

Ignitron

WATER-COOLED, METAL-JACKETED, MERCURY-POOL-CATHODE
TYPE HAVING MOUNTING PLATE FOR THERMOSTATIC CONTROLFor Intermittent-Power-Rectifier and
Resistance-Welding-Control Applications

GENERAL DATA

Electrical:

Cathode Excitation.	Cyclic
Cathode-Spot Starting	By Ignitor
Minimum Requirements for Cathode Excitation: ^a	
Peak ignitor voltage required to fire	200 volts
Peak ignitor current required to fire	30 amp
Starting time at required ignitor voltage or current.	100 μ sec
Peak Tube Voltage Drop at peak anode amperes =	
3400.	26 volts
176	13 volts

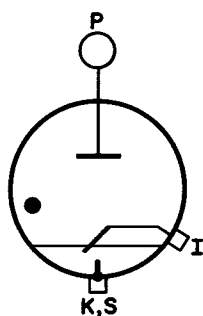
Mechanical:

Operating Position.	Vertical, flexible lead up
Maximum Overall Length:	
Including flexible lead	23-13/16"
Excluding flexible lead	13"
Maximum Radius (Including water connections).	2-7/8"
Weight (Approx.).	4.5 lbs
Terminal Diagram:	

P - Anode

Terminal
(Flexible
lead)

K - Cathode

Terminal
(Bar oppo-
site anode
terminal)

I - Ignitor

Terminal
(Within
jacket
skirt at
cathode
end)

S - Shell

Thermal:

Cooling:

Type.	Water
Minimum inlet-water temperature	0 °C
Maximum cooling-system temperature (Measured at thermostat mount):	
For Intermittent-Power-Rectifier Service.	45 °C
For Resistance-Welding-Control Service at rms anode supply volts =	
600	45 °C
500	50 °C
250	55 °C



Typical cooling requirements for Resistance-
Welding-Control Service at rms anode
supply volts = 500:

<i>Inlet Water Temperature (°C)</i>	<i>Required Water Flow (gpm)</i>	<i>Pressure Drop (psi)</i>		
With 100% load:				
15	1/4	0.4		
30	1/2	0.75		
40	1-1/2	3		
With 50% load:				
15	1/16	0.1		
30	1/8	0.2		
40	1/4	0.4		
Water-temperature rise with 100% load				
at flow of 1 gpm.			2	°C
Temperature Rise (Approx.), inlet water				
to thermostat, with 100% load at				
flow of 1 gpm			4	°C

INTERMITTENT POWER-RECTIFIER SERVICE

Maximum Ratings, Absolute-Maximum Values:

*For zero phase-control angle and
frequencies from 50 to 60 cps*

PEAK ANODE VOLTAGE:

Forward.	500 max.	1200 max.	1500 max.	volts
Inverse.	500 max.	1200 max.	1500 max.	volts

ANODE CURRENT:^b

Peak	700 max.	600 max.	480 max.	amp
Corresponding average.	-	5 max.	4 max.	amp
Average.	40 max.	22.5 max.	18 max.	amp
Corresponding peak	-	135 max.	108 max.	amp
AVERAGING TIME . . .	6 max.	10 max.	10 max.	sec

RATIO OF AVERAGE

ANODE CURRENT TO PEAK ANODE CURRENT for maximum averag- ing time (seconds) = 0.2.	-	0.166 max.	0.166 max.	
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RATIO OF PEAK FAULT

ANODE CURRENT TO PEAK ANODE CURRENT.	12.5 max.	12.5 max.	12.5 max.	
FAULT-ANODE-CURRENT DURATION	0.15 max.	0.15 max.	0.15 max.	sec

RESISTANCE-WELDING-CONTROL SERVICE

Maximum Ratings, Absolute-Maximum Values:

For two tubes in inverse parallel circuit, zero phase-control angle, frequencies from 25 to 60 cps, and rms supply voltages from 250 to 600 volts

DEMAND.	600 max.	kva
Corresponding average anode current (Per tube).	30.2 max.	amp
AVERAGE ANODE CURRENT (Per Tube) ^c	56 max.	amp
Corresponding demand.	200 max.	kva
AVERAGING TIME at rms supply volts =		
600 ^c	11.25 max.	sec
250 ^c	27 max.	sec
RMS ANODE CURRENT (Per Tube) ^c	See Rating Chart	
PEAK FAULT ANODE CURRENT (Per Tube)	Limited to 280% of maximum RMS Anode Current	

IGNITOR

Maximum Ratings, Absolute-Maximum Values:

PEAK IGNITOR VOLTAGE:

Positive.	Equal to anode volts
Negative.	5 max. volts

IGNITOR CURRENT:

Peak.	100 max.	amp
Average	1 max.	amp
RMS	10 max.	amp
AVERAGING TIME.	5 max.	sec

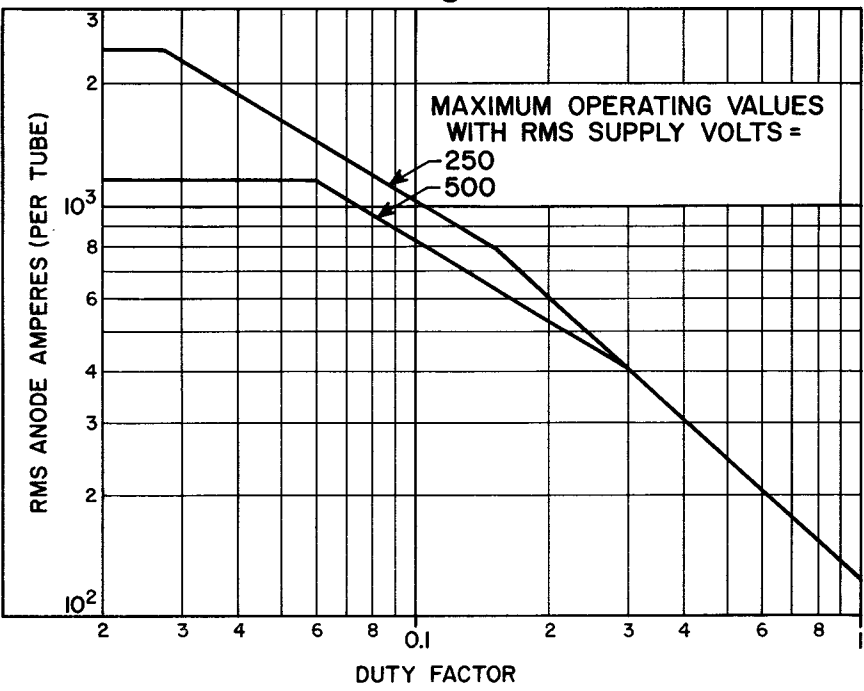
^a Ignition will occur if either the minimum peak ignitor voltage is applied or the minimum peak ignitor current flows for the minimum starting time.

^b With the use of log-log graph paper, straight-line interpolation between tabulated points may be used to determine intermediate maximum ratings for Peak Anode Current and Average Anode Current.

^c With the use of log-log graph paper, straight-line interpolation between tabulated points may be used to determine intermediate maximum ratings for RMS Anode Current and Average Anode Current or Averaging Time and RMS Supply Voltage.



ANODE-CURRENT RATING CHART Resistance-Welding-Control Service



92CS-11700

