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## *Origins Ultimate – Explanation & Comparison of heater & shower handle for use with hard water (high TDS)*

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1. The heating element is made up of three different components and the benefit of using them are explained here under
  - a. Stainless tube pipe, the water only flows within this tube, the tube being made of stainless steel it has the lowest adhesion to any salts.
  - b. Nickel cadmium heating element is 98% efficient and is housed outside the stainless steel water carrying tube, which means the water is never in contact directly with the heating element.
  - c. Aluminum magnesium body. Is the outer housing or encasing for both the stainless steel tube and the heating element, it also does the work of transferring the heat from the element to the stainless steel tube which in turn heats the water.
  
2. Why scaling happens with existing geyser heaters and why RETHINK heater will not scale or fail.
  - a. The existing heaters are directly immersed in water. Further the heating element is heated to more than 100 degrees centigrade, At this elevated temperature the water gets evaporated leaving the salts behind as deposition over the heating element (Salts do not evaporate at 100 degree centigrade – Only water evaporates), Because of salt deposition on the coil, the heat is not transferred to the water and heating coil start getting over heated and fail often.
  - b. RETHINK heater uses state of the art patented technology, which first ensures that the water is only in contact within stainless steel tube. Secondly the heating element is never in contact with water directly. Doctors advise maximum water temperature of 44.4 degree centigrade for bathing. Rethink heats water instantaneously to a maximum of 55 degree centigrade. Thus even if there is hard water being used, the salts do not get separated due to evaporation nor do they stick to the stainless tube, hence scaling does not happen which in turn increases the life span of the heating element many times. In all the water that is used even if it has high TDS (total dissolved solids – Hardness) it is ejected out without giving any room for it to be separated and it does not scale the heater leading to very long service life.
  
3. Efficiency: The efficiency of conventional immersion heater is 85%, whereas RETHINK heaters are 98% efficient in converting the power used to heat. Thus saving money in terms of power cost.
  
4. RETHINK shower handle is built with all contact parts made of Ceramic and Stainless Steel nozzles (2 Nos with large holes).
  - a. All the wet parts are in contact with SS nozzles which do not accumulate calcium deposition.
  - b. Rethink uses Ceramic parts which are tested for 70,000 operation thus giving the user a very long service life.
  
5. In the long run usage due to hard water even if the unit accumulates salts, it can be easily cleaned by using vinegar and re-circulating the vinegar, for about 30 minutes which should clear any deposition of the salt.

RETHINK - Safety – Reliability – Efficiency – Assured cost effectiveness & to save, Water, Power & environment



# Heating Element Structure



## Element

Nickel-chromium heating element  
Insulated heat-conducting magnesium powder



## Water Channel

Stainless steel heating tube and  
channel



## Plate Material

Aluminum magnesium alloy casing



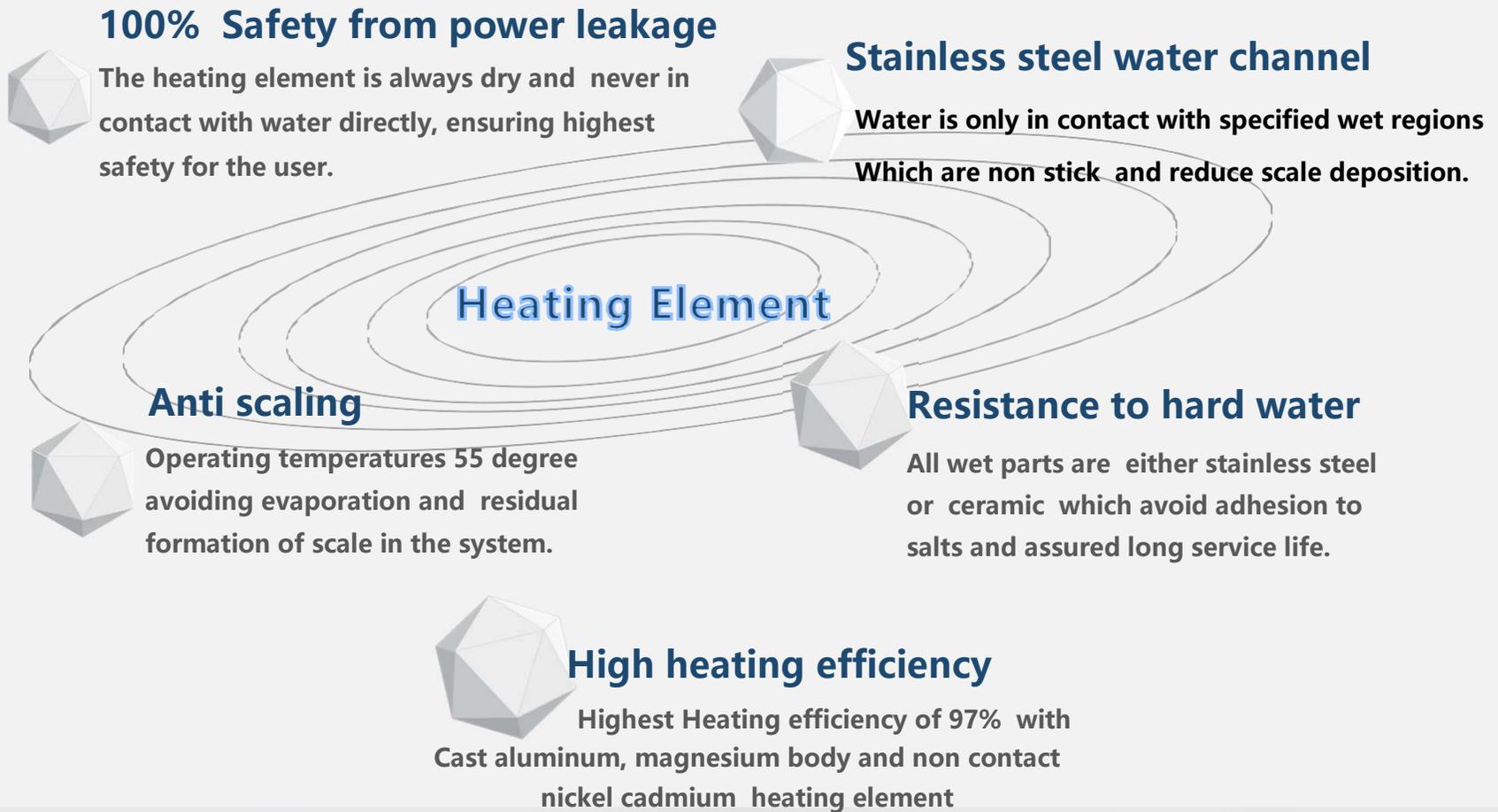
**Patent No.:** ZL 2012 2 0451499. 4  
ZL 2014 2 0844291. 8  
ZL 2015 2 0272829. 7  
ZL 2015 2 0567941. 3  
ZL 2016 2 0415548. 7

## Patent Heating Technology





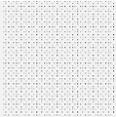
# Heating Element Advantages





# Explode View

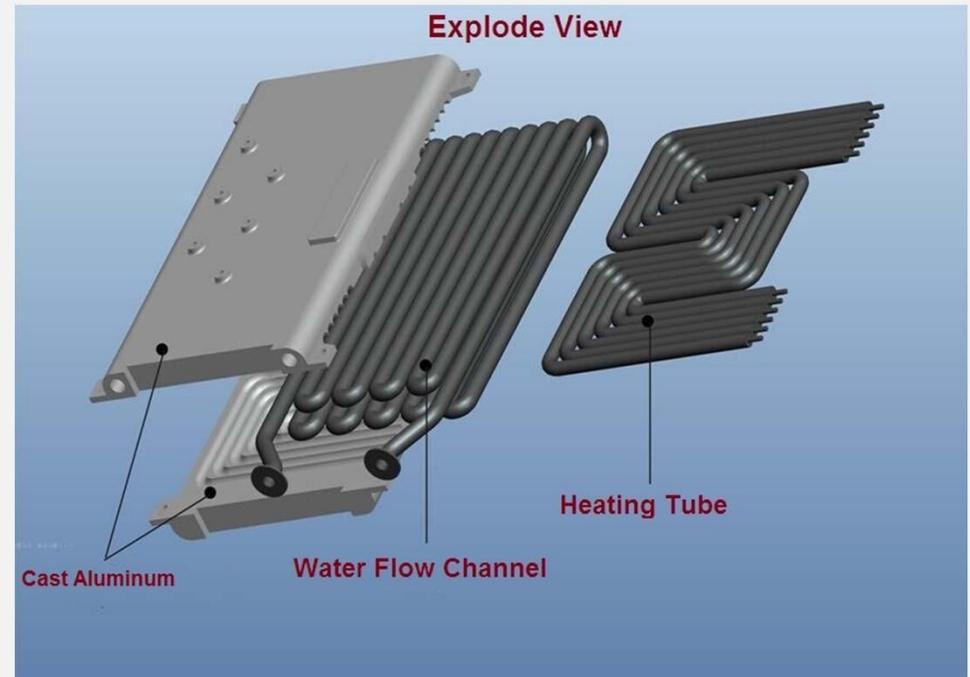
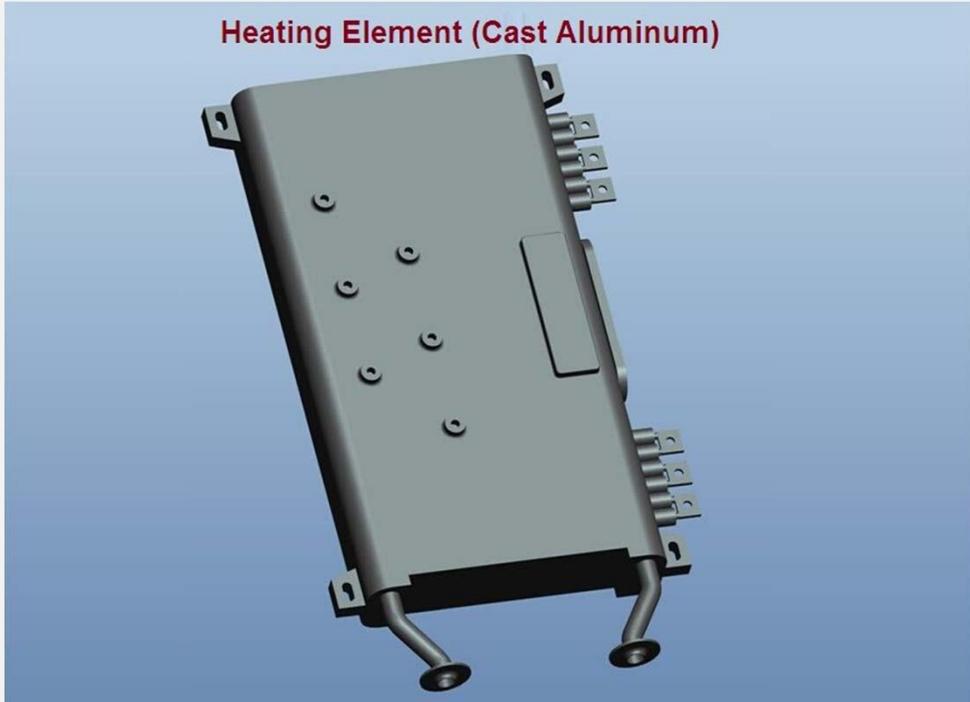
## Electric Water Heater Heating Element



### Heating element

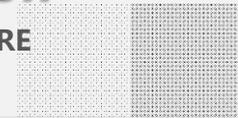
WATER HEATER USING

Heating Element (Cast Aluminum)



### Explode View

INNER STRUCTURE

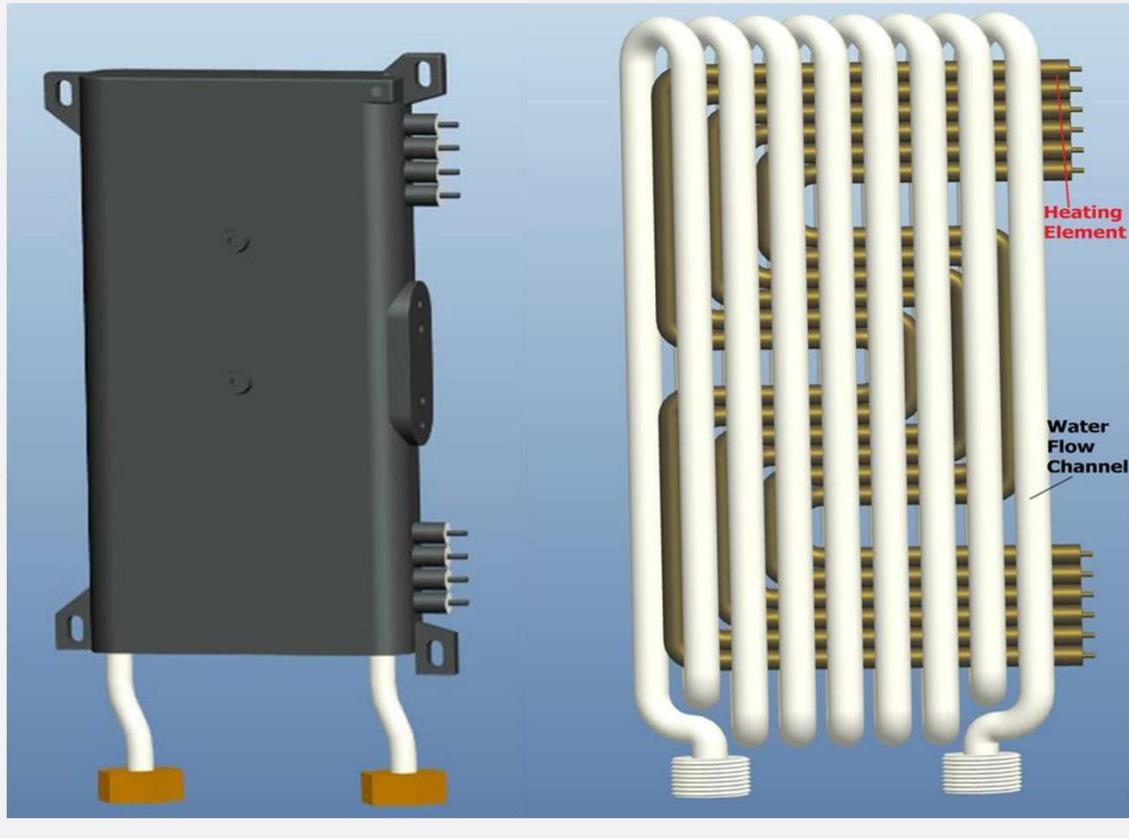


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# Heating Element Comparison

Our Heating Element



Lime scale or hard water scaling happens due to evaporation of water which leaves residual salts deposited on the element.

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