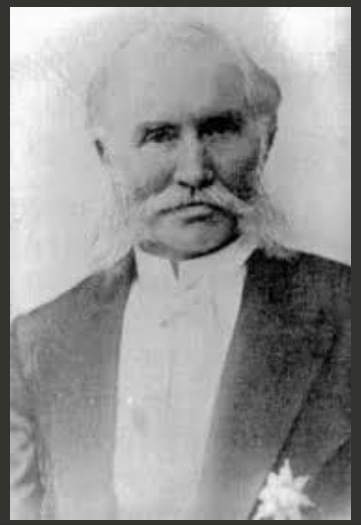
# Why we choose the product of Radiator ?

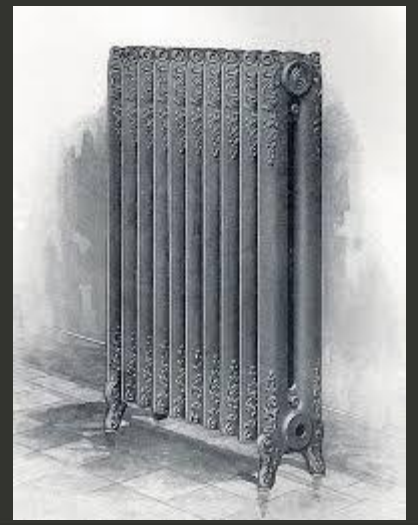
We believe that the radiator is the best home heating system available in the market in terms of comfort and pleasant warmness that gives to our home, also choosing the right radiator is about much more than just heating a room. In fact radiator becomes a reflection of a room’s design and that’s why we have created innovative radiators that will inspire as much as they warm.

# History of radiator

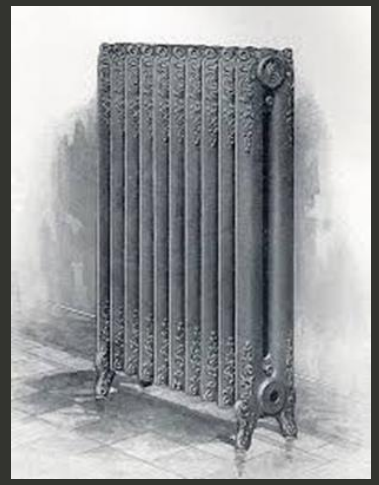
The heating **radiator** was invented by Franz San Galli in 1855, a Russian businessman living in St. Petersburg. In the late 1800s, companies, such as the American **Radiator** Company, promoted cast iron **radiators** over previous fabricated steel designs in order to lower costs and expand the market. Up to now the raw material and design of radiator changed a lot in order to maximize the efficiency but the main Idea that was getting thermal output from hot water is still same.

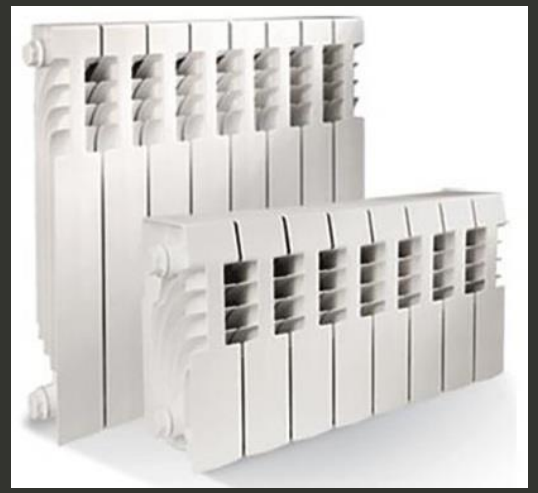
After **164** years , the radiator remains the most common heating system that is widely used around the world to heat up our houses and create comfort during the cold seasons.





# The time line of Radiator in (164 years)





# The reason of Development of Radiator

As the energy bills rise and governments set the rules to protect the environment , the manufacturer of radiators think about producing higher energy efficient products . So based on this reason they mostly use Aluminium as it could create special features .

Rising the price of Fuels and Energy

Caring and protecting Environment by saving energy and generate less pollution .

By using Aluminium Extruded radiators , users can save more energy , pay less for gas bills while they receive more heat .

# What are New Developed factors that maximize the efficiency of radiator ?

An ideal radiator is the one that Create highest Thermal out put while it consume less hot water , less energy and could have fast response time with lower weight.

LOW TEMPERATURE

LOW H2O

FAST RESPONSE

Lighter Weight

# Low Temperature

High Temperature System

Set the temperature of boiler
Between **55 to 65** °C

Low Temperature System

Set the temperature of boiler
Between **35 to 45**°C

Today , less energy is required compare to 80s because of the development of roof and wall insulations and using double glazed windows. So , the house stays warmer for longer giving the same comfort at lower temperatures . That's why low temperature radiators have been developed .

Aluminium extruded radiators are ideal ( as the low temperature radiator) because they warm up quickly and start the heat transfer in less than 2 minutes . In this case the heat supplier could be set at lower temperature . Aluminium radiators compare to Steel and Die cast radiators could generate convection flow quicker at lower temperature . They can work with maximum efficiency even if user set the temperature of boiler between 35 to 45 ° C .

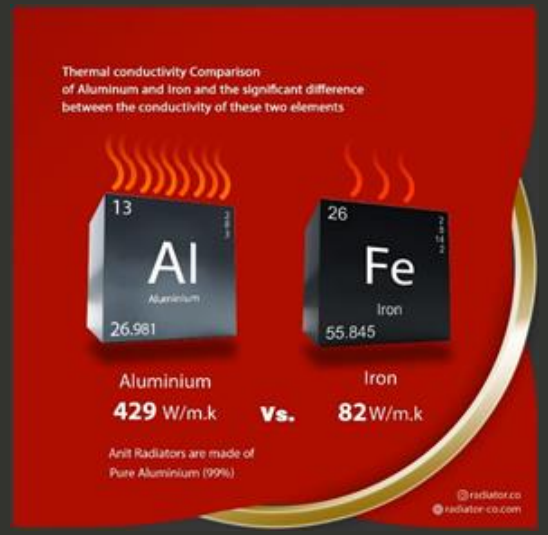
**Low temperature radiators consumes less energy while they generate same comfort .**

# Low H2O

**The recent studies prove that the low water content radiators with high rate of thermal out put could save energy .**

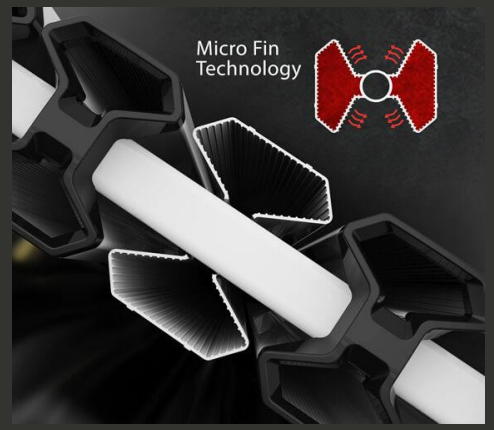

| Anit Radiator | Steel panel radiator |
|---|---|
| Thermal out put (kcal/hr) : 2226 | Thermal out put (kcal/hr) : 1680 |
| Water content : (litre) : 2 litre | Water content : (litre) : 6 litre |
| Stored heat : 100 watt | Stored heat : 700 watt |
| Thermal inertia : 3.88 Kcal/°C | Thermal inertia : 9.09 Kcal/°C |
| Fast response and consume less Energy | **Slow Response and consume more energy** |
| **The lower thermal inertia means that the radiator could warm up quicker and respond to the changes of temperature in shorter period of time .** | |
| **The response time of Anit is 3 times faster , it means that Anit warm up so quickly and react to the environment faster .** | |
| How many litters of hot water is needed ?   = **2226 kcal/hr** | **How many litters of hot water is needed ?**   **1680 kcal/hr** |

# Anit is ‘ fast response ‘ Radiator




## 1. Raw Material : Aluminium 6063
## 99.97 % Pure Aluminium

Higher thermal conductivity compare to steel panel and die casting radiators .



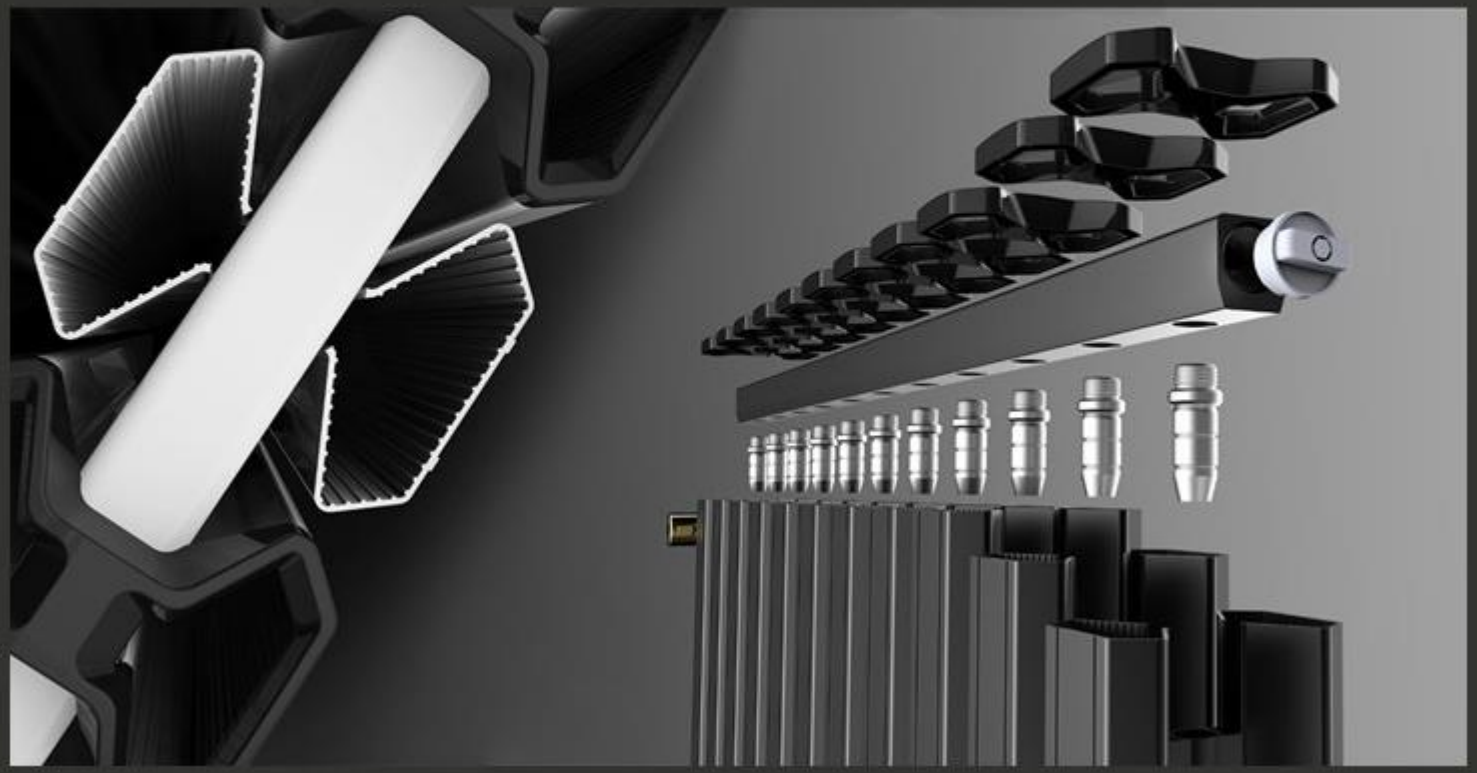

## 2. Micro fin Technology

More surface area

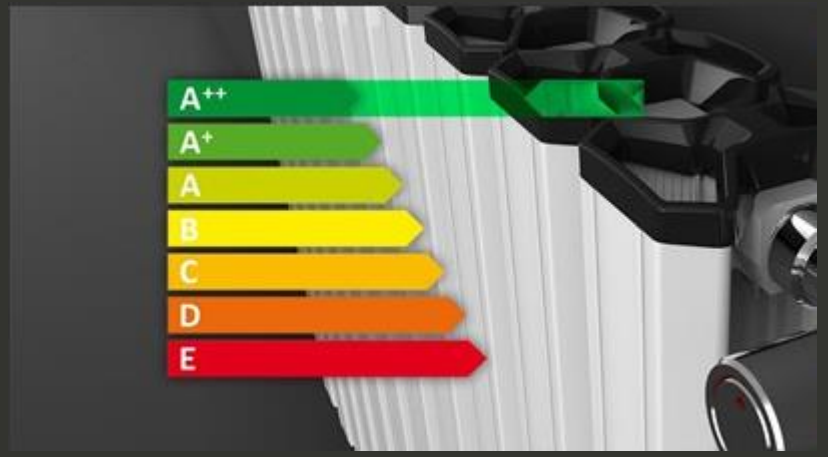
## 3. Tubular Column Design

More Convection Flow and create Chimney Effect

# Technologies

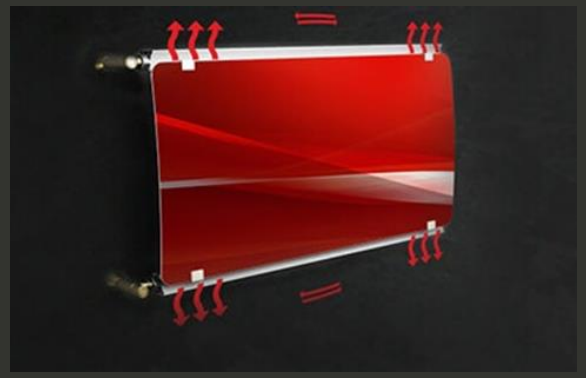
# 1. Energy Efficient Product. ‘’ More Heat ,Less Cost ‘’:




Anit has developed numerous outstanding technologies by helping and supporting its innovative engineers at the smart design studio in order to optimum the efficiency of radiators such as:

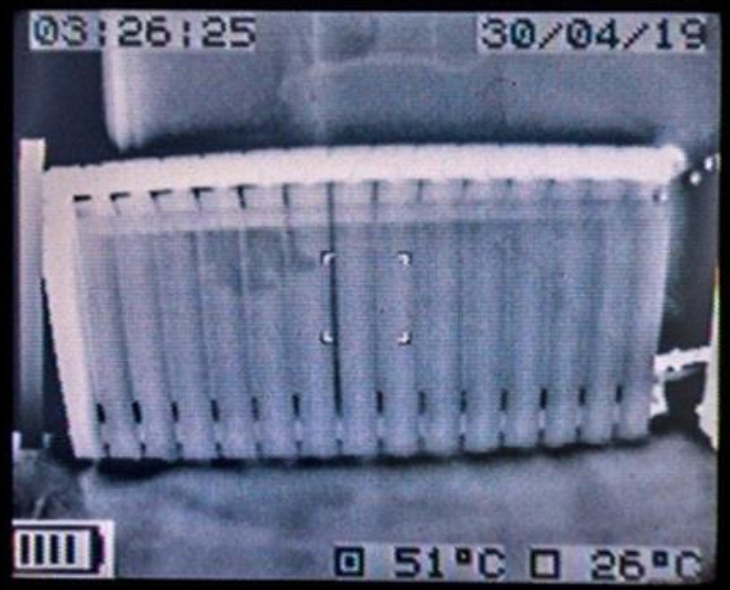
- Micro fin technology that could create more surface area of each panel.
- Closed section columns that could increase the speed of convection dramatically.
- Designing ‘’ Low water content ‘’ Radiator that needs less water to reach the desire temperature.
- Using 99% Aluminium row material that would have high heat conductivity.
- Higher performance from the same-sized radiator this means that Anit radiators require far less energy to heat up and boilers can operate at a lower flow temperature and/or with a lower water circulation rate, reducing both energy consumption and the possibility of ‘velocity noise’ .

# 2. Uniform Heating Technology:

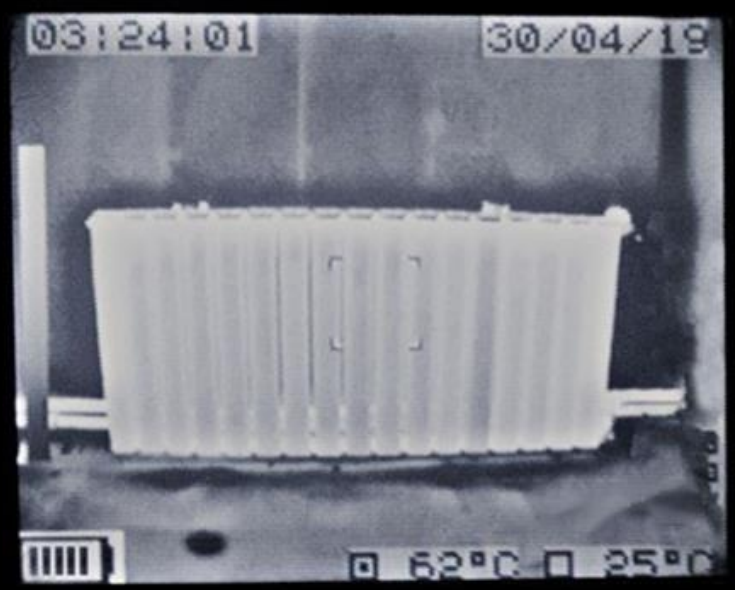


Having different temperature in the external body of radiator is one of the biggest problems in domestic radiators (especially those one with average and high water content) that could be caused by low water flow of heating system.  At Anit we have developed an innovative technology to create uniform heating through the whole body. The radiators produced by using this technology could have highest compatibility with thermostatic valves and the long width of radiator would not cause problem of dropping temperature any more.

# 2. Uniform Heating Technology:



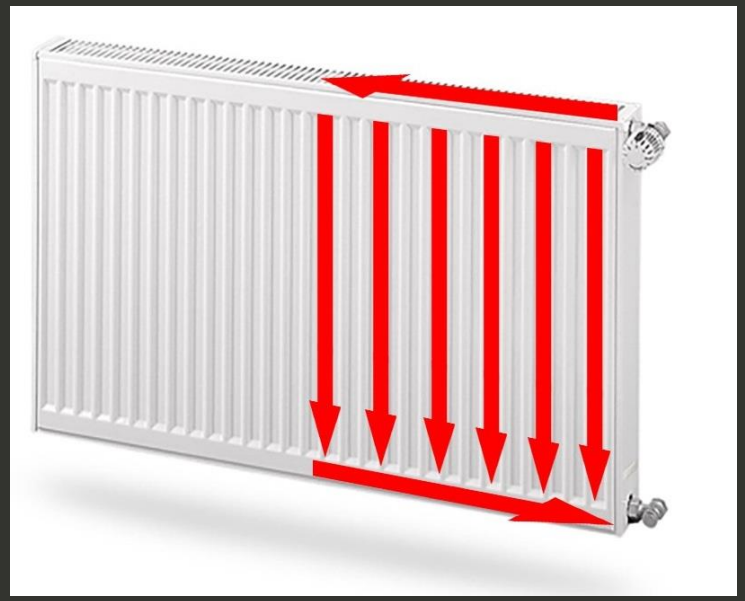

Die casting Radiator (italian Brand )

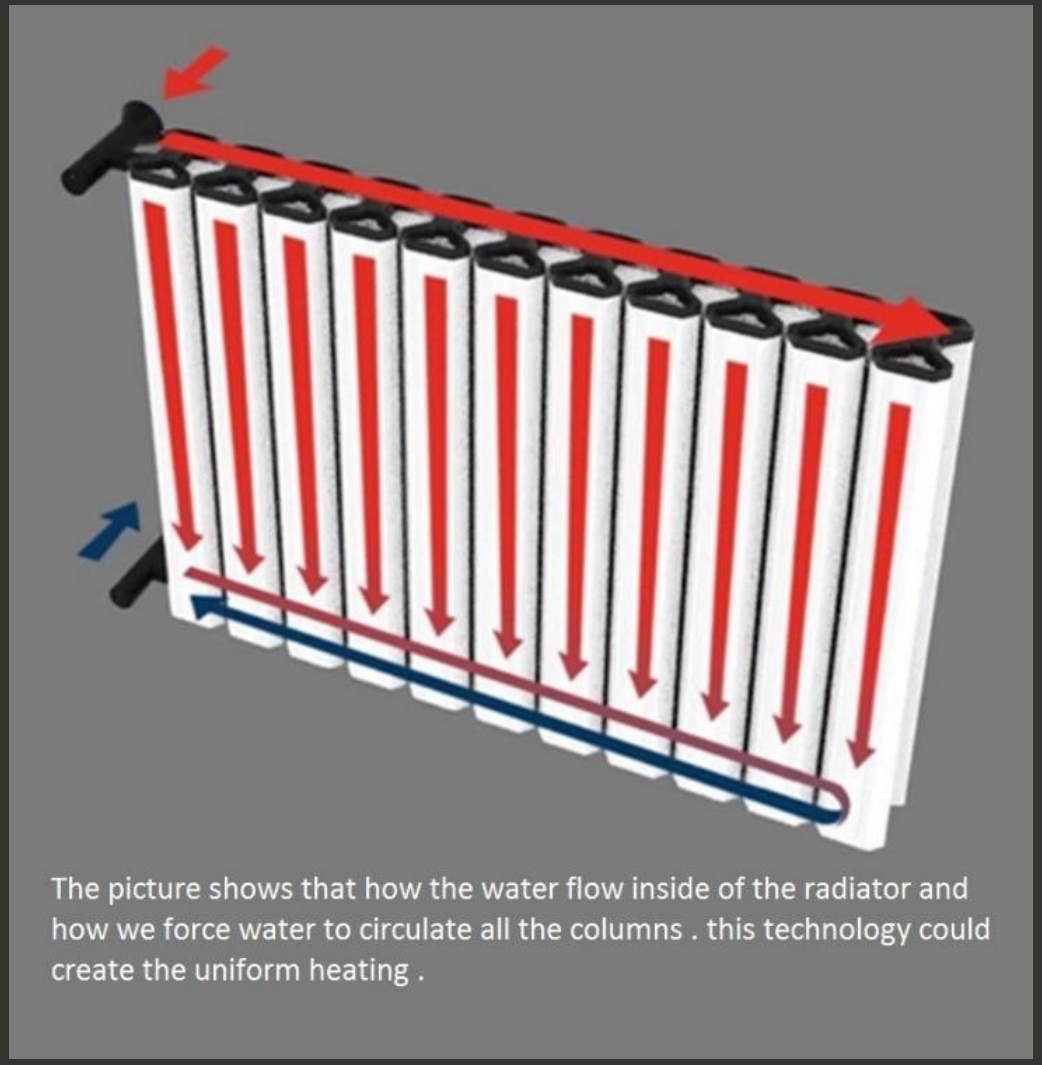



Anit Radiator

The comparison of heat out put between "Anit " and the die casting Italian brand . it is clearly shown that Anit generate uniform heat on overall surface and there is not any cold surface on the external body of the radiator .

# 2. Uniform Heating Technology:





The picture shows that how the water flow inside of the radiator and how we force water to circulate all the columns . this technology could create the uniform heating .

# 3. Anti-corrosion Technology :

Corrosion is the primary cause of malfunctions in heating systems. Also, Water as a precious fluid; can cause corrosion as it might contain wide PH range and other corrosive chemical composition. Furthermore, water can form Hydrogen gas in the conventional aluminium radiators and heating systems. To stop corrosion even before it starts Anit has developed a technology called internal coating system to protect the radiator water chamber and increase the life time of the radiators.

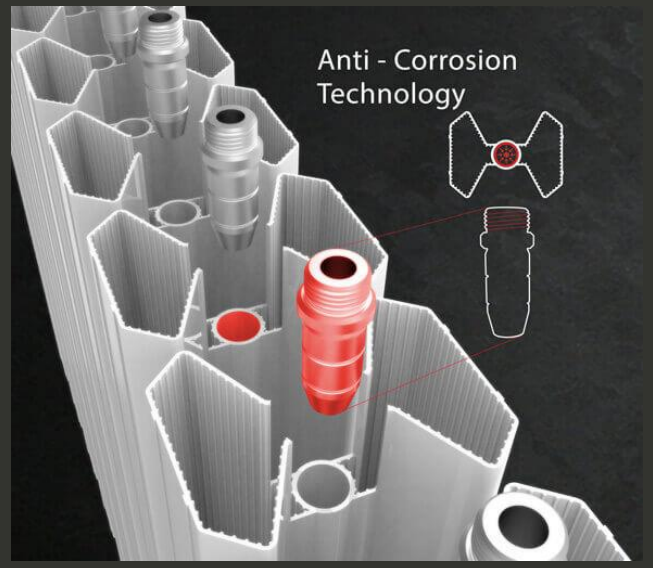
# 3. Anti-corrosion Technology :

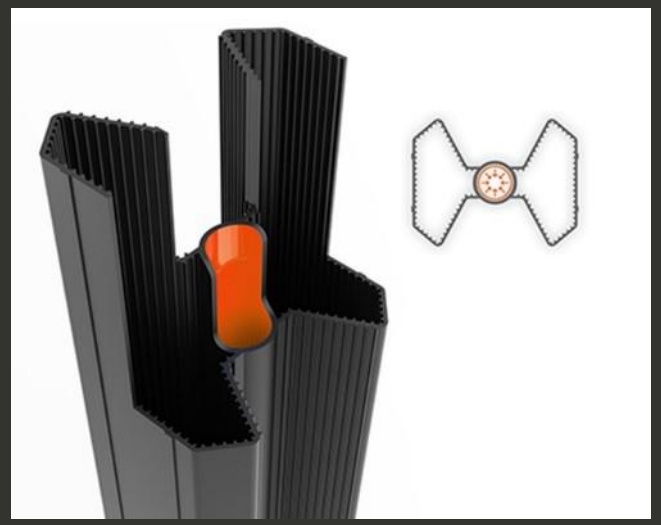

**The picture is taken from MCE milan exhibition that shows how corrosion created inside the steel panel radiators and how it could be hurtful for Boiler as well and could decrease the overall efficiency of heating system.**

# How we produce No Corrosion radiator :

At Final assembling section , all radiators filled with the special formula adhesive liquid ( that is combination of 2 epoxy and hardener material with high resistant property to corrosion ) .

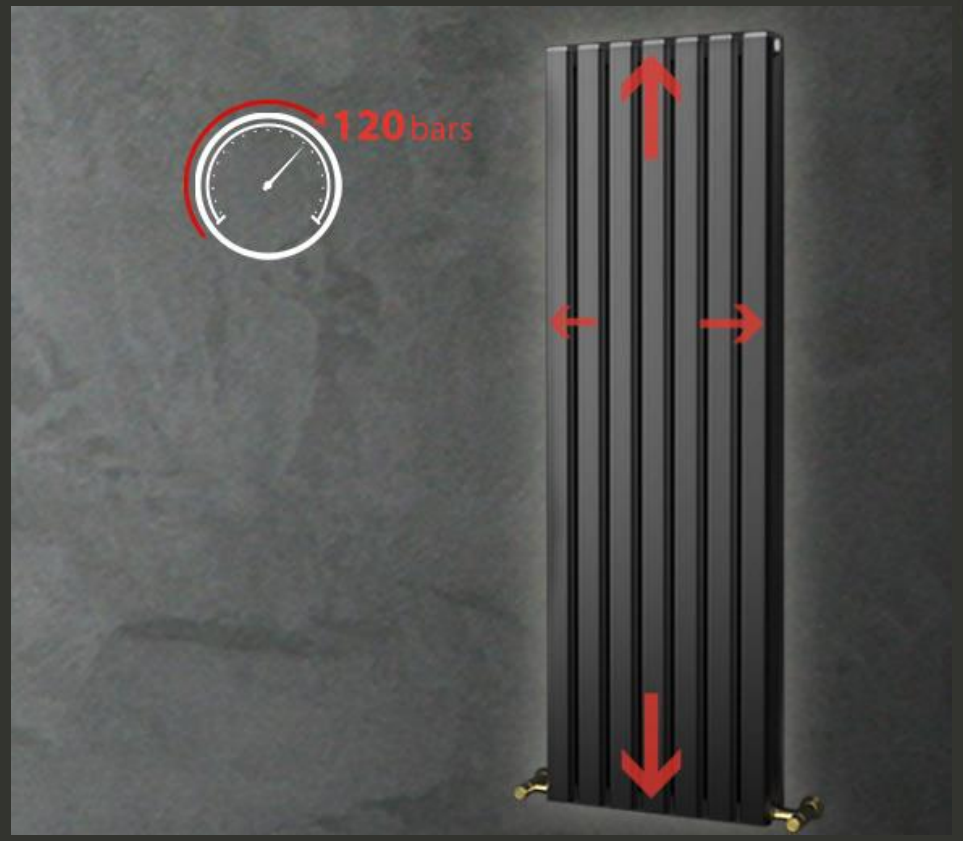
The liquid sprays inside the radiator and in different production sections it sticks to the internal surface of radiator and create a micro meter internal coating layer that has high resistance to corrosion.



# 4. High resistance to excess pressure up to 120 bar :

At Anit, we regard safety and quality to be every bit as important as performance. Accordingly, we apply the industry's most technically rigorous tests to our products. All of our radiators are produced and tested in line with BS EN 442 Standard Specification for radiators and convectors. However, to ensure they perform safely and reliably at all times, we set the standards as high as possible. Anit's radiators have high resistance to excess pressure up to 120 bar and each of them pass a pressure test of 14 bar to ensure that they will able to properly fulfil their long term function - some 40% higher than other European manufacturers.



# How we increase the Resistance to pressure ?

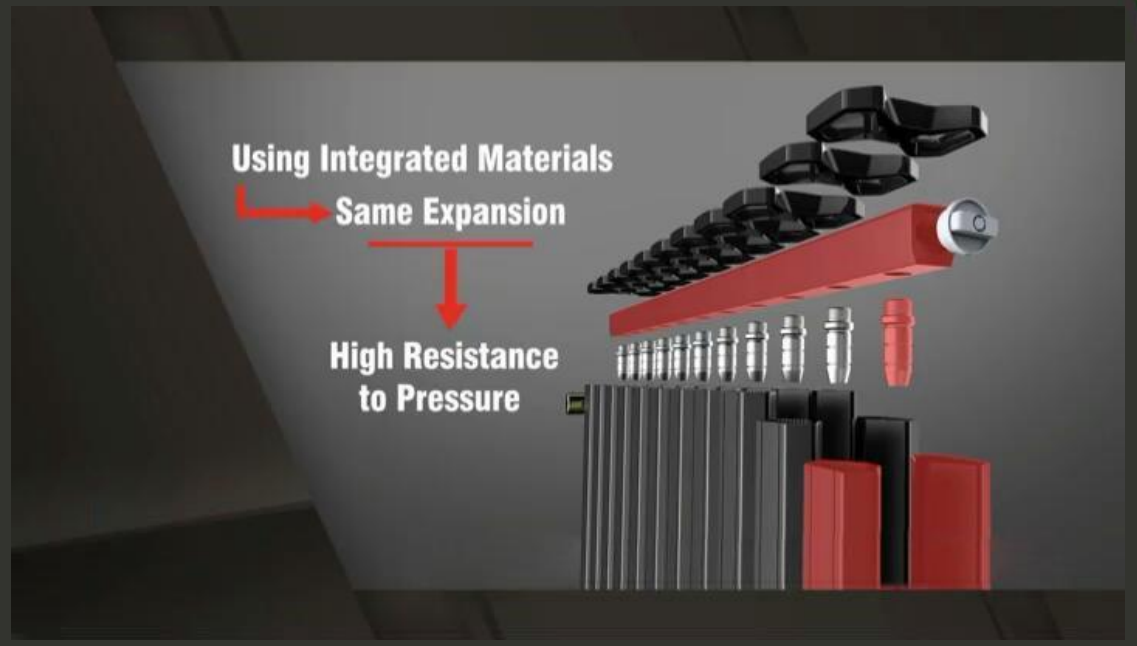
1. using high length CNC Fitting . (thread Sealing method)

2.Using pure aluminium with high strength property ( that increase the flexibility against applying high pressure )

3.Using friction welding Technology and high pressure press .

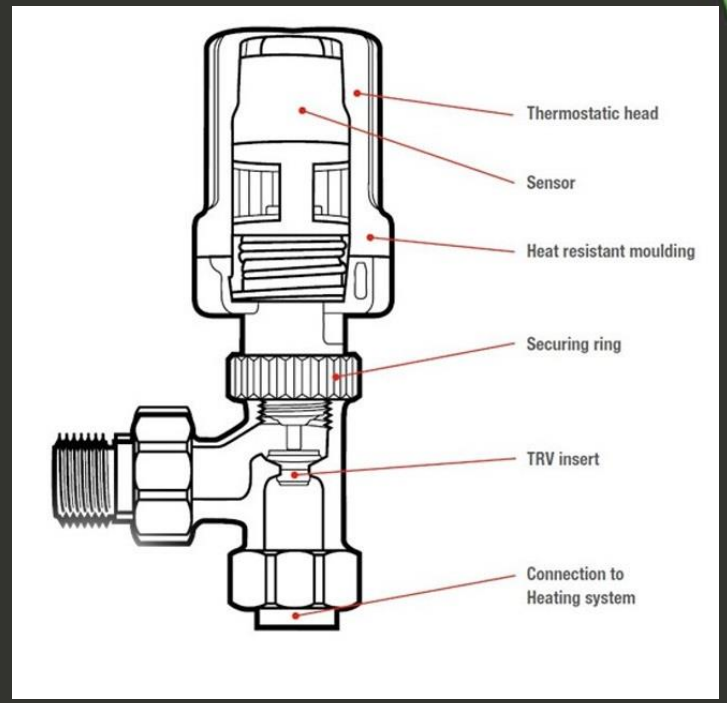
# How we increase the Resistance to pressure ?

In addition, using integrated materials in all sections such as collector, columns and fittings could increase the resistance to excess pressure. As all of sections made from pure aluminium, they have same coefficient of expansion and contraction and in this case there would not be leakage at different temperatures under high pressures.



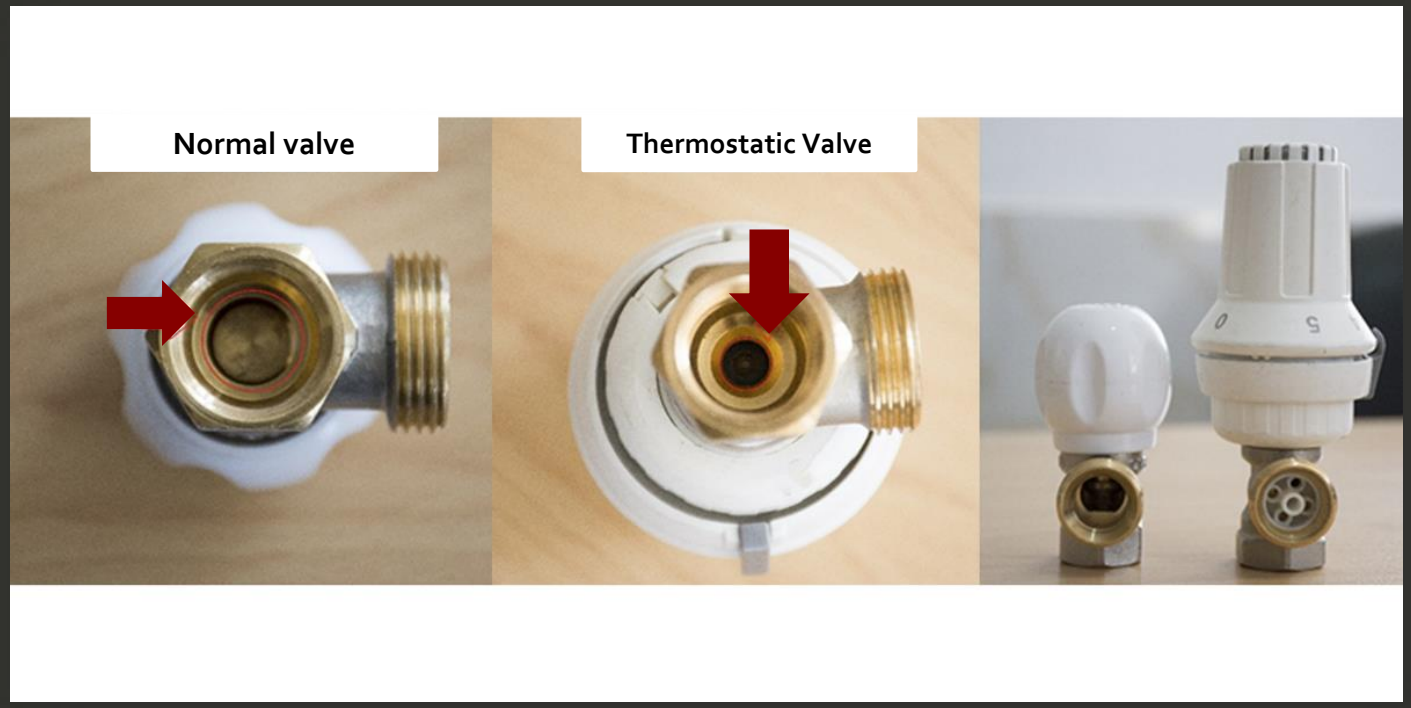
# 5. High compatibility with thermostatic valves

The thermostatic valves are widely used now to control the gas consumption, but one of the main conditions for using this technology is the compatibility rate of the radiators. The low rate of reaction time of steel and die cast radiators Reduces the efficiency of the thermostatic valves and it would not be beneficial to use them. Anit developed a technology at its research and development department to increase the reaction time of the radiator in order to maximize the efficiency of thermostatic valves. Fortunately, our products have the highest compatibility with the thermostatic valves



As it is shown on the picture below , the inlet section of thermostatic valves are 3 times smaller than normal valves , so based on this reason when the thermostatic valves install with the radiator the overall water flow dropped down . In this case if the width of radiator is high , the whole body of radiator does not warm integrally .

Because of getting advantage of Uniform Heating technology all of Anit Radiators work with 100 % compatibility with thermostatic valves .



# 6. Heating up the radiator with solar energy :

During modern times, we've become reliant on fossil fuels. This has allowed us to develop our cultures and economies tremendously, but has come at a steep price. Due to the side-effects of using fossil fuels, the use of solar energy has become important to mankind. Some of the reasons solar energy is important are

- Global energy demand is increasing
- Continued usage of fossil fuels is damaging our environment
- Solar energy is one of the most promising alternatives to fossil fuels
- Importance of Solar Energy to Homeowners

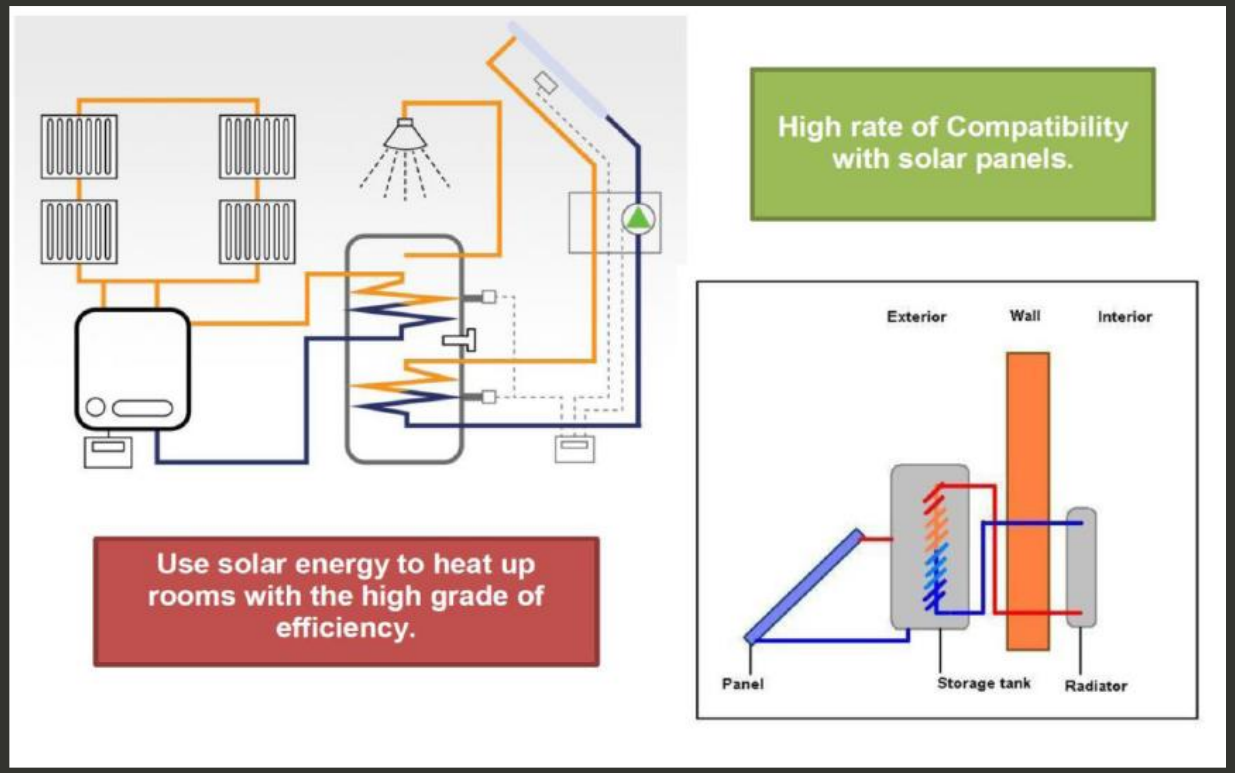
Then there are reasons why solar energy is important to homeowners as well. Some of these reasons are

- Having a positive impact on our environment
- Solar energy saves homeowners money now and in the future
- Allows homeowners to have energy independence

**At Anit we are producing products that have the most compatibility with the solar panels as well.**

Anit radiator has several features that made our product compatible to work with solar panels :

**1.Low Temperature radiator :** all Anit radiators could generate highest thermal out put even with low temperature input water .
2**. Fast Response radiator :** They respond quickly to the temperature
3. **Low H2O** : it means that Anit radiator generate maximum heat with small amount of hot water .



| No | Description of important functional factors | Anit Radiator | Die Casting Radiators | Steel Panel Radiators |
|---|---|---|---|---|
| 1 | **Energy Consumption Grade** | **A , A+** | **C** | **D** |
| 2 | **Internal Hydrogen Gas Formation** | **No** | Yes | Yes |
| 3 | **Internal coating Technology (anti-corrosive double layer Radiator)** | **Yes** | **No** | **No** |
| 4 | **Row Material And the influence on thermal conductivity and Final out put** | **Aluminium 6063** 99.97 % Pure Aluminium Highest rate of thermal conductivity and output. | **LM2** 70 % Aluminium Low thermal conductivity and less out put | **Metal Sheet** Low conductivity and less out put |
| 5 | **Compatibility with thermostatic valves** | **100 % efficiency** Because of the rapid reaction time. Achieving full radiator temperature 3 times faster than steel and die cast radiators. | **Low Efficiency** Slow reaction time. | **Low Efficiency** Slow reaction time. |
| 6 | **Uniform Heating Technology** | **Yes** | **No** | **No** |
| 7 | **Paint Quality** | **High stability of paint** Chromate paint pretreatment. | low stability of paint | Good stability of paint |
| 8 | **Leakage Testing Pressure** | **14** bars. | 6 bars. | 8 bars. |
| 9 | **Resistance to excess pressure** | **Yes** Up to **120** bars before leakage. | **No** Up to **10** bars before leakage | **No** Up to **12** bars before leakage |
| 10 | **Impact Resistance** ( Strength-to-weight ratio ) | High impact resistance. **(Very High ratio of strength to weight.)** | Low impact resistance. (Very low ratio of strength to weight.) | Good impact resistance. (Moderate ratio of strength to weight.) |
| 11 | **Recyclability** | 100 % Recyclable and environmental friendly. | Not 100 % Recyclable. | Not 100 % Recyclable. |
| 12 | **Water content (Thermal Output –to-Water content Ratio)** | Low water Content **(Very High ratio of Thermal Output –to-Water content.)** | High water content. **(Very low ratio of Thermal Output –to-Water content.)** | High water content. **(Very low ratio of Thermal Output –to-Water content.)** |
| 13 | **Total weight (for 1 meter) (Thermal Output- to- Weight Ratio)** | **12 kg (Very High ratio of Thermal Output –to-Weight.)** | 18 kg **(Very low ratio of Thermal Output –to-Weight.)** | 25 kg **(Very low ratio of Thermal Output –to-Weight.)** |
| 14 | **Micro Fin Technology** | **Yes** Increasing the surface area of the radiator | **No** | **No** |


Steel Panel Radiator

Die casting Aluminium radiator