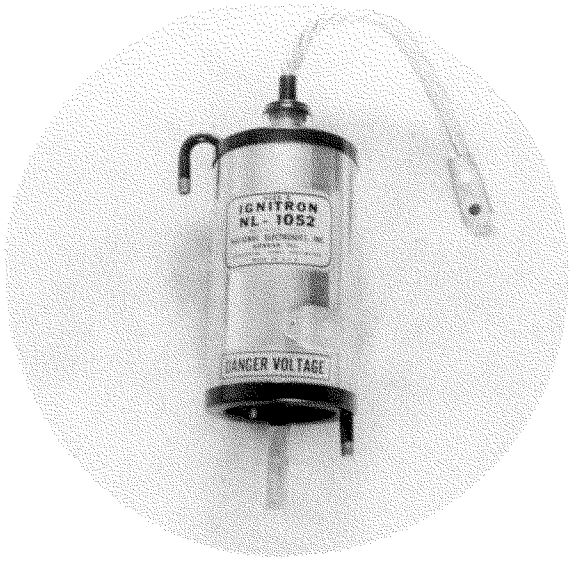
NL-1052 IGNITRON

Size C

140 Amperes dc

National Ignitron NL-1052 is a metal, water-cooled, mercury pool tube designed especially for welder control and similar AC control applications. Its rating is approximately equivalent to a 600 ampere magnetic contactor.

NL-1052 utilizes a thermostat mount brazed to an all-copper cooling system that provides exceptional cooling efficiency. The inner can, copper cooling coil, and thermostat mount being brazed together in a single unit assures a rugged, dependable, and adjustment free temperature control system that operates directly on inner can temperature.



TECHNICAL INFORMATION

AC Control Applications — Ratings are based on full-cycle conduction (no phase delay) regardless of whether or not phase control is used, on frequencies from 25 to 60 cycles, and any voltage between 250 and 600 volts rms. Ratings are for two tubes in inverse parallel.

[1]Maximum demand — kva	1200
[1]Corresponding maximum average anode current per tube — amps DC	75.6
[1]Maximum average anode current per tube — amps DC	140
[1]Corresponding maximum demand — kva	400
[1]Maximum averaging time — seconds at 600 volts rms	8.75
at 250 volts rms	21.
Maximum surge current — peak amps	280% of max. rms demand current

[2]Rectifier Applications — Ratings are based on intermittent duty, on no phase delay, and on frequencies from 25 to 60 cycles. Values are for one tube.

Maximum peak anode voltage — volts	500
Maximum peak anode current — amps	1600
Maximum average anode current — amps DC	100
Maximum averaging time, sec.	6
Maximum peak fault current — amps	6000
Maximum duration time of fault current — sec.	.15

Ignition Requirements — (Same for both applications.)

Ignitor Voltage	
Maximum instantaneous allowed, ignitor positive	anode voltage
[3]Maximum instantaneous required, ignitor positive — volts	200
Maximum instantaneous allowed, ignitor negative — volts	5

Ignitor Current	
Maximum instantaneous allowed — amperes	100
[3]Maximum instantaneous required — amperes	30
Maximum rms allowed — amperes	10
Maximum average allowed — ampere	1
[3]Ignitor ignition time maximum — microseconds	100
Ignitor current max. averaging time — seconds	5

Cooling Requirements — (Same for both applications.)

Type of cooling	Water
Minimum inlet water temperature, °C	0
Maximum cooling system temperature (measured at thermostat mount), °C	
Rectifier applications	45
AC control applications	
At 600 volts rms	45
At 500 volts rms	50
At 250 volts rms	55

Water flow may be reduced at light loads if cooling system temperature (measured at thermostat mount) is maintained within limits.

Typical cooling requirements at 500 volts rms operation for AC control applications.

Inlet Water Temp. °C	100% Load Water flow required G.P.M.	100% Load Pressure drop per tube lbs. per sq. in.	50% Load Water flow required G.P.M.	50% Load Pressure drop per tube lbs. per sq. in.
15	⅜	.6	⅛	.2
30	½	.9	¼	.4
40	1¼	4.0	½	.9

More water is required at 600 volts to maintain cooling system temperature within limits and less at 250 volts.

Water temperature rise at 1 G.P.M., full load, °C	5
Approximate temperature rise inlet water to thermostat, °C	4

GENERAL CHARACTERISTICS

Number of Anodes	1
Number of Ignitors	1
Mounting Position	Vertical
Peak arc drop at 6800 peak amps — approx. volts	28
Peak arc drop at 440 peak amps. — approx. volts	14
Net weight — lbs.	10
Approx. shipping weight — lbs.	12

[1]Using log-log paper, straight line interpolation of RMS Demand Current vs. Average Anode Current and Maximum Averaging Time vs. Anode Voltage may be used to determine intermediate ratings.

[2]Curves must not be used for rectifier applications.

[3]Ignition will occur if either maximum required instantaneous potential is applied or maximum required instantaneous current flows for the rated maximum ignitor ignition time.

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GENEVA, ILLINOIS, U. S. A.

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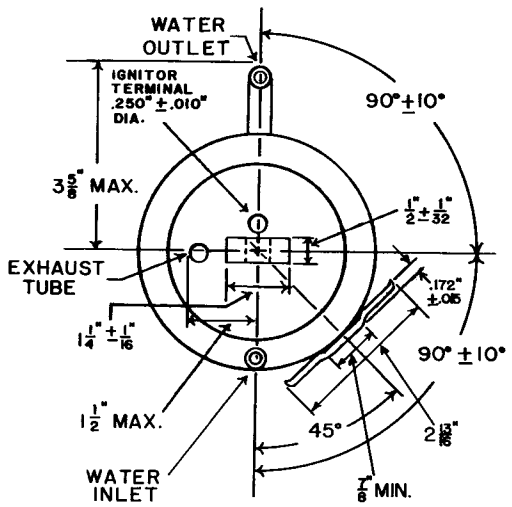

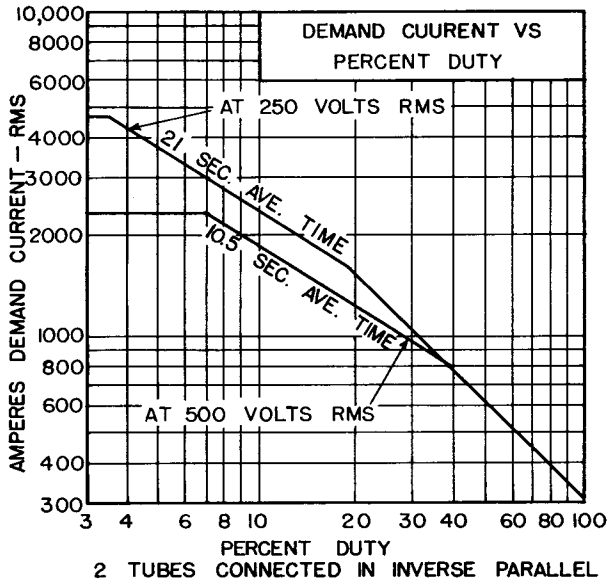

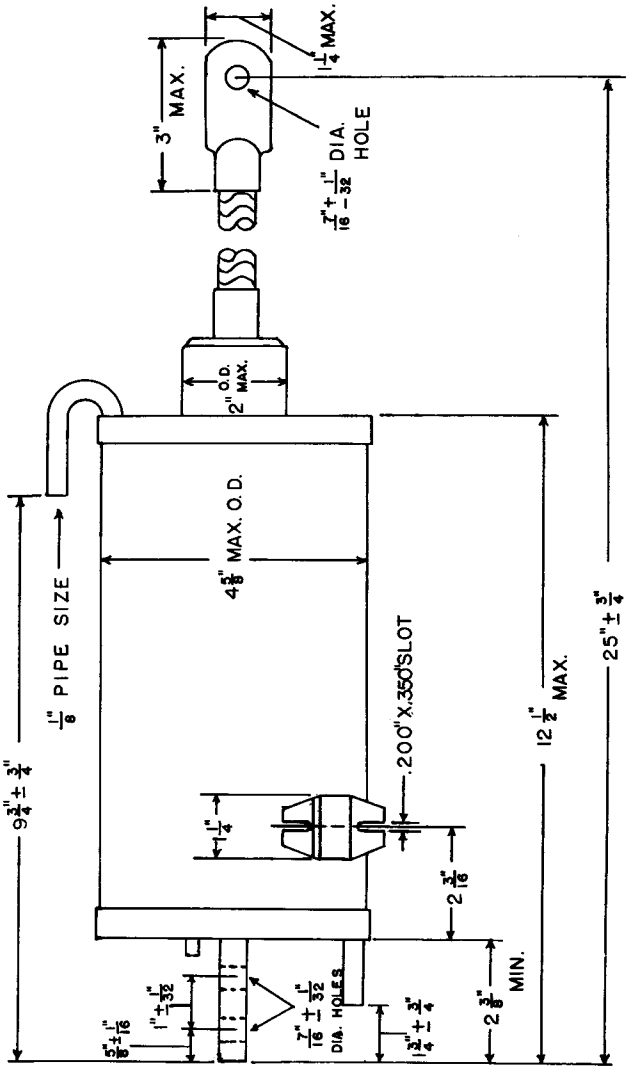

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