OVERVIEW OF PCD REAMERS

Sundi is specialized on the development, the production and the sales of precision tools from ultra hard cutting materials such as PCD(polycrystalline diamond) and PCBN(cubic boron nitride) and has established those successfully on the national and international market.

To be able to economically process these ultra hard cutting materials such as PCD, PCBN onto precision tools, we had already noticed in the early stages that we had to move away from the old manufacturing technology “grinding” and had to advance to new technologies such as the “Laser technology”. Ultra hard high-performance cutting materials have a key function in the metal cutting production.

Precision tools from ultra hard cutting materials are products which require a large need of explanation. The economical usage of these cutting materials is only guaranteed if the cutting process and the cutting materials are aligned with each other. Exactly here, Our main competence are the precision tools made from ultra hard cutting materials.

These high tech tools have to be aligned exactly with the cutting process together with an experienced application engineer, only then is it possible to exploit the optimal potential.

With more than 10 years of optimization experience in the producing industry we see our strength!

During the running production we stand consulting by your side together with our experienced application engineers. This close cooperation on a mutual trust basis is the basis for our success.

INTRODUCTION OF PCD MATERIALS

PCD(polycrystalline diamond) material has good compressive strength and heat conductivity. The hardness of PCD is inferior only to that of single crystal diamond. The wear resistance of PCD cutting tools has been shown to be superior to both cemented carbide and high speed steel (HSS), making it an outstanding choice for cutting tools.

The PCD material of are all purchased from world famous companies, including E6/GE, they’re well known for its consistent quality and performance.

APPLICATIONS OF PCD REAMERS

1. Automotive cylinder head.
2. Automotive hydraulic parts: AT valve body, regulator valve body.
3. Steering spool, transmission housing.
4. Other aluminum alloy parts (casting).
5. Ceramic containing composite materials such as MMC.
FEATURES AND ADVANTAGES

The PCD reamers has significantly higher cutting speeds and feed rates.

Increased dimensional accuracy and process reliability. Less process steps which means extensive freedom from burrs.

Through and blind holes for the integrated expanding screw in the tool point.

Optimal coolant delivery to the cutting edges.

The PCD reamers can facilitate fast clamping.

Ultra-long life of PCD tools.

Less tool changes which means combination of multiple operations in one tool deliver savings on machine costs.

Tool cost can be reduced by up to 50% which means regrinding and reconditioning.

PRODUCTION AND PROCESS

Our types of equipment comprised the finest name brands in the world, such as:

WALTER EDM device,
COBORN CNC Grinders,
Vollmer Wire Erosion Machines
ZOLLER measure machine
Schiitte grinding device

With these devices, we can do a very complex job with perfect quality and performance.

General the roughness of the cutting edge surface can reach RA<=0.2, The tolerance can reach <=±0.002mm.

Main Manufacturing Process:
1: Design the tools following the workpiece or customer’s requirements.
2: Drawing confirmation.
3: Tool body making by CNC machining center or grinding machines.
4: PCD tips are bladed to the tool body by vacuum welding.
5: Making through or blind coolant holes to cutting edges by sinker EDM or CNC machining.
6: Machine the PCD blades by Vollmer with 7-8 times.
7: Cutting edge process by Coborn based on customer’s special demands.
8: QC and final testing reports.
9: All tools will be packed with plastic box.
10: UPS/DHL/FedEx/TNT delivery.
CAPACITY

Sundi designs and produces the PCD solid reamers with integrated internal coolant, single or multi-step diameters, depending on the application.

For both, boring and countersinking/counter boring, we can produce tools from the simplest design to the most complex development, with various step profiles.

The tools are produced under customer demand, with different PCD grades, shoulder and edge cutting designs, number of teeth, sizes and tool holders.

A Wide Range of Top-Quality Products:

ENGINEERS DESIGN

Sundi has a modern R&D facility led by a team of experts and a tool application testing center which helps tooling innovation very year.

After years of experience, the PCD reamers manufactured at SUNDI production facility are recommended by most clients for well cost reduction by setting first and second step, through and blind holes for integrated expanding screw in the tool point and optimal coolant delivery to the cutting edges.

Today, whatever engineering products you see, feel and touch in your everyday life, would reveal that SUNDI has been involved directly or indirectly in the production of that product.
CUSTOMER USE CASE

Sundi offers high performance PCD cutting tools which have been widely used in automobile, aerospace and energy industry, to machine aluminium alloy and other non-ferrous metals, the surface roughness can reach Ra<=0.4. One tool can be combined of multiple operations, good choice for cost and machining time reduction.

QUALITY CONTROL

Depending on the quality first, We control the quality from the raw material to final process.

1: Material selection
The tool bit of the diamond reamers uses PCD blanks manufactured by world famous companies, including E6/GE. The body part uses high quality tungsten carbide or tool steel, Material reports will be offered if required.

2: Tool body inspection
Before welding, hardness, dimensions and performance of the tool body will be checked by tooling micrometer, hardness testing machine.

3: Automatic inspection
With the help of ZOLLER measuring machine, all simple or complex PCD reamers will be measured by optical projection, analyzed by auto programs which will eliminate human error due to traditional, manual inspection methods.

4: Quality tracking and records
All finished PCD reamers will be numbered by our QC before shipment, and we’ll offer the detailed testing reports for better tracking on every products.