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设计图：FUXINCHENG 0519-88505896



FUXINCHENG TOOLS



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CHANGZHOU FUXINCHENG TOOLS CO.,LTD.

ABOUT US

FuXinCheng Tools Co. Ltd. is a professional supplier for all kinds of cutting tools. The company is located in Xixiashu Industrial park, Changzhou, Jiangsu Province, China. It's 4km away from Changzhou airport, 3km from Shanghai-Nanjing Expressway, Changzhou Yangtze River port 1.5 kilometers, ChangZhou Railway Station 36 kilometers, land and air traffic is very convenient.

The factory mainly produces drill, milling cutter, reamer, boring cutter and other high precision standard and non standard cutting tool. Our factory's production, applicable to the processing of alloy steel, stainless steel, cast steel, nonferrous metals and other Aluminum Alloy. Our factory has several imported CNC grinding machines, such as 5-axe CNC grinding machine, ANCA grinder, Walter from Germany and so on. The strict inspection standards to ensure each cutter is inspected by Zoller Measuring and Inspecting Machine.

We will provide the best quality service, satisfactory prices, and have already made good reputation for customers around the world for our good quality products, warmly welcome customers from all over the world. My company with a number of Changzhou hardware tool design company, retailers and agents to establish a long-term stable relations of cooperation, complete varieties, reasonable price, enterprise strength, credit, keep the contract, to ensure product quality, variety of operating characteristics and the principle of small profits, won the trust of our customers, we always adhere to the "honest, committed to service, but for satisfaction" business purposes, to follow the customer demand, ongoing product innovation and service improvement, welcome friends from all walks of life to come to visit, guidance and business negotiation.

The factory mainly produces drill, milling cutter, reamer, boring cutter and other high precision standard and non standard cutting tool.

富信成

ENTERPRISE TENET

HONESTY AND TRUTHINESS
DEDICATED SERVICE
SEEKING SATISFACTION



OUR GOAL

Manufacturing the highest quality and most innovative products possible to help our customers reduce their costs of manufacturing.



Production Equipment



Test Equipment



FUXINCHENG TOOLS

Perfect quality Trustworthy

MATERIALS



COATING



BALL RADIUS TOLERANCE



CORNER RADIUS TOLERANCE



HELIX ANGLE



NUMBER OF FLUTES



WORKING HARDNESS



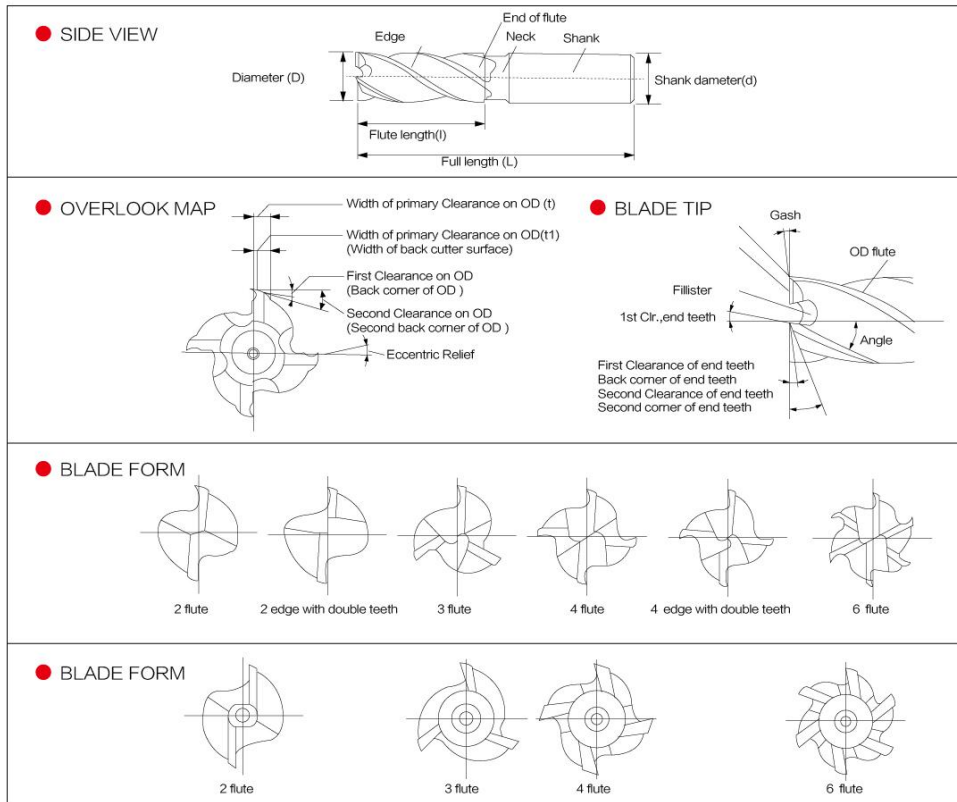
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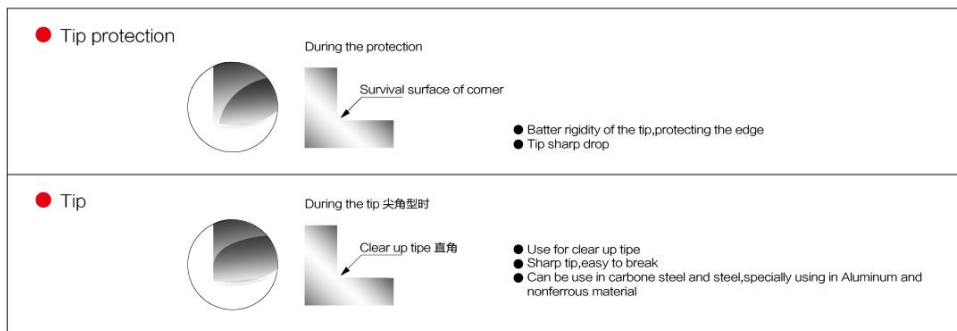
SHANK TYPE



Detail of the end mill



Shape in end teeth of the end mill



End mill working condition calculation method

● Cutting speed (line speed)

Calculation VC

The distance of 1 points on the circumferential surface of a vertical milling cutter moving in every minute can be obtained by the following formula

$$V = \frac{\pi \times D \times N}{1000}$$

V=Cutting speed(m/min)
 $\pi=3.14$
 D=Diameter L(mm)
 N=Rotating speed(mm⁻¹)

● Rotation speed

Calculation of Rotation speed

The rotation number of the mechanical spindle of a vertical milling cutter in every minute can be obtained by the following formula

$$N = \frac{1000 \times V}{\pi \times D}$$

N=Rotating speed(mm⁻¹)
 V=Cutting speed(m/min)
 $\pi=3.14$
 D=Diameter L(mm)

● Feed rate

Calculation of feed rate

The feed rate of the worktable in every minute can be obtained by the following formula

$$F = N \times Z \times f$$

F=Feed rate(mm/min)
 N=Rotating speed(mm⁻¹)
 Z=Number of flute
 f=Feed rate of the flute(mm/1blade)

● Feed for teeth

Calculation of the Feed of teeth

The distance of 1 points on the circumferential surface of a vertical milling cutter moving in every minute can be obtained by the following formula

$$f = \frac{F}{N \times Z}$$

f=Feed rate of the flute(mm/1blade)
 F=Feed rate(mm/min)
 N=Rotating speed(mm⁻¹)
 Z=Number of flute

● Working time

Calculation of the Working time

The time required to cut the material of a workpiece can be obtained by the following formula

$$T_c = \frac{L}{F}$$

Tc=Working time (min)
 L=Total working length
 (length of working material + D of vertical milling cutter blade)
 F=Feed rate(mm/min)

Hardness conversion table

(HRC) ROCKWELL	(HV) Vickers hardnes	Brinell hardness to ball diameter 10mm, Guld load 3000kgs		ROCKWELL (3)			Conical pressure of diamond surface hardness			(Hs) Hardness of Pillar	Tensile strength (Approximate value) MPa (kgf/mm2)	ROCKWELL (3)
		Standard ball	Tungsten steel ball	A Scaling 60kgf diamond conical pressure (HRA)	B Scaling 100kgf diameter 1.6mm (HRB)	D scalling 100kgf diamond conical pressure (HRD)	15-Level Load: 15kgf	30-Level Load: 30kgf	45-Level Load: 45kgf			
68	940			85.6		76.9	93.2	84.4	75.4	97		68
67	900			85		76.1	92.9	83.6	74.2	95		67
66	865			84.5		75.4	92.5	82.8	73.3	92		66
65	832		(739)	53.9		74.5	92.2	81.9	72	91		65
64	800		(722)	83.4		73.8	91.8	81.1	71	88		64
63	772		(705)	82.8		73	91.4	80.1	69.9	87		63
62	746		(688)	82.3		72.2	91.1	79.3	68.8	85		62
61	720		(670)	81.8		71.5	90.7	78.4	67.7	83		61
60	697		(654)	81.2		70.7	90.2	77.5	66.6	81		60
59	674		(634)	80.7		69.9	89.8	76.6	65.5	80		59
58	653		615	80.1		69.2	89.3	75.7	64.3	78		58
57	633		595	79.6		68.5	88.9	74.8	63.2	76		57
56	613		577	79		67.7	88.3	73.9	62	75		56
55	595		560	78.5		66.9	87.9	73	60.9	74	2075(212)	55
54	577		543	78		66.1	87.4	72	59.8	72	2015(205)	54
53	560		525	77.4		65.4	86.9	71.2	58.5	71	1950(199)	53
52	544	(500)	512	76.8		64.6	86.4	70.2	57.4	69	1880(192)	52
51	528	(487)	496	76.3		63.8	85.9	69.4	56.1	68	1820(186)	51
50	513	(475)	481	75.9		63.1	85.5	68.5	55	67	1760(179)	50
49	498	(464)	469	75.2		62.1	85	67.6	53.8	66	1695(173)	49
48	484	451	455	74.7		61.4	84.5	66.7	52.5	64	1635(167)	48
47	471	422	443	74.1		60.8	83.9	65.8	51.4	63	1580(161)	47
46	458	432	432	73.6		60	83.5	64.8	50.3	62	1530(156)	46
45	446	421	421	73.1		69.2	83	64	49	60	1480(151)	45
44	434	409	409	72.5		68.5	82.5	63.1	47.8	58	1435(146)	44
43	423	400	400	72		57.7	82	62.2	46.7	57	1385(141)	43
42	412	390	390	71.5		56.9	81.5	61.3	45.5	56	1340(136)	42
41	402	381	381	70.9		56.2	80.9	60.4	44.3	55	1295(132)	41
40	392	371	371	70.4		55.4	80.4	59.5	43.1	54	1250(127)	40
39	382	362	362	69.9		54.6	79.9	58.6	41.9	52	1215(124)	39
38	372	353	353	69.4		53.8	79.4	57.7	40.8	51	1180(120)	38
37	363	344	344	68.9		53.1	78.8	56.8	39.6	50	1160(118)	37
36	354	336	336	68.4	(109)	52.3	78.3	55.9	38.4	49	1115(114)	36
35	345	327	327	67.9	(108.5)	51.5	77.7	55	37.2	48	1080(110)	35
34	336	319	319	67.4	(108)	50.8	77.2	54.2	36.1	47	1055(108)	34
33	327	311	311	66.8	(107.5)	50	76.6	53.3	34.9	46	1025(105)	33
32	318	301	301	66.3	(107)	49.2	76.1	52.1	33.7	44	1000(102)	32
31	310	294	294	65.8	(106)	48.4	75.6	51.63	32.7	43	980(100)	31
30	302	286	286	65.3	(105.5)	47.4	75	50.4	31.3	42	950(97)	30
29	294	279	279	64.7	(104.5)	47	74.5	49.5	30.1	41	930(95)	29
28	286	271	271	64.3	(104)	46.1	73.9	48.6	28.9	41	910(93)	28
27	279	264	264	63.8	(103)	45.2	73.3	47.7	27.8	40	880(90)	27
26	272	258	258	63.3	(102.5)	44.6	72.8	46.8	26.7	38	860(88)	26
25	266	253	253	62.8	(101.5)	43.8	72.2	45.9	25.5	38	840(86)	25
24	260	247	247	62.4	(101)	43.1	71.6	45	24.3	37	825(84)	24
23	254	243	243	62	100	42.1	71	44	23.1	36	805(82)	23
22	248	237	237	61.5	99	41.6	70.5	43.2	22	35	785(80)	22
21	243	231	231	61	98.5	40.9	69.9	42.3	20.7	35	770(79)	21
20	238	226	226	60.5	97.8	40.1	69.4	41.5	19.6	34	760(77)	20
(18)	230	219	219		96.7					33	730(75)	(18)
(16)	222	212	212		95.6					32	705(72)	(16)
(14)	213	203	203		93.9					32	675(69)	(14)
(12)	204	194	194		92.3					29	650(66)	(12)
(10)	196	187	187		90.7					28	620(63)	(10)
(8)	188	179	179		89.5					27	600(61)	(8)
(6)	180	171	171		87.1					26	580(59)	(6)
(4)	173	165	165		85.5					25	550(56)	(4)
(2)	166	158	158		83.5					24	530(54)	(2)
(0)	160	152	152		81.7					24	515(53)	(0)

Failure analyzed and solvent

Item	Fault	Reason	Solution
Precision of cutting surface	Rough surface	Vibration	▲ Fix the working material as well as possible ▲ Adjust the failed part of machine ▲ Reduce rotating speed ▲ Downcut ▲ Tools minimum lenght out of fixture
		The heterogeneity in hardness	▲ Measuring the hardness of working material
		The tip was unsuitable	▲ Tool rake angle and clearance angle ▲ Improve cutting roughness
		Chip lump and fuse attach material	▲ Remove chip lump and clearance angle ▲ Improve cutting roughness
		Passivation of cutting edge	▲ Determine the adequate time to regrinding
		Cutting rate(speed)too fast	▲ Reduce the cutting rate(speed)
		Misfit cutting fluids or deficient of cutting fluids	▲ Change cutting fluids
		Unbalance friction of cutting edge	▲ Regrinding ro reduce friction
	Bucking cracking of the of machined surface	Fuse attach material on the cutting edge	▲ Remove fuse attach material ▲ Change cutting fluids
		Cutting edge deformation	▲ To pay attention to use and safekeeping
	The corrugation of machined surface	Lesser cutting flute	▲ Increase the number of flutes from 2 flutes to 4 flutes and then 6 flutes
		Bigger cutting depth and feed rate	▲ To reduce the feed rate of machine
		A large helix angle	▲ Decrease the helix angle
	Shape precision	Perpendicularitr	Cutting depth and feed rate is too large ▲ Reduce the depth of cutting and feed rate Tool stretches out over longer ▲ Use the end mill stretches out shaortest from chuck Perpendicularity of holder not resch ▲ Improve the perpendicularity of holder
End mill life	Shorter life for regrinding end mill	Work material hardness too high	▲ Improve to suitable hardness by heat treatment process ▲ Reduce the feed rate for high hardness work material or change more hardness tool
		Unsuitable feed rate	▲ Adjust to suitable feed rate
		Chip lumo and fuse attach material	▲ Remove chip lump and fuse attach material ▲ Use suitable cutting liquid
		Unsuitable cutting liquid	▲ Use suitable cutting liquid ▲ Use enough cutting liquid
	Huge friction of cutting edge	The fault of work material	▲ Uchieve the average of inside form of work material ▲ Clear up unbalance hardness
		Unsuitable edge angle	▲ Regrind to suitable angle
		End mill cutting function go down	▲ Surface treatment
		Unsuitable cutting liquid	▲ Adjust to suitable cutting liquid ▲ Adjust offer method of liquid
		Unsuitable regrind schedule	▲ Manage the regrind schedule
	Flute damage	Vibration	▲ Strengthen the install tool of work material
		The fault of work material	▲ Achieve the average of working material structure ▲ Use suitable hardness,clear up unbalance hardness ▲ Check the material may mix other hardness substance or gravel
		Unsuitable feed rate	▲ Reduce the feed rate
		Cutter become dull	▲ Regrind the tools
		Cutting liquid go off	▲ Change the cutting liquid
	Break	Work material unsuitable fixed	▲ Indeed fix the work material ▲ Improve install tool
		Cutter become dull	▲ Regrind process
		End mill with uncorrect operation	▲ Be careful of keep and operate
		Chip jam	▲ Use cutting liquid in large,during dry milling use air blow to remove chips

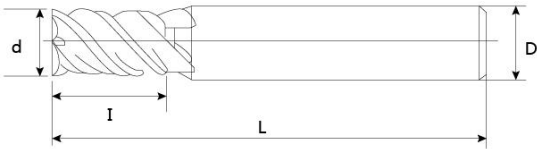
HV series tool materials use fine particle high quality bars. The coating uses TiAN nanoscale coating with excellent surface finish and high microhardness and thermal hardness. It is suitable for the processing of stainless steel, heat-resistant steel and non iron metal material under HRC50 degree.

HVseries



HV series 2 Flute/4 Flute Square End Mill

WC=90 Co=10 HV30=1571 Bending=3750N/mm² Hardness 91.8 Particle=0.6 μm

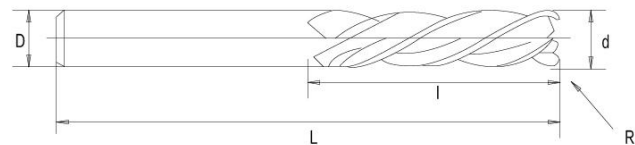


Diameter(d)	Length(I)	Over length(L)	Shank diameter(D)	Flute(F)
1	3	50	4	2/4
1.5	4	50	4	2/4
2	6	50	4	2/4
2.5	7	50	4	2/4
3	8	50	3	2/4
3	8	50	4	2/4
4	10	50	4	2/4
5	13	50	5	2/4
5	13	50	6	2/4
6	18	60	6	2/4
7	20	60	8	2/4
8	16	75	8	2/4
4	24	75	4	2/4
6	30	75	6	2/4
8	25	75	8	2/4
9	25	75	10	2/4
10	30	75	10	2/4
12	16	100	12	2/4
4	24	100	4	2/4
6	32	100	6	2/4
8	40	100	8	2/4
10	45	100	10	2/4
12	45	100	12	2/4
14	45	100	14	2/4
16	45	100	16	2/4
18	45	100	18	2/4
20	45	100	20	2/4



HV series 2 Flute/4 Flute Conner Radius End Mill

WC=90 Co=10 HV30=1571 Bending=3750N/mm² Hardness 91.8 Particle=0.6 μm

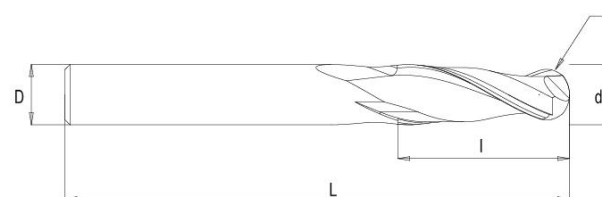


Diameter (d)	Length (l)	Over length (L)	Shank diameter (D)	Round diameter (R)	Flute (F)
4	10	50	4	0.2	2/4
4	10	50	4	0.5	2/4
4	10	50	4	1	2/4
5	13	50	6	0.2	2/4
5	13	50	6	0.5	2/4
5	13	50	6	1	2/4
6	15	50	6	0.2	2/4
6	15	50	6	0.5	2/4
6	15	50	6	1	2/4
6	15	50	6	1.5	2/4
8	20	60	8	0.5	2/4
8	20	60	8	1	2/4
8	20	60	8	1.5	2/4
8	20	60	8	2	2/4
10	25	75	10	0.5	2/4
10	25	75	10	1	2/4
10	25	75	10	1.5	2/4
10	25	75	10	2	2/4
12	30	75	12	0.5	2/4
12	30	75	12	1	2/4
12	30	75	12	1.5	2/4
12	30	75	12	2	2/4



HV series 2 Flute Ball Nose End Mill

WC=90 Co=10 HV30=1571 Bending=3750N/mm² Hardness 91.8 Particle=0.6 μm



Diameter (d)	Length (l)	Over length (L)	Shank diameter (D)	Round diameter (R)	Flute (F)
1	2	50	4	0.5	2
1.5	3	50	4	0.75	2
2	4	50	4	1	2
2.5	5	50	4	1.25	2
3	6	50	3	1.5	2
3	6	50	4	1.5	2
4	8	50	4	2	2
5	10	50	5	2.5	2
5	10	50	6	2.5	2
6	12	50	6	3	2
7	14	60	8	3.5	2
8	16	60	8	4	2
4	8	75	4	2	2
6	12	75	6	3	2
8	16	75	8	4	2
9	18	75	10	4.5	2
10	20	75	10	5	2
12	24	75	12	6	2
4	8	100	4	2	2
6	12	100	6	3	2
8	16	100	8	4	2
10	20	100	10	5	2
12	24	100	12	6	2
14	28	100	14	7	2
16	32	100	16	8	2
18	36	100	18	9	2
20	40	100	20	10	2



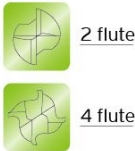
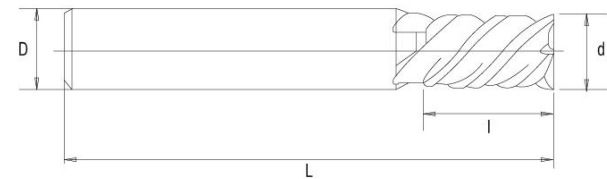
HH series of tool materials are fine particles with fine fine particles. The coating is made up of the latest Si nano coating in Germany. The surface finish is excellent. It has excellent abrasion resistance and oxygen resistance. It can withstand high speed cutting in high temperature. The highest hardness of the tool can reach below 60 degrees.

HH series



HH series 2 Flute/4 Flute Square End Mill

WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle=0.6 μm

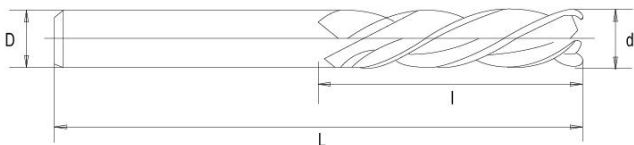


Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)	Flute(F)
1	3	50	4	2/4
1.5	4	50	4	2/4
2	6	50	4	2/4
2.5	7	50	4	2/4
3	8	50	3	2/4
3	8	50	4	2/4
4	10	50	4	2/4
5	13	50	5	2/4
5	15	50	6	2/4
6	18	60	6	2/4
7	20	60	8	2/4
8	16	75	8	2/4
4	24	75	4	2/4
6	30	75	6	2/4
8	25	75	8	2/4
9	25	75	10	2/4
10	30	75	10	2/4
12	16	100	12	2/4
4	24	100	4	2/4
6	32	100	6	2/4
8	40	100	8	2/4
10	45	100	10	2/4
12	45	100	12	2/4
14	45	100	14	2/4
16	45	100	16	2/4
18	45	100	18	2/4
20	45	100	20	2/4



HH series 2 Flute/4 Flute Conner Radius End Mill

WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle=0.6 η m

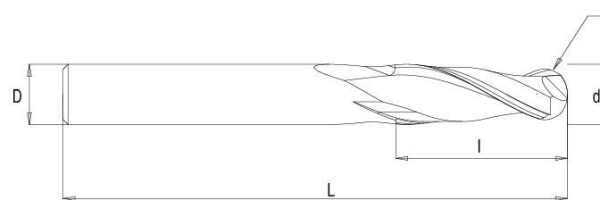


Diameter (d)	Length (l)	Over length (L)	Shank diameter (D)	Round diameter (F)	Flute (F)
4	10	50	4	0.2	2/4
4	10	50	4	0.5	2/4
4	10	50	4	1	2/4
5	13	50	6	0.2	2/4
5	13	50	6	0.5	2/4
5	13	50	6	1	2/4
6	15	50	6	0.2	2/4
6	15	50	6	0.5	2/4
6	15	50	6	1	2/4
6	15	50	6	1.5	2/4
8	20	60	8	0.5	2/4
8	20	60	8	1	2/4
8	20	60	8	1.5	2/4
8	20	60	8	2	2/4
10	25	75	10	0.5	2/4
10	25	75	10	1	2/4
10	25	75	10	1.5	2/4
10	25	75	10	2	2/4
12	30	75	12	0.5	2/4
12	30	75	12	1	2/4
12	30	75	12	1.5	2/4
12	30	75	12	2	2/4



HH series 2 Flute Ball Nose End Mill

WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle=0.6 η m



Diameter (d)	Length (l)	Over length (L)	Shank diameter (D)	Round diameter (R)	Flute (F)
1	2	50	4	0.5	2
1.5	3	50	4	0.75	2
2	4	50	4	1	2
2.5	5	50	4	1.25	2
3	6	50	3	1.5	2
3	6	50	4	1.5	2
4	8	50	4	2	2
5	10	50	5	2.5	2
5	10	50	6	2.5	2
6	12	50	6	3	2
7	14	60	8	3.5	2
8	16	60	8	4	2
4	8	75	4	2	2
6	12	75	6	3	2
8	16	75	8	4	2
9	18	75	10	4.5	2
10	20	75	10	5	2
12	24	75	12	6	2
4	8	100	4	2	2
6	12	100	6	3	2
8	16	100	8	4	2
10	20	100	10	5	2
12	24	100	12	6	2
14	28	100	14	7	2
16	32	100	16	8	2
18	36	100	18	9	2
20	40	100	20	10	2



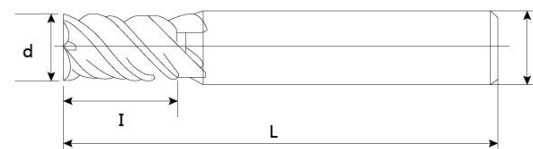
UH high hardness milling cutter series, the masterbatch uses fine particles of high quality bar, with extremely high wear resistance and folding resistance. The ALCrN based coating of nanocrystalline structure shows excellent red hardness, oxidation resistance and heat resistance. It is specially used for high speed machining of steel coarse finish above HRC60 degree. The introduction of UH series cutters opened the doors of hard materials and hard materials.

UH series



UH series 2 Flute/4 Flute Square End Mill

WC=88 Co=12 HV30=1700 Bending=3800N/mm² Hardness 93.6 Particle<0.4 μm

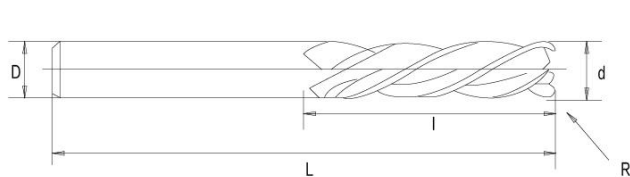


Diameter (d)	Length(I)	Over length (L)	Shank diameter(D)	Flute(F)
1	3	50	4	2/4
1.5	4	50	4	2/4
2	6	50	4	2/4
2.5	7	50	4	2/4
3	8	50	3	2/4
3	8	50	4	2/4
4	10	50	4	2/4
5	13	50	5	2/4
5	13	50	6	2/4
6	18	60	6	2/4
7	20	60	8	2/4
8	16	75	8	2/4
4	24	75	4	2/4
6	30	75	6	2/4
8	25	75	8	2/4
9	25	75	10	2/4
10	30	75	10	2/4
12	16	100	12	2/4
4	24	100	4	2/4
6	32	100	6	2/4
8	40	100	8	2/4
10	45	100	10	2/4
12	45	100	12	2/4
14	45	100	14	2/4
16	45	100	16	2/4
18	45	100	18	2/4
20	45	100	20	2/4



UH series 2 Flute/4 Flute Comer Radius End Mill

WC=87 Co=12 Bending=4200N/mm² Hardness 92.4 Particle<0.4 μm

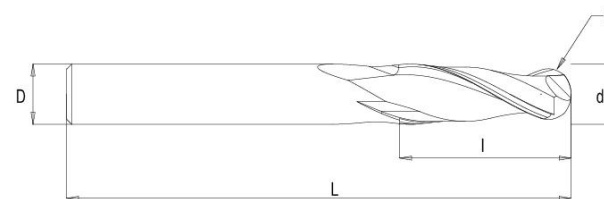


Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)	Round diameter(R)	Flute(F)
4	10	50	4	0.2	2/4
4	10	50	4	0.5	2/4
4	10	50	4	1	2/4
5	13	50	6	0.2	2/4
5	13	50	6	0.5	2/4
5	13	50	6	1	2/4
6	15	50	6	0.2	2/4
6	15	50	6	0.5	2/4
6	15	50	6	1	2/4
6	15	50	6	1.5	2/4
8	20	60	8	0.5	2/4
8	20	60	8	1	2/4
8	20	60	8	1.5	2/4
8	20	60	8	2	2/4
10	25	75	10	0.5	2/4
10	25	75	10	1	2/4
10	25	75	10	1.5	2/4
10	25	75	10	2	2/4
12	30	75	12	0.5	2/4
12	30	75	12	1	2/4
12	30	75	12	1.5	2/4
12	30	75	12	2	2/4



UH series 2 Flute Ball Nose End Mill

WC=87 Co=13 Bending=4200N/mm² Hardness 92.4 Particle=0.5 μm

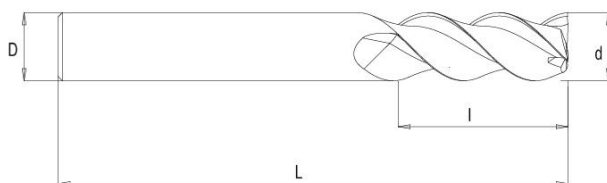


Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)	Round diameter(R)	Flute(F)
1	2	50	4	0.5	2
1.5	3	50	4	0.75	2
2	4	50	4	1	2
2.5	5	50	4	1.25	2
3	6	50	3	1.5	2
3	6	50	4	1.5	2
4	8	50	4	2	2
5	10	50	5	2.5	2
5	10	50	6	2.5	2
6	12	50	6	3	2
7	14	60	8	3.5	2
8	16	60	8	4	2
4	8	75	4	2	2
6	12	75	6	3	2
8	16	75	8	4	2
9	18	75	10	4.5	2
10	20	75	10	5	2
12	24	75	12	6	2
4	8	100	4	2	2
6	12	100	6	3	2
8	16	100	8	4	2
10	20	100	10	5	2
12	24	100	12	6	2
14	28	100	14	7	2
16	32	100	16	8	2
18	36	100	18	9	2
20	40	100	20	10	2



Mirror Aluminium End Mill

WC=90 Co=10 HV30+1571 Bending=3750N/mm² Hardness 91.6 Particle=0.6 η m

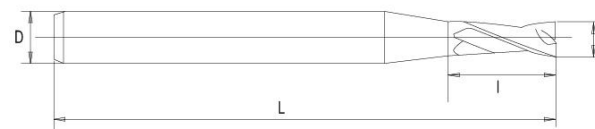


Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)	Flute(F)
1	3	50	4	2/3
1.5	4	50	4	2/3
2	6	50	4	2/3
2.5	8	50	4	2/3
3	9	50	3	2/3
3	9	50	4	2/3
4	12	50	4	2/3
5	15	50	5	2/3
5	15	50	6	2/3
6	18	50	6	2/3
7	20	60	8	2/3
8	20	60	8	2/3
10	30	75	10	2/3
12	30	75	12	2/3
4	16	100	4	2/3
6	24	100	6	2/3
8	32	100	8	2/3
10	40	100	10	2/3
12	45	100	12	2/3
14	45	100	14	2/3
16	45	100	16	2/3
18	45	100	18	2/3
20	45	100	20	2/3



Mirco End Mill

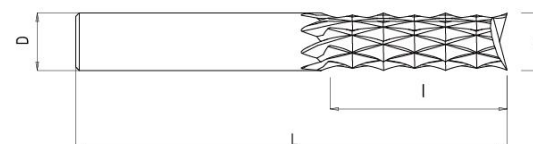
WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle<0.4 η m



Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)	Flute(F)
0.2	0.5	50	4	2
0.3	0.6	50	4	2
0.4	0.8	50	4	2
0.5	1	50	4	2
0.6	1.2	50	4	2
0.7	1.4	50	4	2
0.8	1.5	50	4	2
0.9	1.8	50	4	2



Corn Milling Cutter

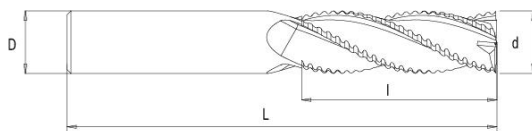


Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)
1	3	38	3.175
1.2	6	38	3.175
2	8	38	3.175
2.5	10	38	3.175
3.175	12	38	3.175
3.175	25	50	3.175
4	12	40	4
4	17	40	4
4	22	50	4
6	17	50	6
8	25	60	8
8	32	60	8



Roughing End Mill

WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle=0.6 μm



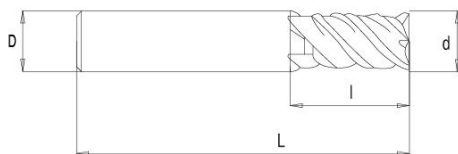
4 flute



Diameter (d)	Length (L)	Over length (L)	Shank diameter (D)	Flute (F)
4	10	50	4	4
5	13	50	6	4
6	15	50	6	4
8	20	60	8	4
10	25	75	10	4
12	30	75	12	4
14	45	100	14	4
16	45	100	16	4
18	45	100	18	4
20	45	100	20	4



Stainless Steel Special Use End Mill



4 flute

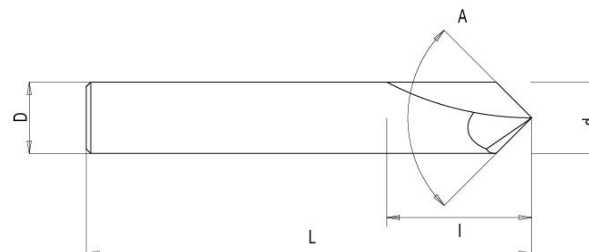


Diameter (d)	Length (L)	Over length (L)	Shank diameter (D)	Flute (F)
1	3	50	4	4
1.5	4	50	4	4
2	6	50	4	4
2.5	7	50	4	4
3	8	50	4	4
4	10	50	4	4
5	13	50	6	4
6	15	50	6	4
8	20	60	8	4
10	25	75	10	4
12	30	75	12	4



Drill Bit

WC=87 Co=13 Bending=4200N/mm² Hardness 92.4 Particle=0.5 μm



2 flute

Diameter (d)	Length (L)	Shank diameter (D)	Over length (L)	Angle (A)	Flute (F)
Φ1	4	4	50	90	2
Φ1.2	4	4	50	90	2
Φ1.5	5	4	50	90	2
Φ2	8	4	50	90	2
Φ2.5	8	4	50	90	2
Φ3	12	3	50	90	2
Φ4	16	4	50	90	2
Φ4	16	4	100	90	2
Φ5	20	5	50	90	2
Φ6	20	6	50	90	2
Φ6	20	6	100	90	2
Φ8	25	8	60	90	2
Φ8	25	8	100	90	2
Φ10	30	10	75	90	2
Φ10	30	10	100	90	2
Φ12	30	12	75	90	2
Φ12	30	12	100	90	2
Φ14	35	14	100	90	2
Φ16	40	16	100	90	2
Φ3	12	3	50	120	2
Φ4	16	4	50	120	2
Φ6	20	6	50	120	2
Φ8	25	8	60	120	2
Φ10	30	10	75	120	2
Φ12	30	12	75	120	2



4 Flute Inner Corner Radius End Mill

WC=87 Co=13 Bending=4200N/mm² Hardness=92.4 Particle=0.5 η m



4 flute

Diameter (d)	Round diameter(R)	Shank diameter(D)	Over length (L)
1.5	0.5R	4	50
1.5	0.7R	4	50
1.5	1.0R	4	50
1.5	1.25R	6	50
1.5	1.5R	6	50
1.5	1.75R	6	50
1.5	2.0R	6	50
1.5	2.5R	8	50
1.5	3.0R	8	50
2	4.0R	12	60
3	5.0R	16	75
3	6.0R	16	75



3 Flute/4 Flute T-slot End Mill

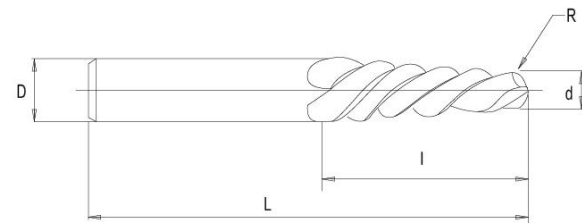
WC=87 Co=13 Bending=4200N/mm² Hardness=92.4 Particle=0.5 η m



Diameter (d)	Length(L3)	L2	d2	Shank diameter(D)	Over length (L)
Φ4	0.5/1/1.5/2	Φ2	8	4	50
Φ6	0.5/1/1.5/2/2.5/3	Φ3	10	6	50
Φ8	1/1.5/2/2.5/3	Φ4	12	8	50
Φ10	1/1.5/2/2.5/3	Φ5	15	10	60
Φ12	1/1.5/2/2.5/3	Φ6	15	12	60



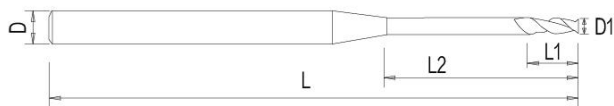
Taper Ball Nose End Mill



Diameter (d)	Length(l)	Over length (L)	Shank diameter(D)	Round diameter(R)
0.73	4	35	3	0.3
0.86	4	35	3	0.3
0.89	6	35	3	0.4
1	6	35	3	0.4
1.19	6	35	3	0.4
1.26	8	45	4	0.5
1.53	8	45	4	0.5
1.46	8	45	4	0.6
1.59	8	45	4	0.6
1.72	8	45	4	0.6
1.75	8	45	4	0.75
1.88	8	45	4	0.75
2.01	8	45	4	0.75
1.73	8	45	4	0.8
1.85	8	45	4	0.8
2.27	8	45	4	0.8
2.39	12	45	4	0.8



2 Flute Long Neck End Mill



Diameter (D1)	Length(L1)	Length(L2)	Shank diameter(D)	Over length (L)
0.5	0.7	2	4	50
0.6	0.9	2	4	50
0.8	1.2	4	4	50
1	1.5	4	4	50
1.2	1.8	6	4	50
1.4	2.1	6	4	50
1.5	2.3	6	4	50
1.6	2.4	6	4	50
1.8	2.7	6	4	50
2	3	6	4	50
2.5	3	8	4	50
3	4.5	8	6	50



2 Flute Long Neck Ball Nose End Mill



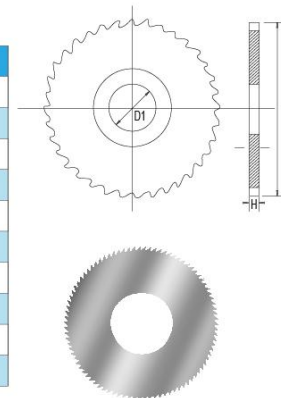
Round diameter(R)	Diameter (D1)	Length(L1)	Length(L2)	Shank diameter(D)	Over length (L)
0.5	1	1.5	5	6	60
0.5	1	1.5	10	6	60
1	2	3	10	6	60
1	2	3	20	6	60
1.5	3	4.5	15	6	70
1.5	3	4.5	30	6	70
2	3	6	20	6	80
2	3	6	40	6	80
2.5	5	7.5	25	6	90
2.5	5	7.5	50	6	100



Saw Blade

WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle=0.6 μm

内径D1	厚度H	外径D	内径D1	厚度H	外径D
6	0.15-4.5	12	16	0.3-4.5	55
8	0.15-4.5	16	16/20	0.3-5.0	63
8	0.15-4.5	20	12.7/25.4	0.3-5.0	70
8	0.2-4.5	25	12.7/25.4	0.4-5.0	75
8/12.7	0.2-4.5	27	25.4/31.75	0.4-5.0	80
8/12.7	0.2-4.5	30	25.4/31.75	0.4-5.0	85
8/12.7	0.2-4.5	32	25.4/31.75	0.5-5.0	90
12.7	0.3-4.5	40	25.4/31.75	0.5-5.0	95
12.7	0.3-4.5	45	25.4/31.75	0.5-5.0	100
12.7	0.3-4.5	50	25.4/31.75	0.5-5.0	105



Round Bar

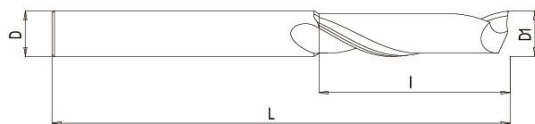
WC=88 Co=12 HV30=1700 Bending=4000N/mm² Hardness 91.8 Particle=0.6 μm



Diameter (D)	Over length (L)	Diameter (D)	Over length (L)
3.175	38.5	6	80
3.175	50	6	100
3.175	60	8	50
3.175	80	8	60
3.175	100	8	80
4	50	8	100
4	60	10	60
4	80	10	80
4	100	10	100
5	50	12	60
5	100	12	80
6	50	12	100
6	60	14	100



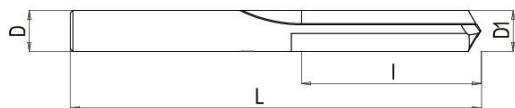
Aluminum milling cutters cut



Diameter (D1)	Length (L)	Over length (L)	Shank diameter (D)
3.175	6	38.5	3.175
4	12	38.5	4
5	15	50	5
6	15	50	6
8	20	60	8



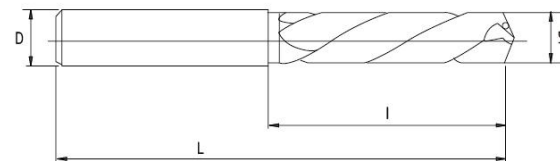
Straight Flute



Diameter (D1)	Length (L)	Over length (L)	Shank diameter (D)
3	16	40	3
3.5	20	50	3.5
4	22	50	4
4.5	24	60	4.5
5	26	60	5
5.5	28	70	5.5
6	28	70	6
6.5	31	70	6.5
7	34	75	7
7.5	34	75	7.5
8	37	80	8
8.5	37	80	8.5
9	40	85	9
9.5	40	85	9.5
10	43	90	10
12	51	100	12
14	54	110	14
16	58	115	16



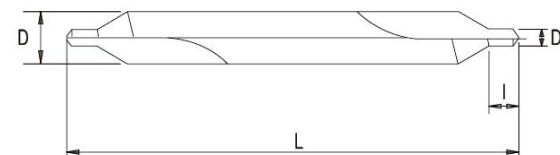
Aluminum milling cutters cut



Diameter (D1)	Length (L)	Over length (L)	Shank diameter (D)
5	30	60	5
6	30	60	6
7	32	60	7
8	32	70	8
9	38	70	9
10	38	70	10
11	40	70	11
12	40	80	12
13	40	80	13
14	40	80	14
16	45	90	16
17	55	100	17
18	55	100	18
19	55	100	19
20	55	100	20



Center drill



Diameter (D1)	Length (L)	Over length (L)	Shank diameter (D)
2	2.5	50	4
2.5	3.1	60	6
3.15	3.9	70	8
4	5	80	10
5	6.3	80	12
6	8	80	16

