



深圳市海明润超硬材料股份有限公司
Shenzhen Haimingrun Superhard Materials Co., Ltd



信誉第一, 质量第一

HMR Introduction

Oct. 2025



The 1st Part - Facility and Manufacturing Vision



Company



Haimingrun was founded in 2000, is national high-tech enterprise and nationally recognized "Little Giant" enterprise, is specialized in the research, development, production, and sales of super-hard materials. The factory is more than 14,000 square meters

Employees: over 400

Products including: PDC cutters, PCD cutting tool blanks and Mining PDC bits.

Main products: Oil & Gas PDC cutters, yearly output: 2 millions pcs





Company

HMR
LIMITED



Shenzhen Headquarter
Office
Headquarters, sales, 60
employees



Shenzhen R&D Office
20 employees



Houston Office
3 employees
9450 Grogan's mill road
the Woodlands, TX



Zhongshan Facility
Manufacturing, 250 employees



Thailand Facility
90 employees



Honors



Guangdong Top 500 Manufacturing Enterprise
Guangdong Outstanding Manufacturing Enterprise
Guangdong Outstanding Brand Demonstration Enterprise
Shenzhen Well-known Brand
Excellent Member of the Superhard Materials Association
Excellent Superhard Materials Enterprise



Main Customers

HMR



Service Countries
over **25**



Long-term partner of **oil service giant**



We have been rated as a **Gold-level and strategic partner** by world-class oilfield service company for over **10** years.



Main Customers





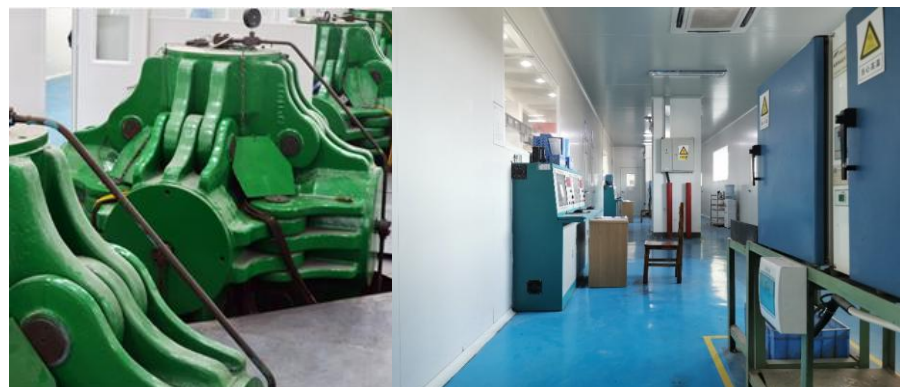
60 Patents





Production Process

HMR
LIMITED



Sintering



PCD table laser machining



Carbide OD grinding



Chamfering and height control





Shaped Cutters Product Line

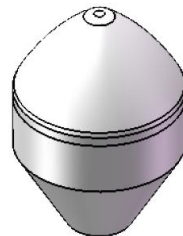
HMR



30 sets Laser shaping machines



3 sets Automated surface grinder: TD cutters



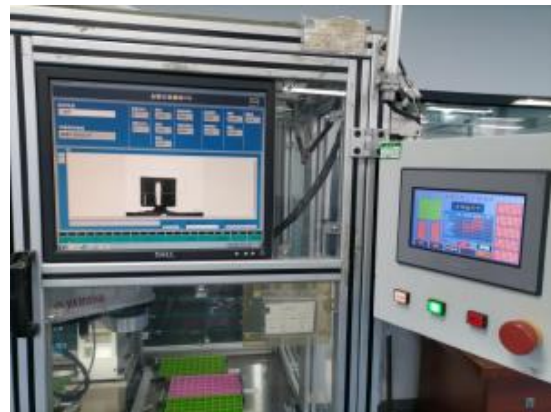
2 sets Laser lathe



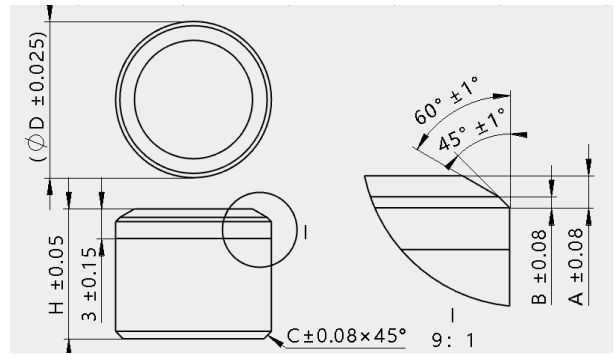
9 sets CNC grinder: dome, radius substrate chamfer



AI Inspection-Dimensions



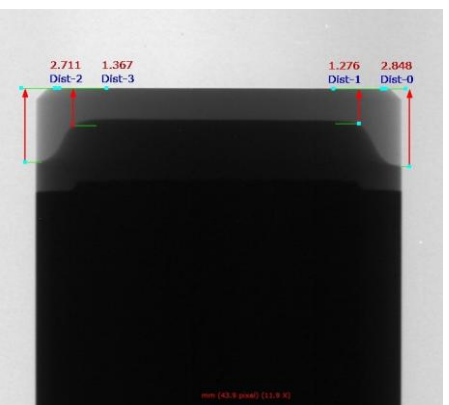
Automatic Measure System



Geometry



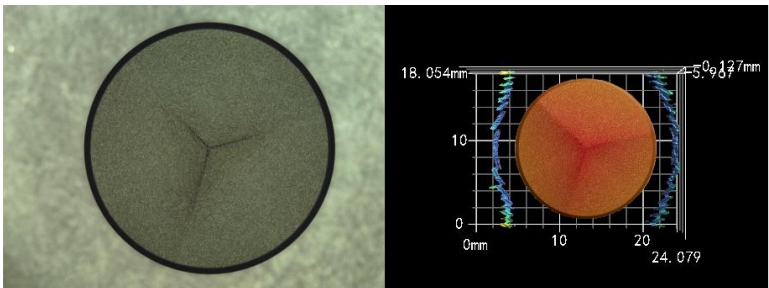
X-ray System



Leaching Depth



3D Profiler



Shape



The 2nd Part - New Technologies and Products

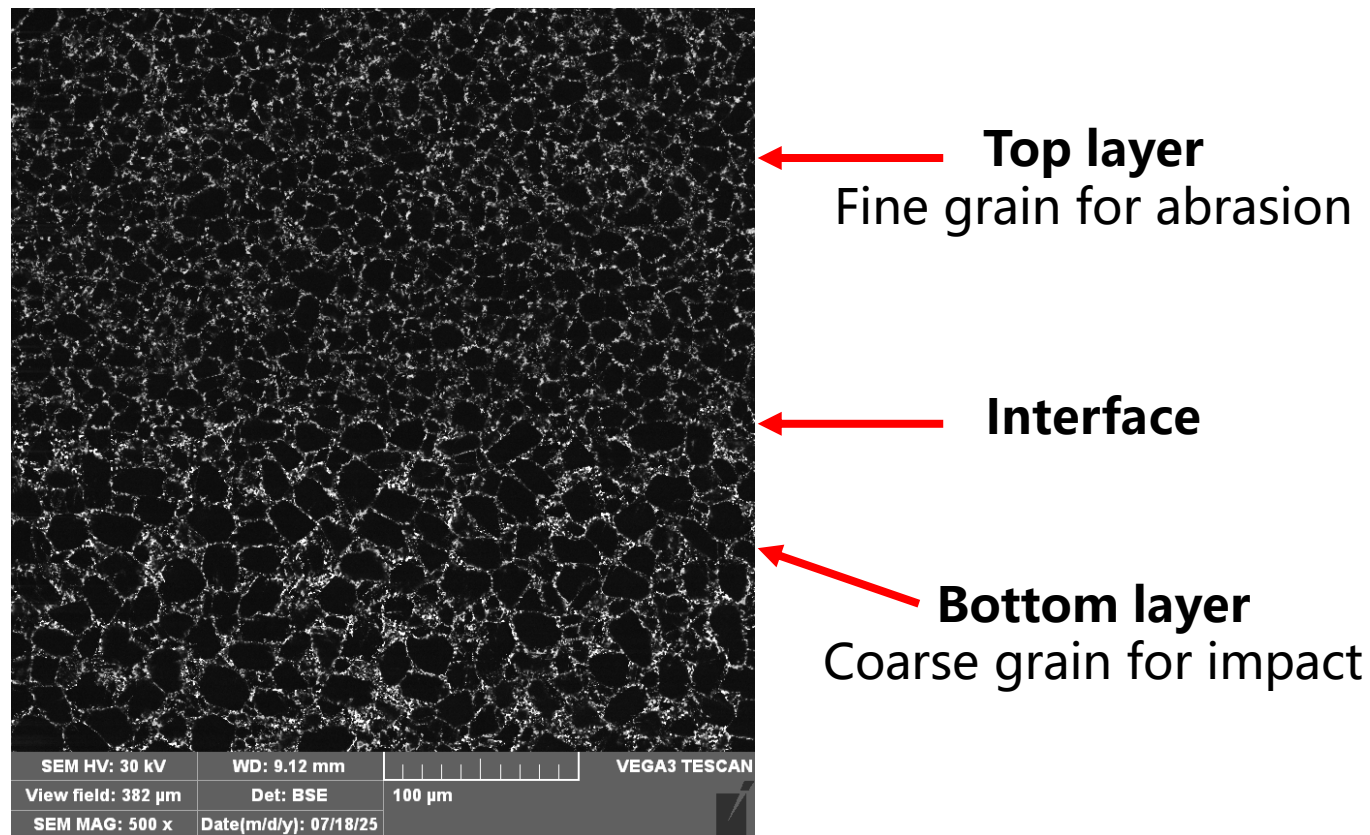
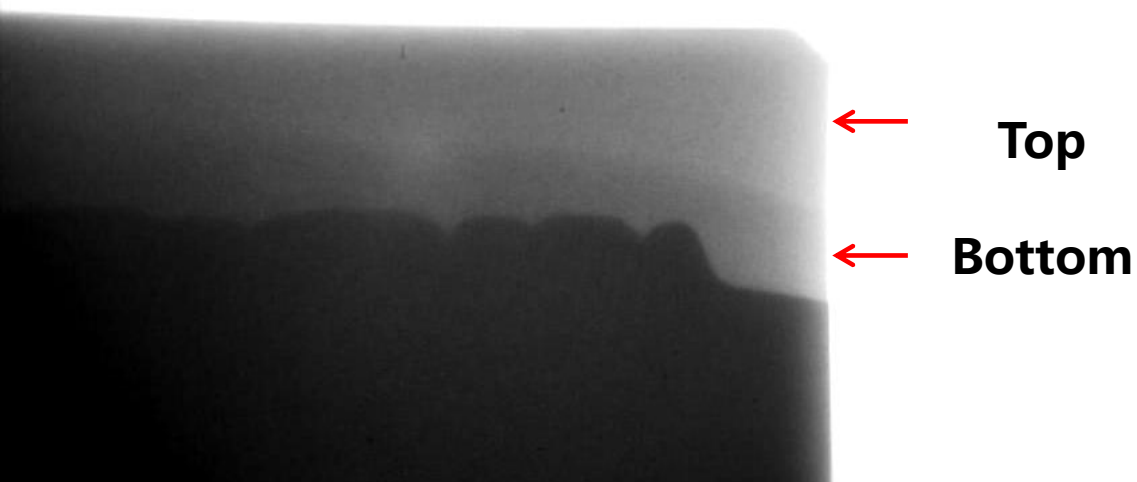


Toughness Enhancement

Bi-layer PDC design:

Top layer: As the working layer, top layer uses fine grains to guarantee excellent abrasion performance;

Bottom layer: Bottom layer is composed of coarse grains, enhancing the overall toughness of the PDC cutter.





Impact

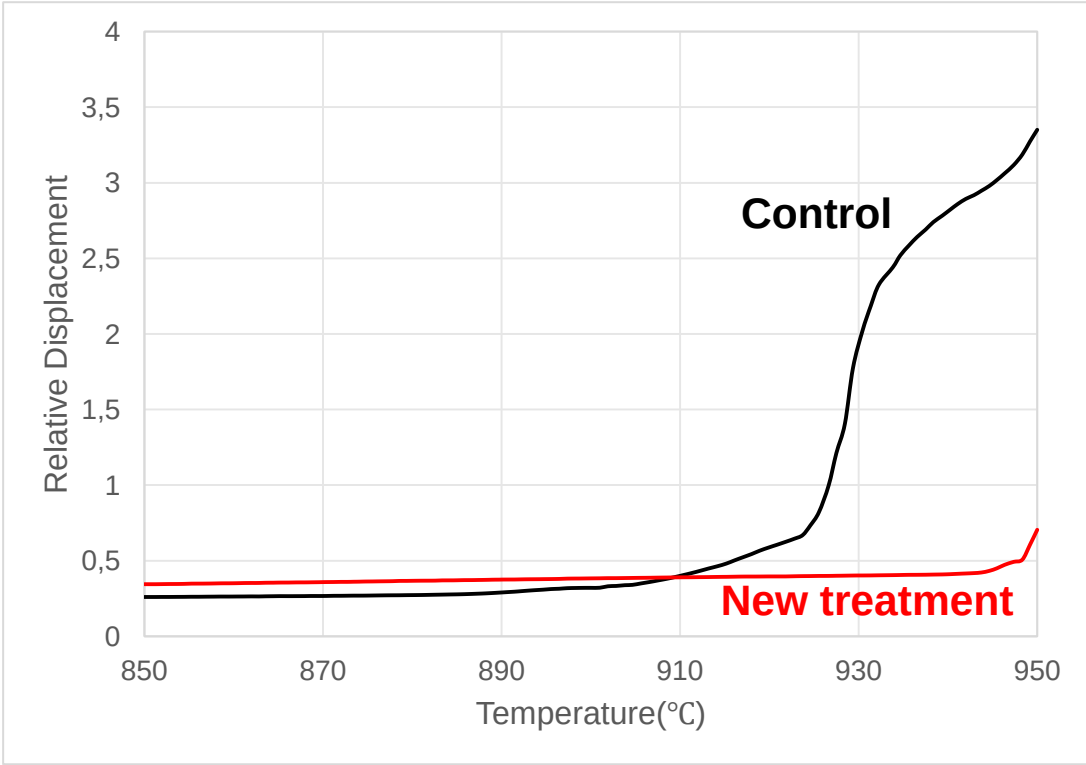
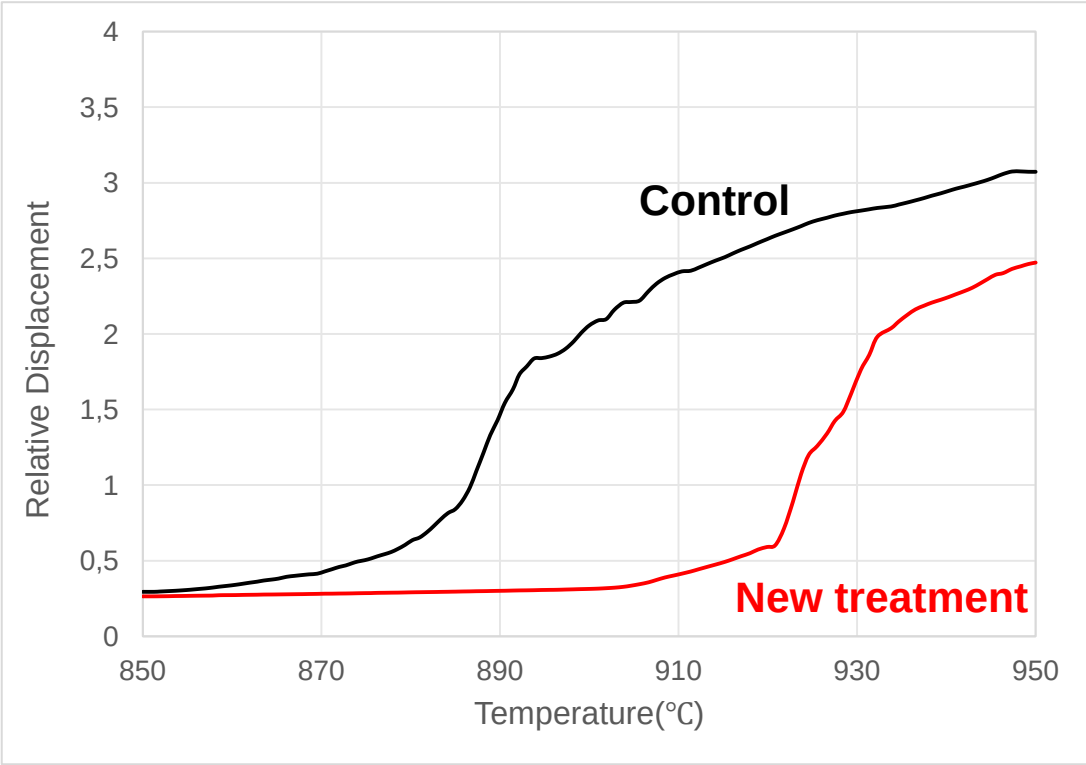
Product	Energy	Sample										Average*	S.D.*
		1#	2#	3#	4#	5#	6#	7#	8#	9#	10#		
Mono-layer 3.0 mm	40J	10	10	10	10	10	10	5	3	1	1	7.3	3.5
	50J	8	2	2	1							1.6	0.4
	Cumulative energy*/J	800	500	500	450	400	400	200	120	40	40	326.2	168.4
Bi-layer 3.0 mm	40J	10	10	10	10	10	10	8	6	6	5	8.7	1.7
	50J	8	5	4	1							3.3	1.7
	Cumulative energy*/J	800	750	600	450	400	400	360	240	240	200	430.0	162.2
			No obvious damge			Chipping			Delamination				

*Deduct the max and min values.



Thermal Sustaining Improvement

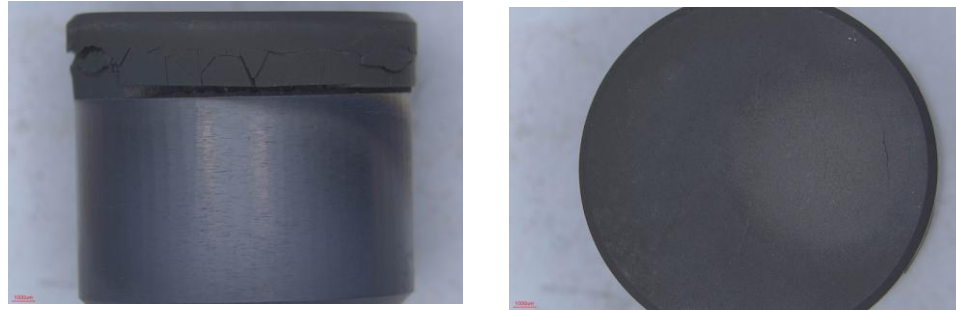
New Treatment	Temp (°C, non-leached)	Temp (°C, Leached)
Yes	906.8	945.2
No/Control	870.3	905.6



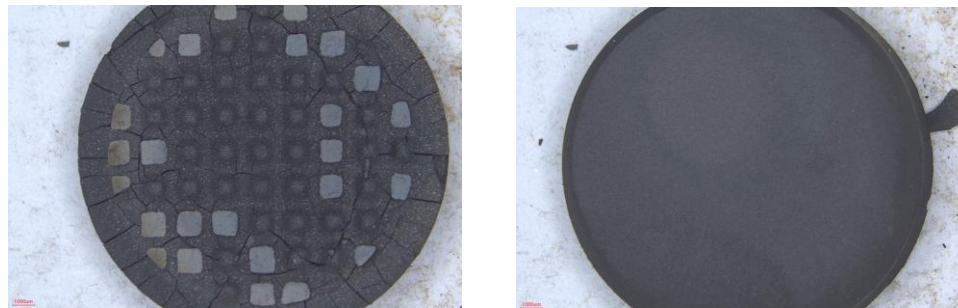


Dilatometer Test

Non-leached

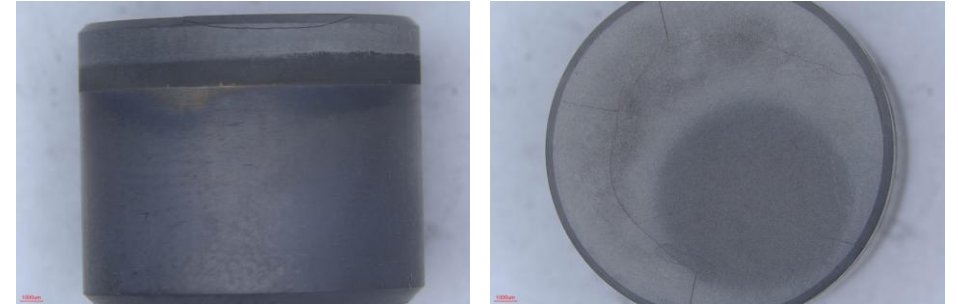


New Treatment

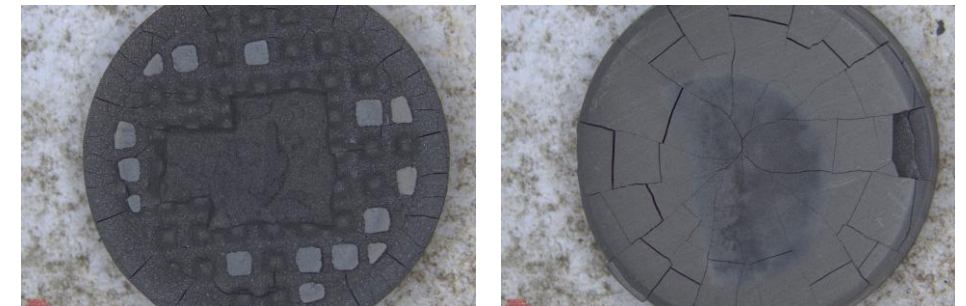


Control

Leached



New Treatment



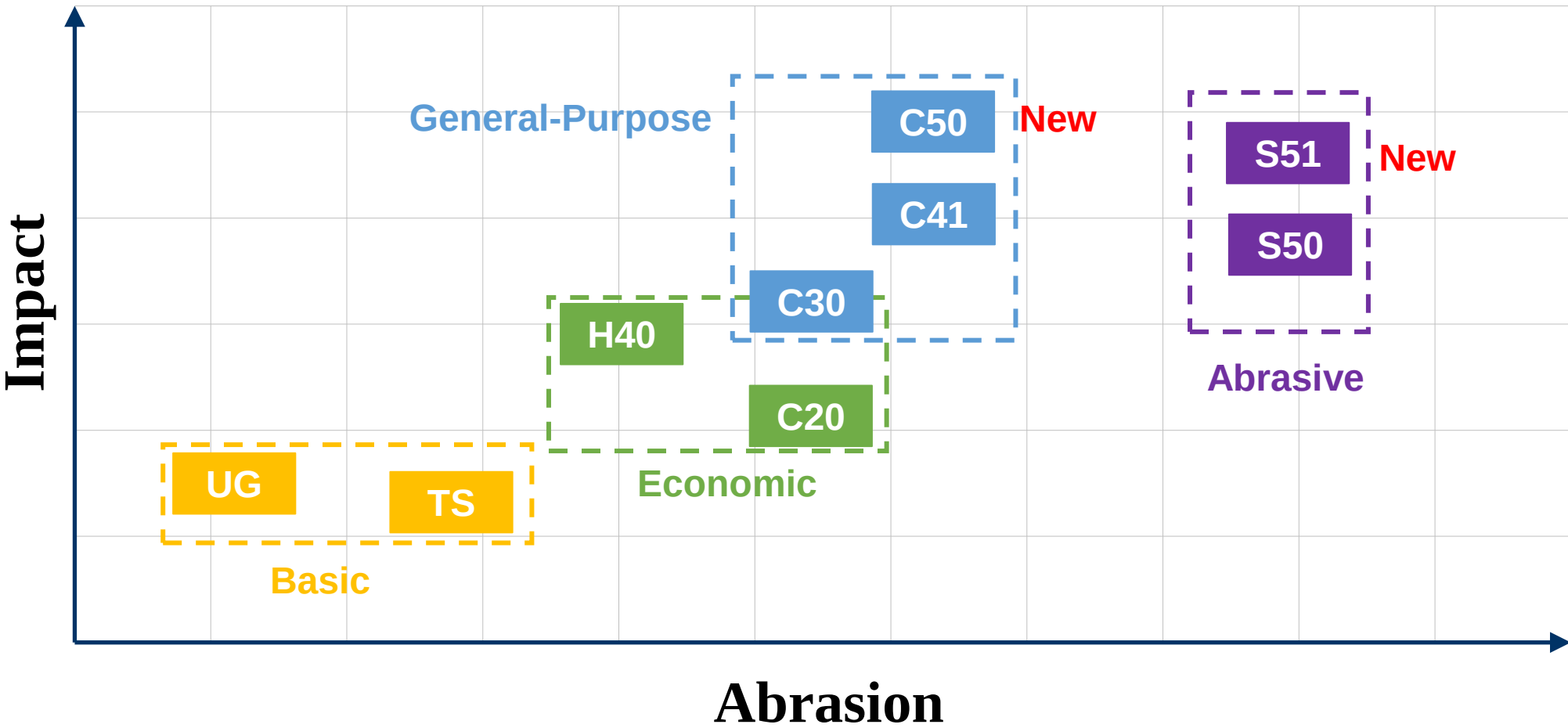
Control

Sample with the new treatment shows **less crack and stronger PCD-carbide binding** in dilatometer testing.



Product Performance

Performance Map



Performance is based on lab testing and field results.



New Product

HMR

C50-Balanced Cutter

Characters:

1. Anti-impact ability and wear resistance are balanced,
2. Diamond table thickness: **3mm**
3. Recommended leaching depth: **800 μm**

Wear resistance: ★★★★★

Anti-impact: ★★★★★

Thermal: ★★★★★



C50

The toughness is improved further

1. Stronger diamond mix with extremely cleaning
2. Introduction of bilayer structure ensures improved impact resistance while maintaining wear resistance
3. Upgraded pressing technology to make a more uniform pressure gradient and a better thermal gradient.
4. A new design of interface to improve the bonding between PCD table and carbide.

Dimension to choose

1308, 1313, 1608, 1613, 1913



VTL Test

Parameters	Values
Rock outer diameter	1000 mm
Rock inner diameter	280 mm
Rock compression strength	137 MPa
Rock flexural strength	9.6 MPa
PDC cutting angle	20°
Feed	5.08 mm/revolution
DOC	0.25 mm
RPM	101 RPM
Coolant	Water

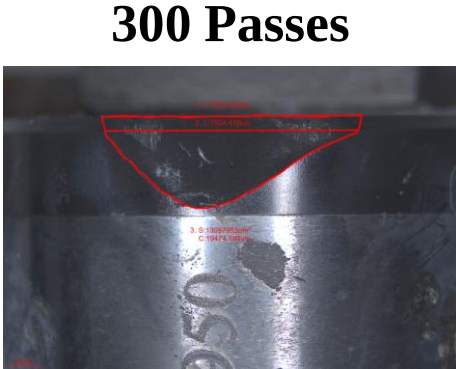
C50



5.29mm²



9.68mm²

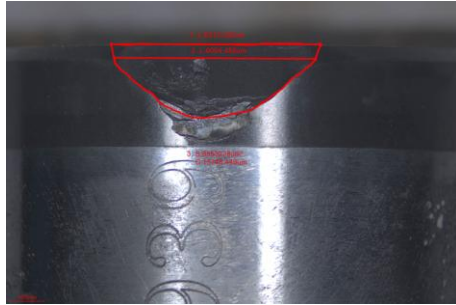


13.10mm²

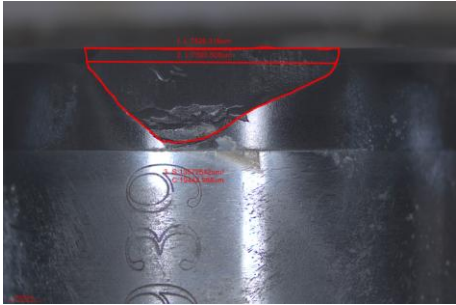
C41



5.33mm²



9.55mm²

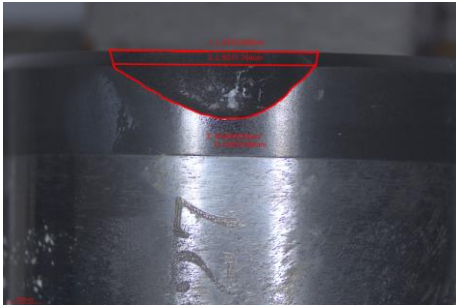


13.57mm²

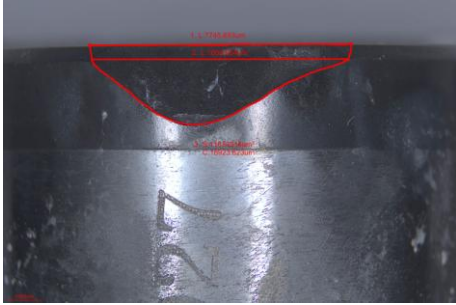
XM53



4.80mm²



8.55mm²



11.63mm²



Impact

Product	Energy	Sample										Average*	S.D.*
		1#	2#	3#	4#	5#	6#	7#	8#	9#	10#		
C50 3.0 mm	40J	10	10	10	10	10	9	9	8	3	3	8.6	2.2
	50J	9	8	4	3	3						4.5	2.0
	Cumulative energy*/J	850	800	600	550	550	360	360	320	120	120	457.5	195.7
C41 3.0 mm	40J	10	10	10	9	8	8	5	5	3	3	7.3	2.4
	50J	9	8	6								7.0	1.0
	Cumulative energy*/J	850	800	700	360	320	320	200	200	120	120	377.5	228.8
			No obvious damage			Chipping			Delamination				

*Deduct the max and min values



New Product

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LIMITED

S51-Abrasive cutter

Characters:

1. High wear resistance with fine grains
2. Diamond table thickness: **3.0 mm**
3. Recommended leaching depth: **800 μm**

Wear resistance: ★★★★★

Anti-impact: ★★★★★

Thermal: ★★★★★



S51

Good toughness and excellent abrasion performance

1. New mix to improve toughness.
2. The introduction of bilayer structure ensures improved impact resistance while maintaining wear resistance
2. New interface design to improve the bonding between PCD and carbide.
3. A robust mixing method to improve the consistency of the PCD table.

Dimension to choose

1308, 1313, 1608, 1613,



VTL Test

Parameters	Values
Rock outer diameter	1000 mm
Rock inner diameter	280 mm
Rock compression strength	137 MPa
Rock flexural strength	9.6 MPa
PDC cutting angle	20°
Feed	5.08 mm/revolution
DOC	0.25 mm
RPM	101 RPM
Coolant	Water

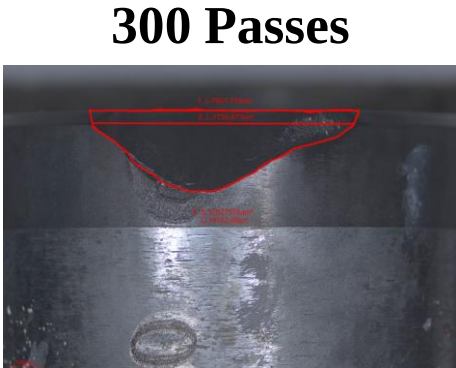
S51



4.76mm²

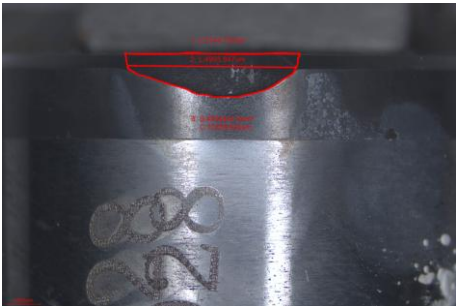


9.57mm²

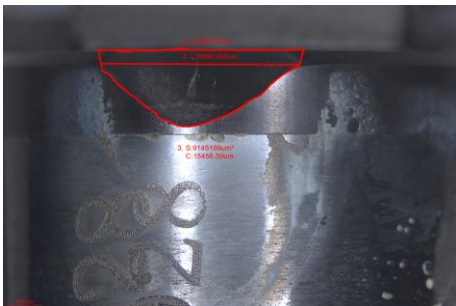


12.02mm²

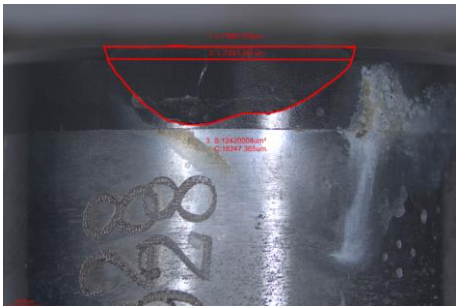
DLM



4.95mm²

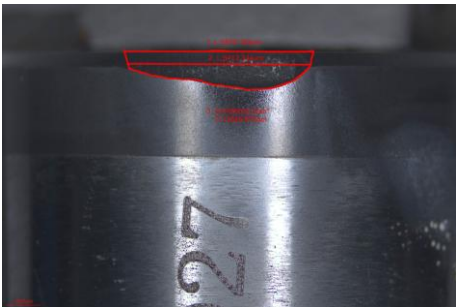


9.15mm²

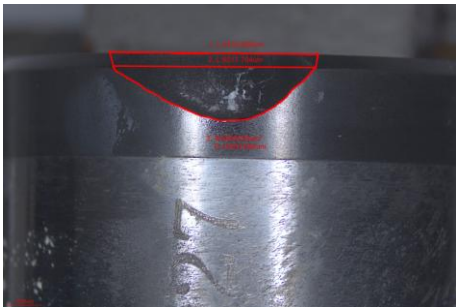


12.42mm²

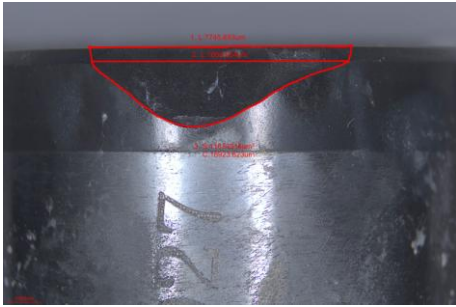
XM53



4.80mm²



8.55mm²



11.63mm²



Impact

Product	Energy	Sample										Average*	S.D.*
		1#	2#	3#	4#	5#	6#	7#	8#	9#	10#		
S51 3.0 mm	40J	10	10	10	10	10	9	8	6	5	3	8.5	1.8
	50J	2	2									2.0	/
	Cumulative energy*/J	500	500	400	400	400	360	270	240	200	120	346.2	96.8
XM53 3.0 mm	40J	10	10	10	10	10	7	6	5	4	4	7.7	2.5
	50J	5	5	3	1							3.0	1.6
	Cumulative energy*/J	650	650	550	450	400	280	240	200	160	160	366.2	175.7
			No obvious damage			Chipping			Delamination				

*Deduct the max and min values



S51



Location: Sichuan
Footage: 442m (1454-1896 m)



S51

HMR
LIMITED



HMR S51

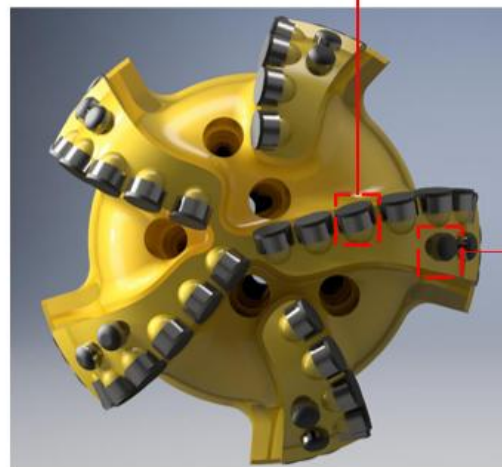


US Synthetics DLA-300



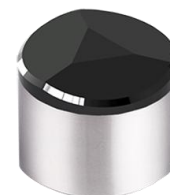
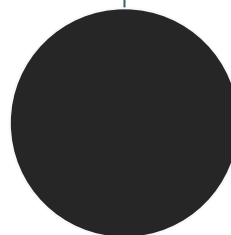
HMR S51

Shaped cutters



EDM cutting
CNC grinding
Laser machining

EDM
CNC
grinding



DB



L



VT



FM1



FM3



CCQ



TD



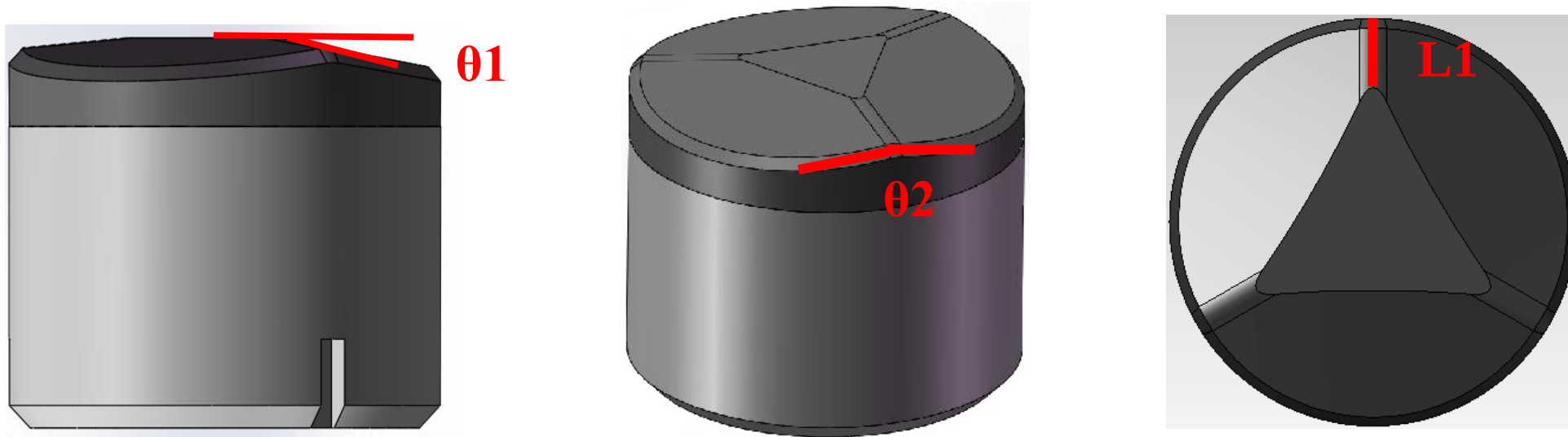
2D



QG



Benz



	Angle θ_1	Angle θ_2	Length L_1
DBB	5°	161°	3.05
DB4	6°	160°	3.15
DBP	6°	157°	3.08



VTL Test

Parameters	Values
Rock outer diameter	1500 mm
Rock inner diameter	400 mm
Rock compression strength	157 Mpa
Rock flexural strength	9.4 Mpa
PDC cutting angle	20°
Feed	108 mm/min
DOC	0.5 mm
Velocity	168 m/min
Coolant	Water

DBB

DB4

DBP

10 Passes



5.28 mm²



5.74 mm²



4.99 mm²

20 Passes



8.38 mm²



7.64 mm²



7.11 mm²

30 Passes



10.33mm²



9.63 mm²



8.51 mm²



Impact

*Deduct the max and min values.



Product	Energy	Sample										Average*	S.D.*
		1#	2#	3#	4#	5#	6#	7#	8#	9#	10#		
DBB	40J	10	10	10	10	10	10	10	9	8	6	9.6	0.7
	50J	10	10	10	10	10	9	7				9.3	1.1
	60J	10	10	10	10	6						9.0	1.7
	70J	10	10	10	8							9.3	0.9
	Cumulative energy*/J	2220	2220	2220	2060	1260	850	750	360	320	240	1255.0	758.6
DB4	40J	10	10	10	10	10	10	10	10	9	8	9.9	0.3
	50J	10	10	10	10	10	10	9				9.8	0.4
	60J	10	10	10	10	4	3					7.4	3.2
	70J	10	10	10	10							10.0	0.0
	Cumulative energy*/J	2200	2200	2200	2200	1140	1080	850	400	360	320	1306.3	741.1
DBP	40J	10	10	10	10	10	10	10	10	9	8	9.9	0.3
	50J	10	10	10	10	10	10	9	8			9.6	0.7
	60J	10	10	10	10	10	7					8.5	2.2
	70J	10	10	10	10	3						8.2	3.0
	Cumulative energy*/J	2200	2200	2200	2200	1710	1320	850	800	360	320	1455.0	683.9
			No obvious damage			Chipping			Delamination				



Thanks !