

JUDISC

BRAKE DISC GRINDING



INNOVATIVE AND UNIQUE PROCESS



Alongside tire wear and the combustion of fossil fuels, brake abrasion contributes to the high particulate pollution caused by vehicles with combustion engines and electric or hybrid drives. Drastically tight limits were defined as part of the Euro 7 regulations. And the automotive industry needs innovative technical solutions to reduce this contamination.

A series process, in which laser cladding provides brake discs with high-quality corrosion protection and a wear-resistant hard coating, is now available to reduce brake-related particulate emissions. This innovative hard coating process leads to high-quality anti-corrosion and wear-resistance. Friction between brake disc and brake pads is reduced by perfectly aligning hard coated layers and brake pads. Brake performance increases and wear is reduced what results in less particulate pollution resulting from the brake system.

CIRCUMFERENTIAL GRINDING

JUNKER offers brake disc coating and grinding innovations, allowing optimum friction pairing and reduced particulate emissions. During the grinding process, the brake disc is simultaneously ground on its parallel sides with two opposing grinding wheels.

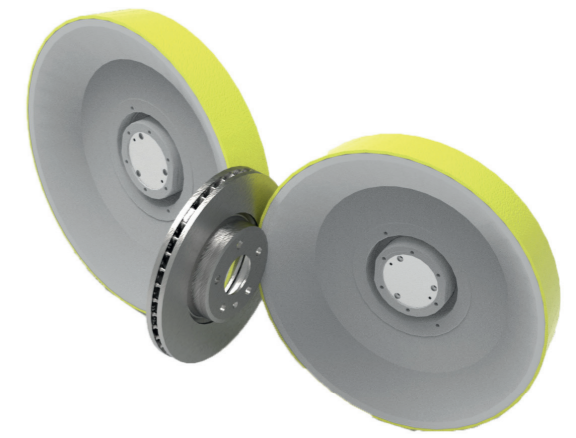
This state-of-the-art manufacturing process achieves perfect flatness and precise axial runout, and the coating thickness deviation is significantly reduced. Another advantage are the fast processing speeds, which guarantee high productivity.

Years of grinding experience ensure a homogeneous and mirrored surface of the friction rings, with precise axial run-out, minimal thickness deviations (DTV) and perfect parallelism.

WORKPIECE

The brake disk consists of a coating from hard material carbides and stainless steel components and usually has a layer thickness of 150 - 300µm per side.

The rough coating surface is ground on both braking surfaces simultaneously and the required geometries of both friction ring surfaces are created during the circumferential grinding process.



COATING SYSTEM

On request, the JUNKER Group is able to offer a turnkey solution in form of a complete production line, consistent of grinding machine, periphery, automation and coating system.

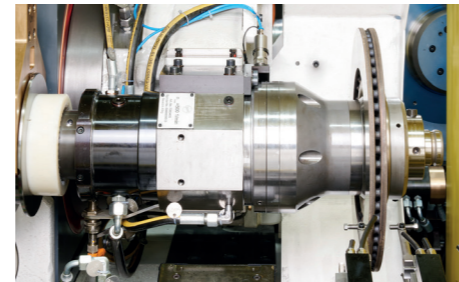
HIGHLIGHTS

- JUNKER grinding machine for hard-coated brake discs
- Innovative and unique grinding process
- Highly reduced retooling costs
- High productivity
- Low operating costs
- Fast Processing speeds
- Optimal material utilization

EQUIPMENT AND OPTIONS

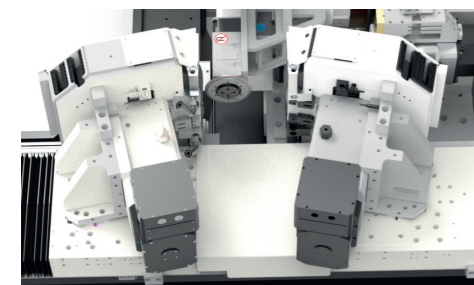
ZERO-POINT CLAMPING SYSTEM

The zero-point clamping system is quick, easy to handle and flexible. Maximum clamping precision of the brake disc is achieved with the pull-in function of the zero-point clamping system that guarantees optimum clamping force and maximum precision for every brake disc model. The ingenious accessory philosophy reduces set-up times to a minimum.



MACHINE BASE

The mineral cast machine bed construction of the JUDISC impresses with its dampening behavior and its rigidity. Thermal stability of the machine bed easily compensates variations in ambient temperature and ensures high dimensional stability throughout the day. The L-shape of the machine base offers good accessibility for changing grinding wheels.



GRINDING SPINDLE

The two 30 kW grinding spindles are equipped with infinite variable speed control, precise roller bearings and a ball screw spindles directly driven by a servo motor ensure efficient production.



LOADING SYSTEM

JUNKER offers various loading systems depending on customer requirements. The JUDISC part exchange can be done easily thru an external robot that exchanges the brake disc directly to the loading/unloading side of the work piece swivel unit with low to non impact of productive times.

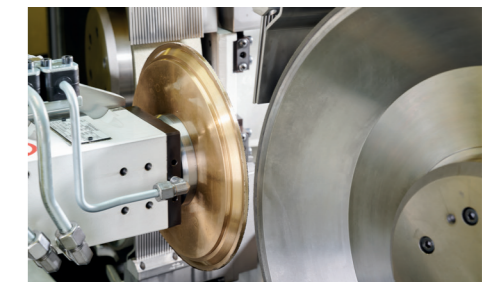
MEASURING SYSTEM

The measuring system is mounted in the loading and unloading area and measures diameters and radial tracks on the two friction rings. Pre-process measurements determine the target values for grinding and check for correct work piece clamping. All measurements takes place during the grinding time and are therefore cycle-time neutral. Correction and compensation of the grinding process is done automatically.



DRESSING UNIT

The dressing system is mounted on the work piece swivel unit and achieves precise concentricity and the correct geometry. Its location is ideal and guarantees fast swivel-in and dressing.



CONTROL

The Erwin JUNKER Operator Panel was specially developed to operate grinding machines. All machine components are controlled thru the operator panel. Design is identical with other JUNKER products. Menu navigation and visualization of the work piece geometry are simple and make operation extremely user-friendly and flexible. Programming is carried out directly on the control panel or thru an external office programming tool.



LTA AIR FILTER

Exhaust air purification systems can be installed upon request. LTA Lufttechnik GmbH is a competent partner for air filtration solutions. The company belongs to the JUNKER Group and researches, develops and produces filtration systems for industrial air purification.

TECHNICAL DATA

PLATFORM	
Grinding wheel diameter	500 mm
Workpiece diameter	up to 500 mm
Workpiece weight	up to 30 kg
Spindle performance	up to 30 kW
W x D x H mm (Peripherie excluded)	4.440 x 2.400 x 2.320
Weight	10.000 kg
Abrasive material	Diamond
Control	Fanuc

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