

Lampholders

Since the introduction of practical incandescent lamps by Thomas Edison in 1879, all lamps have a metal fitting (lamp base or lamp cap) designed for connection to the supply mains via a compatible lampholder. There are two commonly used types of lampholders as specified in IEC 60238 and IEC 61184 for Edison screw lampholders and Bayonet lampholders respectively. They have due considerations on moisture resistance, insulation resistance, electrical and mechanical strengths, creepage distances and clearances, resistance to heat, fire, tracking, seasonal cracking and to rusting.

The Edison screw type was originated for use with the screw-cap lamps created by Edison. A lamp designated as E27 stands for a bulb with Edison screw-cap of 27 mm diameter. Protection against accidental contact with live parts during the insertion of a lamp is achieved by designing lampholders so that its screw shell is not live. Contact-making should be made through the independent contacts situated at the bottom of the holder, i.e. the conventional central contact and a newly adopted side contact which provides electrical contact with the cap shell. As for the Bayonet type, this style of connector was named after its initial implementation for soldiers who need to mount bayonets to the ends of their rifles in a hurry. A lamp designated as B22 stands for a bulb with bayonet-cap having a shell diameter of 22 mm. The fastening mechanism relies on mated surfaces; a male side on the lamp with two pins, and a female receptor on the lampholder with matching slots and a spring that maintains a clamping force. Contact-making is made through the two contacts situated at the bottom of the holder and the bayonet-cap shell is inherently insulated.

The Electrical Blog is contributed by the Electrical Division. If you would like to know more about this topic, please contact the Division Hon Secretary, Ir Simon Chung at simon.chung@arup.com