The GL-5553-A igniton is a sealed, stainless-steel-jacketed, water-cooled, mercury-pool tube designed primarily for resistance-welding-control service. In this service, two tubes in the inverse-parallel connection will control 2400 kilovolt-amperes at voltages of 250 to 600 volts over the frequency range of 25 to 60 cycles. The ability of this tube to carry very high peak currents for short periods makes it especially suited to such service. Ease of installation, economical use of space, and reliability of operation are assured by design and construction features inherent in the steel-jacketed construction.

The GL-5553-A igniton is equivalent to a 1200-ampere magnetic contactor.

**TECHNICAL INFORMATION**

**GENERAL**

**Electrical**

Cathode Excitation—Cyclic

Cathode Spot Starting Ignitor

Number of Electrodes

Main Anodes .............................................. 1

Main Cathodes ........................................... 1

Igniters .................................................. 1

Arc Drop at 13,000 Peak Amperes ...................... 36 Volts

Arc Drop at 1115 Peak Amperes ........................ 17 Volts

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**GENERAL ELECTRIC**

from JETEC release #1341, Aug. 16, 1954
TECHNICAL INFORMATION (CONT'D)

Electrical
Cathode Excitation Requirements
Ignitor Voltage Required to Fire .......................................................... 200 Volts
Ignitor Current Required to Fire ............................................................ 30 Amperes
Starting Time at Required Voltage or Current ......................................... 100 Microseconds

Mechanical
Envelope Material—Metal
Net Weight .................................................................................................. 21 Pounds

Thermal
Type of Cooling—Water
Inlet Water Temperature, minimum ......................................................... 10 °C
Inlet Water Temperature, maximum ........................................................ 40 °C
Water Flow, minimum ................................................................................ 3.0 Gallons per Minute
Characteristics for Water Cooling at Rated Minimum Flow
Water Temperature Rise, maximum .......................................................... 9 °C
Pressure Drop at 3 Gallons per Minute, maximum .................................... 5.1 Pounds per Square Inch

MAXIMUM RATINGS AND TYPICAL OPERATION

Power-Rectifier Service, Intermittent Duty
Ratings are for Zero Phase-Control Angle—See Curve for Details.
Maximum Peak Anode Voltage
Inverse ......................................................................................................... 600 1200 1500 Volts
Forward ...................................................................................................... 600 1200 1500 Volts
Maximum Anode Current
Peak ........................................................................................................... 4000 3000 2400 Amperes
Corresponding Average ........................................................................... 54 40 32 Amperes
Average .................................................................................................... 190 140 112 Amperes
Corresponding Peak ................................................................................ 1140 840 672 Amperes
Maximum Averaging Time ........................................................................ 6.23 6.25 6.25 Seconds
Ratio of Average to Peak Current, maximum
Averaging Time 0.2 Second ........................................................................ 0.166 0.166 0.166
Ratio of Fault to Maximum Peak Current ................................................. 12.5 12.5 12.5
Maximum Duration of Fault Current ......................................................... 0.15 0.15 0.15 Seconds
Frequency Range ....................................................................................... 50-60 50-60 50-60 Cycles per Second

Resist ance-Welding-Control Service*
Two Tubes in Inverse Parallel, Ratings Per Tube.
Voltage Range ............................................................................................. 250 to 600 Volts RMS
Maximum Demand ................................................................................... 2400 Kilovolt-Amperes
Average Current at Maximum Demand .................................................... 192 Amperes
Maximum Average Current ...................................................................... 355 Amperes
Demand at Maximum Average Current ..................................................... 800 Kilovolt-Amperes
Maximum Averaging Time at 250 Volts RMS ........................................... 11.0 Seconds
Maximum Averaging Time at 600 Volts RMS ............................................ 4.6 Seconds
Maximum Peak Fault Current at 250 Volts ................................................ 27,000 Amperes
Maximum Peak Fault Current at 600 Volts ............................................... 11,200 Amperes

Igniter
Maximum Voltage
Positive—Anode Voltage ......................................................................... 5 Volts
Negative .....................................................................................................
Maximum Current
Peak ........................................................................................................... 100 Amperes
Root Mean Square .................................................................................... 10 Amperes
Average .................................................................................................... 1 Amperes
Maximum Averaging Time ........................................................................ 5 Seconds

* 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. For voltages below the minimum, the minimum-voltage current rating applies. With the use of log-log paper straight-line interpolation between tabulated points may be used for other detailed ratings of: Demand kva vs average anode current. Maximum averaging time vs anode voltage.
CURVES K-69087-72A217, K-69087-72A218, AND K-69087-72A219
DO NOT APPLY FOR INTERMITTENT-RECTIFIER SERVICE

KILOVOLT-AMPERE VS AVERAGE CURRENT RATING
250 TO 600 VOLTS
CURVE NO. I

Note: For capacitor-corrected welder service, this curve may be used to 2000 volts rms to allow for the additional voltage caused by the presence of the capacitor.
POWER RECTIFIER RATING—INTERMITTENT SERVICE

AVERAGE ANODE CURRENT IN AMPERES PER TUBE

MAXIMUM AVERAGING TIME = 6.25 SECONDS

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\frac{1}{\text{Average}} \times \text{Maximum Averaging Time} = 0.166 \text{ Maximum}
\]

\[
\frac{1}{\text{Peak}} \times \text{Maximum Averaging Time} = 0.166 \text{ Maximum}
\]

\[
\frac{1}{\text{Peak Max}} \times \text{Maximum Duration of Fault Current} = 12.5 \text{ Maximum}
\]
NOTE: ENVELOPE IS AT CATHODE POTENTIAL