

## TRIODE THYRATRON

# XRI-6400A

6.4 amp inert gas-filled triode thyatron with negative control characteristic. Primarily designed for motor control applications.

This data sheet should be read in conjunction with DEFINITIONS AND GENERAL OPERATIONAL RECOMMENDATIONS — THYRATRONs which precede this section of the handbook.

### LIMITING VALUES (absolute ratings, not design centre)

It is important that these limits are never exceeded and such variations as mains fluctuations, component tolerances and switching surges must be taken into consideration in arriving at actual valve operating conditions.

Max. peak anode voltage		
Inverse	1.5	kV
Forward	1.5	kV
Max. cathode current		
Peak	80	A
Average (max. averaging time 15s)	6.4	A
Surge (fault protection max. duration 0.1s)	1120	A
Max. negative grid voltage		
Before conduction	250	V
During conduction	10	V
Max. average positive grid current for anode voltage more positive than -10V (averaging time 1 cycle)	200	mA
Max. peak positive grid current during the time that the anode voltage is more negative than -10V	25	mA
Max. grid resistor	100	k $\Omega$
Min. valve heating time	60	s
Max. commutation factor	130	
Max. ambient temperature	70	$^{\circ}\text{C}$ ←

### CHARACTERISTICS

#### Electrical

Filament voltage	2.5	V
Filament current at 2.5V		
Average	21	A
Maximum	23	A←

The anode and grid circuit returns should be made to the centre tap of the filament transformer.

Quadrature operation of the filament is recommended.

When quadrature operation is used, the voltage of filament pin No. 2 should be crossing zero from positive towards negative when the anode voltage is at the peak of the positive half cycle.

In three phase systems each valve should be connected so that its anode and filament voltages approximate as nearly as possible to quadrature phasing, i.e., filament voltage  $90 \pm 30^{\circ}$  out of phase with the anode voltage.

When quadrature operation is not practicable, filament pin No. 2 should be negative when the anode is positive.

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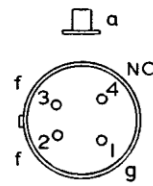
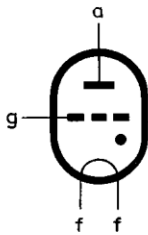
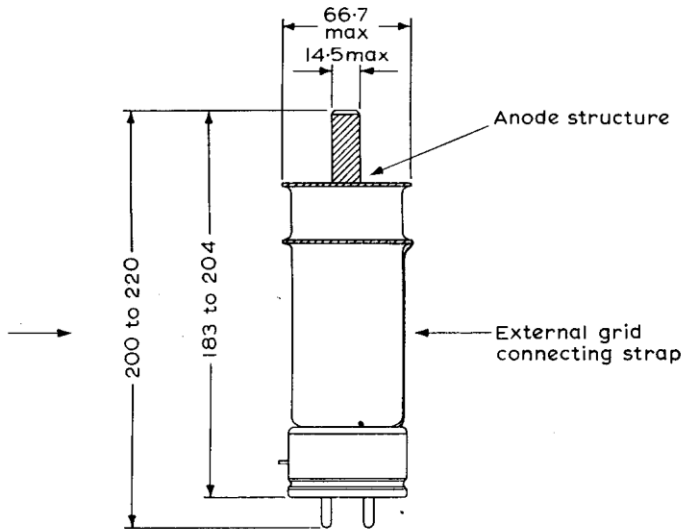
Capacitances		
Anode to grid	7	pF ←
Anode to cathode	0.2	pF
Grid to cathode	5	pF

### Mechanical

Type of cooling	Convection
Mounting position	Any position between horizontal and vertical with base downwards.
Weight of valve	{ 13 oz ← 370 g ←
Weight of valve in carton	{ 18 oz ← 511 g ←
Dimensions of packing	{ 5.5 × 5.5 × 12.25 in. ← 140 × 140 × 311 mm ←

### OPERATING NOTE

In order to prevent spurious ignition due to anode-grid coupling, it is recommended that a capacitor of the order of 1000pF is connected between grid and cathode.



B4D Base

All dimensions in mm

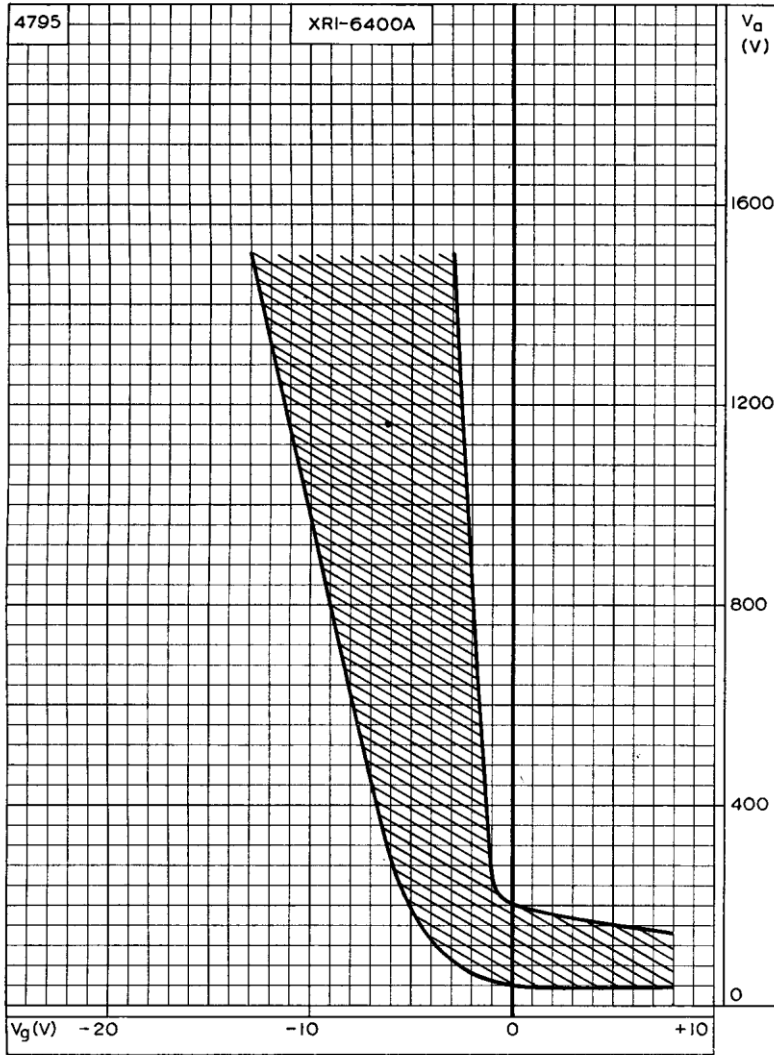
The anode structure must be left free to ensure adequate cooling by free convection

Care should be taken to avoid damage to or contact with the external grid connecting strap

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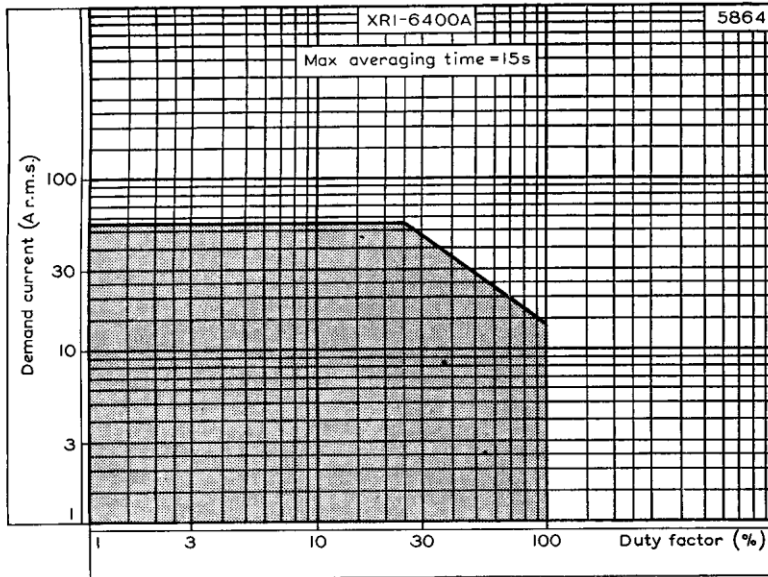


CONTROL CHARACTERISTIC



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## WELDER CURRENT RATING FOR TWO VALVES CONNECTED IN INVERSE PARALLEL ('Back to Back')

$$\text{Duty factor} = \frac{\text{Weld time}}{\text{Weld repetition time}}$$

The maximum weld repetition time which may be considered in the calculation of the duty factor is 15s.

The current ratings in the above chart are absolute maximum ratings and must never be exceeded.