



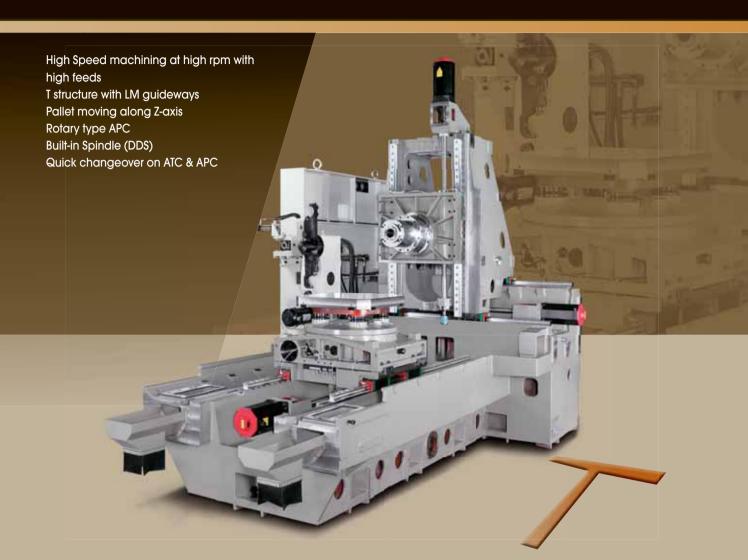
#### HORIZONTAL MACHINING CENTER RANGE



Increased productivity with high speed or heavy duty machining



# High Speed (HS) Series









#### Vcenter-H400

- 48/48/48 m/min (1890/1890/1890 IPM)
- BBT-40 (BCV-40) tooling
- 60 tools
- -15000 rpm / 22 kW (29.5 HP)

#### Vcenter-H500HS

- 30/30/24 m/min (1181/1181/1181 IPM)
- BT-40 (CT-40) tooling
- 40 tools
- 15000 rpm / 22 kW (29.5 HP)

#### Vcenter-H500

- 24/24/24 m/min (945/945/945 IPM)
- BT-50 (CT-50) tooling
- 40 tools
- 6000 rpm / 15 kW (20 HP)

#### Vcenter-H630HS

- 48/48/48 m/min (1890/1890/1890 IPM)
- BT-50 (CT-50) tooling
- 60 tools
- 10000 rpm / 30 kW (40 HP)

# Heavy Duty (HD) Series





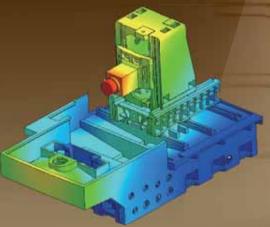
#### Vcenter-H630HD

- 24/24/24 m/min (945/945/945 IPM)
- BT-50 (CT-50) tooling
- 60 tools
- 902 Nm / 665.2 ft-lbf

### Vcenter-H1000

- 20/20/15 m/min (787/787/590 IPM)
- BT-50 (CT-50) tooling
- 90 tools
- 1072 Nm / 790.6 ft-lbf

# Vcenter-H400



#### Rapid feed rate 48/48/48 m/min (1890/1890/1890 IPM)

3-axis moving column design features high rapid feed rate 48 m/min (1890 IPM) for 3 axes to reduce tool changeover time.

Axis acceleration 0.7G/0.7G/0.7G with high power output 4.5/5.5/4.5 kW (6/7.4/6 HP) reaches highest machining efficiency.

Steel type telescopic cover design assures long service life.



#### Servo driven ATC and tool magazine

Front mounted ATC to reduce machine width.

40-tool magazine with twin arm type ATC offers quick changeover time

4.5 seconds (chip-to-chip) for BBT-40 (BCV-40) tooling.

Both ATC and magazine are servo driven to assure higher reliablity and longer service life.

#### High speed pallet changer APC

Rotary type APC for quick pallet exchange.

4 ground cone shaped taper pins and bushings ensures high accuracy and repeatability throughout entire service life.

Air jets are blown through cones assure pallet clamping and chip removing.

Extenal pallet can be rotated manually. Pallet loading 400 kgs (880 lbs).







#### 15000 rpm built-in spindle

Built-in spindle avoids belt vibration to affect machining quality.

Dual winding (low/high winding) with power output 18.5/22 kW (25/29.5 HP) further reduces cutting time. 4 pcs front bearings enhance cutting rigidity.

Oil-air lubrication for long service life.

BIG PLUS® BBT-40 (BCV-40) tooling (compatible with BT-40 (CT-40) tooling) for sufficient tool clamping at

### User friendly design

high rpm.

Rotary control panel with large keypads for easy operation.

Spindle oil cooler, pneumatic and lubrication systems are located in the rear location for easy maintenance.



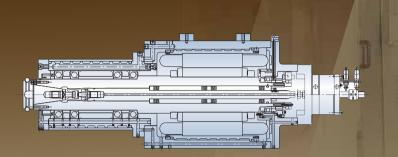
#### Efficient disposal on coolants and chips

Fixed pallet design with bottom flushing coolants assures minimal coolant leakage and chip build-up.

Rear disposal chip conveyor utilizes easy layout for line production.

MEDA DOUBLE POMERONO
BETSO-NEGASIO-ISI

# Vcenter-H500/H500HS



#### Built-in spindle

Built-in spindle avoids belt vibration to affect machining quality.

Dual winding (low/high winding) with high power output further reduces cutting time.

Air curtain for extra spindle protection. 6000 rpm, 11/15 kW (15/20 HP) for Vcenter-H500. 15000 rpm, 18.5/22 kW (25/29.5 HP) for Vcenter-H500HS.



#### Durable tool changer

Side mounted 40-tool magazine with twin arm type ATC offers quick changeover time 8.5 second (chipto-chip) for BT-40 (CT-40) tooling and 10.6 seconds for BT-50 (CT-50) tooling.

ATC unit has been designed with minimal maintanance with the use of hydraulic motor to ensure stability and longer service life.

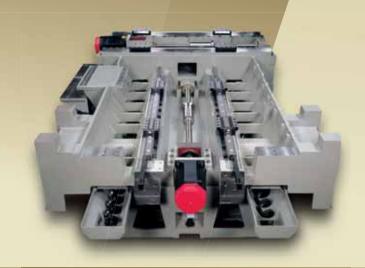


#### Strong machine structure

Meehanite<sup>®</sup> casting from Victor Taichung's licensed foundry for maximum damping and strength. One piece bed castings with triangular structure and heavily ribbed column minimizes distortion during heavy cutting.

Low table height reduces the bending moment for high positioning accuracy. Curvic coupling is used for table indexing and offer high repeatablity.



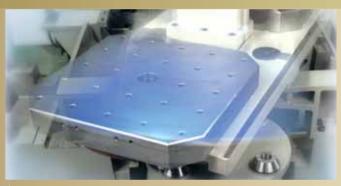


## Symmetrical design for minimal heat growth and chips build-up

Symmetrical machine design with steep angular splashguards inside minimizes the thermal growth on machine accuracy.

Twin screw-type chip removers have been fitted to help remove chips out of the machining area to the machine front through the assistance of high pressure coolants. Front positioned chip conveyor for easy chip clean-up.





#### High speed pallet changer APC

Rotary type APC for quick changeoover.

4 ground cone shaped taper pins and bushings ensures high accuracy and repeatability throughout entire service life.

Air jets are blown through cones assure pallet clamping and chip removing.

High loading capacity 800 kgs (1760 lbs).



Oversized NRS style linear guideways ensure each axis can absorb the most extreme of cutting forces.

Ballscrew holders are cast into the machine base to ensure a constant support over the entire machine life.



# Vcenter-H630HS



## High rapid feeds 48/48/48 m/min (1890/1890/1890 IPM)

"T"-shape structure with Meehanite® casting from Victor Taichung's licensed foundry ensures maximum damping and strength.

Roller type linear guideways enhance the structural stiffness by absorbing the extreme cutting forces generated by high speed machining.

Heat in the ballscrews generated by high feed rates is removed by 'Through Ballscrew Coolant' feeds.

Ballscrew holders are cast into the machine base enhances a constant supports.



#### 10000rpm built-in spindle 30 kW (40 HP)

Built-in spindle avoids belt vibration to affect machining quality.

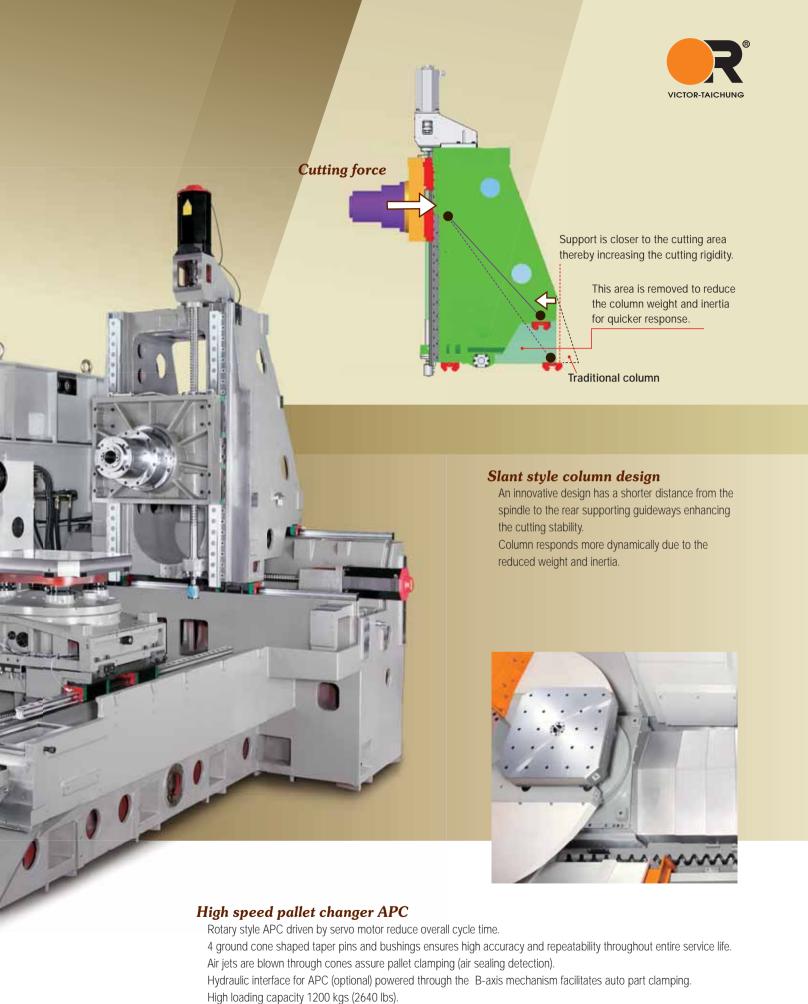
Dual winding (low/high winding) with high power output 25/30 kW (30/40 HP) further reduces cutting time. Oil-air lubrication assures long service life.



#### Servo driven tool magazine

60 tool magazine with twin arm type ATC offers quick changeover time 7.5 seconds (chip-to-chip) for heavy BT-50 (CT-50) tooling.

Less heat generated in comparison as hydraulic system assure higher reliability.



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# Vcenter-H630HD

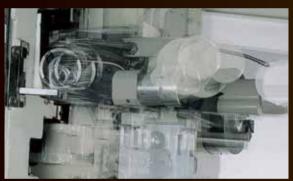
#### Hydro-dynamic box slideways:

50mm (2") large diameter ballscrews with 10mm (0.4") pitch provide high torque at high rapid feed rates of 24m/min (945 IPM) on all 3 axes. Large contact surfaces fully support both axial and lateral loading to prolong machine accuracy in heavy duty machining of hard materials. Higher damping with the use of bonded Turcite\* eliminates local stickslip for improved finish and longer tool life.



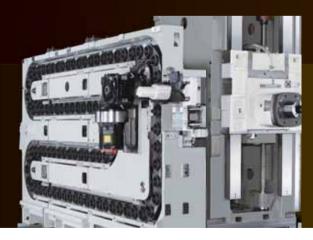
#### Hand scraping

The traditional method of handscraping remains the most effective way of ensuring squareness and flatness in machine tools using plain bearing linear ways. With 60 years experience in building machine tools using this traditional manufacturing manner, our understanding of the critical factors that ensure accuracy and durability are second to none. Highly skill personnel, trained in-house, are employed to make sure this handscraping is done to perfection.



# Tool arbor cleaning system (Rotating tool pocket with brushes)

Intermediate tool pot for cleaning tools during tool changes ensures tool arbor is free from swarf and prevents damage to spindle taper and tools, which would otherwise degrades machining precision. Also ensures better mating between tool arbor and spindle taper for improved tool tip runout.

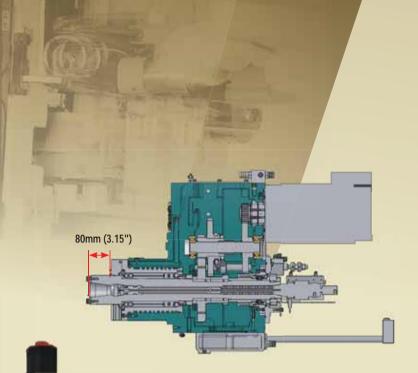


#### Servo driven tool magazine

Servo driven tool magazine with less heat generation than hydraulic type assures high reliability.

60 tool magazine covers wide range of applications.







#### Two-step geared spindle head

The 2-step gearbox coupled with 22 kW (30 HP)spindle motor offers maximum torque output 902 Nm (665.2 ft-lbf) giving unrivalled metal removal rates at low spindle speed 196 rpm.

Rotary joint is included as standard and ready for CTS retrofitting. Long overhang design spindle reduces the tool length for higher rigidity. The roller type bearings are used for rear bearings even enhance cutting capability,

Oil cooling to the spindle and gearbox maintain low bearing temperature for extended spindle life.

### High pallet loading 1200 kg (2640 lbs)

High B-axis mechanism with deep slope helps reduce chips builtup on X-axis covers.

Available with optional <u>hydraulic interface</u> which allows the power to go through the B-axis mechanism from bottom.

**CNC pallet** (option) with continuous 0.001° indexing is available by unique feature of **Roller-CAM-Drive**\* mechanism guarantees higher rigidity without existence of worm-gear backlash for full 4 axis.



#### ECO design

Control panel is mounted on the front lateral guarding, so the operator can easily see inside and operate the machine after opening the door to the right.

External pallet can be manually rotated on APC with pedals.





# Vcenter-H1000



#### Advanced design

Through the use of advanced CAD and CAE, our R&D laboratory makes computer simulations of the machine's structure for deformation and vibration during operation, which can be later confirmed by computer aided testing. Areas of high stress concentration or excessive thermal growth are pinpointed on the drawing board, so they are eliminated at an early stage and optimum machine life can be guaranteed.

#### Strong machine structure

Heavy duty Meehanite castings are used in the bed and column for maximum damping and strength. One-piece bed casting with triangular structure and heavily ribbed column minimise machine distortion during operation. Boxways are cast into the bed and column so no distortion occurs due to thermal differences between the slide-ways and machine casting! This maintains alignment of the ways throughout the machine life.

#### Improved positioning accuracy

Table height is kept low to reduce the bending moment so that improved positioning accuracy is possible under heavy cutting.

A curvic coupling in table indexing offers excellent repeatability.

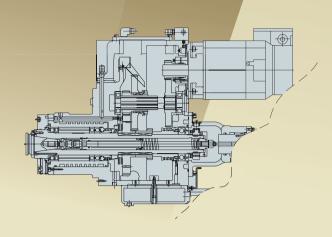
All axes motors are direct coupled with flexible couplings so that no transmission vibrations are present. For Y-axis counter balancing is replaced with high powered 7 kW (9.4 HP) servo-motor with built-in brake, for smoother travel and finer positioning accuracy.



#### Machine operation panel

Operator friendly control panel makes manual operation simple which includes remote MPG to ease machine set-up and ergonomic layout to maximize operator efficiency. Control panel is CE compatabile and is built to withstand the most arduous shop floors! Air cond for control cabinet maintains temperature control to ensure durable operation. High level of PLC integration with numerous safety features ensures smooth and safe operation.





#### Minimizing the effects of thermal growth

Symmetrical design and construction means heat generation is limited to minimise the effects of thermal growth on machine accuracies. Double-anchored ballscrews are pretensioned during assembly to absorb thermal growth without effecting accuracy. Effective chip evacuation from the machining area improves heat dissipation from the working area while spindle oil cooling prevents excessive spindle growth.



#### Heavy duty spindle with integral 2-speed gearbox

Vcenter-H1000 have been designed to handle large workpieces in a single setup. The 2-speed gearbox coupled with 18.5/22 kW (25/29.5 HP) spindle motor offers maximum torque output ofvv1072 Nm (790.6 ft-lbf) giving unrivalled metal removal rates

Spindle is supported with heavy duty roller bearings with large contact areas that easily handles large axial and radial loads.

Oil cooling to the spindle and gearbox maintain low bearing temperature for extended spindle life.

#### Durable tool changer

Twin arm type ATC performs better over continuous tool changes compared with disc type tool changers, while at the same time offering fast tool change.

The ATC mechanism and tool magazine are both driven by durable hydraulic motors which ensures increased stability and longer service life. The entire unit is designed for minimum maintenance.



# Enclosed guarding on APC\*(optional.)

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\*Standard for CE machine

#### Maximum flexibility with parallel type APC

Parallel pallet changer offers increased machining area for oversized parts without interference with machine guarding. Pallets can be easily removed from the APC to make workpieces set-ups trouble free. Additional pallets can be set-up and kept in storage until needed. This system also enables swift and simple integration into FMS lines.

## **Machine Options**

#### CNC table with 0.001° continuous indexing

0.001° continuous indexing is available on the B-axis for simultaneous 4-axes machining. The servo-motor is upgraded so that plenty of power is pro vided in machining complex forms and contours. Table indexing time is also reduced to only 0.2 sec per deg. **Rotary encoder** is included as standard for improved positioning accuracy.



#### Coolants through spindle (CTS)

For improved drilling or boring capability, coolants with high pressure can be forced through the center of the spindle and flow through the tool directly to the cutting area. To ensure the long and reliable running of this system, fine particles produced during machining must be filtered out to prevent the damages to the spindle. Victor Taichung offers several types of filtration systems to meet different requirements in machining.



#### Table shower (Niagara coolants)

To enhance chip removal around the workpiece and reduce thermal growth supplies a table shower system is available which flood coolant from above. The strong coolant flow ensures the workpiece and guards are swept clear of cutting chips.







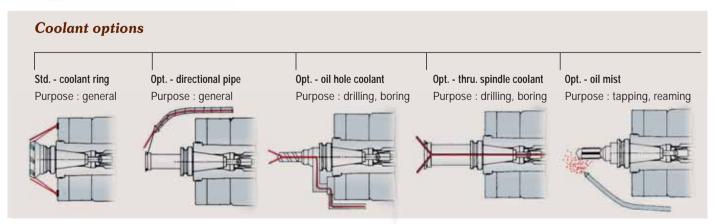
#### Linear scales (standard on Vcenter-H1000)

Linear scales on all 3 axes offer exceptional positioning accuracy, up to 0.005 mm over full stroke. Heidenhain® or FAGOR® linear scales with a thermal behaviour similar to that of the machine are selected, so that thermal expansion can be compensated for further enhancing repeatability.

Sealed encoders with durable aluminum housing offer improved reliability and service life. This option is included as standard for Vcenter-H1000 to guarantee the consistent accuracy.

#### Expandable tool magazine

Modular design allows from 60 to 120 tools to be held in tool magazine. Since the magazine is made up of cast-sections it is easy to slot in additional sections to expand tool capacity on site!





#### Workpiece measurement

To reduce time spent setting workpiece positions and then manually inspecting finished parts, which would be better invested in machining, automatic workpiece measurement is available with the use of Renishaw MP-10, OMP-60 or RMP-60 measuring probes. Workpiece position can be identified with the probe and work offsets automatically updated, enabling parts to be made right first time. During batch production in-processing checking can be performed on the machine, while for optimum accuracy in machining part inspection can be done after roughing so that finished part can maintain tight tolerances.



#### Auto tool length measurement

To reduce tool set-up times and improve machine operator interface, Victor Taichung offers Renishaw tool measurement system. Using the Renishaw® TS-27R probe or NC-4 non-contact tool setter, the tool length and diameter values can be automatically inputted into the tool offset values once the tool is tipped off the probe. This system is ideal for batch production where tools need to be constantly changed or replaced.



#### Multi-face table (Tombstone fixture)

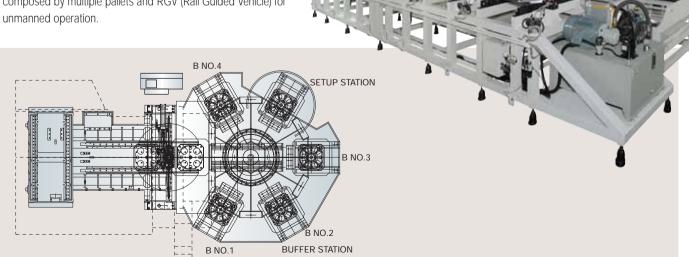
T-slotted or bolted fixture block allows a variety of parts to be clamped offering improved productivity over vertical machine centres. Used in conjunction with standard B-axis pallet allows more parts to be set-up at a time!



## Single cell FMC or FMS for unmanned operation

For HS high speed series HMC with rotary type APC, pallet-pool design with 6 pallets and traverse mechanism composes a compact cell for unmanned operation. 12 pallets can be easily built up by two floors of pallets at the same floor space.

For HD heavy duty series HMC with parallel type APC, FMC is composed by multiple pallets and RGV (Rail Guided Vehicle) for unmanised exerction.





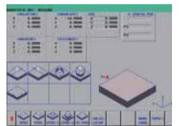
## **Victor Taichung's NC Package**

#### Fanuc 0i-MD/31i-B controls

With 10.4" color display included as standard, Victor Taichung's Fanuc control package includes conversational function MANUAL GUIDE I to reduce the programming time for easier operation. Through the latest technology for AI contouring control (AICC), Fanuc 0i-MD control is capable of addressing look-ahead up to 200 blocks to offer optimal reliability with the highest level of machine integration. For higher speed and precision, the control can be upgraded to 31i-B control which is capable of addressing 600 blocks as standard and optionally 1000 blocks available by the so-called AICC-2 with HSP function (High Speed Processing) to further reduce the block addressing time for better surface finish.

#### Victor's GUI (Graphic User Interface) - VSS Macros

With exclusive software developed in-house by highly experienced engineers, VSS (Victor Smart System) enhances not only machine operation to reduce tool set-up time but also safety features to protect costly spindle. Productivity can be further increased when the adaptive controlled cutting is implemented.



Smart workpiece measurement



Power saving (ECO)



Air Bag (abnormal load monitoring)



Renishaw® GUI

#### Heidenhain iTNC-530 HSCI control

Powerful dialog programming (SmartNC\*) with fully alphanumeric keyboard, Heidenhain control iTNC-530 HSCl is also available on Vcenter-H630HD/H10000. Without remembering complicated G codes, the sophisticated graphic functions with 15" TFT monitor make programming check easy. Hiedenhain iTNC-530 HSCl control is capable of addressing 1024 blocks and further makes use of hard drive memory for advanced 4 axis control.



### Control features for fast contour milling (Victor Taichung's standard)

	Heidenhain		
0i-MD	32i-B	31i-B	iTNC-530 HSCI
2 ms (by AICC-2)	2 ms	0.4 ms	0.5 ms
1280m (512kB) Opt. 5120m (2MB)	1280m (512kB) Opt. 5120m (2MB)	2560m (1MB) Opt. 10240m (8MB)	> 21GB
Opt. (by CF Card)	Opt. (by CF card)	Std. (by CF card)	N.A.
Std.	Std.	Std.	Std.
200 (with AICC-2)	200	600 (Opt. 1000 by HSP)	1024
10.4"	10.4"	10.4"	15"
Manual guide i + VSS macros	Manual guide i	Manual guide i	Std. + SmartNC
PCMCIA + USB	PCMCIA + USB	PCMCIA + USB	USB port
	2 ms (by AICC-2)  1280m (512kB) Opt. 5120m (2MB) Opt. (by CF Card) Std.  200 (with AICC-2)  10.4"  Manual guide i + VSS macros	2 ms (by AICC-2)  1280m (512kB) Opt. 5120m (2MB) Opt. 5120m (2MB) Opt. (by CF Card)  Std.  200 (with AICC-2)  10.4"  Manual guide i + VSS macros  2 ms 1280m (512kB) Opt. (by CF Card) Opt. (by CF card)  Std.  200  10.4"  Manual guide i H Manual guide i	Oi-MD         32i-B         31i-B           2 ms (by AICC-2)         2 ms         0.4 ms           1280m (512kB) Opt. 5120m (2MB)         1280m (512kB) Opt. 5120m (2MB)         2560m (1MB) Opt. 10240m (8MB)           Opt. (by CF Card)         Opt. (by CF card)         Std. (by CF card)           Std.         Std.         Std.           200 (with AICC-2)         200         600 (Opt. 1000 by HSP)           10.4"         10.4"         10.4"           Manual guide i + VSS macros         Manual guide i         Manual guide i

### VICTOR'S FANUC 0i-MD/32i-B/31i-B Control SPECIFICATIONS

Small hole peck drilling cycle

Circular Interpolation by R Programming Program Stop / Program End

Std.

M00 / M01 / M02 / M30

1.	Controlled Axes	3 Axes (X, Y, Z)	31.	Reset	Std.	
	Simultaneous Controlled Axes	Position / Linear interpolation / Circular interpolation	32.	Scaling	G51	
	Least Input Increment	(3 / 3 / 2) 0.001 mm / 0.0001 inch / 0.001 deg.	33.	Coordinate System Rotation	G68	
	Least Input Increment 1 / 10	0.0001 mm / 0.00001 inch / 0.0001 deg.	Auxili	iary Spindle Speed Function  Auxiliary Function Lock	Std.	
5.	Max, command value	± 99999.999mm (± 9999.9999in)	2.	High Speed M / S / T Interface	Std.	
5. 7	Fine Acceleration & Deceleration Control  High Speed HRV Control	Std.	3.	Spindle Speed Function	Std.	
3.	Inch / Metric Conversion	Std. (G20 / G21)	4.	Spindle Override	50 ~ 120%	
).	Interlock	All Axes / Each Axis / Cutting Block Start	6.	1st Spindle Orientation  M Code Function	Std. M3 digit	
10.	Machine Lock	All Axes / Each Axis	7.	S Code Function	S5 digit	
11. 12.	Emergency Stop Over-travel	Std. Std.	8.	T Code Function	T2 digit	
13.	Stored Stroke Check 1 and Check 2	Std.	9. Tool 5	Rigid tapping	Std.	
14.	Mirror Image	Each Axis	1001 F	Function & Tool Compensation  Tool Function	T8 digit	
15.	Mirror Image M73, M74, M75, M76 Follow-up	X, Y Axes Std.	2.	Tool Offset Pairs	± 6-digit, 400 (0i/	32i), 999 (31i)
17.	Position switch (with Victo's own PLC)	Std.	3.	Tool Offset Memory C	Std. (D/H codes a	
Opera	ution		4.	Tool Length Compensation	G43-G44, G45-G Std.	48, G49
1.	Automatic Operation	Std.		Cutting Compensation C racy Compensation	Sid.	
2.	MDI Operation  DNC Operation	MDI B	1.	Backlash Compensation	Rapid Traverse / 0	Cutting Feed
4.	DNC Operation  DNC Operation with Memory Card	Reader / Puncher Interface is Required PCMCIA Card Attachment is Required	2.	Stored Pitch Error Compensation	Std.	,
5.	Program Number Search	Std.	Edit 0	Operation		
5.	Sequence Number Search	Std.	1.	Part Program Storage Length (in total)	1280m (512KB) (0	
7.	Sequence Number comparison and stop	Std.	2.	Number of Registerable programs (in total)  Part Program Editing / Protect	400 (0i/32i),1000 Std.	(31)
3. 9.	Buffer Register Dry Run	Std. Std.	4.	Background Editing	Std.	
10.	Single Block	Std.	Settir	ng and Display		
11.	JOG Feed	Std.	1.	Status Display	Std.	
12.	Manual Reference Position Return	Std.	2.	Clock Function	Std.	
13.	Manual Handle Feed  Manual Handle Feed Rate	1 Unit / Each Path X1, X10, X100	3.	Current Position Display Program Display	Std.  Program name 31	l characters
15.	Z Axis Neglect	Std.	5.	Parameter Setting and Display	Std.	randotti 3
nterp	polation		6.	Self Diagnosis Function	Std.	
١.	Positioning	G00	7.	Alarm Display	Std.	
2.	Single Direction Positioning	G60	9.	Alarm History Display	25 Std.	
3. 4.	Exact Stop Mode Exact Stop	G61 G09	10.	Operation History Display Help Function	Std.	
5.	Linear Interpolation	G01	11.	Run Hour and Parts Count Display	Std.	
5.	Circular Interpolation	G02, G03 (multi-quadrant is possible).	12.	Actual Cutting Feedrate Display	Std.	
7.	Dwell	G04	13. 14.	Display of Spindle Speed and T Code At All Screens	Std.	
3. 9.	Helical interpolation Skip Function	Std. G31	15.	Graphic Function  Dynamic graphic display	Std.	
10.	Reference Position Return	G28	16.	Servo Setting Screen	Std.	
11.	Reference Position Return Check	G27	17.	Spindle Setting Screen	Std.	
12.	2 <sup>nd</sup> / 3 <sup>nd</sup> / 4 <sup>th</sup> Reference Position Return	Std.	18. 19.	Display of Hardware and Software Configuration  Multi-Language Display	Std.	
Feed	Decid Traverse Date	Std.	20.	Data Protection Key	Std.	
2	Rapid Traverse Rate  Rapid Traverse Override	F0, 25%, 50%, 100%	21.	Erase CRT Screen Display	Std.	
3.	Feed Per Minute	G94 (mm / min)	22.	Machining Condition Selecting Screen	Std.	
4.	Tangential Speed Constant Control	Std.	23.	Color LCD / MDI	10.4" (0i/32i/31i)	
5.	Cutting Feed rate Clamp  Automatic Acceleration / Deceleration	Std.	Data	Input / Output  Reader / Puncher Interface	RS-232 interface	
7	Rapid traverse Bell-shaped Acc. / Deceleration	Rapid traverse: linear; Cutting feed: exponential Std. (G00)	2.	External Work piece number search	9999	
3	Bell-shaped Acc. / Deceleration Before & After Cutting Feed	Std. (G01)	3.	Memory Card Interface	Std.	
2	Interpolation  Automatic Corner Deceleration	Std. (G64)	4.	Embedded Ethernet (10Mbps)	Std.	
10.	Linear Acc / Deceleration Before & After Cutting Feed Interpolatio					
11.	Feed rate Override	0 ~ 150%	OP.	TIONS		
12.	Jog Override	0 ~ 100%	ITEM	SPECIFICATION		DESCRIPTI
13.	Automatic Corner Override Feed Stop	G62.	- With	hardware included	0i-MD	32i-B
14. 15.	Al contour control (AICC, G05.1) (in total)	Std. 200 blocks (0i/32i with AICC-2)	1.	Conversational programming (Manual Guide I)	Std.	Std.
16.	AICC-2 + High speed processing (G05.1) (in total)	600 blocks (31i)	2	Conversational programming (Super Cap I)	N.A.	N.A.
17.	Jerk Control	Std. (31l)	3.	Data server (with PCB and CF card 1GB)		Ctul
18.	Rigid Tapping Bell-Shaped Acc./Deceleration	Std.	5.	Fast Ethernet (100Mbps, available in Data server)  Tool life management (2 buttons on control panel)	0	Std.
	Feed rate clamp by arc radius (G02/G03)	Std.	6.	Part Program Storage Length 5120m (2MB in total)	0	
Progr	ram Input  EIA / ISO Automatic Recognition	Chil	7.	Part Program Storage Length 8MB in total	N.A.	N.A.
1. 2.	EIA / ISO Automatic Recognition  Label Skip	Std.	8.	Program restart	0	0
3.	Parity Check	Std.	9.	Optional block skip 9 blocks		
4.	Control In / Out	Std.	10.	High Precision Contour Control (HPnanoCC, with RISC board)*1	N.A.	N.A.
5.	Optional Block Skip	1	12.	Profibus USB Device	Std.	Std.
7.	Max. Programmable Dimension Program Number	± 8-Digit O4-Digit	13.	5-axis simultaneous control	N.A.	N.A.
3.	Sequence Number	N5-Digit	Witho	out hardware included		
9.	Absolute / Incremental Programming	G90 / G91	14.	Al contour control II (AICC-2, G05.1, 200 blocks) *2	Std.	Std.
10.	(Pocket Calculator Type) Decimal Point Programming	Std.	15.	Look ahead block expansion (1000 blocks in total) *2	N.A.	N.A.
11.	Input Unit 10 Time Multiply Plane Selection	Std. G17, G18, G19	16.	Tool load monitoring (with Victor own PLC)	0	
13.	Rotary Axis Designation	Std.	17.	Programmable mirror image (G50.1)	0	
14.	Rotary Axis Roll-Over Function	Std.	19.	Bi-directional Pitch Error Compensation  Addition of tool pairs for tool life management 512 sets	N.A.	
	Polar coordinate Command	G16	20.	Cylindrical interpolation (G7.1) (used on 4th-axis)	Std.	
	Coordinate System Setting	Std.	21.	Interruption type custom macro	N.A.	
16.	Automatic Coordinate System C-**		22	Addition of work-piece coordinate systems 300 sets	N.A.	N.A.
6. 7.	Automatic Coordinate System Setting  Work piece Coordinate System					
6. 7. 8.	Automatic Coordinate System Setting  Work piece Coordinate System  Addition of Workpiece Coordinate System Pair	G52, G53, G54 ~ G59 48 Pairs	23.	Exponential interpolation (G2.3)	N.A.	N.A.
6. 7. 8. 9.	Work piece Coordinate System	G52, G53, G54 ~ G59	23.	Smooth interpolation	N.A.	N.A.
6. 7. 8. 9.	Work piece Coordinate System Addition of Workpiece Coordinate System Pair Manual Basolute On And Off Optional Chamfering / Corner R	G52, G53, G54 ~ G59 48 Pairs Std. Std.	23. 24. 25.	Smooth interpolation Spiral/conical interpolation	N.A. N.A.	N.A. N.A.
16. 17. 18. 19. 20. 21.	Work piece Coordinate System Addition of Workpiece Coordinate System Pair Manual Absolute On And Off Optional Chamfering / Corner R Programmable Data Input	G52, G53, G54 - G59 48 Pairs Std. G10	23. 24. 25. 26.	Smooth interpolation Spiral/conical interpolation Polar coordinate interpolation	N.A. N.A. N.A.	N.A. N.A.
16. 17. 18. 19. 20. 21. 22.	Work piece Coordinate System Addition of Workpiece Coordinate System Pair Manual Absolute On And Off Optional Chamfering / Corner R Programmable Data Input Sub Program Call	G52, G53, G54 - G59  48 Pairs  Std.  Std.  G10  4 (0V32i) or 10 (31i) folds nested	23. 24. 25.	Smooth interpolation Spiral/conical interpolation	N.A. N.A.	N.A.
16. 17. 18. 19. 20. 21. 22. 23.	Work piece Coordinate System Addition of Workpiece Coordinate System Pair Manual Absolute On And Off Optional Chamfering / Corner R Programmable Data Input	G52, G53, G54 - G59 48 Pairs Std. G10	23. 24. 25. 26. 27. 28. 29.	Smooth interpolation Spiral/conical interpolation Polar coordinate interpolation Floating reference position return	N.A. N.A. N.A.	N.A. N.A. N.A.
15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27.	Work piece Coordinate System Addition of Workpiece Coordinate System Pair Manual Basolute On And Off Optional Chamfering / Corner R Programmable Data Input Sub Program Call Custom macro B	G52, G53, G54 - G59 48 Pars Std. Std. G10 4 (0/320) or 10 (31i) folds nested Std.	23. 24. 25. 26. 27. 28.	Smooth interpolation Spiral/Conical interpolation Polar coordinate interpolation Floating reference position return Hypothetical axis interpolation (G07)	N.A. N.A. N.A. N.A.	N.A.  N.A.  N.A.  N.A.  N.A.

Tilted work plane command (G68.2, STD for Vc-AX350)

DESCRIPTION

31i-B Std.

> Std.

Std.

□ (31i-B5)

<sup>11.</sup> Block addressing time:

- 2 ms for AICC-2 (0-ID/31-IB)
- 1 ms for IHPCC (max. cutting feed 60 m/min) (31I-B)

- 0.4ms for AI HPCC and AI nano HPCC (150m/min) (31I-B) and AICC-2+ High speed processing (31I-B)

## **Machine Specification**

Item		Units	Vcenter-H400	Vcenter-H500HS	Vcenter-H500
	X axis travel	inch	19.69	28.35	28.35
Capacity	Y axis travel	inch	23.6	25.59	25.59
	Z axis travel	inch	19.69	28.35	28.35
	Spindle nose to table center	inch	5.9-25.59	5.51-31.5	5.51-31.5
Distance	Spindle center to table surface	inch	3.15-26.77	1.97-29.53	1.97-29.53
	Max. part dimension (W x L x H)	inch	Ø23.6 x 29.53	Ø28.35 x 29.53	Ø28.35 x 29.53
	Table work area	inch	15.7 x 15.7	19.7 x 19.7	19.7 x 19.7
	Max. table pallet	lbs	886	1772	1772
	Surface configuration		M12 x P1.75	M16 x P2.0	M16 x P2.0
	Min. angle of rotation	deg.	1 (opt. 0.001 for CNC table)	1 (opt. 0.001 for CNC table)	1 (opt. 0.001 for CNC table)
Working Table	Pallet exchange time	sec	7 (P-P), 11.4 (C-C)	6.5 (P-P), 11 (C-C)	6.5 (P-P), 11 (C-C)
	Pallet exchange type		Rotary	Rotary	Rotary
	Time to index 90°	sec	3 (opt. 1.6 for CNC table)	3 (opt. 1.6 for CNC table)	3 (opt. 1.6 for CNC table)
	Time to index 180°	sec	5 (opt. 2.96 for CNC table)	5 (opt. 2.96 for CNC table)	5 (opt. 2.96 for CNC table)
	Spindle taper		BCV-40	CT-40	CT-50
	Spindle motor-cont/30min	HP	25/30 (high winding)	25/30 (high winding)	15/20 (opt. 20/25)
Spindle	Spindle speed	rpm	15000	15000	6000 (opt. 10000)
	Spindle bearing diameter	inch	2.76	2.76	4.33
	Rapid feed rate - X/Y/Z	IPM	1890/1890/1890	1181/1181/945	945/945/945
	Axis feed motor - X/Y/Z	HP	6/7.4/6	5.4/9.4/5.4	5.4/9.4/5.4
Axis feed	Cutting feed rate by table	IPM	394	394	394
AXIS ICCG	B axis feed motor	HP	2.1 (opt. 4 for CNC table)	2.1 (opt. 5.4 for CNC table)	2.1 (opt. 5.4 for CNC table)
	X/Y/Z ball screw (dia. X pitch)	inch	Ø1.57 x 0.47	Ø1.77 x 0.47	Ø1.77 x 0.47
	Boxway hardness		SNS 35/45/45	NRS 55/55/55	NRS 55/55/55
	Tool magazine capacity		60 Disk type	40 (opt. 60, 90) chain type	40 (opt. 60, 90, 120) chain type
	Tool selection		Random	Fix tool pot number	Fix tool pot number
	Max. tool dia. (without Adjacent tool)	inch	3.14 (4.9)	3.9 (7.87)	4.7 (9.45)
ATC & Tools	Max. tool length	inch	11.8	15.7	15.7
	Max. tool weight	lbs	15.5	15.5	44.3
	Tool exchanging Time	sec	1.8 (T-T), 4.5 (C-C)	4.1 (T-T), 8.5 (C-C)	6.8 (T-T), 10.6 (C-C)
	Pull stud angle	deg.	75°	90°	60°
	Standard CNC controller		0i-MD (10.4")	0i-MD (10.4")	0i-MD (10.4")
	Power requirement	KVA	44 (54 with CTS)	50 (60 with CTS)	50 (60 with CTS)
	Air pressure requirement	PSI	80~90	80~90	80~90
	Coolant tank	Gal	145	105	105
Machine	Chip disposal (with chip conveyor)		Rear	Front and left	Front and left
	Machine height	inch	101	115	115
	Floor space requirement	inch	101 x 209	173 x 212	173 x 212
	Machine weight	lbs	19944	27700	27700

#### Standard accessories:

- 1° indexing table
- Spindle oil cooler
- Coolant tank
- · Fully enclosed splash guard
- Manual pulse generator (remote type)
- Hand tools and tool box
- Scroll type chip removers (except Vcenter-H400)
- Built-in work lamp

- Programming end light
- · Leveling block
- · Automatic pallet changer
- · Spindle load meter
- Oil skimmer
- · Rigid tapping
- Air conditioner for electrical cabinet
- · Higher chip conveyor
- · Handy coolant gun

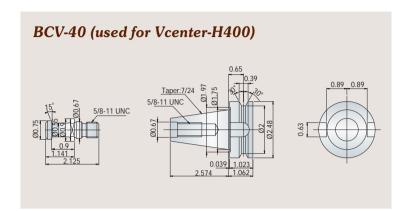
### Optional accessories:

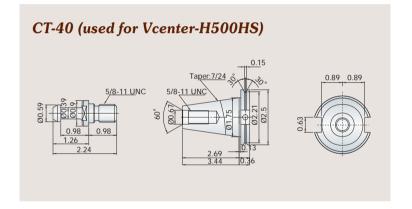
- Table shower system
- Coolant Through Spindle (CTS)
- CNC table with 0.001° continuous indexing
- 60, 90, 120 tool magazine
- T-slot pallet
- · Tool length measurement
- Workpiece measurement
- Linear encoder feedback

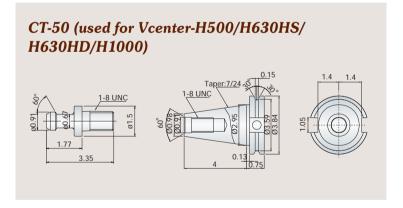


Vcenter-H630H\$	Vcenter-H630HD	Vcenter-H1000
39.37	35.43	53,15
33.46	31.50	41.34
35.43	27.95	46.87
2.95-36.4	7.87-35.8	8.66-50.0
5.9-41.33	0-31.5	0-41.34
Ø39.37 x 45.27	34.6 x Ø47.2 x 36.6	Ø53.1 x 53.1
24.8 x 24.8	24.8 x 24.8	39.4 x 39.4
2640	2640	4400
M16 x P2.0	M16 x P2.0	M16 x P2.0
1 (opt. 0.001 for CNC table)	1 (opt. 0.001 for CNC table)	1 (opt. 0.001 for CNC table)
7 (P-P), 12 (C-C)	41 (chip-chip)	48 (chip-chip)
Rotary	Parallel	Parallel
3 (opt. 1.6 for CNC table)	5 (opt. 2 for CNC table)	8 (opt. 4 for CNC table)
5 (opt. 3 for CNC table)	7 (opt. 3 for CNC table)	10 (opt. 5 for CNC table)
CT-50 (opt. BCV-50)	CT-50	CT-50
33.5/40 (high winding)	20/24.8 (opt. 24.8/29.5)	24.8/29.5
10000	4500 (opt. 6000)	4500
3.94	3.94	3.94
1890/1890/1890	945/945/945	591/591/591 (opt. 787/787/591)
5.4/9.4/5.4	9.4/12/9.4	12/12/12
394	394	394
4 (opt. 4 for CNC table)	2.1 (opt. 5.4 for CNC table)	5.4 (opt. 9.4 for CNC table)
Ø1.77 x 0.47	Ø1.97 x 0.39	Ø2.17 x 0.39
RGW 55/55/55 (roller)	HRC 55	HRC 55
60 (opt. 90, 120)	60 (opt. 90, 120)	90 (opt. 120)
Fixed tool pot number	Fixed tool pot number	Fixed tool pot number
4.9 (9.84)	4.33 (9.64)	4.33 (9.64)
17.7	23.6	23.6
44.3	62.5	62.5
5.9 (T-T), 7.5 (C-C)	13.8 (T-T), 14.2 (C-C)	13.8 (T-T), 20.5 (C-C)
60°	60°	60°
0i-MD (10.4")	0i-MD (10.4")	0i-MD (10.4")
69 (79 with CTS)	40 (50 with CTS)	54 (60 with CTS)
80~90	80~90	80~90
145	132	159
Front and left	Left and front	Left and front
129	126	156
157 x 213	144 x 207	180 x 331
41470	39600	69120

## **Tool Specification**



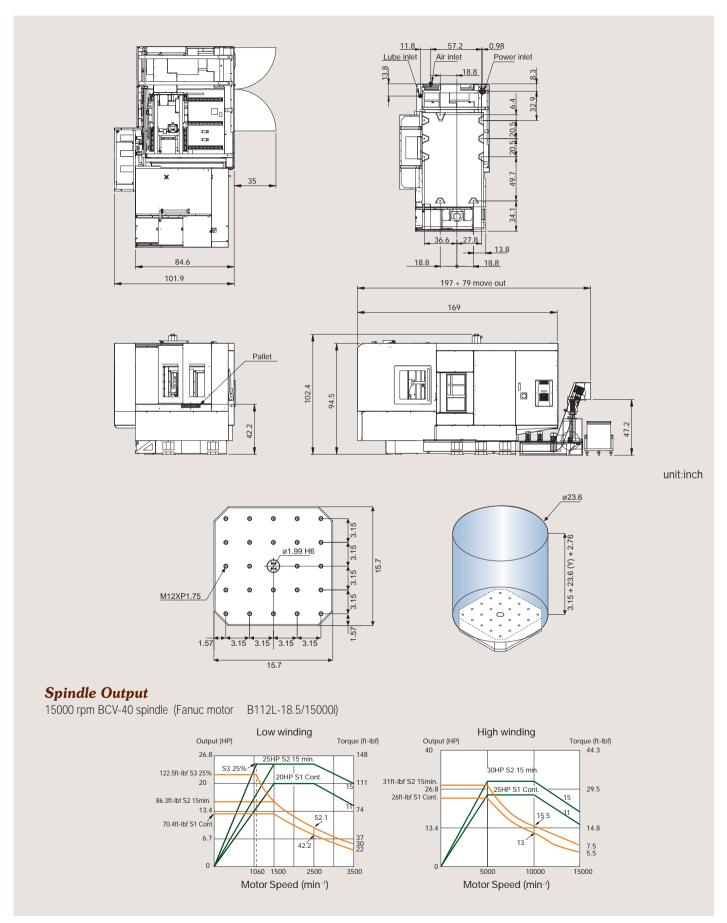




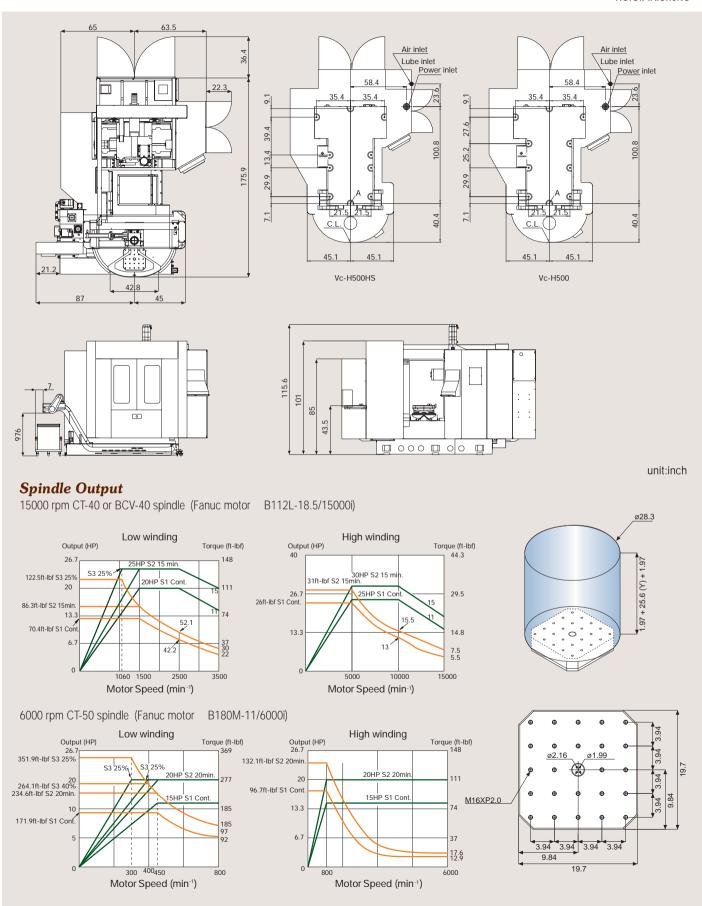
- Multi-face table (Tombstone fixture)
- Air blow system
- HSK-A63 tooling (Vcenter-H400/H500HS)
- 20000 rpm spindle (Vcenter-H400/H500HS)
- Hydraulic interface on APC (Vcenter-H400/ H500HS/H500/H630HS)



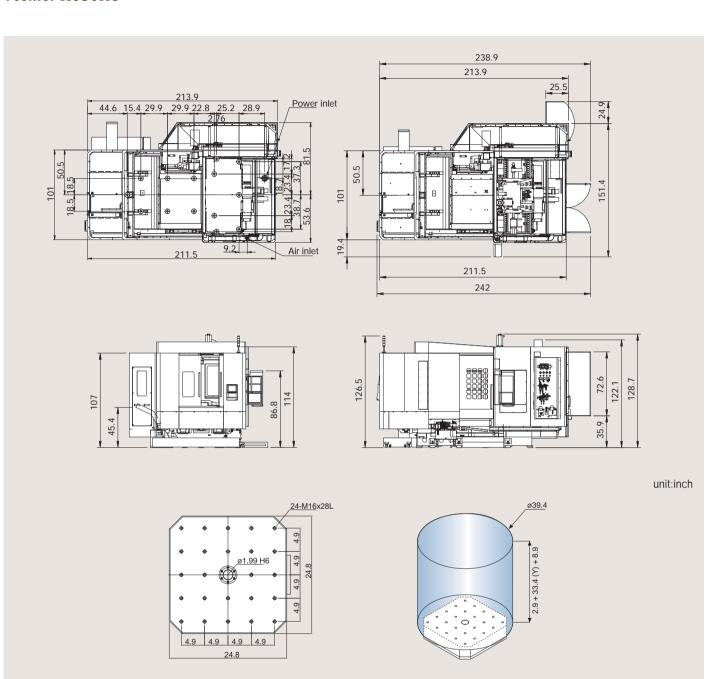
### Vcenter-H400







#### Vcenter-H630HS



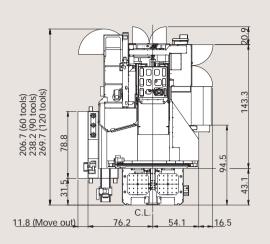
### Spindle Output

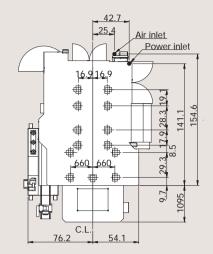
10000 rpm CT-50 spindle (Fanuc motor B160LL/13000i)

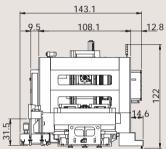


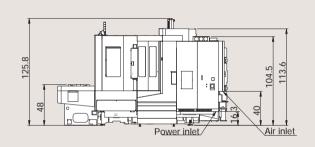




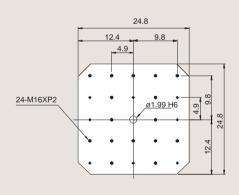


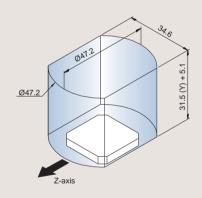






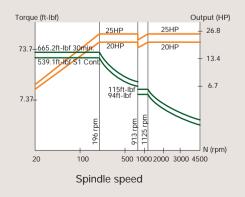
unit:inch

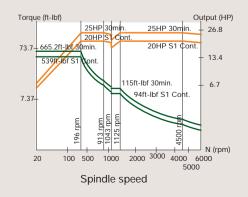


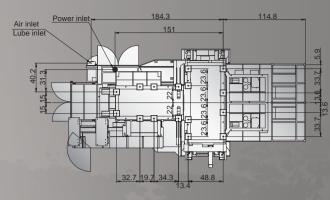


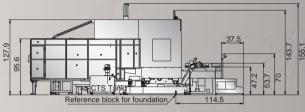
### **Spindle Output**

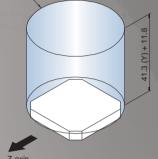
Spindle speed-output diagram



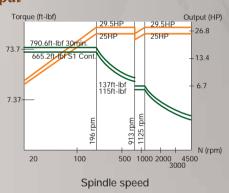


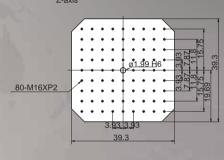






### Spindle Output





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#### R VictorTaichung profile: Sales turnover: USD 143 mil's (in 2013)\* No. of employees: 1091

VTL VMC





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\*Exchange rate: 1 USD=30 TWD.









unit:inch

НМС

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