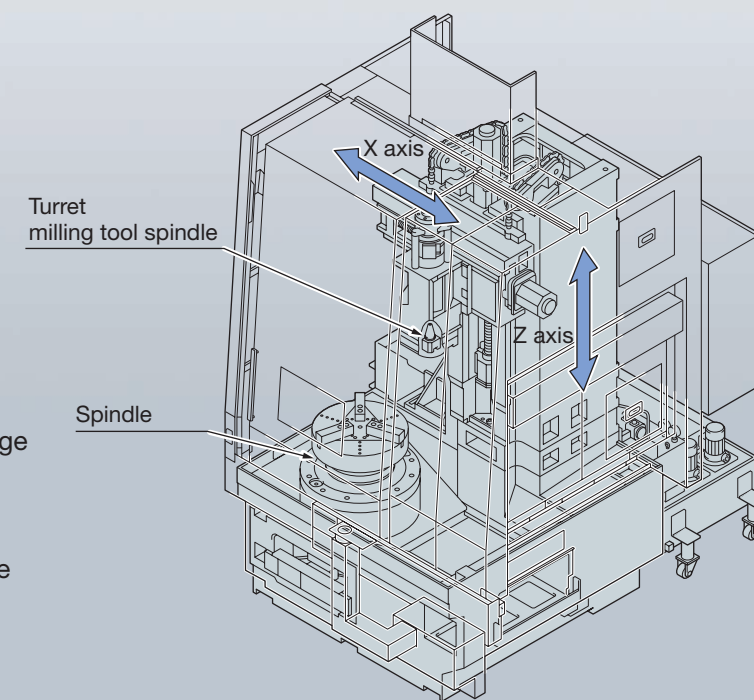


Large Vertical Multitasking Machines  
***VTM series***  
***VTM-65/100/200***



Large Vertical Multitasking Machines  
***VTM series***  
*VTM-65/100/200*

Turning and multitasking applications  
for the big diameter parts —  
growing globally



The VTM multitasking machines feature a flange structured spindle mounted to a highly rigid large bed, and a horizontally (X axis) moving turret (milling tool spindlehead) attached to the vertically moving (Z axis) saddle.

Some photos in this brochure include optional specifications.

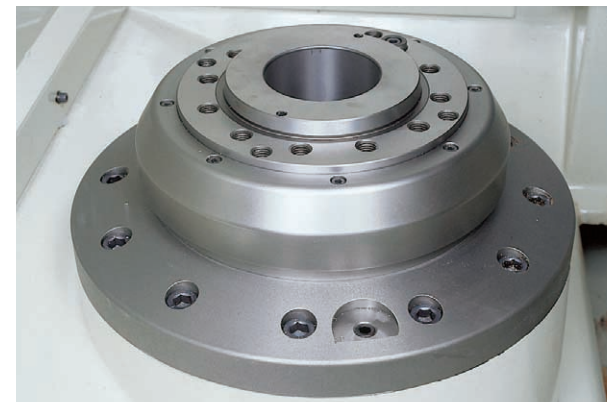
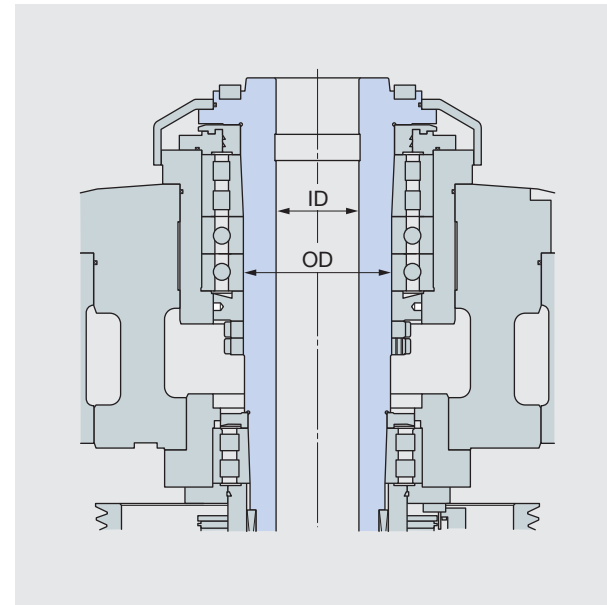
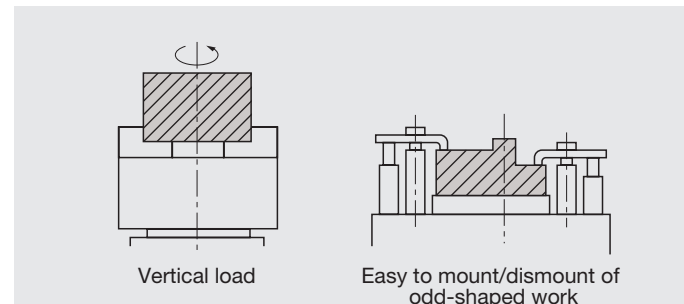
## Top performance multitasking machines for the large diameter bearings and big flanges

## Spindle design

The main spindle has large-diameter roller bearings providing support at two locations to provide highly accurate rotations with no twisting or bending.

|              | VTM-65      | VTM-100     | VTM-200      |
|--------------|-------------|-------------|--------------|
| Spindle nose | A2-11       | A2-11       | ø380 flat    |
| OD           | ø200 (7.87) | ø200 (7.87) | ø260 (10.24) |
| ID           | ø110 (4.33) | ø110 (4.33) | ø160 (6.30)  |

The weight of the workpiece itself provides good contact on the datum surface and make for highly accurate and stable machining of thin-walled to big-diameter heavy components. Chucking operations are easy and clamp conditions remain stable. Making fixtures becomes simpler and less costly.



## Milling tool spindle design

The turret (milling tool spindle) accepts both turning and milling tools. There is no interference, and setup jobs are also easy.

The spindle nose is a BIG-PLUS BT 50 (dual contact); very accurate and sturdy.

When turning, the curvic coupling locks to provide plenty of support for heavy-duty and continuous cutting.

The integral motor/spindle drive has no gears or belts. That means multitasking applications (fat drilling to nimble tapping) are highly productive.

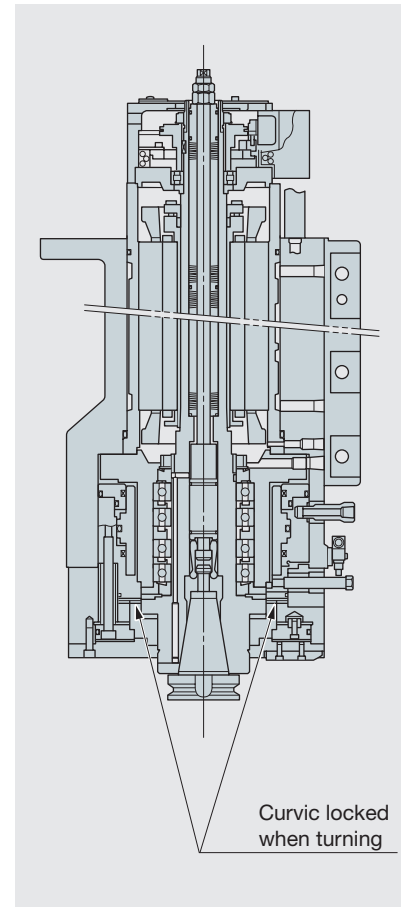
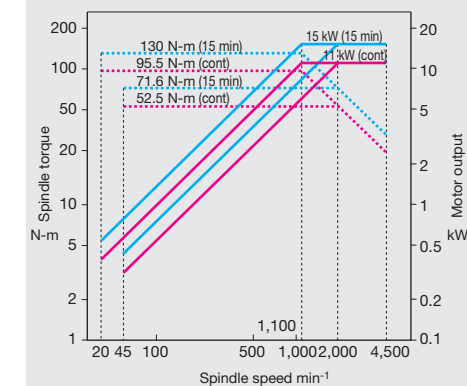
The turret itself is weight counterbalanced for smooth Z-axis feeds from the low to high speeds.

**VTM-65 / VTM-100 / VTM-200**  
**OSP-P300S**

Milling tool spindle speed: 4,500 min<sup>-1</sup>

AC 15/11 kW (20/15 hp) (15 min/cont)

130/95.5 N-m (96/70 ft-lbf)



## Machining capacity

VTM-200 (S45C)

Turning (Actual data)    OD :  $\varnothing 4.2 \text{ mm}^2$  ( $\varnothing 2,000$ )  
                                       (0.007 in.<sup>2</sup> :  $\varnothing 78.74 \text{ in.}$ )

ID :  $\varnothing 6.0 \text{ mm}^2$  ( $\varnothing 1,500$ )  
( $0.009 \text{ in.}^2$  :  $\varnothing 59.06 \text{ in.}$ )

## Auto Tool changer

The 36-tool ATC magazine really reduces setup times and increases machine utilization rates.

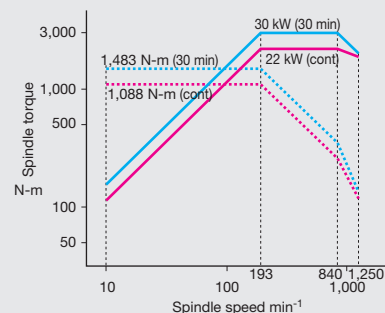
Larger tool magazines are also available for a wider range of workpiece applications. (60, 120 tool magazines)

**VTM-65 OSP-P300S**

Spindle speed: 1,250 min<sup>-1</sup>

AC 30/22 kW (40/30 hp) (30 min/cont)

1,483/1,088 N-m (1090/800 ft-lbf) (30 min/cont)

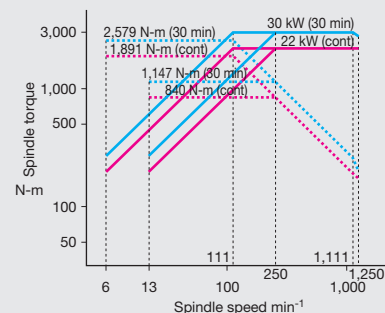


**VTM-100 OSP-P300S**

Spindle speed: 1,250 min<sup>-1</sup>

AC 30/22 kW (40/30 hp) (30 min/cont)

2,579/1,891 N-m (1896/1390 ft-lbf) (30 min/cont)

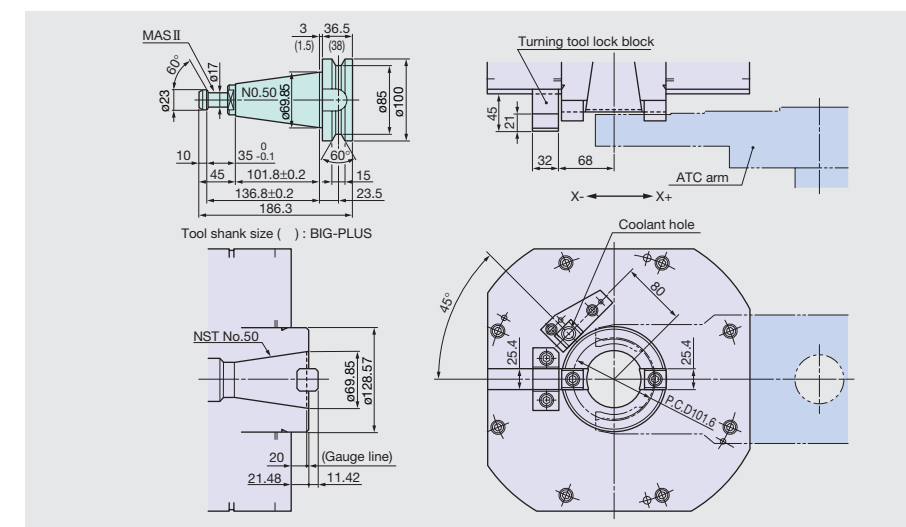
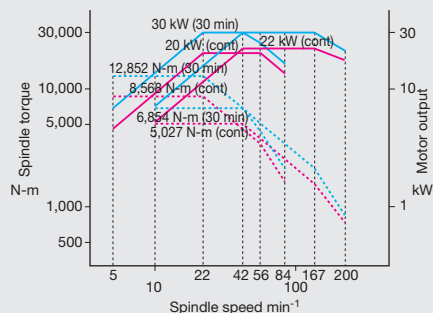


**VTM-200 OSP-P300S**

Spindle speed: 250 min<sup>-1</sup>

AC 30/22 kW (40/30 hp) (30 min/cont)

12,852/8,568 N-m (9450/6300 ft-lbf) (30 min/cont)



Machine Specifications

| Item                 |                                      | Unit                        | VTM-65                                                                                   | VTM-100                                                                                                          | VTM-200                                              |
|----------------------|--------------------------------------|-----------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Capacity             | Max machining diameter               | mm (in.)                    | ø650 (25.59)                                                                             | ø1,000 (39.37)                                                                                                   | ø2,000 (78.74)                                       |
|                      | Max swing diameter                   | mm (in.)                    | ø750 (29.53)                                                                             | ø1,000 (39.37)                                                                                                   | ø2,400 (94.49)                                       |
|                      | Max machining length                 | mm (in.)                    | 635 (25)                                                                                 | 840 (33.07)                                                                                                      | 1,200 (47.24)                                        |
|                      | Max workpiece load (including chuck) | kg (lb)                     | 800 (1,760)<br>[2,000 kg/200 min <sup>-1</sup> ]*1                                       |                                                                                                                  | 7,000 (15,400)<br>[8,500 kg/65 min <sup>-1</sup> ]*1 |
| Travels              | X axis                               | mm (in.)                    | 500 (19.69)                                                                              | 650 (25.59)                                                                                                      | 1,600 (62.99)                                        |
|                      | Z axis                               | mm (in.)                    | 635 (25)                                                                                 | 840 (33.07)                                                                                                      | 1,200 (47.24)                                        |
|                      | C axis                               | deg                         | 360 degrees                                                                              |                                                                                                                  |                                                      |
|                      | C-axis minimum input increment       | deg                         | 0.001                                                                                    |                                                                                                                  |                                                      |
| Work Spindle         | Spindle speed                        | min <sup>-1</sup>           | OSP: 10 to 1,250<br>FANUC: 10 to 500 (low speed)<br>10 to 1,250 (high speed)             | OSP: 6 to 250 (low speed)<br>13 to 1,250 (high speed)<br>FANUC: 6 to 416 (low speed)<br>13 to 1,250 (high speed) | 5 to 84 (low speed)<br>10 to 200 (high speed)        |
|                      | Spindle speed ranges                 |                             | OSP: Infinitely variable                                                                 |                                                                                                                  | OSP: 2 auto ranges (coil switching)                  |
|                      | Type of spindle nose                 |                             | JIS A2-11                                                                                |                                                                                                                  | ø380 flat                                            |
|                      | Spindle front bearing ID             | mm (in.)                    | ø200 (7.87)                                                                              |                                                                                                                  | ø260 (10.24)                                         |
|                      | Through-hole diameter                | mm (in.)                    | ø110 (4.33)                                                                              |                                                                                                                  | ø160 (6.30)                                          |
|                      | Diameter / taper                     |                             | ø115 (ø4.53) / 1/20                                                                      |                                                                                                                  | ø164 (ø6.46) / 2°                                    |
|                      | Floor to spindle nose                | mm (in.)                    | 1,105 (43.50)                                                                            | 1,150 (45.28)                                                                                                    | 1,240 (48.82)                                        |
|                      | Spindle support                      |                             | 2-point roller bearing spindle support                                                   |                                                                                                                  |                                                      |
|                      | Turret type                          |                             | ATC single tool                                                                          |                                                                                                                  |                                                      |
|                      | Standard tool                        | mm (in.)                    | 25 x 25, 32 x 32 (1 x 1, 1-1/4 x 1-1/4)                                                  |                                                                                                                  |                                                      |
| Milling Tool Spindle | Boring bar diameter                  | mm (in.)                    | ø40, ø50 (ø1-1/2, ø2)                                                                    |                                                                                                                  |                                                      |
|                      | Maximum spindle speed                | min <sup>-1</sup>           | OSP: 2,000 (low speed) 4,500 (high speed)<br>FANUC: 1,000 (low speed) 4,500 (high speed) |                                                                                                                  |                                                      |
|                      | Spindle speed ranges                 |                             | FANUC: 2 auto ranges (coil switching)                                                    |                                                                                                                  |                                                      |
|                      | Spindle shape                        |                             | 7/24 taper bore No. 50 BT50 (BIG-PLUS®)                                                  |                                                                                                                  |                                                      |
| Tool Change          | Front diameter                       | mm (in.)                    | ø90 (3.54)                                                                               |                                                                                                                  |                                                      |
|                      | Tool shank                           |                             | BT50                                                                                     |                                                                                                                  |                                                      |
|                      | Pull stud                            |                             | MAS II                                                                                   |                                                                                                                  |                                                      |
|                      | Max tools (magazine capacity)        | tool                        | 36 (60)                                                                                  |                                                                                                                  |                                                      |
|                      | Tool selection                       |                             | Fixed adress type                                                                        |                                                                                                                  |                                                      |
|                      | Max tool diameter                    | mm (in.)                    | ø170 (ø6.70) [w/o adjacent ø250 (ø69.85): 500 L (19.69), ø300 (11.82): 450 L (17.72)]    |                                                                                                                  |                                                      |
|                      | Max length (from gauge line)         | mm (in.)                    | 500 (19.69) [touch setter gauging length Max 360 (14.18)]                                |                                                                                                                  |                                                      |
|                      | Max tool weight                      | kg                          | 30 (average 20)                                                                          |                                                                                                                  |                                                      |
| Feed Axes            | Cutting federate X, Z                | mm/rev                      | 0.001 to 462.000                                                                         |                                                                                                                  | 0.001 to 500                                         |
|                      | Rapid feedrate                       | X axis<br>m/min (fpm)       | 18 (59.06)                                                                               |                                                                                                                  | 16 (52.50)                                           |
|                      |                                      | Z axis<br>m/min (fpm)       | 20 (65.62)                                                                               |                                                                                                                  | 16 (52.50)                                           |
|                      |                                      | C axis<br>min <sup>-1</sup> | 20                                                                                       |                                                                                                                  | 10                                                   |
| Motors               | Workpiece spindle motor              | kW (hp)                     | OSP: VAC 30/22 (40/30) (30 min/cont)<br>FANUC: AC 30/22 (40/30) (30 min/cont)            |                                                                                                                  |                                                      |
|                      | Milling tool motor                   | kW (hp)                     | OSP: AC 15/11 (20/15) (15 min/cont)<br>FANUC: AC 7.5/5.5 (10/7.5) (15 min/cont)          |                                                                                                                  |                                                      |
| Machine size         | Required floor space (L x W)         | mm (in.)                    | OSP: 4,001 x 2,990 (158 x 118)<br>FANUC: 4,001 x 3,030 (158 x 119)                       | OSP: 4,286 x 3,175 (169 x 125)<br>FANUC: 4,286 x 3,205 (169 x 126)                                               | OSP: 5,557 x 5,251 (218 x 206)                       |
|                      | Height                               | mm (in.)                    | 4,000 (157)                                                                              |                                                                                                                  | 4,570 (179)                                          |
|                      | Weight                               | kg (lb)                     | 11,000 (24,200)*2                                                                        |                                                                                                                  | 27,000 (59,400)*2                                    |
| Control              |                                      |                             | OSP-P300S, FANUC-31i-B                                                                   |                                                                                                                  |                                                      |

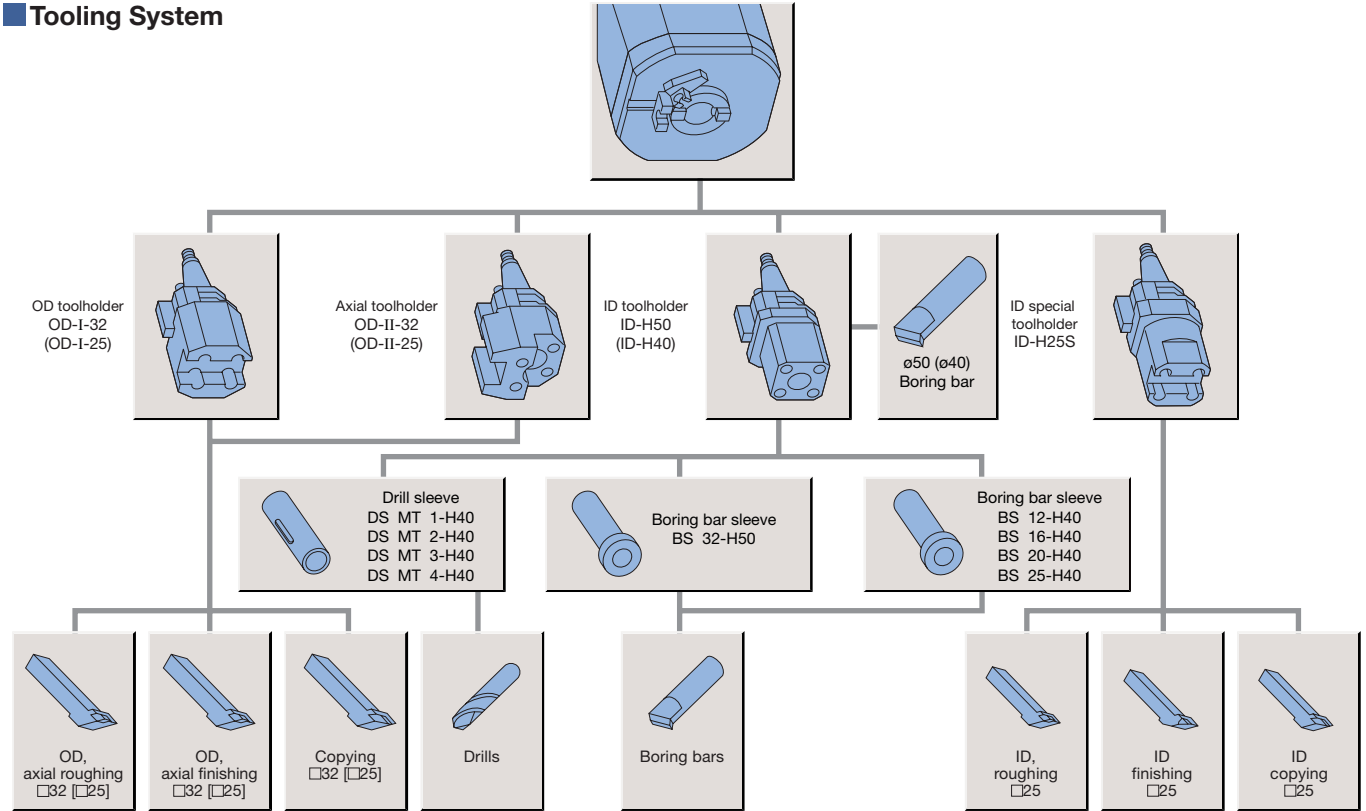
\*1. Maximum workpiece loading mass when spindle speed is limited/spindle speed limit   \*2. Machine only; w/o chuck and ATC magazine   \*3. OSP: 30,140, FANUC: 29,700 lb

Standard Specifications and Accessories

|                                    |                                      | VTM-65                                                                                                          | VTM-100 | VTM-200                                                                 |
|------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------|
| Spindle                            |                                      | A2-11, 15 to 1,250 min <sup>-1</sup><br>30/22 kW (40/30) (30 min/cont)                                          |         | ø380 flat, 3 to 200 min <sup>-1</sup><br>30/22 kW (40/30) (30 min/cont) |
| Milling Tool Spindle               |                                      | No.50, 4,500 min <sup>-1</sup><br>OSP: 15/11 kW (20/15) (15 min/cont), FANUC: 7.5/5.5 kW (10/7.5) (15 min/cont) |         |                                                                         |
| Tool Shank                         |                                      | MAS BT50 (BIG-PLUS®)                                                                                            |         |                                                                         |
| Standard Accessories               | Automatic tool changer               | 36 tool magazine                                                                                                |         |                                                                         |
|                                    |                                      | Coolant tank                                                                                                    |         | 1,000 L (264.2 gal)                                                     |
|                                    |                                      | Pump motor                                                                                                      |         | 0.55 kW (3/4 hp)                                                        |
|                                    |                                      | Chip flusher                                                                                                    |         |                                                                         |
|                                    | Coolant system                       | Shower                                                                                                          |         | 0.55 kW (3/4 hp) (Opt)                                                  |
|                                    |                                      | 1.2 kW (1.6 hp)                                                                                                 |         |                                                                         |
|                                    |                                      |                                                                                                                 |         |                                                                         |
|                                    | Full enclosure shielding (w/ceiling) |                                                                                                                 |         | ○                                                                       |
|                                    | Jack screws, foundation pads         |                                                                                                                 |         | ○                                                                       |
|                                    | Work lamp                            |                                                                                                                 |         | ○                                                                       |
| Standard Specs                     | Operation end buzzer (electric)      |                                                                                                                 |         | ○                                                                       |
|                                    | Tool kit                             |                                                                                                                 |         | ○                                                                       |
|                                    | Front door interlock                 |                                                                                                                 |         | ○                                                                       |
|                                    | Lubrication monitor                  |                                                                                                                 |         | ○                                                                       |
|                                    | Chuck clamp direction switch         |                                                                                                                 |         | ○                                                                       |
| Chuck open/close pushbutton switch |                                      |                                                                                                                 |         | ○                                                                       |

○: 1 set

Tooling System



Optional Specifications and Accessories

|                                      |                                                                                                                                                                                           |                             |                                                                |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------|
| Spindle speed specials (30 min/cont) | VTM-100 (OSP): 1,000 min <sup>-1</sup> 45/37 kW (60/50 hp) <sup>*1</sup><br>VTM-100 (FANUC): 600 min <sup>-1</sup> 30/22 kW (40/30 hp) <sup>*1</sup>                                      | Auto front cover open/close |                                                                |
| Milling tool spindle speed           | No. 50 6,000 min <sup>-1</sup> (VTM-65, VTM-100 only)                                                                                                                                     | Special coolant pump        | 1.5 kW                                                         |
| Rotary tool thru-spindle coolant     | 1.5, 3.5, 7 MPa                                                                                                                                                                           | Coolant gun                 | 0.25 kW                                                        |
| Hydraulic power chuck (solid)        | VTM-65: H01MA-18, H01MA-21, H01MA-24<br>VTM-100: H01MA-24, H01MA-28, H01MA-32, H01MA-36                                                                                                   | Oil skimmer                 | VTM-200 std                                                    |
| Chuck open/close pedal               | Std: Pushbutton switch type (VTM-65, VTM-100 only)                                                                                                                                        | Coolant level detection     |                                                                |
| Chucking miss detection              | VTM-65, VTM-100 only                                                                                                                                                                      | Chuck air blower (blast)    | VTM-65, VTM-100 only                                           |
| Chuck auto open/close confirm        | VTM-65, VTM-100 only                                                                                                                                                                      | Turret air blower (blast)   | Side through, turning tools only                               |
| Chuck clamp direction switch         | Key switch type (VTM-65, VTM-100 only)                                                                                                                                                    | Air gun                     |                                                                |
| Chuck pressure high/low change       | Grip change required (VTM-65, VTM-100 only)                                                                                                                                               | Mist collector              |                                                                |
| Manual chuck                         | VTM-65 Three- jaw scroll chuck: 21", 24"<br>Four-jaw independent chuck: 20", 24"<br>VTM-100 Three- jaw scroll chuck: 24", 28", 32", 36"<br>Four-jaw independent chuck: 24", 28", 32", 36" | Jib crane                   | 200 kg (440 lb) (VTM-65, VTM-100 only)                         |
| Work table (VTM-200)                 | ø2,000<br>Work table jaws; 4-jaw set, hard/soft jaws                                                                                                                                      | In-process work gauging     | Radius, diameter measurements                                  |
| Chip conveyor                        | VTM-65, VTM-100 Rear: Hinge type, scraper type, magnet scraper type<br>VTM-200 Side: Hinge type, drum filter type                                                                         | Touch setter                | Manual axis<br>Auto/manual                                     |
| Chip bucket                          | Tilt; with / without                                                                                                                                                                      | AbsoScale                   | OSP X-axis <sup>*2</sup>                                       |
| ATC magazine tool capacity           | 60 tools; chain<br>120 tools; matrix                                                                                                                                                      | Scale feedback              | FANUC X-axis <sup>*2</sup>                                     |
|                                      |                                                                                                                                                                                           | Coolant temp regulator      | Separate tank                                                  |
|                                      |                                                                                                                                                                                           | Raised machine              | 100 mm (VTM-65, VTM-100 only)<br>150 mm (VTM-65, VTM-100 only) |
|                                      |                                                                                                                                                                                           | Tooling kit                 | OD-I, OD-II, ID-H50; 4 sets each                               |
|                                      |                                                                                                                                                                                           | Automation specs            | Robot<br>APC                                                   |

\*1. Gear change   \*2. VTM-200: X-axis + Z-axis application available

Chip discharge

VTM machines designed for smooth chip flow, and when coupled with the “chip flusher”; chip discharge is complete.



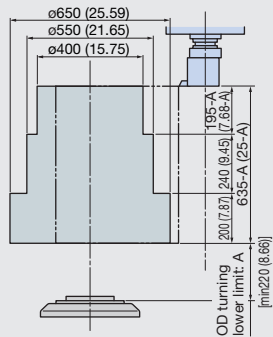
Chip conveyor types and applications

| Name        | Hinge type   | Scraper type                                                                              | Magnet scraper type                                         | With drum filter*                                                        |
|-------------|--------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------|
| Application | ●For steel   | ●For castings                                                                             | ●For castings                                               | ●For steel, castings, nonferrous metal                                   |
| Features    | ●General use | ●Magnet scraper more effective for sludge disposal<br>●Easy maintenance<br>●Blade scraper | ●Effective with sludge<br>●Not suited for nonferrous metals | ●Filtration of long and short chips and coolant<br>●Hinge + Scraper type |
| Shape       |              |                                                                                           |                                                             |                                                                          |

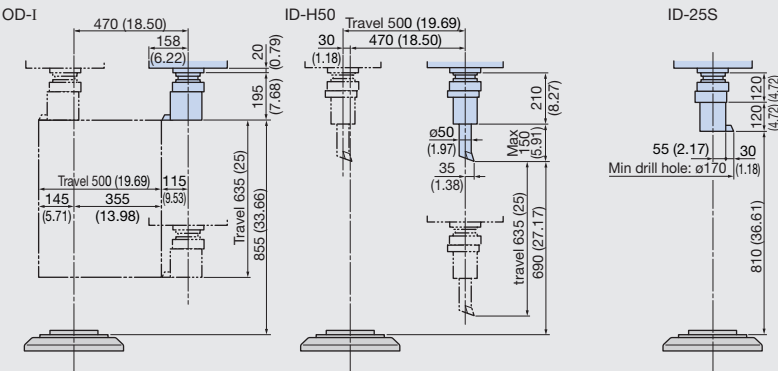
\* Note: Raised machine specs (platform) may be required depending on the conveyor type.

Max Workpiece and Working Ranges

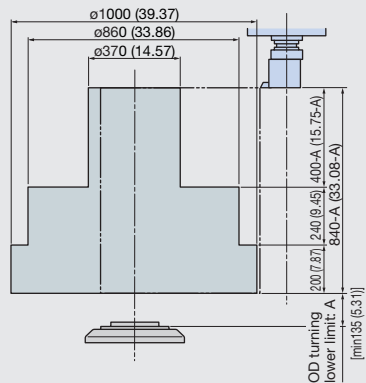
VTM-65 max workpiece



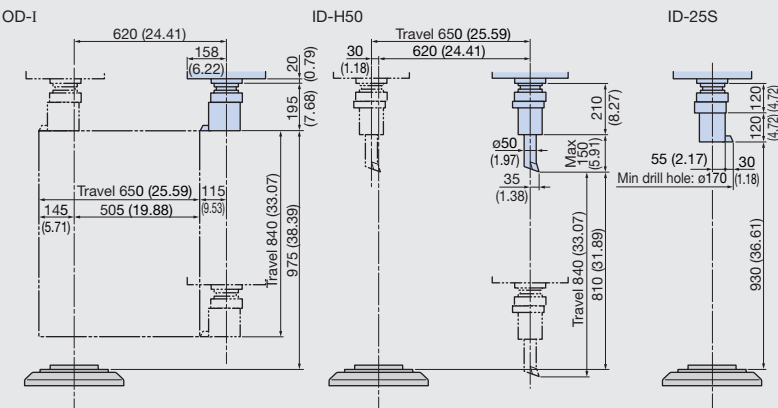
VTM-65 working ranges



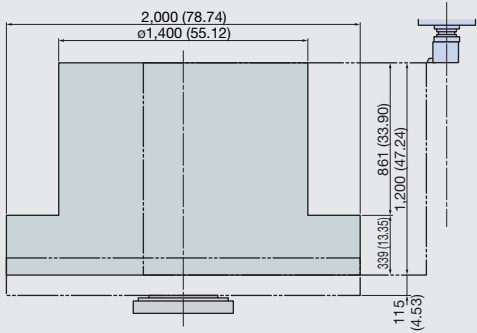
VTM-100 max workpiece



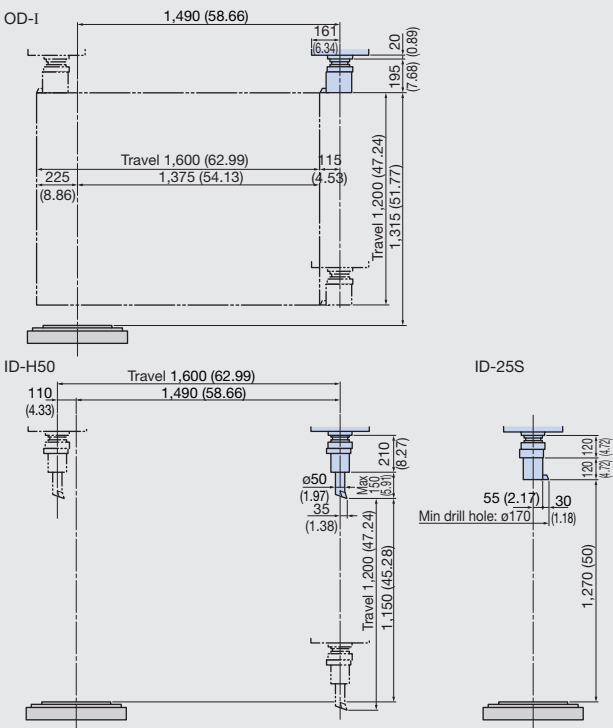
VTM-100 working ranges



VTM-200 max workpiece



VTM-200 working ranges



Okuma's new control for multitasking machines

OSP-P300S

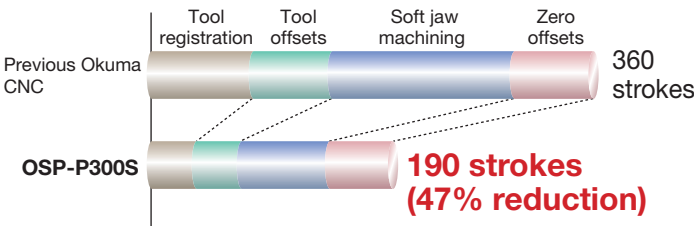
Okuma Sampling Path Control

“Easy Operation”

- Smooth and simple manual machine operations, because the Control was built by Okuma—a “Machine & Control” manufacturer
- Rapid feed, cutting feed, and spindle override adjustments are easier with these rotary switches.
- The red keys are easy to spot and stop an operation.

- Significant reduction in number of keystrokes (actual data)

- The display screen
- During an operation, you can simultaneously view in a 4-split screen; current positions, and screens from various applications (Collision Avoidance System, Advanced - One Touch IGF, part programs)—to confirm machine conditions at a glance.



- Grouped axis feed buttons (C-axis on/off possible)
- Grouped M-spindle operations
- Spindle clamp useful when mounting jaws
- Tool magazine index useful when changing tool inserts
- Turret position selector matches actual turret indexed position
- Spindle operation group

- Easy tool preparations
- Being able to perform tool preps for the many tools required in multitasking applications—in one screen—provides enormous benefits.

Standard Specifications

|             |                                  |                                                                                                                                                                                                                                                                                                                                    |
|-------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Specs | Control                          | simultaneous multitasking of X, Z, C axes                                                                                                                                                                                                                                                                                          |
|             | Position feedback                | OSP full range absolute position feedback (zero point return not required)                                                                                                                                                                                                                                                         |
|             | Min / Max inputs                 | 8-digit decimal, ±99999.999 ~0.001 mm, 0.001° Decimal: 1 μm, 10 μm, 1 mm (1°, 0.01°, 0.001°)                                                                                                                                                                                                                                       |
|             | Feed                             | Override: 0 to 200%                                                                                                                                                                                                                                                                                                                |
|             | Spindle control                  | Direct spindle speed commands (S5) override 50 to 200% Constant cutting speed, max turning speed designate                                                                                                                                                                                                                         |
|             | Tool commands                    | 2-digit tool no. + 4-digit tool no. (max tool registration: 1000 sets)                                                                                                                                                                                                                                                             |
|             | Tool compensation                | Tool offset: 20 sets per tool Tool wear comp: 20 sets per tool Nose R comp: 20 sets per tool                                                                                                                                                                                                                                       |
|             | Display                          | 15-inch color display operational panel, touch panel                                                                                                                                                                                                                                                                               |
| Operations  | Self-diagnostics                 | Automatic diagnostics and display of program, operation, machine, and NC system problems                                                                                                                                                                                                                                           |
|             | Program capacity                 | Program storage: 2 GB, operation buffer: 2 MB                                                                                                                                                                                                                                                                                      |
|             | Easy operation                   | “Single-mode operation” for a series of operations from a single screen. Bundled tool control: tool shape, tool tilt, tool offsets per tool number. Tool data sharing between machining operations, One-Touch IGF, Collision Avoidance System. Easy-to-use operation panel supports complete machine control.                      |
|             | Collision Avoidance System (CAS) | Prevents interference during manual, automatic operation Easy modeling of shape data (there are limits in interference prevention unit, unit movement)                                                                                                                                                                             |
|             | Programing                       | Program management, edit, multitasking, scheduled programs, fixed cycles, special fixed cycles, tool nose R compensation, slope machining, M-spindle synchronized tapping, fixed drilling cycles, arithmetic operations, logic operations, math functions, variables, branch statements, auto programming (LAP4), programming help |
|             | Machine operations               | MDI, manual (rapid traverse, manual cutting feed, pulse handle), load meter, operations help, alarm help, sequence return, manual interrupt & auto return, data I/O, pitch error compensation (X, Z, C), spindle orientation (electric)                                                                                            |
|             | MacMan                           | Machining Management: machining results, machine utilization, fault data compile & report, external output                                                                                                                                                                                                                         |
|             | Com / Net                        | USB ports, Ethernet                                                                                                                                                                                                                                                                                                                |

## OSP-P300S

| Optional specs                                                                  |                                  | NML                       |   | 3D |   | One-Touch M |   |
|---------------------------------------------------------------------------------|----------------------------------|---------------------------|---|----|---|-------------|---|
|                                                                                 |                                  | E                         | D | E  | D | E           | D |
| <b>Operation functions</b>                                                      |                                  |                           |   |    |   |             |   |
| Advanced One-Touch IGF (multitasking)                                           |                                  |                           |   |    |   | ●           | ● |
| <b>Programming</b>                                                              |                                  |                           |   |    |   |             |   |
| Coordinate system selection                                                     | 10 sets                          | ●                         | ● | ●  | ● | ●           | ● |
|                                                                                 | 50 sets                          |                           |   |    |   |             |   |
|                                                                                 | 100 sets                         |                           |   |    |   |             |   |
| Circular threading                                                              |                                  |                           | ● |    | ● |             | ● |
| Program notes                                                                   |                                  |                           |   |    |   |             |   |
| User task 2 Input/output variables 8 each                                       |                                  |                           |   |    |   |             |   |
| Tool comps                                                                      | 96 sets                          | ○ (Essential)             |   |    |   |             |   |
|                                                                                 | 200 sets                         |                           |   |    |   |             |   |
| Common variables: 1000 (Std: 200)                                               |                                  |                           |   |    |   |             |   |
| Thread matching                                                                 |                                  |                           |   |    |   |             |   |
| Threading slide hold (G34, G35)                                                 |                                  |                           |   |    |   |             |   |
| Variable spindle speed threading (VSST)                                         |                                  |                           |   |    |   |             |   |
| Inverse time feed                                                               |                                  |                           |   |    |   |             |   |
| Spindle dead-slow cut                                                           |                                  |                           |   |    |   |             |   |
| Spindle acceleration setting                                                    |                                  |                           |   |    |   |             |   |
| Coordinate change                                                               |                                  | ●                         | ● | ●  | ● | ●           | ● |
| Profile generation                                                              |                                  | ●                         | ● | ●  | ● | ●           | ● |
| <b>Monitoring</b>                                                               |                                  |                           |   |    |   |             |   |
| Collision Avoidance system*                                                     |                                  | Included in machine specs |   |    |   |             |   |
| Machining Navi L-g                                                              |                                  |                           |   |    |   |             |   |
| One-Touch Spreadsheet                                                           |                                  |                           |   |    |   |             |   |
| Real 3-D simulation*                                                            |                                  |                           |   | ●  | ● | ●           | ● |
| Cycle time over check                                                           |                                  | ●                         | ● | ●  | ● | ●           | ● |
| Load monitor (spindle, feed axis)                                               |                                  |                           |   | ●  | ● | ●           | ● |
| Load monitor no-load detection (load monitor ordered)                           |                                  |                           |   |    |   |             |   |
| Tool life management                                                            |                                  |                           | ● |    | ● |             | ● |
| Workpiece counters                                                              | Count only, ( ) pcs              |                           |   |    |   |             |   |
|                                                                                 | Cycle stop, ( ) pcs              |                           |   |    |   |             |   |
|                                                                                 | Start disabled ( ) pcs           |                           |   |    |   |             |   |
| Hour meters                                                                     | Power ON                         |                           |   |    |   |             |   |
|                                                                                 | Spindle run-time                 |                           |   |    |   |             |   |
|                                                                                 | NC operating                     |                           |   |    |   |             |   |
| NC operation monitor (counter, totaling)                                        |                                  | ●                         | ● | ●  | ● | ●           | ● |
| Operation end lamp (yellow)                                                     |                                  |                           |   |    |   |             |   |
| Alarm lamp (red)                                                                |                                  |                           |   |    |   |             |   |
| Electric buzzer                                                                 |                                  |                           |   |    |   |             |   |
| Status indicator (triple lamp) Type C                                           |                                  | ●                         | ● | ●  | ● | ●           | ● |
| <b>Measuring</b>                                                                |                                  |                           |   |    |   |             |   |
| In-process work gauging                                                         |                                  | Included in machine specs |   |    |   |             |   |
| Post-process work gauging I/F                                                   |                                  |                           |   |    |   |             |   |
| Z-axis automatic zero offset by touch sensor                                    |                                  |                           |   |    |   |             |   |
| C-axis automatic zero offset by touch sensor                                    |                                  |                           |   |    |   |             |   |
| Gauging data printout, file output                                              |                                  |                           |   |    |   |             |   |
| <b>External I/O, communication functions</b>                                    |                                  |                           |   |    |   |             |   |
| Additional RS-232-C channel [1 chan, 2 chan] (standard specs include 1 channel) |                                  |                           |   |    |   |             |   |
| Additional USB 2 additional ports possible                                      |                                  |                           |   |    |   |             |   |
| DNC link                                                                        | DNC-T3                           |                           |   |    |   |             |   |
|                                                                                 | DNC-C / Ethernet*                |                           |   |    |   |             |   |
|                                                                                 | DNC-DT                           |                           |   |    |   |             |   |
|                                                                                 | FL-net*                          |                           |   |    |   |             |   |
| <b>Automation / untended operation</b>                                          |                                  |                           |   |    |   |             |   |
| Harmonic spindle speed control (HSSC)                                           |                                  | ●                         | ● | ●  | ● | ●           | ● |
| Power shutoff, M02, Alarm                                                       |                                  |                           |   |    |   |             |   |
| Warm-up function (by calendar timer)                                            |                                  |                           |   |    |   |             |   |
| Tool shelter cycle                                                              |                                  |                           |   |    |   |             |   |
| External program selections                                                     | A (pushbutton) 8 types           |                           |   |    |   |             |   |
|                                                                                 | B (rotary switch) 8 stages       |                           |   |    |   |             |   |
|                                                                                 | C1 (digital switch) BCD, 2-digit |                           |   |    |   |             |   |
|                                                                                 | C2 (external input) BCD, 4-digit |                           |   |    |   |             |   |
| Cycle time Reduction*                                                           | Operation time reduction         | ●                         | ● | ●  | ● | ●           | ● |
| <b>High-speed/ high-accuracy functions</b>                                      |                                  |                           |   |    |   |             |   |
| AbsoScale (X-axis) (X + Z-axis: VTM-200 only)                                   |                                  |                           |   |    |   |             |   |
| Hi-cut Pro                                                                      |                                  | ●                         | ● | ●  | ● | ●           | ● |
| <b>Other functions</b>                                                          |                                  |                           |   |    |   |             |   |
| Potable pulse handles                                                           |                                  |                           |   |    |   |             |   |
| Circuit breaker                                                                 |                                  |                           |   |    |   |             |   |
| External M signals (2, 4, 8, 16 sets)                                           |                                  |                           |   |    |   |             |   |
| Edit interlock (C)                                                              |                                  |                           |   |    |   |             |   |

○ Indicates essential specifications

## FANUC 31i-B

| Standard Specifications |                                                                                    |                                                                                                             |
|-------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Controlled axes         | 5: X, Y, Z, B, C, (3 simultaneously excluding B-axis), scale feedback (X-Y-Z axes) |                                                                                                             |
| Interpolation           | Positioning, linear, taper, circular, threading                                    |                                                                                                             |
|                         | Polar coordinate interpolation, Cylindrical interpolation                          |                                                                                                             |
| Command system          | Absolute / incremental                                                             |                                                                                                             |
| Least input increment   | X-, Z-axes all 0.001 mm                                                            |                                                                                                             |
| Max/min input           | ±99999.999 mm, decimal point programming                                           |                                                                                                             |
| Operation panel         | 10.4 in color TFT                                                                  |                                                                                                             |
| Monitor function        | Languages: English/Japanese                                                        |                                                                                                             |
|                         | Run hour and parts count display                                                   |                                                                                                             |
|                         | Electric buzzer                                                                    |                                                                                                             |
| Operation               | Constant surface speed control                                                     |                                                                                                             |
|                         | AI contouring control I                                                            |                                                                                                             |
|                         | Cs contouring control                                                              |                                                                                                             |
|                         | Spindle orientation (1 position, M19)                                              |                                                                                                             |
|                         | M spindle rigid tapping                                                            |                                                                                                             |
| Program input           | Part program storage: 64 KB, (160 m)                                               |                                                                                                             |
|                         | No. of registerable programs: 63                                                   |                                                                                                             |
|                         | Extended part program editing                                                      |                                                                                                             |
|                         | RS-232-C input/output interface                                                    |                                                                                                             |
|                         | Programmable data input                                                            |                                                                                                             |
|                         | Program protect key switch                                                         |                                                                                                             |
|                         | Canned cycles for drilling                                                         |                                                                                                             |
| Compensation            | Continuous threading                                                               |                                                                                                             |
|                         | Circuit interpolation by R programming                                             |                                                                                                             |
|                         | Memory pitch error compensation (X + Z + C-axis)                                   |                                                                                                             |
|                         | Tool geometry/wear compensation                                                    |                                                                                                             |
|                         | Tool offset pairs: 64                                                              |                                                                                                             |
| Optional Specifications |                                                                                    |                                                                                                             |
| Monitor function        | Graphics display                                                                   |                                                                                                             |
|                         | Tool counter                                                                       |                                                                                                             |
|                         | Work counter                                                                       |                                                                                                             |
|                         | Multi-counter                                                                      |                                                                                                             |
|                         | Hour meter                                                                         | Power ON                                                                                                    |
|                         | Status indicator                                                                   | Yellow, triple lamp                                                                                         |
|                         | Tool life management                                                               |                                                                                                             |
|                         | Abnormal load detection                                                            | Spindle + feed axes                                                                                         |
| Operation               | Continuous threading                                                               |                                                                                                             |
|                         | Spindle orientation                                                                | Electrical, total 4 positions                                                                               |
|                         | Off-machine work gauging interface                                                 | Fixed compensation<br>5 levels, 7 levels                                                                    |
|                         | Manual pulse generator                                                             |                                                                                                             |
|                         | Power shutoff                                                                      |                                                                                                             |
|                         | Circuit breaker                                                                    |                                                                                                             |
| Program input           | Part program storage capacities                                                    | 128KB (320m)<br>256KB (640m)<br>512KB (1280m)<br>1MB (2560m)<br>2MB (5120m)<br>4MB (10240m)<br>8MB (20480m) |
|                         | Extended no. of registerable programs                                              | 125, 250, 500, (1000, 2000, 4000)                                                                           |
|                         | External program select                                                            | Digital switch (2 digit display)                                                                            |
|                         | Add. RS-232-C channels                                                             |                                                                                                             |
|                         | Custom macros                                                                      |                                                                                                             |
|                         | Custom macros                                                                      | Add. common variables (total 600)                                                                           |
|                         | Inch/metric switch                                                                 |                                                                                                             |
|                         | Workpiece coordinate systems                                                       | G54 to G59                                                                                                  |
|                         | Helical interpolation                                                              |                                                                                                             |
|                         | Canned cycles for multitasking                                                     |                                                                                                             |
|                         | Multiple program simultaneous editing                                              | I, II                                                                                                       |
|                         | Program restart                                                                    |                                                                                                             |
|                         | Spare M codes                                                                      | 4, 8 pairs                                                                                                  |
|                         | High speed skip                                                                    |                                                                                                             |
|                         | Compensation                                                                       | 2 <sup>nd</sup> geometry tool offset                                                                        |
| Tool offset pairs       |                                                                                    | 99<br>200<br>400<br>499                                                                                     |
|                         |                                                                                    |                                                                                                             |
| Other functions         | Control cabinet lamp                                                               |                                                                                                             |
|                         | Control cabinet ventilator                                                         | Temperature regulator, dehumidify                                                                           |

| Optional Specifications |                                       |                                                                                                             |                         |
|-------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------|
| Monitor function        | Graphics display                      |                                                                                                             |                         |
|                         | Tool counter                          |                                                                                                             |                         |
|                         | Work counter                          |                                                                                                             |                         |
|                         | Multi-counter                         |                                                                                                             |                         |
|                         | Hour meter                            | Power ON                                                                                                    |                         |
|                         | Status indicator                      | Yellow, triple lamp                                                                                         |                         |
|                         | Tool life management                  |                                                                                                             |                         |
|                         | Abnormal load detection               | Spindle + feed axes                                                                                         |                         |
| Operation               | Continuous threading                  |                                                                                                             |                         |
|                         | Spindle orientation                   | Electrical, total 4 positions                                                                               |                         |
|                         | Off-machine work gauging interface    | Fixed compensation<br>5 levels, 7 levels                                                                    |                         |
|                         | Manual pulse generator                |                                                                                                             |                         |
|                         | Power shutoff                         |                                                                                                             |                         |
|                         | Circuit breaker                       |                                                                                                             |                         |
| Program input           | Part program storage capacities       | 128KB (320m)<br>256KB (640m)<br>512KB (1280m)<br>1MB (2560m)<br>2MB (5120m)<br>4MB (10240m)<br>8MB (20480m) |                         |
|                         | Extended no. of registerable programs | 125, 250, 500, (1000, 2000, 4000)                                                                           |                         |
|                         | External program select               | Digital switch (2 digit display)                                                                            |                         |
|                         | Add. RS-232-C channels                |                                                                                                             |                         |
|                         | Custom macros                         |                                                                                                             |                         |
|                         | Custom macros                         | Add. common variables (total 600)                                                                           |                         |
|                         | Inch/metric switch                    |                                                                                                             |                         |
|                         | Workpiece coordinate systems          | G54 to G59                                                                                                  |                         |
|                         | Helical interpolation                 |                                                                                                             |                         |
|                         | Canned cycles for multitasking        |                                                                                                             |                         |
|                         | Multiple program simultaneous editing | I, II                                                                                                       |                         |
|                         | Program restart                       |                                                                                                             |                         |
|                         | Spare M codes                         | 4, 8 pairs                                                                                                  |                         |
|                         | High speed skip                       |                                                                                                             |                         |
|                         | Compensation                          | 2 <sup>nd</sup> geometry tool offset                                                                        |                         |
|                         |                                       | Tool offset pairs                                                                                           | 99<br>200<br>400<br>499 |
| Other functions         | Control cabinet lamp                  |                                                                                                             |                         |
|                         | Control cabinet ventilator            | Temperature regulator, dehumidify                                                                           |                         |

### VTM-65

## Dimensional and Installation Drawings

(OSP-P300S)

VTM-65

Dimensional and Installation Drawings

(OSP-P300S)

# VTM-100

## Dimensional and Installation Drawings

(OSP-P300S)

Top View Dimensions:

- Overall width: 4,020 (158.27)
- Overall height: 4,850 (190.94)
- 36-tool magazine width: 975 (38.39)
- ATC arm width: 1,574 (61.97)
- Chip conveyor (Opt) width: 1,330 (52.36)
- Chip bucket (Opt) width: 1,330 (52.36)
- 60-tool magazine (Opt) width: 1,330 (52.36)
- Transformer width: 1,330 (52.36)
- Swing  $\phi 1,000$  (39.37)
- Coolant gun (Opt) width: 710 (27.95)
- 1.5 MPa M-spindle thru-spindle coolant unit (Opt) width: 95 (3.74)
- Chip conveyor (Opt) height: 564 (22.2)
- Chip bucket (Opt) height: 564 (22.2)
- Transformer height: 564 (22.2)
- 60-tool magazine (Opt) height: 564 (22.2)
- ATC arm height: 1,330 (52.36)
- 36-tool magazine height: 1,330 (52.36)
- Manual tool change unit height: 1,330 (52.36)
- Chip conveyor (Opt) width: 1,330 (52.36)
- Chip bucket (Opt) width: 1,330 (52.36)
- Transformer width: 1,330 (52.36)
- 60-tool magazine (Opt) width: 1,330 (52.36)

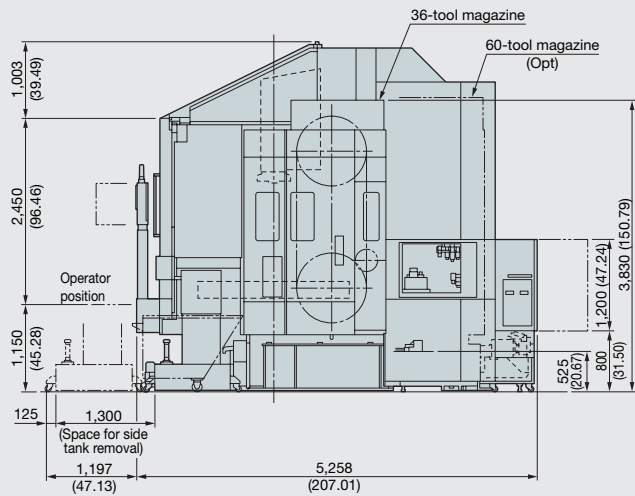
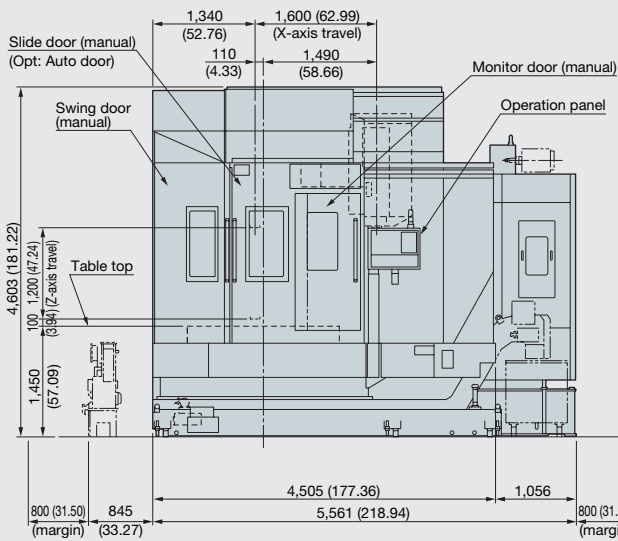
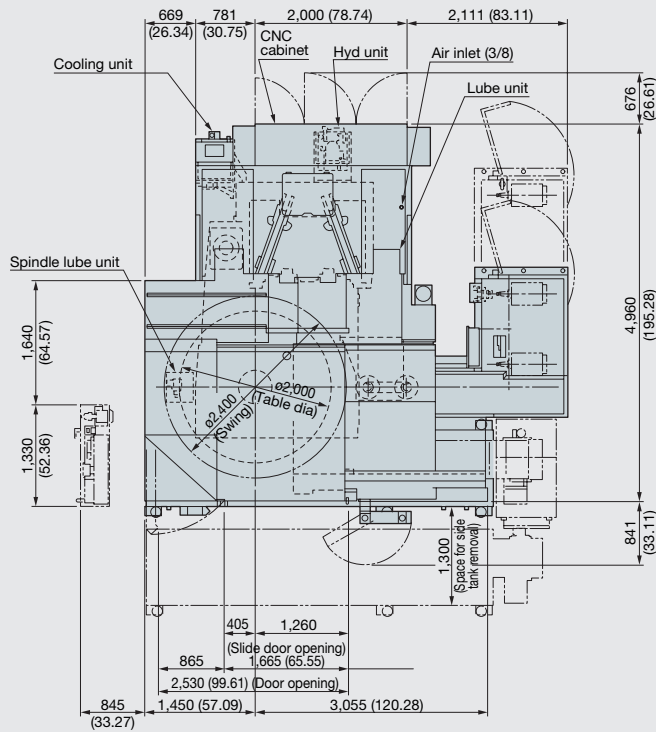
Front View Dimensions:

- Overall width: 4,366 (171.89)
- Overall height: 4,850 (190.94)
- Manual tool change unit width: 600 (23.62)
- ATC arm width: 2,435 (95.87)
- 36-tool magazine width: 1,651 (65)
- Chip conveyor (Opt) width: 1,330 (52.36)
- Chip bucket (Opt) width: 1,330 (52.36)
- Transformer width: 1,330 (52.36)
- 60-tool magazine (Opt) width: 1,330 (52.36)
- Swing  $\phi 1,000$  (39.37)
- Coolant gun (Opt) width: 710 (27.95)
- 1.5 MPa M-spindle thru-spindle coolant unit (Opt) width: 95 (3.74)
- Chip conveyor (Opt) height: 564 (22.2)
- Chip bucket (Opt) height: 564 (22.2)
- Transformer height: 564 (22.2)
- 60-tool magazine (Opt) height: 564 (22.2)
- ATC arm height: 1,330 (52.36)
- 36-tool magazine height: 1,330 (52.36)
- Manual tool change unit height: 1,330 (52.36)
- Chip conveyor (Opt) width: 1,330 (52.36)
- Chip bucket (Opt) width: 1,330 (52.36)
- Transformer width: 1,330 (52.36)
- 60-tool magazine (Opt) width: 1,330 (52.36)

Side View Dimensions:

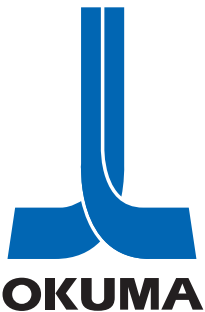
- Overall depth: 3,209 (126.34)
- Overall height: 4,850 (190.94)
- Manual tool change unit depth: 1,150 (45.28)
- ATC arm depth: 2,435 (95.87)
- 36-tool magazine depth: 1,651 (65)
- Chip conveyor (Opt) depth: 1,330 (52.36)
- Chip bucket (Opt) depth: 1,330 (52.36)
- Transformer depth: 1,330 (52.36)
- 60-tool magazine (Opt) depth: 1,330 (52.36)
- Swing  $\phi 1,000$  (39.37)
- Coolant gun (Opt) depth: 710 (27.95)
- 1.5 MPa M-spindle thru-spindle coolant unit (Opt) depth: 95 (3.74)
- Chip conveyor (Opt) height: 564 (22.2)
- Chip bucket (Opt) height: 564 (22.2)
- Transformer height: 564 (22.2)
- 60-tool magazine (Opt) height: 564 (22.2)
- ATC arm height: 1,330 (52.36)
- 36-tool magazine height: 1,330 (52.36)
- Manual tool change unit height: 1,330 (52.36)
- Chip conveyor (Opt) width: 1,330 (52.36)
- Chip bucket (Opt) width: 1,330 (52.36)
- Transformer width: 1,330 (52.36)
- 60-tool magazine (Opt) width: 1,330 (52.36)

## VTM-200 Dimensional and Installation Drawings (OSP-P300S)



When using Okuma products, always read the safety precautions mentioned in the instruction manual and attached to the product.

● The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.  
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