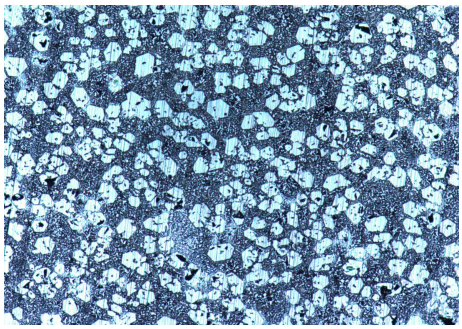
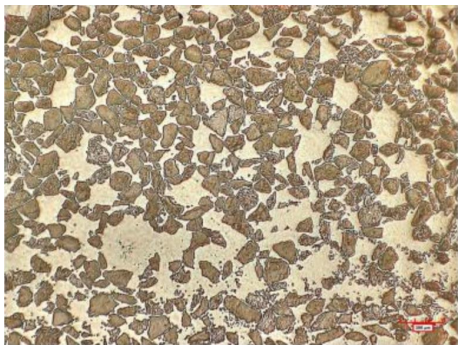








典型耐磨材料介绍

Data Sheet of Typical Hardfacing Material

青岛德创表面技术工程有限公司

Qingdao DECH Surface Technology Engineering Co., Ltd.

专注耐磨防护技术

FOCUS ON WEAR PROTECTION TECHNOLOGY

DECH55

耐磨材料 ABRASION MATERIAL

耐磨 Wear resistance	■■■■■■□□□□
耐冲击 Impact resistance	■■■□□□□□□□
耐高温 Hi-temp resistance	■■■■□□□□□□
硬度 Hardness	■■■■■■□□□□

简介 Briefing

DECH55 是一款中高铬耐中度冲击的耐磨材料

-基材是钢板，可焊性较好；-耐磨层描述：复合碳化铬铁，初级 M7C3

DECH55 is a chromium carbide overlay used in a variety of material handling applications.

-The base material is mild steel plate, to ensure the finished parts are weldable.

-Overlay alloy description: complex chromium carbide iron, primary M_7C_3

化学成分 Typical Chemical Composition(Wt%)

成分 Composition	C	Mn	Si	Cr	B	Fe
比例 Percentage	4.5	0.6	0.8	22.0	0.18	Bal

性能 Properties

硬度 HARDNESS: HRC≥56

初生碳化物体积分数 VOLUME FRACTION PRIMARY CARBIDES ≥25%

适用工况温度不超过 350℃ The application temperatures should not exceed 350℃

制品 Manufacture and Fabrication

DECH55 涂层表面可磨，但不适于火焰切割，可等离子切割或激光切割。

DECH55 layer can be polished, but not suitable for flame cutting. Plasma/Laser cutting is recommended.

应用 Applications

溜槽、矿仓、给料机、工业风机和叶片、溢流板、料斗、水泥设备等。

Chutes, Ore Bins, Feeders, Industrial Fans and Blades, Spill Plates, Hoppers, Cement Equipment, ect.

图例 Cases





DECH60

高耐磨材料 HIGH ABRASION MATERIAL

耐磨 Wear resistance	■■■■■■■□□□
耐冲击 Impact resistance	■■■□□□□□□□
耐高温 Hi-temp resistance	■■■■□□□□□□
硬度 Hardness	■■■■■■□□□□

简介 Briefing

DECH60 是一款高铬耐中度冲击的耐磨材料
-基材是钢板，可焊性较好；-耐磨层描述：复合碳化铬铁，初级 M7C3
DECH60 is a chromium carbide overlay used in a variety of material handling applications.
-The base material is mild steel plate, to ensure the finished parts are weldable.
-Overlay alloy description: complex chromium carbide iron, primary M_7C_3

化学成分 Typical Chemical Composition(Wt%)

成分 Composition	C	Mn	Si	Cr	B	Fe
比例 Percentage	5.0	0.6	0.8	28.0	0.18	Bal

性能 Properties

硬度 HARDNESS: HRC 58-62, HV650-750
初生碳化物体积分数 VOLUME FRACTION PRIMARY CARBIDES ≥25%
适用工况温度不超过 350℃ The application temperatures should not exceed 350℃

制品 Manufacture and Fabrication

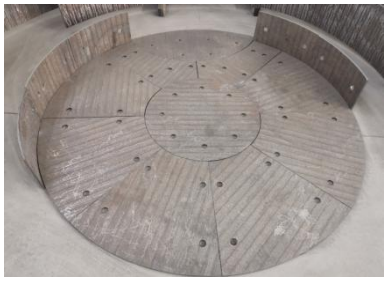
DECH60 涂层表面可磨，但不适于火焰切割，可等离子切割或激光切割。
DECH60 layer can be polished, but not suitable for flame cutting. Plasma/Laser cutting is recommended.

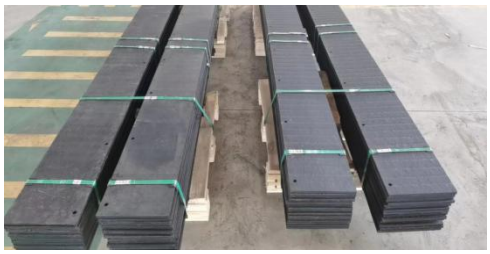
应用 Applications

溜槽、矿仓、给料机、工业风机和叶片、溢流板、料斗、旋风分离器、水泥设备等。
Chutes, Ore Bins, Feeders, Industrial Fans and Blades, Spill Plates, Hoppers, Cyclone Separators, Cement Equipment, ect.

图例 Cases





DCF-60 (DECH Cracks Free Series)

高耐磨无裂纹材料

HIGH ABRASION CRACKS FREE MATERIAL

耐磨 Wear resistance	■■■■■■■□□□
耐冲击 Impact resistance	■■■■■□□□□□
耐高温 Hi-temp resistance	■■■■■□□□□□
硬度 Hardness	■■■■■■■□□□

简介 Briefing

DCF-60 是一款专为物料转运系统开发的材料，拥有良好的抗滑动磨损性能，且具有很好的抗冲击磨损性能，适用于冲击磨损严重的工况

-基材是钢板，可焊性较好；

-耐磨层描述：复合碳化铬铁，初级 M7C3，耐磨层铬含量≥30%

DCF-60 is a material developed specifically for material transfer systems, with excellent resistance to sliding wear and impact&wear, suitable for working conditions with severe impact and abrasion

-The substrate is steel plate with good weldability;

-Wear resistant layer description: Composite carbide chromium iron, primary M7C3, wear-resistant layer chromium content ≥ 30%

化学成分 Typical Chemical Composition(Wt%)

成分 Composition	C	Mn	Si	Cr	Mo+Nb+Ti+V+W	Fe
比例 Percentage	3.5-7.0	0.5-2.5	0.5-2.5	23-35	-	Bal

性能 Properties

硬度 HARDNESS: HRC≥58

初生碳化物体积分数 VOLUME FRACTION PRIMARY CARBIDES ≥25%

适用工况温度不超过 350℃ The application temperatures should not exceed 350℃

制品 Manufacture and Fabrication

DCF-60 涂层表面可磨，但不适于火焰切割，可等离子切割或激光切割。

DCF-60 layer can be polished, but not suitable for flame cutting. Plasma/Laser cutting is recommended.

应用 Applications

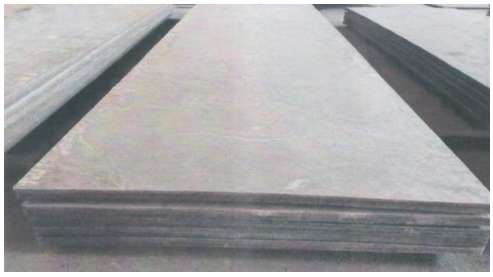
溜槽衬板、矿仓、溢流板、料斗、水泥设备等。

Chutes Liners, Ore Bins, Feeders, Spill Plates, Hoppers, Cement Equipment, ect.

图例 Cases







耐磨 Wear resistance	■■■■■■■■□□
耐冲击 Impact resistance	■■■□□□□□□□
耐高温 Hi-temp resistance	■■■■□□□□□□
硬度 Hardness	■■■■■■■□□□

DECH65

超耐磨材料 SUPPER ABRASION MATERIAL

简介 Briefing

DECH65 是一款特高铬耐中度冲击的耐磨材料
-基材是钢板，可焊性较好；
-耐磨层描述：复合碳化铬铁，初级 M7C3
DECH65 is a chromium carbide overlay used in a variety of material handling applications.
-The base material is mild steel plate, to ensure the finished parts are weldable.
-Overlay alloy description: complex chromium carbide iron, primary M_7C_3

化学成分 Typical Chemical Composition(Wt%)

成分 Composition	C	Mn	Si	Cr	B	Fe
比例 Percentage	5.0	0.6	0.8	32.0	0.18	Bal

性能 Properties

硬度 HARDNESS: HRC 60-64
初生碳化物体积分数 VOLUME FRACTION PRIMARY CARBIDES ≥30%
适用工况温度不超过 350℃ The application temperatures should not exceed 350℃

制品 Manufacture and Fabrication

DECH65 涂层表面可磨，但不适于火焰切割，可等离子切割或激光切割。
DECH65 layer can be polished, but not suitable for flame cutting. Plasma/Laser cutting is recommended.

应用 Applications

篦冷机、溜槽、矿仓、给料机、工业风机和叶片、溢流板、移动设备、料斗、堆垛机、采矿设备等。
Cross Bar Cooler, Chutes, Ore Bins, Feeders, Industrial Fans and Blades, Spill Plates, Mobile Plants, Hoppers, Excavator bucket, Stackers, Mining equipment, etc.

图例 Cases





DECH80

高耐磨耐冲击材料

HIGH ABRASION AND HIGH IMPACT MATERIAL

耐磨 Wear resistance	■■■■■■■■□□
耐冲击 Impact resistance	■■■■■■■□□□
耐高温 Hi-temp resistance	■■■■■□□□□□
硬度 Hardness	■■■■■■■□□□

简介 Briefing

DECH80 作为一款碳化铬堆焊层，可用于各种重型设备的磨损防护应用，以减少停机时间。

DECH80 is a chromium carbide overlay used in a variety of fixed plant industry or heavy equipment wear protection application to reduce down time.

-基材为低碳钢板，以确保成品零件可焊接。

-硬质合金堆焊层，硬质相含量超过 40%：初级 M7C3，尤其是在焊接过程中具有垂直生长方向，可获得比普通堆焊层更好的耐磨性能。适用于非常严重的磨料和一定的冲击应用。

-可根据客户要求形成各种厚度/形状。

-The base material is mild steel plate, to ensure the finished parts are weldable.

-Chromium carbide Overlay, with percentage more than 40% of hard phase: Primary M7C3 especially with the vertical growth direction during welding to have access to get best wear resistance performance than normal ones. Match to very severe abrasive and a certain of impact application.

-Various thickness/shapes can be formed according to customers request.

化学成分 Typical Chemical Composition(Wt%)

成分 Composition	C	Cr	Nb
比例 Percentage	≥4.0	≥25.0	≥4.5

性能 Properties

硬度 MATRIX HARDNESS　　HRC 60-65

主要碳化物 M_7C_3 含量 VOLUME FRACTION of M_7C_3　　≥40%

适用工况温度不超过 550℃ The application temperatures should not exceed 550℃

制品 Manufacture and Fabrication

-DECH80 板是通过将 DECH80 药芯焊丝焊接到低碳钢底座上制成的。

-底板可焊接；DECH80 层可以抛光，但不适合火焰切割；建议采用等离子切割或激光切割。

-DECH80 plate is manufactured by welding DECH80 Flux-cored wires to a mild steel base.

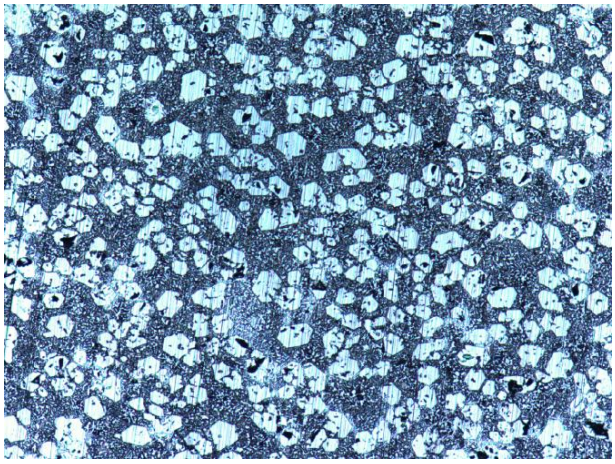
-The base plate is weldable. DECH80 layer can be polished, but not suitable for flame cutting. Plasma or laser cutting is recommended.

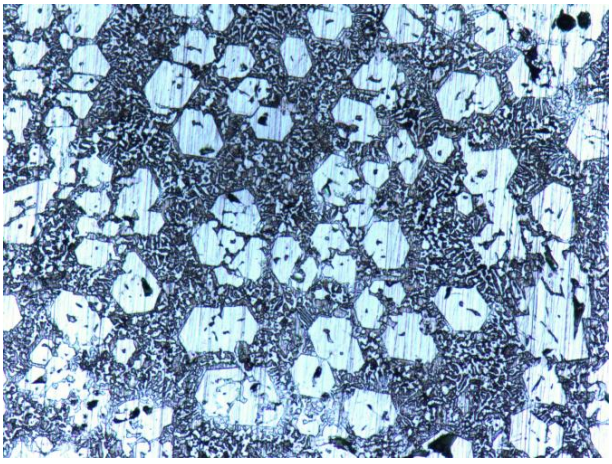
应用 Applications

-矿山溜槽	-矿仓	-给料机	-工业风机
-溢流板	-移动设备	-料斗	-旋风分离器
-Chutes	-Ore Bins	-Feeders	-Industrial Fans
-Spill Plates	-Mobile Plants	-Hoppers	-Cyclone Separators

金相 Microstructure

初生 M_7C_3 碳化物硬质相比例很高，沿垂直生长方向均匀沉积，周围为碳化物和奥氏体基体的网格状共晶织。
Very high percentage of primary M_7C_3 carbides hard phase deposited overlay uniformly along with vertical growth direction surrounded by grid shape eutectic structure of carbide and austenitic matrix.



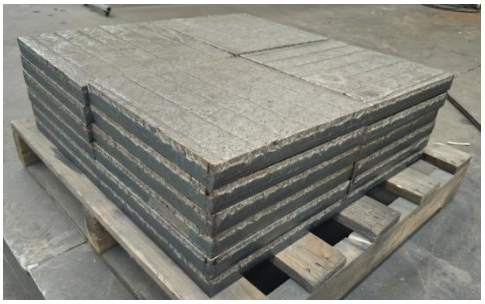


备注：
从显微镜照片上可以看出（上图横截面沿堆焊表面方向）
-M_7C_3 百分比超过 40%
-几乎所有 M_7C_3 碳化物的垂直生长方向
-M_7C_3 碳化物在堆焊层中均匀沉积
REMARKS:
From the microscope photos above-transverse section along with overlay surface direction.
-M_7C_3 percentage more than 40%
-Vertical growth direction of almost all M_7C_3 carbides
-M_7C_3 carbides deposited overlay uniformly in overlay

图例 Cases









DECH-H

耐高温超耐磨材料

SUPPER ABRASION AND HIGH TEMPERATURE MATERIAL

耐磨 Wear resistance	■■■■■■■■■□
耐冲击 Impact resistance	■■■■■□□□□□
耐高温 Hi-temp resistance	■■■■■■■■■□
耐腐蚀 Anti-corrosion	■■■□□□□□□□

简介 Briefing

DECH-H 是一款铁基高碳铬铌铜合金材料

-DECH-H 具有高级别的抗磨损性能，焊材中含初始碳化物，产生极高的硬度。

-基材是普通钢板，以保证其可焊性；可根据客户要求形成各种厚度/形状。

DECH-H is an iron based flux-cored material with high carbon chromium copper alloy.

-DECH-H layer shows high wear resistant and high temperature resistant performance.

-The base material is mild steel plate, to ensure the finished parts are weldable. Various thickness/shapes can be formed according to customers request.

化学成分 Typical Chemical Composition(Wt%)

成分 Composition	C	Cr	Mo	V	W	Nb
比例 Percentage	5.5	21.0	4.0	1.0	1.5	4.0

性能 Properties

硬度 HARDNESS HRC 58-62

适用工况温度不超过 850℃ The application temperatures should not exceed 850℃

制品 Manufacture and Fabrication

-DECH-H 耐磨复合板是通过 DECH-H 药芯焊丝焊接到低碳钢底座上制成的。

-底板可焊接；DECH-H 层可以抛光，但不适合火焰切割；建议采用等离子切割或激光切割。

-DECH-H plate is manufactured by welding DECH-H flux-cored wires to a mild steel base.

-The base plate is weldable.DECH-H layer can be polished, but not suitable for flame cutting. Plasma or laser cutting is recommended.

应用 Applications

-工业风机（高温部件）Industrial Fan (high temperature components)

-高炉炉盖表面 Surface of blast furnace cover

-烧结矿破碎机 Sinter crusher

-热尘传输管 Hot dust transmission pipes

-高炉布料溜槽 Blast furnace distribution chutes

示例 Cases





DECH-TCO6000

碳化钨高耐磨堆焊材料

Tungsten Carbide Overlay Material

耐磨性能 Anti-abration resistance	■■■■■■■□□□
耐冲击性能 Impact resistance	■■■■■□□□□□
耐高温性能 High temperature resistance	■■■■□□□□□□
硬度 Hardness	■■■■■■■■□□

产品描述 Description

-TCO6000 耐磨层表现出非常好的耐磨性能和较好的耐冲击性能

-TCO6000 layer shows high wear resistant and good impact resistant

-TCO6000 耐磨层可以被磨光，但是不适合火焰切割，不易进行加工

-TCO6000 layer can be polished, but not suitable for flame cutting, and cannot be processed.

应用 Applications

-耐磨板、耐磨管、风机、溜槽、矿车、铁矿溜槽等

-Wear plates, Wear pipes, Industrial Fan, Chute, Mining Truck, Chute for Iron Ore, etc.



化学成分 Chemical Composition				
化学成分 Composition	C	Cr	W	Fe
比例% Percentage%	4.5	28.0	3.0	Bal
平均硬度 Average Hardness : HRC=59-63				

堆焊参数 Overlaying Data				
直径 Diameter mm	电流 Currency A	电压 Voltage V	焊接速度 Welding Speed mm/min	干伸长度 Wire Extension mm
ϕ2.8mm	260-450	26-32	100-2000	20-30

注意：电流、电压的控制，直接影响堆焊的品质。

Notification：Different Currency data and Voltage data results in different quality and performance.

DECH-WC40P Data Sheet

40%TUNGSTEN CARBIDE MATERIAL

Wear resistance	■■■■■■■■□□
Impact resistance	■■■■■■■□□□
Hi-temp resistance	■■■■■□□□□□
Hardness	■■■■■■□□□□

Briefing of DECH-WC40P

DECH-WC40P is a tungsten carbide overlay used in a variety of material handling application.

Typical Chemical Composition(Wt%)

Chemical Composition							
Elements		W	C	Ni	Cr	Co	Others
Spec	Min	38.0	2.5	50.0	0.5	4.0	/
	Max	42.0	2.9	53.0	1.0	4.9	/
Items		Apparent Density (g/cm3)	Hall Velocity (s/50g)		Spherical Degree (%)		Dryness (%)
Spec	Min	6.0	11.0		90.0		99.9
	Max	8.0	12.5		100.0		100.0

Manufacture and Fabrication

-DECH-WC40P layer can be polished.

Applications

Chutes, Tubes, Rollers, Valves.

DECH-WC70P

含 70%碳化钨的熔覆耐磨材料

70%TUNGSTEN CARBIDE PTAW MATERIAL

耐磨 Wear resistance	■■■■■■■■□
耐冲击 Impact resistance	■■■■■■■□□
耐高温 Hi-temp resistance	■■■■■□□□□
耐腐蚀 Anti-corrosion	■■■■□□□□□

简介 Briefing

DECH-WC70P 是一款可应用于各种磨损场合的熔覆耐磨材料

-基材是普通低碳钢，以确保其可焊性

-熔覆层介绍：碳化钨颗粒均匀沉积，碳化钨总体积百分比约为 60%，重量百分比约为 70%

DECH-WC70P is a tungsten carbide overlay used in a variety of material handling application.

-The base material is mild steel plate, to ensure the finished parts are weldable.

-Overlay alloy description: WC particles deposit uniformly, Total WC volume percentage around 60%, weight percentage around 70%

化学成分 Typical Chemical Composition(Wt%)

项目 Item	碳化钨 Casted WC(70%)		NiBSi(30%)			
成分 Composition	W	C	C	B	Si	Ni

性能 Properties

微观硬度 MICROSTRUCTURE HARDNESS

碳化钨 WC (2000-2600) $HV_{0.2}$

镍基 Ni Matrix (620-700)$HV_{0.2}$

洛氏硬度 ROCKWELL HARDNESS

≥58HRC

制品 Manufacture and Fabrication

-DECH-WC70P 板是通过将 DECH-WC70P 金属粉末熔覆到低碳钢底座上制成的。

-底板可焊接；

-DECH-WC70P 熔覆层可以抛光，但不适合火焰切割；建议采用等离子切割或激光切割。

-DECH-WC70P plate is manufactured by PTA Welding metal power to a mild steel base.

-The base plate is weldable.

-DECH-WC70P layer can be polished, but not suitable for flame cutting. Laser or Plasma cutting is recommended.

应用 Applications

-溜槽
-Chutes

-工业风机
-Industrial Fan

-搅拌机械
-Mixing Machine

-矿山/水泥装备
-Mining/Cement Equipment

-农机刀具
-Agricultural Knives

-铲齿铲斗
-GET

金相 Microstructure

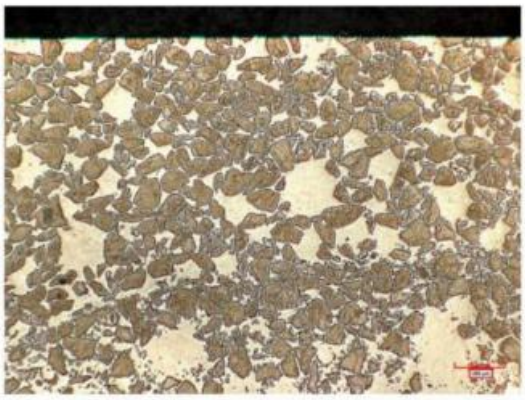


Figure 1: Micrograph of ML-20-343-01A, showing the top portion of the overlay. Magnification x100.

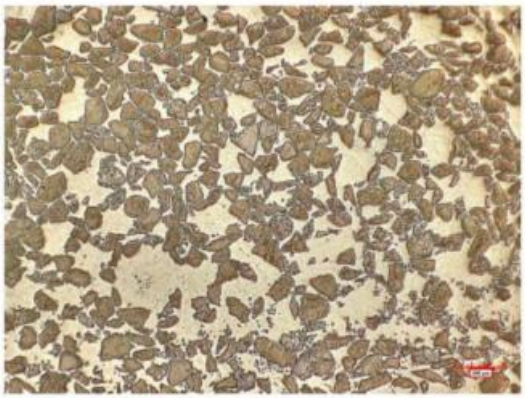
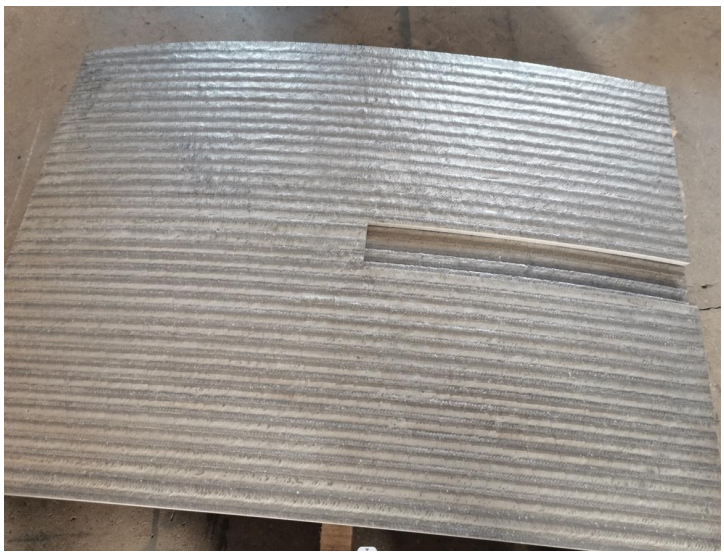


Figure 2: Micrograph of ML-20-343-01A, showing the midpoint of the overlay. Magnification x100.

图例 Cases







DECH3401

耐磨 Wear resistance	■■■■■■■■■□
耐冲击 Impact resistance	■■■■■■■■□□
耐高温 Hi-temp resistance	■■■■■■■□□□
硬度 Hardness	■■■■■■■■■□

超耐磨钼钒合金材料
Ultra-wear-resistant Mo-V alloy material

简介 Briefing

DECH3401 是一款超耐磨、高度耐冲击的耐磨材料

-DECH3401 可用于任何涉及严重磨损的工况。在抗冲击性和韧性方面的革命性改进可使其具有比镍基碳化钨材料或铁铬合金焊层更优异的寿命/性价比。

DECH3401 is a premium material featuring ultra-high wear resistance and excellent impact resistance.

-DECH3401 is suggested for use in any application where abrasion resistance is required. The revolutionary improvement in impact resistance and toughness will typically result in an extended lifetime/cost performance over WC/Ni and chromium carbide coatings.

性能 Properties

硬度 HARDNESS: HRC 63-68

硬硼化物/碳化物分数≥30% Hard Boride/Carbide Fraction≥30%

磨耗失重量数据对比 Wear weight loss data contrast（SCR-DECH-20260412）:

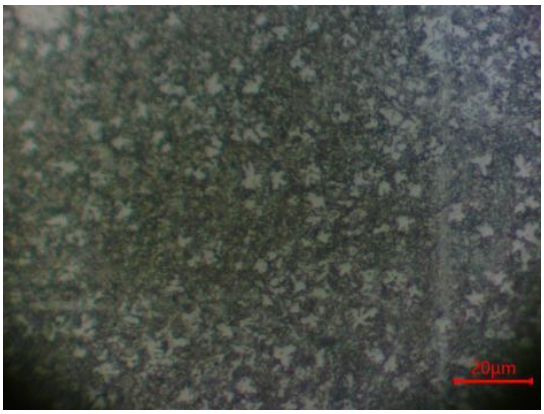
Q355B（0.653g），40%WC/Ni（0.064g），70%WC/Ni（0.023g），DECH3401（0.022g）

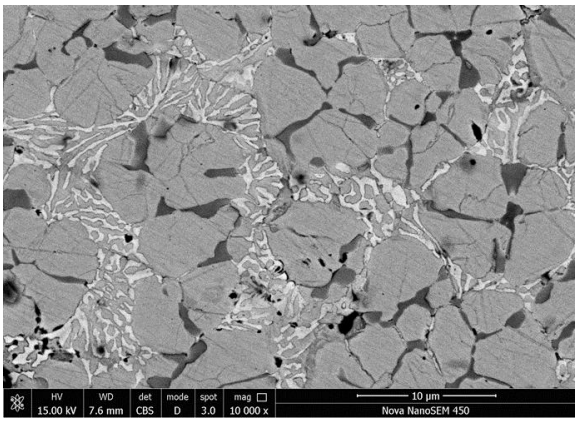
制品 Manufacture and Fabrication

DECH3401 涂层表面可磨，但不适于火焰切割，可等离子切割或激光切割。

DECH3401 layer can be polished, but not suitable for flame cutting. Plasma/Laser cutting is recommended.

金相 Metallography





应用 Applications

- ■振动筛 Shaker screens
- ■溜槽/衬板 Chutes/Liners
- ■磨矿机衬里 Mill liners
- ■铲斗铲齿 GET
- ■平地机刮板等地面接合工具 Grader blades and other ground engaging tools
- ■耐磨刀具/叶片 Wear knives/blades
- ■煤浆管线 Slurry pipes
- ■其他高磨损耐冲击应用 Other high wear and impact applications



www.dechchina.com

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