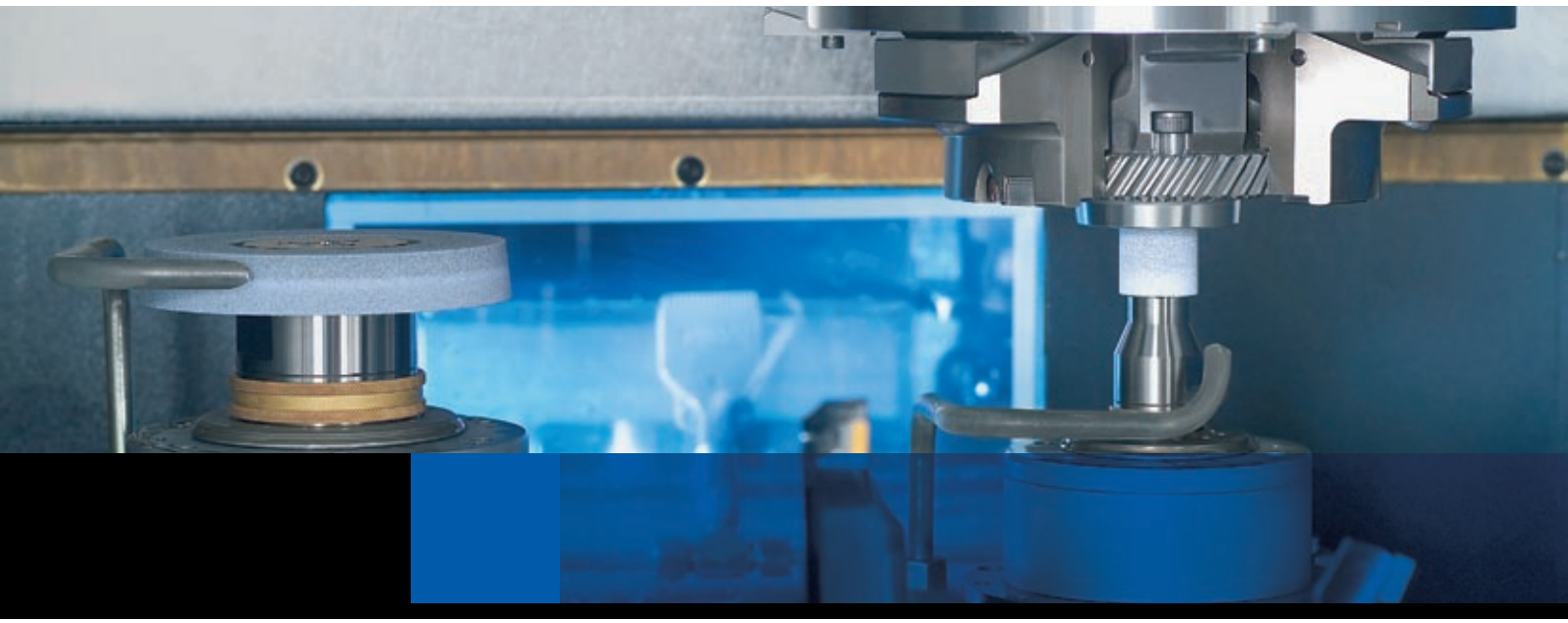
Vertical Turning and Grinding Centers

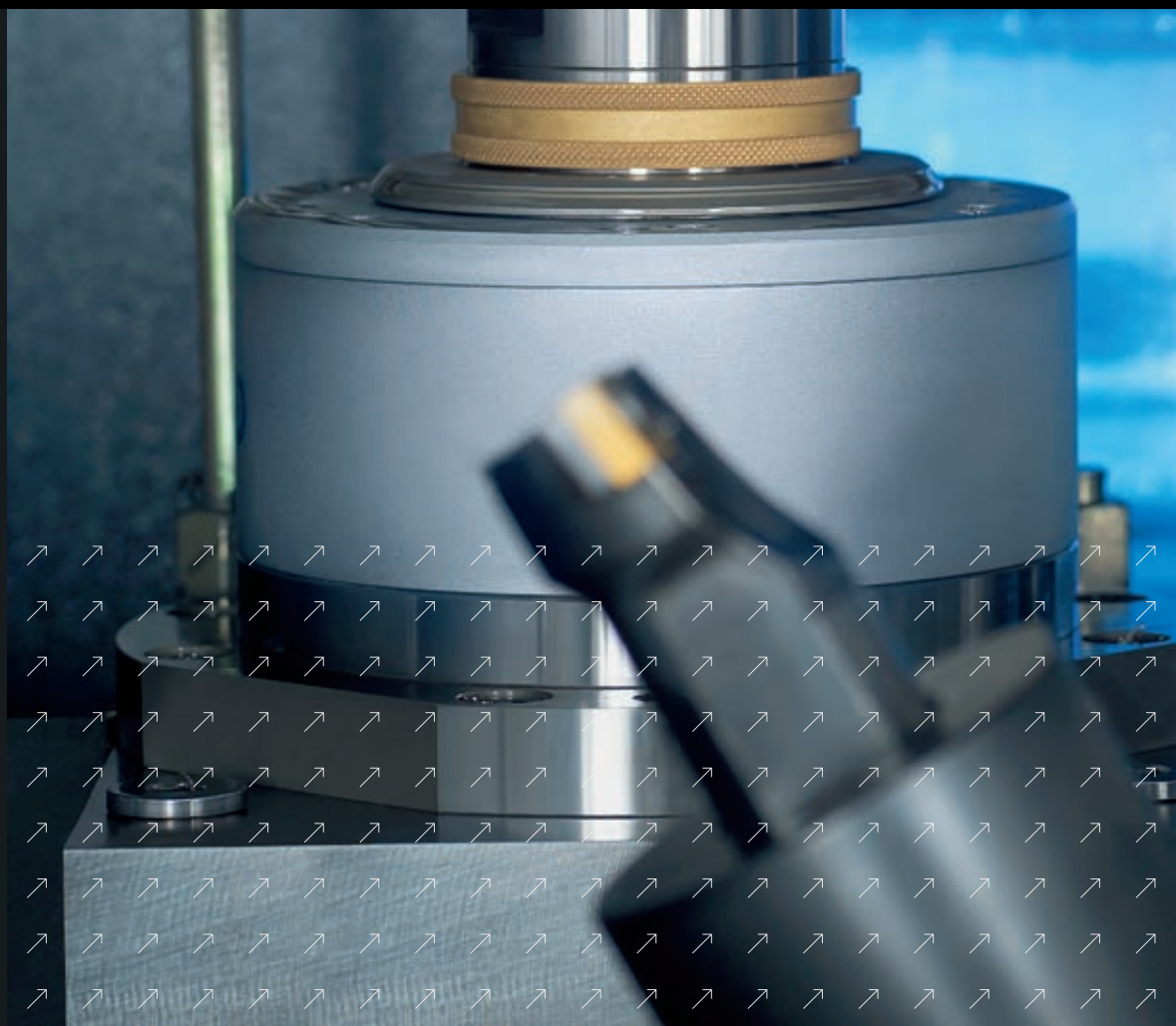
VSC 250 DS
VSC 400 DS
VSC 400 DDS



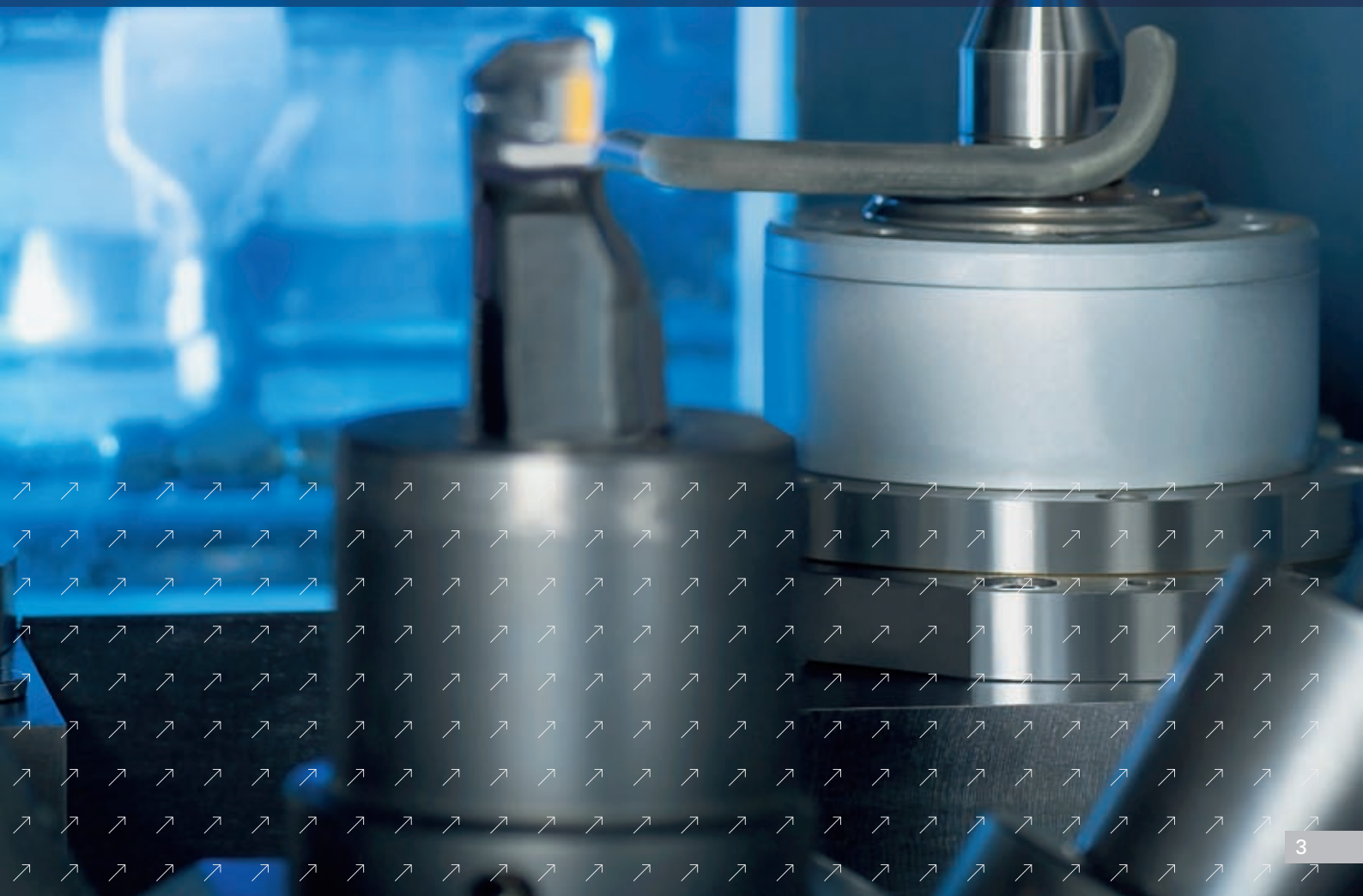
REINECKER
EMAG

Vertical turning and grinding – there is much to be said for symbiosis. The turning and grinding centers VSC 250 DS, VSC 400 DS and VSC 400 DDS combine the advantages of vertical hard turning with those of grinding – on a single machine, in a single set-up.

VSC 250 DS
VSC 400 DS
VSC 400 DDS



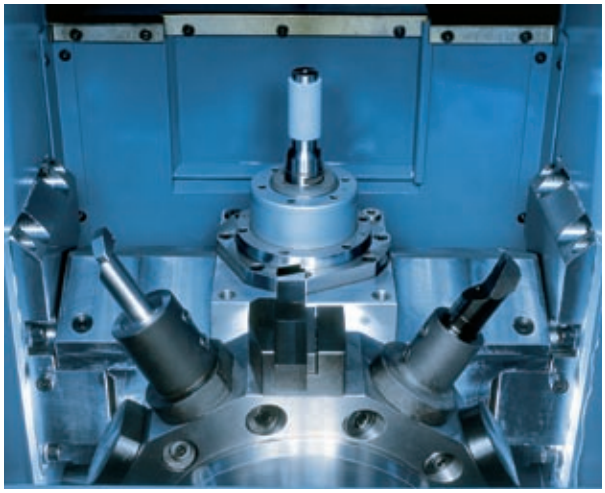
VERTICAL TURNING AND GRINDING CENTERS



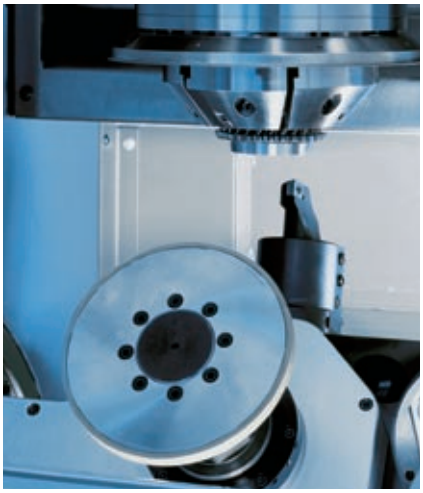
Efficient flexibility.

VSC 250 DS
VSC 400 DS

Quality requirements, particularly in components for the automotive industry and its sub-contractors, are increasing steadily. To fulfil them EMAG rely on complete-machining in a single set-up. The use of different technologies – such as turning and grinding, for example – leads to a considerable shortening of the process stream, with all its attendant advantages for the user. These include less capital outlay and lower unit production costs, shorter throughput times, a better quality of component and a higher degree of process integrity, a smaller footprint and less maintenance.



Disc-type turret for 12 turning tools and one fixed spindle for internal grinding work.

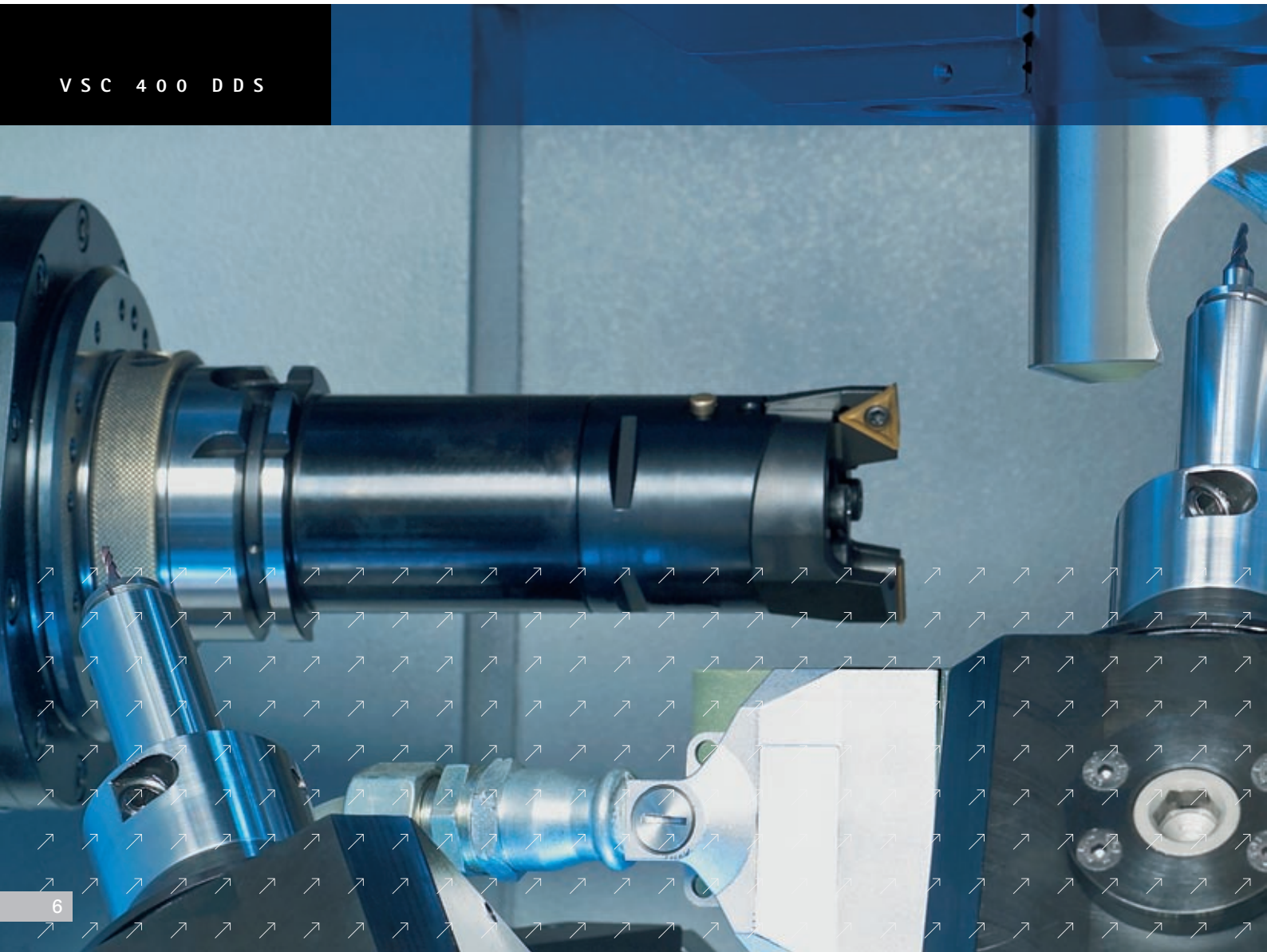


Hard turning and grind-finishing.

Hard turning, scroll-free turning, grinding.

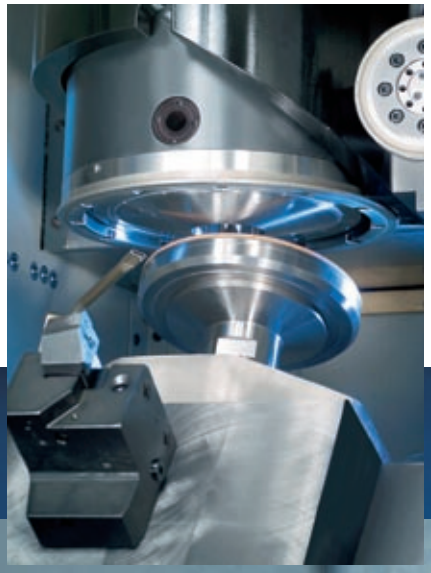
The VSC DS series is specially designed for the low-cost, process capable, precision machining of medium to large component batches. Typical examples of such workpieces are: gearwheels, chain wheels, sliding sleeves, parts for CVTs, link pins, con-rods, rocker arms, bearing rings and piston rings. In each case, workpiece and quality requirements decide which of the available machining processes is the best and the most economical. The advantage for the customer is in the flexibility that allows him to select the best technology for every application: hard turning, scroll-free turning and grinding – and all on a single machine.

VSC 400 DDS with linear Y-axis and laterally aligned turning tools.

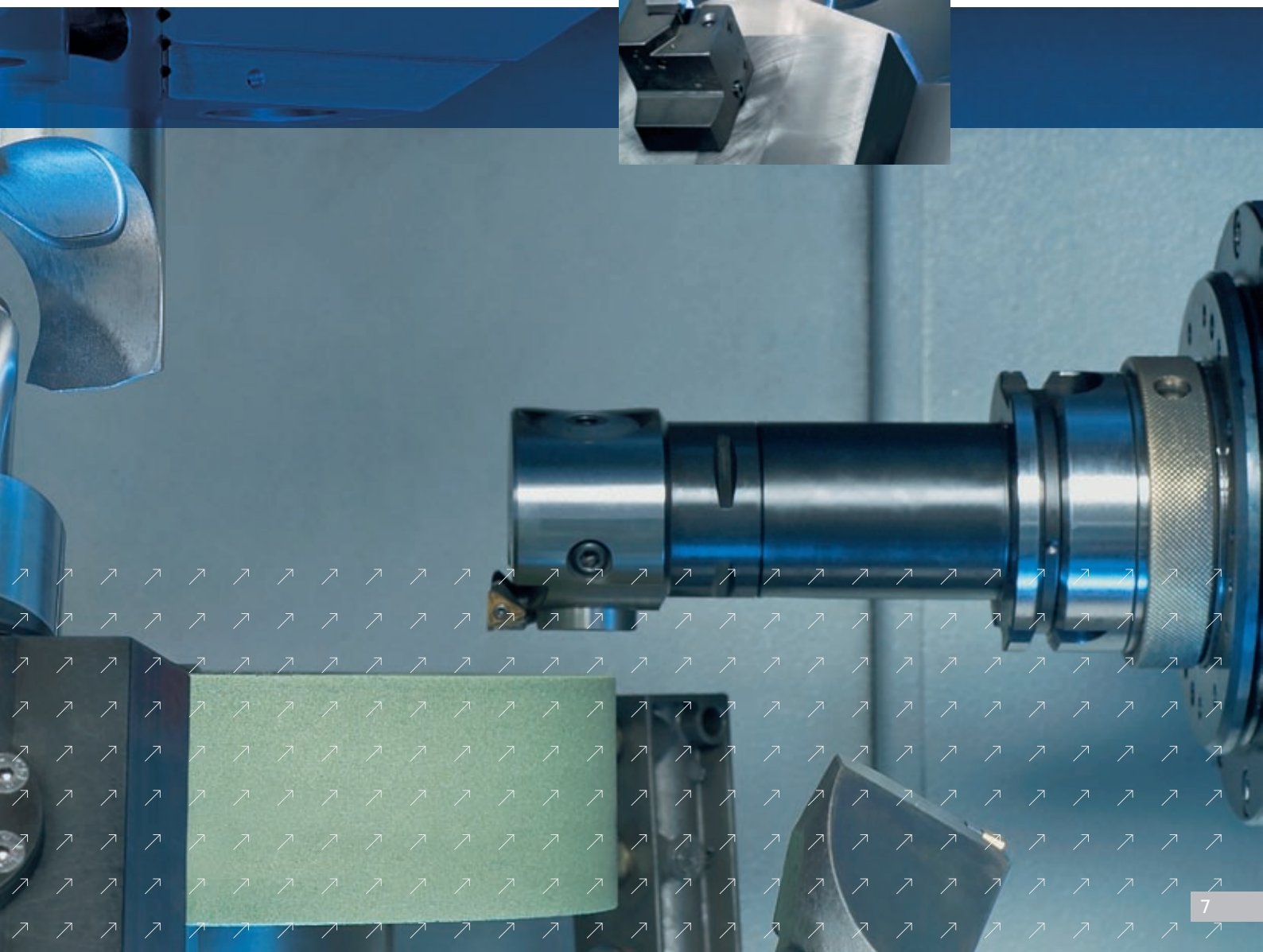


Hard turning

Internal polygon grinding



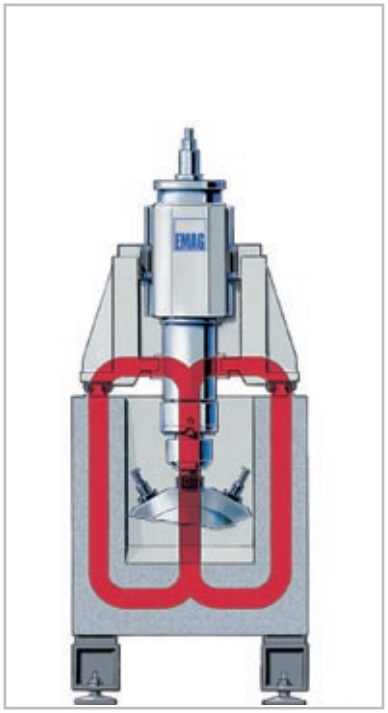
Peel-grinding with CBN wheel



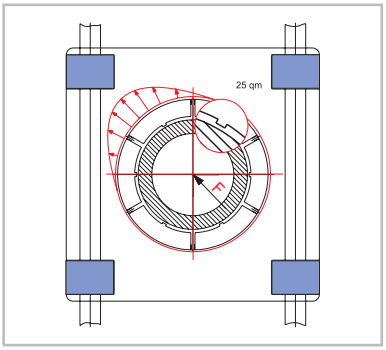
Complete manufacturing processes – VSC DS.

Whether the job includes the high metal removal rates of turning and milling or the gentler grinding process – the VSC series of machines offers the possibility to integrate most metal cutting processes. Depending on production requirements the VSC DS can be equipped with turning, milling, drilling, grinding and even honing or hardening modules – also combinations of them, of course. For each requirement the best possible technology.
The advantages are obvious. Complete-machining in a single set-up eliminates reclamping errors. Measuring too is included in the machine, making quality control an integral part of the process. The measuring probe is located between machining area and pick-up station and thus well protected. The workpiece is measured in its original set-up, outside the machining area. It can also be checked and measured anytime between machining operations.

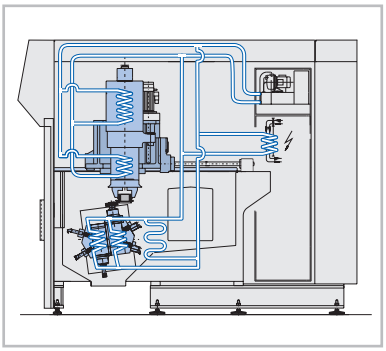
VSC 250 DS
VSC 400 DS
VSC 400 DDS



The symmetrical force distribution of the closed-loop construction is a necessary prerequisite for high static and dynamic rigidity.



The hydrostatic guideway principle.



All accuracy defining machine elements are connected to the fluid-cooling circuit.

The vertical arrangement of the work spindle and the fact that the tools are located below the workpiece ensure optimal chip flow conditions during both hard turning and grinding.
All machine modules are mechanically stable and particularly vibration resistant. This is helped by the machine base in MINERALIT®, polymer granite with excellent vibration damping properties, and the sturdy design of the work spindle. The latter forms an integral part of a sturdy quill with high-precision, hydrostatic guideway in Z – a construction that adds to the vibration damping quality.

The tooling systems, firmly integrated into the machine base, provide a stable basis for demanding turning and grinding work. This is an important prerequisite for time-saving hard pre-turning operations and ensures that good surface finishes are generated with the hard finish-turning or grinding operations. The number and type of fixed tooling systems employed can be varied according to machining requirements. The whole

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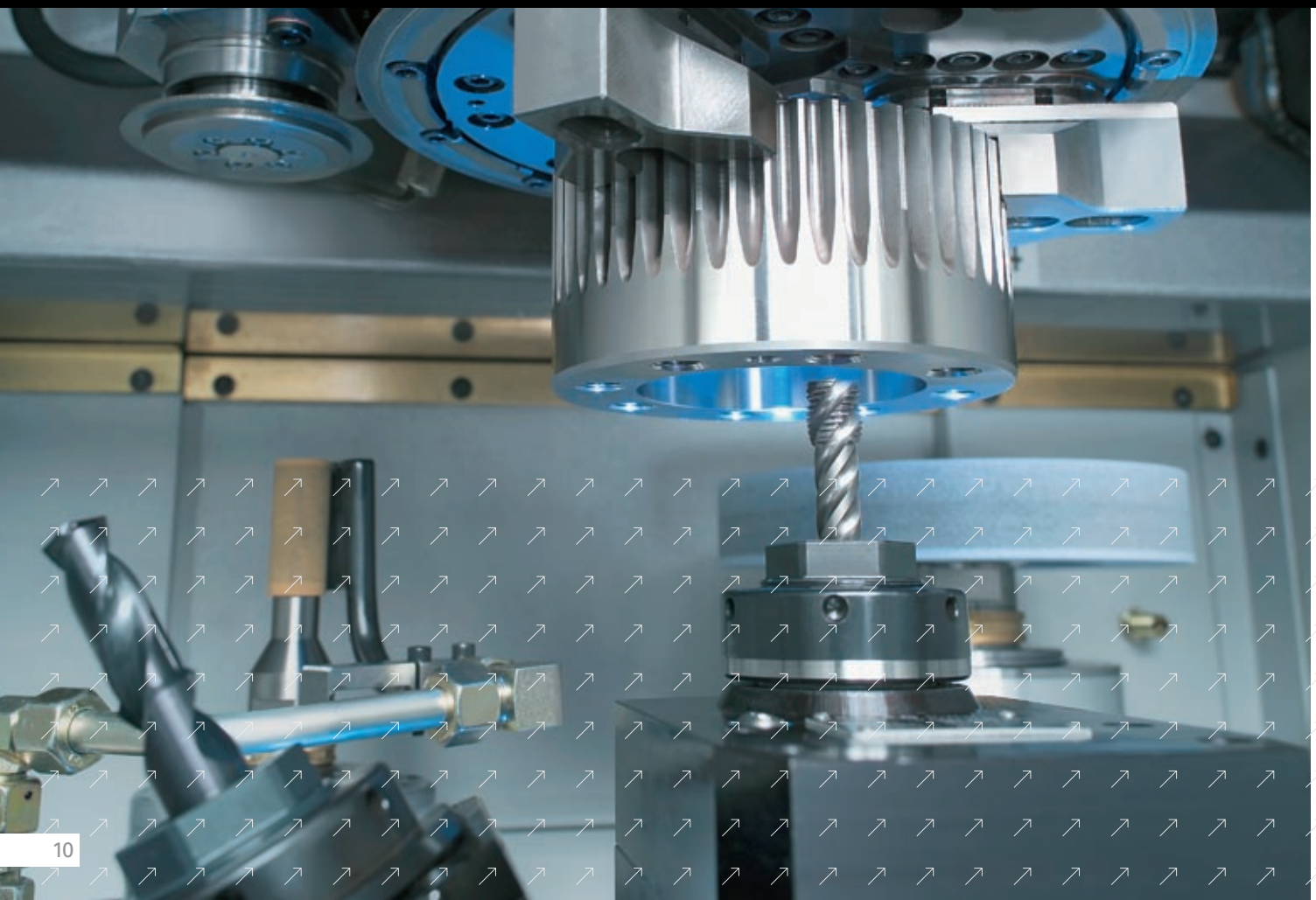


machine is thermally stable, as work spindle, grinding spindles, turret and machine base are all fluid-cooled. The operating temperature is quickly reached and then maintained within the limits of the ambient temperature by a powerful cooling unit.

As on all machines of the VSC series, the pick-up principle ensures that the VSC DS turning and grinding center from EMAG REINECKER loads itself. There is consequently no need for cost-intensive, space-devouring gantry loaders or other loading devices that necessitate time-consuming resetting work.

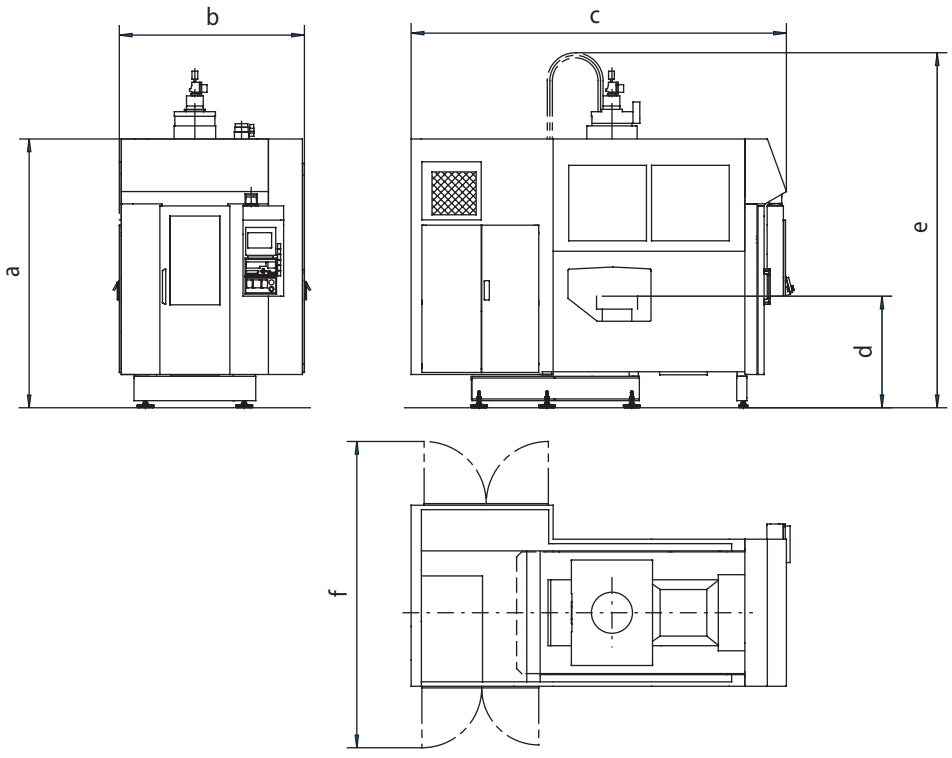
Technical data.

Capacity			VSC 250 DS	VSC 400 DS	VSC 400 DDS
max. chuck diameter		mm	250	400	400
max. swing diameter (incl. dressing tool)		mm	260	420	420
X-axis travel		mm	680	850	850
Y-axis travel		mm			315
Z-axis travel		mm	200	315	315
Main spindle					
Spindle nose to DIN 55 026		Size	6	11	11
Spindle bearing, front		dia. in mm	100	140	140
max. spindle speed		rpm	3500	3000	3000
Main drive					
max. power rating		kW	39	58	58
full power at speed of		rpm	800	900	900
max. torque		Nm	460	620	620
Braking torque, steady state		Nm	340	480	480
Feed drive					
Rapid traverse speed in	X/Z	m/min	45 / 30	45 / 30	45 / 30
Rapid traverse speed in	Y	m/min			30
Feed force in	X/Z	kN	5,5 / 11	11 / 11	11 / 11
Feed force in	Y	kN			11
Ball screw in	X/Z	dia. in mm	40 / 40	50 / 40	50 / 40
Ball screw in	Y	dia. in mm			40
Turning and grinding unit					
Turning tools / live tools		Qty	1 - 12	1 - 12	1 - 12
Tool registers, cylindrical shank		dia. in mm	40	40 / 50	40 / 50
Grinding spindles		Qty	1	1	1 - 2

Capacity		VSC 250 DS	VSC 400 DS	VSC 400 DDS
Operating voltage	V	400	400	400
Control voltage – direct current	V	24	24	24
Control voltage – alternating current	V	230	230	230
Frequency	Hz	50	50	50
Total installed power rating	kW	30	45	45
Lead fuse	A	80	100	100

Weights and measurements

Dimension a	mm	2450	2650	2650
Dimension b	mm	1700	1825	2000
Dimension c	mm	3200	3700	3990
Dimension d	mm	1020	1100	1100
Dimension e	approx. mm	3000	3500	3500
Dimension f	approx. mm	2900	3100	3300
Weight	kg	8000	10000	12500



Subject to technical changes.

At home in the world.

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Subject to technical changes.

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