Business Presence in China

http://www.toyoda.com.cn/

Manufacturing plants, sales and customer support organizations in China Call Center: 400-650-4601

1 DALIAN PLANT

ADD: 46# Developing Zone In Dalian,116600 China
TEL : 0411-87334601 FAX : 0411-87334602
Parts : 0411-87334601-105 After-service : 0411-87334601-105

2 BEIJING OFFICE

ADD: Room No.1017,Fortune Building.No.5Dong San Huan North Road Chaoyang,Beijing,100004 China
TEL : 010-65909356/7/8 FAX : 010-65909359
Sales : 010-65909356 After-service : 010-65909357

3 SHANGHAI BRANCH

ADD: Room.25B3,V-Capital Building.333Xianxia Road. Changning District,Shanghai China
TEL : 021-51757812 FAX : 021-51781099
Sales : 021-51757804 After-service : 021-51757827

4 FOSHAN BRANCH

ADD: No2Wushaxinhui Road Daliang Street Shunde District,Foshan,Guangdong,528333 China
TEL : 0757-22326651/2 FAX : 0757-22326650
Sales : 0757-22326651 After-service : 0757-22326652

5 CHONGQING OFFICE

ADD: 3-14-2,No.68,Jinkai Avenue,Xie Xin Center,New District, North,Chongqing,401120 China
TEL : 023-63056070 FAX : 023-63056077
After-service : 023-63056070

TOYODA MACHINERY(DALIAN)CO.,LTD

20160901CNV

TOYODA

e640V

e640V

Productive Vertical Spindle Machining Centers

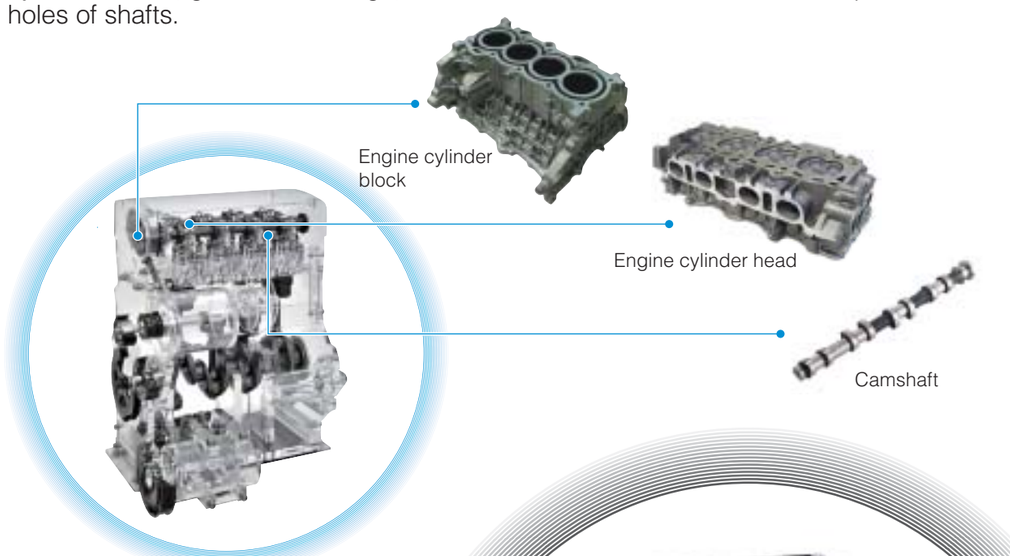
TOYODA MACHINERY(DALIAN)CO.,LTD

JTEKT Koyo TOYODA

A general-purpose independent machining unit which is most suitable for mass production

It can machine a variety of workpieces efficiently

It provides perfect solutions for the mass production machining of engine cylinder blocks, cylinder heads, gearbox housings, valve bodies and other aluminum workpieces and end holes of shafts.



Reducer housing

Turbine housing

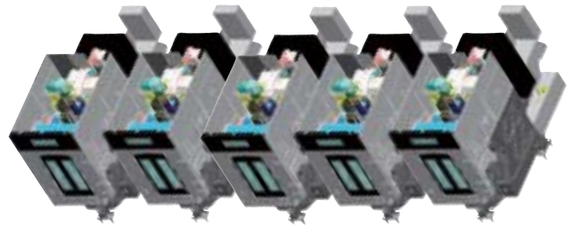
Gearbox housing

ABS valve body

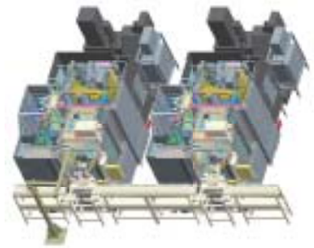
Steering gear housing

Perfect solution for automobile engine parts/ components production line

- Optimum combination mode of localized production vertical machining center (e640V) + JTEKT-made horizontal machining center (e500H), enabling a maximum reduction of 30% in the purchase cost of the customer.
- Different from the previous layout mode that all production lines use horizontal machining centers, the vertical + horizontal equipment scheme enables the production lines to be more compact. This significantly saves the occupational space in user's factory.
- Since the tooling change position of the spindle is closer to the machining position, and the tool changing time is shorter, the machining efficiency of the entire line can be improved.
  In addition, it can achieve the same machining accuracy as the horizontal machining center.
- The localized tooling and fixture design greatly reduces the design, assembly and manufacturing cycles and substantially increases the corresponding speeds.

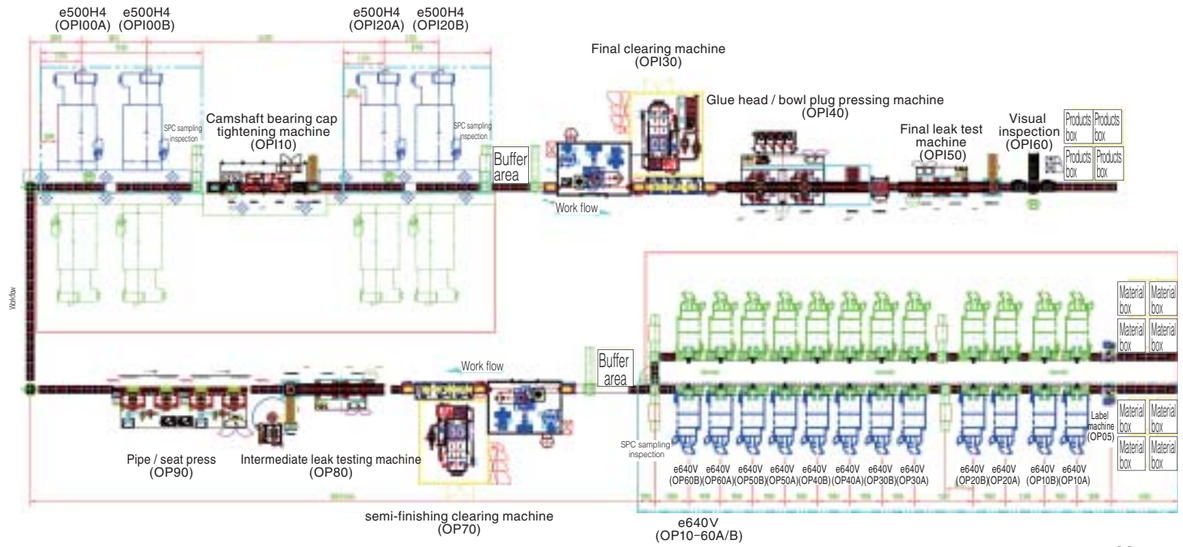


e640V rough - semi-finishing



e500H finishing

- four cylinder head line lay-out case



Adhering to the high stability and high productivity which have always been held by the Toyota brand

High rigidity

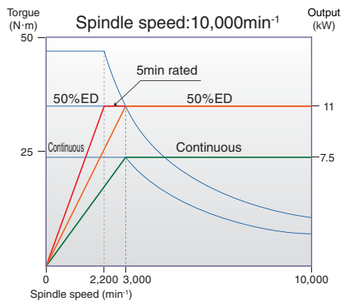
- Good balance performance and good cube structure (column and bed integrated structure)
- High-rigidity three-point support bed
- BT40 tool holder

Speed performance

Rapid feeding	48m/min
Rapid feeding acceleration (Z axis)	9.8m/s² (1.0G)
Tool change time (T-T)	2.3 sec

High-performance spindle (JTEKT-made)

Spindle speed	10,000min^{-1}
Spindle nose shape	BT No.40
Spindle motor (short time/continuous)	11/7.5 kW



Tilt table (standard opiton)

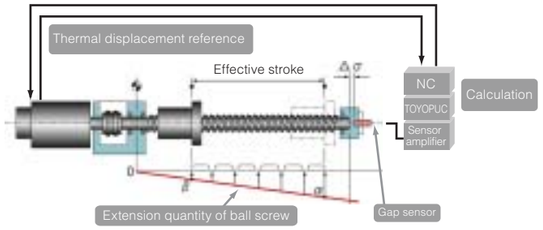
Max load on table	250kg
Table swivel dimension	ϕ600mm

- Through the Tilt table, diagonal hole machining and intensive processes become possible

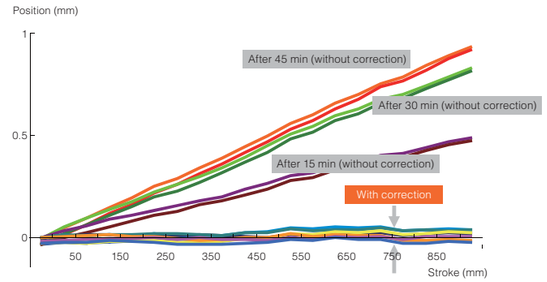
Persistent pursuit to the “high-precision technology”

High-rigidity slide for the cylindrical roller bearing

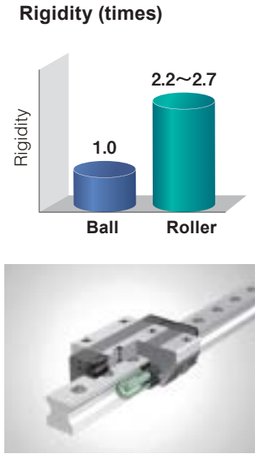
- It can maintain rigidity and also withstand high-speed and high- acceleration axial movement.
- Good shock damping and absorption performance.
- As compared with the ball bearing slide, there is little impact on the addendum modification caused by the elastic variables of the load and repeated load changes.

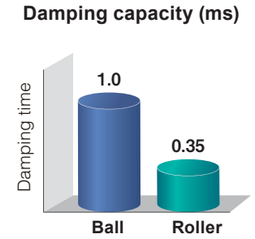


Results of ball screw displacement correction after continuous positioning is performed.



※ Correction image picture,not assured value.





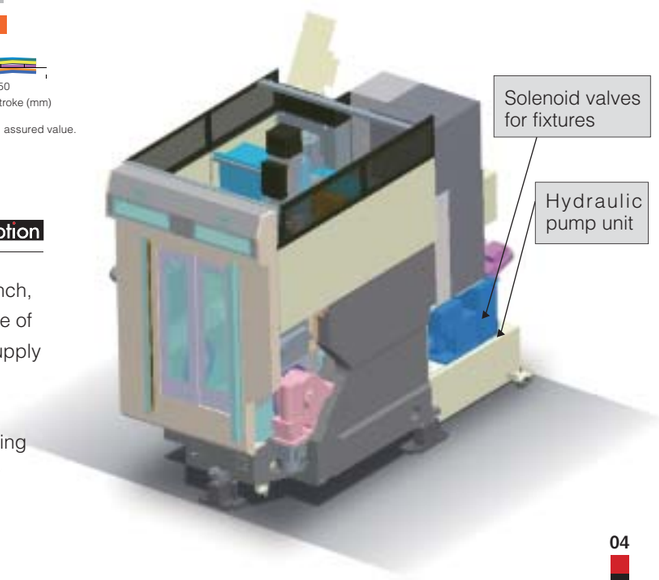
It can achieve high speed and high acceleration with the high-rigidity cylindrical roller guide rail because we are JTEKT and we have the technology capable of machining and assembling installation surfaces strictly as required.

BTS function

- It has the thermal displacement compensation function for repeatedly positioning the ball screw at a stable accuracy, which is favorable for long-time continuous machining.
- For the BTS function, a sensor is arranged at the top of the roller screw to measure the total increase in the length of the screw, and distribute it as the compensation amount of each stroke position, so that its positioning accuracy is compensated.

Supporting hydraulic fixtures Option

- With the built-in distributor of the rotary workbench, the hydraulic pressure is arranged at on the side of the stroke workbench through an interface to supply both hydraulic oil and air pressure without the separate hydraulic unit.
- Since there is no hydraulic and air pressure piping in the machining area, the fixture can be simply constituted and the tooling design is more convenient.



CNC device “TOYOPUC®-GC70” (JTEKT-made) which can be operated simply

Features: JTEKT, with our expertise in equipment control, contribute to improing the operability of our customer's production equipment.

■Daily tasks made easy with a carefully-selected simple screen. ■Adopting PLC TOYOPUC which allows for visualization.

■Abundant visualization features available for maintenance work through connection with a PC.

Select the right HMI for your application※

※ HMI: Human Machine Interface. Used to inform the operator of the machine's status

CNC unit TOYOPUC®-GC70

● : Standard ／□ : Optional

Division	Name	Accessories
Axis control	Min.input increment (0.001mm)	●
	Absolute position detection	●
	Max.control axies 8 axies (including spindle 1 axis)	●
	Inch/metric switch	□
Operation	Single block	●
	Manual handle feed 1 unit	●
	Machine lock	□
	Dry run	□
	Manual handle interrupt	□
Interpolation function	Positioning	●
	Taping mode	●
	Cutting mode	●

Division	Name	Accessories
Interpolation function	Exact stop	●
	Linear interpolation	●
	Arc interpolation	●
	Dwell	●
	Reference point return	●
	Second reference point return	●
	Third and fourth reference point return	●
Program entry	Machine coordinate system	●
	Workpiece coordinate system	●
	Custom marco	●
	Fixed drilling cycle	●
	Optioal stop	●

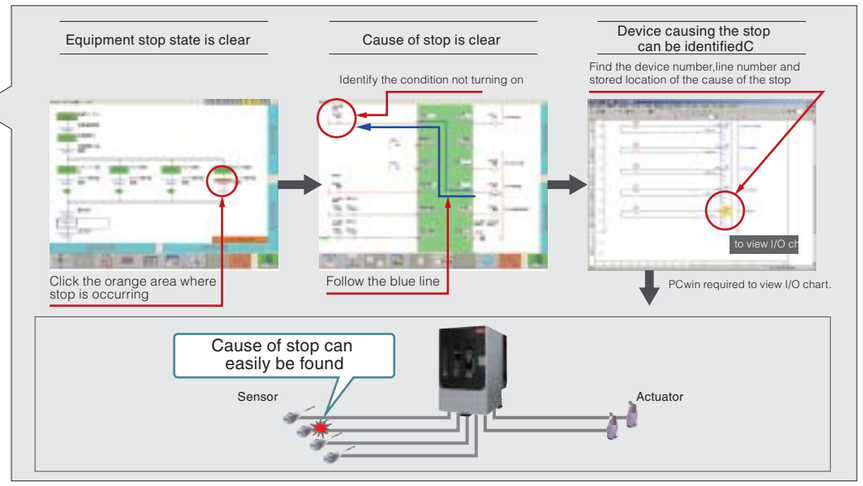
Division	Name	Accessories
Program entry	Optional block skip (9 pieces)	□
Spindle function	Rigid tap	●
Tool function Tool correction function	Tool corrections (40)	●
	Tool diameter compensation	●
	Tool length compensation	●
Editing operation	Program storage capacity 1,024Kbyte	●
	Numble of registered programs 1,000	●
	Background editing	●
Data entry/display	Touch panel control	●
Communication function	Built-in Ethernet	●
PLC	TOYOPUC PC 10EL	●
Operation panel	12.1" color LCD	●
	4.1"color LCDC	□

Abundant visualization features and easy operation for maintenance work

12-inch operation panel

Cause of equipment stop easily found

No drawings or manuals required for investigation



Operation easily understood even the first time

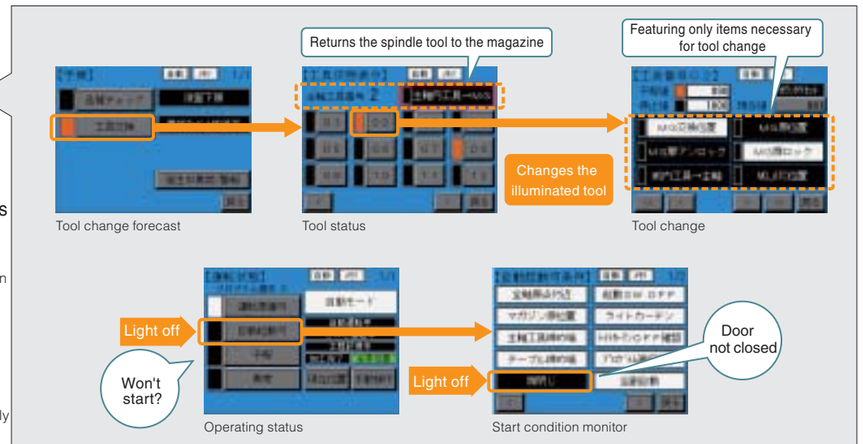
4-inch operation panel

Operation procedures are clear

Improving workability through simple stratification in line with operations

Cause of start failure is clear

Shortening downtime by finding the cause quickly using a condition monitor function



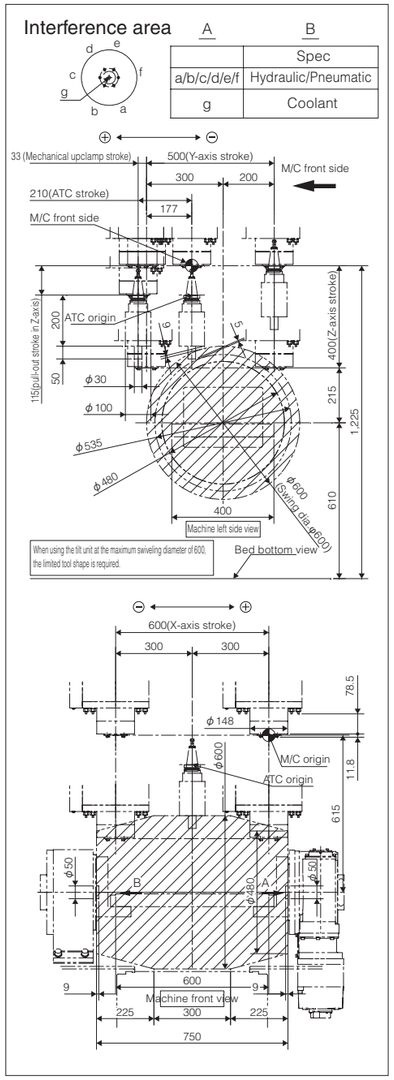
e640V machine specifications

[ ] shows option.

Item		Unit	e640V
Table	Work surface dimensions	mm	600×400
	Pallet height (from floor)	mm	800 (Foundation parts height:190mm)
	Max load on pallet	kg	250
Stroke	X axis (saddle left-right movement)	mm	600 ※1
	Y axis(saddle front-back movement)	mm	500
	Z axis(spindle head up-down movement)	mm	400
	Distance between spindle end and table top face	mm	215～615
Feeds	Rapid feed rate(X.Y and Z)	m/min	48
	Cutting feed rate(X.Y and Z)	mm/min	0.001～24
	Rapid acceleration(X.Y and Z)	m/s²(G)	X, Y=5.88(0.6), Z=9.8(1)
Spindle	Spindle speed	min⁻¹	10,000
	Spindle dia.(front side bearing I.D.)	mm	ϕ70
	Spindle nose shape		BT No.40
	Spindle motor(short-time/continuous)	kW	11/7.5
ATC	Tool holding capacity	tools	22
	Tool selection		Absolute address
	Tool diameter-with adjoining section	mm	ϕ100
	Tool diameter-without adjoining section	mm	ϕ100
	Tool length	mm	250
	Tool mass	kg	5.0
	Tool change time(Tool to Tool) ※2	sec	2.3
	Tool Holder		MAS BT40
	Pulla stud		MAS P40T-1
Dimensions & Weight	Floor space(width x depth)	mm	1,410×2,542 (except coolant unit) ※3
	Machine height	mm	2,670
	Machine weight	kg	5,500
Capacity of each individual type	[Working oil]	L	[10]
	Slide lubricaiton oil	L	2.9
	Spindle lubrication oil		Grease
	Power capacity	KVA	26
	Control voltage	V	DC24
	Air supply capacity	NL/min	400
	Air supply pressure	MPa	0.3
Capacity & Performance	Positioning accuracy ※4	mm	±0.008
	Repeatability ※4	mm	±0.003
Control	CNC		TOYOPUC®-GC70(JTEKT-made)

※1 Mass including the fixture mounting base. ※2 Based on our measuring method.
※3 For details,refer to the layout plan. ※4 According to our inspection method.

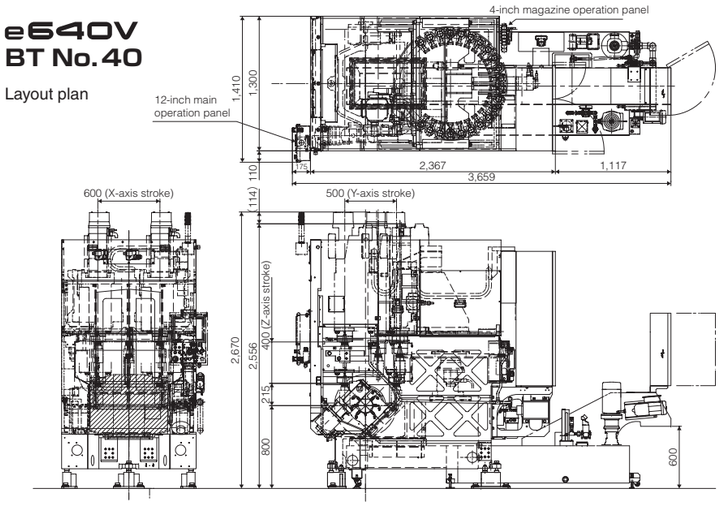
Interference area



Main machine dimensions

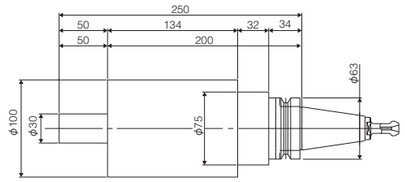
e640V BT No.40

Layout plan



Limitations in tool holder shape (JIS、MAS)

If the maximum tool diameter exceeds 63 mm,please do not set it within 34 mm of the gage line.



Item	Maximum specifications
Tool length	250mm
Tool diameter	ϕ100mm（To gage line 200mm） ϕ30mm（To gage line 250mm）
Tool weight	5kg Unbalance moment at the 5 kg spindle end must be 5N.m or less
Max.moment of tool	0.011kg·m²