

Tube of the Month

5923

As glass tubes became more powerful, the largest that used air cooling could only dissipate about 2500 watts. External anode tubes, cooled with forced air, were eventually made as large as 50,000 watts dissipation but this wasn't until the 1960's. These tubes were two man lifts. In the 1920's, companies started developing water cooled tubes to make them more efficient. If a tube is made with its anode forming a closed cylinder that can be inserted into circulating water, then for every square centimeter of submerged anode, a KW of dissipation is possible.

The 5923 or TBW6/6000 is one of the smaller water cooled tubes in current use as a RF amplifier or as an oscillator in industrial heating applications. A special water jacket with spiral flutes on the inside, screws over the anode to make a water tight seal. Water is pumped into the jacket using plastic tubing. The jacket becomes the anode connection and is usually mounted below the grid and filament connections to prevent damage if there is a leak. Distilled water is used as the minerals in tap water lead to electrolysis which will cause restrictions in the coolant passages. The 5923 only weighs 1 pound, is 7 inches long and has a dissipation of 6 KW.

The designation TBW6/6000 is often used in Europe where the system was developed by Phillips before 1935. The "T" indicates that it is a triode, the "B" indicates that it has a thoriated tungsten filament, the "W" is for water cooling, the "6" is for kilovolts on the anode and the "6000" is the conservative output power.

The second example shows a newer ceramic version with water jacket and filament hardware.

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