# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA 中华人民共和国国家标准 Code for Design of Over-voltage Protection in Industrial and Civil Power Installations 工业与民用电力装置的过电压 保护设计规范 GBJ64-83

(Tentative)

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#### Note

This book is the English translation of Code for Design of Over-voltage Protection in Industrial and Civil Power Installations GBJ64-83. In the event of any inconsistency between the Chinese-language text of the Code and the present English-language text of the Code, the Chinese-language text shall be taken as ruling.

### Contents

1.0	General 1	
2.0	Lightning guard rods and lightning conductors2	
3.0 Over-voltage		r-voltage protective devices
	3.1	Valve type arresters
	3.2	Expulsion tubes
	3.3	Protective clearance
	3.4	Extinction coil
4.0	Protection of overhead lines	
	4.1	Protection of general lines 12
	4.2	Protection for transpositions
	4.3	Protection of overhead LV lines 15
5.0	Protection of transformer (distribution) substations 16	
	5.1	Over-voltage protection for direct lightning stroke 16
	5.2	Over-voltage protection for lightning inrush wave
	5.3	Simple protection for substations with small capacity
6.0	Protection for overhead distribution grid	
	6.1	Protection of distribution transformers
	6.2	Protection of switch equipment and other devices
7.0	Protection for rotary electric machines	
8.0	3.0 Protection for other equipment	
Annex 1 Interpretation of terms		
Annex 2		Notes to terms used in the code

#### Main symbols

*R*——Power-frequency ground resistance;

*R<sub>ch</sub>*—Surge ground resistance;

Tt-Wave length of lightning current;

*D*——Distance between two lightning guard rods/lightning conductors;

D'——Distance between lightning guard rod and equivalent lightning guard rod;

f—Bow height of the curve passing the top points of two lightning guard rods of the same height and the lowest point at the top edge of the protection coverage;

*h*——Height of lightning guard rod, lightning conductor, check point of lightning guard rod, and lightning conductor for transformer substation;

ha-Effective height of lightning guard rod/lightning conductor;

hx----Height of objects protected;

 $h_0$ —Height of the lowest point at the top edge of the protection range between two lightning guard rods/lightning conductors of the same height or height of the assumed lightning guard rod between two lightning guard rods of the same height;

*l*—Length of span;

 $l_b$ —Length of the protected section for incoming line;

 $\Delta l$ ——Distance between the calibrated lightning stroke point on the lightning conductor and grounding column or the nearest column;

 $l_2$ —Distance between the calibrated lightning stroke point on the lightning conductor and the column at the other end;

*bx*——The minimal width on the side of the coverage on hx plane between two rods;

 $R_0$ —Radius of the circle passing the top points of two lightning guard rods (lightning conductors) and the lowest point at the top edge of the protection coverage between the two lightning guard rods (lightning conductors);

*r*——Protection radius above ground by lightning guard rod;

 $r_x$ —Protection radius on hx plane by lightning guard rod;

 $S_k$ —Distance in the air between lightning guard rods/lightning conductors and the protected object;

 $S_d$  — Distance in the ground between lightning guard rods/lightning conductors and the protected object;

P-----Height influence coefficient of lightning guard rod/lightning conductor;

 $\beta$  ——Shunt coefficient of lightning conductor.

#### 1.0 General

**1.0.1** The over-voltage protection for power equipment must be designed in strict compliance with the national technical and economical policies, which should ensure personal safety, reliable power service, advanced technology, economy and rationality.

**1.0.2** For the design of over-voltage protection for power equipment, rational proposal should be defined based on characteristics, sizes and development plans, lightning activities, etc..

In areas with particularly active lightning activities, lightning protection should be improved as appropriate in line with experience in local practice.

1.0.3 This code applies to the design of over-voltage protection for power devices at 35kV and below in industry, transportation, power, post and telecommunication, finance, culture and education and other sectors.

**1.0.4** In addition, the over-voltage protection for power equipment should be designed in compliance with current related national standards and codes.



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