

YB

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

YB/T 4001.1-2019

Replacing YB/T 4001.1-2007

Steel bar grating and matching parts Part 1: Steel bar gratings

钢格栅板及配套件 第1部分：钢格栅板

(English Translation)

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Table of Contents

Foreword
1 Scope
2 Normative References
3 Terms and Definitions
4 Product structure
5 Model and labeling
6 Allowable deviation in dimension
7 Technical requirements
8 Design for use
9 Test methods and inspection rules
10 Order contents, weight, area and delivery settlement
Annex A (Normative) Static load inspection of steel bar grating
Annex B (Informative) Installation and fixation of steel bar grating
Annex C (Informative) Calculation of applied load and deflection of steel bar grating

1 Scope

This standard specifies the terms and definitions, product structure, model and labeling, allowable deviation in dimension, technical requirements, design for use, test methods and inspection rules, order content, weight, area and delivery settlement, packaging, marking and quality certificate of steel bar grating.

This part is applicable to steel bar grating (hereinafter referred to as "steel bar grating") for working platforms, floors, walkways, stair threads and trench covers in industries of petroleum, chemical engineering, metallurgy, light industry, shipbuilding, energy and municipal administration. Other types of steel bar grating and metal grating may also comply with the related requirements of this part.

2 Normative References

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated reference, the latest edition of the referenced document (including any amendments) applies.

GB/T 700 Carbon structural steels

GB/T 702 Hot-rolled steel bars - Dimensions, shape, weight and tolerances

GB/T 709 Hot-rolled steel bars - Dimensions, shape, weight and tolerances and sheet

GB/T 1591 High strength low alloy structural steels

GB/T 3280 Cold rolled stainless steel plate, sheet and strip

GB/T 4237 Hot rolled stainless steel plate, sheet and strip

GB/T 13912 Metallic coatings - Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods

GB 50009 Load code for the design of building structures

GB 50017

3 Terms and Definitions

For the purposes of this standard, the following terms and definitions apply.

3.1 steel bar grating

plate steel member with open through hole fixed by orthogonal combination of bearing bar and cross bar according to certain length which may be divided into pressure welding steel grid and pressure locking steel grid according to different manufacture methods

3.2 bearing bar

flat steel bearing load in steel bar grating

3.3 cross bar

twisted square steel, round steel or flat steel fixed on bearing bar

3.4 clear opening

maximum inscribed circle diameter of open through hole of steel bar grating

3.5 bearing bar centers

distance between centers of two adjacent bearing bar

3.6 cross bar centers

distance between centers of two adjacent cross bar

3.7 pressure resistance weld

method of welding named pressure resistance welding, or pressure welding, which utilizes the resistance heat generated by the current passing through the contact surface of the

joint and its adjacent areas where the pressure is applied through the electrode after the workpiece is assembled

3.8 band

flat steel, angle steel, C-type steel, cross bar or other materials used as end bar for fixing at the ends, sides or the edges of other openings and notches of bearing bar of steel bar grating

3.9 trim band

band of steel bar grating for changing appearance, not bearing and transmitting the load of bearing bar

3.10 load-carrying band

band of steel bar grating that located at the special part of the platform where the bearing bar has no support and requires the end bar to bear and transfer the load of bearing bar

3.11 toe plate

protective baffle fixed around a platform or in a steel bar grating with the edge of the opening or notch higher than that of the bearing bar

3.12 length

maximum size of steel bar grating parallel to the direction of bearing bar

3.13 width

maximum size of steel bar grating perpendicular to the direction of bearing bar

3.14 depth

thickness of steel bar grating which equals to the width of bearing bar

3.15 span

clearance of steel bar grating supporting frame parallel to the direction of bearing bar

3.16 grating design value of load

load value of steel bar grating obtained by calculation based on the design value of bending strength of steel

3.17 design value of concentrated load at mid-span

design value of concentrated load acting on the middle line of steel bar grating span

3.18 design value of uniform load at full-span

design value of uniformly distributed load acting on the plane area of steel bar grating

3.19 allow of maximum deflection under load

maximum allowable deflection in mid-span of steel bar grating under external load

4.1 Pressure welding steel bar grating

Steel bar grating fixed by pressure resistance weld at each intersection of bearing bar and cross bar are called pressure welding steel bar grating. Twisted square steel or round steel is usually used as the cross bar of pressure welding steel bar grating. As shown in Figure 1.

Figure 1 Pressure welding steel bar grating

Note:

1 - bearing bar

2 - cross bar

4.2 Pressure locking steel bar grating

At each intersection of the bearing bar and the cross bar, the cross bar is pressed into the bearing bar with pre-grooved by pressure through the assembling method of interference fit, or deformed and fixed by bulging, forging and pressing and other methods. And the steel bar grating fixed by this way is called pressure locking steel bar grating which is shown in Figure 2.