

# TRIODE

# TY8-15W

Application: R.F. industrial heating.  
 Power output: 14kW continuous rating.  
 Frequency: 30Mc/s at full ratings.  
 Construction: External anode, water cooled.

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—TRANSMITTING VALVES, which precede this section of the handbook.

### FILAMENT Directly heated, thoriated tungsten

$V_f$	6.3	V
$*I_f$	130	A

\*The filament current must never exceed a surge value of 280A at any time during the warming up period. The filament has been designed to accept temporary fluctuations of  $+5\%$  to  $-10\%$

### MOUNTING POSITION

Vertical, anode down

### CAPACITANCES

$C_{a-g}$	33.5	pF
$C_{g-f}$	44.5	pF
$C_{a-f}$	1.2	pF

### CHARACTERISTICS (measured at $V_a = 6kV$ , $I_a = 2.5A$ )

$g_m$	23	mA/V
$g_m$ (at $V_a = 500V$ , $I_a = 14A$ )	28	mA/V
$\mu$	17.5	

### COOLING

Water cooled

Max. temperature of seals 220 °C

The amount of water cooling required for this valve depends upon the anode dissipation and the temperature of the water. Typical values of rate of water flow and pressure loss in the jacket are given in the following table:

Anode dissipation $P_a$ (kw)	Inlet temperature $T_{in}$ (°C)	Minimum rate of water flow per minute		Pressure loss in jacket (atm)
		(litres)	(gal)	
5.0	20	4.5	1.0	0.03
5.0	50	12	2.6	0.2
10	20	9.5	2.0	0.15
10	50	22	5.0	0.6
15	20	15	3.5	0.3
15	50	34	7.5	1.4

At inlet temperatures between 20 and 50°C the required quantity of water can be found by linear interpolation.

### CLASS 'C' OSCILLATOR

Anode supply from three-phase half-wave rectifier without smoothing filter. ←

#### Limiting values (absolute ratings)

f max.	30	Mc/s
$V_a$ max.	8.0	kV
$-V_g$ max.	1.6	kV
$R_{g-f}$ max.	10	k $\Omega$
$P_a$ max.	15	kW
$I_a$ max.	4.0	A
$I_g$ max.	1.5	A
$P_g$ max.	800	W

#### Typical operation

f	30	30	Mc/s
$V_{tr(r.m.s.)}$	5.9	5.1	kV
$V_a$	7.0	6.0	kV
$I_a$	3.5	3.3	A
$I_g$	950	800	mA
$P_a$	6.8	5.5	kW
$\eta_a$	72	72	%
$R_{g-f}$	0.95	1.0	k $\Omega$
$R_a$	1.0	0.87	k $\Omega$
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.25	0.26	
$P_{out}$	17.7	14.3	kW
* $P_{load}$	14	11	kW

\*0.85 ( $P_{out} - P_{drive}$ )

#### WEIGHT

Valve only	{ 6	lb
	{ 2.5	kg
Shipping weight	{ 67	lb
	{ 30.5	kg

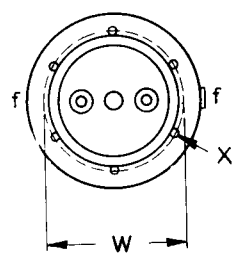
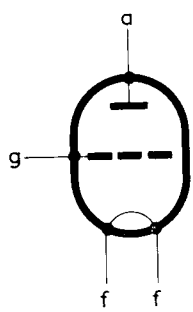
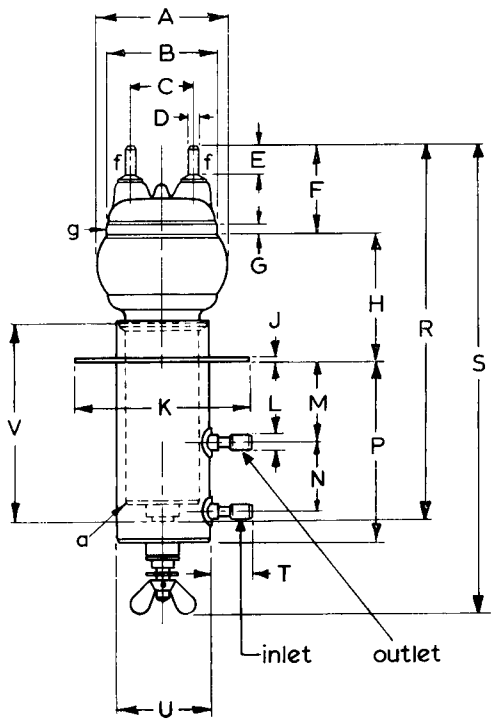
#### ACCESSORIES

Filament clip	40662
Grid connector	40664
Water jacket	K720

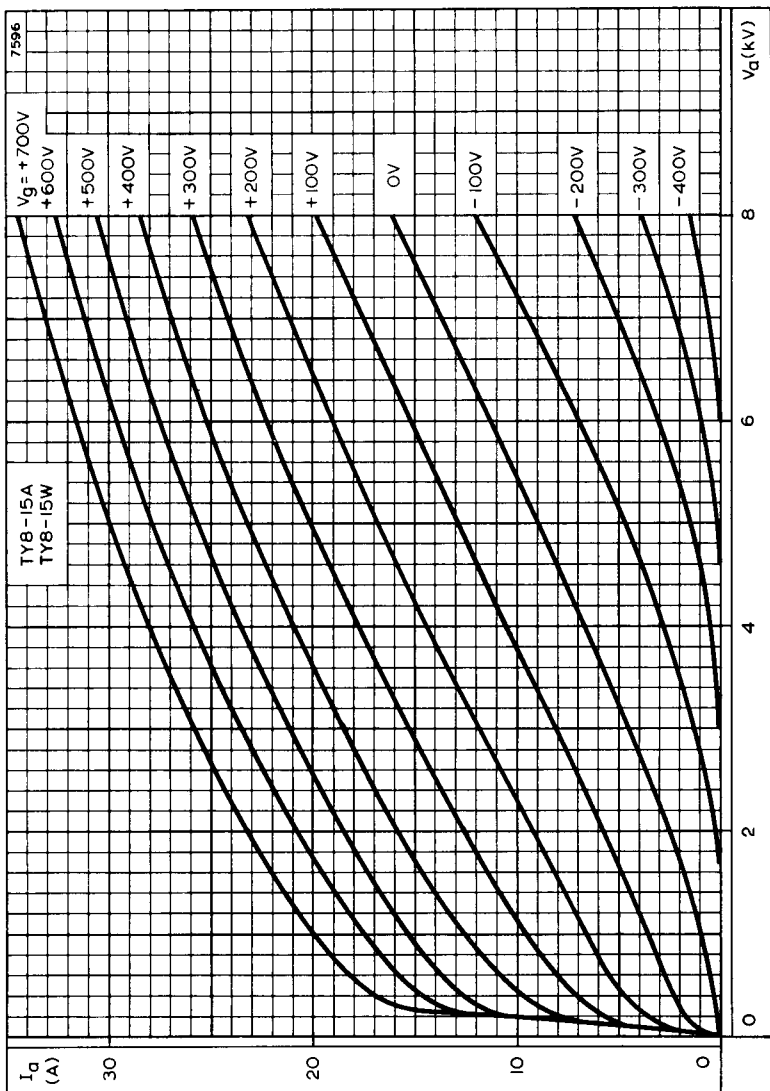
#### DIMENSIONS

	Inches	Millimetres		Inches	Millimetres
A	4.528	115	M	2.717	69
B	3.780	96	N	1.969	50
C	2.126	54	P	6.024	153
D	0.374	9.5	R	12.992	330 max.
E	0.984	25	S	16.339	415 max.
F	3.071	78	T	1.535	39
G	0.335	8.5	U	3.150	80
H	4.370	111	V	6.890	175
J	0.197	5.0	W	4.724	120
K	5.906	150	X	0.295	7.5
L	0.551	14			





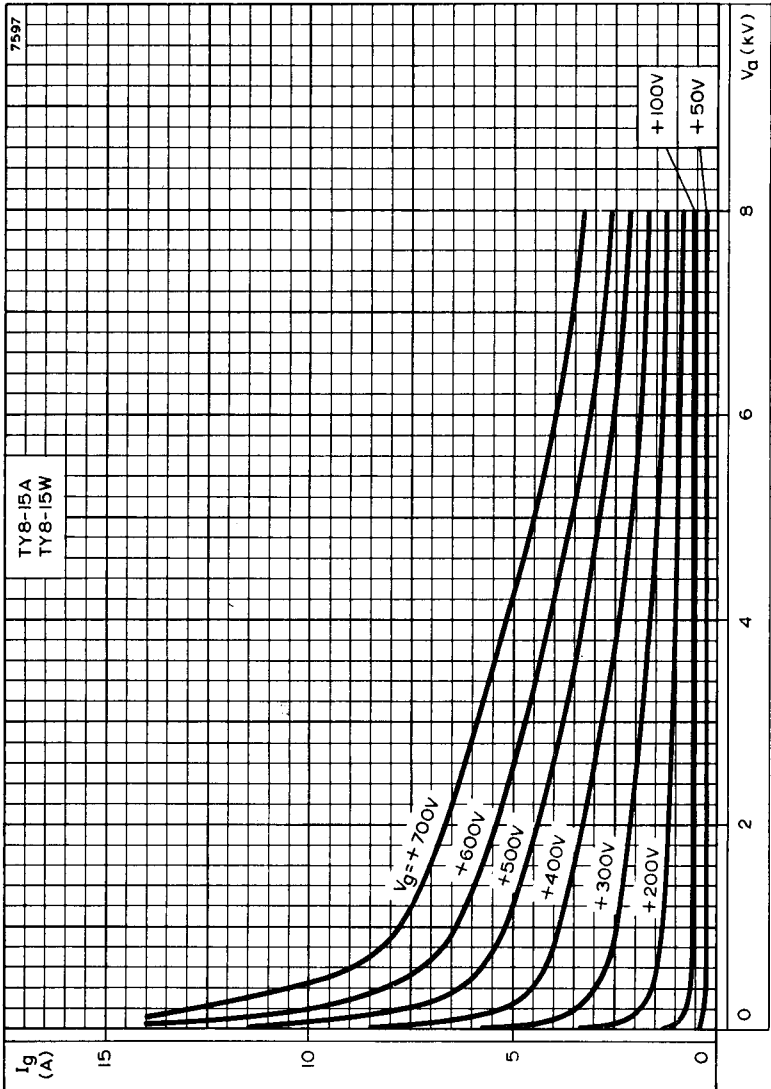
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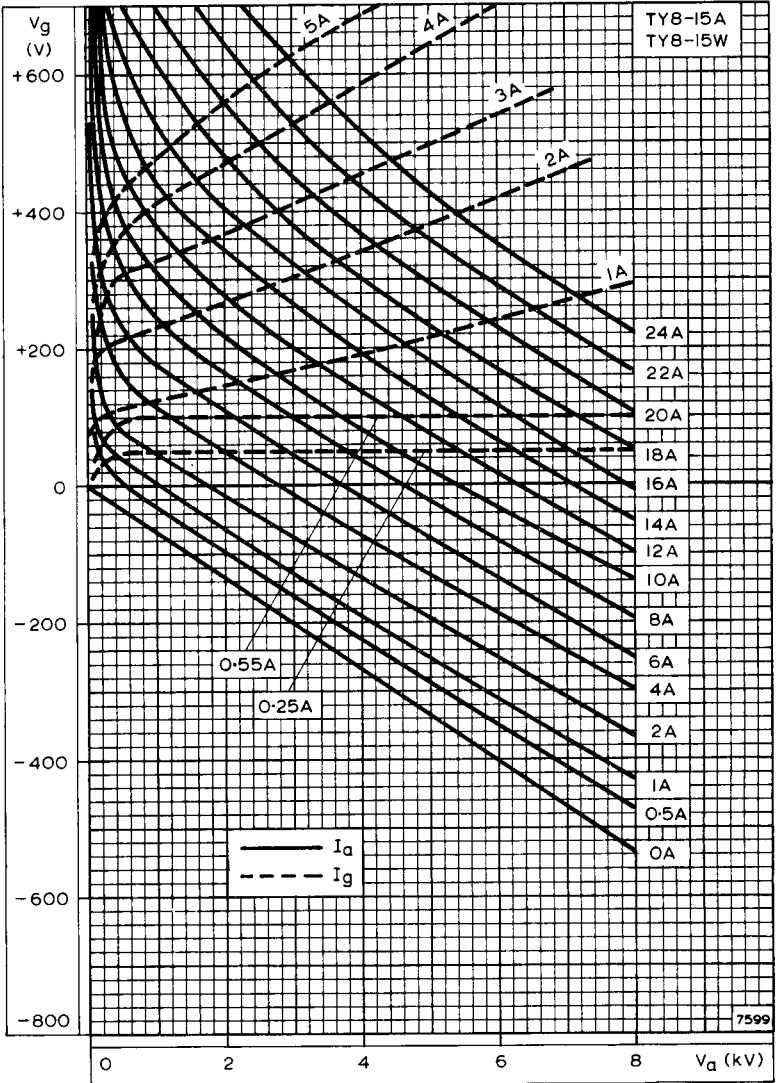
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE  
WITH GRID VOLTAGE AS PARAMETER

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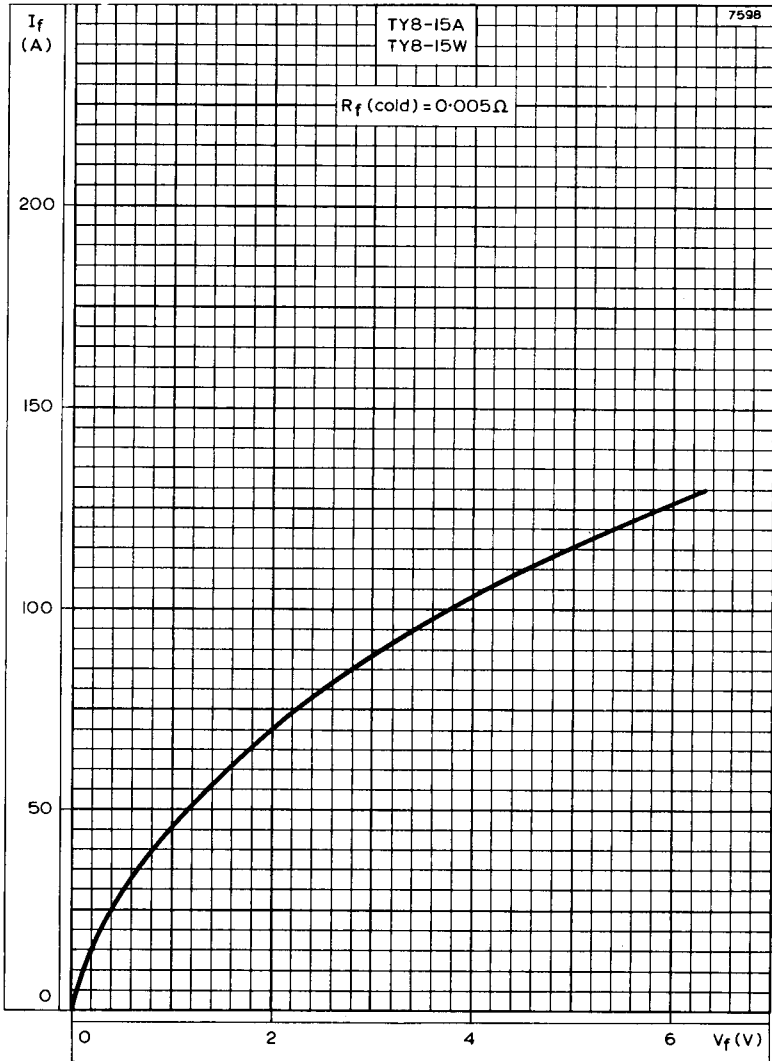
TRIODE



GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  
WITH GRID VOLTAGE AS PARAMETER



CONSTANT CURRENT CHARACTERISTICS



FILAMENT CURRENT PLOTTED AGAINST FILAMENT VOLTAGE