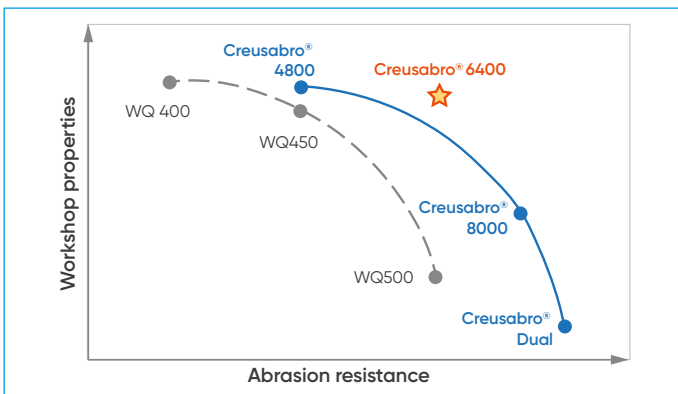


Industeel

Creusabro® 6400



Creusabro® 6400 : the best combination between wear resistance and formability



Creusabro® 6400 has been developed to meet all situation where improved wear resistance is required keeping the same formability and easy process-ability in the workshop as classical 450 HB plates.

Creusabro® 6400 is designed without compromise on toughness, and a hardening effect allowing comparison with 500/550 HB martensitic steels.

Metallurgical concept

Besides the 4800 and 8000 grades, **Creusabro® 6400** is genuinely different than classical low alloyed martensitic abrasion resistant plates. The original chemical composition and the soft quenching rates used in the mill fabrication process develop a uniform through-hardened plate having a multiphase microstructure with retained austenite. This unique metallurgical combination enhances the capacity of surface exposed to wear to increase its hardness up to +70 HB under the action of local plastic deformations caused by impact with rocks or pressure by the abrasive particles. This is known as TRIP-effect (Transformation Induced Plasticity).

Properties

Standards

Creusabro® 6400 is a proprietary grade and registered trademark developed by Industeel. There exists no product standard plates intended for wear resistant applications.

Chemical Analysis - Ladle analysis in weight % (Max. values).

C	S	P	Mn	Ni	Cr	Mo
≤ 0.22	≤ 0.003	≤ 0.02	≤ 4.2	≤ 0.25	≤ 0.25	≤ 0.2

Mechanical Properties

	Hardness (HBW)	Tensile properties			CVN-impact longitudinal -20°C
		YS 0.2% (MPa)	UTS (MPa)	Total Elong. (%)	
Typical	460 ⁽²⁾ → 530 ⁽³⁾	1000	1450	12	50
Specification	425 – 490 ⁽¹⁾	-	-	-	> 27 ⁽⁴⁾

(1) HBW Brinell hardness measured according to ASTM A370, on a milled or ground surface below the decarburized layer typically 0,2–3 mm depending on plate thickness; (2) as-delivered; (3) after work-hardening; (4) for plates up to 30 mm only. Impact testing not performed by the manufacturer; no test value reported in the mill certificate.

Bending properties

For plates up to t = 30 mm, recommended minimum bending radius and die opening are summarized in the following table. **Creusabro® 6400** is a highly hardening steel (up to 550 HB), therefore grinding the heat affected zone is mandatory. More severe radius can be reached under specific preparation (consult us).

	Min internal bending radius	Min die opening
Perpendicular to the plate rolling direction	3.5 t	14 t
Parallel to the plate rolling direction	4.5 t	16 t



Cutting

All thermal processes (oxygen - plasma - laser) can be used. Same usual preheating measures as 450 HB must be respected. Water jet cutting is highly recommended as it reduces the Heat affected Zone.

Shearing is not recommended.

Dimensional program

The thicknesses range of **Creusabro® 6400** extends from 5 to 100 mm, available from standard plate sizes, typically 6000, 8000 or 12000 mm long and 2000 or 2500 mm width. Tailored dimensions are available upon inquiry within the limits given in the following table.

Thickness (mm)			Min Width (mm)	Max Width (mm)	Min Length (mm)	Max Length (mm)	Max unit plate weight (t)
5	to	5.99	1200	2 000	4 000	13 000	12.5
6	to	8.99		2 500			
9	to	11.99		3 100			
12	to	24.99		3 800		14 000	
25	to	40		3 800			
41	to	100	1500	3 000	3 000	10 000	20

Delivery conditions

Creusabro® 6400 is supplied in the “as-quenched” condition.

The plates are produced by low CO2 process in Belgium and France from electric arc furnace, ladle refining and vacuum degassing. The use of scrap recycling and medium manganese content instead of expensive alloying elements such as molybdenum or nickel contribute to reducing the consumption of energy and critical raw materials.

Your contacts

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Technical data and information are to the best of our knowledge at the time of editing. However, they may be subject to some slight variations due to our ongoing research programme on steels. Therefore, we suggest that information be verified at time of enquiry or order. Furthermore, in service, real conditions are specific for each application. The data presented here are only for the purpose of description, and considered as guarantees when written formal approval has been delivered by our company. Further information may be obtained from the address opposite.