Materials	Specific heat capacity (J*kg-1*K-1)	Materials	Specific heat capacity (J*kg-1*K-1)
Gold	129	Granite	800
Silver	240	Concrete	880
Brass	377	Alunimum	897
Copper	385	Dry Air	1005
Iron	444	Wood	1760
Diamond	502	Olive oil	2000
304 Stainless steel	510	Alcohol	2450
Graphite	720	Liquid water	4180

One can easily notice that the same power, whether 600 seconds are needed to heat one kilogram of water, it will take only 290S for oil, 145s for air, 73s for stainless steel, 55s for copper, and 18s for gold. The heat capacity is an extremely important parameter in the definition of a thermal system.

• OVERHEAT AND HEAT ACCUMULATION
Many heating systems accumulate heat before transmitting it to the environment.
This is especially the case with sheathed heating elements, where heating wires are coated with magnesia, and then covered with stainless steel tube. Before the stainless steel sheath begins to warm, the entire interior of the heating elements has heated up.
When the power is then turned off, the heat accumulated inside will continue to dissipate, and the temperature of the outer shell will continue to rise. A temperature control which regulate by measuring the temperature of the outer shell will be false.

7.2 WALL AND PIPE MOUNTING THERMOSTATS

These thermostats are intended to be mounted on walls. This covers bimetal disc thermostats, with or without bracket, and pipe formed models.
The following requirements must be respected:
• In the case of thermostats with a flat sensitive part, the mounting wall must be flat. In particular, if it is needed to measure the temperature of a small diameter tube, it is mandatory to weld or solder a heat conductive part made of copper or brass on the tube surface, with a flat surface on the side facing the thermostat.
• In the case of thermostats whose sensitive part is curved to match the shape of the wall (tanks, pipes): use thermal contact grease between the thermostat sensing face and the wall, insulate the thermostat body to limit the influence of the ambient temperature, have in mind that the whole thermostat must withstand the maximum or minimum temperature of the wall. Check if these temperatures are compatible.

7.3 AIR DUCTS THERMOSTATS

Thermostats must be installed in an area where there is good air circulation. Avoid corners, angles. The thermostat should be located close to the heating element (or cooling) to be quickly influenced by temperature changes. The extended bracket disc thermostats must be mounted on a wall that is not influenced by a temperature other than that of the air stream.
Attention to the use of bimetallic rod thermostats in air ducts: These devices generally have very fast response time to temperature changes, and some models are not suitable for use as safety device because they trigger too fast.

7.4 ROD THERMOSTATS

Rod thermostats should be mounted on fittings provided for this purpose. The rod cannot be bended, welded, soldered, and no external device must hinder the rod expansion.
The whole sensitive part of the rod must be immersed in the air or liquid that it must control.
Do not mount the thermostat on a stack of fittings and rod must be in an area representative of the temperature of the tank. Avoid areas without natural convection or no stirring.
Whatever the installation, the thermostat head must not exceed the maximum allowable temperature. In particular, when mounting thermostats on high temperature equipment, the head must be kept away from hot walls.
Use pockets adapted to the rod diameter, and do not hinder expansion movements. If you want to get accurate settings and low differential, put thermal grease between the pocket and the rod.

7.5 BULB AND CAPILLARY THERMOSTATS

The bulb and capillary thermostats are provided to measure the temperature with the bulb located inside the medium to control. However, the capillary and the rest of the diastat are influenced moderately by temperature. It is therefore important not to expose them to temperatures too high, and in particular never exceed the maximum allowable temperature of the thermostat head. Capillaries and in particular capillary junctions with bulb are fragile and care must be taken not to bend capillaries with a radius smaller than 5 mm, or near the bulb. Breakage or leak of the capillary after sharp bending voids any warranty on the equipment. Overheating bulbs or capillaries on liquid expansion models cause unwanted boiling of the liquid and the destruction of the thermostat. Cutting or drilling capillary or bulb destroys the mechanism, and the thermostat does not stop heating when the temperature rises, If this risk is important in your application, be sure to use failsafe thermostats.