

带断屑槽CBN刀片

CBN Insert with Chipbreaker for Hardened Steel

精切削用 Finishing

轻切削用 Light Cutting

渗碳层去除加工用 Carburised layer removal

住友CBN 断屑金刚 FV型 / LV型 / SV型

SUMIBORON Break Master FV Type / LV Type / SV Type 第3版

P M K N S H

新涂层
住友 CBN
BNC2010、
BNC2020

Line up of
BNC2010 / BNC2020 for
New Coated SUMIBORON

FV Type
Finishing

LV Type
Light Cutting

SV Type
Carburised layer removal

使用3种断屑槽解决淬火钢加工的切屑难题

No more chip trouble with three geometries for all hard turning application.

带断屑槽的住友CBN刀片，
FV型最适用于淬火钢精加工，
SV型最适用于渗碳层去除加工。

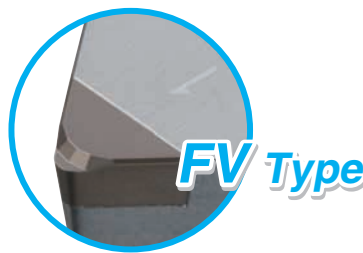
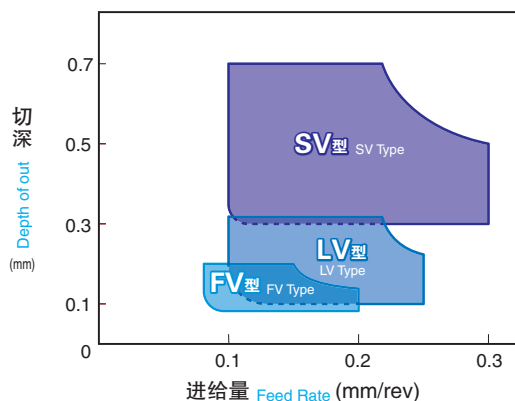
SUMIBORON one-use insert with chipbreaker.
SV type is perfect for carburised layer removal while FV type / LV types
are best suited to finishing of hardened steel.

断屑金刚 FV型/LV型/SV型的特点 SUMIBORON Break Master FV Type/LV Type/SV Type Features

- 带断屑槽的住友CBN刀片。
FV型/LV型最适用于淬火钢精加工，SV型最适用于去碳层加工。
- 带断屑槽的CBN切削刃，可在整个加工过程中保持良好的断屑效果。
- 采用独特设计的断屑槽形状，从淬火部分到未淬火部分均可进行切屑处理。
- FV型/LV型除了通用切削的涂层住友CBN BNC2020外，新增了耐磨损性优异的BNC2010、通用切削的无涂层住友CBN BN2000。
- SV型备有通用切削的涂层住友CBN BNC2020。

- SUMIBORON one-use insert with chipbreaker.
FV Type/LV Type are best suited to finishing of hardened steel while SV type is perfect for carburised layer removal.
- Breaker included on the CBN edge, chipbreaking effect can be maintained throughout machining process.
- Unique breaker design can be applied to both hardened and non-hardened parts with effective chip control.
- In addition to general-purpose Coated SUMIBORON BNC2020, the FV type/LV type lineup includes BNC2010 for excellent wear resistance and general-purpose uncoated SUMIBORON BN2000.
- SV type lineup general-purpose Coated SUMIBORON BNC2020.

适用领域 Application Range



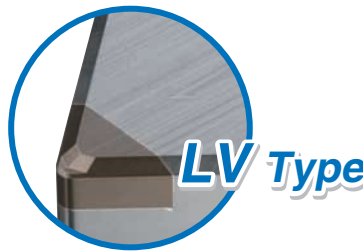
FV型 精切削用

FV Type for Finishing Cut

切深量小于0.2mm时，
实现优异的切屑处理



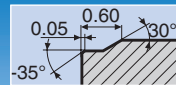
Delivers outstanding chip control in finishing conditions with a depth of cut of 0.2 mm or less.



LV型 轻切削用

LV Type for Lightcutting

切深量小于0.3mm时，
实现优异的切屑处理

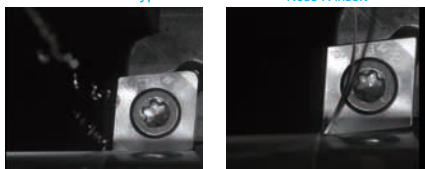


Delivers outstanding chip control in conditions with a depth of cut of 0.3 mm or less.

切削性能 Cutting Performance

FV型 FV Type

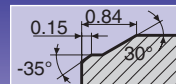
带刀尖R刀片
Nose R insert



SV型 渗碳层去除加工用

SV Type for Carburised Layer Removal

最适用于渗碳淬火层去除
加工，消除卡死和尺寸不
合格现象



Perfect for carburized layer removal.
No constant stoppage or incorrect part dimension problems.

型号: CCGT09T304N-FV / CCGW09T304
Insert
切削条件: $v_c=120\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.1\text{mm}$
Cutting Conditions
被削材: SCM415 60HRC
Work Material

带断屑槽刀片的刃口处理形式 Cutting Edge Specification of Inserts with Chipbreakers

系列 Series	适用被削材 Work Material	材质 Grade	其它类型 Other Types					
			符号 Notation	刃口处理记号 Identification Code	α	W	倒圆 Honing	类型 Type
住友CBN SUMIBORON	淬火钢高硬度材料 Hardened Steel	BN2000	N-FV	—	0°	0	有 Yes	精切削用 For Finishing Cut
			N-LV	S00535	35°	0.05	有 Yes	轻切削用 For Light Cut
涂层 住友CBN Coated SUMIBORON	淬火钢高硬度材料 Hardened Steel	BNC2010	N-FV	—	0°	0	有 Yes	精切削用 For Finishing Cut
			N-LV	S00535	35°	0.05	有 Yes	轻切削用 For Light Cut
			N-SV	S01235	35°	0.12	有 Yes	渗碳层去除加工用 For Carburised Layer Removal
		BNC2020	N-FV	—	0°	0	有 Yes	精切削用 For Finishing Cut
			N-LV	S00535	35°	0.05	有 Yes	轻切削用 For Light Cut
			N-SV	S01235	35°	0.12	有 Yes	渗碳层去除加工用 For Carburised Layer Removal
		BNC160	N-FV	—	0°	0	有 Yes	精切削用 For Finishing Cut
			N-LV	S00535	35°	0.05	有 Yes	轻切削用 For Light Cut
			N-SV	S01235	35°	0.12	有 Yes	渗碳层去除加工用 For Carburised Layer Removal
		BNC200	N-FV	—	0°	0	有 Yes	精切削用 For Finishing Cut
			N-LV	S00535	35°	0.05	有 Yes	轻切削用 For Light Cut
			N-SV	S01235	35°	0.12	有 Yes	渗碳层去除加工用 For Carburised Layer Removal

断屑金刚 FV型的库存型号 Break Master FV Type Stock Items

■负型/涂层 Negative/Coated

Coated SUMIBORON

外观 Appearance	型号 Catalogue No.	库存 Stock				刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions				
		BNC2010	BNC2020	BNC160	BNC200			内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius	
	4NC-CNGG 120404N-FV	●	●	●	●	4	2.5	12.7	4.76	5.16	0.4	
	120408N-FV	●	●	●	●		2.4					0.8
	120412N-FV	●	●	●	●		2.3					
	4NC-DNGG 150404N-FV	●	●	●	●	4	2.5	12.7	4.76	5.16	0.4	
	150408N-FV	●	●	●	●		2.1					0.8
	150412N-FV	●	●	●	●		2.0					
	6NC-TNGG 160404N-FV	●	●	●	●	6	2.3	9.525	4.76	3.81	0.4	
	160408N-FV	●	●	●	●		2.0					0.8
	160412N-FV	●	●	●	●		2.0					
	4NC-VNGG 160404N-FV	●	●	●	●	4	2.8	9.525	4.76	3.81	0.4	
	160408N-FV	●	●	●	●		2.0					0.8
		●	●	●	●		2.0					

■负型/无涂层 Negative/Uncoated

外观 Appearance	后角 Relief Angle	型号 Catalogue No.	库存 Stock	刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions			
						内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius
	7°	2NU-CCGT 060204N-FV	●	2	2.3	6.35	2.38	2.8	0.4
		2NU-CCGT 09T304N-FV	●		2.4	9.525	3.97	4.4	0.4
		09T308N-FV	●		2.3				0.8
	7°	2NU-DCGT 070204N-FV	●	2	2.4	6.35	2.38	2.8	0.4
		2NU-DCGT 11T304N-FV	●		2.4	9.525	3.97	4.4	0.4
		11T308N-FV	●		2.0				0.8
	11°	3NU-TPGT 110304N-FV	●	3	2.2	6.35	3.18	3.4	0.4
		110308N-FV	●		1.9				0.8
			●						

■正型/涂层 Positive/Coated

Coated SUMIBORON

外观 Appearance	后角 Relief Angle	型号 Catalogue No.	库存 Stock				刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions			
			BNC2010	BNC2020	BNC160	BNC200			内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius
	7°	2NC-CCGT 060204N-FV	●	●	●	●	2	2.3	6.35	2.38	2.8	0.4
		2NC-CCGT 09T304N-FV	●	●	●	●		2.4	9.525	3.97	4.4	0.4
		09T308N-FV	●	●	●	●		2.3				0.8
	7°	2NC-DCGT 070204N-FV	●	●	●	●	2	2.4	6.35	2.38	2.8	0.4
		2NC-DCGT 11T304N-FV	●	●	●	●		2.4	9.525	3.97	4.4	0.4
		11T308N-FV	●	●	●	●		2.0				0.8
	11°	3NC-TPGT 110304N-FV	●	●	●	●	3	2.3	6.35	3.97	3.4	0.4
		110308N-FV	●	●	●	●		2.0				0.8
			●	●	●	●						

断屑金刚 LV型的库存型号 Break Master LV Type Stock Items

■负型/涂层 Negative/Coated

Coated SUMIBORON

外观 Appearance	型号 Catalogue No.	库存 Stock				刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions				
		BNC2010	BNC2020	BNC160	BNC200			内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius	
	4NC-CNGG 120404N-LV	●	●	●	●	4	2.5	12.7	4.76	5.16	0.4	
	120408N-LV	●	●	●	●		2.4					0.8
	120412N-LV	●	●	●	●		2.3					
	4NC-DNGG 150404N-LV	●	●	●	●	4	2.5	12.7	4.76	5.16	0.4	
	150408N-LV	●	●	●	●		2.1					0.8
	150412N-LV	●	●	●	●		2.0					
	6NC-TNGG 160404N-LV	●	●	●	●	6	2.3	9.525	4.76	3.81	0.4	
	160408N-LV	●	●	●	●		2.0					0.8
	160412N-LV	●	●	●	●		2.0					
	4NC-VNGG 160404N-LV	●	●	●	●	4	2.8	9.525	4.76	3.81	0.4	
	160408N-LV	●	●	●	●		2.0					0.8
		●	●	●	●		2.0					

■负型/无涂层 Negative/Uncoated

外观 Appearance	型号 Catalogue No.	库存 Stock	刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions			
					内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius
	2NU-CNGM 120404N-LV	●	2	2.5	12.7	4.76	5.16	0.4
	120408N-LV	●		2.1				0.8
	120412N-LV	●		2.0				1.2
	2NU-DNGM 150404N-LV	●	2	2.5	12.7	4.76	5.16	0.4
	150408N-LV	●		2.1				0.8
	150412N-LV	●		2.0				1.2
	3NU-TNGM 160404N-LV	●	3	2.3	9.525	4.76	3.81	0.4
	160408N-LV	●		2.0				0.8
	160412N-LV	●		2.0				1.2
	2NU-VNGM 160404N-LV	●	2	2.8	9.525	4.76	3.81	0.4
	160408N-LV	●		2.0				0.8
		●						

■正型/涂层 Positive/Coated

Coated SUMIBORON

外观 Appearance	后角 Relief Angle	型号 Catalogue No.	库存 Stock				刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions			
			BNC2010	BNC2020	BNC160	BNC200			内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius
	7°	2NC-CCGT 09T304N-LV	●	●	●	●	2	2.4	9.525	3.97	4.4	0.4
		09T308N-LV	●	●	●	●		2.3				0.8
			●	●	●	●						
	7°	2NC-DCGT 11T304N-LV	●	●	●	●	2	2.4	9.525	3.97	4.4	0.4
		11T308N-LV	●	●	●	●		2.0				0.8
			●	●	●	●						

■正型/无涂层 Positive/Uncoated

外观 Appearance	后角 Relief Angle	型号 Catalogue No.	库存 Stock	刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions			
						内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius
	7°	2NU-CCGT 09T304N-LV	●	2	2.4	9.525	3.97	4.4	0.4
		09T308N-LV	●		2.3				0.8
			●						
	7°	2NU-DCGT 11T304N-LV	●	2	2.4	9.525	3.97	4.4	0.4
		11T308N-LV	●		2.0				0.8
			●						

断屑金刚 SV型的库存型号 Break Master SV Type Stock Items

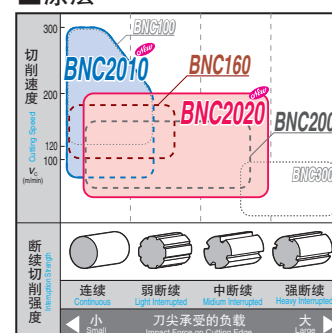
■负型/涂层 Negative/Coated

Coated SUMIBORON

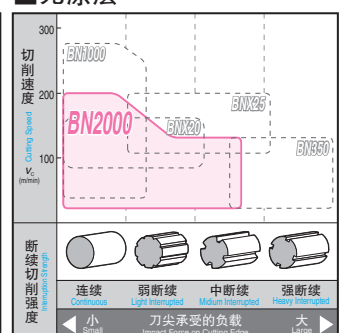
外观 Appearance	型号 Catalogue No.	库存 Stock				刀角 No. of Cutting Edges	烧结体 切刃长 Cutting Edge Length	尺寸(mm) Dimensions				
		BNC2010	BNC2020	BNC160	BNC200			内切圆 Inscribed Circle	厚度 Thickness	孔径 Hole	刀尖 半径 Nose Radius	
	4NC-CNGG 120404N-SV	●	●	●	●	4	2.5	12.7	4.76	5.16	0.4	
	120408N-SV	●	●	●	●		2.4					0.8
	120412N-SV	●	●	●	●		2.4					
	4NC-DNGG 150404N-SV	●	●	●	●	4	2.5	12.7	4.76	5.16	0.4	
	150408N-SV	●	●	●	●		2.1					0.8
	150412N-SV	●	●	●	●		2.0					
	6NC-TNGG 160404N-SV	●	●	●	●	6	2.3	9.525	4.76	3.81	0.4	
	160408N-SV	●	●	●	●		2.0					0.8
	160412N-SV	●	●	●	●		2.0					

住友CBN材质适用领域 Application range for CBN grades

■涂层



■无涂层

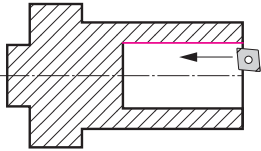


●: 标准库存品 ● mark: Standard stocked item 无印: 接单生产产品 Blank: Made to order item

FV型的使用实例 FV Type Application Example

渗碳淬火钢(汽车零件)精加工(60HRC)

Finishing of Hardened Steel 60HRC(Automotive Component)



FV型 FV Type



BNC200(无断屑槽)
BNC200 (No Breaker)

刀具寿命 = 300个 Tool life=300 pcs

- 改善内径加工时的切屑处理!!

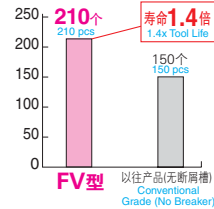
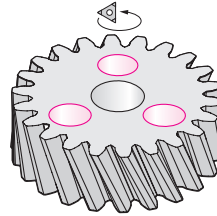
Improving chip control during boring.

刀具型号 Insert: 2NC-CCGT060204N-FV(BNC200)

切削条件 Cutting Conditions: $v_c=80\text{m/min}$ $f=0.08\text{mm/rev}$ $a_p=0.15\text{mm Wet}$

SCM420H 渗碳淬火钢(齿轮)镗削(60~63HRC)

Boring of SCM420H Hardened Steel 60~63HRC(Gear)



- 提高寿命 + 改善断屑效果!

Improving tool life and chip control.

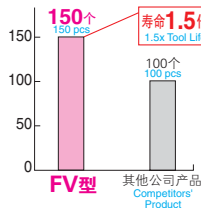
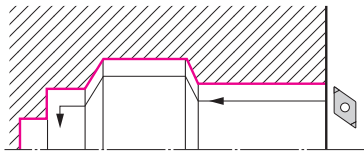
刀具型号 Insert: 3NC-TPGT110308N-FV(BNC160)

切削条件 Cutting Conditions: $v_c=200\text{m/min}$ $f=0.10\text{mm/rev}$ $a_p=0.15\text{mm Dry}$

FV型的使用实例 FV Type Application Example

SNCM420(零件)内径加工(56~58HRC)

Boring of SNCM420 56~58HRC.



- 改善内孔加工的切屑残留问题!

Improving chip remains inside boring.

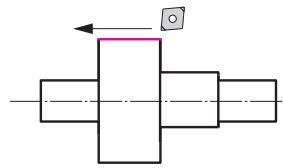
刀具型号 Insert: 2NC-DCGW070204N-FV(BNC200)

切削条件 Cutting Conditions: $v_c=135\text{m/min}$ $f=0.10\text{mm/rev}$ $a_p=0.20\text{mm Dry}$

SV型的使用实例 SV Type Application Example

SCr420渗碳淬火钢(轴)外径渗碳层去除加工

External Carburised Layer Remove of SCr420 Hardened steel.



SV型 SV Type



BNC200(无断屑槽)
BNC200 (No Breaker)

刀具寿命 = 200个 Tool life=200 pcs

- 减小切屑, 消除卡死和尺寸不合格现象!

- 刀具寿命是其他公司CBN的2倍!

No constant stoppages or incorrect part dimension problems and the chips are small. Double the tool life of competitor's CBN.

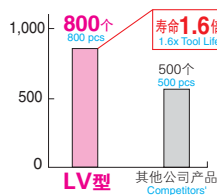
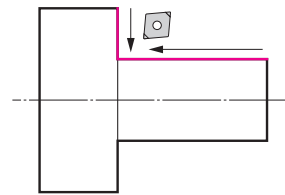
刀具型号 Insert: 4NC-CNGG120408N-SV(BNC200)

切削条件 Cutting Conditions: $v_c=150\text{m/min}$ $f=0.15\text{mm/rev}$ $a_p=0.5\text{mm}$ 2个路径 Wet
2 passes

LV型的使用实例 LV Type Application Example

高硬度钢(轴)外径加工(60HRC)

External turning of Hardened Steel 60HRC(shaft).



- 与其他公司产品相比, 寿命长且切屑处理性能优异!

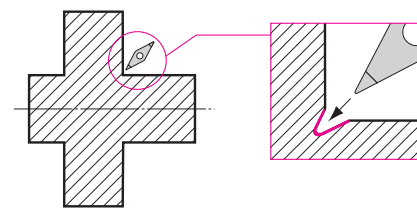
Improving chip control and tool life compared with competitor's CNS.

刀具型号 Insert: 4NC-CNGG120408N-LV(BNC200)

切削条件 Cutting Conditions: $v_c=120\text{m/min}$ $f=0.15\text{mm/rev}$ $a_p=0.20\text{mm Wet}$

渗碳淬火钢(汽车零件)车槽(60HRC)

Necking of Hardened Steel 60HRC.



- 改善车槽加工的切屑处理

Improving chip control during necking.

刀具型号 Insert: 4NC-VNNG160408N-LV(BNC160)

切削条件 Cutting Conditions: $v_c=150\text{m/min}$ $f=0.12\text{mm/rev}$ $a_p=0.15\text{mm Wet}$

安全使用注意事项



- 加工时会出现高温切屑飞散、排出切屑过长等情况, 请使用安全罩壳及防护眼镜等防护具, 并务必注意防火、防炎。
- 使用时请务必小心锋利刀尖。
- 使用非水溶性切削油的情况, 为防止火灾意外, 请配置自动灭火装置。
- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.
- Please handle with care as this product has sharp edges.
- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.

住友电工硬质合金株式会社

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