Cooling Water Requirements

Specifications on the Web

The specifications for cooling water are subject to change. For the latest specifications, go to the WTC Web site: **http://www.weldtechcorp.com/documentation/index.html**.

Cooling Water Specifications

The cooling water provided must comply with chemical and physical specifications as stated in the Resistance Welder Manufacturers' Association ***Bulletin 5–005.05***:

- Maximum temperature not to exceed 104° F. (40° C.), or fall below the dew point of ambient air at about 70° F. (21° C.).
- Maximum pressure not to exceed 90 PSIG
- pH maintained between 7.0 and 8.0
- Maximum chloride content 20 parts per million (PPM)
- Maximum nitrate content 10 PPM
- Maximum sulfate content 100 PPM
- Maximum suspended solids content 100 PPM, non-abrasive
- Maximum total (suspended and dissolved) solids content 250 PPM
- Maximum calcium carbonate content 250 PPM
- Resistivity less than 2,000 ohms/cm at 25° C. (500 μS)
- The hose used must be NO LESS THAN 18 in. long across the power voltages.

NOTE: *Water that is safe for drinking is generally sufficient for cooling water, provided it is filtered to eliminate sand and rust particles. In addition, water temperature must* NOT *fall more than 2° C. below the temperature of the surrounding air.*

Water Flow Rate

In general, the SCRs require a MINIMUM flow rate of 0.5 gallon (2 liters) per minute. The recommended maximum is 1.0 gal (4 l.) per minute. Larger SCRs (2,100 A. or greater) may require a higher flow rate. Consult WTC for more information.

SCRs with Hose Running Between Tangs at 480 VAC.

The following warning applies ONLY to SCRs which have the water cooling hose running between tangs at 480 VAC (non-isolated).

WARNING!

REMOVE POWER from the SCR if the cooling water is not flowing and the resistivity of the water is less than 2,000 ohms/cm @ 25° C, or conductivity is greater than 500 μSiemens @ 25° C.

If water circulation (in hosing between tangs) stops or is interrupted while the power is on, leakage current through the water in the hose between the SCR tangs will cause gas bubbles to form. Current will arc across these voids, weakening or destroying the hose. Putting the water into circulation again develops pressure in the cooling circuit, consequently causing the hose to rupture. ***Therefore, WTC does* NOT *recommend the use of water savers with these SCRs.***

When magnetic contactors are used, they remove power from the SCR module and prevent destruction of the hose. If cooling manifolds are used (rather than hose), leakage current in the water can cause the same destructive action to occur while power is being applied. This can destroy the cement holding the manifold together, resulting in serious water leaks. (WTC's warranty specifically EXCLUDES such failures.)

Hoses

If a cooling hose (for non-isolated SCRs) needs replacing, use a certified non-electrically conductive hose. Its inside diameter must NOT exceed 3/8". The hose between SCR tangs must be *at least* 18 inches long across the power voltages, where the SCR tangs are directly cooled.