

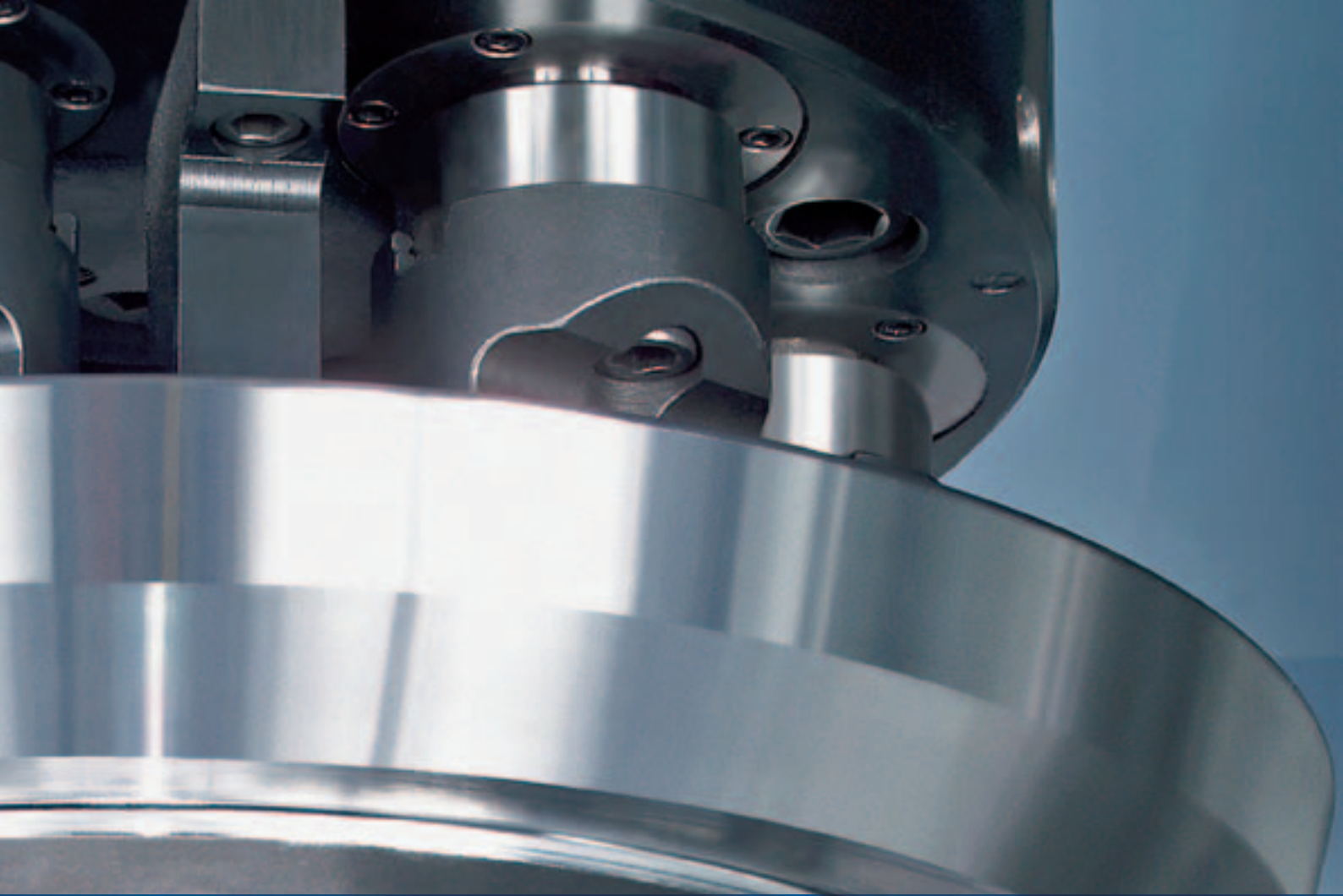
**Vertical multi-functional
turning cells**
VLC 500 / 800
VLC 1200



Workpieces are becoming more complex and more precise, batch sizes are becoming smaller and throughput times shorter. EMAG's answer to these demands is to use the high-performance multifunctional machines of the VLC series. Producing components in a single set-up through technology integration. Heavy-duty machining with the highest precision.

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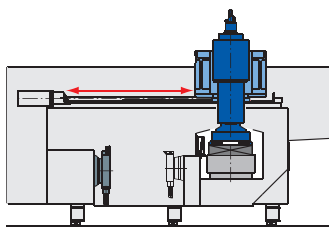


VERTICAL MULTI-FUNCTIONAL PRODUCTION CENTERS

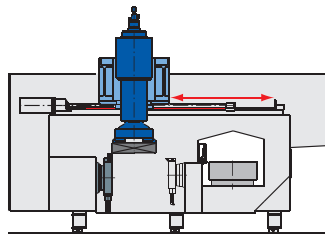


Precision + power = VLC.

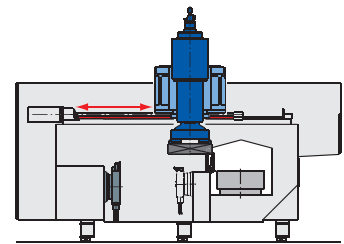
Three functions on the smallest footprint:



Pick-up position:
automatic loading and
unloading of the workpiece.



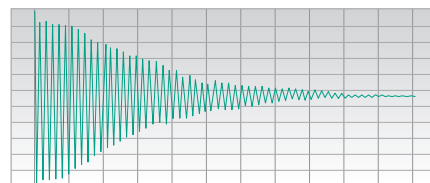
Machining position:
turning, drilling, milling,
grinding.



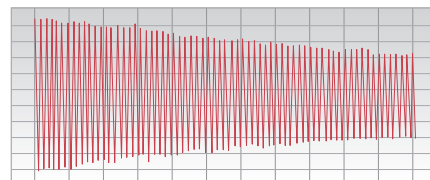
Gauging position:
measuring the workpiece and
processing the offsets.

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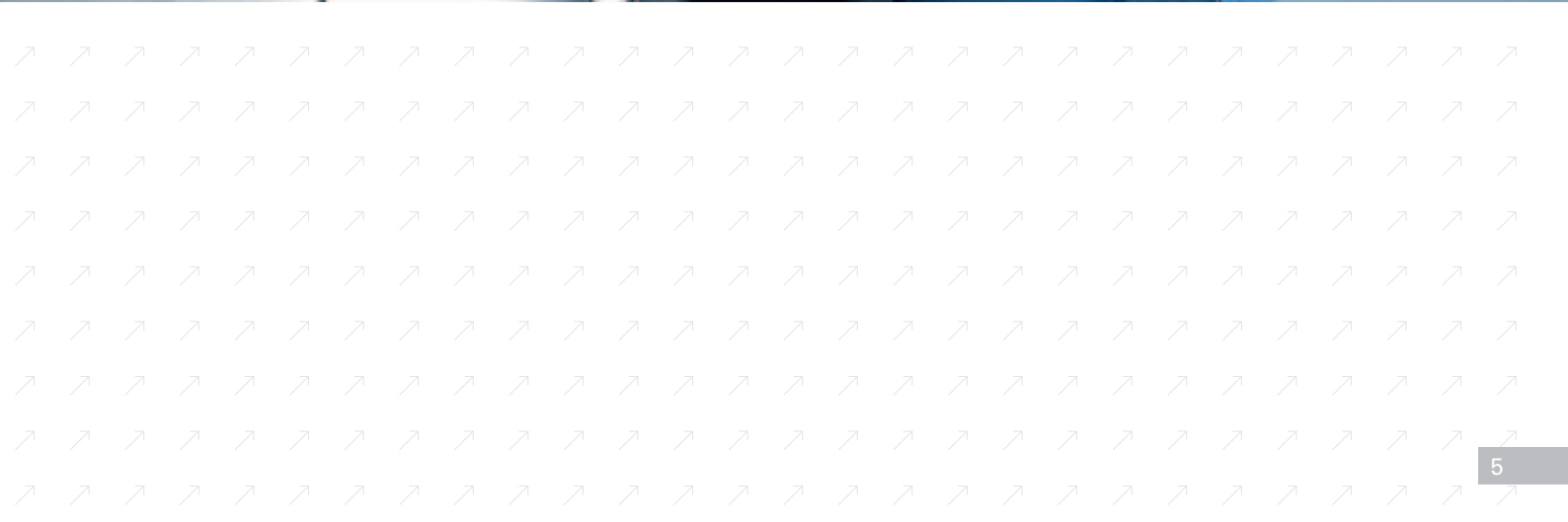
The cornerstone of the VLC series is a sturdy machine base made with MINERALIT® polymer concrete. This guarantees precision, an outstanding surface finish and an extended tool life when machining chucked components. VLC machines with optional drilling, milling or grinding spindles – which can also be used in multiples – offer a combination of turning and machining center for the perfect complete-machining of round and non-round components. As always at EMAG, automation is an integral part of the VLC machines.



Vibration damping effect of EMAG MINERALIT®
polymer concrete machine bases



In comparison to: Vibration damping effect on
machine bases in cast iron



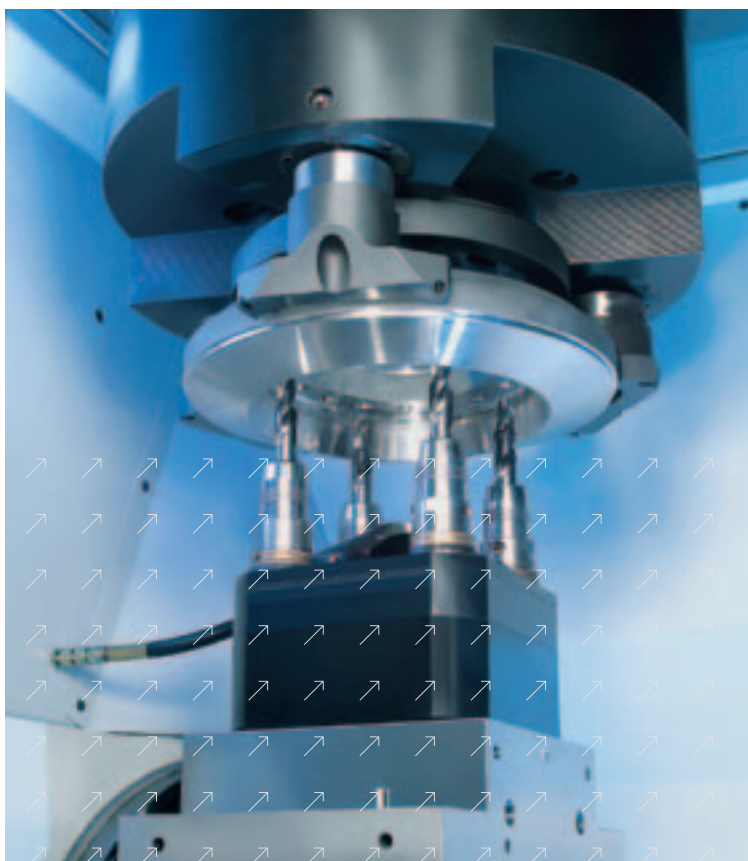
The VLC series - complete-machining through technology integration.

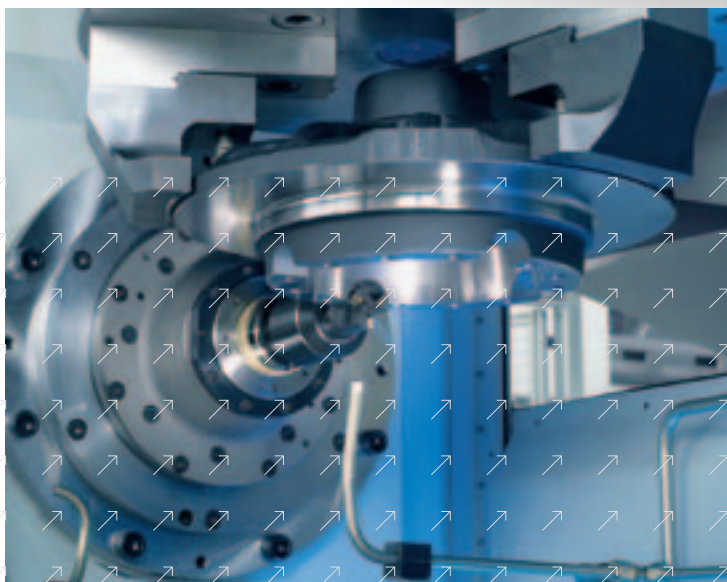
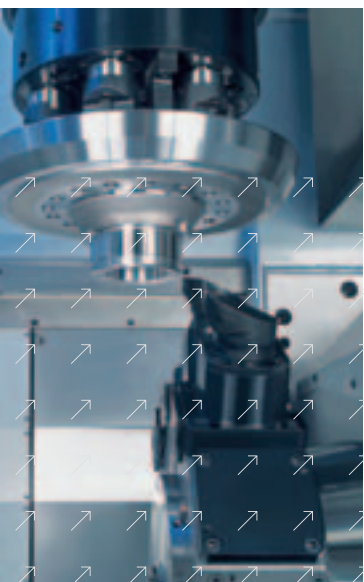
The work spindle and workpiece travel in the main axes X and Z, also optional in Y.

The tooling systems can be used in shuttle mode, for either serial or parallel operations, for which optional second X-axes are available. With the work spindle and workpiece positioned overhead and the tools aligned underneath, chips can fall unhindered onto the chip conveyor below. The VLC series of machines accommodates almost all metal cutting technologies: soft and hard machining,

interrupted cuts, turning, drilling, milling, hob cutting, broaching, and grinding.

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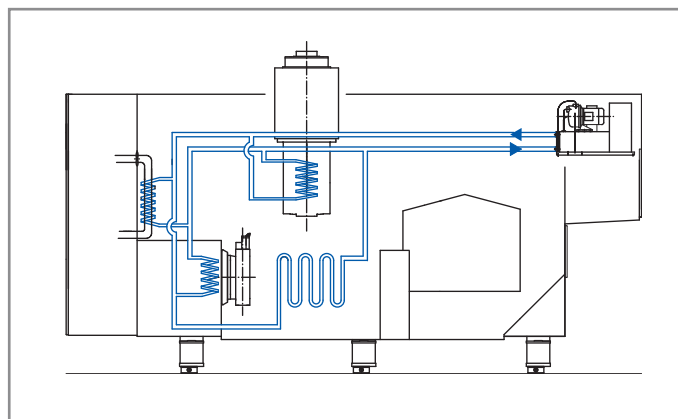
Heavy-duty machining with the highest precision.

The overhead slide with integrated main spindle completes movements in the X and Z directions.

This is done in the X-axis by a fastreacting gantry drive unit. In the Z-axis, an additional counterbalance together with the powerful ball screw spindle drive ensures maximum travel speeds.

Absolute position feedback systems guarantee a high degree of precision and make machine referencing unnecessary.

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V L C 8 0 0
V L C 1 2 0 0



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



Machine integral quality management.



Measuring is an integral part of the VLC design principle.

On its way from the machining to unloading position the workpiece passes a stationary measuring probe or plug gauge located outside the machining area. Here the component is measured without the results being adversely affected by chips or dirt particles. Measuring is done with the workpiece in its original set-up. High-precision components are then returned to the machining area, to be finish-machined once the necessary tool offsets have been implemented.

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Large doors provide operator-friendly access to the machining area. Safe viewing of machining area and overhead slide is ensured by a large window at the front.



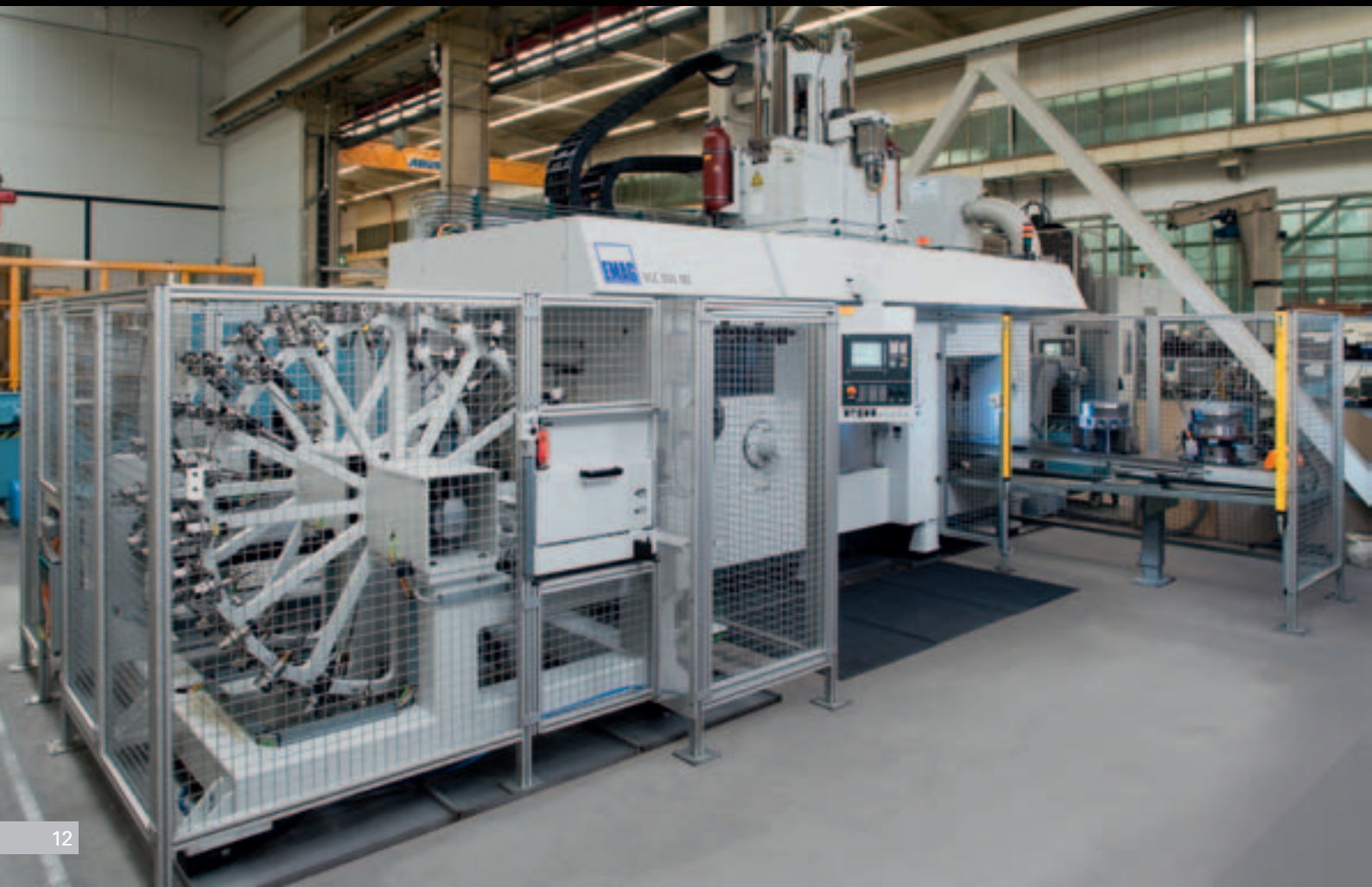


VLC 800 MT – the machining center among turning machines.

The VLC 800 MT is just what you need for those applications which, in addition to traditional turning, also require the universal use of other technologies. The powerful milling spindle integrated in the Y/B-axis makes even difficult milling and drilling operations possible. The optional tool magazine which can be equipped parallel to machining with up to 96 magazine positions reduces retooling times and allows similar tools to be used.

The EMAG turret with up to twelve stations is available for turning as usual.

V L C 8 0 0 M T





This machine concept is ideal for the universal machining of small to medium batch sizes such as those which occur in the construction machinery, large gear units, automotive, plant engineering and similar industries.

In combination with the integrated automation concept, this machine series also allows machining to be carried out in mass production with almost no personnel requirement.

VLC 1200 – the heavy-weight world champion.

The VLC 1200 – the largest pick-up machine in the world – can vertically machine workpieces of up to 1,200 mm in diameter and 2,000 kg in weight. As always with EMAG, automation is an integral part of the machine. The VLC 1200 practically loads itself. Major areas of application for this type of machine are large chucked components for construction machinery (drive technology), WTGS and industrial transmission systems.

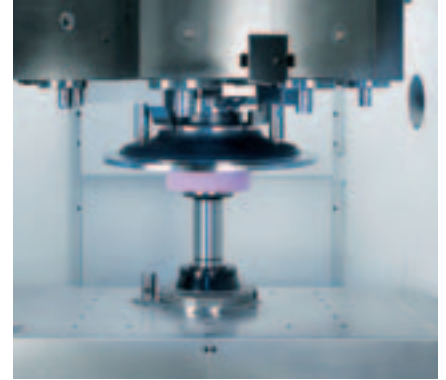
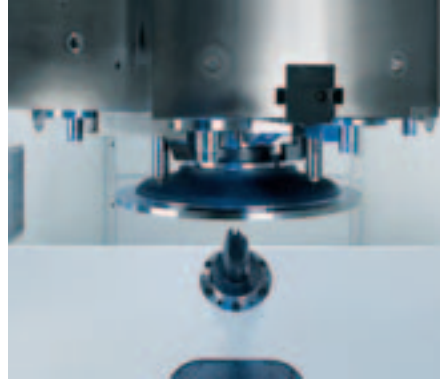
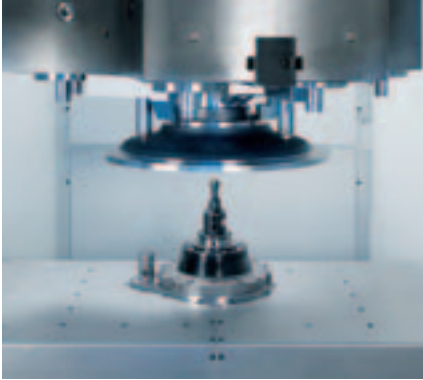
Technology integration: turning, drilling, milling, grinding, gear cutting – all on a single machine.

The VLC 1200 design is a sturdy turning platform. The outstanding characteristics of the pick-up work spindle with direct driven synchronous motor (no gear shaft) include its high power and torque ratings. The use of gearless drives ensures that technologies demanding an exceptionally high control performance and synchronicity (for instance grinding and gear cutting) can be integrated into the machine platform.

The integrated A-axis permits helical gearing and the B-axis supports angular infeed grinding.

V L C 1 2 0 0





The direct driven spindle of the machine also lends a high degree of process capability to the machining of outstanding surface finishes and the adherence to tight tolerances (precision bores).

To enable the user to fully utilize the VLC 1200 in a flexible workshop environment EMAG offers a tool changer with chain magazine. The tooling system is the single-station type and integrated into the B-axis.

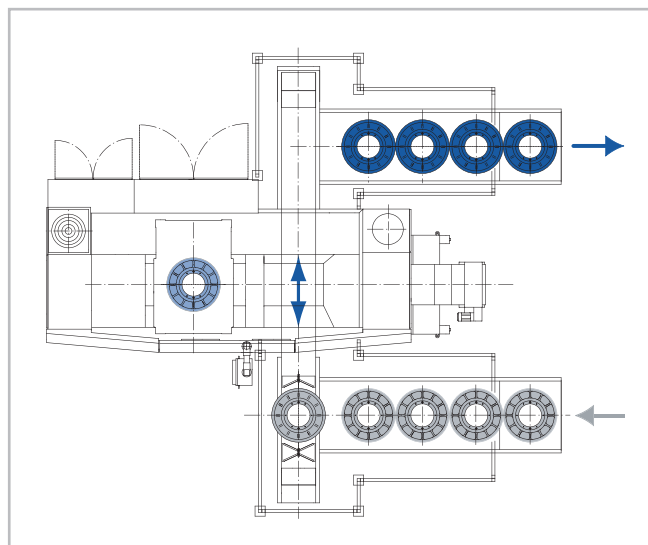
Opposite of the turning tool receptor is a milling spindle that can also be equipped with Y-axis, if required. This allows for the use of a large number of different tools.

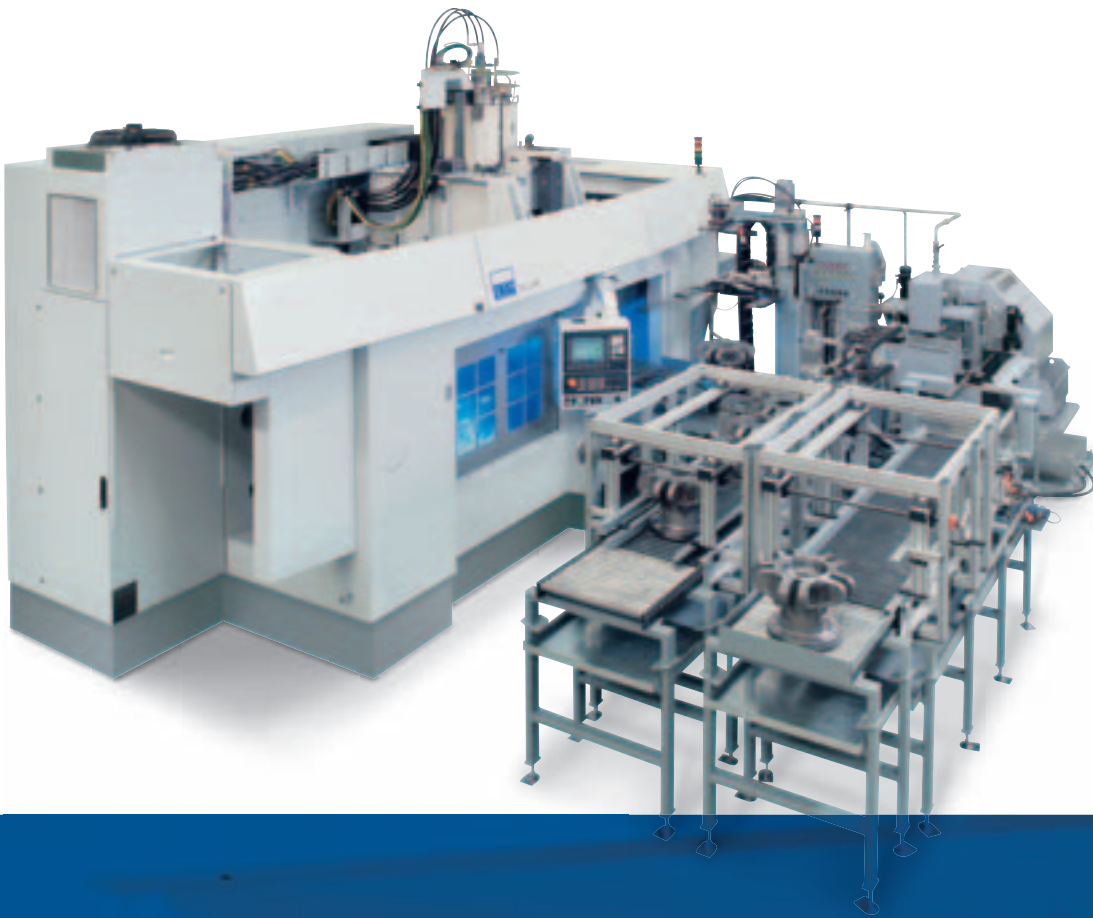
Automation integrated.

The VLC design allows for a quick, space-saving, simple – and therefore operationally safe and cost-effective – workpiece changeover and transport. The workpieces are conveyed to the pick-up station and clamped directly in the chuck.

Upon request, other external operations such as stamping/signing, measuring, hardening or cleaning can be included in the automation system.

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V L C 8 0 0
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Technical Data.

Capacity		VLC 500	VLC 800	VLC 800 MT	VLC 1200
Chuck diameter, max.	mm in	500 19.7	800 31.5	800 31.5	– –
Swing diameter	mm in	820 32.3	820 32.3	820 32.3	– –
Travel in X	mm in	1,775 / 2,665 69.9 / 104.9	1,775 / 2,665 69.9 / 104.9	2,665 104.9	2,960 116.5
Travel in Y	mm in	– –	– –	± 225 ± 8.9	200 7.9
Travel in Z	mm in	750 29.5	750 29.5	750 29.5	1,000 39.4
Main spindle					
Spindle flange to DIN 55 026	Size	Z 380	Z 380	Z 380	Z 520
Spindle bearing, front	dia. in mm dia. in inch	190 7.5	320 12.6	320 12.6	420 16.5
Speed, max.	rpm	2,100	750	750	500
Main drive					
Power rating, max.	kW hp	110 148	74 99	74 99	88 118
Full power at a spindle speed of	rpm	950	160	160	120
Torque, max.	Nm ft-lb	1,300 959	4,400 3,245	4,400 3,245	5,000 3,688
Feed drives					
Rapid-traverse rate X / Z	m/min ipm	45 / 30 1,772 / 1,181	45 / 30 1,772 / 1,181	45 / 30 1,772 / 1,181	25 / 25 984 / 984
Rapid traverse speed Y	m/min ipm	– –	– –	30 1,181	15 591
Feed force X / Z	kN lbf	21 / 20 4,720 / 4,496	21 / 20 4,720 / 4,496	21 / 20 4,720 / 4,496	25 / 15 5,620 / 3,372
Feed force Y	kN lbf	– –	– –	5 1,124	10 2,248
Ball screw X	dia. in mm dia. in inch	63 2.5	63 2.5	63 2.5	2 x 63 2 x 2.5
Ball screw in Z	dia. in mm dia. in inch	50 2.0	50 2.0	50 2.0	2 x 50 2x 2.0
Ball screw in Y	dia. in mm dia. in inch	– –	– –	40 1.6	– –
Tooling systems					
EMAG disc-type turret, left					
Tool receptors	Quantity	12 / 8	12 / 8	–	–
for cylindrical shanks to DIN 69 880					
Shank diameter	mm in	50 / 60* 2.0 / 2.4*	50 / 60* 2.0 / 2.4*	– –	– –
EMAG disc-type turret, right					
Tool receptors	Quantity	12	12	12	–
for cylindrical shanks to DIN 69 880					
Shank diameter	mm in	50 2.0	50 2.0	50 2.0	– –
Tool magazine					
Receptor	Quantity	–	–	48 / 96	36
HSK 100, for turning tools HSK 100-F160					

* without live tool

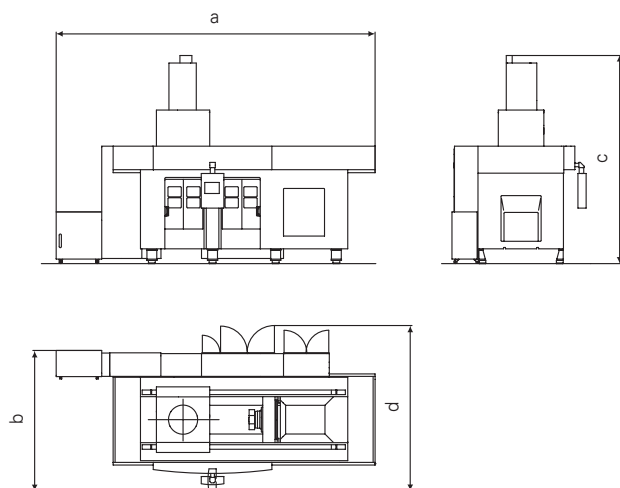
Turning / milling and grinding unit		VLC 500	VLC 800	VLC 800 MT	VLC 1200
Turning tools / live tools	Quantity	–	–	–	24
Tool receptors, cylindrical shank	dia. in mm	–	–	HSK 100	HSK 100
	dia in inch	–	–	HKS 3.9	HKS 3.9
Milling and Grinding spindle	Quantity	–	–	1	1
Max. tool length	mm	–	–	500	350
	in	–	–	19.7	13.8

Dimensions and weights

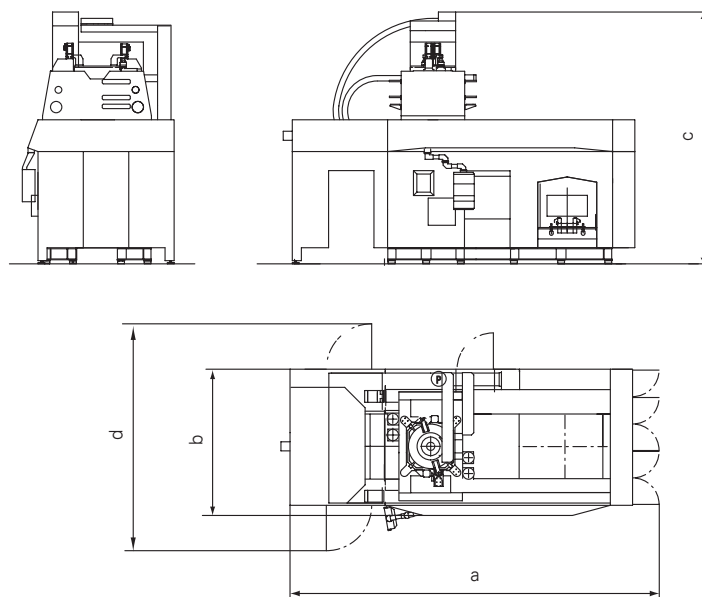
Length a	mm	6,150 / 7,000	6,150 / 7,000	8,200*	8,200
	in	242.1 / 275.6	242.1 / 275.6	322.8*	322.8
Width b	mm	3,100	3,100	3,100	3,000
	in	122.0	122.0	122.0	118.1
Height c	mm	4,570	4,570	4,570	5,500
	in	179.9	179.9	179.9	216.5
Width d (open doors)	approx. mm	3,600	3,600	3,600	5,000
	approx. in	141.7	141.7	141.7	196.9
Weight, total machine	approx. kg	20,000 / 26,000	20,000 / 26,000	30,000	60,000
	approx. lb	44,092 / 57,320	44,092 / 57,320	66,139	132,277

* incl. tool magazine

Floor plan VLC 500 / 800



Floor plan VLC 1200



Subject to technical changes

At home in the world.

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