

PRELIMINARY DATA

QUICK REFERENCE DATA

Water-cooled triode, with fixed helix heat exchanger for r.f. industrial heating-applications.

f max.	30	Mc/s
V _a max.	8.0	kV
p _a max.	15	kW
Performance		
f	30	Mc/s
P _{out}	17.7	kW

This data should be read in conjunction with GENERAL OPERATING RECOMMENDATIONS - TRANSMITTING VALVES.

INDUSTRIAL OPERATION AS CLASS 'C' OSCILLATOR

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

Absolute maximum ratings

f max.	30	Mc/s
V _a max.	8.0	kV
-V _g max.	1.6	kV
R _g -f max.	10	kΩ
p _a max.	15	kW
I _a max.	4.0	A
I _g max.	1.5	A
p _g max.	800	W

Typical operating conditions

f	30	30	Mc/s
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
η _a	72	72	%
R _g -f	0.95	1.0	kΩ
R _a	1.0	0.87	kΩ
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})

FILAMENT

Directly heated, thoriated tungsten

Vf	6.3	V
*If	130	A
rf (cold)	0.005	Ω

*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 variations in supply voltage of +5% and -10%.

CAPACITANCES

ca-g	33.5	pF
cg-f	44.5	pF
ca-f	1.2	pF

CHARACTERISTICS

(Measured at $V_a = 6kV$, $I_a = 2.5A$)

gm	23	mA/V
μ	17.5	

(Measured at $V_a = 500V$, $I_a = 14A$)

gm	28	mA/V
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MOUNTING POSITION

Vertical, anode down

COOLING

Water cooled

Tseals max.	220	$^{\circ}C$
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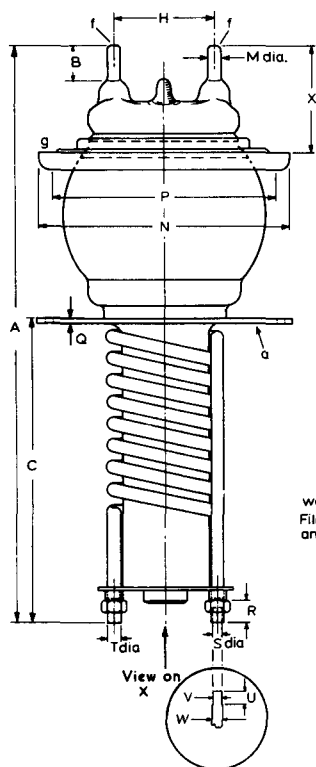
The amount of water cooling required for this valve depends on the anode dissipation and the temperature of the water. Typical values of rate of flow of water through helix and pressure loss in the helix are given in the curve on page C5. The minimum rate of flow of water through helix required can be found from the curves on page C6.

PHYSICAL DATA

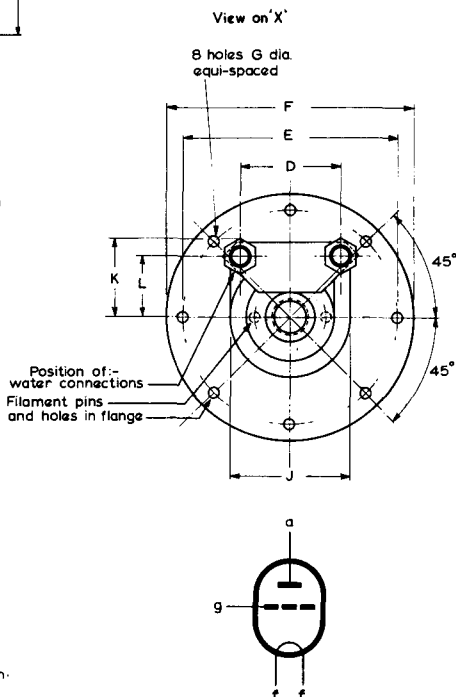
Weight of valve	6.7	lb
	3.0	kg
Weight of valve plus carton	67	lb
	30.5	kg

ACCESSORIES

Filament clip	40662
Grid connector	40664



81090 Interconnection from union to hose.

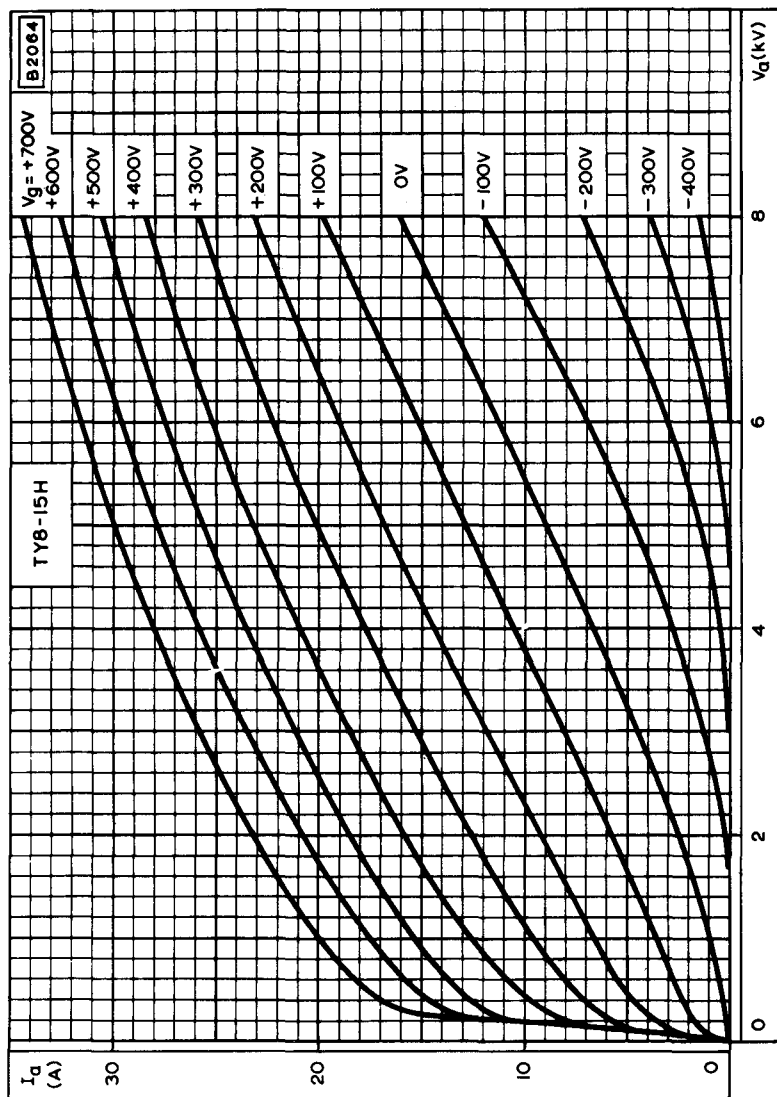


DIMENSIONS

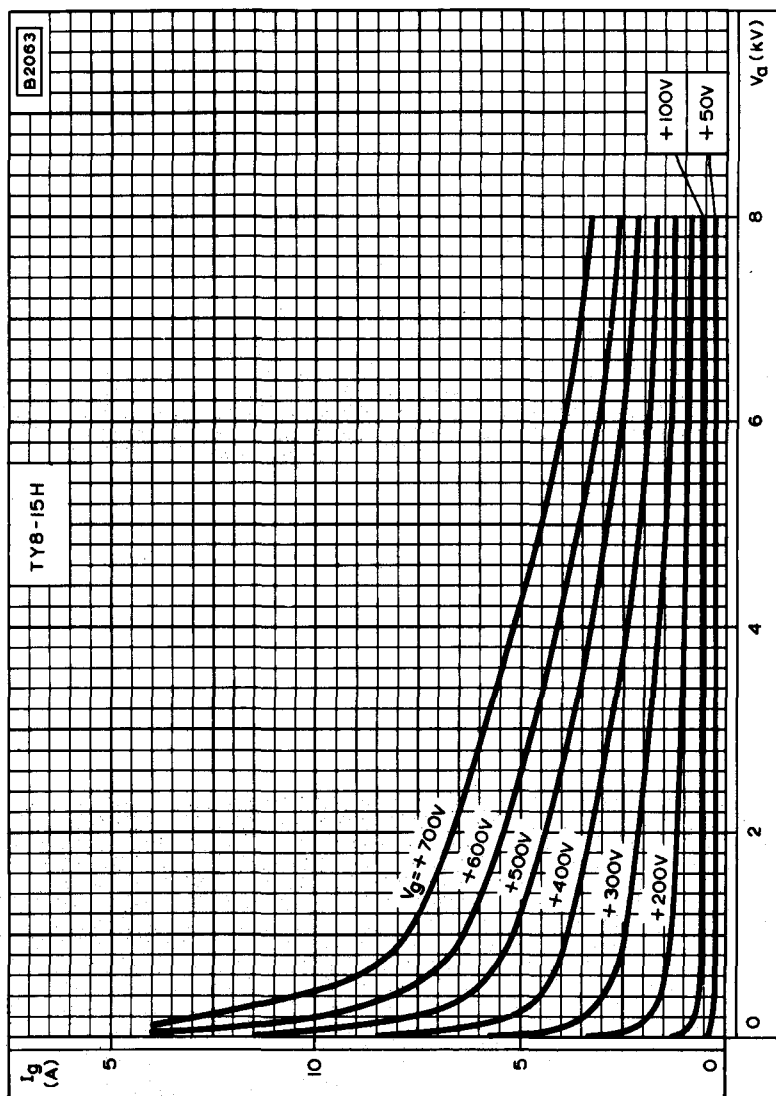
	Inches	Millimetres		Inches	Millimetres
A	13.819	351	M	0.374	9.5
B	0.984	25	N	6.417	163
C	7.677	195	P	5.827	148
D	2.953	75	Q	0.118	3
E	6.378	162	R	0.472	12
F	7.283	185	S	0.472	12
G	0.276	7	T	0.630	16
H	2.126	54	U	1.000	25.4
J	3.406	86.5	V	0.472	12
K	2.205	56	W	0.5	12.7
L	1.654	42			

Inch dimensions derived from original millimetre dimensions.

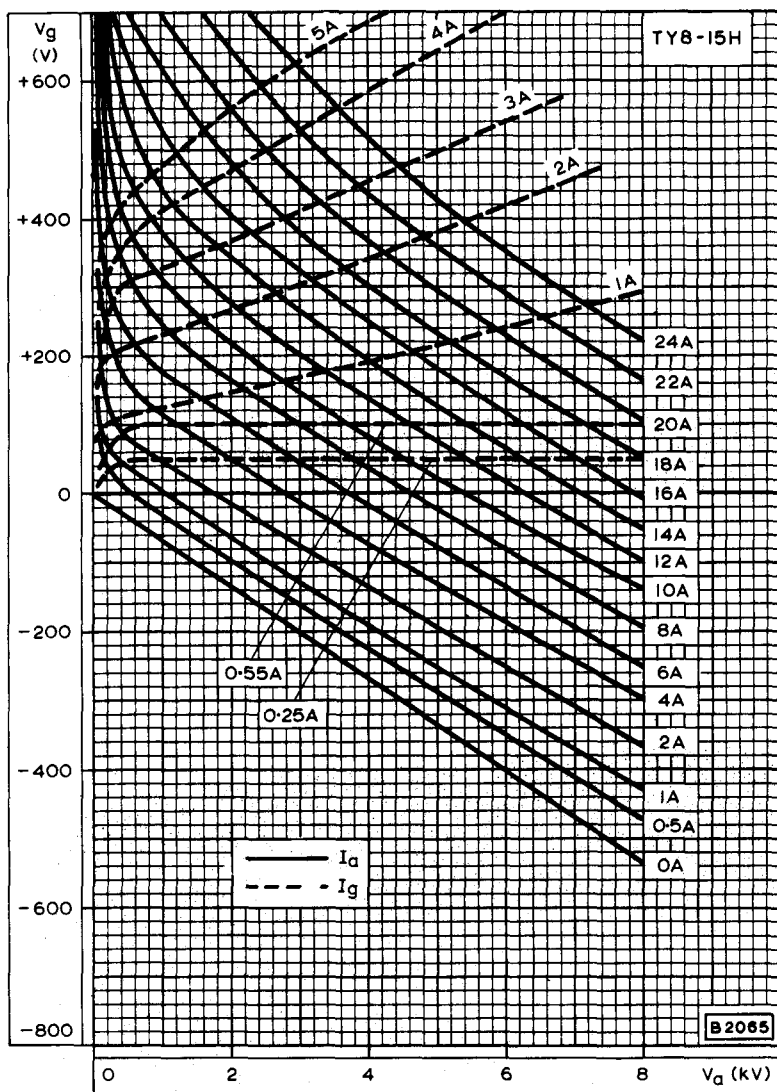




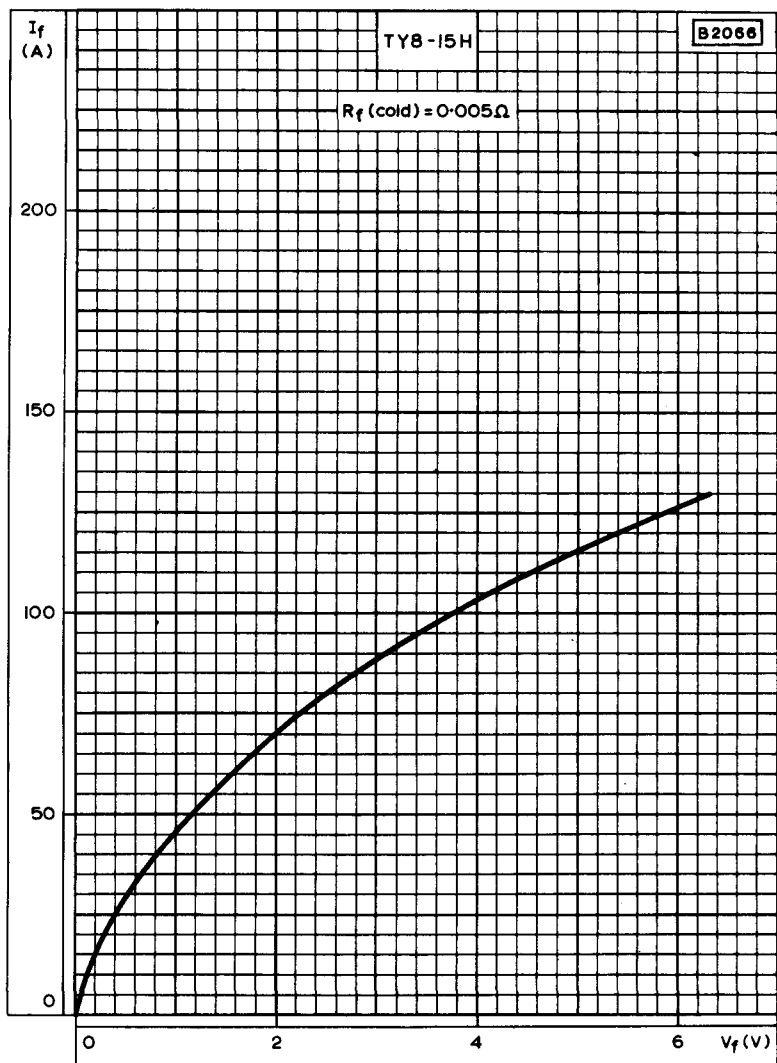
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH
GRID VOLTAGE AS PARAMETER



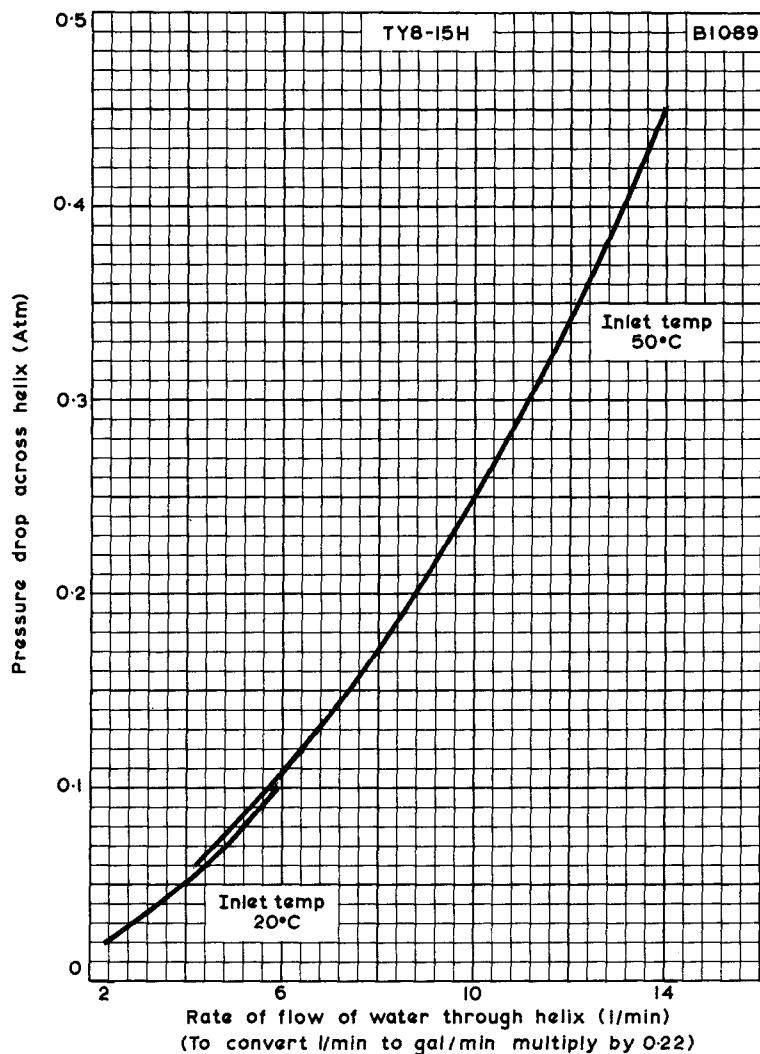
GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH
GRID VOLTAGE AS PARAMETER



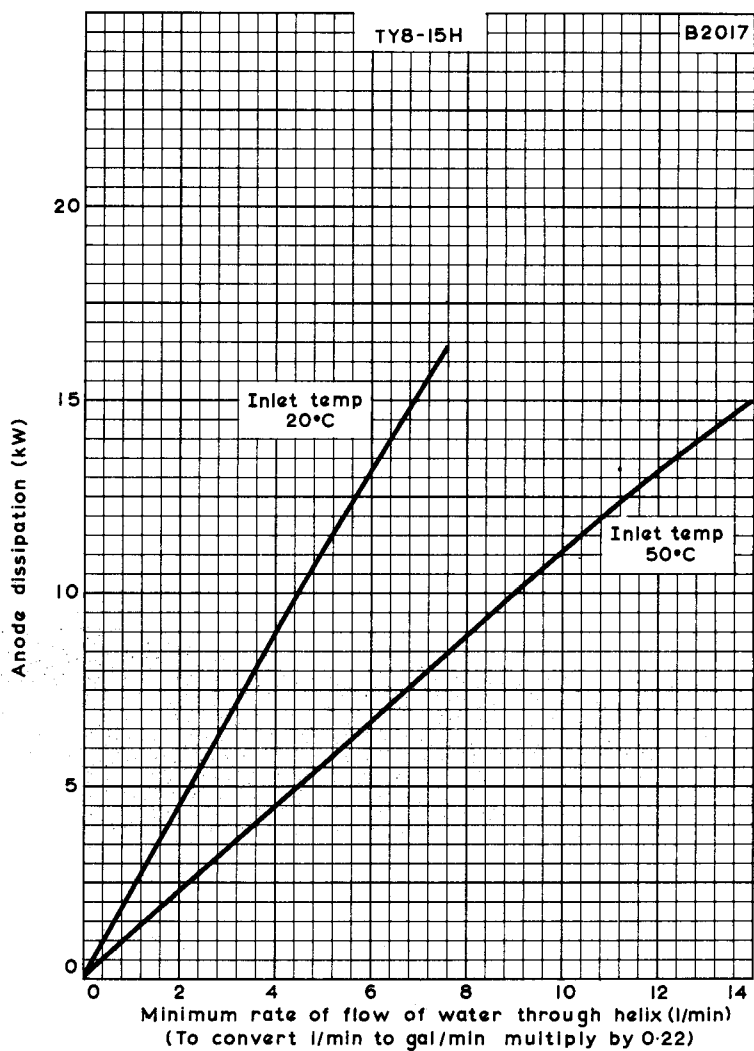
CONSTANT CURRENT CHARACTERISTICS



FILAMENT CURRENT PLOTTED AGAINST FILAMENT VOLTAGE



PRESSURE DROP ACROSS HELIX PLOTTED AGAINST RATE OF FLOW
OF WATER THROUGH HELIX



ANODE DISSIPATION PLOTTED AGAINST MINIMUM RATE OF FLOW OF WATER THROUGH HELIX FOR INLET TEMPERATURES OF 20 AND 50°C