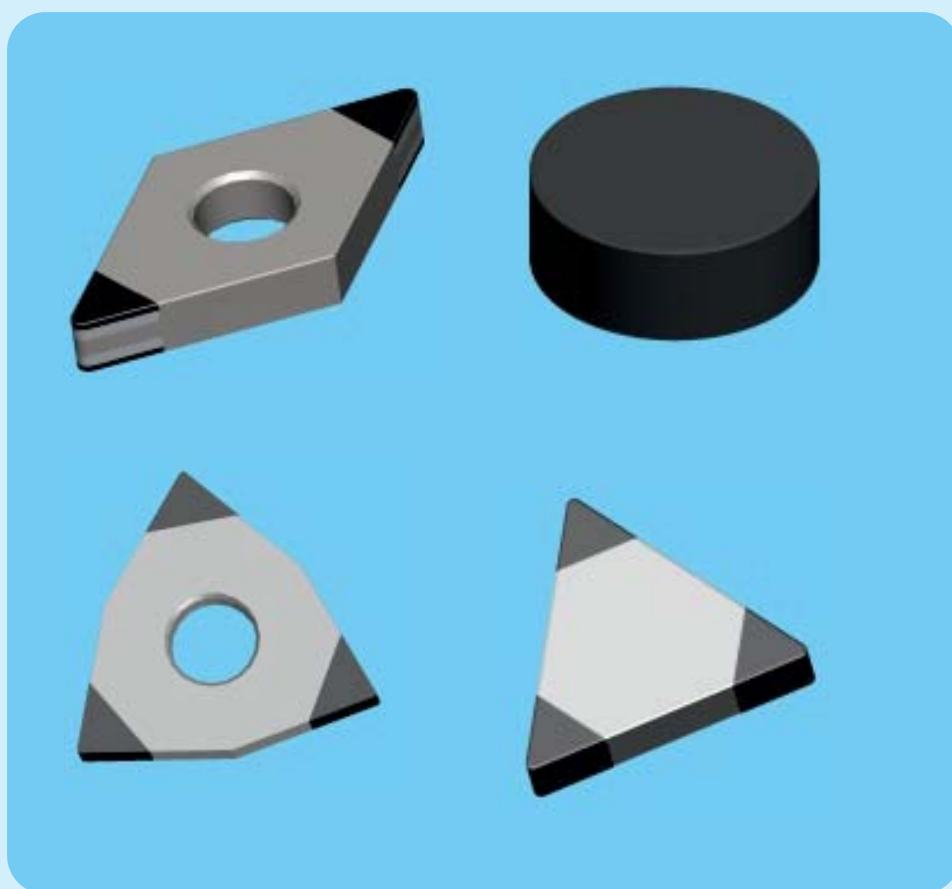


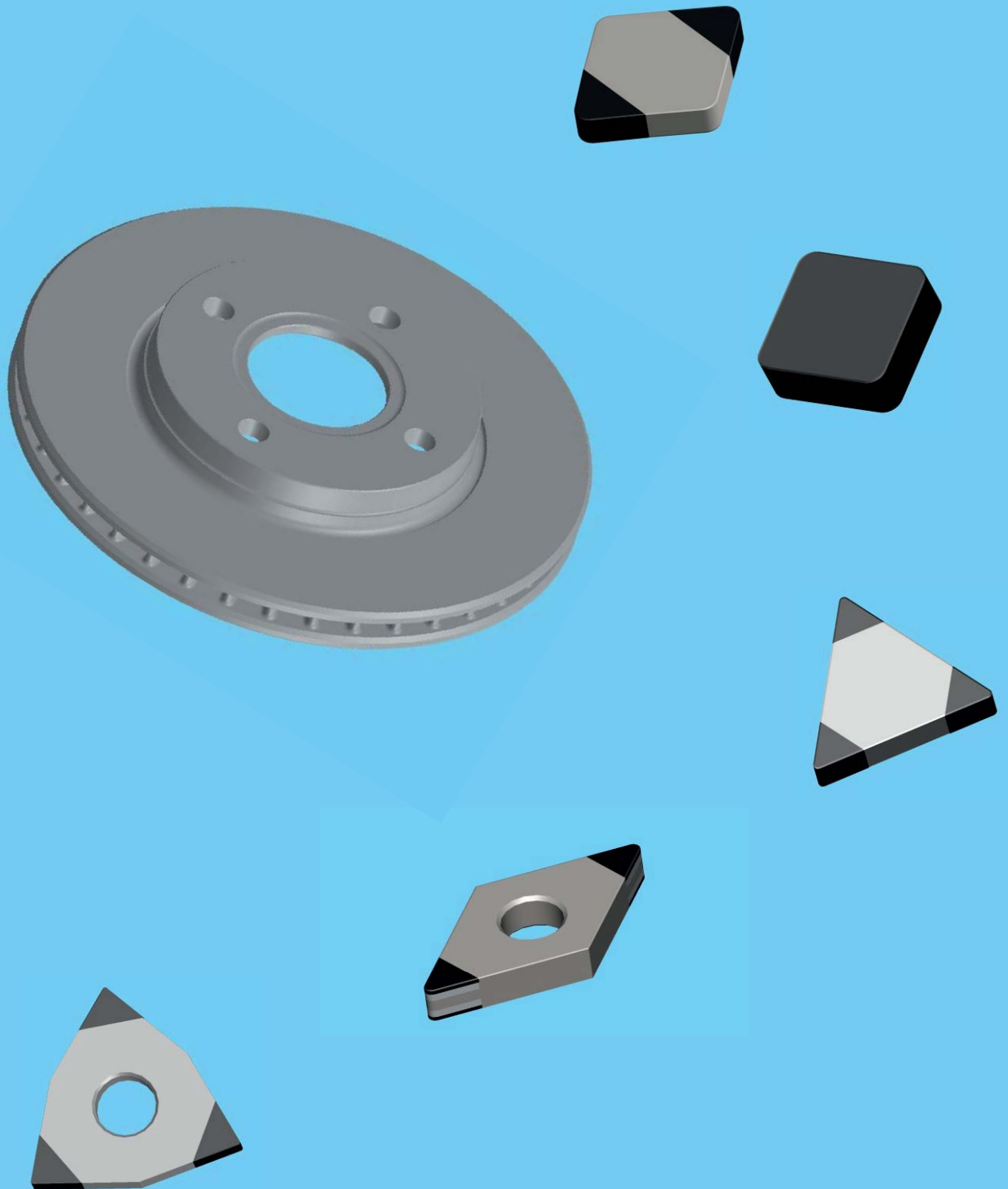


PCBN REZNI ALATI
PCBN CUTTING TOOLS
PCBN WERKZEUGE



-  **TOKARENJE-GLODANJE**
-  **TURNING-MILLING**
-  **DREHEN-FRAESEN**

PCBN



PCBN

SADRŽAJ CONTENT/ INHALT

O NAMA/ABOUT US/UBER UNS.....	1
SKUPINE MATERIJALA PREMA DIN 513/ MATERIAL GROUPS ACCORDING TO DIN 513/MATERIALIEN GRUPPEN NACH DIN 513.....	2
PCBN REZNI MATERIJALI I ZNAČAJKE PCBN CUTTING MATERIALS AND CHARACTERISTICS/ PCBN SCHNEIDSTOFFE UND LEISTUNGEN.....	3
PCBN VRSTE REZNIH MATERIJALA/PCBN GRADES/PCBN SORTEN.....	4
PODRUČJE PRIMJENE PCBN-a/PCBN APPLICATION AREA/PCBN ANWENDUNGSBEREICH.....	5
PREPORUKE ZA PRIMJENU PCBN-a RECOMMENDATIONS FOR THE IMPLEMENTATION OF PCBN TOOLS/ EMPFEHLUNGEN FÜR DIE UMSETZUNG DER PCBN WERKZEUGE.....	6
PREPORUČENI PARAMETRI OBRADE ZA PCBN ALATE/ PCBN TOOLS RECOMMENDED CUTTING CONDITIONS/ PCBN WERKZEUGE EMPFOHLENE SCHNITTWERTE.....	7
PRIMJERI IZ PRIMJENE PCBN-a PCBN APPLICATION EXAMPLES/PCBN ANWENDUNGSBEISPIELE.....	8
TIPOVI HOFER REZNIH PLOČICA/HOFER INSERT TYPES/HOFER WENDEPLATTEN TYPEN.....	9
ISO SUSTAV OZNAČAVANJA REZNIH PLOČICA INDEXABLE INSERT ISO IDENTIFICATION SYSTEM/ ISO WENDEPLATTEN BEZEICHNUNGSSYSTEM.....	10
OZNAČAVANJE FAZETE REZNOG VRHA CHAMFER IDENTIFICATION SYSTEM/VORBEREITUNG DER SCHNEIDKANTEN.....	12
PCBN TOKARENJE/PCBN TURNING/PCBN DREHEN.....	13
PCBN TOKARENJE UTORA/PCBN GROOVING/PCBN EINSTECHEN.....	29
PCBN GLODANJE/PCBN MILLING/PCBN FRÄSEN.....	30
PCBN ALATI PREMA NARUDŽBI PCBN CUSTOM DESIGNED TOOLS/PCBN SONDERWERKZEUGE.....	30
PCBN BRUŠENJE I HOFER 13 PCBN RE-GRINDING SERVICE AND HOFER 13/PCBN NACHSCHLEIFEN UND HOFER 13.....	31

PCBN

**O NAMA
ABOUT US/
UBER UNS**



Tvrtka HOFER PRECIZNI ALATI d.o.o. osnovana je 1991. godine u Jastrebarskom, Hrvatska. Ulaganjem u nabavu novih strojeva i uvođenjem novih tehnologija tvrtka HOFER je proširila proizvodnju PCBN i PCD reznih alata za tokarenje, glodanje, razvrtavanje i upuštanje. Cilj naše organizacije je isporučivanje proizvoda i usluga visoke kvalitete za ispunjavanje potreba i očekivanja naših kupaca.

Company HOFER PRECIZNI ALATI Ltd. was founded in 1991 in Jastrebarsko, Croatia. By investing in purchase of new machines and by implementing new technologies company HOFER has expanded production capacity of PCBN and PCD tools for turning, milling, reaming and countersinking. Company HOFER goal is delivering products and services of high quality to fulfill our customers demands and expectations.

Firma Hofer PRECIZNI ALATI GmbH wurde im Jahr 1991 in Jastrebarsko, Kroatien gegründet. Durch die Investition in den Kauf neuer Maschinen und durch der Einführung neuer Technologien hat das Unternehmen den Betrieb und die Herstellung von CBN- und PKD-Werkzeuge für Drehen, Fräsen, Reiben und Senken erweitert. Firma Hofer Ziel ist es, Produkten und Dienstleistungen von höchster Qualität liefern für unsere Kunden Anforderungen und Erwartungen zu erfüllen.

PCBN

SKUPINE MATERIJALA PREMA DIN 513 MATERIAL GROUPS ACCORDING TO DIN ISO 513/ MATERIALIEN GRUPPEN NACH DIN 513

ISO	Glavne skupine materijala <i>Main materials groups/Haupt-Materialien Gruppen</i>	PRIMJENJIVE SORTE PCBN/PCD <i>APPLICABLE PCBN/PCD GRADES ANWENDBAR PCBN/PKD SORTEN</i>
P	Čelici >45 HRC, sinter praškaste slitine <i>Steels above 45 HRC, sintered powdered alloys/Stahl von 45HRC, Sinterpulver Legierungen</i>	A90, W85, S90, B90, TBC80-350
M	Nehrđajući čelici/ <i>Stainless steel/Rostfreistahl</i>	PCBN/PCD nije primjenjiv za ovaj opseg materijala <i>PCBN/PCD not applicable for this material range PCBN / PKD nicht geeignet für diesen Einsatzbereich</i>
K	Sivi lijev Nodularni lijev <i>Gray cast iron, nodular cast/ Grauguss, Sphäroguss</i>	A90, A71, A73, W85, S90, B91, B92, TBC80-350, 302
S	Superlegure na bazi Ni/Co i titan, <i>Superalloys based on nickel or cobalt and titanium/ Superlegierung auf Ni/Co Basis und Titan</i>	W85, A90, D50, 001, 002
H	Tvrđi materijali(kaljeni čelici 45-65 HRC, tvrdi metal, alatni čelici) <i>Hard materials(hardened steels 45-65 HRC, sintered carbide, tool steels)/Harten Materialien(gehärteten Stählen 45-65 HRC, Hartmetalle, Werkzeugstahl)</i>	W85, A90, D50, X65, H21, TBC80-350

PCBN

PCBN REZNI MATERIJALI I ZNAČAJKE PCBN CUTTING MATERIALS AND CHARACTERISTICS/ PCBN SCHNEIDSTOFFE UND LEISTUNGEN

Polikristalni kubni bornitrid, PCBN, je umjetni supertvrđi materijal dobiven spajanjem kubnog bornitrida s keramičkim ili metalnim vezivom pri visokim tlakovima i temperaturama. PCBN je pogodan za visokobrzinsku obradu željeznih slitina poput sivog lijeva, nodularnog lijeva, kaljenih čelika, praškastih metala, tvrdog metala i superlegura.

Polycrystalline cubic boron nitride, PCBN, is a synthetic, extreme hard material produced by bonding cubic boron nitride with ceramical or metal binder under high pressures and temperatures. PCBN is applicable for high speed machining of ferrous materials as gray cast, nodular cast, hardened steels, PM, cemented carbide and superalloys.

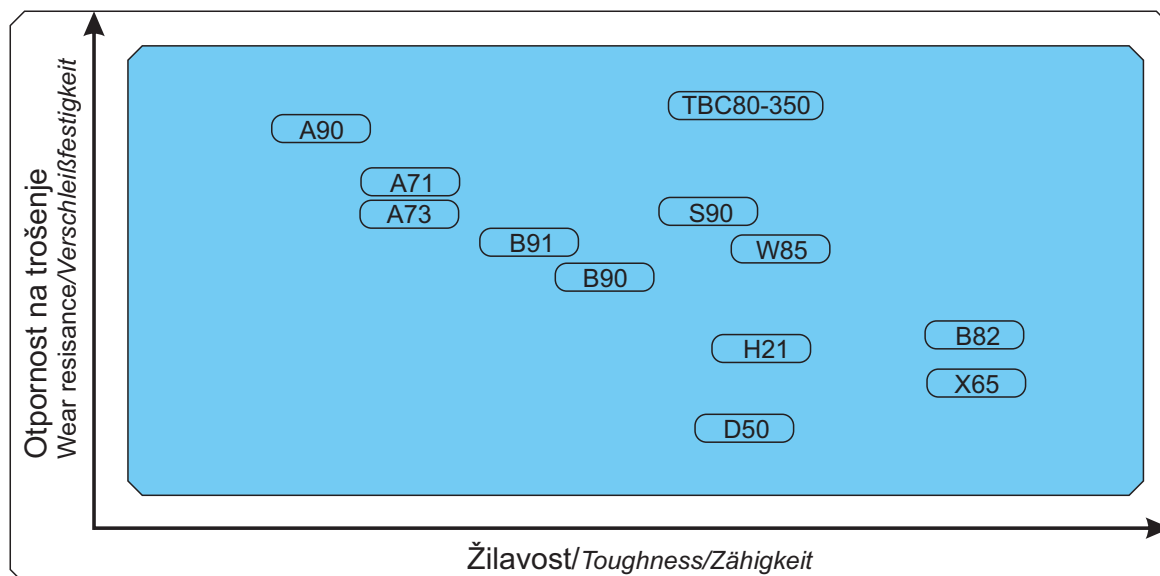
Polykristallines kubisches Bornitrid ist ein synthetisch hergestellter, extrem harte Material, erhalten durch die Zusammenlegung aus kubischem Bornitrid mit keramischer oder metalischer Binderphase bei hohen Temperaturen und Drucken. PCBN ist anwendbar für die Hochgeschwindigkeitsbearbeitung von eisenhaltigen Materialien wie Grauguss, Sphäroguss, gehärteten Stählen, PM, Hartmetall- und Superlegierungen.

PREDNOSTI PRIMJENE PCBN-a

- visoka tvrdoća
- velike brzine rezanja
- veliki posmaci
- stabilnost obrade
- veća proizvodnost
- dugotrajnost rezne oštrice
- smanjeni trošak izmjene alata
- smanjenje troškova proizvodnje
- veći kapacitet proizvodnje bez dodatnog ulaganja u nove strojeve

PCBN ADVANTAGES/PCBN VORTEILE

- high hardness/hohe Härte
- high speed machining/ Hochgeschwindigkeitsbearbeitung
- bigger feeds possible/größere Vorschübe möglich
- stabile machining conditions/stabile Bearbeitung
- higher production output/höhere Produktionsleistung
- long tool life/lange Standzeiten
- reduced tool change cost/Werkzeugwechsel reduziert Kosten
- overall production costs decrease/gesamten Produktionskosten senken
- greater production capacity without investing in new equipment/Höhere Produktionskapazität ohne Investitionen in neue Anlagen



PCBN

PCBN VRSTE REZNIH MATERIJALA PCBN GRADES/ PCBN SORTEN

PCBN tip <i>PCBN grade/ PCBN Sorte</i>	Udio CBN% content/ Inhalt	Vezivo <i>Binder phase/ Bindephase</i>	Veličina zrna <i>Grain size/ Körnung (µm)</i>	Područje primjene <i>Application range/Anwendungsbereich</i>
A71 SOLID	75	TiCN	4-12 µm	Gruba i fina obrada sivog i nodularnog lijeva <i>Roughing and finishing of gray/nodular cast/ Schruppen und Schlichten von Grauguss und Sphäroguss</i>
A73 SOLID	73	TiCN	4-12 µm	Gruba obrada neostarenog sivog lijeva i nodularnog lijeva <i>Roughing of non-aged gray cast and nodular cast/ Schruppen von nicht gealterten Grauguss und Sphäroguss</i>
A90 SOLID	90	AlNiB	10 µm	Gruba i fina obrada sivog lijeva, gruba obrada čeličnih valjaka <i>Roughing and finishing gray cast, rough machining of steel and iron rolls/Schruppen and Schlichten von Grauguss, Schruppen von Stahl und Eisen Rollen</i>
B90	75	Ti	4 µm	Obrada praškastih metala <i>Machining of sintered powder metal iron/ Bearbeitung von Pulver-Metalle</i>
B91	90	Ti	2 µm	Obrada prekinutim rezom sivog lijeva, praškastih metala i glodanje kaljenog čelika <i>Heavily interrupted machining of gray cast, powder metal and milling of hardened steels/ stark unterbrochenen Bearbeitung von Grauguss, Pulvermetall und Fräsen von gehärteten Stählen</i>
S90	90	AlCoW	2-4 µm	Obrada praškastih metala, tvrdo tokarenje i glodanje tvrdih čelika i sivog lijeva <i>PM-machining, hard turning and milling hardened steels and cast irons/PM-Bearbeitung, Drehen und Fräsbearbeitung gehärteter Stähle und Gusseisen</i>
W85	85	AlCoWB	2 µm	Obrada kaljenih čelika, sivog lijeva i superlegura <i>Machining hardened steels, cast iron and heat resistant alloy/Bearbeitung von gehärtetem Stahl, Guss und hitzebeständige Legierung</i>
X65	65	TiCN	2-4 µm	Obrada kaljenih čelika uz prekinuti rez <i>Interrupted cutting hardened and tool steels/Unterbrochen Schnitt von gehärtetem und Werkzeugstähle</i>
D50	50	TiC	2 µm	Fina obrada alatnih čelika 65 HRC i nodularnog lijeva <i>Finishing tool steels 65 HRC and nodular cast/ Schlichten von werkzeugstähle und</i>

PCBN

PCBN VRSTE REZNIH MATERIJALA

PCBN GRADES/

PCBN SORTEN

PCBN tip <i>PCBN grade/ PCBN Sorte</i>	Udio CBN% <i>content/ Inhalt</i>	Vezivo <i>Binder phase/ Bindephase</i>	Veličina zrna <i>Grain size/ Körnung (µm)</i>	Područje primjene <i>Application range/Anwendungsbereich</i>
H21	50	TiN	2 µm	Kontinuirana obrada kaljenih čelika <i>Continuous cutting of hardened steels/Kontinuerliche Schneiden von gehärtetem Stahl</i>
TBC80-350	90	TiCN	10 µm	Gruba obrada kaljenih čelika, sivog lijeva i sinteriranih slitina <i>Heavy duty machining of hardened steel, cast iron and sintered iron alloys/Schwerlast-Bearbeitung von gehärtetem Stahl, Guss und gesinterten Eisen-Legierungen</i>
B82	65	TiN	2 µm	Tvrdo tokarenje kaljenih i alatnih čelika, naročito pogodan za glodanje <i>Hard part turning hardened and tool steels, especially suited for milling operations/Hartdrehen von gehärtetem und Werkzeugstahl, insbesondere für Fräsarbeiten geeignet</i>

PODRUČJE PRIMJENE PCBN-a

PCBN APPLICATION AREA/

PCBN ANWENDUNGSBEREICH

ISO	P	K	S	H
Materijal obrade <i>Workpiece material/ Werkstückmaterial</i>	Čelici >45 HRC i sinter praškaste slitine <i>Steels >45 HRC and sintered powder alloys/ Stahl von 45HRC, Sinterpulver Legierungen</i>	Sivi i nodularni lijev <i>Gray cast, nodular cast/ Grauguss, Sphäroguss</i>	Co-Ni superlegure <i>Co-Ni Superalloys/ Co-Ni Superlegierungen</i>	Kaljeni čelici <i>Hardened steels/ gehärteten Stählen</i>
Opseg obrade <i>Cutting range/ Schnittbereich</i>	<div style="display: flex; align-items: center; justify-content: center;"> Fino ← Finishing/Schlichten </div>		<div style="display: flex; align-items: center; justify-content: center;"> Grubo → Roughing/Schruppen </div>	
PCBN <i>PCBN grade/ PCBN Sorte</i>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #00a0e3; padding: 2px 10px; margin-bottom: 5px;">A90</div> <div style="background-color: #00a0e3; padding: 2px 10px; margin-bottom: 5px;">S90</div> <div style="background-color: #00a0e3; padding: 2px 10px; margin-bottom: 5px;">B90</div> <div style="background-color: #00a0e3; padding: 2px 10px; margin-bottom: 5px;">W85</div> <div style="background-color: #00a0e3; padding: 2px 10px; margin-bottom: 5px;">TBC80-350</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">A90</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">A71</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">A73</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">W85</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">S90</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">B91</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">B90</div> <div style="background-color: #e31a1c; padding: 2px 10px; margin-bottom: 5px;">TBC80-350</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #e377c2; padding: 2px 10px; margin-bottom: 5px;">A90</div> <div style="background-color: #e377c2; padding: 2px 10px; margin-bottom: 5px;">D50</div> <div style="background-color: #e377c2; padding: 2px 10px; margin-bottom: 5px;">W85</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #808080; padding: 2px 10px; margin-bottom: 5px;">A90</div> <div style="background-color: #808080; padding: 2px 10px; margin-bottom: 5px;">W85</div> <div style="background-color: #808080; padding: 2px 10px; margin-bottom: 5px;">D50</div> <div style="background-color: #808080; padding: 2px 10px; margin-bottom: 5px;">X65</div> <div style="background-color: #808080; padding: 2px 10px; margin-bottom: 5px;">H21</div> <div style="background-color: #808080; padding: 2px 10px; margin-bottom: 5px;">TBC80-350</div> </div>

PCBN

PREPORUKE ZA PRIMJENU PCBN-a **RECOMMENDATIONS FOR APPLICATION OF PCBN TOOLS/** **EMPFEHLUNGEN FÜR DIE UMSETZUNG DER PCBN WERKZEUGE**

- Koristiti strojeve s dovoljno snage
 - Odabrati najveći mogući polumjer vrha alata radi veće čvrstoće oštrice
 - Odabrati negativne rezne geometrije s većim ulaznim kutevima
 - Smanjiti prevjes alata
 - Koristiti rezne pločice s odgovarajućom fazetom kod prekidnog reza
 - Na vrijeme promijeniti istrošeni rezni vrh i ne zaustavljati stroj prilikom obrade zbog mogućeg loma rezne pločice
 - Ne koristiti rashladno sredstvo kod prekidnog reza
 - Kod obrade sivog i nodularnog lijeva udio ferita ispod 10%, starost odljevaka najmanje 10 dana
 - U pravilu ne koristiti tekućinu za hlađenje
-
- *Use rigid machining system with sufficient power*
 - *Use largest radius possible to maximize tool strength*
 - *Use negative rake tools and largest lead angles whenever possible*
 - *Minimize insert overhang*
 - *Use chamfered edge to minimize chippage on interrupted cuts*
 - *Do not overuse cutting edge or stop machine in cut as insert breakage may occur*
 - *Do not use coolant on interrupted cuts*
 - *Machining of gray and nodular cast with ferrite content below 10%, minimum 10 days aged castings*
 - *enerally do not use coolant fluid*
-
- *Verwenden Sie stabile Bearbeitung System mit ausreichend Leistung*
 - *Verwenden größten Radius möglich zu maximieren Werkzeug Stärke*
 - *Verwenden Sie negative Rechen-Tools und größte Blei-Winkel, wann immer möglich*
 - *Minimierung der Wendeschneidplatte Überhang*
 - *Verwenden Sie Wendeplatten mit abgeschrägte Kante auf unterbrochenen Schnitt*
 - *Ändern getragen Schneidkante und stoppen Sie nicht die Maschine bei der*
 - *Bearbeitung da ist Wendeplatte Bruch möglich*
 - *Verwenden Sie kein Kühlmittel auf unterbrochenen Schnitt*
 - *Bearbeitung von Grau-und Sphäroguss mit Ferrit-Gehalt unter 10%, Minimum 10 Tage gealtert Guss*
 - *Verwenden Sie grundsätzlich kein Kühlmittel*

PCBN

PREPORUČENI PARAMETRI OBRADE ZA PCBN ALATE PCBN TOOLS RECOMMENDED CUTTING CONDITIONS/ PCBN WERKZEUGE EMPFOHLENE SCHNITTWERTE

Materijal obratka <i>Workpiece material/ Werkstückmaterial</i>	Parametri obrade PCBN <i>PCBN Cutting conditions /PCBN Bearbeitung Parameter</i>		
	v_c (m/min)	a_p (mm)	f (mm/rev)
Sivi lijev <i>Gray cast/ Grauguss</i>	400-1500	0.1-4	0.1-0.6
Nodularni lijev <i>Nodular cast/ Sphäroguss</i>	150-300	0.1-2	0.05-0.3
Tvrđi lijev <i>Chilled cast iron/ Hartguss</i>	50-150	0.1-2.5	0.05-0.5
Sinterirane praškaste slitine <i>Sintered powder alloys/ Sinterpulver Legierungen</i>	50-250	0.1-0.5	0.02-0.2
Superlegure Ni-Co <i>Superalloys/ Superlegierungen</i>	50-250	0.05-0.2	0.05-0.2
Tvrđi metal(>17% Co) <i>Carbide/ Hartmetalle</i>	10-50	0.01-0.05	0.01-0.2
Kaljeni čelici 45-65 HRC <i>Hardened steels/ gehärteten Stählen</i>	80-250	0.05-0.5	0.02-0.2

*Napomena: za najbolji učinak potrebno je usklađivanje parametara obrade s uvjetima obrade.
Molimo, upitati HOFER za preporuku parametara prema vrsti obrade i PCBN reznom materijalu .

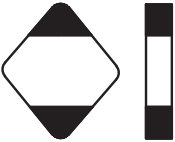

*Note: for best machining results optimisation of cutting conditions required.
Please, contact HOFER experts for machining type and PCBN grade application field.*

*Bemerkung: für beste Bearbeitungsergebnisse Optimierung des Schneidens Bedingungen erforderlich.
Bitte kontaktieren Sie HOFER Experten für die Bearbeitungstyp und PCBN-Sorte Anwendungsfeld.*

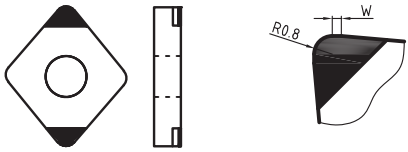
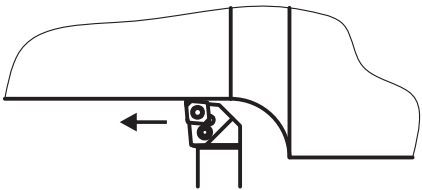
PCBN

PRIMJERI IZ PRIMJENE PCBN-a PCBN APPLICATION EXAMPLES/ PCBN ANWENDUNGSBEISPIELE

OBRADA KOČIONIH DISKOVA BRAKE DISC MACHINING/BREMSSCHEIBE BEARBEITUNG

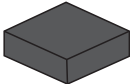
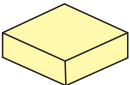

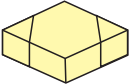
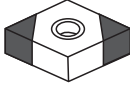
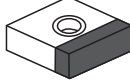

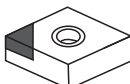
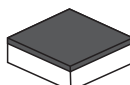
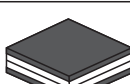
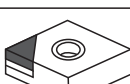
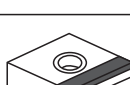
Materijal <i>Material/Material</i>	GG 25 230 HB	 <p>PCBN PUNI LEMLJENI SEGMENT PCBN SOLID BRAZED TIP PCBN SOLID GELÖTETEN EINSATZ</p>	
Tip zahvata <i>Operation/Betrieb</i>	Vanjsko tokarenje <i>External roughing/ Außenschruppen</i>		
Mjerilo vrednovanja <i>Criterion/Kriterium</i>	Trajnost alata <i>Tool life/Standzeit</i>		
Držač alata <i>Toolholder/Werkzeughalter</i>	CCLNL 2525M12-4		
Rezna pločica <i>Insert/Wendeplatte</i>	CNGN 120416 T2A PCBN A90/2C7		
Parametri obrade <i>Cutting conditions/ Bearbeitungsparameter</i>	vc, m/min		1000
	f, mm/rev		0.5
	ap, mm		2-2.5
Rezultati(kom/rezni vrh) <i>Results (pieces/edge)/ Ergebnisse(Stück/Schneid)</i>	2.500		

OBRADA STAPAJICE PISTON MACHINING/KOLBEN BEARBEITUNG

Materijal <i>Material/Material</i>	Č.4732, 55HRC 42CrMo4	 <p>PCBN PLOČICA SA FAZETOM ZA ZAGLAĐIVANJE PCBN INSERT WITH WIPER GEOMETRY PCBN WENDEPLATTE MIT WIPER GEOMETRIE</p>	
Tip zahvata <i>Operation/ Betrieb</i>	Vanjsko tokarenje <i>External turning/ Außendrehen</i>		
Mjerilo vrednovanja <i>Criterion/Kriterium</i>	Kvaliteta površine <i>Surface roughness/ Oberflächenqualität</i>		
Držač alata <i>Toolholder/Werkzeughalter</i>	PCLNR 3232P12		
Rezna pločica <i>Insert/Wendeplatte</i>	CNGA 120408W T1A PCBN X65/2C3		
Parametri obrade <i>Cutting conditions/ Bearbeitungsparameter</i>	vc, m/min		160
	f, mm/rev		0.05
	ap, mm		0.35
Rezultati <i>Results/ Ergebnisse</i>	Ra0.4, bez brušenja <i>no grinding required/ Kein Schleifen erforderlich</i>		

PCBN

TIPOVI HOFER REZNIH PLOČICA HOFER INSERT TYPES/ HOFER WENDEPLATTEN TYPEN

IZVEDBA DESIGN/ LEISTUNG	OPIS DESCRIPTION/ BESCHREIBUNG
	PUNA REZNA PLOČICA SOLID CUTTING INSERT/ BLOK WENDEPLATTE
	PUNA TiN PRESVUČENA REZNA PLOČICA TiN COATED SOLID CUTTING INSERT/ TiN BESCHICHTETEN BLOK WENDEPLATTE
	PLOČICA S PUNIM SEGMENTIMA INSERTS WITH BRAZED SOLID TIPS/ WENDEPLATTEN MIT BLOK EINSÄTZE
	TiN PRESVUČENA PLOČICA S PUNIM SEGMENTIMA TiN COATED INSERT WITH BRAZED SOLID TIPS/ TiN BESCHICHTETEN WENDEPLATTE MIT GELÖTETEN BLOK EINSÄTZE
	PLOČICE S PUNIM SEGMENTIMA I PROVRTOM INSERTS WITH BRAZED SOLID TIPS AND CLAMPING HOLE/ WENDEPLATTEN MIT GELÖTETEN BLOK EINSÄTZE UND KLEMMLOCH
	PLOČICE SA PUNIM SEGMENTOM UZDUŽ OŠTRICE I PROVRTOM INSERTS WITH SOLID TIPS AND CLAMPING HOLE, WHOLE CUTTING EDGE/ WENDEPLATTEN MIT BLOK EINSÄTZE UND KLEMMLOCH, GANZE SCHNEIDE
	PLOČICE S PUNIM SEGMENTIMA, 1 I VIŠE VRHOVA INSERTS WITH SOLID TIPS, 1 AND MORE CUTTING EDGES / WENDEPLATTEN MIT BLOK EINSÄTZE, 1 UND MEHR SCHNEIDEN
	PLOČICE S PUNIM SEGMENTIMA I PROVRTOM, 1 I VIŠE VRHOVA INSERTS WITH SOLID TIPS AND CLAMPING HOLE, 1 AND MORE CUTTING EDGES/ WENDEPLATTEN MIT BLOK EINSÄTZE UND KLEMMLOCH, 1 UND MEHR SCHNEIDEN
	PLOČICE IZ REZANIH SEGMENTATA S TM* PODLOGOM WHOLE INSERTS CUT FROM CARBIDE BACKED PCD/PCBN/ GANZE WENDEPLATTEN GESCHNITTEN AUS PKD/PCBN MIT HARTMETALLUNTERLAGE
	PLOČICE IZ LEMLJENIH SEGMENTATA S TM PODLOGOM, «SENDVIČ» INSERTS WITH BRAZED CARBIDE BACKED TIPS, «SANDWICH TYPE»/ WENDEPLATTEN MIT GELOTETEN EINSÄTZE MIT HARTMETALLUNTERLAGE, «SANDWICH TYP»
	PLOČICE SA SEGMENTIMA S TM PODLOGOM I PROVRTOM INSERTS WITH BRAZED CARBIDE BACKED TIPS AND CLAMPING HOLE/ WENDEPLATTEN MIT GELOTETEN EINSÄTZE MIT HARTMETALLUNTERLAGE UND KLEMMLOCH
	PLOČICE SA SEGMENTIMA UZDUŽ OŠTRICE I PROVRTOM INSERTS WITH WHOLE CUTTING EDGE AND CLAMPING HOLE/ WENDEPLATTEN MIT HARTMETALLUNTERLAGE EINSÄTZE UND KLEMMLOCH, GANZE SCHNEIDE

*TM- tvrdi metal

PCBN

ISO SUSTAV OZNAČAVANJA REZNIH PLOČICA INDEXABLE INSERT ISO IDENTIFICATION SYSTEM/ ISO WENDEPLATTEN BEZEICHNUNGSSYSTEM

1 OBLIK
SHAPE/PLATTENFORM

2 SLOBODNI KUT
CLEARANCE ANGLE/FREIWINKEL

5 DULJINA REZNOG RUBA
CUTTING EDGE LENGTH/
SCHNEIDELANGE

D¹ **N**² **M**³ **A**⁴ **15**⁵ **06**⁶ **08**⁷

3 DOPUŠTENA ODPUSTANJA
TOLERANCES/TOLERANZEN

	d	m	s		d	m	s
A	±0.025	±0.005	±0.025	J	±0.05 - ±0.15	±0.005	±0.025
F	±0.013			K		±0.013	
C	±0.025	L		±0.025			
H	±0.013	M		±0.08		±0.013	
E	±0.025	N		±0.20		±0.025	
G		±0.13	U	±0.08- ±0.25	±0.013	±0.013	

4 TIP REZNE PLOČICE
INSERTS TYPE/PLATTENTYP

N	R	F	A	M
			Posebna izvedba Special design Sonderausführung	
G	W	T	X	

PCBN

6 DEBLJINA PLOČICE INSERT THICKNESS/ PLATTENDICKE

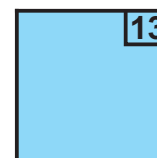
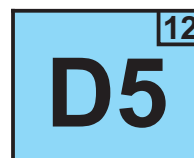
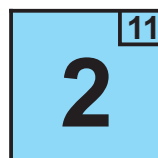
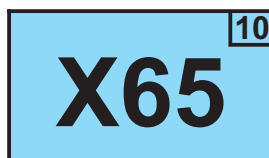
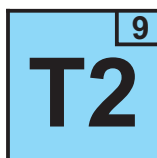
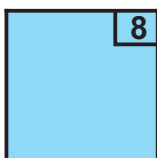


ISO	mm
02	2.38
03	3.18
T3	3.97
04	4.76
06	6.35
07	7.94
08	8.00
09	9.52

7 POLUMJER VRHA ALATA CORNER RADIUS/ECKENRADIUS



ISO	mm
00	0
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0



8 GEOMETRIJA REZNOG VRHA CORNER CNFIGURATION/ WIPER SCHNEIDEKANT

W

fazeta za zaglađivanje
wiper edge for higher feed/
WIPER Schneide für höhere Vorschübe

KUT GLAVNE OŠTRICE KOD GLODANJA MAJOR CUTTING EDGE ANGLE FOR MILLING/ FRÄSWENDEPLATTEN GROßEN SCHNEIDENWINKEL

A – 45° F – 85°
D – 60° P – 90°
E – 75°

SLOBODNI KUT FAZE ZA ZAGLAĐIVANJE KOD GLODANJA MILLING INSERTS CLEARANCE OF WIPER EDGE/FRÄSWENDEPLATTEN FREIWINKEL VON WIPER SCHNEIDEKANTE

A – 3° F – 25°
B – 5° G – 30°
C – 7° N – 0°
D – 15° P – 11°
E – 20°

9 FAZETA CHAMFER/SCHNEIDEKANTE

za detaljan pregled fazete
provjeriti slijedeću stranu
detailed edge preparation on the next
page/detaillierte Vorbereitung der
Schneidekante auf der nächsten Seite

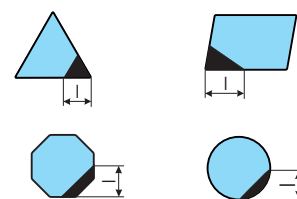
10 PCD/PCBN TIP GRADE/SORTE

odrediti prema materijalu obrade
determine by machined material/
wählen von bearbeiteten Material

11 BROJ REZNIH VRHOVA NUMBER OF CUTTING EDGES/ ANZAHL DER SCHNEIDEN

1-8

12 DULJINA REZNOG DIJELA CUTTING EDGE LENGTH/ SCHNEIDEKANTENLÄNGE C, D, S, T, V, XL



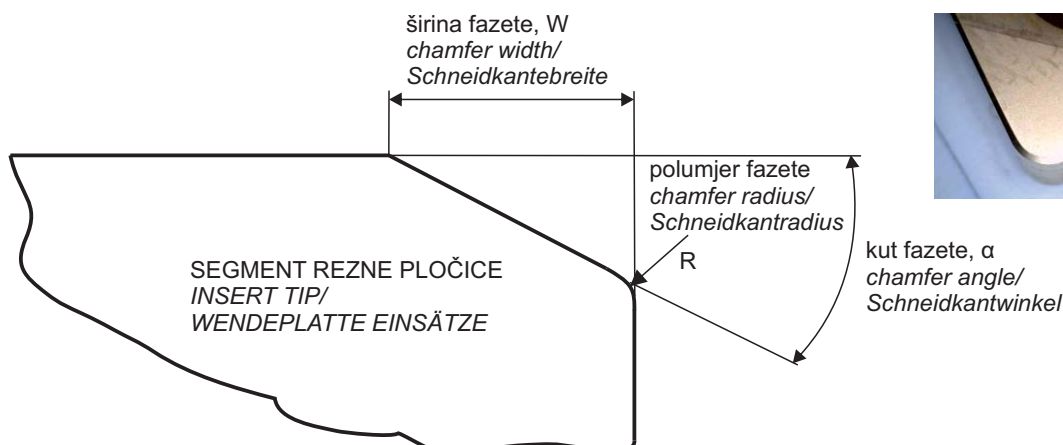
13 TIP LOMAČA CHIPBREAKER DESIGN/ SPANLEITSTUFE TYP

odrediti prema tipu obrade
determine by machining type/
wählen nach Bearbeitung Typ



PCBN

OZNAČAVANJE FAZETE REZNOG VRHA CHAMFER IDENTIFICATION SYSTEM/ VORBEREITUNG DER SCHNEIDKANTEN



OZNAKA FAZETE CHAMFER MARKING/ SCHNEIDKANTE KENNZEICHNUNG	R, mm	W, mm	α , °	PODRUČJE PRIMJENE APPLICATION AREA/ ANWENDUNGSBEREICH
A	0.015-0.025			završna obrada <i>finishing/ Schlichten</i>
B	0.025-0.05			općenita primjena <i>general purpose/ allgemeine Anwendung</i>
T1		0.05-0.1	20°	za tokarenje i fino glodanje do 50 HRC <i>turning and fine milling <50 HRC/ Drehen and Feinfräsen <50 HRC</i>
T1A	0.015-0.025	0.05-0.1	20°	prekinuti rez i tvrdo tokarenje <i>interrupted cut and hardturning/ unterbrochener Schnitt und Hartdrehen</i>
T2		0.15-0.2	20°	gruba obrada sivog lijeva <i>gray cast machining/ Grauguss Bearbeitung</i>
T2A	0.015-0.025	0.15-0.2	20°	izraziti prekinuti rez i gruba obrada <i>heavy interrupted cutting and roughing/ stark unterbrochener Schnitt und Schruppen</i>
T3		0.3-0.4	30°	teški uvjeti obrade i gruba obrada <i>difficult machining and roughing/ schwierige Bearbeitung und Schruppen</i>

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

■ CCMW

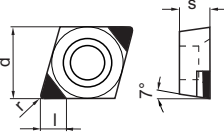
pločice sa segmentima, 2 rezna vrha

tipped inserts, 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel

CCMW 09T308 T1A X65/2C4

	ISO CCMW	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	060202	T1A	6.35	2.38	3	0.2									●		●		
	060204	T1A	6.35	2.38	3	0.4									●		●		
	080304	T1A	7.94	3.18	3	0.4									●		●		
	080308	T1A	7.94	3.18	3	0.8									●		●		
	09T304	T1A	9.525	3.97	4	0.4									●		●		
	09T308	T1A	9.525	3.97	4	0.8									●		●		
	120404	T1A	12.7	4.76	4	0.4									●		●		
	120408	T1A	12.7	4.76	4	0.8									●		●		
	120408	T2A	12.7	4.76	4	0.8									●		●		

■ CNGA

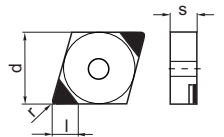
pločice sa segmentima, 2 rezna vrha

tipped inserts, 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel

CNGA 120404 T1A H21/2C4

	ISO CNGA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	120404	T1A	12.7	4.76	4	0.4									●		●		
	120408	T1A	12.7	4.76	4	0.8									●		●		
	120408	T2A	12.7	4.76	4	0.8									●		●		

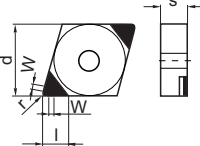
PCBN

PCBN TOKARENJE PCBN TURNING/ PCBN DREHEN

■ CNGA W

pločice sa segmentima, 2 rezna vrha i WIPER fazeta
tipped inserts, 2 WIPER cutting edges/
Wendepplatten mit Einsätze, 2 WIPER Schneiden

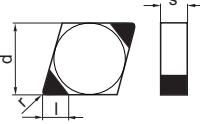
Primjer narudžbe/Order example/Bestellungsbeispiel
CNGA 120404W T2A X65/2C4

	ISO CNGA W	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	120404	T1A	12.7	4.76	3	0.4									●		●		
	120408	T1A	12.7	4.76	3	0.8									●		●		
	120408	T2A	12.7	4.76	3	0.8									●		●		

■ CNGN **HOFER 13**

pločice s 2 puna segmenta, 4 rezna vrha
inserts with 2 SOLID tips, 4 cutting edges/
Wendepplatten mit 2 BLOK Einsätze, 4 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel
CNGN 130412 T2A A90/2C6

	ISO CNGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
 HOFER 13 HOFER 13 HOFER 13	090408	T2A	9.525	4.76	4	0.8	●	●											
	090412	T2A	9.525	4.76	4	1.2	●	●											
	090416	T2A	9.525	4.76	4	1.6	●	●											
	120412	T2A	12.7	4.76	5	1.2	●	●	●										
	120416	T2A	12.7	4.76	5	1.6	●	●	●										
	120420	T2A	12.7	4.76	5	2.0	●	●	●										
	130412	T2A	13.05	4.76	6	1.2	●	●	●										
	130416	T2A	13.05	4.76	6	1.6	●	●	●										
	130420	T2A	13.05	4.76	6	2.0	●	●	●										

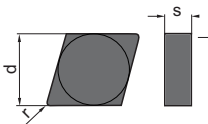
PCBN

PCBN TOKARENJE PCBN TURNING/ PCBN DREHEN

■ CNGN *HOFER 13*

pune pločice, 8 reznih vrhova
SOLID inserts, 8 cutting edges/
BLOK Wendeplatten, 8 Schneiden

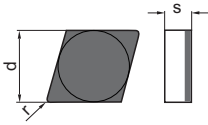
Primjer narudžbe/Order example/Bestellungbeispiel
CNGN 120416 T2A A73

	ISO CNGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
 <i>HOFER 13</i> <i>HOFER 13</i> <i>HOFER 13</i> <i>HOFER 13</i>	060304	T1A	6.35	3.18		0.4	●	●											
	060308	T1A	6.35	3.18		0.8	●	●											
	090408	T2A	9.525	4.76		0.8	●	●											
	090412	T2A	9.525	4.76		1.2	●	●	●										
	090416	T2A	9.525	4.76		1.6	●	●	●										
	100416	T2A	10.0	4.76		1.6	●	●	●										
	120412	T2A	12.7	4.76		1.2	●	●	●										
	120416	T2A	12.7	4.76		1.6	●	●	●										
	120420	T2A	12.7	4.76		2.0	●	●	●										
	130412	T2A	13.05	4.76		1.2	●	●	●										
	130416	T2A	13.05	4.76		1.6	●	●	●										
	130420	T2A	13.05	4.76		2.0	●	●	●										

■ CNGN

pločice od rezanih segmenata, 4 rezna vrha
full-face inserts, 4 cutting edges/
Wendeplatten mit Hartmetallunterlage, 4 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
CNGN 090304 T1A W85

	ISO CNGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	060302	T1A	6.35	3.18		0.2							●						
	060304	T1A	6.35	3.18		0.4							●						
	080304	T1A	7.94	3.18		0.4							●						
	090304	T1A	9.525	3.18		0.4							●						

PCBN


PCBN TOKARENJE

PCBN TURNING/
PCBN DREHEN

■ CNMA

pločice s 2 puna segmenta, 4 rezna vrha
inserts with 2 SOLID tips, 4 cutting edges/
Wendeplatten mit 2 BLOK Einsätze, 4 Schneiden


Primjer narudžbe/Order example/Bestellungbeispiel
CNMA 120412 T2A A73/2C5

	ISO CNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	120404	T1A	12.7	4.76	5	0.4	●		●										
	120408	T1A	12.7	4.76	5	0.8	●		●										
	120408	T2A	12.7	4.76	5	0.8	●		●										
	120412	T2A	12.7	4.76	5	1.2	●		●										

■ CNMA

pločice sa segmentima, 2 rezna vrha
tipped inserts with 2 cutting edges/
Wendeplatten mit Einsätze, 2 Schneiden


Primjer narudžbe/Order example/Bestellungbeispiel
CNMA 120408 T1A H21/2C3

	ISO CNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	120404	T1A	12.7	4.76	3	0.4							●	●		●			
	120408	T1A	12.7	4.76	3	0.8							●	●		●			
	120408	T2A	12.7	4.76	4	0.8							●	●		●			
	120412	T1A	12.7	4.76	4	1.2							●	●		●			

■ CNMA

pločice sa segmentima, 4 rezna vrha
tipped inserts with 4 cutting edges/
Wendeplatten mit Einsätze, 4 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
CNMA 120408 T1A H21/4C3

	ISO CNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	120404	T1A	12.7	4.76	3	0.4								●		●			
	120408	T1A	12.7	4.76	3	0.8								●		●			
	120408	T2A	12.7	4.76	4	0.8								●		●			
	120412	T1A	12.7	4.76	4	1.2								●		●			

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

■ DCMT

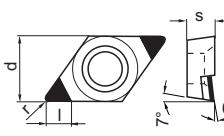
pločice sa segmentima, 2 rezna vrha

tipped inserts with 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel

DCMT 11T304 T1A W85/2D3

	ISO DCMT	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	11T304	T1A	9.525	3.97	3	0.4						●	●						
	11T308	T1A	9.525	3.97	3	0.8						●	●						
	150408	T1A	12.7	4.76	4	0.8						●	●						
	150412	T1A	12.7	4.76	4	1.2						●	●						

■ DCMW

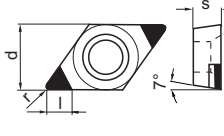
pločice sa segmentima, 2 rezna vrha

tipped inserts with 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel

DCMW 11T308 T1A H21/2D3

	ISO DCMW	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	070202	T1A	6.35	2.38	3	0.2							●		●				
	070204	T1A	6.35	2.38	3	0.4							●		●				
	11T304	T1A	9.525	3.97	3	0.4							●		●				
	11T308	T1A	9.525	3.97	3	0.8							●		●				
	150408	T1A	12.7	4.76	4	0.8							●		●				
	150412	T1A	12.7	4.76	4	1.2							●		●				

■ DNGA

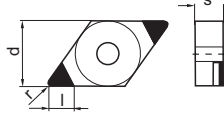
pločice sa segmentima, 2 rezna vrha

tipped inserts with 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel

DNGA 150404 T1A X65/2D4

	ISO DNGA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	150404	T1A	12.7	4.76	4	0.4							●		●				
	150408	T1A	12.7	4.76	4	0.8							●		●				
	150412	T1A	12.7	4.76	4	1.2							●		●				

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

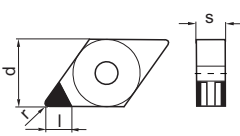
■ DNMA 1S

pločice sa segmentima, 2 vrha s jedne strane

tipped inserts, 2 one-sided cutting edges

Wendeplatten mit Einsätze, 2 einsietig Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
DNMA 150608 T1A W85/2D5-1S

	ISO DNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	150408	T1A	12.7	4.76	4	0.8							●		●				
	150412	T1A	12.7	4.76	4	1.2							●		●				
	150608	T1A	12.7	6.35	5	0.8					●		●				●		
	150612	T2A	12.7	6.35	5	1.2					●		●				●		
	150616	T2A	12.7	6.35	5	1.6					●		●				●		

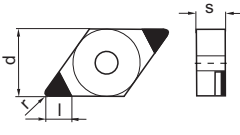
■ DNMA

pločice sa segmentima, 2 rezna vrha

tipped inserts with 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
DNMA 150408 T1A W85/2D4

	ISO DNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	110404	T1A	9.525	4.76	3	0.4									●	●			
	110408	T1A	9.525	4.76	3	0.8									●	●			
	150408	T1A	12.7	4.76	4	0.8							●		●	●			
	150412	T2A	12.7	4.76	4	1.2							●		●	●			
	150608	T2A	12.7	6.35	5	0.8					●		●			●			
	150612	T2A	12.7	6.35	5	1.2					●		●			●			

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

■ DNMA

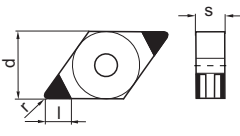
pločice s 4 rezna vrha

inserts with 4 cutting edges/

Wendeplatten mit 4 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel

DNMA 150408 T1A X65/4D4

	ISO DNMA	FAZETA chamfer/ Schneidkante	mm				PCBN													
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82		
	110404	T1A	9.525	4.76	3	0.4														
	110408	T1A	9.525	4.76	3	0.8														
	150408	T1A	12.7	4.76	4	0.8														
	150412	T2A	12.7	4.76	5	1.2														

■ DNMA

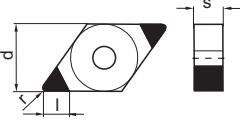
pločice s 2 puna segmenta, 4 rezna vrha

inserts with 2 SOLID tips, 4 cutting edges/

Wendeplatten mit 2 BLOK Einsätze, 4 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel

DNMA 150612 T2A A90/2D5

	ISO DNMA	FAZETA chamfer/ Schneidkante	mm				PCBN													
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82		
	110408	T1A	9.525	4.76	4	0.8	●		●											
	150408	T1A	12.7	4.76	4	0.8	●		●											
	150412	T2A	12.7	4.76	4	1.2	●		●											
	150608	T2A	12.7	6.35	5	0.8	●													
	150612	T2A	12.7	6.35	5	1.2	●													
	150616	T2A	12.7	6.35	5	1.6	●													

■ DNMX

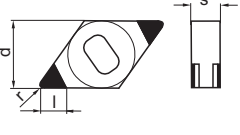
pločice sa segmentima, 4 rezna vrha

tipped inserts with 4 cutting edges/

Wendeplatten mit 4 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel

DNMX 120708 T1A X65/4D6

	ISO DNMX	FAZETA chamfer/ Schneidkante	mm				PCBN													
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82		
	120708	T1A	10.0	7.94	6	0.8														
	120712	T2A	10.0	7.94	6	1.2														

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

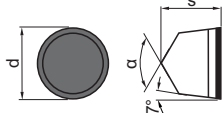
■ RCGX

pločice iz rezanih segmenata

full-face inserts, whole cutting edge/

Wendeplatten mit Hartmetallunterlage, ganze Schneide

Primjer narudžbe/Order example/Bestellungsbeispiel
RCGX 090700 T2A X65

	ISO RCGX	FAZETA chamfer/ Schneidkante	mm				PCBN														
			d	s	l	α	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82			
	060300	T2A	6.35	3.18		140°									●	●	●	●	●	●	
	090300	T2A	9.525	3.18		140°									●	●	●	●	●	●	
	090700	T1A	9.525	7.94		120°										●			●	●	
	090700	T2A	9.525	7.94		120°									●	●	●	●		●	
	120400	T2A	12.7	4.76		140°									●	●	●	●		●	
	120700	T1A	12.7	7.94		120°										●				●	
	120700	T2A	12.7	7.94		120°										●				●	

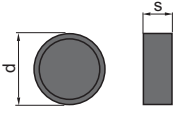
■ RNGN

pune pločice

SOLID inserts/

BLOK Wendeplatten

Primjer narudžbe/Order example/Bestellungsbeispiel
RNGN 090400 T1A A90

	ISO RNGN	FAZETA chamfer/ Schneidkante	mm				PCBN														
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82			
	090300	T1A	9.525	3.12			●	●	●												
	090400	T1A	9.525	4.76			●	●	●												
	120400	T2A	12.7	4.76			●	●	●												

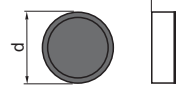
■ RNGN

pločice iz rezanih segmenata

full-face inserts, whole cutting edge/

Wendeplatten mit Hartmetallunterlage, ganze Schneide

Primjer narudžbe/Order example/Bestellungsbeispiel
RNGN 090400 T1A W85

	ISO RNGN	FAZETA chamfer/ Schneidkante	mm				PCBN														
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82			
	090300	T1A	9.525	3.12								●	●								
	090400	T1A	9.525	4.76								●	●								
	120400	T2A	12.7	4.76								●	●								

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

■ SCGN

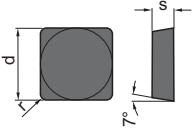
pune pločice, 4 rezna vrha

SOLID inserts, 4 cutting edges/

BLOK Wendepplatten, 4 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel

SCGN 090408 T2A A90

	ISO SCGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	090308	T1A	9.525	3.18		0.8	●		●										
	090408	T2A	9.525	4.76		0.8	●		●										
	120308	T2A	12.7	3.18		0.8	●		●										
	120408	T2A	12.7	4.76		0.8	●		●										

■ SCGN


pločice sa segmentima, 4 rezna vrha

tipped inserts, 4 cutting edges/

Wendepplatten mit Einsätze, 4 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel

SCGN 090408 T2A B91/4S4

	ISO SCGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	090408	T2A	9.525	4.76	4	0.8					●		●			●			
	120408	T2A	12.7	4.76	4	0.8					●		●			●			

■ SCGN


pločice s punim segmentima, 4 rezna vrha

tipped SOLID inserts, 4 cutting edges/

Wendepplatten mit BLOK Einsätze, 4 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel

SCGN 090408 T2A A90/4S4

	ISO SCGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	090408	T2A	9.525	4.76	4	0.8	●		●										
	120408	T2A	12.7	4.76	4	0.8	●		●										

PCBN

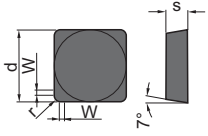
PCBN TOKARENJE

PCBN TURNING/ PCBN DREHEN

■ SCGN W

pune pločice s WIPER fazetom, 4 rezna vrha
SOLID inserts with WIPER, 4 cutting edges/
BLOK Wendepplatten mit WIPER, 4 Schneiden

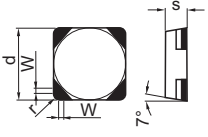
Primjer narudžbe/Order example/Bestellungsbeispiel
SCGN 090408W T2A A90

	ISO SCGN W	FAZETA chamfer/ Schneidkante	mm				PCBN											
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82
	090308	T1A	9.525	3.18		0.8	●		●									
	090408	T2A	9.525	4.76		0.8	●		●									
	120308	T2A	12.7	3.18		0.8	●		●									
	120408	T2A	12.7	4.76		0.8	●		●									

■ SCGN W

WIPER pločice sa segmentima, 4 rezna vrha
tipped inserts, 4 WIPER cutting edges/
Wendepplatten mit Einsätze, 4 WIPER Schneiden

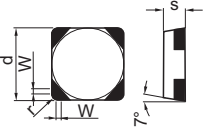
Primjer narudžbe/Order example/Bestellungsbeispiel
SCGN 090408W T2A B91/4S4

	ISO SCGN W	FAZETA chamfer/ Schneidkante	mm				PCBN											
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82
	090408	T2A	9.525	4.76	4	0.8					●		●			●		
	120408	T2A	12.7	4.76	4	0.8					●		●			●		

■ SCGN W

WIPER pločice s punim segmentima, 4 rezna vrha
tipped SOLID inserts, 4 WIPER cutting edges/
Wendepplatten mit BLOK Einsätze, 4 WIPER Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel
SCGN 090408W T2A A90/4S4

	ISO SCGN W	FAZETA chamfer/ Schneidkante	mm				PCBN											
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82
	090408	T2A	9.525	4.76	4	0.8	●		●									
	120408	T2A	12.7	4.76	4	0.8	●		●									

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

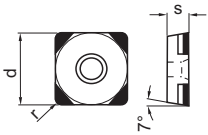
■ SCMW

pločice sa segmentima, 4 rezna vrha

tipped inserts, 4 cutting edges/

Wendeplatten mit Einsätze, 4 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel
SCMW 09T308 T1A H21/4S3

	ISO SCMW	FAZETA chamfer/ Schneidkante	mm				PCBN													
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82		
	09T304	T1A	9.525	3.97	3	0.4									●	●		●		
	09T308	T1A	9.525	3.97	3	0.8									●	●		●		
	120404	T1A	12.7	4.76	4	0.4									●	●		●		
	120408	T1A	12.7	4.76	4	0.8									●	●		●		

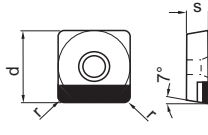
■ SCMW

pločice sa segmentom uzduž rezne oštice

tipped inserts, whole cutting edge/

Wendeplatten mit Einsätze, ganze Schneide

Primjer narudžbe/Order example/Bestellungsbeispiel
SCMW 09T308 T1A H21/L9

	ISO SCMW	FAZETA chamfer/ Schneidkante	mm				PCBN													
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82		
	09T304	T1A	9.525	3.97	9	0.4									●	●		●		
	09T308	T1A	9.525	3.97	9	0.8									●	●		●		
	120404	T1A	12.7	4.76	12	0.4									●	●		●		
	120408	T1A	12.7	4.76	12	0.8									●	●		●		

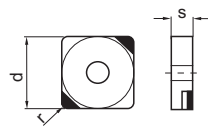
■ SNGA

pločice sa segmentima, 2 rezna vrha

tipped inserts, 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel
SNGA 120408 T1A H21/2S4

	ISO SNGA	FAZETA chamfer/ Schneidkante	mm				PCBN													
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82		
	120404	T1A	12.7	4.76	4	0.4									●	●		●		
	120408	T1A	12.7	4.76	4	0.8									●	●		●		
	120412	T1A	12.7	4.76	4	1.2									●	●		●		

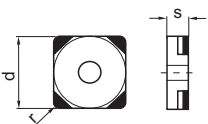
PCBN

PCBN TOKARENJE PCBN TURNING/ PCBN DREHEN

■ SNGA

pločice sa segmentima, 4 rezna vrha
tipped inserts, 4 cutting edges/
Wendepplatten mit Einsätze, 4 Schneiden

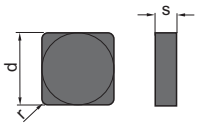
Primjer narudžbe/Order example/Bestellungbeispiel
SNGA 120408 T1A H21/4S4

	ISO SNGA	FAZETA chamfer/Schneidkante	mm				PCBN														
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82			
	120404	T1A	12.7	4.76	4	0.4										●	●		●		
	120408	T1A	12.7	4.76	4	0.8										●	●		●		
	120412	T1A	12.7	4.76	4	1.2										●	●		●		

■ SNGN **HOFER 13**

pune pločice, 8 reznih vrhova
SOLID inserts, 8 cutting edges/
BLOK Wendepplatten, 8 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
SNGN 130412 T2A A73

	ISO SNGN	FAZETA chamfer/Schneidkante	mm				PCBN															
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82				
 HOFER 13	060304	T1A	6.35	3.18		0.4	●		●													
	060308	T1A	6.35	3.18		0.8	●		●													
	090304	T2A	9.525	3.18		0.4	●		●													
	090308	T2A	9.525	3.18		0.8	●		●													
	090312	T2A	9.525	3.18		1.2	●	●	●													
	100312	T2A	10.0	3.18		1.2	●	●	●													
	120408	T2A	12.7	4.76		0.8	●	●	●													
	120412	T2A	12.7	4.76		1.2	●	●	●													
	120416	T2A	12.7	4.76		1.6	●	●	●													
	130408	T2A	13.05	4.76		0.8	●	●	●													
	130412	T2A	13.05	4.76		1.2	●	●	●													
	130416	T2A	13.05	4.76		1.6	●	●	●													

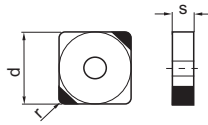
PCBN

PCBN TOKARENJE PCBN TURNING/ PCBN DREHEN

■ SNMA

pločice sa punim segmentima, 4 rezna vrha
SOLID tipped inserts, 4 cutting edges/
Wendepplatten mit BLOK Einsätze, 4 Schneiden

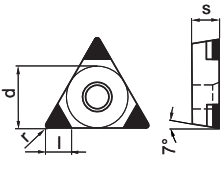
Primjer narudžbe/Order example/Bestellungbeispiel
SNMA 120412 T2A A90/2S5

	ISO SNMA	FAZETA chamfer/ Schneidkante	mm				PCBN											
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82
	120412	T2A	12.7	4.76	5	1.2	●	●										
	120416	T2A	12.7	4.76	5	1.6	●	●										
	120420	T2A	12.7	4.76	5	2.0	●	●										

■ TCMW

pločice sa segmentima, 3 rezna vrha
tipped inserts, 3 cutting edges/
Wendepplatten mit Einsätze, 3 Schneiden


Primjer narudžbe/Order example/Bestellungbeispiel
TCMW 16T304 T1A H21/3T4

	ISO TCMW	FAZETA chamfer/ Schneidkante	mm				PCBN											
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82
	090204	T1A	5.56	2.38	3	0.4											●	
	110204	T1A	6.35	2.38	3	0.4											●	
	110208	T1A	6.35	2.38	3	0.8											●	
	16T304	T1A	9.525	3.97	4	0.4								●		●		
	16T308	T1A	9.525	3.97	4	0.8								●		●		

■ TNGA

pločice sa segmentima, 3 rezna vrha
tipped inserts, 3 cutting edges/
Wendepplatten mit Einsätze, 3 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
TNGA 160404 T1A H21/3T4

	ISO TNGA	FAZETA chamfer/ Schneidkante	mm				PCBN										
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350
	160404	T1A	9.525	4.76	4	0.4					●		●	●		●	
	160408	T1A	9.525	4.76	4	0.8					●		●	●		●	
	160412	T1A	9.525	4.76	4	1.2					●		●	●		●	

PCBN

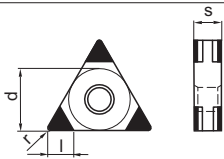
PCBN TOKARENJE

PCBN TURNING/
PCBN DREHEN

■ TNGA

pločice sa segmentima, 6 reznih vrhova
tipped inserts, 6 cutting edges/
Wendepplatten mit Einsätze, 6 Schneiden

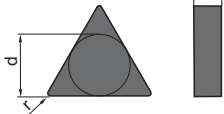
Primjer narudžbe/Order example/Bestellungsbeispiel
TNGA 160412 T2A X65/6T4

	ISO TNGA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	160404	T1A	9.525	4.76	4	0.4						●		●	●		●		
	160408	T1A	9.525	4.76	4	0.8						●		●	●		●		
	160412	T1A	9.525	4.76	4	1.2						●		●	●		●		

■ TNGN HOFER 13

pune pločice, 6 reznih vrhova, TiN presvlaka prema zahtjevu kupca
SOLID inserts, 6 cutting edges, optional TiN coating to customers request/
BLOK Wendepplatten, 6 Schneiden, TiN Beschichtung optional auf Kundenwunsch


Primjer narudžbe
Order example/
Bestellungsbeispiel
TNGN 160412 T1A A90

	ISO TNGN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
 <small>HOFER 13</small> <small>HOFER 13</small>	110304	A	6.35	3.18		0.4	●	●	●										
	110308	T1A	6.35	3.18		0.8	●	●	●										
	120304	A	6.75	3.18		0.4	●	●	●										
	120308	T1A	6.75	3.18		0.8	●	●	●										
	160308	T1A	9.525	3.18		0.8	●	●	●										
	160408	T1A	9.525	4.76		0.8	●	●	●										
	160412	T1A	9.525	4.76		1.2	●	●	●										

■ TNMA

pločice sa punim segmentima, 6 reznih vrhova
SOLID tipped inserts, 6 cutting edges/
Wendepplatten mit BLOK Einsätze, 6 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel
TNMA 160408 T1A A90/3T4

	ISO TNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	160408	T1A	9.525	4.76	4	0.8	●	●	●										
	160412	T1A	9.525	4.76	4	1.2	●	●	●										

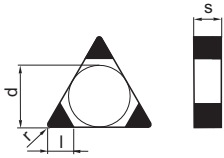
PCBN

PCBN TOKARENJE PCBN TURNING/ PCBN DREHEN

■ TNMN

pločice sa punim segmentima, 6 reznih vrhova
SOLID tipped inserts, 6 cutting edges/
Wendepplatten mit BLOK Einsätze, 6 Schneiden

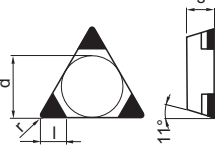
Primjer narudžbe/Order example/Bestellungbeispiel
TNMN 160412 T2A A90/3T5

	ISO TNMN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	160408	T2A	9.525	4.76	5	0.8	●	●	●										
	160412	T2A	9.525	4.76	5	1.2	●	●	●										

■ TPMN

pločice sa segmentima, 3 rezna vrha
tipped inserts, 3 cutting edges/
Wendepplatten mit Einsätze, 3 Schneiden

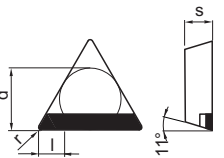
Primjer narudžbe/Order example/Bestellungbeispiel
TPMN 160308 T1A X65/3T3

	ISO TPMN	FAZETA chamfer/ Schneidkante	mm				PCBN											
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82
	110304	T1A	6.35	3.18	3	0.4							●		●			
	110308	T1A	6.35	3.18	3	0.8							●		●			
	160304	T1A	9.525	3.18	3	0.4							●		●			
	160308	T1A	9.525	3.18	3	0.8							●		●			

■ TPMN

pločice sa segmentom uzduž rezne oštrice
tipped inserts, whole cutting edge/
Wendepplatten mit Einsätze, ganze Schneide

Primjer narudžbe/Order example/Bestellungbeispiel
TPMN 160308 T1A X65/L16

	ISO TPMN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	160304	T1A	9.525	3.18	16	0.4					●			●		●			●
	160308	T1A	9.525	3.18	16	0.8					●			●		●			●

PCBN

PCBN TOKARENJE

PCBN TURNING/

PCBN DREHEN

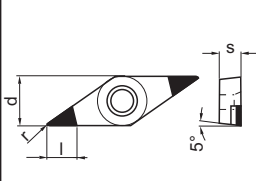
■ VBMW

pločice sa segmentima, 2 rezna vrha

tipped inserts, 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
VBMW 160412 T2A W85/2V5

	ISO VBMW	FAZETA chamfer/ Schneidkante	mm				PCBN															
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82				
	160404	T2A	9.525	4.76	5	0.4									●		●	●		●		
	160408	T2A	9.525	4.76	5	0.8									●		●	●		●		

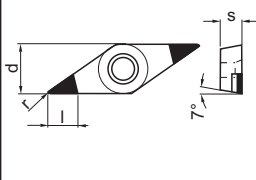
■ VCMW

pločice sa segmentima, 2 rezna vrha

tipped inserts, 2 cutting edges/

Wendeplatten mit Einsätze, 2 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
VCMW 160408 T1A W85/2V5

	ISO VCMW	FAZETA chamfer/ Schneidkante	mm				PCBN															
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82				
	110304	T1A	6.35	3.18	3	0.4														●		
	130308	T1A	7.94	3.18	4	0.8														●		
	160404	T1A	9.525	4.76	5	0.4							●	●					●			
	160408	T1A	9.525	4.76	5	0.8							●	●					●			
	160412	T1A	9.525	4.76	5	1.2							●	●					●			

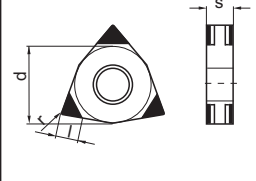
■ WNMA

pločice sa segmentima, 6 reznih vrhova

tipped inserts, 6 cutting edges/

Wendeplatten mit Einsätze, 6 Schneiden

Primjer narudžbe/Order example/Bestellungbeispiel
WNMA 080412 T2A W85/6C4

	ISO WNMA	FAZETA chamfer/ Schneidkante	mm				PCBN															
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82				
	060404	T1A	9.52	4.76	4	0.4														●		
	060408	T1A	9.52	4.76	4	0.8														●		
	080404	T1A	12.7	4.76	4	0.4							●	●					●			
	080408	T2A	12.7	4.76	4	0.8							●	●					●			
	080412	T2A	12.7	4.76	4	1.2							●	●					●			

PCBN

PCBN TOKARENJE

PCBN TURNING/
PCBN DREHEN

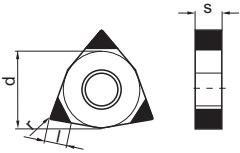
■ WNMA

pločice sa punim segmentima, 6 reznih vrhova

SOLID tipped inserts, 6 cutting edges/

Wendeplatten mit BLOK Einsätze, 6 Schneiden

Primjer narudžbe/Order example/Bestellungsbeispiel
WNMA 080412 T2A A90/3C5

	ISO WNMA	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	060404	T1A	9.52	4.76	4	0.4	●	●	●										
	060408	T1A	9.52	4.76	4	0.8	●	●	●										
	080404	T1A	12.7	4.76	5	0.4	●	●	●										
	080408	T2A	12.7	4.76	5	0.8	●	●	●										
	080412	T2A	12.7	4.76	5	1.2	●	●	●										

PCBN TOKARENJE UTORA

PCBN GROOVING/
PCBN EINSTECHEN

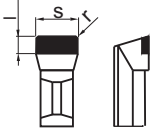
■ MRCN

pločice sa segmentima, 1 rezni vrh

tipped inserts, 1 cutting edge/

Wendeplatten mit Einsätze, 1 Schneide

Primjer narudžbe/Order example/Bestellungsbeispiel
MRCN1.6 T1A W85

	MRCN	FAZETA chamfer/ Schneidkante	mm				PCBN												
			d	s	l	r	A90	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	1.6	T1A		1.60	2.5	0.2												●	
	2.2	T1A		2.20	2.5	0.2												●	
	3.0	T1A		3.0	3	0.2												●	
	4.0	T1A		4.0	3	0.2												●	
	5.0	T1A		5.0	4	0.3												●	
	6.0	T1A		6.0	4	0.4												●	

*Pripadajući držač CZCB/Belonging toolholder CZCB/Entsprechenden Werkzeughalter CZCB

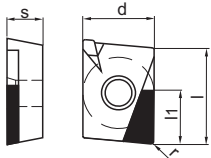
PCBN

PCBN GLODANJE PCBN MILLING/ PCBN FRÄSEN

■ APKW

pločice sa segmentom, 1 rezni vrh, mogućnost brušenja
tipped inserts, 1 cutting edge, regrinding optional/
Wendepplatten mit Einsatz, 1 Schneide, Nachschleifen möglich

Primjer narudžbe
Order example/Bestellungbeispiel
APKW 100305W T1A W85/X5L

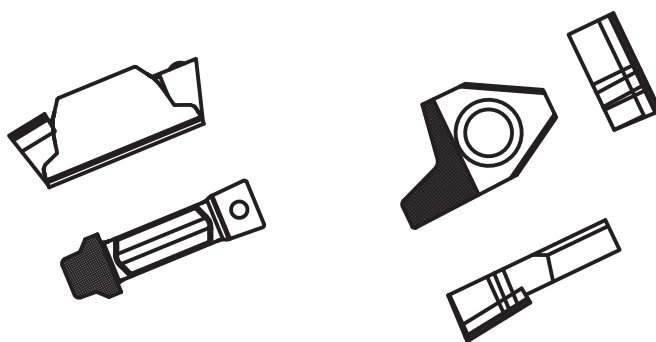
	ISO APKW	FAZETA chamfer/ Schneidkante	mm					PCBN											
			d	s	l	r	l ₁	A71	A73	B92	B91	S90	W85	X65	D50	H21	TBC 80-350	B82	
	100305W	T1A	6.35	3.18	9.5	0.5	5			●			●						
	100308	T1A	6.35	3.18	9.5	0.8	5			●			●						
	160408W	T1A	9.52	4.76	16	0.8	7			●			●						
	160412	T1A	9.52	4.76	16	1.2	7			●			●						

PCBN ALATI PREMA NARUDŽBI PCBN CUSTOM DESIGNED TOOLS/ PCBN SONDERWERKZEUGE

Tvrтка HOFER nudi izradu PCBN alata prema nacrtu ili uzorku kupca.
Molimo da se obratite našem stručnom osoblju za sva dodatna pitanja.

Company HOFER offers production of custom designed PCBN tools to customers drawing or sample.
Please, contact our personnel for further informations.

Firma Hofer bietet Produktion von PCBN Werkzeuge um Kunden Zeichnung oder Muster.
Kontaktieren Sie bitte unsere Mitarbeiter für weitere Informationen.



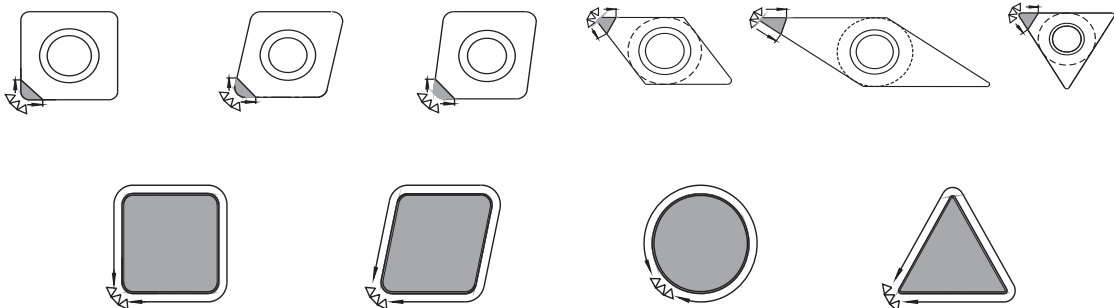
PCBN

PCBN BRUŠENJE I HOFER 13 PCBN RE-GRINDING SERVICE AND HOFER 13/ PCBN NACHSCHLEIFEN UND HOFER 13

Tvrtka HOFER nudi usluge brušenja PCBN alata što dodatno snizuje troškove reznog alata. Također, uz standardni ISO program alata nudimo i alate izrađene izvan ISO sustava, a što omogućuje naknadno brušenje. Prosječna cijena brušenja je 20-30% cijene novog alata. Razvrstavanjem i brušenjem alata postiže se kvaliteta rezne oštrice istovjetna kvaliteti novog alata. Za sva pitanja u vezi brušenja i prijedloga za smanjenje troškova obratite nam se s punim povjerenjem.

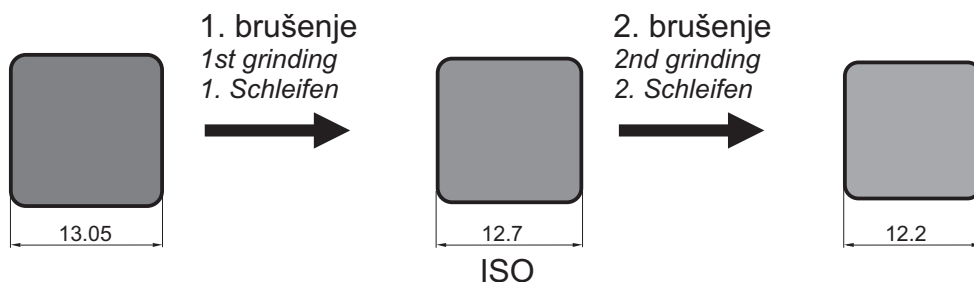
Company HOFER offers grinding service of PCBN tools which results in further tool cost decrease. Also, besides standard ISO cutting tools, we offer tools made out of ISO system which enables regrinding service. Average grinding service price is about 20-30% of new tool cost. By sorting and grinding worn tools same cutting edge quality is achieved as with new tools. For all further questions about grinding service, please contact us with full trust.

Firma HOFER bietet Schleifservice von CBN Werkzeuge, die in weiteren Werkzeugkosten Rückgang führt. Auch, neben ISO Schneidwerkzeuge, bieten wir Werkzeuge aus ISO System, das Nachschleifen Service ermöglicht gemacht. Durchschnittliche Schleifservice Preis ist etwa 20-30% des neuen Werkzeugs Kosten. Durch das Sortieren und Schleifen verschlissene Werkzeuge dieselbe Schneide Qualität als mit neuen Werkzeugen erreicht. Für alle weiteren Fragen um Schleifen Service, kontaktieren Sie uns bitte mit vollem Vertrauen.

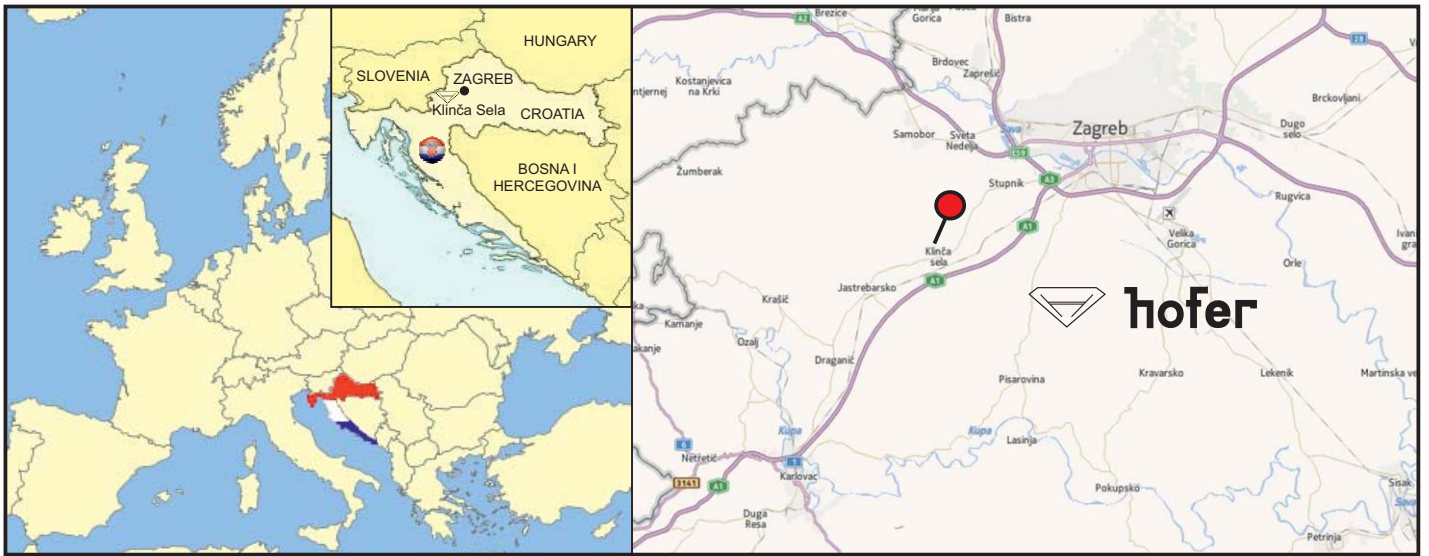


HOFER 13 SUSTAV BRUŠENJA PCBN PLOČICA HOFER 13 PCBN INSERTS REGRINDING SYSTEM HOFER 13 PCBN WENDEPLATTEN NACHSCHLEIFENSYSTEM

HOFER 13



1 DRŽAČ ALATA- 3 dimenzije pločica
1 TOOLHOLDER- 3 insert dimensions
1 WERKZEUGHALTER- 3 Wendeplattegröße



HOFER d.o.o
Karlovačka 30
Klinča Sela
10450 Jastrebarsko
Kroatien

Tel: 00385 (0) 1 6294 304
Fax: 00385 (0) 1 6279 831

E-mail: hofer@hofer.hr
<http://www.hofer.hr>