



Size $\phi 0.3 \sim \phi 12$

CPS

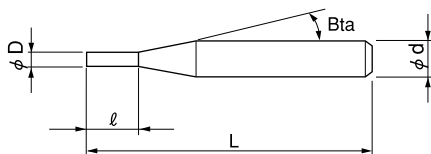


Material Applications (☆ Highly Recommended ◎ Recommended ○ Suggested)

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

Medium length of cut design for Plastic milling.
 Original flute design offers excellent surface finish.
 Length of cut = outside diameter x3 (Note: outside diameter x1.5~2 is partially included).
 Recommend for deep rib milling.



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 23 models

Unit (mm)

Model Number	Outside Diameter ϕD	Length of Cut ℓ	Shank Taper Angle Bta	Overall Length L	Shank Diameter ϕd	Price (¥)
◎ CPS 2003	0.3	0.9	16°	45	4	6,480
◎ CPS 2004	0.4	1.2		45	4	7,080
◎ CPS 2005	0.5	1.5		45	4	4,800
◎ CPS 2006	0.6	1.8		45	4	5,520
◎ CPS 2007	0.7	2.1		45	4	6,000
◎ CPS 2008	0.8	2.4		45	4	5,520
◎ CPS 2009	0.9	2.7		45	4	6,000
◎ CPS 2010	1	3		50	4	3,840
◎ CPS 2012	1.2	3.6		50	4	4,200
◎ CPS 2015	1.5	4.5		50	4	4,200
◎ CPS 2020	2	6	55	4	4,200	
◎ CPS 2025	2.5	7.5	55	4	4,300	
◎ CPS 2030	3	9	60	6	5,400	
◎ CPS 2030SS		4.5	60	3	5,200	
◎ CPS 2030SSL	6	—	100	3	7,800	
◎ CPS 2040	4	12	16°	60	6	5,400
◎ CPS 2040SS		6	—	60	4	5,200
◎ CPS 2040SSL		8	—	100	4	9,600
◎ CPS 2050	5	15	16°	60	6	6,240
◎ CPS 2060	6	18	—	60	6	6,600
◎ CPS 2080	8	24		80	8	12,100
◎ CPS 2100	10	30		80	10	14,850
◎ CPS 2120	12	36		90	12	22,000

◎ Straight shank type

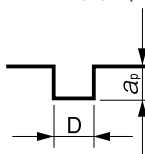
Milling Conditions for CPS

WORK MATERIAL			ABS / MC Nylon			Acrylic / Polyacetal			Polycarbonate			Glass Fiber Reinforced Polycarbonate		
Model Number	Outside Diameter (mm)	Length of Cut (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)
2003	0.3	0.9	20,000	320	0.3	16,000	160	0.3	16,000	130	0.2	16,000	260	0.2
2004	0.4	1.2	20,000	400	0.4	16,000	160	0.4	16,000	130	0.2	16,000	260	0.3
2005	0.5	1.5	20,000	480	0.5	16,000	160	0.5	16,000	130	0.3	16,000	320	0.4
2006	0.6	1.8	20,000	600	0.6	16,000	200	0.5	16,000	130	0.3	16,000	390	0.5
2007	0.7	2.1	20,000	720	0.7	16,000	260	0.6	16,000	160	0.4	16,000	390	0.6
2008	0.8	2.4	20,000	800	0.8	16,000	320	0.7	16,000	160	0.4	15,200	430	0.6
2009	0.9	2.7	20,000	880	0.9	14,200	340	0.8	14,200	170	0.5	14,200	460	0.7
2010	1	3	20,000	1,000	1	14,100	430	0.9	14,100	290	0.5	14,100	510	0.8
2012	1.2	3.6	20,000	1,080	1.2	14,100	480	1.1	14,100	340	0.6	14,100	650	1
2015	1.5	4.5	20,000	1,160	1.5	12,800	460	1.4	12,800	390	0.8	13,200	740	1.2
2020	2	6	20,000	1,200	2	12,800	510	1.6	12,500	430	0.6	13,100	740	1.4
2025	2.5	7.5	20,000	1,200	2.5	12,800	570	2	10,200	450	0.8	12,700	760	1.8
2030	3	9	20,000	1,200	3	12,800	640	2.4	9,600	430	0.9	10,700	810	2.1
2030SS	3	4.5	20,000	1,200	3	12,800	640	2.4	9,600	430	0.9	10,700	810	2.1
2030SSL	3	6	20,000	1,200	3	12,800	640	2.4	9,600	430	0.9	10,700	810	2.1
2040	4	12	14,900	1,200	4	12,000	600	3.2	8,000	400	1.2	8,000	770	2.8
2040SS	4	6	14,900	1,200	4	12,000	600	3.2	8,000	400	1.2	8,000	770	2.8
2040SSL	4	8	14,900	1,200	4	12,000	600	3.2	8,000	400	1.2	8,000	770	2.8
2050	5	15	12,000	960	5	9,600	480	4	6,400	320	1.5	6,400	620	3.5
2060	6	18	10,000	800	6	8,000	400	4.8	5,400	270	1.8	5,400	510	4.2
2080	8	24	7,500	600	8	6,000	300	6.4	4,000	200	2.4	4,000	390	5.6
2100	10	30	6,000	480	10	4,800	240	8	3,200	160	3	3,200	310	7
2120	12	36	5,000	400	12	4,000	200	9.6	2,700	140	3.6	2,700	260	8.4

Milling Amount for Slotting (mm)

a_p : Axial Depth (mm)

D : Outside Diameter (mm)



CPS finishing conditions for side milling

Refer to the slotting parameters for spindle speed and feed rate.
Set the milling amount as below during side milling finishing.

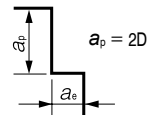
Milling Amount for Side Finishing (mm)

a_p : Axial Depth (mm)

a_e : Radial Depth (mm)

a_e : 0.01 ~ 0.015D

D : Outside Diameter (mm)



Note:

- Control the radial depth (a_e) by approximately 0.01-0.015 times of the outside diameter or set to 0.01mm the minimum during side milling finishing.
- Increase the feed rate per flute to reduce burring on surface of softer materials.
- Chattering may occur when using a spindle with low rigidity or when milling unstable work piece. Reduce the milling amount in this case.
- Recommend to reduce the milling amount when using a machine with low spindle speed. Not recommend to reduce the feed rate.
- Adjust the milling parameters based on the overhang length.
- Recommend water soluble coolant for Stainless Steels and Aluminum Alloys.
- Recommend air blow for Plastics.
- Remove chips from the work piece to keep the milling surface quality.
- If chips clog on the tool, stop the operation and remove them accordingly.
- Straight shank type (2030SS, 2030SSL, 2040SS, 2040SSL, etc.) has smaller outside diameter than shank diameter. Prevent the shank making contact with the work piece.

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