



The Ultra High Feed Chamfer Mill

C-CUTTER mini

BIG DAISHOWA SEIKI CO LTD

CATALOG No. **EXi154-1**



NEW

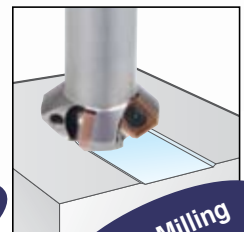
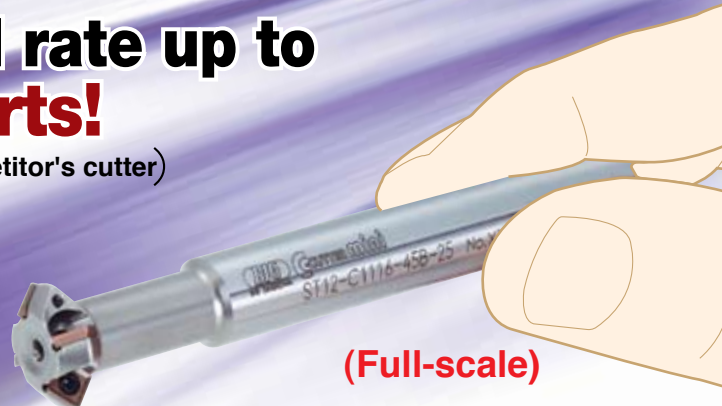
- Long Type
- Hexagon Insert

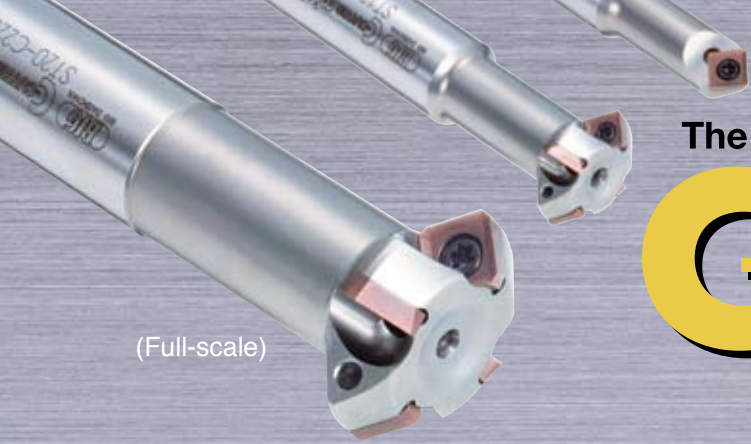
Ultra High Feed Rate!
Increases the feed rate up to
400% using 4 inserts!

(Compared with competitor's cutter)

Eccentric Design for Tapped Holes

New series exclusively for chamfering metric tapped holes.





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	ø.531 <small>Small dia.</small>
Number of teeth	2	4 <small>UP</small>
Cutting speed (SFM)	495	990 <small>UP</small>
Spindle speed (RPM)	1,646	7,040 <small>UP</small>
Feed (IPM)	12.95	111 <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.

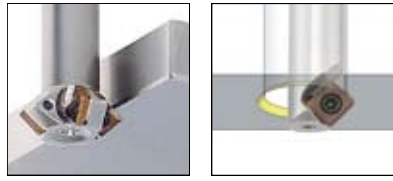
World's smallest .197" square insert is used.

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



High speed back chamfering!!

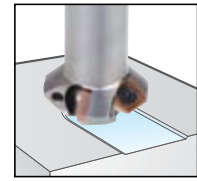
High speed back chamfering reduces hand de-burring!!



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.

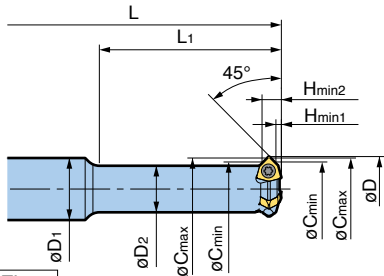


Fig. 1

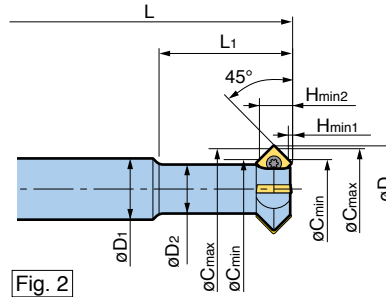


Fig. 2

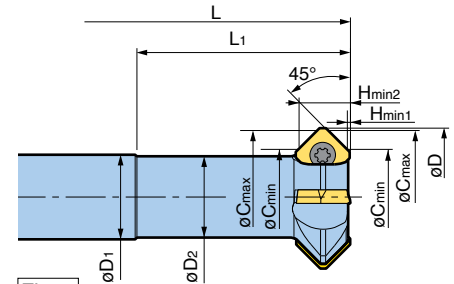


Fig. 3

● Indicates Long Type

Model No.	Face Milling	Fig.	ϕD	ϕD_1	ϕD_2	L	L ₁	ϕC_{min}	ϕC_{max}	H _{min1}	H _{min2}	Insert Model No.	Number of Teeth
NEW ST12-C1012-45B-20	—	1	.500	.472	.354	3.661	.787	.394	.472	.039	.146	CM04...	3
NEW -35 ●					4.252	1.378							
ST12-C1116-45B-25	—	2	.673	.472	.378	3.858	.984	.433	.630	.016	.244	CM05...	4
NEW -40 ●					4.449	1.575							
NEW ST16-C1520-45B-50	—	2	.815	.630	.520	4.843	1.969	.591	.787	.024	.248	CM05...	4
NEW ST20-C1924-45B-60	—	2	.972	.787	.677	5.630	2.362						
NEW -80 ●	○	3	1.287	.787	.756	5.118	1.969	.866	1.260	.016	.488	CM10...	4
ST20-C2232-45B-50						6.299	3.150						
NEW -100 ●	○	3	1.681	1.260	1.205	6.890	2.559	1.260	1.654	.016	.488	CM10...	4
NEW -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.

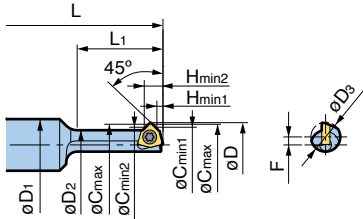


Fig. 1

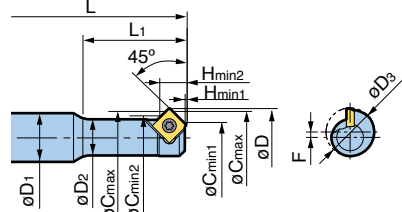


Fig. 2

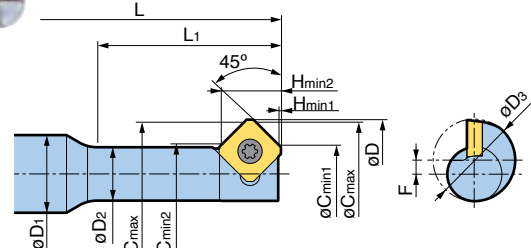


Fig. 3

● Indicates Long Type

Model No.	Fig.	øD	øD1	øD2	øD3	L	L1	øCmin1	øCmin2	øCmax	Hmin1	Hmin2	Offset F	Insert Model No.
NEW ST10-C0608-45B-16	1	.346	.394	.224	.224	3.071	.630	.236	.236	.315	.039	.150	.061	CM04...
NEW 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...
NEW -35 ●						3.780	1.378							
NEW 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.

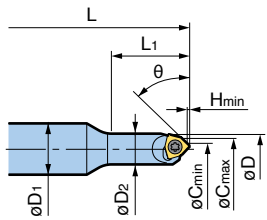


Fig. 1

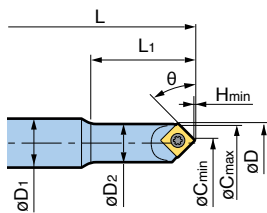


Fig. 2

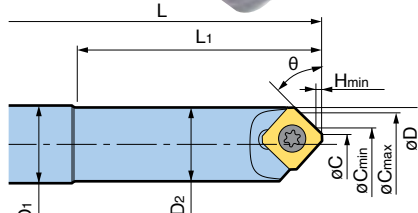


Fig. 3

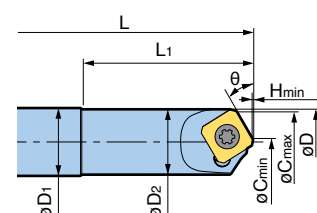


Fig. 4

● Indicates Long Type

Model No.	Fig.	θ	øD	øD1	øD2	L	L1	øCmin	øCmax	Hmin	Insert Model No.
NEW ST10-C0204-45-15	1	45°	.248	.394	.236	3.071	.591	.079	.157	.016	CM04...
NEW -25 ●						3.465	.984				
ST10-C0207-45-20	2	45°	.319	.394	.307	3.189	.787	.079	.276	.016	CM05...
NEW -35 ●						3.780	1.378				
NEW 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

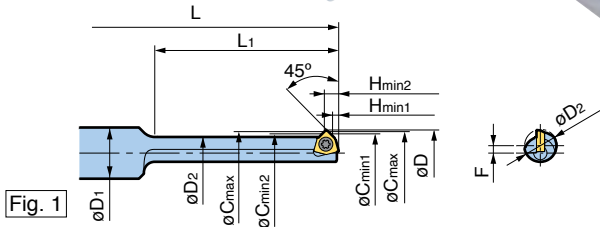


Fig. 1

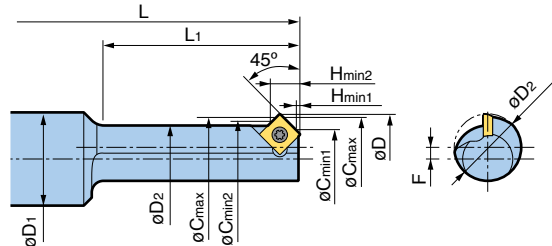


Fig. 2

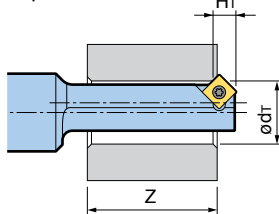
● Indicates Long Type

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							

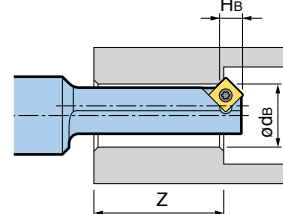
- Wrench and screw are included. Inserts must be ordered separately (10/pkg).
- For ● (Long Type), standard insert is recommended rather than "SE" (Sharp Edge) insert to avoid chatter.

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



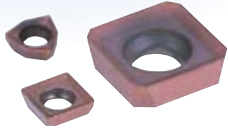
Bolt Hole



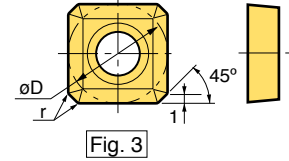
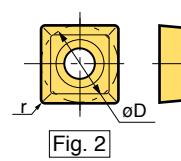
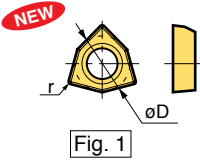
Body	Tap Hole		Bolt Hole		Z	
	ødt	Ht	ødB	Hb	Standard	Long
CM08	.268 (M8)	.142	.260 (M6)	.146	.512	1.142
CM10	.335 (M10)	.193	.354 (M8)	.181	.669	1.457
CM12	.406 (M12)	.197	.433 (M10)	.185	.827	1.772
CM14	.472 (M14)	.205	-	-	.984	2.087
CM16	.551 (M16)	.209	.551 (M12)	.209	1.142	2.402
CM18	.610 (M18)	.220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

INDEXABLE INSERTS

Sold Separately



- Model Description
- CM 04 02 ACP300
- Grade
- Nose Radius
- Effective Cutting Length
- C-Cutter Mini



Insert Classifications

SE in the model number means Sharp Edge Type.

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		
CM0402	1	.156	.008	—	○	—	S2SS-T6	BN-5
CM0502	2	.197	.008	○	—	○	S2TS-T6	
CM0502SE				○	—	—		
CM10C1	3	.394	.008	○	—	○	S4S-T15	
CM10C1SE				○	—	—		

- Inserts are available in packages of 10 pcs. Please specify model number and grade. (ie: CM0502-ACP200)
- 10 screws and 1 wrench are included in Insert Clamping Screw Set.
- 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

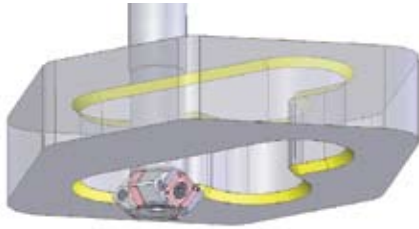
- The table is just a reference to determine cutting conditions. It should be adjusted according to the condition of the machine tool and workpiece.
- Wet cutting is recommended to obtain a good surface finish.
- In case built-up edge occurs cutting aluminum and stainless steel, use soluble oil.

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

- 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 stainless and pre-hardened steels, Standard Model, not Long Type, is recommended.

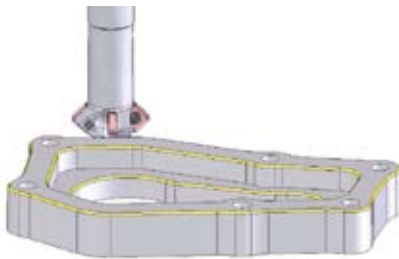
Front & Back Chamfering for Stainless



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

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

Chamfering for Aluminum



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

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

Front & Back Chamfering for M8 Tap Hole



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

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

Optimized Chamfering

C-CUTTER

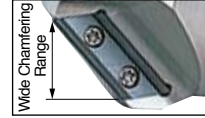
One C-Cutter to cover a wide chamfering range.

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.

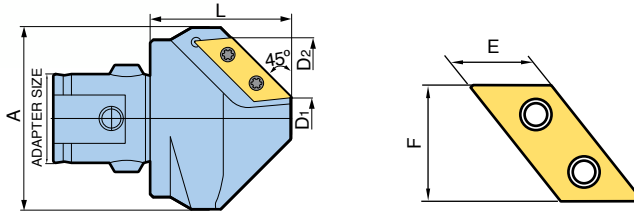


Exclusive double-screw indexable inserts!

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[®]
PRECISION TOOLING INC.

641 Fargo Ave., Elk Grove Village, IL 60007
We are moving to a larger facility. Please use address below as of 11/09.
 2600 Huntington Blvd., Hoffman Estates, IL 60169
 Tel: 847.228.7660 • Fax: 847.228.0881
 web: www.bigkaiser.com • e-mail: bigkaiser@bigkaiser.com

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