VERTICAL MACHINING CENTER RANGE

The Vcenter Range Profile

Increased productivity with every machining

Victor Taichung – an established ISO 9001 & 14001 company
**Vcenter - 55/70/85A/102A**

High speed, high production machining centers that can make light work out of the most demanding of production schedules.

- Rapid feed rates of 36/36/24 m/min on Vcenter-55/70 and 36/36/20 m/min on Vcenter-85A/102A
- Tool changes of 1.5 seconds (T-T)
- 6000 rpm spindle with rigid tapping
- Bellows type guarding on 2 axis
- Large work table for 4th axis applications
- 3 axis linear motion slideways

**Vcenter - 85C/102C/110/130**

Machining centers that mix high production demands with heavy cutting conditions.

- Rapid feed rates of 36/36/18 m/min on Vcenter-85C/102C and 24/24/18 m/min on Vcenter-110/130
- Tool changes of 1.5 seconds
- Tool capacity of 24 tools
- Very large work table for 4th axis applications
- 6000 rpm spindle with heavy duty roller bearings
- Spindle oil cooler (optional for Vcenter-85C/102C)
- 2 axis box slideway

**Victor Tainchung’s Own Spindle Assembly**

- Spindle and headstock are both in-house designed and manufactured in the air conditioned assembly room to assure high quality and reliability.
- Every spindle has been inspected and tested with her own test record.
**Vcenter - 85B/102B/145/165**

Machining centers built to withstand the heaviest of today's cutting conditions.

- Heavy duty spindle roller bearings
- Bonded with low friction composite Turcite B
- All boxways with constant forced lubrication
- 2 speed gearbox for high torques at low rpm (optional for Vcenter-85B/102B)
- 3 axis box slideways

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**Vcenter - 55/70 APC**

Standard VMC with compact high speed APC

Front mounted APC allows easy access to both machine work area and pallet.

- Pallet loading capability of 200 kg for increased working range
- Pallet size 560 x 400 mm(Vcenter-55APC) / 720 x 400 mm(Vcenter-70APC) with bolt holes for work location
- Idle pallet is easily removed to allow use of additional pallets
- Hydraulic pallet clamping for max. stability during machining
- Direct mounted to machine for easy installation and reduced floor space
- Servo-driven rotary APC for fast pallet exchange 3 seconds (P-P)
- Front mounted APC with ergonomic design to allow easy operator access to pallet spindle and machine work area

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**Vertical Center Range**

- Dynamic Balancing
- GB Gauging
- Spindle Assembly
Maximum spindle heavy duty spindle
- A cartridge type spindle is used offering greater flexibility with a range of spindle configuration. Unlike our competitors, maximum support is offered around the spindle cartridge with a headstock casting that extends down as far as the spindle nose so that the bearing load areas are supported by the headstock as well as the cartridge.
- This heavy casting ensures any residual vibration is absorbed by the headstock rather than tooling only.
- Air curtain is included as standard to prevent the swarf getting into the spindle.
- Optional spindle oil cooler can be easily installed to offer constantly circulating cooling oil around the spindle cartridge.

Ram & Arm type ATC
- Rapid tool change is facilitated through the use of twin arm independent tool magazine with bidirectional random selection.
- The cam driven ATC offers optimal reliability and excellent service life.
- Side mounting of tool magazine ensures tools are kept out of machining area and free of swarf.

Direct coupled servo-motors
- To eliminate motor backlash all servo motors are direct coupled to the ballscrews while flexible couplings eliminate any noise due to minor misalignments encountered with other transmission systems.

Coolant flush onto bottom guarding
- High pressure coolant flushing away the swarf from the bottom guarding assures optimal chip disposal efficiency during machining.
- ‘A’ type telescopic cover to avoid the swarf accumulation.
Superior casting design
- Advanced Finite Element Analysis technique is used to develop the rib structure to meet strict requirements for fast feed rate.
- Machine bed and column are made of nodular gray iron providing optimal damping properties while all castings are carried out following Meehanite process.

VICTOR NC Package
- FANUC 0i / 32i / 31i controllers to meet various requirement for batch production or high speed machining.
- Heidenhein TNC-620 / 530 controller with user-friendly conversational function to meets mold manufacturing requirement.

Optional APC (Auto Pallet Changer)
- To eliminate idle time due to workpiece loading and unloading, double pallet APC is available.
- Rotary type APC front mounted on the machine offers quick change-over time 3 seconds (pallet to pallet) or 12.5 seconds (chip to chip) including air sealing detecting time to assure high reliability.
- Direct mounted to machine for easy installation and reduced floor space.

Front mounted Y-axis motor
- The Y axis servo motor is front mounted to reduce the overall length of the ballscrew thus reducing the thermal displacement and increasing structure rigidity.
Vcenter - 85 / 102 "ABC"

Innovative design with versatile models
A: All linear guides for 3 axes
B: Box slideways for 3 axes
C: Combined design with box slideway column

Efficient tool changer
- Twin arm type ATC performs better overall continuous tool changes compared with disc type tool changer, while at the same time offering faster tool change - merely 1.5 seconds with BT-40 tooling.
- Victor’s PLC design allows tools to be exchanged with oversized tools in a single time - no need to waste time with 2 separate tool changes.
- Optional BT-50 tooling with GEARBOX and 24 tool magazine enhances the machining power for heavy cutting (Model B).

Strong machine structure
- Stiffness enhanced column with big triangle bottom offers the maximum cutting stability whatever this machine is used with rapid feed (Model A) or with heavy cutting (Model B).
- Machine bed and saddle feature triangular cast structure to evenly distribute the machine loading, while cross diagonal ribbing in the column minimizes distortion and twisting during operation.
- All major structural components are made from Meehanite cast iron to ensure consistent homogenous castings.

Front mounted Y axis servo motor
- Superior structure stiffness with the optimal rail spacing 700 mm supports the long table at the travel end of X axis movement.
- THREE supporting blocks in each X-axis guide and 2 blocks in each Y-axis guide guarantees the accuracy requirement.
- The Y axis servo motor is front mounted to reduce the overall length of the ball screw thus reducing the thermal displacement and increasing structure rigidity.
**Versatile heavy duty spindle**

- The spindle is supported with heavy duty roller bearings with large contact areas that easily handle large axial and radial loads, while computer modeling helps determine bearing locations for maximum spindle stiffness.
- 8000 or 6000 rpm modularized spindle meets different machining demands.
- Optional 2-speed gearbox coupled with powerful spindle motor offers unrivalled metal removal rates. Oil cooling to the spindle and gearbox maintain low bearing temperature for extended spindle life.
- Optional spindle oil cooler can be easily installed to offer constantly circulating cooling oil around the spindle cartridge.

**Versatile slide ways for optimal dynamic stiffness**

- The box slideways (Models B, C) are cast into the machine 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.
- The plain bearings with large contact areas increases the dynamic stiffness and damping properties so the machine can handle high cutting feeds and heavier cuts.
- Forced lubrication and bonded Tucite-B further improves performance by eliminating stick slip characteristics normally inherent in plain bearings.
- Ball bar testing is used to verify machine accuracy in circular interpolation.

**Coolant flush onto bottom guarding**

- High pressure coolant flushing away the swarf from the bottom guarding assures optimal chip disposal efficiency during machining.
- "A" type telescopic cover to avoid the swarf accumulation. (for Models A/C)

**Minimizing the effects of thermal growth**

- Symmetrical design and construction means heat generation is limited to minimize the effects of thermal growth on machine accuracies.
- Double-anchored bell screws are pretensioned during assembly to absorb heat with minimal thermal growth.
- Effective chip evacuation from the machining area improves heat dissipation from the working area, while spindle oil cooling prevents excessive spindle growth.
Maximum spindle heavy duty spindle
- A cartridge type spindle is used offering greater flexibility with a range of spindle configuration. Unlike our competitors, maximum support is offered around the spindle cartridge with a headstock casting that extends down as far as the spindle nose so that the bearing load areas are supported by the headstock as well as the cartridge.
- The heavy casting ensures any residual vibration is absorbed by the headstock rather than tooling only.
- Air curtain is included as standard to prevent the swarf getting into the spindle.

24 tool magazine
- Twin arm type ATC with 24 tool magazine guarantees cutting flexibility for most applications.
- Optional 32 tool magazine (chain type) or BT-50 24 tool magazine with gearbox are both available.

Superior casting design
- Machine bed and column are made of nodular grey iron providing optimal damping properties while all castings are carried out following the Marinite process. Emphasis is placed on the rib structure rather than weight ratio is obtained.
- Advanced Finite Element Analysis technique is used to develop the rib structure to meet strict requirement for fast feed rate.

Spindle oil cooler (standard)
- While the spindle structure is built for maximum rigidity, it is also necessary to ensure maximum reliability and long bearing life. Cooling oil constantly circulates around the spindle cartridge to maintain the low temperature through the spindle rotation.
**Automatic forced lubrication**
- Lubricating oil is continuously supplied to all moving ways prolonging service life of the machine. Furthermore a drip supply of oil is provided to the ball screws for both lubrication and heat dissipation.
- The oil supply is continually monitored by the control system so that any drop in pressure or leak is automatically detected and an alarm given.
- A lip around the machine bed collects the excess oil so that it can be re-circulated.

**Three Y axis linear guides**
- Superior structure stiffness with the optimal rail spacing supports the long table at the travel end of X axis movement.
- THREE Y axis linear guide design minimizes table overhang deformation due to gravity.
- THREE supporting blocks in each X-axis guide and 2 blocks in each Y-axis guide with width 35 mm (Vcenter-110) / 45 mm (Vcenter-130) guarantees the accuracy requirement.

**Long Y axis travel with front mounted servo motor**
- Long travel 600 mm.
- The Y axis servo motor is front mounted to reduce the overall length of the ball screw thus reducing the thermal displacement and increasing structure rigidity.

**Coolant flush onto bottom guarding**
- High pressure coolant flushing away the swarf from the bottom guarding to assure optimal chip disposal efficiency during machining.
Vcenter - 145/165

Heavy duty spindle

- The spindle is supported with heavy duty roller bearings with large contact areas that easily handle large axial and radial loads, while computer modeling helps determine bearing locations for maximum spindle stiffness.
- The 2-speed gearbox coupled with powerful spindle motor offers unrivaled metal removal rates. Oil cooling to the spindle and gearbox maintain low bearing temperature for extended spindle life.

Efficient tool changer

- Twin arm type ATC with 24 tool disk magazine performs better overall continuous tool changes compared with disc type tool changer, while at the same time offering faster tool change: merely 4.9 seconds with BT-50 tooling.
- Victor's PLC design allows tools to be exchanged with oversized tools in a single time - no need to waste time with 2 separate tool changes.
- Optional 32 or 40 tool magazine is available.

Spindle oil cooler (standard)

- While the spindle structure is built for maximum rigidity, it is also necessary to ensure maximum reliability and long bearing life.
- Cooling oil constantly circulates around the spindle cartridge to maintain the low temperature during the spindle rotation.

Minimizing the effects of thermal growth

- Symmetrical design and construction means heat generation is limited to minimize the effects of thermal growth on machine accuracies. Double-anchored toolcarous are pretensioned during assembly to absorb heat with minimal thermal growth.
- Effective chip evacuation from the machining area improves heat dissipation from the working area, while spindle oil cooling prevents excessive spindle growth.
**Precision machine alignment**
- The traditional method of hand scraping remains the most effective way of ensuring squareness and flatness in machine tools using plain bearing linear ways.
- With over 50 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 skilled personnel, trained in-house, are employed to make sure this hand scraping is done to perfection.
- Ball bar testing is used to verify machine accuracy in circular interpolation.

**VICTOR NC Package**
- FANUC 0i / 32i / 31i controls meet various requirement for batch production or high speed machining.
- Heidenhain TNC-620/630/640 controller with user-friendly conversational function to meets mold manufacturing requirement.

**Box slideways for optimal dynamic stiffness**
- Especially 4 box slideways used on the Y-axis eliminate table overhang and stabilize machine performance.
- The box slideways are cast into the machine so no distortion occurs due to thermal differences between the slide-ways and machine casting to maintain alignment of the ways throughout the machine life.
- The plain bearings with large contact areas increase the dynamic stiffness and damping properties so the machine can handle high cutting feeds and heavier cuts.
- Forced lubrication and bonded Tufcote-B further improves performance by eliminating stick slip characteristics normally inherent in plain bearings.
**OPTIONS**

**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® OMP-60 measuring probe.

With the system provided by Victor 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, while for optimum accuracy in machining part inspection can be done after roughing so that finished part can maintain tight tolerances.

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**Linear scales for improved repeatability**
Linear scales offer exceptional positioning accuracy up to 0.005 mm over full stroke. Heidenhain® or Fagor® 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 Aluminium housing offer improved reliability and service life.

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**Automatic tool measurement**
To reduce tool set-up time and improve machine operator interface Victor offers 2 automatic tool measuring systems:

**Simple tool length measurement**
Metro system T-34E is mostly for tapping and drilling as the probe used only measures the tool length. This simple cost effective system greatly reduces tool set-up time by automatically inputting tool length values once the tool is tipped off the probe.

**Advanced tool 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.

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**4”-axis CNC rotary table**
To improve the machine’s application range, a CNC rotary table can be installed with which 4 axes simultaneous machining can be realized. This function can eliminate multiple set-ups allowing multiple faces to be machined with a single set-up.

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**5”-axis rotary table is also available with tilting as well as rotary function.**
Tilting B-axis is indexable with Fanuc 0 / 32i / 31i or full simultaneous rotation with Fanuc 31i-BS control.
Fully enclosed guarding with optional CE marking

The machine is designed to meet the strictest safety standards with fully enclosed guarding to prevent operator access to the machining area during operation and coolant leaks in using high pressure coolants. All electrical components meet CE mark requirements while optional door interlocks and magazine guarding bring the machine up to full CE standard.

Through spindle coolant

For improved deep drilling and boring capability, coolant can be forced through the center of the spindle under high pressure 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.

Oil hole coolant

As an alternative to through spindle coolant, it is possible to supply coolant through the toolholder, using an adaptor located on the spindle nose. High pressure (Grundfos pump SPK2-3 or MTH2-50/3) can be supplied with no need for sophisticated filter system as the coolant bypasses the spindle.

Coolant Options

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose - general</td>
<td>Purpose - general</td>
<td>Purpose - drilling, boring</td>
<td>Purpose - drilling, boring</td>
<td>Purpose - tapping, reaming</td>
</tr>
<tr>
<td>(Vcenter-145/165)</td>
<td>(Vcenter-55/70/85/102/110/130/165)</td>
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</tbody>
</table>
Victor Taichung's Own Spindle

6000/8000/10000 rpm belt-driven spindle
Our modular headstock design offers the options 6000 / 8000 / 10000 rpm belt-driven spindles as a cost effective solution for production work and job shops requiring high spindle speed.

- Rigid structure utilizing roller bearings for maximum radial support
- High torque output at low rpm
- Superior run-out under heavy cutting

12000/15000rpm directly coupled spindle
Without belt tension and noise, the directly coupled spindle (DCS) offers high speed cutting with minimal vibration for improved surface finish and accuracy. Oil cooling through the spindle cartridge minimizes thermal growth at high speed, and a separate air curtain circulated around the front bearings ensures bearing and motor are kept free of contamination for longer service life.

Gearbox for extra torque in heavy cutting
Victor Taichung offers gearbox circulated with the coolant oil to minimize noise at high speeds to prolong gear life. For high efficient power transmission, minimal backlash gears are used to guarantee smooth running.

Fanuc controller

**Belt-driven spindles (no gearbox):**

<table>
<thead>
<tr>
<th>Model</th>
<th>Spindle Motor</th>
<th>Base Speed (rpm)</th>
<th>Min. Speed (rpm)</th>
<th>P-Cont. (Kw)</th>
<th>T (min)</th>
<th>Torq. Cont. (Nm)</th>
<th>Torq. Max (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vc-65/150</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Opt. cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Vc-88A/B (cP12)</td>
<td>Vc-88A/B (cP12)</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Vc-110/130</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Vc-152/165</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>WC-150/165</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

**With gearbox (standard on Vc-145/165):**

<table>
<thead>
<tr>
<th>Model</th>
<th>Spindle Motor</th>
<th>Base Speed (rpm)</th>
<th>Min. Speed (rpm)</th>
<th>P-Cont. (Kw)</th>
<th>T (min)</th>
<th>Torq. Cont. (Nm)</th>
<th>Torq. Max (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vc-65/110/152</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Opt. cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Vc-145/165</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>WC-165/165</td>
<td>cP12</td>
<td>13000/15000</td>
<td>4500</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

Heidenhain controller

- Drehmomenten (Nm)
- Antriebs (Kw)
- P (KW)
- P (Cont)
- P (Max)
- Drehzahl (U/min)
- K (U/min)

**Model** | Power (KW) | Torque (Kg·M) | Speed (rpm) | Max. Torque (Kg·M) |
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Vc-65/100</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Vc-85/100</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Vc-110/130</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
Victor Taichung's NC Package

FANUC 0i/32i/31i controls
Guarantee reliability and stability from over 30 years experience
Having worked closely with FANUC since we developed our first CNC machine in 1978, our standard FANUC 0-M control package offers optimum reliability with the highest level of machine integration to meet the demands of most productions. With PLC developed in-house by highly experienced engineers, Victor Taichung's Vscenters offer numerous safety features and maximum machine efficiency. For higher speed and precision, the control option Data Server board can be installed to extend the memory length for upgrading the data transfer rate. The machine controller 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 ACC-2 with HSP function (High Speed Processing) to further reduce the block addressing time for better surface finish.

MGI (Manual Guide i) + VSS (Victor Smart Software) Macros
With the optional 10.4" color display included, Victor Taichung's FANUC control package includes conversational function MANUAL GUIDE i (MGI) to reduce the programming time for easier operation. Through the latest technology for AI contouring control (ACC), 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. Through exclusive software developed in-house, VSS macros (Victor GUI) enhance not only 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.

Heidenhain TNC-620/i530/640 controls
Powerful dialog programming with fully alphanumeric keyboard, Heidenhain control ITNC-530 are also available on Vscenter's range. Without remembering complicated G codes, sophisticated graphic functions with 15" TFT monitor make programming check easy. Heidenhain TNC-620/i530/640 controls are capable of addressing more than 1000 blocks and further make use of hard drive memory for advanced 4 or 5 axis simultaneous control.

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Controller</th>
<th>Fanuc</th>
<th>Heidenhain TNC-620</th>
<th>Heidenhain ITNC-530 HSCD</th>
<th>Heidenhain TNC-640</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block addressing time</td>
<td>4 ms (Opt. 2 ms by ACC)</td>
<td>2 ms</td>
<td>0.4 ms</td>
<td>1.5 ms</td>
<td>0.5 ms</td>
</tr>
<tr>
<td>Data storage</td>
<td>12800 (512MB)</td>
<td>12800 (512MB)</td>
<td>25600 (1MB)</td>
<td>Min. 2GB</td>
<td>Min. 2GB</td>
</tr>
<tr>
<td>Data server (Memory extension)</td>
<td>Opt. (by CF Card)</td>
<td>Opt. (by CF card)</td>
<td>Std.</td>
<td>9GB with CF card</td>
<td>Std. 21GB (by SSD)</td>
</tr>
<tr>
<td>Ethernet link</td>
<td>Std.</td>
<td>Std.</td>
<td>Std.</td>
<td>8 GB</td>
<td>144GB (by HPC)</td>
</tr>
<tr>
<td>Preview contouring (look ahead blocks)</td>
<td>40</td>
<td>200 (ACC-2)</td>
<td>600 (Opt. 1000 by HSP)</td>
<td>5000</td>
<td>1024</td>
</tr>
<tr>
<td>Graphic display</td>
<td>8.4&quot; (Opt. 10.4&quot;)</td>
<td>10.4&quot;</td>
<td>10.4&quot;</td>
<td>15&quot;</td>
<td>15&quot;</td>
</tr>
<tr>
<td>Data transfer interface</td>
<td>PCMCIA + USB</td>
<td>PCMCIA + USB</td>
<td>PCMCIA + USB</td>
<td>USB</td>
<td>USB</td>
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### Machine Specification

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Units</th>
<th>Vcenter-55</th>
<th>Vcenter-70</th>
<th>Vcenter-85A/B/C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X axis travel</td>
<td>mm</td>
<td>550</td>
<td>700</td>
<td>850</td>
</tr>
<tr>
<td>Y axis travel</td>
<td>mm</td>
<td>460 (430 for APC)</td>
<td>480 (430 for APC)</td>
<td>520 (opt. 600)</td>
</tr>
<tr>
<td>Z axis travel</td>
<td>mm</td>
<td>460</td>
<td>510</td>
<td>580</td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle center to column</td>
<td>mm</td>
<td>544.5</td>
<td>544.5</td>
<td>690</td>
</tr>
<tr>
<td>Spindle nose to table surface</td>
<td>mm</td>
<td>150 – 610</td>
<td>150 – 660</td>
<td>150 – 710</td>
</tr>
<tr>
<td>Table work area</td>
<td>mm</td>
<td>800 x 460</td>
<td>800 x 460</td>
<td>1100 x 510</td>
</tr>
<tr>
<td><strong>Table</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension of T-slot</td>
<td>mm</td>
<td>4 x 18 x 100</td>
<td>4 x 18 x 100</td>
<td>5 x 18 x 100</td>
</tr>
<tr>
<td>Max. table load</td>
<td>kg</td>
<td>300</td>
<td>500</td>
<td>750 (VC-85A/C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8000</td>
<td>8000</td>
<td>1000 (VC-85A/C)</td>
</tr>
<tr>
<td>Spindle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle motor-cont / 30 min</td>
<td>kW</td>
<td>5.5 / 7.5</td>
<td>5.5 / 7.5</td>
<td>5.5 / 7.5</td>
</tr>
</tbody>
</table>
| Spindle speed               | rpm   | 8000       | 8000       | 8000 (VC-85A)
|                            |       |            | 6000 (VC-85BC) |
| Rapid feed rate-X/Y/Z       | m/min | 36 / 36 / 24 (opt. 42 /42 /20) | 36 / 36 / 24 (opt. 42 /42 /20) | 36 / 36 / 20 (VC-85A) |
| Cutting feedrate by table   | m/min | 10         | 10         | 10              |
| X/Y ballscrew (dia. x pitch)| mm   | 40 x P16   | 40 x P16   | 40 x P12        |
| Z ballscrew                 | mm    | 40 x P12   | 40 x P12   | 40 x P10        |
| Max. tool length            | mm    | 250        | 250        | 300             |
| Max. tool weight            | kg    | 8          | 8          | 8               |
| Magazine capacity           |       | 24 (opt. 40) | 24 (opt. 40) | 24 (opt. 32, 40) |
| Max. tool diameter (without adjacent tools) | mm  | 80 (125)   | 80 (125)   | 80 (125)        |
| Tool exchanging time        | sec.  | 1.5 (T-T), 4.9 (C-C) | 1.5 (T-T), 4.9 (C-C) | 1.5 (T-T), 5.9 (C-C) |
| Pull stud angle             | deg.  | 90 (opt. 45) | 90 (opt. 45) | 90 (opt. 45)    |
| Tool selection method       |       | Random     | Random     | Random          |
| Power requirement (excl. CTS)| kVA | 23         | 23         | 23              |
| Min./Max. air pressure      | kg/cm²| 5.5 / 6.5  | 5.5 / 6.5  | 5.5 / 6.5       |
| Coolant tank capacity       | L     | 225        | 240        | 290             |

#### Machine

- **Std. NC controller:** FANUC 0i-M
- **Floor space requirement:** 1855 x 2350
- **Max. Machine height:** 2500
- **Net weight:** 4000

#### Tool shanks

**Tool shank (BT-40)**

**Tool shank (BT-50)**

### Standard accessories

- Fully enclosed splash guarding
- Hand tools and tool box
- T nuts for table slot
- Coolant flush on bottom guarding (except Vcenter-145)
- Built-in work light
- Spindle oil cooler (only for Vcenter-110/130/145/165)
- Auto power off system
- Leveling blocks
- Program and light
- Rigid tapping
- Alarm lamp

- Remote MPG
- Air conditioner for electrical cabinet
- Screw chip removers for Vcenter-165
- Air blow (by M-code control)
- Fanuc e-book (CD-ROM)
<table>
<thead>
<tr>
<th>Vcenter-102A/B/C</th>
<th>Vcenter-110</th>
<th>Vcenter-130</th>
<th>Vcenter-145</th>
<th>Vcenter-165</th>
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<tbody>
<tr>
<td>1000</td>
<td>1100</td>
<td>1300</td>
<td>1450</td>
<td>1650</td>
</tr>
<tr>
<td>520 (opt. 600)</td>
<td>600</td>
<td>600</td>
<td>700</td>
<td>850</td>
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<tr>
<td>560</td>
<td>560</td>
<td>610</td>
<td>700</td>
<td>900</td>
</tr>
<tr>
<td>600</td>
<td>600</td>
<td>600</td>
<td>725</td>
<td>850</td>
</tr>
<tr>
<td>150 ~ 710</td>
<td>180 ~ 740</td>
<td>155 ~ 765</td>
<td>200 ~ 900</td>
<td>200 ~ 1100</td>
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<td>1100 x 510</td>
<td>1400 x 550</td>
<td>1400 x 550</td>
<td>1650 x 650</td>
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<td>5 x 18 x 100</td>
<td>6 x 18 x 100</td>
<td>5 x 22 x 150</td>
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<td>7000 (VC-102A/C)</td>
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<td>800</td>
<td>2200</td>
<td>2500</td>
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<tr>
<td>10000 (VC-102B)</td>
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<td>BT-40</td>
<td>BT-40</td>
<td>BT-40</td>
<td>BT-50</td>
<td>BBT-50</td>
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<tr>
<td>7.5 / 9.0</td>
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<td>7.5 / 9.0</td>
<td>11 / 15</td>
<td>15 / 18.5</td>
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<td>6000</td>
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<td>24 / 24 / 18</td>
<td>24 / 24 / 18</td>
<td>18 / 18 / 15</td>
<td>20 / 20 / 18</td>
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<tr>
<td>36 / 36 / 18 (VC-102B)</td>
<td>24 / 24 / 18</td>
<td>24 / 24 / 18</td>
<td>18 / 18 / 15</td>
<td>20 / 20 / 18</td>
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<tr>
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<td>24 (opt. 32, 40)</td>
<td>24 (opt. 32, 40)</td>
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<tr>
<td>80 (125)</td>
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<td>110 (230)</td>
<td>127 (250)</td>
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<td>1.5 (T-T), 6.5 (C-C)</td>
<td>4.9 (T-T), 11 (C-C)</td>
<td>4.8 (T-T), 10.9 (C-C)</td>
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<td>23</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
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<td>5.5 / 6.5</td>
<td>5.5 / 6.5</td>
<td>5.5 ~ 6.5</td>
<td>5.5 ~ 6.5</td>
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<td>280</td>
<td>350</td>
<td>350</td>
<td>600 (2 x 300)</td>
<td>780</td>
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<td>FANUC Oi-M</td>
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<td>FANUC Oi-M</td>
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<td>3800 x 3765</td>
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<td>7800</td>
<td>13200</td>
<td>16420</td>
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</tbody>
</table>

**Optional accessories**

- Chip conveyor with cart
- Linear scale feedback
- (2 chip conveyors for Vcenter-145)
- Auto tool length measurement
- (Please specify when machining)
- Electrical counterbalance
- Aluminum or Cast Iron
- Workpiece measurement
- Spindle oil cooler
- 4th axis rotary table
- (for Vcenter-55/10/85/102)
- Higher column with spacer
- 2-step gearbox
- Table shower system
- (max. spindle speed 6000 rpm)
- Semi enclosed splash guarding
- High powered spindle motor
- (for Vcenter-145 only)
- Oil skimmer
- BT-50 tooling with gearbox
- Oil hole coolant
- (for Vcenter-85/102/110/130)
- Coolant through spindle
- Fanuc manuals
- Air blow system
Machine Dimension (mm)

**Vcenter-55/70/85/102/110/130**

- A: 784
- B: 1965/2090
- C: 2405/2952
- D: 1200
- E: 916
- F: 800
- G: 2253
- H: 2478
- I: 120
- J: 2992/2642
- K: 480

**Vcenter-55/85/102**

- A: 764
- B: 2450/2750
- C: 3200/3694
- D: 1958
- E: 919
- F: 800
- G: 2310
- H: 2400
- I: 90
- J: 2440/2640
- K: 450

**Vcenter-55APC (Vcenter-70APC)**

- A: 769
- B: 3200/3800
- C: 4232/4530
- D: 1968
- E: 975
- F: 889
- G: 2425
- H: 2625
- I: 155
- J: 2640/2920
- K: 600

**Vcenter-145**

- A: 1200
- B: 4276
- C: 5251
- D: 1421
- E: 3188
- F: 4225
- G: 1130
- H: 8722
- I: 2972
- J: 1980
- K: 2082
- L: 3617

**Vcenter-165**

- A: 1200
- B: 4276
- C: 5251
- D: 1421
- E: 3188
- F: 4225
- G: 1130
- H: 8722
- I: 2972
- J: 1980
- K: 2082
- L: 3617