UNITED ELECTRONICS

TYPE ESU-300

HALF-WAVE MERCURY RECTIFIER

ENGINEERING INFORMATION

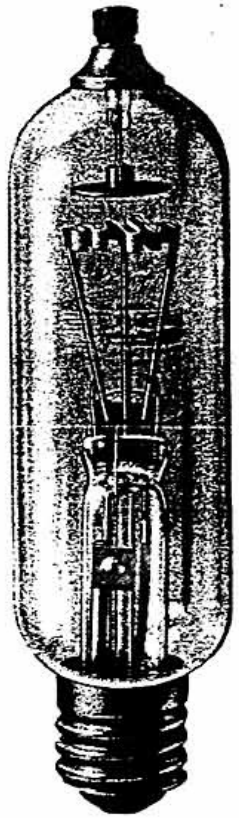
GENERAL RATINGS

Number of Electrodes	2
Filament:	
Voltage	4.0 volts
Current	15.0 amperes
Type	Coated
Heating Time	30 seconds
Condensed Mercury Temperature Range	20° to 65°C
Maximum Peak Inverse Voltage	7000 volts
Maximum Peak Plate Current	3.0 amperes
Supply Frequency up to	150 cycles
Maximum Average Plate Current (Averaged over period of 15 seconds)	750 ma.
Approximate Tube Voltage Drop	10 volts
Maximum Overall Dimensions:	
Length	9 13/16 inches
Diameter	2 9/16 inches
Bulb	T-20
Cap Diameter	.50 inch
Base	Goliath Edison Screw
Type of Cooling	Air
Net Weight	8 oz.

INSTALLATION

The base of the UNITED ESU-300 is designed for mounting in an Edison screw socket. The tube should always be mounted vertically with ample air space provided for ventilation. The condensed mercury temperature should not be less than 15°C. (59°F.) and not more than 65°C. (149°F.) for the maximum peak inverse voltage. When the condensed mercury temperature exceeds these limits, forced ventilation should be used.

The filament of the ESU-300 should be operated on alternating current at the rated value of 4.0 volts. Adequate current-carrying capacity leads to the secondary winding of the power transformer should be used. Operation of the filament at less than the rated voltage may result in a high internal voltage drop with subsequent loss of emission. A filament voltmeter should be connected permanently across the filament circuit at the socket terminals in order that the filament voltage can be maintained at 4.0 volts. **Caution —The filament winding is at high potential.**



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Oxide coated filaments are so suspended as to prevent sag and vibration in keeping with the general ruggedness of design. A minimum amount of mercury and getter is used, allowing greater heat radiation through clearer glass envelope.

Because the mercury may be splashed on the tube elements due to shipment or handling, the filament of the ESU-300 should be operated at rated voltage for approximately 15 minutes without plate voltage in order to distribute the mercury properly when the tube is first placed in service. The above procedure need not be repeated unless the tube is removed from the socket and during handling the mercury becomes splashed on the tube elements.

The condensed mercury should be at operating temperature before the plate voltage is applied. This may be ordinarily accomplished by introducing a time lag of at least 30 seconds between the application of the filament and plate voltages. It is advisable, however, to pre-heat the filament for 15 minutes before placing the ESU-300 in operation. During "standby" periods, the filament should be kept at rated voltage.

When the ESU-300 is subjected during operation to external high voltage or high frequency fields, shielding and r-f filter circuits should be provided.

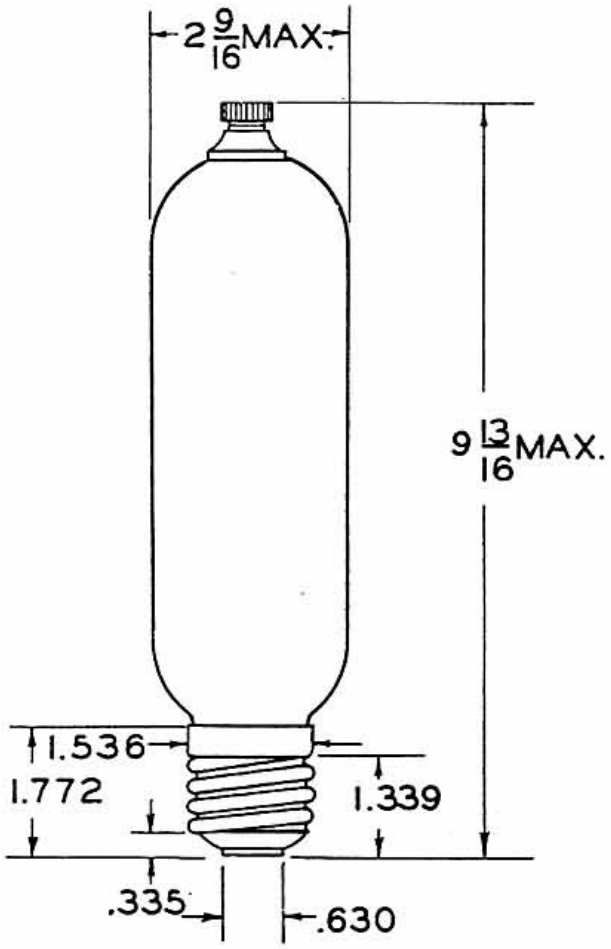
DESIGN AND CHARACTERISTIC FEATURES

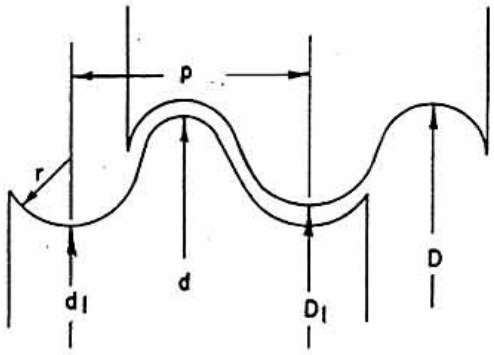
UNITED ELECTRONICS type ESU-300 mercury rectifiers are distinguished for their measured mercury content. Differing from other tubes of this type into which mercury is "dumped", the UNITED ESU-300 is entirely free from excess or free mercury. In fact in casual examination of the tube, little or no mercury is discernible at all.

In the UNITED type ESU-300 there are no harmful amalgams clinging to the elements or to getter coatings; hence, they are flexible in adaptation over a widely varying range of temperature, load, and general operating conditions.

All ratings given are for continuous service. Higher ratings are permissible for intermittent operation. Additional data will be furnished upon request.

United





	Min.	Max.
Cap Major Dia. d	1.5374	1.5551
Cap Minor Dia. d_1	1.3957	1.4134
Socket Major Dia. D	1.5591	1.5768
Socket Minor Dia. D_1	1.4173	1.4350

r = .0728
p = .2500