

## **SOLID CORE POST INSULATORS FOR SUBSTATIONS**

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### **PURPOSE AND SCOPE**

This document describes the technical requirements for User's equipment directly connected to the England and Wales Transmission system and located within NGET's busbar protection zone operating at nominal voltages of 400 kV, 275 kV, 132 kV and 66 kV unless otherwise agreed with the user as defined in the Bilateral agreement. The principles of this document applies to equipment connected at other voltages".

This specification defines the functional and performance requirements, enabling parameters and additional technical requirements for solid core post insulators rated from 1 kV to 420 kV connected to the Transmission System in England and Wales.

The specific requirements for solid core post insulators detailed in this document are by reference to IEC 60273, BS EN 60168 and associated documents and support the more general conditions defined in the companion documents TS 1 (RES) and TS 2.2 (RES).

### **PART 1 – PROCEDURAL**

#### **1 RATINGS AND PERFORMANCE REQUIREMENTS**

In addition to the general ratings and performance requirements defined in TS 1 (RES) and TS 2.2 (RES), post insulators shall satisfy the requirements in IEC 60273.

#### **2 TEST REQUIREMENTS**

##### **2.1 Type Tests**

Type tests shall be as required in TS 1 (RES) and TS 2.2 (RES), together with the requirements of BS EN 60168. Where the purchaser is presented with test options within BS EN 60168, the following shall apply: -

##### **2.1.1 Dry Lightning Impulse Withstand Test**

Either test method described in BS EN 60168 is acceptable.

##### **2.1.2 Dry or Wet Switching-Impulse Withstand Voltage Test**

The test shall be performed in wet conditions.

Either test method described in BS EN 60168 is acceptable.

##### **2.1.3 Mechanical Failing Load Tests**

In addition to the bending test, the tensile and torsion tests shall be performed during type testing as described in BS EN 60168.

#### 2.1.4 Test for Deflection Under Load

This test shall be performed during type tests to determine the top flange deflection obtained as a result of applying 70% of the specified mechanical failing load.

#### 2.1.5 Radio Interference Test

This special test shall be performed as described in BS EN 60168 and BS EN 60437.

#### 2.1.6 Sample Testing

Sample testing requirements are dependant on production quantity and other commercial considerations. Where sample testing is required it shall be as detailed in BS EN 60168, with any site specific requirements being detailed in the Contract Enquiry Document or Supplemental Agreement.

### 2.2 Routine Testing

Routine tests shall be as required in TS 1 (RES), TS 2.2 (RES) and the requirements of BS EN 60168. Where the purchaser is presented with test options within BS EN 60168, the following shall apply: -

#### 2.2.1 Routine Mechanical Test on Complete Post

This test shall be performed with a load applied of 70% of the specified mechanical failing load.

### 3 FORMS AND RECORDS

Not applicable.

## PART 2 - DEFINITIONS AND DOCUMENT HISTORY

### 4 DEFINITIONS

The definitions given in TS 1 (RES) and TS 2.2 (RES) apply to this document.

### 5 AMENDMENTS RECORDS

Issue	Date	Summary of Changes / Reasons	Author(s)	Approved By (Inc. Job Title)
1	October 2014	New document	Richard Poole	GCRP

#### 5.1 Procedure Review Date

5 years from publication date.

## **PART 3 - GUIDANCE NOTES AND APPENDICES**

### **6 REFERENCES**

#### **6.1 International, European and British Standard Documents**

This document makes references to, and should be read in conjunction with the documents listed below. Where a British Standard (BS) has been harmonised into a Euronorm (EN) only this BS EN reference is given. The issue date of these documents shall be that current at the time of the issue of this TS.

IEC 60273	Characteristics of indoor and outdoor post insulators and post insulator units for systems with nominal voltages greater than 1000 V.
BS EN 60168	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1000 V.
BS EN 60437	Radio interference tests on high voltage insulators.
BS EN 62271	High Voltage switchgear and control gear.
IECTS 60815	Selection and dimensioning of high voltage insulators intended for use in polluted conditions.

#### **6.2 National Grid TS (RES) Documents**

TS1 (RES)	Ratings and general requirements for plant, equipment, apparatus and services for National Grid System and connection points to it.
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