



EXTRUDER TECHNOLOGY

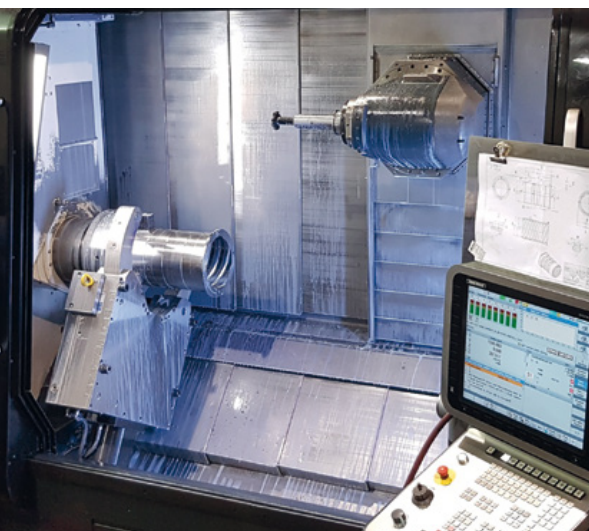


C.A.PICARD®
INTERNATIONAL

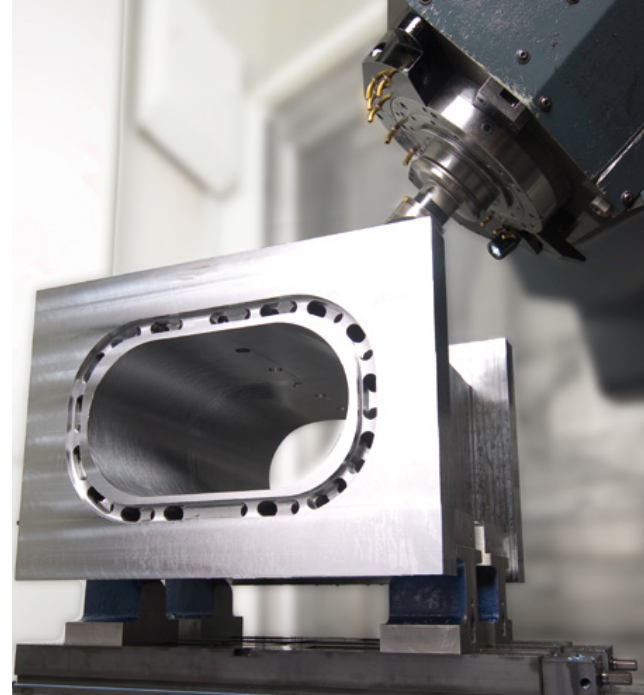
Extruder Technology

Wear parts which set standards

For decades, C.A.PICARD® has been counted among the world's best manufacturers of wear parts for specialist industries. Our knowledge of materials is based on our history – since the founding of our company in 1876, we have been ideally combining experience, know-how, and development. The requirements on our production have ensured our on-going development. Our highly-qualified employees use state-of-the-art machining procedures. The results speak for themselves: We produce precise and highly wear-resistant parts and equipment, which meet the highest of demands.



Experience. Know-how. Development.
The three pillars for proficiency and success.



The OEM standard is a matter of course of us.
We demand precision.

Spare and wear parts for:

- Twin screw extruders
- Single screw extruders (segmented)

Components:

- Screw elements
- Kneading blocks
- Mixing elements
- Shafts
- Barrels (solid / liner)
- Liners
- Die plates
- Pelletizer knives / Knife holders

Services:

- Barrel wear measurement, video inspection
- Dismantling service
- Barrel service
- Material consulting
- Process optimisation
- Installing process sections
- Reconditioning of die plates

Innovation generates progress.
Technology creates quality.
For every need.
In every dimension.





**We understand your requirements.
And know how high they are.**

Whether in chemistry, plastics, food, animal feed, or pharmacy: extruders can withstand a great deal on a daily basis. They are subjected to extreme temperatures. They can withstand high pressures. They are exposed to various types of wear and tear.

At the same time, extruders must always perform at their highest level.

We are very well acquainted with the varying applications of extruder technology and share your knowledge about product processing. By sharing this knowledge, we are able to design the perfect wear parts in accordance with your requirements. When using our materials and technologies, we have only one thing in mind: to increase your product quality and extend the life cycle of the wear parts.



Branches and industries:

- Petrochemistry
- Plastics
- Powder coating
- Chemistry
- Industrial ceramics
- Catalyst, catalyst carrier compounds
- Battery materials
- Pharmacy
- Food
- Animal feed, fish feed
- ...

Extruder types:

- Andritz
- APV
- Bühler
- Clextral
- Coperion
- ICMA
- JSW
- Keya
- Kobe
- KraussMaffei Extrusion
- Leistritz
- Maris
- OMC
- Shibaura
- Sprout Matador
- Theysohn
- Toshiba
- Wenger
- ...



**You have the requirements. We have the answers.
C.A.PICARD® produces wear parts suitable for
almost all well-known extruders.**

Screw elements

Optimum adjustment – low-cost replacement

Twin screw extruders are modularly constructed. This allows the screw configuration to be exactly adjusted to the process task in hand. Should a screw element need to be replaced, then this can be done quickly and cost-effectively.

The screw elements are positioned on a shaft. They fulfil a variety of tasks in the manufacturing process.

Our target for you is: less maintenance, longer life cycle.

Incidentally: more than 15,000 screw elements are now available ex-stock.

Building types:

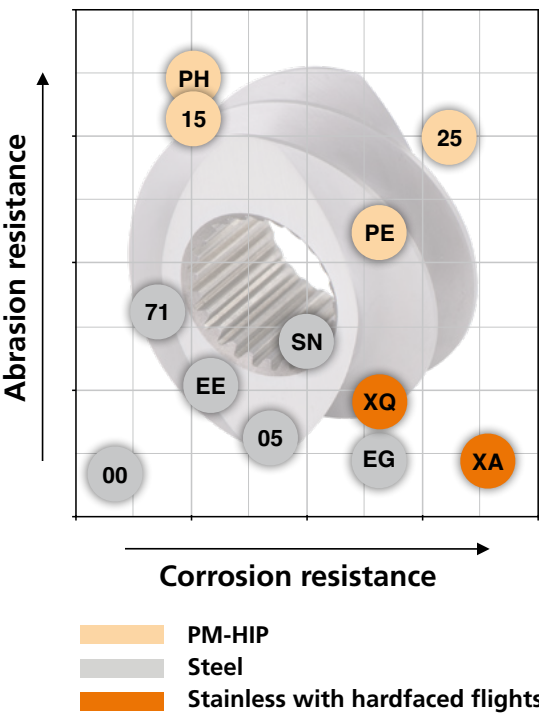
- Conveying elements
- Reverse conveying elements
- Kneading blocks and discs
- Mixing elements
- Transition elements
- Undercut elements
- Side feeder elements
- Single, double, triple lobe
- Diameter 12 to 350 mm



Material portfolio

Code	Material	Hardness
00	Nitrided steel	900-1050 HV0.5
05	Hardened stainless steel	48-50 HRC
71	Tool steel	59-62 HRC
EG	Stainless steel	36-39 HRC
EE	Stainless tool steel	55-58 HRC
SN	Stainless tool steel	55-58 HRC
15	PM-HIP compound	61-65 HRC
PH	PM-HIP compound	64-66 HRC
PE	PM-HIP compound	54-58 HRC
25	PM-HIP compound	56-60 HRC
XA	Stainless with hardfaced flights	44-50 HRC
XQ	Stainless with hardfaced flights	42-45 HRC

The mentioned categories are based on C.A.PICARD®'s experience, material analyses, and information provided by customers.



Shafts

Maximum transmission with high load capacities

The shafts transmit the torque of the drive to the screw elements – and therefore to the entire process area. Here, it depends on the maximum torque transmission and the highest load capacity. Using state-of-the-art materials technology, we are able to achieve a strength which enables you to optimally use your twin screw extruder. We exclusively use ESR materials with utmost purity.

Building types:

- One-piece, multi-parts
- Diameter 10 to 180 mm
- Length 500 to 6000 mm
- Optional with or without internal cooling

Material portfolio:

Code	Type
DF	Hot-forming steel
DT	Heat-treated steel
EG	Hardened stainless steel
D5	Special high-alloy steel
D4	Heat-treated steel



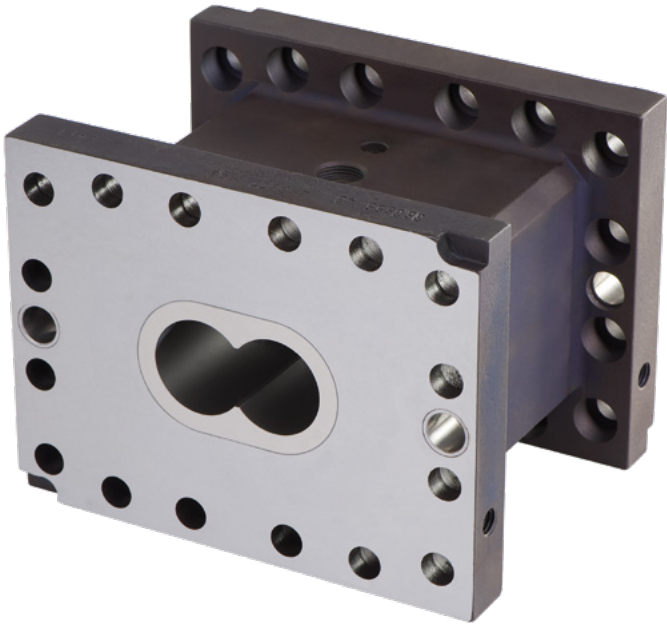
Barrels and barrel liners

Components, which are particularly subject to high stresses

The barrels and barrel liners are especially valuable components in the processing of the twin screw extruder. They adopt a variety of tasks and are therefore subject to high levels of stress. Since corrosion and abrasion have an impact on them, a liner is often incorporated into the barrel. This has a great advantage: Should the wearing limit be reached and a replacement be required, then only the barrel liner needs to be replaced.

Building types:

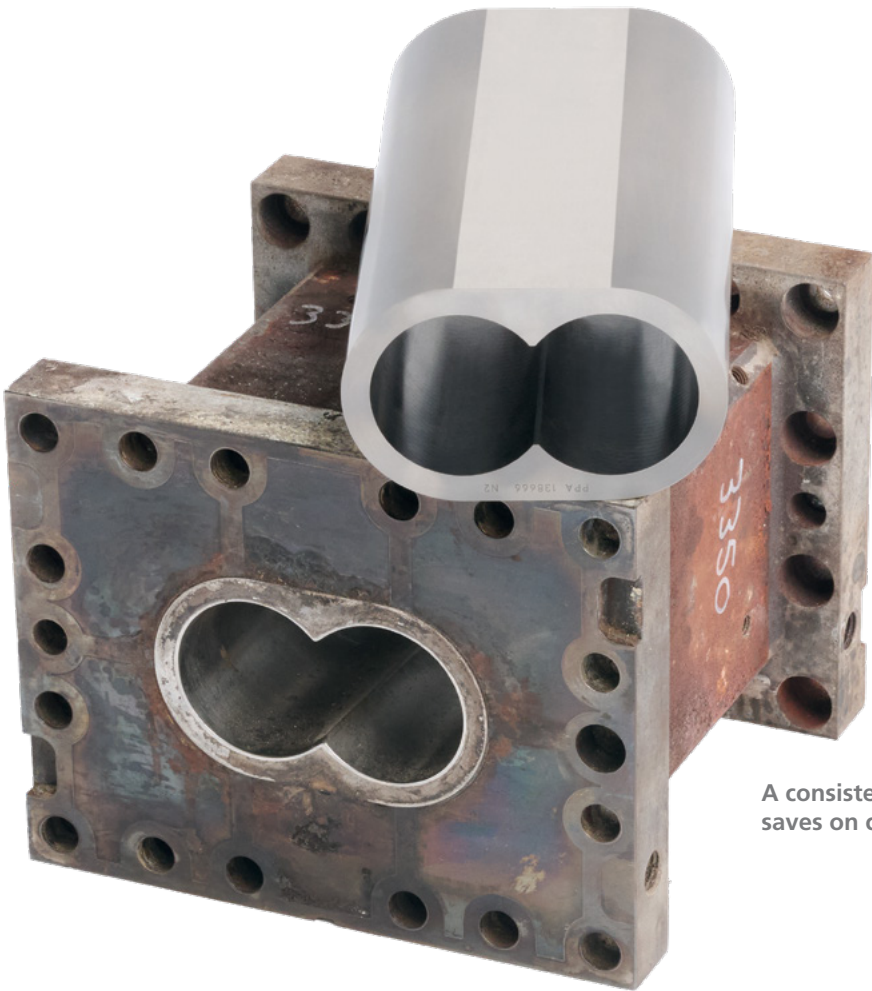
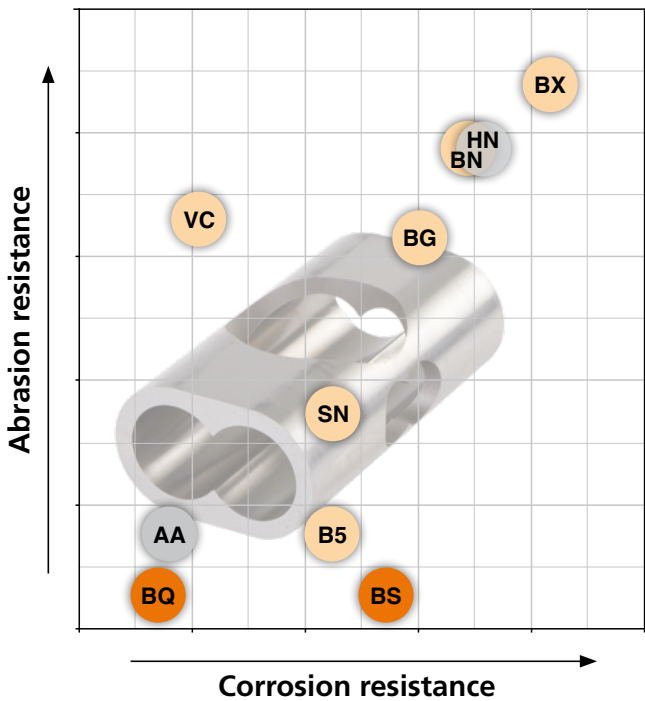
- Feed barrels
- Closed barrels
- Side-feed barrels
- Venting barrels
- Combi barrels
- Bore system for temperature control
- Wear liners
- Thermocoupling bores
- Injection bores
- Degassing inlets
- Plugs
- 8-bore diameter 12 to 320 mm



Material portfolio

Code	Type	Material	Hardness
AA	Solid	Nitrided steel	750-850 HV0.5
BG	Liner	PM-HIP	59-62 HRC
VC	Liner	PM-HIP	61-65 HRC
B5	Liner	Hardened stainless steel	50-54 HRC
SN	Liner	Stainless tool steel	55-58 HRC
HN	Solid	HIP compound steel	> 60 HRC
BN	Liner	HIP compound steel	> 60 HRC
BX	Liner	Special material	—

The mentioned categories are based on C.A.PICARD®'s experience, material analyses, and information provided by customers.



A consistent barrel repair service saves on costs and resources.

Barrel wear measurement Video inspection

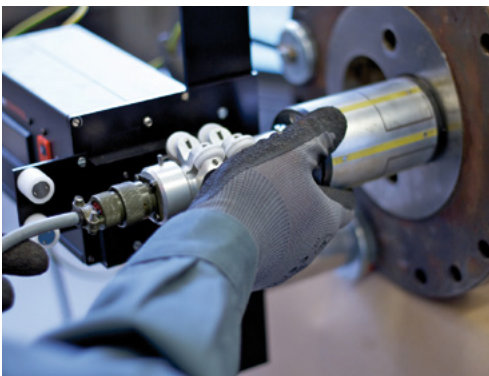
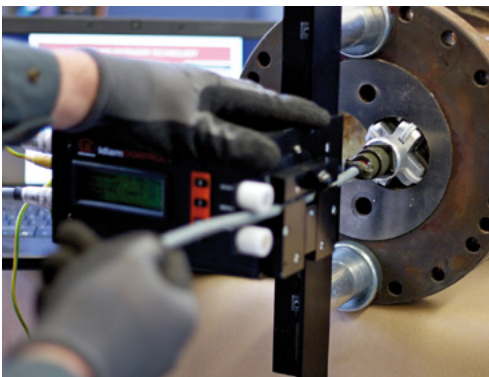
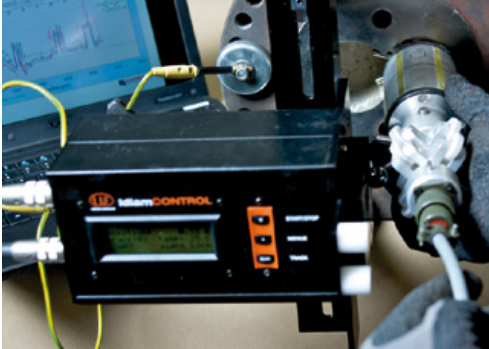
We measure directly on the twin screw extruder and can therefore detect any wear in the barrel at an early stage.

Those who want to remain permanently productive have to detect wears and tears at an early stage. We are able to inspect the condition of the integrated barrels directly on your extruder line with our wear measurement service. The casing will not be disassembled for this - thus saving you valuable time and maximising the benefits.

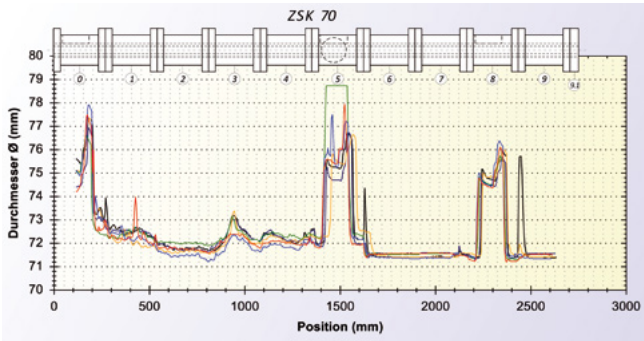
Our inspections ensure your productivity. If you detect any wears and tears, you can procure replacement parts in good time. Repairs can therefore be planned and calculated.

The benefits at a glance:

- Quick, cost-effective, and on-site
- Preventive maintenance allows for reliable production.
- Measurement and analysis at a fixed price
- All measurement results and videos are documented and made available to the customer.



Measurement directly on the extruder line.
Measurement range of the sensors:
47 - 180 mm in diameter.



Example of measuring result ZSK 70,
diameter 71.3 mm

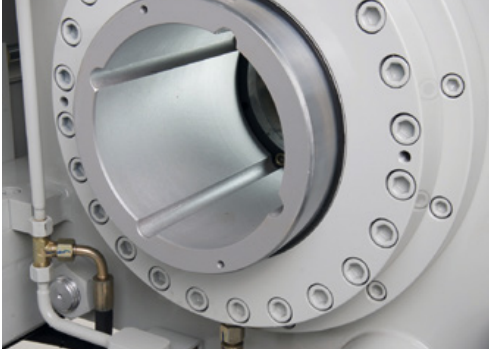
Dismantling service

Your screw elements are in professional hands – with the C.A.PICARD® dismantling service.

Dismantling the individual screw elements from the shaft is not always easy once they have been used in the production process. Product residues can congeal between the screw elements and the shaft. A great deal of energy is required to remove them. You can avoid this by using our quick and cost-effective dismantling service.

The benefits at a glance:

- Reduced risk of injury to employees in comparison to a manual change
- Less damage to the screw elements and the shaft as a result of mechanical or thermal influences
- Direct inspection of the current state of wear of the entire configuration
- Fitting new screw elements to the shaft according to customer requirements



Installation

Upon request, we will take care of the disassembly and installation of your shafts and barrels.

We will realign any barrels and seal the corresponding surfaces during installation. Once the equipped shaft has been installed and all other periphery has been fitted (e.g. heating, cooling, die head, die plate, screen changer), we will hand over the fully assembled machine to our customers ready for operation.





Remove screw elements safely with the FD system from C.A.PICARD® and save both time and money.

FD system

Easy, safe and mobile – with our Flexible Dismantling System for screw elements between 20 and 270 mm.

Stripping the segments off the screw shaft is not always easy after they have been used for fabrication. Residues of products might solidify between segment and shaft. Enormous forces are required to get the elements off the shaft. For this problem, we engineered the FD system. By means of the hydraulic C.A.PICARD® FD system, screw elements can be removed from the shaft directly at the extruder.

The benefits at a glance:

- Time-saving change of configuration directly at the extruder
- Minimisation of risk of injury for employees compared to manual dismantling
- Reduction of damages to screw elements and shafts by mechanical or thermal impacts
- Short-term amortisation of the purchase price

Optional

- Training by a C.A.PICARD® specialist on site
- Set of aluminium shells including bolts for different sizes
- Dismantling plate



Pelletizer die plates

for underwater and warring pelletizers

The pelletizer die plate – as the centerpiece of pelletizing – is decisive for quality of polymer strands and the cutting and primarily influences the quality of pellets.

Your polymers to be pelletized and your available machine equipment are basis for the design of die plates and pelletizing knives. Various die plate designs, i.e. electrical, oil or steam heated, and the nozzle geometries determined by polymer rheology are the result of your demand. Cutting surface plating is done according to the respective application with Titanium Carbide (TiC) or Tungsten Carbide (TC) in tiles, segments or nib design.

The intensively heated die plates will be made in “Heat Channel” or “Heat Exchanger” design.

In addition, we offer reconditioning of your worn die plates, from regular cleaning and grinding to complete new plating with TiC or TC.

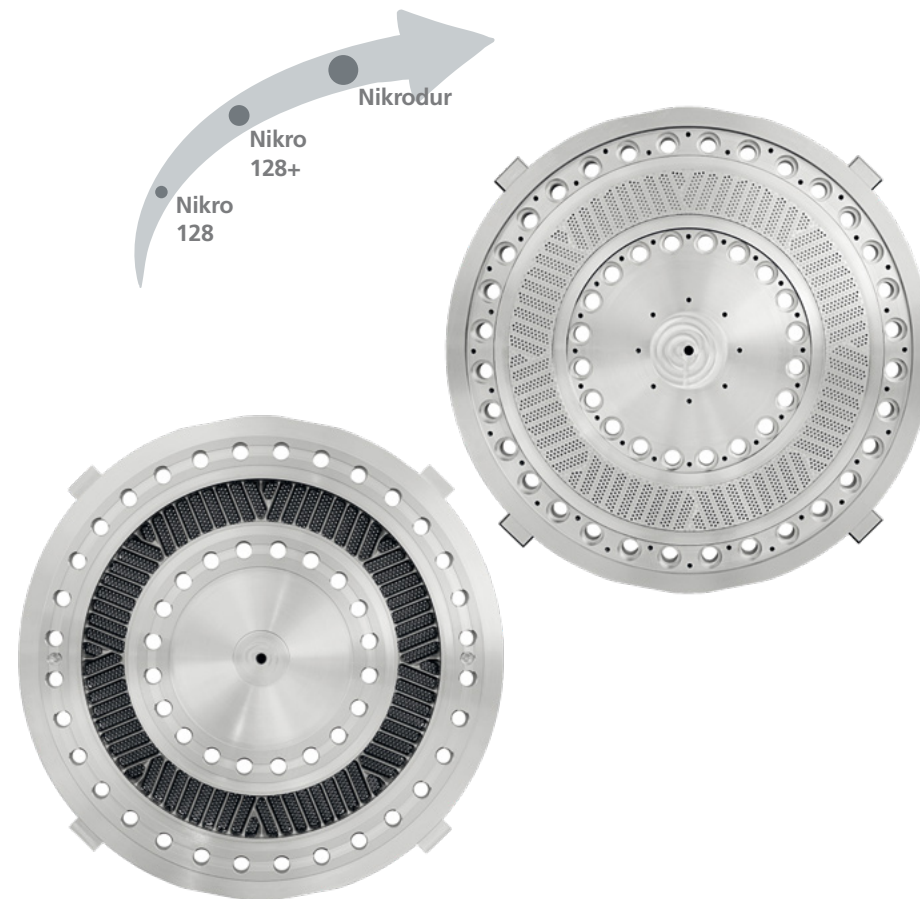
The die plates are designed for the production of:

- Polyolefins (LDPE, HDPE, LLDPE and PP)
- Polystyrene (PS, ABS)
- Polycarbonate (PC)
- Polyester (PBT, PET)
- Polyamide (PA 6, PA 6.6, ...)

for commodity resins and for master batch and compounds.

We produce for pelletizing systems of following manufacturers:

- Coperion
- Econ
- Farrel
- JSW
- Kobe
- KraussMaffei Extrusion
- Maag
- Nordson
- ...

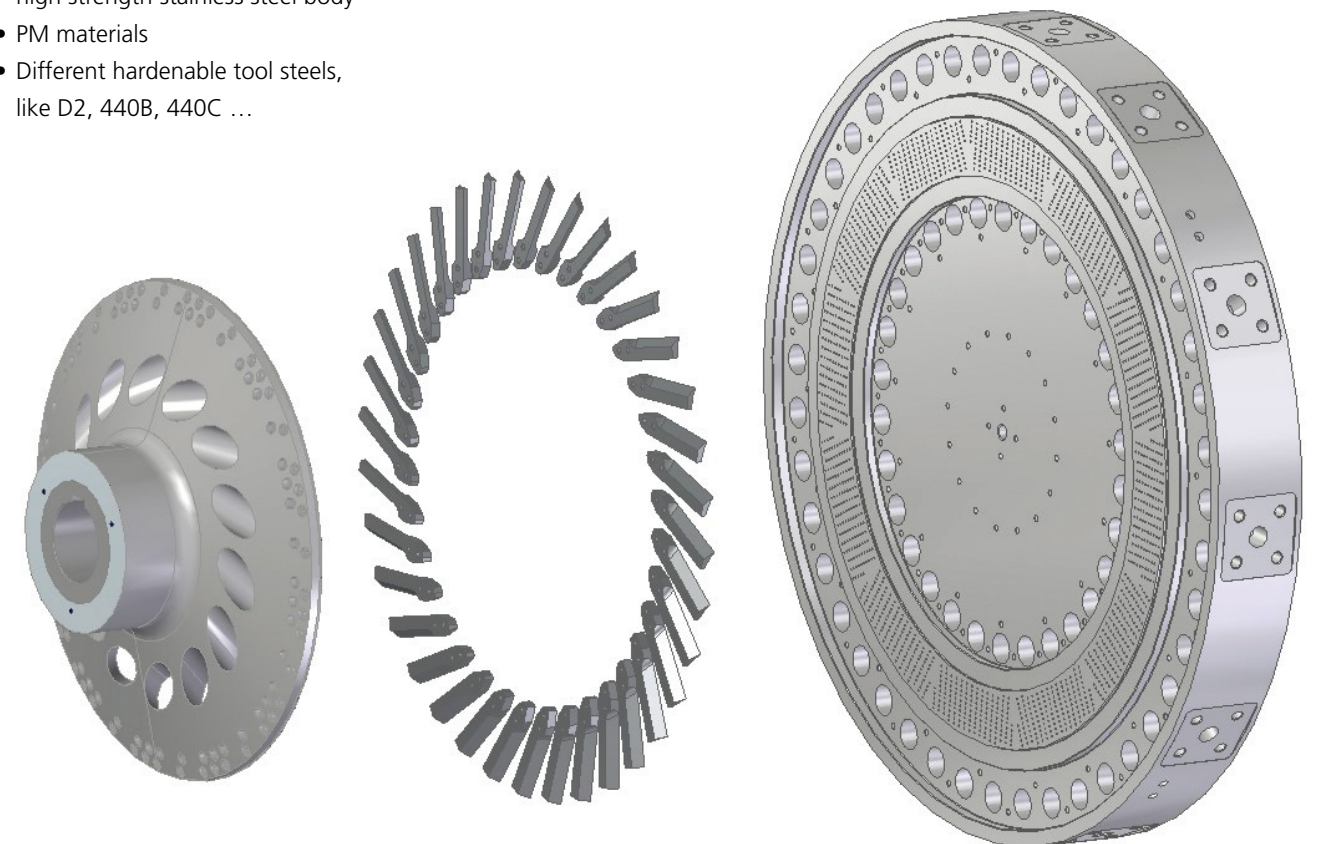


Pelletizer knives

Titanium carbide has proved to be excellent as material for pelletizing knives. Our bi-metal knives combine the advantages of this highly wear-resistant material with cost-oriented manufacture. We solder exclusively in vacuum, which ensures perfect stability of the soldered TiC insert.

We manufacture the knives with our know-how and according to your requirements from:

- Titanium carbide Nikro 128 or Nikro 143
- Bimetal, titanium carbide insert in a high strength stainless steel body
- PM materials
- Different hardenable tool steels, like D2, 440B, 440C ...





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