



LH-1000/1250

Horizontal Machining Center

Pursuing Quality. Create Added Value

Technical Highlights:

- High-rigidity T-structure Design
- 62° Inclined Shuttle-type APC
- Intelligent Spindle System
- Energy-saving Hydraulic Module
- Remote Monitoring Parameter Management System
- Intelligent Human-Machine Interface



LITZ HITECH CORP.

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Sales and Service

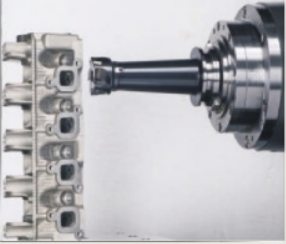
30 / 30 Contact

Production Bases

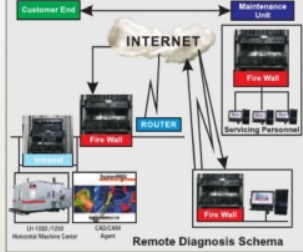


Main sub-system

Spindle System



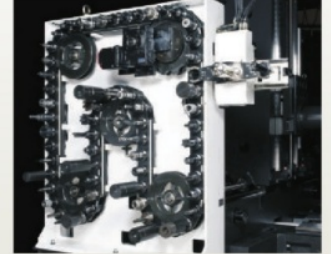
Remote Monitoring



Main Structure I



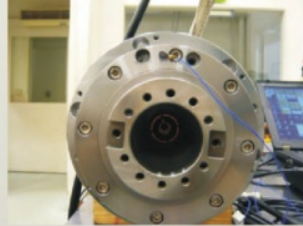
ATC System



Controller System



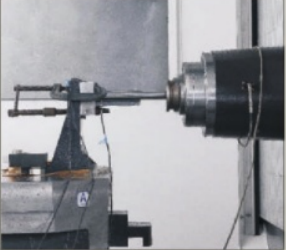
Intelligent Spindle



Maintenance & Repair



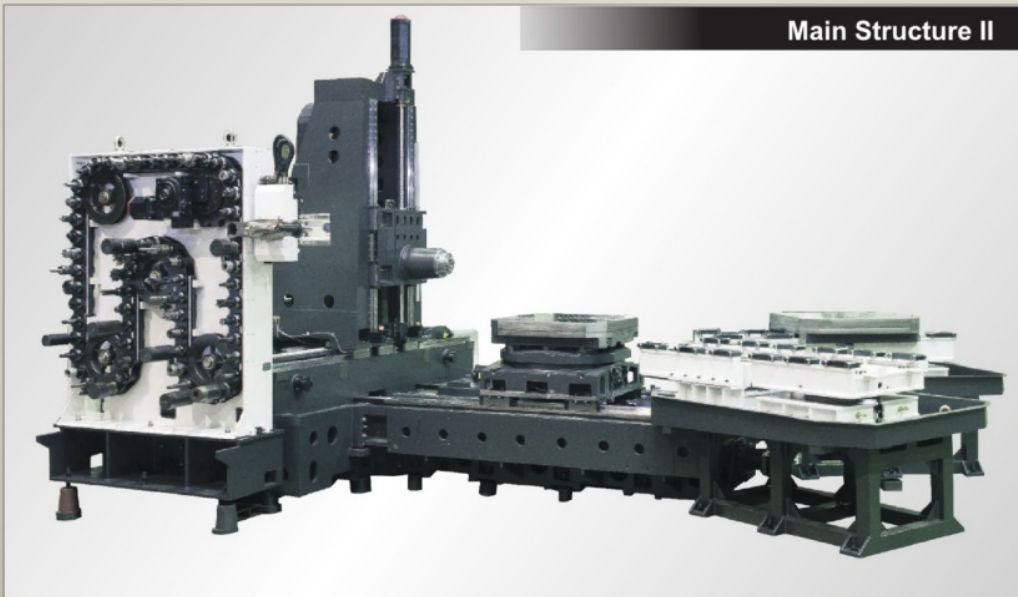
On-line Measurement System



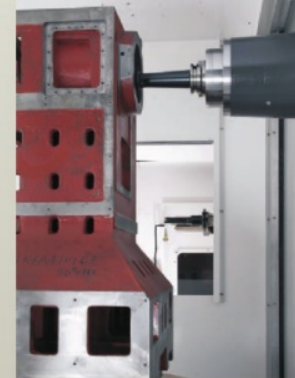
Automatic Pallet Changer



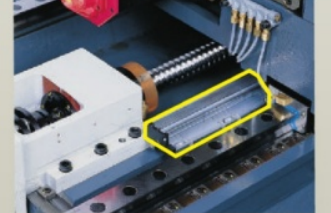
Main Structure II



Machining Application



Thermal Displacement Control



Chip Removal System



Energy Saving & Carbon Reduction



Large-scale Intelligent Precision Horizontal Machining Center

Optimal mechanical structure design, the most ideal machine for production line.

High-performance Machining Center for processing large workpieces; easy to load/unload the workpiece.

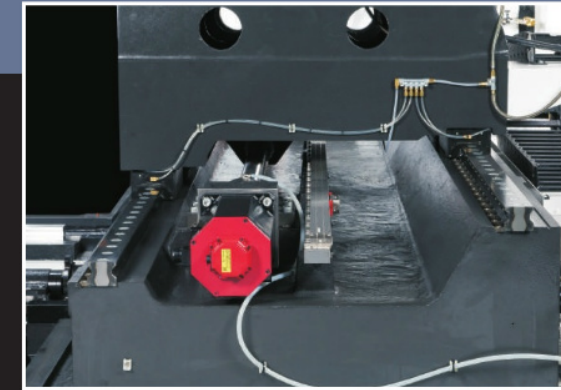
Optimized design of intelligent spindle facilitates highly efficient processing.



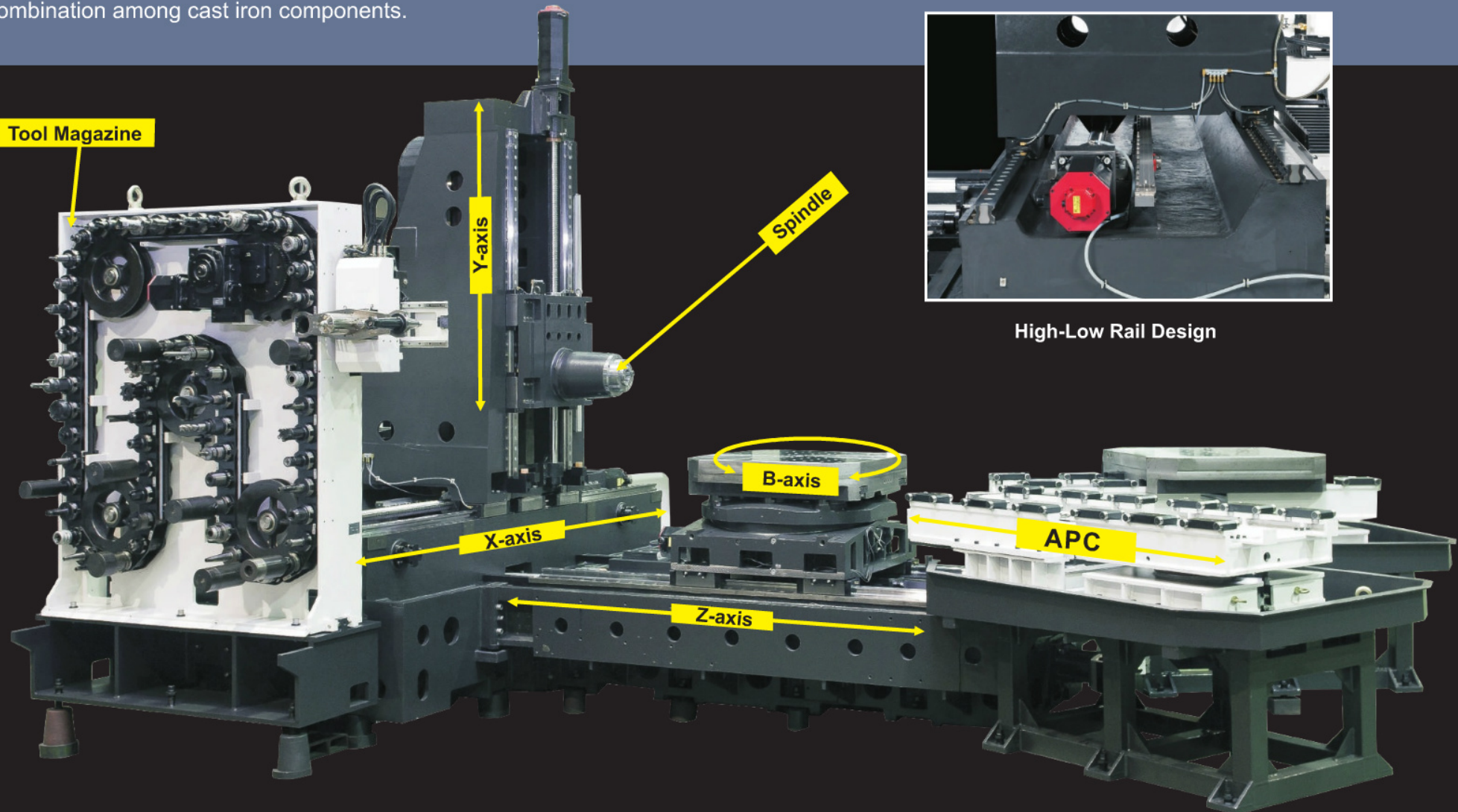
Mechanical Design

Robust and High Precision Machine Structure

- The major machine components are manufactured with Meehanite cast iron, which is stable in material composition. Ensuring long-lasting machine quality.
- To provide high rigidity mechanism, Finite Element Analysis is used to calculate finest combination among cast iron components.



High-Low Rail Design



High Speed Mechanism

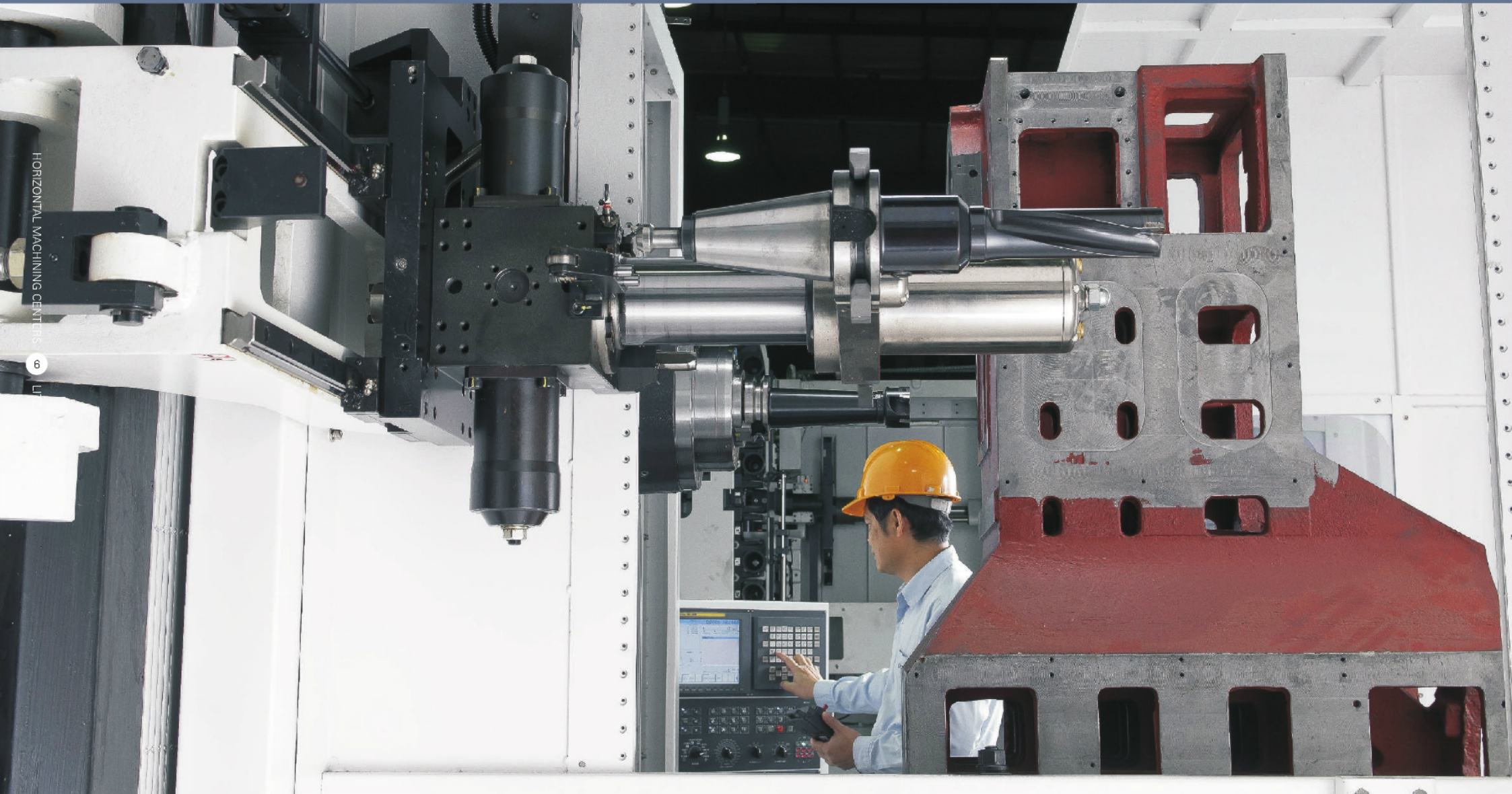
Shortens non-machining time substantially

The capability to shorten the time for spindle acceleration, deceleration, transmission and tool change is the key to high cutting efficiency. The LH Series shortens the overall machining time by uplifting the speed of key mechanisms.

Production Efficiency

Gains extra profit by reducing loss from non-machining time.

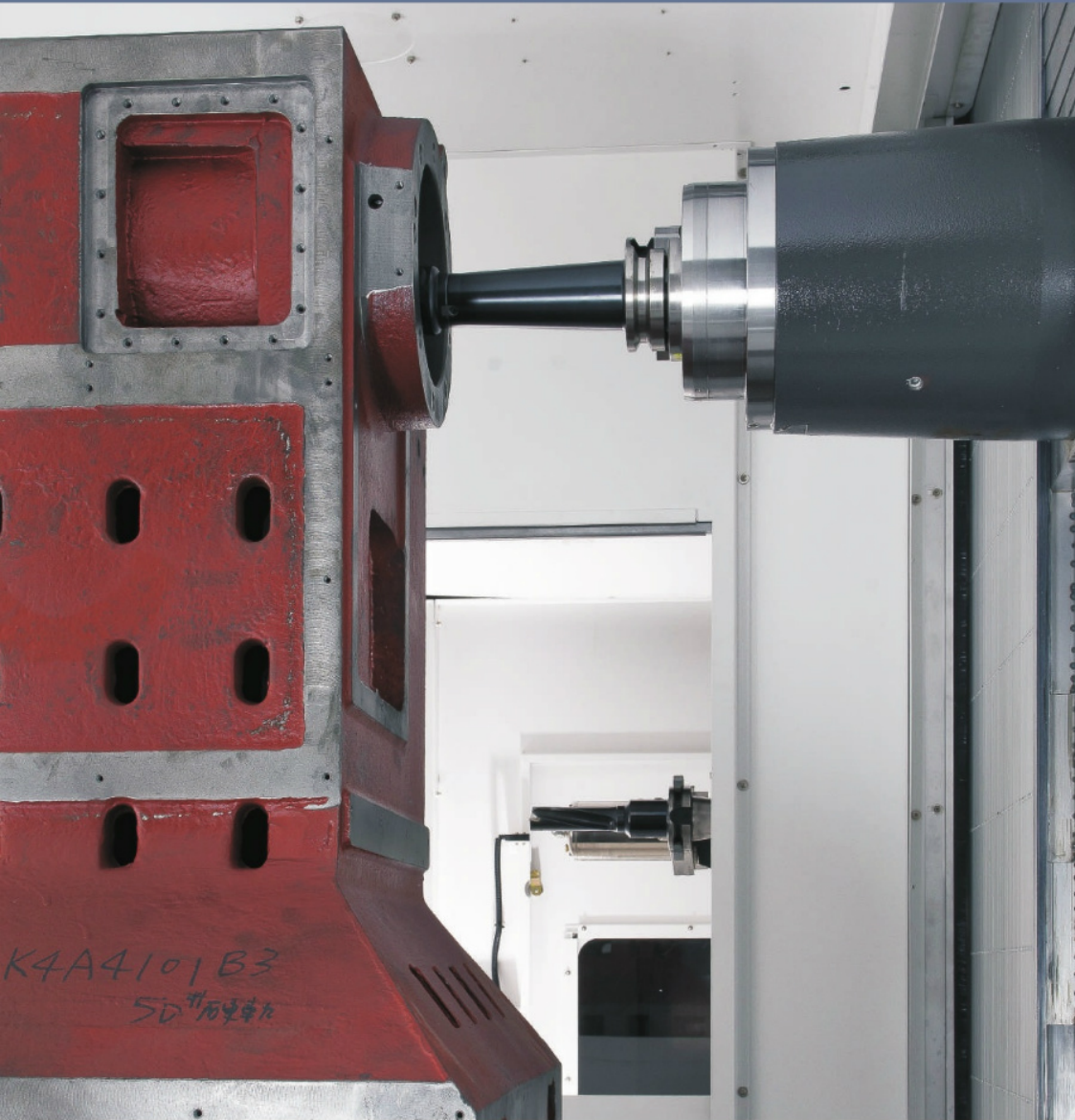
Significantly increases the utilization rate of equipment. An excellent machine that is ideal for continuous machining for a long period of time.



Chip Disposal

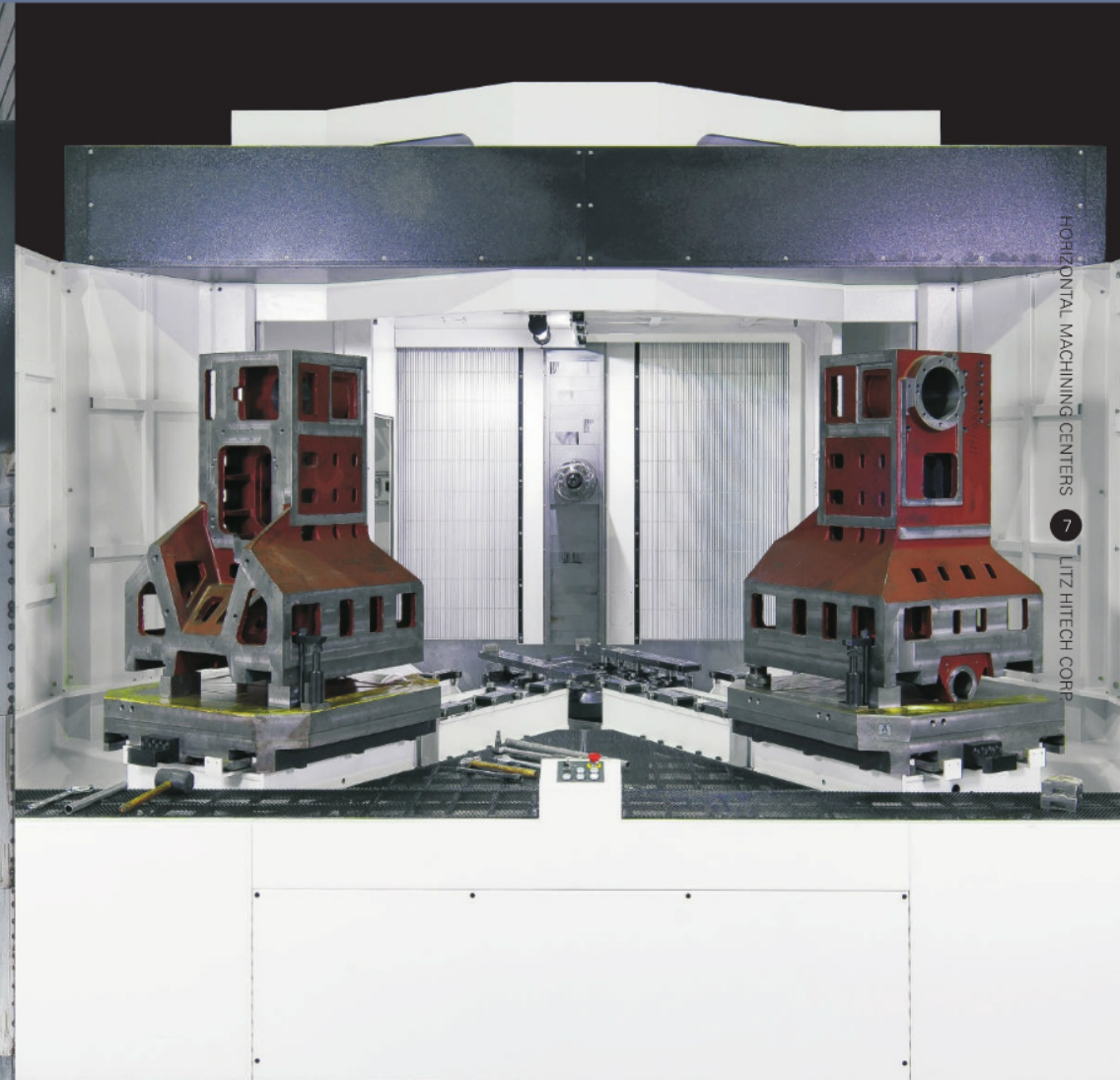
Increases machine utilization rate substantially

The high efficiency chip disposal system completely resolves the chip problems of horizontal machining centers; As a result, machining accuracy can be achieved from the lowered cutting heat.



Automatic Pallet Changer

Inclined (62°) Shuttle Type Pallet Interchange Mechanism, heavy-duty pallet, smooth and steady A-B pallet interchange makes LH series ideal for machining large workpieces.

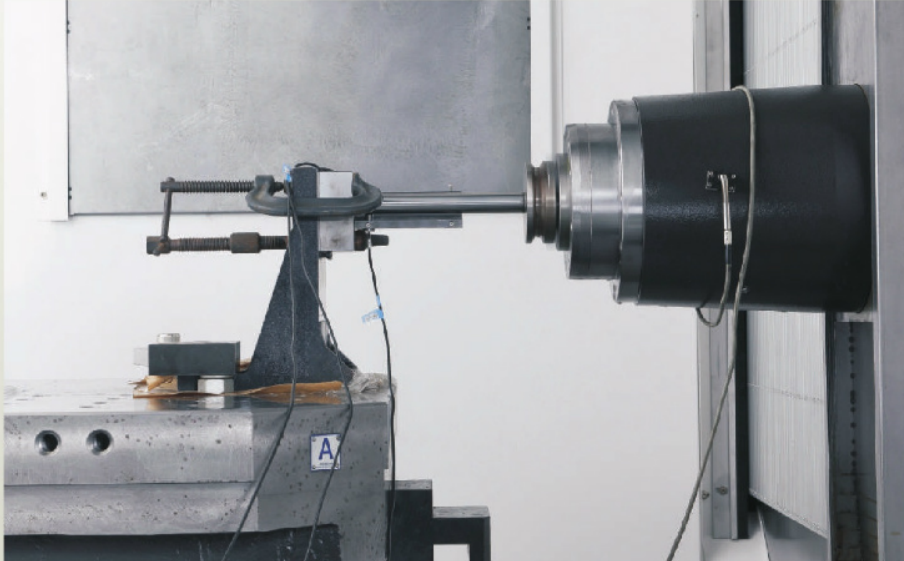


• High Precision •

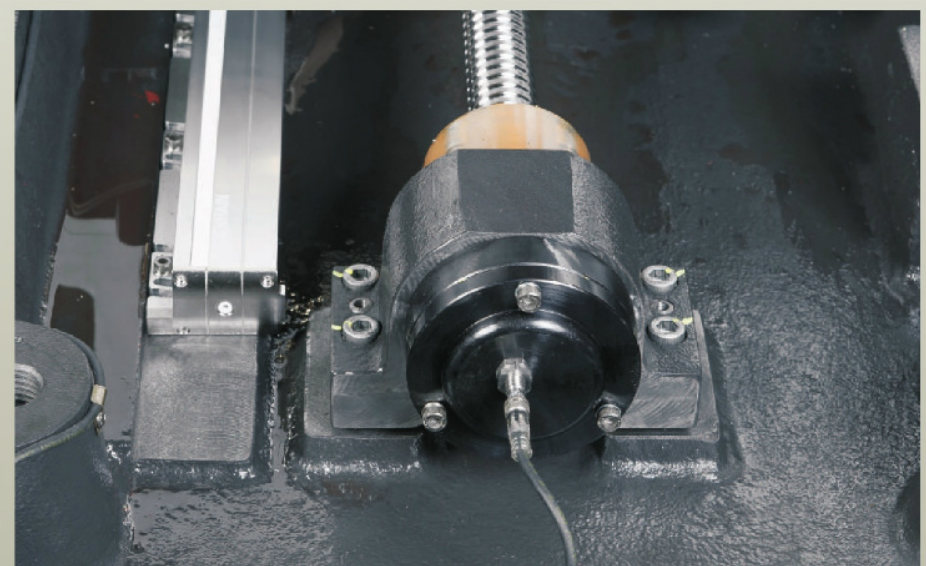
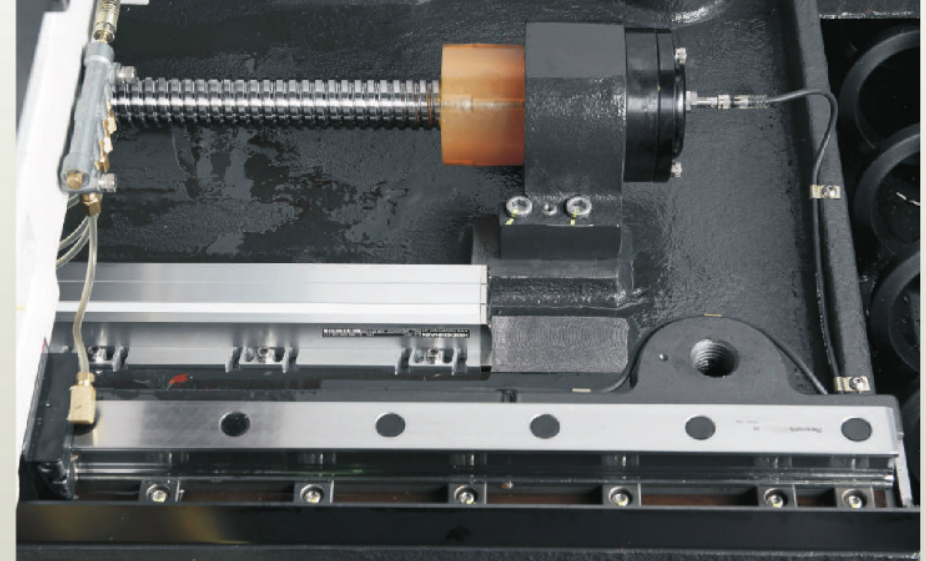


Thermal Displacement Control System

Spindle Temperature-rise Compensation



Three-axis Temperature-rise Compensation



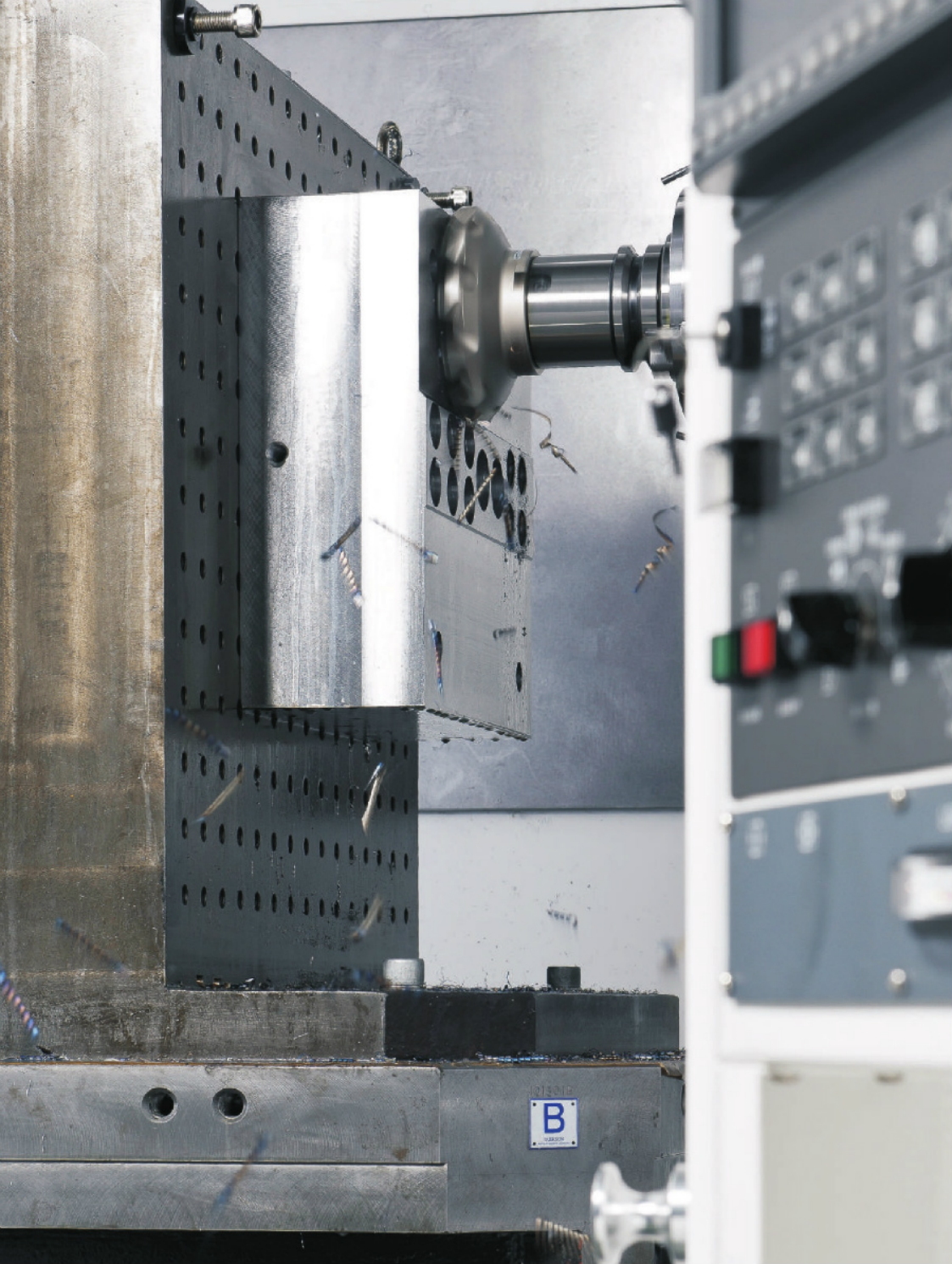
High-precision Machine

Boring Hole-pair Precision Test

High-precision test criteria:

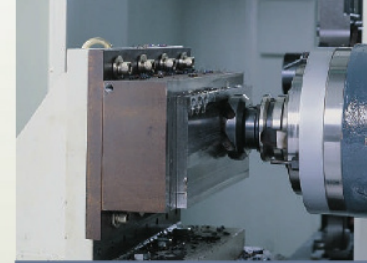
- Boring hole concentricity
- Precision of alignment
- Repeatability
- Roundness
- Cylindricity



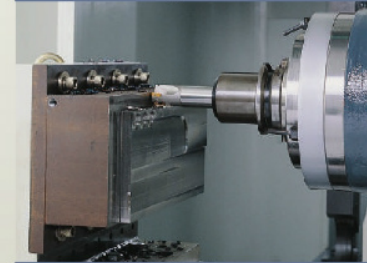


Cutting Data

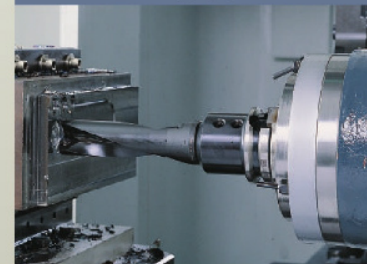
Face Milling Tool $\varnothing 80\text{mm}$



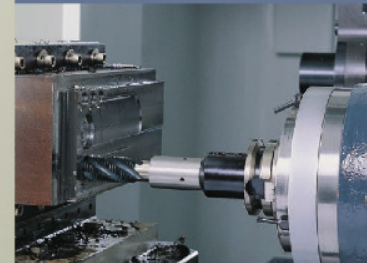
End Milling Tool $\varnothing 40\text{mm}$



Drill $\varnothing 50\text{mm}$



Tap



LH - 1000 / 1250

Chip removal capacity

400mL/min

Spindle rpm

1000 rpm

Feed speed

1300 mm/min

Chip removal capacity

197mL/min

Spindle rpm

640 rpm

Feed speed

230 mm/min

Chip removal capacity

220mL/min

Spindle rpm

900 rpm

Feed speed

113 mm/min

Tool

M40xP4.0

Spindle rpm

88 rpm

Feed speed

352 mm/min

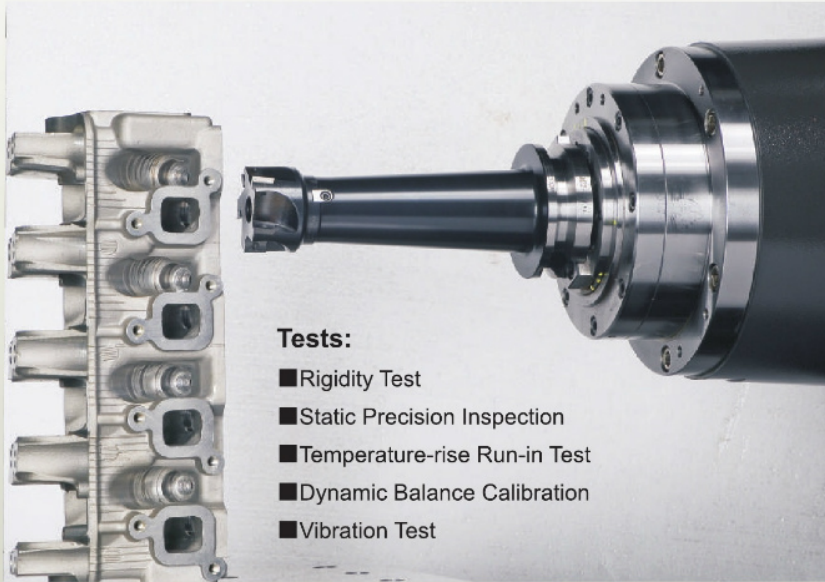
(Equipped with ZF gear box)

Superb Human-Machine Interface Control System



Intelligent Spindle

The Spindle Motor System

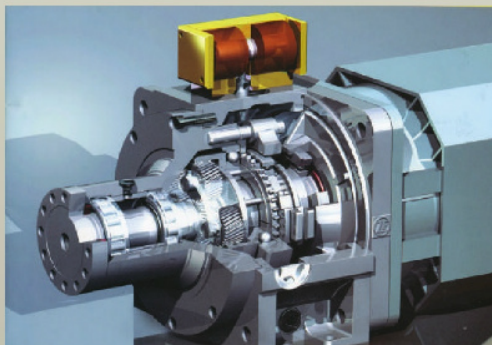


Tests:

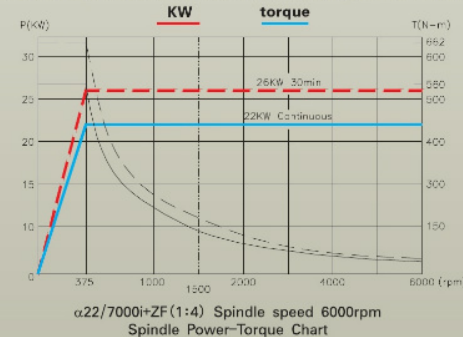
- Rigidity Test
- Static Precision Inspection
- Temperature-rise Run-in Test
- Dynamic Balance Calibration
- Vibration Test

Spindle Torque Curve

High-torque Motor + ZF Gear Box

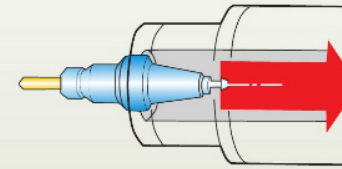


Power (continuous/30min. rating): 22/26kw

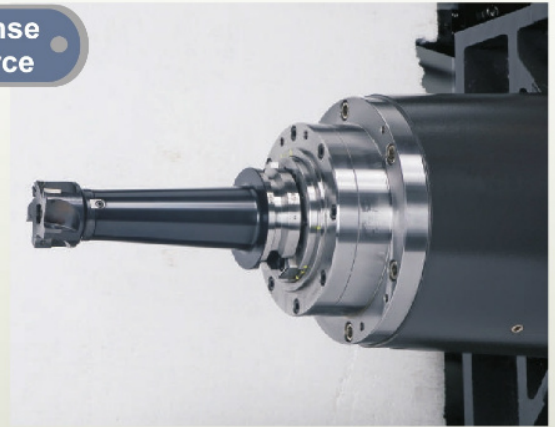


Spindle Tool Specifications

Spindle with Agile Response & High Tool-clamping Force



- Spindle Tool-clamping Force
1800 kgf (17000N)
- Spindle with high tool-clamping force, provides strong clamping and high rigidity of cutting tool.

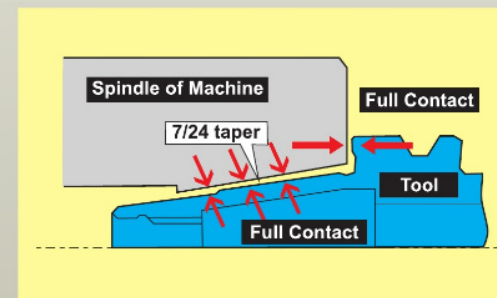


- **1.7** seconds from 0 to 6000RPM for spindle acceleration
- **1.2** seconds from 6000RPM to 0 for spindle deceleration.

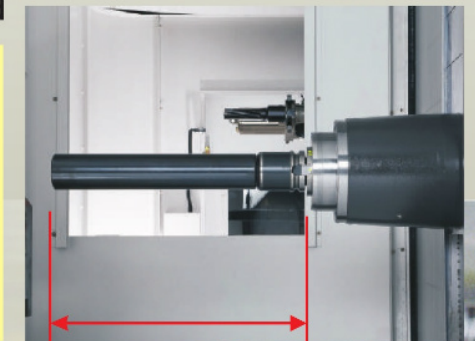
Two-face Restraint BT Tool Holder

Max. Tool Length

Identical 7/24 Taper, as BT, is Used



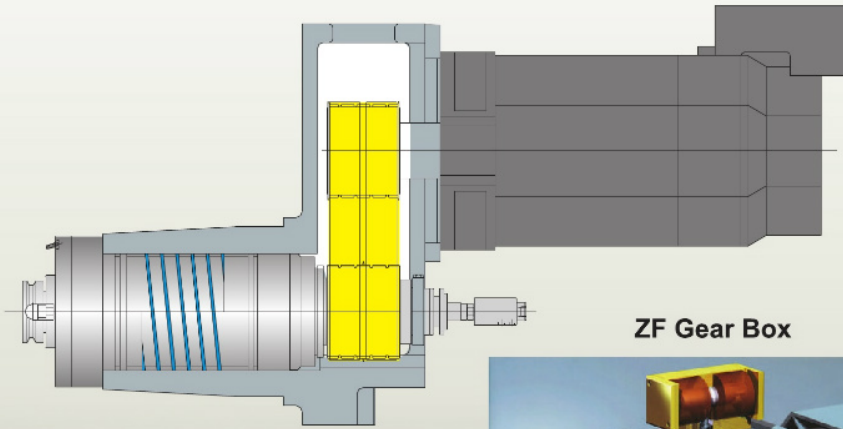
- With full contact between the Two-face Restraint tool holder and the Spindle, vibration is eliminated during the machining to enhance machining and workpiece precision.
- End face of spindle will not expand at high rpm operation.
- Two-face restraint tool holder offers high precision installation and high cutting capability.



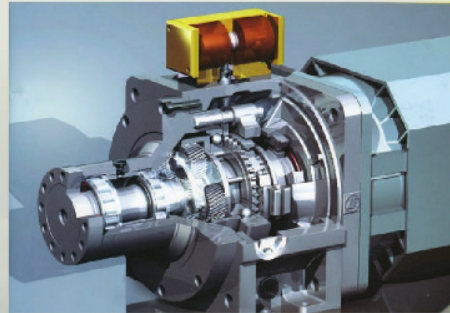
Max. Tool Length 600mm

Spindle Drive System

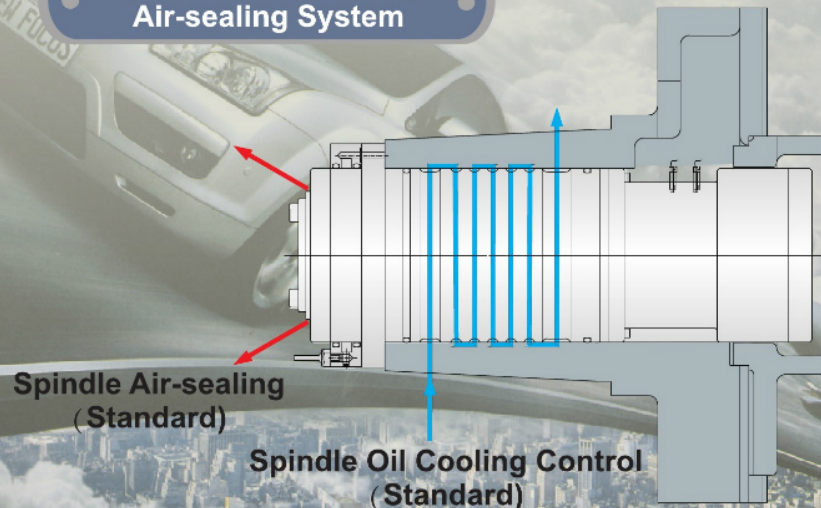
High-torque Belt Drive System



ZF Gear Box



Spindle Dust-resisting Air-sealing System



Spindle Air-sealing (Standard)

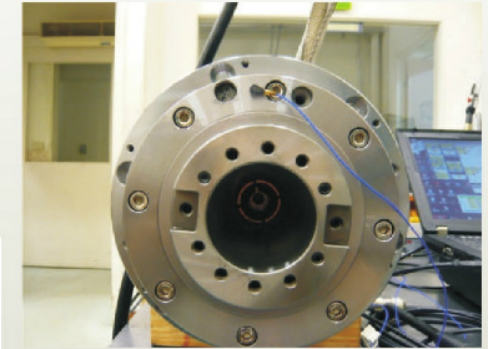
Spindle Oil Cooling Control (Standard)

Intelligent Spindle: Development & Design of Accelerometer

APS (Advanced process system)

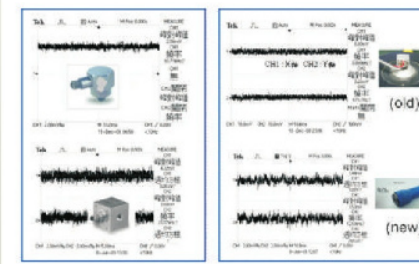
Accelerometer Spec.

Dimensions: $\phi 12.7 \times 15\text{mm}$
 Measurement Range: 19g
 Sensitivity: 57mv/g
 Frequency Response: 500Hz
 Max. Tolerance: 10000g



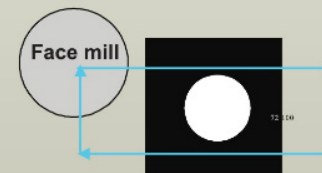
Spindle Vibration Classification: 0-10G:

- 0-3G indicates good and safe conditions (Green)
- 4-6G indicates operator adjustment is required to prevent from shortening spindle lifespan
- 7-10G indicates an immediate stop is required or the spindle/tool will be damaged (red)



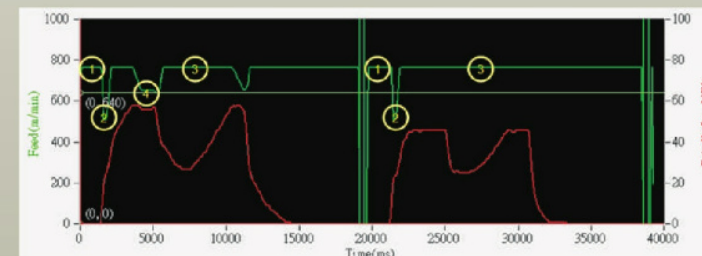
High-efficiency Cutting System

Automatic feedrate adjustment in correspondence with cutting load, ensures an optimal machining condition. Real-time monitoring during cutting, with an alarm sent to PLC, or an emergency stop activation in the event of an abnormal loading to protect the machine.



Applications:

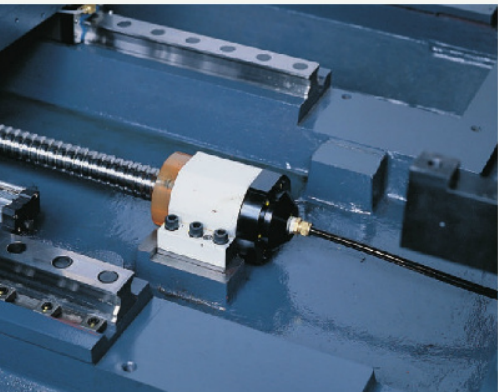
- Milling process of roughing/semi-finishing (at least 10% cutting load of spindle)
- For variable removal rates in the process, e.g., variable cutting width and depth, uneven workpiece remainders, uneven material hardness in workpiece, etc.



Saves 15% of Cutting Time

1. Automatically accelerates at no load
2. Automatically decelerates at feeding
3. Automatically accelerates at low load
4. Automatically decelerates at overload

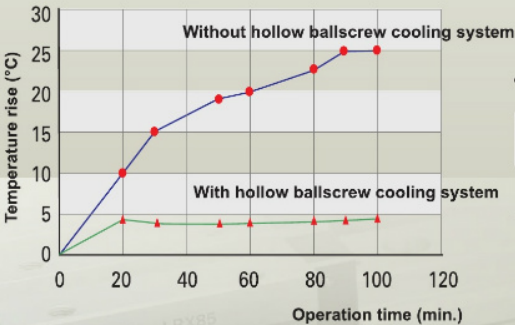
Three-Axis Ballscrew Cooling System



Cooling oil



Cooling Efficiency of Hollow Ballscrew



Test conditions

Ball screw Dia. (mm)	RPM	Temperature control of cooling oil (°C)	Coolant flow rate L/min
Ø50xP12	1000	20	2.5

- The transmission ballscrew is of hollow design. The coolant oil automatically circulates inside the ballscrew, eliminating heat and thermal expansion at high speed rotation, so high-speed and high precision machining will be achieved.

3-Axes Oil-coolant Separation & Collision Prevention

Oil-coolant Separation Design

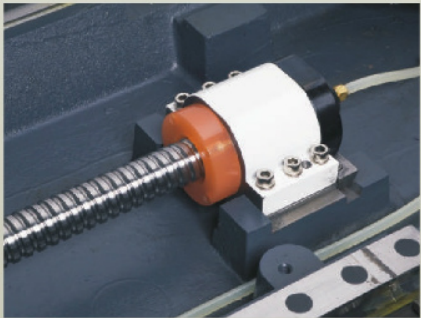


- Machine is of oil-coolant separation design, ensuring separation of lubricant from cutting fluid, preventing deterioration of the cutting fluid resulting from mixing with lubricant, therefore process quality can be maintained.



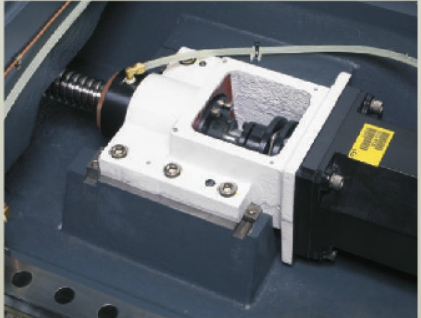
- Separated cutting fluid is recycled into tank for re-use. The lubricant is collected for disposal, to meet environmental requirements.

Collision Prevention Device



- In the event of mechanical anomaly or operator negligence, the built-in collision prevention device is capable of absorbing the impact from collision, minimizing the impairment, as well as maintaining the intended precision.

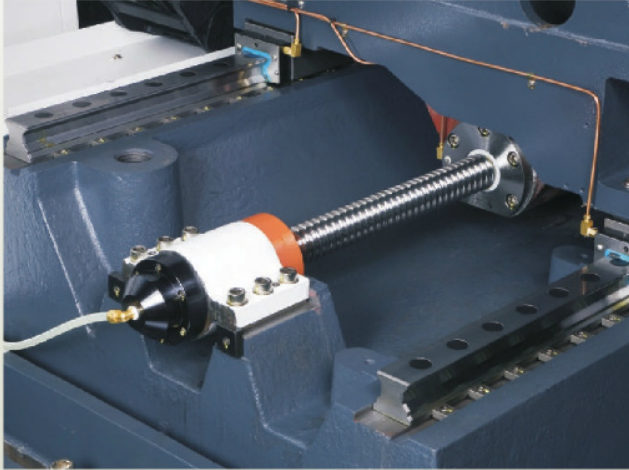
Direct-coupled Transmission



- Direct-coupled transmission with 3-Axis motor and precision high-speed ballscrew.
- Pre-tension device increases rigidity of ballscrew, lowers thermal displacement and maximizes precision.
- Hollow ballscrew cooling design is devised in the 3-Axis ballscrew system, significantly lowers thermal displacement resulting from high-speed rotation, ideal for machining high-precision parts.
- C3 Class large diameter ballscrew pre-tension design ensures high rigidity and excellent precision.

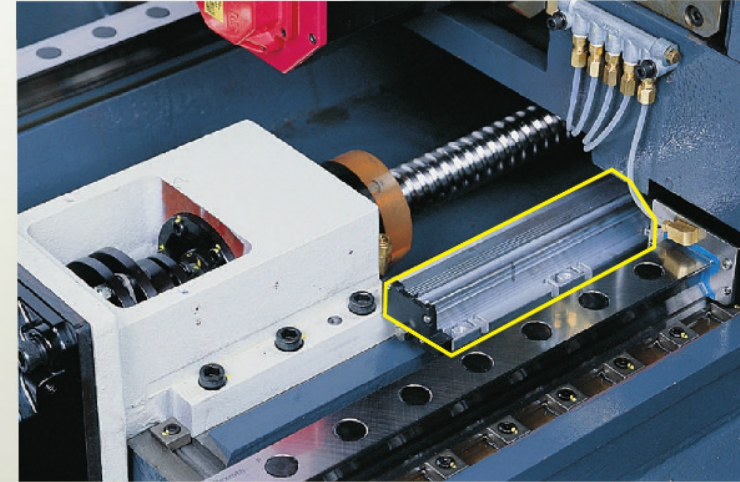
Three-Axis Drive System

3-Axis Ballscrew System



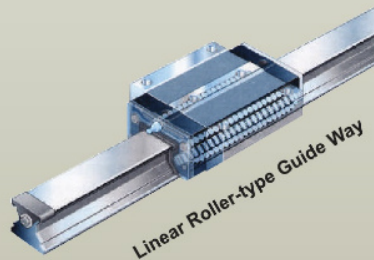
- The 3-Axis ballscrew employs large diameter design to enhance transmission rigidity, ensuring repetitive and positioning precision.
- X/Y/Z axis rapid speed **24m/min**
- Synchronized telescopic covers are equipped on all 3 axes, eliminating noise and vibration from transmission.

Linear Scale **OP**



- Linear scale system can be added on X/Y/Z- axes. The system feeds back thermal displacement signals caused by high-speed movement of each axes, and controller compensates accordingly. The feature is ideal for processing high-precision parts.
- Linear Scale is oil-mist protected to prevent possible damages from dust or oil, and linear scales' accuracy and long-lasting lifespan can be ensured.

High-speed High-precision Linear Guide Way



- Linear guide ways with zero backlash ensures consistent cutting surface on curve or slope cutting.
- Ideal for high speed travel and the drive power requirement can be minimized significantly.
- By using rolling contact instead of sliding contact, linear guide reduces friction loss, reacts fast, and increases positioning accuracy.
- Load capacity is high on multiple directions. Multiple contact points are maintained when machining, cutting rigidity can be ensured.
- It is easy to assemble, interchangeable, and simple structure for lubrication.
- Long lifespan can be achieved as a result of extreme low friction loss in the linear guide way.

Ballscrew Pre-tension Function



- Ballscrew pre-tension device enhances rigidity of ballscrew, reduces thermal displacement, and improves precision.

APC Pallet

Inclined Shuttle-type APC

- Pallet with automatic interchange function enables quick changeover and precision positioning.
- Minimum division of pallet: 1° (standard)
- Minimum division of pallet: 0.001° (optional)
- Pallet speed: 10 RPM



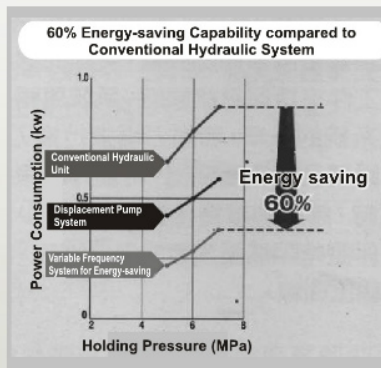
Pallet



- Large Space for Loading/Unloading Operation

Energy-saving Hydraulic Module

Energy-saving Comparison Chart



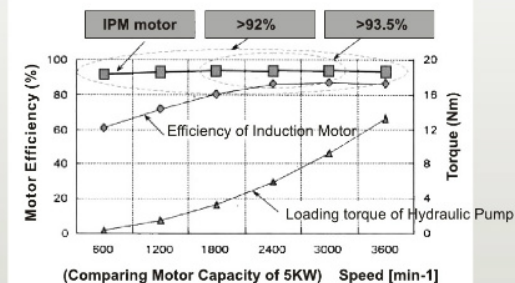
Operation Panel



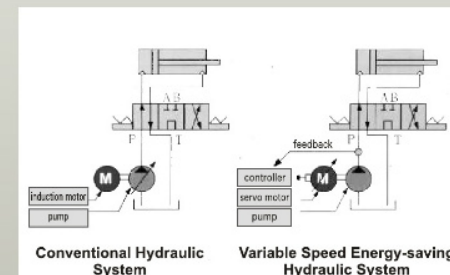
Energy-saving Hydraulic Unit



Efficiency Comparison Between Energy-saving Motor & Conventional Motor



Loop Comparison of hydraulic system



Structure and Drive Principle of Energy-saving Motor

	Induction motor	Permanent magnet motor (build-in type)
Motor structure		
Drive Principle	AC rotary magnetic field brings synchronized rotation of aluminum conductor and squirrel cage	Besides the magnetic torque, the core plate of the rotor also provides magnetic resisting torque to contribute the driving force

Tool Change System and Magazine



- Agile, simple, reliable and long lifespan tool changing system provides excellent tool change operation.
- The unique tool changing system incorporates advanced hydraulic type drive mechanism. Fast tool selection from any tool position can be achieved by using PLC program.
- The ATC system passes million-time endurance test which meets reliability requirements.
- The servo drive mechanism of the magazine ensures precision rotation, and smooth operation of the magazine, even for heavy tools.

Tool loading/
unloading door

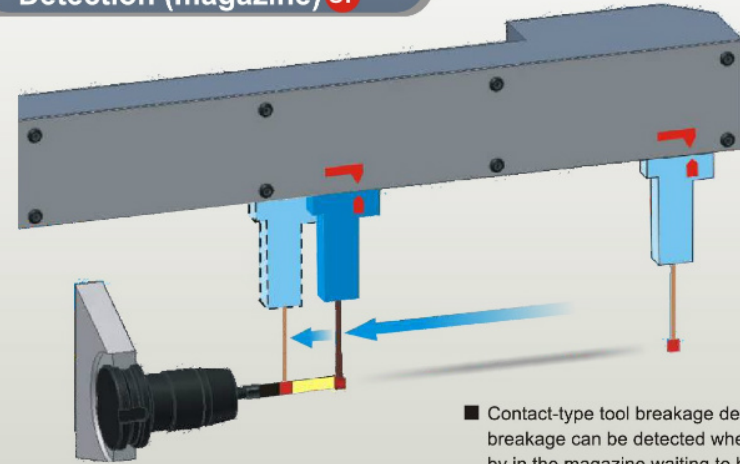


Operation panel



Automatic Tool Breage Detection

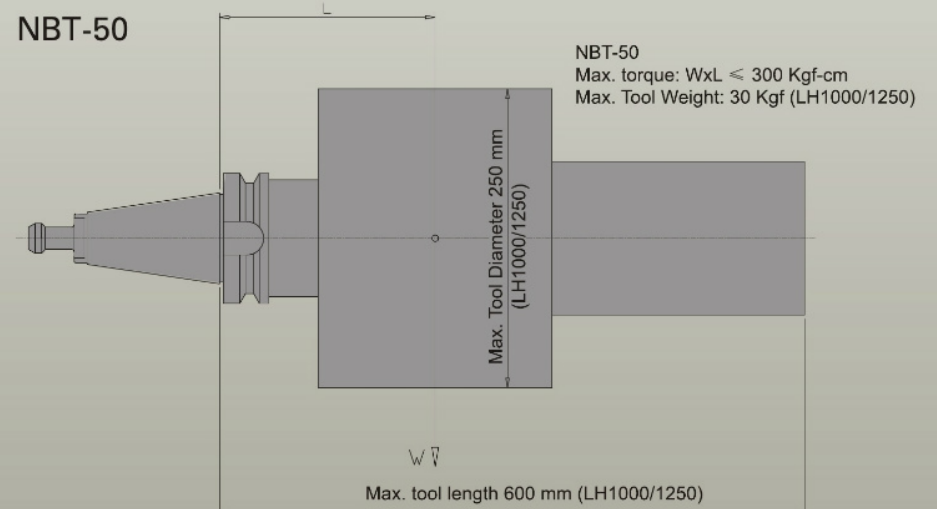
Automatic Tool Breage Detection (magazine) OP



- Contact-type tool breakage detection system. Tool breakage can be detected when the tool is standing by in the magazine waiting to be changed. When a tool breakage is detected, the control system issues a message to prevent any damage to the subsequent process engineering.
- Tool measurement and tool breakage can be performed within the magazine, therefore not impeding the time for process.

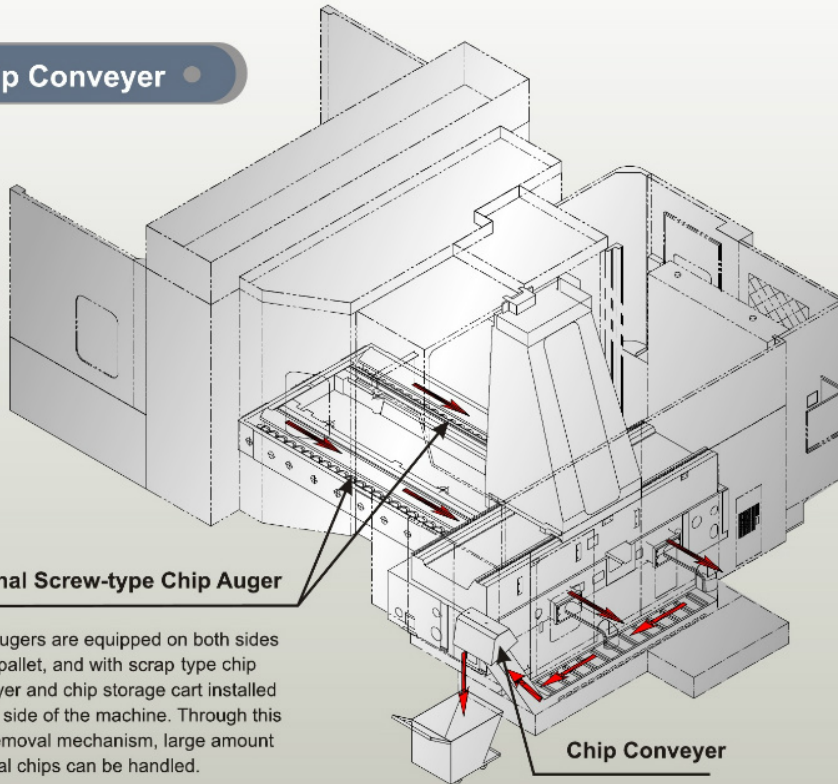
Tool Specifications

NBT-50



Chip Removal System

Chip Conveyor



Internal Screw-type Chip Auger

Chip augers are equipped on both sides of the pallet, and with scrap type chip conveyor and chip storage cart installed in rear side of the machine. Through this chip removal mechanism, large amount of metal chips can be handled.

Chip Conveyor

Selection of track-type chip conveyor device

● : Good Results ○ : Fair X : Bad Results

Material		Steel	Cast Iron	Aluminum / Colored Metal	Mixed Chips
Shape of chips					
Internal Chip Auger	Screw type	○	○ (Dry Cutting)	○	○
		○	○	○	○
	Scrap-type	○	○	○	○
Track-type Chip Conveyor	Cast Iron (heavy)	X	●	X	○
	Aluminum (light)	X	X	●	○
Chain type		●	○	X	○

Wash-down System

Disc-type Oil Separator



- Disc-type oil separator is easy to install and saves space.
- Disc-type oil separator is effective in separating floating oil from coolant tank. Quality and prolonged lifespan of the coolant is made possible, as a result, improving the quality of the machining.

Internal Cutting Coolant / Wash down Device



- Coolant is sprayed from nozzles beneath the hood, avoids accumulation of chips.

Coolant Spray Gun



- Spray gun for convenient and prompt cleaning of the machine, removes and cleans the remaining chips that adhere to the machine, keeping the machine in clean and tidy condition.

Oil Mist Collector System

Oil Mist Collector System OP

- The fully enclosure cover and oil mist collector effectively collects the particle and oil mist produced during machining. The operators can be protected from inhaling harmful substances that risk their health.
- While producing high-precision parts in an enclosed space or clean room, the oil mist collector effectively controls the air quality for meeting green technology requirements.



Cooling System

Coolant Through Spindle OP



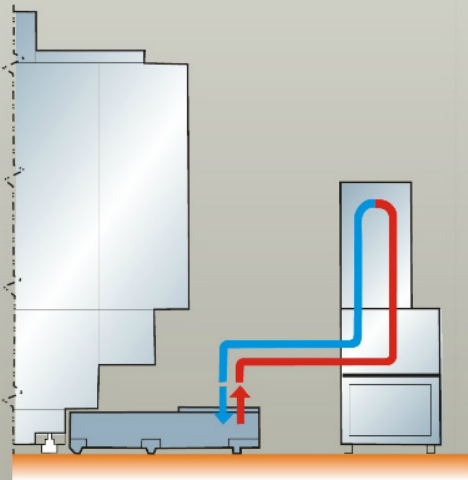
- Coolant runs through center of the spindle, sprays from tool nose, and directly cools down the workpiece, while carrying heat away from the tool blade. Quality machining is assured. The system is ideal for deep hole drilling.

Spindle Splash Ring



- 4 splash nozzles are allocated around the spindle, ensuring best cooling effect of the tool and the workpiece, improving machining quality.

Coolant Cooling System OP



- The system offers control of heat generated after long hours of operation, ensuring machining precision at all times.



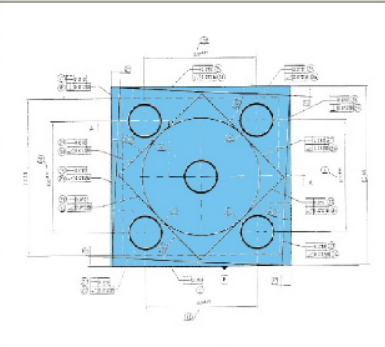
High Accuracy Inspection

Laser Inspection



- To maintain machine accuracy and calibration result, laser measurement system inspects and compensates for full travel stroke.

Standard Specimen Test



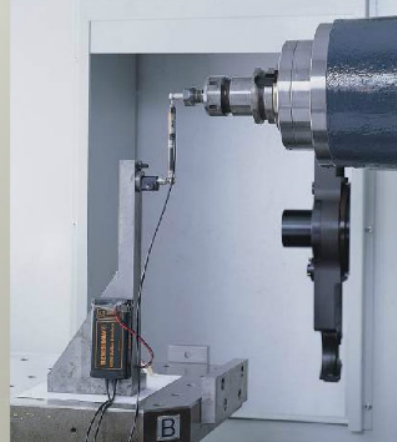
- Besides inspection by precision instruments, every machine is subject to dynamic cutting test to meet requirement of international standards.
- Upon completion of cutting test, the standard specimen is inspected by coordinate measuring machine to ensure required precision.

Dynamic Spindle Balancing



- The IRD dynamic balancing instrument calibrates spindle speed, displacement, and acceleration at the maximum rpm.

Ball-Bar Ring Gage Inspection

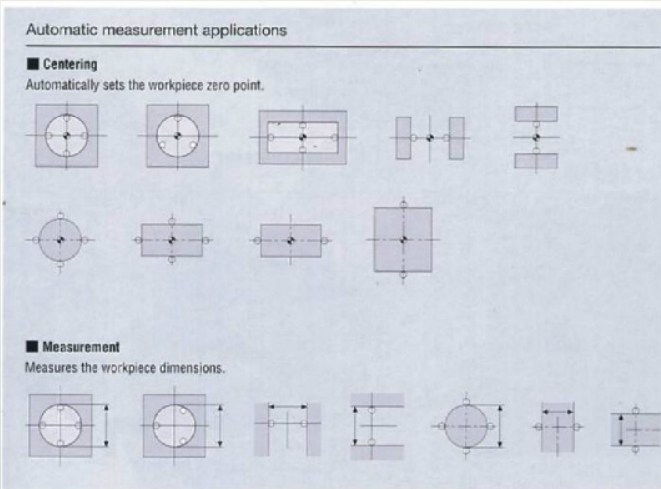


- The Ball-Bar instrument is used for calibrating roundness and geometric accuracy of the machine, ensuring precise 3D movement of the machine.

On-line Measurement System

Workpiece Measurement System OP

- RENISHAW RMP60 is used.
- Automatic center detection and automatic point detection.
- Automatic measurement applications are shown in the following diagram.

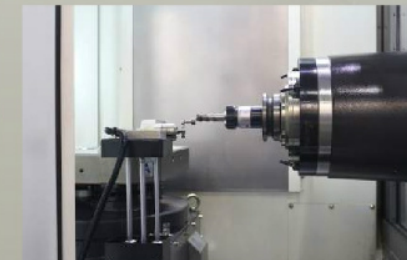


Tool Length Measuring System OP

- RENISHAW NC4S is used.
- Automatic tool detection and tool breakage detection.
- Automatic measurement applications are shown as follows:



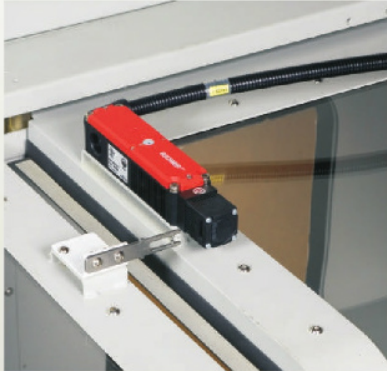
- **Tool Measuring**
Automatic tool length measurement.



- **Tool breakage detection**
Prevents further damage, automatic detection of Tool Breakage.

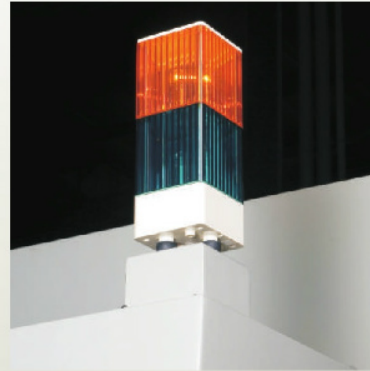
Safety System

Safety Door Interlock



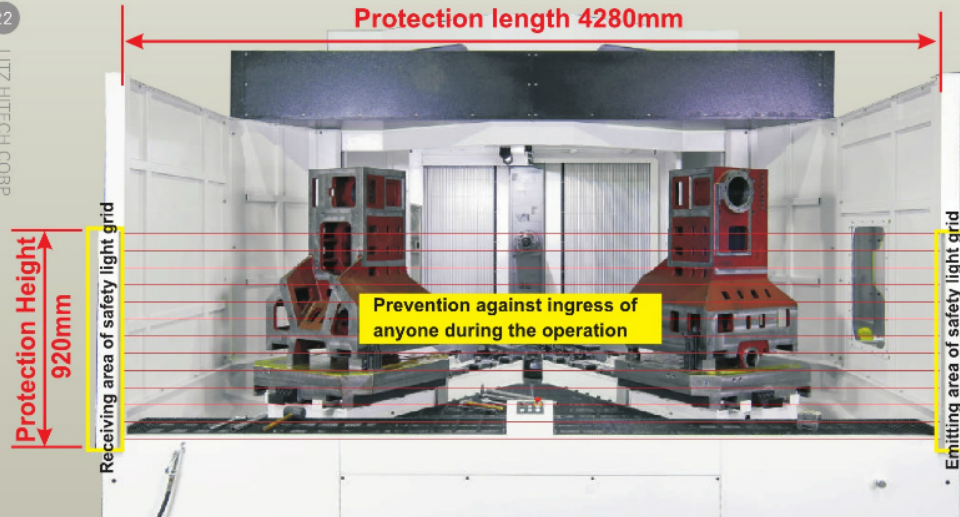
- When door is open, the programmed operation will not start, ensuring safety of the operator.
- Opening the door during machining will stop the program, for the safety of the operator.

Warning Light



- Upon completion of a machining program, the yellow warning light flashes to notify the operator to unload/load the workpiece.
- In the event of anomaly of machine which causes an alarm message, the red light will flash to signal that emergency troubleshooting is required.

Safety light grid



- The electro-photo transmission device (safety light grid) is capable of protecting operator's safety.
- High resolution protection capacity for a precision of as small as 40mm.

Maintenance Performance

In order to shorten the non-machining maintenance time, the machine allows quick and easy maintenance from all positions.

Magazine Access Door for Easy Maintenance



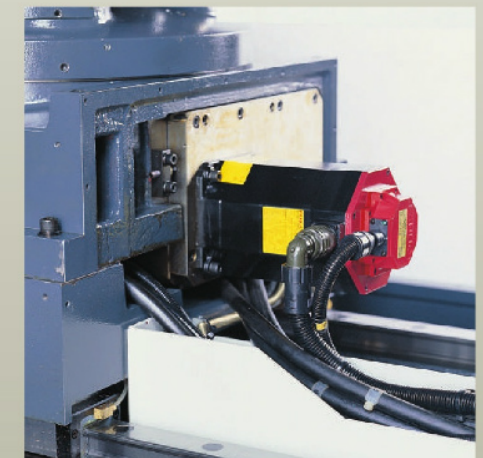
Centralized Cables and Pipelines (Lubrication System)



Access Door for Easy Maintenance



Centralized cables and hoses of Automatic Pallet Changer



Energy Saving & Carbon Reduction

Excellent Front Door Transparency



Excellent Operation Door Transparency



Front door and operation door of the machine comprises of wide spread safety glass with high transparency in addition with high luminance fluorescent light for convenient surveillance over the operation.

Lowers Power Consumption



Indoor Light OFF Function

The indoor lighting will be shut off automatically when the touch screen has been left inoperative for a set duration. This saves energy and prolongs the lifespan of the lamp.

Power OFF Function

Power to the servomotor, spindle motor, coolant pump and chip removal motor will be shut off when the keypad and the NC have been left inoperative for a set duration. This minimizes power consumption.

Lubrication System OFF Function

When the 3-axis ballscrew is inoperative for a set duration, the automatic lubrication system will be shut off automatically, to save the consumption of lube oil.

Display OFF Function

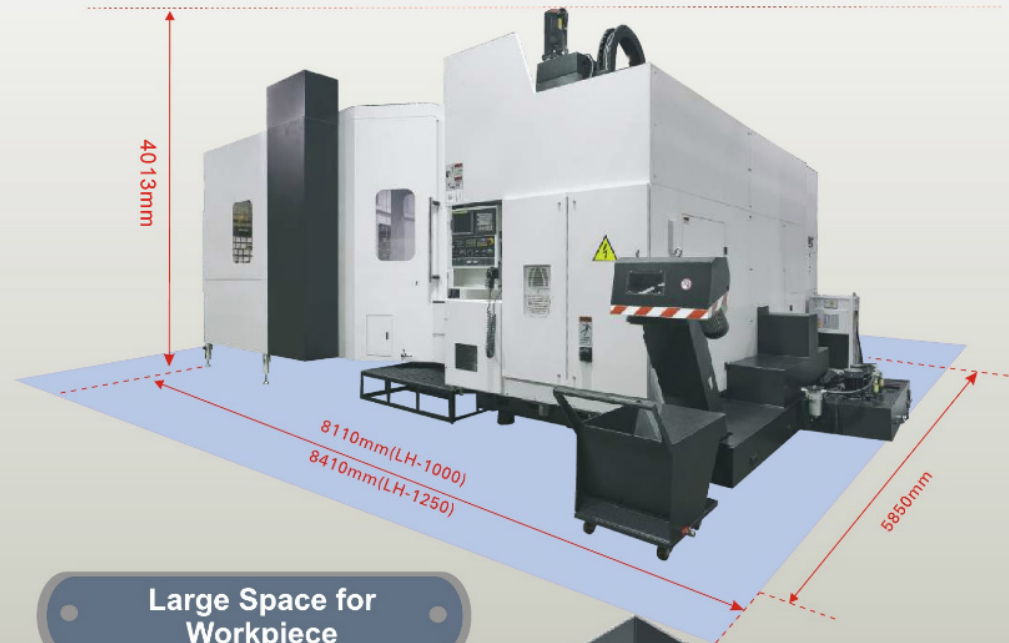
The display will be shut off automatically when the control panel has been left untouched for a set duration, for saving power consumption and prolonging lifespan of the display screen.

Minimal Floor Area Requirement

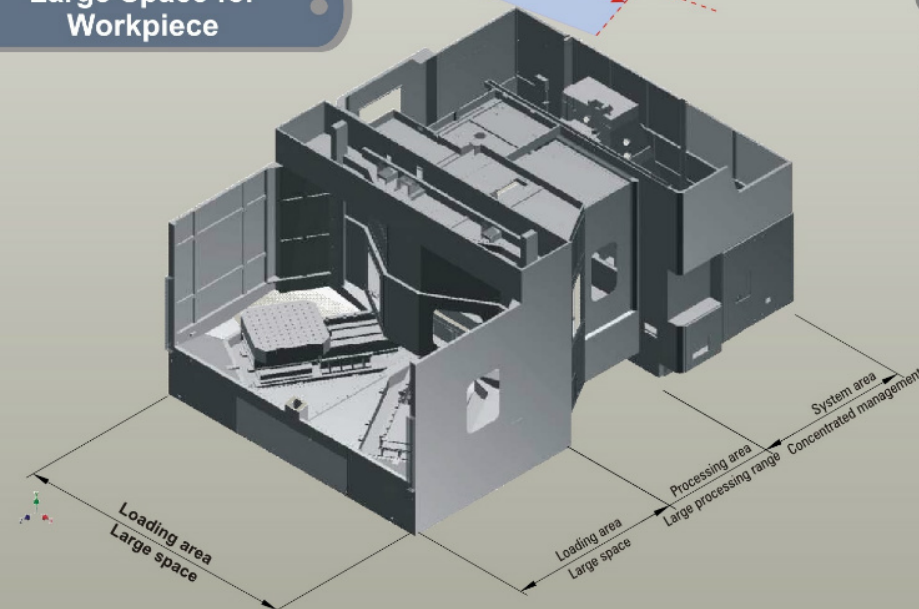
Compact machine design allows minimal floor area and utilizes the limited space.

Floor area for Machine: 5850mm(W) x 8110mm(D) x 4013mm(H) (LH-1000)

5850mm(W) x 8410mm(D) x 4013mm(H) (LH-1250)



Large Space for Workpiece



Convenient Operation

User friendly Human-Machine Interface

New Generation Corresponding Operation System



- FANUC 10.4"LCD Color Monitor
- Unique push buttons on operation panel developed by LITZ, for easy and prompt input.
- Protection covers are provided for critical buttons on the panel, for a reconfirmed execution to prevent operator mistake.

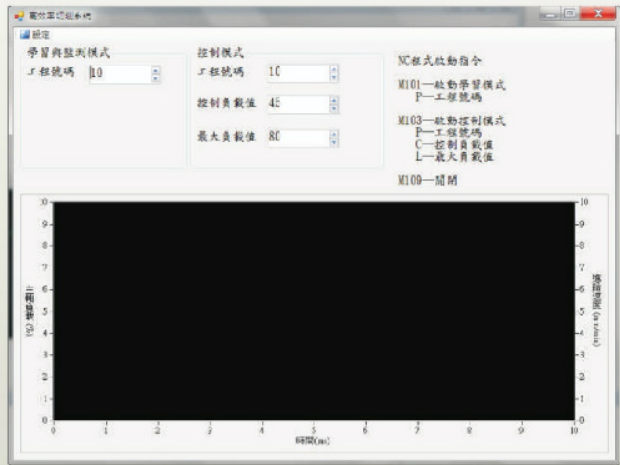
Controller Specifications

		Name	0iMF	31i-B
1	J664	Retraction for Rigid tapping	✓	✓
2	J665	AI contour control I (40 Block)	✓	✓
3	J674	Power Mate CNC Manager	✓	✓
4	J718	Unexpected disturbance torque detection function	✓	✓
5	J801	Controllable axes expansion	✓	✓
6	J802#n	Max. controlled axes	✓	✓
7	J803	Simultaneously controlled axes expansion	✓	✓
8	J804	Axis control by PMC	✓ 4 Axis	✓
9	J805	Increment system C	✓	
10	J806	Linear acc/dec after cutting feed interpolation	✓	✓
11	J808	Automatic corner deceleration	✓	
12	J807	Control axis detach	✓	✓
13	J818	Polar coordinate command (G15/G16)	✓	✓
14	J819	Helical interpolation (G02.1/G03.1)	✓	✓
15	J822	Index table indexing	✓	✓
16	J824	Thread cutting ,synchronous cutting (G33)	✓	✓
17	J828	Rigid tap (G84)	✓	✓
18	J829	Bell-shaped acceleration/deceleration after cutting feed interpolation	✓	✓
19	J830	3rd/4th reference position return	✓	✓
20	J835	Manual handle feed 1-unit	✓	✓
21	J838	Program restart	✓	✓
22	J841	Stored pitch error compensation	✓	✓
23	J846	Position switch	✓	✓
24	J848	High-speed skip		✓
25	J850	Spindle serial output	✓	✓
26	J853	Spindle orientation	✓	✓
27	J854	Spindle output switching function	✓	✓
28	J872	Programmable data input	✓	✓
29	J873	Custom macro B	✓	✓
30	J876	Inch/Metric conversion (G20/G21)	✓	✓
31	J884	Pattern data input	✓	✓
32	J887	Addition of custom macro common variables	✓	✓

		Name	0iMF	31i-B
33	J888	Macro executor	✓	
34	J890	Canned cycle for drilling	✓	✓
35	J891	Canned cycle for drilling	✓	✓
36	J893	Coordinate system rotation (G68/G69)	✓	✓
37	J894	Workpiece coordinate system (G52-G59)	✓	✓
38	J895	Addition of workpiece coordinate system 48-pairs	✓	✓
39	J900	RS232C interface Channel 1	✓	✓
40	J913	External data input	✓	✓
41	J917	Workpiece coordinate system preset	✓	✓
42	J923	Reference point shift (G28/G30)	✓	✓
43	J927	Tool offset	✓	✓
44	J930	Tool radius- Tool nose radius compensation	✓	✓
45	J932	Automatic tool length measurement (G37)	✓	✓
46	J933	Direct input of tool offset value measured	✓	✓
47	J937	Tool offset memory C	✓	✓
48	J946	Part program storage length 1280m(512KB)	✓	✓
49	J947	Part program storage size (1Mbyte)	✓	✓
50	J953	Number of registerable programs expansion 1	✓	✓
51	J956	Background editing	✓	✓
52	J957	Extended part program editing	✓	✓
53	J960	Software operator's panel	✓	✓
54	J961	Software operator's panel general purpose switch	✓	✓
55	R616	Tool management expansion B	✓	✓
56	J971	Run hour and parts count display	✓	✓
57	J972	Graphic display	✓	✓
58	R521	Selection of Five Optional Language	✓	✓
59	R616	Tool management expansion B	✓	✓
60	R630	Quick program restart	✓	✓
61	S790	Manual guide i	✓	✓
62	S808	AI contour control II (G5.1 Q1)	✓	✓
63	R508	Corner control by Speed	✓	✓
64	S617	Tool offset	✓ (400)	✓ (200)

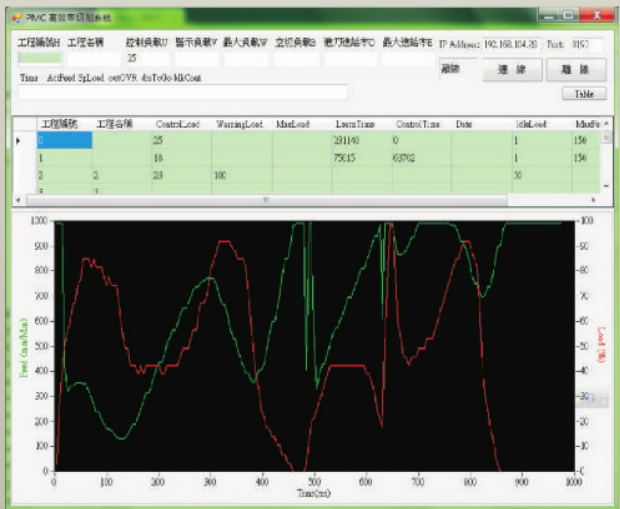
Development of Tool Breakage Detection & Overload Protection

Tool Breakage Detection & Overload Protection



Perform a standard process for the machine to learn and record the spindle loading signals of the machine. When performing the subsequent cutting, the process will be monitored, with the actual results compared with the learnt process; In the event of abnormal loading, an alert will be sent to PLC for issuing an alarm or activating an emergency stop, to protect the machine.

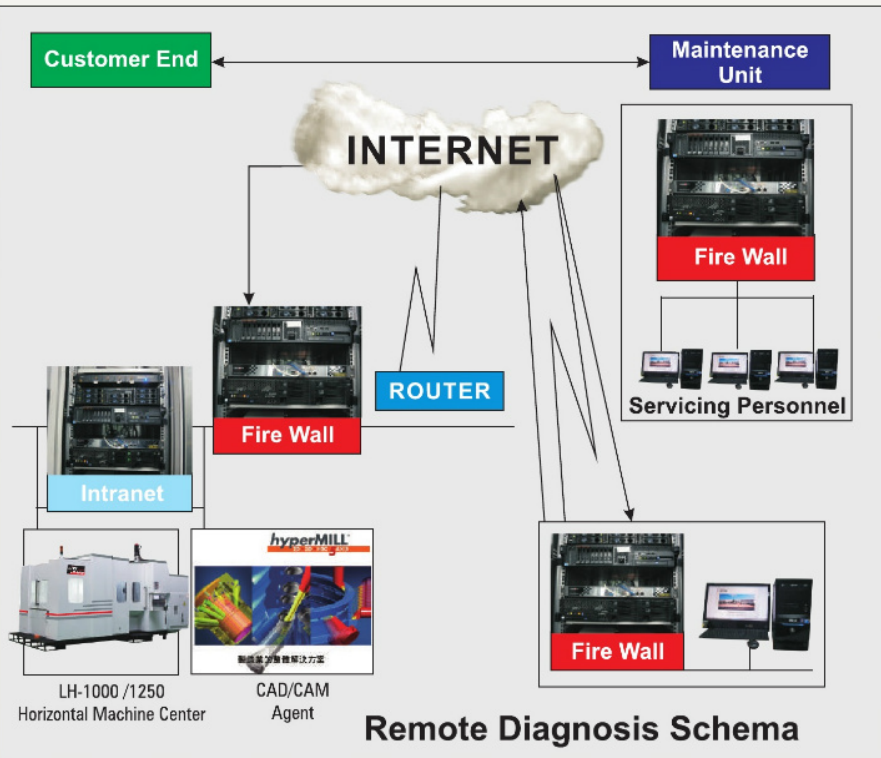
Fixed load cutting



Data (such as spindle loading capacity etc.) in the controller are used for making control decisions. Control is made to address speed control (Feedrate Override), for automatically achieving an optimal feeding speed; in case of abnormal loading (such as tool breakage or worn out), an alert will be issued in time accordingly.

Remote Parameter Monitor & Management System

Remote Parameter Monitor & Management System



Remote Diagnosis Schema

Parameter Name	Parameter Value	Parameter Description	Parameter Unit
1	25	Control Load	kg
2	10	Warning Load	kg
3	80	Max Load	kg
4	10	Learn Time	min
5	10	Control Time	min
6	10	Date	mm/dd/yyyy
7	10	Idle Load	kg
8	10	Max Load	kg
9	10	Control Load	kg
10	10	Warning Load	kg
11	10	Max Load	kg
12	10	Learn Time	min
13	10	Control Time	min
14	10	Date	mm/dd/yyyy
15	10	Idle Load	kg
16	10	Max Load	kg
17	10	Control Load	kg
18	10	Warning Load	kg
19	10	Max Load	kg
20	10	Learn Time	min
21	10	Control Time	min
22	10	Date	mm/dd/yyyy
23	10	Idle Load	kg
24	10	Max Load	kg
25	10	Control Load	kg
26	10	Warning Load	kg
27	10	Max Load	kg
28	10	Learn Time	min
29	10	Control Time	min
30	10	Date	mm/dd/yyyy
31	10	Idle Load	kg
32	10	Max Load	kg
33	10	Control Load	kg
34	10	Warning Load	kg
35	10	Max Load	kg
36	10	Learn Time	min
37	10	Control Time	min
38	10	Date	mm/dd/yyyy
39	10	Idle Load	kg
40	10	Max Load	kg
41	10	Control Load	kg
42	10	Warning Load	kg
43	10	Max Load	kg
44	10	Learn Time	min
45	10	Control Time	min
46	10	Date	mm/dd/yyyy
47	10	Idle Load	kg
48	10	Max Load	kg
49	10	Control Load	kg
50	10	Warning Load	kg
51	10	Max Load	kg
52	10	Learn Time	min
53	10	Control Time	min
54	10	Date	mm/dd/yyyy
55	10	Idle Load	kg
56	10	Max Load	kg
57	10	Control Load	kg
58	10	Warning Load	kg
59	10	Max Load	kg
60	10	Learn Time	min
61	10	Control Time	min
62	10	Date	mm/dd/yyyy
63	10	Idle Load	kg
64	10	Max Load	kg
65	10	Control Load	kg
66	10	Warning Load	kg
67	10	Max Load	kg
68	10	Learn Time	min
69	10	Control Time	min
70	10	Date	mm/dd/yyyy
71	10	Idle Load	kg
72	10	Max Load	kg
73	10	Control Load	kg
74	10	Warning Load	kg
75	10	Max Load	kg
76	10	Learn Time	min
77	10	Control Time	min
78	10	Date	mm/dd/yyyy
79	10	Idle Load	kg
80	10	Max Load	kg
81	10	Control Load	kg
82	10	Warning Load	kg
83	10	Max Load	kg
84	10	Learn Time	min
85	10	Control Time	min
86	10	Date	mm/dd/yyyy
87	10	Idle Load	kg
88	10	Max Load	kg
89	10	Control Load	kg
90	10	Warning Load	kg
91	10	Max Load	kg
92	10	Learn Time	min
93	10	Control Time	min
94	10	Date	mm/dd/yyyy
95	10	Idle Load	kg
96	10	Max Load	kg
97	10	Control Load	kg
98	10	Warning Load	kg
99	10	Max Load	kg
100	10	Learn Time	min

Parameter control is achieved by displaying all the parameter settings in the program in real time as required by the monitoring personnel, with the relative descriptions shown. Major parameters are as follows:

- 1.Setting of Workpiece coordinates
- 2.Tool offset
- 3.Setting of servo parameters
- 4.Macro variables
- 5.System software/hardware info, etc.



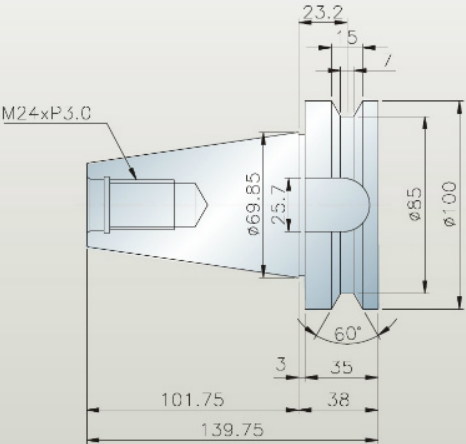
Parameter Query: Maintenance personnel may query relevant parameters to identify problem sources.

Parameter comparison: Maintenance personnel may compare, one by one, parameter settings in the customer's machine with the default values, so as to identify which parameter(s) has been altered and caused the problem.

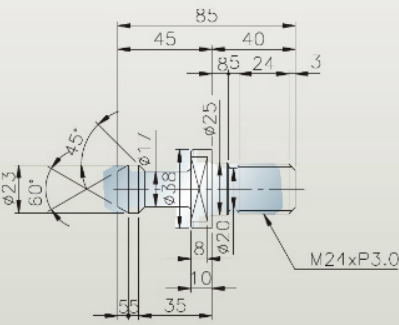
Tool Specifications and Tool Package

Tool Specifications

BT-50 Tool Shank Specification



BT-50 Pull Stud Specification



Tool package (SYIC)

OP



Detailed contents of BT40 tool Package

Item specifications		
BT40-ER20A-100-PG	ER tool shank	1
ER20-4mm-A	ER Sleeve clamp, A-grade	1
ER20-6mm-A	ER Sleeve clamp, A-grade	1
ER20-8mm-A	ER Sleeve clamp, A-grade	1
ER20-10mm-A	ER Sleeve clamp, A-grade	1
ER20-12mm-A	ER Sleeve clamp, A-grade	1
ER20-A-W wrench	ER wrench, A-type	1
BT-40-FMA31.75 - 45	Plane milling tool shank	1
KM-80	45deg. shell type milling tool	1
SEHT 1204AFEN-M01	Blade	10
Om4025		
BT40-45G	Pull stud, 45deg.	2
M5-11-7.0-55	Screw	1
T20	Spanner	1
CHMT-6020	Oil	1

- This tool package uses SYIC tool holder
- The photo shows BT-40 model. LH-1000B uses BT-50 tool package.

List of accessories

● Standard accessory ○ Optional ☆ Requires consultation – Not available

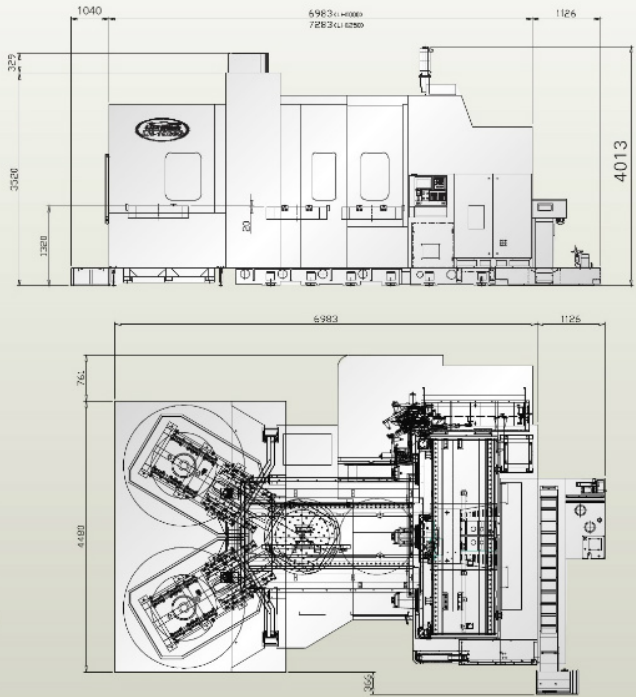
	LH-1000B	LH-1250B
Spindle		
Spindle rpm 6000RPM	●	●
Spindle rpm 8000RPM	○	○
Spindle rpm 10000RPM	○	○
Spindle oil cooling system	●	●
Spindle air seal system	●	●
Spindle direct transmission	○	○
Spindle belt transmission + ZF gear	●	●
3-axis transmission system		
3-axis roller linear rail	●	●
3-axis hollow ballscrew cooling system	●	●
3-axis linear scale system	○	○
4th axis encoder	○	○
Pallet unit		
Pallet 1° division	●	●
Pallet 0.001° division	○	○
Pallet M20 fixing holes	●	●
Pallet T-slot	○	○
Cooling system		
Splash ring	●	●
Spindle air blow system	○	○
Coolant Through Spindle (CTS)	○	○
Chip Removal System		
Track type chip conveyer system	●	●
Chip cart	●	●
Indoor chip auger	●	●
Mechanical oil-coolant separator	●	●
Overhead chip wash-down system	●	●
Disc-type coolant separator	○	○

	LH-1000B	LH-1250B
Safety System		
Front door/Side door safety switch	●	●
CE Safety Specifications	○	○
Safety Light Grid	○	○
Measuring system		
Tool length measuring system NC-45	○	○
Workpiece measuring system RMP-60	○	○
Tool breakage detection (magazine)	☆○	☆○
ATC and Magazine Systems		
Tool Storage Capacity 60T	●	●
Tool specification BT	●	●
Tool specification CAT	○	○
Tool specification No40	○	○
Tool specification No50	●	●
Electrical		
M30 automatic power-off system	●	●
Working light (lighting)	●	●
Warning light	●	●
Electrical cabin air-condition system	○	○
Electrical cabin heat exchange system	●	●
Controller		
FANUC 3li	○	○
FANUC 0iMD	●	●
Others		
Oil mist collector unit	○	○
Rotary window	○	○

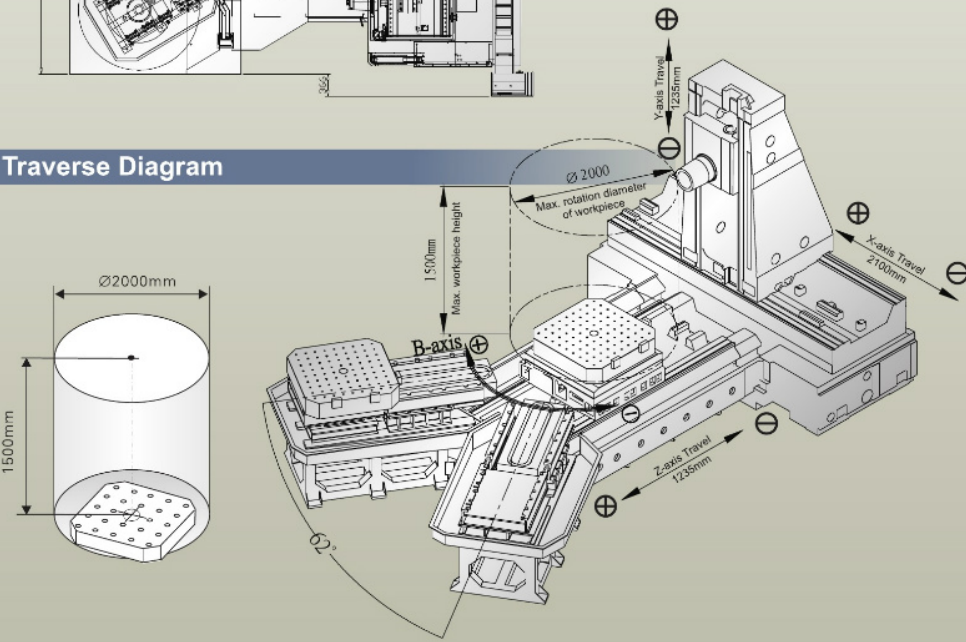
Machine Outline Dimensions

Unit: mm

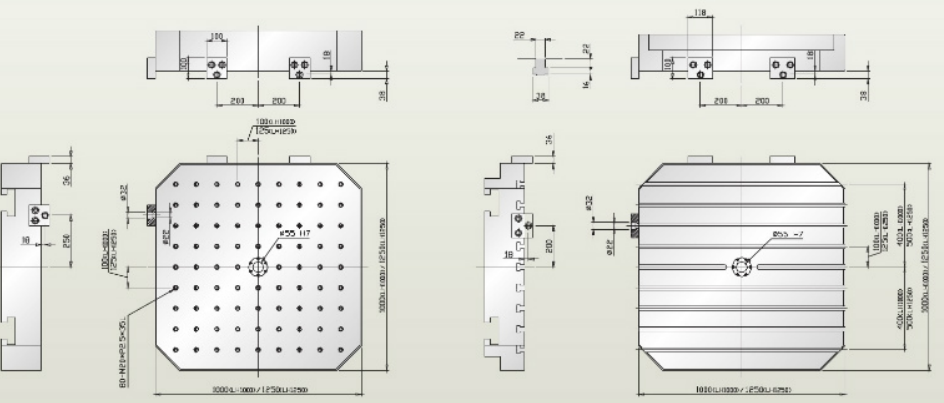
Dimensions



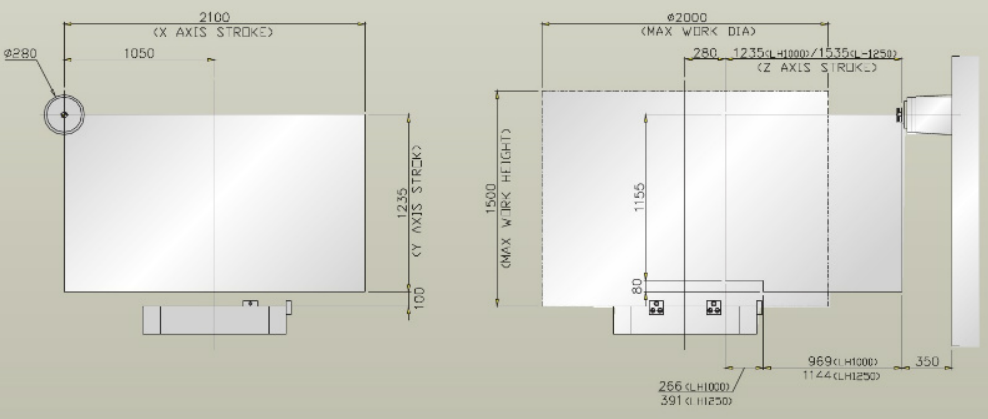
Traverse Diagram



Pallet Dimensions



Machining range



Technical Specifications

Item		LH-1000	LH-1250
Travel			
Travel, X/Y/Z	mm	2100/1235/1235	2100/1235/1535
Spindle center to pallet face	mm	100-1335	100-1335
Spindle nose to pallet center	mm	280-1515	280-1815
Pallet			
Pallet size	mm	1000x1000	1250x1250
Maximum workpiece	mm	Ø2000	Ø2000
Maximum pallet load	kg	3500	5000
Maximum workpiece height	mm	1500	1500
Pallet surface configuration	mm	80-M20 tapped holes Pitch 100	80-M20 tapped holes Pitch 125
Pallet indexing		1°	1°
Spindle			
Spindle max. speed	RPM	6000	6000
Low/High gear variation	RPM	1500	1500
Spindle max. torque	N-m	660	660
Spindle taper		7/24Taper,No.50	7/24Taper,No.50
Spindle bearing ID	mm	100	100
Spindle transmission		ZF gear box + belt transmission	ZF gear box + belt transmission
Feed Rate			
Max. X/Y/Z rapid speed	mm/min	24000	24000
Cutting feed rate	mm/min	1-10000	1-10000
Jog feed rate	mm/min	1260	1260
Automatic Tool Change (ATC)			
Type of tool shank		ISO 50 or BT-50	ISO 50 or BT-50
Tool capacity	只	60	60
Max. tool diameter (without adjacent tool)	mm	125(250)	125(250)
Max. tool length	mm	600	600
Max. tool weight	kg	30	30
ATC changing time (T to T)	秒	8	8
Tool selection method		Fixed address	Fixed address

Item		LH-1000	LH-1250
Automatic Pallet Changer (APC)			
Number of Pallets	PC	2	2
Pallet Changing Type		Inclined shuttle-type	Inclined shuttle-type
Time for APC	sec	26	26
Controller System			
FANUC		0 i	0 i
Motor			
Spindle motor, power	KW	22/26	22/26
X/Y/Z/B axis motor	KW	7/6/7/4	7/6/7/4
Motor, Hydraulic system	KW	3.7	3.7
Motor, coolant pump system	KW	1.6	1.6
Power Supply			
Power requirement	KVA	42	42
Capacity of oil/coolant Tank			
Capacity, Hydraulic System	L	60	60
Capacity, Lubrication System	L	4	4
Capacity, Coolant system	L	840	840
Mechanical Specifications			
Height	mm	4013	4013
Floor area	mm	8110x5850	8410x5850
Weight	kg	32000	35000

- The catalog is only for reference. The machine may differ to this specification.
- The company reserves the rights to modify or to stop adopting the specification of this catalog.



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