

The data should be read in conjunction with the Power Triode Preamble.

## ABRIDGED DATA

Water cooled power triode with integral water jacket, intended primarily for industrial service.

Anode dissipation . . . . .	40	kW max
Anode voltage . . . . .	10	kV max
Frequency for full ratings . . . . .	30	MHz max
Output power (class C oscillator) . . . . .	69	kW

## GENERAL

### Electrical

Filament . . . . .	thoriated tungsten
Filament voltage (see note 1) . . . . .	8.2 V
Filament current . . . . .	230 A
Surge filament current (peak) (see note 2) . . . . .	600 A max
Filament cold resistance . . . . .	4.0 mΩ
Peak usable cathode current . . . . .	60 A max
Amplification factor ( $V_a = 4.0$ kV, $I_a = 4.0$ A) . . . . .	20.5
Mutual conductance ( $V_a = 3.0$ kV, $I_a = 4.0$ A) . . . . .	45 mA/V
Inter-electrode capacitances:	
grid to anode . . . . .	56 pF
grid to filament . . . . .	98 pF
anode to filament . . . . .	2.0 pF

### Mechanical

Overall length (excluding filament leads) . . . . .	463.4 mm max
Overall width . . . . .	165.0 mm nom
Net weight . . . . .	7.7 kg approx
Mounting position . . . . .	vertical, filament leads up

### Accessories

Thermal fuse (60 – 80 °C, yellow) . . . . .	MA85G
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## TYPICAL OPERATING CONDITIONS

Anode voltage . . . . .	10	9.0	8.0	8.0	kV
Grid voltage . . . . .	–950	–855	–760	–760	V
from grid resistor . . . . .	594	535	400	360	Ω
Peak RF grid voltage . . . . .	1533	1430	1295	1340	V
Anode current . . . . .	12	12	10	12	A
Grid current (approx) . . . . .	1.6	1.6	1.9	2.1	A
Anode dissipation . . . . .	23	22	18	23.9	kW
Grid dissipation . . . . .	0.94	0.94	1.0	1.2	kW
Driving power . . . . .	2.5	2.3	2.5	2.8	kW
Output power . . . . .	94.4	83.5	59.6	69	kW
Efficiency . . . . .	78.7	77.4	74.5	72.1	%
Load resistance . . . . .	427	382	394	320	Ω

## COOLING

### Anode

Minimum water cooling requirements are shown on page 2; higher rates of flow should be used where possible. A thermal fuse MA85G is fitted.

### Envelope and Seals

Maximum temperature of envelope or seals . . . . .	200	°C
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For optimum life the envelope or seal temperature should not exceed 180 °C. A flow of air of 0.57 to 0.85 m<sup>3</sup>/min directed into the filament header via a 25 mm diameter nozzle before and during the application of any voltages is usually adequate for limiting the temperature of the seals.

## RF POWER AMPLIFIER AND OSCILLATOR (Class C unmodulated conditions, one tube)

### MAXIMUM RATINGS (Absolute values)

Anode voltage (see note 3) . . . . .	10	kV max
Anode current . . . . .	12	A max
Anode dissipation . . . . .	40	kW max
Grid dissipation . . . . .	1.2	kW max
Operating frequency (for full ratings) . . . . .	2	MHz max

## NOTES

1. The tube must be operated at the stated filament voltage. Fluctuation in filament voltage must not exceed ±5%.
2. The filament current must not exceed 600 A, even momentarily, at any time.
3. This is the highest nominal operating voltage to be used. It makes allowance for the normal mains voltage fluctuations as well as tolerances in the equipment.

## HEALTH AND SAFETY HAZARDS

e2v technologies electronic devices are safe to handle and operate, provided that the precautions stated are observed. e2v technologies does not accept responsibility for damage or injury resulting from the use of electronic devices it produces. Equipment manufacturers and users must ensure that adequate precautions are taken. Appropriate warning labels and notices must be provided on equipments incorporating e2v technologies devices and in operating manuals.

### High Voltage

Equipment must be designed so that personnel cannot come into contact with high voltage circuits. All high voltage circuits and terminals must be enclosed and fail-safe interlock switches must be fitted to disconnect the primary power supply and discharge all high voltage capacitors and other stored energy before allowing access. Interlock switches must not be bypassed to allow operation with access doors open.

### RF Radiation

Personnel must not be exposed to excessive RF radiation. A properly designed equipment cabinet with good RF electrical connection between panels will normally provide sufficient protection.

### X-Ray Radiation

This device, when operating at voltages above 5 kV, produces progressively more dangerous X-rays as the voltage is increased; the radiation varies greatly during life. The device envelope provides only limited protection and further shielding may be required. A metal equipment cabinet with overlapping joints will usually provide sufficient shielding, but if there is any doubt an expert in this field should perform an X-ray survey of the equipment.

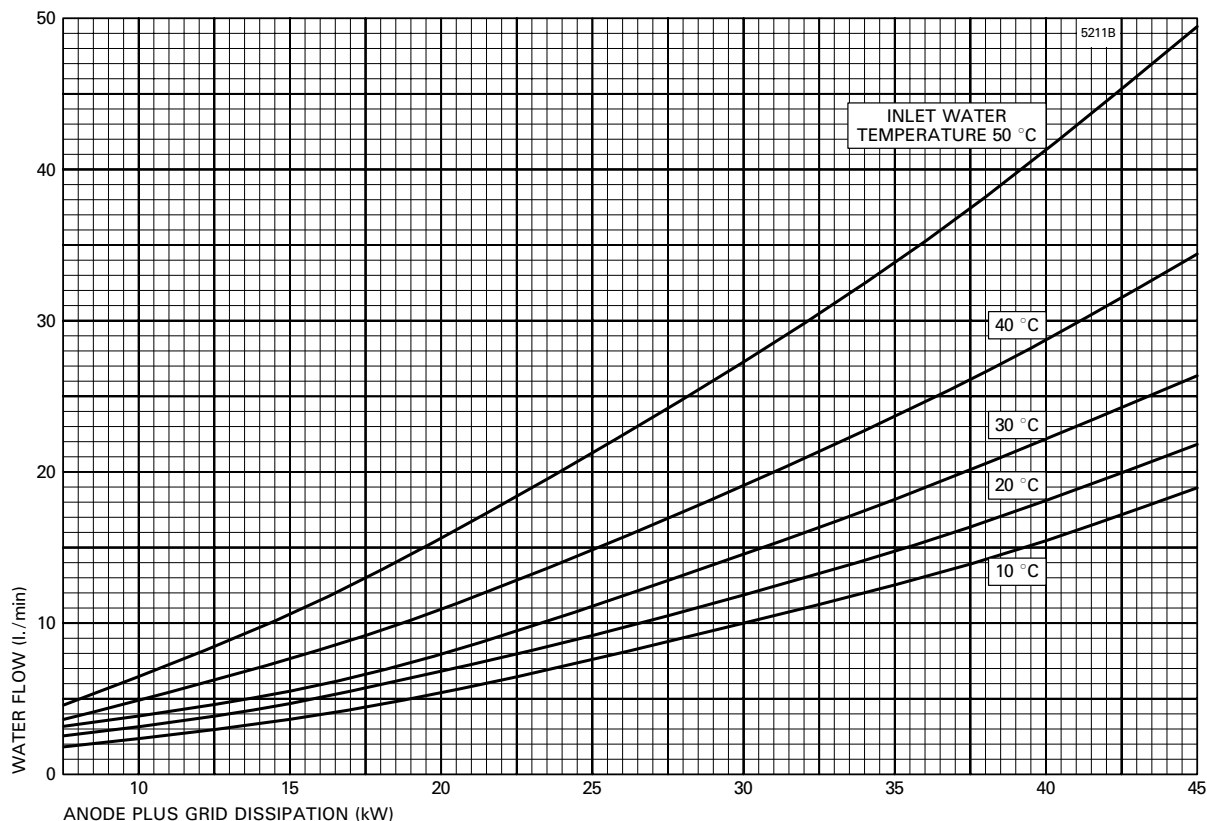
### Implosion

This tube stores potential energy by virtue of its vacuum. The energy level is low, but there is some hazard from flying fragments if the tube is dropped or subjected to violent impact. The tube must be stored and transported in its approved pack. During installation or replacement the tube must not be scratched or damaged in any way likely to reduce the strength of the ceramic envelope.

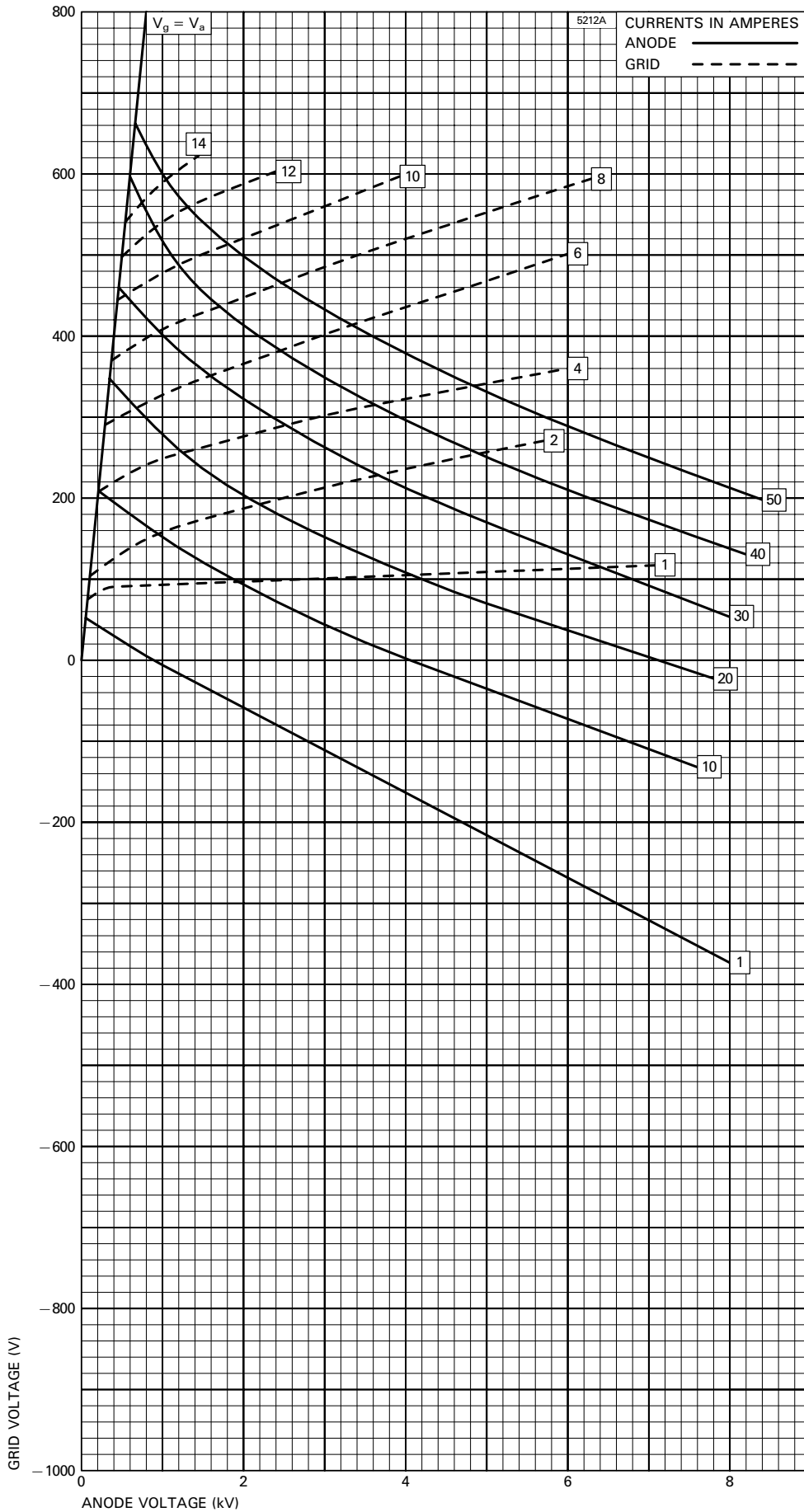
### References

1. BS 3192. Specification for safety requirements for radio (including television) transmitting apparatus.
2. TEPAC Publication no. 181. Recommended practice for measurement of X-radiation from power tubes.

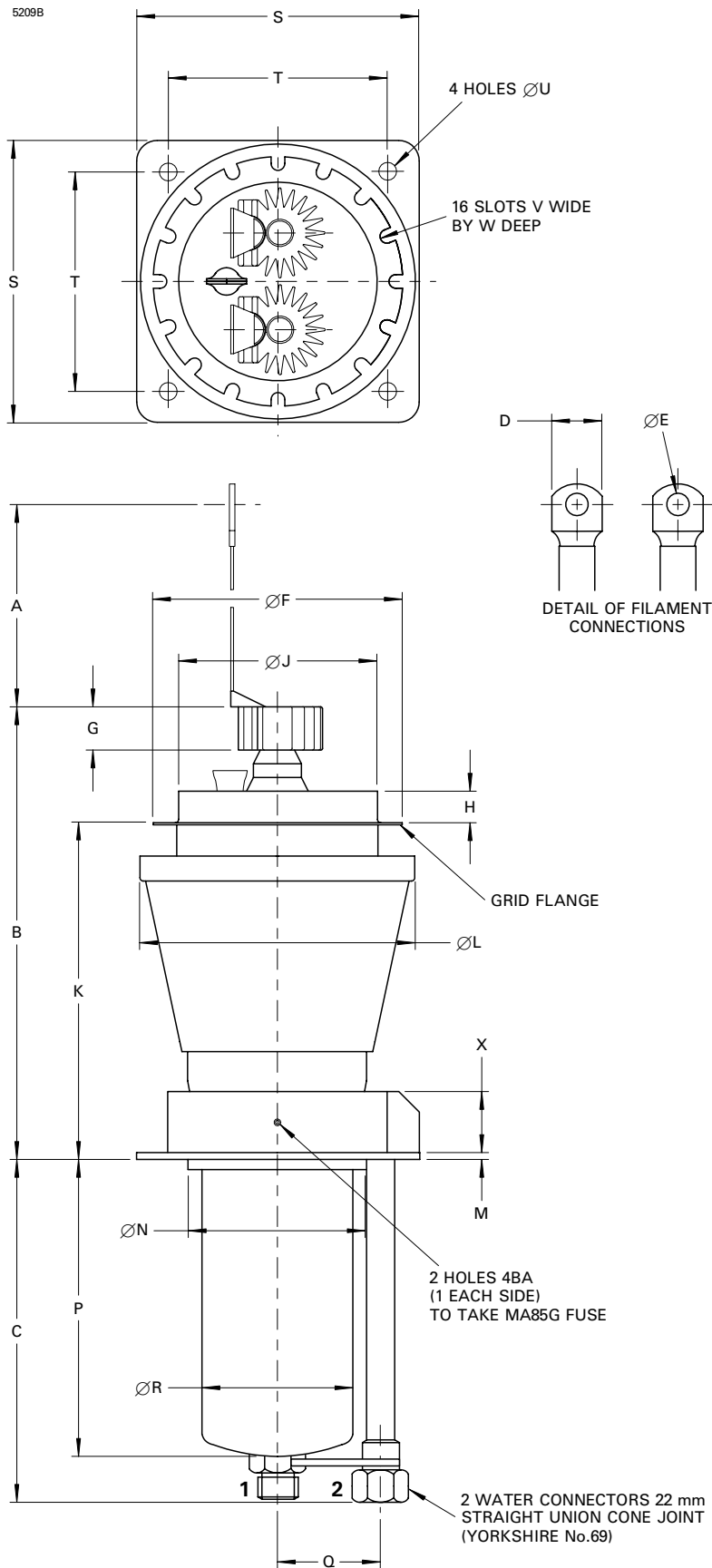
## MINIMUM WATER COOLING REQUIREMENTS



# TYPICAL CONSTANT CURRENT CHARACTERISTICS



# OUTLINE (All dimensions without limits are nominal)



Ref	Millimetres
A	375.0
B	260.4 max
C	200.0 $\pm$ 3.0
D	30.0
E	13.0
F	143.0
G	25.0
H	18.6
J	119.5 $\pm$ 1.6
K	197.0 max
L	165.0 max
M	4.5
N	98.4
P	173.5
Q	60.0
R	90.5
S	165.0
T	127.0
U	9.5
V	3.9 $\pm$ 1.6
W	5.2 $\pm$ 1.6
X	35.5 max

	Anode down	Anode up
Inlet	1	2
Outlet	2	1

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