

Accessories	MVP-8/10	MVP-11(#40)	MVP-11(#50)	MVP-13	MVP-16
Item					
1.Fully-Enclosed Splash Guard with Top Cover	○	○	○	○	○
2.Coolant Jets Around Spindle	●	●	●	●	●
3.Lubrication System	●	●	●	●	●
4.Spindle Air Curtain	●	●	●	●	●
5.Coolant Tank (with Chip Bucket)	●	●	●	●	●
6.Fluorescent Lamp	●	●	●	●	●
7.Network Interface	●	●	●	●	●
8.Table Side Air Blast (M50 Control)	●	●	●	●	●
9.X/Y/Z-Axis Ball Screw with Preload	●	●	●	●	●
10Automatic Power Off	●	●	●	●	●
11.Leveling Bolts & Blocks	●	●	●	●	●
12.Remote Manual Pulse Generator (MPG)	●	●	●	●	●
13.Operation Finish Lamp	●	●	●	●	●
14.Rotary Type Operator Panel	●	●	●	-	-
15.Suspension-Type Operator Box	-	-	-	●	●
16.Operation Manual & Electrical Drawings	●	●	●	●	●
17.Tool Package	●	●	●	●	●
18.Coolant Through Spindle (20 BAR)	○	○	○	○	○
19.Coolant Through Spindle (25 BAR)	○	○	○	○	○
20.Closed-Loop Linear Scale Positioning System	○	○	○	○	○
21Automatic Tool Length and Diameter Measurement	○	○	○	○	○
22.Oil Mist Collector System	○	○	○	○	○
23.NC Rotary Table	○	○	○	○	○
24.Lifting Eye Bolts (Included with Shipment)	○	○	○	○	○
25Automatic Door System (Operator Door)	○	○	○	○	○
26.Link-Type Chip Conveyor with Portable Chip Bucket	○	○	○	○	○
27.Spindle Oil Cooler	○	○	○	○	○
28Automatic Workpiece Measurement	○	○	○	○	○
29.Coolant Flushing Device	○	○	○	○	○
30.Hydraulic Hose Coolant Gun / Air Gun	○	○	○	○	○
31.Oil-Fluid Separator	○	○	○	○	○

Standard ● Optional ○

Standard & Optional Electrical Functions

Hartrol / Standard	Hartnet / Optional	Electrical Function / Optional
• Workpiece Calibration by MPG Directly	• Management system of Utilizaion	• Lifting Function against gravity
• Tool Magazine Display	• Machining Time Countdown	• Retraction for Rigid Tapping
• Parameter Package	• Convenient File Transfer	• Intelligent MPG
• Threading Cutting (Only for 0i & 31i)		
• Monitoring of Tool Status(Only for 0i & 31i)		
• Special engraving		

High-Speed, High-Precision
Vertical Machining Center

MVP Series

MVP - 8	MVP - 13
MVP - 10	MVP - 16
MVP - 11	



► Applications and Parts

Machinery and Technology

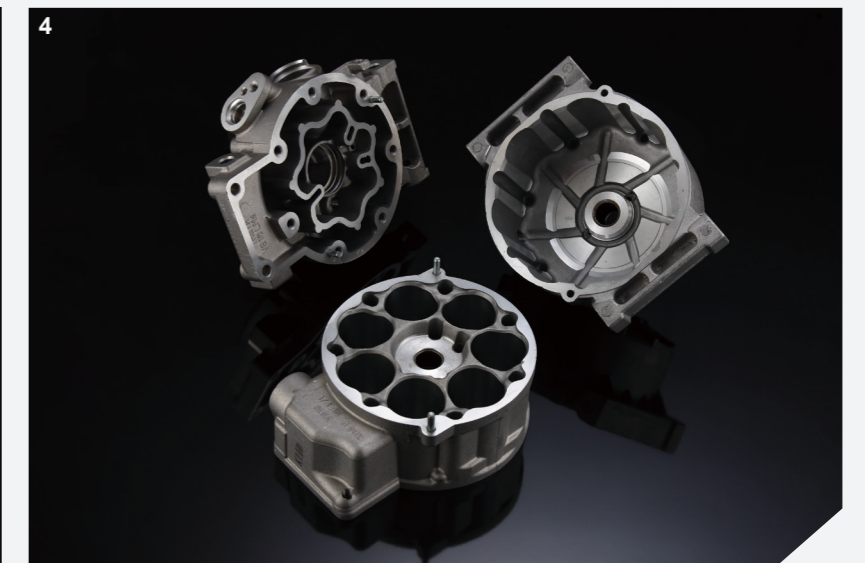
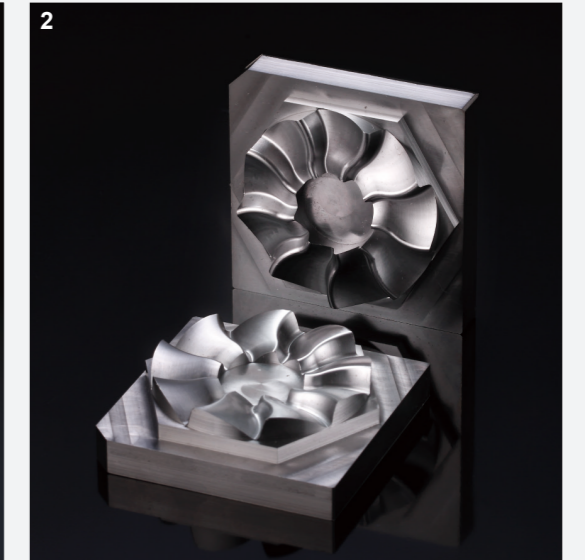
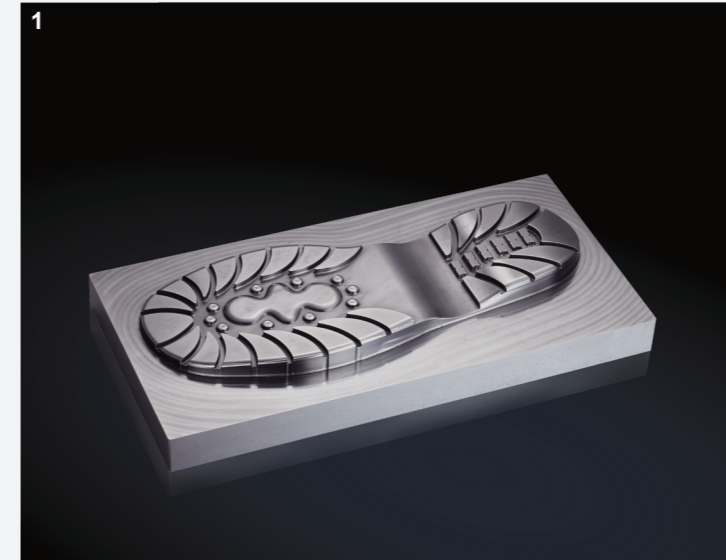
Automation / Intelligent

Specification parameter

01 Workpiece Machining Applications

A stable and reliable machine with excellent precision and performance

The Plug & Play series is equipped with high-precision MGPS μ -level processing standards and a high-performance spindle, specifically designed for the mold manufacturing industry. It not only significantly enhances machining efficiency, but also serves as your best partner in precision manufacturing.



1	2
3	4

Shoe industry

1 Shoe mold

Plastics Industry

2 Petal Injection Mold

Bicycle

3 Brake Disc Parts

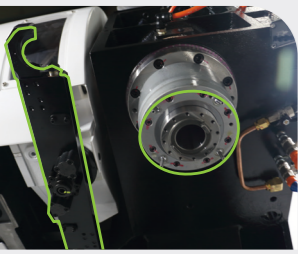
Motorcycle

4 Transmission Parts

02 Machine Structure Features

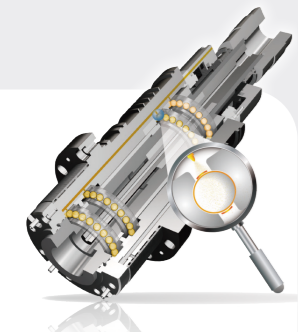
Optimized structural design ensures stability, no deformation, and long-lasting precision.

MVP 8 / 10



Excellent Tool Change Time opt.

Minimum tool change time is **1.38 sec**



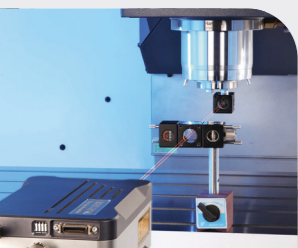
Oil-Air Lubricated Spindle with a 2-Year Unlimited-Hour Warranty opt.

Optional spindle with **15,000 / 20,000 rpm**, runout within **5 μm**; high-efficiency cooling spindle design ensures stable operation over long periods; automatically activates energy-saving mode after idling for more than 15 minutes.



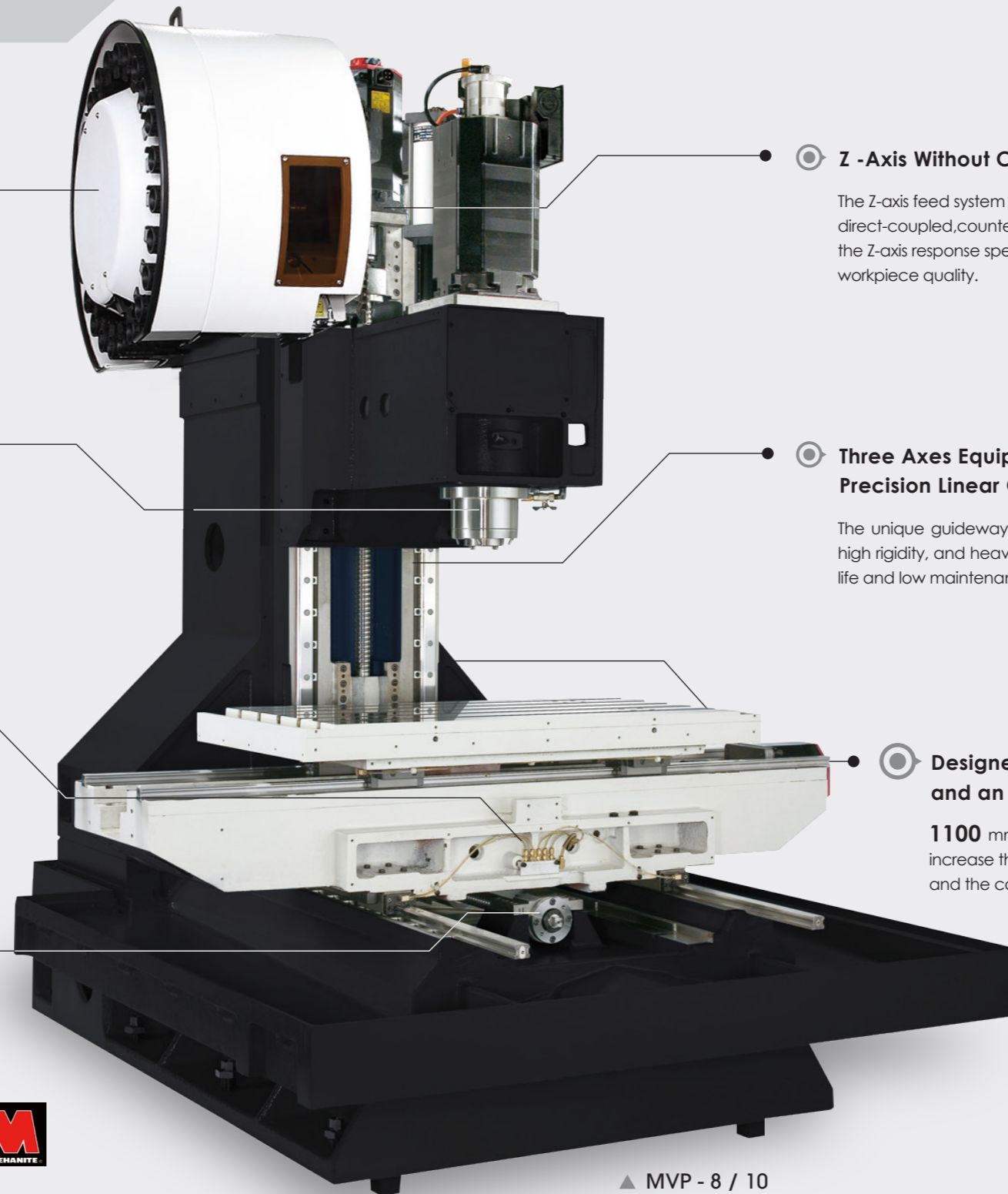
Eco-Friendly, Energy-Saving, Low-Carbon Grease Lubrication Design opt.

The feed axis uses low-amount grease lubrication to meet environmental rules, extend grease and cutting fluid life, reduce maintenance costs, avoid waste oil problems, and ensure stable operation and good product quality.



Micro-Grade Process and Standard opt.

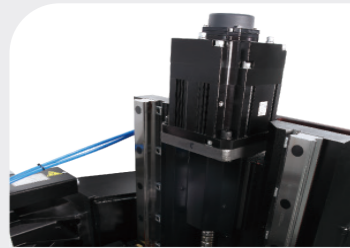
Processing accuracy is improved to the micrometer level, with positioning accuracy within **8 μm**, and repeat positioning accuracy within **5 μm**.



▲ MVP - 8 / 10

Z -Axis Without Counterbalance Design

The Z-axis feed system adopts a large motor drive with a direct-coupled, counterbalance-free design, enhancing the Z-axis response speed and further improving workpiece quality.



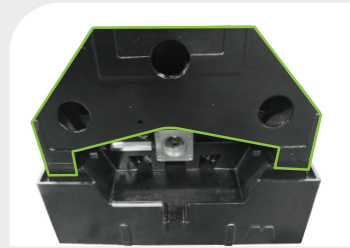
Three Axes Equipped With THK High-Rigidity Precision Linear Guideways.

The unique guideway design offers ultra-high precision, high rigidity, and heavy-load capacity, with long service life and low maintenance requirements.



Designed With an Oversized Column and an Extra-Wide Base

1100 mm wide base and **1600 mm** length increase the contact surface between the base and the column.



5 YEAR Warranty on Guideways for All Models

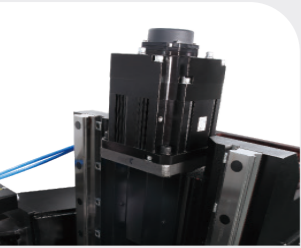
Warranty coverage will not apply under following conditions :

1. Improper operation (collision)
2. Lack of regular cleaning of accumulated debris causing damage to the linear rails & carriages.

02 Machine Structure Features

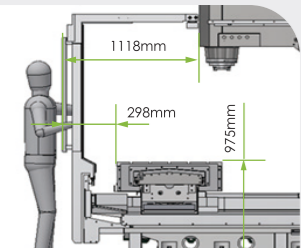
Optimized structural design ensures stability, no deformation, and long-lasting precision.

MVP 13 / 16



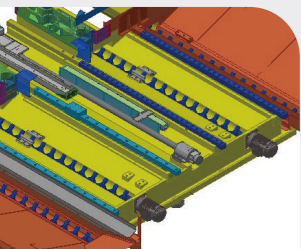
◎ Z-axis Nitrogen Accumulator Weight System

- The Z-axis uses timing belt transmission, with the servo motor directly driving the ball screw.
- Backlash-free design effectively eliminates servo lag caused by conventional belt drives.



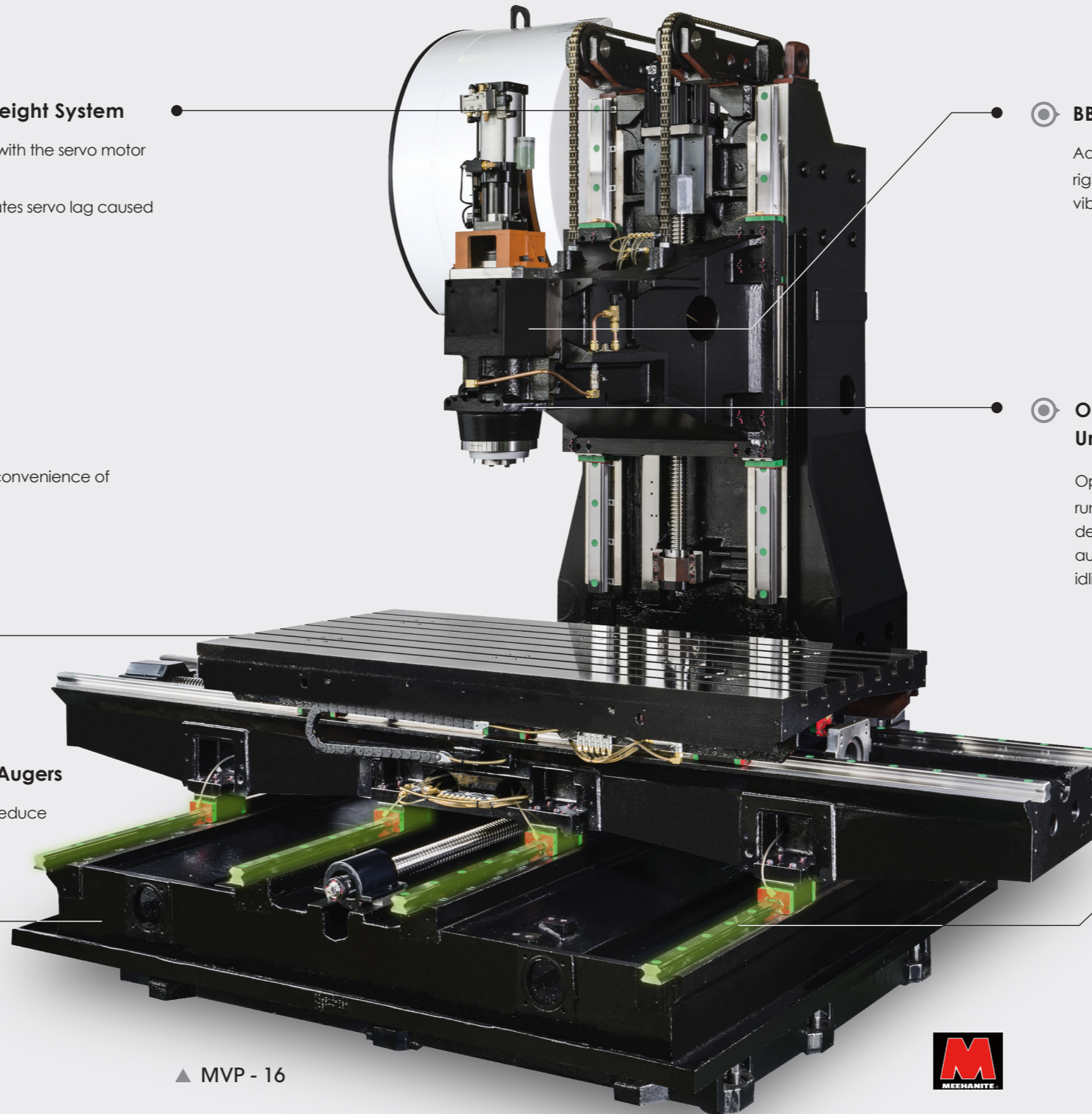
◎ Convenient Operation

Ergonomically designed to enhance the convenience of loading and unloading for operators.



◎ Chip Conveyor With Four Screw Augers

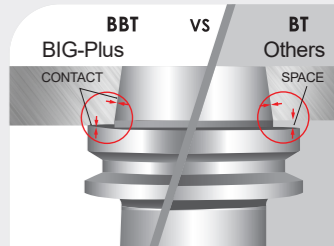
Improve chip evacuation efficiency and reduce chip clogging issues.



▲ MVP - 16

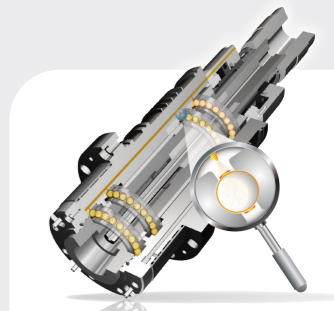
◎ BBT Spindle Design opt.

Adopting a dual-surface constraint design, rigidity is increased by **30%**, reducing errors and vibrations.



◎ Oil-Air Lubricated Spindle with a 2-Year Unlimited-Hour Warranty opt.

Optional spindle with **15,000 / 20,000 rpm**, runout within **5 μm**; high-efficiency cooling spindle design ensures stable operation over long periods; automatically activates energy-saving mode after idling for more than 15 minutes.



◎ Four-Guideway Design

The base features a four-rail design to enhance machine stability.



5 YEAR Warranty on Guideways for All Models

Warranty coverage will not apply under following conditions :

1. Improper operation (collision)
2. Lack of regular cleaning of accumulated debris causing damage to the linear rails & carriages.



03 Smart Factory / Intelligent Automation

One unit capable of connecting up to 10 or 20 machines

Smart i-Factory System with Superbox (Opt.)

Through i-Factory, all machinery and equipment in the factory can be connected, and the machine connections are no longer limited to Hartford. Machines from other manufacturers can also be connected for real-time visualization and management. The system is composed of five key components: real-time monitoring, production planning, alert notifications, data analysis, and remote connectivity, allowing you to move away from traditional management models and embrace a simpler and more convenient approach to factory management.



Tailored one-to-many automation planning

Intelligent Automated Production Line Unit (Opt.)



Customizing an automated factory just for you, effectively reducing costs and enhancing competitiveness.

Easy to get started

Hartford Robocell provides you a professional robot training and rich automation experience, to let you quickly learn and easily operate your automation systems.

Quality control monitoring

Automation systems have to pass all the strict Quality Control tests at every stage like design, assembly, testing, final inspection and shipment, complete quality control processes for all the products.

Professional analysis

Robocell Machining optimization service, to let you be on the top by using professional machining methods.



Hartrol Premium

Hartford Smartcenter APPS

1 Automation & Smart Factory

- Autopilot V2 Package
- Real-time Monitor Package
- Efficiency Improvement Package
- Smart Lubrication System
- Machine Play – Smartphone Remote Operation
- Wireless Network Function (Wi-Fi)

2 Monitoring & Energy Management

- Real-time Monitor Package (CCD Monitor / IP Camera)
- Energy Monitoring

3 Tool Protection & Machining Stability

- Tool Protection Suite (TPS)
- AFC – Automatic Feed Control
- Rigid Tapping Automatic Learning

4 CNC Control & Operation Enhancement

- Handwheel Simulation Mode
- HP Level R1–R10 Parameter Package

5 High-Speed / High-Accuracy Machining

- SSS High-speed High-accuracy Control
- High-speed High-accuracy Control III (G5P20000)
- High Speed Milling

6 Programming & User Interface

- Conversational Programming (HCP)



24 HR

Online Update System

Keep your operating system in optimal condition and stay up to date with the latest features from Hartford.



Hartford ZDT

Early warning before machine failure helps reduce unexpected downtime, minimizing productivity loss and cost.



Chip Conveyor Opt.

Smart detection based on spindle current clears chips only when needed. The system runs on a 50% on/off cycle during cutting to save up to 50% motor power, and automatically reverses when chips build up to prevent overload and protect the conveyor.



Lubrication Opt.

The system smartly delivers oil based on machine and cutting conditions, saving up to 50% oil and reducing costs while supporting eco-friendly operation.



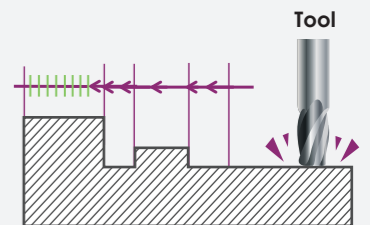
Position Opt.

When performing workpiece measurement with Hartrol Premium and Fanuc 15" IPC, operators can simply enter values through the intuitive guided interface—no need to memorize complex measurement commands, making the process effortless.



AFC Opt.

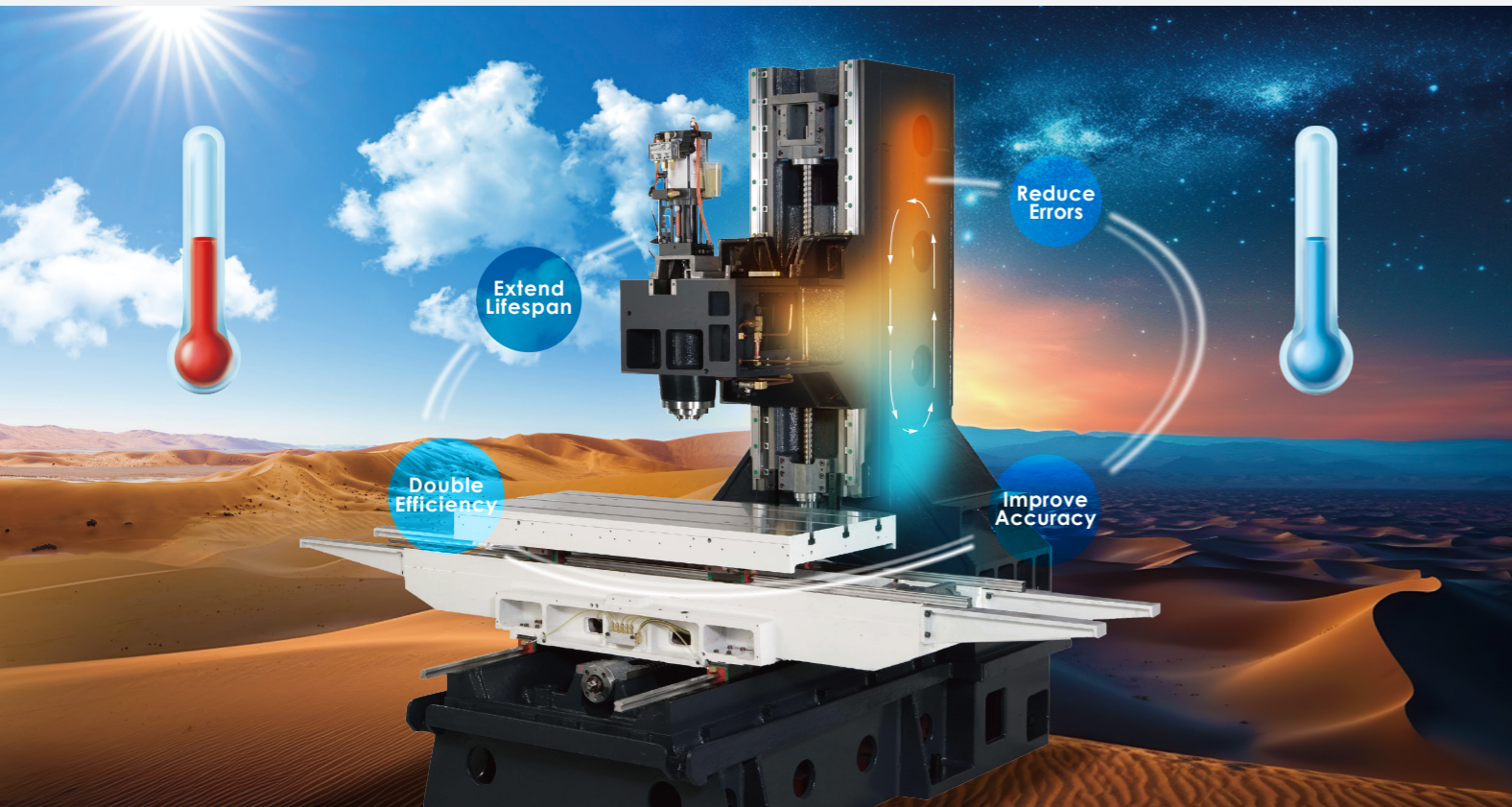
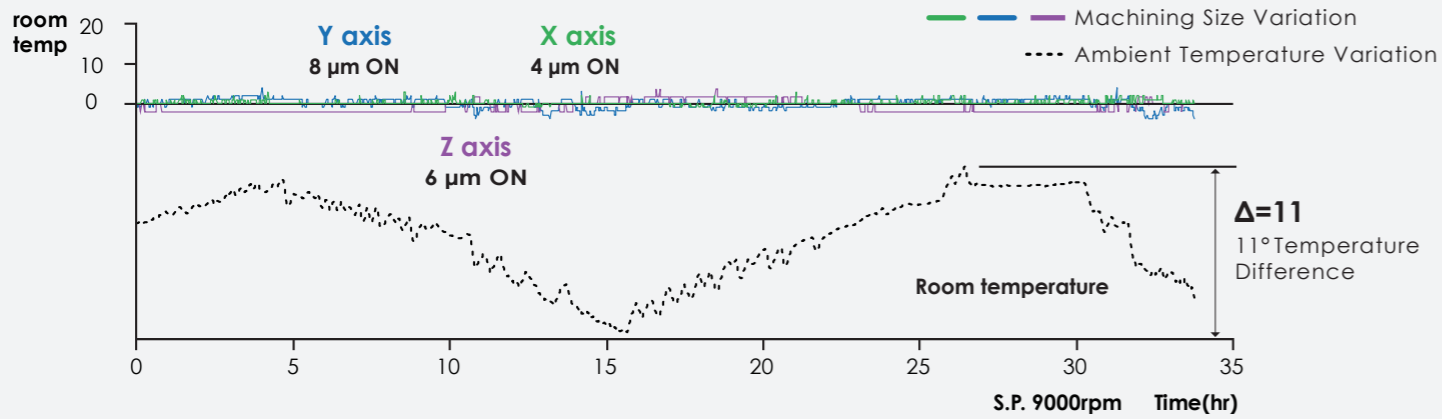
Spindle load monitoring allows users to set tool-specific load limits, boosting efficiency by up to 21% in heavy operations like face and side milling.



No More Thermal Drift – Precision Machining, Zero Defects

Thermal Compensation System (Opt.)

Exclusive whole-machine ambient temperature thermal displacement compensation function ensures that machining equipment does not cause workpiece deformation due to prolonged heat accumulation, thereby maintaining machining accuracy. Additionally, it effectively reduces the time required for temperature adaptation and thermal displacement modeling across different machine models and ambient temperature variations, significantly shortening delivery time.



Eco-Friendly Solutions for Energy Management

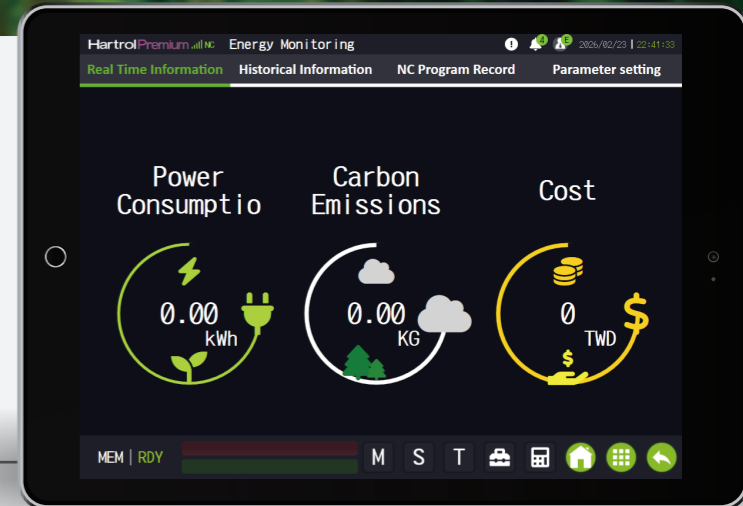
ECO and Energy Monitoring Dashboard (Opt.)



- Gas-based weight replacement instead of hydraulic
- All lighting equipment is LED
- FEM analysis for structural lightweight design

Energy Monitoring Dashboard

Real-time monitoring of energy consumption for each electrical component of the machine, with the ability to query historical energy consumption data and generate reports.



Eco Mode

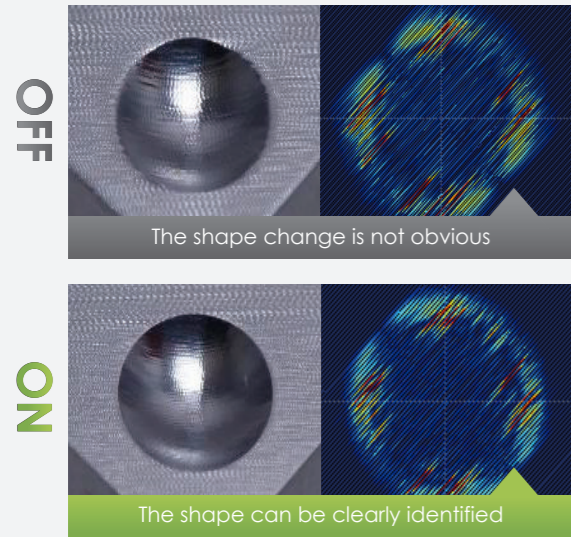
Helps you control five peripheral devices, including the hydraulic motor, oil cooler, mist collector, work lights, and chip conveyor, to prevent unnecessary energy consumption when the machine is idle.

Eliminate interference and mechanical collision issues during the machining process

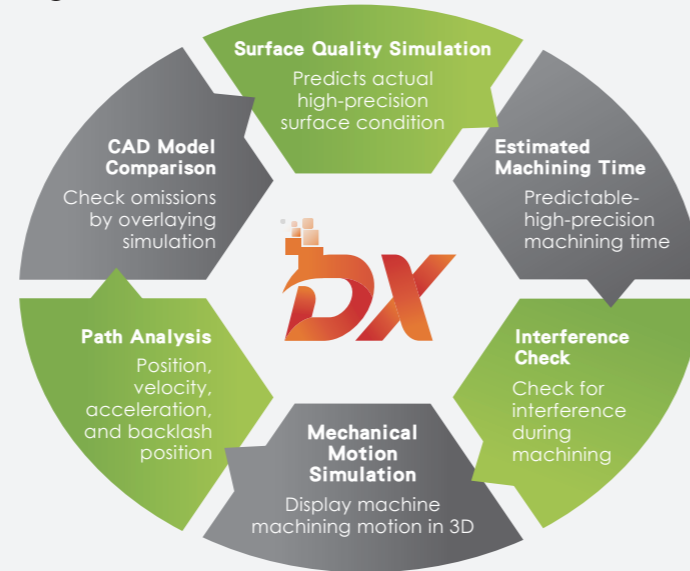
Digital Transformation (Opt.)

Digital Twin-NCVS software combines workpiece CAD, tools, and machine parameters to simulate the machining process in advance. It accurately reflects real conditions, going beyond traditional CAD/CAM by including machine data. The system verifies CNC parameter settings, analyzes part geometry and machine travel limits, and ensures alignment between programmed data and actual machine performance.. This helps prevent interference and collisions, ensuring safe, stable machining and better productivity.

■ Simulation vs. Actual Machining Results



■ 6 Key Features

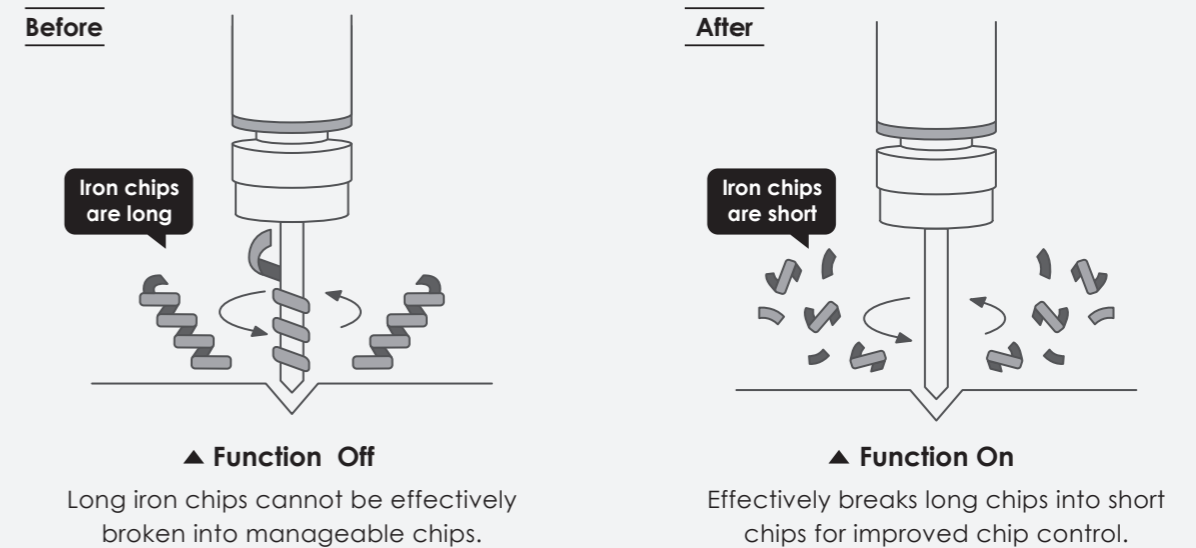


Solve the problem of chips wrapping around your cutting tool

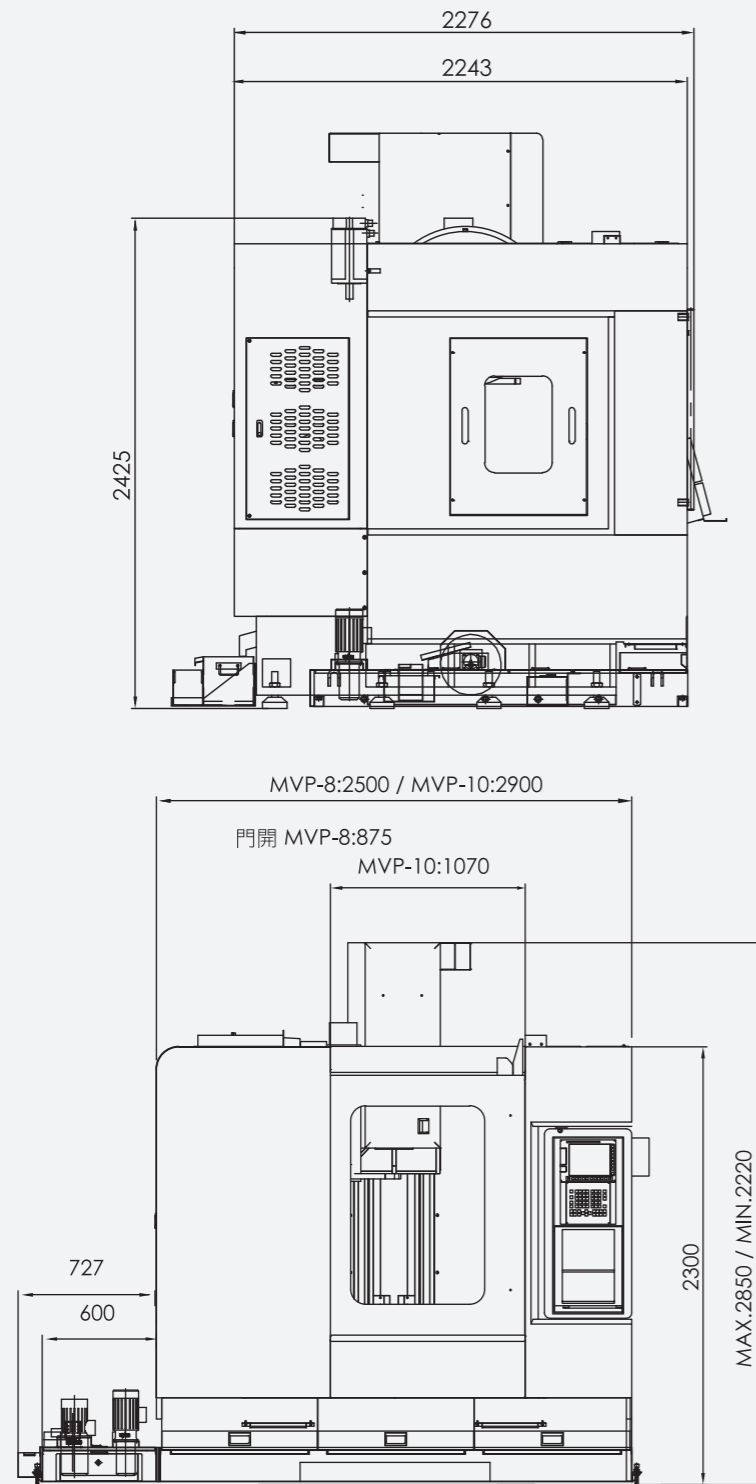
Drilling Chip Breaker Feature (Opt.)



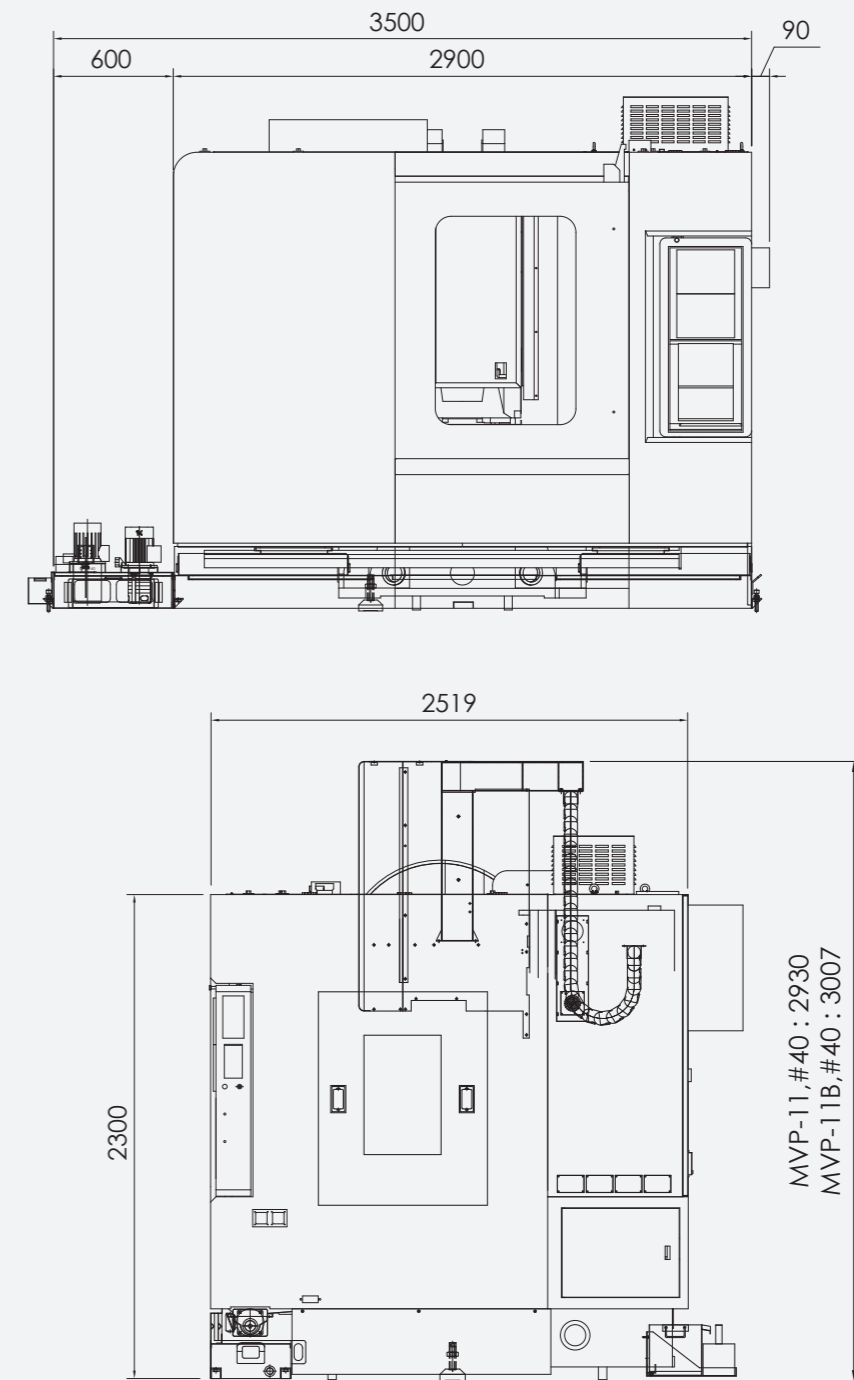
In deep-hole machining, the lack of effective chip-breaking can lead to issues like chips wrapping around the tool, scratching the workpiece, and making chips cleaning difficult. With Hartford's exclusive chips breaking for drilling function, chips are finely broken down, preventing them from wrapping around the tool. This ensures the workpiece remains intact, chips are easily cleaned, productivity is increased.



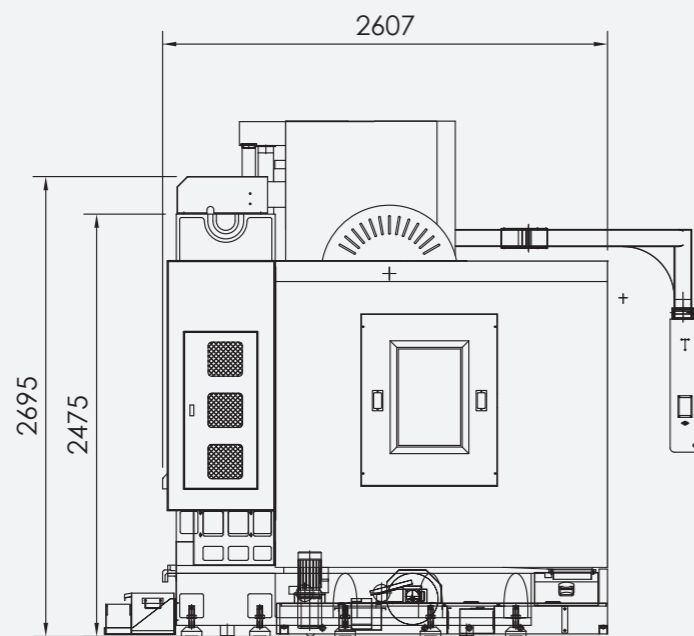
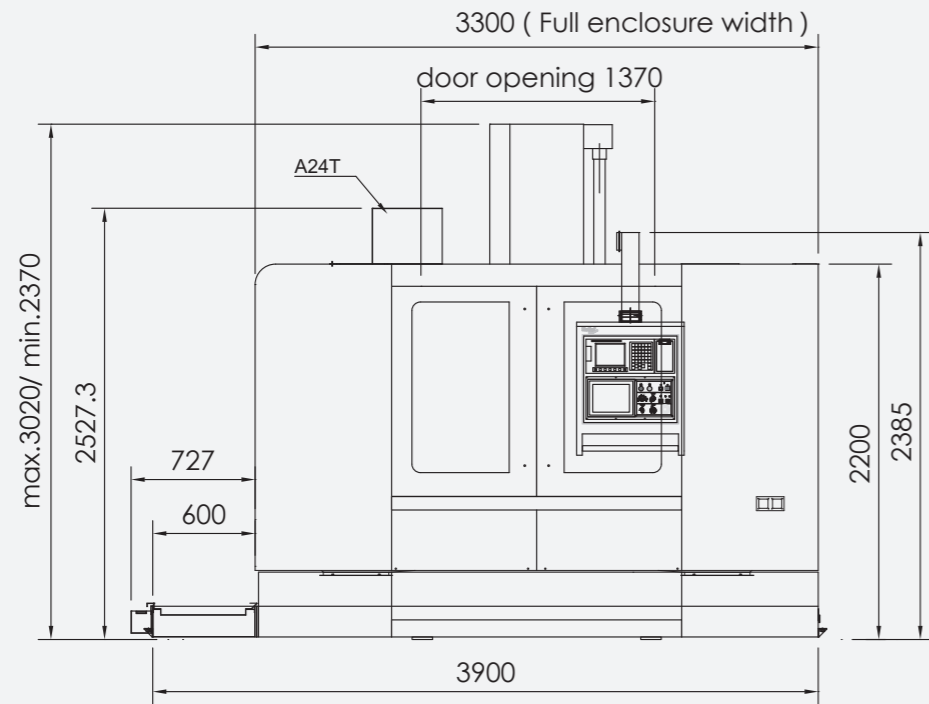
■ MVP-8 / 10



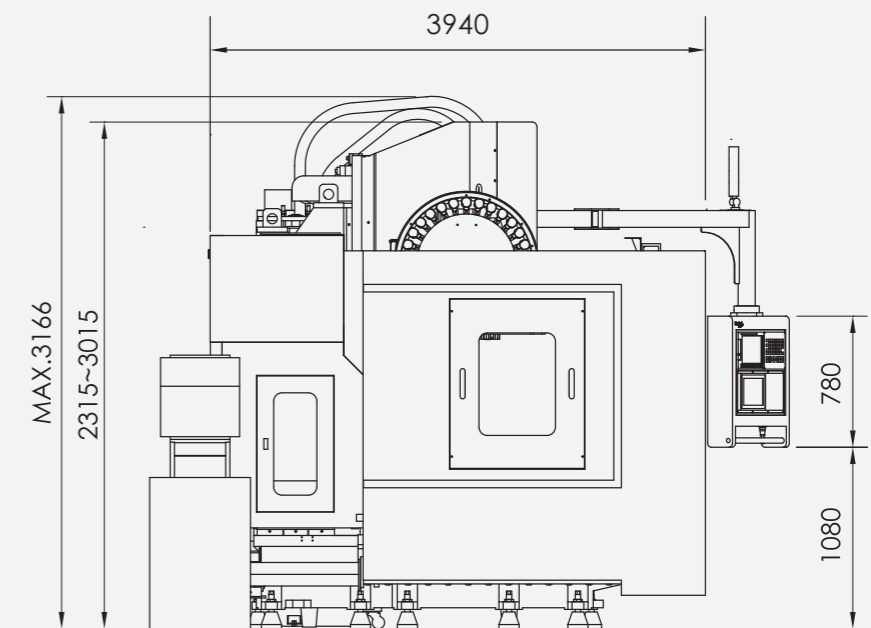
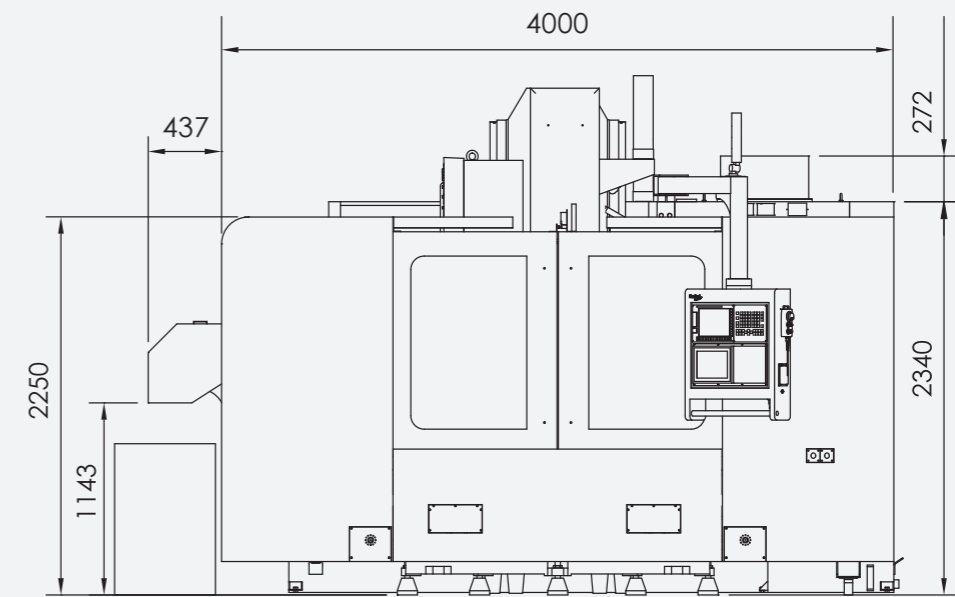
■ MVP-11



■ MVP-13



■ MVP-16



► Specification parameter



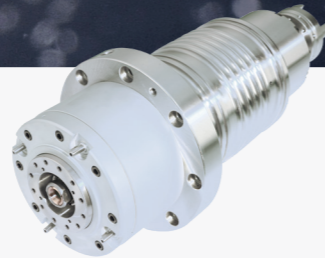
Spindle type

- #40 Pulley 12,000 rpm
- #40 DDS 15,000 / 20,000 rpm
- #40 Built-in 15,000 / 20,000 rpm
- #50 DDS 10,000 rpm (MVP-16)
- #50 Gear 6,000 / 8,000 rpm (MVP-16)

BBT for optional

- Dual contact between the taper and the flange
- Improves the rigidity, accuracy, speed and performance. Radial deflection, vibration and deviation are significantly reduced

Not suitable for DDS 20,000 rpm spindle



Optimized Performance For speed and Cutting Efficiency

Model : MVP-16

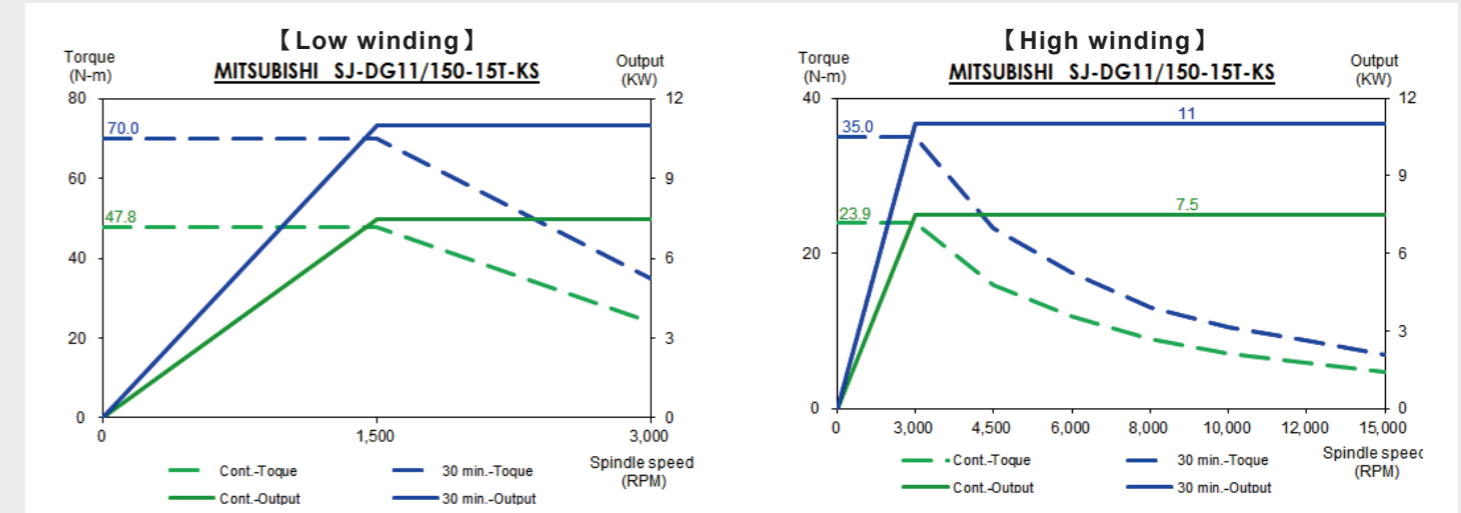
- Spindle : 6,000 rpm #50 Gear type 15kw
- Cutting material : S45C

Face milling		End Milling		Tapping		Drilling	
Tool diameter	Ø 80 mm	Tool diameter	Ø 63 mm	Tool diameter	M24 x 3 mm	Tool diameter	Ø 40 mm
Feed rate	1,800 mm/min	Feed rate	4,200 mm/min	Feed rate	540 mm/min	Feed rate	140 mm/min
Cutting depth	3 mm	Cutting depth	30 mm	Cutting depth	30 mm	Cutting depth	40 mm
Cutting width	65 mm	Cutting width	3 mm				
Cutting volume	351 cc/min	Cutting volume	378 cc/min				

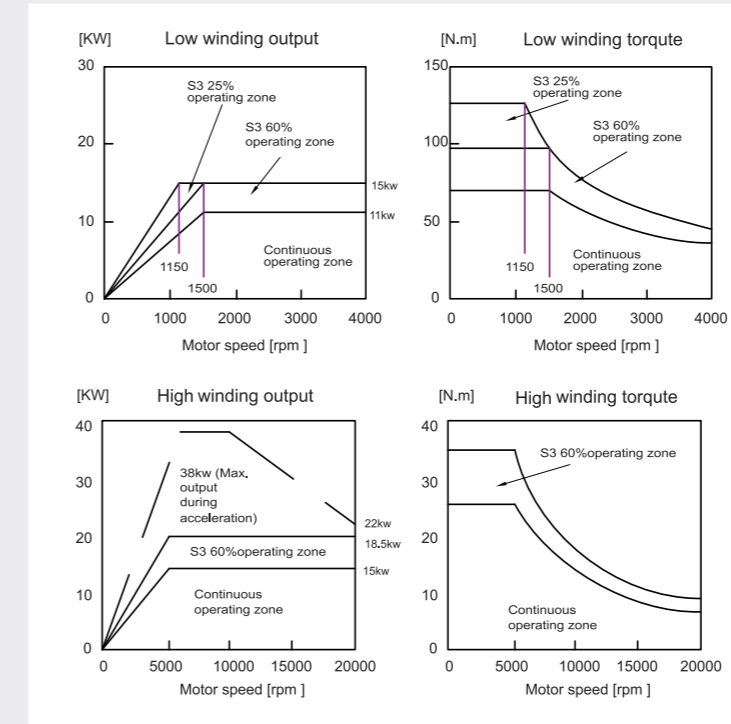
05 Actual Cutting Tests / Spindle Torque Diagrams

Spindle torque diagrams

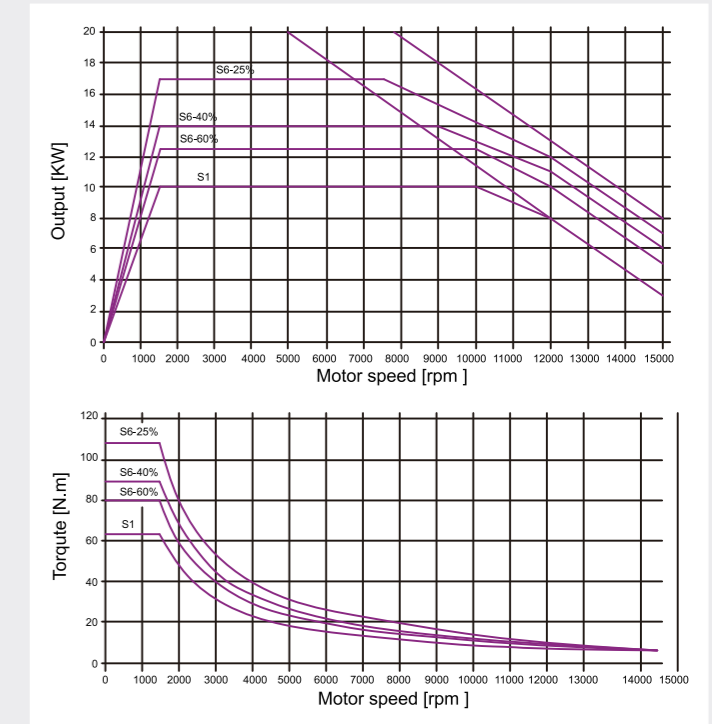
■ Mitsubishi SJ-DG11/150-15T-K



■ Fanuc a8 / 2000 it (DDS 20000 rpm)



■ HEIDENHAIN: QAN200UH x 15000



Note : The power output during acceleration is used only to calculate acceleration/deceleration time, not the actual value.

► Specification parameter

05 Machine Specifications

		Unit	MVP - 8	MVP - 10	MVP - 11	MVP - 13	MVP - 16
Table	Working surface	mm	1000 x 560	1150 x 560	1270 x 600	1400 x 700	1750 x 820
	T-slot Width x pitch(number)	mm	18 x 100 (5)	18 x 100 (5)	18 x 100 (5)	18 x 100 (7)	18 x 100 (7)
	Max. load (Average)	kg	500	700	1000	1500	2000
Travel	X-axis travel	mm	860	1050	1100	1300	1600
	Y-axis travel	mm	530	530	600	700	820
	Z-axis travel	mm	630	630	630	650	700 600 opt.820
	Guide way (X / Y / Z)	type	Linear Guide Way	Linear Guide Way	Linear Guide Way X/Y : Linear Guide Way Z : Box Way	Linear Guide Way	Linear Guide Way X/Y : Linear Guide Way Z : Box Way
	Distance from spindle to table	mm	85~715	85~715	100~730	120~770 180~830	120~820 opt.320~1020 150~810 opt.200~1020
	Distance from spindle center to column	mm	600	600	641 645	780	900 865
Spindle	Spindle nose taper	rpm	#40	#40	#40 #40 (MVP-11B) #50	#40 #50	#40 #50
	Spindle speed(Gear)	rpm	-	-	-	6000/8000	- 6000/8000
	Spindle speed(Pulley)	rpm	8000/10000 12000	8000/10000 12000	8000/10000 12000	8000/10000 12000	8000/10000 12000
	Spindle speed(DDS)	rpm	10000/12000 15000/20000	10000/12000 15000/20000	10000/12000 15000/20000	10000/12000 15000/20000	10000/12000 15000/20000
	Spindle speed(Built-in)	rpm	15000/20000	15000/20000	15000/20000	15000/20000	15000/20000
Feed	Cutting feedrate(X / Y / Z)	m/min	20/20/20	20/20/20	20/20/20	20/20/20	20/20/20 20/20/12
	Rapid traverse rate(X / Y / Z)	m/min	36/36/30 opt.48/48/36	36/36/30 opt.48/48/36	36/36/36	36/36/20	36/36/30 32/32/24 32/32/24
ATC	Capacity	pcs	A:24(30)	A:24(30)	A:24(30/40)	A:24(32)	A:24(30/40) A:24(32/40)
	Max. tool weight	kg	7	7	7	15	7 20
	Max. tool size (dia.x length)	mm	A:Ø75x300L	A: Ø75x300L	A: Ø75x300L	A: Ø105x300L	A: Ø75x300L A: Ø125x350L
	Tool shank		BT40 (BBT / CAT / DIN / HSK A63)	BT40 (BBT / CAT / DIN / HSK A63)	BT40 (BBT / CAT / DIN / HSK A63)	BT50 (BBT / CAT / DIN)	BT40 (BBT / CAT / DIN / HSK A63) BT50 (BBT / CAT / DIN)
	Pull stub bolt		P40T - 1 (CAT - 40 / DIN 69872)	P40T - 1 (CAT - 40 / DIN 69872)	P40T-1 (CAT-40 / DIN 69872)	P50T-1 (CAT50 / DIN69872)	P40T-1 (CAT-40 / DIN 69872) P50T-1 (CAT-50 / DIN 69872)
Motor	Spindle drive motor(cont./30 min)	kw	5.5 / 7.5 opt. 7.5 11,11/15,15/18.5	5.5 / 7.5 opt. 7.5 11,11/15,15/18.5	5.5 / 7.5 opt. 7.5 11,11/15,15/18.5	11/15 opt. 15/18.5	7.5/11 opt. 11/15,15/18.5 11/15 opt. 15/18.5 15/18.5/22,22/26
Positioning Accuracy	Positioning accuracy (JIS B6330), without linear scale	mm	±0.008	±0.008	±0.008	±0.008	±0.008
	Repeatability (JIS B6330), without linear scale	mm	±0.002	±0.002	±0.003	±0.003	±0.003
	Positioning accuracy (JIS B6330), with linear scale	mm	±0.006	±0.006	±0.006	±0.006	±0.006
	Repeatability (JIS B6330), with linear scale	mm	±0.002	±0.002	±0.002	±0.002	±0.002
	Positioning accuracy (VDI 3441)	mm	0.010 / MGPS:0.008	0.010 / MGPS:0.008	0.010 / MGPS:0.008	0.014	0.018
	Repeatability(VDI 3441)	mm	0.006 / MGPS:0.005	0.006 / MGPS:0.005	0.006 / MGPS:0.005	0.008	0.010
Other	Required air pressure	kg/cm2	6.5	6.5	6.5	6.5	6.5
	Electric power requirement	KVA	20~45	20~45	20~45	20~45	20~45 30~50
	Machine weight	kg	6400	6700	6200 7200 8000	9000	10650 11500
	Coolant tank(standard)	L	283	303	306	363	440
	Machine dimension(LxWxH)	mm	2500 x 2276x 2850	2900 x 2276x 2850	2260 x 2900 x 3055	3300 x 2607 x 2370	4000 x 2947 x 3015
	Floor space (standard tank)	mm	3100 x 2556	3500 x 2556	2714 x 3500	4000 x 3730	4437 x 3940