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

LY/T 3219-2020

**Self-tapping screws for timber structures
(English Translation)**

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Foreword

This document is in accordance with GB/T 1.1-2020 "Guidelines for Standardization Part 1: Structure and Drafting Rules of Standardization Documents" to be drafted.

1 Scope

This document specifies the terms and definitions, classification, requirements, test methods, inspection rules, packaging, Transportation and storage.

This document applies to self-tapping screws used in wooden constructions, not to drill steel self-tapping screws.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 90.1 Fastener acceptance inspection GB 1237 Fastener marking method GB/T 3098.5-2016 Mechanical properties of fasteners self-tapping screws GB/T 4232 Stainless steel wire for cold heading GB/T 5267.1 Fastener plating layer GB 10623 Terminology for Metal Mechanical Properties Test GB/T 14210-93 Self-tapping screws for wall panels GB/T 14791 Thread Terminology GB 27704 steel nail GB/T 28906 Cold Heading Steel Hot Rolled Wire Rod JB/T 8928 Mechanical galvanizing of steel parts JB/T 9151.3 Fastener test method size and geometric accuracy self-tapping screws LY/T 2059 Steel nails for wood structure LY/T 2377 Test method for connection performance of pin connectors for wooden structural materials

3 Terms and definitions

The following terms and definitions defined in GB/T 14791, LY/T 2377, GB/T 3098.5, and GB 10623 apply to this document.

Self-tapping screws for timber structures in wood structure buildings, it is used to connect wood cladding and wood supporting members, between wood members, and wood members and pre-drilled holes.

When the connecting piece is connected, the internal thread is tapped on the connected piece by its external thread to produce a screw that engages and tightens.

Head pull-through strength the strength of the self-tapping screw cap to pull through the wooden material.

Tensile strength

The tensile strength of a self-tapping screw when it is stretched axially.

4 Symbols

The following symbols apply to this document.

l --Nominal length, mm l_g --thread length, mm d --nominal diameter, mm d_1 --Thread bottom diameter, mm d_h --Diameter of nail cap, mm l_p --the depth of nail screwing into the wooden member, mm f_{tens} --tensile strength (N/mm²) f_h ---nail cap pull-through strength (N/mm²)

5 Categories

5.1

According to the thread form, it is usually divided into.

- a) Full thread;
- b) Half thread;

c) Multi-section thread.

5.2

Generally divided by head type.

a) Countersunk head;

b) Double countersunk head;

c) Horn head;

d) Hexagonal flange;

e) Cylindrical head;

f) Pan head flange.

Note: According to the negotiation between the supplier and the buyer, there are other self-tapping screw head types.

5.3

According to the surface treatment method, it is usually divided into.

a) Electroplating treatment;

b) Mechanical galvanizing treatment;

c) Surface coating of paint.

Note: According to the negotiation between supply and demand, there are other self-tapping screw surface treatment methods.

6.1 Raw materials

The raw materials of self-tapping screws should be cold heading, carburized steel or stainless steel. The raw materials of carbon steel should meet the requirements of GB/T 28906, the raw materials of stainless steel should meet the requirements of GB/T 4232, or use other materials equivalent to or better than the above standards.

6.2.1 Dimensions

6.2.1.1

The nominal diameter d should not be less than 2.4 mm and should not be greater than 24 mm.

6.2.1.2

The thread bottom diameter d_1 should not be less than 0.6 times the nominal diameter, and should not be greater than 0.9 times the nominal diameter.

6.2.1.3

The thread length l_g should not be less than 4 times the nominal diameter.

6.2.2 Allowable dimensional deviation

6.2.2.1

The deviation of the nominal length l is $\pm 2.5\%$.

6.2.2.2

The deviation of the nominal diameter d is $\pm 2.5\%$.

6.2.2.3

The deviation of other dimensions is $\pm 5\%$.

6.3.1 Appearance

The appearance should be smooth, without obvious scars or burrs, and without corrosion.

6.3.2 Surface treatment

6.3.2.1

The surface of self-tapping screws can be electroplated, or mechanically galvanized or painted on the surface of paint. If other surface treatments are required, Negotiation between the supply and demand parties.

6.3.2.2

When electroplating is used, the surface of the electroplated layer should be uniform and shiny, and the adhesion should be firm, and there should be no blistering, peeling, black spots or missing plating.

And other defects, and should meet the requirements of GB/T 5267.1.

6.3.2.3

When mechanical galvanizing is used, the surface of the coating should be free of plating, black spots, and peeling, uniform and smooth, and firmly attached;

Should meet the requirements of JB/T 8928. For the mechanically galvanized surface, as long as the thickness of the zinc layer is not less than the specified value, the surface to be plated is allowed There are areas of dark or light gray color unevenness.

6.3.2.4

When using paint for surface coating, the coating layer should cover evenly and firmly, and there should be no missing or falling off; the coating should pass the corresponding Anti-corrosion environment test.