

SATURN

DOUBLE-WHEEL SURFACE GRINDING



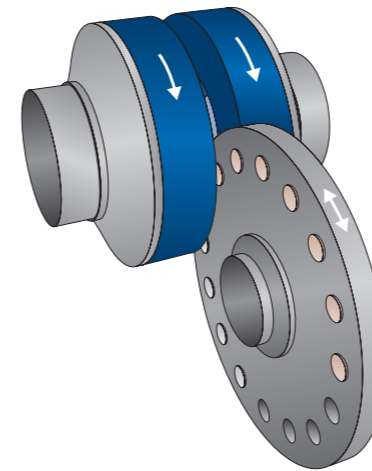
DOUBLE SURFACE GRINDING



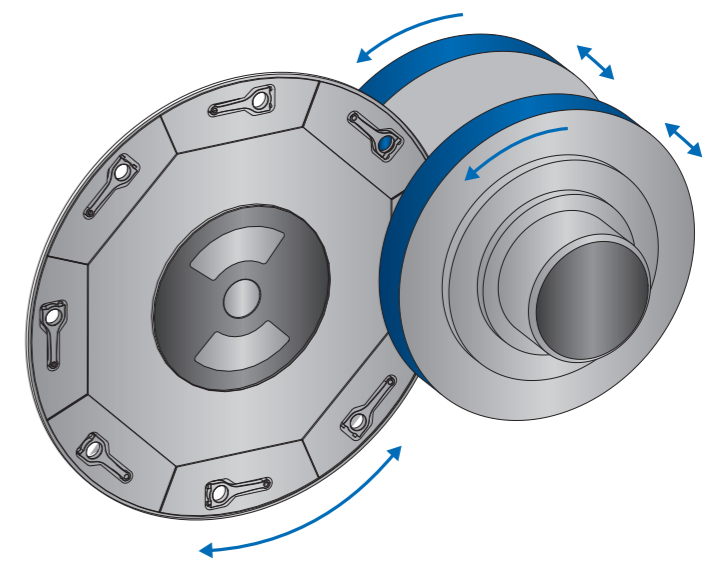
With SATURN double-wheel surface grinding, two vertical grinding wheels grind the workpiece simultaneously at its parallel end faces. With the through-feed grinding process, the grinding wheels are positioned slightly conically to each other so that the workpiece guided through the grinding zone has not reached its final dimension until it exits.

With SATURN plunge-cut grinding, the grinding wheels are arranged exactly parallel to each other. The workpiece carrier turns continuously at low speed. Both grinding wheels feed simultaneously until the final dimension is reached. Then the finish-ground workpiece is unloaded.

THROUGH-FEED GRINDING PROCESS



PLUNGE-CUT GRINDING PROCESS



APPLICATIONS

- Connecting rod
- Rolling elements
- Roller bearing rings
- Rollers
- Cages
- Individual cams
- Gearwheels
- Anchor plate
- Piston parts
- Valves
- Journal crosses

HIGHLIGHTS

- High output
- Automatic loading and unloading
- Automatic measurement control
- Long workpiece service life
- Emulsion or oil as cooling lubricant
- Simple grinding wheel change
- Machine bed made of cast mineral
- Automatic type detection

EQUIPMENT AND OPTIONS

CONTROL SYSTEM

The Erwin Junker Operator Panel was specifically developed to control grinding machines. All machine components are controlled via the operator panel. The identical structure, simple menu guidance and visualization of the workpiece geometry make for extreme user convenience and flexibility in operation. Programming takes place directly using the operator panel or an external programming tool.

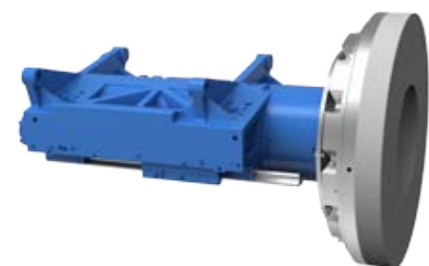


MACHINE BED

The machine bed of the SATURN 660 is designed in gray cast iron. The cast mineral machine bed of the SATURN 915 impresses with its damping behavior and its torsional rigidity. Fluctuations in the ambient temperature can be effortlessly compensated with the thermal stability. This ensures a high level of dimensional stability throughout the whole day.

WHEELHEAD

The extremely robust and inherently rigid wheelheads of the SATURN are guided in pre-clamped recirculating roller bearings, while the X-feed is carried out CNC-controlled via high-precision ball screws and servo drives with glass scales. Swiveling and inclination of the grinding wheels are adjusted manually during setup. This can also be realized with NC adjustment as an option.



GRINDING SPINDLE

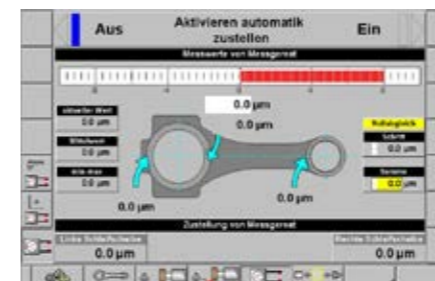
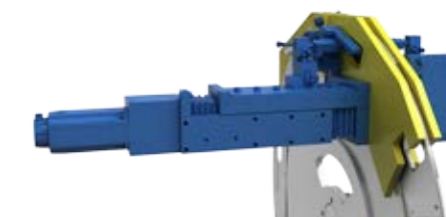
- 2 x 30 kW grinding spindle drive
- Stepless control of the peripheral speed from 15 m/s to 80 m/s (SATURN 660)
- Precise roller bearing
- Coolant feed through hollow grinding spindle
- Feeding via ball screw, servo drive incl. brake and temperature sensor
- Absolute path measuring system (glass scale)

DRESSING UNIT

As an option, the SATURN can be equipped with a stationary dressing tool (needle plate or single-point diamond) or a dressing wheel. The adjustment of the dressing unit to the swiveling and inclination of the grinding wheels is fully automatically compensated with the control electronics. The swiveling movement of the dressing arm is controlled with a servo drive with a path measuring system and a steplessly adjustable traversing speed.

WORKPIECE GUIDE PLATES

The infeed and discharge of the grinding zone on the SATURN is equipped with two opposing guide plates each. During the workpiece infeed the guide plates are adjusted to the unmachined part width and at the discharge to the finished part width. The left-hand guide plates are rigidly fastened on the SATURN 915 and serve as a reference level, while the right-hand guide plates are adjustable with NC axes. On the SATURN 660 all plates are adjustable via axes.

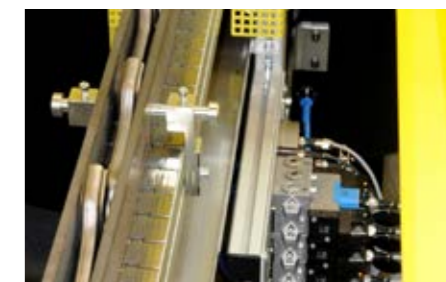


POST-PROCESSING MEASUREMENT DEVICE

The measurements system is individually adjusted to the workpiece and the customer's specifications. The recorded measured values are entered and utilized for measurement correction in line with the prepared measurement strategy. Their two dampened measurement probes are positioned on the discharge guide plates, and the control electronics with the display is integrated in the operator panel.

AUTOMATION OPTIONS

The SATURN double-wheel surface grinding machine is equipped with automated feeding for virtually any workpiece.



LTA AIR FILTERS

If required, extinguishers (CO₂ or water mist systems) and exhaust air purification systems can be additionally installed. A competent partner for fire protection and filtration solutions is LTA Lufttechnik GmbH, which also belongs to the JUNKER Group and which researches, develops and produces filtration systems for industrial air purification.

TECHNICAL DATA

FIELDS OF COMPETENCE

TECHNOLOGY CENTERS

The JUNKER Technology Centers in Nordrach, Germany and in Holice in the Czech Republic offer a wide selection of grinding machines for demonstrations and customer-specific grinding tests. These facilities give potential buyers and customers the chance to be impressed by the technical and economic performance of JUNKER and ZEMA grinding machines and test them on their own workpieces.

SERVICE

The company group's growing sales and servicing network ensures satisfied customers the world over. JUNKER Premium Service acts swiftly and with outstanding expertise wherever its customers are around the globe. Available round the clock, this service provides the assurance of planning security for customers: The highly qualified team will find the right solution no matter what the problem.

ENERGY EFFICIENCY

A key indicator for the efficiency of a machine tool is the amount of energy required for a good part. This value is continuously falling in grinding machines from JUNKER, as ever more grinding steps are possible in a single machine, downtimes are reducing and precision continues to increase.

Within the framework of energy management, potential for savings is continuously recognized and utilized. Examples include frequency-regulated components, recovered braking energy or the optimized sealing air requirement of self-developed grinding spindles.

PRODUCTION LINES

JUNKER can offer comprehensive references for the design and implementation of production lines tailored perfectly to customer requirements. As general contractor, JUNKER attaches enormous importance to standardized interfaces, for instance to workpiece transport, coolant systems or measurement devices. This enhances efficiency and ensures the long-term interaction of all plant components.

NON-STANDARD SOLUTIONS

A new grinding technology challenge for JUNKER? "Tell us what your grinding assignment is and we will supply the perfect machine." The engineers and technicians of the JUNKER team are able to draw on an enormous fund of technological expertise to put together custom solutions to address every conceivable application. Top priority: Increasing the quality of workpieces, reducing cycle times.

PLATTFORM	SATURN 660	SATURN 915
Grinding process	Rotational through-feed grinding/plunge-cut grinding	
Max. workpiece width	180 mm for grinding wheel height of 75 mm	150 mm for grinding wheel height of 85 mm
Min. workpiece width	5 mm (narrower widths on request)	5 mm (narrower widths on request)
Max. workpiece diameter: Rotational grinding	200 mm	320 mm
Max. outside diameter of the drive plate	900 mm	1.270 mm
Grinding wheel diameter	660 mm	915 mm
Peripheral speed	45 m/s (80 m/s CBN)	30 m/s
Grinding spindle drive system	2 x 30 kW	2 x 30kW
Height (with cable connection to machine switch cabinet)	2.700 mm	2.700 mm
Height (without cable connection to machine switch cabinet)	1.650 mm	2.150 mm
Width over spindle drive	4.000 mm	4.000 mm
Length of machine	3.100 mm	3.700 mm
Weight	15.000 kg	18.000 kg
Grinding gap setting	CNC	Manual
Dressing wheel	Yes	No
Abrasive	Corundum/CBN/diamond	Corundum

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