

LG Series

Intelligent machining center

- Hartrol plus controller
- 5-Year warranty on guideways
- One-piece bed design
- Tool change time: 1.38 sec
- Oversized column design



Hartford

Hartrol · Smartcenter · Robocell

We manufacture intelligent machines only

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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What is *Smartcenter*?

Smartcenter is Smart machine center, an intelligent machine if put it in a simple way.
A Hartford Smartcenter has to include
1.Intelligent operating interface
2.Intelligent machining: Machining accuracy/ surface accuracy/ self learning / self optimizing
3.Intelligent quality control: Auto compensation for machining accuracy
4.Intelligent maintenance program : Active notification/ Active machine down time schedule also include other intelligent functions, help user reaching the target of Zero Down Time.

The benefits of Hartford smartcenter

- + Intelligent management : Fully aware of the machining status
- + Fully aware of the status of the machine key components.
- + Improving of the machine efficiency
- + Crash protection – Stop the machine immediately to prevent the further damage when alarm occurred .

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.



Versatile Machining for Industry

A valuable vertical machining center is the result of constant creative concepts and total dedication to quality. When the ambition of pursuing perfection is incorporated into the design, the result is a perfect machine. The Hartford F1 vertical machining centers are designed and built with these concepts in mind. Over the years, Hartford engineers have spent great effort designing a unique VMC that is cost-effective for our customers.



1. Bicycle crank



2. Auto industry- connecting rod

Actual cutting tests

Model : LG -800
■ Spindle : 8,000 rpm Pulley type 11kW ■ Cutting material : S45C



Face milling
Tool diameter Ø80 mm
Feed rate 1,800 mm/min
Depth 2 mm
Cutting volume 216 cc
Width 60 mm



End milling
Tool diameter Ø 50 mm
Feed rate 2,600mm/min
Depth 30 mm
Width 2 mm
Cutting volume 156 cc



Tapping
Tool diameter Ø20 mm
Feed rate 508 mm/min
Depth 25 mm
Spindle load 90%



Drilling
Tool diameter Ø18 mm
Feed rate 177 mm/min
Depth 30 mm

Model : LG-1370
■ Spindle : Low inertia15,000 rpm DDS type 11kW ■ Cutting material : S45C



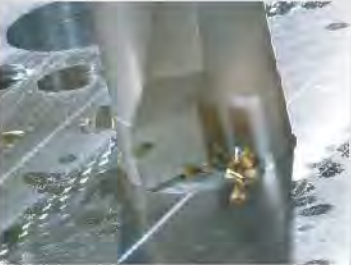
Face milling
Tool diameter Ø80 mm
Feed rate 1,800 mm/min
Depth 2 mm
Cutting volume 260 cc
Width 65 mm



End milling
Tool diameter Ø 63 mm
Feed rate 2,860mm/min
Depth 30 mm
Width 2 mm
Cutting volume 172 cc



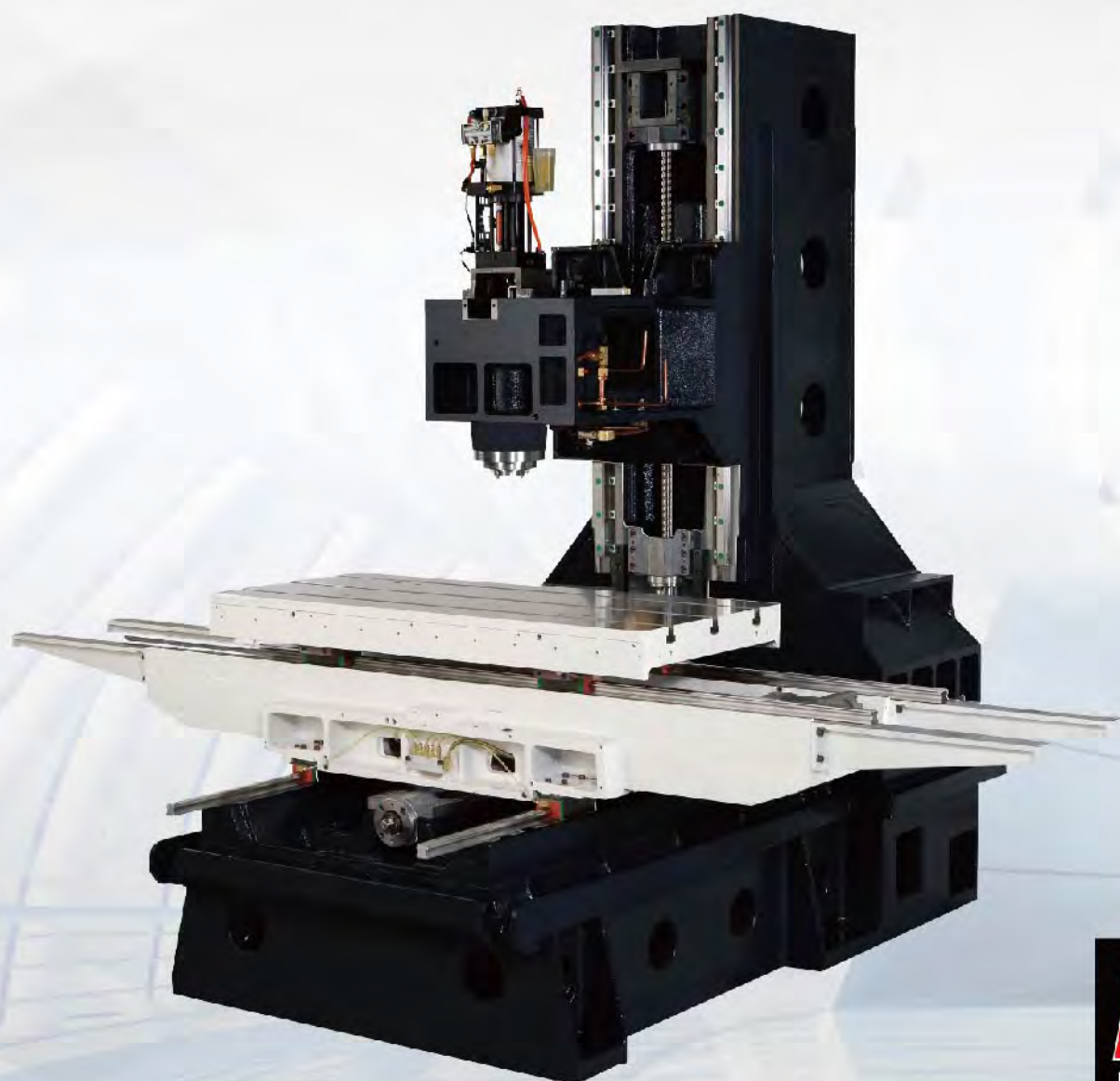
Tapping
Tool diameter Ø20 mm
Feed rate 275 mm/min
Depth 20 mm
Spindle load 56%



Drilling
Tool diameter Ø18 mm
Feed rate 200 mm/min
Depth 25 mm

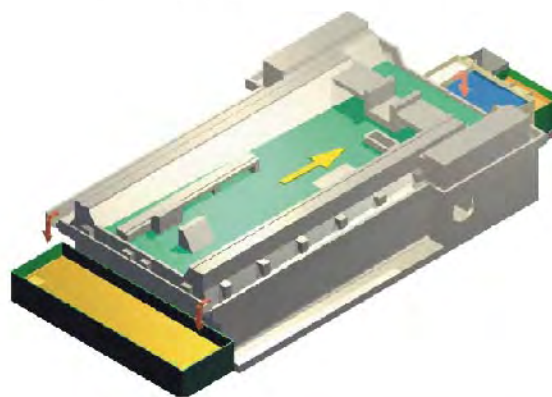
Hartford F1-the Ultimate VMC (LG-500/800/1000)

One of the important elements that determines a machining center's accuracy and capability is structural rigidity. LG series was designed according to the principles of FEA .



One-piece bed design

- The bed is one-piece design.
- The column is wider.
- Prevents twisting and distortion under even the most severe cutting forces.
- The fine grain Meehanite cast iron contributes to unparalleled damping characteristics.



Excellent tool change time

- LG-500 minimum tool change time **1.18** sec (tool-to-tool).
- LG-800/1000 minimum tool change time **1.38** sec (tool-to-tool).



Oversized column design

- Increased width of the interface between the column and base.
- Enhances machine stability
- Increases machine rigidity and efficiency.



High accuracy linear guideway design

- The linear guideways on all 3-axes are high grade, providing stability for heavy cutting.
- High efficiency machining center.
- Maximum rapid traverse rate of **30** m/min.



Full range of linear guideway five-year warranty:

Warranty coverage will not apply under following conditions

1. Improper operation (collision)
2. Lack of regular cleaning of accumulated debris causing damage to the linear rails & carriages.

The Brand of Highest Efficiency for Electrical Industries(LG-1370/1570)

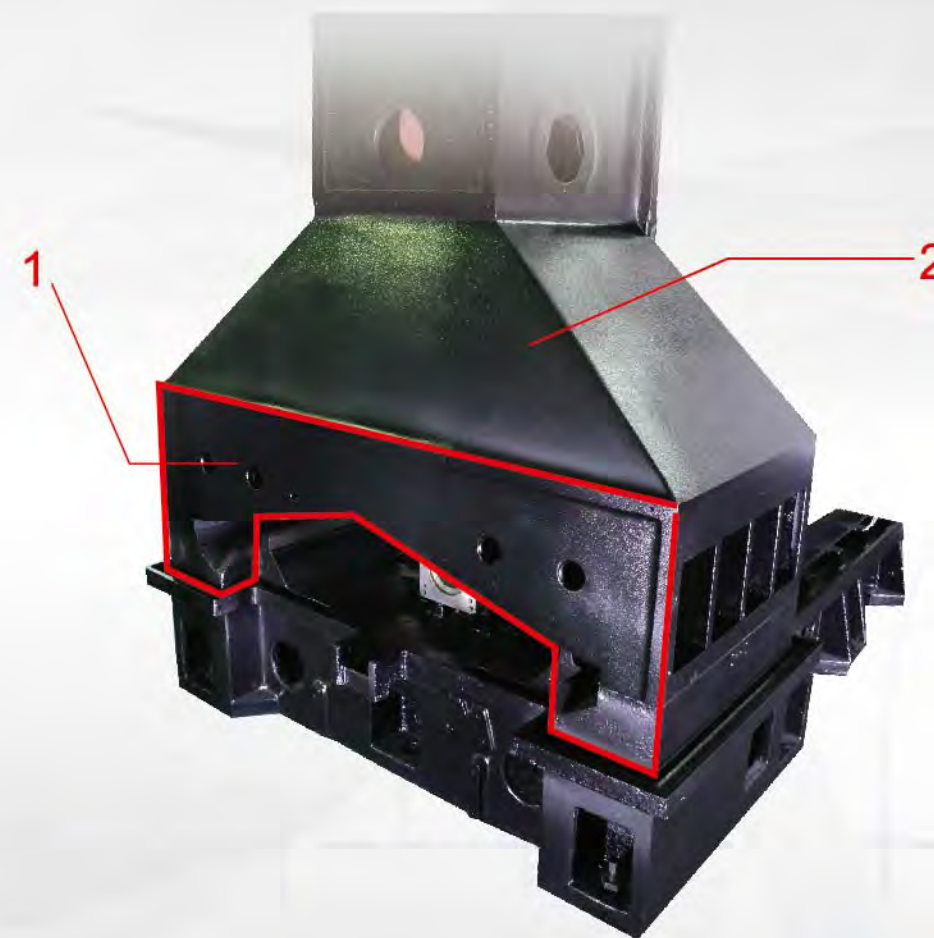
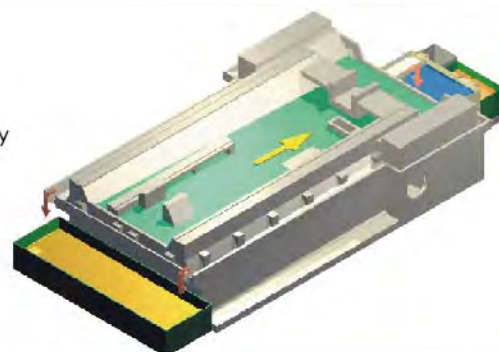
Offering more unique features than any other competitive machine,
providing superior value in speed, accuracy and stability.



The picture shows LG-1370

One-piece structure design

- Separates oil and coolant on the machine effectively
- Prevents coolant contamination problems.



1 Extra large interference between column and base

- Increases column rigidity in X-axis direction.
- The extension of the column base increases rigidity in Y and Z axes.

2 Column rear-inclination design

- Reduces unnecessary mass.
- Shifts the center of gravity forwards.
- Increases the damping effect in the Y-axis direction.



3-axis direct transmission between servo motor and ballscrew

- High torque servo motors are directly coupled with ballscrews.
- Without backlash or servo lag problem caused by a belt.
- All ballscrews are center-supported plus both ends utilize precision angular contact bearings.
- Boosts machining efficiency and reliability.

Intelligent Controller- Hartrol Plus

What is Hartrol plus?

- 19" multi-touch screen
- IPC is equipped with the Windows operating system
- Automatic feed system control function(opt.)

By the use of open architecture, we begin to enter a new era of intelligent processing. In addition to basic functions, we have joined hardware and software exclusively developed by Hartford. Software can be added to and updated at any time with new features.

An Intelligent Controller

With three major solutions, Hartrol plus takes your machining to the next level. Highly optimized and intelligent controls bring even more capabilities and productivity to your metal cutting processes. With ease of use, advanced automation, and smart data collection, Hartrol plus is an essential tool for enhancing performance on your production floor.

The difference between Hartrol plus and others

Function	Hartrol plus 1	Others
Screen Size	19" Multi-touch Panel	10.4"(OPT:15")
Hard Drive	32GB SSD	NO
Smoothing Interpolation	SSS-4G	Option
Look Ahead Block	2700	400(1000 Max.)



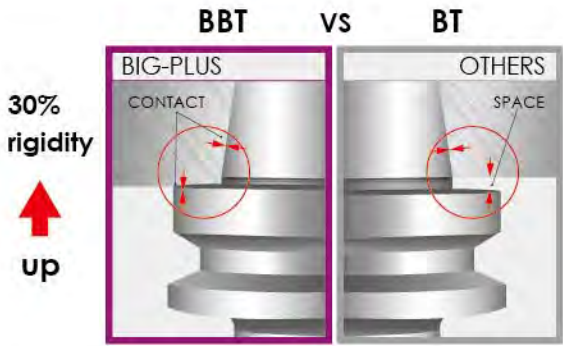
Spindles Manufactured by Hartford Offer Quality Assurance

Spindle type

- #40 Pulley 8000rpm opt. 10000 / 12000 rpm
- #40 DDS opt. 10000 / 12000 / 15000 rpm

BBT for optional

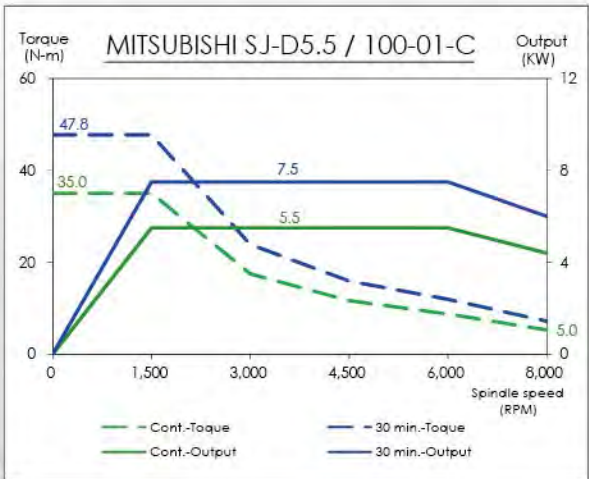
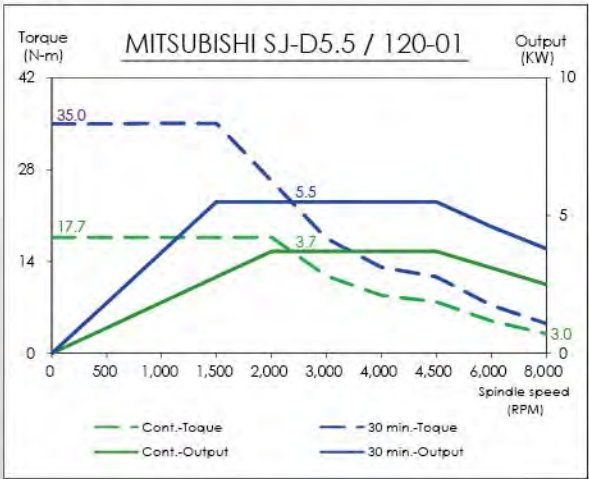
- Dual contact between the taper and the flange.
- Improves the rigidity, accuracy, speed and performance.
- Radial deflection, vibration and deviation are significantly reduced.



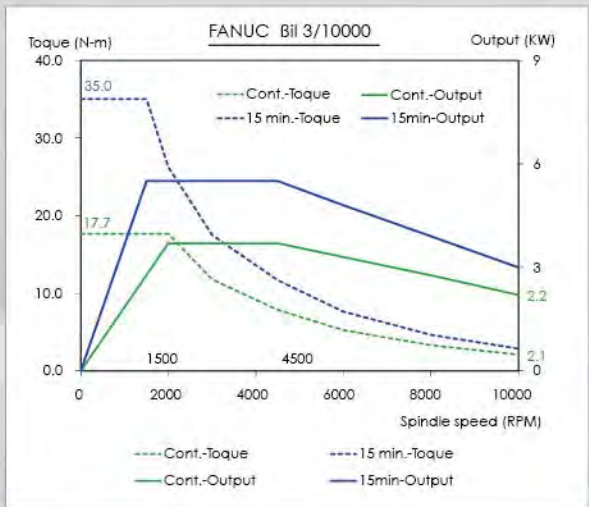
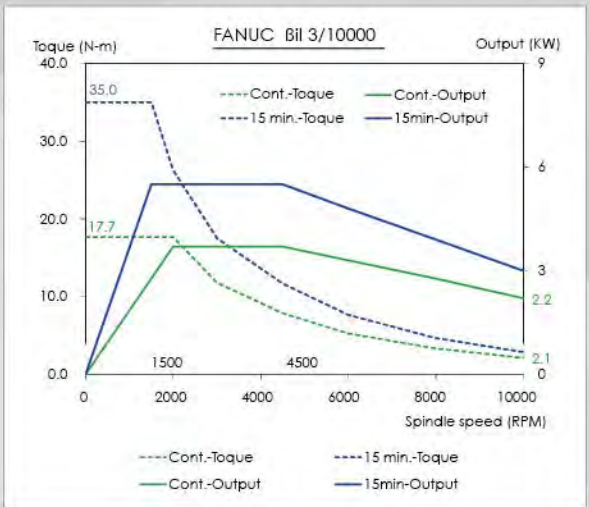
Spindle torque diagrams

LG-500/800/1000

Mitsubishi



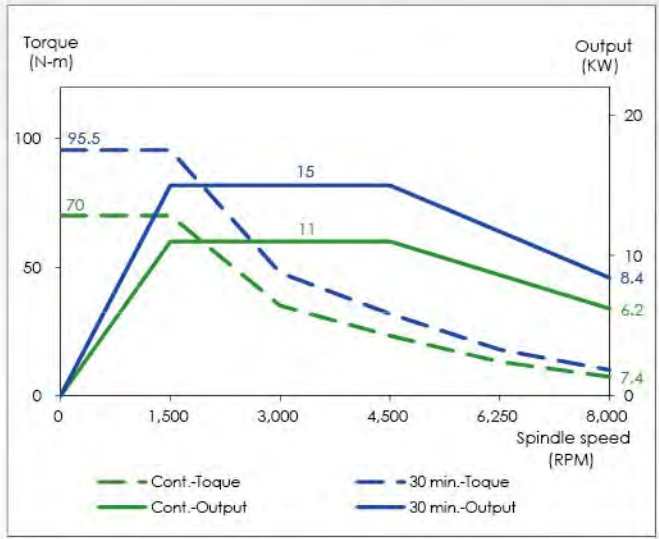
Fanuc



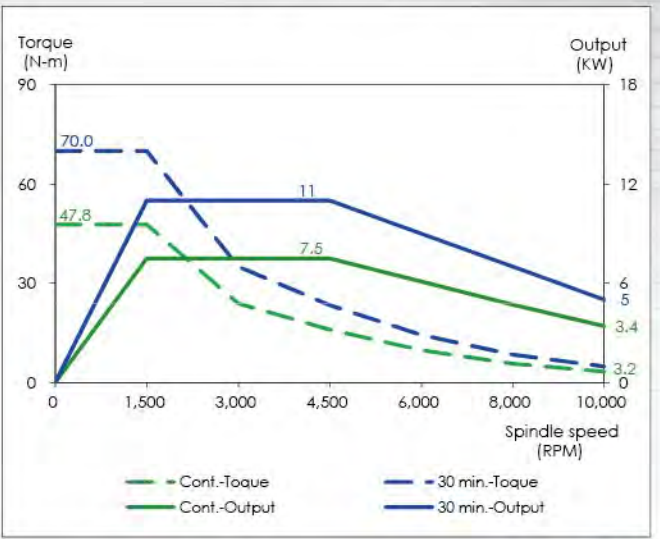
LG-1370/1570

Mitsubishi

Pulley 8,000rpm

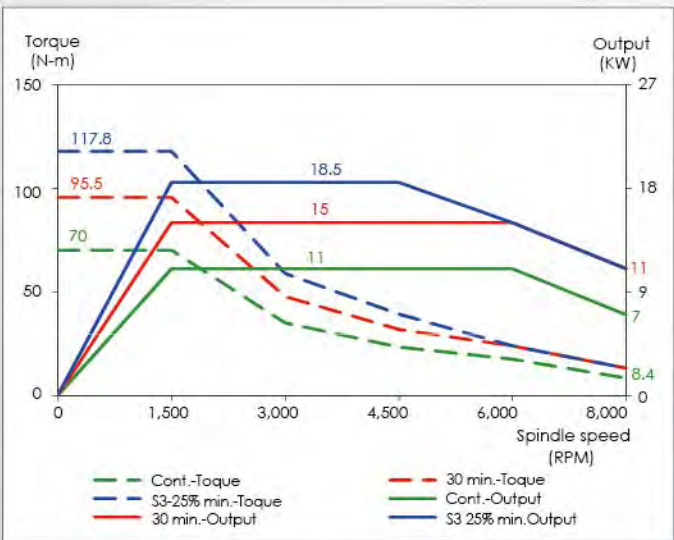


DDS 10,000rpm

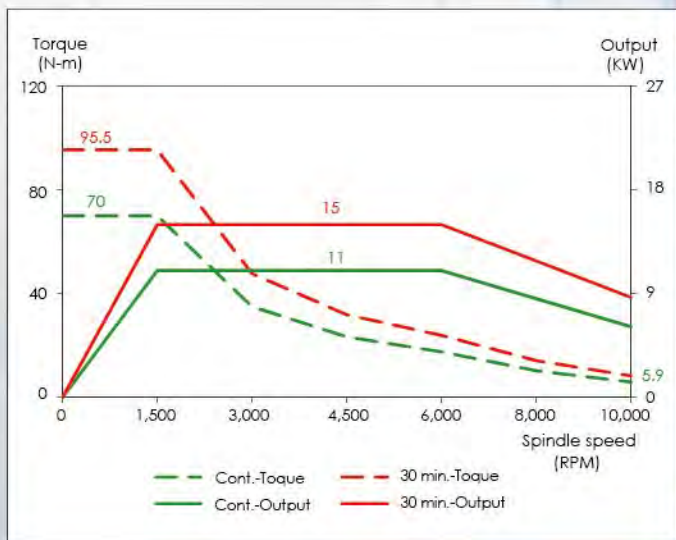


Fanuc

Pulley 8,000rpm

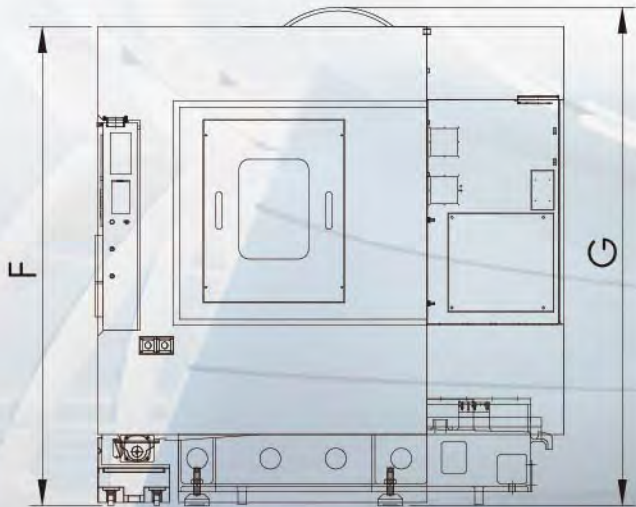
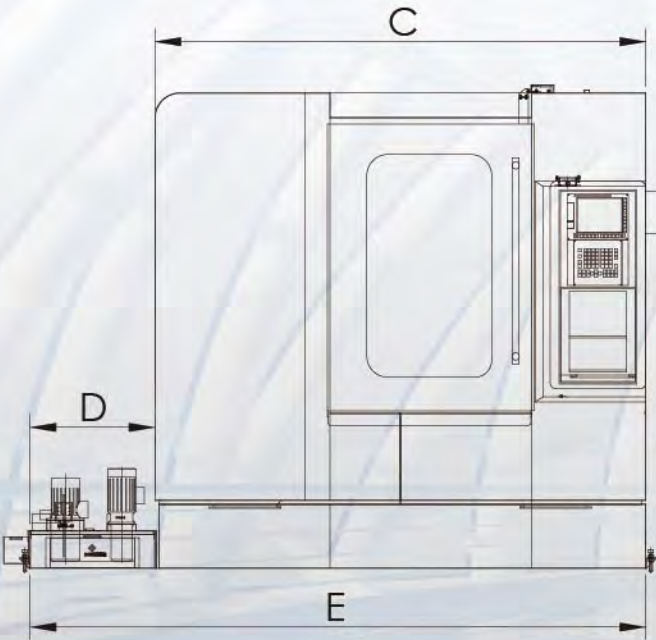
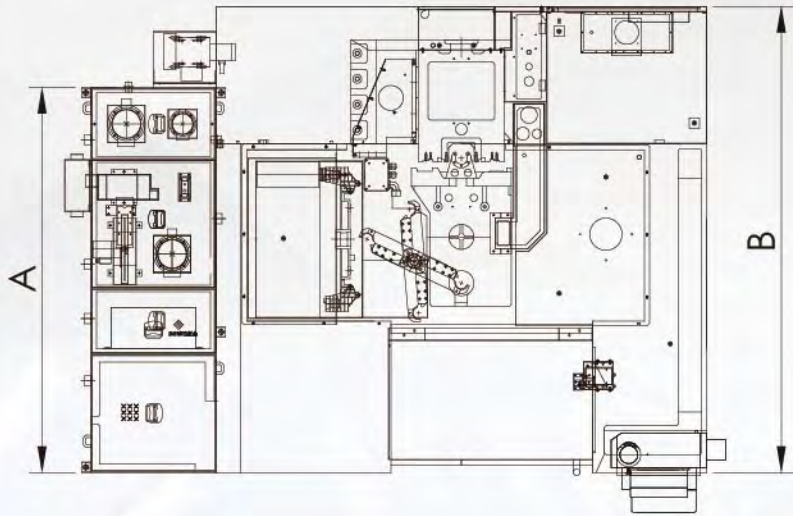


DDS 10,000rpm



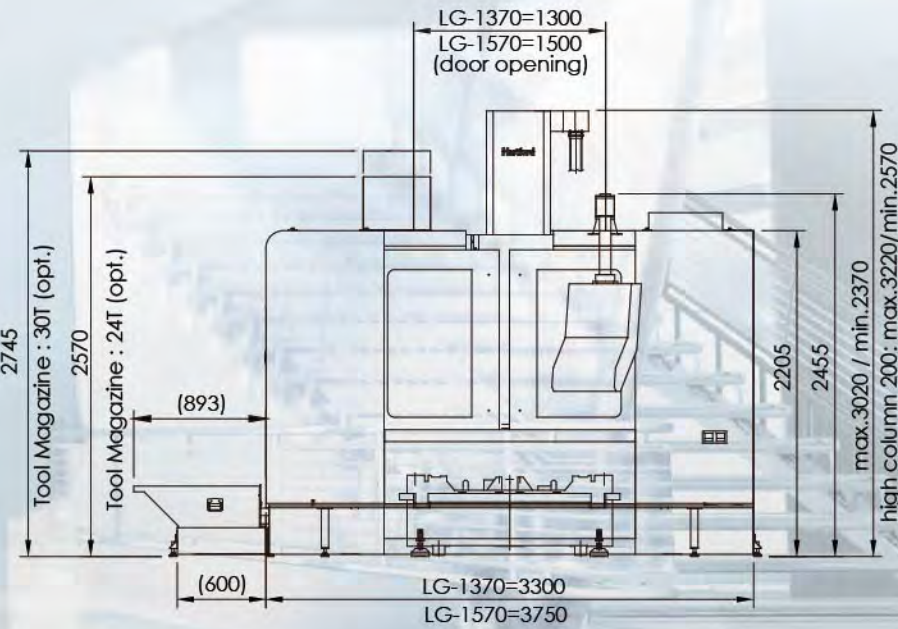
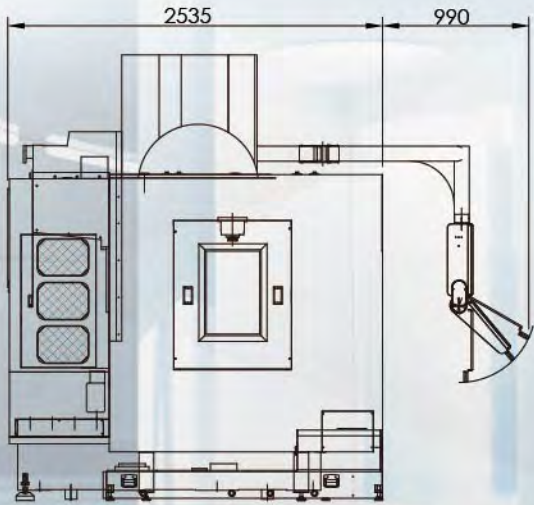
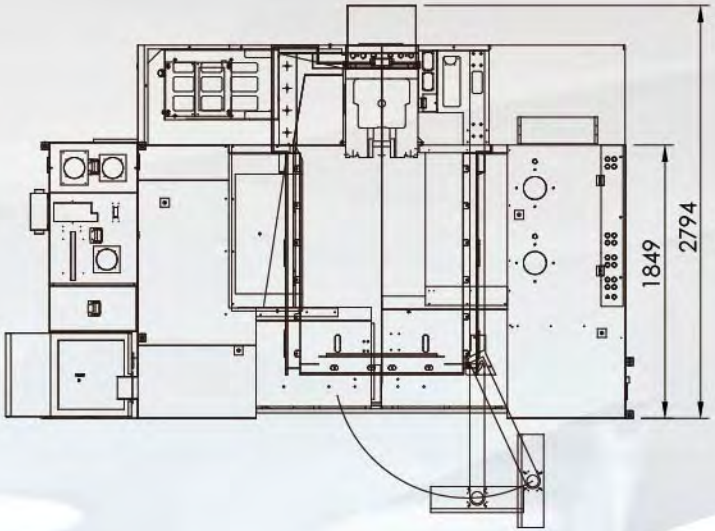
Machine Dimensions

LG-500/800/1000



	A	B	C	D	E	F	D
LG-500	1885	2100	1850	300	2150	2140	-
LG-800	1850	2240	2360	600	2960	2300	2394
LG-1000	1850	2240	2900	600	3500	2300	2394

LG-1370/1570



Machine Specifications

Model	unit	LG-500	LG-800	LG-1000	LG-1370	LG-1570
Table						
Working Surface	mm	620 x 420	950 x 510	1150 x 510	1400 x 650	1600 x 650
T-slot (Size x Number x Pitch)	mm	18 x 3 x 130	18 x 3 x 160	18 x 3 x 160	18 x 5 x 125	18 x 5 x 125
Max Table Load	kg	300	500	700	1000	1000
Travel						
X-axis travel	mm	520	800	1000	1300	1500
Y-axis travel	mm	420	510	510	700	700
Z-axis travel	mm	450	630	630	650	650
Distance From Spindle End to Table Center	mm	100~550	100~730	100~730	150~800 (350~1000 opt.)	150~800 (350~1000 opt.)
Distance From Spindle Center to Column	mm	460	562.5	562.5	720	720
Spindle						
Spindle Speed (Pulley)	rpm	8000(10000 / 12000 opt.)	8000(10000/12000 opt.)	8000(10000/12000 opt.)	8000(10000/12000 opt.)	8000(10000/12000 opt.)
Spindle Speed (DDS)	rpm	10000(12000 opt.)	10000(12000/15000 opt.)	10000(12000/15000 opt.)	10000(12000/15000 opt.)	10000(12000/15000 opt.)
Spindle Nose Tape	rpm	#40	#40	#40	#40	#40
Feed						
Cutting Feedrate (X/Y/ Z Axes)	m / min	10 / 10 / 10	12 / 12 / 12	12 / 12 / 12	15 / 15 / 15	15 / 15 / 15
Rapid Traverse (X/Y/ Z Axes)	m / min	30/30/24 (40/40/32)	30/30/24 (40/40/30)	30/30/24 (40/40/30)	30/30/24 (40/40/30)	30/30/24 (40/40/30)
ATC						
Tool Storage Capacity	pcs	A:24	A:24 (A:30 S:16 opt.)	A:24 (A:30 S:16 opt.)	S:16 A:24 (30 / 40 opt.)	S:16 A:24 (30 / 40 opt.)
Max. Tool Weight	kg	7	7	7	7	7
Max. Tool Size (Diameter x Length)	mm	A: φ80x200L	A: φ75 x 300L (S: φ 90 x 250L opt.)	A: 75 x 300L (S: 90 x 250L opt.)	A: φ 75 x 300L (S: φ 90 x 250L opt.)	A: φ 75 x 300L (S: φ 90 x 250L opt.)
Tool Shank		BT40 (BBT / CAT / DIN)	BT40(BBT/CAT/DIN)	BT40(BBT/CAT/DIN)	BT40(BBT/CAT/DIN)	BT40(BBT/CAT/DIN)
Pull Stud Bolt		P40T-1/CAT-40/DIN69872	P40T-1/CAT-40/DIN69872	P40T-1/CAT-40/DIN69872	P40T-1/CAT-40/DIN69872	P40T-1/CAT-40/DIN69872
Motor						
Spindle Drive Motor (30min/Con) kW		5.5	7.5 (11 opt.)	7.5 (11 opt.)	11(15)	11(15)
Positioning Accuracy						
3 axes laser positioning accuracy (JIS B6338)						
Positioning accuracy/Full travel	mm	±0.008	±0.008	±0.008	±0.008	±0.008
Repetitive positioning accuracy	mm	±0.002	±0.002	±0.002	±0.003	±0.003
3 axes laser positioning accuracy (VDI 3441)/ Repeated 5 times						
Positioning accuracy	mm	0.010	0.010	0.010	0.014	0.014
Repetitive positioning accuracy	mm	0.006	0.006	0.006	0.008	0.008
Other						
Required Air Pressure	kg /cm ²	6.5	6.5	6.5	6.5	6.5
Electric Power Consumption	KVA	15	20	20	20	20
Floor Space(Full Guarding)	mm	2150 x 2155	2960 x 2470	3500 x 2470	3900 x 2935	4350 x 2935
Net Weight	kg	3330	A:4300 (4270 opt.)	A:4530 (S:4410 opt.)	8300	9000
Coolant tank(Standard)	L	237	279	306	304	316

VDI 3441 accuracy available upon order request.

Specifications & dimensions are subject to change without notice
(for actual weight, shipped product shall prevail.)

Standard &Optional
Electrical Function

- Hartrol / Standard
- Workpiece calibration by MPG directly
 - Parameter package
 - Thread cutting(0i& 31i only)
 - Tool magazine display(0i&31i only)
 - Tool status display((0i&31i only)
 - Special engraving marco

- Hartnet / Optional
- Management system of utilization
 - Machining time countdown
 - Convenient file transfer

- Electrical Function /Optional
- Lifting function against gravity
 - Retraction for rigid tapping
 - Intelligent MPG

Standard&Optional
Mechanical Accessories

- Standard
- Full splash guard(CTS)
 - Coolant tank
 - Automatic lubrication system
 - Air blast through spindle
 - Operation manual & electric drawing
 - Leveling bolts & blocks
 - Spindle air curtain
 - MPG
 - Automatic power off
 - Operation finish lamp x 1
 - Fluorescent lamp x 1
 - Coolant jets around spindle
 - #40 8000rpm spindle
 - #40 One-piece design on spindle housing

- Optional
- Full enclosed splash guard(CTS)
 - 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
 - Automatic door