

# CU2311 IMPROVEMENTS



When the radiator reaches its maximum operating temperature the core expands, and when it cools down, it retracts. It is that very action that will cause the radiator tube to either tear or crack with time, causing leaks. These shoulder screws allow the aluminum core to expand and retract freely, causing less constraint on the radiator tubes.



Tube inserts have been added to increase the strength of corner tubes therefore preventing tube tearing.



Oval-shaped gaskets have been implemented to optimize the sealing surface when gasket is compressed. Redesigned header groove and deeper tank lip cavity provides a stronger crimp and reduces tank flexing.



Thermal expansion affects the entire radiator core. However, not all components of this core expand and retract at the same speed or the same degree. For example, the side rails contain no coolant therefore are not as hot as the radiator tube itself. As a result of this, the radiator tube needs to expand a lot more than the side rail itself. Stress cuts were added to remove all stress on the radiator tubes.



**THE  
PREMIUM  
CHOICE**

**SPECTRA  
PREMIUM™**

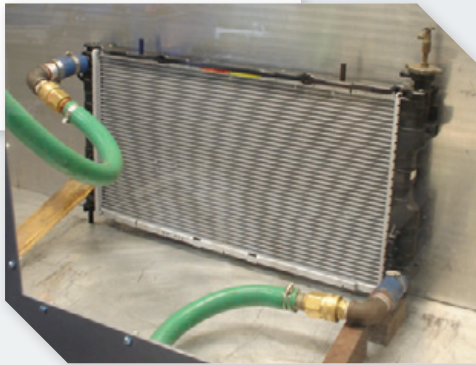
# CU2311

## VALIDATION PROCESS

### Thermal test process

- Hot coolant pressurized in radiator at 20 PSI FOR 1 min. AT 90°C
- Cooler coolant is pressurized in radiator at 20 psi for 1 min. AT 10°C
- This CYCLE is repeated 20,000 times

THERMAL  
CYCLE  
TESTER



### Maintain your cooling system!

Although our radiators are designed to withstand thermal expansion during normal operation, failure to replace your thermostat and radiator cap could lead to void manufacturers warranty!

Did you know that 90% of the time radiator caps and thermostats are never replaced during radiator replacement?



Below is a graph showing the coolant temperature variations on the radiator tube that were monitored at the constant speed of 100 Km / hour. The graph shows that the thermostat was opening and closing continuously every 35 seconds. A properly calibrated thermostat will remain opened during normal engine operation. This continuous cycle of opening and closing from the thermostat is causing sudden temperature drops of 60 degrees or more which leads to severe thermal shock to the radiator. No radiator can withstand such thermal shock without premature failures and will lead to tube to header leaks as shown in the thermal test results.

Radiator caps with time lose their sealing ability therefore affecting the boiling point of the engine coolant and cause severe damage to the radiator and engine.

When replacing your radiator, be sure to replace your thermostat, radiator cap and be sure to flush and refill your system with new coolant.

### Spectra result versus an oem sample:

- Spectra 20,093\* cycles
- OEM failed at 12,616 cycles

\*Testing was stopped at 20,093 without any failures

THERMAL  
TEST  
RESULT

