UNITED KINGDOM ATOMIC ENERGY AUTHORITY (A.E.R.E.)

VALVE ELECTRONIC

Specification: A.E.R.E. /CV.2321. Issue 2 Dated 26th November 1954 To be read in conjunction with K1001 excluding Clause 5.2.	SECURITY	
	Specification UNCLASSIFIED	Valve UNCLASSIFIED

→ indicates a change

TYPE - Gas filled voltage Stabilising Valve or Reference Tube.

CATHODE - Cold.

ENVELOPE - Glass, unmetallised.

PROTOTYPE - VX9168.

MARKING
See K1001/4

BASE
None

RATING		Note	DIMENSIONS AND CONNECTIONS
Max. Striking Voltage in total darkness (V)	165	1	See drawing on page 3
Max. Striking Voltage in normal laboratory illumination. (V)	125	1	
Nominal Stabilised Voltage. (V)	86		
Recommended Operating Current (mA)	0.4-1.0		
Max. Change of Stabilised Voltage with Variation of Current from 0.4 to 1.0 mA. (V)	3.3		
Max. Current required to keep valve struck. (μA)	50		
Insulation Resistance of Unstruck Valve. (MΩ)	500	2	

NOTES:- 1. Valve to strike within 10 seconds.

2. Measured with a 50 volt supply.

TESTS

To be performed in addition to those applicable in K1001

	Test Conditions	Test	Limits Min.	Limits Max.	No. Tested	Note
a	Increase the voltage applied to the valve until current flows, using a resistor of 100,000Ω in the anode circuit and keeping the valve in complete darkness.	Striking Voltage (V)		165	100%	1
b	Increase the voltage applied to the valve until current flows, using a resistor of 100,000Ω in the anode circuit, the valve being exposed to normal laboratory illumination.	Striking Voltage (V)		125	100%	1
c	Before the tests given below are performed, the valve is to be run for a period of 75 seconds with the cathode current adjusted to 0.5 mA.					
d	Reduce the voltage applied to the valve until glow is extinguished, using a 100,000Ω resistor in the anode circuit. Minimum voltmeter impedance, 100 KΩ.	Extinguishing Current (μA)		50	100%	
e	Cathode current 0.5 mA	Output Voltage (V)	84.5	87.5	100%	
f	Anode circuit resistance 100,000Ω cathode current varied from 0.4 mA to 1.0 mA.	Increase of output voltage with increased current (V)		3.3	100%	
g	Anode circuit resistance 100,000Ω cathode current varied from 0.4 mA to 1.0 mA.	Decrease of output voltage with increased current (V)		0.2	100%	2
h	The valve is to be tested for freedom from noise during operation. For this purpose a calibrated amplifier-detector having a substantially flat and linear response over the frequency range 50-5000 c.p.s. and an input impedance of 100 KΩ is to be connected between the anode and cathode. The cathode current is to be adjusted to 0.5 mA with an anode circuit resistor of 100 KΩ . The r.m.s. noise input voltage to the amplifier is not to exceed 220 μV.				100%	

TESTS

CV 2321

	Test Conditions	Test	Limits Min.	Limits Max.	No. Tested	Note
i	Using a 50 volt supply.	Anode to cathode insulation resistance M Ω	500		100%	

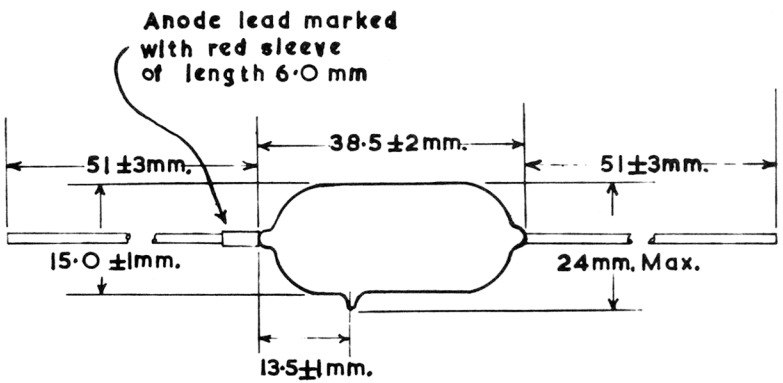
j Voltage Stability During Life

The valve shall be set up under normal conditions at I_c = 0.5 mA. The maximum percentage variation of the stabilised voltage during a life period of 1000 hours shall not exceed 0.5%. The maximum percentage variation of stabilised voltage after the first 300 hours shall not exceed 0.2%. The maximum short term (100 hrs. max.) percentage variation of stabilised voltage after the first 300 hrs. shall not exceed 0.1%.

This test may, if desired, be made on valves undergoing normal factory life tests, and examination of the records of such tests will normally be considered to fulfil the requirements of this test clause.

Notes:- 1. Valve to strike within 10 seconds.

2. The maximum decrease of voltage with increase of current between any two current values is not to exceed the limit specified.



Leads shall be flexible and tinned to a length of at least 38mm