

# BW1190J4

## R.F. POWER TRIODE

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

### ABRIDGED DATA

Water cooled power triode intended primarily for use as a self-excited oscillator in industrial heating service.

Anode dissipation . . . . .	3.5	kW max
Anode voltage . . . . .	6.0	kV max
Frequency for full ratings . . . . .	20	MHz max
Output power (class C, self-excited oscillator) . . . . .	9.1	kW

### GENERAL

#### Electrical

Filament . . . . .	thoriated tungsten
Filament voltage . . . . .	20.5 V
Filament current . . . . .	26 A
Amplification factor ( $V_a = 5.0\text{kV}$ , $I_a = 0.8\text{A}$ ) . . . . .	32
Mutual conductance ( $V_a = 5.0\text{kV}$ , $I_a = 0.8\text{A}$ ) . . . . .	15 mA/V
Inter-electrode capacitances:	
grid to anode . . . . .	35 pF
grid to filament . . . . .	25 pF
anode to filament . . . . .	3.5 pF

#### Mechanical

Overall length (excluding leads) . . . . .	530mm (20.866 inches) max
Overall diameter (excluding water connections) . . . . .	106mm (4.173 inches) max
Net weight . . . . .	3.75kg (8.25 pounds) approx
Mounting position . . . . .	vertical with filament leads down
Mounting clamp . . . . .	MA330

#### COOLING

The water cooling requirements for BW1190J4 as a function of anode dissipation at various water inlet temperatures are shown on page 6.

## R.F. POWER AMPLIFIER OR OSCILLATOR

### MAXIMUM RATINGS (Absolute values)

Anode voltage . . . . .	6.0	kV max
Anode dissipation . . . . .	3.5	kW max
Grid current (at maximum anode dissipation) . . . . .	400	mA max
Cathode current . . . . .	2.8	A max
Frequency for above ratings . . . . .	20	MHz max

### TYPICAL OPERATING CONDITIONS

#### Class C Unmodulated Amplifier

Frequency . . . . .	3.0	MHz
Anode voltage . . . . .	6.0	kV
Grid voltage . . . . .	-550	V
Peak r.f. grid drive voltage . . . . .	1100	V
Anode current . . . . .	2.33	A
Grid current . . . . .	350	mA
Anode dissipation . . . . .	3.5	kW
Output power . . . . .	10.5	kW
Efficiency . . . . .	75	%

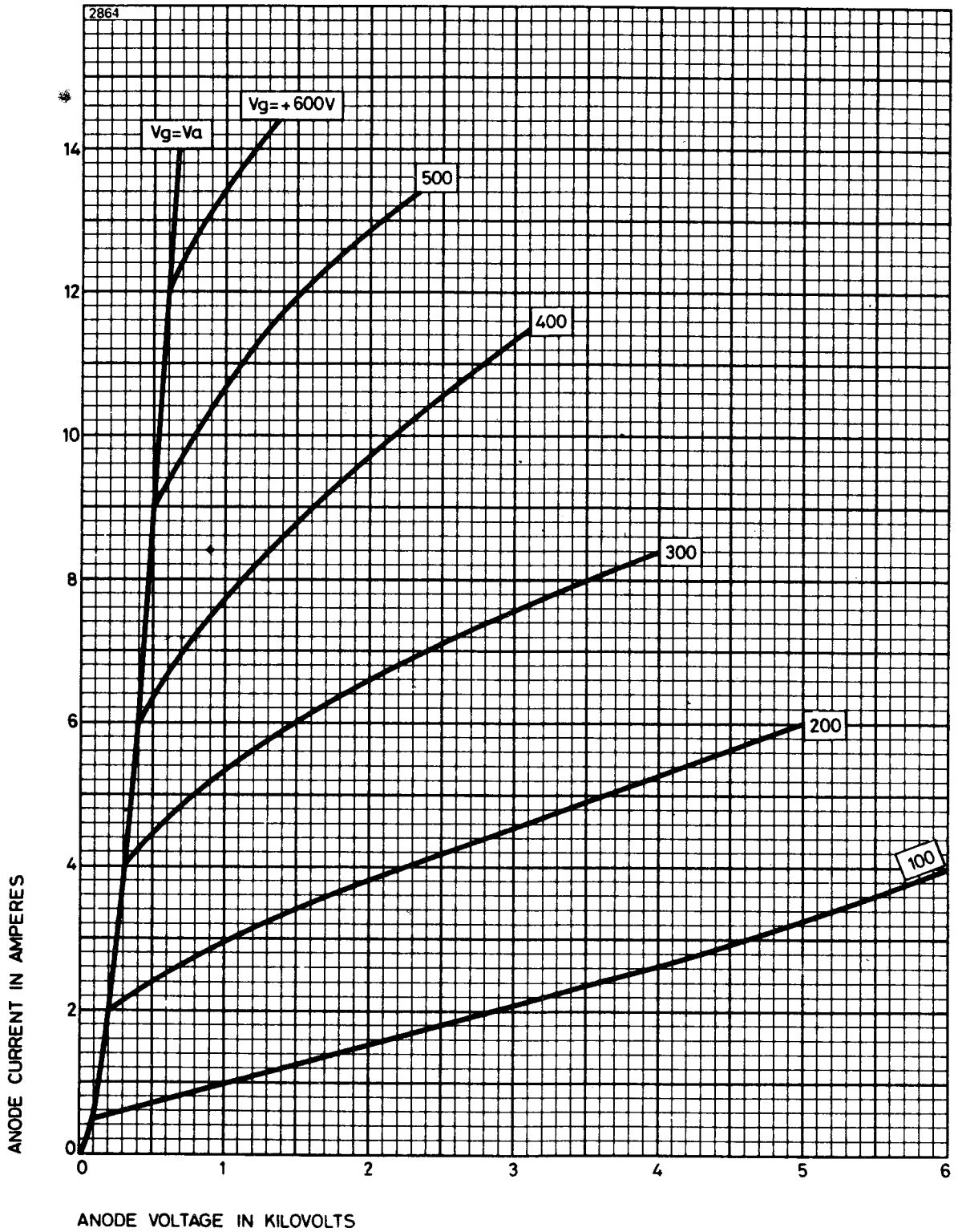
#### Class C Self-Excited Oscillator, Dielectric Heater Service

Frequency . . . . .	20	MHz
Anode voltage (non-regulated supply) . . . . .	6.0	kV
Grid voltage . . . . .	-550	V
from grid-filament resistor . . . . .	2.2	k $\Omega$
Peak r.f. grid drive voltage . . . . .	950	V
Anode current . . . . .	1.5	A
Grid current . . . . .	250	mA
Anode dissipation . . . . .	2.7	kW
Output power . . . . .	6.3	kW
Efficiency . . . . .	70	%

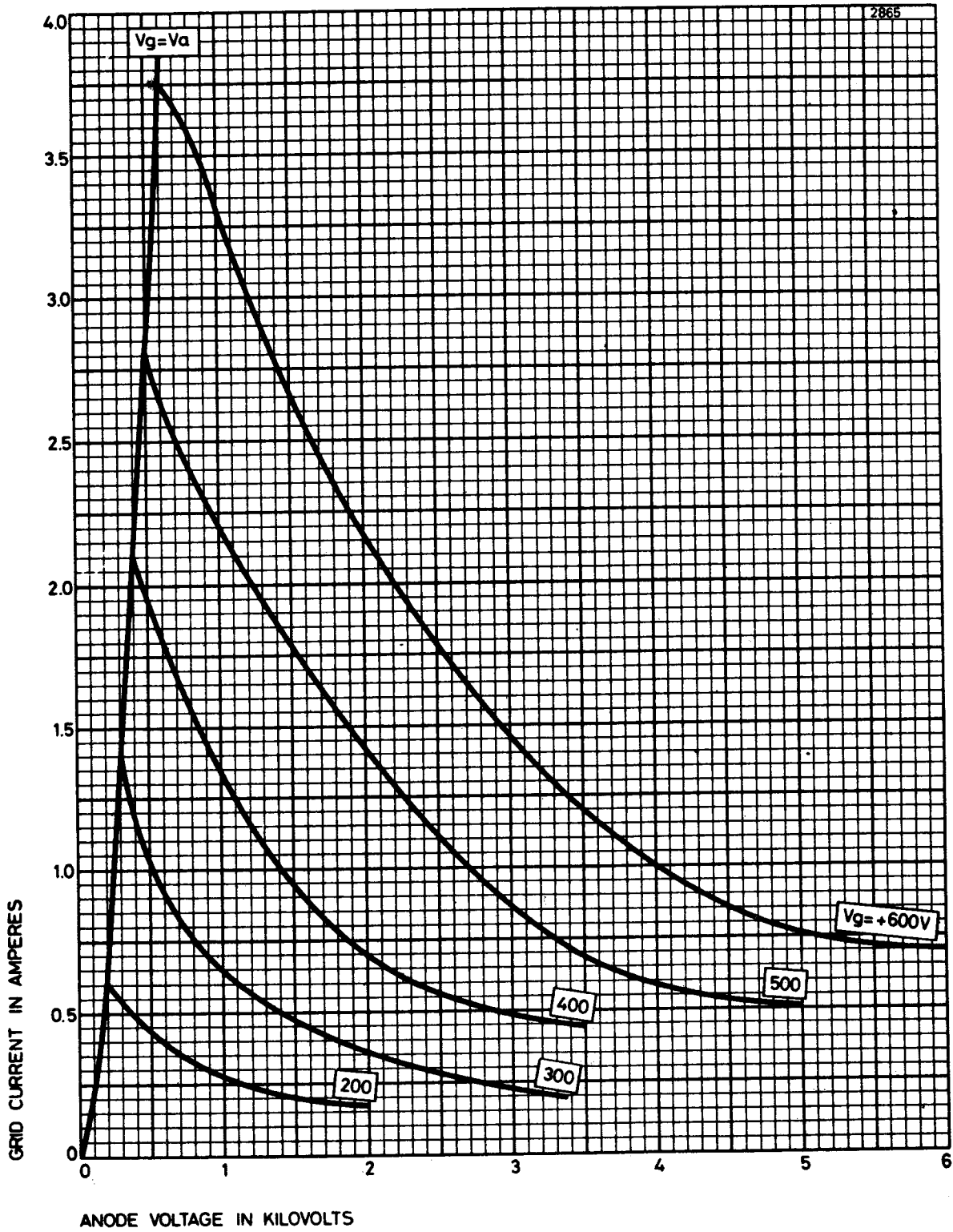
#### Class C Self-Excited Oscillator, Induction Heater Service (Repetition work with a short duty cycle)

Frequency . . . . .	450	kHz
Anode voltage (non-regulated supply) . . . . .	6.0	kV
Grid voltage . . . . .	-545	V
from grid-filament resistor . . . . .	1.7	k $\Omega$
Peak r.f. grid drive voltage . . . . .	1000	V
Anode current . . . . .	2.0	A
Grid current . . . . .	320	mA
Anode dissipation . . . . .	2.9	kW
Output power . . . . .	9.1	kW
Efficiency . . . . .	76	%

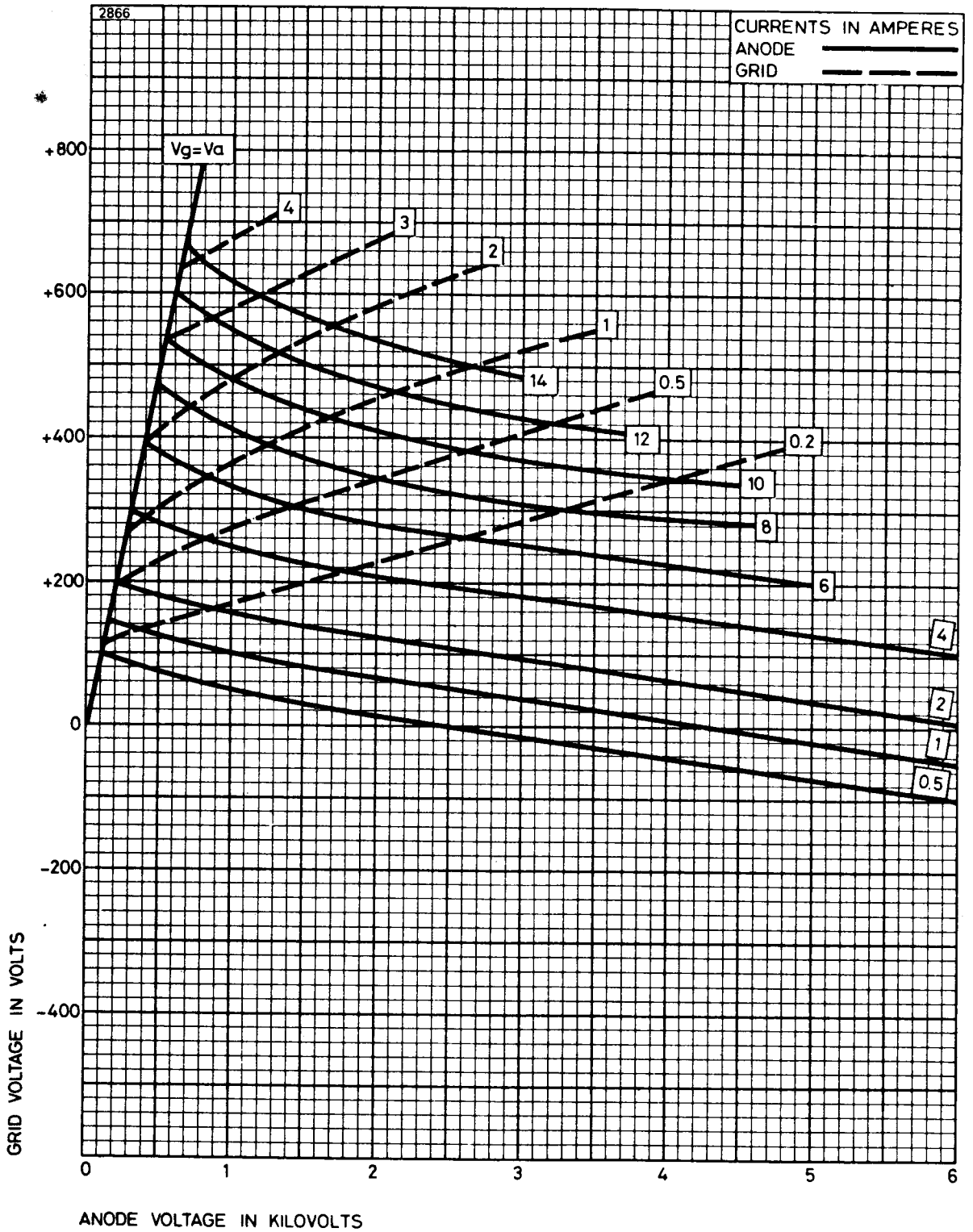
# TYPICAL ANODE CHARACTERISTICS



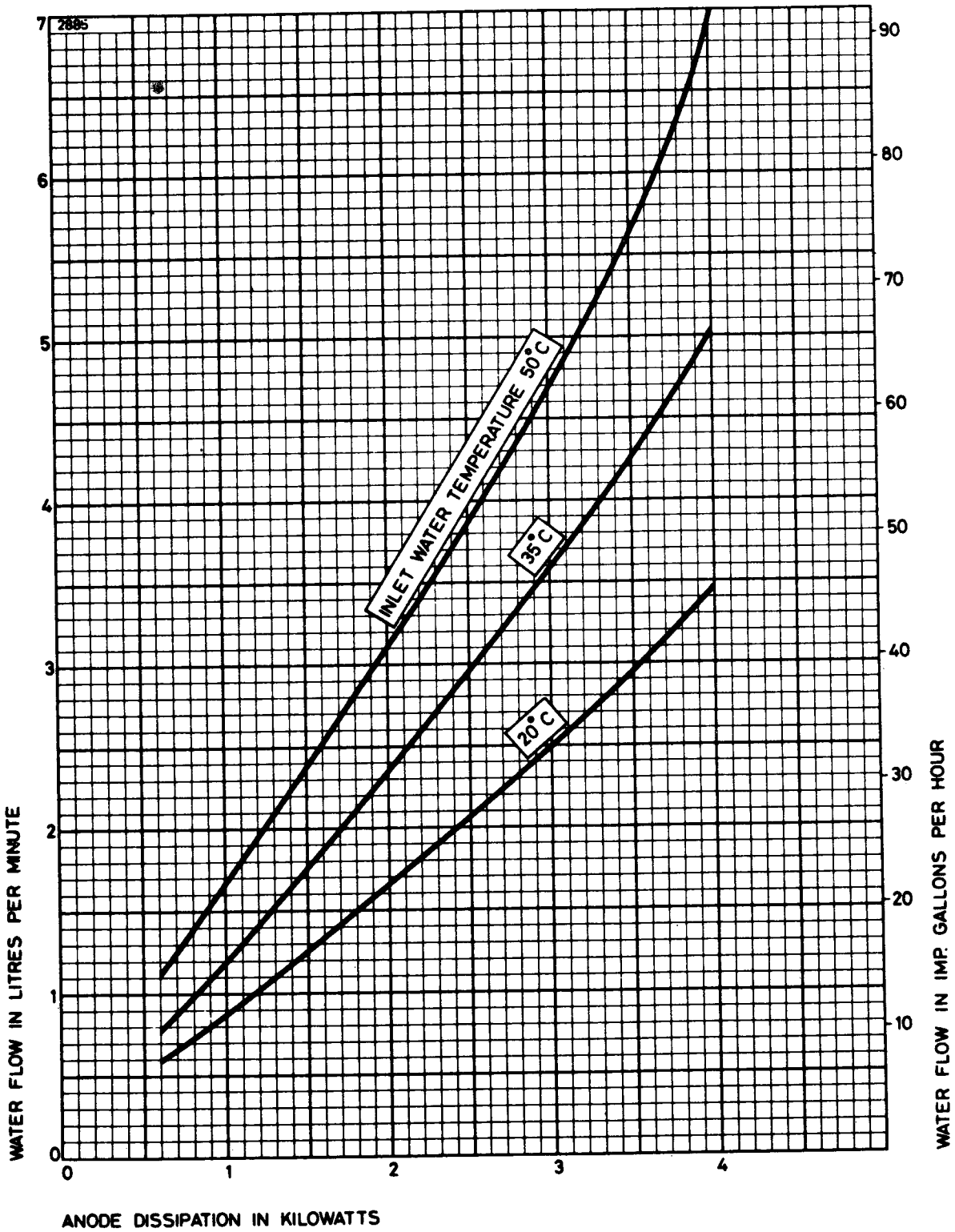
# TYPICAL GRID CHARACTERISTICS



# TYPICAL CONSTANT CURRENT CHARACTERISTICS

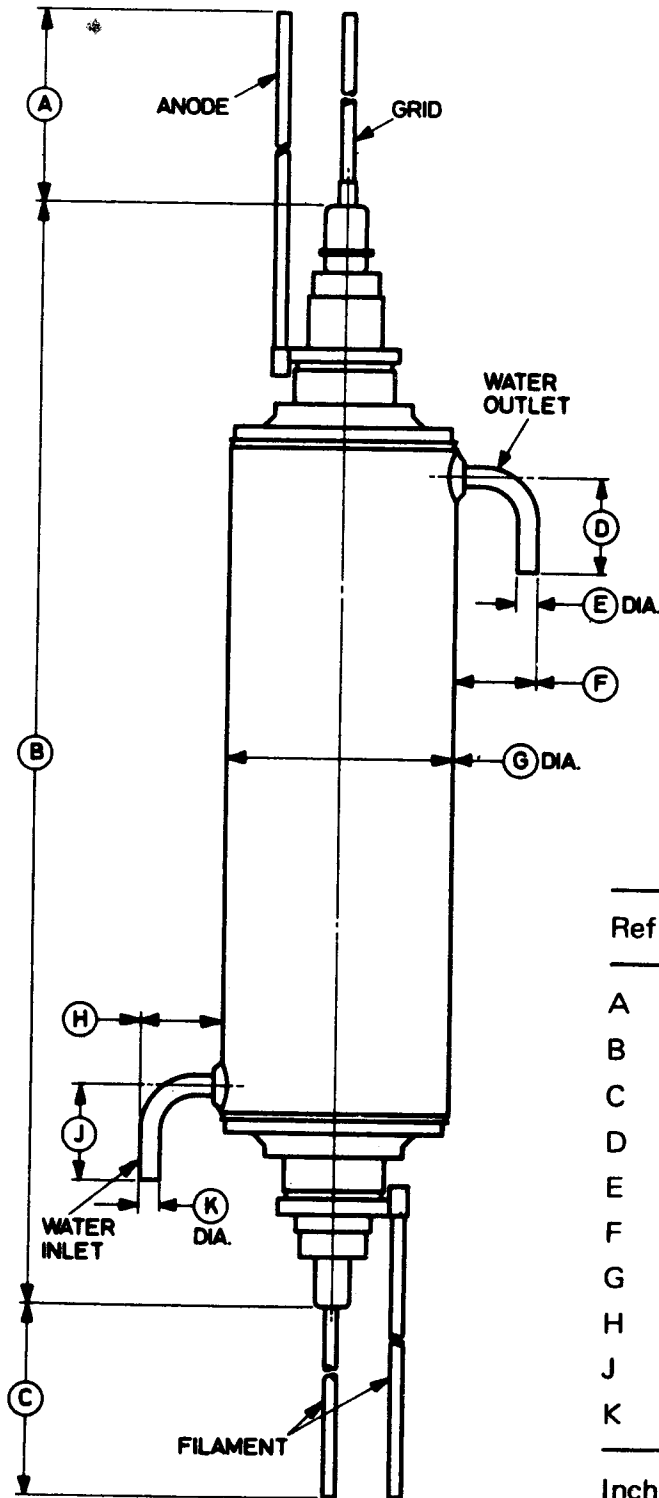


# WATER COOLING REQUIREMENTS



# OUTLINE (All dimensions without limits are nominal)

2842



Ref	Millimetres	Inches
A	250.0	9.843
B	530.0 max	20.866 max
C	250.0	9.843
D	50.0 max	1.969 max
E	10.25	0.404
F	40.0 max	1.575 max
G	106.0	4.173
H	40.0 max	1.575 max
J	50.0 max	1.969 max
K	10.25	0.404

Inch dimensions have been derived from millimetres.

Filament, grid and anode leads 162/0076 stranded wire.

# **Power Triode Accessories**

