

Benefits of Water Cooling

Most Ambrell induction heating systems use water cooling. There are several reasons why water cooling is used instead of air cooling, which are outlined below.



Versatility

- Water cooling offers superior power delivery (efficiency) over a wider and higher range of operating frequencies, offering more system flexibility making more applications possible.
- No limits on cycle time at full power, meaning our water-cooled systems are rated for continuous duty in perpetuity. Many air-cooled systems are not, which means some applications cannot be done with those systems.



Footprint

- Greater power density allows for a smaller system size and in turn a reduced footprint, typically half the size of an air-cooled system offering the same power (kW).
- A smaller footprint can result in cost savings for shipments and import duties.



Maintenance

- Water cooled systems use sealed enclosures, meaning systems aren't exposed to contaminated air such as dust, humidity, fine metal particles, corrosive vapors and fluxes.
- Units not sealed can result in condensation inside the unit, creating maintenance issues.
- With air-cooled units, air filter replacement is critical but often overlooked, resulting in additional issues and in turn maintenance expenses.
- Water cooling isn't sensitive to elevated air temperatures, while air-cooled units are.



Work Environment/Efficiency

- Less heat load on HVAC systems, saving energy expenses and offering a cooler and more comfortable work environment for employees.
- No noisy fans with water-cooled units, resulting in a quieter work environment.
- Heat, noise, and dust are pushed out of air-cooled units into the work environment, which can be a problem for certain environments, such as clean rooms.
- Water cooling allows organizations to reuse waste heat, providing an efficiency benefit.
- Air is a very poor thermal conductor, which is an efficiency disadvantage.