



Size $\phi 1 \sim \phi 12$

C-CES4000S

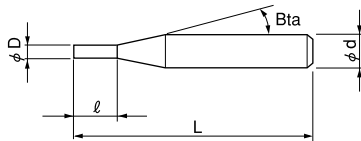


Material Applications (☆ Highly Recommended ○ Recommended ○ Suggested)

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

Features

4 flute C-CES with a sharp corner design.
 Broad application range from Carbon Steels up to Hardened Steels (55HRC).
 Excellent performance/quality to price ratio.
 Refer to page 76 for 2 flute C-CES-S.



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.

Length of Cut for C-CES4020S has been changed from 5mm to 6mm.
 Change Date: from production in November 2012.

Total 11 models

Unit (mm)

Model Number	Outside Diameter ϕD	Length of Cut ℓ	Shank Taper Angle Bta	Overall Length L	Shank Diameter ϕd	Price (¥)
C-CES 4010 S	1	2.5	16°	45	4	5,160
C-CES 4015 S	1.5	3.75	16°	45	4	5,160
C-CES 4020 S	2	6	16°	45	4	3,300
C-CES 4025 S	2.5	6.25	16°	45	4	3,300
C-CES 4030 S	3	8	16°	45	6	3,420
C-CES 4040 S	4	11	16°	45	6	3,860
C-CES 4050 S	5	13	16°	50	6	3,970
C-CES 4060 S	6	13	—	50	6	4,170
C-CES 4080 S	8	19	—	60	8	7,090
C-CES 4100 S	10	22	—	70	10	9,460
C-CES 4120 S	12	26	—	75	12	11,880

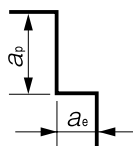
Milling Conditions for C-CES-S (4 Flutes)

WORK MATERIAL		CARBON STEELS S45C / S50C (~225HB)			ALLOY STEELS SK / SCM / SUS (225~325HB)			PREHARDENED STEELS HARDENED STEELS NAK / SKD (30~45HRC)			HARDENED STEELS SKD11 / 61 / SKT (45~55HRC)		
Model Number	Outside Diameter (mm)	Spindle Speed (min ⁻¹)	Velocity (m/min)	Feed Rate (mm/min)	Spindle Speed (min ⁻¹)	Velocity (m/min)	Feed Rate (mm/min)	Spindle Speed (min ⁻¹)	Velocity (m/min)	Feed Rate (mm/min)	Spindle Speed (min ⁻¹)	Velocity (m/min)	Feed Rate (mm/min)
4010S	1	20,000	63	170	13,700	43	150	7,300	23	55	1,600	5	15
4015S	1.5	13,400		190	9,100		160	4,900		60	1,100		15
4020S	2	11,600	73	200	5,600	50	170	5,300	33	65	2,400	10	30
4025S	2.5	9,300		300	4,200		190	4,200		70	1,900		35
4030S	3	8,800	83	340	6,700	63	210	4,600	43	90	2,700	25	50
4040S	4	6,600		370	5,000		270	3,400		100	2,000		55
4050S	5	5,300		450	4,000		320	2,700		110	1,600		60
4060S	6	4,400		450	3,300		320	2,300		110	1,300		60
4080S	8	3,300		420	2,500		300	1,700		100	1,000		50
4100S	10	2,650		410	2,000		300	1,400		100	800		50
4120S	12	2,200	400	1,700	300	1,150	90	700	45				

Milling Amount for side milling (mm)

Less than 45HRC	$a_e=0.07D$ $a_p=2D$
More than 45HRC	$a_e=0.03D$ $a_p=1.5D$

D : Outside Diameter

 a_p : Axial Depth (mm) a_e : Radial Depth (mm)

Note:

- Recommend water soluble or oil coolant.
- Recommend oil coolant for Titanium Alloys and Heat Resistant Alloys.

Square

Square
Long Neck
Square

Radius

Radius
Long Neck
RadiusBall / Long
Shank BallBall
Long Neck
BallTaper Neck
BallTaper
TaperSpiral
V CutterDrill
Thread Mill

EURO Series

Technical Data