

—Standard Valves—

4039-A
Valve

4039-A VALVE MERCURY VAPOUR RELAY.

In this mercury vapour relay the grid will maintain control with zero anode current as long as it is more negative than a certain critical value. When the grid voltage becomes less negative than this value, anode current starts to flow and the grid loses all further control. The maximum anode current which then flows must be kept within the peak instantaneous anode current limit mentioned below otherwise the valve may be damaged.

The grid can only regain control after interruption of the flow of anode current instantaneously. This can be done by using A.C. on the anode or by special circuit arrangements.

The cathode of this valve must not be operated at less than its rated voltage otherwise the valve may be damaged.

SPECIFICATION.

Cathode.

Indirectly heated oxide coated.
Constant voltage type.

Base.

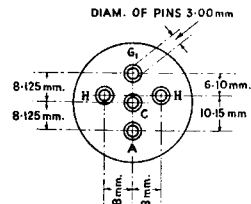
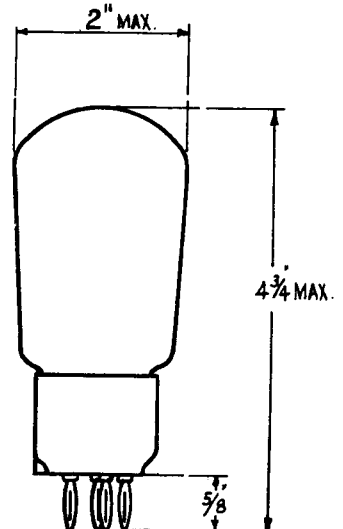
Standard British 5-pin.

Dimensions.

Overall height $4\frac{3}{4}$ " (12.1 cms.)
Bulb diameter 2" (5 cms.)
Net weight 0.12 lbs. (55 gms.)

Constants.

Heater voltage 4.0 volts
Nominal heater current 1.0 amp.
Peak instantaneous anode current 200 mA.
Continuous anode current 100 mA.
Anode peak voltage 500 volts
Grid control ratio 30 to 50
Time delay 30 secs.



OPERATING INSTRUCTIONS.

After transit, the valve should be run with full heater voltage for approximately five minutes before applying anode voltage, in order to ensure that liquid mercury splashed on to the anode is evaporated. Each time the circuit is switched on, 30 seconds should be allowed for the cathode to heat up before current is allowed to pass. For this purpose it is not necessary to remove the anode voltage.

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When passing current the potential drop across the valve is 10–15 volts and is nearly independent of the current. The current must be limited to an instantaneous value of 200 mA. by means of an external resistance. For continuous operation the mean value of the current should not exceed 100 mA.

The grid control ratio, which will be found to vary slightly with the temperature of the mercury, is defined as the ratio of the positive anode voltage to the minimum negative grid voltage which is sufficient to prevent anode current flowing. It is very nearly independent of anode voltage for values of the latter over 30 volts. If the grid is liable to be driven positive, it is advisable to connect a high resistance (say 0.5 megohm) in series with it to prevent appreciable current from flowing in the grid circuit.

