

Domex 420 MC

Hot rolled, high strength, cold forming steel

Product

Domex cold forming steels are thermo-mechanically rolled in modern plants where the heating, rolling and cooling processes are carefully controlled.

The chemical analysis, consisting of low levels of carbon and manganese has precise addition of grain refiners such as niobium, titanium or vanadium. This together with a clean structure, makes Domex Steels the most competitive alternative for cold formed and welded products.

Domex 420 MC with designation D and E meet and exceed the demands for steel S420 MC in EN-10149-2.

Applications

The high strength steel grades are used in applications such as truck chassis, cranes and earth-moving 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 total costs can be reduced.

Dimension range

Domex 420 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 - (2,50)	1000 - 1035	1500 - 13000
2,50 - (2,75)	800 - 1150	1500 - 13000
2,75 - (3,00)	800 - 1200	1500 - 13000
3,00 - (3,25)	800 - 1350	1500 - 13000
3,25 - (3,75)	800 - 1400	1500 - 13000
3,75 - (4,00)	800 - 1450	1500 - 13000
4,00 - (4,50)	800 - 1550	1500 - 13000
4,50 - 12,00	800 - 1600	1500 - 13000

Chemical composition

C	Si	Mn	P	S	Al	Nb	V	Ti
%	%	%	%	%	%	%	%	%
max	max	max	max	max	min	max	max	max
0,10	0,03 ¹⁾	1,50	0,025	0,010	0,015	0,09 ²⁾	0,20 ²⁾	0,15 ²⁾

1) For hot-dip galvanizing and thin Zn layer (50 - 80 µm).

2) Sum of Nb, V and Ti = 0.22% max.

Mechanical properties

Yield strength	Tensile strength	Elongation on failure	
R _{eh} N/mm ²	R _m N/mm ²	< 3 mm	≥ 3 mm
min	min - max	A ₈₀ %	A ₅ %
min	min	min	min
420	480 - 620	16	20

Bendability

	Nominal sheet thickness, t		
	≤ 3 mm	3 mm < t ≤ 6 mm	> 6 mm
Min. recommended bending radius (≤ 90°)	0,4 x t	0,5 x t	0,8 x t

Impact strength

The Charpy V-notch test is carried out according to EN 10045-1.

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

1) 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 420 MC. No preheating is necessary.

There are a large number of filler metals that can be used for welding of Domex 420 MC,

which gives a weld that can meet the same minimum tensile strength requirements as the base metal. Some examples of different filler metals that can be used are tabulated below.

Heat treatment

Stress relief annealing should be carried out within the temperature range of 550 - 650°C. Heat treatment above this range, e.g. normalizing and hot forming, reduces the strength and should be avoided.

Technical service and information

Knowledge Service Center will be pleased to assist with additional information concerning this product and other products from SSAB Tunnplåt.

Examples on different filler metals

Manual metal arc welding coated electrode	Gas shielded metal arc welding		Submerged arc welding Wire/powder	Manufacturer
	Cored electrode	Wire electrode		
OK 48.00 Filarc 88 S P 48 S, Maxeta 22 Supercord	OK Tubrod 15.00 Filarc PZ6103 DWA 50 Fluxofil 12	OK Autrod 12.51 Filarc PZ6000S Elgamatic 100 Spoolcord 21	OK 12.24/OK Flux 10.62 - - Fluxocord 40/Powder OP 121TT	ESAB Filarc ELGA Oerlikon

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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