



Chamfer Mill 45° >>

Nine9 chamfer mill

is designed for chamfering and countersinking with an indexable insert.

The insert is a specifically designed for use in high speed machining ; the multiple flutes provide for increased feed rate, optimizing performance and reducing cutting time.

Features

Ultra high speed and feed rate is the biggest advantage of Nine9 Chamfer Mills.

It is not a traditional chamfer tool, it runs 4 times faster in cutting speed and 10 times higher in feed rate. It is the most efficient tool you ever met.

▶ Excellent Repeatability >>

- Smallest insert in the world for chamfering mill.
- Smallest Indexable counter sink, diameter $\varnothing 7$ mm.
- The insert is dual-relief angle, specially edge honning and optimized coated for high cutting speed.
- Optimized the number of teeth on the holder to achieve higher feed rate.

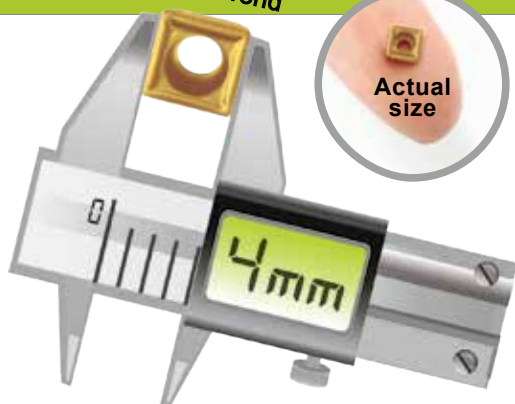


▶ Applications >>

- 90° counter sink and 45° chamfering.
- For counter sink, circular chamfering, contour chamfering and face milling.



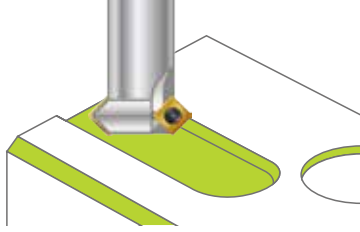
Smallest
in the world



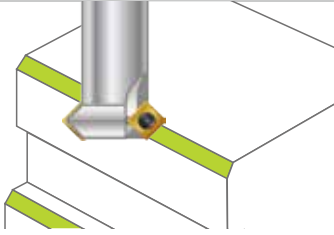
Actual
size



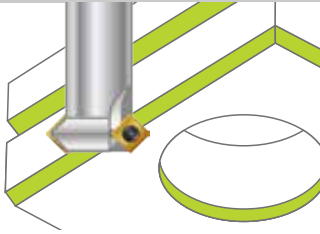
Face Milling



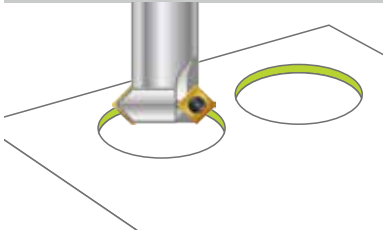
Chamfering



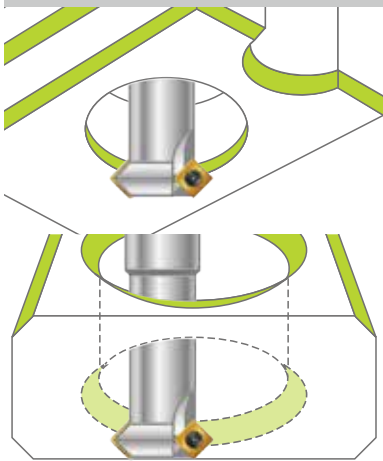
Back Chamfering



Countersink



Back Circular Chamfering



▲ For front and back chamfering.
Eliminates 2nd operation or deburring time.

Indexable Chamfer Mill

► Features >>

- Benefitting from the specially ground dual-relief insert and optimized coating, higher feed rates and cutting speeds can be achieved on chamfering operations.
- Each insert has **4 cutting** edges, reducing cost of inserts.
- Fine edge honning cutting edge, good chip breaking condition and long tool life.

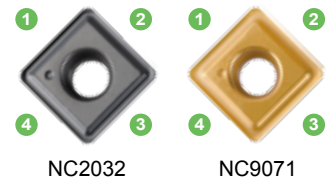
► Inserts >>

NC2032: • AlTiN coating, very long tool life.

- For carbon steel, alloy steel, cast iron and hardened steel up to 56HRC
- Each insert has 4 cutting edges.

NC9071: • TiN coating, very sharp cutting edge produces excellent surface finish

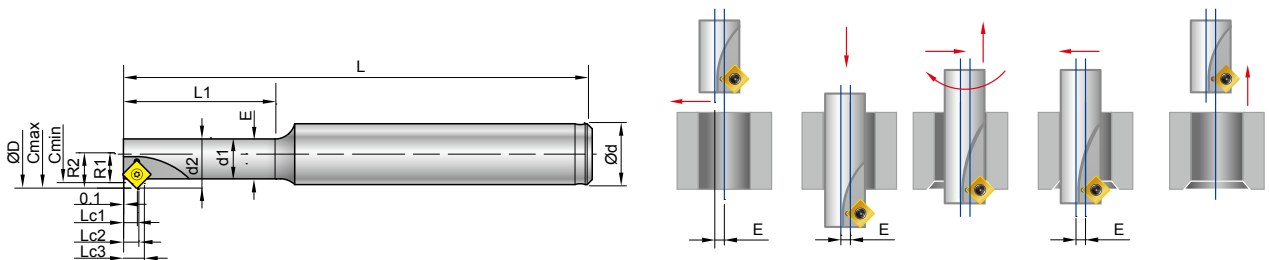
- For non ferrous metal, aluminum, aluminum-alloy, brass, copper and stainless steel.
- Each insert has 4 cutting edges.



Code	Parts No.		Coating	Grade	Dimensions			Screw	Key	
	Code of insert				L	S	Re			
021401	N9GX04T002	NC2032	AlTiN	K20F		4.0	1.8	0.2	NS-18037 0.6Nm	NK-T6
021402		NC9071	TiN			6.35	2.38	0.4		
023401	N9GX060204	NC2032	AlTiN			9.52	3.18	0.8	NS-30072 2.0Nm	NK-T9
023402		NC9071	TiN							
025401	N9GX090308	NC2032	AlTiN							
025402		NC9071	TiN							

► 99616-C02, C04, C06 >>

- Made from hot working steel and hardened.
- Elliptical necked bar to optimize the tool strength.



Code	Parts No.	Type	Cmin ø	Cmax ø	ød	ød1	ød2	øD	R1	R2	L	L1	Lc1	Lc2	Lc3	E	øz	insert Screw / Key
701003	00-99616-C02	BC10-C02-80	6.8	8.8	10	5.25	6.5	9	3.4	4.4	80	20	2.56	2.93	3.93	1.25	1	N9GX04T002 NS-18037 0.6Nm NK-T6
701004	00-99616-C04	BC12-C04-100	8.5	10.8	12	6.45	8	11.1	4.25	5.4	100	25	2.51	2.98	4.13	1.55	1	
701005	00-99616-C06	BC12-C06-100	10.26	13.2	12	7.88	9.75	13.5	5.13	6.6	100	30	2.51	2.98	4.45	1.88	1	

▶ 99616-C10~99616-C52 >>

- Made from tool steel.

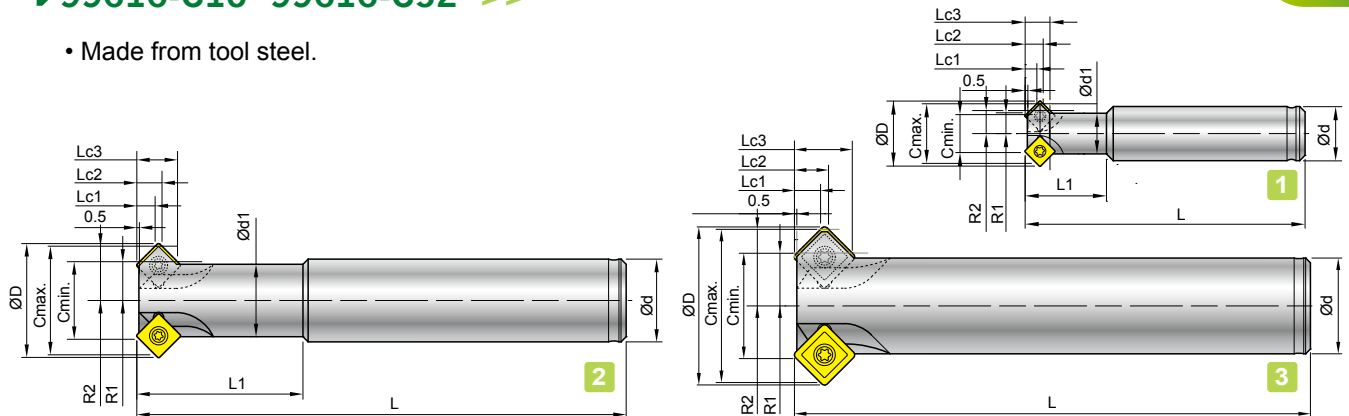


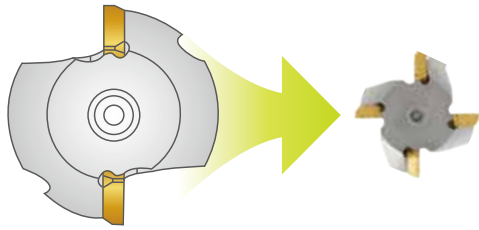
Fig	Code	Parts No.	Type	Cmin ø	Cmax ø	ød	ød1	øD	R1	R2	L	L1	Lc1	Lc2	Lc3	z	Insert Screw / Key
1	701001	00-99616-C10	BC10-C07-60	7	11	10	7.5	12	3.8	4.3	60	15	2.6	2.9	4.6	2	N9GX04T002 NS-18037 0.6Nm NK-T6
	701002	00-99616-C20	BC12-C11-100	11	16	12	9.6	16.2	5.9	8	100	25	2.6	2.9	5.0	4	
2	703001	00-99616-C30	BC16-C15-120	15	21	16	14	22	7.5	11.5	120	40	3.5	4.9	7.9	4	N9GX060204 NS-22055 0.9Nm NK-T7
	703002	00-99616-C40	BC20-C19-130	19	25	20	18	26	9.5	12.5	130	50	3.5	4.9	7.9	4	
3	705001	00-99616-C50	BC20-C22-130	22	32	20	--	33	11	16	130	--	5.5	7.1	12.1	4	N9GX090308 NS-30072 2.0Nm NK-T9
2	705002	00-99616-C52	BC25-C22-180	22	32	25	20	33	11	16	180	80	5.5	7.1	12.1	4	

▶ Starter Kit >>

Fig	Code	Parts No.	Insert included	Holder included	Content
1	701201-1401	00-99616-C1020-32	N9GX04T002-NC2032	00-99616-C10 +	00-99616-C20
	701201-1402	00-99616-C1020-71	N9GX04T002-NC9071	00-99616-C20	
2	703201-3401	00-99616-C3040-32	N9GX060204-NC2032	00-99616-C30 +	00-99616-C40
	703201-3402	00-99616-C3040-71	N9GX060204-NC9071	00-99616-C40	
3	705201-5401	00-99616-C5052-32	N9GX090308-NC2032	00-99616-C50 +	00-99616-C52
	705201-5402	00-99616-C5052-71	N9GX090308-NC9071	00-99616-C52	



Performance





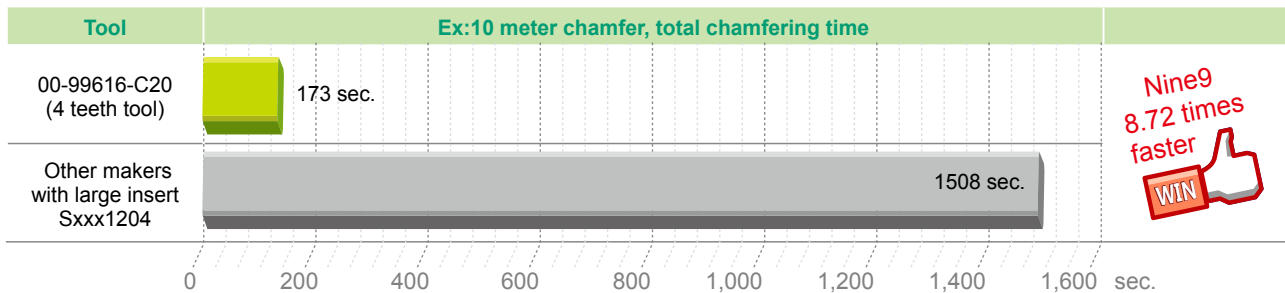
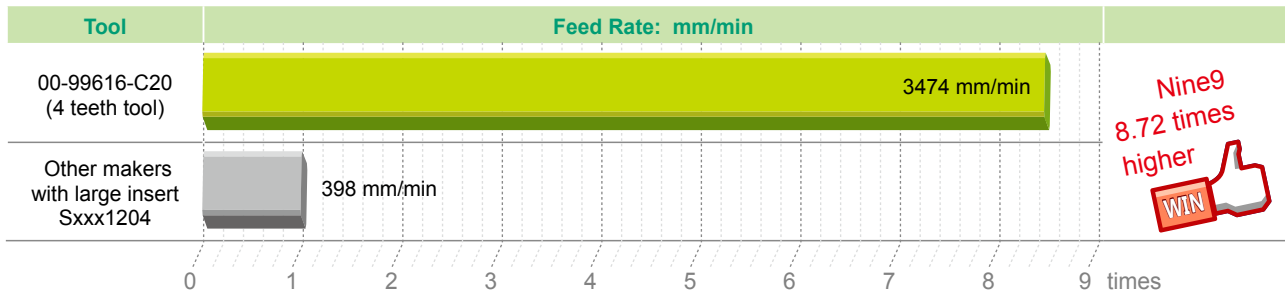
Feed Rate =
Feed per Tooth x Spindle Speed x **No. of Flute** mm/min.

UP **Spindle Speed =** $\frac{\text{Cutting Speed} \times 1000}{\pi \times C_{\text{min}}}$

► Test Result >> Example 1

• Chamfer tool with larger insert (Sxxx1204) and Nine9 N9GX04 insert.

Tool			
Cutting data		Nine 9 Chamfer mills	Other makers with Large insert
Chamfering		1 mm	1 mm
Feed rate	mm/rev.	0.1	0.1
Dia. of cutter	mm	11	32
Teeth of cutter		4	2
Cutting Speed Vc	m/min.	300	200
Spindle Speed	r.p.m.	8685	1990
Feed rate	mm/min	3474	398



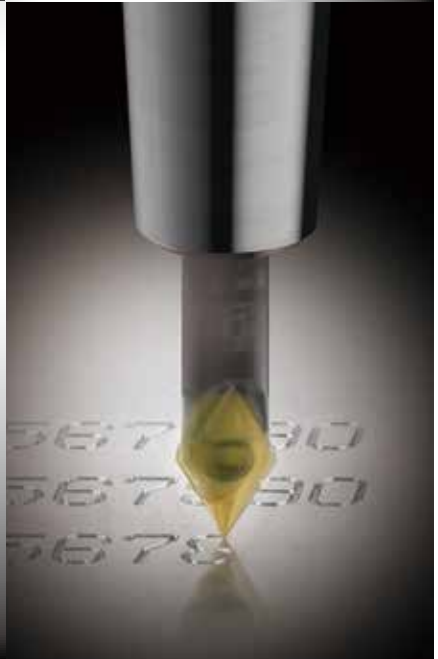
Cutting Data

▶ 99616-C02, C04, C06 Cutting Data >>

Workpiece Material		Grade of insert	Cutting Speed VC m/min.	Feed Rate mm / tooth	
Material Group	Sample Code (JIS)			N9GX04T002	
				Max. Chamfering 1.5mm	
Carbon steel C<0.3%	SS400	NC9071	60-80-120	0.02 ~ 0.07	
Carbon steel C>0.3%	S50C, P5	NC2032	60-80-120	0.02 ~ 0.07	
Low alloy steel C<0.3%	SCM420	NC9071	60-80-120	0.01 ~ 0.04	
High alloy steel C>0.3%	SKD11	NC2032	60-80-120	0.02 ~ 0.07	
Stainless Steel	SUS304	NC9071	30-60-100	0.01 ~ 0.04	
Cast iron	FC25	NC2032	60-80-120	0.02 ~ 0.06	
Al, and non-ferrous metal	A6061	NC9071	80-100-150	0.03 ~ 0.10	

▶ 99616-C10~C52 Cutting Data >>

Workpiece material		Grade of insert	Cutting Speed Vc m/min.	Feed rate mm / tooth		
Material Group	Sample Code (JIS)			N9GX04T002	N9GX060204	N9GX090308
				Max. Chamfering 1.5mm	Max. Chamfering 2.5mm	Max. Chamfering 4mm
Carbon steel C<0.3%	SS400	NC9071	150-250-350	0.06~0.12	0.10~0.25	0.10~0.25
Carbon steel C>0.3%	S50C,P5	NC2032	200-300-400	0.06~0.10	0.10~0.20	0.10~0.25
Low alloy steel C<0.3%	SCM420	NC9071	180-240-260	0.06~0.10	0.10~0.20	0.10~0.20
High alloy steel C>0.3%	SKD11	NC2032	120-150-200	0.06~0.10	0.10~0.15	0.10~0.15
Stainless Steel	SUS304	NC9071	120-150-180	0.06~0.10	0.06~0.15	0.10~0.20
Casting iron	FC25	NC2032	120-150-180	0.06~0.10	0.10~0.15	0.10~0.20
Al, and non-ferrous metal	A6061	NC9071	200-400-600	0.06~0.15	0.10~0.25	0.10~0.25
Hardened steel<50 HRC	SKD61	NC2032	80-90-100	0.06~0.10	0.06~0.12	0.10~0.15



You will be interested to know the whole range of Nine9 tools.