

# SunTherm<sup>TM</sup>

HEATING PRODUCTS

## Description:

The B/S/H-02/03 air handlers with electric or hot water heating are designed for recessed mounting in a wall, hanging on the wall, or in a closet. These units are designed for the vertical position only.

The B/S/H-02 units will handle up to 1000 CFM air flow and from 1.5 to 2.5 nominal tons of DX cooling, and up to 10 KW electric heat.

The B/S/H-03 units will handle up to 1200 CFM air flow and up to nominal 3 tons of DX cooling and up to 10 KW electric heat.

*The "B/S" Series utilizes electric heat.*

*The "H" Series utilizes hot water heat.*

## Standard Features:

- Vertical design, recessed "in-the-wall" or closet mounted.
- Prewired for cooling, heating and heat pump operation.
- Heavy gauge embossed galvanized steel cabinet.
- 40 VA transformer.
- Includes throwaway filter.
- Electric heat models are 208/240V-1ph-60Hz.
- Hot water heat models are 115V-1ph-60Hz.
- 1" Foil faced insulation.
- Slide out blower for easy maintenance.
- Removeable bottom panel.
- Primary and secondary condensate drain connections.
- Low voltage connection inside blower compartment.
- Automatic reset limit(s) on electric heat models.
- Hot water heat models have water line sweat connections outside the cabinet.
- Hot water heat models include water side check valve and are suitable for 0 inch clearance to combustible materials.
- Automatic reset limit(s) on electric heat models.
- DX coil versions are available for R-32 or R-454B refrigerant applications and are equipped with a refrigerant leak detection and mitigation system.

## Field Installed Options:

- Paintable, white "picture frame" panel door for wall recessed or wall hung applications.
- Embossed, louvered coil door for wall hung applications.
- Hanging brackets for wall hung applications.
- Bottom return air panel.

## Factory Installed Options:

- Circuit breaker on electric heat models.
- Circulating pump for hot water heat models.
- Pump timer for hot water heat models.

## DEDICATED VERTICAL/WALL MOUNT

- B - 02, 03 DX Cooling With Electric Heat With Breaker
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Electric Heat Unit Shown



Hot Water Heat Model Shown

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- B - 02, 03 DX Cooling With Electric Heat With Breaker
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UNIT TYPE	S	02	-	X1	-	00	-	C	0	B	C	VERSION
B - Circuit Breaker												A = 1st Revision
S - Non Circuit Breaker												B = 2nd Revision
H - Hot Water Heat												C = 3rd Revision
<b>SERIES</b>												D = 4th Revision
02 - Wall Mount (1.5 - 2.5 Ton)												E = 5th Revision
03 - Wall Mount (1.5 - 3.0 Ton)												F = 6th Revision
<b>BLOWER CODES</b>												<b>INSULATION</b>
X1 - 1/3 HP 115V Constant Torque 10x6 Blower												A = 1/2" Thick Insulation (R-2.3)
P1 - 1/3 HP 115V Constant Torque 9x6 Blower												B = 1" Thick Insulation (R-4.2 Standard)
X2 - 1/3 HP 115V Constant Torque 10x7T Blower												<b>TIME DELAY RELAY AND HYDRONIC CONTROL</b>
X3 - 1/3 HP 115V Constant Torque 10x8 Blower												0 = No Time Delay Relay
XE - 1/3 HP 115V Constant Torque 10x6 Blower												1 = Blower Time Delay Relay
X4 - 1/2 HP 115V Constant Torque 10x8T Blower												2 = Hydronic Control Board
XF - 1/2 HP 115V Constant Torque 10x8 Blower												<b>UNIT VOLTAGE</b>
PF - 1/2 HP 115V Constant Torque 10x8 Blower												A = 115 VAC, 1 PH, 60 HZ (H Models Only)
XB - 1/2 HP 115V Constant Torque 10x7 Blower												C = 208/240 VAC, 1 PH, 60 HZ (B & S Models Only)
PB - 1/2 HP 115V Constant Torque 10x7 Blower												<b>HEATING CAPACITY</b>
XH - 1.0 HP 115V Constant Torque 11x9 Blower												Electric Heat Capacity (kW)
XI - 1.0 HP 115V Constant Torque 11x11 Blower												Hot Water Heating Capacity (MBTUH) @ 140°F EWT
XK - 1/2 HP 115V Constant Torque 10x7 Blower												
PD - 1/3 HP 208/240V Constant Torque 10x6 Blower												
XD - 1/3 HP 208/240V Constant Torque 10x6 Blower												
WA - 1/3 HP 208/240V Constant Torque 10x7T Blower												
XA - 1/2 HP 208/240V Constant Torque 10x7 Blower												
PA - 1/2 HP 208/240V Constant Torque 10x7 Blower												
XC - 1/2 HP 208/240V Constant Torque 10x7 Blower												
XJ - 1/2 HP 208/240V Constant Torque 10x8 Blower												
WB - 1/2 HP 208/240V Constant Torque 10x8T Blower												
XG - 1.0 HP 208/240V Constant Torque 11x9 Blower												

NOTE: X1, X2, X3, X4, XA, XB, XC, XD, XE, XF, XG, XH, XI, XK, WA and WB = Regal Beloit Blower Motor  
NOTE: P1, PA, PB, PD and PF = Nidec Blower Motor

## MODEL NUMBER NOMENCLATURE

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**DEDICATED VERTICAL/WALL MOUNT**

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	<b>C</b>		<b>S</b>		<b>030</b>		<b>S</b>		<b>464</b>		<b>X</b>
<p><b>COIL</b> C = Cooling/Heat Pump</p>											
<p><b>TYPE</b> S = Slant Coil</p>											
<p><b>NOMINAL CAPACITY</b>            18 = 18000 BTUH            24 = 24000 BTUH            30 = 30000 BTUH            36 = 36000 BTUH</p>											
<p><b>SLAB CONFIGURATION</b> S = 1 Slab (Single Slab Coil)</p>											
<p><b>SLAB CODE</b> Factory Use</p>											
<p><b>METERING DEVICE</b>            D = TXV - R-410A - 1.5 - 2.5 Tons            Y = TXV - R-410A - 3 Tons            F = TXV - R-32 - 1.5-3.0 Tons            P = TXV - R-454B - 1.5-3.0 ton</p>											



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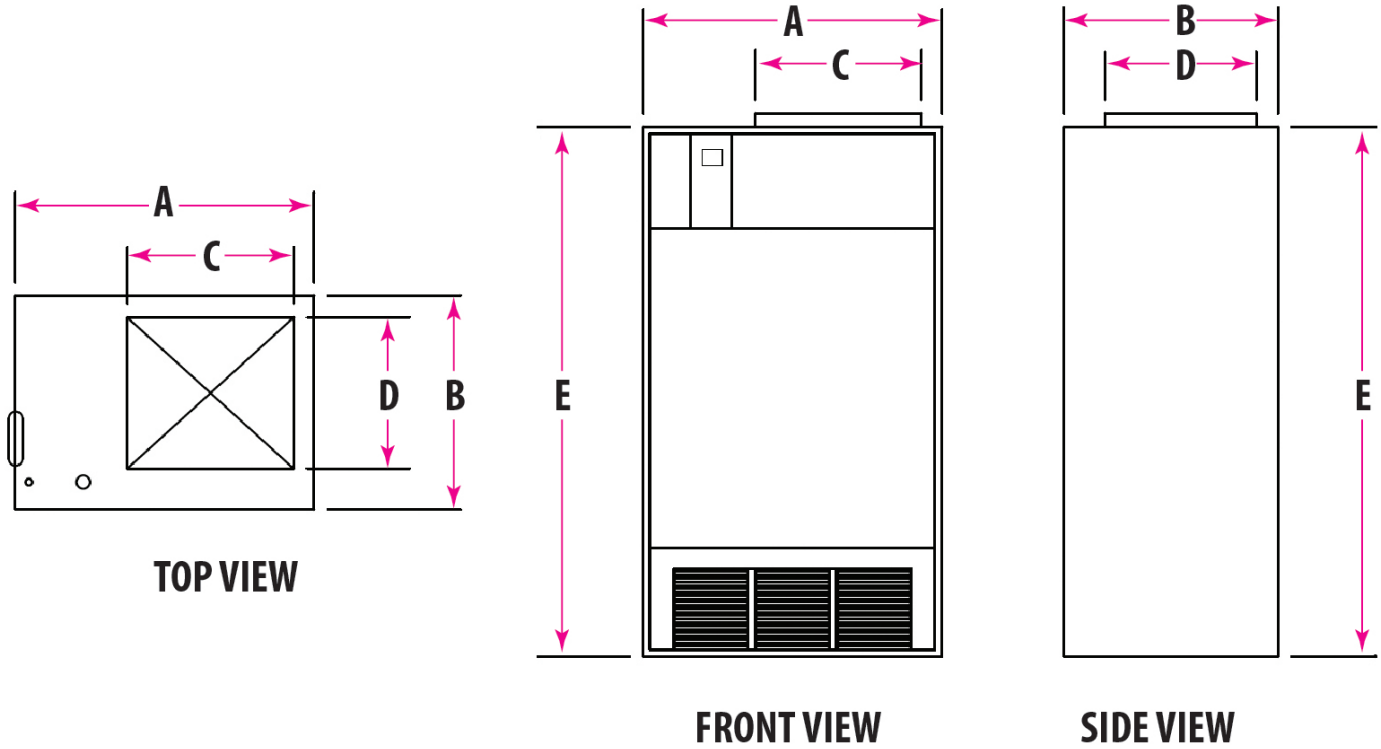
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PHYSICAL DIMENSIONS					
Model Number	A	B	C	D	E
B/S/H02	22	15¾	14	11	39
B/S/H03	22	18¾	14	11	44¼



GENERAL SPECIFICATIONS						
Model Number	Nominal Tons	CFM @ 0.20"	Heating Capacity	Filter Size	Max.Shp. Weight	Qty. Per Truckload
B/S-02	1.5-2.0	850	0-10 KW	16X20X1	108	200
B/S-02	2.5	1000	0-10 KW	16X20X1	108	200
B/S-03	3.0	1200	0-10 KW	20X20X1	118	200
H-02	1.5-2.0	800	26-37000	16X20X1	115	200
H-02	2.5	985	34-39000	16X20X1	115	200
H-03	3.0	1125	43000	20X20X1	125	200

Heating capacity for "B" & "S" models is expressed in kW.

Heating capacity for "H" models is expressed in 1000 BTUH.



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Model Number	Motor HP	Volts	Motor Code	Blower Wheel	Speed Tap	CFM @ 0.10" ESP	CFM @ 0.20" ESP	CFM @ 0.30" ESP	CFM @ 0.40" ESP	CFM @ 0.50" ESP
B/S-02	1/3	208/240	XD	10 X 6	1	590	559	514	478	416
					2	635	605	564	531	508
					3	775	756	731	702	671
					4	946	932	912	892	863
					5	1011	987	981	962	943
B/S-03	1/2	208/240	XC	10 x 7	1	689	651	598	539	507
					2	747	693	656	607	564
					3	875	845	798	766	725
					4	1085	1058	1047	989	953
					5	1365	1340	1313	1268	1187
H-02	1/3	115	XE	10 X 6	1	555	516	481	462	378
					2	616	581	555	516	499
					3	703	673	650	617	577
					4	787	760	748	711	673
					5	886	863	852	809	791
H-03	1/2	115	XF	10 X 8	1	907	858	796	732	672
					2	1022	971	904	824	735
					3	1071	1011	953	878	800
					4	1152	1096	1040	966	888
					5	1296	1233	1170	1087	1000

### Blower Performance Table

Notes: 1. CFM listed is for dry coil. Use 0.96 as an approximate wet coil correction factor for CFM.

2. Minimum CFM for Electric Heat: 3kW = 195 CFM; 5kW = 325 CFM; 6kW = 390 CFM; 8kW = 520 CFM; 10kW = 650 CFM



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AIR HANDLER MODELS	H-02 Blower Package XE	H-03 Blower Package XF
Indoor Blower Type	Constant Torque	Constant Torque
Indoor Blower Amps – 208/240 VAC	2.4	3.2
Minimum Circuit Ampacity	3.0	4.0
Minimum Wire Size (90°C)	#14	#14
Minimum Wire Size (75°C)	#14	#14
Minimum Wire Size (60°C)	#14	#14
Ground Wire Size	*	*
Max Overcurrent Protection Amps	15	15

### Wiring Requirements – 115 VAC – Hydronic Heat

- \* Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.
- \* Ground conductor must be the same size and temperature rating as the other conductors listed in the above table.

AIR HANDLER MODELS	B/S-02 Blower Package XD	B/S-03 Blower Package XC
Indoor Blower Type	Constant Torque	Constant Torque
Indoor Blower Amps – 208/240 VAC	1.7/1.6	2.5/2.4
Minimum Circuit Ampacity	2.1	3.2
Minimum Wire Size (90°C)	#14	#14
Minimum Wire Size (75°C)	#14	#14
Minimum Wire Size (60°C)	#14	#14
Ground Wire Size	*	*
Max Overcurrent Protection Amps	15	15

### Wiring Requirements – 208/240 VAC - No Heat

- \* Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.
- \* Ground conductor must be the same size and temperature rating as the other conductors listed in the above table.

AIR HANDLER MODEL	B/S-02 Blower Package XD					B/S-03 Blower Package XC				
3 kW Heater Amps - 208/240 VAC	10.8/12.5					10.8/12.5				
5 kW Heater Amps - 208/240 VAC	18.0/20.8					18.0/20.8				
6 kW Heater Amps - 208/240 VAC	21.6/25.0					21.6/25.0				
8 kW Heater Amps - 208/240 VAC	28.8/33.3					28.9/33.3				
10 kW Heater Amps - 208/240 VAC	36.1/41.7					36.1/41.7				
Indoor Blower Motor Type	Constant Torque					Constant Torque				
Indoor Blower Amps – 208/240VAC	1.7/1.6					2.5/2.4				
Heater - kW	3	5	6	8	10	3	5	6	8	10
Minimum Circuit Ampacity	17.6	28.0	33.2	43.6	54.1	18.6	29.0	34.3	44.6	55
Minimum Wire Size (90°C)	#14	#12	#10	#8	#8	#14	#12	#10	#8	#8
Minimum Wire Size (75°C)	#14	#10	#10	#8	#6	#14	#10	#10	#8	#6
Minimum Wire Size (60°C)	#14	#10	#8	#6	#6	#14	#10	#8	#6	#6
Ground Wire Size	*	*	*	*	*	*	*	*	*	*
Max Overcurrent Protection Amps	20	30	35	45	60	20	30	35	45	60

### Wiring Requirements – 208/240 VAC Electric Heat - Single Branch Circuit.

- Single power supply will require circuit breaker jumper bar or a jumper wire.
- \* Refer to the National Electrical Code Table 250-95 for Non-Sheathed Conductor Ground Wire.
- \* Ground conductor must be the same size and temperature rating as the other conductors listed in the above table.



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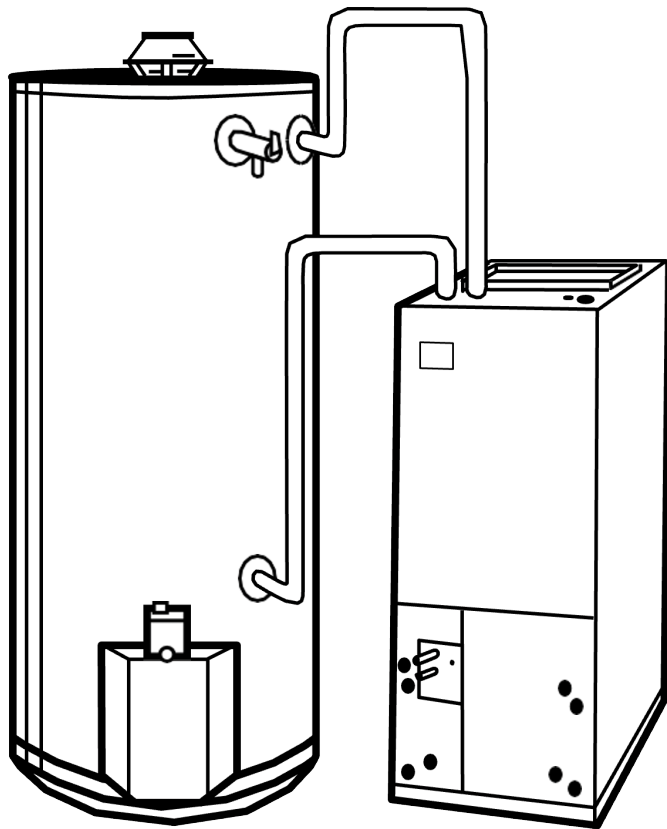


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"H" AND "WCW" SERIES HOT WATER HEATING CAPACITY (SEPARATE HOT WATER COIL)

Model Number	Hot Water Heat Capacity @ 65°F E.A.T.					CFM	GPM	WPD (Ft. Wtr)	APD (In. WC)
	Entering Water Temperature								
	130°F	140°F	160°F	170°F	180°F				
H02-46-26	23,000	26,000	33,900	37,600	41,700	730	4.0	1.9	0.28
H02-46-30	26,700	30,000	39,400	43,700	48,400	800	4.0	1.9	0.32
H02-46-37	32,000	37,000	47,500	52,800	58,000	780	4.0	2.9	0.31
H02-37-34	29,600	34,000	43,200	48,500	54,400	985	4.0	1.9	0.47
H02-37-39	34,000	39,000	48,500	56,000	62,800	960	4.0	2.9	0.45
H03-49-43	37,100	43,400	56,200	62,500	68,800	1125	4.0	4.8	0.47



BSH0203-MK-

### Operation of SunTherm Air Handler W/ Hot Water Heat

Circulating pump and Air Handler blower are energized BSH0203-MK- by conventional heating thermostat. Pump circulates hot water from hot water heater to heating coil in Air Handler and blower circulates warm air through the duct system. When thermostat is satisfied, pump and blower are de-energized.

### Equipment Sizing

1. Calculate heat loss of structure by ACCA or ASHRAE load calculation method. Air Handler heating capacity should be equal to, or exceed load calculation.
2. Select a water heater whose BTUH input/recovery efficiency exceeds heating capacity of Air Handler.

***The heating capacity of the Air Handler will not exceed the net output of the water heater.***

3. Air Handlers are capable of using hot water from other sources such as boilers as long as hot water does not exceed 180°F.
4. Call a SunTherm Distributor for assistance in sizing.



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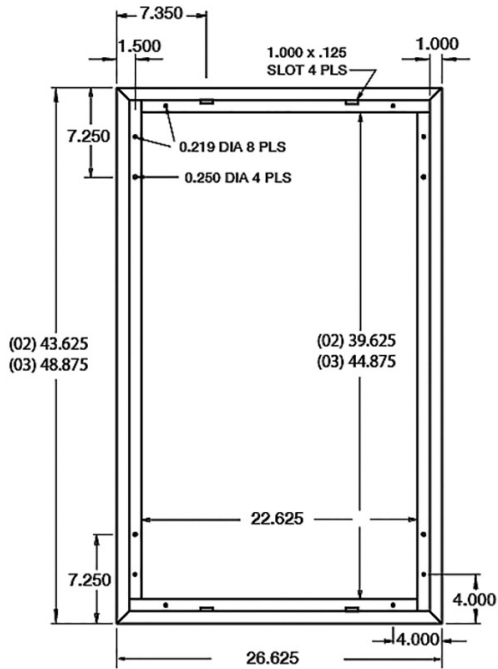
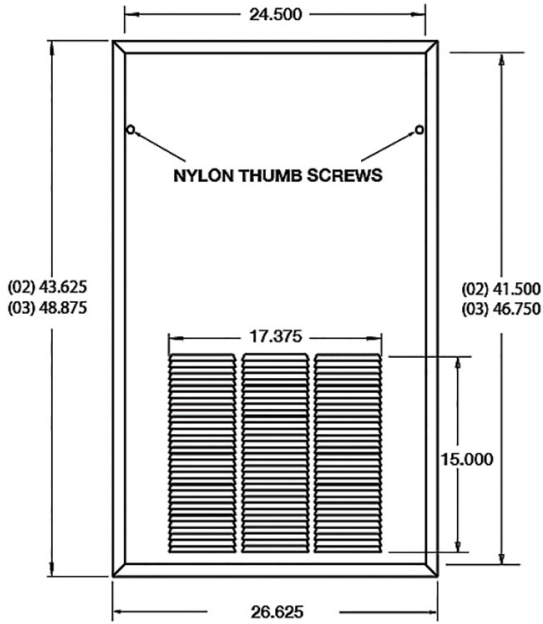
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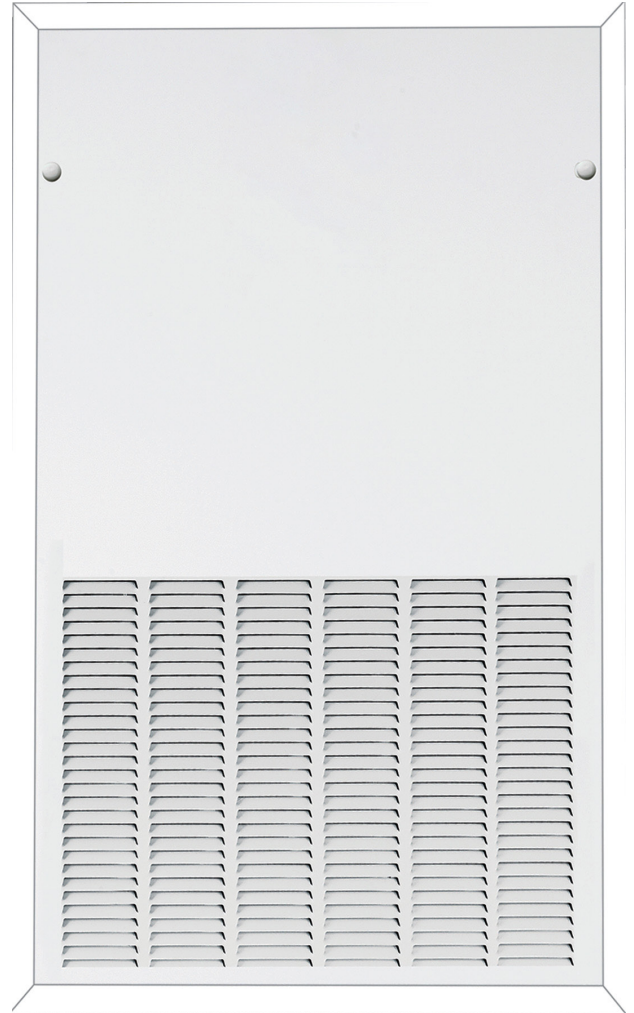
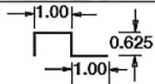


## DEDICATED VERTICAL/WALL MOUNT

- B - 02, 03 DX Cooling With Electric Heat With Breaker
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CHANNEL SECTIONAL VIEW



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Part Number	Description
R72DB0101DF	Field Installed TXV (R-32) - 1.5-3.0 Ton
R72DB0103DF	Field Installed TXV (R-454B) - 1.5-3.0 Ton
68AC0002	Field Installed Replacement Pump Timer for Hydronic Coil Purge
R78AA0006	4 GPM Water Pump
RPA-01	Remote Pump Assembly 4 GPM 1/2" Pipe
RPA-02	Remote Pump Assembly 4 GPM 3/4" Pipe
RPA-03	Remote Pump Assembly 7 GPM 3/4" Pipe
WPD02	Wall Panel Door for 02 Models
WPD03	Wall Panel Door for 03 Models
LCD02	Wall Panel Door for 02 Models
LCD02	Louvered Coil Door for 03 Models
WPD02	Louvered Coil Door for 02 Models
BRP02	Bottom Return Air Panel for 02 Models
BRP03	Bottom Return Air Panel for 03 Models
WB	Wall Mounting Brackets

**Field Installed Accessory List**



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