

JGJ

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

JGJ/T 231-2021

**Technical standard for safety of disk lock steel tubular scaffold
in construction**

建筑施工承插型盘扣式钢管脚手架安全技术标准
(English Translation)

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1 General provisions

1.0.1

This Standard is formulated to ensure that the design, installation, dismantling, use and management of disk lock steel tubular scaffold are technologically advanced, economically reasonable, safe and applicable.

1.0.2

This Standard applies to the design, installation, dismantling, use and management of disk lock steel tubular scaffold in construction and municipal engineering.

1.0.3

In addition to complying with this Standard, the design, installation, dismantling, use and management of disk lock steel tubular scaffold shall also comply with the provisions of relevant national standards.

2.1 Terms

2.1.1

disk lock steel tubular scaffold

According to the purpose of use, it can be divided into shoring scaffold and operation scaffold. A structural frame that can withstand corresponding loads and has operational safety and protection functions, in which the standards are connected by outer tube or inner tube, ledgers and diagonal braces are snapped into the connecting plate by the use of rod end ledger or diagonal brace end, connected with wedges, is referred to as a scaffold.

2.1.2

shoring scaffold

It is a disk lock steel tubular scaffold that is supported on the ground or structure and can withstand various loads. It has safety protection functions and provides support and working platform for building construction. It includes shoring scaffold and structural erection supports for concrete construction.

2.1.3

operation scaffold

It is a disk lock steel tubular scaffold that is supported on the ground, buildings or attached

to engineering structures to provide a working platform and safety protection for construction.

F R - Design value of vertical force acting on the connecting plate;

M R - Anti-overturning moment of the scaffold under the design load;

M T - Overturning moment of the scaffold under the design load;

M w - Bending moment due to wind load design value;

M wk - Bending moment caused by characteristic value of wind load;

N - Design value of standard's axial force;

N 0 - Axial force generated by the out-of-plane deformation of the scaffold due to the constraints of the anchoring;

N k - Standard combination value of the axial force transmitted from the standard to the top surface of the foundation;

N l - Design value of axial force of anchoring;

N lw - Design value of axial force of anchoring s caused by wind load;

sumNGk - Sum of the axial force of the standard generated by the permanent load characteristic value;

sumNQk - Sum of the axial force of the standard generated by the variable load characteristic value;

P k - Average pressure at the bottom of the standard's foundation corresponding to the standard combination of load effects

R - Design value of scaffold resistance;

S - Effect design value of scaffold calculated based on basic load combinations;

w 0 - Basic wind pressure value;

w k - Wind load characteristic value.

2.2.2 Material properties and resistance

E - Elastic modulus of steel;

f - Design values for tensile, compressive and flexural strength of steel;

f a - Characteristic value of foundation bearing capacity;

Q b - Design value of connecting plate shear bearing capacity;

R c - Design value of anti-slip bearing capacity of fasteners'

[v] - Allowable deflection.

2.2.3 Geometric parameters

A - Cross-sectional area;

A_g - Base bottom area corresponding to base jack;

A_n - Net cross-sectional area of anchoring;

a - Distance from head jack support point to center line of ledger;

H_l - Vertical spacing of anchoring;

h - Frame lift height (take the distance between connecting plate on the standard as the modulus);

h' - Top step distance of the frame (take the distance between connecting plate on the standard as the modulus);

I - Sectional moment of inertia;

i - Radius of gyration of section;

L_l - Horizontal spacing between anchorings;

l₀ - Calculated length of standard;

l_a - Vertical distance of standard;

W - Section modulus.

2.2.4 Calculation coefficients

k - Reduction coefficient for the calculated length of the cantilever end of the shoring scaffold;

Phi - Windshield coefficient;

beta_H - Adjustment coefficient for the height of shoring scaffold of the shoring scaffold;

gamma - Correction coefficient for the lift height of the top layer of the frame;

gamma₀ - Importance coefficient of scaffold structure;

gamma_G - Permanent load component coefficient;

gamma_Q - Variable load coefficient;

gamma_R - Adjustment coefficient for bearing capacity design value;

arranged in a staggered manner with standards of different lengths. The bottom of the standard shall be equipped with a base jack or pad.