

# GUIDE SPECIFICATIONS

## WW Series Water-to-Water Reverse Cycle Chillers & Low Temp Boilers

### WW120 - 420 Modular Reverse Cycle Chillers/Low Temperature Boilers

#### GENERAL

Units shall be Underwriter Laboratories (UL) listed for safety on all models. Each unit shall be run tested at the factory. Each unit shall be pallet mounted and stretch wrapped.

The units shall be warranted by the manufacturer against defects in materials and workmanship for a period of one year on all parts, and 5 years on the compressor. The units shall be manufactured in an ISO 9001:2000 certified facility.

The units shall be designed to operate with entering fluid temperatures between 20°F (-7°C) and 120°F (49°C) as manufactured by FHP Manufacturing in Fort Lauderdale, Florida. Refrigerant shall be R-410A.

#### CASING & CABINET

The cabinet shall be fabricated from heavy-gauge steel hot deep galvanized with black bison vinyl for corrosion protection and shall be supported by a full angle iron frame. The interior shall be insulated with ½" (12.7mm) thick, multi density, coated, glass fiber. All units shall allow front service access to replace the compressor and/or electrical components without unit removal.

#### REFRIGERATION CIRCUITS

All units shall contain a sealed refrigerant circuit including hermetic scroll compressor(s), bidirectional thermal expansion valve metering device(s), coaxial style fluid-to-refrigerant heat exchangers, refrigerant reversing valve(s) and service ports. Compressor shall be high efficiency, designed for heat pump duty with refrigerant R-410A, and mounted on rubber vibration isolators. Compressor motors shall be equipped with overload protection. Refrigerant reversing valves shall be pilot operated sliding piston type with replaceable encapsulated magnetic coils energized only during the chiller cycle. The coaxial water-to-refrigerant heat exchanger shall be constructed of a convoluted copper (optional cupronickel) inner tube and steel outer tube with a designed refrigerant working pressure of 600 PSIG (4100 kPa) and a designed water side working pressure of no less than 400 PSIG (2750 kPa).

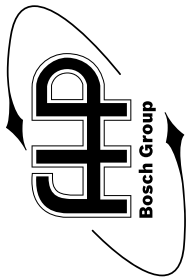
Due to their susceptibility to fouling, brazed plate heat exchangers are not acceptable. The fluid-to-refrigerant heat exchangers shall be insulated to prevent condensation at low fluid temperatures.

#### ELECTRICAL

Controls and safety devices will be factory wired and mounted within the unit. Controls shall include compressor contactors, 24V transformer, reversing valve coils and a solid state lock-out control circuit (UPM). The UPM controller shall include the following features: Anti-short cycle time delay, random start, interstage delay, brown out/surge/power interruption protection, 120 second low pressure switch bypass timer, shutdown on high or low refrigerant pressure safety switch inputs, shutdown for the optional freezestat, 24 VAC alarm output for remote fault indication, unit reset at thermostat or disconnect, ability to defeat time delays for servicing, time delay between stages and automatic intelligent reset. The UPM shall automatically reset after a safety shut down and restart the unit, if the cause of the shut down no longer exists, after the anti-short cycle and random start timers expire. Should a fault re-occur within 60 minutes after reset, then a permanent lockout will occur. A light emitting diode (LED) shall annunciate the following alarms for each refrigerant circuit: high refrigerant pressure, low refrigerant pressure and low water temperature (when equipped with the optional low water temperature sensor). The LED will display each fault condition as soon as the fault occurs. If a permanent lockout occurs, then the fault LED will display the type of fault until the unit is reset. Safety devices include a low pressure cutout set at 20 PSIG (140 kPa) for loss of charge protection (a freezestat used for loss of charge protection is not acceptable) and a high pressure cutout control set at 600 PSIG (4100 kPa). An optional energy management relay to allow unit control by an external source shall be factory installed.

#### PIPING

Water piping connections shall be female pipe thread with a single set of source and load connections per unit.



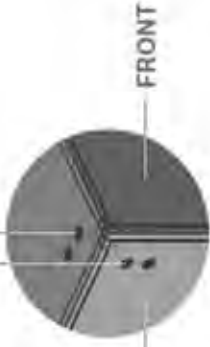
FHP Manufacturing Co.  
 601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471  
 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>

# WW120-210 Series

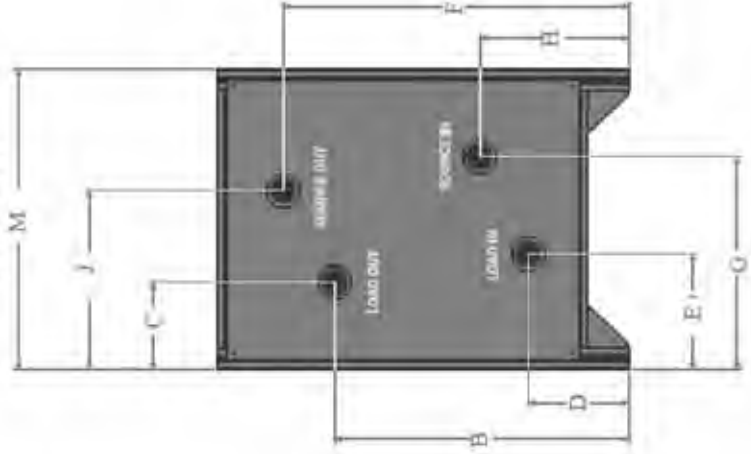
## Water to Water Units

MODEL	Dimensions												
	A	B	C	D	E	F	G	H	J	K	L	M	Water Conn.
WW120	37.50	27.62	8.50	8.38	9.25	33.50	19.50	13.50	17.50	3.50	46.00	28.00	1 1/4" FPT
WW122	37.50	27.62	7.00	8.38	9.25	33.50	20.75	13.50	17.50	3.50	46.00	28.00	1 1/4" FPT
WW180	37.50	19.75	4.50	8.38	9.25	33.50	24.00	13.50	17.50	3.50	46.00	28.00	1 1/2" FPT
WW210	37.50	19.75	4.50	8.38	9.25	33.50	23.50	13.50	17.50	3.50	46.00	28.00	1 1/2" FPT

(A) TYPICAL CONNECTION



UNIT REAR



**WW Series Reverse Cycle Chiller Nomenclature**

**WW**

Series: WW Water-to-Water R-410A

Nominal Capacity: \_\_\_\_\_

Voltage: \_\_\_\_\_  
 1-208/230-1-60  
 3-208/230-3-60  
 4-460-3-60  
 5-575-3-60

Cabinet Type: \_\_\_\_\_  
 CS-No Unit Mounted Controls  
 US-Unit Mounted Controller

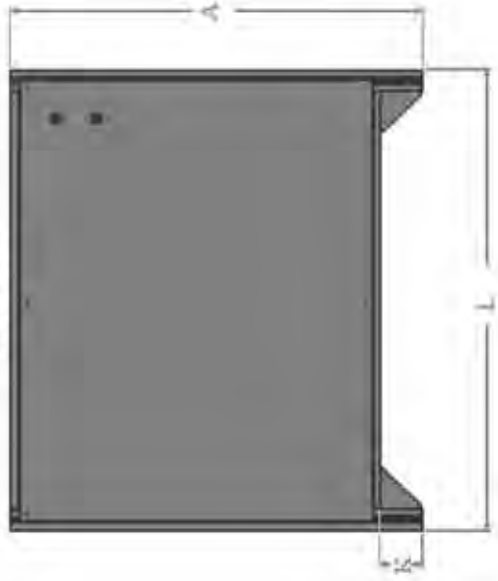
Supply Air Location: X-None

Return Air Location: X-None

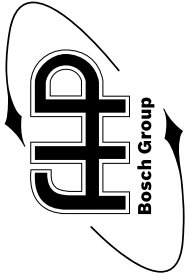
Water Connections: R-Rear

Condenser Material: C-Copper  
 N-Cupro-Nickel

LEFT SIDE



WWSDGPP65 REV: 01-11

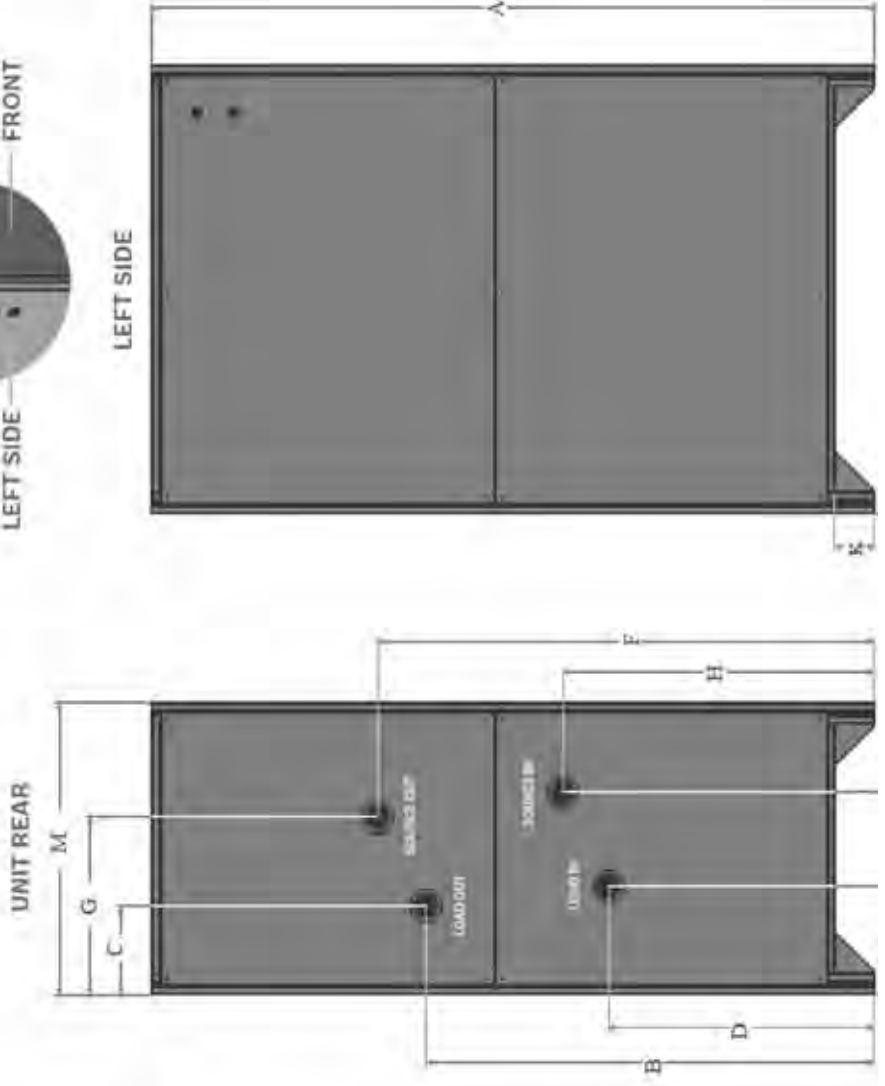
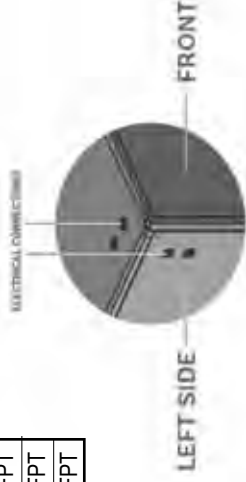


FHP Manufacturing Co.  
 601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471  
 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>

# WW240-420 Series

## Water to Water Units

MODEL	Dimensions											Water Conn.	
	A	B	C	D	E	F	G	H	K	J	L		M
WW240	70.00	44.00	8.50	24.50	10.50	49.00	17.50	30.00	3.50	20.50	46.00	28.00	2.00" FPT
WW360	70.00	44.00	4.50	24.50	10.50	49.00	17.50	30.00	3.50	23.50	46.00	28.00	2.00" FPT
WW420	70.00	44.00	4.50	24.50	10.50	49.00	17.50	30.00	3.50	23.50	46.00	28.00	2.00" FPT



### WW Series Reverse Cycle Chiller Nomenclature





**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW120**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-3-60	-3	33.3	239.0	41.6	70
460-3-60	-4	17.9	125.0	22.4	40
575-3-60	-5	12.8	80.0	16.0	25

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
18	5.4	18	4.7
22	7.7	22	6.7
26	10.5	26	9.1
30	13.6	30	11.9
34	17.0	34	14.9

**UNIT WEIGHT**

Unit Weight (lbs) 648  
 Shipping Weight (lbs) 670



**CHILLER PERFORMANCE**

Based on 22.9 GPM load and 28.5 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	9.47	113.59	7.13	15.94	137.91
	80°	9.20	110.37	7.50	14.73	135.94
	85°	8.91	106.96	7.91	13.52	133.96
	90°	8.62	103.39	8.38	12.33	131.99
42°	75°	9.79	117.48	7.16	16.41	141.91
	80°	9.52	114.23	7.53	15.18	139.91
	85°	9.23	110.79	7.94	13.95	137.89
	90°	8.93	107.17	8.41	12.74	135.86
44°	75°	9.95	119.46	7.18	16.65	143.94
	80°	9.68	116.20	7.54	15.41	141.93
	85°	9.39	112.74	7.96	14.17	139.89
	90°	9.09	109.09	8.42	12.95	137.83
45°	75°	10.12	121.45	7.19	16.89	145.99
	80°	9.85	118.19	7.56	15.64	143.97
	85°	9.56	114.71	7.97	14.39	141.91
	90°	9.25	111.03	8.44	13.16	139.82
46°	75°	10.46	125.51	7.22	17.37	150.16
	80°	10.19	122.22	7.59	16.10	148.12
	85°	9.89	118.71	8.00	14.83	146.02
	90°	9.58	114.98	8.47	13.58	143.88
48°	75°	10.63	127.57	7.24	17.62	152.28
	80°	10.36	124.27	7.61	16.34	150.23
	85°	10.06	120.74	8.02	15.05	148.11
	90°	9.75	116.99	8.48	13.79	145.93
50°	75°	10.98	131.76	7.27	18.12	156.57
	80°	10.70	128.44	7.64	16.82	154.50
	85°	10.41	124.87	8.05	15.51	152.34
	90°	10.09	121.07	8.52	14.22	150.12
50°	75°	9.75	117.05	9.03	12.97	147.84

**HEATING PERFORMANCE**

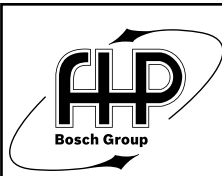
Based on 22.9 GPM load and 28.5 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	109.52	8.38	3.83	80.94
	40°	117.13	8.36	4.11	88.61
	50°	133.58	8.34	4.69	105.12
	60°	151.63	8.33	5.33	123.19
	70°	171.23	8.33	6.02	142.79
110°	35°	107.57	9.57	3.29	74.91
	40°	114.80	9.53	3.53	82.30
	50°	130.58	9.45	4.05	98.32
	60°	148.09	9.41	4.61	115.99
120°	35°	106.27	10.99	2.83	68.78
	40°	112.97	10.91	3.04	75.75
	50°	127.79	10.78	3.47	91.01
	60°	144.48	10.69	3.96	108.02
125°	35°	105.70	12.62	2.45	62.64
	40°	111.73	12.51	2.62	69.06
	50°	125.31	12.32	2.98	83.28
	60°	140.88	12.17	3.39	99.35
125°	70°	158.42	12.07	3.85	117.25

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>



**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW122**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-1-60	-1	30.1	158.0	67.7	90
208-230/3/60	-3	20.5	155.0	46.1	60
460/3/60	-4	9.6	75.0	21.6	30
575/60/3	-5	7.6	54.0	17.1	20

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
18	5.4	18	4.7
22	7.7	22	6.7
26	10.5	26	9.1
30	13.6	30	11.9
34	17.0	34	14.9

**UNIT WEIGHT**

Unit Weight (lbs) 720  
 Shipping Weight (lbs) 740



**CHILLER PERFORMANCE**

Based on 23 GPM load and 30 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	9.69	116.30	7.31	15.91	141.24
	80°	9.45	113.41	7.78	14.57	139.97
	85°	9.19	110.32	8.29	13.31	138.61
	90°	8.92	107.04	8.84	12.11	137.19
	95°	8.63	103.57	9.43	10.99	135.73
42°	75°	10.05	120.58	7.31	16.51	145.50
	80°	9.80	117.61	7.78	15.12	144.15
	85°	9.54	114.45	8.29	13.81	142.72
	90°	9.26	111.09	8.83	12.58	141.22
	95°	8.96	107.54	9.42	11.42	139.67
44°	75°	10.23	122.76	7.30	16.81	147.68
	80°	9.98	119.76	7.78	15.40	146.29
	85°	9.71	116.55	8.28	14.07	144.81
	90°	9.43	113.15	8.83	12.82	143.27
	95°	9.13	109.56	9.41	11.64	141.68
45°	75°	10.42	124.98	7.30	17.12	149.89
	80°	10.16	121.93	7.77	15.69	148.46
	85°	9.89	118.69	8.28	14.34	146.94
	90°	9.60	115.25	8.82	13.06	145.35
	95°	9.30	111.61	9.41	11.86	143.72
46°	75°	10.79	129.52	7.30	17.75	154.41
	80°	10.53	126.38	7.77	16.27	152.88
	85°	10.25	123.05	8.27	14.88	151.28
	90°	9.96	119.52	8.82	13.56	149.60
	95°	9.65	115.80	9.40	12.32	147.88
48°	75°	10.99	131.83	7.29	18.07	156.72
	80°	10.72	128.66	7.76	16.57	155.15
	85°	10.44	125.28	8.27	15.15	153.49
	90°	10.14	121.71	8.81	13.81	151.77
	95°	9.83	117.93	9.40	12.55	150.00
50°	75°	11.38	136.58	7.29	18.74	161.45
	80°	11.11	133.31	7.76	17.19	159.77
	85°	10.82	129.84	8.26	15.72	158.02
	90°	10.51	126.17	8.80	14.33	156.20
	95°	10.19	122.30	9.39	13.03	154.32

**HEATING PERFORMANCE**

Based on 23 GPM load and 30 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	114.15	9.01	3.71	83.41
	40°	121.91	8.93	4.00	91.44
	50°	138.67	8.76	4.64	108.78
	60°	157.33	8.57	5.38	128.09
	70°	178.19	8.36	6.25	149.69
110°	35°	112.67	10.28	3.21	77.61
	40°	120.25	10.19	3.46	85.49
	50°	136.55	9.99	4.00	102.46
	60°	154.62	9.77	4.64	121.28
	70°	174.78	9.53	5.38	142.27
120°	35°	111.19	11.75	2.77	71.09
	40°	118.58	11.66	2.98	78.81
	50°	134.38	11.44	3.44	95.36
	60°	151.83	11.19	3.98	113.65
	70°	171.24	10.91	4.60	134.00
125°	35°	109.85	13.48	2.39	63.84
	40°	117.02	13.37	2.56	71.38
	50°	132.28	13.13	2.95	87.47
	60°	149.07	12.86	3.40	105.19
	70°	167.69	12.55	3.92	124.86

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>



**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW180**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-3-60	-3	48.1	245.0	60.1	100
460-3-60	-4	18.6	125.0	23.3	40
575-3-60	-5	14.7	100.0	18.4	30

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
22	4.6	22	4.0
26	6.2	26	5.4
30	8.1	30	7.0
34	10.1	34	8.8
38	12.4	38	10.8

**UNIT WEIGHT**

Unit Weight (lbs) 850  
 Shipping Weight (lbs) 870



**CHILLER PERFORMANCE**

Based on 25.9 GPM load and 32.2 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	10.7	128.90	7.95	16.22	156.02
	80°	10.5	125.49	8.40	14.93	154.17
	85°	10.2	122.01	8.89	13.72	152.36
	90°	9.9	118.45	9.42	12.58	150.58
	95°	9.6	114.77	9.98	11.50	148.83
42°	75°	11.1	133.06	7.99	16.66	160.31
	80°	10.8	129.55	8.44	15.35	158.35
	85°	10.5	125.97	8.93	14.11	156.44
	90°	10.2	122.31	9.45	12.94	154.57
	95°	9.9	118.54	10.02	11.84	152.71
44°	75°	11.3	135.18	8.00	16.89	162.49
	80°	11.0	131.62	8.46	15.56	160.48
	85°	10.7	127.99	8.95	14.30	158.52
	90°	10.4	124.28	9.47	13.12	156.59
	95°	10.0	120.46	10.03	12.01	154.69
45°	75°	11.4	137.33	8.02	17.12	164.71
	80°	11.1	133.71	8.48	15.77	162.64
	85°	10.8	130.03	8.97	14.50	160.63
	90°	10.5	126.27	9.49	13.31	158.65
	95°	10.2	122.40	10.05	12.18	156.69
46°	75°	11.8	141.71	8.06	17.57	169.22
	80°	11.5	137.98	8.52	16.20	167.04
	85°	11.2	134.19	9.00	14.90	164.91
	90°	10.9	130.32	9.53	13.68	162.82
	95°	10.5	126.34	10.09	12.53	160.76
48°	75°	12.0	143.94	8.08	17.81	171.52
	80°	11.7	140.15	8.54	16.42	169.28
	85°	11.4	136.30	9.02	15.10	167.09
	90°	11.0	132.38	9.55	13.87	164.95
	95°	10.7	128.35	10.11	12.70	162.83
50°	75°	12.4	148.48	8.13	18.27	176.20
	80°	12.0	144.57	8.58	16.85	173.84
	85°	11.7	140.61	9.06	15.51	171.53
	90°	11.4	136.57	9.59	14.25	169.27
	95°	11.0	132.43	10.14	13.06	167.04

**HEATING PERFORMANCE**

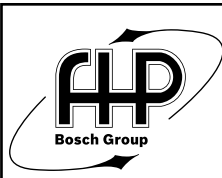
Based on 25.9 GPM load and 32.2 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	127.17	9.35	3.99	95.27
	40°	135.05	9.35	4.23	103.14
	50°	152.05	9.37	4.76	120.09
	60°	170.86	9.39	5.33	138.82
	70°	191.67	9.43	5.96	159.51
110°	35°	125.33	10.57	3.48	89.28
	40°	132.95	10.56	3.69	96.92
	50°	149.32	10.55	4.15	113.31
	60°	167.35	10.56	4.65	131.34
	70°	187.25	10.57	5.19	151.18
120°	35°	123.45	11.96	3.03	82.65
	40°	130.82	11.94	3.21	90.08
	50°	146.59	11.91	3.61	105.95
	60°	163.89	11.89	4.04	123.31
	70°	182.90	11.89	4.51	142.33
125°	35°	121.46	13.55	2.63	75.24
	40°	128.61	13.52	2.79	82.49
	50°	143.81	13.46	3.13	97.87
	60°	160.39	13.42	3.50	114.59
	70°	178.54	13.40	3.91	132.84

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>



**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW210**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-3-60	-3	55.8	340.0	69.8	125
460-3-60	-4	26.9	173.0	33.6	60
575-3-60	-5	23.7	132.0	29.6	50

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
25	5.8	25	5.0
30	8.0	30	7.0
35	10.6	35	9.3
40	13.5	40	11.8
45	16.8	45	14.7

**UNIT WEIGHT**

Unit Weight (lbs) 890  
 Shipping Weight (lbs) 910



**CHILLER PERFORMANCE**

Based on 34.0 GPM load & 42.1 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	13.97	167.70	10.73	15.63	204.31
	80°	13.59	163.12	11.30	14.43	201.69
	85°	13.20	158.45	11.94	13.27	199.18
	90°	12.81	153.69	12.63	12.17	196.77
42°	95°	12.40	148.84	13.37	11.13	194.46
	75°	14.48	173.80	10.79	16.11	210.62
	80°	14.09	169.06	11.36	14.89	207.81
	85°	13.69	164.24	11.99	13.70	205.13
44°	90°	13.28	159.31	12.67	12.57	202.55
	95°	12.86	154.29	13.41	11.50	200.06
	75°	14.74	176.92	10.82	16.35	213.84
	80°	14.34	172.10	11.39	15.12	210.95
45°	85°	13.93	167.19	12.01	13.92	208.17
	90°	13.52	162.19	12.69	12.78	205.50
	95°	13.09	157.08	13.44	11.69	202.92
	75°	15.01	180.09	10.85	16.59	217.12
46°	80°	14.60	175.18	11.41	15.35	214.13
	85°	14.18	170.19	12.04	14.14	211.26
	90°	13.76	165.10	12.72	12.98	208.49
	95°	13.33	159.91	13.46	11.88	205.83
48°	75°	15.55	186.55	10.93	17.07	223.83
	80°	15.12	181.48	11.48	15.81	220.65
	85°	14.69	176.32	12.09	14.58	217.58
	90°	14.25	171.05	12.77	13.40	214.62
50°	95°	13.81	165.68	13.51	12.27	211.76
	75°	15.82	189.85	10.97	17.31	227.27
	80°	15.39	184.70	11.51	16.04	223.98
	85°	14.95	179.44	12.12	14.80	220.81
50°	90°	14.51	174.09	12.80	13.61	217.75
	95°	14.05	168.63	13.53	12.46	214.79
	75°	16.38	196.60	11.05	17.80	234.29
	80°	15.94	191.27	11.58	16.51	230.79
50°	85°	15.49	185.83	12.19	15.25	227.41
	90°	15.02	180.30	12.85	14.03	224.15
	95°	14.55	174.65	13.58	12.86	221.00

**HEATING PERFORMANCE**

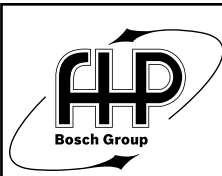
Based on 34.0 GPM load and 42.1 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	164.07	12.59	3.82	121.10
	40°	175.01	12.58	4.08	132.09
	50°	199.05	12.56	4.64	156.19
	60°	226.30	12.58	5.27	183.36
110°	70°	257.17	12.70	5.94	213.84
	35°	162.19	14.16	3.36	113.89
	40°	172.66	14.16	3.57	124.36
	50°	195.56	14.13	4.06	147.35
120°	60°	221.45	14.11	4.60	173.31
	70°	250.73	14.14	5.20	202.48
	35°	160.51	15.89	2.96	106.29
	40°	170.51	15.92	3.14	116.20
125°	50°	192.32	15.92	3.54	138.00
	60°	216.87	15.89	4.00	162.66
	70°	244.60	15.88	4.52	190.43
	35°	158.93	17.79	2.62	98.24
125°	40°	168.49	17.86	2.77	107.56
	50°	189.23	17.92	3.09	128.08
	60°	212.49	17.92	3.48	151.36
	70°	238.69	17.89	3.91	177.65

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>



**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW240**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor (2)		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-3-60	-3	33.3	239.0	74.9	100
460-3-60	-4	17.9	125.0	40.3	50
575-3-60	-5	12.8	80.0	28.8	40

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
36	5.4	36	4.7
44	7.7	44	6.7
52	10.5	52	9.1
60	13.6	60	11.9
68	17.0	68	14.9

**UNIT WEIGHT**

Unit Weight (lbs) 1230  
 Shipping Weight (lbs) 1260



**CHILLER PERFORMANCE**

Based on 45.8 GPM load and 57 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	18.93	227.18	14.26	15.94	275.83
	80°	18.39	220.73	14.99	14.73	271.88
	85°	17.83	213.92	15.83	13.52	267.92
	90°	17.23	206.78	16.76	12.33	263.98
42°	95°	16.61	199.34	17.80	11.20	260.09
	75°	19.58	234.96	14.32	16.41	283.82
	80°	19.04	228.47	15.05	15.18	279.83
	85°	18.47	221.58	15.89	13.95	275.78
44°	90°	17.86	214.34	16.82	12.74	271.72
	95°	17.23	206.77	17.86	11.58	267.69
	75°	19.91	238.91	14.35	16.65	287.88
	80°	19.37	232.40	15.08	15.41	283.87
45°	85°	18.79	225.48	15.92	14.17	279.78
	90°	18.18	218.18	16.85	12.95	275.67
	95°	17.55	210.54	17.88	11.77	271.56
	46°	75°	20.24	242.91	14.38	16.89
80°		19.70	236.37	15.12	15.64	287.95
85°		19.12	229.41	15.95	14.39	283.82
90°		18.51	222.06	16.88	13.16	279.65
48°	95°	17.86	214.36	17.91	11.97	275.47
	75°	20.92	251.02	14.45	17.37	300.32
	80°	20.37	244.45	15.18	16.10	296.24
	85°	19.78	237.41	16.01	14.83	292.04
50°	90°	19.16	229.96	16.94	13.58	287.75
	95°	18.51	222.12	17.96	12.36	283.42
	75°	21.26	255.14	14.48	17.62	304.55
	80°	20.71	248.55	15.21	16.34	300.45
52°	85°	20.12	241.48	16.04	15.05	296.21
	90°	19.50	233.97	16.97	13.79	291.87
	95°	18.84	226.07	17.99	12.56	287.46
	54°	75°	21.96	263.52	14.54	18.12
80°		21.41	256.88	15.28	16.82	309.00
85°		20.81	249.74	16.10	15.51	304.69
90°		20.18	242.13	17.03	14.22	300.24
56°	95°	19.51	234.09	18.05	12.97	295.69

**HEATING PERFORMANCE**

Based on 45.8GPM load and 57 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	219.05	16.75	3.83	161.89
	40°	234.27	16.72	4.11	177.22
	50°	267.16	16.68	4.69	210.25
	60°	303.25	16.67	5.33	246.38
	70°	342.45	16.67	6.02	285.58
110°	35°	215.15	19.14	3.29	149.83
	40°	229.61	19.05	3.53	164.60
	50°	261.16	18.91	4.05	196.64
	60°	296.18	18.82	4.61	231.99
120°	70°	334.59	18.76	5.23	270.60
	35°	212.54	21.98	2.83	137.56
	40°	225.95	21.82	3.04	151.51
125°	50°	255.59	21.56	3.47	182.02
	60°	288.96	21.37	3.96	216.03
	70°	326.00	21.24	4.50	253.52
130°	35°	211.40	25.24	2.45	125.27
	40°	223.47	25.02	2.62	138.12
	50°	250.62	24.63	2.98	166.57
	60°	281.77	24.35	3.39	198.70
135°	70°	316.85	24.13	3.85	234.51

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>





**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW360**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor (2)		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-3-60	-3	48.1	245.0	108.2	150
460-3-60	-4	18.6	125.0	41.9	60
575-3-60	-5	14.7	100.0	33.1	45

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
44	4.6	44	4.0
52	6.2	52	5.4
60	8.1	60	7.0
68	10.1	68	8.8
76	12.4	76	10.8

**UNIT WEIGHT**

Unit Weight (lbs) 1550  
 Shipping Weight (lbs) 1580



**CHILLER PERFORMANCE**

Based on 51.8 GPM load & 64.4 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	21.48	257.79	15.90	16.22	312.03
	80°	20.92	250.98	16.81	14.93	308.33
	85°	20.34	244.02	17.79	13.72	304.72
	90°	19.74	236.89	18.84	12.58	301.16
42°	95°	19.13	229.54	19.96	11.50	297.66
	75°	22.18	266.12	15.97	16.66	320.61
	80°	21.59	259.10	16.88	15.35	316.71
	85°	21.00	251.95	17.86	14.11	312.88
44°	90°	20.39	244.62	18.91	12.94	309.13
	95°	19.76	237.09	20.03	11.84	305.43
	75°	22.53	270.36	16.01	16.89	324.99
	80°	21.94	263.24	16.92	15.56	320.97
45°	85°	21.33	255.98	17.90	14.30	317.04
	90°	20.71	248.55	18.94	13.12	313.19
	95°	20.08	240.92	20.07	12.01	309.38
	46°	75°	22.89	274.66	16.05	17.12
80°		22.29	267.43	16.96	15.77	325.29
85°		21.67	260.06	17.93	14.50	321.25
90°		21.04	252.53	18.98	13.31	317.29
48°	95°	20.40	244.80	20.10	12.18	313.38
	75°	23.62	283.41	16.13	17.57	338.44
	80°	23.00	275.96	17.03	16.20	334.08
	85°	22.36	268.38	18.01	14.90	329.82
50°	90°	21.72	260.63	19.05	13.68	325.64
	95°	21.06	252.69	20.17	12.53	321.52
	75°	23.99	287.87	16.17	17.81	343.03
	80°	23.36	280.30	17.07	16.42	338.56
52°	85°	22.72	272.60	18.05	15.10	334.18
	90°	22.06	264.75	19.09	13.87	329.89
	95°	21.39	256.70	20.21	12.70	325.66
	54°	75°	24.75	296.95	16.25	18.27
80°		24.10	289.14	17.16	16.85	347.68
85°		23.43	281.22	18.13	15.51	343.07
90°		22.76	273.13	19.17	14.25	338.54
56°	95°	22.07	264.86	20.29	13.06	334.08

**HEATING PERFORMANCE**

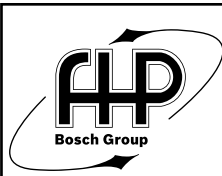
Based on 51.8 GPM load and 64.4 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	254.35	18.70	3.99	190.55
	40°	270.10	18.71	4.23	206.28
	50°	304.10	18.73	4.76	240.18
	60°	341.71	18.78	5.33	277.64
	70°	383.34	18.85	5.96	319.01
110°	35°	250.66	21.13	3.48	178.56
	40°	265.90	21.12	3.69	193.85
	50°	298.63	21.10	4.15	226.63
	60°	334.71	21.11	4.65	262.68
120°	70°	374.50	21.15	5.19	302.35
	35°	246.90	23.92	3.03	165.30
	40°	261.65	23.88	3.21	180.17
	50°	293.19	23.82	3.61	211.90
125°	60°	327.77	23.79	4.04	246.61
	70°	365.80	23.78	4.51	284.67
	35°	242.92	27.09	2.63	150.49
	40°	257.21	27.03	2.79	164.98
130°	50°	287.61	26.93	3.13	195.74
	60°	320.77	26.85	3.50	229.17
	70°	357.09	26.79	3.91	265.67

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>



**WATER COOLED CHILLERS AND LOW TEMP BOILERS**  
**SPECIFICATION DATA SHEET**  
 FHP MANUFACTURING ENERGY WISE HVAC EQUIPMENT

**WW420**  
**AQUARIUS SERIES**  
**R-410A**

**ELECTRICAL SPECIFICATIONS**

Electrical Characteristics	Elect. Symbol	Compressor (2)		Min. Circuit Ampacity	Max. Fuse Size
		RLA	LRA		
208/230-3-60	-3	55.8	340.0	125.6	175
460-3-60	-4	26.9	173.0	60.5	80
575-3-60	-5	23.7	132.0	53.3	70

**FLUID FLOW & PRESSURE DROP**

Chilled Fluid Side (@ 55°F)		Cond. Fluid Side (@ 85°F)	
Flow (GPM)	ΔP (FOH)	Flow (GPM)	ΔP (FOH)
50	5.8	50	5.0
60	8.0	60	7.0
70	10.6	70	9.3
80	13.5	80	11.8
90	16.8	90	14.7

**UNIT WEIGHT**

Unit Weight (lbs) 1700  
 Shipping Weight (lbs) 17300



**CHILLER PERFORMANCE**

Based on 68 GPM load and 84.2 GPM source fluid flow.

Leaving Load Fluid (F)	Entering Source Fluid (F)	Total Capacity (Tons)	Total Capacity (MBtuH)	Power Input (kW)	EER	Heat Rejection (MBtuH)
40°	75°	27.95	335.40	21.46	15.63	408.61
	80°	27.19	326.23	22.61	14.43	403.37
	85°	26.41	316.89	23.88	13.27	398.36
	90°	25.61	307.38	25.26	12.17	393.55
	95°	24.81	297.67	26.74	11.13	388.92
42°	75°	28.97	347.61	21.58	16.11	421.23
	80°	28.18	338.13	22.71	14.89	415.63
	85°	27.37	328.47	23.97	13.70	410.26
	90°	26.55	318.63	25.34	12.57	405.09
	95°	25.72	308.59	26.83	11.50	400.12
44°	75°	29.49	353.85	21.64	16.35	427.69
	80°	28.68	344.21	22.77	15.12	421.90
	85°	27.87	334.38	24.02	13.92	416.34
	90°	27.03	324.37	25.39	12.78	411.00
	95°	26.18	314.16	26.87	11.69	405.84
45°	75°	30.01	360.17	21.71	16.59	434.25
	80°	29.20	350.37	22.83	15.35	428.27
	85°	28.37	340.38	24.07	14.14	422.52
	90°	27.52	330.20	25.44	12.98	416.99
	95°	26.65	319.81	26.92	11.88	411.65
46°	75°	31.09	373.10	21.85	17.07	447.67
	80°	30.25	362.96	22.96	15.81	441.29
	85°	29.39	352.63	24.19	14.58	435.15
	90°	28.51	342.10	25.54	13.40	429.24
	95°	27.61	331.36	27.01	12.27	423.52
48°	75°	31.64	379.71	21.93	17.31	454.53
	80°	30.78	369.39	23.02	16.04	447.95
	85°	29.91	358.89	24.25	14.80	441.6
	90°	29.01	348.18	25.59	13.61	435.50
	95°	28.10	337.26	27.06	12.46	429.59
50°	75°	32.77	393.19	22.10	17.80	468.58
	80°	31.88	382.53	23.17	16.51	461.58
	85°	30.97	371.67	24.37	15.25	454.83
	90°	30.05	360.59	25.71	14.03	448.30
	95°	29.11	349.30	27.17	12.86	441.99

**HEATING PERFORMANCE**

Based on 68 GPM load and 84.2 GPM source fluid flow

Leaving Load Fluid (F)	Entering Source Fluid (F)	Heating Capacity (MBtuH)	Power Input (kW)	COP	Heat of Absorb. (MBtuH)
100°	35°	328.13	25.18	3.82	242.21
	40°	350.02	25.16	4.08	264.18
	50°	398.09	25.12	4.64	312.39
	60°	452.59	25.17	5.27	366.72
	70°	514.34	25.40	5.94	427.69
110°	35°	324.39	28.31	3.36	227.78
	40°	345.32	28.31	3.57	248.72
	50°	391.12	28.26	4.06	294.71
	60°	442.89	28.22	4.60	346.61
	70°	501.46	28.28	5.20	404.95
120°	35°	321.01	31.78	2.96	212.58
	40°	341.02	31.83	3.14	232.41
	50°	384.63	31.84	3.54	276.01
	60°	433.74	31.78	4.00	325.32
	70°	489.20	31.75	4.52	380.86
125°	35°	317.86	35.57	2.62	196.48
	40°	336.98	35.72	2.77	215.12
	50°	378.46	35.84	3.09	256.17
	60°	424.98	35.83	3.48	302.71
	70°	477.39	35.78	3.91	355.30

Units are complete packages featuring 1 stage operation and containing refrigeration compressor, reversing valve, expansion valve metering device and water to refrigerant heat exchangers. Also included are safety controls: Overload protection for compressor, high and low refrigerant pressure switches and a lock-out control circuit.

**FHP MANUFACTURING COMPANY**

601 N.W. 65th Court  
 Fort Lauderdale, FL 33309  
 Phone: (954) 776-5471 Fax: (800) 776-5529  
<http://www.fhp-mfg.com>