EMEX™ TECHNICAL DATA SHEET

EMEX™

Is the new future of wear resistant plate. The Nano style microstructure gives EMEX™ not only superior protection from abrasion, but also unheard of impact resistance!

SPECIFICATION

EMEX™ PTA overlay has been manufactured to ensure compliance with the microstructure, chemistry, hardness and dry abrasion test values for specific customer requirements.

MICROSTRUCTURE

Consists of primary carbide and eutectic carbides in a matrix of martensite and retained austenite.

CHEMICAL COMPOSITION

A typical deposit consists of the following chemistry limits (%).

Mn, Si & B	Ni, Cr, Mo & Nb	Fe
1-2.5	15-20	Bal

TYPICAL PROPERTIES

Bulk Hardness:	>800 HV30
Volume fraction Carbides/Hard phase:	>40%
Micro Hardness:	>1000 $HV_{0.3}$
Abrasion resistance ASTM G65-04 Procedure A:	<0.0485g

IMPACT RESISTANCE

EMEX™ can withstand continuous impact

PLATE CHARACTERISTICS

The overlay surface consists of welded beads (of varying widths) with relief check cracks evenly dispersed that protrude to the backing plate only.

FLATNESS (PLATES)

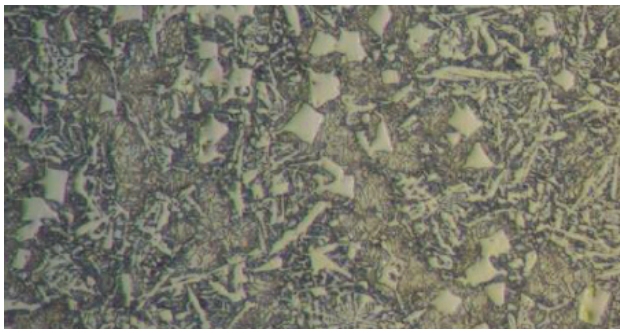
Within 1mm over 300mm and within 5mm over 1000mm

SURFACE ROUGHNESS

Standard smooth Finish Ra <7 µm, Ultra Polish Ra <0.5 µm

DENSITY (PLATE)

* Average is 7500 Kg / m^3
* This changes depending on proportion of overlay to backing plate.



BASE MATERIAL

EMEX™ overlay can be applied direct to shaped items as well as to standard base material such as mild steel plate of varying thicknesses, ensuring the finished parts are readily weldable. Alternative base plate grades can be incorporated with the **EMEX™** overlay to meet specific customer requirements.

THE GUIDELINES BELOW ARE RELEVANT FOR EMEX™ APPLIED TO A STEEL BASE PLATE.

CUTTING

Plate is preferably cut with plasma arc. A 100amp to 200amp is sufficient to cut most thickness's available. All cutting should be from the mild steel side to eliminate carbon contamination of the backing plate. Other methods used to cut the plate are Arc Air or Carbon Arc, Abrasive Disc, water Jet and abrasive saw.

MACHINING

Plate can be surface ground using abrasive grinding disc only.

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COLD FORMING

When cold forming it is recommended that pressing be perpendicular to the weld bead direction. Rolling can be done in any direction.

A wide set bottom die with rounded corners should always be used and rounded press tool.

Minimum bending radii for thin overlays is 75mm and thicker overlays is 1000mm. Please consult your **DGC AFRICA** Technical expert for details as specific methods can be adopted during manufacture to ensure quality formed product can be produced.

Forming plate with the overlay on the outside will place the hardface layer in tension and surface cracks will open up requiring repair.

WELDING

BACKING PLATE SIDE

Use low hydrogen electrode or mig wire. This must not exceed the thickness of the backing plate.

Where the weld would exceed the thickness of the backing plate use a ER307 consumable with Argoshield 69 shielding gas.

HARDFACE SIDE

Consult **DGC AFRICA** for clarification of repairs.

ATTACHMENT METHODS

- **EMEX™** can be attached using the following methods.
- Plug weld holes.
- Countersink, Counter bore holes , Taper Holes and Tapped holes.
- Threaded Studs.
- Perimeter fillet weld.

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