

MINISTRY OF SUPPLY (S.R.D.E.)

Specification MCS/CV120/Issue 6

Dated:- 21.4.48

To be read in conjunction with K1001  
ignoring clauses 5.2, 5.3, 5.7, 5.8  
Clause 7.3 applies.SECURITYSpecificationRestrictedValve

Unclassified

Unclassified

→ indicates a change

TYPE OF VALVE:- Resonant magnetron,  
air cooled.CATHODE:- Indirectly heated.ENVELOPE:- Metal - glass.PROTOTYPE:- B.T.H. Type M.F.MARKING

See K1001/4

Additional marking:-

Yellow splash, CV120 A, B  
or C. Note A.RATING

Note

BASE

None

Heater voltage (V) 6.0

Heater current (A) 7.0

Max. anode dissipation (W) 1000

Wavelength (cms) 10.70

±0.2

A

Typical operating  
conditions

Peak anode voltage (kV) 23

B

Peak anode current (A) 40

B

Average output peak

power (kW) 360

B

Magnetic field (oersteds) 1350

B

Approx. air blast

(cu.ft./min.) 100

B

CONNECTIONS ANDDIMENSIONSSee drawings on pages 4  
and 5.NOTES

- A. The valve shall be marked according to the wavelength in which
- 
- it falls:- viz.

| Wavelength        | Marking |
|-------------------|---------|
| 10.56 ± 0.07 cms. | CV120A  |
| 10.70 ± 0.07 cms. | CV120B  |
| 10.84 ± 0.07 cms. | CV120C  |

Where CV120 is specified without qualification, valves with  
any of these markings will be accepted.

- B. These operating conditions refer to a sensibly square pulse
- 
- shape, 1 microsecond duration, repetition rate 500 cycles per.
- 
- second (max.), and during operating and testing air must be
- 
- blown through a fitting surrounding the pins. In no case
- 
- shall the temperature of the anode exceed 140°C.

TESTS

To be performed in addition to those applicable in K1001

|   | Test Conditions  | Test                              | Limits   |       | No.<br>Tested | Notes |
|---|--|-----------------------------------|--|-------|---------------|-------|
|   |  |                                   | Min.   | Max.  |               |       |
| a | Filament voltage<br>6.0 V  | If (A)                            | 6.3  | 7.7   | 100%<br>or S  |       |
| b | Peak Ia 40 A<br>Magnetic field<br>1350 oersteds.   | Peak Va (kV)                      | -  | 27    | 100%          | 1     |
| c | Peak Ia 40 A<br>Magnetic field<br>1350 oersteds.   | (i) Value of wave-length (cms)    | 10.49  | 10.91 | 100%          | A,1   |
|   |  | (ii) Presence of one wave-length. | With matching adjustments as in Note 1 below only 1 wave-length shall be generated, either during each pulse or during successive pulses, and this wavelength shall be within the limits of wavelength laid down in 'c'(i) |       | 100%          | 1     |
| d | Peak Ia 40 A<br>Magnetic field<br>1350 oersteds  | Value of power output (kW)        | 220  | 500   | 100%          | 1     |
| e | (a) Peak Ia 40 A<br>Magnetic field varied from 1280 to 1420 oersteds.<br>(b) Magnetic field 1350 oersteds. Peak Ia varied from 30 to 50 A. | Wavelength continuity             | Wavelength shall show no sudden discontinuities.   |       | 5%            | 1,2   |

NOTES

1. The test equipment is to be subject to approval by R.R.D.E. Ministry of Supply. The modulator is required to give sensibly square pulses of 1 microsec duration and a repetition frequency of  $420 \pm 40$  c.p.s. and modulators Type A453 or AS442 are recommended as giving a suitable waveform.

In all tests (a) filament voltage = 6 volts, (b) air is to be blown through the anode fins to maintain the anode temperature below  $140^{\circ}\text{C}.$ , (c) serious or continued flashing (external or internal) must not occur. The power output shall be measured in a high frequency load system of a type consisting of a matching section electrically similar to that used in A.A. No. 3, Mk.II equipment followed by a length of concentric line of 40 ohms impedance (internal diameter of outer tubing 15/16-inch) terminated to give a standing wave ratio in voltage of less than 1.3 to 1. The matching section shall be adjusted to give highest power output, and tests 'b', 'c', 'd' and 'e' must be done with this setting. (If the adjustment of the matching section leads to a serious number of rejections on tests 'c'(ii) and 'e' the test specification may be modified to allow a limited variation about this setting. In such a case the valve would have to satisfy tests 'b', 'c', 'd' and 'e' for a single setting of the matching section controls).

2. The figure of 5% may be modified depending on the number of rejects.



SLOT TO TAKE LOCATING PIN.  
NOTE POSITION OF SLOT IN  
RELATION TO GLASS PIP

