

Translated English of Chinese Standard: GB/T3624-2010

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 77.150.99

H 64

GB/T 3624-2010

Replacing GB/T 3624-1995

Titanium and titanium alloy seamless tubes

钛及钛合金无缝管

Issued on: January 10, 2011

Implemented on: October 01, 2011

Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;

Standardization Administration of PRC.

Table of Contents

Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Requirements.....	4
4 Test methods.....	9
5 Inspection rules.....	10
6 Marking, packaging, transport and storage.....	12
7 Contents of contract (or order form).....	13

Foreword

This standard, during revision, makes reference to ASTM B861-06a “Titanium and titanium alloy seamless tubes”.

This standard replaces GB/T 3624-1995 “Titanium and titanium alloy tubes”.

As compared with GB/T 3624-1995, this standard mainly has the following changes:

- DELETE the relevant content of welded tube and welding-rolling tubes;
- CANCEL the designation TA0. ADD the designations TA3, TA8, TA8-1, TA9-1 and the related requirements;
- ADJUST the mechanical properties of the tubes of designations TA1, TA2, TA9, TA10;
- ADJUST the pressure value of the hydraulic test of the tubes of designation TA10;
- ADD the provisions that “When the tubes of $D/t < 10$ are subjected to flattening test, the crack generated at the position corresponding to “6 o'clock” and “12 o'clock” on the inner surface of the tube shall not be used as the basis for rejection”;
- ADD the provisions on the bending properties of the tubes; the purchaser may make selection as needed;
- ADD the requirements of the contract (order form).

This standard was proposed by the China Nonferrous Metals Industry Association.

This standard shall be under the jurisdiction of the National Nonferrous Metals Standardization Technical Committee.

The responsible drafting organizations of this standard: Bao Titanium Group Co., Ltd., Baoji Titanium Industry Co., Ltd.

The main drafters of this standard: Yang Yulan, Li Nong, Huang Yongguang, Xu Zhe, Wang Yongmei, Dai Chun, Wang Weiqi.

This standard replaces the standard previously issued as follows:

- GB/T 3624-1983, GB/T 3624-1995.

Titanium and titanium alloy seamless tubes

1 Scope

This standard specifies the requirements, test methods, inspection rules and markings, packaging, transport, storage, quality certificate and contract (or order form) contents of titanium and titanium alloy seamless tubes.

This standard is applicable to titanium and titanium alloy seamless tubes which are produced by cold rolling (cold drawing) method. It is suitable for general industrial use.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 228 Metallic materials - Tensile testing at ambient temperature

GB/T 241 Metal materials - Tube - Hydrostatic pressure test

GB/T 244 Metallic materials - Tube - Bend test

GB/T 246 Metal materials - Tube - Flattening test

GB/T 3620.1 Designation and composition of titanium and titanium alloys

GB/T 3620.2 Titanium and titanium alloys - Permissible variations of chemical composition for wrought product analysis

GB/T 4698 (all parts) Sponge titanium, titanium and titanium alloys - Determination of aluminum content

GB/T 8180 Wrought titanium and titanium alloy products packing marking transporting and storing

3 Requirements

3.1 Classification of products

3.1.1 Designation, status and specification of products

t - Nominal wall thickness of the tube, in millimeters (mm);

D - Nominal outer diameter of the tube, in millimeters (mm);

e - Constant, when the tube's diameter is less than or equal to 25.4 mm, e takes 0.04; when the tube's diameter is greater than 25.4 mm, e takes 0.06.

3.4.1.2 When the tubes of $D/t < 10$ are subjected to flattening test, the crack generated at the position corresponding to "6 o'clock" and "12 o'clock" on the inner surface of the tube shall not be used as the basis for rejection.

3.4.2 Hydraulic (pneumatic) pressure test

3.4.2.1 When the purchaser requests and indicates in the contract (or the order form), the tube shall be subjected to the hydraulic pressure or pneumatic pressure test. The test method selected by the purchaser shall be indicated in the contract (or order form). Where it is not indicated in the contract (or the order form), the supplier may not conduct the test, but must ensure that it meets the requirements for the minimum hydraulic pressure in 3.4.2.2 or the pneumatic pressure test in 3.4.2.3.

3.4.2.2 When the hydraulic test is carried out, the test pressure selected by the purchaser shall be indicated in the contract (or order form). When not specified in the contract (or order form), the test pressure is calculated according to the following formula (2):

$$p = \frac{St}{D/2 - 0.4t} \dots\dots\dots (2)$$

Where:

p - Test pressure, in Megapascal (MPa);

S - Allowable stress, which takes 50% of the minimum specified non-proportional extension strength, in Megapascal (MPa);

D - Nominal outer diameter of the tube, in millimeters (mm);

t - Nominal wall thickness of the tube, in millimeters (mm).

When the nominal outer diameter of the tube is not more than 76 mm, the maximum pressure of the hydraulic test is not more than 17.2 MPa; when the nominal outer diameter of the tube is greater than 76 mm, the maximum pressure of the hydraulic test is not more than 19.3 MPa. The pressure shall be maintained for 5 s during the test, the tube shall be free from distortion or leakage.

3.4.2.3 During the pneumatic pressure test, the pressure of the internal

use the S8 specimens in GB/T 228. For the tubes which have outer diameter greater than 35 mm, it shall use the S4 specimen.

4.3 Test method of process performance

4.3.1 Tube's flattening test shall be carried out according to GB/T 246.

4.3.2 Tube's hydraulic pressure test shall be carried out according to GB/T 241.

4.3.3 Tube's pneumatic pressure test shall be carried out according to the method approved by both parties.

4.3.4 Tube's bending test shall be carried out according to GB/T 244.

4.4 Measurement method of dimension

The dimensional inspection of the tube is carried out by the use of a gauge of corresponding accuracy.

4.5 Inspection method of appearance quality

The appearance quality of the tube is checked by visual inspection.

5 Inspection rules

5.1 Inspection and acceptance

5.1.1 The product shall be inspected by the supplier's quality inspection department, to ensure that the product's quality meets the requirements of this standard or contract (or purchase order). Meanwhile it shall fill in the quality certificate.

5.1.2 The products received by the purchaser shall be inspected and accepted according to the provisions of this standard. If the inspection results are inconsistent with the provisions of this standard, they shall be submitted to the supplier within three months from the date of receipt of the product, to be settled by the supplier and the purchaser through negotiation. If arbitration is required, the arbitration sampling shall be carried out jointly by the supplier and the purchaser.

5.2 Group-batch

Products shall be submitted for acceptance in batches. Each batch shall consist of the same designation, the same melting furnace number, the same specification, the same manufacturing method, the same status, the same heat treatment furnace batch.

5.3 Inspection items

unqualified item one by one, the qualified is group-batch again.

5.5.3 When the dimensions and allowable deviation of dimension, appearance quality, hydraulic pressure or pneumatic pressure test of the tube are unqualified, the single piece is judged as unqualified.

5.5.4 For tube which has an inner diameter of not more than 20 mm, it is allowed to randomly take 5 pieces from each batch of tubes, take 150 mm tube segment from each piece, cut into halves longitudinally. If the measured wall thickness and the inspection of inner surface are unqualified, this batch of products is unqualified. However, it allows for the supplier to inspect the unqualified items one by one, the qualified is group-batch again.

6 Marking, packaging, transport and storage

6.1 Marking

The following contents shall be indicated on the tubes and packaging boxes that have passed the inspection:

- a) Product's designation;
- b) Product's name;
- c) Supply status;
- d) Batch number;
- e) This standard number.

6.2 Packaging, transport and storage

The packaging, transport and storage of the product shall comply with the relevant provisions of GB/T 8180.

6.3 Quality certificate

Each batch of tubes shall be accompanied by a quality certificate, stating:

- a) Name of supplier;
- b) Name of product;
- c) Designation, specification and status of product;
- d) Smelting furnace number, batch number, batch weight and count;
- e) Results of the various analytical tests as specified and the quality

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----