

# Product and Delivery information

## Oxelösund Site



**SSAB**



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# Presentation

SSAB EMEA in Oxelösund produce general construction steels that conform to most international and national standards steels for offshore and shipping conforming to rules of international classification societies and pressure vessel steels.

All the steels mentioned above can be supplied with guaranteed properties in the through thickness direction, Z-plate according to EN 10164. For pressure vessel steel and offshore/shipping steel, unless otherwise agreed, the maximum thickness is 75 mm. For structural steel with a yield strength up to 400 MPa the thickness limits are as follows; Z15 up to 100 mm, Z25 up to 90 mm and Z35 up to 80 mm.

Structural steels with yield strength up to 500 MPa are supplied mainly in as-rolled, normalized or thermo mechanically rolled condition. EN 10225 is the standard that specifies the requirements for weldable structural steels for use in stationary offshore installations. The standard covers plate up to 150 mm thick with yield strengths between 355 and 460 MPa. The allowed delivery conditions are N, M and Q depending on the strength level. For pressure steels SSAB EMEA has an approval from TÜV to produce plates according to PED (Pressure Equipment Directive 97/23/EC).

On Pages 6–8 in this brochure you will find three tables showing comparable information between EN and ASTM standards and also several classification societies.

## **Table 1 - Structural steel**

Shows the most common structural steels in comparable groups in accordance with European standards EN and ASTM.

## **Table 2 - Offshore steels and ship plates**

Shows the most common ship plate grade, in comparable steel groups for various classification societies.

## **Table 3 - Pressure vessel steel**

Shows the most common pressure vessel steels in comparable steel groups for EN and ASTM.

# Industrial, commercial and high strength steel plate

Dimension program is available at [www.ssab.com](http://www.ssab.com). For more information regarding dimension, please contact your local sales person or Tech Support, [techsupport@ssab.com](mailto:techsupport@ssab.com).

## Dimensions available

As a general rule, plate that exceeds one of the following limit values of weight or dimensions can be supplied only subject to special agreement.

Weight:	11 t
Thickness:	4 - 160 mm
Length:	2000 - 18 000 mm
width:	1000 - 3350 mm

## Minimum quantities per item

The minimum quantity per item of plate rolled to order is:

Thickness (mm)	Min quantity weight
5.0 - 60.0	2.5 t
60.1 - 100.0	3.5 t
100.1 - 120.0	4.0 t
120.1 -	5.0 t

Smaller quantities can be supplied after agreement.

# Oxelösund and standardized structural steels in equivalent steel groups

Table 1 - Structural steel

Main group	Yield strength class (Mpa)	Toughness class Charp V (°C)	EN 10 025-2	EN 10 025-3	EN 10 025-4	ASTM Toughness Class as per ASTM A6
Comercial steel	- 255	+ 20	S 235 JR (S 235 JRG2)			A 283 C A 283 D
		± 0	S 235 J0			A 36
		- 20	S 235 J2 (S235 J2G3) (S235 J2G4)			A 573-58 A 573-65
	260 - 300	+ 20	S 275 JR			A 572-42
		± 0	S 275 J0	S 275 N		A 537-70
		- 20	S275 J2 (S 275 J2G3) (S 275 J2G4)			A 633 A
		- 50		S 275 NL		
High strength steel	345 - 375	+ 20	S 355 JR			
		± 0	S 355 J0			A 633 C A 633 D
		- 20	S 355 J2 (S 355 J2G3) (S355 J2G4)	S 355 N	S 355 M	A 572-50
			S 355 K2 (S 355 K2G3) S 355 K2G4)			
		- 50		S 355 NL	S 355 ML	

# Oxelösund steels and standardized ship plate in equivalent steel groups

Table 2 - Offshore steels and ship plates

Main group Class	Yield strength (Mpa)	Toughness class Charp V (°C)	ABS American Bureau of shipping	ABS Offshore	DNV Det Norske Veritas Lloyd	LR Lloyd's Register of Shipping
Comercial steel	235	+ 20 ± 0 - 20 - 40	A B D E		A B D E	A B D E
	265	± 0			A 27 S	AH 27 S
High strength steel		- 20 - 40			D 27 S E 27 S	DH 27 S Eh 27 S FH 27 S
	315	± 0 - 20 - 40	AH 32 DH 32 EH 32		A 32 D 32 E 32	AH 32 DH 32 EH 32 FH 32
	355	± 0 - 20 - 40	AH 36 DH 36 EH 36 FH 36		A 36 D 36 E 36	AH 36 DH 36 EH 36 FH 36
	390	± 0 - 20 - 40 - 60	AH 40 DH 40 EH 40		A 40 D 40 E 40	AH 40 DH 40 EH 40 FH 40
Extra high strenght steels	420	± 0 - 20 - 40 - 60				AH 42 DH 42 EH 42 FH 42
	460	± 0 - 20 - 40 - 60			A 460 D 460 E 460	AH 46 DH 46 EH 46 FH 46
	500	± 0 - 20 - 40 - 60			A 500 D 500 E 500	AH 50 DH 50 EH 50 FH 50
	550	± 0 - 20 - 40 - 60			A 550 D 550 E 550	AH 55 DH 55 EH 55 FH 55
	620	± 0 - 20 - 40 - 60			A 620 D 620 E 620	AH 62 DH 62 EG 62 EH 62
	690	± 0 - 20 - 40 - 60			A 690 D 690 E 690	AH 69 DH 69 EH 69 FH 69

# Oxelösund and standardized pressure vessels steel in equivalent steel groups

Table 3 - Pressure vessel steel

Main group Class	SSAB Oxelösund	Yield strength class (MPa)	EN 10 028-2	EN 10 028-3	(EN 10 028-5 M-steel) <sup>1)</sup> EN 10 028-6 Q-steel	ASTM Toughness class as per ASTM A20
Comercial steel		- 255	P 253 GH			A 285 C A 516-55 A 516-60  A 516-65  A 516-70
		260 - 300	P 265 GH  P 295 GH	P 275 NH P 275 NL1 P 275 NL2		A 662 A A 662 B  A 663 C
		305 - 340				A 738 A
High strength steel		345 - 375		P 355 N P 355 NH  P 355 NL1 P 355 NL2	(P355 M)  (P 420 ML1) (P 420 ML2)	A 737 B
		420			(P 420 M) (P 420 ML1) (P 420ML2)	
Extra high strength steels		460			(P 460 M) P 460 Q, -QH (P 460 ML1) P 460 QL1 (P 460 ML2) P 460 QL2	
	SSAB Domex 500 PC SSAB Domex 500 PD SSAB Domex 500 PE	500			P 500 Q-QH P 500 QL1 P 500 QL2	

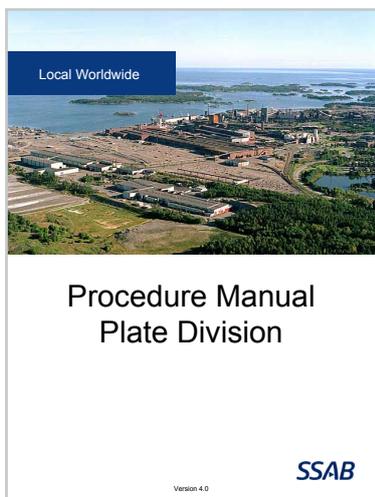
<sup>1)</sup> Thermomechanically rolled steels are not generally considered to meet the provisions of the PED for use in pressurized equipment.

# Management system

Unless otherwise agreed, delivery and inspection are subject to the technical provisions of EN 10 021.

## Quality management system in accordance with EN ISO 9001:2015

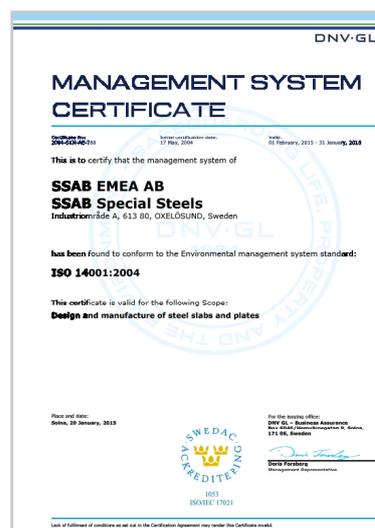
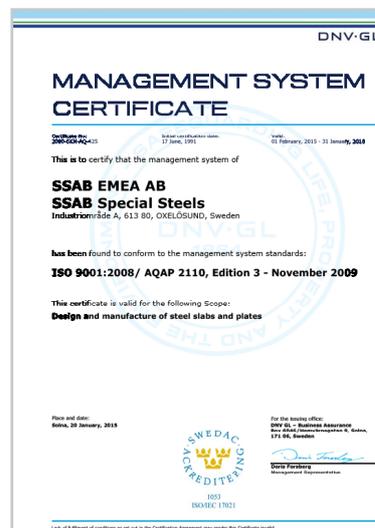
The quality management system at SSAB is based on EN ISO 9001:2015 and is described in our "Operational Manual for Quality and Environment". The system is certified by an accredited inspection body, and it is also certified in accordance with AQAP 2110:3.



## CE marking

We conform to the requirements for CE marking according to the provisions of the EU Construction Products Regulation (89/106/EEC).

The approval, which has been issued by TÜV-NORD, applies to products made to EN 10025-1 and -6, and also covers Strenx 700, Strenx 900 and Strenx 960.



# Marking

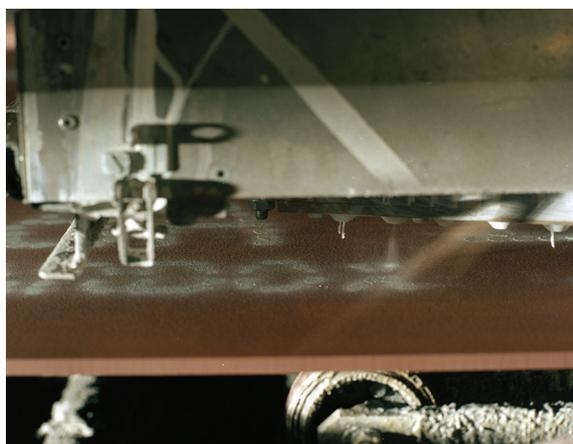
All plate is clearly marked on delivery. The OX mark, the steel grade and the plate identity are stamped, unless the relevant standard specifies no stamping or after special agreement. For plate thicknesses of 5 mm or below and if stamping is not carried out for any other reason, stamping is replaced by marking with white paint

**The plate identity is specified by two digit group** 5 or 6 digits, representing the heat number, + 6 digits that represent the plate serial number. These two groups of digits give every plate a unique identity.

Example of plate identity: 12345-123456 or 012345-123456.

If required or if so decided by us, the location of the stamped marking can be shown by two white-paint dots.

Stamping is always carried out at right angles to the direction of rolling. Marking with paint may be carried out in the direction of rolling. On plate that is not stamped, the direction of rolling is therefore shown by a painted arrow. A painted arrow can also be shown on stamped plates.



The customer's mark, plate dimensions of length, width and thickness, and the serial number of the plate, the batch number, and the in-house pile number are painted on the plate as required by means of white paint or with a dark ink jet.

Stamping and marking with paint are carried out by machine or manually. When done by machine, all marking with paint is carried out by dot-matrix printing, and stamping is carried out by means of rounded stamps.

## Brand marking

In order to keep traceability of the material at the destination, our plate is marked as follows, unless otherwise agreed: Painted plate is normally marked in a number of rows over the whole of the plate surface. Unless otherwise agreed, a simplified steel grade designation and SSAB are painted. The plate identity number can also be marked in rows over the plate surface.

Note that the complete steel grade designation in accordance with the standard/data sheet or specification is stamped or is included in the paint marking.



# Anti-corrosion painting

Unprotected steel plate will corrode. SSAB can therefore provide the plate with effective anti-corrosion treatment known as shop primer. This protects the plate while it is in transit.

Different primer types and different protective action times can be chosen. Our alternatives provide protection against corrosion for 3 or 6 months. If better welding or laser-cutting properties are required, a thinner coat and thus a shorter protection time can be specified.

The primer types we use have been tested by various institutes to ensure good working conditions for the end user. If good ventilation is provided, the hygienic limit values will not be exceeded in conjunction with welding, cutting or grinding.

Regardless of the anti-corrosion treatment specified, the appearance and cleanliness of the steel surface before treatment are decisive to the effectiveness of the anti-corrosion treatment. We shot-blast the plate which is then immediately anti-corrosion painted. The primers used are mainly of low-zinc silicate type.

The plate we keep in stock is painted with low-zinc silicate primer, since it does not need to be removed before normal welding.

In order to provide visual distinction, our steel grades are painted in different colors.

Hardox is primed with a red color and all other grades in grey if nothing else is agreed.

Before selecting the final paint system, the relevant paint supplier should be consulted.

## Shopprimers

Typ	Colour	Protection time	Remarks
Low zinc	red, grey	3 months	Improved cutting properties and weldability
Low zinc	red, grey	6 months	
Ceramic	red, grey	6 months	High temperatures

Other primer types are available subject to special agreement. Degree of blasting SA 2.5 as per ISO 8501-1:2001.

## Dimensions of shot blast/painted plate

- Thickness: 3 – 102 mm
- Length: 2000 – 14500 mm
- Width: 1000 – 3350 mm



# Logistics

In our delivery standard, we want to present the rules that guide the work of pallet make-up and what options are available.

The aim of the standard is to build the pallets in such a way that handling damage will be avoided to the greatest extent possible, and that we can create cost-effective and manageable volumes.

In deliveries in which SSAB is responsible for loading, the goods are always secured in accordance with the laws and regulations in force at that time. In order to regulate who will be paying for freight and insurance, we apply the following delivery conditions: DDP as per Incoterms 2000. FCA, CIF, CIF landed, and FOB.

## Concepts

Pallet	A form of packaging. The pallets are separated with timber spacers measuring 63 x 90 mm or 90 x 90 mm.
Stack	Part-load on a pallet. Separated from other stacks by timber spacers measuring 32 x 32 mm.
Pallet label	Secured to the top plate on a pallet, with information on the pallet number in legible text, bar code, painted colour code, quantity, weight, and the identity of the top plate.
Colour	Painted colour coding on the short and/or coding long side of the plate for delivery by sea.
Short plate	Plate <6100 mm long.

## General pallet rules

- The maximum pallet weight is 12 tonnes.
- Short and long plates are never loaded on the same pallet.
- Thick and thin plates are never loaded on the same pallet.
- Painted and unpainted plates are never loaded on the same pallet.
- The widest plate is always at the bottom on the pallet.

- Graduated width loading (widest plate on the pallet, gradually diminishing to the narrowest at the top) is employed for plate thicknesses <30.1 mm.
- Random length loading (plates of different lengths are loaded in random order) is employed.
- Some thin plate may be strapped.
- Magnetic pallet label as shown in the picture.

## Options

- Strapping with steel straps round both the pallet and the stack. 6099 mm maximum plate length.
- Stack weights as agreed.
- Pallet weights as agreed.
- Special colour coding.
- Delivery codes outside the standard.
- Other requirements on dimensional separation.

## Optional marking

- On the top plate on a pallet or stack. Up to 3 lines with 21 characters (manuell marking)\* stack, up to 3 lines.
- Edge label attached on the thickness surface of the short side. Available in three variants with different information about the plate. Edge label possible above 8 mm thickness.

\* Carried out free of charge, if required.



# Service and support

SSAB has an extensive service and support offer.

We have a long tradition of helping customers to develop their steel products and processes with our unique knowledge. Unlike other steel mills SSAB offers two different services, Tech Support and Knowledge Service Center. We offer technical and innovation support as well as technical training, handbooks and tools.

SSAB offers advanced logistic solutions, including stock services world-wide, mill-direct deliveries, processing and logistics management solutions.

## Contact information

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[contact@ssab.com](mailto:contact@ssab.com)

SSAB is a Nordic and US-based steel company. SSAB offers value added products and services developed in close cooperation with its customers to create a stronger, lighter and more sustainable world.

SSAB has employees in over 50 countries. SSAB has production facilities in Sweden, Finland and the US. SSAB is listed on the NASDAQ OMX Nordic Exchange in Stockholm and has a secondary listing on the NASDAQ OMX in Helsinki.

For more information, contact us or visit [www.ssab.com](http://www.ssab.com)

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The SSAB logo consists of the letters 'SSAB' in a bold, blue, sans-serif font. The 'S' and 'A' are connected, and the 'B' has a distinctive shape with a vertical bar on its right side.