Half-Wave Mercury-Vapour Rectifier

Code: 2V/561E

This rectifier is equivalent to, and replaces, the 4079A type, which is now obsolete.

CATHODE.

Oxide-coated, shielded filament		
Filament voltage	5	V
Nominal current	40	A
Minimum heating time (ambient temperature > 20°C)	1	min

MECHANICAL DATA.

Maximum overall length	539.8	mm
Maximum bulb diameter	133.4	mm
Base	Special 2-pin (see drawing)	
Top cap	Special (see drawing)	
Socket type	47/4022J	←
Net weight	1.9	kg
Shipping weight, approx.	13.4	kg
Shipping dimensions	20 × 20 × 36	in

MAXIMUM RATINGS.

	FILAMENT EXCITATION		
	In phase	In quadrature	
Maximum peak inverse voltage	20	20	kV
Maximum peak anode current	20	40	A
Maximum average anode current	7.5	15	A
Maximum fault anode current	125	125	A
Maximum duration of fault anode current	0.1	0.1	sec
Maximum voltage drop	15	15	V
Maximum condensed mercury temperature range	15 to 60	15 to 60	°C

The above ratings apply to operation with a choke input filter and a supply frequency of 50 c/s.

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CATHODE HEATING TIME.

Ambient Temperature	10 to 20°C	20°C and above
Minimum pre-heating period	2 minutes	1 minute

MAXIMUM PEAK INVERSE VOLTAGE RATINGS AND CONDENSED MERCURY-VAPOUR TEMPERATURES.

Natural Ventilation	15 to 45°C	15 to 35°C	—	—
Forced Ventilation	15 to 60°C	15 to 50°C	15 to 45°C	15 to 40°C←
Peak Inverse Voltage	Less than 7000 V	7000 to 10000 V	10000 to 12500 V	Greater than 12500 V

After shipment or transit the valve must be pre-heated for not less than 30 minutes before any anode voltage is applied, so that the mercury may be distributed correctly.

The temperature limits given under "Natural Ventilation" are only valid for unrestricted natural ventilation. Forced air cooling is recommended and is required for operation up to the limit of condensed mercury temperature.

Before putting a valve of this type into service it is recommended that reference be made to the General Information section K in the front of the valve handbook.

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TYPICAL OPERATING CONDITIONS.

Circuit	No. of Valves	Maximum A.C. Input Voltage (r.m.s.)	Maximum D.C. Output Voltage (Volts)	Maximum D.C. Output Current (Amperes)
Single-Phase Full Wave Circuit No. 1	2	7000	6300	12.5* ←
		7000	6300	25† ←
Single-Phase Full Wave Bridge Circuit No. 2	4	14000	12600	12.5* ←
		14000	12600	25† ←
Three-Phase Half Wave Circuit No. 3	3	8150	9550	18.75* ←
		8150	9550	37.5† ←
Three-Phase Double Y Parallel Circuit No. 4	6	8150	9550	37.5* ←
		8150	9550	75† ←
Three-Phase Full Wave Circuit No. 5	6	8150	19100	18.75* ←
		8150	19100	37.5† ←

* Filament excitation in phase with anode.

† Filament excitation in quadrature with anode.

The above, tables suitable circuits for this rectifier, and shows the safe maximum input and output conditions. The values are based on sine wave input and the use of a suitable choke input filter.

This rectifier being directly heated, it is recommended that the output circuit be taken from the mid-point of the filament supply transformer.

For details of the circuits referred to see sheet K—8 in the introduction to this handbook.

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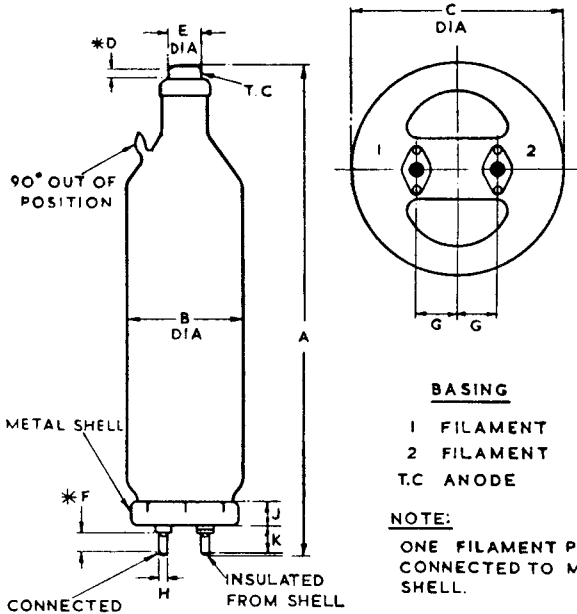

BASING

1 FILAMENT
2 FILAMENT
T.C ANODE

NOTE:

ONE FILAMENT PIN CONNECTED TO METAL SHELL.

DIM	MILLIMETRES	INCHES	DIM	MILLIMETRES	INCHES
A	539·8 MAX.	21 1/4 MAX.	F	23·80 ± 0·51	0·937±0·020
B	133·4 MAX.	5 1/4 MAX.	G	22·00 ± 0·25	0·866±0·010
C	117·5±0·4	4 5/8 ± 1/64	H	9·53 ± 0·05	0·375±0·002
D	10·0 MIN	0·393 MIN	J	25·4 ± 0·4	1 ± 1/64
E	36·00±0·25	1·418±0·010	K	28·57 ± 0·51	1·125±0·020

NOTE:- BASIC FIGURES ARE INCHES.

*DENOTES:— CONTACT LENGTH.