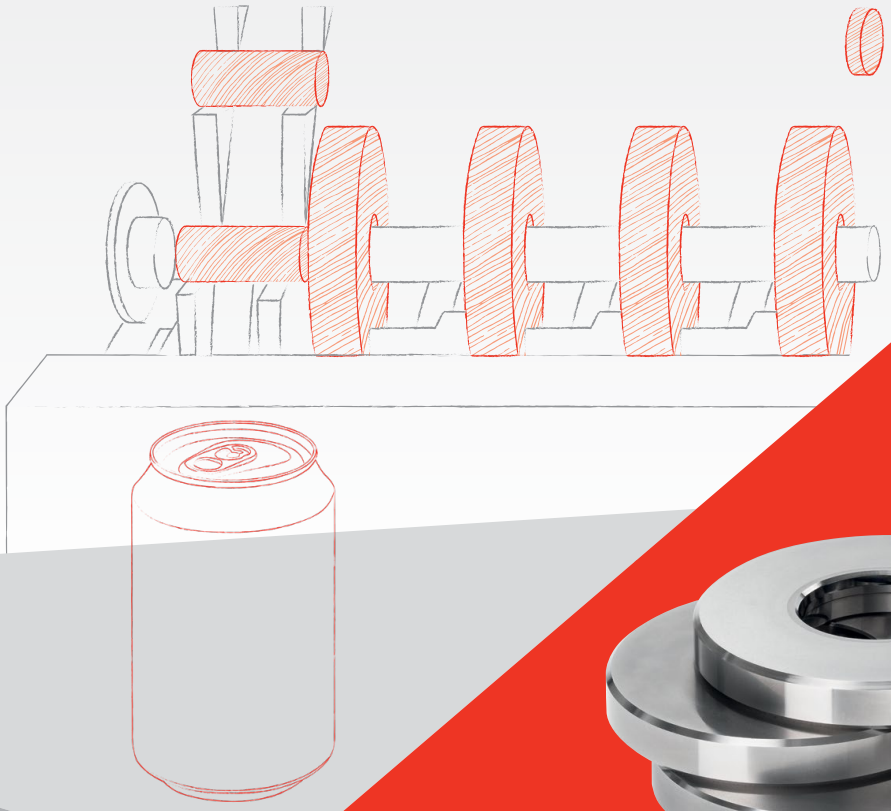
Hard Material Solutions

2023 **EN**

Solutions for Can Tooling





CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

Tooling a Sustainable Future

ceratizit.com

CERATIZIT GROUP



As we manage the entire process chain, we can always guarantee top quality and smooth collaboration.

Hard materials: innovative, stable, precise

Industrial can production experts require the best tools to ensure reliable, precise and productive manufacturing. Cemented carbide solutions are the measure of things, especially with a view to meeting **maximum demands in terms of precision and wear resistance.** CERATIZIT offers a broad range of premium products which can be precisely adapted to your needs in close consultation with you. These include **cuppers, body makers and neckers made from cemented carbide, ceramic and steel** which support every step of your production process. – Longer tool life, increased machine efficiency and optimised production results are the logical outcome of our leading cemented carbide portfolio.

Choosing the best together

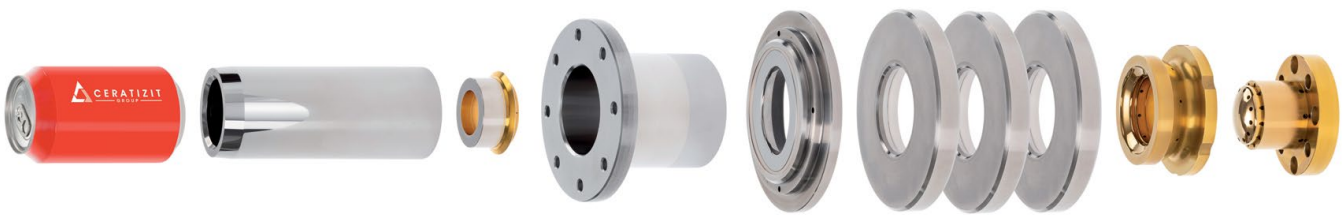
All machine tools for the production of two-piece cans are based on a holistic and well thought out process. **CERATIZIT manages the entire process chain from the raw material to the ready-to-use tool,** which offers you benefits in several respects. Grades which are specifically tailored to the customer's needs are developed in-house for the application in question, so that the tools can deliver maximum performance. You can also order non-magnetic carbide grades if your application requires it. We cover the entire spectrum from tool design to production, application and carbide recycling as well as responding to individual requests – our experts will assist you whatever your needs.

Our entire tool production is subject to the strict conditions of ISO 9001 and 14001 and OHSAS 18001.

The detail makes the difference

Conscientious quality controls to the last detail are a standard, enabling us to supply premium tools, which above all meet the **highest demands in terms of precision.** An ultra-modern machine park, continuously expanding ensures that close tolerances are precisely adhered to. This of course also applies to new developments which CERATIZIT undertakes on your behalf: thanks to our leading expertise, **both tool design and the manufacturing process can be adapted to your requirements.** You receive tailor-made carbide solutions that increase efficiency and reduce wear - and naturally all tools can be reground to maximise their service life.

CERATIZIT: your partner in can production



Recycling: useful for humans and the environment

Carbide is made from tungsten and cobalt: both very rare fossil raw materials which are in great demand. **Corporate Social Responsibility (CSR)** has always been of **great importance to CERATIZIT**. So it goes without saying that only raw materials that do not originate from conflict regions and that have been mined in an ethically responsible manner are purchased for any kind of production process. You also benefit from a **specially developed and certified recycling system.** In this way you protect the environment because, firstly, fewer raw materials have to be mined and, secondly, enormous amounts of energy are saved. Efficient recycling technologies, which are trendsetting worldwide, guarantee the **usual premium quality** while respecting nature and ensuring the well-being of the workers.

Rational procedures

Within the framework of group-wide certifications (ISO 9001, 14001), CERATIZIT has set up various recycling processes which convert used carbide tools into powder from which **new components can be manufactured – without loss of quality.** Thermal zinc recycling is used when tools have a high carbide content: carbide scrap is treated with very few chemicals, resulting in powder containing **over 99% of tungsten carbide in its original form;** metallic cobalt and other additives such as grain growth inhibitors also result from this process. – Chemical recycling is used when there is a low carbide content (including grinding sludge). This energy-efficient process dissolves metallic components and converts them into oxides **from which pure powder is obtained,** both tungsten metal and tungsten carbide, with cobalt resulting as a by-product.

United for a holistic perspective

We would like to invite you to become part of a cycle that makes sense in economic and ecological terms – **a completely certified carbide recycling process** that sets trends.

CERATIZIT provides quantity-specific collecting containers and arranges for them to be emptied free of charge. Efficient logistics, efficient preparation: a returns system that relieves you, protects the environment and optimises processes! – **Carbide tools become 'raw material'** for the production of new tools, making sustainability a reality.

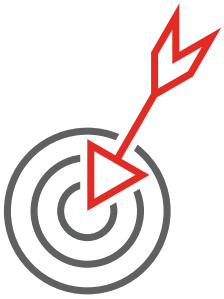
If you would like to know more, please send an e-mail to:

recycling@ceratizit.com



METALLE · Handel & Aufbereitung
STADLER
CERATIZIT GROUP

Your arguments in favour of hard materials



Advantages	Benefits
With CERATIZIT you can manage the **entire process chain** from the raw material to the ready-to-use tool.	**Customised results:** premium product quality, maximum process efficiency.
Hard materials: maximum hardness, highest fracture toughness.	Minimum wear, **maximum tool life**, reduced costs: increased productivity.
Broad portfolio, also non-magnetic carbide grades are available.	**Customer-specific products** for every application, maximum flexibility.
Carbide grades: high quality, tailored to customer's needs, continuous development, dedicated R&D centres.	**Fine-tuned selection and rapid development of new grades,** perfectly suited material, optimally adapted to application.
Optimised production process, continuously expanding and investing in new machines.	**Best price-performance ratio,** shorter lead time and ability to react to spikes in demand.
Certified product and process quality based on ISO 9001 and 14001 as well as OHSAS 18001; strict production and material controls.	**Faultless manufacturing** for your peace of mind.
Innovative strength and metallurgical expertise of the entire CERATIZIT Group.	**Optimisation of your application,** development of new solutions.
Technical support by skilled sales engineers with experience in can manufacturing.	A contact person for every challenge.
More than 50 company sites **worldwide.**	There is always an expert **at hand.**

Hard material grades for your success

We offer you a wide variety of grades adapted to all tools needed for can making. **Both standard and premium** grades are developed for your industrial can manufacturing:

▲ **Standard** grades refer to a **good compromise** between **toughness and wear resistance** for moderate impact conditions.

▲ **Premium grades offer higher wear resistance and tailored properties for can tooling to optimise lifetime.**

Our grades are in-house developed by CERATIZIT experts for your application performance optimisation. Innovation, rapid new development, quality assurance: everything from a single source, application-oriented at all times, permanently reliable.

Please note: **non-magnetic carbide grades** are also available!

Standard grades

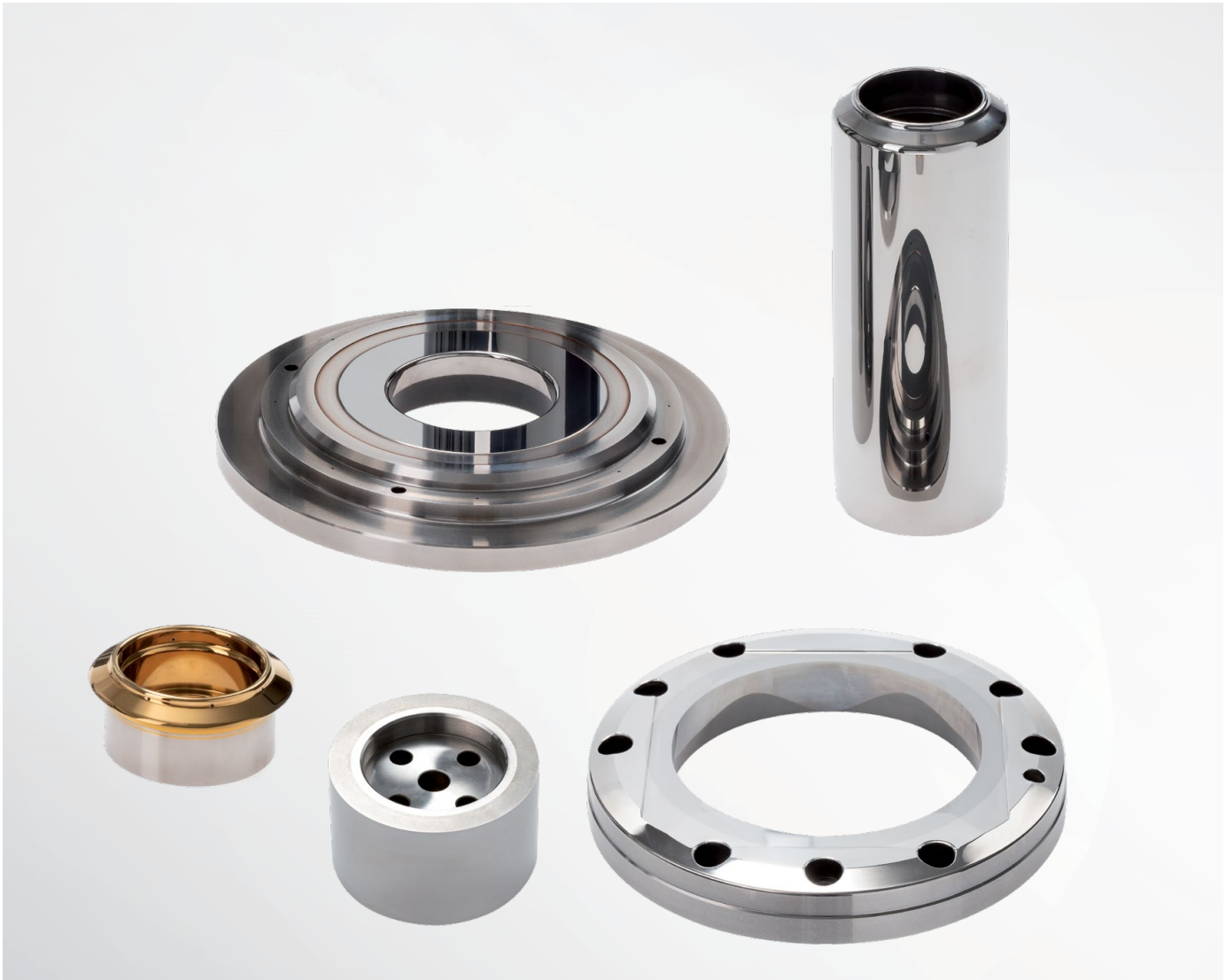
Grade	Binder [%]	Grain size [µm]	Density [g/cm³]	Hardness [HV30]	Hardness [HRA]	Transverse rupture strength [N/mm²]
ZG12	6.0 (Co)	0.8~1.0	14.83	1650	92.2	3200
ZG13	6.5 (Co)	2~3	14.90	1410	90.5	3200
ZG23	12 (Co)	1~2	14.30	1280	89.5	3340

Premium grades

Grade	Binder [%]	Grain size [µm]	Density [g/cm³]	Hardness [HV30]	Hardness [HRA]	Transverse rupture strength [N/mm²]
ZN24+	12 (Ni)	1~3	14.10	1200	88.3	2700
ZS06	3 (Co)	≤0.6	15.11	2110	94.5	2940
ZS12	6 (Co)	≤0.6	14.80	1830	93.2	3300
ZS16	8 (Co)	≤0.6	14.48	1890	93.5	3730
ZS20	10 (Co)	0.6~0.8	14.40	1510	91.3	4000
ZL22	11.2 (Co+Ni)	1.3~2.5	12.50	1460	90.9	2160
ZL30	70(Co+Ni+Ti+Other)	1.3-2.5	6.92	1550	91.6	1180
ZF19	9.5(Co+Ni)	0.6-0.8	14.35	1520	91.4	3530

A premium portfolio

As your partner for can making, CERATIZIT provides everything you need, from raw materials to high-precision finished tools. The complete state-of-the art product range includes the **cupper** (round and non-round), the **body maker** and the **necker tooling in tungsten carbide, ceramic and steel** for all your can production operations.

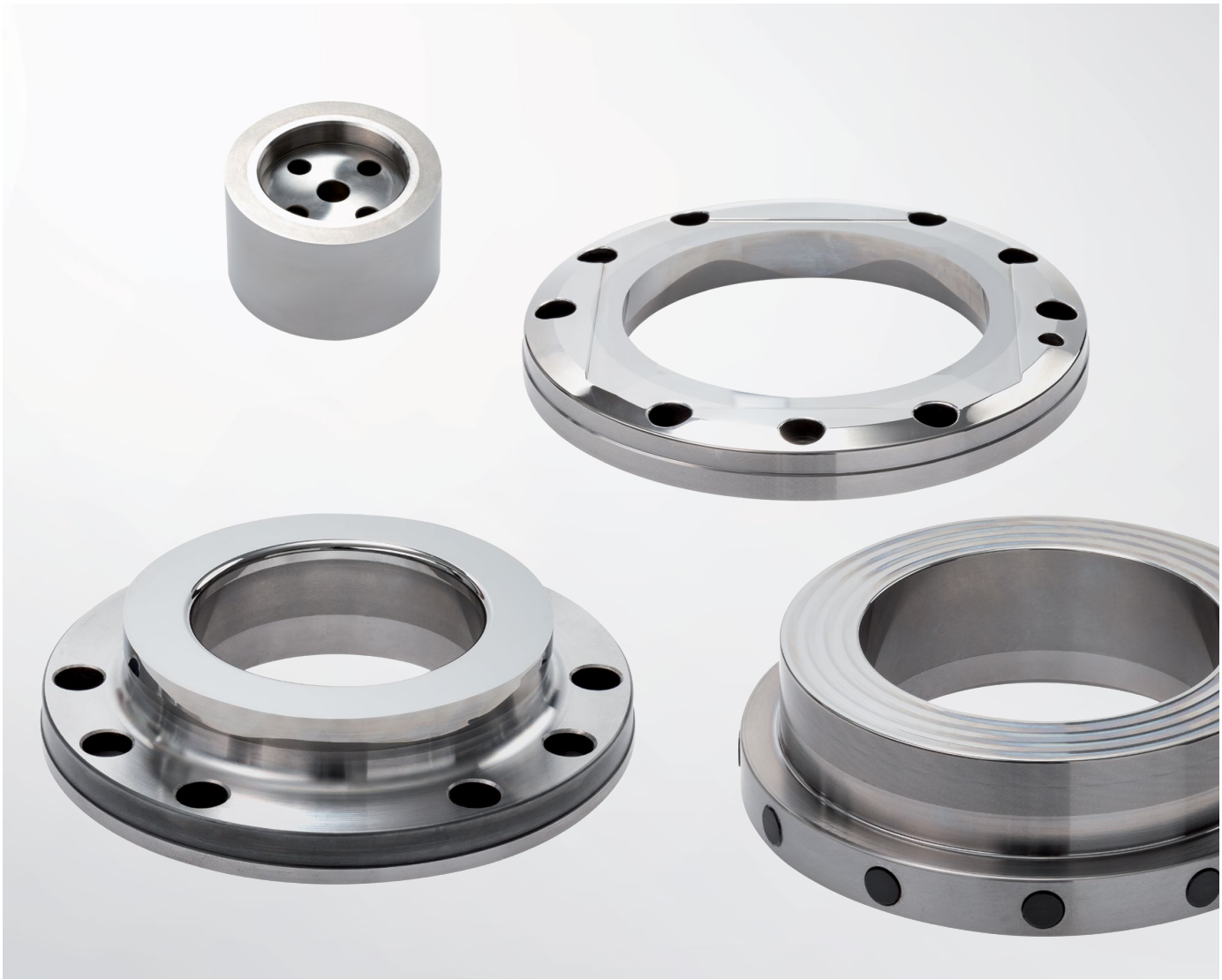


Cuppers: precisely reliable

The start of production is crucial for later success. So the **cupper tool** is particularly important, as it is at this stage that the cup or round plate is formed from the aluminium coil. Punching machines work at very high speed. Consequently, cupper tools must be very robust, hard and fracture-resistant in order to achieve the best possible results in the long term.

Besides long service life, which reduces production costs, **precision** is of the essence: accuracy at the start of production is indispensable if the coils are to be optimally utilised.

CERATIZIT offers the complete **cupper tooling set: die centers, draw pads, cut edge dies, and blank draw dies.**



Cemented carbide grade recommendations for cupper tooling

CERATIZIT offers the complete **cupper tooling set: die centers, draw pads, cut edge dies, and blank draw dies.**



Draw pad



Die center



Cut-edge die



Draw die

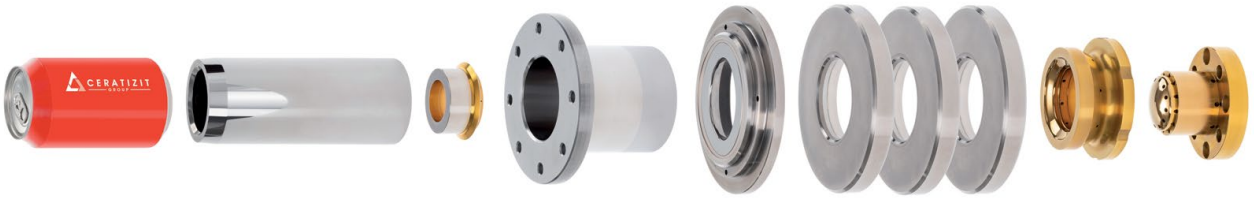
Line	Grade	Toughness	Abrasion resistance	Corrosion resistance
Standard	ZG23	▲▲▲	▲▲▲	▲▲
Premium	ZN24+	▲▲▲▲	▲▲	▲▲▲▲

▲▲ Fair
▲▲▲ Good
▲▲▲▲ Optimal

Body makers: reliable and wear-resistant

The body making is the critical process in the can production line. CERATIZIT offers **outstanding body maker punches** thanks to in-house developed cemented carbide grades.

Tools made of cemented carbide work reliably at the **highest production speeds,** ensure precision and product quality and at the same time provide maximum service life.





Cemented carbide grade recommendations for body maker tools



Ironing die / redraw die



Punch sleeve / punch sleeve integrated



Redraw sleeve / cup holder



Punch nose / dome plug / outer ring

Product	Line	Grade	Density [g/cm³]	Magnetic
Punch	Standard	ZG23	14.3	yes
Punch	Premium	ZN24+	14.1	no
Punch	Premium	ZL22	12.5 (± 15 % lighter)	yes
Punch	Premium	ZL30	6.92 (± 53% lighter)	yes
Punch	Premium	ZF19	14.35	yes

Product	Line	Grade	Toughness	Wear resistance	Corrosion resistance
Ironing die	Standard	ZG12	▲ ▲	▲ ▲ ▲ ▲	▲ ▲
Redraw die	Standard	ZS20	▲ ▲ ▲	▲ ▲ ▲	▲ ▲
Redraw sleeve	Premium	ZN24+	▲ ▲ ▲ ▲	▲ ▲	▲ ▲ ▲ ▲
Ironing die	Premium	ZS12	▲ ▲	▲ ▲ ▲ ▲	▲ ▲ ▲

▲ ▲ Fair
▲ ▲ ▲ Good
▲ ▲ ▲ ▲ Optimal

Neckers: made of steel, ceramic or cemented carbide

The upper part of the can is formed in the necker. This is a highly sensitive process. In order to avoid mistakes when the end product is almost complete, it is important to choose the right grade. **Ceramic is ideal,** although carbide grades are also used.

Hard material solutions from CERATIZIT meet your needs, as high-precision components which are manufactured to strict quality standards. **Leading necker tools,** for optimum profiles and custom-made production of two-piece cans.



Special materials for neckers



	Grade	Chemical Composition	Weight	Toughness	Wear resistance (abrasion, corrosion)
Steel	M2HSS	Fe+Cr+Mo+V	▲ ▲	▲ ▲ ▲	▲ ▲ ▲
Carbide	ZG23	WC+Co	▲ ▲ ▲	▲ ▲ ▲ ▲	▲ ▲
Zirconia (Yellow)	YZ-100 HS	ZrO_2+Y_2O_3	▲ ▲ ▲ ▲	▲ ▲	▲ ▲ ▲ ▲
Zirconia (White)	3Y-TZP	ZrO_2+Y_2O_3	▲ ▲ ▲ ▲	▲ ▲	▲ ▲ ▲ ▲

▲ ▲ Fair
▲ ▲ ▲ Good
▲ ▲ ▲ ▲ Optimal

3-piece tooling and aerosol

As your partner for the manufacture of 2-piece beverage cans, CERATIZIT is also able to provide a complete solution for all your 3-piece and aerosol tooling requirements.

CERATIZIT is your global key supplier for all your can making needs, providing innovative solutions from raw materials to high-precision ready-to-use tools.











Dedicated can tooling production and development centre

CERATIZIT has invested in a Central Competence Centre for Can Tooling, in order to meet customers' expectations in terms of reliable quality, short lead time and the rapid development of new grades. We also have the ability to respond swiftly to spikes in demand.



We manage the entire process chain



Mineral extraction

Preparation and mixing of the raw materials

Forming / pressing

Sintering



Surface treatment

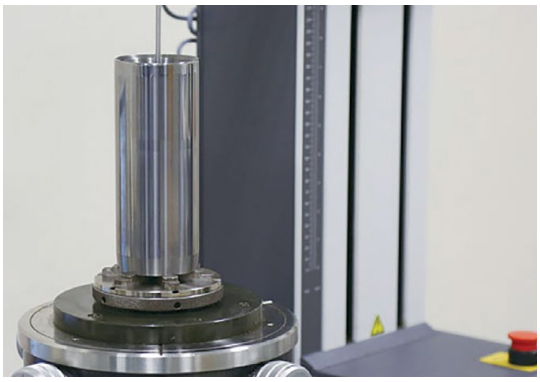
Quality assurance

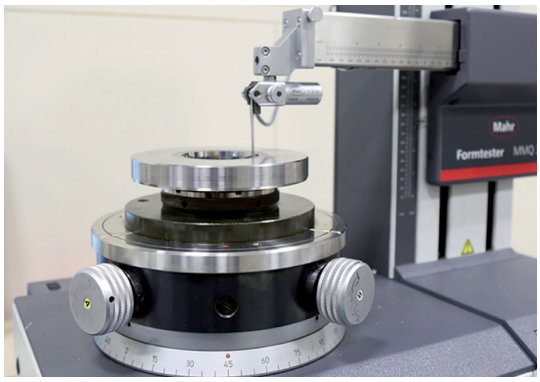
Dispatch

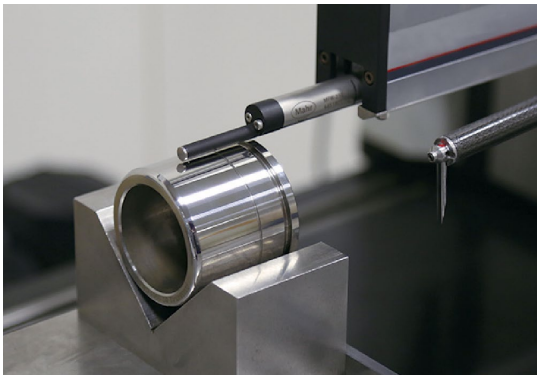
Recycling

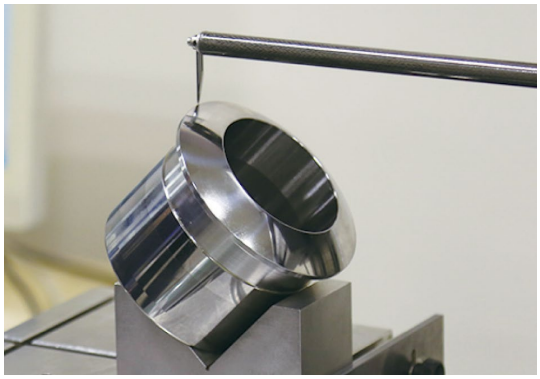
Quality inspection

CERATIZIT relies on top-quality inspection machines and methods to ensure that its can tooling operations meet the tightest tolerances and answer exactly to customer requirements.



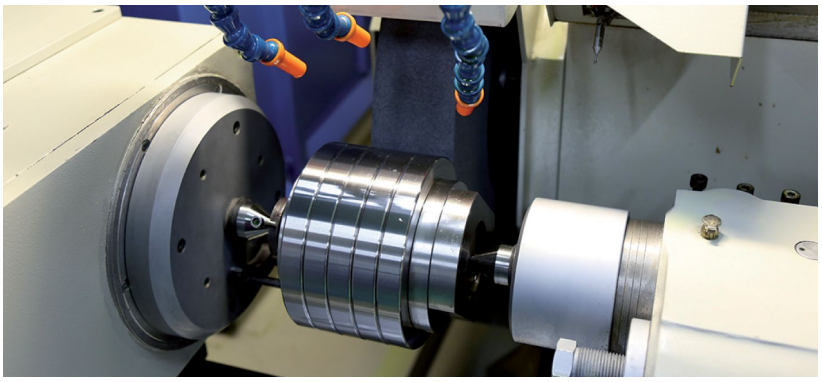


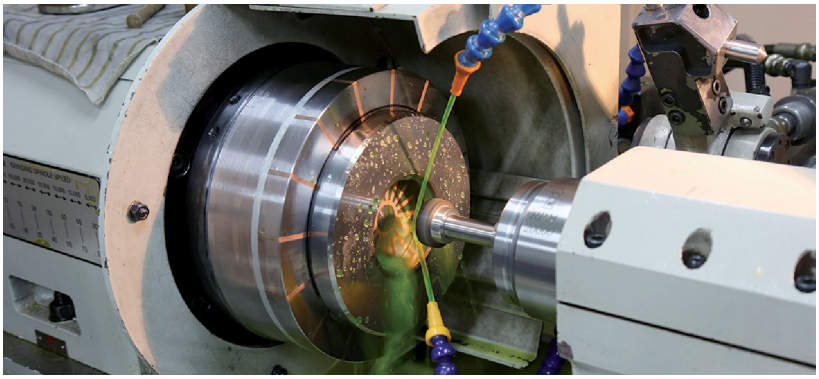




Production

CERATIZIT meets the most exacting standards, not allowing a single micron of deviation. A constantly upgraded high tech park, with state-of-the-art machines and optimised production processes, guarantees reliable and repeatable product manufacturing.





E-mail: cantooling@ceratizit.com

Hard Material Solutions

Hard cases are our speciality

We are your ideal partner when it comes to **high-quality hard materials for production processes, tool manufacturing and wear protection.**

From standard products to tailor-made solutions, from massive components to minute parts, from the blank to the fully finished product – a product that meets the highest standards of precision, surface treatment, and user-friendly assembly – our carbide solutions ensure improved efficiency and outstanding total cost of ownership.

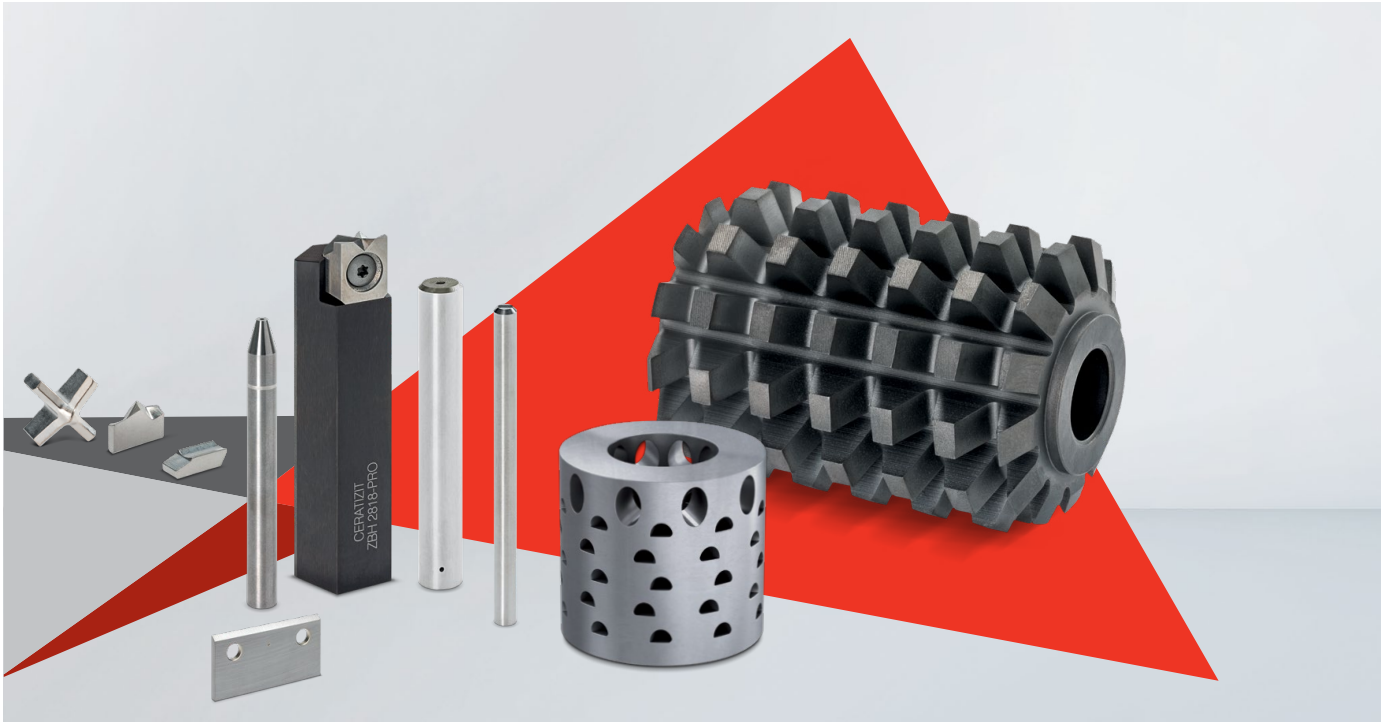
This is the case in a variety of application fields and industrial sectors. Even when subjected to extreme stress, our cemented carbides are notable for the high flexibility they offer in numerous industries. Our products are specially designed for extreme working conditions, making our Hard Material Solutions impressive tools for optimising your processes and increasing wear resistance.

Product portfolio

- ▲ Blanks and semi-finished products
- ▲ Water jet nozzles
- ▲ Blanks for hobs
- ▲ Drawing tools and drawing nibs

Solutions for:

- ▲ Tool and die industry
- ▲ Fastening industry
- ▲ Injection technology
- ▲ Health industry
- ▲ Plastics industry



CERATIZIT Group

For over 100 years, CERATIZIT has been a pioneer in developing exceptional hard material solutions for machining and wear protection. The private company, with registered offices in Mamer, Luxembourg, develops and produces highly specialised cutting tools, indexable inserts, rods made from hard materials and wear parts.

The CERATIZIT Group is the global market leader in various application segments and successfully develops new carbide and cermet grades, such as for wood and stone working.

Facts & figures

Headquarters

Mamer, **Luxembourg**

30 production sites

30 % of products developed in the last 5 years

2 00 R&D employees

80 countries in which we are active

7 000 employees

25 innovation awards

1 000 patents & utility models

1 00 000 products

€ 1.5 bn turnover

Headquarters

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Sales site

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We reserve the right to make technical changes for improvement of the product.

CERATIZIT GROUP

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Print product
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