



The data should be read in conjunction with the Ignitron Preamble.

ABRIDGED DATA

Size D, steel-jacketed, water-cooled ignitron intended primarily for use as a switch in capacitor discharge circuits.

| | | |
|--|-----|------------------|
| Maximum peak forward anode voltage | 25 | kV |
| Maximum peak inverse anode voltage | 25 | kV |
| Maximum peak anode current | 100 | kA |
| Maximum ampere-seconds per pulse | 200 | A.s |
| Maximum pulse repetition rate | 1 | pulse per second |

GENERAL

Electrical

Number of electrodes:

| | |
|----------------------------------|---|
| main anode | 1 |
| cathode (mercury pool) | 1 |
| ignitons | 2 |
| auxiliary anode | 1 |

Arc voltage drop (approx):

| | | | | | | |
|---------------------------------|----|----|----|----|----|----|
| instantaneous current | 5 | 10 | 20 | 30 | 40 | kA |
| voltage drop | 20 | 25 | 35 | 45 | 60 | V |

Mechanical

| | |
|-----------------------------|-----------------------------|
| Overall length | 515mm (20.276 inches) max |
| Overall width | 234mm (9.213 inches) max |
| Body diameter | 158mm (6.220 inches) max |
| Net weight | 10kg (22 pounds) approx |
| Mounting position | vertical, anode terminal up |

Accessories

| | |
|--------------------------------|----------|
| Ignitor lead | ZD100222 |
| Auxiliary anode lead | ZD100222 |

MAXIMUM AND MINIMUM RATINGS (Absolute values)

CAPACITOR DISCHARGE SERVICE

Main Anode

| | | |
|---|--------------------|----------------|
| Peak forward or inverse anode voltage | 25 | kV max |
| Peak anode current | 100 | kA max |
| Rate of rise of current | 1000 | A/ μ s max |
| Ampere-seconds per pulse | 200 | As max |
| Duration of pulse | 150 | ms max |
| Pulse repetition rate | 1 pulse per second | max |

Auxiliary Anode

| | | |
|-------------------------------------|-----|-------|
| Peak forward voltage | 130 | V max |
| Peak inverse voltage | | |
| main anode conducting | 25 | V max |
| main anode not conducting | 160 | V max |
| Current: | | |
| peak | 30 | A max |
| r.m.s. | 15 | A max |
| average | 9.0 | A max |
| averaging time | 10 | s max |

Ignitor Circuit Requirements

The recommended excitation circuit consists of a 0.25 μ F capacitor, charged to between 1500 and 4000 volts and discharged through the ignitor-cathode circuit and a current limiting resistor of 2 to 6 ohms. The peak inverse ignitor voltage must never exceed 5.0 volts.

Cooling

| | | |
|--|----------|------------------|
| Minimum water flow rate (see note) | 5.0 | l./min |
| | 1.1 imp. | gal/min |
| Inlet water temperature | 15 | $^{\circ}$ C min |
| Outlet water temperature | 30 | $^{\circ}$ C max |
| Temperature rise across ignitron | 4.0 | $^{\circ}$ C max |

Note

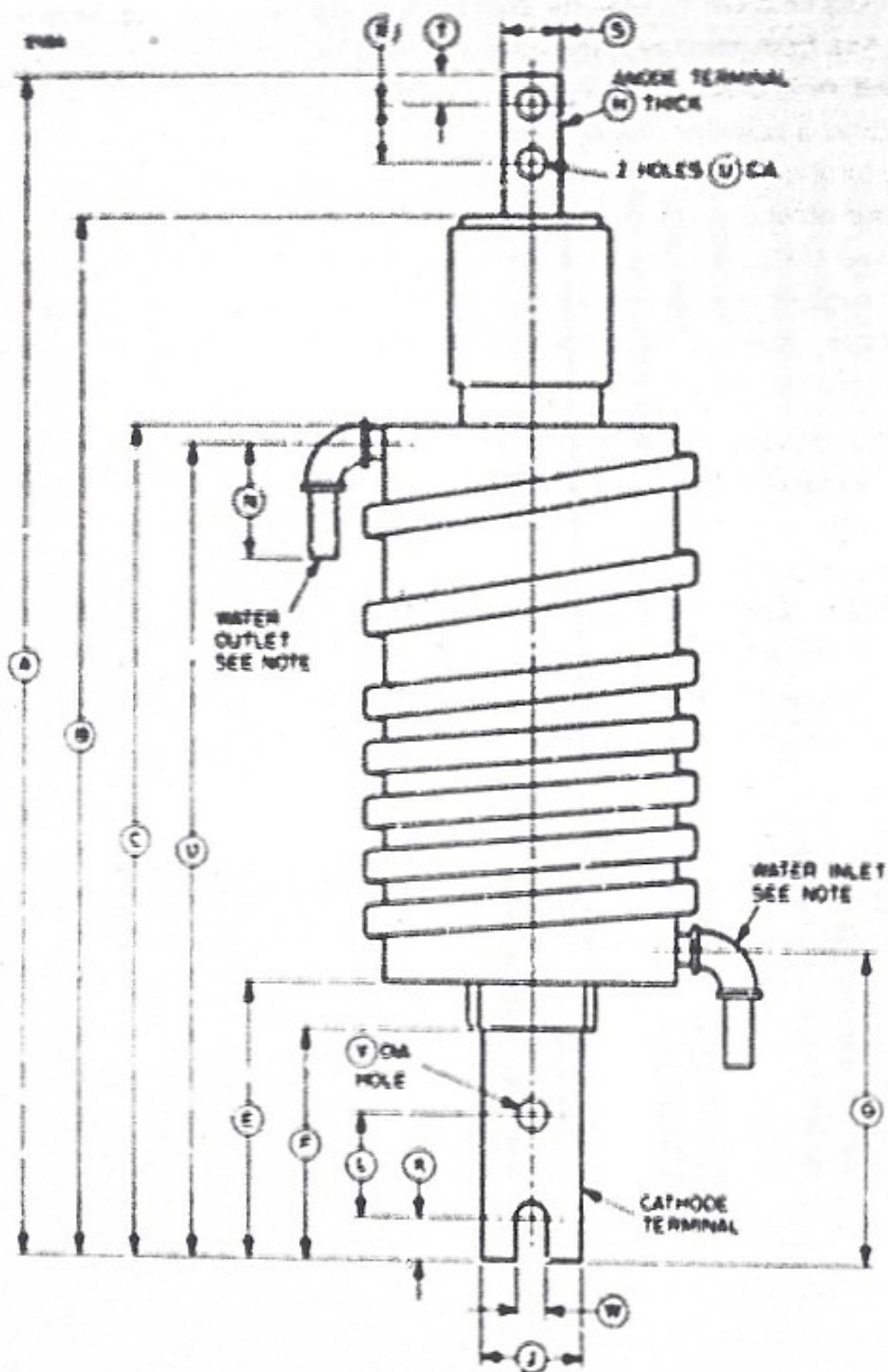
At the minimum flow rate of 5.0 l./min, the pressure drop across the tube will be 0.1 kg/cm² (1.4 lb/in²) approx.

OPERATING INSTRUCTIONS

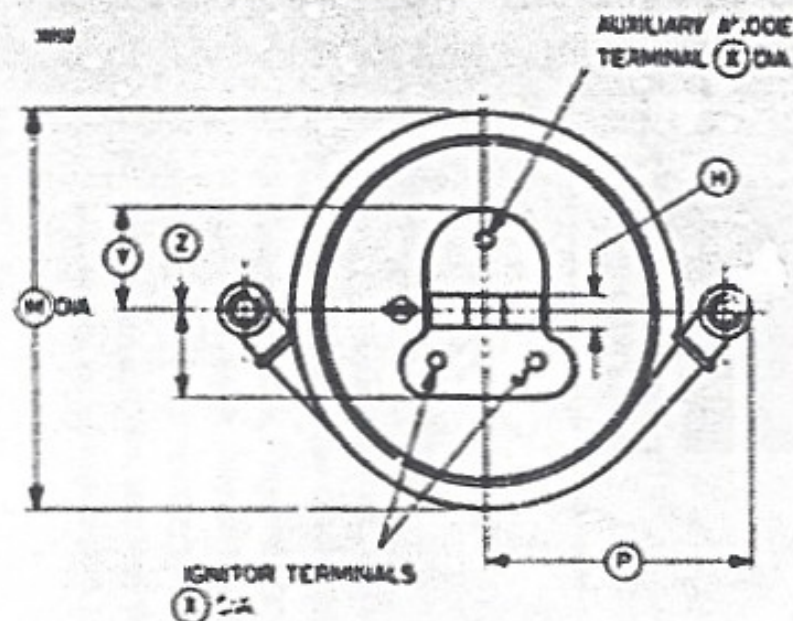
Care should be taken to keep the glass bushing, the anode lead and the stress shields free from mercury. The ignitron should always be kept upright and not tilted far enough to allow mercury to flow into the anode end. Before the ignitron is operated, the bushing and anode terminal assembly should be heated, for example by infra-red lamps, long enough to disperse any mercury condensed on or clinging to them; it may be desirable to continue the heating throughout the period of operation. During short shut-down periods, it may be advantageous to maintain the heating or to shield the anode bushing from draughts, in order to reduce the possibility of mercury condensation which would necessitate further heating.

It is recommended that before an ignitron is put into service, it should be aged to withstand a peak voltage of 30 to 35kV in either direction for one minute without breakdown. This may be accomplished by the application of a variable voltage, either a.c. or d.c., through a current limiting resistance of 0.1 to 0.2 megohm. It is useful to connect a capacitor of around 500pF between anode and cathode, and when the supply is d.c. the series resistance may be increased to some tens of megohms, to limit the frequency of breakdowns for convenience of observation.

OUTLINE



View on Cathode Terminal End



Outline Dimensions

| Ref | Millimetres | Inches | Ref | Millimetres | Inches |
|-----|--------------|----------------|-----|-------------|---------------|
| ☆ A | 500.0 ± 15.0 | 19.685 ± 0.591 | N | 76.0 max | 2.992 max |
| ☆ B | 440.0 ± 15.0 | 17.323 ± 0.591 | P | 117.0 max | 4.606 max |
| ☆ C | 355.0 ± 15.0 | 13.976 ± 0.591 | R | 25.4 ± 1.0 | 1.000 ± 0.039 |
| ☆ D | 340.0 ± 10.0 | 13.386 ± 0.394 | S | 25.4 ± 1.0 | 1.000 ± 0.039 |
| ☆ E | 110.0 ± 10.0 | 4.331 ± 0.394 | T | 12.7 ± 1.0 | 0.500 ± 0.039 |
| ☆ F | 94.0 ± 4.0 | 3.701 ± 0.158 | U | 12.7 ± 1.0 | 0.500 ± 0.039 |
| ☆ G | 125.0 ± 10.0 | 4.921 ± 0.394 | V | 14.0 ± 1.0 | 0.551 ± 0.039 |
| ☆ H | 12.5 ± 1.0 | 0.492 ± 0.039 | W | 14.0 ± 1.0 | 0.551 ± 0.039 |
| J | 44.5 ± 1.0 | 1.752 ± 0.039 | X | 6.35 ± 0.13 | 0.250 ± 0.005 |
| K | 19.5 ± 1.5 | 0.768 ± 0.059 | Y | 40.0 ± 3.0 | 1.575 ± 0.118 |
| L | 44.5 ± 1.0 | 1.752 ± 0.039 | Z | 30.0 ± 3.0 | 1.181 ± 0.118 |
| M | 152.0 ± 6.0 | 5.984 ± 0.236 | | | |

Inch dimensions have been derived from millimetres.

Outline Note

The standard water inlet and outlet pipes are 13.5mm nominal diameter, suitable for hose tubing of 12mm or ½-inch bore.

European hose couplings (DIN 8542 R³/₈" 37° cone) can be fitted if requested with tail pipes of 10.5mm nominal diameter.

☆ Indicates a change.

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