Size φ1～φ12

CXERS

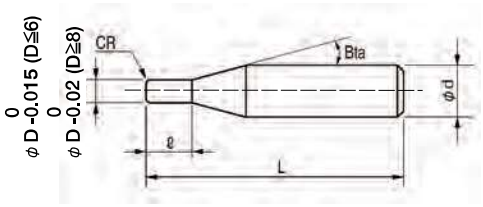
Super MG | UT COAT | 37°~40° | R | R ±0.005 (φ1～φ3) | R ±0.01 (φ4～φ6) | R ±0.015 (φ8～φ12) | Shank Dia 0/-0.005 | Variable Pitch | Variable Helix

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

Variable Division & Variable Helix design minimizes vibration and chattering.
Selected carbide material with high toughness & high chip resistance.
Excellent wear-resistance for the wide range of milling applications, from highly efficient milling to finishing.
Low friction coating resulting in excellent chip evacuation and resistance to wear.
Decreasing cutting resistance and offering stable milling by the original corner R design.



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 56 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 ¥
CXERS 4010-01-025	1	R0.1	2.5	16°	50	4	6,850
CXERS 4010-02-025		R0.2			50	4	6,850
CXERS 4010-03-025		R0.3			50	4	7,300
CXERS 4015-01-0375	1.5	R0.1	3.75	16°	50	4	6,850
CXERS 4015-02-0375		R0.2			50	4	6,850
CXERS 4015-03-0375		R0.3			50	4	7,300
CXERS 4020-01-050	2	R0.1	5	16°	50	4	6,410
CXERS 4020-02-050		R0.2			50	4	6,410
CXERS 4020-03-050		R0.3			50	4	6,850
CXERS 4020-05-050		R0.5			50	4	6,850
CXERS 4025-03-0625	2.5	R0.3	6.25	16°	50	4	6,850
CXERS 4025-05-0625		R0.5			50	4	6,850
CXERS 4030-02-075	3	R0.2	7.5	16°	60	6	7,350
CXERS 4030-03-075		R0.3			60	6	7,850
CXERS 4030-05-075		R0.5			60	6	7,850

Next Page ➡

Unit (mm)

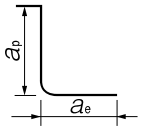
Model Number	Outside Diameter φD	Corner Radius CR	Length of Cut ℓ	Shank Taper Angle Bta	Overall Length L	Shank Diameter φd	Suggested Retail Price ¥
CXERS 4040-02-100	4	R0.2	10	16°	60	6	7,720
CXERS 4040-03-100		R0.3			60	6	8,250
CXERS 4040-04-100		R0.4			60	6	8,250
CXERS 4040-05-100		R0.5			60	6	8,250
CXERS 4040-10-100		R1			60	6	8,250
CXERS 4050-02-125	5	R0.2	12.5	16°	60	6	8,300
CXERS 4050-03-125		R0.3			60	6	8,850
CXERS 4050-04-125		R0.4			60	6	8,850
CXERS 4050-05-125		R0.5			60	6	8,850
CXERS 4050-10-125		R1			60	6	8,850
CXERS 4060-02-150	6	R0.2	15	—	60	6	8,640
CXERS 4060-03-150		R0.3			60	6	8,640
CXERS 4060-04-150		R0.4			60	6	9,500
CXERS 4060-05-150		R0.5			60	6	9,500
CXERS 4060-10-150		R1			60	6	9,500
CXERS 4060-12-150		R1.2			60	6	9,500
CXERS 4080-02-200	8	R0.2	20	—	70	8	11,000
CXERS 4080-03-200		R0.3			70	8	11,000
CXERS 4080-04-200		R0.4			70	8	11,800
CXERS 4080-05-200		R0.5			70	8	11,800
CXERS 4080-10-200		R1			70	8	11,800
CXERS 4080-12-200		R1.2			70	8	11,800
CXERS 4080-15-200		R1.5			70	8	11,800
CXERS 4080-20-200		R2			70	8	11,800
CXERS 4100-02-250	10	R0.2	25	—	80	10	13,100
CXERS 4100-03-250		R0.3			80	10	13,100
CXERS 4100-04-250		R0.4			80	10	14,000
CXERS 4100-05-250		R0.5			80	10	14,000
CXERS 4100-10-250		R1			80	10	14,000
CXERS 4100-12-250		R1.2			80	10	14,000
CXERS 4100-15-250		R1.5			80	10	14,000
CXERS 4100-20-250		R2			80	10	14,000
CXERS 4120-02-300	12	R0.2	30	—	100	12	18,750
CXERS 4120-03-300		R0.3			100	12	20,000
CXERS 4120-04-300		R0.4			100	12	20,000
CXERS 4120-05-300		R0.5			100	12	20,000
CXERS 4120-10-300		R1			100	12	20,000
CXERS 4120-12-300		R1.2			100	12	20,000
CXERS 4120-15-300		R1.5			100	12	20,000
CXERS 4120-20-300		R2			100	12	20,000
CXERS 4120-30-300		R3			100	12	20,000

Milling Conditions for CXERS

◆Side Milling

WORK MATERIAL		CARBON STEELS S45C / S50C Annealed Materials (～225HB)				ALLOY STEELS SK / SCM Annealed Materials (225～325HB)				STAINLESS STEELS SUS304 ※Use water soluble or oil coolant.			
Model Number	Outside Diameter (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)
4010	**1**	21,600	490	2.5	0.1	21,600	360	2.5	0.1	17,400	250	2.5	0.1
4015	**1.5**	16,200	610	3.75	0.15	16,200	450	3.75	0.15	15,960	270	3.75	0.15
4020	**2**	13,200	740	5	0.2	13,200	550	5	0.2	14,640	280	5	0.2
4025	**2.5**	11,400	840	6.25	0.25	11,400	640	6.25	0.25	13,200	390	6.25	0.25
4030	**3**	10,200	960	7.5	0.3	10,200	720	7.5	0.3	12,000	510	7.5	0.3
4040	**4**	8,640	1,350	10	0.8	8,040	1,000	10	0.8	9,000	730	10	0.4
4050	**5**	7,200	1,500	12.5	1	6,480	1,100	12.5	1	6,480	810	12.5	0.5
4060	**6**	6,000	1,600	15	1.2	5,400	1,200	15	1.2	5,400	810	15	0.6
4080	**8**	3,600	1,300	20	1.6	3,480	1,050	20	1.6	3,480	720	20	0.8
4010	**10**	1,920	1,000	25	2	1,800	900	25	2	1,800	580	25	1
4012	**12**	1,440	800	30	2.4	1,440	750	30	2.4	1,440	540	30	1.2
Milling Amount (mm)		a_p : All Flute a_e : 0.1D(ϕD＜4) a_e : 0.2D(ϕD≧4)				a_p : All Flute a_e : 0.1D(ϕD＜4) a_e : 0.2D(ϕD≧4)				a_p : All Flute a_e : 0.1D			

Side Milling



Milling Conditions for CXERS

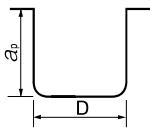
WORK MATERIAL		PREHARDENED STEELS HPM / NAK (30~45HRC)				HARDENED STEELS SKD / SKT / STAVAX (45~55HRC)			
Model Number	Outside Diameter (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)
4010	**1**	15,480	250	2.5	0.1	12,900	180	2.5	0.05
4015	**1.5**	12,600	310	3.75	0.15	9,300	280	3.75	0.075
4020	**2**	11,220	360	5	0.2	7,600	390	5	0.1
4025	**2.5**	9,960	430	6.25	0.25	6,500	510	6.25	0.125
4030	**3**	8,880	500	7.5	0.3	5,900	500	7.5	0.3
4040	**4**	7,080	650	10	0.8	4,700	520	10	0.4
4050	**5**	5,760	680	12.5	1	3,850	530	12.5	0.5
4060	**6**	4,800	680	15	1.2	3,200	540	15	0.6
4080	**8**	3,000	600	20	1.6	2,000	500	20	0.8
4010	**10**	1,800	430	25	2	1,200	450	25	1
4012	**12**	1,200	320	30	2.4	960	420	30	1.2
Milling Amount (mm)		a_p : All Flute a_e : 0.1D(ϕD<4) a_e : 0.2D(ϕD≧4)				a_p : All Flute a_e : 0.1D			

Milling Conditions for CXERS

◆Slotting

WORK MATERIAL		CARBON STEELS S45C / S50C Annealed Materials (～225HB)			ALLOY STEELS SK / SCM Annealed Materials (225～325HB)			STAINLESS STEELS SUS304 ※Use water soluble or oil coolant.		
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)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)
4010	**1**	21,600	160	1	21,600	160	1	17,400	170	0.5
4015	**1.5**	16,200	250	1.5	16,200	220	1.5	15,960	190	0.75
4020	**2**	13,200	360	2	13,200	250	2	14,640	200	1
4025	**2.5**	11,400	430	2.5	11,400	280	2.5	13,200	240	1.25
4030	**3**	10,200	480	3	10,200	320	3	12,000	280	1.5
4040	**4**	8,640	650	4	8,040	450	4	9,000	400	2
4050	**5**	7,200	700	5	6,480	500	5	6,480	460	2.5
4060	**6**	6,000	700	6	5,400	500	6	5,400	460	3
4080	**8**	3,600	500	8	3,480	360	8	3,480	340	4
4100	**10**	1,920	380	10	1,800	270	10	1,800	220	5
4120	**12**	1,440	300	12	1,440	210	12	1,440	180	6
Milling Amount (mm)		a_p:1D			a_p:1D			a_p:0.5D		

Slotting



D : Outside Diameter (mm)

Note:
- Decrease both spindle speed and feed rate proportionally in case of chattering.
- These milling parameters are calculated based on the shortest overhang length. Longer overhangs may require an adjustment to the milling parameters.
- Reduce the milling amount and feed rate in accordance with required milling precision.
- Every coolant offers stable milling.
- Recommend water soluble or oil coolant for Stainless Steels and Copper.

Milling Conditions for CXERS

4 Flutes

WORK MATERIAL		PREHARDENED STEELS HPM / NAK (30~45HRC)			HARDENED STEELS SKD / SKT / STAVAX (45~55HRC)		
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)
4010	**1**	15,480	100	1	12,900	50	0.3
4015	**1.5**	12,600	140	1.5	10,500	100	0.45
4020	**2**	11,220	170	2	9,350	150	0.6
4025	**2.5**	9,960	210	2.5	8,300	240	0.75
4030	**3**	8,880	250	3	7,400	360	1.5
4040	**4**	7,080	390	4	5,900	380	2
4050	**5**	5,760	440	5	4,800	410	2.5
4060	**6**	4,800	440	6	4,000	440	3
4080	**8**	3,000	340	8	2,500	340	4
4100	**10**	1,800	220	10	1,500	240	5
4120	**12**	1,200	180	12	1,200	220	6
Milling Amount (mm)		a_p : 1D			a_p : 0.5D		