

**KELTECH'S COMMERCIAL
TANKLESS WATER HEATING SOLUTIONS**

Precise Temperature Control.

Energy Efficient.

Reliable Performance.

TABLE OF CONTENTS

3 Custom Built to Meet Your Specs

Precise Temperature Control

4 Applications That Commercial Process Heaters Have Been Used For

Commercial Process Heaters Overview

Compact

Easy to Install

Safe

Wired to 480 Delta

Built to Last

Energy Efficient

Easy to Maintain

5 The Keltech Energy Advantage

Energy Savings

Volume

Save Energy From Day One

No Storage Tank Requirements

6 One Size Fits All

Perfect for Compact Spaces

Determining Your Sizing Requirements

7 Safety First

Redundant Safety Features

Digital Temperature Control

TABLE OF CONTENTS CONTINUED

8 Standard Features

Incoloy 800 Sheathed Heating Elements
NEMA Enclosures
Precise Temperature Range and Flow Rate
Water-Cooled Solid-State Relay Switching

9 Standard Features continued

Premium Materials
Reliable Performance and Minimal Maintenance
Easy to Install
Minimal Pressure Drop
Activation Requirements

10 Optional Features

11 Optional Features continued

High/Low Temperature Alarms (Audible and Visible)
Ground Fault
Freeze Protection
NEMA 4 Water Tight Enclosures
NEMA 4X Water Tight Corrosion Resistant Enclosures
High Temperature Heaters

12 De-Ionized Water Solutions and Corrosive Fluid Protection Systems

Media Purity
Nonstick Coatings
Chemical and Corrosions Coatings
Thermal Stability Coatings

13 De-Ionized Water Solutions and Corrosive Fluid Protection Systems continued

TE2 Protection System
TE3 Protection System
Uses for Fluorocarbon Coatings

14 Explosion Proof Purge System

CUSTOM BUILT TO MEET YOUR SPECS

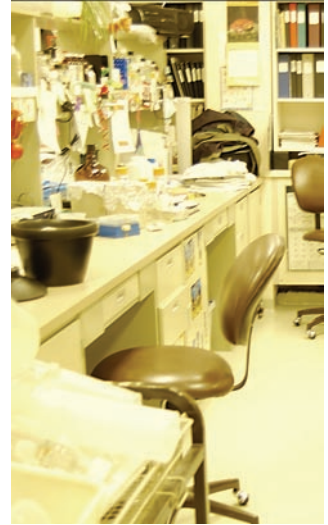
Keltech custom built tankless water heaters can accomplish most commercial fluid heating applications. We custom build fluid heating solutions using quality control systems and premium materials to meet your specific needs.

Keltech commercial water heating solutions range in size and capacity from 5 kilowatts to 25 kilowatts. Powered to operate at 1 phase and 3 phase options, Keltech commercial tankless water heating solutions include 208, 240, 277 or 480 volt units at various amperages.

Whether you need intermittent use hot water for parts washing, for use in laboratories, research and development facilities, in the food industry, or for de-ionized water, Keltech can custom build an energy efficient commercial process heater that provides precise temperature control at flow rates as low as .15 GPM.

PRECISE TEMPERATURE CONTROL

Keltech's tankless water heaters provide precise temperature control (+/- 1°F or .56°C) for commercial fluid process heating applications. Designed to exacting specifications and tested to ensure precise temperature delivery and specific flow rates, Keltech tankless water heating solutions perform reliably even in the most exacting environments.



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KELTECH COMMERCIAL WATER HEATING SOLUTIONS HAVE BEEN USED FOR:

- Commercial washing processes
- Scientific laboratories
- Chemical heating
- Commercial fluid heating
- Radiant heating
- Hot water for heat exchangers
- Hot water for utility use
- Booster heating
- De-ionized (pure) water heating

THE KELTECH COMMERCIAL PROCESS HEATERS ARE:

- *Compact* – heaters do not require large floor space and can be wall mounted
- *Easy to Install* – Just add water and power. All you need is access to one electrical connection and a cold water line
- *Safe* – includes redundant control and safety features
- *Wired to 480 Delta* – does not require a neutral
- *Built to Last* – all Keltech tankless water heating solutions feature rugged industrial components
- *Energy Efficient* – perform on-demand requiring power and water only when needed
- *Easy to Maintain* – Keltech commercial process heaters require minimal maintenance



Engineered to exceed quality standards at every turn, Keltech components are rugged and designed to perform to your specs. Our tankless process heaters deliver precise, dependable performance.

THE KELTECH ENERGY ADVANTAGE

Keltech's on-demand commercial process heaters typically have two advantages over boilers:

1. Energy Savings

Unlike boilers, Keltech's heaters are tankless and heat water only when it's needed. There's no wasted energy. The energy savings often produces a return on investment within a few months.

2. Volume

Unlike hot water tank storage systems, Keltech's heaters provide continuous capacity. The flow of hot water can be unlimited.

SAVE ENERGY FROM DAY ONE

Keltech water heating solutions perform on-demand. Because they are tankless, they only draw electricity and water when needed. Since there are no utilities to pay until the heater is used, utility costs are minimized. There's no need to keep a 300 gallon tank heated 24 hours a day, 365 days a year. There's also no need for expensive re-circulation loops.

Keltech's commercial heaters have an infinitely modulating temperature control allowing for use of only the energy needed to maintain the set point temperature. There is no need to overheat the water and then add cold water to reach the desired temperature. Your heater will heat water to the exact temperature needed when you need it. This eliminates the cost and potential problems associated with mixing valves.

NO STORAGE TANK REQUIREMENTS

The heater is tankless. Storage tanks consume space and energy. Because the heater is tankless, there is no power draw without water demand. Since the heater operates on-demand there are no standby losses and no recovery time is required.



Keltech water heating solutions only draw electricity and water when needed. Since there are no utilities to pay until the heater is used, utility costs are minimized.

ONE SIZE FITS ALL

Keltech's commercial tankless water heaters are a scaled back version of our high performance large industrial water heaters. Physically smaller, they are loaded with standard features just like their larger brethren. Built on a smaller scale with fewer bells and whistles, commercial tankless water heaters cost less.

Optional features can meet even the most demanding requirements. Generally utilized for water heating, internal passageways can be coated for heating other non-flammable liquids, and also for liquids that require FDA approved coatings.

PERFECT FOR COMPACT SPACES

Keltech commercial water heater solutions are also perfect for facilities where space is limited. Wall mountable units can be placed in compact spaces where conventional heaters with comparable output cannot.

DETERMINING YOUR SIZING REQUIREMENTS

Sizing your tankless water heater is a critical part of the purchasing process. Two factors that require careful consideration for the accurate sizing of your system are:

1. Flow rate (GPM)
2. Temperature rise (ΔT °F)

To determine the size and kilowatt rating you need, apply this formula: $kW = (GPM) (\Delta T \text{ } ^\circ F) (.1465)$



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SAFETY FIRST

1. Redundant Safety Features

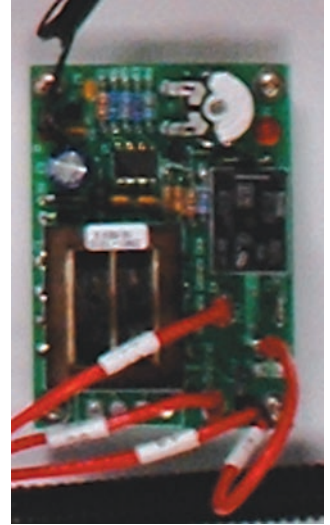
Keltech's commercial heaters include multiple features guaranteed to ensure the safety of your employees and years of reliable service.

High Temperature Cut-Off

Every heater that Keltech engineers includes a separate set of circuits that monitor over temperature conditions. Should overheating occur, each sector of the heat exchanger has a dedicated thermal switch that breaks power. Normal operation cannot be resumed until the safety switch is manually reset.

2. Digital Temperature Control

The LED controller displays the set point and actual temperature. The splash proof front panel is standard. The controller is preprogrammed to your specifications and automatically adjusts to maintain precise output.



*Proportional
Integrated
Derivative (PID)
controls provide
infinitely variable
power draw.*

1. Incoloy 800 Sheathed Heating Elements

Low watt density Incoloy 800 sheathed heating element passages extend the life of the metal components by minimizing chemical (water or other liquids that may be heated) interaction. The heating elements are individually field replaceable.

2. NEMA Enclosures

NEMA 1 enclosures are standard for 5kW to 18kW heaters. They are designed to provide personnel with a degree of protection from incidental contact with enclosed equipment and protection from falling dirt.

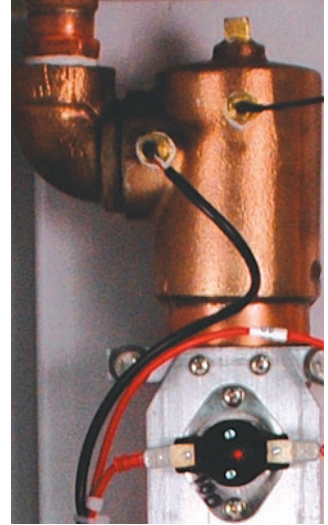
NEMA 12 enclosures are standard for 25kW heaters. They offer additional protection from circulating dust, lint, fiber and flyings, as well as against dripping and light splashing of liquids.

3. Precise Temperature Range and Flow Rate

The electronic power modulation system can control outlet water temperature to within +/- 1°F (.56°C) over a wide range of flow rates. Precision temperature controls make Keltech tankless water heaters the preferred choice for process heating applications or an alternative to high energy consuming boiler use.

4. Water-Cooled Solid-State Relay Switching

Water-cooled solid-state relay switching controls provide an infinite variable power draw. All switching is done in a zero crossing package that precisely controls output temperature to +/- 1°F.



*High quality
copper and brass
construction
extend the life
of the heat
exchanger.*

Standard Features (continued)

5. Premium Materials

All waterways consist of high quality copper and brass construction tested to 300 PSI. Copper and brass construction extend the life of the heat exchanger.

6. Reliable Performance and Minimal Maintenance

The heater series maintenance schedule falls within the normal facilities maintenance program requirements. The best feature of Keltech's tankless water heating system is never having to open its enclosure cover.

High quality copper and brass construction extend the life of the heat exchanger.

7. Easy to Install

Keltech tankless water heaters can be mounted almost anywhere. The compact design allows for wall mounting with zero clearance requirements. No special venting is required. Just add water and power. All you need is access to one electrical connection and a cold water line.

8. Minimal Pressure Drop

Keltech tankless water heaters feature large internal passageways (minimum 3/4" inlet/outlet diameter) that minimize pressure drop.

9. Activation Requirements

On-demand heaters require a minimum flow rate for activation. Water heaters come standard with 0.5 GPM activation set point and can provide flow up to 6 GPM. Minimum flow requirements provide maximum efficiency.



Robust brass castings and flanges are CNC cut from solid brass blanks for precision fit.

OPTIONAL FEATURES

- Computer interface capabilities
- NEMA 1 enclosures standard; options include NEMA 12 enclosures, NEMA 4 water tight enclosures, and NEMA 4X enclosures for protection from harsh environments
- High temperature package for operating temperatures between 160°F and 190°F
- Rack mount modular systems for complete wiring and operation in a single unit
- Freeze protection package
- De-ionized (pure) water heating
- Explosion proof purge system available
- Integrated ground fault circuit available for protection in 10 mA to 30 mA ground fault
- High/low temperature alarm functions (audible and visible)
- Low flow activation at 0.15 GPM or 0.25 GPM



*Keltech's
ground fault
detector protects
the electronics
and the heat
exchanger
from damage.*

HIGH/LOW TEMPERATURE ALARMS

For critical process applications, the high/low temperature alarm alerts you to an over or under temperature situation. The alarm feature provides confidence that your fluids are in the defined temperature range.

GROUND FAULT

This safety feature detects electrical leakage from external sources to protect the equipment, electronics and the heat exchanger from being damaged in the event of a power fault.

FREEZE PROTECTION

Keltech's freeze protection option protects the heater and internal components in sub-zero conditions. It allows the unit to function at -23°F with an 11 mph wind. Freeze protection is only available with NEMA 4 or NEMA 4X options.

NEMA 4

Keltech can produce NEMA 4 water tight enclosures for outdoor applications.

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 4X

For harsh environments, Keltech can produce NEMA 4X water tight corrosion resistant enclosures made from stainless steel.

HIGH TEMPERATURE HEATERS

The standard high temperature limit on heaters is 160°F . With a high temperature option, these heaters can reach and maintain settings as high as 190°F at the specified flows.

DE-IONIZED WATER SOLUTIONS AND CORROSIVE FLUID PROTECTION SYSTEMS

Keltech has developed unique and exclusive protection systems that meet the requirements for ultra pure water.

Keltech's Corrosive Fluid Protection Systems are A-rated for de-ionized water, chlorides, saltwater solutions, reverse osmosis water, caustic alkalis and many other applications.

To protect the heater from corrosion, Keltech constructs its electric heating elements of electro-polished and passivated Incoloy 800 sheathing. All plugs and fittings are stainless steel.

All HL series commercial process heaters are available with an optional Teflon® like fluorocarbon protective coating on internal passageways. Fluorocarbon coatings protect the heat exchanger from corrosive environments. HL series commercial process heaters with corrosive fluid protection systems incorporate these special properties:

- *Media Purity*

The coating allows no contamination of heated fluids.

- *Nonstick Coatings*

Nonstick coatings have very low adhesion properties for best possible flow characteristics.

- *Chemical and Corrosions Coatings*

These coatings are virtually inert. They resist change or destruction due to chemicals or corrosion.

- *Thermal Stability Coatings*

Thermal stability coating resists change due to temperature fluctuations.

De-Ionized Water Solutions and Corrosive Fluid Protection Systems (continued)

- *Keltech's TE2 Protection System*

This system is recommended when corrosion is a concern. The fluorocarbon coating TE2 Protection System is similar to Teflon® S and protects all heat exchanger surfaces that come in contact with heated fluids. The caustic and acid resistance of TE2 is very good and the solvent resistance is excellent.

- *Keltech's TE3 Protection System*

This system is recommended when fluid purity is critical (e.g., to heat de-ionized water or to heat reverse osmosis water). To conform to FDA regulations governing direct food contact applications, the TE3 Protection System includes a fluorocarbon coating similar to the FDA approved Teflon® PFA on all surfaces and internal passageways that come in contact with the heated media.

Keltech heaters with fluorocarbon coatings can be used to:

- Wash solid-state devices
- Wash printed circuit boards
- Wash aluminum products or equipment
- Wash parts
- Heat corrosive/non-flammable liquids
- Desalinations systems

EXPLOSION PROOF PURGE SYSTEM

For those environments that would require explosion proof protection, Keltech's commercial water heaters in NEMA enclosures can be equipped with a purge system. Heat, moisture, dust and corrosion are eliminated by providing the enclosure with a slow but continuous flow of inert gas or dry compressed air. This process removes flammable gases or prevents the accumulation of ignitable dusts within the protected enclosure.

The type of purge system determines the classification or division the enclosure will meet. Electrical components installed in a NEMA 4 enclosure allow the system to be pressurized by clean instrument air or inert gas. This type of system conforms to Class 1, Division 2 hazardous area standards. Other class and division ratings may be available.

THE PURGE SYSTEM:

- Reduces heat build-up in the enclosure
- Inhibits metal corrosion and reduces moisture buildup
- Provides continuous monitoring capabilities
- Eliminates large, heavy explosion proof enclosures

A constant supply of inert gas or clean air will also be needed.

NOTES:

1. Suggested region for power entrance. Entrance hole to be provided by installer.
2. All plumbing fittings are 1" NPT female threaded.
3. Purge control panel Class 1 Division 2.
4. All installation egress from panel must be sealed (electrical conduit) for proper explosion proof installation.
5. Spark arrestor with calibration orifice is located behind the purge control unit and through the bottom of the enclosure.
6. Purge gas/compressed air inlet fitting here.

