Accessories	TGV-106	TGV-128	TGV-1612
Item			
1.Full-enclosed splash guard	●	●	●
2.Operator Panel, stand type	●	●	●
3.Spray around spindle	●	●	●
4.Spindle air curtain	●	●	●
5.Fluorescent lamp x1	●	●	●
6.Air blast through spindle_M53	●	●	●
7.Remote manual pulse generator	●	●	●
8.Spindle oil cooler	●	●	●
9.Screw type chip conveyor	●	●	●
10.Tool Package	●	●	●
11.Foundation bolt,Concrete	○	●	●
12.Control cabinet air conditioning	○	●	●
13.Hartford manual	●	●	●
14.Centralized automated lubrication system	-	●	●
15.Automatic Power OFF	●	●	●
16.Link type chip conveyor &portable chip bucket(1 EA)	●	○	○
17.Coolant through spindle, Prepare, without water cart	○	○	○
18.Coolant through spindle,20BAR,with water cart	○	○	○
19.Coolant through spindle,25BAR,with water cart	○	○	○
20.Coolant through spindle,40BAR,with water cart	○	○	○
21.Coolant through spindle,70BAR,with water cart	○	○	○
22.Fluorescent Lamp ×2	○	○	○
23.Auto Tool Length Measurement	○	○	○
24.Workpiece Measure Probe	○	○	○
25.X,Y,Z -axis linear scale system	○	○	○
26.Spindle shaft with coolant system	○	○	○
27.3 axes ballscrew coolant system	●	○	○
28.Coiling Tube Coolant gun	○	○	○
29.Air gun	○	○	○
30.Oil mist collector system	○	○	○
31.Coolant Flushing Device	●	○	○
32.Oil skimmer	○	○	○
33. Electric Grease Lubricators	●	○	○

Standard ● Optional ○

Hartford

High Speed Machining Center

TGV Series

TGV-106
TGV-128
TGV-1612

Hartford
Hartrol · Smartcenter · Robocell
Only High-Quality Intelligent Machines

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CAT.No.：20250819 - E16

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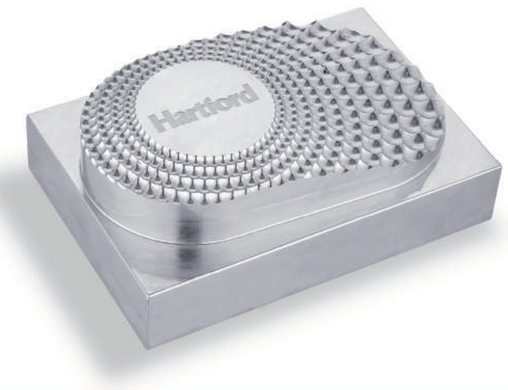
Website

High Efficiency, Superior Precision
The Peak of Machining Performance

The TGV Series is widely applicable across various industries. With its outstanding cutting performance, it delivers superior surface finishes and high-precision results, fully meeting the most demanding machining requirements.

01 Workpiece Machining Applications

1



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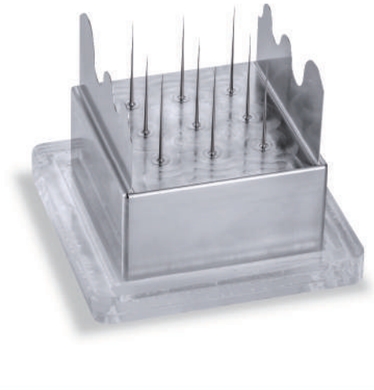

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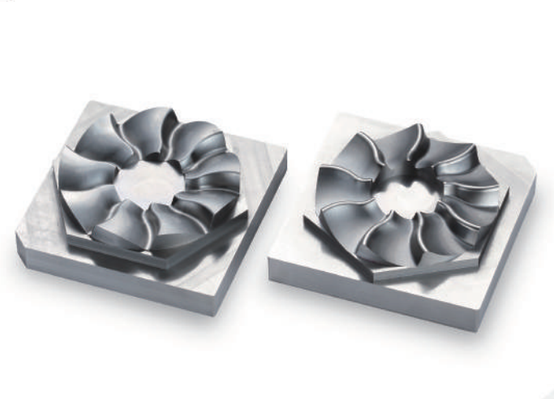


1 | 2
3 | 4

Automobile

1 Automotive lamp mold

Semiconductor

2 Fine pin and thin-wall structure

Bicycle

3 Structural parts

Mold

4 Upper and lower turbine blades

02 Machine Structure Features

The TGV Series adopts a compact gantry-type structure, providing optimal stability for high-precision machining.

Integrated Z-axis Motor Bearing Housing

Enhance rigidity to ensure spindle machining stability.

Oil-Air Lubricated Spindle with a 2-Year Unlimited-Hour Warranty opt.

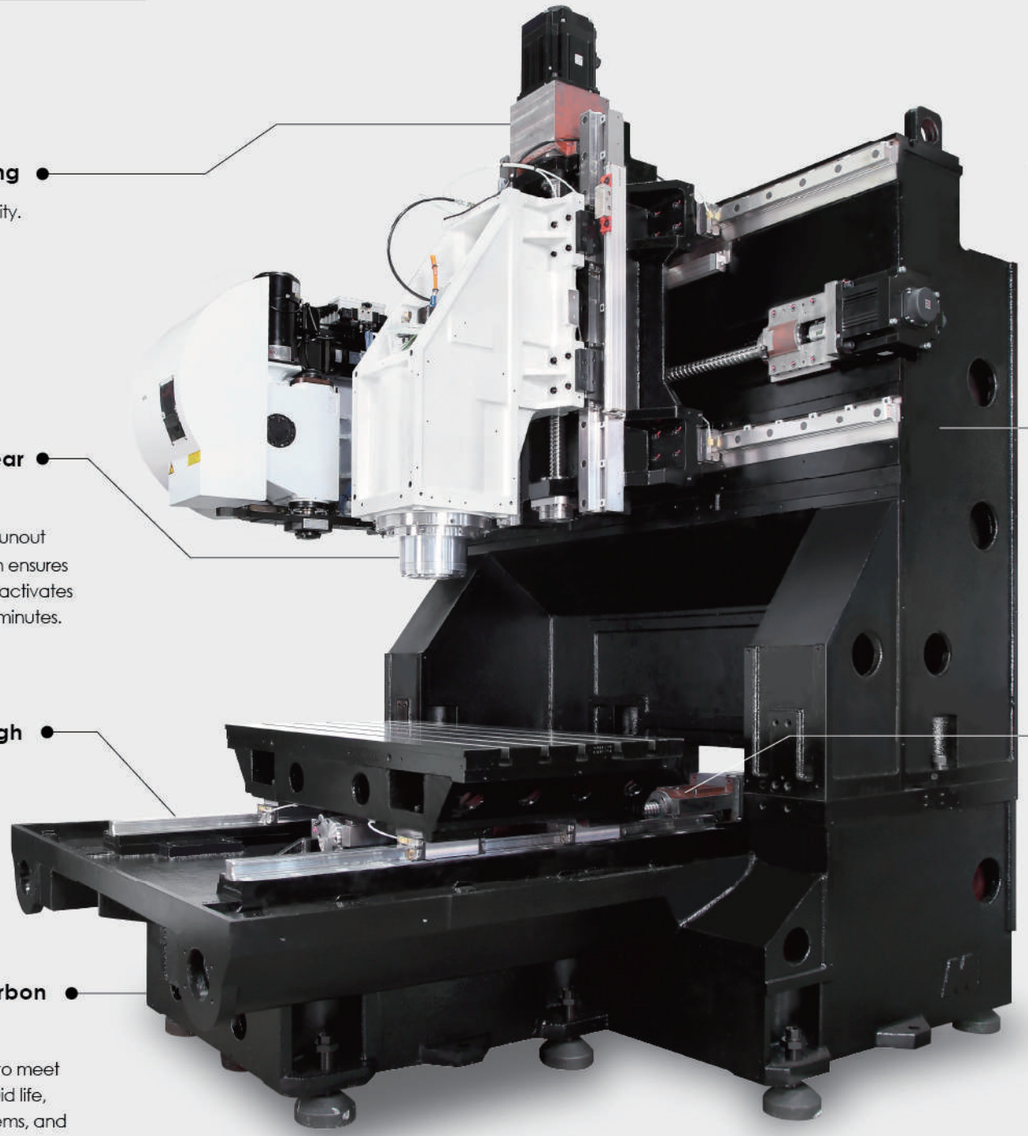
Optional spindle with **15,000 / 20,000** rpm, runout within **5** μm; high-efficiency cooling spindle design ensures stable operation over long periods; automatically activates energy-saving mode after idling for more than 15 minutes.

Integrated Large Chip Conveyor Trough

Featuring efficient chip removal, smooth coolant circulation, structural stability, and easy maintenance, it is especially suitable for long-duration automated machining.

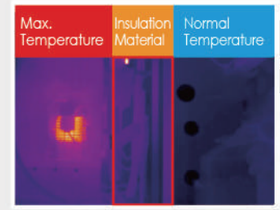
Eco-Friendly, Energy-Saving, Low-Carbon Grease Lubrication Design opt.

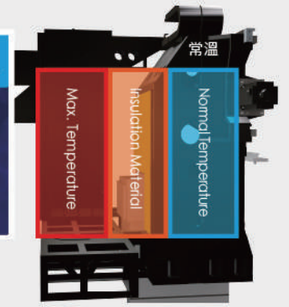
The feed axis uses low-amount grease lubrication to meet environmental rules, extend grease and cutting fluid life, reduce maintenance costs, avoid waste oil problems, and ensure stable operation and good product quality.



▲ TGV-106

Thermal Symmetry and Heat Isolation

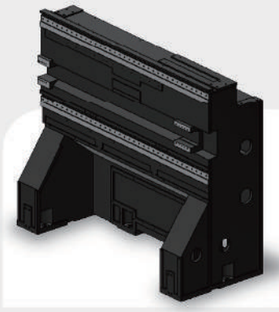




An insulation layer is added between the electrical cabinet and the casting to ensure machining accuracy, reduce casting temperature by **13%**, and prevent thermal deformation.

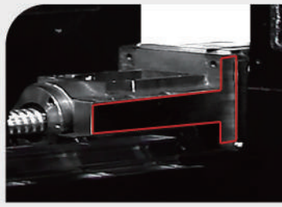
One Piece Column & Crossbeam Design

wall type casting + column supporter = better stability structure.



Thicker Motor & Bearing Set

Best transmission efficiency



MEEHANITE

5 YEAR Warranty on Guideways for All Models

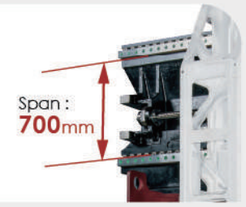
Warranty coverage will not apply under following conditions :

1.Improper operation(collision)

2.Lack of regular cleaningof accumulated debris causing damage to the linear rails &carriages.

02 Machine Structure Features

The TGV Series adopts a compact gantry-type structure, providing optimal stability for high-precision machining.



Great Span on Y-Axis Linear Guideway

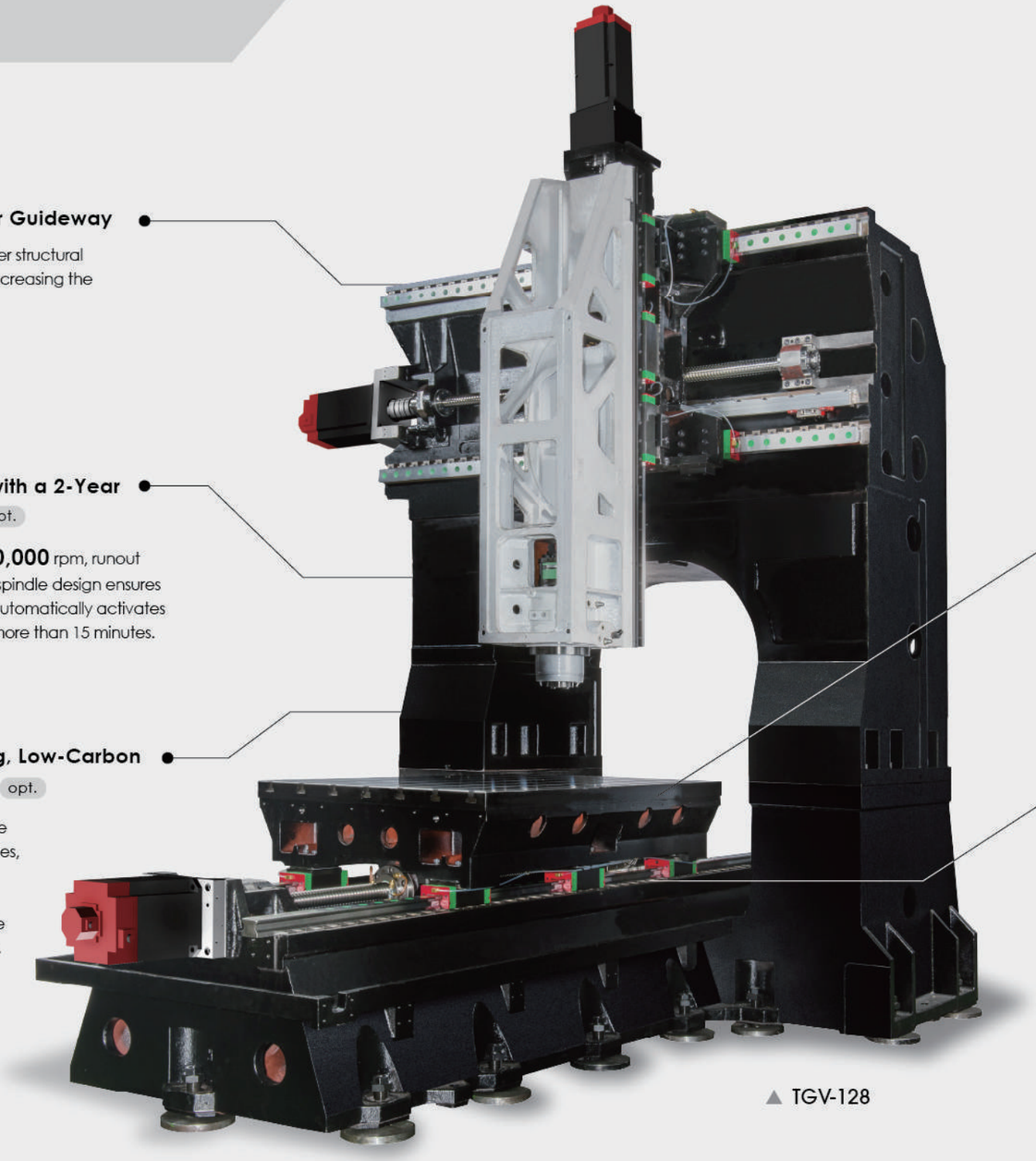
The wide-span design provides greater structural rigidity and load-bearing capacity, increasing the overall machine rigidity by **64%**.

Oil-Air Lubricated Spindle with a 2-Year Unlimited-Hour Warranty opt.

Optional spindle with **15,000 / 20,000** rpm, runout within **5** μm; high-efficiency cooling spindle design ensures stable operation over long periods; automatically activates energy-saving mode after idling for more than 15 minutes.

Eco-Friendly, Energy-Saving, Low-Carbon Grease Lubrication Design opt.

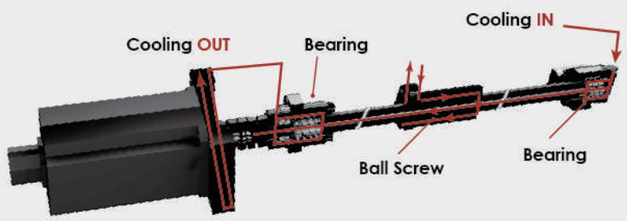
The feed axis uses low-amount grease lubrication to meet environmental rules, extend grease and cutting fluid life, reduce maintenance costs, avoid waste oil problems, and ensure stable operation and good product quality.



▲ TGV-128

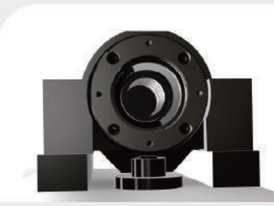
Thermal Growth Control Three Axis opt.

The motor seat, screw, bearings, and nuts are all equipped with cooling circuits to minimize thermal deformation, enhancing the machine's dynamic rigidity and improving surface machining accuracy by **15%**.



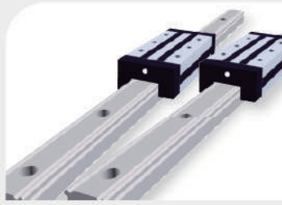
Bearing Housing Stop Pin Design

With the additional pin design on the bearing housing, higher transmission rigidity is achieved, increasing axis rigidity by **14%**.



HIWIN High-Rigidity Precision Linear Guides on Three Axis

The unique rail design offers ultra-high precision, high rigidity, and heavy-load capability, featuring long service life and low maintenance requirements.



5 YEAR Warranty on Guideways for All Models

Warranty coverage will not apply under following conditions :

1.Improper operation(collision)

2.Lack of regular cleaningof accumulated debris causing damage to the linear rails &carriages.

03 Smart Factory / Intelligent Automation

Personalized Smart Factory System

Smart i-Factory

Through i-Factory, all machinery and equipment in the factory can be connected, and the machine connections are no longer limited to Xiehong Machinery. Machinery from other manufacturers can also be connected for real-time visualization and management. The system is composed of five key components: real-time monitoring, production planning, alert notifications, data analysis, and remote connectivity, allowing you to move away from traditional management models and embrace a simpler and more convenient approach to factory management.

Tailored one-to-many automation planning

Intelligent Automated Production Line Unit

Customizing an automated factory just for you, effectively reducing costs and enhancing competitiveness.

Easy to get started
Hartford Robocell provides you a professional robot training and rich automation experience, to let you quickly learn and easily operate your automation systems.

Quality control monitoring
Automation systems have to pass all the strict Quality Control tests at every stage like design, assembly, testing, final inspection and shipment, complete quality control processes for all the products.

Professional analysis
Robocell Machining optimization service, to let you be on the top by using professional machining methods.


Design


Testing


Product inspection

Detailed specifications please contact our sales staff.

Hartrol Premium

A smart controller with independent thinking and decision-making abilities

- Chip Conveyor
- Lubrication
- Position
- AFC
- Thermal comp sys info
- ECO Mode
- Digital Transformation
- Energy Monitoring Dashboard
- Chips Breaking for Drilling
- Hart CAM
- CCD Monitor
- Work piece Calibration

Online Update System
Keep your operating system in optimal condition and stay up to date with the latest features from Hartford.

Hartford ZDT
Early warning before machine failure helps reduce unexpected downtime, minimizing productivity loss and cost.

Chip Conveyor Opt.

Smart detection based on spindle current clears chips only when needed. The system runs on a 50% on/off cycle during cutting to save up to 50% motor power, and automatically reverses when chips build up to prevent overload and protect the conveyor.

Lubrication Opt.

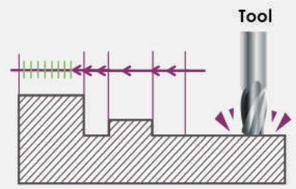
The system smartly delivers oil based on machine and cutting conditions, saving up to 50% oil and reducing costs while supporting eco-friendly operation.

Position Opt.

When performing workpiece measurement with Hartrol Premium and Fanuc 15" IPC, operators can simply enter values through the intuitive guided interface—no need to memorize complex measurement commands, making the process effortless.

AFC Opt.

Spindle load monitoring allows users to set tool-specific load limits, boosting efficiency by up to 21% in heavy operations like face and side milling.



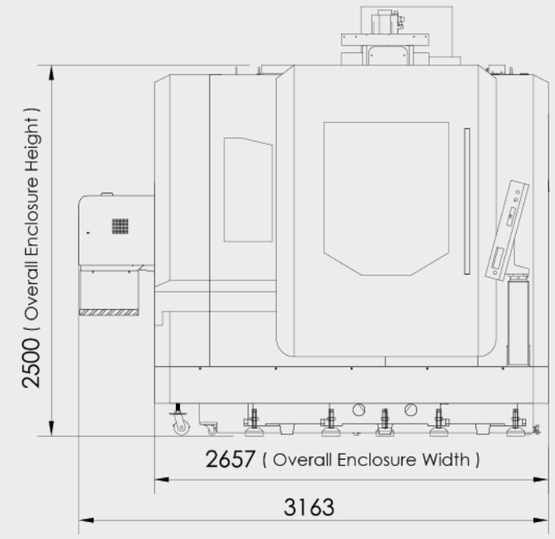
05 Machine Dimension

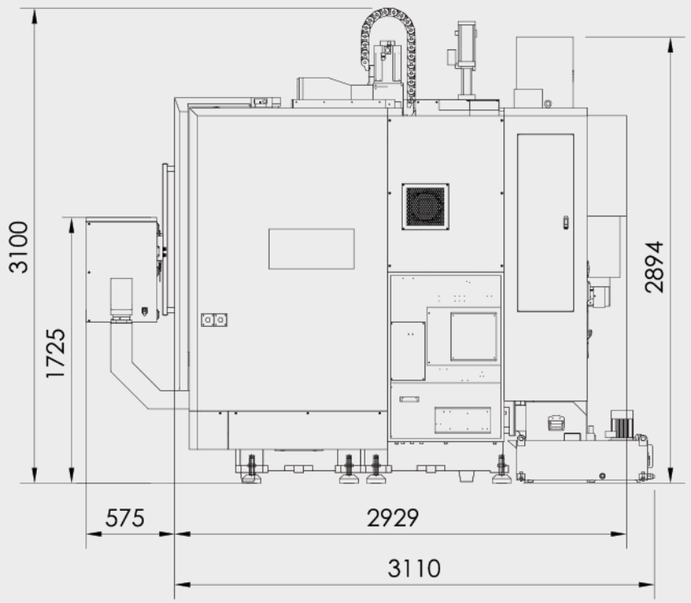
Maximum Machining Capacity Exceptional Craftsmanship

▪ **Max. workpiece size**

Model	L	W	H
TGV-106	1000	600	510
TGV-128	1200	800	700
TGV-1612	1600	1200	700

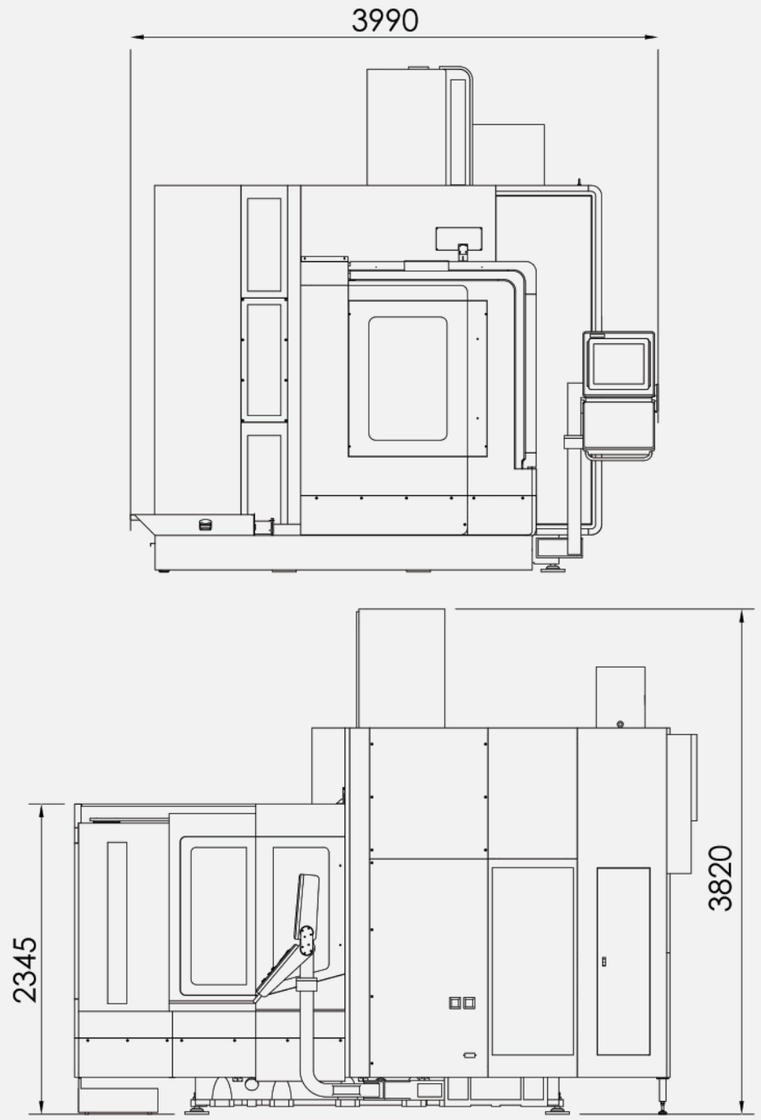
■ **TGV-106**



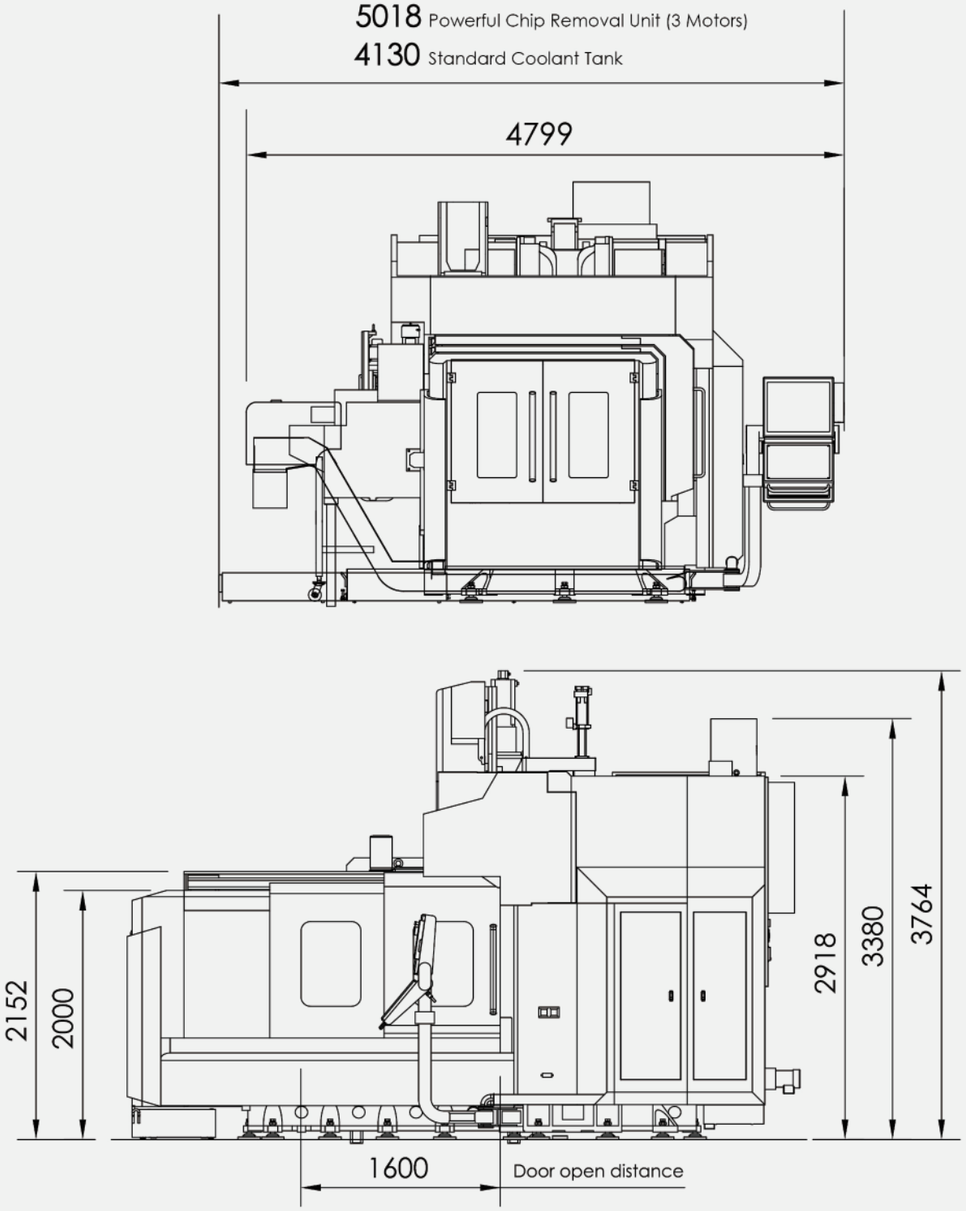


05 Machine Dimension

■ TGV-128



■ TGV-1612



06 Cutting Performance

Spindle Type

- #40 DDS 12000 rpm
- #40 DDS 15000 rpm
- #40 DDS 20000 rpm
- #40 Built-in 15000 rpm
- #40 Built-in 24000 rpm
- #50 DDS 10000 rpm (TGV-1612)
- #50 DDS 12000 rpm (TGV-1612)
- #50 Built-in 12000 rpm (TGV-1612)

BBT for Optional

- Dual contact between the taper and theflange
- Improves the rigidity, accuracy, speed and performance. Radial deflection, vibration and deviationare significantly reduced

Tested & Optimized Cutting Performance

Model : TGV-106

■ Spindle : 15,000 rpm Built-in B15-M22 kw-S1 ■ Cutting material : S45C ■ Controller : Hartrol Premium 1

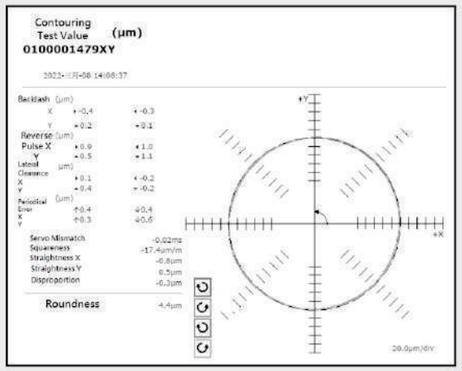
Face milling		End Milling		Tapping		Drilling	
Tool diameter	Ø 63 mm	Tool diameter	Ø 63 mm	Tool diameter	M24 x P3	Tool diameter	Ø 40 mm
Feed rate	6,400 mm/min	Feed rate	4,800 mm/min	Feed rate	600 mm/min	Feed rate	100 mm/min
Cutting depth	2 mm	Cutting depth	30 mm	Cutting depth	30 mm	Cutting depth	40 mm
Cutting width	51 mm	Cutting width	3 mm				
Cutting volume	652 cc	Cutting volume	432 cc				
Spindle speed	2000 rpm						

Model : TGV-128

■ Spindle : 15,000 rpm DDS 11 kw ■ Cutting material : S45C ■ Controller : Hartrol Premium 1

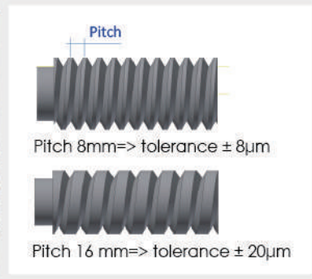
Face milling		End Milling		Tapping		Drilling	
Tool diameter	Ø 80 mm	Tool diameter	Ø 63 mm	Tool diameter	M24 x P3	Tool diameter	Ø 40 mm
Feed rate	2,900 mm/min	Feed rate	4,200 mm/min	Feed rate	450 mm/min	Feed rate	100 mm/min
Cutting depth	2 mm	Cutting depth	30 mm	Cutting depth	30 mm	Cutting depth	35 mm
Cutting width	65 mm	Cutting width	3 mm				
Cutting volume	377 cc	Cutting volume	378 cc				

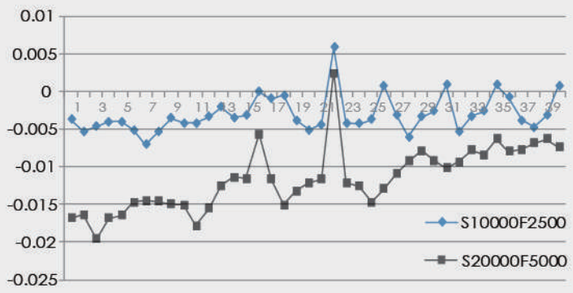
■ **TGV-106 profile accuracy test**



	TGV-106	M-Brand	O-Brand
Accuracy Standard	1. XYZ-axis Optical scale 2. XYZ-axis ball screw cooling system		
Contour Accuracy Grade (Standard)	R150 : 5.0 μm Test Results : R150 F1000mm/min. 4.4 μm	R80, 5.0 μm	R100, 10.0 μm Test Results : R75 F2000mm/min. 1.5 μm

■ **Mercedes Mold Profile Deviation : +5.8 μm / -7.1 μm (±8μm Tolerance)**





Model	S10000F2500
Contour Accuracy	+5.8~7.1μm
Machining Time	2H47M46S
Result	Within ±8 μm tolerance

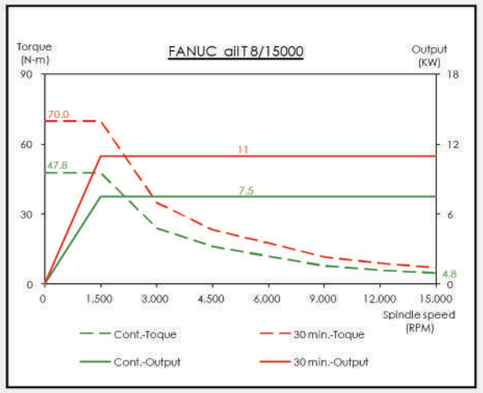
All the results featured in this calogue were produced under shich testing condilion in a special zed testing enviroment.
Under dfferent festing conditions and in less than ideal tesing environments. That the rest results vary fom those shown in this catalogue.

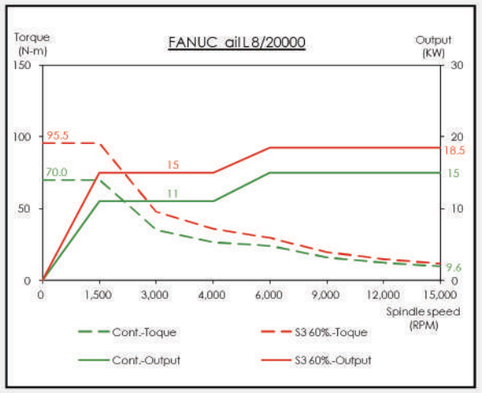
Note : The power output during acceleration is used only for calculating acceleration/deceleration time and does not represent the actual power value.

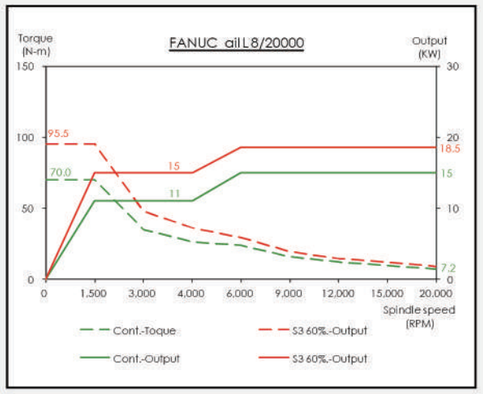
07 Spindle Torque Diagrams

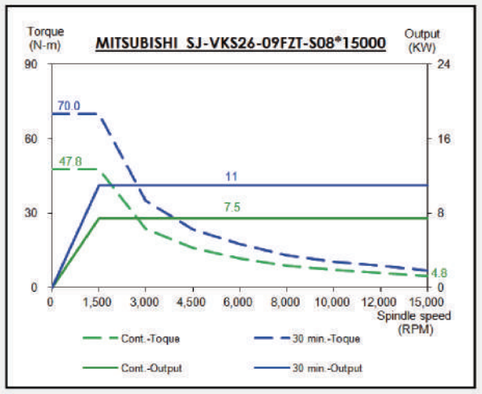
Spindle Torque Diagrams

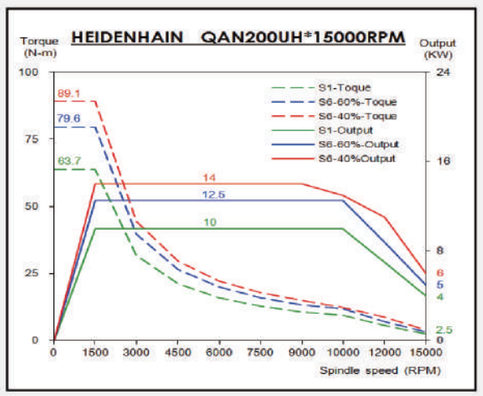
■ #40_Direct-drive





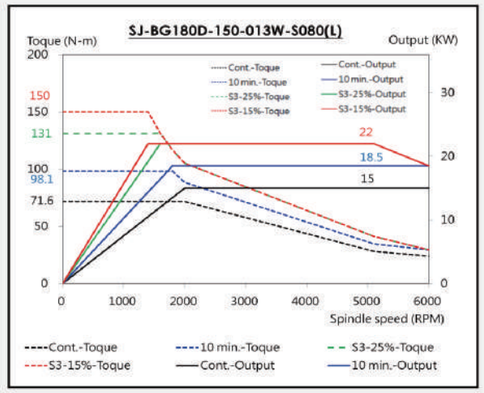


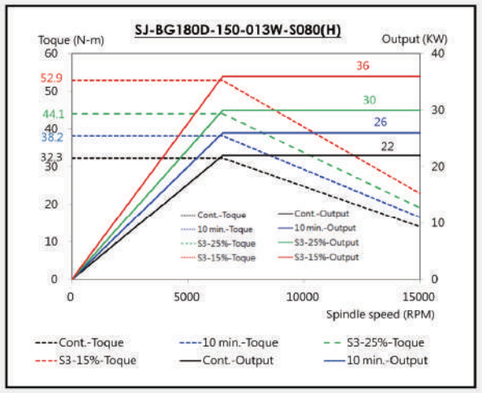


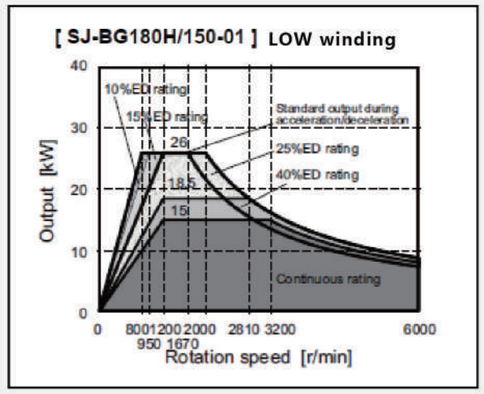


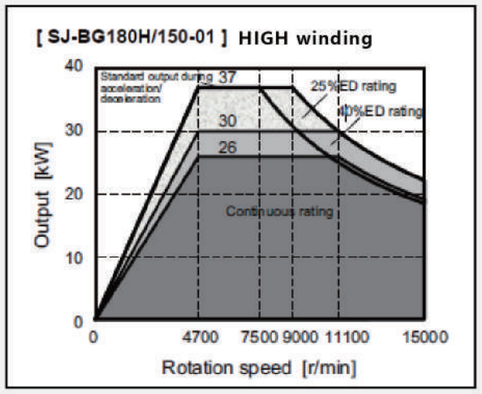
Spindle Torque Diagrams

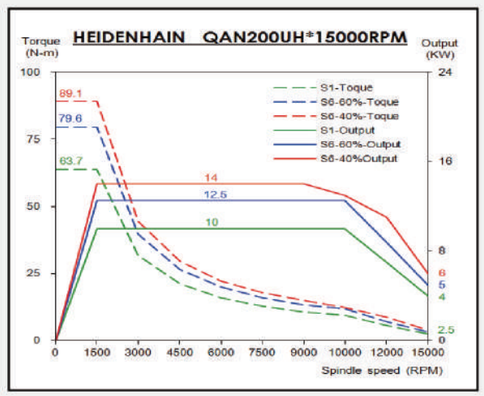
■ #40_Built-in











< SJ-BG Series (Normal specifications) >

Built-in spindle motor type (Note 1)		SJ-BG180H/150-01	
ompatible spindle drive unit	MDS-E-SP-	400	
	MDS-E-SP2-	-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity [kW]	Continuous rated output	15	26
	Short time rated output	26 (10%ED)	37 (25%ED)
	Standard output during acceleration/ deceleration	26	37
	Actual acceleration/ deceleration output (Note 4)	31.2	44.4
Base rotation speed [r/min]	Continuous	1200	4700
	Short time	800	4700
Maximum rotation speed		6000	15000
Frame No. - Core width		112-280	
Torque (Base rotation speed) [N·m]	Continuous	119	52.8
	Short time	310	75.2

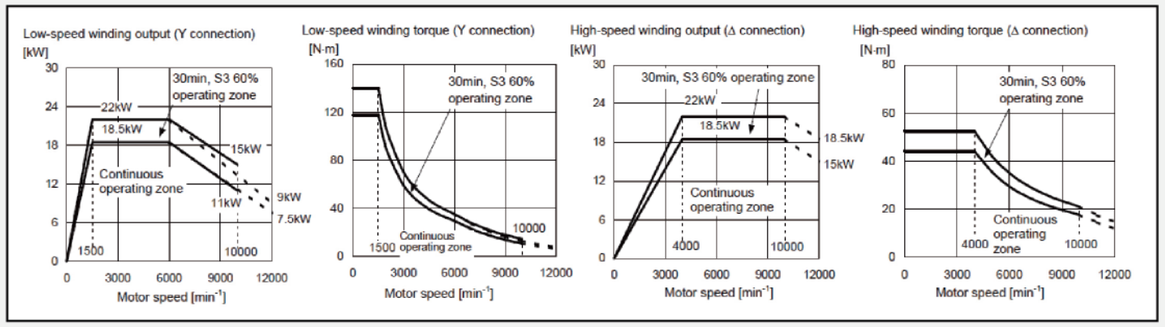
$T[N \cdot m]=P[kW] \times 1000/0.1047/N[min^{-1}]$

S2 torque= 18.5*1000/0.1047/1200=147Nm

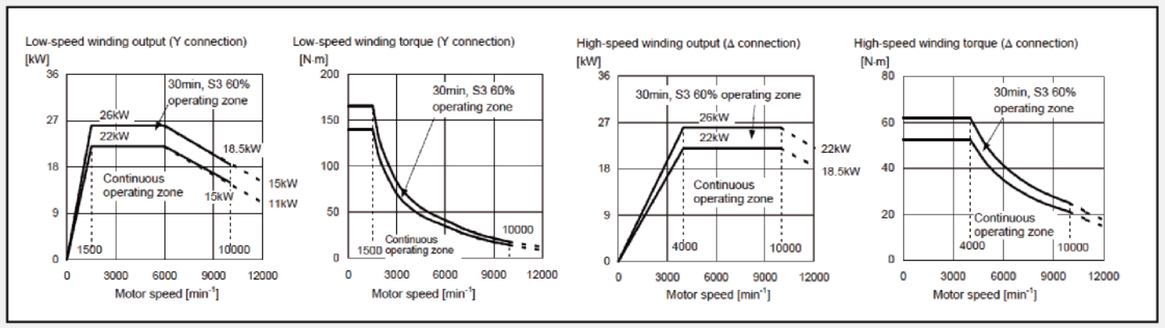
07 Spindle Torque Diagrams

Spindle Torque Diagrams

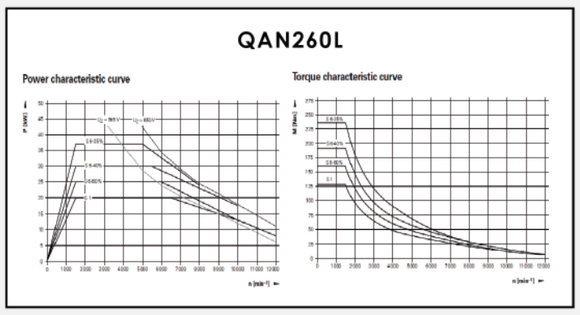
■ #50_Direct-drive_12000RPM_a il18/12000

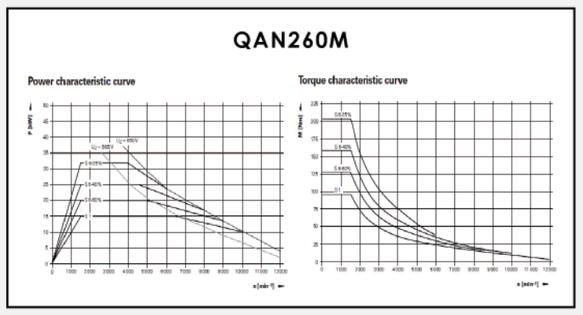


■ #50_Direct-drive_12000RPM_a il22/12000



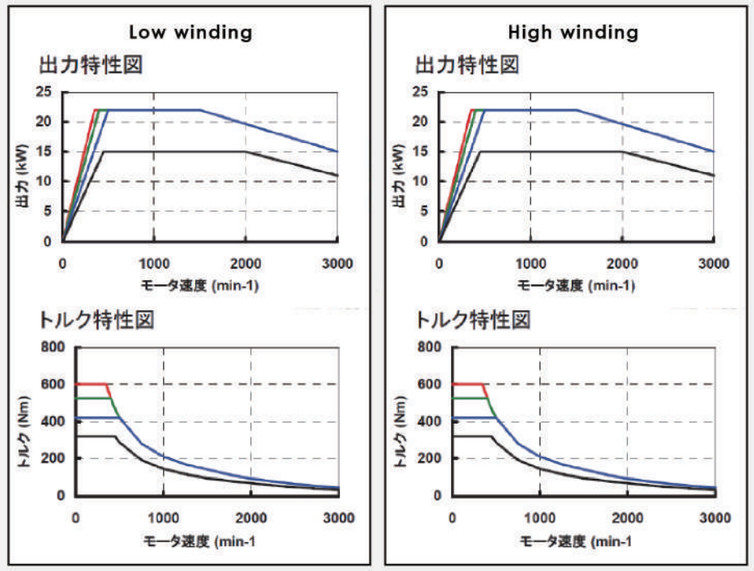
■ #50_Direct-drive_12000RPM_QAN260



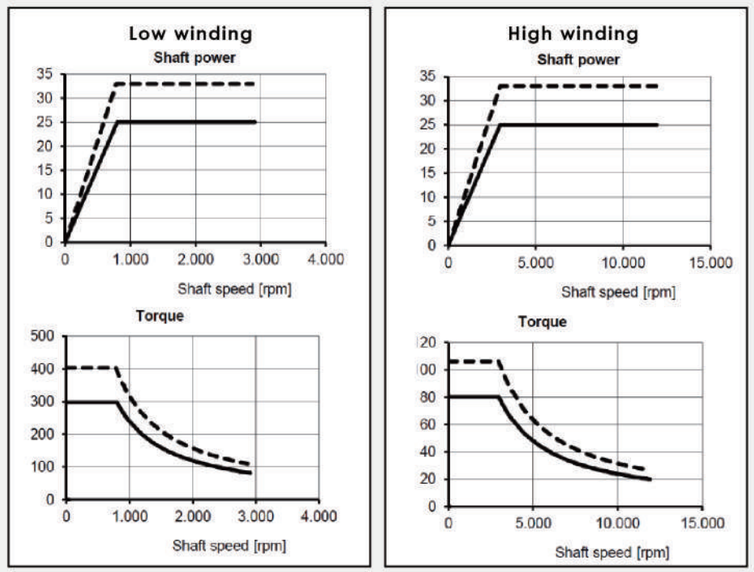


Spindle Torque Diagrams

■ #50_Built-in_Fanuc_Bil 160LL*13000



■ #50_Built-in_Mitsubishi_AC 240/330/6*12000



08 Machine Specifications

		Unit	TGV-106	TGV-128	TGV-1612
Table	Working Surface	mm	1150 X 600	1300 x 850	1800 x 1300
	T-slot Width × Pitch (Number)	mm	18 X 100(5)	18 x 125 (7)	18 x 125(10)
	Max. Load (Average)	kg	1000	2500	4000
Travel	X-axis Travel	mm	1000	1200	1600
	Y-axis Travel	mm	600	800	1200
	Z-axis Travel	mm	510	700	700
	Distance from Spindle End to Table	mm	150~660	200~900	#40 : 200~900 #50 : 150~850
	Distance Between Two Columns	mm	1260	1100	1240
Spindle	Spindle Nose Taper	rpm	#40	#40	#40 #50
	Spindle Speed (DDS)	rpm	12000 / 15000 / 20000	12000 / 15000 / 20000	#40 : 12000 / 15000 / 20000 ; #50 : 10000 / 12000
	Spindle Speed (Built-in)	rpm	15000 / 20000 / 24000	15000 / 20000 / 24000	#40 : 15000 / 20000 / 24000 ; #50 :12000
Feed	Cutting Feedrate (X / Y / Z)	m/min	20 / 20 / 20	20 / 20 / 20	20 / 20 / 20
	Rapid Traverse Rate (X / Y / Z)	m/min	36 / 36 / 30	30 / 30 / 30	30 / 30 / 30
ATC	Tool Capacity	pcs	A : 24 (30 / 40 / 60 / 90 / 120)	A : 24 (30 / 40 / 60 / 90 / 120)	#40 : A24 (30 / 40 / 60 / 90 / 120) ; #50 : A32 (40 / 60 / 90 / 120)
	Max. Tool Weight	kg	7	7	#40 : 7 ; #50 : 20
	Max. Tool Size (Dia. × Length)	mm	Ø75x300L : Ø60 x 300L (240000pm)	Ø75 x 300L : Ø60 x 300L (24000pm)	#40 : Ø75x300L,60x300L (24000pm) ; #50 : Ø125x300L
	Tool Shank		BT40 (BBT / CAT / DIN / HSK-A63)	BT40 (BBT / CAT / DIN / HSK A63)	#40 : BT40 (BBT / CAT / DIN / HSK-A63) ; #50 : BT50 (BBT / CAT / DIN)
	Pull Stud Bolt		MAS-P40T-1 (CAT-40 / DIN69872)	MAS-P40T-1 (CAT-40/DIN69872)	#40 : MAS-P40T-1 (CAT-40/DIN69872) ; #50 : MAS-P50T-1 (CAT-50/DIN69872)
Motor	Spindle Drive Motor (Continuous / 30 min)	kw	7.5 / 11 opt.15 / 18.5	7.5 / 11 opt.15 / 18.5	#40 : 7.5 / 11 opt.15 / 18.5 ; #50 :15 / 18.5 opt.18.5 / 22,22 / 26
Positioning Accuracy	Positioning Accuracy (JIS B6330), without linear scale	mm	±0.008	±0.006	±0.006
	Repeatability (JIS B6330), without linear scale	mm	±0.002	±0.002	±0.002
	Positioning Accuracy (JIS B6330), with linear scale	mm	±0.006	±0.005	±0.005
	Repeatability (JIS B6330), with linear scale	mm	±0.002	±0.002	±0.002
	Positioning Accuracy 3-Axis Accuracy (VDI 3441, repeat 5 time)	mm	0.008	0.015	0.015
	Repeatability 3-Axis Accuracy (VDI 3441, repeat 5 time)	mm	0.005	0.014	0.014
Other	Required Air Pressure	kg/cm^2	6.5	6.5	6.5
	Electric Power Requirement	KVA	45~60	25~50	#40 : 30~55 ; #50 : 40~65
	Machine Weight	kg	8500	14000	17900
	Floor Space	mm	3685 x 3163	6600 x 4900	7128 x 5220
	Machine Dimensions (L × W × H)	mm	2929 x 2657 x 3100	4703 x 3380 x 3818	5410 x 3710 x 3764

Standard & Optional Electrical Function

Standard

Hartrol
- Workpiece calibration by MPG directly
- Parameter package
- Character carving marco

Optional

Hartnet
- Management system of utilization
- Machining time countdown
- Character carving marco

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

Note : 1. Factory laser accuracy is based on JIS standards. For VDI 3441 compliance, please specify separately.
2. Product specifications and accessories are subject to change without notice.
3.If you wish to purchase a tool capacity as an option, please contact our sales representative.