R.F. POWER TRIODE

TY7-6000A

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

PRELIMINARY DATA

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

FILAMENT Thoriated tungsten

V_f	12.6	V
I_f	33	A

The connection f_{et} is not an electrical centre tap and must not be used for filament current supply. At frequencies above 30Mc/s all three filament pins should be interconnected with suitable capacitors.

MOUNTING POSITION Vertical, anode up or down

CAPACITANCES

C_{a-g}	11	pF
C_{in}	16	pF
C_{out}	0.3	pF

CHARACTERISTICS (measured at V_a=6kV, I_a=1A)

g_m	15	mA/V
μ	32	

COOLING

Max. temperature of filament seals	210	°C
Max. temperature of grid and anode seals	180	°C

In order to keep within the temperature limits it may be necessary to direct a flow of air on to the filament and grid seals.

The valve must not be operated without a heat dissipating connector on pin f_{et}.

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 flow of air and pressure difference between the inlet and outlet of the housing are given in the following table:

Anode dissipation P_a (kW)	Height above sea-level h (m)	Max. inlet temperature T_{in} (°C)	Min. rate of flow of air (m^3/min)	Pressure difference between inlet and outlet (mm of H_2O)
2.0	0	35	4.8	20
2.0	0	45	5.7	25
2.0	1500	35	5.7	23
2.0	3000	25	6.1	23
3.5	0	35	6.2	32
3.5	0	45	7.3	42
3.5	1500	35	7.3	36
3.5	3000	25	7.8	36
6.0	0	35	9.2	68
6.0	0	45	10.7	91
6.0	1500	35	11.2	81
6.0	3000	25	11.7	80

TY7-6000A

R.F. POWER TRIODE

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

OPERATION AS SINGLE VALVE R.F. POWER AMPLIFIER (CLASS 'C' TELEGRAPHY)

Limiting values (absolute ratings)

f max.	30	Mc/s
V_a max.	7.2	kV
I_k max.	2.8	A
$i_{k(pk)}$ max.	14	A
$-V_g$ max.	1.25	kV
I_g max.	600	mA
p_a max.	6.0	kW
p_g max.	250	W

Typical operating conditions

f	30	30	30	30	30	30	Mc/s
V_a	5.0	5.0	6.0	6.0	6.5	6.5	kV
V_g	−300	−300	−400	−400	−450	−450	V
I_a	2.0	2.0	2.0	2.0	2.0	2.0	A
I_g	500	600	500	600	500	600	mA
$v_{in(pk)}$	660	700	780	820	820	850	V
P_{drive}	297	378	350	443	370	460	W
p_a	2.9	2.7	3.5	2.8	3.5	3.0	kW
P_{out}	7.1	7.3	8.5	9.2	9.5	10	kW
η	71	73	71	76.7	73	77	%
P_{load}	5.7	5.8	7.0	7.4	7.6	8.0	kW

OPERATION AS SINGLE VALVE R.F. POWER AMPLIFIER (CLASS 'C' TELEPHONY)

Limiting values (carrier condition for modulation factor of 1)

f max.	30	Mc/s
V_a max.	5.5	kV
I_k max.	2.4	A
$i_{k(pk)}$ max.	12	A
$-V_g$ max.	1.25	kV
I_g max.	600	mA
p_a max.	4.0	kW
p_g max.	250	W

Typical operating conditions

f	30	30	30	Mc/s
V_a	4.0	5.0	5.0	kV
V_g	−300	−400	−400	V
I_a	1.6	1.4	1.6	A
I_g	600	500	600	mA
$v_{in(pk)}$	680	730	800	V
P_{drive}	367	328	432	W
p_a	1.4	1.4	1.6	kW
P_{out}	5.0	5.6	6.4	kW
η	78	80	80	%
P_{load}	4.0	4.5	5.1	kW
For 100% modulation				
P_{mod}	3.2	3.5	4.0	kW

R.F. POWER TRIODE

TY7-6000A

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

OPERATION AS CLASS 'B' A.F. POWER AMPLIFIER OR MODULATOR

Limiting values (absolute ratings)

V_a max.	7.2	kV
I_k max.	2.8	A
$i_{k(pk)}$ max.	10	A
p_a max.	6.0	kW
p_g max.	250	W
R_{g-f} max.	15	kΩ

Typical operating conditions for two valves in push-pull

V_a	4.0	5.0	5.0	7.0	kV
V_g	−120	−145	−145	−210	V
R_{a-a}	3.8	5.5	4.8	4.15	kΩ
$V_{in(g-g)r.m.s.}$	630	483	588	854	V
$I_{a(o)}$	2×100	2×150	2×150	2×200	mA
I_a (max. sig.)	2×1.25	2×1.1	2×1.25	2×2.0	A
I_g	2×315	2×220	2×350	2×560	mA
$P_{load(driver)}$	2×140	2×65	2×130	2×310	W
p_a	2×1.45	2×1.5	2×1.7	2×4.0	kW
P_{out}	7.1	8.0	9.0	20	kW
η	71	72.5	72.5	71.5	%

OPERATION AS SINGLE VALVE R.F. OSCILLATOR (CLASS 'C')

For industrial use with anode voltage from three phase half-wave rectifier without filter.

Limiting values (absolute ratings)

f max.	55	Mc/s
V_a max.	7.0	kV
p_a max.	6.0	kW
I_k max.	2.3	A
$i_{k(pk)}$ max.	11	A
$-V_g$ max.	1.25	kV
I_g max. (unloaded condition)	700	mA
I_g max. (loaded condition)	500	mA
p_g max.	250	W
R_{g-f} max.	10	kΩ

Typical operating conditions

f	50	Mc/s
$V_{transformer(r.m.s.)}$	5.1	kV
V_a	6.0	kV
I_a	1.5	A
I_g (unloaded condition)	700	mA
I_g (loaded condition)	400	mA
R_{g-f}	1.0	kΩ
P_{drive}	300	W
p_a	2.7	kW
*P_{out}	6.0	kW
η	67	%

*Includes circuit losses.

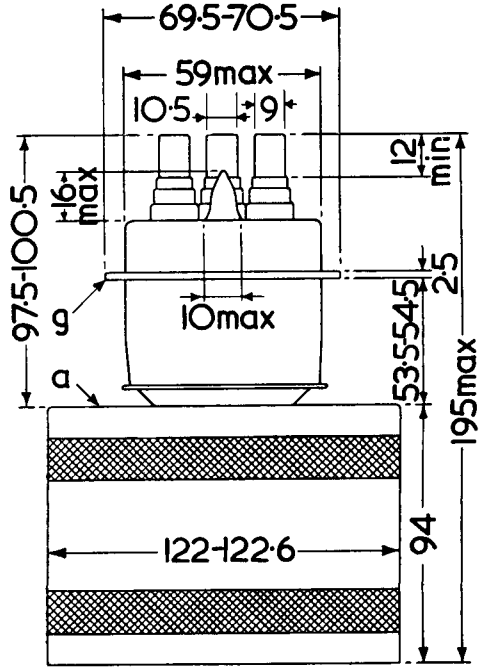
WEIGHT

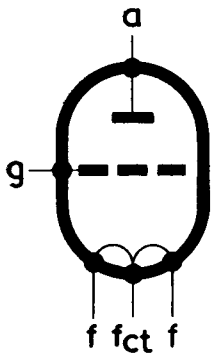
Valve only	10.1	lb
	4.6	kg
Shipping weight	17.8	lb
	8.1	kg
Dimensions of packing	346×346×520	mm

TY7-6000A

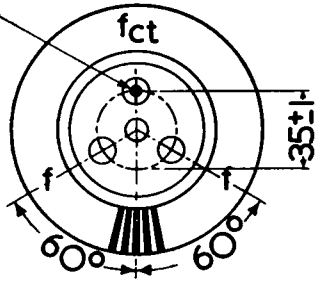
R.F. POWER TRIODE

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.





This pin is 10·5mm diameter



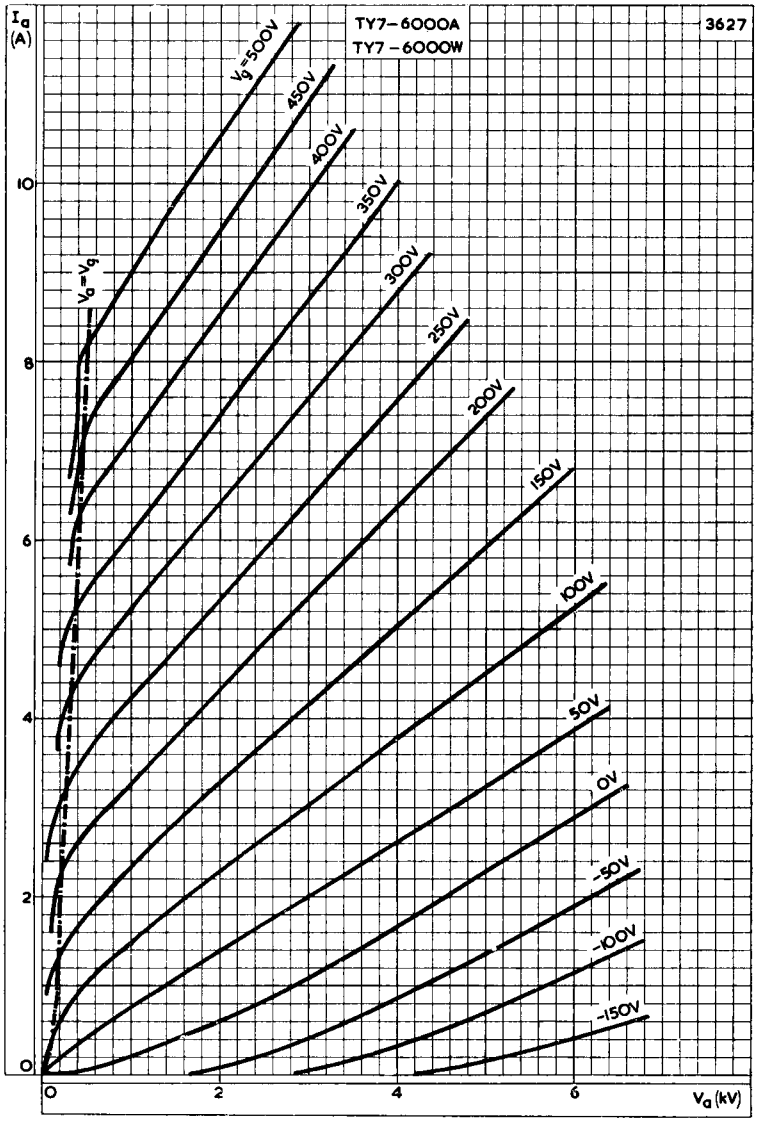
3690

All dimensions in mm

R.F. POWER TRIODE

TY7-6000A

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

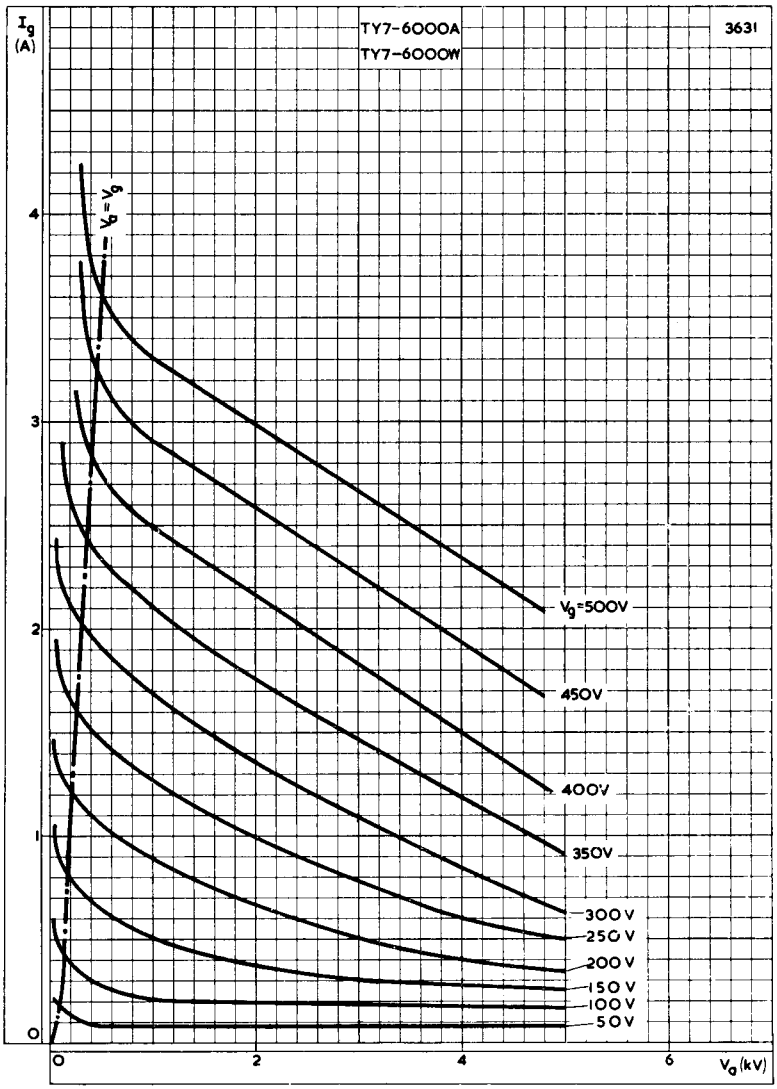


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER

TY7-6000A

R.F. POWER TRIODE

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

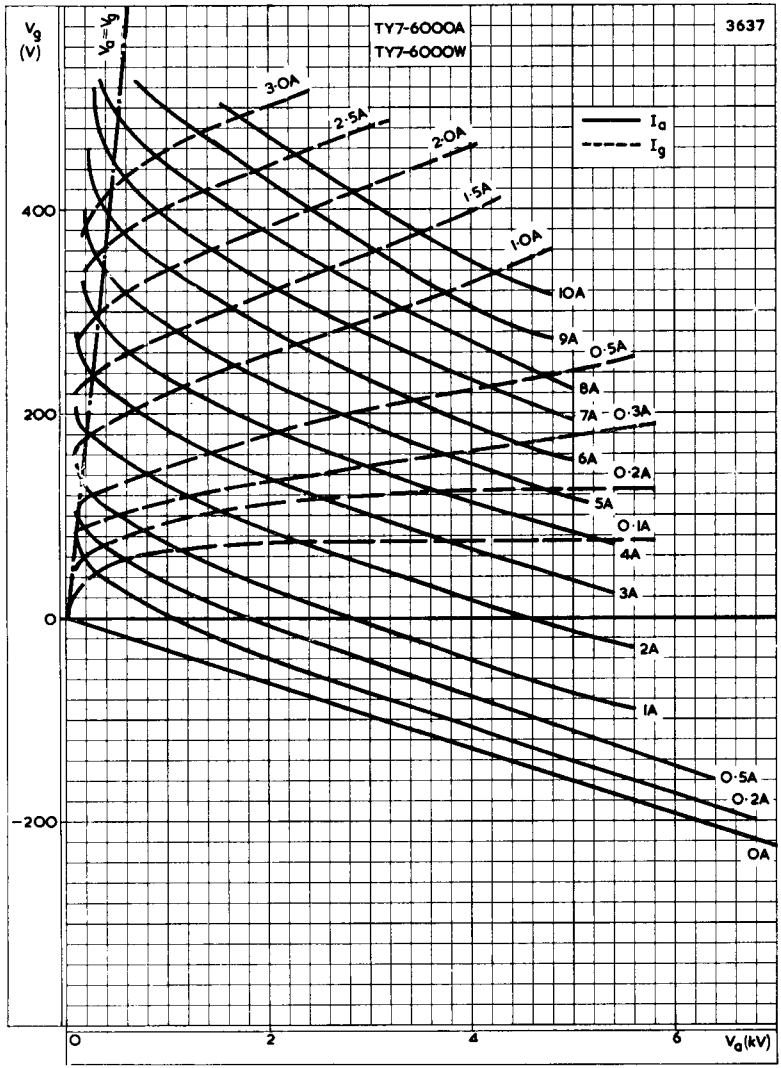


GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER

R.F. POWER TRIODE

TY7-6000A

Forced-air cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.



CONSTANT CURRENT CURVES

R.F. POWER TRIODE

TY7-6000W

Water cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

PRELIMINARY DATA

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

FILAMENT Thoriated tungsten

V_f	12.6	V
I_f	33	A

The connection f_{ct} is not an electrical centre tap and must not be used for filament current supply. At frequencies above 30Mc/s all three filament pins should be interconnected with suitable capacitors.

MOUNTING POSITION Vertical, anode up or down

CAPACITANCES

C_{a-g}	11	pF
C_{in}	16	pF
C_{out}	0.3	pF

CHARACTERISTICS (measured at V_a=6kV, I_a=1A)

g_m	15	mA/V
μ	32	

COOLING

Max. temperature of filament seals	210	°C
Max. temperature of grid and anode seals	180	°C

The valve must not be operated without a heat dissipating connector on pin f_{ct}.

TY7-6000W

R.F. POWER TRIODE

Water cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.

Typical values of inlet temperature, rate of flow of water and pressure difference between the inlet and outlet housing at various anode dissipations are given in the following table:

Anode dissipation p_a (kW)	Inlet temperature T_{in} (°C)	Rate of flow of water (litres/min)	Pressure difference between inlet and outlet (atm)
1.0	20	2.5	0.08
1.0	50	5.0	0.1
2.0	20	2.5	0.08
2.0	50	5.0	0.3
4.0	20	4.0	0.18
4.0	50	9.0	0.9
6.0	20	6.0	0.4
6.0	50	14	2.5

In order to keep within the temperature limits it may be necessary to direct a flow of air on to the seals. Air cooling will in general not be necessary at frequencies $\leq$30Mc/s and a maximum ambient temperature of 35°C. At frequencies between 30 and 50Mc/s or at higher ambient temperatures a low velocity air flow to the grid and filament seals will be necessary.

WEIGHT

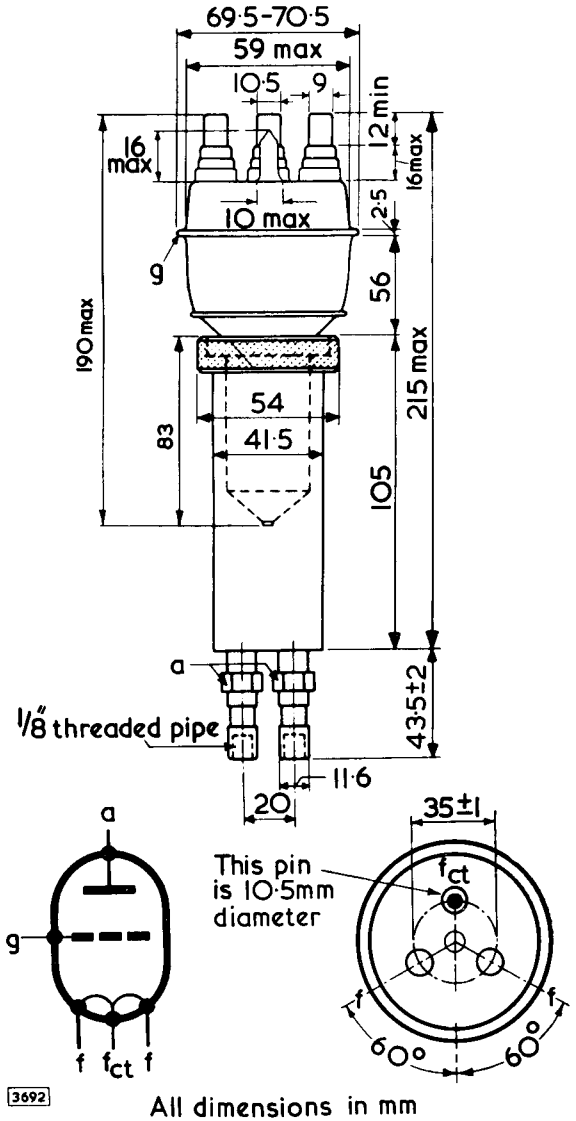
Valve only	15.8	oz
	450	g
Shipping weight	2.6	lb
	1.2	kg

The characteristics, curves, operating conditions and limiting values are identical with those given for TY7-6000A.

R.F. POWER TRIODE

TY7-6000W

Water cooled triode rated for a maximum anode dissipation of 6kW and suitable for use at frequencies up to 55Mc/s.



All dimensions in mm

TY7-6000W

Typical values of inlet temperature, rate of flow of water and pressure difference between the inlet and outlet housing at various anode dissipations are given in the following table:

Anode dissipation p_a (kW)	Inlet temperature T_{in} (°C)	Rate of flow of water per minute (litres)	(gal)	Pressure difference between inlet and outlet (atm)
1.0	20	2.5	0.55	0.08
1.0	50	5.0	1.10	0.1
2.0	20	2.5	0.55	0.08
2.0	50	5.0	1.10	0.3
4.0	20	4.0	0.88	0.18
4.0	50	9.0	1.98	0.9
6.0	20	6.0	1.32	0.4
6.0	50	14	3.08	2.5

In order to keep within the temperature limits it may be necessary to direct a flow of air on to the seals. Air cooling will in general not be necessary at frequencies $\leqslant$ 30Mc/s and a maximum ambient temperature of 35°C. At frequencies between 30 and 50Mc/s or at higher ambient temperatures a low velocity air flow to the grid and filament seals will be necessary.

CLASS 'C' TELEGRAPHY OR F.M. TELEPHONY

Absolute maximum ratings

f max.	30	Mc/s
V_a max.	7.2	kV
I_k max.	2.8	A
$i_{k(pk)}$ max.	14	A
$-V_g$ max.	1.25	kV
I_g max.	600	mA
p_a max.	6.0	kW
p_g max.	250	W

Typical operating conditions

f	30	30	30	30	30	30	Mc/s
V_a	5.0	5.0	6.0	6.0	6.5	6.5	kV
V_g	−300	−300	−400	−400	−450	−450	V
I_a	2.0	2.0	2.0	2.0	2.0	2.0	A
I_g	500	600	500	600	500	600	mA
$v_{in(pk)}$	660	700	780	820	820	850	V
P_{drive}	297	378	350	443	370	460	W
p_a	2.9	2.7	3.5	2.8	3.5	3.0	kW
P_{out}	7.1	7.3	8.5	9.2	9.5	10	kW
η_a	71	73	71	76.7	73	77	%
P_{load}	5.7	5.8	7.0	7.4	7.6	8.0	kW

TY7-6000A
TY7-6000W

R.F. POWER TRIODE

CLASS 'C' TELEPHONY

Absolute maximum ratings

(carrier condition for modulation factor of 1)

f max.	30	Mc/s
V_a max.	5.5	kV
I_k max.	2.4	A
$i_{k(pk)}$ max.	12	A
$-V_g$ max.	1.25	kV
I_g max.	600	mA
p_a max.	4.0	kW
p_g max.	250	W

Typical operating conditions

f	30	30	30	Mc/s
V_a	4.0	5.0	5.0	kV
V_g	−300	−400	−400	V
I_a	1.6	1.4	1.6	A
I_g	600	500	600	mA
$v_{in(pk)}$	680	730	800	V
P_{drive}	367	328	432	W
p_a	1.4	1.4	1.6	kW
P_{out}	5.0	5.6	6.4	kW
η_a	78	80	80	%
P_{load}	4.0	4.5	5.1	kW
For 100% modulation				
P_{mod}	3.2	3.5	4.0	kW

CLASS 'B' A.F.

Absolute maximum ratings

V_a max.	7.2	kV
I_k max.	2.8	A
$i_{k(pk)}$ max.	10	A
p_a max.	6.0	kW
p_g max.	250	W
R_{g-f} max.	15	kΩ

Typical operating conditions for two valves in push-pull

V_a	4.0	5.0	5.0	7.0	kV
V_g	−120	−145	−145	−210	V
R_{a-a}	3.8	5.5	4.8	4.15	kΩ
$V_{in(g-g)r.m.s.}$	630	483	588	854	V
$I_{a(o)}$	2×100	2×150	2×150	2×200	mA
I_a (max. sig.)	2×1.25	2×1.1	2×1.25	2×2.0	A
I_g	2×315	2×220	2×350	2×560	mA
$P_{load(driver)}$	2×140	2×65	2×130	2×310	W
p_a	2×1.45	2×1.5	2×1.7	2×4.0	kW
P_{out}	7.1	8.0	9.0	20	kW
η_a	71	72.5	72.5	71.5	%

TY7-6000A
TY7-6000W

INDUSTRIAL OPERATION AS CLASS 'C' OSCILLATOR

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

Absolute maximum ratings

f max.		85	55	Mc/s
V_a max.		6.5	7.0	kV
p_a max.			6.0	kW
I_k max.			2.5	A
$i_{k(pk)}$ max.			11	A
$-V_g$ max.			1.25	kV
I_g max. (unloaded)			700	mA
I_g max. (loaded)			500	mA
p_g max.			250	W
R_{g-f} max.			10	kΩ

Typical operating conditions

f	55	85	85	Mc/s
$V_{tr(r.m.s.)}$	5.55	5.13	4.27	kV
V_a	6.5	6.0	5.0	kV
I_a	1.7	1.5	1.7	A
I_g (unloaded)	700	700	700	mA
I_g (loaded)	500	400	450	mA
R_{g-f}	900	1000	850	Ω
R_a	2.0	2.3	1.6	kΩ
Feedback ratio $\frac{V_{in(pk)}}{V_{a(pk)}}$	0.15	0.15	0.19	
P_{drive}	350	300	350	W
p_a	2.4	2.5	2.4	kW
P_{out}	8.6	6.5	6.1	kW
P_{out} (less P_{drive})	8.25	6.2	5.75	kW
η_a	78	72	72	%
P_{load}	7.0	5.5	5.0	kW

ACCESSORIES

Filament clips	40634
Filament centre-pin clip	40649
Grid connector	40622
f < 30Mc/s	40650
Insulating pedestal (TY7-6000A)	40630
Water jacket (TY7-6000W)	K713

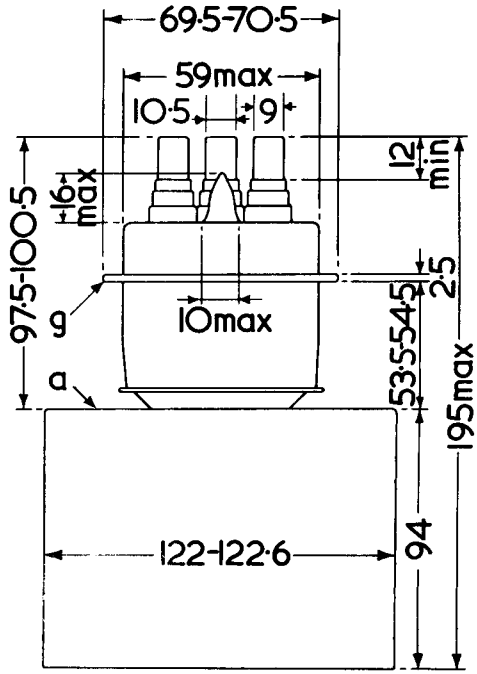
PHYSICAL DATA

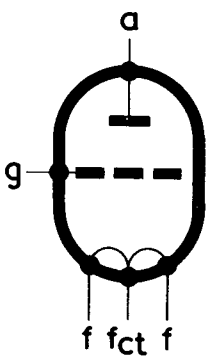
	TY7-6000A	TY7-6000W	
Weight of valve	10.1	1.0	lb
	4.6	0.45	kg
Weight of valve plus carton	17.8	2.6	lb
	8.1	1.2	kg
Dimensions of carton	13.6 × 13.6 × 20.5		in
	346 × 346 × 520		mm

TY7-6000A
TY7-6000W

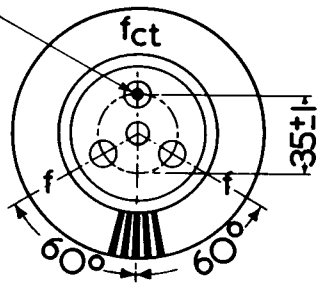
R.F. POWER TRIODE

OUTLINE DRAWING OF TY7-6000A





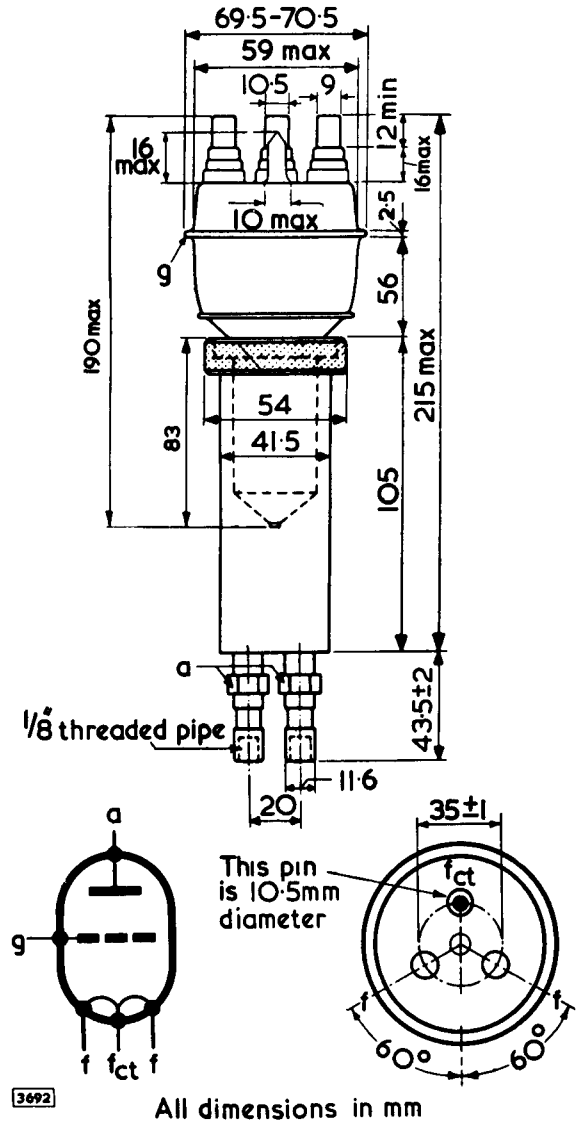
This pin is 10·5mm diameter



9969

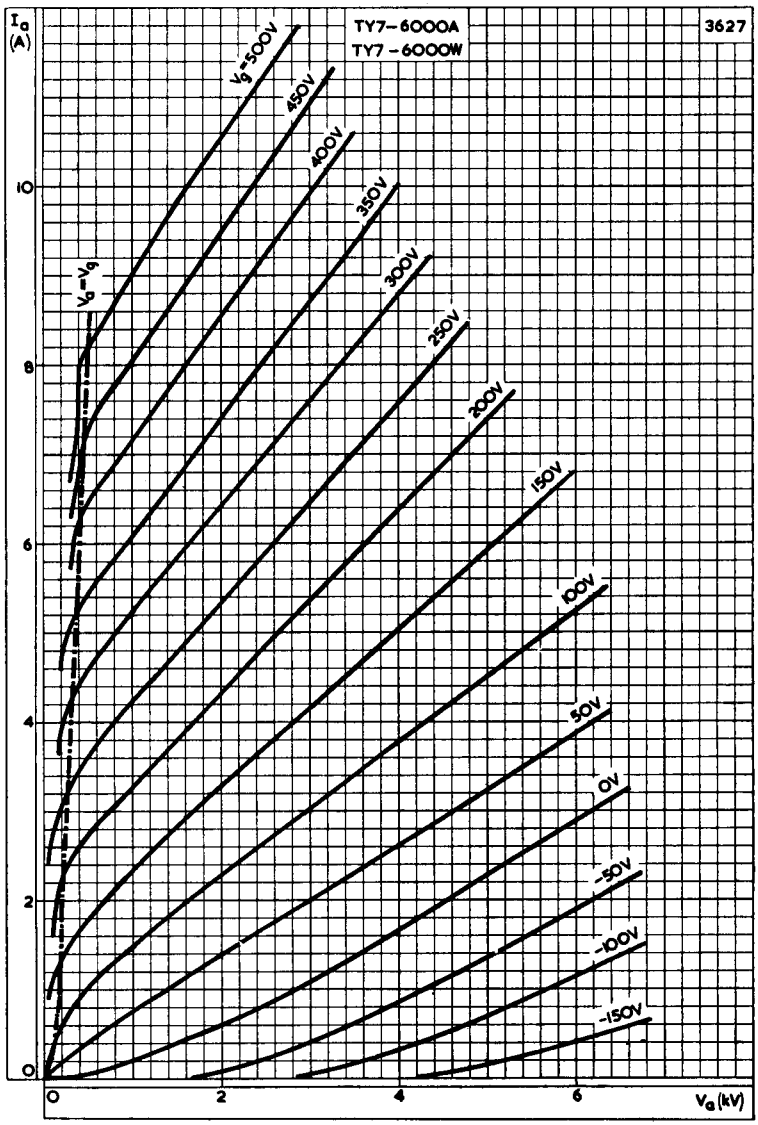
All dimensions in mm

OUTLINE DRAWING OF TY7-6000W

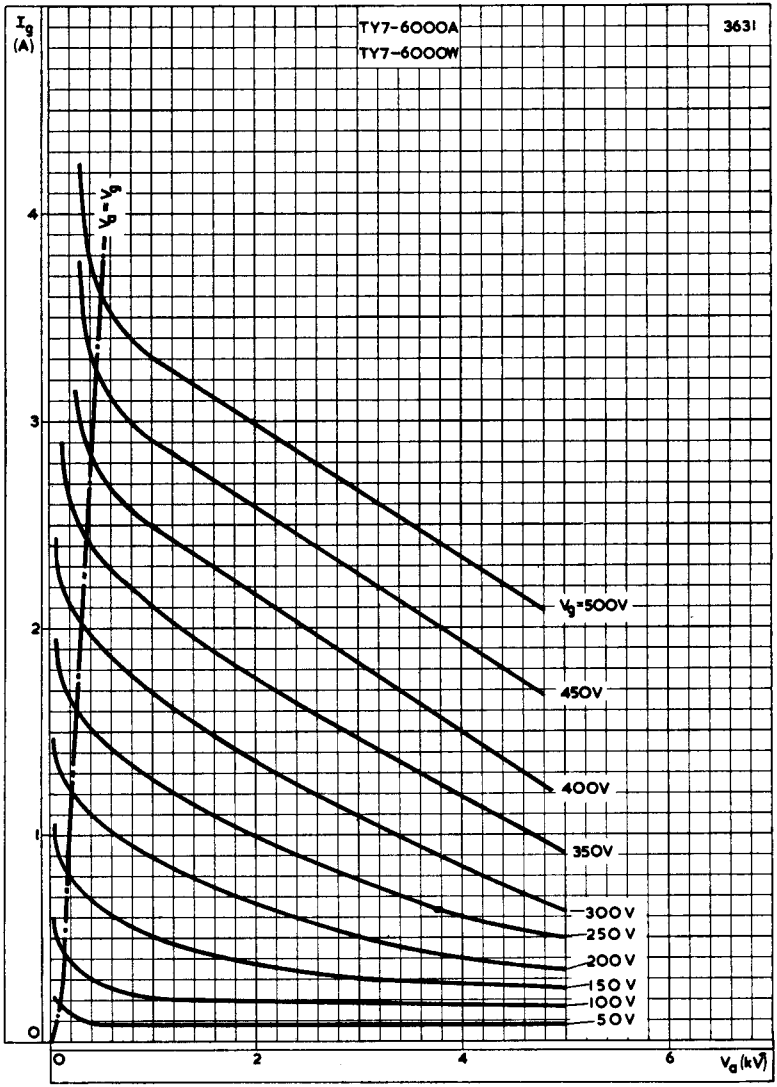


All dimensions in mm

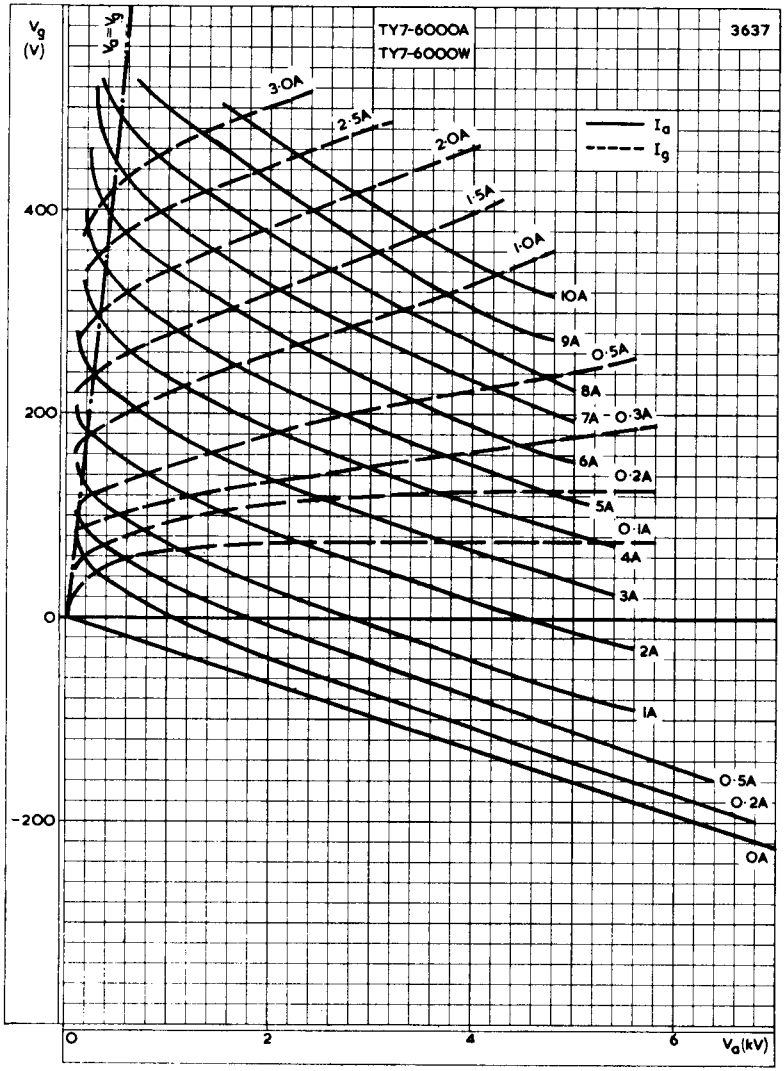
TY7-6000A
TY7-6000W



ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER



GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER



CONSTANT CURRENT CURVES

V.H.F. POWER TRIODE

TY7-6000A
TY7-6000W
TY7-6000H

QUICK REFERENCE DATA

External anode triode, intended for use as v.h.f. amplifier or oscillator or a.f. amplifier.

The TY7-6000A is forced-air cooled.
The TY7-6000W is water cooled by means of a water jacket.
The TY7-6000H is water cooled by means of an integral helical water cooler.

	Class 'C' Telegraphy or F.M. Telephony	Class 'C' Industrial Oscillator	Class 'B' Audio Amplifier	
f	30	55	-	Mc/s
P_{out}	10	8.25	20	kW
f max.	30	85	-	Mc/s
V_a max.	7.2	7.0	7.2	kV
p_a max.	6.0	6.0	6.0	kW

Unless otherwise shown, data is applicable to all types.

To be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS - TRANSMITTING VALVES

CLASS 'C' TELEGRAPHY OR F.M. TELEPHONY

Typical operating conditions

f	30	30	30	30	30	30	Mc/s
P_{out}	7.1	7.3	8.5	9.2	9.5	10	kW
P_{load}	5.7	5.8	7.0	7.4	7.6	8.0	kW
η_a	71	73	71	77	73	77	%
V_a	5.0	5.0	6.0	6.0	6.5	6.5	kV
I_a	2.0	2.0	2.0	2.0	2.0	2.0	A
$-V_g$	300	300	400	400	450	450	V
I_g	500	600	500	600	500	600	mA
$v_{in(pk)}$	660	700	780	820	820	850	V
$P_{load\ (driver)}$	297	378	350	443	370	460	W
p_a	2.9	2.7	3.5	2.8	3.5	3.0	kW

CLASS 'C' TELEPHONY ANODE MODULATION

Typical operating conditions (Carrier conditions for 100% modulation)

f	30	30	30	Mc/s
P_{out}	5.0	5.6	6.4	kW
P_{load}	4.0	4.5	5.1	kW
η_a	78	80	80	%
V_a	4.0	5.0	5.0	kV
I_a	1.6	1.4	1.6	A
$-V_g$	300	400	400	V
I_g	600	500	500	mA
$v_{in(pk)}$	680	730	800	V
$P_{load\ (driver)}$	367	328	432	W
p_a	1.4	1.4	1.6	kW
For 100% modulation				
P_{mod}	3.2	3.5	4.0	kW

CLASS 'B' AUDIO AMPLIFIER

Typical operating conditions for two valves in push-pull

P_{out}	7.1	8.0	9.0	20	kW
R_{a-a}	3.8	5.5	4.8	4.15	kΩ
V_a	4.0	5.0	5.0	7.0	kV
$-V_g$	120	145	145	210	V
$I_{a\ (o)}$	2 x 100	2 x 150	2 x 150	2 x 200	mA
$I_{a\ (max.\ sig.)}$	2 x 1.25	2 x 1.1	2 x 1.25	2 x 2.0	A
I_g	2 x 315	2 x 220	2 x 350	2 x 560	mA
$V_{in\ (g-g)}$ r.m.s.	630	483	588	854	V
$P_{load\ (driver)}$	2 x 140	2 x 65	2 x 130	2 x 310	W
p_a	2 x 1.45	2 x 1.5	2 x 1.7	2 x 4.0	kW
η_a	71	72.5	72.5	71.5	%

INDUSTRIAL OPERATION AS CLASS 'C' OSCILLATOR

Anode supply from three-phase halfwave rectifier without filter

Typical operating conditions

f	55	85	85	Mc/s
P_{out}	8.6	6.5	6.1	kW
P_{out} (less P_{drive})	8.25	6.2	5.75	kW
P_{load}	7.0	5.5	5.0	kW
η_a	78	72	72	%
V_{tr} (r.m.s.)	5.55	5.13	4.27	kV
V_a	6.5	6.0	5.0	kV
I_a	1.7	1.5	1.7	A
I_g (loaded)	500	400	450	mA
I_g (unloaded)	700	700	700	mA
Feedback ratio $\frac{V_{in(pk)}}{V_{out(pk)}}$	0.15	0.15	0.19	
P_{load} (driver)	350	300	350	W
p_a	2.4	2.5	2.4	kW
R_{g-f}	900	1000	850	Ω
R_a	2.0	2.3	1.6	kΩ

ABSOLUTE MAXIMUM RATINGS

	Class 'C' Telegraphy	Class 'C' Telephony	Class 'B' A.F.	Class 'C' Oscillator	
V_a max (f = 30Mc/s)	7.2	5.5	7.2	-	kV
(f = 55Mc/s)	-	-	-	7.0	kV
(f = 85Mc/s)	-	-	-	6.5	kV
$-V_g$ max.	1.25	1.25	-	1.25	kV
i_k max	2.8	2.4	2.8	2.5	A
$i_{k(pk)}$ max	14	12	10	11	A
p_a max.	6.0	4.0	6.0	6.0	kW
I_g max.	600	600	-	*	mA
p_g max.	250	250	250	250	W
R_{g-f} max.	-	-	15	10	kΩ

*I_g (loaded) max	500	mA
I_g (unloaded) max	700	mA

CATHODE

Directly heated, thoriated tungsten

*V_f	12.6	V
I_f	33	A

*The filament has been designed to accept temporary fluctuations of supply voltage of -5 and +10%.

The connection f_{ct} is not an electrical centre tap and must not be used for filament current supply. At frequencies above 30Mc/s all three filament pins should be interconnected with suitable capacitors.

CAPACITANCE

c_{a-g}	11	pF
c_{in}	16	pF
c_{out}	300	mpF

CHARACTERISTICS (measured at V_a = 6.0kV, I_a = 1.0A)

g_m	15	mA/V
μ	32	

MOUNTING POSITION

Vertical, with anode up or down.

COOLING

The valve must not be operated without a heat dissipating connector on pin f_{ct}

TY7-6000A
Forced-air cooled
Maximum temperatures

Filament seals	210	°C
Anode and grid seals	180	°C

In order to keep within the temperature limits it may be necessary to direct a flow of air on to the filament and grid seals.

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 flow of air and pressure difference between the inlet and outlet of the housing are given in the following table

Anode dissipation	Height above sea level		Max. inlet temperature	Min. rate of flow of air per minute		Pressure difference between inlet and outlet	
p_a	h		T_{in}				
(kW)	(m)	(ft)	(^oC)	(m^3)	(ft^3)	(mmH_2O)	(in H_2O)
2.0	0	0	35	4.8	169	20	0.79
2.0	0	0	45	5.7	201	25	0.98
2.0	1500	4921	35	5.7	201	23	0.90
2.0	3000	9842	25	6.1	215	23	0.90
3.5	0	0	35	6.2	219	32	1.26
3.5	0	0	45	7.3	258	42	1.65
3.5	1500	4921	35	7.3	258	36	1.42
3.5	3000	9842	25	7.8	275	36	1.42
6.0	0	0	35	9.2	325	68	2.68
6.0	0	0	45	10.7	378	91	3.58
6.0	1500	4921	35	11.2	396	81	3.19
6.0	3000	9842	25	11.7	413	80	3.15

Water cooled anode and low velocity air flow on seals

Maximum temperatures

Filament seals	210	^{o}C
Anode and grid seals	180	^{o}C

Typical values of inlet temperature, rate of flow of water and pressure difference between the inlet and outlet housing at various anode dissipations are given in the following table

Anode dissipation	Inlet temperature	Rate of flow of water per minute		Pressure difference between inlet and outlet
P_a (kW)	T_{in} (^{o}C)	(litres)	(gal)	(atm)
1.0	20	2.5	0.55	0.08
1.0	50	5.0	1.10	0.1
2.0	20	2.5	0.55	0.08
2.0	50	5.0	1.10	0.3
4.0	20	4.0	0.88	0.18
4.0	50	9.0	1.98	0.9
6.0	20	6.0	1.32	0.4
6.0	50	14	3.08	2.5

In order to keep within the temperature limits it may be necessary to direct a flow of air on to the seals. Air cooling will in general not be necessary at frequencies ≤30Mc/s and a maximum ambient temperature of 35^{o}C. At frequencies between 30 and 50Mc/s or at higher ambient temperatures at low velocity air flow to the grid and filament seals will be necessary.

TY7-6000H

Water cooled anode and low velocity air flow on seals

Maximum temperatures		
Filament seals	210	°C
Anode and grid seals	180	°C
Water inlet	50	°C

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 C2. The minimum rate of flow of water through helix required can be found from the curves on page C3.

At frequencies above 30Mc/s and at ambient temperatures above 35°C both grid and filament seals should be cooled by a low velocity air flow.

PHYSICAL DATA

	TY7-6000A	TY7-6000W	TY7-6000H	
Weight of valve	10.1	1.0	1.8	lb
	4.6	0.45	0.8	kg
Weight of valve plus carton	17.8	2.6	3.7	lb
	8.1	1.2	1.7	kg
Weight of insulating pedestal	5.1	-	-	lb
	2.3	-	-	kg
Weight of insulating pedestal plus carton	7.1	-	-	lb
	3.2	-	-	kg
Weight of water jacket	-	1.1	-	lb
	-	0.5	-	kg
Weight of water jacket plus carton	-	1.6	-	lb
	-	0.7	-	kg

ACCESSORIES

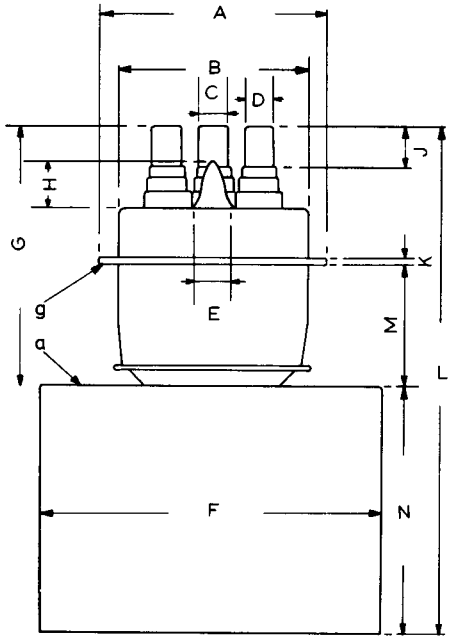
Filament clips x 2	40634
Filament centre-pin clip x 1	40649
Grid connector f > 30Mc/s	40622
f < 30Mc/s	40650
Insulating pedestal (TY7-6000A)	40630
Water jacket (TY7-6000W)	K713

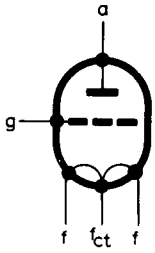
Dimensions of TY7-6000A

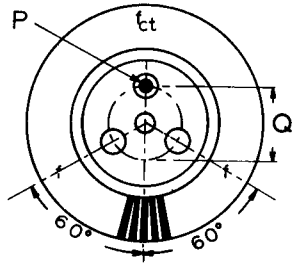
	Inches	Millimetres	
A	2.756 ± 0.020	70 ± 0.5	
B	2.323	59	max
C	0.413	10.5	
D	0.354	9.0	
E	0.394	10	max
F	4.815 ± 0.012	122.3 ± 0.3	
G	3.898 ± 0.059	99 ± 1.5	
H	0.630	16	max
J	0.472	12	min
K	0.098	2.5	
L	7.677	195	max
M	2.126 ± 0.020	54 ± 0.5	
N	3.701	94	
P	0.413	10.5	dia
Q	1.378 ± 0.039	35 ± 1.0	

Inch dimensions derived from original millimetre dimensions

OUTLINE DRAWING OF TY7-6000A







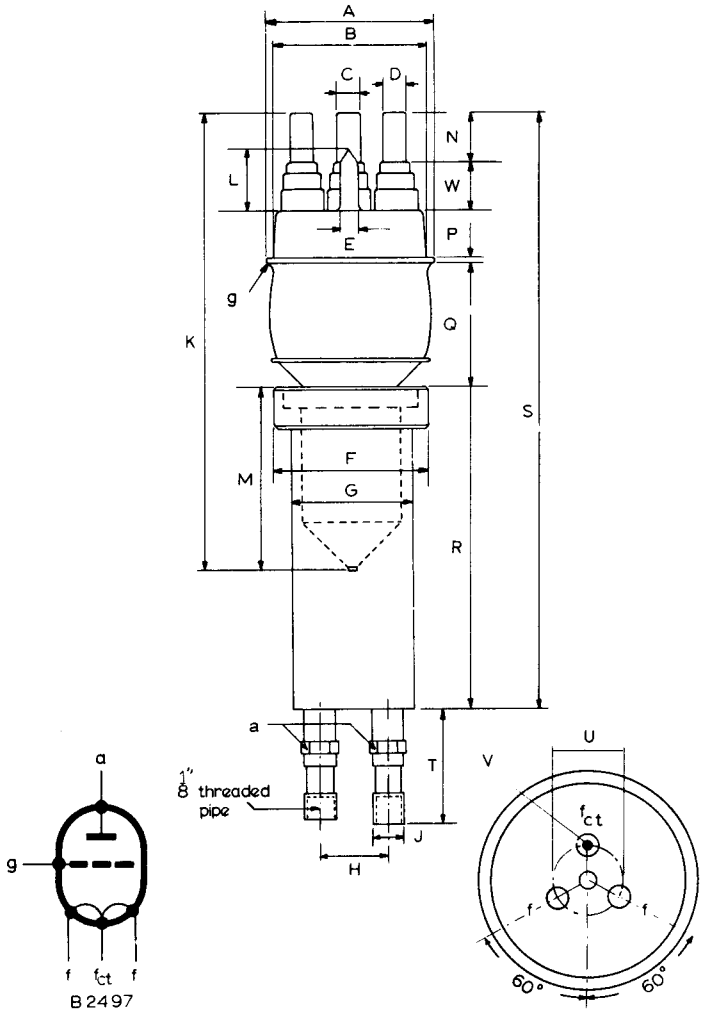
B 2495

Dimensions of TY7-6000W

	Inches	Millimetres	
A	2.756 ± 0.020	70 ± 0.5	
B	2.323	59	max
C	0.413	10.5	
D	0.354	9.0	
E	0.394	10	max
F	2.126	54	
G	1.634	41.5	
H	0.788	20	
J	0.457	11.6	
K	7.480	190	max
L	0.630	16	max
M	3.268	83	
N	0.472	12	min
P	0.098	2.5	
Q	2.205	56	
R	4.130	105	
S	8.465	215	max
T	1.713 ± 0.079	43.5 ± 2.0	
U	1.378 ± 0.039	35 ± 1.0	
V	0.413	10.5	dia
W	0.630	16	max

Inch dimensions derived from original millimetre dimensions

OUTLINE DRAWING OF TY7-6000W

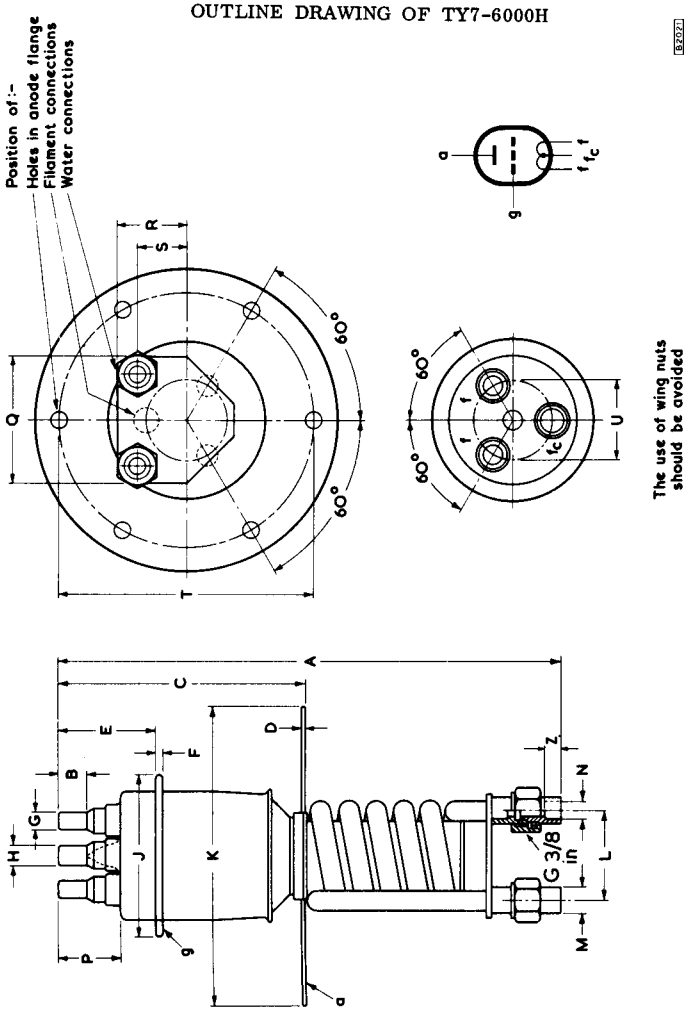


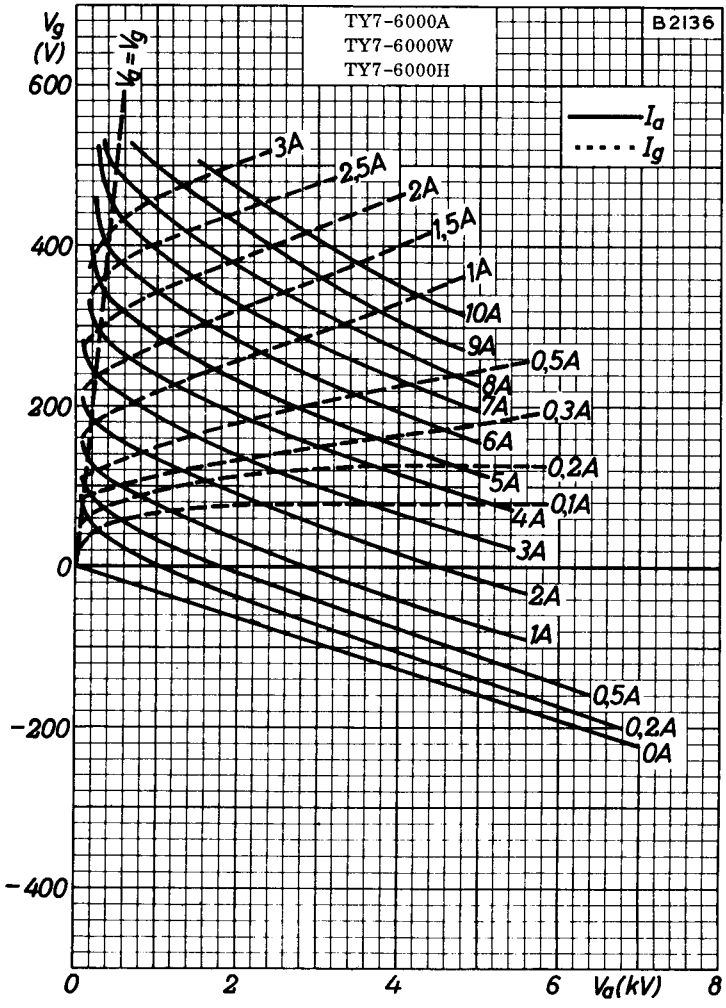
Dimensions of TY7-6000H

	Inches	millimetres	
A	8.622	219	
B	0.472	12	min
C	4.134	105	
D	0.079	2	
E	1.693	43	
F	0.098	2.5	
G	0.358	9.1	dia
H	0.413	10.5	dia
J	2.756	70	dia
K	5.118	130	dia
L	1.535	39	
M	0.394	10	dia
N	0.315	8	dia
P	0.630	16	max
Q	2.283	58	
R	1.260	32	
S	0.827	21	
T	4.331	110	
U	1.378	35	
Z	0.394	10	

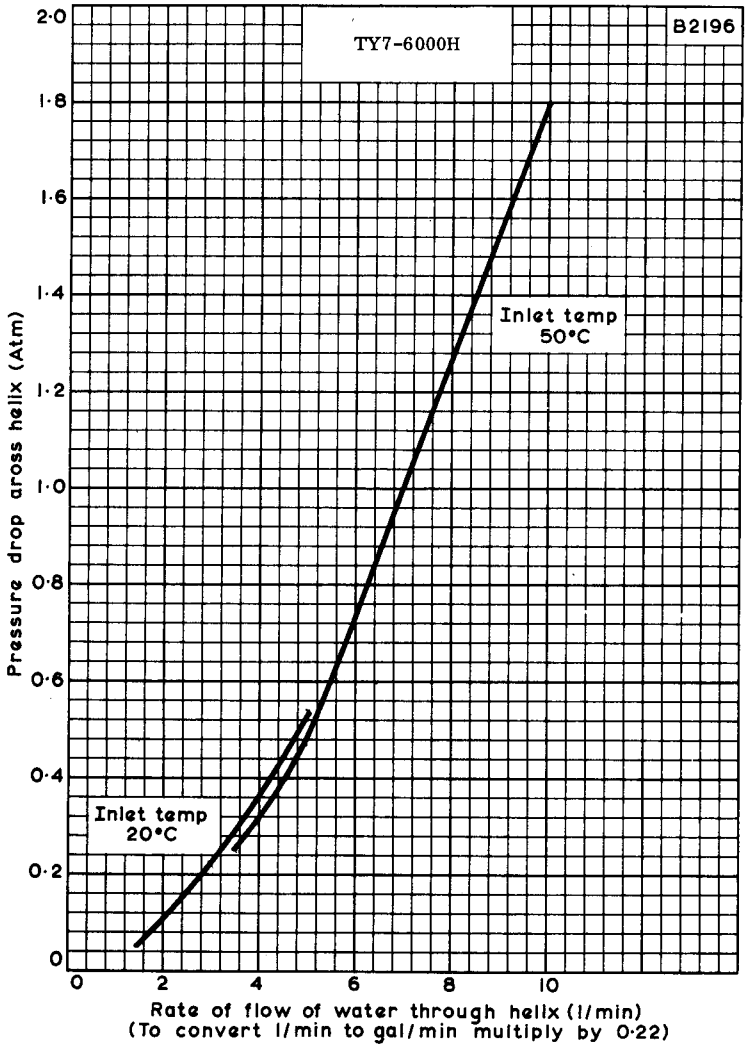
Inch dimensions derived from original millimetre dimensions

OUTLINE DRAWING OF TY7-6000H

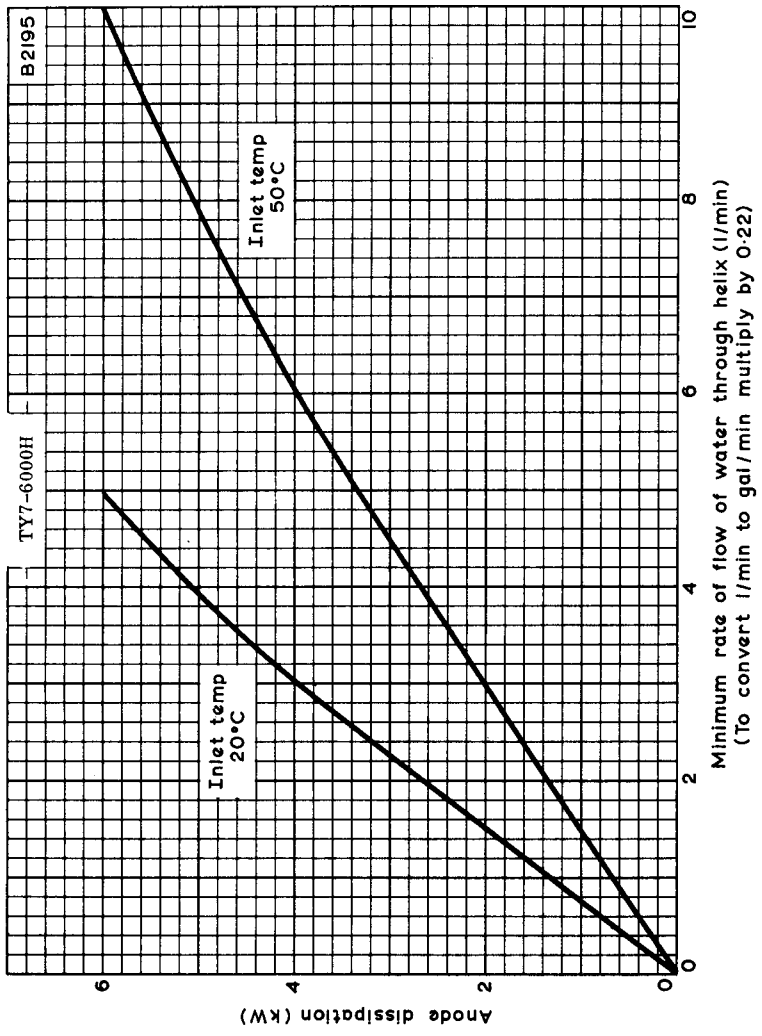




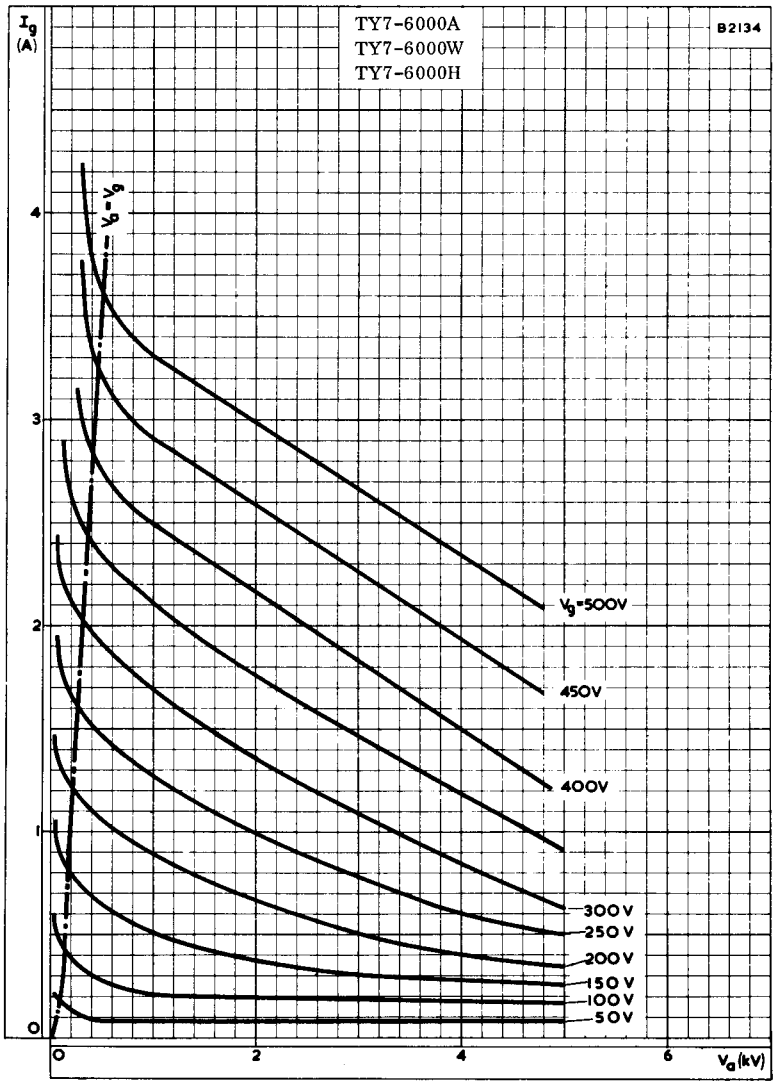
CONSTANT CURRENT CHARACTERISTICS



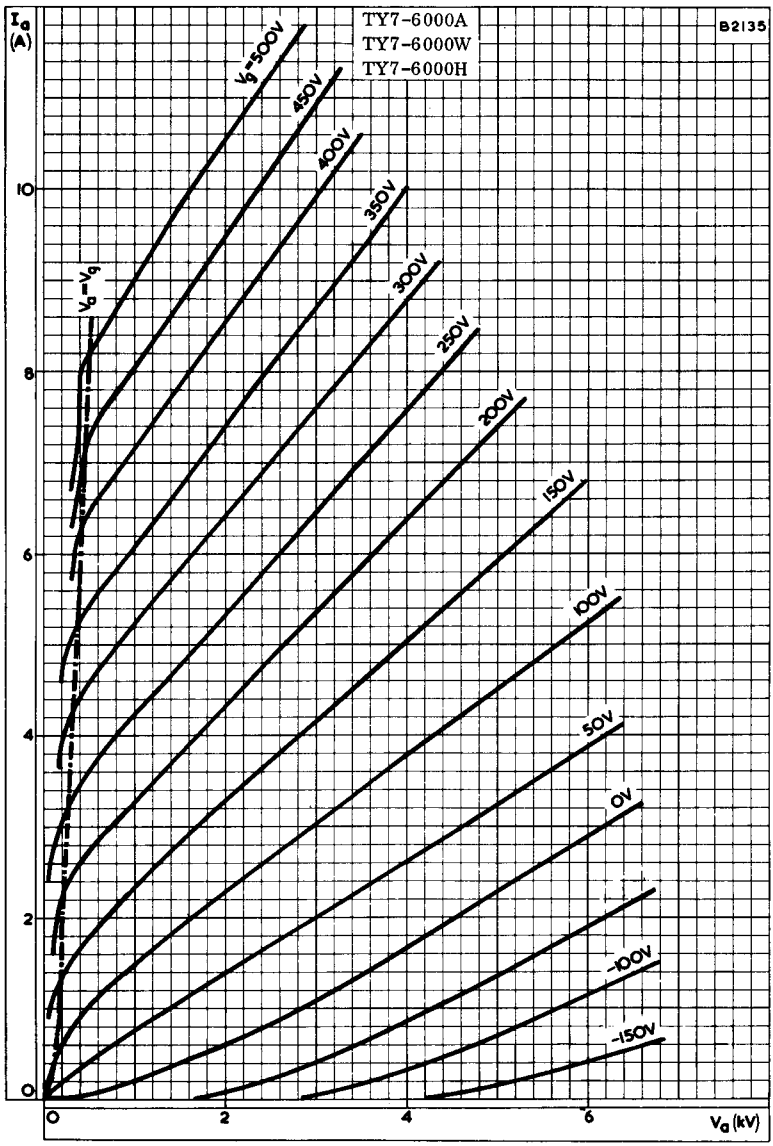
PRESSURE DROP ACROSS HELIX PLOTTED AGAINST RATE OF FLOW OF WATER THROUGH HELIX FOR INLET TEMPERATURES OF 20 AND 50°C.



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



GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE
WITH GRID VOLTAGE AS PARAMETER



ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE
WITH GRID VOLTAGE AS PARAMETER