

EH32 High Strength Hull Structure Steel Product Overview

Grade: EH32 (China CCS standard, compliant with international classification society rules)

Material Category: High-strength hull structural steel (hot-mechanical rolled TMCP or normalized condition)

Key Features:

High Strength & Toughness: Yield strength ≥ 315 MPa, -40°C impact energy $\geq 46\text{J}$ (Charpy V-notch).

Weldability: Carbon equivalent (CEV) $\leq 0.38\%$, cold cracking susceptibility coefficient (Pcm) $\leq 0.21\%$.

Corrosion Resistance: Passes classification society seawater corrosion tests (optional Cu/Cr additions).

Z-Direction Performance: Available in Z15/Z25 grades for anti-lamellar tearing (specify requirements).

Applications: Bulk carriers, container ship side shells, offshore platforms, polar vessel ice zone structures.

EH32 Technical Parameters

Parameter	Value	Test Standard
Chemical Composition (%):	$\text{C} \leq 0.18$, $\text{Mn } 0.90\text{--}1.60$, $\text{Si} \leq 0.50$,	CCS specifications
	$\text{P} \leq 0.025$, $\text{S} \leq 0.015$	
Yield Strength (ReH)	≥ 315 MPa	ISO 6892-1
Tensile Strength (Rm)	440–590 MPa	ISO 6892-1
Elongation (A50)	$\geq 22\%$	ISO 6892-1
Impact Toughness (-40°C)	≥ 46 J (transverse specimen)	ISO 148-1
Carbon Equivalent (CEV)	$\leq 0.38\%$ (IIW formula)	EN 1011-1
Delivery Condition	TMCP/TMCP+tempering (recommended), normalized	CCS/ABS/LR certification

EH32 Core Advantages

Polar Adaptability: Optional -60°C low-temperature impact testing for polar vessels (PC6/PC7 ice classes).

Efficient Welding: Compatible with E36/E40-grade welding materials; no preheating required (plate thickness $\leq 25\text{mm}$).

Lightweight Design: 15%-20% weight reduction vs. Grade A ship plates, lowering fuel consumption.

Full Certification: Batch-specific classification society 3.1/3.2 certificates (with UT inspection reports).

EH32 Typical Applications

Shipbuilding:

Large tanker deck longitudinals (12-40mm thickness).

LNG ship cargo tank secondary barrier support structures.

Offshore Engineering:

Jack-up rig legs (Z25-grade thick plates).

Jacket platform node reinforcement plates.

Special Vessels:

Bow ice belt zone of icebreakers (Ice Class 1A).

Sub-armor structures for military vessels.

EH32 Compliance & Certifications

International Classification Society Approvals: CCS (China), ABS (USA), LR (UK), DNV (Norway), GL (Germany).

Regulatory Compliance: Meets IMO *International Common Structural Rules for Bulk Carriers and Oil Tankers (CSR)*.

Special Certifications: Corrosion-resistant ship plate (CCS DH32), high heat-input welding plate (EH36-W).

EH32 Processing & Welding Guidelines

Cutting Methods:

Plasma Cutting: Suitable for plates $\leq 50\text{mm}$ (control cutting speed).

Laser Cutting: High-precision edges (tolerance $\pm 0.5\text{mm}$).

Welding Procedures:

Submerged Arc Welding (SAW): Use H08MnA wire + SJ101 flux (heat input $\leq 50\text{ kJ/cm}$).

CO₂ Gas Shielded Welding: Gas purity $\geq 99.95\%$ (Ar + 20% CO₂ mixture preferred).

Post-Weld Treatment: Stress relief at 600-650°C (mandatory for plates $\geq 50\text{mm}$).

Cold Working Limits:

Cold bending radius $\geq 3 \times$ plate thickness (avoid surface cracks).

Flame straightening prohibited; use mechanical correction.

EH32 Application Cases

300,000-ton VLCC tanker deck project

EH32 TMCP steel plate (plate thickness 28mm) is used, and the welded joint passes the CTOD test (critical crack opening displacement $\geq 0.25\text{mm}$), meeting the design requirement of 20-year fatigue life.

EH32 Ordering and Customization Service

General Specifications:

Thickness: 6-100mm (maximum thickness of Z-axis steel 150mm);

Width: 1800-4500mm (can roll ultra-wide plates);

Length: 6000-24000mm (cut to length).

Value-added Services:

Pre-coating shop primer (inorganic zinc silicate, salt spray resistance $\geq 720\text{h}$);

Provide welding process qualification (WPS/PQR) package;
Third-party NDT testing (UT/MT/RT).

EH32

For precise material selection, please provide the following information:
Target classification society specifications (such as CCS/ABS/DNV);
Structural position and plate thickness (whether Z-direction performance is required);
Special environmental requirements (low temperature, corrosion, fatigue load).

FAQ:

Q: What are the main differences between EH36 and EH32?

A: The yield strength of EH36 is $\geq 355\text{MPa}$, which is 10% higher than that of EH32 and is suitable for heavy-duty structures such as deep-water operating platforms.

Q: How to quickly detect the quality of steel plates?

A: The combined detection method of portable spectrometer (composition verification) + Leeb hardness tester (strength verification) can complete the initial inspection in 10 minutes.

