

Approval of Material Manufacturers *Zulassung von Werkstoffherstellern*

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

**TRINECKE ZELEZARNY, A. S.
TRINEC-STARE MESTO, CZECH REPUBLIC**

**PRODUCTION SITE:
VZ - SOCHOROVÁ VÁLCOVNA
KLADNO-DRIN, CZECH REPUBLIC**

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:

***Rolled Steel Products
in accordance with the GL-Rules for Metallic Materials,
Chapter 2, Section 1 and 3***

This approval is granted provided that all products intended to be used for the construction of ships or installations classed with DNV GL 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. WZ 1304 HH 5
Zulassungsbescheinigung Nr.

This Certificate is valid until: 2018-06-30
Diese Bescheinigung ist gültig bis:

Part of the approval is our letter of approval ref. no. 053494-15 of 2015-07-22.
Bestandteil der Zulassung ist das Zulassungsanschreiben, Tgb.-Nr. 053494-15 vom 2015-07-22.

Hamburg, 2015-07-22

DNV GL SE


Stefan Röhr


i.A. Oliver Krömer

Ref. no.: 053494-15

Manufacturer: Trinecke Zelezarny, a. s.

VZ - Sochorová válcovna

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
S235J0 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S235J2 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S235JR acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S275J0 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S275J2 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S275JR acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S355J0 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S355J2 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S355JR acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
S355K2 acc. to EN 10025-2	ST	acc. to standard	70	300	CC / IC	killed	acc. to standard
C35 acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C35E acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C35R acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C40 acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C40E acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C40R acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C45 acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C45E acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C45R acc. to EN 10083-2	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard

(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

Ref. no.: 053494-15

Manufacturer: **Trinecke Zelezarny, a. s.**

VZ - Sochorová válcovna

Grade Remarks	Key	Supply Condition (1)	min. Thick- ness, mm	max. Thick- ness, mm	Casting Method (2)	Deoxidation	Microalloy
25CrMo4 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
25CrMoS4 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
34CrMo4 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
34CrMoS4 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
42CrMo4 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
42CrMoS4 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
30CrNiMo8 acc. to EN 10083-3	ST	Q+T	70	300	CC / IC	killed	acc. to standard
16MnCr5 acc. to EN 10084	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
16MnCrS5 acc. to EN 10084	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
20MnCr5 acc. to EN 10084	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
20MnCrS5 acc. to EN 10084	ST	N, Q+T	70	300	CC / IC	killed	acc. to standard
C- & C-Mn Steels	HZ	AR	60	300	CC / IC	killed	acc. to standard
Alloy Steels	HZ	AR	60	300	CC / IC	killed	acc. to standard

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

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

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Your reference	Your Letter of	Our reference	Extension	Date
		053494-15/OKoe	+49 40 3 61 49-4561	2015-07-22

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

Dear Sirs,

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 2015-06-09 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. 009175-15 dated 2015-02-25 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

Semi-finished products (e.g. rolled square blooms / billets and / or round bars) made of unalloyed and low alloy steels for further processing to final products which are intended for the construction, repair and equipping of ships, offshore installations and other structures which are classified or whose classification has been applied for in accordance with Germanischer Lloyd Rules for Classification and Construction; hot rolled steel bars made of 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 as well as hot rolled steel bars which are given their final shape by machining made of unalloyed and low alloy steels intended for the manufacture of components and structural parts in machine construction and shipbuilding

2. Manufacturing process

Rolling Mill

Inspection and preparation of raw material, reheating of raw material (e.g. con-cast products and / or raw ingots) by walking beam furnace or soaking pit furnace, descaling by high water pressure, hot rolling process by Rolling Mill incl. 2-high reversible breakdown mill unit (Dimension: 210 x 210 - 300 x 300 mm²), 2-high reversible Billet Rolling Mill Stand A (Dimension: 60 x 60 - 110 x 110 mm²), 2-high reversible Billet Rolling Mill Stand B (Dimension: 60 x 60 - 110 x 110 mm²) and / or 2-high reversible Rolling Mill Stand C (Diameter: Ø70 - Ø300 mm), hot sawing by rotary-type dividing shear, cooling by cooling bed, 1st inspection, heat treatment by continuous roller gas-fired furnace or chamber furnace incl. normalizing, heating, quenching air / water / oil / emulsion and



tempering, 2nd inspection, shot blasting, straightening by roll leveller, non-destructive testing (NDT) such as ultrasonic testing (UT), magnetic particle inspection (MT), eddy current testing (ET) and / or visual inspection (VT), weight testing, marking, stamping, packaging, final inspection, despatch

3. Prematerial suppliers

Trinecke Zelezarny, a. s. (WZ 466 HH) or other material manufacturers which are approved for the relevant products

4. Fabrication welding

Not permitted

5. Particulars

- 1) Steel grades of unalloyed and low alloy steels cover the supply of semi-finished products for further processing to final products which are intended for the construction, repair and equipping of ships, offshore installations and other structures which are classified or whose classification has been applied for in accordance with GL-Rules for Classification and Construction. The final processing mill is responsible for ordering steel which complies with their approved chemical composition and enables them to achieve the required mechanical properties.
- 2) C- & C-Mn Steels and Alloy Steels (CrMo, CrNiMo Steels) may be used conforming to recognized standards (e.g. EN 10083-2 and / or EN 10083-3) or other unalloyed and / or low alloy steels conforming to other standards or material specifications provided that their suitability has been confirmed on condition that these steels meet the required limit values of chemical composition in accordance with the GL-Rules for Metallic Materials, Chapter 2, Section 3.B, Table 3.2 as well as the required minimum mechanical and technological properties in accordance with the GL-Rules for Metallic Materials, Chapter 2, Section 3.B, Table 3.5 and 3.6 respectively.
- 3) Subject to special approval, total reduction ratio of min. 3.5 : 1 may be accepted for hot rolled steel bars produced on basis of continuously cast products and / or raw ingots. Unless otherwise approved the total reduction ratio is to be at least 6 : 1 for rolled bars which are given their final shape by machining made of unalloyed and low alloy steels intended for the manufacture of components and structural parts in machine construction and shipbuilding in accordance with the GL-Rules for Metallic Materials, Chapter 2, Section 3.A, Item 4.3.
- 4) Mechanical and Technological Tests in accordance with the GL-Rules for Metallic Materials, Chapter 1, Section 2 are performed by external service provider CZ FERMET Ltd..

Our approval is granted under provision that all rolled products intended to be used for the outfit 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 1304 HH 5, valid until 2018-06-30, 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


i.A.
Oliver Krömer