Size φ1～φ12

C-CRS

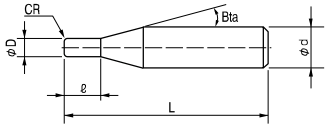
Super MG | UT COAT | 30° | R | R ±0.02 | Shank Dia 0/-0.005

Material Applications（★ Highly Recommended ● Recommended ○ Suggested）

Work Material																
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels					Cast Iron	Aluminum Alloys	Graphite	Copper	Plastics	Glass Filled Plastics	Titanium Alloys	Heat Resistant Alloys	Cemented Carbide	Hard Brittle (Non-Metallic) Materials
S45C S55C	SK / SCM SUS	NAK HPM	～50HRC	～55HRC	～60HRC	～65HRC	～70HRC										
●	●	●	●	●				○			●			○	○		

Features

Various range of Corner Radius.
Broad application range from Copper and Carbon Steels up to Hardened Steels (55HRC).



The shank taper angle shown is not an exact value and to avoid contact with the work piece, we recommend the user controls the precise value of this angle. Shank taper angle should not make contact with the work piece.

Total 46 models　　Unit（mm）

Model Number	Outside Diameter φD	Corner Radius CR	Length of Cut ℓ	Shank Taper Angle Bta	Overall Length L	Shank Diameter φd	Suggested Retail Price ¥
C-CRS 2010-02	1	R0.2	2	16°	45	4	7,900
C-CRS 2010-03		R0.3			45	4	7,900
C-CRS 2015-02	1.5	R0.2	3	16°	45	4	7,900
C-CRS 2015-03		R0.3			45	4	7,900
C-CRS 2015-05		R0.5			45	4	7,900
C-CRS 2020-02	2	R0.2	4	16°	45	4	7,900
C-CRS 2020-03		R0.3			45	4	7,900
C-CRS 2020-05		R0.5			45	4	7,900
C-CRS 2025-02	2.5	R0.2	5	16°	45	4	7,900
C-CRS 2025-03		R0.3			45	4	7,900
C-CRS 2025-05		R0.5			45	4	8,600
C-CRS 2030-02	3	R0.2	10	16°	45	6	9,030
C-CRS 2030-03		R0.3			45	6	9,030
C-CRS 2030-05		R0.5			45	6	9,980
C-CRS 2030-10		R1			45	6	10,710

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Unit (mm)

Model Number	Outside Diameter φD	Corner Radius CR	Length of Cut ℓ	Shank Taper Angle Bta	Overall Length L	Shank Diameter φd	Suggested Retail Price ¥
C-CRS 2040-02	4	R0.2	12	16°	45	6	9,140
C-CRS 2040-03		R0.3			45	6	9,140
C-CRS 2040-05		R0.5			45	6	10,080
C-CRS 2040-10		R1			45	6	10,820
C-CRS 2050-02	5	R0.2	15	16°	50	6	9,240
C-CRS 2050-03		R0.3			50	6	9,240
C-CRS 2050-05		R0.5			50	6	10,190
C-CRS 2050-10		R1			50	6	10,920
C-CRS 2060-02	6	R0.2	15	—	50	6	10,190
C-CRS 2060-03		R0.3			50	6	10,190
C-CRS 2060-05		R0.5			50	6	10,400
C-CRS 2060-10		R1			50	6	11,130
C-CRS 2060-15		R1.5			50	6	11,550
C-CRS 2060-20		R2			50	6	11,870
C-CRS 2080-05	8	R0.5	20	—	60	8	14,740
C-CRS 2080-10		R1			60	8	15,510
C-CRS 2080-15		R1.5			60	8	15,950
C-CRS 2080-20		R2			60	8	16,280
C-CRS 2080-25		R2.5			60	8	16,720
C-CRS 2100-05	10	R0.5	25	—	70	10	19,140
C-CRS 2100-10		R1			70	10	19,910
C-CRS 2100-15		R1.5			70	10	20,350
C-CRS 2100-20		R2			70	10	20,680
C-CRS 2100-25		R2.5			70	10	21,120
C-CRS 2100-30		R3			70	10	21,120
C-CRS 2120-05	12	R0.5	25	—	75	12	23,980
C-CRS 2120-10		R1			75	12	24,750
C-CRS 2120-15		R1.5			75	12	25,190
C-CRS 2120-20		R2			75	12	25,520
C-CRS 2120-25		R2.5			75	12	25,960
C-CRS 2120-30		R3			75	12	25,960

Milling Conditions for C-CRS

WORK MATERIAL		CARBON STEELS S45C / S50C (~225HB)			ALLOY STEELS SK / SCM / SUS (225~325HB)		
Model Number	Outside Diameter (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)
2010	**1**	16,000	340	0.25	12,700	120	0.25
2020	**2**	8,000	200	0.5	6,400	120	0.5
2025	**2.5**	6,300	200	0.63	5,100	120	0.63
2030	**3**	5,000	200	1.5	4,200	120	1.5
2040	**4**	4,000	240	2	3,200	150	2
2050	**5**	3,200	240	2.5	2,550	150	2.5
2060	**6**	2,650	240	3	2,120	150	3
2080	**8**	2,000	240	4	1,600	150	4
2100	**10**	1,600	240	5	1,270	150	5
2120	**12**	1,330	240	6	1,060	150	6

WORK MATERIAL		PREHARDENED STEELS HARDENED STEELS NAK / SKD (30~45HRC)			HARDENED STEELS SKD / SKT (45~50HRC)		
Model Number	Outside Diameter (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)
2010	**1**	9,550	65	0.25	5,580	22	0.05
2020	**2**	4,800	55	0.5	2,790	31	0.1
2025	**2.5**	3,800	55	0.63	2,250	31	0.13
2030	**3**	3,180	55	1.5	2,120	33	0.15
2040	**4**	2,390	65	2	1,590	39	0.2
2050	**5**	1,910	65	2.5	1,270	39	0.25
2060	**6**	1,590	65	3	1,060	39	0.3
2080	**8**	1,190	70	4	800	39	0.4
2100	**10**	950	70	5	640	39	0.5
2120	**12**	800	70	6	530	39	0.6

Milling Amount for Slotting (mm)

45HRC or below

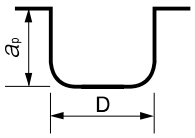
D＜φ3　a_p=0.25D

D≧φ3　a_p=0.5D

45HRC or above

a_p=0.05D

D：Outside Diameter (mm)



Note:
・Recommend water soluble or oil coolant.
・Recommend oil coolant for Titanium Alloys and Heat Resistant Alloys.