



**VL-SERIES**

**VL 2 · VL 3 DUO · VL 4 · VL 6 · VL 8**

Vertical Pick-Up Turning Machines



# The VL Platform

**A design that results in higher production performance: The lathes in the VL series are space-saving vertical turning machines with integrated automation.**

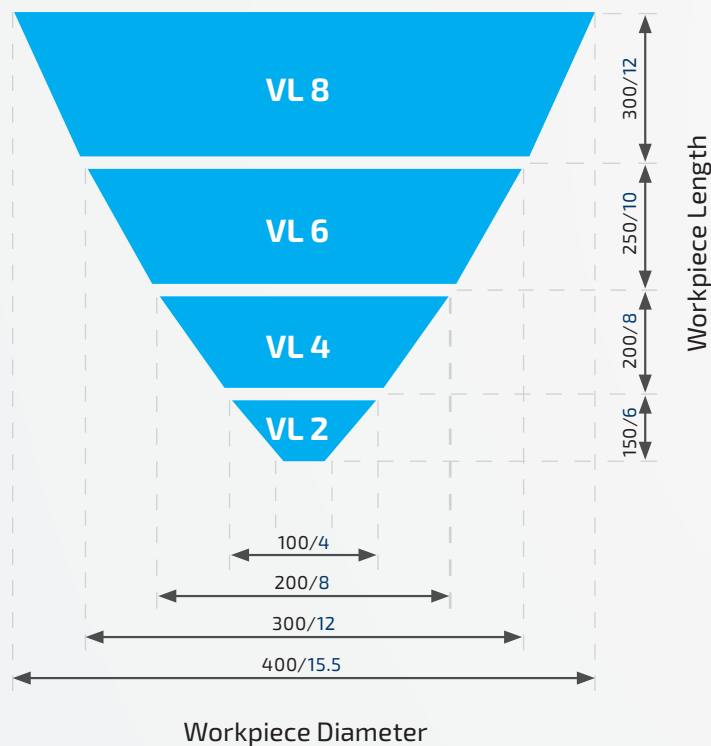
Maximum performance at low costs per piece – this performance is based on high-quality components. All VL lathes feature a machine body made of MINERALIT® polymer concrete with world-class damping properties, a pick-up working spindle that moves in the X- and Z-axes with minimum response times and a tool turret that guarantees short swiveling times.

Furthermore, the machines can be fitted with a Y-axis in the turret to allow for the machining of complex geometries. The possible fields of applications for the machines are thus increased massively.

**The result:** the machine structure ensures a high level of component quality and process reliability while requiring minimum floor space.

## THE WORKPIECE RANGE

Specifications in mm/inch



**AUTOMATED  
PRODUCTION,  
minimized space  
requirement**

## KEY POINTS

- + Vertical machines with modular designs allow for a wide range of machine versions
- + Ideal for medium and large scale production
- + Every machine features the full range of automation and handling technologies
- + Designed for manual loading, but also easy to automate
- + Perfect for multiple machine operations

## THE BENEFITS

- » Machining of chucked parts = Standard machine concept
- » Small footprint (chaku-chaku or close linear arrangement) = Reduced floor space, more possibilities for the machine layout
- » Simple to link pick and place unit = flexibility for future developments, lower automation costs and shorter tooling times
- » Integrated automation = No additional costs (interface, etc.)
- » Short transport distances = Optimization of idle times
- » Common parts strategy, standard spare parts warehousing = Lower maintenance costs
- » Ease of operation (extremely accessible machining area) = Quicker machine set-up
- » High energy efficiency = Reduction in energy costs



**VL 2** Workpiece Ø:  
max. 100 mm  
Workpiece length:  
max. 150 mm



**VL 4** Workpiece Ø:  
max. 200 mm  
Workpiece length:  
max. 200 mm



**VL 6** Workpiece Ø:  
max. 300 mm  
Workpiece length:  
max. 250 mm



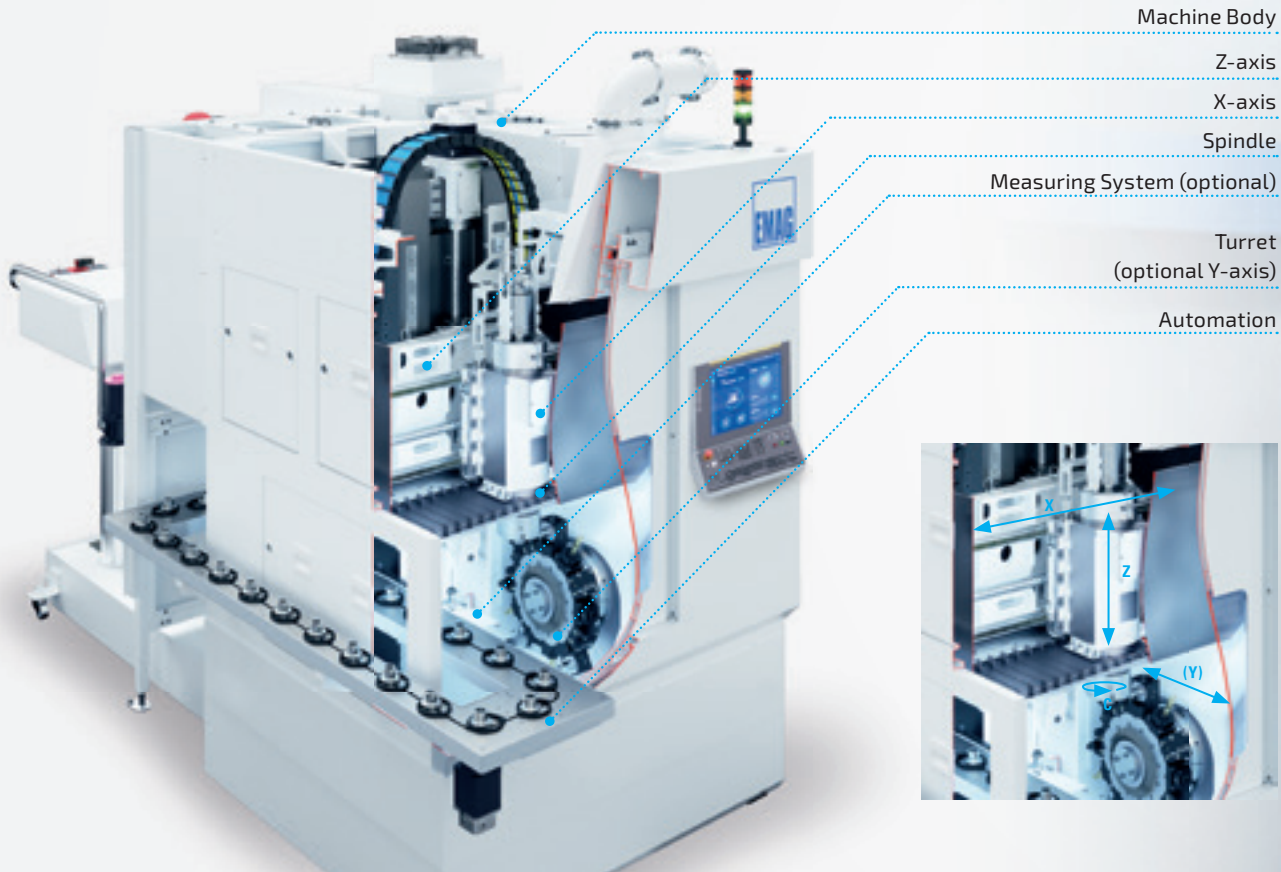
**VL 8** Workpiece Ø:  
max. 400 mm  
Workpiece length:  
max. 300 mm



# Machine Design

The vertical pick-up turning machines in the VL series have been specially developed for the production of precision chucked components.

In order to cover the widest possible component range, the VL machines are available in four versions for workpieces from 10 mm to a maximum diameter of 400 mm.



- Machine Body
- Z-axis
- X-axis
- Spindle
- Measuring System (optional)
- Turret (optional Y-axis)
- Automation



## HIGH STRENGTH

Large working spindle bearing diameter + machine body made of MINERALIT®



## SIMPLE HANDLING

All the service units are easy to reach



## FULL AUTOMATION

Including raw and finished parts storage areas



## MINIMUM FOOTPRINT

Compact machine design



## MAXIMUM PERFORMANCE

Short transport distances



## TURNING MACHINES VL 2 · VL 4 · VL 6 · VL 8

- » Three axes (X, Z, C), optional Y-axis
- » Turret with up to twelve (driven) tools
- » Automation

### TECHNICAL DATA

		VL 2	VL 4	VL 6	VL 8
Workpiece diameter, max.	mm inch	100 4	200 8	300 12	400 15.5
Chuck diameter	mm inch	160 6.5	260 10	400 15.5	500 19.5
Swing diameter	mm inch	210 8	280 11	420 16.5	520 20.5
Workpiece length, max.	mm inch	150 6	200 8	250 10	300 12
Axis travel X, Y (optional), Z	mm inch	650/± 50/375 27.5/±2/15	760/± 30/415 30/±1/16.5	900/± 30/495 35.5/±1/19.5	1.110/± 30/595 43.5/±1/23.5
Main spindle					
» Power rating, 40% / 100%	kW hp	18,1/13,9 24/19	25/18 34/24	39/28 52/38	44/34,5 59/46
» Torque, 40% / 100%	Nm ft-lb	77/59 57/44	280/202 207/148	460/340 339/251	775/600 572/443
» Max. number of revolutions	1/min	6.000	4.500	3.100	2.850
Turret					
» Turret tool positions	Qty	12	12	12	12
» Revolutions of driven tools	1/min	6.000	6.000	6.000	6.000
» Torque driven tools, 30% / 100%	Nm ft-lb	27/15 20/11	27/15 20/11	27/15 20/11	48/30 35/22
Rapid-traverse rate X / Y / Z	m/min ipm	60/30/30 2,363/1,181/1,181	60/15/30 2,363/591/1,181	60/15/30 2,363/591/1,181	60/15/30 2,363/591/1,181

# Measuring – Fully Integrated in the Process

This compact machine design allows the modules to be positioned close to one another, and the maintenance and servicing areas to be easily accessible from the back of the machine. This layout makes VL-machines easy to link, and perfect for a production line or chaku-chaku layout.

If desired, an optional measuring system can be installed between the machining area and the pick-up station. With this system, measuring is performed during the parts transportation to the loading/unloading station – saving time!



THE MACHINE  
IS AUTOMATICALLY  
Loaded and Unloaded  
at the Pick-Up  
Station

## AUTOMATED PRODUCTION

VL machines come standard with an „O“ automation system. This workpiece transport system is installed on the left-hand side of the machine and transports workpiece to and from the pick-up station.



## PICK-AND-PLACE UNIT/ CHANGER

Pick-and-place units available for  
automated production

**1**

### EASILY ACCESSIBLE

All the service units are ergonomically arranged.

**2**

### LOW SERVICE COSTS

All the units are always accessible (electrics, hydraulics, cooling system, cooling lubricant and central lubrication system).

**3**

### EASY TO OPERATE

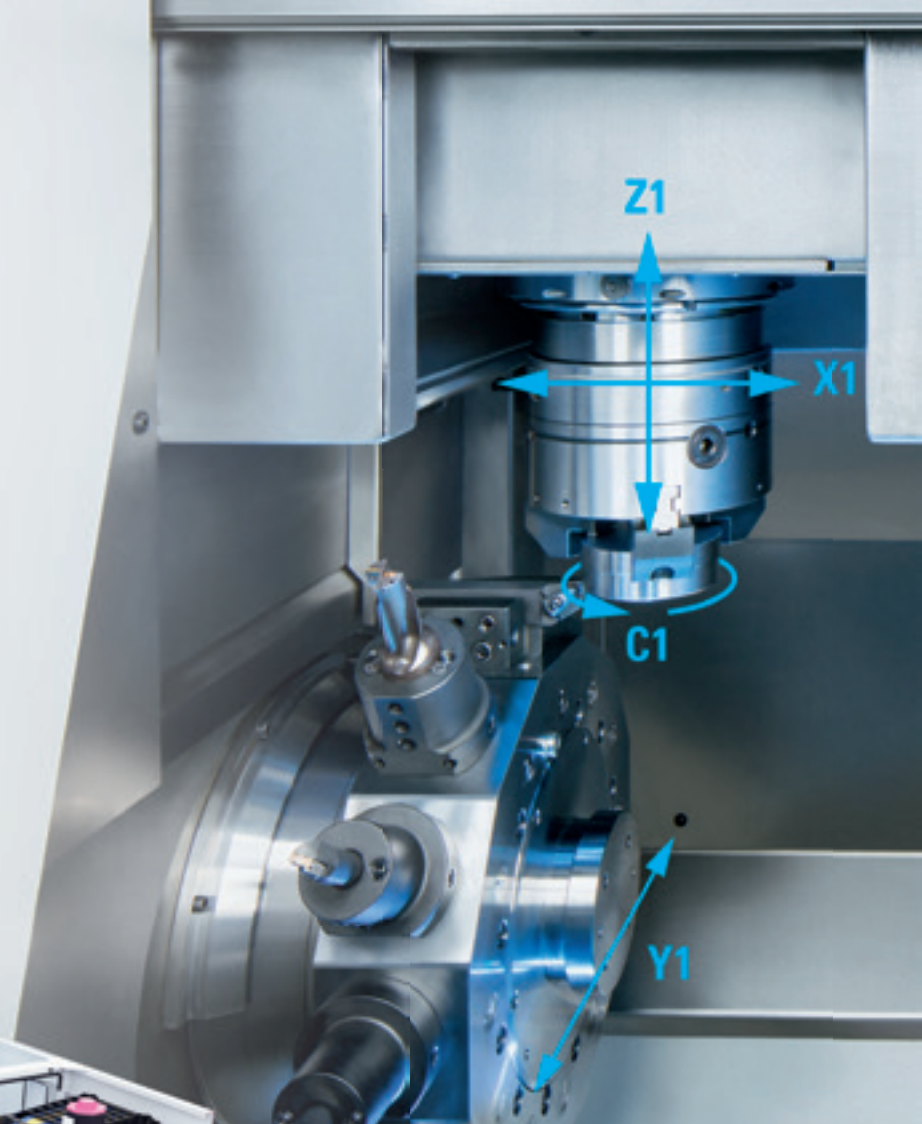
The control interface remains the same regardless of the control unit.



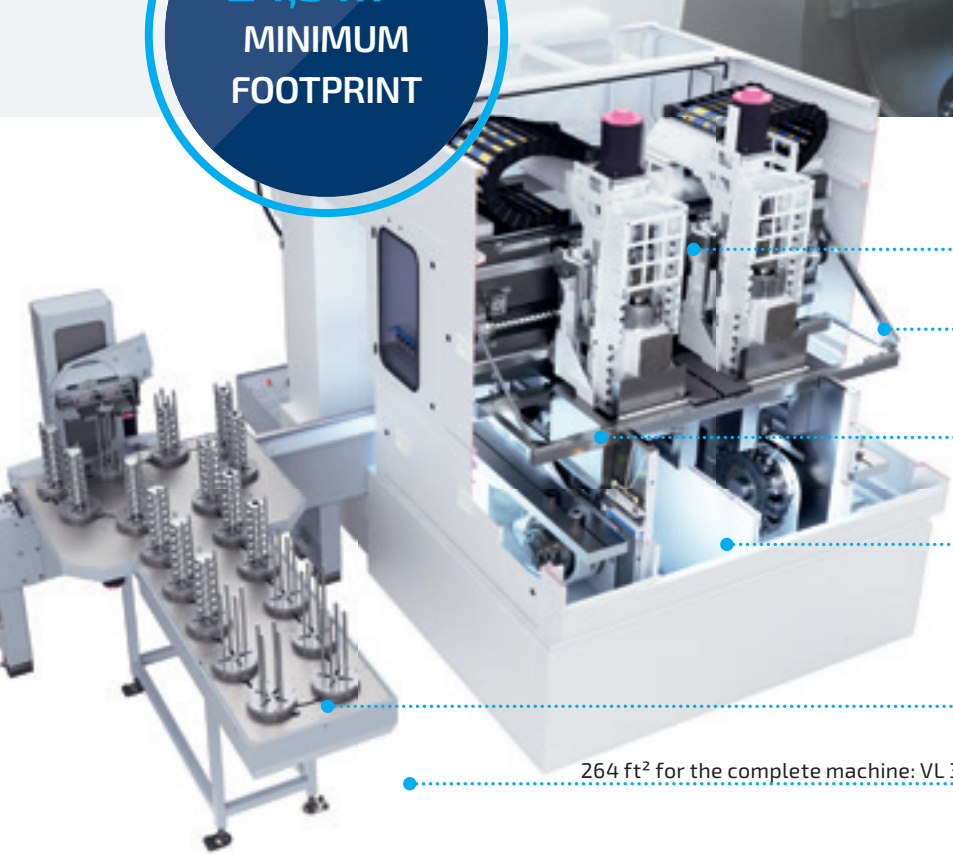
# Modular Multi-Spindle Machine – VL 3 DUO

The EMAG VL 3 DUO CNC Machine, an efficient twin-spindle machine solution for chucked parts up to 150 mm in diameter, expands the product portfolio of the extremely successful VL series.

The VL 3 DUO turning machines combine the technological developments of recent years, including pick-up automation and the TrackMotion automation system, to the modular basic design of the cnc machine, creating an extremely efficient production system offering maximum productivity with minimal space requirements.



**24,5 m<sup>2</sup>\***  
MINIMUM  
FOOTPRINT



**High Precision**

MINERALIT® polymer concrete machine base, machine weight 22,050 lbs, size 45 linear roller guides and direct position measuring systems in all axes

**Integrated Automation**

Pick-up working spindle for loading and unloading

**Unique Machine Concept**

Two working spindles and two high-performance tool turrets with torque motor

**Optimum Accessibility**

Short distance to the turrets and working spindle ensure optimum accessibility

**Increased Flexibility**

400 workpiece\* parts storage area and TrackMotion automation system for high-speed part transport between storage and machining areas, as well as for turning the workpieces

**Minimum Floor Space Requirement**

264 ft<sup>2</sup> for the complete machine: VL 3 DUO + TrackMotion + parts storage area + chip conveyor

Machines shown in trade show format.

\*Fully equipped machine including chip conveyor, TrackMotion and parts storage area for up to 400 workpieces (depending on the workpiece geometry)



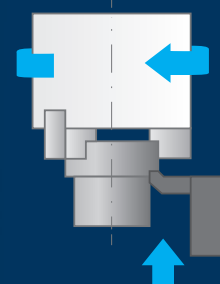


## HIGH-PERFORMANCE TURNING WITH THE VL 3 DUO

Due to its rigid machine design, the VL 3 DUO is perfect for heavy-duty machining. High feed forces with a large cutting depth reduce the machining time.

### Standard Spindle:

ap = 4,75 mm  
0.2 in  
f = 0,4 mm/rev  
0.02 in/rev  
vc = 250 m/min  
1,000 in/min



### High Torque Spindel:

ap = 8,5 mm  
0.3 in  
f = 0,4 mm/rev  
0.02 in/rev  
vc = 250 m/min  
1,000 in/min

## TECHNICAL DATA

Workpiece diameter, max.	mm inch	150 6
Swing diameter max.	mm inch	210 8
Chuck diameter	mm inch	210 8
Workpiece length, max./optional	mm inch	110/175 4/7
Travel distances X (machining stroke)	mm inch	505 20
Travel distances Y (optional)	mm inch	±30 ±1
Travel distances Z	mm inch	250 10
Rapid-traverse rate X / Y / Z	m/min ipm	60/30/30 2,362/1,181/1,181
Turret (x2)		
» Turret tool positions	Qty	12

## VL 3 DUO

### Main spindles (x2) – Standard

» Power rating, 40% / 100%	kW hp	17,9/15,5 24/21
» Torque, 40% / 100%	Nm ft-lb	144/98 106/72
» Max. number of revolutions	1/min	5.000
» Spindle flange to DIN 55026	Size	6
» Spindle bearing dia., front	mm inch	100 4

### High Torque Spindel – Option

» Power rating, 40% / 100%	kW hp	32,4/28,9 43/38
» Torque, 40% / 100%	Nm ft-lb	255/196 188/144
» Max. number of revolutions	1/min	5.000

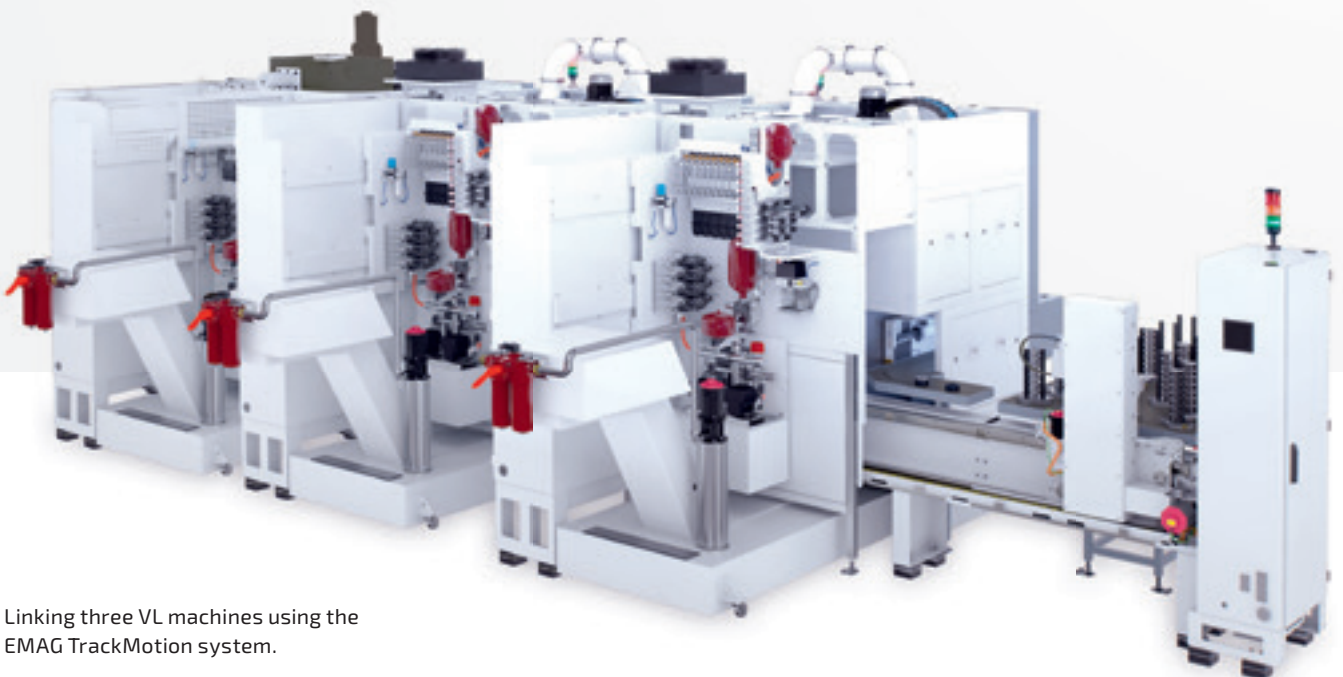
# The TrackMotion Automation System

**TrackMotion combines the concept of conveyor belts integrated with gantries into one single automation solution.**

The TrackMotion is a track that runs through multiple machines with a TransLift unit attached. The TransLift will grip parts, even parts with different heights, correctly position them and if necessary turn the part over. The way the TrackMotion is set up it can link a variety of machines very easily. To decrease cycle times even further, multiple TransLift units can be added.



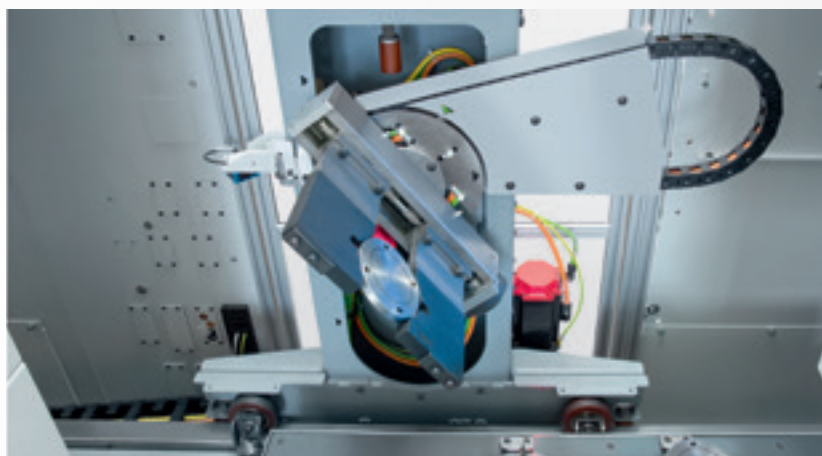
Shown without safety fencing



Linking three VL machines using the EMAG TrackMotion system.



A parts storage area supplies the raw parts (storage capacity up to 400 parts, depending on the workpiece geometry). The machines are linked via TrackMotion, which handles both picking and placing the workpieces and turning them over.



From small to large without retooling. The changeover-free NC gripper ensures the fastest machine set-up.



EMAG TrackMotion simplifies linking multiple machines.

## THE ADVANTAGES OF THE TRACKMOTION SYSTEM

- + Minimal set-up time – the TrackMotion automation system is ready for use as soon as the workpiece height and part diameter have been entered into the standard CNC Code
- + Great reliability due to its simple, sturdy design
- + Flexible system – multiple TransLift units can be installed on a single system
- + The workpieces are positioned and turned over in one cycle
- + Save space - the whole system is installed behind the machines
- + Possibility to integrate measuring equipment, marking systems, cleaning machines and more
- + Easy to service – TrackMotion is easily accessible from all sides
- + Short part transport times with horizontal travel speeds of 492 ft/min and 92 ft/min vertically



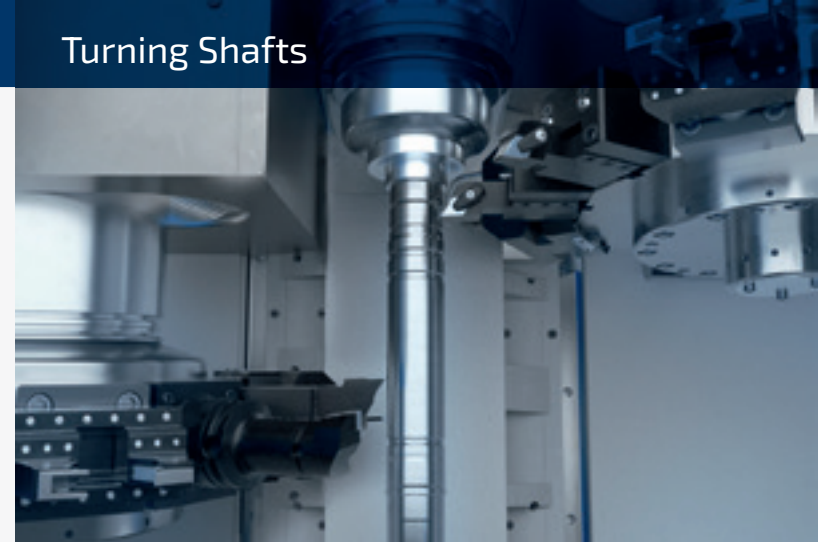


# TECHNOLOGY. CONNECTED.

Turning Chucked Components



Turning Shafts



Gear Grinding



Cylindrical Grinding



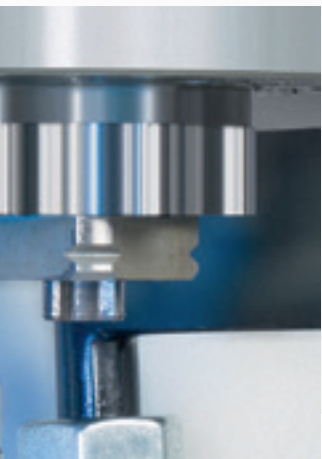
Out-of-round Grinding



Milling



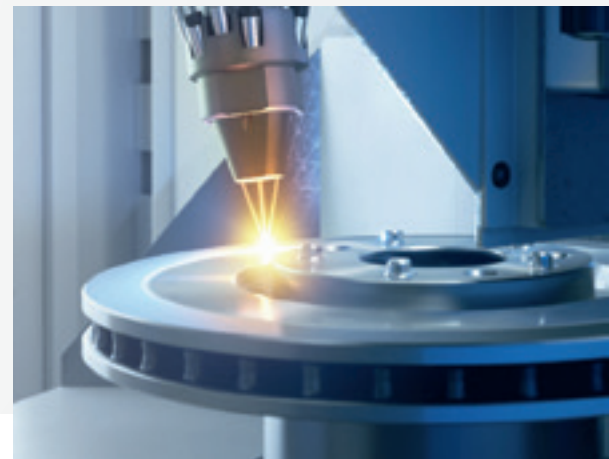
Gear Hobbing



Grinding



ECM/PECM



Laser Processing

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All EMAG  
Locations



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