

# TRIODE

# TY8-15A

Application: R.F. industrial heating.  
 Power output: 14kW continuous ratings.  
 Frequency: 30Mc/s at full ratings.  
 Construction: External anode, forced air 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  $\pm 5\%$  to  $-10\%$ .

**MOUNTING POSITION**

Vertical, anode down

**CAPACITANCES**

$C_{a-g}$  33.5 pF<sup>\*</sup>  
 $C_{g-f}$  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**

Forced air

Max. temperature of seals 220 °C

The amount of forced air cooling required for this valve depends upon the anode dissipation and the height above sea level. Typical values of inlet temperature, rate of air flow and pressure difference between the inlet and outlet of the housing are given in the following table:

Anode dissipation $P_a$	Height above sea-level $h$		Inlet Temperature $T_{in}$	Min. rate of flow of air per minute		Pressure difference between inlet and outlet (mm of H <sub>2</sub> O)
	(kW)	(km) (ft)		(°C)	(m <sup>3</sup> ) (ft <sup>3</sup> )	
5.0	0	0	45	5.9	210	15
5.0	0	0	35	5.2	185	12
5.0	1.5	4920	35	6.2	220	14
5.0	3.0	9840	25	6.6	235	15
7.5	0	0	45	9.0	320	34
7.5	0	0	35	8.0	285	27
7.5	1.5	4920	35	9.5	335	32
7.5	3.0	9840	25	10.2	360	34
10	0	0	45	12.3	435	63
10	0	0	35	11	390	50
10	1.5	4920	35	13	460	59
10	3.0	9840	25	14	495	64

## 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.	10	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 $\Omega$
$R_n$	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 ( $P_{out} - P_{drive}$ )

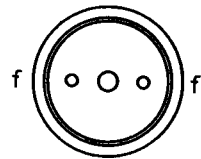
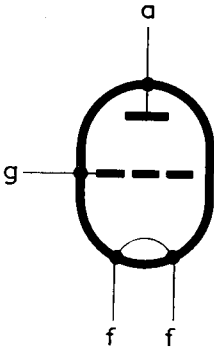
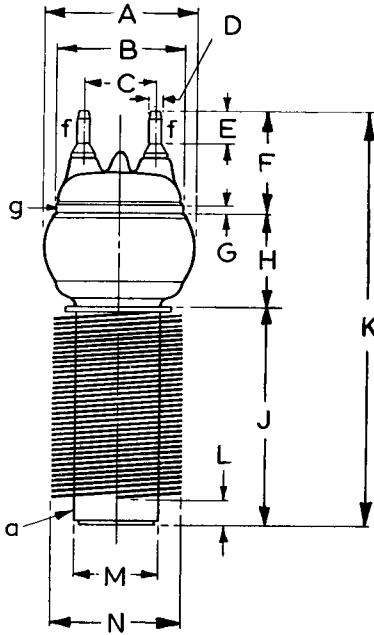
### WEIGHT

Valve only	$\left\{ \begin{array}{l} 9 \\ 3.8 \end{array} \right.$	lb
		kg
Shipping weight	$\left\{ \begin{array}{l} 70 \\ 31.8 \end{array} \right.$	lb
		kg

### ACCESSORIES

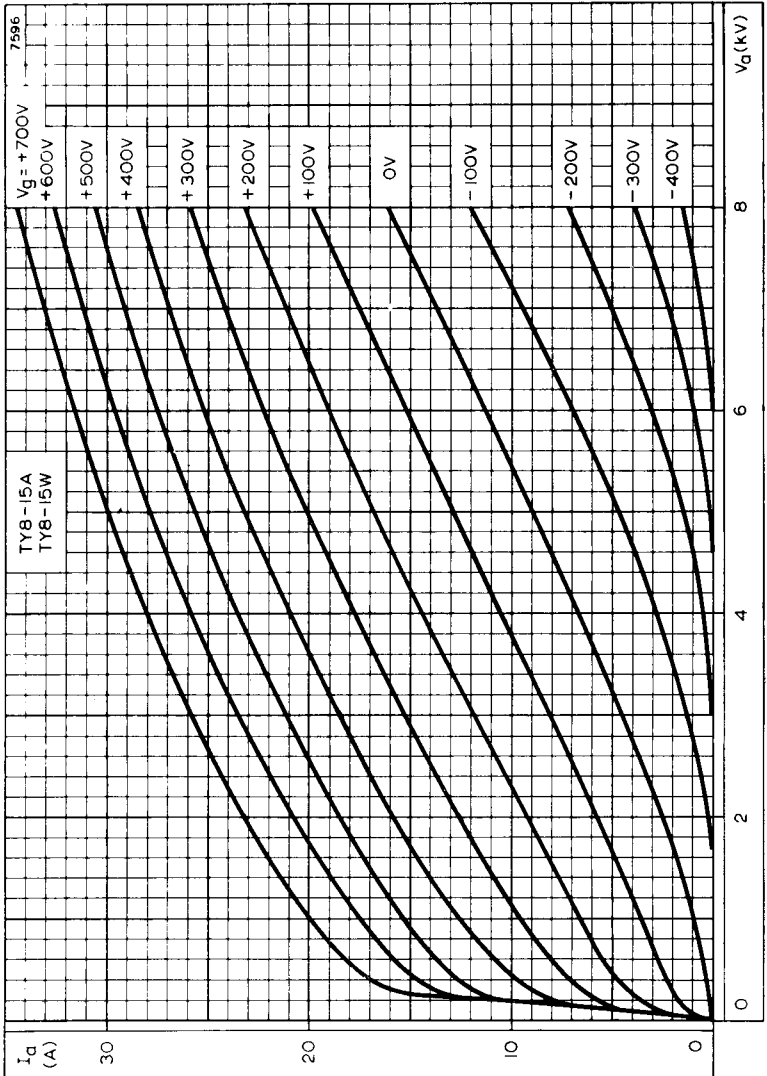
Filament clip	40662
Grid connector	40664
Insulating pedestal	K508

7593



**DIMENSIONS**

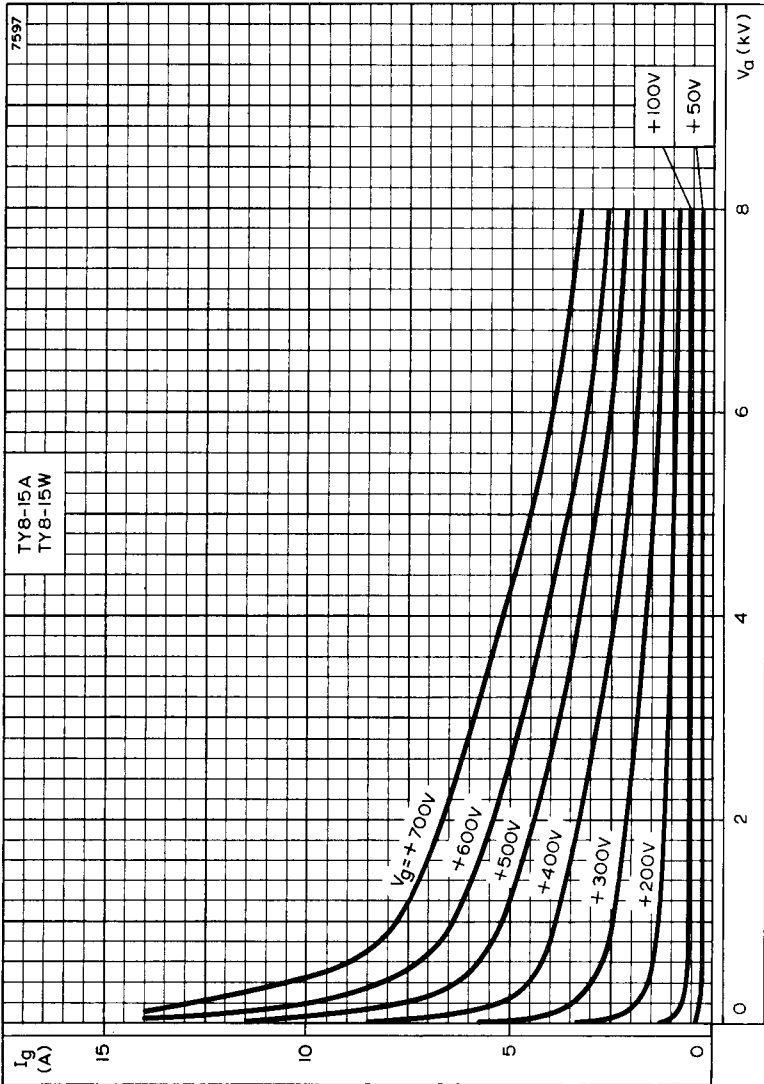
	<i>Inches</i>	<i>Millimetres</i>	
A	4.528	115	
B	3.780	96	
C	2.126	54	
D	0.374	9.5	
E	0.984	25	
F	3.071	78	←
G	0.335	8.5	
H	2.992	76	←
J	6.220	158	max.←
K	12.402	315	max.←
L	0.709	18	
M	2.520	64	
N	3.976	101	max.←



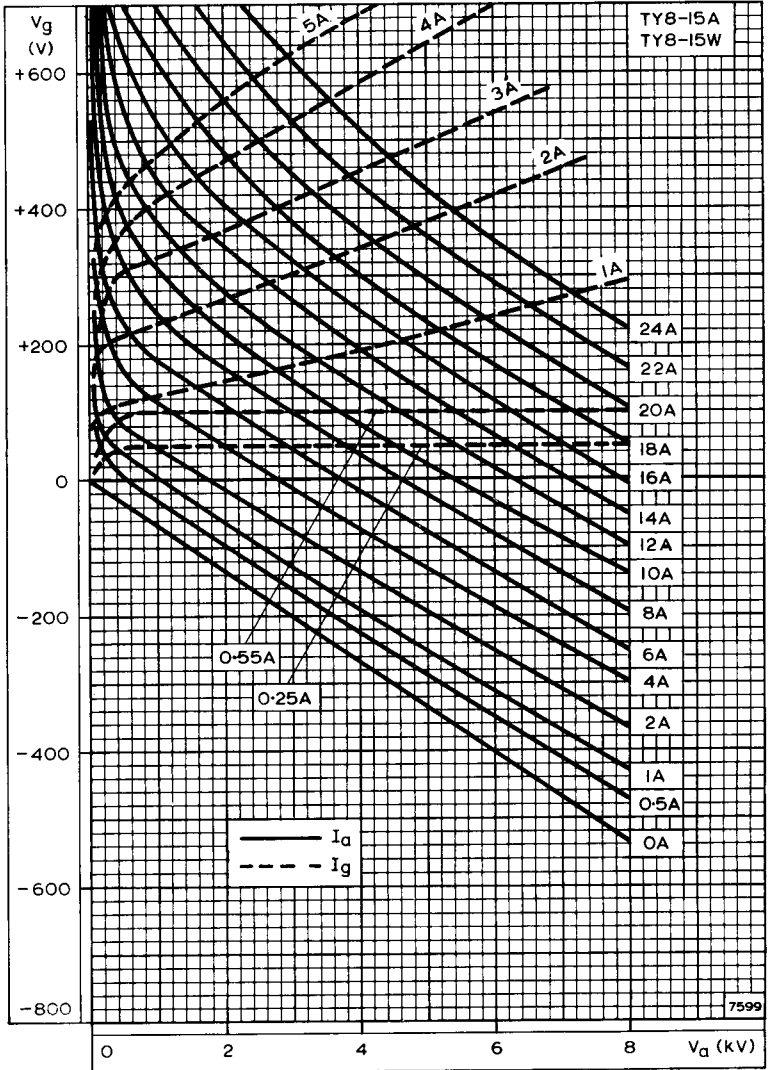
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER

# TY8-15A

TRIODE



GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER

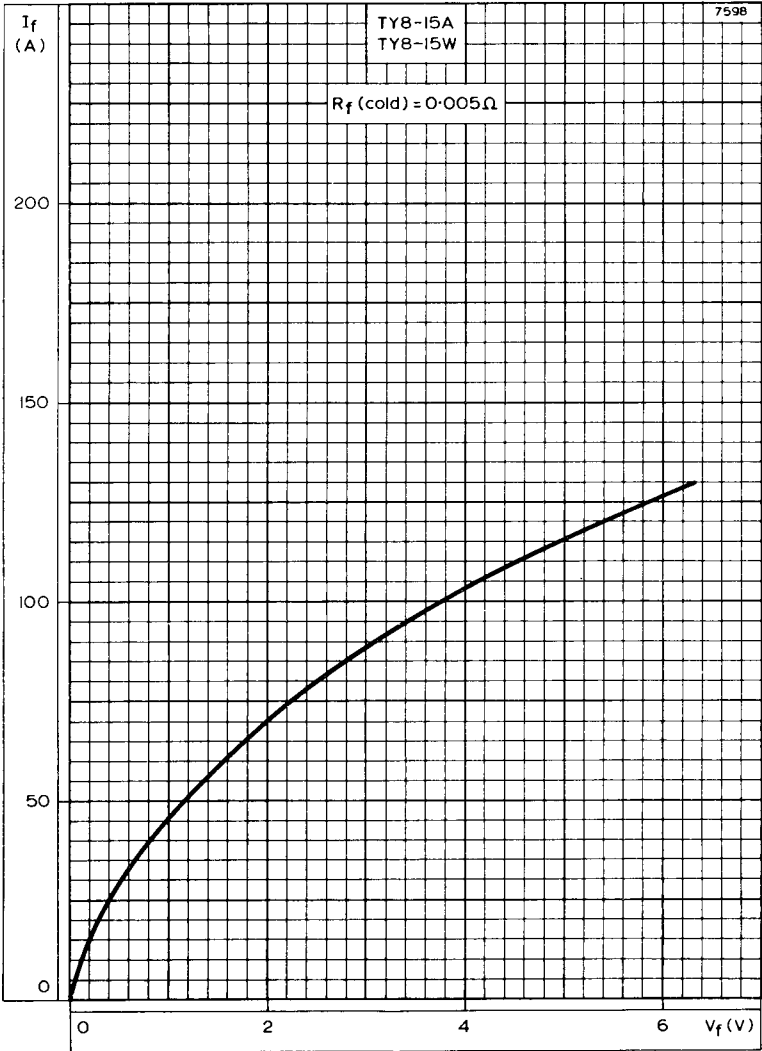


CONSTANT CURRENT CHARACTERISTICS



# TY8-15A

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FILAMENT CURRENT PLOTTED AGAINST FILAMENT VOLTAGE

