ADMIRALTY SIGNAL ESTABLISHMENT

VALVE ELECTRONIC **CV388**

Specification AD/CV388/Issue 3.
Dated 11.6.47.
To be read in conjunction with K1001, ignoring clauses:- 5.2, 5.3, 5.8.

SECURITY	
Specn.	Valve.
[redacted] Unclass.	Unclassified

TYPE OF VALVE:- Package Magnetron
CATHODE:- Indirectly Heated, Oxide Coated.
ENVELOPE:- Copper and Glass.
PROTOTYPE:- VX4055.

RATING			Note
Heater Voltage (AC)	(V)	6.3	D
Heater Current	(A)	1.25	
Nominal Frequency	(Mc/s)	9475	
Frequency Pulling	(Mc/s)	15	
Max. Mean Power Input	(W)	180	B
Max. Peak Power Input	(kW)	150	
TYPICAL OPERATING CONDITIONS			
Peak Anode Voltage	(kV)	13	A
Peak Anode Current	(A)	11	A
Peak Power Output	(kW)	40	A

MARKING

See K1001/4.

Additional Marking.

Serial No. .....
"Cathode" adjacent to cathode terminal.

See also Note 'C'

DIMENSIONS AND CONNECTIONS

See Pages 3 and 4.

PACKAGING

See K1005.

NOTES

A. These figures are for pulse operation with:-
(i) Recurrence frequency : 1000 pps.
(ii) Pulse length : 1 μsec.
(iii) Pulse shape : Sensibly square.

B. During operation and testing, air must be blown through a suitable fitting, on to the cooling fins of the anode so that the block temperature does not rise above 140°C.

C. No technical information shall appear on the valve or packing.

D. The heater voltage is 6.3 V for starting only, and should be applied for a period of at least two minutes before application of H.T. voltage. For normal running the heater voltage depends on input power linearly and should be 6.3 V at 0W input and 0 V at 170 W input power.

E. The magnetron shall be processed so as to ensure as far as possible that only brief ageing (of the order of 5 minutes or less) is necessary when it is put into service.

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)	1.0	1.5	100%	1
b	3.0	11	Va Peak (kV)	-	13.5	100%	1,2
c	3.0	11	Frequency (Mc/s)	9430	9520	100%	2
d	3.0	11	Peak Output Power (kW)	30	-	100%	2,3
e	3.0	11	Frequency Pulling (Mc/s)	-	15	5%	2,4
f	3.0	Ia peak to be varied from 11A to 6 A. The change of frequency is to be observed.	Frequency continuity	The frequency shall vary smoothly and without discontinuity and by not more than 15 Mc/s.		5%	2

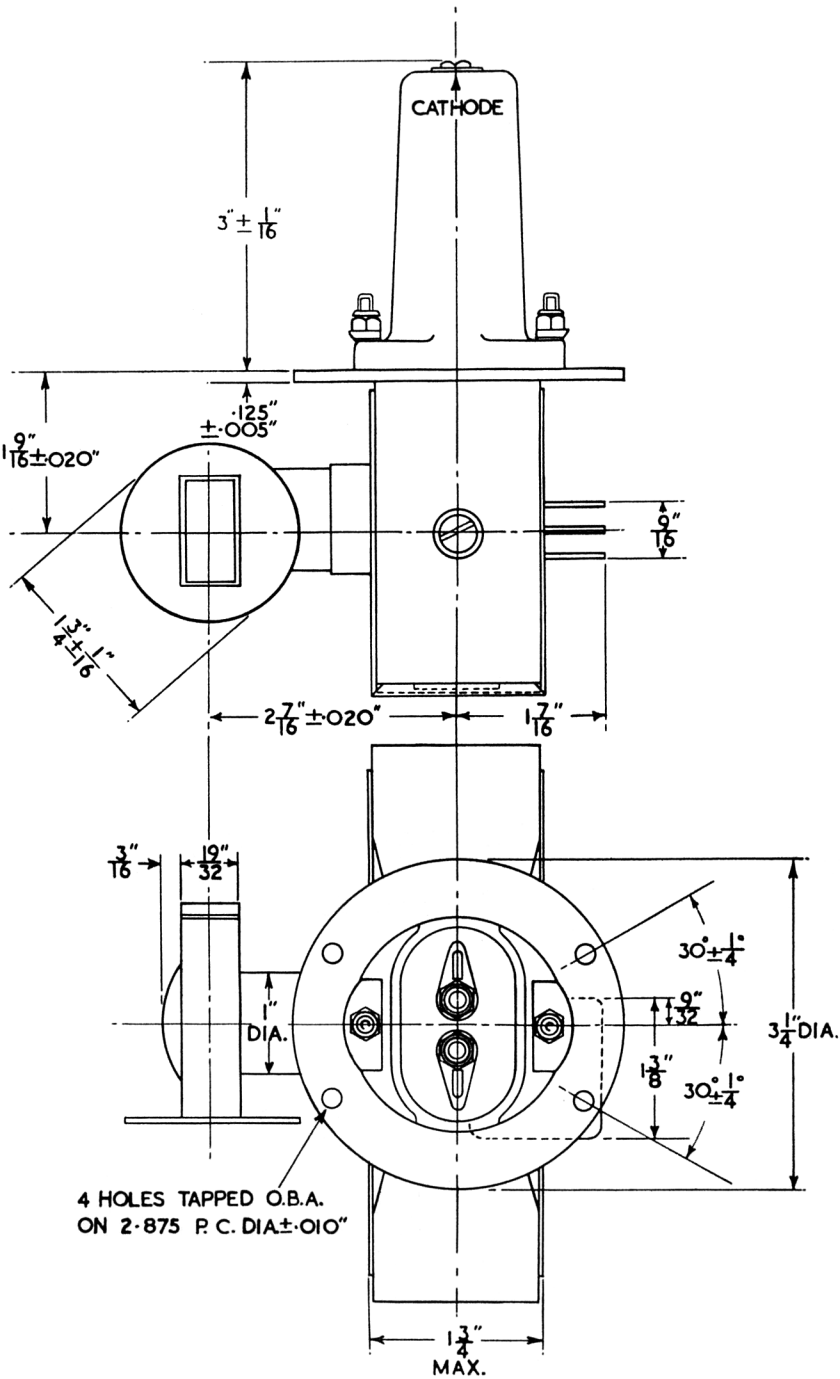
NOTES

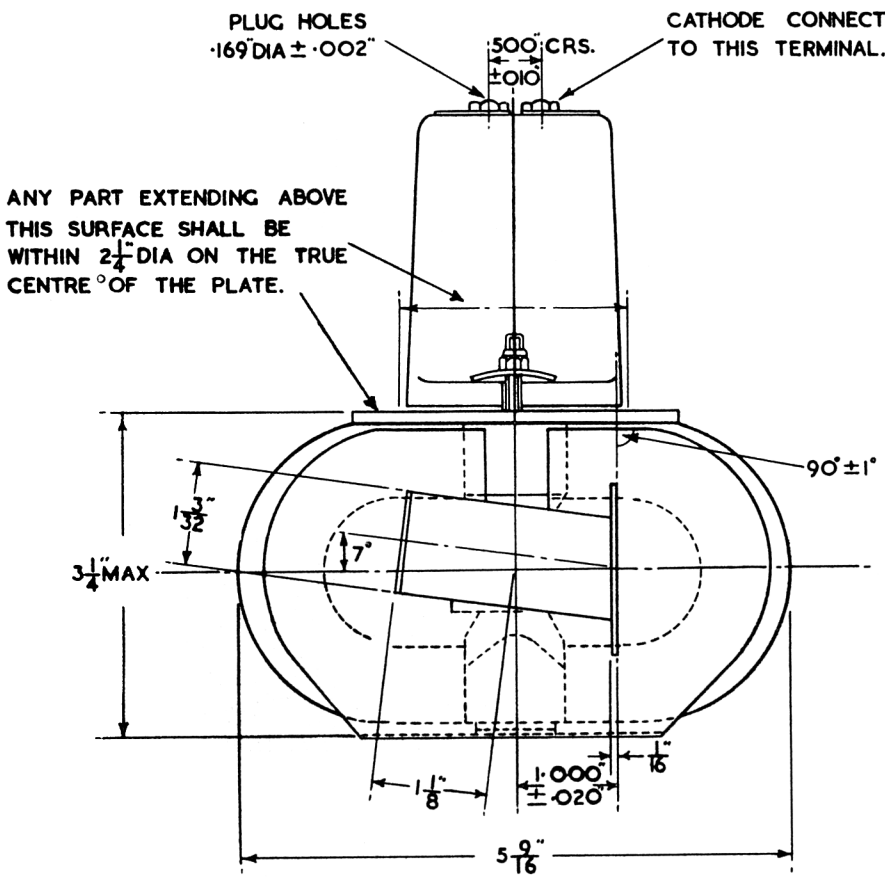
1. The heater voltage of 6.3 V shall be switched on for a period of not more than 2 minutes before anode voltage is applied. The anode voltage should be increased slowly but not less than 2 kV. per minute. On reaching Va peak = 6 kV the heater voltage shall be switched to 3.0 V.
2. The valve is to be pulse tested, according to the above table (tests 'b' to 'f'), in an approved test arrangement, and under the following test conditions:-

   Recurrence frequency : 1000 pps) or other
   Min. pulse length : 1 µsec.) approved values.
   Min. mark/space ratio : 1/1000
   Pulse shape : Sensibly square.

   No serious or continued flashing (internal or external) must occur during the tests.
3. The apparatus used for measurement of output power is to be checked after every 500 valves tested, or once a month (whichever is the shorter period) against a calorimetric method of measurement.
4. The frequency pulling is defined as maximum frequency deviation produced by changing the waveguide (British) load with a voltage standing wave ratio of 1.5 to 1 through all possible phases.

CV388


CATHODE
3" ± 1/16"
.125" ±.005"
1 9/16" ±.020"
9/16"
1 3/4" ± 1/16"
2 7/16" ±.020"
1 7/16"
3/16"
19/32"
1" DIA.
30° ± 1/4°
9/32"
3 1/4" DIA.
1 3/8"
30° ± 1/4°
4 HOLES TAPPED O.B.A.
ON 2·875 P. C. DIA. ±.010"
1 3/4" MAX.



THE NORTH POLE OF THE MAGNET SHALL
BE ADJACENT TO THE MOUNTING FLANGE.