



Cemented Carbide

Blanks for Circular Knives

T&D Materials manufactures and supplies some of the highest quality **cemented tungsten carbide blanks for circular knives** on the market.

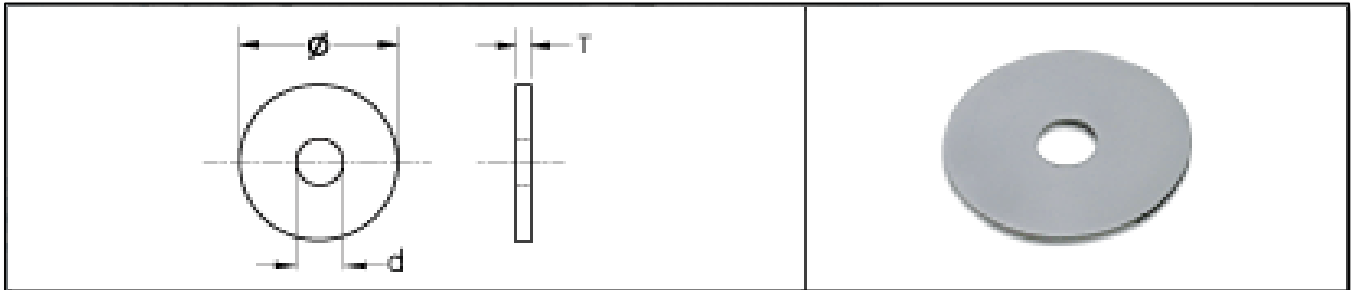
Grade	Physical & mechanical properties			Recommended applications
	Density g/cm ³	Typical values		
		Hardness HRA	TRSN/mm ² (Sample B)	
YS2T	14.45	92.4	2380	An ultra fine cemented carbide with tungsten powder and binder cobalt. Good toughness and wear resistance, suitable for low speed cutting allowing a big rake angle, ensuring the sharpness of the edges, bearing a heavy cutting force and achieving good surface finish.
YL10.2	14.45	91.8	2880	With good transversal rupture strength and wear resistance, it is suitable for low-speed rough turning and milling of heat resistant alloys, titanium alloys and of plastics glass well.

T&D offers a wide selection of **tungsten carbide micro-grain and submicron grades**. All products are **sinter-HIP processed** to ensure **complete metallurgical integrity and quality** in our **ISO 9001 certified manufacturing facility**.

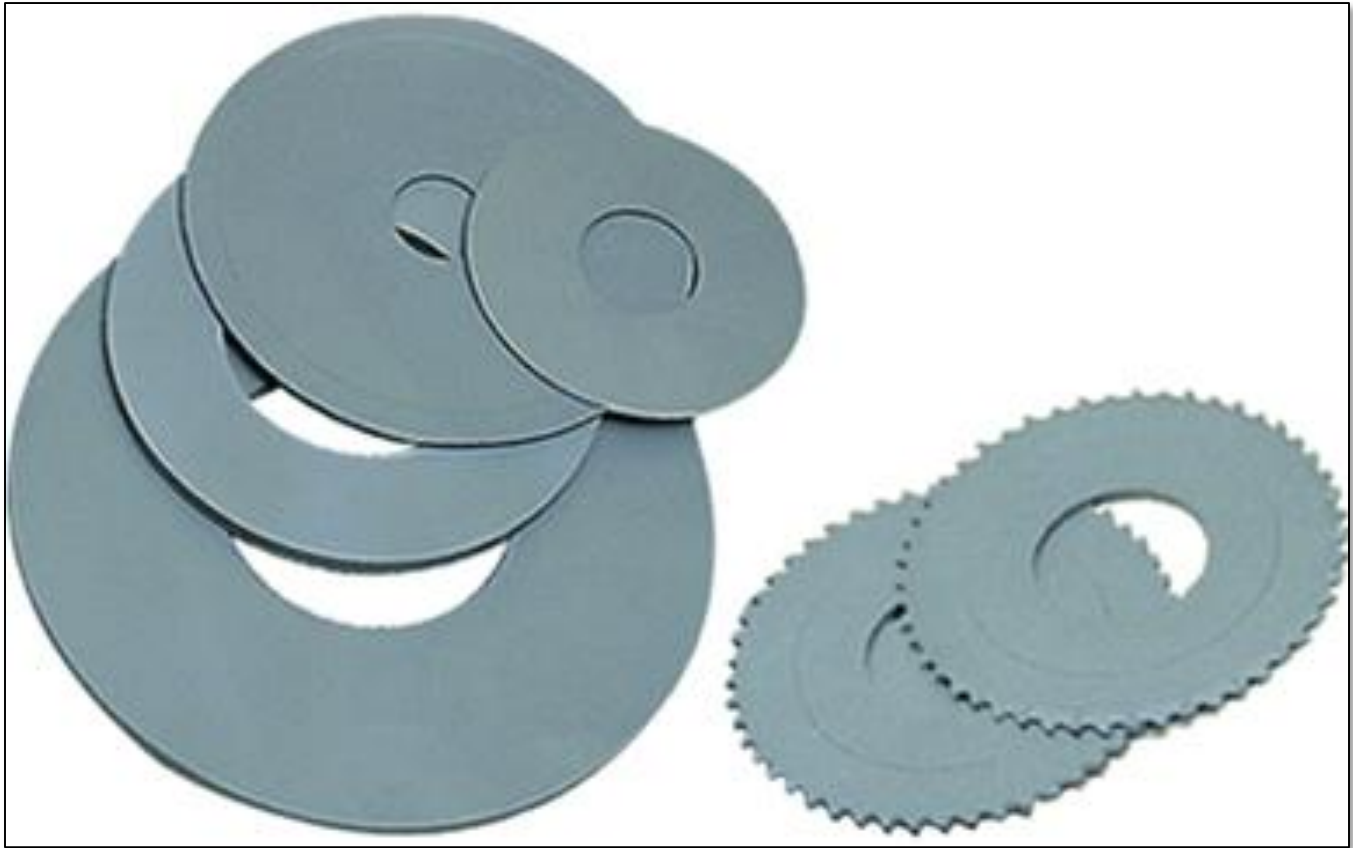


ISO Code	BINDER %	DENSITY g/cc	HARDNESS HRA	TRS psi
K05-10	6	14.90	93.50	508,000
K10-30	7.5	14.75	92.60	522,000
K20-K40	10	14.50	91.60	537,000
K40	12	14.30	90.90	551,000

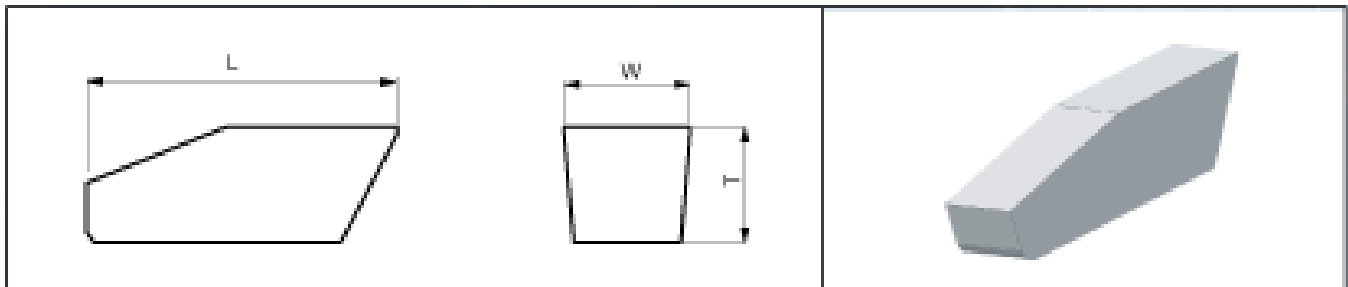
Saw Blades



Ø(mm)	Tol.(mm)	T(mm)	Tol.(mm)	d (mm)	Tol.(mm)	Remark
10	+0.4	T	+0.4	4	-0.4	
20	+0.6	T	+0.6	5	-0.4	
30	+0.8	T	+0.6	8	-0.4	
40	+0.8	T	+0.8	10	-0.4	
50	+1.0	T	+0.8	13	-0.6	
60	+1.0	T	+0.8	16	-0.6	
70	+1.2	T	+0.8	25.4	-0.8	
80	+1.2	T	+0.8	22	-0.6	
95	+1.2	T	+0.8	22	-0.6	
100	+1.2	T	+0.8	25.4	-0.8	
...	
Ø		T		d		By Request



Saw Blades



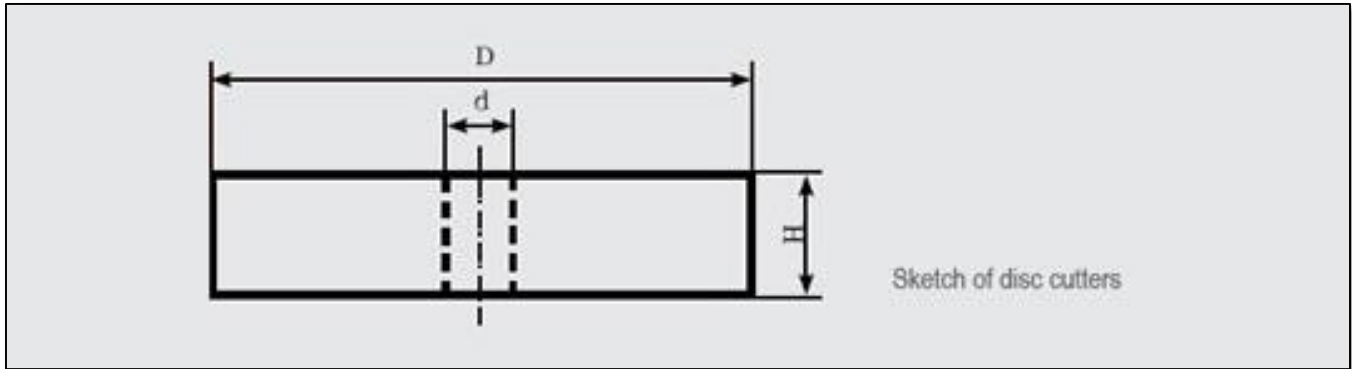


T (mm)	Tol.(mm)	W (mm)	Tol.(mm)	L (mm)	Tol.(mm)	Remark
1.3	+0.1	W	+0.12	4.5	+0.2	
1.5	+0.1	W	+0.12	5.0	+0.2	
1.6	+0.1	W	+0.12	5.5	+0.2	
1.8	+0.1	W	+0.12	6.0	+0.2	
2.0	+0.1	W	+0.12	5.0	+0.2	
2.0	+0.1	W	+0.12	6.5	+0.2	
2.0	+0.1	W	+0.12	7.0	+0.2	
2.2	+0.1	W	+0.12	6.5	+0.2	
2.2	+0.1	W	+0.12	7.0	+0.2	
2.2	+0.1	W	+0.12	7.2	+0.2	
2.2	+0.1	W	+0.12	7.5	+0.2	
2.4	+0.1	W	+0.12	7.5	+0.2	
2.5	+0.1	W	+0.12	8.0	+0.2	
2.6	+0.1	W	+0.12	7.0	+0.2	
...	
T		W		L		By Request





Designation of the types : $\Phi D \times \Phi d \times H$



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
$\Phi 11 \times \Phi 5 \times 4.3$	11	5	4.3
$\Phi 14 \times \Phi 5 \times 3.5$	14	5	3.5
$\Phi 14 \times \Phi 7.5 \times 3.5$	14	7.5	3.5
$\Phi 14 \times \Phi 7.5 \times 5.3$	14	7.5	5
$\Phi 15.5 \times \Phi 7.8 \times 0.8$	15.5	7.8	1.8
$\Phi 15.5 \times \Phi 7.8 \times 1.0$	15.5	7.8	1.0
$\Phi 15 \times \Phi 5.5 \times 3.5$	15	5.5	3.5
$\Phi 16.5 \times \Phi 6.5 \times 5$	16.5	6.5	5
$\Phi 17 \times \Phi 5.2 \times 1.0$	17	5.2	1.0
$\Phi 17 \times \Phi 5.2 \times 1.2$	17	5.2	1.2
$\Phi 17 \times \Phi 5 \times 1.0$	17	5	1.0



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ17×Φ7.2×1.0	17	7.2	1.0
Φ17×Φ7×1.0	17	7	1.0
Φ18.5×Φ7.8×0.8	18.5	7.8	0.8
Φ18.5×Φ7.8×1.0	18.5	7.8	1.0
Φ18×Φ7×1.0	18	7	1.0
Φ19×Φ5.2×1.0	19	5.2	1.0
Φ19×Φ7×1.0	19	7	1.0
Φ20×Φ4×3	20	4	3
Φ20×Φ8.5×3.5	20	8.5	3.5
Φ20×Φ9×3.5	20	9	3.5
Φ20.5×Φ7.8×0.8	20.5	7.8	0.8
Φ20.5×Φ7.8×1.0	20.5	7.8	1.0
Φ21×Φ7×1.0	21	7	1.0
Φ22×Φ5.2×1.0	21	5.2	1.0
Φ25×Φ12×1.0	25	12	1.0
Φ26×Φ7.2×1.0	26	7.2	1.0
Φ26×Φ7.2×1.2	26	7.2	1.2
Φ26×Φ7.2×1.5	26	7.2	1.5



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ26×Φ7.2×2.0	26	7.2	2.0
Φ26×Φ7.2×2.5	26	7.2	2.5
Φ26×Φ7.2×3.0	26	7.2	3.0
Φ26×Φ7.2×3.3	26	7.2	3.3
Φ26×Φ7.2×3.3	26	7.2	3.3
Φ26×Φ7.2×5.3	26	7.2	5.3
Φ30×Φ12×1.0	30	12	1.0
Φ33×Φ7.2×1.2	33	7.2	1.2
Φ33×Φ7.2×1.5	33	7.2	1.5
Φ41.7×Φ11.2×3.0	41.7	11.2	3.0
Φ41.7×Φ11.2×3.5	41.7	11.2	3.5
Φ47×Φ14.5×1.0	47	14.5	1.0
Φ47×Φ14.5×1.2	47	14.5	1.2
Φ52×Φ12×1.5	52	12	1.5
Φ52×Φ12×6.5	52	12	6.5
Φ52×Φ12×7.5	52	12	7.5
Φ57×Φ24.4×2.85	57	24.4	2.85
Φ61.5×Φ11.5×1.2	61.5	11.5	1.2



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ61.5×Φ15×1.2	61.5	15	1.2
Φ64×Φ14×2.0	64	14	2.0
Φ64×Φ14×2.5	64	14	2.5
Φ64×Φ14×3.0	64	14	3.0
Φ64×Φ14×3.4	64	14	3.4
Φ64.5×Φ15×1.2	64.5	15	1.2
Φ65×Φ14×1.4	65	14	1.4
Φ65×Φ14×1.5	65	14	1.5
Φ72×Φ12×1.5	72	12	1.5
Φ72×Φ15×1.2	72	15	1.2
Φ72×Φ15×1.8	72	15	1.8
Φ72×Φ15×2.3	72	15	2.3
Φ72×Φ15×3.4	72	15	3.4
Φ73×Φ14.5×1.5	73	14.5	1.5
Φ73×Φ21×1.4	73	21	1.4
Φ73×Φ24×1.2	73	24	1.2
Φ73×Φ24×1.5	73	24	1.5
Φ73×Φ24×2.0	73	24	2.0



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ76×Φ20.5×2.0	76	20.5	2.0
Φ76.5×Φ15×1.5	76.5	15	1.5
Φ76.5×Φ15×2.0	76.5	15	2.0
Φ76.5×Φ20.5×1.2	76.5	20.5	1.2
Φ76.5×Φ20.5×1.5	76.5	20.5	1.5
Φ76.5×Φ20.5×2.0	76.5	20.5	2.0
Φ76.5×Φ20.5×2.5	76.5	20.5	2.5
Φ76.5×Φ20.5×3.0	76.5	20.5	3.0
Φ76.5×Φ24×1.5	76.5	24	1.5
Φ76.5×Φ24×2.0	76.5	24	2.0
Φ76.5×Φ24×2.5	76.5	24	2.5
Φ76.5×Φ24×3.0	76.5	24	3.0
Φ78×Φ23×3.5	78	23	3.5
Φ83×Φ16×1.4	83	16	1.4
Φ83×Φ20×1.4	83	20	1.4
Φ83×Φ20.5×1.5	83	20.5	1.5
Φ83×Φ24×1.3	83	24	1.3
Φ83×Φ24×1.5	83	24	1.5



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ83×Φ24×1.8	83	24	1.8
Φ83×Φ24×2.0	83	24	2.0
Φ83×Φ24×2.3	83	24	2.3
Φ83×Φ24×2.5	83	24	2.5
Φ83×Φ30×1.5	83	30	1.5
Φ83×Φ30×1.8	83	30	1.8
Φ83×Φ30×2.0	83	30	2.0
Φ83×Φ30×2.2	83	30	2.2
Φ83×Φ30×2.5	83	30	2.5
Φ83×Φ30×3.0	83	30	3.0
Φ102×Φ20×1.5	102	20	1.5
Φ102×Φ20×2.0	102	20	2.0
Φ102×Φ20×2.3	102	20	2.3
Φ103×Φ24×2.8	103	24	2.8
Φ103×Φ30×1.5	103	30	1.5
Φ103×Φ30×2.0	103	30	2.0
Φ103×Φ30×2.5	103	30	2.5
Φ103×Φ30×2.8	103	30	2.8



Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ103×Φ30×3.0	103	30	3.0
Φ103×Φ30×3.3	103	30	3.3
Φ103×Φ30×4.0	103	30	4.0
Φ103×Φ30×4.5	103	30	4.5
Φ103×Φ30×6.3	103	30	6.3
Φ108×Φ30×1.5	108	30	1.5
Φ108×Φ30×1.8	108	30	1.8
Φ108×Φ30×2.0	108	30	2.0
Φ108×Φ30×2.5	108	30	2.5
Φ108×Φ30×3.0	108	30	3.0
Φ112×Φ30.5×1.3	112	30.5	1.3
Φ113×Φ30×1.5	113	30	1.5
Φ113×Φ30×2.0	113	30	2.0
Φ113×Φ30×2.5	113	30	2.5
Φ113×Φ30×3.3	113	30	3.3
Φ113×Φ30×4.3	113	30	4.3
Φ115×Φ30×1.5	115	30	1.5
Φ115×Φ30×1.8	115	30	1.8

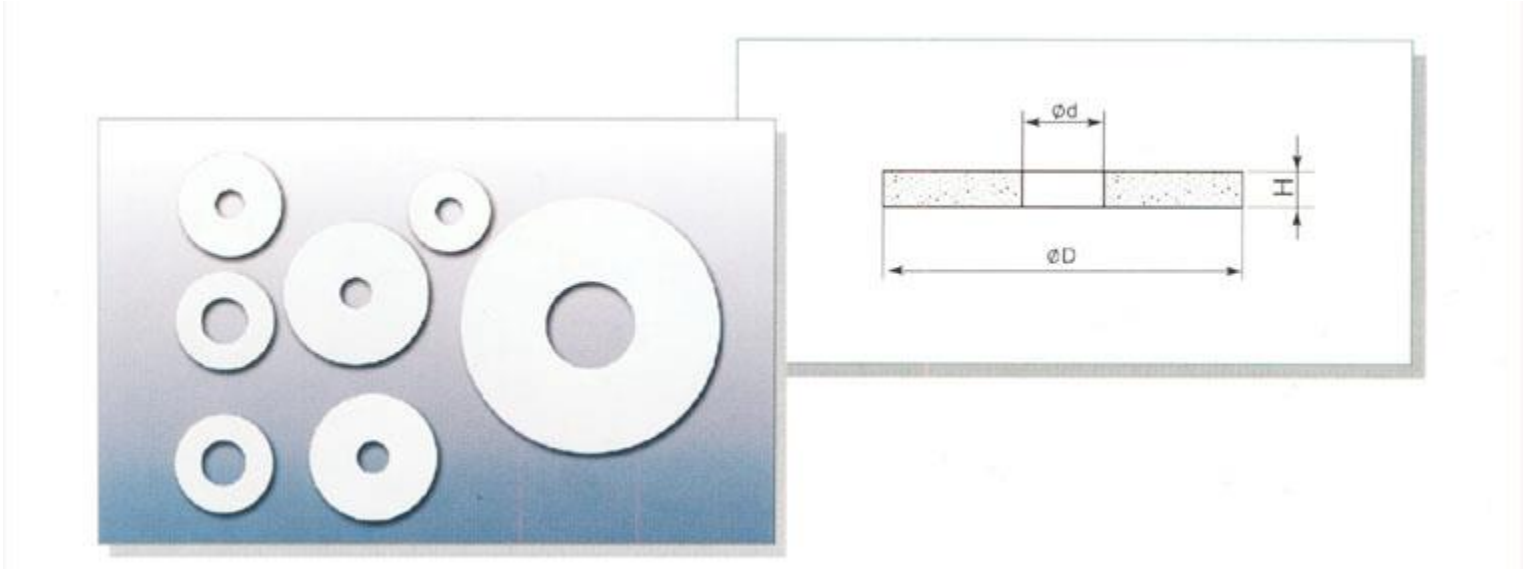


Type & Dimensions of Cemented Carbide Disc Cutters

Type	Dimensions		
	O.D (D)	I, D (d)	Thickness(H)
Φ115×Φ30×2.0	115	30	2.0
Φ115×Φ30×2.5	115	30	2.5
Φ118×Φ22×1.5	118	22	1.5
Φ118×Φ22×2.0	118	22	2.0
Φ118×Φ22×2.5	118	22	2.5
Φ118×Φ30×1.5	118	30	1.5
Φ118×Φ30×2.0	118	30	2.0
Φ128×Φ23×1.5	128	23	1.5
Φ128×Φ23×2.0	128	23	2.0
Φ128×Φ23×2.5	128	23	2.5
Φ203×Φ68×4.3	203	68	4.3
Φ250×Φ70×3.5	250	70	3.5



DISC CUTTER



TYPE	D mm	d mm	H mm
9-2-H	9.3	2.3	0.6-3.0
12-8-H	12.0	8.0	0.6-3.0
16-4-H	16.2	4.8	0.6-3.0
17-5-H	17.0	5.0	0.6-3.0
19-2-H	19.0	2.3	0.6-3.0
22-1-H	22.0	1.0	0.6-3.0
25-6-H	25.5	6.0	0.6-3.0
26-7-H	26.0	7.0	0.6-3.0
42-22-H	42.0	22.0	0.8-3.5
50-13-H	50.0	13.0	0.8-3.5
52-24.3-H	52.0	24.3	0.8-3.5
58-25-H	58.0	25.0	0.8-3.5
62-25.4-H	62.0	25.4	0.8-3.5

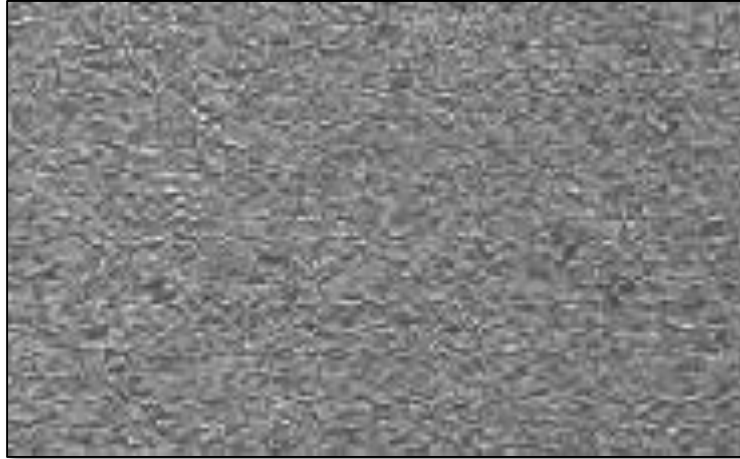


DISC CUTTER

TYPE	D mm	d mm	H mm
63-16-H	63.0	16.0	0.8-3.5
64-15-H	64.5	15.5	0.8-3.5
75-35-H	75.0	35.0	1.0-4.0
76-20-H	76.0	20.5	1.0-4.0
77-24-H	77.0	24.5	1.0-4.0
82-20-H	82.0	20.5	1.2-5.0
82-23-H	82.0	23.5	1.2-5.0
82-24-H	82.0	24.0	1.2-5.0
100-25-H	100.0	25.0	1.5-5.0
113-25-H	113.0	25.0	1.5-5.0
120-80-H	120.0	80.0	1.5-5.0
128-23-H	128.0	23.8	1.5-5.0
200-70-H	200.0	70.0	3.0-5.0
250-70-H	250.0	70.0	3.0-5.0



Grade and Property



GU	Ultra-Fine and Sub-Micron Grain Carbide
GK	Ultra-Fine and Sub-Micron Grain Carbide
GF	Carbide for General Purpose of Wear Resistance and Forming Dies.
GD	Carbide for Mining and Construction.
GT	Carbide for Steel Cutting.

GRADE DETAILS AND PROPERTIES

Grade	Equivalent Grade	ISO grade	WC %	Co %	TiC %	TaC %	Other %	Hardness HRA ±0.5	Density g/cm ³ ±0.1	TRS Mps Min	Characteristics & Application
GU15UF	YG8X		90.5	8.0			1.5	93.2	14.60	3500	Ultra-fine grain, for fibreglass reinforced plastics, titanium alloys, hardened steel.
GF25UF	YG12X		86.0	12.0		1.2	0.8	93.0	14.10	4000	Ultra-fine grain, for grey cast iron & heat_resistant alloys.
GU10	YG6X	K01	94.0	6.0				93.0	14.85	2700	Sub-micron grain, for non-ferous precision cutting and wood cutting.



GRADE DETAILS AND PROPERTIES

Grade	Equivalent Grade	ISO grade	WC %	Co %	TiC %	TaC %	Other %	Hardness HRA ±0.5	Density g/cm ³ ±0.1	TRS Mps Min	Characteristics & Application
GU20	YG10X	K20	90.0	10.0				92.0	14.45	3400	Sub-micron grain,for endmill and drill.
GU30	YG13X	K20	86.5	13.5				90.5	14.00	3500	Sub-micro grain,excellent wear resistance and toughness,for wood cutting.
GK02	YG4	K02	96.0	4.0				92.5	15.15	2300	Fine grain,for hard grey cast iron precision cutting.
GK05	YG6A	K10	94.0	6.0				92.0	14.95	2450	Fine grain,for drawing dies and wood cutting.
GK10	YG6X	K10	94.0	6.0				91.5	14.95	2500	Fine grain,for general purpose of non-ferrous applications
GK20	YG6	K20	94.0	6.0				91.0	14.95	2600	Medium grain,for non-ferrous rough cutting.
GK30	YG8	K30	92.0	8.0				90.0	14.70	2700	Medium grain,for drawing dies.
GK40	YG9	K40	91.0	9.0				89.0	14.60	2800	Medium grain,for soft grey cast iron cutting.
GF20	YG6		94.0	6.0				90.0	14.95	2600	Medium grain,high anti-abrasion for mining inserts.
GF25	YG8		92.0	8.0				89.5	14.70	2750	Medium grain,high anti-abrasion and good toughness,for percussion bits.
GF25D	YG8		92.0	8.0				89.0	14.70	2800	Coarse grain,for mining and construction inserts.
GF35	YG11	K40	89.0	11.0				88.5	14.45	2900	Medium grain,for wear parts and mining tools.
GF40	YG12	K40	88.0	12.0				89.0	14.40	3000	Medium grain, for heavy roughing non-ferrous.
GF45	YG13	K40	87.0	13.0				88.5	14.20	3100	Medium grain,for wear and light shock resistance.



GRADE DETAILS AND PROPERTIES

Grade	Equivalent Grade	ISO grade	WC %	Co %	TiC %	TaC %	Other %	Hardness HRA ±0.5	Density g/cm ³ ±0.1	TRS Mps Min	Characteristics & Application
GF55	YG18C		82.0	18.0				85.5	13.85	3000	Coarse grain, for impact resistance forging dies & roll.
GF60	YG20C		80.0								Coarse grain, for φ20-φ50 bolt header dies.
GF65	YG22C		78.0	22.0				84.0	13.40	2700	Coarse grain, for stainless bolt header dies and roll.
GF70	YG25		75.5	24.5				82.5	13.18	2500	Coarse grain, for nut forming dies.
GF70A	YG25C		75.0	25.0				81.5	13.15	2400	For high impact resistance forging dies.
GD10	YG6C		94.0	6.0				89.0	14.95	2500	Coarse grain, for percussion bits and inserts for hard rock or coal mining.
GD20	YG8C		92.0	8.0				88.5	14.70	2700	Coarse grain, for percussion bits and mining inserts.
GD25	YG10C		90.0	8.0				88.5	14.70	2700	Coarse grain, for oil bits and mining inserts.
GD40	YG13C		87.0	13.0				96.5	14.20	3200	Coarse grain, good toughness, for oil bits.
GD50	YG15C		85.0	15.0				86.0	14.00	3100	Good wear & impact resistance, for forming die and oil bits.
GT20		P20	72.0	8.0	8.0	12.0		92.2	12.55	1900	Good general purpose for turning and finishing of ferrous metal.
GT30		P30	75.8	8.0	6.2	10.0		91.5	12.90	2100	Excellent general purpose for rough machining of ferrous metal.
GT40		P40	80.0	10.0	5.0	5.0		90.5	13.10	2200	Good impact resistance, for rough cutting of ferrous metal.