CCO SPECIALISTS

QMAX™ 50

TUNGSTEN CARBIDE / Ni-Si-B OVERLAY — PTA DEPOSITED

Technical Data Sheet

QMAX™ 50 is an overlay of 50% fused tungsten carbide granules locked in a tough nickel-silicon-boron (Ni-Si-B) matrix, deposited by plasma transferred arc (PTA) welding on a mild steel base — for severe sliding abrasion with medium impact, where chromium carbide and even tungsten CCO reach their limits.

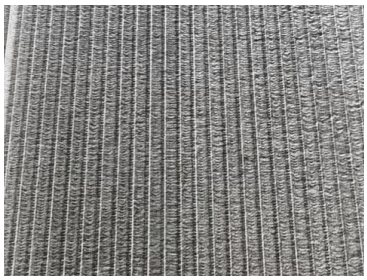
Specification

QMAX™ 50 overlay is deposited by PTA welding to ensure a metallurgical bond with minimal penetration and dilution, so the fused WC granules retain their full hardness through the deposit.

Overlay Structure: Fused tungsten carbide granules at 50% volume fraction, uniformly distributed in a Ni-Si-B matrix:

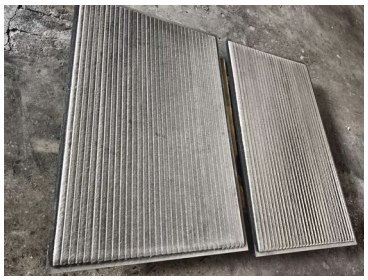
Overlay surface

QMAX™ 50 overlay surface — PTA-deposited WC in Ni-Si-B matrix.



Overlay sheets

Full sheets and cut panels — QMAX™ 50 deposited on a mild steel base.



Typical Properties

Property	QMAX™ 50
Duty	Severe sliding abrasion with medium impact
Bulk hardness	>700 HV30 (>58 HRC)
Carbide micro-hardness	>1900 HV0.1
Hard-phase volume fraction	50% fused tungsten carbide
Maximum overall thickness	12 mm
Matrix	Ni-Si-B (nickel-silicon-boron)
Deposition	PTA — metallurgical bond with minimal dilution
Abrasion resistance (ASTM G65)	on request
Service temperature	on request

Values are typical and for guidance; certified test values available on request.

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Supply Forms: QMAX™ 50 is available as full sheets and cut panels, or applied directly to customer components and shaped parts.

Base Material: The standard base is mild steel, ensuring finished parts are readily weldable into position. Alternative base grades can be incorporated on request to meet specific customer requirements.

Deposition: Plasma transferred arc (PTA) welding produces a true metallurgical bond with minimal penetration and dilution of the overlay by the parent material.

Applications

Applications involving severe sliding abrasion with medium impact, such as:

- Transfer chutes and skirt liners
- Ground engaging tools (GET)
- Fan blades
- Mixer paddles
- Ore handling systems
- Drilling parts
- Liner plates
- Extruders

Advantages

- Metallurgical bond with minimal penetration / dilution
- Can be applied to shaped items
- Outstanding fine-particle abrasion resistance from fused WC
- Tough Ni-Si-B matrix resists spalling under medium impact
- Proven performance against Q&T steel
- Complements the MAXCLAD™ tungsten CCO range where an Fe-based overlay is not enough

Selection

QMAX™ 50 sits at the top of the QAME tungsten range. Where a chromium carbide overlay wears out too fast in fine, hard particle streams — or a component cannot be lined with flat plate — QMAX™ 50 applied direct to the component is the step up. Please consult your QAME technical expert to match the overlay to your duty.