



LIBERTY

CONTINUATION INQUIRY 505

Hot-Rolled Structural Steel Sections
exported from Korea, Taiwan and Thailand

EXPORTER VISIT BRIEFING

Melbourne

14 March 2019

libertygfg.com

MEMBER OF



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01 The Goods : shapes, applications, properties

02 Model Matching

03 Other matters/adjustments



Introduction :



[Confidential – Liberty personnel details]



01

THE GOODS

Shapes & Sizes

Applications

Important properties

The exported goods

ACRS

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LIBERTY STEEL

The Goods

Description



Hot rolled structural steel sections in the following shapes and sizes, whether or not containing alloys:

- universal beams (I sections), of a height greater than 130mm and less than 650mm;
- universal columns and universal bearing piles (H sections), of a height greater than 130mm and less than 650mm;
- channels (U sections and C sections) of a height greater than 130mm and less than 400mm; and
- equal and unequal angles (L sections), with a combined leg length of greater than 200mm.

Sections and/or shapes in the dimensions described above, that have minimal processing, such as cutting, drilling or painting do not exclude the goods.

Goods excluded are:

- hot rolled 'T' shaped sections, sheet pile sections and hot rolled merchant bar shaped sections, such as rounds, squares, flats, hexagons, sleepers and rails; and
- sections manufactured from welded plate (e.g. welded beams and welded columns)

The Goods

Shapes and Sizes



Product	Size range (mm)	Section
Equal Angles	125x125x8 to 200x200x26*	
Unequal Angles	150x90x8 to 150x100x12*	
Parallel Flange Channels	150x75 to 380x100*	
Universal Beams	150x75 to 612x229	
Universal Columns	97x99 to 327x311	

The Goods

Production: [Producer name]



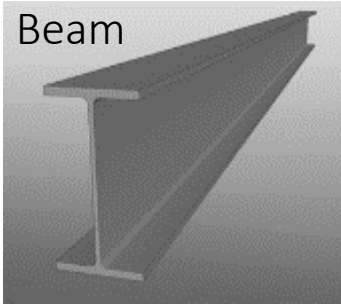
*[Schematic – H-beam manufacturing flowchart
Subject to copyright]*

The Goods

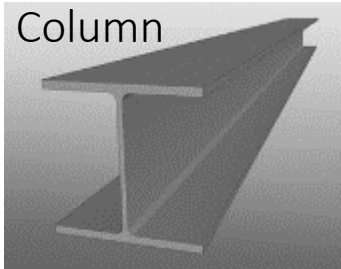
Applications



Beam



Column



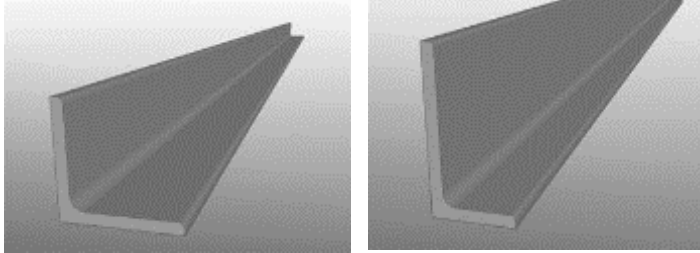
- Structural steel is generally used to form the 'skeleton' or framework of a building or structure, typically with columns and beams welded, riveted or bolted together.

The Goods

Applications

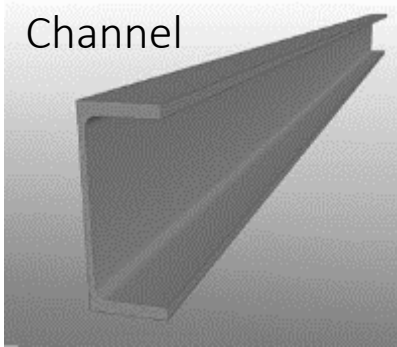


Angles



- ▶ Equal angles (legs of same length) most often used for balconies, stairs, concrete supports & platforms.
- ▶ Unequal angles (longer vertical leg) often used as lintels due to greater loading capabilities.

Channel



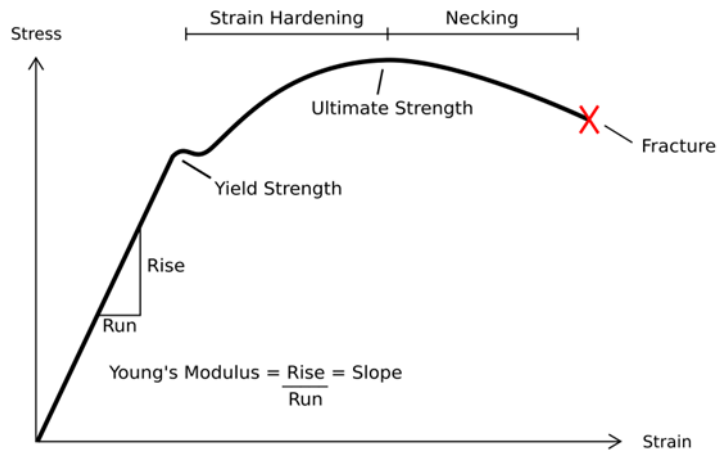
The Goods

Important properties : Minimum Yield Strength



SteelConstruction.info

The free encyclopedia for UK steel construction information



“**Product standards** define the limits for composition, quality and performance and these limits are used or presumed by structural designers.”

“**Yield strength** is the most common property that the designer will need as **it is the basis used for most of the rules given in design codes**. In European Standards for structural carbon steels, the primary designation relates to the yield strength, e.g. S355 steel is a structural steel with a specified minimum yield strength of 355 N/mm². The **product standards** also specify the permitted range of values for the ultimate tensile strength (UTS). The minimum UTS is relevant to some aspects of design.”

The Goods

Important properties : Chemistry control for welding



SteelConstruction.info

The free encyclopedia for UK steel construction information

- ▶ “All structural steels are essentially weldable. However, welding involves locally melting the steel, which subsequently cools. The cooling can be quite fast because the surrounding material, e.g. the beam, offers a large 'heat sink' and the weld (and the heat introduced) is usually relatively small. This can lead to hardening of the 'heat affected zone' (HAZ) and to reduced toughness. The greater the thickness of material, the greater the reduction of toughness.
- ▶ The susceptibility to embrittlement also depends on the alloying elements principally, but not exclusively, the carbon content. This susceptibility can be expressed as the 'Carbon Equivalent Value' (CEV), and the various product standards for carbon steels standard give expressions for determining this value.”

$$CE = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

For electric arc furnace steel producers, the requirement to meet the chemistry control for welding (CE) means additional cost – “clean” scrap with low residual element levels is required

The Goods

Exported to Australia



*[Subject to copyright –
purchased Standard
AS/NZS 3679.1 extract]*

*[Subject to copyright –
purchased Standard
AS/NZS 3679.1 extract]*

Goods exported to Australia:

- Produced to AS/NZS 3679.1:2016
- All grades specified are suitable for welding in accordance with AS/NZS 1554: Structural Steel Welding
- Chemistry control for welding achieved through a maximum Carbon Equivalent specification (0.44max for Grade 300)
- Minimum yield strength 280-320MPa and tensile strength 440MPa for Grade 300

The Goods

Australasian Certification Authority for Reinforcing and Structural Steels (ACRS)



*[ACRS certificate extract –
subject to copyright]*

Goods exported to Australia:

- Likely have ACRS accreditation to be able to sell in any significant volume for structural applications.
 - ACRS Provides reassurance that the goods will meet ALL requirements of AS/NZS 3679.1
 - CE requirement has been met and the sections are readily weldable to known welding procedures

The Goods

Australasian Certification Authority for Reinforcing and Structural Steels (ACRS)



[ACRS certificate extracts – subject to copyright]



02

MODEL MATCHING

Important criteria

Approach to model matching

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Model Matching

Criteria



- **Shape**
- **Size**
- **Grade**
 - Minimum yield strength (as specified by Standard)
 - Chemistry control for welding (carbon equivalent value specified by Standard OR maximums specified for chemical elements particularly carbon, silicon and manganese)

[Comment on comparison for model matching]

[Commercial customer information]

[Commercial customer information]

[Commercial customer information]

Model matching : Standards comparison

Tung Ho Submission EPR499/008



Identifier	Sub-category
2	Carbon steel for general structure (SS400, A36, A709G36, 3679G300 , G300S0, S235JR, S275JR, S275J0, ABSGA)
4	Carbon steel for welded structure (SM400A, SM400B)
5	Alloy steel for welded structure (SM490A, SM490B, SM490BD, SM490BM, SM490YA, A572Gr50, A572G50A, A572G50B, A992, A992M, A709G50, G350L0, S355JR, S355J0, S355J2, S450J0, BVAH32)
6	Carbon steel for building structure (SN400A, SN400B, SN400BF)
7	Alloy steel for building structure (SN490B, SN490BD, SN490C)

- Incorrect classification of 3679G300 – for welded structure, not general structure.
- SS-grades – for general structure, no chemistry control required (no CE or maximums for C, Si, Mn)
- SM-grades – for welding, must control chemistry (limits on elements C, Si, Mn or has CE)

[Comment on approaches to forensic examination – operationally sensitive]

The above have been verified by the Commission's verification teams in the original investigation and subsequent review of measures inquiry, together with subject of numerous submissions to counter opportunistic attempts by the applicant to have higher value/cost goods compared to goods exported to Australia.

[Subject to copyright]

[Subject to copyright]

Model matching : Standards comparison

Changes to Korean Standards from 1 January 2018



Korean Iron and Steel Association advised on 2016.12.29:

“In order to support the strengthening of the export competitiveness of domestic enterprises, the National Technical Standards Agency (KDNO) issued the Korean Industrial Standards revised notification on Dec. 5, 2016 for 24 kinds of construction steel.”

http://kosa.or.kr/statistics/slssue_view_2013.jsp?index=7746

Notification No. 2016-602 of the National Institute of Standards and Technology published in the Republic of Korea Official Gazette No. 18918 (Part 2) 2016.12.30

2016 and 2014 version of KS D 3503 and KS D 3515 to be applied concurrently from 1 January to 31 December 2017. From 1 January 2018, 2016 version to apply.

- ① (시행일) 이 고시는 2017년 1월 1일부터 시행한다.
- ② KS D 3503:2016(일반 구조용 압연강재)은 KS D 3503:2014(일반 구조용 압연강재)와 2017년 12월 31까지 병행 적용하고 2018년 1월 1일 부터는 KS D 3503:2016을 적용한다.
- ③ KS D 3515:2016(용접 구조용 압연강재)은 KS D 3515:2014(용접 구조용 압연강재)와 2017년 12월 31까지 병행 적용하고 2018년 1월 1일 부터는 KS D 3515:2016을 적용한다.



Structural Steel – Are You Getting What You Need?

or “When Grade A is not A-grade”

Engineers Australia, Risk Engineering Society
Brisbane, 27 October 2015



“Grading by selection”

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- ❖ Attempts by a supplier (onseller) to sell a batch of steel as compliant with a given grade:
 - Based only on the results of some tensile tests
 - Without a manufacturer’s mill certificate certifying that their product satisfies all requirements of the standard grade (e.g. AS/NZS 3679.1 - Grade 350)
- ❖ Two forms of this practice:
 - Grading by test: Supplier does not have a mill certificate, but has obtained some tensile tests from the batch
 - Up-grading: Supplier has a manufacturer’s mill certificate stating one strength grade (e.g. grade 300) but supplier claims that the actual batch meets the requirements of a higher strength grade (e.g. grade 350)

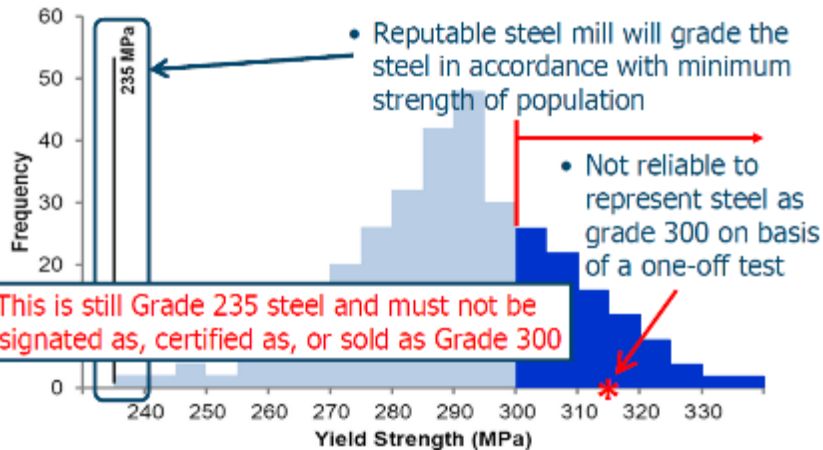
Model Matching

Establishing Grade

Grading by test

❖ In a typical steel mill, single heat 100+ tonnes

- Rolled to give ~3000m of product
- Statistical distribution of strengths



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Up-grading

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- ❖ Supplier has a manufacturer's mill certificate stating one strength grade (e.g. grade 300)
- ❖ But tensile test values on that certificate suggest that the batch might meet the requirements of a higher strength grade (e.g. grade 350)

higher strength

STEELMAKING: Basic Oxygen - Slab Cast
SPECIFICATION: AS/NZS 3679.1-300
PRODUCT: 410UB58.7

This is Grade 300 steel

MECHANICAL TESTING
Tensile

Item No	Heat No	Tested Unit	NATA Lab	Test Report	Yield MPa	Tm MPa	ELONGN %
1808C	517049	517049	0794	51643	375	530	35
1808C	517049	517049	0794	51643	380	530	34
1808C	517050	517050	0794	51643	365	530	36
1808C	517050	517050	0794	51643	370	530	36
1808C	517050	517050	0794	51643	365	510	36
1808C	517050	517050	0794	51643	365	500	34

"All six YS values are above 350 MPa, so can I design it as Grade 350 steel?"

elements of nominated product standard

Model Matching : Standards comparison



Review of Anti-Dumping Measures report into hot rolled structural steel sections from Korea, Trade Measures Report No 79 August 2004

“That review observed that the exports to Australia were grade RL and the domestic grades were SB and SK (HK).”

Grade	Standard	Specificat ion	Mpa
RL	AS 3679.1		280 – 320
SB	KS D 3503	SS 400	215 - 245
HK	KS D 3515	SM 490A	285 – 325

“Customs found the specifications of the exported grade RL and domestic grade HK to be very similar, and considers the grade **HK is the most appropriate for comparison with the exported grade RL**. Customs calculated normal values using domestic sales of only grade HK.”



03 OTHER

Date of sale
Adjustments

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Date of sale



Hyundai

Hyundai Steel claims and reports the sales order date as the date of sale, being the date of the Australian sales transactions that best establishes the material terms of the sale of the exported goods, under Section 269TAF(1) of the *Customs Act 1901*.

(b) Why does this date best reflect the material terms of sale?

Hyundai Steel considers the sales order date is the most appropriate date of sale as it best reflects the time at which the material terms of the contract (being the contract terms relating to price and quantity of the sale) are established.

Tung Ho

The invoice date will normally be taken to be the date of sale. If you are making a claim that a different date should be taken as the date of sale:

- (a) What date are you claiming as the date of sale?
- (b) Why does this date best reflects the material terms of sale?

Response:

This question is not applicable since our invoice date will be taken to be the date of sale.

- Disclosure for all exporters
- Invoice date is most appropriate [REDACTED]

[REDACTED]

[Commercially sensitive market intelligence]

Adjustments

Australasian Certification Authority for Reinforcing and Structural Steels (ACRS)



[ACRS scheme costs – subject to copyright]

- ACRS Accreditation costs apply only to the export goods made to AS/NZS 3679.1
- If no similar costs are incurred for the domestically sold grades, an adjustment is needed.

Other adjustments



[Commercially sensitive market intelligence]



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THANK YOU

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