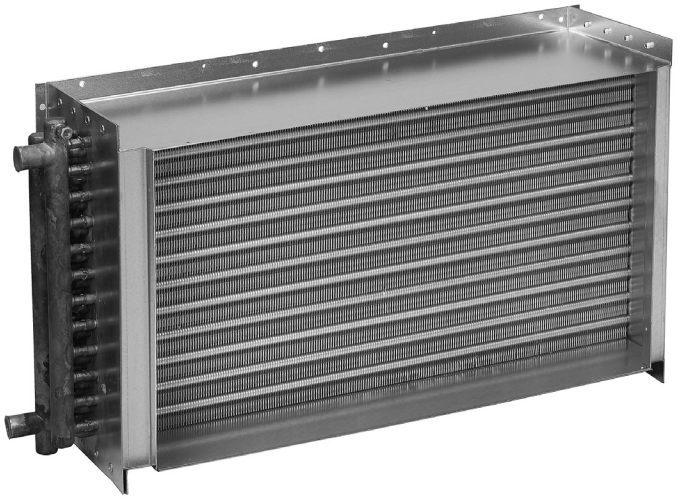
SPACE PAK®

MODEL WPAK HYDRONIC COIL INSTALLATION MANUAL



Product development and continuous improvement are at SpacePak's core. As such, there may be changes or modifications to products, without notice. In addition, the information and specifications presented in this document are provided as is, without guarantee or warranty of any kind, expressed or implied. For the most upto-date information regarding our products, you may contact our Customer Service group at custservice@spacepak.com

General

The SpacePak Model WPAK Hydronic Heating coil is designed for use with both SpacePak horizontal and vertical fan coil unit models equipped with refrigerant type coils ("ESP" Models). The unit mounts to the inlet of the Fan Coil Unit and requires installation of a SpacePak return air duct adaptor for V-Series units only. J-Series units are factory supplied with a removable, return air panel used in lieu of the adaptor. The coil is equipped with a purge plug to remove air trapped in the piping system and a drain plug to remove the water for maintenance or extended shut downs. The plugs are conveniently located so they can be removed without removing any panels. Use the chart below to match the proper Hydronic Coil with the SpacePak Fan Coil Unit.

The following terms are used throughout this manual to bring attention to the presence of potential hazards or to important information concerning the product:

⚠WARNING **Indicates an imminently hazardous situation which, if not avoided, could result in death, serious injury or substantial property damage.**

⚠ CAUTION **Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or property damage.**

⚠WARNING **The SpacePak WPAK coils are intended for heating purposes only. Under no curcumstances should they be used for cooling. SpacePak will not recognize warranty coverage, nor accept responsibility for any equipment or incidental damage due to the use of chilled water in the coil.**

⚠ CAUTION **Air discharge temperatures can exceed 160°F (71°C). Do not install this coil in systems that have floor outlets if operating in this temperature range.**

IN UNITED STATES: 260 NORTH ELM ST. WESTFIELD, MA 01085 (800) 465-8558
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MADE IN THE USA

A MESTEK COMPANY

10/2025

Packing List:

- Coil2 Temp Sensor
- Coil
- Manual
- Sensor
- Foam Strip

Hot Water Coil Model Number	BTUH Capacity (Nominal)	kW Capacity (Nominal)	Fan Coil Unit Model Number
AC-WPAK-60	60,000	17.58	ESP-2430
AC-WPAK-90	90,000	26.38	ESP-3642
AC-WPAK-120	120,000	35.17	ESP-4860

Installation

The HWC coil can be easily installed in the field by one person using the following steps:

1. Install an auxiliary drain pan with drain piping under both the Fan Coil Unit and the Hydronic Coil as shown in Figure 1. The auxiliary drain pan should extend approximately 2 inches (51 mm) beyond the unit on all sides and be 1½ to 2 inches (38 to 51 mm) deep. The drain line should be properly trapped and pitched but do not connect it to the primary condensate drain line.
2. Remove the return (flex) duct from the Fan Coil Unit inlet.
3. Remove all screws from the return air side of the J-Series units. Includes the screws in return air panel and at end of cabinet.
4. Apply adhesive backed foam insulating tape supplied with the coil to the perimeter of the coil frame which will be matched to the Fan Coil Unit. The coil connections should be on the same side of the unit as the primary drain pan line(s).
5. Using the supplied 3/8" (9mm) dia. brass clip, secure the temperature sensor to one of thereturn bends that is easily accessible on the coil. Then route the wire through the body of the air handler and into the electrical compartment, securing it so that it does not interfer with any internal components, then connect to the two terminals marked COIL2 on the control board.
6. Line up the flange holes of the Hydronic Coil with the holes on the unit and replace the screws to mount the coil in place.
7. Attach return air panel to coil using removed screws as shown in Figure 2.
8. Provide support under the coil to remove the load on the mounting screws.
9. Reattach the return air (flex) duct. Then tape the connection to prevent air leaks.
10. Wrap coil casing and return air duct adaptor with a minimum 1" (25 mm) fiberglass insulation blanket.

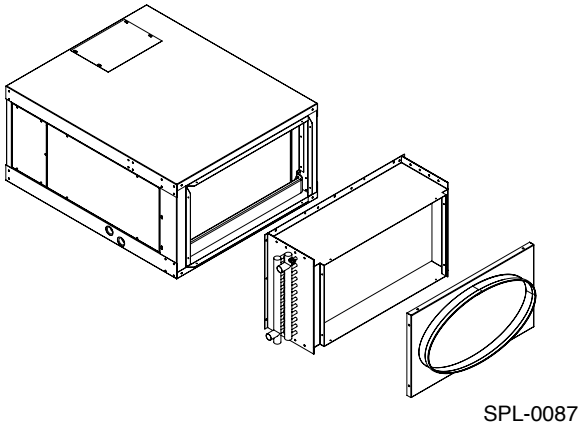


FIGURE 2: ATTACHMENT OF HYDRONIC COIL

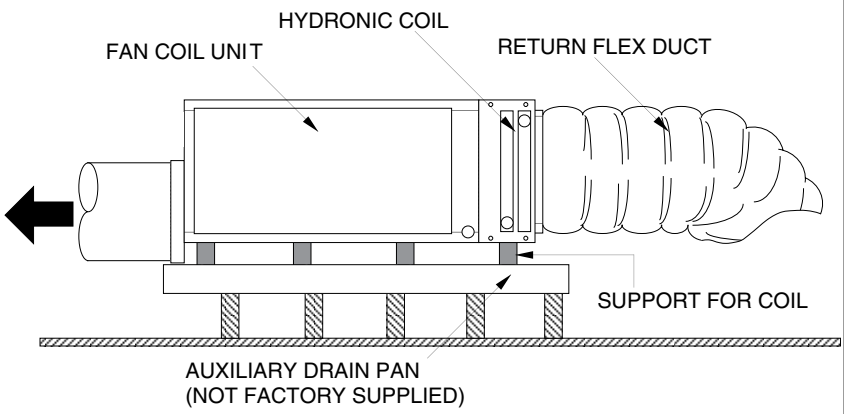


FIGURE 1: SETTING OF HYDRONIC COIL

Hot Water Piping

⚠ CAUTION The WPAK series Hydronic Heating Coils, like all hydronic heating equipment, are intended to be located in conditioned space where there is no exposure to freezing temperatures. (Below 32°F/0°C) It is the responsibility of the installing contractor to anticipate any possibility of freezing and provide suitable protection in the form of glycol based boiler anti-freeze in a concentration sufficient to provide burst protection at the lowest possible temperature exposure.

SpacePak will not recognize warranty coverage for coil failure due to internal freezing, nor accept responsibility for any damage due to leaks caused by water freezing in the coil. Refer to the Glycol Correction Factors table forfreeze protection

⚠ CAUTION If the unit is installed in a cold space below 32°F, provisions must be made to prevent damage to the equipment caused by freezing.

All piping must be in accordance with local plumbing codes and regulations.

The hydronic coil may be used in an attic or crawl space but must be protected against possible freeze-up. Use measures such as continuously circulating the water and or draining the coil. See Figure 3 for recommended water piping arrangement.

The inlet and outlet water lines are ⅞ inch (22mm) OD copper to which connections are made using ⅞ (22mm) inch sweat fittings.

After the water lines are connected, the piping system should be filled with water. Open the air vent near the top of the coil. Allow the air to escape while filling the system. When a steady stream of water appears tighten the plug.

Insulate the supply and return hot water lines the entire length of run between the boiler and hydronic coil. A nominal wall thickness of ½ inch (13 mm) flexible foam rubber closed-cell pipe insulation, suitable for 220°F (104°C) is recommended.

Maintenance

As for any heat exchanger, the hydronic coil surface should be cleaned at least once a year. To remove dirt from the fin surface on the inlet side of the coil use a dry soft bristle brush and a vacuum cleaner. Soap and water is not necessary. Also, the air filters should be cleaned regularly.

The air should be purged from the piping system at least once a year.

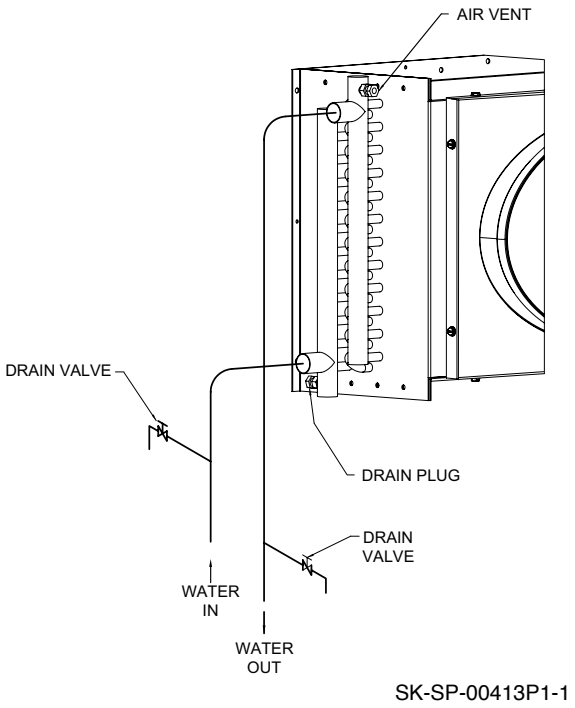
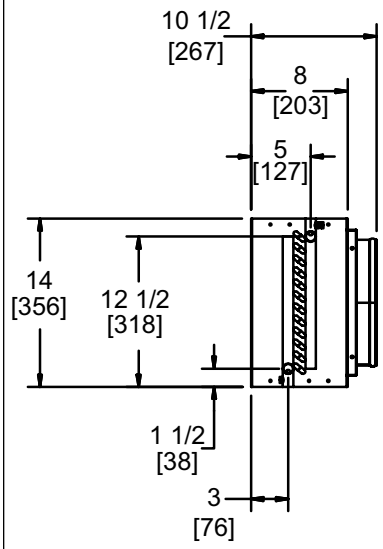
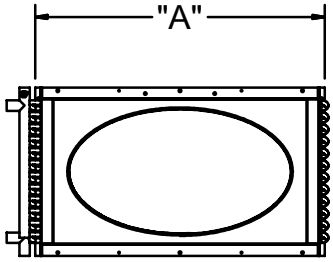


FIGURE 3: RECOMMENDED WATER PIPING



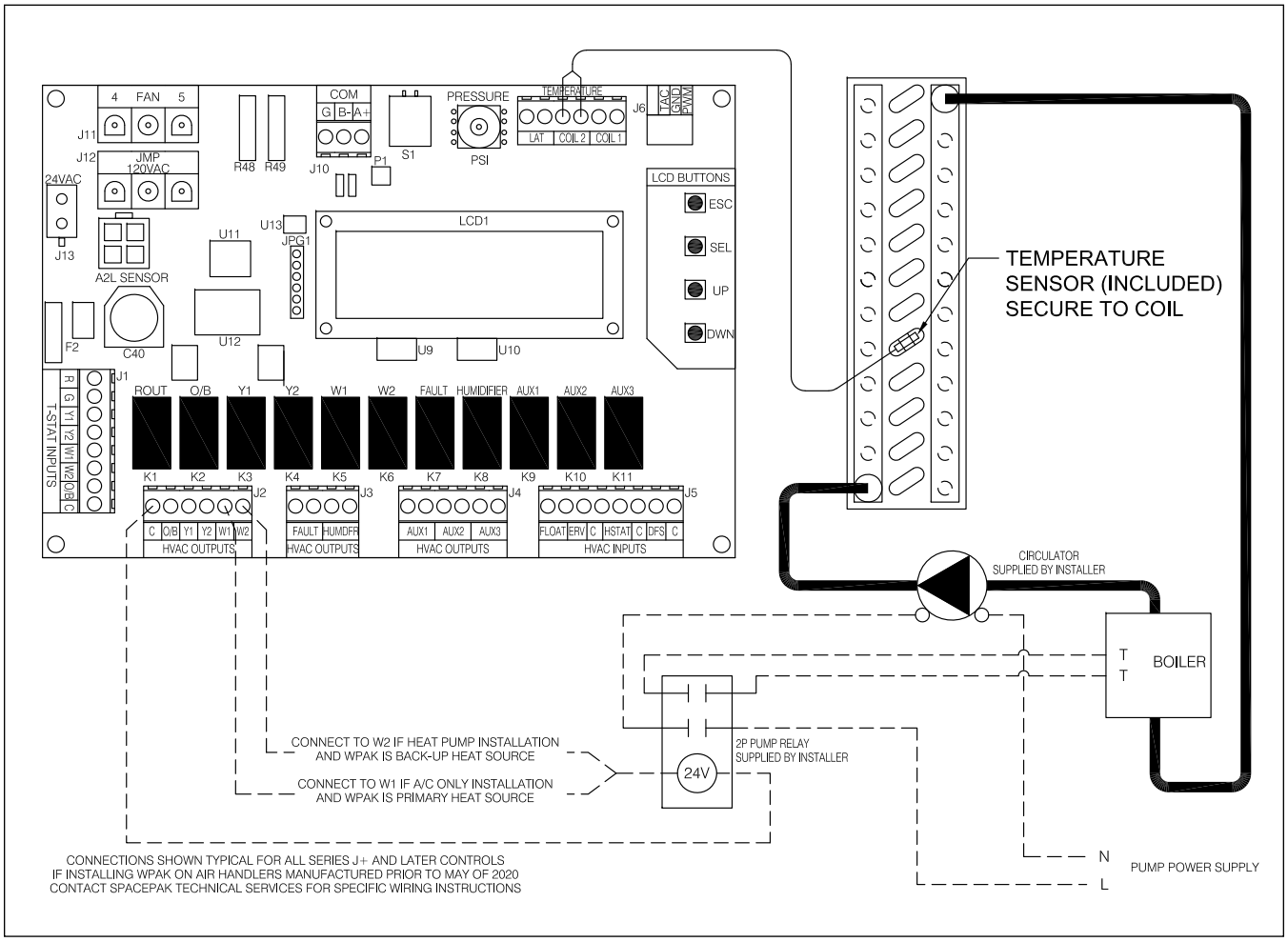


F.C.U. Capacity	"A"
2430	24" [610 mm]
3642	33" [838 mm]
4860	43" [1092 mm]

FIGURE 4: DIMENSIONS OF HYDRONIC COILS (inches) [mm]

SK-SP-00421

FIGURE 5: TYPICAL WIRING FOR A SPACEPAK UNIT WITH A HYDRONIC COIL



Refer to the Installation and Operation Manual supplied with the Air Handler for instructions to configure the WPAK for either Primary or Supplemental cooling.

Hydronic Coil Heating Capacity (MBH)

AC-WPAK-60

GPM (l/min)	Entering Water Temperature °F / °C				
	120 / 48.9	140 / 60	160 / 71.1	180 / 82.2	200 / 93.3
2 (7.8)	20.5 / 6.00	30.0 / 8.79	39.1 / 11.5	48.1 / 14.1	57.2 / 16.8
4 (15.1)	25.2 / 7.39	35.6 / 10.4	46.1 / 13.5	56.6 / 16.6	67.1 / 19.7
6 (22.7)	26.6 / 7.80	37.4 / 11.0	48.3 / 14.2	59.2 / 17.3	70.2 / 20.6
8 (30.3)	27.2 / 7.97	38.2 / 11.2	49.3 / 14.4	60.4 / 17.7	71.6 / 21.0
10 (37.9)	27.5 / 8.06	38.7 / 11.3	49.9 / 14.6	61.1 / 17.9	72.3 / 21.2

At 550 CFM / 934 m³/hr and 70°F / 21.1°C Entering Air Temperature

AC-WPAK-90

GPM (l/min)	Entering Water Temperature °F / °C				
	120 / 48.9	140 / 60	160 / 71.1	180 / 82.2	200 / 93.3
2 (7.8)	28.8 / 8.44	39.2 / 11.5	51.6 / 15.1	63.4 / 18.6	75.2 / 22.0
4 (15.1)	36.0 / 10.6	50.8 / 14.9	65.7 / 19.3	80.8 / 23.7	95.8 / 28.1
6 (22.7)	39.0 / 11.4	54.9 / 16.1	70.9 / 20.8	87.0 / 25.5	103.1 / 30.2
8 (30.3)	40.4 / 11.8	56.8 / 16.6	73.3 / 21.5	89.9 / 26.3	106.5 / 31.2
10 (37.9)	41.2 / 12.1	57.9 / 17.0	74.7 / 21.9	91.5 / 26.8	108.4 / 31.8

At 850 CFM / 1444 m³/hr and 70°F / 21.1°C Entering Air Temperature

AC-WPAK-120

GPM (l/min)	Entering Water Temperature °F / °C				
	120 / 48.9	140 / 60	160 / 71.1	180 / 82.2	200 / 93.3
2 (7.8)	31.7 / 9.29	46.2 / 13.5	61.2 / 17.9	75.1 / 22.0	89.0 / 26.1
4 (15.1)	45.6 / 13.4	64.2 / 18.8	83.0 / 24.3	102.0 / 29.9	120.9 / 35.4
6 (22.7)	50.6 / 14.8	71.2 / 20.9	92.0 / 27.0	112.9 / 33.1	133.8 / 39.2
8 (30.3)	53.1 / 15.6	74.7 / 21.9	96.4 / 28.3	118.2 / 34.6	140.1 / 41.1
10 (37.9)	54.6 / 16.0	76.7 / 22.5	98.9 / 29.0	121.2 / 35.5	143.6 / 42.1

At 1150 CFM / 1954 m³/hr and 70°F / 21.1°C Entering Air Temperature

Water Pressure Drop (ft/m @ 180°F/82.2°C)

GPM (l/min)	AC-WPAK-60	AC-WPAK-90	AC-WPAK-120
2 (7.8)	0.4 / 0.12	0.4 / 0.12	0.5 / 0.15
4 (15.1)	1.4 / 0.43	1.6 / 0.49	1.7 / 0.52
6 (22.7)	3.0 / 0.91	3.3 / 1.0	3.7 / 1.1
8 (30.3)	5.2 / 1.6	5.7 / 1.7	6.3 / 1.9
10 (37.9)	7.9 / 2.4	8.7 / 2.7	9.6 / 2.9

To calculate Leaving Air Temperature (LAT) use the following formula:
LAT= (BTUH / (1.08 X CFM)) + 70 [LAT=kW / (1.005 x m³/hr) + 21°C]

⚠ CAUTION Areas shaded in gray can exceed 160°F (71°C) leaving air temperature. To prevent injury or damge, do not install floor outlets when the system is operating in this range.

Glycol Correction Factors

Freezing Point

Concentration by volume	Ethylene Glycol	Propylene Glycol
55%	-50°F / -45.5°C	-40°F / -40°C
50%	-37°F / -38.3°C	-28°F / -33.3°C
40%	-14°F / -25.6°C	-13°F / -25°C
30%	2°F / -16.7°C	4°F / -15.6°C
20%	15°F / -9.4°C	17°F / -8.3°C

Heat Transfer @180°F (82.2°C) (no change in flow rate)

Solution %	Ethylene Glycol	Propylene Glycol
20%	.96	.97
50%	.87	.90

Flow Rate Correction (no change in pump curve)

Temperature	Ethylene Glycol	Propylene Glycol
100°F (37.8°C)	116%	114%
140°F (60°C)	115%	112%
180°F (82.2°C)	114%	110%

Note: Comparisons are of 50% solution

Pump Head Correction (with increase in flow)

Temperature	Ethylene Glycol	Propylene Glycol
100°F (37.8°C)	149%	141%
140°F (60°C)	132%	128%
180°F (82.2°C)	123%	123%

Note: Comparisons are of 50% solution

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