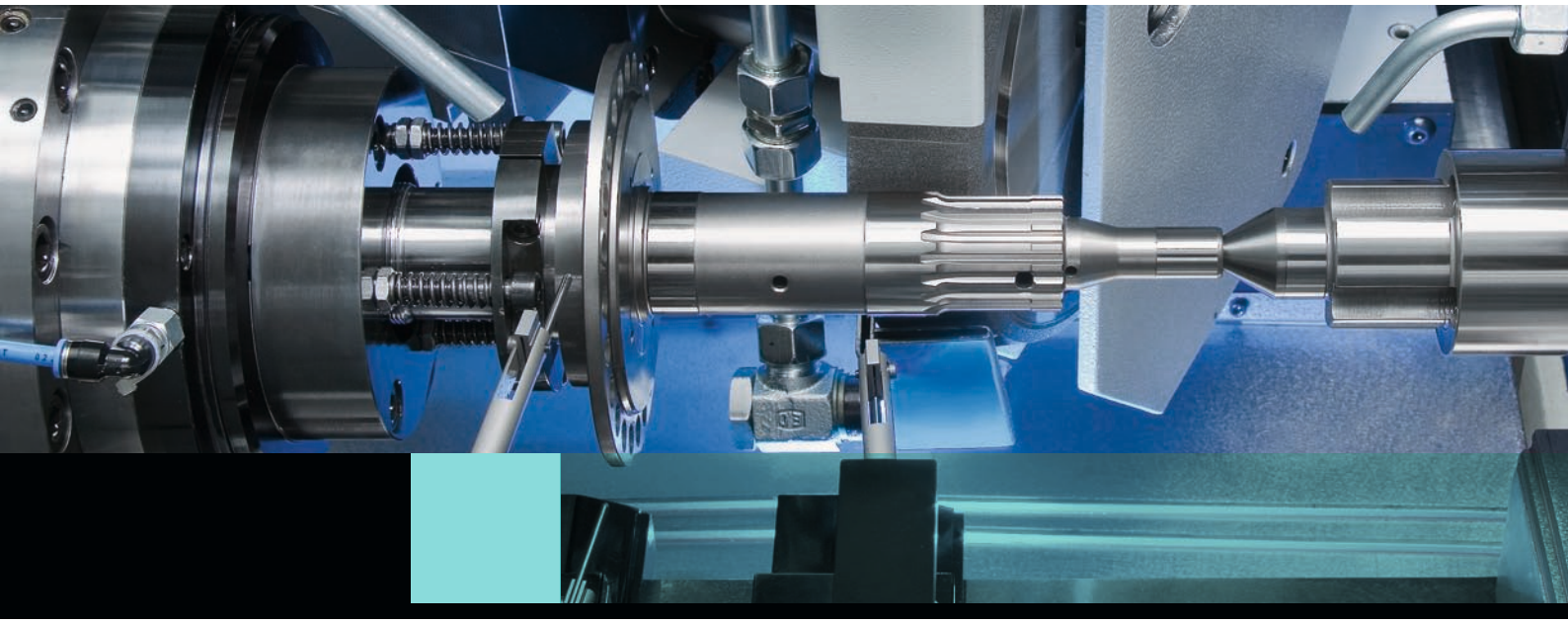
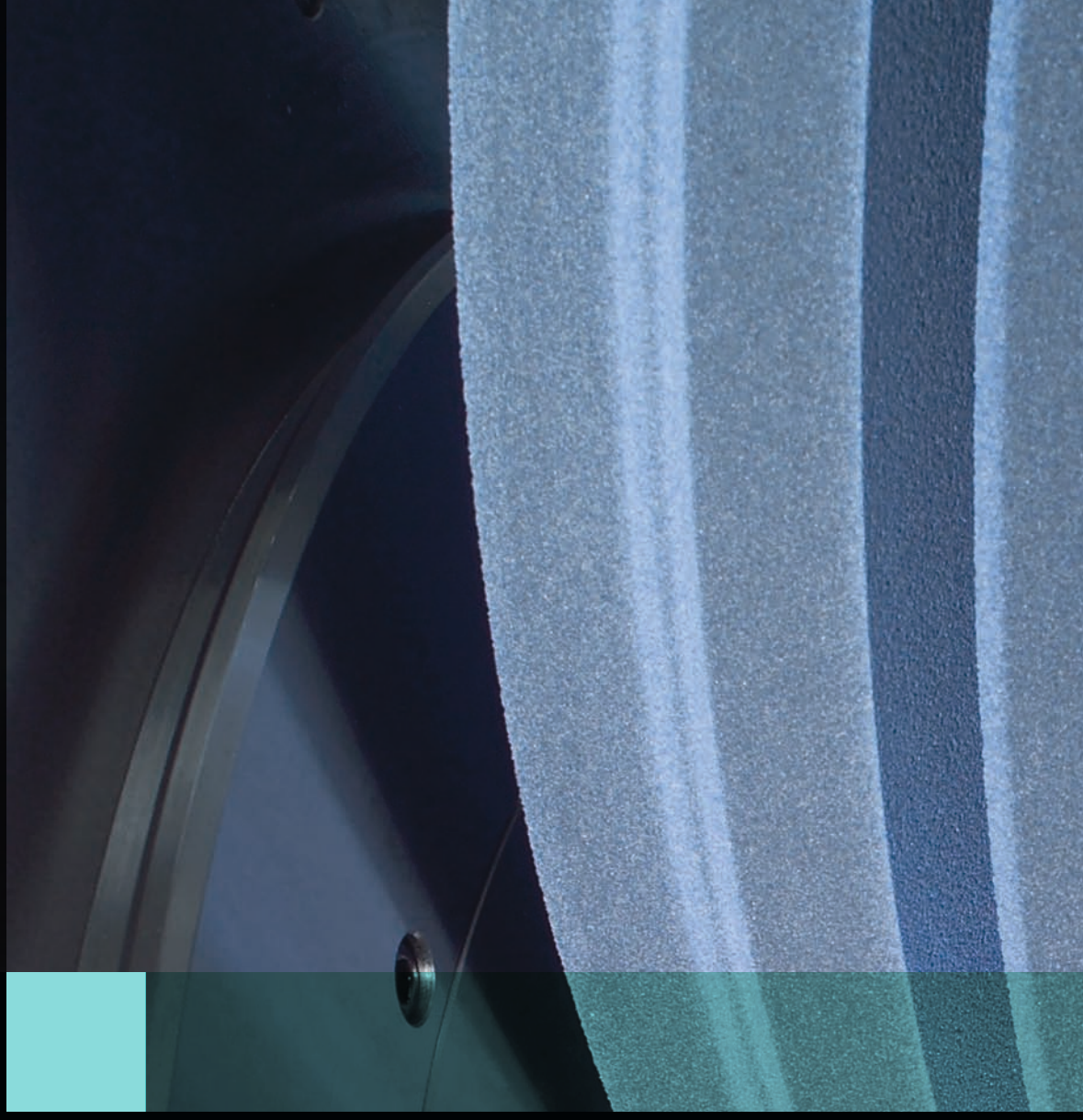
Grinding systems
HG 204
HG 208

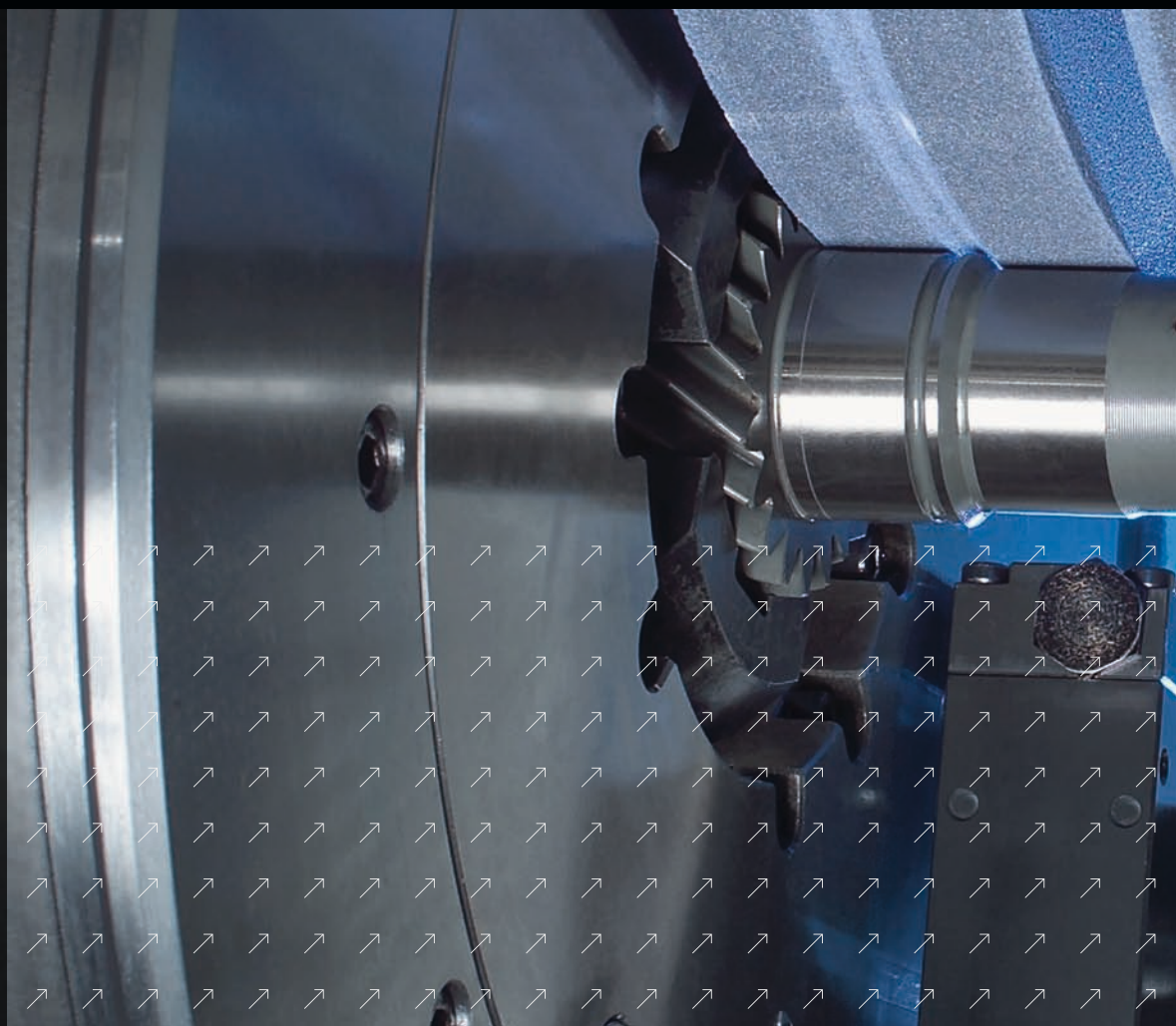


KARSTENS
EMAG

The HG series is specially designed for the cylindrical grinding of precision shaft-type components. This includes engine, transmission and hydraulics components as well as shafts used in electric motors, compressors and wind power generators. All modern grinding technologies can be realised on the machine. It guarantees the flexibility needed to react quickly and efficiently to workpiece changes.

HG 204
HG 208
HG 208 CD
HG 208 DW





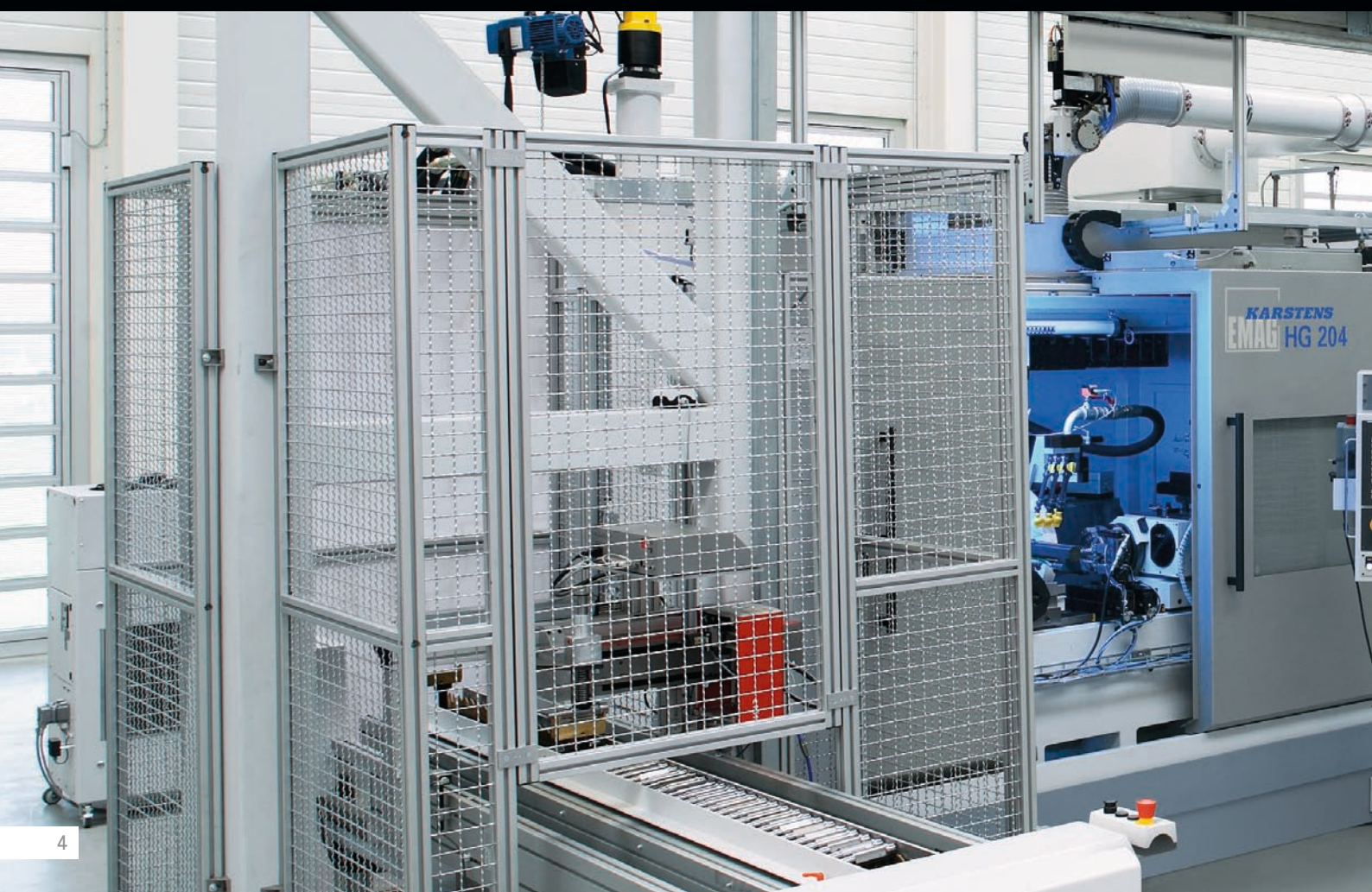
GRINDING SYSTEMS

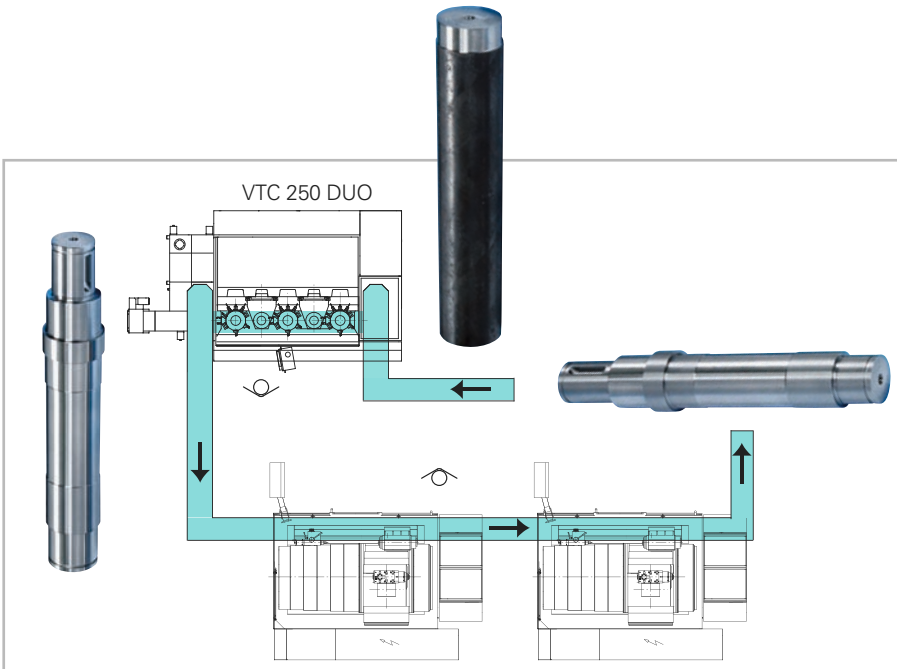
Complete manufacturing systems from a single source.

The HG 204 and HG 208 grinders have been designed for use in manufacturing systems. Customising is hereby clearly of major importance. A wide range of technology and production modules ensures that the machines can be tailored to suit manufacturing requirements.
The integral loader allows for the machines to be linked up into a manufacturing system; but they can also be integrated into existing production lines.

Take, for example, the machining of gear shafts. These shafts are pre-machined on VTC vertical shaft turning machines and finish-machined on HG grinders. Everything from a single source. Complete manufacturing systems from EMAG.

H G 2 0 4



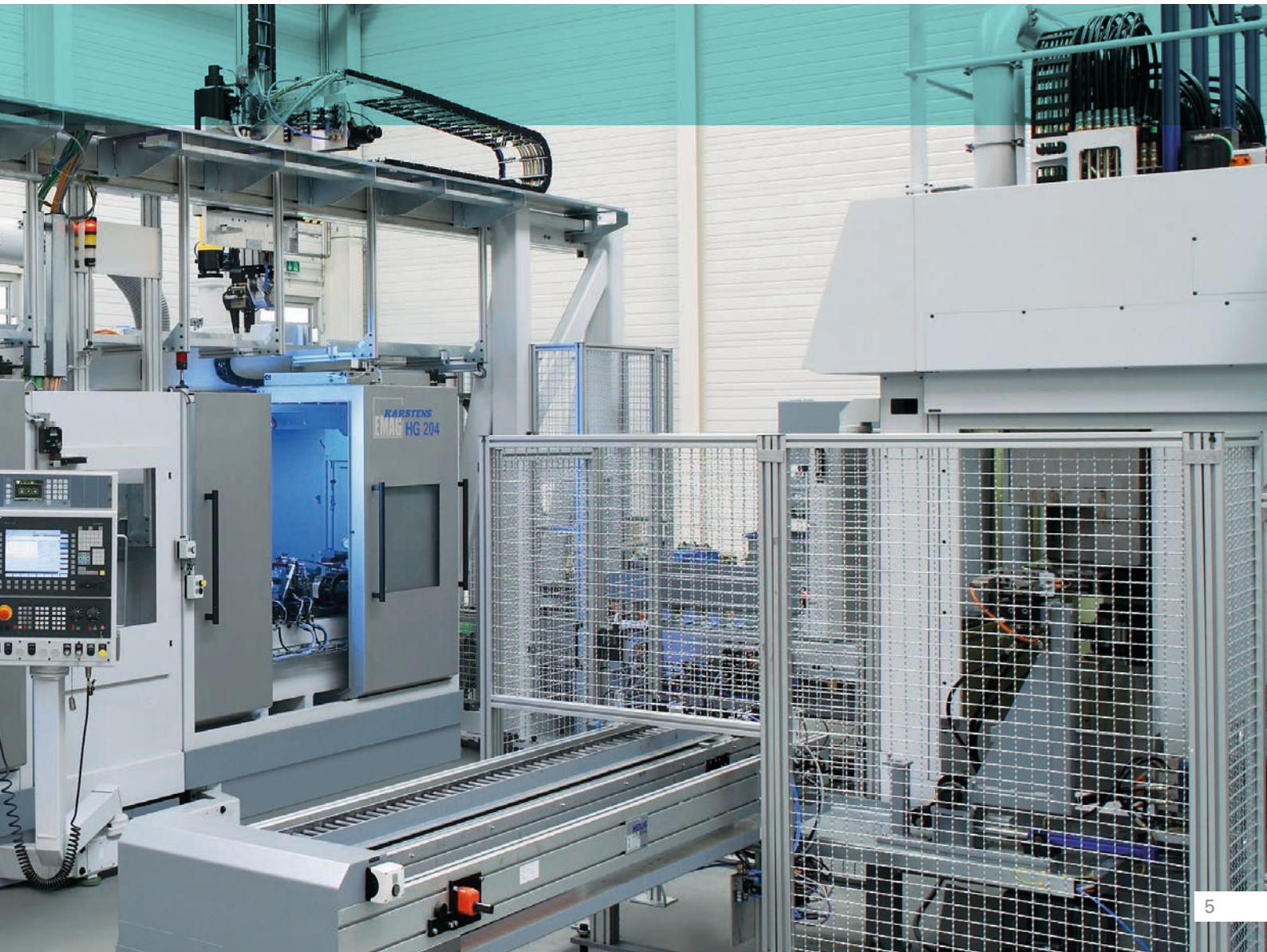


Complete-machining of a gear shaft:

VTC 250 DUO: *Cutting to length and centring,*
turning O/D and shoulders,
milling the feather key grooves

HG 204: *Machine 1*
Angular infeed grinding of O/D and shoulder on left side of workpiece

HG 204: *Machine 2*
Angular infeed grinding of O/D and shoulder on right side of workpiece



Perfectly ground – perfectly round.

The HG 204 and HG 208. Solutions for the external and internal cylindrical grinding of medium to large component batches. The HG 204 accommodates shafts up to a nominal grinding length of 400 mm. On its larger sister, the HG 208, the limit is 800 mm. The modular design provides for a variety of machine configurations and thus the optimal adaptation to machining requirements:

- corundum or CBN grinding wheels
- B-axis with 2 grinding spindles for external grinding wheels of max. 500 mm dia.
- B-axis with 1 grinding spindle for external grinding wheels of max. 500 mm, plus 2 internal grinding spindles
- B-axis with 3 grinding spindles for external grinding wheels of max. 400 mm dia.
- work head with motor spindle or work head with belt-driven spindle

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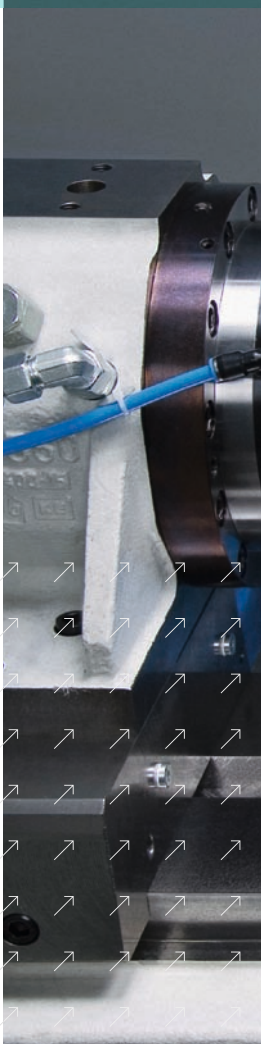
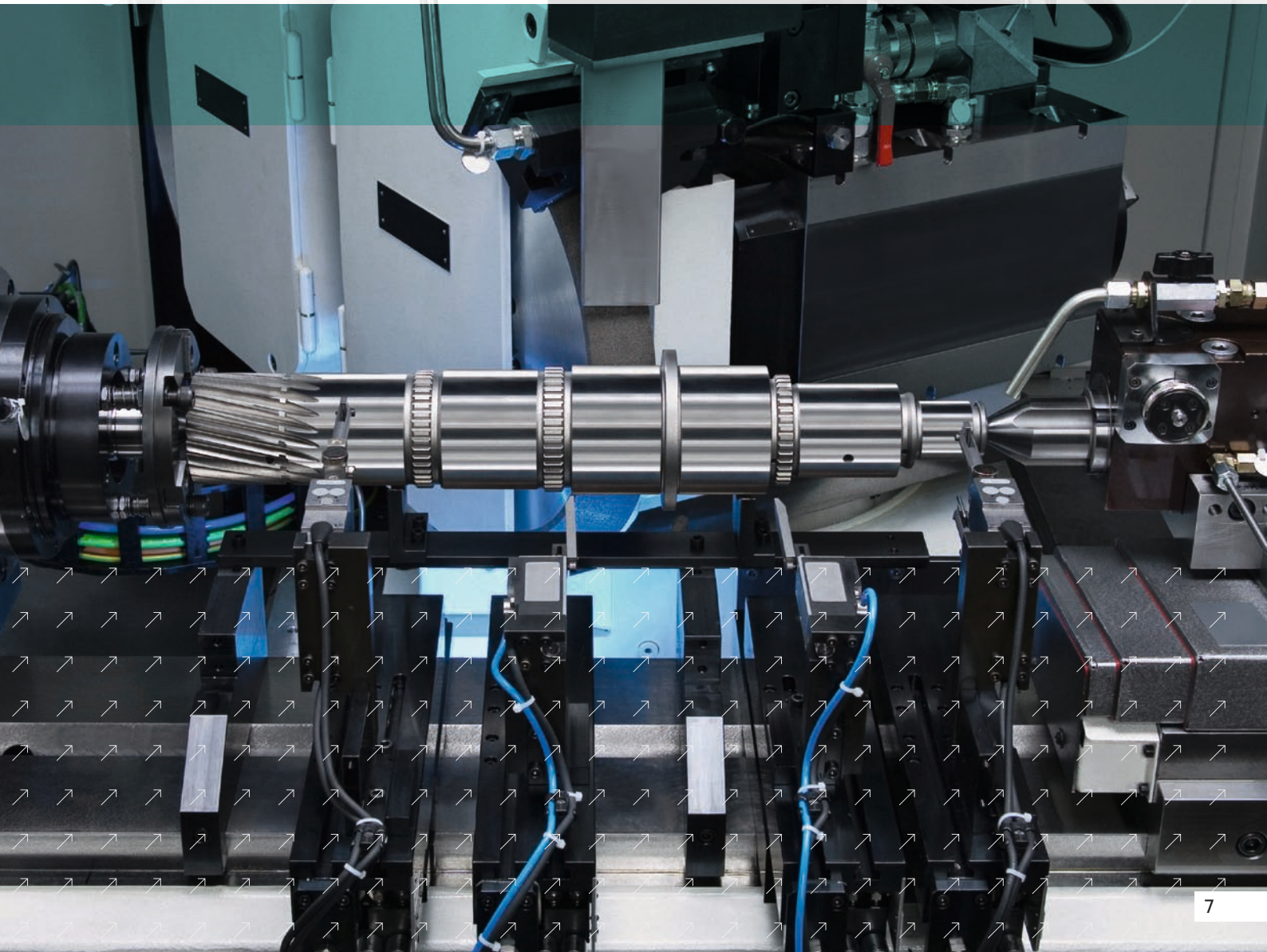
H G 2 0 8



- tailstock slide
- in-process measuring system
- dressing attachment for CBN and corundum grinding wheels
- touch-recognition for grinding and dressing
- automatic balancing unit
- workholding units
- various sizes of chucks and steadies
- automatic loading hatch for the connection of an automated workhandling system

The arrangement of a number of grinding wheels in B-axis allows for all external cylindrical grinding operations – for instance on a gear shaft – to be carried out in a single set-up. This ensures that the HG 208 can machine bearing seats, shoulders and grooves of the highest quality and with great flexibility, using multiple-plunge grinding and peel-grinding processes.



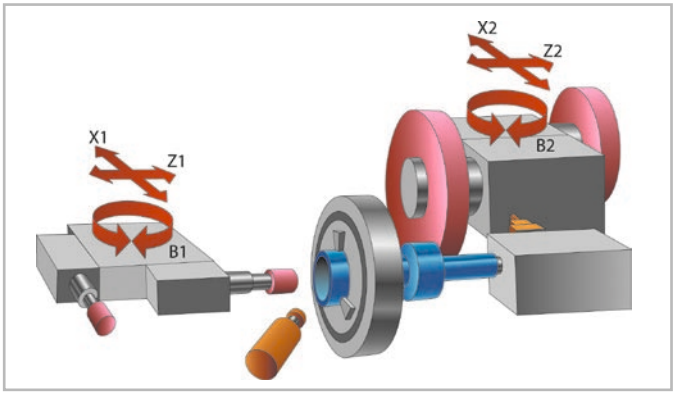
External and internal machining in a single set-up.

Hollow shafts and similar components, on which bore and O/D have to be in high-precision alignment to each other, are complete-machined – i.e. ready to install – on the HG 208 CD Center Drive Grinder. Such components include, for instance, the gear shafts used in transmission systems for modern passenger cars. The machine simultaneously grinds the hollow shafts internally and externally, in a single set-up. This method is infinitely more precise than grinding the component on two separate machines.

The HG 208 CD machines hollow shafts up to a length of 400 mm. In its top specification the machine is equipped with two internal and two external grinding spindles mounted on two compound slides that each feature a B-axis. This configuration allows the internal grinding of bores, end faces and tapers.

HG 208 CD

The two external grinding wheels can also be used to grind and groove diameters with adjoining flat shoulders. In use are conventional and/or CBN grinding technologies, depending on machining requirements. To ensure that bearing seats are free of tool marks, a dressing attachment with profiled dressing rolls is used. The work spindle is controlled by state-of-the-art, maintenance free direct drive technology. The O/D of the chuck is usually 160 mm.



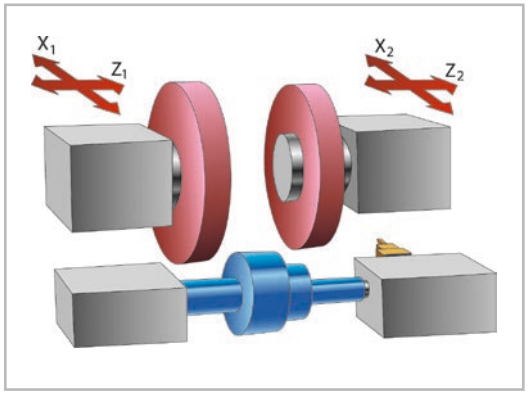
Simultaneous machining of O/D and I/D in a single set-up

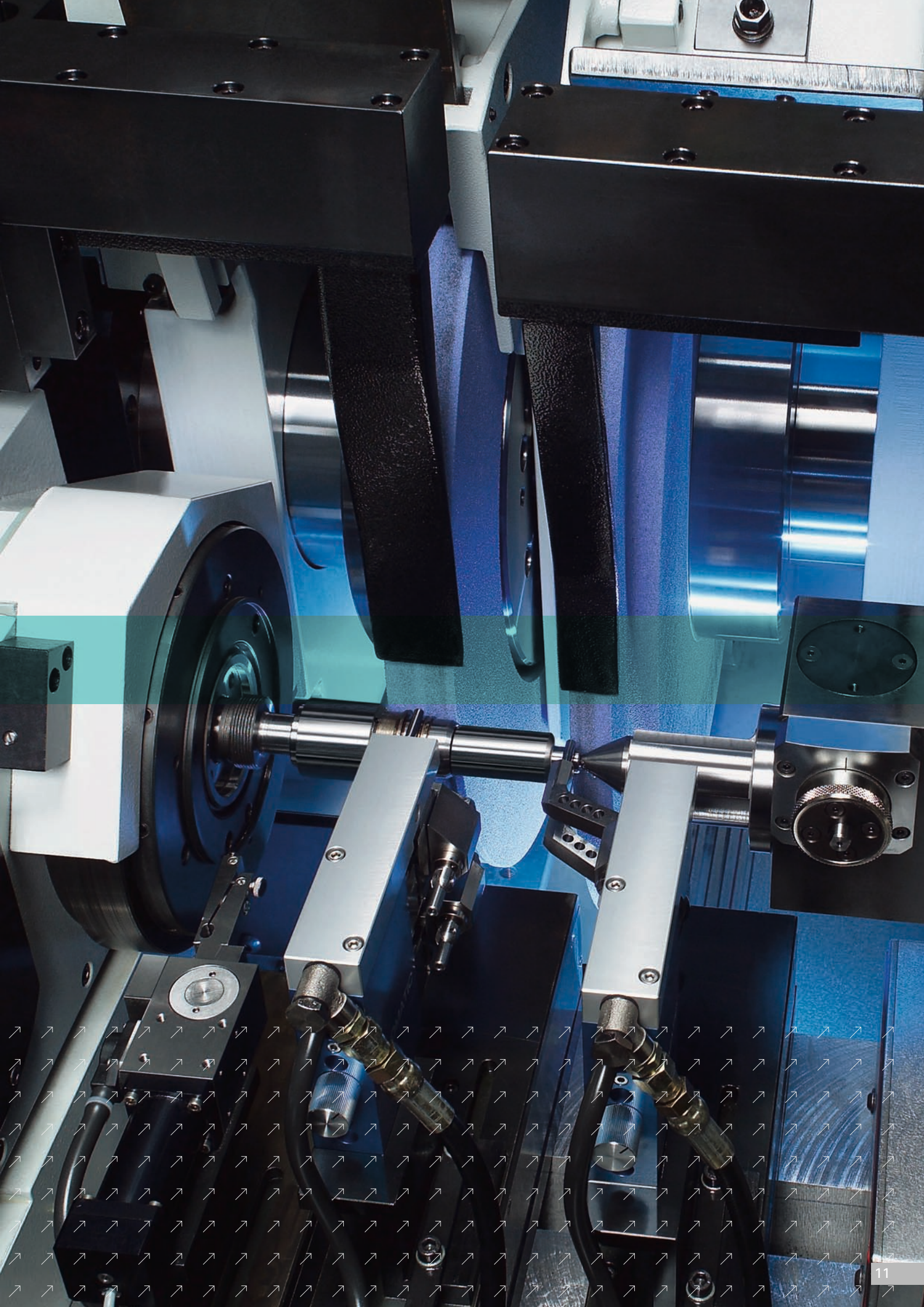
Simultaneous machining: HG 208 DW.

The four-axis HG 208 DW Simultaneous Grinder allows for two external grinding operations to be carried out simultaneously on shaft-type components. This method is particularly suitable for workpiece families where the same operations are carried out at varying distances to each other. It includes steering pinions, gear shafts, motor shafts and compressor shafts.

The advantages gained from simultaneous grinding on the HG 208 DW are: high component quality through complete-machining in a single set-up, short cycle times, economic production of component families and low capital outlay per component.

The flexible grinding system with a high productivity rating: HG 208 DW





Technical data.

Capacity		HG 204
Max. workpiece diameter	mm	200
Max. workpiece length	mm	650
Grinding wheels		
Max. dia. CBN grinding wheel	mm	500
Max. dia. corundum grinding wheel	mm	610
Feeds and speeds		
X-axis travel	mm	360
Z-axis travel	mm	1000
X- and Z-axis speed	m/min	30 / 30
Work head with motor spindle		
Torque	Nm	95
Speed range	rpm	1 - 7000
Reception bore	KK	5
Work head with belt-driven spindle		
Torque	Nm	30
Speed range	rpm	1 - 1000
Reception bore	MK	4
Weights and measurements		
Length	mm	3410
Width	mm	2400
Height	mm	2490
Weight	kg	9000

The technical data refers to the basic machine only.

Capacity		HG 208	HG 208 CD	HG 208 DW
Max. workpiece diameter	mm	200	100	200
Max. workpiece length	mm	1200*	400	600
Grinding wheels				
Max. dia. CBN grinding wheel	mm	500	500	500
Max. dia. corundum grinding wheel	mm	610	610	600
Feeds and speeds				
X-axis travel	mm	360	360	360
Z-axis travel	mm	1600	600	800
X- and Z-axis speed	m/min	30 / 30	30 / 30	30 / 30
Work head with motor spindle				
Torque	Nm	95	–	95
Speed range	rpm	1 - 7000	–	1 - 7000
Reception bore	KK	5	–	5
Work head with belt-driven spindle				
Torque	Nm	30	–	30
Speed range	rpm	1 - 1000	–	1 - 1000
Reception bore	MK	4	–	4
Center drive				
Torque	Nm	–	100	–
Speed range	rpm	–	1 - 500	–
Chuck diameter	mm	–	160	–
Weights and measurements				
Length	mm	4610	4610	4610
Width	mm	2400	2400	2400
Height	mm	2490	2490	2490
Weight	approx. kg	12000	12000	12000

*manual loading.

Subject to technical changes

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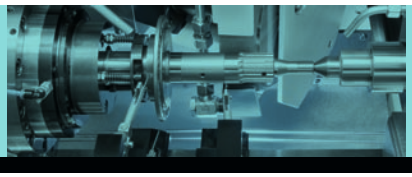

192-1/11.2009 · Printed in Germany ·

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