

# Premium products for the oil and gas industry



CERATIZIT is a high-tech engineering group specialised in tooling and hard material technologies.

**Tooling the Future**

[www.ceratitis.com](http://www.ceratitis.com)



Dr Michael Droschel,  
Product Manager

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



# Carbide products for the most demanding requirements in oil and gas

If you are using carbide in the oil and gas industry, if you want to improve the performance of your steel components ... **or if you are in search for the best individual solution for you** – then Hard Material Solutions by CERATIZIT offers you optimal standard or tailor-made carbide blanks, as well as finished products for the most demanding requirements in terms of geometry and grades.

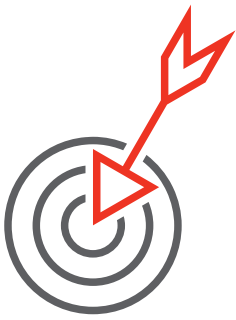
Created by a pioneer with over 95 years of experience in carbide manufacturing, and systematically developed by a technology leader who manages **the entire process chain of cemented carbide production**, from the raw material to the premium blanks or finished products – CERATIZIT's unique hard material quality is appreciated by customers, resulting in more efficient processes while increasing productivity and added value.

## Premium carbide solutions

Your wish is our guideline: let us know your requirements, and CERATIZIT will deliver – always under the premise of **strict confidentiality!** At company headquarters in Mamer, Luxembourg, as well as in our subsidiaries and at our joint-venture CB CERATIZIT, based in Asia, our dedicated expert team for oil and gas applications will support you in developing your solution.

CERATIZIT covers the most demanding carbide geometries, **with diameters up to 610 mm and heights up to 500 mm**. We also develop corrosion-resistant grades specifically for use with oil and gas applications. Internationally renowned brands benefit from our customer-specific and standard solutions.





# Advantages & benefits

The all-round package with no worries: from the blank to the high added value finished assembly, we have been your premium partner for more than 95 years.

## Advantages

Highly qualified employees, numerous manufacturing possibilities, up-to-date manufacturing facilities (sinter furnaces, presses, CNC machines)

Flexible production planning with efficient data interchange

Thanks to CERATIZIT you can manage the entire process chain, from the raw material to the finished product

Carbide grades with an optimal ratio of hardness and fracture toughness

Broad selection, also for proven corrosion-resistant carbide grades

Technical advice on site: our people have the technical knowledge to support you

More than 70 company locations worldwide

Global footprint, with worldwide production sites, including Asia with our joint venture CB CERATIZIT

Certified product and process quality to DIN EN ISO 9001:2000 and ISO 14001

## Benefits

Customised production of the most complex geometries and large dimensions; our production line allows for diameters up to 610 mm and heights up to 500 mm

Short delivery times – no matter how demanding

Excellent product quality precisely adapted to your needs, maximum process reliability and holistic expertise

Minimal wear and long service life and reduced costs mean higher productivity

Always the right individual solution for every application

Support for every challenge and innovation, rapid response when needed

There is always a contact person nearby.

Optimal and flexible offer according to your needs

Optimal reliability for your production

# Certification

As a specialist in hard material technology, CERATIZIT is the development partner of experts in the field of high-tech components, offering products and services that stand out on an international scale of comparison.

As one of the leading carbide producers worldwide, CERATIZIT is able to fulfil most

of the standards required for the oil and gas industry upon request (e.g. ASTM E165 for Liquid Penetrant Examination).

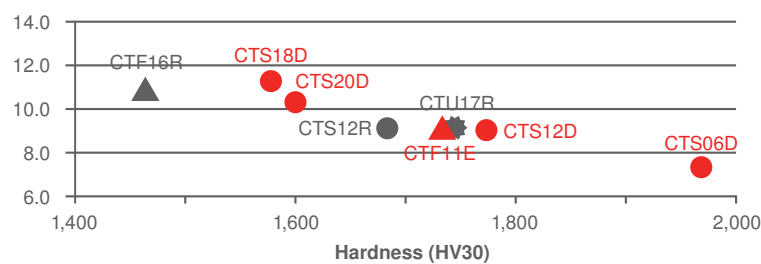


Our ISO 9001 certification confirms that we comply with the strict technical specifications you require from suppliers.

# Our grades

Type	Grade code	Binder (in%)	Grain size	Hardness HV10	Hardness HV30	HRA	TRS Mpa	Fracture toughness Mpa*m1/2	Preferred application	Secondary application
<b>Cobalt binder grade</b>	CTS18D	9	0.5- < 0.8	1610	1590	91,9	3800	11	Toughness	Corrosion
	CTS20D	10	0.5- < 0.8	1620	1600	91,9	4000	10,4	Toughness	Corrosion
	CTF11E	5,6	0.8- < 1.3	1760	1730	92,7	2150	9,2	Erosion	Toughness
	CTS12D	6	0.5- < 0.8	1800	1770	92,9	3700	8,8	Erosion	Corrosion
	CTS06D	3	0.5- < 0.8	2020	1980	93,9	3300	7,3	Erosion	Corrosion
<b>Nickel binder grade</b>	CTF16R	8	0.8- < 1.3	1480	1460	90,9	2900	11,4	Corrosion	Toughness
	CTS12R	6	0.5- < 0.8	1720	1690	92,5	2700	7,5	Corrosion	Erosion
	CTU17R	8,5	0.2- < 0.5	1760	1730	92,7	2500	8	Corrosion	Erosion

Fracture toughness K1C (mPa.m1/2)



Legend 1

- Submicron
- △ Fine
- ⚙ Ultrafine

Legend 2

- ▶ Nickel binder
- ▶ Cobalt binder grade

# Product examples for the drilling industry at a glance

## Choke valves

Available in corrosion & erosion resistant grades for the most demanding applications.



## Highly engineered products for drilling control



## Your partner to find the most suitable solution

At CERATIZIT, we aim to treat our customers as privileged partners and guide them in developing new products or improving existing ones.

Thanks to our engineering expertise and project management capacities, we can design innovative carbide solutions to meet the specific requirements of your product.

CERATIZIT's supreme experience of working with carbide, production experts on the ground and our dedicated engineering team are the guarantee of your future success!

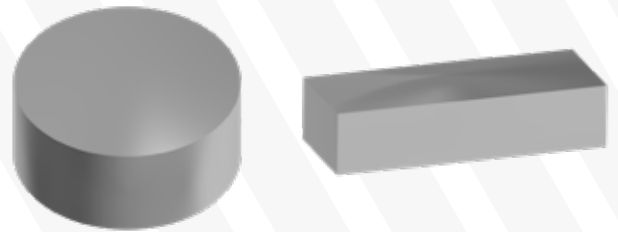
### Mud nozzles for drill heads

Thread available as sintered or ground, special forms available upon request



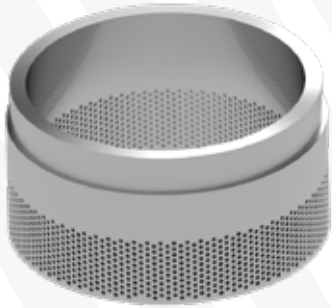
### Stabiliser inserts – wear protection for downhole tools

Various design features and grades are available. Coating can be offered to facilitate brazing operations.



# Product examples for flow control upstream at a glance

**Cages**



**Pistons**



**Seat rings**



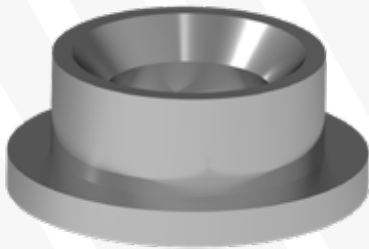
Please note: Hard Materials Solutions by CERATIZIT offers you tailor-made carbide components for valves up to a diameter of 610 mm and a length of 500 mm.

We can provide you with the most extreme carbide geometries to fulfil high tech valve requirements, in extremely durable carbide grades.

Please note: disc stacks (silencer trims) are available upon request.

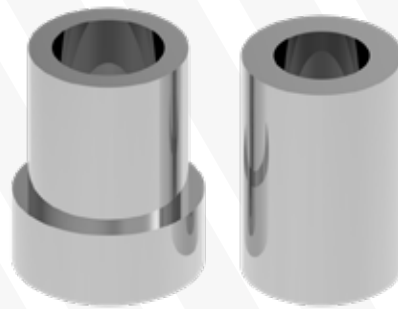


### Seal rings

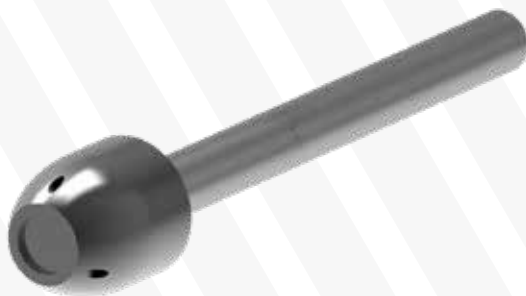


Please note: CERATIZIT offers a wide range of geometries to meet the most stringent surface finish requirements, guaranteeing you excellent performance.

### Bearings & bushes



**Highly engineered steel / carbide assemblies made of corrosion-resistant special steels and carbide**



Please note: the product shown above is an assembly of carbide and steel. This method is available for other products on request.

**Fully finished cage assemblies to your customised design & material specifications**



CERATIZIT provides various material combinations, e.g. stainless steel, alloyed steel or Inconel with carbide. Our engineering team is happy to support you in planning your solutions.

# Hard Material Solutions by CERATIZIT

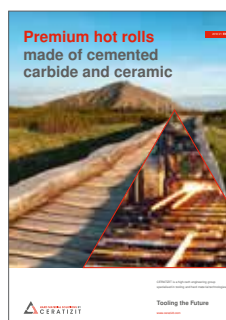
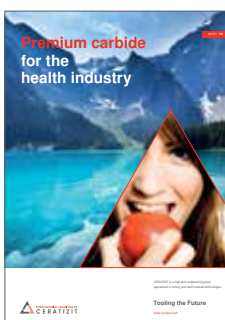
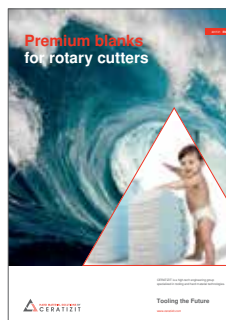
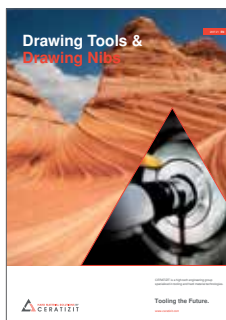
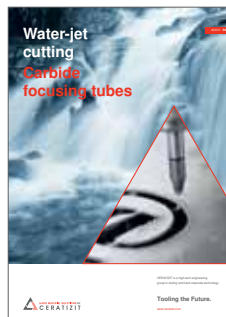
wear protection for all applications  
and industries

▲ Individual carbide solutions for your application

▲ Tools for metal forming

▲ High-performance components for tool construction

## Extract from our product portfolio



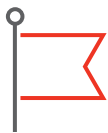
# The CERATIZIT Group

For over **95 years**, CERATIZIT has been a pioneer developing exceptional hard material products for cutting tools and wear protection.

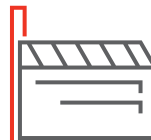
The privately owned company, based in Mamer, Luxembourg, develops and manufactures highly specialised carbide cutting tools, inserts and rods made of hard materials as well as wear parts.

The CERATIZIT Group is the **global market leader** in several wear part application areas, and successfully develops new types of cemented carbide, cermet and ceramic grades which are used for instance in the wood, metal and stone working industries.

## Facts and figures



**1 headquarters**  
Mamer / Luxembourg



**34**  
production sites



**> 70**  
sales subsidiaries



**> 9,000**  
employees



**> 100,000**  
different products



**> 1,000**  
patents and utility models



**> 200**  
employees in R&D



**> 10**  
innovation awards



**> 30%**  
of products developed  
in the last 5 years

## Headquarters

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