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	●	●	●	●	●
10.Automatic 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	○	○	○	○	○
21.Automatic Tool Length and Diameter Measurement	○	○	○	○	○
22.Oil Mist Collector System	○	○	○	○	○
23.NC Rotary Table	○	○	○	○	○
24.Lifting Eye Bolts (Included with Shipment)	○	○	○	○	○
25.Automatic Door System (Operator Door)	○	○	○	○	○
26.Link-Type Chip Conveyor with Portable Chip Bucket	○	○	○	○	○
27.Spindle Oil Cooler	○	○	○	○	○
28.Automatic 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		

Hartford

Hartrol · Smartcenter · Robocell

We manufacture intelligent machines only

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Website

Hartford

High-Speed, High-Precision
Vertical Machining Center

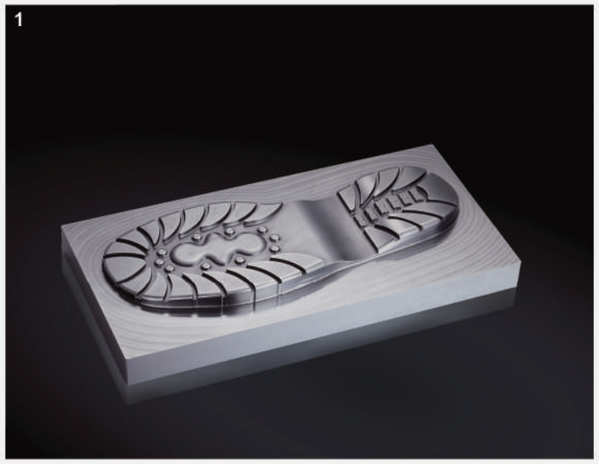
MVP Series

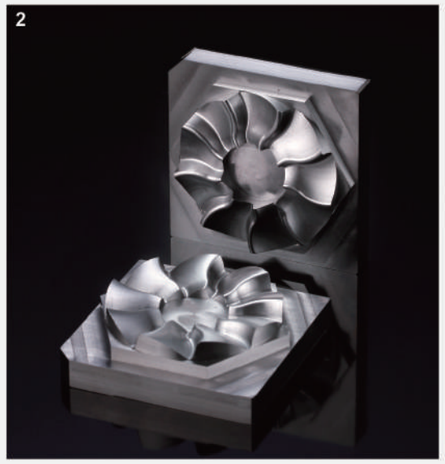
MVP-8
MVP-10
MVP-11
MVP-13
MVP-16

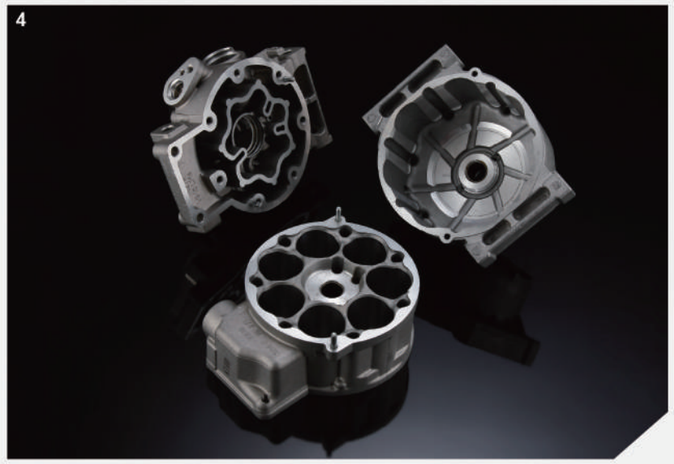
01 Workpiece Machining Applications

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

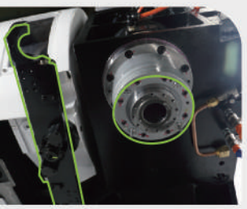
Motorcycle

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.

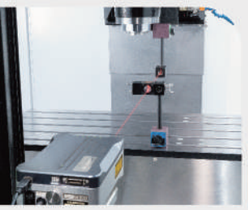
Minimum tool change time is **1.38** sec

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.

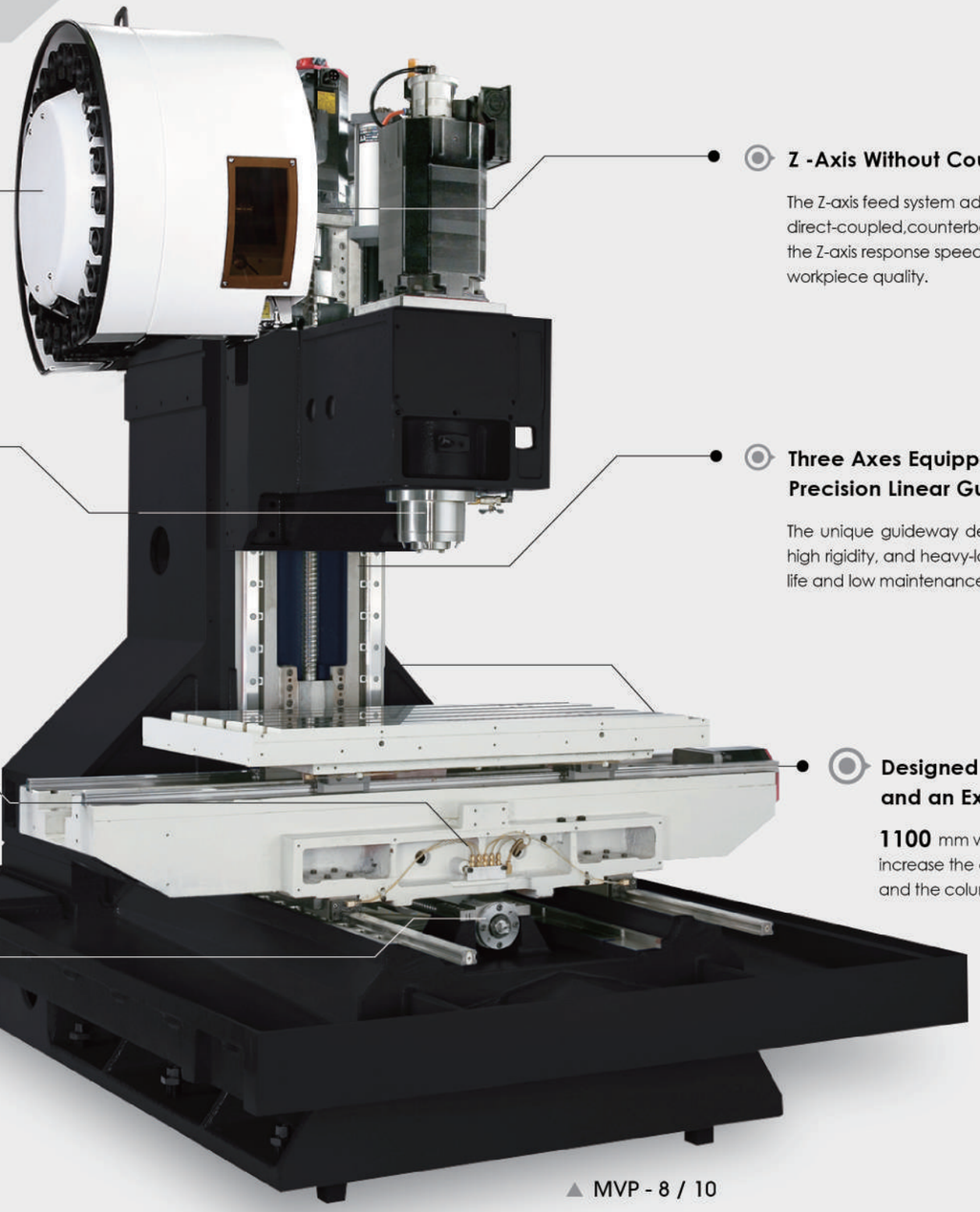
Eco-Friendly, Energy-Saving, Low-Carbon Grease Lubrication Design opt.

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.

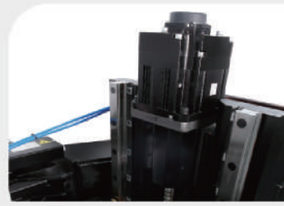
Processing accuracy is improved to the micrometer level,with positioning accuracy within **8** μm,and repeat positioning accuracy within **5** μm.



▲ MVP - 8 / 10

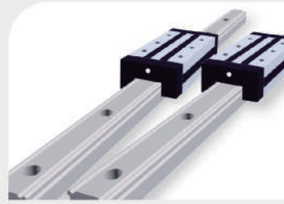
Z -Axis Without Counterbalance Design

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.



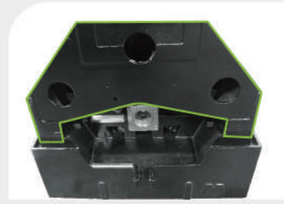
Three Axes Equipped With THK High-Rigidity Precision Linear Guideways.

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.



Warranty on Guideways for All Models

Warranty coverage will not apply under following conditions :

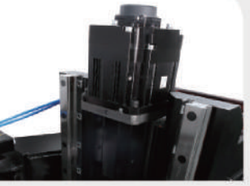
1.Improper operation(collision)

2.Lack of regular cleaningof accumulated debris causing damage to the linear rails &carriages.

02 Machine Structure Features

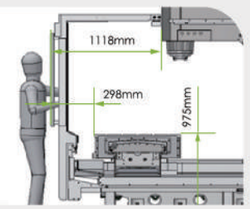
Optimized structural design ensures stability, no deformation, and long-lasting precision.

MVP 13 /16



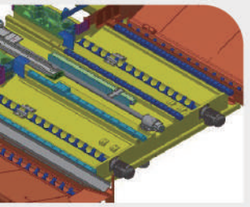
Z-axis Nitrogen Accumulator Weight System

- 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.



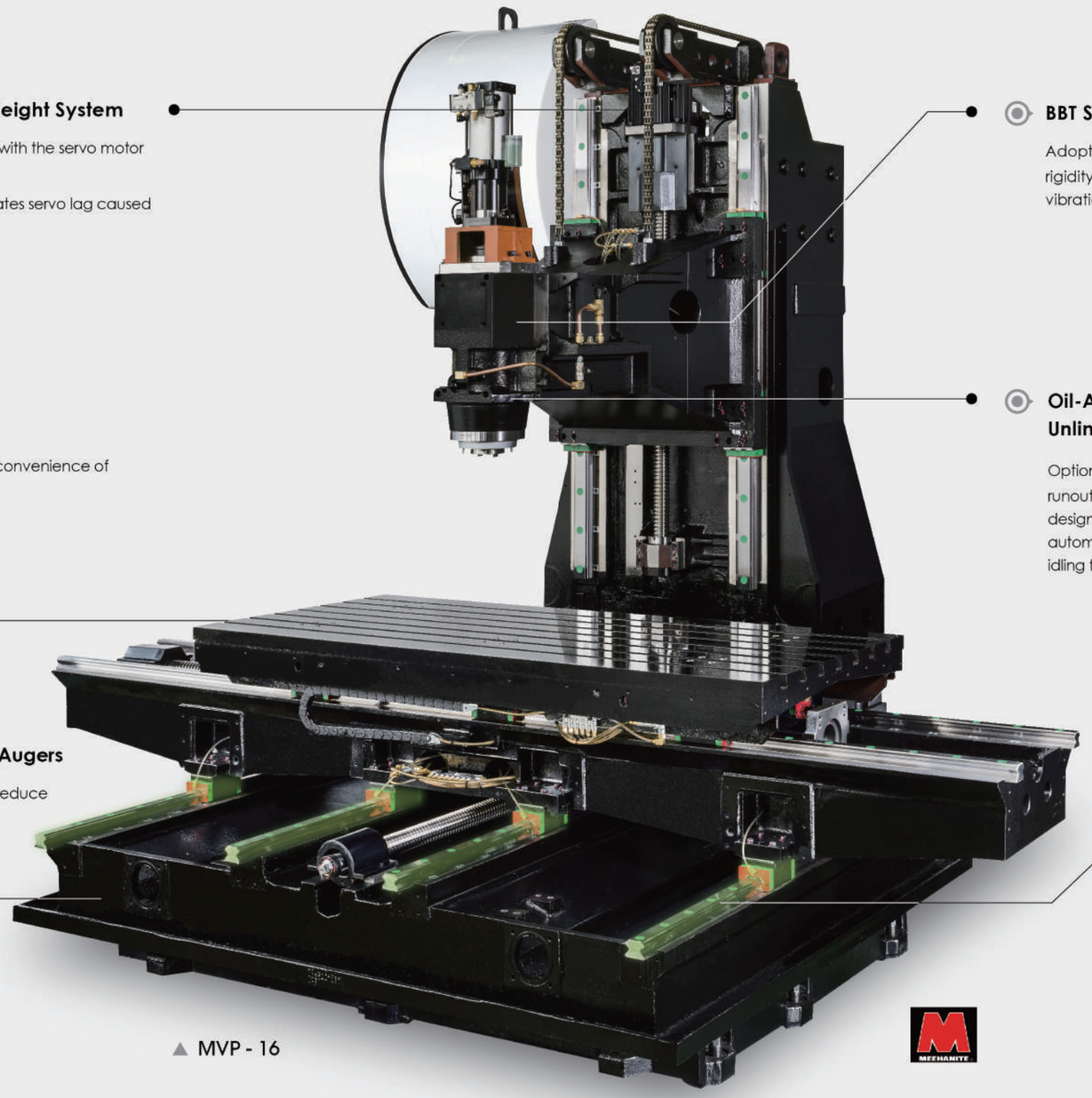
Convenient Operation

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



Chip Conveyor With Four Screw Augers

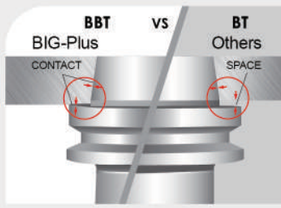
Improve chip evacuation efficiency and reduce chip clogging issues.



▲ 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 cleaningof accumulated debris causing damage to the linear rails &carriages.

03 Smart Factory / Intelligent Automation

Personalized Smart Factory System

Smart i-Factory

Through i-Factory, all machinery and equipment in the factory can be connected, and the machine connections are no longer limited to Xiehong Machinery. Machinery 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

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.

Detailed specifications please contact our sales staff.

Hartrol Premium

A smart controller with independent thinking and decision-making abilities

- Chip Conveyor
- Lubrication
- Position
- AFC
- Thermal comp sys info
- ECO Mode
- Digital Transformation
- Energy Monitoring Dashboard
- Chips Breaking for Drilling
- Hart CAM
- CCD Monitor
- Work piece Calibration

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.

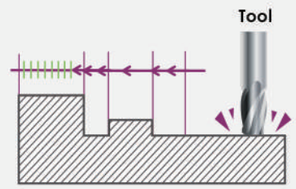
The system smartly delivers oil based on machine and cutting conditions, saving up to 50% oil and reducing costs while supporting eco-friendly operation.

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.

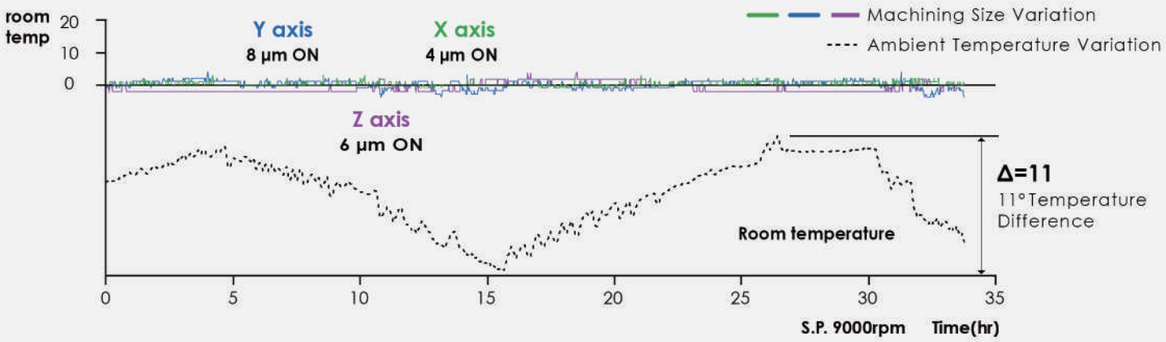
Spindle load monitoring allows users to set tool-specific load limits, boosting efficiency by up to 21% in heavy operations like face and side milling.

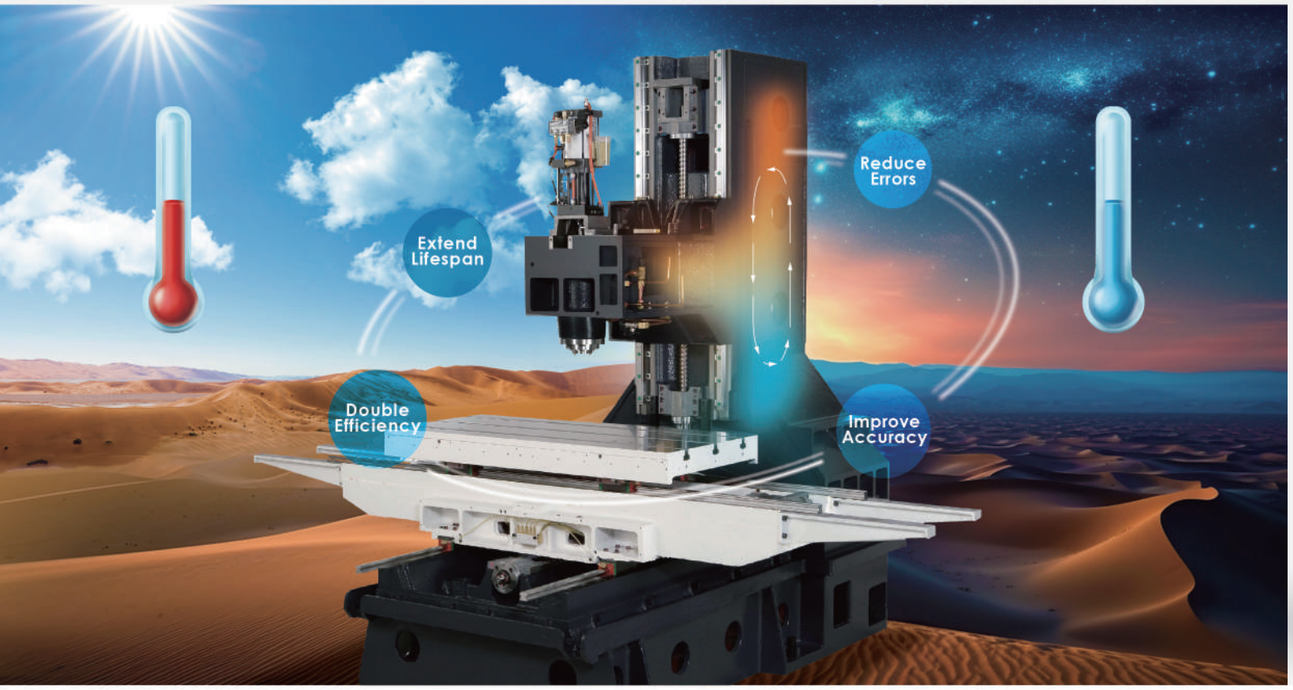


Automatic Temperature Control for
Precision and Quality

Thermal Compensation System Information

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

- 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

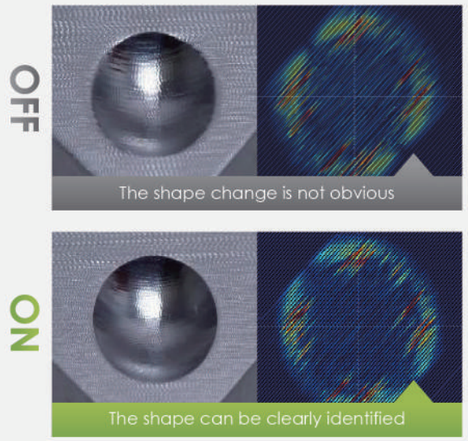
Helps you control five peripheral devices, including the hydraulic motor, oil cooler, mist collector, work lights, and chip conveyor, to prevent unnecessary energy consumption when the machine is idle.

Eliminate interference and mechanical collision issues during the machining process

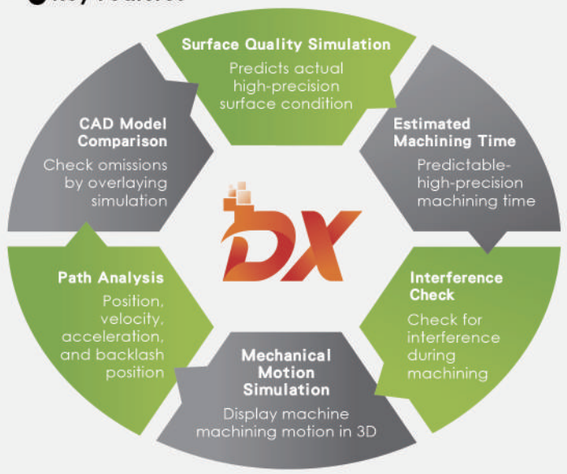
Digital Transformation

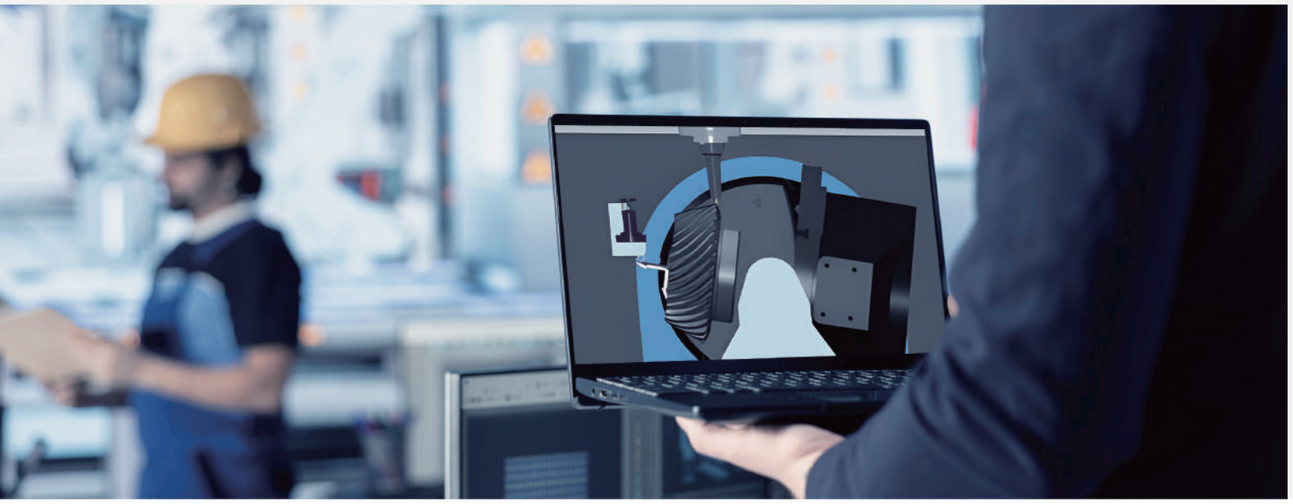
Digital Twin-NCVS software combines workpiece CAD, tools, and machine parameters to simulate the machining process in advance. It accurately reflects real conditions, going beyond traditional CAD/-CAM by including machine data. The system checks CNC settings, analyzes part geometry and machine travel,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

▪ Simulation vs. Actual Machining Results



▪ 6 Key Features

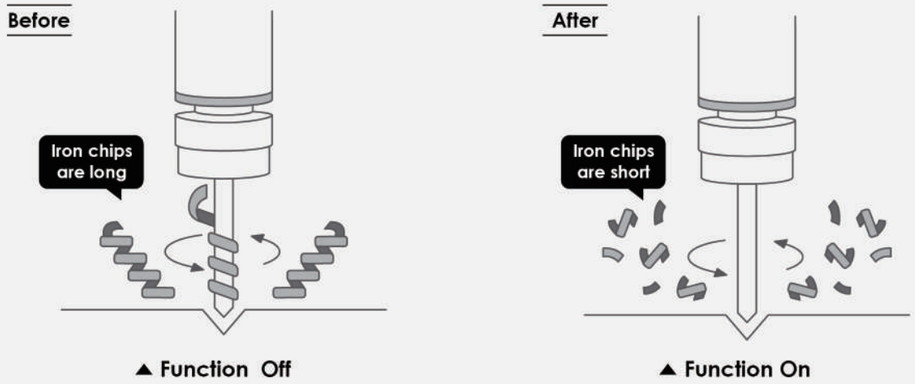




Solve the problem of chips wrapping around your cutting tool

Drilling Chip Breaker Feature

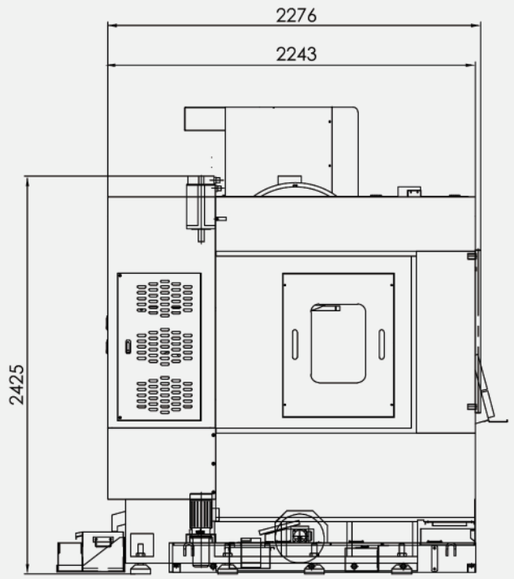
In deep-hole machining, the lack of effective chip-breaking can lead to issues like chips wrapping around the tool, scratching the workpiece, and making chips cleaning difficult. With Hartford's exclusive chips breaking for drilling function, chips are finely broken down, preventing them from wrapping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

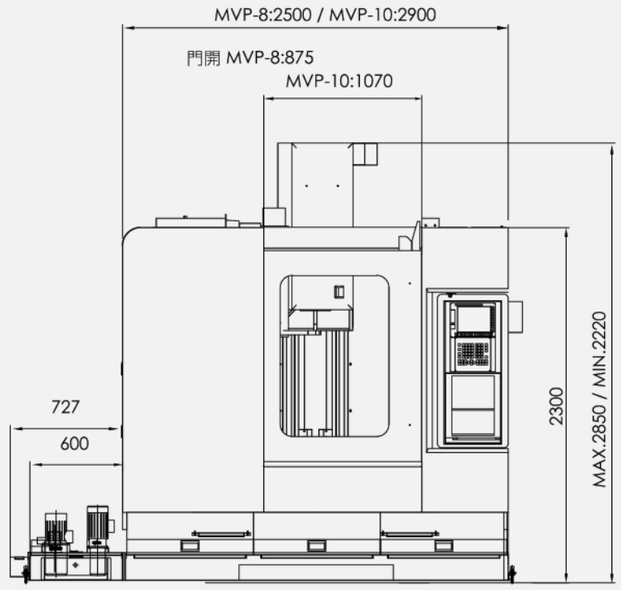


▲ Function Off ▲ Function On

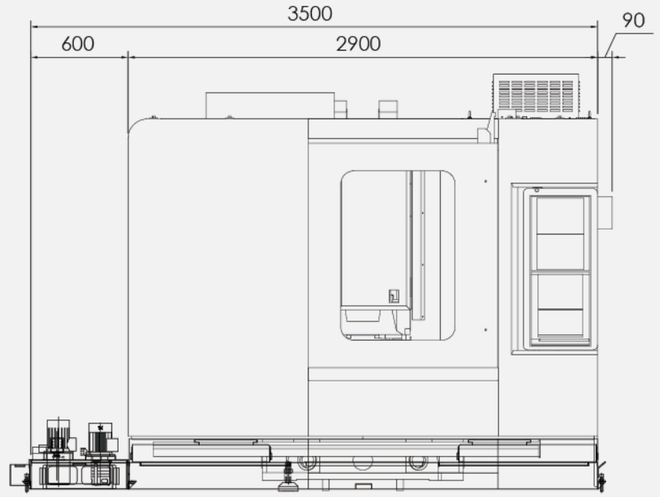
05 Machine Dimension

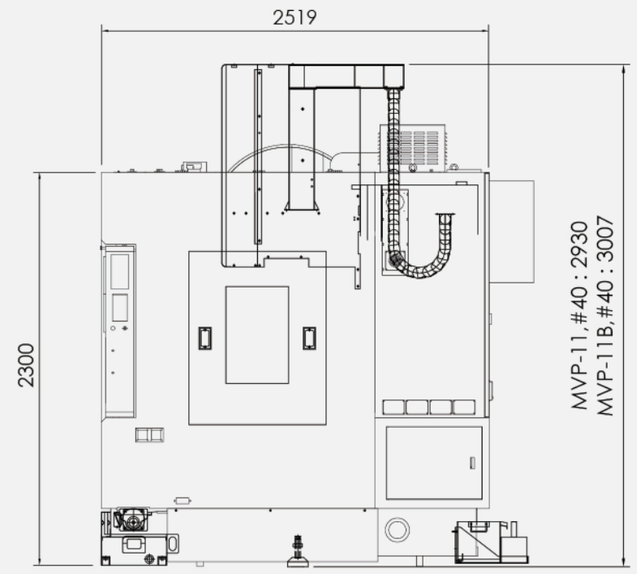
■ **MVP-8 / 10**





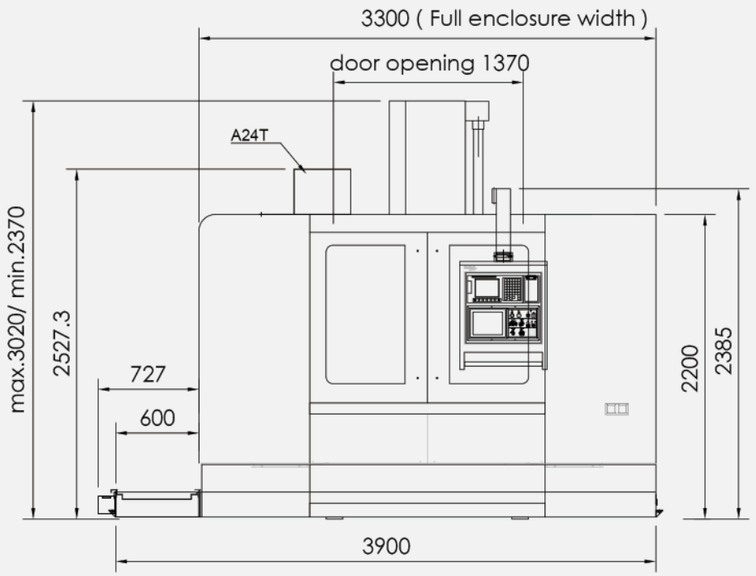
■ **MVP-11**

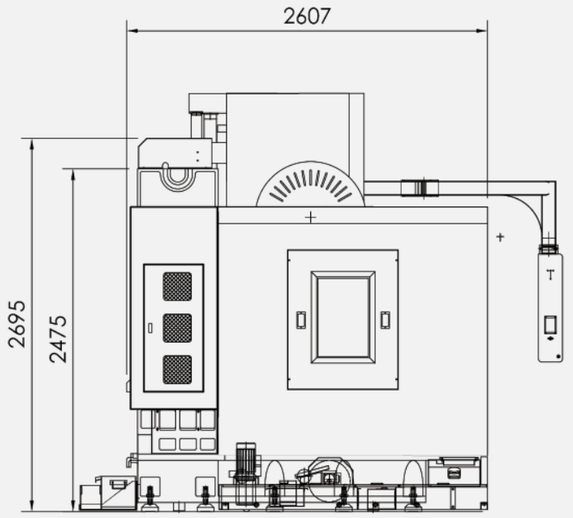




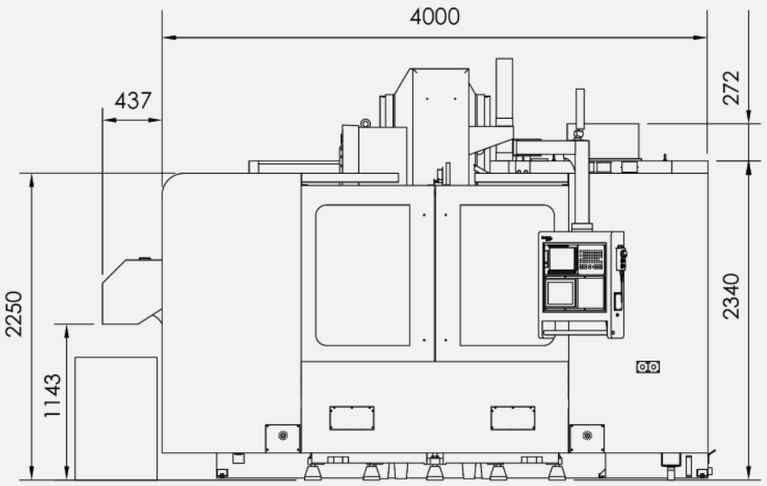
05 Machine Dimension

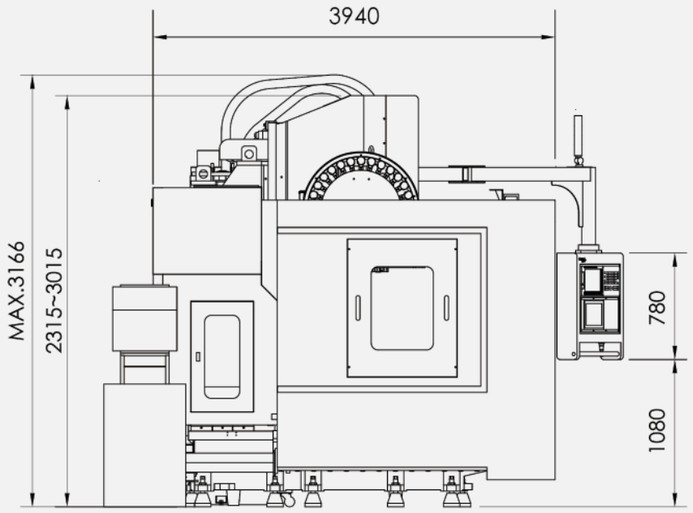
■ MVP-13





■ MVP-16





05 Actual Cutting Tests / Spindle Torque Diagrams

Spindle type

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

BBT for optional

- Dual contact between the taper and theflange
- Improves the rigidity, accuracy, speed and performance. Radial deflection, vibration and deviationare significantly reduced

Not suitable for DDS 20,000 rpm spindle

Optimized performance forspeed and cutting efficiency

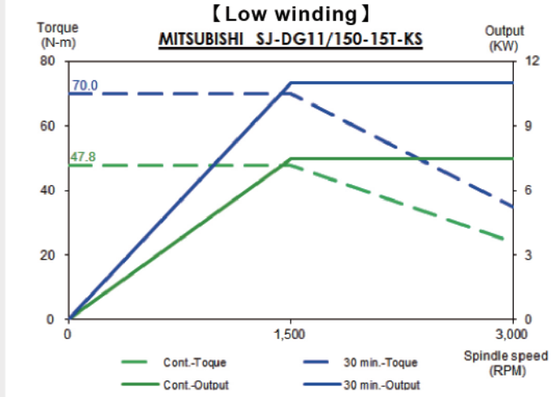
Model：MVP-16

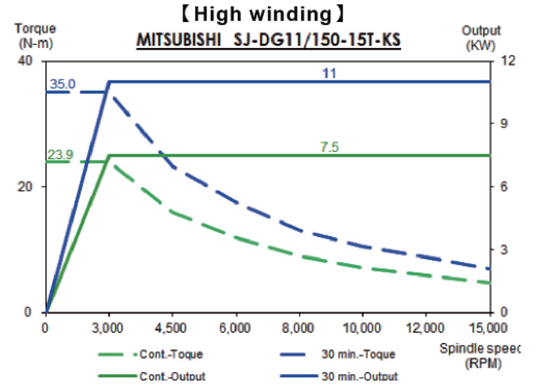
- Spindle：6,000 rpm #50 Gear type15kw
- Cutting material：S45C

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				

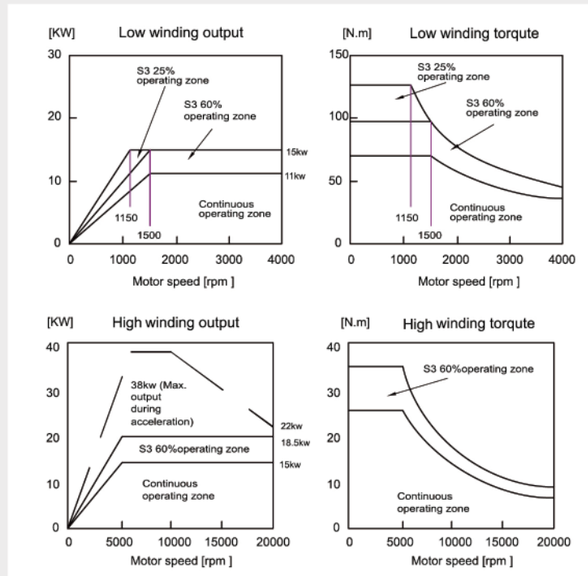
Spindle torque diagrams

■ **Mitsubishi SJ-DG11/150-15T-K**

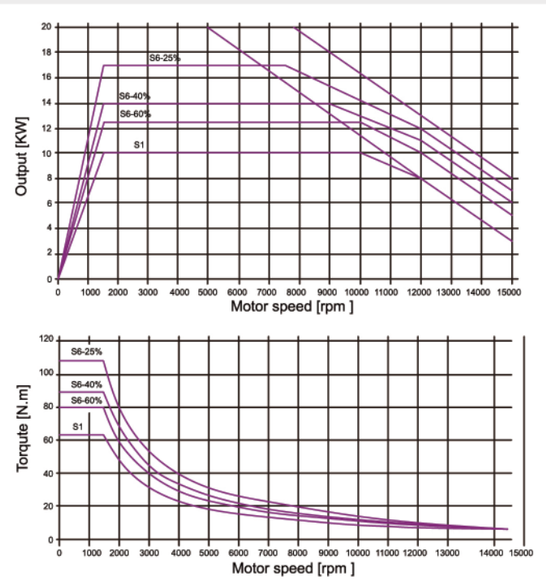




■ **Fanuc a8 / 2000 it (DDS 20000 rpm)**



■ **HEIDENHAINL: QAN200UH x 15000**



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

All the results featured in this calogue were produced under shich testing condilion in a special zed testing enviroment.
Under dfferent festing conditions and in less than ideal tesing environments. That the rest results vary fom those shown in this catalogue.

05 Machine Specifications

		單位	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	#50
	Spindle speed(Gear)	rpm	-	-	-	6000/8000		-	6000	-	6000/8000	6000/8000
	Spindle speed(Pulley)	rpm	8000/10000 12000	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	10000 12000	10000/12000 15000/20000	10000/12000	10000/12000 15000/20000	10000/12000	10000/12000
	Spindle speed(Built-in)	rpm	15000	15000	-	-	-	15000	-	-	-	-
Feed	Cutting feedrate(X / Y / Z)	m/min	20/20/20	20/20/20	20/20/20	20/20/12		20/20/20		20/20/20	20/20/12	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	32/32/18
ATC	Capacity	pcs	A:24(30)	A:24(30)	A:24(30/40)		A:24(32)	A:24(30)	A:24(32/40)	A:24(30/40)	A:24(32/40)	
	Max. tool weight	kg	7	7	7		15	7	20	7	20	
	Max. tool size (dia.x length)	mm	A:Ø75x300L	A: Ø75x300L	A: Ø75x300L		A: Ø105x300L	A: Ø75x300L	A: Ø125x350L	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)	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)	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	7.5/11 opt. 11/15,15/18.5	11/15 opt. 15/18.5,18.5/22.22/26	
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		

Specifcations & dimensions are subject to change without notice (for actual weight, shipped product shall prevail.)