

## EXTRA HIGH STRENGTH STRUCTURAL PLATE

WELDOX 960 is a general structural steel with a minimum yield strength of 960 N/mm<sup>2</sup> intended for applications where its high strength permits weight savings to be made. The plate has very good cold bending properties and very good weldability. WELDOX 960 can be obtained with guaranteed impact toughness at temperatures down to -40°C (-40°F). WELDOX 960 totally fulfils the requirements on the corresponding steel grades and qualities according to EN 10 137 part 1 and 2.

<b>APPLICATONS</b>	Dumptrucks, loaders, industrial trucks, lorries, trailers, bulldozers, excavators, forestry machines, buckets, cranes, railway waggons, bridges, fans, pumps, lifting equipment etc.															
<b>DESIGNATION</b>	WELDOX 960 D with impact testing at -20°C (-4 °F). Corresponds to S 960 Q WELDOX 960 E with impact testing at -40°C (-40 °F). Corresponds to S 960 QL															
<b>CHEMICAL COMPOSITION</b> (ladle analysis)	C*	Si*	Mn*	P	S	B*	Nb*	Cr*	V*	Cu*	Ti*	Al* total	Mo*	Ni*	N	CEV typical value
	max %	max %	max %	max %	max %	max %	max %	max %	max %	max %	max %	min %	max %	max %	max %	% <sup>1)</sup>
	0,20	0,50	1,60	0,020	0,010	0,005	0,04	0,70	0,06	0,30	0,04	0,018	0,70	2,0	0,015	<sup>1)</sup>
	typ CEV, for information															
	<sup>1)</sup> WELDOX 960 D, E															
	4 – 13 13,1 – 50															
	0,56 0,64															
	*) Intentional alloying elements.															
<b>MECHANICAL PROPERTIES</b>	Plate thickness mm		Yield strength R <sub>p0.2</sub> min N/mm <sup>2</sup>				Tensile strength R <sub>m</sub> N/mm <sup>2</sup>				Elongation <sup>1)</sup> A <sub>5</sub> min A <sub>50</sub> min <sup>2)</sup> % %					
	4 – 50		960				980–1150				12 16					
	<sup>1)</sup> For transverse test pieces. Values for longitudinal test pieces are 2 units higher.															
	<sup>2)</sup> Testing by agreement.															
<b>IMPACT PROPERTIES</b>	Minimum values of impact energy for tests on transverse <sup>1)</sup> and Charpy V test pieces. Minimum values of impact energy in J at test temperatures <sup>2)</sup> in °C															
	Steel grade	0		-20		-40										
	WELDOX 960 D	30		27		-										
	WELDOX 960 E	35		30		27										
	<sup>1)</sup> Unless otherwise agreed, transverse impact testing according to EN 10 137 option 3 will apply. If only longitudinal impact testing shall apply, it has to be specified in the order.															
	<sup>2)</sup> If the test temperature is not specified, the test will be carried out at the lowest test temperature.															
<b>TESTING</b>	Testing in accordance with EN 10 137-1 and EN 10 137-2.															
<b>DELIVERY CONDITION</b>	Quenched and tempered, Q.															
<b>DIMENSIONS</b>	WELDOX 960 is supplied in plate thicknesses of 4–50 mm. More detailed information on dimensions is provided in our brochure E-40. Certain width restrictions may apply.															
<b>TOLERANCES</b>	According to EN 10 029. – Tolerances on thickness according to Class A. – Tolerances on flatness according to Class N. (Normal tolerances)															
<b>SURFACE FINISH</b>	According to EN 10 163-2. – Requirements according to Class A. – Repair conditions according to Subclass 1. Repair by welding is allowed, option 14 according to EN 10 137-2.															

**GENERAL TECHNICAL  
DELIVERY REQUIREMENTS**

According to our brochure En-40, General Product Information.  
WELDOX 960 conforms to all technical requirements of S960 in EN 10 137-2.  
Option 3 and 14 are applied.

**HEAT TREATMENT  
AND FABRICATION**

WELDOX 960 has obtained it's mechanical properties by a quenching and tempering process.  
The mechanical properties can not be retained after PWHT at tempertures above 550°C (1075°F).  
WELDOX 960 is not suited for applications requiring hot working at temperatures above 550°C  
(1075°F) since the material may then loose it's good properties.

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

<b>Fabrication</b>	<b>Brochure No:</b>
Drilling	
Countersinking	
Tapping	En-10
Flame Cutting	
Welding	En-11
Bending	
Shearing	En-12
Turning	
Milling	En-13

Appropriate health and saftey 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.