

Structural Steel Standards — Complete Reference for Global I-Beam & H-Beam Procurement

Table of Contents

- 1. Hot-Rolled I-Beam & H-Beam Standards
- 2. Industry Standards (STO)
- 3. Steel Plate Standards (Feedstock for Welded Beams)
- 4. Welded Beam Production Standards
- 5. Steel Quality & Composition Standards
- 6. Superseded Standards
- 7. Complete Standards Master Table
- 8. International Standards Cross-Reference
- 9. Standard Selection for Engineering Projects
- 10. Chinese GB Standards for Export Procurement
- 11. Metal Asia Compliance Services

1. Hot-Rolled I-Beam & H-Beam Standards

These standards define the geometric dimensions, mass tables, tolerances, and technical requirements for beams produced by hot rolling. Compliance with the correct standard is a contractual obligation in international steel procurement and a prerequisite for building permit approval in most jurisdictions.

1.1. GOST 35087-2024

Parameter	Specification
Full Title	Hot-rolled steel sections for building. I-beams with parallel flange surfaces. Dimensions
Status	Active (effective December 2024)
Supersedes	GOST R 57837-2017
Profile Type	Parallel flange surfaces
Beam Types	B (normal), Sh (wide-flange), K (column), D (additional)
Height Range	100 – 1,000 mm
Scope	Primary standard for new construction projects in CIS markets; reference standard for cross-border procurement

Procurement Note: GOST 35087-2024 is the current-generation standard. When sourcing from Chinese mills, specify GB/T 11263-2017 with dimensional tolerances meeting or exceeding GOST 35087 requirements.

1.2. GOST 26020-83

Parameter	Specification
Full Title	Hot-rolled steel sections for building. I-beams with parallel flange surfaces. Dimensions
Status	Active (legacy; widely used in existing specifications)
Profile Type	Parallel flange surfaces
Beam Types	B, Sh, K, D, U (narrow-flange)

Parameter	Specification
Height Range	100 – 1,000 mm
Flange Width Range	55 – 400 mm
Note	The most widely stocked and referenced standard in CIS-region distribution networks

1.3. GOST 8239-89

Parameter	Specification
Full Title	Hot-rolled steel sections. Steel I-beams. Dimensions
Status	Active
Profile Type	Tapered (sloped) inner flange surfaces
Inner Slope	6 – 12%
Precision Classes	Standard (V), Enhanced (B)
Scope	Traditional I-beams for general building construction; prevalent in retrofit and heritage projects

1.4. GOST 19425-74

Parameter	Specification
Full Title	Hot-rolled steel sections. Special I-beams. Dimensions
Status	Active
Profile Type	Special-purpose tapered flange beams
Beam Types	M (monorail), S (mine/shaft)
Slope — Type M	≤ 12%, reinforced flanges
Slope — Type S	Up to 16%
Scope	Overhead crane runways, mine shaft reinforcement, heavy industrial infrastructure

2. Industry Standards (STO)

STO ASChM 20-93

Parameter	Specification
Full Title	Hot-rolled steel I-beams with parallel flange surfaces for building. Technical specifications
Developer	Association of Ferrous Metallurgy Enterprises (ASChM)
Year	1994 (effective)
Status	Active
Alignment	Fully mirrors GOST 26020-83 dimensional tables; includes supplementary quality criteria for section geometry deviations
Scope	Additional normative basis for suppliers and manufacturers; frequently referenced in mill-specific technical delivery conditions

3. Steel Plate Standards (Feedstock for Welded Beams)

Welded beams are fabricated from hot-rolled steel plate. The following standards govern the plate feedstock used in beam fabrication.

3.1. GOST 19903-2015

Parameter	Specification
Full Title	Hot-rolled steel plate. Dimensions
Status	Active
Scope	Master dimensional standard for hot-rolled steel plate; defines permissible thickness, width, length, and flatness
Application	Plate feedstock for welded I-beam and H-beam fabrication

3.2. GOST 14637-89

Parameter	Specification
Full Title	Thick plate of ordinary quality carbon steel. Technical specifications
Material	Carbon steel (St3 grade family)
Application	Plate for welded beams in carbon steel construction

3.3. GOST 19281-2014

Parameter	Specification
Full Title	Products of steel increased strength. General technical specifications
Material	Low-alloy high-strength steel (09G2S and equivalents)
Application	Plate for welded beams requiring elevated strength or cold-climate performance

3.4. GOST 27772-2021

Parameter	Specification
Full Title	Structural steelwork products. General technical specifications
Strength Classes	C245, C255, C345, C355, C390, C440
Note	Master standard defining plate parameters by strength class; correlates directly to project design specifications

4. Welded Beam Production Standards

GOST R 58966-2020

Parameter	Specification
Full Title	Welded I-beams from steel plate. Technical specifications
Status	Active
Scope	Master standard for fabricated welded beam production; defines geometry, welding requirements, and acceptance criteria
Key Requirements	Full-penetration SAW welds; 100% UT inspection; post-weld straightening; dimensional tolerances

GOST 23118-2019

Parameter	Specification
Full Title	Steel building structures. General technical specifications
Status	Active
Scope	General rules for welding, geometry control, and acceptance of beam-type structural elements

5. Steel Quality & Composition Standards

GOST 380-2005

Parameter	Specification
Full Title	Ordinary quality carbon steel. Grades
Status	Active
Scope	Defines chemical composition and quality requirements for carbon structural steels (St3 family)

6. Superseded Standards

Superseded Standard	Superseded By	Year of Supersession
GOST R 57837-2017	GOST 35087-2024	2024
GOST 535-2005 (partial)	GOST 380-2005	2005

7. Complete Standards Master Table

No.	Standard	Full Title	Application	Status
1	GOST 35087-2024	Hot-rolled I-beams, parallel flange, dimensions	Primary assortment (new projects)	Active
2	GOST 26020-83	Hot-rolled I-beams, parallel flange, dimensions	Sortiment (legacy, widely stocked)	Active
3	GOST 8239-89	Hot-rolled I-beams, tapered flange, dimensions	Tapered I-beams	Active
4	GOST 19425-74	Special I-beams (M, S types), dimensions	Monorails, mining	Active
5	STO ASChM 20-93	I-beams, parallel flange, technical specifications	Supplementary quality criteria	Active
6	GOST 19903-2015	Hot-rolled plate, dimensions	Feedstock for welded beams	Active
7	GOST 14637-89	Carbon steel thick plate, specifications	Carbon steel welded beams	Active
8	GOST 19281-2014	Increased strength steel, specifications	High-strength welded beams	Active
9	GOST 27772-2021	Structural steelwork products	Plate by strength class	Active
10	GOST R 58966-2020	Welded I-beams from plate	Fabricated beam production	Active
11	GOST 23118-2019	Steel building structures, general specifications	Welding and acceptance rules	Active
12	GOST 380-2005	Carbon steel, grades	Steel composition and quality	Active
13	GOST R 57837-2017	I-beams, parallel flange, dimensions	Superseded by GOST 35087-2024	Superseded

8. International Standards Cross-Reference

European Standards (EN)

EN Standard	Title	GOST / GB/T Equivalent
EN 10025-2	Hot-rolled products of structural steels — Non-alloy	GOST 380, GB/T 700
EN 10025-3	Weldable fine grain structural steels — Normalized	GOST 19281, GB/T 1591
EN 10034	Structural steel I and H sections — Dimensions	GOST 26020, GOST 8239
EN 10365	Hot rolled steel channels, I and H sections	GOST 26020, GB/T 11263

American Standards (ASTM)

ASTM Standard	Title	GOST / GB/T Equivalent
ASTM A6/A6M	General requirements for rolled steel plates, shapes	GOST 26020, GOST 8239
ASTM A36/A36M	Carbon structural steel	GOST 380, GB/T 700
ASTM A572/A572M	High-strength low-alloy structural steel	GOST 19281, GB/T 1591
ASTM A992/A992M	Structural steel shapes	GOST 27772, GB/T 1591
AWS D1.1	Structural welding code — Steel	GOST 23118

Chinese Standards (GB/T)

GB/T Standard	Title	International Equivalent
GB/T 11263-2017	Hot-rolled H and I sections	GOST 26020, GOST 35087, EN 10365
GB/T 706-2016	Hot-rolled section steel	GOST 8239, EN 10034
GB/T 33814-2017	Welded H-section steel	GOST R 58966
GB/T 1591-2018	High strength low alloy structural steels	GOST 19281, ASTM A572
GB/T 700-2006	Carbon structural steels	GOST 380, ASTM A36
GB/T 709-2019	Dimensions, shape, weight and tolerances for plates	GOST 19903
GB/T 19879	Steel plate for building structures	GOST 27772

9. Standard Selection for Engineering Projects

The following decision matrix guides standard selection based on project parameters. Correct standard specification at the procurement stage eliminates costly substitutions and compliance issues downstream.

Project Parameter	Recommended Standard	Notes
New construction (2025+)	GOST 35087-2024	Current active standard
Replacement of existing structures	GOST 26020-83 or GOST 35087-2024	GOST 35087-2024 is fully dimensionally compatible with GOST 26020-83
Overhead crane runways	GOST 19425-74 (Type M)	Reinforced flanges for wheel loads
Mine shaft reinforcement	GOST 19425-74 (Type S)	Up to 16° inner slope
Custom welded beam fabrication	GOST R 58966-2020	Full technical delivery conditions
Steel quality verification	GOST 380-2005 (carbon) / GOST 19281-2014 (low-alloy)	Chemical and mechanical verification

Project Parameter	Recommended Standard	Notes
Plate feedstock procurement	GOST 19903-2015	Master dimensional standard

Cross-Border Compatibility Notes

- GOST 35087-2024 ↔ GOST 26020-83:** Fully compatible by geometric parameters. Profiles from either standard are interchangeable.
- GOST 8239-89 ↔ GOST 26020-83:** Different profile families (tapered vs. parallel flange). Not interchangeable without structural re-analysis.
- GOST 19425-74:** Independent standard for specialized applications. Type M and S beams are not covered by GOST 26020-83 or GOST 35087-2024.

10. Chinese GB Standards for Export Procurement

The EAEA (Eurasian Economic Area) operates under the unified GOST system. China's equivalent normative framework is the **GB (Guobiao)** system. While profile geometries are broadly similar, differences in flange thickness, web thickness, and fillet radius can range from 0.5 to 1.5 mm — sufficient to affect structural calculations. For additional guidance on [international steel sourcing and compliance](#), visit our FAQ section or [our business insights blog](#).

Dimensional Standards Mapping

GOST Standard	Chinese GB/T Equivalent	Profile Designation System
GOST 35087-2024 / GOST R 57837-2017	GB/T 11263-2017	HW (wide-flange), HM (medium), HN (narrow)
GOST 26020-83	GB/T 11263-2017	Geometrically close; load recalculation required
GOST 8239-89	GB/T 706-2016	I-beam designation (I20, I30, I40)
GOST 19425-74	YB/T 5055 / GB/T 706	Reinforced I-profiles or YB industry specials
GOST R 58966-2020	GB/T 33814-2017	Welded H-section fabrication standard

Plate Feedstock Standards Mapping

GOST Standard	Chinese GB/T Equivalent
GOST 19903-2015 (Hot-rolled plate)	GB/T 709-2019
GOST 14637-89 (Carbon steel plate)	GB/T 700-2006 + GB/T 709-2019
GOST 19281-2014 (High-strength plate)	GB/T 1591-2018
GOST 27772-2021 (Structural plate by class)	GB/T 1591-2018 + GB/T 19879

Steel Composition Standards Mapping

GOST Standard	Chinese GB/T Equivalent
GOST 380-2005 (Carbon steel composition)	GB/T 700-2006
GOST 19281-2014 (Low-alloy composition)	GB/T 1591-2018

Critical Procurement Notes

- Dimensional Variance:** Profile substitution between GOST and GB/T standards requires engineering verification. Flange and web thickness differences of 0.5–1.5 mm affect section properties and must be recalculated.
- Certification:** Chinese mills provide Mill Test Certificates (MTC) with mechanical properties correlated to GOST 27772 strength classes (C255, C355) or ASTM/EN equivalents for international projects.

Navigating multiple national standards (GOST, GB/T, ASTM, EN) is a core competence in international steel procurement. Metal Asia provides **standards compliance management** as an integral part of our procurement services.

Service	Description
Standard Cross-Reference	Full GOST ↔ GB/T ↔ ASTM ↔ EN mapping for your bill of materials
Substitution Analysis	Engineering assessment of GB/T profile substitutions for GOST-specified projects
MTC Translation	Chinese MTC translation and correlation to project specification standards
Third-Party Inspection	Independent inspection per ISO/IEC 17020 at mill prior to shipment
Regulatory Documentation	Certificate of Conformity, CE marking support, EAC certification guidance
Technical Delivery Conditions	Project-specific TDC development aligned with applicable standards

- Every profile verified against ordered standard before production
- Dimensional tolerance reports included with every shipment
- Full traceability: heat number → rolling sequence → shipping mark
- No substitution without written engineering approval
- Complete standards documentation package for customs and inspection

REQUEST A MILL AUDIT

- WhatsApp: +86 132 50100874
- Telegram: @China_metal_supply
- Email: zakaz@metal-asia.pw