NKMZ
Central Europe

PRODUCTS

CATALOGUE

Carbide Rolls & Rings

About Us

Our company NKMZ Central Europe s.r.o. was founded in Czech Republic in 2015 and for many years was an official representative of NKMZ, Ukraine. We delivered mining equipment, mill rolls and parts for metallurgical machinery for European corporations and plants, as well as companies of CIS countries.

We established strong business ties with following companies: ArcelorMittal, Riva Group, Lech Stahl, SAAR Stahl, BSW, Salzgitter, Alhemia, Cognor and many others.

Starting from 2022, NKMZ Central Europe s.r.o. has been sucessfully developing a new avenue of producing and delivering mining equipment, cast and forged rolls, parts for metallurgical equipment. This is based on efficient usage of engineering and technological knowledge, amassed during 85 years of production as a part of NKMZ.

We established several production facilities in China, Romania, Bulgaria and purchased manufacturing capacities in Germany.

Furthemore, an independent department was created in China, which oversees strict adherence to all technological norms and processes.

Within the scope of this new project, our company works with the best design and engineering personnel, who ensure product's operational capabilities and strict adherence to the specified needs of our customers.

We are very familiar with the technical and quality requirements for all further listed mining equipment. Additionally, we possess all relevant documentation, as well as technological know-how required for production and delivery to all types of customers.

Furthermore, we are ready to produce a wide spectrum of spare parts for different types of machinery, such as crushers, mills, hoisting machinery and excavators according to the our own designs, or the ones provided to us by the customer.

A strict and comprehensive quality control system was established, in order to follow the best practices and adhere to all technological requirements.

We are interested in establishing contact and discussing cooperation opportunities with the customers of our region. Contact information can be found on the last page of this brochure.

TECHNICAL EQUIPMENT

- **Raw material**
  Produced by APT from tungsten carbide powder.
- **Screened & classified**
  Powder is screened by a vibrating screen and classified afterwards.
- **Ball milling & mixxing**
  Carbon black and other additives are mixxed and ball milled together.
- **High quality TC powder**
  Quality powder is added to the intermediate frequency carbonization furnace.
- **Forming powder**
  WC powder, cobalt powder and others elements are fomulated in good proportions.
- **Press & burning**
  Powder is press molded with a hydraulic press and burned into thr roll roughcast.
- **Finish machine**
  Through flat grinding, internal hole grinding and cylindrical grinding the ring shape is formed.

CEMENTED CARBON ROLL RINGS

Cemennted carbide roll rings (also known as tungsten carbide roll rings) possess good thermal conduction property. Compared with other materials, it is much better in terms of heat resistance, wear-resistance and strength. On top of that, its hardness reduces a little under the condition of high temperature. So, the cemented carbide roll rings is invented with the appearance of a high-speed wire rod mill. It is widely applied in the production of high-speed wires, bars and deformed steel bars.

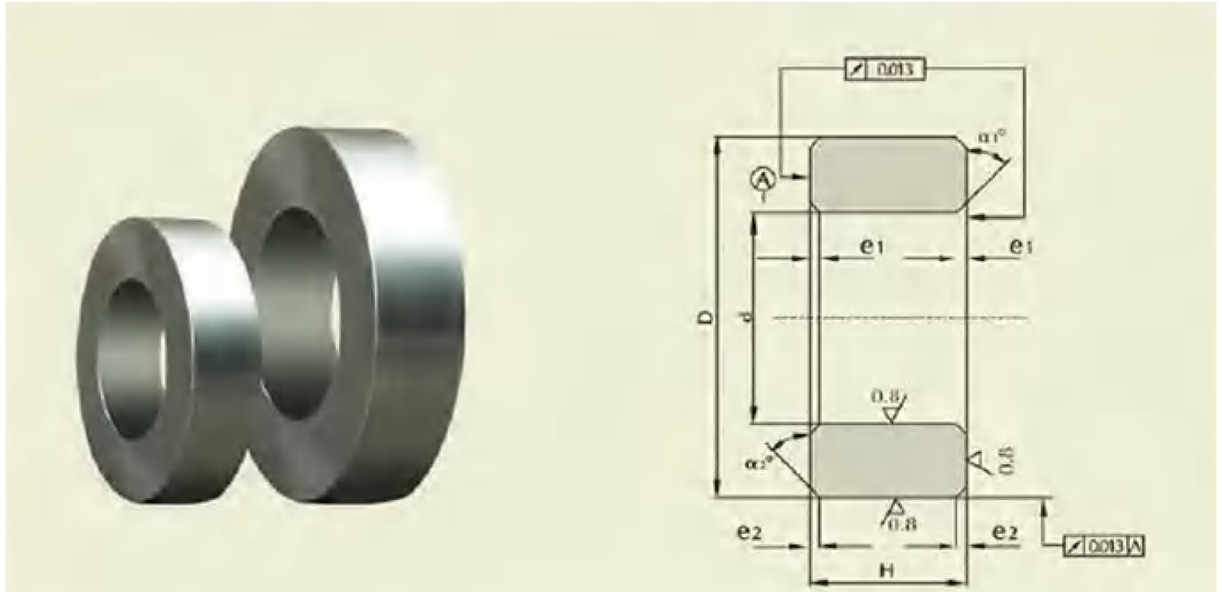
As far as the material for our products, there are two series as Wc-Co and Wc-Co-Ni-Cr, which possess good comprehensive mechanical property. The bedning strength and impact toughness reach 2400 Mpa and (4-6)x106 J/m2 respectively. Its hardness and wear resistance come from tungsten carbide (Wc), while the toughness and strength depend on the binding agent (Co-Ni-Cr).

At present, the finishing mill is generally composed of 8-10 stands. Because of the big size of the fracture surface of the rolled part, the collar on the front stands of the finishing mill may resist heavy duty and strong impact. Thus, the high hardness and good thermal fatigue resistance are the primary factors, which are prior to wear-resistance. While there is low load and impact for the rear stands, we shall pay more attention to the wear-resistance and thermal fatigue of roll rings.

This brochure describes the grades and properties of our cemented rolls & rings in detail, so that You can make a correct and informed choice.

External diameter (mm)	Inner diameter (mm)	Height (mm)
100-500	50-380	20-250

DIMENSIONS & PRECISION OF FINISHED ROLL RINGS



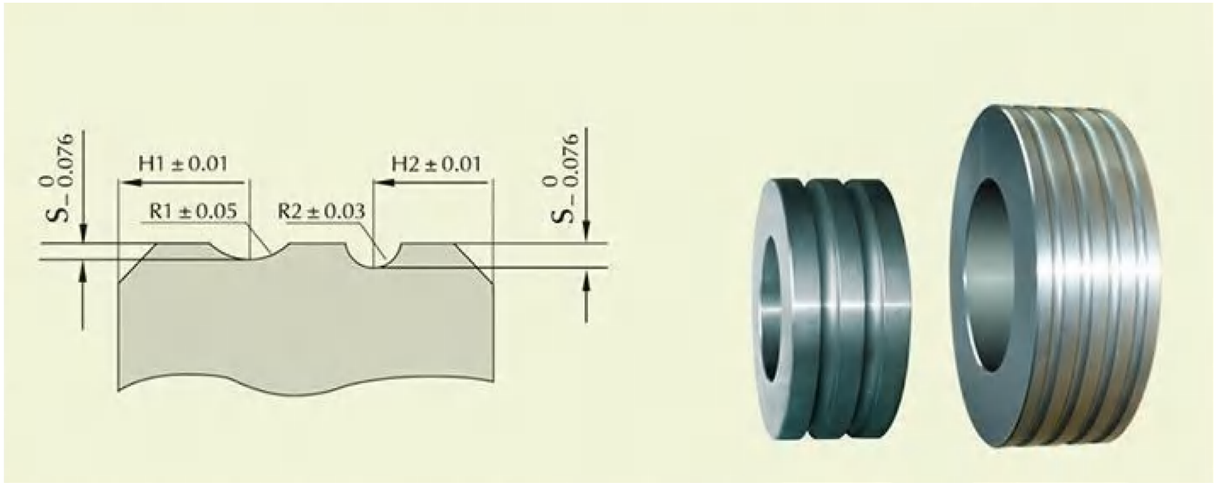
Tolerances allowed for the O.D.,I and height of roll rings

Precision class	External diameter ≤ 200mm		External diameter ≥ 200mm		
	Better	Ordinary	Better	Ordinary	
Out diameter	± 0.02	± 0.05	± 0.03	± 0.05	Special requirements
Inner diameter	+ 0.020 0	+ 0.035 0	+ 0.025 0	+ 0.050 0	
Height	± 0.025	± 0.10	± 0.05	± 0.10	

TECHNICAL SPECIFICATIONS OF CARBIDE ROLL RINGS

The allowable deviation of carbide roll rings

- Radial runout of groove ≤ 0.013mm
- Radial runout of periphery ≤ 0.013mm
- End face runout ≤ 0.02mm
- End face planeness ≤ 0.01mm
- End face parallelism ≤ 0.01mm
- Inner hole cylendricity ≤ 0.01mm

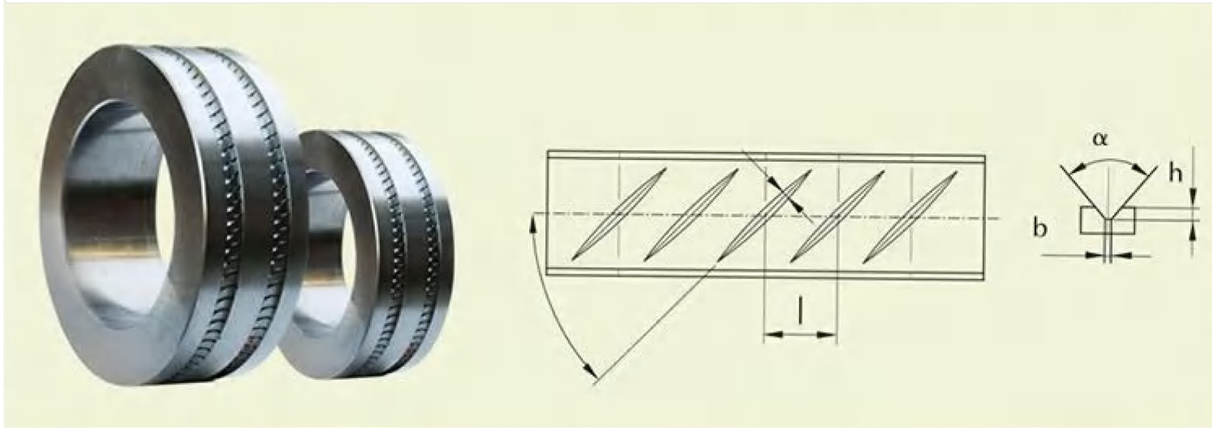


Roughness of carbide rolls

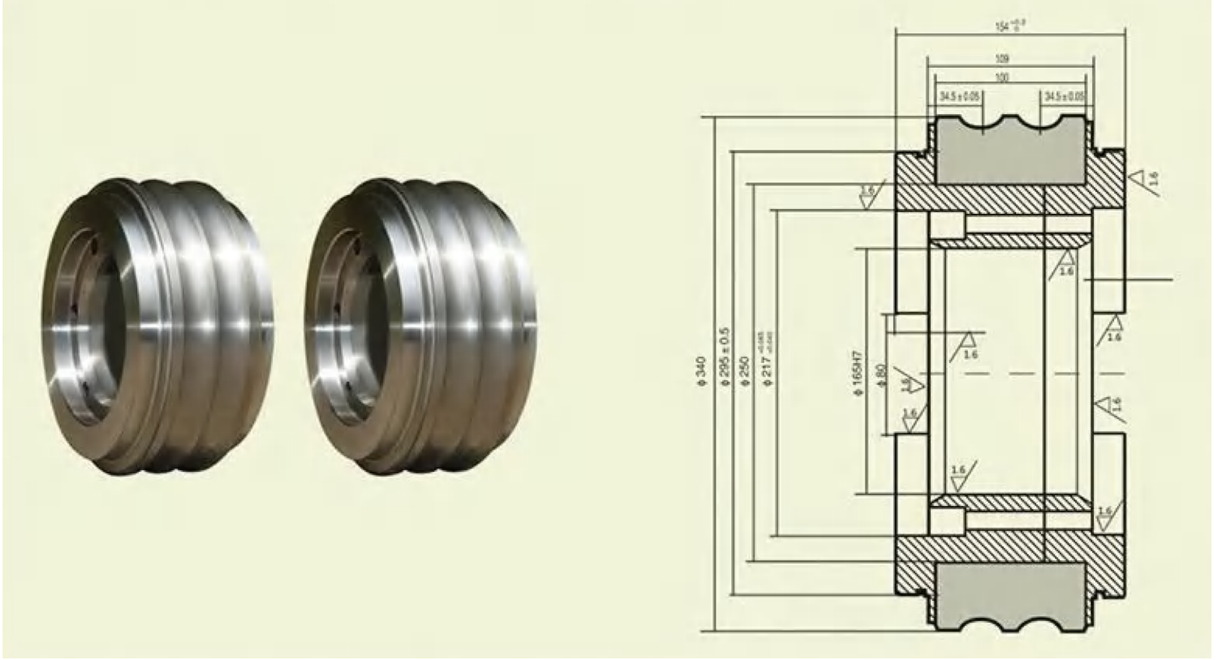
- Inner hole roughness 0.4 μm
- Periphery roughness 0.8 μm
- End face roughness 0.4 μm

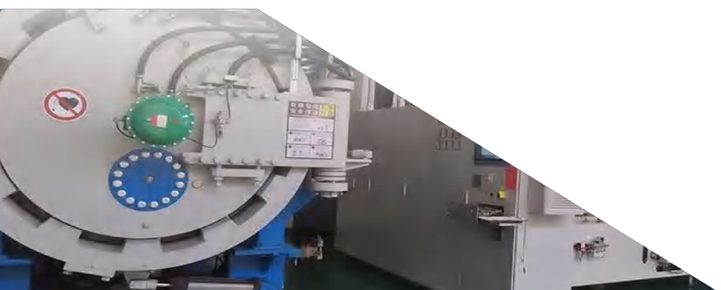
Note: The allowable deviation in external diameter, internal diameter and height is to be determined based on customer's needs.

Roll rings for high speed rolling of ribbed steel bars



Composite cemented carbide roll rings

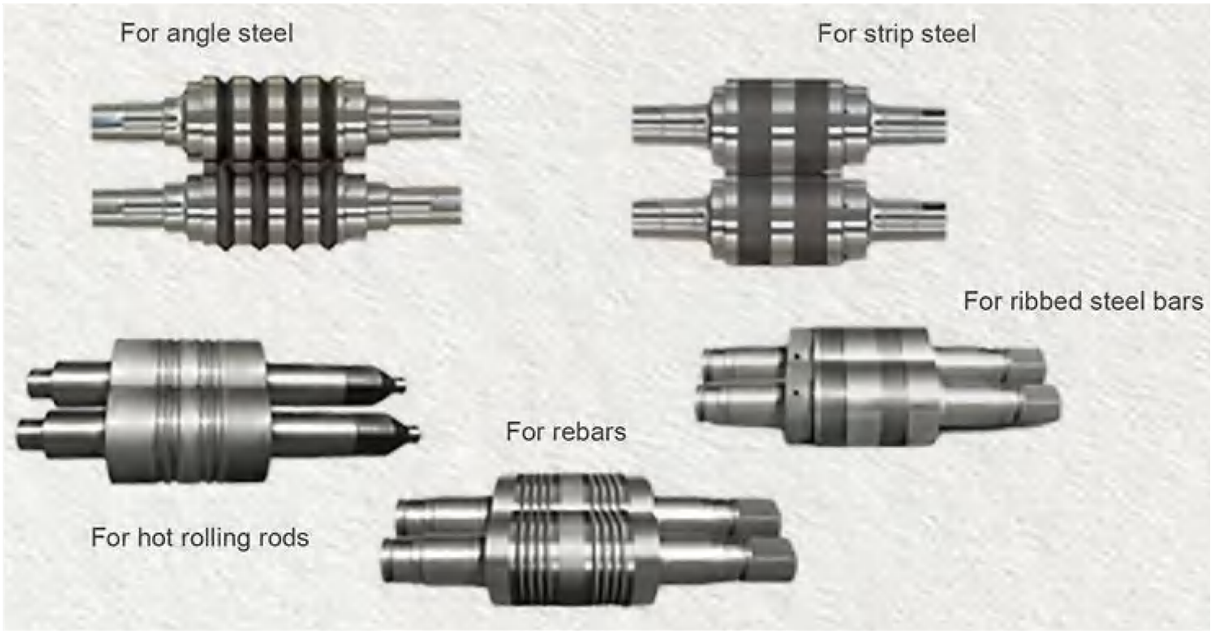




CEMENTED CARBIDE COMPOSITE ROLLS

The cemented carbide composite rolls are mainly used on the finishing mill for bars, deformed steel bars and common wires. In this way, we can greatly reduce the frequency of changing groove and roll, thus to reduce the labor intencity and improve the work efficiency. The surface quality and yield shall be improved to a maximum degree, which leads to a remarkable economic benefit.

Our cemented carbide composite rolls adopt a special grade of cemented carbide. By the meands of hydraulic lock nut, the cemented cabride roll rings is fastened to the axle with the axial pressure of 200Mpafrom hydraulic oil. Under the protection of prestress, the cemented carbide roll works more effectively.



In accordance with the production line and rolling technology of customers, our products are designed to match one-strand rolling, two-slitting rolling, three-slitting rolling and four-slitting rolling. The cemented carbide composite roll includes K1 finished roller, K2 leder roller, K4 pre-slitting roller, K3 slitting roller with high-speed steel as material. The rolling varieties include wires, bars and deformed steel bars.

We can effectively reduce the frequency of changing rollers and increase the yield after using cemented carbide composite roll. The rolling products possess the features of good surface quality, small deformation, negative tolerances and high yield.

Grades and related parameters of cemented carbide rolls

Grade	Chemical composition		Physical mechanical properties		
	Wc	Co/Ni/Cr	Density (± 0.15) g/cm³	Hardness (± 0.5) HRA	Bending strength ≥N/mm²
CE20F	80	20	13.5	82.5	2650
CE22F	78	22	13.3	82.0	2600
CE25F	75	25	13.1	80.5	2550
CE30F	70	30	12.6	79.5	2450
CE32F	68	32	12.5	79.0	2400

Rolling technology for hot-rolled bar and deformed steel bar

Name	Single rolling	2 slit rolling	3 slit rolling	4 slit rolling
K4 Group				
K3 Group				
K2 Group				
K1 Group				

NKMZ
Central Europe

CONTACT INFORMATION

Office in Czech Republic:
Jindrisska 941/24
Nove Mesto, 110 00 Praha 1
Czech Republic
Phone: +420 222 232 287
e-mail: info@nkmz-ce.com

Office in Germany:
Berliner Straße , 78
02943, Weißwasser
Germany
Phone: +493 514 977 2001
e-mail: buro@nkmz-ce.com

Office in China:
Pudong Nan Road 1709
1101 Pasific Plaza 200120
Pudong, Shanghai
Phone: +8613611872168
e-mail: china@nkmz-ce.com

Office in United Kingdom:
e-mail: uk@nkmz-ce.com