

**MARINE DIVISION**

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Certificate number: 18549/A0 BV

File number : MAT 1543 - 2006

Product code : 90071

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

## APPROVAL CERTIFICATE for MATERIALS

as per Bureau Veritas Classification Rules

*This certificate is issued to*

**ThyssenKrupp Steel AG**  
Duisburg - GERMANY

*for the product*

### HIGHER STRENGTH HULL STEEL ROLLED PRODUCTS

Hot rolled plates, strip and plates from strip in steel grades AH32/36, DH32/36 and EH32/36

**Regulations and standards :**

Bureau Veritas Rules on Materials and Welding for the Classification of Marine Units

*This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of the Regulations and standards mentioned above.*

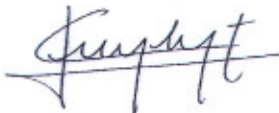
**This certificate is valid until : 01 Dec 2013**

At Paris la Défense, on : 24 Nov 2008

For BUREAU VERITAS,  
By order of the Secretary

Approval office

Local office : BV HAMBURG  
Surveyor : U. Storm

  
L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

Hot rolled plates, strips and plates from strip manufactured at TKS works Duisburg

Hot rolled plates manufactured at MRM works Mülheim a. d. Ruhr

Hot rolled plates

Steel grade	Deoxydation practice & Refining	Delivery conditions
AH32, DH32, EH32 AH36, DH36, EH36	Killed and fine grain treated with Al or Al+Nb	As Rolled (AR) with thickness up to 100mm
		Normalised (N) with thickness up to 100mm
		Normalizing Rolled (NR) with thickness up to 100mm
		Thermomechanical Rolling (TMCP) with thickness up to 31mm
		Thermomechanical Rolling + Intensive Cooling (TMCP+ICC) with thickness up to 70mm

Hot rolled strip and plates from strip

Steel grade	Deoxydation practice & Refining	Delivery conditions
AH32 / DH32	Killed and fine grain treated with Al or Al+Nb	Normalised (N) with thickness up to 25mm
AH36 / DH36		Normalizing Rolled (NR) with thickness up to 25mm

Steelmaking by Basic Oxygen Converter.

Continuous Casting or Ingot Casting

Slabs supplied by Beeckerwerth, Bruckhausen and HKM steel works.

### 2. DOCUMENTS AND DRAWINGS :

- "EH36 Thermomechanically rolled - Documentation of the test results" issued by ThyssenKrupp Steel.
- QSA report No 143 + 148 (TM)

### 3. TEST REPORTS :

- "TKS - PCG Evidence of production competence - Normal and higher strength hull structural steel" issued by ThyssenKrupp Steel and dated April 2008.
- "EH36 Thermomechanically rolled - Documentation of the test results" issued by ThyssenKrupp Steel.

### 4. APPLICATION / LIMITATION :

As per Bureau Veritas Rules for Classification.

### 5. PRODUCTION SURVEY REQUIREMENTS :

The steel products are to be manufactured, examined and tested by ThyssenKrupp in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.

**6. MARKING OF PRODUCT :**

As per Bureau Veritas Rules for Classification.

**7. OTHERS :**

This certificate cancels and replaces approvals number AR/D-02-10-245 dated 25 August 1992, AR/D-02-10-245/ind.a dated 16 July 1993, AR/D-02-01-1 dated 14 May 1996 and AR/D-02-02-2 dated 14 May 1996.

**\*\*\* END OF CERTIFICATE \*\*\***