



## TH 515 TRIODE

The TH 515 is a transmitting vapor-cooled triode for pulsed R F amplification at frequencies up to 200 MHz.

TH 515 is able to deliver 5 MW peak useful power and 50 kW average output power (1).

The cathode is especially designed to withstand the heavy current rating implied by this application.

Due to its concentric electrode terminals, this tube may be used in coaxial or cavity resonators. The anode fitted with special radiator and jacket\* can dissipate 65 kW. Corresponding energy may be transferred to a secondary circuit at a temperature near 100°C.



## GENERAL CHARACTERISTICS

### Electrical

|                                                 |                    |       |
|-------------------------------------------------|--------------------|-------|
| Type of cathode .....                           | thoriated tungsten |       |
| Heating .....                                   | direct             |       |
| Heater voltages (2) (3) .....                   | 20                 | V     |
| Heater current, approximate .....               | 500                | A     |
| Maximum surge current .....                     | 1000               | A     |
| Interelectrodes capacitances, approximate       |                    |       |
| - Cathode - grid .....                          | 150                | pF    |
| - Grid - anode .....                            | 55                 | pF    |
| - Cathode - anode .....                         | 2                  | pF    |
| Amplification factor (average) .....            | 50                 |       |
| Transconductance (I <sub>a</sub> = 100 A) ..... | 170000             | µmhos |

(1) - Ask for information in any specific application.

(2) - Heater voltage must be applied in two times before application of other voltages

- half voltage (10 V) during 1 minute
- nominal voltage (20 V) during 1 minute

(3) - It is advisable, if allowed by the working rate, to reduce heater voltage, in the order of 10% during rest periods, so as to improve tube life.

\* Patented devices.



## Mechanical

|                                               |                        |          |
|-----------------------------------------------|------------------------|----------|
| Mounting position .....                       | vertical, anode upside |          |
| Anode cooling .....                           | vaporization of water  |          |
| Envelope and terminals maximum temperature .. | 150°                   | C        |
| Envelope and terminals cooling (4) .....      | forced air             |          |
| Grid and heater terminals cooling :           |                        |          |
| - Minimum air flow .....                      | 2                      | m3/mn    |
| - Corresponding inlet pressure .....          | 35                     | millibar |
| Envelope cooling :                            |                        |          |
| - Minimum air flow .....                      | 8                      | m3/mn    |
| - Corresponding inlet pressure .....          | 6                      | millibar |
| Net weight, approximate .....                 | 35                     | kg       |
| Dimensions .....                              | see drawing            |          |

## Maximum ratings

|                             |        |    |
|-----------------------------|--------|----|
| DC anode voltage .....      | 40     | kV |
| DC grid bias voltage .....  | -1 500 | V  |
| Peak cathode current .....  | 1 000  | A  |
| Anode dissipation (5) ..... | 65     | kW |
| Grid dissipation .....      | 1.5    | kW |
| Peak output power .....     | 5      | MW |

## Typical operation

|                                           |          |     |
|-------------------------------------------|----------|-----|
| Classe B - Pulsed R F power amplifier     |          |     |
| Integration time .....                    | 200      | µs  |
| Duty factor .....                         | 2/10 000 |     |
| Frequency .....                           | 200      | MHz |
| DC anode voltage .....                    | 37       | kV  |
| DC grid bias voltage, approximate .....   | -650     | V   |
| Average anode current during pulses ..... | 200      | A   |
| Peak driving power .....                  | 0.7      | MW  |
| Anode peak applied power .....            | 7.4      | MW  |
| Average anode dissipation .....           | 0.7      | kW  |
| Peak output power .....                   | 4        | MW  |

(4) - Air flow shall be on before application of heater voltage. It must be maintained during 10 minutes at least after heater voltage has been switched off.

(5) - Without taking heater power into account.



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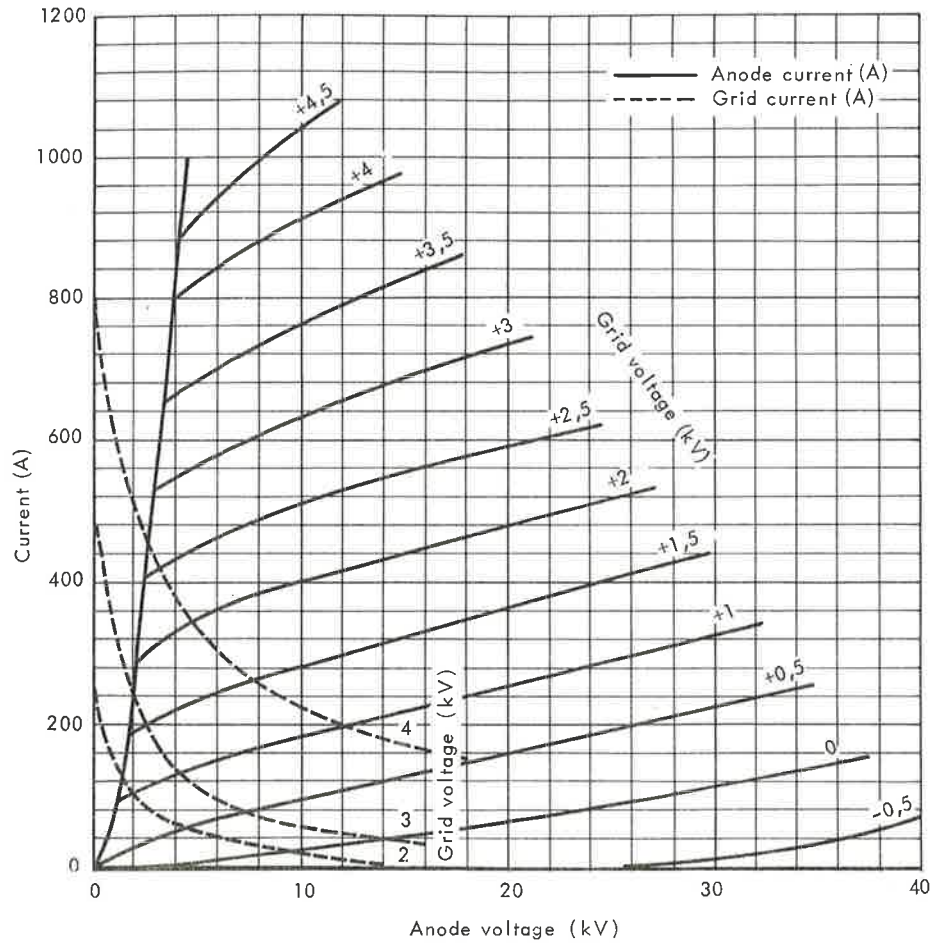
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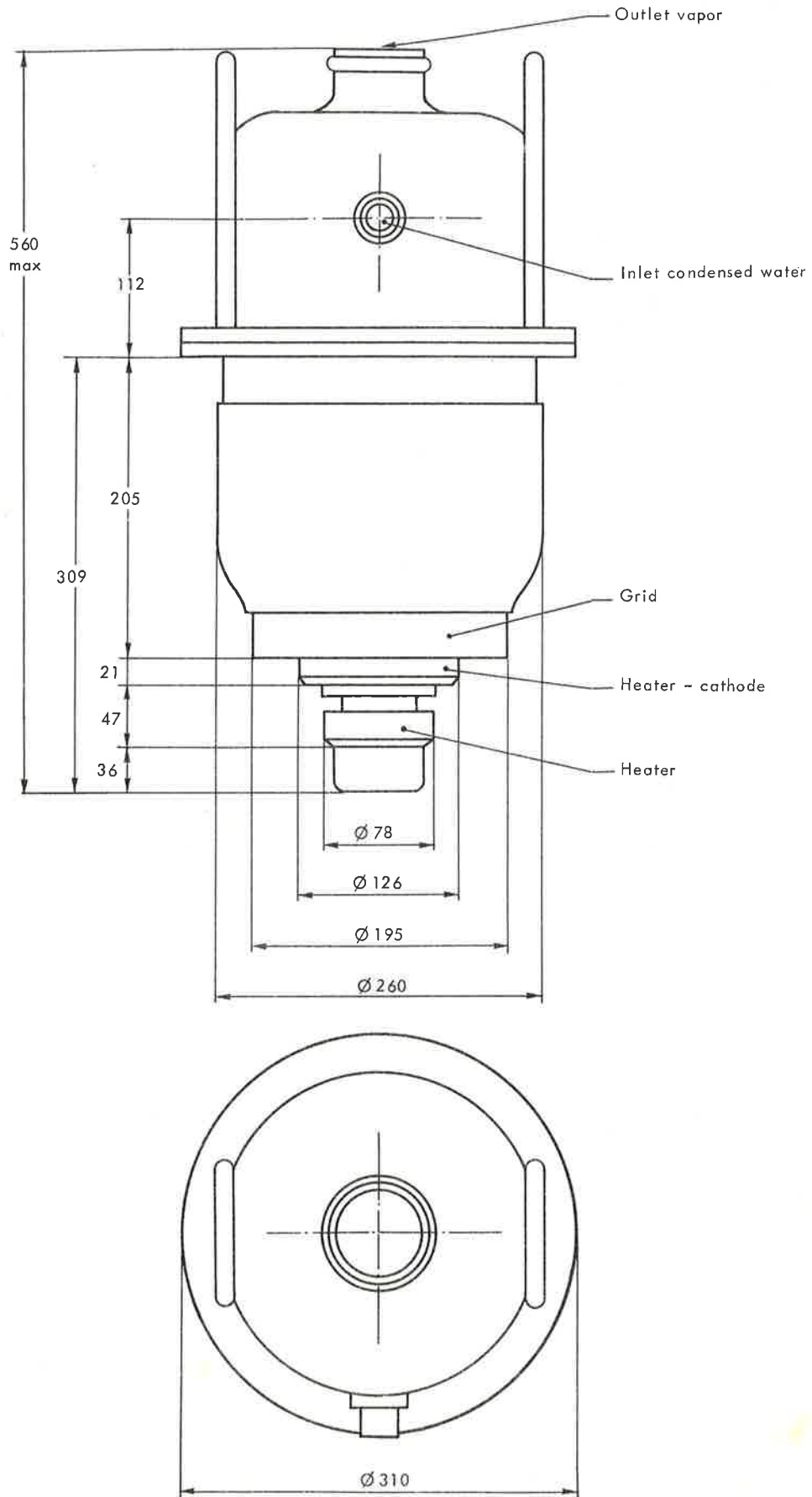
### CURRENT CHARACTERISTICS



# TH 515



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Dimensions in mm.

