

CN1500 / CN2500



Solution for Steel Turning

The leading cermet series for next generation with high wear & chipping resistance in high speed machining

- **High Resistance to Chipping and Thermal Crack**
Equalized substrate improves chipping resistance and thermal crack resistance.
- **Excellent Surface Finish**
First-class cutting edge geometries increases surface roughness.

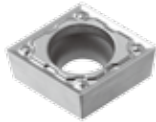


High Performance Cermet Grade for Machining Forged Steel and Sintered Ferrous Steel Materials



CN1500

For high speed and continuous cutting



CN2500

For high feed and interrupted cutting

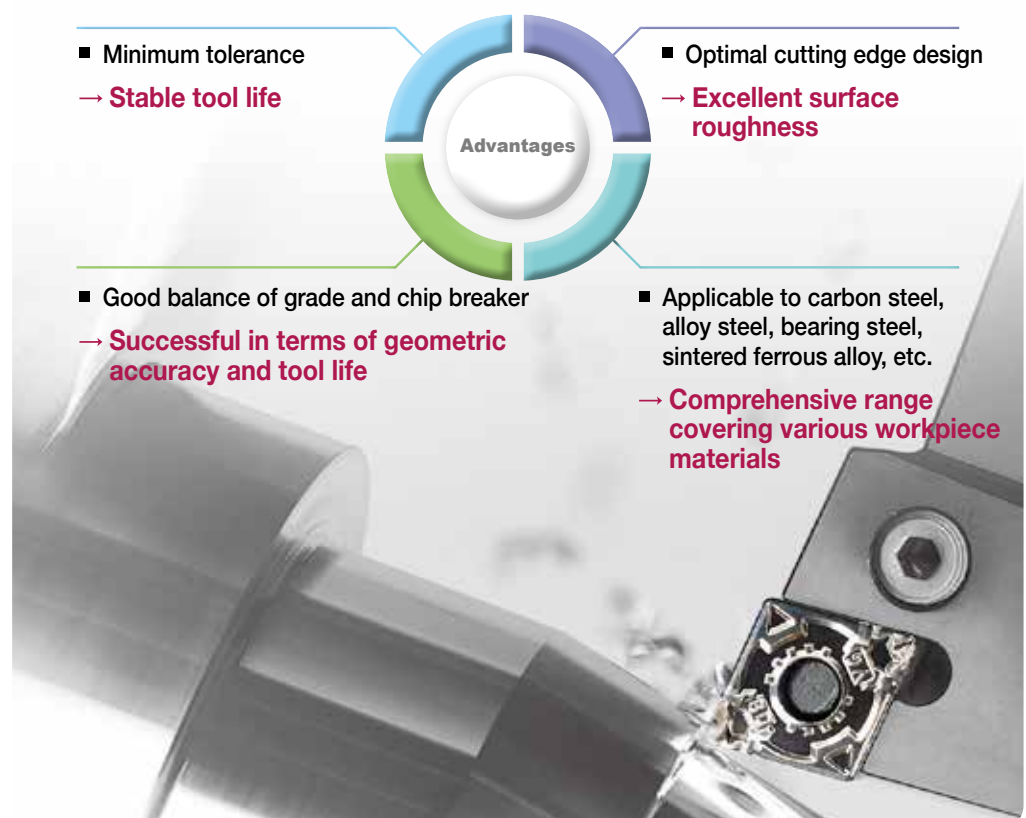
Carbon steels are mostly used when cutting with cermet tools, and machining them involves frequent troubles like crater wear on the rake surface of insert and chipping by built-up edge. That's because carbon steel has low hardness compared to alloy steel and high tensile strength, thus built-up edge is easily created on tools.

This new ISO P15 cermetgrade, **CN1500**, was invented for stable turning application at high speed and finishing. **Wear resistance and anti chipping have been improved a lot and above all, crater wear on the rake surface of insert would be prevented largely when continuous machining of carbon steel and alloy steel.** This will lead to 30% increase of tool life compared to conventional tools along with the test result of 1.6 times increased surface roughness on workpiece.

Following CN1500, which was proven with its excellent performance at high speed and continuous cutting, CN2500 was newly released for machining various workpieces such as cold / hot forging steel and sintered ferrous materials.

This new grade **CN2500** is specially sintered to uniformed micro grain matrix, **thus to improve stability even in tough conditions like highly interrupted workpiece, high feed, heavily vibrating equipment.** The test result of surface roughness on workpiece was 1.4 times better with CN2500.

The leading cermet series CN1500 / 2500 will make successful result without compromise.



CN1500 (For high speed and continuous cutting)

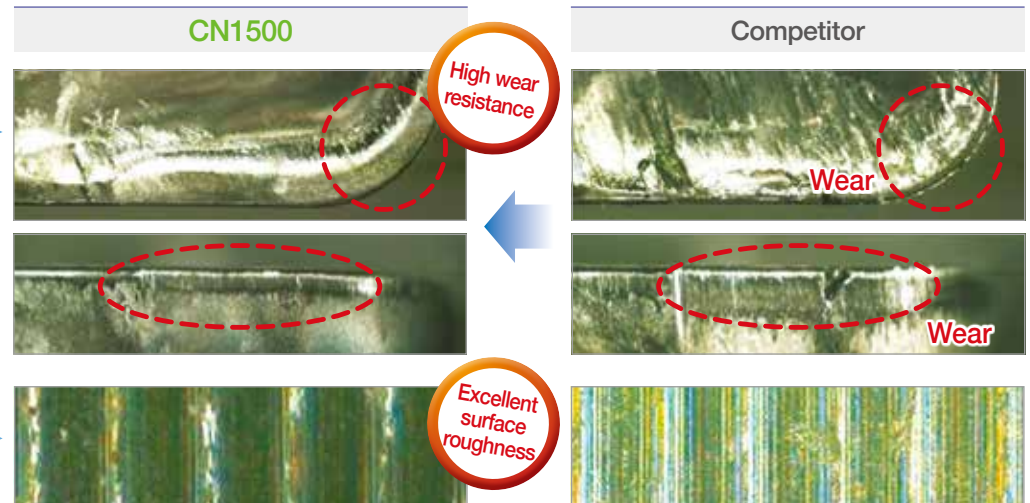


- Finish & continuous machining of cold / hot forging steel and sintered ferrous materials.
- Excellent wear resistance and crater resistance.
- Optimal cutting edge increases surface roughness.

Features

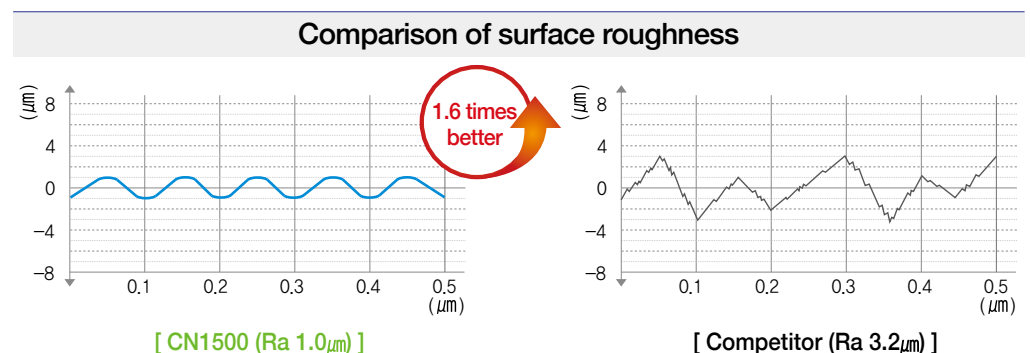
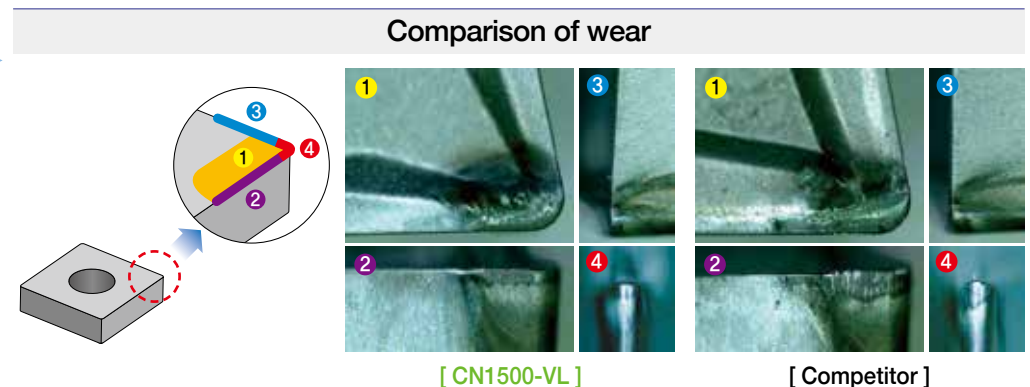
High wear resistance
in high speed machining
over v_c 250m/min
(little secondary action
on workpiece)

**Increased surface
roughness** with optimal
cutting edge geometries



Cutting Performance(Evaluation of impact resistance)

- Workpiece SM45C(KS), 1045(AISI), C45E(DIN), $\varnothing = 100$ (Interrupted workpiece), $L = 70$
- Cutting conditions v_c (m/min) = 300, f_n (mm/rev) = 0.13, a_p (mm) = 0.5, wet
- Cutting time After 15 minutes of machining, both the rake surface and major cutting edge of insert were fine.
- Tools Insert CCMT09T304-VL(CN1500) Holder S20R-SCLCL09



CN2500 (For high feed and interrupted cutting)

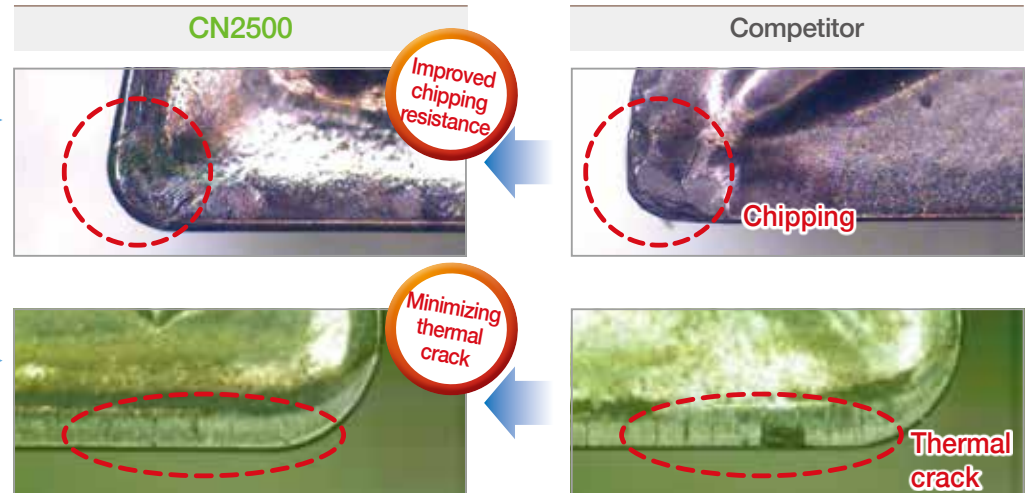


- High feed and high interrupted machining of cold / hot forging steel and sintered ferrous materials.
- Excellent anti-chipping, anti-fracture and thermal crack resistance.
- Optimal cutting edge increases surface roughness.

Features

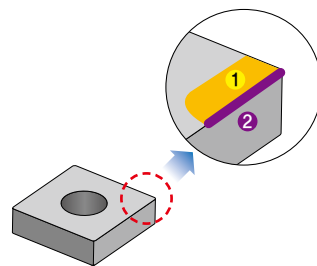
High chipping resistance
in high feed machining
over $f_n=0.25\text{mm/rev}$

Stability of cutting
edge remains in high
interrupted cutting

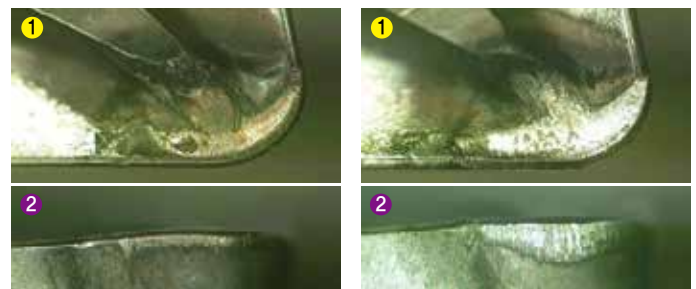


Cutting Performance(Evaluation of impact resistance)

- Workpiece SCM440(KS), 4140(AISI), 42CrMoS4(DIN), $\varnothing = 100$ (Interrupted workpiece), $L = 70$
- Cutting conditions $vc(\text{m/min}) = 280$, $f_n(\text{mm/rev}) = 0.25$, $a_p(\text{mm}) = 1.5$, wet
- Cutting time After 15 minutes of machining, both the rake surface and major cutting edge of insert were fine.
- Tools Insert CNMG120408-VQ(CN2500) Holder PCLNR2525-M12



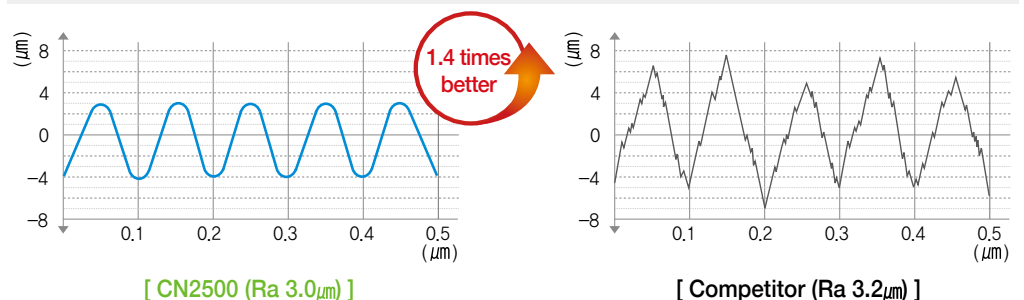
Comparison of wear



[CN2500-VQ]

[Competitor]

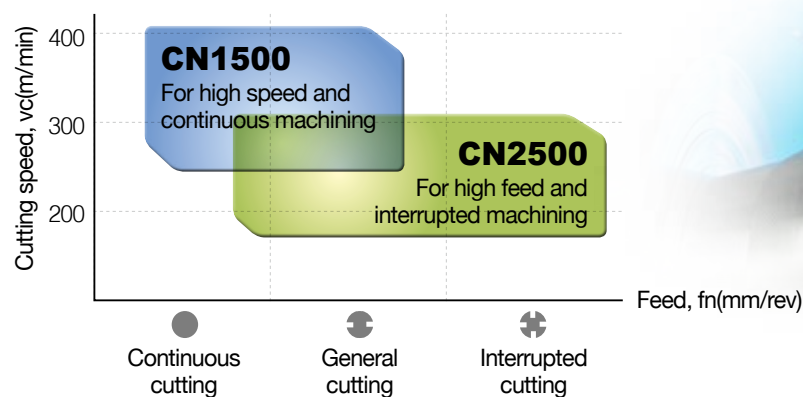
Comparison of surface roughness



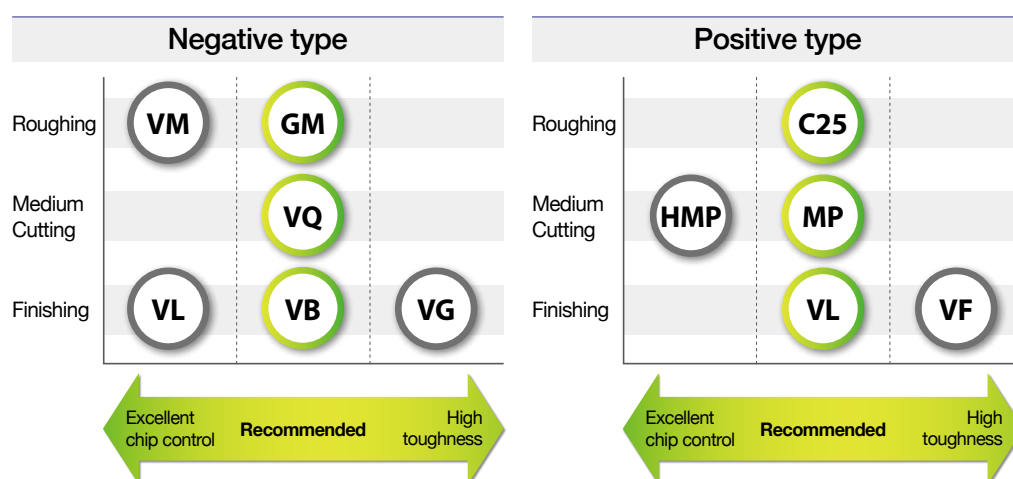
➤ Recommended Cutting Condition

Division	Workpiece	Grade	Recommended cutting speed (m/min)		
			Minimum	Recommended	Maximum
Turning	SM10C, SS440	CN1500	150	270	400
		CN2500	130	240	350
	SM45C	CN1500	150	250	350
		CN2500	130	220	300
	SCM440, Sintered ferrous alloy	CN1500	120	220	300
		CN2500	100	200	250

➤ Grade Line up



➤ Chip Breaker Line up



➤ Comparison of Grade

KORLOY	Competitor A	Competitor B	Competitor C	Competitor D
CN1500	TN6010	CT3000	T1000A	NS520
CN2500	TN60 TN620	-	T1500A	NS530

➤ Application Examples(CN1500)



Carbon steel (SM45C)

- Cutting conditions $vc(m/min) = 200$, $n(rpm) = 1,800$, $fn(mm/rev) = 0.1$, $ap(mm) = 0.3$, wet
- Tools
Insert CCMT09T304-HMP (CN1500)
Holder SCLCR2020-K09



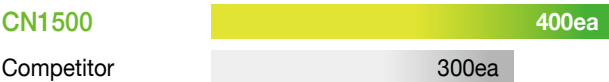
33% more

➤ 33% longer tool life than competitor's



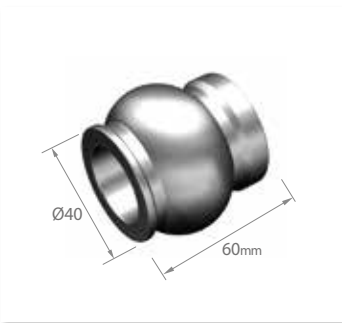
Carbon steel (SM45C)

- Cutting conditions $vc(m/min) = 300$, $n(rpm) = 2,200$, $fn(mm/rev) = 0.15$, $ap(mm) = 0.2$, wet
- Tools
Insert TPMT110304-MP (CN1500)
Holder S10M-STFPR-11



33% more

➤ 33% longer tool life than competitor's



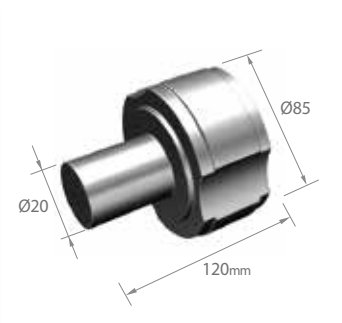
Carbon steel (SM45C)

- Cutting conditions $vc(m/min) = 250$, $n(rpm) = 2,500$, $fn(mm/rev) = 0.14$, $ap(mm) = 1.0$, wet
- Tools
Insert VBMT160404-MP (CN1500)
Holder SVABL2020-K16



50% more

➤ 50% longer tool life than competitor's



Carbon steel (SM45C)

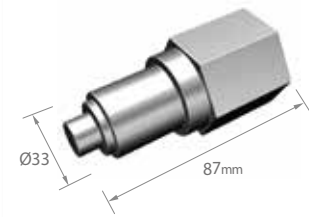
- Cutting conditions $vc(m/min) = 270$, $n(rpm) = 1,500$, $fn(mm/rev) = 0.2$, $ap(mm) = 0.6$, wet
- Tools
Insert DNMG150408-VM (CN1500)
Holder MDJNR2525-M15



50% more

➤ 50% longer tool life than competitor's

➤ Application Examples(CN1500)



Alloy steel (SCM430)

■ Cutting conditions $vc(m/min) = 230$, $n(rpm) = 2,000$, $fn(mm/rev) = 0.12$, $ap(mm) = 0.8$, wet

■ Tools
 Insert TNMG160404-VQ (CN1500)
 Holder DTGNR3232-P16

CN1500

1300ea

57%
more

Competitor

830ea

➤ 57% longer tool life than competitor's



Alloy steel (SCM440)

■ Cutting conditions $vc(m/min) = 223$, $n(rpm) = 2,100$, $fn(mm/rev) = 0.16$, $ap(mm) = 0.5$, wet

■ Tools
 Insert WNMG080408-VL (CN1500)
 Holder PWLNR2525-M08

CN1500

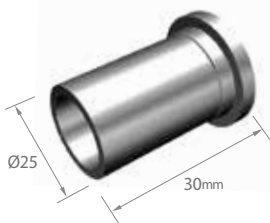
720ea

80%
more

Competitor

400ea

➤ 80% longer tool life than competitor's



Bearing steel (STB2)

■ Cutting conditions $vc(m/min) = 200$, $n(rpm) = 2,500$, $fn(mm/rev) = 0.1$, $ap(mm) = 0.3$, wet

■ Tools
 Insert DCMT11T302-VF (CN1500)
 Holder SDJCR2525-M11

CN1500

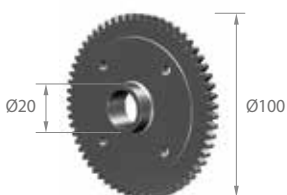
1500ea

30%
more

Competitor

1150ea

➤ 30% longer tool life than competitor's



Sintered ferrous alloy

■ Cutting conditions $vc(m/min) = 160$, $n(rpm) = 1,200$, $fn(mm/rev) = 0.17$, $ap(mm) = 0.2$, wet

■ Tools
 Insert SNMG120408-VM (CN1500)
 Holder MSRNR2525-M12

CN1500

90ea

50%
more

Competitor

60ea

➤ 50% longer tool life than competitor's

➤ Application Examples(CN2500)



Alloy steel (SCR420H)

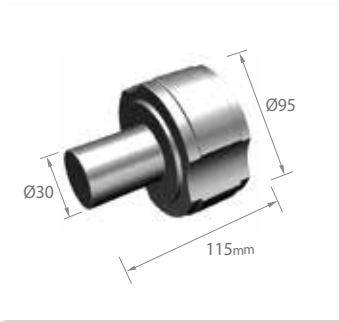
■ Cutting conditions $vc(m/min) = 200$, $n(rpm) = 2,000$, $fn(mm/rev) = 0.15$, $ap(mm) = 0.2$, wet

■ Tools
Insert DCMT11T304-HMP (CN2500)
Holder SDJCR2525-M11

CN2500	900ea
Competitor	600ea

50% more

➤ 50% longer tool life than competitor's



Carbon steel (SM53C)

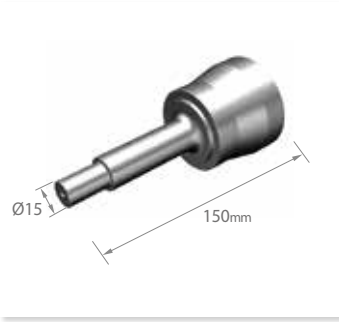
■ Cutting conditions $vc(m/min) = 250$, $n(rpm) = 2,500$, $fn(mm/rev) = 0.25$, $ap(mm) = 0.3$, wet

■ Tools
Insert CNMG120408-GM (CN2500)
Holder PCLNR3232P-16

CN2500	150ea
Competitor	100ea

50% more

➤ 50% longer tool life than competitor's



Carbon steel (SM45C)

■ Cutting conditions $vc(m/min) = 300$, $n(rpm) = 2,800$, $fn(mm/rev) = 0.25$, $ap(mm) = 0.4$, wet

■ Tools
Insert TNMG160404-VB (CN2500)
Holder PCLNR3232P-16

CN2500	500ea
Competitor	400ea

30% more

➤ 30% longer tool life than competitor's



Carbon steel (SM45C)

■ Cutting conditions $vc(m/min) = 185$, $n(rpm) = 2,300$, $fn(mm/rev) = 0.15$, $ap(mm) = 0.4$, wet

■ Tools
Insert CCMT09T304-MP (CN2500)
Holder SCLCR2020-K09

CN2500	1050ea
Competitor	900ea

17% more

➤ 17% longer tool life than competitor's

Application Examples(CN2500)



Alloy steel (SCM415)

■ Cutting conditions $vc(m/min) = 300$, $n(rpm) = 2,200$, $fn(mm/rev) = 0.25$, $ap(mm) = 0.3$, wet

■ Tools
Insert CNMG120408-GM (CN2500)
Holder PCLNR2525-M12

CN2500

230ea

Competitor

200ea

15%
more

➔ 15% longer tool life than competitor's



Carbon steel (SM45C)

■ Cutting conditions $vc(m/min) = 230$, $n(rpm) = 2,000$, $fn(mm/rev) = 0.15$, $ap(mm) = 0.4$, wet

■ Tools
Insert CCMT09T304-MP (CN2500)
Holder SCLCR2020-K09

CN2500

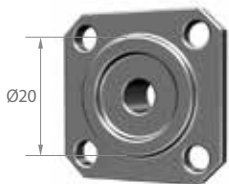
360ea

Competitor

300ea

20%
more

➔ 20% longer tool life than competitor's



Sintered ferrous alloy

■ Cutting conditions $vc(m/min) = 280$, $n(rpm) = 2,000$, $fn(mm/rev) = 0.2$, $ap(mm) = 0.2$, wet

■ Tools
Insert VBMT160404-MP (CN2500)
Holder SVABL-2020-K16

CN2500

800ea

Competitor

540ea

48%
more

➔ 48% longer tool life than competitor's



Alloy steel (SCR420)

■ Cutting conditions $vc(m/min) = 200$, $n(rpm) = 2,300$, $fn(mm/rev) = 0.2$, $ap(mm) = 0.3$, wet

■ Tools
Insert CCMT09T304-HMP (CN2500)
Holder SCLCR2020-K09

CN2500

1050ea


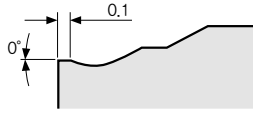
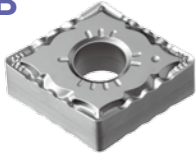
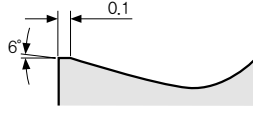
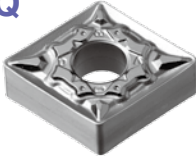
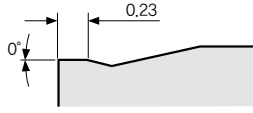
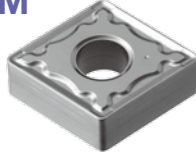
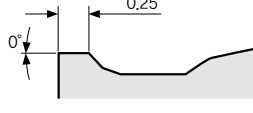
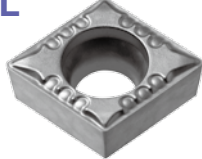

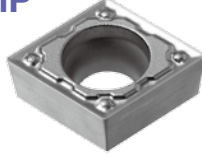
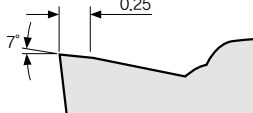

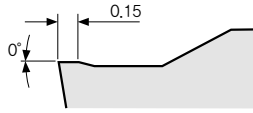
Competitor

900ea




22%
more





➔ 22% longer tool life than competitor's

Features of Chip Breaker

Type	Chip breaker	Machining type	Cutting edge	Features
Negative type	VL 	Finishing		<ul style="list-style-type: none"> ■ Excellent chip control when machining tough materials such as low carbon steel, pipe, steel plate, etc. ■ Improved chip control at low depth of cut
	VB 	Finishing		<ul style="list-style-type: none"> ■ Universal chip breaker with strong chip control at low depth of cut ■ Excellent chip control on copying application and corner R machining
	VQ 	Medium cutting		<ul style="list-style-type: none"> ■ Improved chip control with optimized cutting edge design for medium to finish cutting
	GM 	Roughing		<ul style="list-style-type: none"> ■ Excellent for interrupted and high feed machining with strong cutting edge
Positive type	VL 	Finishing		<ul style="list-style-type: none"> ■ Improved chip control when machining low carbon steel, pipe, steel plate, etc.
	MP 	Medium cutting		<ul style="list-style-type: none"> ■ Special geometry of chip breaker can meet the various cutting conditions.
	C25 	Roughing		<ul style="list-style-type: none"> ■ Strong cutting edge makes excellent cutting performance at interrupted cutting and cast iron machining.




Available Stock (Negative type)






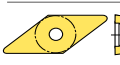
Insert shape	Designation	Machining type	Stock	
			CN1500	CN2500
	CNMG	120404-VB	●	●
		120408-VB	●	●
		120404-VG	●	
		120408-VG	●	
		120404-VL	●	●
		120408-VL	●	●
		120404-VQ	●	●
		120408-VQ	●	●
		120404-GM		●
		120408-GM	●	●
		120404-VM	●	●
		120408-VM	●	●
		120404-B25	●	●
		120408-B25	●	●
		120412-B25		●
	DNMG	150404-VB	●	●
		150408-VB	●	●
		150604-VB	●	●
		150608-VB	●	●
		150604-VG	●	
		150608-VG	●	
		150604-VL	●	
		150608-VL	●	
		110404-VQ	●	
		150404-VQ	●	●
		150408-VQ	●	●
		150604-VQ	●	●
		150608-VQ	●	●
		150408-GM	●	●
		150604-GM		●
		150404-VM	●	
		150408-VM	●	●
		150604-VM	●	●
		150608-VM	●	
		150404-B25		●
		150408-B25		●
		150604-B25	●	
		150608-B25	●	
	SNMG	120404-VB	●	
		120408-VB	●	●
		120404-VQ	●	●
		120408-VQ	●	●
		120408-GM	●	
		120404-VM	●	
		120408-VM	●	
		120404-B25	●	●
		120408-B25	●	●
		120412-B25		●

Insert shape	Designation	Machining type	Stock	
			CN1500	CN2500
	TNGG	160404L	●	
		160404R	●	
	TNMG	160404-VB	●	●
		160408-VB	●	●
		110304-VF	●	
		160404-VF	●	
		160404-VG	●	
		160408-VG	●	
		160404-VL	●	
		160408-VL	●	
		160404-VQ	●	●
		160408-VQ	●	●
		160404-GM		●
		160408-GM		●
		160404-VM	●	
		160408-VM	●	●
		160412-VM	●	
		160404-B25	●	●
		160408-B25	●	●
		160412-B25		●
	TNMX	160402R		●
	VNMG	160404-VB	●	●
		160408-VB	●	●
		160404-VF	●	
		160408-VF	●	
		160404-VG	●	
		160408-VG	●	
		160404-VL	●	●
		160408-VL	●	●
		160404-VC	●	
		160408-VC	●	
		160404-VQ	●	●
		160408-VQ	●	●
		160404-GM	●	●
		160408-GM	●	●
		160404-VM	●	
		160408-VM	●	
		160404-B25	●	●
		160408-B25	●	●
	WNMG	080404-VG	●	
		080408-VG	●	
		080404-VQ	●	●
		080408-VQ	●	●

CN1500 / CN2500

Available Stock (Positive type)

Insert shape	Designation	Machining type	Stock	
			CN1500	CN2500
	CCMT	Finishing	060204-VF	●
			09T304-VF	●
			09T308-VF	●
			060204-VL	●
			09T304-VL	●
			09T308-VL	●
		Medium to finish cutting	060202-HMP	●
			060204-HMP	●
			09T304-HMP	●
			09T308-HMP	●
			060202-MP	●
			060204-MP	●
		Medium cutting	09T302-MP	●
			09T304-MP	●
			09T308-MP	●
			060202-C25	●
			060204-C25	●
			060208-C25	●
			09T304-C25	●
			09T308-C25	●
			120408-C25	●
	CPGT	Finishing	080204	●
			090304	●
	DCMT	Finishing	070202-VF	●
			070204-VF	●
			11T302-VF	●
			11T304-VF	●
			11T308-VF	●
			070204-VL	●
		Medium to finish cutting	11T304-VL	●
			11T308-VL	●
			070202-HMP	●
			070204-HMP	●
			11T304-HMP	●
			11T308-HMP	●
		Medium cutting	070202-MP	●
			070204-MP	●
			070208-MP	●
			11T302-MP	●
			11T304-MP	●
			11T308-MP	●
			070202-C25	●
			070204-C25	●
			070208-C25	●

Insert shape	Designation	Machining type	Stock	
			CN1500	CN2500
	DCMT	Medium cutting	11T302-C25	●
			11T304-C25	●
			11T308-C25	●
	SCMT	Finishing	09T304-VL	●
			09T308-VL	●
		Medium to finish cutting	09T304-HMP	●
			09T308-HMP	●
		Medium cutting	09T304-C25	●
			09T308-C25	●
			120404-C25	●
	SPGA	Medium to finish cutting	090308T	●
	TCMT	Finishing	16T304-VL	●
			16T308-VL	●
		Medium cutting	16T304-MP	●
			16T308-MP	●
			110204-B25	●
			090204-C25	●
			090208-C25	●
			110202-C25	●
			110204-C25	●
			110208-C25	●
			16T304-C25	●
			16T308-C25	●
	TPGH TPGT TPGX TPMT	Finishing	080204L	●
		Medium to finish cutting	110304L	●
			090204L	●
		Finishing	110304-VL	●
		Medium to finish cutting	110304-VQ	●
		Medium cutting	110304-MP	●
	VBMT	Finishing	160404-VB	●
			160408-VB	●
			160404-VF	●
			160408-VF	●
			160404-VL	●
			160408-VL	●
		Medium cutting	160404-MP	●
			160408-MP	●
			160412-MP	●

* Managed items are constantly expanded at the moment.



Holystar B/D, 1350, Nambusunhwan-ro, Geumcheon-gu, Seoul, 08536, Korea
Tel : +82-2-522-3181 Fax : +82-2-522-3184, +82-2-3474-4744 Web : www.korloy.com E-mail : export@korloy.com

KORLOY AMERICA

620 Maple Avenue, Torrance, CA 90503, USA
Tel : +1-310-782-3800 Toll Free : +1-888-711-0001 Fax : +1-310-782-3885
www.korloyamerica.com E-mail : sales@korloy.us

KORLOY EUROPE

Gablonzer Str. 25-27, 61440 Oberursel, Germany
Tel : +49-6171-277-83-0 Fax : +49-6171-277-83-59
www.korloyeurope.com E-mail : sales@korloyeurope.com

KORLOY INDIA

Plot NO.415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, INDIA
Tel : +91-124-4391790 Fax : +91-124-4050032
www.korloyindia.com E-mail : sales.kip@korloy.com

KORLOY BRASIL

Av. Aruana 280, conj.12, WLC, Alphaville, Barueri,
CEP06460-010, SP, Brasil
Tel : +55-11-4193-3810 E-mail : vendas@korloy.com

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