

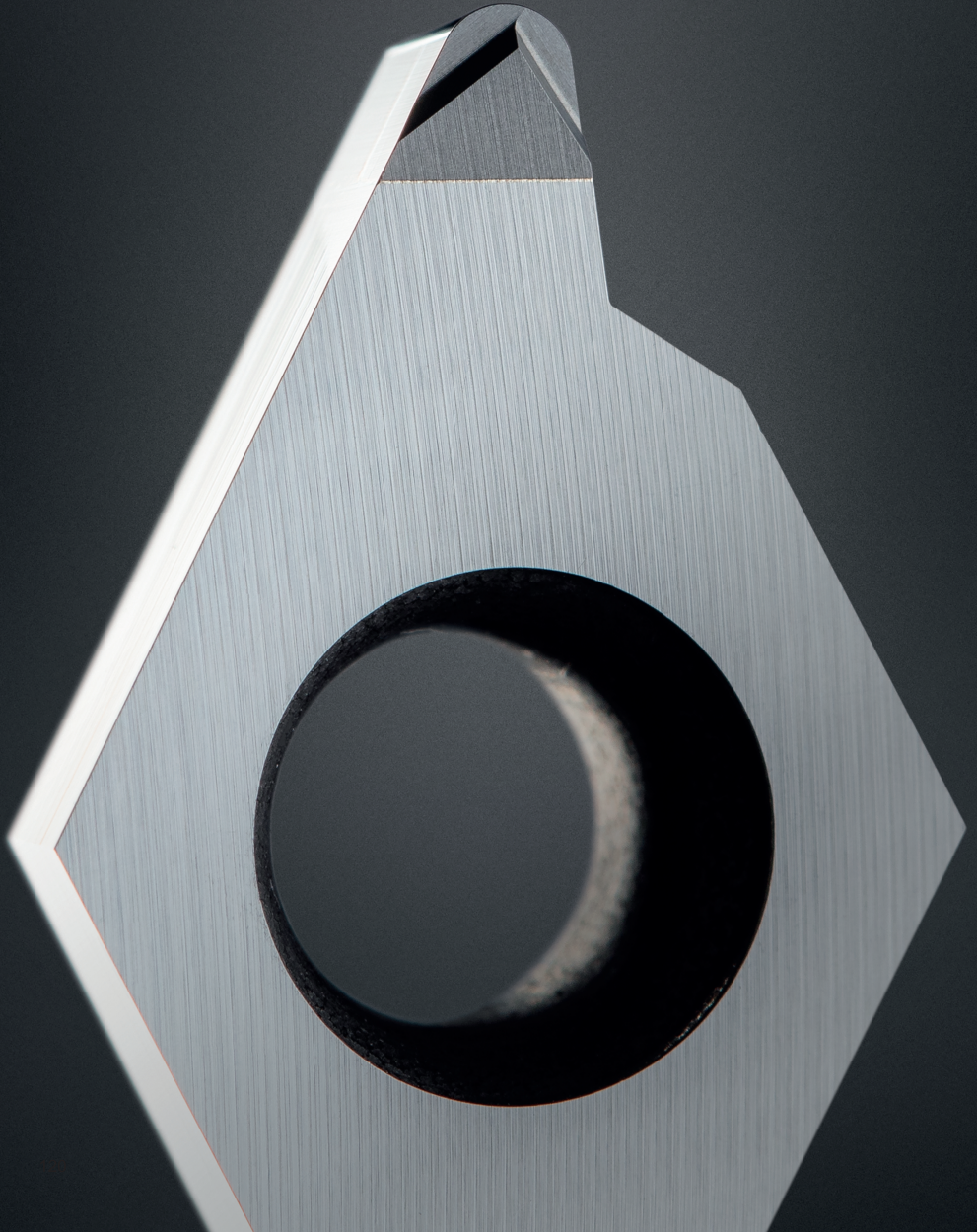
NEW

CBN镶片的ISO刀具

个性化的定制解决方案

CBN-TIPPED ISO TOOLS

Individual customised solutions



不同之处： 更多可能

THE DIFFERENCE: MORE POSSIBILITIES

- **可选择带刀具涂层, 以延长刀具寿命, 并进行磨损和使用检测**

Optionally with tool coating for longer tool life and for wear and usage detection

- **所有尺寸和形状, 交货时间为3-5周**

All dimensions and shapes with a delivery time 3 - 5 weeks

- **淬硬钢、铸铁、烧结/粉末冶金钢和超级合金的加工**

Machining of hardened steel, cast iron, sintered / powder metallurgical steel and superalloys

在提供非标定制刀具方面，HORN在业界被认为是问题的解决者，能完成高要求的加工任务。在加工淬硬钢和其他难加工材料的CBN刀具领域，HORN也拥有高水平的专业知识。

在大多数情况下，CBN刀具是为用户的特殊加工应用和生产流程而设计的。HORN的工程师们总是以提高生产力、效率为目标，从而增加其用户的产量。

For the supply of customised special tools, HORN is regarded in the industry as a problem solver for demanding machining tasks. HORN also has a high level of expertise in the field of CBN-tipped ISO tools for machining hardened steels and other difficult materials.

CBN tools are in most cases designed for users' special machining applications and production processes. HORN's engineers always work with the aim of increasing the productivity, efficiency and thus the yield of its users.



硬材料加工

立体氮化硼是仅次于金刚石的第二硬的切割材料，其特点是综合了各种物理、机械和化学性能。最重要的是，高耐热性和高硬度能够以特定几何形状的切削刃对淬火钢进行经济地加工。CBN基材被用作切削复合材料的。通过改变体积分数、颗粒大小和粘合剂系统，可以设定不同的性能，这可以有利地适用于各自的应用领域。通过CBN基材、切削刃的几何设计、合适的切削值和稳定的刀具系统的相互作用，金属去除率、精度和高表面质量都优于磨削技术。只有在极少数情况下才需要特殊机床。

实例:

20MnCr5 / 1.7147 (59-61HRC)

v_c = 至 180m/min

X210CrW12 / 1.2436 (60-62HRC)

v_c = 至 140m/min

HS6-5-2C / 1.3343 (60-64HRC)

v_c = 至 125m/min

Hard machining

Cubic boron nitride, the second hardest material after diamond, is characterised by a combination of physical, mechanical and chemical properties. Above all, its high thermal resistance and hardness enable economical machining of hardened steel using geometrically defined cutting edge. CBN substrates are used for cutting composite materials. By varying the volume fraction, grain size and binder system, different properties can be set, that can be advantageously applied to the respective application. Through the interaction of the CBN substrate, the geometric design of the cutting edge, adapted cutting values and a stable tool system, metal removal rates, accuracies and high surface quality can be achieved that are superior to grinding. Special machines are only needed in rare cases.

Examples:

20MnCr5 / 1.7147 (59-61HRC)

v_c = up to 180m/min

X210CrW12 / 1.2436 (60-62HRC)

v_c = up to 140m/min

HS6-5-2C / 1.3343 (60-64HRC)

v_c = up to 125m/min

铸造材料加工

立方氮化硼的高硬度和高耐热性，也适用于铸造材料的经济加工。铸造材料的领域和各自的特性一样广泛 所有这些都可用CBN加工。与硬质合金或陶瓷刀具相比，按几倍切削速度，可以提升效率10倍以上。

实例:

- GG25** (EN-GJL-250 / 0.6025)
 v_c = 至 1.800m/min
- GGG40** (EN-GJS-400-15 / 0.7040)
 v_c = 至 1.200m/min
- GGG-NiCr** 20-3 (EN-GJSA-XNiCr20-2 / 0.7660)
 v_c = 至 600m/min

Machining castings

The high hardness of cubic boron nitride and its heat resistance make this cutting material group ideal for the economical machining of cast materials whose range is as wide as their respective properties – all of them can be machined with CBN. The performance compared to carbide or ceramic tools can be up to 10 time higher using several times the cutting speed.

Examples:

- GG25** (EN-GJL-250 / 0.6025)
 v_c = up to 1,800m/min
- GGG40** (EN-GJS-400-15 / 0.7040)
 v_c = up to 1,200m/min
- GGG-NiCr** 20-3 (EN-GJSA-XNiCr20-2 / 0.7660)
 v_c = up to 600m/min

烧结钢加工

复杂的形状, 高产量和刀具磨损快: 这只是一些关键术语来描述烧结或粉末冶金部件的生产和制造。磨损主要是由于硬度 (>70 HRC) 和细小的陶瓷颗粒嵌入到相对柔软的金属基体中造成的。由于CBN的高硬度, 它能抑制磨料磨损。与硬质合金相比, 不仅可实现更高的刀具寿命, 而且切削速度也可以提高, 切削速度可以相应提高两到三倍。为此, 切削刃的几何形状需要按这个应用而设计。这与常规经典的硬加工不同, 通常需求是, 要确保部件没有毛刺。

实例:

SINT D11 (120HB)

v_c = 至390 m/min

SINT D39 (150HB)

v_c = 至 260 m/min

SINT C42 (170HB)

v_c = 至 220 m/min

Sintered steel machining

Complex shapes, large quantities and high tool wear: These are just some of the keywords that describe the umbrella term for sintered or powder metallurgically produced components. The wear is primarily due to hard (>70 HRC) and fine ceramic particles that are embedded in the relatively soft metal matrix. CBN opposes abrasion wear due to its high hardness. Compared to carbide, not only is the achievable tool life several times higher, but also the cutting speed can and should be increased by a factor of two to three. The cutting edge geometry is designed for the application. This differs from classic hard machining, not least to ensure that components are free of burrs, which a frequent requirement.

Examples:

SINT D11 (120HB)

v_c = up to 390 m/min

SINT D39 (150HB)

v_c = up to 260 m/min

SINT C42 (170HB)

v_c = up to 220 m/min

镍基合金和超级合金的加工

镍基合金和其他超级合金的加工在制造业中迅速增长。这些材料特殊的机械、化学和热性能往往导致其可加工性差、刀具磨损大和切削速度低。这些材料的加工有时会给用户带来巨大的挑战。CBN切削材料可以作为这个问题的解决者。特别是在精加工时，它能够缩短加工时间，提高尺寸精度和提升表面质量。

精加工实例:

Inconel 718 (NiCr19NbMo / 2.4668)

v_c = 至 300 m/min

X6NiCrTiMoV26-15 (1.4944)

v_c = 至 400 m/min

Machining of Nickel-based and Superalloys

The machining of nickel-based and other superalloys is growing rapidly in the manufacturing industry. The special mechanical, chemical and thermal properties of these materials are often associated with poor machinability, high tool wear and low cutting speeds. The economical machining of these materials sometimes presents users with great challenges. The CBN cutting material can be used as a problem solver. Particularly when finishing, it enables shorter machining times, greater precision and higher surface quality.

Example of finishing:

Inconel 718 (NiCr19NbMo / 2.4668)

v_c = up to 300 m/min

X6NiCrTiMoV26-15 (1.4944)

v_c = up to 400 m/min

目标: 增加刀具寿命和工艺稳定性

工件: 齿轮法兰盘

材料: C40 / 1.1186

硬度: 58-60 HRC

冷却: 干切/空气

刀具: CNGA 120412 CH1F

挑战: 连续切削和断续切削

v_c (m/min) 160

f_n (mm/U) 0.2

a_p 0.2 - 0.35

数量: 250-280 件

Goal: Increase of tool life and process stability

Component: Gear wheel flange

Material: C40 / 1.1186

Hardness: 58-60 HRC

Cooling lubricant: dry / air

Tool: CNGA 120412 CH1F

Challenge: continuous cut and interrupted cut

v_c (m/min) 160

f_n (mm/rev) 0.2

a_p 0.2 - 0.35

Quantity: 250-280 pieces

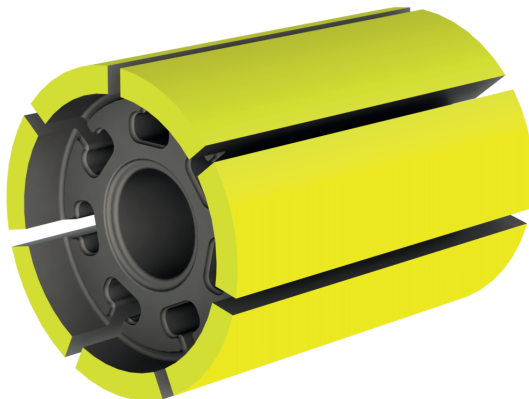


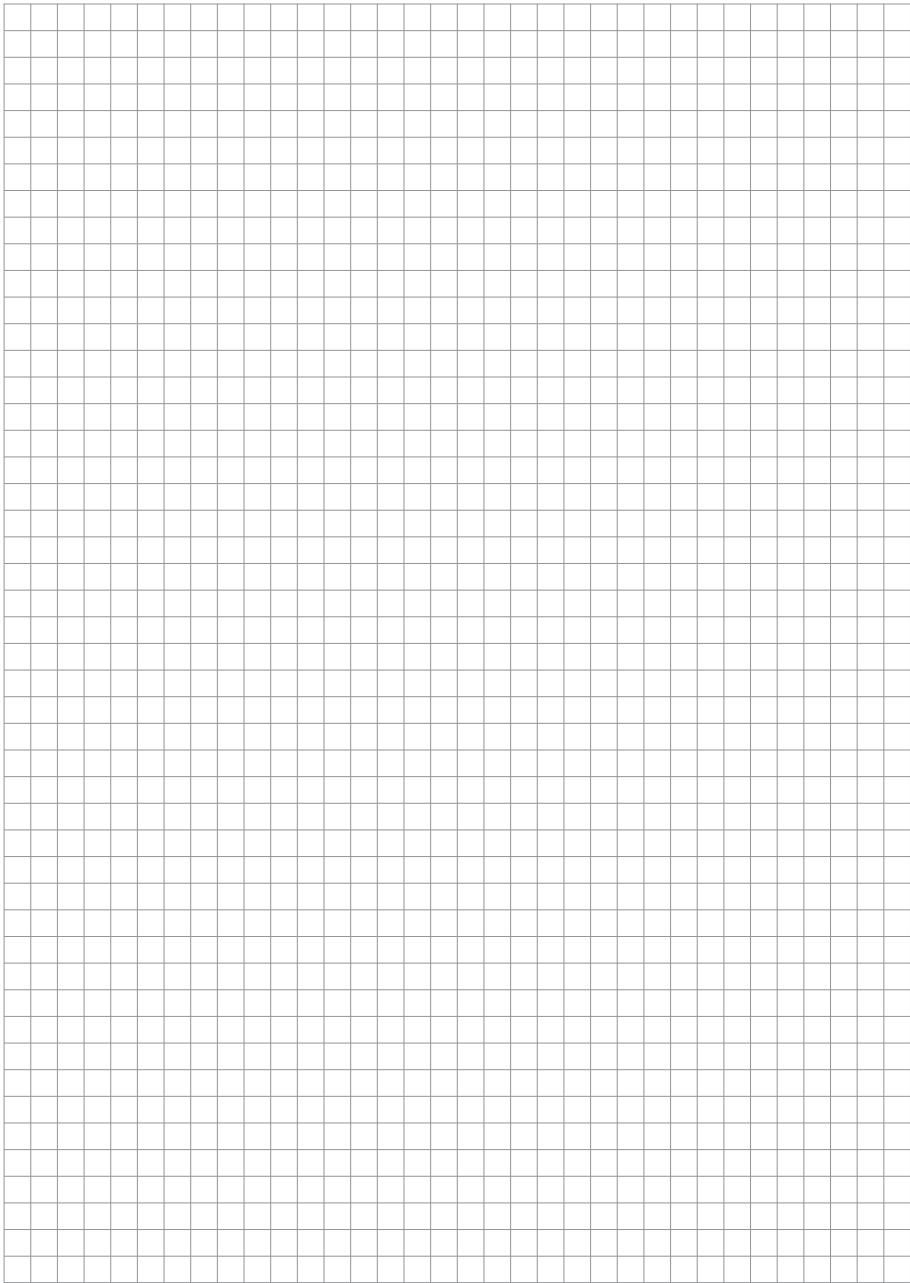
目标: 减少节拍
工件: 转子叶片泵
材料: Sint D11
硬度: (120HB)
冷却: 乳化液
刀具: DCGT11T306 CB35
挑战: 毛刺, 工件变形

v_c (m/min) 350
 f_n (mm/U) 0.22
 a_p wechselnd 0.1 - 0.9

Goal: Reduction in cycle time
Component: Rotary vane pump
Material: Sint D11
Hardness: (120HB)
Cooling lubricant: Emulsion
Tool: DCGT11T306 CB35
Challenge: Burr formation, deformation of the component

v_c (m/min) 350
 f_n (mm/rev) 0.22
 a_p alternating 0.1 - 0.9







找到您合适的刀具解决方案.

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