

Hot Rolled Cold Forming Steel

Domex 240 YP

PRODUCT

Domex 240 YP is a grade in the Domex-range of steels characterized by its unique properties regarding:

- Strength
- Cold forming
- Tight bend radius
- Toughness at low temperatures
- Weldability
- Suitability for laser cutting

These bring benefits in both production and the performance of the end product. The properties are achieved through a well-balanced analysis, sulphide control, fine grain structure and thermomechanical rolling.

APPLICATIONS

Domex 240 YP is a structural grade that has been developed primarily to get a steel with excellent manufacturing characteristics and is suitable for cold forming, welding and laser cutting. This steel can be used in most applications where the demand on strength is moderate and where low weight is not the main factor.

Domex 240 YP can in many applications be used as a replacement for standardized material like S235JRG2 (Fe360 BFN, St 37-...). Domex 240 YP has a ductility that exceeds these materials and can therefore be used to produce parts more cost effectively, i.e. cold forming could replace hot forming or welding.

DIMENSION RANGE

Thickness (mm)	Width(mm) Cut sheets Pickled coils	Width (mm) Black coils
1.80 - (2.00)	800 - 1400	800 - 1300
2.00 - (2.25)	800 - 1450	800 - 1350
2.25 - (2.50)	800 - 1540	800 - 1450
2.50 - (2.75)	800 - 1570	800 - 1500
2.75 - 16.00	800 - 1600	800 - 1600

Above is valid for material with mill edge. For cut edge decrease the width by 30 mm.

CHEMICAL COMPOSITION

C % max	Si % max	Mn % max	P % max	S % max
0.12	0.03	0.80	0.030	0.025

MECHANICAL PROPERTIES

Yield strength R_{eH} N/mm ²	Tensile strength R_m N/mm ²	Elongation A_5 %
min 240	360-460	min 28

DEEP DRAWING

Domex 240 YP has demonstrated through numerous practical applications that it is suitable for both stretching and drawing.

The following values has been developed as guidelines for design and tooling.

Drawing - max Draw Ratio (MDF)	Stretching Bulge Test (H/d)
2.05	0.48

Max draw ratio (D/Do) for flanging of a punched hole.

Burr towards punch	Burr away from punch
1.55	1.40

Higher values can be obtained with drilled and reamed holes.

BENDING

Bend radius Ri	
$t \leq 6$ mm	$t > 6$ mm
0.5 x t	0.7 x t

IMPACT TOUGHNESS

Designation	Test temperature °C	Min energy in J Charpy V, (full size specimen)
Domex 240 YPB* Domex 240 YPD**	- -20	27

*) YPB delivered without impact testing

**) Max 12 mm thickness

LASER CUTTING

Domex 240 YP has unique properties in comparison with regular structural steels regarding analysis and rolling practice that makes it very suitable for laser cutting. It is possible to use a high cutting speed that gives high productivity. The quality of the cut edge will also be very good with a clean, straight cut and no burr. More detailed information regarding laser cutting can be found in our brochure GB 304.

WELDING

Low levels of carbon, manganese, sulphur and phosphorus characterize the chemical composition of Domex 240. This means that the material has very good weldability with little or no risk of cracking or brittleness.

SUITABLE FILLER MATERIALS

Manual metal arc welding MMA	Gas metal arc welding MAG		Submerged arc welding SAW Wire / powder	Manufacturer
	Tube electrode	Solid wire		
OK 48.00	OK Tubrod 15.00	OK Autrod 12.51	OK 12.24 OK Flux 10.62	ESAB
Filarc 88 S P 48 S, Maxeta 22 Supercord	Filarc PZ 6103 DWA 50 Fluxofill 12	Filarc PZ 6000S Elgamatic 100 Spoolcord 21	- - Fluxocord 40/ Powder OP 121TT	Filarc ELGA Oerlikon
AWS: A5.1 E7X18 DIN 1913: E515810 EN-499: E42XX-xx	AWS: A5.20 E7XT-X DIN 8558:T521 EN-758: T42X-xx	AWS: A5.18 ER7XS-X DIN 8559: SG2 EN-440: G42X-xx	AWS: A5.23/F7AX-EM12K	

STRESS RELIEVING

If Domex 240 is used in a design where thermal stress relieving is required, it should be noted that the temperature should not exceed 650°C.

Heat-treating at higher temperatures could decrease the mechanical properties.

TECHNICAL SERVICE

Customer Service at SSAB Tunnplåt will assist you with further technical information regarding this or other products from SSAB Tunnplåt.

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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