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Tungsten Carbide Rods Special For Metal Cutting



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Shandong AGrade Carbide Co.,Ltd
Dezhou Drillstar Cutting Tool Co.,Ltd



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Company Introduction

AGrade Carbide is located in Dezhou, Shandong, registered in 2007. It is a high-tech enterprise integrating the development, production, and sales of cemented carbide products. Over the years, we have provided efficient solutions for aerospace, automobile manufacturing, mold manufacturing, and medical instruments, chemical equipment, mining, oil and gas, military production and other industries. As one of the good tungsten carbide manufacturers in China, we are firm in our original intention, brave to innovate, and continue to move forward, striving to be the first-class carbide manufacturer in China and creating a world-renowned brand!

AGrade Carbide manufactures solid tungsten carbide rods, insert blanks, strips and blocks as well as other shapes in a wide range of carbide grades, lengths, and diameters. We offer both ground and as sintered (unground) solid rods with wide range of diameters, lengths, finishes, and carbide grades.

We also supply our clients with carbide cutting tools such as end mills, reamers, drill bits, inserts in high performance with so many years experience in this industry. Our cutting tools have a perfect brand as "Drillstar".

Our company takes the customer demand as the goal and "honest service, scientific and technological innovation" as the enterprise tenet; first class technology, first-class product quality and first-class service are the eternal commitment and pursuit of AGrade.

Highly specialized products require highly qualified know-how. We have it. Some employees have more than 20 years of professional experience in carbide production. Scientists and engineers work together with technical experts to further develop our products and services.

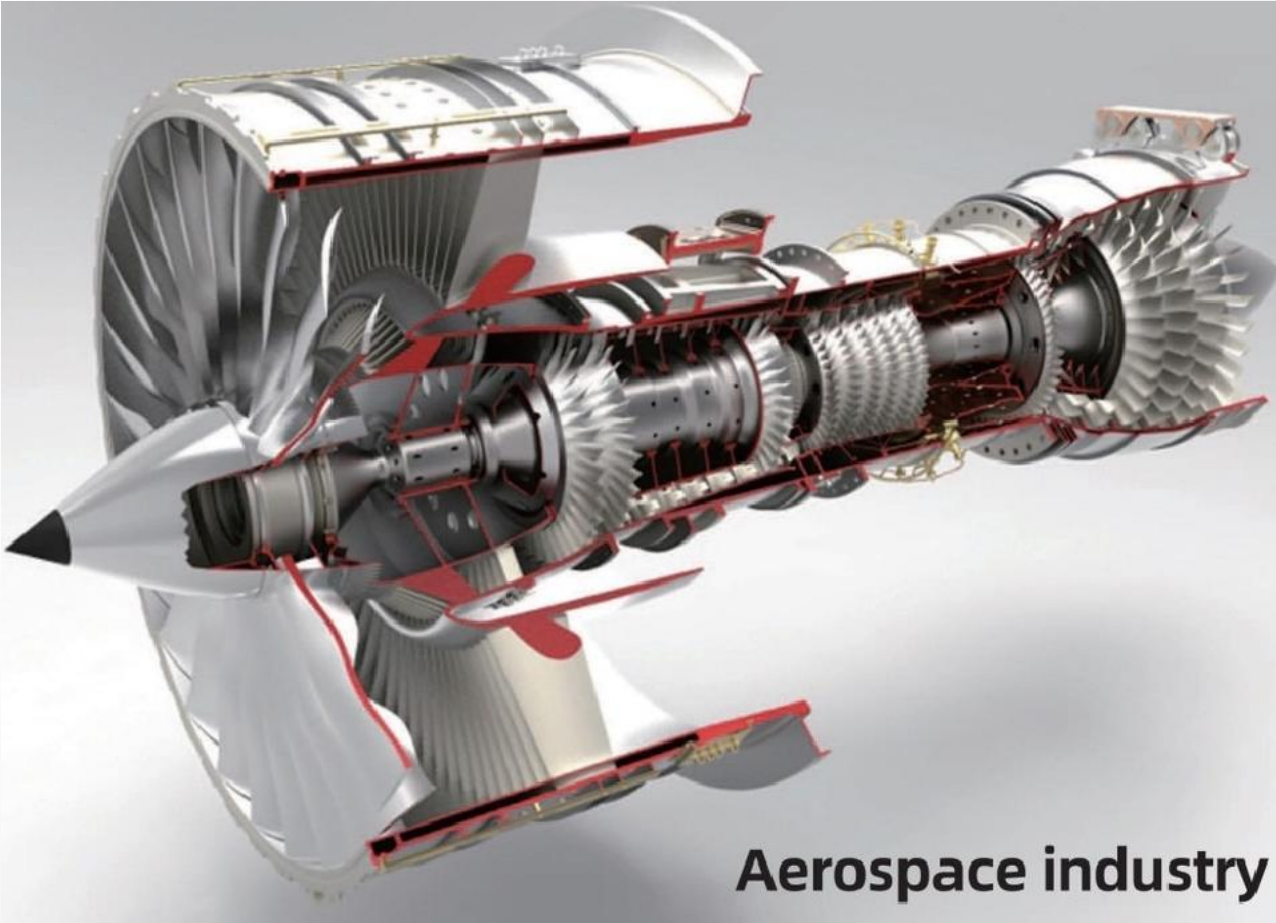
Our customers can be found all over the world. AGrade is the right partner for your company because our service knows no boundaries. We offer you a broad product portfolio and support you with advice based on partnership, from which tailor-made and economical, individual solutions emerge. Because that and nothing else is what we mean by customer satisfaction - cooperation that makes you satisfied.



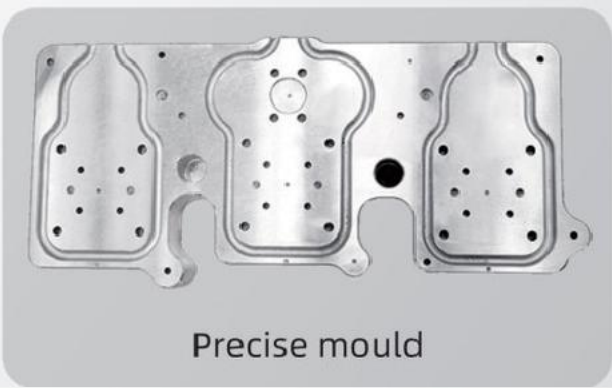
AGRADE CARBIDE



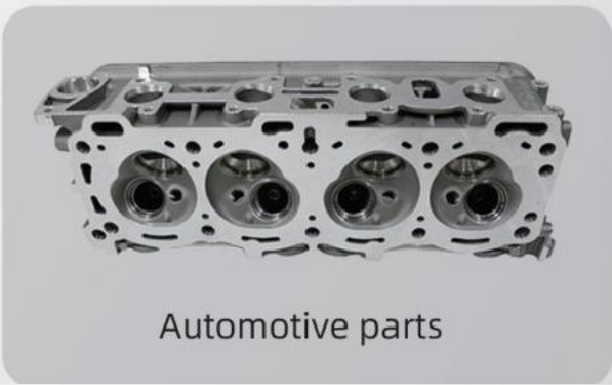
grade	Cobalt content %w/w	Properties and recommendations
AU8	8.0	This very hard grade is used particularly for manufacturing vibration-free rotating tools for processing Aluminum, copper, silver, gold, graphite and glass-fiber-reinforced plastics (GFP).
AU12	12.0	Due to its higher cobalt content, this grade is suitable for machining high and low alloyed steels, cast iron, titanium and many other materials at a higher feed rate. Also ideal for high speed milling. Especially suitable for the mould construction.
AS6	6.0	Very hard, easy cutting grade for machining, milling, drilling and lathing of aluminum, copper, silver, gold, graphite and glass-fiber-reinforced plastics (GFP). Also used in wear protection.
AS7	7.5	Very hard, wellcutting grade for machining aluminum, copper, silver, certain types of steel, graphite and glass-fiber-reinforced plastics (GFP) with increased breaking resistance and edge stability. Also used for wood processing.
AS10	10.0	This most important submicron grade offers a balanced ratio between high hardness and good breaking resistance and is therefore suitable for all types of machining, milling, drilling and lathing tools for processing high and low alloyed steels, cast iron, titanium and non-iron metals; in pressing dies, drawing dies, in wear protection and in tools for fine punching thin sheets. Standard grade for T-slot cutters. Manufacture of guides for the sheet processing industry.
AS15	15.0	The high cobalt content of this submicron grade brings an increased level of toughness of the material. AS15 is suitable for machining at an interrupted cut, for paper cutting blades and for fine punching of thin sheets of medium to high toughness.
AF6	6.5	This grade is used for manufacturing cemented carbide sitting and milling disks and circular saw blades, for cutting inserts, gun drills, nozzles, guides, bushings and linear blades, with low impact, and is also suitable for woodworking tools. For lathing, miling, drilling, reaming and countersinking of hardened steels, hard and grey cast iron, light metal, aluminum, Si-, Cu-, Mn-alloys, plastics, glass, ceramics and graphite.
AF12	12.0	This fine grade of medium cobalt content s used for the manufacturing of cutting rings, slide rings, blades, guides, bushings, lathe tips, dies, drawing and pressing tools.
AM15	15.0	The somewhat higher cobalt content of this grade in comparison to AM15 improves the breaking resistance and the fracture toughness. It is therefore used in more sensitive tools and applications, such as dies, bending and reshaping tools, drawing tools, embossing stamps, tracers and shredders.



Aerospace industry



Precise mould



Automotive parts



Medical Instruments



After selecting various types of alloys for different processed materials,the brand should also be selected according to the processing parameters.Generally speaking,the surface quality of the workpiece should be considered for finishing processing,that is,surface accuracy.During processing,the cutting speed is fast,the depth of cutting is small,the amount of cutting is small,the vibration is small,and the impact is small.It is required that the alloy has good wear resistance,high hardness,followed by strength and toughness,so the alloy with fine grain,high titanium content,and low cobalt content should be selected; The semi finishing wear resistance and strength toughness are moderate,and the alloy with medium particle tungsten carbide,medium Ti content and medium Co content is selected;Rough machining has large cutting depth,large cutting amount,slow cutting speed,large vibration and large impact,so it is emphasized that the impact resistance of the blade is better,followed by the wear resistance.Coarse grained tungsten carbide,alloys with low Ti content and high Co content should be selected.

The grade is designed according to the cutting requirements.The machinability of different processed materials is different.Carbon steel has good plasticity and toughness,and the chips are not easy to break. The chips are discharged from the rake face,causing strong crater wear on the rake face.Therefore,for the cutting of steel,we should choose cemented carbide that resists crater wear.Tic and TAC(NBC)have good anti crater wear effect,so the brand of cutting steel contains tic,TAC(NBC)generally does not choose the brand containing TAC(NBC)for cutting carbon steel due to the increased cost.TAC(NBC)can not only resist crescent wear,but also improve the thermal shock resistance of the alloy.Therefore,the alloy containing TAC(NBC)has good high temperature performance.When machining M-type alloy,due to serious work hardening,large cutting resistance and high cutting temperature,the alloy containing TAC(NBC)should be selected;For brittle materials such as cast iron,the chips are in the form of crumbs or powder,and the wear of the rake face is small,mainly the wear of the rear face.The machining characteristics of brittle materials are that the cutting force and cutting heat are concentrated near the cutting edge,so that the load on the cutting edge is very heavy,which is prone to wear and edge collapse.Generally,tungsten cobalt alloys are selected.Because the alloys containing tic are relatively brittle,W-Co alloys are stronger and more ductile than w-co-ti alloys.



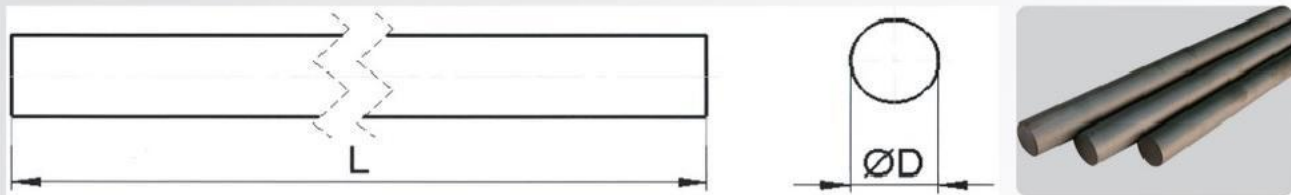
Carbide grade	Grain Size	Binder	Binder	Density	Hardness		Transverse	Pressure	Fracture	special Properties/
			%w/w	g/cm	HV30	HRA	Rupture**	Resistance*	Toughness**	Applications
							N/mm2	N/mm2	N/mm2.m1/2	
AU8	ultrafine	Cobalt	8	14.5	1860	93.2	4100	6300	8.5	ideal for high
AU12			12	14	1680	92.2	4400	6000	9.5	performance miling
AS6	submicron	Cobalt	6	14.8	1820	93.1	3800	6400	8.5	our main grade for metal cutting
AS7			7.5	14.7	1740	92.7	4100	6300	9	
AS10			10	14.4	1600	91.9	4300	6000	9.8	
AS15			15	13.9	1390	90.3	4500	5500	12.5	gearing.,paper knives
AF6	fine	Cobalt	6.5	14.8	1690	92.5	3600	5700	9.2	sliting saws,gun drills
AF12			12	14.3	1390	90.3	4200	5200	11.2	wear protection
AM15	medium	Cobalt	15	14	1230	88.7	4200	4500	14.5	for wear applications with highertoughnessrequirements



AGRADE CARBIDE



AGrade tungsten carbide rods,as sintered and ground h6,L=330mm

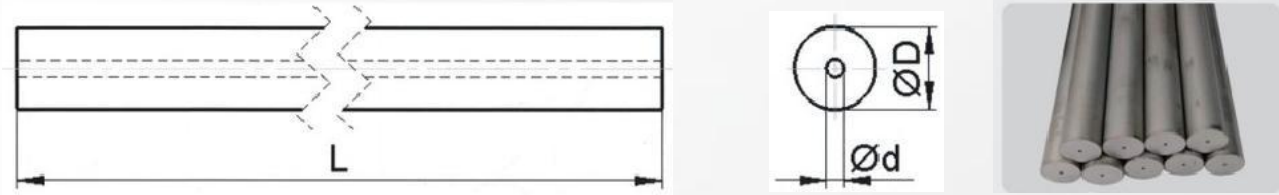


Dimension			As sintered				Ground			
As sinter mm	Ground mm	length mm	AS6	AU8	AS10	AU12	AS6	AU8	AS10	AU12
1.7	1.5	330			X				X	
2.2	2.0	330	X		X		X		X	
2.7	2.5	330	X		X				X	
3.2	3.0	330	X	X	X	X	X	X	X	X
3.7	3.5	330	X		X		X		X	
4.2	4.0	330	X	X	X	X	X		X	X
4.7	4.5	330			X				X	
5.2	5.0	330	X		X	X	X		X	X
5.7	5.5	330			X				X	
6.2	6.0	330	X	X	X	X	X		X	X
6.7	6.5	330	X		X		X		X	
7.2	7.0	330	X		X				X	
7.7	7.5	330			X				X	
8.2	8.0	330	X	X	X	X	X		X	X
8.7	8.5	330			X				X	
9.2	9.0	330	X		X				X	
9.7	9.5	330			X				X	
10.2	10.0	330	X	X	X	X	X		X	X
10.7	10.5	330			X				X	
11.2	11.0	330			X				X	
12.2	12.0	330	X	X	X	X	X		X	X
13.2	13.0	330	X		X		X		X	
14.2	14.0	330	X		X	X	X		X	X
15.2	15.0	330	X		X				X	
16.2	16.0	330	X	X	X	X	X		X	X
17.2	17.0	330			X				X	
18.2	18.0	330	X	X	X	X	X		X	X
19.2	19.0	330								
20.2	20.0	330	X		X	X	X		X	X
21.2	21.0	330			X				X	
22.2	22.0	330			X				X	
23.2	23.0	330			X				X	
24.2	24.0	330			X				X	
25.2	25.0	330			X	X			X	X
26.2	26.0	330			X				X	
28.2	28.0	330			X				X	
30.2	30.0	330			X				X	
31.2	31.0	330			X				X	
32.2	32.0	330			X				X	

X:delivery from stock,according general conditions
Other:Special executions,grades or dimensions upon request



AGrade tungsten carbide rods with 1 straight hole,as sintered,L=330mm



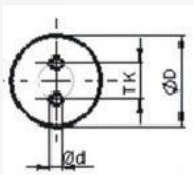
Dimension			As sintered stock
Out diameter mm	Hole diameter mm	Length mm	AS10
2.2	0.8	330	X
3.2	0.6	330	X
4.2	0.6	330	X
6.2	1.0	330	X
6.2	1.5	330	X
7.2	1.1	330	X
8.2	1.2	330	X
8.2	1.3	330	X
8.2	1.5	330	X
8.2	2.0	330	X
10.2	1.0	330	X
10.2	1.6	330	X
10.2	2.0	330	X
12.2	1.5	330	X
12.2	2.0	330	X
12.2	3.0	330	X
14.2	2.0	330	X
14.2	2.5	330	X
14.2	3.0	330	X
16.2	2.0	330	X
16.2	3.0	330	X
18.2	3.0	330	X
20.2	2.0	330	X
20.2	3.0	330	X
20.2	3.5	330	X
22.2	3.0	330	X
24.2	4.0	330	X
25.2	4.0	330	X
26.2	4.0	330	X
28.2	4.0	330	X
30.2	5.0	330	X
32.2	5.0	330	X

X:delivery from stock,according general conditions
Other:Special executions,grades or dimensions upon request

AGRADE CARBIDE



AGrade Tungsten carbide rods with 2 straight coolant holes,as sintered,L=330mm



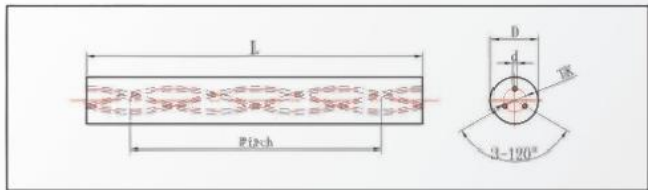
Dimension				Stock
D mm	Lmm	TK mm	d mm	AS10
4.2	330	1.8	0.8	X
5.2	330	1.9	0.8	X
6.2	330	1.5	0.9	X
6.2	330	3.0	1.2	X
7.2	330	1.4	0.8	X
7.2	330	3.4	1.0	X
8.2	330	2.6	0.9	X
8.2	330	2.8	1.0	X
8.2	330	3.3	0.9	X
9.2	330	2.5	1.0	X
10.2	330	3.5	1.5	X
10.2	330	4.9	1.4	X
10.2	330	5.0	1.2	X
11.2	330	3.4	1.2	X
11.2	330	4.9	1.4	X
12.2	330	3.5	0.9	X
12.2	330	6.2	1.5	X
13.2	330	3.4	1.2	X
13.2	330	5.9	1.8	X
14.2	330	3.5	1.5	X
15.2	330	4.9	1.5	X
15.2	330	6.9	2.0	X
16.2	330	5.0	1.5	X
16.2	330	6.2	2.0	X

X:delivery from stock,according general conditions
Other:Special executions,grades or dimensions upon request

Dimension				Stock
D mm	Lmm	TK mm	d mm	AS10
16.2	330	8.0	2.0	X
17.2	330	6.0	2.0	X
17.2	330	7.9	2.0	X
18.2	330	6.0	2.0	X
18.2	330	8.9	2.0	X
19.2	330	6.0	2.0	X
19.2	330	8.8	2.0	X
20.2	330	6.0	2.0	X
20.2	330	9.8	2.5	X
21.2	330	6.0	2.0	X
21.2	330	9.8	2.5	X
22.2	330	6.0	2.0	X
22.2	330	10.8	2.5	X
23.2	330	7.3	2.0	X
23.2	330	10.8	2.5	X
24.2	330	7.3	2.0	X
24.2	330	11.8	3.0	X
25.2	330	7.3	2.0	X
25.2	330	11.8	3.0	X
26.2	330	12.8	3.0	X
28.2	330	13.8	3.0	X
30.2	330	13.8	3.0	X
32.2	330	13.8	3.0	X
34.2	330	13.8	3.0	X



AGrade Tungsten carbide rods with helix spiral holes,as sintered



type	dimension								grade
	Outside Diameter:mm		Hole diameter mm		T mm		Picth:mm		
	ØD	Tol.	Ød	Tol.	T	Tol.	Pitch	Tol.	AS10
⊙6*330	6.2	+0.60~+1.00	0.70	±0.10	2.60	-0.4	32.70	±0.85	⊙
⊙8*330	8.2	+0.70~+1.10	1.00	±0.15	4.00	-0.4	43.53	±1.05	⊙
⊙10*330	10.2	+0.70~+1.10	1.40	±0.15	4.80	-0.6	54.41	±1.25	⊙
⊙12*330	12.2	+0.70~+1.10	1.40	±0.15	6.25	-0.6	65.30	±1.45	⊙
⊙14*330	14.2	+0.70~+1.10	1.75	±0.20	7.10	-0.8	76.18	±1.65	⊙
⊙15*330	15.2	+0.70~+1.10	1.75	±0.20	7.70	-0.8	81.62	±1.75	⊙
⊙16*330	16.2	+0.70~+1.10	1.75	±0.20	8.30	-0.8	87.06	±1.85	⊙
⊙18*330	18.2	+0.70~+1.10	2.00	±0.25	9.55	-0.8	97.95	±2.15	⊙
⊙20*330	20.2	+0.70~+1.10	2.50	±0.25	10.40	-1.0	108.83	±2.45	⊙

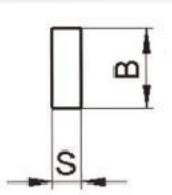
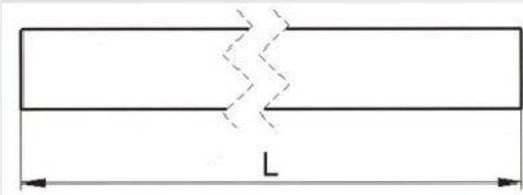
⊙:delivery from stock,according general conditions
Other:Special executions,grades or dimensions upon request



AGRADE CARBIDE



AgradeTungsten carbide flats and squares,in as sintered sizes,L=330mm



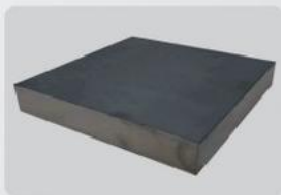
Dimension			Stock	
Smm	B mm	Lmm	AS7	AS10
1.3	3.3	330	X	X
	4.3	330	X	X
1.8	2.3	330	X	X
	3.3	330	X	X
	4.3	330	X	X
	5.3	330	X	X
	6.3	330	X	X
	8.3	330	X	X
2.3	10.3	330	X	X
	2.3	330		X
	3.3	330	X	X
	4.3	330	X	X
	5.3	330	X	X
	6.3	330	X	X
	8.3	330	X	X
	10.3	330	X	X
	12.4	330	X	X
	15.4	330	X	X
	16.4	330	X	X
	18.4	330	X	X
	20.4	330	X	X
	25.4	330	X	X
2.8	4.3	330	X	X
	6.3	330	X	X
	8.3	330	X	X
	10.3	330	X	X
	12.4	330	X	X
	15.4	330	X	X
3.3	3.3	330		X
	4.3	330	X	X
	5.3	330	X	X
	6.3	330	X	X
	8.3	330	X	X
	10.3	330	X	X
	12.4	330	X	X
	13.4	330	X	X
	14.4	330	X	X
	16.4	330	X	X
	18.4	330	X	X

X:delivery from stock,according general conditions
Other:Special executions,grades or dimensions upon request



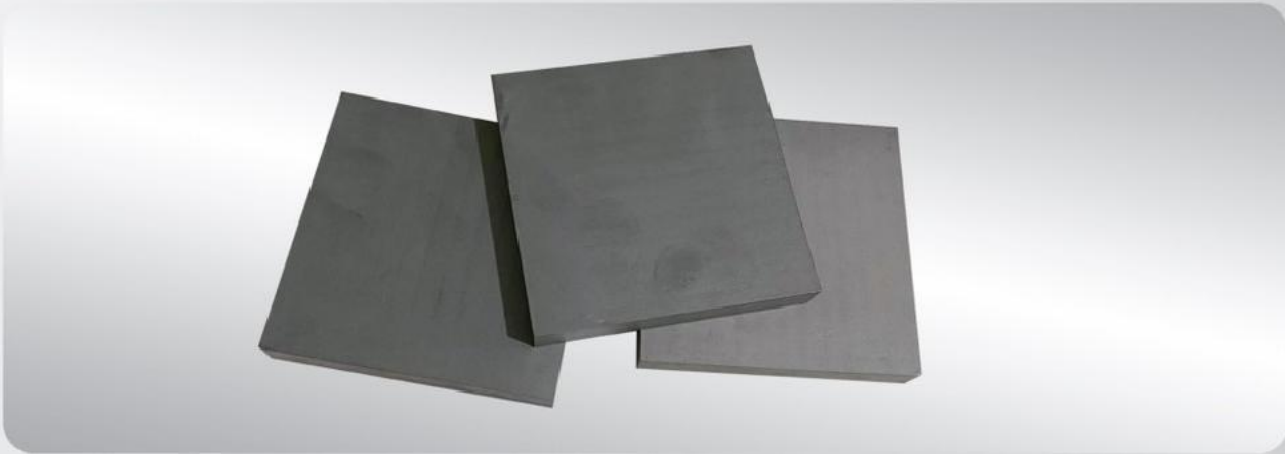
AGrade Tungsten carbide blocks

L
S
m



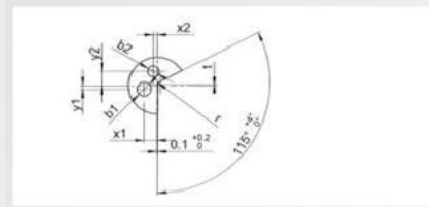
thickness (mm)	Width (mm)	Length (mm)	AS10	AS7	AU12	AF12
1.0	100	100	X			X
4.0	100	100	X			X
5.0	100	100	X			X
6.0	100	100	X			X
8.0	100	100	X	X	X	
10.0	100	100				
18.0	100	100				
20.0	100	100				
40.0	100	100				
45.0	100	100				X

X:delivery from stock,according general conditions
Other:Special executions,grades or dimensions upon request





AGrade Tungsten carbide gun drill blanks and inserts,as sintered



Dimension D*L
φ 10. 5*36S
φ 11. 5*38S
φ 12. 5*40S
φ 13. 5*40S
φ 14. 5*40S
φ 15. 5*38S
φ 16. 5*40S
φ 16. 5*45S
φ 17. 5*40S
φ 17. 5*45S
φ 18. 0*45
φ 18. 0*51S
φ 18. 6*45S
φ 18. 6*51S
φ 19. 6*45S
φ 19. 6*51S
φ 20. 6*50
φ 20. 6*55
φ 21. 1*50
φ 21. 7*50
φ 21. 7*55
φ 22. 7*50
φ 22. 7*58
φ 23. 7*50
φ 23. 7*58
φ 24. 7*50
φ 24. 7*58
φ 25. 8*55
φ 25. 8*61
φ 26. 8*55
φ 26. 8*61
φ 27. 8*55
φ 27. 8*61
φ 28. 8*55

Dimension D*L
φ 28. 8*63
φ 29. 8*55
φ 29. 8*63
φ 30. 9*60
φ 30. 9*65
φ 31. 9*60
φ 31. 9*65
φ 32. 9*60
φ 32. 9*65
Φ 33. 9*60
φ 33. 9*65
φ 34. 9*60
φ 34. 9*65
φ 35. 9*60
φ 35. 9*65
φ 36. 9*60
φ 36. 9*65
φ 37. 9*60
φ 37. 9*65
φ 38. 9*60
φ 38. 9*65
φ 39. 9*60
φ 39. 9*65
φ 40. 9*60
φ 40. 9*65
φ 41. 9*60
φ 42. 9*60
φ 42. 9*65
φ 43. 9*60
φ 43. 9*65
φ 44. 9*60
φ 44. 9*65
Φ 45. 9*60
φ 45. 9*65

They can be produced as 330mm and 342mm length as well.

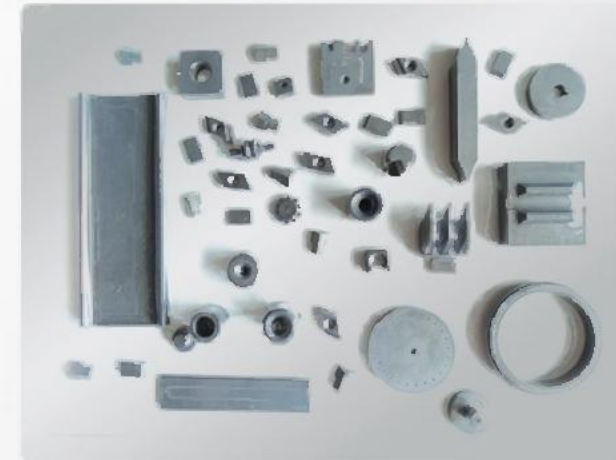


Carbide Inserts

AG Carbide directly pressed the inserts according to customer drawings within strict tolerances are specialties of AG carbide, and the inserts can be used only a little grinding at blade.

	Carbide grade	Size	Stock
CNC inserts	AS15	30.1*6.2*4.0	✓
Brazed inserts	AU 12	3.3*3.3*20	✓

Note: We accept in customizing non-standard inserts for our advantage, and specialize in the production of centrifuge inserts. Please inquire about the price and delivery time according to the drawings.



Non standard inserts



CNC inserts

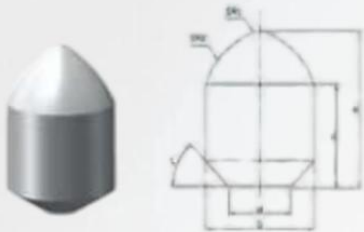


Brazed inserts

AGRADE CARBIDE



截齿 | Auger Tips



型号 TYPE	尺寸 Dimension mm					
	D	d	H	h	SR1	SR2
DR1222	12	3	22	15	1.5	26
DR1425	14	4	25	17	1.5	26
DR1625	16	5	25	16	1.5	26
DR1828	18	5	28	18	1.5	26
DR2428	24	10.1	28	16	2	36
DR2534	25	18	34	20	-	25



型号 TYPE	尺寸 Dimension mm						
	D	H	SR1	SR2	h	α^*	e
DR1925	19	25	2	26	15	30	1
DR2228	22	28	2	50	16.5	45	1
DR2530	25	30	2	50	20	45	1

蘑菇型 截齿 | Auger Tips



型号 TYPE	尺寸 Dimension mm									
	D	H	SR1	SR2	θ^*	d	h	β^*	α^*	e
JJ1630	16	30	2	25	37	12	16	90	30	2.3
JJ1828	18.9	28.8	1.8	32	30	12.2	14.1	60	45	1
JJ1932	19	32	2	25	37	12	16	90	30	2.3



AGRADE CARBIDE

球齿 | Spherical Buttons



型号 TYPE	尺寸 Dimension mm				
	D	H	h	SR	e
P0810	8	10	7.1	4.2	1
P0812	8	12	9.1	4.2	1
P1010	10	10	6.3	5.2	1.5
P1012	10	12	8.3	5.2	1.5
P1014	10	14	10.3	5.2	1.5
P1214	12	14	9.4	6.2	1.5
P1216	12	16	11.4	6.2	1.5

锥形齿 | Conical Buttons



型号 TYPE	尺寸 Dimension mm					
	D	H	h	R	e	α (*)
Z0812	8	12	8.6	3	1	35
Z1015	10	15	9.9	4	1.5	26
Z1218	12	18	13	4.8	1.5	35
Z1422	14	22	15.8	5	1.5	35
Z1625	16	25	17.3	5	1.5	35

平顶齿 | Flattop Buttons



型号 TYPE	尺寸 Dimension mm		
	D	H	e
P0607	6	7	1.5
P0707	7	7	1.5
P0807	8	7	1.5
P0908	9	8	1.5
P1008	10	8	1.5
P1109	11	9	1.5
P1210	12	10	1.5
P1412	14	12	1.5

AGRADE CARBIDE

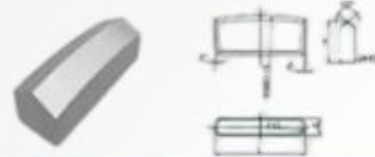


边楔齿 | Eccentric Wedge Buttons



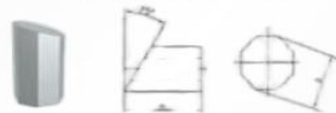
型号 TYPE	尺寸 Dimension mm						
	D	H	h	θ°	β°	α°	e
B1218	12.9	18.5	10.6	30	56	15	2.3
B1418	14.28	17.5	11	40	71	15	1.4
B1519	15.25	19.8	12.1	40	66	18	1.5
B1621	16.25	21	12	36	60	15	1.5

钎头 | Flat Bit



型号 TYPE	尺寸 Dimension mm					
	L	H			C	f
		A	B	C		
K026	26	18	15	12.5	8	13
K028	28	18	15	12.5	8	14
K030	30	18	15	12.5	8	15
K032	32	18	15	12.5	8	16
K034	34	18	15	12.5	8	17
K036	36	18	15	12.5	10	18
K038	38	18	15	12.5	10	19
K040	40	18	15	12.5	10	20
K042	42	18	15	12.5	10	21

T型齿 | Type T Tips



型号 TYPE	尺寸 Dimension mm	
	d	h
M105	5	10
M106	7	10
M107	7	15
M109	9	12
M110	10	16



AGRADE CARBIDE

挖路齿 | Cap Tips



型号 TYPE	尺寸 Dimension mm		
	D	H	d
Y1818	17.8	18	8.8
Y1918	18.7	18	10.5
Y2121	20.5	20.5	11

复合片基体 | PDC Substrate Tips



型号 TYPE	尺寸 Dimension mm	
	D	H
F1314J	14.6	4
F1605J	17.8	5
F1608J	17.8	8
F1908J	21	8
F1912J	21	12

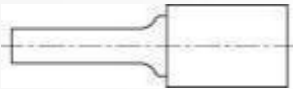


型号 TYPE	尺寸 Dimension mm	
	D	H
F1314X	14.6	4
F1605X	17.8	5
F1608X	17.8	8
F1908X	21	8
F1912X	21	12

AGRADE CARBIDE



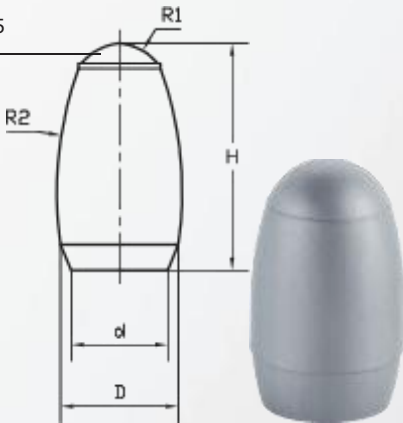
Shape DS, Cylindrical – ANSI Standard



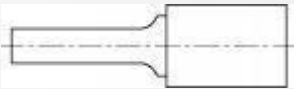
Suitable for making Cylindrical Carbide Burr Tools



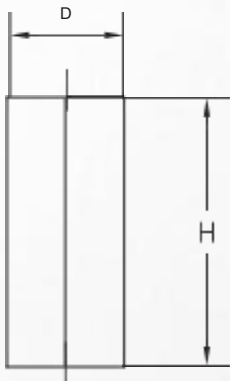
Type	ANSI Standard	ΦD (mm)	H (mm)
DS10604	BSA-51 S	6.73±0.13	4.90±0.13
DS10612	BSA-51	6.73±0.13	12.70±0.25
DS10819	BSA-2	8.31±0.13	19.05±0.25
DS10919	BSA-3	9.91±0.13	19.05±0.25
DS11125	BSA-4	11.51±0.13	25.40±0.25
DS11325	BSA-5	13.08±0.13	25.40±0.25
DS11625	BSA-6	16.26±0.13	25.40±0.25
DS11919	BSA-72	19.48±0.15	19.05±0.25
DS11925	BSA-7	19.48±0.15	25.40±0.25
DS12225	BSA-8	22.66±0.15	25.40±0.25
DS12525	BSA-9	25.88±0.18	25.40±0.25



Shape DS, Cylindrical – ISO Standard



Suitable for making Cylindrical Carbide Burr Tools



型号 Type	ISO 公制 ISO Standard	ΦD (mm)	H (mm)
DS10616M	A0616	6.40±0.10	16.00±0.20
DS10820M	A0820	8.40±0.10	20.00±0.20
DS11020M	A1020	10.40±0.10	20.00±0.20
DS11225M	A1225	12.40±0.10	25.00±0.20
DS11425M	A1425	14.40±0.15	25.00±0.20
DS11625M	A1625	16.40±0.15	25.00±0.20

Shape DE, Oval – ANSI Standard



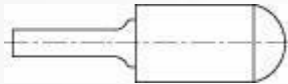
Suitable for making Oval Carbide Burr Tools

号 Type	ANSI Standard	ΦD (mm)	H (mm)	R1 (mm)	R2 (mm)
DE10508	BSE-53	5.21±0.13	8.13±0.13	2.18	10.85
DE10609	BSE-51	6.73±0.13	9.53±0.13	2.51	10.85
DE10915	BSE-3	9.91±0.13	15.88±0.25	4.09	22.35
DE11322A	BSE-5	13.08±0.13	22.23±0.25	5.28	31.88
DE11625	BSE-6	16.26±0.15	25.40±0.25	6.48	31.88
DE11925	BSE-7	19.48±0.15	25.40±0.25	8.08	20.37

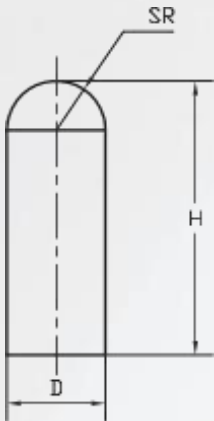
AGRADE CARBIDE



Shape DA, Cylindrical Round Nose – ANSI Standard



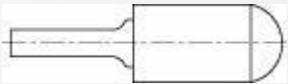
Suitable for making Cylindrical Round Nose Carbide Burr Tools



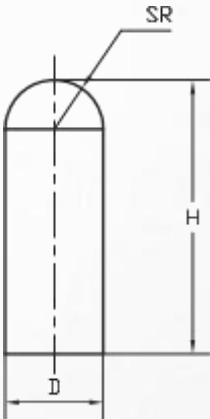
Type	ANSI Standard	ΦD (mm)	H (mm)	SR (mm)
DA10612	BSC-51	6.73±0.13	12.70±0.25	3.37
DA10819	BSC-2	8.31±0.13	19.05±0.25	4.17
DA10919	BSC-3	9.91±0.13	19.05±0.25	4.95
DA11125	BSC-4	11.51±0.13	25.40±0.25	5.77
DA11325	BSC-5	13.08±0.13	25.40±0.25	6.55
DA11625	BSC-6	16.26±0.13	25.40±0.25	8.13
DA11912	BSC-15	19.48±0.15	12.70±0.25	9.75
DA11919	BSC-16	19.48±0.15	19.05±0.25	9.74
DA11925	BSC-7	19.48±0.15	25.40±0.25	9.75
DA12525	BSC-9	25.88±0.18	25.40±0.25	12.95



Shape DA, Cylindrical Round Nose – ANSI Standard



Suitable for making Cylindrical Round Nose Carbide Burr Tools



Type	ISO Standard	ΦD (mm)	H (mm)	SR (mm)
DA10616M	C0616	6.40±0.10	16.00±0.20	3.20
DA10820M	C0820	8.40±0.10	20.00±0.20	4.20
DA11020M	C1020	10.40±0.10	20.00±0.20	5.20
DA11225M	C1225	12.40±0.10	25.00±0.20	6.20
DA11425M	C1425	14.40±0.15	25.00±0.20	7.20
DA11625M	C1625	16.40±0.15	25.00±0.20	8.20

Shape DE, Oval – ISO Standard



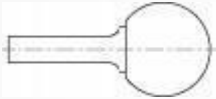
Suitable for making Oval Carbide Burr Tools

Type	ISO Standard	ΦD (mm)	H (mm)	R1 (mm)	R2 (mm)
DE10610M	E0610	6.40±0.10	10.00±0.20	2.39	10.31
DE10813M	E0813	8.40±0.10	13.00±0.20	3.70	20.00
DE11016M	E1016	10.40±0.10	16.00±0.20	4.00	28.00
DE11220M	E1220	12.40±0.10	20.00±0.20	5.00	30.00
DE11422M	E1422	14.40±0.15	22.00±0.20	5.50	37.00
DE11625M	E1625	16.40±0.15	25.00±0.20	6.54	32.17

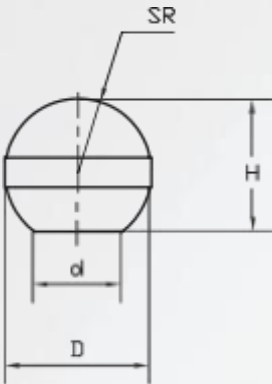
AGRADE CARBIDE



Shape DB, Spherical – ANSI Standard



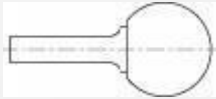
Suitable for making Spherical Carbide Burr Tools



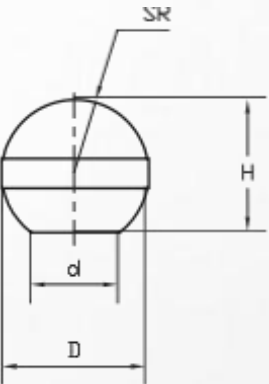
Type	ANSI Standard	ΦD (mm)	H (mm)	SR (mm)
DB10605A	BSD-1	6.73 ± 0.13	5.74 ± 0.13	3.37
DB10807	BSD-2	8.31 ± 0.13	7.15 ± 0.13	4.16
DB10908	BSD-3	9.91 ± 0.13	8.59 ± 0.13	4.96
DB11110	BSD-4	11.51 ± 0.13	10.08 ± 0.13	5.76
DB11311	BSD-5	13.08 ± 0.13	11.58 ± 0.15	6.54
DB11614	BSD-6	16.26 ± 0.13	14.58 ± 0.15	8.13
DB11917	BSD-7	19.48 ± 0.15	17.58 ± 0.15	9.74
DB12523	BSD-9	25.88 ± 0.18	23.60 ± 0.15	12.94



Shape DB, Spherical – ISO Standard



Suitable for making Spherical Carbide Burr Tools

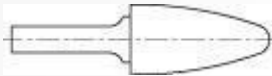


Type	ISO Standard	ΦD (mm)	H (mm)	SR (mm)
DB10504M	D0504	5.40 ± 0.10	4.50 ± 0.10	2.70
DB10605M	D0605	6.40 ± 0.10	5.00 ± 0.10	3.20
DB10807M	D0807	8.40 ± 0.10	7.20 ± 0.10	4.20
DB11009M	D1009	10.40 ± 0.10	9.00 ± 0.10	5.20
DB11211M	D1211	12.40 ± 0.10	11.20 ± 0.20	6.20
DB11412M	D1412	14.40 ± 0.15	12.00 ± 0.20	7.20
DB11614M	D1614	16.40 ± 0.15	14.00 ± 0.20	8.20

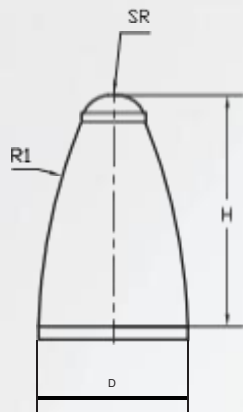
AGRADE CARBIDE



Shape DF, Arch Round Nose – ANSI Standard



Suitable for making Arch Round Nose Carbide Burr Tools

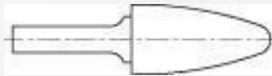


Type	ANSI Standard	ΦD (mm)	H (mm)	SR (mm)	R1 (mm)
DF20512	BSF-53	5.21±0.13	12.70±0.25	1.22	31.93
DF20612	BSF-51	6.73±0.13	12.70±0.25	1.73	41.40
DF20918	BSF-3	9.91±0.13	19.05±0.25	2.49	58.42
DF21125	BSF-4	11.51±0.13	25.40±0.25	2.49	82.68
DF21319	BSF-13	13.08±0.13	19.05±0.25	3.30	44.70
DF21325	BSF-5	13.08±0.13	25.40±0.25	3.30	82.68
DF21625	BSF-6	16.26±0.13	25.40±0.25	4.93	76.33
DF21925	BSF-7	19.48±0.13	25.40±0.25	4.93	54.10
DF21931	BSF-14	19.48±0.15	31.75±0.25	4.93	84.30
DF21938	BSF-15	19.48±0.15	38.10±0.25	4.93	128.75

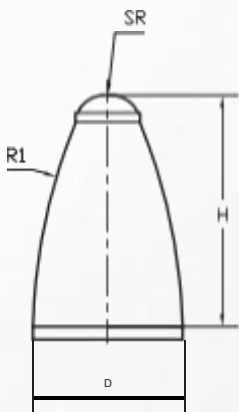


AGRADE CARBIDE

Shape DF, Arch Round Nose – ISO



Suitable for making Arch Round Nose Carbide Burr Tools

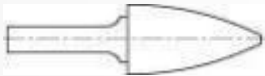


Type	ISO Standard	ΦD (mm)	H (mm)	SR (mm)	R1 (mm)
DF20513M	F0513	5.40±0.10	13.00±0.20	1.26	33.08
DF20618M	F0618	6.40±0.10	18.00±0.20	1.60	67.20
DF20820M	F0820	8.40±0.10	20.00±0.20	2.10	63.34
DF21020M	F1020	10.40±0.10	20.00±0.20	2.50	62.00
DF21225M	F1225	12.40±0.10	25.00±0.20	2.61	68.26
DF21425M	F1425	14.40±0.15	25.00±0.20	3.75	66.80
DF21625M	F1625	16.40±0.15	25.00±0.20	4.97	76.99

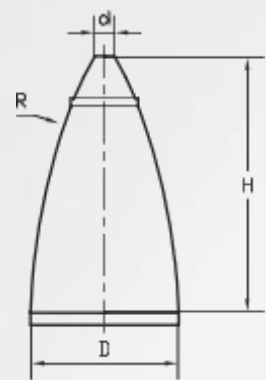
AGRADE CARBIDE



Shape DG, Arch Pointed Nose – ANSI Standard



Suitable for making Arch Pointed Nose Carbide Burr Tools

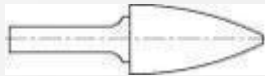


Type	ANSI Standard	ΦD (mm)	H (mm)	Φd (mm)	R (mm)
DG10612	BSG-51	6.73 ± 0.13	12.70 ± 0.25	1.07	25.53
DG10819	BSG-2	8.31 ± 0.13	19.05 ± 0.25	1.40	50.93
DG10919	BSG-3	9.91 ± 0.13	19.05 ± 0.25	1.42	38.23
DG11319	BSG-13	13.08 ± 0.13	19.05 ± 0.25	1.85	33.48
DG11325	BSG-5	13.08 ± 0.13	25.40 ± 0.25	1.85	57.28
DG11625	BSG-6	16.26 ± 0.13	25.40 ± 0.25	1.85	47.75
DG11925	BSG-7	19.48 ± 0.15	25.40 ± 0.25	1.91	41.43
DG11938	BSG-15	19.48 ± 0.15	38.10 ± 0.25	2.24	86.31

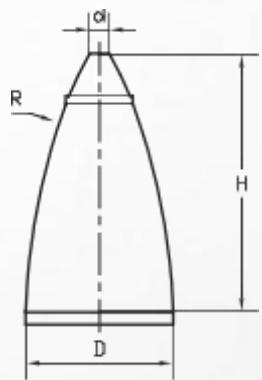


AGRADE CARBIDE

Shape DG, Arch Pointed Nose – ISO Standard



—Suitable for making Arch Pointed Nose Carbide Burr Tools



Type	ISO Standard	ΦD (mm)	H (mm)	Φd (mm)	R (mm)
DG10618M	G0618	6.40 ± 0.10	18.00 ± 0.20	1.50	66.80
DG10820M	G0820	8.40 ± 0.10	20.00 ± 0.20	1.40	50.93
DG11020M	G1020	10.40 ± 0.10	20.00 ± 0.20	1.80	52.00
DG11225M	G1225	12.40 ± 0.10	25.00 ± 0.20	1.40	53.22
DG11425M	G1425	14.40 ± 0.15	25.00 ± 0.20	1.85	55.00
DG11625M	G1625	16.40 ± 0.15	25.60 ± 0.20	1.87	48.16

AGRADE CARBIDE



Shape DH, Flame – ANSI Standard



Suitable for making Flame Carbide Burr Tools



Type	ANSI Standard	ΦD (mm)	H (mm)	R1 (mm)	R2 (mm)
DH10819	BSH-2	8.31±0.13	19.05±0.25	1.73	27.13
DH11331	BSH-5	13.08±0.13	31.75±0.38	2.51	50.93
DH11636	BSH-6	16.26±0.13	36.53±0.38	2.51	19.18
DH11941	BSH-7	19.48±0.15	41.28±0.51	4.11	47.78



Shape DH, Flame – ISO Standard



Suitable for making Flame Carbide Burr Tools

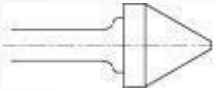


Type	ISO Standard	ΦD (mm)	H (mm)	R1 (mm)	R2 (mm)
DH10613M	H0613	6.40±0.10	13.00±0.20	1.90	22.60
DH10618M	H0618	6.40±0.10	18.00±0.20	1.50	40.10
DH10820M	H0820	8.40±0.10	20.00±0.20	2.10	36.00
DH11025M	H1025	10.40±0.10	25.00±0.20	2.60	35.70
DH11232M	H1232	12.40±0.10	32.00±0.20	3.00	43.10
DH11432M	H1432	14.40±0.15	32.00±0.20	3.50	45.50
DH11636M	H1636	16.40±0.15	36.00±0.20	2.53	40.75

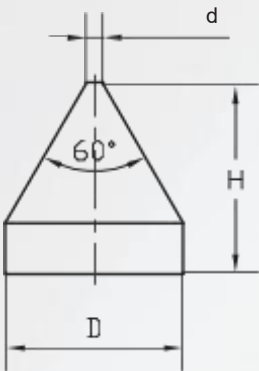
AGRADE CARBIDE



Shape DJ, 60°Cone – ANSI Standard



Suitable for making 60°Cone Carbide Burr Tools

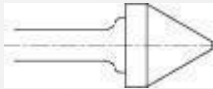


型号 Type	ANSI 英制 ANSI Standard	ΦD (mm)	H (mm)	Φd (mm)
DJ10911	BSJ-3	9.91±0.13	11.13±0.25	0.81
DJ11313	BSJ-5	13.08±0.13	13.89±0.25	0.81
DJ11617	BSJ-6	16.26±0.13	17.48±0.25	1.60
DJ11920	BSJ-7	19.48±0.15	20.24±0.25	1.60
DJ12524	BSJ-9	25.88±0.18	24.61±0.25	3.18

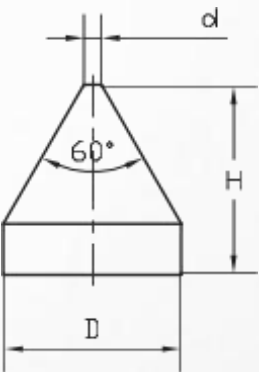


AGRADE CARBIDE

Shape DJ, 60°Cone – ISO Standard

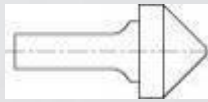


Suitable for making 60°Cone Carbide Burr Tools

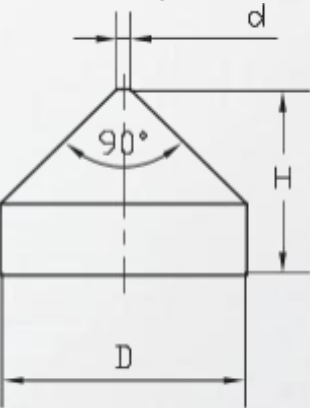


型号 Type	ISO 公制 ISO Standard	ΦD (mm)	H (mm)	Φd (mm)
DJ11013M	J1008	10.40±0.10	13.50±0.20	0.81
DJ11618M	J1613	16.40±0.15	18.80±0.20	1.60

Shape DK, 90°Cone – ISO Standard



Suitable for making 90°Cone Carbide Burr Tools

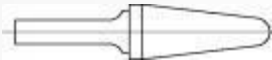


Type	ISO Standard	ΦD (mm)	H (mm)	Φd (mm)
DK11010M	K1010	10.40±0.10	10.30±0.20	0.81
DK11211M	K1211	12.40±0.10	11.30±0.20	0.81
DK11613M	K1613	16.40±0.15	13.30±0.20	1.60

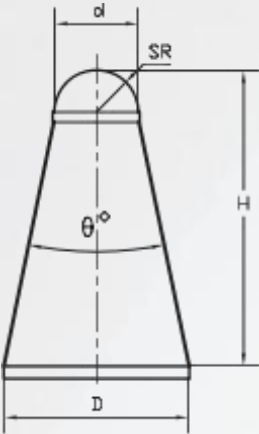
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Shape DL, Conical Round Nose – ANSI Standard



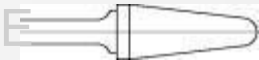
Suitable for making Conical Round Nose Carbide Burr Tools



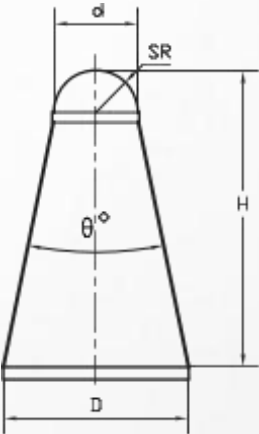
Type	ANSI Standard	ΦD (mm)	H (mm)	SR (mm)	θ
DL10825	BSL-2	8.31±0.13	25.78±0.25	1.52	14°
DL10930	BSL-3	9.91±0.13	30.68±0.38	1.78	14°
DL11332A	BSL-4	13.08±0.13	32.28±0.38	3.33	14°
DL11633	BSL-5	16.26±0.13	33.86±0.38	4.90	14°
DL11637	BSL-6	16.26±0.13	37.03±0.38	3.81	14°
DL11941	BSL-7	19.48±0.15	41.81±0.51	5.64	14°



Shape DL, Conical Round Nose – ISO



Suitable for making Conical Round Nose Carbide Burr Tools



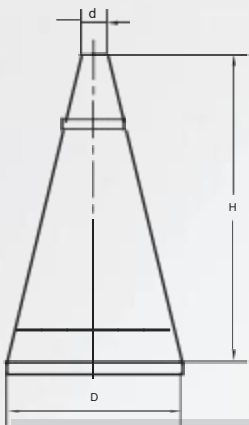
Type	ISO Standard	ΦD (mm)	H (mm)	SR (mm)	θ
DL10512M	L0512	5.40±0.10	12.40±0.20	1.40	14°
DL10616M	L0616	6.40±0.10	16.00±0.20	1.50	14°
DL10822M	L0822	8.40±0.10	22.00±0.20	2.10	12°
DL11025M	L1025	10.40±0.10	25.00±0.20	2.67	13°
DL11228M	L1228	12.40±0.10	28.60±0.20	3.10	14°
DL11428M	L1428	14.40±0.15	28.00±0.20	3.10	19°
DL11633M	L1633	16.40±0.15	33.00±0.20	4.95	14°

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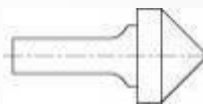
Shape DM, Conical Pointed Nose – ANSI Standard

Suitable for making Conical Pointed Nose Carbide Burr Tools

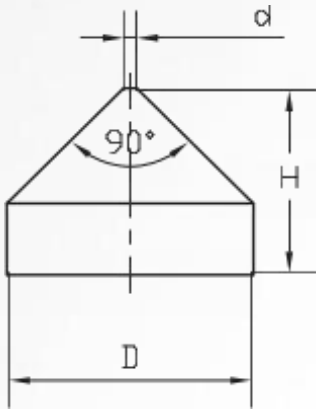


Type	ANSI Standard	ΦD (mm)	H (mm)	Φd (mm)	θ
DM10616	BSM-1	6.73 ± 0.13	16.13 ± 0.25	1.65	22°
DM10919	BSM-4	9.91 ± 0.13	19.30 ± 0.25	1.85	28°
DM11325	BSM-5	13.08 ± 0.13	25.65 ± 0.25	1.85	28°
DM11628	BSM-6	16.26 ± 0.13	28.98 ± 0.38	2.03	31°

Shape DK, 90°Cone – ANSI Standard



Suitable for making 90°Cone Carbide Burr Tools



Type	ANSI Standard	ΦD (mm)	H (mm)	Φd (mm)
DK10907	BSK-3	9.91 ± 0.13	7.95 ± 0.25	0.81
DK11309	BSK-5	13.08 ± 0.13	9.53 ± 0.25	0.81
DK11612	BSK-6	16.26 ± 0.13	12.29 ± 0.25	1.60
DK11913	BSK-7	19.48 ± 0.15	13.89 ± 0.25	1.60
DK12516	BSK-9	25.88 ± 0.18	16.28 ± 0.25	3.18



Shape DM, Conical Pointed Nose – ISO Standard

Suitable for making Conical Pointed Nose Carbide Burr Tools

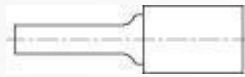


Type	ISO Standard	ΦD (mm)	H (mm)	Φd (mm)	θ
DM10616M	M0616	6.40 ± 0.10	16.00 ± 0.20	2.00	14°
DM10618M	M0618	6.40 ± 0.10	18.00 ± 0.20	2.00	14°
DM10818M	M0818	8.40 ± 0.10	18.00 ± 0.20	2.00	21°
DM11020M	M1020	10.40 ± 0.10	20.00 ± 0.20	2.00	25°
DM11225M	M1225	12.40 ± 0.10	25.00 ± 0.20	2.00	24°
DM11425M	M1425	14.40 ± 0.15	25.00 ± 0.20	3.00	27°
DM11625M	M1625	16.40 ± 0.15	25.00 ± 0.20	3.00	31°

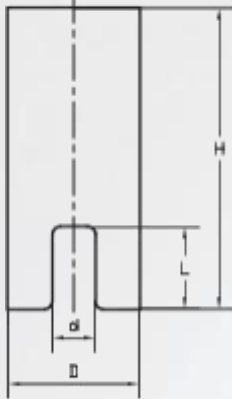
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Shape DS, Cylindrical with Brazing

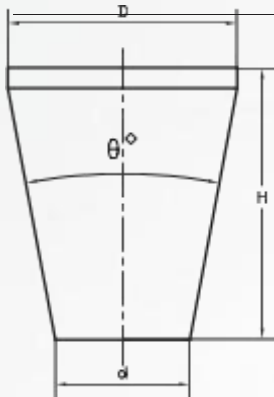
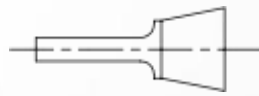


Suitable for making Cylindrical with Brazing Hole Carbide Burr Tools



Type	ΦD (mm)	H (mm)	Φd (mm)	L (mm)
DS30512	5.70±0.10	12.90±0.10	2.6 ±0.20	3.1 ±0.20
DS30820M	8.40±0.10	20.00±0.15	2.0 ±0.10	2.5 ±0.10
DS31225M	12.40±0.10	25.00±0.25	4.5 ±0.20	6.5 ±0.20
DS31325	13.08±0.13	25.40±0.25	4.5 ±0.20	6.5 ±0.20

Shape DN, Inverted Cone – ANSI Standard

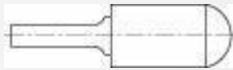


Type	ANSI Standard	ΦD (mm)	H (mm)	Φd (mm)	θ
DN10606	BSN-1	6.73±0.13	6.35±0.13	5.61	10°
DN10909	BSN-2	9.90±0.13	9.53±0.13	7.80	10°
DN11312A	BSN-3	13.08±0.13	12.70±0.25	9.65	16°
DN11312	BSN-4	13.08±0.13	12.70±0.25	6.90	28°
DN11619	BSN-6	16.26±0.13	19.05±0.25	10.38	18°
DN11915	BSN-7	19.48±0.15	15.88±0.25	11.24	30°

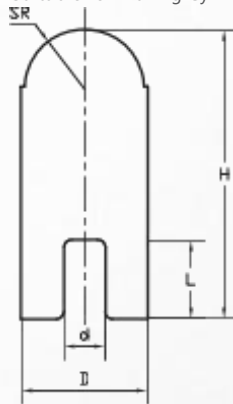


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Shape DA, Cylindrical Round Nose with Brazing Hole

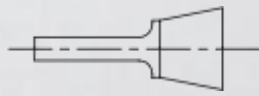


Suitable for making Cylindrical Round Nose with Brazing Hole Carbide Burr Tools

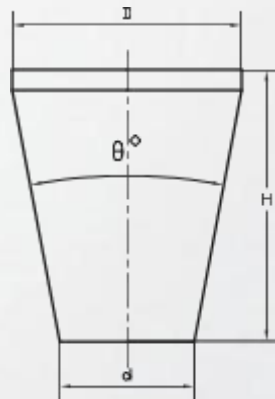


Type	ΦD (mm)	H (mm)	SR (mm)	Φd (mm)	L (mm)
DA30512	5.80±0.10	12.90±0.10	3.0	2.5 ±0.10	3.1 ±0.10
DA30820M	8.40±0.10	20.00±0.20	4.20	2.0 ±0.10	2.5 ±0.10
DA31225M	12.40±0.10	25.00±0.25	6.54	4.5 ±0.20	6.5 ±0.20
DA31325	13.08±0.13	25.40±0.25	6.54	4.5 ±0.20	6.5 ±0.20

Shape DN, Inverted Cone – ISO



Suitable for making Inverted Cone Carbide Burr Tools



Type	ISO Standard	ΦD (mm)	H (mm)	Φd (mm)	θ
DN10607M	N0607	6.40±0.10	7.00±0.10	5.23	10°
DN11213M	N1213	12.40±0.10	13.00±0.20	7.92	20°
DN11213AM	N1213	12.40±0.10	13.00±0.20	5.59	30°
DN11613M	N1616	16.40±0.15	13.00±0.20	9.59	30°
DN11616M	N1613	16.40±0.15	16.00±0.20	10.86	20°

AGRADE CARBIDE



Burr Blank for Nail

Suitable for making Burr Tools for Nail



Type	ΦD (mm)	H (mm)	SR (mm)	Φd1 (mm)	Φd (mm)	L (mm)	Drawing
DS30512B	5.50 (+02/+0.4)	12.70 (+0.1/+0.4)	-	-	2.5	3.1	
DA30612B	6.80 (+0.15/+0.35)	12.70 (+0.1/+0.4)	3.90	-	2.5	3.1	
DL30715E	7.20(±0.10)	15.00 (±0.15)	-	4.80	2.35	3.0	



Burr Blank for Dentistry

Suitable for making Burr Tools for Dentistry



Type	ΦD (mm)	H (mm)	SR (mm)	Φd1 (mm)	Φd (mm)	L (mm)	Drawing
DL30614E	6.20 (+0.2/+0.4)	14.60 (+0.1/+0.4)	2.1	4.14	2.5	3.1	
DA30612C	6.20 (+0.2/+0.4)	12.00 (+0.1/+0.3)	3.50	-	2.5	3.1	
DS2023045B	2.35 (0/-0.008)	45.00 (0/+0.8)	-	-	-	-	

AGRADE CARBIDE



Burr Blank for Orthopedics

Suitable for making Burr Tools for Orthopedics



Type	ΦD (mm)	H (mm)	SR (mm)	Φd1 (mm)	Φd (mm)	L (mm)	Drawing
DS30612F	6.20 (+0.2/+0.4)	12.80 (+0.1/+0.3)	-	-	2.5	3.1	
DS30514A	5.30 (0/-0.01)	14.00 (±0.05)	-	-	2.5	3	
DS2023045B	2.35 (0/-0.01)	10.00 (±0.05)	-	-	-	-	



AGRADE CARBIDE

Hardness Comparison

Brinell hardness 10mm ball Load 3000kg			Rockwell hardness (3R)				Vickers hardness HV Load 30kg
Standard Ball	Hult Green	Carbide Ball	HRA Load 60kg Diamond	HRB Load 100kg 1/6" ball	HRC Load 150kg Diamond	HRD Load 100kg Diamond	
-	-	-	92.5	-	80.5	-	1700
-	-	-	92.0	-	80.0	-	1600
-	-	-	91.5	-	79.0	-	1550
-	-	-	91.0	-	78.0	-	1500
-	-	-	90.5	-	77.0	-	1450
-	-	-	90.0	-	76.0	-	1400
-	-	-	89.5	-	75.0	-	1350
-	-	-	89.0	-	74.0	-	1300
-	-	-	88.5	-	73.0	-	1250
-	-	-	88.0	-	72.0	-	1200
-	-	-	87.5	-	71.5	-	1150
-	-	-	87.0	-	71.0	-	1140
-	-	-	86.5	-	70.0	-	1076
-	-	-	86.0	-	69.0	-	1004
-	-	-	85.6	-	68.0	76.9	940
-	-	-	85.3	-	67.5	76.5	920
-	-	-	85.0	-	67.0	76.1	900
-	-	767	84.7	-	66.4	75.7	880
-	-	757	84.4	-	65.9	75.3	860
-	-	745	84.1	-	65.3	74.8	840
-	-	733	83.8	-	64.7	74.3	820
-	-	722	83.4	-	64.0	73.8	800
-	-	710	83.0	-	63.3	73.3	780
-	-	698	82.6	-	62.5	72.6	760
-	-	684	82.2	-	61.8	72.1	740
-	-	670	81.8	-	61.0	71.5	720
-	615	656	81.3	-	60.1	70.8	700
-	610	647	81.1	-	59.7	70.5	690
-	603	638	80.8	-	59.2	70.1	680
-	597	630	80.6	-	58.8	69.8	670
-	590	620	80.3	-	58.3	69.4	660
-	585	611	80.0	-	57.8	69.0	650
-	578	601	79.8	-	57.3	68.7	640
-	571	591	79.5	-	56.8	68.3	630