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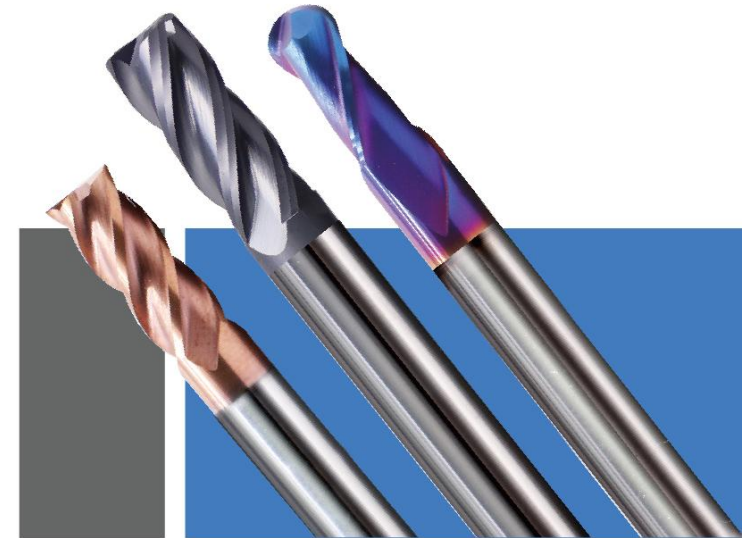


HUANA TOOLS  
ACHIEVE OPTIMUM TOOL LIFE

设计推广：点石文化传播 0519-88056806

# HUANA TOOLS

## 华纳工具



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**华纳工具，切削专家**  
HUANATOOLS  
SLOTTING & MILLING EXPERT

**张家港保税区华纳工具有限公司**  
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# HUANA TOOLS

## 华纳工具

Perfect quality Trustworthy

### MATERIALS

**MG** Micro Grain Carbide

**UMG** UltraMicro Grain Carbide

### COATING

**AlTiN** Black Coating    **TiAlCrN** Fuchsia Coating

**TiXco** Bronze Coating    **nACO** Blue Coating

### BALL RADIUS TOLERANCE

**R** ±0.005    **R** ±0.010    **R** ±0.020

### CORNER RADIUS TOLERANCE

**R** ±0.010    **R** ±0.020

### HELIX ANGLE

30°    35°    45°    55°

### NUMBER OF FLUTES

2 flute    3 flute

4 flute

### WORKING HARDNESS

**HRC** ▶45    **HRC** ▶50    **HRC** ▶55

**HRC** ▶60    **HRC** ▶65    **HRC** ▶68

### MACHINING DIRECTOR

**Side**

**Side, Profile**

**Side, Profile, Slot**

### SHANK TYPE

**PLAIN** PLAIN Shank    **FLAT** FLAT Shank

## Detail of the end mill

**● SIDE VIEW**

**● OVERLOOK MAP**

**● BLADE TIP**

**● BLADE FORM**

**● BLADE FORM**

Shape in end teeth of the end mill

**● Tip protection**

- Better rigidity of the tip, protecting the edge
- Tip sharp drop

**● Tip**

- Use for clear up tip
- Sharp tip, easy to break
- Can be used in carbide steel and steel, specially using in Aluminum and nonferrous material

## 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<sup>-1</sup>)

### ● 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<sup>-1</sup>)  
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<sup>-1</sup>)  
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<sup>-1</sup>)  
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)

## Failure analyzed and solvent

Item	Fault	Reason	Solution
Precision of cutting surface	Rough surface	Vibration	<ul style="list-style-type: none"> <li>▲ Fix the working material as well as possible</li> <li>▲ Adjust the failed part of machine</li> <li>▲ Reduce rotating speed</li> <li>▲ Downcut</li> <li>▲ Tools minimum length out of fixture</li> </ul>
		The heterogeneity in hardness	▲ Measuring the hardness of working material
		The tip was unsuitable	<ul style="list-style-type: none"> <li>▲ Tool rake angle and clearance angle</li> <li>▲ Improve cutting roughness</li> </ul>
		Chip lump and fuse attach material	<ul style="list-style-type: none"> <li>▲ Remove chip lump and clearance angle</li> <li>▲ Improve cutting roughness</li> </ul>
		Passivation of cutting edge	▲ Determine the adequate time to regrinding
		Cutting rate(speed)/too fast	▲ Reduce the cutting rate(speed)
	Buckling cracking of the of machined surface	Misfit cutting fluids or deficient of cutting fluids	▲ Change cutting fluids
		Unbalance friction of cutting edge	▲ Regrinding to reduce friction
		Fuse attach material on the cutting edge	<ul style="list-style-type: none"> <li>▲ Remove fuse attach material</li> <li>▲ Change cutting fluids</li> </ul>
	The corrugation of machined surface	Cutting edge deformation	▲ To pay attention to use and safekeeping
		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	Perpendicularity	Cutting depth and feed rate is too large
Tool stretches out over longer			▲ Use the end mill stretches out shortest 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	<ul style="list-style-type: none"> <li>▲ Improve to suitable hardness by heat treatment process</li> <li>▲ Reduce the feed rate for high hardness work material or change more hardness tool</li> </ul>
		Unsuitable feed rate	▲ Adjust to suitable feed rate
		Chip lump and fuse attach material	<ul style="list-style-type: none"> <li>▲ Remove chip lump and fuse attach material</li> <li>▲ Use suitable cutting liquid</li> </ul>
		Unsuitable cutting liquid	<ul style="list-style-type: none"> <li>▲ Use suitable cutting liquid</li> <li>▲ Use enough cutting liquid</li> </ul>
	Huge friction of cutting edge	The fault of work material	<ul style="list-style-type: none"> <li>▲ Uchieve the average of inside form of work material</li> <li>▲ Clear up unbalance hardness</li> </ul>
		Unsuitable edge angle	▲ Regrind to suitable angle
		End mill cutting function go down	▲ Surface treatment
		Unsuitable cutting liquid	<ul style="list-style-type: none"> <li>▲ Adjust to suitable cutting liquid</li> <li>▲ Adjust offer method of liquid</li> </ul>
	Flute damage	Unsuitable regrind schedule	▲ Manage the regrind schedule
		Vibration	▲ Strengthen the install tool of work material
		The fault of work material	<ul style="list-style-type: none"> <li>▲ Achieve the average of working material structure</li> <li>▲ Use suitable hardness,clear up unbalance hardness</li> <li>▲ Check the material may mix other hardness substance or gravel</li> </ul>
		Unsuitable feed rate	▲ Reduce the feed rate
	Break	Cutter become dull	▲ Regrind the tools
		Cutting liquid go off	▲ Change the cutting liquid
Work material unsuitable fixed		<ul style="list-style-type: none"> <li>▲ Indeed fix the work material</li> <li>▲ Improve install tool</li> </ul>	
Cutter become dull		▲ Regrind process	
Chip jam	End mill with incorrect operation	▲ Be careful of keep and operate	
	Chip jam	▲ Use cutting liquid in large,during dry milling use air blow to remove chips	

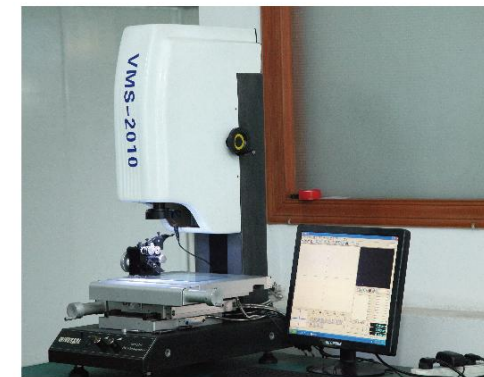
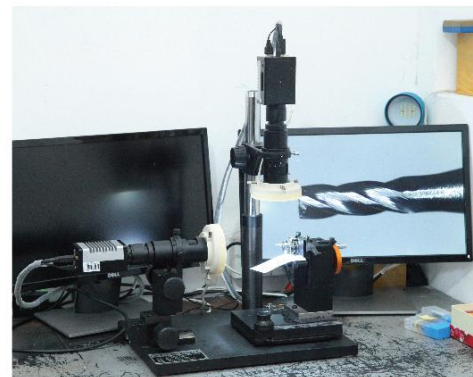
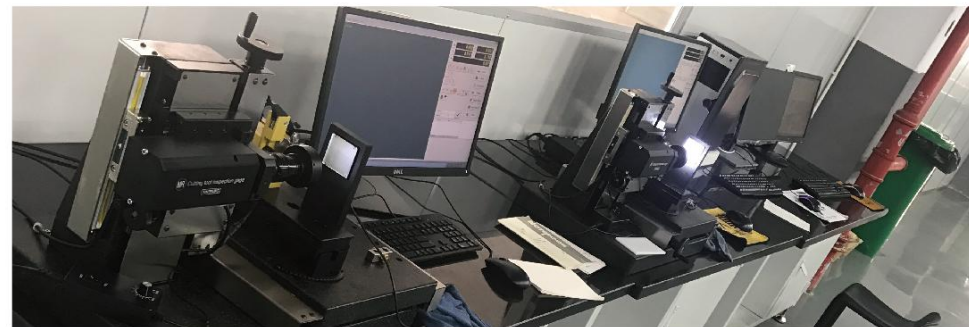
## 加工设备展示

PROCESSING EQUIPMENT DISPLAY



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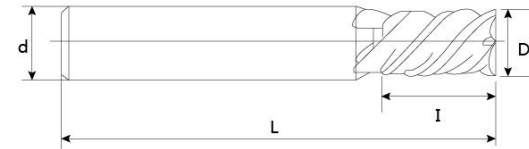
# HN-45 Carbide series



## HN-45 Carbide Square End Mill 2Flutes

45度 2刃平头铣刀

WC=90 Co=10 HV30=1591 Bending=3750N/mm<sup>2</sup> Hardness 91.3 Particle=0.8 μm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN45-S2-010	1	4	3	50	2
HN45-S2-015	1.5	4	4	50	2
HN45-S2-020	2	4	5	50	2
HN45-S2-025	2.5	4	6	50	2
HN45-S2-030	3	3	7	50	2
HN45-S2-031	3	4	7	50	2
HN45-S2-035	3.5	4	9	50	2
HN45-S2-040	4	4	10	50	2
HN45-S2-050	5	5	13	50	2
HN45-S2-051	5	6	13	50	2
HN45-S2-060	6	6	15	50	2
HN45-S2-080	8	8	20	60	2
HN45-S2-100	10	10	25	75	2
HN45-S2-120	12	12	30	75	2
HN45-S2-140	14	14	45	100	2
HN45-S2-160	16	16	45	100	2
HN45-S2-180	18	18	45	100	2
HN45-S2-200	20	20	45	100	2
HN45-S2-040L	4	4	12	75	2
HN45-S2-040XL	4	4	16	100	2
HN45-S2-050L	5	5	15	75	2
HN45-S2-050XL	5	5	20	100	2
HN45-S2-060L	6	6	20	75	2
HN45-S2-060XL	6	6	25	100	2
HN45-S2-060XXL	6	6	30	150	2
HN45-S2-080L	8	8	25	75	2
HN45-S2-080XL	8	8	35	100	2
HN45-S2-080XXL	8	8	40	150	2
HN45-S2-100L	10	10	40	100	2
HN45-S2-100XL	10	10	50	150	2
HN45-S2-120L	12	12	45	100	2
HN45-S2-120XL	12	12	60	150	2
HN45-S2-140L	14	14	65	150	2
HN45-S2-160L	16	16	70	150	2
HN45-S2-180L	18	18	70	150	2
HN45-S2-200L	20	20	70	150	2



### Workpiece Material

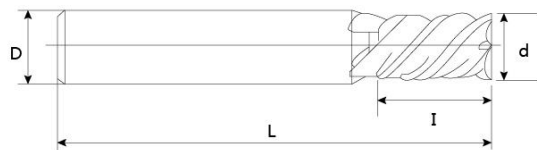
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	○		○				

● Most Suitable ○ Suitable

## HN-45 Carbide Square End Mill 4Flutes

45度 4刃平头铣刀

WC=90 Co=10 HV30=1591 Bending=3750N/mm<sup>2</sup> Hardness 91.3 Particle=0.8 ηm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN45-S4-010	1	4	3	50	4
HN45-S4-015	1.5	4	4	50	4
HN45-S4-020	2	4	5	50	4
HN45-S4-025	2.5	4	6	50	4
HN45-S4-030	3	3	7	50	4
HN45-S4-031	3	4	7	50	4
HN45-S4-035	3.5	4	9	50	4
HN45-S4-040	4	4	10	50	4
HN45-S4-050	5	5	13	50	4
HN45-S4-051	5	6	13	50	4
HN45-S4-060	6	6	15	50	4
HN45-S4-080	8	8	20	60	4
HN45-S4-100	10	10	25	75	4
HN45-S4-120	12	12	30	75	4
HN45-S4-140	14	14	45	100	4
HN45-S4-160	16	16	45	100	4
HN45-S4-180	18	18	45	100	4
HN45-S4-200	20	20	45	100	4
HN45-S4-040L	4	4	12	75	4
HN45-S4-040XL	4	4	16	100	4
HN45-S4-050L	5	5	15	75	4
HN45-S4-050XL	5	5	20	100	4
HN45-S4-060L	6	6	20	75	4
HN45-S4-060XL	6	6	25	100	4
HN45-S4-060XXL	6	6	30	150	4
HN45-S4-080L	8	8	25	75	4
HN45-S4-080XL	8	8	35	100	4
HN45-S4-080XXL	8	8	40	150	4
HN45-S4-100L	10	10	40	100	4
HN45-S4-100XL	10	10	50	150	4
HN45-S4-120L	12	12	45	100	4
HN45-S4-120XL	12	12	60	150	4
HN45-S4-140L	14	14	65	150	4
HN45-S4-160L	16	16	70	150	4
HN45-S4-180L	18	18	70	150	4
HN45-S4-200L	20	20	70	150	4



### Workpiece Material

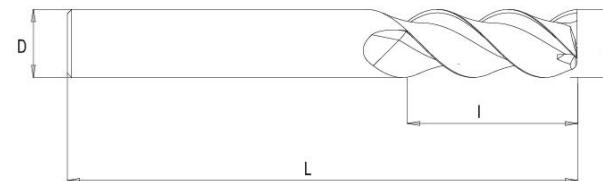
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<35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	○		○				

● Most Suitable ○ Suitable

## HN-45 Carbide Aluminum End Mill 2Flutes

45度 2刃铝用铣刀

WC=90 Co=10 HV30=1591 Bending=3750N/mm<sup>2</sup> Hardness 91.3 Particle=0.8 ηm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN45-A2-010	1	4	3	50	2
HN45-A2-015	1.5	4	4	50	2
HN45-A2-020	2	4	5	50	2
HN45-A2-025	2.5	4	6	50	2
HN45-A2-030	3	3	7	50	2
HN45-A2-031	3	4	7	50	2
HN45-A2-035	3.5	4	9	50	2
HN45-A2-040	4	4	10	50	2
HN45-A2-050	5	5	13	50	2
HN45-A2-051	5	6	13	50	2
HN45-A2-060	6	6	15	50	2
HN45-A2-080	8	8	20	60	2
HN45-A2-100	10	10	25	75	2
HN45-A2-120	12	12	30	75	2
HN45-A2-140	14	14	45	100	2
HN45-A2-160	16	16	45	100	2
HN45-A2-180	18	18	45	100	2
HN45-A2-200	20	20	45	100	2
HN45-A2-040L	4	4	12	75	2
HN45-A2-040XL	4	4	16	100	2
HN45-A2-050L	5	5	15	75	2
HN45-A2-050XL	5	5	20	100	2
HN45-A2-060L	6	6	20	75	2
HN45-A2-060XL	6	6	25	100	2
HN45-A2-060XXL	6	6	30	150	2
HN45-A2-080L	8	8	25	75	2
HN45-A2-080XL	8	8	35	100	2
HN45-A2-080XXL	8	8	40	150	2
HN45-A2-100L	10	10	40	100	2
HN45-A2-100XL	10	10	50	150	2
HN45-A2-120L	12	12	45	100	2
HN45-A2-120XL	12	12	60	150	2
HN45-A2-140L	14	14	65	150	2
HN45-A2-160L	16	16	70	150	2
HN45-A2-180L	18	18	70	150	2
HN45-A2-200L	20	20	70	150	2



### Workpiece Material

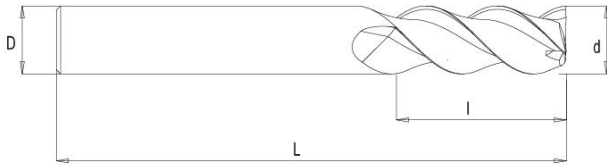
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<35HRC	35-48HRC	46-55HRC	55-60HRC					
					◎	●		

● Most Suitable ◎ Suitable

### HN-45 Carbide Aluminum End Mill 3Flutes

45度 3刃铝用铣刀

WC=90 Co=10 HV30=1591 Bending=3750N/mm<sup>2</sup> Hardness 91.3 Particle=0.8 ηm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN45-A3-010	1	4	3	50	3
HN45-A3-015	1.5	4	4	50	3
HN45-A3-020	2	4	5	50	3
HN45-A3-025	2.5	4	6	50	3
HN45-A3-030	3	3	7	50	3
HN45-A3-031	3	4	7	50	3
HN45-A3-035	3.5	4	9	50	3
HN45-A3-040	4	4	10	50	3
HN45-A3-050	5	5	13	50	3
HN45-A3-051	5	6	13	50	3
HN45-A3-060	6	6	15	50	3
HN45-A3-080	8	8	20	60	3
HN45-A3-100	10	10	25	75	3
HN45-A3-120	12	12	30	75	3
HN45-A3-140	14	14	45	100	3
HN45-A3-160	16	16	45	100	3
HN45-A3-180	18	18	45	100	3
HN45-A3-200	20	20	45	100	3
HN45-A3-040L	4	4	12	75	3
HN45-A3-040XL	4	4	16	100	3
HN45-A3-050L	5	5	15	75	3
HN45-A3-050XL	5	5	20	100	3
HN45-A3-060L	6	6	20	75	3
HN45-A3-060XL	6	6	25	100	3
HN45-A3-060XXL	6	6	30	150	3
HN45-A3-080L	8	8	25	75	3
HN45-A3-080XL	8	8	35	100	3
HN45-A3-080XXL	8	8	40	150	3
HN45-A3-100L	10	10	40	100	3
HN45-A3-100XL	10	10	50	150	3
HN45-A3-120L	12	12	45	100	3
HN45-A3-120XL	12	12	60	150	3
HN45-A3-140L	14	14	65	150	3
HN45-A3-160L	16	16	70	150	3
HN45-A3-180L	18	18	70	150	3
HN45-A3-200L	20	20	70	150	3



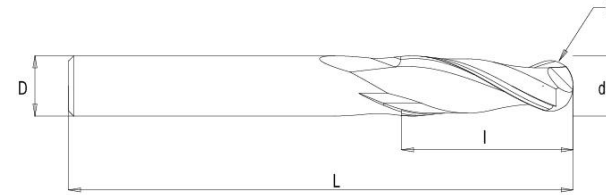
#### Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC					
● Most Suitable ○ Suitable								

### HN-45 Carbide Ball Nose End Mill 2Flutes

45度 2刃球头铣刀

WC=90 Co=10 HV30=1591 Bending=3750N/mm<sup>2</sup> Hardness 91.3 Particle=0.8 ηm



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN45-B2-010	1	0.5	4	3	50	2
HN45-B2-015	1.5	0.75	4	4	50	2
HN45-B2-020	2	1	4	5	50	2
HN45-B2-025	2.5	1.25	4	6	50	2
HN45-B2-030	3	1.5	3	7	50	2
HN45-B2-031	3	1.5	4	7	50	2
HN45-B2-035	3.5	1.75	4	9	50	2
HN45-B2-040	4	2	4	10	50	2
HN45-B2-050	5	2.5	5	13	50	2
HN45-B2-051	5	2.5	6	13	50	2
HN45-B2-060	6	3	6	15	50	2
HN45-B2-080	8	4	8	20	60	2
HN45-B2-100	10	5	10	25	75	2
HN45-B2-120	12	6	12	30	75	2
HN45-B2-140	14	7	14	45	100	2
HN45-B2-160	16	8	16	45	100	2
HN45-B2-180	18	9	18	45	100	2
HN45-B2-200	20	10	20	45	100	2
HN45-B2-040L	4	2	4	12	75	2
HN45-B2-040XL	4	2	4	16	100	2
HN45-B2-050L	5	2.5	5	15	75	2
HN45-B2-050XL	5	2.5	5	20	100	2
HN45-B2-060L	6	3	6	20	75	2
HN45-B2-060XL	6	3	6	25	100	2
HN45-B2-060XXL	6	3	6	30	150	2
HN45-B2-080L	8	4	8	25	75	2
HN45-B2-080XL	8	4	8	35	100	2
HN45-B2-080XXL	8	4	8	40	150	2
HN45-B2-100L	10	5	10	40	100	2
HN45-B2-100XL	10	5	10	50	150	2
HN45-B2-120L	12	6	12	45	100	2
HN45-B2-120XL	12	6	12	60	150	2
HN45-B2-140L	14	7	14	65	150	2
HN45-B2-160L	16	8	16	70	150	2
HN45-B2-180L	18	9	18	70	150	2
HN45-B2-200L	20	10	20	70	150	2



#### Workpiece Material

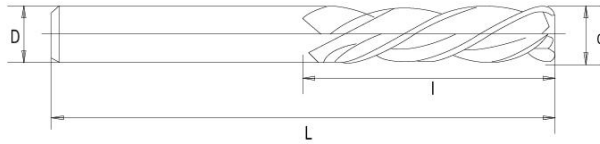
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC					
● Most Suitable ○ Suitable								



# HN-45 Carbide Corner Radius End Mill 4Flutes

## 45度 4刃圆鼻铣刀

WC=90 Co=10 HV30=1591 Bending=3750N/mm<sup>2</sup> Hardness 91.3 Particle=0.8 ηm

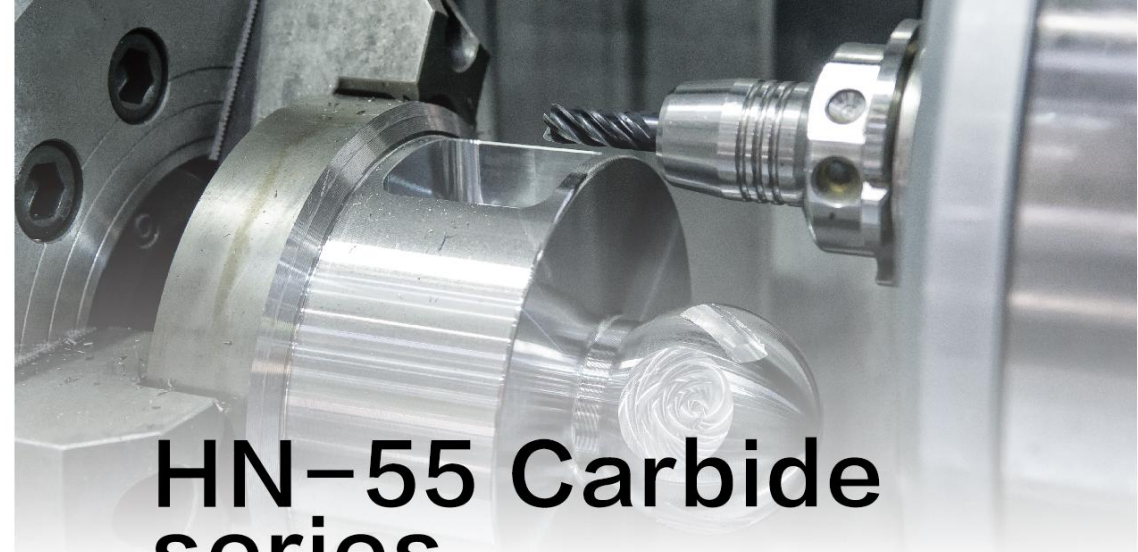


订货号 Order Number	刃径 d(mm)	R	柄径 d1(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN45-C4-0102	1	0.2	4	3	50	4
HN45-C4-0202	2	0.2	4	5	50	4
HN45-C4-0205	2	0.5	4	5	50	4
HN45-C4-0302	3	0.2	3	8	50	4
HN45-C4-0305	3	0.5	3	8	50	4
HN45-C4-0310	3	1	3	8	50	4
HN45-C4-0302X	3	0.2	4	8	50	4
HN45-C4-0305X	3	0.5	4	8	50	4
HN45-C4-0310X	3	1	4	8	50	4
HN45-C4-0402	4	0.2	4	10	50	4
HN45-C4-0405	4	0.5	4	10	50	4
HN45-C4-0410	4	1	4	10	50	4
HN45-C4-0505	5	0.5	5	13	50	4
HN45-C4-0510	5	1	5	13	50	4
HN45-C4-0605	6	0.5	6	15	50	4
HN45-C4-0610	6	1	6	15	50	4
HN45-C4-0805	8	0.5	8	20	60	4
HN45-C4-0810	8	1	8	20	60	4
HN45-C4-1005	10	0.5	10	25	75	4
HN45-C4-1010	10	1	10	25	75	4
HN45-C4-1205	12	0.5	12	30	75	4
HN45-C4-1210	12	1	12	30	75	4
HN45-C4-1405	14	0.5	14	45	100	4
HN45-C4-1410	14	1	14	45	100	4
HN45-C4-1605	16	0.5	16	45	100	4
HN45-C4-1610	16	1	16	45	100	4
HN45-C4-1805	18	0.5	18	45	100	4
HN45-C4-1810	18	1	18	45	100	4
HN45-C4-2005	20	0.5	20	45	100	4
HN45-C4-2010	20	1	20	45	100	4
HN45-C4-0405L	4	0.5	4	12	75	4
HN45-C4-0410L	4	1	4	12	75	4
HN45-C4-0405XL	4	0.5	4	16	100	4
HN45-C4-0410XL	4	1	4	16	100	4
HN45-C4-0505L	5	0.5	5	15	75	4
HN45-C4-0510L	5	1	5	15	75	4
HN45-C4-0505XL	5	0.5	5	20	100	4
HN45-C4-0510XL	5	1	5	20	100	4
HN45-C4-0605L	6	0.5	6	20	75	4
HN45-C4-0610L	6	1	6	20	75	4
HN45-C4-0605XL	6	0.5	6	25	100	4
HN45-C4-0610XL	6	1	6	25	100	4
HN45-C4-0805L	8	0.5	8	25	75	4
HN45-C4-0810L	8	1	8	25	75	4
HN45-C4-0805XL	8	0.5	8	35	100	4
HN45-C4-0810XL	8	1	8	35	100	4
HN45-C4-1005L	10	0.5	10	40	100	4
HN45-C4-1010L	10	1	10	40	100	4
HN45-C4-1005XL	10	0.5	10	50	150	4
HN45-C4-1010XL	10	1	10	50	150	4
HN45-C4-1205L	12	0.5	12	45	100	4
HN45-C4-1210L	12	1	12	45	100	4
HN45-C4-1205XL	12	0.5	12	60	150	4
HN45-C4-1210XL	12	1	12	60	150	4

### Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	○		○				

● Most Suitable ○ Suitable



# HN-55 Carbide series



## HN-55 Carbide Square End Mill 2Flutes

### 55度 2刃平头铣刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 ηm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 lc(mm)	全长 L(mm)	刃数 Flutes
HN55-S2-010	1	4	3	50	2
HN55-S2-015	1.5	4	4	50	2
HN55-S2-020	2	4	5	50	2
HN55-S2-025	2.5	4	6	50	2
HN55-S2-030	3	3	7	50	2
HN55-S2-031	3	4	7	50	2
HN55-S2-035	3.5	4	9	50	2
HN55-S2-040	4	4	10	50	2
HN55-S2-050	5	5	13	50	2
HN55-S2-051	5	6	13	50	2
HN55-S2-060	6	6	15	50	2
HN55-S2-080	8	8	20	60	2
HN55-S2-100	10	10	25	75	2
HN55-S2-120	12	12	30	75	2
HN55-S2-140	14	14	45	100	2
HN55-S2-160	16	16	45	100	2
HN55-S2-180	18	18	45	100	2
HN55-S2-200	20	20	45	100	2
HN55-S2-040L	4	4	12	75	2
HN55-S2-040XL	4	4	16	100	2
HN55-S2-050L	5	5	15	75	2
HN55-S2-050XL	5	5	20	100	2
HN55-S2-060L	6	6	20	75	2
HN55-S2-060XL	6	6	25	100	2
HN55-S2-060XXL	6	6	30	150	2
HN55-S2-080L	8	8	25	75	2
HN55-S2-080XL	8	8	35	100	2
HN55-S2-080XXL	8	8	40	150	2
HN55-S2-100L	10	10	40	100	2
HN55-S2-100XL	10	10	50	150	2
HN55-S2-120L	12	12	45	100	2
HN55-S2-120XL	12	12	60	150	2
HN55-S2-140L	14	14	65	150	2
HN55-S2-160L	16	16	70	150	2
HN55-S2-180L	18	18	70	150	2
HN55-S2-200L	20	20	70	150	2



### Workpiece Material

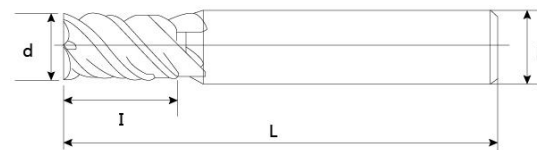
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高碳钢 Hardened Steel	高碳钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	●		○			○	○

● Most Suitable ○ Suitable

## HN-55 Carbide Square End Mill 4Flutes

### 55度 4刃平头铣刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 ηm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 lc(mm)	全长 L(mm)	刃数 Flutes
HN55-S4-010	1	4	3	50	4
HN55-S4-015	1.5	4	4	50	4
HN55-S4-020	2	4	5	50	4
HN55-S4-025	2.5	4	6	50	4
HN55-S4-030	3	3	7	50	4
HN55-S4-031	3	4	7	50	4
HN55-S4-035	3.5	4	9	50	4
HN55-S4-040	4	4	10	50	4
HN55-S4-050	5	5	13	50	4
HN55-S4-051	5	6	13	50	4
HN55-S4-060	6	6	15	50	4
HN55-S4-080	8	8	20	60	4
HN55-S4-100	10	10	25	75	4
HN55-S4-120	12	12	30	75	4
HN55-S4-140	14	14	45	100	4
HN55-S4-160	16	16	45	100	4
HN55-S4-180	18	18	45	100	4
HN55-S4-200	20	20	45	100	4
HN55-S4-040L	4	4	12	75	4
HN55-S4-040XL	4	4	16	100	4
HN55-S4-050L	5	5	15	75	4
HN55-S4-050XL	5	5	20	100	4
HN55-S4-060L	6	6	20	75	4
HN55-S4-060XL	6	6	25	100	4
HN55-S4-060XXL	6	6	30	150	4
HN55-S4-080L	8	8	25	75	4
HN55-S4-080XL	8	8	35	100	4
HN55-S4-080XXL	8	8	40	150	4
HN55-S4-100L	10	10	40	100	4
HN55-S4-100XL	10	10	50	150	4
HN55-S4-120L	12	12	45	100	4
HN55-S4-120XL	12	12	60	150	4
HN55-S4-140L	14	14	65	150	4
HN55-S4-160L	16	16	70	150	4
HN55-S4-180L	18	18	70	150	4
HN55-S4-200L	20	20	70	150	4



### Workpiece Material

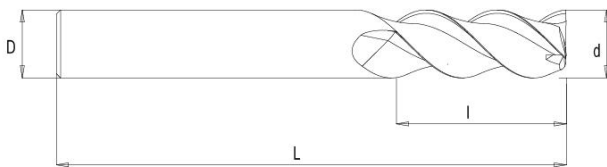
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高碳钢 Hardened Steel	高碳钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	●		○			○	○

● Most Suitable ○ Suitable

## HN-55 Carbide Aluminum End Mill 3Flutes

### 55度 3刃铝用铣刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN55-A3-010	1	4	3	50	3
HN55-A3-015	1.5	4	5	50	3
HN55-A3-020	2	4	6	50	3
HN55-A3-025	2.5	4	8	50	3
HN55-A3-030	3	3	9	50	3
HN55-A3-031	3	4	9	50	3
HN55-A3-035	3.5	4	11	50	3
HN55-A3-040	4	4	12	50	3
HN55-A3-050	5	5	15	50	3
HN55-A3-051	5	6	15	50	3
HN55-A3-060	6	6	18	50	3
HN55-A3-080	8	8	24	60	3
HN55-A3-100	10	10	30	75	3
HN55-A3-120	12	12	35	75	3
HN55-A3-140	14	14	45	100	3
HN55-A3-160	16	16	45	100	3
HN55-A3-180	18	18	45	100	3
HN55-A3-200	20	20	45	100	3
HN55-A3-040L	4	4	13	75	3
HN55-A3-040XL	4	4	16	100	3
HN55-A3-050L	5	5	15	75	3
HN55-A3-050XL	5	5	20	100	3
HN55-A3-060L	6	6	20	75	3
HN55-A3-060XL	6	6	25	100	3
HN55-A3-060XXL	6	6	30	150	3
HN55-A3-080L	8	8	25	75	3
HN55-A3-080XL	8	8	35	100	3
HN55-A3-080XXL	8	8	40	150	3
HN55-A3-100L	10	10	40	100	3
HN55-A3-100XL	10	10	50	150	3
HN55-A3-120L	12	12	45	100	3
HN55-A3-120XL	12	12	60	150	3
HN55-A3-140L	14	14	65	150	3
HN55-A3-160L	16	16	70	150	3
HN55-A3-180L	18	18	70	150	3
HN55-A3-200L	20	20	70	150	3

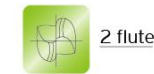
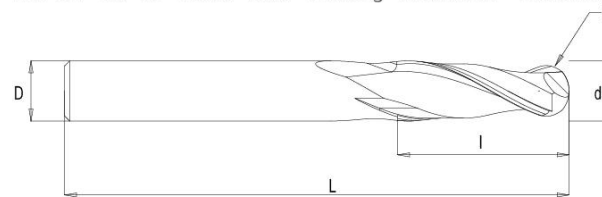
### Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC		○	●		
● Most Suitable ○ Suitable								

## HN-55 Carbide Ball Nose End Mill 2Flutes

### 55度 2刃球头铣刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 lc(mm)	全长 L(mm)	刃数 Flutes
HN55-B2-010	1	0.5	4	2	50	2
HN55-B2-015	1.5	0.75	4	3	50	2
HN55-B2-020	2	1	4	4	50	2
HN55-B2-025	2.5	1.25	4	5	50	2
HN55-B2-030	3	1.5	3	6	50	2
HN55-B2-031	3	1.5	4	6	50	2
HN55-B2-035	3.5	1.75	4	7	50	2
HN55-B2-040	4	2	4	8	50	2
HN55-B2-050	5	2.5	5	10	50	2
HN55-B2-051	5	2.5	6	10	50	2
HN55-B2-060	6	3	6	12	50	2
HN55-B2-080	8	4	8	16	60	2
HN55-B2-100	10	5	10	20	75	2
HN55-B2-120	12	6	12	24	75	2
HN55-B2-140	14	7	14	28	100	2
HN55-B2-160	16	8	16	32	100	2
HN55-B2-180	18	9	18	36	100	2
HN55-B2-200	20	10	20	40	100	2
HN55-B2-040L	4	2	4	8	75	2
HN55-B2-040XL	4	2	4	8	100	2
HN55-B2-050L	5	2.5	5	10	75	2
HN55-B2-050XL	5	2.5	5	10	100	2
HN55-B2-060L	6	3	6	12	75	2
HN55-B2-060XL	6	3	6	12	100	2
HN55-B2-060XXL	6	3	6	12	150	2
HN55-B2-080L	8	4	8	16	75	2
HN55-B2-080XL	8	4	8	16	100	2
HN55-B2-080XXL	8	4	8	16	150	2
HN55-B2-100L	10	5	10	20	100	2
HN55-B2-100XL	10	5	10	20	150	2
HN55-B2-120L	12	6	12	24	100	2
HN55-B2-120XL	12	6	12	24	150	2
HN55-B2-140L	14	7	14	28	150	2
HN55-B2-160L	16	8	16	32	150	2
HN55-B2-180L	18	9	18	36	150	2
HN55-B2-200L	20	10	20	40	150	2



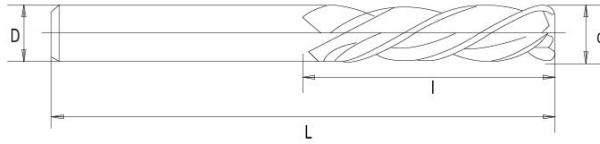
### Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC		○		○	○
● Most Suitable ○ Suitable								

## HN-55 Carbide Corner Radius End Mill 4Flutes

55度 4刃圆鼻铣刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



4 flute



订货号 Order Number	刃径 d(mm)	R	柄径 D(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN55-C4-0102	1	0.2	4	3	50	4
HN55-C4-0202	2	0.2	4	5	50	4
HN55-C4-0205	2	0.5	4	5	50	4
HN55-C4-0302	3	0.2	3	8	50	4
HN55-C4-0305	3	0.5	3	8	50	4
HN55-C4-0310	3	1	3	8	50	4
HN55-C4-0302X	3	0.2	4	8	50	4
HN55-C4-0305X	3	0.5	4	8	50	4
HN55-C4-0310X	3	1	4	8	50	4
HN55-C4-0402	4	0.2	4	10	50	4
HN55-C4-0405	4	0.5	4	10	50	4
HN55-C4-0410	4	1	4	10	50	4
HN55-C4-0505	5	0.5	5	13	50	4
HN55-C4-0510	5	1	5	13	50	4
HN55-C4-0605	6	0.5	6	15	50	4
HN55-C4-0610	6	1	6	15	50	4
HN55-C4-0805	8	0.5	8	20	60	4
HN55-C4-0810	8	1	8	20	60	4
HN55-C4-1005	10	0.5	10	25	75	4
HN55-C4-1010	10	1	10	25	75	4
HN55-C4-1205	12	0.5	12	30	75	4
HN55-C4-1210	12	1	12	30	75	4
HN55-C4-1405	14	0.5	14	45	100	4
HN55-C4-1410	14	1	14	45	100	4
HN55-C4-1605	16	0.5	16	45	100	4
HN55-C4-1610	16	1	16	45	100	4
HN55-C4-1805	18	0.5	18	45	100	4
HN55-C4-1810	18	1	18	45	100	4
HN55-C4-2005	20	0.5	20	45	100	4
HN55-C4-2010	20	1	20	45	100	4
HN55-C4-0405L	4	0.5	4	12	75	4
HN55-C4-0410L	4	1	4	12	75	4
HN55-C4-0405XL	4	0.5	4	16	100	4
HN55-C4-0410XL	4	1	4	16	100	4
HN55-C4-0505L	5	0.5	5	15	75	4
HN55-C4-0510L	5	1	5	15	75	4
HN55-C4-0505XL	5	0.5	5	20	100	4
HN55-C4-0510XL	5	1	5	20	100	4
HN55-C4-0605L	6	0.5	6	20	75	4
HN55-C4-0610L	6	1	6	20	75	4
HN55-C4-0605XL	6	0.5	6	25	100	4
HN55-C4-0610XL	6	1	6	25	100	4
HN55-C4-0805L	8	0.5	8	25	75	4
HN55-C4-0810L	8	1	8	25	75	4
HN55-C4-0805XL	8	0.5	8	35	100	4
HN55-C4-0810XL	8	1	8	35	100	4
HN55-C4-1005L	10	0.5	10	40	100	4
HN55-C4-1010L	10	1	10	40	100	4
HN55-C4-1005XL	10	0.5	10	50	150	4
HN55-C4-1010XL	10	1	10	50	150	4
HN55-C4-1205L	12	0.5	12	45	100	4
HN55-C4-1210L	12	1	12	45	100	4
HN55-C4-1205XL	12	0.5	12	60	150	4
HN55-C4-1210XL	12	1	12	60	150	4

### Workpiece Material

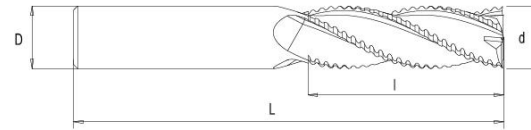
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	●		○			○	○

● Most Suitable ○ Suitable

## HN-55 Carbide Roughing End Mill For Aluminum 3Flutes

55度 3刃铝用粗皮

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



3 flute



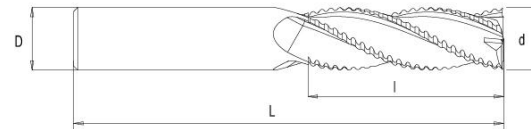
订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN55-RA3-040	4	4	12	50	3
HN55-RA3-060	6	6	18	50	3
HN55-RA3-080	8	8	20	60	3
HN55-RA3-100	10	10	25	75	3
HN55-RA3-120	12	12	30	75	3
HN55-RA3-140	14	14	40	100	3
HN55-RA3-160	16	16	55	100	3
HN55-RA3-180	18	18	45	100	3
HN55-RA3-200	20	20	45	100	3



## HN-55 Carbide Roughing End Mill For Steel 4Flutes

55度 4刃钢用粗皮

WC=88 Co=12 HV30=1700 Bending=4000N/mm<sup>2</sup> Hardness 91.8 Particle=0.6 μm



4 flute



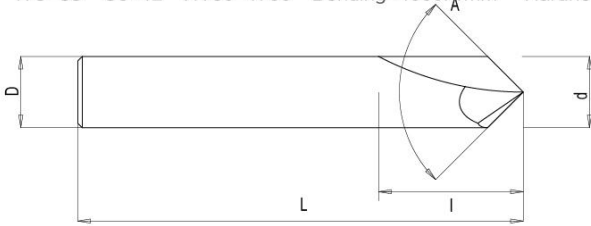
订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN55-RS4-040	4	4	12	50	4
HN55-RS4-060	6	6	18	50	4
HN55-RS4-080	8	8	20	60	4
HN55-RS4-100	10	10	25	75	4
HN55-RS4-120	12	12	30	75	4
HN55-RS4-140	14	14	40	100	4
HN55-RS4-160	16	16	55	100	4
HN55-RS4-180	18	18	45	100	4
HN55-RS4-200	20	20	45	100	4



## HN-55 Carbide Spot Drills For Steel 2Flutes

### 55度 2刃钢用定点钻

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



2 flute

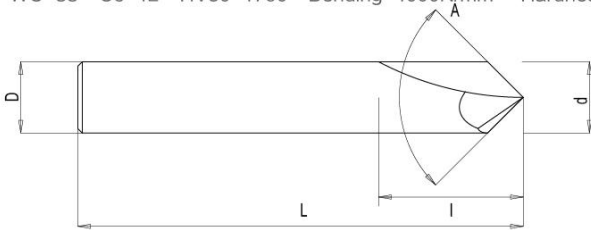


订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN55-SDS-040	4	4	12	50	2
HN55-SDS-060	6	6	18	50	2
HN55-SDS-080	8	8	20	60	2
HN55-SDS-100	10	10	25	75	2
HN55-SDS-120	12	12	30	75	2
HN55-SDS-140	14	14	40	100	2
HN55-SDS-160	16	16	55	100	2
HN55-SDS-180	18	18	45	100	2
HN55-SDS-200	20	20	45	100	2

## HN-55 Carbide Spot Drills For Aluminum 2Flutes

### 55度 2刃铝用定点钻

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



2 flute

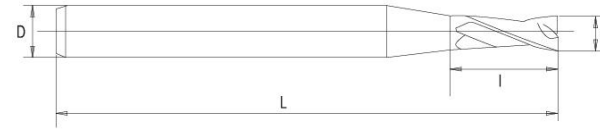


订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN55-SDA-040	4	4	12	50	2
HN55-SDA-060	6	6	18	50	2
HN55-SDA-080	8	8	20	60	2
HN55-SDA-100	10	10	25	75	2
HN55-SDA-120	12	12	30	75	2
HN55-SDA-140	14	14	40	100	2
HN55-SDA-160	16	16	55	100	2
HN55-SDA-180	18	18	45	100	2
HN55-SDA-200	20	20	45	100	2

## HN-55 Carbide Mirco Square End Mill For Steel 2Flutes

### 55度钢用平头小径刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



2 flute

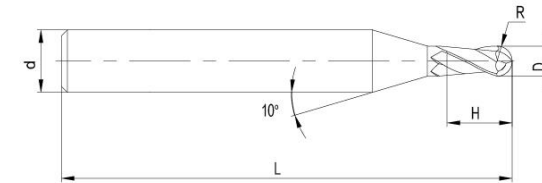


订货号 Order Number	刃径 d(mm)	刃径 l(mm)	总长 L(mm)	刃数 Flutes	柄径 Shank
HN55-MSS2-002	D0.2	0.4	50	2	4
HN55-MSS2-003	D0.3	0.6	50	2	4
HN55-MSS2-004	D0.4	0.8	50	2	4
HN55-MSS2-005	D0.5	1	50	2	4
HN55-MSS2-006	D0.6	1.2	50	2	4
HN55-MSS2-007	D0.7	1.4	50	2	4
HN55-MSS2-008	D0.8	1.6	50	2	4
HN55-MSS2-009	D0.9	1.8	50	2	4

## HN-55 Carbide Mirco Ball Nose End Mill For Steel 2Flutes

### 55度钢用球头小径刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6 μm



2 flute

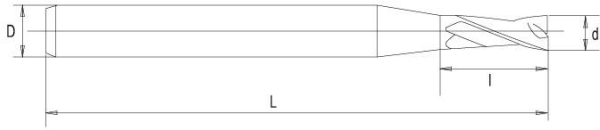


订货号 Order Number	刃径 d(mm)	R	刃径 Lc(mm)	总长 L(mm)	刃数 Flutes	柄径 Shank
HN55-MBS2-002	D0.2	0.1	0.4	50	2	4
HN55-MBS2-003	D0.3	0.15	0.6	50	2	4
HN55-MBS2-004	D0.4	0.2	0.8	50	2	4
HN55-MBS2-005	D0.5	0.25	1	50	2	4
HN55-MBS2-006	D0.6	0.3	1.2	50	2	4
HN55-MBS2-007	D0.7	0.35	1.4	50	2	4
HN55-MBS2-008	D0.8	0.4	1.6	50	2	4
HN55-MBS2-009	D0.9	0.45	1.8	50	2	4

## HN-55 Carbide Mirco Square End Mill For Aluminum 2Flutes

### 55 度铝用平头小径刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6  $\eta$ m



2 flute

订货号 Order Number	刃径 d(mm)	刃径 l(mm)	总长 L(mm)	刃数 Flutes	柄径 Shank
HN55-MSA2-002	D0.2	0.4	50	2	4
HN55-MSA2-003	D0.3	0.6	50	2	4
HN55-MSA2-004	D0.4	0.8	50	2	4
HN55-MSA2-005	D0.5	1	50	2	4
HN55-MSA2-006	D0.6	1.2	50	2	4
HN55-MSA2-007	D0.7	1.4	50	2	4
HN55-MSA2-008	D0.8	1.6	50	2	4
HN55-MSA2-009	D0.9	1.8	50	2	4



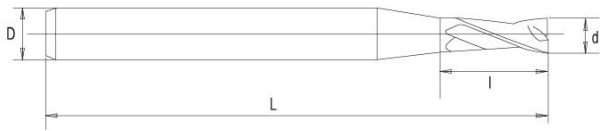
45°



## HN-55 Carbide Mirco Ball Nose End Mill For Aluminum 2Flutes

### 55 度铝用球头小径刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6  $\eta$ m



2 flute

订货号 Order Number	刃径 d(mm)	R	刃径 Lc(mm)	总长 L(mm)	刃数 Flutes	柄径 Shank
HN55-MBA2-002	D0.2	0.1	0.4	50	2	4
HN55-MBA2-003	D0.3	0.15	0.6	50	2	4
HN55-MBA2-004	D0.4	0.2	0.8	50	2	4
HN55-MBA2-005	D0.5	0.25	1	50	2	4
HN55-MBA2-006	D0.6	0.3	1.2	50	2	4
HN55-MBA2-007	D0.7	0.35	1.4	50	2	4
HN55-MBA2-008	D0.8	0.4	1.6	50	2	4
HN55-MBA2-009	D0.9	0.45	1.8	50	2	4



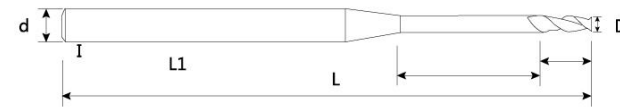
45°



## HN-55 Carbide Long Neck Square End Mill 2Flutes

### 55 度 2 刃深沟平刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6  $\eta$ m



2 flute

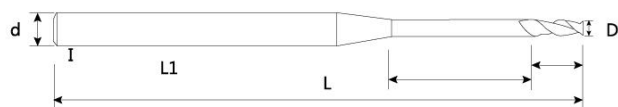
订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	碧空 L1(mm)	全长 L(mm)	刃数 Flutes
HN55-LNS2-00904	0.9	4	1.8	4	50	2
HN55-LNS2-00906	0.9	4	1.8	6	50	2
HN55-LNS2-00908	0.9	4	1.8	8	50	2
HN55-LNS2-00910	0.9	4	1.8	10	50	2
HN55-LNS2-01002	1	4	3	2	50	2
HN55-LNS2-01003	1	4	3	3	50	2
HN55-LNS2-01005	1	4	3	5	50	2
HN55-LNS2-01007	1	4	3	7	50	2
HN55-LNS2-01009	1	4	3	9	50	2
HN55-LNS2-01012	1	4	3	12	50	2
HN55-LNS2-01502	1.5	4	4	2	50	2
HN55-LNS2-01504	1.5	4	4	4	50	2
HN55-LNS2-01506	1.5	4	4	6	50	2
HN55-LNS2-01508	1.5	4	4	8	50	2
HN55-LNS2-01511	1.5	4	4	11	50	2
HN55-LNS2-01516	1.5	4	4	16	50	2
HN55-LNS2-02003	2	4	5	3	50	2
HN55-LNS2-02005	2	4	5	5	50	2
HN55-LNS2-02007	2	4	5	7	50	2
HN55-LNS2-02010	2	4	5	10	50	2
HN55-LNS2-02015	2	4	5	15	50	2
HN55-LNS2-02020	2	4	5	20	50	2
HN55-LNS2-02502	2.5	4	6	2	50	2
HN55-LNS2-02504	2.5	4	6	4	50	2
HN55-LNS2-02506	2.5	4	6	6	50	2
HN55-LNS2-02509	2.5	4	6	9	50	2
HN55-LNS2-02514	2.5	4	6	14	50	2
HN55-LNS2-02519	2.5	4	6	19	50	2
HN55-LNS2-03002	3	4	8	2	50	2
HN55-LNS2-03004	3	4	8	4	50	2
HN55-LNS2-03007	3	4	8	7	50	2
HN55-LNS2-03012	3	4	8	12	50	2
HN55-LNS2-03017	3	4	8	17	50	2
HN55-LNS2-03503	3.5	4	9	3	50	2
HN55-LNS2-03506	3.5	4	9	6	50	2
HN55-LNS2-03511	3.5	4	9	11	50	2
HN55-LNS2-03516	3.5	4	9	16	50	2
HN55-LNS2-04002	4	4	10	2	50	2
HN55-LNS2-04005	4	4	10	5	50	2
HN55-LNS2-04010	4	4	10	10	50	2
HN55-LNS2-04015	4	4	10	15	50	2



## HN-55 Carbide Long Neck Square End Mill 4Flutes

### 55度 4刃深沟平刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6  $\eta$ m



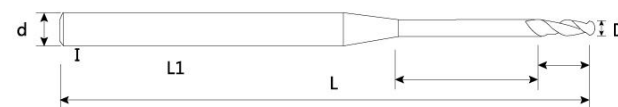
订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	碧空 L1(mm)	全长 L(mm)	刃数 Flutes
HN55-LNS4-00904	0.9	4	1.8	4	50	4
HN55-LNS4-00906	0.9	4	1.8	6	50	4
HN55-LNS4-00908	0.9	4	1.8	8	50	4
HN55-LNS4-00910	0.9	4	1.8	10	50	4
HN55-LNS4-01002	1	4	3	2	50	4
HN55-LNS4-01003	1	4	3	3	50	4
HN55-LNS4-01005	1	4	3	5	50	4
HN55-LNS4-01007	1	4	3	7	50	4
HN55-LNS4-01009	1	4	3	9	50	4
HN55-LNS4-01012	1	4	3	12	50	4
HN55-LNS4-01502	1.5	4	4	2	50	4
HN55-LNS4-01504	1.5	4	4	4	50	4
HN55-LNS4-01506	1.5	4	4	6	50	4
HN55-LNS4-01508	1.5	4	4	8	50	4
HN55-LNS4-01511	1.5	4	4	11	50	4
HN55-LNS4-01516	1.5	4	4	16	50	4
HN55-LNS4-02003	2	4	5	3	50	4
HN55-LNS4-02005	2	4	5	5	50	4
HN55-LNS4-02007	2	4	5	7	50	4
HN55-LNS4-02010	2	4	5	10	50	4
HN55-LNS4-02015	2	4	5	15	50	4
HN55-LNS4-02020	2	4	5	20	50	4
HN55-LNS4-02502	2.5	4	6	2	50	4
HN55-LNS4-02504	2.5	4	6	4	50	4
HN55-LNS4-02506	2.5	4	6	6	50	4
HN55-LNS4-02509	2.5	4	6	9	50	4
HN55-LNS4-02514	2.5	4	6	14	50	4
HN55-LNS4-02519	2.5	4	6	19	50	4
HN55-LNS4-03002	3	4	8	2	50	4
HN55-LNS4-03004	3	4	8	4	50	4
HN55-LNS4-03007	3	4	8	7	50	4
HN55-LNS4-03012	3	4	8	12	50	4
HN55-LNS4-03017	3	4	8	17	50	4
HN55-LNS4-03503	3.5	4	9	3	50	4
HN55-LNS4-03506	3.5	4	9	6	50	4
HN55-LNS4-03511	3.5	4	9	11	50	4
HN55-LNS4-03516	3.5	4	9	16	50	4
HN55-LNS4-04002	4	4	10	2	50	4
HN55-LNS4-04005	4	4	10	5	50	4
HN55-LNS4-04010	4	4	10	10	50	4
HN55-LNS4-04015	4	4	10	15	50	4



## HN-55 Carbide Long Neck Ball Nose End Mill 2Flutes

### 55度 2刃深沟球刀

WC=88 Co=12 HV30=1760 Bending=4000N/mm<sup>2</sup> Hardness 92.8 Particle=0.6  $\eta$ m



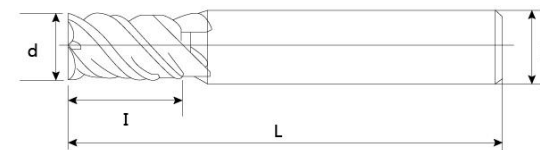
订货号 Order Number	刃径 d(mm)	R	柄径 D(mm)	刃长 l(mm)	碧空 L1(mm)	全长 L(mm)	刃数 Flutes
HN55-LNB2-00904	0.9	0.45	4	1.8	4	50	2
HN55-LNB2-00906	0.9	0.45	4	1.8	6	50	2
HN55-LNB2-00908	0.9	0.45	4	1.8	8	50	2
HN55-LNB2-00910	0.9	0.45	4	1.8	10	50	2
HN55-LNB2-01002	1	0.5	4	3	2	50	2
HN55-LNB2-01003	1	0.5	4	3	3	50	2
HN55-LNB2-01005	1	0.5	4	3	5	50	2
HN55-LNB2-01007	1	0.5	4	3	7	50	2
HN55-LNB2-01009	1	0.5	4	3	9	50	2
HN55-LNB2-01012	1	0.5	4	3	12	50	2
HN55-LNB2-01502	1.5	0.75	4	4	2	50	2
HN55-LNB2-01504	1.5	0.75	4	4	4	50	2
HN55-LNB2-01506	1.5	0.75	4	4	6	50	2
HN55-LNB2-01508	1.5	0.75	4	4	8	50	2
HN55-LNB2-01511	1.5	0.75	4	4	11	50	2
HN55-LNB2-01516	1.5	0.75	4	4	16	50	2
HN55-LNB2-02003	2	1	4	5	3	50	2
HN55-LNB2-02005	2	1	4	5	5	50	2
HN55-LNB2-02007	2	1	4	5	7	50	2
HN55-LNB2-02010	2	1	4	5	10	50	2
HN55-LNB2-02015	2	1	4	5	15	50	2
HN55-LNB2-02020	2	1	4	5	20	50	2
HN55-LNB2-02502	2.5	1.25	4	6	2	50	2
HN55-LNB2-02504	2.5	1.25	4	6	4	50	2
HN55-LNB2-02506	2.5	1.25	4	6	6	50	2
HN55-LNB2-02509	2.5	1.25	4	6	9	50	2
HN55-LNB2-02514	2.5	1.25	4	6	14	50	2
HN55-LNB2-02519	2.5	1.25	4	6	19	50	2
HN55-LNB2-03002	3	1.5	4	8	2	50	2
HN55-LNB2-03004	3	1.5	4	8	4	50	2
HN55-LNB2-03007	3	1.5	4	8	7	50	2
HN55-LNB2-03012	3	1.5	4	8	12	50	2
HN55-LNB2-03017	3	1.5	4	8	17	50	2
HN55-LNB2-03503	3.5	1.75	4	9	3	50	2
HN55-LNB2-03506	3.5	1.75	4	9	6	50	2
HN55-LNB2-03511	3.5	1.75	4	9	11	50	2
HN55-LNB2-03516	3.5	1.75	4	9	16	50	2
HN55-LNB2-04002	4	2	4	10	2	50	2
HN55-LNB2-04005	4	2	4	10	5	50	2
HN55-LNB2-04010	4	2	4	10	10	50	2
HN55-LNB2-04015	4	2	4	10	15	50	2



## HN-60 Carbide Square End Mill 4Flutes

### 60度 4刃平头铣刀

WC=88 Co=12 HV30=1780 Bending=4000N/mm<sup>2</sup> Hardness 92.3 Particle=0.4 μm



# HN-60 Carbide series



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 lc(mm)	全长 L(mm)	刃数 Flutes
HN60-S4-010	1	4	3	50	4
HN60-S4-015	1.5	4	4	50	4
HN60-S4-020	2	4	5	50	4
HN60-S4-025	2.5	4	6	50	4
HN60-S4-030	3	3	7	50	4
HN60-S4-031	3	4	7	50	4
HN60-S4-035	3.5	4	9	50	4
HN60-S4-040	4	4	10	50	4
HN60-S4-050	5	5	13	50	4
HN60-S4-051	5	6	13	50	4
HN60-S4-060	6	6	15	50	4
HN60-S4-080	8	8	20	60	4
HN60-S4-100	10	10	25	75	4
HN60-S4-120	12	12	30	75	4
HN60-S4-140	14	14	45	100	4
HN60-S4-160	16	16	45	100	4
HN60-S4-180	18	18	45	100	4
HN60-S4-200	20	20	45	100	4
HN60-S4-040L	4	4	12	75	4
HN60-S4-040XL	4	4	16	100	4
HN60-S4-050L	5	5	15	75	4
HN60-S4-050XL	5	5	20	100	4
HN60-S4-060L	6	6	20	75	4
HN60-S4-060XL	6	6	25	100	4
HN60-S4-060XXL	6	6	30	150	4
HN60-S4-080L	8	8	25	75	4
HN60-S4-080XL	8	8	35	100	4
HN60-S4-080XXL	8	8	40	150	4
HN60-S4-100L	10	10	40	100	4
HN60-S4-100XL	10	10	50	150	4
HN60-S4-120L	12	12	45	100	4
HN60-S4-120XL	12	12	60	150	4
HN60-S4-140L	14	14	65	150	4
HN60-S4-160L	16	16	70	150	4
HN60-S4-180L	18	18	70	150	4
HN60-S4-200L	20	20	70	150	4



### Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
<35HRC	35-48HRC	46-55HRC	55-60HRC					
●	○	●	●	○			●	●

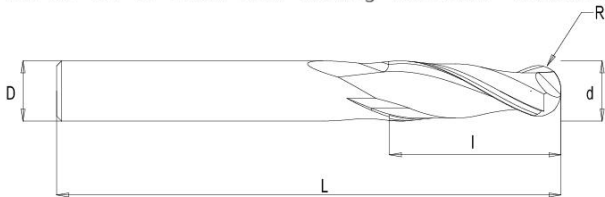
● Most Suitable ○ Suitable



# HN-60 Carbide Ball Nose End Mill 2Flutes

## 60度 2 刃球头铣刀

WC=88 Co=12 HV30=1780 Bending=4000N/mm<sup>2</sup> Hardness 92.3 Particle=0.4 μm



2 flute



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN60-B2-010	1	0.5	4	2	50	2
HN60-B2-015	1.5	0.75	4	3	50	2
HN60-B2-020	2	1	4	4	50	2
HN60-B2-025	2.5	1.25	4	5	50	2
HN60-B2-030	3	1.5	3	6	50	2
HN60-B2-031	3	1.5	4	6	50	2
HN60-B2-035	3.5	1.75	4	7	50	2
HN60-B2-040	4	2	4	8	50	2
HN60-B2-050	5	2.5	5	10	50	2
HN60-B2-051	5	2.5	6	10	50	2
HN60-B2-060	6	3	6	12	50	2
HN60-B2-080	8	4	8	16	60	2
HN60-B2-100	10	5	10	20	75	2
HN60-B2-120	12	6	12	24	75	2
HN60-B2-140	14	7	14	28	100	2
HN60-B2-160	16	8	16	32	100	2
HN60-B2-180	18	9	18	36	100	2
HN60-B2-200	20	10	20	40	100	2
HN60-B2-040L	4	2	4	8	75	2
HN60-B2-040XL	4	2	4	8	100	2
HN60-B2-050L	5	2.5	5	10	75	2
HN60-B2-050XL	5	2.5	5	10	100	2
HN60-B2-060L	6	3	6	12	75	2
HN60-B2-060XL	6	3	6	12	100	2
HN60-B2-060XXL	6	3	6	12	150	2
HN60-B2-080L	8	4	8	16	75	2
HN60-B2-080XL	8	4	8	16	100	2
HN60-B2-080XXL	8	4	8	16	150	2
HN60-B2-100L	10	5	10	20	100	2
HN60-B2-100XL	10	5	10	20	150	2
HN60-B2-120L	12	6	12	24	100	2
HN60-B2-120XL	12	6	12	24	150	2
HN60-B2-140L	14	7	14	28	150	2
HN60-B2-160L	16	8	16	32	150	2
HN60-B2-180L	18	9	18	36	150	2
HN60-B2-200L	20	10	20	40	150	2



### Workpiece Material

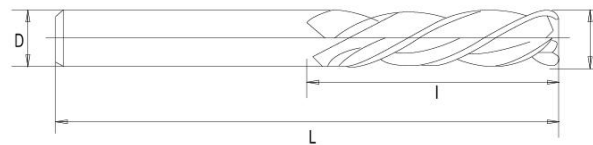
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	○	●	●	○			●	●

● Most Suitable ○ Suitable

# HN-60 Carbide Corner Radius End Mill 4Flutes

## 60度 4 刃圆鼻铣刀

WC=88 Co=12 HV30=1780 Bending=4000N/mm<sup>2</sup> Hardness 92.3 Particle=0.4 μm



4 flute



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN60-C4-0102	1	0.2	4	3	50	4
HN60-C4-0202	2	0.2	4	5	50	4
HN60-C4-0205	2	0.5	4	5	50	4
HN60-C4-0302	3	0.2	3	8	50	4
HN60-C4-0305	3	0.5	3	8	50	4
HN60-C4-0310	3	1	3	8	50	4
HN60-C4-0302X	3	0.2	4	8	50	4
HN60-C4-0305X	3	0.5	4	8	50	4
HN60-C4-0310X	3	1	4	8	50	4
HN60-C4-0402	4	0.2	4	10	50	4
HN60-C4-0405	4	0.5	4	10	50	4
HN60-C4-0410	4	1	4	10	50	4
HN60-C4-0505	5	0.5	5	13	50	4
HN60-C4-0510	5	1	5	13	50	4
HN60-C4-0605	6	0.5	6	15	50	4
HN60-C4-0610	6	1	6	15	50	4
HN60-C4-0805	8	0.5	8	20	60	4
HN60-C4-0810	8	1	8	20	60	4
HN60-C4-1005	10	0.5	10	25	75	4
HN60-C4-1010	10	1	10	25	75	4
HN60-C4-1205	12	0.5	12	30	75	4
HN60-C4-1210	12	1	12	30	75	4
HN60-C4-1405	14	0.5	14	45	100	4
HN60-C4-1410	14	1	14	45	100	4
HN60-C4-1605	16	0.5	16	45	100	4
HN60-C4-1610	16	1	16	45	100	4
HN60-C4-1805	18	0.5	18	45	100	4
HN60-C4-1810	18	1	18	45	100	4
HN60-C4-2005	20	0.5	20	45	100	4
HN60-C4-2010	20	1	20	45	100	4
HN60-C4-0405L	4	0.5	4	12	75	4
HN60-C4-0410L	4	1	4	12	75	4
HN60-C4-0405XL	4	0.5	4	16	100	4
HN60-C4-0410XL	4	1	4	16	100	4
HN60-C4-0505L	5	0.5	5	15	75	4
HN60-C4-0510L	5	1	5	15	75	4
HN60-C4-0505XL	5	0.5	5	20	100	4
HN60-C4-0510XL	5	1	5	20	100	4
HN60-C4-0605L	6	0.5	6	20	75	4
HN60-C4-0610L	6	1	6	20	75	4
HN60-C4-0605XL	6	0.5	6	25	100	4
HN60-C4-0610XL	6	1	6	25	100	4
HN60-C4-0805L	8	0.5	8	25	75	4
HN60-C4-0810L	8	1	8	25	75	4
HN60-C4-0805XL	8	0.5	8	35	100	4
HN60-C4-0810XL	8	1	8	35	100	4
HN60-C4-1005L	10	0.5	10	40	100	4
HN60-C4-1010L	10	1	10	40	100	4
HN60-C4-1005XL	10	0.5	10	50	150	4
HN60-C4-1010XL	10	1	10	50	150	4
HN60-C4-1205L	12	0.5	12	45	100	4
HN60-C4-1210L	12	1	12	45	100	4
HN60-C4-1205XL	12	0.5	12	60	150	4
HN60-C4-1210XL	12	1	12	60	150	4



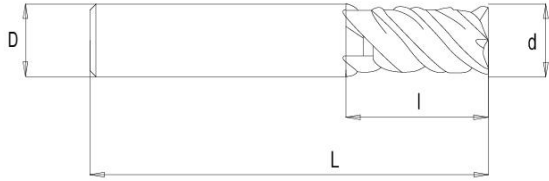
### Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	●		○			●	●

● Most Suitable ○ Suitable

### HN-60 Carbide End Mill For Stainless Steel 4Flutes

60度 4 刃不锈钢铣刀



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN60-SS4-010	1	4	3	50	4
HN60-SS4-015	1.5	4	4	50	4
HN60-SS4-020	2	4	5	50	4
HN60-SS4-025	2.5	4	6	50	4
HN60-SS4-030	3	3	7	50	4
HN60-SS4-031	3	4	7	50	4
HN60-SS4-035	3.5	4	9	50	4
HN60-SS4-040	4	4	10	50	4
HN60-SS4-050	5	5	13	50	4
HN60-SS4-051	5	6	13	50	4
HN60-SS4-060	6	6	15	50	4
HN60-SS4-080	8	8	20	60	4
HN60-SS4-100	10	10	25	75	4
HN60-SS4-120	12	12	30	75	4
HN60-SS4-140	14	14	45	100	4
HN60-SS4-160	16	16	45	100	4
HN60-SS4-180	18	18	45	100	4
HN60-SS4-200	20	20	45	100	4
HN60-SS4-040L	4	4	12	75	4
HN60-SS4-040XL	4	4	16	100	4
HN60-SS4-050L	5	5	15	75	4
HN60-SS4-050XL	5	5	20	100	4
HN60-SS4-060L	6	6	20	75	4
HN60-SS4-060XL	6	6	25	100	4
HN60-SS4-060XXL	6	6	30	150	4
HN60-SS4-080L	8	8	25	75	4
HN60-SS4-080XL	8	8	35	100	4
HN60-SS4-080XXL	8	8	40	150	4
HN60-SS4-100L	10	10	40	100	4
HN60-SS4-100XL	10	10	50	150	4
HN60-SS4-120L	12	12	45	100	4
HN60-SS4-120XL	12	12	60	150	4
HN60-SS4-140L	14	14	65	150	4
HN60-SS4-160L	16	16	70	150	4
HN60-SS4-180L	18	18	70	150	4
HN60-SS4-200L	20	20	70	150	4



#### Workpiece Material

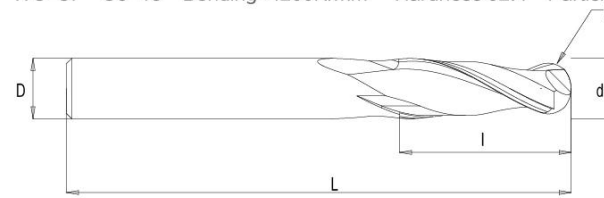
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	○	●	●	●			●	●

● Most Suitable ○ Suitable

### HN-60 Carbide Ball Nose End Mill for Stainless Steel 2Flutes

60度 2 刃不锈钢球头铣刀

WC=87 Co=13 Bending=4200N/mm<sup>2</sup> Hardness 92.4 Particle=0.5 ηm



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN60-BS2-010	1	0.5	4	2	50	2
HN60-BS2-015	1.5	0.75	4	3	50	2
HN60-BS2-020	2	1	4	4	50	2
HN60-BS2-025	2.5	1.25	4	5	50	2
HN60-BS2-030	3	1.5	3	6	50	2
HN60-BS2-031	3	1.5	4	6	50	2
HN60-BS2-035	3.5	1.75	4	7	50	2
HN60-BS2-040	4	2	4	8	50	2
HN60-BS2-050	5	2.5	5	10	50	2
HN60-BS2-051	5	2.5	6	10	50	2
HN60-BS2-060	6	3	6	12	50	2
HN60-BS2-080	8	4	8	16	60	2
HN60-BS2-100	10	5	10	20	75	2
HN60-BS2-120	12	6	12	24	75	2
HN60-BS2-140	14	7	14	28	100	2
HN60-BS2-160	16	8	16	32	100	2
HN60-BS2-180	18	9	18	36	100	2
HN60-BS2-200	20	0	20	0	100	2
HN60-BS2-040L	4	0	4	0	75	2
HN60-BS2-040XL	4	0	4	0	100	2
HN60-BS2-050L	5	0	5	0	75	2
HN60-BS2-050XL	5	0	5	0	100	2
HN60-BS2-060L	6	0	6	0	75	2
HN60-BS2-060XL	6	0	6	0	100	2
HN60-BS2-060XXL	6	0	6	0	150	2
HN60-BS2-080L	8	0	8	0	75	2
HN60-BS2-080XL	8	0	8	0	100	2
HN60-BS2-080XXL	8	4	8	16	150	2
HN60-BS2-100L	10	5	10	20	100	2
HN60-BS2-100XL	10	5	10	20	150	2
HN60-BS2-120L	12	6	12	24	100	2
HN60-BS2-120XL	12	6	12	24	150	2
HN60-BS2-140L	14	7	14	28	150	2
HN60-BS2-160L	16	8	16	32	150	2
HN60-BS2-180L	18	9	18	36	150	2
HN60-BS2-200L	20	10	20	40	150	2



#### Workpiece Material

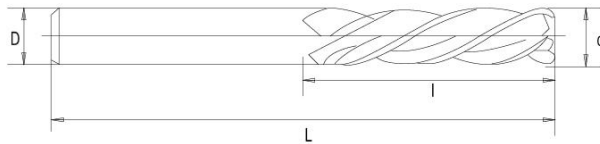
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	○	●	●	○			●	●

● Most Suitable ○ Suitable

# HN-60 Carbide Corner Radius End Mill For Stainless Steel 4Flutes

60度4刃不锈钢圆鼻铣刀

WC=87 Co=13 Bending=4200N/mm<sup>2</sup> Hardness 92.4 Particle=0.5 μm



订货号 Order Number	刃径 d(mm)	R	柄径 d1(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN60-CS4-0102	1	0.2	4	3	50	4
HN60-CS4-0202	2	0.2	4	5	50	4
HN60-CS4-0205	2	0.5	4	5	50	4
HN60-CS4-0302	3	0.2	3	8	50	4
HN60-CS4-0305	3	0.5	3	8	50	4
HN60-CS4-0310	3	1	3	8	50	4
HN60-CS4-0302X	3	0.2	4	8	50	4
HN60-CS4-0305X	3	0.5	4	8	50	4
HN60-CS4-0310X	3	1	4	8	50	4
HN60-CS4-0402	4	0.2	4	10	50	4
HN60-CS4-0405	4	0.5	4	10	50	4
HN60-CS4-0410	4	1	4	10	50	4
HN60-CS4-0505	5	0.5	5	13	50	4
HN60-CS4-0510	5	1	5	13	50	4
HN60-CS4-0605	6	0.5	6	15	50	4
HN60-CS4-0610	6	1	6	15	50	4
HN60-CS4-0805	8	0.5	8	20	60	4
HN60-CS4-0810	8	1	8	20	60	4
HN60-CS4-1005	10	0.5	10	25	75	4
HN60-CS4-1010	10	1	10	25	75	4
HN60-CS4-1205	12	0.5	12	30	75	4
HN60-CS4-1210	12	1	12	30	75	4
HN60-CS4-1405	14	0.5	14	45	100	4
HN60-CS4-1410	14	1	14	45	100	4
HN60-CS4-1605	16	0.5	16	45	100	4
HN60-CS4-1610	16	1	16	45	100	4
HN60-CS4-1805	18	0.5	18	45	100	4
HN60-CS4-1810	18	1	18	45	100	4
HN60-CS4-2005	20	0.5	20	45	100	4
HN60-CS4-2010	20	1	20	45	100	4
HN60-CS4-0405L	4	0.5	4	12	75	4
HN60-CS4-0410L	4	1	4	12	75	4
HN60-CS4-0405XL	4	0.5	4	16	100	4
HN60-CS4-0410XL	4	1	4	16	100	4
HN60-CS4-0505L	5	0.5	5	15	75	4
HN60-CS4-0510L	5	1	5	15	75	4
HN60-CS4-0505XL	5	0.5	5	20	100	4
HN60-CS4-0510XL	5	1	5	20	100	4
HN60-CS4-0605L	6	0.5	6	20	75	4
HN60-CS4-0610L	6	1	6	20	75	4
HN60-CS4-0605XL	6	0.5	6	25	100	4
HN60-CS4-0610XL	6	1	6	25	100	4
HN60-CS4-0805L	8	0.5	8	25	75	4
HN60-CS4-0810L	8	1	8	25	75	4
HN60-CS4-0805XL	8	0.5	8	35	100	4
HN60-CS4-0810XL	8	1	8	35	100	4
HN60-CS4-1005L	10	0.5	10	40	100	4
HN60-CS4-1010L	10	1	10	40	100	4
HN60-CS4-1005XL	10	0.5	10	50	150	4
HN60-CS4-1010XL	10	1	10	50	150	4
HN60-CS4-1205L	12	0.5	12	45	100	4
HN60-CS4-1210L	12	1	12	45	100	4
HN60-CS4-1205XL	12	0.5	12	60	150	4
HN60-CS4-1210XL	12	1	12	60	150	4



## Workpiece Material

碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	●		○			○	○

● Most Suitable ○ Suitable



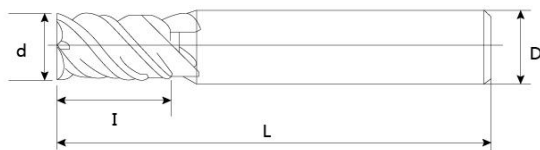
# HN-65 Carbide series



## HN-65 Carbide Square End Mill 4Flutes

### 65度 4 刃平头铣刀

WC=88 Co=12 HV30=1800 Bending=4200N/mm<sup>2</sup> Hardness 92.6 Particle=0.4 μm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN65-S4-010	1	4	3	50	4
HN65-S4-015	1.5	4	4	50	4
HN65-S4-020	2	4	5	50	4
HN65-S4-025	2.5	4	6	50	4
HN65-S4-030	3	3	7	50	4
HN65-S4-031	3	4	7	50	4
HN65-S4-035	3.5	4	9	50	4
HN65-S4-040	4	4	10	50	4
HN65-S4-050	5	5	13	50	4
HN65-S4-051	5	6	13	50	4
HN65-S4-060	6	6	15	50	4
HN65-S4-080	8	8	20	60	4
HN65-S4-100	10	10	25	75	4
HN65-S4-120	12	12	30	75	4
HN65-S4-140	14	14	45	100	4
HN65-S4-160	16	16	45	100	4
HN65-S4-180	18	18	45	100	4
HN65-S4-200	20	20	45	100	4
HN65-S4-040L	4	4	12	75	4
HN65-S4-040XL	4	4	16	100	4
HN65-S4-050L	5	5	15	75	4
HN65-S4-050XL	5	5	20	100	4
HN65-S4-060L	6	6	20	75	4
HN65-S4-060XL	6	6	25	100	4
HN65-S4-060XXL	6	6	30	150	4
HN65-S4-080L	8	8	25	75	4
HN65-S4-080XL	8	8	35	100	4
HN65-S4-080XXL	8	8	40	150	4
HN65-S4-100L	10	10	40	100	5
HN65-S4-100XL	10	10	50	150	6
HN65-S4-120L	12	12	45	100	7
HN65-S4-120XL	12	12	60	150	8
HN65-S4-140L	14	14	65	150	9
HN65-S4-160L	16	16	70	150	10
HN65-S4-180L	18	18	70	150	11
HN65-S4-200L	20	20	70	150	12



### Workpiece Material

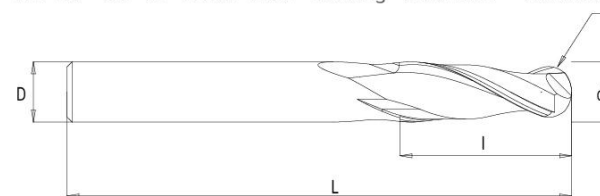
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高碳钢 Hardened Steel	高碳钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
		○	●	○			●	●

● Most Suitable ○ Suitable

## HN-65 Carbide Ball Nose End Mill 2Flutes

### 65度 2 刃球头铣刀

WC=88 Co=12 HV30=1800 Bending=4200N/mm<sup>2</sup> Hardness 92.6 Particle=0.4 μm



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN65-B2-010	1	0.5	4	2	50	2
HN65-B2-015	1.5	0.75	4	3	50	2
HN65-B2-020	2	1	4	4	50	2
HN65-B2-025	2.5	1.25	4	5	50	2
HN65-B2-030	3	1.5	3	6	50	2
HN65-B2-031	3	1.5	4	6	50	2
HN65-B2-035	3.5	1.75	4	7	50	2
HN65-B2-040	4	2	4	8	50	2
HN65-B2-050	5	2.5	5	10	50	2
HN65-B2-051	5	2.5	6	10	50	2
HN65-B2-060	6	3	6	12	50	2
HN65-B2-080	8	4	8	16	60	2
HN65-B2-100	10	5	10	20	75	2
HN65-B2-120	12	6	12	24	75	2
HN65-B2-140	14	7	14	28	100	2
HN65-B2-160	16	8	16	32	100	2
HN65-B2-180	18	9	18	36	100	2
HN65-B2-200	20	10	20	40	100	2
HN65-B2-040L	4	2	4	8	75	2
HN65-B2-040XL	4	2	4	8	100	2
HN65-B2-050L	5	2.5	5	10	75	2
HN65-B2-050XL	5	2.5	5	10	100	2
HN65-B2-060L	6	3	6	12	75	2
HN65-B2-060XL	6	3	6	12	100	2
HN65-B2-060XXL	6	3	6	12	150	2
HN65-B2-080L	8	4	8	16	75	2
HN65-B2-080XL	8	4	8	16	100	2
HN65-B2-080XXL	8	4	8	16	150	2
HN65-B2-100L	10	5	10	20	100	2
HN65-B2-100XL	10	5	10	20	150	2
HN65-B2-120L	12	6	12	24	100	2
HN65-B2-120XL	12	6	12	24	150	2
HN65-B2-140L	14	7	14	28	150	2
HN65-B2-160L	16	8	16	32	150	2
HN65-B2-180L	18	9	18	36	150	2
HN65-B2-200L	20	10	20	40	150	2



### Workpiece Material

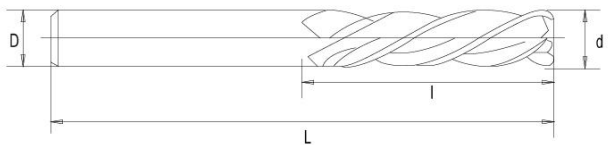
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高碳钢 Hardened Steel	高碳钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
		○	●	○			●	●

● Most Suitable ○ Suitable

## HN-65 Carbide Corner Radius End Mill 4Flutes

### 65度 4 刃圆鼻铣刀

WC=88 Co=12 HV30=1800 Bending=4200N/mm<sup>2</sup> Hardness 92.6 Particle=0.4 ηm



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN65-C4-0102	1	0.2	4	3	50	4
HN65-C4-0202	2	0.2	4	5	50	4
HN65-C4-0205	2	0.5	4	5	50	4
HN65-C4-0302	3	0.2	3	8	50	4
HN65-C4-0305	3	0.5	3	8	50	4
HN65-C4-0310	3	1	3	8	50	4
HN65-C4-0302X	3	0.2	4	8	50	4
HN65-C4-0305X	3	0.5	4	8	50	4
HN65-C4-0310X	3	1	4	8	50	4
HN65-C4-0402	4	0.2	4	10	50	4
HN65-C4-0405	4	0.5	4	10	50	4
HN65-C4-0410	4	1	4	10	50	4
HN65-C4-0505	5	0.5	5	13	50	4
HN65-C4-0510	5	1	5	13	50	4
HN65-C4-0605	6	0.5	6	15	50	4
HN65-C4-0610	6	1	6	15	50	4
HN65-C4-0805	8	0.5	8	20	60	4
HN65-C4-0810	8	1	8	20	60	4
HN65-C4-1005	10	0.5	10	25	75	4
HN65-C4-1010	10	1	10	25	75	4
HN65-C4-1205	12	0.5	12	30	75	4
HN65-C4-1210	12	1	12	30	75	4
HN65-C4-1405	14	0.5	14	45	100	4
HN65-C4-1410	14	1	14	45	100	4
HN65-C4-1605	16	0.5	16	45	100	4
HN65-C4-1610	16	1	16	45	100	4
HN65-C4-1805	18	0.5	18	45	100	4
HN65-C4-1810	18	1	18	45	100	4
HN65-C4-2005	20	0.5	20	45	100	4
HN65-C4-2010	20	1	20	45	100	4
HN65-C4-0405L	4	0.5	4	12	75	4
HN65-C4-0410L	4	1	4	12	75	4
HN65-C4-0405XL	4	0.5	4	16	100	4
HN65-C4-0410XL	4	1	4	16	100	4
HN65-C4-0505L	5	0.5	5	15	75	4
HN65-C4-0510L	5	1	5	15	75	4
HN65-C4-0505XL	5	0.5	5	20	100	4
HN65-C4-0510XL	5	1	5	20	100	4
HN65-C4-0605L	6	0.5	6	20	75	4
HN65-C4-0610L	6	1	6	20	75	4
HN65-C4-0605XL	6	0.5	6	25	100	4
HN65-C4-0610XL	6	1	6	25	100	4
HN65-C4-0805L	8	0.5	8	25	75	4
HN65-C4-0810L	8	1	8	25	75	4
HN65-C4-0805XL	8	0.5	8	35	100	4
HN65-C4-0810XL	8	1	8	35	100	4
HN65-C4-1005L	10	0.5	10	40	100	4
HN65-C4-1010L	10	1	10	40	100	4
HN65-C4-1005XL	10	0.5	10	50	150	4
HN65-C4-1010XL	10	1	10	50	150	4
HN65-C4-1205L	12	0.5	12	45	100	4
HN65-C4-1210L	12	1	12	45	100	4
HN65-C4-1205XL	12	0.5	12	60	150	4
HN65-C4-1210XL	12	1	12	60	150	4



## HN-68 Carbide series



### Workpiece Material

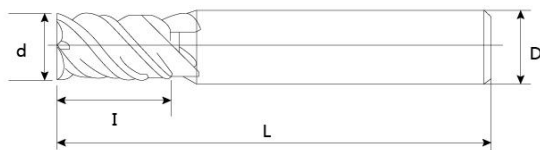
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高硬钢 Hardened Steel	高硬钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
●	●	●		○			○	○

● Most Suitable ○ Suitable

# HN-68 Carbide Square End Mill 4Flutes

## 68度 4 刃平头铣刀

WC=90 Co=10 HV30=1780 Bending=4200N/mm<sup>2</sup> Hardness 93.8 Particle=0.3 μm



订货号 Order Number	刃径 d(mm)	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN68-S4-010	1	4	3	50	4
HN68-S4-015	1.5	4	4	50	4
HN68-S4-020	2	4	5	50	4
HN68-S4-025	2.5	4	6	50	4
HN68-S4-030	3	3	7	50	4
HN68-S4-031	3	4	7	50	4
HN68-S4-035	3.5	4	9	50	4
HN68-S4-040	4	4	10	50	4
HN68-S4-050	5	5	13	50	4
HN68-S4-051	5	6	13	50	4
HN68-S4-060	6	6	15	50	4
HN68-S4-080	8	8	20	60	4
HN68-S4-100	10	10	25	75	4
HN68-S4-120	12	12	30	75	4
HN68-S4-140	14	14	45	100	4
HN68-S4-160	16	16	45	100	4
HN68-S4-180	18	18	45	100	4
HN68-S4-200	20	20	45	100	4
HN68-S4-040L	4	4	12	75	4
HN68-S4-040XL	4	4	16	100	4
HN68-S4-050L	5	5	15	75	4
HN68-S4-050XL	5	5	20	100	4
HN68-S4-060L	6	6	20	75	4
HN68-S4-060XL	6	6	25	100	4
HN68-S4-060XXL	6	6	30	150	4
HN68-S4-080L	8	8	25	75	4
HN68-S4-080XL	8	8	35	100	4
HN68-S4-080XXL	8	8	40	150	4
HN68-S4-100L	10	10	40	100	5
HN68-S4-100XL	10	10	50	150	6
HN68-S4-120L	12	12	45	100	7
HN68-S4-120XL	12	12	60	150	8
HN68-S4-140L	14	14	65	150	9
HN68-S4-160L	16	16	70	150	10
HN68-S4-180L	18	18	70	150	11
HN68-S4-200L	20	20	70	150	12



### Workpiece Material

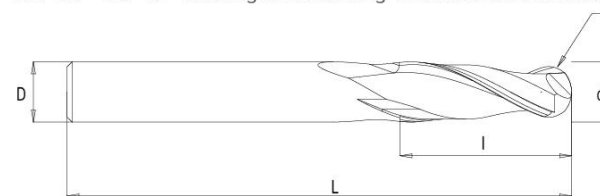
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高碳钢 Hardened Steel	高碳钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
		○	●	○			●	●

● Most Suitable ○ Suitable

# HN-68 Carbide Ball Nose End Mill 2Flutes

## 68度 2 刃球头铣刀

WC=90 Co=10 HV30=1780 Bending=4200N/mm<sup>2</sup> Hardness 93.8 Particle=0.3 μm



订货号 Order Number	刃径 d(mm)	R	柄径 d(mm)	刃长 l(mm)	全长 L(mm)	刃数 Flutes
HN68-B2-010	1	0.5	4	2	50	2
HN68-B2-015	1.5	0.75	4	3	50	2
HN68-B2-020	2	1	4	4	50	2
HN68-B2-025	2.5	1.25	4	5	50	2
HN68-B2-030	3	1.5	3	6	50	2
HN68-B2-031	3	1.5	4	6	50	2
HN68-B2-035	3.5	1.75	4	7	50	2
HN68-B2-040	4	2	4	8	50	2
HN68-B2-050	5	2.5	5	10	50	2
HN68-B2-051	5	2.5	6	10	50	2
HN68-B2-060	6	3	6	12	50	2
HN68-B2-080	8	4	8	16	60	2
HN68-B2-100	10	5	10	20	75	2
HN68-B2-120	12	6	12	24	75	2
HN68-B2-140	14	7	14	28	100	2
HN68-B2-160	16	8	16	32	100	2
HN68-B2-180	18	9	18	36	100	2
HN68-B2-200	20	10	20	40	100	2
HN68-B2-040L	4	2	4	8	75	2
HN68-B2-040XL	4	2	4	8	100	2
HN68-B2-050L	5	2.5	5	10	75	2
HN68-B2-050XL	5	2.5	5	10	100	2
HN68-B2-060L	6	3	6	12	75	2
HN68-B2-060XL	6	3	6	12	100	2
HN68-B2-060XXL	6	3	6	12	150	2
HN68-B2-080L	8	4	8	16	75	2
HN68-B2-080XL	8	4	8	16	100	2
HN68-B2-080XXL	8	4	8	16	150	2
HN68-B2-100L	10	5	10	20	100	2
HN68-B2-100XL	10	5	10	20	150	2
HN68-B2-120L	12	6	12	24	100	2
HN68-B2-120XL	12	6	12	24	150	2
HN68-B2-140L	14	7	14	28	150	2
HN68-B2-160L	16	8	16	32	150	2
HN68-B2-180L	18	9	18	36	150	2
HN68-B2-200L	20	10	20	40	150	2



### Workpiece Material

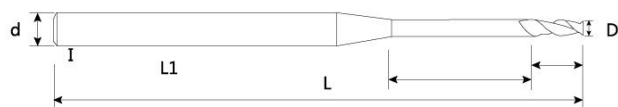
碳钢, 合金钢, 铸铁 Carbon Steel Cast Iron	合金钢 Alloy Steel	高碳钢 Hardened Steel	高碳钢 Hardened Steel	不锈钢 Stainless Steel	铜合金 Copper Alloys	铝合金 Aluminum Alloys	高温合金 Heat Resistant Super Alloys	钛合金 Titanium Alloys
< 35HRC	35-48HRC	46-55HRC	55-60HRC					
		○	●	○			●	●

● Most Suitable ○ Suitable

## HN-68 Carbide Long Neck Square End Mill 4Flutes

### 68度4刃深沟平刀

WC=90 Co=10 HV30=1780 Bending=4200N/mm<sup>2</sup> Hardness 93.8 Particle=0.3 ηm



4 flute

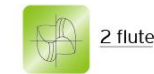
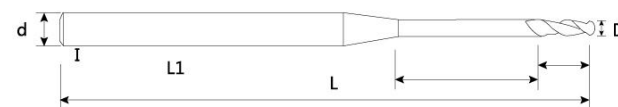
订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 l(mm)	碧空 L1(mm)	全长 L(mm)	刃数 Flutes
HN68-LNS4-00904	0.9	4	1.8	4	50	4
HN68-LNS4-00906	0.9	4	1.8	6	50	4
HN68-LNS4-00908	0.9	4	1.8	8	50	4
HN68-LNS4-00910	0.9	4	1.8	10	50	4
HN68-LNS4-01002	1	4	3	2	50	4
HN68-LNS4-01003	1	4	3	3	50	4
HN68-LNS4-01005	1	4	3	5	50	4
HN68-LNS4-01007	1	4	3	7	50	4
HN68-LNS4-01009	1	4	3	9	50	4
HN68-LNS4-01012	1	4	3	12	50	4
HN68-LNS4-01502	1.5	4	4	2	50	4
HN68-LNS4-01504	1.5	4	4	4	50	4
HN68-LNS4-01506	1.5	4	4	6	50	4
HN68-LNS4-01508	1.5	4	4	8	50	4
HN68-LNS4-01511	1.5	4	4	11	50	4
HN68-LNS4-01516	1.5	4	4	16	50	4
HN68-LNS4-02003	2	4	5	3	50	4
HN68-LNS4-02005	2	4	5	5	50	4
HN68-LNS4-02007	2	4	5	7	50	4
HN68-LNS4-02010	2	4	5	10	50	4
HN68-LNS4-02015	2	4	5	15	50	4
HN68-LNS4-02020	2	4	5	20	50	4
HN68-LNS4-02502	2.5	4	6	2	50	4
HN68-LNS4-02504	2.5	4	6	4	50	4
HN68-LNS4-02506	2.5	4	6	6	50	4
HN68-LNS4-02509	2.5	4	6	9	50	4
HN68-LNS4-02514	2.5	4	6	14	50	4
HN68-LNS4-02519	2.5	4	6	19	50	4
HN68-LNS4-03002	3	4	8	2	50	4
HN68-LNS4-03004	3	4	8	4	50	4
HN68-LNS4-03007	3	4	8	7	50	4
HN68-LNS4-03012	3	4	8	12	50	4
HN68-LNS4-03017	3	4	8	17	50	4
HN68-LNS4-03503	3.5	4	9	3	50	4
HN68-LNS4-03506	3.5	4	9	6	50	4
HN68-LNS4-03511	3.5	4	9	11	50	4
HN68-LNS4-03516	3.5	4	9	16	50	4
HN68-LNS4-04002	4	4	10	2	50	4
HN68-LNS4-04005	4	4	10	5	50	4
HN68-LNS4-04010	4	4	10	10	50	4
HN68-LNS4-04015	4	4	10	15	50	4



## HN-68 Carbide Long Neck Ball Nose End Mill 2Flutes

### 68度2刃深沟球刀

WC=90 Co=10 HV30=1780 Bending=4200N/mm<sup>2</sup> Hardness 93.8 Particle=0.3 ηm



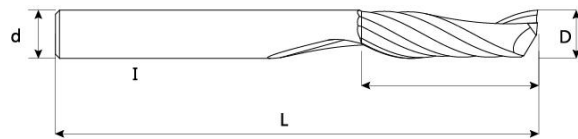
2 flute

订货号 Order Number	刃径 d(mm)	R	柄径 D(mm)	刃长 l(mm)	碧空 L1(mm)	全长 L(mm)	刃数 Flutes
HN68-LNB2-00904	0.9	0.45	4	1.8	4	50	2
HN68-LNB2-00906	0.9	0.45	4	1.8	6	50	2
HN68-LNB2-00908	0.9	0.45	4	1.8	8	50	2
HN68-LNB2-00910	0.9	0.45	4	1.8	10	50	2
HN68-LNB2-01002	1	0.5	4	3	2	50	2
HN68-LNB2-01003	1	0.5	4	3	3	50	2
HN68-LNB2-01005	1	0.5	4	3	5	50	2
HN68-LNB2-01007	1	0.5	4	3	7	50	2
HN68-LNB2-01009	1	0.5	4	3	9	50	2
HN68-LNB2-01012	1	0.5	4	3	12	50	2
HN68-LNB2-01502	1.5	0.75	4	4	2	50	2
HN68-LNB2-01504	1.5	0.75	4	4	4	50	2
HN68-LNB2-01506	1.5	0.75	4	4	6	50	2
HN68-LNB2-01508	1.5	0.75	4	4	8	50	2
HN68-LNB2-01511	1.5	0.75	4	4	11	50	2
HN68-LNB2-01516	1.5	0.75	4	4	16	50	2
HN68-LNB2-02003	2	1	4	5	3	50	2
HN68-LNB2-02005	2	1	4	5	5	50	2
HN68-LNB2-02007	2	1	4	5	7	50	2
HN68-LNB2-02010	2	1	4	5	10	50	2
HN68-LNB2-02015	2	1	4	5	15	50	2
HN68-LNB2-02020	2	1	4	5	20	50	2
HN68-LNB2-02502	2.5	1.25	4	6	2	50	2
HN68-LNB2-02504	2.5	1.25	4	6	4	50	2
HN68-LNB2-02506	2.5	1.25	4	6	6	50	2
HN68-LNB2-02509	2.5	1.25	4	6	9	50	2
HN68-LNB2-02514	2.5	1.25	4	6	14	50	2
HN68-LNB2-02519	2.5	1.25	4	6	19	50	2
HN68-LNB2-03002	3	1.5	4	8	2	50	2
HN68-LNB2-03004	3	1.5	4	8	4	50	2
HN68-LNB2-03007	3	1.5	4	8	7	50	2
HN68-LNB2-03012	3	1.5	4	8	12	50	2
HN68-LNB2-03017	3	1.5	4	8	17	50	2
HN68-LNB2-03503	3.5	1.75	4	9	3	50	2
HN68-LNB2-03506	3.5	1.75	4	9	6	50	2
HN68-LNB2-03511	3.5	1.75	4	9	11	50	2
HN68-LNB2-03516	3.5	1.75	4	9	16	50	2
HN68-LNB2-04002	4	2	4	10	2	50	2
HN68-LNB2-04005	4	2	4	10	5	50	2
HN68-LNB2-04010	4	2	4	10	10	50	2
HN68-LNB2-04015	4	2	4	10	15	50	2



## HN-SG Single Sprial End Mill

通用单刃螺旋铣刀



订货号 Order Number	刃径 d(mm)	柄径 D(mm)	刃长 I(mm)	全长 L(mm)
HN-SG-01003	1	3.175	3	38
HN-SG-01004	1	3.175	4	38
HN-SG-01504	1.5	3.175	4	38
HN-SG-01507	1.5	3.175	7	38
HN-SG-01512	1.5	3.175	12	38
HN-SG-02004	2	3.175	4	38
HN-SG-02006	2	3.175	6	38
HN-SG-02008	2	3.175	8	38
HN-SG-02010	2	3.175	10	38
HN-SG-02012	2	3.175	12	38
HN-SG-02015	2	3.175	15	38
HN-SG-02017	2	3.175	17	38
HN-SG-02022	2	3.175	22	45
HN-SG-02504	2.5	3.175	4	38
HN-SG-02506	2.5	3.175	6	38
HN-SG-02508	2.5	3.175	8	38
HN-SG-02510	2.5	3.175	10	38
HN-SG-02512	2.5	3.175	12	38
HN-SG-02515	2.5	3.175	15	38
HN-SG-02517	2.5	3.175	17	38
HN-SG-02522	2.5	3.175	22	45
HN-SG-03006	3.175	3.175	6	38
HN-SG-03008	3.175	3.175	8	38
HN-SG-03010	3.175	3.175	10	38
HN-SG-03012	3.175	3.175	12	38
HN-SG-03015	3.175	3.175	15	38
HN-SG-03017	3.175	3.175	17	38
HN-SG-03022	3.175	3.175	22	45
HN-SG-03025	3.175	3.175	25	50
HN-SG-03028	3.175	3.175	28	50
HN-SG-03032	3.175	3.175	32	55
HN-SG-03042	3.175	3.175	42	70
HN-SG-03052	3.175	3.175	52	75
HN-SG-04008	4	4	8	45
HN-SG-04012	4	4	12	45
HN-SG-04015	4	4	15	45
HN-SG-04017	4	4	17	45
HN-SG-04022	4	4	22	45
HN-SG-04025	4	4	25	45
HN-SG-04028	4	4	28	50
HN-SG-04032	4	4	32	55
HN-SG-04042	4	4	42	70
HN-SG-04052	4	4	52	75
HN-SG-05022	5	5	22	50
HN-SG-05025	5	5	25	50
HN-SG-05028	5	5	28	55
HN-SG-05032	5	5	32	60
HN-SG-06012	6	6	12	50
HN-SG-06017	6	6	17	50
HN-SG-06022	6	6	22	50
HN-SG-06025	6	6	25	50
HN-SG-06028	6	6	28	55
HN-SG-06032	6	6	32	60
HN-SG-06042	6	6	42	75
HN-SG-06052	6	6	52	85
HN-SG-06062	6	6	62	100
HN-SG-08025	8	8	25	60
HN-SG-08032	8	8	32	70
HN-SG-08042	8	8	42	80
HN-SG-08052	8	8	52	90
HN-SG-08062	8	8	62	100
HN-SG-10032	10	10	32	75
HN-SG-10043	10	10	42	80
HN-SG-10052	10	10	52	100
HN-SG-10062	10	10	62	110
HN-SG-12032	12	12	32	75
HN-SG-12042	12	12	42	85
HN-SG-12052	12	12	52	100
HN-SG-12062	12	12	62	120



## Material recommendation of cutting tool

切削刀具材质推荐

牌号	HN45--YG10X	HN55--WF25	
金相照片 (20*1000X)			
晶粒度 WC(μm)	0.8	0.6	
钴含量 Co (Wt%)	10	12	
密度 (g/cm <sup>3</sup> )	14.4	14.3	
硬度	HV30 (N/mm)	1591	1760
	HRA	91.3	92.8
抗弯强度 (MPa)	2900	4000	

牌号	HN60--GU25UF	HN65--K44	HN68--AF308	
金相照片 (1000*1500X)				
晶粒度 WC(μm)	0.4	0.4	0.3	
钴含量 Co (Wt%)	12	12	10	
密度 (g/cm <sup>3</sup> )	14.37	14.1	14.6	
硬度	HV30 (N/mm)	1780	1800	1780
	HRA	92.8	92.6	93.8
抗弯强度 (MPa)	4000	4200	4300	