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 < 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 < 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 Second
Frequency Range 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 5000 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
GENERAL ELECTRIC COMPANY
SCHENECTADY 5, N. Y.