OKUMA

OPEN POSSIBILITIES

V760EX
V920EX

Vertical CNC Lathes

2SP-V760EX
2SP-V920EX

Vertical Twin-Spindle CNC Lathes

V760EX / V920EX

Vertical CNC Lathes

2SP-V760EX / 2SP-V920EX

Vertical Twin-Spindle CNC Lathes

Intelligent Technology | Thermo-Friendly Concept | Collision Avoidance System | Machining Navi

A smaller footprint, the V Series lathes has a larger work envelope, higher performance, and handles more workpiece applications.
The innovative productivity makes it ideal for industrial machine parts, as well as large construction and aircraft components of large-diameter thin and odd-shaped workpieces.

V920EX

**Minimum installation space,
maximum machining area.
This Okuma vertical lathe provides
the maximum in floor space productivity.**

2SP-V760EX

Photographs used in this brochure may show optional equipment.

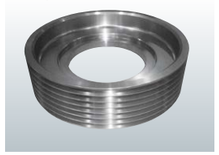
Machining Area Effectiveness
—in a class by itself—

Outstanding productivity per floor space maximizes the benefits of high-performance vertical lathe applications for high production efficiency

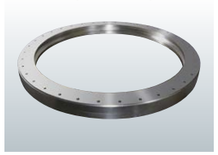
Highly accurate, stable machining and high machining capacity.
The ease of use of a vertical lathe on a base with
Okuma's legendary high-rigidity structure. Greater user-friendliness is
achieved together with a smaller footprint and larger machining area.

Stable machining of large workpieces

Stable machining achieved even with difficult-to-chuck thin, large-diameter workpieces and unbalanced, odd-shaped components.



Pulley



Bearing

Valve body

Very efficient turn/mill operations

With considerably improved turning and milling capacity, the V-EX Series deliver powerful cuts for heavy workpiece applications.

Easy maintenance with outstanding chip collection

Various improvements were made in chip discharge and inspection locations to reduce operator burden and operation time. This shortens daily maintenance and machining preparation time so that operators can focus on machining.

Support for machining close accuracies with decreased operator burden

Okuma's Thermo-Friendly Concept achieves amazing machining accuracy through unique structural design and thermal deformation control technology, and improves operator work efficiency by requiring fewer dimensional compensation at cycle start/restart points.

Innovative shop floor productivity in many types of production

The 2SP-V760EX and 2SP-V920EX combine left-right symmetric L (left) and R (right) machines operating from a single control. This both shortens lead times and uses factory space effectively.

For the V920EX, the ATC enables high tool-storage capacity without interference between adjacent tools and the workpiece.

V920EX

Stable machining of large workpieces

Large machining area can accommodate a wide range of applications

Large machining area achieved with small footprint. Sufficient machining area (maximum swing: ø800 mm/V760EX, ø1,000 mm/V920EX) for chucking of odd-shaped workpieces is also provided, meeting a wide range of customer machining needs.

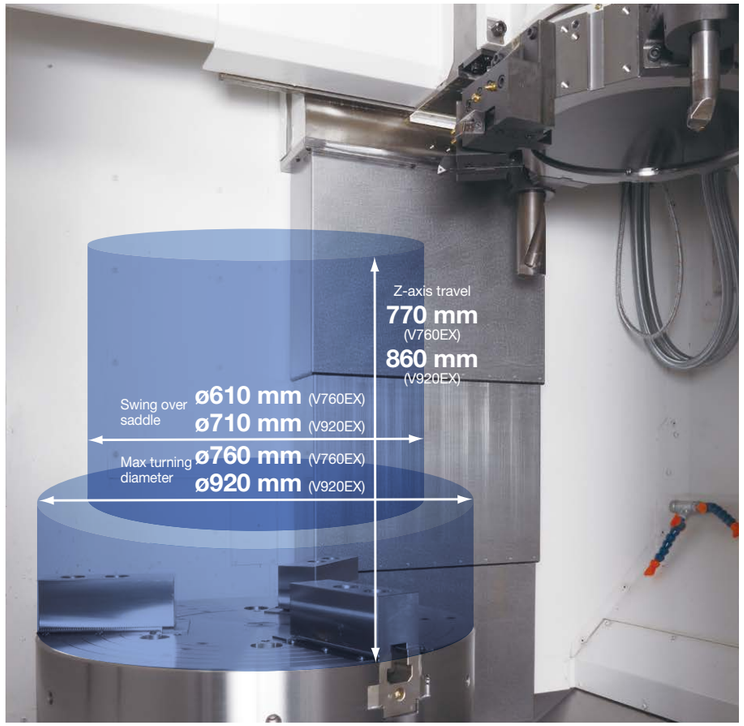


Photo shows the V920EX

The features of vertical lathes provide for highly accurate, stable machining

Since the workpiece adheres to the chuck reference surface by its own weight, even heavy and large-diameter workpieces can be firmly gripped. Moreover, carefully restrained gripping prevents workpiece deformation to make possible stable and accurate cutting of thin workpieces. Also workpiece mounting and dismounting is easy because operator workpiece support is not required when manually chucking odd-shaped workpieces that use clamping fixtures.

Machining capacity (actual data)

	V760EX	V920EX
Turning	·Heavy-duty cutting: 5.0 mm^2	·Heavy-duty cutting: 6.0 mm^2

● OD turning example (S45C)

Cutting Speed	150 m/min	150 m/min
Cutting depth	10 mm	10 mm
Feed	0.5 mm/rev	0.6 mm/rev

* The “actual data” referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting condition, and others.

Powerful, high-accuracy machining

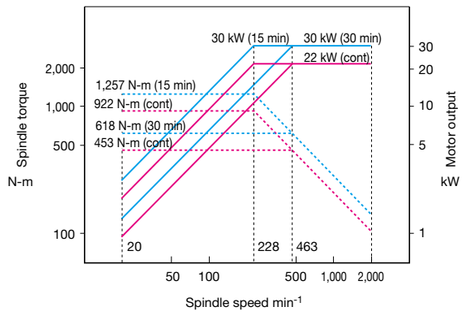
Powerful spindle for high-accuracy machining of heavy workpieces.

A flanged headstock minimizes thermal deformation and vibration in the main spindle, enabling high-accuracy cutting.

V760EX/2SP-V760EX

■ **Standard spindle (OSP)**

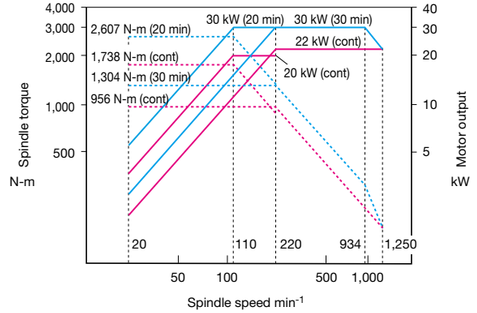
- Spindle speed: 2,000 min^{-1}
- Max output: 30/22 kW (30 min/cont)
- Max torque: 1,257/922 N-m (15 min/cont)



V920EX/2SP-V920EX

■ **Standard spindle (OSP)**

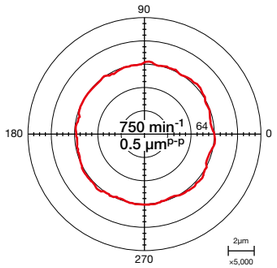
- Spindle speed: 1,250 min^{-1}
- Max output: 30/22 kW (30 min/cont)
- Max torque: 2,607/1,738 N-m (20 min/cont)



Note: Please refer to pages 15 and 16 for options

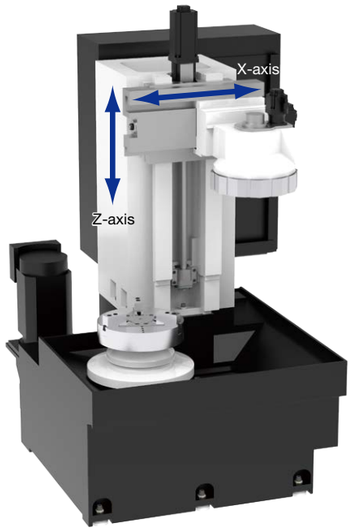
Advanced, highly rigid construction enables powerful and very accurate machining

A rock-solid rectangular column is firmly secured to a rigid base with excellent damping performance. Minimal tool-to-column guideway distance assures the rigidity needed to withstand heavy-duty cutting loads. The X- and Z-axis box ways achieve powerful and highly accurate machining with excellent cutting surface quality.



Roundness: 0.5 μm (V760EX actual data)
Cutting conditions
Cutting depth: 0.05 mm
Feed: 0.05 mm/rev
Spindle speed: 750 min^{-1}
Nose R: 0.4 mm

* The “actual data” referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting condition, and others.



Highly rigid structure with column fixation and saddle movement

Process-intensive machining with powerful milling

More powerful, can use greater number of tools =Turning center=
Multitasking (option)

Turning, drilling, end milling all done on a single machine to accommodate a wide range of applications. A much more powerful milling tool spindle than on previous machines enables more powerful cutting and a wider range of process-intensive machining. The turret minimizes interference with adjacent tools, and milling tools can be mounted in all 12 tool stations.

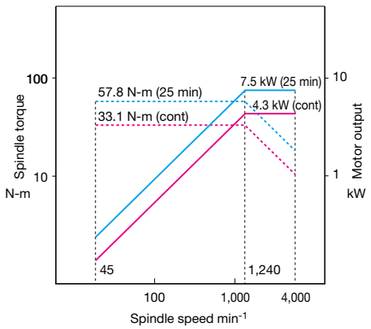
Applications from turning to milling can be done with a single chucking, reducing the work in progress storage space and between process waiting times. In addition, chucking errors can be eliminated by process-intensive.

V760EX

V760EX/2SP-V760EX

Milling tool spindle (OSP)

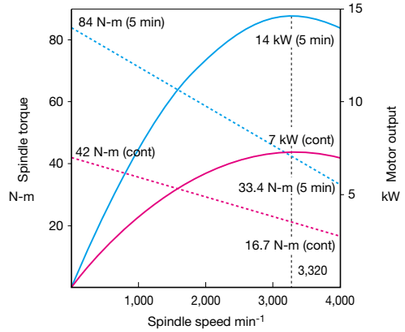
- Spindle speed: 4,000 min^{-1}
- Max output: 7.5/4.3 kW (25 min/cont)
- Max torque: 57.8/33.1 N-m (25 min/cont)



V920EX/2SP-V920EX

Milling tool spindle (OSP)

- Spindle speed: 4,000 min^{-1}
- Max output: 14/7 kW (5 min/cont)
- Max torque: 84/42 N-m (Intermittent/cont)



Note: Please refer to page 16 for options

Easy maintenance with outstanding chip collection

Foolproof chip discharge

Standard chip flushing and a stainless steel chute provide for complete chip discharge to the conveyor (option) running directly below the turret. That also cuts down machine operator work-flow interruptions to clean out chips.

V920EX

Chip discharge system can be adjusted to shop layout requirements

Either side or rear chip conveyors (option) can be selected to match chip discharge direction for shop layout.

2SP-V760EX

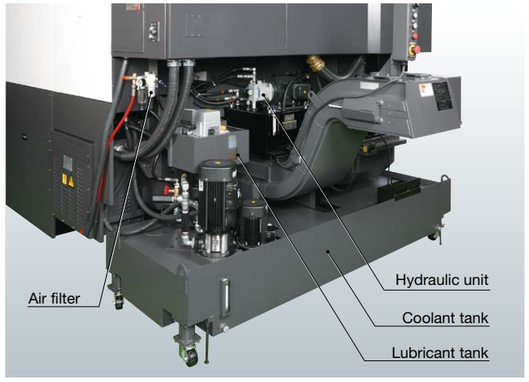
Operator work burden drastically reduced with well-designed workflows

The operator can easily reach the spindle center 552 mm (V760EX) from the front of the machine. With excellent accessibility the workpiece can be loaded and unloaded smoothly without interference using a crane.

V760EX

Smoother daily inspections

The air filter, lubricant tank, hydraulic unit and coolant tank are all located on the back of the machine. This shortens the time needed for daily inspections and improves utilization.



V920EX Rear chip conveyor

Innovative shop floor productivity in many types of production

Twice the productivity with one machine (2SP-V760EX, 2SP-V920EX)

The 2-spindle spec 2SP-V760EX, 2SP-V920EX combines a standard R (right) machine and reverse structure L (left) machine and is operated with a single controller.

This gives the maximum productivity with the minimum floor space by shortening lead times and cutting down on intermediate work in progress.

The separated right-left structure also enables stable machining that is unaffected by the machining vibration of the other spindle.

- Compact lines that minimize robot travel can be built.

Build automated systems to match your needs (V760EX/V920EX)

With a design that allows workpiece mounting/dismounting from either the front or side, robots and conveyance equipment can be configured with greater freedom. Flexible, automated systems can be configured in combination with existing equipment.

L (left) machine R (right) machine

Space-saving cells with articulated robots

- Connected cells for 1st and 2nd operations can be constructed in a small space
- Side-shutter workpiece mounting/dismounting allows uninhibited operator machine-front access
- Operation status can be checked from machine front

Workpiece push-up and eject devices
(An option only for V760EX, 2SP-V760EX)

- Machine designed to support workpiece mounting/dismounting jobs
  Greatly reduces operator burden
- Operator simply places workpiece on plate above chuck
- Push-up device automatically raises and lowers workpiece on chuck, and ejector automatically ejects workpiece from machine

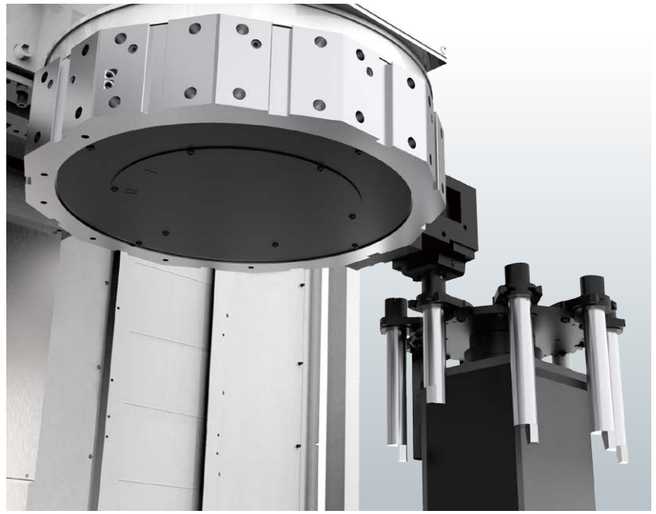
Increased tool storage capacity with ATC (option only for V920EX)

By automatically storing and changing boring bars and other long tools from the turret, interference is eliminated for dramatically improved tool layout freedom and easier tool setups. Increased tool storage capacity means that more machining can be done without dividing processes.

V920EX ATC spec

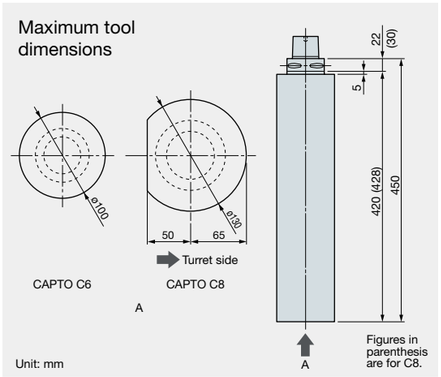
Easy to operate ATC by the button next to ATC magazine.

ATC operation



Dedicated station in one location

ATC tooling



	CAPTO C6	CAPTO C8
ATC magazine (only turning tool)	12 tools	8 tools
Tool shank	CAPTO C6	CAPTO C8
Max tool length	450 mm	
Max tool mass	10 kg	15 kg

Okuma's Intelligent Technology reduces operator burden

Intelligent Technology

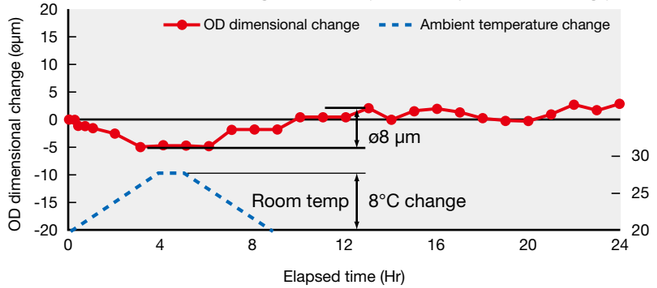
Thermo-Friendly Concept

Manageable Deformation—Accurately Controlled

Machining accuracies change significantly due to temperature changes around the machine, heat produced by the machine and heat produced in machining. The Thermo-Friendly Concept adopts the unique approach of "accepting" these temperature changes to provide highly accurate machining in normal factory environments without special equipment or measures to counter temperature changes.

Machining dimensional change over time: Less than: ø8 µm

Actual results with turning on a V760EX (ambient temperature: 8°C change)



- Cycle time: 60 sec
  [X-axis stroke 60 mm
  4 reciprocating movements/cycle]
- Cutting conditions Spindle speed : 1,600 min^{-1}
  Cutting depth : 0.05 mm
  Feed : 0.05 mm/rev
- Workpiece material : BSB
- Coolant on

Note: The "actual data" referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting, and other conditions.

Eliminate waste with the Thermo-Friendly Concept

Okuma's Thermo-Friendly Concept maintains dimensional stability not only when temperature changes, but also during machine start-up and machining restart. Warming-up time is reduced since thermal deformation is stabilized, decreasing the time and effort needed for dimensional compensation during restarts.

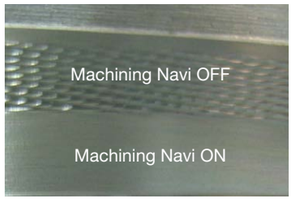
TAS-C: Thermo Active Stabilizer—Construction

Thermo Active Stabilizer–Construction (TAS-C) uses information from well-placed sensors and feed axes information to predict the thermal deformation in machine structure from ambient temperature changes, based on the thermal deformation characteristics of the machine, and finely control the machine.

Machining Navi L-*g*Ⅱ (option)

Cutting condition search

Varying the spindle speed in accordance with the best amplitude and period makes it possible to suppress chatter during turning operations. Tool life can be extended and machining time reduced with use of the optimum cutting conditions, producing significant effects in drilling/boring bar, and grooving applications.



ECO suite plus

Next-Generation Energy-Saving System

- **"ECO Idling Stop"** for operation of necessary units only
- **"ECO Power Monitor"** for visual graphic of power
- Intermittent/continuous operation of chip conveyor and mist collector during operation — **"ECO Operation"** (option)

Machine Specifications

	Item	Unit	V760EX	2SP-V760EX	V920EX	2SP-V920EX
Capacity	Max turning diameter	mm (in)	ø760 (29.92)		ø920 (36.22)	
	Max swing diameter	mm (in)	ø800 (31.50)		ø1,000 (39.37)	
	Swing on carriage	mm (in)	ø610 (24.02)		ø710 (27.95)	
	Max work length (height)	mm (in)	770 (30.31)		860 (33.86)	
	Max workpiece mass (w/ chuck)	kg (lb)	500 (1,100) [When limited to 1,000 kg/200 min^{-1}] *1		1,200 (2,640) [When limited to 2,000 kg/400 min^{-1}] *1	
	Height from floor to spindle nose*2	mm (in)	1,085 (42.72)		1,150 (45.28)	
Travel	X-axis	mm (in)	390 (15.35)		485 (19.09)	
	Z-axis	mm (in)	770 (30.31)		860 (33.86)	
Spindle	Speed	min^{-1}	20 to 2,000		20 to 1,250	
	Speed ranges		2 auto ranges (2-speed motor coil switching)			
	Nose shape		JIS A2-11			
	Bore diameter	mm (in)	ø92 (3.62)		ø110 (4.33)	
	Front bearing diameter	mm (in)	ø160 (6.30)		ø200 (7.87)	
Turret	Type		V12	V12 + V12	V12	V12 + V12
	No. of tools		12	12 + 12	12	12 + 12
	OD tool shank dimensions	mm (in)	□25, □32 (1, 1-1/4)			
	ID tool shank diameter	mm (in)	ø40, ø50, ø63 (1-1/2, 2, 2-1/2)			
Feed rate	Rapid traverse X, Z-axis	m/min (fpm)	X: 24 (78.74), Z: 24 (78.74)			
Motor	Spindle drive	kW (hp)	30/22 (40/30) (30 min/cont)	30/22 (40/30) (30 min/cont) × 2	30/22 (40/30) (30 min/cont)	30/22 (40/30) (30 min/cont) × 2
	Axis drive	kW (hp)	OSP X: 3.5 (4.7), Z: 4.6 (6.1) FANUC X: 4.0 (5.3), Z: 4.0 (5.3)		OSP X: 3.5 (4.7), Z: 5.2 (6.9) FANUC X: 4.0 (5.3), Z: 5.0 (6.7)	
	Coolant pump (50 Hz/60 Hz)	kW (hp)	Turret: 0.25/0.25 (0.3/0.3) shower: 0.37/0.55 (0.5/0.7)		Turret: 0.28/0.46 (0.37/0.61) shower: 0.39/0.62 (0.52/0.83)	
Machine Size	Machine height*2	mm (in)	3,489 (137.36)		3,693 (145.39)	
	Required floor space (length × width)*3	mm×mm (in)	1,842 × 2,732 (72.52×107.56)	3,680 × 2,732 (144.88×107.56)	2,252 × 2,845 (88.66×112.01) [3,302 × 2,845 (130.00×112.01)]*4	4,500 × 2,845 (177.17×112.01)
	Machine mass	kg (lb)	8,500 (18,700)	17,000 (37,400)	11,400 (25,080) [12,800 (28,160)]*4	22,800 (50,160)
CNC			OSP-P300LA/FANUC 0i-TF			

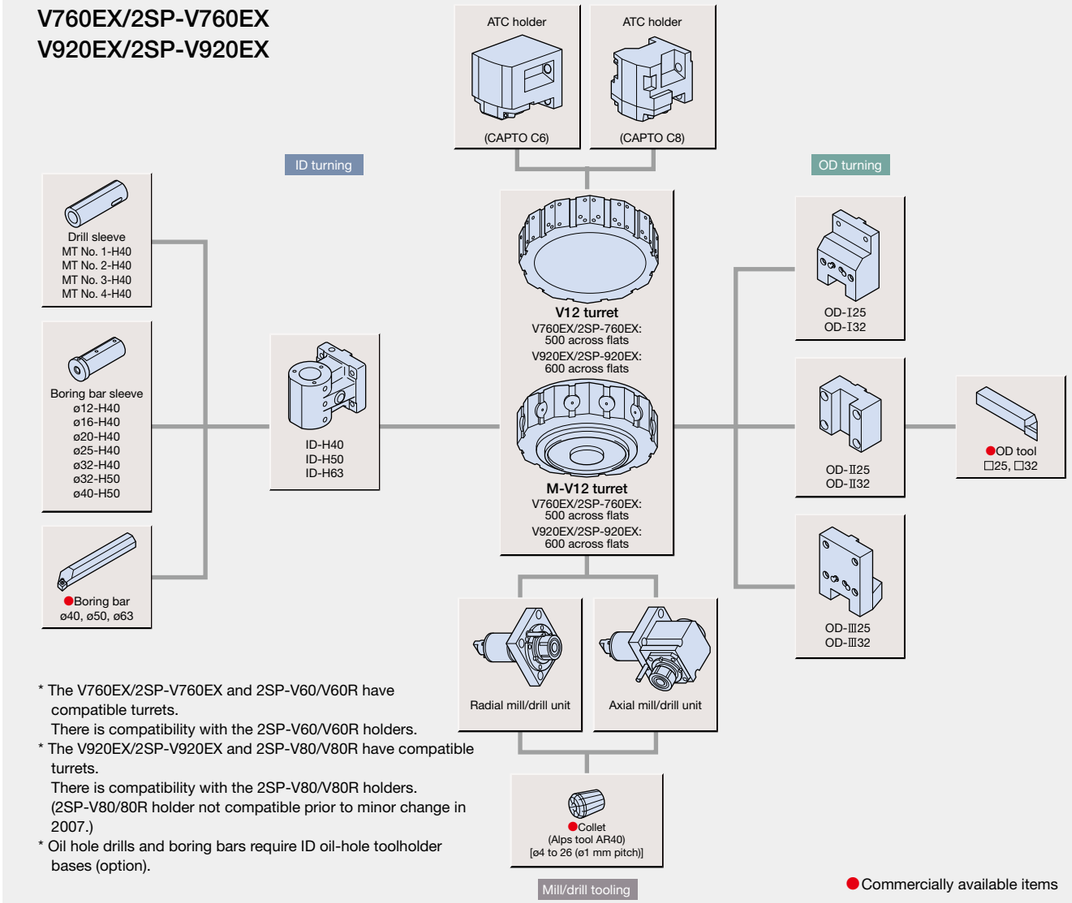
*1. Maximum workpiece mass at restricted spindle speeds *2. Machine height and center height may become taller depending on attached cylinder type
*3. Including tank, not including operation panel *4. With ATC specs

Standard Specifications/Accessories

		V760EX	2SP-V760EX	V920EX	2SP-V920EX
Spindle	Nose	A2-11			
	Speed	20 to 2,000 min^{-1}		20 to 1,250 min^{-1}	
	Motor output	30/22 kW (30 min/cont)	30/22 kW (30 min/cont) × 2	30/22 kW (30 min/cont)	30/22 kW (30 min/cont) × 2
Turret		V12	V12 + V12	V12	V12 + V12
Operation panel mounting		Pendant		Stand	
Coolant system	Coolant tank	400 L	400 L × 2	420 L	420 L × 2
	Coolant pump	0.25 kW	0.25 kW × 2	0.28/0.46 kW (50/60 Hz)	0.28/0.46 kW (50/60 Hz) × 2
	Shower/ chip flusher coolant	0.37/0.55 kW (50/60 Hz)	0.37/0.55 kW (50/60 Hz) × 2	0.39/0.62 kW (50/60 Hz)	0.39/0.62 kW (50/60 Hz) × 2
Hydraulic power unit		1	2	1	2
Oil pan for lube oil tank		1	2	1	2
Full enclosure shielding		○			
Foundation pads, jack screws		○			
Work lamp		○			
Tool kit		○			
Controller		OSP-P300LA/FANUC 0i-TF			
Chuck open/close		Handy operation panel pushbutton switch	Handy operation panel pushbutton switch × 2	Main operation panel pushbutton switch	Handy operation panel pushbutton switch × 2
Door interlock		○			
Lubrication monitor		○			

Tooling System

Unit: mm



* The V760EX/2SP-V760EX and 2SP-V60/V60R have compatible turrets.
There is compatibility with the 2SP-V60/V60R holders.
* The V920EX/2SP-V920EX and 2SP-V80/V80R have compatible turrets.
There is compatibility with the 2SP-V80/V80R holders.
(2SP-V80/80R holder not compatible prior to minor change in 2007.)
* Oil hole drills and boring bars require ID oil-hole toolholder bases (option).

●Commercially available items

Tooling kit

T: Turning, M: Multitasking

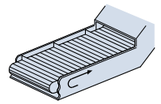
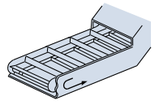
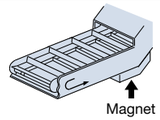
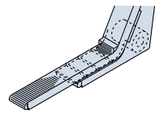
	V760EX		2SP-V760EX			V920EX		2SP-V920EX		
	Turning	Multitasking	T + T	T + M	M + M	Turning	Multitasking	T + T	T + M	M + M
OD-I 25	6	3	12	9	6					
OD-I 32						6	3	12	9	6
OD-II 25	3	3	6	6	6					
OD-II 32						3	3	6	6	6
OD-III25	2	2	4	4	4					
OD-III32						2	2	4	4	4
ID-H40	6	3	12	9	6					
ID-H50						6	3	12	9	6
Boring bar sleeve 12-H40	2	2	4	4	4					
Boring bar sleeve 16-H40	2	2	4	4	4					
Boring bar sleeve 20-H40	2	2	4	4	4					
Boring bar sleeve 25-H40	2	2	4	4	4					
Boring bar sleeve 32-H50						2	2	4	4	4
Drill sleeve MT No. 1-H40	1	1	2	2	2					
Drill sleeve MT No. 2-H40	1	1	2	2	2					
Drill sleeve MT No. 3-H40	1	1	2	2	2					
Drill sleeve MT No. 4-H40	1	1	2	2	2					
Axial mill/drill unit		2		2	4		2		2	4
Radial mill/drill unit		2		2	4		2		2	4

Optional Specifications and Accessories

		V760EX	2SP-V760EX	V920EX	2SP-V920EX
High-speed spindle	(OSP)	25 to 2,500 min^{-1} 55/45 kW (30 min/cont)		–	
	(FANUC)	25 to 2,500 min^{-1} 45/37 kW (30 min/cont)			
High-torque spindle	(OSP)	20 to 2,000 min^{-1} 30/22 kW (30 min/cont)		20 to 1,000 min^{-1} 45/37 kW (30 min/cont)	
	(FANUC)			20 to 600 min^{-1} 30/22 kW (30 min/cont)	
Multitasking specs	Turret	M-V12	V12 + M-V12	M-V12	V12 + M-V12
			M-V12 + M-V12		M-V12 + M-V12
	C-axis control	360° (minimum control angle 0.001°)			
	Milling tool spindle	Speed OSP: 4,000 min^{-1} FANUC: 4,000/3,000 min^{-1} (intermittent/cont)			
		Motor output OSP: 7.5/4.3 kW (25 min/cont) FANUC: 5.5 kW (cont)		Motor output OSP: 14/7 kW (5 min/cont) FANUC: 5.5 kW (cont)	
ATC specs		–		Tool storage capacity: 12*1 (cutting tools only) CAPTO C6/CAPTO C8	–
Hydraulic power chuck (solid)		H01MA-15, 18, 21, 24		H01MA-24, 28, 32, 36	
Manual chuck	3-jaw	ø535, ø610		ø610, ø710, ø800, ø915	
	4-jaw	ø500, ø600		ø600, ø700, ø800, ø915	
Chuck-related		Chucking miss detection, chuck auto open/close w/confirm, chuck pressure high/low switch, chuck open/close foot pedal			
High pressure coolant		4.0 MPa, 7.0 MPa			
Tooling kit		Please refer to pages 13			
Raised machine height		50 mm, 100 mm, 150 mm			
Chip conveyor*2		Rear hinge type, scraper type, magnet scraper, drum filter Side hinge type, scraper type*, magnet scraper* (*V760EX / 2SP-V760EX only)			
Chip bucket					
Front door auto open/close*2		Mechanical safety, tape SW, area sensor		Area sensor	
Special coolant pump (50/60 Hz)		0.37/0.55 kW, 0.75/1.5 kW		0.37/0.55 kW, 0.75/1.5 kW, 3.0/3.0 kW	
Shower/chip flusher coolant (50/60 Hz)		0.55/0.75 kW, 0.75/1.1 kW			
Coolant gun mounted (50/60 Hz)		0.55/0.75 kW			
Oil skimmer mounted		Belt system, Screw type			
Coolant sensors		Level detection (upper, lower)			
Air blower		chuck, turret			
Air gun mounted					
Mist collector					
Jib crane		100 kg, 200 kg			
In-process workpiece gauging					
Touch Setter*2		Manual axis, auto/manual			
High accuracy specs		AbsoScale (OSP), scale feedback (FANUC) *X-axis only Coolant temperature regulator (cooling only), Turcite® lining (X-axis, Z-axis)			
Automation specs		Robot setup, workpiece push-up device, workpiece ejector			

*1. One or more free space is required at tool changing.
*2. Standard in some markets. Please contact us.

Chip conveyor types and applications

Name	Hinge type	Scraper type	Magnet scraper type	Hinge + 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 ● Easy maintenance ● Blade scraper	● Effective with sludge ● Not suited for nonferrous metals	● Filtration of long and short chips and coolant
Shape				

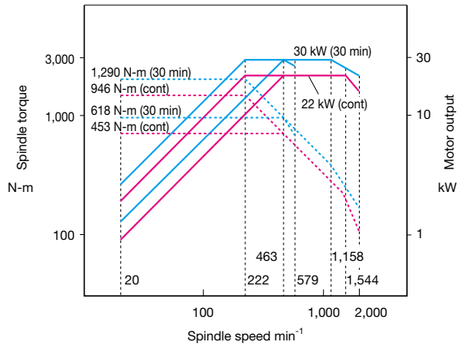
Note: Machine platform may be necessary depending on the type of chip conveyor.

Spindle output/torque diagram

V760EX/2SP-V760EX

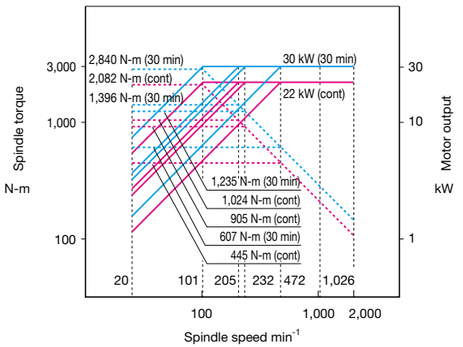
Standard spindle (FANUC)

- Speed 2,000 min^{-1}
- Max output 30/22 kW (30 min/cont)
- Max torque 1,290/946 N-m (30 min/cont)



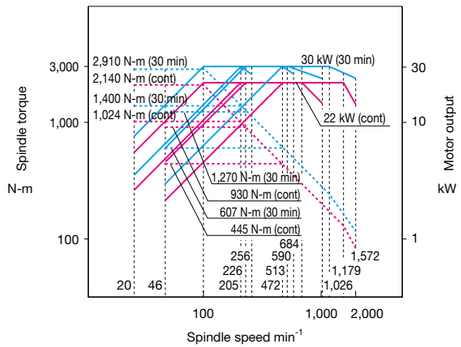
High-torque spindle (OSP)

- Speed 2,000 min^{-1}
- Max output 30/22 kW (30 min/cont)
- Max torque 2,840/2,082 N-m (30 min/cont)



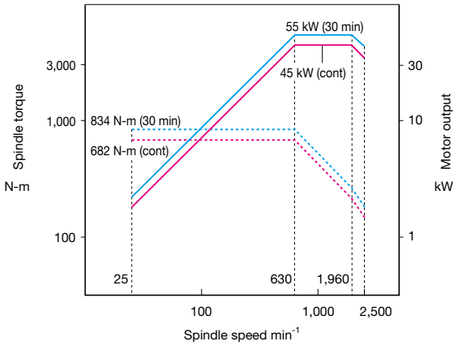
High-torque spindle (FANUC)

- Speed 2,000 min^{-1}
- Max output 30/22 kW (30 min/cont)
- Max torque 2,910/2,140 N-m (30 min/cont)



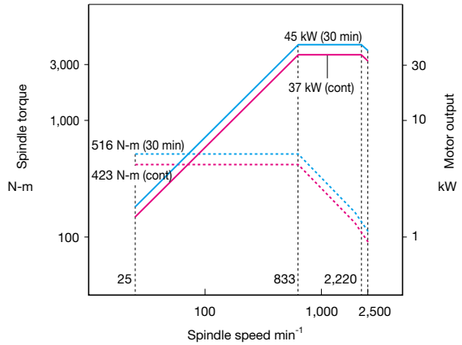
High-speed spindle (OSP)

- Speed 2,500 min^{-1}
- Max output 55/45 kW (30 min/cont)
- Max torque 834/682 N-m (30 min/cont)



High-speed spindle (FANUC)

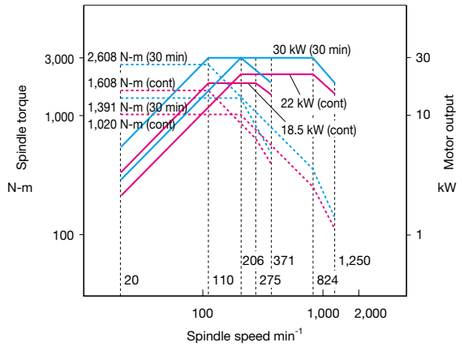
- Speed 2,500 min^{-1}
- Max output 45/37 kW (30 min/cont)
- Max torque 516/423 N-m (30 min/cont)



V920EX/2SP-V920EX

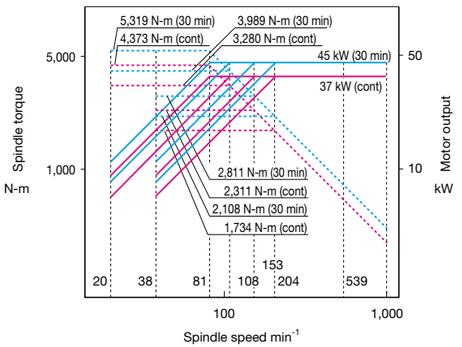
Standard spindle (FANUC)

- Speed 1,250 min^{-1}
- Max output 30/22 kW (30 min/cont)
- Max torque 2,608/1,608 N-m (30 min/cont)



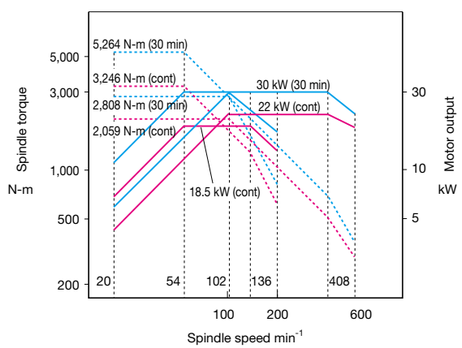
High-torque spindle (OSP)

- Speed 1,000 min^{-1}
- Max output 45/37 kW (30 min/cont)
- Max torque 5,319/4,373 N-m (30 min/cont)



High-torque spindle (FANUC)

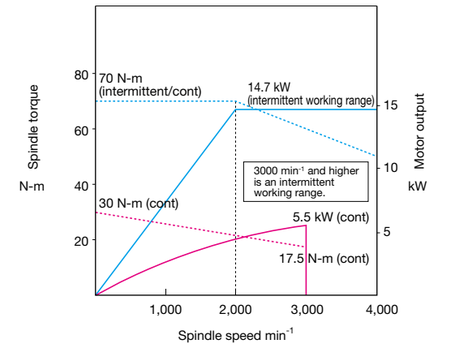
- Speed 600 min^{-1}
- Max output 30/22 kW (30 min/cont)
- Max torque 5,264/3,246 N-m (30 min/cont)



Milling tool spindle output/torque diagram (FANUC)

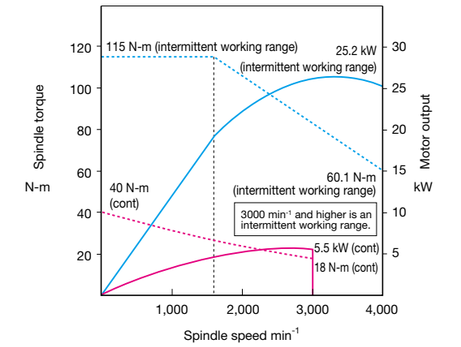
V760EX/2SP-V760EX

- Speed 4,000 min^{-1}
- Max output 5.5 kW (cont)
- Max torque 70/30 N-m (Intermittent/cont)



V920EX/2SP-V920EX

- Speed 4,000 min^{-1}
- Max output 5.5 kW (cont)
- Max torque 115/40 N-m (Intermittent/cont)



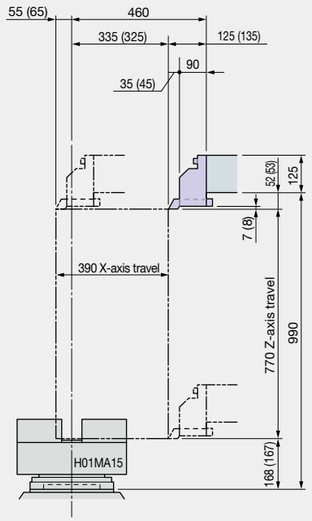
Working Ranges

V760EX/2SP-V760EX

Unit: mm

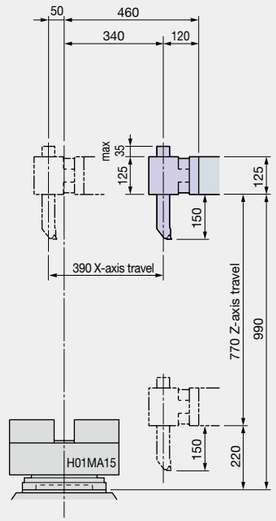
■ V12 turret

<OD toolholder>



OD toolholder OD-I25
( ): OD-I32

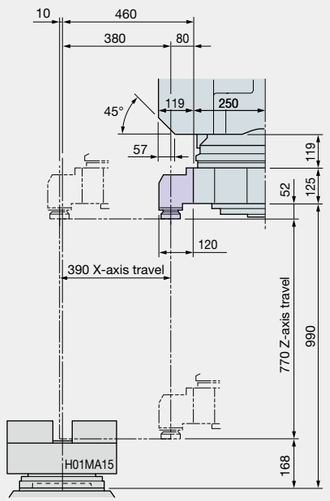
<ID toolholder>



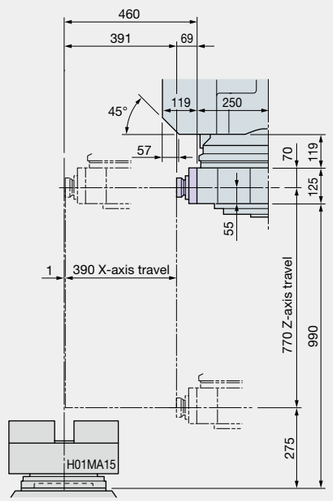
ID toolholder ID-H40
ID-H50
ID-H63

■ M-V12 turret

<Axial mill/drill unit>



<Radial mill/drill unit>

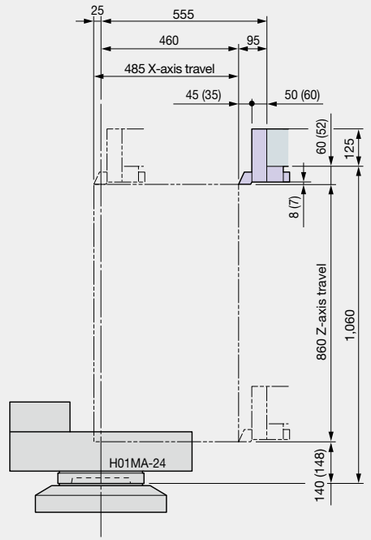


V920EX/2SP-V920EX

Unit: mm

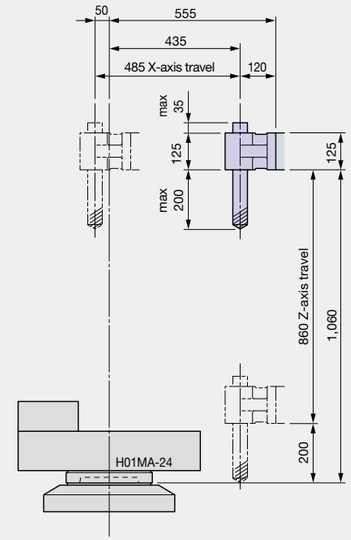
■ V12 turret

<OD toolholder>



OD toolholder OD-Ⅲ32
( ): OD-Ⅲ25

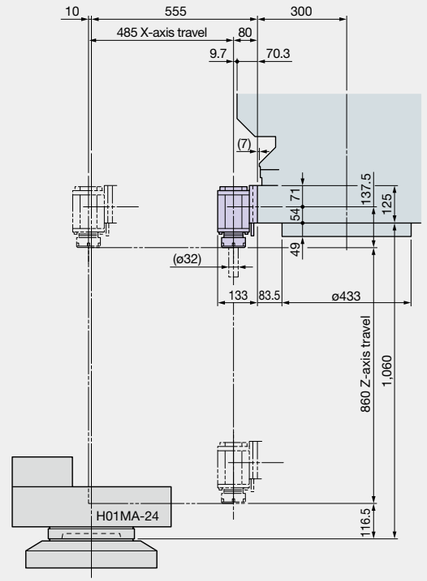
<ID toolholder>



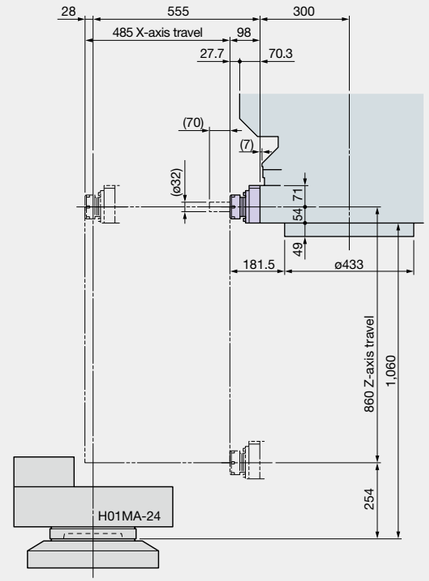
ID-H40
ID-H50
ID-H63

■ M-V12 turret

<Axial mill/drill unit>



<Radial mill/drill unit>

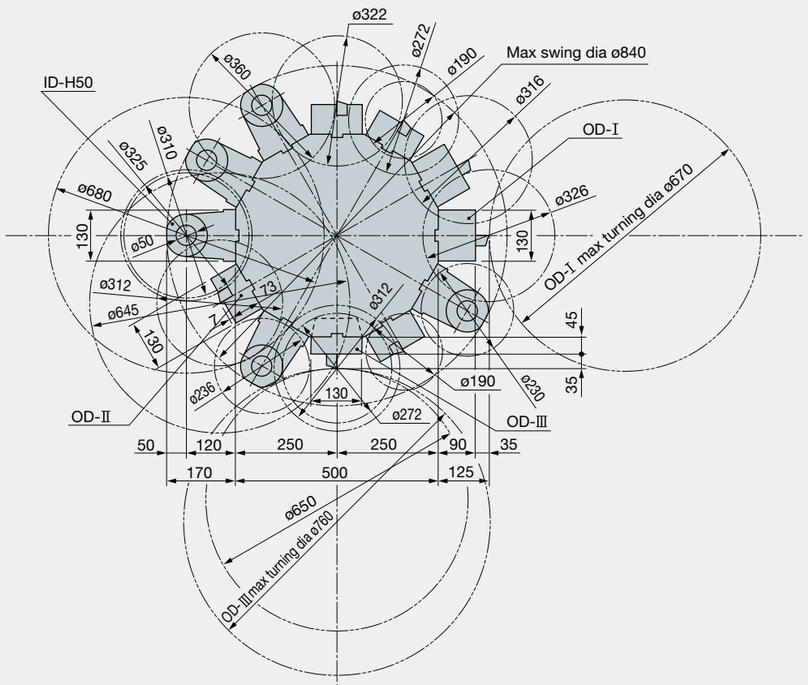


Tool interference drawing

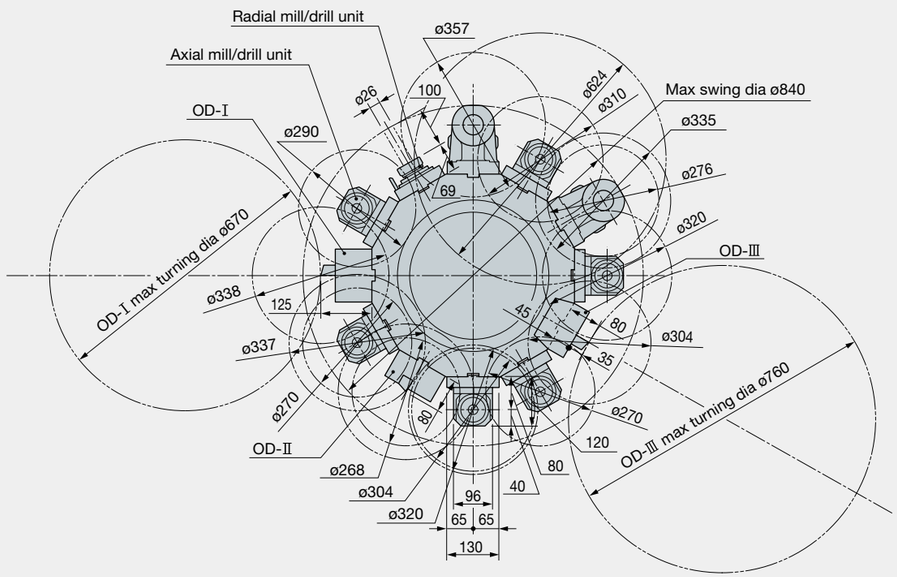
V760EX/2SP-V760EX

Unit: mm

V12 turret



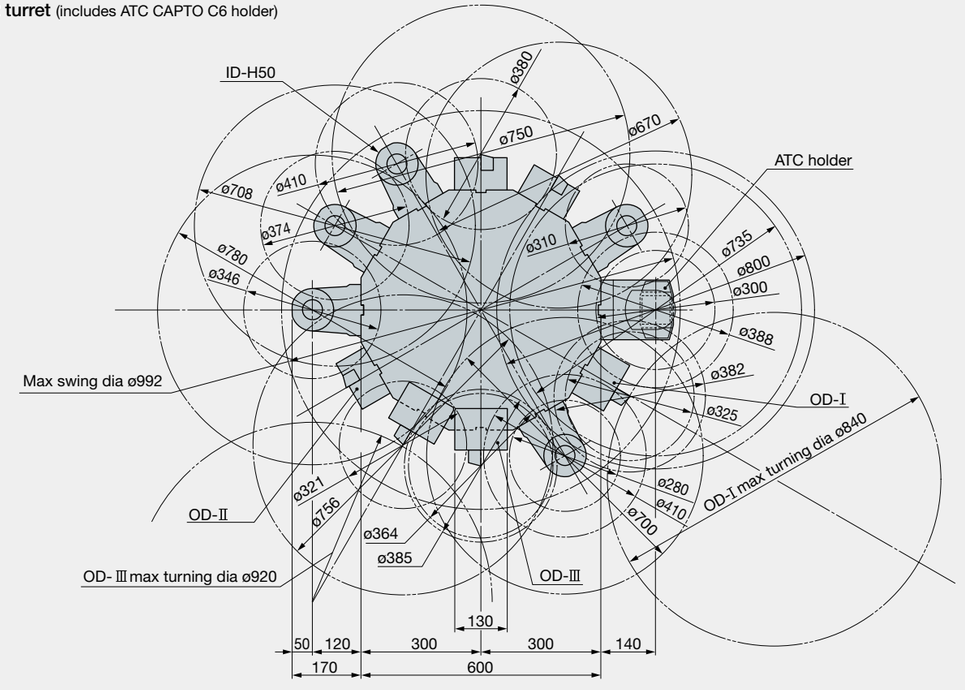
M-V12 turret



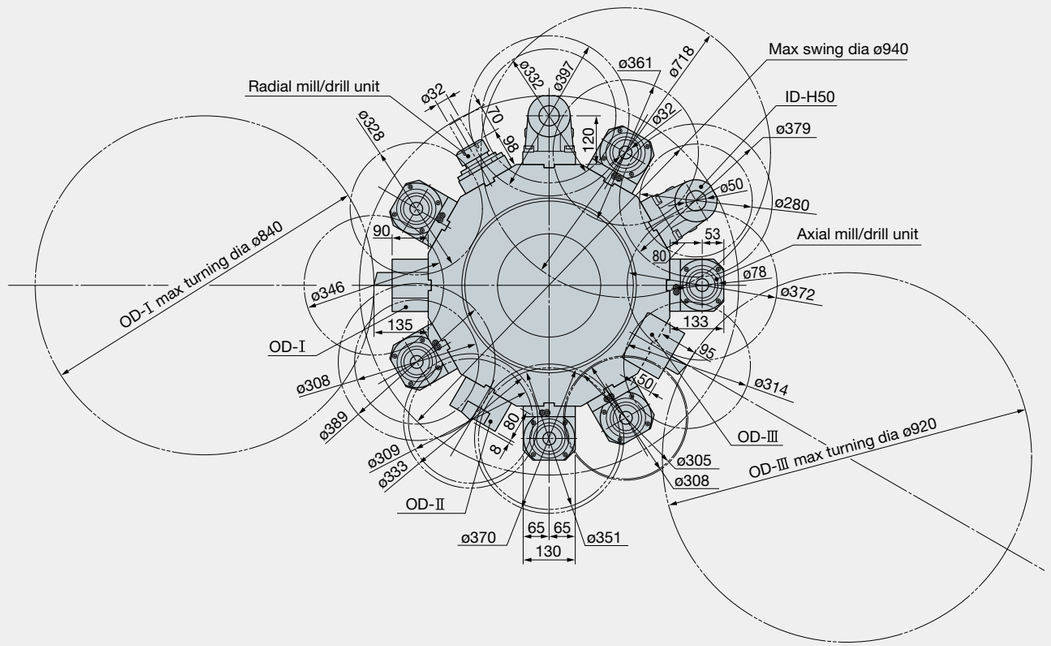
V920EX/2SP-V920EX

Unit: mm

V12 turret (includes ATC CAPTO C6 holder)



M-V12 turret

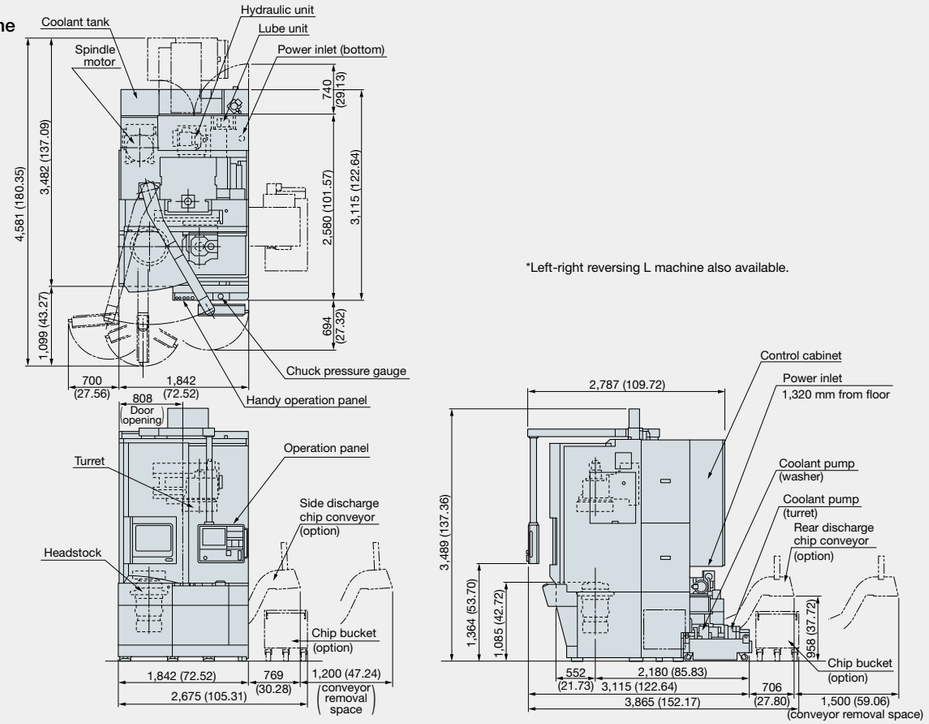


Dimensional and Installation Drawings

V760EX/2SP-V760EX

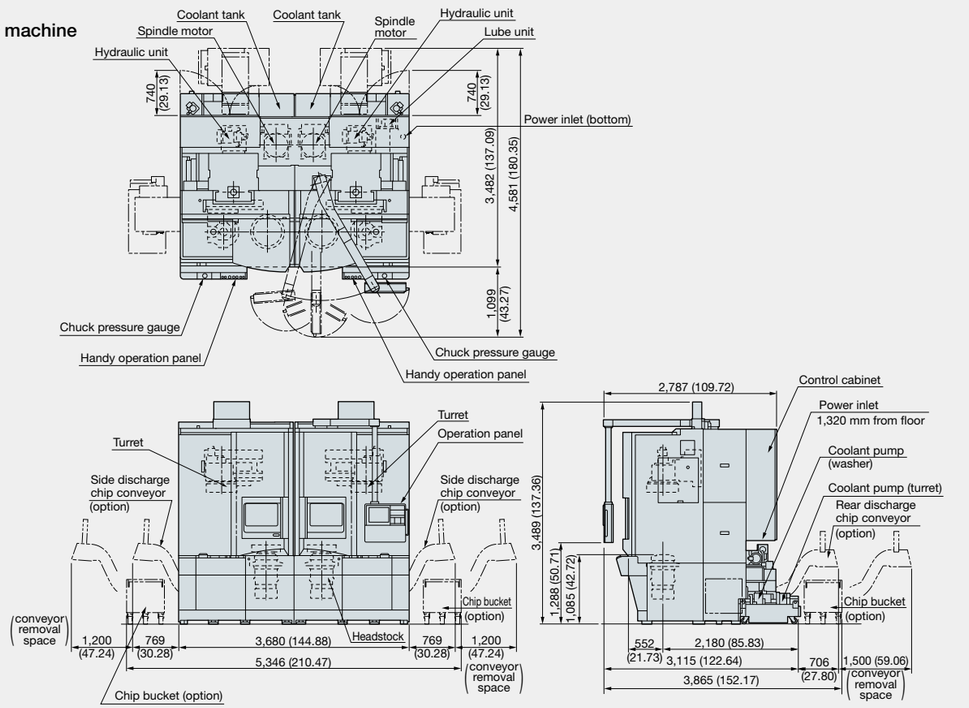
Unit: mm (in)

■ R machine



*Left-right reversing L machine also available.

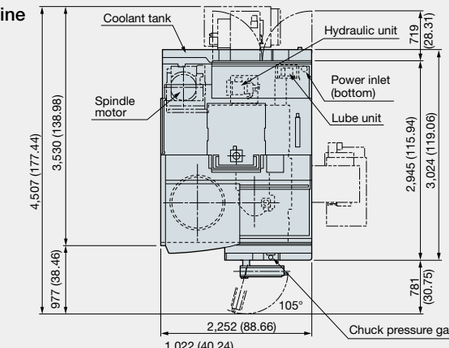
■ 2SP machine



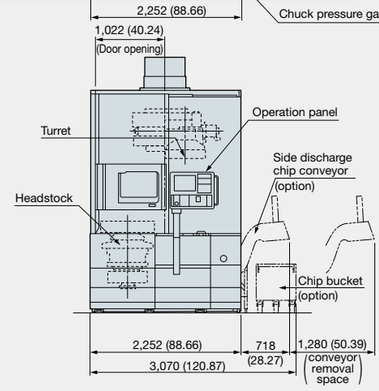
V920EX/2SP-V920EX

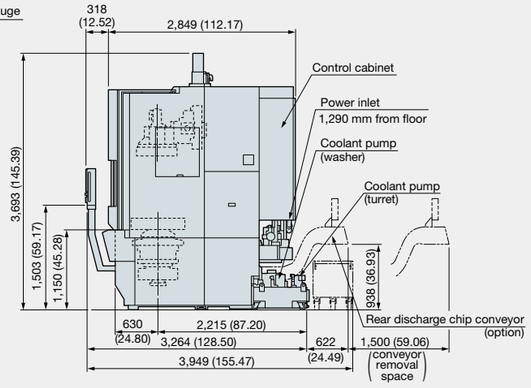
Unit: mm (in)

■ R machine

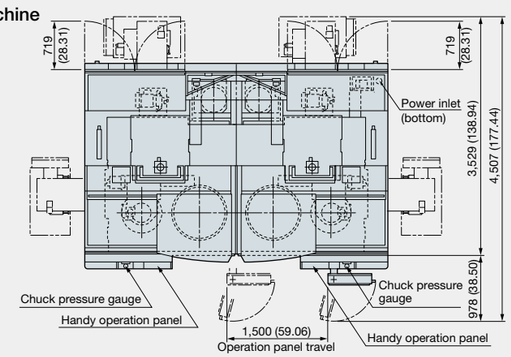


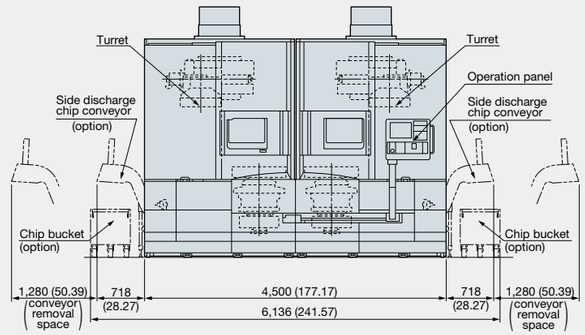
*Left-right reversing L machine also available.

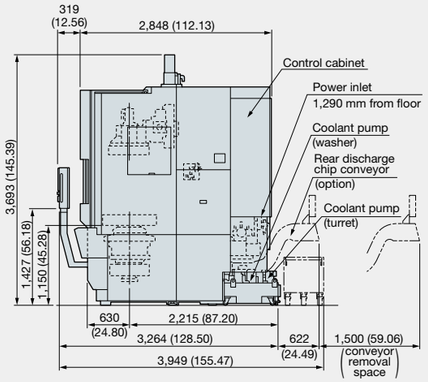




■ 2SP machine





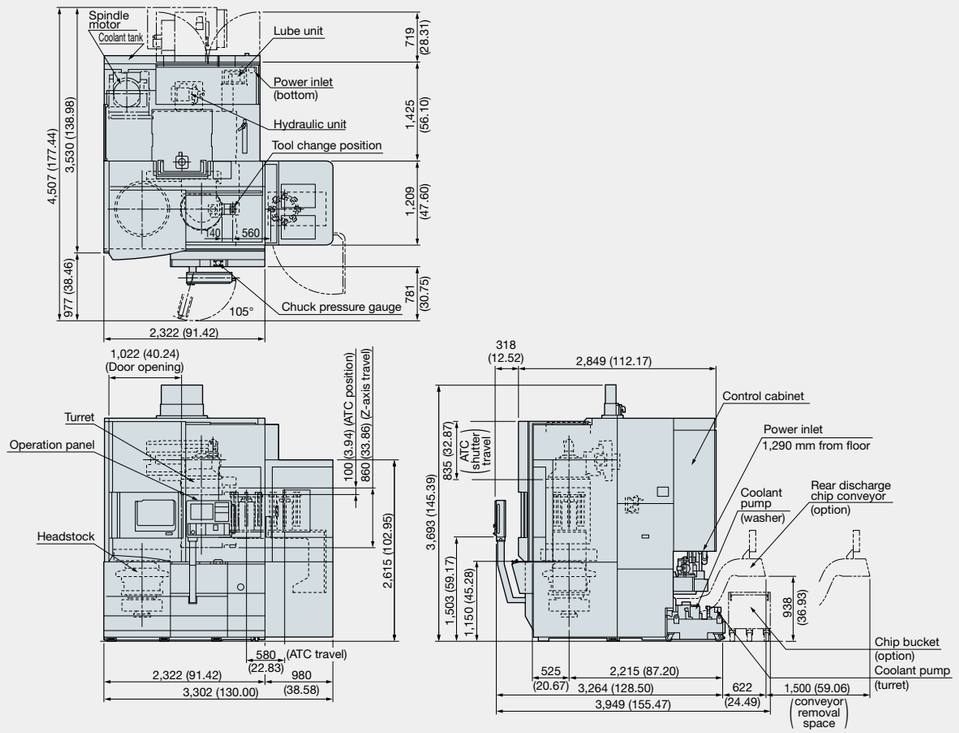


Dimensional and Installation Drawings

V920EX

Unit: mm (in)

■ ATC specs



OSP suite OSP-P300LA

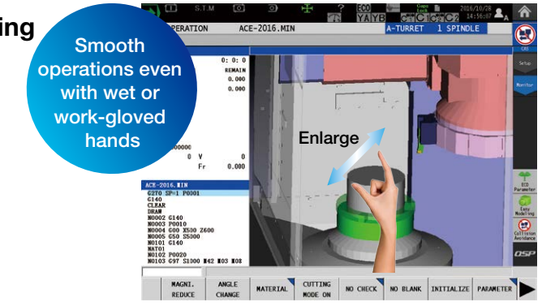
The Next-Generation Intelligent CNC

With revamped operation and responsiveness— ease of use for machine shops first!

Smart factories are using advanced digitization and networking (IIoT) in manufacturing to achieve enhanced productivity and added value. The OSP has evolved tremendously as a CNC suited to advanced intelligent technology. Okuma's new control uses the latest CPUs for a tremendous boost in operability, rendering performance, and processing speed. The OSP suite also features a full range of useful apps that could only come from a machine tool manufacturer, making smart manufacturing a reality.

Smooth, comfortable operation with the feeling of using a smartphone

Improved rendering performance and use of a multi-touch panel achieve intuitive graphical operation. Moving, enlarging, reducing, and rotating 3D models, as well as list views of tool data, programs, and other information can be accomplished through smooth, speedy operations with the same feel as using a smartphone. The screen display layout on the operation screen can also be changed to suit operator preferences and customized for the novice and/or veteran machinists.



"Just what we wanted."— Refreshed OSP suite apps

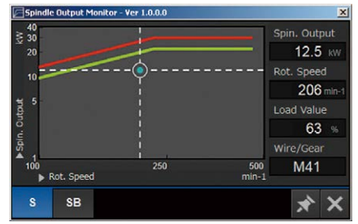
This became possible through the addition of Okuma's machining expertise based on requests we heard from real, machine-shop customers. The brain power packed into the CNC, built by a machine tool manufacturer, will "empower shop floor" management.

Spindle Output Monitor

S11

Increased productivity through visualization of motor power reserve

The specified spindle output (red line: short time rating, green line: continuous rating) and the spindle output in current cutting (blue circle) are simultaneously displayed on the screen, for real-time view of power reserve during cutting. This allows speeding up cutting by increasing the spindle speed or feed rate while monitoring the graph to ensure that the blue circle does not cross the lines.



Scheduled Program Editor

S10

Easy programming without keying in code

E-mail Notification

S15

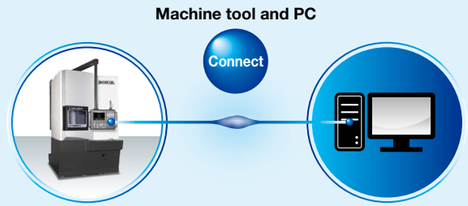
Monitoring utilization status even when away from the machine

Connect Plan

Get Connected, Get Started, and Get Innovative with Okuma "*Monozukuri*"

Connect, Visualize, Improve

Okuma's Connect Plan is a system that provides analytics for improved utilization by connecting machine tools and visual control of factory operation results and machining records. Simply connect the OSP and a PC and install Connect Plan on the PC to see the machine operation status from the shop floor, from an office, from anywhere. The Connect Plan is an ideal solution for customers trying to raise their machine utilization.



OSP suite OSP-P300LA

The Next-Generation Intelligent CNC

Standard Specifications

Basic Specs	Control	Turning: X, Z simultaneous 2-axis. Multitasking: X, Z, C simultaneous 3-axis
	Position feedback	OSP full range absolute position feedback (zero point return not required)
	Min / Max command	±99999.999 mm, ±99999.999° 8-digit decimal, command unit: 0.001 mm, 0.01 mm, 1 mm (0.001°, 0.01°, 1°)
	Feed	Override: 0 to 200%
	Spindle control	Direct spindle speed commands (S4) override 50 to 200%, Constant cutting speed, optimum turning speed designate
	Tool compensation	Tool selection: 32 sets, tool offset: 32 sets
	Display	15-inch color display operational panel, multi-touch panel operations
	Self-diagnostics	Automatic diagnostics and display of program, operation, machine, and NC system problems
	Program capacity	Program storage: 4 GB, operation buffer: 2 MB
Operations	"suite apps"	Applications to graphically visualize and digitize information needed on the shop floor
	"suite operation"	Highly reliable touch panel suited to shop floors. One-touch access to suite apps.
	Easy Operation	"Single-mode operation" to complete a series of operations. Advanced operation panel/graphics facilitate smooth machine control
	Programming	Program management, edit, scheduled programs, fixed cycles, special fixed cycles, tool nose R compensation, fixed drilling cycles, arithmetic functions, logic statements, trig functions, variables, branch statements, auto programming (LAP4), programming help
	Machine operations	MDI, manual (rapid traverse, pulse handle), load meter, operations help, alarm help, sequence, return, manual interrupt & auto return, Data I/O, spindle orientation (electric), easy setting of cycle time reduction
	MacMan	Machining Management: machining results, machine utilization, fault data compile & report, external output
Communications/Networks		USB (2 ports), Ethernet, DNC-T1
High speed/accuracy	Thermo Active Stabilizer–Construction	Compensates for thermal deformation error in the machine structure due to ambient temperature changes (TAS-C)
	High speed/accuracy	Hi-G control
Energy-saving function	ECO suite plus	ECO Idling Stop, ECO Power Monitor
	Power Regeneration System	Regenerative power is used when the spindle and feed axes decelarate to reduce energy waste.

Optional Specifications

Item		Kit specs *1 NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OTM E	OTM D
New Operations									
Advanced One-Touch IGF-L*2						●	●		
Advanced One-Touch IGF-L Multitasking*2								●	●
Programming									
Circular threading			●		●		●		●
Program notes			●		●		●		●
User task 2 I/O variables, 8 each									
Work coor-dinate systemselect	10 sets								
	50 sets								
	100 sets								
Tool compen-sation (Std: 32 sets)	Tool compensation 64 sets								
	Tool compensation 96 sets								
	Tool compensation 200 sets								
	Tool compensation 999 sets								
Common variables 1,000 sets (Std: 200 sets)									
Thread matching									
Threading slide hold (G34, G35)									
Variable Spindle Speed Threading (VSST)									
Inverse time feed									
Milling machine specs	Coordinate convert	▲	▲	▲	▲			●	●
	Profile generate	▲	▲	▲	▲			●	●
	C-axis Torque Skip								
	Helical Contour Generation								
Monitoring									
Real 3-D Simulation				●	●	●	●	●	●
Cycle time over check		●	●	●	●	●	●	●	●
Load monitor (spindle, feed axis)				●	●	●	●	●	●
Load monitor no-load detection (load monitor ordered)									
AI machine diagnostics (feed axes)*4									
Status Logger									
Tool life management			●		●		●		●
Tool life warning									
Operation end buzzer									
Chucking miss detection		Included in machine specs							
Workpiece counters	Count only								
	Cycle stop								
	Start disabled								
Hour meters	Power ON								
	Spindle rotation								
	NC operating								
NC operation monitor (counter, totaling)		●	●	●	●	●	●	●	●
Status indicator (triple lamp) Type C [Type A, Type B]		●	●	●	●	●	●	●	●
Measuring									
In-process workpiece gauging		Included in machine specs							
Z-axis automatic zero offset by touch sensor									
C-axis automatic zero offset by touch sensor									
Gauge data output	File output								
Post-process workpiece gauging interface	Set levels (5-level, 7-level)								
	BCD								
	RS-232C (dedicated channel)								
Touch Setter [M, A]		Included in machine specs							

Item		Kit specs *1 NML E	NML D	3D E	3D D	OT-IGF E	OT-IGF D	OTM E	OTM D
External Input/Output and Communication Functions									
RS-232C connector									
DNC link	DNC-T3								
	DNC-C/Ethernet								
	DNC-DT								
USB	2 additional ports possible								
Automation/Unattended Operation									
Auto power shutoff M02, alarm									
Warm-up function (by calendar timer)									
Tool retract cycle									
External program selections	A (pushbutton) 8 types								
	B (rotary switch) 8 types								
	C1 (digital switch) BCD, 2-digit								
	C2 (external input) BCD, 4-digit								
Third party robot and loader interface*3	Type B (machine)								
	Type C (robot and loader)								
	Type D								
	Type E								
Cycle time reduction*3	Operation time reduction	●	●	●	●	●	●	●	●
High-Speed/High-Accuracy Functions									
Pitch error compensation									
AbsoScale detection*3									
Hi-Cut Pro		▲	▲	▲	▲			●	●
Energy-saving function ECO suite plus									
ECO Operation	Chip conveyor intermittent/ linked operation								
	Mist collector intermittent/ linked operation								
	Spindle Power Peak Limiter								
ECO Power Monitor	Wattmeter								
Other Functions									
Collision Avoidance System (CAS)									
One-Touch Spreadsheet									
Machining Navi L-gII									
Harmonic Spindle Speed Control (HSSC)		●	●	●	●	●	●	●	●
Spindle dead-slow cutting									
Spindle speed setting									
Manual cutting feed									
Short circuit breaker									
External M signals [2 sets, 4 sets, 8 sets, 16 sets]									
Edit interlock									
OSP-VPS (virus protection system)									
Lighting in control cabinet									
Air conditioning in control cabinet									

*1. NML: Normal, 3D: Real 3D simulation, OT-IGF: One-Touch IGF, OTM: One-Touch M
E: Economy, D: Deluxe
*2. Real 3-D Simulation included
*3. Engineering discussions required.
*4. With AbsoScale detection specs, ball screw wear detection is possible.
Note: ▲ Triangle items for M function (milling tool) machines only.

FANUC 0i-TF

Standard Specifications

No. of controlled axes	2 simultaneous axes with X-, Z-axis, 3 simultaneous axes with multitasking on X-, Z-, C-axis	Program input	Program memory capacity 1MB	
Interpolation system	Positioning, straight line, taper, arc, threading, taper		No. registered programs: 800	
	Fine coordinate interpolation, Cylindrical interpolation (M spec only)		Chamfering/corner radius	
Command system	Parallel absolute/incremental command		Complex shape fixed cycle (I+II)	
Minimum input increment	Both X-, Z-axis 0.001 mm		Extension program editing	
Min command value	±99999.999 mm, decimal point input		USB memory input/output (program input/output only)	
Operating panel	10.4 in color LCD		Custom macro	
Monitoring	Display language: English / Japanese		Custom macros common variables (500)	
	Operating time, no. of parts display		Programmable data input	
	Electronic buzzer (alarm + operation end)		High-speed skip	
	Graphic display		Program protection key switch	
	Tool life management (FANUC software)		Background editing	
Machine operations	Constant cutting speed control		Fixed drilling cycle	
	Spindle orientation (1 point, M19)		Inch/metric conversion	
	Continuous threading	Compensation	Thermal deformation compensation	
			Nose-radius comp	
			Tool dimensions/wear compensation	
			Tool compensations (64/system)	
			AI contouring control I	

Optional Specifications

Monitor	Tool counter	
	Work counter	
	Multi-counter	
	Hour meters	
	Status indicator	3-step
	Tool life management	Okuma software Spare tool jump
	Abnormal load detection	Spindle + feed axes
Machine operations	Oriented spindle stop	4-point (M19, 119, 129, 139)
	Auto power shut-off	
	Circuit breaker	
Program input	External program selection	Digital switch with 2-digit indicator
	System selection Tool compensation	G54 to G59
	Program restart	
	Spare M codes	2 pts, 4 pts, 8 pts
	Memory type pitch error compensation	
	Custom macros common variables (1,000)	
Automation	RS-232C input/output connector	1ch, 2ch
Other	Lighting in control cabinet	LED
	Air conditioning within control cabinet	Temperature regulator (cooler only), dehumidifier
	AC 100V 1A plug	In operation panel, control cabinet

V760EX/25P-V760EX
V920EX/25P-V920EX

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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