BS EN 50164 series: Lightning protection components (LPC)

The BS EN 50164 series of standards focuses on design and performance of components which are to be installed in an external LPS.

Designers/users of these systems need to be assured that the components, conductors, earth electrodes etc that will be installed have the requisite durability to survive long term exposure to the environmental elements whilst retaining the ability to dissipate lightning current safely and harmlessly to earth.

The BS EN 50164 series of standards defines the processes by which these critical lightning protection components are judged fit for purpose.

There are currently seven parts to the series:

- BS EN 50164-1:2008 Lightning protection components (LPC) Part 1: Requirement for connection components
- BS EN 50164-2:2008 Lightning protection components (LPC) Part 2: Requirements for conductors and earth electrodes
- BS EN 50164-3:2009 Lightning protection components (LPC) Part 3: Requirements for isolating spark gaps (ISG)
- BS EN 50164-4:2008 Lightning protection components (LPC) Part 4: Requirements for conductor fasteners
- BS EN 50164-5:2009 Lightning protection components (LPC) Part 5: Requirements for earth electrode inspection housings and earth electrode seals
- BS EN 50164-6:2009 Lightning protection components (LPC) Part 6: Requirements for lightning strike counters
- BS EN 50164-7:2008 Lightning protection components (LPC) Part 7: Requirements for earth enhancing compounds

Note: whilst BS EN 50164 is currently in force, a comparable IEC standard (IEC 62561) is being published in 2012, which in time will supercede BS EN 50164.

Independent testing

Whereas the previous standard focused on the use of specific materials to ensure compliance, BS EN 50164 requires manufacturers to undertake thorough testing and performance measurement of their components in order to gain compliance.

Three specimens of the component are tested, with conductors and specimens prepared and assembled in accordance with the manufacturer's instructions, e.g. to recommended tightening torques.

Testing can include environmental preconditioning (various treatments such as salt mist spray or exposure to a humid sulphorous atmosphere etc.) followed by subjecting components to simulated lightning discharges to assess their capacity to cope with onerous conditions.

Environmental preconditioning is designed to rapidly replicate the effect of component ageing under expected environmental conditions at site, to prove the component's ability to conduct lightning over time.

Testing therefore ensures components have been appropriately constructed for their application, meet the requirements of the standard and will prove safe in use for a number of years.

Furse product tests are undertaken by an independent RvA Certified test laboratory - The Research Development and Certification Centre, High Voltage and High Current Testing Laboratory - to ensure our products conform to BS EN 50164.



Environmental ageing chamber for ammonia atmosphere ageing



BS EN 50164 standard series



Furse lightning protection components, showing results after environmental preconditioning and lightning discharge testing

Passing the test

Each part of BS EN 50164 defines its own criteria for satisfactory performance of components.

All three specimens of a tested component must satisfy the conditions set out by BS EN 50164 in order for the testing to be deemed successful.

Following testing, a full test report with certification should be produced by the independent laboratory for all components satisfying the test criteria.

BS EN 50164 requires manufacturers to retain the test report along with adequate documentation to support testing and product application, including installation instructions.

Furse component performance

By choosing lightning protection components conforming to the BS EN 50164 series, the designer ensures he or she is using the best products on the market and is in compliance with BS EN 62305.

Furse structural lightning protection and earthing components are therefore rigorously tested to this standard. Our connection components conform to BS EN 50164-1, our conductors and earth electrodes to BS EN 50164-2.

Through independent testing, Furse products are proven to withstand the constant exposure to the environment as required by an LPS, thereby ensuring they will continue to dissipate lightning current safely and harmlessly to earth over the long term.

All Furse connection components are designed to conform to the BS EN 50164-1:2008 test procedures

