

PCD Mold Parts

(Poly-Crystalline Diamond)

Mold Life is Elongated & Maintenance Cost is Cut!

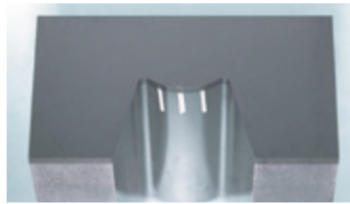
PCD Punch

Shoulder Punches Available
Longer Life
than Wirecut Punches



PCD Die

(with Slug Floating Prevention)



Patent Granted

Slug Floating Prevention
Laser Beam Machining

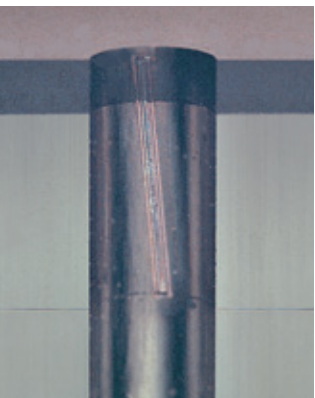
The Monodzukuri
Nippon Grand Award(METI)

PCD Punch



PCD Die

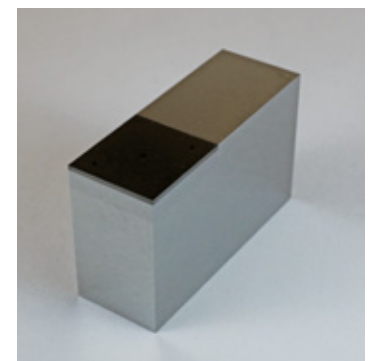
(with Slug Floating Prevention)



Integrated PCD Die by Wire-Cutting



PCD Blanks



Only PCD Blanks Available

Customer Feedback

●When mold parts made of conventional fine grain cemented carbide are used for stamping press molds, they would need to be reground every **2 million** stampings. While, PCD mold parts can last more than **100 million** stampings and **improve its life more than 50 times** compared to fine grain cemented carbide mold parts.

●Longer life **14 times** as long as cemented carbide mold parts. Stamping quality can be stabilized because of less wear in mold parts and **production efficiency has been drastically increased** by applying Laser Beam Machining to prevent Slug Floating.

Material Characteristic Comparison Table

Material		Cemented Carbide			Ceramics	PCD
		Fine grain Cemented Carbide	Ultrafine grain Cemented Carbide	SPS Carbide (Spark Plasma Sintering)	Conductive Zirconia (ZrO2)	PCD (Poly-Crystalline Diamond)
WC grain size (μm)		0.8 - 1.5 (WC)	0.5 - 0.8 (WC)	0.08 - 0.5 (WC)	—	- 15 (Diamond)
Hardness (HV)		1,200 - 1,800	1,400 - 2,000	2,150 - 2,600	1,400	- 10,000
Transverse rupture strength (MPa)		3,200 - 3,700	3,700 - 4,300	1,500 - 2,640	1,700	1,500 - 2,500
Fracture toughness value (MPa·m ^{1/2})		12 - 22	9 - 13	5.1 - 6.5	10	—
Machinability	Grinding	◎	◎	○	△	△
	EDM	◎	○	△	△	△
Effect on Workpiece	Copper	○	○	○	◎	◎
	Steel	◎	◎	◎	◎	○
	SUS	◎	◎	◎	◎	◎
Price Indication (Cemented Carbide = 1)		1		1 - 2x	1.5 - 3x	3 - 5x
Characteristics		<ul style="list-style-type: none"> ●Cobalt Content of 8 - 19% ●Cemented carbide is widely used as mold parts and has many years of use results. For this reason, there are many kinds of cemented carbide mold parts and that helps select the most suitable one easily from a wide range of selection to deal with any types of workpieces. 		<ul style="list-style-type: none"> ●Cobalt Content of 0 - 4% 	<ul style="list-style-type: none"> ●Equivalent to Cemented Carbide in machinability, but chips easily and brittle ●Inexpensive compared to Diamond ●Nonmagnetic ●Lightweight 	<ul style="list-style-type: none"> ●Cobalt content 10% ●Exceptionally superior in wear resistance ●Life prolongation can be expected to reduce maintenance man-hour ●Expensive and difficult in machining ●Blank sizes are limited, brazing is needed generally.

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High Efficient Functional Mold Parts

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