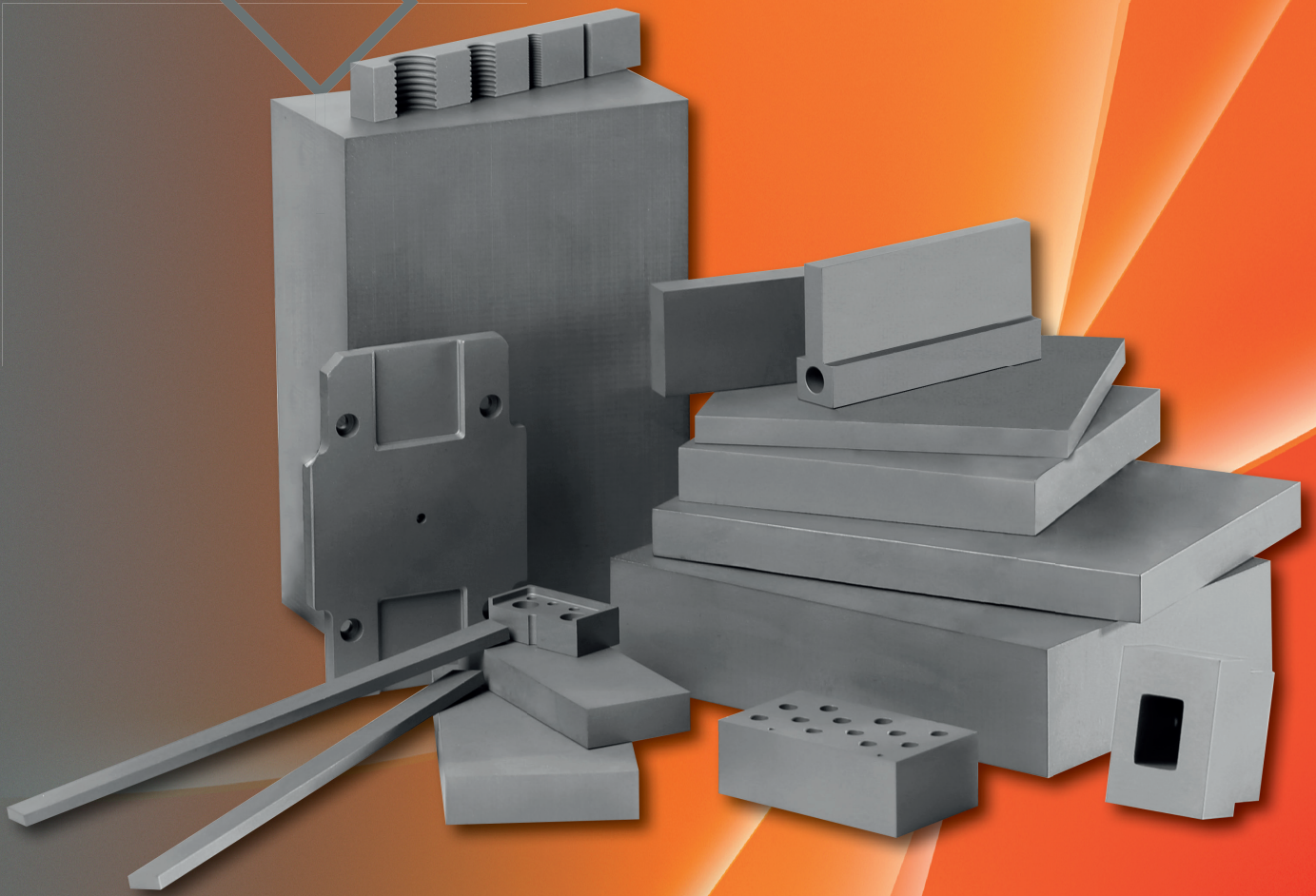




PCGGMBH

PRECISION CARBIDE GERMANY



**High performance hard metals
for cutting and stamping tools**

Optimal basic materials for best tool life

Highly effective cutting and stamping tools in the modern production lines are extremely important preconditions in order to remain globally successful in competition.

The appropriate hard metal in best quality constitute the decisive basis for your success.

You will obtain the most suitable hard metal for your product and particular processing.

Reliably, with professional consulting and with best service

Selection of hard metal grades for cutting and stamping tools

All hard metal grades are produced in HIP sintering process (homogeneous + free of pores).

PCG Grade	Structur	Grain size μm	Co $\pm 0,5\%$	Hardness HV30	Hardness HRA	Density g/cm^3	TRS N/mm^2	Rupture toughness K_{IC} ($\text{MPam}^{1/2}$)
U08	ultrafine	$\leq 0,6$	8,0	2010	94,4	14,50	3800	8,6
F06D	ultrafine	$\leq 0,6$	6,0	1840	93,40	14,80	3500	9,0
U12	ultrafine	$\leq 0,6$	12,0	1640	92,2	14,15	3800	9,8
F10	submicron	0,7	10,0	1580	91,8	14,35	3800	10,7
F10S	submicron	0,8	10,0	1510	91,3	14,40	4000	10,9
F15	submicron	0,8	15,0	1370	90,0	13,95	3600	12,7
GF15	fine	1,0	15,0	1320	89,5	13,95	3600	13,2
G10	medium	2 - 3	6,0	1420	90,5	14,90	3200	10,7
G20	fine/med.	1 - 2	12,0	1300	89,3	14,30	3600	12,9
G30	medium	2 - 3	14,0	1100	87,3	14,10	3200	14,2
G40	med./coarse	2 - 4	18,0	920	85,0	13,75	3000	20,5
GT30	coarse	4 - 6	15,0	920	85,0	14,00	2700	16,3
GT40	coarse	4 - 6	20,0	850	84,0	13,60	2800	23,5
Corrosion resistant grades								
FA1	submicron	0,8	13,0	1420	90,5	14,10	3500	12,3
FA2	fine/med.	1 - 2	12,0	1350	89,8	14,10	3400	12,2
Non-magnetic grades								
N10	submicron	0,8	9,0 Ni	1510	91,3	14,35	2800	10,0
N12	submicron	0,8	12,0 Ni	1370	90,0	14,05	2800	11,2
N14	fine/med.	1 - 2	14,0 Ni	1020	86,5	14,15	2600	12,7

Data are special material properties. Subject to modification!

Other hard metal grades on request!

Classification WC-crystallites after sintering

Grain size	<0,2 μm	0,2-0,5 μm	0,5-0,8 μm	0,8-1,3 μm	1,3-2,5 μm	2,5-6,0 μm	>6,0 μm
Definition	Nano	Ultrafine	Submicron	Fine	Medium	Coarse	Extracoarse

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