

#### 4.8 Substation Auxiliary Transformers 变电站辅助变压器

##### 1. Scope 范围

This specification covers distribution transformers within the scope covered by IEC 60076.

这个说明覆盖配电变压器,符合IEC60076

##### 2. Standards 标准

Standard	Title
BS 2562	Specification for cable boxes for transformers and reactors. 变压器和电抗器电缆盒规格
BS EN 10240	Internal and/or external protective coatings for steel tubes. Specification for hot dip galvanized coatings applied in automatic plants.
BS EN 22063	Metallic and other inorganic coatings. Thermal spraying. Zinc, aluminium and their alloys.
BS EN ISO 1461	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.
BS EN ISO 2808	Paints and varnishes. Determination of film thickness.
IEC 60076-1	Power transformers. General.
IEC 60076-2	Power transformers. Temperature rise.
IEC 60076-3	Power transformers. Insulation levels, dielectric tests and external clearances in air.
IEC 60076-4	Power transformers. Guide to the lightning impulse and switching impulse testing. Power transformers and reactors.
IEC 60076-5	Power transformers. Ability to withstand short circuit.
IEC 60076-10	Power transformers. Determination of sound levels.
IEC 60085	Thermal evaluation and classification of electrical insulation.
IEC 60137	Insulated bushings for alternating voltages above 1000V.
IEC 60296	Fluids for electrotechnical applications. Unused mineral insulating oils for transformers and switchgear.
IEC 60354	Loading guide for oil-immersed transformers.
IEC 60529	Degrees of protection provided by enclosures.
IEC 60815	Guide for the selection of insulators in respect of polluted conditions.
ISO 8501-1	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation of grades of uncoated steel substrates and of steel substrates after overall removal of protective coatings.

##### 3. Design and Manufacturing 设计制造

###### 3.1 General

变压器应是-双绕组三相,油浸式,自然冷却变压器,适合安装在户外指定条件。  
The transformer shall be a core type two winding three phase oil immersed transformer with oil natural air natural (ONAN) cooling, suitable for outdoor installation in the specified site conditions.

The transformer ratings shall comply with the specifications contained in the Technical Data Sheets. 变压器的评级应遵守技术表中的规格

3.2

Tank 油箱

The transformer tank shall be hermetically sealed.

油  
变压器箱应密封。

Sealed tank transformer shall be designed so that when it is filled with oil to the correct level, the tank pressure does not exceed 20kPA during the normal temperature rise test.

The tank cover shall be fastened to the tank by means of bolts.

油箱应耐螺栓紧固在箱盖上。

The transformer tank exterior shall be coated with a zinc metal spray with a minimum thickness of 50µm in accordance with BS EN 22063.

变压器箱外表根据 BS EN 22063 应有最小厚度 50µm 的锌金属涂层。

3.3

Insulating materials 绝缘材料

Insulating materials shall comply in respect of materials and rated class with the recommendations of IEC 60085.

绝缘材料应符合 IEC 60085 规定等级。

3.4

Tap changer 分接开关

The transformer shall have an off-load (off-circuit) tap changer with five tap steps as follows: -5%, -2.5%, 0%, +2.5% and +5%.

变压器应有如下五个操作档位的无载分接开关

3.5

Oil 油

The transformer shall be filled with oil compliant with IEC 60296.

变压器应填充符合 IEC 60296 规定的油。

3.6

Temperature rise 温升

Temperature rise shall be in accordance with IEC 60076-2.

变压器的温升应符合 IEC 60076-2 规定。

3.7

Loading cycle 负载周期

Temperature rise shall be capable of performing a loading cycle in accordance with IEC 60354.

温升应符合 IEC 60354 规定。

3.8

Short-circuit withstand ability 短路耐受能力

Transformers shall be able to withstand without sustaining any damage the effects of the specified external short-circuit under the conditions stipulated in IEC 60076-5.

在保证符合 IEC 60076-5 条件下, 变压器有能力承担不受任何指定外部短路危害。

4.

Packaging, Storage, Handling and Transportation 包装、存储、装卸、运输

All materials and equipment shall be packaged, stored, handled and transported in accordance with the manufacturer's recommendation and care shall be taken that materials and equipment is not damaged.

所有材料和设备应依照制造商建议包装存储, 装卸和运输, 以保证设备不被损坏。

5.

Construction and Installation 建筑安装

Nothing specified.

无特殊要求

6.

Tests, Inspections and Hold Points 测试, 检查, 里程碑

6.1

Type Test 型式试验

The Contractor shall submit copies of the type test certificates to the Engineer.

承包商应向工程师提交型式试验证书副本。

- 承包商向工程师提交  
常规的试验证书
- Routine Tests 常规试验  
The Contractor shall submit copies of the routine test certificates to the Engineer.  
The Engineer may elect to witness the routine tests and he shall notify the Contractor of his intention in this regard. 工程师可以向承包商申请来现场检查并见证常规试验。
- 6.3 Site Tests 现场测试  
Nothing specified. 无特殊要求
- 6.4 Inspections and Hold Points 检查和保持点  
Nothing specified. 无特殊要求
7. Special Equipment and Tools 特殊设备和工具  
The special tool required to operate the off-load tap changer (if applicable) shall be supplied with the transformer.  
操作无载调节开关需要的特殊工具应随变压器提供。
8. Documentation 文档  
The Contractor shall supply copies of the type test certificates and routine test certificates to the Engineer and also include copies thereof in the operations and maintenance documents.  
承包商应向工程师提供型式试验证书和常规试验证书副本以及
9. Training 培训  
Nothing specified. 无特殊要求  
操作和维护说明书副本。
10. Guarantees 担保  
承包商应担保所有设备和材料成份在设计  
者和材料成份在设计  
的任何缺陷, 运输  
和处理期间的损害, 在  
缺陷期内, 承包商须  
报销。  
The Contractor shall guarantee all equipment and material components against any and all defects in the design, material and manufacturing and damage incurred during transportation and handling of the equipment and material components for the period ending on the Defects Date. The guarantee in respect of defects in the design, material and manufacturing of equipment and material components shall be underwritten by the manufacturer.  
The Contractor shall be responsible to cover the costs should equipment and materials have to be returned to the manufacturer's facilities and thereafter to the Site to effect repairs in terms of the guarantee. 承包商应负责支付费用, 设备和材料需返回原厂并接  
条款维修。
11. Measurement 测量  
The unit of measurement shall be as follows: 计量单位如下:  
- the number of transformers supplied and installed. 提供变压器开关板的数量
12. Payment 付款  
The tendered rates and sums for this item shall include full compensation for the following:  
(a) the supply and delivery of all materials, including but not limited to the following:  
- transformer including all associated materials.  
(b) all labour, transportation and other costs associated with the setting out on site, installation, and testing of the items.  
The payment for this item shall be done in a single instalment following completion of each item.