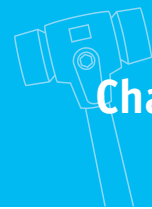


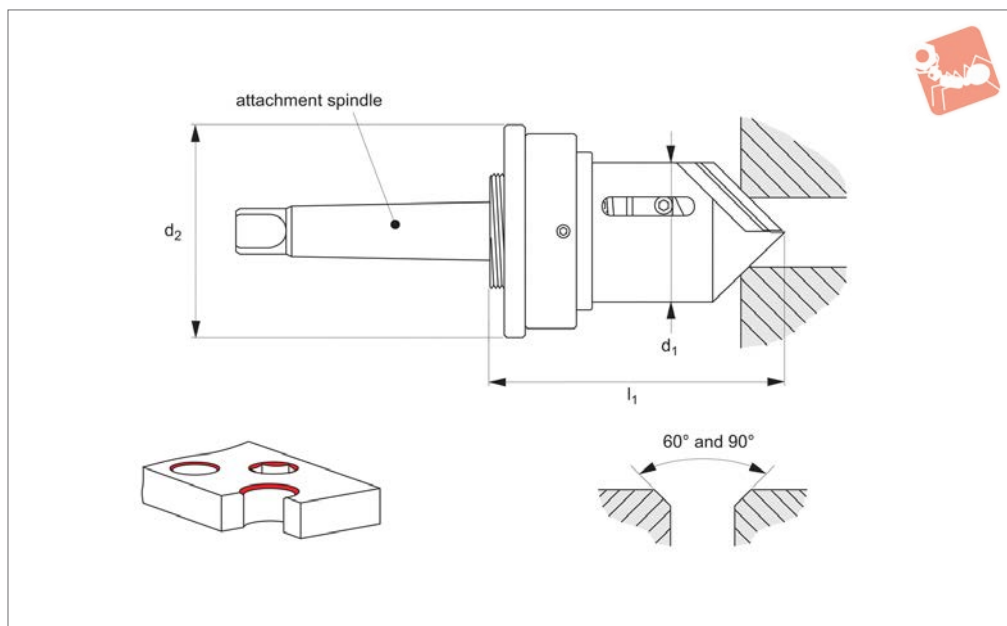


Inner Chamfering Tools

for drill attachment



Chamfering Tools



91000

CHAMFERING TOOLS

Material

Standard pilot cone type:

Supplied with standard HSS blade of 14. cutting angle.

CRN pilot cone type:

Supplied with HSS TIN coated blade of 20. cutting angle.

Technical Notes

Consists of four main elements;

1. Body and drill attachment spindle.
2. Pilot cone - unique to the desired chamfer, provides full support during cutting and ensures concentric chamfer.

3. Blades - 1 x HSS blade at 14. cutting angle supplied.

4. Blade adjustment lock nut.

The CRN pilot cone type gives better results for harder materials and/or larger batches as these have a higher hardness rating and lower friction characteristics.

Tips

Used to achieve high quality concentric chamfering quickly and easily, without risk of damage/cutting into workpiece.

Recommended cutting speed= 10 - 20 m/

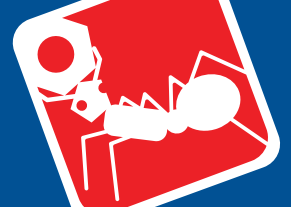
min. For hand drill chamfering tool we recommend a cutting speed of 3 - 40 rpm. Available with attachment spindles to suit most pillar drills, CNCs or hand drills. Chamfer angle quoted is inclusive angle.

Important Notes

To extend the life of the blade and pilot cone we recommend lubrication with cutting fluid or soluble oil.

On initial set-up, make minor height adjustment of pilot cone via the blade adjustment lock nut to ensure best possible positioning.

Order No.	Pilot cone type	Chamfer dia. min. max.	Inc. chamfer angle °	Attachment spindle	d ₁	d ₂	l ₁
91000.W1860-1	Standard	4-17	60°	Ø10	18	26	64
91000.W1890-1	Standard	4-17	90°	Ø10	18	26	55
91000.W4260-1	Standard	5-41	60°	Ø10/Ø16	42	65	108
91000.W4290-1	Standard	5-41	90°	Ø10/Ø16	42	65	85
91000.W4260-2	Standard	5-41	60°	CM2	42	65	108
91000.W4290-2	Standard	5-41	90°	CM2	42	65	85
91000.W6060-2	Standard	21-59	60°	CM2	60	70	106
91000.W6090-2	Standard	21-59	90°	CM2	60	70	94
91000.W8060-2	Standard	42-77	60°	CM2	80	90	114
91000.W8090-2	Standard	42-77	90°	CM2	80	90	100
91000.W8190-3	Standard	62-97	90°	CM3	100	110	104
91000.W8290-3	Standard	82-117	90°	CM3	120	130	104
91000.W1860-19	CRN	4-17	60°	Ø10	18	26	64
91000.W1890-19	CRN	4-17	90°	Ø10	18	26	55
91000.W4260-19	CRN	5-41	60°	Ø10/Ø16	42	65	108
91000.W4290-19	CRN	5-41	90°	Ø10/Ø16	42	65	85
91000.W4260-29	CRN	5-41	60°	CM2	42	65	108
91000.W4290-29	CRN	5-41	90°	CM2	42	65	85



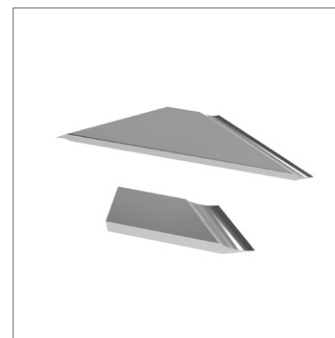
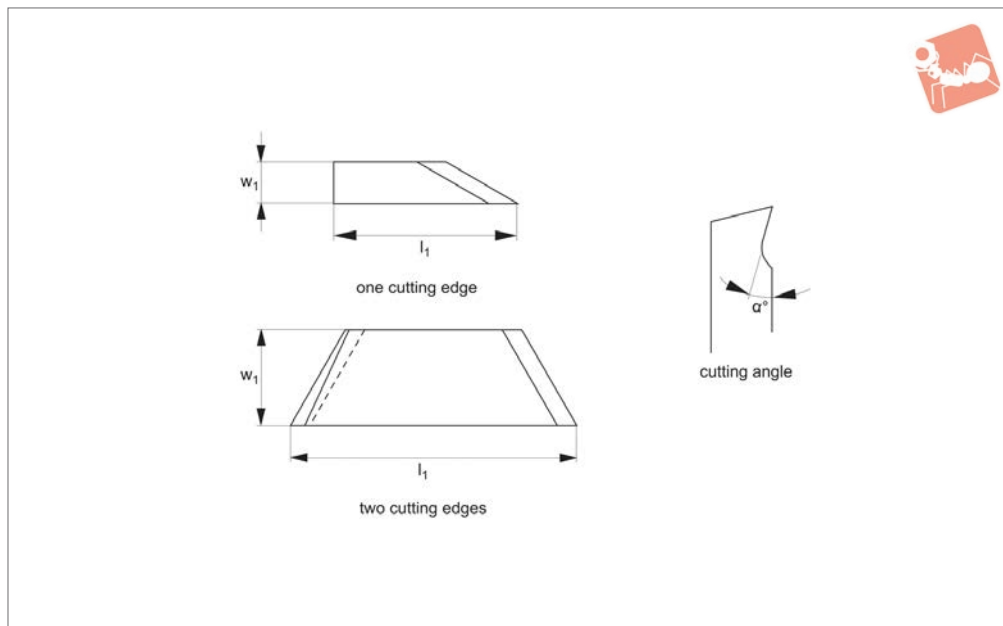


Blades For Inner Chamfering Tools

for use with 91000



Chamfering Tools



91002

CHAMFERING TOOLS

Material

HSS: high speed steel, for most standard materials.

HSS TIN: high speed steel with TIN coating for difficult to machine materials such as stainless steel, titanium and Inconel.

Carbide: for hard materials.

Technical Notes

A blade with a 14° cutting angle is the most commonly used as it covers the widest range of standard materials, please see material suitability table for further advice.

Important Notes

Recommended cutting speed= 10 - 20 m/min. To extend the life of the blade and the pilot cone we recommend lubrication with cutting fluid or soluble oil.

Order No.	Blade material	For chamfer dia. min. max.	Inc. chamfer angle	Cutting angle α	No. of cutting edges	w ₁	l ₁
91002.W1860-00	HSS	4-17	60°	0°	1	8.7	38.5
91002.W1860-14	HSS	4-17	60°	14°	1	8.7	38.5
91002.W1860-20	HSS	4-17	60°	20°	1	8.7	38.5
91002.W1860-25	HSS	4-17	60°	25°	1	8.7	38.5
91002.W1890-00	HSS	4-17	90°	0°	1	8.7	30.0
91002.W1890-14	HSS	4-17	90°	14°	1	8.7	30.0
91002.W1890-20	HSS	4-17	90°	20°	1	8.7	30.0
91002.W1890-25	HSS	4-17	90°	25°	1	8.7	30.0
91002.W1899-00	HSS	4-17	120°	0°	1	20.0	26.0
91002.W1899-14	HSS	4-17	120°	14°	1	20.0	26.0
91002.W1899-20	HSS	4-17	120°	20°	1	20.0	26.0
91002.W1899-25	HSS	4-17	120°	25°	1	20.0	26.0
91002.W4260-00	HSS	5-41	60°	0°	2	20.0	90.0
91002.W4260-14	HSS	5-41	60°	14°	2	20.0	90.0
91002.W4260-20	HSS	5-41	60°	20°	2	20.0	90.0
91002.W4260-25	HSS	5-41	60°	25°	2	20.0	90.0
91002.W4282-00	HSS	5-41	82°	0°	2	20.0	73.0
91002.W4282-14	HSS	5-41	82°	14°	2	20.0	73.0
91002.W4282-20	HSS	5-41	82°	20°	2	20.0	73.0
91002.W4282-25	HSS	5-41	82°	25°	2	20.0	73.0
91002.W4290-00	HSS	5-41	90°	0°	2	20.0	73.0
91002.W4290-14	HSS	5-41	90°	14°	2	20.0	73.0
91002.W4290-20	HSS	5-41	90°	20°	2	20.0	73.0
91002.W4290-25	HSS	5-41	90°	25°	2	20.0	73.0
91002.W4299-00	HSS	5-41	120°	0°	2	20.0	60.0
91002.W4299-14	HSS	5-41	120°	14°	2	20.0	60.0
91002.W4299-20	HSS	5-41	120°	20°	2	20.0	60.0
91002.W4299-25	HSS	5-41	120°	25°	2	20.0	60.0
91002.W6060-00	HSS	21-59 to 77/117	60°	0°	2	20.0	90.0
91002.W6060-14	HSS	21-59 to 77/117	60°	14°	2	20.0	90.0
91002.W6060-20	HSS	21-59 to 77/117	60°	20°	2	20.0	90.0

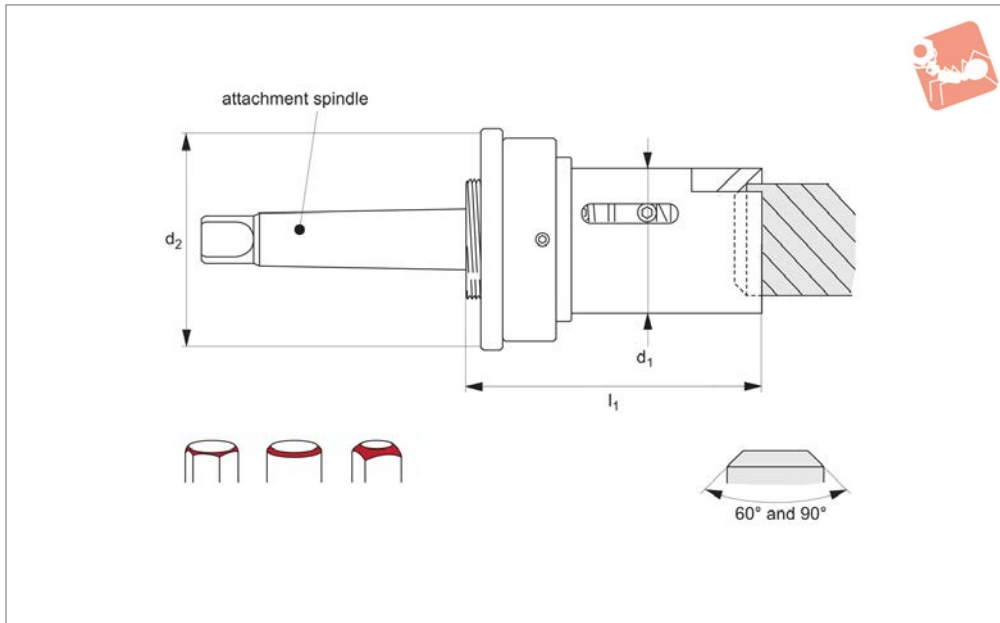


Order No.	Blade material	For chamfer dia. min. max.	Inc. chamfer angle	Cutting angle α	No. of cutting edges	w_1	l_1
91002.W6060-25	HSS	21-59 to 77/117	60°	25°	2	20.0	90.0
91002.W6090-00	HSS	21-59 to 77/117	90°	0°	2	20.0	73.0
91002.W6090-14	HSS	21-59 to 77/117	90°	14°	2	20.0	73.0
91002.W6090-20	HSS	21-59 to 77/117	90°	20°	2	20.0	73.0
91002.W6090-25	HSS	21-59 to 77/117	90°	25°	2	20.0	73.0
91002.W1760-20	HSS TIN	4-17	60°	20°	1	8.7	38.5
91002.W4160-20	HSS TIN	5-41 to 77/117	60°	20°	2	20.0	90.0
91002.W1790-20	HSS TIN	4-17	90°	20°	1	8.7	30.0
91002.W4190-20	HSS TIN	5-41 to 77/117	90°	20°	2	20.0	73.0
91002.W4360-00	Carbide	5-41 to 77/117	60°	0°	2	20.0	90.0
91002.W4390-00	Carbide	5-41 to 77/117	90°	0°	2	20.0	73.0



Outer Chamfering Tools for drill attachment

Chamfering Tools



91020

CHAMFERING TOOLS

Material

Standard pilot cone type:

Supplied with standard HSS blade of 14. cutting angle.

CRN pilot cone type:

Supplied with HSS TIN coated blade of 20. cutting angle.

Technical Notes

Consists of four main elements:

1. Body and drill attachment spindle.
2. Pilot cone - unique to the desired chamfer, provides full support during cutting and ensures concentric chamfer.
3. Blades - 1 x HSS blade at 14. cutting angle supplied.
4. Blades adjusted lock nut.

The CRN pilot cone type gives better results for harder material and larger batches as these have a higher hardness rating and lower friction characteristics.

Used to achieve high quality concentric chamfering quickly and easily, without risk of damage/cutting into the workpiece. The specially designed pilot cone provides full support to the blade throughout cutting and ensures a concentric chamfer.

Available with attachment spindles to suit most pillar drills, CNCs or hand drills. Chamfer angle quoted is inclusive angle.

Tips

Recommended cutting speed= 10 - 20 m/min.

To extend the life of the blade and the pilot cone we recommend lubrication with cutting fluid or soluble oil.

On initial set-up, make minor height adjustment of pilot cone via the blade adjustment lock nut, to ensure the best possible positioning.

Important Notes

For replacement blades see part no. 91022.

Order No.	Pilot cone type	Chamfer dia. min. max.	Inc. chamfer angle °	Attachment spindle	d ₁	d ₂	l ₁
91020.W1860-1	Standard	4-17	60°	Ø10	18	26	54
91020.W1890-1	Standard	4-17	90°	Ø10	18	26	54
91020.W3660-1	Standard	4-37	60°	Ø10/Ø16	42	65	105
91020.W3690-1	Standard	4-37	90°	Ø10/Ø16	42	65	85
91020.W3660-2	Standard	4-37	60°	CM2	42	65	105
91020.W3690-2	Standard	4-37	90°	CM2	42	65	85
91020.W4660-2	Standard	10-45	60°	CM2	48	65	109
91020.W4690-2	Standard	10-45	90°	CM2	48	65	85
91020.W6060-2	Standard	21-57	60°	CM2	60	70	109
91020.W6090-2	Standard	21-57	90°	CM2	60	70	85
91020.W8060-2	Standard	41-77	60°	CM2	80	90	118
91020.W8090-2	Standard	41-77	90°	CM2	80	90	95
91020.W8190-3	Standard	60-97	90°	CM3	100	110	107
91020.W8290-3	Standard	80-117	90°	CM3	120	130	110
91020.W1860-19	CRN	4-17	60°	Ø10	18	26	54
91020.W1890-19	CRN	4-17	90°	Ø10	18	26	54
91020.W3660-19	CRN	4-37	60°	Ø10/Ø16	42	65	105
91020.W3690-19	CRN	4-37	90°	Ø10/Ø16	42	65	85
91020.W3660-29	CRN	4-37	60°	CM2	42	65	105



Order No.	Pilot cone type	Chamfer dia. min. max.	Inc. chamfer angle °	Attachment spindle	d ₁	d ₂	l ₁
91020.W3690-29	CRN	4-37	90°	CM2	42	65	85

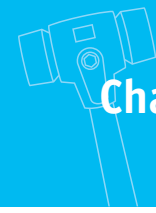
CHAMFERING TOOLS



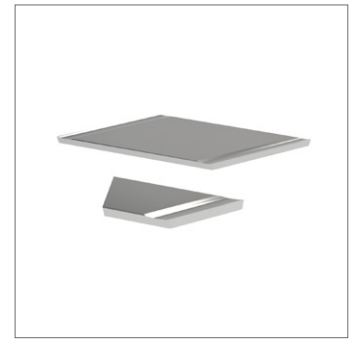
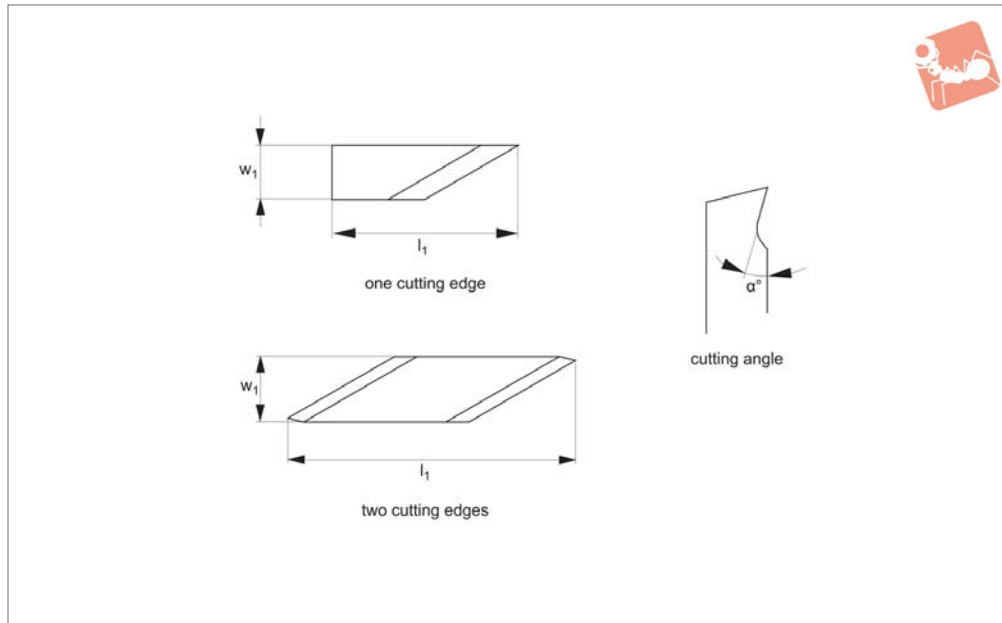


Blades for Outer Chamfering Tools

for use with 91020



Chamfering Tools



91022

CHAMFERING TOOLS

Material

HSS: high speed steel, for most standard materials.

HSS TIN: high speed steel with TIN coating for difficult to machine materials such as stainless steel, titanium and Inconel.

Technical Notes

A blade with a 14° cutting angle is most

commonly used as it covers the widest range of standard materials, please see material suitability table for further advice.

Tips

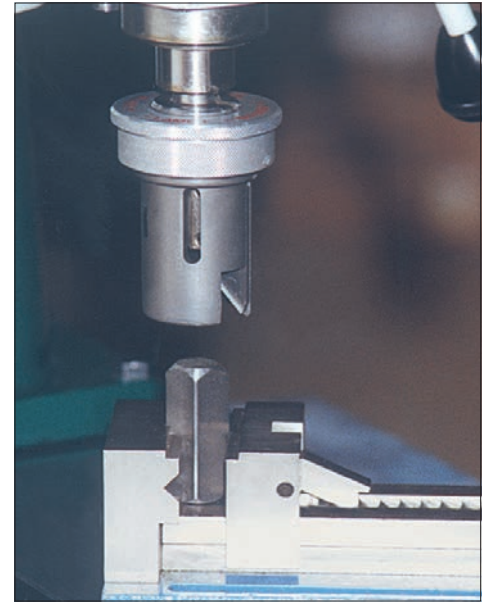
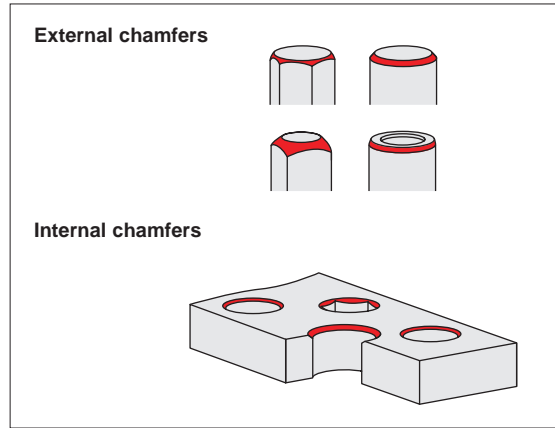
Recommended cutting speed= 10 - 20 m/min. To extend the life of the blade and pilot cone we recommend lubrication with cutting fluid or soluble oil.

Order No.	Blade material	For chamfer dia. min. max.	Inc. chamfer angle	Cutting angle α	No. of cutting edges	w_1	l_1
91022.W1860-00	HSS	4-17	60°	0°	1	8.7	30
91022.W1860-14	HSS	4-17	60°	14°	1	8.7	30
91022.W1860-20	HSS	4-17	60°	20°	1	8.7	30
91022.W1860-25	HSS	4-17	60°	25°	1	8.7	30
91022.W1890-00	HSS	4-17	90°	0°	1	8.7	30
91022.W1890-14	HSS	4-17	90°	14°	1	8.7	30
91022.W1890-20	HSS	4-17	90°	20°	1	8.7	30
91022.W1890-25	HSS	4-17	90°	25°	1	8.7	30
91022.W3660-00	HSS	5-41 to 77/117	60°	0°	2	20.0	88
91022.W3660-14	HSS	5-41 to 77/117	60°	14°	2	20.0	88
91022.W3660-20	HSS	5-41 to 77/117	60°	20°	2	20.0	88
91022.W3660-25	HSS	5-41 to 77/117	60°	25°	2	20.0	88
91022.W3690-00	HSS	5-41 to 77/117	90°	0°	2	20.0	69
91022.W3690-14	HSS	5-41 to 77/117	90°	14°	2	20.0	69
91022.W3690-20	HSS	5-41 to 77/117	90°	20°	2	20.0	69
91022.W3690-25	HSS	5-41 to 77/117	90°	25°	2	20.0	69
91022.W1760-20	HSS TIN	4-17	60°	20°	1	8.7	30
91022.W1790-20	HSS TIN	4-17	90°	20°	1	8.7	30
91022.W4160-20	HSS TIN	5-41 to 77/117	60°	20°	2	20.0	88
91022.W4190-20	HSS TIN	5-41 to 77/117	90°	20°	2	20.0	69



Wixroyd chamfering tools are mainly used as drill extensions to add high quality, consistent inner and outer chamfers. The chamfer angles achievable on a wide range of metals are between 60° to 120° inclusive.

CHAMFERING TOOLS

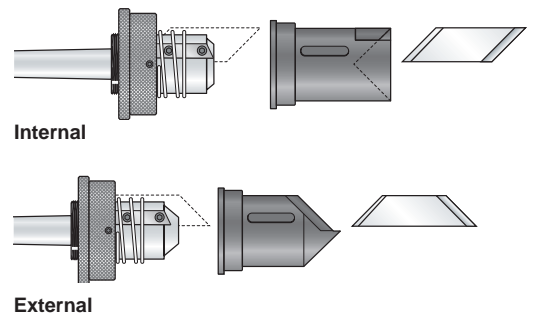
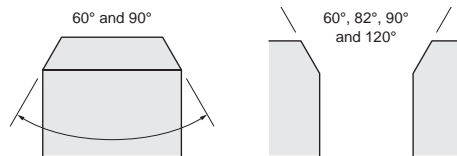


Construction

Chamfering tools consist of three main elements: an attachment spindle, pilot cone and cutting blade.

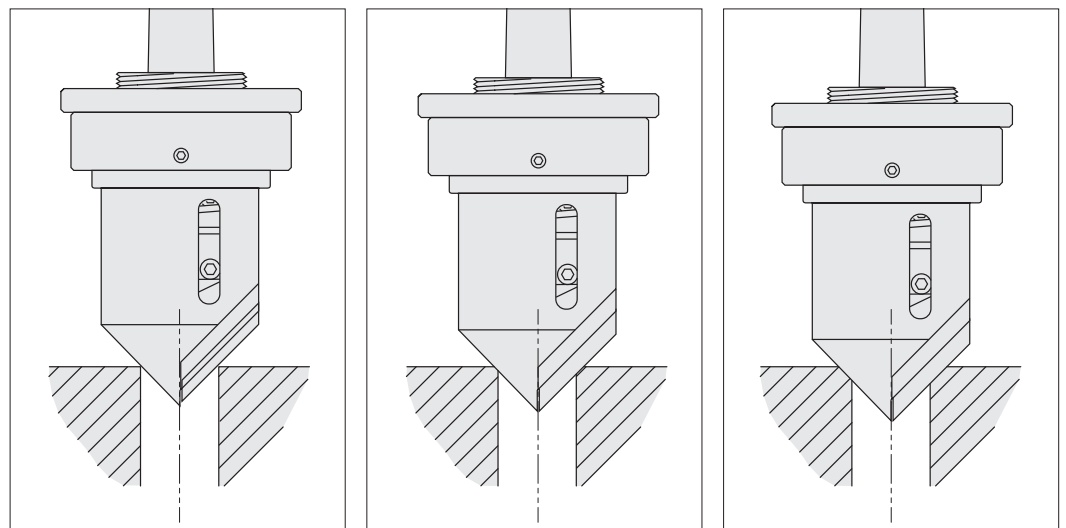
A variety of spindle attachments are available from CM1 to CM3 inclusive.

- Concentric chamfers.
- Excellent surface finish.
- Reduces risk of cutting into the workpiece.
- Controlled machining torque.

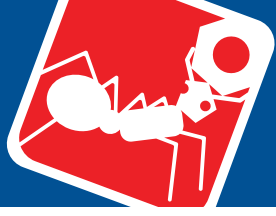


Our chamfer tools act by gradually shaving material away from a right angled corner to create a transitional, angled edge between two planes.

Example: with a blade protrusion of 0,1mm the device will make 10 revolutions to cut 1mm.



- 1 When the chamfer tools spindle is lowered, it's pilot cone firstly centres the workpiece before retracting to allow the blade to come into contact with the material and start cutting of the chamfer.
- 2 Adjusting the output of the blade controls the thickness of the chip count NOT the value or angle of the chamfer e.g. with a blade protrusion of 0,1mm the chamfering tool requires 10 revolutions to cut 1mm of the chamfer.
- 3 Concentric chamfer achieved.



We recommend a cutting speed of between 10 and 20m/min.

Therefore typical value for chamfers of varying diameter are as follows.

Diameter	RPM range
10 mm	320 to 640 rpm
15 mm	210 to 420 rpm
20 mm	160 to 320 rpm
30 mm	110 to 220 rpm
40 mm	80 to 160 rpm
50 mm	55 to 110 rpm

We do however recommend you use the following formula to check the most suitable rpm used.

$$\text{Rpm} = (\text{cutting speed} \times 1000) / (\text{diameter} \times 3.14)$$

Blade cutting angle	0°	14°	20°	25°
Suitable for material	Brass, bronze, cast iron, stainless steel	Steel, special bronze, perspex	Soft steel, copper, AU 4G, plastic, stainless steel	Aluminium, soft iron, sheet metal

Important Note:
 We recommend the chamfering tool is lubricated with cutting fluid or soluble oil to ensure the long life of the cutting blade edge, and to reduce wear of the pilot cone.
 We offer blades with a variety of cutting angles to best suit the material in which a chamfer is required.
 Typically a blade cutting angle of 14° suits most applications; please refer to table above.

Recommended Cutting Speed

Typical rpm for varying chamfer diameters, when using cutting speed of between 10 and 20 m/min.