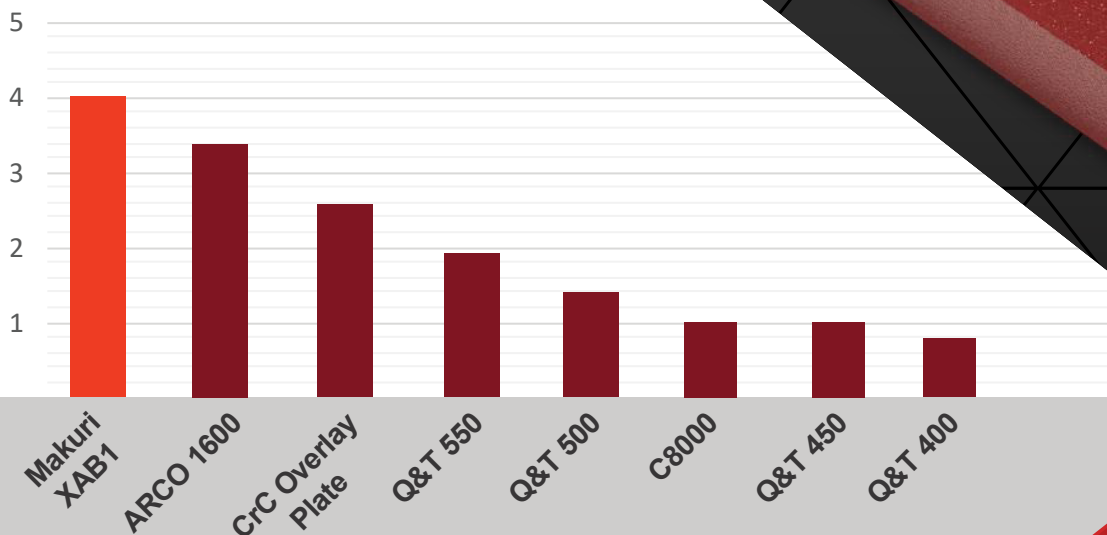
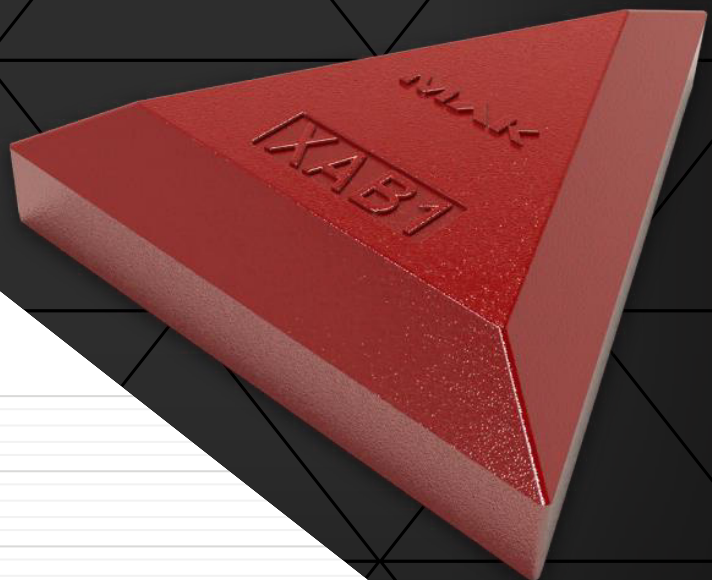


Makuri MAK-Hard XAB1 Cast Bimetallic White Iron

Makuri XAB1 Bi-metallic white iron is capable of withstanding both extreme abrasion and impact and such are a truly versatile wear product that can be used in a wide range of applications with great success from mobile equipment buckets and dippers thru process plant front end chutes and crushers top end protection.



**Wear Life Ratio Under High Impact,
Coarse Particle Abrasion***

*Source: TUNRA (2022),
"Impact Wear Testing, report # 10818"
University of Newcastle,
New South Wales

Makuri MAK-Hard XAB1 Bi-metallic materials are composed of a special cast alloy permanently bonded to a construction steel backing plate. Hardness of the XAB1 cast material ranges from 60 - 62 Rockwell C, depending on design and material thickness. The construction steel backing substantially increases the toughness of the bi-metallic material and provides a strong base that allows the liners to be easily and securely welded to other structures.

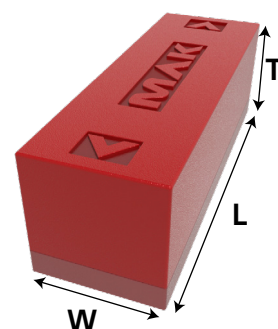
The alloy casting utilises a proprietary composition based on ASTM A532 standards which is then subjected to a unique heat treatment profile to ensure thru hardness and toughness.

Makuri is able to manufacture XAB1 liners with larger section thicknesses to match required design life targets and in a large variety of custom sizes and shapes. Where even more wear resistance is required, Makuri XAB9 forged plate can be used.

Technical Details

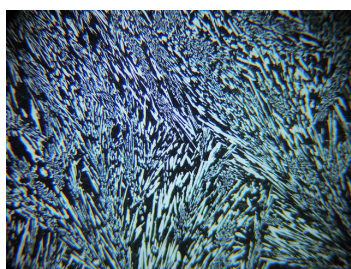
Alloying Elements and %	
Chromium (Cr): 15% - 18%, Manganese (Mn): 0.5% - 1%, Molybdenum (Mo): 0.5% - 2.5%, Copper (Cu): 0.5% - 1%, Phosphorus (P): 0.02% max, Silicon (Si): 0.5% - 1%, Sulfur (S): 0.02% max, Carbon (C): 2.5% - 3.2% Niobium (Nb) Vanadium (V) Boron (B) : 0.1% - 0.5%	
Hardness	
Carbide Hardness	>1200 HV
White Iron Hardness	59 - 62 HRC
Corrosion Resistance	
High	✓
Applications	
Heavy Duty Abrasion & Impact	✓
Installation Welding & Hardfacing	
for all different applications	Refer to MMS-GUI-11-0401
Recomended hardfacing wire	
Makuri Chrome Titanium XAB HF Wire	Refer to MMS-GUI-11-0301
Wear Resistance	
19-28% higher than industry standard 'Domite' Blocks	

Standard Sizes		
Part Number	Dimensions (mm)	Weight (kg)
MK09-146-296-01	296L x 146W x 25T	8,6
MK09-296-296-01	296L x 296W x 25T	17,5
MK09-503-001-00	150L x 50W x 50T	3
MK09-503-002-00	150L x 75W x 60T	5,5
MK09-503-003-00	230L x 50W x 50T	4,5
MK09-503-004-00	300L x 50W x 50T	5,8
MK09-503-005-00	300L x 80W x 50T	9,2

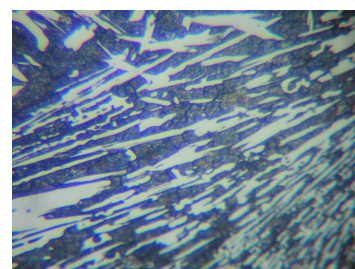


Makuri is able to manufacture XAB1 liners to match required sizes, shapes, and thicknesses to suit your needs.

Microstructure

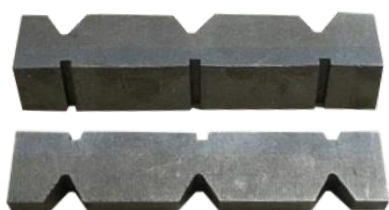


X 100



X 500

Bonding Quality



Degree of bonding exceeds industry standard rate (80%). Typically, >95% is achieved

Bond strength: 250 MPa minimum

General Characteristics

Wear Surface
Appearance

Similar to stainless steel with a smooth grey surface and little no stress relief cracking allowing ingress of acids

Wear Surface
Roughness
and Friction

Low friction, hard, high density materials that polish up with use to further reduce digging friction, hold-ups and carry back

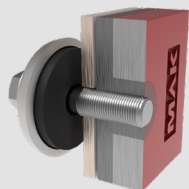
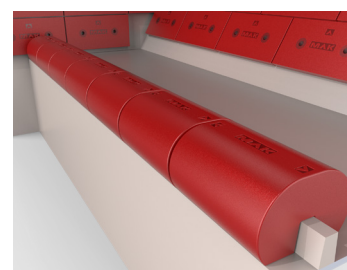
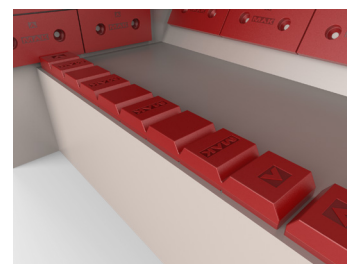
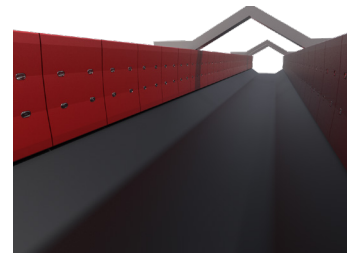
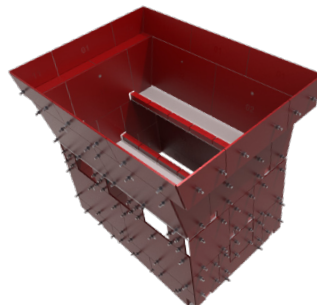
Makuri means Quality & Innovation

MAKURI
TECHNOLOGY

Makuri is able to manufacture XAB1 liners to match required sizes, shapes, and thicknesses to suit your needs with various mounting options can be chosen.

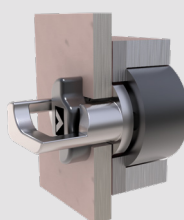
Makuri XAB1 is used in a wide range of applications, including:

- Stockpile feeder chute liners
- Conveyor hard skirting
- Wear ledges & billets
- Transfer Chutes



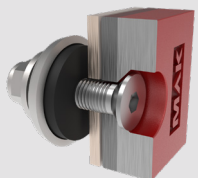
MAK-Safe System (Back Bolted)

- Allows for the full life of the liner to be obtained
- Allows for flat packing
- Fast, safe and versatile mounting and lifting options
- Can be used with Makuri's 5-step installation system



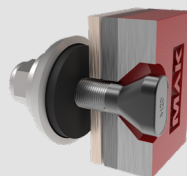
MAK-Lok System (One-sided Bolting)

- No personnel are required on the outside of the chute
- Can overcome difficult frame and accessibility issues
- Reduce safety risk
- Reduce reline times, labour cost, & skill requirements



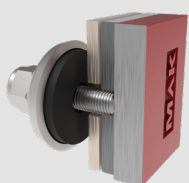
MAK-CS Bolts (Countersunk Bolts)

- Liners can be manufactured to suit any standard CS bolts available on site
- In some applications, use of these can allow the full thickness of wear material to be utilised without damaging the bolt head
- Liners can be flat packed



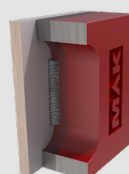
MAK-FT Bolts (Fishtail Bolts)

- Fishtail bolts are readily available and do not turn inside the hole
- Allows for some degree of misalignment
- Liners can be flat packed
- Allows for flat packing



MAK-HT Studs (High Tensile)

- Provides for simple installation, but requires additional space for packing.
- Weld-free design ensures tensile strength of studs is maintained.
- Allows for studs to be fully tensioned in critical applications.



MAK-PW Slots (Plug Weld)

- Can be used where installation conditions do not allow for use of bolts, or where chute conditions are not acceptable for bolting