

IGNITRON

DESCRIPTION AND RATING

The GL-5788 is a permanently sealed water-cooled rectifier ignitron similar in construction and rating to the GL-5555/FG-238-B. Special features are reliable operation at higher water temperature and lower water pressure drop, than is possible with that tube, and distinctive (larger diameter) ignitor terminals. These features make possible the use of economical water-to-air heat exchangers at higher ambient temperatures, than are possible with the other tube, the operation of six tube cooling jackets in series on normal water supply line pressures, and assure the user against premature ignitor failures caused by connecting the auxiliary anode lead to an ignitor terminal. The tube is designed for operation in 300, 600 and 900 volt d-c industrial rectifier circuits. The continuous average anode current rating is 200 amperes per tube in rectifiers rated up to 400 volts d-c.

TECHNICAL INFORMATION

GENERAL

Electrical

Cathode Excitation - Cyclic  
Cathode-Spot Starting - Ignitor  
Number of Electrodes  
    Main Anodes 1  
    Main Cathodes 1  
    Auxiliary Anodes 1  
    Ignitors 2  
Arc Drop  
    At 600 Amperes Peak 16.2  $\angle$  0.5 Volts  
Cathode Excitation Requirements  
    Ignitor Voltage Required to Fire 450 Volts  
    Ignitor Current Required to Fire 45 Amperes  
  
Excitation Arc Current Required, minimum 8 Amperes  
Excitation Arc-Drop Voltage 9  $\angle$  0.5 Volts  
Excitation Arc-Open-Circuit Voltage, minimum 55 Volts AC

Mechanical

Envelope Material - Metal  
Net Weight, Approximate 25 pounds  
Type of Cooling - Water  
Characteristics for Water Cooling  
    Water Temperature Rise, maximum 4.5 C  
    Pressure Drop at 3 Gallons per Minute, maximum 3 Pounds per Square Inch

## Thermal

## Water Cooling

Outlet Water Temperature, maximum	
Peak Inverse Anode Voltage = 900	60 Centigrade
Peak Inverse Anode Voltage = 2100	55 Centigrade
Inlet Water Temperature, minimum	6 C
Water Flow	
At Continuous Rated Average Current, minimum	3 Gallons per Minute
At No Load, minimum	1 Gallon per Minute

## MAXIMUM RATINGS

## As Power Rectifier Tube\*

Maximum Peak Anode Voltage		
Inverse	900	2100 Volts
Forward	900	2100 Volts
Maximum Anode Current		
Peak	1800	1200 Amperes
Average		
Continuous	200	150 Amperes
2 Hours	300	225 Amperes
1 Minute	400	300 Amperes
Surge	12000	9000 Amperes
Maximum Duration of Surge Current	0.15	0.15 Second
Frequency Range	25 to 60	25 to 60 Cycles per Second

\* Ratings are for zero phase-control angle.

## As AC Control Tube

Two Tubes in Inverse Parallel	
Voltage	2400 RMS Volts
Maximum Demand	2400 Kilovolt-Amperes
Average Current at Maximum Demand	135 Amperes
Maximum Average Current	207 Amperes
Demand at Maximum Average Current	1105 Kilovolt-Amperes
Maximum Averaging Time at 2400 Volts RMS	1.66 Seconds
Maximum Surge Current	6000 Peak Amperes

## Ignitor

Maximum Voltage	
Positive	Anode Volts
Negative	5 Volts
Maximum Current	
Peak	100 Amperes
Root Mean Square	15 Amperes
Average	2.0 Amperes
Maximum Averaging Time	10 Seconds
Starting Time at Required Voltage or Current	100 Microseconds

Auxiliary Anode	
Maximum Current	
Peak	30 Amperes
Average	9 Amperes
Maximum Averaging Time	10 Seconds
Root Mean Square	15 Amperes
Maximum Peak Forward Voltage	160 Volts
Maximum Peak Inverse Voltage	
Main Anode Conducting	25 Volts
Main Anode Not Conducting	160 Volts

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TUBE DEPARTMENT  
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