

ADMIRALTY SIGNAL & RADAR ESTABLISHMENT

Specification AD/CV356 Issue No. 2. Dated :- 25.2.49. To be read in conjunction with K1001, ignoring clauses : 5.2., 5.3., 5.8.	<div>SECURITY</div> <div>Specn. Restricted Unclass</div> <div>Valve Unclassified</div>
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<u>TYPE OF VALVE</u> :- Magnetron, pre-plumbed. <u>CATHODE</u> :- Indirectly heated, oxide coated. <u>ENVELOPE</u> :- Copper/Glass. <u>PROTOTYPE</u> :- E1511.	<u>MARKING</u> See K1001/4. Additional markings :- Serial No. See Note B.
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<u>RATING</u>		<u>PACKAGING</u>	
	Note	See Drawing page 3.	
Heater Voltage (AC or DC) (V)	6.3	<u>PACKAGING</u> See K1005.	
Heater Current (A)	1.3		
Approx. nominal wave-length. (cm)	3.16		
Max. Frequency pulling (Mc/s)	15		
Peak Anode Input Power (KW)	500		
Duty cycle	.0005		
<u>TYPICAL OPERATING CONDITIONS</u>			
Peak Anode Voltage (KV)	25		
Peak Anode Current (A)	20		
Peak Power Output (KW)	200		

NOTES

- A. If the input power is sufficiently high, $V_h = 6.3$ V may be required for starting only, and during operation may be reduced or switched off. V_h must be applied for at least 1.5 minutes before V_a is applied.
- B. No technical information shall appear on the valve or packing.
- C. For a S.W.R. of 1.5 : 1.
- D. Peak anode input power limited by cathode dissipation at the stated duty cycle. When switching on the power should be increased gradually from zero to full input. During operation and testing, air must be blown through a suitable fitting onto the radiator fins of the anode so that the block temperature does not rise above 140°C .
- E. These figures are for pulse operation with :-

Recurrence frequency : 500 pps : 2,000 pps : 4,000 pps
 Pulse length : 1 microsec : 0.2 microsec : 0.1 microsec.
 Pulse shape : Sensibly square.
 Field Strength : 4,500 oersteds external, 5,500 oersteds internal.

The valve is required to operate with any field in the range 4500 ± 200 oersteds.

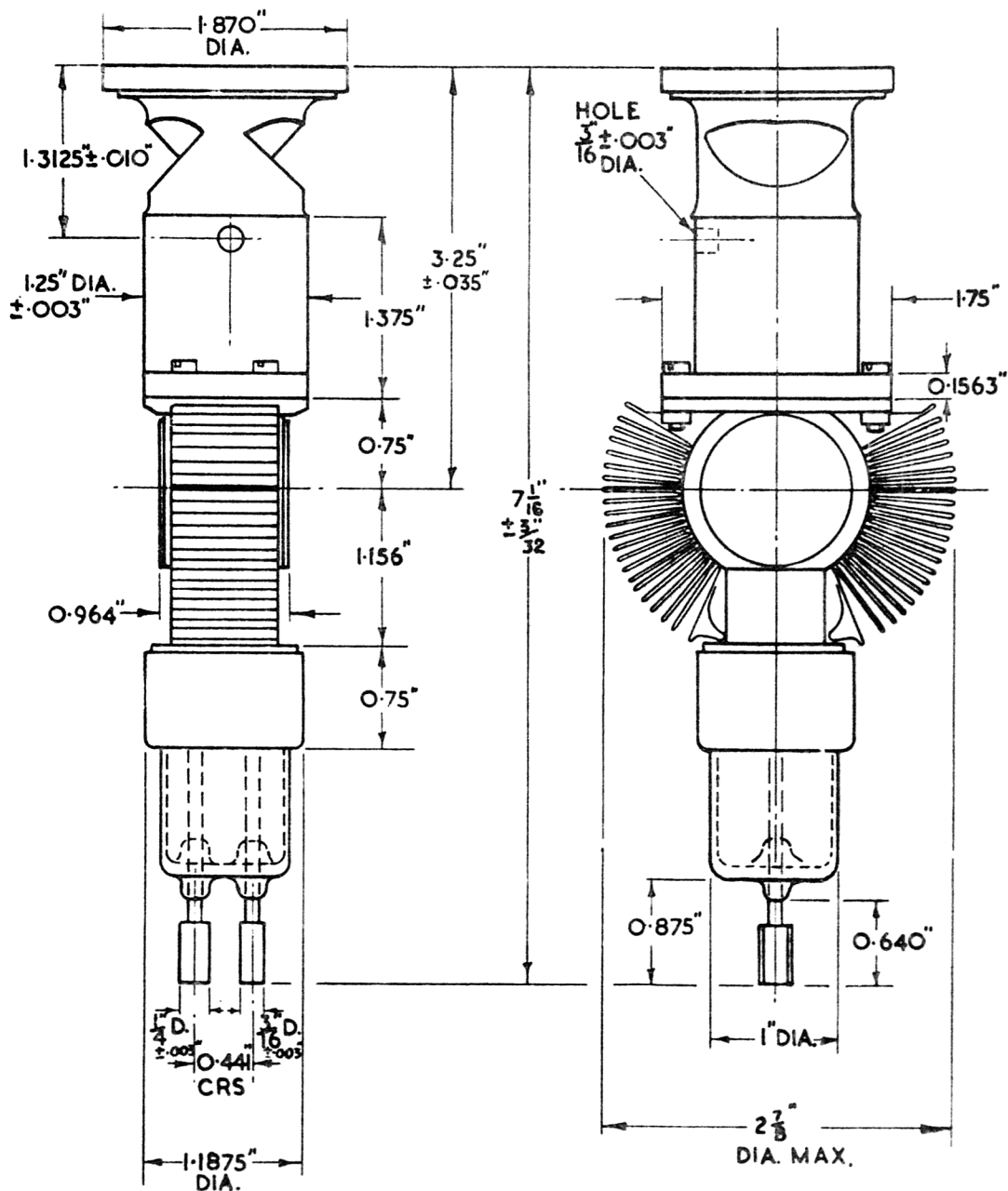
TESTS

To be performed in addition to those applicable in K1001

	Test Conditions		Test	Limits		No. Tested	Note
	Vh(V)	Ia (A) Peak		Min.	Max.		
a	6.3		Ih (A)	1.2	1.4	100%	
b	6.3 reduced to 0	20	Va Peak (KV)	21	27	100%	1,2, 3,4.
c	0	20	(i) Frequency (Mc/s)	9400	9550	100%	1,2,3.
	A mismatcher to introduce a voltage S.W.R. of 1.5 : 1 with variable phase shall be used near the magnetron, followed by a matched termination. The max. frequency deviation which occurs as the phase is changed over 360° shall be noted.		(ii) Frequency pulling (Mc/s)	-	15	100%	
d	0	20	Efficiency =				1,2, 3,5.
	Efficiency is to be measured by an approved method.		$\frac{\text{Power output}}{\text{Power input}} (\%)$	35	-	100%	
e	0	Ia peak to be varied from 10 to 20 A. The change of frequency to be observed.	Frequency continuity	The frequency shall vary smoothly and without discontinuity		100%	1,2,3.

NOTES

- The valve is to be pulse tested according to the above table (tests 'b' to 'e') in an approved circuit with the following conditions of test.
 - 1.1. Recurrence frequency : 500 pps or { 2000 pps
 - 1.2. Minimum pulse length : 1 microsec or { 0.2 microsec.
 - 1.3. Pulse shape : Sensibly square.
 - 1.4. Field strength : 4500±50 oersteds.
- The cathode lead side of the valve shall be adjacent to the north pole of the magnet.
- During Type Approval the operation of the valve at a field strength of 4300 oersteds and 4700 oersteds should be established.
- The magnetron shall be processed so as to ensure as far as possible that only brief ageing (of the order of 10 minutes or less) is necessary when the power applied is gradually increased from zero to the full input. No serious or continued flashing (internal or external) must occur during the tests.
- The apparatus used for the measurement of output power is to be checked after every 500 valves tested, or once a month (whichever applies first) against the calorimetric method of measurement.



NOTE:- ALL DIMENSIONS ARE NOMINAL
EXCEPT WHERE OTHERWISE STATED.