



The Ultra High Feed Chamfer Mill

# C-CUTTER mini

**BIG DAISHOWA SEIKI CO LTD**

CATALOG No. **EXi154-1**



**NEW**

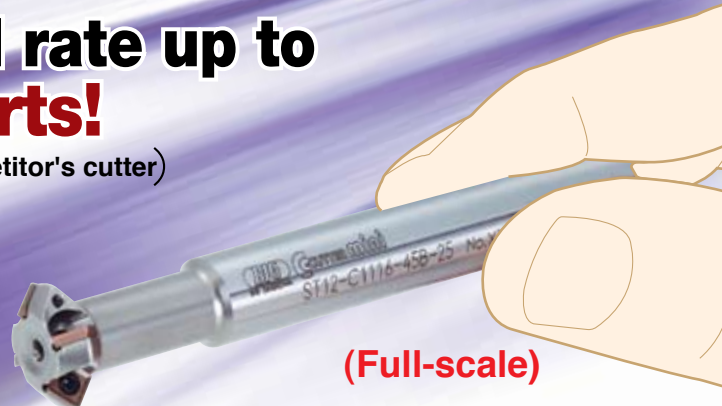
- Long Type
- Hexagon Insert

**Ultra High Feed Rate!**  
**Increases** the feed rate up to  
**400% using 4 inserts!**

(Compared with competitor's cutter)

### Eccentric Design for Tapped Holes

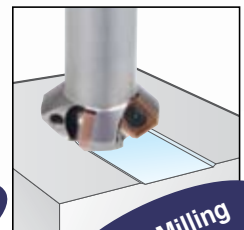
New series exclusively for chamfering metric tapped holes.



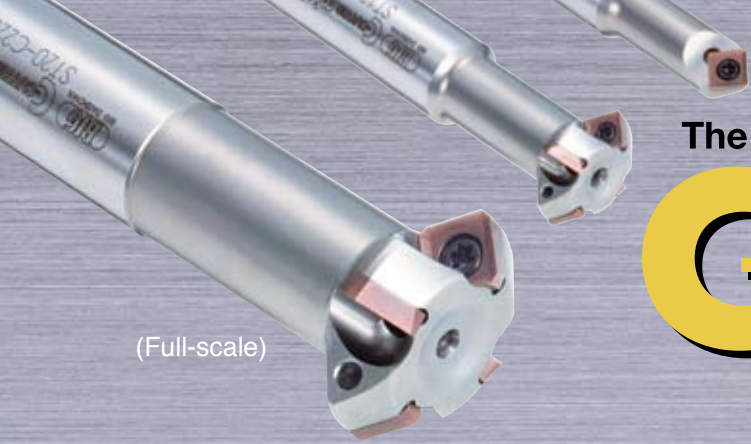
(Full-scale)



Front & Back Chamfering



Face Milling



The Ultra High Feed Cutter

# C-CUTTER mini

**Compact design with 4 inserts & small cutting diameter!!  
High performance chamfer cutter achieves ultra high feed rate by reducing the cutting diameter to the lowest limit.**

For multi-functional cutting

- Chamfering
- Back Chamfering
- Face Milling

Cutting efficiency is improved by **8 times**



Material: 1055  
Chamfering Amount: .040 x 45°  
Feed Per Tooth: .004

	Competitor's Tool	C-Cutter Mini (ST12-C1116-45B-25)
Chamfering dia.	ø1.142	<b>ø.531</b> <small>Small dia.</small>
Number of teeth	2	<b>4</b> <small>UP</small>
Cutting speed (SFM)	495	<b>990</b> <small>UP</small>
Spindle speed (RPM)	1,646	<b>7,040</b> <small>UP</small>
Feed (IPM)	12.95	<b>111</b> <small>8.5x Higher!</small>

**4 inserts, small diameter and new coating achieve triple effect.**

- Effect 1** **Maverick design. Ultra high feed by 4 inserts.**  
Compared with 1 or 2 inserts per cutter, a 4 insert cutter multiplies feed rate.
- Effect 2** **Increased spindle speed by ultra compact diameter.**  
A smaller tool diameter means faster spindle speeds.
- Effect 3** **Latest coatings [ACP200/300] increases the cutting speed.**  
Wear resistant multi-layer PVD coating increases the cutting speed!!

**C-Cutter Mini**

**Small cutting diameter and 4 inserts!!**

**Competitor's cutter**

**Large cutting diameter with only 1 or 2 inserts.**

**Considerably Improved!!**

$$\text{Feed rate} = \text{Spindle speed} \times \text{Feed per tooth} \times \text{Number of teeth}$$

$$\text{Spindle speed} = \frac{\text{Cutting speed}}{\pi \times \text{Cutting diameter}}$$

Small dia.

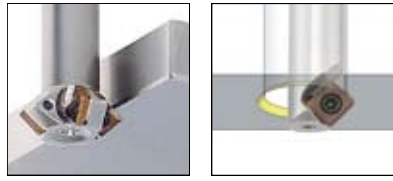
**World's smallest .197" square insert is used.**

World's smallest .197" square insert with 4 cutting edges.



**High speed back chamfering!!**

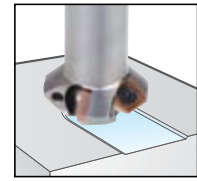
High speed back chamfering reduces hand de-burring!!



**Face milling is even possible with this chamfering cutter.**

(Possible only with 45 degree chamfering type with .394" square insert)

Minor cutting edge allows light face milling.



# FRONT & BACK CHAMFERING

## Multi-Insert Type



• Model Description

**ST12 - C 10 12 - 45 B - 20**

- Projection Length
- Back Chamfering
- Chamfering Angle
- Maximum Cutting Dia.
- Minimum Cutting Dia.
- Chamfering
- Shank Dia.

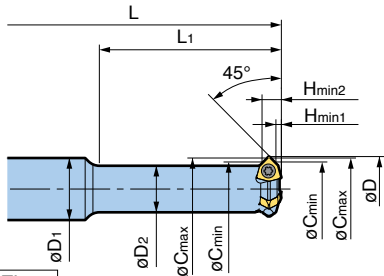


Fig. 1

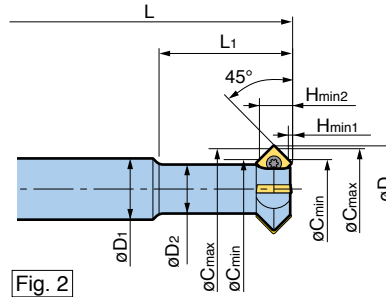


Fig. 2

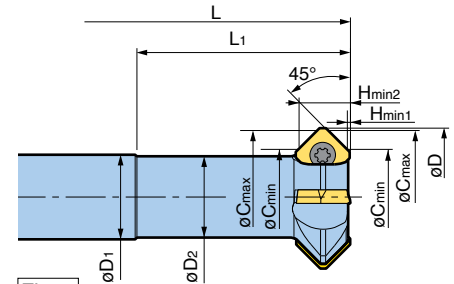


Fig. 3

● Indicates Long Type

Model No.	Face Milling	Fig.	$\phi D$	$\phi D_1$	$\phi D_2$	L	L <sub>1</sub>	$\phi C_{min}$	$\phi C_{max}$	H <sub>min1</sub>	H <sub>min2</sub>	Insert Model No.	Number of Teeth
<b>NEW</b> ST12-C1012-45B-20	—	1	.500	.472	.354	3.661	.787	.394	.472	.039	.146	CM04...	3
<b>NEW</b> -35 ●					4.252	1.378							
ST12-C1116-45B-25	—	2	.673	.472	.378	3.858	.984	.433	.630	.016	.244	CM05...	4
<b>NEW</b> -40 ●					4.449	1.575							
<b>NEW</b> ST16-C1520-45B-50	—	2	.815	.630	.520	4.843	1.969	.591	.787	.024	.248	CM05...	4
<b>NEW</b> ST20-C1924-45B-60	—	2	.972	.787	.677	5.630	2.362						
ST20-C2232-45B-50	○	3	1.287	.787	.756	5.118	1.969	.866	1.260	.016	.488	CM10...	4
<b>NEW</b> -80 ●					6.299	3.150							
ST32-C3242-45B-65	○	3	1.681	1.260	1.205	6.890	2.559	1.260	1.654	.016	.488	CM10...	4
<b>NEW</b> -100 ●					8.307	3.937							

1. Wrench and screws are included. Inserts must be ordered separately (10/pkg).
2. In case of chamfering, chatter may occur due to increasing cutting force when plunge cutting. Please try a different model with less inserts.

For cutting conditions, refer to Table A on page 5.

# FRONT & BACK CHAMFERING

## Single Insert Type

**World's Smallest**  
Hexagon Insert

NEW SERIES  
ADDED

• Model Description

ST10 - C 06 08 - 45 B - 16

- Projection Length
- Back Chamfering
- Chamfering Angle
- Maximum Cutting Dia.
- Minimum Cutting Dia.
- Chamfering
- Shank Dia.

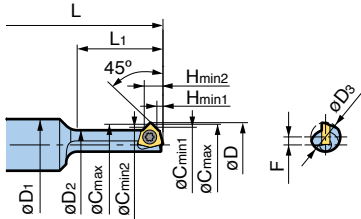


Fig. 1

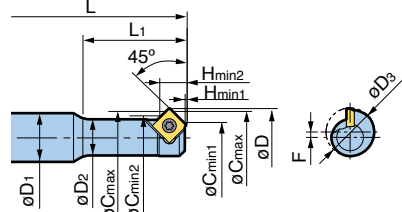


Fig. 2

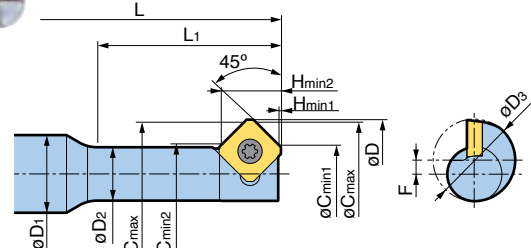


Fig. 3

● Indicates Long Type

Model No.	Fig.	øD	øD1	øD2	øD3	L	L1	øCmin1	øCmin2	øCmax	Hmin1	Hmin2	Offset F	Insert Model No.
<b>NEW</b> ST10-C0608-45B-16	1	.346	.394	.224	.224	3.071	.630	.236	.236	.315	.039	.150	.061	CM04...
<b>NEW</b> ST10-C0409-45B-20	2	.386	.394	.213	.303	3.386	.787	.157	.236	.354	.020	.213	.043	CM05...
ST10-C0611-45B-20	2	.472	.394	.291	.386	3.189	.787	.236	.315	.433	.016	.217	.043	CM05...
<b>NEW</b> -35 ●						3.780	1.378							
<b>NEW</b> ST16-C1222-45B-40	3	.890	.630	.433	.665	4.606	1.575	.472	.472	.866	.012	.488	.114	CM10...

1. Wrench and screw are included. Inserts must be ordered separately (10/pkg).

For cutting conditions, refer to Table A on page 5.

## FRONT CHAMFERING

**World's Smallest**  
Hexagon Insert

NEW SERIES  
ADDED

• Model Description

ST10 - C 02 04 - 45 - 15

- Projection Length
- Chamfering Angle
- Maximum Cutting Dia.
- Minimum Cutting Dia.
- Chamfering
- Shank Dia.

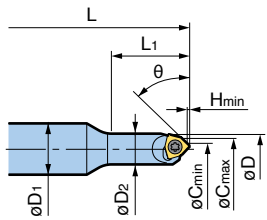


Fig. 1

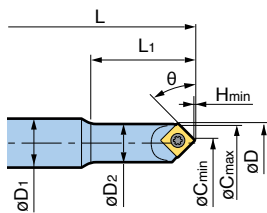


Fig. 2

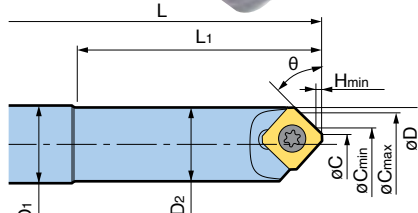


Fig. 3

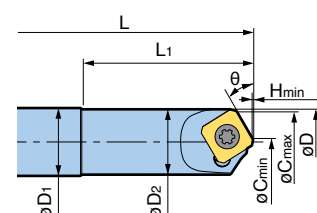


Fig. 4

● Indicates Long Type

Model No.	Fig.	θ	øD	øD1	øD2	L	L1	øCmin	øCmax	Hmin	Insert Model No.
<b>NEW</b> ST10-C0204-45-15	1	45°	.248	.394	.236	3.071	.591	.079	.157	.016	CM04...
<b>NEW</b> -25 ●						3.465	.984				
ST10-C0207-45-20	2	45°	.319	.394	.307	3.189	.787	.079	.276	.016	CM05...
<b>NEW</b> -35 ●						3.780	1.378				
<b>NEW</b> ST16-C0515-45-50	3	45°	.622	.630	.598	4.803	1.969	.197	.591	.016	CM10...
ST16-C0214-30-40	4	30°	.626	.630	.606	4.134	1.575	.079	.551	.008	CM10...
ST16-C0916-60-40	3	60°	.650	.630	.614	4.134	1.575	.354	.630	.031	CM10...

1. Wrench and screw are included. Inserts must be ordered separately (10/pkg).  
2. Centering is not possible.

For cutting conditions, refer to Table A on page 5.

# BOLT HOLE & TAP HOLE CHAMFERING

## Bolt Hole & Tap Hole Type Tap Size: M8 - M20



World's Smallest  
Hexagon Insert

### Model Description

ST10 - C M08 - 45 B - 19

- Shank Dia.
- Chamfering
- Tap Size
- Chamfering Angle
- Back Chamfering
- Projection Length

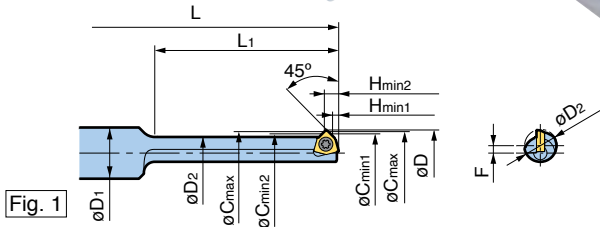


Fig. 1

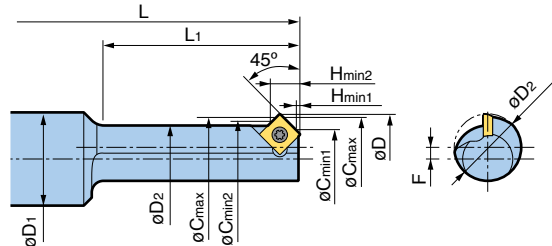


Fig. 2

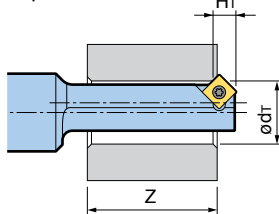
● Indicates Long Type

Model No.	Fig.	øD	øD1	øD2	L	L1	øCmin1	øCmin2	øCmax	Hmin1	Hmin2	Offset F	Insert Model No.
ST10-CM08-45B-19	1	.362	.394	.248	3.189	.748	.252	.260	.331	.039	.146	.057	CM04...
-35 ●					3.819	1.378							
ST12-CM10-45B-25	2	.445	.472	.315	3.898	.984	.217	.327	.413	.020	.197	.065	CM05...
-45 ●					4.685	1.772							
ST12-CM12-45B-29	2	.528	.472	.382	4.016	1.142	.299	.394	.496	.020	.205	.073	CM05...
-53 ●					4.961	2.087							
ST16-CM14-45B-33	2	.610	.630	.453	4.213	1.299	.382	.465	.579	.020	.209	.078	CM05...
-61 ●					5.315	2.402							
ST16-CM16-45B-37	2	.693	.630	.531	4.331	1.457	.465	.543	.661	.020	.213	.081	CM05...
-69 ●					5.591	2.717							
ST20-CM18-45B-42	2	.776	.787	.587	4.961	1.654	.547	.598	.744	.020	.224	.094	CM05...
-78 ●					6.378	3.071							
ST20-CM20-45B-46	2	.858	.787	.665	5.079	1.811	.630	.677	.827	.020	.228	.096	CM05...
-86 ●					6.654	3.386							

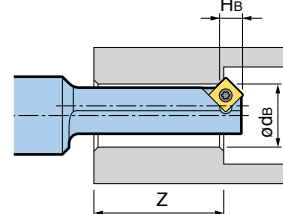
- Wrench and screw are included. Inserts must be ordered separately (10/pkg).
- For ● (Long Type), standard insert is recommended rather than "SE" (Sharp Edge) insert to avoid chatter.

For Long Type cutting conditions, refer to Table B on page 5.  
For Standard Model cutting conditions, refer to Table A on page 5.

### Tap Hole



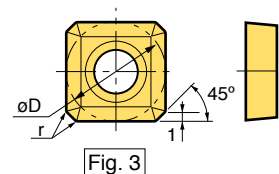
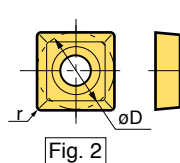
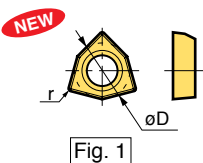
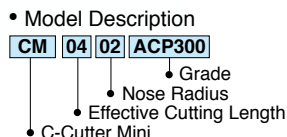
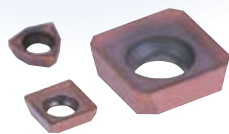
### Bolt Hole



Body	Tap Hole		Bolt Hole		Z	
	ødt	Ht	ødB	Hb	Standard	Long
CM08	.268 (M8)	.142	.260 (M6)	.146	.512	1.142
CM10	.335 (M10)	.193	.354 (M8)	.181	.669	1.457
CM12	.406 (M12)	.197	.433 (M10)	.185	.827	1.772
CM14	.472 (M14)	.205	-	-	.984	2.087
CM16	.551 (M16)	.209	.551 (M12)	.209	1.142	2.402
CM18	.610 (M18)	.220	.630 (M14)	.209	1.299	2.717
CM20	.689 (M20)	.220	.709 (M16)	.213	1.457	3.031

# INDEXABLE INSERTS

## Sold Separately



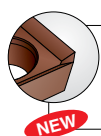
**SE** in the model number means Sharp Edge Type.

### Insert Classifications

ACP200/ACP300	DS20
For all steel & stainless steel materials.	For aluminum & non-ferrous materials.
Multi-layer PVD coating on carbide base with nanoscale TiAlN & AlCrN. Excellent performance and wear resistance.	DLC coating on carbide base with very smooth surface for a low coefficient of friction. Excellent performance against built-up edge.

Model No.	Fig.	I.C. øD	r	Insert Grade			Insert Clamping Screw Set	Anti-seize Lubricant
				ACP200	ACP300	DS20		
<b>CM0402</b>	1	.156	.008	—	○	—	<b>S2SS-T6</b>	<b>BN-5</b>
<b>CM0502</b>	2	.197	.008	○	—	○	<b>S2TS-T6</b>	
<b>CM0502SE</b>				○	—	—		
<b>CM10C1</b>	3	.394	.008	○	—	○	<b>S4S-T15</b>	
<b>CM10C1SE</b>				○	—	—		

1. Inserts are available in packages of 10 pcs. Please specify model number and grade. (ie: CM0502-ACP200)
2. 10 screws and 1 wrench are included in Insert Clamping Screw Set.
3. It is recommended to regularly replace clamping screws and wrench to ensure the correct clamping force is maintained.



### Newly Introduced SE (Sharp Edge) Type!!

Sharp edge prevents burrs.  
Recommended for stainless steel & mild steel.

## CUTTING CONDITIONS

**Table A (Standard Models)**

Material	Insert Grade	Cutting Speed (SFM)	Feed (IPT)		Coolant
			Chamfering	Face Milling	
Carbon Steel	ACP200	330 - 1,155	.002 - .016	.002 - .008	Dry
Pre-hardened Steel <HRC40		198 - 330	.002 - .004	.002 - .004	Wet
Stainless Steel	ACP300	330 - 825	.003 - .012	.003 - .008	Dry/Wet
Cast Iron	DS20, ACP300	330 - 1,155	.004 - .020	.002 - .010	Dry
Aluminum/Unalloyed Steel		330 - 2,640	.004 - .020	.002 - .012	Dry/Wet

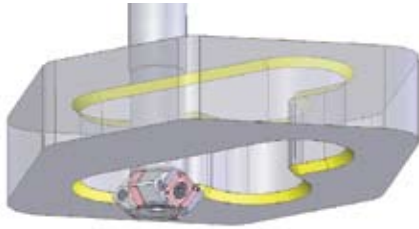
1. The table is just a reference to determine cutting conditions. It should be adjusted according to the condition of the machine tool and workpiece.
2. Wet cutting is recommended to obtain a good surface finish.
3. In case built-up edge occurs cutting aluminum and stainless steel, use soluble oil.

**Table B (Bolt Hole & Tap Hole Long Type)**

Material	Insert Grade	Cutting Speed (SFM)	Feed (IPT)	Coolant
Carbon Steel	ACP200	66 - 330	.001 - .005	Wet
Cast Iron		165 - 528	.002 - .008	Dry
Aluminum/Unalloyed Steel	ACP300	99 - 330	.001 - .005	Wet

1. The table is just a reference to determine cutting conditions. It should be adjusted according to the condition of the machine tool and workpiece.
2. For stainless and pre-hardened steels, Standard Model, not Long Type, is recommended.

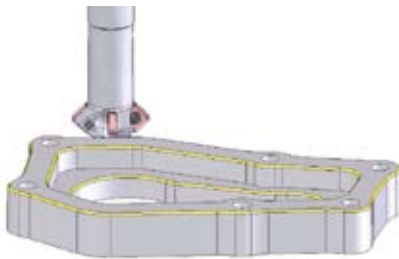
**Front & Back Chamfering for Stainless**



Material: 304 Stainless  
 Chamfer: .118 x 45°  
 Feed Per Tooth: .004

	Competitor's Cutter (with TiAlN coated carbide insert)	<b>C-Cutter Mini</b> (ST20-C2232-45B-50)
Chamfering Dia.	ø1.181	<b>ø1.102</b>
Number of Teeth	1	<b>4</b>
Cutting Speed (SFM)	462	<b>594</b>
Spindle Speed (RPM)	1,490	<b>2,050</b>
Feed (IPM)	5.87	<b>32.24</b>
<b>Result</b>	<b>5 times better cutting efficiency</b>	

**Chamfering for Aluminum**



Material: A380  
 Chamfer: .020 x 45°  
 Feed Per Tooth: .004

	Competitor's Cutter (with non-coated carbide insert)	<b>C-Cutter Mini</b> (ST12-C1116-45B-25)
Chamfering Dia.	ø1.575	<b>ø.472</b>
Number of Teeth	3	<b>4</b>
Cutting Speed (SFM)	660	<b>1,980</b>
Spindle Speed (RPM)	1,590	<b>15,920</b>
Feed (IPM)	18.78	<b>250.79</b>
<b>Result</b>	<b>13 times better cutting efficiency</b>	

**Front & Back Chamfering for M8 Tap Hole**



Material: Cast Iron  
 Hole Dia.: .260  
 Chamfering Dia.: .331

	Competitor's Cutter (with non-coated carbide insert)	<b>C-Cutter Mini</b> (ST10-CM08-45B-19)
Cutting Speed (SFM)	99	<b>495</b>
Spindle Speed (RPM)	1,140	<b>5,680</b>
Feed (IPR)	.002	<b>.004</b>
Feed (IPM)	2.24	<b>22.36</b>
<b>Result</b>	<b>10 times better cutting efficiency</b>	

Optimized Chamfering

# C-CUTTER

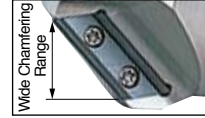
One C-Cutter to cover a wide chamfering range.

Hole Dia.:  $\varnothing$ .197 -  $\varnothing$ 3.937



### Reduced number of tool holders and machining time.

The wide chamfering range saves on the number of tool holders required and thus tool changing time. Effective use of magazine pots and shorter machining times are achievable.

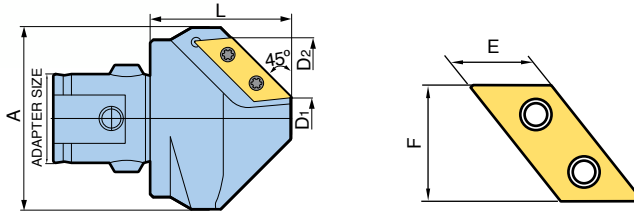


### Exclusive double-screw indexable inserts!

Long parallelogram-shaped inserts can achieve the ideal cutting performance for chamfering. With a double-screw design, strong and reliable clamping is achieved.

## FRONT CHAMFERING

KAB Shank



C-Cutter

Model No.	Type	Adapter Size	D1	D2	L	A	No. of Inserts	Weight (Lbs.)
10.335.021	C0525	KAB2	.197	.984	.984	1.122	1	0.20
10.335.022	C1040	KAB4	.394	1.575	1.378	1.772	2	0.57
10.335.023	C3060	KAB5	1.181	2.362	1.575	2.559	3	1.58
10.335.024	C50100	KAB6	1.969	3.937	2.559	4.173	3	5.90

1. Wrench and screws are included. Inserts must be ordered separately.

Inserts

Model No.	Type	E	F	C*	Insert Screw	Cutting Speed (SFM)			Feed (IPR)
						Cast Iron	Steel	Aluminum	
CW1206A	C0525	.250	.500	.079 x 45°	10.335.035	30 - 100	65 - 130	65 - 130	.004 - .006
CW1909A	C1040	.375	.750	.118 x 45°	10.335.036	65 - 165	130 - 250	165 - 300	.004 - .012
CW1909A	C3060	.375	.750	.157 x 45°	10.335.036	250 - 500	250 - 500	300 - 600	.008 - .016
CW3115A	C50100	.625	1.250	.157 x 45°	10.335.037	250 - 500	250 - 500	300 - 600	.008 - .016

- C\* is maximum chamfer width.
- Inserts ordered individually.
- All insert types available with ZX coating. Add ZX after model number when ordering.
- Replacement insert screws available (10 screws and 1 wrench included per package).
- The table is just a reference to determine cutting conditions. It should be adjusted according to the condition of the machine tool and workpiece.

For C-Cutter KAB Shanks, please refer to Kaiser catalog



# BIG KAISER<sup>®</sup>

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