

AIR-TO-WATER HEAT PUMP SYSTEM

AM2V Application guide

VITOCAL 100-AW



Air to Water Heat Pump

Heating Capacity:

20.5 to 58 MBH

6 to 17 kW

Cooling Capacity:

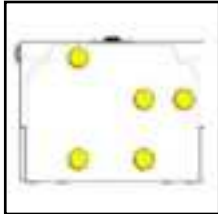
1.4 to 4.3 Ton

5 to 15 kW

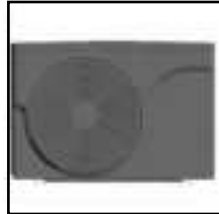
Component Index

Hydronic Components

Electrical Components



Vitocal 100 AM2V
Indoor Unit



Vitocal 100 AM2V
Outdoor Unit



Vitocell 100-V DHW
Tank



Backup Boiler



Circulator



Expansion Tank



Circulator



Mixing Valve



Air Eliminator



Mixing Valve Motor



Vitocell 100-E Buffer Tank



Air Handler



Glycol Feeder



Dirt Separator



Outdoor Air Sensor



Balancing Valve



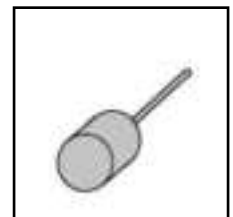
Ball Valve



Check Valve



Diverting Valve



Temperature Sensor



Heat Exchanger

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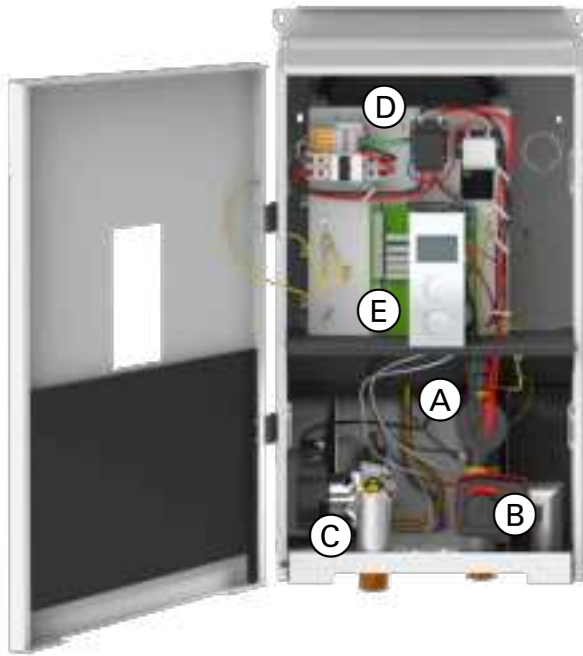
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General Information

Heat Pump Overview

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Product may not be exactly as shown

- Ⓐ Integrated resistive heating element
- Ⓑ Integrated Space Heating/DHW Production diverting valve
- Ⓒ Integrated system pump
- Ⓓ Integrated system expansion tank
- Ⓔ Monochrome digital interface

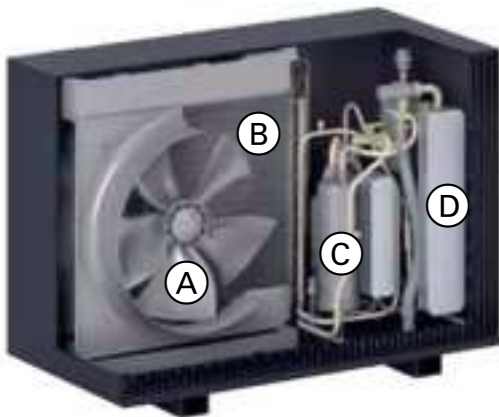
Heat Pump Description

The Vitocal 100-AW AM2V heat pumps are high performance air to water heat pumps designed to provide both heating and cooling of a building and heating domestic hot water. The AM2V package consists of an outdoor unit, an indoor unit and buffer tank. A DHW storage tank is available as an option.

The outdoor unit is of a monoblock design with the refrigeration system totally contained in the outdoor unit eliminating any refrigeration piping and charging between the outdoor unit and inside the house.

The indoor unit contains hydronic system components and controls to simplify the piping of the hydronic system. It also contains an integral electric supplement heater if added capacity is needed under cold weather conditions.

In the heating mode the AM2V can provide heating water temperatures up to 140° F and in cooling a chilled water temperature of 45° F. Performance is dependant on outdoor temperature and system water temperature.



Product may not be exactly as shown

- Ⓐ Coil
- Ⓑ Fan
- Ⓒ Compressor
- Ⓓ Brazed plate heat exchanger

General Information

Heat Pump Overview (Continued)

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Indoor Unit	Model	AM2V 020028	AM2V 034043	AM2V 051078
Electrical Data				
Power Supply	Voltage	230 VAC	230 VAC	230 VAC
	Phase	1	1	1
	Hertz	60	60	60
Amperage (FLA)		31	31	43
Maximum Fuse (Amps)		40	40	50
Electric Heater Output	kW (BTU)	6 (20500)	6 (20500)	9 (30700)
Heating Elements		2	2	3
Hydronic Data				
Hydronic connection		1¼ NPT (Male Threads)	1¼ NPT (Male Threads)	1¼ NPT (Male Threads)
Min. Operating Pressure	PSI (bar)	8 (0.5)	8 (0.5)	8 (0.5)
Max. Operating Pressure	PSI (bar)	30 (2)	30 (2)	30 (2)
Max. System Temperature	°F (°C)	140 (60)	140 (60)	140 (60)
Max. DHW Temperature	°F (°C)	167 (75)	167 (75)	167 (75)
Max. Operating Temperature	°F (°C)	165 (74)	165 (74)	165 (74)
Fixed High Limit	°F (°C)	186 (86)	186 (86)	186 (86)
Expansion vessel volume	USG (l)	3.2 (12)	3.2 (12)	3.2 (12)
Expansion vessel precharge	PSI (bar)	14 (1)	14 (1)	14 (1)
Minimum flow	GPM (m ³ /h)	2.6 (0.6)	3.1 (0.7)	3.7 (0.85)
Maximum flow	GPM (m ³ /h)	4.4 (1.0)	7.5 (1.7)	12.8 (2.9)
Pressure drop	ft. of hd (kPa)	0.6 (2)	1.6 (5)	5.0 (15)
Residual Head ^{*1}	ft. of hd (kPa)	17 (50)	17 (50)	17 (50)
Minimum Relief Valve Capacity	MBH	510	510	510
Dimensional Data				
Dimensions	Height in. (mm)	28-½ (723)	28-½ (723)	28-½ (723)
	Width in. (mm)	16-¼ (416)	16-¼ (416)	16-¼ (416)
	Depth in. (mm)	12-¾ (323)	12-¾ (323)	12-¾ (323)
Weight	lbs (kg)	64 (29)	64 (29)	64 (29)

^{*1} Residual head for the Indoor Unit internal pump, the residual head value takes into consideration pressure drop of the Indoor Unit, Outdoor Unit and supplied installation fittings at rated maximum flow rate of the Indoor Unit. The pressure drop through the piping between the IDU, ODU, buffer tank, and the coil of the indirect DHW tank, must not exceed the stated residual head in order to maintain optimal system performance.

General Information

Heat Pump Overview (Continued)

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Outdoor Unit	Model	AM2V 020028	AM2V 034043	AM2V 051078
Heating/Cooling Data				
Heating Capacity* ¹	MBH (kW)	20.5 (6.01)	34.0 (10)	58.0 (17)
COP (A5W110)* ²		1.3	2.2	1.9
Cooling Capacity Range* ³	Low Tons (kW)	1.4 (4.9)	2.8 (9.8)	4.2 (14.7)
	High Tons (kW)	1.5 (5.2)	2.9 (10.2)	4.3 (15.1)
Energy Efficiency Ratio (EER)		16.81	16.75	14.46
COP		4.927	4.909	4.238
Electrical Data				
Power Supply	Voltage	208/230 VAC	208/230 VAC	208/230 VAC
	Phase	1	1	1
	Hertz	60	60	60
Total Electrical Load	Amps	13.0	21.8	35.1
Compressor Load Rating	Amps	12.2	21.0	33.5
Fan Motor Load Rating	Amps	0.8	0.8	2 X 0.8
Minimum Circuit Ampacity	Amps	17	28	44
Maximum Fuse	Amps	25	45	70
Refrigerant				
Refrigerant		R32	R32	R32
Factory Charge	lbs (kg)	2.43(1.1)	3.97 (1.8)	4.41 (2.0)
Max. Allowable Heating Pressure	PSIG (MPa)	725 (5.0)	740(5.1)	972 (6.7)
Max. Allowable Cooling Pressure	PSIG (MPa)	624 (4.31)	609 (4.2)	624 (4.31)
Max. Operating Low Side Pressure	PSIG (MPa)	305 (2.11)	305 (2.1)	305 (2.11)
Max. Operating High Side Pressure	PSIG (MPa)	638 (4.41)	638 (4.4)	638 (4.41)
Hydronic Data				
Hydronic connection		1 NPT (Male Threads)	1 NPT (Male Threads)	1 NPT (Male Threads)
Water Flow Rate	GPM (m3/hl)	3.7-8.8 (0.85-2.0)	6.2-15.0 (1.4-3.4)	11.4-25.5 (2.6-5.8)
Pressure drop	ft. of hd (kPa)	3.3 (10)	6.7 (20)	15.0 (45)
Maximum temperature of heating medium	°F (°C)	149 (65)	149 (65)	149 (65)
Air and Noise				
Maximum DC power of fan	W	85	170	2 X 75
Maximum air flow	CFM (m3/h)	1765 (3000)	2650 (4500)	2 X 1470 (2 X 2500)
Minimum/maximum air temperature	°F (°C)	-13/109 (-25/43)	-13/109 (-25/43)	-13/109 (-25/43)
Maximum sound pressure. Level at 3.3 ft. (1m) distance	dB(A)	52	55	56
Maximum sound power level	dB(A)	60	63	64
Dimensional Data				
Dimensions (HWXD)	Height in. (mm)	31-¼ (795)	36-½ (928)	52-3/4 (1329)
	Width in. (mm)	46(1165)	50-¾ (1285)	49-¼ (1250)
	Depth in. (mm)	15-¾ (400)	18-¼ (460)	19-½(495)
Weight	lbs (kg)	206 (93.5)	275 (124.5)	411 (186.5)

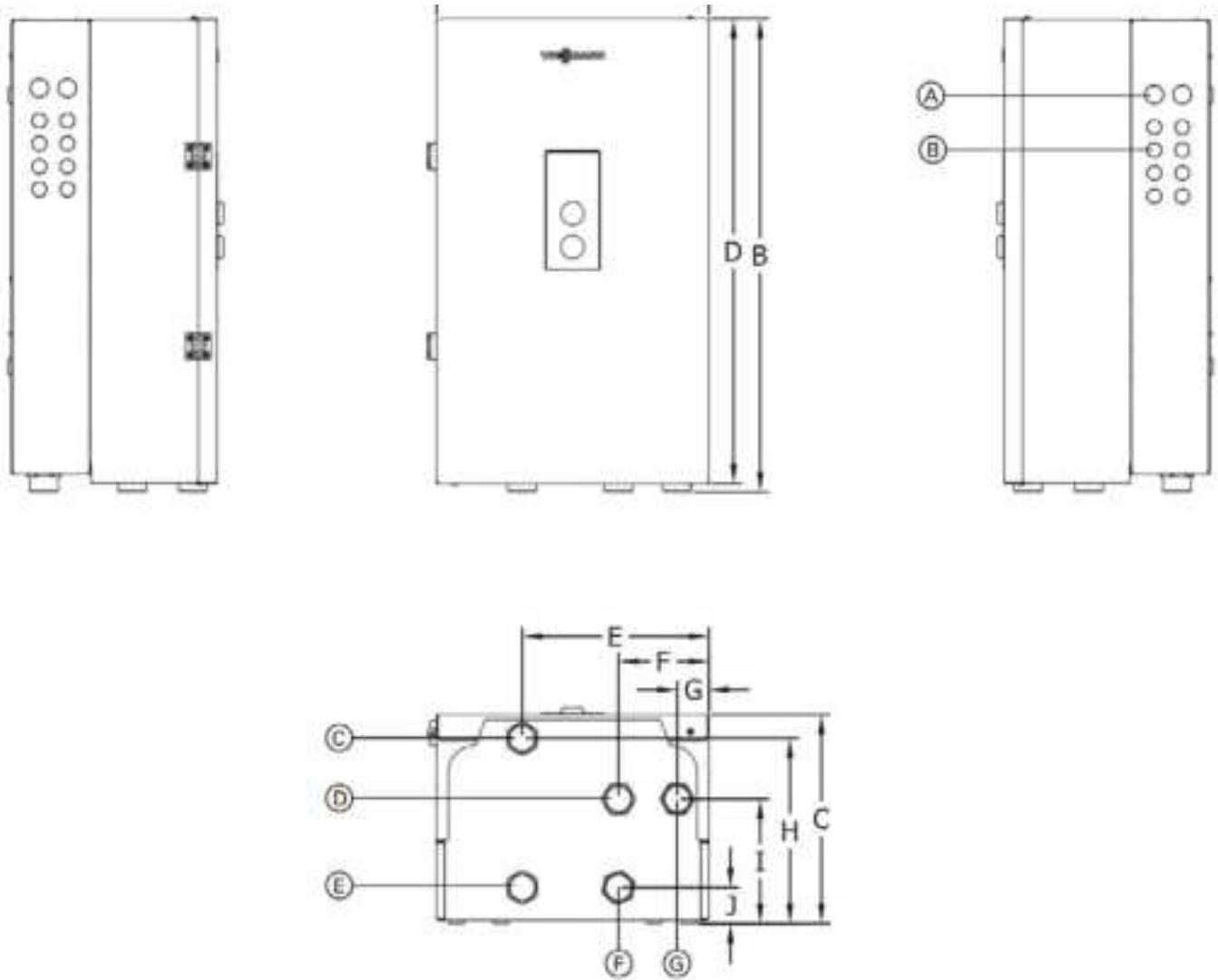
*¹ Heating capacity based on a ambient air temper of 45°F (7°C) supply water temperature 95°F (35°C) and a 8°F (5°C) Δt.

*² COP (A5W110) Coefficient of Performance at ambient air temperature of 5°F (-15.C) supply water temperature 110°F (43.3°C).

*³ Certified to AHRI Standards 550/590 and 551/591 Air Cooled Water Chilling Packages, additional technical information can be found in the AHRI product listing Primary Catalog V3.1 (20240218).

Vitocal 100-AW AM2V Indoor Unit Dimensions

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Dimensions in (mm)

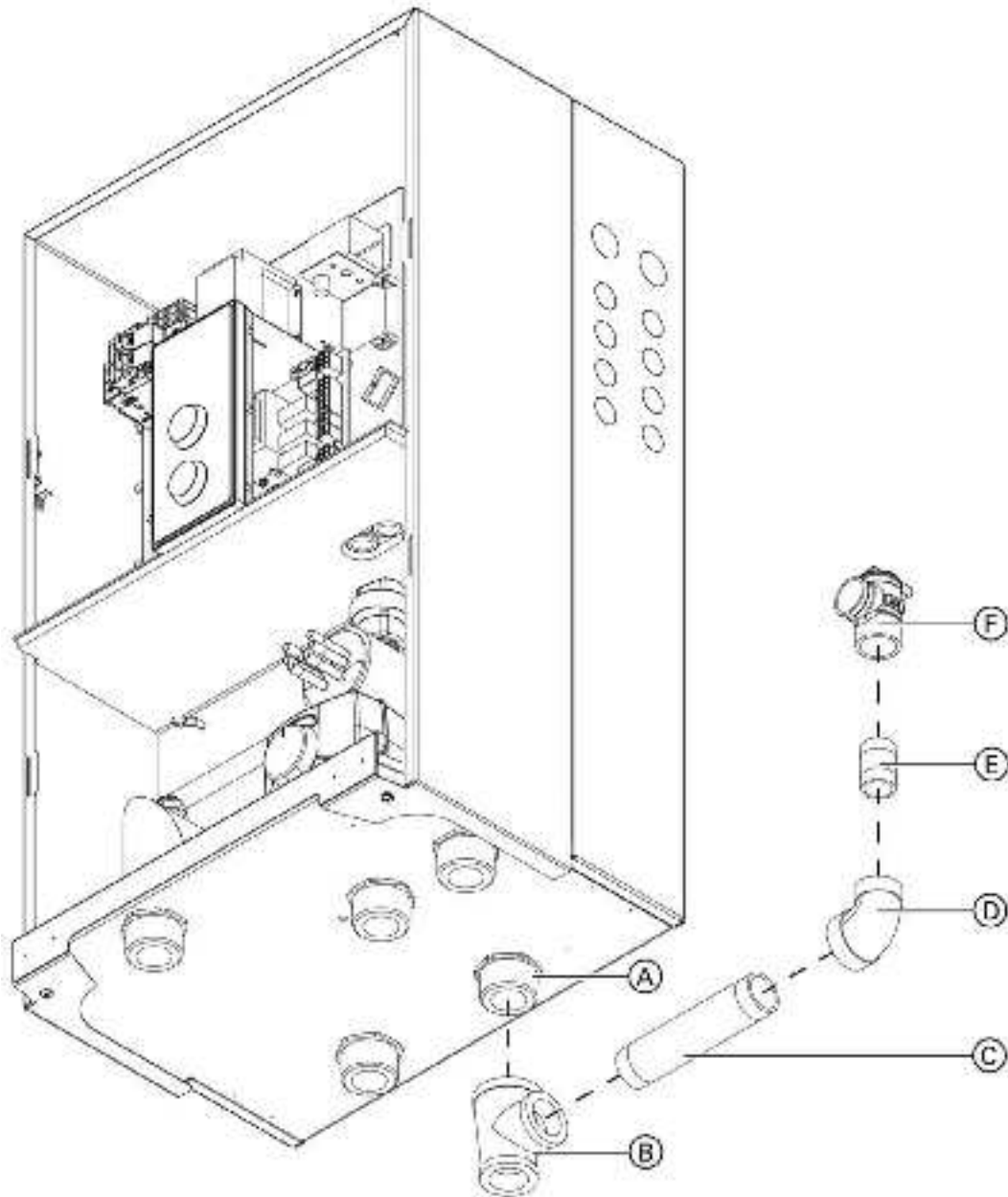
A	16- ¹ / ₄ (416)	F	5- ¹ / ₂ (138)
B	28- ¹ / ₂ (723)	G	2 (48)
C	12- ³ / ₄ (323)	H	11- ¹ / ₄ (283)
D	28- ¹ / ₄ (717)	I	7- ¹ / ₂ (190)
E	11- ¹ / ₄ (285)	J	2- ¹ / ₄ (55)

Legend

- Ⓐ ¾ in. Electrical Knockouts (2 per side)
- Ⓑ ½ in. Electrical Knockouts (8 per side)
- Ⓒ Return to Heat Pump (1-¼ in. NPT)
- Ⓓ Supply to Space Heating (1-¼ in. NPT)
- Ⓔ DHW/Space Heating Return (1-¼ in. NPT)
- Ⓕ Supply from Heat Pump (1-¼ in. NPT)
- Ⓖ DHW Tank Heating Supply (1-¼ in. NPT)

Vitocal 100-AW AM2V Safety Valve Assembly

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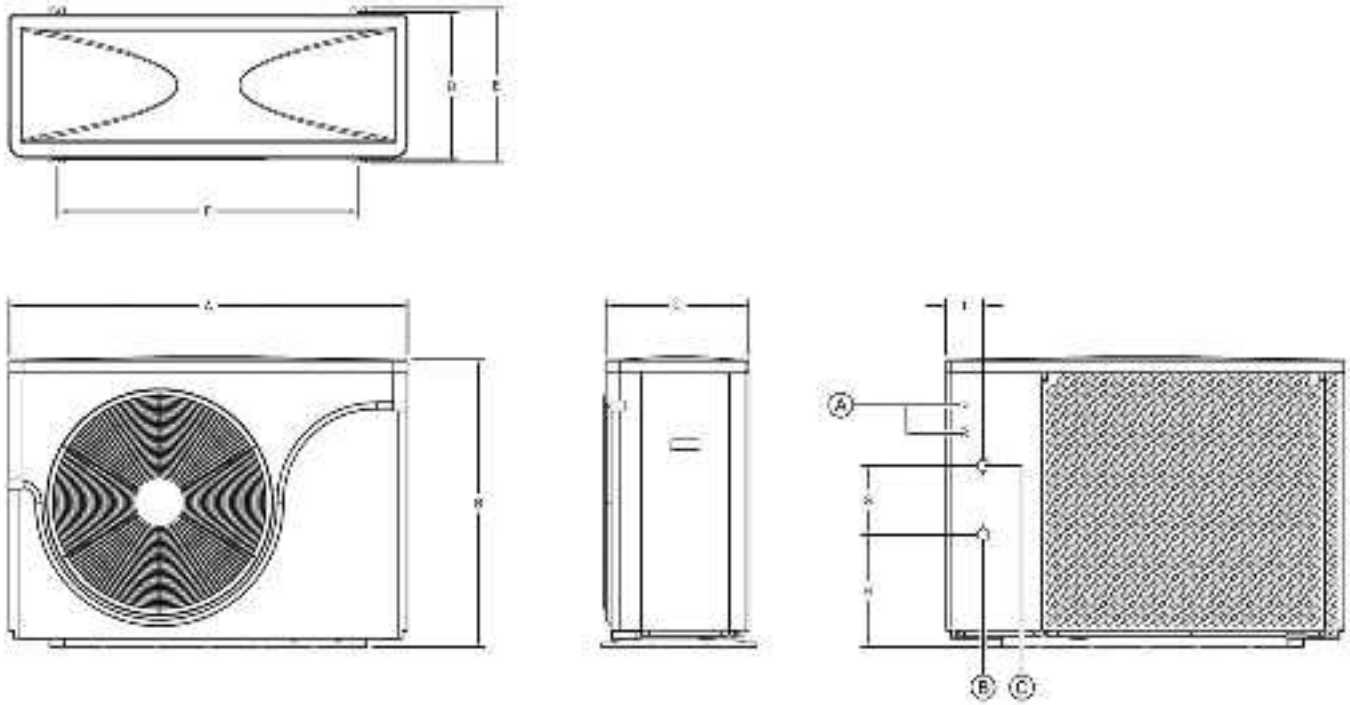
Legend

- Ⓐ Supply from Outdoor Unit
- Ⓑ 1- $\frac{1}{4}$ X 1 X 1 Inch Brass Reducing Tee
- Ⓒ 1 X 6 Inch Long Brass Nipple
- Ⓓ 1 X $\frac{3}{4}$ Inch Brass Reducing Elbow
- Ⓔ $\frac{3}{4}$ Inch Brass Close Nipple
- Ⓕ 30 PSI Pressure Relief Valve

Vitocal 100-AW AM2V Outdoor Unit Dimensions

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AM2V 020028/034043 Outdoor Unit



Legend

- Ⓐ Electrical Connections
- Ⓑ Heat Pump Hydronic Return (1 in. NPT Male)
- Ⓒ Heat Pump Hydronic Supply (1 in. NPT Male)

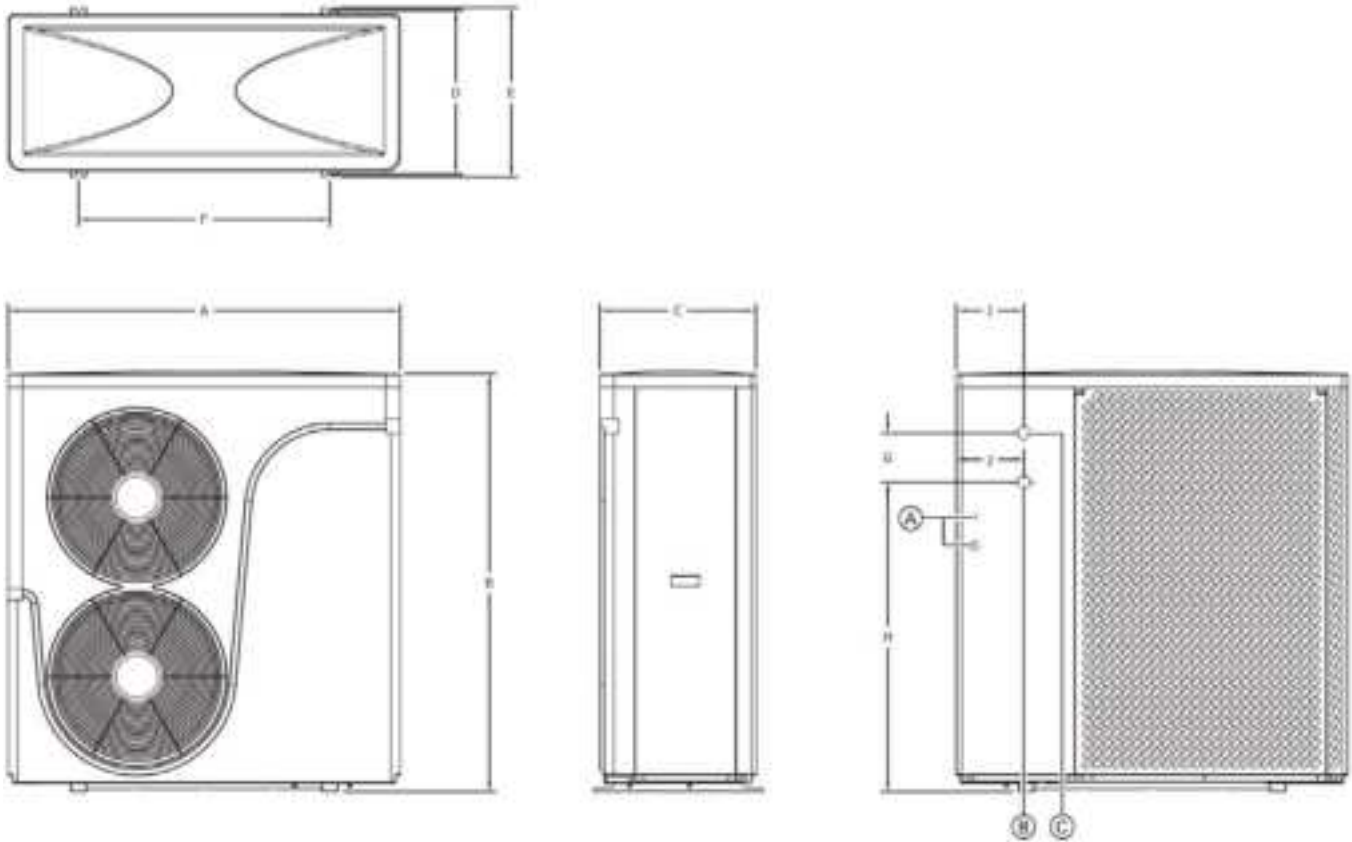
Dimensions in. (mm)

	AM2V 020028	AM2V 034043
A	46(1165)	50- ³ / ₄ (1285)
B	31- ¹ / ₄ (795)	36- ¹ / ₂ (928)
C	15- ³ / ₄ (400)	18- ¹ / ₄ (460)
D	17 (428)	18- ¹ / ₂ (470)
E	17- ³ / ₄ (450)	20 (500)
F	32- ⁵ / ₈ (830)	38- ⁵ / ₈ (975)
G	9-1/a (232)	8- ⁵ / ₈ (220)
H	13 (330)	14- ¹ / ₄ (360)
I	6- ¹ / ₂ (166)	4- ⁵ / ₈ (118)

Vitocal 100-AW AM2V Outdoor Unit Dimensions

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AM2V 051078 Outdoor Unit



Legend

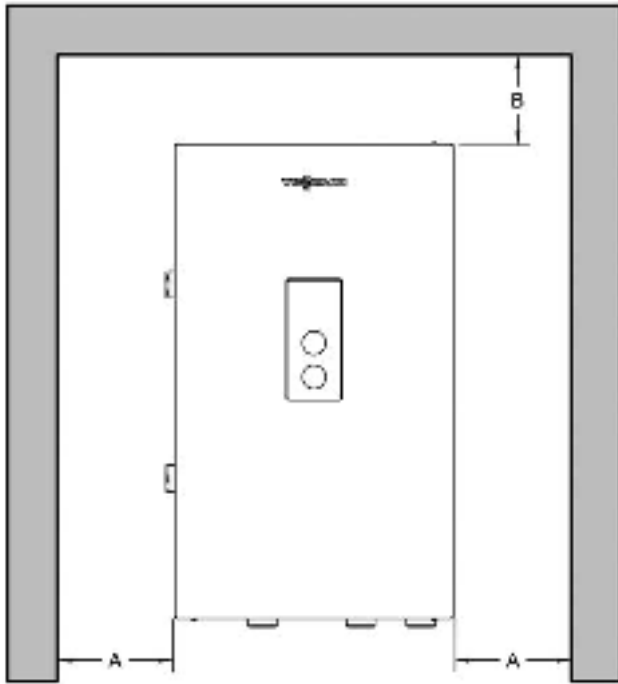
- Ⓐ Electric Connection
- Ⓑ Heat Pump Hydronic Return (1 in. NPT Male)
- Ⓒ Heat Pump Hydronic Supply (1 in. NPT Male)

Dimensions in. (mm)

A	49- ¹ / ₄ (1250)	F	31- ¹ / ₂ (800)
B	52-3/ ^a / _a (1329)	G	6-1/ ^s / _s (155)
C	19- ¹ / ₂ (495)	H	37- ³ / ₄ (983)
D	20- ¹ / ₄ (515)	I	8- ¹ / ₂ (215)
E	21- ¹ / ₄ (540)	J	10 (252)

Recommended Minimum Service Clearances (Indoor Unit)

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Recommended minimum service clearances
For typical installation, it is recommended to install the indoor unit with the clearances shown in the illustration.

A- 12 in. (300 mm)

B - 20 in. (500 mm)

Front Clearance 39 in. (1000 mm)

These dimensions reflect the recommended service clearance for the indoor unit only, ensure adequate clearance is left for the installation of piping and electrical connections.

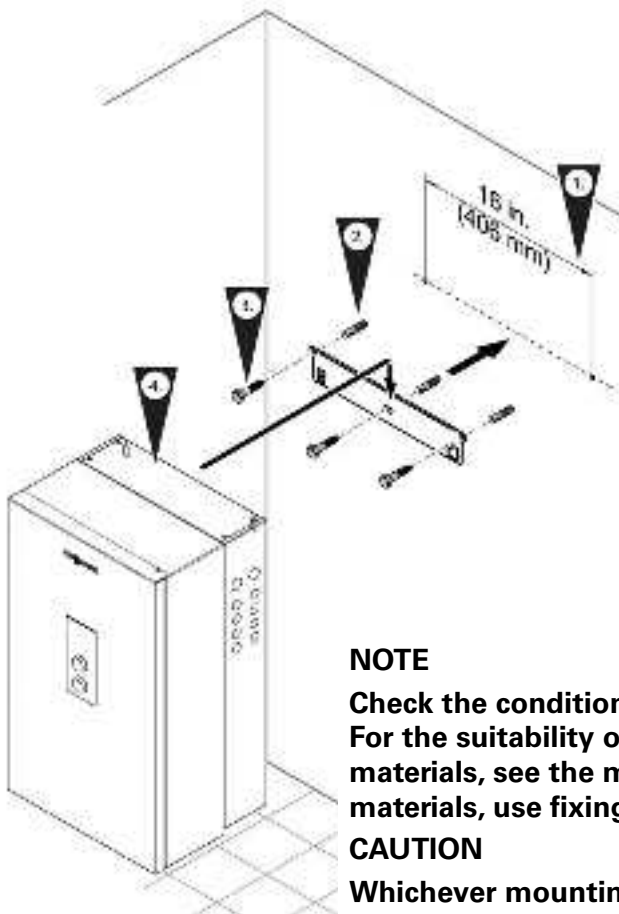
Minimum Clearances to Combustibles

Top	Front	Rear	Left	Right
0	0 AL, CL	0	0	0

AL = Alcove

CL = Closet

Mounting the Indoor Unit



Installing the wall mounting bracket

The indoor unit can be wall-mounted on a concrete wall.

Note: The enclosed screws and rawl plugs are only suitable for concrete. For other construction materials, use bolts and anchors that are suitable for 100 lb. (46 kg) loads.

Installation of mounting bracket on brick/concrete wall

1. Mark out the rawl plug holes.
2. Drill holes $\varnothing \frac{3}{8}$ in. ($\varnothing 10$ mm) and insert the rawl plugs supplied.
3. Fit the wall mounting bracket with the screws supplied.
4. Mount the indoor unit on the wall mounting bracket. Ensure that both tabs have locked into the indoor unit.

NOTE

Check the condition of the wall where the indoor unit is to be installed. For the suitability of the supplied rawl plugs for various building materials, see the manufacturer's instructions. For other construction materials, use fixing materials with sufficient load bearing capacity.

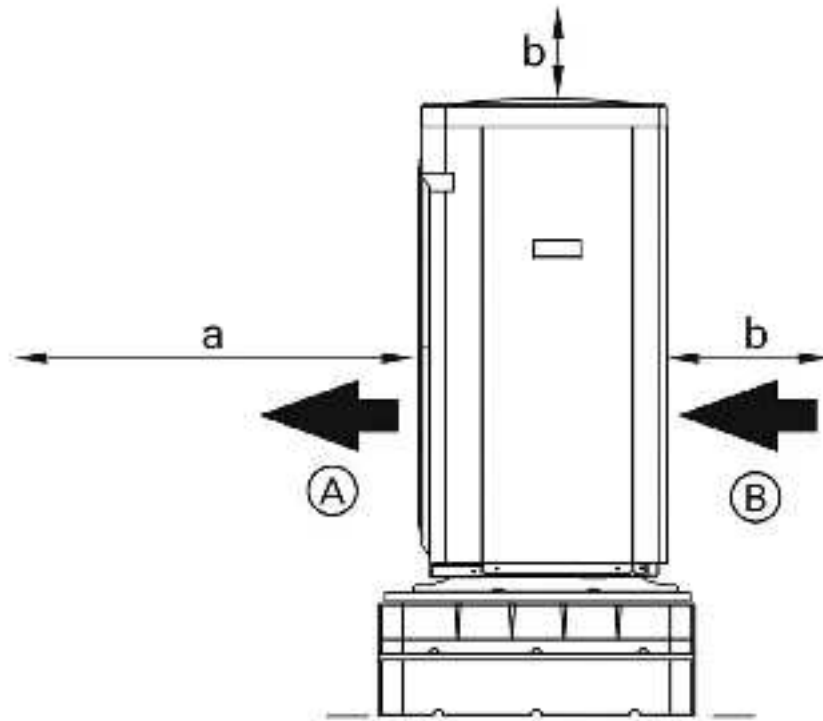
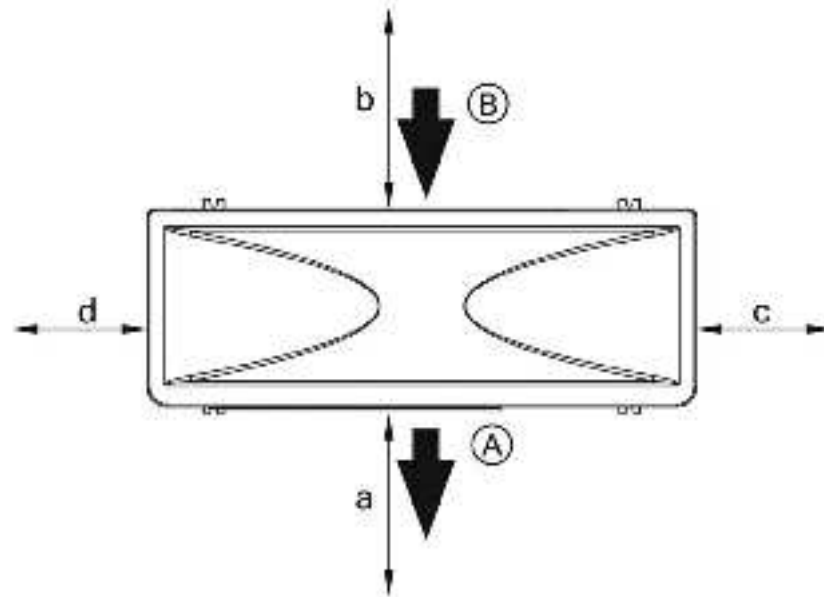
CAUTION

Whichever mounting method is used, ensure that the bracket is tightly and securely fastened to wall. Failure to secure indoor unit properly could cause indoor unit to loosen, posing a severe safety hazard.

Recommended Minimum Service and Operational Clearances

AM2V 020028/034043 Outdoor Unit

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Legend

- Ⓐ Air Outlet
- Ⓑ Air Inlet

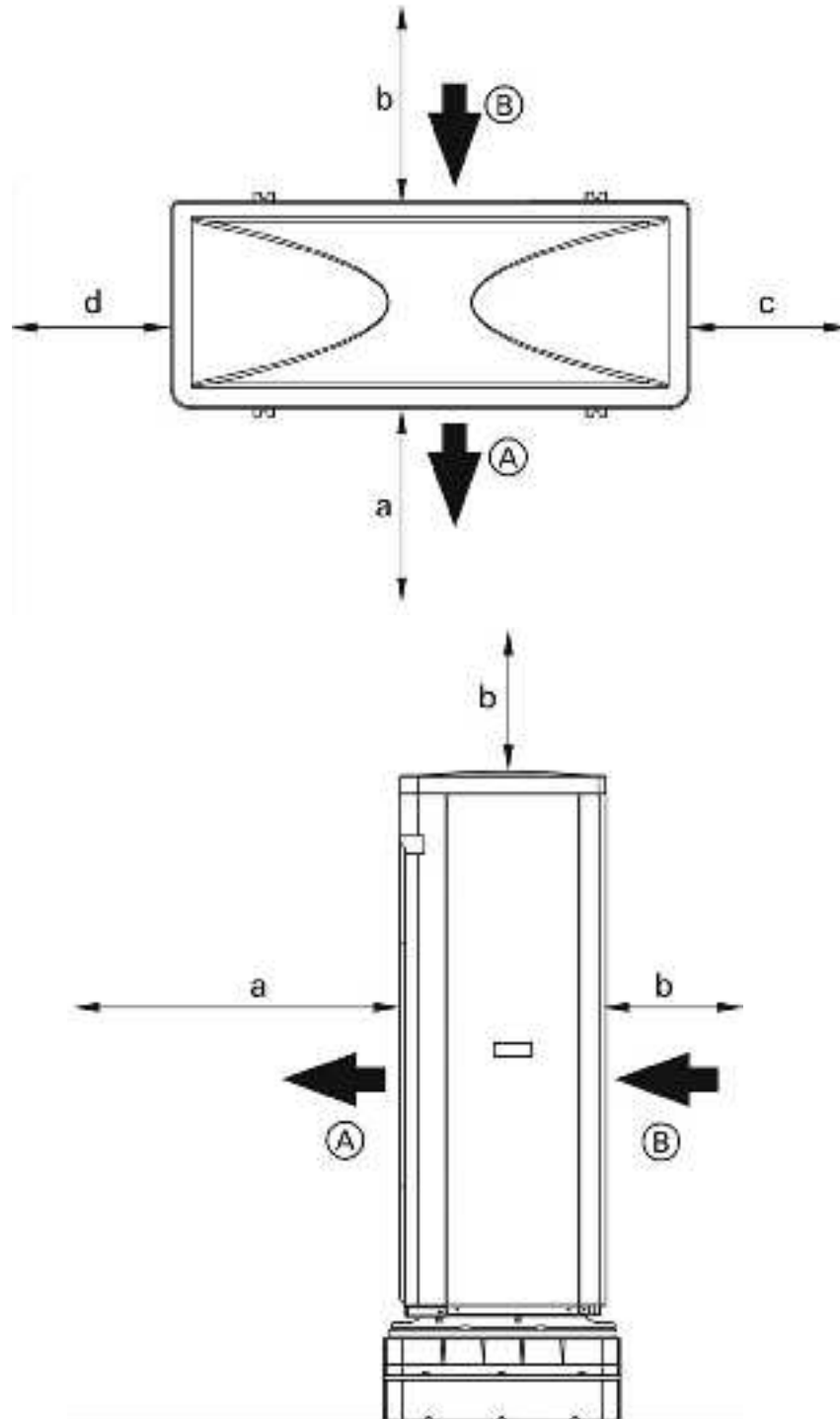
Dimensions in. (mm)

A	59 (1500)
B	20 (500)
C	39 (1000)
D	20 (500)

Recommended Minimum Service and Operational Clearances

AM2V 051078 Outdoor Unit

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Legend

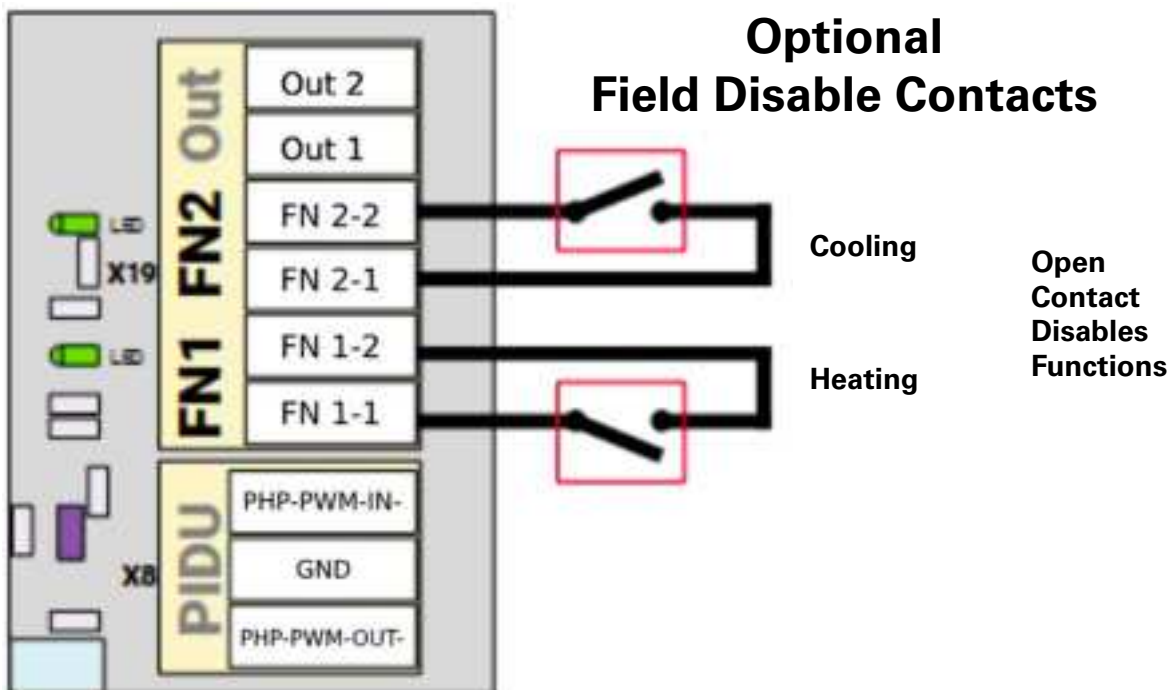
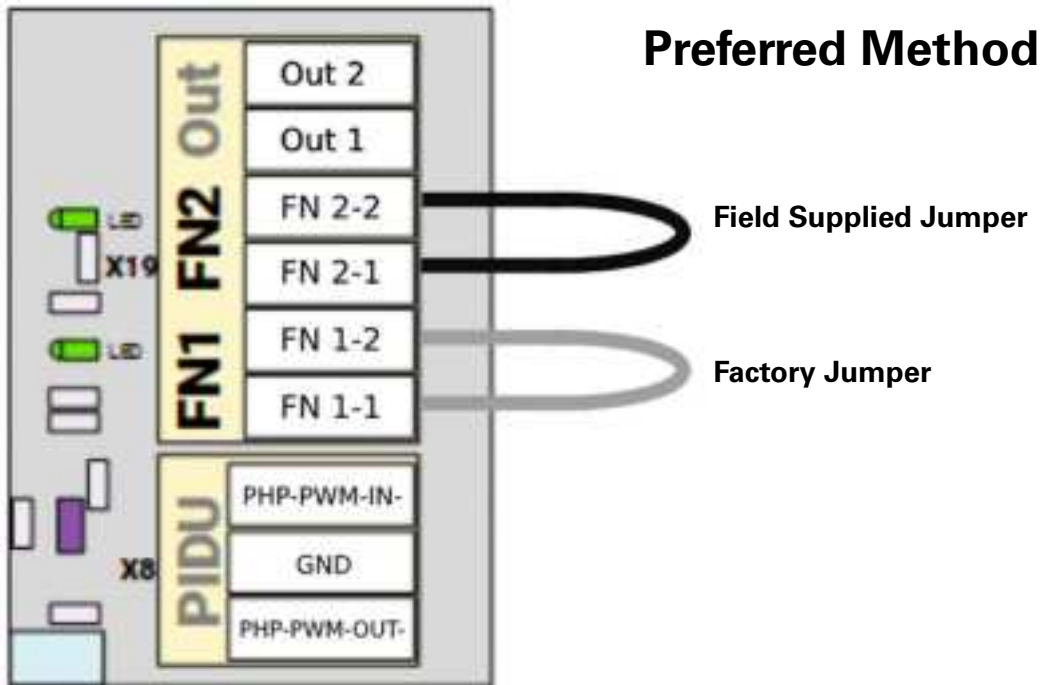
- Ⓐ Air Outlet
- Ⓑ Air Inlet

Dimensions in. (mm)

A	59 (1500)
B	20 (500)
C	39 (1000)
D	20 (500)

Heating and Cooling Demand Wiring

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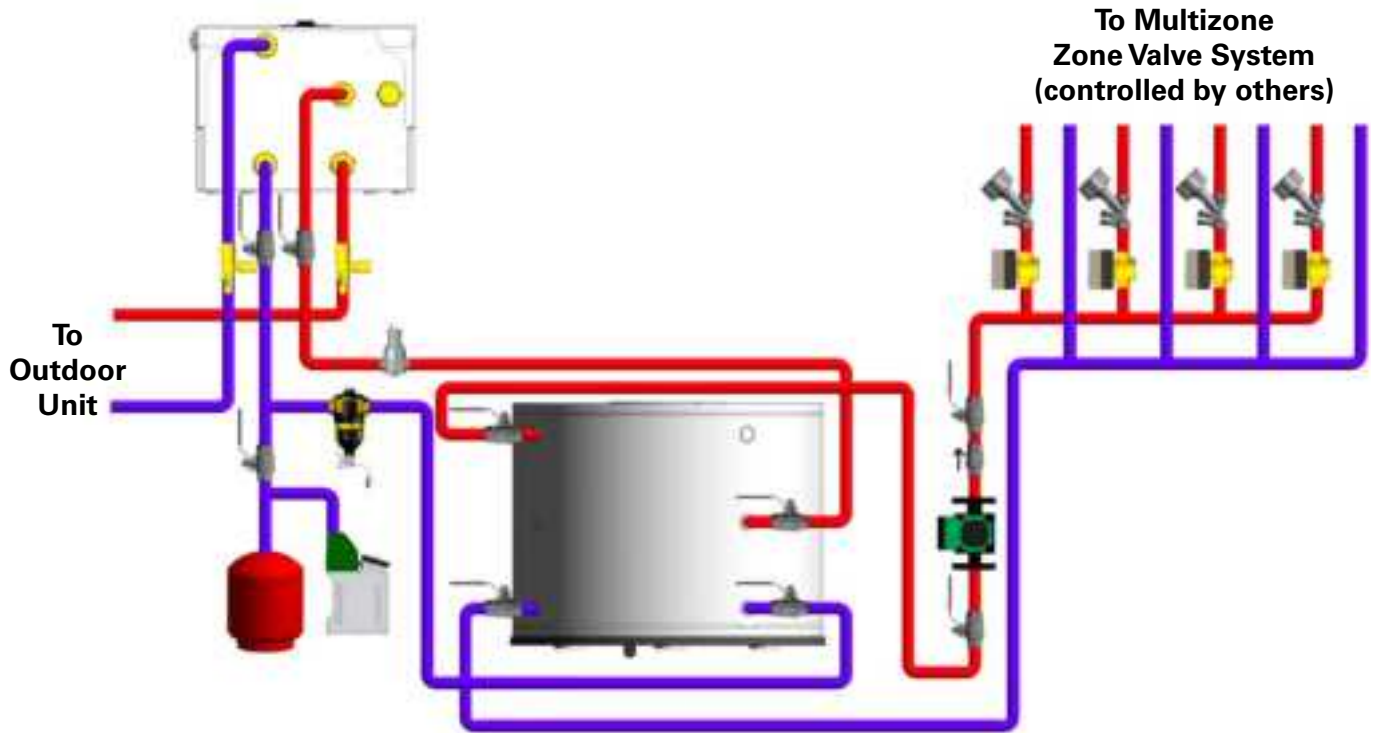
NOTE

In addition to the selection for heating or cooling on the Indoor Unit, the Indoor Unit requires closure at FN1/FN2 for heating/cooling. A jumper is installed at FN1 for heating and it is recommended to install a jumper at FN2. If the requirement is to have the AM2V cycle with a call for heating or cooling then end switches from a heat cool control will need to be connected to FN1/FN2.

Vitocal 100-AW AM2V Application 1A

Heat Pump with Multizone Zone Valve System

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NOTE

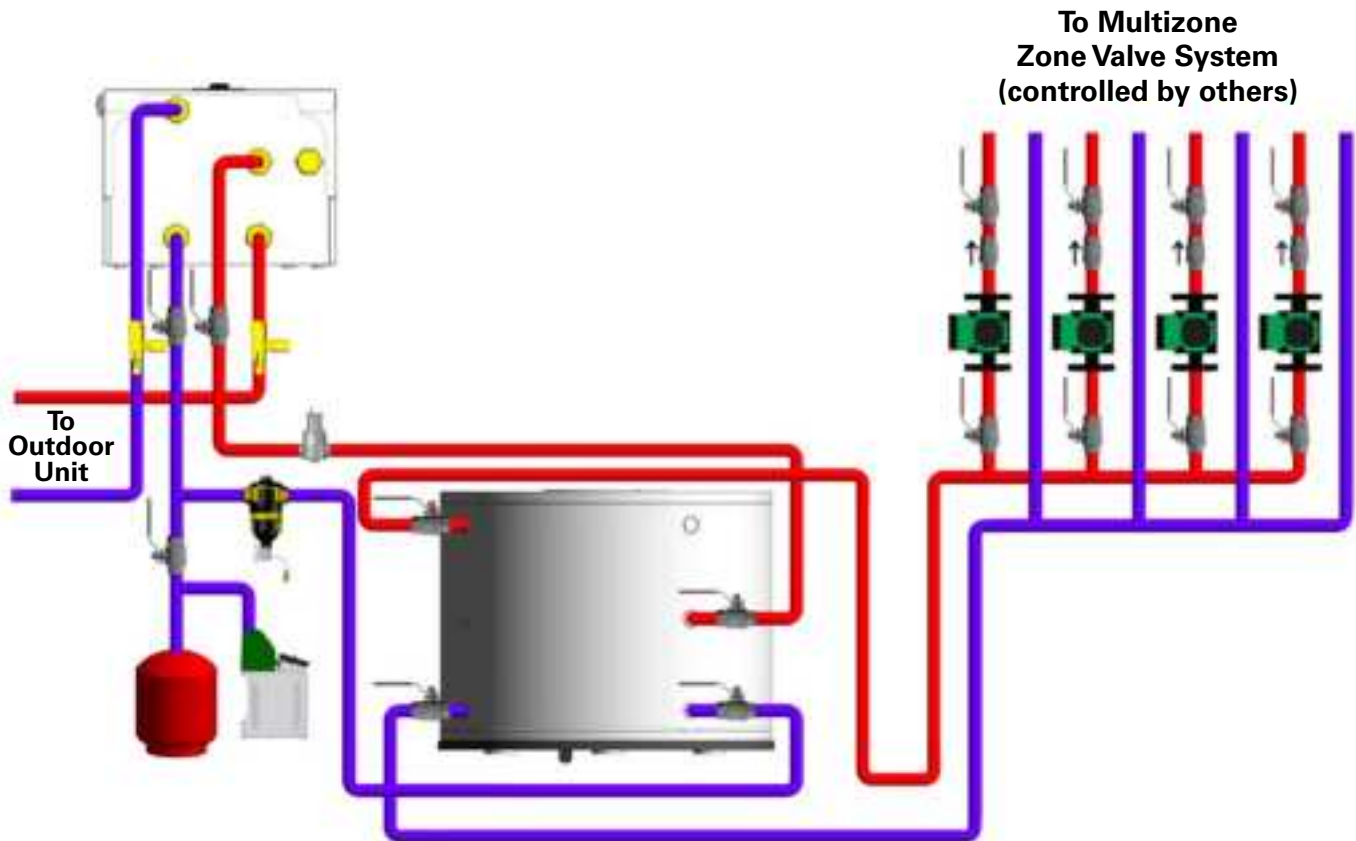
All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Disclaimer: Air Handlers utilizing chilled water must be designed as such.

Vitocal 100-AW AM2V Application 1B

Heat Pump with Multizone Pump System

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NOTE

All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

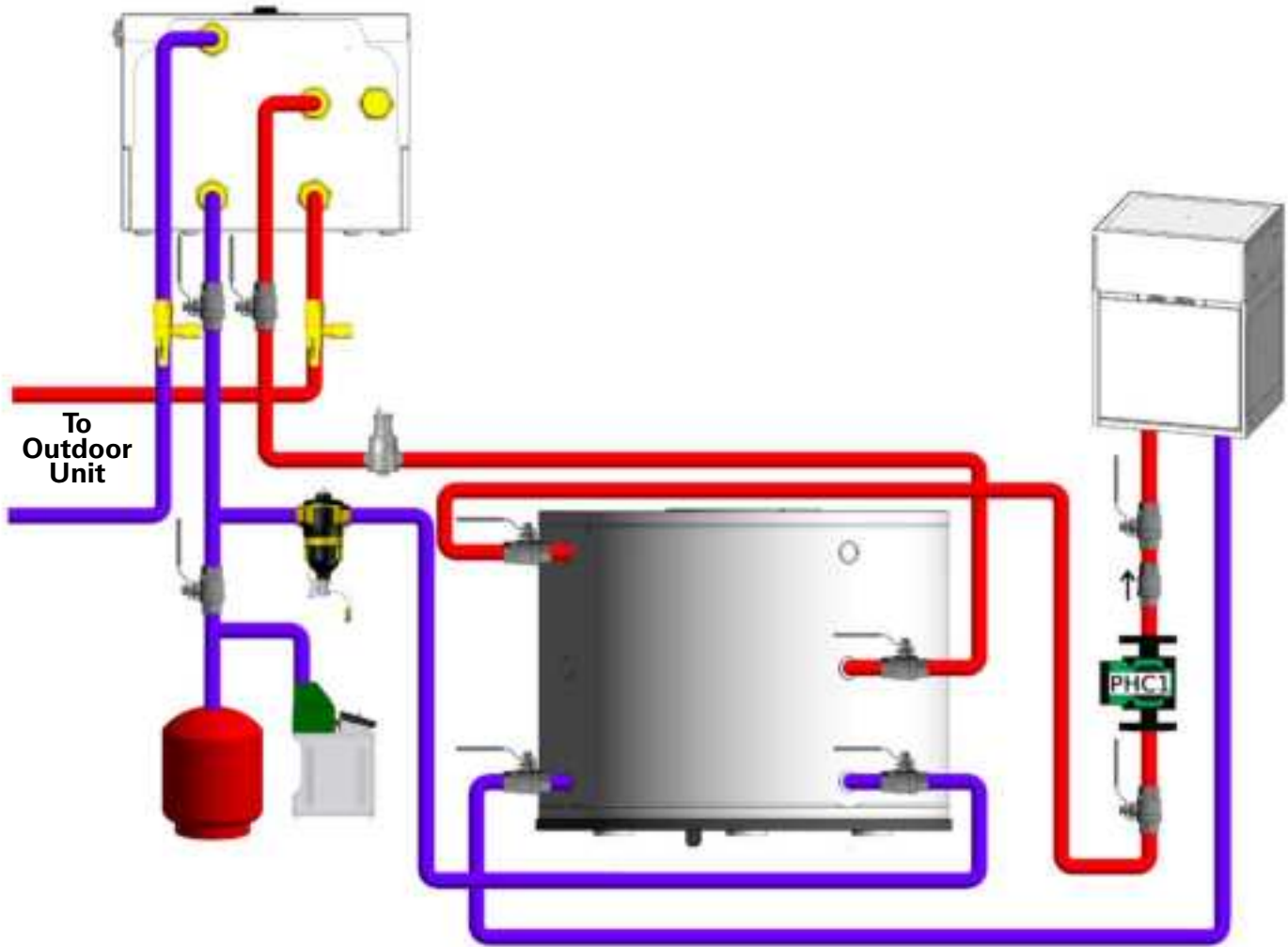
Disclaimer: Air Handlers utilizing chilled water must be designed as such.

Vitocal 100-AW AM2V

Application 1C

Heat Pump with Heat/Cool Air Handler

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NOTE

All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Disclaimer: Air Handlers utilizing chilled water must be designed as such.

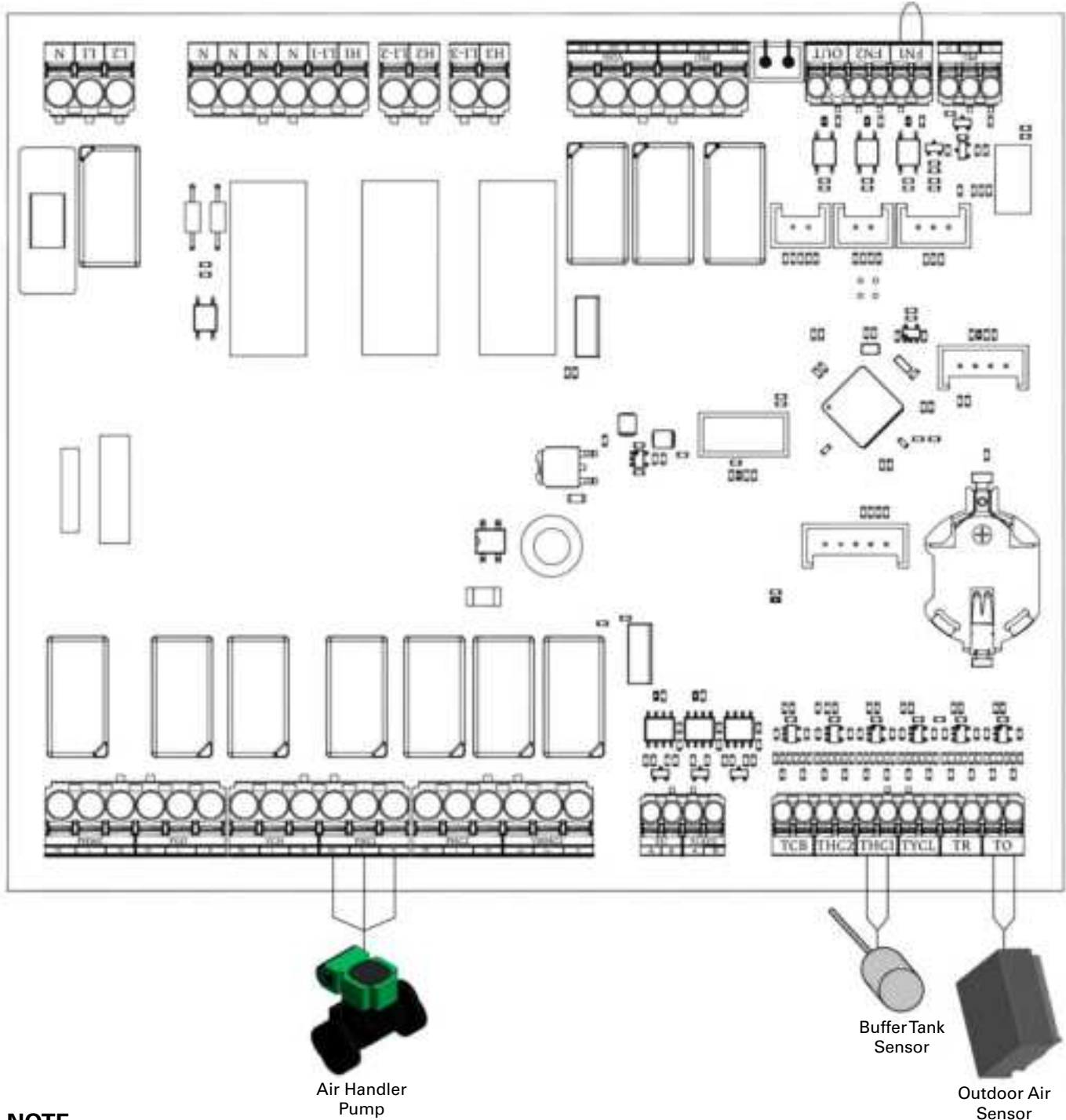
Vitocal 100-AW AM2V

Application 1A/1C

Heat Pump Applications 1A/1C Wiring

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Note: For cooling demand and heating and cooling demand refer to page 14.



NOTE

PHC1 Pump alternative power controlled by air handler, air handler control, or zone control. (By others).

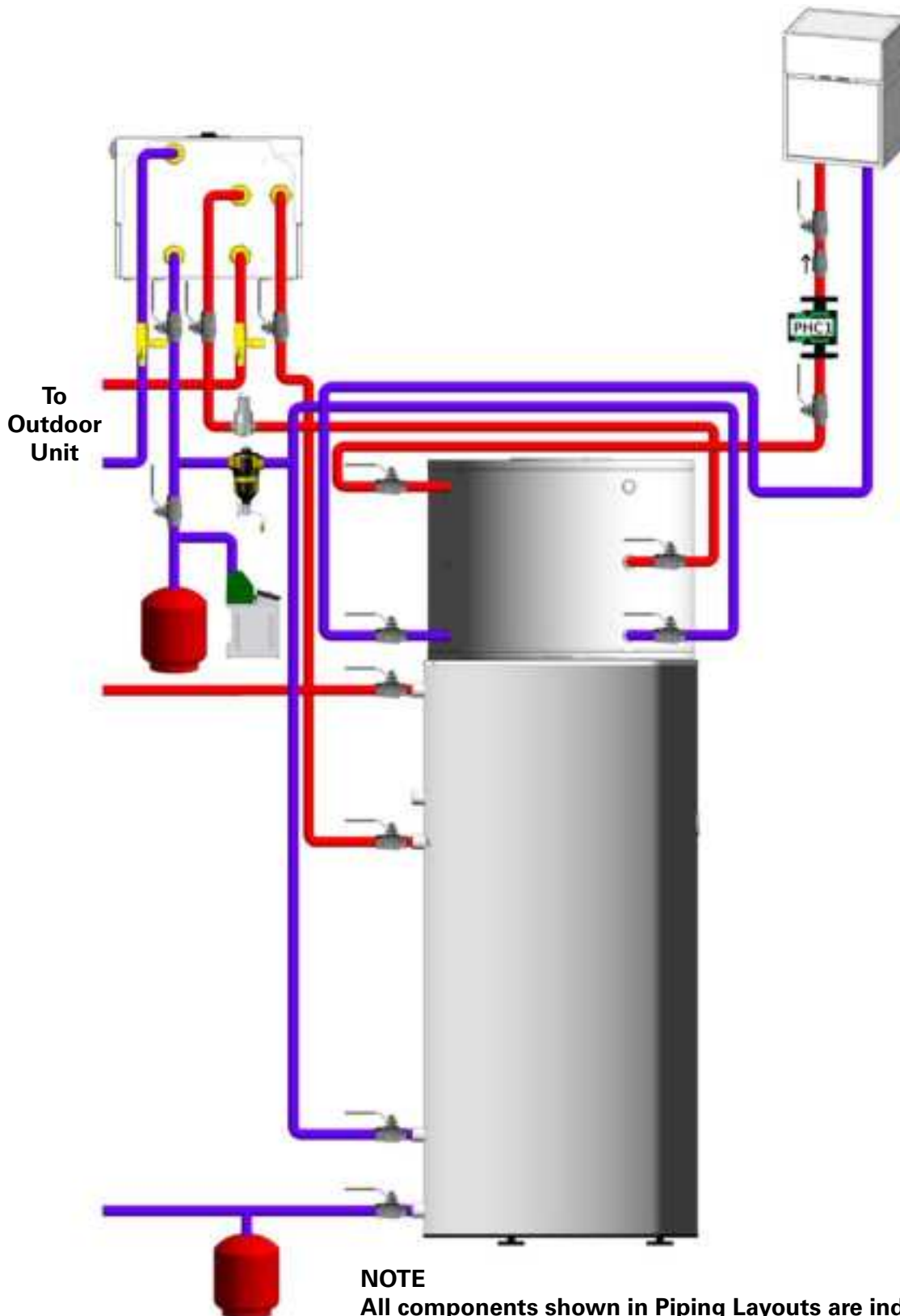
Disclaimer: All 120V Outputs have a 2 amp draw maximum.

Vitocal 100-AW AM2V

Application 2

Heat Pump with Heat/Cool Air Handler and DHW

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NOTE

All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Disclaimer: Air Handlers utilizing chilled water must be designed as such.

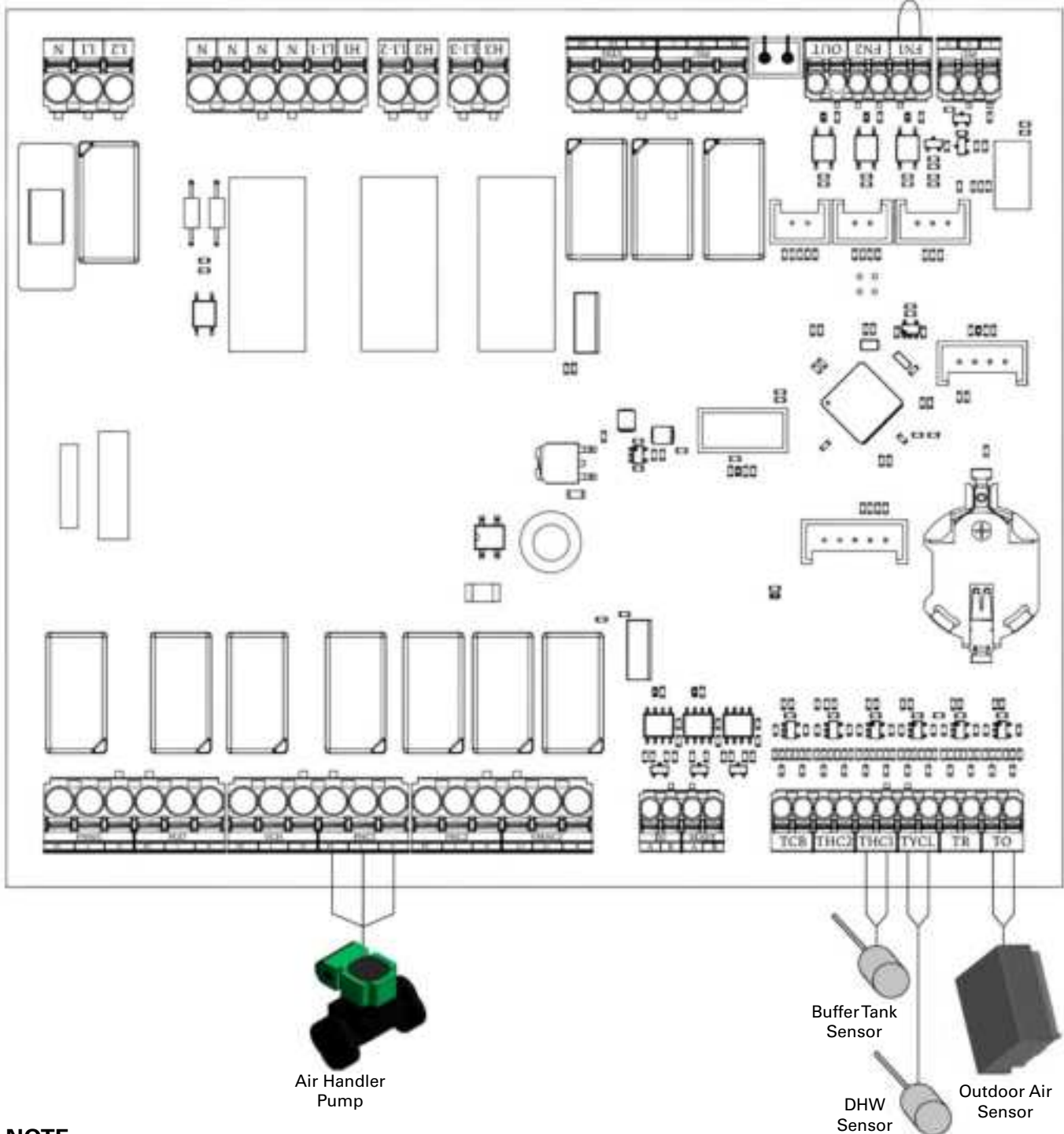
Vitocal 100-AW AM2V

Application 2

Heat Pump with Heat/Cool Air Handler and DHW

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Note: For cooling demand and heating and cooling demand refer to page 14.



NOTE

PHC1 Pump alternative power controlled by air handler, air handler control, or zone control. (By others).

Disclaimer: All 120V Outputs have a 2 amp draw maximum.

NOTE

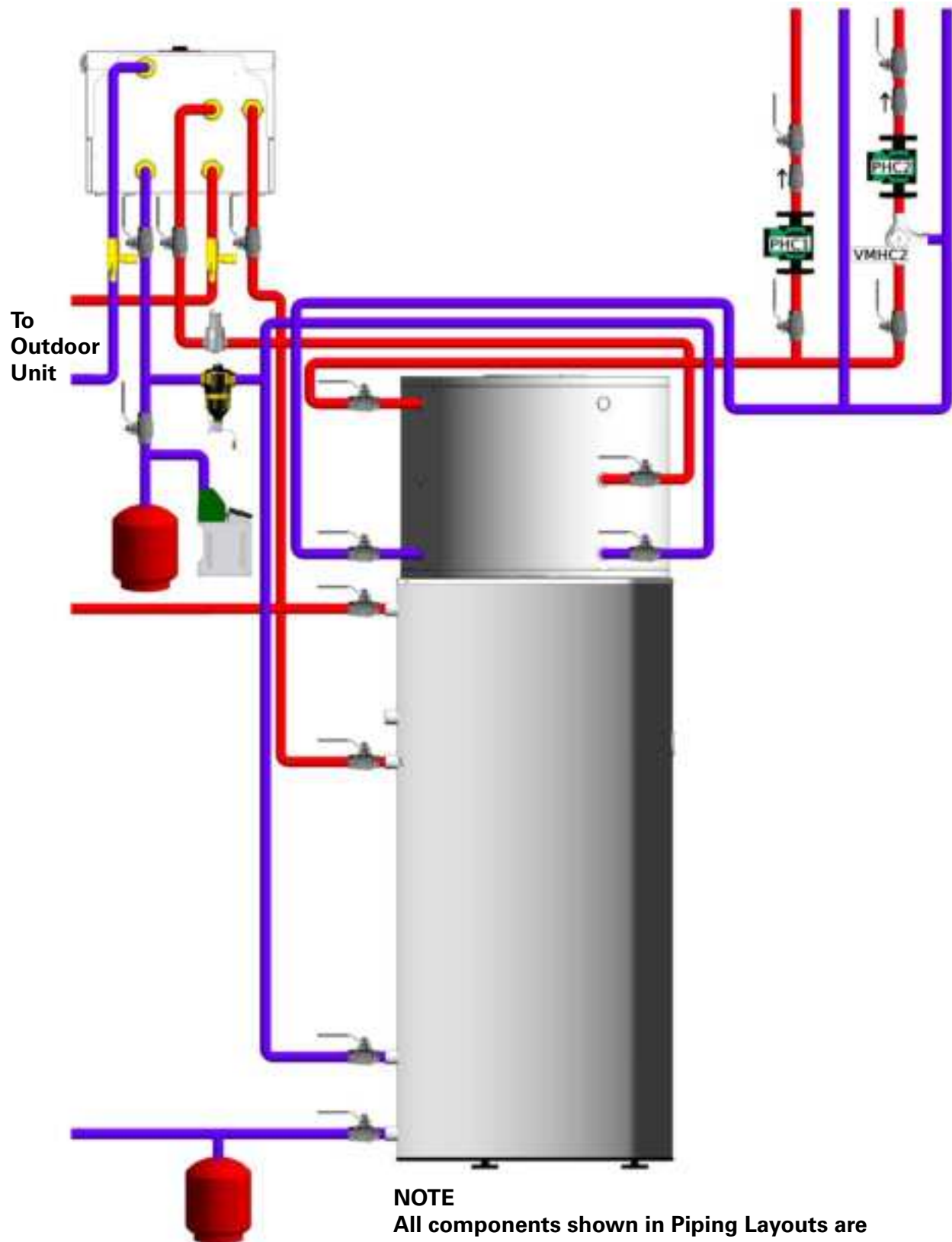
A strap-on sensor may be used as an alternative to an in-well sensor by clipping the strap off.

Vitocal 100-AW AM2V

Application 3

Heat Pump with Heat/Cool Air Handler, Mixing Valve Circuit and DHW

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NOTE
All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Disclaimer: Air Handlers utilizing chilled water must be designed as such.

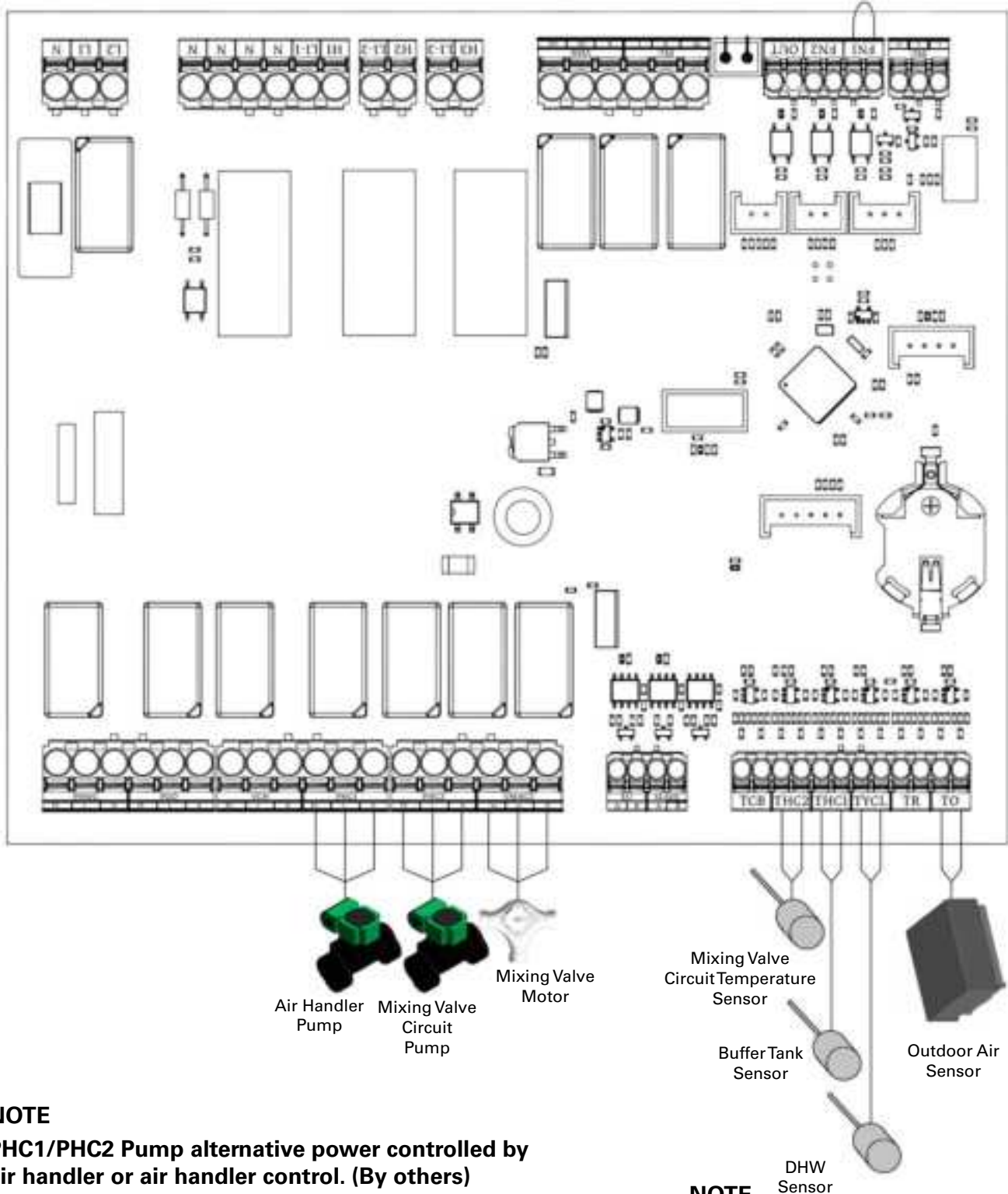
Vitocal 100-AW AM2V

Application 3

Heat Pump with Heat/Cool Air Handler, Mixing Valve Circuit and DHW

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NOTE: For cooling demand and heating and cooling demand refer to page 14.



NOTE

PHC1/PHC2 Pump alternative power controlled by air handler or air handler control. (By others)

Disclaimer: All 120V Outputs have a 2 amp draw maximum.

NOTE

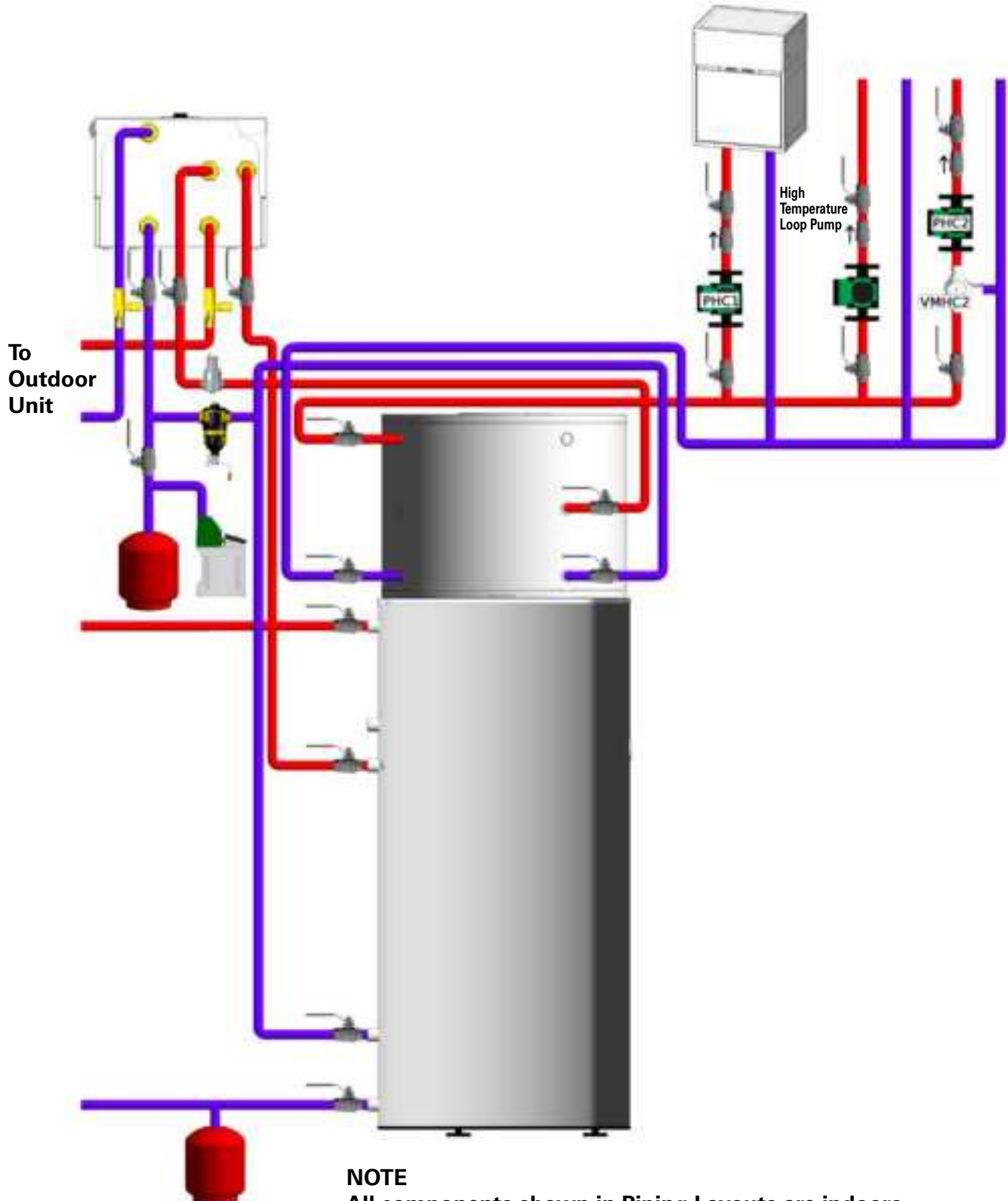
A strap-on sensor may be used as an alternative to an in-well sensor by clipping the strap off.

Vitocal 100-AW AM2V

Application 4

Heat Pump with Heat/Cool Air Handler, High Temperature Heating Circuit, Mixing Valve Circuit and DHW

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Disclaimer: Air Handlers utilizing chilled water must be designed as such.

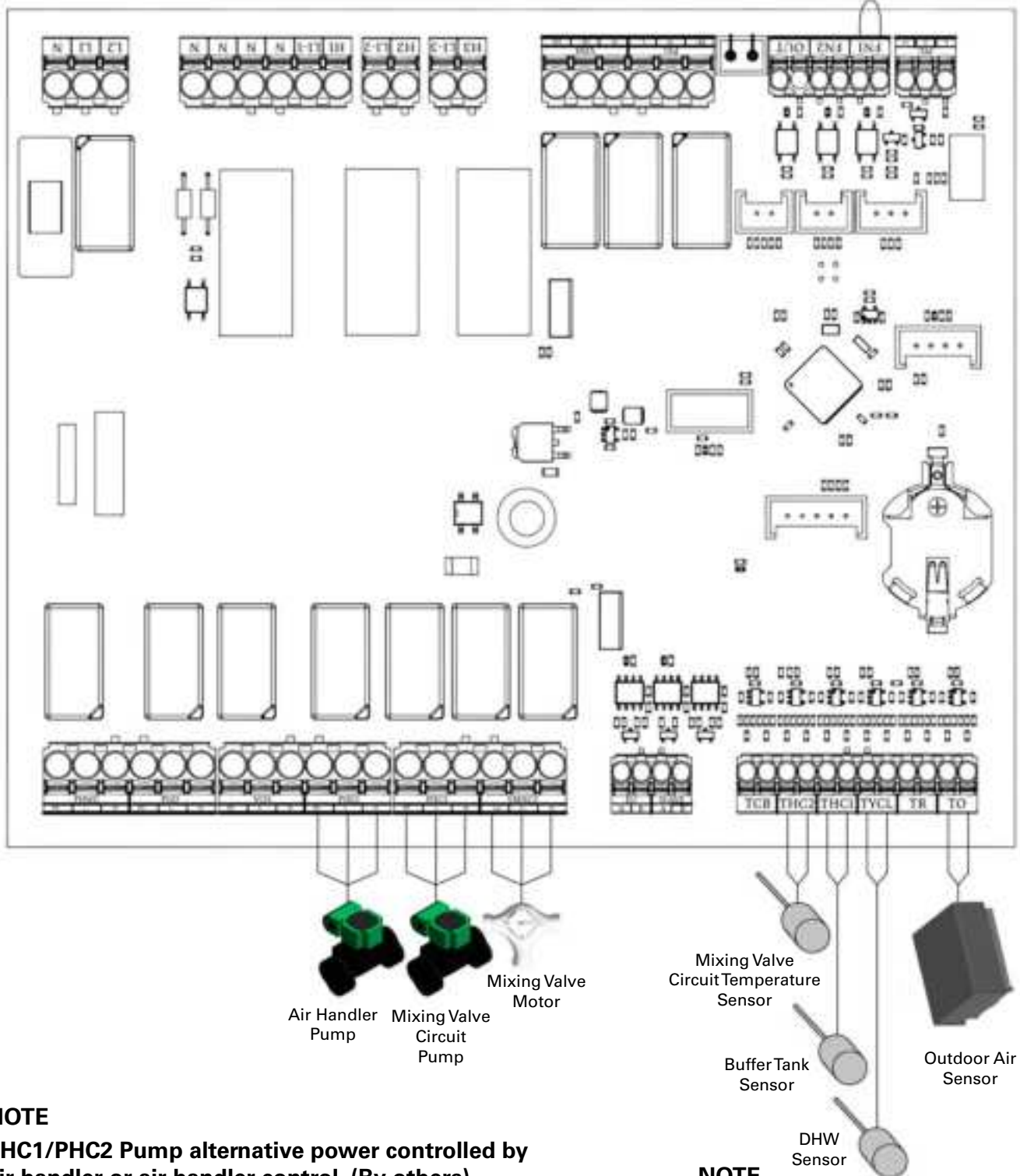
Vitocal 100-AW AM2V

Application 4

Heat Pump with Heat/Cool Air Handler, High Temperature Heating Circuit, Mixing Valve Circuit and DHW

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NOTE: For cooling demand and heating and cooling demand refer to page 14.



NOTE

PHC1/PHC2 Pump alternative power controlled by air handler or air handler control. (By others)

Disclaimer: All 120V Outputs have a 2 amp draw maximum.

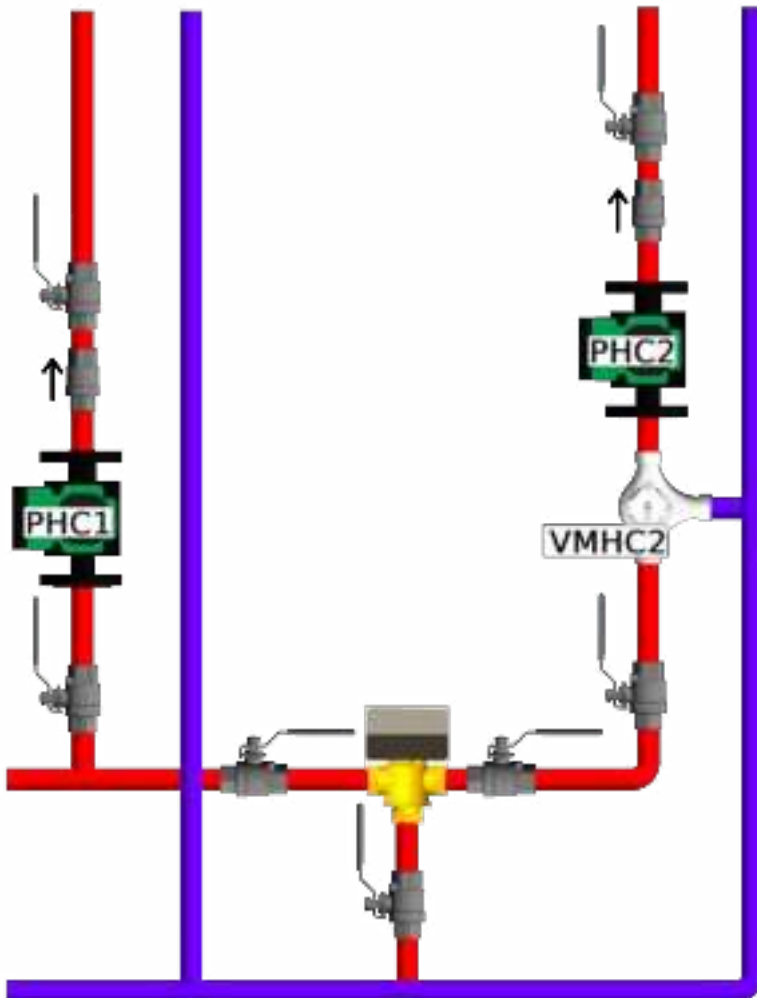
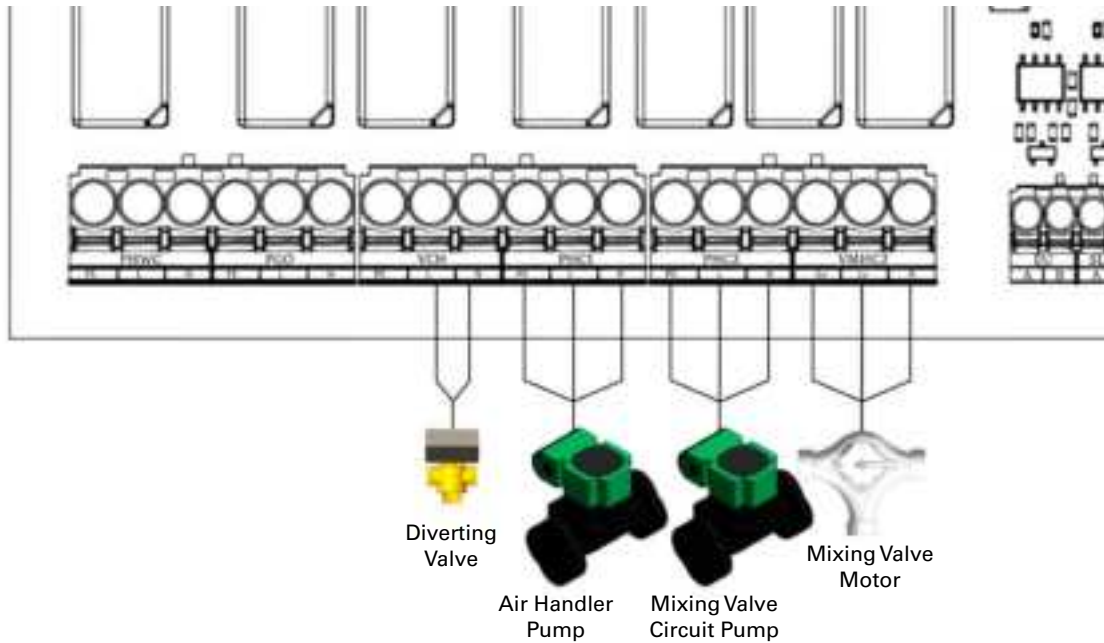
NOTE

A strap-on sensor may be used as an alternative to an in-well sensor by clipping the strap off.

Vitocal 100-AW AM2V Isolation of Chilled Water from Heating Only Loops

Application of Optional Third Party Three-way Diverting Valves

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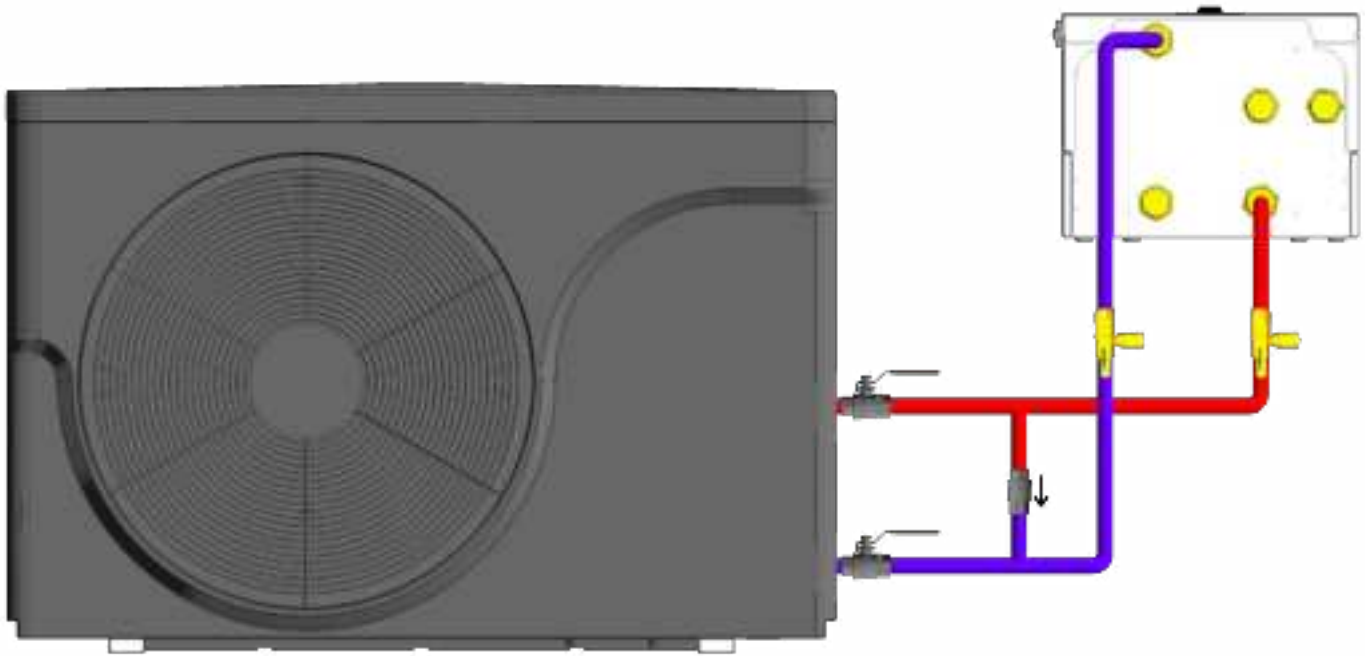


NOTE
 Powered open spring return valve.
 Powered open on heating enable.

Vitocal 100-AW AM2V Outdoor and Indoor Unit Piping

Heat Pump Only Application

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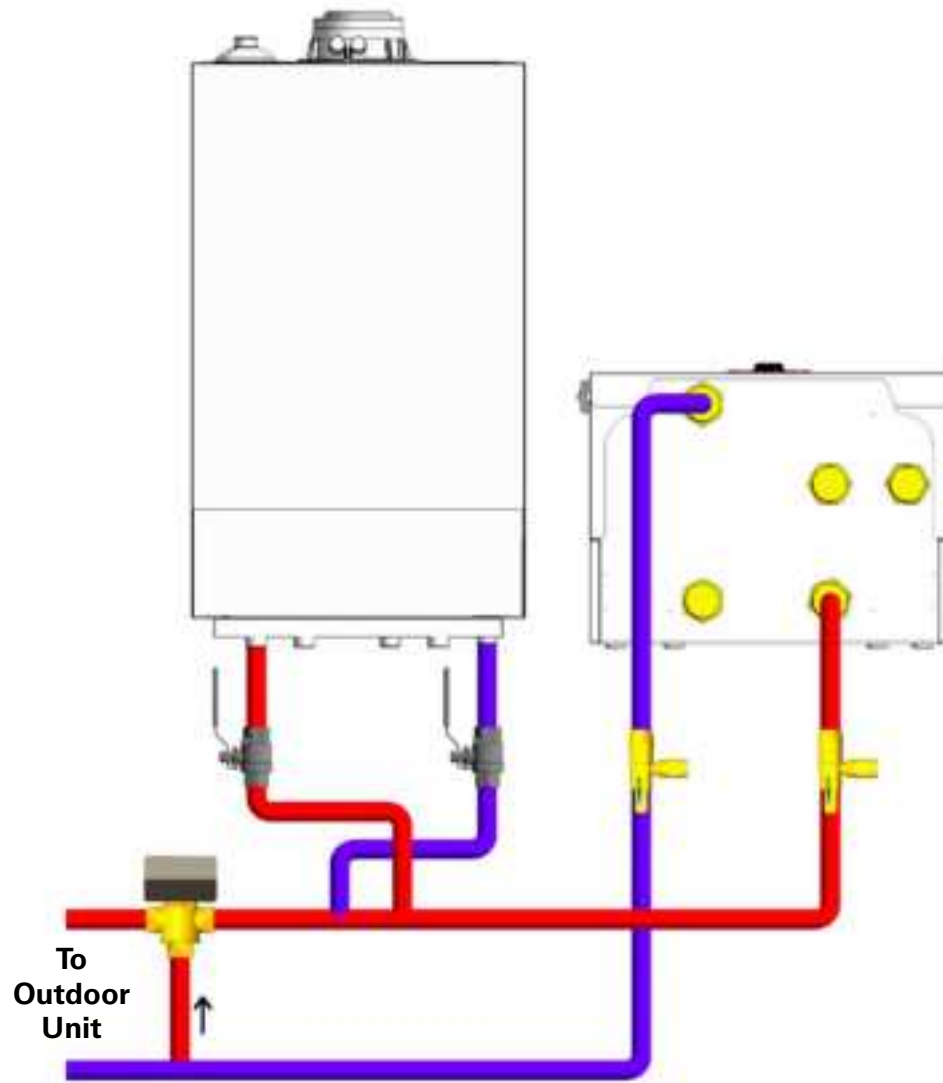
NOTE

1. Ensure that all outdoor units are connected with a length of flexible pipe before penetrating the envelope of the building.
2. All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Vitocal 100-AW AM2V Outdoor and Indoor Unit Piping

Heat Pump with Backup Boiler Application

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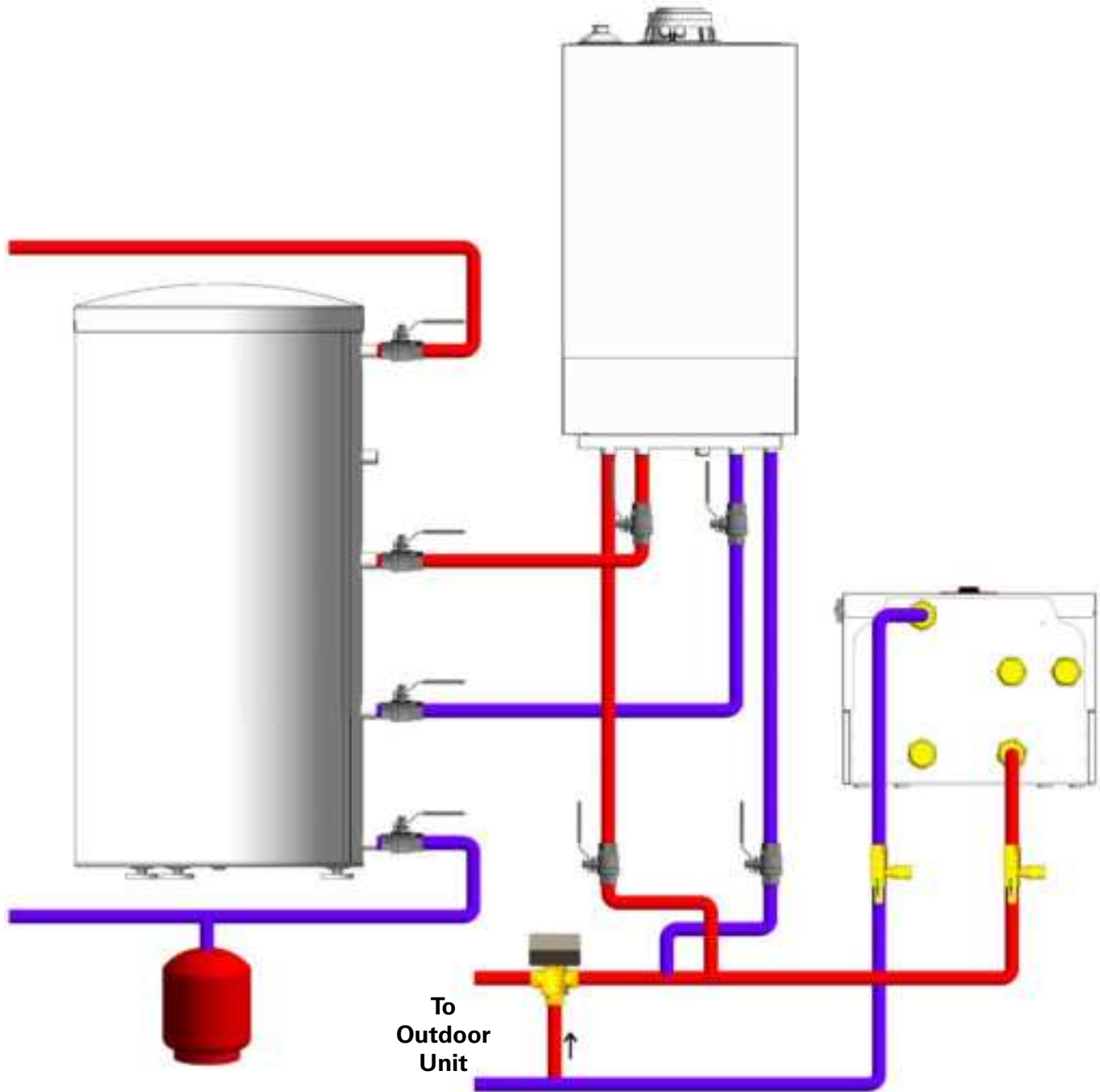
NOTE

1. Diverting Valve to be piped/wired to bypass outdoor unit when backup heat is utilized.
2. Ensure that all outdoor units are connected with a length of flexible pipe before penetrating the envelope of the building.
3. All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Vitocal 100-AW AM2V Outdoor and Indoor Unit Piping

Heat Pump with Backup Boiler and DHW Application

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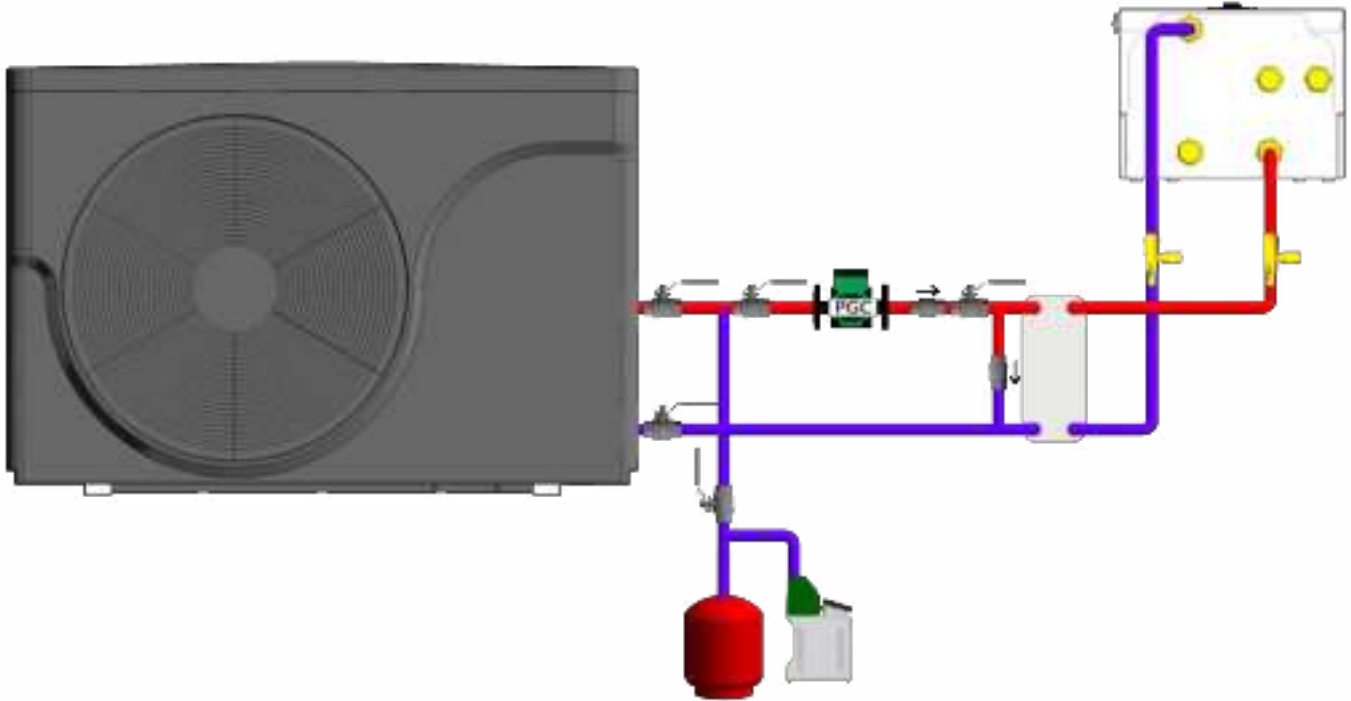
NOTE

1. In this arrangement, DHW is being provided by Backup Boiler only.
2. Diverting Valve to be piped/wired to bypass outdoor unit when backup heat is utilized.
3. Ensure that all outdoor units are connected with a length of flexible pipe before penetrating the envelope of the building.
4. All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Vitocal 100-AW AM2V Outdoor and Indoor Unit Piping

Heat Pump with Glycol Loop Application

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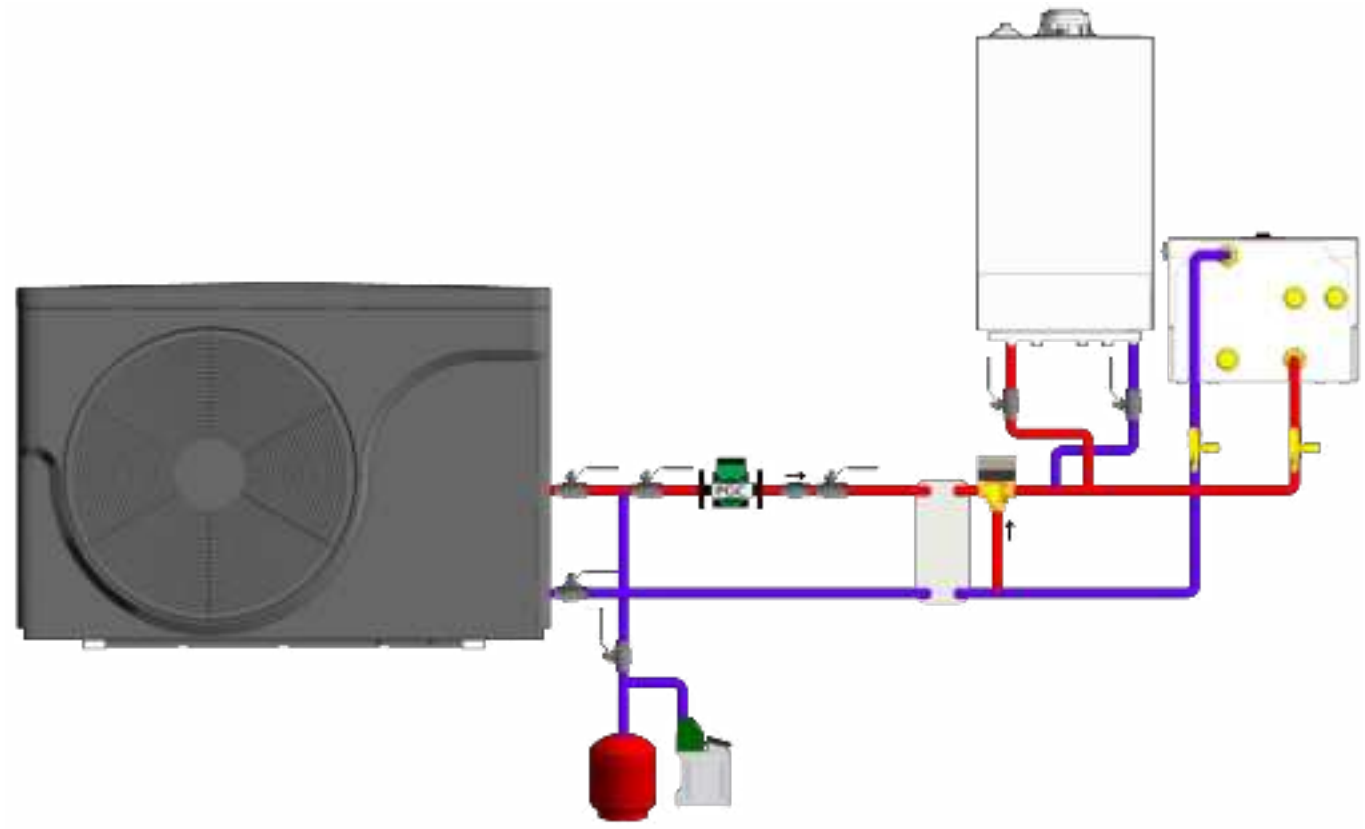
NOTE

1. Ensure that all outdoor units are connected with a length of flexible pipe before penetrating the envelope of the building.
2. Expect a temperature drop across the heat exchanger in the glycol loop application.
3. All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Vitocal 100-AW AM2V Outdoor and Indoor Unit Piping

Heat Pump with Backup Boiler and Glycol Loop Application

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NOTE

1. Ensure that all outdoor units are connected with a length of flexible pipe before penetrating the envelope of the building.
2. Diverging Valve to be piped/wired to bypass outdoor unit when backup heat is utilized.
3. Expect a temperature drop across the heat exchanger in the glycol loop application.
4. All components shown in Piping Layouts are indoors with the exception of the outdoor unit.

Vitocell 100-E MSCA-20-S2 Technical Data and Dimensions

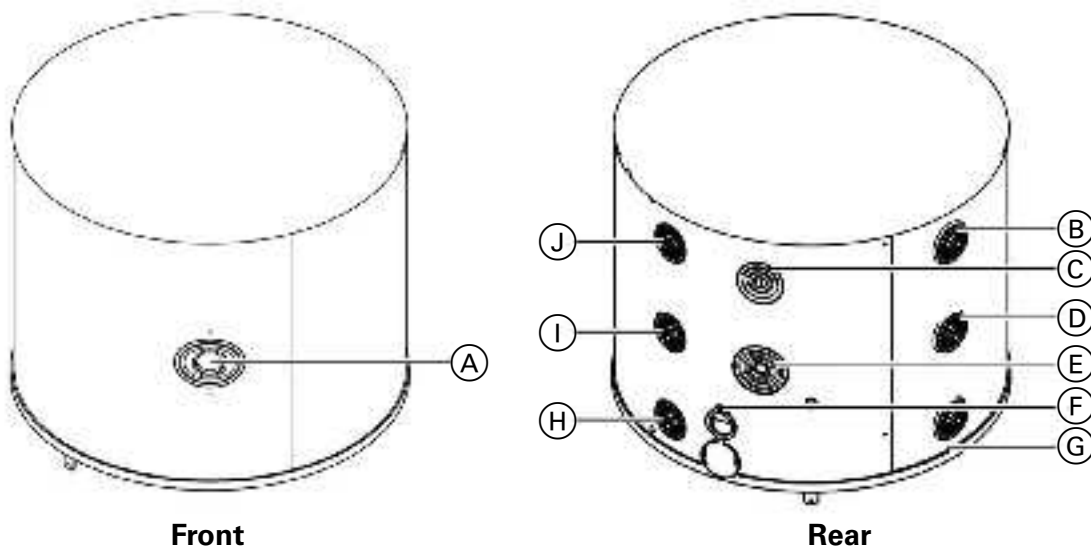
Buffer Tank Technical Data

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Vitocell 100-E, MSCA

Buffer Tank Capacity	USG (l)	20 (75)
Standby heat loss qB,S at 45K (81°F) temperature differential	kWh/24hr	0.83
Height	in. (mm)	21 (533)
Width	in. (mm)	26-¾ (675)
Length	in. (mm)	26-½ (668)
Weight	lbs. (kg)	110 (50)
Minimum Water Temperature	OF (OC)	45 (7)
Maximum Water Temperature	OF (OC)	230 (110)
Maximum Tank Working Pressure	PSI (kPa)	45 (310)
Test Pressure	PSI (kPa)	70 (480)

Tank Connections

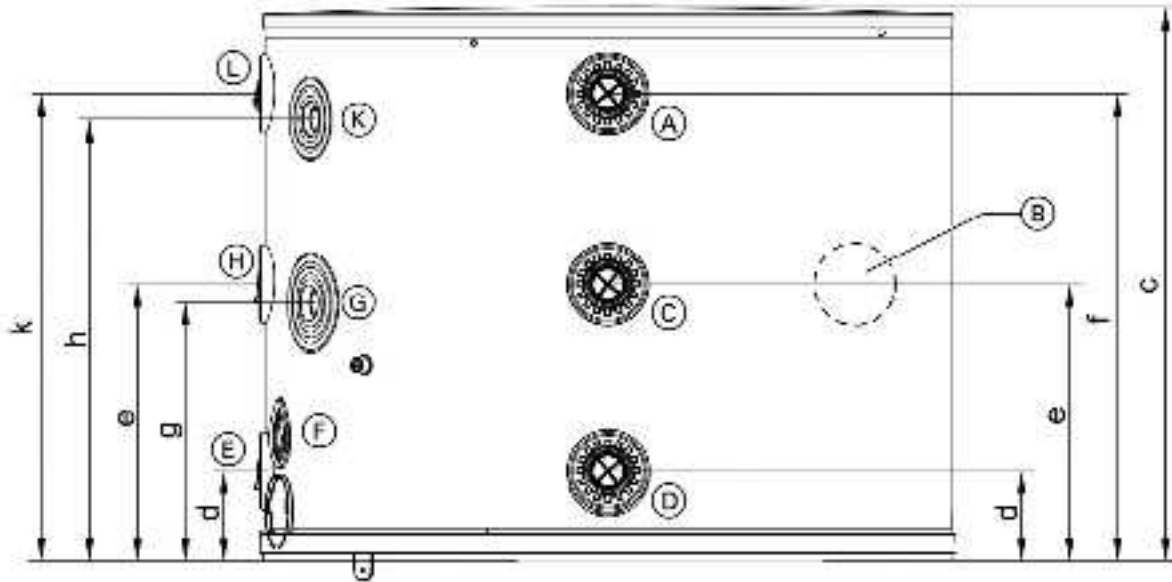


- Ⓐ 1-½ Inch NPT female thread
- Ⓑ 1 Inch NPT female thread, heating supply from backup heat generator
- Ⓒ Ø⅝ in. (Ø16mm) temperature top sensor
- Ⓓ 1 Inch NPT female thread, supply from primary heat/cool generator
- Ⓔ Ø⅝ in. (Ø16mm) temperature sensor, bottom
- Ⓕ Injection process plug (do not open or connect anything)
- Ⓖ 1 Inch NPT female thread, return to primary heat/cool generator, lowest point/drain
- Ⓗ 1 Inch NPT female thread, system return
- Ⓘ 1 Inch NPT female thread, return to backup heat generator
- Ⓙ 1 Inch NPT female thread, system supply, highest point/ventilation

Vitocell 100-E MSCA-20-S2 Technical Data and Dimensions

Buffer Tank Technical Data (continuation)

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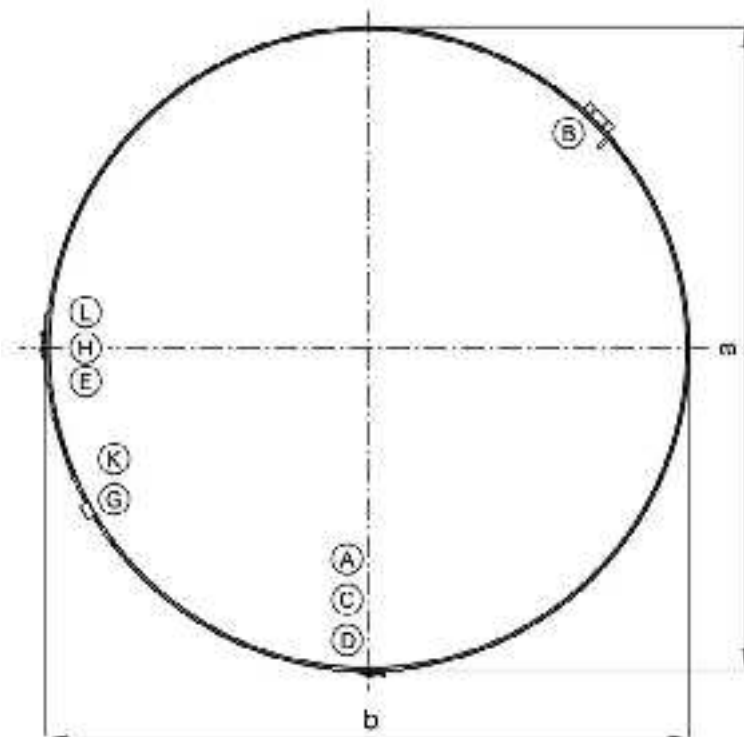


Legend

- (A) Heating supply from backup heat generator
- (B) 1-½ Inch NPT female thread
- (C) Supply from primary heat/cool generator
- (D) Return to primary heat/cool generator, lowest point/drain
- (E) System return
- (F) Injection process plug (do not open or connect anything)
- (G) Ø5/8 in. (Ø16mm) temperature sensor, bottom
- (H) Return to backup heat generator
- (K) Ø5/8 in. (Ø16mm) temperature top sensor
- (L) System supply, highest point/ventilation

Dimensions in. (mm)

a	26-¼	(668)
b	26-¾	(675)
C	21	(533)
d	3-½	(87)
e	10-½	(267)
f	17-¾	(450)
q	10	(251)
h	17	(429)
k	17-¾	(450)




Standard Equipment

Vitocell 100-E MSCA-20-S2

- Integral welded sensor well for tank temperature sensor [2 wells each Ø5/8 in. (Ø16mm)] Temperature and pressure relief valve
 - Technical literature set
 - Adjustable feet
 - Fitted thermal insulation
- Color of the epoxy-coated sheet steel casing: Vitopearlwhite.

Vitocell 100-V CVWC 53, 66, 79 USG Technical Data

DHW Tank Overview

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For domestic hot water heating applications which utilize modulating and low temperature hot water heating boilers and the Vitocal 100-AW AM2V series

Storage capacity	USG (L)	53 (200)	66 (250)	79 (300)
Insulation		PUR Foam	PUR Foam	PUR Foam
Heating Supply flow rate for the recovery rates stated	GPM (m³/h)	11.9 (2.7)	11.9 (2.7)	11.9 (2.7)
Recovery rates with a rise of the domestic hot water from 50 to 113°F (10 to 45°C) and heating water supply temperature of:	194°F (90°C) MBH (kW) GPH (L/h)	215 (63) 407 (1541)	239 (70) 450 (1705)	260 (76) 492 (1863)
	176°F (80°C) MBH (kW) GPH (L/h)	181 (53) 339 (1285)	198 (58) 375 (1423)	219 (64) 411 (1556)
	158°F (70°C) MBH (kW) GPH (L/h)	144 (42) 270 (1024)	161 (47) 299 (1135)	175 (51) 328 (1242)
	149°F (65°C) MBH (kW) GPH (L/h)	124 (36.2) 235 (891)	137 (40.1) 261 (988)	150 (43.9) 286 (1081)
	140°F (60°C) MBH (kW) GPH (L/h)	105 (30.6) 199 (753)	116 (34.0) 221 (836)	127 (37.2) 242 (916)
	131°F (55°C) MBH (kW) GPH (L/h)	85 (24.7) 161 (608)	94 (27.4) 178 (675)	103 (30.1) 196 (741)
	122°F (50°C) MBH (kW) GPH (L/h)	62 (18.1) 118 (446)	69 (20.2) 131 (496)	76 (22.2) 144 (545)
with a rise of the domestic hot water from 50 to 122°F (10 to 50°C) and heating water supply temperature of:	194°F (90°C) MBH (kW) GPH (L/h)	205 (60) 339 (1285)	229 (67) 375 (1423)	250 (73) 411 (1556)
	176°F (80°C) MBH (kW) GPH (L/h)	171 (50) 279 (1057)	188 (55) 309 (1172)	205 (60) 338 (1282)
	158°F (70°C) MBH (kW) GPH (L/h)	134 (39) 217 (823)	147 (43) 240 (912)	161 (47) 263 (999)
	149°F (65°C) MBH (kW) GPH (L/h)	111 (32.5) 185 (700)	123 (36.1) 205 (777)	135 (39.5) 225 (851)
	140°F (60°C) MBH (kW) GPH (L/h)	90 (26.5) 151 (570)	100 (29.4) 167 (633)	110 (32.3) 184 (695)
	131°F (55°C) MBH (kW) GPH (L/h)	67 (19.6) 112 (423)	75 (21.9) 124 (471)	82 (24.0) 137 (517)
	122°F (50°C) MBH (kW) GPH (L/h)	62 (18.1) 118 (446)	69 (20.2) 131 (496)	76 (22.2) 144 (545)
with a rise of the domestic hot water from 50 to 131°F (10 to 55°C) and heating water supply temperature of:	194°F (90°C) MBH (kW) GPH (L/h)	195 (57) 286 (1083)	215 (63) 317 (1200)	236 (69) 346 (1313)
	176°F (80°C) MBH (kW) GPH (L/h)	157 (46) 231 (876)	175 (51) 256 (971)	192 (56) 280 (1063)
	158°F (70°C) MBH (kW) GPH (L/h)	120 (35) 173 (658)	134 (39) 192 (730)	144 (42) 211 (801)
	149°F (65°C) MBH (kW) GPH (L/h)	96 (28.2) 142 (539)	107 (31.3) 158 (599)	118 (34.4) 174 (658)
	140°F (60°C) MBH (kW) GPH (L/h)	72 (21.1) 107 (405)	80 (23.5) 118 (450)	89 (25.9) 131 (495)
	131°F (55°C) MBH (kW) GPH (L/h)	67 (19.6) 112 (423)	75 (21.9) 124 (471)	82 (24.0) 137 (517)
	122°F (50°C) MBH (kW) GPH (L/h)	62 (18.1) 118 (446)	69 (20.2) 131 (496)	76 (22.2) 144 (545)
with a rise of the domestic hot water from 50 to 140°F (10 to 60°C) and heating water supply temperature of:	194°F (90°C) MBH (kW) GPH (L/h)	185 (54) 242 (918)	205 (60) 268 (1017)	222 (65) 294 (1114)
	176°F (80°C) MBH (kW) GPH (L/h)	147 (43) 191 (725)	161 (47) 212 (804)	178 (52) 233 (882)
	158°F (70°C) MBH (kW) GPH (L/h)	103 (30) 135 (514)	117 (34) 151 (572)	127 (37) 165 (628)
	149°F (65°C) MBH (kW) GPH (L/h)	78 (22.6) 103 (389)	86 (25.2) 114 (433)	95 (27.7) 126 (476)

Vitocell 100-V CVWC 53, 66, 79 USG Technical Data

DHW Tank Overview (continuation)

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For domestic hot water heating applications which utilize modulating and low temperature hot water heating boilers and the Vitocal 100-AW AM2V series

		Tank			
		USG (L)	53 (200)	66 (250)	79 (300)
Storage tank draw volume at 113°F (45°C) without reheating with a tank temperature of:	113°F (45°C) USG (L)		37 (140)	46 (175)	55 (210)
	122°F (50°C) USG (L)		53 (203)	67 (254)	80 (305)
	131°F (55°C) USG (L)		70 (266)	88 (333)	106 (400)
	140°F (60°C) USG (L)		87 (330)	109 (412)	131 (495)
at 131°F (55°C) without reheating with a tank temperature of:	131°F (55°C) USG (L)		37 (140)	46 (175)	55 (210)
	140°F (60°C) USG (L)		53 (203)	67 (254)	81 (305)
Heating time (in minutes) when connecting a heat pump with the specified nominal heat output (A7/W35) for a domestic hot water temperature rise of 50 to 113°F (10 to 45°C) and a heating supply water temperature of 130°F (60°C)	20.4 MBH (6 kW)		86	108	129
	27.3 MBH (8 kW)		65	81	97
	34.1 MBH (10 kW)		52	65	78
	44.4 MBH (13 kW)		40	50	60
	58 MBH (17 kW)		30	38	46
for a domestic hot water temperature rise of 50 to 122°F (10 to 50°C) and a heating supply water temperature of 140°F (60°C)	20.4 MBH (6 kW)		98	123	147
	27.3 MBH (8 kW)		74	92	111
	34.1 MBH (10 kW)		59	74	89
	44.4 MBH (13 kW)		45	57	68
	58 MBH (17 kW)		35	43	52
Maximum Operating Temperature			248°F	248°F	248°F
Heating System Supply			(120°C)	(120°C)	(120°C)
Domestic Hot Water			180°F (82°C)	180°F (82°C)	180°F (82°C)
Standby heat loss q _{B,S} at 81°F (45 K) temperature differential					
MBTU/24h (kWh/24h)			4.2 (1.22)	4.5 (1.31)	5.3 (1.54)
Dimensions * ¹					
Overall length	in. (mm)		26-¼ (668)	26-¼ (668)	26-¼ (668)
Overall width	in. (mm)		28-¼ (714)	28-¼ (714)	28-¼ (714)
Overall height* ²	in. (mm)		48-1/,(1229)	56-1/,(1430)	67 (1697)
Tilt height	in. (mm)		53-¾ (1365)	61 (1548)	70-1/,(1790)
Weight					
Tank with insulation	lbs (kg)		214 (97)	245 (111)	278 (126)
Heat exchanger surface area					
	ft²(m²)		21.5 (2.0)	24.2 (2.25)	26.9 (2.5)
Heating water content (heat exchanger pipe coil)		USG (L)	3.83 (14.5)	4.36 (16.5)	4.76 (18)
Connections * ³					
Heating water supply/return	Ø in. (male NPT thread)		1	1	1
Domestic cold/hot water	Ø in. (male NPT thread)		1	1	1
Temp. and press. relief valve	Ø in. (male NPT thread)		1	1	1
Recirculation	Ø in. (male NPT thread)		1	1	1

*¹ For additional dimensions, see illustrations and tables on "Tank Dimensions Vitocell 100-V CVWC 53 USG (200 L)", "Tank Dimensions Vitocell 100-V CVWC 66 USG (250 L)" and "Tank Dimensions Vitocell 100-V CVWC 79 USG (300 L)" on pages 10,11 and 12 of the technical data manual.

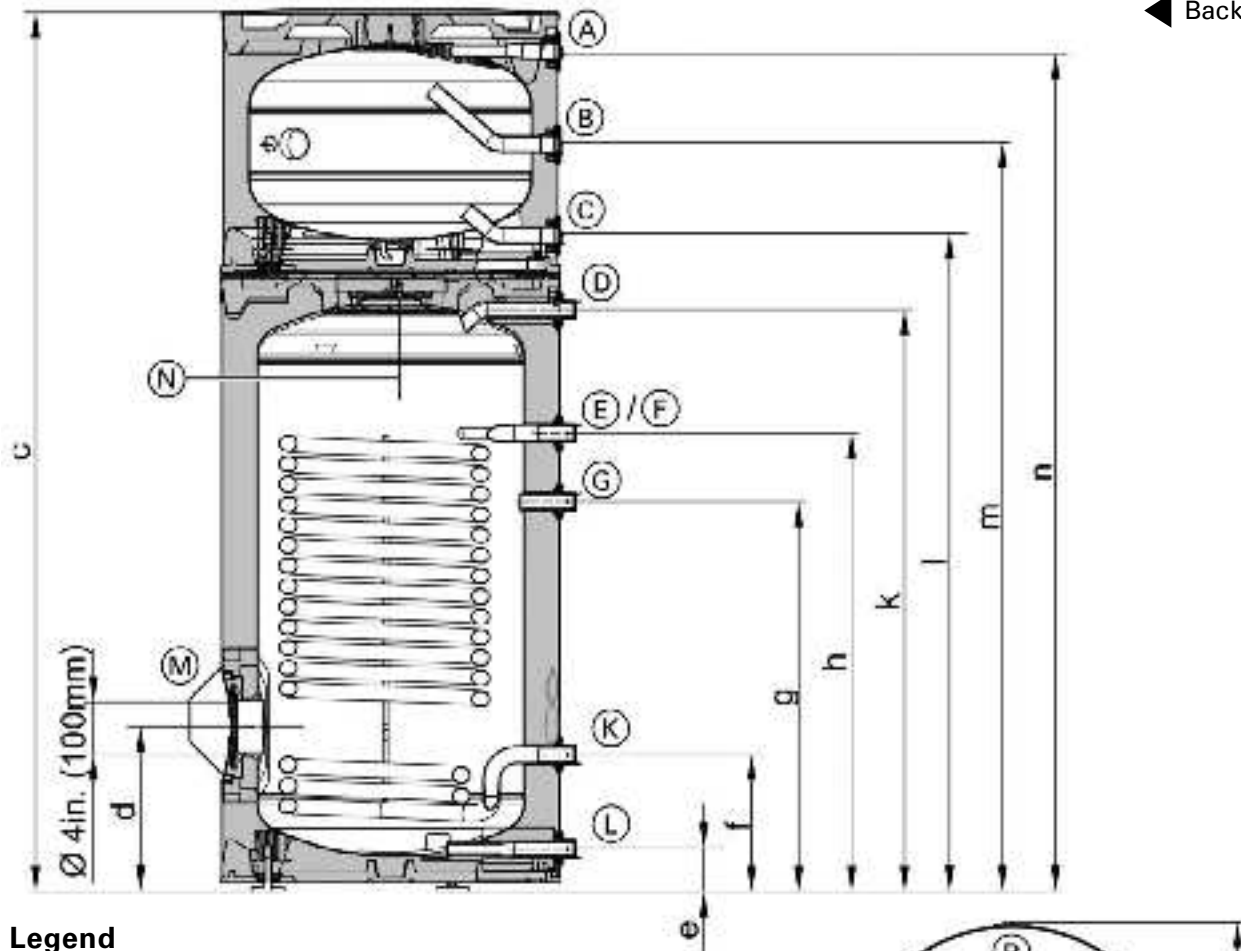
*² Adjustable feet can be adjusted up to 1-a in. (35 mm).

*³ With installation of supplied adaptors

For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.

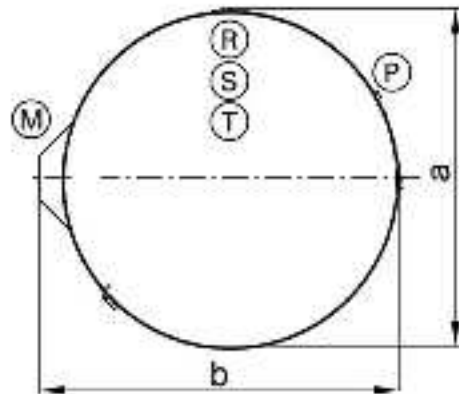
Vitocell 100-V CVWC 53 USG (200 L) Tank Dimensions

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Legend

- Ⓐ 1 Inch NPT female thread, heating supply from backup heat generator/Ⓡ 1 Inch NPT female thread, system supply, highest point/ventilation
- Ⓑ 1 Inch NPT female thread, supply from primary heat/cool generator/Ⓢ 1 Inch NPT female thread, return to backup heat generator
- Ⓒ 1 Inch NPT female thread, return to primary heat/cool generator, lowest point/drain/Ⓣ 1 Inch NPT female thread, system return
- Ⓓ Domestic Hot Water
- Ⓔ Domestic Hot Water Tank Sensor Well
- Ⓕ Heating Water Supply
- Ⓖ Domestic Hot Water Recirculation Tapping
- Ⓚ Heating Water Return
- Ⓛ Domestic Cold Water
- Ⓜ Cleanout and Inspection Port
- Ⓝ Impressed Current Anode
- Ⓟ Electronic Unit for Impressed Current Anode



Dimensions in. (mm)

	cvwc 53
a	26- ¹ / ₄ (668)
b	28- ¹ / ₄ (714)
c	68 (1728)
d	12- ³ / ₄ (323)
e	3- ¹ / ₄ (83)
f	10- ¹ / ₂ (268)
g	31 (788)
h	35- ¹ / ₂ (898)
k	45 (1140)
l	50- ¹ / ₄ (1277)
m	57- ¹ / ₂ (1457)
n	64- ³ / ₄ (1641)

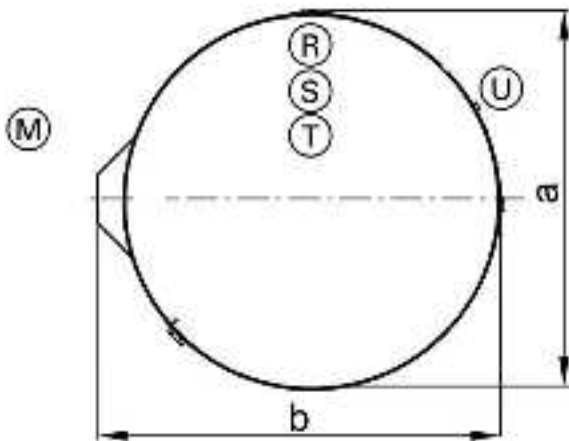
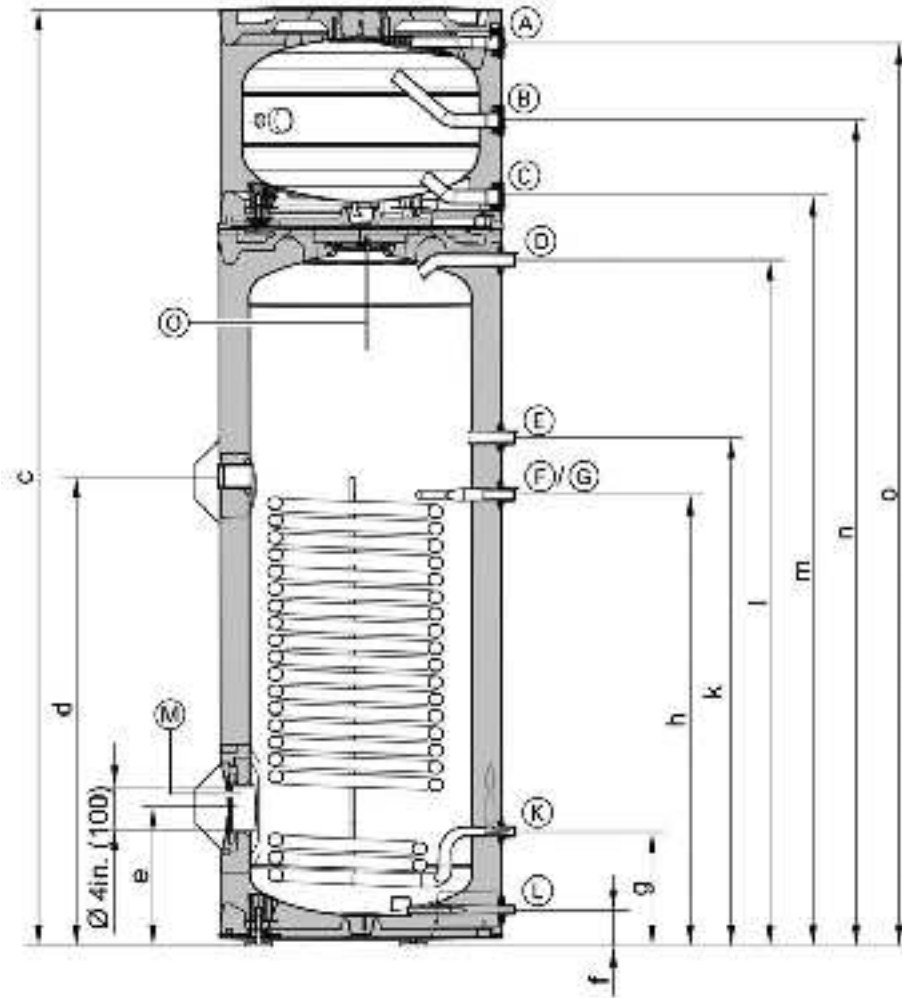
Adjustable feet can be adjusted up to 1-¹/₄ in. (35 mm).

Vitocell 100-V CVWC 66 and 79 USG (250 and 300 L) Tank Dimensions

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Legend

- Ⓐ 1 Inch NPT female thread, heating supply from backup heat generator/Ⓡ 1 Inch NPT female thread, system supply, highest point/ventilation
- Ⓑ 1 Inch NPT female thread, supply from primary heat/cool generator/Ⓢ 1 Inch NPT female thread, return to backup heat generator
- Ⓒ 1 Inch NPT female thread, return to primary heat/cool generator, lowest point/drain/Ⓣ 1 Inch NPT female thread, system return
- Ⓓ Domestic Hot Water
- Ⓔ Domestic Hot Water Recirculation Tapping
- Ⓕ Heating Water Supply
- Ⓖ Domestic Hot Water Tank Sensor Well
- Ⓚ Heating Water Return
- Ⓛ Domestic Cold Water
- Ⓜ Cleanout and Inspection Port
- Ⓞ Impressed Current Anode
- Ⓤ Electronic Unit for Impressed Current Anode




Dimensions in. (mm)

	cvwc 66	cvwc 79
a	26- ¹ / ₄ (668)	26- ¹ / ₄ (668)
b	28- ¹ / ₄ (714)	28- ¹ / ₄ (714)
C	76 (1929)	86- ¹ / ₂ (2196)
d	40- ¹ / ₄ (1022)	43- ¹ / ₂ (1101)
e	12- ³ / ₄ (323)	12- ³ / ₄ (323)
f	3- ¹ / ₄ (83)	3- ¹ / ₄ (83)
q	10- ¹ / ₂ (268)	10- ¹ / ₂ (268)
h	38- ¹ / ₂ (978)	41- ³ / ₄ (1057)
k	34 (866)	46 (1167)
l	53 (1345)	63- ¹ / ₄ (1607)
m	58- ³ / ₄ (1488)	69 (1754)
n	65- ³ / ₄ (1667)	76- ¹ / ₄ (1934)
o	73 (1851)	83- ¹ / ₂ (2118)

Adjustable feet can be adjusted up to 1-¹/₄ in. (35 mm).

Miscellaneous Links

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[Technical Manual for AM2V](#)

[Installation Manual for AM2V](#)

[Vitospec](#)

[Technical Manual for Buffer Tank](#)

[Technical Manual for Storage Tank](#)



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