

**STATE OF NEW JERSEY
DEPARTMENT OF TRANSPORTATION
TRENTON, NEW JERSEY 08625**

**METRIC SPECIFICATIONS FOR ADJUSTABLE FACE VEHICLE TRAFFIC CONTROL
POLYCARBONATE SIGNAL HEAD**

N.J. Specification No. EBM-TS-1

Effective Date: July 1, 2001

New Jersey Department of Transportation Specifications for Adjustable Face Vehicle Traffic Control Polycarbonate Signal Head.

The purpose of these specifications is to describe minimum acceptable requirements for Adjustable Face Vehicle Traffic Control Polycarbonate Signal Head.

GENERAL - I

- 1-1 Vehicle traffic control heads shall conform to the following:
- A. Manual on Uniform Traffic Control Devices (MUTCD)
 - B. Adjustable Face Vehicle Traffic Control Head Standard
Institute of Transportation Engineers (ITE)
 - C. Standard Publication No. TS 1
National Electrical Manufacturer's Association (NEMA)

CONSTRUCTION - II

- 2-1 Traffic signal heads shall be a combination of signal faces of 200 millimeter or 300 millimeter signal sections with red, yellow, green or arrow lenses as specified on the contract documents (or bid documents).
- 2-2 The housing of each section shall be a one-piece molded, ultraviolet and heat stabilized, flame retardant, permanently colored polycarbonate unit. The thickness of the housing shall be a minimum of 2.3 millimeters thick. All sections shall be identical and interchangeable with each other and shall be so designed that they interlock with each other forming a weatherproof assembly. Hinges or lugs shall be located inside each section for attaching the reflector assembly.
- 2-3 The signal section shall be dust-tight and shall consist of one lens, lamp, reflector and housing. The distribution and intensity of the light, produced by the entire signal section shall conform to the requirements of Technical Report No. 1 of ITE.
- 2-4 The housing door of each section shall be a one-piece, molded, ultraviolet and heat stabilized, flame retardant, permanently colored polycarbonate unit with an opening of sufficient diameter to accommodate the lens. On one side of the door, at top and bottom, there shall be a hinge so as to insure perfect alignment of the door. On the

- opposite side of the door, there shall be a wingnut assembly locking device to insure even gasket pressure. Three hundred (300) millimeter signal sections shall be secured with two wingnut assemblies. Hinge pins and locking device shall be stainless steel.
- 2-5 The polycarbonate visors shall be twist or screw-on type and shall be 200 millimeter long open-bottom tunnel type for 200 millimeter heads and 250 millimeter long, tunnel type for 300 millimeter heads. Visor shall be tilted downward 7 degrees from horizontal.
- 2-6 The lens shall be polycarbonate plastic and must meet the light distribution of the current ITE Vehicle Traffic Control Head Standard. Lenses shall have a combination of directing and diffusing prisms on the inner side of the lens to concentrate maximum candlepower in the center of the beam.
- 2-7 Lenses shall be furnished with a continuous soft rubber or silicon gasket completely surrounding the edge of the lens. The front portion of the gasket shall seal tightly against the door and the back portion shall press against the reflector support ring when the door is closed. The reflector assembly shall be hinged to the signal section body.
- 2-8 The reflector shall be polished alzak aluminum and shall be held in place by the reflector support ring. The support ring shall be constructed of aluminum or glass filled polycarbonate and be hinged to the signal section body.
- 2-9 The lamp socket shall be molded backlite or a heat stabilized nylon with a U.L. flammability rating of V-2. It shall be gasketed and provided with a lamp grip that may be rotated for positioning the lamp filament without using tools.
- 2-10 The color shall be highway yellow matching to FED-STD-595B color #13538. The inside surface of the visor shall be a dull non-reflective black.
- 2-11 The top and bottom of the section shall be provided with positive interlocking and indexing ring integral with the section. The integral locking ring shall consist of a single solid or double ring with 72 teeth and a minimum width of 6 millimeters. Openings in top and bottom of the section(s) shall accommodate 41 millimeter standard pipe nipples.
- 2-12 All screws, washers, nuts and bolts shall be stainless steel. All components shall be readily accessible when the door is opened. Maintenance and/or replacement of components shall be done using standard tools.

ELECTRICAL - III

- 3-1 Traffic signals shall be rated for 120 volt, 60 hertz operation.
- 3-2 Traffic signal lamps shall be 120/125 volt clear. The 135 watt lamp rated for 6 000 hours of life and the 60 watt lamp rated for 8 000 hours of life. The lamps shall meet or exceed the beam candlepower requirements of the Institute of Transportation Engineers Signal Lamp Standard. The lamps shall also comply with the following:

<u>Indication Size</u>	<u>Wattage</u>	<u>Rated Initial Lumens</u>	<u>Center length</u>
200 mm	60	595	62 mm

300 mm

135

1 750

75 mm

- 3-3 Each signal head shall be equipped with a barrier-type terminal block providing separate screws for each signal section and neutral wires. For all multisection signal heads, the terminal block shall be installed in the section with the yellow lens. Each signal section shall be wired complete to the terminal block with color coded using spade lugs.
- 3-4 Fixture wire shall be 19 stranded (Class C) No. 18 AWG copper wire capable of withstanding all adverse effects of moisture, corrosive atmosphere and temperatures associated with the operation of the signal head.

INSTRUCTIONS AND GUARANTEE - IV

- 4-1 Upon request, one wiring diagram and installation manual shall be provided with each signal face.
- 4-2 No changes or substitutions in these requirements will be accepted unless authorized in writing. Inquiries regarding this specification shall be addressed to the Manager, Office of Traffic Signal and Safety Engineering, New Jersey Department of Transportation, 1035 Parkway Avenue, P.O. Box 613, Trenton, NJ 08625.
- 4-3 The signal face shall carry a one year guarantee from the date of delivery against any imperfections in workmanship and material.
- 4-4 The company agrees upon the request of the Manager, Office of Traffic Signal and Safety Engineering to deliver to the Office, a sample of the signal face to be supplied in compliance with these specifications and test before acceptance. After completion of the test, the sample shall be returned.