



PCD MICRO DRILL

Semiconductor industry National defense field Aerospace

Chip&Communication electronics Automotive electronics

High-end medical equipment field

Super-Precision Maching $\varnothing 0.2$ - $\varnothing 2$ mm



Produkteigenschaften

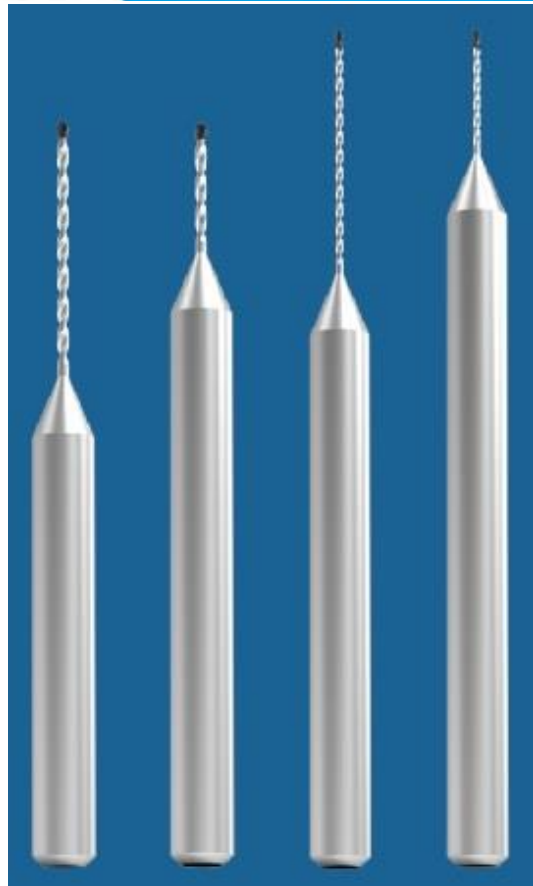
Der PCD-Mikrobohrer zeichnet sich durch hohe Härte, Verschleißfestigkeit und eine relativ langer Lebensdauer im Vergleich zu herkömmlichen Mikrobohrern aus.

Der PCD-Mikrobohrer wird für die Verarbeitung von Nichteisen-Materialien verwendet und kann auch für die Bearbeitung anorganischer nichtmetallischer Materialien mit hoher Verarbeitungspräzision verwendet werden.

PCD-Mikrobohrer erzeugen im Vergleich zu herkömmlichen Mikrobohrern bessere Oberflächen-Qualitäten.



SUPER-PRECISION
φ0.2-φ2 mm
PCD MICRO DRILL



Wir stellen den PCD-Bohrer für Ihre Bedürfnisse her!

Bitte teilen Sie uns Ihre Bearbeitungsdaten mit, damit wir das passende Produkte für Sie herstellen können. Ideal ist es, wenn Sie und auch einen Zeichnungsausschnitt zukommen lassen können.

Fragen Sie uns für alle Arten von Diamantwerkzeugen an:

Fräser

Wendeplatten

Bohrer

Reibahlen

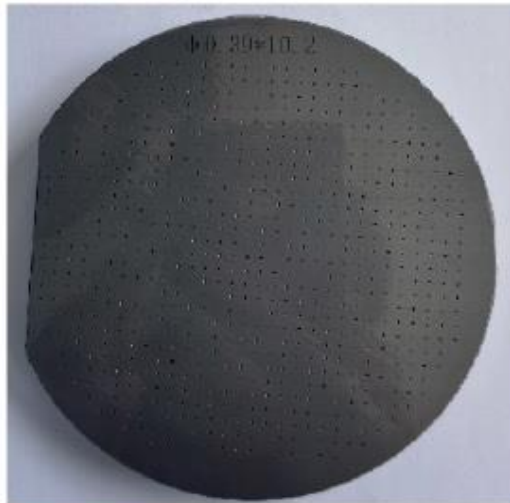
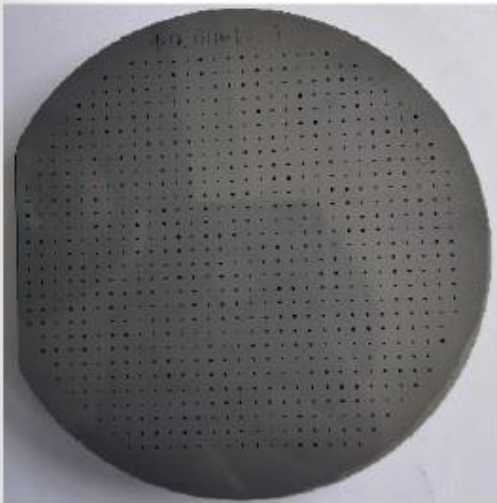
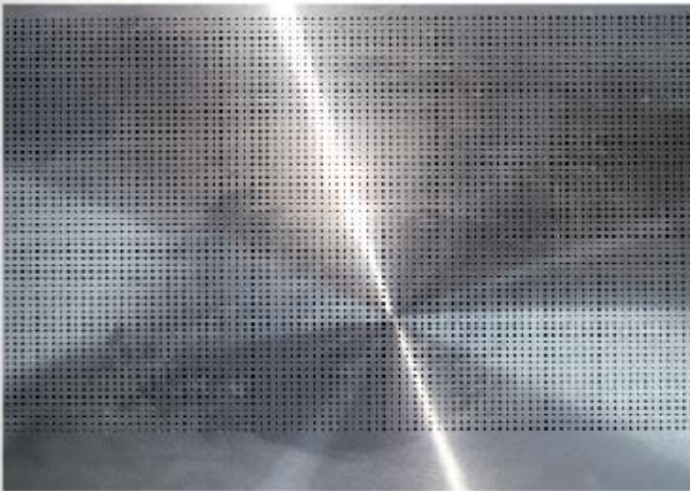
Schleifscheiben

Schleif- und Polierpasten

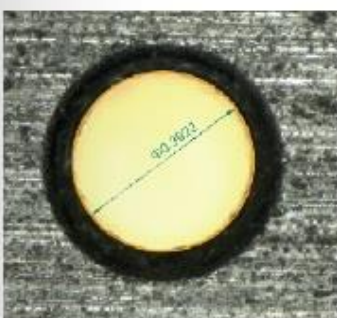
Sonderwerkzeuge

Nachfolgend noch einige Bearbeitungsbeispiele:

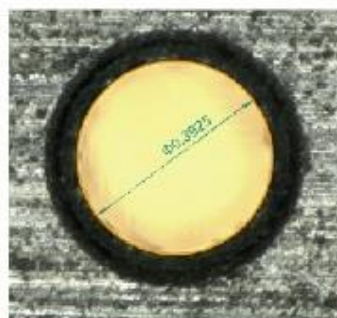
MONOCRYSTALLINE SILICON PROCESSING CASE 1



Material: monocrystalline silicon
Bore Diameter: 0.39
Depth: 10.5
Surface Hardness: 50Gpa
Holes Qty.: 2000 pcs

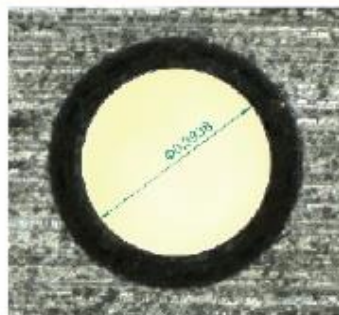


◀
Bore Diameter (starting)



◀
Bore Diameter (200 pc)

▶
Bore Diameter (400 pcs)



▶
Bore Diameter (800 pcs)



Remark: selection of WZ3 series PCD microdrill

MONOCRYSTALLINE SILICON PROCESSING CASE 2

monocrystalline silicon(0.39*10.5)-drilling parameter and quality

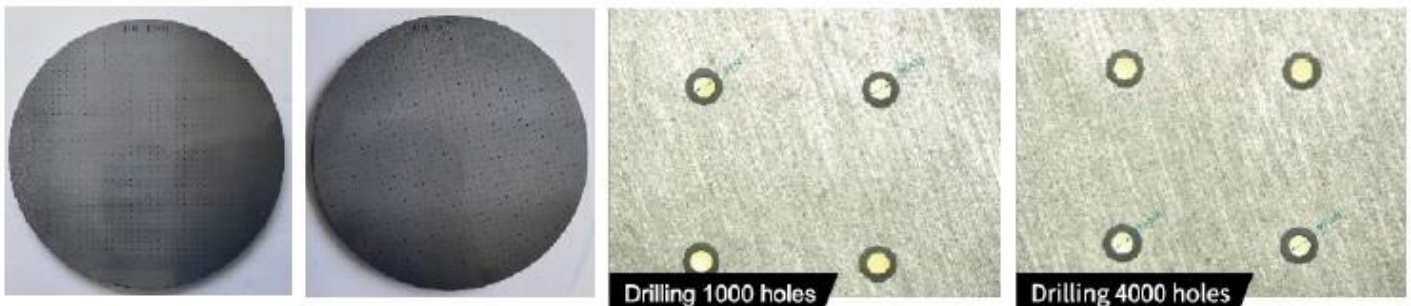
Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	10	0.1	10.5	167	G83
Unit	r/min	mm/min	mm	mm	S	

Index	Borehole diameter	Starting diameter	Ending diameter	Stability in 800 holes	Hole roundness	Chipping
Data	0.391	0.392	0.394	<0.01	<0.005	<0.01
Unit	mm	mm	mm	mm	mm	mm

monocrystalline silicon(0.5*7)-drilling parameter and quality

Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	20	0.4	6.5	24	G83
Unit	r/min	mm/min	mm	mm	S	

Index	Borehole diameter	Starting diameter	Ending diameter	Stability in 50 holes	Hole roundness	Chipping
Data	0.497	0.501	0.503	<0.01	<0.005	<0.01
Unit	mm	mm	mm	mm	mm	mm

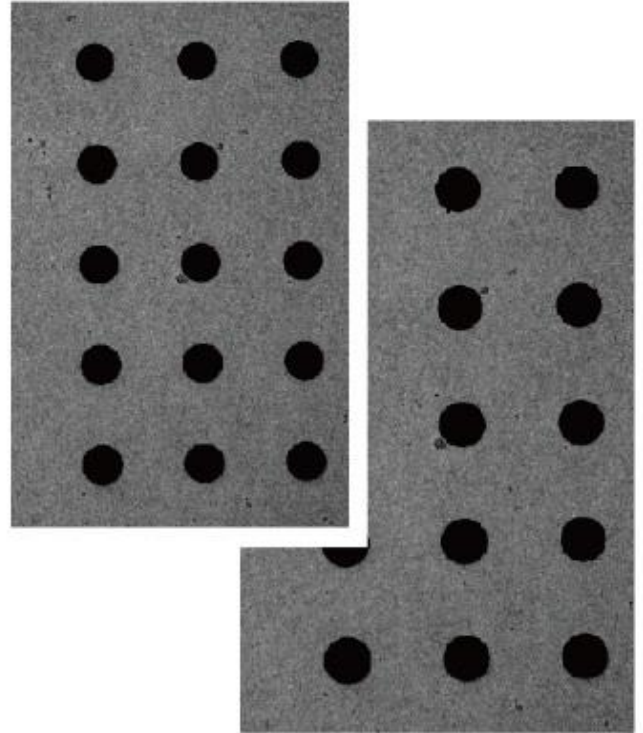


Remark: selection of WZ3 series PCD microdrill

SIC NON-PRESSURE SINTERING CERAMIC PROCESSING CASE - $\Phi 0.45$

SIC non-pressure sintering ceramic parameter

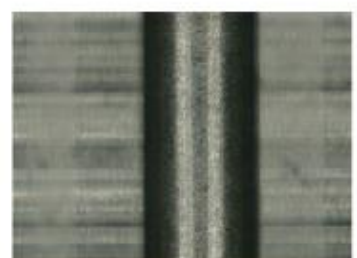
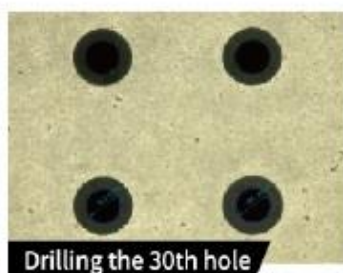
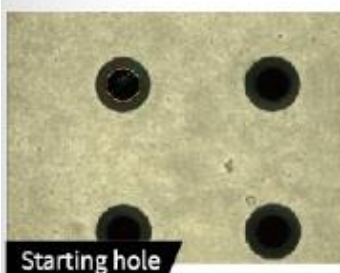
Index	Performance	Unit
Volume Density	> 3.12	g/cm ³
Purity	98.50%	%
Bending strength	> 400	Mpa
HRC	> 93	HBA
Thermal conductivity	148	W/m·k
MOE	415	GPa
Fracture toughness	> 4.5	Mpa.m ^{1/2}
Application	Cooling fin, bulletproof plate, mechanical seal sandblasting nozzle	



SIC non-pressure sintering ceramic -drilling parameter and quality

Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	5	0.1	5	145	G83
Unit	r/min	mm/min	mm	mm	S	

Index	Borehole diameter	Starting diameter	Ending diameter	Stability in 30 holes	Hole roundness	Chipping
Data	0.450	0.451	0.455	< 0.01	< 0.005	< 0.01
Unit	mm	mm	mm	mm	mm	mm



Remark: selection of WZ3 series PCD microdrill

CERAMIC PROCESSING CASE - $\Phi 0.799$

Alumina ceramic parameter

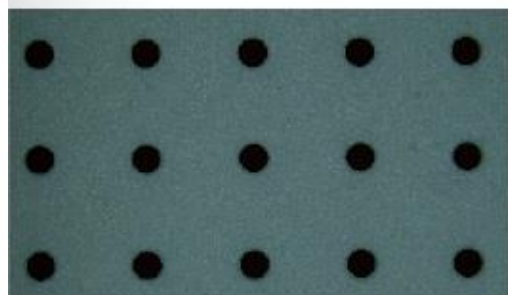
Performance	Alumina content	Volume density	Hardness	Bending strength	Maximum service temperature	Continuous working temperature	Acid resistance
Unit	wt%	g/cm ³	HRA \geq	MPa \geq	°C	°C	mg/cm ² \leq
Data	$\geq 96\%$	$\geq 3.7\%$	86	300	1600	1100	7

Performance	Alkali resistance	Wear resistance	Compressive strength	Flexural strength	MOE	Poisson's ratio	Thermal conductivity
Unit	mg/cm ² \leq	g/cm ² \leq	mpa \geq	mpa \geq	G Pa		W/m.K(20°C)
Data	0.2	0.2	2000	200	300	0.2	24

Silicon carbide non-pressure ceramic-drilling parameter and quality

Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	10	0.15	12.5	158	G83
Unit	r/min	mm/min	mm	mm	S	

Index	Borehole diameter	Starting diameter	Ending diameter	Stability in 300 holes	Hole roundness	Chipping
Data	0.799	0.802	0.793	<0.015	<0.005	<0.01
Unit	mm	mm	mm	mm	mm	mm

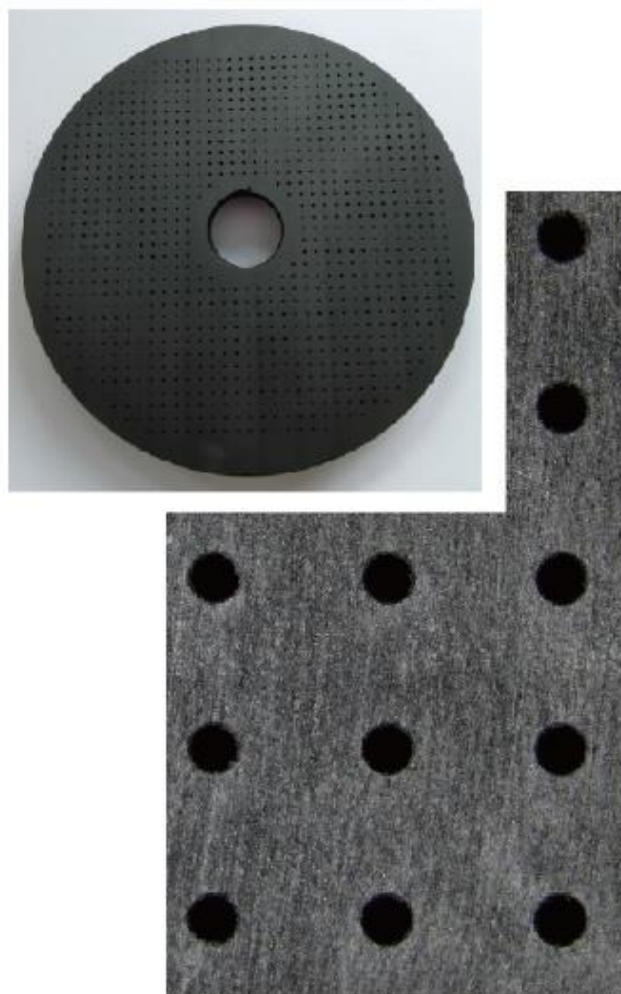


Remark: selection of WZ2 series PCD microdrill

GRAPHITE PROCESSING CASE - $\Phi 0.798$

Isostatic pressing formed graphite

P/N	LTD-8	
Volume density	G/cm ³	1.9-1.93
Electrical resistivity	U Ω M	11-13
Thermal conductivity (100°C)	W/M-K	85
Thermal expansion	10-6/°C	5.85
Shore hardness	HSD	70
Flexural strength	MPA	60
Compressive strength	MPA	135
MOE	GPA	12
Air hole rate	%	11
Particle size	μ m	8-10
Application	Metallurgy, chemical industry, electric power, light industry, abrasive tools	



Graphite-drilling data and quality

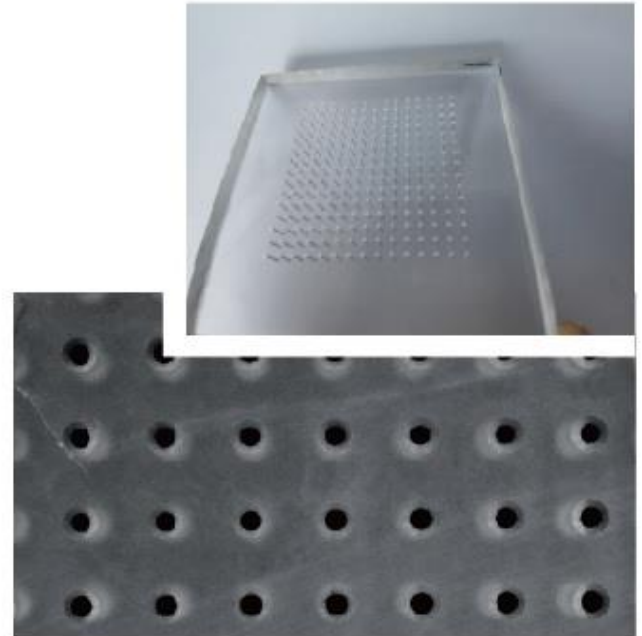
Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	40	0.4	11	47	G83
Unit	r/min	mm/min	mm	mm	S	
Index	Borehole diameter	Starting diameter	Diameter of the 2000th hole	Stability in 2000 holes	Hole roundness	Chipping
Data	0.798	0.799	0.801	<0.005	<0.01	<0.01
Unit	mm	mm	mm	mm	mm	mm

Remark: selection of WZ1 series PCD microdrill

QUARTZ GLASS PROCESSING CASE—Φ0.455

Quartz glass parameter

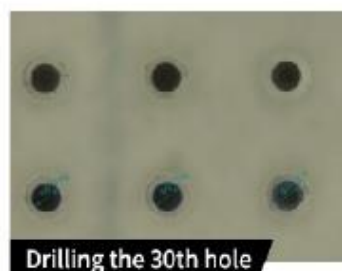
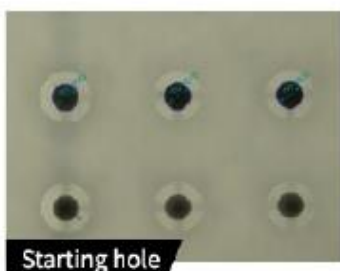
Index	Unit	Performance
softening temperature	°C	1730
Purity	%	99.98
Mohs hardness	level	7
volume density	g/cm ³	> 2.23
MOE	GPa	80.9
Bending strength	Mpa	785-1150
Fracture toughness	Mpa.m ^{1/2}	33.4
Application	Wear-resistant equipment, semiconductor, metallurgy	



Quartz glass-drilling parameter and quality

Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	20	0.4	6	24	G83
Unit	r/min	mm/min	mm	mm	S	

Index	Borehole diameter	Starting diameter	Ending diameter	Stability in 300 holes	Hole roundness	Chipping
Data	0.455	0.463	0.48	<0.02	<0.01	<0.015
Unit	mm	mm	mm	mm	mm	mm

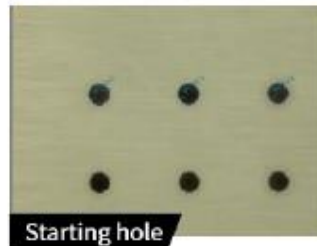
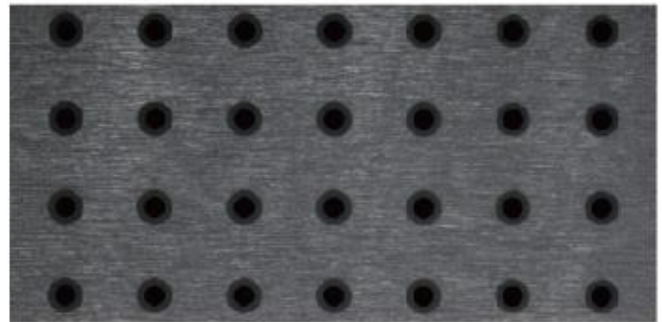


Remark: selection of WZ1 series PCD microdrill

ZIRCONIA PROCESSING CASE—Φ0.451

Zirconia ceramic parameter

Performance	Unit	Data
Density	g/cm ³	6
Mohs hardness	level	8.5-9
Bending strength	Mpa	1100
Compressive strength	Mpa	2500
Fracture toughness	Mpa.M-3/2	11
Elastic modulus	Gpa	200
Thermal expansion	X10-6°C	10.5
Thermal shock	ΔT°C	300
Operating temperature	°C	500-1000
Application	Radiators, communication hardware, IC electronic devices, new energy electronic equipment	



Zirconia ceramic-drilling parameter and quality

Index	Spindle speed	Feeding speed	Each processing depth	Effective machining depth	Single hole drilling time	Drilling way
Data	20000	5	0.1	5	145	G83
Unit	r/min	mm/min	mm	mm	S	

Index	Borehole diameter	Starting diameter	Ending diameter	Stability in 225 holes	Hole roundness	Chipping
Data	0.451	0.452	0.449	<0.01	<0.005	<0.01
Unit	mm	mm	mm	mm	mm	mm

Remark: selection of WZ2 series PCD microdrill