



IGNITRON

SPECIAL DESIGN FEATURES

1. Stainless-steel, seam-welded construction
2. Uniform water cooling
3. Strong, compact design
4. Easy to install
5. Copper terminals
6. Flexible anode lead
7. Mercury-pool cathode allows extremely high instantaneous currents to be passed through the tube without damage.

DESCRIPTION

The ability of this tube to carry very high peak currents for short periods makes it especially suited to welder-control service. It may also be used for conversion in low-power circuits and for intermittent rectifier service.

Ease of installation, economical use of space, and reliability of operation are assured by design features inherent in the steel-jacketed construction.

The FG-235-A is similar to the FG-258-A and the FG-271. All of these tubes can be used for a wide

range of applications where welds are made infrequently or in rapid succession.

The current range required for the welding operation determines which tube to use. Another factor, of course, is the nature of the material to be welded. Low-resistance materials, such as the aluminum alloys, require more current than such high-resistance metals as stainless steel.

The FG-235-A ignitron is equivalent to a 600-ampere magnetic contactor.

TECHNICAL INFORMATION

These data are for reference only. For design information refer to specifications.

GENERAL CHARACTERISTICS

Peak voltage drop, approx.	12	volts
Net weight, approx.	9	pounds
Shipping weight, approx.	17	pounds
Type of cooling		water
Maximum outlet water temperature	40	centigrade
Minimum flow	1.5	gallons per minute
Minimum inlet water temperature	10	centigrade
Pressure drop per tube at minimum flow	4.1	pounds per square inch
Temperature rise at minimum flow, approx. (Average current 100 amperes per anode)	3	centigrade

MAXIMUM RATINGS

A-C Welder-Control Service—Frequencies From 25 to 60 Cycles—Ratings Are For Any Voltage

From 250 to 600 Volts Rms*†

Maximum demand	1200	kva
Corresponding average anode current	75.6	amperes
Maximum average anode current	140	amperes
Corresponding demand	400	kva
Maximum time of averaging anode current*		
At 500 volts rms	7.1	seconds
At 250 volts rms	14	seconds
Maximum surge current, peak amperes	280	per cent of maximum rms demand current

Intermittent Rectifier Service‡—Frequencies From 25 to 60 Cycles

Maximum peak anode voltage		
Inverse	500	volts
Forward	500	volts
Maximum anode current		
Instantaneous	1600	amperes
Average, per tube	100	amperes
Averaging time	3	seconds
Surge, peak amperes, averaging time 0.15 second	6000	amperes
Ignitor ratings same as for welder-control service		

Ignition Requirements (same for both classes of service)

Ignitor voltage		
Maximum instantaneous allowed, ignitor positive	900	volts
Maximum instantaneous required, ignitor positive	200	volts
Maximum instantaneous allowed, ignitor negative	5	volts
Ignitor current		
Maximum instantaneous allowed	100	amperes
Maximum instantaneous required§	30	amperes
Maximum average allowed	1	ampere
Ignitor ignition time, maximum§	100	microseconds
Ignitor current averaging time	5	seconds

* With the use of log-log paper, straight line interpolation between the two points tabulated may be used to determine other detailed ratings.

† Rms demand voltage, current, and kva are all on the basis of full-cycle conduction (no phase delay) regardless of whether or not phase control is used. For voltages below 250 volts, use the 250-volt rating.

§ Ignition will occur if either maximum required instantaneous positive potential is applied or maximum required instantaneous current flows for the rated maximum ignitor ignitron time.

‡ Curves of Figures 1, 2, and 3 must not be used for intermittent rectifier service.



