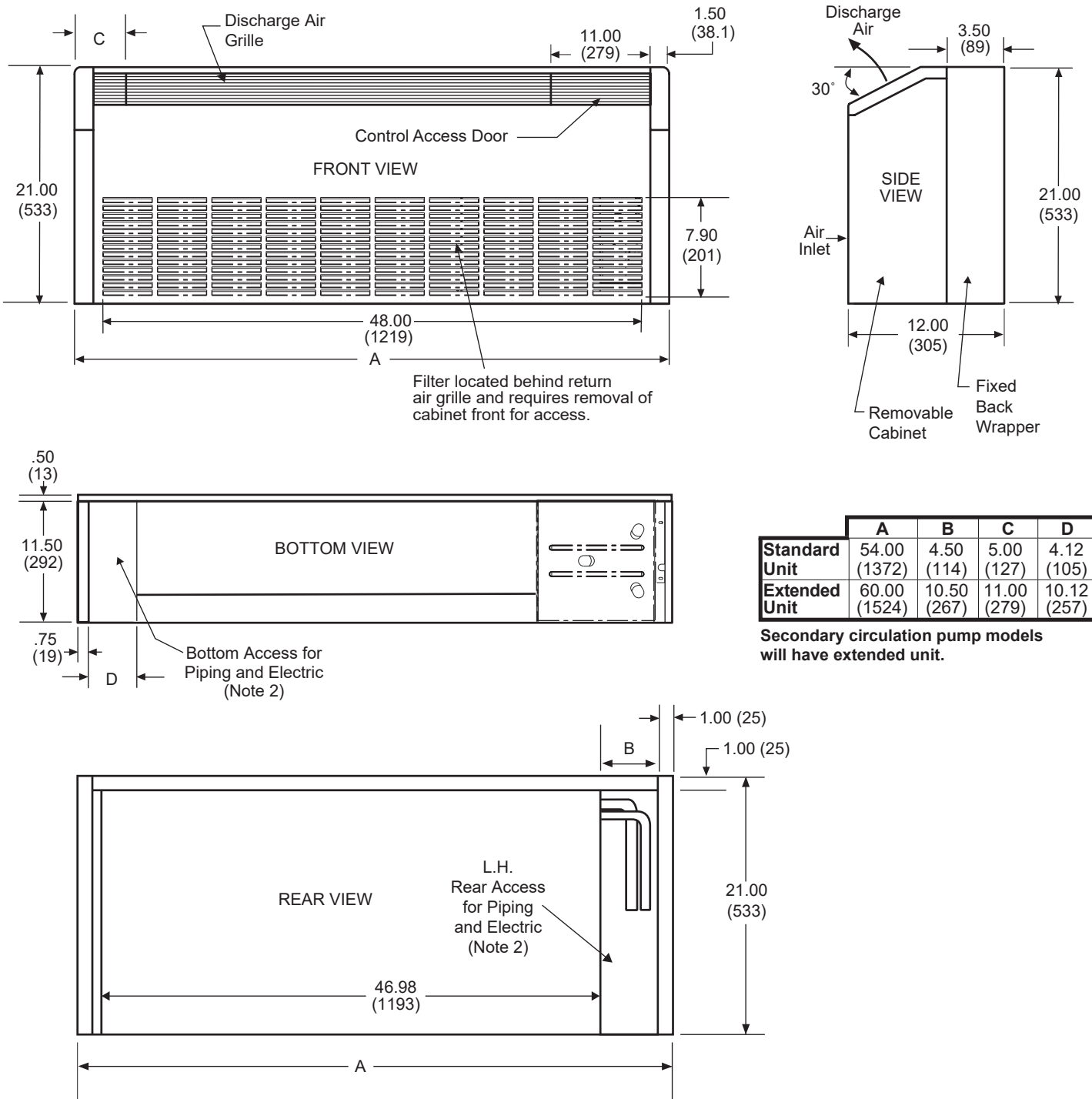


NOTES:

1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is 1" (25) thick fiberglass throwaway.
5. All bottom return units require a subbase.

Console Cabinet Dimensions – Size 18: Front Return – Left Hand Piping

Left Hand Front Return



	A	B	C	D
Standard Unit	54.00 (1372)	4.50 (114)	5.00 (127)	4.12 (105)
Extended Unit	60.00 (1524)	10.50 (267)	11.00 (279)	10.12 (257)

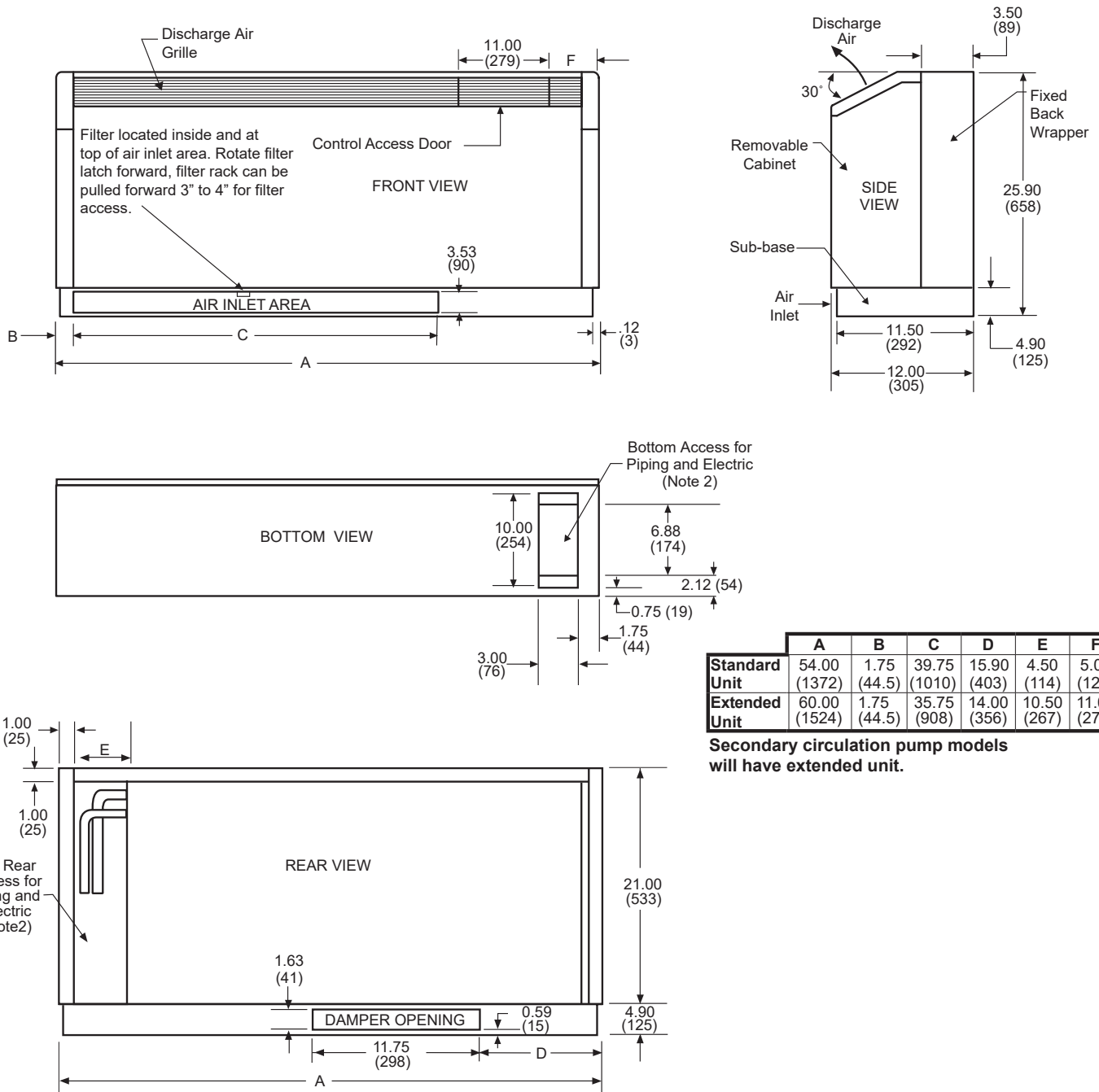
Secondary circulation pump models will have extended unit.

NOTES:

1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is a cleanable polypropylene mesh.

Console Cabinet Dimensions – Size 18: Bottom Return – Right Hand Piping

Right Hand Bottom Return

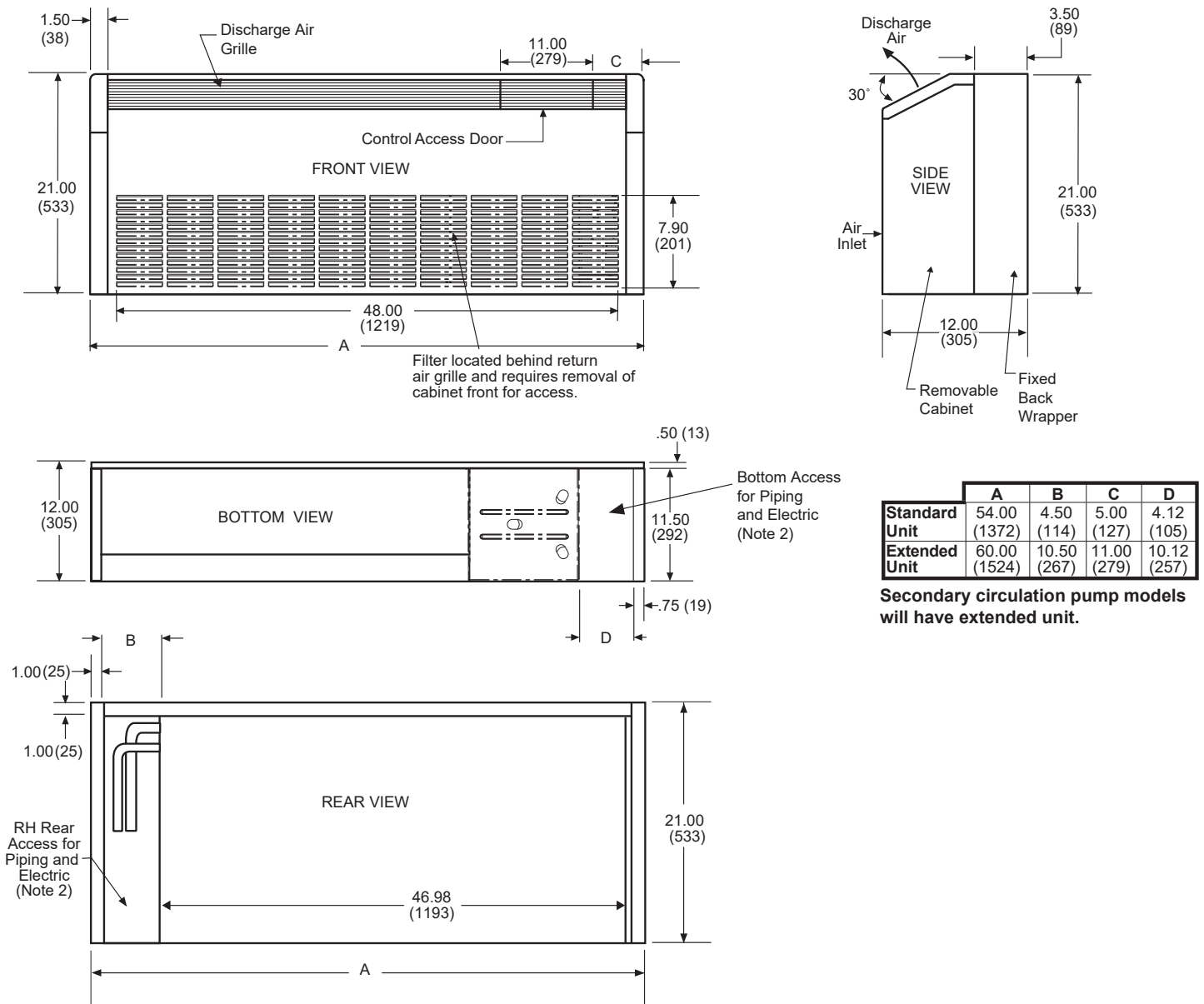


NOTES:

1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is 1" (25) thick fiberglass throwaway.
5. All bottom return units require a subbase.

Console Cabinet Dimensions – Size 18: Front Return – Right Hand Piping

Right Hand Front Return

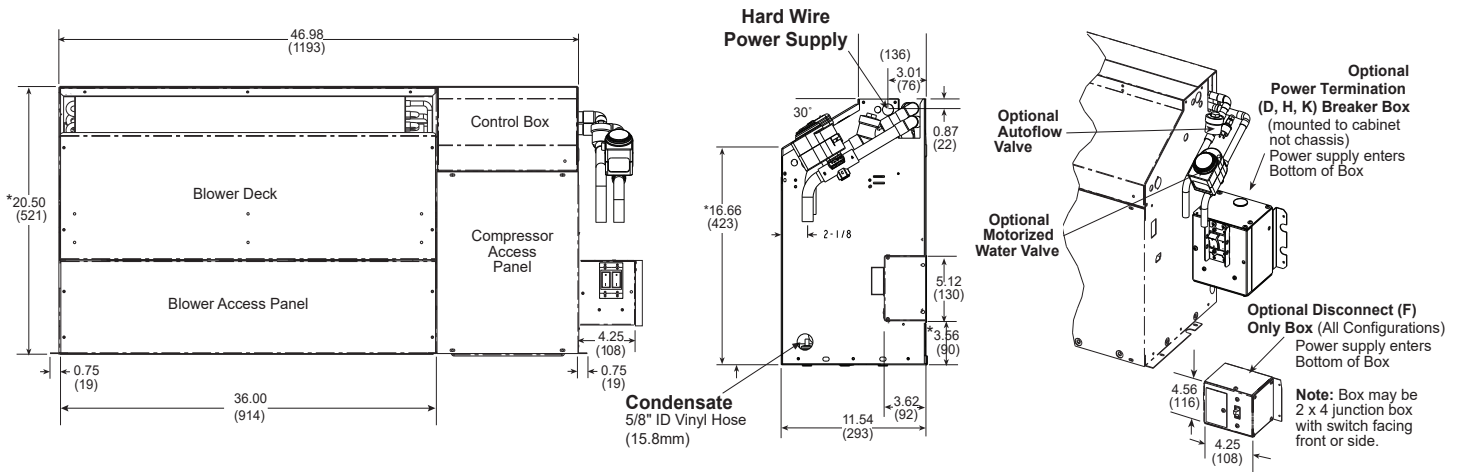


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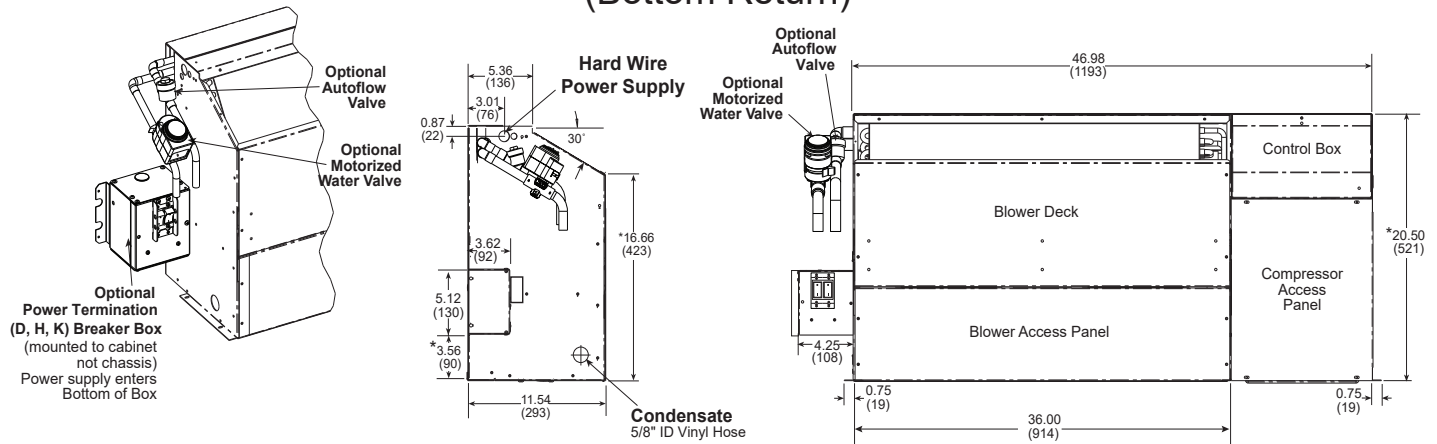
1. All Dimensions are in inches (mm).
2. Access is reduced if optional disconnect box is selected.
3. Optional autoflow regulator, motorized water valve, and disconnect box are not shown.
4. Filter is a cleanable polypropylene mesh.

Console Chassis Dimensions – Size 18: Bottom Return

Right Hand Configuration (Bottom Return)



Left Hand Configuration (Bottom Return)

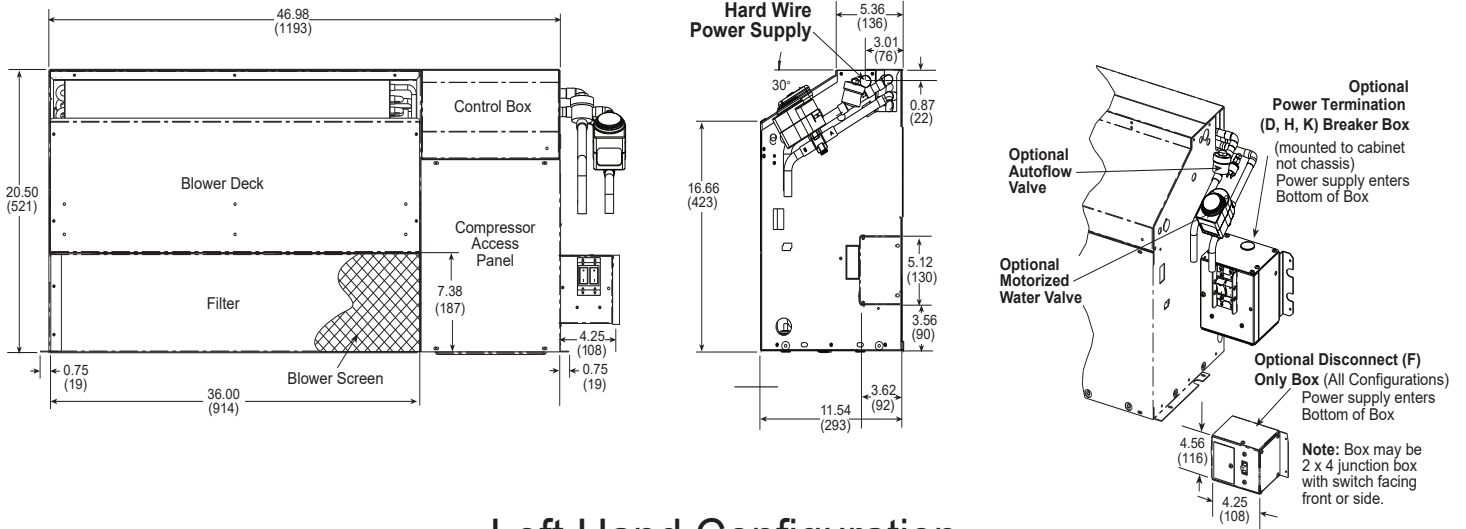


NOTES:

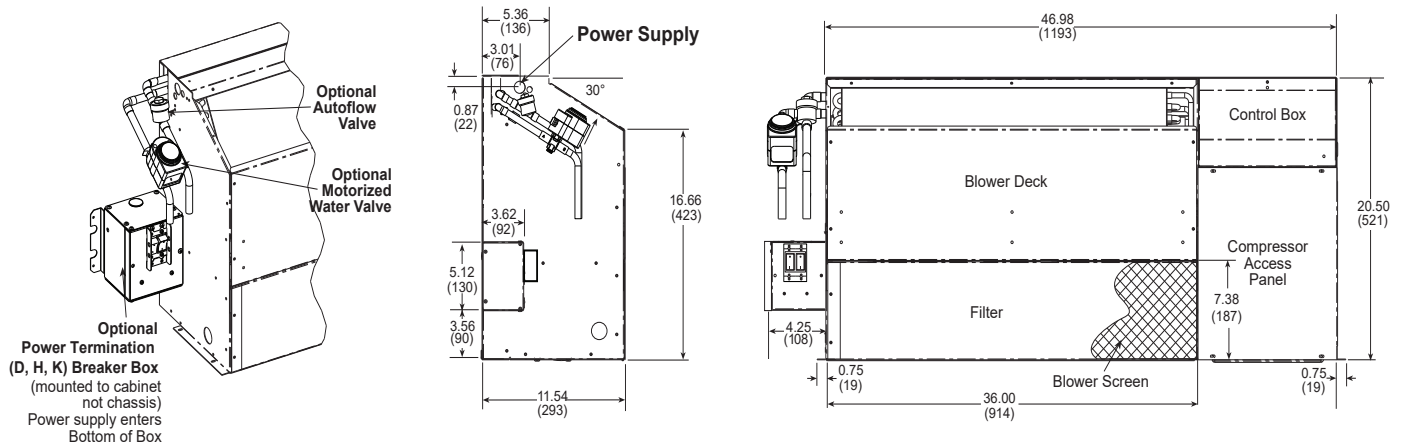
1. Chassis replacements are intended to reuse existing console front cover and subbase (optional).
2. Option to order subbase attached (not shown). If factory attached subbase is ordered, for installed dimensions add 4.9" (124mm) to dimensions shown for a 5" subbase.
3. Optional autoflow valve, motorized water valve and disconnect box are shown.
4. If the replacement chassis is mounted to an existing 3 inch subbase, unit will not be able to use low fan speed setting. When using a 5 inch subbase, low fan speed setting is allowed.

Console Chassis Dimensions – Size 18: Front Return

Right Hand Configuration (Front Return)



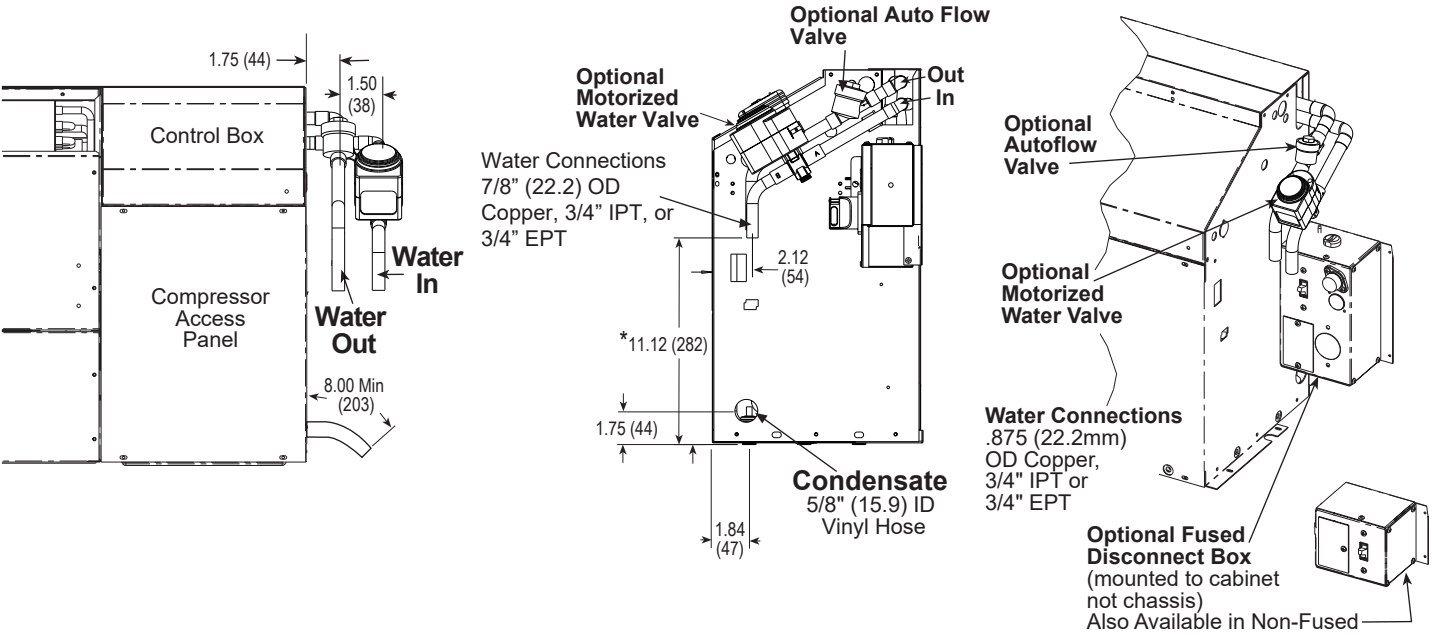
Left Hand Configuration (Front Return)



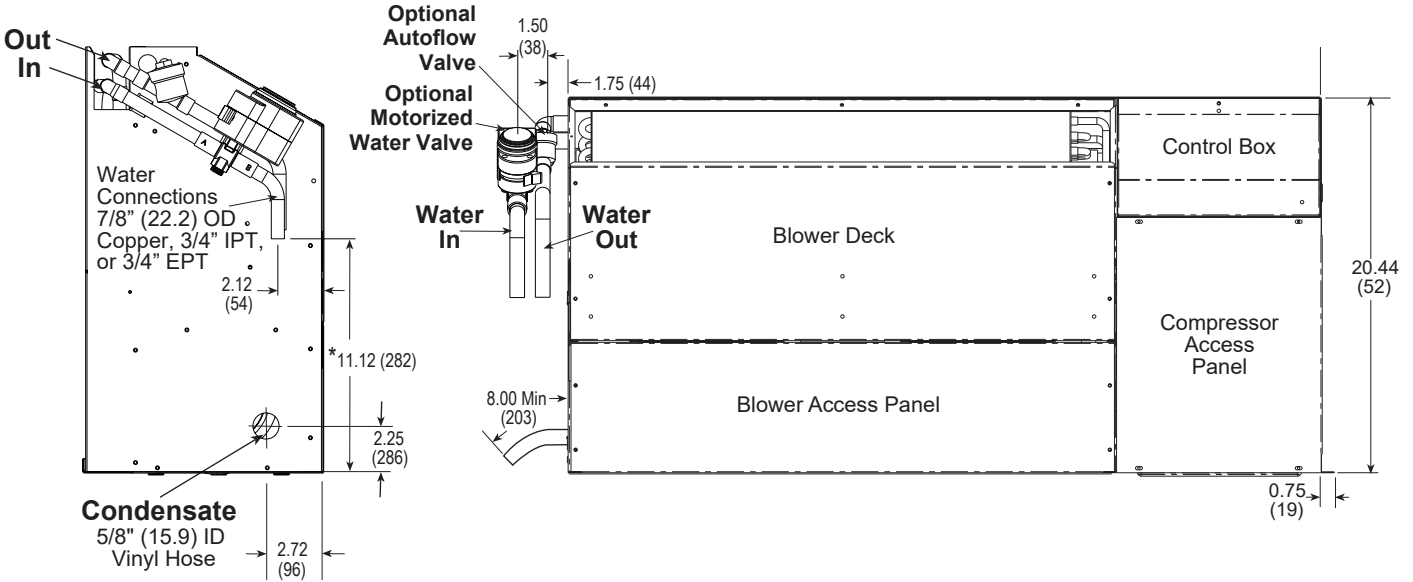
NOTES:

1. Chassis replacements are intended to reuse existing console front cover.
2. Chassis can mount directly on floor.
3. Optional autoflow valve, motorized water valve and disconnect box are shown.

Right Hand Configuration



Left Hand Configuration



Notes: * Dimension reduced by fitting if selected

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TRC Series Wiring Diagram Matrix

All current diagrams can be located online at climatemaster.com. Click 'Commercial Professional'.

1. Click 'Products' in the main navigation
2. Select 'Console Series'
3. Click the Wiring Diagram tab in the middle of the page
4. Select your voltage and controls

Unit Controller	Unit Mounted Thermostat	DDC MPC Controls	All Sizes & Voltages
CXM2	Yes	None	96B0414N21
	No	None	96B0414N22
	No	Yes	96B0414N24
DXM2.5	Yes	None	96B0415N31
	No	None	96B0415N32
	No	Yes	96B0415N34

Tranquility® Console (TRC) Series 60Hz Engineering Specifications – Page 1

General:

Furnish and install ClimateMaster Tranquility® “Console” Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from 20° to 120°F (-6.7° to 48.9°C) as standard. Equivalent units from other manufacturers may be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated and certified in accordance with Air-Conditioning, Heating and Refrigeration Institute/International Standards Organization (AHRI/ISO 13256-1). All equipment must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada, by Intertek Testing Laboratories (ETL). The units shall have AHRI/ISO and ETL-US-C labels.

All units shall pass a factory acceptance test. The quality control system shall automatically perform factory acceptance test via computer. A detailed report card from the factory acceptance test shall ship with each unit. **(Note: If unit fails the factory acceptance test, it shall not be allowed to ship. Unit serial number shall be recorded by factory acceptance test and furnished on report card for ease of unit warranty status.)**

Basic Construction:

Console units shall have one of the following air flow and piping arrangements: Front Inlet/Right-hand Piping; Front Inlet/Left-hand piping; Bottom Inlet/Right-hand piping; or Bottom Inlet/Left-hand piping as shown on the plans. If units with these arrangements are NOT used, the contractor is responsible for any extra costs incurred by other trades. If other arrangements make servicing difficult, the contractor must provide access panels and clear routes to ease service. Architect/Engineer must approve any changes in layout.

The cabinet, wall mounted back wrapper and subbase shall be constructed of heavy gauge galvanized steel with a baked polyester powder coat paint finish. Corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. **Unit corrosion protection must meet these stringent requirements or unit(s) will not be accepted.** Color will be Polar Ice. Both sides of the steel shall be painted for added protection. Additionally, the wall mounted back wrapper shall have welded corner bracing. The easily removable cabinet enclosure allows for easy service to the chassis, piping compartment and control compartment.

All interior surfaces shall be lined with 1/4 inch (6.4 mm) thick, 2 lb/ft³ (32 kg/m³) acoustic flexible blanket type glass fiber insulation with a non-woven, anti-microbial treated mat face. Insulation placement shall be designed in a manner that will eliminate any exposed edges to prevent the introduction of glass fibers into the air stream. Standard insulation must meet NFPA Fire Hazard Classification requirements 25/50 per ASTM E84, UL 723, CAN/ULC S102-M88 and NFPA 90A requirements; air erosion and mold growth limits of UL-181; stringent fungal resistance test per ASTM-C1071 and ASTM G21; and shall meet zero level bacteria growth per ASTM G22.

Unit insulation must meet these stringent requirements or unit(s) will not be accepted.

The cabinet shall have a 30° sloped top with aluminum rigid bar type discharge grille. Aluminum discharge grille shall be anodized charcoal grey in color including hinged control door. Cabinet shall have rounded edges (0.325 inch / 8.255 mm minimum radius) on all exposed corners for safety and aesthetic purposes. **Units not having sloped top and rounded corners (0.325 inch/8.255 mm minimum) on front, side, top slope, and top corners shall not be accepted.**

Return Air Filter shall be 1inch (25.4 mm) fiberglass disposable type media for bottom return units (units with subbase) or 1/8 inch (3.2 mm) permanent cleanable type media for front return type units.

Option: The unit shall be provided with a keyed lock on the control access door.

Option: The unit shall be provided with a motorized outside air damper and damper assembly, factory mounted and wired.

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Tranquility® Console (TRC) Series 60Hz Engineering Specifications – Page 2

Option: The unit shall be provided in front return air configuration. Front return air unit shall include a front return air grille integrally stamped into the cabinet and shall be provided without a 5 inch high subbase.

Option: The unit shall include an optional architectural-style field installed return air grille to help conceal the subbase return air opening (units with bottom return only).

Option: UltraQuiet package shall consist of high technology sound attenuating material that is strategically applied to the compressor and compressor compartment in addition to the standard ClimaQuiet system design, to further dampen and attenuate sound transmissions. Compressor is mounted on specially engineered sound-tested EPDM isolators.

Fan and Motor Assembly:

Fan and motor assembly shall be assembled on a slide out fan deck with quick electrical disconnecting means to provide and facilitate easy field servicing. The fan motor shall be multi-speed, permanently lubricated, PSC type, with internal thermal overload protection. Units supplied without permanently lubricated motors must provide external oilers for easy service. The fan motor shall include a torsionally flexible motor mounting system or saddle mount system with resilient rings to inhibit vibration induced high noise levels associated with "hard wire belly band" motor mounting. The airflow rating of the unit shall be based on a wet coil and a clean filter in place. **Ratings based on a dry coil and/or no filter shall NOT be acceptable.**

Refrigerant Circuit:

All units shall contain an EarthPure® (HFC-410A) sealed refrigerant circuit including a high efficiency rotary compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, an enhanced corrugated aluminum lanced fin and rifled copper tube refrigerant to air heat exchanger, reversing valve, coaxial (tube in tube) refrigerant to water heat exchanger, and safety controls including a high pressure switch, low pressure switch (loss of charge), water coil low temperature sensor, and air coil low temperature sensor. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the optional disconnect switch. **Units that cannot be reset at the thermostat shall not be acceptable.**

Hermetic compressors shall be internally sprung. The compressor will be mounted on specially engineered sound-tested EPDM vibration isolation grommets for maximized vibration attenuation. Compressor shall have thermal overload protection. Compressor shall be located in an insulated compartment away from air stream to minimize sound transmission.

Refrigerant to air heat exchangers shall utilize enhanced corrugated lanced aluminum fins and rifled copper tube construction rated to withstand 625 PSIG (4309 kPa) refrigerant working pressure. Refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 625 PSIG (4309 kPa) working refrigerant pressure and 500 PSIG (3445 kPa) working water pressure. The refrigerant to water heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces. The black colored coating shall provide a minimum of 1000 hours salt spray protection per ASTM B117-97 on all external steel and copper tubing. The material shall be formulated without the inclusion of any heavy metals and shall exhibit a pencil hardness of 2H (ASTM D3363-92A), crosshatch adhesion of 4B-5B (ASTM D3359-95), and impact resistance of 160 in-lbs (184 kg-cm) direct (ASTM D2794-93).

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual port balanced type with external equalizer for optimum refrigerant metering. Units shall be designed and tested for operating ranges of entering water temperatures from 20° to 120°F (-6.7° to 48.9°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function. If the reversing valve solenoid defaults to cooling mode, an additional low temperature thermostat must be provided to prevent over-cooling an already cold room.

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Tranquility® Console (TRC) Series 60Hz Engineering Specifications – Page 3

Option: The unit will be supplied with cupro-nickel coaxial water to refrigerant heat exchanger.

Option: The unit will be supplied with internally factory mounted two-way water valve for variable speed pumping requirements. A factory-mounted or field-installed high pressure switch shall be installed in the water piping to disable compressor operation in the event water pressures build due to water freezing in the piping system.

Option: The unit will be supplied with internally factory mounted automatic water flow regulators.

Option: The unit will be supplied with internally mounted secondary pump for primary/secondary applications, specifically single-pipe systems. (Requires extended unit).

Option: The unit shall be supplied with extended range Insulation option, which adds closed cell insulation to internal water lines, and provides insulation on suction side refrigeration tubing including refrigerant to water heat exchanger.

Option: The refrigerant to air heat exchanger shall be coated.

Piping:

Water piping shall terminate in the same location regardless of the connection and valve options.

Option: Threaded MPT copper fittings (sweat connections are standard).

Option: Threaded FPT copper fittings (sweat connections are standard).

Drain Pan:

The drain pan shall be constructed of galvanized steel and have a powder coat paint application to further inhibit corrosion. This corrosion protection system shall meet the stringent 1,000 hour salt spray test per ASTM B117. If plastic type material is used, it must be HDPE (High Density Polyethylene) to avoid thermal cycling shock stress failure over the lifetime of the unit. Drain pan shall be insulated. Drain outlet shall be located at pan as to allow complete and unobstructed drainage of condensate. The unit as standard will be supplied with solid-state electronic condensate overflow protection. **Mechanical float switches will NOT be accepted.**

Option: The unit shall be supplied with stainless steel drain pan.

Electrical:

Unit control shall be located under the hinged control door in the sloped top grille. Operating control shall consist of push buttons to select mode of operation "OFF", "HEAT," "COOL," "AUTO", Fan "AUTO" (fan cycles with compressor), Fan "ON" (continuous fan), Fan "LO" (low speed fan), and Fan "HI" (high speed fan). Temperature adjustment shall be accomplished via two push buttons, one labeled with an arrow up, and the other labeled with an arrow down. Control shall include an LCD display for display of temperature and setpoint. **Units without an LCD display shall not be accepted.**

A control box shall be located above the unit compressor compartment and shall contain operating controls as outlined in the paragraph above, 24VAC transformer, double-pole compressor relay, and solid-state controller for complete unit operation. Reversing valve and fan motor wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. A unit mounted single-stage digital automatic or manual changeover digital thermostat (ATA11U03) with a remote sensor measuring return air temperature shall control the compressor operation for heating and cooling (two-speed fan control available with

Tranquility® Console (TRC) Series 60Hz Engineering Specifications – Page 4

DXM2.5 controls). Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and setpoint(s) in °F or °C. Field can configure digital thermostat for ACO or MCO operation.

Option: Provisions for remote thermostat (single fan speed).

Option: Disconnect Switch, Non-Fused.

Option: Breaker.

Option: 20A power plug/cord.

Option: 20A plug/cord, receptacle, disconnect switch, non-fused.

Enhanced Solid State Control System (CXM2):

Units shall have a solid-state control system. Units utilizing electro-mechanical control shall not be acceptable. The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type thermostat. The control system shall have the following features:

- a. Anti-short cycle time delay on compressor operation.
- b. Random start on power up mode.
- c. Low voltage protection.
- d. High voltage protection.
- e. Unit shutdown on high or low refrigerant pressures.
- f. Unit shutdown on low water temperature.
- g. Condensate overflow electronic protection.
- h. Option to reset unit at thermostat or disconnect.
- i. Automatic intelligent reset. Unit shall automatically reset the unit 5 minutes after trip if the fault has cleared. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur.
- j. Ability to defeat time delays for servicing.
- k. The low-pressure switch shall not be monitored for the first 120 seconds after a compressor start command to prevent nuisance safety trips.
- l. 24V output to cycle a motorized water valve or other device with compressor contactor.
- m. Unit Performance Sentinel (UPS). The UPS warns when the heat pump is running inefficiently.
- n. Water coil low temperature sensing (selectable for water or anti-freeze).
- o. Air coil low temperature sensing.
- p. Minimized reversing valve operation (Unit control logic shall only switch the reversing valve when cooling is demanded for the first time. The reversing valve shall be held in this position until the first call for heating, ensuring quiet operation and increased valve life).
- q. Emergency shutdown contacts.
- r. Entering and leaving water temperature sensing.
- s. Leaving air temperature sensing.
- t. Compressor discharge temperature sensing.

NOTE: Units not providing the 8 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), air coil low temperature cut-out, water coil low temperature cut-out, and condensate overflow protections will not be accepted.

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Tranquility® Console (TRC) Series 60Hz Engineering Specifications – Page 5

When CXM2 is connected to AWC99U01 thermostat or handheld service tool, the installer/service technician can; check DIP switch S2 settings; run operation modes manually; check all physical inputs from thermostat and refrigerant pressure switches status, (Y1, Y2, W, O, G, H, ESD, NSB, OR, HP switch, and LOC switch); current or at time of fault the following temperatures - water coil (LT1), air coil (LT2), compressor discharge, leaving air, leaving water, entering water and control voltage; record last five faults, list possible reasons, and clear faults. When the AWC99U01 communicating thermostat is used this same functionality can be viewed and adjusted remotely in the web portal or mobile app. **Systems not providing remote access, diagnosis, and adjustment functionality will not be accepted.**

Option: Enhanced Solid State Control System (DXM2.5)

This control system is a communicating controller.

Control shall have the above-mentioned features of the CXM2 control system along with the following expanded features:

- a. Removable thermostat connector.
- b. Night setback control.
- c. Random start on return from night setback.
- d. Override temperature control with 2-hour timer for room occupant to override setback temperature at the thermostat.
- e. Dry contact night setback output for digital night setback thermostats.
- f. Ability to work with heat pump or heat/cool (Y, W) type thermostats.
- g. Ability to work with heat pump thermostats using O or B reversing valve control.
- h. Boilerless system heat control at low loop water temperature.
- i. Ability to allow up to 3 units to be controlled by one thermostat.
- j. Relay to operate an external damper.
- k. Relay to start system pump.
- l. 75 VA control transformer. Control transformer shall have load side short circuit and overload protection via a built-in circuit breaker.

NOTE: Units not providing the 8 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), air coil low temperature cut-out, water coil low temperature cut-out, and condensate overflow protection for both drain pans will not be accepted.

When DXM2.5 is connected to AWC99U01 communicating thermostat or handheld service tool, the installer/service technician can; check and set CFM; check DIP switch S1, S2, and S3 settings; run operation modes manually; check all physical inputs from thermostat and refrigerant pressure switches status, (Y1, Y2, W, O, G, H, ESD, NSB, OR, HP switch, and LOC switch); current or at time of fault the following temperatures - water coil (LT1), air coil (LT2), compressor discharge, leaving air, leaving water, entering water and control voltage; record last five faults, list possible reasons, and clear faults. When the AWC99U01 communicating thermostat is used this same functionality can be viewed and adjusted remotely with the only portal or mobile app. **Systems not providing remote access, diagnosis, and adjustment functionality will not be accepted.**

Digital Night Setback with Pump Restart (DXM2.5 w/ ATP32U03C/04C, AWC99U01):

The unit will be provided with a Digital Night Setback feature using an accessory relay on the DXM2.5 controller with an ATP32U03C/04C or AWC99U01 thermostat and an external, field-provided time clock. The external time clock will initiate and terminate the night setback period. The thermostat will have a night setback override feature with a programmable override time period. An additional accessory relay on the unit DXM2.5 controller will energize the building loop pump control for the duration of the override period. **(Note: This feature requires additional low voltage wiring. Consult Application Drawings for details.)**

Tranquility® Console (TRC) Series 60Hz Engineering Specifications – Page 6

Remote Service Sentinel (CXM2/DXM2.5):

Solid state control system shall communicate with applicable thermostats to display (at the thermostat) the unit status, fault status, and specific fault condition, as well as retrieve previously stored fault that caused unit shutdown. The Remote Service Sentinel allows building maintenance personnel or service personnel to diagnose unit from the wall thermostat. The control board shall provide a signal to the thermostat, indicating a lockout. A detailed message shall be provided at the communicating thermostat or service tool and specific fault status such as over/under voltage fault, high pressure fault, low pressure fault, low water temperature fault, condensate overflow fault, etc. **Units that do not provide this remote service sentinel shall not be acceptable.**

Option: MPC (Multiple Protocol Control) Interface System

Units shall have all the features listed above (either CXM2 or DXM2.5) and the control board will be supplied with a Multiple Protocol interface board. Available protocols are BACnet MS/TP, Modbus, or Johnson Controls N2. The choice of protocol shall be field selectable/changeable via the use of a simple selector switch. **Protocol selection shall not require any additional programming or special external hardware or software tools.** This will permit all units to be daisy chain connected by a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. space temperature
- b. leaving water temperature
- c. discharge air temperature
- d. command of space temperature setpoint
- e. cooling status
- f. heating status
- g. low temperature sensor alarm
- h. low pressure sensor alarm
- i. high pressure switch alarm
- j. condensate overflow alarm
- k. hi/low voltage alarm
- l. fan "ON/AUTO" position of space thermostat as specified above
- m. unoccupied/occupied command
- n. cooling command
- o. heating command
- p. fan "ON/AUTO" command
- q. fault reset command
- r. itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

Warranty:

ClimateMaster shall warranty equipment for a period of 12 months from start up or 18 months from shipping (which ever occurs first).

Option: Extended 4-year compressor warranty covers compressor for a total of 5 years.

Option: Extended 4-year refrigeration circuit warranty covers coils, reversing valve, expansion valve and compressor for a total of 5 years.

Option: Extended 4-year control board warranty covers the CXM2/DXM2.5 control board for a total of 5 years.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com. © ClimateMaster, Inc. All rights reserved 2006

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FIELD INSTALLED OPTIONS

Hose Kits:

Hoses shall be 1 foot (31 cm) long, braided stainless steel; fire rated hoses complete with adapters. Only fire rated hoses will be accepted. **Note: Threaded connection piping option must be ordered for hose kit connections.**

Option: 2 foot (61 cm) hose lengths instead of standard 1 foot (31 cm) length.

Valves:

The following valves are available and will be shipped loose:

- a. Ball valve; bronze material, standard port full flow design, FPT connections.
- b. Ball valve with memory stop and PT port.
- c. "Y" strainer with blowdown valve; bronze material, FPT connections
- d. Motorized water valve; slow acting, 24v, FPT connections.

Hose Kit Assemblies:

The following assemblies ship with the valves already assembled to the hose described:

- a. Supply and return hoses having ball valve with PT port.
- b. Supply hose having ball valve with PT port; return hose having automatic flow regulator valve with PT ports, and ball valve.
- c. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having automatic flow regulator with PT ports, and ball valve.
- d. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having ball valve with PT port.

Thermostats:

The thermostat shall be a ClimateMaster mechanical or electronic type thermostat as selected below with the described features:

a. Thermostat (Communicating) (AWC99U01)

An electronic communicating web-enabled touchscreen thermostat shall be provided. The thermostat shall offer three stages of heating and two stages of cooling with precise temperature control and have a four-wire connection to the unit. The thermostat shall be capable of manual or automatic change-over operation and shall operate in standard or programmable mode. An integrated humidity control feature shall be included to control a humidifier and/or a dehumidifier. The thermostat shall include a utility demand reduction feature to be initiated by an independent time program or an external input.

The thermostat shall provide access to via the web portal or mobile application to include temperature adjustment, schedule adjustment including occupied/unoccupied, entering water temperature, leaving water temperature, water coil temperature, air coil temperature, leaving air temperature, and compressor discharge temperature. A graphical system layout to be provided with real-time operating mode information of the temperature sensors for easy diagnostics.

The thermostat shall display system faults with probable cause and troubleshooting guidance. The system shall provide in clear language last five faults, time of faults, operating temps at time of fault, and possible reasons for the fault. The thermostat shall provide access for immediate manual control of all outputs via the web portal/mobile application for rapid troubleshooting.

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b. Single-Stage Digital Auto or Manual Changeover (ATA11U01)

Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature and setpoint(s) in °F or °C. The Thermostat shall provide permanent memory of setpoint(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall provide temperature display offset for custom applications.

c. Multi-stage Manual Changeover Programmable 5/2 Day (ATP21W02)

Thermostat shall be 5 day/2 day programmable (with up to 4 setpoints per day), multi-stage (2H/1C), manual changeover with HEAT-OFF-COOL-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, setpoint(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of setpoint(s) without batteries. Thermostat shall provide convenient override feature to temporarily change setpoint.

d. Multi-stage Automatic or Manual Changeover Programmable 7 Day (ATP32U03C)

Thermostat shall be 7 day programmable (with up to 4 setpoints per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have a blue backlit dot matrix LCD display with temperature, setpoints, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM2 or DXM2.5 controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of setpoints without batteries. Thermostat shall provide heating setpoint range limit, cooling setpoint range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

e. Multistage Automatic or Manual Changeover Programmable 7 Day with Humidity Control (ATP32U04C)

Thermostat shall be 7 day programmable (with up to 4 setpoints per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Separate dehumidification and humidification setpoints shall be configurable for discreet outputs to a dehumidification option and/or an external humidifier. Installer configuration mode shall allow thermostat dehumidification mode to operate with ClimaDry® II reheat or with ECM fan dehumidification mode via settings changes. Thermostat shall have a blue backlit dot matrix LCD display with temperature, relative humidity, setpoints, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM2 or DXM2.5 controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of setpoints without batteries. Thermostat shall provide heating setpoint range limit, cooling setpoint range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

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f. CM100 - Multi-stage Automatic or Manual Changeover digital thermostat (ATA32V01)

Multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have a green backlit LED display with temperature, setpoints, mode, and status indication via a green (cooling) or red(heating) LED. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. The thermostat shall provide permanent memory of setpoints without batteries. Thermostat shall provide heating setpoint range limit, cooling setpoint range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring. Thermostat navigation shall be accomplished via four buttons (Mode/fan/down/up) with menu-driven selections for ease of use and programming.

g. CM300 – Multi-stage, Automatic or Manual Changeover, 7-day Programmable with Wi-Fi and Humidity Control (AVB32V02C)

Residential version shall be 7 day programmable with up to 4 setpoints per day. Commercial version shall be 7 day programmable with 4 occupied/unoccupied periods per day with up to 4-hour override. Multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings, Wi-Fi, pre-occupancy purge fan option, night time control of display backlight, bi-color LED indicates a heating or cooling demand, keypad lock, title 24 compliant, openADR2.0b certified with Skyport web portal. Compatible with condensate overflow warning systems – lockout compressor with message on.

h. CM500 – Color Touchscreen Display, Multi-stage, Automatic or Manual Changeover, 7-day Programmable with Wi-Fi and Humidity Control (AVB32V03C)

Thermostat shall have color resistive touchscreen display with space temperature, relative humidity, setpoints, mode, status indication and local weather (if connected to Wi-Fi). Residential version shall be 7 day programmable with up to 4 setpoints per day. Commercial version shall be 7 day programmable with 4 occupied/unoccupied periods per day with up to 4-hour override. Multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings, Wi-Fi, pre-occupancy purge fan option, customizable screen saver and background displays, indicator on display indicates a heating or cooling demand, set-point lock, title 24 compliant, openADR2.0b certified with Skyport web portal. Compatible with condensate overflow warning systems – lockout compressor with message on the display. Capable of being monitored by 3rd party software. Compatible with AST014 Wi-Fi remote sensor. Configurator mobile app or web portal for easy setup. Separate dehumidification and humidification setpoints shall be configurable for discreet outputs to a dehumidification option and/or an external humidifier. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12- or 24-hour clock. The thermostat shall provide permanent memory of setpoints without batteries. Thermostat shall provide heating setpoint range limit, cooling setpoint range limit, temperature display offset, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide access to a web portal and mobile app for installer setup for configuring options. Thermostat shall have menu-driven selections for ease of use and programming.

i. Single-Stage Digital Automatic or Manual Changeover with Two-Speed Fan Control (ATA11U03) – DXM2.5 and PSC Fan required

Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and setpoint(s) in °F or °C. Thermostat shall allow use of a remote temperature sensor (ASW06 or 17B0031N01), but may be operated with internal sensor via orientation of a jumper.

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DDC Sensors:

ClimateMaster wall mounted DDC sensor to monitor room temperature and interfaces with optional interface system described above. Several types as described below:

- a. Sensor only with no display (MPC).
- b. Sensor with setpoint adjustment and override (MPC only).
- c. Sensor with setpoint adjustment and override, LCD display, status/fault indication (MPC).

Subbase Return Air Grille:

Decorative louvered grille covers the front of subbase including the large return air opening. Order separate and field attach.

NOTICE! This product specification document is furnished as a means to copy and paste ClimateMaster product information into project specification. It is not intended to be a complete list of product requirements. This document is an excerpt from the product submittal and must not be used without consulting the complete product submittal. For complete product installation and application requirements, please consult the complete product submittal. ClimateMaster is not responsible for misuse of this document or a failure to adequately review specific requirements in the product submittal.

Performance Sheet

SUBMITTAL DATA - I-P UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ Btuh

EER: _____

Heating Capacity: _____ Btuh

COP: _____

Ambient Air Temp: _____ °F

Entering Water Temp (Clg): _____ °F

Entering Air Temp (Clg): _____ °F

Entering Water Temp (Htg): _____ °F

Entering Air Temp (Htg): _____ °F

Airflow: _____ CFM

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (lb)

ELECTRICAL DATA

Power Supply: _____ Volts

_____ Phase _____ Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

SUBMITTAL DATA - S-I UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ kW

EER: _____

Heating Capacity: _____ kW

COP: _____

Ambient Air Temp: _____ °C

Entering Water Temp (Clg): _____ °C

Entering Air Temp (Clg): _____ °C

Entering Water Temp (Htg): _____ °C

Entering Air Temp (Htg): _____ °C

Airflow: _____ l/s

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (kg)

ELECTRICAL DATA

Power Supply: _____ Volts

_____ Phase _____ Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

Revision History

Date:	Item:	Action:
06/06/23	All	Transitioned from CXM to CXM2 and DXM to DXM2.5 unit controls. Introduced new AWC Wi-Fi cloud connected communicating thermostat
11/19/21	Pg. 42	Add unit mounted controls description text
10/05/21	ALL	Removed LON Controls
08/26/21	Unit Drawings and Mechanical Specifications	Added subbase notes to bottom return new and replacement chassis pages. Updated the formatting on the drawings pages so all text and images are shown as horizontal on the page. Updated front return air option text.
12-14-20	Pg. 7	Updated Decoder: Piping Connections
10-2-20	All	Added new thermostat options. Decoder option description correction. Various text updates.
6-3-20	Pg.32	Updated Wiring Diagram Matrix
5-26-20	Pg. 14	Updated Antifreeze Correction Table
11/1/16	Updated Document Design	Updated
9/29/16	Pages 21-23, 28-30	Updated discount box dimensions and corrected TRC18 dimensions
03/28/16	Page 37	Run test Engineering Specs. edit
09/21/15	Electrical Data, Physical Data, Wiring Diagram Matrix, and Wiring Diagrams	Updated
08/12/15	All	Updated
08/13/14	Misc. Edits - Page 4, 16, 22, 43 and Wiring Diagrams and Engineering Specs	Updated
11/26/13	Physical Data Table	Updated
11/15/13	ASHRAE/AHRI/ISO English & Metric Tables	Updated
02/08/13	MCO Thermostat Engineering Specifications Added 2 HPWS to Safeties	Removed Updated
11/29/12	Console - Chassis Dimensional Data, Sizes 09-15 and 18	Updated
02/27/12	Unit Features	Updated
02/20/12	Engineering Specifications	Updated
12/06/11	All	Added Extended Unit for I SP, Deleted Isolation Plate
11/08/11	Electrical Data Table Cabinet Dimension Illustrations	Updated
08/09/11	Unit Maximum Working Water Pressure	Updated to Reflect New Safeties
08/03/11	Engineering Specifications	Added Digital Night Setback with Pump Restart (DXM w/ AT-P32U03/04)
07/05/11	Cover Unit Photo	Caption Added
06/13/11	Unit Features Engineering Specifications	Updated
04/07/11	Engineering Specification NOTICE	Updated
02/11/11	Performance Data Selection Notes	Updated
01/03/11	Format All Pages	Updated
07/29/10	Cabinet Dimensions-Size 18 Bottom Return-Left & Right Hand Piping	Updated Dimensions
07/26/10	Wiring Diagrams	Updated
07/26/10	Compressor Mounting Information and Graphics Engineering Specifications	Updated to Reflect Spring/Grommet Change
06/11/10	Engineering Specs	Updated
06/11/10	Format All Pages	Updated
06/11/10	Wiring Diagrams	New Wiring Diagrams
06/11/10	Engineering Specifications	Updated
03/29/10	Physical Data Table	Coax Volume Field Added
05/19/09	Engineering Specifications	Thermostat and Electrical Sections Updated
05/19/09	Stand-Alone and Big Book Submittals	Consolidated
09/22/08	Engineering Specifications	Updated
09/22/08	Cabinet Dimensions Sizes 06-15 and 18	Updated and Verbiage Changes

Revision History

Date:	Item:	Action:
08/26/08	Physical Data Table	Max Working Pressure Table Added
06/12/08	Wiring Diagram Matrix	ETL Information Added
05/30/07	MWV Pressure Drop Data	Updated
04/19/07	Table of Contents	Added Table of Contents
04/19/07	Specifications	Updated Specifications with new Safety Agency
07/14/06	First published	



A **NIBE** GROUP MEMBER

7300 S.W. 44th Street
Oklahoma City, OK 73179
Phone: 405-745-6000
climatemaster.com