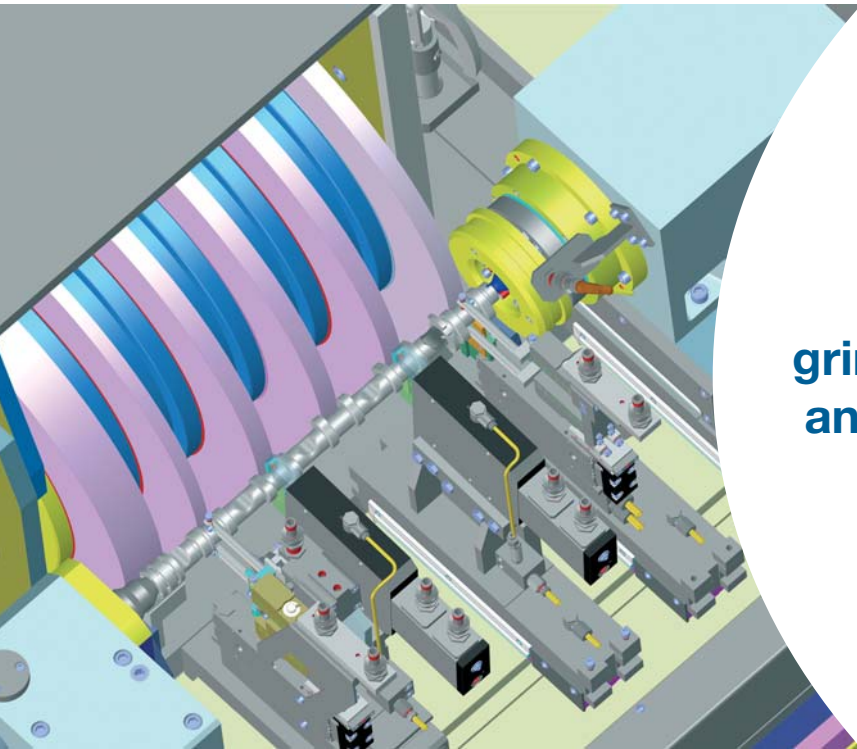




Multi-wheel grinder

S3-750 LSM



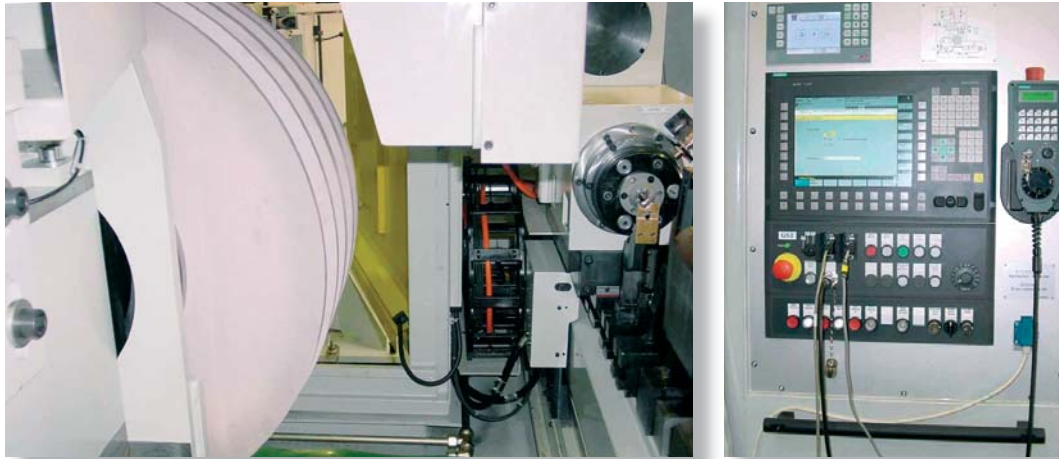
Special machine for
grinding complete crankshaft
and camshaft main bearings
using a multi-wheel set

GST - GRINDING MADE FOR YOU

Certified according to
ISO 9001
VDA 6.4

Highlights

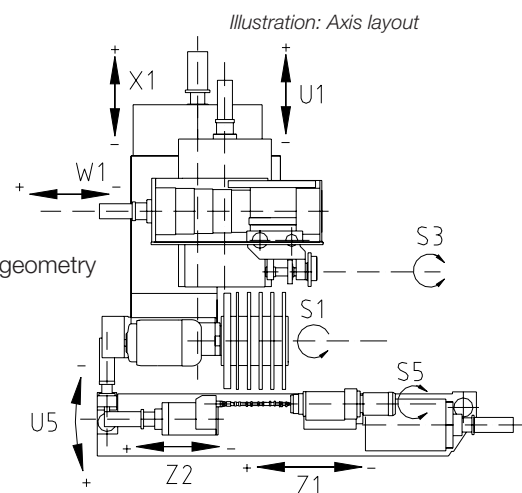
Our multi-wheel grinder is particularly suited for the efficient machining of centric main bearing seats, for example of crankshafts and camshafts, in just one clamping position.



The flange mounting of the wheel set facilitates a compact machine design. Headstock, tailstock, steady rest and measuring instruments are mounted on an NC-controlled swivel table compensating taper errors. Another plus is the short retooling time owing to the flange mounting of the wheel set and the largely automated movement of head- and tailstock, steady rest and measuring instruments making the machine ideally suited for producing different workpiece types, even in smaller batch sizes.

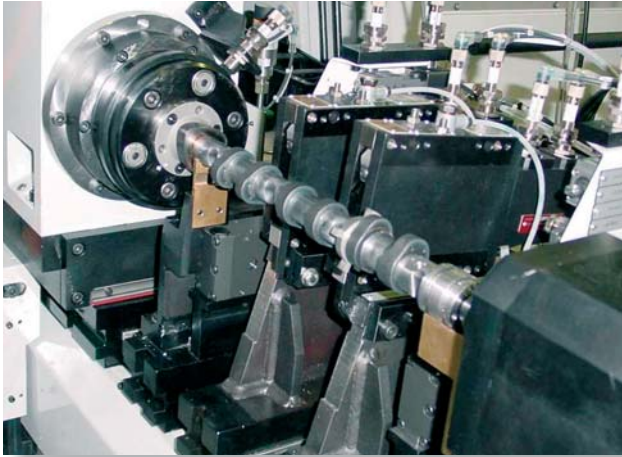
Innovative engineering

- 6 axes and 2 spindles
- All quality-relevant settings are entered on the operator's panel – no manual adjustments are necessary
- Heavy-duty type wheel-head slide, preloaded recirculating roller guides, offering maximum rigidity
- NC – swivel table facilitating the correction of the workpiece geometry
- Wheel head ⇒ largely dimensioned special roller bearings, lubricated for life, sealing air with protective run-out function
- Electromagnetic balancing arrangement, integrated into the spindle
- 2-axis diamond roller dresser

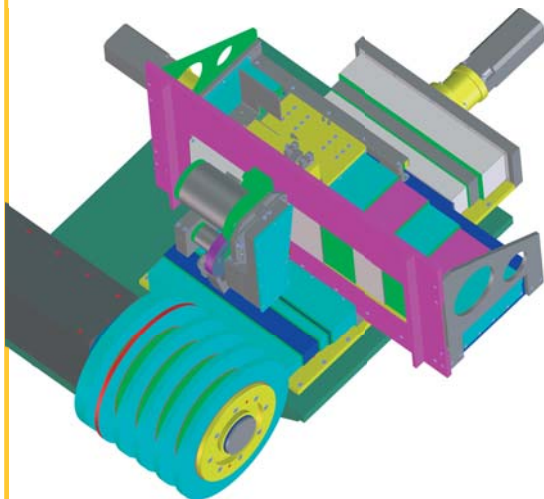


The use of maintenance-free components increases the overall efficiency of the machine significantly. From a mechanical point of view as well as in terms of the PLC and the CNC systems the machine is set up to be integrated with existing industrial production facilities, if required.

Mechanical design



Highest quality and shortest cycle times due to complete machining of the main bearing seats in just one clamping position. Taper compensation by the NC-controlled swivel table carrying all elements coming into contact with the workpiece. The automated changeover by displacing head- and tailstock, steady and measuring instruments through the Z-axis ensures a flexible production with extremely short retooling times.



Dresser system

The axes for the feed and the transverse motion of the dresser at the rear of the grinding wheel make it possible for the dressing to be performed during loading. The increased transverse travel allows the use of diamond profile rollers and blade-type diamond dressers, thus ensuring highly flexible production.

The assembly of the wheel set on a spindle flange together with the very good accessibility of the working area of the machine and the use of a wheel changing device allow a swift wheel set change. No set-up is required after retooling when using coded wheel sets. By contrast with multi-wheel grinders where both sides of the wheel set are supported, this solution guarantees significantly reduced costs of spare wheel sets as no spare spindle is required, and considerably reduced retooling times.

The high level of automation facilitates the easy integration with existing production lines.

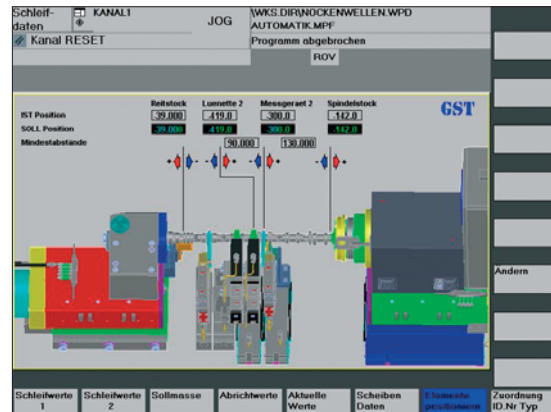


User interface

Clearly structured screen menus and input masks add to the simple and user-friendly operation and enhance the efficiency of the machine considerably. No mechanical intervention is required. The use of the Transline system provides the opportunity for a unified operation and diagnosis.

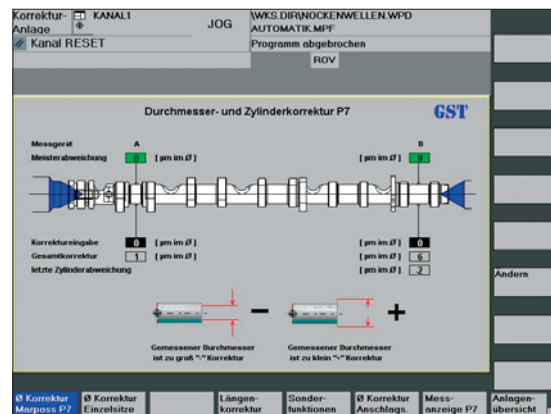
Menu-prompted set-up

The software prompts the operator through the set-up process, thus minimizing the possibility of operator errors.



Correction

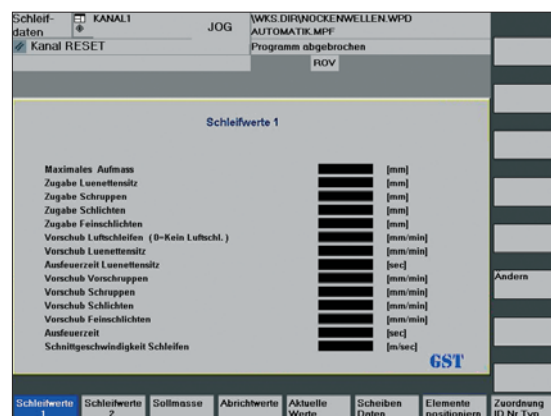
Easy entry of correction values in the input mask, due to the display of your specific workpiece.



Technology data

Grinding and dressing data are entered in plain text.

All input data are workpiece-related, and will be analysed and calculated for the individual axes.



Additional equipment

GST offers a broad range of additional devices which facilitate the handling of the machine and add considerably to process safety. The final design and the project-specific definition of such equipment is done in consultation with the customer.

Grinding wheel magazine

This magazine is of particular advantage if grinding wheels need to be changed frequently or if various wheels sets are used on one machine. In combination with our wheel-changing device, which allows an uncomplicated wheel change with the highest accuracy of position on the spindle, the magazine is a most useful supplement to your grinding machine, reducing change-over times drastically.



Ill.: Grinding wheel magazine and wheel-changing device



Wheel trolley

for moving the wheel sets to the grinder. The trolley is able to carry 2 wheel sets at a time. The wheel height can be adjusted to machine height by means of a hydraulic cylinder and a hand pump. In combination with a wheel-changing device it is a most useful supplement to your grinding machine, reducing change-over times drastically.

Ill.: Wheel trolley

Post-process measuring system

for the acquisition and storage of data from gauging for process analyses. The collected data can be used for statistical process and quality control. The system can generate compensation signals to the machine and can be integrated with existing data networks.



Ill.: Post-process measuring system

Coolant equipment

Especially adapted to the grinding task. Cleaning using filter fleece, continuous filter belt and magnetic separator. A separate return tank with return pump can be supplied.

Technical specification

Grinding wheel diameter	750 mm to 900 mm
Width of wheel sets	max. 500 mm (4 – 6 wheels, depending on the workpiece, coded)
Surface speed	50 m/s
Grinding spindle drive	22 kW, controllable by frequency converter
10 NC axes	7 axes for the machine, specifically: Z1-axis for longitudinal positioning of the workpiece X1-axis for the wheel head slide Z2-axis for longitudinal positioning of the tailstock B5-axis for angular positioning of the table U1-axis for dresser infeed W1-axis for dresser cross-feed S5-axis for radial positioning of the workpiece 3 axes prepared for a gantry loader All axes are equipped with an absolute position transducer.
2 frequency-controlled spindles	1 x grinding spindle and 1 x dressing roll
Control unit	Siemens 840 D with 'Safety Integrated' monitoring function; 3 channels of which two channels are for the machine and one channel is for the gantry loader
Balancing system	Marposs or Dittel, integrated into the grinding spindle, with non-contact transmission
Workpiece measuring	Marposs, two units for diameter measurement, one unit for longitudinal positioning
Gantry loader	prepared for the integration with a production line
Accessories	Magazine, trolley and changing device Coolant equipment with filter Self-centring following steady rest Post-process measuring system



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