



Installation Welding and Hardfacing Guide

For all Makuri bimetallic plates

SAFETY

All fitting, fabrication and Hot Work must be conducted in accordance with all applicable legislation, standards, rules and regulations in the jurisdiction under which the operations are being performed.

Welding Parameters to Backing Plate

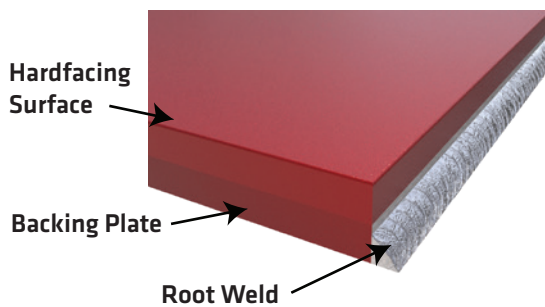
- Use Mild Steel or Low hydrogen electrodes when welding the mild steel backing of plate to a steel substrate
- Avoid contact with Hard facing as cracking may occur.
- Protective hard facing of structural welds and minor repair of overlay can be performed with Makuri Chrome Titanium XAB Hardfacing wire and is detailed later.

Preparation

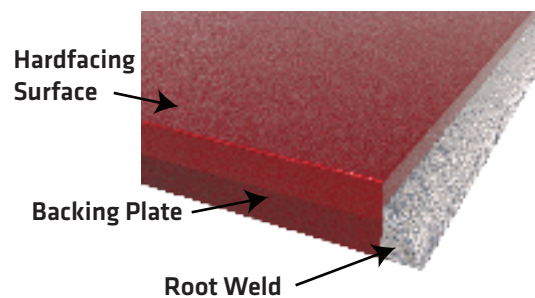
- Grind off any residue of sand or slag from surface of the base metal (normally grinding the surface between 0.5mm - 1.5mm will accomplish this)
- Remove any cracks completely (Preferred method is a carbon arc). Once removed, use grinder to discard all traces of carbon and slag.
- Remove the paint from the surface of the plate where welding will be conducted
- Once base surface is clean, proceed with weld.

Fillet Weld

This is the simplest method, but care must be taken with weld placement. The fillet weld **MUST NOT** contact the Hard facing surface - as carbon can be picked up, causing weld embrittlement and is the main source of cracking soon after. For safety purposes, leave a minimum of 2mm below the hard facing surface shown below:



Correct



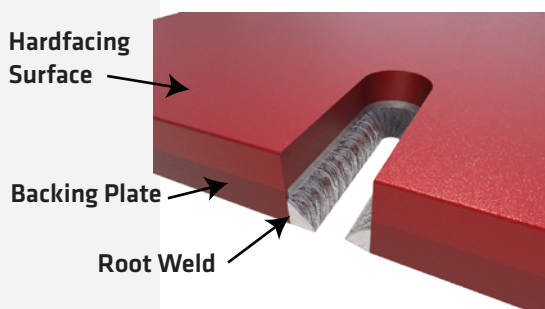
Incorrect

Plug Weld

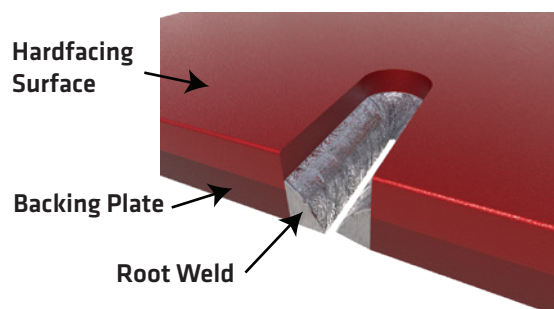
Some liners are supplied with precut holes, ready for plug welding.

Similar care must be taken with the positioning of the mild steel welds, ensuring that they do not contact the hard facing surface. To protect the weld itself from abrasion, Chrome Titanium XAB Hard facing wire should be used for coverage (as described in a later section). Note: DO NOT plug weld through welded countersunk inserts!

An example of how to weld plug holes can be seen below:



Correct



Incorrect

SAFETY

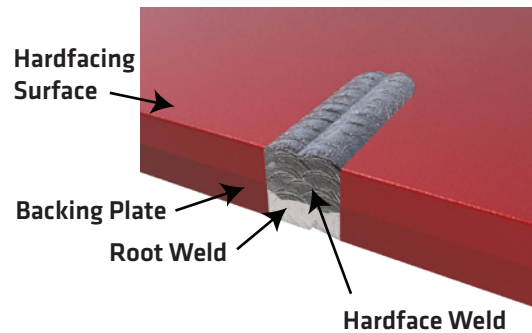
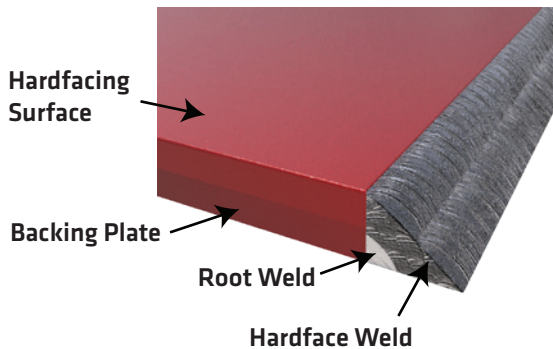
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Protecting the Weldment

Protecting the Root weld on any wear plate is vital for its life and performance. Premature failure of welds can cause loss of the entire plate.

Adding a Hard facing wire layer over the root weld will not only ensure longer life for the weld, but also creating less obstruction of flow of material.

An example shown below:



Using Hard Facing Wire

After welding the backing plates, the gap in the hard facing surface can be filled with a Hard facing wire, but please note that this will not add to the strength of the structure.



Chrome Titanium XAB Tubular HF Wire

Chrome Titanium XAB is a true universal tubular hard facing wire that can blend hard materials of different alloys to form a continuous hard surface with extreme resistance to abrasion and high resistance to impact.

Makuri Tubular Hard Facing wire filled with Chromium and Titanium Carbide for use in eXtreme ABrasion (XAB) applications where hard facing of dissimilar metals is required. Can be used without pre heat or use of shielding gases. Can protect and join the hard surfaces of bimetal blocks to AR and Carbide wear plates.

Refer to Technical Data Sheets (TDS) for more information

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TECHNOLOGY
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