

# FERRANTI

## HIGH VOLTAGE REGULAR CONTROL TRIODE

A low current triode with an indirectly heated cathode. It has been specially designed for use as a control valve in voltage regulators for high voltage, low current, DC. power supplies. The envelope is silicone coated to render it moisture repellent.

### PHYSICAL DETAILS.

|                     |     |     |                                 |
|---------------------|-----|-----|---------------------------------|
| Base                | ... | ... | International Octal.            |
| Top Cap             | ... | ... | Skirted Miniature.              |
| Max. Overall Length | ... | ... | 129 mm.                         |
| Max. Seated Height  | ... | ... | 115 mm.                         |
| Max. Diameter       | ... | ... | 33 mm.                          |
| Mounting Position   | ... | ... | Any.                            |
| Envelope            | ... | ... | Silicone coated<br>clear glass. |

### HEATER.

|                |     |     |            |
|----------------|-----|-----|------------|
| Heater Voltage | ... | ... | 4.0 volts. |
| Heater Current | ... | ... | 0.9 amp.   |

### RATINGS (Absolute).

|                                   |     |             |
|-----------------------------------|-----|-------------|
| Max. Anode Voltage                | ... | 25 kV.      |
| Max. Peak Anode Current           | ... | 5 mA.       |
| Max. Mean Anode Dissipation       | ... | 4 watts.    |
| Max. Anode Direct Current         | ... | 0.75 mA.    |
| *Max. Peak Heater Cathode Voltage | ... | 150 volts.  |
| Max. Negative Grid Voltage        | ... | 200 volts.  |
| Max. Grid Circuit Resistance      | ... | 10 megohms. |
| Minimum Cathode Heating Time      | ... | 45 secs.    |

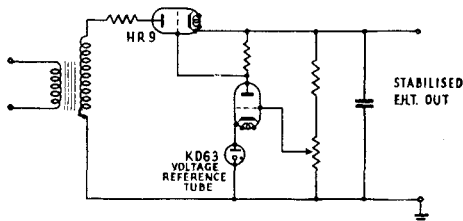
### CHARACTERISTICS.

#### Control Characteristics :

|                                         |       |     |     |
|-----------------------------------------|-------|-----|-----|
| DC. Anode Voltage (kV)                  | 15    | 20  | 25  |
| DC. Grid Voltage for<br>cut off (Volts) | -26   | -34 | -42 |
| DC. Grid Voltage for<br>$I_a = 5\mu A$  | -21.5 | -29 | -36 |
| Amplification Factor                    | 900   | 900 | 900 |

### TYPICAL OPERATION.

The valve is usually employed in a High Voltage Stabiliser Circuit. A typical circuit incorporating a type HR9 grid controlled rectifier is shown below. In this arrangement the HL22 is used as a control valve in association with a voltage reference tube type KD63.



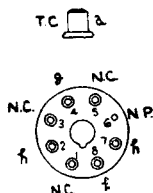
The high voltages normally applied to this valve can be very dangerous and particular care should be taken when making any circuit adjustments. It is recommended that before any part of the circuit is touched the supply should be switched off and the terminals of any capacitor grounded. Operation of the HL22 at high anode voltage may result in the production of X-rays which could cause possible injury from prolonged exposure at close range unless adequate shielding is provided. Relatively simple shielding should prove adequate.

### CAPACITANCES.

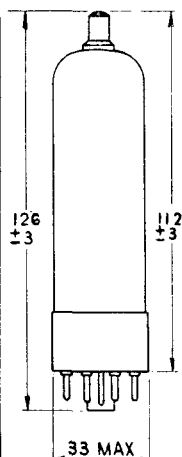
|      |     |     |          |
|------|-----|-----|----------|
| Ca-k | ... | ... | <0.1 pF. |
| Cg-k | ... | ... | 1.0 pF.  |
| Ca-g | ... | ... | 0.6 pF.  |

\*The heater may be either positive or negative with respect to cathode.

HL22



### Base Connections Underside View of Base



All dimensions  
shown are in  
millimetres  
(max.)





HL22

AVERAGE  $I_a/V_g$  CHARACTERISTIC.

