

WELDOX 420**EXTRA HIGH STRENGTH STRUCTURAL PLATE**

WELDOX 420 is a weldable, fine grained steel.

Applications Bridges, silos, steelwork buildings, turbines, cranes, overhead travelling cranes, dolphins, penstocks, water towers, offshore structures, lifting tackle, etc.

Designation WELDOX 420 D with guaranteed impact toughness at -20°C .
WELDOX 420 E with guaranteed impact toughness at -50°C .

Chemical Composition (ladle analysis)	C*	Si*	Mn*	P	S	Nb*	V*	Ti*	Al* total	Mo	Ni	N	CEV
	max %	max %	max %	max %	max %	max %	max %	max %	min %	max %	max %	max %	max %
	0,14	0,50	1,70	0,025	0,015	0,05	0,10	0,02	0,015	0,05	0,10	0,015	¹⁾

¹⁾ Plate thickness CEV
- 60 mm 0,39
> 60 mm 0,40

$$\text{CEV} = \text{C} + \frac{\text{Mn}}{6} + \frac{\text{Cr} + \text{Mo} + \text{V}}{5} + \frac{\text{Ni} + \text{Cu}}{15} \quad \text{)} \text{ Intentional alloying elements}$$

Mechanical Properties	Plate thickness mm	Yield strength R_{eH} or $R_{p0.2}$ min N/mm ²	Tensile strength R_m N/mm ²	Elongation A_5 min %
		6–16 (16)–40 (40)–63 (63)–80	420 400 390 380	500–660 500–660 500–660 480–650

Impact Properties	Grade	Test temperature $^{\circ}\text{C}$	Impact energy ¹⁾ Charpy V, longitudinal specimen, min., J
		WELDOX 420 D WELDOX 420 E	-20 -50

¹⁾ Average of three tests.
Single value at least 70% of the specified mean value.

Testing Testing in accordance with EN 10 113-1 and EN 10 113-3.

Delivery Condition Thermomechanically rolled (M) or quenched and tempered (Q) as determined by us unless otherwise agreed.
Delivery condition Q principally above 40 mm.

Dimensions WELDOX 420 is delivered in plate thicknesses between 6 and 80 mm. More detailed information on dimensions is provided in our brochure E-40, General Product Information.
Certain width restrictions may apply.

Tolerances According to EN 10 029
– Thickness tolerance to Class A.
– Flatness tolerance to Class N (normal tolerance).

Surface finish According to EN 10 163-2
– Surface requirements to Class A.
– Repair conditions to Subclass 1 (Repair by welding is allowed).



DATA SHEET

WELDOX 420

General Technical Delivery Requirements

According to our brochure E-40, General Product Information. WELDOX 420 conforms to all technical requirements in EN 10 113-3, except as regards the delivery condition of plate with a thickness above 40 mm. Options 8 and 14 are applied.

Heat Treatment and Fabrication

WELDOX 420 has obtained its high strength by rolling at a particular temperature and by controlled cooling. The final properties cannot be restored after the material has been heated to more than 580°C. WELDOX 420 must therefore not be used for applications requiring fabrication at elevated temperatures above 580°C, since the material may lose its good properties at temperatures above this value.

For steel in condition Q, this upper temperature limit is 600°C.

For information concerning welding and fabrication, see our brochures listed below or consult our Technical Customer Service.

Fabrication	Brochure No:	Handbook No:
Machining	En-10	
Welding	En-11	En-50
Bending Shearing	En-12	
Cutting	En-14	

Appropriate health and safety precautions must be taken when welding, cutting, grinding or otherwise working on the product. Grinding, especially of primer coated plates, may produce dust with high particle concentration. Our Technical Customer Service Department will provide further information on request.