GENERAL
This instruction covers the installation of the following coils with upflow, downflow or horizontal air distribution systems.

**MODELS**
- 2WC06718000 2WC06718106
- 2WC06721000 2WC06721106
- 2WC06724000 2WC06724106

This hot water coil is offered in many different capacities and physical configuration in order to match up to the installation and load requirements of a broad number of air distribution systems. Check the model number to determine if it is the appropriate unit for the air handler already selected or installed at the job site.

The hot water coil is an appliance that operates in conjunction with the air conditioning or heat pump system and a hot water system. Installation of this equipment should be performed by a qualified technician.

Plumbing and wiring must be in accordance with all plumbing, mechanical and electrical local, state or national codes. The manufacturer accepts no liability for equipment damage, personal property damage or personal injury arising from the improper installation of this hot water coil.

**CAUTION:** Installations subject to freezing ambient temperatures must have provision for freeze protection to avoid damage to this appliance. If you are installing a model equipped with freezestat, remember this type of freeze protection is inoperable in the event of a power outage. The safest method of freeze protection is to provide for draining the hot water coil and water lines.

LOCATION & MOUNTING
The hot water coil is designed to mount directly over the discharge end of the heating/cooling system air handler. It may also be used in a downflow configuration, provided the coil’s hand valves, if applied, are rotated to orient the bleed ports to an upright position. An air handler location in the conditioned space is preferred to minimize the possibility of freezing ambient temperatures. Reasonable close proximity to the water heater is also a plus, particularly if the piping between the water heater and the hot water coil is kept in the conditioned space.

**NOTE:** The selected location and orientation of the air handler and hot water coil must allow the hydronic heating units circulator pump, if applied, to be positioned with the motor shaft horizontal. DO NOT install the hot water coil with its service panel and the circulator pump facing vertical, up or down.

The hot water coil should be mounted over the air handler’s blower discharge, rotated so the coil tubing is facing the same direction as the access door on the air handler.

Use the fastening strap provided to secure the coil to the top of the air handler. Use sheet metal screws to secure the fastening strap to the top surface of the coil and then to the side of the air handler.

INSTALLATION
Before starting the installation of the hot water coil into the air distribution system, verify that the air handler has been properly and completely installed. Since the hot water coil is designed to mount over the discharge end of the air handler, it will be necessary to make sure that both the equipment and the low voltage lines enter the air handler from the side, and not the top or discharge surface.

1. Disconnect primary power to the air handler before performing the installation.
2. If the ductwork has already been fitted to the air handler discharge, it is now necessary to remove an 8 inch section of the discharge plenum. Retain the discharge transition connector if the selected hot water coil is the exact match for the air handler.
3. Provide an opening in the top surface of the air handler in order to be able to run the hot water coil circulator pump connections down into the air handler.
4. Mount the coil over the air handler discharge and secure it to the air handler with the strap provided.
5. Connect the discharge plenum to the discharge opening on the coil. Fasten it to the collar on the coil using appropriate sheet metal screws or ductwork collar.
6. If the coil is equipped with the optional circulator pump, remove the access cover from the front face of the coil and the air handler. Feed the wiring from the coil circulator pump down through the knockout in the top surface of the air handler.

**NOTE:** When applying a hot water coil equipped with a circulator pump to an air handler, a 2PK06700106 no-heat power kit must be installed.

a. Remove the 4-pin power plug from the control board. The plug must be removed to insert the wire correctly.

b. Gently insert end of yellow wire with socket terminal into the 4-pin plug between the black and purple wires. Push terminal into plug until the terminal barbs engage in plug receptacle.

c. Plug the 4-pin power plug back into the control board.

**NOTE:** When connecting the coil wiring harness to the air handler, make sure that your routing avoids sharp edges and stays well away from the blower. Also provide for appropriate strain relief.

**WATER LINE INSTALLATION**

The hot water coil is designed to operate in conjunction with a broad variety of water heaters and hot water boilers including gas-fired, oil-fired and electrically heated. If possible, select a water heater equipped with extra openings for a circulation loop. They may be either side connections or a pair or additional connections on top of the water heater. A standard water heater may also be used, although some variation in water heater performance will be noticed.

**NOTE:** Shut off electrical power or gas to the water heater or boiler, shut off the water supply and drain the water heater or boiler before starting water line installation. All plumbing connections should be made with an appropriate lead-free solder.

Plan the water lines to minimize the run length and the number of bends and elbows. Use at least 3/4 inch (nominal) water tube. Both supply and return run should be insulated separately with closed cell foam pipe insulation. A typical installation using a hot water heater is shown in Figure 2.

1. The supply run from the water heater to the coil should be connected to the "hot water" opening on top of the water heater, or the upper side opening if the water heater is equipped for a recirculation loop.

2. The supply run is connected to the opening of the coil labeled "Hot Water In".

3. The return run from the coil is connected to opening of the coil labeled "Hot Water Out".

4. The return run may be connected to the water heater in several different locations. If the water heater is equipped for a recirculation loop, use the lower side opening. If you are dealing with a conventional top connect water heater, the return run may be connected to the cold water inlet with a standard copper "Tee" or may be connected through the drain valve opening. Installation fittings specifically designed for this purpose are available from your local coil distributor.

5. Flow-check valves may be required to prevent thermosyphoning of hot water through the coil during cooling season system operation, unless the coil is operated as a separate zone in a multi-zone system as is normally found in boiler driver applications. Swing-check valves are preferred to minimize pressure drop during system operation. However, they should be mounted in a vertical section of pipe run to get gravity assist for best results. Most coils are supplied with a check valve of this type. However, in extreme cases of thermosyphoning a check valve may be required on both supply and return sides of the coil piping. Additional valves may be purchased from your local HVAC distributor.

**FIGURE 1 - TYPICAL WIRING DIAGRAM**

**FIGURE 2 - TYPICAL INSTALLATION**
SYSTEM FILL AND START UP
At this point the coil is ready to fill with water and operate in conjunction with the air handler.

1. Shut off the coil hand valves and turn on the water supply to the water heater or boiler. DO NOT TURN ON ELECTRICAL POWER OR GAS YET.
2. In order to make sure the water heater is full of water, manually open the water heater pressure relief valve and wait until water is discharged before closing it again.
3. Open the hot water faucet furthest from the water heater and wait until it discharges before closing it.
4. Remove the cap from the bleed port on the upper coil hand valve, but leave the valve closed.
5. Open the lower valve and wait until the bleed port on the upper valve stops blowing air, then close off the lower valve and replace the bleed port cap on the upper valve.
6. Open the upper valve, remove the cap on the lower valve bleed port and wait until the air is discharged. Replace the cap on the lower valve bleed port.
7. Remove the center screw from the coil circulator pump and allow any residual air to bleed out of the pump. A small amount of water will discharge from the pump opening during the air bleed process. Replace the pump center screw.
8. Make sure both hand valves are fully open and both bleed port caps are screwed on.
9. Restore electrical power to the air handler and electrical power or gas to the water heater. The system is now ready for start up.

START-UP
Allow sufficient time for the water heater or hot water boiler to reach normal operating temperature. Check the thermostat setting. The hot water coil is designed to operate on any hot water source between 140°F and 180°F.

WATER HEATER SIZING FOR HOT WATER COILS
(Gas-Fired Water Heaters)
Residential water heaters are generally available in 5 nominal sizes: 30, 40, 50, 75 & 100 gallon storage capacity. BTU input choices range from 30,000 to 85,000 Btuh. The 30 gallon size is not recommended because of the limited storage capacity and nor is the 100 gallon size since it is usually too large (28” dia.) to fit through most residential doors. The best choices are the 40 & 50 gallon sizes with occasional use of the 75 gallon size.

Water heaters come in several choices of burner input:

<table>
<thead>
<tr>
<th></th>
<th>40 Gal.</th>
<th>50 Gal.</th>
<th>75 Gal.</th>
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</thead>
<tbody>
<tr>
<td>Standard Recovery</td>
<td>34,000</td>
<td>40,000</td>
<td>75,000</td>
</tr>
<tr>
<td>High Recovery</td>
<td>40,000</td>
<td>50,000</td>
<td>—</td>
</tr>
<tr>
<td>Extra-High Recovery</td>
<td>50,000</td>
<td>65,000</td>
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Water heaters are generally operate at 76 AFUE, so heat input is as follows:

<table>
<thead>
<tr>
<th></th>
<th>40 Gal.</th>
<th>50 Gal.</th>
<th>75 Gal.</th>
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<tbody>
<tr>
<td>Standard Recovery</td>
<td>25,840</td>
<td>30,400</td>
<td>57,000</td>
</tr>
<tr>
<td>High Recovery</td>
<td>30,400</td>
<td>38,000</td>
<td>—</td>
</tr>
<tr>
<td>Extra-High Recovery</td>
<td>38,000</td>
<td>49,000</td>
<td>—</td>
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</tbody>
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This heat output should be matched against the coil and system size selected for use.

<table>
<thead>
<tr>
<th>System Size (Tons)</th>
<th>Coil Capacity</th>
<th>Water Heater</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2</td>
<td>25,000</td>
<td>40 Gal Std.</td>
</tr>
<tr>
<td>2</td>
<td>28,000</td>
<td>40 Gal HiR or 50 Gal Std</td>
</tr>
<tr>
<td>2-1/2</td>
<td>32,000</td>
<td>50 Gas. Std. or 40 Gas. XHiR</td>
</tr>
<tr>
<td>3</td>
<td>38,000</td>
<td>50 Gal. HiR or 40 Gal. XHiR</td>
</tr>
<tr>
<td>3-1/2</td>
<td>45,000</td>
<td>50 Gal. XHiR</td>
</tr>
<tr>
<td>4</td>
<td>50,000</td>
<td>50 Gal. XHiR</td>
</tr>
<tr>
<td>5</td>
<td>63,000</td>
<td>50 Gal. XHiR or 75 Gal. Std</td>
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</tbody>
</table>

Additional heating or hot water delivery capacity can be achieved by raising the water heater thermostat setting above the 140°F temperature assumed in the coil specifications. However, it is recommended that an anti-scald tempering valve be added to the hot water line going to the house.