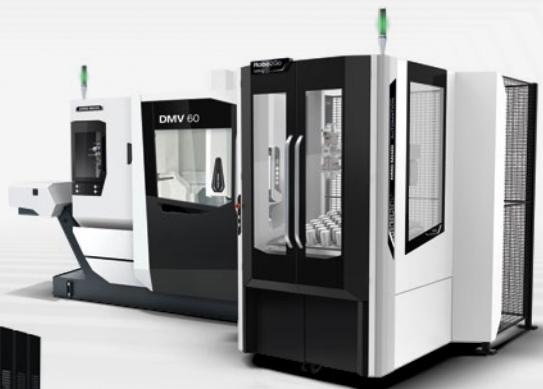


VERTICAL MILLING CENTERS

DMV 60
DMV 110

DMV 60 / 110 SERIES

READY FOR
AUTOMATION



EXPLORE THE WORLD OF

MX

MACHINING
TRANSFORMATION

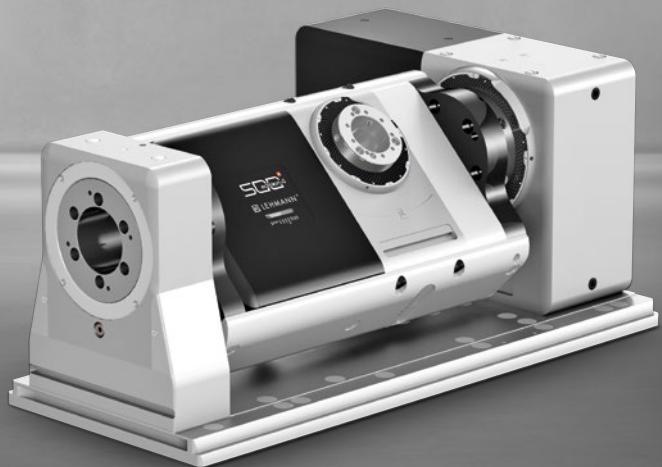
02

Machining Transformation (MX) by means of process integration, automation, digitalization and sustainability.

- + Workpieces are efficiently manufactured on a single technology-integrated machine
- + Better utilization of a complete machining center rather than partial utilization of several simple machines
- + Additional low-manpower or unmanned night and weekend shifts thanks to automated manufacturing solutions
- + Digital solutions create competitive advantages by improving work processes and generating new ways of improving efficiency and reducing power consumption

PROCESS INTEGRATION

- + Integrated 5-axis simultaneous machining (4th/5th axis)



GX – GREEN TRANSFORMATION

AUTOMATION

- + PH 150
- + PH Cell 300
- + PH Cell Twin
- + Robo2Go Milling
- + MATRIS Light

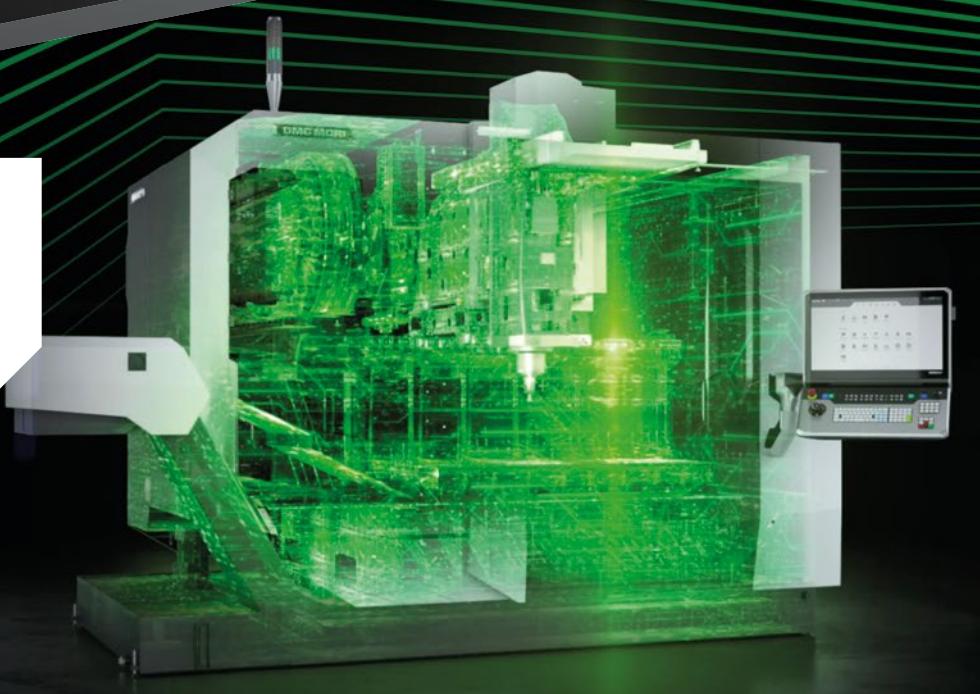


DX – DIGITAL TRANSFORMATION

- + ERGOline X & CELOS X
- + Exclusive DMG MORI Technology Cycles



-10%
POWER
CONSUMPTION



Highlights

Performance

Application

Machine and options

Ergonomics

Automation

Control technology

Technical data

VERTICAL MILLING REDEFINED

*inline***MASTER**

HIGHLIGHTS

- + High rigidity thanks to improved monolithic machine bed & massive castings
- + Maximum table load up to 1,700 kg!
(+70 % comparing to predecessor)
- + Improved thermal stability & great performance thanks to rapid traverse 42 m/min in all linear axes
(+40 % comparing to predecessor)
- + Great cutting performance with optional speedMASTER spindle up to 20,000 rpm
- + Direct measuring system X, Y, Z axis in standard
- + Direct drive transmission in X & Y axis
- + 24" ERGOLINE X multi touch control panel with CELOS X
- + Efficient control systems
with graphic support for smooth operation:
SINUMERIK ONE or HEIDENHAIN TNC 7

Highlights

Performance

Application

Machine and options

Ergonomics

Automation

Control technology

Technical data

DMV 60/110

Vertical milling redefined

In the new DMV series, DMG MORI combines the strengths of earlier 3-axis machining centers with pioneering innovations that meet the increasing requirements in manufacturing. The development of the DMV 60 and DMV 110 has thus been closely aligned with the Machining Transformation (MX).

Based on the four pillars of Process Integration, Automation, Digital Transformation (DX) and Green Transformation (GX), DMG MORI is shaping the future of manufacturing with this concept.

JUST
7.2 m²



06

CELOS X
& ERGOLine X

JUST
6.2 m²

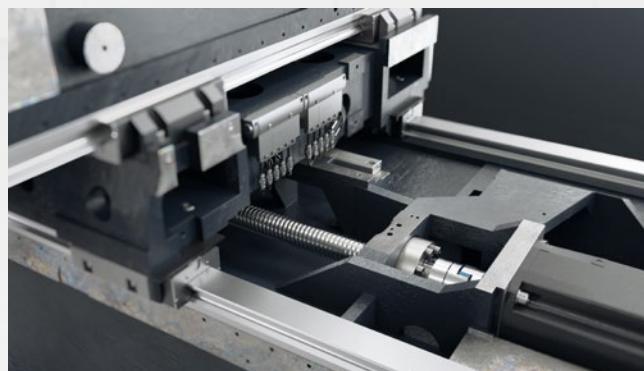


Outstanding rigidity and maximum precision

The new DMV line stands out from the typical vertical milling centers by outstanding rigidity, great performance and highest precision. Unique design based on monolithic machine bed in combination with massive castings and wide roller guideways result in remarkable rigidity. With the direct measuring system in all axes, direct drive transmission, improved accuracy of circular interpolation and advanced thermal compensation even the most demanding workpieces can be manufactured.



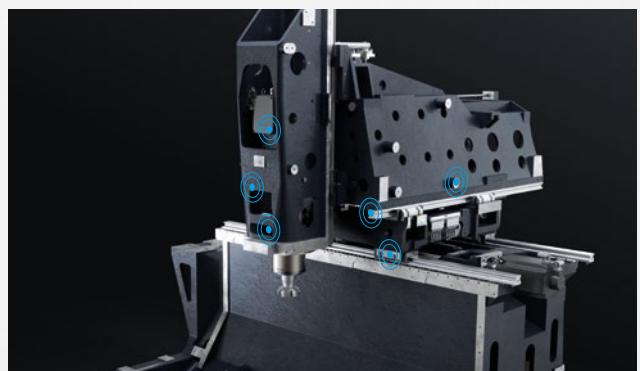
Direct measuring system in X, Y, Z axis



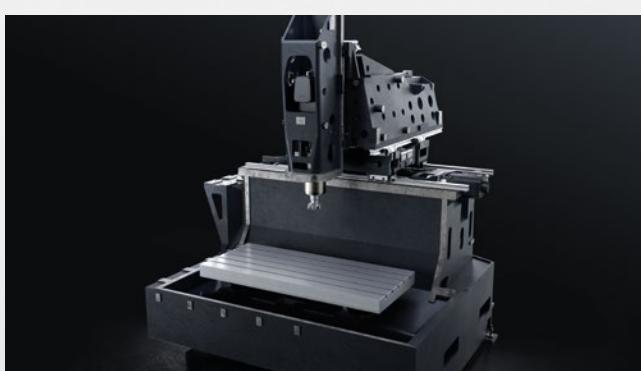
Direct drive transmission in X & Y axis



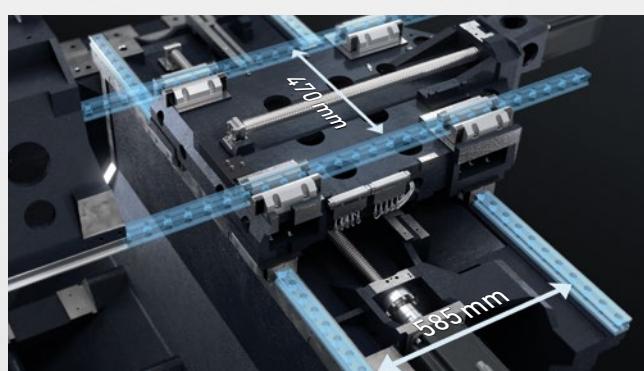
Ball bar <6µm



Advanced thermal compensation



Monolithic machine bed and fixed table



Large distances between roller guideways

Highlights

Performance

Application

Machine and options

Ergonomics

Automation

Control technology

Technical data

DMV 60/110

**Full range
of spindles from
12.000 rpm up
to 20.000 rpm**

**36
MONTHS
WARRANTY**



inlineMASTER 12,000 / 15,000 rpm

- + Outstanding rigidity and excellent thermal stability
- + Vacrodur bearings with high load capacity & remarkable wear resistance
- + Oil/air lubrication of the spindle bearing and improved labyrinth structure for a long time service life
- + Liquid cooling for optimal thermal stability

speedMASTER HT 15,000 rpm

- + Reduced to the minimum spindle run-out for the highest machining precision
- + Great rigidity and stability
- + Even over 200 % higher performance in rough cutting for the highest productivity
- + Liquid cooling for the highest thermal stability

speedMASTER 20,000 rpm

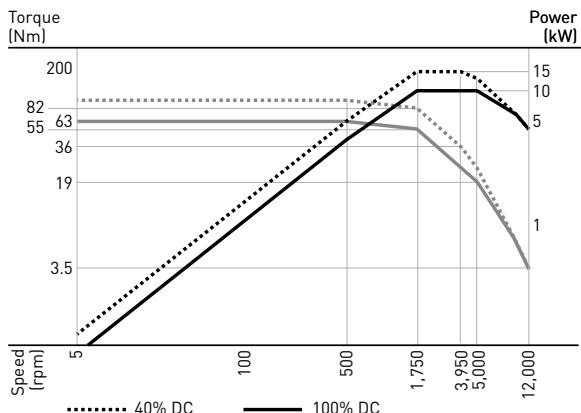
- + Reduced to the minimum spindle run-out for the highest machining precision
- + Outstanding dynamic and reduced acceleration/ deceleration time for the best machine performance
- + Perfect solution for die & mold application
- + Liquid cooling for the highest thermal stability

DMV 60/110

Spindle power diagrams

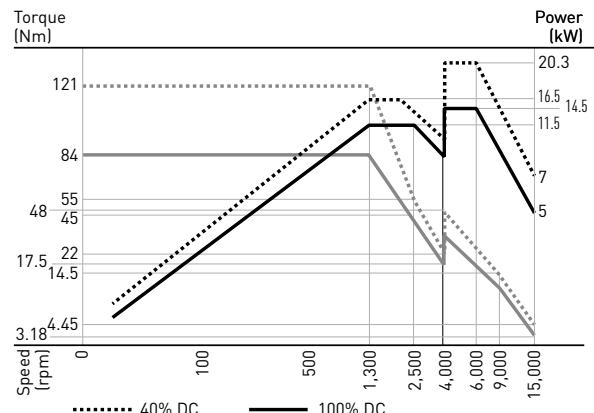
inlineMASTER 12.000 rpm

Speed range	12,000 rpm
Rive output	15 / 10 kW (40 / 100 % ED)
Torque:	95 / 63 Nm (40 / 100 % ED)
Tool holder	SK 40/BT 40/CAT 40/HSK-A63



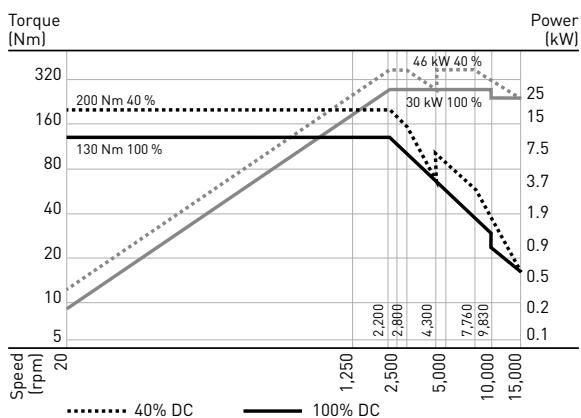
inlineMASTER 15.000 rpm (option)

Speed range	15,000 rpm
Rive output	20 / 11.5 kW (40 / 100 % ED)
Torque:	121 / 84 Nm (40 / 100 % ED)
Tool holder	SK 40/BT 40/CAT 40/HSK-A63



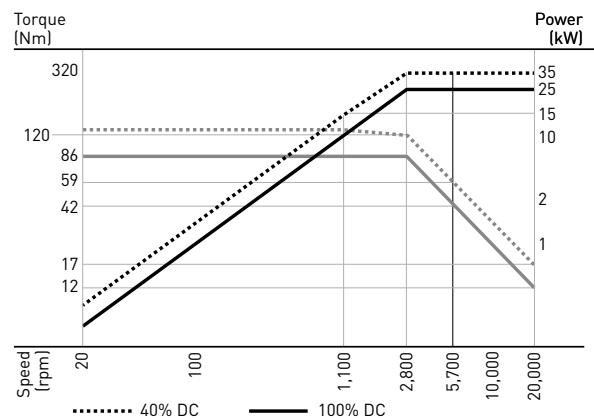
speedMASTER 15.000 rpm High Torque (option)

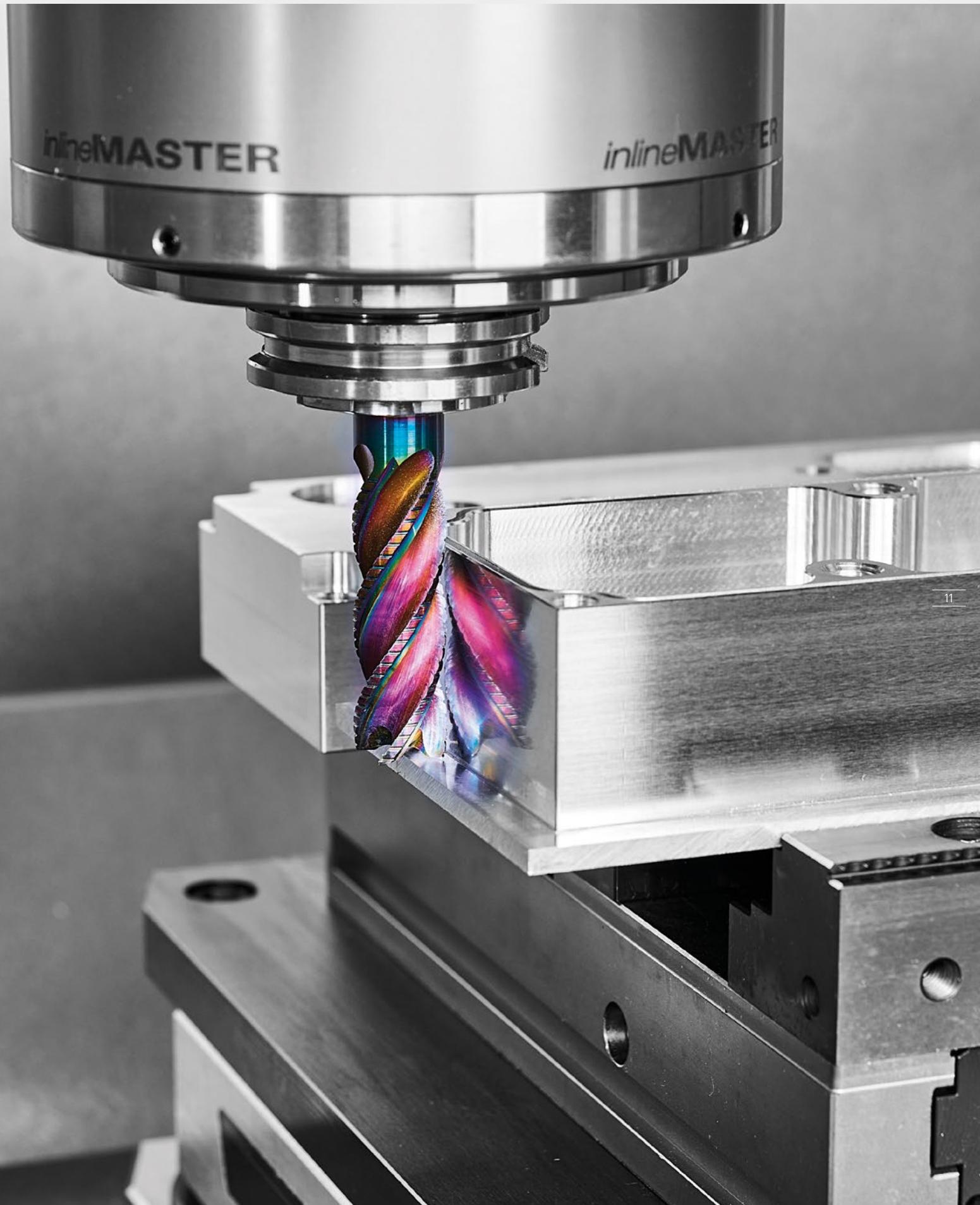
Speed range	15,000 rpm
Rive output	46 / 30 kW (40 / 100 % ED)
Torque:	200 / 130 Nm (40 / 100 % ED)
Tool holder	SK 40/BT 40/CAT 40/HSK-A63



speedMASTER 20.000 rpm (option)

Speed range	20,000 rpm
Rive output	35 / 25 kW (40 / 100 % ED)
Torque:	130 / 86 Nm (40 / 100 % ED)
Tool holder	SK 40/BT 40/CAT 40/HSK-A63



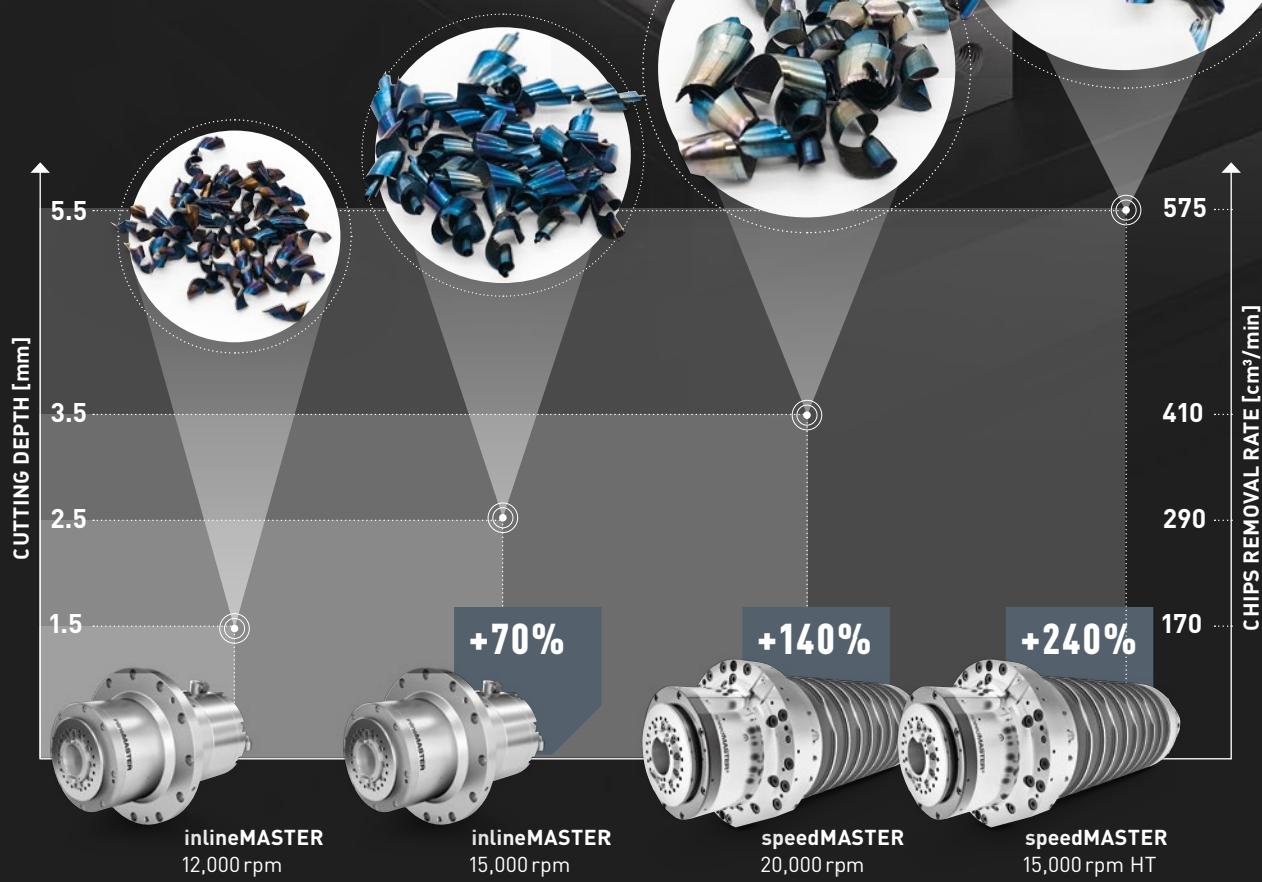


DMV 60/110

The highest cutting performance in its class!

ROUGH MILLING

Cutting speed: 270 m/min
Cutter: D80 mm
Feed : 0.2 mm/tooth
Feed rate: 1,930 mm/min
Cutting width: 60 mm (75%)
Material: steel C45

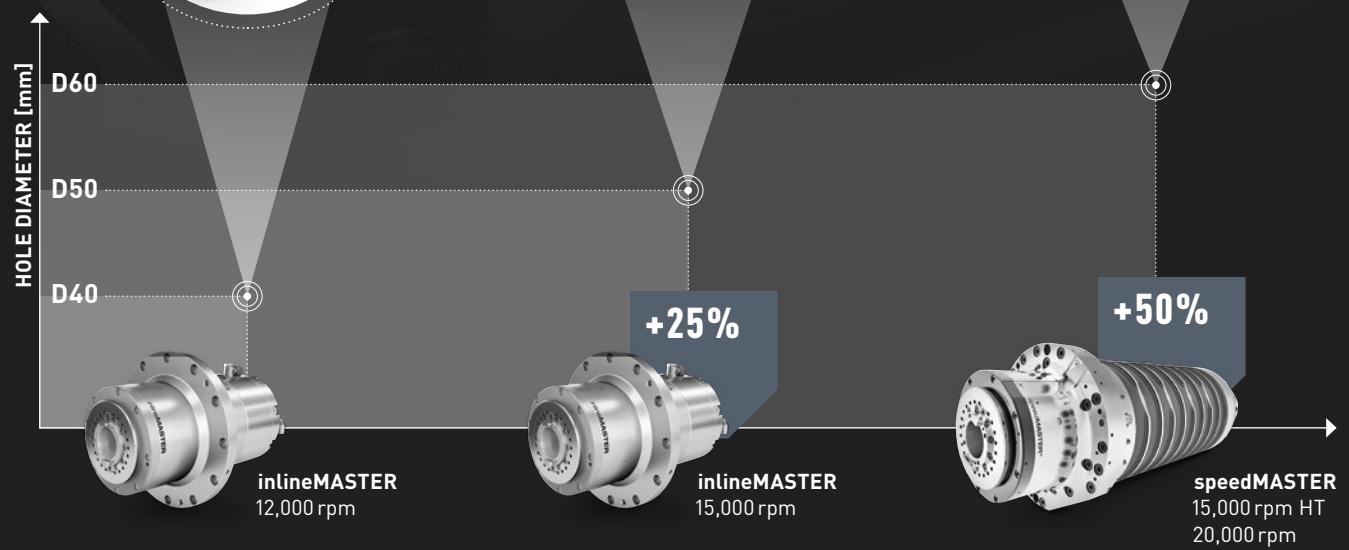


DRILLING

Cutting speed: 160 m/min

Feed: 0.12 mm/rev.

Material: steel C45



DMV 60/110

Boost your productivity with new DMV line!

BOTTLE MOLD

Material: AlCu4PbMg

Size: 200×120×50 mm

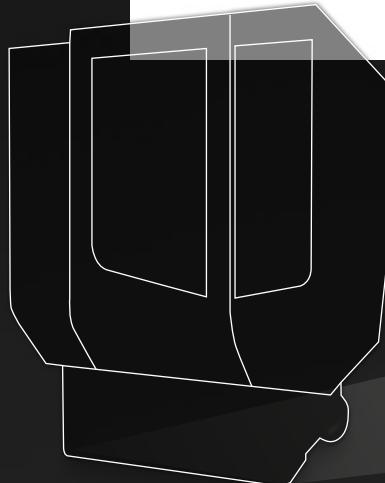


Regular milling center available on the market

spindle: 8,000 rpm

Rapid traverse: 30 m/min

Cycle time: 06:13:57

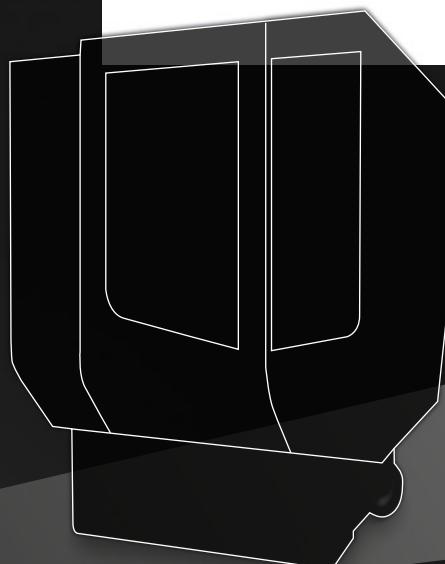


Regular milling center available on the market

spindle: 12,000 rpm

Rapid traverse: 30 m/min

Cycle time: 5:06:48



+50 %
HIGHER
PERFORMANCE

DMV 60

speedMASTER: 20,000 rpm*
Rapid traverse: 42 m/min

Cycle time: 03:08:07

*option

DMV 60

NEW

Highlights
Performance
Application
Machine and options
Ergonomics
Automation
Control technology
Technical data

DMV 60/110

The highest dynamics and surface quality!

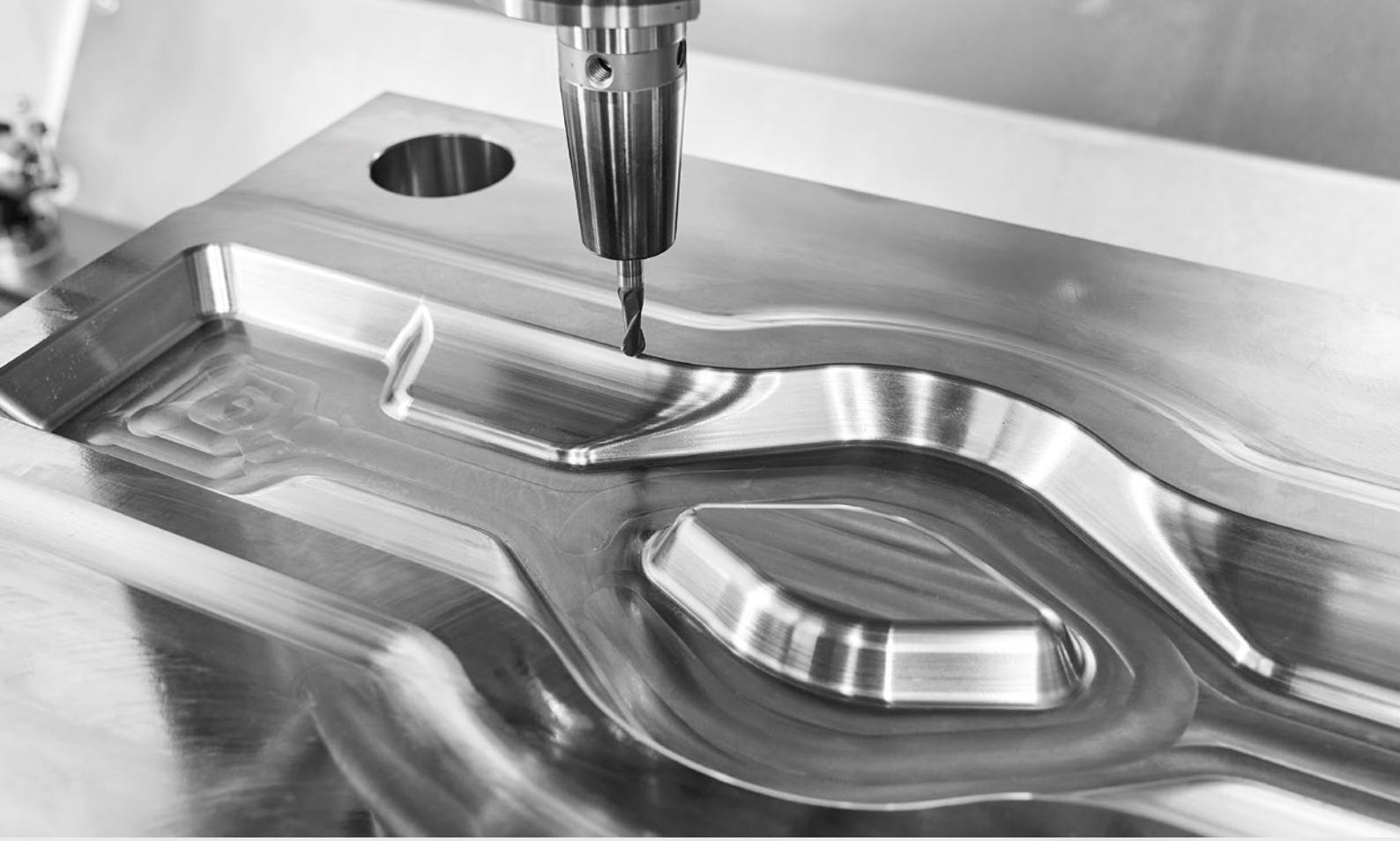
As 3-axis machines, the two DMV models occupy an important position in numerous industries – wherever high performance machining of precise workpieces is required.

In this way, they are proving to be a valuable building block in a competitive production environment, including the die & mold, medical, automotive and aerospace sectors, among others, where productive machining of the most common materials, from aluminum and stainless steel to titanium alloys, is crucial.

DIE & MOLD

Piping mold
made of tool
steel





DIE & MOLD

Bottle mold made of aluminium alloy



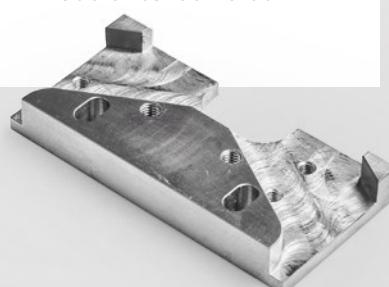
MACHINERY

Motor adapter made of stainless steel



MACHINERY

Connecting plate made of carbon steel



ENERGY

Housing made of aluminium alloy



DIE & MOLD

Mold made of hardened tool steel



MACHINERY

Holder made of carbon steel



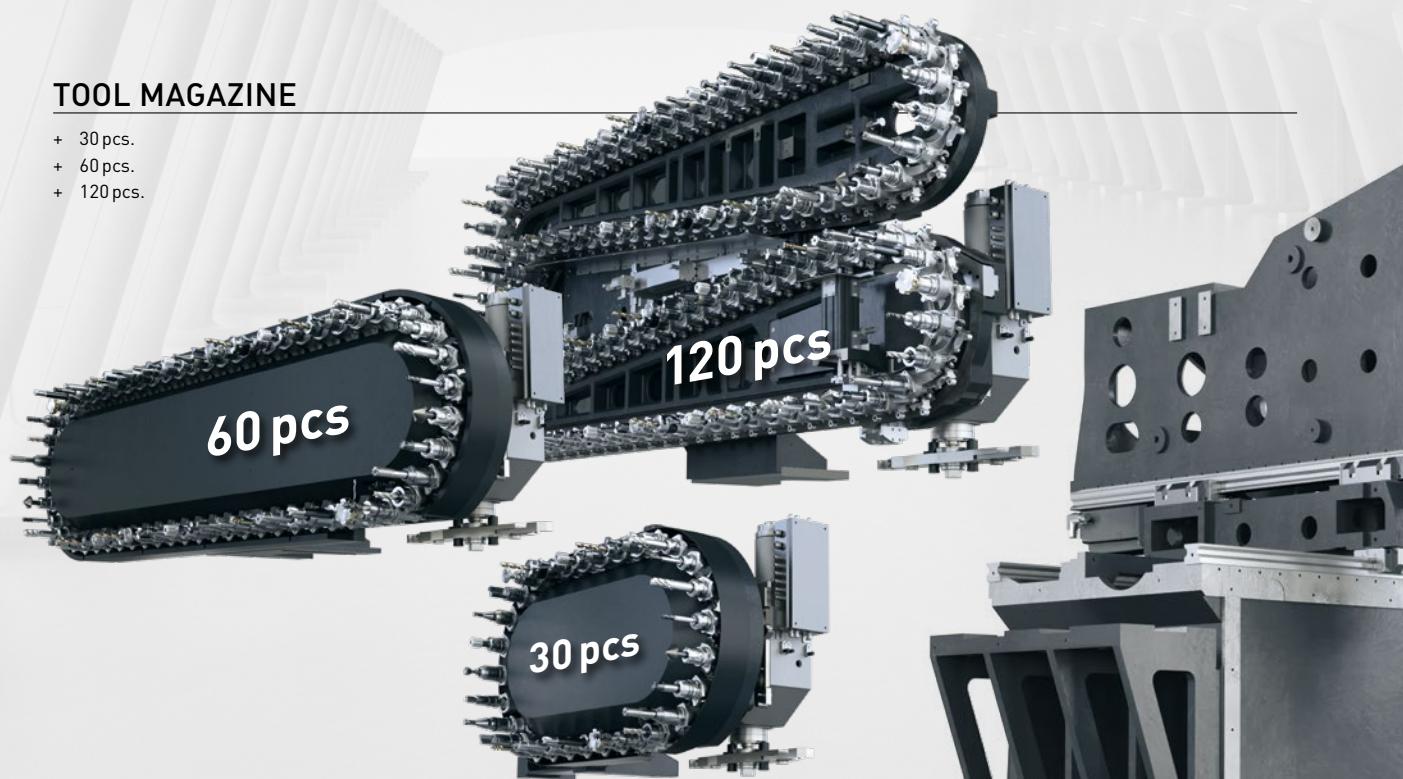
DMV 60/110

Modular concept

Full range of options and customized solutions!

TOOL MAGAZINE

- + 30 pcs.
- + 60 pcs.
- + 120 pcs.



18

CHIP REMOVAL AND COOLANT SUPPLY

- + Chip tank
- + Chip conveyor
- + Chip conveyor for small chips
- + Paper-type filtration system with 600l tank
- + Through spindle coolant supply (ICS)





SPINDLES

- + inlineMASTER 12,000 rpm
- + inlineMASTER 15,000 rpm
- + speedMASTER 15,000 rpm High Torque
- + speedMASTER 20,000 rpm

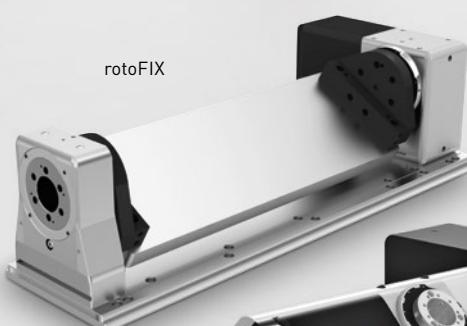
UP TO
20,000 rpm



19

ROTARY TABLES

rotoFIX



4th axis



4th and 5th axis



Highlights
Performance
Application
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Ergonomics
Automation
Control technology
Technical data

DMV 60/110

Selected options

	DMV 60	DMV 110
Control		
SINUMERIK ONE	Standard	Standard
HEIDENHAIN TNC 7	•	•
Preparation for CELOS X	Standard	Standard
CELOS X	•	•
Spindles		
inlineMASTER 12,000 rpm	Standard	Standard
inlineMASTER 15,000 rpm	•	•
speedMASTER 15,000 rpm High Torque	•	•
speedMASTER 20,000 rpm	•	•
Tool clamping system		
SK 40	Standard	Standard
BT 40	•	•
CAT 40	•	•
SK40 for pull-studs ISO	•	•
HSK-A63	•	•
Tool magazine/tool handling		
30-pocket tool magazine	Standard	Standard
60-pocket tool magazine	•	•
120-pocket tool magazine	on request	on request
Tool (un-) loading through magazine door	•	•
Tool (un-) clamping buttons placed on the headstock	•	•
Coolant supply/chip removal		
Air Coolant Internal (through spindle centre) switchable via M-Function	•	•
Coolant spray gun for swarf removal	•	•
Oil- and emulsion mist separator	•	•
Special chip conveyor dedicated for thin chips	•	•
Bed flushing via M-function	•	•
Roto clear for window cleaning	•	•
Tempering unit for coolant	on request	on request
Internal coolant supply with high pressure and frequency controlled	on request	on request
Options for table/clamping device		
Hydraulic/pneumatic preparation with 4 channels on the machine table	•	•
1 pneumatic clamping circuit for clamping device mounted on the machine table	•	•
2 pneumatic clamping circuits for clamping devices mounted on the machine table	•	•
Pneumatic/hydraulic clamping device	on request	on request
Automation		
Automation package with PROFINET interface and right-side shutter	•	•
Automation package with PROFINET interface and loading through the front door	•	•
Preparation for PH 150/PH Cell 300 with EROWA tooling	•	•
Preparation for PH 150/PH Cell 300 with SCHUNK tooling	•	•
Preparation for Robo2Go milling	•	•
Preparation for PH Cell Twin	on request	on request
Preparation for MATRIS Light	on request	on request
Measuring/Monitoring		
Renishaw Touch Probe-Kit including PP40 & TS27R	•	•
Touch probe HEIDENHAIN TS 460 for workpiece	•	•
Touch probe HEIDENHAIN TT160 for tools	•	•
Laser probe BLUM LC50-DIGILOG for tools	•	•

	DMV 60	DMV 110
Rotary table		
Rotary table LEHMANN EA-510.L	•	•
Rotary table LEHMANN EA-520.L	on request	on request
Rotary table LEHMANN EA-510.L rotoFIX with counter bearing and bridge	on request	on request
Rotary table LEHMANN T1-510520.LL TAP2 as the A and C axis (4/5 th axis)	on request	on request
Others		
Tropical package	•	•
Multilayer window with tempered glass	•	•
Automatic front door	•	•
Signal lamp with 4 colours	•	•
External electronic Handwheel	•	•
Safety Package for Power Failure	•	•
Cabin roof	•	•
Software		
3D shopfloor programming	•	•
ACM (for SIEMENS)	•	•
Service Agent	•	•
Advanced Electrical Energy Monitoring	•	•
Technology cycle ATC	•	•
Technology cycle MPC 2.0	•	•
DXF import	•	•
10 free M-codes	•	•

• Option

21

Useful packages for constant and efficient production process

	Workshop Package	Chip Removal Package	Production Package 20 bar with chip tank	Production Package 20 bar	Production Package 40 bar	Production Package 80 bar
Scope of package						
Chip tank			X			
Scraper chip conveyor with left discharge	X	X		X	X	X
Paper-type filter with 600l. tank					X	X
Internal coolant supply 20 bar	X		X	X		
Internal coolant supply 40 bar					X	
Internal coolant supply 80 bar						X
Double-cartridge filter for internal coolant supply	X		X	X	X	X
Bed flushing via M-function	X		X	X	X	X
Coolant spray gun for swarf removal	X	X	X	X	X	X
External electronic handwheel			X	X	X	X
Cabin roof	X		X	X	X	X
Signal lamp with 4 colours		X	X	X	X	X
Mechanical preparation for oil-mist extractor	X					
Renishaw Touch Probe-Kit including PP40 & TS27R	X					

DMV 60/110

Unique ergonomics and easy operation

DMV series is one of the most compact vertical machining centers with a high workpiece loading weight. The DMV series also impresses with user-friendly ergonomics, which are underlined by perfect accessibility and visibility into the working area. Thanks to the excellent accessibility to the machine, set-ups can be carried out in a quick and very economic way.

HIGHLIGHTS

- 1** Excellent access to the table and a wide door opening, setup operations such as fixture adjustment can be done smoothly. The position of the lower end of the front door has been lowered to offer better access to the spindle and table.
- 2** Crane loading from above by opening the machine roof with the work area door.
- 3** Side door for quick and easy magazine set-up without machine down time*
- 4** Modern control panel ERGOline X with 24" multi-touch screen and CELOS X*
- 5** Optimal chip fall and chip disposal thanks to bed flushing system*

*option



3



4



DMV 60 / 110

Unmanned production with flexible and highly effective DMG MORI automation solutions!

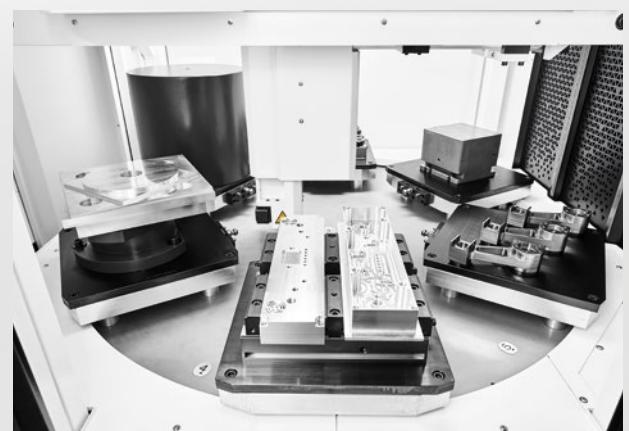
DMV 110 with PH 150

Universal & easy
to operate pallet
handling system
perfectly suited
to your needs



HIGHLIGHTS

- + Simple and flexible automation solution for up 24 pallets
- + User HMI integrated with machine control panel – no separate panel for the automation!
- + Reduced to the minimum machine down time thanks to pallet set-up station
- + Unlimited access to the machine working area and control panel –
not restricted by the automation
- + Space requirement <3m²



**PLUG & PLAY
SOLUTION
FROM
ONE HAND BY
DMG MORI!**

DMV 60 with Robo2Go Milling

Boost your productivity with flexible workpiece handling system suitable for small and medium batch sizes



HIGHLIGHTS

- + Strong construction for all requirements:
Either 25 or 35 kg robot load capacity
- + Handling of **components with dimensions of 20 – 200 mm**
(other dimensions optionally available)
- + **External and internal gripping** as standard
- + **Customizable workpiece trays** possible
- + **Pressure reduction** for thin-walled components
- + **Excellent accessibility** to workpiece magazine
- + **Optional:**
 - Workpiece stacking
 - Turning station for automated 6-sided complete machining

25



DMV 110

DMV 110 with PH Cell 300

Rise your production to higher level with modular pallet handling system for up to 40 pallets



HIGHLIGHTS

- + **Modular concept** for individual customer requirements
- + **Subsequent expandability** of the second shelf module
- + **Configurable with 3 or 4 shelf floors**
- + **Separate setup station** for ergonomic and set-up of the pallets parallel to main time
- + **Storage of up to 40 pallets**
- + Handling of **different pallet sizes** in one system
- + Operation **directly via the machine control panel**, no additional control element necessary
- + Handling of workpieces up to **500 × 500 × 750 mm** and **maximum 300 kg** transfer weight



CONTROL TECHNOLOGY

ERGOline X – user-oriented platform for all DMG MORI machines

The ERGOline X control panel provides the machine operator with an even more intuitive user experience, whereby the ergonomics and the functionality in particular have been optimized. The ERGOline X control panel gives the user access to optional CELOS Xperience and the native NC controller.

HEIDENHAIN TNC 7

- + Increased flexibility and efficiency
- + Select and arrange work spaces in a task-oriented way
- + 3D simulation, accurate to the last detail
- + Tabs for opening up to 9 programs in parallel
- + Compatibility with previous TNC 620/640 controller
- + Graphically assisted measurement of both clamping materials and components



CONNECTIVITY by DMG MORI

- + Standard connectivity thanks to integrated IoTconnector
- + MDE (Machine Data Recording) possible
- + Automatic output of at least 17 standardized production status signals
- + Openness to third-party products
- + Communication in accordance with standard protocols:

SMARTride

- + Integrated panic function to instantly reduce the feed rate/rapid traverse to 0
- + Integrated haptic feedback to recognize 0% & 100%
- + Feed rate, rapid traverse & NC-start combined in one control element

CELOS X

Optional, user interface, independent of the CNC control

SMARTkey

- + Compact credit card format
- + Personalized access rights depending on user level
- + Independently customizable SMARTkeys

SIEMENS SINUMERIK ONE

- + Maximum speed and shorter idle times
- + Standard SIEMENS control interface
- + Intuitive and simple programming directly on the machine thanks to ShopMill
- + Compatibility with SINUMERIK 828D/840D
- + Advanced 3D simulation for collision avoidance
- + 3D Shopfloor programming available as option

24" ERGOline X Panel
with SINUMERIK ONE
and CELOS X

MACHINE SIGNALS VIA OPC-UA, MTCONNECT AND MQTT

MACHINE DATA

1. Serial number of the machine
2. Operating hours
3. Machine on hours

MACHINE STATUS

4. Status display
5. Number of alarms
6. Messages, alarms, warnings
7. Control mode
8. Machine version status

PRODUCTIVITY

9. Workpiece counter, current
10. Workpiece counter, total
11. Target quantity
12. Current program runtime

PROCESS DATA

13. Spindle speed correction
14. Fast speed correction
15. Infeed correction
16. Active tool
17. Name of the current NC program

ADDITIONAL MACHINE SIGNALS

Machine-specific signals, e.g. spindle speed, coolant status etc.

DMV 60/110

DMG MORI Technology Cycles

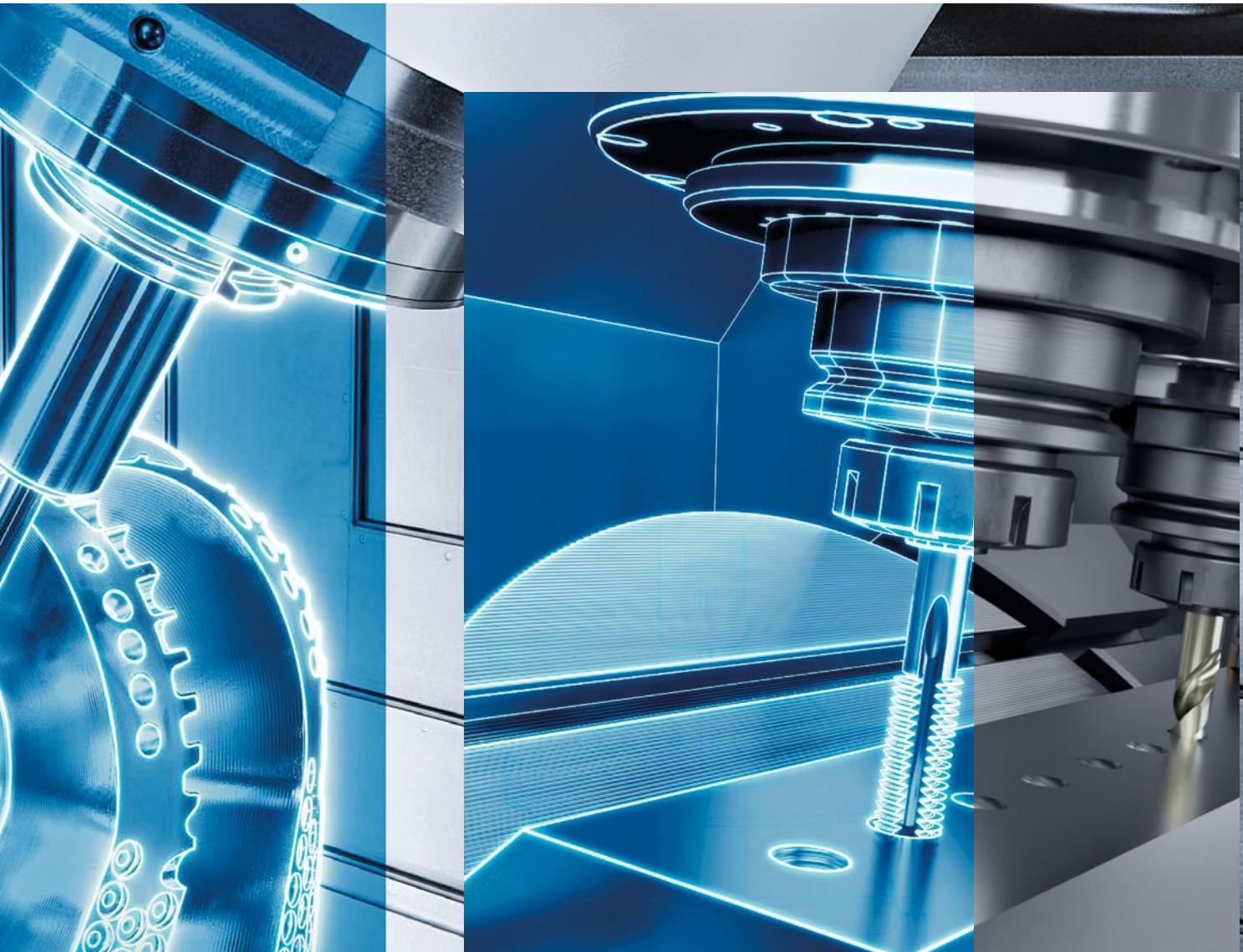
ATC – APPLICATION TUNING CYCLE

- + Process-oriented adjustment of feed speed in relation to table loading of milling machines
- + Minimum machining time combined with maximum relevant component quality

CUSTOMER BENEFIT

- + Simple operation for adjusting machine dynamics with drive parameters from DMG MORI
- + Time saving during roughing
- + High surface quality during finishing





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MPC 2.0 – MACHINE PROTECTION CONTROL

- + In-process vibration monitoring
- + Rapid machine shutdown in the event of a crash
- + Manual free travel even on a tilted working plane

CUSTOMER BENEFIT

- + Prevention of tool breakage
- + Increase in machine availability
- + Damage reduction

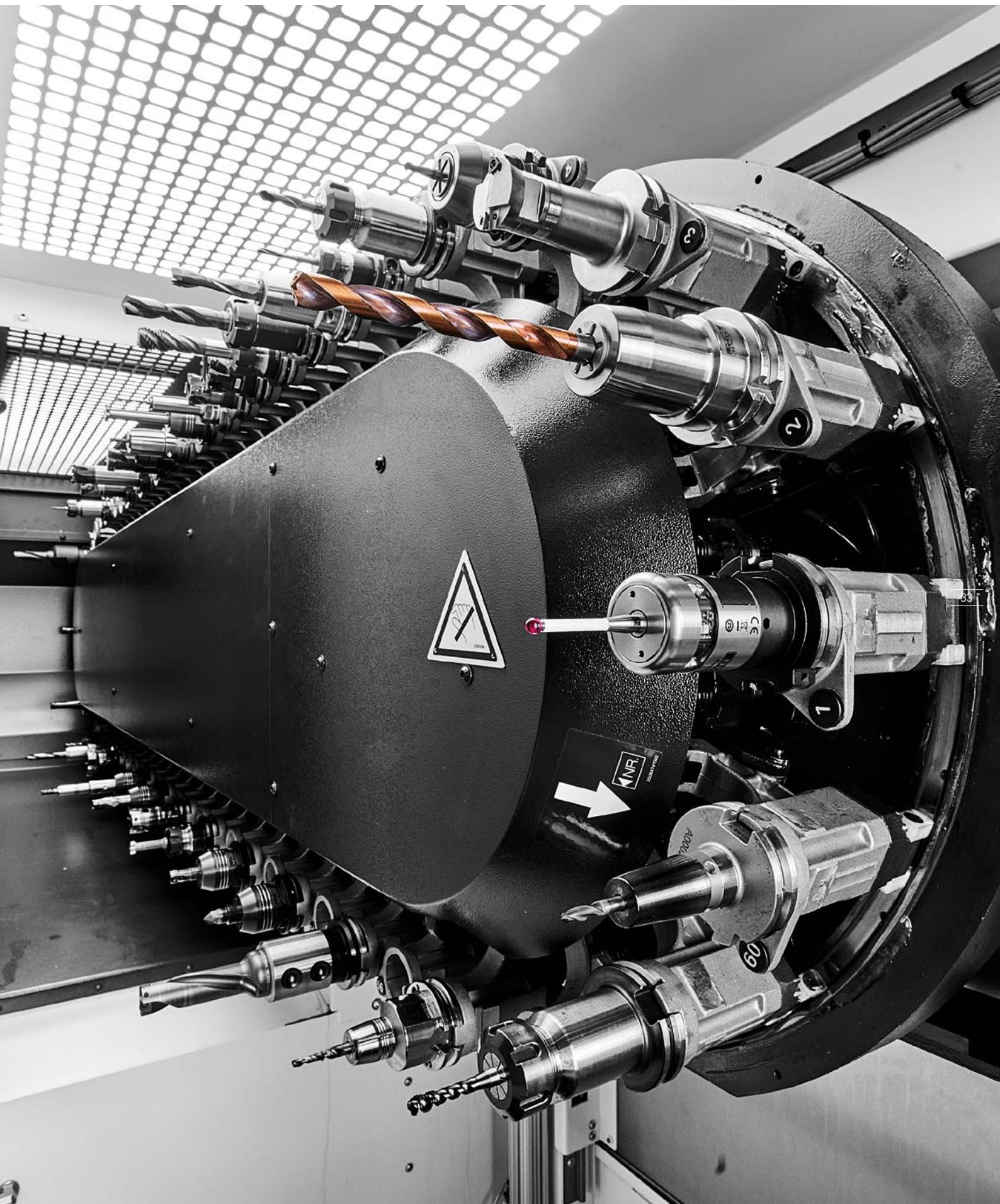
Highlights
Performance
Application
Machine and options
Ergonomics
Automation
Control technology
Technical data

DMV 60/110

Technical Data

	DMV 60	DMV 110
Control		
Type	SINUMERIK ONE/HEIDENHAIN TNC 7*	
Control panel	ERGOline X with 24" multi-touch screen & CELOS X*	
Working area		
Travel in X/Y/Z-axis	mm	600/600/510
		1,100/600/510
inlineMASTER 12,000 rpm		
Max. spindle speed	rpm	12,000
Power (100/40 % DC)	kW	9/13
Torque (100/40 % DC)	Nm	57/83
inlineMASTER 15,000 rpm*		
Max. spindle speed	rpm	15,000
Power (100/40 % DC)	kW	14.5/20
Torque (100/40 % DC)	Nm	84/121
speedMASTER 15,000 rpm High Torque*		
Max. spindle speed	rpm	15,000
Power (100/40 % DC)	kW	30/46
Torque (100/40 % DC)	Nm	130/200
speedMASTER 20,000 rpm*		
Max. spindle speed	rpm	20,000
Power (100/40 % DC)	kW	25/35
Torque (100/40 % DC)	Nm	86/130
Linear axes		
Rapid traverse X/Y/Z	m/min	42/42/42
Type of guideways X/Y/Z	type	Roller guideways
Size of guideways X/Y/Z	mm	45/45/35
Tool magazine		
Tool taper		SK 40/BT 40*/CAT 40*/HSK-A63*
Number of tool stations	pcs.	30/60*/120*
Max. tool weight	kg	8
Max. tool diameter × length	mm	ø 80/ø 130**×300
Tool change time (tool-to-tool)	s	2.4
Machine table		
Table size	mm	900×600
Max. workpiece weight	kg	1,000
		1,700
Machine dimensions		
Machine with chip tank L × W × H	m	2.3×2.7×2.9
Machine with chip conveyor L × W × H	m	3.1×2.7×2.9
Footprint for machine with chip tank	m ²	6.2
Footprint for machine with chip conveyor	m ²	8.4
Machine weight	kg	6,150
		7,300

*option **with free adjacent pockets

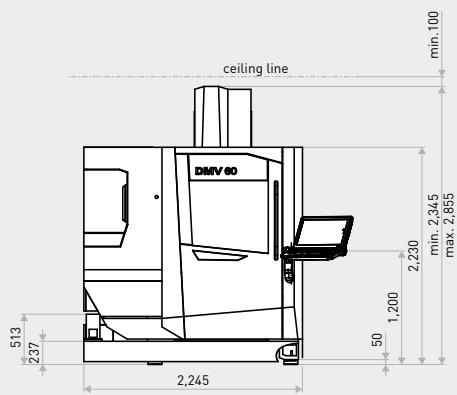


DMV 60/110

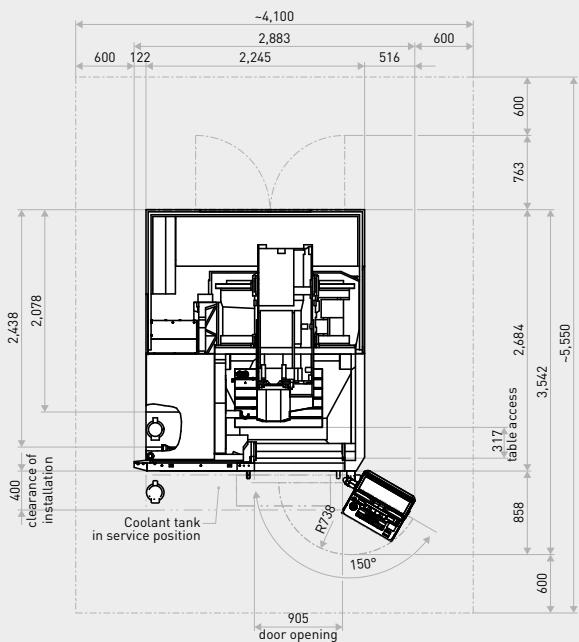
Floor Plans

DMV 60 with chip tank

Front view

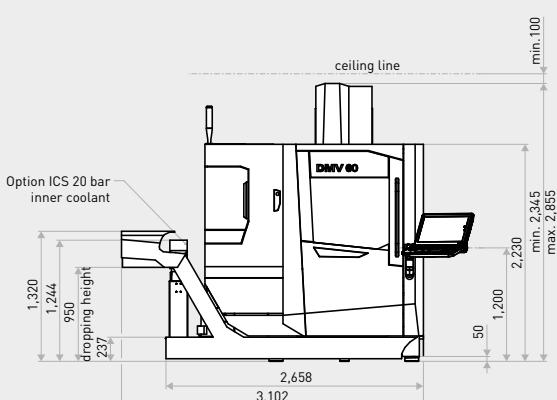


Top view

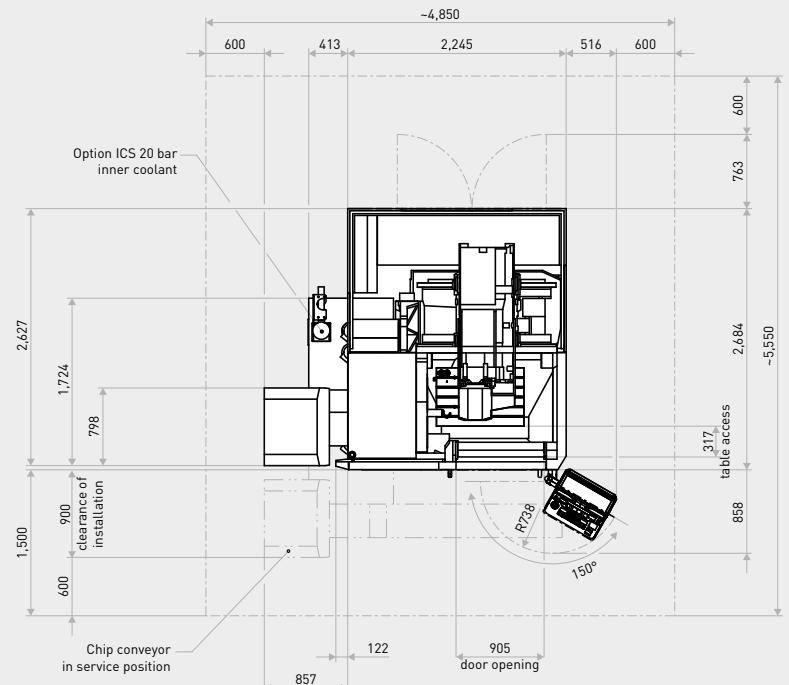


DMV 60 with chip conveyor

Front view

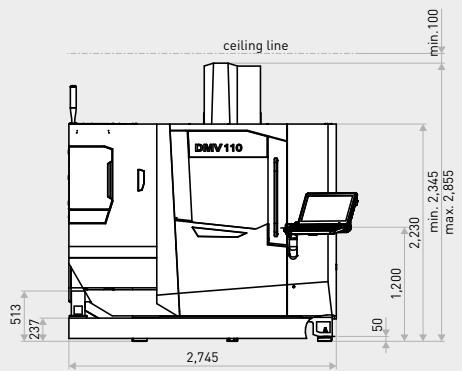


Top view

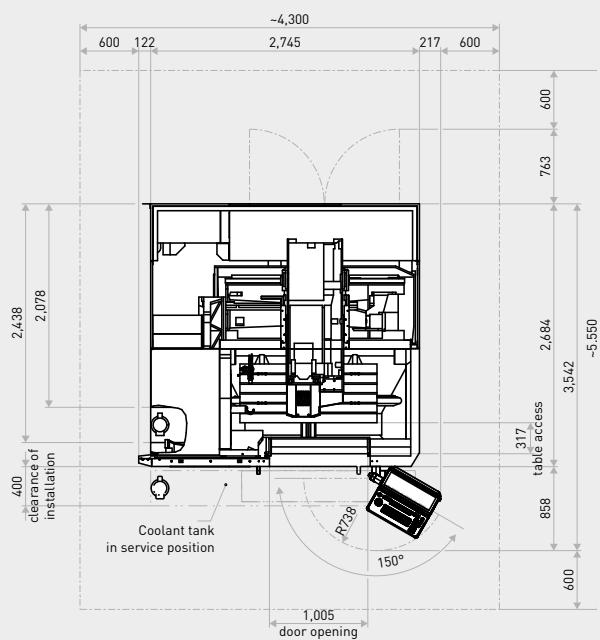


DMV 110 with chip tank

Front view

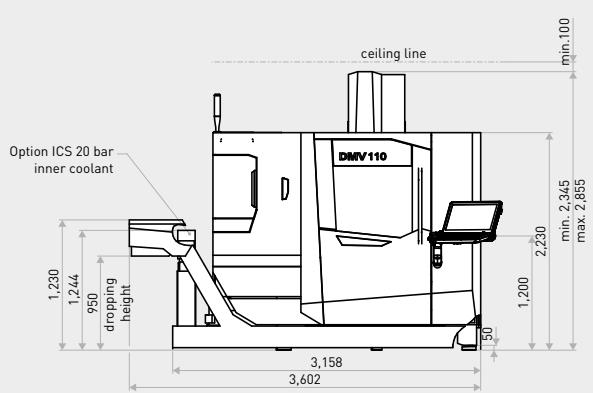


Top view

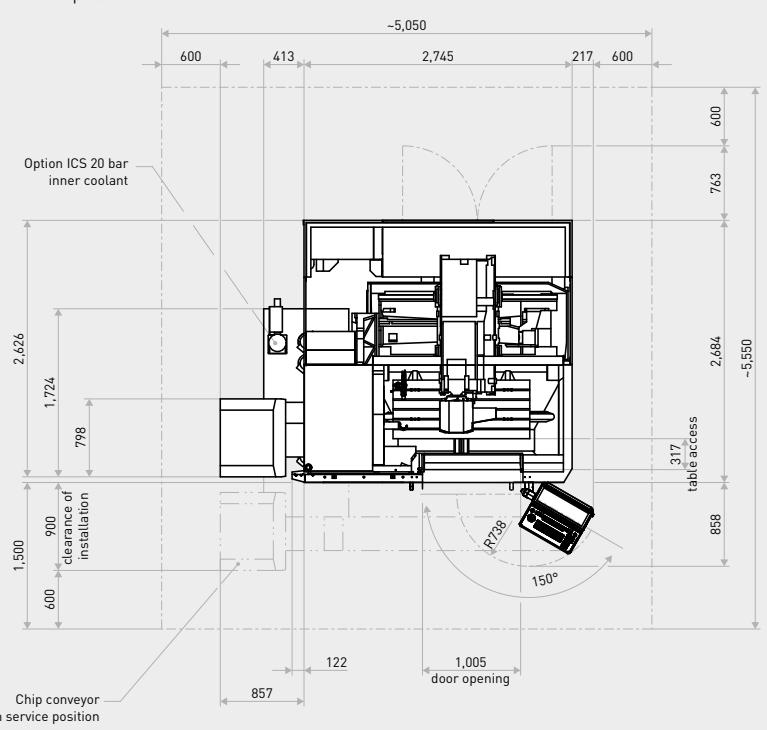


DMV 110 with chip conveyor

Front view



Top view



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