



Triode Type ACT 29

(HF POWER AMPLIFIER AND OSCILLATOR)

General. An air-cooled transmitting triode fitted with a thoriated tungsten filament, suitable for use at frequencies up to 80 Mc/s. It is designed for use in communications or RF heating equipments.

Cooling. The temperature measured on the outer surface of the radiator must not exceed 150°C.

When the anode dissipation exceeds 1,000 watts or the air circulation around the valve is restricted, forced air cooling is required in order to keep the anode radiator temperature within the specified maximum.

When the anode dissipation is 1,000 watts or less convection cooling is generally adequate providing there is at least 12 in. free clearance all round the valve and the air circulation is unrestricted.

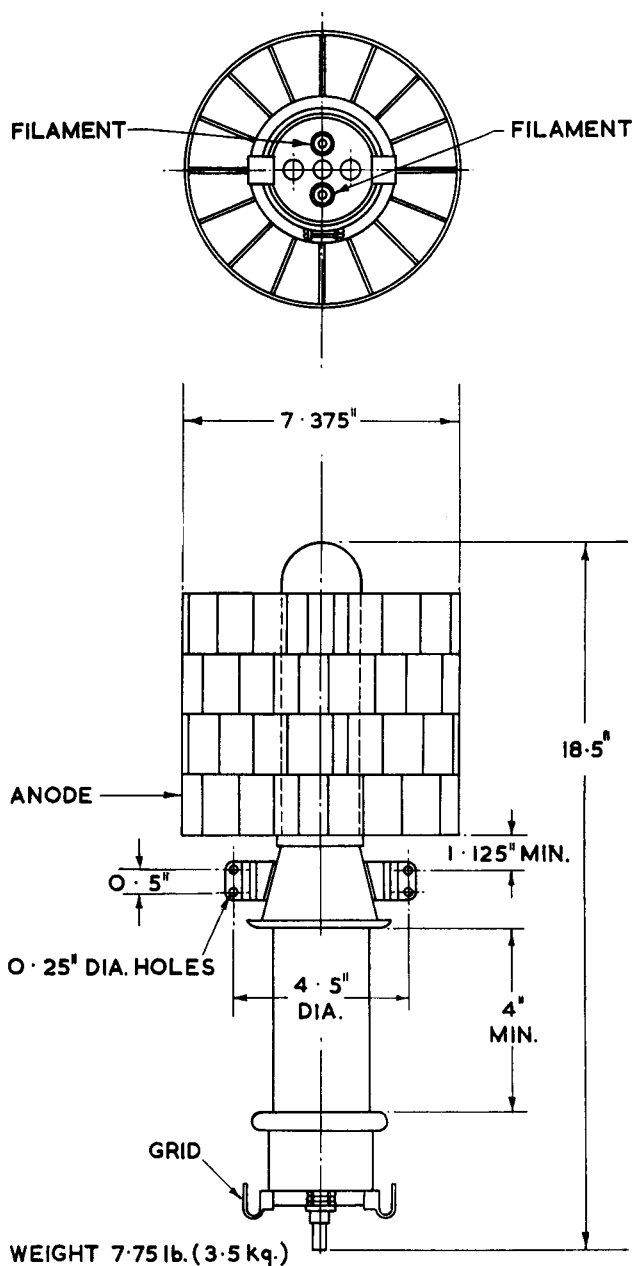
Mounting. The valve must be mounted vertically with the anode uppermost and may be conveniently supported by its radiator.

Storage. It is recommended that a valve in storage should be run under operating conditions for at least 2 hours in each period of 6 months.

Whenever a new valve or a valve which has been idle for more than 2 months is put into service it should be conditioned by operating for 1 hour at half the normal anode voltage and current. The anode voltage should then be increased slowly to the normal value. During this process a resistance of at least 25 ohms should be connected into the anode supply lead, in order to limit the surge current in the event of a flash-over inside the valve.

Standby Conditions with no anode current. If the valve is operated for periods greater than 15 minutes without anode current flowing the filament voltage should be reduced to one half the normal value during the standby period.

HT Switching. It is not permissible to apply directly HT voltage in excess of 7 kV. When the valve is to be operated at a higher voltage the HT should be gradually increased from a low value.



MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

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APPROXIMATE DATA

| | | | |
|------------------|---|--------|----------|
| V_f | 8.5 | V | |
| I_f | 20 | A | |
| $V_{a(max)}$ | 10 | kV | |
| $P_{a(max)}$ | (convection cooling) 1 | kW | |
| | (forced air cooling) 1.25 | kW | |
| $P_{g(max)}$ | 80 | W | |
| $I_{k(pk(max))}$ | 5 | A | |
| $I_{g(rf)(max)}$ | 14 | A | |
| $f_{(max)}$ | (at max. rating) 15 | Mc/s | |
| | (at reduced rating) 80 | Mc/s | |
| μ | } taken at V_a 5 kV, I_a 0.2 A { | 40 | - |
| r_a | | 12,900 | Ω |
| g_m | | 3.1 | mA/V |
| C_{g-f} | | 23.2 | pF |
| C_{a-f} | 1.6 | pF | |
| C_{g-a} | 15.9 | pF | |

Operating Conditions

(1) HF POWER AMPLIFIER AND OSCILLATOR, CLASS C TELEGRAPHY

*(Unmodulated key-down conditions, per valve.)
Maximum permissible conditions.*

| | | |
|----------|---------------------------|----|
| V_a | 10 | kV |
| V_g | -1000 | V |
| P_a | (convection cooling) 1000 | W |
| | (forced air cooling) 1250 | W |
| P_{g1} | 80 | W |

Typical operation

| | | | |
|--------------|--------|-------|----------|
| V_a | 10 | 7.5 | kV |
| V_{g1} | -460 | -450 | V |
| $V_{g1(pk)}$ | 810 | 900 | V |
| I_a | 500 | 600 | mA |
| $I_{g1(a)}$ | 40 | 60 | mA |
| Z_a | 10,000 | 6,100 | Ω |
| $P_{dr(a)}$ | 35 | 60 | W |
| P_a | 1000 | 1000 | W |
| P_{out} | 4 | 3.5 | kW |

(2) RF POWER AMPLIFIER, CLASS C ANODE MODULATED

(Carrier conditions per valve.)

Maximum permissible conditions.

| | | |
|----------|--------------------------|----|
| V_a | 8 | kV |
| V_{g1} | -1000 | V |
| P_a | (convection cooling) 650 | W |
| | (forced air cooling) 825 | W |
| P_{g1} | 80 | W |
| mod. | 100 | % |

Typical operation

| | | |
|--------------|------|------------|
| V_a | 8 | kV |
| V_{g1} | -470 | V |
| $V_{g1(pk)}$ | 700 | V |
| I_a | 280 | mA |
| $I_{g1(a)}$ | 20 | mA |
| Z_a | 13 | k Ω |
| $P_{dr(a)}$ | 20 | W |
| P_a | 640 | W |
| P_{out} | 1.6 | kW |

NOTE

The figures quoted are only applicable when operating at frequencies up to 15 Mc/s. At higher frequencies the anode voltage must be reduced to the following table:

| | | | | |
|----------------|-----|----|----|----|
| f (Mc/s) | 15 | 25 | 50 | 80 |
| $\%V_{a(max)}$ | 100 | 75 | 45 | 25 |

(a) Subject to wide variation.

