

Technical Data Manual

Model Nos. and pricing: see Price List

VIESSMANN®

Viessmann AirflowPLUS AH2A series
Hydronic forced air handler



Viessmann AirflowPLUS



Product may not be exactly as shown

Viessmann AirflowPLUS

AH2A Series, Models 213, 354 and 385

The Viessmann AirflowPLUS works directly with other hot water sources to provide warm comfortable heating for any home or small commercial building.



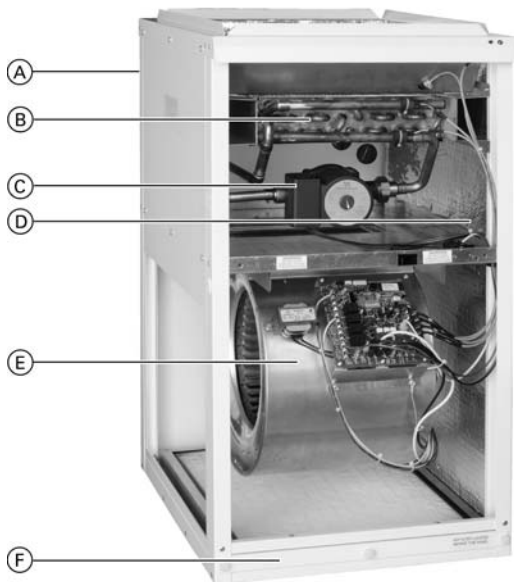
Viessmann AirflowPLUS AH2A Series

The Viessmann AirflowPLUS Series is engineered to be used with hydronic (boiler) systems, tank-less or on demand water heaters and domestic water systems (combo systems or aqua systems). Combo water systems use the homes hot water heater to provide both space heating and domestic hot water, eliminating the need for a furnace. Outputs range from 28,000 BTUH to 115,000 BTUH.

The benefits at a glance:

- **Total Comfort:** Delivers warm comfortable conditioned air, warmer than heat pumps and many furnaces.
- **Quiet performance:** Engineered and balanced with extra insulation for quiet operation.
- **Dependable:** Manufactured to precise specifications, using high performance components.
- **Accessories:** Prewired for heating, cooling, and electronic air cleaners.
- **Multi-position:** Unit mounts in any direction - upflow, downflow or horizontal discharge right or left. Use built in filter rack for bottom return or add on external filter rack for other return air options (included).
- **Ease of Service:** All components slide out on rails for easy maintenance and/or service.
- **Cooling:** Pre-wired for A/C. Just add your favorite evaporator coil and condensing unit from most manufacturers.
- **Protection:** Built-in safety sensors provide whole house freeze protection, in case of thermostat failure.
- **All designs include an integral bottom return air filter rack and air filter and a filter rack is also provided for side return applications.**
- **All models are compatible with standard or digital thermostats.**

Components



Legend

- (A) Standard adaptors (at the rear)
- (B) Heating coil and pump slide out for easy service
- (C) Integrate pump with check valve
- (D) Fibreglass insulation with reinforced foil face and gasket seals
- (E) Fan and controls slide out on rails
- (F) Integrated filter rack

Cabinet

All cabinets have a tough, durable powder coat finish on satin coat 20 gauge steel.

Heating coils

All heating coils are copper and assembled using no lead solder. All coils and internal piping conform to ASTM B-68, B-88 and/or B-743 standards.

High density aluminum fins provide maximum heat transfer for small coil surface.

Fan and motor

The fan is a wide body dynamically balanced for extra quiet operation. Multi-directional sleeve bearing motors allow mounting in any direction for maximum installation flexibility.

Circulating pump

The internal circulating pump is matched for maximum performance. All Viessmann AirflowPLUS air handlers come with internally mounted pumps for ease of installation.

Check valve

A check valve is built into the circulator to protect against backflow of water.

Technical Data

	Description	AH2A-213	AH2A-354	AH2A-385
Motor (ECM)	hp	1/3	1/2	3/4
Motor rated amps - loaded (1050 RPM) - locked rotor	AMPS	5.0	7.7	9.6
	AMPS	**	**	**
Electrical	VOLTS/PH/HZ	120/1/60	120/1/60	120/1/60
Heating BTUH (kW)	120°F (49°C)	28,000 (8)	44,000 (13)	51,000 (15)
	140°F (60°C)	46,000 (13)	61,000 (18)	74,000 (22)
	160°F (71°C)	62,000 (18)	83,000 (24)	90,000 (26)
	180°F (82°C)	72,000 (21)	98,000 (29)	115,000 (33)
Flow	USG/min (L/H)	3 (681)	5 (1135)	5 (1135)
Nominal (CFM)	Heating .5" e.s.p.	600	1,200	1,600
	Cooling .5" e.s.p.	700	1,400	1,800
	Heating .2" e.s.p.	1,100	1,300	1,900
	Cooling .2" e.s.p.	1,200	1,600	2,100
Cooling capacity	(tons)	1.5 - 3.0	2.50 - 4.0	3.5 - 5.0
Cabinet	D x W x H* in. (mm)	22 3/4 x 18 x 32 1/2 (578 x 457 x 825)	23 x 22 x 34 1/2 (584 x 559 x 876)	28 x 22 x 34 1/2 (711 x 559 x 876)
Supply air opening	in. (mm)	16 x 20 (406 x 508)	20 x 20 (508 x 508)	20 x 25 (508 x 635)
Return air opening	in. (mm)	14 x 18 (356 x 457)	18 x 18 (457 x 457)	18 x 23 (457 x 584)
Weight	lb.	85	100	110
	kg	(39)	(45)	(50)
Circulating pump *				
Type		Grundfos 15/58RU		
Volts	AC	115	115	115
Motor horsepower	hp	1/25	1/25	1/25
Capacitor	MFD/VOLTS	10/180	10/180	10/180
Motor rated amps - loaded - locked rotor	AMPS	0.74	0.74	0.74
	AMPS	4.44	4.44	4.44
Maximum working pressure	PSI	145	145	145
Min./max. fluid temperature	°F	120/200	120/200	120/200
	(°C)	(49/93)	(49/93)	(49/93)
Hydronic heating coil				
Construction	Copper tubing, aluminum fins, galvanized steel support frame			
Rows...fins/in.		3...12	3...12	3...12
Total face area	sq. ft. (m ²)	1.3 (0.12)	2.8 (0.26)	2.8 (0.26)
Piping connections				
Supply	in.	1/2 FIP	3/4 FIP	3/4 FIP
Return	in.	1/2 FIP	3/4 FIP	3/4 FIP
Pressure drop through the coil	feet of head [@ 160°F (71°C) supply water temperature]	12	2	2

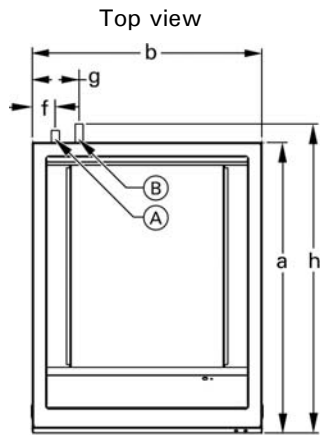
* Using the adjustable levelling feet can add up to 1 1/2 in. (38 mm) to the height of the air handler.

** If motor speed decreases below the programmed stall speed, the motor will shut down and after a delay period, the control will attempt to restart the motor. Starting current is limited to significantly less than full load current.

Dimensions

IMPORTANT

The maximum ambient temperature must not exceed 104°F (40°C).

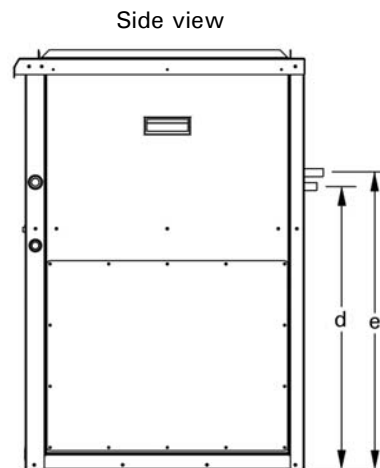
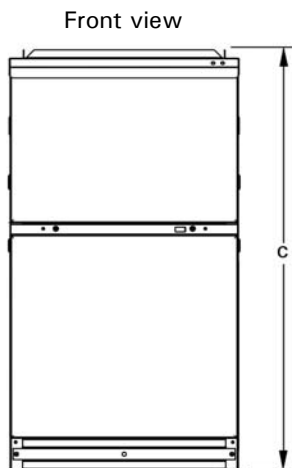


		AH2A-213	AH2A-354	AH2A-385
a	in. (mm)	22¾ (578 mm)	23 (584 mm)	28 (711 mm)
b	in. (mm)	18 (457 mm)	22 (559 mm)	22 (559 mm)
c*	in. (mm)	32½ (826 mm)	34½ (876 mm)	34½ (876 mm)
d*	in. (mm)	22¼ (572 mm)	24¾ (620 mm)	24¾ (620 mm)
e*	in. (mm)	23½ (597 mm)	25½ (650 mm)	25½ (650 mm)
f	in. (mm)	2 (51 mm)	1¾ (44 mm)	1¾ (44 mm)
g	in. (mm)	3 (76 mm)	3⅝ (92 mm)	3⅝ (92 mm)
h	in. (mm)	24¾ (629 mm)	25 (635 mm)	30 (762 mm)

* Using the adjustable levelling feet can add up to 1½ in. (38 mm) to the height of the air handler.

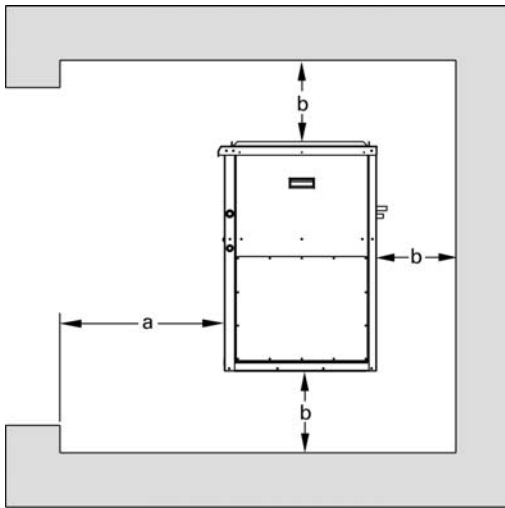
Legend

- Ⓐ Heating water supply connection
- Ⓑ Heating water return connection

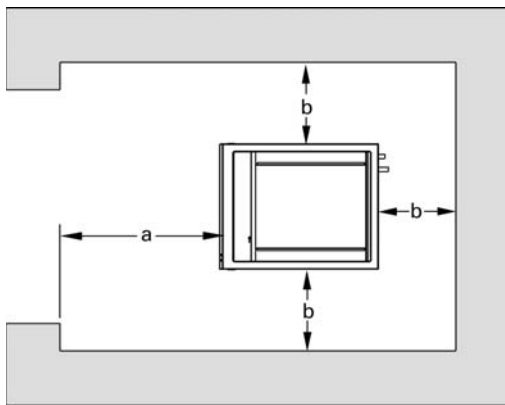


Minimum Clearances

Horizontal Installation



Vertical Installation



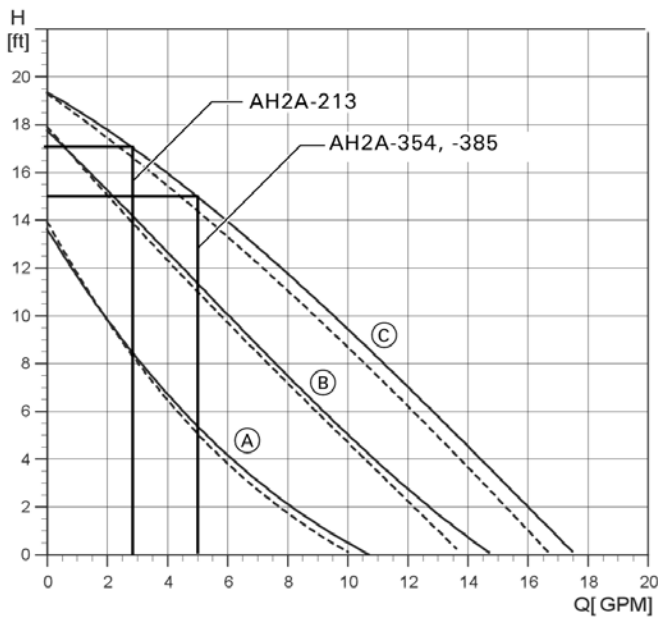
Recommended minimum service clearances

For typical Viessmann AirflowPLUS installation, it is recommended to install the air handler with the clearances shown in the illustration.

- a - 24 in. (610 mm)
- b - 12 in. (305 mm)

These dimensions reflect the recommended service clearance for the air handler only, ensure adequate clearance is left for the installation of ducting, piping and electrical connections. Only the b clearance may be reduced providing there is enough clearance for ductwork, plumbing and electrical connections, with zero clearance between the air handler unit and ducting being acceptable.

Heating Circuit Pumps



Pump Model	Grundfos UPS15-58RU	
Rated voltage	VAC	115
Rated current	Amp	0.74
Capacitor	μ F	10
Power consumption	Watts	87

Legend

- (A) Speed 1 Pump curve
- (B) Speed 2 Pump curve
- (C) Speed 3 Pump curve

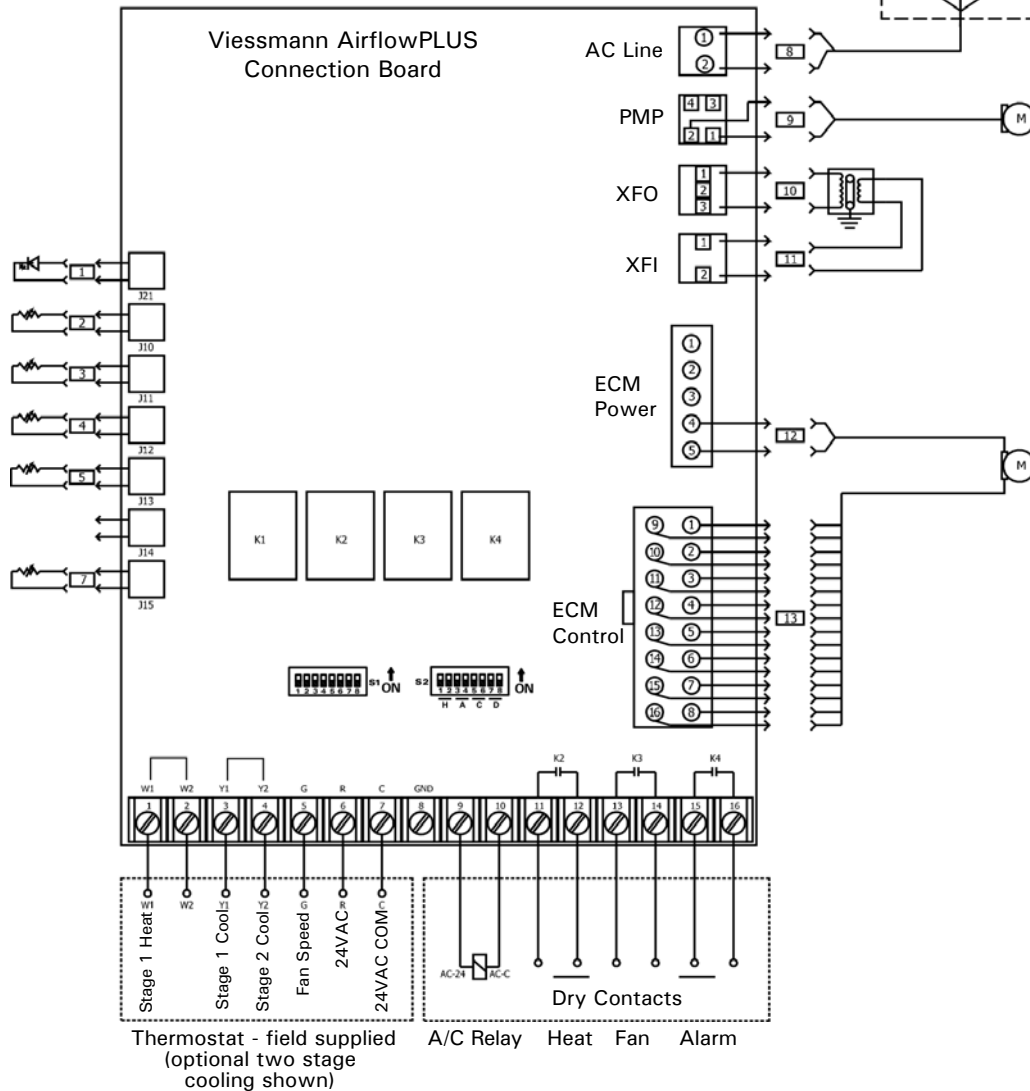
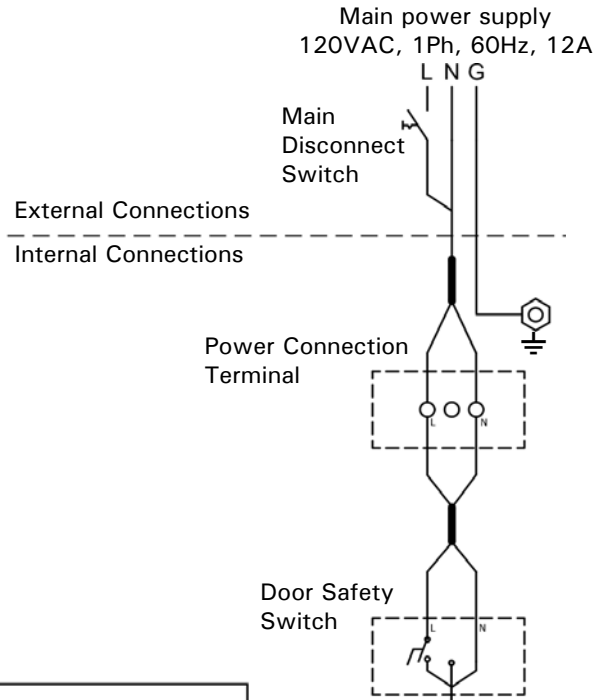
Note: All Viessmann AirflowPLUS air handlers come with pump speed factory set to speed 3.

Electrical Connections

WARNING
DISCONNECT POWER BEFORE SERVICING BOILER.

If any of the original wires as supplied with the appliance must be replaced, it must be replaced with the exact equivalent.

CAUTION
 Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.



Electrical Connections *(continued)*

Legend

- ① Diagnostic LED
- ② Ambient temperature sensor
- ③ Return air temperature sensor
- ④ Supply air temperature sensor
- ⑤ Freeze protection temperature sensor
- ⑦ Supply water temperature sensor
- ⑧ A/C power
- ⑨ Pump motor
- ⑩ 24VAC transformer secondary
- ⑪ 24VAC transformer primary
- ⑫ ECM power
- ⑬ ECM control

Legend

AC Line

- ① 115VAC line
- ② 115VAC neutral

Pump (PMP)

- ① 115VAC neutral
- ② 115VAC line

XFO

- ① 24VAC
- ② N/C
- ③ 24VAC-COM (GND)

XFI

- ① 115VAC line
- ② 115VAC neutral

ECM Power

- ① N/C
- ② N/C
- ③ N/C
- ④ 115VAC neutral
- ⑤ 115VAC line

ECM Control

- ① Common C1
- ② W/W1
- ③ Common C2
- ④ Delay tap select
- ⑤ Cool tap select
- ⑥ Y1
- ⑦ Adjust tap select
- ⑧ Output
- ⑨ Return valve (heat pump only)
- ⑩ Humidistat (BK)
- ⑪ Heat tap select
- ⑫ 24VAC (R)
- ⑬ 2nd stage heat (EM/W2)
- ⑭ 2nd stage cool (Y/Y2)
- ⑮ Fan (G)
- ⑯ Output +

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

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