



5-axis Machining Centers

FH Series

FH630SX-5A



Machine tools & FA systems WEB sight

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Supporting manufacturing with rigidity and size

Aerospace industry, energy-related industry, construction machine and transport machine

Top-level performance in machining medium-sized parts of every industry

This series performs simultaneous 5-axis machining - achieving complex shape parts and multi-surface processing all with one set-up.

This equates to reduced set-up time and shorter workpiece machining lead time.

The FH630SX-5A 5-axis machining center assures quality, improves production efficiency, and achieves high cost performance.

■ Highest level of workpiece loading capacity

Maximum workpiece swing, maximum workpiece height and maximum workpiece mass make this machine the largest in its class.

■ Cutting ability, the strongest in the class

From aluminum to titanium - the FH630SX-5A features a highly versatile 5 axis special-purpose spindle not limited to a single material.



"Bigger, More Rigid"

Achieving High-performance Processing of this versatile 5-axis Machine is The Flexible Swivel Spindle and the Highly Rigid, Supportive Platform

We adopted a tilting swivel motion for the spindle of the 5-axis processing machine. This spindle, which carries on the DNA of the JTEKT's unique highly rigid spindle, has enabled exceptionally efficient processing and achieved stable processing of large workpieces, thanks to the 5-axis structure that does not tilt the table. Furthermore, the Platform, which supports this spindle, minimizes displacement from "external force" that affects processing accuracy. As a result, this is a strong, highly rigid Platform that can endure huge cutting forces in addition to the inertial force of feeding acceleration/deceleration.



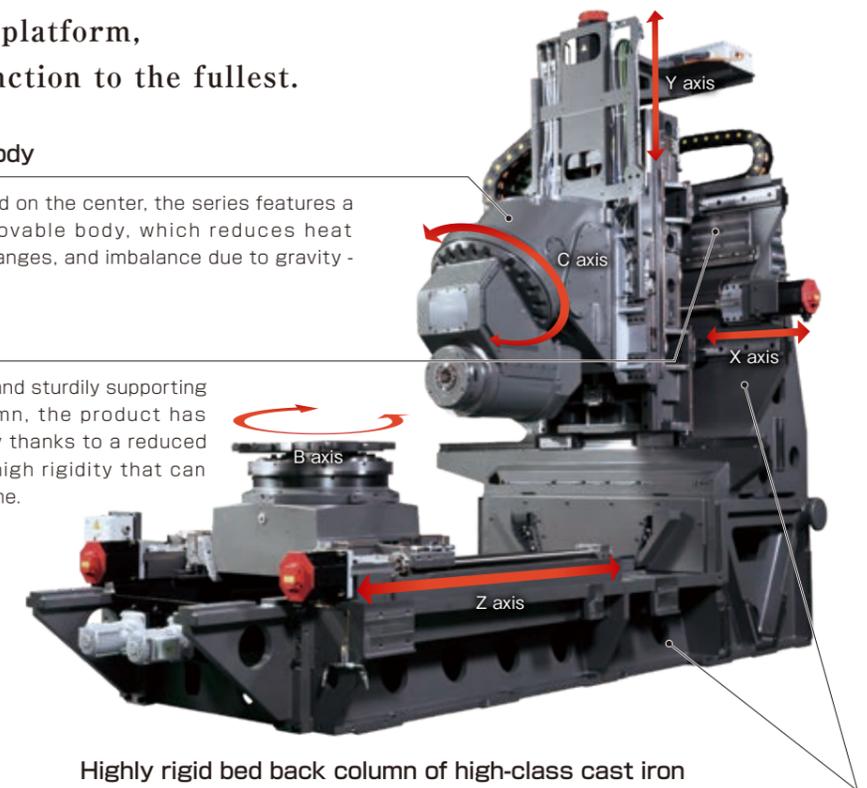
An unmatched sturdy platform, utilizing the 5 axis function to the fullest.

Symmetric Y-axis movable body

With the Y-axis ball screw positioned on the center, the series features a symmetrically shaped Y-axis movable body, which reduces heat deformation due to temperature changes, and imbalance due to gravity - achieving stable feeding.

Back column system

By moving the X-axis with a saddle and sturdily supporting it with the stationary back column, the product has achieved excellent maneuverability thanks to a reduced weight of the movable body and high rigidity that can endure heavy cutting at the same time.

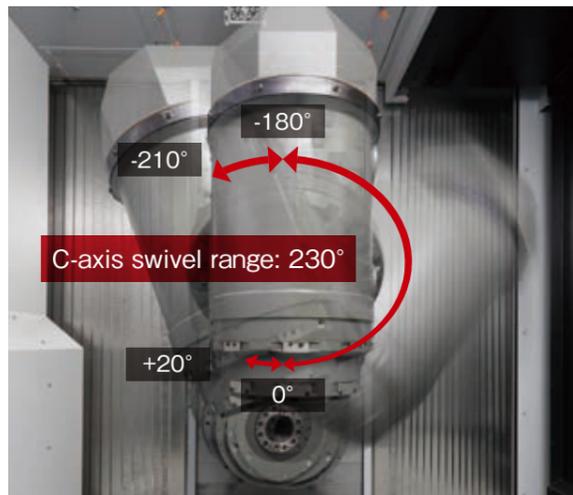


Highly rigid bed back column of high-class cast iron

The bed which supports movable bodies uses FEM analysis technology, securing sufficient rigidity and significantly enhancing the movable level. This has made stable axis feed possible.

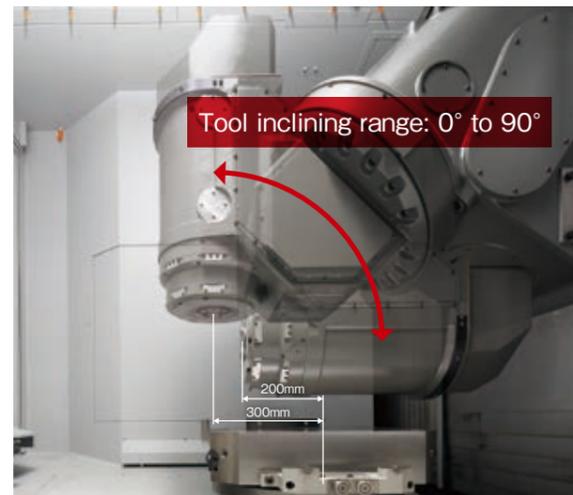
Flexible Swivel Type spindle (C-axis unit)

With the adoption of the tilted swiveling spindle, large workpieces can be loaded on the pallet. The product has the swiveling axis (C-axis) on the spindle side, so the weight of workpiece does not affect it. Also, the inclined swiveling spindle, which rotates around the 100-mm tool length point, has the shortest travel distance of the straight axis associated with swiveling of the spindle. This allows for processing larger workpieces in one set-up.



Excellent spindle accessibility

The product has excellent spindle accessibility with optimal axis positioning and sturdy machine rigidity. It can reach the position of 300 mm away from the center of the pallet when the spindle is in the vertical position, which provides a wide processing range.



Workpiece maximum dimensions and mass



* The maximum dimensions of workpieces are partially limited. See the tooling document for details.

Rigid cylindrical roller slide

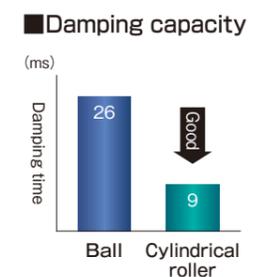
Compared to the ball guide, the cylindrical roller slide features less elastic deformation against loads and possesses superior vibration damping characteristics. This feature makes it possible to position quickly with smaller orientation changes upon sudden acceleration or stoppages, contributing to a higher level of production efficiency.



Because of JTEKT's assembling technology which allows for strict mounting face accuracies, the rigid cylindrical roller slide offers the best rapid feed rate and acceleration in its class.

Rigidity

Improved by **2.2 to 2.7** times
(Comparison with ball guides)

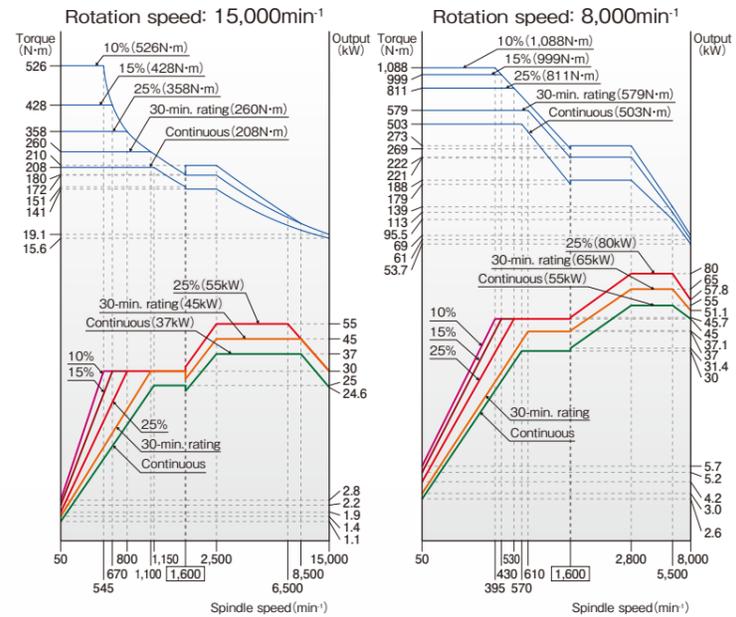


Each and every spindle is backed by its own specific type of outstanding technology.

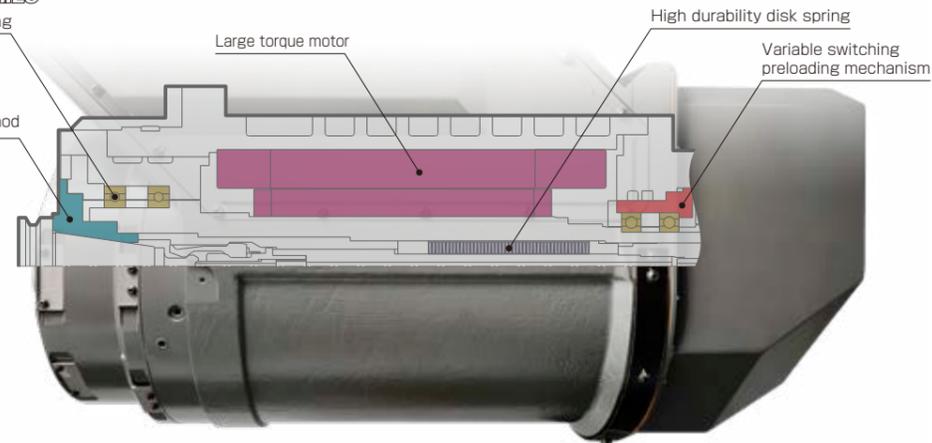
Optimal for iron and cast metal machining 15,000min⁻¹ spindle [standard] / 8,000min⁻¹ spindle **Option**

[Spindle speed] 15,000min⁻¹ / 8,000min⁻¹
 [Spindle nose shape] BT No. 50
 [Spindle motor (short-time/continuous)] 55/37kW / 80/55kW
 [Max. torque] 526N·m / 1,088N·m
 [Spindle diameter (front bearing bore)] φ120mm

We offer the 15,000min⁻¹ spindle, which is the high speed / high rigidity multi-use type covering a wide range from iron materials processed at low and medium speeds, to aluminum materials processed at high speeds and a high feed rate. We also provide the high torque 8,000min⁻¹ spindle, which adopts large diameter ceramic ball bearings that can handle heavy cutting of difficult-to-cut materials with a high load capacity.



4-row ceramic ball bearing (Front side, rear side)



High-efficiency machining with 15,000min⁻¹ spindle

■ Test piece

[Workpiece material] S45C

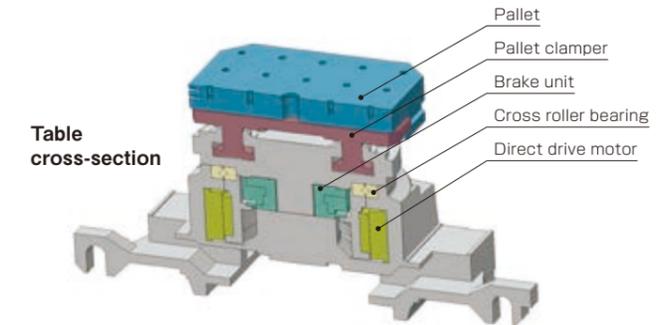
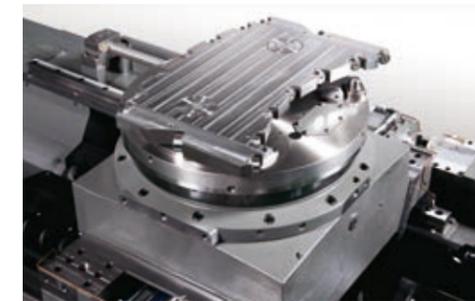
■ Milling

[Tool] φ125 face mill
 [Spindle speed] 800min⁻¹
 [Feed rate] 2,240mm/min
 [Depth of cut/width] 4.2/100mm
 [Machining efficiency] 941cm³/min

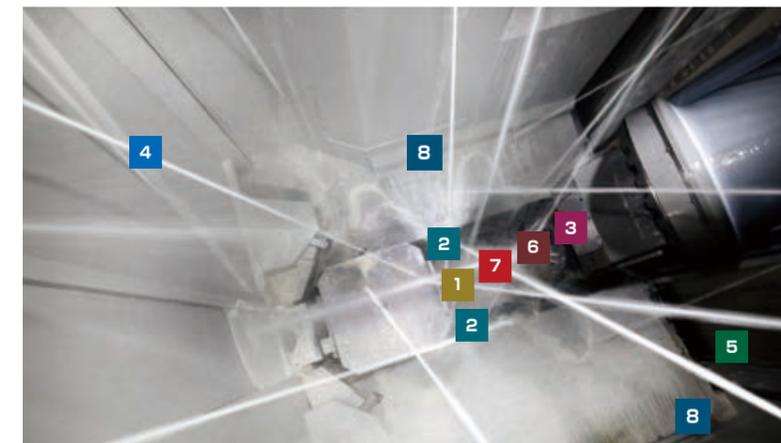


DD table

The high speed indexing and high precision machining, with the adoption of the high-torque DD (direct drive) motor, features no backlash and highly rigid cross roller bearings. The rotary encoder is included as a standard.



Reliability starts with chip disposal. The design of the Center trough makes it possible to effectively manage chip disposal directly beneath the cutting point.



- 2 Chip conveyor
- 3 External nozzle coolant
- 4 Overhead shower coolant
- Spindle-through coolant
- 6 1MPa/3MPa/7MPa **Option**
- 7 Coolant supply unit with take-up chip conveyor
- 8 In-machine oil pan chip flow coolant

1 Center trough

Smoothly processing machining chips with a large chip discharge port in the bed center.



5 X-axis protective cover against chips

The bellow cover with the independent stainless steel plate on both left and right sides excels in maintainability and exchangeability while achieving high sealing performance and durability.



TOYOPUC-Touch

HMI in the IoE* era
Simple, safe and connectable



Renewed operability

J-Operate

Realization of simple operation

J-Navigate

Visualization of equipment status

J-Support

Batch management of equipment information

J-Manage

Equipment diagnosis utilizing IoE

J-Care

* JTEKT supports the IoE (Internet of Everything) that connects people, things, information, and services.

Renewed operability

J-Operate

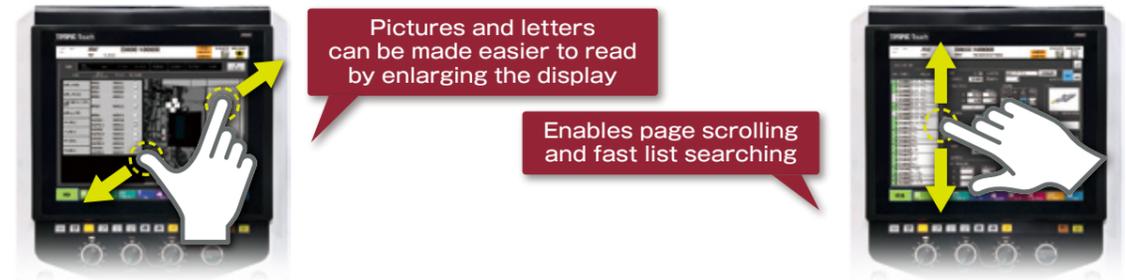
Visible and effective operation thanks to batch data display

Consolidates information onto a single large-size display screen, and displays a keypad window when necessary



Realization of inspirational operation

Screen swiping and pinching in/out mimics the operability of a smart phone, making the TOYOPUC-Touch easy to use and easy to learn



Pictures and letters can be made easier to read by enlarging the display

Enables page scrolling and fast list searching

Realization of simple operation

J-Navigate

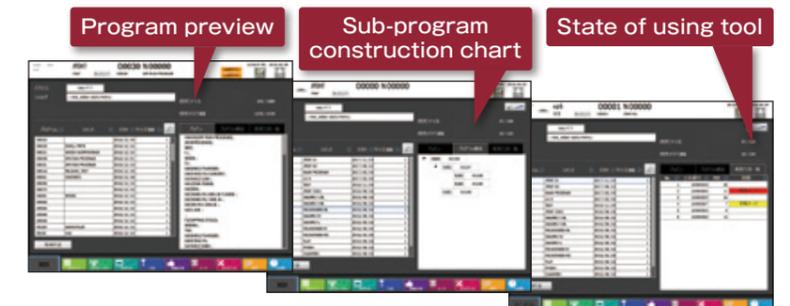
Minimal number of screen calling operations

With the itemized menu lists, a screen can be called up in a maximum of two steps from any screen.



Easy program status check before starting machining

Details, subprogram construction, and tool status can all be checked before starting machining just by selecting a program from the program list screen



Visualization of equipment status

J-Support

Supports operations performed at customer work sites with functions that visualize equipment status

Visualization of inspection ~Periodic inspection function~



Notifies the user of inspection periods and provides reliable inspection support

- Notification of inspection periods via messages
- Inspection areas and inspection procedures can be viewed without consulting a manual
- Registration of completed past inspections/measurement results

Visualization of longevity ~Management function for replacement parts service life~



Supports planned maintenance through notifications of when life is almost over

- Notifies the user of inspections for parts that are nearing the end of their lives
- Minimizes machine stop time through preventive inspection/part preparation
- Inspection areas and inspection procedures can be viewed without consulting a manual

Visualization of status ~Equipment diagnosis~



Supports maintenance by allowing on-screen assessment of equipment status

- ON/OFF status of devices can be viewed without having to check devices directly
- Device locations can be identified easily through image enlargement
- Internal ladder circuits can also be viewed easily

Visualization of performance ~Operation monitor~



Supports production control and improvement via graphs showing past operation performance/machining performance

- Performance can be viewed easily on graphs and tables, and data entry is also possible
- Current performance can be compared with past performance of the selected period
- Performance can be viewed easily by shift

Visualization of fault ~Fault analysis function~



Displaying error records through graphs for fault analysis

- Displays analysis results in graphs and tables making them easy to understand, and enables data output
- Displays analysis results for a specified period. The number of errors that occurred can be monitored for each of the alarms.
- Helps gain an understanding regarding trends in occurrence for each of the past alarms

Renewed operability

J-Manage

Batch management of tool/pallet information



Tool management function

- Allows automatic indexing of the selected tool without having to know the tool installation position
- Protects tools by using ATC speed commands suited to each tool
- Enables prior assessment of abnormal or insufficient tooling



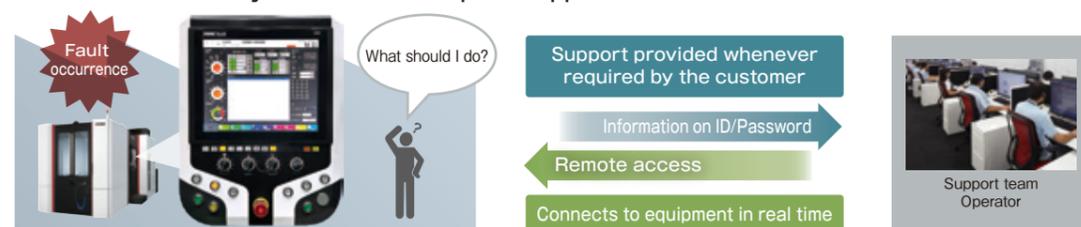
Pallet management function

- Automatically calls the machining programs set for each pallet
- Enables the setting of compensation values for each pallet
- Enables omission of unnecessary machining

Equipment diagnosis utilizing IoT

J-Care

Shortens error recovery time thanks to quick support



Additional functions of TOYOPUC-Touch

●: Standard / □: Optional

| Classification | Function name | Included | | |
|--------------------------------------|---|--|---|---|
| J-Navigate | Running status display | ● | | |
| | Program list display/editing | ● | | |
| | Command list display | ● | | |
| | Macro variables list display/editing | ● | | |
| | Workpiece coordinate system offset display/editing | ● | | |
| | Operation guidance function | ● | | |
| | Parameter settings | ● | | |
| | User registration | ● | | |
| | Message board | ● | | |
| | Function switch | ● | | |
| J-Support | Document browsing | ● | | |
| | Fault list display | ● | | |
| | Fault history | ● | | |
| | Operation history | ● | | |
| | Signal status | ● | | |
| | System information | ● | | |
| | Backup | ● | | |
| | Production support functions | Operation monitor | ● | |
| | | Machining performance Operation performance | ● | |
| | Energy saving functions | Cycle time measurement | ● | |
| | | Energy monitoring | □ | |
| | Servicing functions | Energy saving settings | ● | |
| | | Periodic inspection function | ● | |
| | Maintenance functions | Management function for replacement parts service life | ● | |
| | | Equipment diagnosis | ● | |
| | | Manual ATC recovery (easy-to-recover function) | ● | |
| | | Software diagnosis function | ● | |
| | | Fault analysis function | ● | |
| | J-Manage | Tool number conversion function | ● | |
| | | Tool offset function | ● | |
| Tool longevity management function | | ● | | |
| ATC variable speed function | | ● | | |
| Offset updating function | | ● | | |
| AC function | | ● | | |
| Machining condition setting function | | ● | | |
| Stored tool data save function | | ● | | |
| Tool management functions | | Tool position display | ● | |
| | | Tool display in magazine | ● | |
| | | Abnormal tool list display | ● | |
| | | Spare tool list display | ● | |
| | | Tools scheduled to be used | ● | |
| | | Tools not used for a long period of time display | ● | |
| | | High-performance magazine operation panel | Automatic indexing function for tools that require change | □ |
| | | | Data updating function at tool mounting/removal | □ |
| | | | Tool ID function | □ |
| | | Pallet information management functions | APC management | ● |
| Pallet compensation | | | ● | |
| Multiple workpiece mounting | | | ● | |
| J-Care | Remote support | ● | | |
| | Diagnosis data collection function Remote diagnosis function (using Team Viewer) | □ | | |

TIPROS

An easy to use, comprehensive production system that keeps on evolving.

JTEKT has delivered many systems since the first FMS sold in 1972 and has come to be seen by both domestic and overseas customers as an innovative company offering high reliability while exceeding industry expectations, and as such, indispensable in the FA era. At JTEKT, we manufacture the best FMC/FMS by combining our original thorough mechatronics technologies with cutting-edge software modules - delivering numerous records.



Hardware

- Flexible machine tool supports high speed, high efficiency and high precision
- Intelligent peripheral units

Software

- Flexible control functions
- Enriched unmanned operation support functions
- Superior control functions

FPA: Flexible Pallet Automation (pallet transfer method)
Expandability and unmanned operation

FDT: Flexible Directly Transfer (workpiece transfer method)
Low-cost unmanned operation of low-variety, high-volume production

RGV (rail-guided vehicle) + stacker crane



Robot method



FMS software for TIPROS FPA (CL30, MG30, TL30)

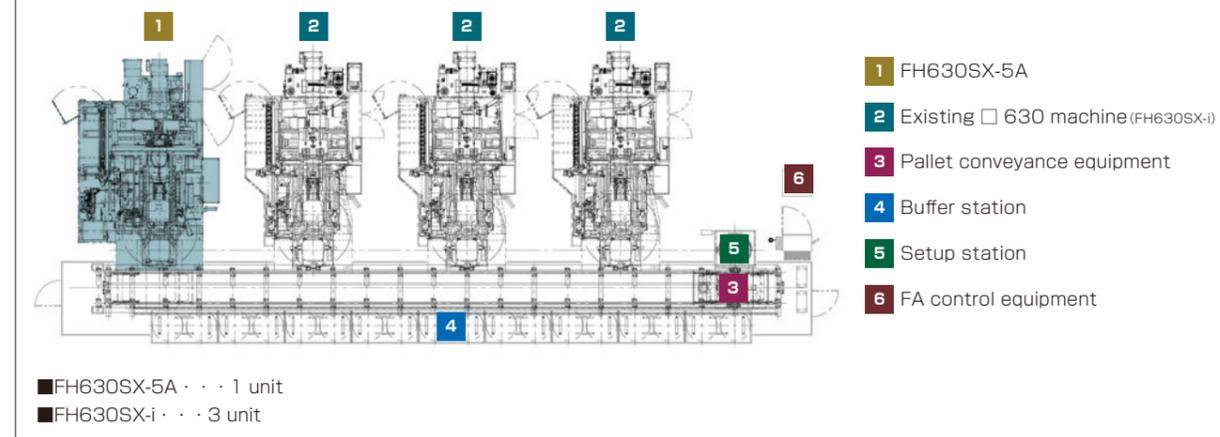
Data setting is possible with a simple click. Workpiece that are behind schedule are displayed in red. The machine automatically decides which fixtures in the line need replacing with the schedule.

| | | Stacker crane method, carrier method | | |
|--------------|-------------------------|--------------------------------------|------------|------------|
| | | FMS Level1 | FMS Level2 | FMS Level3 |
| FMC software | PC type | | | |
| | [Transfer control] CL30 | ● | ● | ● |
| | [DNC control] MG30 | | ● | ● |
| | [Tool control] TL30 | | | ● |

Option: Scheduling, preventive maintenance, multiple-parts loading, etc.

The 5-axis machine shares the same system setup as that for the 4-axis machine

The pallets, pallet height, and workpiece restrictions (swing x height x mass) are common to the existing □ 630 (FH630SX-i). This allows for easy connection to the existing FMS. Flexible in compatibility for various production patterns.



Intuitive and easy to use

Directly specifying what is to be set

A visual part no. changeover setting

Completion timing is decipherable

Scheduling by equipment

Scheduling by work

Easy fixture management

Abundant pallet types

Automatically deciding fixture replacement

Machine specifications

| Item | | Unit | FH630SX-5A | | |
|--|--|---------------------|-------------------------------|-----------------------------|------------------------|
| | | | Standard specifications | Special specifications | |
| Table (B-axis) & Pallet | Table dimensions (pallet dimensions) | mm | 630 × 630 | | |
| | Rotary table indexing angle | ° | 0.0001 | | |
| | Pallet height (from floor) | mm | 1,250 | | |
| | Loading mass on the pallet | kg | 1,500 | | |
| | Table indexing time (90° indexing) | sec | 1.0 | | |
| | Pallet change time | sec | 20 | | |
| Spindle swiveling (C-axis) | C-axis indexing angle | ° | 0.0001 | | |
| | C-axis swiveling center tilted angle | ° | 45 | | |
| Stroke | X-axis | mm | 800 (+300_ATC stroke) | | |
| | Y-axis | mm | 850 | | |
| | Z-axis | mm | 1,050 | | |
| | C-axis | ° | -210~+20 | | |
| | Distance from spindle center to pallet upper face (When the spindle is horizontal) | mm | 50~900 | | |
| | Distance from spindle endface to pallet upper face (When the spindle is vertical) | mm | 150~1,000 | | |
| | Distance from spindle endface to table center (When the spindle is horizontal) | mm | -200~+850 | | |
| | Distance from spindle center to table center (When the spindle is vertical) | mm | -300~+750 | | |
| Max. workpiece swing × Max. workpiece height | | mm | φ1,170 × 1,600 *1 | | |
| Feeds | Rapid feed rate | X-, Y-, Z-axes | m/min | 60 | |
| | | B-axis | °/min | 14,400 | |
| | | C-axis | °/min | 10,800 | |
| | Cutting feed rate | X-, Y-, Z-axes | m/min | 0.001~30 | |
| | | B-axis | °/min | 1~14,400 | |
| | | C-axis | °/min | 1~10,800 | |
| Ball screw diameter | | mm | φ45 (X, Z), φ50 (Y) | | |
| Spindle | Spindle speed | min ⁻¹ | 50~15,000 | 50~8,000 | |
| | Spindle diameter (front side bearing inner diameter) | mm | φ120 | φ120 | |
| | Spindle nose shape | | BT No.50 Big+ | HSK-A100 | |
| | Spindle motor short time / continuous | kw | 55/37 | 80/55 | |
| ATC | Tool holding capacity | tool | 60 | 121 | |
| | Tool selection | | Absolute address | | |
| | Tool (dia. × length) | mm | φ120 × 600 *2 | | |
| | Tool mass | kg | 27 | | |
| | Tool change time (Tool to Tool) | sec | 3.1 (~15kg), 3.5 (15~27kg) | | |
| | Tool change time (Chip to Chip) | sec | 5.8 (~15kg), 6.2 (15~27kg) *3 | | |
| | Tools | Holder Pull stud | | MAS BT50 Big+ MAS P50T-1 | CAT#50 Big+ / HSK-A100 |
| Dimensions & Weight | Floor space (width × depth) | mm | 6,670 × 4,320 *4 | | |
| | Machine height | mm | 4,135 | | |
| | Machine weight (Main unit only) | kg | 22,000 | | |
| Various Capacities | Working oil | L | 18 | | |
| | Slide lubricant | L | 5 | | |
| | Spindle oil air | L | 5 | | |
| | ATC lubricant | L | 7.5 | | |
| | C-axis lubricant | L | 13 | | |
| | Spindle / table coolant | L | 70 | | |
| | Power supply capacity | kVA | 75 | 88 | |
| | Power voltage | V | 400 | 200 | |
| | Control voltage | V | DC24 | | |
| | Air source capacity | NL/min | 900 | | |
| Capability & Performance | Positioning accuracy *5 | X-, Y-, Z-axes | mm | ±0.002 | |
| | | B-axis | sec | ±3.5 | |
| | | C-axis | sec | ±3.5 | |
| | Repeatability *5 | X-, Y-, Z-axes | mm | ±0.001 | |
| | | B-axis | sec | ±2 | |
| | | C-axis | sec | ±2 | |

*1 Partial limitations exist for Workpiece swing × Height. For detail shape, refer to the tooling data. *2 Partial limitations exist for Tool (diameter × length). For detail shape, refer to the tooling data. *3 For the M06 Q1. command. See the operation manual for details. *4 For details, refer to the layout plan. *5 According to our inspection method

Accessories ● Standard accessories / □ Optional accessories

| Item | Equipment name | Category | |
|---------------------------|--|---|---------------------------------------|
| Table and pallet | Table | DD table (with encoder) ● | |
| | Pallet | Standard pallet screw hole ● | |
| | | T-groove pallet □ | |
| | Addition of pallet | Single piece screw hole □ | |
| | | Single piece T-groove □ | |
| | Pallet changer (APC) | The pallet manual swiveling function is available ● | |
| Spindle relations | Speed | 15,000min ⁻¹ BT50 Big+/CAT#50 Big+ ● | |
| | | 15,000min ⁻¹ HSK-A100 □ | |
| | | 8,000min ⁻¹ BT50 Big+/CAT#50 Big+ □ | |
| | | 8,000min ⁻¹ HSK-A100 □ | |
| | Collet | MAS I ● | |
| | | MAS II □ | |
| Spindle swiveling | Spindle swiveling equipment | Spindle swiveling equipment (with encoder) ● | |
| Tool magazine | No of tools | 60 tools ● | |
| | | 121 tools □ | |
| | Equipment for detecting broken tools in a magazine | Touch switch type □ | |
| Coolant | Coolant supply unit | Coolant supply unit (water soluble/with take-up chip conveyor/scrapper type/without spindle-through coolant spec) ● | |
| | | Coolant supply unit (water soluble/with take-up chip conveyor/scrapper type/spindle-through coolant spec/1MPa through pump) □ | |
| | | Coolant supply unit (water soluble/with take-up chip conveyor/scrapper type/spindle-through coolant spec/3MPa through pump) □ | |
| | | Coolant supply unit (water soluble/with take-up chip conveyor/scrapper type/spindle-through coolant spec/7MPa through pump) □ | |
| | | Coolant supply unit (water soluble/with take-up chip conveyor/2-tank type/spindle-through coolant spec/1MPa through pump) □ | |
| | | Coolant supply unit (water soluble/with take-up chip conveyor/2-tank type/spindle-through coolant spec/3MPa through pump) □ | |
| | External nozzle coolant | External nozzle coolant and simultaneous discharge ● | |
| | | Individual discharge □ | |
| | | Internal chip flushing coolant | Internal chip flushing coolant ● |
| | | | Chip flow coolant in pallet changer □ |
| | | Internal screw conveyor | Internal screw conveyor ● |
| | | Coolant cooling | Coolant cooling □ |
| | | Oil skimmer | Belt type □ |
| Chip box | Chip box □ | | |
| Splash guard | Splash gun (at APC) | Splash gun (at APC) ● | |
| | Mist collector | Mist collector □ | |
| | Air blower | Taper / center through air blow (spindle rotation not possible) ● | |
| | | Center through air blow (spindle rotation possible) □ | |
| Electric control | Enclosure guard | Enclosure guard ● | |
| | | Universal design cover □ | |
| | Door interlock at operating position | Electromagnetic lock type ● | |
| | APC door interlock | Electromagnetic lock type ● | |
| | Magazine door interlock | Electromagnetic lock type ● | |
| | Internal lighting | Internal lighting ● | |
| Support for high accuracy | Power voltage | 400 V specification ● | |
| | | 200 V specification (with 200 ⇒ 400 V step-up transformer) □ | |
| | Cooler for control cabinet inside | Cooler for control cabinet inside □ | |
| Foundation | Ground fault interrupter | Ground fault interrupter □ | |
| | Spindle / DD table chiller | Spindle / DD table chiller ● | |
| Scale feedback | Scale feedback | X-, Y-, Z-, B-, and C-axes ● | |
| | Anchor type | Chemical anchor * Please drill holes and purchase/place chemical anchors at the customer's premises. ● | |
| | | Drill anchor * Please drill holes and place drill anchors at the customer's premises. (We provide drill anchors.) □ | |

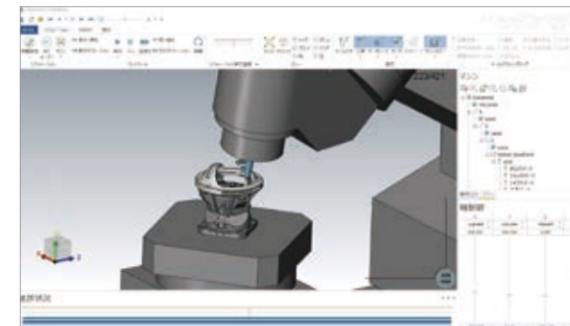
CNC unit FANUC 31i. ● Standard / □ Optional

| Division | Name | FH630SX-5A | |
|--|--|------------------------|---|
| Axis control | Min. input increment (0.001mm) | ● | |
| | Machine lock | ● | |
| | Absolute position detection | ● | |
| | Inch/metric switch | ● | |
| Operation | Dry run | ● | |
| | Single block | ● | |
| | Manual handle feed 1 unit | ● | |
| | Program restart | ● | |
| | Manual handle interrupt | □ | |
| Interpolation function | Nano interpolation | ● | |
| | Positioning (G00) | ● | |
| | Exact stop mode (G61) | ● | |
| | Tapping mode (G63) | ● | |
| | Cutting mode (G64) | ● | |
| | Exact stop (G09) | ● | |
| | Linear interpolation (G01) | ● | |
| | Arc interpolation (G02, G03) | ● | |
| | Dwell (G04) | ● | |
| | Helical interpolation | ● | |
| | Reference point return (G28, G29) | ● | |
| | Second reference point return (G30) | ● | |
| | Third and fourth reference point return (G30) | ● | |
| Feed function | F1-digit feed | □ | |
| | AI contour control II (pre-read 200 blocks) | ● | |
| Program entry | Local coordinate system (G52) | ● | |
| | Machine coordinate system (G53) | ● | |
| | Workpiece coordinate system (G54 to G59) | ● | |
| | Additional workpiece coordinate systems (48 sets) | ● | |
| | Additional workpiece coordinate systems (300 sets) | □ | |
| | Custom macro | ● | |
| | Additional custom macro common variables (#100 to #199, #500 to #999) | ● | |
| | Fixed drilling cycle (G73, G74, G76, G80 to G89, G98 and G99) | ● | |
| | Additional optional block skip (9 pieces) | □ | |
| Automatic corner override | ● | | |
| Spindle function | Rigid tap | ● | |
| Tool function | Tool corrections (99) | ● | |
| | Tool correction function | Tool corrections (200) | □ |
| | Tool corrections (400) | □ | |
| | Tool corrections (499) | □ | |
| | Tool corrections (999) | □ | |
| | Tool position offset | ● | |
| | Tool diameter and cutter radius compensation | ● | |
| Tool length compensation (G43, G44 and G49) | ● | | |
| Editing operation | Program storage capacity (128K bytes) | ● | |
| | Program storage capacity (256K bytes) | □ | |
| | Program storage capacity (512K bytes) | □ | |
| | Program storage capacity (1M bytes) | □ | |
| | Program storage capacity (2M bytes) | □ | |
| | Program storage capacity (4M bytes) | □ | |
| | Program storage capacity (8M bytes) | □ | |
| | Number of registered programs (250) | ● | |
| | Number of registered programs (500) ※Storage capacity 256K bytes compulsory | □ | |
| | Number of registered programs (1000) ※Storage capacity 512K bytes compulsory | □ | |
| | Number of registered programs (2000) ※Storage capacity 1M bytes compulsory | □ | |
| Number of registered programs (4000) ※Storage capacity 2M bytes compulsory | □ | | |
| Simultaneous multi-program editing (incl. background editing) | ● | | |
| Data entry/display | Touch panel control | ● | |
| Communication function | Built-in Ethernet | ● | |
| Others | 10.4" color LCD | ● | |
| | TOYOPUC-TOUCH 19" color LCD | □ | |

FANUC is a registered trademark of FANUC LTD.

Program support

Mastercam

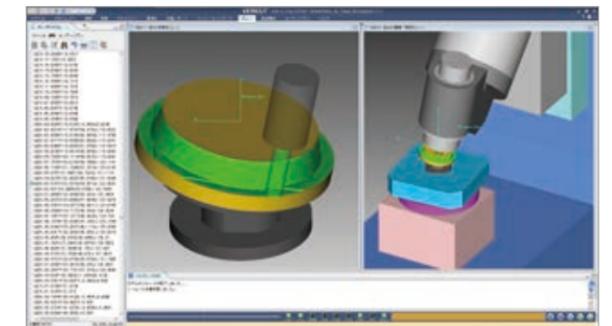


Mastercam®

Creates a program by post processor development compatible with swivel spindle 5-axis machines.

Mastercam is the registered trademark of CNC Software, inc. in the U.S.

VERICUT



VERICUT®

Checks the program / interference in advance by means of simulation corresponding to spindle swiveling 5-axis machines.

VERICUT is the registered trademark of CGTech.