

**LUMINAIRE, 100W HPS, 120V WITH PE RELAY**  
**COBRA STYLE**

I. Quantity

The base bid shall include the number indicated of high pressure sodium (HPS) luminaires (100W) complete with internal ballast, and 100 watt HPS lamps and photoelectric relay wired and erected as hereinafter specified.

II. Material

- a. Luminaire - The luminaire shall be suitable for attachment by means of a slip-fitter connection to a 2" IPS bracket. The slip-fitter shall include means for securely attaching the luminaire and shall also provide for adjustment of approximately 5 degrees above or below horizontal. Slip-fitter bolts shall be a minimum of 3/8" diameter. Slip-fitter shall be totally enclosed in luminaire housing.

Each luminaire shall be furnished with an internally mounted 120 volt ballast. The ballast shall be a high reactance, high power factor type, with power factor correcting capacitor. Ballast losses shall not exceed 30% of the rated lamp voltage.

Each luminaire shall include an internally housed metal oxide varistor to provide lightning protection. The varistor shall be capable of a minimum of ten secondary transient voltage surges.

The starting circuit must provide a minimum starting pulse repetition rate of one pulse per cycle (symmetrical). The spike position must occur within a minimum of + 20 degrees of the center of the open-circuit voltage waveform. The pulse peak voltage should be a maximum of 3000 volts. Pulses must be provided in the same polarity as the open circuit voltage.

The starting circuit and ballast must be capable of starting and maintaining lamp burning in ambient temperatures as low as -20 degrees F. Ballast, starting circuit, and lamp shall be pre-wired and ready for installation; all of which shall be readily accessible for maintenance purposes. Each luminaire starting circuit and ballast shall be factory tested and matched to assure proper component tolerances and pulse parameters.

Each luminaire shall consist of an aluminum alloy housing forming the upper half of the assembly, a separate interior efficient reflector, and a heat resisting glass refractor mounting on a hinged holding ring. The lamp socket shall be adjustable to provide a variety of light patterns including I.E.S. II, III, IV and shall be factory set for Type II. The assembly shall be drip proof and bug proof. Each luminaire shall have a 120V photoelectric control receptacle. The entire unit shall be prewired and ready for installation. The nominal lamp voltage shall be 55 volts. The luminaire shall be an approved equal in appearance, quality and design to Thomas and Betts #U-1150070 or Cooper #OVZ10SP22EU0288.

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- b. Photoelectric Relay - The photoelectric relay shall be cadmium sulphide with locking type receptacle, pole mounted 120 volt operation. The turn on and off levels shall be adjustable from 0.3 to 6.0 foot candles. Contacts shall be rated for a minimum load of 200 watts. The photoelectric relay shall be an approved equal to General Electric Company's C402G600 with adapter C403G001.

- c. Lamps - The High Pressure Sodium lamps to be furnished with the luminaire shall be 100 watt, with a rated life of 24,000 hours equal in quality, design and performance to North American Phillips or Sylvania LU100.

### **III. Installation**

The luminaires shall be installed on the bracket as shown on the drawings and indicated in the field by the engineer. Orientation and leveling of the units shall be so as to provide for uniform appearance, maximum lighting efficiency and ease of maintenance.

### **IV. Information Required**

Bidders shall also furnish complete performance data on the luminaires equipped with the lamp they propose to furnish. The data submitted shall contain at least the following information:

**THE FOLLOWING INFORMATION SHALL BE SUBMITTED TO THE DIVISION OF  
ELECTRICITY UPON REQUEST**

- Isocandle Curves from Photometric Test
- Utilization Curves
- Isolux Lines of Horizontal Foot-candles from a single unit
- Total Wattage of Fixture
- Volt-Watt Traces
- Lamp Trapezoid Traces
- Drawings showing magnitude, shape, position and duration of starting pulse
- Value of ballast losses
- Ballast open circuit voltage

### **V. Quotation**

The complete 100 Watt High Pressure Sodium Luminaire with lamp and photoelectric relay shall be quoted as a unit price in the appropriate place in this document.