

Mercury Vapour Rectifiers

June 1965

ENGLISH ELECTRIC VALVE CO. LTD.

Printed in England

**CHELMSFORD
ENGLAND**

*Telephone:
Chelmsford 3491*

American Designation 869B

INTRODUCTION

The 869B is a hot cathode Mercury Vapour Rectifier with maximum ratings of 20kV peak inverse voltage and 10A peak current. It will provide a d.c. output of 19kV 7.5A in a three phase full wave circuit.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

Filament	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	5.0 V
Filament Current	..	..	..	..	..	..	19 A
Filament Heating Time	..	..	..	..	..	..	1 Minute
Condensed Mercury Temperature	..	..	..	..	..	..	(See page 2)
Maximum Peak Inverse Voltage	..	..	..	..	..	..	(See page 2)
Maximum Anode Current:							
Peak	..	..	..	..	..	..	(See page 2)
Mean (30 secs Max averaging time)	..	..	..	..	..	..	(See page 2)
Under fault conditions	..	..	..	..	..	..	100 A
(0.1 second Max duration)							

Mechanical

Overall Length..	..	..	..	14.44 inches	(366.7 mm)	Max
Overall Diameter	..	..	..	5.125 inches	(130.2 mm)	Max
Net Weight	..	..	..	1½ pounds	(800 gm)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Cap	..	..	..	..	..	JEDEC No. C1-9
Base	..	..	..	3-Pin Jumbo	(JEDEC No. A3-20)	

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

ENGLISH ELECTRIC

MAXIMUM OPERATING CONDITIONS

(Absolute Values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode Current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean†		kV	Amps
Single Phase Full Wave	A	30-40	20	10	2.5	7.0	6.3	5.0
		30-50	15	10	2.5	5.3	4.7	5.0
		30-60	10	10	2.5	3.5	3.1	5.0
Single Phase Full Wave Bridge	B	30-40	20	10	2.5	14.0	12.6	5.0
		30-50	15	10	2.5	10.6	9.5	5.0
		30-60	10	10	2.5	7.0	6.3	5.0
Three Phase Half Wave	C	30-40	20	10	2.5	8.1†	9.5†	7.5
		30-50	15	10	2.5	6.1†	7.1†	7.5
		30-60	10	10	2.5	4.1†	4.7†	7.5
Three Phase Full Wave	D§	30-40	20	10	2.5	8.1	19.0	7.5
		30-50	15	20	5	6.1	14.2	15.0
		30-60	10	20	5	4.1	9.5	15.0

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The d.c. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 30 seconds maximum.

§With filament and anode supplies out of phase (60°-120°).

X-RAY WARNING

X-rays are produced when the 869B is operated with a peak inverse anode voltage above 16kV (absolute value). These rays can constitute a health hazard unless the valve is adequately shielded for X-ray radiation. This is entirely a function of high voltage devices and does not reflect upon the design of the valve.

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**MERCURY VAPOUR
RECTIFIER**

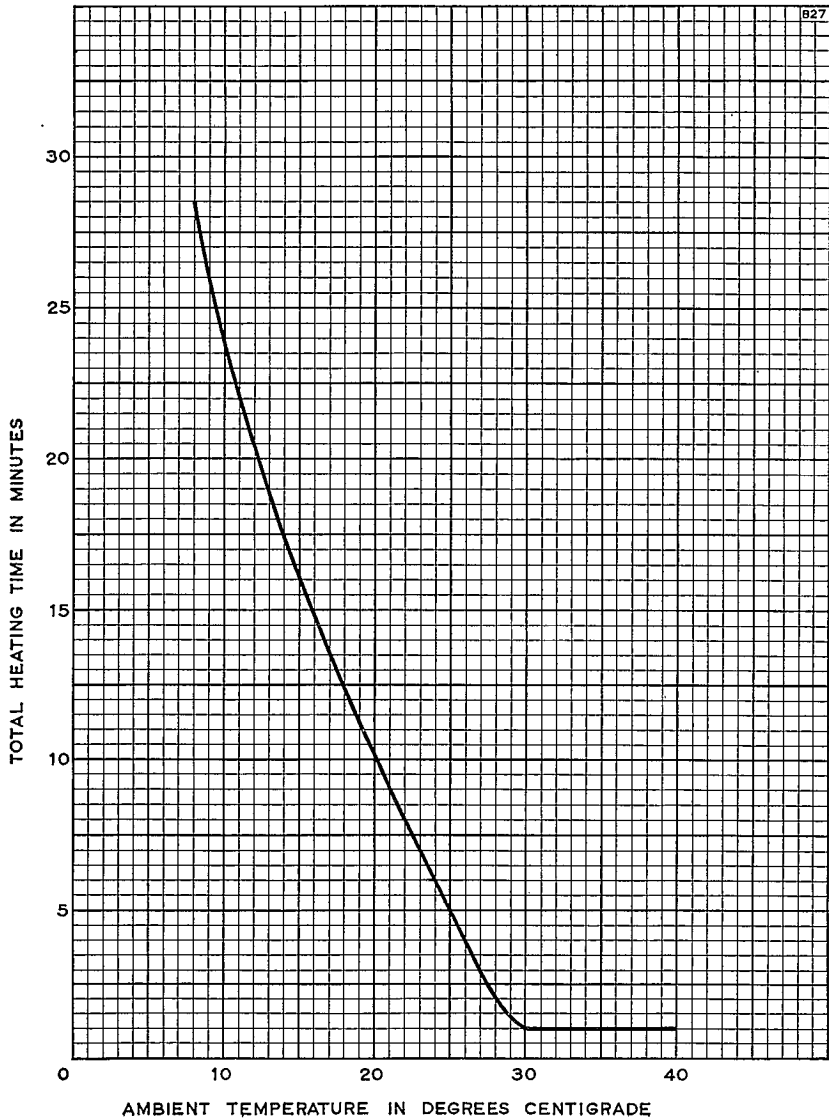
869B

September 1961



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TOTAL HEATING TIME CHARACTERISTIC



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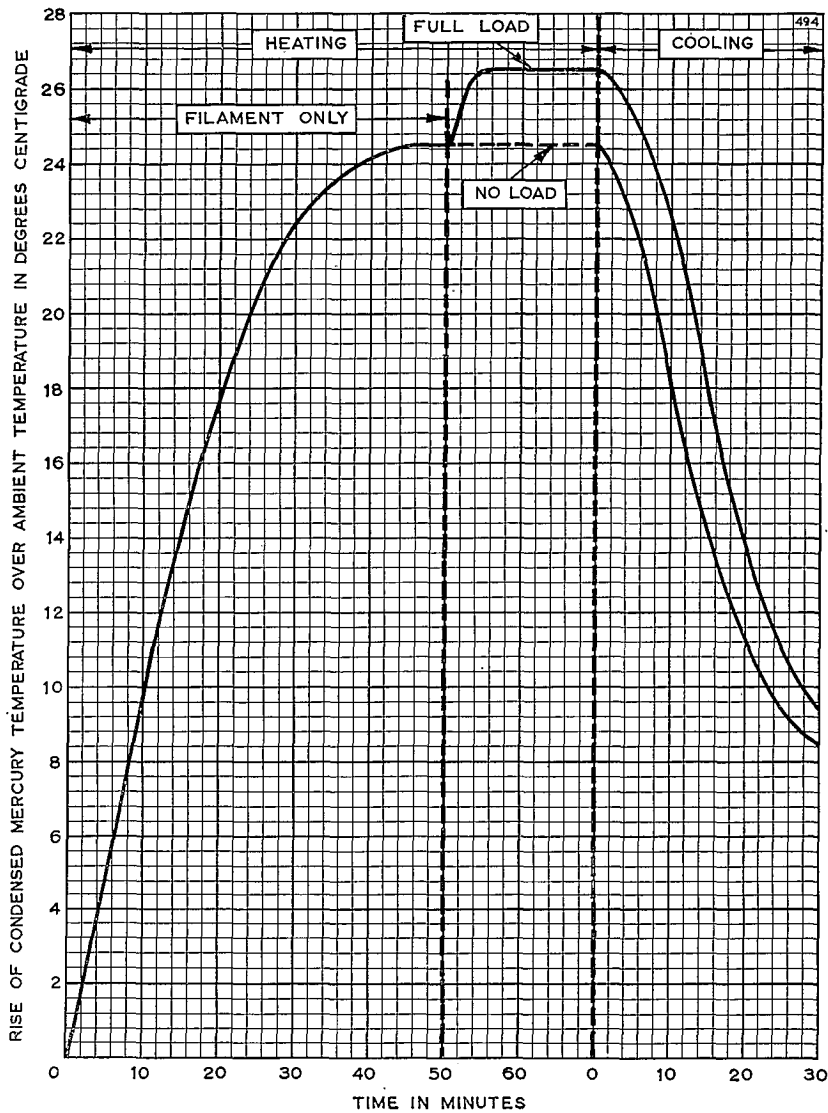
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HEATING AND COOLING CHARACTERISTIC



MERCURY VAPOUR RECTIFIER

869B

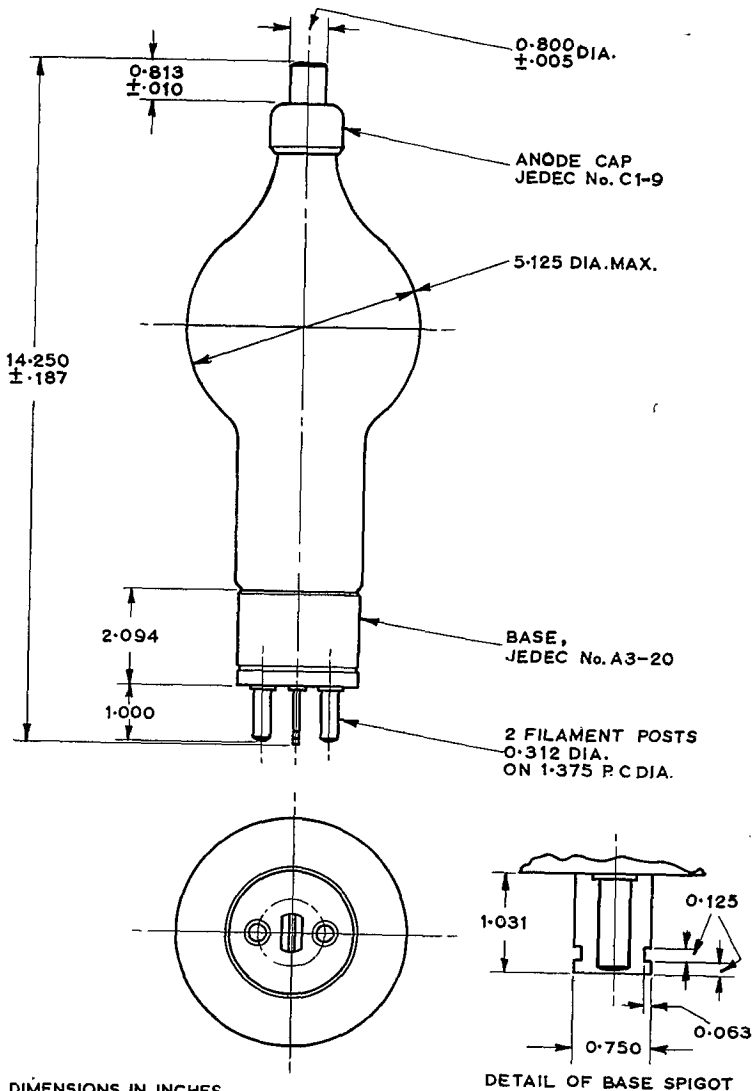
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ENGLISH ELECTRIC

OUTLINE

495A



ALL DIMENSIONS IN INCHES

DETAIL OF BASE SPIGOT

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MERCURY VAPOUR RECTIFIER

AH205/857B ←

March 1959 Page 1

Service Type CV2673

American Equivalent 857B

INTRODUCTION

The AH205/857B is a hot cathode Mercury Vapour Rectifier with maximum ← ratings of 22kV peak inverse voltage and 40A peak current. It will provide a D.C. output of 21kV 30A in a three phase full wave circuit or 7kV 20A in a single phase full wave circuit.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

Filament	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	5·0 V
Filament Current	..	..	..	..	..	..	30 A
Filament Heating Time	..	..	..	..	..	..	1 Minute
Condensed Mercury Temperature	..	..	..	..	..	..	(See page 2)
Max Peak Inverse Voltage	..	..	..	..	..	..	(See page 2)
Max Anode Current:							
Peak	..	..	..	..	..	..	40 A
Mean (30 seconds Max averaging time)	..	..	..	..	..	..	10 A ←
Under fault conditions	..	..	..	..	..	..	400 A
(0·2 seconds Max duration)							

Mechanical

Overall Length..	..	..	..	19·88 inches	(505 mm)	Max
Overall Diameter	..	..	..	7·63 inches	(194 mm)	Max
Net Weight	..	..	..	4·0 pounds	(1·8 kg)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	(See outline drawing)

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

← Indicates a change

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MERCURY VAPOUR RECTIFIER

AH205/857B

Page 2

MAXIMUM OPERATING CONDITIONS (Absolute Values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max. D.C. Output	
				Peak	Mean‡		kV	Amps
Single Phase Full Wave	A	30-40	22	40	10	7.7	7.0	20
		25-60	10	40	10	3.5	3.1	20
Single Phase Full Wave Bridge	B	30-40	22	40	10	15.5	14.0	20
		25-60	10	40	10	7.0	6.3	20
Three Phase Half Wave	C	30-40	22	40	10	9.0†	10.5†	30
		25-60	10	40	10	4.1†	4.7†	30
Three Phase Full Wave	D	30-40	22	40	10	9.0	21.0	30
		25-60	10	40	10	4.1	9.5	30

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 30 seconds maximum.

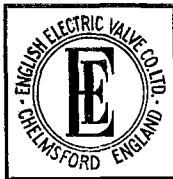
X-RAY WARNING

X-Rays are produced when the AH205/857B is operated with a peak inverse anode voltage above 16 kV (absolute value). These rays can constitute a health hazard unless the valve is adequately shielded for X-ray radiation. This is entirely a function of high voltage devices and does not reflect upon the design of the valve.

→ Indicates a change

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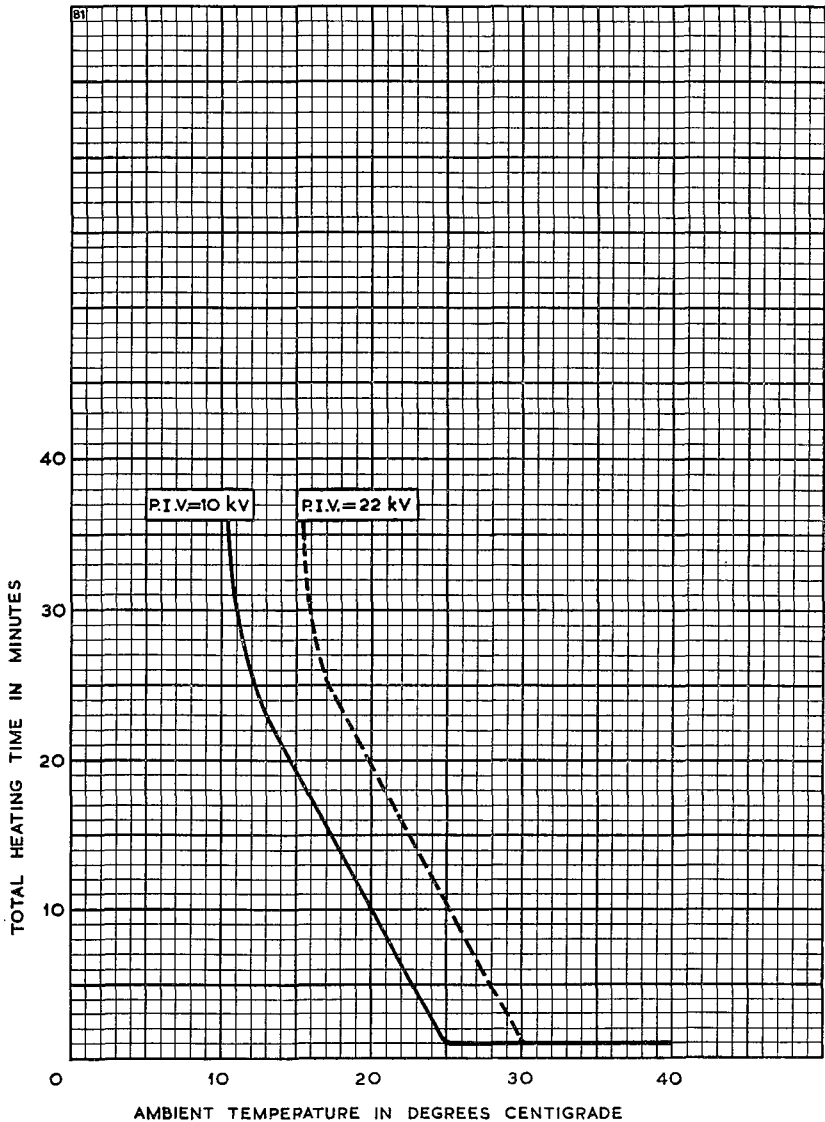


MERCURY VAPOUR RECTIFIER

AH205/857B

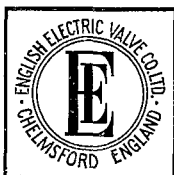
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TOTAL HEATING TIME CHARACTERISTIC



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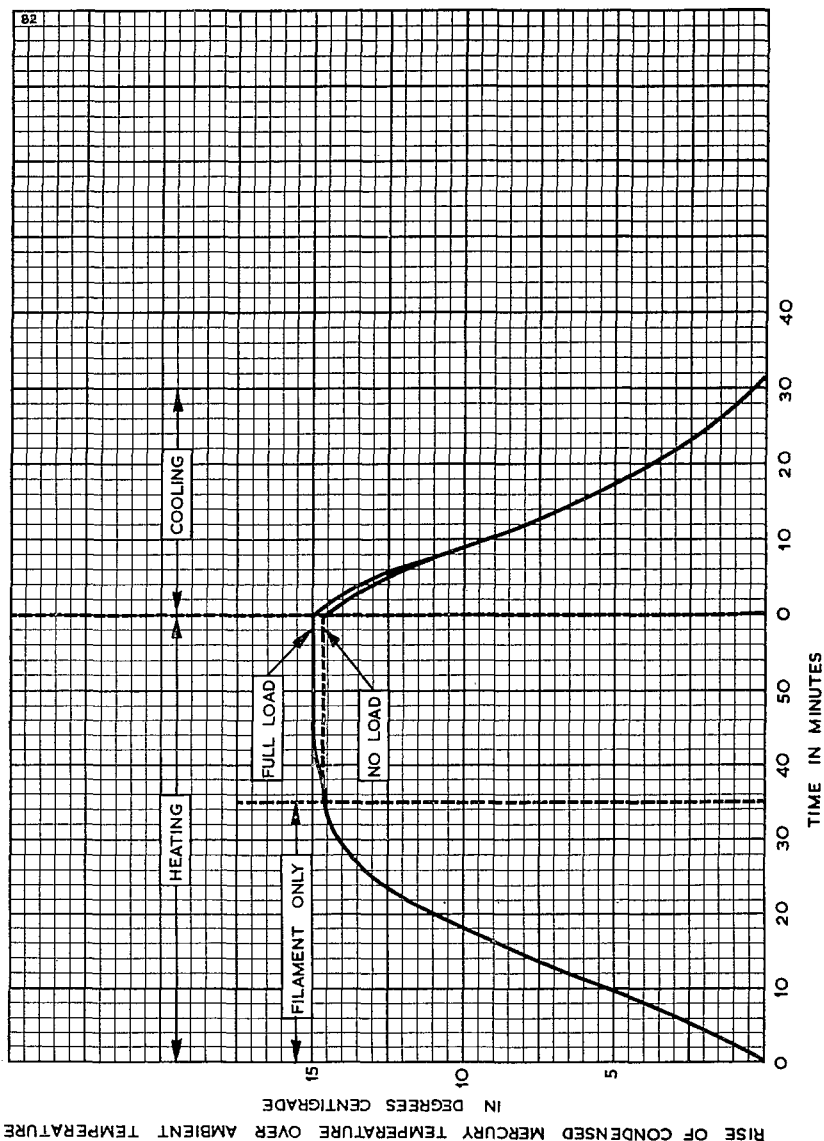


MERCURY VAPOUR RECTIFIER

AH205/857B

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HEATING AND COOLING CHARACTERISTIC



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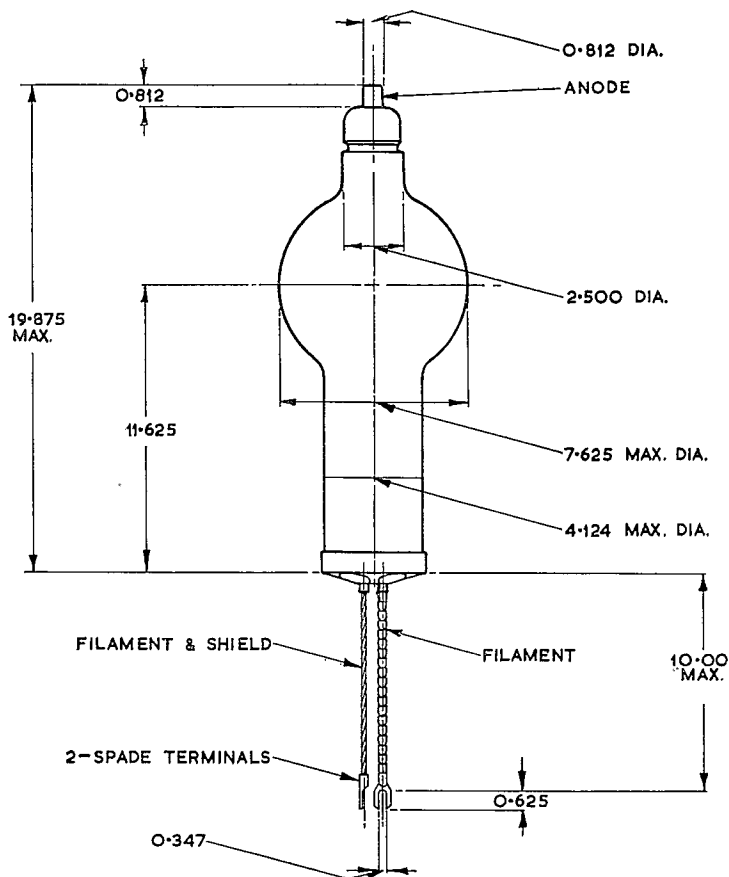
MERCURY
VAPOUR
RECTIFIER

AH205/857B

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OUTLINE

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ALL DIMENSIONS IN INCHES

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MERCURY VAPOUR RECTIFIER

AH200

November 1957 Page 1

INTRODUCTION

The AH200 is a hot cathode Mercury Vapour Rectifier with maximum ratings of 20kV peak inverse voltage and 10A peak current. It is similar to the AH213, differing only in filament rating and in terminal sizes.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	..	2.5 V
Filament Current	..	..	..	..	..	..	..	40 A
Filament Heating Time	..	..	..	..	..	..	..	1 Minute
Condensed Mercury Temperature	..	..	..	..	..	..	..	(See page 2)
Max Peak Inverse Voltage	..	..	..	..	..	..	..	(See page 2)
Max Anode Current:								
Peak	..	..	..	..	..	..	..	(See page 2)
Mean†	..	..	..	..	..	..	..	(See page 2)
Under fault conditions (0.1 seconds Max duration)	..	..	..	..	..	..	..	100 A

Mechanical

Overall Length..	..	..	..	18.0 inches	(457 mm)	Max
Overall Diameter	..	..	..	5.25 inches	(133 mm)	Max
Net Weight	..	..	..	1.75 pounds	(800 gm)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	(See outline drawing)

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

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MERCURY VAPOUR RECTIFIER

AH200

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MAXIMUM OPERATING CONDITIONS (absolute values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean‡		kV	Amps
Single Phase Full Wave	A	30-40	20	10	2.5	7.0	6.3	5.0
		30-50	15	10	2.5	5.3	4.7	5.0
		30-60	10	10	2.5	3.5	3.1	5.0
Single Phase Full Wave Bridge	B	30-40	20	10	2.5	14.0	12.6	5.0
		30-50	15	10	2.5	10.6	9.5	5.0
		30-60	10	10	2.5	7.0	6.3	5.0
Three Phase Half Wave	C	30-40	20	10	2.5	8.1†	9.5†	7.5
		30-50	15	10	2.5	6.1†	7.1†	7.5
		30-60	10	10	2.5	4.1†	4.7†	7.5
Three Phase Full Wave	D§	30-40	20	10	2.5	8.1	19.1	7.5
		30-50	15	20	5	6.1	14.2	15.0
		30-60	10	20	5	4.1	9.5	15.0

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 30 seconds maximum.

§With filament and anode supplies out of phase (60°-120°).

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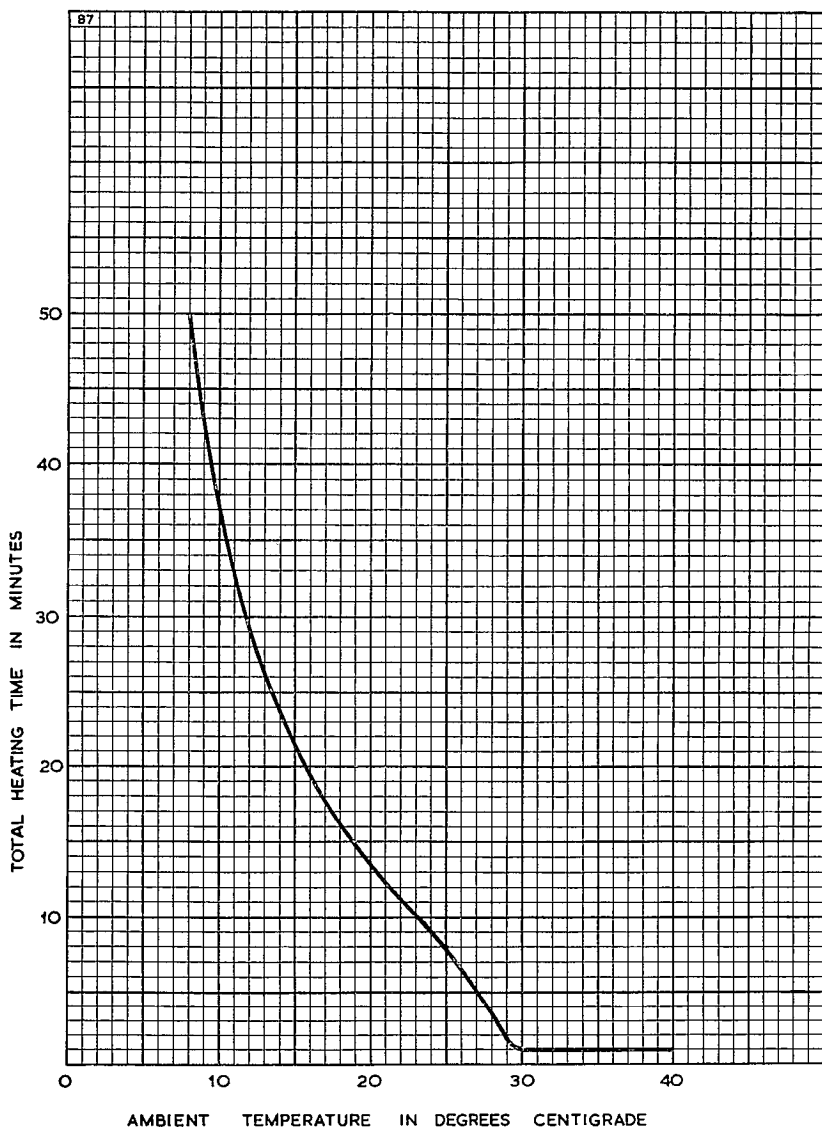


MERCURY VAPOUR RECTIFIER

AH200

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TOTAL HEATING TIME CHARACTERISTIC



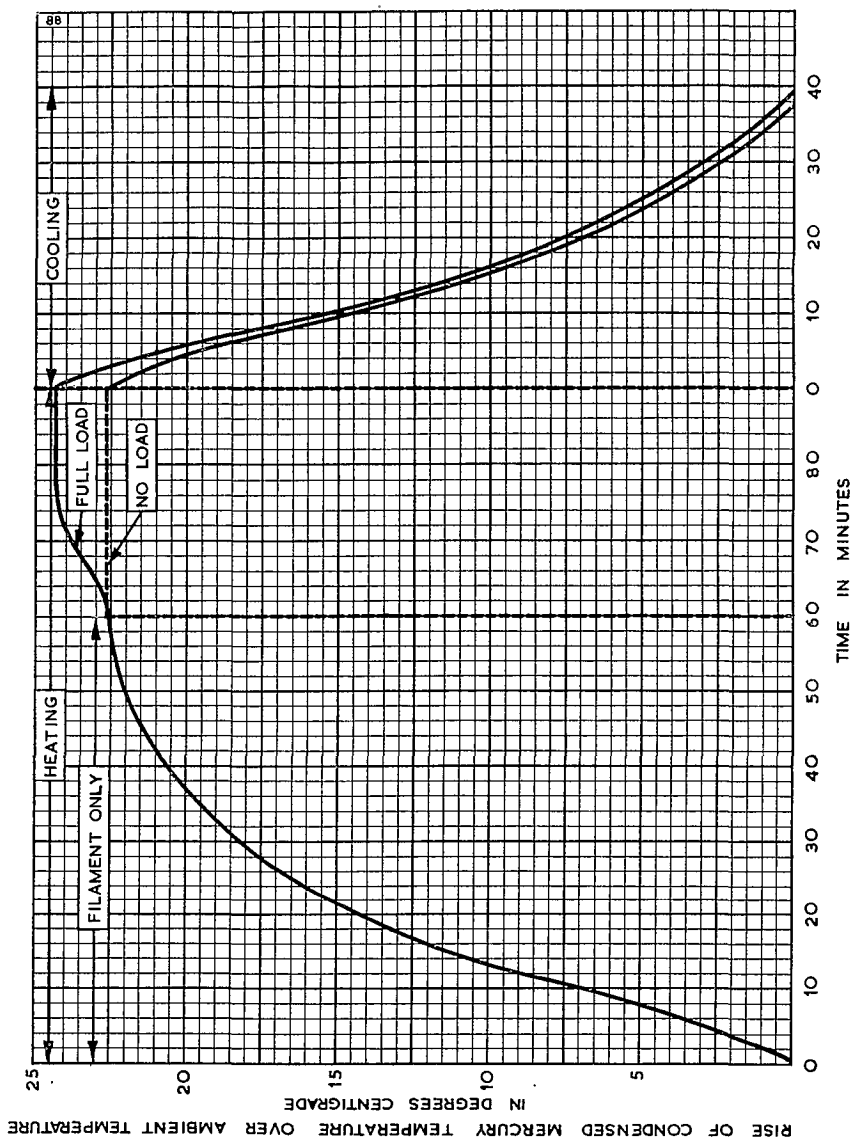


MERCURY VAPOUR RECTIFIER

AH200

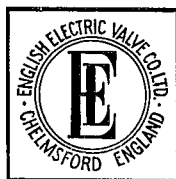
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HEATING AND COOLING CHARACTERISTIC



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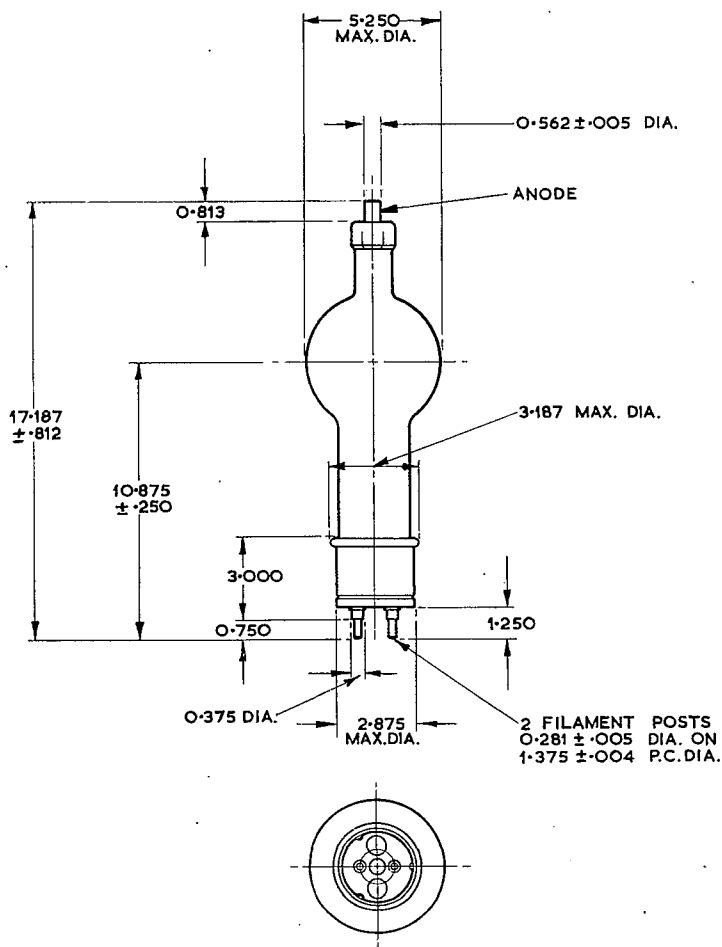
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AH200

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OUTLINE

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ALL DIMENSIONS IN INCHES

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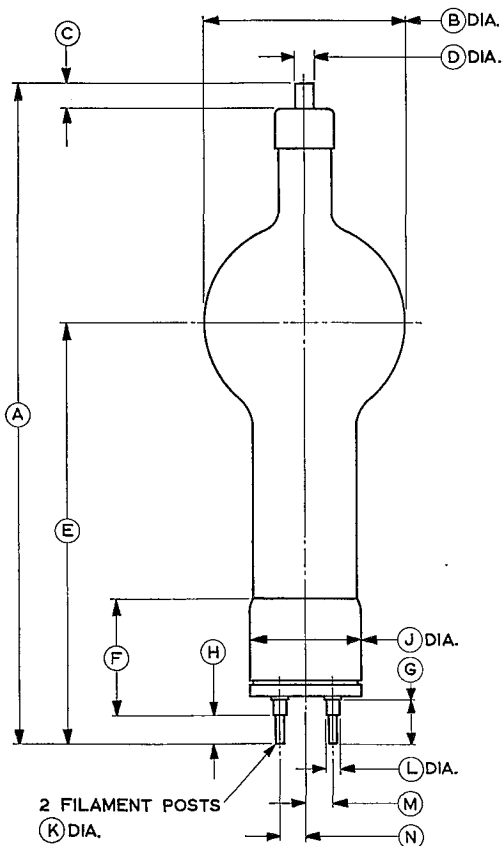
MERCURY VAPOUR RECTIFIER

H200

September 1966 Page 5

OUTLINE

89A



Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	17.187 ± 0.812	436.5 ± 20.62	H	0.750	19.05
B	5.250 Max	133.4 Max	J	2.875	73.03
C	0.812	20.62	K	0.281 ± 0.005	7.14 ± 0.13
D	0.562 ± 0.005	14.27 ± 0.13	L	0.375	9.53
E	10.875 ± 0.250	276.2 ± 6.35	M	0.687	17.45
F	3.000	76.20	N	0.687	17.45
G	1.125	28.58			

Millimetre dimensions have been derived from inches.

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MERCURY VAPOUR RECTIFIER

AH211

November 1957 Page 1

Service Type CV532

INTRODUCTION

The AH211 is a maintenance type only. For new designs the AH211A is recommended.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	2.5	V
Filament Current	..	..	..	..	..	..	30	A
Filament Heating Time	..	..	..	..	..	..	1	Minute
Condensed Mercury Temperature	..	..	..	..	..	..	25 to 50	°C
Max Peak Inverse Voltage	..	..	..	..	..	..	16	kV
Max Anode Current:								
Peak	..	..	..	..	..	..	8	A
Mean†	..	..	..	..	..	..	2	A
Under fault conditions (0.1 seconds Max duration)	..	..	..	..	..	..	100	A

Mechanical

Overall Length..	..	..	..	12.38 inches	(314 mm)	Max
Overall Diameter	..	..	..	3.19 inches	(81 mm)	Max
Net Weight	..	..	..	1 pound	(460 gm)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	(See outline drawing)

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

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MERCURY VAPOUR RECTIFIER

AH211

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MAXIMUM OPERATING CONDITIONS

(Absolute Values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean†		kV	Amps
Single Phase Full Wave	A	25-50	16	8	2.0	5.6	5.0	4
Single Phase Full Wave Bridge	B	25-50	16	8	2.0	11.2	10.1	4
Three Phase Half Wave	C	25-50	16	8	2.0	6.5†	7.6†	6
Three Phase Full Wave	D	25-50	16	8	2.0	6.5	15.2	6

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 30 seconds maximum.

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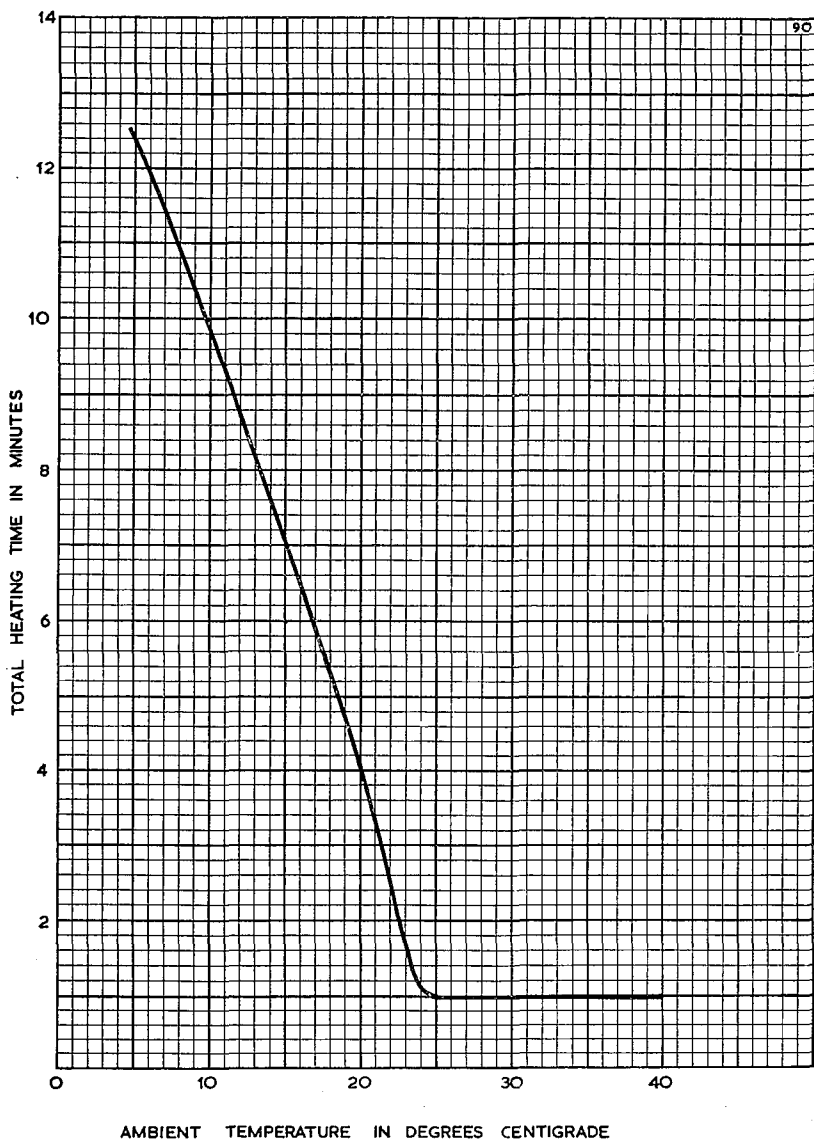


MERCURY VAPOUR RECTIFIER

AH2 1

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TOTAL HEATING TIME CHARACTERISTIC



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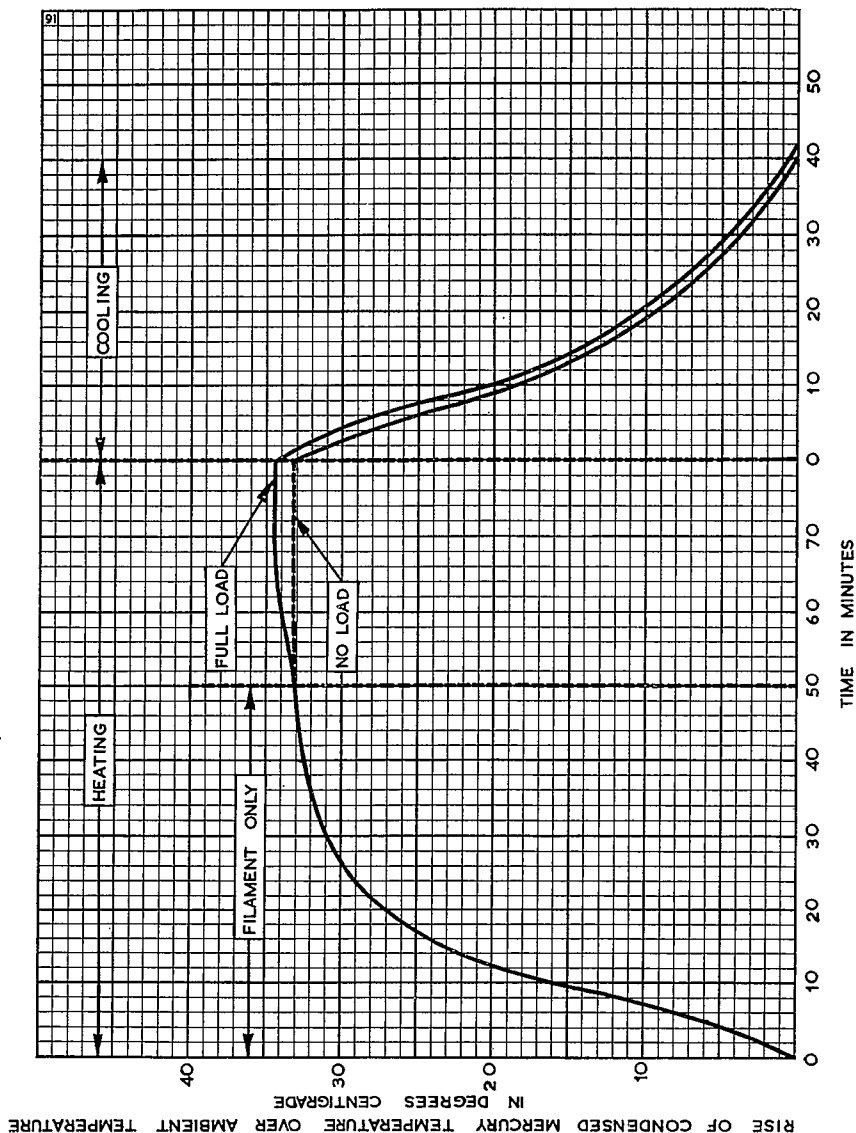


MERCURY VAPOUR RECTIFIER

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HEATING AND COOLING CHARACTERISTIC



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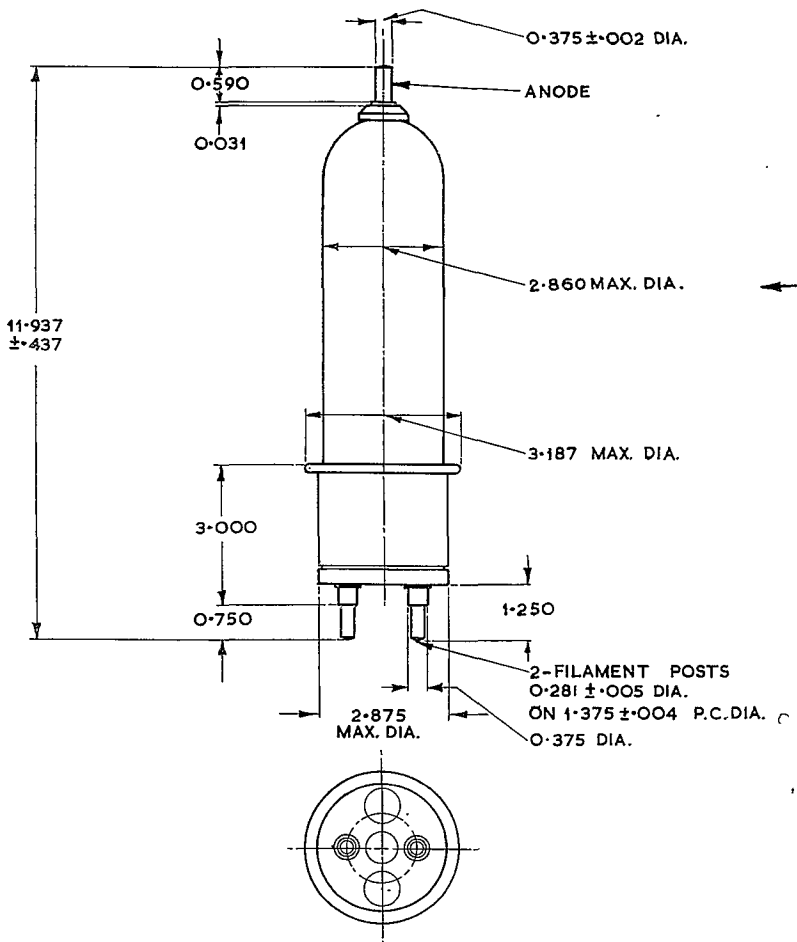
MERCURY VAPOUR RECTIFIER

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OUTLINE

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ALL DIMENSIONS IN INCHES

INDICATES A CHANGE ←

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MERCURY VAPOUR RECTIFIER

AH211A

March 1959 Page 1

Service Type CV532

INTRODUCTION

The AH211A is a hot cathode Mercury Vapour Rectifier with maximum ratings of 16kV peak inverse voltage and 8A peak current. It will provide a D.C. output of 15kV 6A in a three phase full wave circuit.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	2.5	V
Filament Current	..	..	..	..	..	..	30	A
Filament Heating Time	..	..	..	..	..	..	1	Minute
Condensed Mercury Temperature	..	..	..	..	..	..	25 to 50	°C
Max Peak Inverse Voltage	..	..	..	..	..	..	16	kV
Max Anode Current:								
Peak	..	..	..	..	..	..	8	A
Mean (30 seconds Max averaging time)	..	..	..	..	..	..	2	A ←
Under fault conditions (0.1 seconds Max duration)	..	..	..	..	..	..	100	A

Mechanical

Overall Length	..	..	..	13.38 inches	(340 mm)	Max
Overall Diameter	..	..	..	3.19 inches	(81 mm)	Max
Net Weight	..	..	..	1½ pounds	(0.5 kg)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	(See outline drawing)

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating time and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

← Indicates a change.

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MERCURY VAPOUR RECTIFIER

AH211A

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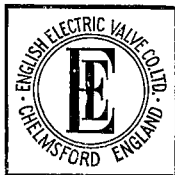
MAXIMUM OPERATING CONDITIONS (Absolute Values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean†		kV	Amps
Single Phase Full Wave	A	25-50	16	8	2.0	5.6	5.0	4
Single Phase Full Wave Bridge	B	25-50	16	8	2.0	11.2	10.1	4
Three Phase Half Wave	C	25-50	16	8	2.0	6.5†	7.6†	6
Three Phase Full Wave	D	25-50	16	8	2.0	6.5	15.2	6

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased, the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 30 seconds maximum.

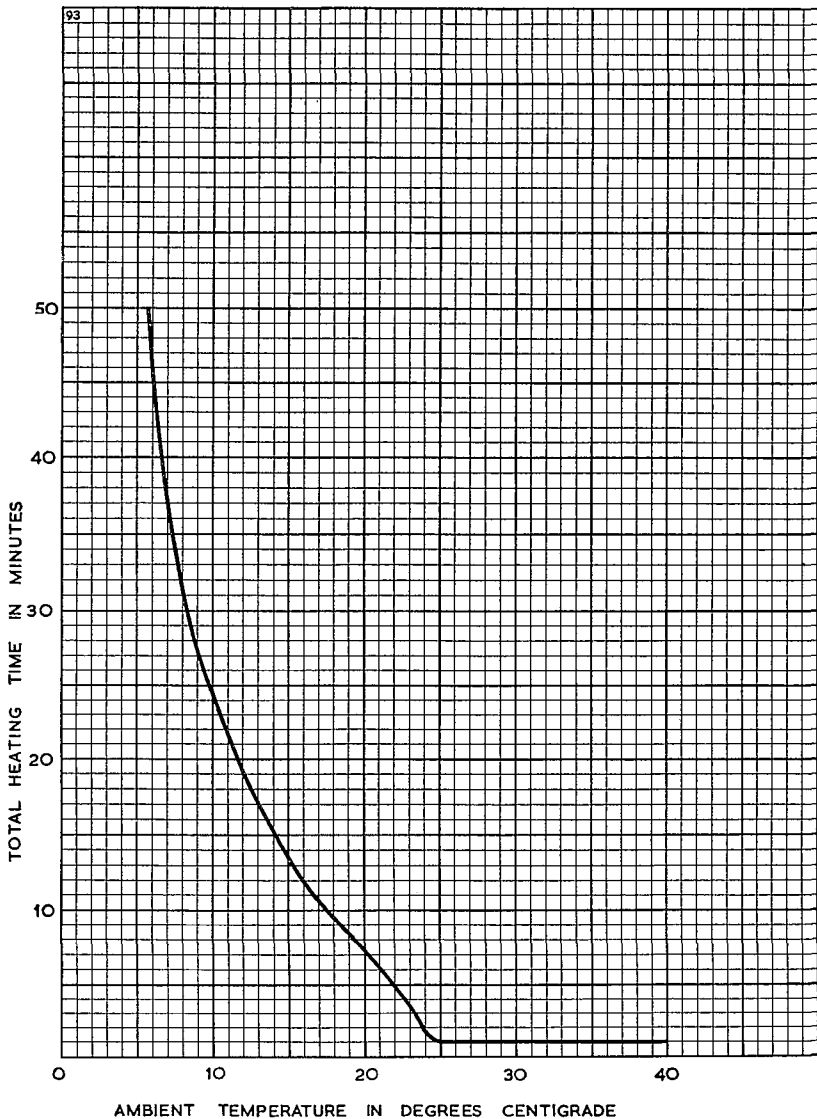


MERCURY VAPOUR RECTIFIER

AH211A

November 1957 Page 3

TOTAL HEATING TIME CHARACTERISTIC



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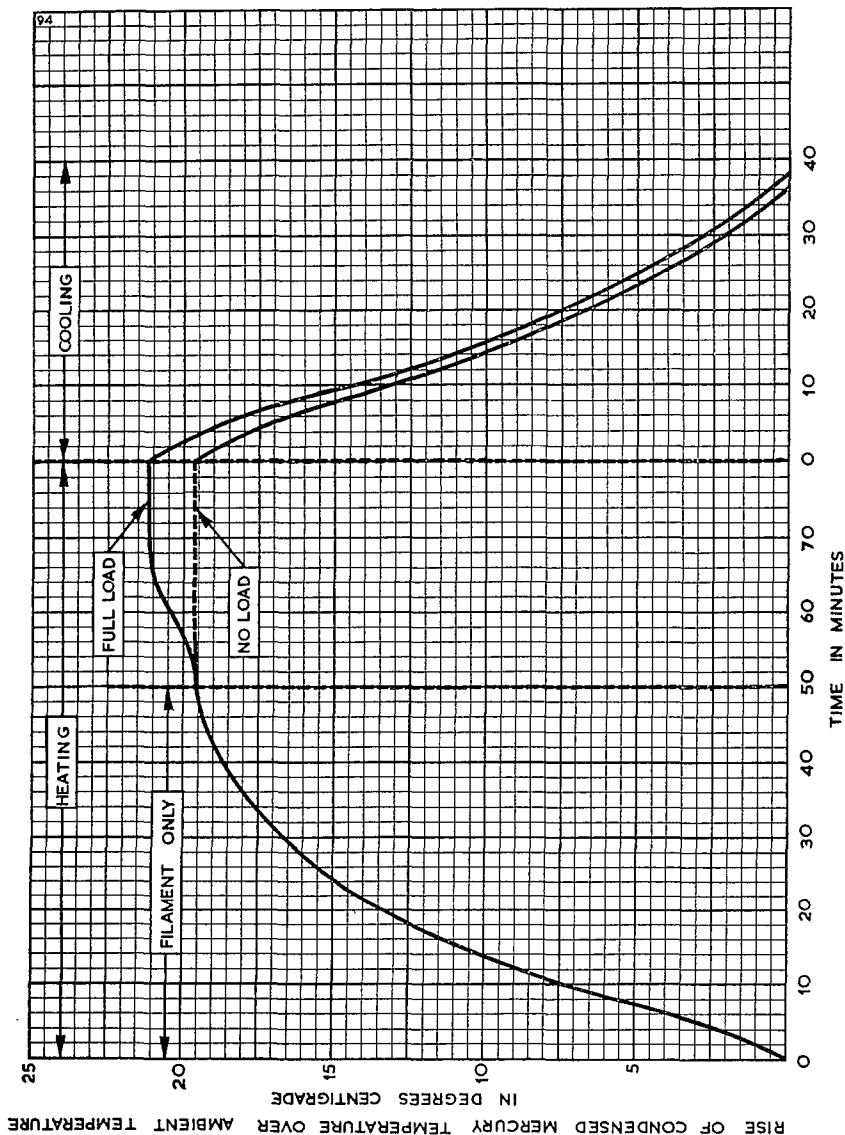


MERCURY VAPOUR RECTIFIER

AH211A

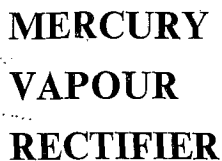
November 1957 Page 4

HEATING AND COOLING CHARACTERISTIC



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AH211A

June 1959 Page 5

OUTLINE

529



INDICATES A CHANGE ←

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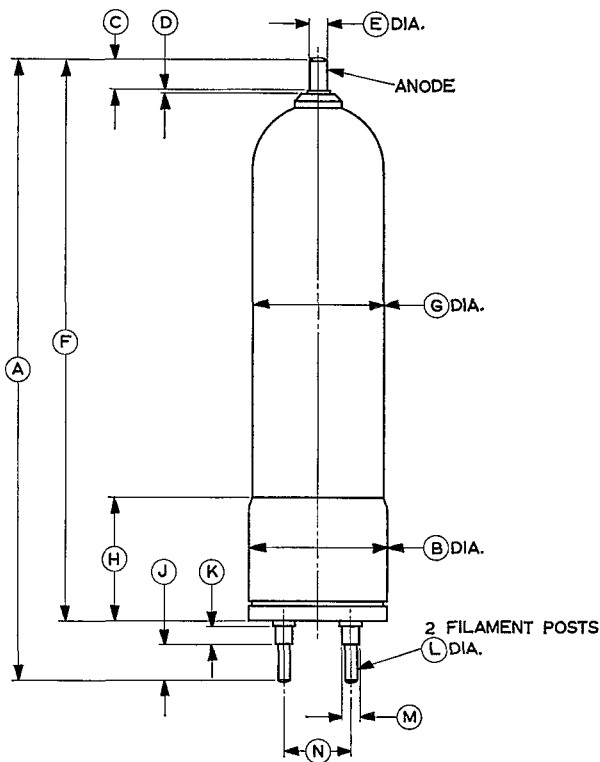
MERCURY VAPOUR RECTIFIER

AH211A

September 1966 Page 5

OUTLINE

529A



Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	12.937 ± 0.437	328.6 ± 11.10	H	2.563	65.10
B	2.875	73.03	J	0.750	19.05
C	0.590	14.99	K	0.375	9.53
D	0.031	0.79	L	0.281 ± 0.005	7.14 ± 0.13
E	0.375 ± 0.002	9.525 ± 0.051	M	0.375	9.53
F	11.687 ± 0.437	296.8 ± 11.10	N	1.375	34.93
G	2.860 Max	72.64 Max			

Millimetre dimensions have been derived from inches.



MERCURY VAPOUR RECTIFIER

AH213

November 1957 Page 1

Service Type CV2723

Electrically Equivalent to American 869B

INTRODUCTION

The AH213 is a hot cathode Mercury Vapour Rectifier with maximum ratings of 20kV peak inverse voltage and 10A peak current. It is similar to the AH200, differing only in filament rating and in terminal sizes.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	5	V
Filament Current	..	..	..	..	..	..	19	A
Filament Heating Time	..	..	..	..	..	..	1	Minute
Condensed Mercury Temperature	..	..	..	..	..	..	(See page 2)	
Max Peak Inverse Voltage	..	..	..	..	..	..	(See page 2)	
Max Anode Current:								
Peak	..	..	..	..	..	..	(See page 2)	
Mean†	..	..	..	..	..	..	(See page 2)	
Under fault conditions	..	..	..	..	..	..	100	A
(0.1 seconds Max duration)								

Mechanical

Overall Length	..	..	..	18.0 inches	(457 mm)	Max
Overall Diameter	..	..	..	5.25 inches	(133 mm)	Max
Net Weight	..	..	..	1.75 pounds	(800 gm)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	(See outline drawing)

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

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MERCURY VAPOUR RECTIFIER

AH213

November 1957 Page 2

MAXIMUM OPERATING CONDITIONS

(Absolute Values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode Current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean†		kV	Amps
Single Phase Full Wave	A	30-40	20	10	2.5	7.0	6.3	5.0
		30-50	15	10	2.5	5.3	4.7	5.0
		30-60	10	10	2.5	3.5	3.1	5.0
Single Phase Full Wave Bridge	B	30-40	20	10	2.5	14.0	12.6	5.0
		30-50	15	10	2.5	10.6	9.5	5.0
		30-60	10	10	2.5	7.0	6.3	5.0
Three Phase Half Wave	C	30-40	20	10	2.5	8.1†	9.5†	7.5
		30-50	15	10	2.5	6.1†	7.1†	7.5
		30-60	10	10	2.5	4.1†	4.7†	7.5
Three Phase Full Wave	D§	30-40	20	10	2.5	8.1	19.0	7.5
		30-50	15	20	5	6.1	14.2	15.0
		30-60	10	20	5	4.1	9.5	15.0

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 30 seconds maximum.

§With filament and anode supplies out of phase (60°-120°).

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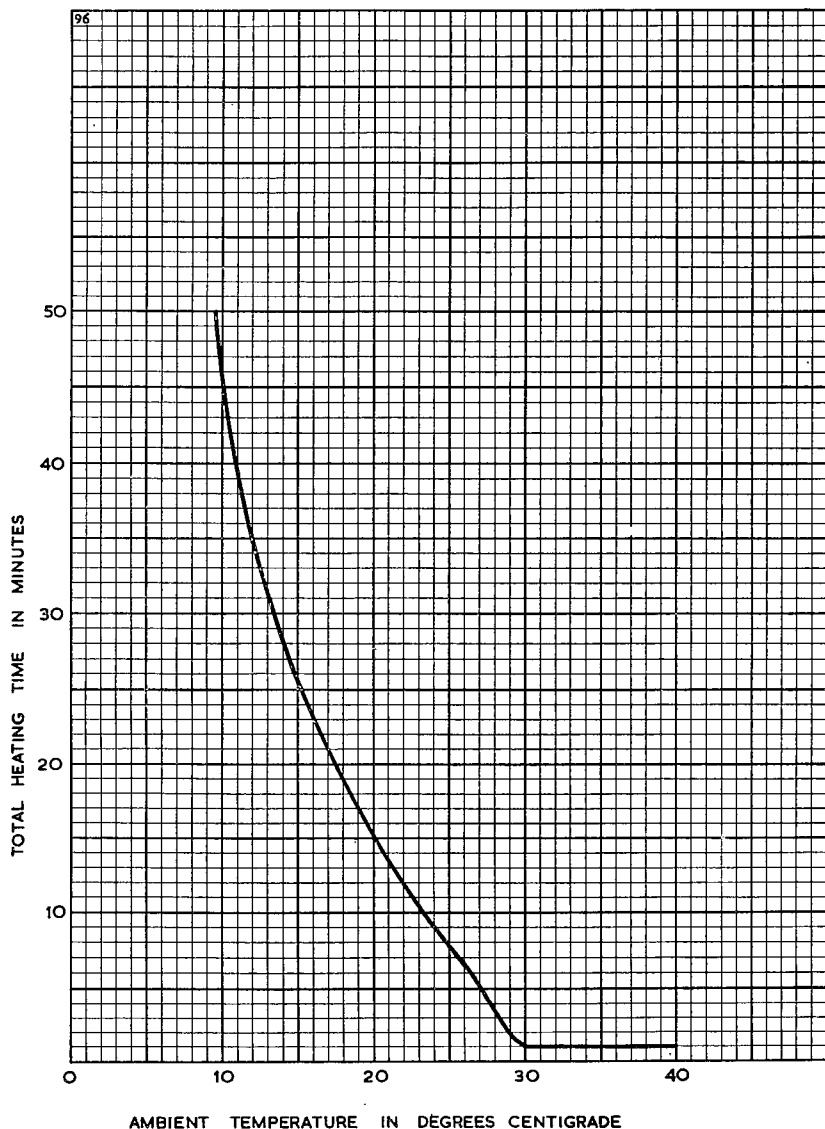


MERCURY VAPOUR RECTIFIER

AH213

November 1957 Page 3

TOTAL HEATING TIME CHARACTERISTIC



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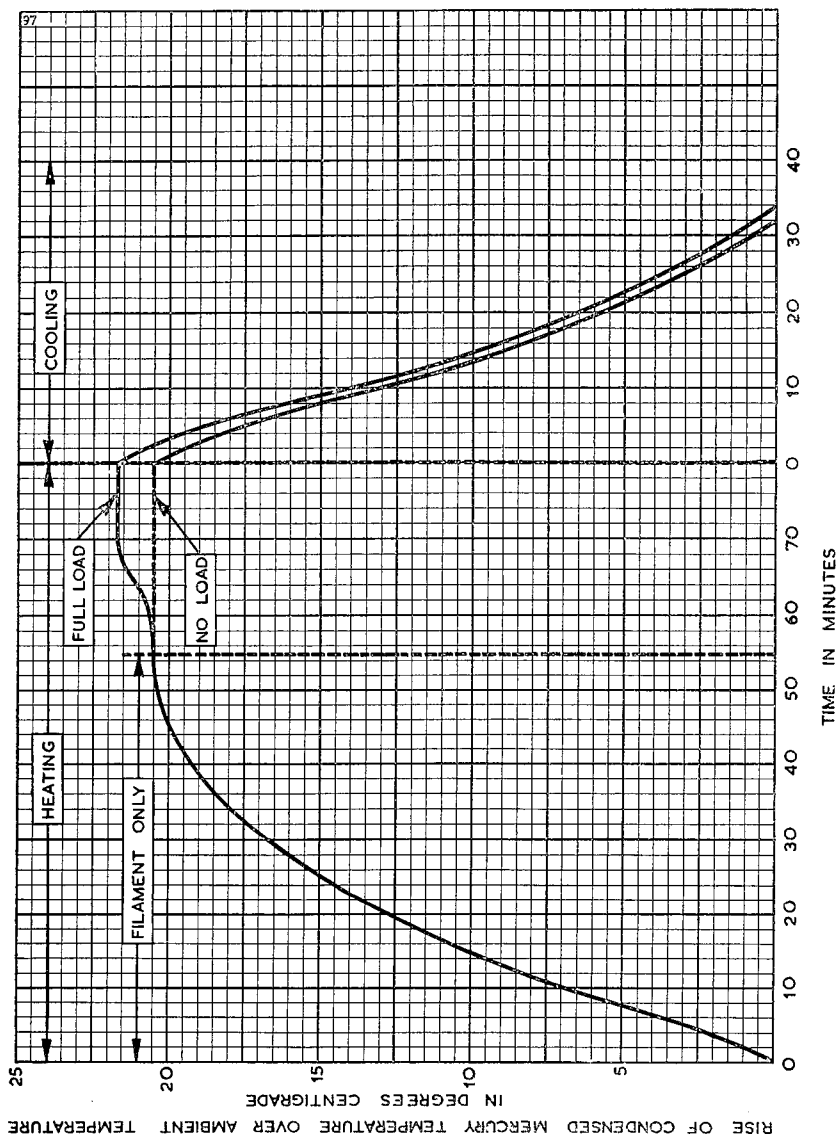


MERCURY VAPOUR RECTIFIER

AH213

November 1957 Page 4

HEATING AND COOLING CHARACTERISTIC



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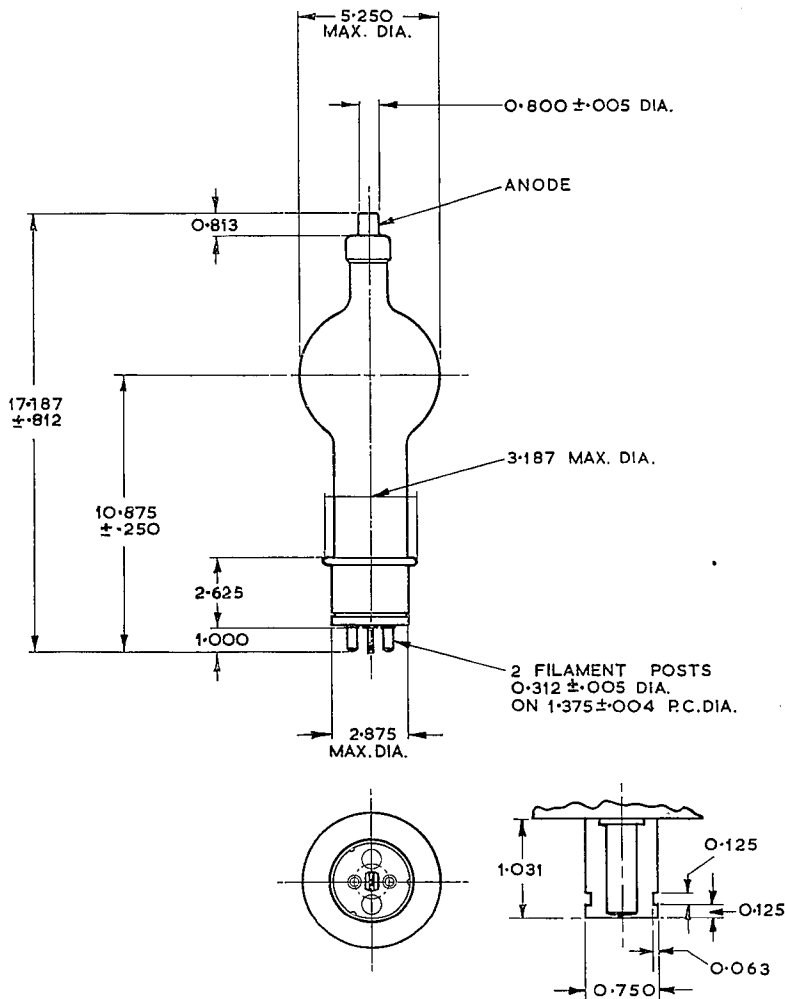
MERCURY VAPOUR RECTIFIER

AH213

November 1957 Page 5

OUTLINE

98



ALL DIMENSIONS IN INCHES

DETAIL OF BASE SPIGOT



MERCURY VAPOUR RECTIFIER

AH221

December 1959 Page 1

Service Types CV5 and CV1435

INTRODUCTION

The AH221 is a hot cathode Mercury Vapour Rectifier with maximum ratings of 20kV peak inverse voltage and 5A peak current. It will provide a D.C. output of 19.0kV 3.75A in a three phase full wave circuit.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	..	4.0 V
Filament Current	..	..	..	..	..	..	..	11 A
Filament Heating Time	..	..	..	..	..	..	..	1 Minute
Condensed Mercury Temperature	..	..	..	..	..	..	..	(See Page 2) ←
Max Peak Inverse Voltage	..	..	..	..	..	..	..	(See Page 2) ←
Max Anode Current:								
Peak	..	..	..	..	..	..	..	5.0 A
Mean†	..	..	..	..	..	..	..	1.25 A
Under fault conditions	..	..	..	..	..	..	..	50 A
(0.2 second Max duration)								

Mechanical

Overall Length..	..	..	..	10.63 inches	(270 mm)	Max
Overall Diameter	..	..	..	2.32 inches	(59 mm)	Max
Net Weight	..	..	..	8 ounces	(230 gm)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	Goliath Edison Screw

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

← Indicates a change.



MERCURY VAPOUR RECTIFIER

AH221

Page 2

MAXIMUM OPERATING CONDITIONS (Absolute Values—see Preamble)

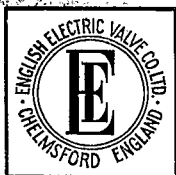
Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode Current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean†		kV	Amps
Single Phase Full Wave	A	20-40	20	5.0	1.25	7.0	6.3	2.5
		20-50	11	5.0	1.25	3.9	3.5	2.5
Single Phase Full Wave Bridge	B	20-40	20	5.0	1.25	14.0	12.6	2.5
		20-50	11	5.0	1.25	7.75	7.0	2.5
Three Phase Half Wave	C	20-40	20	5.0	1.25	8.1†	9.5†	3.75
		20-50	11	5.0	1.25	4.4†	5.2†	3.75
Three Phase Full Wave	D	20-40	20	5.0	1.25	8.1	19.0	3.75
		20-50	11	5.0	1.25	4.4	10.4	3.75

*For diagram see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 15 seconds maximum.

→ Indicates a change.

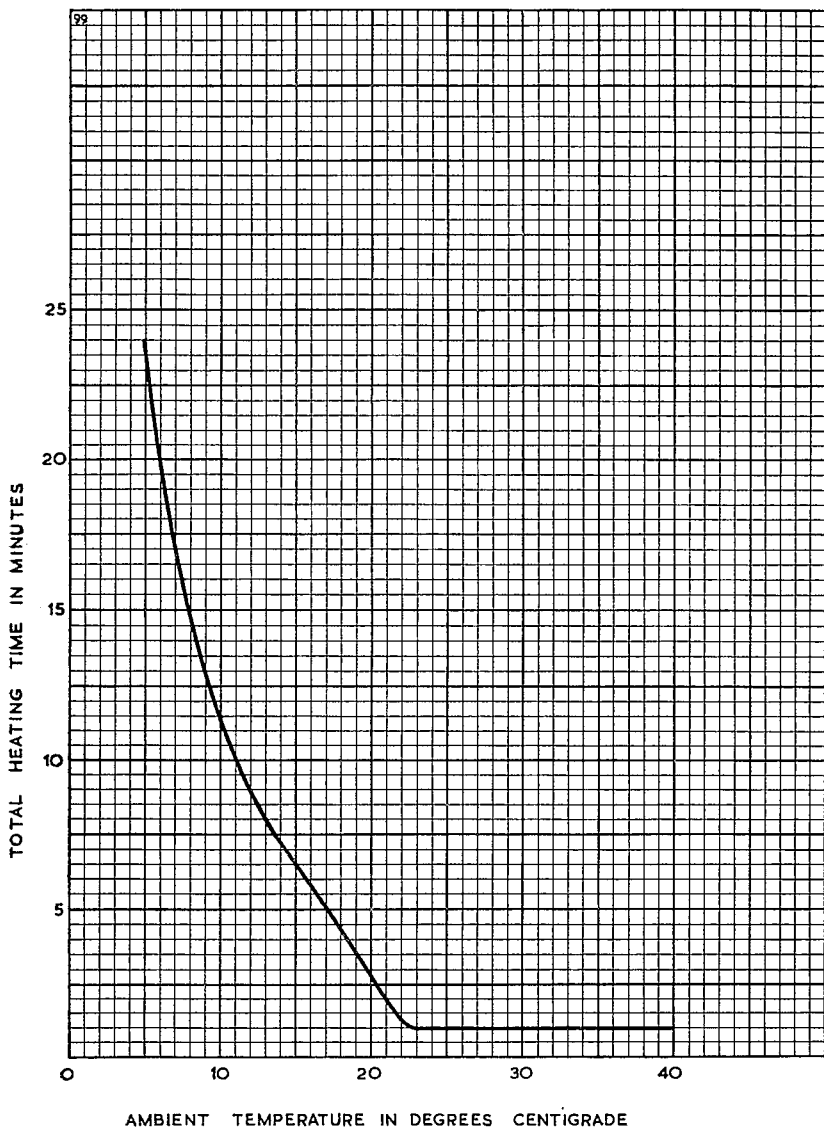


MERCURY VAPOUR RECTIFIER

AH221

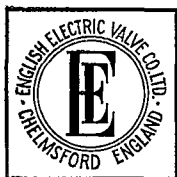
September 1959 Page 3

TOTAL HEATING TIME CHARACTERISTIC



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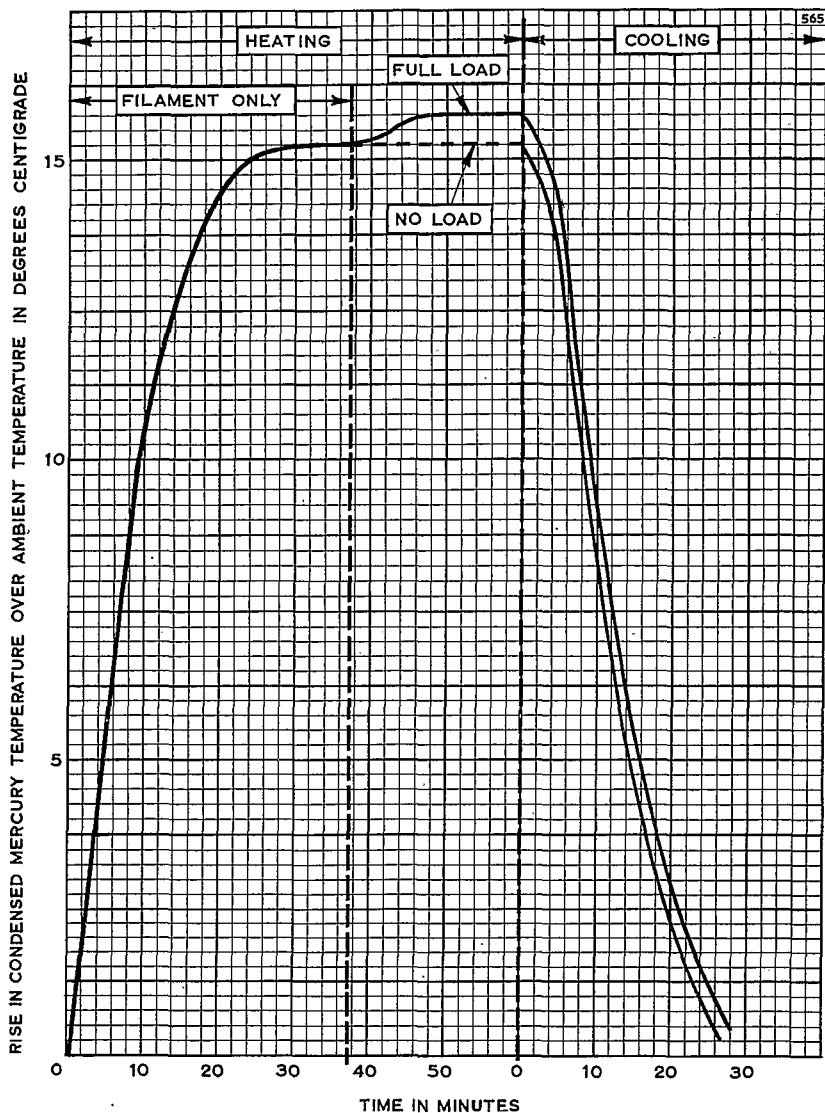


MERCURY VAPOUR RECTIFIER

AH221

Page 4

HEATING AND COOLING CHARACTERISTIC



→ Indicates a change



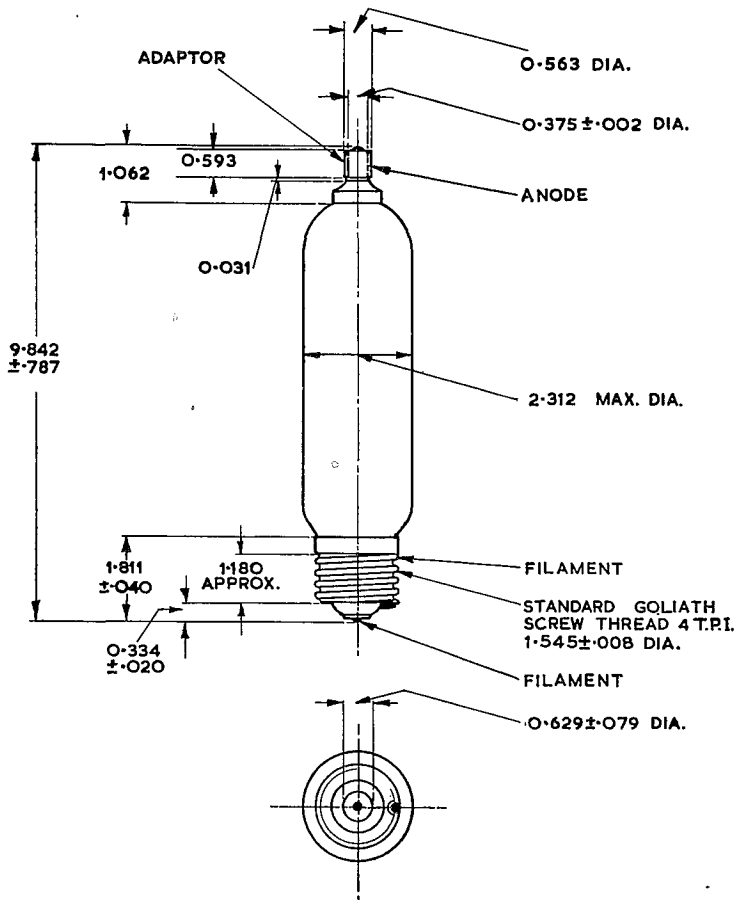
MERCURY VAPOUR RECTIFIER

AH221

September 1960 Page 5

OUTLINE

101A



ALL DIMENSIONS IN INCHES

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MERCURY VAPOUR RECTIFIER

AH238

December 1963

Page 1

ENGLISH ELECTRIC

Service Type CV1629

INTRODUCTION

The AH238 is a hot cathode Mercury Vapour Rectifier with maximum ratings of 13kV peak inverse voltage and 5.0A peak current. It will provide a d.c. output of 12kV 3.7A in a three phase full wave circuit.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	..	4.0 V
Filament Current	..	..	..	..	..	..	..	7.0 A
Filament Heating Time	..	..	..	..	..	..	..	1 Minute
Condensed Mercury Temperature	..	..	..	..	..	..	..	(See page 2)
Max Peak Inverse Voltage	..	..	..	..	..	..	..	(See page 2)
Max Anode Current:								
Peak	..	..	..	..	..	..	..	5.0 A
Mean†	..	..	..	..	..	..	..	1.25 A
Under fault conditions	..	..	..	..	..	..	..	100 A
(0.1 second Max duration)								

Mechanical

Overall Length	..	..	..	9.488 inches	(241mm)	Max←
Overall Diameter	..	..	..	2.312 inches	(58.7mm)	Max←
Net Weight	..	..	..	7 ounces	(200gm)	Approx
Mounting Position	..	..	..	..	..	Vertical, base down
Base	..	..	..	..	..	Goliath Edison Screw
Top Cap	..	..	..	..	..	B.S.448/CT9 fitted with← screw terminal adaptor

CONTROL OF CONDENSED MERCURY TEMPERATURE

On the following pages two curves are given showing:

1. Total heating time for any value of ambient temperature. This is for use when the valve is being switched on from cold.
2. Rise of condensed mercury temperature above ambient plotted against heating and cooling time. This can be used as indicated by the example in the preamble to this section of the catalogue.

← Indicates a change

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CHELMSFORD
ENGLAND

Telephone:
Chelmsford 3491

ENGLISH ELECTRIC

MAXIMUM OPERATING CONDITIONS

(Absolute Values—see Preamble)

Circuit	* Dia- gram	Con- densed Mercury Temp. °C	Peak Inverse Voltage (50-60 c/s) kV	Anode Current in Amperes		Trans- former Secondary Voltage (R.M.S.) kV	Max D.C. Output	
				Peak	Mean†		kV	A
Single Phase Full Wave	A	25-55	13	5	1.25	4.5	4.1	2.5
		25-60	10	5	1.25	3.5	3.1	2.5
		25-65	8	5	1.25	2.8	2.5	2.5
Single Phase Full Wave Bridge	B	25-55	13	5	1.25	9.1	8.2	2.5
		25-60	10	5	1.25	7.0	6.3	2.5
		25-65	8	5	1.25	5.6	5.0	2.5
Three Phase Half Wave	C	25-55	13	5	1.25	5.3†	6.2†	3.75
		25-60	10	5	1.25	4.1†	4.7†	3.75
		25-65	8	5	1.25	3.2†	3.7†	3.75
Three Phase Full Wave	D	25-55	13	5	1.25	5.3	12.4	3.75
		25-60	10	5	1.25	4.1	9.5	3.75
		25-65	8	5	1.25	3.2	7.5	3.75

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The d.c. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 15 seconds maximum.

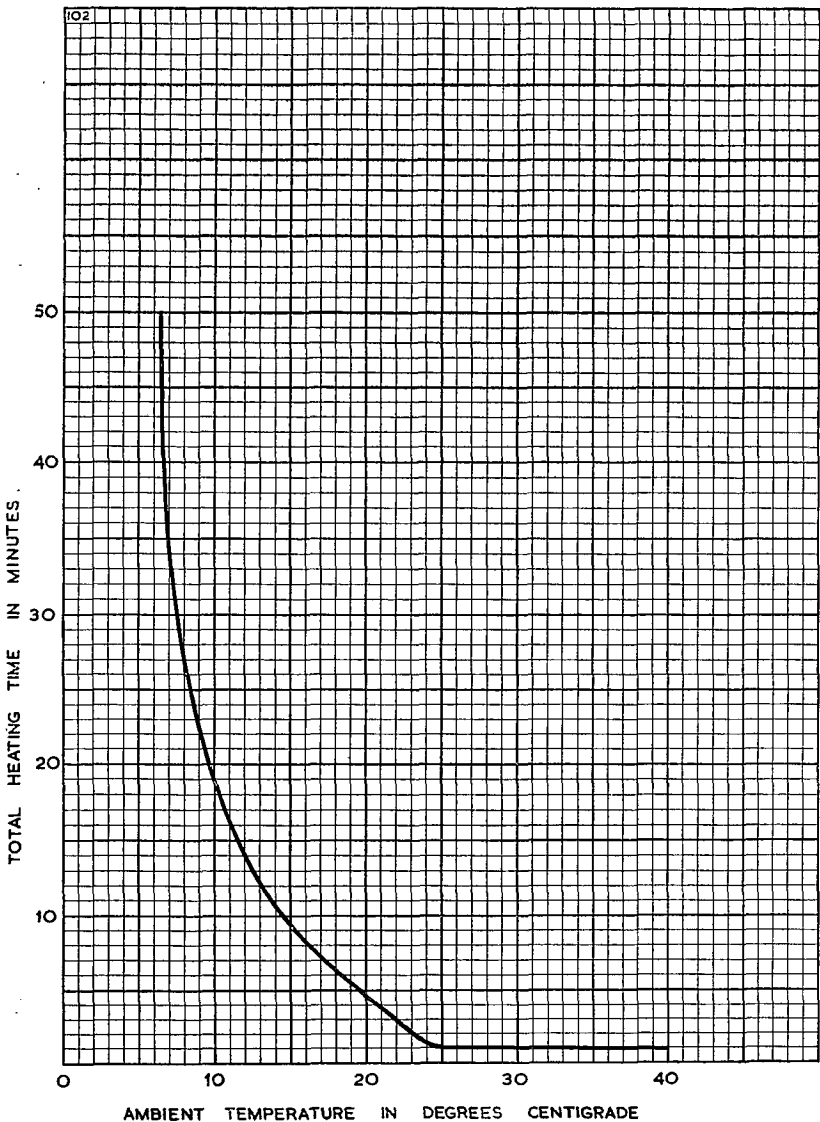
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ENGLAND

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TOTAL HEATING TIME CHARACTERISTIC

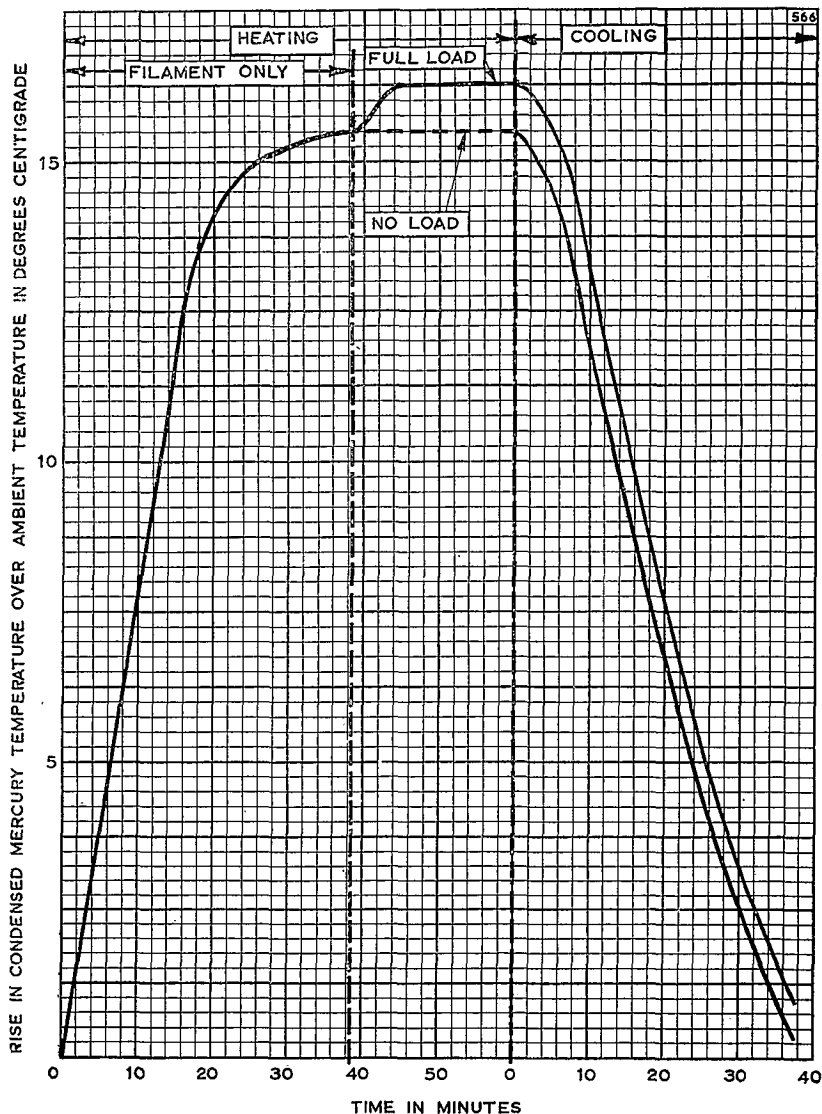


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ENGLISH ELECTRIC

HEATING AND COOLING CHARACTERISTIC



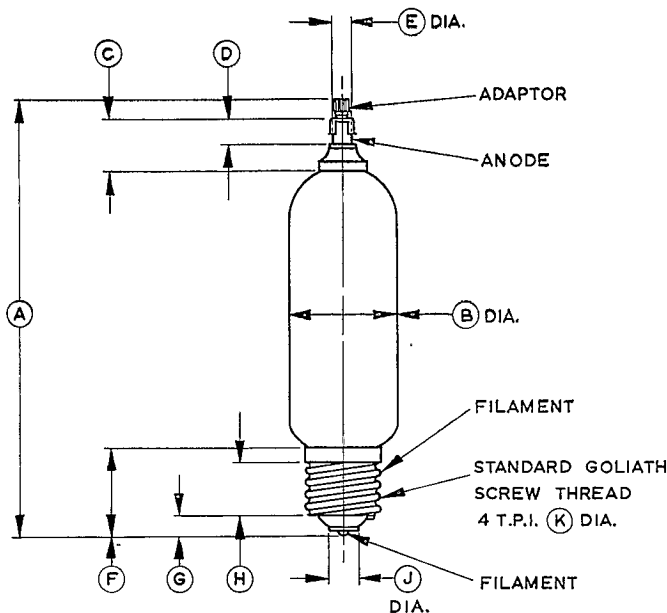
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OUTLINE

104C



Ref.	Inches	Millimetres
A	9.488 Max	241 Max
B	2.312 Max	58.72 Max
C	1.062	26.97
D	0.593	15.06
E	0.375 ± 0.002	9.525 ± 0.051
F	1.811 ± 0.040	46.00 ± 1.02
G	0.355 ± 0.040	9.02 ± 1.02
H	1.180	29.97
J	0.630 ± 0.079	16.00 ± 2.01
K	1.546 ± 0.009	39.27 ± 0.23

Millimetre dimensions have been derived from inches.



AH2511

MERCURY VAPOUR RECTIFIER

JEDEC Type 6693

ABRIDGED DATA

Hot cathode mercury vapour rectifier

Peak inverse anode voltage	15	kV max
Peak anode current (at 15kV p.i.v.)	12	A max
Mean anode current (at 15kV p.i.v.)	3.0	A max
Fault anode current (0.1s max)	120	A max
Frequency	150	Hz max

GENERAL

Electrical

Filament		oxide coated
Filament voltage	5.0	V
Filament current	11.5	A
Filament heating time (minimum)	1.0	min
Voltage drop (approx)	12	V
Condensed mercury temperature rise above ambient (approx):		
at no load	13	°C
at 2.5A load	23	°C

Mechanical

Overall length	308mm (12.126 inches) max
Overall diameter	72mm (2.835 inches) max
Net weight	450g (1 pound) approx
Mounting position	vertical, base down
Base	B4D with bayonet
Top cap	B.S.448/CT9 fitted with screw terminal adaptor

March 1969

MAXIMUM OPERATING CONDITIONS (Absolute values)

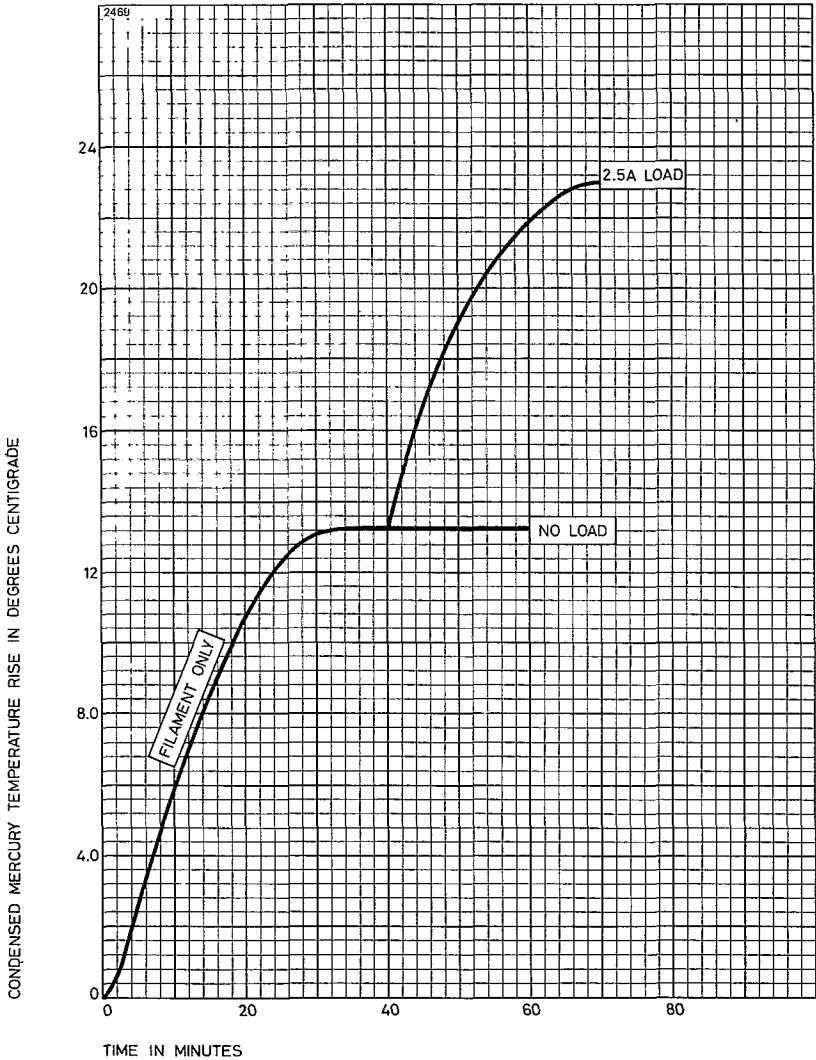
Circuit*	Condensed mercury temp. (°C)	Peak inverse voltage (50–60Hz) (kV)	Anode current in amperes		Transformer secondary voltage (r.m.s.) (kV)	Maximum d.c. output	
			peak	mean♦		(kV)	(A)
A	25–55	15	12	3.0	5.3	4.8	6.0
Single phase	25–60	10	12	3.0	3.5	3.2	6.0
full wave	25–75	2.5	20	5.0	0.88	0.8	10
B	25–55	15	12	3.0	10.6	9.6	6.0
Single phase	25–60	10	12	3.0	7.1	6.4	6.0
bridge	25–75	2.5	20	5.0	1.77	1.6	10
C	25–55	15	12	3.0	6.1†	7.2†	9.0
Three phase	25–60	10	12	3.0	4.1†	4.8†	9.0
half wave	25–75	2.5	20	5.0	1.02†	1.2†	15
D	25–55	15	12	3.0	6.1	14.3	9.0
Three phase	25–60	10	12	3.0	4.1	9.5	9.0
full wave	25–75	2.5	20	5.0	1.02	2.4	15

* See Typical Rectifier Circuits for Choke input filters in the preamble to the Rectifier section of the Valve Data Book.

† For operation at constant full load. If the load is reduced, the peak inverse voltage on the valves will exceed the ratings unless the transformer secondary voltage is reduced. The total reduction required is 14% at no load and the d.c. output voltage will be correspondingly reduced.

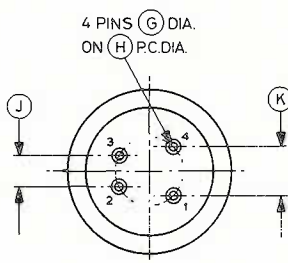
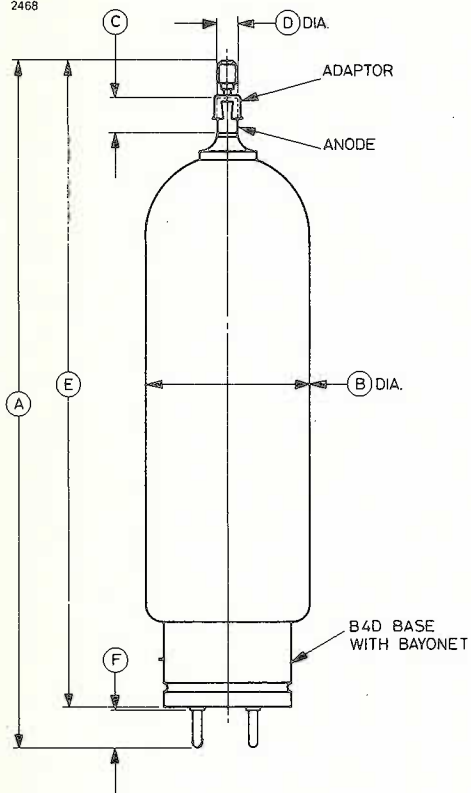
♦ Averaging time 15 seconds maximum.

HEATING CHARACTERISTIC



OUTLINE

2468



VIEW ON BASE

Pin	Element
1	No connection
2	Filament
3	Filament
4	No connection

Ref	Inches	Millimetres	Ref	Inches	Millimetres
A*	11.811 ± 0.315	300.0 ± 8.0	F	0.625	15.88
B*	2.835 max	72.0 max	G	0.187 ± 0.003	4.750 ± 0.076
C	0.593	15.06	H	1.000	25.40
D	0.375 ± 0.002	9.525 ± 0.051	J	0.562	14.27
E*	11.122 ± 0.236	282.5 ± 6.0	K	0.750	19.05

Millimetre dimensions have been derived from inches except where marked *.

ABRIDGED DATA

Hot Cathode Full Wave Mercury Vapour Rectifier

Peak Inverse Anode Voltage	..	..	..	..	1.0 kV Max
Peak Anode Current (per anode)	..	..	..	..	50 A Max
Mean Anode Current (per anode)	..	..	..	..	16.5 A Max

GENERAL

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

Cathode..	..	..	..	..	Indirectly Heated
Heater Voltage..	..	..	..	..	5.0 V
Heater Current..	..	..	..	..	35 A
Cathode Heating Time (Minimum)	..	..	..	..	5.0 min
Voltage Drop (Approx)	..	..	..	..	12 V
Condensed Mercury Temperature Rise above Ambient (Approx):					
At no load	..	..	..	..	52 °C
At full load	..	..	..	..	60 °C

Mechanical

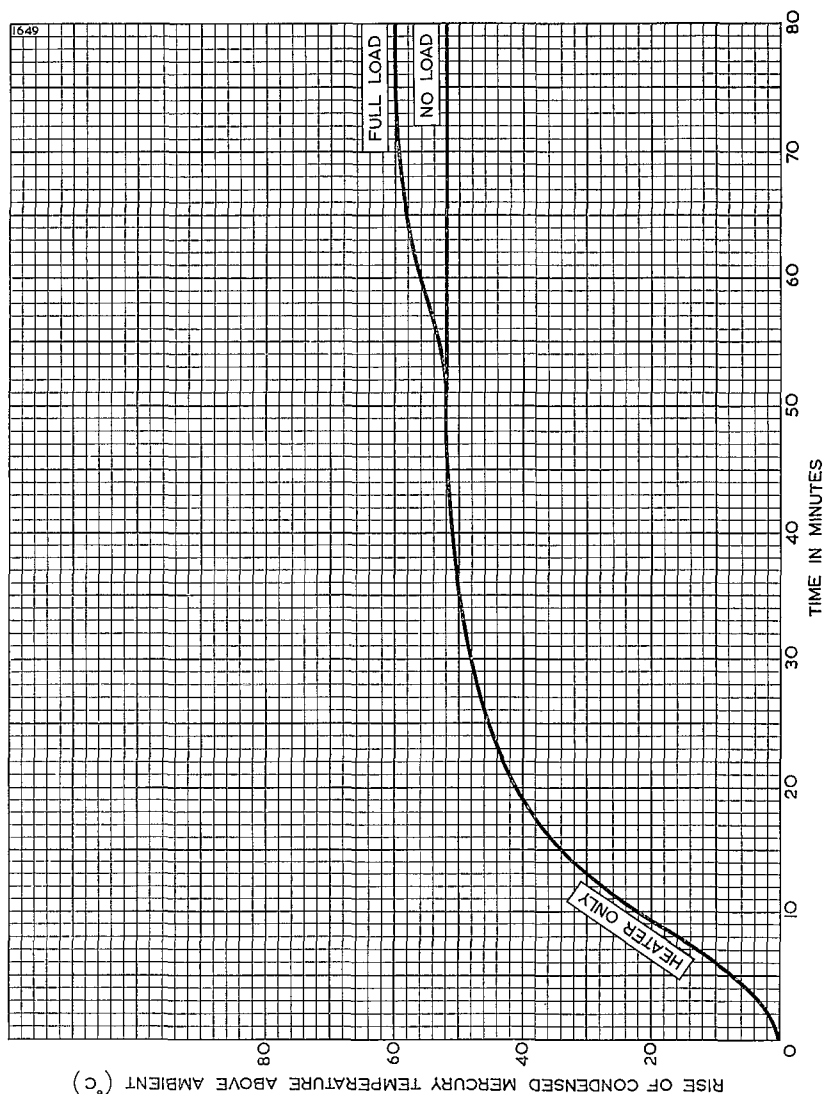
Overall Length (excluding leads)	16.437 inches	(417.5 mm)	Max
Overall Diameter	6.437 inches	(163.5 mm)	Max
Net Weight	3½ pounds	(1.6 kg)	Approx
Mounting Position	..	Vertical, base down	
Connections	..	Flexible leads	

MAXIMUM AND MINIMUM RATINGS

(Absolute Values)

Peak Inverse Anode Voltage	..	..	..	..	1.0 kV Max
R.M.S. Voltage between Anodes	..	..	..	..	250 V Max
Peak Anode Current (per anode)	..	..	..	..	50 A Max
Mean Anode Current (per anode) (averaging time 30sec max)	..	..	..	..	16.5 A Max
Surge Anode Current (per anode) (0.1sec maximum duration)	..	..	..	..	500 A Max
Condensed Mercury Temperature (on load)	..	..	..	..	40 °C Min
					100 °C Max

HEATING CHARACTERISTIC



MERCURY VAPOUR RECTIFIER

BD1

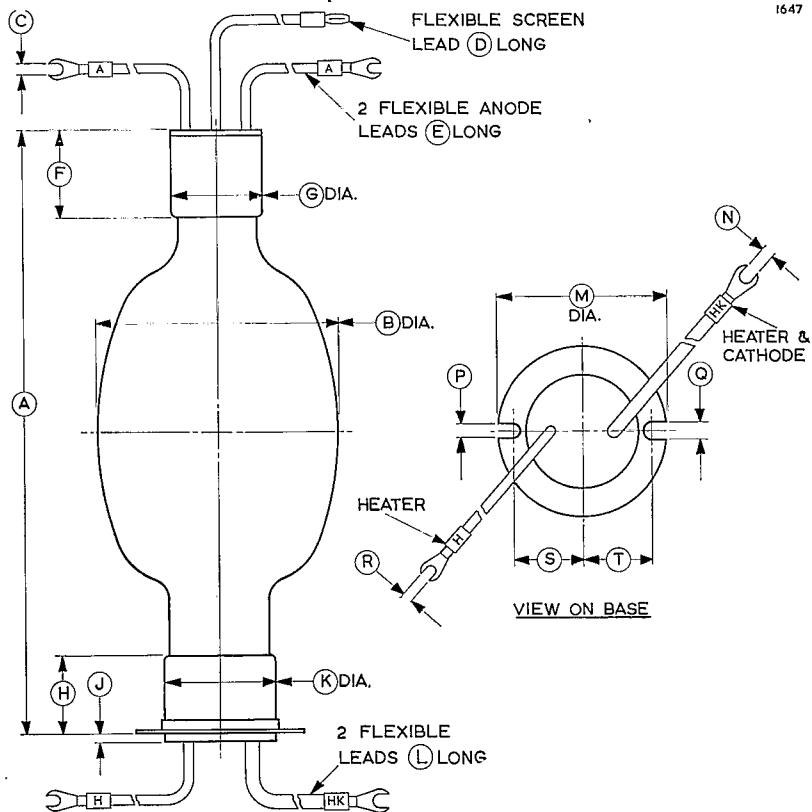
June 1966

Page 3

ENGLISH ELECTRIC

OUTLINE

1647



Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	15.625 ± 0.500	396.9 ± 12.70	K	2.875 Max	73.03 Max
B	6.437 Max	163.5 Max	L	7.750 ± 0.250	196.9 ± 6.35
C	0.265	6.73	M	4.375 Max	111.1 Max
D	6.250 ± 0.250	158.8 ± 6.35	N	0.328	8.33
E	7.750 ± 0.250	196.9 ± 6.35	P	0.344	8.74
F	2.250	57.15	Q	0.437	11.10
G	2.875 Max	73.03 Max	R	0.265	6.73
H	2.000	50.80	S	1.813	46.05
J	0.250 ± 0.062	6.35 ± 1.57	T	1.813	46.05

Millimetre dimensions have been derived from inches.

ENGLISH ELECTRIC VALVE CO. LTD.

CHELMSFORD
ENGLAND

Printed in England

Xenon Filled Rectifiers

June 1965

ENGLISH ELECTRIC VALVE CO. LTD.

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**CHELMSFORD
ENGLAND**

*Telephone:
Chelmsford 3491*



XENON FILLED RECTIFIER

3B22

March 1959 • Page 1

Service Type CV3815

American Designation 3B22

INTRODUCTION

The 3B22 is a hot cathode, full wave, Xenon filled Rectifier with maximum ratings of 725V peak inverse voltage and 4.0A peak current.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	2.5	V
Filament Current	..	..	..	..	..	..	6.25 A	Approx
Min Filament Heating Time	..	..	..	..	..	20		secs
Ambient Temperature Range	..	..	..	..	..	-55 to +75		°C
Max Peak Inverse Voltage	..	..	..	..	..	725		V
Max Anode Current (per anode):								
Peak	..	..	..	..	..	..	4.0	A
Mean (4.5 secs averaging time)	..	..	..	..	..	..	0.5	A
Under Fault Conditions (0.1 second Max duration)	..	..	..	..	..	..	60	A
Max Power Supply Frequency	..	..	..	..	..	..	250	c/s

Mechanical

Overall Length..	..	..	..	6.00 inches	(153 mm)	Max
Overall Diameter	..	..	..	1.66 inches	(42.1 mm)	Max
Net Weight	..	..	..	3 ounces	(90 gm)	Approx
Mounting Position	..	..	..	..	..	Any
Base	..	..	..	..	Medium UX4 with bayonet	
Cooling	..	..	..	..	..	Natural

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XENON FILLED RECTIFIER

3B22

Page 2

MAXIMUM OPERATING CONDITIONS

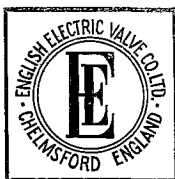
(Absolute Values—see Preamble)

D.C. Output with choke input filter and delayed H.T. switching

Circuit	* Diagram	Peak Inverse Voltage (up to 250c/s) V	Anode Current in Amperes		Transformer Secondary Voltage (R.M.S.) V	Max D.C. Output	
			Peak	Mean†		V	Amps
Single Phase Full Wave	A	725	4	0.5	255	230	1.0
Single Phase Full Wave Bridge	B	725	4	0.5	510	460	1.0
Three Phase Full Wave	D	725	4	0.5	295	690	1.5

* For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

† Mean anode currents are averaged over any period of 4.5 seconds.



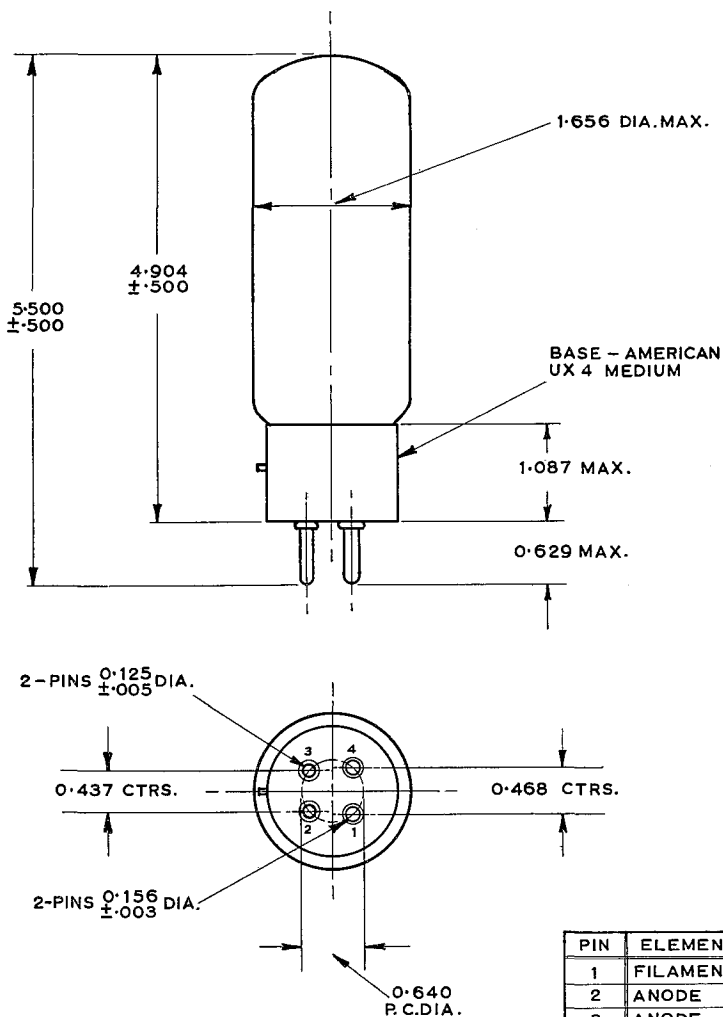
XENON FILLED RECTIFIER

3 | 22

March 1959 Page 3

OUTLINE

496



ALL DIMENSIONS IN INCHES

PIN	ELEMENT
1	FILAMENT
2	ANODE
3	ANODE
4	FILAMENT

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XENON FILLED RECTIFIER

3B28 (AX224)

November 1957 Page 1

Service Type CV1835

American Designation 3B28

INTRODUCTION

The 3B28 is a hot cathode, Xenon filled Rectifier with maximum ratings of 1A peak current at 10kV peak inverse voltage and 2A peak current at 5kV peak inverse voltage.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	..	2.5 V
Filament Current	..	..	..	..	..	..	..	5.0 A
Min Filament Heating Time	..	..	..	..	..	..	..	10 secs
Ambient Temperature Range	..	..	..	..	..	..	..	-55 to +75 °C
Max Peak Inverse Voltage	..	..	..	..	..	..	..	5.0 10.0 kV
Max Anode Current:								
Peak	..	..	..	..	..	..	..	2.0 1.0 A
Mean†	..	..	..	..	..	..	..	0.5 0.25 A
Under fault conditions (0.1 second Max duration)	..	..	..	..	..	..	..	20 20 A
Max Power Supply Frequency	..	..	..	..	..	..	..	500 150 c/s

Mechanical

Overall Length	..	..	..	..	6.16 inches (156 mm)	Max
Overall Diameter	..	..	..	..	2.07 inches (53 mm)	Max
Net Weight	..	..	..	..	2 ounces (57 gm)	Approx
Mounting Position	..	..	..	..	..	Any
Base	..	..	..	..	..	Medium UX4 with bayonet
Cooling	..	..	..	..	..	Natural

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XENON FILLED RECTIFIER

3B28 (AX224)

November 1957 Page 2

MAXIMUM OPERATING CONDITIONS

(Absolute Values—see Preamble)

D.C. Output with choke input filter and delayed H.T. switching

Circuit	* Diagram	Peak Inverse Voltage kV	Anode Current in Amperes		Transformer Secondary Voltage (R.M.S.) kV	Max D.C. Output	
			Peak	Mean†		kV	Amps
Single Phase Full Wave	A	● 10	1	0.25	3.5	3.1	0.5
		Δ 5	2	0.5	1.7	1.5	1.0
Single Phase Full Wave Bridge	B	● 10	1	0.25	7.0	6.3	0.5
		Δ 5	2	0.5	3.5	3.1	1.0
Three Phase Half Wave	C	● 10	1	0.25	4.1†	4.7†	0.75
		Δ 5	2	0.5	2.0†	2.3†	1.5
Three Phase Full Wave	D	● 10	1	0.25	4.1	9.5	0.75
		Δ 5	2	0.5	2.0	4.7	1.5

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 15 seconds maximum.

● For operation up to 150c/s.

Δ For operation up to 500c/s.



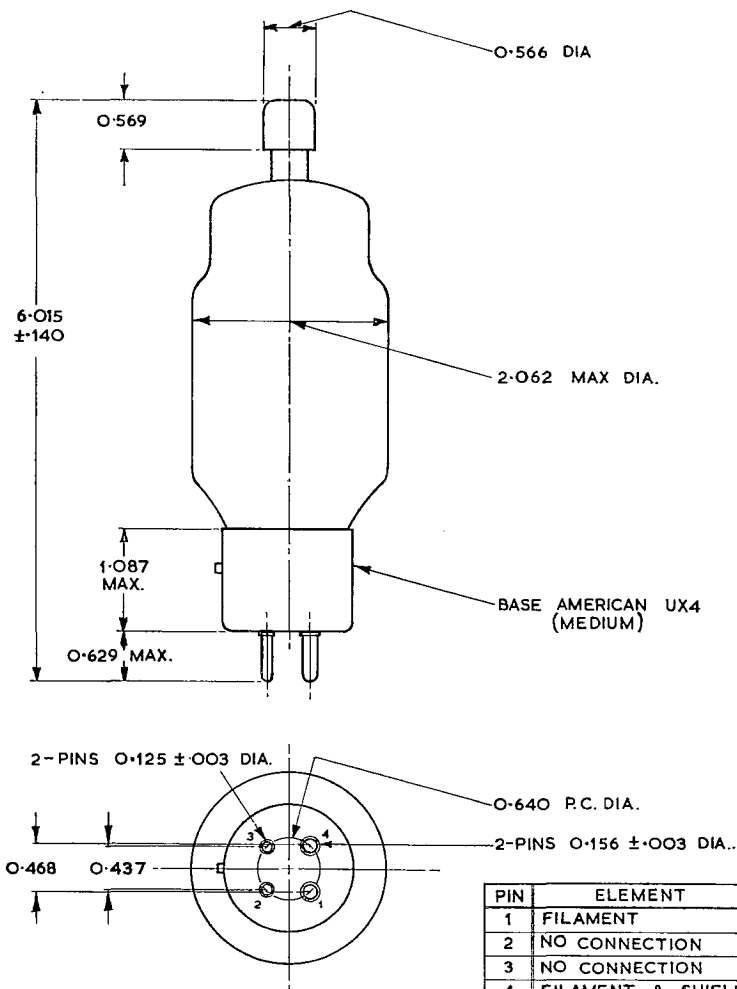
XENON FILLED RECTIFIER

3B28 (AX224)

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OUTLINE

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ALL DIMENSIONS IN INCHES

PIN	ELEMENT
1	FILAMENT
2	NO CONNECTION
3	NO CONNECTION
4	FILAMENT & SHIELD
CAP	ANODE

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XENON FILLED RECTIFIER

4B32 (AX230)

November 1957 Page 1

Service Type CV2518

American Designation 4B32

INTRODUCTION

The 4B32 is a hot cathode, Xenon filled Rectifier with maximum ratings of 10kV peak inverse voltage and 5A peak current.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	..	5.0 V
Filament Current	..	..	..	..	..	..	..	7.1 A
Min Filament Heating Time	..	..	..	..	..	..	..	30 secs
Ambient Temperature Range	..	..	..	..	..	..	..	-55 to +70 °C
Max Peak Inverse Voltage	..	..	..	..	..	..	..	10.0 kV
Max Anode Current:								
Peak	..	..	..	..	..	..	..	5.0 A
Mean†	..	..	..	..	..	..	..	1.25 A
Under fault conditions (0.1 second Max duration)	..	..	..	..	..	..	..	50 A
Max Power Supply Frequency	..	..	..	..	..	..	..	150 c/s

Mechanical

Overall Length..	..	..	..	8.5 inches	(216 mm)	Max
Overall Diameter	..	..	..	2.32 inches	(59 mm)	Max
Net Weight	..	..	..	8 ounces	(230 gm)	Approx
Mounting Position	..	..	..	..	..	Any
Base	..	..	..	..	..	B4F
Cooling	..	..	..	..	..	Natural

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XENON FILLED RECTIFIER

4B32 (AX230)

November 1957 Page 2

MAXIMUM OPERATING CONDITIONS

(Absolute Values—see Preamble)

D.C. Output with choke input filter and delayed H.T. switching

Circuit	* Diagram	Peak Inverse Voltage (upto 150c/s) kV	Anode Current in Amperes		Transformer Secondary Voltage (R.M.S.) kV	Max D.C. Output	
			Peak	Mean†		kV	Amps
Single Phase Full Wave	A	10	5	1.25	3.5	3.1	2.5
Single Phase Full Wave Bridge	B	10	5	1.25	7.0	6.3	2.5
Three Phase Half Wave	C	10	5	1.25	4.1†	4.7†	3.75
Three Phase Full Wave	D	10	5	1.25	4.1	9.5	3.75

*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The D.C. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 15 seconds maximum.



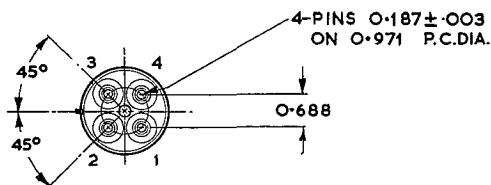
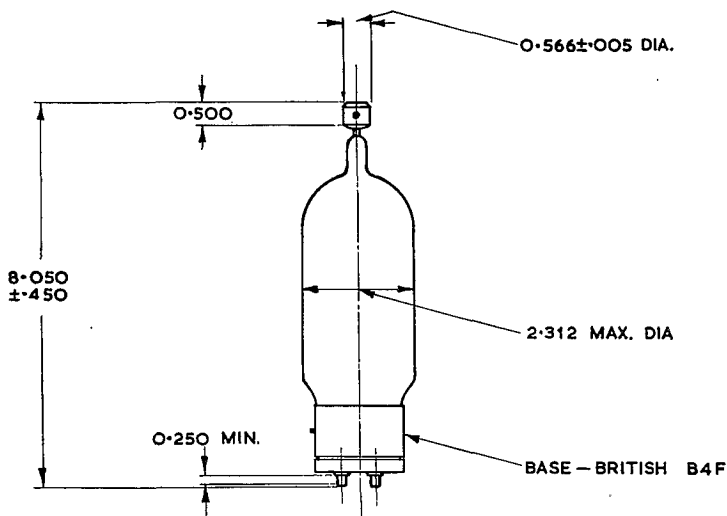
XENON FILLED RECTIFIER

4B32 (AX230)

November 1957 Page 3

OUTLINE

106



PIN	ELEMENT
1	NO CONNECTION
2	FILAMENT
3	NO CONNECTION
4	FILAMENT
CAP	ANODE

ALL DIMENSIONS IN INCHES

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INTRODUCTION

The 68504 is a hot cathode, full-wave, gas-filled Rectifier designed for use in low voltage battery charging equipment.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

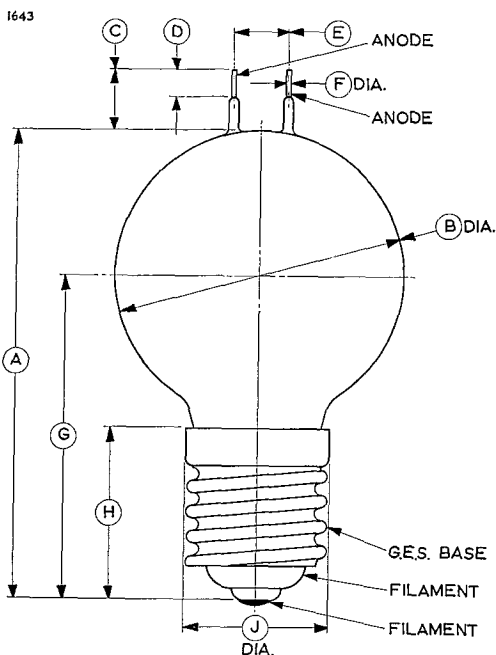
Electrical

Cathode	..	..	..	..				Oxide Coated Filament	
Filament Voltage	..	..	..	..	..	..	..	2.3	V
Filament Current	..	..	..	..	..	..	..	18±2	A
Cathode Heating Time (Minimum)	..	..	..	..	..	..	..	30	s
Voltage Drop (Approx)	..	..	..	..	..	..	..	10	V
Ambient Temperature Range	..	..	..	..	..	..	..	-55 to +70	°C
D.C. Output as Full-Wave Rectifier:									
Voltage	..	..	..	..	..	..	..	30	V Max
Current	..	..	..	..	..	..	..	5.0	A Max

Mechanical

Overall Length..	..	..	..	..	5.71 inches	(145 mm)	Max
Overall Diameter	..	..	..	..	3.03 inches	(77 mm)	Max
Net Weight	..	..	..	..	4 ounces	(112 gm)	Approx
Mounting Position	..	..	..	..	..	..	Any
Base	..	..	..	..	..	..	Goliath Edison Screw
Cooling ..	..	..	..	..	..	..	Convection

OUTLINE



Ref.	Inches	Millimetres
A	4.528 ± 0.394	115.0 ± 10.0
B	3.032 Max	77.0 Max
C	0.472 ± 0.197	12.0 ± 5.0
D	0.276 Min	7.0 Min
E	0.492 ± 0.098	12.5 ± 2.5
F	0.059	1.5
G	3.465 ± 0.394	88.0 ± 10.0
H	1.811 Max	46.0 Max
J	1.543 Max	39.2 Max

Inch dimensions have been derived from millimetres.

INTRODUCTION

The 68506 is a hot cathode, half-wave, gas-filled Rectifier designed for use in low voltage battery charging equipment.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

Electrical

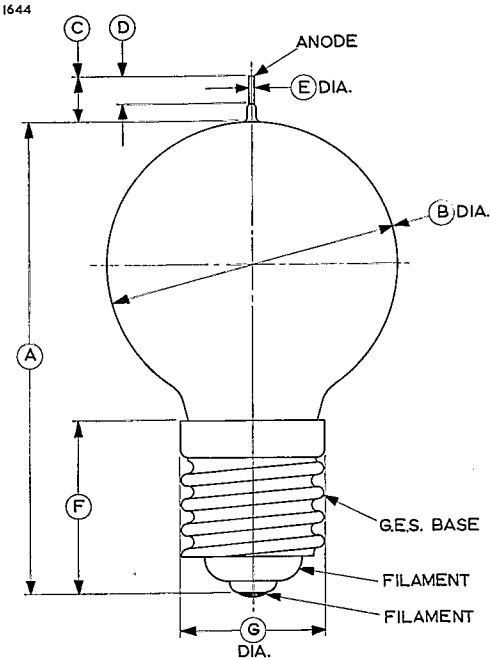
Cathode..	..	..	..	..	..	..	Oxide Coated Filament	
Filament Voltage	..	..	..	..	..	..	2.3	V
Filament Current	..	..	..	..	..	..	18±2	A
Cathode Heating Time (Minimum)	..	..	..	..	..	..	30	s
Voltage Drop (Approx)	..	..	..	..	..	..	10	V
Ambient Temperature Range	..	..	..	..	..	..	-55 to +70	°C
D.C. Output as Half-Wave Rectifier:								
Voltage	..	..	..	..	..	..	75	V Max
Current	..	..	..	..	..	..	6.0	A Max

Mechanical

Overall Length..	..	..	..	5.71 inches	(145 mm)	Max
Overall Diameter	..	..	..	3.03 inches	(77 mm)	Max
Net Weight	..	..	..	4 ounces	(112 gm)	Approx
Mounting Position	..	..	..	..	..	Any
Base	..	..	..	..	..	Goliath Edison Screw
Cooling	..	..	..	..	..	Convection

ENGLISH ELECTRIC

OUTLINE



Ref.	Inches	Millimetres
A	4.528 ± 0.394	115.0 ± 10.0
B	3.032 Max	77.0 Max
C	0.472 ± 0.197	12.0 ± 5.0
D	0.276 Min	7.0 Min
E	0.059	1.5
F	1.811 Max	46.0 Max
G	1.543 Max	39.2 Max

Inch dimensions have been derived from millimetres.

INTRODUCTION

The 68530 is a hot cathode, full-wave, gas-filled Rectifier designed for use in low voltage battery charging equipment.

GENERAL DATA

(See also Preamble to Rectifier Section of this Catalogue)

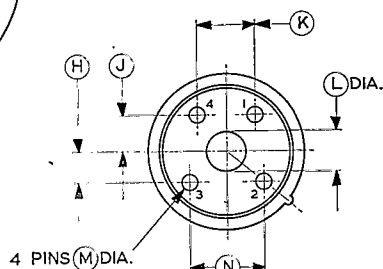
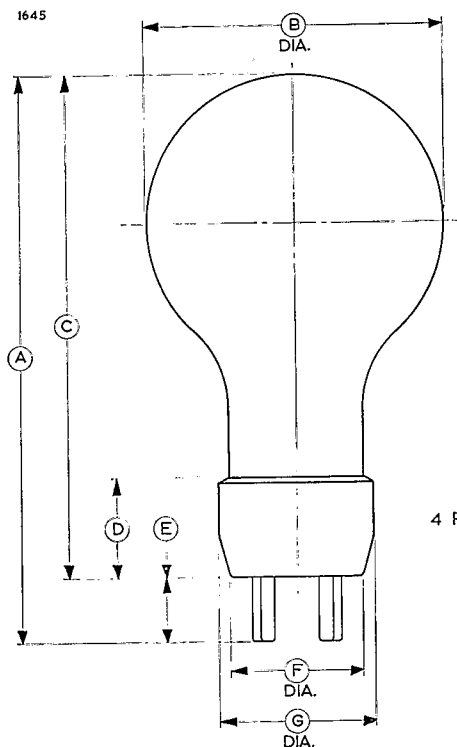
Electrical

Cathode..	..	..	..	..	..	Oxide Coated Filament	
Filament Voltage	..	..	..	..	..	2.0	V
Filament Current	..	..	..	..	..	8±1	A
Cathode Heating Time (Minimum)	..	..	..	..	..	30	s
Voltage Drop (Approx)	..	..	..	..	..	10	V
Ambient Temperature Range	..	..	..	..	..	-55 to +70	°C
D.C. Output as Full-Wave Rectifier:							
Voltage	..	..	..	..	..	30	V
Current	..	..	..	..	..	6.0	A

Mechanical

Overall Length..	..	..	..	5.94 inches	(151 mm)	Max
Overall Diameter	..	..	..	3.19 inches	(81 mm)	Max
Net Weight	..	..	..	4 ounces	(112 gm)	Approx
Mounting Position	..	..	..	..	..	Any
Base	..	..	..	..	..	Special 4-pin
Cooling	..	..	..	..	..	Convection

OUTLINE



VIEW ON BASE

**BASE
CONNECTIONS**

Pin	Element
1	Filament
2	Anode
3	Anode
4	Filament

Ref.	Inches	Millimetres	Ref.	Inches	Millimetres
A	5.688 ± 0.25	144.5 ± 6.35	H	0.312	7.94
B	3.125 ± 0.063	79.38 ± 1.60	J	0.375	9.53
C	5.125 ± 0.125	130.2 ± 3.18	K	0.594	15.09
D	1.062	27.00	L	0.375	9.53
E	0.625	15.88	M	0.156	3.96
F	1.375	34.93	N	0.781	19.84
G	1.625	41.28			

Millimetre dimensions have been derived from inches.



XENON FILLED RECTIFIER

AX228

June 1960 Page 1

Service Type CV2399

INTRODUCTION

The AX228 is a hot cathode, Xenon filled Rectifier with maximum ratings of 13kV peak inverse voltage and 6A peak current. The AX228 may be used as a ← replacement for the AH221 in applications where its peak inverse voltage rating is adequate, with the advantage that close control of ambient temperature is not required.

GENERAL DATA

(See also Preamble to Rectifier Section of this catalogue)

Electrical

Filament	..	..	..	..	..	..	..	Oxide Coated
Filament Voltage	..	..	..	..	..	..	..	4.0 V
Filament Current	..	..	..	..	..	..	..	11.0 A
Min Filament Heating Time	..	..	..	..	..	..	..	30 sec
Ambient Temperature Range	..	..	..	..	..	..	..	-55 to +70 °C
Max Peak Inverse Voltage	..	..	..	..	..	..	..	10 13 kV
Max Anode Current:								
Peak	..	..	..	..	..	..	..	6.0 6.0 A
Mean†	..	..	..	..	..	..	..	1.5 1.25 A
Under fault conditions (0.1 second maximum duration)	..	..	..	..	..	..	..	50 A
Max Power Supply Frequency	..	..	..	..	..	..	..	150 c/s

Mechanical

Overall Length..	..	..	..	..	10.16 inches	(258 mm)	Max
Overall Diameter	..	..	..	..	2.32 inches	(59 mm)	Max
Net Weight	..	..	..	..	8 ounces	(230 gm)	Approx
Mounting Position	..	..	..	..	..	..	Any
Base	..	..	..	..	..	..	Goliath Edison Screw
Cooling	..	..	..	..	..	..	Natural

→ Indicates a change.

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XENON FILLED RECTIFIER

AX228

Page 2

MAXIMUM OPERATING CONDITIONS (Absolute Values—see Preamble)

D.C. Output with choke input filter and delayed h.t. switching

Circuit	* Diagram	Peak Inverse Voltage (upto 150c/s) kV	Anode Current in Amperes		Transformer Secondary Voltage (R.M.S.) kV	Max D.C. Output	
			Peak	Mean‡		kV	Amps
Single Phase Full Wave	A	10	6.0	1.5	3.5	3.2	3.0
		13	6.0	1.25	4.6	4.1	2.5
Single Phase Full Wave Bridge	B	10	6.0	1.5	7.0	6.4	3.0
		13	6.0	1.25	9.2	8.2	2.5
Three Phase Half Wave	C	10	6.0	1.5	4.1†	4.7†	4.5
		13	6.0	1.25	5.3†	6.2†	3.75
Three Phase Full Wave	D	10	6.0	1.5	4.1	9.5	4.5
		13	6.0	1.25	5.3	12.3	3.75

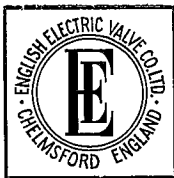
*For diagrams see Typical Rectifier Circuits for Choke Input Filters in the preamble to this section of the catalogue.

†For operation with constant full load. If the load resistance is increased the secondary voltage should be decreased (to avoid excessive peak inverse voltage) until at no load the reduction is 14%. The d.c. output voltage will be correspondingly decreased.

‡Mean anode currents are averaged over any period of 15 seconds maximum

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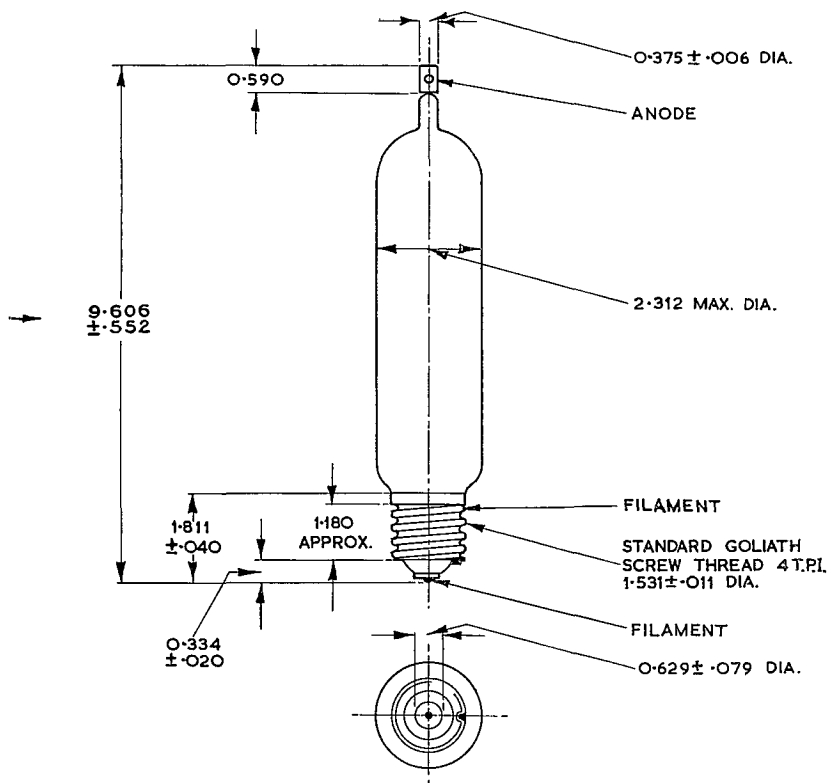
XENON FILLED RECTIFIER

AX228

March 1959 Page 3

OUTLINE

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ALL DIMENSIONS IN INCHES

INDICATES A CHANGE

POWER VALVES

for Transmitters and

R.F. Heaters

PREAMBLE

POWER TRIODES

Complete list of types

Natural Cooled

Forced-air Cooled

Water Cooled

Vapour Cooled

POWER TETRODES

Complete list of types

Natural Cooled

Water Cooled