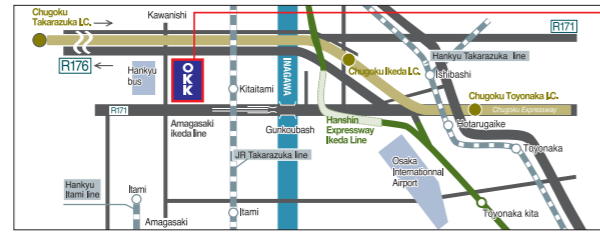


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Access map



OKK Inagawa factory
8-10 Kitaitami, Itami, Hyogo Prefecture
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From Kansai International Airport :
Please take a airport bus bound for
Osaka (Itami) International Airport
and take a taxi to OKK.



Technical Center



S-Plant



W-Plant

Technical center is for test cutting, demonstration and training.
S-plant is for machining and assembly of spindles and tables.
W-plant is for final assembly of large sized machining centers.
All are located at Inagawa, Itami city, Hyogo, Japan

INAGAWA PLANT:
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**OKK A DIVERSIFIED MANUFACTURER OF
MACHINE TOOLS**

Specializes In:

Machining centers
Graphite cutting machining centers
Grinding centers
CNC Milling machines
Conventional milling machines
Total die and mold making systems
Flexible manufacturing cells and systems

Other Products Include:

Textile Machinery
Water Maters

NOTE :

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OKK is not responsible to make changes to previously sold
machines or accessories.
The machines in the photographs of this brochure may include
optional accessories.

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Vertical Machining Center

VB53



Advanced High-quality Parts, Die & Mold Machining Compact Vertical Machining Center VB53



※Machine picture includes optional accessories

Main Specification

Spindle speed 100 to 20000min⁻¹	Rapid traverse rate (X, Y, Z) 20m/min (787ipm)	Number of stored tools 30tools	Tool exchange time 2^{sec} (tool-to-tool)
--	--	--	--

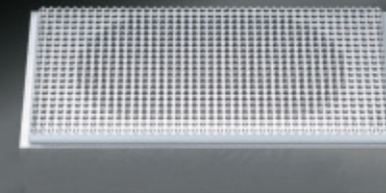
Standard Accessories

Dual-contact spindle (BT type)	Linear scale (X, Y, Z)
-----------------------------------	---------------------------

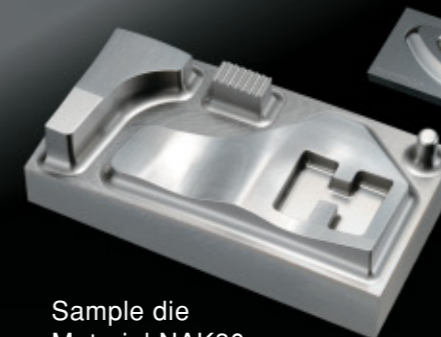
Standard Function

HQ Control Hyper HQ Control	Data Server (F31i-B) Hard Disc Mode (N730)
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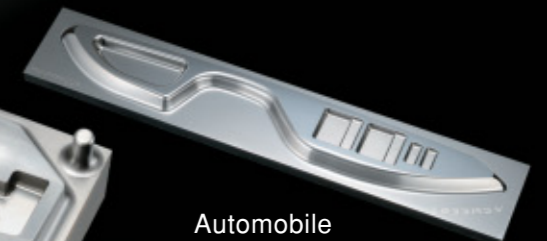
Compact with higher Accuracy and Quality



Loudspeaker
Material:NAK80



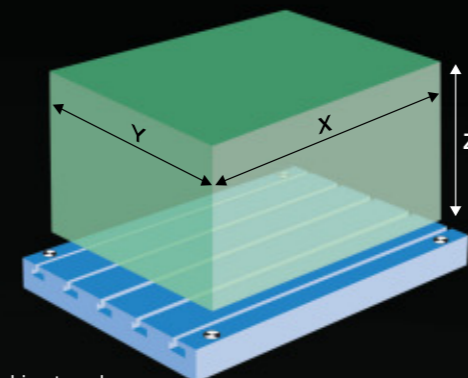
Sample die
Material:NAK80



Automobile
interior part
Material:NAK80

Space-saving with a Large Machining Area

Discharging chips to the left side of the machine, into the coolant tank located under the splash guarding has reduced the machine's floor space to 2595×2750mm(102.17"×108.27"). Resulting in superior productivity per unit area.



Machine travels
X:1050mm (41.34") , Y:530mm (20.87") , Z axis:510mm (20.08")



High-accuracy Machining

HQ Control [Standard]
Hyper HQ Control [Standard]

Pre-interpolation acceleration/deceleration function:

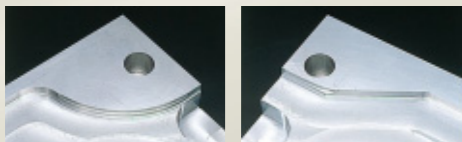
This function minimizes the machined shape errors and the reduction in the radius error when executing the circular cutting command.

Optimized corner deceleration function:

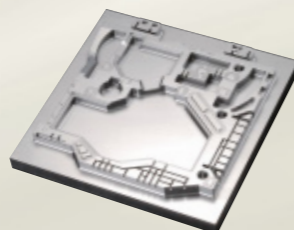
This function assesses the targeted machining program vector and decelerates at the corners producing highly accurate machined edges.

Feed forward control function:

This function enables the control to minimize servo errors. Combined with the Hyper HQ control, it improves the processing of minute line segment data to machine the free-form surfaces such as dies and enables a substantial increase in speed and accuracy.



Hyper HQ control consists of the high speed processor, used to process data for high-speed, precise machining of workpieces of any shape. This includes a look ahead multiple block (multi-buffer). It automatically detects the corner on parts from the NC part program, and controls the feedrate so that it does not exceed the machine's permissible acceleration rate.



Minute Line Segment Processing Capability:
N730

Specification	Line segment processing speed	Command
Hyper HQ control mode II	151m/min (5945 ipm)	G05 P2: ON G05 P0: OFF

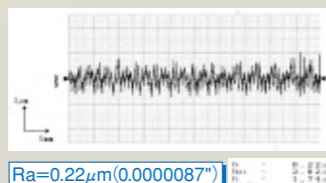
Minute Line Segment Processing Capability:
F31-B

Specification	Line segment processing speed	Command
Hyper HQ control mode B	150m/min (5906 ipm)	G05.1 Q1: ON G05.1 Q0: OFF

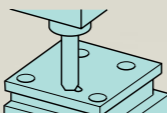
*The above values show (theoretical) maximum speeds for processing 1-mm-segment blocks constructing a straight line. Actual processing speeds depend on the type of the machine and NC data.

Accuracy

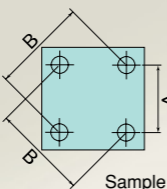
Surface roughness



Machined Position Accuracy



	(mm)
A	150 (5.91")
B	212.132 (8.35165")

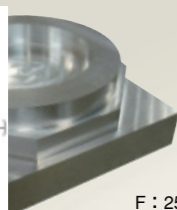
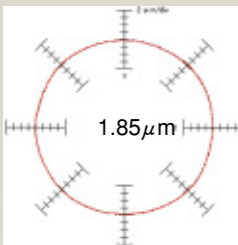


Item	OKK tolerance	Actual value example
Axial direction	0.015 (0.00059")	-0.004 (-0.00016")
Diagonal direction	0.015 (0.00059")	-0.006 (-0.00024")
Hole diameter error	0.010 (0.00039")	0.005 (0.00020")

Notes:

- The data show example which obtained in short run. It may differ from data obtained in continuous run.
- The data were obtained under OKK's test cutting conditions. The data may differ due to conditions of cutting tools, fixtures, cutting speed and room temperature.
- The above accuracies are subject to machine installed according to OKK specifications and constant temperature environment. Accuracy are based on OKK inspection standard.

Circular Cutting Accuracy



F : 2500mm/min (98.43ipm)
Diameter : φ80mm (3.15")

Item	OKK tolerance	Actual value example
Circularity	0.0050 (0.00020")	0.00185 (0.00073")



High-speed Spindle

Spindle speed: 20000min⁻¹ [Standard]
Dual-contact (BT type) [Standard]

Spindle motor specification	MITSUBISHI	
	Low speed:100~4500min ⁻¹	High speed:4501~20000min ⁻¹
Output	Continuous rating	7.5kW (10HP)
	30min rating	11kW (15HP)
	10min rating	11kW (15HP)
Torque	Continuous rating	36N·m (27ft·lbs)
	30min rating	52N·m (38ft·lbs)
	10min rating	70N·m (52ft·lbs)

Spindle motor specification	FANUC	
	Low speed:100~5500min ⁻¹	High speed:5501~20000min ⁻¹
Output	Continuous rating	7.5kW (10HP)
	10min rating	11kW (15HP)
	10%ED	15kW (20HP)
Torque	Continuous rating	23N·m (17ft·lbs)
	10min rating	31N·m (23ft·lbs)
	10%ED	57N·m (42ft·lbs)

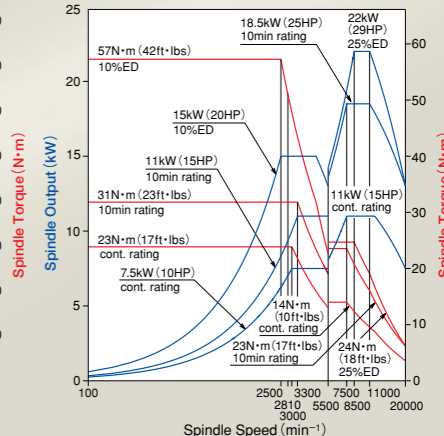
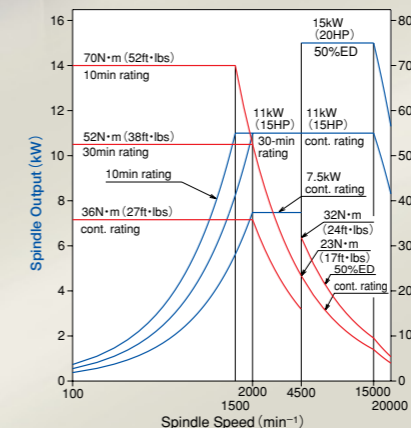
The standard specification includes a 20000min⁻¹ Dual-contact spindle. The lightweight spindle head section achieves agile response.

Lubrication

The spindle bearing utilizes an oil-air lubrication method delivering stable lubrication property throughout the speed range.

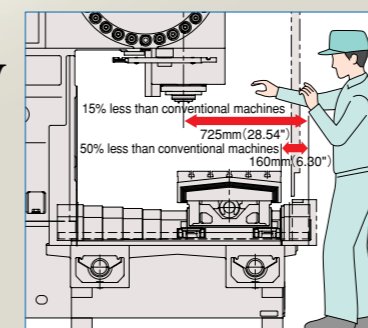
Cooling

Working together the forced cooling oil is circulated in the bearing section and an air-cooling system circulates around the spindle motor to suppress heat and minimize the spindle's thermal displacement.



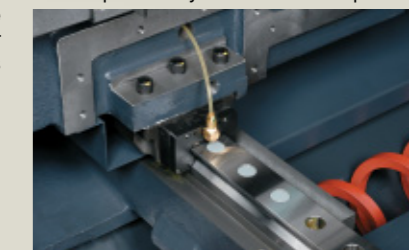
High Accessibility

Excellent operator accessibility to the machines work space reduces the operator's load.



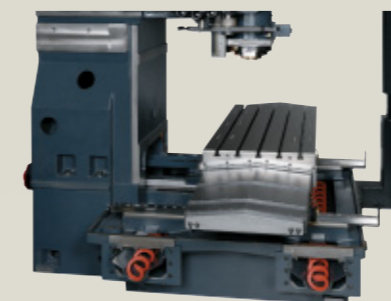
Powerfully Smooth Feed

The machine secures powerfully smooth feed operation by using the wide linear roller guides and high-resolution ball screws.



Chip Removability

Coil-Type Chip Conveyors [Standard]



The coil-type chip conveyors [Standard] are installed on the back and front of the table delivering excellent chip evacuation and space-savings.

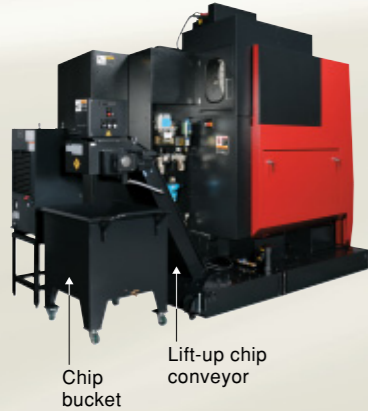
Easy Maintenance

The lubrication unit and the pneumatic unit are centrally located on the machine's outside to facilitate the machine's maintenance work.



Peripheral Equipment (Optional Equipment)

Lift-up Chip Conveyor & Chip Bucket [Option]



Suitable Lift-up Chip Conveyor according to Type of Chips

● : Most suitable; ○ : Usable; △ : Conditionally usable; × : Not usable; - : Not applicable

Type of chip conveyor	Hinged type		Scraper type		Magnet scraper type		Scraper type with drum filter		Magnet scraper type with drum filter			
	Use	Not use	Use	Not use	Use	Not use	Use	Not use	Use	Not use		
Magnetizable chips	Use or not use of coolant oil											
	Steel	Short curl	○	○	△*2	△*2	△*2	△*2	○	-	○	-
		Long	○	○	×	×	×	×	×	-	×	-
		Needle shape	×	△*1	×	○	○*3	○	○	-	○	-
Powder or small lump		×	△*1	×	○	○*3	○	○	-	○	-	
Non-magnetizable chips	Cast iron	Needle shape	×	△*1	×	○	○*3	○	○	-	○	
		Powder or small lump	×	△*1	×	○	○*3	○	△*3	-	○	
		Short curl	×	△*4	○	-	-	-	-	-	○	
		Spiral	○	○	○	○	-	-	△*5	-	△*5	-
Aluminum	Long	○	○	○	○	-	-	△*5	-	△*5	-	
	Needle shape	×	△*1	×	○	-	-	○	-	○		
	Powder or small lump	×	△*1	×	○	-	-	○	-	○		

*1: Minute chips can enter the conveyor casing through a gap between hinged plates. Therefore, cleaning inside the conveyor frequently is needed.
 *2: Long chips can easily be caught by a scraper. Therefore, measures for shortening the chips such as the step feed and removing the caught chips are needed.
 *3: If the coolant flow rate is large, chips can flow out of the conveyor casing and cause clogging of filters. Therefore, combined use of a magnet plate is recommended.
 *4: If the coolant flow rate is large, chips can flow out of the conveyor casing and cause clogging of filters. Therefore, cleaning filters frequently is needed.
 *5: Long chips can easily be caught by a scraper. Therefore, removing them regularly is needed. Drum filters are damaged if they are not removed.

Measurement with Laser [Option]



Use of the laser sensor enables high-accuracy measurement of the tool length and diameter even for the ball-end mill with very small diameter.

Coolant Cooler [Option]



Increase in temperature of the cutting oil is a major cause of the thermal displacement. The coolant cooler suppresses cutting oil temperature fluctuations caused by the machining operation and stabilizes machining accuracy. The coolant cooler is recommended particularly when using oil-based cutting oil.

MQL (Oil-mist Lubricator) [Option]



The MQL is the machining method that applies minimal quantity of the cutting oil to the cutting tool. Since quantity of the oil used for machining is very small, it leads reduction in costs and is also environment-friendly.

MQL: Minimal Quantity Lubrication

Coolant-through Spindle [Option]

It is used when machining a deep hole, etc.

Air-through Spindle [Option]

It is used when machining a deep hole, etc.



Touch Sensor System [Option]



T1-A: Automatic workpiece measurement/compensation

The touch sensor attached to the spindle is moved to a workpiece in the automatic operation until it contacts the workpiece then based on the travel distance at that time, the required compensation amount is calculated and set as the data for the workpiece coordinate system. The measurement and compensation program is created according to the specified format and then executed.

T0: Manual workpiece measurement

This is helpful for the workpiece centering operation and the tool length measurement. The sensor can be moved to the desired measurement point by using handle mode. The machine starts measurement automatically when the sensor contacts the workpiece. The result of the measurement can be set as the data for the desired workpiece coordinate system or tool offset number in a simple operation.

OKK's Dedicated Control Functions

Maintenance Functions

Help Guidance [Standard]

It displays detailed information regarding the machine alarms and the method to recover when a problem occurs on the machine. It also displays a list of G-codes and description of the M signals.

Description of Alarm Display Screen



Description of M-signal Display Screen



Setup Support Function

Tool Support [Standard]

You can manage each tool's various information such as the tool name, schematic and offset number comprehensively through a single screen. It contains the functions that are convenient for the set-up operation. For example the tool measurement is also available by just switching the menu.

Tool Setup Screen



Tool Length Offset Measurement Screen

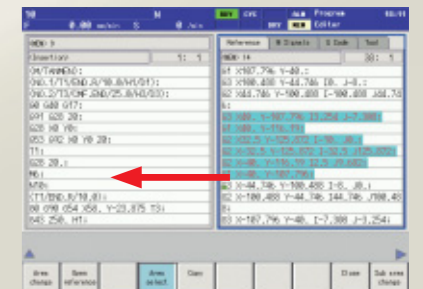


Programming Support Function

Program Editor [Standard]

It enables editing of the programs in the NC memory, data server (or hand disc) and memory card. It also enables managing the programs i.e. copying, deleting, changing the program name, etc.

- Two programs can be displayed side by side.
- Batch conversion of certain characters in a program is possible. (Example: Change from "F1000" to "F1200")
- The data of the multiple lines in one program can be copied easily to another program.

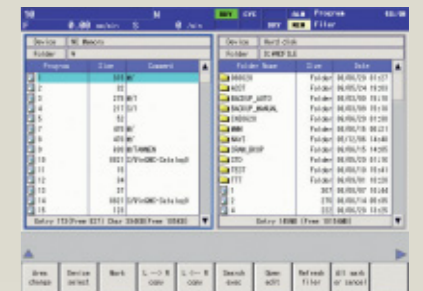


- By switching the right-side reference screen, you can view a list of the M signals or G-codes or the data regarding the tools in the magazine.



- You can easily copy and delete the programs and change the program name.

- By using the multiple file batch copy function, you can easily make backup copies of the NC memory's or hard disc's programs in a memory card.



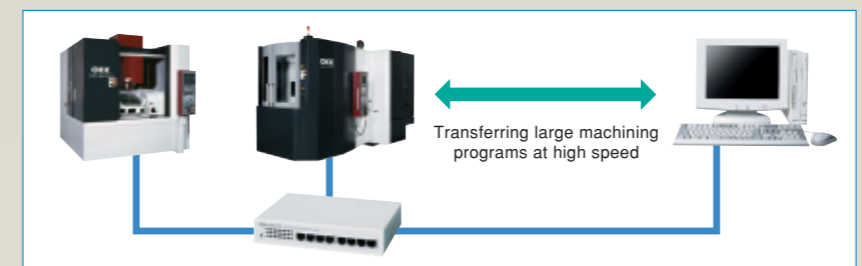
Network Function

Data Server (F31i-B Standard Function)

Large machining programs can be transferred to the data server through the network connected to the host computer at high speed. The transferred machining programs are executed as the main program or the sub program called up with the M198.

Hard Disc Mode (N730 Standard Function)

Large machining programs can be transferred to the hard disc installed in the machine through the network connected to the host computer at high speed. The transferred machining programs are executed as the main program or the sub program.



Specifications

●Main Specifications

Item	Unit	Specification
Travel on X axis (Table right/left)	mm	1050 (41.34")
Travel on Y axis (Saddle back/forth)	mm	530 (20.87")
Travel on Z axis (Spindle head up/down)	mm	510 (20.08")
Distance from table top surface to spindle nose	mm	150 (5.91") ~ 660 (25.98")
Distance from column front to spindle center	mm	616 (24.25")
Table work surface area (X-axis direction × Y-axis direction)	mm	1260 (49.61") × 600 (23.62")
Max. workpiece weight loadable on table	kg	1200 (2646 lbs)
Table work surface configuration (T-slot nominal dimension × spacing × number of T slots)	mm	18 (0.71") × 110 (4.33") × 5 slots
Distance from floor to table work surface	mm	900 (35.43")
Spindle speed	min ⁻¹	100 ~ 20000
Number of spindle speeds		Electric 2 steps (MS)
Spindle nose (nominal number)		7/24-tapered No.40
Spindle bearing bore diameter	mm	φ65 (2.56")
Rapid traverse rate	m/min	X/Y/Z: 20 (787 ipm)
Cutting feed rate	mm/min	X/Y/Z: 1 ~ 20000 (0.04 to 787 ipm) *1
Automatic Tool Changer (ATC)		
Type of Tool shank		BT40 (Dual-contact BT type)
Type of Pull stud		MAS 403 P40T-1
Number of stored tools	tools	30
Max. tool diameter (with tools in adjacent pots)	mm	φ80 (3.15")
Max. tool diameter (with no tools in adjacent pots)	mm	φ110 (4.33")
Max. tool length (from gauge line)	mm	350 (13.78")
Max. tool mass [moment]	kg [N·m]	10 (22 lbs) [9.8 (7.2 ft·lbs)]
Tool selection method		Memory random method
Tool exchange time (tool-to-tool)	sec	2.0
Tool exchange time (cut-to-cut)	sec	5.5
Motor		
Spindle motor (30-min rating/continuous rating)	kW	15/11 (20/15HP)
Feed motors	kW	MITSUBISHI X/Y:3 (4HP) Z:3.5 (4.7HP) FANUC X/Y:3 (4HP) Z:4 (5.4HP)
Coolant pump motor	kW	0.4 (0.5HP)
Spindle head cooling pump motor	kW	0.4 (0.5HP)
Motor for coil-type chip conveyor	kW	0.1 (0.13HP) × 2
Motor for ATC	kW	0.4 (0.5HP)
Required power sources		
Power supply	kVA	MITSUBISHI 31 FANUC 29
Supply voltage	V	AC200V ± 10% AC220V ± 10%
Supply frequency	Hz	50/60Hz ± 1Hz 60Hz ± 1Hz
Compressed air supply pressure	MPa	0.4 ~ 0.6 (58 ~ 87 psi) *2
Compressed air supply flow rate	L/min (ANR)	400 (106 gpm) *2 *3
Spindle cooling oil tank capacity	L	50 (13 gal)
Coolant tank capacity	L	260 (69 gal)
Machine height (from floor surface)	mm	2,910 (114.57")
Floor space required for operation (width × depth)	mm	2595 (102.17") × 2750 (108.27")
Required floor space incl. maintenance area (width × depth)	mm	3600 (141.73") × 3700 (145.67")
Machine weight	kg	6800 (15000 lbs)
Operation environment temperature	°C	5 ~ 40
Operation environment humidity	%	10 ~ 90 (No dew)

*1: The rate under the HQ or hyper HQ control

*2: The value for the standard specification It may vary with added options.

*3: Purity of the supplied air should be equivalent to Class 3.5.4 specified in ISO 8573-1/JIS B8392-1 or higher.

●Standard Accessories

Item	Qty	Remark
Spindle speed 20000min ⁻¹	1 set	
Compatibility with Dual-contact tool	1 set	BT type
Linear scale	1 set	For X, Y and Z axes
Illuminating lamp	1 set	
Coolant unit (Separate coolant tank)	1 set	Tank capacity: 260L (69gal)
Entire machine cover (Splash guard)	1 set	Including front door and electromagnetic lock
Magazine safety cover	1 set	Including electromagnetic lock
Sliding surface protection steel sliding cover for X/Y axes	1 set	
Spindle head cooling oil temperature controller	1 set	
Coil-type chip conveyor	2 sets	1 set for each of front and rear sides
Leveling block	1 set	
Parts for machine transfer	1 set	
Automatic power-off unit (with M02 or M30)	1 set	
Electric spare parts (fuses)	1 set	
Instruction manual (Specification, Maintenance Manual, Foundation & Installation Manual)	1 set	
Electrical instruction manuals (including Hardware Diagram)	1 set	

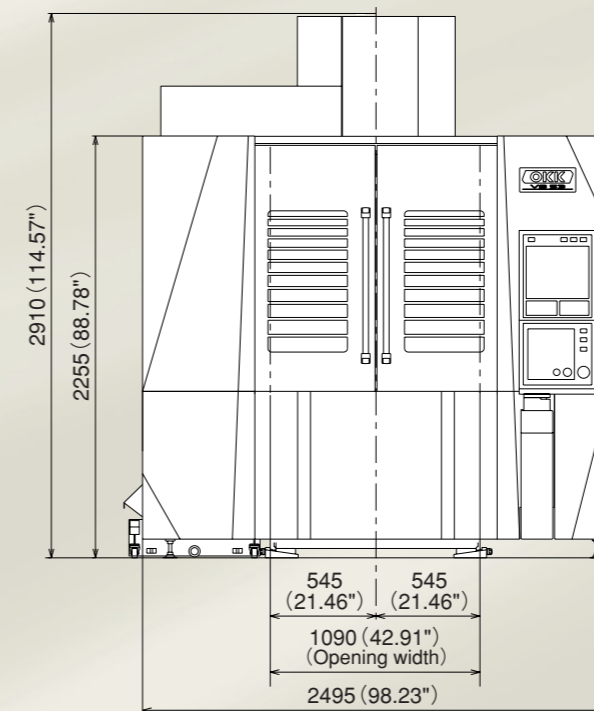
●Special Accessories

Item	Specification
Compatibility with Dual-contact tool	HSK-A63
Number of stored tools	36
Raised column (Column-up)	250mm (9.84")
Signal lamp	Two-lamp type / Three-lamp type
Flushing chips with coolant	400W (0.5HP) (Standard coil-type chip conveyor is removed)
Lift-up type chip conveyor	Hinged type / Scraper type / Scraper type with floor magnet / Backwashing filtration (Drum filter) type for aluminum chips
Compatibility with through-spindle *1	2MPa (290psi) / 7MPa (1015psi) / Air
Oil-mist / Air blow nozzle	
Air blow nozzle	
Minimal quantity lubrication system	
Workpiece flushing equipment	Shower-gun type
ATC shutter	
Splash guard's top cover	Including magazine cover
Foundation parts	Bond anchor type
Bond for foundation work	1kg (2.2lbs)
Sub-table	T-slot type / Specified by customer
NC rotary table	Rotary table type
Mist collector	2.2kW (3HP), installed separately
Coolant cooler	Separately installed type / High-pressure unit integrated type (High-pressure unit is required separately)
Touch Sensor system	Workpiece measurement / Tool length measurement / Tool break
Additional illuminating lamp inside the machine	1 lamp

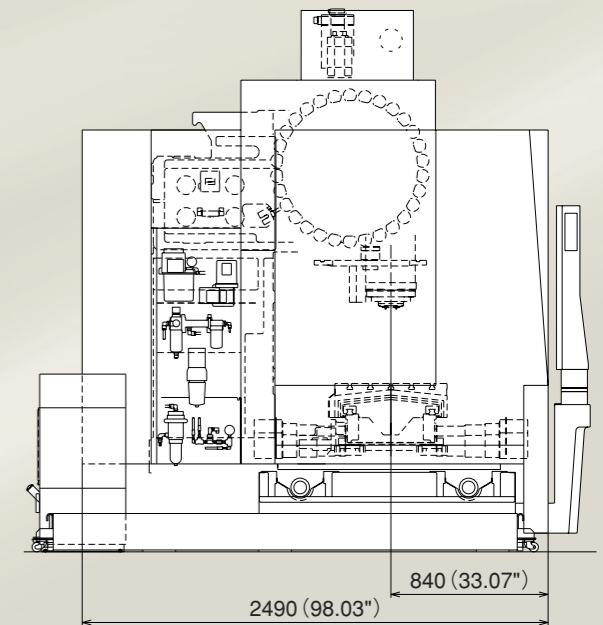
*1: Be sure to use the pull stud with no hole when the through-spindle is not used.

Dimensions

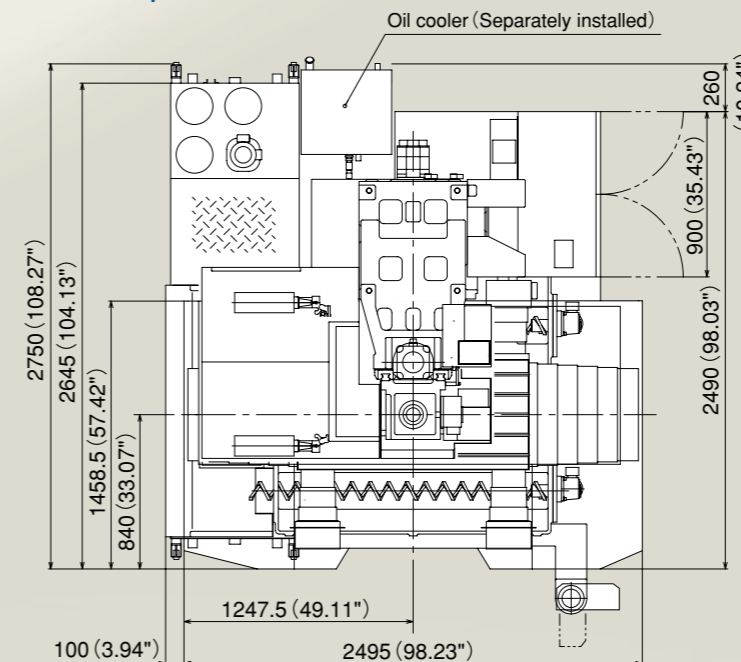
Front View



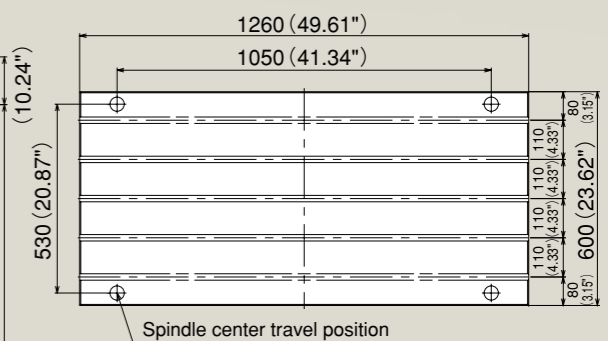
Side View



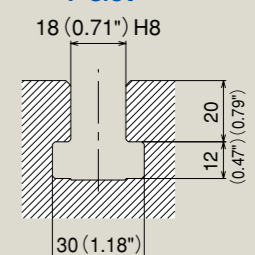
Floor Space



Table



T-slot



N730

Standard Specification

No. of controlled axes: 3 axes (X, Y, Z)
 No. of simultaneously controlled axes: 3 axes
 Least input increment: 0.001mm / 0.0001"
 Least control increment: 1nm
 Max. programmable dimension:
 ±99999.999mm/±9999.9999"
 Absolute / Incremental programming: G90 / G91
 Decimal point input I / II
 Inch / Metric conversion: G20 / G21
 Program code: ISO / EIA automatic discrimination
 Program format: Melder standard format
 (M2 format needs to be instructed)
 Positioning: G00
 Linear interpolation: G01
 Circular interpolation: G02 / G03 (CW / CCW)
 (Including radius designation)
 Cutting feed rate: 5.3-digit F-code, direct command
 One digit F-code feed
 Dwell: G04
 Manual handle feed: Manual pulse generator
 1 set (0.001, 0.01, 0.1mm)
 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 tap cycle: G84, G74
 Part program storage capacity: 160m [60KB]
 No. of registered programs: 200
 Part program editing
 Background editing
 Buffer modification
 Color touch-panel display
 (15" LCD/QWERTY key MDI)
 Integrating time display
 Clock function
 User definable key
 MDI (Manual Data Input) operation
 Menu list
 Parameter/Operation/Alarm guidance
 Ethernet interface
 IC card/USB memory interface
 IC card driving
 Hard disc mode
 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
 Tool position offset: G45 to G48
 Cutter compensation: G38 to G42
 Tool offset sets: 200 sets
 Tool offset memory II : tool geometry and wear offset
 Manual reference position return
 Automatic reference position return: G28 / G29
 2nd to 4th reference position return: G30 P2 to P4
 Reference position return check: G27
 Automatic coordinate system setting

Coordinate system setting: G92
 Machine coordinate system: G53
 Selection of 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
 Miscellaneous function lock
 Program number search
 Sequence number search
 Program restart function
 Cycle start
 Auto restart
 Single block
 Feed hold
 Manual absolute on / off: parameter
 Machining time computation
 Automatic operation handle interruption
 Manual numerical command
 Sub program control
 Canned cycle: G73, G74, G76, G80 to G89
 Linear angle designation
 Circular cutting
 Parameter mirror image
 Programmable mirror image
 Variable command: 200 sets
 Automatic corner override
 Exact stop check / mode
 Programmable data input: G10 / G11
 3D solid program check
 Graphic display check
 Backlash compensation
 Memory pitch error compensation
 Manual tool length measurement
 Emergency stop
 Data protection key
 NC alarm display
 Machine alarm message
 Stored stroke limit I / II
 Load monitor
 Self-diagnosis
 Absolute position detection

Optional Specification

Additional one axis control:
 name of axis (A, B, C, U, V, W)
 Additional two axes control:
 name of axis (A, B, C, U, V, W) ※
 Simultaneously controlled axes: 4 axes
 Simultaneously controlled axes: 5 axes ※
 Program format: M2 / M0 format
 Unidirectional positioning: G60 STD
 Helical interpolation STD
 Cylindrical interpolation
 Hypothetical axis interpolation
 Spiral/Conical interpolation

NURBS interpolation
 (Hyper HQ control mode II is required)
 Handle feed 3 axes (Standard pulse handle is removed)
 Part program storage capacity: 1280m [500KB] (1000) STD
 Part program storage capacity: 2560m [1MB] (1000)
 Part program storage capacity: 5120m [2MB] (1000)
 Computer link B: RS232C
 Spindle contour control (Spindle position control)
 3-dimensional cutter compensation
 Tool offset sets: 400 sets
 Tool offset sets: 999 sets
 Extended workpiece coordinate system selection
 (48 sets) : G54.1 P1 to P48
 Extended workpiece coordinate system selection
 (96 sets) : G54.1 P1 to P96
 Addition of optional block skip: 9 in total
 Tool retract and return
 Sequence number comparison and stop
 Corner chamfering / corner R: Insert into straight
 line-straight line / straight line-circle arc STD
 User macro and user macro interruption STD
 Variable command: 600 sets in total STD
 Pattern rotation
 Programmable coordinate system rotation:
 G68, G69 / G68.1, G69.1 STD
 Parameter coordinate system rotation STD
 Special canned cycles: G34 to G36, G37.1 / G34 to G37
 Scaling: G50, G51
 Chopping function
 Playback
 Skip function: G31 STD
 Automatic tool length measurement: G37 / G37.1
 Tool life management II : 200 sets
 Additional tool life management sets: 400 in total
 Additional tool life management sets: 600 in total
 Additional tool life management sets: 800 in total
 Additional tool life management sets: 1000 in total
 External search
 (Standard for the machine with APC)
 RS232C interface: RS232C-1CH
 ● STD: Standard specification for VB53

Original OKK Software

Machining support integrated software
 (incl. help guidance, etc.) STD
 Tool support STD
 Program Editor STD
 EasyPRO STD
 HQ control STD
 Hyper HQ control mode II STD
 WinGMC7 OP
 Soft Scale II m STD
 Touch sensor T0 software OP
 Tool failure detection system (Soft CCM) OP
 Adaptive control (Soft AC) OP
 Automatic restart at tool damage OP
 Cycle mate F OP
 ● Item with ※ Require N750 controller

F31i-B

Standard Specification

No. of controlled axes: 3 axes (X, Y, Z)
 No. of simultaneously controlled axes: 3 axes
 Least input increment : 0.001mm / 0.0001"
 Max. programmable dimension:
 ±999999.999mm / ±39370.0787"
 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 arc 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
 (0.001, 0.01, 0.1mm)
 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
 Clock function
 MDI (manual data input) operation
 Memory card / USB 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
 Auxiliary 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
 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
 Smooth backlash
 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 check 1
 Load monitor
 Self-diagnosis
 Absolute position detection

Optional Specification

15" color LCD
 Additional one axis control:
 name of axis (A, B, C, U, V, W)
 Additional two axes control:
 name of axis (A, B, C, U, V, W) ※
 No. of simultaneously controlled axes: 4 axes
 No. of simultaneously controlled axes: 5 axes ※
 Least input increment: 0.0001mm / 0.00001"
 FS15 tape format
 Unidirectional positioning: G60
 Helical interpolation STD
 Cylindrical interpolation
 Hypothetical axis interpolation
 Spiral/Conical interpolation
 Smooth interpolation
 (Hyper HQ control B mode is required)
 NURBS interpolation
 (Hyper HQ control B mode is required)
 Involute interpolation
 One-digit F code feed
 Handle feed 3 axes (Standard pulse handle is removed)
 Part program storage capacity:
 1280m [512KB] (1000 in total)
 Part program storage capacity: STD
 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) STD
 Data server: ATA card (4GB)
 Spindle contour control (Cs contour control)
 Tool position offset
 3-dimensional cutter compensation
 Tool offset sets: 200 sets in total
 Tool offset sets: 400 sets in total
 Tool offset sets: 499 sets in total
 Tool offset sets: 999 sets in total
 Addition of workpiece coordinate system
 (48 sets in total) : G54.1 P1 to P48
 Addition of workpiece coordinate system
 (300 sets in total) : G54.1 P1 to P300
 Machining time stamp
 Addition of optional block skip: 9 in total
 Tool retract and return
 Sequence number comparison and stop
 Manual handle interruption
 Programmable mirror image STD
 Optional chamfering / corner R
 Custom macro STD
 Interruption type custom macro
 Addition of custom macro common variables: 600
 Figure copy
 Coordinate system rotation: G68, G69 STD
 Scaling: G50, G51
 Chopping
 Playback
 Automatic tool length measurement: G37 / G37.1
 Tool life management: 256 sets in total
 Addition of tool life management sets: 1024 sets in total
 High-speed skip
 Run hour and parts count display STD
 RS232C interface: RS232C-1CH
 Manual Guide i (Basic)
 Manual Guide i (Milling cycle)
 ● STD: Standard specification for VB53

Original OKK Software

Machining support integrated software
 (incl. help guidance, etc.) STD
 Tool support STD
 Program Editor STD
 EasyPRO STD
 HQ control STD
 Hyper HQ control mode B STD
 Special canned cycle (including circular cutting) ... OP
 Soft Scale II m STD
 Touch sensor T0 software OP
 Tool failure detection system (Soft CCM) OP
 Adaptive control (Soft AC) OP
 Automatic restart at tool damage OP
 Cycle mate F OP
 ● Item with ※ Require F31i-B5 controller