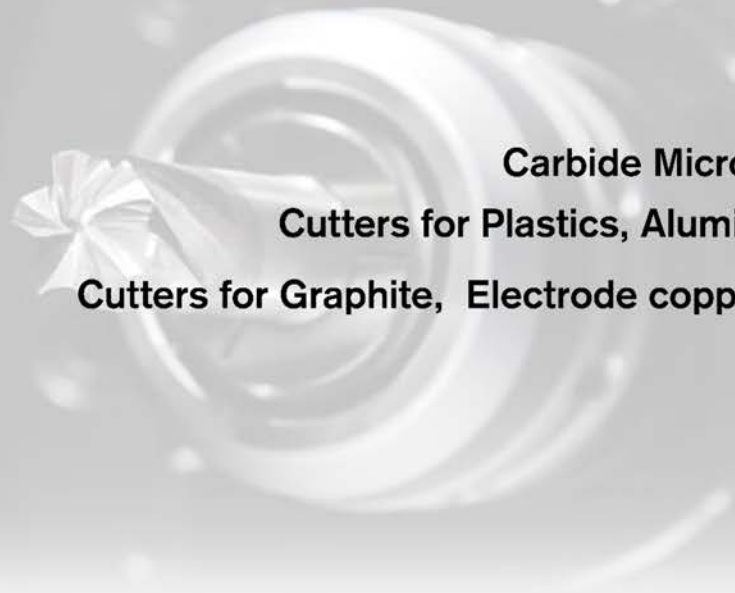


GEM CARBIDE TOOLS

GEM Precision tools Co.,Ltd.,

2017-2018



**Carbide Micro End Mills
Cutters for Plastics, Aluminum, SUS
Cutters for Graphite, Electrode copper, Moulds**



GEM

CUTTING TOOL SYSTEM



4	E	H	600	S	30	L030	R050
Flutes	End mill type	Application	diameter	Total length	Helix angle	Flutes length	rounded radius
E	End mills	M Mild		S		L Standard length	
B	Ball end mills	H High hardness		Overall length ≤ 60mm		E Effective length	
CR	Corner Radius end mills	S Stainless steel		M			
NE	Neck End mills	A Aluminum		Overall length > 60 ≤ 75mm			
NB	Neck Ball end mills	G Graphite		L			
NCR	Neck Corner Radius end mills	C Copper		Overall length > 75 ≤ 100mm			
				X			
				Overall length > 100mm			

TUNGSTEN CARBIDE END MILL

Index

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Applications



Mill type



Flute



Helix angle



Tolerance



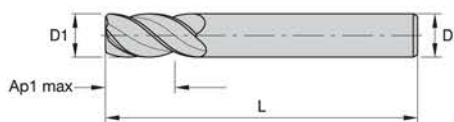
Application Material Groups




P	steel
M	Stainless Steel
K	cast iron
N	Non-ferrous metal
S	Superalloy
H	Hardening material

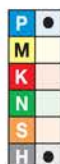
English		hardness	Tensile strength	
Application Material Groups		HB	N/mm ²	ISO
1.Steel	Magnetic soft steel	<120	<400	P1
	Structural steel, case carburizing steel	<200	<700	P1
	Plain Carbon steel	<250	<850	P2
	Aloy steel	<250	<850	P3
	Aloy steel,Hardened and tempered steel	>250<350	>850<1200	P4
	Aloy steel,Hardened and tempered steel	>350	>1200<1620	H1
	Aloy steel,Heat treated	49-55HRC	>1620	H3
	Aloy steel,Hardened & Wear resistant steel	55-63HRC	>1980	H4
2.Stainless Steel	Free machining, Stainless Steel	<250	<850	M1
	Austenitic	<320	<1100	M2
	Ferritic+Austenitic, Ferritic, Martensitic	<300	<1000	M3
	Precipitation hardened	>320<410	>1100<1400	S2
3.Cast Iron	Lamellar graphite	<150	>500	K1
	Lamellar graphite	>150<300	>500<1000	K2
	Nodular graphite, Maleable Cast Iron	<200	<700	K3
	Nodular graphite, Maleable Cast Iron	>200<300	>700<1000	K4
4.Titanium	Titanium, unalloyed	<200	<700	S1
	Titanium, alloyed	<270	<900	S2
	Titanium, alloyed	>270<350	>900<1250	S3
5.Nickel	Nickel, unalloyed	<150	<500	S1
	Nickel, alloyed	<270	>900	S2
	Nickel, alloyed	>270<350	>900<1200	S3
6.Copper	Copper	<100	<350	N3
	β-Brass, Bronze	<200	<700	N4
	α-Brass	<200	<700	N3
	High strength Bronze	<470	<1500	N4
7.Aluminium Magnesium	Al, Mg, unalloyed	<100	<350	N1
	Al alloyed, Si<0.5%	<150	<500	N1
	Al alloyed, Si>0.5%<10%	<120	<400	N1
	Al alloyed, Si>10%Whisker reinforced, Al-alloys MG-alloys	<120	<400	N2
9.Hard material	Cermets(metals-ceramics)	<550	<1700	H
9.Graphite	Graphite	---	<100	N6

End mills for high performance finishing
 Suitable for medium hardness steel and hardened steel

Application:    



-  .Plane milling
-  .face cutting
-  .Groove milling






Applicable to die application field

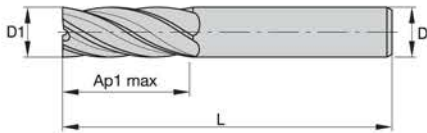
D1	D	AP1 max	L	ZU	Sample number
1	4	3	50	4	4E0100S40L030
1.5	4	4	50	4	4E0150S40L040
2	4	6	50	4	4E0200S40L060
3	4	8	50	4	4E0300S40L080
4	4	12	50	4	4E0400S40L120
4	4	12	75	4	4E0400M40L120
6	6	15	50	4	4E0600S40L150
6	6	25	75	4	4E0600M40L250
6	6	25	100	4	4E0600L40L250
8	8	20	60	4	4E0800S40L200
8	8	30	75	4	4E0800M40L300
8	8	30	100	4	4E0800L40L300
10	10	30	75	4	4E1000M40L300
10	10	40	100	4	4E1000L40L400
10	10	40	150	4	4E1000X40L400
12	12	30	75	4	4E1200M40L300
12	12	45	100	4	4E1200L40L450
12	12	45	150	4	4E1200X40L450

End mills for high performance finishing
 Suitable for medium hardness steel and hardened steel

Application:    



-  .Plane milling
-  .face cutting
-  .Groove milling



Applicable to die application field

D1	D	AP1 max	L	ZU	Sample number
3	6	9	50	6	6E0300S40L090
3	6	12	60	6	6E0300S40L120
4	6	12	50	6	6E0400S40L120
4	6	16	60	6	6E0400S40L160
5	6	15	50	6	6E0500S40L150
5	6	20	60	6	6E0500S40L200
6	6	18	60	6	6E0600S40L180
6	6	24	75	6	6E0600M40L240
8	8	20	60	6	6E0800S40L200
8	8	32	75	6	6E0800M40L320
10	10	30	75	6	6E1000M40L300
10	10	40	100	6	6E1000L40L400
12	12	32	75	6	6E1200M40L320
12	12	45	100	6	6E1200L40L450
16	16	40	100	6	6E1600L40L400
16	16	64	150	6	6E1600L40L640
20	20	45	100	6	6E2000L40L450
20	20	75	150	6	6E2000L40L750
25	25	45	100	6	6E2500L40L450
25	25	75	150	6	6E2500L40L750

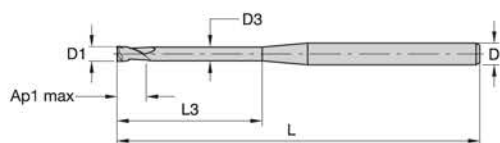
End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



 .Plane milling

 .face cutting



Applicable to die application field

D1	D3	D	AP1 max	L3	L	ZU	Sample number
0.1	0.088	4	0.1	0.3	50	2	2NE0010S30E003
0.1	0.088	4	0.1	0.5	50	2	2NE0010S30E005
0.2	0.18	4	0.3	0.5	50	2	2NE0020S30E005
0.2	0.18	4	0.3	1	50	2	2NE0020S30E010
0.2	0.18	4	0.3	1.5	50	2	2NE0020S30E015
0.3	0.28	4	0.4	1	50	2	2NE0030S30E010
0.3	0.28	4	0.4	1.5	50	2	2NE0030S30E015
0.3	0.28	4	0.4	2	50	2	2NE0030S30E020
0.3	0.28	4	0.4	2.5	50	2	2NE0030S30E025
0.3	0.28	4	0.4	3	50	2	2NE0030S30E030
0.4	0.38	4	0.6	2	50	2	2NE0040S30E020
0.4	0.38	4	0.6	2.5	50	2	2NE0040S30E025
0.4	0.38	4	0.6	3	50	2	2NE0040S30E030
0.4	0.38	4	0.6	4	50	2	2NE0040S30E040
0.4	0.38	4	0.6	5	50	2	2NE0040S30E050
0.4	0.38	4	0.6	8	50	2	2NE0040S30E080
0.5	0.48	4	0.7	2	50	2	2NE0050S30E020
0.5	0.48	4	0.7	3	50	2	2NE0050S30E030
0.5	0.48	4	0.7	4	50	2	2NE0050S30E040
0.5	0.48	4	0.7	6	50	2	2NE0050S30E060
0.6	0.58	4	0.9	2	50	2	2NE0060S30E020
0.6	0.58	4	0.9	3	50	2	2NE0060S30E030
0.6	0.58	4	0.9	4	50	2	2NE0060S30E040
0.6	0.58	4	0.9	6	50	2	2NE0060S30E060
0.8	0.78	4	1.2	4	50	2	2NE0080S30E040
0.8	0.78	4	1.2	6	50	2	2NE0080S30E060
0.8	0.78	4	1.2	8	50	2	2NE0080S30E080
1	0.95	4	1.5	4	50	2	2NE0100S30E040
1	0.95	4	1.5	5	50	2	2NE0100S30E050
1	0.95	4	1.5	6	50	2	2NE0100S30E060
1	0.95	4	1.5	8	50	2	2NE0100S30E080
1	0.95	4	1.5	10	50	2	2NE0100S30E100
1.5	1.44	4	1.8	6	50	2	2NE0150S30E060
1.5	1.44	4	1.8	8	50	2	2NE0150S30E080
1.5	1.44	4	1.8	10	50	2	2NE0150S30E100
1.5	1.44	4	1.8	12	50	2	2NE0150S30E120
1.5	1.44	4	1.8	14	50	2	2NE0150S30E140
1.5	1.44	4	1.8	16	50	2	2NE0150S30E160

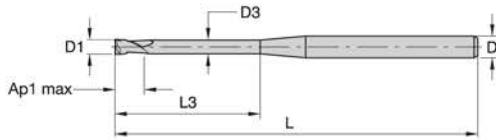
End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



 .Plane milling

 .face cutting

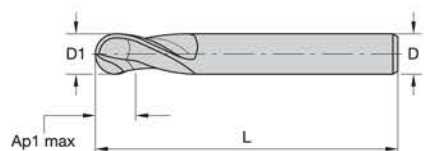


Applicable to die application field

D1	D3	D	AP1 max	L3	L	ZU	Sample number
2	1.91	4	3	8	50	2	2NE0200S30E080
2	1.91	4	3	10	50	2	2NE0200S30E100
2	1.91	4	3	12	50	2	2NE0200S30E120
2	1.91	4	3	14	50	2	2NE0200S30E140
2	1.91	4	3	16	50	2	2NE0200S30E160
2	1.91	4	3	18	50	2	2NE0200S30E180
2	1.91	4	3	20	50	2	2NE0200S30E200
2.5	2.41	4	4	10	50	2	2NE0250S30E100
2.5	2.41	4	4	12	50	2	2NE0250S30E120
2.5	2.41	4	4	16	50	2	2NE0250S30E160
2.5	2.41	4	4	20	50	2	2NE0250S30E200
2.5	2.41	4	4	25	60	2	2NE0250S30E250
3	2.92	6	4.5	12	50	2	2NE0300S30E120
3	2.92	6	4.5	16	50	2	2NE0300S30E160
3	2.92	6	4.5	20	50	2	2NE0300S30E200
3	2.92	6	4.5	25	60	2	2NE0300S30E250
3	2.92	6	4.5	30	60	2	2NE0300S30E300
4	3.82	6	6	16	50	2	2NE0400S30E160
4	3.82	6	6	20	50	2	2NE0400S30E200
4	3.82	6	6	25	60	2	2NE0400S30E250
5	4.82	6	7	20	50	2	2NE0500S30E200
5	4.82	6	7	25	60	2	2NE0500S30E250
5	4.82	6	7	30	60	2	2NE0500S30E300
5	4.82	6	7	35	75	2	2NE0500M30E300
5	4.82	6	7	40	100	2	2NE0500L30E400
5	4.82	6	7	50	100	2	2NE0500L30E500
6	5.82	6	9	20	75	2	2NE0600M30E200
6	5.82	6	9	30	75	2	2NE0600M30E300
6	5.82	6	9	40	100	2	2NE0600L30E400
6	5.82	6	9	50	100	2	2NE0600L30E500
6	5.82	6	9	60	100	2	2NE0600L30E600

End mills for high performance finishing
 Suitable for medium hardness steel and hardened steel

Application:    



.Profiling



.Side cutting



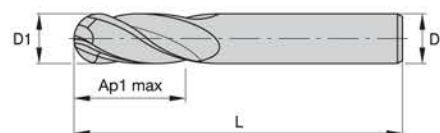
.Slotting



Applicable to die application field

D1	D	AP1 max	L	ZU	Sample number
1	4	2	50	2	2B0100S30L020
1.5	4	3	50	2	2B0150S30L030
2	4	4	50	2	2B0200S30L040
3	4	6	50	2	2B0300S30L060
4	4	8	50	2	2B0400S30L080
4	4	8	75	2	2B0400M30L080
6	6	12	50	2	2B0600S30L120
6	6	12	75	2	2B0600M30L120
8	8	16	60	2	2B0800S30L160
8	8	16	75	2	2B0800M30L160
8	8	16	100	2	2B0800L30L160
10	10	20	75	2	2B1000M30L200
10	10	20	100	2	2B1000L30L200
12	12	24	75	2	2B1200M30L240
12	12	24	100	2	2B1200L30L240
12	12	24	150	2	2B1200L30X240

End mills for high performance finishing
 Suitable for medium hardness steel and hardened steel



Application:    

 .Profiling

 .Side cutting

 .Slotting

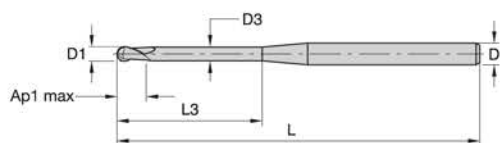
P	•
M	
K	
N	
S	
H	•

Applicable to die application field

D1	D	AP1 max	L	ZU	Sample number
2	6	4	50	4	4B0200S30L040
3	6	6	50	4	4B0300S30L060
4	6	8	50	4	4B0400S30L080
5	6	10	50	4	4B0500S30L100
6	6	12	50	4	4B0600S30L120
8	8	16	60	4	4B0800S30L160
10	10	20	75	4	4B1000M30L200
12	12	24	75	4	4B1200M30L240

End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



 .Profiling

 .Side cutting

 .Slotting






Applicable to die application field

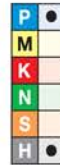
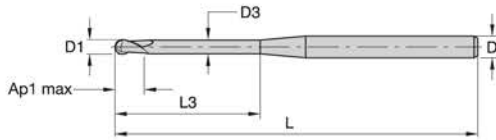
D1	D3	D	AP1 max	L3	L	ZU	Sample number
R0.1	0.17	4	0.2	0.3	50	2	2NB0020S30E003
R0.1	0.17	4	0.2	0.5	50	2	2NB0020S30E005
R0.1	0.17	4	0.2	0.75	50	2	2NB0020S30E0075
R0.1	0.17	4	0.2	1	50	2	2NB0020S30E010
R0.1	0.17	4	0.2	1.5	50	2	2NB0020S30E015
R0.1	0.17	4	0.2	2	50	2	2NB0020S30E020
R0.1	0.17	4	0.2	2.5	50	2	2NB0020S30E025
R0.1	0.17	4	0.2	3	50	2	2NB0020S30E030
R0.2	0.36	4	0.4	1	50	2	2NB0040S30E010
R0.2	0.36	4	0.4	2	50	2	2NB0040S30E020
R0.2	0.36	4	0.4	3	50	2	2NB0040S30E030
R0.2	0.36	4	0.4	4	50	2	2NB0040S30E040
R0.25	0.46	4	0.5	2	50	2	2NB0050S30E020
R0.25	0.46	4	0.5	4	50	2	2NB0050S30E040
R0.25	0.46	4	0.5	6	50	2	2NB0050S30E060
R0.3	0.56	4	1	2	50	2	2NB0060S30E020
R0.3	0.56	4	1	4	50	2	2NB0060S30E040
R0.3	0.56	4	1	6	50	2	2NB0060S30E060
R0.3	0.56	4	1	8	50	2	2NB0060S30E080
R0.4	0.75	4	1.1	4	50	2	2NB0080S30E040
R0.4	0.75	4	1.1	6	50	2	2NB0080S30E060
R0.4	0.75	4	1.1	8	50	2	2NB0080S30E080
R0.4	0.75	4	1.1	10	50	2	2NB0080S30E100
R0.5	0.93	4	1.2	4	50	2	2NB0100S30E040
R0.5	0.93	4	1.2	6	50	2	2NB0100S30E060
R0.5	0.93	4	1.2	8	50	2	2NB0100S30E080
R0.5	0.93	4	1.2	10	50	2	2NB0100S30E100
R0.75	1.44	4	1.5	6	50	2	2NB0150S30E060
R0.75	1.44	4	1.5	8	50	2	2NB0150S30E080
R0.75	1.44	4	1.5	10	50	2	2NB0150S30E100
R0.75	1.44	4	1.5	12	50	2	2NB0150S30E120
R0.75	1.44	4	1.5	14	50	2	2NB0150S30E140
R0.75	1.44	4	1.5	16	50	2	2NB0150S30E160
R1.0	1.94	4	2	8	50	2	2NB0200S30E080

End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



-  .Profiling
-  .Side cutting
-  .Slotting



Applicable to die application field

D1	D3	D	AP1 max	L3	L	ZU	Sample number
R1.0	1.94	4	2	10	50	2	2NB0200S30E100
R1.0	1.94	4	2	12	50	2	2NB0200S30E120
R1.0	1.94	4	2	14	50	2	2NB0200S30E140
R1.0	1.94	4	2	16	50	2	2NB0200S30E160
R1.0	1.94	4	2	18	50	2	2NB0200S30E180
R1.25	2.41	4	2.5	10	50	2	2NB0250S30E100
R1.25	2.41	4	2.5	16	50	2	2NB0250S30E160
R1.25	2.41	4	2.5	20	50	2	2NB0250S30E200
R1.25	2.41	4	2.5	25	60	2	2NB0250S30E250
R1.5	2.91	6	3	12	50	2	2NB0300S30E120
R1.5	2.91	6	3	16	50	2	2NB0300S30E160
R1.5	2.91	6	3	20	50	2	2NB0300S30E200
R1.5	2.91	6	3	25	60	2	2NB0300S30E250
R1.5	2.91	6	3	30	75	2	2NB0300M30E300
R2.0	3.91	6	4	16	50	2	2NB0400S30E160
R2.0	3.91	6	4	20	50	2	2NB0400S30E200
R2.0	3.91	6	4	25	60	2	2NB0400S30E250
R2.0	3.91	6	4	30	75	2	2NB0400M30E300
R2.0	3.91	6	4	35	75	2	2NB0400M30E350
R2.0	3.91	6	4	40	75	2	2NB0400M30E400
R2.5	4.82	6	5	20	50	2	2NB0500S30E200
R2.5	4.82	6	5	25	60	2	2NB0500S30E250
R2.5	4.82	6	5	30	75	2	2NB0500M30E300
R2.5	4.82	6	5	40	75	2	2NB0500M30E400
R3.0	5.91	6	6	20	75	2	2NB0600M30E200
R3.0	5.91	6	6	25	75	2	2NB0600M30E250
R3.0	5.91	6	6	30	75	2	2NB0600M30E300
R3.0	5.91	6	6	35	75	2	2NB0600M30E350
R3.0	5.91	6	6	40	100	2	2NB0600L30E400
R3.0	5.91	6	6	45	100	2	2NB0600L30E450
R3.0	5.91	6	6	50	100	2	2NB0600L30E500
R3.0	5.91	6	6	60	100	2	2NB0600L30E600

End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:



.Profiling



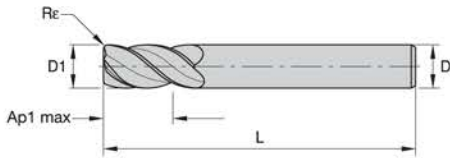
.face cutting



.Groove milling



Applicable to die application field



D1	D	AP1 max	L	R	ZU	Sample number
1	4	3	50	R0.1	4	4CRM0100S40L030R01
1	4	3	50	R0.2	4	4CRM0100S40L030R02
1.5	4	3	50	R0.2	4	4CRM0150S40L030R02
2	4	5	50	R0.1	4	4CRM0200S40L050R01
2	4	5	50	R0.2	4	4CRM0200S40L050R02
2	4	5	50	R0.3	4	4CRM0200S40L050R03
2	4	5	50	R0.5	4	4CRM0200S40L050R05
3	4	7.5	50	R0.1	4	4CRM0300S40L075R01
3	4	7.5	50	R0.2	4	4CRM0300S40L075R02
3	4	7.5	50	R0.3	4	4CRM0300S40L075R03
3	4	7.5	50	R0.5	4	4CRM0300S40L075R05
3	4	7.5	50	R1.0	4	4CRM0300S40L075R10
4	4	10	50	R0.1	4	4CRM0400S40L100R01
4	4	10	50	R0.2	4	4CRM0400S40L100R02
4	4	10	50	R0.3	4	4CRM0400S40L100R03
4	4	10	50	R0.5	4	4CRM0400S40L100R05
4	4	10	50	R1.0	4	4CRM0400S40L100R10
4	4	10	75	R0.1	4	4CRM0400M40L100R01
4	4	10	75	R0.2	4	4CRM0400M40L100R02
4	4	10	75	R0.3	4	4CRM0400M40L100R03
4	4	10	75	R0.5	4	4CRM0400M40L100R05
4	4	10	75	R1.0	4	4CRM0400M40L100R10
6	6	15	50	R0.2	4	4CRM0600S40L150R02
6	6	15	50	R0.3	4	4CRM0600S40L150R03

End mills for high performance finishing
 Suitable for medium hardness steel and hardened steel

Application:



.Profiling



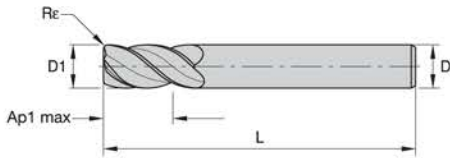
.face cutting



.Groove milling



Applicable to die application field



D1	D	AP1 max	L	R	ZU	Sample number
6	6	15	50	R0.5	4	4CRM0600S40L150R05
6	6	15	50	R1.0	4	4CRM0600S40L150R10
6	6	15	50	R1.5	4	4CRM0600S40L150R15
6	6	15	50	R2.0	4	4CRM0600S40L150R20
6	6	15	75	R0.2	4	4CRM0600M40L150R02
6	6	15	75	R0.3	4	4CRM0600M40L150R03
6	6	15	75	R0.5	4	4CRM0600M40L150R05
6	6	15	75	R1.0	4	4CRM0600M40L150R10
6	6	15	75	R1.5	4	4CRM0600M40L150R15
6	6	15	75	R2.0	4	4CRM0600M40L150R20
8	8	20	60	R0.2	4	4CRM0800S40L200R02
8	8	20	60	R0.5	4	4CRM0800S40L200R05
8	8	20	60	R1.0	4	4CRM0800S40L200R10
8	8	20	60	R1.5	4	4CRM0800S40L200R15
8	8	20	60	R2.0	4	4CRM0800S40L200R20
8	8	20	75	R0.2	4	4CRM0800M40L200R02
8	8	20	75	R0.5	4	4CRM0800M40L200R05
8	8	20	75	R1.0	4	4CRM0800M40L200R10
8	8	20	75	R1.5	4	4CRM0800M40L200R15
8	8	20	75	R2.0	4	4CRM0800M40L200R20
8	8	20	100	R0.2	4	4CRM0800L40L200R02
8	8	20	100	R0.5	4	4CRM0800L40L200R05
8	8	20	100	R1.0	4	4CRM0800L40L200R10
8	8	20	100	R1.5	4	4CRM0800L40L200R15

End mills for high performance finishing
 Suitable for medium hardness steel and hardened steel

Application:



.Profiling



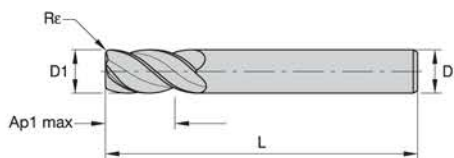
.face cutting



.Groove milling



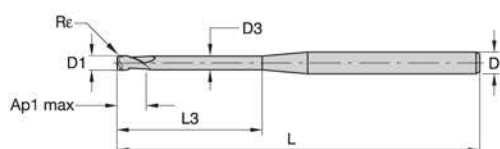
Applicable to die application field



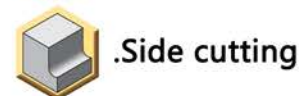
D1	D	AP1 max	L	R	ZU	Sample number
8	8	20	100	R2.0	4	4CRM0800L40L200R20
10	10	25	75	R0.2	4	4CRM1000M40L250R02
10	10	25	75	R0.5	4	4CRM1000M40L250R05
10	10	25	75	R1.0	4	4CRM1000M40L250R10
10	10	25	75	R1.5	4	4CRM1000M40L250R15
10	10	25	75	R2.0	4	4CRM1000M40L250R20
10	10	25	75	R2.5	4	4CRM1000M40L250R25
10	10	25	100	R0.2	4	4CRM1000L40L250R02
10	10	25	100	R0.5	4	4CRM1000L40L250R05
10	10	25	100	R1.0	4	4CRM1000L40L250R10
10	10	25	100	R1.5	4	4CRM1000L40L250R15
10	10	25	100	R2.0	4	4CRM1000L40L250R20
10	10	25	100	R2.5	4	4CRM1000L40L250R25
12	12	30	75	R0.2	4	4CRM1200M40L300R02
12	12	30	75	R0.5	4	4CRM1200M40L300R05
12	12	30	75	R1.0	4	4CRM1200M40L300R10
12	12	30	75	R1.5	4	4CRM1200M40L300R15
12	12	30	75	R2.0	4	4CRM1200M40L300R20
12	12	30	75	R2.5	4	4CRM1200M40L300R25
12	12	30	100	R0.2	4	4CRM1200L40L300R02
12	12	30	100	R0.5	4	4CRM1200L40L300R05
12	12	30	100	R1.0	4	4CRM1200L40L300R10
12	12	30	100	R1.5	4	4CRM1200L40L300R15
12	12	30	100	R2.0	4	4CRM1200L40L300R20
12	12	30	100	R2.5	4	4CRM1200L40L300R25

End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



.Profiling



.Side cutting



.Slotting

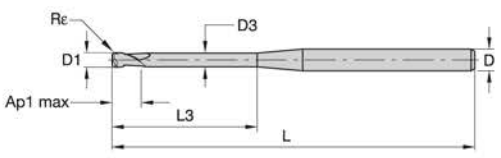
P	●
M	□
K	□
N	□
S	□
H	●

Applicable to die application field

D1	D3	D	AP1 max	L3	L	R	ZU	Sample number
1	0.95	4	2	4	50	R0.1	4	2NCR0100S30E040R01
1	0.95	4	2	6	50	R0.1	4	2NCR0100S30E060R01
1	0.95	4	2	8	50	R0.1	4	2NCR0100S30E080R01
1	0.95	4	2	10	50	R0.1	4	2NCR0100S30E100R01
1	0.95	4	2	4	50	R0.2	4	2NCR0100S30E040R02
1	0.95	4	2	6	50	R0.2	4	2NCR0100S30E060R02
1	0.95	4	2	8	50	R0.2	4	2NCR0100S30E080R02
1	0.95	4	2	10	50	R0.2	4	2NCR0100S30E100R02
1	0.95	4	2	4	50	R0.3	4	2NCR0100S30E040R03
1	0.95	4	2	6	50	R0.3	4	2NCR0100S30E060R03
1	0.95	4	2	8	50	R0.3	4	2NCR0100S30E080R03
1	0.95	4	2	10	50	R0.3	4	2NCR0100S30E100R03
1.2	1.14	4	2	4	50	R0.1	4	2NCR0120S30E040R01
1.2	1.14	4	2	6	50	R0.1	4	2NCR0120S30E060R01
1.2	1.14	4	2	8	50	R0.1	4	2NCR0120S30E080R01
1.2	1.14	4	2	10	50	R0.1	4	2NCR0120S30E100R01
1.2	1.14	4	2	12	50	R0.1	4	2NCR0120S30E120R01
1.2	1.14	4	2	4	50	R0.2	4	2NCR0120S30E040R02
1.2	1.14	4	2	6	50	R0.2	4	2NCR0120S30E060R02
1.2	1.14	4	2	8	50	R0.2	4	2NCR0120S30E080R02
1.2	1.14	4	2	10	50	R0.2	4	2NCR0120S30E100R02
1.2	1.14	4	2	12	50	R0.2	4	2NCR0120S30E120R02
1.2	1.14	4	2	4	50	R0.3	4	2NCR0120S30E040R03
1.2	1.14	4	2	6	50	R0.3	4	2NCR0120S30E060R03
1.2	1.14	4	2	8	50	R0.3	4	2NCR0120S30E080R03
1.2	1.14	4	2	10	50	R0.3	4	2NCR0120S30E100R03
1.2	1.14	4	2	12	50	R0.3	4	2NCR0120S30E120R03
1.5	1.45	4	2.5	6	50	R0.1	4	2NCR0150S30E060R01
1.5	1.45	4	2.5	8	50	R0.1	4	2NCR0150S30E080R01
1.5	1.45	4	2.5	10	50	R0.1	4	2NCR0150S30E100R01
1.5	1.45	4	2.5	12	50	R0.1	4	2NCR0150S30E120R01
1.5	1.45	4	2.5	16	50	R0.1	4	2NCR0150S30E160R01
1.5	1.45	4	2.5	6	50	R0.2	4	2NCR0150S30E060R02
1.5	1.45	4	2.5	8	50	R0.2	4	2NCR0150S30E080R02
1.5	1.45	4	2.5	10	50	R0.2	4	2NCR0150S30E100R02
1.5	1.45	4	2.5	12	50	R0.2	4	2NCR0150S30E120R02
1.5	1.45	4	2.5	16	50	R0.2	4	2NCR0150S30E120R02
1.5	1.45	4	2.5	6	50	R0.3	4	2NCR0150S30E060R03

End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



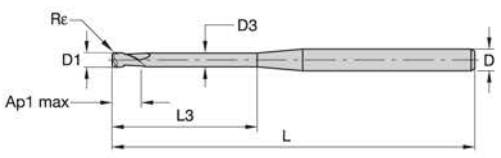
P	●
M	□
K	□
N	□
S	□
H	●

Applicable to die application field

D1	D3	D	AP1 max	L3	L	R	ZU	Sample number
1.5	1.45	4	2.5	8	50	R0.3	4	2NCR0150S30E080R03
1.5	1.45	4	2.5	10	50	R0.3	4	2NCR0150S30E100R03
1.5	1.45	4	2.5	12	50	R0.3	4	2NCR0150S30E120R03
1.5	1.45	4	2.5	16	50	R0.3	4	2NCR0150S30E160R03
2	1.92	4	3	8	50	R0.2	4	2NCR0200S30E080R02
2	1.92	4	3	10	50	R0.2	4	2NCR0200S30E100R02
2	1.92	4	3	12	50	R0.2	4	2NCR0200S30E120R02
2	1.92	4	3	16	50	R0.2	4	2NCR0200S30E160R02
2	1.92	4	3	20	50	R0.2	4	2NCR0200S30E200R02
2	1.92	4	3	8	50	R0.3	4	2NCR0200S30E080R03
2	1.92	4	3	10	50	R0.3	4	2NCR0200S30E100R03
2	1.92	4	3	12	50	R0.3	4	2NCR0200S30E120R03
2	1.92	4	3	16	50	R0.3	4	2NCR0200S30E160R03
2	1.92	4	3	20	50	R0.3	4	2NCR0200S30E200R03
2	1.92	4	3	8	50	R0.5	4	2NCR0200S30E080R05
0	1.92	4	3	10	50	R0.5	4	2NCR0200S30E100R05
2	1.92	4	3	12	50	R0.5	4	2NCR0200S30E120R05
2	1.92	4	3	16	50	R0.5	4	2NCR0200S30E160R05
2	1.92	4	3	20	50	R0.5	4	2NCR0200S30E200R05
2.5	2.42	4	4	10	50	R0.2	4	2NCR0250S30E100R02
2.5	2.42	4	4	16	50	R0.2	4	2NCR0250S30E160R02
2.5	2.42	4	4	20	50	R0.2	4	2NCR0250S30E200R02
2.5	2.42	4	4	25	60	R0.2	4	2NCR0250S30E250R02
2.5	2.42	4	4	10	50	R0.5	4	2NCR0250S30E100R05
2.5	2.42	4	4	16	50	R0.5	4	2NCR0250S30E160R05
2.5	2.42	4	4	20	50	R0.5	4	2NCR0250S30E200R05
2.5	2.42	4	4	25	60	R0.5	4	2NCR0250S30E250R05
3	2.92	6	4.5	12	50	R0.2	4	2NCR0300S30E120R02
3	2.92	6	4.5	16	50	R0.2	4	2NCR0300S30E160R02
3	2.92	6	4.5	20	50	R0.2	4	2NCR0300S30E200E02
3	2.92	6	4.5	25	60	R0.2	4	2NCR0300S30E250R02
3	2.92	6	4.5	30	75	R0.2	4	2NCR0300M30E300R02
3	2.92	6	4.5	12	50	R0.3	4	2NCR0300S30E120R03
3	2.92	6	4.5	16	50	R0.3	4	2NCR0300S30E160R03
3	2.92	6	4.5	20	50	R0.3	4	2NCR0300S30E200E03
3	2.92	6	4.5	25	60	R0.3	4	2NCR0300S30E250R03
3	2.92	6	4.5	30	75	R0.3	4	2NCR0300M30E300R03
3	2.92	6	4.5	12	50	R0.5	4	2NCR0300S30E120R05
3	2.92	6	4.5	16	50	R0.5	4	2NCR0300S30E160R05
3	2.92	6	4.5	20	50	R0.5	4	2NCR0300S30E200E05
3	2.92	6	4.5	25	60	R0.5	4	2NCR0300S30E250R05
3	2.92	6	4.5	30	75	R0.5	4	2NCR0300M30E300R05
4	3.82	6	5	16	50	R0.2	4	2NCR0400S30E160R02
4	3.82	6	5	20	50	R0.2	4	2NCR0400S30E200R02

End mills for high performance finishing
Suitable for medium hardness steel and hardened steel

Application:    



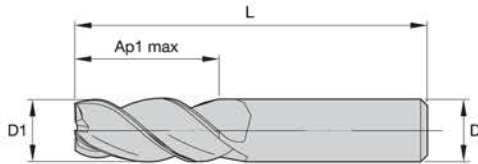
P	●
M	□
K	□
N	□
S	□
H	●




Applicable to die application field

D1	D3	D	AP1 max	L3	L	R	ZU	Sample number
4	3.82	6	5	25	50	R0.2	4	2NCR0400S30E250R02
4	3.82	6	5	30	60	R0.2	4	2NCR0400S30E300R02
4	3.82	6	5	40	75	R0.2	4	2NCR0400M30E400R02
4	3.82	6	5	16	50	R0.3	4	2NCR0400S30E160R03
4	3.82	6	5	20	50	R0.3	4	2NCR0400S30E200R03
4	3.82	6	5	25	60	R0.3	4	2NCR0400S30E250R03
4	3.82	6	5	30	75	R0.3	4	2NCR0400S30E300R03
4	3.82	6	5	40	75	R0.3	4	2NCR0400M30E400R03
4	3.82	6	5	16	50	R0.5	4	2NCR0400S30E160R05
4	3.82	6	5	20	50	R0.5	4	2NCR0400S30E200R05
4	3.82	6	5	25	60	R0.5	4	2NCR0400S30E250R05
4	3.82	6	5	30	75	R0.5	4	2NCR0400M30E400R05
4	3.82	6	5	40	75	R0.5	4	2NCR0400M30E400R05
5	4.82	6	5	16	50	R0.2	4	2NCR0500S30E160R02
5	4.82	6	5	25	60	R0.2	4	2NCR0500S30E250R02
5	4.82	6	5	50	100	R0.2	4	2NCR0500L30E500R02
5	4.82	6	5	16	50	R0.5	4	2NCR0500S30E160R05
5	4.82	6	5	25	60	R0.5	4	2NCR0500S30E250R05
5	4.82	6	5	50	100	R0.5	4	2NCR0500L30E500R05
5	4.82	6	5	16	50	R1.0	4	2NCR0500S30E160R10
5	4.82	6	5	25	60	R1.0	4	2NCR0500S30E250R10
5	4.82	6	5	50	100	R1.0	4	2NCR0500L30E500R10
6	5.82	6	6	12	65	R0.1	4	2NCR0600S30E120R01
6	5.82	6	6	20	75	R0.1	4	2NCR0600M30E200R01
6	5.82	6	6	30	100	R0.1	4	2NCR0600L30E300R01
6	5.82	6	6	60	100	R0.1	4	2NCR0600L30E600R01
6	5.82	6	6	12	65	R0.2	4	2NCR0600S30E120R02
6	5.82	6	6	20	75	R0.2	4	2NCR0600M30E200R02
6	5.82	6	6	30	100	R0.2	4	2NCR0600L30E300R02
6	5.82	6	6	60	100	R0.2	4	2NCR0600L30E600R02
6	5.82	6	6	12	65	R0.3	4	2NCR0600S30E120R03
6	5.82	6	6	20	75	R0.3	4	2NCR0600M30E200R03
6	5.82	6	6	30	100	R0.3	4	2NCR0600L30E300R03
6	5.82	6	6	60	100	R0.3	4	2NCR0600L30E600R03
6	5.82	6	6	12	65	R0.5	4	2NCR0600S30E120R05
6	5.82	6	6	20	75	R0.5	4	2NCR0600M30E200R05
6	5.82	6	6	30	100	R0.5	4	2NCR0600L30E300R05
6	5.82	6	6	60	100	R0.5	4	2NCR0600L30E600R05
6	5.82	6	6	12	65	R1.0	4	2NCR0600S30E120R10
6	5.82	6	6	20	75	R1.0	4	2NCR0600M30E200R10
6	5.82	6	6	30	100	R1.0	4	2NCR0600L30E300R10
6	5.82	6	6	60	100	R1.0	4	2NCR0600L30E600R10

Endmills for Aluminum, AL alloy materials
 Applied fine WC grade for excellent surface finish

Application:    



-  .Plane milling
-  .face cutting
-  .Groove milling

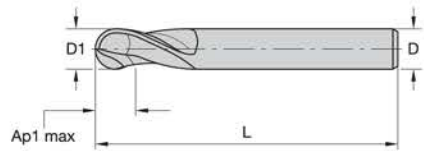
P	
M	
K	
N	●
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Applicable to die application field

D1	D	AP1 max	L	ZU	Sample number
1	4	3	50	4	3EA0100S30L030
2	4	6	50	4	3EA0200S30L060
3	4	8	50	4	3EA0300S30L080
4	4	12	50	4	3EA0400S30L120
6	6	15	50	4	3EA0600S30L150
8	8	20	60	4	3EA0800S30L200
10	10	25	75	4	3EA1000M30L250
12	12	30	75	4	3EA1200M30L300

Endmills for Aluminum, AL alloy materials
Applied fine WC grade for excellent surface finish

Application:    



 .Profiling

 .Side cutting

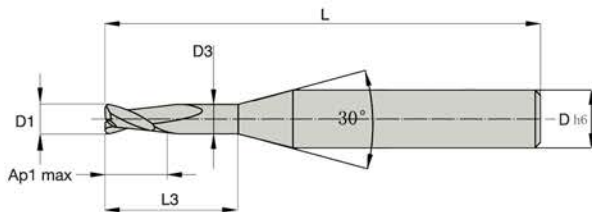
 .Slotting



Applicable to die application field

D1	D	AP1 max	L	ZU	Sample number
1	4	2	50	2	2BA0100S30L020
1.5	4	3	50	2	2BA0150S30L030
2	4	4	50	2	2BA0200S30L040
3	4	6	50	2	2BA0300S30L060
4	4	8	50	2	2BA0400S30L080
4	4	8	75	2	2BA0400M30L080
6	6	12	50	2	2BA0600S30L120
6	6	12	75	2	2BA0600M30L120
8	8	16	60	2	2BA0800S30L160
8	8	16	75	2	2BA0800M30L160
8	8	16	100	2	2BA0800L30L160
10	10	20	75	2	2BA1000M30L200
10	10	20	100	2	2BA1000L30L200
12	12	24	75	2	2BA1200M30L240
12	12	24	100	2	2BA1200L30L240
12	12	24	150	2	2BA1200L30X240

Application:    



.Plane milling



.face cutting



.Groove milling



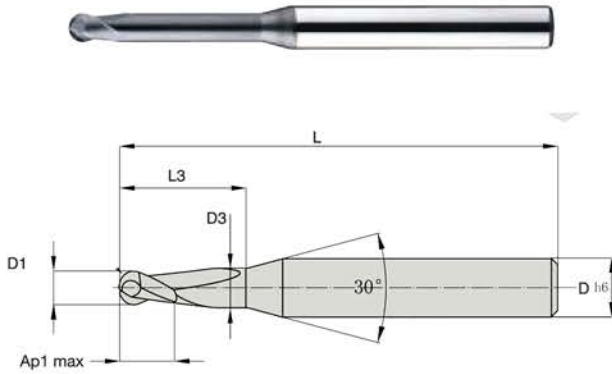
Applicable to die application field

D1	D3	D	AP1 max	L3	L	ZU	Sample number
0.5	0.45	4	1.5	5	50	2	2NEG0050S30E050
1	0.95	4	3	10	50	2	2NEG0100S30E100
1.5	1.45	4	3	15	50	2	2NEG0150S30E150
2	1.95	4	5	15	50	2	2NEG0200S30E150
3	2.8	4	10	15	50	2	2NEG0300S30E150
3	2.8	4	12	25	75	2	2NEG0300M30E250
3	2.8	4	12	30	100	2	2NEG0300L30E300
4	3.7	4	12	20	50	2	2NEG0400S30E200
4	3.7	4	20	25	75	2	2NEG0400M30E250
4	3.7	4	20	30	100	4	4NEG0400L30E300
6	5.6	6	20	30	75	4	4NEG0600M30E300
6	5.6	6	25	40	100	4	4NEG0600L30E400
8	7.6	8	25	35	75	4	4NEG0800M30E350
8	7.6	8	30	45	100	4	4NEG0800L30E350
8	7.6	8	40	60	150	4	4NEG0800XL30E600
10	9.6	10	30	45	100	4	4NEG1000L30E450
10	9.6	10	45	60	150	4	4NEG1000XL30E600
12	11.4	12	35	45	100	4	4NEG1200L30E450
12	11.4	12	50	70	150	4	4NEG1200XL30E700
16	15.6	16	60	80	180	4	4NEG1600XL30E800

End mills for Graphite,carbon fiber,materials.

Outsanding performance at high speed machning by ultra fine(0.1-0.2um)WC grabe

Application:    



Applicable to die application field

D1	D3	D	AP1 max	L3	L	ZU	Sample number
0.5	0.45	4	1	5	50	2	2NBG0050S30E050
1	0.95	4	3	10	50	2	2NBG0100S30E100
1.5	1.45	4	3	10	50	2	2NBG0150S30E100
2	1.95	4	6	15	50	2	2NBG0200S30E150
3	2.8	4	6	15	50	2	2NBG0300S30E150
3	2.8	4	6	25	75	2	2NBG0300M30E250
3	2.8	4	6	30	100	2	2NBG0300L30E300
4	3.7	4	10	15	50	2	2NBG0400S30E150
4	3.7	4	10	25	75	2	2NBG0400M30E250
4	3.7	4	10	30	100	2	2NBG0400L30E300
6	5.6	6	15	30	75	2	2NBG0600M30E300
6	5.6	6	20	40	100	2	2NBG0600L30E400
8	7.6	8	26	30	75	2	2NBG0800M30E300
8	7.6	8	26	40	100	2	2NBG0800L30E400
8	7.6	8	26	40	150	2	2NBG0800XL30E400
10	9.6	10	26	30	100	2	2NBG1000L30E300
10	9.6	10	26	40	150	2	2NBG1000XL30E400
12	11.4	12	26	30	100	2	2NBG1200L30E300
12	11.4	12	26	40	150	2	2NBG1200XL30E400
16	15.6	16	40	60	180	2	2NBG1600XL30E600

Application:    

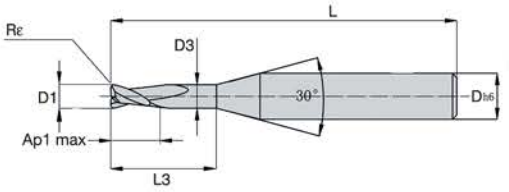
 .Profiling

 .Side cutting

 .Slotting



Applicable to die application field



D1	D3	D	AP1 max	L3	L	R	ZU	Sample number
0.5	0.45	4	1.5	5	50	0.05	2	2NCRG0050S30E050R005
1	0.95	4	3	10	50	0.1	2	2NCRG0100S30E100R010
1.5	1.45	4	3	15	50	0.1	2	2NCRG0150S30E150R010
2	1.95	4	5	15	50	0.1	2	2NCRG0200S30E150R010
3	2.8	4	10	15	50	0.1	2	2NCRG0300S30E150R010
3	2.8	4	12	25	75	0.1	2	2NCRG0300M30E250R010
3	2.8	4	12	30	100	0.1	2	2NCRG0300L30E300R010
4	3.7	4	12	20	50	0.5	2	2NCRG0400S30E200R050
4	3.7	4	20	25	75	0.5	2	2NCRG0400M30E250R050
4	3.7	4	20	30	100	0.5	4	4NCRG0400L30E300R050
6	5.6	6	20	30	75	0.5	4	4NCRG0600M30E300R050
6	5.6	6	25	40	100	0.5	4	4NCRG0600L30E400R050
8	7.6	8	25	35	75	0.5	4	4NCRG0800M30E350R050
8	7.6	8	30	45	100	0.5	4	4NCRG0800L30E350R050
8	7.6	8	40	60	150	0.5	4	4NCRG0800XL30E600R050
10	9.6	10	30	45	100	0.5	4	4NCRG1000L30E450R050
10	9.6	10	45	60	150	0.5	4	4NCRG1000XL30E600R050
12	11.4	12	35	45	100	0.5	4	4NCRG1200L30E450R050
12	11.4	12	50	70	150	0.5	4	4NCRG1200XL30E700R050
16	15.6	16	60	80	180	0.5	4	4NCRG1600XL30E800R050

CATALOG

2017-2018

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