

HEP Series

Smartcenter

Intelligent Double column machining center

- Hartrol plus controller
- 5-year warranty on guideways
- Spindle run-out: 5 micro
- Four linear guideways on Z-axis
- i-Spindle for DDS type spindle

Hartrol Plus[®]
From tradition to intelligent



Website



Facebook



Hartford has sold more than 50,000 machines to all over the world, accumulated more than 37,000 customers, who absolutely affirm Hartford's manufacturing experience and ingenious machine manufacture technology. We insist on providing customers with the best quality machining centers. We will devote more carefully, in order to continuously enhance the technical level of manufacture and applications.

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Hartford

Hartrol • Smartcenter • Robocell

We manufacture intelligent machines only

What is Smartcenter?

Smartcenter is Smart machining center. To put it simply, an intelligent machining center. HartfordSmartcenter has three major advantages:

- Intelligent :
 1. Intelligent operating interface / 2. Intelligent machining / 3. Intelligent quality control /
 4. Intelligent maintenance system, to help our customer reach the ultimate goal: Zero Down Time.
- Networking :
 To manage your multiple facilities in a smart and simple way by using Hartford Superbox linking all the machining centers of your production line.
- Automation :
 Hartford Robocell is the best answer for improving your productivity, the solution for you to join the new generation: Automation.



The regular standard machining center

Hartford Smartcenter will help you become an intelligent manager

The main technologies of Hartford smartcenter include intelligent managing system, status monitoring, alarm predicting, machine status diagnosis, crash preventing, 3D program simulation, machining efficiency improving...etc. All the intelligent functions help you control the machine status and assure the job quality.

Hartford smartcenter APP



The functions mentioned above will need to option the Hartrol plus controller or Dual screen with Fanuc controller.

Outstanding Machining Capability of MIRAGE

The superior machining capability of Hartford machining center is your best partner on machining.



1. Table of vertical machining center



2. Heat spreader

Actual Cutting Test

Model: HEP-2150

■ Spindle: 6,000 rpm Gear type, 26kW ■ Cutting material : S45C



Face milling
 Tool diameter Ø125 X 7T mm
 Feed rate 1,760 mm/min
 Spindle speed 1,100 rpm
 Cutting depth 4 mm
 Cutting width 100 mm
 Cutting volume 560 cc/mm



End milling
 Tool diameter Ø63 x 3t mm
 Feed rate 1,600mm/min
 Spindle speed 1,100 rpm
 Cutting depth 35 mm
 Cutting width 10 mm
 Cutting volume 1600 cc/mm



Drilling
 Tool diameter 76 mm
 Feed rate 66 mm/min
 Cutting depth 40 mm

All the test results featured in this catalogue were produced under strict testing condition in a special zed testing environment. Under different testing conditions and in less than ideal testing environments, that the test results may vary from those shown in this catalogue.

All New Structure Design Delivers Better Rigidity & Cutting Capability

Hartford MIRAGE double column machining center is designed for precision machining.



Full range of box guideway five-year warranty

Warranty coverage will not apply under the following conditions,
1.Improper operation (collision)
2.Lack of regular cleaning of accumulated debris causing damaged to the linear rails & carriages.



The picture show is HEP-2150



Overlapped structure design

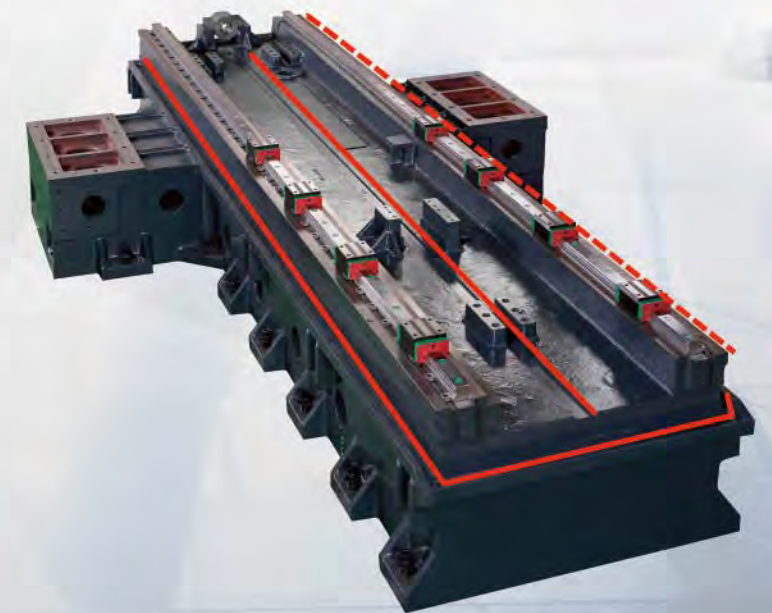
- **Durable, overlapped** beam, column and base construction.
- Extra high box type beam construction combined with shortened column length increase the rigidity of the entire structure.
- Scrapping accuracy calibration is easier to control.

Rugged construction

- The major structure parts, such as beam, table and base are **ruggedly** designed.
- It constricted with scientific reinforcement to remain deformation-free year-after-year.

Oil/fluid separation on base

- The complete oil/fluid separation design throughout the machine extends the life of fluids and saves on production costs.
- It meets environmental protection requirements.
- The patented oil/fluid separation tank achieves the best oil/fluid separation effect.



Unique Structure & Design Delivers Stable Machining



Four linear guideways on Z-axis

- This makes Z-axis movement smoother and faster.
- Four linear guideways design delivers higher supported rigidity.
- The quality motion control reduces reverse spike marks on the workpiece surface.
- Higher machining efficiency without sacrificing structural rigidity.



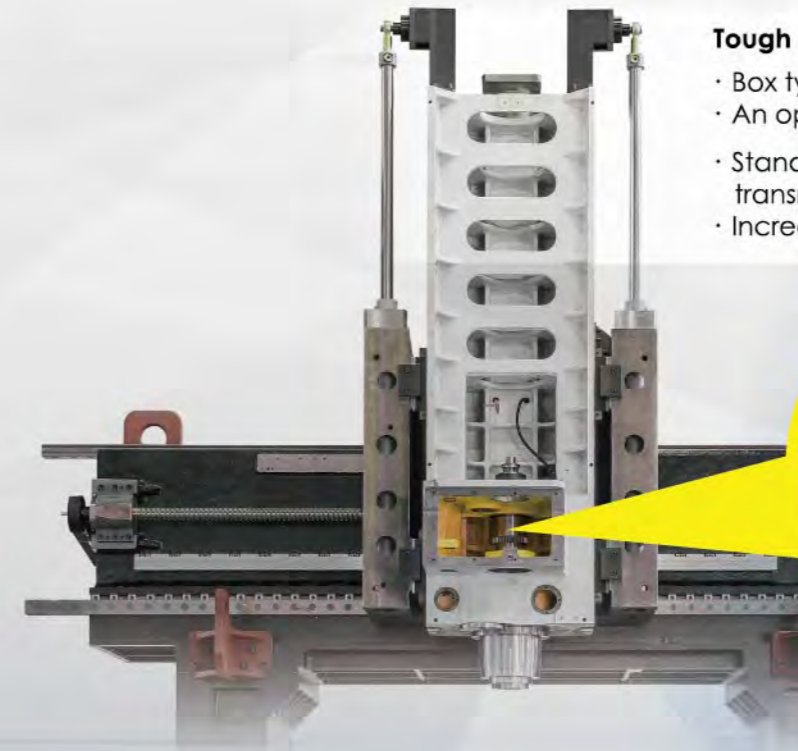
DDS 10,000rpm spindle

- **Cooled design** decreases spindle thermal displacement .
- Direct type driven lower noise and vibration problems.
- Box type, thermal symmetry spindle head construction.
- The spindle features floating tool knocking without any direct force exerted on the bearing for extending the bearing life.
- A heat-isolated coupling is equipped between the motor and spindle. It prevents motor heat from transferring to the spindle for better accuracy control.
- i-Spindle option.



Z-axis nitrogen accumulator weight system

- Reduce operating noise of hydraulic tank.
- Reduce hydraulic tank oil temperature by **50%**
- Effective energy-saving more than **20%**



Tough gear-drive spindle head

- Box type and thermal symmetry design.
- An optimal spindle center layout.
- Standard **spur gear** drive offers greater transmission efficiency.
- Increases cutting rigidity and cutting stability.

Intelligent Controller- Hartrol Plus

What is Hartrol Plus ?


Hartrol plus is a brand new intelligent controller Hartrol , Hartnet and Hartford electrical function together which developed and made by Hartford.

HMI and operation is user friendly, it can achieve :

1. Internet connection, collect and analyze data, monitoring by portable device
2. Intelligent control: Auto revise human error and operating basis
3. Real time update new APPs



The difference between Hartrol plus and others

Function	Hartrol Plus P1 	Others
Screen Size	19"Multi-touch Panel	10.4" (OPT:15")
Look Ahead Block	2700(G5P20000)	400(1000 Max.)
Hard Drive	32GB SSD	NO
Smoothing Interpolation	SSS 4G	Option
Industry 4.0	Hartford UserConnect	NO

The Intelligent Controller You Should Have

With three major solutions, Hartrol Plus takes you machining to the next level.

Highly optimized and intelligent controls bring even more capabilities and productivity to your metal cutting processes.

With ease use, advanced automation, and smart data collection, Hartrol plus is essential tool for enhancing performance on your production floor.

Cost down to 20%

- Multi Touch Screen
- CCD remote management
- E-book
- Remote Management
- Cutting Condition Calculator
- Stand-by Mode

Intelligent Support

Hartrol Plus

Intelligent Functions

Productivity increased 23%

- HartCAM
- AFC= Automatic Feedrate Control.
- SSS-4G
- Machining Time Countdown for Single Block
- Optimized Machining Program
- Automatic measurement

Efficiency increased 20%

- MES(Manufacturing Execution System)
- Machine Utilization Management
- Operator Performance Management
- 24 Hours a Day Management
- Remote Management
- Hartford Userconnect

Hartford UserConnect



- Alert Notification
- Remote Diagnoses
- Remote Value Enhancement
- Remote Monitoring & Management

Hartrol Plus 5 Major intelligent Functions

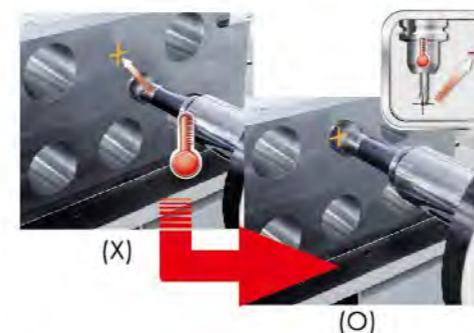
The integrated intelligent functions of Hartrol plus could achieve your machining requirements. For more Hartrol Plus functions, please contact our sales person.



Hartrol plus Multi-information monitor

Integrated multi-information screen makes your machining much more convenient.

- 1 3 axes Feed rate
- 2 Spindle speed / Tool number / Spindle speed override
- 3 Feed rate Feed rate Override
- 4 Job Machining remaining time / Batch Machining remaining time.




Thermal compensation on spindle(opt.)

No worries about HEAT!!

- Machine with compensation
 - #40 spindle thermal extension is within 0.03mm
 - #50 spindle thermal extension is within 0.02mm
 - Machine without compensation
 - Spindle thermal extension is around 0.10mm
- Notes: Above test is under room temperature



AFC(opt.)

Machining efficiency is increased by 21% 

- Controls the feed rate depending on the machining situation
- Adjusting feed rate automatically
- Lengthen your tool life
- Reduce machining time



Set & Inspect(opt.)

Graphical user interfaces for part setting, inspection, tool setting

- Ease of use
- Increasing usability
- Eliminating manual set-up tasks
- Increasing efficiency



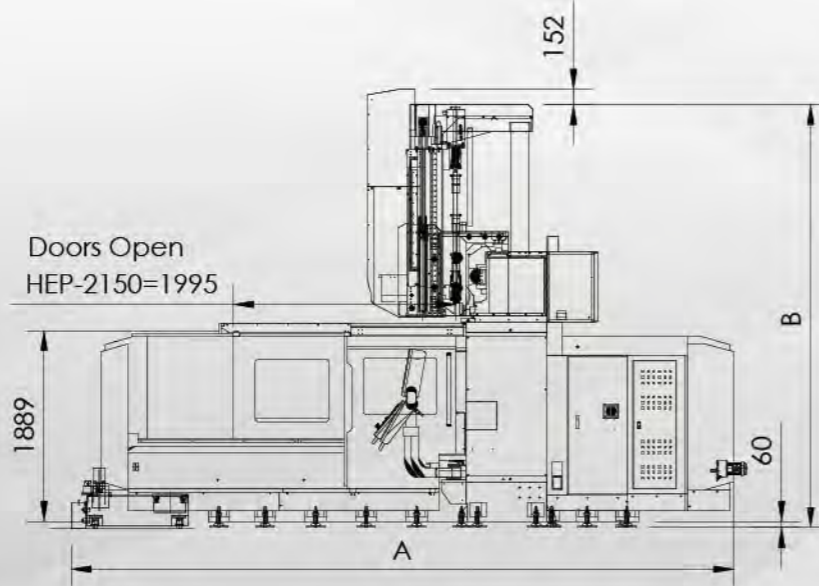
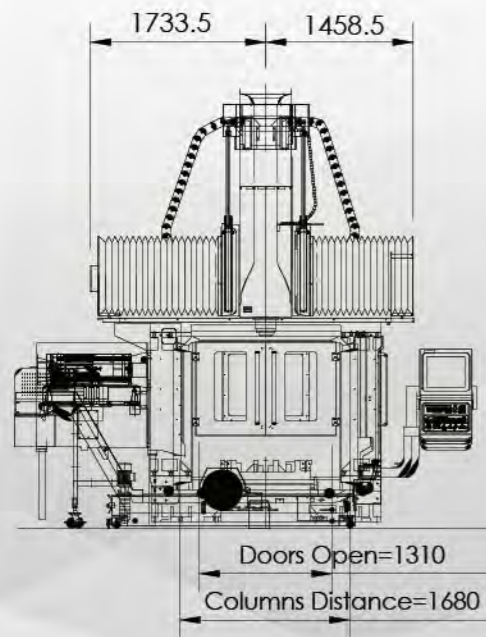
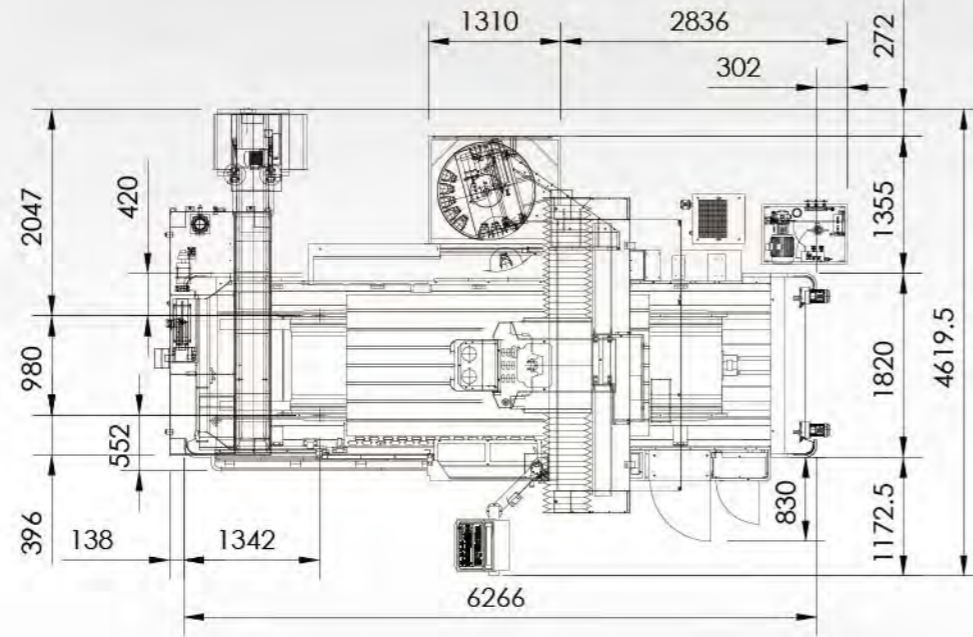
Hartford ZDT

Eliminate machine down time and increase efficiency. ZDT—

- 1.Ease of use
- 2.Check parts status clearly
- 3.Eliminating unexpected down time
- 4.Instand notification to your machine and your protable device

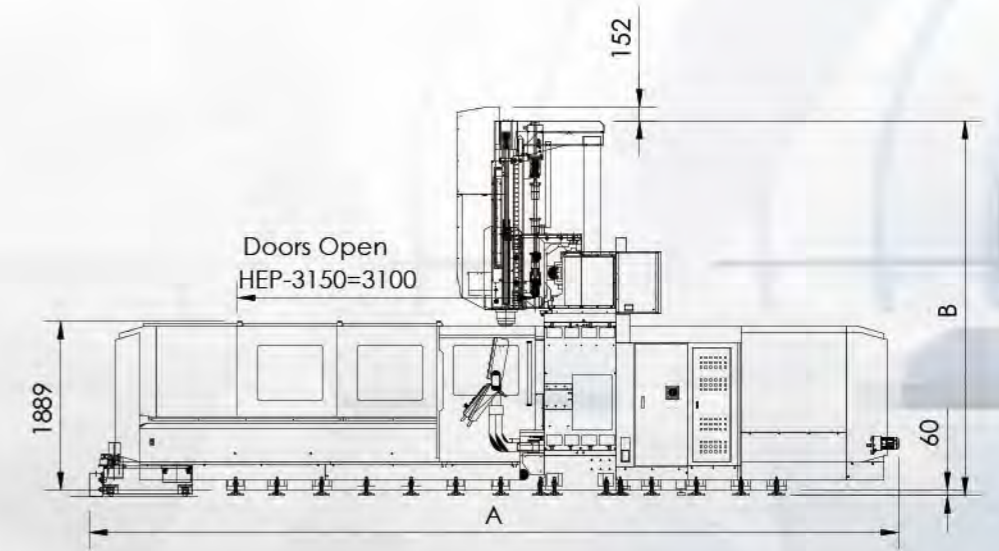
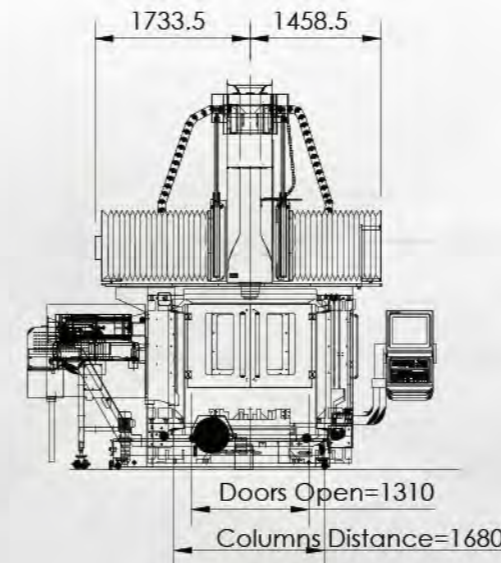
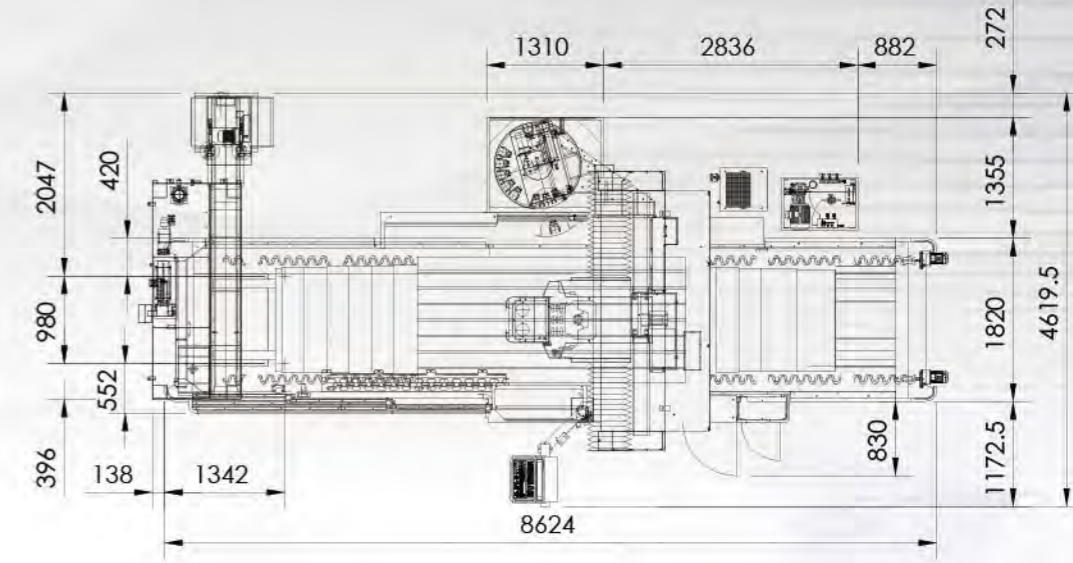
Machine Dimension

HEP-2150



HEP-X150		HEP-2150	
		A	B
Z780	C1420	6682	4186
	C1520		4286
	C1620		4386
	C1720		4486

HEP-3150



HEP-X150		HEP-3150	
		A	B
Z780	C1420	9040	4186
	C1520		4286
	C1620		4386
	C1720		4486

Specifications

Specification parameter-Specification

Model	Unit	HEP-2150	HEP-3150
Metric			
Table			
Working Surface	mm	2000x1400	3000x1400
T-slot (Size x Number x Pitch)	mm	22x7x180	22x7x180
Max Table Load	kg	8000	10000
Travel			
Longitudinal Travel (X-axis)	mm	2250	3250
Gross Travel (Y-axis)	mm	1600 (opt. 1500 for Z-axis box guideway)	1600 (opt. 1500 for Z-axis box guideway)
Vertical Travel (Z-axis)	mm	780	780
Distance From Spindle End to Table Center	mm	160-940 (Z780_column1420) 260-1040 (Z780_column1520) 360-1140 (Z780_column1620) 460-1240 (Z780_column1720)	160-940 (Z780_column1420) 260-1040 (Z780_column1520) 360-1140 (Z780_column1620) 460-1240 (Z780_column1720)
Distance From Spindle Center to Column	mm	430	430
Width Between Column	mm	1600	1600
Spindle			
Spindle Nose Tape		# 50	# 50
Spindle Speed (Gear)	rpm	6000 (8000 opt.)	6000 (8000 opt.)
Spindle Speed (DDS)	rpm	(10000/12000 opt.)	(10000/12000 opt.)
Feed			
Cutting Feedrate (X, Y, Z Axes)	m/min	12/12/12	12/12/12
Rapid Traverse (X, Y, Z Axes)	m/min	24/24/20	20/24/20
ATC			
Tool Storage Capacity	pcs	A:32/40	A:32/40
Max. Tool Weight	kg	18	18
Max. Tool Size (Diameter x Length)	mm	∅125x300L opt.∅200x300L(neighbor empty)	∅125x300L opt.∅200x300L(neighbor empty)
Tool Shank		BT50(BBT/CAT/DIN)	BT50(BBT/CAT/DIN)
Pull Stud Bolt		MAS-P50T-1/CAT50/DIN69872	MAS-P50T-1/CAT50/DIN69872
Motor			
Spindle Drive Motor (Cont/30min)	kw	18.5 opt. 22/26	18.5 opt. 22/26
Positioning Accuracy			
3 axes laser positioning accuracy (JIS B6330)			
Positioning accuracy/Full travel	mm	±0.010	±0.010
Repetitive positioning accuracy	mm	±0.003	±0.003
3 axes laser positioning accuracy (VDI 3441)/Repeated 5 times			
Positioning accuracy	mm	0.015	0.015
Repetitive positioning accuracy	mm	0.014	0.014
VDI 3441 accuracy available upon order request			
Other			
Required Air Pressure	kg/cm ²	6.5	6.5
Electric Power Consumption	kVA	50	50
Machine dimension	mm	8272 x 5915.5	10630 x 5915.5
Net Weight	kg	22000	26000
Collant tank(Standard)	L	480	480

Standard&Optioanl Mechanical Accessories

Standard

- Semi-enclosed Splash guard
- Spindle air curtain
- Coolant Tank (with chip bucket)
- Pre-load on 3 axes
- Z Axis Counter Balance
- Table side air blast M50 control
- Spray around spindle
- Tool package
- Hartford manual x 1
- RS-232
- Operator Panel, Rotary type
- Automatic Power OFF
- Lubrication system
- Fluorescent lampx1
- Foundation bolt, General

Optional

- Full-enclosed splash guard & top cover
- NC rotary table
- Front mounted screw type chip conveyor
- Link type chip conveyor
- Coolant flushing device
- Coolant through spindle
- Wash down hose
- Air gun
- Spindle oil cooler
- Oil seperation system
- Hoist Seat
- Automatic door system_ Operating door
- Auto tool length measurement
- Auto workpiece measurement
- Closed-loop linear scale positioning system
- Ladder of maintenance (Side-column)
- Fluorescent lampx2
- Three-Steps Treadle (Side-Operation) L1500 x W810 x H852mm

Standard & Optioanl Electrical Function

Hartrol /Standard

- Workpiece calibration by MPG directly
- Tool magazine display
- Pop-up calculator (in Hartrol screen)
- Parameter package
- Utilization rate of machining(Fanuc only)
- Machining countdown(Fanuc only)
- Thread cutting(0i/31i only)
- Tool type display on magazine display screen(0i/31i only)
- Monitoring of tool status(0i/31i only)
- Character carving macro
- Tool change function on tool offset screen

Hartnet/ Optional

- Management system of utilization
- Machining time countdown
- Convenient file transfer
- Production management

Electrical Function/Optional

- Lifting function against gravity
- Retraction for rigid tapping
- Intelligent MPG
- Compensation of temperature displacement
- HMI for tool magazine