





Consistent machining performance is received by the precise synchronization of the control and the drives.

> Synchronized control of the Y and Z axes drives and the large-diameter twin-lead ball screws

Provision of various types of spindles to respond to any users' demands

Three types of spindle specification.

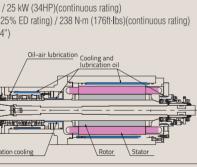
High-speed Spindle (MS)

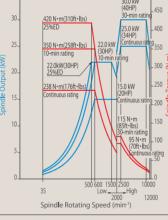
For high-speed and high efficient machining of general parts

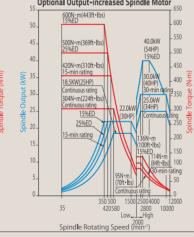
Spindle rotating speed: 35 through 12000 min-Spindle motor: 30 kW (40HP) (30-min rating) / 25 kW (34HP)(continuous rating) Maximum spindle torque: 420 N·m (310ft-lbs)(25% ED rating) / 238 N·m (176ft-lbs)(continuous rating) Spindle bearing bore diameter: ø100 mm (3.94")

Optional Output-increased Spindle Motor

600 N·m (443ft·lbs)(15% ED rating)







Gear-drive Spindle (Three-step Gear Drive)

For smoothly machining the hard-to-cut materials for heavy-duty parts

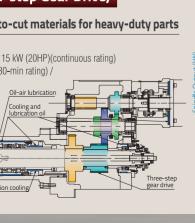
Spindle rotating speed: 20 through 8000 min-Spindle motor: 18.5 kW (25HP)(30-min rating) / 15 kW (20HP)(continuous rating Maximum spindle torque: 1052 N·m (776ft·lbs)(30-min rating) /

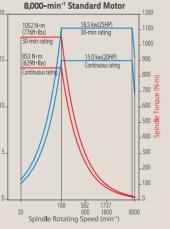
853 N·m (629ft·lbs)(continuous rating) Spindle bearing bore diameter: ø120 mm(4.72"

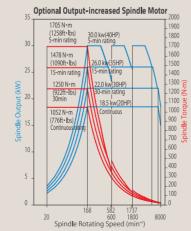
Optional Output-increased Spindle Motor

30.0 kW (40HP)(5-min rating) / 18.5 kW (25HP)(continuous rating) Maximum spindle torque:

1705 N·m (1258ft·lbs)(5-min rating) / 1052 N·m (776ft-lbs)(continuous rating)







Two Position Locking Quill Style Spindle (Three-step Gear Drive)

The two position locking quill spindle can realize with a single chucking operation the machining that required two processes using the machining center and the boring machine. It allows a drastic reduction in the total machining time by reducing both the processes and the setup work that can take hours for the large-size parts.

Spindle rotating speed: 20 through 4000 min⁻¹ Spindle motor: 18.5 kW (25HP)(30-min rating) / 15 kW (20HP)(continuous rating)

1000 N·m (738ft.lbs)(30-min rating) / 810 N·m (597ft.lbs)(continuous rating Spindle bearing bore diameter: ø150 mm (5.91" Quill spindle outside diameter: ø110 mm (4.33"

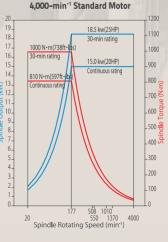
Optional Output-increased Spindle Motor

810 N-m (597ft lbs)(continuous rating)

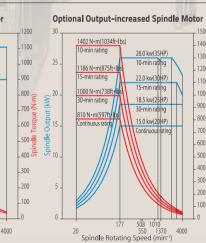
Spindle motor: 26.0 kW (35HP)(10-min rating) / 22.0 kW (30HP)(15-min rating) / 18.5 kW (25HP)(30-min rating) / 15 kW (20HP)(continuous rating) Maximum spindle torque:1402 N·m (1034ft.lbs)(30-min rating) / 1186 N-m (875ft, lbs)(30-min rating) / 1000 N-m (738ft, lbs)(30-min rating)







extending the tool life.



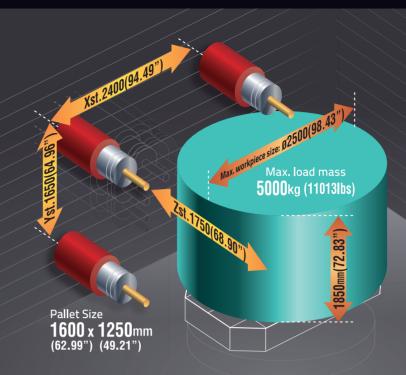
The twin-lead ball screws on the Y and Z axes dampen

vibrations. Focused efforts have resulted in the decrease in machining time, improving the machining accuracy, machined surface quality, contouring accuracy and



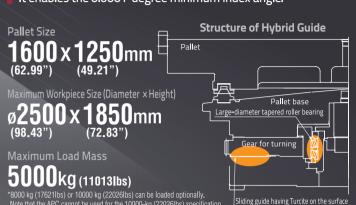
High-accuracy Positioning and High Clamping Force

OKK's original six cylinder pallet clamping holds with a force of 284 kN and six taper cones produce high-accuracy positioning. The balanced clamping method and high clamping force delivers high cutting capability that is necessary for machining the large and heavy workpieces.



Hybrid guide supporting heavy workpiece Utilizing a large-diameter tapered roller bearing and the sliding guide surface on the B axis has produced a highly rigid table.

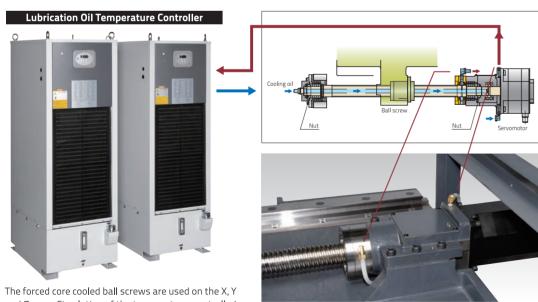
The built-in rotary table (BRT) is ideal for machining complicated workpieces and is included in the standard specification. It enables the 0.0001-degree minimum index angle.



Wide Machining Area available for Large Workpieces

OKK pursued the ultimate superior accuracy, accessibility and operability by a thorough study of the heavy-duty cutting environment.

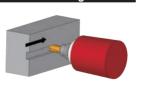
Forced Core Cooled Ball Screw and Double-anchoring Method

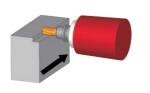


and Z axes. Circulation of the temperature-controlled The double-anchoring method is effective for improving the feed cooling oil on the surfaces of the ball screws, ball mechanism's rigidity and accuracy. Use of the method for the X, Y screw supports and motor mounting section and Z axes improves the fine-feed and lost-motion characteristics minimizes the thermal displacement and provides continued accuracy over a long period of time. and drastically increases the circular cutting accuracy.

Cutting Data







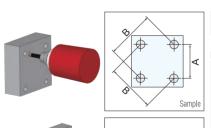
Type of machining	Face milling (ø125(5")x6T)			
Quill spindle position	Standard position (0 mm)(0")	Extended position (300 mm)(11.81")		
Spindle rotating speed	300min-1	300min ⁻¹		
Width of cut	100mm (3.94")	100mm (3.94")		
Depth of cut	6mm (0.24")	2.5mm (0.098")		
Feed rate	1000mm/min (39.37ipm)	600mm/min (23.62ipm)		
Cutting rate 600cm³/min (36in³/min)		150cm³/min (9in³/min)		
Workpiece material	S45C	S45C		

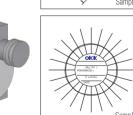
Type of machining	Grooving (ø50(2°)×6T)		
Quill spindle position	Standard position (0 mm)(0")		
Spindle rotating speed	160 min ⁻¹		
Width of cut	50mm (1.97")		
Depth of cut	25mm (0.98")		
Feed rate	200mm/min (7.87ipm)		
Cutting rate	250cm³/min (15in³/min)		
Workpiece material	S45C		

Type of machining	Side milling (ø50(2")×6T)
Quill spindle position	Standard position (0 mm)(0")
Spindle rotating speed	160 min ⁻¹
Width of cut	25mm (0.98")
Depth of cut	50mm (1.97")
Feed rate	200mm/min (7.87ipm)
Cutting rate	250cm³/min (15in³/min)
Workpiece material	S45C

The above values are reference values and consider them only as a guide for the cutting capability.

Accuracy





Item	OKK tolerance	Example record
Axial direction Diagonal direction Difference in diameter	0.015 (0.00059")	-0.004 (-0.00016")
	0.015 (0.00059")	-0.001 (-0.00004")
	0.010 (0.00039")	0.003 (0.00012*)

-	Circular Cutting	(mm)	
	Item	OKK tolerance	Example record
ole	Circularity	0.015 (0.00059")	0.00413 (0.00016")

Positioning Accuracy		(mm)
Item		
Positioning	When linear scale is not used	X:±0.0035(0.00014") / full length Y:±0.0030(0.00012") / full length Z:±0.0030(0.00012") / full length
accuracy	When linear scale is used	X:±0.0030(0.00012") / full length Y:±0.0025(0.00010") / full length Z:±0.0025(0.00010") / full length
Repeated positioning	When linear scale is not used	X/Y/Z:±0.0020(0.00008*) / fu ength
accuracy	When linear scale is used	X/Y/Z:±0.0015(0.00006*) / full length

- 1. The data shown above as an example are based on the short-time machining. The values may vary in the continuous machining.

 2. The data shown above as an example were obtained under the OKKs in-house cutting test conditions. The values may vary with
- the condition of the cutting tools and fixtures.
- The above accuracy data are the laboratory data obtained by installing the machine according to the OKK's foundation drawing and carrying out the inspection based on the OKK's inspection standard in the environment with constant temperature.





We have considered the measures for chip removal, ease of maintenance, etc. and thoroughly pursued the production efficiency in the long hours of operation.

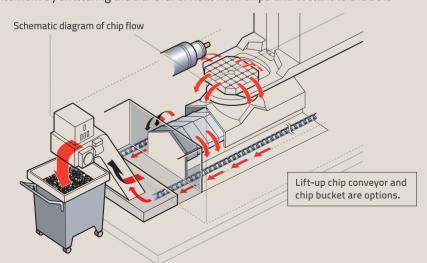
Design structure in consideration of safety, operability and even the environmental measures

We have improved largely the operability- and chip-processing-related problems that are specific to the large-size machines.

Thorough Chip Processing Measures

The shutter slots have been eliminated from the Y-axis upper and lower covers. Both the table main body and the Z-axis shutter have been steepened to avoid chips accumulation and improve the continuous machining reliability.

The wide troughs on both sides of the table can receive a large amount of chips. The chips and coolant in the troughs are completely transferred and ejected from the machine by means of the coil-type conveyors. The troughs also help to suppress the thermal displacement by sheltering the transfer of heat from chips and coolant to the bed.



A large amount of coolant can be jetted and sprayed evenly over the machine inside by using four 1.2-kW(1.6HP) pumps dedicated to the ceiling shower. The high-capacity ceiling shower washes away chips from fixtures and workpieces and prevents chips from accumulating.





ATC [Automatic Tool Changer]



Consistent tool change operation and superior durability are ensured by use of the acknowledged OKK's original cam-controlled high-speed synchronizing tool changer (OKK

The variable-speed ATC function included in the standard specification allows setting at the time of tool registration for the heavy tools and large-diameter tools so that the ATC turning speed slows down automatically to change those tools smoothly.

Maximum Tool Diameter

ø115mm(4.53") *ø300 mm (11.81") when the adjoining tool nots are empty.

Maximum Tool Length

600mm(23.62")

or more tools, the maximum tool length for the tools stored in the 3rd or later magazines is restricted to 500 mm

Maximum Tool Mass **30**kg(66.1lbs)

3.8s Tool Exchange Time

(tool-to-tool)

(cut-to-cut)

Tool Exchange Time

11.0s

Maximum Tool Moment

29.4N·m (21.7ft·lbs)

APC [Automatic Pallet Changer]



APC [Automatic Pallet Changer]

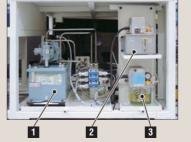
The APC mechanism of HM1600 uses the direct-turn method consisting only of the pallet lift and turning mechanism so that the pallet exchange time is reduced and space-saving is realized. It can handle the table's maximum load mass of 8000 kg (17621lbs) [option].

Since its design has taken into consideration the expansion for automation (6APC with automatically transferred pallet), it is easily compatible with the line configuration.

Maintenance

The daily inspected equipment are aggregated and installed below the lower steps for ease of







140.	Name of Equipment
1	Hydraulic unit
2	B-axis and magazine automatic Jubrication unit
3	Spindle oil-air lubrication unit
4	Air-filter regulator
5	Air dryer
6	Air Jubricator
7	Oil separation unit
8	Grease automatic lubrication unit

Lift-up Chip Conveyor [Option]

We can provide various types of lift-up chip conveyors.





Machine Specification

Main Specification

Item		12000-min ⁻¹ MS	8000-min ⁻¹ gear spindle	4000-min ⁻¹ two position spindle
Travel on X axis (Column's longitudinal direction)	mm	2400(94.49")		
Travel on Y axis (Spindle head's vertical direction)	mm	1650(64.96")		
Travel on Z axis (Pallet's cross direction)	mm		1750(68.90")	
Distance from table top surface to spindle center	mm	100(3.94")~1750(68.90")		
Distance from table center to spindle nose	mm		250(9.84")~2000(78.74")	
Table (pallet) work surface area	mm		600(62.99")×1250(49.2	
Table (panet) work surface area	111111		, , ,	
Max. mass of load on table (pallet)	kg	(Uniformly distributed load)	(OP:8000kg(17621lbs) Uniformly distributed load)	OP:10000kg(22026lbs) *1 Uniformly distributed load
Table (pallet) top surface specification		34 × M20 scr	ew hole at intervals of 2	50 mm(9.84")
Minimum indexable angle of table (pallet)	٥		0.0001	
Table (pallet) indexing time per 90°	sec		000-kg(22026lbs) spec	
Spindle rotating speed	min-1	35~12000	20~8000	20~4000
Number of spindle speeds		2-speed electrical shift (MS)	3-speed gearshift	3-speed gearshift (two position spindle)
Spindle taper hole			7/24 taper No. 50	
Spindle bearing bore diameter		ø100(3.94")	ø120(4.72")	ø150(5.91")
Rapid traverse rate	mm	42000(1653.54") (Optional 10	000-kg(22026lbs) specification	: 20000 mm/min (787.40ipm))
Cutting feed rate	mm/min	1~	20000 (0.04~787.40ipm	1) *2
Type of tool shank	mm/min		JIS B 6339 BT50	
Type of pull stud			OKK only 90°	
Number of stored tools	tool		60 *3	
Maximum tool diameter	mm	g115(4.53") (g300	mm (11.81") with no to	ols in adjacent nots)
Maximum tool length (from gauge line)	mm	2110(1.00) (2000	600(23.62")	oto in adjaconi poto)
Maximum tool mass	kg		30(66.1lbs)	
Maximum tool memont	N·m		29.4(21.7ft·lbs)	
Tool selection method	14111	Add	dress fixed random meth	nod
Tool exchange time (tool-to-tool)	sec		ed is changeable for hea	
Tool exchange time (cut-to-cut)	sec		000-kg(22026lbs) speci	
Pallet exchange method	300	TT (Optional To	Direct turn method	illoation. 15 sec)
Pallet exchange time (JIS B 6336-9)	Sec	54 (Optional 90	000-kg(17621lbs) specii	fination: 65 cool
	300	34 (Optional of	000-kg(17021103) specii	1041011. 05 366)
Spindle motor (30-min rating/continuous rating)	AC, kW	30/25(40HP/30HP)	18.5/15(25HP/20HP)	18.5/15(25HP/20HP)
Motor for ATC	kW		0.75(1HP)	
Feed motors	AC, kW	X:5.0(6.7HP) Y:4.	0(5.4HP)×2 Z:5.0(6.7HI	P)×2 B:4.5(6.0HP)
Hydraulic pump motor	kW		2.2(3HP)	
Spindle and feed system cooling oil pump motor (compression/discharge)	kW	2.48/0.75×2 (3.3HP/1HP×2)		2)
Coolant pump motor	kW		1.2(1.6HP)	
Motor for APC	AC, kW	7.0(9.4HP)		
Power supply AC200V±10% 50/60Hz±1Hz AC220V±10% 60Hz±1Hz *4	kVA	97	80	80
Compressed air supply	MPa, I/min[ANR]	0.4(57.1psi)~0	0.6(85.7psi), Min500(13	2.2GPM) *4 *5
Hydraulic unit tank capacity	1		20(5.3gal)	
Spindle and feed system cooling oil tank capacity	l	75(19.8gal)×2		
B axis and magazine lubrication oil tank capacity	İ	4.0(1.1gal)		
Coolant tank capacity	i i		4.0(1.1gal) 800(211.4gal)	
Machine height	mm		4370(172.05")	
Required floor space	mm	615	55(242.32")×9485(373.4	12")
Machine mass	kg		0133(242.32)×9463(373.42) 50000(110132lbs) (Optional 10000-kg(22026lbs) specification: 40000 kg(88105lbs))	
Operating environment temperature	°C	22220(11010E100) (Optiona	5~40	
Operating environment humidity	%	1	0~90 (No condensatio	n)

Note 1: The APC cannot be used for the 10000-kg(22026lbs) specification.

Note 2: Feed rate under the HQ or Hyper HQ control.

Note 3: The number of stored tools refers to the total number of tools including the one installed on the spindle i.e. subtract one from the above for the actual number of tools stored in the tool magazine.

Note 4: The values for the standard specification machines are described above. They are subject to change because of the added options. Note 5: Purity of the supplied air should be equivalent to or higher than Class 3.5.4 specified in ISO 8573-1/JIS B8392-1.

Standard Accessories

İtem	Qty	Remarks
Separate coolant tank	1 set	
Slideway protection covers for X, Y and Z axes	1 set	
Top cover / APC safety guard	1 set	
Earth leakage breaker	1 set	
Automatic power off	1 set	
Lighting system (Two lamps inside the machine)	1 set	
Signal lamp (2-lamp type)	1 set	
Edge locator	1 set	
Direct-turn APC unit	1 set	
Chip conveyors (Two for table both sides)	1 set	Coil type inside the machine for chip discharge from rear side
Hydraulic unit	1 set	
Guide and ball screw automatic greasing		Lubricating the linear guides and ball screws
Spindle and feed system cooling oil temperature controller	1 set	
Oil-air unit	1 set	
B axis and magazine automatic lubrication	1 set	
Steps inside the machine	1 set	
Work platform for the operator	1 set	Shared with the equipment box
Foundation parts (for the bond anchoring method)	1 set	Including the bond for foundation
Instruction manual	2 copies	
Electrical instruction manual (including electrical diagrams)	1 copy	

Item	Specification
item	·
Increased spindle motor output	40/30/25kW(54HP/40HP/34HP) (12000-min ⁻¹ MS specification) 22/18.5kW(30HP/25HP) (8000-min ⁻¹ gear-spindle specification
Two-surface locking tool	BT type
Tool removing device	
Changing the type of pull stud	MASI 45° MASII 60°
Number of stored tools	116 / 176 / 236 tools
Multi-pallet APC	
Pallet top face specification	T-slot specification / Special specification
Addition of pallets	
Maximum mass of load on the table	8000 kg(17621 bs) (uniformly distributed load) 10000 kg(22026 bs) (uniformly distributed load without APC
APC safety door automatic operation	
Oil skimmer	
Addition of lighting system	
Signal lamp	3-lamp type with buzzer / 3-lamp type without buzzer
Linear scale	For X, Y and Z axes / For X and Y axes
Coolant-through-spindle	2-MPa(285psi) coolant / 7-MPa(1000psi) coolant / Air misi
Coolant cooler	
Spare Thickener bag filter	6 pieces (1 set)
Air blower	1 nozzle
Oil mist blower	
Minimal quantity lubrication system	External nozzle specification / Spindle-through specification
Swirl stopper block	For oil hole / For angle attachment
Piping for the oil-hole block	Normal pressure (1.2 kW)(1.6HP) / High pressure (2 MPa)(285psi
Ceiling shower	
Workpiece cleaning equipment	Shower gun type
Mist collector	7,
Lift-up chip conveyor	Hinged-pan type / Scraper type / For aluminum chips Scraper type with floor magnet / For aluminum/Fc chips with magnet separal
Conveyor chip bucket	Fixed type / Swing type
Machine coating color	Color specified by customer
Standard tool set	Including a tool box
Air dryer	Ţ.
Fire extinguishing appliance	
Sub table	T-slot / Hole / Special specification
Mass block	T-slot / Hole / Special specification
Angle plate	T-slot / Hole / Special specification
2-face angle plate	T-slot / Hole / Special specification
Fixture	
Tooling	
Rotary table, tail stock	
Vice	
Touch sensor system T1	Workpiece measurement (T1-A) / Tool length measurement, Tool break detection (T1-
Tool break detection inside the magazine	
Tool presence/absence detection	

Controller

FANUC Controller F31i-A

Standard Specification No. of controlled axes: 4 axes (X, Y, Z, B) No. of simultaneously controlled axes: 3 axes (4 axes for BRT specification) Least input increment B: 0.001mm/0.0001inch(X,Y,Z) 0.0001deg(B[BRT]) Max. programmable dimension: ±999999.999mm/±39370.0787inch Absolute / Incremental programming: G90/G91 Decimal point input / Pocket calculator type decimal point input Inch / Metric conversion: G20/G21 Program code: ISO / EIA automatic discrimination Program format: FANUC standard format Nano interpolation (internal) Positioning: G00 Linear interpolation: G01

Circular interpolation: G02/G03 (CW/CCW) (Including radius designation) Cutting feed rate: 6.3-digit F-code, direct command Dwell: G04

Manual handle feed: manual pulse generator 1 set Rapid traverse override: 0/1/10/25/50/100%

Cutting feed rate override: 0 to 200% (every 10%) Feed rate override cancel: M49/M48

Rigid tapping: G84, G74 (Mode designation: M29) Part program storage capacity: 160m[64KB]

No. of registered programs: 120

Part program editing Background editing

Extended part program editing

10.4-inch color LCD/MDI Clock function

MDI (manual data input) operation

Memory card interface

Spindle function: 5-digit S-code direct command

Spindle speed override: 50 to 150% (every 5%) Tool function: 4-digit T-code direct command

ATC tool registration

Miscellaneous function: 3-digit M-code programming

Multiple M-codes in 1 block: 3 codes (Max 20 settings)

Tool length offset: G43, G44/G49

Tool diameter and cutting edge R compensation: G41, G42/G40

Tool offset sets: 99 sets Tool offset memory C

Manual reference position return

Automatic reference position return: G28/G29

2nd reference position return: G30 Reference position return check: G27

Automatic coordinate system setting

Coordinate system setting: G92 Machine coordinate system: G53

Workpiece coordinate system: G54 to G59

Local coordinate system: G52

Program stop: M00

Optional stop: M01

Optional block skip: / Dry run

Machine lock

Z-axis feed cancel

Auxiliary function lock

Graphic display

Program number search

Standard Specification
Sequence number search
Program restart
Cycle start
Auto restart
Single block
Feed hold
Manual absolute on/off parameter
Sub program control
Canned cycle: G73, G74, G76, G80 to G89
Mirror image function parameter
Automatic corner override
Exact stop check/mode
Programmable data input: G10
Backlash compensation for each rapid traverse and cutting feed
0 11 11 1

Memory pitch error compensation (interpolation type)

Skip function

Tool length manual measurement Emergency stop

Data protection key

NC alarm display / alarm history display Machine alarm display

Stored stroke limit 1

Stored stroke limit 2, 3

I oad monitor Self-diagnosis

Absolute position detection

Tool position offset

3-dimensional cutter compensation

Manual Guide i (Basic)

Optional Specification	
15" color LCD/QWERTY key MDI	
Additional one axis control: name of axis (A, B, C, U, V, W) Note 1	
Additional two axes control: name of axis (A, B, C, U, V, W) $^{\text{Note 1}}$	
No. of simultaneously controlled axes: 5 axes Note 1	
FS15 tape format	
Unidirectional positioning: G60	
Helical interpolation	PK
Cylindrical interpolation	
Hypothetical axis interpolation	
Spiral/Conical interpolation	
Smooth interpolation (Hyper HQ control B mode is required)	PK
NURBS interpolation (Hyper HQ control B mode is required)	PK
Involute interpolation	
One-digit F code feed	
Handle feed 3 axes: Standard pulse handle is removed	
Part program storage capacity: 320m [128KB] (250 in total)	
Part program storage capacity: 640m [256KB] (500 in total)	
Part program storage capacity: 1280m [512KB] (1000 in total)	Pk
Part program storage capacity: 2560m [1MB] (1000 in total)	
Part program storage capacity: 5120m [2MB] (1000 in total)	
Part program storage capacity: 10240m [4MB] (1000 in total)	
Part program storage capacity: 20480m [8MB] (1000 in total)	
Data server: ATA card (1GB)	PK
Spindle contour control (Cs contour control)	
2nd auxiliary function	

(WindowsCE-installed Open CNC)

Optional Specification Tool offset sets: 200 sets PK1 Tool offset sets: 400 sets Tool offset sets: 499 sets Tool offset sets: 999 sets Addition of workpiece coordinate system (48 sets): G54.1 P1 to P48 PK1 Addition of workpiece coordinate system (300 sets): G54.1 P1 to P300 Machining time stamp Optional block skip: Total 9 Tool retract and return Sequence number comparison and stop Manual handle interruption Programmable mirror image Optional chamfering / corner R Custom macro Note 2 Interruption type custom macro Addition of custom macro common variables: 600 Figure copy Coordinate system rotation: G68, G69 Scaling: G50, G51 Chopping Playback Automatic tool length measurement: G37 / G37.1 PK1 Tool life management: 256 sets Addition of tool life management sets: 1024 sets in total High-speed skip Run hour and parts count display Manual Guide i (Milling cycle)

Original OKK Software Machining support integrated software (incl. help guidance, etc.) STD Tool Support STD Program Editor [Opt] Work Manager [Opt] HQ control STD Hyper HQ control mode A [Opt] Hyper HQ control mode B PK2 [0pt] Die machining NC kit (including PK2) [Opt] NC option package (including PK1) [Opt] Special canned cycle (including circular cutting) [Opt] Cycle Mate F [Opt] Soft Scale IIm STD Touch sensor T0 software [dq0] Tool failure detection system (Soft CCM) [Opt] Adaptive control unit (Soft AC) [Ont] Automatic restart at tool damage [Opt]

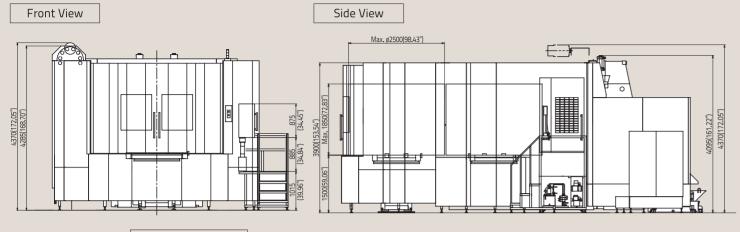
RS232C interface: RS232C-1CH

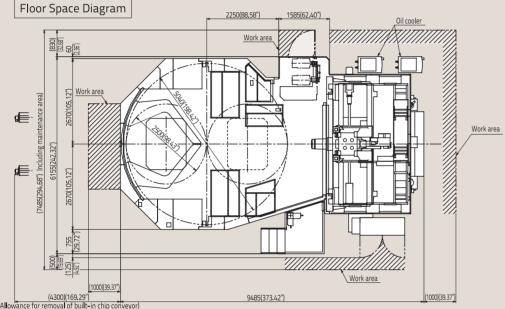
Note 1: F31i-A5 (WindowsCE-installed Open CNC) Note 2: Standard specification for HM1600 STD: Standard [Opt]: Option

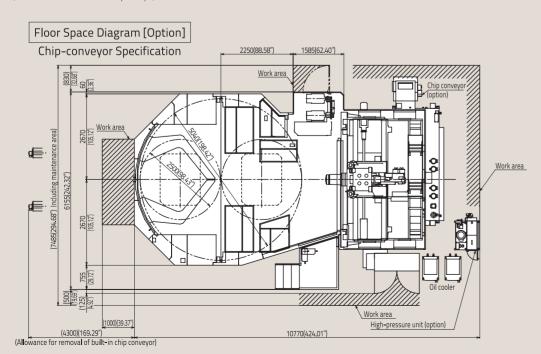
10



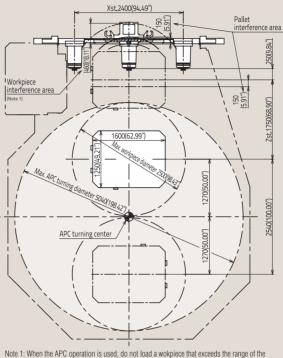
Machine Dimensions







Restrictions on Workpiece

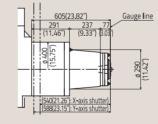


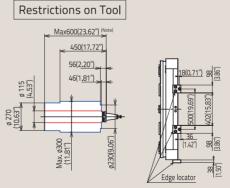
maximum APC turning diameter shown above.

Stroke Diagram 1250(49.21") (318.4)(12.54" Note: When the APC operation is used, do not load a wokpiece 625(24.61") 330 (12.99") that exceeds the range of the maximum APC turning diameter shown above.

Spindle Shape and Dimensions

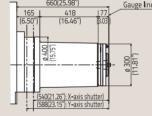
■ 12000-min⁻¹ MS Specification





Note: For the multi-magazine that can store 176 or more tools, the maximum tool length for the tools stored in the 3rd or later magazines is restricted

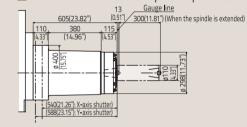
■ 8000-min⁻¹ Gear Spindle Specification



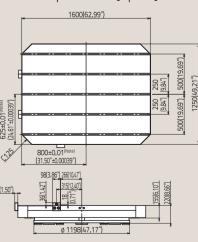


Screw Hole Specification [Standard] 1600(62.99") 750(29.53") 34-M20 screw hole

■ 4000-min⁻¹ Two Position Spindle Specification



Pallet Dimensions T-slot Specification [Option]



Note: This dimension is the dimension between the center of rotation and the edge locator.

Note: This dimension is the dimension between the center of rotation and the edge locator. Please also note that the pallet center hole does not always correspond to the center of rotation.





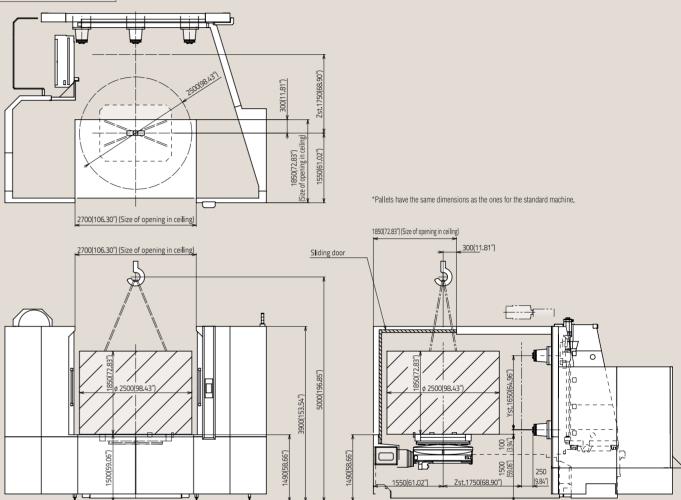
Main Specification

Item	Unit	10000-kg(22026lbs) Specification
Travel on X axis (Column's longitudinal direction)	mm	2400(94.49")
Travel on Y axis (Spindle head's vertical direction)	mm	1650(64.96")
Travel on Z axis (Pallet's cross direction)	mm	1750(68.90")
Distance from table top surface to spindle center	mm	100(3.94") — 1750(68.90")
Distance from table center to spindle nose	mm	250(9.84")—2000(78.74")
Table (pallet) work surface area	mm	1600(62.99")×1250(49.21")
Max. mass of load on table (pallet)	kg	10000(22026lbs)
Max. workpiece size (diameter × height)	mm	ø2500(98.43")×1850(72.83")

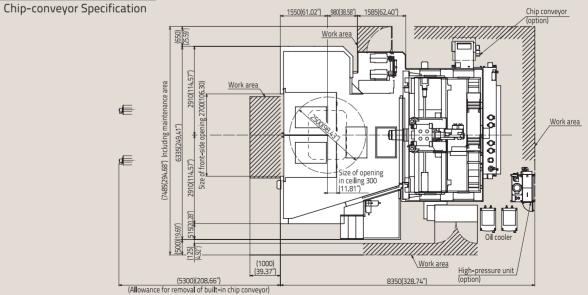
Item	Unit	10000-kg(22026lbs) Specification
Rapid traverse rate	mm/min	X/Y/Z: 20000(787.40ipm)
Number of stored tools	tools	60
Maximum tool diameter	mm	ø115(4.53") (ø300 mm(11.81") when the adjoining tool pots are empty.)
Maximum tool length (from gauge line)	mm	600(23.62")
Maximum tool mass	kg	30(66.1lbs)
Required floor space	mm	6625(260.83")×7230(284.65")
Machine height	mm	4370(172.05")
Machine mass	kg	40000(88105lbs)

10000-kg(22026lbs) Specification Machine Main Dimensions

Workpiece Loading Diagram



Floor Space Diagram [Option]

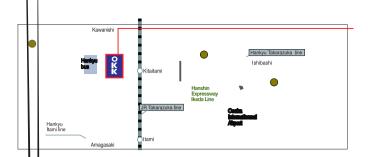


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