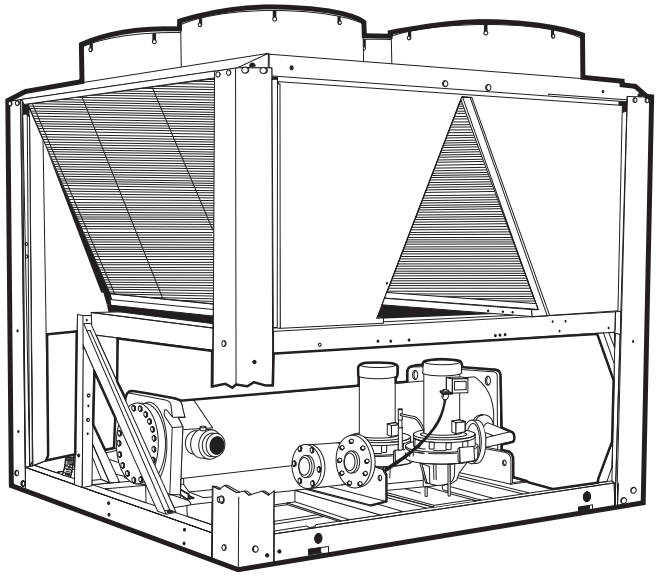
Carrier®

Product Data

AQUASNAP® 30RB060-390 Air-Cooled Chillers

60 to 390 Nominal Tons
(210 to 1370 kW)

AQUASNAP®



Puron®
the environmentally sound refrigerant

ASHRAE 90.1 COMPLIANT

Features/Benefits

AquaSnap chillers are an effective all-in-one package that is easy to install and easy to own. AquaSnap chillers cost less to purchase and install, and then operate quietly and efficiently. Value-added features include:

- Quiet AeroAcoustic™ fan system
- Rotary scroll compression
- Puron® HFC refrigerant
- Easy to use *Comfort*Link™ controls
- Integrated hydronic pump package

Leave it to Carrier to rethink chiller design in ways noticed at the initial purchase, through installation, and for years afterward. Carrier's new AquaSnap chiller installs quickly and easily on the ground or the rooftop. Then it will run so quietly that you'll hardly know it's there. There is one place, however, where you will definitely be aware of AquaSnap unit — on your electric bill. The AquaSnap unit's high efficiency keeps costs down.

Costs less right from the start

Only AquaSnap chillers feature a compact, all-in-one package design. The optional pump and hydronic components are already built in, which costs less than buying and installing the components individually. You'll save when you install an AquaSnap chiller, too. The chiller's fully integrated and preassembled hydronic system installs in minutes. No other chiller in this class installs so easily and inexpensively. The preassembled and integrated hydronic module utilizes top-quality components and pumps to ensure years of reliable operation.

Model number nomenclature

AQUASNAP® CHILLER MODEL NUMBER DESIGNATION

30RB – 210 6 – 8 0 – – – L

30RB – Air-Cooled AquaSnap Chiller

Design Series

Nominal Sizes*

060	110	170	275
070	120	190	300
080	130	210	315
090	150	225	330
100	160	250	345
			360
			390

Voltage
1 – 575-360
2 – 380-3-60
5 – 208/230-3-60
6 – 460-3-60

Condenser Coil and Fan Options
– – Aluminum Fin/Copper Tube (Standard)
0 – Copper Fin/Copper Tube
1 – Aluminum Precoat Fin/Copper Tube
2 – Aluminum E-Coat Fin/Copper Tube
3 – Copper E-Coat Fin/Copper Tube
6 – Aluminum Fin/Copper Tube, Low Sound Enclosure
7 – Copper Fin/Copper Tube, Low Sound Enclosure
8 – Aluminum E-Coat Fin/Copper Tube, Low Sound Enclosure
9 – Aluminum E-Coat Fin/Copper Tube, Low Sound Enclosure
B – Copper E-Coat Fin/Copper Tube, Low Sound Enclosure

Security/Packaging Option
L – No Packaging or Security Grilles
1 – Skid
2 – Skid (Top Crate)
3 – Coil Covers and Upper Grilles
4 – Skid, Coil Covers and Upper Grilles
5 – Skid (Top Crate), Coil Covers and Upper Grilles
7 – Coil Covers and Upper and Lower Grilles
8 – Skid, Coil Covers and Upper and Lower Grilles
9 – Skid (Top Crate), Coil Covers and Upper and Lower Grilles
C – Hail Guards with Coil Covers and Upper Grilles
D – Skid, Hail Guards with Coil Covers and Upper Grilles
F – Skid (Top Crate), Hail Guards with Coil Covers and Upper Grilles

Controls/Communication Option
– – None
0 – EMM
1 – Service
2 – Service, EMM
7 – BACnet
8 – EMM, BACnet
9 – Service, BAcnet
B – Service, EMM, BACnet
H – LON
J – EMM, LON
K – Service, LON
L – Service, EMM, LON

Electrical Option
– – Single Power Connection, No Disconnect
3 – Dual Power Connection, No Disconnect
7 – Single Power Connection, Disconnect
C – Dual Power Connection, Disconnect

Refrigeration Circuit Option
– – No Suction Line Insulation
0 – Suction Insulation
1 – Suction Service Valves
2 – Head Pressure Control Operation
3 – Suction Insulation, Suction Service Valves
4 – Suction Insulation, Head Pressure Control Operation
5 – Suction Service Valves, Head Pressure Control Operation
6 – Suction Insulation, Service Valves, Head Pressure Control Operation
7 – Minimum Load Control
8 – Suction Insulation, Minimum Load Operation
9 – Suction Service Valves, Minimum Load Control
B – Head Pressure Control Operation, Minimum Load Control
C – Suction Insulation, Suction Service Valves, Minimum Load Control
D – Suction Insulation, Head Pressure Control Operation, Minimum Load Control
F – Suction Service Valves, Low Ambient Operation, Minimum Load Control
G – Suction Insulation, Suction Service Valves, Head Pressure Control Operation, Minimum Load Control

Cooler Option
– – Integral Cooler
0 – Integral Cooler, Cooler Heater
1 – Remote Cooler
9 – Integral Cooler, Brine
B – Integral Cooler, Cooler Heater, Brine
C – Remote Cooler, Brine
M – Integral Cooler, Removable Core TXV
N – Integral Cooler, Cooler Heater, Removable Core TXV
P – Remote Cooler, Removable Core TXV

Hydronics Option
– – No Pump Installed
0 – Single Pump, 3 HP
1 – Single Pump, 5 HP
2 – Single Pump, 7.5 HP
3 – Single Pump, 10 HP
4 – Single Pump, 15 HP
6 – Dual Pump, 3 HP
7 – Dual Pump, 5 HP
8 – Dual Pump, 7.5 HP, Low Head
9 – Dual Pump, 7.5 HP, High Head
B – Dual Pump, 10 HP
C – Dual Pump, 15 HP

LEGEND

EMM — Energy Management Module
GFI — Ground Fault Interrupting
LON — Local Operating Network

*Refer to unit sizes and modular combinations below.

Quality Assurance

Certified to ISO 9001:2000

UNIT SIZES AND MODULAR COMBINATIONS

UNIT 30RB	NOMINAL TONS	NOMINAL kW	MODULE A	MODULE B
060	60	210	—	—
070	70	245	—	—
080	80	280	—	—
090	90	315	—	—
100	100	350	—	—
110	110	385	—	—
120	120	421	—	—
130	130	456	—	—
150	150	526	—	—
160	160	562	—	—
170	170	597	—	—

UNIT 30RB	NOMINAL TONS	NOMINAL kW	MODULE A	MODULE B
190	190	667	—	—
210	210	737	—	—
225	225	791	—	—
250	250	879	—	—
275	275	967	—	—
300	300	1055	—	—
315	315	1107	160	160
330	330	1160	170	160
345	345	1213	170	170
360	360	1266	190	170
390	390	1370	190	190

ARI* capacity ratings

UNIT 30RB	CAPACITY (Tons)	CAPACITY kW	COMP kW	FAN kW	TOTAL POWER kW	FULL LOAD		IPLV		COOLER FLOW RATE (gpm)	COOLER PD (ft)	COOLER PD (kPa)
						EER	COP	EER	COP			
060	57.1	200.7	60.2	10.3	70.5	9.7	2.85	13.2	3.87	136.6	9.1	26.80
070	66.5	233.8	73.2	10.3	83.5	9.6	2.80	13.4	3.93	159.1	11.9	35.35
080	76.0	266.9	85.0	10.3	95.3	9.6	2.80	14.2	4.16	181.6	7.1	21.11
090	86.5	303.9	91.2	15.5	106.7	9.7	2.85	13.5	3.96	206.8	9.1	26.80
100	95.8	336.6	104.1	15.5	119.6	9.6	2.81	13.6	3.99	229.1	10.9	32.36
110	105.5	370.7	116.7	15.5	132.2	9.6	2.80	13.7	4.02	252.3	9.0	26.62
120	118.5	416.3	129.6	18.1	147.7	9.6	2.82	13.7	4.02	283.2	11.1	32.94
130	127.3	447.2	137.7	20.6	158.3	9.6	2.82	13.6	3.99	304.3	12.7	37.61
150	144.5	507.6	158.6	20.6	179.3	9.7	2.83	13.8	4.04	345.4	7.7	22.76
160	153.1	537.8	162.9	25.8	188.7	9.7	2.85	13.4	3.93	366.0	8.6	25.38
170	166.5	585.0	182.4	25.8	208.2	9.6	2.81	13.5	3.96	398.1	10.0	29.73
190	188.6	662.6	205.8	31.0	236.7	9.6	2.80	13.4	3.93	450.9	12.7	37.59
210	201.9	709.4	217.8	31.0	248.7	9.7	2.85	13.6	3.99	482.5	14.6	43.10
225	214.4	753.3	237.1	31.0	268.1	9.6	2.81	13.8	4.04	512.5	16.3	48.31
250	238.0	836.3	261.8	36.1	298.0	9.6	2.81	13.6	3.99	569.0	19.9	58.87
275	260.3	914.7	284.3	41.3	325.6	9.6	2.81	13.7	4.02	622.4	23.6	69.76
300	282.7	993.4	308.4	46.5	354.9	9.6	2.80	13.5	3.96	675.9	27.6	81.53
315	306.1	1075.6	325.7	51.6	377.4	9.7	2.85	13.4	3.9	731.9	8.6	25.57
330	319.6	1122.8	345.3	51.6	396.9	9.7	2.83	13.5	4.0	764.0	10.0	29.73
345	333.0	1170.1	364.8	51.6	416.5	9.6	2.81	13.5	4.0	796.2	10.0	29.73
360	355.1	1247.7	388.2	56.8	445.0	9.6	2.80	13.5	4.0	849.0	12.7	37.76
390	377.2	1325.3	411.5	62.0	473.5	9.6	2.80	13.4	3.9	901.8	12.7	37.76

LEGEND

COP — Coefficient of Performance
EER — Energy Efficiency Ratios
IPLV — Integrated Part Load Value
PD — Pressure Drop

*Air Conditioning and Refrigeration Institute.

NOTE: Based on ARI standard rating conditions.

ENGLISH

I Determine 30RB unit size and operating conditions required to meet given capacity at given conditions.

Given:

Capacity. . . . . 126 Tons
Leaving Chilled Water Temp (LCWT) . . . . . .44 F
Cooler Water Temp Rise . . . . . 10° F
Condenser Entering Air Temp . . . . . .95 F
Fouling Factor (Cooler) 0.00010

NOTE: For other than 10° F (5.6° C) temperature rise, data corrections must be made using the chiller program in the electronic catalog.

II From Chiller Ratings table on page 38 and pressure drop curves on page 31, determine operating data for selected unit.

Unit 30RB130
Capacity. . . . . .127.3 Tons
Power Input . . . . . .158.3 kW
Cooler Water Flow . . . . . .304.3 gpm
Pressure Drop . . . . . 12.7 ft of water

III Cooler Pump selection. (With a single pump option required.)

Required gpm (from above) . . . . . .304.3 gpm
External System Pressure Drop . . . . . 40 ft wg (118 kPa)
Using Pump Curve VII on page 35

Select. . . . . .Pump 3 at the given flow rate and external system pressure drop

SI

I Determine unit size and operating conditions required to meet given capacity at given conditions.

Given:

Capacity. . . . . 270 kW
Leaving Chilled Water Temp (LCWT) . . . . . 7 C
Cooler Water Temp Rise . . . . . 5.6° C
Condenser Entering Air Temp . . . . . 35 C
Fouling Factor (Cooler) 0.018

NOTE: For other than approx. 5 to 6° C temperature rise, data corrections must be made using the chiller program in the electronic catalog.

II From Chiller Ratings table on page 41 and pressure drop curves on page 31, determine operating data for selected unit.

Unit 30RB080
Capacity. . . . . .270.3 kW
Compressor Motor Power Input . . . . . .95.7 kW
Cooler Water Flow . . . . . .11.6 L/s
Chiller Pressure Drop . . . . . 22.4 kPa

III Pump selection. (See AquaSnap® pump selection on page 30.)

Required Flow (from above) . . . . . .11.6 L/s
External System Pressure Drop . . . . . 200 kPa
Using Pump Curve 30RB080,090,100 on page 37

Select. . . . . Pump B at the given conditions

PUMP IMPELLER SIZES

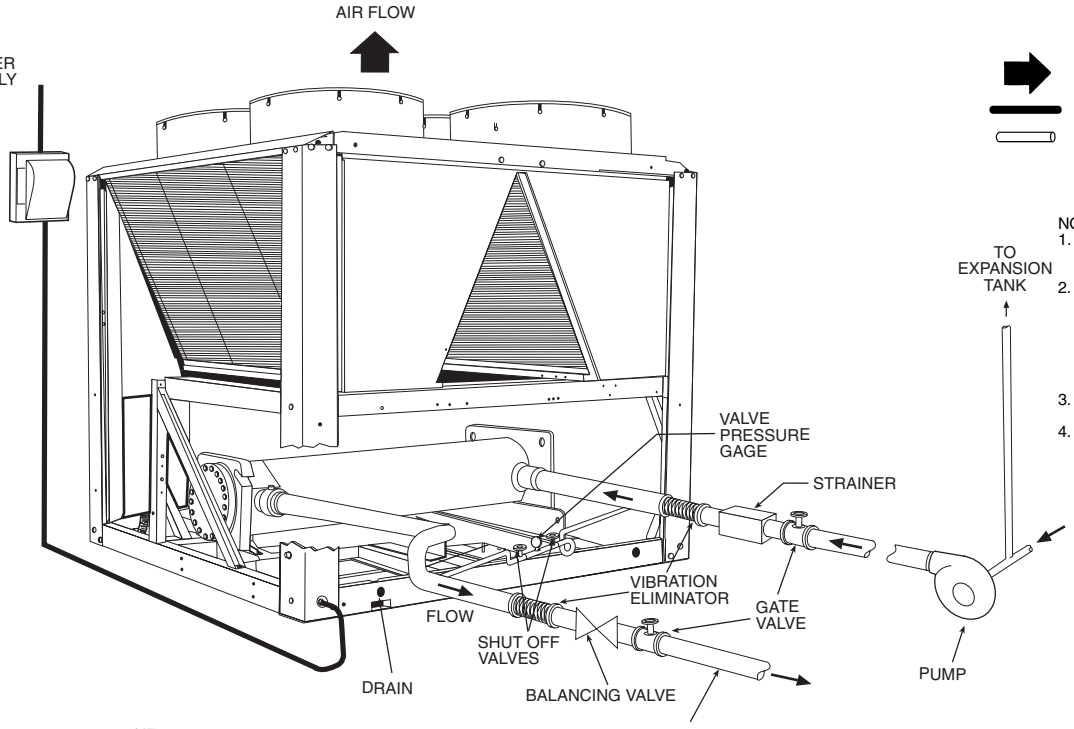
UNIT 30RB	PUMP Hp	SINGLE PUMP				DUAL PUMP			
		Option Code*	Rpm	Impeller Dia. (in.)	Pump Curve	Option Code*	Rpm	Impeller Dia. (in.)	Pump Curve
060 070	3	0	1750	6.5	I	6	1750	6.5	V
	5	1	1750	7.3	I	7	1750	7.3	V
	7.5	2	1750	8.15	I	8	1750	8.15	V
						9	3450	5.25	VI
	10	3	3450	5.4	II	B	3450	5.9	VI
080 090 100	5	1	1750	7.3	I	7	1750	7.3	V
	7.5	2	1750	8.15	I	8	1750	8.15	V
	10	3	3450	5.4	II	B	3450	5.4	VII
	15	4	3450	6.1	II	C	3450	6.1	VII
110 120 130	5	1	1750	7.3	I	7	1750	7.3	V
	7.5	2	1750	8.15	I	8	1750	8.15	V
	10	3	3450	5.4	II	B	3450	5.4	VII
	15	4	3450	6.1	II	C	3450	6.1	VII
150 160 170 190	5	1	1750	6.5	III	—	—	—	—
	7.5	2	3450	4.6	IV	8	3450	4.6	VIII
	10	3	3450	5.0	IV	B	3450	5.0	VIII
	15	4	3450	5.5	IV	C	3450	5.5	VIII

*Option Code refers to the Hydronics Option (position 11) in the model number. See the 30RB nomenclature on page 4 for option identification.

NOTE: Pump Selections are chiller size dependent. For example, dual pump “C” on a 30RB170 chiller is not the same as dual pump “C” on a 30RB130 chiller.

Typical piping and wiring

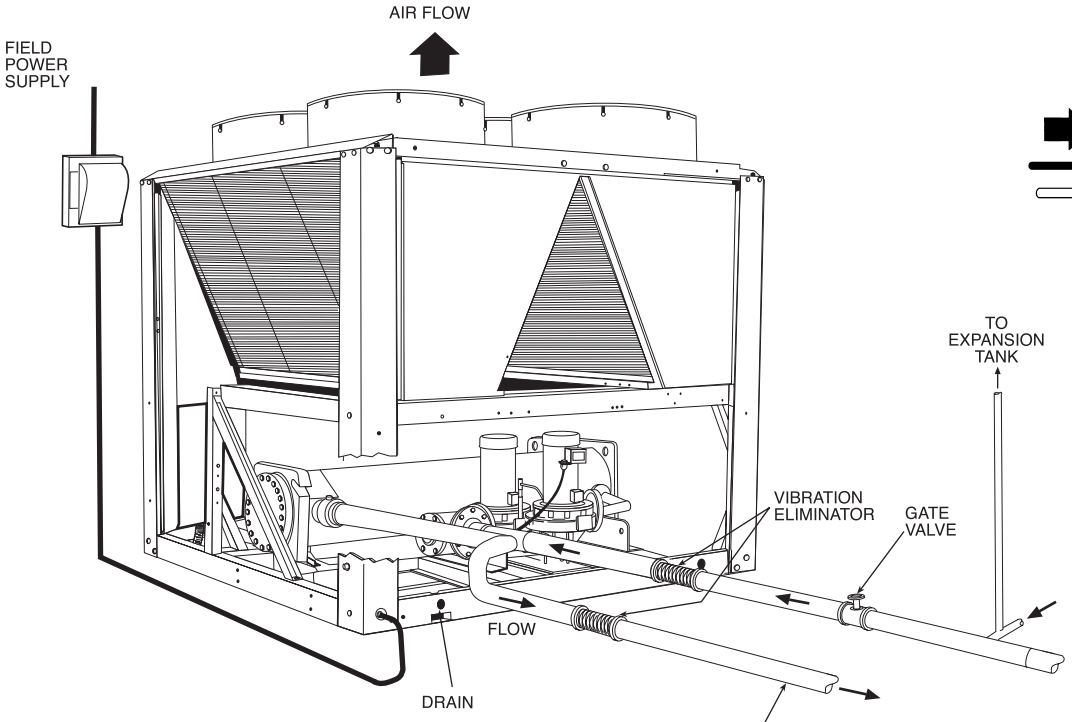
30RB UNITS WITHOUT HYDRONIC PACKAGE



NOTES:
1. Chiller must be installed level to maintain proper compressor oil return and hydraulics.
2. Piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) handbook for details.

HEAT TAPE AND INSULATION ARE RECOMMENDED ON ALL EXPOSED PIPING
IF AMBIENT TEMPERATURE <32 F (0° C) AND NO ANTIFREEZE SOLUTION IS IN SYSTEM

30RB UNITS WITH HYDRONIC PACKAGE

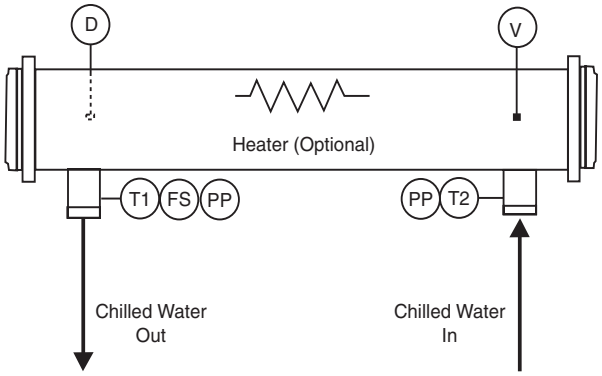


NOTES:
1. Chiller must be installed level to maintain proper compressor oil return and hydraulics.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) handbook for details.
5. Air separator required as close to chiller as possible (except primary/secondary systems).

HEAT TAPE AND INSULATION ARE RECOMMENDED ON ALL EXPOSED PIPING
IF AMBIENT TEMPERATURE <32 F (0° C) AND NO ANTIFREEZE SOLUTION IS IN SYSTEM

Typical piping and wiring (cont)

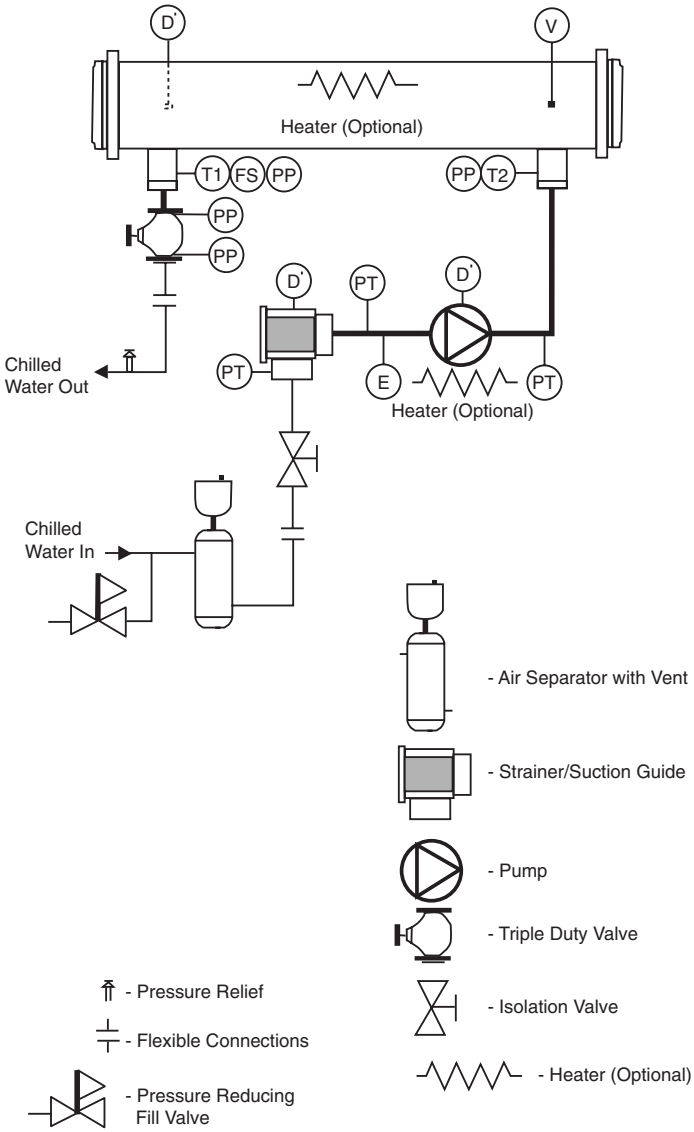
TYPICAL PIPING DIAGRAM ON 30RB UNITS WITHOUT HYDRONIC PACKAGE



LEGEND

D — Drain, 3/4-in. NPT
FS — Flow Switch
PP — Pipe Plug, 1/4-in. NPT
T1 — Leaving Water Thermistor
T2 — Entering Water Thermistor
V — Vent, 1/4-in. NPT

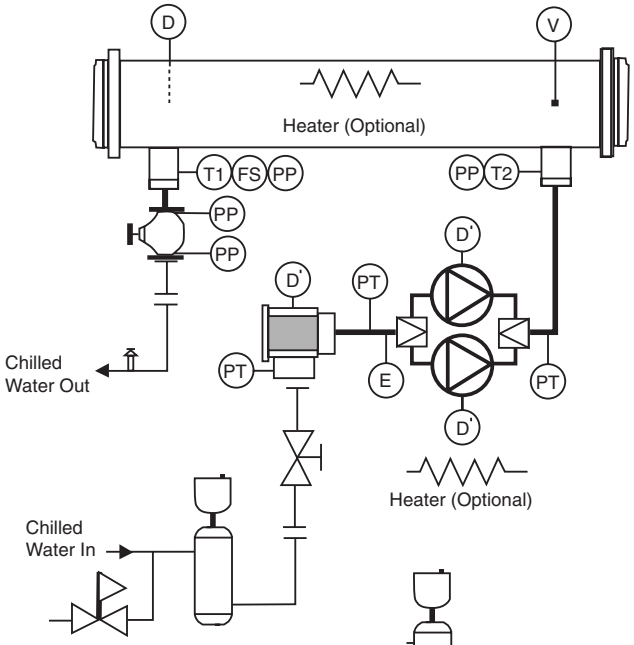
TYPICAL PIPING DIAGRAM ON 30RB UNITS WITH HYDRONIC PACKAGE — SINGLE PUMP



LEGEND

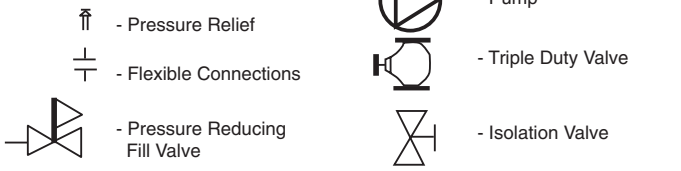
D — Drain,3/4-in. NPT
D′ — Drain, 1/4-in. NPT
E — Expansion Tank Connection, 3/4-in. NPT
FS — Flow Switch
PP — Pipe Plug, 1/4-in. NPT
PT — Pressure/Temperature Tap
T1 — Leaving Water Thermistor
T2 — Entering Water Thermistor
V — Vent, 1/4-in. NPT

TYPICAL PIPING DIAGRAM ON 30RB UNITS WITH HYDRONIC PACKAGE — DUAL PUMPS



LEGEND

D — Drain, 3/4-in. NPT
D′ — Drain, 1/4-in. NPT
E — Expansion Tank Connection, 3/4-in. NPT
FS — Flow Switch
PP — Pipe Plug, 1/4-in. NPT
PT — Pressure/Temperature Tap
T1 — Leaving Water Thermistor
T2 — Entering Water Thermistor
V — Vent, 1/4-in. NPT


- Pressure Relief

- Flexible Connections

- Pressure Reducing Fill Valve


- Air Separator with Vent


- Strainer/Suction Guide


- Reverse Flow Check Valve/Service Valve


- Service Valve


- Pump

- Triple Duty Valve

- Isolation Valve