DOMEX®
HIGH STRENGTH STEEL

DATA SHEET: 09-09-08 GB8442DOMEX

Domex Wear 400
Hot rolled abrasion resistant steel

PRODUCT

Domex Wear 400 is a quenched wear resistant steel. The material's chemical composition is specially developed for our modern plant where the heating, rolling and cooling processes are carefully controlled. Due to the iron ore based metallurgy in combination with an advanced production process, Domex Wear 400 is not only a martensitic abrasion resistant material, but also a material that shows good bending properties, high impact toughness and is very easy to weld.

APPLICATIONS

Domex Wear 400 is well suited for applications subjected to abrasion wear that also requires high material strength and impact toughness. Typical applications are: pipes for grain, abrasive slurry or concrete pumps, conveyers, truck bodies, feeders, loader buckets, concrete mixers, timber grapples, etc.

MECHANICAL PROPERTIES

Hardness min - max HBW	Yield Strength Rp 0,2, typical MPa (N/ mm2)	Ultimate Tensile Strength Rm, typical MPa (N/ mm2)	Elongation A5, typical %
360 - 420	1000	1250	10

The tensile test is performed along the rolling direction.

TESTING

The hardness is tested according to EN ISO 6506-1, Brinell hardness test.

DIMENSIONS

Domex Wear 400 is available in the following range of sizes:

Thickness mm	Width mm	Length mm
3,00 - 6,00	1260	1500 - 13000
3,00 - 6,00	1500	1500 - 13000
4,00 - 6,00	1600	1500 - 13000

Cut-to-length with mill edge only.

DELIVERY CONDITIONS

Domex Wear 400 is delivered quenched.

IMPACT TOUGHNESS

The stated impact toughness for Domex Wear 400 is a typical value for 6 mm material thickness, tested as Charpy V-notch test, on a longitudinal test specimen, in accordance with EN 10045-1.

Test temperature Degrees Celsius	Impact energy Joule/cm2
- 40°C	44

Note: 44 Joule/cm² corresponds to approximately 35 Joule for a full size Charpy V-notch test specimen

BENDING

Minimum recommended punch radius is 3,0 x material thickness for a 90° bend in any direction. The inner bending radius will normally be equal to, or smaller than, the used punch radius.

HEAT TREATMENT AND FABRICATION

Domex Wear 400 has obtained its mechanical properties by a quenching process and is not suited for applications requiring hot working or heat treatments at temperatures above 200° C since the material then may lose its guaranteed properties. The material is not suited for pickling since this may cause hydrogen embrittlement.

TOLERANCES

The tolerances conform to EN 10051. More narrow tolerances are available on request.

SURFACE CONDITION

Domex Wear 400 is supplied as black material, i.e. a thin layer of iron oxide.

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CHEMICAL COMPOSITON

C % max	Si % max	Mn % max	P % max	S % max	B % max	CEV % typical	CET % typical
0.17	0.50	1.60	0.020	0,005	0.004	0.40	0.27

The steel is grain refined.
In addition Nb, V, Cr, Mo, Ni, Ti may be used.

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

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

WELDING

The low contents of carbon, phosphorus and sulphur enable all conventional welding methods to be readily used for Domex Wear 400.
Domex Wear 400 has low carbon equivalent relative its strength.

As a result of the lean chemistry, no preheating is necessary when welding.

To reduce the risk of hydrogen embrittlement, filler materials which give a hydrogen content of maximum 5 ml/100 gram in the weld metal are recommended.

EXAMPLES OF RECOMMENDED FILLER MATERIALS ARE

Filler material Yield strength	MMA Manual metal arc	SAW Submerged arc welding	MIG/MAG Gas metal arc	FCAW Flux cored arc welding
480 MPA	AWS: A5.1	AWS: A5.17	AWS: A5.17	AWS: A5.20
	E 7018	F 7AX-EX	ER 70S-X	E 7XT-X
620 MPA	AWS: A5.5	AWS: A5.23	AWS: A5.28	AWS: A5.29
	E 9018	F 9AX-EX	ER 90S-X	E 9XT-X
760 MPA	AWS: A5.5	AWS: A5.23	AWS: A5.28	AWS: A5.29
	E 11018	F 11AX-EX	ER 110S-X	E 11XT-X

Note: X stands for one or more characters

For more detailed information regarding welding, please contact our Knowledge Service Center.

TECHNICAL SERVICE AND INFORMATION

Knowledge Service Center will be pleased to assist with additional information regarding Domex Wear 400 and other products from SSAB Swedish Steel.

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