CRUSHCORE DYNAMICS

TEMPUS
SMART & GREEN MINING

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TEMPUS

IMTUFF®
STEEL FOR TOUGH JOBS

FUSED COMPOSITE PLATES

a revolutionary and cost-effective solution
to protect your fixed and mobile assets against
the harshest abrasion and impact wear challenges

TEMPUS CRUSHCORE DYNAMICS

IMTUFF®
STEEL FOR TOUGH JOBS

CUTTING EDGE METAL FORMING TECHNOLOGY

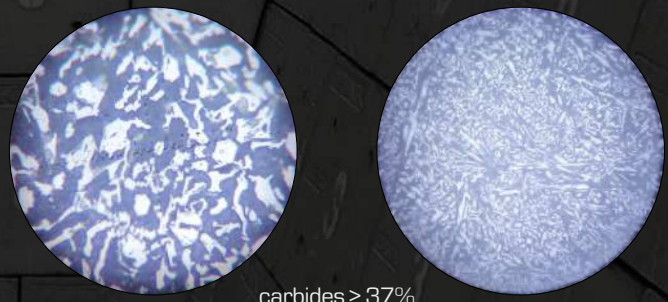
The IMTUFF® Fused Composite Plate is a game-changing innovation, the perfect upgrade alternative to traditional chromium carbide overlay (CCO) plates. With ultra-hardness reaching HRC 66 and outstanding wear resistance, it stands up to extreme abrasion and impact with ease.

Its proprietary manufacturing process combines cutting-edge technologies: plasma rotating electrode process (PREP) coats alloyed powder and nano-alterants on mild steel plates; then, the integration of laser engineering net shaping (LENS) and wire arc additive manufacturing (WAAM) forms a molten pool for rapid solidification, resulting in a flawlessly smooth surface. The benefits are clear - less friction, minimal material hang-up, and maximum operational efficiency.

CHEMISTRY, MICROSTRUCTURE & PROPERTIES

Item	Value
Based Material	Mild Steel Q235B
Carbide Types	Chrome & others
Carbide %	> 37
Hardness / Hv	> 760
ASTM-G65-04 Test/ g	< 0.12
Impact Wear Test/ µm/h	< 0.9

Element	%
C	2 - 5
Cr	18 - 28
Mn	< 1.5
Si	< 0.033
B	< 0.4
Nb+Mo+Ti+V+W	5 - 8



carbides > 37%

SGS HARDNESS & G65 WEAR TEST

Sample	HRC	Weight Loss/gram
IMTUFF-Fused	66.5	12.2
IMTUFF-Bonded	64.4	27.6
CCO Plate	59.8	69.4
QT 500	51.6	79.6

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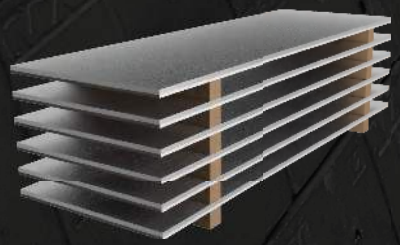
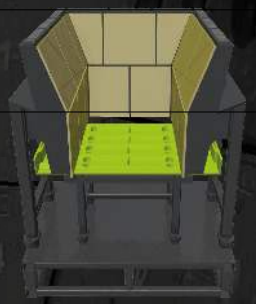
SIZES & SPECIFICATIONS

We stock standard large-format plates in both China and South Africa. Customers can purchase full sheets for self-fabrication, or with approved drawings, opt for custom-sized plates pre-fitted with countersunk mounting holes.

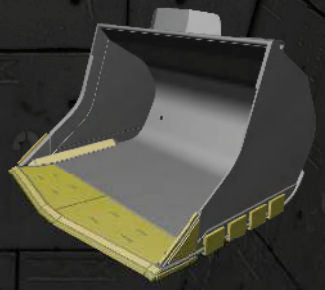
Thickness			Sheet Size			Weight
Base / mm	Alloy / mm	Total / mm	L / mm	W / mm	Area / m^2	KG
4	4	8	2000	600	1.2	76
5	5	10	3000	600	1.8	236
6	6	12	3000	1000	3	283
8	8	16	3000	1000	3	377
10	10	20	3000	1000	3	471
12	15	27	3000	1000	3	589
12	18	30	3000	1000	3	707
15	20	35	3000	1000	3	824
15	25	40	3000	1000	3	942



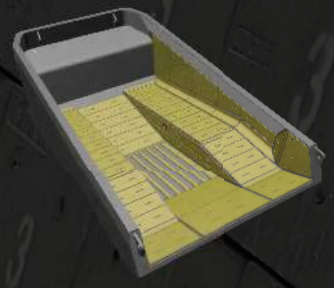
MAIN APPLICATION



chutes & bins



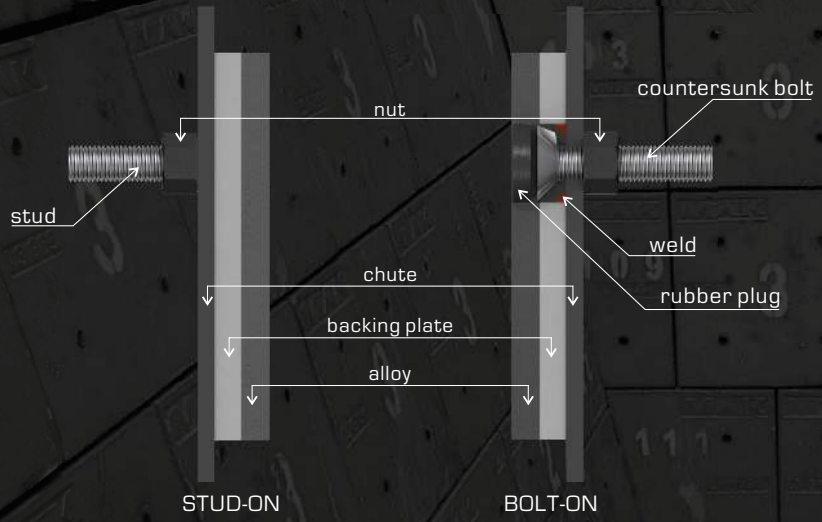
buckets



mining truck bodies

CUTTING & INSTALLATION

For IMTUFF® Fused Composite Plates, high-power laser cutting equipment (30KW plus) shall be employed to minimize heat penetration throughout the cutting process. Flame cutting, by contrast, will induce cracks in the ultra-hard alloy layer, which in turn severely compromises the material's mechanical properties.



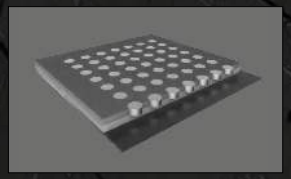
WEAR SOLUTION PACKAGE

In a typical metal wear environment, certain areas are prone to accelerated wear due to sustained exposure to high-impact forces or intense abrasion. To achieve uniform wear across the entire component surface, a targeted wear protection solution package is essential, which necessitates the integration of multiple types of wear-resistant materials.

To accurately identify the wear pattern for a specific application scenario, a full-surface scanning and analysis is required. The data collected from this process will be used to generate a detailed 2D drawing, which clearly delineates both the critical high-wear zones and the positions of mounting bolt holes for installation convenience.

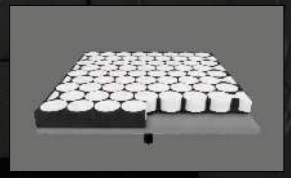
We use various types of wear-resistant materials including composites, QT plates as well as cast liners in high chrome iron or martensitic alloy steel.

Fused Composite



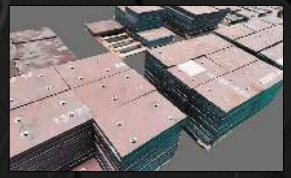
Fused Tungsten Composite

Bonded Composite



Rubberized Ceramic Composite

Chromium Carbide Overlay Plates (CCO)



QT Plates (400 / 450 / 500 Brinell)