

DNV GL SE • P.O. Box 11 16 06 • 20416 Hamburg • Germany

Shanxi Taigang Stainless Steel Co., Ltd.
Hot Strip Plant
Jiancaoping Street No.2
Shanxi Province
Taiyuan
China

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Your reference	Your Letter of	Our reference	Extension	Date
		026614-15/OKoe	+49 40 3 61 49-4561	2015-04-20

Approval of your works for the manufacture of rolled steel products (prolongation)

Dear Mr. Gao Jianbing,

Thank you for your company's commitment to manufacture products with GL certification.

We refer to our Surveyor's report on the inspection of your works performed on 2015-02-03 and to his confirmation that the results of continuous delivery tests witnessed by him are in full compliance with our Rules for Materials.

Therefore the preconditions for prolongation of approval of your works granted by our letter ref. no. 041137-12 dated 2012-04-17 are complied with.

The material grades, supply conditions and dimensions / weights covered by the approval are indicated in the approval annex.

The manufacturing details covered by the approval are as follows:

1. Products

Hot rolled wide strip in coils / steel plates cut from wide strip made of hull structural steels designed for shipbuilding use and unalloyed steels with minimum nominal yield strengths up to and including 355 N/mm² which are to be used for welded structures, e.g. in machinery manufacture or in shipbuilding

2. Manufacturing process

No.2 Steelmaking Plant

Hot metal from blast furnace, hot metal pre-treatment by torpedo ladle car, desulphurization by powder injection, basic oxygen furnace (BOF), secondary metallurgy by ladle furnace (LF), vacuum treatment by recirculation degasser (RH), continuous casting by vertical-type continuous slab caster with bending of the strand of R = 8 m for con-cast slab dimensions of 230 - 250 mm x 1,050 - 2,150 mm x 7,100 - 7,700 mm, grinding, marking, stamping, final inspection, despatch

Hot Strip Mill

Inspection and preparation of raw material, reheating of con-cast slabs by walking beam furnace, descaling by high water pressure, by Hot Strip Mill incl. 4-high reversible single-stand roughing mill unit with attached vertical edger as well as 4-high continuous finishing mill unit of 4 stands, laminar cooling by Accelerated Cooling System (ACC), coiling by coiling strapping machines, marking, finishing, final inspection, despatch



GLAPP002140357F

Finishing Line

Inspection and preparation of steel coil, steel coil placing by coil lifting car, decoiling by unrolling machine, shovel device, press roll and bending roll, straightening by roll leveller, 1# centralizing device with vertical roll, disc shear, scrap cutting by shear drum, looper, 2# centralizing device with vertical roll, straightening by roll leveller, horizontal cutting shear, non-destructive testing (NDT) by ultrasonic testing (UT), magnetic particle inspection (MT), penetrant testing (PT) and / or visual inspection (VT), marking, finishing, final inspection, despatch

3. Prematerial suppliers

Only material manufacturer which are approved for the relevant products

4. Fabrication welding

Not permitted

Our approval is granted under provision that all hull structural steel plates intended to be used for the construction of ships classed with our Society will comply with our Rules in all respects and will be tested in the presence of our Surveyor.

The quality of your company's manufactured products, within the valid approved scope, contributes to the safety and reputation of GL classed ships.

Your company has been added to the list of approved manufacturers, which is regularly published on the Internet. In order to view the appropriate data start the DNV GL website <http://www.dnvgl.com>, choose "Maritime", "Exchange & Tools", menu "GL Tools", select "Approval Finder", and then "Manufacturers of Materials".

Enclosed please find our certificate of approval no. **WZ 1948 HH 2**, valid until 2018-02-28, as well as the corresponding annex.

We thank you for your cooperation and wish your company every success.

Yours faithfully,

for DNV GL SE


Stefan Röhr


Oliver Krömer

Ref. no.: 026614-15

Manufacturer: Shanxi Taigang Stainless Steel Co., Ltd.
Hot Strip Plant

List 1: Plates, Strips, Sections and Bars, Prematerial

Grade Remarks	Key	Supply Condition (1)	min. Thick- ness, mm	max. Thick- ness, mm	Casting Method (2)	Deoxidation	Microalloy
GL-A	BD	CR	5	24	CC	killed	Al+Ti
GL-B	BD	CR	5	24	CC	killed	Al+Ti
GL-D	BD	CR	5	24	CC	killed	Al+Ti
GL-A32	BD	CR	5	24	CC	killed	Al+Nb+V
GL-A36	BD	CR	5	24	CC	killed	Al+Nb+V
GL-D32	BD	CR	5	24	CC	killed	Al+Nb+V
GL-D36	BD	CR	5	24	CC	killed	Al+Nb+V
S235J0 acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S235J2 acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S235JR acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S275J0 acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S275J2 acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S275JR acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S355J0 acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S355J2 acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard
S355JR acc. to EN 10025-2	BD	acc. to standard	5	24	CC	killed	acc. to standard

Key: BD Strip BF Wide Flats BL Plate FO Sections HZ Prematerial (Ingots, Slabs, Billets) ST Bars WFS Bulbflatbars

(1):

AC, AF, AR = as cast, as forged, as rolled
CR = controlled rolled
F = ferritized
HF = hot formed
N = normalized

N+T = normalized + tempered
Q+T = quenched + tempered
SH = surface hardened
S+Q = solution annealed + quenched
TM = thermomechanically rolled

(2):

CC = continuous casting
IC = ingot casting

Approval of Material Manufacturers *Zulassung von Werkstoffherstellern*

This is to certify that the works of
Hiermit wird bescheinigt, dass die Firma

**SHANXI TAIGANG STAINLESS STEEL CO., LTD.
HOT STRIP PLANT
TAIYUN, SHANXI PROVINCE
CHINA**

has been subjected to an approval test in accordance with GL Rules with satisfactory results and is approved for the manufacture of the following products:

einer Zulassungsprüfung nach den Vorschriften des GL unterzogen wurde und für die Herstellung folgender Erzeugnisse zugelassen ist:

**Normal and Higher Strength Hull Structural Steels
in accordance with the GL-Rules for Metallic Materials,
Chapter 2, Section 1.B**

**Unalloyed Steels for Welded Structures
in accordance with the GL-Rules for Metallic Materials,
Chapter 2, Section 1.C**

This approval is granted provided that all products intended to be used for the construction of ships or installations classed with DNV GL SE comply in every respect with GL Rules and Requirements.

Die Zulassung erfolgt unter der Voraussetzung, dass alle Erzeugnisse, die zum Bau von Schiffen und Anlagen mit Klasse der DNV GL SE bestimmt sind, die Vorschriften des GL in jeder Hinsicht erfüllen.

Certificate of approval No.
Zulassungsbescheinigung Nr.

WZ 1948 HH 2

This Certificate is valid until:
Diese Bescheinigung ist gültig bis:

2018-02-28

Part of the approval is our letter of approval ref. no. 026614-15 of 2015-04-20.
Bestandteil der Zulassung ist das Zulassungsansprechen, Tgb.-Nr. 026614-15 vom 2015-04-20.

Hamburg, 2015-04-20

DNV GL



Stefan Röhr



Oliver Krömer