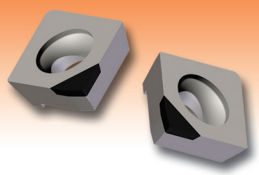
TCP90-AL Milling Cutters



- New advanced milling cutter program engineered for high speed machining of non-ferrous materials
- Ultra precise finishing with unique wiper-radius PCD inserts and micro-adjustable cartridges
- Milling cutter bodies made from lightweight 7075-T6 aviation grade aluminum
- Maxicool through coolant enabled for maximum chip evacuation and temperature control
- New CVD diamond grade for extreme tool life!

Application: TCP90 Milling Cutter

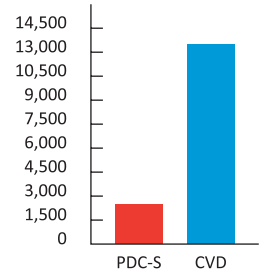
Milling the face of a cast aluminum oil pan.
Material is A380 Aluminum consisting of 9% silicon.

Cutting Data:

4.00" diameter cutter (Z=10)
8000 RPM (through tool coolant)
213 IPM feedrate
0.040 - 0.080" D.O.C.
32 RMS

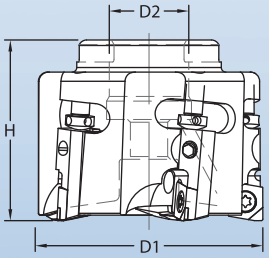
Part life:

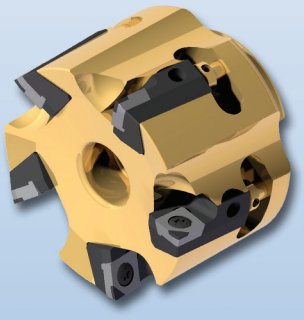
PDC-S= 2,500 pieces
CVD= 13,500 pieces



540% Increase in tool life using CVD!

Engineered for High Speed Machining!

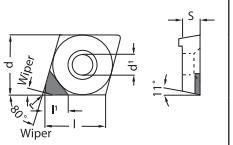


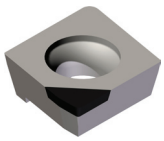


TCP90 Face Mills

Designation	D1	D2	H	Flutes	Insert	Cartridge	Cartridge Clamp Screw	Insert Torx Screw	Height Adj. Screw
TCP90-50MM-AL	2.00	.75	2.00	3	CPGW-09T304PDR	BC10X50	M5 SHBS	TCP951	HAS6823
TCP90-63MM-AL	2.50	1.00	2.00	5					
TCP90-80MM-AL	3.00	1.00	2.00	7					
TCP90-100MM-AL	4.00	1.25	2.00	10					
TCP90-125MM-AL	5.00	1.50	2.50	11					
TCP90-160MM-AL	6.00	1.50	2.50	13					
TCP90-200MM-AL	8.00	2.00	2.50	16					

CPGW Milling Insert with Wiper





Insert Designation	d	d1	s	l	l1	r	CVD	PDC-S	PBC-10S	PBC-15S
CPGW-09T304PDR-1	9,52	4,40	3,97	9,70	4,29	0,4	●	●	●	●
CPGW-09T304PDR-2	9,52	4,40	3,97	9,70	4,29	0,4	●	●	●	●

PDR-1 = Wiper geometry for semi-finishing and finishing Rz = 2,5-5,0 µ
PDR-2 = Wiper geometry for super-finishing; Rz= 1,0-2,5 µ

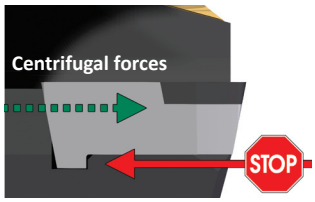
Ordering Example: CPGW09T304PDR-1-PBC-10S

Becker Diamantwerkzeuge GmbH

D-82178 Puchheim / München, Benzstraße 13
Tel.: (089) 89 02 28-0 / Fax: (089) 89 02 28-30
sales@beckerdiamant.de / www.beckerdiamant.de

Security Features

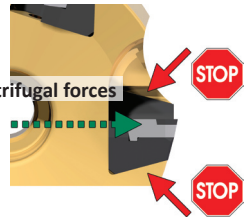
Insert Double Lock



Secondary insert step locks against matching step on insert cartridge

Designed to act as a double lock in conjunction with the insert tapered screw

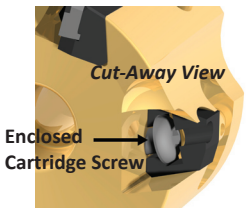
Cartridge Dovetail Lock



Insert cartridge is fitted into cutter body with dovetail design

Centrifugal forces acting on insert cartridge are neutralized by wedge profile of cartridge and matching shape on cutter body

Enclosed Cartridge Clamping Screw

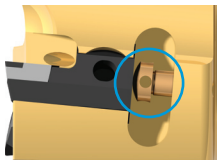


Unique cartridge shrouds cartridge clamp screw within steel body

Potential screw breakage is contained within steel of cartridge – the screw has no place to eject

Performance Features

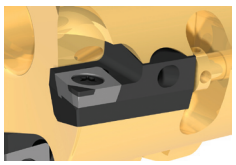
Micro Adjustable



Easily pre-set cartridges to within microns

All new milling cutters are factory pre-set in height to within +/- 0,01 with a master gauge insert

Through Coolant Enabled



Coolant ports are directed at the cutting edge to extend tool life and improve surface finishes

Wiper Radius

Unique wiper is a compound radius that outperforms traditional wiper flats

With every insert in the cutter loaded with the wiper radius, super finishing is easily attained

Extreme Performance

PBC-10S
PcBN grade with a very high content of CBN (95%). Fine grain, high wear resistance and toughness in the HSC-range.

Finishing and Superfinishing of grey cast iron and highly heat resisting alloys with high cutting speed.

PBC-15S
PcBN grade with high content of CBN (90%). Fine grain, high wear resistance and toughness at lower cutting speed.

Finishing and Superfinishing of nodular graphite cast iron and sintered steel as well as of grey cast iron and super alloys at lower cutting speed.

PDC-S
Polycrystalline diamond, coarse grit, good edge sharpness and low cutting pressure allowing close tolerances. Best performances for milling. High flank wear resistance and toughness.

Finishing, general purpose and milling of all nonmetallics with medium to high percentage of abrasive reinforcement or silicon.

CVD
Solid diamond with no structure. Cutting edge is extremely sharp, without microfractures, very low cutting pressure allowing burr-free results with tolerances close to zero. Extremely flank wear resistant with maximum thermal conductivity and good toughness.

Super finishing to roughing of all nonferrous metals and nonmetallics with abrasive reinforcement or silicon

	Material	Application Range - cutting speed	
K		K10 - K20	K25 - K35
	Cast iron Grey cast iron GG20-GG35	PBC-10S Typ PDR-2 500 - 2000m/min	PBC-10S Typ PDR-1 500 - 1800m/min
	Nodular cast iron GGG40-GGG70 sintered powdered alloys	PBC-15S Typ PDR-2 600 - 1500m/min	PBC-15S Typ PDR-1 600 - 1500m/min
N		N01 - N25	N30 - N35
	Nonferrous metals Aluminum alloys up to 2% silicon content	PDC-S / CVD Typ PDR-2 500 - 4500m/min	PDC-S / CVD Typ PDR-1 500 - 2500m/min
	Aluminum alloys with less than 12% silicon	PDC-S / CVD Typ PDR-2 400 - 4000m/min	PDC-S / CVD Typ PDR-1 400 - 2700m/min
	Aluminum alloys with 15-40% silicon	CVD Typ PDR-2 300 - 3000m/min	CVD Typ PDR-1 300 - 2500m/min
	Composits Gfk, Cfk plastics with abrasive reinforcement	CVD Typ PDR-2 200 - 3000m/min	CVD Typ PDR-1 200 - 2200m/min

Coolant Caps

- Optional Coolant Caps available for larger cutter diameter to provide 360° direct coolant supply at the cutting edge
- Balanced by design and mounted securely to maintain constant coolant supply at maximum RPM
- Made from the same lightweight 7075-T6 aviation grade aluminum as cutter bodies for reliable long term use and service

Cutter Designation	Through Coolant Cap Screw	Coolant Cap	Mounting Cap Screw	Lock Washer	Washer
TCP90-125MM-AL	CCS-125	CTP-125	SHCS-M4	LW-M4	W-M4
TCP90-160MM-AL	CCS-160	CTP-160	SHCS-M5	LW-M5	W-M5
TCP90-200MM-AL	--	CTP-200	SHCS-M8	LW-M8	W-M8

When ordering Coolant Caps, Mounting Cap Screws and Washers are included.
Through Coolant Cap Screw must be purchased separately.