

Vcenter-205

High Versatility

- Long Fixed Table accommodates heavier loads and long parts.
- Traveling Column provides excellent access to work area.
- Easy installation for rotary tables or hydraulic fixtures.

High Productivity

- Rapid feed X/Y/Z-30/30/30 m/min reduces spindle idle time.
- Directly Coupled Spindle avoids belt vibration for better finish.
- Central Partition enables higher production than VMC with 2-pallet APC.



HIGHEST PRODUCTIVITY AND RELIABILITY

Designed by following extensive research and feedback from numerous machine tool users, Victor's new Vcenter-205 has been designed with a long fixed table to provide multi-tasking machining precision with 30 m/min rapid traverse in all axes. The traveling column enables pendulum loading and machining in cycle to reduce load/unload times and to maximize spindle utilization.

Directly-coupled Spindle (DCS) with high torque spindle motor

- Spindle motor is directly coupled to the spindle to avoid the vibration resulted from belts and enhance surface finish on components.
- 12000 rpm spindle speed with dual winding for high torque output implements high speed machining at high feed rate.
- Oil-air lubrication with filtration system is used for spindle bearing.
- Air curtain has been added to constantly give the spindle an extra coat of protection.



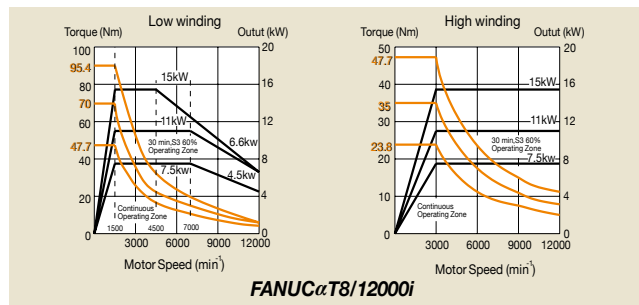
Spindle oil cooler (Optional)

- While the spindle structure is built for the maximum rigidity, the spindle oil cooler can be installed optional to ensure the long bearing life.
- Cooling oil circulates around the spindle cartridge constantly to maintain the low temperature during the spindle rotation.



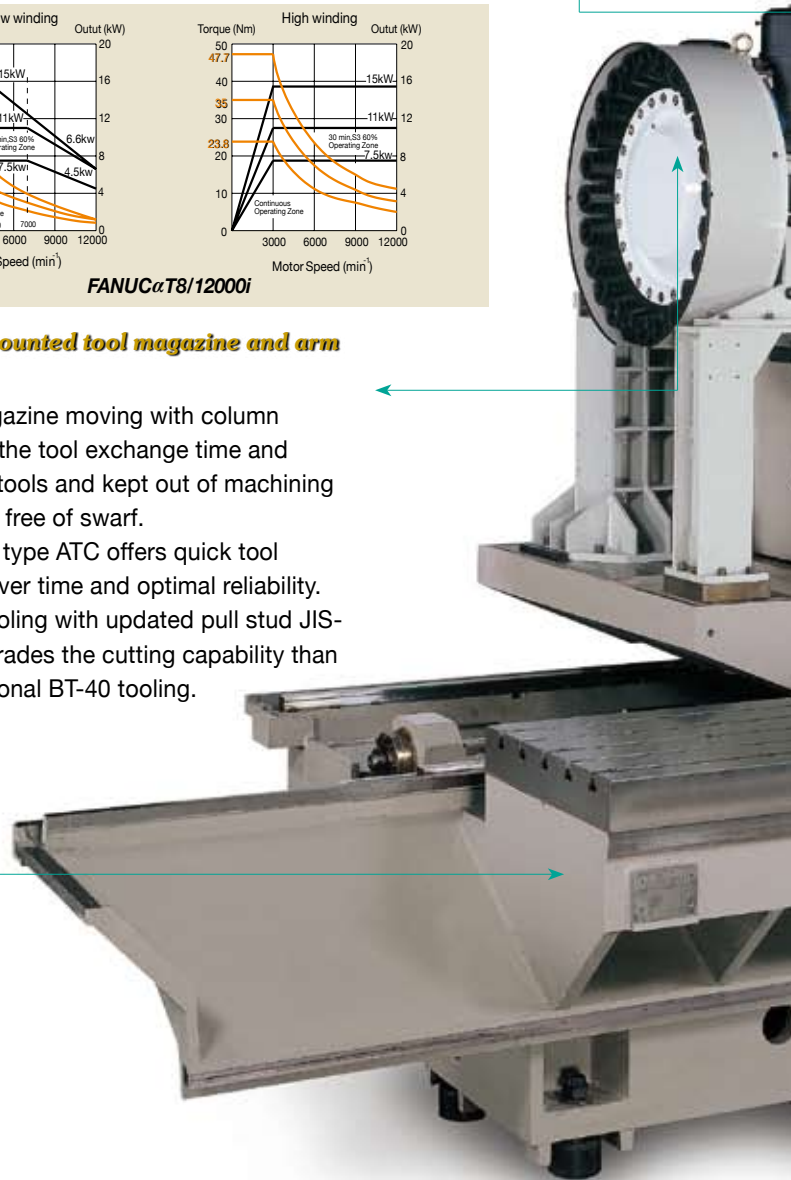
High rigidity dynamic structure

- Heavy-duty Meehanite® castings from Victor's licensed Meehanite foundry are used in the bed and column for maximum damping and strength.
- One piece bed castings with a heavily ribbed column minimizes machine distortion.
- CAE (computer aided engineering) design results in a maximum stiffness to ensure the minimum overhang distortion for all Y-axis traveling range 550 mm.



Column-mounted tool magazine and arm type ATC

- Tool magazine moving with column reduces the tool exchange time and ensures tools kept out of machining area and free of swarf.
- Two arm type ATC offers quick tool changeover time and optimal reliability.
- BT-40 tooling with updated pull stud JIS-40P upgrades the cutting capability than conventional BT-40 tooling.



Traveling Column with 30 m/min rapid feed

- C-framed traveling column features easy access to load/unload the components.
- Rapid feed rate 30/30/30 m/min for 3 axes with scissor type telescopic guarding reduces spindle idle time with reliable quality guaranteed.
- Less interference between tool magazine and working area by moving the column backward.



Long Fixed Table

- Fixed worktable assures the evenly distributed loading and features for uniform accuracy at full stroke of X-axis travel even when oversized parts of off-center parts are loaded.
- Easy installation for the 4th axis rotary tables or hydraulic fixtures which cannot be activated for conventional VMC with 2 pallet APC (Auto Pallet Changer).

High damping guide ways with high stiffness

- Ballscrew holders are cast into the machine for even more rigidity and strength. This ensures a constant support for the ballscrews over the entire machine life.
- Large diameter (ø40 mm) ball screws and big size linear guides (width 45 mm) with retainer (model SHS) ensure the high structure stiffness during machining.
- Direct coupled servo motors eliminate motor backlash and noise caused by misalignment.



Victor NC Package

- Fanuc 0i-M / 21i-M / 18i-M controllers to meet various requirement for batch production or high speed machining.
- Heidenhain iTNC-530 controller with user-friendly conversational function to meet mold manufacturing requirement.



HIGH VERSATILITY THROUGH A WIDE RANGE OF SET-UPS

With a central partition guarding installed, the Vcenter-205 can effectively be turned into two smaller vertical machining centers, machining on one side while loading or unloading parts on the other side.



Two-door design

Pendulum machining by Central Partition System

- With the central partition guarding installed, the spindle can effectively machine on one side while loading or unloading parts on the other side.
- X-axis travel limit is automatically set up by interlock when partition guarding installed, and the machining area are split into the right and left area.
- The interlock function assures safe setup for one side while machining is made in the other side.
- Central Partition System features higher productivity than that of vertical machining center equipped with a 2-pallet APC.

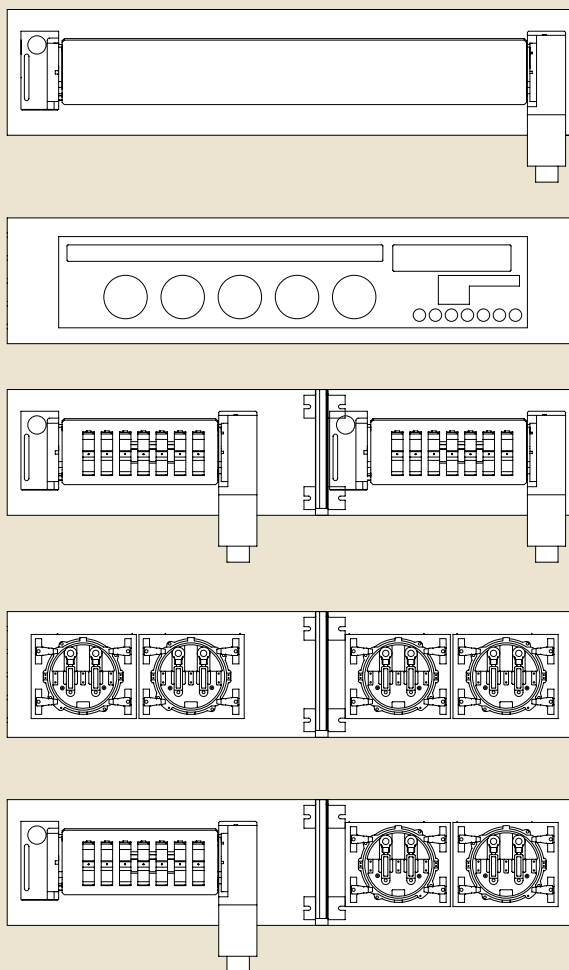
Easy installation for the 4th/5th axis tables and fixtures

- With a central partition guarding installed, the long table can be mounted with two fixtures or two CNC controlled tables.
- No complicated wiring and cabling involved as the conventional VMC with 2-pallet APC, the fixed table facilitates the ultimate reliability and much heavier loading on the tables.
- Rapid traverse speed 30 m/min by traveling column further offers much higher productivity than conventional VMC with 2-pallet APC.

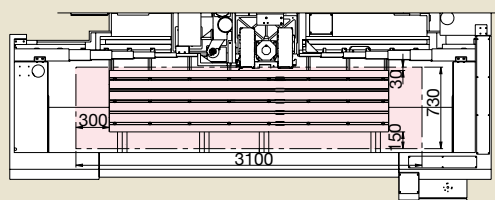


Advantages of Long Fixed Table with Traveling Column:

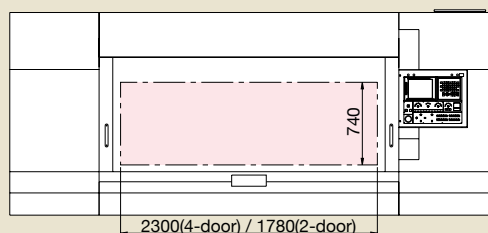
Full Table	with one part loaded
Full Table	with many parts loaded
Split Table	with two identical parts loaded for two different operations
Split Table	with two identical set-ups for the same operations (with or without rotary tables or fixtures)
Split Table	with two different setups for two different operations.



Optimized design for part loading

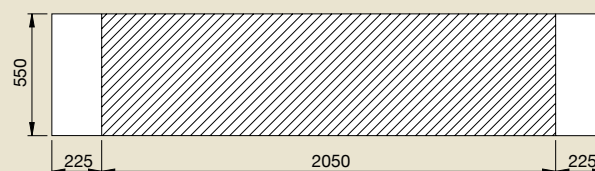


Loading from the top

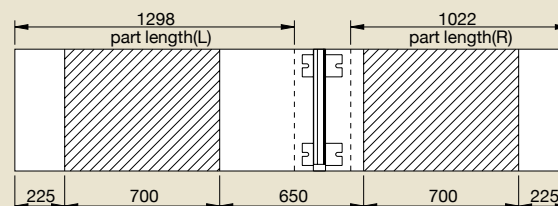


Loading from the front

Maximum machining range



Partition guarding is removed



Partition guarding is installed

OPTIONS

32 or 40 tool magazine

Optional 32 (or 40) servo driven tool magazine enables pendulum machining on two split tables for different set-ups or two different applications.



Coolant Through Spindle (CTS)

For improved deep hole drilling and boring capability, coolant can be forced through the center of the spindle under the high pressure (20 bars/60Hz by Grundfos pump CRK2-180) directly to the cutting area. To ensure long and reliable running of this system, fine particles produced during machining must be filtered out to prevent damage to the spindle. Victor's customized cleaning system by centrifugal dispersion or replaceable filter cores is far more reliable with less maintenance than conventional system to avoid the fine particles flowing into the spindle.



Stop block for oil hole coolant

As an alternative to CTS, it is possible to supply coolant through the tool holder by using an adaptor (stop block) located on the spindle nose. High pressure(coolants) can be supplied with no need for higher cost filter system as coolant bypassed the spindle.



Auto tool length measurement

To reduce tool set-up time, Victor offers two automatic tool length measuring systems:

Simple tool length measurement

Metrol system T-20B is mostly used for tapping and drilling as the probe only measures the tool length.

Advance tool length measurement

Renishaw system TS-27R offers further advancement with the probe capable of measuring both tool lengths and diameters. This system is ideal for batch production where tools need to be constantly changed or replaced.

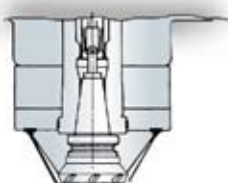
Linear scales for improved repeatability

Linear scales offer exceptional positioning accuracy up to 0.005mm over full stroke. Only Heidenhain linear scales with a thermal behavior similar to that of the machine are selected to compensate for the thermal expansion and to enhance repeatability. Sealed encoders with durable Aluminum housing offer improved reliability and service life.

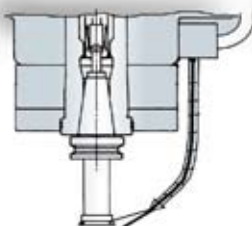


Coolant Options

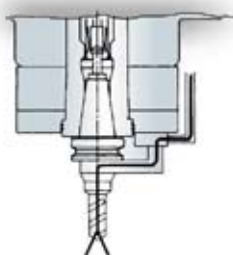
Std. - coolant ring
Purpose - general



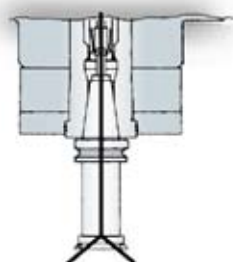
Opt. - directional pipe
Purpose - general



Opt. - oil hole coolant
Purpose - drilling, boring



Opt. - thru. spindle coolant
Purpose - drilling, boring

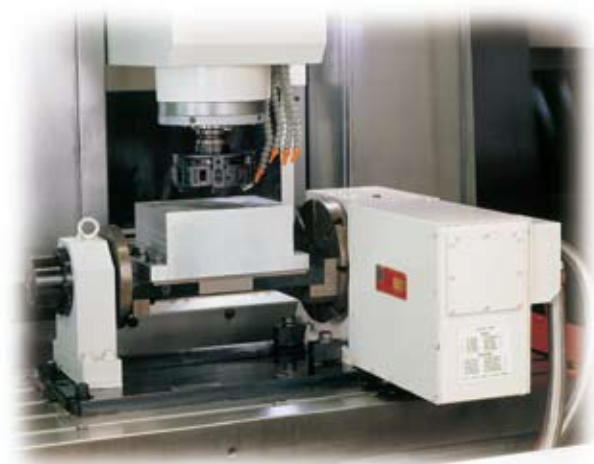


Opt. - oil mist
Purpose - tapping, reaming



4th/5th axis CNC rotary or tilting tables

Making the full use of the long fixed table feature, CNC rotary tables can be easily installed to improve the application range. Four axes simultaneous machining for multiple faces can be realized with a single set-up. When two CNC rotary tables are required, the controller has to be upgraded to 21i-MB. The 5th axis table is also available with tilting as well as rotary function, FANUC 18i-MB5 or 16i control will be required for 5 axis simultaneous machining.



Workpiece measurement

To reduce time spent setting workpiece positions and then manually inspecting finished parts, automatic workpiece measurement is available with the use of Renishaw MP-10 or OMP-60 measuring probes. The 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-process checking can be performed on the machine to maintain tight tolerance after rough machining.

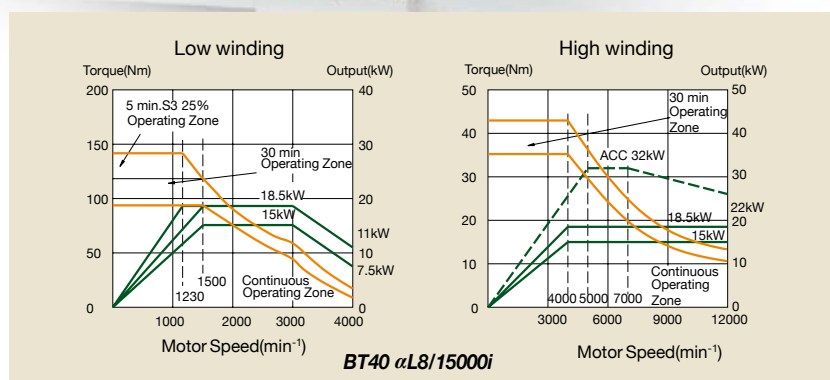
Non-central Partition System

In case the central partition guarding is required to be located in different location for different setups, the partition guarding can also be re-located with the guarding options. However, two doors and the according moving stroke are unchanged to avoid any possibility for coolant leakage.



Higher power spindle

To meet heavier cutting requirement, the DCS spindle can be upgraded to higher power spindle motor or higher speed spindle.



VICTOR NC PACKAGE

Fanuc 0i/21i/18i control

With 8.4" color display included as standard on Victor's package, Fanuc 0i-MC control is capable of addressing look-ahead up to 20 blocks to offer optimal reliability with the highest level of machine integration. A strong machine with PLC developed in-house by highly experienced engineers, Vcenter-205 offers numerous safety features and maximizes the machine efficiency to meet the demands for most productions.



For higher speed and precision, the controller can be upgraded to 21i-MB or 18i-MB controls. AI contouring control is offered as standard with 80 blocks of look-ahead addressing and 10.4" color display, Victor's Fanuc 21i-MB facilitates faster cutting feeds and more precise control over servo acceleration to minimize workpiece gouging. For specific requirement on the workpiece surface finish, the controller can be further upgraded to Fanuc 18i-MB control which is capable of addressing 180 blocks. Conversational function "Manual Guide i" and 320MB ATA card are included in Victor's NC package for 18i-MB.



Heidenhain iTNC-530 control

Powerful dialog programming Smart NC® with fully alphanumeric keyboard, Heidenhain controls are also available on Vcenter machines. Without remembering complicated G codes, sophisticated graphic functions with 15" TFT monitor make programming check easy. Heidenhain i TNC-530 is capable of addressing 256 blocks for high speed machining and 4 axis simultaneous control.



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

Controller Feature	Fanuc		Heidenhain
	21i-MB	18i-MB	iTNC-530
Block addressing time	2 ms	2 ms (opt. 1 ms, 0.4 ms)	3.6 ms (opt. 0.5 ms)
Data storage	1280 m (512 KB)	2560 m (512 KB)	256 KB+26 GB
Data server	Opt. (by ATA or CF card)	Std. (with CF card 1GB)	Hard disk (30 GB)
Ethernet link	Opt. (Avail. with data server)	Std.	Std.
Preview control (look ahead)	80	180 (opt. 600)	256
Graphic display	10.4" LCD	10.4" LCD	15"
Conversational function	Manual guide i	Manual guide i	smart NC
PCMCIA port	Std.	Std.	N.A.
NURBS interpolation	N.A.	Opt.	Opt.

VICTOR's FANUC 0i-MC / 21i-MB / 18i-MB Control SPECIFICATIONS

Standard



ITEM SPECIFICATION

DESCRIPTION

Controlled Axes:

1. Controlled Axes	3 Axes (X, Y, Z)
2. Simultaneous Controlled Axes	Position / Linear Interpolation / Circular Interpolation (3 / 3 / 2)
3. Least Input Increment	0.001 mm / 0.0001 inch / 0.001 deg.
4. Least Input Increment 1 / 10	0.0001 mm / 0.00001 inch / 0.0001 deg.
5. Max. Command Value	±99999.999 mm (±9999.9999 in)
6. Fine Acceleration & Deceleration Control	Std.
7. High Speed HRV Control	Std.
8. Inch / Metric Conversion	Std. (G20 / G21)
9. Interlock	All Axes / Each Axis / Cutting Block Start
10. Machine Lock	All Axes / Each Axis
11. Emergency Stop	Std.
12. Over-Travel	Std.
13. Stored Stroke Check 1 And Check 2	Std.
14. Mirror Image	Each Axis
15. Mirror Image M73, M74, M75, M76	X, Y Axes
16. Follow-Up	Std.
17. Position Switch (With Victor's Own PLC)	Std.

Operation:

1. Automatic Operation	Std.
2. MDI Operation	MDI B
3. DNC Operation	Reader / Puncher Interface Is Required
4. DNC Operation With Memory Card	PCMCIA Card Attachment Is Required
5. Program Number Search	Std.
6. Sequence Number Search	Std.
7. Sequence Number Comparison And Stop	Std.
8. Buffer Register	Std.
9. Dry Run	Std.
10. Single Block	Std.
11. Jog Feed	Std.
12. Manual Reference Position Return	Std.
13. Manual Handle Feed	1 Unit / Each Path
14. Manual Handle Feed Rate	X1, X10, X100
15. Z Axis Neglect	Std.

Interpolation:

1. Positioning	G00
2. Single Direction Positioning	G60
3. Exact Stop Mode	G61
4. Exact Stop	G09
5. Linear Interpolation	G01
6. Circular Interpolation	G02, G03 (Multi-Quadrant Is Possible)
7. Dwell	G04
8. Polar Coordinate Interpolation	G12.1 (Only Available On 18i-M)
9. Helical Interpolation	Std.
10. Skip Function	G31
11. Reference Position Return	G28
12. Reference Position Return Check	G27
13. 2nd / 3rd / 4th Reference Position Return	Std.
14. Index Table Indexing	Std. (Only Available On HMC)

Feed:

1. Rapid Traverse Rate	Std.
2. Rapid Traverse Override	F0, 25%, 50%, 100%
3. Feed Per Minute	G94 (mm / min)
4. Tangential Speed Constant Control	Std.
5. Cutting Feed Rate Clamp	Std.
6. Automatic Acceleration / Deceleration	Rapid Traverse: Linear; Cutting Feed: Exponential
7. Rapid Traverse Bell-Shaped Acc. / Deceleration	Std. (G00)
8. Bell-Shaped Acc. / Deceleration Before & After Cutting Feed Interpolation	Std. (G01)
9. Automatic Corner Deceleration	Std. (G64)
10. Linear Acc / Deceleration Before & After Cutting Feed Interpolation	Std. (G01)
11. Feed Rate Override	0-150%
12. Jog Override	0-100%
13. Automatic Corner Override	G62.
14. Feed Stop	Std.
15. AI Contour Control (G05.1) (In Total)	40 (0) Blocks
16. AI Nano Contour Control (G05.1) (In Total)	80 (21), 180*1 (18) Blocks
17. Jerk Control	Std. (211 / 18) Only
18. Rigid Tapping Bell-Shaped Acc. / Deceleration	Std.
19. Feed Rate Clamp By Arc Radius (G02 / G03)	Std.

Program Input:

1. EIA / ISO Automatic Recognition	Std.
2. Label Skip	Std.
3. Parity Check	Std.
4. Control In / Out	Std.
5. Optional Block Skip	1
6. Max. Programmable Dimension	±8-Digit
7. Program Number	04-Digit
8. Sequence Number	N5-Digit
9. Absolute / Incremental Programming	G90 / G91
10. (Pocket Calculator Type) Decimal Point Programming	Std.
11. Input Unit 10 Time Multiply	Std.
12. Plane Selection	G17, G18, G19
13. Rotary Axis Designation	Std.
14. Rotary Axis Roll-Over Function	Std.
15. Polar Coordinate Command	G16.
16. Coordinate System Setting	Std.
17. Automatic Coordinate System Setting	Std.
18. Work Piece Coordinate System	G52, G53, G54-G59
19. Addition Of Work Piece Coordinate System Pair	48 Pairs
20. Manual Absolute On And Off	Std.
21. Optional Chamfering / Corner R	Std.
22. Programmable Data Input	G10
23. Sub Program Call	4 Folds Nested
24. Custom Macro B	Std.
25. Addition Of Custom Macro Common Variables	#100-#199, #500-#999
26. Canned Cycles For Milling	G73 / G74 / G76, G80-G89, G98 / G99
27. Small Whole Peck Drilling Cycle	G83
28. Circular Interpolation By R Programming	Std.
29. Program Format	FANUC Std. Format

30. Program Stop / Program End	M00 / M01 / M02 / M30
31. Reset	Std.
32. Scaling	G51
33. Coordinate System Rotation	G68

Auxiliary Spindle Speed Function:

1. Auxiliary Function Lock	Std.
2. High Speed M / S / T Interface	Std.
3. Spindle Speed Function	Std.
4. Spindle Override	50-120%
5. 1st Spindle Orientation	Std.
6. M Code Function	M3 Digit
7. S Code Function	S5 Digit
8. T Code Function	T2 Digit
9. Rigid Tapping	Std.

Tool Function & Tool Compensation:

1. Tool Function	T8 Digit
2. Tool Offset Pairs	±6-Digit, 400 (0 / 21), 999 (18)
3. Tool Offset Memory C	STD (D / H Codes Are Separated)
4. Tool Length Compensation	G43-G44, G45-G48, G49
5. Cutting Compensation C	Std.
6. Tool Management Function	For 1 Path, Tool 64 Pairs

Accuracy Compensation:

1. Backlash Compensation	Rapid Traverse / Cutting Feed
2. Stored Pitch Error Compensation	Std.
3. Bi-Directional Pitch Error Compensation	Std.

Edit Operation:

1. Part Program Storage Length (In Total)	640 m (256 Kbyte) (0), 1280 m (211 / 18)
2. Number Of Registered Programs (In Total)	400 (0 / 21), 1000 (18) Programs.
3. Part Program Editing / Protect	Std.
4. Background Editing	Std.
5. Machining Time Stamp	Std. (Only Available On 18i-M)

Setting And Display:

1. Status Display	Std.
2. Clock Function	Std.
3. Current Position Display	Std.
4. Program Display	Program Name 31 Characters
5. Parameter Setting And Display	Std.
6. Self Diagnosis Function	Std.
7. Alarm Display	Std.
8. Alarm History Display	25
9. Operation History Display	Std.
10. Help Function	Std.
11. Run Hour And Parts Count Display	Std.
12. Actual Cutting Feedrate Display	Std.
13. Display Of Spindle Speed And T Code At All Screens	Std.
14. Graphic Function	Std.
15. Dynamic Graphic Display	Std.
16. Servo Setting Screen	Std.
17. Spindle Setting Screen	Std.
18. Display Of Hardware And Software Configuration	Std.
19. Multi-Language Display	Std.
20. Data Protection Key	Std.
21. Erase CRT Screen Display	Std.
22. Machining Condition Selecting Screen	Std.
23. Color LCD / MDI	8.4" (0), 10.4" (0i-C2 / 211 / 18)

Data Input / Output:

1. Reader / Puncher Interface	RS-232 Interface
2. External Work Piece Number Search	9999
3. Memory Card Interface	Std.

Options

With Hardware Included:

	0i-MC	21i-MB	18i-MB
1. Conversational Programming (Manual Guide I)*2	□	Std.	Std.
2. Conversational Programming (Super Cap I)	N.A.	□	□
3. Data Server (With PCB And CF Card 1GB)	□	□	Std.
4. Embedded Ethernet (10 Mbps)	N.A.	Std.	Std.
5. Fast Ethernet (100 Mbps, Available In Data Server)	□	□	Std.
6. Tool Life Management	□	□	□
7. Part Program Storage Length 2560 mm (In Total)	N.A.	N.A.	□
8. Program Restart	□	□	□
9. Optional Block Skip 9 Blocks	□	□	□
10. High Precision Contour Control (With RISC Board)	N.A.	N.A.	180*1 Blocks
11. AI High Precision Contour Control (RISC)	N.A.	N.A.	600 Blocks
12. AI Nano High Precision Contour Control (RISC)	N.A.	N.A.	600 Blocks
13. Profibus	□	□	□
14. 5-Axis Simultaneous Control*3	N.A.	N.A.	□ (18i-MB5)

Without Hardware Included:

	0i-MC	21i-MB	18i-MB
15. Tool Load Monitoring (With Victor Own PLC)	□	□	□
16. Programmable Mirror Image (G50.1)	□	□	□
17. Addition Of Tool Pairs For Tool Life Management 512 Sets	N.A.	□	□
18. Cylindrical Interpolation (G7.1) (Used On 4th-Axis)	N.A.	□	□
19. Interruption Type Custom Macro	N.A.	□	□
20. Addition Of Work-Piece Coordinate Systems 300 Sets	N.A.	N.A.	□
21. Exponential Interpolation (G2.3)	N.A.	N.A.	□
22. Smooth Interpolation	N.A.	N.A.	□
23. Spiral / Conical Interpolation	N.A.	N.A.	□
24. Floating Reference Position Return	N.A.	N.A.	□
25. Hypothetical Axis Interpolation (G07)	N.A.	N.A.	□
26. Tool Retract And Return (G10.6 With Victor Own PLC)	N.A.	N.A.	□
27. NURBS Interpolation (Only Avail. In HPCC / RISC)	N.A.	N.A.	□

*1. Block Addressing Time:

- 2 ms For AI Nano CC (Max. Cutting Feed 30 m / min)

- 1 ms For HPCC (Max. Cutting Feed 60 m / min), AI HPCC And AI Nano HPCC (150 m / min)

*2. 0i-MC Manual Guide I Only Available On 10.4" LCD.

*3. Only Available On 18i-MB5 For 5 Axis Simultaneous Control Including HPCC (RISC)

MACHINE SPECIFICATION

Item		Units	Vcenter-205
Travel	X axis travel	mm	2050
	Y axis travel	mm	550
	Z axis travel	mm	560
Distance	Spindle center to column	mm	638
	Spindle nose to table surface	mm	180 ~ 740
Table	Table work area	mm	2500 x 550
	Dimension of T-slot	mm	5 x 18 x 100
	Max. table load	kg	1200
Spindle	Spindle taper		BT-40
	Spindle motor - cont / 30 / 10 min	kW	7.5 / 11 / 15 (opt. 15 / 18.5 / -)
	Spindle speed	rpm	12000
Feed rate	Rapid feed rate - X/Y/Z	m/min	30 / 30 / 30
	Axis feed motor - X/Y/Z	kW	4 / 3 / 4
	Cutting feedrate by table	m/min	7.5 (opt. 10)
	X ballscrew diameter	mm	50
	Y ballscrew diameter	mm	40
	Z ballscrew diameter	mm	40
	Linear guide width (X/Y/Z)	mm	45 / 45 / 45
Tools	Max. tool length	mm	350
	Max. tool weight	kg	8
	Magazine capacity		24 disc (opt. 32, 40)
	Max. tool diameter (without adjacent tools)	mm	ø80 (ø127)
	Tool exchange time	sec.	2.9 (T-T), 7.2 (C-C)
	Pull stud angle	deg.	15
	Tool selection method		Random
Machine	Power requirement	kVA	40
	Air pressure requirement	kg/cm ²	5.5 ~ 6.5
	Coolant tank capacity	L.	400 (opt. 600 with conveyor)
	Std. NC controller		FANUC 0i-MC
	Floor space requirement	mm	5300 x 3180
	Max. machine height	mm	2970
	Machine weight	kg	9050

Standard accessories

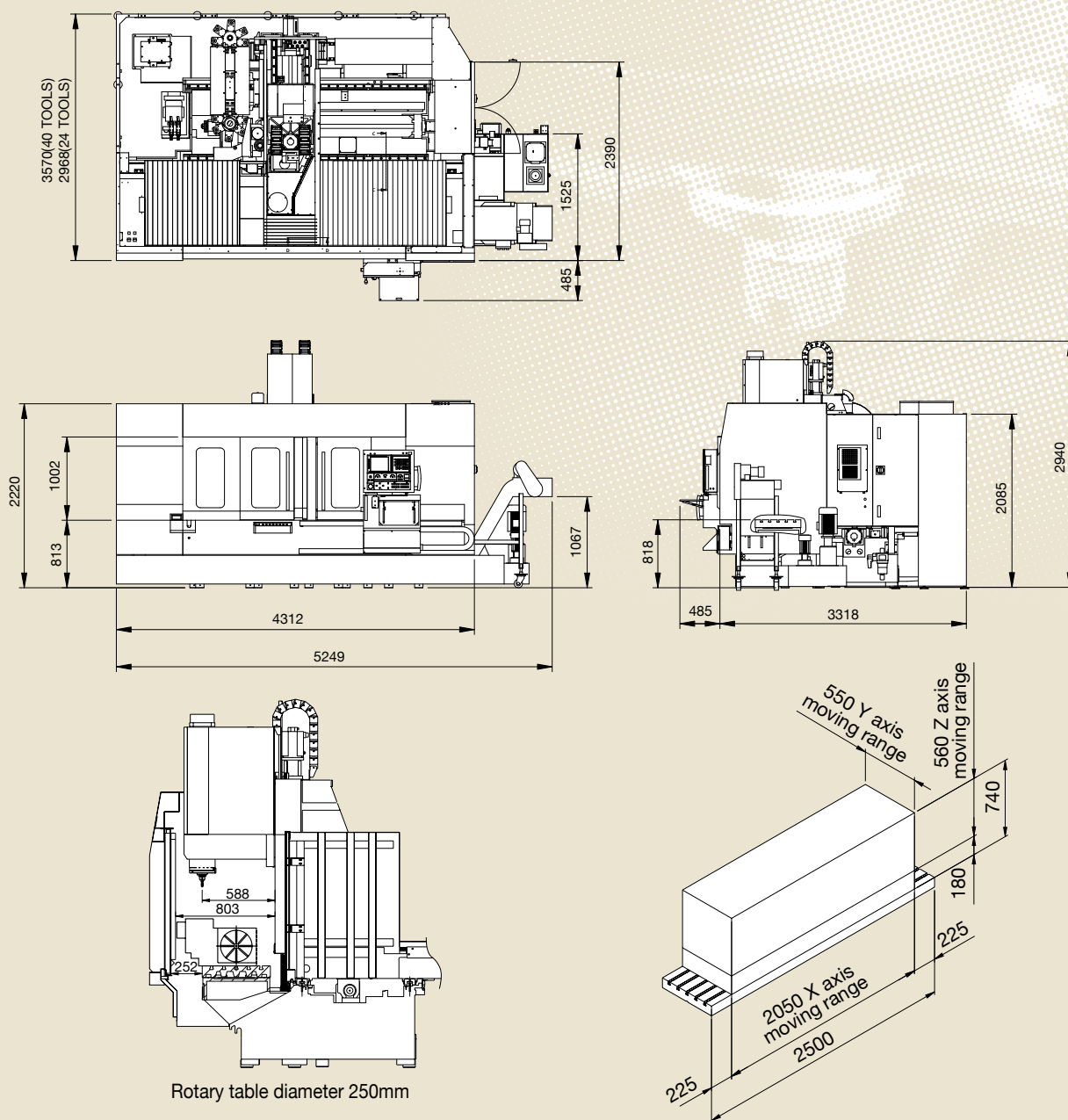
- Air dryer for DCS spindle
- Central partition system
- Fully enclosed splash guard
- Rigid tapping
- Remote MPG
- Hand tools and toolbox
- T nuts for table slot
- Built-in work light
- Auto power off system
- Leveling blocks
- Air conditioner for electric cabinet
- Moving CRT

Optional accessories

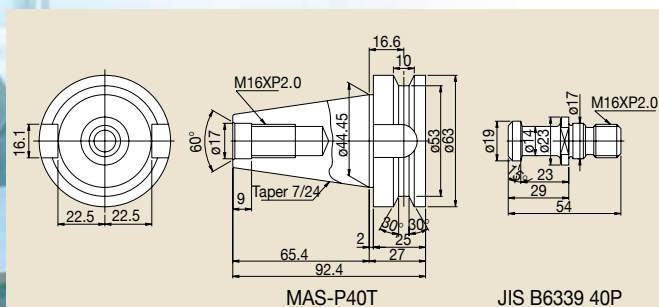
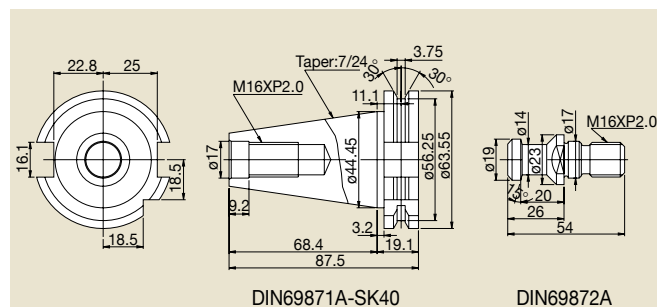
- Spindle oil cooler
- Chip conveyor with cart
- High-powered spindle motor
- Coolant through spindle
- Linear scale (X-axis)
- Auto tool length measurement
- Stop block for special tool
- 4th/5th axis interface
- Hydraulic interface
- Rotary tables
- 32 tool magazine

- Workpiece measurement
- Table shower system
- Auto door
- Fanuc 21i / 18i control
- SK-40 / CAT-40 tooling system
- Non-central partition system
- 2 Moving doors

MACHINE LAYOUT



TOOL SHANK

BT 40**SK 40**



Quality Meehanite Castings- The backbone of VICTOR machines.

Being both ISO 9001 approved and a Meehanite cast member, our foundry produces over 1000 tons of castings a month for both our own use and export to Japan.



Modern machining facilities- 65% of components manufactured in house.

To ensure greater control over the quality of our machined parts, VICTOR TAICHUNG has introduced 2 giant 5-side machining centers and 2 complete FMS lines developed in house.



Overseas subsidiaries solely dedicated to service of our own products.

To ensure a market for our products, VICTOR TAICHUNG has invested considerably in setting up a global distribution network. As well as numerous agents around the world, VICTOR TAICHUNG has 8 overseas subsidiaries in USA, England, France, Germany, South Africa, Malaysia, Thailand and China to provide our customers efficient after-sales service and technical supports.

Striving for the Future- The development of Factory automation.

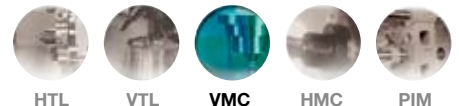
The design and production of complete machining turnkey system, from the single lathe & gantry robot cell to completely automated factory lines, ensures VICTOR TAICHUNG is ready to meet the demands of tomorrow.



VictorTaichung profile:
Sales turnover: USD 209.3 mil's (in 2007)*
No. of employees: 1171
*Exchange rate: 1 USD=32 TWD.



THE VICTOR-TAICHUNG COMPANIES



HTL

VTL

VMC

HMC

PIM

TAIWAN

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