HIBOO 常州弘俭工具有限公司

CHANGZHOU HIBOO TOOLS CO., LTD.



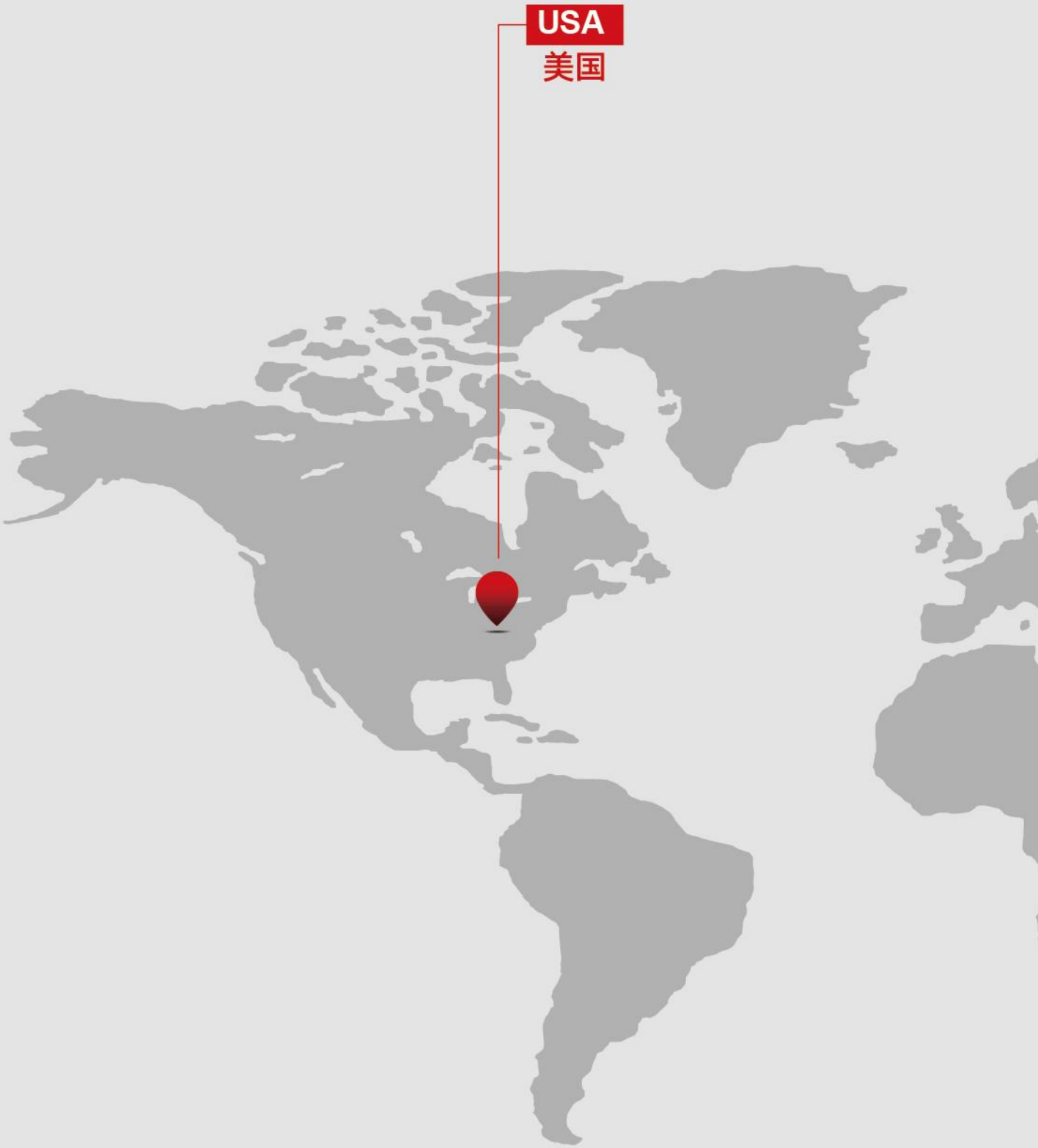
HIBOO TOOLS

产品目录

2023-2024

全球一体 营销网络

One family worldwide Marketing Network



HIBOO TOOLS



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48°

平刀 End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain/Black Nano
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM480-1040050	1	3	4	50
HJ-EM480-1540050	1.5	4	4	50
HJ-EM480-2040050	2	6	4	50
HJ-EM480-2540050	2.5	8	4	50
HJ-EM480-3040050	3	8	4	50
HJ-EM480-3540050	3.5	10	4	50
HJ-EM480-4040050	4	11	4	50
HJ-EM480-5060050	5	13	6	50
HJ-EM480-6060050	6	15	6	50
HJ-EM480-7080060	7	20	8	60
HJ-EM480-8080060	8	20	8	60
HJ-EM480-9010075	9	25	10	75
HJ-EM480-1010075	10	25	10	75
HJ-EM480-1112075	11	30	12	75
HJ-EM480-1212075	12	30	12	75
HJ-EM480-1414100	14	35	14	100
HJ-EM480-1616100	16	40	16	100
HJ-EM480-1818100	18	45	18	100
HJ-EM480-2020100	20	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM480-3030075	3	10	3	75
HJ-EM480-3040075	3	10	4	75
HJ-EM480-4040075	4	15	4	75
HJ-EM480-4040100	4	20	4	100
HJ-EM480-5060075	5	20	6	75
HJ-EM480-6060075	6	20	6	75
HJ-EM480-8080075	8	25	8	75
HJ-EM480-6060100	6	30	6	100
HJ-EM480-8080100	8	35	8	100
HJ-EM480-1010100	10	40	10	100
HJ-EM480-1212100	12	45	12	100
HJ-EM480-6060150	6	35	6	150
HJ-EM480-8080150	8	40	8	150
HJ-EM480-1010150	10	50	10	150
HJ-EM480-1212150	12	55	12	150
HJ-EM480-1414150	14	60	14	150
HJ-EM480-1616150	16	65	16	150
HJ-EM480-1818150	18	70	18	150
HJ-EM480-2020150	20	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			○	○	○	

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55°

平刀 End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain/Black Nano
+ Application:Universal applications,suitable forhight hard materials, as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM550-1040050	1	3	4	50
HJ-EM550-1540050	1.5	4	4	50
HJ-EM550-2040050	2	6	4	50
HJ-EM550-2540050	2.5	8	4	50
HJ-EM550-3040050	3	8	4	50
HJ-EM550-3540050	3.5	10	4	50
HJ-EM550-4040050	4	11	4	50
HJ-EM550-5060050	5	13	6	50
HJ-EM550-6060050	6	15	6	50
HJ-EM550-7080060	7	20	8	60
HJ-EM550-8080060	8	20	8	60
HJ-EM550-9010075	9	25	10	75
HJ-EM550-1010075	10	25	10	75
HJ-EM550-1112075	11	30	12	75
HJ-EM550-1212075	12	30	12	75
HJ-EM550-1414100	14	35	14	100
HJ-EM550-1616100	16	40	16	100
HJ-EM550-1818100	18	45	18	100
HJ-EM550-2020100	20	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM550-3030075	3	10	3	75
HJ-EM550-3040075	3	10	4	75
HJ-EM550-4040075	4	15	4	75
HJ-EM550-4040100	4	20	4	100
HJ-EM550-5060075	5	20	6	75
HJ-EM550-6060075	6	20	6	75
HJ-EM550-8080075	8	25	8	75
HJ-EM550-6060100	6	30	6	100
HJ-EM550-8080100	8	35	8	100
HJ-EM550-1010100	10	40	10	100
HJ-EM550-1212100	12	45	12	100
HJ-EM550-6060150	6	35	6	150
HJ-EM550-8080150	8	40	8	150
HJ-EM550-1010150	10	50	10	150
HJ-EM550-1212150	12	55	12	150
HJ-EM550-1414150	14	60	14	150
HJ-EM550-1616150	16	65	16	150
HJ-EM550-1818150	18	70	18	150
HJ-EM550-2020150	20	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			○	○	○	

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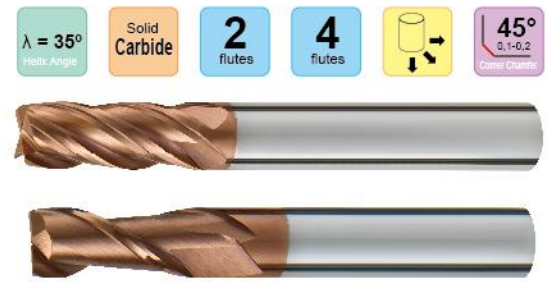
HIBOO TOOLS

58°

平刀 End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Bronze
+ Application:Universal applications,suitable forhight hard materials， as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM580-1040050	1	3	4	50
HJ-EM580-1540050	1.5	4	4	50
HJ-EM580-2040050	2	6	4	50
HJ-EM580-2540050	2.5	8	4	50
HJ-EM580-3040050	3	8	4	50
HJ-EM580-3540050	3.5	10	4	50
HJ-EM580-4040050	4	11	4	50
HJ-EM580-5060050	5	13	6	50
HJ-EM580-6060050	6	15	6	50
HJ-EM580-7080060	7	20	8	60
HJ-EM580-8080060	8	20	8	60
HJ-EM580-9010075	9	25	10	75
HJ-EM580-1010075	10	25	10	75
HJ-EM580-1112075	11	30	12	75
HJ-EM580-1212075	12	30	12	75
HJ-EM580-1414100	14	35	14	100
HJ-EM580-1616100	16	40	16	100
HJ-EM580-1818100	18	45	18	100
HJ-EM580-2020100	20	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM580-3030075	3	10	3	75
HJ-EM580-3040075	3	10	4	75
HJ-EM580-4040075	4	15	4	75
HJ-EM580-4040100	4	20	4	100
HJ-EM580-5060075	5	20	6	75
HJ-EM580-6060075	6	20	6	75
HJ-EM580-8080075	8	25	8	75
HJ-EM580-6060100	6	30	6	100
HJ-EM580-8080100	8	35	8	100
HJ-EM580-1010100	10	40	10	100
HJ-EM580-1212100	12	45	12	100
HJ-EM580-6060150	6	35	6	150
HJ-EM580-8080150	8	40	8	150
HJ-EM580-1010150	10	50	10	150
HJ-EM580-1212150	12	55	12	150
HJ-EM580-1414150	14	60	14	150
HJ-EM580-1616150	16	65	16	150
HJ-EM580-1818150	18	70	18	150
HJ-EM580-2020150	20	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

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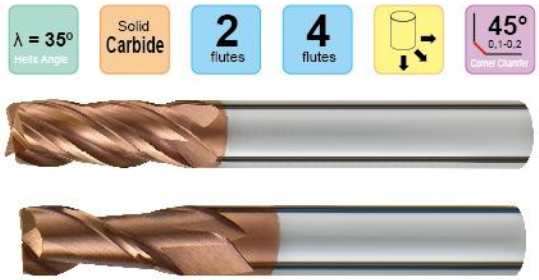
60°

平刀 End Mills

+ 设计：2/4刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：特别应用于结构钢，表面硬化钢，调制钢，工具钢，铸钢和铸铁的加工。

+ Design: 4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Especially for the machining of structural steel, case hardened steel, modulated steel, tool steel, cast steel and cast iron.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM600-1040050	1	3	4	50
HJ-EM600-1540050	1.5	4	4	50
HJ-EM600-2040050	2	6	4	50
HJ-EM600-2540050	2.5	8	4	50
HJ-EM600-3040050	3	8	4	50
HJ-EM600-3540050	3.5	10	4	50
HJ-EM600-4040050	4	11	4	50
HJ-EM600-5060050	5	13	6	50
HJ-EM600-6060050	6	15	6	50
HJ-EM600-7080060	7	20	8	60
HJ-EM600-8080060	8	20	8	60
HJ-EM600-9010075	9	25	10	75
HJ-EM600-1010075	10	25	10	75
HJ-EM600-1112075	11	30	12	75
HJ-EM600-1212075	12	30	12	75
HJ-EM600-1414100	14	35	14	100
HJ-EM600-1616100	16	40	16	100
HJ-EM600-1818100	18	45	18	100
HJ-EM600-2020100	20	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM600-3030075	3	10	3	75
HJ-EM600-3040075	3	10	4	75
HJ-EM600-4040075	4	15	4	75
HJ-EM600-4040100	4	20	4	100
HJ-EM600-5060075	5	20	6	75
HJ-EM600-6060075	6	20	6	75
HJ-EM600-8080075	8	25	8	75
HJ-EM600-6060100	6	30	6	100
HJ-EM600-8080100	8	35	8	100
HJ-EM600-1010100	10	40	10	100
HJ-EM600-1212100	12	45	12	100
HJ-EM600-6060150	6	35	6	150
HJ-EM600-8080150	8	40	8	150
HJ-EM600-1010150	10	50	10	150
HJ-EM600-1212150	12	55	12	150
HJ-EM600-1414150	14	60	14	150
HJ-EM600-1616150	16	65	16	150
HJ-EM600-1818150	18	70	18	150
HJ-EM600-2020150	20	75	20	150

加工参数 P49 Processing parameter P49

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	○	◎	◎	○		○	○	○	◎	◎	○	○

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HIBOO TOOLS

63°

平刀 End Mills

+ 设计：2/4刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：特别应用于结构钢，表面硬化钢，调制钢，工具钢，铸钢和铸铁的加工。

+ Design: 4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Especially for the machining of structural steel, case hardened steel, modulated steel, tool steel, cast steel and cast iron.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM630-1040050	1	3	4	50
HJ-EM630-1540050	1.5	4	4	50
HJ-EM630-2040050	2	6	4	50
HJ-EM630-2540050	2.5	8	4	50
HJ-EM630-3040050	3	8	4	50
HJ-EM630-3540050	3.5	10	4	50
HJ-EM630-4040050	4	11	4	50
HJ-EM630-5060050	5	13	6	50
HJ-EM630-6060050	6	15	6	50
HJ-EM630-7080060	7	20	8	60
HJ-EM630-8080060	8	20	8	60
HJ-EM630-9010075	9	25	10	75
HJ-EM630-1010075	10	25	10	75
HJ-EM630-1112075	11	30	12	75
HJ-EM630-1212075	12	30	12	75
HJ-EM630-1414100	14	35	14	100
HJ-EM630-1616100	16	40	16	100
HJ-EM630-1818100	18	45	18	100
HJ-EM630-2020100	20	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM630-3030075	3	10	3	75
HJ-EM630-3040075	3	10	4	75
HJ-EM630-4040075	4	15	4	75
HJ-EM630-4040100	4	20	4	100
HJ-EM630-5060075	5	20	6	75
HJ-EM630-6060075	6	20	6	75
HJ-EM630-8080075	8	25	8	75
HJ-EM630-6060100	6	30	6	100
HJ-EM630-8080100	8	35	8	100
HJ-EM630-1010100	10	40	10	100
HJ-EM630-1212100	12	45	12	100
HJ-EM630-6060150	6	35	6	150
HJ-EM630-8080150	8	40	8	150
HJ-EM630-1010150	10	50	10	150
HJ-EM630-1212150	12	55	12	150
HJ-EM630-1414150	14	60	14	150
HJ-EM630-1616150	16	65	16	150
HJ-EM630-1818150	18	70	18	150
HJ-EM630-2020150	20	75	20	150

加工参数 P49 Processing parameter P49

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	○	○	◎	◎	○	○	○	○	◎			

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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+86-13585349554

65°

平刀 End Mills

+ 设计：4刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 /蓝纳米
+ 应用：特别应用于结构钢，表面硬化钢，调制钢，工具钢，铸钢和铸铁的加工。

+ Design: 4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Blue Nano
+ Application:Especially for the machining of structural steel, case hardened steel, modulated steel, tool steel, cast steel and cast iron.



标准 Standard

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM650-1040050	1	3	4	50
HJ-EM650-1540050	1.5	4	4	50
HJ-EM650-2040050	2	6	4	50
HJ-EM650-2540050	2.5	8	4	50
HJ-EM650-3040050	3	8	4	50
HJ-EM650-3540050	3.5	10	4	50
HJ-EM650-4040050	4	11	4	50
HJ-EM650-5060050	5	13	6	50
HJ-EM650-6060050	6	15	6	50
HJ-EM650-7080060	7	20	8	60
HJ-EM650-8080060	8	20	8	60
HJ-EM650-9010075	9	25	10	75
HJ-EM650-1010075	10	25	10	75
HJ-EM650-1112075	11	30	12	75
HJ-EM650-1212075	12	30	12	75
HJ-EM650-1414100	14	35	14	100
HJ-EM650-1616100	16	40	16	100
HJ-EM650-1818100	18	45	18	100
HJ-EM650-2020100	20	45	20	100

加长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-EM650-3030075	3	10	3	75
HJ-EM650-3040075	3	10	4	75
HJ-EM650-4040075	4	15	4	75
HJ-EM650-4040100	4	20	4	100
HJ-EM650-5060075	5	20	6	75
HJ-EM650-6060075	6	20	6	75
HJ-EM650-8080075	8	25	8	75
HJ-EM650-6060100	6	30	6	100
HJ-EM650-8080100	8	35	8	100
HJ-EM650-1010100	10	40	10	100
HJ-EM650-1212100	12	45	12	100
HJ-EM650-6060150	6	35	6	150
HJ-EM650-8080150	8	40	8	150
HJ-EM650-1010150	10	50	10	150
HJ-EM650-1212150	12	55	12	150
HJ-EM650-1414150	14	60	14	150
HJ-EM650-1616150	16	65	16	150
HJ-EM650-1818150	18	70	18	150
HJ-EM650-2020150	20	75	20	150

加工参数 P49 Processing parameter P49

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	○	○	○	◎	◎	◎	○	○	○	◎			

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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HIBOO TOOLS

48°

球刀 Ball End Mills

+ 设计：2刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：干加工硬度HRC68以下的不锈钢及铜制材料。4刃球头特别应用于钛合金，也可应用于回火钢、耐热钢的加工。

+ Design: 2 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Stainless steel and copper materials with dry machining hardness below HRC68. The 4-blade ball head is especially used in titanium alloys, and can also be used in the processing of tempered steel and heat-resistant steel.



标 准 Standard

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-BEM480-05004050	R0.5	2	4	50
HJ-BEM480-07504050	R0.75	3	4	50
HJ-BEM480-10004050	R1	4	4	50
HJ-BEM480-15004050	R1.5	6	4	50
HJ-BEM480-20004050	R2	8	4	50
HJ-BEM480-25006050	R2.5	10	6	50
HJ-BEM480-30006050	R3	12	6	50
HJ-BEM480-40006050	R4	16	8	60
HJ-BEM480-50010075	R5	20	10	75
HJ-BEM480-60012075	R6	24	12	75
HJ-BEM480-70014100	R7	28	14	100
HJ-BEM480-80016100	R8	32	16	100
HJ-BEM480-90018100	R9	36	18	100
HJ-BEM480-100020100	R10	40	20	100

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	◎	◎	◎	◎			◎				◎	◎	

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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55°

球刀 Ball End Mills

HIBOO

+ 设计：2刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：干加工硬度HRC68以下的不锈钢及铜制材料。4刃球头特别应用于钛合金，也可应用于回火钢、耐热钢的加工。

+ Design: 2 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Stainless steel and copper materials with dry machining hardness below HRC68. The 4-blade ball head is especially used in titanium alloys, and can also be used in the processing of tempered steel and heat-resistant steel.



标 准 Standard

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-BEM550-05004050	R0.5	2	4	50
HJ-BEM550-07504050	R0.75	3	4	50
HJ-BEM550-10004050	R1	4	4	50
HJ-BEM550-15004050	R1.5	6	4	50
HJ-BEM550-20004050	R2	8	4	50
HJ-BEM550-25006050	R2.5	10	6	50
HJ-BEM550-30006050	R3	12	6	50
HJ-BEM550-40006050	R4	16	8	60
HJ-BEM550-50010075	R5	20	10	75
HJ-BEM550-60012075	R6	24	12	75
HJ-BEM550-70014100	R7	28	14	100
HJ-BEM550-80016100	R8	32	16	100
HJ-BEM550-90018100	R9	36	18	100
HJ-BEM550-100020100	R10	40	20	100

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	◎	◎	◎	◎			◎				◎	◎	

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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HIBOO TOOLS

58°

球刀 Ball End Mills

HIBOO

+ 设计：2刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 古铜色
+ 应用：干加工硬度HRC68以下的不锈钢及铜制材料。4刃球头特别应用于钛合金，也可应用于回火钢、耐热钢的加工。

+ Design: 2/4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Bronze
+ Application:Stainless steel and copper materials with dry machining hardness below HRC68. The 4-blade ball head is especially used in titanium alloys, and can also be used in the processing of tempered steel and heat-resistant steel.



标 准 Standard

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-BEM580-05004050	R0.5	2	4	50
HJ-BEM580-07504050	R0.75	3	4	50
HJ-BEM580-10004050	R1	4	4	50
HJ-BEM580-15004050	R1.5	6	4	50
HJ-BEM580-20004050	R2	8	4	50
HJ-BEM580-25006050	R2.5	10	6	50
HJ-BEM580-30006050	R3	12	6	50
HJ-BEM580-40006050	R4	16	8	60
HJ-BEM580-50010075	R5	20	10	75
HJ-BEM580-60012075	R6	24	12	75
HJ-BEM580-70014100	R7	28	14	100
HJ-BEM580-80016100	R8	32	16	100
HJ-BEM580-90018100	R9	36	18	100
HJ-BEM580-100020100	R10	40	20	100

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free-cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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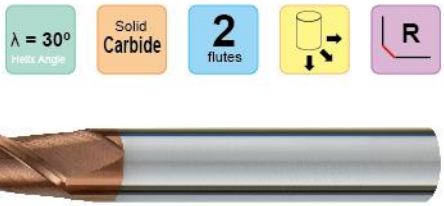
60°

球刀 Ball End Mills

+ 设计：2刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：干加工硬度HRC68以下的不锈钢及铜制材料。4刃球头特别应用于钛合金，也可应用于回火钢、耐热钢的加工。

+ Design: 2 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Stainless steel and copper materials with dry machining hardness below HRC68. The 4-blade ball head is especially used in titanium alloys, and can also be used in the processing of tempered steel and heat-resistant steel.



标 准 Standard

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-BEM600-05004050	R0.5	2	4	50
HJ-BEM600-07504050	R0.75	3	4	50
HJ-BEM600-10004050	R1	4	4	50
HJ-BEM600-15004050	R1.5	6	4	50
HJ-BEM600-20004050	R2	8	4	50
HJ-BEM600-25006050	R2.5	10	6	50
HJ-BEM600-30006050	R3	12	6	50
HJ-BEM600-40006050	R4	16	8	60
HJ-BEM600-50010075	R5	20	10	75
HJ-BEM600-60012075	R6	24	12	75
HJ-BEM600-70014100	R7	28	14	100
HJ-BEM600-80016100	R8	32	16	100
HJ-BEM600-90018100	R9	36	18	100
HJ-BEM600-100020100	R10	40	20	100

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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HIBOO TOOLS

63°

球刀 Ball End Mills

HIBOO

+ 设计：2刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：干加工硬度HRC68以下的不锈钢及铜制材料。4刃球头特别应用于钛合金，也可应用于回火钢、耐热钢的加工。

+ Design: 2flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Stainless steel and copper materials with dry machining hardness below HRC68. The 4-blade ball head is especially used in titanium alloys, and can also be used in the processing of tempered steel and heat-resistant steel.



标 准 Standard

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-BEM630-05004050	R0.5	2	4	50
HJ-BEM630-07504050	R0.75	3	4	50
HJ-BEM630-10004050	R1	4	4	50
HJ-BEM630-15004050	R1.5	6	4	50
HJ-BEM630-20004050	R2	8	4	50
HJ-BEM630-25006050	R2.5	10	6	50
HJ-BEM630-30006050	R3	12	6	50
HJ-BEM630-40006050	R4	16	8	60
HJ-BEM630-50010075	R5	20	10	75
HJ-BEM630-60012075	R6	24	12	75
HJ-BEM630-70014100	R7	28	14	100
HJ-BEM630-80016100	R8	32	16	100
HJ-BEM630-90018100	R9	36	18	100
HJ-BEM630-100020100	R10	40	20	100

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free-cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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+86-13585349554

65°

球刀 Ball End Mills

+ 设计：2刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 蓝纳米
+ 应用：干加工硬度HRC68以下的不锈钢及铜制材料。4刃球头特别应用于钛合金，也可应用于回火钢、耐热钢的加工。

+ Design: 2flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Blue Nano
+ Application:Stainless steel and copper materials with dry machining hardness below HRC68. The 4-blade ball head is especially used in titanium alloys, and can also be used in the processing of tempered steel and heat-resistant steel.



标 准 Standard

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-BEM650-05004050	R0.5	2	4	50
HJ-BEM650-07504050	R0.75	3	4	50
HJ-BEM650-10004050	R1	4	4	50
HJ-BEM650-15004050	R1.5	6	4	50
HJ-BEM650-20004050	R2	8	4	50
HJ-BEM650-25006050	R2.5	10	6	50
HJ-BEM650-30006050	R3	12	6	50
HJ-BEM650-40006050	R4	16	8	60
HJ-BEM650-50010075	R5	20	10	75
HJ-BEM650-60012075	R6	24	12	75
HJ-BEM650-70014100	R7	28	14	100
HJ-BEM650-80016100	R8	32	16	100
HJ-BEM650-90018100	R9	36	18	100
HJ-BEM650-100020100	R10	40	20	100

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	○	○	◎	◎	◎	◎	◎	◎	◎	◎			

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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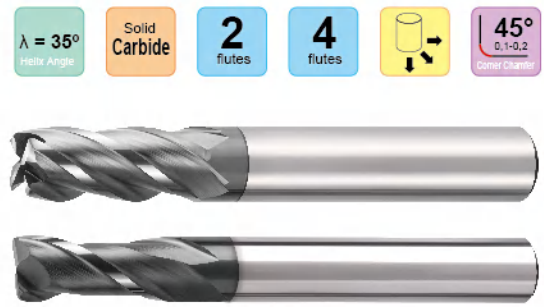
HIBOO TOOLS

48°

圆鼻刀 Round Nose End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain/Black Nano
+ Application:Universal applications,suitable forhight hard materials， as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE480-0104050	1	0.2/0.3	3	4	50
HJ-RNE480-0204050	2	0.2/0.3	6	4	50
HJ-RNE480-0304050	3	0.2/0.3/0.5/1.0	8	4	50
HJ-RNE480-0404050	4	0.2/0.3/0.5/1.0	11	4	50
HJ-RNE480-0505050	5	0.2/0.3/0.5/1.0	13	5	50
HJ-RNE480-0506050	5	0.2/0.3/0.5/1.0	13	6	50
HJ-RNE480-0606050	6	0.2/0.3/0.5/1.0	15	6	50
HJ-RNE480-0707060	7	0.2/0.3/0.5/1.0	20	7	60
HJ-RNE480-0808060	8	0.2/0.3/0.5/1.0	20	8	60
HJ-RNE480-1010075	10	0.2/0.3/0.5/1.0	25	10	75
HJ-RNE480-1212075	12	0.2/0.3/0.5/1.0	30	12	75
HJ-RNE480-1414100	14	0.2/0.3/0.5/1.0	35	14	100
HJ-RNE480-1616100	16	0.2/0.3/0.5/1.0	40	16	100
HJ-RNE480-1818100	18	0.2/0.3/0.5/1.0	45	18	100
HJ-RNE480-2020100	20	0.2/0.3/0.5/1.0	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE480-0303075	3	0.2/0.3/0.5/1.0	10	3	75
HJ-RNE480-0304075	3	0.2/0.3/0.5/1.0	10	4	75
HJ-RNE480-0404075	4	0.2/0.3/0.5/1.0	15	4	75
HJ-RNE480-0404100	4	0.2/0.3/0.5/1.0	20	4	100
HJ-RNE480-0505075	5	0.2/0.3/0.5/1.0	20	5	75
HJ-RNE480-0506075	5	0.2/0.3/0.5/1.0	20	6	75
HJ-RNE480-0505100	5	0.2/0.3/0.5/1.0	25	5	100
HJ-RNE480-0506100	5	0.2/0.3/0.5/1.0	25	6	100
HJ-RNE480-0606150	6	0.2/0.3/0.5/1.0	30	6	150
HJ-RNE480-0808075	8	0.2/0.3/0.5/1.0	25	8	75
HJ-RNE480-0808100	8	0.2/0.3/0.5/1.0	35	8	100
HJ-RNE480-0808150	8	0.2/0.3/0.5/1.0	40	8	150
HJ-RNE480-1010100	10	0.2/0.3/0.5/1.0	40	10	100
HJ-RNE480-1010150	10	0.2/0.3/0.5/1.0	50	10	150
HJ-RNE480-1212100	12	0.2/0.3/0.5/1.0	45	12	100
HJ-RNE480-1212150	12	0.2/0.3/0.5/1.0	55	12	150
HJ-RNE480-1414150	14	0.2/0.3/0.5/1.0	60	14	150
HJ-RNE480-1616150	16	0.2/0.3/0.5/1.0	65	16	150
HJ-RNE480-1818150	18	0.2/0.3/0.5/1.0	70	18	150
HJ-RNE480-2020150	20	0.2/0.3/0.5/1.0	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			◎	○	○	

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55°

圆鼻刀 Round Nose End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain/Black Nano
+ Application:Universal applications,suitable forhight hard materials， as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE550-0104050	1	0.2/0.3	3	4	50
HJ-RNE550-0204050	2	0.2/0.3	6	4	50
HJ-RNE550-0304050	3	0.2/0.3/0.5/1.0	8	4	50
HJ-RNE550-0404050	4	0.2/0.3/0.5/1.0	11	4	50
HJ-RNE550-0505050	5	0.2/0.3/0.5/1.0	13	5	50
HJ-RNE550-0506050	5	0.2/0.3/0.5/1.0	13	6	50
HJ-RNE550-0606050	6	0.2/0.3/0.5/1.0	15	6	50
HJ-RNE550-0707060	7	0.2/0.3/0.5/1.0	20	7	60
HJ-RNE550-0808060	8	0.2/0.3/0.5/1.0	20	8	60
HJ-RNE550-1010075	10	0.2/0.3/0.5/1.0	25	10	75
HJ-RNE550-1212075	12	0.2/0.3/0.5/1.0	30	12	75
HJ-RNE550-1414100	14	0.2/0.3/0.5/1.0	35	14	100
HJ-RNE550-1616100	16	0.2/0.3/0.5/1.0	40	16	100
HJ-RNE550-1818100	18	0.2/0.3/0.5/1.0	45	18	100
HJ-RNE550-2020100	20	0.2/0.3/0.5/1.0	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE550-0303075	3	0.2/0.3/0.5/1.0	10	3	75
HJ-RNE550-0304075	3	0.2/0.3/0.5/1.0	10	4	75
HJ-RNE550-0404075	4	0.2/0.3/0.5/1.0	15	4	75
HJ-RNE550-0404100	4	0.2/0.3/0.5/1.0	20	4	100
HJ-RNE550-0505075	5	0.2/0.3/0.5/1.0	20	5	75
HJ-RNE550-0506075	5	0.2/0.3/0.5/1.0	20	6	75
HJ-RNE550-0505100	5	0.2/0.3/0.5/1.0	25	5	100
HJ-RNE550-0506100	5	0.2/0.3/0.5/1.0	25	6	100
HJ-RNE550-0606150	6	0.2/0.3/0.5/1.0	30	6	150
HJ-RNE550-0808075	8	0.2/0.3/0.5/1.0	25	8	75
HJ-RNE550-0808100	8	0.2/0.3/0.5/1.0	35	8	100
HJ-RNE550-0808150	8	0.2/0.3/0.5/1.0	40	8	150
HJ-RNE550-1010100	10	0.2/0.3/0.5/1.0	40	10	100
HJ-RNE550-1010150	10	0.2/0.3/0.5/1.0	50	10	150
HJ-RNE550-1212100	12	0.2/0.3/0.5/1.0	45	12	100
HJ-RNE550-1212150	12	0.2/0.3/0.5/1.0	55	12	150
HJ-RNE550-1414150	14	0.2/0.3/0.5/1.0	60	14	150
HJ-RNE550-1616150	16	0.2/0.3/0.5/1.0	65	16	150
HJ-RNE550-1818150	18	0.2/0.3/0.5/1.0	70	18	150
HJ-RNE550-2020150	20	0.2/0.3/0.5/1.0	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			◎	○	○	

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HIBOO TOOLS

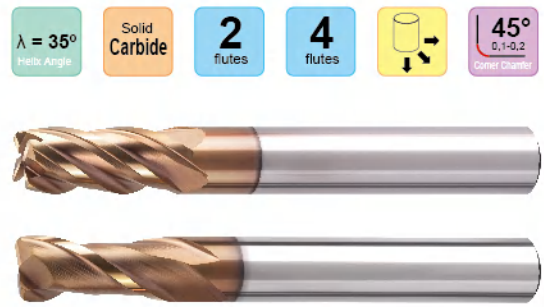
58°

圆鼻刀 Round Nose End Mills

HIBOO

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,1 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Bronze
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE580-0104050	1	0.2/0.3	3	4	50
HJ-RNE580-0204050	2	0.2/0.3	6	4	50
HJ-RNE580-0304050	3	0.2/0.3/0.5/1.0	8	4	50
HJ-RNE580-0404050	4	0.2/0.3/0.5/1.0	11	4	50
HJ-RNE580-0505050	5	0.2/0.3/0.5/1.0	13	5	50
HJ-RNE580-0506050	5	0.2/0.3/0.5/1.0	13	6	50
HJ-RNE580-0606050	6	0.2/0.3/0.5/1.0	15	6	50
HJ-RNE580-0707060	7	0.2/0.3/0.5/1.0	20	7	60
HJ-RNE580-0808060	8	0.2/0.3/0.5/1.0	20	8	60
HJ-RNE580-1010075	10	0.2/0.3/0.5/1.0	25	10	75
HJ-RNE580-1212075	12	0.2/0.3/0.5/1.0	30	12	75
HJ-RNE580-1414100	14	0.2/0.3/0.5/1.0	35	14	100
HJ-RNE580-1616100	16	0.2/0.3/0.5/1.0	40	16	100
HJ-RNE580-1818100	18	0.2/0.3/0.5/1.0	45	18	100
HJ-RNE580-2020100	20	0.2/0.3/0.5/1.0	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE580-0303075	3	0.2/0.3/0.5/1.0	10	3	75
HJ-RNE580-0304075	3	0.2/0.3/0.5/1.0	10	4	75
HJ-RNE580-0404075	4	0.2/0.3/0.5/1.0	15	4	75
HJ-RNE580-0404100	4	0.2/0.3/0.5/1.0	20	4	100
HJ-RNE580-0505075	5	0.2/0.3/0.5/1.0	20	5	75
HJ-RNE580-0506075	5	0.2/0.3/0.5/1.0	20	6	75
HJ-RNE580-0505100	5	0.2/0.3/0.5/1.0	25	5	100
HJ-RNE580-0506100	5	0.2/0.3/0.5/1.0	25	6	100
HJ-RNE580-0606150	6	0.2/0.3/0.5/1.0	30	6	150
HJ-RNE580-0808075	8	0.2/0.3/0.5/1.0	25	8	75
HJ-RNE580-0808100	8	0.2/0.3/0.5/1.0	35	8	100
HJ-RNE580-0808150	8	0.2/0.3/0.5/1.0	40	8	150
HJ-RNE580-1010100	10	0.2/0.3/0.5/1.0	40	10	100
HJ-RNE580-1010150	10	0.2/0.3/0.5/1.0	50	10	150
HJ-RNE580-1212100	12	0.2/0.3/0.5/1.0	45	12	100
HJ-RNE580-1212150	12	0.2/0.3/0.5/1.0	55	12	150
HJ-RNE580-1414150	14	0.2/0.3/0.5/1.0	60	14	150
HJ-RNE580-1616150	16	0.2/0.3/0.5/1.0	65	16	150
HJ-RNE580-1818150	18	0.2/0.3/0.5/1.0	70	18	150
HJ-RNE580-2020150	20	0.2/0.3/0.5/1.0	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎	◎	○	◎	○	○	

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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60°

圆鼻刀 Round Nose End Mills

+ 设计：2/4刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：特别应用于结构钢，表面硬化钢，调制钢，工具钢，铸钢和铸铁的加工。

+ Design: 2/4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Especially for the machining of structural steel, case hardened steel, modulated steel, tool steel, cast steel and cast iron.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE600-0104050	1	0.2/0.3	3	4	50
HJ-RNE600-0204050	2	0.2/0.3	6	4	50
HJ-RNE600-0304050	3	0.2/0.3/0.5/1.0	8	4	50
HJ-RNE600-0404050	4	0.2/0.3/0.5/1.0	11	4	50
HJ-RNE600-0505050	5	0.2/0.3/0.5/1.0	13	5	50
HJ-RNE600-0506050	5	0.2/0.3/0.5/1.0	13	6	50
HJ-RNE600-0606050	6	0.2/0.3/0.5/1.0	15	6	50
HJ-RNE600-0707060	7	0.2/0.3/0.5/1.0	20	7	60
HJ-RNE600-0808060	8	0.2/0.3/0.5/1.0	20	8	60
HJ-RNE600-1010075	10	0.2/0.3/0.5/1.0	25	10	75
HJ-RNE600-1212075	12	0.2/0.3/0.5/1.0	30	12	75
HJ-RNE600-1414100	14	0.2/0.3/0.5/1.0	35	14	100
HJ-RNE600-1616100	16	0.2/0.3/0.5/1.0	40	16	100
HJ-RNE600-1818100	18	0.2/0.3/0.5/1.0	45	18	100
HJ-RNE600-2020100	20	0.2/0.3/0.5/1.0	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE600-0303075	3	0.2/0.3/0.5/1.0	10	3	75
HJ-RNE600-0304075	3	0.2/0.3/0.5/1.0	10	4	75
HJ-RNE600-0404075	4	0.2/0.3/0.5/1.0	15	4	75
HJ-RNE600-0404100	4	0.2/0.3/0.5/1.0	20	4	100
HJ-RNE600-0505075	5	0.2/0.3/0.5/1.0	20	5	75
HJ-RNE600-0506075	5	0.2/0.3/0.5/1.0	20	6	75
HJ-RNE600-0505100	5	0.2/0.3/0.5/1.0	25	5	100
HJ-RNE600-0506100	5	0.2/0.3/0.5/1.0	25	6	100
HJ-RNE600-0606150	6	0.2/0.3/0.5/1.0	30	6	150
HJ-RNE600-0808075	8	0.2/0.3/0.5/1.0	25	8	75
HJ-RNE600-0808100	8	0.2/0.3/0.5/1.0	35	8	100
HJ-RNE600-0808150	8	0.2/0.3/0.5/1.0	40	8	150
HJ-RNE600-1010100	10	0.2/0.3/0.5/1.0	40	10	100
HJ-RNE600-1010150	10	0.2/0.3/0.5/1.0	50	10	150
HJ-RNE600-1212100	12	0.2/0.3/0.5/1.0	45	12	100
HJ-RNE600-1212150	12	0.2/0.3/0.5/1.0	55	12	150
HJ-RNE600-1414150	14	0.2/0.3/0.5/1.0	60	14	150
HJ-RNE600-1616150	16	0.2/0.3/0.5/1.0	65	16	150
HJ-RNE600-1818150	18	0.2/0.3/0.5/1.0	70	18	150
HJ-RNE600-2020150	20	0.2/0.3/0.5/1.0	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	○	◎	○	○		○	○	○	◎	◎	○	○

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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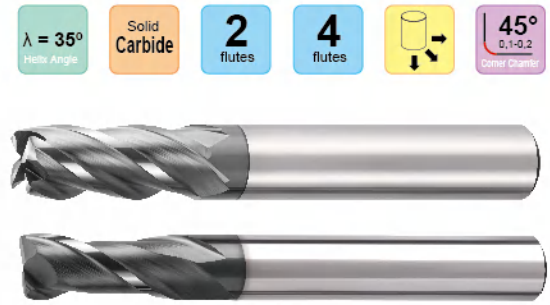
HIBOO TOOLS

63°

圆鼻刀 Round Nose End Mills

+ 设计：2/4刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：特别应用于结构钢，表面硬化钢，调制钢，工具钢，铸钢和铸铁的加工。

+ Design: 2/4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Especially for the machining of structural steel, case hardened steel, modulated steel, tool steel, cast steel and cast iron.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE630-0104050	1	0.2/0.3	3	4	50
HJ-RNE630-0204050	2	0.2/0.3	6	4	50
HJ-RNE630-0304050	3	0.2/0.3/0.5/1.0	8	4	50
HJ-RNE630-0404050	4	0.2/0.3/0.5/1.0	11	4	50
HJ-RNE630-0505050	5	0.2/0.3/0.5/1.0	13	5	50
HJ-RNE630-0506050	5	0.2/0.3/0.5/1.0	13	6	50
HJ-RNE630-0606050	6	0.2/0.3/0.5/1.0	15	6	50
HJ-RNE630-0707060	7	0.2/0.3/0.5/1.0	20	7	60
HJ-RNE630-0808060	8	0.2/0.3/0.5/1.0	20	8	60
HJ-RNE630-1010075	10	0.2/0.3/0.5/1.0	25	10	75
HJ-RNE630-1212075	12	0.2/0.3/0.5/1.0	30	12	75
HJ-RNE630-1414100	14	0.2/0.3/0.5/1.0	35	14	100
HJ-RNE630-1616100	16	0.2/0.3/0.5/1.0	40	16	100
HJ-RNE630-1818100	18	0.2/0.3/0.5/1.0	45	18	100
HJ-RNE630-2020100	20	0.2/0.3/0.5/1.0	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE630-0303075	3	0.2/0.3/0.5/1.0	10	3	75
HJ-RNE630-0304075	3	0.2/0.3/0.5/1.0	10	4	75
HJ-RNE630-0404075	4	0.2/0.3/0.5/1.0	15	4	75
HJ-RNE630-0404100	4	0.2/0.3/0.5/1.0	20	4	100
HJ-RNE630-0505075	5	0.2/0.3/0.5/1.0	20	5	75
HJ-RNE630-0506075	5	0.2/0.3/0.5/1.0	20	6	75
HJ-RNE630-0505100	5	0.2/0.3/0.5/1.0	25	5	100
HJ-RNE630-0506100	5	0.2/0.3/0.5/1.0	25	6	100
HJ-RNE630-0606150	6	0.2/0.3/0.5/1.0	30	6	150
HJ-RNE630-0808075	8	0.2/0.3/0.5/1.0	25	8	75
HJ-RNE630-0808100	8	0.2/0.3/0.5/1.0	35	8	100
HJ-RNE630-0808150	8	0.2/0.3/0.5/1.0	40	8	150
HJ-RNE630-1010100	10	0.2/0.3/0.5/1.0	40	10	100
HJ-RNE630-1010150	10	0.2/0.3/0.5/1.0	50	10	150
HJ-RNE630-1212100	12	0.2/0.3/0.5/1.0	45	12	100
HJ-RNE630-1212150	12	0.2/0.3/0.5/1.0	55	12	150
HJ-RNE630-1414150	14	0.2/0.3/0.5/1.0	60	14	150
HJ-RNE630-1616150	16	0.2/0.3/0.5/1.0	65	16	150
HJ-RNE630-1818150	18	0.2/0.3/0.5/1.0	70	18	150
HJ-RNE630-2020150	20	0.2/0.3/0.5/1.0	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	○	○		○	○	○	○	○	◎			

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65°

圆鼻刀 Round Nose End Mills

+ 设计：2/4刃，螺旋槽，右切，中心刃口，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 蓝纳米
+ 应用：特别应用于结构钢，表面硬化钢，调制钢，工具钢，铸钢和铸铁的加工。

+ Design:2/ 4 flutes, helical flute, right cut, center cutting edge, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Blue Nano
+ Application:Especially for the machining of structural steel, case hardened steel, modulated steel, tool steel, cast steel and cast iron.



标 准 Standard

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE650-0104050	1	0.2/0.3	3	4	50
HJ-RNE650-0204050	2	0.2/0.3	6	4	50
HJ-RNE650-0304050	3	0.2/0.3/0.5/1.0	8	4	50
HJ-RNE650-0404050	4	0.2/0.3/0.5/1.0	11	4	50
HJ-RNE650-0505050	5	0.2/0.3/0.5/1.0	13	5	50
HJ-RNE650-0506050	5	0.2/0.3/0.5/1.0	13	6	50
HJ-RNE650-0606050	6	0.2/0.3/0.5/1.0	15	6	50
HJ-RNE650-0707060	7	0.2/0.3/0.5/1.0	20	7	60
HJ-RNE650-0808060	8	0.2/0.3/0.5/1.0	20	8	60
HJ-RNE650-1010075	10	0.2/0.3/0.5/1.0	25	10	75
HJ-RNE650-1212075	12	0.2/0.3/0.5/1.0	30	12	75
HJ-RNE650-1414100	14	0.2/0.3/0.5/1.0	35	14	100
HJ-RNE650-1616100	16	0.2/0.3/0.5/1.0	40	16	100
HJ-RNE650-1818100	18	0.2/0.3/0.5/1.0	45	18	100
HJ-RNE650-2020100	20	0.2/0.3/0.5/1.0	45	20	100

加 长 Extended

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	R角 (R)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-RNE650-0303075	3	0.2/0.3/0.5/1.0	10	3	75
HJ-RNE650-0304075	3	0.2/0.3/0.5/1.0	10	4	75
HJ-RNE650-0404075	4	0.2/0.3/0.5/1.0	15	4	75
HJ-RNE650-0404100	4	0.2/0.3/0.5/1.0	20	4	100
HJ-RNE650-0505075	5	0.2/0.3/0.5/1.0	20	5	75
HJ-RNE650-0506075	5	0.2/0.3/0.5/1.0	20	6	75
HJ-RNE650-0505100	5	0.2/0.3/0.5/1.0	25	5	100
HJ-RNE650-0506100	5	0.2/0.3/0.5/1.0	25	6	100
HJ-RNE650-0606150	6	0.2/0.3/0.5/1.0	30	6	150
HJ-RNE650-0808075	8	0.2/0.3/0.5/1.0	25	8	75
HJ-RNE650-0808100	8	0.2/0.3/0.5/1.0	35	8	100
HJ-RNE650-0808150	8	0.2/0.3/0.5/1.0	40	8	150
HJ-RNE650-1010100	10	0.2/0.3/0.5/1.0	40	10	100
HJ-RNE650-1010150	10	0.2/0.3/0.5/1.0	50	10	150
HJ-RNE650-1212100	12	0.2/0.3/0.5/1.0	45	12	100
HJ-RNE650-1212150	12	0.2/0.3/0.5/1.0	55	12	150
HJ-RNE650-1414150	14	0.2/0.3/0.5/1.0	60	14	150
HJ-RNE650-1616150	16	0.2/0.3/0.5/1.0	65	16	150
HJ-RNE650-1818150	18	0.2/0.3/0.5/1.0	70	18	150
HJ-RNE650-2020150	20	0.2/0.3/0.5/1.0	75	20	150

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 Titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	○	○	◎	◎	○	○	○	○	◎			

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HIBOO TOOLS

50°

铝用平刀 Aluminum End Mills

+ 设计：3刃，螺旋槽，右切，一刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 无涂层
+ 应用：特别应用于铝合金、铜合金和有色金属的削铣。





+ Design: 3 flutes, helical flute, right cut, 1 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / None
+ Application:Especially for milling of aluminium alloys, cpooer alloys and non-ferrous metals.

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-AEM500-1004050	1	3	4	50
HJ-AEM500-2004050	2	6	4	50
HJ-AEM500-2504050	2.5	7.5	4	50
HJ-AEM500-3004050	3	9	4/3	50
HJ-AEM500-4004050	4	12	4	50
HJ-AEM500-5006050	5	15	6/5	50
HJ-AEM500-6006050	6	18	6	50
HJ-AEM500-8008060	8	24	8	60
HJ-AEM500-10010075	10	30	10	75
HJ-AEM500-12012075	12	36	12	75
HJ-AEM500-14014100	14	35	14	100
HJ-AEM500-16016100	16	40	16	100
HJ-AEM500-18018100	18	45	18	100
HJ-AEM500-20020100	20	45	20	100

加工参数 P53 Processing parameter P53

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free-cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
													◎

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50°

铝用球刀 Aluminum Ball End Mills

+ 设计：2/3刃，螺旋槽，右切，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 无涂层
+ 应用：适用于铝制材料和有色金属。

+ Design: 2/3 flutes, helical flute, right cut, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / None
+ Application:Suitable for aluminium and non-ferrous metals.



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-ABE500-R05004050	R0.5	2	4	50
HJ-ABE500-R07504050	R0.75	3	4	50
HJ-ABE500-R10004050	R1	4	4	50
HJ-ABE500-R12504050	R1.25	5	4	50
HJ-ABE500-R15004050	R1.5	6	4	50
HJ-ABE500-R20004050	R2	8	4	50
HJ-ABE500-R25006050	R2.5	10	6	50
HJ-ABE500-R30006050	R3	12	6	50
HJ-ABE500-R40008060	R4	16	8	60
HJ-ABE500-R50010075	R5	20	10	75
HJ-ABE500-R60012075	R6	24	12	75
HJ-ABE500-R70014100	R7	28	14	100
HJ-ABE500-R80016100	R8	32	16	100
HJ-ABE500-R90018100	R9	36	18	100
HJ-ABE500-R100020100	R10	40	20	100

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-ABE500-R15004075	R1.5	6	4	75
HJ-ABE500-R20004075	R2	8	4	75
HJ-ABE500-R20004100	R2	8	4	100
HJ-ABE500-R25006075	R2.5	10	6	75
HJ-ABE500-R25006100	R2.5	10	6	100
HJ-ABE500-R30006150	R3	12	6	150
HJ-ABE500-R40008075	R4	16	8	75
HJ-ABE500-R40008100	R4	16	8	100
HJ-ABE500-R40008150	R4	16	8	150
HJ-ABE500-R60012150	R6	24	12	150
HJ-ABE500-R80016150	R8	32	16	150
HJ-ABE500-R90018150	R9	36	18	150
HJ-ABE500-R100020150	R10	40	20	150

加工参数 P54 Processing parameter P54

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
													◎

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HIBOO TOOLS

55°

铝用铣刀 Aluminum End Mills

+ 设计：3/4刃，螺旋槽，右切，一刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 无涂层
+ 应用：特别应用于铝合金、铜合金和有色金属的削铣。



+ Design: 2/3 flutes, helical flute, right cut, 1 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / None
+ Application:Especially for milling of aluminium alloys, cpooer alloys and non-ferrous metals.



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-AEM550-1004050	1	3	4	50
HJ-AEM550-1504050	1.5	4.5	4	50
HJ-AEM550-2004050	2	6	4	50
HJ-AEM550-2504050	2.5	7.5	4	50
HJ-AEM550-3004050	3	9	4	50
HJ-AEM550-3003050	3	9	3	50
HJ-AEM550-3504050	3.5	10.5	4	50
HJ-AEM550-4004050	4	12	4	50
HJ-AEM550-5006050	5	15	6	50
HJ-AEM550-5005050	5	15	5	50
HJ-AEM550-6006050	6	18	6	50
HJ-AEM550-8008060	8	24	8	60
HJ-AEM550-10010075	10	30	10	75
HJ-AEM550-12012075	12	36	12	75
HJ-AEM550-14014100	14	35	14	100
HJ-AEM550-16016100	16	40	16	100
HJ-AEM550-18018100	18	45	18	100
HJ-AEM550-20020100	20	45	20	100
HJ-AEM550-3004075	3	15	4	75
HJ-AEM550-3003075	3	15	3	75

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-AEM550-40004075	4	15	4	75
HJ-AEM550-60006075	6	20	6	75
HJ-AEM550-80008075	8	25	8	75
HJ-AEM550-80008100	8	35	8	100
HJ-AEM550-100010100	10	40	10	100
HJ-AEM550-120012100	12	45	12	100
HJ-AEM550-60006150	6	35	6	150
HJ-AEM550-80008150	8	40	8	150
HJ-AEM550-100010150	10	50	10	150
HJ-AEM550-120012150	12	55	12	150
HJ-AEM550-160016150	16	65	16	150

加工参数 P53 Processing parameter P53

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
													◎

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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50°

铝用圆鼻刀 Aluminum Round Nose End Mills

+ 设计：3刃，刀尖圆弧（刀刃稳定性高），大容屑空间（更好的排屑能力），特殊切削角度设计。
+ 材料/涂层：超细硬质合金 / 无涂层
+ 应用：工况不足进行铝加工、开槽、键槽、粗加工和精加工

+ Design: 3 flutes, Tool nose arc (high edge stability), large chip space (better chip removal capability), special cutting angle design.
+ Solid carbide material / Coating: Solid-Carbide micro grain / None
+ Application:Insufficient machining conditions for aluminum machining, grooving, keyway, roughing and finishing.



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-ARN500-0304050	3 R0.5/R1	8	4	50
HJ-ARN500-0606050	6 R0.5/R1	15	6	50
HJ-ARN500-0808060	8 R0.5/R1	20	8	60
HJ-ARN500-1010075	10 R0.5/R1	25	10	75
HJ-ARN500-1212075	12 R0.5/R1	30	12	75
HJ-ARN500-0404100	4 R0.5/R1	20	4	100
HJ-ARN500-0606100	6 R0.5/R1	30	6	100
HJ-ARN500-0808100	8 R0.5/R1	35	8	100
HJ-ARN500-1010100	10 R0.5/R1	40	10	100
HJ-ARN500-1212100	12 R0.5/R1	45	12	100

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
													◎

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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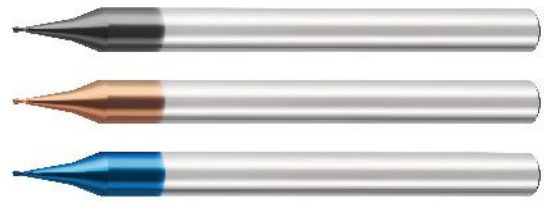
HIBOO TOOLS

微小径平刀 Micro End Mills

+ 设计：2刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色、蓝纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze, Blue Nano
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.2 μm | HRc ▸60 | G12



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-MEM-0102050	0.1	0.2	4	50
HJ-MEM-0204050	0.2	0.4	4	50
HJ-MEM-0306050	0.3	0.6	4	50
HJ-MEM-03507050	0.35	0.7	4	50
HJ-MEM-0408050	0.4	0.8	4	50
HJ-MEM-0510050	0.5	1	4	50
HJ-MEM-0612050	0.6	1.2	4	50
HJ-MEM-0714050	0.7	1.4	4	50
HJ-MEM-0816050	0.8	1.6	4	50
HJ-MEM-0918050	0.9	1.8	4	50

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
				◎	◎	○			○		○		○

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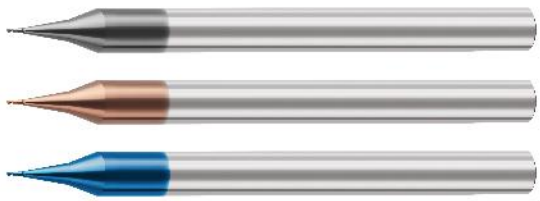
微小径球刀 Micro Ball End Mills

+ 设计：2刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色、蓝纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze, Blue Nano
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.2 μm | R | HRc ▶60 | G12



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-MBEM-R0104050	R0.1	0.4	4	50
HJ-MBEM-R01506050	R0.15	0.6	4	50
HJ-MBEM-R0208050	R0.2	0.8	4	50
HJ-MBEM-R02510050	R0.25	1	4	50
HJ-MBEM-R0312050	R0.3	1.2	4	50
HJ-MBEM-R03514050	R0.35	1.4	4	50
HJ-MBEM-R0416050	R0.4	1.6	4	50
HJ-MBEM-R04518050	R0.45	1.8	4	50

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
				◎	◎	○			○		○		○

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HIBOO TOOLS

微小径铝用刀 Micro Aluminum End Mills

+ 设计：2刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色、蓝纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze, Blue Nano
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 35° Helix Angle | Solid Carbide | 2 flutes | 0.2 μm | R | HRc ▶60 | G12



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-MCREM-02050	0.2	0.4	4	50
HJ-MCREM-03050	0.3	0.6	4	50
HJ-MCREM-04050	0.4	0.8	4	50
HJ-MCREM-05050	0.5	1.0	4	50
HJ-MCREM-06050	0.6	1.2	4	50
HJ-MCREM-07050	0.7	1.4	4	50
HJ-MCREM-08050	0.8	1.6	4	50

加工参数 P53 Processing parameter P53

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
				◎	◎	○			○		○		◎

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小径深沟平刀 Micro Deep Groove End Mills

+ 设计：2刃，螺旋槽，右切，一刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2 flutes, spiral fluted, right hand cut,1 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.2 μm | HRc ▸60 | G12



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	有效长 (L2)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-MDGEM-03201450	0.3	0.6	2	4	50
HJ-MDGEM-03302450	0.3	0.6	3	4	50
HJ-MDGEM-04300250	0.4	0.8	3	4	50
HJ-MDGEM-04403250	0.4	0.8	4	4	50
HJ-MDGEM-05403050	0.5	1	4	4	50
HJ-MDGEM-05605050	0.5	1	6	4	50
HJ-MDGEM-05807050	0.5	1	8	4	50
HJ-MDGEM-06402850	0.6	1.2	4	4	50
HJ-MDGEM-06604850	0.6	1.2	6	4	50
HJ-MDGEM-06806850	0.6	1.2	8	4	50
HJ-MDGEM-07402650	0.7	1.4	4	4	50
HJ-MDGEM-07604650	0.7	1.4	6	4	50
HJ-MDGEM-07806650	0.7	1.4	8	4	50
HJ-MDGEM-08402450	0.8	1.6	4	4	50
HJ-MDGEM-08604450	0.8	1.6	6	4	50
HJ-MDGEM-08806450	0.8	1.6	8	4	50
HJ-MDGEM-09402250	0.9	1.8	4	4	50
HJ-MDGEM-09604250	0.9	1.8	6	4	50
HJ-MDGEM-09806250	0.9	1.8	8	4	50

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

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HIBOO TOOLS

小径深沟球刀 Micro Deep Groove Ball End Mills

+ 设计：2刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.2 μm | HRc ▸60 | G12



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	R (R Dia.)	刃长 (l Length of Cut)	有效长 (L2)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-MDGBEM-03062050	R0.15	0.6	2	4	50
HJ-MDGBEM-03063050	R0.15	0.6	3	4	50
HJ-MDGBEM-04083050	R0.2	0.8	3	4	50
HJ-MDGBEM-04084050	R0.2	0.8	4	4	50
HJ-MDGBEM-05104050	R0.25	1	4	4	50
HJ-MDGBEM-05106050	R0.25	1	6	4	50
HJ-MDGBEM-05108050	R0.25	1	8	4	50
HJ-MDGBEM-06124050	R0.3	1.2	4	4	50
HJ-MDGBEM-06126050	R0.3	1.2	6	4	50
HJ-MDGBEM-06128050	R0.3	1.2	8	4	50
HJ-MDGBEM-07144050	R0.35	1.4	4	4	50
HJ-MDGBEM-07146050	R0.35	1.4	6	4	50
HJ-MDGBEM-07148050	R0.35	1.4	8	4	50
HJ-MDGBEM-08164050	R0.4	1.6	4	4	50
HJ-MDGBEM-08166050	R0.4	1.6	6	4	50
HJ-MDGBEM-08168050	R0.4	1.6	8	4	50
HJ-MDGBEM-09184050	R0.45	1.8	4	4	50
HJ-MDGBEM-09186050	R0.45	1.8	6	4	50
HJ-MDGBEM-09188050	R0.45	1.8	8	4	50

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

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55°

深沟平刀 Deep Groove End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 35° Helix Angle | Solid Carbide | 2 flutes | 4 flutes | 0.4 μm | HRc ▸55 | G10



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	有效长 (L2)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-DGEM550-10060450	1	3	6	4	50
HJ-DGEM550-10080450	1	3	8	4	50
HJ-DGEM550-10100450	1	3	10	4	50
HJ-DGEM550-10120450	1	3	12	4	50
HJ-DGEM550-10140450	1	3	14	4	50
HJ-DGEM550-10160450	1	3	16	4	50
HJ-DGEM550-10200450	1	3	20	4	50
HJ-DGEM550-15060450	1.5	4	6	4	50
HJ-DGEM550-15080450	1.5	4	8	4	50
HJ-DGEM550-15100450	1.5	4	10	4	50
HJ-DGEM550-15120450	1.5	4	12	4	50
HJ-DGEM550-15140450	1.5	4	14	4	50
HJ-DGEM550-15160450	1.5	4	16	4	50
HJ-DGEM550-15200450	1.5	4	20	4	50
HJ-DGEM550-20080450	2	6	8	4	50
HJ-DGEM550-20100450	2	6	10	4	50
HJ-DGEM550-20120450	2	6	12	4	50
HJ-DGEM550-20140450	2	6	14	4	50
HJ-DGEM550-20160450	2	6	16	4	50
HJ-DGEM550-20200450	2	6	20	4	50
HJ-DGEM550-30120450	3	8	12	4	50
HJ-DGEM550-30140450	3	8	14	4	50
HJ-DGEM550-30160450	3	8	16	4	50

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

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HIBOO TOOLS

55°

深沟球刀 Deep Groove Ball End Mills

HIBOO

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,1 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze
+ Application:Universal applications,suitable forhight hard materials , as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.4 μm | HRc ▸55 | G10



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	有效长 (L2)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-DGBEM550-20060450	R0.5	2	6	4	50
HJ-DGBEM550-20080450	R0.5	2	8	4	50
HJ-DGBEM550-20100450	R0.5	2	10	4	50
HJ-DGBEM550-20120450	R0.5	2	12	4	50
HJ-DGBEM550-20140450	R0.5	2	14	4	50
HJ-DGBEM550-20160450	R0.5	2	16	4	50
HJ-DGBEM550-20200450	R0.5	2	20	4	50
HJ-DGBEM550-30060450	R0.75	3	6	4	50
HJ-DGBEM550-30080450	R0.75	3	8	4	50
HJ-DGBEM550-30100450	R0.75	3	10	4	50
HJ-DGBEM550-30120450	R0.75	3	12	4	50
HJ-DGBEM550-30140450	R0.75	3	14	4	50
HJ-DGBEM550-30160450	R0.75	3	16	4	50
HJ-DGBEM550-30200450	R0.75	3	20	4	50
HJ-DGBEM550-40080450	R1	4	8	4	50
HJ-DGBEM550-40100450	R1	4	10	4	50
HJ-DGBEM550-40120450	R1	4	12	4	50
HJ-DGBEM550-40140450	R1	4	14	4	50
HJ-DGBEM550-40160450	R1	4	16	4	50
HJ-DGBEM550-40200450	R1	4	20	4	50
HJ-DGBEM550-60120450	R1.5	6	12	4	50
HJ-DGBEM550-60140450	R1.5	6	14	4	50
HJ-DGBEM550-60160450	R1.5	6	16	4	50

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

◎ 最适合加工 Most Suitable ○ 适合加工 Suitable

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58°

深沟平刀 Deep Groove End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 35° Helix Angle | Solid Carbide | 2 flutes | 4 flutes | 0.4 μm | HRc ▶58 | G10



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	有效长 (L2)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-DGEM550-10060450	1	3	6	4	50
HJ-DGEM550-10080450	1	3	8	4	50
HJ-DGEM550-10100450	1	3	10	4	50
HJ-DGEM550-10120450	1	3	12	4	50
HJ-DGEM550-10140450	1	3	14	4	50
HJ-DGEM550-10160450	1	3	16	4	50
HJ-DGEM550-10200450	1	3	20	4	50
HJ-DGEM550-15060450	1.5	4	6	4	50
HJ-DGEM550-15080450	1.5	4	8	4	50
HJ-DGEM550-15100450	1.5	4	10	4	50
HJ-DGEM550-15120450	1.5	4	12	4	50
HJ-DGEM550-15140450	1.5	4	14	4	50
HJ-DGEM550-15160450	1.5	4	16	4	50
HJ-DGEM550-15200450	1.5	4	20	4	50
HJ-DGEM550-20080450	2	6	8	4	50
HJ-DGEM550-20100450	2	6	10	4	50
HJ-DGEM550-20120450	2	6	12	4	50
HJ-DGEM550-20140450	2	6	14	4	50
HJ-DGEM550-20160450	2	6	16	4	50
HJ-DGEM550-20200450	2	6	20	4	50
HJ-DGEM550-30120450	3	8	12	4	50
HJ-DGEM550-30140450	3	8	14	4	50
HJ-DGEM550-30160450	3	8	16	4	50

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	○	○	○	◎	◎	○			○		○		

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HIBOO TOOLS

58°

深沟球刀 Deep Groove Ball End Mills

+ 设计：2/4刃，螺旋槽，右切，一刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米、古铜色
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano, Bronze
+ Application:Universal applications,suitable forhight hard materials , as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.4 μm | HRc ▸58 | G10



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	有效长 (L2)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-DGBEM580-20060450	R0.5	2	6	4	50
HJ-DGBEM580-20080450	R0.5	2	8	4	50
HJ-DGBEM580-20100450	R0.5	2	10	4	50
HJ-DGBEM580-20120450	R0.5	2	12	4	50
HJ-DGBEM580-20140450	R0.5	2	14	4	50
HJ-DGBEM580-20160450	R0.5	2	16	4	50
HJ-DGBEM580-20200450	R0.5	2	20	4	50
HJ-DGBEM580-30060450	R0.75	3	6	4	50
HJ-DGBEM580-30080450	R0.75	3	8	4	50
HJ-DGBEM580-30100450	R0.75	3	10	4	50
HJ-DGBEM580-30120450	R0.75	3	12	4	50
HJ-DGBEM580-30140450	R0.75	3	14	4	50
HJ-DGBEM580-30160450	R0.75	3	16	4	50
HJ-DGBEM580-30200450	R0.75	3	20	4	50
HJ-DGBEM580-40080450	R1	4	8	4	50
HJ-DGBEM580-40100450	R1	4	10	4	50
HJ-DGBEM580-40120450	R1	4	12	4	50
HJ-DGBEM580-40140450	R1	4	14	4	50
HJ-DGBEM580-40160450	R1	4	16	4	50
HJ-DGBEM580-40200450	R1	4	20	4	50
HJ-DGBEM580-60120450	R1.5	6	12	4	50
HJ-DGBEM580-60140450	R1.5	6	14	4	50
HJ-DGBEM580-60160450	R1.5	6	16	4	50

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
○	○	○	○	◎	◎	○			○		○		

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58°

小数点平刀 Decimal Point End Mills

+ 设计：2/4刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2/4 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 35° Helix Angle | Solid Carbide | 2 flutes | 4 flutes | 0.4 μm | HRc ▸58 | G10



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-DPEM580-12360450	1.2	3.6	4	50
HJ-DPEM580-13390450	1.3	3.9	4	50
HJ-DPEM580-14420450	1.4	4.2	4	50
HJ-DPEM580-16480450	1.6	4.8	4	50
HJ-DPEM580-17510450	1.7	5.1	4	50
HJ-DPEM580-18540450	1.8	5.4	4	50
HJ-DPEM580-19570450	1.9	5.7	4	50

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 Titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

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HIBOO TOOLS

58°

小数点球刀 Decimal Point Ball End Mills

HIBOO

+ 设计：2刃，螺旋槽，右切，二刃过中心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：通用，不仅仅适用于高硬度材料，同时也适合加工铝制材料与有色金属。尺寸较小的铣刀也适用于开槽。

+ Design: 2 flutes, spiral fluted, right hand cut,2 cutting edge over center, cylindrical shank
+ Solid carbide material / Coating: Solid-Carbide micro grain / Black Nano
+ Application:Universal applications,suitable forhight hard materials，as well as aluminiumand non-ferrous metals.The undersized endmills are especially for fitting slot cutting.

λ = 30° Helix Angle | Solid Carbide | 2 flutes | 0.4 μm | HRc ▶58 | G10



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	R径 (R Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-DPBEM580-06240450	R0.6	2.4	4	50
HJ-DPBEM580-07280450	R0.65	2.6	4	50
HJ-DPBEM580-08320450	R0.7	2.8	4	50
HJ-DPBEM580-09360450	R0.8	3.2	4	50
HJ-DPBEM580-10420450	R0.85	3.4	4	50
HJ-DPBEM580-15620450	R0.9	3.6	4	50
HJ-DPBEM580-20780450	R0.95	3.8	4	50

加工参数 P47 Processing parameter P47

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 Titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	○				◎	◎	○	◎	○	○	

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58°

粗皮铣刀(钢用) Roughing End Mills (For Steel)

+ 材料/涂层：超细硬质合金 / 古铜色
+ 应用：卓越的刃部光洁度，使被加工材料的表面光洁度非常优秀。高精密公差控制，适合超精密加工，高速加工时发挥出色性能。

+ Solid carbide material / Coating: Solid-Carbide micro grain / Bronze
+ Application:Excellent edge finish, so that the surface finish of the material to be processed is very good. High-precision tolerance control, suitable for ultra-precision machining, and excellent performance in high-speed machining.

λ = 30° Helix Angle | Super MG | 4 flutes | HRc ▶58 | TISIN TH



标 准 Standard

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-REM-S580-041104050	4	11	4	50
HJ-REM-S580-051306050	5	13	6	50
HJ-REM-S580-061506050	6	15	6	50
HJ-REM-S580-082008060	8	20	8	60
HJ-REM-S580-102510075	10	25	10	75
HJ-REM-S580-123012075	12	30	12	75
HJ-REM-S580-143514100	14	35	14	100
HJ-REM-S580-164016100	16	40	16	100
HJ-REM-S580-184518100	18	45	18	100
HJ-REM-S580-204520100	20	45	20	100

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
				◎	◎	○	○		○		○		○

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58°

粗皮铣刀(铝用) Roughing End Mills (For Aluminum)

+ 材料/涂层：超细硬质合金 / 无涂层
+ 应用：卓越的刃部光洁度，使被加工材料的表面光洁度非常优秀。高精密公差控制，适合超精密加工，高速加工时发挥出色性能。

+ Solid carbide material / Coating: Solid-Carbide micro grain / None
+ Application:Excellent edge finish, so that the surface finish of the material to be processed is very good. High-precision tolerance control, suitable for ultra-precision machining, and excellent performance in high-speed machining.

λ = 35° Helix Angle | Super MG | 3 flutes | HRc ▶58



标 准 Standard

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-REM-SA580-041104050	4	11	4	50
HJ-REM-SA580-051306050	5	13	6	50
HJ-REM-SA580-061506050	6	15	6	50
HJ-REM-SA580-082008060	8	20	8	60
HJ-REM-SA580-102510075	10	25	10	75
HJ-REM-SA580-123012075	12	30	12	75
HJ-REM-SA580-143514100	14	35	14	100
HJ-REM-SA580-164016100	16	40	16	100
HJ-REM-SA580-184518100	18	45	18	100
HJ-REM-SA580-204520100	20	45	20	100

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
				◎	◎				○		○		◎

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螺纹铣刀(钢用) Thread Milling Cutter (For Steel)

+ 材料/涂层：0.4u超细微粒合金基体 / 古铜色
+ 应用：适合加工铸铁、不锈钢、钛合金、模具钢、镍合金、淬火钢

HRST | 60° | 涂层 Coated | DIN 6535 HA



+ Solid carbide material / Coating: 0.4u ultra-fine particle alloy matrix / Bronze
+ Application:Suitable for machining cast iron, stainless steel, titanium alloy, die steel, nickel alloy, hardened steel

标 准 Standard

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	M粗牙 (Coarse teeth)	螺距 (Pitch)	刃径 (Dia.)	全长 O.A.L
HJ-TMC-S-M3050450	M3	0.5P	4	50
HJ-TMC-S-M4070450	M4	0.7P	4	50
HJ-TMC-S-M5080650	M5	0.8P	6	50
HJ-TMC-S-J6100650	M6	1.0P	6	50
HJ-TMC-S-M81250660	M8	1.25P	6	60
HJ-TMC-S-M10150865	M10	1.5P	8	65
HJ-TMC-S-M121751075	M12	1.75P	10	75

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
		○		◎	◎		◎		○	◎	◎		

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HIBOO TOOLS

螺纹铣刀(铝用) Thread Milling Cutter (For Aluminum)

+ 材料/涂层：0.4u超细微粒合金基体 / 无涂层
+ 应用：适合加工铝合金、型材铝、黄铜、紫铜、塑料PVC一类

HRST | 60° | 无涂层 None | DIN 6535 HA

+ Solid carbide material / Coating: 0.4u ultra-fine particle alloy matrix / None
+ Application:Suitable for processing aluminum alloy, profile aluminum, brass, copper, plastic PVC



标 准 Standard

单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	M粗牙 (Coarse teeth)	螺距 (Pitch)	刃径 (Dia.)	全长 O.A.L
HJ-TMC-A-M3050450	M3	0.5P	4	50
HJ-TMC-A-M4070450	M4	0.7P	4	50
HJ-TMC-A-M5080650	M5	0.8P	6	50
HJ-TMC-A-J6100650	M6	1.0P	6	50
HJ-TMC-A-M81250660	M8	1.25P	6	60
HJ-TMC-A-M10150865	M10	1.5P	8	65
HJ-TMC-A-M121751075	M12	1.75P	10	75

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
		○											◎

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63°

不锈钢专用铣刀 Stainless Steel Special Milling Cutter

+ 设计：U槽，不等分割设计
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：不锈钢、铸铁和高温合金的高速加工，即使在不利的条件下，也能进行粗加工，精细的粗加工以及动态的摆线铣削

+ Design: U slot, unequal split design
+ Material/Coating: Superfine Carbide / Black NanoD
+ Applications: High-speed machining of stainless steel, cast iron and superalloys, roughing even under adverse conditions, fine roughing and dynamic trochoidal milling

λ = 38° Helix Angle | λ = 35° Helix Angle | Super MG | 4 flutes | HRc ▶63



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-SSS630-10 03050	1	3	4	50
HJ-SSS630-20 06050	2	6	4	50
HJ-SSS630-30 08050	3	8	4	50
HJ-SSS630-40 11050	4	11	4	50
HJ-SSS630-50 13050	5	13	5	50
HJ-SSS630-60 15050	6	15	6	50
HJ-SSS630-80 20060	8	20	8	60
HJ-SSS630-100 25075	10	25	10	75
HJ-SSS630-120 30075	12	30	12	75

加工参数 P45 Processing parameter P45

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 Titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○	○		◎	◎	◎	◎	◎	◎	

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HIBOO TOOLS

单刃刀 Single Edge Cutter

+ 设计：大排屑槽，镜面抛光
+ 材料/涂层：超细硬质合金 / 无涂层
+ 应用：专业加工亚克力、PVC、密度板、多层板等，免抛光、不粘刀。

+ Design: Large flutes, mirror polished
+ Material/Coating: Superfine Carbide / None
+ Application: Professional processing of acrylic, PVC, MDF, multi-layer boards, etc., no polishing, non-stick tool.

λ = 45° Helix Angle | Carbide MG | 1 flutes | ϕd h6



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-SEC-1.0 3.175 385	1	3/4	3.175	38.5
HJ-SEC-1.5 3.175 385	1.5	5/6/8	3.175	38.5
HJ-SEC-2.0 3.175 385	2	6/8/10/12	3.175	38.5
HJ-SEC-2.0 3.175 385	2	6/8/10/12	3.175	38.5
HJ-SEC-2.0 3.175 385	2	15/17	3.175	38.5
HJ-SEC-2.5 3.175 385	2.5	8/10/12	3.175	38.5
HJ-SEC-2.5 3.175 385	2.5	15/17	3.175	38.5
HJ-SEC-3.175 3.175 385	3.175	8/12/15/17	3.175	38.5
HJ-SEC-3.175 3.175 450	3.175	22	3.175	45
HJ-SEC-3.175 3.175 500	3.175	25	3.175	50
HJ-SEC-4.0 4 450	4	12/17/22	4	45
HJ-SEC-4.0 4 500	4	25	4	50
HJ-SEC-4.0 4 500	4	28	4	50
HJ-SEC-4.0 4 550	4	32	4	55
HJ-SEC-5.0 6 500	5	17/22	6	50
HJ-SEC-6.0 6 500	6	17/22	6	50
HJ-SEC-6.0 6 500	6	25	6	50
HJ-SEC-6.0 6 550	6	28	6	55
HJ-SEC-6.0 6 600	6	32/35	6	60
HJ-SEC-8.0 8 500	8	17/22	8	50
HJ-SEC-8.0 8 600	8	28	8	60
HJ-SEC-8.0 8 750	8	32	8	75
HJ-SEC-8.0 8 850	8	52	8	85
HJ-SEC-10 10 750	10	25	10	75
HJ-SEC-10 10 750	10	32	10	75
HJ-SEC-10 10 750	10	45	10	75
HJ-SEC-10 10 100	10	52	10	100
HJ-SEC-12 12 075	12	22/25	12	75
HJ-SEC-12 12 075	12	32/35	12	75

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
													◎

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55°

钨钢定心钻 Tungsten Steel Center Drill

+ 设计：倒角，定心，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：适用于不锈钢、铸铁、合金钢等55 ° 以内的材料

+ Design: Chamfering, Centering, Cylindrical Shank
+ Material/Coating: Superfine Carbide / Black Nano
+ Application: Suitable for stainless steel, cast iron, alloy steel and other materials within 55°



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	角度 (A)	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L
HJ-TSD-038050 90°	90°	3	8	3	50
HJ-TSD-041150 90°	90°	4	11	4	50
HJ-TSD-061550 90°	90°	6	15	6	50
HJ-TSD-082060 90°	90°	8	20	8	60
HJ-TSD-102575 90°	90°	10	25	10	75
HJ-TSD-123075 90°	90°	12	30	12	75

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	◎	◎	○	○			◎	◎	◎	

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HIBOO TOOLS

55°

直槽铰刀 Straight Groove Reamer

+ 设计：直槽冷却孔，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：适用于各种钢材、铸铁、合金钢、铜、铝合金等材料。适用范围广，软硬通用，锋利耐用。

+ Design: Straight groove cooling hole, cylindrical shank
+ Material/Coating: Superfine Carbide / Black Nano
+ Application: Applicable to all kinds of steel, cast iron, alloy steel, copper, aluminum alloy and other materials. Wide range of applications, soft and hard universal, sharp and durable.

Solid Carbide | ±0.002 Tolerance | HA



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L	刃数 F
HJ-SGR-201550	2	15	2	50	4
HJ-SGR-301850	3	18	3	50	4
HJ-SGR-402050	4	20	4	50	4
HJ-SGR-502050	5	20	5	50	6
HJ-SGR-602250	6	22	6	50	6
HJ-SGR-802560	8	25	8	60	6
HJ-SGR-1002575	10	25	10	75	6
HJ-SGR-1202875	12	28	12	75	6

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 Titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			○	○	○	

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55°

直槽铰刀 Straight Groove Reamer

+ 设计：直槽，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：适用于各种钢材、铸铁、合金钢、铜、铝合金等材料。适用范围广，软硬通用，锋利耐用。

+ Design:Straight groove, cylindrical shank
+ Material/Coating: Superfine Carbide / Black Nano
+ Application: Applicable to all kinds of steel, cast iron, alloy steel, copper, aluminum alloy and other materials. Wide range of applications, soft and hard universal, sharp and durable.



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L	刃数 F
HJ-SGR-202550	2	25	2	50	4
HJ-SGR-303060	3	30	3	60	4
HJ-SGR-403060	4	30	4	60	4
HJ-SGR-503060	5	30	5	60	6
HJ-SGR-603570	6	35	6	70	6
HJ-SGR-804080	8	40	8	80	6
HJ-SGR-10045100	10	45	10	100	6
HJ-SGR-12050100	12	50	12	100	6

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 Titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			○	○	○	

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HIBOO TOOLS

55°

螺旋槽铰刀 Spiral Groove Reamer

+ 设计：螺旋槽冷却孔，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：适用于各种钢材、铸铁、合金钢、铜、铝合金等材料。适用范围广，软硬通用，锋利耐用。

+ Design: Spiral groove cooling hole, cylindrical shank
+ Material/Coating: Superfine Carbide / Black Nano
+ Application: Applicable to all kinds of steel, cast iron, alloy steel, copper, aluminum alloy and other materials. Wide range of applications, soft and hard universal, sharp and durable.



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L	刃数 F
HJ-SSGR-201550	2	15	2	50	4
HJ-SSGR-301850	3	18	3	50	4
HJ-SSGR-402050	4	20	4	50	4
HJ-SSGR-502050	5	20	5	50	6
HJ-SSGR-602250	6	22	6	50	6
HJ-SSGR-802560	8	25	8	60	6
HJ-SSGR-1002575	10	25	10	75	6
HJ-SSGR-1202875	12	28	12	75	6

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			○	○	○	

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55°

+ 设计：螺旋槽，圆柱刀柄
+ 材料/涂层：超细硬质合金 / 黑纳米
+ 应用：适用于各种钢材、铸铁、合金钢、铜、铝合金等材料。适用范围广，软硬通用，锋利耐用。

+ Design:Spiral groove, cylindrical shank
+ Material/Coating: Superfine Carbide / Black Nano
+ Application: Applicable to all kinds of steel, cast iron, alloy steel, copper, aluminum alloy and other materials. Wide range of applications, soft and hard universal, sharp and durable.



单位[规格：mm] Unit [Size : mm]

产品代码 Code No.	刃径 (d Dia.)	刃长 (l Length of Cut)	柄径 (D Shank Dia.)	全长 O.A.L	刃数 F
HJ-SSGR-202550	2	25	2	50	4
HJ-SSGR-303060	3	30	3	60	4
HJ-SSGR-403060	4	30	4	60	4
HJ-SSGR-503060	5	30	5	60	6
HJ-SSGR-603570	6	35	6	70	6
HJ-SSGR-804080	8	40	8	80	6
HJ-SSGR-10045100	10	45	10	100	6
HJ-SSGR-12050100	12	50	12	100	6

被切削材质 Material to be cut

易切削钢、结构钢、弹簧钢 Free cutting steel, structural steel, spring steel		渗氮钢、回火钢 Nitriding steel, tempered steel	工具钢 Tool steel				不锈钢 Stainless steel	钛 titanium	高温合金 High temperature alloy	铸造不锈钢 Cast stainless steel	铸铁 Cast iron		铝、铝合金、铜、铜合金、其他 Aluminum, aluminum alloy, copper,Copper alloys, others
≤250HB	250-350 HB	≈30HRC	≤45HRC	45-55 HRC	55-60 HRC	≥60HRC					≤180HB	≥180HB	
◎	◎	◎	◎	○			◎			○	○	○	

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HIBOO TOOLS

55°/58°

切削速度与进给率 Speeds and Feeds

55°/58°平刀、55°/58°圆鼻刀、微小径平刀、小径深沟铣刀、小数点铣刀、不锈钢专用铣刀

55°/58° End Mills, 55°/58° Round Nose End Mills , Small diameter End Mills, small diameter deep groove milling cutter, decimal point milling cutter, stainless steel special milling cutter

物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
1.1.1	Free cutting steel	Less than 500 N/mm²	100	0,041	0,046	0,051	0,061	0,071	0,079
1.1.2	Free cutting steel	More than 500 N/mm²	70	0,041	0,046	0,051	0,061	0,071	0,079
1.2.1	non-alloy structural steel	Pure metalLess than 500 N/mm²	100	0,051	0,056	0,051	0,071	0,079	0,089
1.2.2	non-alloy structural steel	Pure metalMore than 500 N/mm²	70	0,051	0,056	0,051	0,071	0,079	0,089
1.2.3	Alloy structural steel	alloy	60	0,041	0,046	0,051	0,061	0,071	0,079
1.3.1	Annealed spring steel	Tempering （Less than 250 HB)	60	0,041	0,046	0,051	0,061	0,071	0,079
1.3.2	hardened spring steel	Original hardness (250-350 HB)	60	0,041	0,046	0,051	0,061	0,071	0,079
1.3.3	Cold forged spring steel	Cold forming (1200-1600 N/mm²)	60	0,041	0,046	0,051	0,061	0,071	0,079
2.1.1	case hardened steel	Less than 150 HB	95	0,041	0,046	0,051	0,061	0,071	0,079
2.1.2	case hardened steel	150-200 HB	75	0,030	0,035	0,041	0,051	0,061	0,071
2.1.3	case hardened steel	More than 200 HB	60	0,030	0,035	0,041	0,051	0,061	0,071
2.2.1	Nitrided steel	Less than 1000 N/mm²	70	0,030	0,035	0,041	0,051	0,061	0,071
2.2.2	Nitrided steel	More than 1000 N/mm²	55	0,030	0,035	0,041	0,051	0,061	0,071
2.3.1	Non-alloy tempered steel	Pure metalLess than 800 N/mm²	80	0,030	0,035	0,041	0,051	0,061	0,071
2.3.2	Non-alloy tempered steel	Non-alloy 800-1000 N/mm²	70	0,030	0,035	0,041	0,051	0,061	0,071
2.3.3	alloy tempered steel	alloy Less than 800 N/mm²	70	0,030	0,035	0,041	0,051	0,061	0,071
2.3.4	alloy tempered steel	alloy 800-1000 N/mm²	60	0,030	0,035	0,041	0,051	0,061	0,071
2.3.5	alloy tempered steel	alloy 1000-1300 N/mm²	55	0,030	0,035	0,041	0,051	0,061	0,071
2.3.6	alloy tempered steel	alloy 1300-1600 N/mm²							
3.1.1	General non-alloy tool steel	All							
3.2.1	Low alloy cold work tool steel	Low alloy Less than 1000 N/mm²							
3.2.2	Low alloy cold work tool steel	Low alloy Less than 1200 N/mm²							
3.2.3	Low alloy cold work tool steel	Low alloy Less than 1500 N/mm²							
3.2.4	High alloy annealed cold work tool steel	AnnealedHigh alloyLess than 1000 N/mm²							
3.2.5	High alloy annealed cold work tool steel	TemperingHigh alloyLess than 1300 N/mm²							
3.3.1	Low alloy hot work tool steel	Low alloy Less than 1200 N/mm²							
3.3.2	Low alloy hot work tool steel	Low alloy Less than 1500 N/mm²							
3.3.3	High alloy annealed hot work tool steel	AnnealedHigh alloyLess than 1000 N/mm²							
3.3.4	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1300 N/mm²							
3.3.5	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1600 N/mm²							
3.5.1	Quenched Tool Steel	Less than 55 HRC							
3.5.2	Hard tool steel	55-58 HRC							
3.5.3	Quenched Tool Steel	58-60 HRC							
3.5.4	Quenched Tool Steel	60-62 HRC							
3.5.5	Quenched Tool Steel	62-64 HRC							
4.1.1	ferritic stainless steel	ferrite	50	0,020	0,025	0,030	0,041	0,051	0,061
4.1.2	martensitic stainless steel	martensitic	40	0,020	0,025	0,030	0,041	0,051	0,061
4.1.3	Austenitic stainless steel	Austenite A5 <40%	50	0,020	0,025	0,030	0,041	0,051	0,061
4.1.4	Austenitic stainless steel	Austenite A5 >40%	50	0,020	0,025	0,030	0,041	0,051	0,061
4.1.5	Duplex stainless steel	vulcanization	60	0,020	0,025	0,030	0,041	0,051	0,061
4.2.1	High temperature alloys, iron alloys	ferroalloy	30	0,020	0,025	0,030	0,041	0,051	0,061

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物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
4.2.2	High temperature alloys, unhardened nickel alloys	Nickel-based alloys Non-hard	30	0,020	0,025	0,030	0,041	0,051	0,061
4.2.3	High temperature alloys, hardened nickel alloys	hardened nickel alloy	30	0,020	0,025	0,030	0,041	0,051	0,061
4.2.4	High temperature alloys, cobalt alloys	Cobalt alloy	30	0,020	0,025	0,030	0,041	0,051	0,061
4.3.1	Pure titanium	Non-alloy	50	0,020	0,025	0,030	0,041	0,051	0,061
4.3.2	Tempered non-hardened titanium alloy	Alloys, Soft Annealed	35	0,020	0,025	0,030	0,041	0,051	0,061
4.3.3	hardened titanium alloy	Carbide	20	0,020	0,025	0,030	0,041	0,051	0,061
5.1.1	General non-alloy cast stainless steel	Non-alloy	100	0,051	0,056	0,051	0,071	0,079	0,089
5.1.2	General low alloy cast stainless steel	Low alloy	80	0,051	0,056	0,051	0,071	0,079	0,089
5.1.3	General high alloy cast stainless steel	High alloy	60	0,051	0,056	0,051	0,071	0,079	0,089
5.2.1	Ferritic martensitic cast stainless steel	ferrite /martensitic	50	0,020	0,025	0,030	0,041	0,051	0,061
5.2.2	Austenitic cast stainless steel	Austenite	50	0,020	0,025	0,030	0,041	0,051	0,061
6.1.1	non-alloy cast iron	Pure metalLess than 180 HB	120	0,061	0,066	0,071	0,089	0,119	0,140
6.1.2	non-alloy cast iron	Pure metalMore than 180 HB	100	0,061	0,066	0,071	0,089	0,119	0,140
6.1.3	alloy cast iron	alloy	80	0,030	0,035	0,041	0,051	0,061	0,071
6.1.4	High alloy cast iron	High alloy	70	0,030	0,035	0,041	0,051	0,061	0,071
6.2.1	Non-alloyed ductile iron	Pure metalLess than 180 HB	120	0,051	0,056	0,051	0,071	0,079	0,089
6.2.2	Non-alloyed ductile iron	Pure metalMore than180 HB	100	0,051	0,056	0,051	0,071	0,079	0,089
6.2.3	Alloy ductile iron	alloy	80	0,020	0,025	0,030	0,041	0,051	0,061
6.3.1	Annealed Malleable Iron	Less than 180 HB	120	0,061	0,066	0,071	0,089	0,119	0,140
6.3.2	Annealed Malleable Iron	More than180 HB	100	0,061	0,066	0,071	0,089	0,119	0,140
6.4.1	Annealed malleable cast iron without decarburization	Less than 180 HB	120	0,061	0,066	0,071	0,089	0,119	0,140
6.4.2	Annealed malleable cast iron without decarburization	More than180 HB	100	0,061	0,066	0,071	0,089	0,119	0,140
7.1.1	unalloyed aluminum	Non-alloy	500	0,061	0,066	0,079	0,150	0,201	0,226
7.1.2	Unhardened aluminum alloy	Malleable alloy, not hard	500	0,061	0,066	0,079	0,150	0,201	0,226
7.1.3	Unhardened aluminum alloy	malleable Carbide	500	0,061	0,066	0,079	0,150	0,201	0,226
7.1.4	Cast aluminum alloy with silicon content below 6%	Cast alloyLess than 6% Si	400	0,061	0,066	0,079	0,150	0,201	0,226
7.1.5	Cast aluminum alloy with silicon content 6%-12%	Cast alloy 6-12% Si	300	0,051	0,056	0,071	0,119	0,170	0,211
7.1.6	Cast aluminum alloy with silicon content above 12%	Cast alloyMore than12% Si	200	0,051	0,056	0,071	0,119	0,170	0,211
7.2.1	Magnesium aluminum alloy	malleable alloy	180	0,051	0,056	0,071	0,119	0,170	0,211
7.2.2	Magnesium aluminum casting alloy	Cast alloy	160	0,051	0,056	0,071	0,119	0,170	0,211
7.3.1	pure copper	Non-alloy	140	0,041	0,046	0,061	0,079	0,119	0,140
7.3.2	Unhardened copper alloy	Malleable alloy, not hard	120	0,041	0,046	0,061	0,079	0,119	0,140
7.3.3	hardened copper alloy	malleable Carbide	100	0,041	0,046	0,061	0,079	0,119	0,140
7.3.4	Copper Nickel Alloy	CuNi alloy	120	0,041	0,046	0,061	0,079	0,119	0,140
7.3.5	Copper Nickel Zinc Alloy (Long Chips)	CuNiZn alloy long chips	100	0,041	0,046	0,061	0,079	0,119	0,140
7.3.6	Copper-zinc alloy (brass, long chip)	CuNiZn alloy short chips	120	0,041	0,046	0,061	0,079	0,119	0,140
7.4.1	Copper-zinc alloy (brass, long chip)	CuZn long chips	150	0,041	0,046	0,061	0,079	0,119	0,140
7.4.2	Copper-zinc alloy (brass, short chips)	CuZn short chips	200	0,041	0,046	0,061	0,079	0,119	0,140
7.5.1	Copper-zinc alloy (brass, long chip)	CuSn long chips	120	0,041	0,046	0,061	0,079	0,119	0,140
7.5.2	Copper-zinc alloy (brass, short chips)	CuSn short chips	140	0,041	0,046	0,061	0,079	0,119	0,140
7.6.1	Aluminum iron bronze (long chips)	CuAlFe long chips	120	0,041	0,046	0,061	0,079	0,119	0,140
7.6.2	Aluminum iron bronze (short chips)	CuAlFe short chips	140	0,041	0,046	0,061	0,079	0,119	0,140
8.1.1	thermoplastic								
8.2.1	hot surface plastic								
8.3.1	fiber reinforced plastic								
9.1.	Standard graphite								
9.2.	Wear-resistant graphite								

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HIBOO TOOLS

55°/58°

切削速度与进给率 Speeds and Feeds

55°/58°球刀、微小径球刀、小径深沟球刀、深沟球刀、小数点球刀

55°/58° Ball End Mills, Small diameter Ball End Mills, Small diameter deep groove Ball End Mills, Deep groove Ball End Mills, Decimal point Ball End Mills

物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
1.1.1	Free cutting steel	Less than 500 N/mm²	590	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
1.1.2	Free cutting steel	More than 500 N/mm²	460	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
1.2.1	non-alloy structural steel	Pure metalLess than 500 N/mm²	590	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
1.2.2	non-alloy structural steel	Pure metalMore than 500 N/mm²	460	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
1.2.3	Alloy structural steel	alloy	390	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
1.3.1	Annealed spring steel	Tempering（Less than 250 HB)	520	0,04 *d	0,05*d	0,079	0,099	0,119	0,201	0,249	0,300
1.3.2	hardened spring steel	Original hardness (250-350 HB)	460	0,04 *d	0,05*d	0,061	0,081	0,079	0,150	0,201	0,226
1.3.3	Cold forged spring steel	Cold forming (1200-1600 N/mm²)	310	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
2.1.1	case hardened steel	Less than 150 HB	560	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.1.2	case hardened steel	150-200 HB	520	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.1.3	case hardened steel	More than 200 HB	400	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
2.2.1	Nitrided steel	Less than 1000 N/mm²	470	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.2.2	Nitrided steel	More than 1000 N/mm²	350	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
2.3.1	Non-alloy tempered steel	Pure metalLess than 800 N/mm²	520	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.3.2	Non-alloy tempered steel	Non-alloy 800-1000 N/mm²	420	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.3.3	alloy tempered steel	alloy Less than 800 N/mm²	350	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.3.4	alloy tempered steel	alloy 800-1000 N/mm²	390	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
2.3.5	alloy tempered steel	alloy 1000-1300 N/mm²	350	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
2.3.6	alloy tempered steel	alloy 1300-1600 N/mm²	290	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.1.1	General non-alloy tool steel	All	460	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
3.2.1	Low alloy cold work tool steel	Low alloy Less than1000 N/mm²	390	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
3.2.2	Low alloy cold work tool steel	Low alloy Less than1200 N/mm²	330	0,04 *d	0,05*d	0,061	0,081	0,079	0,150	0,201	0,226
3.2.3	Low alloy cold work tool steel	Low alloy Less than1500 N/mm²	260	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.2.4	High alloy annealed cold work tool steel	AnnealedHigh alloyLess than 1000 N/mm²	330	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
3.2.5	High alloy annealed cold work tool steel	TemperingHigh alloyLess than 1300 N/mm²	230	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.3.1	Low alloy hot work tool steel	Low alloy Less than 1200 N/mm²	330	0,04 *d	0,05*d	0,079	0,099	0,119	0,201	0,249	0,300
3.3.2	Low alloy hot work tool steel	Low alloy Less than 1500 N/mm²	260	0,04 *d	0,05*d	0,061	0,081	0,079	0,150	0,201	0,226
3.3.3	High alloy annealed hot work tool steel	AnnealedHigh alloyLess than 1000 N/mm²	330	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
3.3.4	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1300 N/mm²	230	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.3.5	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1600 N/mm²	210	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.5.1	Quenched Tool Steel	Less than 55 HRC	230	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.5.2	Hard tool steel	55-58 HRC	200	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
3.5.3	Quenched Tool Steel	58-60 HRC	180	0,03 *d	0,03*d	0,061	0,081	0,071	0,089	0,119	0,140
3.5.4	Quenched Tool Steel	60-62 HRC	150	0,03 *d	0,03*d	0,061	0,081	0,071	0,089	0,119	0,140
3.5.5	Quenched Tool Steel	62-64 HRC	130	0,02 *d	0,02*d	0,061	0,081	0,071	0,089	0,119	0,140
4.1.1	ferritic stainless steel	ferrite	120	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081
4.1.2	martensitic stainless steel	martensitic	120	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081
4.1.3	Austenitic stainless steel	Austenite A5 <40%	120	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081
4.1.4	Austenitic stainless steel	Austenite A5 >40%	115	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081
4.1.5	Duplex stainless steel	vulcanization	115	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081
4.2.1	High temperature alloys, iron alloys	ferroalloy	110	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081
4.2.2	High temperature alloys, unhardened nickel alloys	Nickel-based alloys . Non-hard	105	0,03 *d	0,03*d	0,051	0,071	0,081	0,081	0,081	0,081

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物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 [FPT]
4.2.3	High temperature alloys, hardened nickel alloys	hardened nickel alloy	105	0,03 *d	0,03*d	0,041	0,051	0,061	0,071	0,071	0,071
4.2.4	High temperature alloys, cobalt alloys	Cobalt alloy	105	0,03 *d	0,03*d	0,041	0,051	0,061	0,071	0,071	0,071
4.3.1	Pure titanium	Non-alloy	105	0,03 *d	0,03*d	0,041	0,051	0,061	0,071	0,071	0,071
4.3.2	Tempered non-hardened titanium alloy	Alloys, Soft Annealed	100	0,03 *d	0,03*d	0,041	0,051	0,061	0,071	0,071	0,071
4.3.3	hardened titanium alloy	Carbide	100	0,03 *d	0,03*d	0,041	0,051	0,061	0,071	0,071	0,071
5.1.1	General non-alloy cast stainless steel	Non-alloy	460	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
5.1.2	General low alloy cast stainless steel	Low alloy	330	0,04 *d	0,05*d	0,061	0,081	0,079	0,150	0,201	0,226
5.1.3	General high alloy cast stainless steel	High alloy	230	0,04 *d	0,05*d	0,061	0,081	0,071	0,089	0,119	0,140
5.2.1	Ferritic martensitic cast stainless steel	ferrite /martensitic	150	0,04 *d	0,05*d	0,061	0,071	0,081	0,081	0,081	0,081
5.2.2	Austenitic cast stainless steel	Austenite	150	0,04 *d	0,05*d	0,061	0,071	0,081	0,081	0,081	0,081
6.1.1	non-alloy cast iron	Pure metalLess than 180 HB	610	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
6.1.2	non-alloy cast iron	Pure metalMore than 180 HB	520	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
6.1.3	alloy cast iron	alloy	460	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
6.1.4	High alloy cast iron	High alloy	330	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
6.2.1	Non-alloyed ductile iron	Pure metalLess than 180 HB	610	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
6.2.2	Non-alloyed ductile iron	Pure metalMore than180 HB	520	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
6.2.3	Alloy ductile iron	alloy	430	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
6.3.1	Annealed Malleable Iron	Less than 180 HB	610	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
6.3.2	Annealed Malleable Iron	More than180 HB	520	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
6.4.1	Annealed malleable cast iron without decarburization	Less than 180 HB	610	0,05 *d	0,08*d	0,079	0,099	0,119	0,201	0,249	0,300
6.4.2	Annealed malleable cast iron without decarburization	More than180 HB	520	0,05 *d	0,08*d	0,061	0,081	0,079	0,150	0,201	0,226
7.1.1	unalloyed aluminum	Non-alloy	365	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.1.2	Unhardened aluminum alloy	Malleable alloy, not hard	365	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.1.3	Unhardened aluminum alloy	malleable Carbide	365	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.1.4	Cast aluminum alloy with silicon content below 6%	Cast alloyLess than 6% Si	365	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.1.5	Cast aluminum alloy with silicon content 6%-12%	Cast alloy 6-12% Si	365	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.1.6	Cast aluminum alloy with silicon content above 12%	Cast alloyMore than 12% Si	365	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.2.1	Magnesium aluminum alloy	malleable alloy	305	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.2.2	Magnesium aluminum casting alloy	Cast alloy	305	0,05 *d	2*d	0,063	0,081	0,093	0,127	0,165	0,19
7.3.1	pure copper	Non-alloy	850	0,10 *d	0,15*d	0,061	0,081	0,071	0,089	0,119	0,140
7.3.2	Unhardened copper alloy	Malleable alloy, not hard	720	0,10 *d	0,15*d	0,061	0,081	0,071	0,089	0,119	0,140
7.3.3	hardened copper alloy	malleable Carbide	590	0,10 *d	0,15*d	0,061	0,081	0,071	0,089	0,119	0,140
7.3.4	Copper Nickel Alloy	CuNi alloy									
7.3.5	Copper Nickel Zinc Alloy (Long Chips)	CuNiZn alloy long chips									
7.3.6	Copper-zinc alloy (brass, long chip)	CuNiZn alloy short chips									
7.4.1	Copper-zinc alloy (brass, long chip)	CuZn long chips									
7.4.2	Copper-zinc alloy (brass, short chips)	CuZn short chips									
7.5.1	Copper-zinc alloy (brass, long chip)	CuSn long chips									
7.5.2	Copper-zinc alloy (brass, short chips)	CuSn short chips									
7.6.1	Aluminum iron bronze (long chips)	CuAlFe long chips									
7.6.2	Aluminum iron bronze (short chips)	CuAlFe short chips									
8.1.1	thermoplastic										
8.2.1	hot surface plastic										
8.3.1	fiber reinforced plastic										
9,1	Standard graphite										
9,2	Wear-resistant graphite										

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60°/63°/65°

切削速度与进给率 Speeds and Feeds

60°/63°/65°平刀、60°/63°/65°圆鼻刀

60°/63° /65° End Mills,60°/63° /65°Round Nose End Mills

物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
1.1.1	Free cutting steel	Less than 500 N/mm²	260	1,0*d	1,5*d	0,046	0,060	0,071	0,099	0,099	0,119
1.1.2	Free cutting steel	More than 500 N/mm²	240	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
1.2.1	non-alloy structural steel	Pure metalLess than 500 N/mm²	250	1,0*d	1,5*d	0,046	0,060	0,071	0,099	0,099	0,119
1.2.2	non-alloy structural steel	Pure metalMore than 500 N/mm²	230	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
1.2.3	Alloy structural steel	alloy	220	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
1.3.1	Annealed spring steel	Tempering （Less than 250 HB)	130	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
1.3.2	hardened spring steel	Original hardness (250-350 HB)	120	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
1.3.3	Cold forged spring steel	Cold forming (1200-1600 N/mm²)	110	1,0*d	1,5*d	0,025	0,030	0,041	0,051	0,051	0,071
2.1.1	case hardened steel	Less than 150 HB	210	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.1.2	case hardened steel	150-200 HB	200	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.1.3	case hardened steel	More than 200 HB	190	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
2.2.1	Nitrided steel	Less than 1000 N/mm²	190	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.2.2	Nitrided steel	More than 1000 N/mm²	170	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
2.3.1	Non-alloy tempered steel	Pure metalLess than 800 N/mm²	200	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.3.2	Non-alloy tempered steel	Non-alloy 800-1000 N/mm²	190	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.3.3	alloy tempered steel	alloy Less than 800 N/mm²	190	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.3.4	alloy tempered steel	alloy 800-1000 N/mm²	180	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
2.3.5	alloy tempered steel	alloy 1000-1300 N/mm²	170	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
2.3.6	alloy tempered steel	alloy 1300-1600 N/mm²	150	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
3.1.1	General non-alloy tool steel	All	185	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.2.1	Low alloy cold work tool steel	Low alloy Less than 1000 N/mm²	180	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.2.2	Low alloy cold work tool steel	Low alloy Less than 1200 N/mm²	170	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.2.3	Low alloy cold work tool steel	Low alloy Less than 1500 N/mm²	150	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
3.2.4	High alloy annealed cold work tool steel	AnnealedHigh alloyLess than 1000 N/mm²	160	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.2.5	High alloy annealed cold work tool steel	TemperingHigh alloyLess than 1300 N/mm²	140	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.3.1	Low alloy hot work tool steel	Low alloy Less than 1200 N/mm²	200	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.3.2	Low alloy hot work tool steel	Low alloy Less than 1500 N/mm²	180	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
3.3.3	High alloy annealed hot work tool steel	AnnealedHigh alloyLess than 1000 N/mm²	150	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.3.4	High alloy annealed hot work tool steel	TemperingHigh alloyLess than1300 N/mm²	140	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
3.3.5	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1600 N/mm²	130	1,0*d	1,5*d	0,030	0,040	0,051	0,061	0,061	0,079
3.5.1	Quenched Tool Steel	Less than 55 HRC									
3.5.2	Hard tool steel	55-58 HRC									
3.5.3	Quenched Tool Steel	58-60 HRC									
3.5.4	Quenched Tool Steel	60-62 HRC									
3.5.5	Quenched Tool Steel	62-64 HRC									
4.1.1	ferritic stainless steel	ferrite									
4.1.2	martensitic stainless steel	martensitic									
4.1.3	Austenitic stainless steel	Austenite A5 <40%									
4.1.4	Austenitic stainless steel	Austenite A5 >40%									
4.1.5	Duplex stainless steel	vulcanization									
4.2.1	High temperature alloys, iron alloys	ferroalloy									
4.2.2	High temperature alloys, unhardened nickel alloys	Nickel-based alloys . Non-hard									

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物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
4.2.3	High temperature alloys, hardened nickel alloys	hardened nickel alloy									
4.2.4	High temperature alloys, cobalt alloys	Cobalt alloy									
4.3.1	Pure titanium	Non-alloy									
4.3.2	Tempered non-hardened titanium alloy	Alloys, Soft Annealed									
4.3.3	hardened titanium alloy	Carbide									
5.1.1	General non-alloy cast stainless steel	Non-alloy	200	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
5.1.2	General low alloy cast stainless steel	Low alloy	160	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
5.1.3	General high alloy cast stainless steel	High alloy	120	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
5.2.1	Ferritic martensitic cast stainless steel	ferrite /martensitic	120	1,0*d	1,5*d	0,025	0,030	0,041	0,051	0,051	0,071
5.2.2	Austenitic cast stainless steel	Austenite	120	1,0*d	1,5*d	0,025	0,030	0,041	0,051	0,051	0,071
6.1.1	non-alloy cast iron	Pure metalLess than 180 HB	200	1,0*d	1,5*d	0,046	0,060	0,071	0,099	0,099	0,119
6.1.2	non-alloy cast iron	Pure metalMore than 180 HB	180	1,0*d	1,5*d	0,046	0,060	0,071	0,099	0,099	0,119
6.1.3	alloy cast iron	alloy	160	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.1.4	High alloy cast iron	High alloy	120	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.2.1	Non-alloyed ductile iron	Pure metalLess than 180 HB	190	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.2.2	Non-alloyed ductile iron	Pure metalMore than 180 HB	170	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.2.3	Alloy ductile iron	alloy	150	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.3.1	Annealed Malleable Iron	Less than 180 HB	180	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.3.2	Annealed Malleable Iron	More than 180 HB	160	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.4.1	Annealed malleable cast iron without decarburization	Less than 180 HB	180	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
6.4.2	Annealed malleable cast iron without decarburization	More than 180 HB	160	1,0*d	1,5*d	0,041	0,050	0,061	0,079	0,079	0,099
7.1.1	unalloyed aluminum	Non-alloy									
7.1.2	Unhardened aluminum alloy	Malleable alloy, not hard									
7.1.3	Unhardened aluminum alloy	malleable Carbide									
7.1.4	Cast aluminum alloy with silicon content below 6%	Cast alloyLess than 6% Si									
7.1.5	Cast aluminum alloy with silicon content 6%-12%	Cast alloy 6-12% Si									
7.1.6	Cast aluminum alloy with silicon content above 12%	Cast alloyMore than 12% Si									
7.2.1	Magnesium aluminum alloy	malleable alloy									
7.2.2	Magnesium aluminum casting alloy	Cast alloy									
7.3.1	pure copper	Non-alloy									
7.3.2	Unhardened copper alloy	Malleable alloy, not hard									
7.3.3	hardened copper alloy	malleable Carbide									
7.3.4	Copper Nickel Alloy	CuNi alloy									
7.3.5	Copper Nickel Zinc Alloy (Long Chips)	CuNiZn alloy long chips									
7.3.6	Copper-zinc alloy (brass, long chip)	CuNiZn alloy short chips									
7.4.1	Copper-zinc alloy (brass, long chip)	CuZn long chips									
7.4.2	Copper-zinc alloy (brass, short chips)	CuZn short chips									
7.5.1	Copper-zinc alloy (brass, long chip)	CuSn long chips									
7.5.2	Copper-zinc alloy (brass, short chips)	CuSn short chips									
7.6.1	Aluminum iron bronze (long chips)	CuAlFe long chips									
7.6.2	Aluminum iron bronze (short chips)	CuAlFe short chips									
8.1.1	thermoplastic										
8.2.1	hot surface plastic										
8.3.1	fiber reinforced plastic										
9,1	Standard graphite										
9,2	Wear-resistant graphite										

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60°/63°/65°

切削速度与进给率 Speeds and Feeds

60°/63°/65°球刀
60°/63° /65° Ball End Mills

物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
1.1.1	Free cutting steel	Less than 500 N/mm²	145	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.1.2	Free cutting steel	More than 500 N/mm²	145	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.2.1	non-alloy structural steel	Pure metal Less than 500 N/mm²	145	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.2.2	non-alloy structural steel	Pure metal More than 500 N/mm²	145	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.2.3	Alloy structural steel	alloy	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.3.1	Annealed spring steel	Tempering (Less than 250 HB)	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.3.2	hardened spring steel	Original hardness (250-350 HB)	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
1.3.3	Cold forged spring steel	Cold forming (1200-1600 N/mm²)	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.1.1	case hardened steel	Less than 150 HB	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.1.2	case hardened steel	150-200 HB	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.1.3	case hardened steel	More than 200 HB	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.2.1	Nitrided steel	Less than 1000 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.2.2	Nitrided steel	More than 1000 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.3.1	Non-alloy tempered steel	Pure metalLess than 800 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.3.2	Non-alloy tempered steel	Non-alloy 800-1000 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.3.3	alloy tempered steel	alloy Less than 800 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.3.4	alloy tempered steel	alloy 800-1000 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.3.5	alloy tempered steel	alloy 1000-1300 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
2.3.6	alloy tempered steel	alloy 1300-1600 N/mm²	70	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.1.1	General non-alloy tool steel	All	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.2.1	Low alloy cold work tool steel	Low alloy Less than 1000 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.2.2	Low alloy cold work tool steel	Low alloy Less than 1200 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.2.3	Low alloy cold work tool steel	Low alloy Less than 1500 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.2.4	High alloy annealed cold work tool steel	AnnealedHigh alloyLess than 1000 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.2.5	High alloy annealed cold work tool steel	TemperingHigh alloyLess than 1300 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.3.1	Low alloy hot work tool steel	Low alloy Less than1200 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.3.2	Low alloy hot work tool steel	Low alloy Less than1500 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.3.3	High alloy annealed hot work tool steel	AnnealedHigh alloyLess than 1000 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.3.4	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1300 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.3.5	High alloy annealed hot work tool steel	TemperingHigh alloyLess than 1600 N/mm²	55	0,05 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
3.5.1	Quenched Tool Steel	Less than 55 HRC	70	0,05 *d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
3.5.2	Hard tool steel	55-58 HRC	70	0,03 *d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
3.5.3	Quenched Tool Steel	58-60 HRC	55	0,03 *d	1,5*d	0,007	0,010	0,012	0,015	0,020	0,,025
3.5.4	Quenched Tool Steel	60-62 HRC	55	0,03 *d	1,5*d	0,007	0,010	0,012	0,015	0,020	0,,025
3.5.5	Quenched Tool Steel	62-64 HRC	55	0,03 *d	1,5*d	0,007	0,010	0,012	0,015	0,020	0,,025
4.1.1	ferritic stainless steel	ferrite	110	0,03 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
4.1.2	martensitic stainless steel	martensitic	110	0,03 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
4.1.3	Austenitic stainless steel	Austenite A5 <40%	60	0,03 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
4.1.4	Austenitic stainless steel	Austenite A5 >40%	60	0,03 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
4.1.5	Duplex stainless steel	vulcanization	60	0,03 *d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
4.2.1	High temperature alloys, iron alloys	ferroalloy	25	0,03 *d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
4.2.2	High temperature alloys, unhardened nickel alloys	Nickel-based alloys . Non-hard	25	0,03 *d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050

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物料组 Material section	材料名称 Material	硬度 Hardness				6	8	10	12	16	20
			Vc [m/min]	ae max.	ap max.	fz [FPT]	fz [FPT]	fz [FPT]	fz [FPT]	fz [FPT]	fz [FPT]
4.2.3	High temperature alloys, hardened nickel alloys	hardened nickel alloy	50	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
4.2.4	High temperature alloys, cobalt alloys	Cobalt alloy	40	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
4.3.1	Pure titanium	Non-alloy	50	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
4.3.2	Tempered non-hardened titanium alloy	Alloys, Soft Annealed	50	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
4.3.3	hardened titanium alloy	Carbide	50	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
5.1.1	General non-alloy cast stainless steel	Non-alloy	45	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
5.1.2	General low alloy cast stainless steel	Low alloy	40	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
5.1.3	General high alloy cast stainless steel	High alloy	30	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
5.2.1	Ferritic martensitic cast stainless steel	ferrite /martensitic	30	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
5.2.2	Austenitic cast stainless steel	Austenite	30	0,05*d	1,5*d	0,015	0,020	0,025	0,030	0,040	0,050
6.1.1	non-alloy cast iron	Pure metalLess than 180 HB	100	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.1.2	non-alloy cast iron	Pure metalMore than180 HB	100	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.1.3	alloy cast iron	alloy	100	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.1.4	High alloy cast iron	High alloy	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.2.1	Non-alloyed ductile iron	Pure metalLess than 180 HB	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.2.2	Non-alloyed ductile iron	Pure metalMore than 180 HB	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.2.3	Alloy ductile iron	alloy	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.3.1	Annealed Malleable Iron	Less than 180 HB	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.3.2	Annealed Malleable Iron	More than 180 HB	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.4.1	Annealed malleable cast iron without decarburization	Less than 180 HB	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
6.4.2	Annealed malleable cast iron without decarburization	More than 180 HB	75	0,05*d	1,5*d	0,030	0,040	0,050	0,060	0,080	0,100
7.1.1	unalloyed aluminum	Non-alloy									
7.1.2	Unhardened aluminum alloy	Malleable alloy, not hard									
7.1.3	Unhardened aluminum alloy	malleable Carbide									
7.1.4	Cast aluminum alloy with silicon content below 6%	Cast alloyLess than 6% Si									
7.1.5	Cast aluminum alloy with silicon content 6%-12%	Cast alloy 6-12% Si									
7.1.6	Cast aluminum alloy with silicon content above 12%	Cast alloyMore than 12% Si									
7.2.1	Magnesium aluminum alloy	malleable alloy									
7.2.2	Magnesium aluminum casting alloy	Cast alloy									
7.3.1	pure copper	Non-alloy									
7.3.2	Unhardened copper alloy	Malleable alloy, not hard									
7.3.3	hardened copper alloy	malleable Carbide									
7.3.4	Copper Nickel Alloy	CuNi alloy									
7.3.5	Copper Nickel Zinc Alloy (Long Chips)	CuNiZn alloy long chips									
7.3.6	Copper-zinc alloy (brass, long chip)	CuNiZn alloy short chips									
7.4.1	Copper-zinc alloy (brass, long chip)	CuZn long chips									
7.4.2	Copper-zinc alloy (brass, short chips)	CuZn short chips									
7.5.1	Copper-zinc alloy (brass, long chip)	CuSn long chips									
7.5.2	Copper-zinc alloy (brass, short chips)	CuSn short chips									
7.6.1	Aluminum iron bronze (long chips)	CuAlFe long chips									
7.6.2	Aluminum iron bronze (short chips)	CuAlFe short chips									
8.1.1	thermoplastic										
8.2.1	hot surface plastic										
8.3.1	fiber reinforced plastic										
9.1.	Standard graphite										
9.2.	Wear-resistant graphite										

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50°/55°

切削速度与进给率 Speeds and Feeds

50°/55°铝用平刀,50°铝用圆鼻刀
50°/55° Aluminum End Mills,50°Aluminum Round Nose End Mills

物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
7.1.1	unalloyed aluminum	non-alloy	600	1,0 * d	1,0 * d	0,061	0,066	0,071	0,071	0,119	0,180
7.1.2	Unhardened aluminum alloy	Malleable alloy, not hard	600	1,0 * d	1,0 * d	0,061	0,066	0,071	0,071	0,119	0,180
7.1.3	Unhardened aluminum alloy	malleable carbide	600	1,0 * d	1,0 * d	0,061	0,066	0,071	0,071	0,119	0,180
7.1.4	Cast aluminum alloy with silicon content below 6%	Cast alloy less than 6% Si	480	1,0 * d	1,0 * d	0,061	0,066	0,071	0,071	0,119	0,180
7.1.5	Cast aluminum alloy with silicon content 6%-12%	Cast alloy 6-12% Si	360	1,0 * d	1,0 * d	0,051	0,066	0,071	0,071	0,170	0,269
7.1.6	Cast aluminum alloy with silicon content above 12%	Cast alloys greater than 12% Si	240	1,0 * d	1,0 * d	0,051	0,066	0,071	0,071	0,170	0,269
7.2.1	Magnesium aluminum alloy	Malleable alloy, not hard	220	1,0 * d	1,0 * d	0,051	0,066	0,071	0,071	0,170	0,269
7.2.2	Magnesium aluminum casting alloy	Cast alloy	200	1,0 * d	1,0 * d	0,051	0,066	0,071	0,071	0,170	0,269
7.3.1	pure copper	non-alloy	170	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.3.2	Unhardened copper alloy	Malleable alloy, not hard	155	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.3.3	Unhardened copper alloy	malleable carbide	120	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.3.4	Copper Nickel Alloy	CuNi alloy	150	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.3.5	Copper Nickel Zinc Alloy (Long Chips)	CuNiZn alloy long chips	120	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.3.6	Copper-nickel-zinc alloy (short chips)	CuNiZn alloy short chips	150	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.4.1	Copper-zinc alloy (brass, long chip)	CuZn long chips	180	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.4.2	Copper-zinc alloy (brass, short chips)	CuZn short chips	240	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.5.1	Copper-tin alloy (bronze, long chip)	CuSn long chips	150	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.5.2	Copper-tin alloy (bronze, short chips)	CuSn short chips	170	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.6.1	Aluminum iron bronze (long chips)	CuAlFe long chips	150	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
7.6.2	Aluminum iron bronze (short chips)	CuAlFe short chips	170	1,0 * d	1,0 * d	0,041	0,056	0,061	0,061	0,119	0,180
8.1.1	thermoplastic										
8.2.1	hot surface plastic										
8.3.1	fiber reinforced plastic										
9,1	Standard graphite										
9,2	Wear-resistant graphite										

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50°/55°

切削速度与进给率 Speeds and Feeds

50°/55°铝用球刀
50°/55° Aluminum Ball End Mills

物料组 Material section	材料名称 Material	硬度 Hardness	Vc [m/min]	ae max.	ap max.	6 fz [FPT]	8 fz [FPT]	10 fz [FPT]	12 fz [FPT]	16 fz [FPT]	20 fz [FPT]
7.1.1	unalloyed aluminum	non-alloy	365	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.1.2	Unhardened aluminum alloy	Malleable alloy, not hard	365	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.1.3	Unhardened aluminum alloy	malleable carbide	365	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.1.4	Cast aluminum alloy with silicon content below 6%	Cast alloy less than 6% Si	365	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.1.5	Cast aluminum alloy with silicon content 6%-12%	Cast alloy 6-12% Si	365	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.1.6	Cast aluminum alloy with silicon content above 12%	Cast alloys greater than 12% Si	305	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.2.1	Magnesium aluminum alloy	Malleable alloy, not hard	305	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.2.2	Magnesium aluminum casting alloy	Cast alloy	305	0,05*d	2,0*d	0,063	0,081	0,093	0,127	0,165	0,190
7.3.1	pure copper	non-alloy	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.3.2	Unhardened copper alloy	Malleable alloy, not hard	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.3.3	Unhardened copper alloy	malleable carbide	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.3.4	Copper Nickel Alloy	CuNi alloy	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.3.5	Copper Nickel Zinc Alloy (Long Chips)	CuNiZn alloy long chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.3.6	Copper-nickel-zinc alloy (short chips)	CuNiZn alloy short chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.4.1	Copper-zinc alloy (brass, long chip)	CuZn long chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.4.2	Copper-zinc alloy (brass, short chips)	CuZn short chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.5.1	Copper-tin alloy (bronze, long chip)	CuSn long chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.5.2	Copper-tin alloy (bronze, short chips)	CuSn short chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.6.1	Aluminum iron bronze (long chips)	CuAlFe long chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
7.6.2	Aluminum iron bronze (short chips)	CuAlFe short chips	180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
8.1.1	thermoplastic		180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
8.2.1	hot surface plastic		180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
8.3.1	fiber reinforced plastic		180	0,05*d	2,0*d	0,081	0,093	0,127	0,165	0,190	0,254
9.1.	Standard graphite										
9.2.	Wear-resistant graphite										

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