

Hot rolled, extra high strength, cold forming steel Domex 700 MC

PRODUCT

All Domex cold forming steels are produced in modern plants under carefully controlled, computerized conditions. Low carbon and manganese contents, together with small additives of grain refiners, such as niobium and/or titanium and an otherwise very pure steel provide the good metallurgical conditions for the ultimate properties of the steels. Compared to the high strength cold forming steels, these steels have somewhat higher contents of niobium, titanium and/or vanadium micro-alloying elements. A further contributory factor to the good properties of the steels is the thermo-mechanical rolling, with its very carefully controlled heating, rolling and cooling sequences.

These conditions give the Domex cold forming steels their characteristic combination of high strength and good formability, weldability and impact strength.

APPLICATIONS

The extra high strength steel grades are used in applications such as truck chassis, cranes and earthmoving machines. In these applications, the high strength of the steels is used to save weight and/or to increase the payload.

As a result of this and the good formability of the steels, the production costs can be reduced.

DIMENSION RANGE

Domex 700 MC is available in the range of sizes tabulated below in as rolled or pickled condition with mill edge.

For material with trimmed edges, the width is reduced by 35 mm.

Some exceptions may occur.

Thickness (mm)	Width (mm)	Length (mm)
2.00 - (3.00)	1000 - 1035	1500 - 13000
3.00 - (4.00)	885 - 1300	1500 - 13000
4.00 - (5.00)	885 - 1400	1500 - 13000
5.00 - (6.00)	885 - 1600	1500 - 13000
6.00 - (7.00)	885 - 1550	1500 - 13000
7.00 - (10.00)	885 - 1300	1500 - 13000

CHEMICAL COMPOSITION

C % max	Si % max	Mn % max	P % max	S % max	Al % min	Nb % max	V % max	Ti % max
0.12	0.10 ¹⁾	2.10	0.025	0.010	0.015	0.09	0.20	0.15

Sum of Nb, V and Ti = 0.22% max. Also Mo = 0.50% max. and B = 0.005% max.
1) If the material is to be hot-dip galvanized, this must be specified in the order.

MECHANICAL PROPERTIES

Yield strength R_{eH} N/mm ² min	Tensile strength R_m N/mm ² min - max	Elongation on failure	
		<3mm A_{80} % min	≥3 mm A_5 % min
700 ¹⁾	750 - 950	10	12

1) For thicknesses >8 mm, the minimum yield strength may be 20 N/mm² lower

BENDABILITY

	Nominal sheet thickness, t		
	≤3 mm	3 mm <t≤6 mm	>6 mm
Min. recommended bending radius (≤90°)	0.8xt	1.2xt	1.6xt

IMPACT STRENGTH

The Charpy V-notch test is carried out on a test piece taken in the direction of the rolling according to EN 10045-1. Test temperature and energy levels are tabulated below.

Designation	Test temperature	Energy level
B		Not impact tested
C	±0°C	40J
D	-20°C	40J
E	-40°C	27J

Other test temperatures and impact strengths are available subject to special agreement.

WELDING

The low contents of carbon, phosphorus and sulphur enable all conventional welding methods to be readily used for Domex 700 MC. No preheating is necessary.

RECOMMENDED FILLER METALS

Manual metal arc welding coated electrode	Gas shielded metal arc welding Cored electrode	Wire electrode	Manufacturer
OK 75.75	OK Tubrod 15.27	OK13.13; OK13.29 OK13.31	ESAB
Filarc 118	PZ6148;PZ6149	-	Filarc
P 110 MR; Maxeta 110	-	-	ELGA
Tenacito 75	Fluxofil 42	Carbofil NiMoCr	Oerlikon
Tenacito 80	SAF Dual 270	Spoolcord TD-T90	

HEAT TREATMENT

Stress relief annealing should be carried out within the temperature range of 530 - 580°C. Heat treatment above this range, e.g. normalizing and hot forming, reduces the strength and should be avoided.

TECHNICAL SERVICE AND INFORMATION

Customer Service Department will be pleased to assist with additional information concerning this product and other hot rolled products from SSAB Tunplåt.

The particulars in this data sheet are correct at the time of going to print and are intended to give general guidance for the use of the product. Subject to changes arising from continual product development. The information and data must not be regarded as guaranteed values, unless specially confirmed in writing.



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