

# 不锈钢加工用超硬合金 KX01

## CEMENTED CARBIDE FOR STAINLESS-STEEL PRODUCTS - KX01

发挥不锈钢材质加工时的优良性能。

作为不锈钢材质和热传导性的不良作业的冲压加工用，发挥出显著的耐磨损性能。实现高硬度、高抗弯强度以及锐利模具刃口之精密加工。

Excellent performance for press of stainless.

High wear-resistance for press of stainless or low heat conductivity parts.

High hardness, high transverse rupture strength and sharp edge.

|                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  产品说明<br>Explanation     | <p>通过考虑不锈钢的特性来组成、设计粒子从而提高了模具寿命。</p> <p>除不锈钢外对于磷青铜和铍铜也发挥威力。</p> <p>使用超微粒子WC(WC粒度低于1μm)，因为它具有优异的硬度和抗弯强度，这种材料适用于锐利模具刃口之精密加工，能充分发挥其性能。</p> <p>KX01 is specially designed by taking into account the characteristics of stainless steel to extend lifetime of the mold. This effect is applied to not only stainless steel but also other material such as phosphor bronze and copper beryllium alloy.</p> <p>This material grade is suitable for usage which requires sharper edge because it has excellent hardness and transverse rupture strength by ultrafine grain WC (under 1 μm).</p> |
|  使用注意<br>Note            | <p>KX01是针对薄的不锈钢加工用而研发的材质，对于厚的不锈钢加工，可选用WD20。另外，也可考虑ME40。</p> <p>Suitable material grades for thick stainless parts are WD20 or ME40 because KX01 is developed for thin stainless parts.</p>                                                                                                                                                                                                                                                                                                                                                                                               |
|  用途/实例<br>Applications | <p>用于不锈钢材料（端子、开关面板、HDD悬架等）或难加工材料（间距狭窄的连接端子端子的冲裁模等）的冲压加工等。</p> <p>For stainless steel (stamping for cable terminals, switch panels, HDD suspensions, etc.), For hard-to-machine materials (increasing life of punches for narrow-pitch connector terminals), etc.</p>                                                                                                                                                                                                                                                                                                                     |



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### KX01 物理性能

Physical property of KX01

| 本公司产品代号<br>Our grade | 硬 度<br>Hardness |      | 抗弯强度<br>TRS<br>[GPa] | 破坏韧性值 <sup>(*)</sup><br>Fracture toughness values<br>[MPa·m <sup>1/2</sup> ] |
|----------------------|-----------------|------|----------------------|------------------------------------------------------------------------------|
|                      | HRA             | HV   |                      |                                                                              |
| KX01                 | 92.5            | 1820 | 4.0                  | 10.2                                                                         |
| EF10                 | 92.0            | 1750 | 4.0                  | 10.4                                                                         |
| KD10                 | 91.0            | 1610 | 3.4                  | 13.2                                                                         |
| KD20                 | 90.0            | 1480 | 3.7                  | 15.5                                                                         |
| G5                   | 88.0            | 1250 | 3.2                  | 25.9                                                                         |

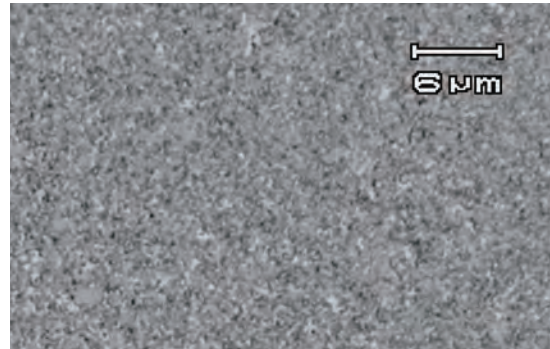
(代表值 / Typical figures)

注记: \*1. 以1F法进行测定

Note \*1. Value measured by the 1F method.

### KX01 组织照片

Micrographs of KX01



金属显微镜 (X1000)

By metallurgical microscope (x1000)

### 评估实绩

Track record of strokes

| 工作物件<br>Workpiece | 工作物件厚度<br>Workpiece thickness | 冲压条件<br>Stamping condition           | 凹模<br>Die                                                                                 | 凸模<br>Punch                                  | 实绩(冲次)<br>Performance<br>(Stroke number) |
|-------------------|-------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------|
| SUS               | 0.10 mm                       | 冲压<br>Snapping                       | 相当于KD10<br>超硬合金<br>KD10 / Equivalent to KD10                                              | KX01                                         | 300 万<br>3 million                       |
|                   |                               |                                      | 相当于KD10<br>超硬合金<br>KD10 / Equivalent to KD10                                              | 相当于KD10<br>超硬合金<br>KD10 / Equivalent to KD10 | 60 万<br>600 thousand                     |
| SUS304            | 0.15 mm                       | 700 rpm<br>压花<br>Coining at 700 rpm  | 相当于KD10<br>超硬合金<br>KD10 / Equivalent to KD10                                              | KX01                                         | 1800 万<br>18 million                     |
|                   |                               |                                      | 相当于KD10<br>超硬合金<br>KD10 / Equivalent to KD10                                              | 相当于KD10<br>超硬合金<br>KD10 / Equivalent to KD10 | 100 万<br>1 million                       |
| SUS301            | 0.70 mm                       | 200 rpm<br>冲压<br>Snapping at 200 rpm | KX01                                                                                      | G5                                           | 26 万~35 万<br>260-350 thousand            |
|                   |                               |                                      | 传统超硬合金<br>(超微粒~细粒)<br>Conventional<br>cemented carbide<br>(Ultrafine-grain to fine-grain) | G5                                           | 8 万~18 万<br>80-180 thousand              |
| SUS304            | 0.60 mm                       | 230 rpm<br>冲压<br>Snapping at 230 rpm | KX01                                                                                      | KX01                                         | 10 万<br>100 thousand                     |
|                   |                               |                                      | 相当于G3<br>超硬合金<br>G3 / Equivalent to G3                                                    | 相当于G3<br>超硬合金<br>G3 / Equivalent to G3       | 2 万<br>20 thousand                       |