

Press release

INDEX V160C turn-grind center

Process integration based on the modular system

Hard turning and grinding on a single machine – without compromise

Esslingen. INDEX-Werke GmbH & Co. KG are extending their successful VerticalLine vertical turning machine series with a complete machining center whose design concept combines the advantages of two machine types. The range of the previous proven variants V160C (compact/basic version, V160D (twin-spindle machine) and V160G (counter-spindle machine) is now completed with the V160C turn-grind center.

The INDEX engineers have managed to integrate the grinding technology into the existing basic version of the machine, without having to design a completely new machine, by using components from the existing INDEX modular system. Once again the high precision of the standard machine appreciated by many users turned out to be an advantage, since the system extension of the standard machine did not require any change to the basic structure. Its ready accessibility, which is unusual for vertical turning machines, could also be maintained, resulting in easy setup that is unparalleled.

The result is a complete machining center showing all the features of modern process integration. Hard turning and grinding on a single machine. With this machine, the user does not have to make any compromise. The existing full turning functionality of the work spindles, tool carriers and turrets is maintained and completed with the equally unlimited grinding functionality of the modular grinding components. Thus, for example, dressing cycles, wheel contact detection and grinding wheel balancing are fully automated.

The full grinding functionality includes, in addition to the uncompromising precision, of course, also the tightness of the working area and an independent control software in the form of a special programming interface for grinding. The modular design of the system even allows standard machines already delivered to the customer to be upgraded by means of the modular grinding components, likewise without any restriction to the turning or grinding functionalities. The high thermal stability known from the turning machines and appreciated by many users is also a characteristic feature of the V160C turn-grind center.

The automatic workpiece handling works in the same way as is usual for vertical turning machines through pickup by the motor spindle as the active handling unit. The linear drive in the X-axis, which is the usual handling axis of vertical machines, achieves dynamics, speed and short handling times. Its features include: rapid traverse 80 m/min, acceleration 1 g (9.81 m/s²) and a direct encoder system via glass scales. The automatic workpiece measurement offers all the advantages of in-process measurement and of all post-process measurements.

The new complete machining center is suitable for all areas of application where highest precision is essential, such as for the machining of components for diesel injection technology, nozzle bodies, HSK tool interfaces, hydraulic components requiring high-quality surface finish and wherever serrations have to be ground.

The V160C turn-grind center will be presented at the Metav Düsseldorf 2006, where a reference part designed in-house having an extremely rough surface will be machined at our fair stand under real conditions. Given the diameter tolerance of 1 µm, this will allow the precision and uncompromising functionality of the machine to be demonstrated on a practical example.

Machining precisions of the V160C turn-grind center:

- Grinding roundness: up to 0.3 µm,
- Roughness Ra: up to 0.06 µm,
- Roughness Rz: up to 0.6 µm,
- Diameter: up to +/-1 µm,
- Straightness: up to 0.4 µm,
- Parallelism: up to 0.4 µm,

The technical data of the V160C turn-grind center:

- Maximum workpiece diameter: 200 mm,
- Maximum workpiece length: 200 mm,
- Assembly of up to two grinding spindles possible
- Speed range outside: up to 6000 rpm
- Speed range inside: up to 105,000 rpm
- Maximum grinding wheel diameter: 400 mm.

The advantages of the V160C turn-grind center summarized:

- Full functionalities without compromise in turning and grinding at the customary extremely high tolerance and precision,
- Ready accessibility,
- Easy setup

- Control software in the form of a special programming interface for grinding,
- Efficient workpiece handling through pickup principle and linear motor.

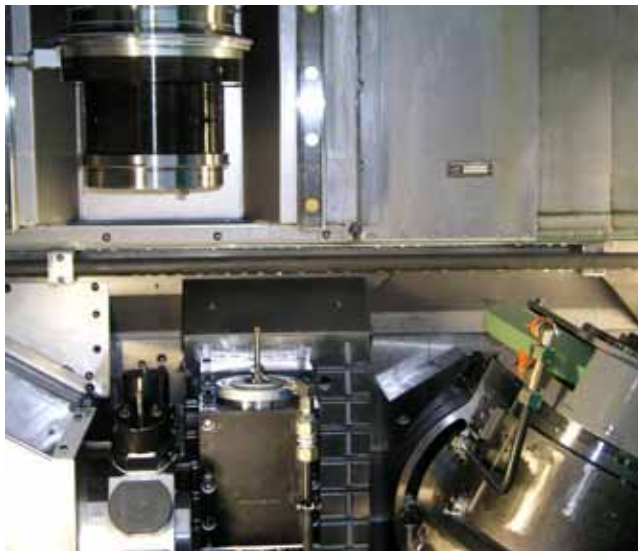
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INDEX

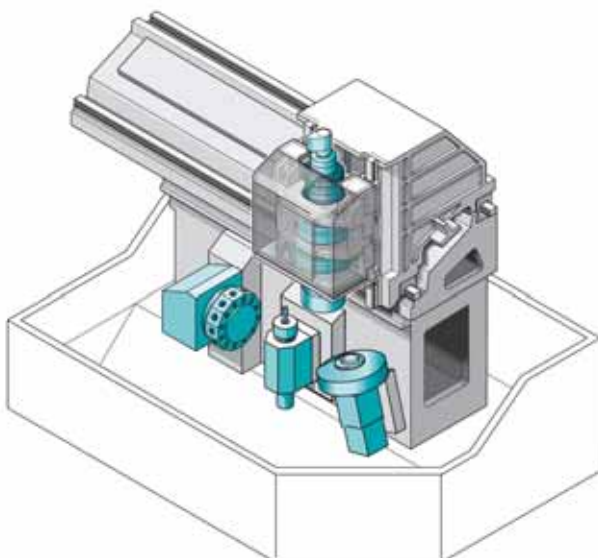
Press release 06/06
V160C



Pic 1: INDEX V160C



Pic 2: Work area with grinding components



Pic 3: Modular design