How to Maintain Flange Heaters

Maintenance of flange heaters is an important operational requirement for every industry that deploys them for their own applications. Maintenance has several advantages. (See Figure 1.)

Even though flange heaters may be properly installed according to the manufacturer's instructions, the story doesn't end there. Heaters may break down or catch fire if you do not take proper care of them.

The following are some precautionary steps you can take to make sure the heater is maintained properly:

1. Make sure you always unplug the heater before servicing it.
2. Check the heater periodically for signs of deterioration or formation of any crusts on it.
3. Clean the heating equipment regularly to prevent corrosion or deterioration. If there is any corrosion, check and replace the gasket if necessary.
4. Ensure there aren't any loose terminals or connections. They could cause a short circuit.
5. Make sure the terminals or connections are clean.
6. Make sure the voltage is within specified limits. Voltages that are too high for the heater can permanently damage the heater and reduce its working life.
7. Do not operate the heater under dry conditions. Ensure the heater is always submerged with at least 2" of liquid above its heating elements to prevent overheating of the heater.
8. Make sure the heater is not touching any sludge at the bottom of the container. Regularly check for sludge or other deposits and remove any if found on the heater or in the tank.
9. If operating the heater in a closed tank system, ensure there is no air in the closed tank by making sure the tank is constantly full of liquid.
10. Make sure the pressure and temperature of the flange does not exceed the specified standards.
11. Use the most appropriate sheath material to cover the high resistance wires of the heater, taking into consideration the chemical composition of the liquid in which the heater will be immersed. If the sheath material corrodes, it could cause a ground fault which could ultimately lead to a fire or an explosion
12. Make sure the heater is fitted with sufficient backup controls and safety devices to ensure nothing untoward happens during day-to-day operation of the heater.

13. If the flange heater uses a thermo well to control temperatures and prevent over-heating, make sure no moisture collects in the thermo well. This may damage the heater.

14. Do not run the heater with full power in low megohm conditions. A low megohm condition arises when the refractory material in the heater absorbs moisture and lessens the resistance of the cold insulation. This can cause tripping of the heater. If a heater has a megohm of 1 or less, it should be thoroughly dried before running the heater on full power.

15. Make sure vapors, spray, and/or condensation do not get in to the terminals of the heater. If necessary, use some kind of an enclosure to protect the terminals. Similarly, protect the heater from explosive vapors and dust.

16. Do not allow the liquid to reach its boiling point. This could result in a pocket of steam ultimately leading to overheating or even failure of the heater.

17. Use the appropriate watt-density, taking into consideration the velocity, operating temperature, viscosity, and thermal conductivity of the liquid being heated.

If you follow the above maintenance suggestions, your heater will give you a long lasting and safe service.

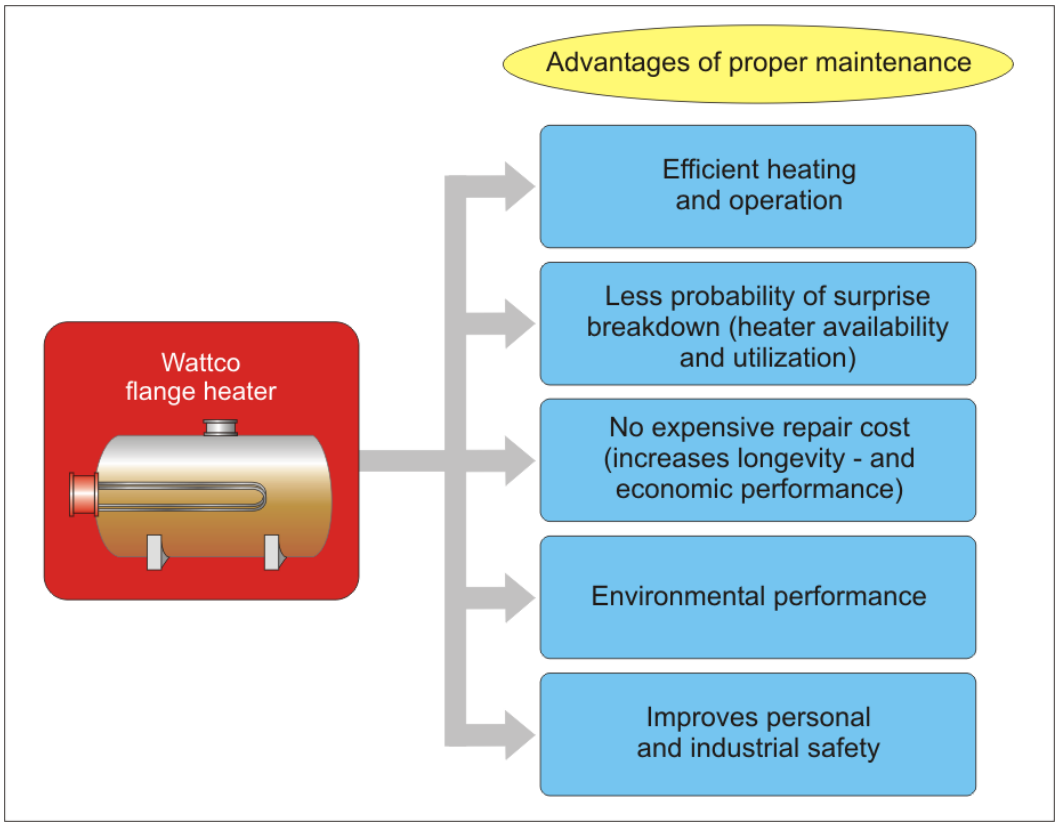

Figure 1