

THE NEW VALUE FRONTIER



新氮化硅陶瓷

# KS6050/CS7050

New Si<sub>3</sub>N<sub>4</sub> Ceramic Insert Grades

新开发 铸铁加工用氮化硅陶瓷  
兼具铸铁加工时的高效化、高可靠性

New Si<sub>3</sub>N<sub>4</sub> ceramic insert grades for cutting cast iron  
High efficiency and high reliability at cast iron machining

- **高纵横比组织结构，抗崩损性得到提高** Fracture resistance improvement by high aspect ratio structure  
**黑皮、断续加工时抑制振刀** Prevents chipping at processing scale and interrupted cutting
  - **通过晶界相抑制实现高速加工铸铁(良好的耐磨损性)**  
High speed cutting of cast iron by controlling grain boundary phase (good wear resistance)
  - **无涂层(KS6050:通用、断续加工，重视稳定性)**  
Non coated grade (KS6050: for general use and interrupted cut / stability oriented)
  - **涂层(CS7050:精加工、连续加工，重视高速、高效加工)**  
Coated grade (CS7050: for finishing and continuous cut / speed and efficiency oriented)
- 2种材质阵容同时推出**  
2 types of grades available



ADVANCING PRODUCTIVITY

致力于生产效率提高的京瓷

# 新开发 铸铁加工用氮化硅陶瓷

## KS6050&CS7050诞生

New Si<sub>3</sub>N<sub>4</sub> Ceramic Insert Grades KS6050 & CS7050

### KS6050

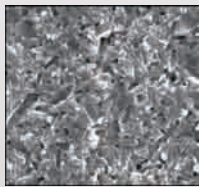
#### ● 特点 Features

- 兼具氮化硅的晶界相抑制和高纵横比组织结构、抗崩损性和耐磨损性得到提高

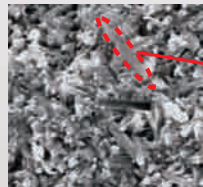
High fracture resistance and wear resistance by controlling grain boundary phase and high aspect ratio structure of Si<sub>3</sub>N<sub>4</sub>

- 铸铁的粗、断续加工、第一推荐材种

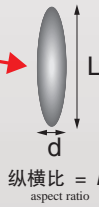
First recommendation for roughing and interrupted cut of cast iron



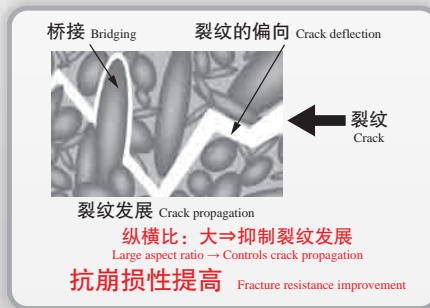
以往产品A  
Grade A (conventional)



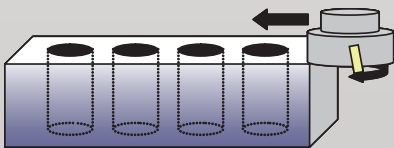
KS6050



KS6050与以往产品A相比  
纵横比更大  
KS6050 has high aspect ratio  
compared with grade A

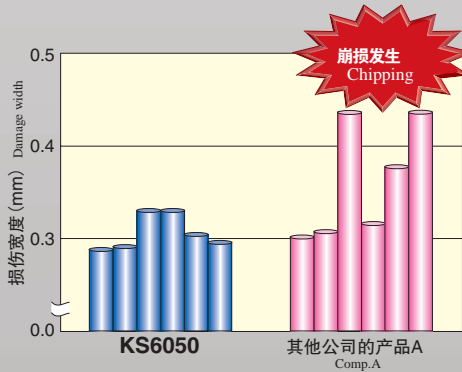


#### ● 抗崩损性比较 Comparison of fracture resistance



<切削条件 Cutting Condition>

Vc=500m/min, ap=2mm, fz=0.5mm/t, 干式 Dry  
被切削材料 Workpiece Material ; FCD450 (4孔刀座 4-hole block)  
刀片 Insert ; SNGN120412T02025



即使在断续加工中损伤宽度也小  
Less damage at interrupted cutting  
→ 良好的抗崩损性  
High fracture resistance

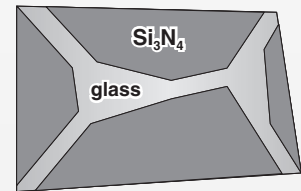
### 晶界相的不同

Difference of the grain boundary phase

#### ● 以往材质 Conventional Grade

晶界相(glass)多, 受切削热的影响出现强度下降

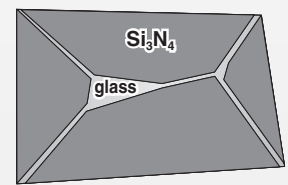
The grain boundary phase contained a high proportion of glass, therefore its toughness will be weakened by cutting heat.



#### ● KS6050

抑制晶界相, 提高机械性能与热性能

Mechanical and thermal property will be improved by controlling grain boundary phase.



### CS7050(涂层Si<sub>3</sub>N<sub>4</sub>) CS7050 (coated Si<sub>3</sub>N<sub>4</sub> ceramic)

同样准备了适用于高速精加工铸铁的涂层规格 Coated type for high speed finishing of cast iron



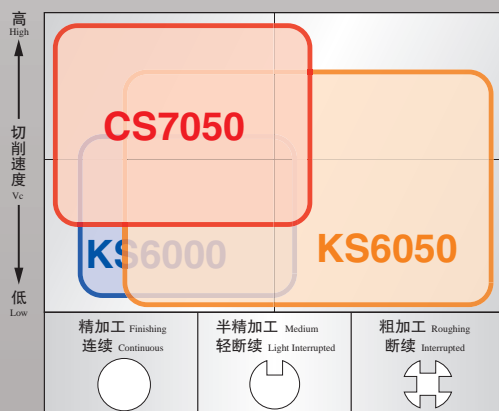
高涂层粘着力带来更高的耐磨损性  
也可适用于高速加工

Wear resistance improvement due to high coating adhesion. Suitable for high speed cutting.

# 标准库存型号 Stock Items

| 刀尖规格 Edge Preparation |                                |                   |                                              | 使用分类的大致标准<br>Classification of usage                                                                                                                       |     | K                        | 球墨铸铁(高速)<br>Nodular Cast Iron (high speed) |      | KS6050 | CS7050 |        |
|-----------------------|--------------------------------|-------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------|--------------------------------------------|------|--------|--------|--------|
| 符号<br>Symbol          | 切刃状态<br>Cutting edge condition | 例<br>Indication   |                                              | : 断续/第1推荐<br>Interrupted/1st. choice<br>: 断续/第2推荐<br>Interrupted/2nd. choice<br>: 连续/第1推荐<br>Continuous/1st. choice<br>: 连续/第2推荐<br>Continuous/2nd. choice |     |                          | 球墨铸铁(低速)<br>Nodular Cast Iron (low speed)  |      |        |        |        |
| T                     | 倒角<br>Chamfer Cutting Edge     | T02025            | 0.20mm × 25°<br>倒角<br>Chamfered Cutting Edge |                                                                                                                                                            |     |                          | 灰口铸铁(高速)<br>Gray Cast Iron (high speed)    |      |        |        |        |
|                       |                                |                   |                                              |                                                                                                                                                            |     |                          | 灰口铸铁(低速)<br>Gray Cast Iron (low speed)     |      |        |        |        |
| 形状<br>Shape           |                                | 型号<br>Description |                                              | (旧型号)<br>Previous Description                                                                                                                              |     | 刀尖规格<br>Edge Preparation |                                            |      |        |        |        |
|                       |                                |                   |                                              |                                                                                                                                                            |     | 尺寸(mm) Dimension(mm)     |                                            |      |        |        |        |
|                       |                                |                   |                                              |                                                                                                                                                            |     | rε                       | A                                          | T    | ød     | KS6050 | CS7050 |
|                       |                                | CNGA 120408T02025 | CNGA 120408                                  | T02025                                                                                                                                                     | 0.8 | 12.70                    | 4.76                                       | 5.16 | ●      | ●      |        |
|                       |                                | 120412T02025      | 120412                                       |                                                                                                                                                            | 1.2 |                          |                                            |      | ●      | ●      |        |
|                       |                                | CNGN 120408T02025 | CNGN 120408                                  | T02025                                                                                                                                                     | 0.8 | 12.70                    | 4.76                                       | -    | ●      | ●      |        |
|                       |                                | 120412T02025      | 120412                                       |                                                                                                                                                            | 1.2 |                          |                                            |      | ●      | ●      |        |
|                       |                                | CNGX 120712T02025 | -                                            | T02025                                                                                                                                                     | 1.2 | 12.70                    | 7.94                                       | -    | ●      | ●      |        |
|                       |                                | 120716T02025      | -                                            |                                                                                                                                                            | 1.6 |                          |                                            |      | ●      | ●      |        |
|                       |                                | RNGN 120400T02025 | RNGN 120400                                  | T02025                                                                                                                                                     | -   | 12.70                    | 4.76                                       | -    | ●      | ●      |        |
|                       |                                | SNGA 120412T02025 | SNGA 120412                                  | T02025                                                                                                                                                     | 1.2 | 12.70                    | 4.76                                       | 5.16 | ●      | ●      |        |
|                       |                                | 120416T02025      | 120416                                       |                                                                                                                                                            | 1.6 |                          |                                            |      | ●      | ●      |        |
|                       |                                | SNGN 120412T02025 | SNGN 120412                                  | T02025                                                                                                                                                     | 1.2 | 12.70                    | 4.76                                       | -    | ●      | ●      |        |
|                       |                                | 120416T02025      | 120416                                       |                                                                                                                                                            | 1.6 |                          |                                            |      | ●      | ●      |        |
|                       |                                | 120420T02025      | 120420                                       |                                                                                                                                                            | 2.0 |                          |                                            |      | ●      | ●      |        |
|                       |                                | SNGN 120716T02025 | SNGN 120716                                  | T02025                                                                                                                                                     | 1.6 |                          |                                            |      | 7.94   | ●      | ●      |
|                       |                                | SNGX 120712T02025 | -                                            | T02025                                                                                                                                                     | 1.2 | 12.70                    | 7.94                                       | -    | ●      | ●      |        |
|                       |                                | 120716T02025      | -                                            |                                                                                                                                                            | 1.6 |                          |                                            |      | ●      | ●      |        |

## 适用图 Application Map



高速  
精加工  
High Speed / Finishing

通用  
断续加工  
General Cutting / Interrupted

CS7050

KS6050

|                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <b>FC250 (带黑皮)</b><br>(with scale)                                                                                                                                                                                                                                                                                               |  |
| <b>驱动板 Drive Plate</b><br>• 断面(断续加工) Facing (interrupted)<br>• Vc=330 m/min<br>• ap=0.3 mm<br>• f=0.1mm/rev<br>• WET<br>CNGN120408T02025                                                                                                                                                                                         |                                                                                   |
| <b>KS6050</b>                                                                                                                                                                                                                                                                                                                    | 平均740个/C Avg.740pcs/edge                                                          |
| 以往产品B<br>Conv.B                                                                                                                                                                                                                                                                                                                  | 120个/C<br>120 pcs/edge                                                            |
|                                                                                                                                                                                                                                                                                                                                  | <b>6.2倍</b><br>6.2 times                                                          |
| <b>结果</b><br>• 因原材料外周突起引发强断续加工，以往产品B的寿命较短。<br>• KS6050与以往产品B相比，刀尖的损伤减少。<br>结果寿命延长到了平均740个/C。<br>⇒不仅寿命达到了6.2倍，也实现了稳定加工。实现了工具成本的减少                                                                                                                                                                                                 |                                                                                   |
| <b>Results</b><br>• Tool life of conv. B was reduced due to interrupted cutting by workpiece's external boss.<br>• KS6050 reduced the fracture at the cutting edge compared with conv. B.<br>KS6050 increased the tool life to avg.740pcs/edge.<br>→Tool life become 6.2 times and machining stabilized. Tool cost also reduced. |                                                                                   |
| (来自客户评价) Evaluation by the user                                                                                                                                                                                                                                                                                                  |                                                                                   |

|                                                                                                      |                                                                                     |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>FC250 (带黑皮)</b><br>(with scale)                                                                   |  |
| <b>刹车盘 Brake Disk</b><br>• 端面 Facing<br>• Vc=600 m/min<br>• f=0.4mm/rev<br>• WET<br>CNGX120716T02025 |                                                                                     |
| <b>CS7050</b>                                                                                        | 360个/C 360 pcs/edge                                                                 |
| 以往产品C<br>Conv.C                                                                                      | 100个/C<br>100 pcs/edge                                                              |
|                                                                                                      | <b>3.6倍</b><br>3.6 times                                                            |
| <b>结果</b><br>• CS7050与以往产品C相比，寿命提高到原有的3.6倍。<br>⇒实现了加工效率的提升，工具成本的削减。                                  |                                                                                     |
| <b>Results</b><br>• CS7050 extended the tool life to 3.6 times of that of conv. C.                   |                                                                                     |
| (来自客户评价) Evaluation by the user                                                                      |                                                                                     |

|                                                                                                                                                                                                                                                                             |                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>FC250 (带黑皮)</b><br>(with scale)                                                                                                                                                                                                                                          |  |
| <b>汽缸 Cylinder</b><br>• 镗孔加工 Boring<br>• Vc=300 ~ 500 m/min<br>• ap=1.5 mm<br>• f=0.07mm/rev<br>• WET<br>SNGN120408T01015<br>购买了3个刀片 Cutter (3 edges)                                                                                                                       |                                                                                     |
| <b>KS6050</b>                                                                                                                                                                                                                                                               | 0%                                                                                  |
| 以往产品C<br>Competitor C                                                                                                                                                                                                                                                       | 17%                                                                                 |
|                                                                                                                                                                                                                                                                             | <b>无崩损发生</b><br>No chipping                                                         |
| <b>结果</b><br>原材料的厚度较薄，刀尖规格为非标<br>• 比较加工一定数量后的刀尖状态。<br>⇒其他公司的产品C的崩损发生率达17%(5个/30个)。<br>而KS6050却无崩损发生。<br>实现了稳定加工                                                                                                                                                             |                                                                                     |
| <b>Results</b><br>Edge preparation was custom order for thin work material.<br>• Compared the cutting edge condition after processing fixed number of workpieces.<br>→Comp. C's chipping ratio was 17%. (5 out of 30pcs)<br>KS6050 caused no chipping.<br>Stable machining. |                                                                                     |
| (来自客户评价) Evaluation by the user                                                                                                                                                                                                                                             |                                                                                     |

|                                                                                                                               |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>FC250 (带黑皮)</b><br>(with scale)                                                                                            |  |
| <b>轴承零件 Bearing Parts</b><br>• 外径/端面 External / Facing<br>• Vc=250 m/min<br>• f=0.3 ~ 0.45mm/rev<br>• WET<br>CNGA120412T02025 |                                                                                       |
| <b>CS7050</b>                                                                                                                 | 磨损量: 0.18mm<br>Wear:0.18mm                                                            |
| 以往产品D<br>Competitor D                                                                                                         | 磨损量: 0.23mm<br>Wear:0.23mm                                                            |
|                                                                                                                               | <b>-22%</b>                                                                           |
| <b>结果</b><br>比较各300个/C加工后的磨损量<br>• CS7050与其他公司的产品D相比，磨损量减少22%。                                                                |                                                                                       |
| <b>Results</b><br>Compared wear condition after machining 300pcs/edge<br>• CS7050 reduced wear by 22% compared with comp. D.  |                                                                                       |
| (来自客户评价) Evaluation by the user                                                                                               |                                                                                       |

切削工具相关咨询

 **400-650-6400-5** ●受理时间 8:45-11:45 · 12:45-17:30  
●周六、日以及法定节假日期间不受理业务。

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