

NT86 / CV1248 - RDF 'Silica' Transmitting Triode



Since the early 1920s the British had developed a unique technology for transmitting tubes, the so called silica valves. The envelope of these tubes was made of silica with good resistance to high temperature, softening at about 1.000°C, and transparent to infrared. In the silica valves the anode of woven molybdenum ribbon was mounted close to the inner wall of the bulb wall. In operation it could reach white heat, dissipating efficiently by radiation. Silica was also mechanically stronger than glass, so that it could better withstand shock and vibrations. Furthermore it was preferred to glass for its lower dielectric constant and higher resistivity.

The cost of hand-made silica valves was much higher than that of other transmitting tubes but they could be easily repaired in case of failures.

The NT86 was a silica power triode was introduced in 1939 to operate in the output stage of high-power RDF transmitters. Its three thick hairpin filaments, parallel wired out of the silica envelope, granted 90 A total emission. The short electrode structure granted operation up and above 100 MHz. A couple of NT86s in the 3-m (100 MHz) Type 281 Naval set generated 1 MW output pulses.

All silica valves were hand made, their codes being written on the envelope using silica rods melted by a torch.

- **Filament** **10 V at 100 A**
- **Emission** **90 A**
- **Anode voltage** **50 kV**
- **Anode power** **2 kW**
- **Ampl. factor** **11**
- **Mutual conduct.** **10 mA/V**
- **Body diameter** **100 mm**