

GL-8205 COAXIAL IGNITRON

AC-CONTROL SERVICE

4800 KILOVOLT-AMPERES

The GL-8205 is a sealed, stainless-steel-jacketed ignitron for a-c control welder service. It is a coaxial-design version of the GL-7151.

Two tubes in an inverse-parallel connection will control 4800 kilovolt-amperes at 250 to 600 volts RMS, 25 to 60 cycles.

In the coaxial construction, current flows through the tube from anode to cathode, then up the tube wall to a coaxial cathode terminal at the top. This current flow provides a magnetic shield which eliminates the arc de-

HIGH EFFICIENCY COOLING

flection that the high peak currents possible with this tube might cause in standard-design ignitrons.

Other features of the 8205 include a specially designed water-cooling chamber that provides high-efficiency cooling at the bottom of the tube without increasing the water-pressure drop of the cooling jacket. A thermostat mounting plate, thermally coupled to the mercury-condensing surface of the tube, facilitates attachment of a thermostat to provide either protection against excessive temperature or temperature control through regulation of the water flow.

Electrical	
Electrodes	
Main Anodes.....	1
Main Cathodes.....	1
Ignitors.....	1
Arc Drop	
At 9600 Amperes Peak.....	31 Volts
At 1000 Amperes Peak.....	20 Volts
Mechanical	
Envelope Material—Stainless Steel	
Mounting Position—Vertical, Anode Terminal Up	
Net Weight.....	70 Pounds

Thermal	
Cooling—Water	
Inlet Water Temperature, minimum.....	0 C
Outlet Water Temperature, maximum.....	40 C
Water Flow, minimum.....	10 Gallons per Minute
Water flow should be continued for at least one hour after removal of anode power.	
Maximum Working Water Pressure, Non-Shock.....	100 Pounds per Square Inch
Water-Cooling Characteristics at Rated Minimum Flow	
Water Temperature Rise at Maximum Current.....	8 C
Water Pressure Drop, maximum.....	1.5 Pounds per Square Inch

AC-Control Service*

Two Tubes in Inverse Parallel, Ratings per Tube

Voltage.....	250 to 600 Volts RMS	Maximum Averaging Time	
Maximum Demand.....	4800 Kilovolt-Amperes	At 250 Volts RMS.....	8.9 Seconds
Corresponding Average Current*.....	486 Amperes	At 500 Volts RMS.....	4.5 Seconds
Maximum Average Current*.....	900 Amperes	Maximum Peak Fault Current	
Corresponding Demand.....	1600 Kilovolt-Amperes	At 250 Volts.....	54,000 Amperes
Maximum Demand Current		At 500 Volts.....	22,400 Amperes
Below 500 Volts.....	9600 Amperes RMS	Frequency Range.....	25-60 Cycles per second

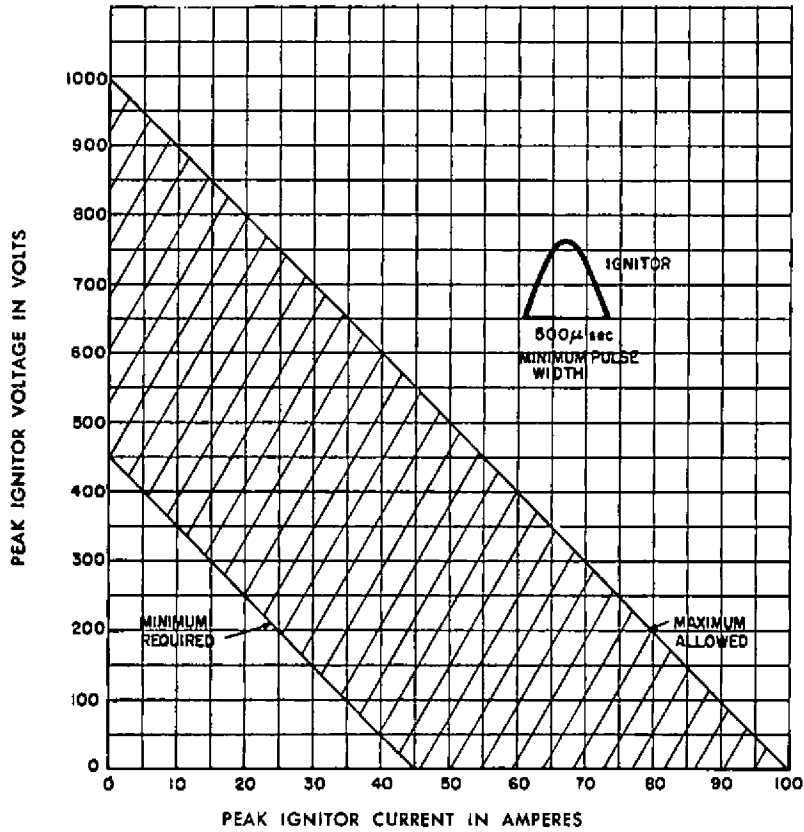
Cathode Excitation Requirements

Anode Firing		Ignitor†	
Ignitor Voltage Required to Fire.....	200 Volts	Maximum Voltage	
Ignitor Current Required to Fire.....	30 Amperes	Positive—Anode Voltage	
Starting Time at Required Voltage		Negative.....	5 Volts
or Current.....	100 Microseconds	Maximum Current	
Separate Excitation		Peak.....	100 Amperes
Pulse Width		RMS.....	10 Amperes
Recommended.....	500 Microseconds	Average.....	1 Ampere
Maximum.....	4000 Microseconds	Maximum Averaging Time.....	5 Seconds
When the average anode current is greater than 20 amperes the pulse width must not fall below 150 microseconds.			
Maximum Rate of Rise			
of Ignitor Current.....	2.5 Amperes per Microsecond		

* RMS demand voltage, current, and kilovolt-ampere demand are all on the basis of full-cycle conduction (no phase delay) regardless of whether or not phase control is used. Straight-line interpolation on log-log paper is allowed between corresponding points.

† These ratings apply only when anode firing of the ignitor is employed. See curve K69087-72A982 on page 2 for values when separate excitation is used.

IGNITOR VOLT-AMPERE REQUIREMENTS FOR SEPARATE EXCITATION



THE IGNITOR FIRING CIRCUIT SHOULD BE DESIGNED TO OPERATE WITHIN THE SHADED AREA

