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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 22194-2008**

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**Electrical installations in ships -- Equipment -- Transformers for  
power and lighting**

船舶电气设备 设备电力和照明变压器

**(English Translation)**

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### Foreword

This standard is identical with IEC 60092-303:1997 "Electrical installations in ships - Part 303. Equipment - Transformers for power and lighting." (In English).

This standard is equivalent translation IEC 60092-303:1997.

For ease of use, this standard made the following editorial changes.

--- "This International Standard" be replaced by "this standard";

"," --- With a decimal point instead of a comma as the decimal point, "";

--- Delete international standards preface, introduction;

--- Of expression in accordance with the provisions of GB/T 1.1-2000 made changes.

The standard proposed by China State Shipbuilding Corporation.

This standard by the National Standardization Technical Committee boat ocean.

This standard was drafted. Technical and Economic Research Institute of China Shipbuilding Industry.

### 1 Scope

This standard applies to all shipboard power and lighting transformers, static converters, also suitable for marine starting transformers, static transformers, full and reactors and magnetic amplifiers, the rated capacity of less than 1kVA single-phase transformer rated capacity of less than 5kVA and three-phase transformer also pack Included within the scope of application. But except for special requirements.

## 2 General requirements

All devices in the range mentioned should not only comply with the relevant provisions of the following publications, but also in accordance with this standard and IEC No. 60092 Version was various other articles about additional requirements are listed.

IEC 60076 Power Transformers IEC 60076-1:1993 Power transformers Part 1. General IEC 60076-2:1993 Power transformers Part 2. Temperature Rise IEC 60076-3. 1980 Power transformers Part 3. Insulation levels and dielectric strength test, Amendment No. 1 (1981) IEC 60076-3-1. 1987 Power transformers Part 3. Insulation levels and dielectric strength test, Section 1. External air gap IEC 60076-5. 1976 Source transformers Part 5. Ability to withstand short-circuit current, Amendment No. 2 (1994) IEC 60092-101:1994 Electrical installations in ships Part 101. Definitions and general requirements IEC 60092-401. 1987 Electrical installations in ships Part 401. Installation and test of completed IEC 60146-1-3:1991 Semiconductor convertors - General requirements and line commutated convertors Part 1-3. transformers and reactors IEC 60726. 1982 dry-type power transformers IEC 60947-4-1:1990 Low-voltage switchgear and control equipment Part 4. contactors and motor starters Section 1. Electromechanical Current contactors and motor starters

## 3 Winding arrangement

Transformer winding should be designed for dual (two separate windings). Starting Transformer type autotransformer may be used.

Terminal 4

Suitable clearly marked terminals should be located in accessible places to facilitate external wiring. These terminals should be effectively secured, and appropriate Spaced or protection, to avoid being accidentally grounded, open circuit or touched.

## 5 Cooling arrangement

### 5.1

transformer is preferably a dry air-cooled.

Preferably 5.2 liquid-immersed transformers should be sealed. If the oil pillow type, should be designed to conform to IEC 60092-101:1994 regulations, ship Case appears inclined to run without the risk of spillage of liquid. If ventilation measures, it should be properly equipped with desiccant.

### 5.3

For liquid-immersed transformers should consider configuring a liquid over-temperature alarm and pneumatic protection device.

**NOTE:** Installation Notes See IEC 60092-401. 1987 Chapter 15.

## **6 Voltage Regulation**

For resistive load, the secondary voltage between the load and the fixed voltage drop of less than the rated capacity of the transformer should 5kVA per phase GB/T 22194-2008/IEC 60092-303:1997