The Svetlana™ 4CW10,000A/8661 is a liquid cooled ceramic metal tetrode designed for audio and radio frequency applications. It is particularly well-suited for modulator and linear amplifier use. The Svetlana 4CW10,000A/8661 has a directly-heated thoriated tungsten mesh filament for mechanical ruggedness. This modern mesh filament design is superior to the old hairpin design of the 1950’s. In some applications, the input circuit may need minor tuning to use the Svetlana 4CW10,000A/8661 as a replacement because of the low inductance of the Svetlana mesh filament.

The Svetlana 4CW10,000A/8661 is manufactured in the Svetlana factory in St. Petersburg, Russia, and is designed to be a direct replacement for the 4CW10,000A/8661 manufactured in the United States, England and elsewhere.
Svetlana 4CW10,000A/8661
Radial Beam Power Tetrode

Oscillator, RF Power Amplifier or Grid Driven, Class C FM Telephony - Carrier Conditions

Absolute maximum ratings at 110MHz at 30MHz

- DC plate voltage: 6500 V, 7500 V
- DC screen voltage: 1500 V, 1500 V
- DC plate current: 2.6 A, 3.0 A
- Plate dissipation: 10.0 kW, 10.0 kW
- Screen dissipation: 250 W, 250 W
- Grid dissipation: 75 W, 75 W

Typical Operation at 30MHz

- DC plate voltage: 7500 V
- DC screen voltage: 1500 V
- DC grid bias voltage: -350 V
- DC plate current: 2.8 A
- DC screen current*: 6.5 A
- DC grid current*: 0.25 A
- Peak rf grid voltage*: 590 V
- Grid driving power: 150 W
- Plate dissipation: 5.0 kW
- Plate output power: 16.0 kW

RF Linear Amplifier, Grid Driven, Class AB1

Absolute Maximum Ratings

- DC plate voltage: 7500 V
- DC screen voltage: 1500 V
- DC plate current: 4.0 A
- Plate dissipation: 12,000 W
- Screen dissipation: 250 W
- Grid dissipation: 75 W

Typical Operation (Frequencies at 30 MHz)

- DC plate voltage: 7500 V
- DC screen voltage: 1500 V
- DC grid voltage**: -340 V
- Zero-signal DC plate current: 0.5 A
- Single-tone DC plate current: 3.3 A
- Single-tone DC screen current*: 0.125 A
- Peak RF grid voltage*: 320 V
- Plate dissipation: 9050 W
- Single-tone plate output power: 15.95 kW

NOTES:

1. Since power dissipated by the filaments represented about 560 watts and grid plus screen dissipation can represent another 325 watts, an extra 900 watts has been added to plate dissipation in preparing tabulation.
2. Maximum outlet-water temperature must never exceed 70°C and inlet-water pressure should be limited to 50 psi.

Minimum Cooling Water Requirement

<table>
<thead>
<tr>
<th>Plate Dissipation (kw)</th>
<th>Quantity (gpm)</th>
<th>Pressure Drop (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4.0</td>
<td>2.2</td>
</tr>
<tr>
<td>8</td>
<td>5.1</td>
<td>3.1</td>
</tr>
<tr>
<td>10</td>
<td>6.3</td>
<td>4.3</td>
</tr>
<tr>
<td>12</td>
<td>7.4</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Minimum Cooling Requirements

Cooling of the base may be accomplished by directing approximately 30 CFM of air through the socket and over the filament and grid seals. Anode cooling is accomplished by circulating water through the integral water jacket as listed in the table below for several dissipation levels.

NOTES:

1. Since power dissipated by the filaments represented about 560 watts and grid plus screen dissipation can represent another 325 watts, an extra 900 watts has been added to plate dissipation in preparing tabulation.
2. Maximum outlet-water temperature must never exceed 70°C and inlet-water pressure should be limited to 50 psi.

Graphs showing Typical Constant Current Characteristics for different values of plate and grid voltages and currents.