

## Welding of HARDOX® wear plate

HARDOX wear plates have a low content of alloying elements and therefore have low carbon equivalents. HARDOX wear plates can be welded with all conventional arc welding methods intended for welding ordinary and high strength plates. The choice of filler material is determined by the demands made on the mechanical properties of the welded joint in each individual case.



### Welding HARDOX

HARDOX should be welded with soft electrodes (yield strength below 500 N/mm<sup>2</sup>). Such electrodes reduce the residual stress level in the joint and thus the sensitivity to cold cracking.

The welds should be positioned so it is exposed to minimum wear and loads. If the weld is subjected to heavy wear, hard facing electrodes can be used in one or two top layers.

For welding of HARDOX 600 with combined plate thickness above 40 mm, only austenitic filler material should be used in combination with preheating. For weld recommendations regarding HARDOX 600, see HARDOX 600 welding brochure.

To minimize the risk of cold cracking electrodes giving a maximum weld metal hydrogen content of less 5ml/100g should always be used. To avoid or reduce the need of preheating, austenitic filler material can be utilized.

Recommendation on how to weld HARDOX wear plate can also be found in the HARDOX and WELDOX welding brochure, or in the hand book on welding of SSAB Oxelösund steels. Contact SSAB Oxelösund to get your copy.

#### Submerged arc welding

Manufacturer	Filler material Re < 500MPa
ELGA	Elgaflux 251B / Elgasaw 102
ESAB	OK Flux 10.62 / OK Autorod 12.24
LINCOLN	P230 / LNS 140A
OERLIKON	OP121 TT / OE-S2Mo
SAF	AS589/AS37
BÖHLER	BB24 / EMS2
THYSSEN	UV421TT / Union S2NiMo

Note! All the electrodes listed are examples of suitable products for welding of HARDOX wear plates. There are other similar electrodes on the market which are as suitable. SSAB Oxelösund does not recommend one particular product or brand.



### MAG solid wire

Manufacturer	Filler material Re < 500MPa	Filler material Austenitic
ELGA	Elgamatic 100 Elgamatic 103 Elgamatic 162	Cromamig 307Si
ESAB	OK Autrod 12.51, OK Autrod 13.09	OK Autrod 16.95
LINCOLN	SUPRA MIG; LNM/LNT Ni1	LNM 307
OERLIKON	Carbofil 1 Carbofil 2,5 Ni	Interfil 18 8 6
SAF	NIC 70S, NIC 86	Nertalic 51
BÖHLER	EMK 7, EMK 8 NiCu-1G	A 7-1G
THYSSEN	Union K52 Union K5 Ni	Thermanit X

### Manual metal arc welding

Manufacturer	Filler material Re < 500MPa	Filler material Austenitic
ELGA	P48S, P51 Maxeta 21	Cromarod 307B
ESAB	OK 48.00, OK 48.08, OK 53.68, OK 73.68	OK 67.45, OK 67.52
LINCOLN	Kryo 1, Conarc 48, Conarc 49	Jungo 307, Arosta 307
OERLIKON	Tenacito, Tenacito 38 R Tenacito 70	Citochromax N Citochromax R Citochromax RS
SAF	Safer MF48, Safer NF52, Safer NF53, SaferNF59	Safinox R 307
BÖHLER	FOX EV 47, FOX EV 60 FOX EV 63, FOX EV 65	FOX A 7
THYSSEN	SH Grün K52W, SH V 1 SH V 370	Thermanit X Thermanit XW

### Flux-cored wire

Manufacturer	Filler material Re < 500MPa	Filler material Austenitic
ELGA	DWA 51B	Cromacore DW 309MoL
ESAB	OK Tubrod 15.00, OK Tubrod 15.25	OK Tubrodur 15.34
LINCOLN	Outershield T55-H	
OERLIKON	Fluxofil 30, Fluxofil 31, Fluxofil 40	Fluxinox 307 Fluxinox 307- PF
SAF	Safdual 31, Safdual 400	Safdual 651
BÖHLER	Kb 52-FD	A 7-FD
THYSSEN	Thyssen TG50B	

### Metal-cored wire

Manufacturer	Filler material Re < 500MPa	Filler material Austenitic
ELGA	MXA 100, MXA 100T, MXA 55T	
ESAB	OK Tubrod 14.02	OK Tubrod 14.71
LINCOLN	Outershield MC710-H	
OERLIKON	Fluxofil M8, Fluxofil M10	Fluxinox M 307
SAF	Safdual 200, Safdual 202 Safdual 206	
BÖHLER	HL 50-FD, HL 52-FD	
THYSSEN	Thyssen TG55Fe Thyssen MV70	

**HARDOX**<sup>®</sup>  
WEAR PLATE

HARDOX wear plate only from SSAB Oxelösund  
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