

VL-SERIES
VL 2 · VL 3 DUO · VL 4 · VL 6 · VL 8



VERTICAL PICK-UP TURNING MACHINES

think

VERTICAL



- + Consistent vertical model families with modular design ensure a large range of 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
- + Suitable for operation of multiple machines



VL 2

Workpiece diameter, max.: 100 mm
Workpiece length, max. 150 mm



VL 4

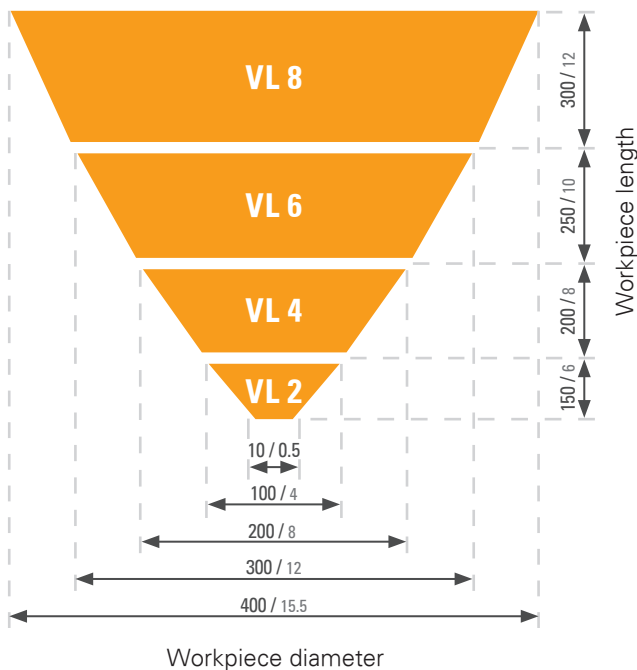
Workpiece diameter, max. 200 mm
Workpiece length, max. 200 mm

THE VL PLATFORM

AUTOMATED PRODUCTION WITH MINIMUM SPACE REQUIREMENT

THE WORKPIECE RANGE

Specifications in mm / inch





Workpiece diameter,
max. 300 mm
Workpiece length,
max. 250 mm

VL 6



Workpiece diameter,
max. 400 mm
Workpiece length,
max. 300 mm

VL 8

Machines shown with optional decorative sheet kit



THE BENEFITS

- 1 Machining of chucked parts = Standard machine concept
- 2 Small footprint (chaku-chaku or close linear arrangement) = Reduced floor space costs, more possibilities for the machine layout
- 3 Possibility of simple interlinking via central feeding and discharge belts and pick-and-place unit/changer = flexible as regards to future developments, lower automation costs, and shorter tooling times
- 4 Integrated automation = No additional costs (interface, etc.)
- 5 Short transport distances = Optimization of idle times
- 6 Common parts strategy, standard spare parts warehousing = Lower maintenance costs
- 7 Ease of operation (extremely accessible machining area) = Quicker machine set-up
- 8 High energy efficiency = Reduction in energy costs

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



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



COMPACT

Low Costs per Piece Guaranteed

A design which ensures a giant leap forward in terms of production performance: The machines of 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.xxx

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 MOST IMPORTANT KEYWORDS

HIGH STRENGTH

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

FULL AUTOMATION

Including raw and finished parts storage areas

SIMPLE HANDLING

All the service units are easy to reach

MINIMUM FOOTPRINT

thanks to compact machine design

MAXIMUM PERFORMANCE

thanks to short transport distances

TECHNICAL DATA

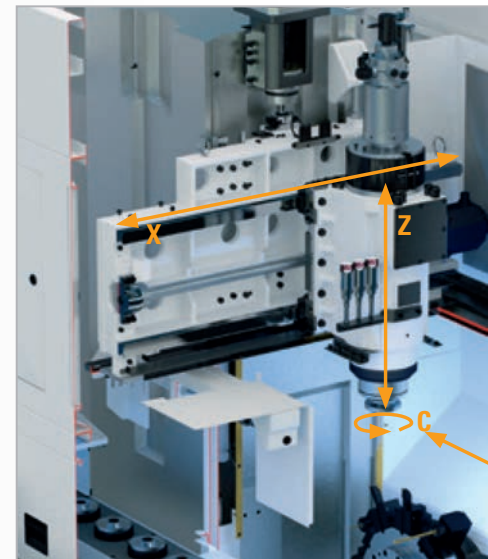
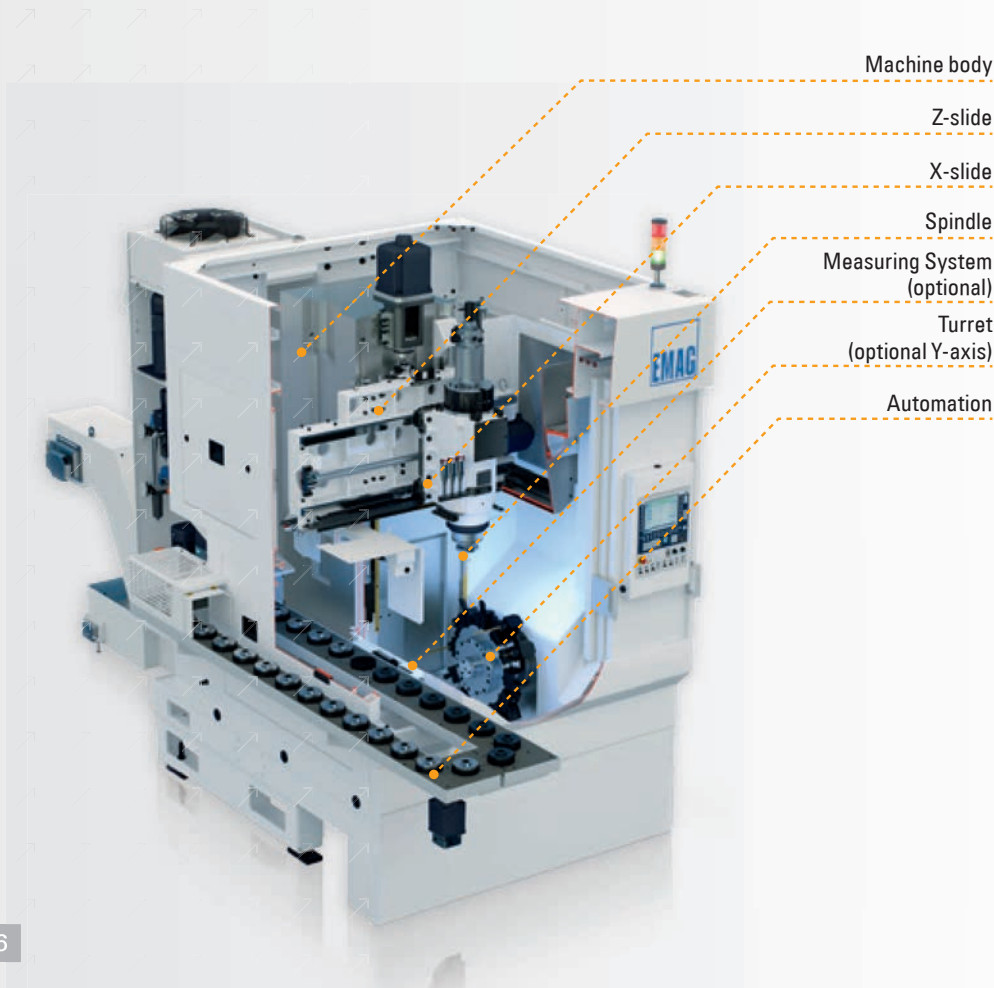
	VL 2	VL 4	VL 6	VL 8
Chuck diameter	160 mm 6.5 inch	260 mm 10 inch	400 mm 15.5 inch	500 mm 19.5 inch
Workpiece diameter, max.	100 mm 4 inch	200 mm 8 inch	300 mm 12 inch	400 mm 15.5 inch
Workpiece length, max.	150 mm 6 inch	200 mm 8 inch	250 mm 10 inch	300 mm 12 inch
X-axis travel	700 mm 27.5 inch	740 mm 29 inch	880 mm 34.5 inch	995 mm 39 inch
Z-axis travel	375 mm 15 inch	400 mm 15.5 inch	480 mm 19 inch	580 mm 23 inch
Y-axis travel (optional)	± 50 mm ± 2 inch	± 30 mm ± 1 inch	± 30 mm ± 1 inch	± 30 mm ± 1 inch
Main spindle				
» Power rating, 40% / 100%	18.1 / 13.9 kW 24 / 19 hp	25 / 18 kW 34 / 24 hp	39 / 28 kW 52 / 38 hp	44 / 34.5 kW 59 / 46 hp
» Torque, 40% / 100%	77 / 59 Nm 57 / 19 hp	280 / 202 Nm 207 / 149 ft-lb	460 / 340 Nm 339 / 251 ft-lb	775 / 600 Nm 572 / 443 ft-lb
» Max. number of revolutions	6,000 rpm	4,500 rpm	3,100 rpm	2,850 rpm
Turret tool positions	12	12	12	12
Rapid-traverse rate X / Y / Z	60 / 30 / 30 m/min 2,363 / 1,181 / 1,181 ipm	60 / 15 / 30 m/min 2,363 / 591 / 1,181 ipm	60 / 15 / 30 m/min 2,363 / 591 / 1,181 ipm	60 / 15 / 30 m/min 2,363 / 591 / 1,181 ipm
Revolutions of driven tools	6,000 rpm	6,000 rpm	6,000 rpm	6,000 rpm
Torque driven tools, 30% / 100%	27 / 15 Nm 20 / 11 ft-lb	27 / 15 Nm 20 / 11 ft-lb	27 / 15 Nm 20 / 11 ft-lb	48 / 30 Nm 35 / 22 ft-lb

The compact machine design means that the modules can be closely positioned while the maintenance and servicing areas are easily accessible from the rear. This makes the VL-machines easy to link and therefore ideal for line production or chaku-chaku layout.

Measuring – Fully Integrated in the Process

An optional measuring station is available outside the machining area. The measuring station is installed between the machining area and the pick-up station. Measuring is carried out during transportation to the loading / unloading station, thus saving time.

MACHINE
DESIGN





KEY FEATURES

- 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.

AUTOMATED PRODUCTION



THE AUTOMATION

The VL machines are equipped with “O” automation. The “O” automation is a workpiece transport system which is fitted to the left-hand side of the machines. It transports the workpieces to the pick-up station.

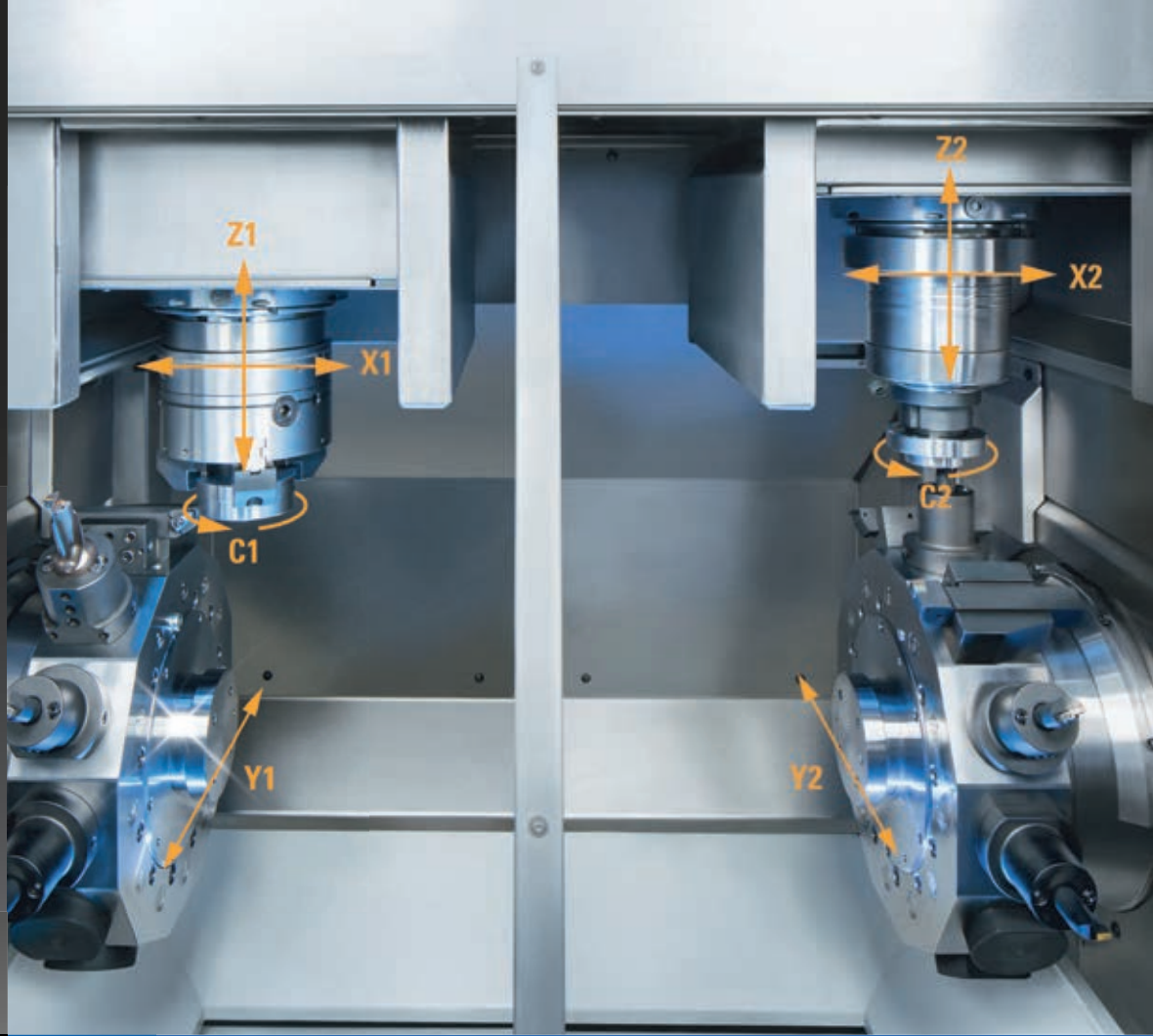


BOTH **CHANGERS AND PICK-AND-PLACE UNITS** ARE AVAILABLE FOR AUTOMATED PRODUCTION



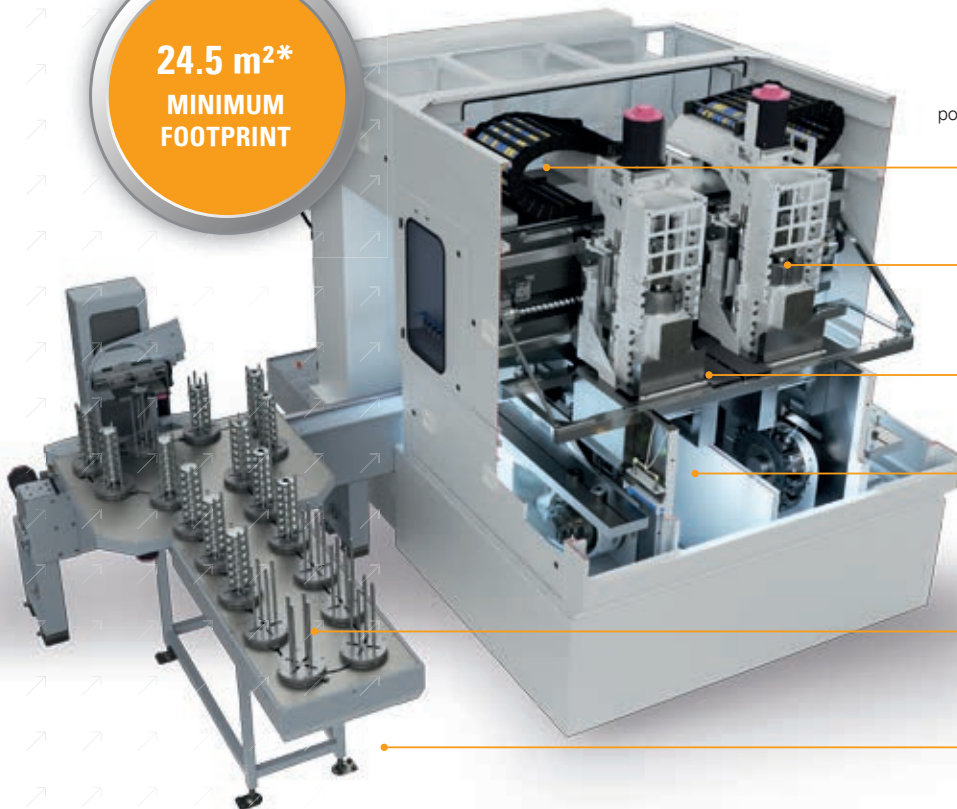
THE MACHINE IS **AUTOMATICALLY** LOADED AND UNLOADED AT THE PICK-UP STATION

The VL 3 DUO is the most compact and highest performance twin-spindle turning machine for chucked parts with a diameter of up to 150 mm on the market. Low chip-to-chip times of just 5 seconds (depending on the workpiece geometry) minimize idle times and therefore ensure maximum productivity. The VL 3 DUO is fitted with two main spindles with a rating of 18 kW and a torque of 142 Nm. Other options include driven tools in the turrets and measuring stations outside the machining areas.



MACHINE DESIGN

24.5 m²*
MINIMUM
FOOTPRINT



High precision
Machine base made of MINERALIT® polymer concrete, machine weight 10,000 kg, 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

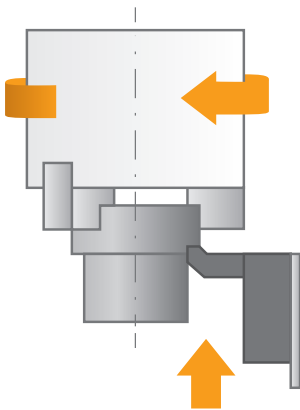
Optimum accessibility
Short distance to the turrets and working spindle ensure optimum accessibility

Increased flexibility
Parts storage facility for up to 400 workpieces* and TrackMotion automation system for high-speed part transport between the parts storage facility and machining areas as well as for turning the workpieces

Minimum floor space requirement
24.5 m² for the complete machine: VL 3 DUO + TrackMotion + parts storage area + chip conveyor

Machines shown in trade fair format.

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



$a_p = 4.75 \text{ mm}$
 $f = 0.4 \text{ mm/rev.}$
 $vc = 250 \text{ mm/min}$

HIGH-PERFORMANCE TURNING WITH THE VL 3 DUO

The VL 3 DUO scores highly due to its rigid machine design for heavy-duty machining. High feed forces with a large cutting depth reduce the machining time.

TECHNICAL DATA

Workpiece diameter, max.	150 mm 6 inch
Chuck diameter	210 mm 8.5 inch
Workpiece length, max.	110 mm 4.5 inch
Travel distances: X (machining stroke) / Y (optional) / Z	505 / ± 30 / 250 mm 19.5 / ± 1 / 10 inch
Main spindles (2x)	
Power rating, 40% / 100%	17.9 / 15.5 kW 24 / 21 hp
Torque, 40% / 100%	144 / 98 Nm 106 / 72 ft-lb
Max. number of revolutions	5,000 rpm
Spindle flange to DIN 55026	Size 6
Spindle bearing dia., front	100 mm 4 inch
Turrets (2x)	
Turret tool positions	12
Rapid-traverse rate X / Y / Z	60 / 30 / 30 m/min 2,363 / 1,181 / 1,181 ipm

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.
- + Great reliability due to its simple, sturdy design
- + Flexible system – multiple TransLift units (pick-and-place units and changers) can be installed on a single rail system
- + The workpieces are positioned and turned over in one cycle
- + Space-saving since the whole TrackMotion automation system is installed behind the machines
- + Measuring equipment, marking systems, cleaning machines and lots of other functions can be integrated
- + Easy to service – TrackMotion is easily accessible from all sides
- + Short part transport time: Travel speeds – horizontal: 150 m/min and vertical: 35 m/min

TrackMotion: Transporting Parts as if They Were on Rails

TrackMotion is an automation solution which combines the previous concept of conveyor belts, pick-and-place units and changers in a single system.

Put in simple terms, with TrackMotion a so-called TransLift unit runs on a rail system (hence the name "Track") through the machines.

The TransLift grips the parts at different heights, while also positioning and turning the workpiece over. Multiple machines can be linked to each other very easily using a TrackMotion system. Multiple TransLift units can be used for short cycle times. What is more, the TrackMotion automation system is also extremely fast.

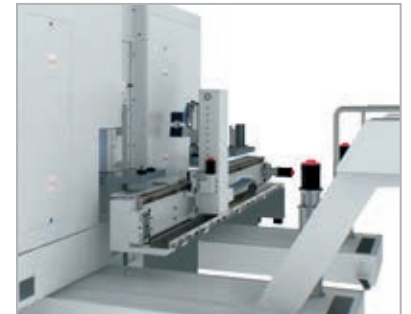
EMAG
TrackMotion
for the simple
interlinking of
multiple machines



TRACKMOTION



A parts storage facility supplies the raw parts (storage capacity up to 400 parts, depending on the workpiece geometry).



The machines are linked via the TrackMotion automation system which handles both picking and placing the workpieces and turning them over.



Depiction without safety fence



Linking three VL machines using the EMAG TrackMotion system.



Turning

Milling

Grinding

Gear Hobbing

Power Skiving

AT HOME ALL OVER THE WORLD.

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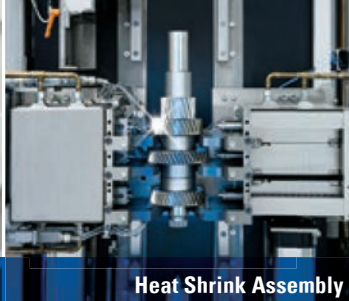
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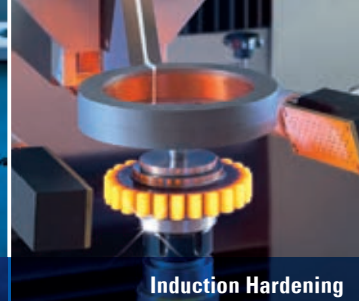
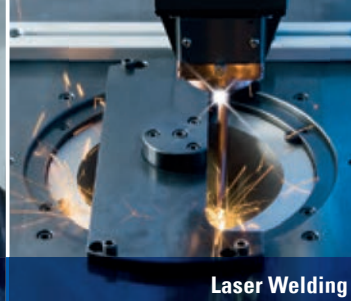
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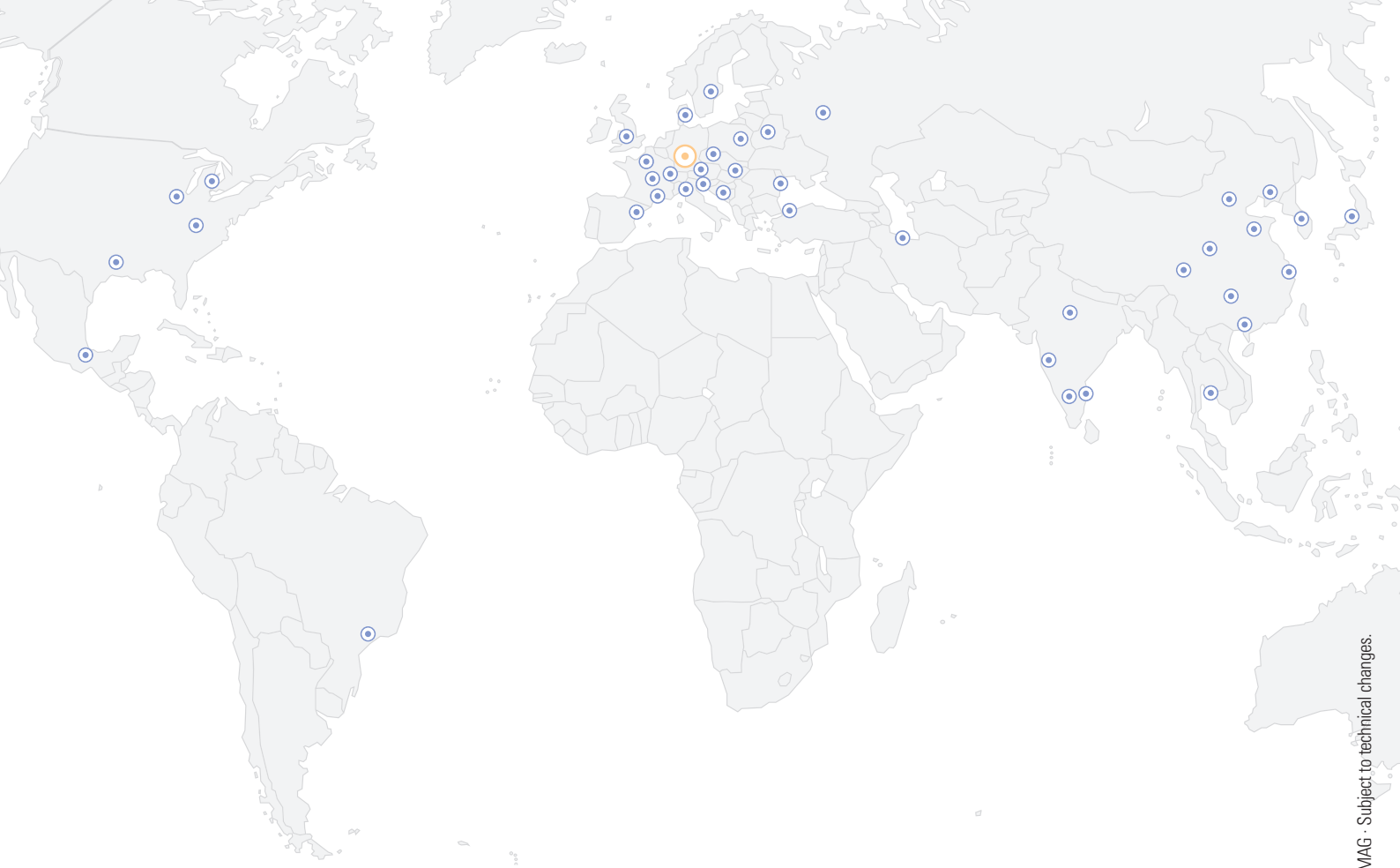
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