

Accessories

Standard : ● Optional : ★

Description	Modle	MVP-8/10	MVP-11 (#40)	MVP-11 (#50)	MVP-13	MVP-16
1.Full-Enclosed Splash Guard		●	●	●	●	●
2.Full-Enclosed Splash Guard & top cover		★	★	★	★	★
3.Coolant Jets Around Spindle		●	●	●	●	●
4.lubrication system		●	●	●	●	●
5.Spindle Air Curtain		●	●	●	●	●
6.Coolant Tank(with chip bucket)		●	●	●	●	●
7.Fluorescent Lamp		●	●	●	●	●
8.RS-232 Interface		●	●	●	●	●
9.Table Side Air Blast M50 Control		●	●	●	●	●
10.X/Y/Z-axis Ball Screw Enforce Pressure		●	●	●	●	●
11Automatic Power OFF		●	●	●	●	●
12.leveling bolts & blocks		●	●	●	●	●
13.Remote Manual Pulse Generator		●	●	●	●	●
14.Operation Finish Lamp		●	●	●	●	●
15.Operator Panel, Rotary type		●	●	●	-	-
16.Suspension Operator Box		-	-	-	●	●
17.Absolute pulse coder		●	●	●	●	●
18.Operation Manual & Electric Drawing Equipment		●	●	●	●	●
19.Tool Package		●	●	●	●	●
20.Coolant Through Spindle(20BAR)		★	★	★	★	★
21.Coolant Through Spindle(25BAR)		★	★	★	★	★
22.Coolant Through Spindle		★	★	★	★	★
23.Closed Loop Linear Scale Positioning System		★	★	★	★	★
24.Auto Tool Length and Diameter Measurement		★	★	★	★	★
25.Oil Mist Collector System		★	★	★	★	★
26.Fluorescent Lampx2		★	★	★	★	★
27.NC Rotary Table		★	★	★	★	★
28.Link type chip conveyor & portable chip bucket		★	★	★	★	★
29.Spindle Oil Cooler		★	★	★	★	★
30.Auto Workpiece Measurement		★	★	★	★	★
31.Coolant Flushing Device		★	★	★	★	★
32.Hydraulic Hose Coolant gun		★	★	★	★	★
33.Air gun		★	★	★	★	★
34.Oil Fluid Separator		★	★	★	★	★



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Hartford

Hartrol • Smartcenter • Robocell

We manufacture intelligent machines only

Hartford
 EXCLUSIV
 HartrolPlus APP

Intelligent Machining Center

MVP Series
 Smartcenter

- Hartrol plus controller
- 5-Year warranty on guideways
- Spindle run-out : 5 micro
- Tool change time: 1.38 sec
- Oversized column design



Hartrol Plus®
 From tradition to intelligent



A.I. Applications inside, Hartrol Plus is the control which provides machining status with advanced features.

Imagine what future machines ought to be outlined.

AiSmartControl



Hartford
redefine the future



Major functions
of Hartford AI
controller



Facial
Recognition
system-Face ID



AI Environment
Thermal
Displacement
Compensation



AI Efficient
Lubrication
Management



Broken Tool
Detection
System



Highlight on
Intelligent
Auger



AI Navi

AI

- + Remote Warm-up & Turn-on
- + Hartrol Plus Sync & Update
- + User Connect



Thermal stability solution

- + Spindle Thermal Compensation
- + Casting Thermal Compensation
- + Thermal Symmetry / Thermal Balancing



ZDT

- + Diagnosis Report on Spindle Operation
- + Alarm Report System



IoT

- + Facial Recognition System
- + AI Efficient Lubrication Management
- + Smart Efficient Chip Collection



How to quickly implement automation

Hartford Robot Production Cell

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

What definition of Automation interface only :



- 1. Automatic Door
- 2. Automatic Interface
- 3. Pneumatic/ Hydraulic Interface
- 4. Other options

1. Automatic Door

- Pneumatic/Automatic Door System_Operating Door
- Pneumatic/ Servo Automatic Door System_Right Side Door

2. Automatic Interface

- I/O Preparation
- Profibus Link Preparation
- CC-Link Preparation
- EtherNet/IP Link Preparation

3. Pneumatic/ Hydraulic Interface

- 1/2/3 Cell Automatic Pneumatic/ Hydraulic Interface in the machine

4. Other options

- High Pressure Spray Nozzle with Automatic Preparation
- HStainless Base
- High-volume chip-removal system comprising dual side augers

Detailed specifications please contact our sales staff

Superior Value in Mould Making

A perfect demonstration for machining accuracy and ability.

Hartford Plug & Play is designed for die & mold industry. It can not only boost your machining efficiency but also be your best partner.



1. Shoe mold



2. 3D Ear

Actual Cutting Test

Model: MVP-16

■ Spindle: 15,000 rpm DDS type, 11kW ■ Cutting material : S45C



Face milling

Tool diameter Ø80 mm
Feed rate 3,900 mm/min
Cutting depth 2 mm
Cutting volume 507 mm



End milling

Tool diameter Ø63 mm
Feed rate 4,800 mm/min
Depth 30 mm
Cutting width 3 mm
Cutting volume 432 cc/min



Tapping

Tool diameter M24 x 3 mm
Feed rate 540 mm/min
Cutting depth 30 mm



Drilling

Tool diameter Ø40 mm
Feed rate 140 mm/min
Cutting depth 40 mm

All the results featured in this catalogue were produced under strict testing condition in a special zed testing environment. Under different testing conditions and in less than ideal testing environments. That the test results may vary form those shown in this catalogue.

The very first step for fully intelligent machining.

What is Hartrol Plus ?

Hartrol plus is a brand new intelligent controller Hartrol , Hartnet and Hartford electrical function together which developed and made by Hartford.

HMI and operation is user friendly, it can achieve :

- 1. Internet connection, collect and analyze data, monitoring by portable device
- 2. Intelligent control: Auto revise human error and operating basis
- 3. Real time update new APPs

The difference between Hartrol plus and others

Function	Hartrol Plus P1	Others
Screen Size	19"Multi-touch Panel	10.4" (OPT:15")
Look Ahead Block	2700(G5P20000)	400(1000 Max.)
Hard Drive	32GB SSD	NO
Smoothing Interpolation	SSS 4G	Option
Industry 4.0	Hartford UserConnect	NO



The Intelligent Controller You Should Have

With three major solutions, Hartrol Plus takes you machining to the next level. Highly optimized and intelligent controls bring even more capabilities and productivity to your metal cutting processes. With ease use, advanced automation, and smart data collection, Hartrol plus is essential tool for enhancing performance on your production floor.

Cost down to 20%

- Multi Touch Screen
- CCD remote management
- E-book
- Remote Management
- Cutting Condition Calculator
- Stand-by Mode

Productivity increased 23%

- HartCAM
- AFC= Automatic Feedrate Control.
- SSS-4G
- Machining Time Countdown for Single Block
- Optimized Machining Program
- Automatic measurement

Efficiency increased 20%

- MES(Manufacturing Execution System)
- Machine Utilization Management
- Operator Performance Management
- 24 Hours a Day Management
- Remote Management
- Hartford Userconnect

Hartford UserConnect

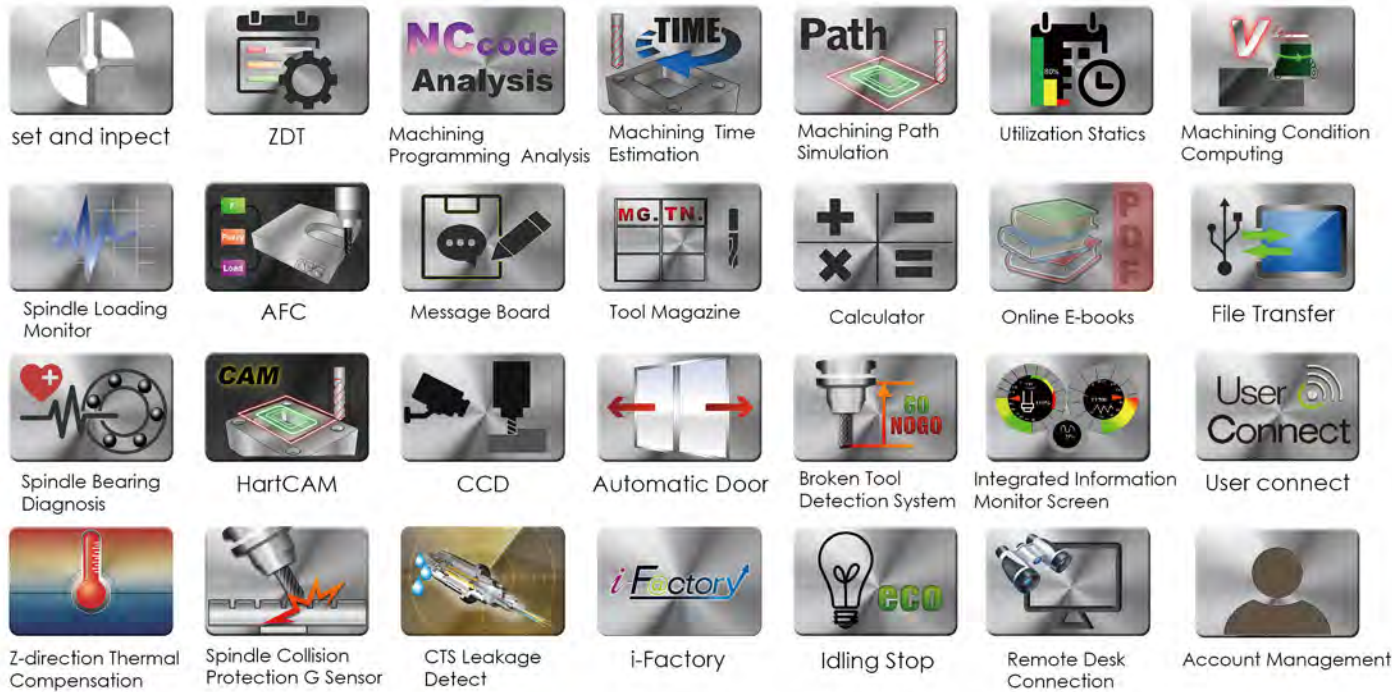
- Alert Notification
- Remote Diagnoses
- Remote Value Enhancement
- Remote Monitoring & Management

Hartford APP Store

The main technologies of Hartford smartcenter include intelligent managing system, status monitoring, alarm predicting, machine status diagnosis, crash preventing, 3D program simulation, machining efficiency improving...etc. All the intelligent functions help you control the machine status and assure the job quality.



Hartford smartcenter APP



The fuctions mentioned above will need to option the Hartrol plus controller or Dual screen with Fanuc controller.

What Hartford APP can do for you?

The integrated intelligent functions of Hartrol plus could achieve your machining requirements.
For more Hartrol Plus functions, please contact our sales person.

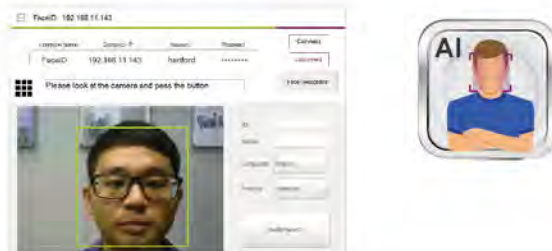
AI Environment Thermal Displacement Compensation(opt.)

Vertical machining center : **0.03mm**
Thermal displacement problem is improved up to **60%**
It can achieve good accuracy as in constant temperature room.



AI Facial recognition system(opt.)

Face ID log-in authority
Recognition time: **2 seconds**
Recognition accuracy: **100%**



AI Tool breakage detection (opt.)

Available with tool size **6mm** above
■ Tool wears when electric current ratio increased
■ When tool abrasion over than your setting, machine alarms to avoid tool breakage



Highlight on Intelligent Auger(opt.)

50% efficacy increases
■ Intelligent auger automatically proceeds cleaning iron chips based on electrical current of spindle.
■ Intelligent auger automatically performing reversal mode in case amount of iron chips outnumbers, preventing from machine stop.
■ Auger is overly shielded



AI Efficient Lubrication Management(opt.)

50% lubrication saved.
■ Auto-adjustment oil supply base on machining condition.
■ 50% oil consumption saved



On line update

With online updating system similar to smart phone will make sure your operating system stays the latest version with Hartford.

- 24hr ➡ Live updating , no boundary no time zone difference.
- NEW ➡ Synchronize with Hartford for the latest information and functions.
- Easy ➡ One key updating, easy and fast !



The Hartrol plus NC version must be A6 or above



Graphical user interfaces for part setting, inspection, tool setting

- Ease of use
- Increasing usability
- Eliminating manual set-up tasks
- Increasing efficiency



Hartford ZDT

Eliminate machine down time and increase efficiency. ZDT —

- 1.Ease of use
- 2.Check parts status clearly
- 3.Eliminating unexpected down time
- 4.Instand notification to your machine and your portable device



Spindle Vibration Intelligent Monitoring System (B-Safe) is ensuring spindle stability at times(opt.)

Highlights

1. APP Vibration function is handy to set up manually.
2. Alert status on crash protection.
3. Responsive graphic is available for diagnosis by user, and analytic information is just-in-time served.

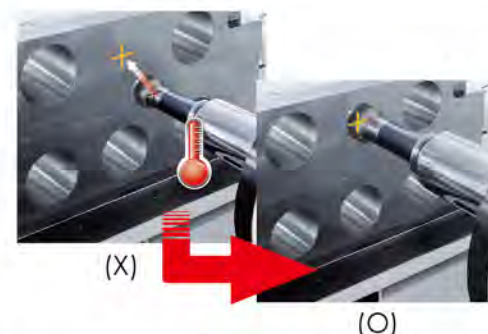


AFC(opt.)

Machining efficiency is increased by **21%**↑

Controls the feed rate depending on the machining situation

- Adjusting feed rate automatically
- Lengthen your tool life
- Reduce machining time



Thermal compensation on spindle(opt.)

No worries about HEAT!!

- Machine with compensation
#40 spindle thermal extension is within 0.03mm
#50 spindle thermal extension is within 0.02mm
 - Machine without compensation
Spindle thermal extension is around 0.10mm
- Notes: Above test is under room temperature



Tough, rugged and durable for MVP

Optimal rigid design construction assures stability, deformation-free precision year after year.



The picture shows MVP-10



Full range of linear guideway five-year warranty:

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.

1. 3-axis with $\phi 50$ ballscrew

- MVP-13 & MVP-16 assemble with $\phi 50$ ballscrew on 3-axis.
- Supported by high precision angular contact thrust bearings.
- All servo motors with absolute encoders.
- Increase efficiency and dependability. (Mitsubishi & Fanuc only).

2. 4 linear guideways on base

- 4 linear guideways on base
- Increased machine stability.
- Available with MVP-13& MVP-16



Z-axis servo motor coupled directly to ballscrew

- No more timer belt, the motor is connect directly to the ballscrew.
- No risk of backlash or servo drag.
- Increase your machining efficiency and dependability.



High sped tool change time (Opt.)

- Minimum tool change time is **1.38** sec.
- Boost your machining efficiency.



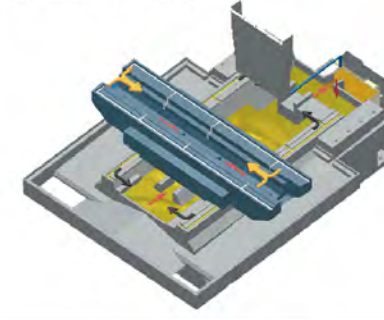
Oversized column & widest base design

- Column width is **1100mm** and base is **1600mm** for MVP-8 & MVP-10.
- Increased width of interface between the column and base.
- Enhances machine stability.
- Increases machine rigidity and efficiency.



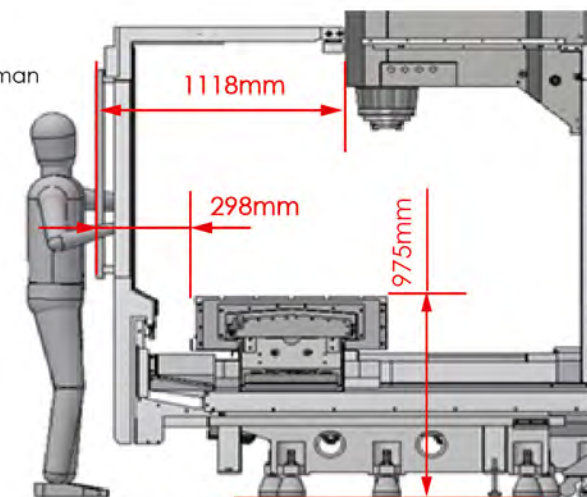
One-piece bed design

- Separates oil and coolant on the machine effectively.
- Prevents coolant contamination problems.
- Available with MVP-8/10



Easy for operation

- MVP-16 design meets the human engineering principle.
- Allows the operator to load and unload workpiece with ease.



Spindles Manufactured by Hartford Offer Quality Assurance

Machine Dimensions

Spindle type

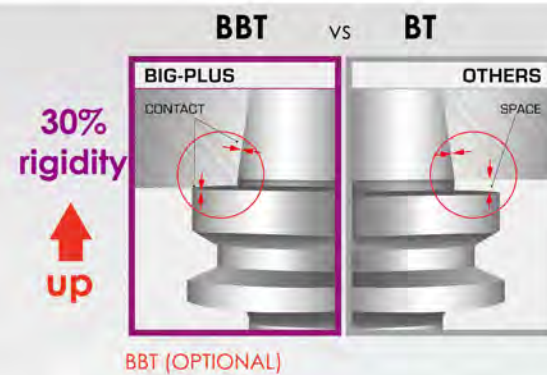
- #40 Pulley 8000rpm opt.10000/12000rpm
- #40 DDS opt.10000/15000/20000rpm
- #50 DDS opt.10000/12000rpm (MVP-16)
- #50 Gear opt.6000/8000rpm(MVP-16)

BBT option

- Dual contact between the contact and the flanges.
- Improves the rigidity, accuracy, speed and performance.
- Radial deflection, vibration and deviation are significantly reduced.
- Unavailable with DDS 20,000 rpm spindle.

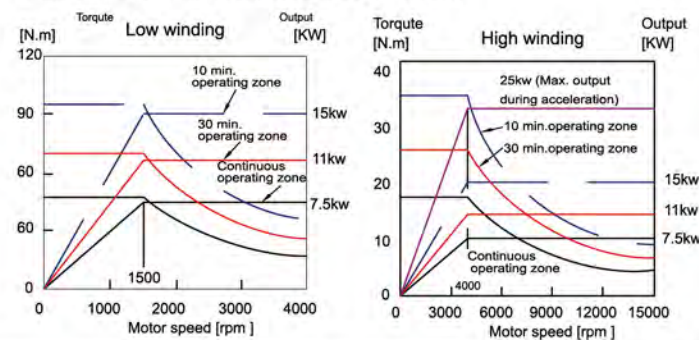
Ultra high accuracy on spindle

- Spindle run-out(single):0.002mm/300mm
- Spindle run-out(overall): 0.005mm/300mm

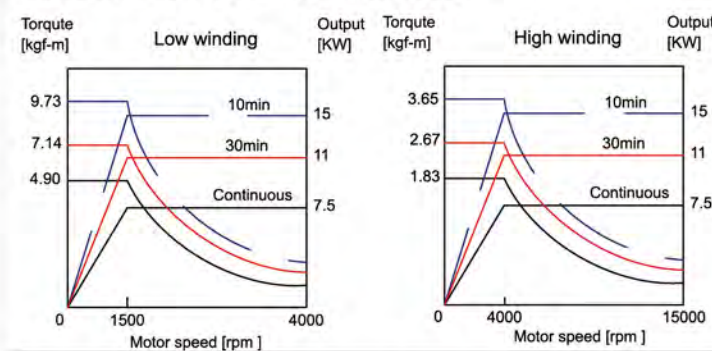


Spindle torque diagram

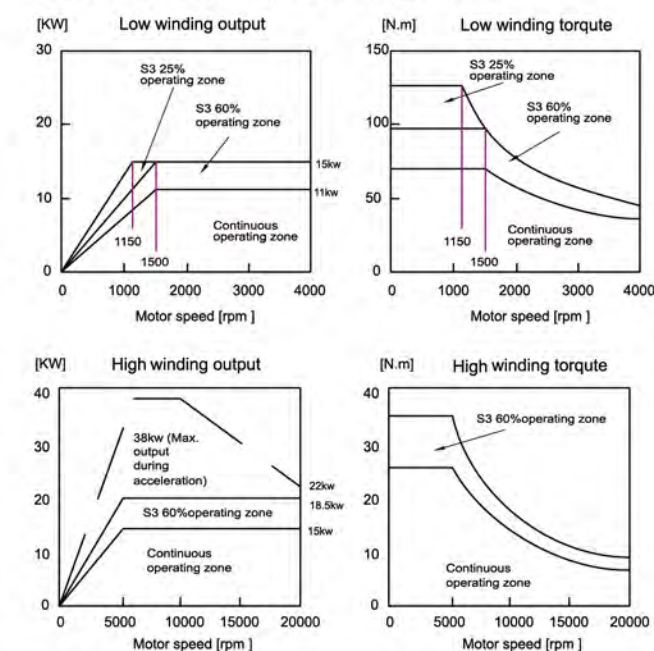
Fanuc a8/15000 it(DDS 15000 rpm)



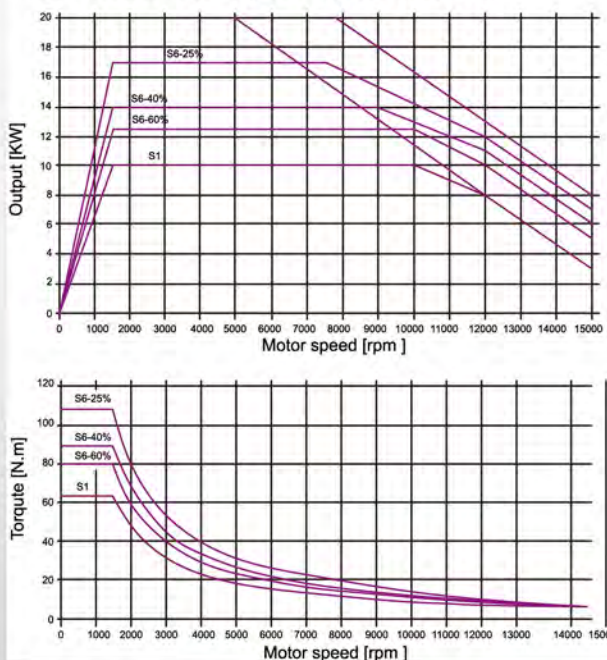
Mitsubishi SJ-VKS26-90ZT-S01x 15000



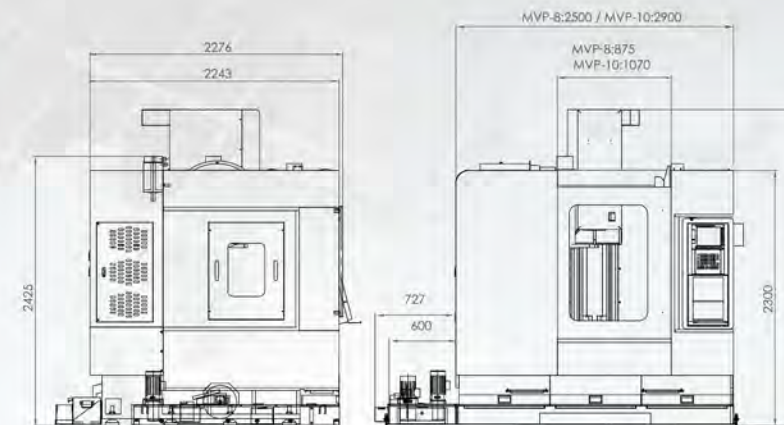
Fanuc a8/2000 it(DDS 20000 rpm)



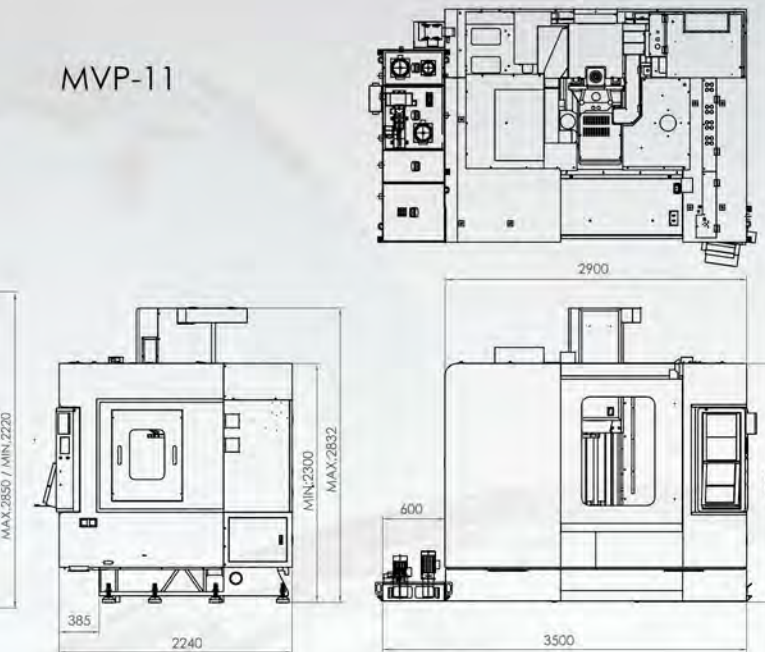
HEIDENHAIN: QAN200UH x 15000



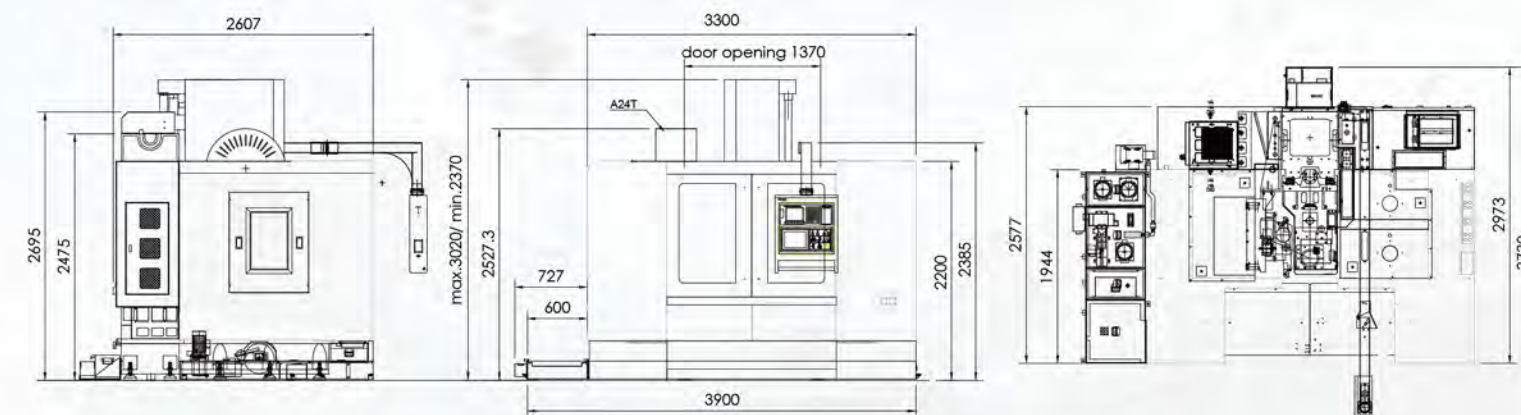
MVP-8/10



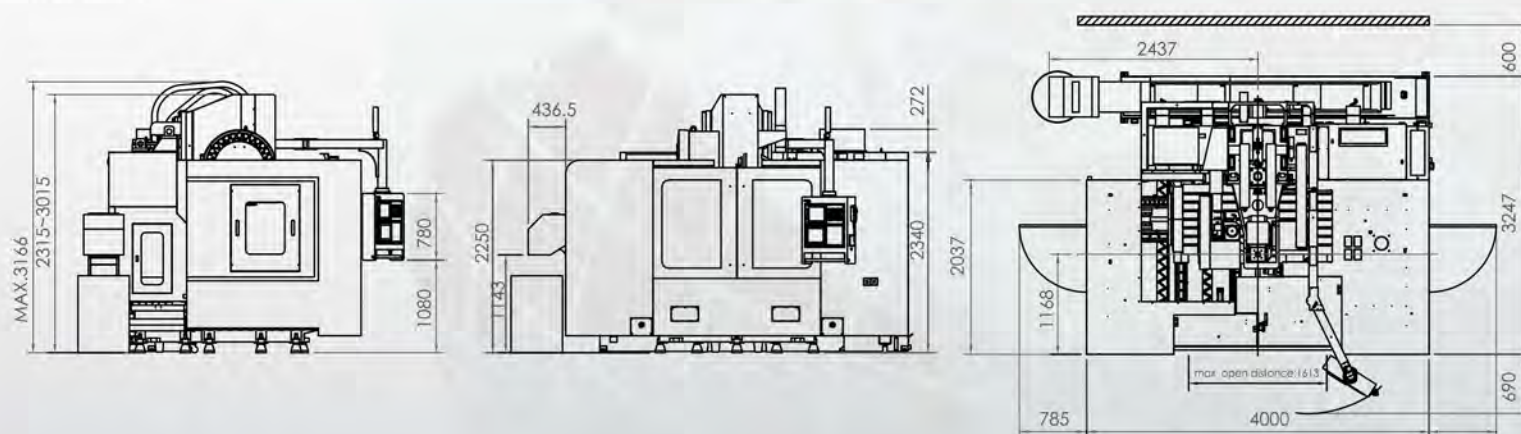
MVP-11



MVP-13



MVP-16



Machine Specifications

Model	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(Size x Number xPitch)	mm	18 x 5 x 100	18 x 5 x 100	18 x 5 x 100	18 x 7 x 100	18 x 7 x 100
Max. Table Load	kg	500	700	1000	1500	2000
Travel						
Longitudinal Travel(X-axis)	mm	860	1050	1100	1300	1600
Gross Travel (Y-axis)	mm	530	530	600	700	820
Vertical Travel(Z-axis)	mm	630	630	630	650	700
Distance from Spindle End to Table Center	mm	85~715	85~715	100~730	120~770(270~920 opt.)	120~820(320~1020 opt.)
Distance from Spindle Center to Column	mm	600	600	641/645(#50)	780	900
Spindle						
Spindle Speed(Pulley)	rpm	8000(10000/12000 opt.)	8000(10000/12000 opt.)	8000(10000/12000 opt.)	8000(10000 opt.)	#40 8000(10000/12000 opt.)
Spindle Speed(DDS)	rpm	opt.10000/12000/15000/20000	opt.10000/12000/15000/20000	#40 10000(15000/20000 opt.) #50 10000(12000 opt.)"	opt.10000/12000/15000/20000	
Spindle Speed(Gear)	rpm	-	-	#50 6000(8000opt.)	-	#50 6000(8000 opt.)
Spindle Nose Taper		#40	#40	#40 #50	#40	#40 #50
Feed						
Cutting feedrate(X/Y/Z)	M/min	20/20/20	20/20/20	#40 20/20/20 #50 20/20/12	20/20/20	20/20/20(20/20/12)
Rapid Traverse feedrate(X/Y/Z)	M/min	36/36/30(48/48/36 opt.)	36/36/30(48/48/36 opt.)	#40 36/36/30 #50 36/36/20	36/36/30	32/32/24
ATC						
Tool storage Capacity	pcs	A : 24/30	A : 24/30	A : 24/30/40/32(#50)	A : 24/30/40	#40 A : 24/30/40 #50 A: 24/32/40
Max. Tool Weight	kg	7	7	#40 7 #50 15	7	#40 : 7, #50 : 20
Max. Tool Size(Diameter x Length)	mm	A:Ø75 x300L	A:Ø75 x300L	#40 :Ø75 x300L #50 : Ø105 x 300L	A:Ø75 x300L	#40 A:Ø75 x300L #50 A:Ø125 x350L
Tool Shank Pull Stud Bolt		BT40(BBT/CAT/DIN)HSK-A63(20000rpm only) P40T-1/CAT-40/DIN69872	BT40(BBT/CAT/DIN)HSK-A63(20000rpm only) P40T-1/CAT-40/DIN69872	BT40(BBT/CAT/DIN)HSK-A63(20000rpm only) P40T-1/CAT-40/DIN69872	BT40(BBT/CAT/DIN)HSK-A63(20000rpm only) P40T-1/CAT-40/DIN69872	BT40(BBT/CAT/DIN) / BT50(BBT/CAT/DIN) P40T-1/CAT-40/DIN69872 / P50T-1/CAT-50/DIN69872
Motor						
Spindle Drive Motor(30 min)	kw	7.5(11,15 opt.)	7.5(11,15 opt.)	7.5(11,15,18.5 opt.)	11(15,18.5 opt.)	15(18.5 opt.)
Positioning Accuracy						
3 Axes Laser Positioning Accuracy(JIS B6330)						
Positioning Accuracy / Full Travel	mm	±0.008	±0.008	±0.008	±0.008	±0.008
Repetitive Positioning Accuracy	mm	±0.002	±0.002	±0.002	±0.003	±0.003
3 Axes Laser Positioning Accuracy(VDI3441)/Repeated 5 times						
Positioning Accuracy	mm	0.010	0.010	0.010	0.014	0.014
Repetitive Positioning Accuracy	mm	0.006	0.006	0.006	0.008	0.008
Other						
Required Air pressure	kg/cm2	6.5	6.5	6.5	6.5	6.5
Electric Power Consumption	KVA	20~45	20~45	20~45(#40) 25~45(#50)	20~45	25~45(#40) 30~50(#50)
Machine Dimension	mm	3100 x 2665	3500 x 2665	3500 x 2240	3900 x 3000	4000 x 3250
Machine weight	kg	S:6400 A:6500	S:6600 A:6700	#40 6300 #50 8000	A:9000	#40:10650 , #50:11500
Coolant tank capacity(standard)	L	283	303	306	363	440

VDI 3441 accuracy available upon order request. For Other Specs Plaese Ask Sales

Standard & Optional Electrical Functions

Hartrol / Standard

- Workpiece Calibration by MPG Directly
- Tool Magazine Display
- Parameter Package
- Threading Cutting (Only for 0i & 31i)
- Monitoring of Tool Status(Only for 0i & 31i)
- Special engraving

Hartnet/Optional

- Management system of Utilizaion
- Machining Time Countdown
- Convenient File Transfer

Electrical Function /Optional

- Lifting Function against gravity
- Retraction for Rigid Tapping
- Intelligent MPG

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