

# amerec AI BOILER: INSTALLING THE HEATING ELEMENT

## HEATING ELEMENT INSTALLATION

1. **Remove the heating element** Disconnect the wires and remove the heating element. Set aside the bolts and washers for reuse. Clean the element's tubes and flange removing any scale build-up, gasket debris and old sealant, and ensure the flange surface is smooth and undamaged.

**Note:** *If it is necessary to replace a bolt, use only Grade 8 5/16" steel bolts with a rust proof finish, 18 threads per inch. Bolts should be 1" long for 3/8" thick flanges or 3/4" long for 1/4" thick flanges.*

After removing the heating element from the boiler tank, inspect the inside surfaces of the tank for scale build up and debris. Clean as necessary. Ensure all ports are free of build-up. If tank cleaning is necessary, also check the water level probes and clean as needed. *Refer to the De-Scaling Procedure as needed.*

**Note:** *Scale and sediment build up will affect boiler operation and reliability. Excessive build-up can cause heating element failure, slow draining, safety valve leakage and erratic operation.*

2. **Install the heating element** Run a bead of sealant between and around the bolt holes on both sides of a new element gasket.

Mount the gasket to the element flange after placing two bolts through mounting holes. The bolts will help hold the gasket in place while mounting the element flange.

Insert the element in place in the boiler tank and loosely install all mounting bolts. Each bolt requires one lock washer and at least one flat washer as shown at right.

Tighten all bolts until snug: the element should be flat against the tank.

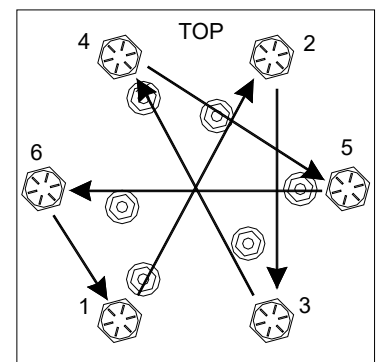
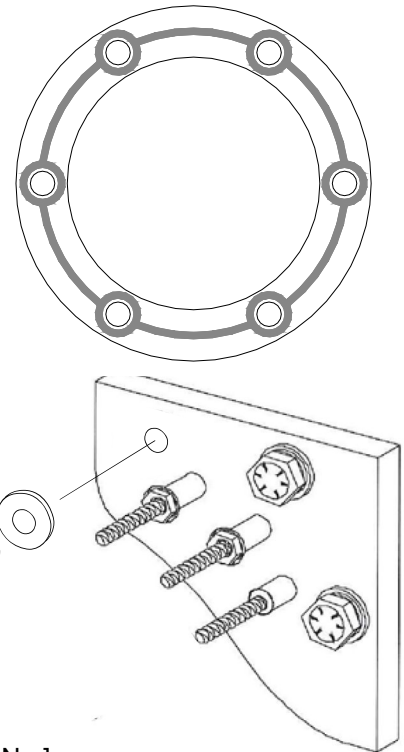
3. **Tighten all the bolts** in a crisscross sequence (shown below right) until they are snug. *This pattern helps ensure the flange is held flat against the tank.*

Use a torque wrench to tighten the bolts in the sequence shown until the bolts are at 18 to 19 foot pounds [24 to 26 Nm].

Then tighten all the bolts in sequence to a final torque of 20.5 foot pounds [28 Nm].

4. Allow the gasket seal time to set up. Set up time varies depending on the sealant used, generally at least 20 minutes for low pressure applications such as the boiler. *Use set up times as recommended by the manufacturer, when known.*

Once the sealant sets-up, test for leaks by using the boiler again and check frequently for leaks for at least the first 24 hours.



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## WIRING THE HEATING ELEMENT

Connect each element's terminals to the boiler's contactors' screw terminals as shown below. Make sure the terminals are screwed tight against the wire ends. *Note that the drawing shows wire connections only, not actual wire routing.*

Route the wires to ensure they do not rest against any sharp edges and so there is no stress on the connections. Secure element end of each wire to its element terminal as shown. Tighten the first nut and its washers down to the tube – *this will be just snug*. Add the wire, lock washers and nut as shown. *Tighten the outer nut while holding the inner nut in place.*

When finished, the wire should be held securely in place. *If a wire end is not well secured, it can overheat and burn the wire and connection.*

