www.hartford .com.tw

Hartford
innovation

THE NEXT
50 YEARS

AHC & VW Series
Smartcenter

Intelligent Double column machining center

AHC Versatile Machining Center
- Oversized spindle head
- First Y-axis linear guideway
- Automatic head changer

VW Machining Center
- Z-axis balance system
- Machine-wide servo control system
- W-axis positioning with automatic brake system

▲ VW-X430 model is shown

▲ AHC Series model is shown

Website

Facebook

Hartford has sold more than 50,000 machines to all over the world, accumulated more than 37,000 customers, who absolutely affirm Hartford's manufacturing experience and ingenious machine manufacture technology. We insist on providing customers with the best quality machining centers. We will devote more carefully, in order to continuously enhance the technical level of manufacture and applications.

She Hong INDUSTRIAL CO. LTD.
No.3,Jingke N. Rd.,Nantung District,Taichung City, 40852 Taiwan(R.O.C)
www.hartford.com TEL : +886-4-23501980 FAX : +886-4-23581793

CAT.NO : 20180823-E03

Hartford
Hartrol · Smartcenter · Robocell
We manufacture intelligent machines only

What is Smartcenter ?

Smartcenter is Smart machining center. To put it simply, an intelligent machining center. HartfordSmartcenter has three major advantages:

■ Intelligent ：

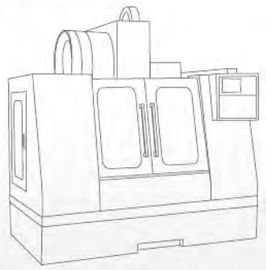
1. Intelligent operating interface / 2. Intelligent machining / 3. Intelligent quality control / 4. Intelligent maintenance system, to help our customer reach the ultimate goal: Zero Down Time.

■ Networking：

To manage your multiple facilities in a smart and simple way by using Hartford Superbox linking all the machining centers of your production line.

■ Automation：

Hartford Robocell is the best answer for improving your productivity, the solution for you to join the new generation: Automation.



The regular standard machining center

VS.

Hartford Smartcenter will help you become an intelligent manager

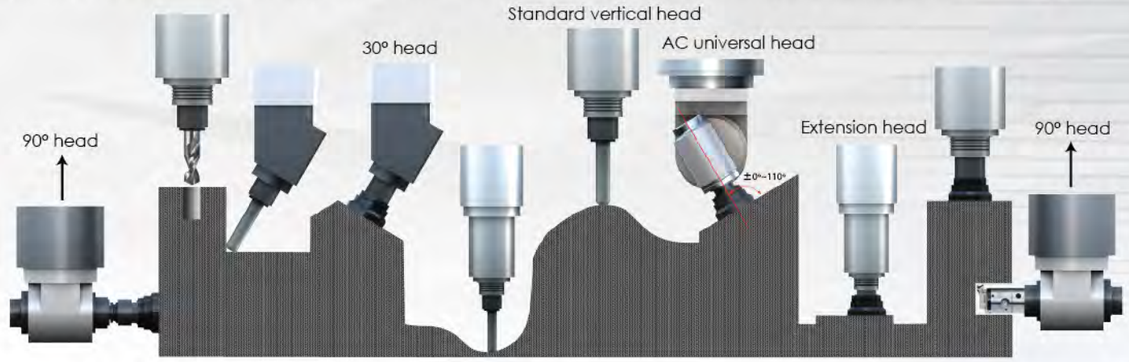
The main technologies of Hartford smartcenter include intelligent managing system, status monitoring, alarm predicting, machine status diagnosis, crash preventing, 3D program simulation, machining efficiency improving...etc. All the intelligent functions help you control the machine status and assure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

Hartford smartcenter APP

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

Comprehensive machining programs to meet the diverse machining needs

For versatile machining applications, it enables automation and high efficiency machining in the production line. AHC & VW Series have the ATC and are provided with several heads available for you to select. After one-time installation, it meets your various machining needs



Actual Cutting Test

Model : AHC-3210

■ Spindle: 6000rpm gear type 26kw ■ Cutting material : S45C

Face milling

Tool diameter	Ø 125 mm
Feed rate	2450 mm/min
Cutting volume	100mm
Cutting depth	3 mm
Amount of cutting	735cc/min

End milling

Tool diameter	Ø63 mm
Feed rate	1,550mm/min
Machining width	5mm
Machining depth	30 mm
Amount of cutting	232 cc/min

Drilling

Tool diameter	Ø76 mm
Feed rate	60 mm/min
Machining depth	30mm

Model : VW-X430

■ Spindle: 4000rpm gear type37KW ■ Cutting material : S45C

Face milling

Tool diameter	Ø 125 mm
Feed rate	3,400 mm/min
Machining width	100mm
Machining depth	4 mm
Amount of cutting	1360cc/min

End milling

Tool diameter	Ø 63 mm
Feed rate	1,800mm/min
Machining width	10mm
Machining depth	35 mm
Amount of cutting	630 cc/min

Tapping

Tool diameter	M48mm
Feed rate	150mm/min
Machining depth	50 mm

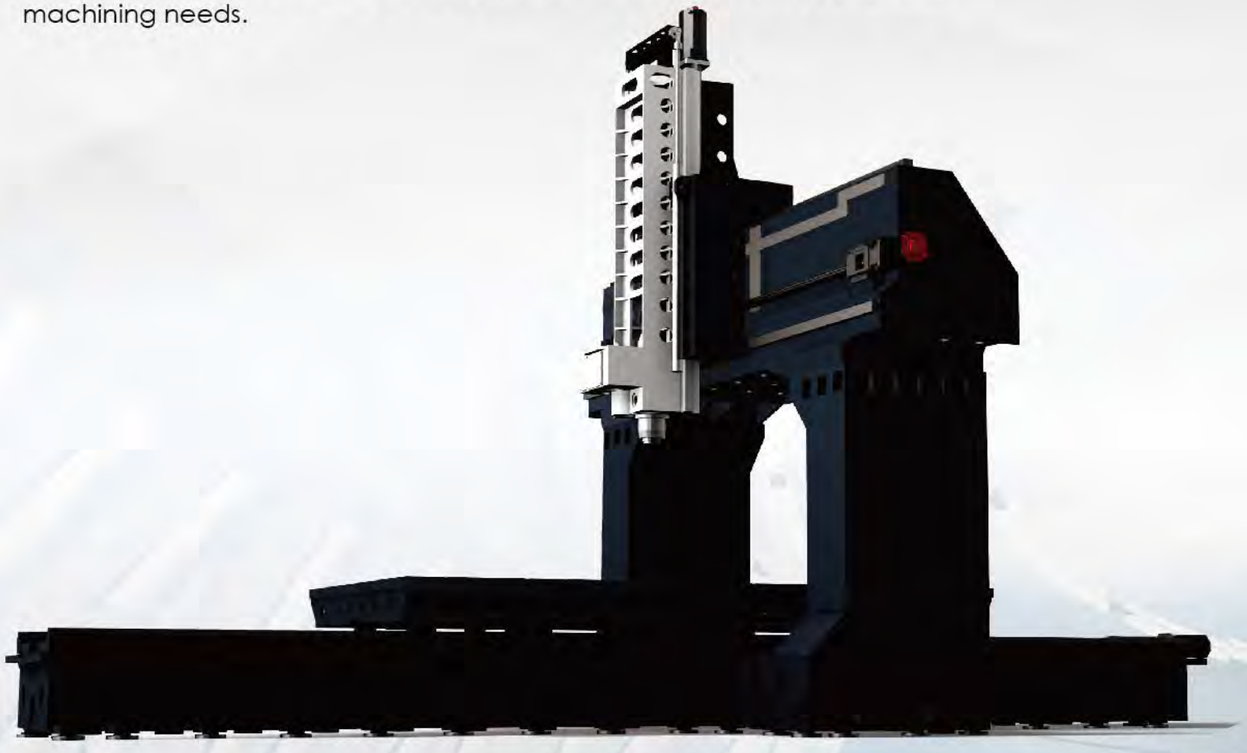
Drilling

Tool diameter	Ø 76 mm
Feed rate	100 mm/min
Machining depth	50 mm

All the test 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 from those shown in this catalogue.

AHC Series meet your diverse machining needs

When combined with our proprietary head changer, their optimized machining performance and ultimate accuracy performance can meet your diverse machining needs.

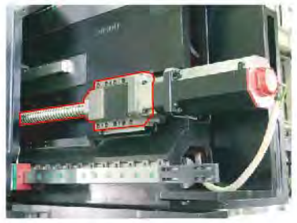


Z-axis four linear guideways three binding structure patented technology

Four linear guideways three binding structure patented technology. Two-way support provides high rigidity while cutting, bringing you excellent performance.

X axis with 4 linear guideways design

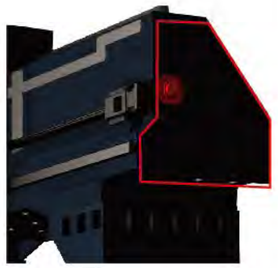
The X axis with 3 guideways design has 1 extra guideway, which can withstand the machining rotary torque and increase the rigidity by 50%. Furthermore, the maximum load capacity of the table is 30,000KG, which meets your machining needs and help you achieve the accuracy and quality requirements.



3 axis direct coupling

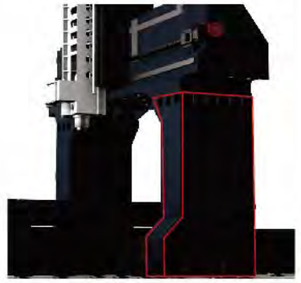
The X axis and Y axis operate with the planetary reducer, which effectively improves the overall axial transmission torque of the machine.

Unique machine structure design



The slant beam design effectively reduces cutting vibrations.

- Reduces vibrations generated during the machining
- Improves the accuracy and surface cleanliness during the machining



The powerful columns effectively transmit the maximum cutting force

- The bottom of the column and base increase the connection width
- Effectively reduce the overall cutting vibrations

Nitrogen accumulator system for Z axes

- Reduce the operating noise of the hydraulic tank
- Effectively reduce the oil temperature of the hydraulic tank by 50%
- Effectively save energy by more than 20%!

The screw support mechanism maintains the excellent positioning accuracy

- Ensure the continuous power when the X and Y axes are driven
- Improve the gravity sagging of the screw to increase the positioning accuracy and screw lifetime
- Upgrade the screw specifications to improve the static rigidity

X axis screw support mechanism

Y axis screw support mechanism

Various powerful spindles to meet your machining needs

Home-made gear type 8,000rpm 2-stage spindle (optional)

- The coupling body or coupling flange can be used based on machining needs
- Upper structure design of the spindle
- The thermal separation technology allows you to control the thermal elongation

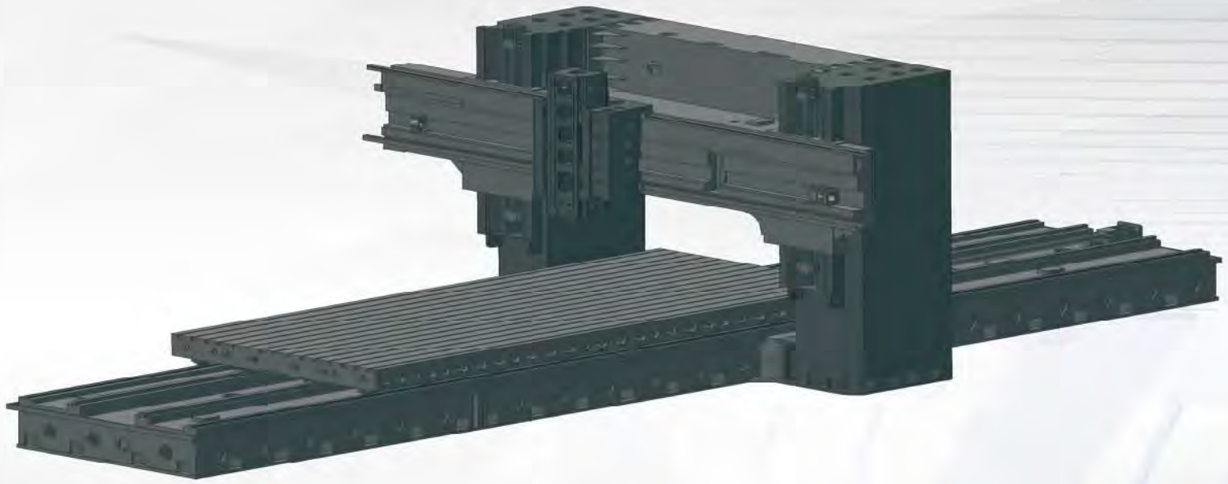
Home-made i-Tech Composite10,000 rpm spindle (optional)

- Dual cooling cycle for the motor and spindle
- Cooling cycle design
- Embedded motor - Max. 35kw, 600N-m

VW Series have a unique structural rigidity design

Hartford's Between Columns Gantry Machining Center has high rigidity performance during the cutting, regardless of a thick workpiece or a thin plate.

The W axis operates with the ultra-wide square hard rail with a unique structural rigidity design to significantly improve the cutting accuracy and stability.



Z-axis balance system

The dual hydraulic cylinder balance system is used to reinforce the moving rigidity and stability.

W-axis balance system

2 hydraulic suspension systems are used on both sides of the W axis to ensure positioning accuracy.

Dual screws and dual servo motors are used for the W-axis

- The W-axis is a dual screw transmission mechanism directly driven by dual servo motor, and has a positioning accuracy of 0.03mm.
- The W axis can be positioned randomly without the limitations of the machining area.

X-axis multi-guideway design

The X-axis with multiple guideways can withstand the machining rotary torque and increase the rigidity by 50%. Furthermore, the maximum load capacity of the table is 30,000 KG, which meets your machining needs and help you achieve the accuracy and quality requirements

- VW-X340 3 guideway design
- VW-X430 4 guideway design (2 guideways + 2 track-type guideways)

Z-axis four linear guideways three binding structure patented technology

Our multi-binding structure provides two-way support provides high rigidity while cutting, bringing you excellent performance.

- VW-X430 Z axis has four guideways
- VW-X340 Z axis has two guideways

Unique column structure design

The ultra-large dual columns

The comprehensive head series

Hartford has a comprehensive series of heads, including the auto universal head, auto 90° head, auto extension head, and auto holding head with a 90° head, which meet your versatile machining needs.

AHC Series operate with the automatic head

Full auto milling head (auto holding head)

Automatic universal head (2.5°/1°)	Axis	A / C axis division angle configuration table								
A / C axis automatic rotation angle Maximum speed: 4, 000 rpm Maximum power: 26 kW The maximum torque to withstand: 930 N-m Optional configuration of maximum pressure 70 BAR CTS	C-axis	1°	2.5°	1°	5°		2.5°		1°	
	A-axis	1°	2.5°	1°	2.5°	1°	5°	1°	5°	2.5°
	Remark	ST. standard feature	OPT. customized specifications							

Automatic 90 ° head (2.5° / 1°)
Maximum speed: 4,000 rpm / 2,500 rpm (opt.) Maximum power: 26 kW The maximum torque to withstand: 930 N-m Optional configuration of maximum pressure 70 BAR CTS Minimum optional configuration C-axis positioning indexing: 1 degree

Automatically extension head (350 / 500 mm)
Maximum speed: 4,000 rpm Maximum power: 25 kW The maximum torque to withstand: 750 N-m Optional configuration of maximum pressure 70 BAR CTS Automatic tool change function

Automatic clamp/unclamp+ the manual 90° head
Maximum speed: 2,000 rpm Maximum power: 18.5 kW The maximum torque to withstand: 650 N-m External guide pins enhance the positioning accuracy of the exchange head, with automatic grab head function and manual rotating angle function.

The machining methods of the full auto head

Machining methods	1.Composite angular milling	2. 90° side milling	3.Extension milling
Product types	AC universal head	90° side milling head	350/500mm extension head
Model number	HF-AU360H	HF-AU90L/H	HF-AE35/50L
Max. speed (rpm)	4,000	4,000	4,000
Tool type	BT50	BT50	BT50
Automatic indexing	5°/ 2.5°/ 1°	5°/ 2.5°/ 1°	–
Auto head	Auto	Auto	Auto
Automatic tool changeover	Auto	Auto	Auto
Rotary angle	C ± 180° A ± 110°	±180°	–

Note: Applied to the auto 90° head

1.

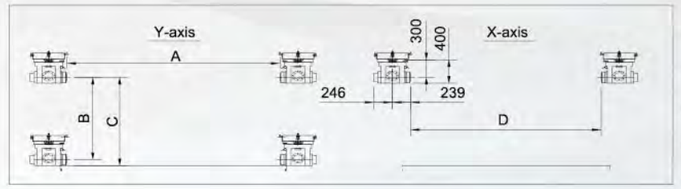
2.

3.

VW Series operate with the automatic head

90 ° head

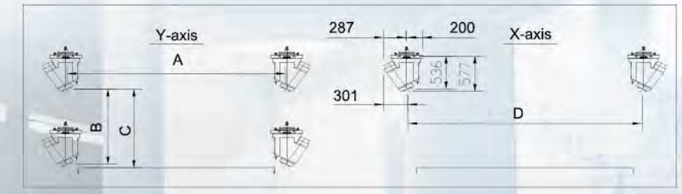
Curved tooth clutch positioning 5°: Max. speed 2,500rpm
Curved tooth clutch positioning 5°: Max. speed 4,000rpm



	A	B	C	D
VW-4340	2922	1450	1500	3572
VW-5340	2922	1450	1500	4572
VW-6340	2922	1450	1535	5822
VW-5430	3822	1410	1510	4772
VW-6430	3822	1410	1510	5772
VW-7430	3822	1410	1510	6772
VW-8430	3822	1410	1510	7772

30 ° head

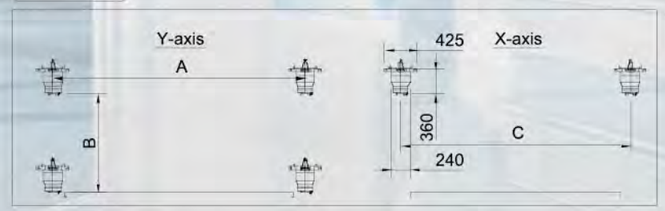
Curved tooth clutch positioning 5°: Max. speed 3,000rpm
Curved tooth clutch positioning 5°: Max. speed 5,000rpm



	A	B	C	D
VW-4340	3369	1259	1315	4019
VW-5340	3369	1259	1315	5019
VW-6340	3369	1244	1300	6269
VW-5430	4269	1219	1275	6219
VW-6430	4269	1219	1275	6219
VW-7430	4269	1219	1275	7219
VW-8430	4269	1219	1275	8219

Extension head

Length 350mm: Max. speed: 4,000 rpm
Length 350mm: Max. speed: 6,000 rpm



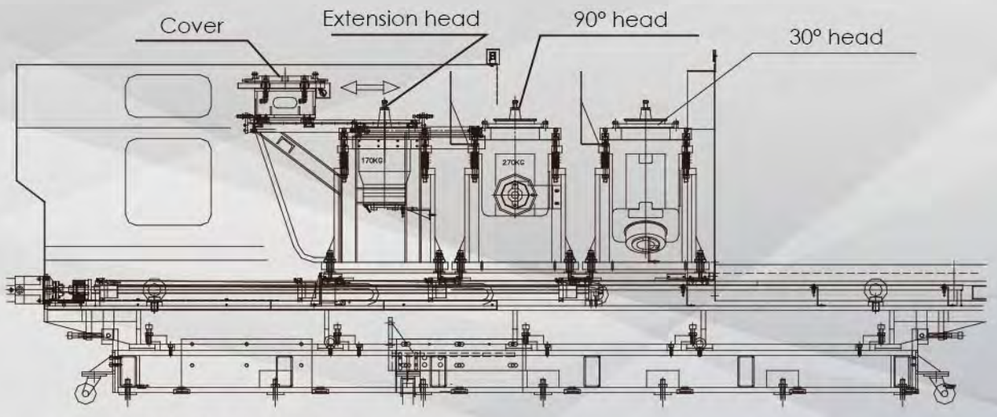
	A	B	C
VW-4340	3400	1492	7050
VW-5340	3400	1492	5050
VW-6340	3400	1477	6300
VW-5430	4300	1452	5250
VW-6430	4300	1452	6250
VW-7430	4300	1452	7250
VW-8430	4300	1452	8250

Full automatic head changer

AHC and VW Series can operate with the automatic head changer and horizontal or vertical tool changer system to offer efficient and versatile machining.

◀ The VW Series are shown

- Can operate with the auto universal head/auto 90° head/extension head.
- The full automatic head changer is provided with the protective cover and independent head magazine.
- The hydraulic cylinder is used for fast head changeover.
- Each magazine is provided with an independent moving door that is opened only during the head changeover to prevent debris from contaminating heads.
- Additional head magazines are also available. If you need them, contact your sales representative.

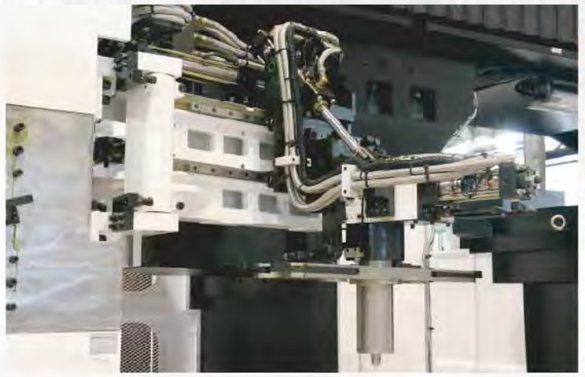


▲ The VW Series are shown

Diverse tool magazines available

AHC Series Tool Magazine

- Automatic tool changeover
- All tool changeover actions and changeover point of time are determined by the detector and scanned, to ensure the stability and reliability of the tool changeover
- Vertical tool magazine: 32/40/60/90 tools (standard)
- Horizontal tool magazine: 32/40/62 tools (standard)



VW Series Chain-type Tool Magazine

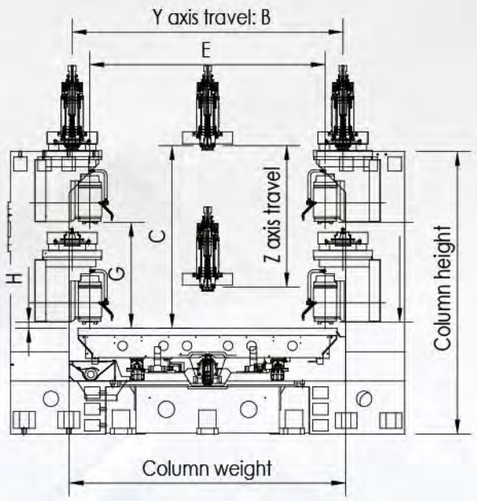
32 tools (standard) / 40 tools (optional) / 62 tools (standard)

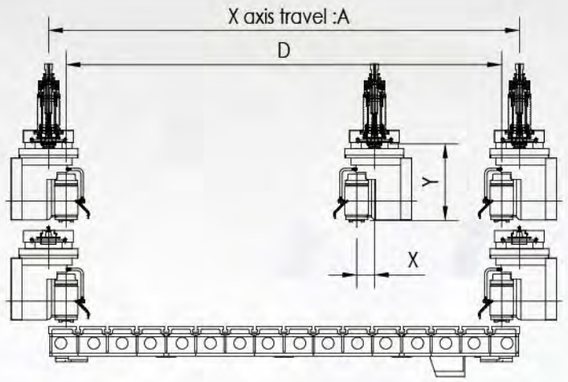
- Suitable for tool changeover for vertical / horizontal millers
- BT50/CAT50 tool grip
- It is easy to load and unload a tool by stepping down the foot switch
- The automatic door of the tool magazine prevents the debris from contaminating tools
- During the tool changeover, the automatic door is controlled by the program

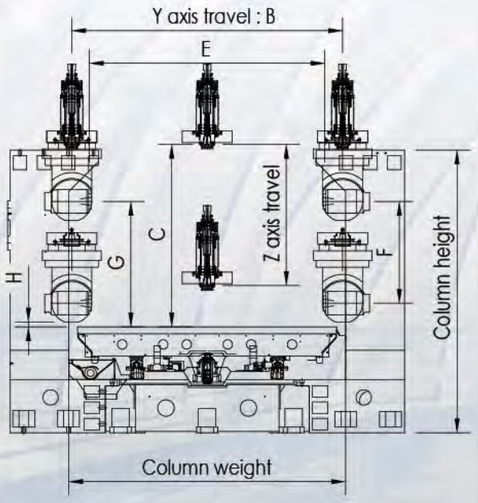
▲ The VW Series with 62 tools are shown

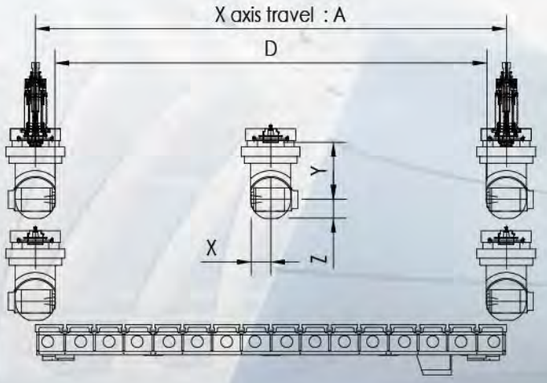
The unique Y axis design provides a wider machining range

AHC Series





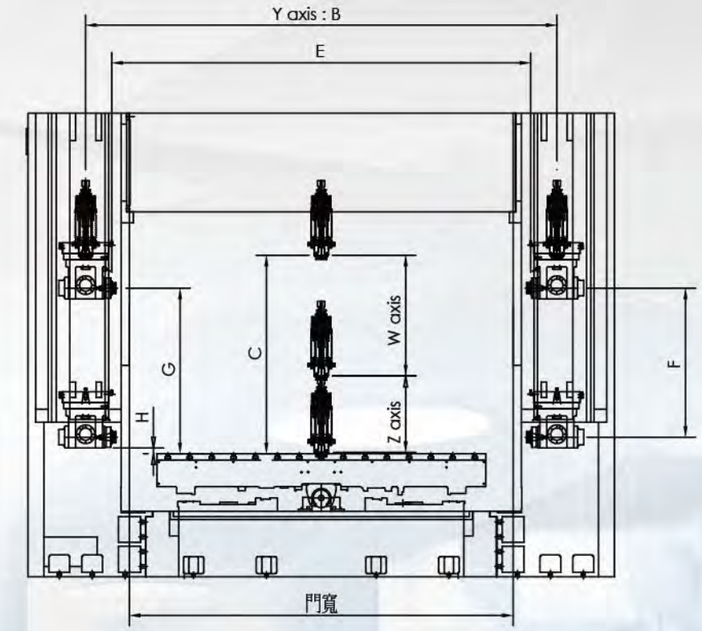


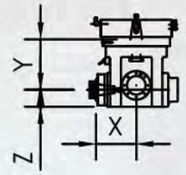


Unit: mm

Model	Z - TRAVEL	COLUMN - HIGH	COLUMN - WIDTH	B	C	E(V) B-(X*2)	F(V) C-(Y+H)	G(V)	E(H) B-(X*2)	F(H) C-(Y+H)	G(H)	H
AHC-x28	1000 (1200/ 1400 opt.)	2200	2000	2800	1350	2500	650	700	2470	655	865	50
AHC-x31			2300	3100	1350	2800	650	700	2770	655	865	
AHC-x35			2700	3500	1350	3200	650	700	3170	655	865	
AHC-x36			2800	3600	1310	3300	610	660	3270	615	825	
AHC-x40			3200	4000	1310	3700	610	660	3670	615	825	
AHC-x46			3600	4600	1310	4300	610	660	4270	615	825	

VWSeries





Unit: mm

Model	Z - TRAVEL	W - TRAVEL	COLUMN - WIDTH	A	B	C	D A-(X*2)	E (B-X*2)	F C-(Y+Z+H)	G C-Y	H	參考數據 X/Y/Z
VW-4340	700	1100	2450	4050	3400	1850	3572	2922	1400	1550	50	X : 239 Y : 300 Z : 100
VW-5340			2450	5050	3400	1850	4572	2922	1400	1550		
VW-6340			2450	6050	3400	1835	5572	2922	1385	1535		
VW-5430			3500	5050	4300	1810	4572	3822	1360	1510		
VW-6430			3500	6050	4300	1810	5572	3822	1360	1510		
VW-7430			3500	7050	4300	1810	6572	3822	1360	1510		
VW-8430			3500	8050	4300	1810	7572	3822	1360	1510		

Intelligent Controller- Hartrol Plus

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 :

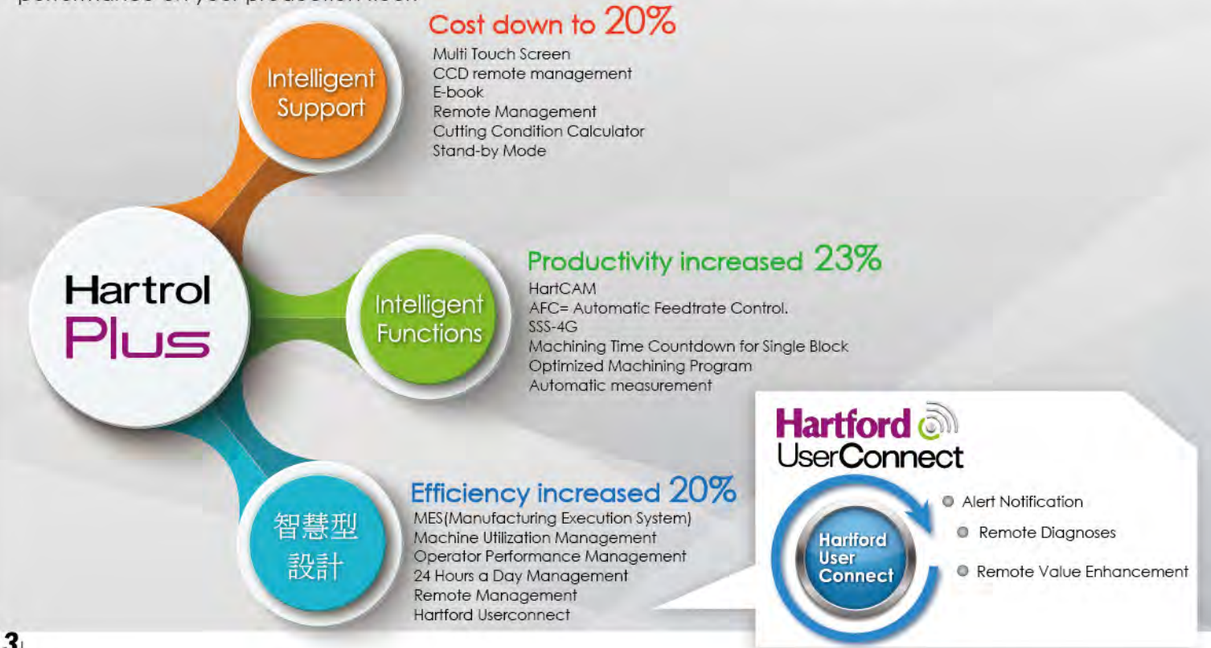
1. Internet connection, collect and analyze data, monitoring by portable device
2. Intelligent control: Auto revise human error and operating basis
3. Real time update new APPs

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 contorols 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.



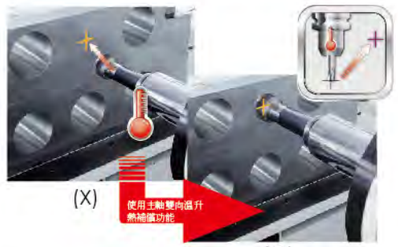
Hartrol Plus 5 Major intelligent Functions

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

Hartrol plus Multi-information monitor

Integrated multi-information screen makes your machining much more convenient.

1. 3 axes Feed rate
2. Spindle speed / Tool number / Spindle speed override
3. Feed rate Feed rate Override
4. Job Machining remaining time / Batch Machining remaining 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

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

Set & Inspect(opt.)

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—

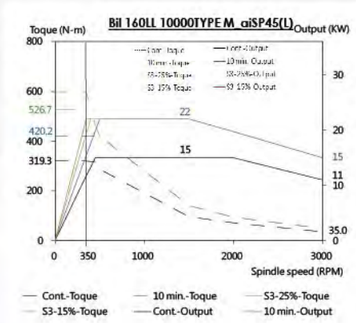
1.Ease of use
2.Check parts status clearly
3.Eliminating unexpected down time
4.Instand notification to your machine and your protable device

A variety of Hartford made spindles have quality assurance

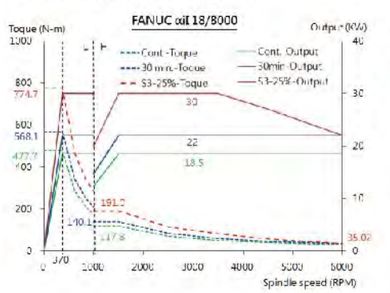
Torque Curve Diagram of the AHC Series

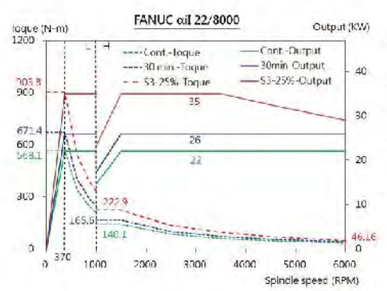
- 6,000 rpm gear-type spindles
- 8,000 rpm gear-type spindles (optional)
- 10,000 rpm composite spindle (optional)

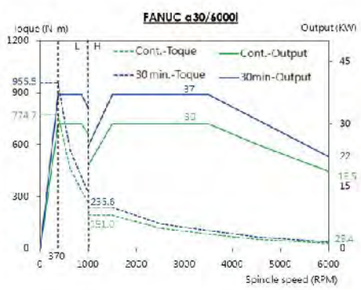
Hybrid 10,000 rpm

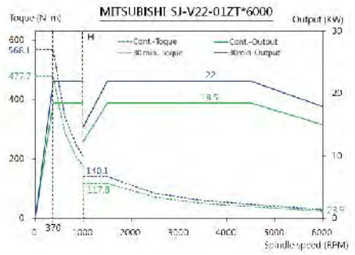


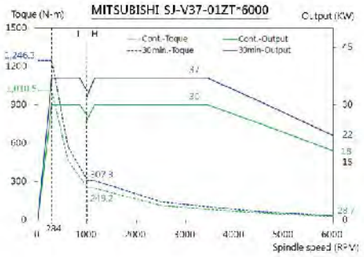
Gear type 6,000 rpm

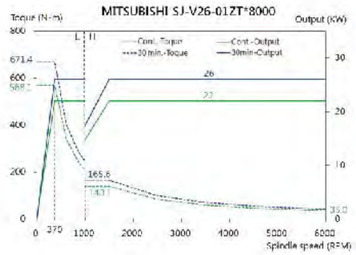


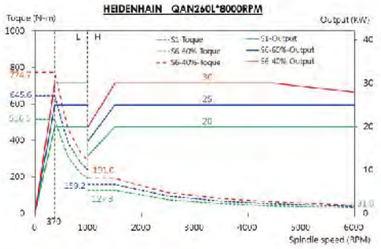


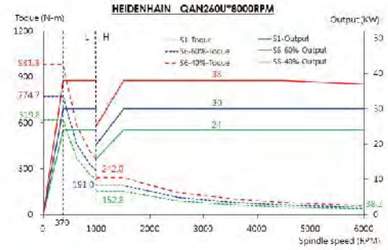




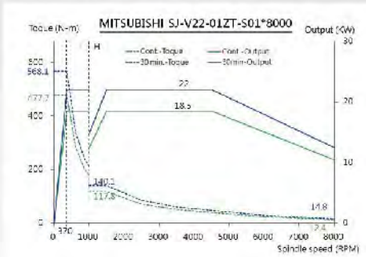


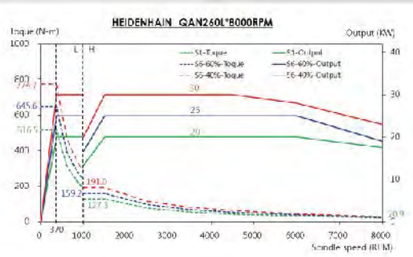


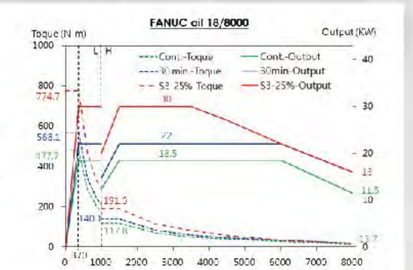


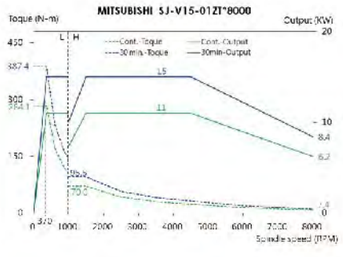


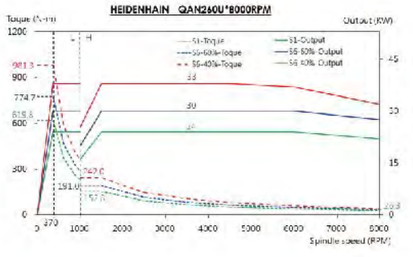
Gear type 8,000 rpm

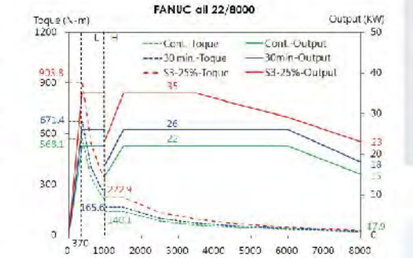






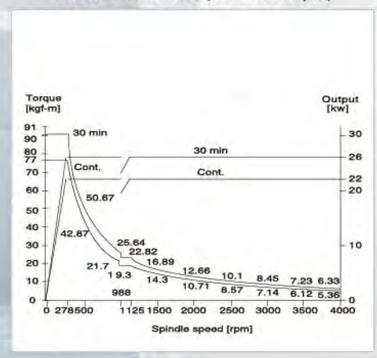




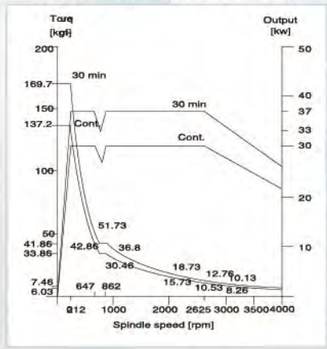


Torque Curve Diagram of the VW Series

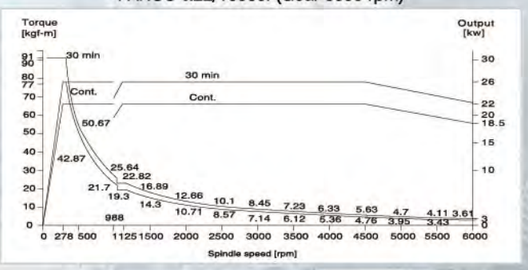
FANUC α22/7000i (Gear 4000 rpm)



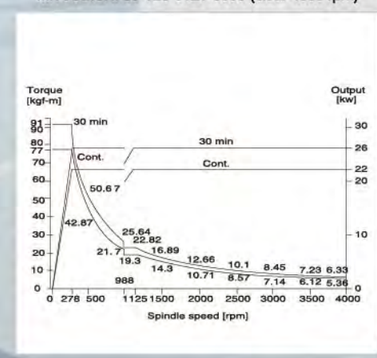
FANUC α30/6000i (Gear 4000 rpm)



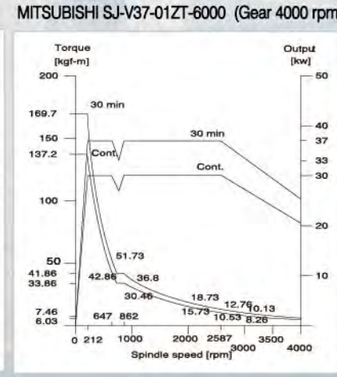
FANUC α22/10000i (Gear 6000 rpm)



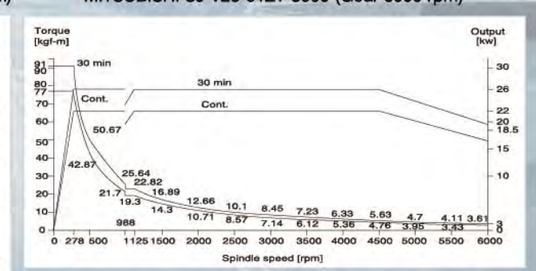
MITSUBISHI SJ-V26-01ZT-8000 (Gear 4000 rpm)



MITSUBISHI SJ-V37-01ZT-6000 (Gear 4000 rpm)

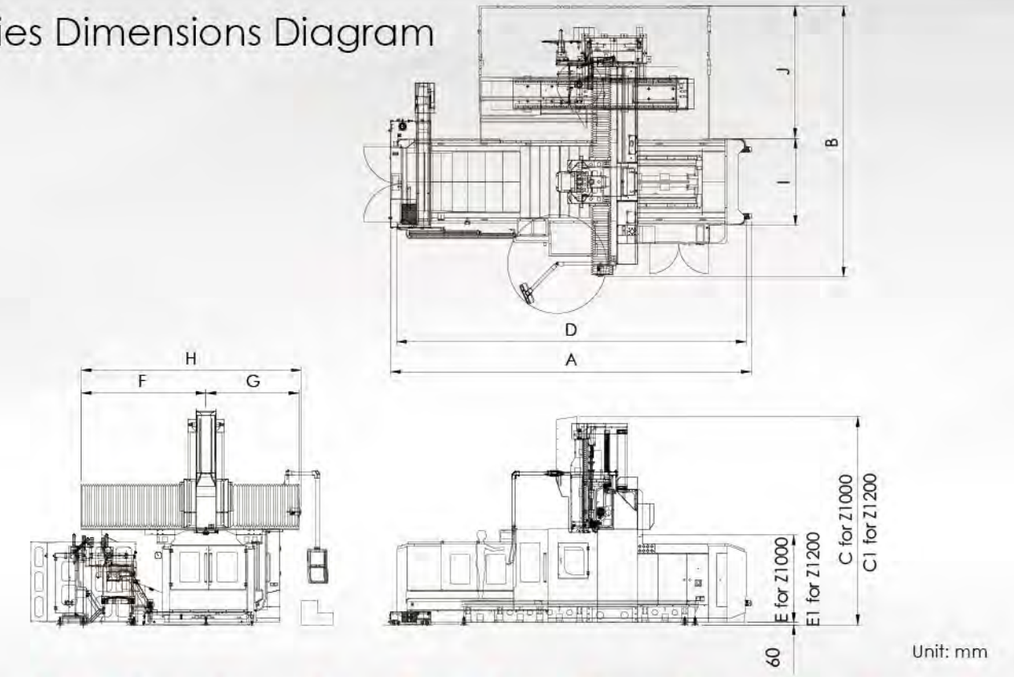


MITSUBISHI SJ-V26-01ZT-8000 (Gear 6000 rpm)



Machine Dimensions Diagram

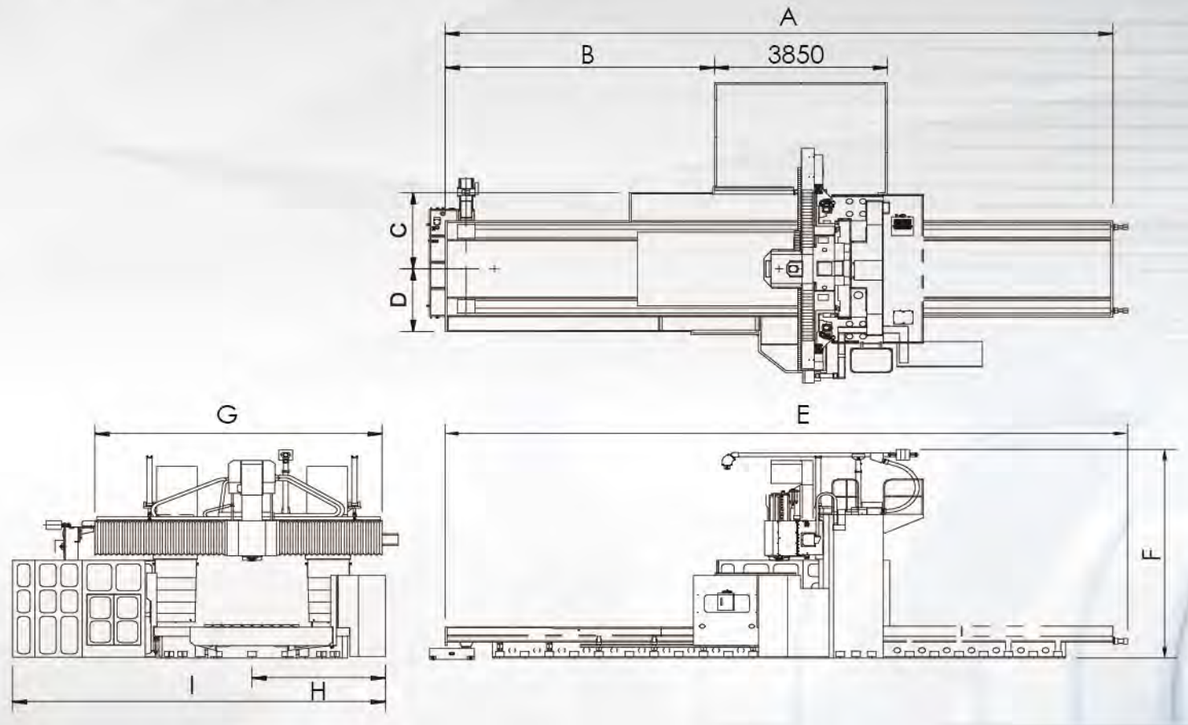
AHC Series Dimensions Diagram



Unit: mm

Model	A	B	C	C1	D	E	E1	F	G	H	I	J
AHC-228	7755	6820	5235	5635	7545	2200	2400	3135	2337	5528	2194	3330
AHC-328	9000	6820	5235	5635	8795	2200	2400	3135	2337	5528	2194	3330
AHC-428	11000	6820	5235	5635	10795	2200	2400	3135	2337	5528	2194	3330
AHC-331	9000	7120	5235	5635	8795	2200	2400	3285	2487	5828	2494	3330
AHC-431	11000	7120	5235	5635	10795	2200	2400	3285	2487	5828	2494	3330
AHC-531	13000	7120	5235	5635	12795	2200	2400	3285	2487	5828	2494	3330
AHC-631	15000	7120	5235	5635	14795	2200	2400	3285	2487	5828	2494	3330
AHC-731	17000	7120	5235	5635	16795	2200	2400	3285	2487	5828	2494	3330
AHC-335	9000	7620	5235	5635	8795	2200	2400	3535	2737	6328	2994	3330
AHC-435	11000	7620	5235	5635	10795	2200	2400	3535	2737	6328	2994	3330
AHC-535	13000	7620	5235	5635	12795	2200	2400	3535	2737	6328	2994	3330
AHC-635	15000	7620	5235	5635	14795	2200	2400	3535	2737	6328	2994	3330
AHC-636	15000	7620	5235	5635	14795	2200	2400	3535	2737	6328	2994	3330
AHC-736	17000	7620	5235	5635	16795	2200	2400	3535	2737	6328	2994	3330
AHC-836	19000	7620	5235	5635	18795	2200	2400	3535	2737	6328	2994	3330
AHC-440	11000	8020	5235	5635	10795	2200	2400	3735	2937	6728	3394	3330
AHC-540	13000	8020	5235	5635	12795	2200	2400	3735	2937	6728	3394	3330
AHC-640	15000	8020	5235	5635	14795	2200	2400	3735	2937	6728	3394	3330
AHC-740	17000	8020	5235	5635	16795	2200	2400	3735	2937	6728	3394	3330
AHC-840	19000	8020	5235	5635	18795	2200	2400	3735	2937	6728	3394	3330
AHC-546	13000	8620	5235	5635	12795	2200	2400	4035	3237	7328	3794	3430
AHC-646	15000	8620	5235	5635	14795	2200	2400	4035	3237	7328	3794	3430
AHC-746	17000	8620	5235	5635	16795	2200	2400	4035	3237	7328	3794	3430
AHC-846	19000	8620	5235	5635	18795	2200	2400	4035	3237	7328	3794	3430

VW Series Dimensions Diagram



Model	A	B	C	D	E	F	G	H	I
VW-4340	10285	3707	2172	1787	10210	5956	6384	2964	8289
VW-5340	12360	4782	2172	1787	12360	5956	6384	2964	8289
VW-6340	14850	5990	2172	1787	15175	5956	6384	2964	8289
VW-5430	12990	5123	2695	1815	13645	6381	7355	3395	8870
VW-6430	14990	6123	2695	1815	15645	6381	7355	3395	8870
VW-7430	16990	7123	2695	1815	17645	6381	7355	3395	8870
VW-8430	18990	8123	2695	1815	19645	6381	7355	3395	8870

Unit: mm

AHC Machine Specification Table

Model	Unit	AHC-228/328/428	AHC-331/431/531/631/731	AHC-335/435/535/635	AHC-636/736/836	AHC-440/540/640/740/840	AHC-546/646/746/846
Table							
Working surface	mm	2000/3000/4000 x 1800	3000/4000/5000/6000/7000 x 2200	3000/4000/5000/6000 x 2200	6000/7000/8000 x 2500	4000/5000/6000/7000/8000 x 2500	5000/6000/7000/8000 x 3000
T-shaped slot (slot frame x slot number x slot distance)	mm	22 x 7/11/15 x 250	28 x 11/15/19/ 23 /27 x 250	28 x 11/15/19/ 23 x 250	28 x 23 /27/31 x 250	28 x 15/19/ 23 /27/31 x 250	28 x 19/ 23 /27/31 x 250
Maximum load	kg	8000/10000/12000	10000/12000/15000/18000/20000	10000/12000/15000/18000	23000/25000/27000	18000/20000/23000/25000/27000	21000/24000/27000/30000
Travel							
X -axis travel	mm	2000/3000/4000	3000/4000/5000/6000/7000	3000/4000/5000/6000	6000/7000/8000	4000/5000/6000/7000/8000	5000/6000/7000/8000
Y -axis travel	mm	2800	3100	3500	3600	4000	4600
Z -axis travel	mm	1000(1200)	1000(1200)	1000(1200)	1000(1200)	1000(1200)	1000(1200)
Spindle nose to workbench	mm	350~1350(Z:1000_Column2200) 350~1550(Z:1000_Column2400)	350~1350(Z:1000_Column2200) 350~1550(Z:1000_Column2400)	350~1350(Z:1000_Column2200) 350~1550(Z:1000_Column2400)	350~1310(Z:1000_Column2200) 350~1510(Z:1000_Column2400)	350~1310(Z:1000_Column2200) 350~1510(Z:1000_Column2400)	310~1310(Z:1000_Column2200) 310~1510(Z:1200_Column2400)
Spindle center to column	mm	450	450	450	450	450	450
Door taper	mm	2000	2300	2800	2800	3200	3600
Spindle							
Gear type speed	rpm	6000(8000)	6000(8000)	6000(8000)	6000(8000)	6000(8000)	6000(8000)
Direct-connected type speed	rpm	10000	10000	10000	10000	10000	10000
Nose taper		ISO 50	ISO 50	ISO 50	ISO 50	ISO 50	ISO 50
Speed							
Cut ratr (X / Y / Z)	mm/min	12000/12000/12000(228) 12000/12000/12000(328) 12000/12000/12000(428)	12000/12000/12000(331) 10000/12000/12000(431) 8000/12000/12000(531/631/731)	12000/12000/12000(335) 10000/12000/12000(435) 8000/12000/12000(535/635)	8000/12000/12000(636) 8000/12000/12000(736) 6000/12000/12000(836)	10000/12000/12000(440) 8000/12000/12000(540/640/740) 6000/12000/12000(840)	8000/8000/10000(546/646/746) 6000/8000/10000(846)
Feedrate (X / Y / Z)	mm/min	24000/18000/16000(228) 20000/18000/16000(328) 20000/18000/16000(428)	20000/18000/16000(331) 20000/18000/16000(431) 14000/18000/16000(531) 12000/18000/16000(631) 10000/18000/16000(731)	20000/18000/16000(335) 20000/18000/16000(435) 14000/18000/16000(535) 12000/18000/16000(635)	10000/18000/16000(636) 10000/18000/16000(736) 8000/18000/16000(836)	16000/18000/16000(440) 12000/18000/16000(540) 10000/18000/16000(640/740) 8000/18000/16000(840)	14000/14000/16000(546) 12000/14000/16000(646) 10000/14000/16000(746) 8000/14000/16000(846)
Automatic Tool Changer							
Tool number	pcs	32/40/60/90(A-type)	32/40/60/90(A-type)	32/40/60/90(A-type)	32/40/60/90(A-type)	32/40/60/90(A-type)	32/40/60/90(A-type)
Maximum tool weight	kg	20	20	20	20	20	20
Tool size(diameter x length)	mm	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400
Tool holder		BT-50/CAT50/DIN/BBT50	BT-50/CAT50/DIN/BBT50	BT-50/CAT50/DIN/BBT50	BT-50/CAT50/DIN/BBT50	BT-50/CAT50/DIN/BBT50	BT-50/CAT50/DIN/BBT50
Pulling bolt		P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1
Motor							
Spindle power (Fanuc)	kW(30min/Cont)	22/18.5 35/30(DDS FOR Fanuc)	22/18.5 35/30(DDS FOR Fanuc)	22/18.5 35/30(DDS FOR Fanuc)	22/18.5 35/30(DDS FOR Fanuc)	22/18.5 35/30(DDS FOR Fanuc)	22/18.5 35/30(DDS FOR Fanuc)
Positioning accuracy							
3-axis laser positioning accuracy(JIS B6330)							
Positioning accuracy / full travel	mm	± 0.010	± 0.010/0.018/0.012/0.012/0.012	± 0.010/0.010/0.012/0.012	±0.010/0.010/0.012/0.012/0.012/0.012	± 0.012	± 0.012
Repeated positioning accuracy	mm	± 0.003	± 0.003	± 0.003	±0.003	± 0.003	± 0.003
3-axis laser positioning accuracy (VDI 3441) repeats 5 times							
Position accuracy	mm	0.015/0.016/0.018	0.016/0.018/0.026/0.028/0.028	0.016/0.018/0.026/0.028	0.028/0.028/0.030	0.018/0.026/0.028/0.028/0.030	0.026/0.028/0.028/0.030
Repeated positioning accuracy	mm	0.014/0.014/0.015	0.014/0.015/0.021/0.024/0.024	0.014/0.015/0.021/0.024	0.024/0.024/0.026	0.015/0.021/0.024/0.024/0.026	0.021/0.024/0.024/0.026
Other							
Required air pressure	kg/cm²	6.5	6.5	6.5	6.5	6.5	6.5
Required power	KVA	55/55/60	60/60/65/65/70	60/60/65/65	65/65/70	65/65/70/70/70	65/70/70/70
Covering area	mm	9000/11000/13000x7750	11000/13000/15000/17000/19000x8050	11000/13000/15000/17000 x8550	17000/1900/2100 x8550	13000/15000/17000/1900/2100 x8950	15000/17000/1900/2100 x9550
Net weight	kg	31115/34115/37115	36240/40240/44240/48240/52240	41220/45220/49220/53420	56890/61890/66890	47480/52480/58480/63480/68480	63500/68500/73500/78500

The factory laser precision is JIS B6330 if VDI 3441 demand you may further propose

Standard equipment & optional equipment - machine functions

Standard equipment

- Centralized automatic lubrication system
- Spindle air blow device
- Spindle oil temperature cooler
- Fluorescent lamp
- Full cover type anti-splash protection cover
- Workbench side blowing device
- Electrical control box convection heat exchanger(applies to pair up with Mitsubishi, Fanuc,Syntec motor)
- Spindle air curtain
- 6000 rpm gear type spindle head
- Hollow spiral cutting conveyor screw
- Cut coolant system devices
- Chain-type cut conveyor

Optional equipment

- CTS full cover type anti-splash protection cover
- Spindle cneter coolant apparatus
- 90° angle head
- Extending head
- Measuring system
- ATC-40T/60T/90T/120T
- 8000 rpm gear type spindle head
- Closed loop optical ruler (standard length : X axis 6m or longer)

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

Standard equipment & optional equipment - electrical control functions

Hartrol / Standard equipment

- Manual workpiece alignment
- Tool magazine graphics and data display
- Pop-up computer
- Supporting processing parameters
- Machine utilization rate analysis (only suitable for Fanuc)
- Internal and external thread cutting (only suitable for Fanuc)
- Tool magazine data display-Tool style graphical data display (only suitable for Fanuc)
- Tool life monitoring(only suitable for Fanuc)
- Lettering processing function
- Tool correction screen & fast tool change function(only suitable for Fanuc)

Hartnet /Optional features

- Whole plant utilization rate management system
- Processing countdown management
- Whole plant file transfer system
- Output management

Electrical function / optional features

- Power-off gravity axis lift function
- Coordinate display head input
- Tool magazine HMI
- Rigid tapping tool retraction
- Spindle thermal disolacement compensation

VW Machine Specification Table

Model	Unit	VW-4340	VW-5340	VW-6340	VW-5430	VW-6430	VW-7430	VW-8430
Table								
Working surface	mm	4000 x 2100	5000 x 2100	6000 x 2100	5000 x 3000	6000 x 3000	7000 x 3000	8000 x 3000
T-shaped slot (slot frame x slot number x slot distance L)	mm	28 x 9 x 220	28 x 9 x 220	28 x 9 x 220	28 x 15 x 200	28 x 15 x 200	28 x 15 x 200	28 x 15 x 200
Maximum load	kg	15000	16000	17000	22000	25000	28000	28000
Travel								
X -axis travel	mm	4050	5050	6050	5050	6050	7050	8050
Y -axis travel	mm	3400	3400	3400	4300	4300	4300	4300
Z -axis travel	mm	700	700	700	700	700	700	700
W -axis travel	mm	1100	1100	1100	1100	1100	1100	1100
Spindle nose to workbench	mm	50-1850	50-1850	35-1835	10-1810	10-1810	10-1810	10-1810
Door taper	mm	2450	2450	2450	3500	3500	3500	3500
Spindle								
Gear type speed	rpm	50~4000/6000(opt.)	50~4000/6000(opt.)	50~4000/6000(opt.)	50~4000/6000(opt.)	50~4000/6000(opt.)	50~4000/6000(opt.)	50~4000/6000(opt.)
Nose taper		#50	#50	#50	#50	#50	#50	#50
Speed								
Cut ratr (X / Y / Z)	mm / min	1~8000	1~6000	1~6000	1~5000	1~5000	1~5000	1~5000
Feedrate (X / Y / Z)	mm / min	12000/10000/12000/3000	10000/10000/12000/3000	8000/10000/12000/3000	8000/12000/12000/3000	8000/12000/12000/3000	8000/12000/12000/3000	6000/12000/12000/3000
Automatic Tool Changer								
Tool number	pcs	32/40/62	32/40/62	32/40/62	32/40/62	32/40/62	32/40/62	32/40/62
Maximum tool weight	kg	20	20	20	20	20	20	20
Tool size(diameter x length)	mm	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400	Ø125 x 400
Tool holder		BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50
Pulling bolt		P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1
Motor								
Spindle power (Fanuc)	kW(30min/Con)	22:26/35	22:26/35	22:26/35	22:26/35 30:37/50(OPT.)	22:26/35 30:37/50(OPT.)	22:26/35 30:37/50(OPT.)	22:26/35 30:37/50(OPT.)
Positioning accuracy								
3-axis laser positioning accuracy(JIS B6330)								
Positioning accuracy / full travel	mm	± 0.012	± 0.012	± 0.012	± 0.012	± 0.012	± 0.012	± 0.012
Repeated positioning accuracy	mm	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003
3-axis laser positioning accuracy (VDI 3441)repeats 5 times								
Position accuracy	mm	0.018	0.026	0.028	0.026		0.028	0.030
Repeated positioning accuracy	mm	0.015	0.021	0.024	0.021		0.024	0.026
Other								
Required air pressure	kg/cm²	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Required power	KVA	90	90	100	100	110	120	120
Covering area	mm	57000	63000	69000	98000	105000	112000	119000
Net weight	kg	12400 x 9200	14700x9200	17300x9200	15300x10750	17300x10750	19300x10750	21300x10750

The factory laser precision is JIS B6330 if VDI 3441 demand you may further propose

Standard equipment & optional equipment - machine functions

Standard equipment

- Semi-enclosed splash guard
- Cooling System
- Air Blast Through Spindle
- Table side air blast(M50)
- Centralized Automatic lubrication SYSTEM
- Fluorescent Lamp
- Leveling bolts and blocks
- Spindle oil cooler
- Screw type chip conveyor
- Link type chip conveyor
- W-axis linear scale system
- Food switch for spindle clamp/unclamp
- Tool package
- Individual machine manual x1
- RS-232 Interface
- Auto power off
- Operation finish lamp
- Convection heat exchanger in control box

Optional equipment

- Portable chip bucket(1EA)
- X-axis linear scale system
- Y-axis linear scale system
- Z-axis linear scale system
- Hoist seat
- Oil skimmer
- Coolant through spindle (Vertical spindle)
- Coolant through spindle (Vertical spindle)(20BAR)
- Coolant gun
- Air gun

Standard &Optional Electrical Function

Hartrol / Standard

- Workpiece calibration by MPG directly
- Parameter package
- Thread cutting(0i& 31i only)
- Tool magazine display(0i&31i only)
- Tool status display((0i&31i only)
- Special engraving marco

Hartnet / Optional

- Management system of utilization
- Machining time countdown
- Convenient file transfer

Electrical Function /Optional

- Lifting function against gravity
- Retraction for rigid tapping
- Intelligent MPG

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