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— GLOBAL NETWORK —
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Available machines or machines shown may vary depending on optional equipment or periodic design changes.

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In order to observe laws and regulations and prevent inappropriate export, re-sale and relocation, JTEKT has equipped all of our NC machine tools with devices that detect relocation. If this device is activated, the machine will cease operation and will not restart until it has been checked by JTEKT. JTEKT may refuse to restart the machine should it be deemed that such an action would amount to the inappropriate export of a commodity or technology, or violate export regulations. In such a case, JTEKT will not be liable for any damages arising from the refusal to restart machine operation and do not bear any liability to perform services pertaining to product warranty. Please contact your JTEKT representative for details. Always read manuals carefully before using any machinery to ensure safe and proper use.

Type of Machinery: Grinder
Model Number: GL3i, GL4i

GL3i GL4i SERIES CNC Cylindrical Grinders

GL3Pi
GL3Ai
GL4Pi
GL4Ai
GL4i-SWITCH



CNC Cylindrical Grinders

GL3Pi GL3Ai

GL4Pi GL4Ai

GL4i-SWITCH

The best machine for achieving high accuracy and productivity with simple machine configuration



The photo of this machine is a specification of GL3Pi-25 standard cover. Optional equipment is included in this photo.

The photo of this machine is a specification of GL4Pi-50 standard cover. Optional equipment is included in this photo.

Long-term grinding accuracy

- TOYODA STAT BEARING
- High rigidity, low vibration bed
- High-accuracy feed mechanism
- Low thermal displacement bed
- Heat isolation cover

Consideration of safety, reassurance and workability

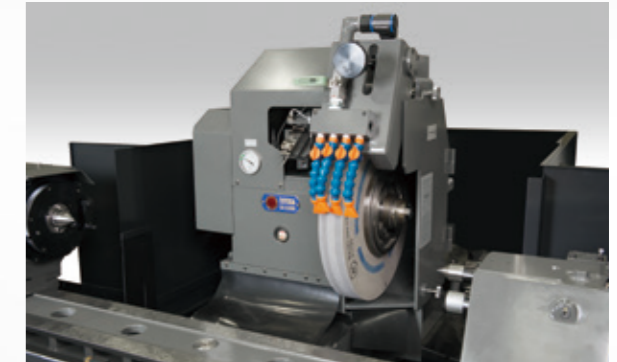
- Excellent workability with a full cover
- HMI TOYOPUC-Touch of the IoT* era

High productivity

- Variety of grinding cycles
- Variety of wheel dressing cycles

*Rather than "IoT", JTEKT utilizes "IoE" ("Internet of Everything"), in which people, objects, information, and services are interconnected.

Economical triple-duty machine



P. 27

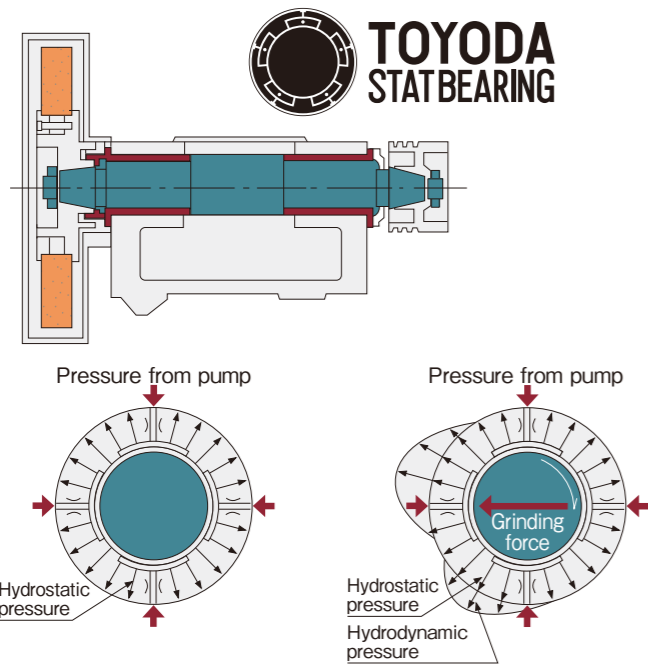
The photo of this machine is a specification of GL4i-100SWITCH standard cover. Optional equipment is included in this photo.



Long-term grinding accuracy

JTEKT's Proprietary TOYODA STAT BEARING

The heart of our wheel spindle is the TOYODA STAT BEARING. This bearing is uniquely designed as a hybrid bearing that combines static and dynamic pressure. Eliminating all metal-to-metal contact in the bearing reduces wear for machining longevity. It also features a highly rigid structure with excellent damping performance, which gives the spindle high rotational accuracy.

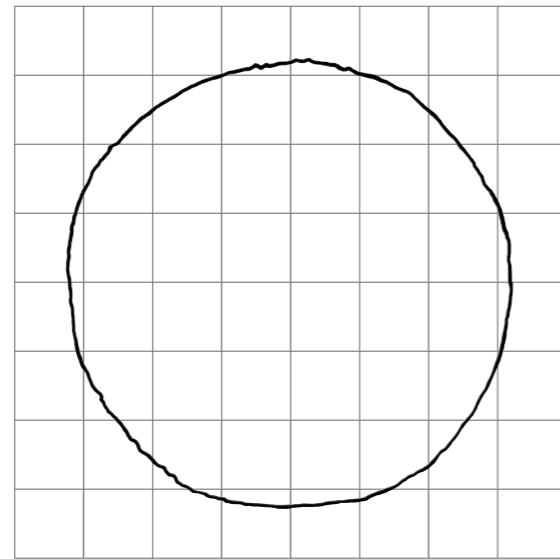


■ Spindle at rest
Hydrostatic pressure lifts and holds the wheel spindle firmly at the bearing center position.

■ Rotation spindle
Combination of hydrostatic and hydrodynamic pressures improves spindle rigidity and vibration absorbing performance.

Wheel spindle rotational accuracy
0.016 μ m

An Example of Lissajou's Figure

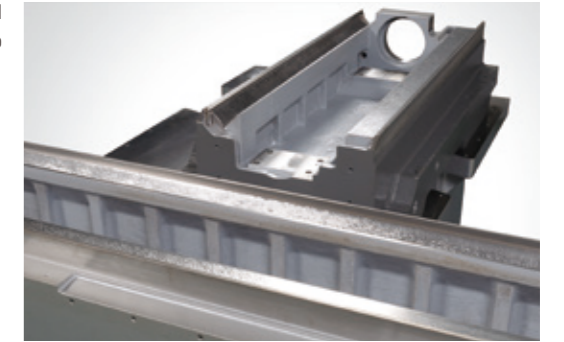


→ 0.2 μ m/DIV



High rigidity, low vibration bed

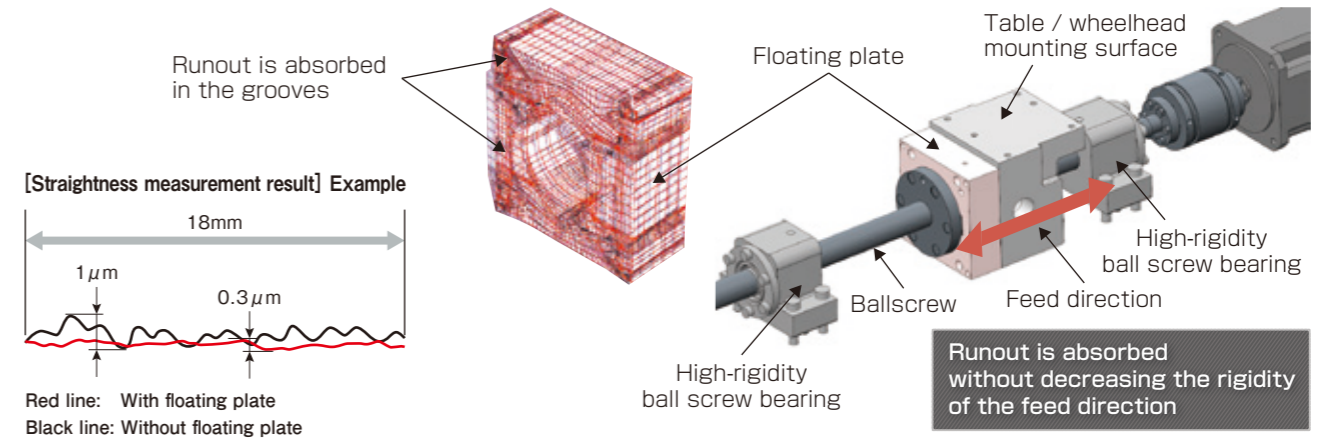
To achieve high-accuracy grinding over a prolonged period, the support bed has been designed and analyzed to provide sufficient rigidity and to suppress unnecessary vibration during grinding.



The photo is GL4i.

High-accuracy feed mechanism

Increased the rigidity of feed direction by supporting the ball screw with high-rigidity bearings. Moreover, a floating plate has been adopted on the wheelhead and table to absorb ballscrew runout. By absorbing runout while maintaining rigidity of the feed direction, high feed accuracy and improved straightness and surface integrity has been achieved.



Master hand scraping

So that our customers may use our machine for an extended period of time with peace of mind, our expert technicians perform "scraping" on both the wheelhead slide and table slide.

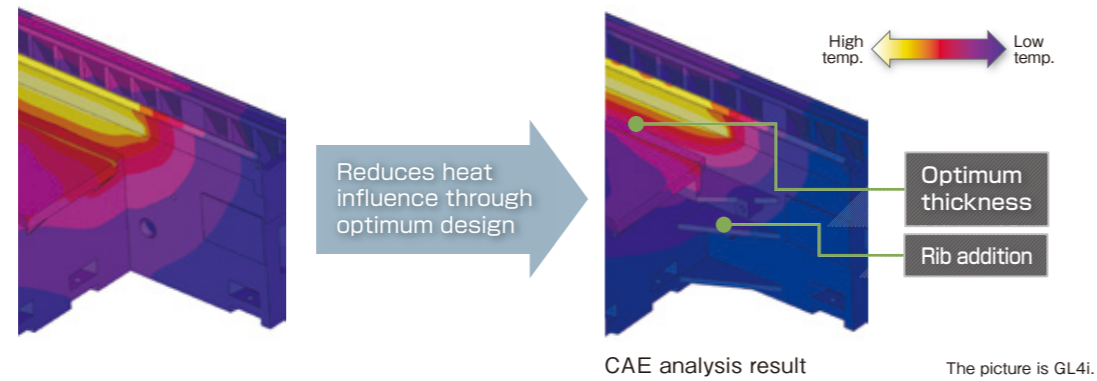
This achieves high straightness, prevents wear of sliding faces and high-accuracy grinding, as well as enables accuracy to be maintained over the long-term.

Moreover, performing scraping on not only sliding portions, but also the upper side of the table and table mating face achieves stable movement of the spindlehead and tailstock, as well as the long-term stability of table swing.

Long-term grinding accuracy

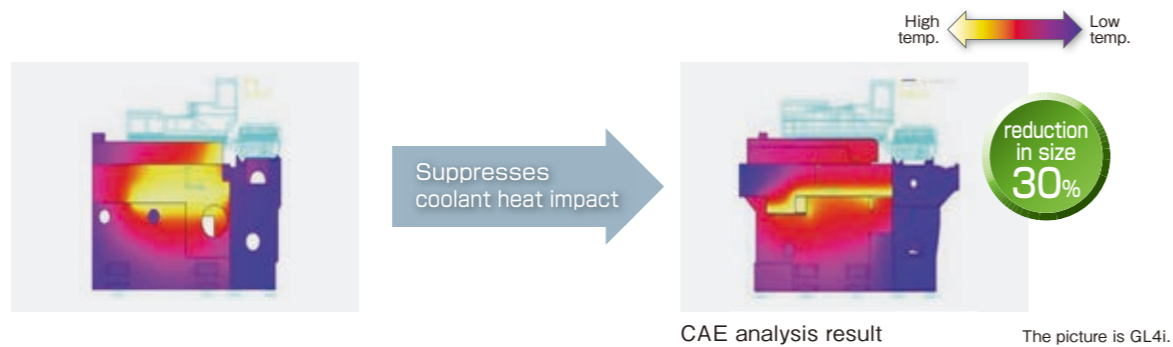
Low thermal displacement bed

Brings ingenuity to the bed shape and rib layout, and minimizes strain caused by room temperature, etc.



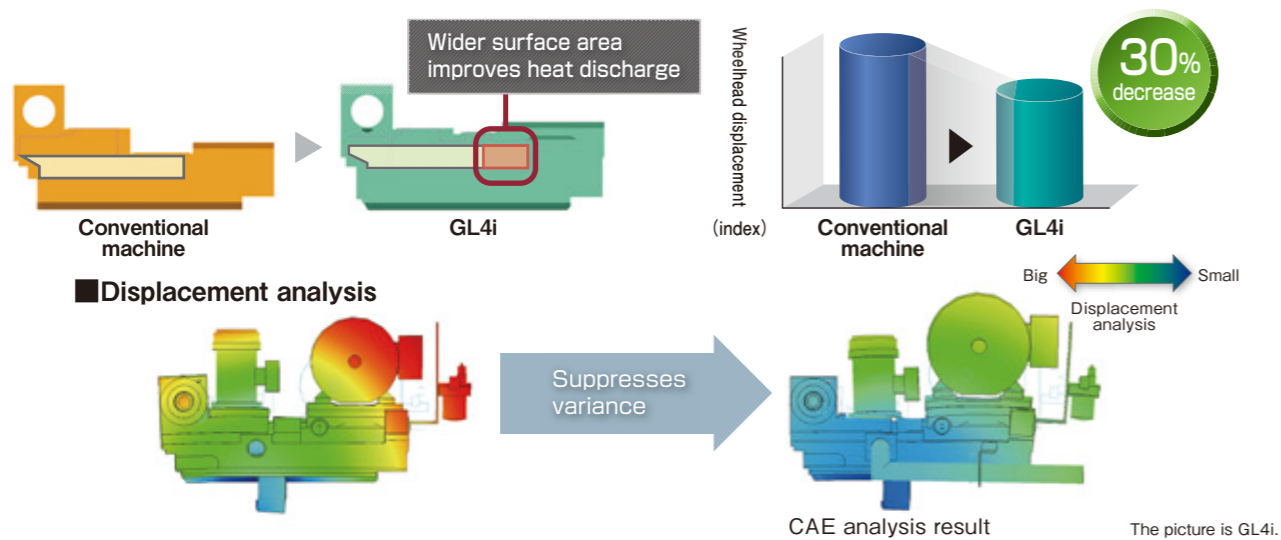
Heat isolation cover

Using CAE analysis, we have achieved a GL4i coolant route that is not easily affected by heat. By adding an isolation cover, a layer of air is created between the bed and the coolant route, which reduces the amount of heat that is transferred to the bed.



Wheel spindle with improved heat-release properties

The GL4i wheelhead's heat release property reduces the temperature elevation of the bearing oil. The installation of an air type wheel spindle bearing lubricant fan reduces the temperature elevation of the bearing oil.

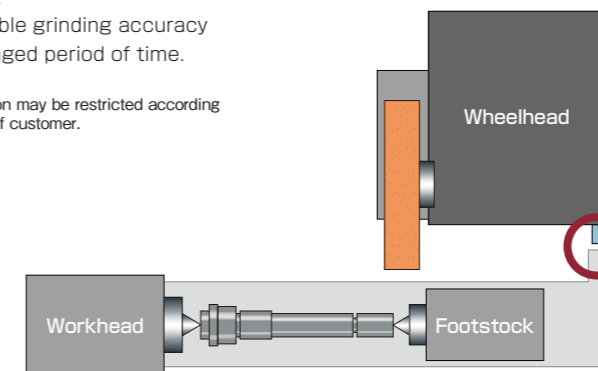


Thermal displacement correction sensor * Only GL3Pi, GL4Pi

Option

A contact-type sensor compensates for thermal displacement due to the day-to-day variance in machine temperature. This reduces the warm-up time of the machine. Maintain stable grinding accuracy over a prolonged period of time.

* The specification may be restricted according to the tooling of customer.



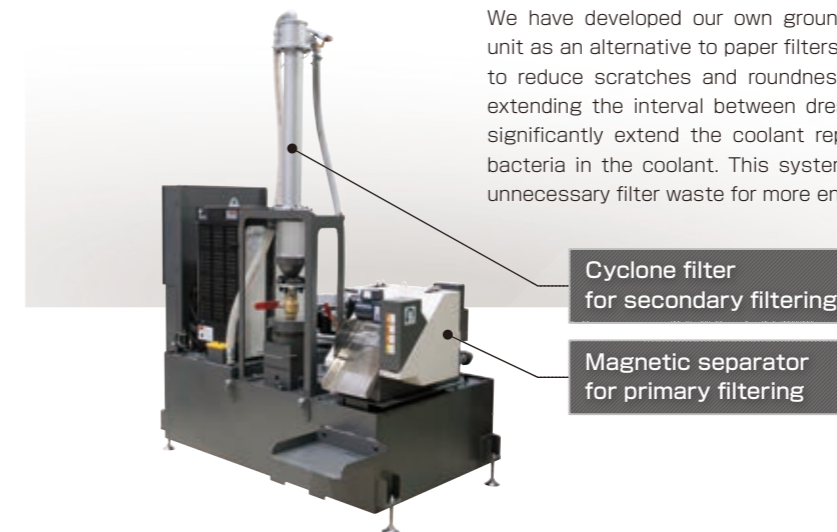
The photo is GL4i.

High cleanliness type coolant supply unit

Option

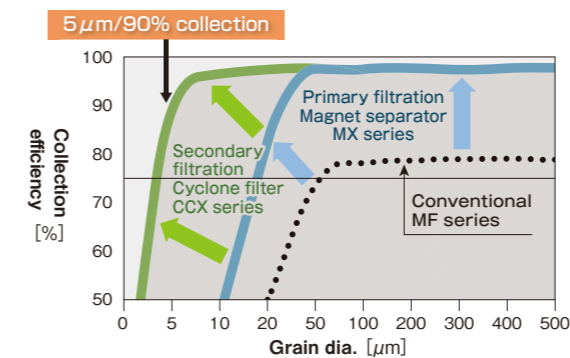
We have developed our own groundbreaking, high-cleanliness type coolant supply unit as an alternative to paper filters. Achieving a cleanliness of 5 ppm*, it is possible to reduce scratches and roundness defects, as well as reduce running costs by extending the interval between dressings. Furthermore, it has become possible to significantly extend the coolant replenishment cycle by minimizing the amount of bacteria in the coolant. This system adopts the cyclone method, which eliminates unnecessary filter waste for more environmentally friendly machining.

5 ppm: Equivalent to 5 mg in 1 liter of coolant fluid.



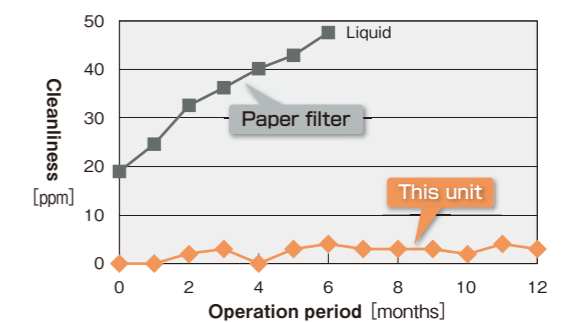
High filtering performance of 5ppm

Reliable collection of minute chips.



Stable filtering accuracy

Cleanliness is improved and stable at around 5ppm.



For customers pursuing even higher accuracy

Multiple accuracy package options to fit your needs

* GL4i-SWITCH cannot be selected

1 Standard package

Standard base specifications

TOYODA STAT BEARING
Floating plate
Isolation cover, etc.

1. Wheel spindle bearing oil pump unit on the wheelhead, wheel spindle bearing oil fan cooler (cooling air type)
2. Coolant supply unit (150 L*1)

2 High-accuracy support package A

Standard base specifications

TOYODA STAT BEARING
Floating plate
Isolation cover, etc.

1. Wheel spindle bearing oil pump unit (separate installment)
Wheel spindle bearing oil cooler (separate installment)
2. Coolant supply unit (350 L*2, washing pump, coolant cooling, magnetic separator processing ability: 80 L/min*3 (ferrite type))
3. Bed/table washing
4. Cooling of wheelhead and workhead coolant

3 High-accuracy support package B

Standard base specifications

TOYODA STAT BEARING
Floating plate
Isolation cover, etc.

1. Wheel spindle bearing oil pump unit (separate installment)
Wheel spindle bearing oil cooler (separate installment)
2. Coolant supply unit (350 L*2, washing pump, coolant cooling, magnetic separator processing ability: 80 L/min*3 (ferrite type))
3. Bed/table washing
4. Cooling of wheelhead and workhead coolant

1. Servo motor cooling
 2. Wheelhead linear scale
 3. Thermal displacement correction sensor
- * Only P (straight type)

Standard package

- Standardly equipped with low thermal displacement bed, isolation cover, coolant route optimization*4, etc., and other features for stabilizing accuracy.

High-accuracy support package A

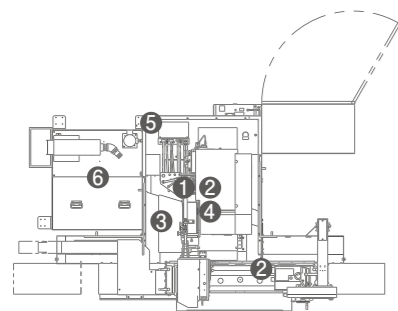
- For customers pursuing even higher accuracy, we recommend this package for faster dimensional stabilization and for a decrease in warm-up time.
- Suppresses torsion through cooling of the workhead and improves cylindricity.

High-accuracy support package B

- For customers pursuing an even higher level of accuracy, we recommend this package, which assists in maintaining stable dimensional accuracy from a cold start.
- Prolonged traverse grinding has been optimized with the use of highly accurate linear scales.

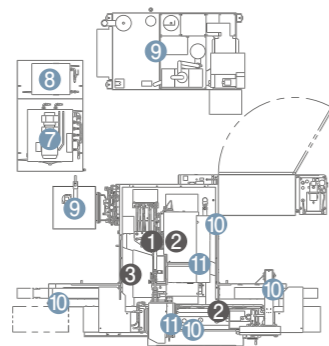
Standard package

- ① TOYODA STAT BEARING
- ② Floating plate
- ③ Isolation cover
- ④ Wheel spindle bearing oil pump unit on the wheelhead
- ⑤ Wheel spindle bearing oil fan cooler (cooling air type)
- ⑥ Coolant supply unit (150 L*1)



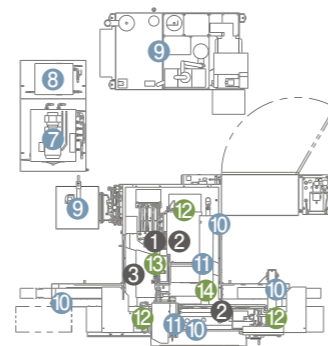
High-accuracy support package A

- ⑦ Wheel spindle bearing oil pump unit (separate installment)
- ⑧ Wheel spindle bearing oil cooler (separate installment)
- ⑨ Coolant supply unit (350 L*2)
- ⑩ Bed/table washing
- ⑪ Cooling of wheelhead and workhead coolant



High-accuracy support package B

- ⑫ Servomotor cooling
 - ⑬ Wheelhead linear scale
 - ⑭ Thermal displacement correction sensor
- * Only P (straight type)



*1: GL3i: 100L *2: GL3i: 150L *3: GL3i: 40L/min *4: only for GL4i

Layout example for GL4i

Consideration of safety, reassurance and workability

Excellent workability with a full cover

Option

A wide opening for increased workability

The door on the front of the machine has been made larger to allow for better workpiece proximity, making it possible to work in a comfortable position. By allowing the top of the machine to open, crane operation is safer when loading and unloading large workpieces.



Machine front window with excellent visibility

Provides a window achieving visualization of work inside the machine.



Simplification of wheel replacement

The wheel is more accessible, which allows the operator to replace the wheel more easily and without any unnecessary strain.



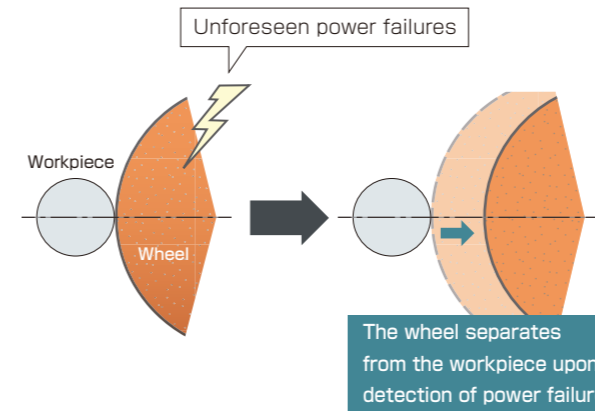
The photo is GL4i.



Safety support functions

Ensuring safety during power failures

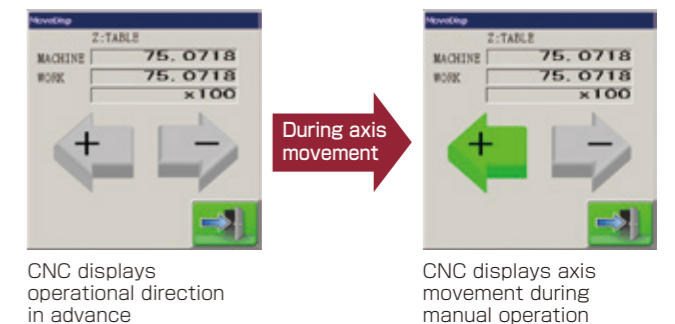
A standard machine feature retracts the wheel from the workpiece upon detection of power failure to prevent damage of the wheel and workpiece.



* Separation distance: φ1mm

Prevention of erroneous manual operations

A support function prominently displays axis direction, ensuring that the wheel will not interfere with the workpiece due to mistaken operation direction.

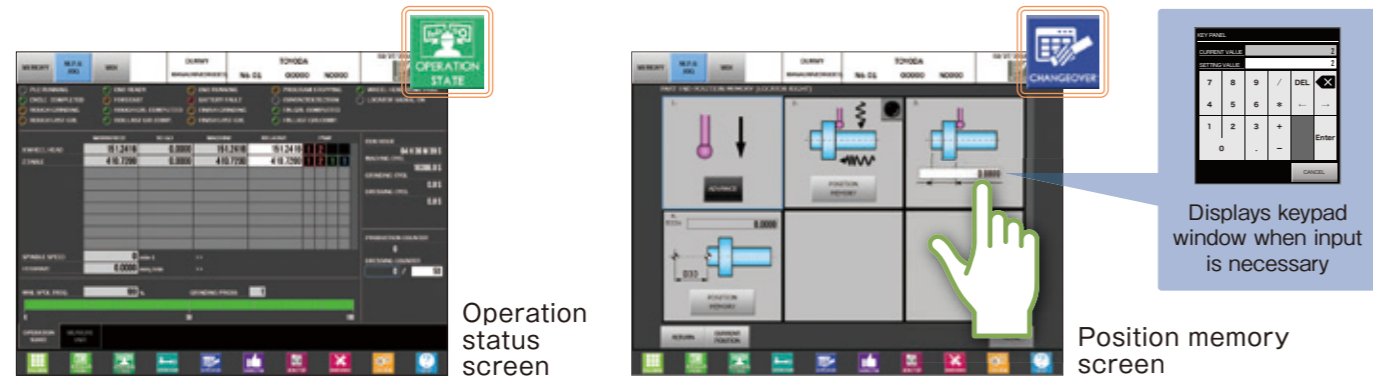


CNC displays operational direction in advance

CNC displays axis movement during manual operation

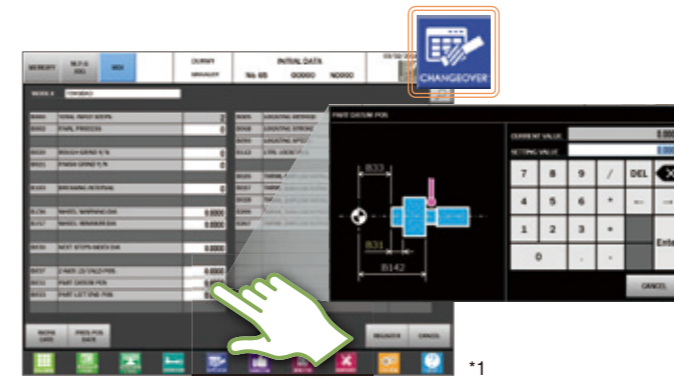
Visible and effective operation thanks to batch data display

A 25% larger display has made it possible to concentrate information on one screen and display the required key panel when necessary



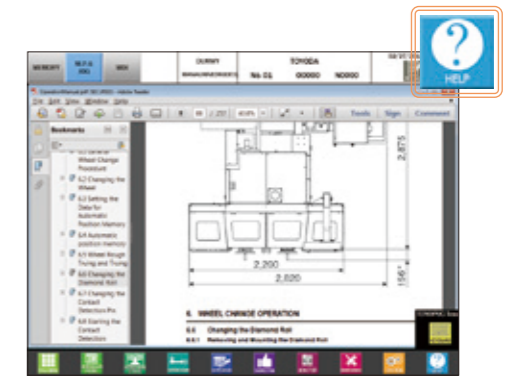
Assists work during setting of workpiece data

Workpiece data can be edited with an instruction display



Manual display on the operation panel

The manual can be read on the operation screen and a key word search function makes it possible to extract the target information



HMI in the IoE era - Simple, safe and connectable -

TOYOPUC-Touch



Minimized frequency of screen calling operations

Iconized menu enables screen calling from any screen in a maximum of two operations



Realization of simple operation

Screen swiping and pinching in/out mimics the operability of a smart phone, making the TOYOPUC-Touch easy to use and easy to learn



Visualization of equipment status

Supports operations performed at customer work sites with functions that visualize equipment status

Visualization of inspection - Periodic inspection function -



Clarifies inspection timing and supports accurate inspections

- Clarification of inspection timing
- Registration of completed past inspections / measurement results

Visualization of status - Equipment monitor -



Supports production improvement with graphs showing previous operation and machining results

- ON/OFF status of devices can be viewed without having to check devices directly
- Internal ladder circuits can also be viewed easily

Visualization of energy - Energy monitoring - Option



Supports energy saving activities by visualizing energy usage

- Current energy usage can be compared with past energy usage of the selected period
- Effects of enabling/disabling energy saving settings can be viewed

Visualization of longevity - Longevity management function -



Supports scheduled maintenance with notification functions that tracks the life of a part.

- Notifies the user of inspections for parts that are close to the end of its lifecycle.
- Minimizes machine stop time through preventive inspection / part preparation

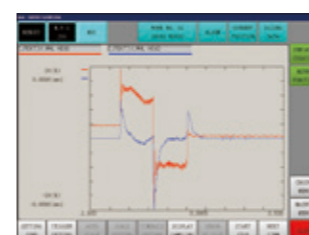
Visualization of performance - Operation monitor -



Supports production control and improvement via graphs showing past operation performance / machining performance

- Performance can be viewed easily on graphs and tables, and data entry is also possible
- Current performance can be compared with past performance of the selected period

Visualization of servo status - servo sampling function -



Enables equipment status to be confirmed and supports countermeasures

- Enables the recording and display of sampling data such as current, position deviation and speed
- A normal value comparison function helps the recovery and diagnosis of machine faults

Rapid support in remote operation Option

Accurate support reducing fault recovery time



Support provided whenever required by the customer

Connects to equipment in real time

*1: Information on ID/Password

*2: Remote access

TOYODA Recovery support Equipment diagnosis



*1: A production machine-support screen is available as an option.

High productivity

Variety of grinding cycles, wheel dressing cycles

Achieves high accuracy in simultaneous 2-axis feed by utilizing a floating plate which absorbs the run out of the feed screw.

Version A for GL3Pi, GL3Ai, GL4Pi, GL4Ai

Grinding cycles

Standard

	Straight type	Angular type
Grinding cycles	1. Direct sizing plunge 2. Indirect sizing plunge 	1. Direct sizing plunge 2. Indirect sizing plunge
		3. Direct sizing plunge with shoulder 4. Indirect sizing plunge with shoulder
Grinding cycles	3. Direct sizing traverse 4. Indirect sizing traverse 	5. Direct sizing traverse 6. Indirect sizing traverse
		7. Direct sizing traverse with shoulder 8. Indirect sizing traverse with shoulder

Optional accessory

Grinding cycles	5. Direct sizing plunge with R 6. Indirect sizing plunge with R 	9. Direct sizing plunge with R (shoulder) 10. Indirect sizing plunge with R (shoulder)
	7. Direct sizing traverse with R 8. Indirect sizing traverse with R 	11. Direct sizing traverse with R (shoulder) 12. Indirect sizing traverse with R (shoulder)
Grinding cycles	9. Taper 	13. Taper 14. Convex R
	10. Convex R 	

Wheel dressing cycles

Standard

	Straight type	Angular type
Wheel dressing	Right cut-in NC forming (25 points or less) Left cut-in NC forming (25 points or less) Example of 6-point forming 	NC forming (25 points or less) Example of 9-point forming

Version B for GL4Pi

Grinding cycles

Optional accessory

	Straight type	
Grinding cycles	1. Direct sizing plunge 2. Indirect sizing plunge 	7. Direct sizing plunge with R 8. Indirect sizing plunge with R
	3. Right face 	9. Direct sizing traverse with R 10. Indirect sizing traverse with R
Grinding cycles	4. Left face 	11. Taper
	5. Direct sizing traverse 6. Indirect sizing traverse 	12. Convex R

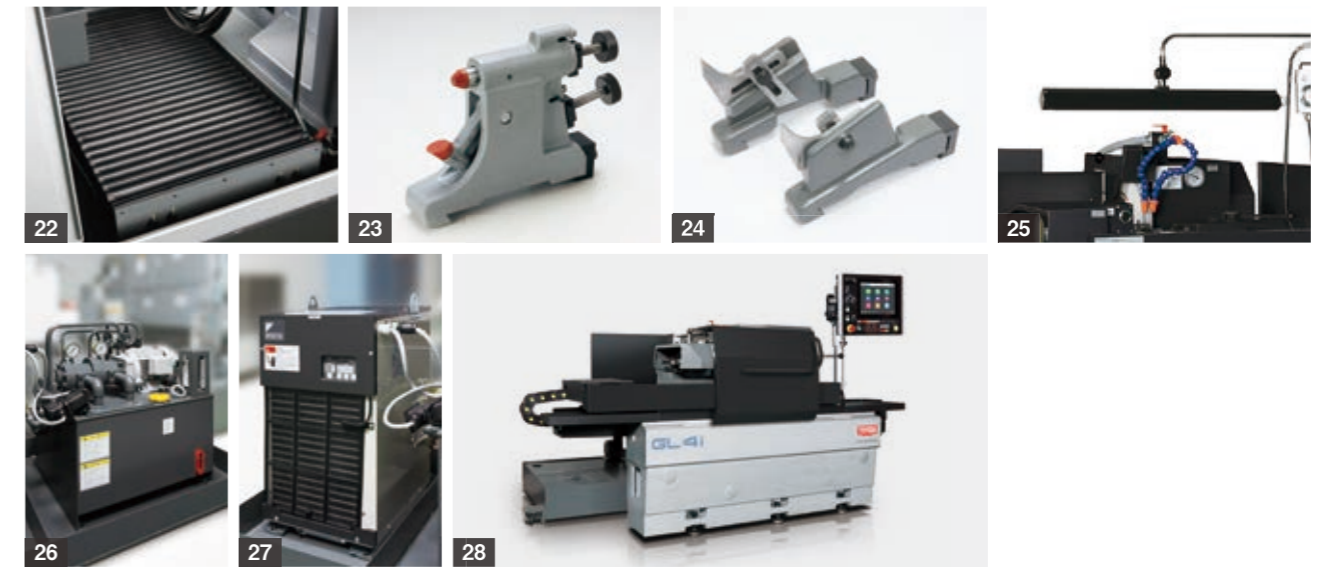
Wheel dressing cycles

Optional accessory

	Straight type			
Wheel dressing cycles	Straight 	Taper flat type 	Concave type with taper on both sides 	Concave type with R on both side
	Concave type with taper on left side 	Concave type with R on left side 	Concave type with taper on right side 	Concave type with R on right side
	Right cut-in NC forming (15 points or less) Left cut-in NC forming (15 points or less) Example of 6-point forming 			

Select version A (for production) as the CBN wheel specification.

Main accessories (GL3i, GL4i)



Category	No.	Name
Workhead	1	Dead spindle workhead with infinitely variable speed
	2	Live / dead spindle workhead op
Footstock	3	Manual footstock
	4	Manual footstock with manual center distance adjustment op
	5	Manual footstock with manual taper adjustment & manual center distance adjustment op
Wheel Dresser	6	Wheel dresser (traverse table mounted on workhead rear section)
	7	Formed diamond tool op
Wheel-related	8	Single-point diamond tool op
	9	Wheel balancing arbor op
Coolant supply unit Magnetic separator	10	Wheel balancing stand op
	11	Coolant supply unit (150L)
	12	Coolant unit with magnetic separator and paper filter (300 L processing ability: 40 L/min) op
	13	High cleanliness type coolant supply unit op
	14	Magnetic separator (processing capacity 40L/min) op

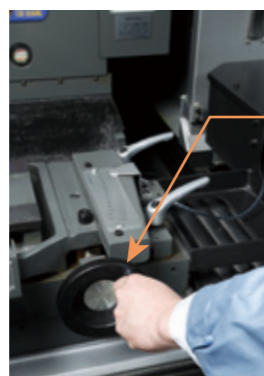
Category	No.	Name
Lateral locator	15	Auto-sizer for cylindrical op
	16	Lateral locator (mounted on the wheel cover) op
Driving dog	17	Driving dog (φ5~φ50mm, φ50~φ80mm, φ80~φ190mm) op
	18	Automatic dog (φ5~φ45mm, φ45~φ80mm) op
Chuck Center	19	3-jaw scroll chuck (4", 5", 6", 7", 9" available) op
	20	Independent 4-jaw chuck (4", 6", 8", 10" available) op
	21	Carbide-tipped center (MT No.4)
Others	22	Table end cover (bellows type) op
	23	2-point manual steady rest (φ10~φ100mm, φ100~φ200mm) op
	25	Workpiece temp. stand (one each R and L φ10~φ120mm) op
	26	Lighting unit (LED / fluorescent type) op
	27	Wheel spindle bearing oil pump unit (separate installment) op
	28	wheel spindle bearing oil cooler (separate installment) op
	29	Manual open/close type front cover op

Photos and accessories are for GL4i. **op** is special specifications

Digital display of taper angle adjustment amount

Option

A sensor has been installed on the swivel table to provide digital display and make it possible to detect the current position of swivel table tilt. This simplifies the setup changeover work due to taper angle difference.



The photo is GL4i.

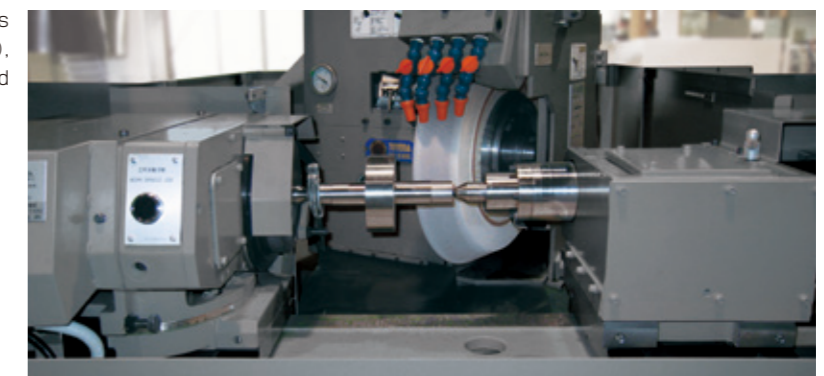


This photo is for illustration purposes only.

φ400mm over-table swing Only GL4i

Option

For those customers wanting to grind workpieces with a large swing (e.g. large gear parts, etc.), we have prepared a machine with an increased swing of φ400mm



Depending on the shape of the workpiece and specifications of the machine, there may be cases where this amount of swing is not possible. Please confirm with our sales department.

List of accessories (GL3i)

Category	No.	Unit name	Remarks	GL3Pi	GL3Ai
Table	1	Table swivel unit		●	●
	2	Table swivel angle sensor Digital display	*1	□	□
	3	Table end cover (fixed type)		●	●
	4	Table end cover (bellows type)	Reduced machine width specification	○	○
	5	Table front Fixed cover		●	●
	6	Insert type Front cover		□	□
	7	Manual open / close type Front cover	No confirmation device, no windows	○	○
	8	Manual open / close type Front cover (door close confirmation device)	No windows	○	○
	9	Automatic open / close type Front cover (air type, door close confirmation device)	*2 No windows	○	○
	10	Addition of windows		□	□
Workhead	11	Dead spindle workhead with infinitely variable speed		●	●
	12	Live / dead spindle workhead (infinitely variable speed, swiveling)	*3 Maximum live spindle load: 10 kg (including workpiece and workpiece holder)	○	○
	13	Carbide-tipped center (MT No. 2)		●	●
	14	Spindle inching button (on the workhead)	Cannot be attached to a special workhead	□	□
	15	Spindle in-position stop unit (proximity type switch)		□	□
Footstock	16	Manual footstock	Manual lever type: 25mm stroke	●	●
	17	Manual footstock with manual taper adjustment	Manual lever type: 25mm stroke	○	○
	18	Manual footstock with manual center distance adjustment	Manual lever type: 25mm stroke Center distance adjustment: 100mm	○	○
	19	Hydraulic footstock	*4, 5 Hydraulic type: 20mm stroke Manual lever type: 25mm stroke	○	○
	20	Carbide-tipped center (MT No. 2)		●	●
	21	Pedal operation	*6	□	□
	22	Confirmation device (center fully advanced position, fully returned position, no workpiece)	*6	□	□
Wheelhead	23	30m/s wheel surface speed one speed specification	2.2kW wheel spindle motor	●	●
	24	45m/s wheel surface speed one speed specification	3.7kW wheel spindle motor	○	○
	25	Wheel surface speed variable speed unit (inverter control [deceleration only], manual adjustment)		□	□
	26	Wheel spindle overload detection		□	□
	27	Wheel for 33m/s surface speed	Wheel width 38mm	●	●
	28	Wheel for 45m/s surface speed	Wheel width 38mm	○	○
	29	Wheel flange (round nut: 15~38mm in width)	1 set	●	●
	30	Wheel flange (round nut: 25~50mm in width)		□	□
Pump unit	31	Lubricant pump unit (6L)	No confirmation device for no oil	●	●
	32	Lubricant pump unit (6L)	With confirmation device for no oil	○	○
	33	Hydraulic oil pump unit (10L)	No confirmation device for no oil	□	□

*1: 100V power required. *2: Pneumatic device is required. It is unnecessary when linear scale pneumatic device is attached. *3: Workhead position change is necessary when operating the machine by swiveling the workhead, as the workhead interferes with the wheel dresser mounted on the traverse table. *4: Hydraulic oil pump unit is required. *5: No confirmation device. *6: Possible to accessorize this when accessorizing hydraulic type footstock. *7: Coolant cooling cannot be equipped. Please select a tank of 150 L or more. *8: Auxiliary tank for pumping is equipped.

(When an optional A accessory is chosen, the corresponding standard one is not supplied.)

●: Standard accessory ○: Optional A accessory □: Optional B accessory ×: Not available

Category	No.	Unit name	Remarks	GL3Pi	GL3Ai
Coolant supply unit	34	Coolant supply unit (100L)	*7 Without washing pump	●	●
	35	Coolant supply unit (150L)	Without washing pump	○	○
	36	Coolant supply unit (230L)	Without washing pump	○	○
	37	Coolant supply unit with paper filter (200L tank, 40L/min processing capacity)	*8 Without washing pump	○	○
	38	High cleanliness type coolant supply unit K100 Cleanliness: 5 ppm (48L collection tank, 190L primary tank, 260L secondary tank, magnet separator with 120L/min processing capacity, cyclone attached)	*8 With washing pump With coolant cooling function With lower limit confirmation device	○	○
	39	Magnetic separator ferrite type (select either 40L/min or 80L/min processing capacity)	*9	□	□
	40	Magnetic separator rare earth type (select either 40L/min or 80L/min processing capacity)	*9	□	□
	41	Coolant cooling unit (separate)	Washing pump required	□	□
	42	Caster for coolant unit	Includes stopper	□	□
	43	Coolant lower limit confirmation device		□	□
	44	Washing pump		□	□
	45	Base, table washing	*9 Washing pump required	□	□
	46	Auto-sizer cooling	Washing pump required	□	□
	Wheel dresser	47	Wheel dresser (traverse table mounted on workhead rear section)		●
48		Formed diamond tool (shank diameter: 8mm)		□	□
49		Single-point diamond tool (shank diameter: 8mm)	Includes only P (straight type)	□	×
Tool	50	Tools (special-purpose tools)		●	●
	51	Tools (wrench / spanner)		□	□
	52	Wheel balancing arbor / Wheel balancing stand	Special-purpose wheel balance stand specific to wheel diameter is required	□	□
Steady rest	53	Manual steady rest (φ6~φ40mm)		□	□
Driving dog	54	Driving dog (φ5~φ50mm)		□	□
	55	Automatic dog (φ5~φ45mm)		□	□
Chuck	56	3-jaw scroll chuck (3")	*10, 11	□	□
	57	Independent 4-jaw chuck (4")	*10, 11	□	□
	58	4-slot face plate (φ120mm)	*10	□	□
Work holder	59	Workpiece holder (one each for R and L φ5~φ50mm)		□	□
Auto sizer	60	Auto-sizer for OD (3P, φ5~φ60mm)	*4 JTEKT-made, CNC built-in amplifier	□	□
	61	Spline auto-sizer for OD (3P, with retract, φ5~φ60mm)	*2, 4 JTEKT-made, CNC built-in amplifier	□	□
Lateral locator	62	Automatic lateral locator (mounted on the wheelhead)	*4	□	□
Pneumatic-related	63	Pneumatic device		□	□
Mist collector	64	Mist collector 1 set		□	□

*9: Processing capability of approximately 1L/m for every 1mm of wheel width. Select a magnetic separator appropriate to the wheel width and coolant washing level. Also, select the 80L/min specification if base and table washing is to be carried out. When you select the 80 L/min specification, select a coolant system with a capacity of 150 L or more. *10: Requires spindlehead with a dual-purpose live and dead spindle. *11: The chuck cover and wheel may interfere during wheel dressing depending on the wheel shape. Confirm possibility of interference prior to conducting wheel dressing. *12: If you would like the automatic open/close type, please consult with our sales department.

List of accessories (GL3i)

(When an optional A accessory is chosen, the corresponding standard one is not supplied.)

●: Standard accessory ○: Optional A accessory □: Optional B accessory ×: Not available

Category	No.	Unit name	Remarks	GL3Pi	GL3Ai
CBN supported	65	CBN wheel specifications	Includes only P (straight type)	□	×
Control unit	66	Manual pulse generator (mounted on operation panel)		●	●
	67	Spindle start-up / spindle stop / spindle inching switch (on the operation panel screen)		●	●
	68	One USB flash drive for TOYOPUC-GC70 (JTEKT-made, backup data entered)		●	●
	69	USB flash drive for TOYOPUC-GC70 (JTEKT-made)		□	□
	70	100V power		□	□
	71	100V outlet (mounted inside of control box)	*1	□	□
	72	Signal tower - 3 color specification		□	□
	73	Electrical leak breaker		□	□
	74	Cabinet interior lighting		□	□
	75	Automatic power isolation		□	□
Overseas supported	76	Manual door close confirmation device enable / disable switch	Manual door close confirmation device is required	□	□
	77	Lighting unit (LED / fluorescent type)		□	□
	78	Lighting unit (LED / spotlight type)		□	□
Machine color	79	Multilanguage support	Please consult with us regarding available languages.	□	□
	80	Supporting different voltage		□	□
Customer's run off test	81	JTEKT standard paint color (silver metallic, dark gray metallic, dark gray)		●	●
	82	Specified color other than JTEKT's standard specified color Machine body only 1 color		○	○
Instruction manual	83	JTEKT's standard TP grinding		□	□
	84	Machine specifications, operation manual, maintenance manual, electric control drawings - 1 copy each (CD)	Submitted in CD form	●	●
Full cover	85	Machine specifications, operation manual, maintenance manual, electric control drawings - 1 copy each (bound)	Will bind and deliver	□	□
	86	Full-cover specifications	*12 Manual open / close type	○	○
High-accuracy support	87	Door close confirmation device	*12 Manual open / close type	□	□
	88	Wheelhead linear scale	Requires pneumatic device	□	□
	89	Table linear scale	Requires pneumatic device	□	□
	90	Linear scale pneumatic device		□	□
	91	Thermal displacement correction sensor Distance sensor between wheelhead and table	*2 Includes only P (straight type)	□	×
	92	Wheel spindle bearing oil fan cooler		●	●
	93	Wheel spindle bearing oil pump unit (separate installment) + wheel spindle bearing oil cooler (separate installment)		○	○
High-accuracy support	94	Wheel spindle bearing oil pump unit (separate installment) + wheel spindle bearing oil cooler (separate installment) + servo motor cooler		○	○
	95	Wheelhead / workhead coolant cooler (cooling with coolant)	Coolant supply unit with coolant cooling is required	□	□

*1: 100V power required. *2: Pneumatic device is required. It is unnecessary when linear scale pneumatic device is attached. *3: Workhead position change is necessary when operating the machine by swiveling the workhead, as the workhead interferes with the wheel dresser mounted on the traverse table. *4: Hydraulic oil pump unit is required. *5: No confirmation device. *6: Possible to accessorize this when accessorizing hydraulic type footstock. *7: Coolant cooling cannot be equipped. Please select a tank of 150 L or more. *8: Auxiliary tank for pumping is equipped. *9: Processing capability of approximately 1L/m for every 1mm of wheel width. Select a magnetic separator appropriate to the wheel width and coolant washing level. Also, select the 80L/min specification if base and table washing is to be carried out. When you select the 80 L/min specification, select a coolant system with a capacity of 150 L or more. *10: Requires spindlehead with a dual-purpose live and dead spindle. *11: The chuck cover and wheel may interfere during wheel dressing depending on the wheel shape. Confirm possibility of interference prior to conducting wheel dressing. *12: If you would like the automatic open/close type, please consult with our sales department.

CNC specifications

Category	No.	Name	GL3i
CNC cycle	1	Version A Standard cycle Refer to P. 11 Version A cycle	●
	2	Version A Optional grinding cycle Refer to P. 11 Version A cycle.	□
	3	Version B Optional cycle Refer to P. 12 Version B cycle.	×
CNC specification	4	NC data format input	□



When the linear scale is equipped, the model name becomes GL3i-L.

List of accessories (GL4i)

(When an optional A accessory is chosen, the corresponding standard one is not supplied.)

●: Standard accessory ○: Optional A accessory □: Optional B accessory ×: Not available

Category	No.	Unit name	Remarks	GL4Pi	GL4Ai
Table	1	Table swivel unit		●	●
	2	Table swivel angle sensor Digital display	*1, 2	□	□
	3	Table end cover (fixed type)		●	●
	4	Table end cover (bellows type)	Reduced machine width specification	○	○
	5	Table front Fixed cover		●	●
	6	Insert type Front cover		□	□
	7	Manual open / close type Front cover	No confirmation device, no windows	○	○
	8	Manual open / close type Front cover door (door close confirmation device)	No windows	○	○
	9	Automatic open / close type Front cover (air type, door close confirmation device)	*3, 4 No windows	○	○
	10	Addition of windows		□	□
	11	Swing on table φ400 mm support		□	□
Workhead	12	Dead spindle workhead with infinitely variable speed		●	●
	13	Live / dead spindle workhead (infinitely variable speed, swiveling)	*5 Maximum live spindle load: 40kg (including workpiece and workpiece holder)	○	○
	14	Carbide-tipped center (MT No.4)		●	●
	15	Spindle inching button (on the workhead)	Cannot be attached to a special workhead	□	□
	16	Spindle in-position stop unit (proximity type switch)		□	□
Footstock	17	Manual footstock	Manual lever type: 25mm stroke	●	●
	18	Manual footstock with manual taper adjustment	Manual lever type: 25mm stroke	○	○
	19	Manual footstock with manual center distance adjustment	Manual lever type: 25mm stroke Center distance adjustment: 160mm	○	○
	20	Manual footstock with manual taper adjustment & manual center distance adjustment	Manual lever type: 25mm stroke Center distance adjustment: 160mm	○	○
	21	Hydraulic footstock	*6, 7 Hydraulic type: select either 20mm or 60mm stroke	○	○
	22	Hydraulic footstock with manual taper adjustment	*6, 7 Hydraulic type: 60mm stroke	○	○
	23	Hydraulic footstock with manual center distance adjustment	*6, 7 Hydraulic type: select either 30mm or 60mm stroke Center distance adjustment: 160mm	○	○
	24	Hydraulic footstock with manual taper adjustment & manual center distance adjustment	*6, 7 Hydraulic type: select either 30mm or 60mm stroke Center distance adjustment: 160mm	○	○
	25	Automatic center distance adjustment type footstock (with confirmation device)	NC: 190 mm stroke	○	○
	26	Automatic center distance adjustment type footstock (with taper adjustment, with confirmation device)	NC: 190 mm stroke	○	○
	27	Carbide-tipped center (MT No.4)		●	●
	28	Pedal operation	*8	□	□
	29	Confirmation device (center fully advanced position, fully returned position, no workpiece)	*8, 9	□	□
	30	Footstock weight air reduction unit	*3	□	□
Wheelhead	31	33m/s wheel surface speed one speed specification	3.7kW wheel spindle motor	●	●
	32	33m/s wheel surface speed two-speed specification	3.7kW wheel spindle motor	○	○
	33	45m/s wheel surface speed one speed specification	5.5kW wheel spindle motor	○	○
	34	45m/s wheel surface speed two-speed specification (excess surface speed prevention device)	5.5kW wheel spindle motor	○	○
	35	Wheel surface speed variable speed unit (inverter control [deceleration only], manual adjustment)	* Cannot be used in combination with the 45 m/s wheel surface speed and two-speed specification	□	□

*1: 100V power required. *2: For mounting when the distance between centers is 2000, please consult with our sales department. *3: Pneumatic device is required. It is unnecessary when linear scale pneumatic device is attached. *4: Not available for GL4i-150 and GL4i-200. *5: Workhead position change is necessary when operating the machine by swiveling the workhead, as the workhead interferes with the wheel dresser mounted on the traverse table. *6: Hydraulic oil pump unit required. *7: No confirmation device. *8: Able to be equipped when equipping the hydraulic footstock. *9: Not available for 20 mm hydraulic stroke. *10: Auxiliary tank for pumping is equipped.

Category	No.	Unit name	Remarks	GL4Pi	GL4Ai
Wheelhead	36	Wheel surface speed variable speed unit (Inverter control, 3-step change)		□	□
	37	Wheel spindle overload detection		□	□
	38	Wheel for 33m/s surface speed	Wheel width 75mm	●	●
	39	Wheel for 45m/s surface speed	Wheel width 75mm	○	○
	40	Wheel specification (P: φ405 × max. 75, A: φ455 × max. 75)	Select a flange from item 41-43.	●	●
	41	Wheel specification (P: φ405 × max. 100, A: φ455 × max. 100)	Select a flange from item 41-43.	□	□
	42	Wheel flange (round nut: 33-80 mm in width)	1 set	●	●
	43	Wheel flange (round nut: 20-65 mm in width)		□	□
	44	Wheel flange (round nut: 50-100 mm in width)		□	□
	45	Wheel specification (P: φ510 × max. 50) Surface speed of 33 m/s, wheel spindle motor of 3.7kW	Select the flange of item 46 For the angular type, please consult with our sales department.	○	○
	46	Wheel specification (P: φ510 × max. 50) Surface speed of 45 m/s, wheel spindle motor of 5.5kW		○	○
	47	Wheel flange for φ510 mm (round nut: 15-50 mm width)		□	□
	48	Wheel specification (P: φ510 × max. 100) Surface speed of 45 m/s, wheel spindle motor of 5.5 kW Wheel cover with a front cover adjustment handle	Select a flange from item 48-50 For the angular type, please consult with our sales department.	○	○
	49	Wheel flange for φ510 mm (round nut: 20-34 mm width)		□	□
	50	Wheel flange for φ510 mm (round nut: 34-75 mm width)		□	□
	51	Wheel flange for φ510 mm (round nut: 75-100 mm width)		□	□
Pump unit	52	Lubricant pump unit (12L)	No confirmation device for no oil	●	●
	53	Lubricant pump unit (12L)	With confirmation device for no oil	○	○
	54	Hydraulic oil pump unit (10L)	No confirmation device for no oil	□	□
Coolant supply unit	55	Coolant supply unit (150L)	No washing pump	●	●
	56	Coolant supply unit (230L)	No washing pump	○	○
	57	Coolant supply unit with paper filter (48L collection tank, 300L tank, 40L/min processing capacity)	*10 No washing pump	○	○
	58	Coolant supply unit with paper filter (48L collection tank, 350L tank, 80L/min processing capacity)	*10 With washing pump	○	○
	59	Coolant supply unit (48L collection tank, 350L tank, select either 40L/min or 80L/min processing capacity (ferrite type))	*10 With washing pump, with coolant cooling function	○	○
	60	Coolant supply unit (48L collection tank, 350L tank, select either 40L/min or 80L/min processing capacity (rare earth type))	*10 With washing pump, with coolant cooling function	○	○
	61	High accuracy filtering coolant unit Cleanliness: 30 ppm (Tank capacity: 410 L, Processing ability: 95 L/min)	*10 With washing pump	○	○
	62	High cleanliness type coolant supply unit K100 Cleanliness: 5 ppm (48L collection tank, 190L primary tank, 260L secondary tank, magnetic separator with 120L/min processing capacity, cyclone attached)	*10 With washing pump with coolant cooling function with lower limit confirmation device	○	○
	63	Magnetic separator ferrite type (select either 40L/min or 80L/min processing capacity)	*11	□	□
	64	Magnetic separator rare earth type (select either 40L/min or 80L/min processing capacity)	*11	□	□
	65	Coolant lower limit confirmation device		□	□
	66	Washing pump		□	□
	67	Bed, table washing	*11 Washing pump required	□	□
	68	Auto-sizer cooling	Washing pump required	□	□

*11: The processing ability of 1 L/min is the estimate at a wheel width of 1 mm. Select a magnetic separator according to wheel width and coolant washing level. In addition, select the 80 L/min specification for washing the bed and table. *12: Live/dead spindle workhead is necessary. *13: Depending on wheel shape, there is a possibility that the wheel may interfere with the chuck cover during wheel dressing. Check before performing wheel dressing. *14: Please consult with our sales department when the swing on the table of φ400 mm is supported, the wheel diameter φ510 mm specification is selected, the wheel cover with a front cover adjustment handle and end face positioning device (P: mounted on the wheel cover) are mounted. *15: If you would like the automatic open/close type, please consult with our sales department. *16: Please contact us if you wish to mount a φ510 mm wheel.

List of accessories (GL4i)

Category	No.	Unit name	Remarks	GL4Pi	GL4Ai
Wheel dresser	69	Wheel dresser (traverse table mounted on workhead rear section)		●	●
	70	Formed diamond tool (shank diameter: 8mm)		□	□
	71	Single-point diamond tool (shank diameter: 8mm)	Includes only P (straight type)	□	×
Tool	72	Tools (special-purpose tools)		●	●
	73	Tools (wrench / spanner)		□	□
	74	Wheel lifting hook		□	□
	75	Wheel balancing arbor / Wheel balancing stand	Special-purpose wheel balance stand specific to wheel diameter is required	□	□
	76	Jib crane for wheel changes (for 100kg)		□	□
Steady rest	77	Manual steady rest (φ10~φ100mm, φ100~φ200mm)		□	□
Driving dog	78	Driving dog (φ5~φ50mm, φ50~φ80mm, φ80mm~φ190mm)		□	□
	79	Automatic dog (φ5~φ45mm, φ45~φ80mm)		□	□
Chuck	80	3-jaw scroll chuck (4", 5", 6", 7", 9" available)	*12, 13	□	□
	81	Independent 4-jaw chuck (4", 6", 8", 10" available)	*12, 13	□	□
	82	4-slot face plate (φ228mm)	*12	□	□
Work holder	83	Workpiece holder (one each for R and L φ10~φ120mm)		□	□
Auto sizer	84	Auto-sizer for OD (3P, φ5~φ80mm)	*6 JTEKT-made, CNC built-in amplifier	□	□
	85	Auto-sizer for OD (3P, φ5~φ80mm) 2 auto sizers	*6 JTEKT-made, CNC built-in amplifier	□	□
	86	Auto sizer for large dia. cylindrical workpieces (3P, φ10 to φ160mm) Right offset/left offset	*6 JTEKT-made, CNC built-in amplifier	□	□
	87	Spline auto-sizer for OD (3P, with retract, φ5~φ80mm)	*3, 6 JTEKT-made, CNC built-in amplifier	□	□
Lateral locator	88	Automatic lateral locator P: Mounted on the wheel guard/A: Mounted on the wheelhead	*6	□	□
Pneumatic-related	89	Pneumatic device		□	□
Mist collector	90	Mist collector 1 set		□	□
CBN supported	91	CBN wheel specifications	Includes only P (straight type)	□	×
Control unit	92	Manual pulse generator (mounted on operation panel)		●	●
	93	Spindle start-up/spindle stop/spindle inching switch (on the operation panel screen)		●	●
	94	One USB flash drive for TOYOPUC-GC70 (JTEKT-made, backup data entered)		●	●
	95	USB flash drive for TOYOPUC-GC70 (JTEKT-made)		□	□
	96	100V power		□	□
	97	100V outlet (mounted inside of control box)	*1	□	□
	98	Signal tower - 3 color specification		□	□
	99	Electrical leak breaker		□	□
	100	Cabinet interior lighting		□	□
	101	Automatic power isolation		□	□
	102	Manual door close confirmation device enable / disable switch	Manual door close confirmation device required	□	□

(When an optional A accessory is chosen, the corresponding standard one is not supplied.)

●: Standard accessory ○: Optional A accessory □: Optional B accessory ×: Not available

Category	No.	Unit name	Remarks	GL4Pi	GL4Ai
Control unit	103	Lighting unit (LED / fluorescent type)		□	□
	104	Lighting unit (LED / spotlight type)		□	□
Overseas supported	105	Multilanguage support	Please consult with us regarding available languages.	□	□
	106	Supporting different voltage		□	□
Machine color	107	JTEKT standard paint color (silver metallic, dark gray metallic, dark gray)		●	●
	108	Specified color other than JTEKT's standard specified color Machine body only 1 color		○	○
Customer's run off test	109	JTEKT's standard TP grinding		□	□
Instruction manual	110	Machine specifications, operation manual, maintenance manual, electric control drawings - 1 copy each (CD)	Submitted in CD form	●	●
	111	Machine specifications, operation manual, maintenance manual, electric control drawings - 1 copy each (bound)	Will bind and deliver	□	□
Full cover	112	Full-cover specifications	*14, 15 Manual open / close type	○	○
	113	Door close confirmation device	*14, 15 Manual open / close type	□	□
High-accuracy support	114	Wheelhead linear scale	*16 Requires linear scale pneumatic device	□	□
	115	Table linear scale	Requires linear scale pneumatic device	□	□
	116	Linear scale pneumatic device		□	□
	117	Thermal displacement correction sensor Distance sensor between wheelhead and table	*3 Includes only P (straight type)	□	×
	118	Wheel spindle bearing oil fan cooler		●	●
	119	Wheel spindle bearing oil cooler		○	○
	120	Wheel spindle bearing oil pump unit (separate installment) + wheel spindle bearing oil cooler (separate installment)		○	○
	121	Wheel spindle bearing oil pump unit (separate installment) + wheel spindle bearing oil cooler (separate installment) + servo motor cooler		○	○
122	Wheelhead / workhead coolant cooler (cooling with coolant)	Coolant supply unit with coolant cooling is required	□	□	

*1: 100V power required. *2: For mounting when the distance between centers is 2000, please consult with our sales department. *3: Pneumatic device is required. It is unnecessary when linear scale pneumatic device is attached. *4: Not available for GL4i-150 and GL4i-200. *5: Workhead position change is necessary when operating the machine by swiveling the workhead, as the workhead interferes with the wheel dresser mounted on the traverse table. *6: Hydraulic oil pump unit required. *7: No confirmation device. *8: Able to be equipped when equipping the hydraulic footstock. *9: Not available for 20 mm hydraulic stroke. *10: Auxiliary tank for pumping is equipped. *11: The processing ability of 1 L/min is the estimate at a wheel width of 1 mm. Select a magnetic separator according to wheel width and coolant washing level. In addition, select the 80 L/min specification for washing the bed and table. *12: Live/dead spindle workhead is necessary. *13: Depending on wheel shape, there is a possibility that the wheel may interfere with the chuck cover during wheel dressing. Check before performing wheel dressing. *14: Please consult with our sales department when the swing on the table of φ400 mm is supported, the wheel diameter φ510 mm specification is selected, the wheel cover with a front cover adjustment handle and end face positioning device (P: mounted on the wheel cover) are mounted. *15: If you would like the automatic open/close type, please consult with our sales department. *16: Please contact us if you wish to mount a φ510 mm wheel.

CNC specifications

Category	No.	Name	GL4Pi GL4Ai Version A	GL4Pi Version B
CNC cycle	1	Version A Standard cycle Refer to P. 11 Version A cycle	●	×
	2	Version A Optional grinding cycle Refer to P. 11 Version A cycle.	□	×
	3	Version B Optional cycle Refer to P. 12 Version B cycle.	×	●
CNC specification	4	NC data format input	□	●

When the linear scale is equipped, the model name becomes GL4i-L.

Machine specifications

Item	Unit	Specification	GL3Pi-25 GL3Ai-25	GL4Pi-50 GL4Ai-50	GL4Pi-100 GL4Ai-100	GL4Pi-150 GL4Ai-150	GL4Pi-200 GL4Ai-200	
Distance between centers	mm	Common	250	500	1,000	1,500	2,000	
Swing over table	mm	Standard accessory	φ200	φ320				
		Optional accessory	—	φ400				
Grinding diameter	mm	Common	φ0~φ60					φ0~φ300
Load mass between centers	kg	Common	20	150			*2	
		Optional accessory	—			300		
Wheel	Wheel OD x ID	mm	Standard accessory	φ355 × φ127				Type P: φ405 × φ127
			Optional accessory	—				Type A: φ455 × φ127
	Max. wide	mm	Standard accessory	38				75
			Optional accessory	50				100(φ405, φ455) / 50(φ510) / 100(φ510)
Surface speed	m/s	Standard accessory	33					
		Optional accessory	45					
Wheel spindle	Drive motor	kW	Standard accessory	2.2 (4P) *4		Wheel surface speed 30 m/s specificaiton: 3.7(4P)		
			Optional accessory	3.7 (4P) *4		Wheel surface speed 45 m/s specificaiton: 5.5(4P) Wheel external diameter 510 mm specification: 5.5(4P)		
Wheelhead	Rapid feed rate	m/min	Common	φ15				
	Min. input increment	mm	Common	φ0.0001				
Table	Rapid feed rate	m/min	Common	15			8	
	Min. input increment	mm	Common	0.0001				
	Swiveling angle	*5 °	Common	12.5~-0.5	12.5~0	10.0~0	8.5~0	4.0~0
Workhead	Type	mm	Standard accessory	Dead spindle				
			Optional accessory	Live / dead spindle dual purpose				
	Center taper	MT	Common	No. 2	No.4			
Footstock	Spindle speed	min ⁻¹	Common	32~1,000*7			21~500	
			Optional accessory	Manual type				
Footstock	Center taper	MT	Common	No. 2				No.4
			Optional accessory	Manual center adjustment type, hydraulic type etc				
Electrical equipment		V	Common	Power supply voltage 200V				Control circuit DC24V
Drive motors	Work spindle	kW	Common	0.9	1.5			
	Wheelhead feed	kW	Common	1.3			1.3	
	Table feed	kW	Common	1.3			1.8	
	Wheel spindle bearing oil pump	kW	Common	0.25(2P)				
	Fan cooler for wheel spindle bearing oil	kW	Standard accessory	0.035				
	Lubricant pump	kW	Standard accessory	0.025 (2P)	0.04(2P)			
	Hydraulic oil pump	*8 kW	Optional accessory	0.75(4P)				
	Coolant supply pump	kW	Common	0.10 (2P) *9	0.18(2P)			*9
Washing pump	*10 kW	Optional accessory	0.10 (2P) *9		0.18(2P)			
			Magnetic separator *10					0.025(4P)
Tank capacity	Wheel spindle bearing oil	L	Common	5	15			
	Lubricant	L	Standard accessory	6			12	
	Hydraulic oil	*8 L	Optional accessory	10				
Coolant	L	Common	100		*9			
			150					
Required floor space (width × depth) *11		mm	Common	1,900 × 2,000	3,600 × 1,920	4,600 × 1,920	6,130 × 1,920	7,700 × 1,920
Machine weight		*11 kg	Common	2,500	4,000	5,000	6,000	7,000

The specification may be restricted according to the tooling of customer.

*1: The φ400mm swing specification is offered on a per-machine basis. Please consult with our sales department.

*2: The max. load on the live spindle of the workhead with dead spindle plus live spindle (optional accessory) for GL3i is 10 kg, and 40 kg for GL4i. (including workpiece and workpiece holder)

*3: If you would like the 300 kg specification, please consult with our sales department.

*4: 2.2 kW for 33 m/s specified wheel spindle motor, and 3.7 kW for 45 m/s specified wheel spindle motor.

*5: For non-manual footstocks, table front covers (Manual open/close type) or full-cover specifications, the swivel angle is restricted.

*6: Refer to the list of accessories in the catalog (P.15 for GL3i, P.19 for GL4i) for the type of workhead and footstock.

*7: Subject to change depending on workhead model type

*8: If hydraulic oil is required for the auto sizer drive, a hydraulic oil tank is required as a special accessory.

*9: Subject to change depending on coolant tank type.

*10: The coolant tank with washing pump for base washing, table washing and auto-sizer cooling and the magnetic separator are special accessories.

*11: Subject to change depending on accessory parts, etc

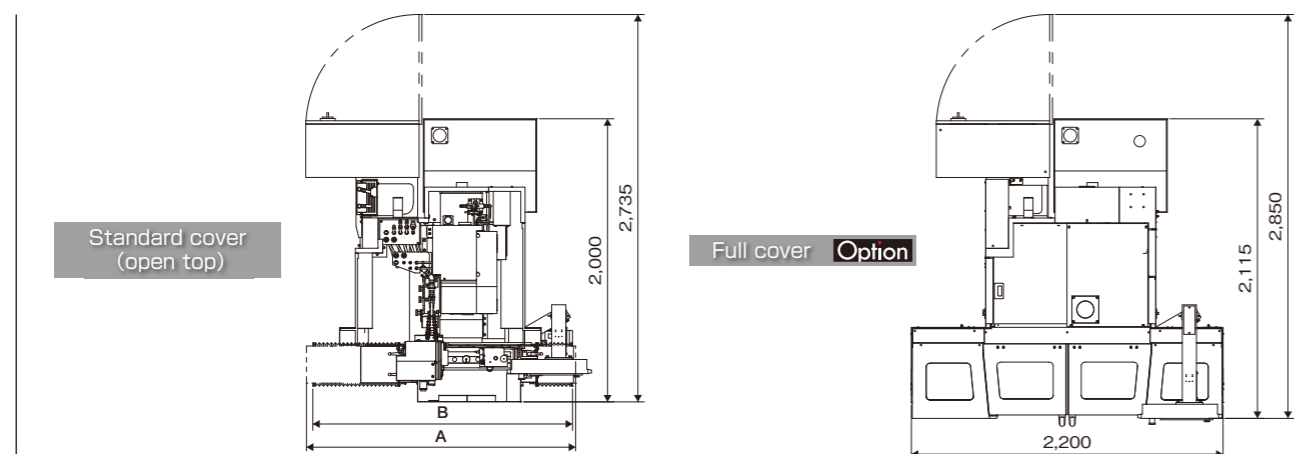
TOYOPUC-GC70

●: Standard □: Option

Item	No.	Specifications	Version A	Version B	GL4i-SWITCH
Controlled axes	1	X-axis (wheelhead feed)	●	●	●
	2	Z-axis (table feed)	●	●	●
	3	Multi-axis specification	□	□	□
HMI	4	TOYOPUC-Touch	●	●	●
Display unit	5	15 inch TFT color	●	●	●
File management	6	Structured data management (pregrinding, grinding and maintenance)	●	●	●
	7	Grinding data patterns: Max. 64 (30processes/pattern, Max. 1,920 processes)	●	●	●
Coordinate setting	8	Position memory (various)	●	●	●
Compensation function	9	Backlash compensation	●	●	●
	10	Size compensation	●	●	●
Display	11	Operation monitor display	●	●	●
	12	Manual switch and lamp display	●	●	●
	13	Sequence circuit monitor	●	●	●
	14	Sequence circuit edit	●	●	●
	15	Operation procedure display	●	●	●
	16	Display of items for inspection and maintenance	●	●	●
	17	Metric display	●	●	●
	18	Inch display	□	□	□
Operation	19	Canned cycle	●	●	●
	20	Test cycle	●	●	●
	21	Wheel dressing cycle	●	●	●
	22	Return cycle	●	●	●
	23	Single block	●	●	●
	24	Pause	□ *1	●	●
	25	Grinding step skip	●	●	●
	26	Rapid feed override 0, 10, 50, 100%	●	●	●
	27	Grinding feed override 0-150%, 10% step	●	●	●
	28	Wheel dressing feed override 0-150%, 10% step	●	●	●
	29	Program No. search start	□ *1	●	●
Auto-sizer	30	Auto-sizer control unit	□	□	□
Programming function	31	Simple automatic decision (plunge, traverse grinding)	●	●	●
	32	NC data format input	□ *1	●	●
Maintenance	33	Wheel change prediction display	●	●	●
	34	Min. wheel dia. display	●	●	●
	35	Self diagnosis	●	●	●
	36	Alarm history display	●	●	●
	37	Batch backup function	●	●	●
	Counter (Display within display screen)	38	Production counter	●	●
39		Quality check counter	●	●	●
40		Wheel dressing interval counter	●	●	●
41		Wheel forming cycle counter	●	●	●
42		Machine operation hours	●	●	●
Cycle time display (Display within display screen)	43	Processing cycle time	●	●	●
	44	Grinding cycle time	●	●	●
	45	Wheel dressing time	●	●	●
Others	46	MDI enable/disable key switch	●	●	●
	47	Automatic compensation of wheel dressing amount	●	●	●
	48	USB memory I/F	●	●	●
	49	Wheel return at power failure	●	●	●

*1: Equipment of No. 24 and No. 29 are necessary when NC data format input No. 32 is selected.

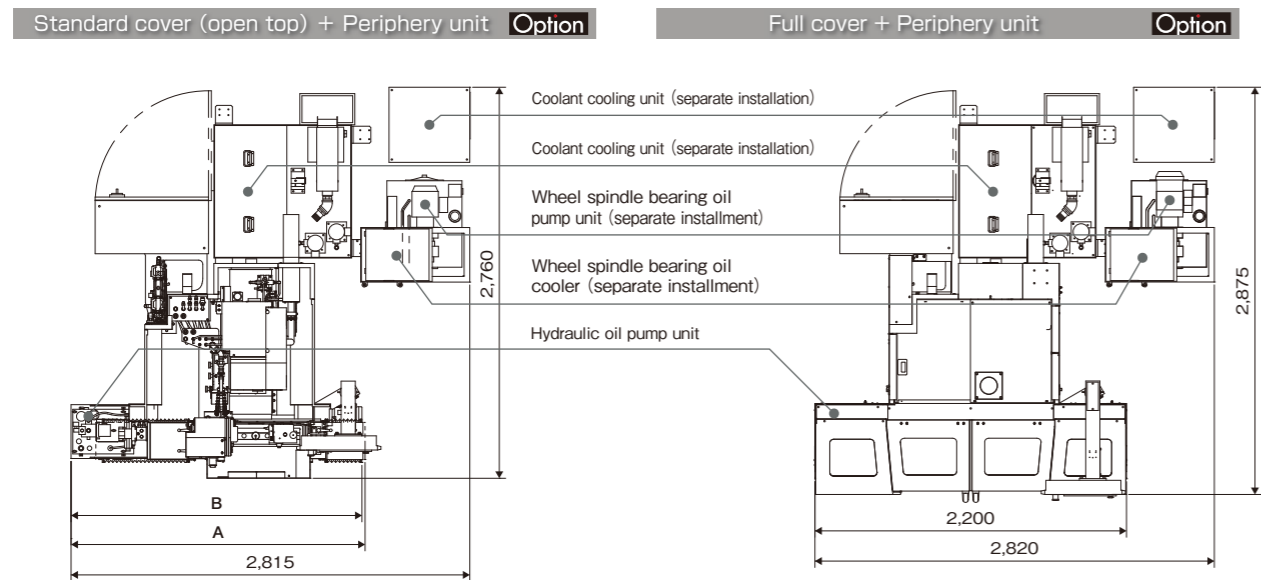
Machine layout (GL3i)



Standard periphery unit specifications

Cover type	Standard cover (open top)	
	Fixed type	Reduced-machine width specifications Bellows type op
Table end cover	A: Width	B: Width
Model	1,900	1,700
GL3Pi-25 / GL3Ai-25		

Unit: mm



Full options **Option**

Cover type	Standard cover (open top)	
	Fixed type	Reduced-machine width specifications Bellows type op
Table end cover	A: Width	B: Width
Model	2,075	1,940
GL3Pi-25 / GL3Ai-25		

Unit: mm

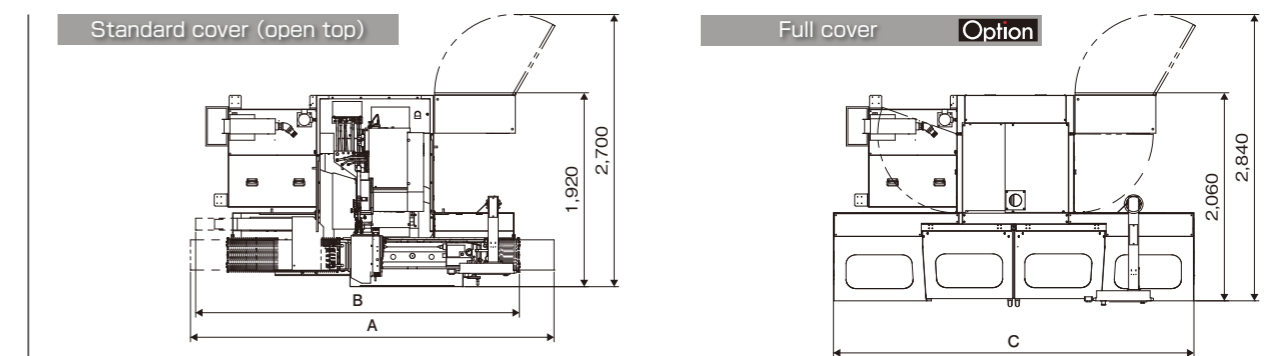
Machine height

Cover type	Height of cover top face	Max. machine height
Standard cover (open top)	—	1,795*
Manual open/close type front cover op	1,265	1,795*
Full cover specification op	1,495	1,825*

Unit: mm

* Height of operation panel top face

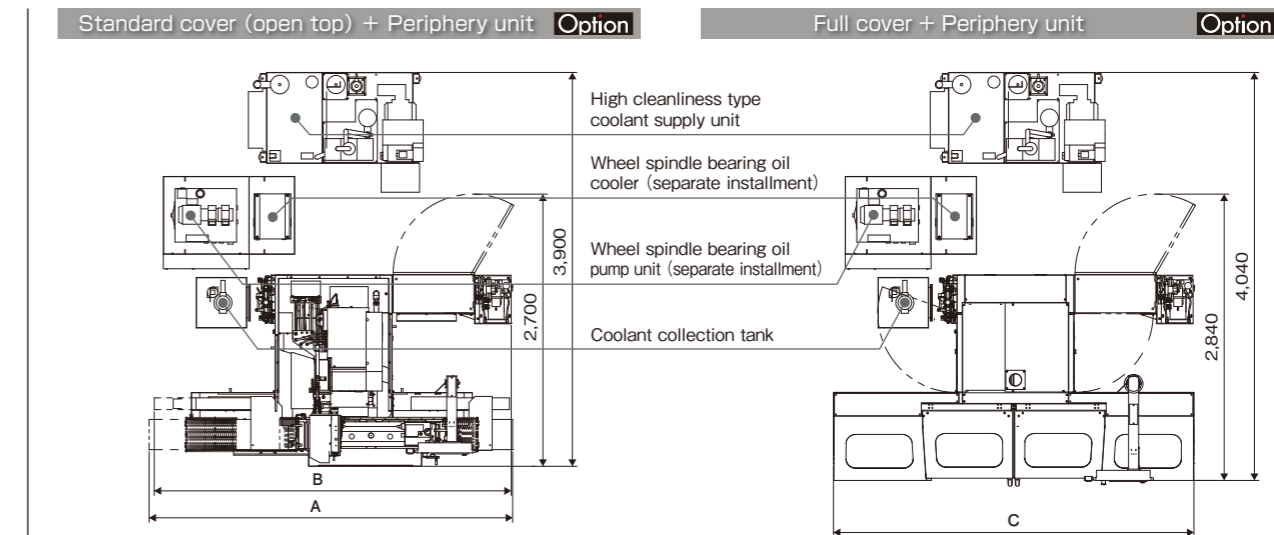
Machine layout (GL4i)



Standard periphery unit specifications

Cover type	Standard cover (open top)		Full cover op
	Fixed type	Reduced-machine width specifications Bellows type op	Reduced-machine width specifications Bellows type op
Table end cover	A: Width	B: Width	C: Width
Model	3,600	3,210	3,570
GL4Pi-50 / GL4Ai-50	4,600	4,250	4,580
GL4Pi-100 / GL4Ai-100	6,130	5,450	5,860
GL4Pi-150 / GL4Ai-150	7,700	6,700	7,150
GL4Pi-200 / GL4Ai-200			

Unit: mm



Full options **Option**

Cover type	Standard cover (open top)		Full cover op
	Fixed type	Reduced-machine width specifications Bellows type op	Reduced-machine width specifications Bellows type op
Table end cover	A: Width	B: Width	C: Width
Model	3,670	3,540	3,570
GL4Pi-50 / GL4Ai-50	4,600	4,250	4,580
GL4Pi-100 / GL4Ai-100	6,130	5,450	5,860
GL4Pi-150 / GL4Ai-150	7,700	6,700	7,150
GL4Pi-200 / GL4Ai-200			

Unit: mm

Machine height

Cover type	Height of cover top face	Max. machine height
Standard cover (open top)	—	1,795*
Manual open/close type front cover op	1,280	1,795*
Full cover specification op	1,495	1,795*
Special full cover specification (when the swing on the table of $\phi 400$ mm is supported, the wheel diameter $\phi 510$ mm specification is selected, the wheel cover with a front cover adjustment handle and end face positioning device (P: mounted on the wheel cover) are attached) op	1,830	1,830

Unit: mm

* Height of operation panel top face

op is special specifications

GL4i-SWITCH

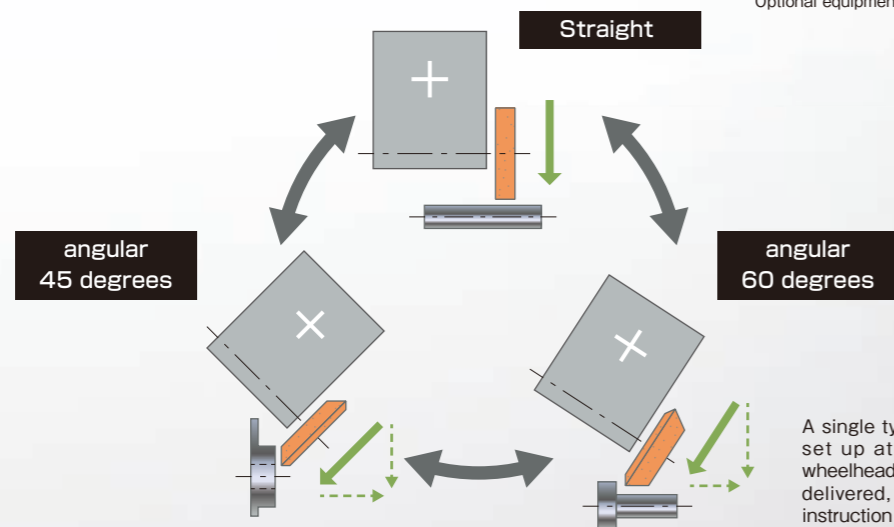
Economical triple-duty machine

Allows switching between three patterns of straight, angular 45 degrees and angular 60 degrees



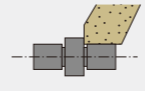




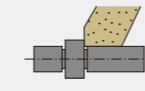

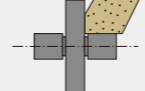

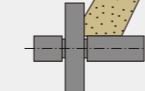

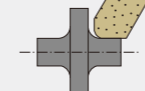

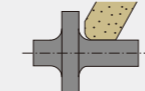

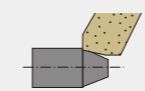
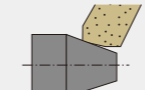
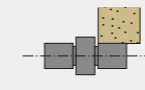






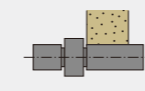

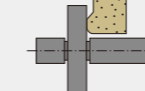
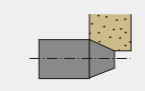
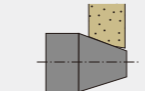
The photo of this machine is a specification of GL4i-50SWITCH full cover. Optional equipment is included in this photo.

The photo of this machine is a specification of GL4i-100SWITCH standard cover. Optional equipment is included in this photo.



Grinding cycles (GL4i-SWITCH)

Grinding cycle and wheel dressing cycle (Angular wheel and straight wheel)

	Grinding cycle	Wheel dressing cycle
Angular type	  <ol style="list-style-type: none"> 1. Direct sizing plunge grinding 2. Indirect sizing plunge grinding 	  
	  <ol style="list-style-type: none"> 3. Direct sizing plunge and traverse grinding 4. Indirect sizing plunge and traverse grinding 	
	  <ol style="list-style-type: none"> 5. Direct sizing plunge grinding (with shoulder) 6. Indirect sizing plunge grinding (with shoulder) 	
	  <ol style="list-style-type: none"> 7. Direct sizing plunge and traverse grinding (with shoulder) 8. Indirect sizing plunge and traverse grinding (with shoulder) 	
	  <ol style="list-style-type: none"> 9. Direct sizing radius plunge grinding (with shoulder) (option) 10. Indirect sizing radius plunge grinding (with shoulder) (option) 	
	  <ol style="list-style-type: none"> 11. Direct sizing radius plunge and traverse grinding (with shoulder) (option) 12. Indirect sizing radius plunge and traverse grinding (with shoulder) (option) 	
	 <ol style="list-style-type: none"> 13. Taper plunge grinding (right) (option) 	
	 <ol style="list-style-type: none"> 14. Taper plunge and traverse grinding (right) (option) 	
Straight type	  <ol style="list-style-type: none"> 1. Direct sizing plunge grinding 2. Indirect sizing plunge grinding 	    
	  <ol style="list-style-type: none"> 3. Direct sizing plunge and traverse grinding 4. Indirect sizing plunge and traverse grinding 	
	 <ol style="list-style-type: none"> 5. Right end-face grinding 	
	 <ol style="list-style-type: none"> 6. Taper plunge grinding (right) (option) 	
	 <ol style="list-style-type: none"> 7. Taper plunge and traverse grinding (right) (option) 	

TOYOPUC-GC70

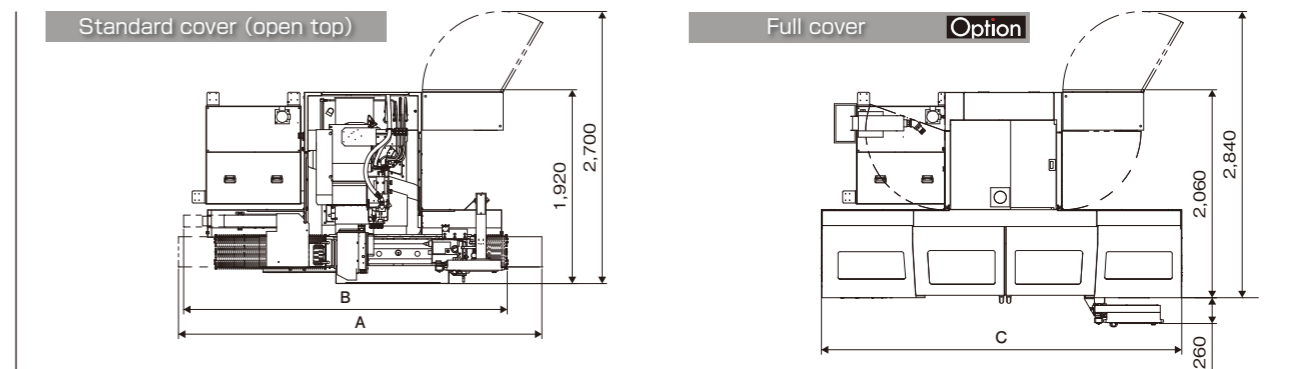
Please see page 24 "CNC Specifications"

Machine specifications (GL4i-SWITCH)

Item	Unit	Specification	GL4i-50SWITCH	GL4i-100SWITCH	GL4i-150SWITCH	GL4i-200SWITCH	
Distance between centers	mm	Common	500	1,000	1,500	2,000	
Swing over table	mm	Standard accessory	φ320				
		Optional accessory	φ400				*1
Grinding diameter	mm	Common	φ0~φ300				
Load mass between centers	kg	Common	150				*2
		Optional accessory	—	300			*3
Wheel	Wheel OD x ID	mm	φ510 × φ203.2				
	Max. wide	mm	75				
		mm	100				
Surface speed	m/s	Standard accessory	45				
Wheel spindle	Drive motor	kW	Wheel width 75 mm specification: 5.5 (4P)				
		kW	Wheel width 100 mm specification: 7.5 (4P)				
Wheelhead	Rapid feed rate	m/min	φ10				
	Min. input increment	mm	φ0.0001				
	Swiveling angle	°	90, 60, 45				
Table	Rapid feed rate	m/min	10		8		
	Min. input increment	mm	0.0001				
	Swiveling angle *4	°	12.5~0	10.0~0	8.5~0	4.0~0	
Workhead	Type	mm	Standard accessory: Dead spindle Optional accessory: Live / dead spindle dual purpose				*5
	Center taper	MT	Common: No.4				
	Spindle speed	min ⁻¹	Common: 21~500				*6
Footstock	Type	mm	Standard accessory: Manual type Optional accessory: Manual center adjustment type, hydraulic type etc				*5
	Center taper	MT	Common: No.4				
Electrical equipment		V	Common: Power supply voltage 200V Control circuit DC24V				
Drive motors	Work spindle	kW	Common: 1.5				
	Wheelhead feed	kW	Common: 1.3				
	Table feed	kW	Common: 1.8				
	Wheel spindle bearing oil pump	kW	Common: 0.25(2P)				
	Fan cooler for wheel spindle bearing oil	kW	Standard accessory: 0.035				
	Lubricant pump	kW	Standard accessory: 0.04(2P)				
	Hydraulic oil pump *7	kW	Optional accessory: 0.75(4P)				
	Coolant supply pump	kW	Common: 0.18(2P)				*8
	Washing pump *9	kW	Optional accessory: 0.18(2P)				
Magnetic separator *9	kW	Optional accessory: 0.025(4P)					
Tank capacity	Wheel spindle bearing oil	L	Common: 15				
	Lubricant	L	Standard accessory: 12				
	Hydraulic oil *7	L	Optional accessory: 10				
	Coolant	L	Common: 150				*8
Required floor space (width × depth) *10		mm	3,600 × 1,920	4,600 × 1,920	6,130 × 1,920	7,700 × 1,920	
Machine weight *10		kg	4,000	5,000	6,000	7,000	

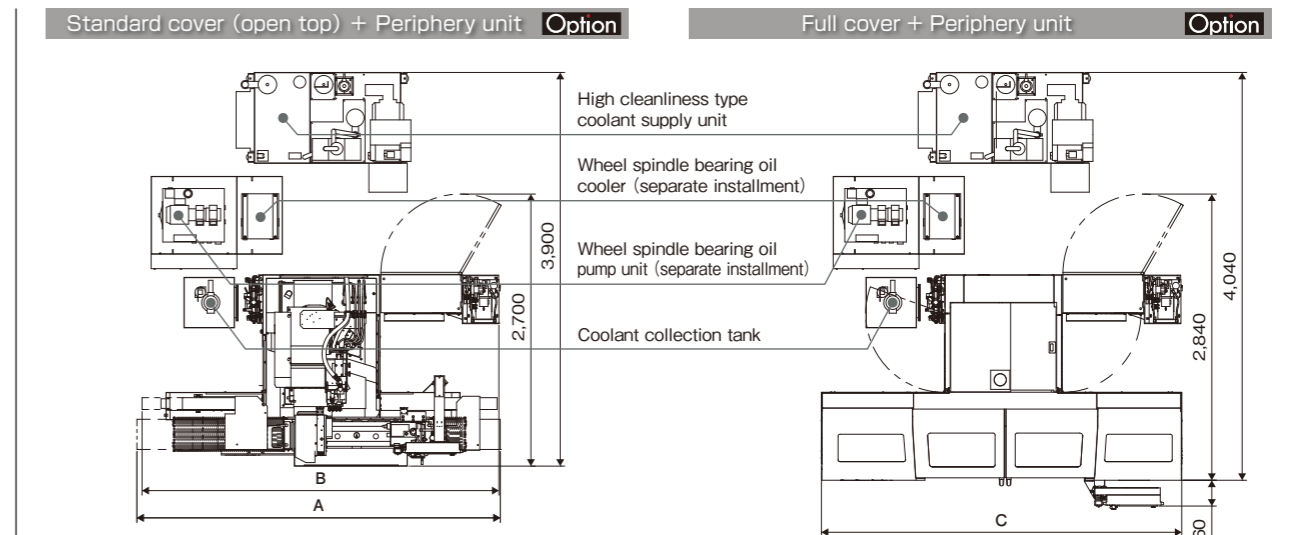
The specification may be restricted according to the tooling of customer.
 *1: The machinable workpiece length differs depending on the wheelhead position.
 *2: Maximum spindle load for live/dead spindle workhead (option) is 40 kg (including workpiece and workpiece holder).
 *3: If you would like the 300 kg specification, please consult with our sales department.
 *4: For non-manual footstocks, table front covers (Manual open/close type) or full-cover specifications, the swivel angle is restricted.
 When the wheel dresser (mounted on the traverse table in the rear of the footstock) is attached, the table cannot be swiveled.
 *5: Refer to the list of accessories in the catalog P. 31 for the type of workhead and footstock.
 *6: Subject to change depending on workhead model type
 *7: If hydraulic oil is required for the auto sizer drive, a hydraulic oil tank is required as a special accessory.
 *8: Subject to change depending on coolant tank type.
 *9: The coolant tank with washing pump for base washing, table washing and auto-sizer cooling and the magnetic separator are special accessories.
 *10: Subject to change depending on accessory parts, etc

Machine layout (GL4i-SWITCH)



Standard periphery unit specifications

Cover type	Standard cover (open top)		Full cover <input type="checkbox"/>
	Table end cover	Fixed type	Reduced-machine width specifications <input type="checkbox"/>
Model	Reduced-machine width specifications		Reduced-machine width specifications <input type="checkbox"/>
	Bellows type <input type="checkbox"/>		Bellows type <input type="checkbox"/>
		A: Width	B: Width
500	3,600	3,210	3,570
1,000	4,600	4,250	4,580
1,500	6,130	5,450	5,860
2,000	7,700	6,700	7,150



Full options (Option)

Cover type	Standard cover (open top)		Full cover <input type="checkbox"/>
	Table end cover	Fixed type	Reduced-machine width specifications <input type="checkbox"/>
Model	Reduced-machine width specifications		Reduced-machine width specifications <input type="checkbox"/>
	Bellows type <input type="checkbox"/>		Bellows type <input type="checkbox"/>
		A: Width	B: Width
500	3,670	3,540	3,570
1,000	4,600	4,250	4,580
1,500	6,130	5,450	5,860
2,000	7,700	6,700	7,150

Machine height

Cover type	Height of cover top face	Max. machine height
Standard cover (open top)	—	1,795*
Manual open/close type front cover <input type="checkbox"/>	1,280	1,795*
Full cover specification <input type="checkbox"/>	1,830	1,830*

* Height of operation panel top face

is special specifications

List of accessories (GL4i-SWITCH)

Category	No.	Unit name	Remarks	GL4i-SWITCH
Table	1	Table swivel unit		●
	2	Table swivel angle sensor Digital display	*1, 2	□
	3	Table end cover (fixed type)		●
	4	Table end cover (bellows type)	Reduced machine width specification	○
	5	Table front Fixed cover		●
	6	Insert type Front cover		□
	7	Manual open / close type Front cover	No confirmation device, no windows	○
	8	Manual open / close type Front cover (door close confirmation device)	No windows	○
	9	Automatic open / close type Front cover (air type, door close confirmation device)	*3, 4 No windows	○
	10	Addition of windows		□
	11	Swing on table φ400 mm support		□
Workhead	12	Dead spindle workhead with infinitely variable speed		●
	13	Live / dead spindle workhead (infinitely variable speed, swiveling)	*5 Maximum live spindle load: 40kg (including workpiece and workpiece holder)	○
	14	Carbide-tipped center (MT No.4)		●
	15	Spindle inching button (on the workhead)	Cannot be attached to a special workhead	□
	16	Spindle in-position stop unit (proximity type switch)		□
Footstock	17	Manual footstock	Manual lever type: 25mm stroke	●
	18	Manual footstock with manual taper adjustment	Manual lever type: 25mm stroke	○
	19	Manual footstock with manual center distance adjustment	Manual lever type: 25mm stroke Center distance adjustment: 160mm	○
	20	Manual footstock with manual taper adjustment & manual center distance adjustment	Manual lever type: 25mm stroke Center distance adjustment: 160mm	○
	21	Hydraulic footstock	*6, 7 Hydraulic type: select either 20mm or 60mm stroke	○
	22	Hydraulic footstock with manual taper adjustment	*6, 7 Hydraulic type: 60mm stroke	○
	23	Hydraulic footstock with manual center distance adjustment	*6, 7 Hydraulic type: select either 30mm or 60mm stroke Center distance adjustment: 160mm	○
	24	Hydraulic footstock with manual taper adjustment & manual center distance adjustment	*6, 7 Hydraulic type: select either 30mm or 60mm stroke Center distance adjustment: 160mm	○
	25	Automatic center distance adjustment type footstock (with confirmation device)	NC: 190 mm stroke	○
	26	Automatic center distance adjustment type footstock (with taper adjustment, with confirmation device)	NC: 190 mm stroke	○
	27	Carbide-tipped center (MT No.4)		●
	28	Pedal operation	*8	□
	29	Confirmation device (center fully advanced position, fully returned position, no workpiece)	*8, 9	□
	30	Footstock weight air reduction unit	*3	□
Wheelhead	31	45m/s wheel surface speed one speed specification		●
	32	45m/s wheel surface speed two-speed specification (excess surface speed prevention device)		○
	33	Wheel surface speed variable speed unit (inverter control [deceleration only], manual adjustment)	* Cannot be used in combination with the 45 m/s wheel surface speed and two-speed specification	□

*1: 100V power required. *2: For mounting when the distance between centers is 2000, please consult with our sales department. *3: Pneumatic device is required. It is unnecessary when linear scale pneumatic device is attached. *4: Cannot be attached to the machine with a distance between centers of 1500/2000. *5: Workhead position change is necessary when operating the machine by swiveling the workhead, as the workhead interferes with the wheel dresser mounted on the traverse table. *6: Hydraulic oil pump unit required. *7: No confirmation device. *8: Able to be equipped when equipping the hydraulic footstock.

(When an optional A accessory is chosen, the corresponding standard one is not supplied.)

●: Standard accessory ○: Optional A accessory □: Optional B accessory ×: Not available

Category	No.	Unit name	Remarks	GL4i-SWITCH	
Wheelhead	34	Wheel surface speed variable speed unit (Inverter control, 3-step change)		□	
	35	Wheel spindle overload detection		□	
	36	Wheel for 45m/s surface speed	Wheel width 75mm	○	
	37	Wheel specification (φ510 × max. 75) Wheel spindle motor of 5.5 kW Wheel cover with a front cover adjustment handle		●	
	38	Wheel specification (φ510 × max. 100) Wheel spindle motor of 7.5 kW Wheel cover with a front cover adjustment handle		□	
	39	Wheel flange for φ510 mm (round nut: 34-75 mm width)		●	
	40	Wheel flange for φ510 mm (round nut: 20-34 mm width)		□	
	41	Wheel flange for φ510 mm (round nut: 75-100 mm width)		□	
	Pump unit	42	Lubricant pump unit (12L)	No confirmation device for no oil	●
		43	Lubricant pump unit (12L)	With confirmation device for no oil	○
		44	Hydraulic oil pump unit (10L)	No confirmation device for no oil	□
Coolant supply unit	45	Coolant supply unit (150L)	No washing pump	●	
	46	Coolant supply unit (230L)	No washing pump	○	
	47	Coolant supply unit with paper filter (48L collection tank, 300L tank, 40L/min processing capacity)	*10 No washing pump	○	
	48	Coolant supply unit with paper filter (48L collection tank, 350L tank, 80L/min processing capacity)	*10 With washing pump	○	
	49	Coolant supply unit (48L collection tank, 350L tank, select either 40L/min or 80L/min processing capacity (ferrite type))	*10 With washing pump, with coolant cooling function	○	
	50	Coolant supply unit (48L collection tank, 350L tank, select either 40L/min or 80L/min processing capacity (rare earth type))	*10 With washing pump with coolant cooling function	○	
	51	High accuracy filtering coolant unit Cleanliness: 30 ppm (Tank capacity: 410 L, Processing ability: 95 L/min)	*10 With washing pump	○	
	52	High cleanliness type coolant supply unit K100 Cleanliness: 5 ppm (48L collection tank, 190L primary tank, 260L secondary tank, magnetic separator with 120L/min processing capacity, cyclone attached)	*10 With washing pump, with coolant cooling function, with lower limit confirmation device	○	
	53	Magnetic separator ferrite type (select either 40L/min or 80L/min processing capacity)	*11	□	
	54	Magnetic separator rare earth type (select either 40L/min or 80L/min processing capacity)	*11	□	
	55	Coolant lower limit confirmation device		□	
	56	Washing pump		□	
	57	Bed, table washing	*11 Washing pump required	□	
	58	Auto-sizer cooling	Washing pump required	□	
Wheel dresser	59	Wheel dresser (mounted on the traverse table in the rear of the workhead)		●	
	60	Wheel dresser (mounted on the traverse table in the rear of the footstock)	Table swiveling is not supported	□	
	61	Formed diamond tool (shank diameter: 8mm)		□	
	62	Single-point diamond tool (shank diameter: 8mm)	Straight specification only	□	

*9: Not available for 20 mm hydraulic stroke. *10: Auxiliary tank for pumping is equipped. *11: The processing ability of 1 L/min is the estimate at a wheel width of 1 mm. Select a magnetic separator according to wheel width and coolant washing level. In addition, select the 80 L/min specification for washing the bed and table. *12: Live/dead spindle workhead is necessary. *13: Depending on wheel shape, there is a possibility that the wheel may interfere with the chuck cover during wheel dressing. Check before performing wheel dressing. *14: If you would like the automatic open/close type, please consult with our sales department.

List of accessories (GL4i-SWITCH)

Category	No.	Unit name	Remarks	GL4i-SWITCH
Tool	63	Tools (special-purpose tools)		●
	64	Tools (wrench / spanner)		□
	65	Wheel lifting hook		□
	66	Wheel balancing arbor / Wheel balancing stand	Special-purpose wheel balance stand specific to wheel diameter is required	□
	67	Jib crane for wheel changes (for 100kg)		□
Steady rest	68	Manual steady rest (φ10~φ100mm, φ100~φ200mm)		□
Driving dog	69	Driving dog (φ5~φ50mm, φ50~φ80mm, φ80mm~φ190mm)		□
	70	Automatic dog (φ5~φ45mm, φ45~φ80mm)		□
Chuck	71	3-jaw scroll chuck (4", 5", 6", 7", 9" available)	*12, 13	□
	72	Independent 4-jaw chuck (4", 6", 8", 10" available)	*12, 13	□
	73	4-slot face plate (φ228mm)	*12	□
Work holder	74	Workpiece holder (one each for R and L φ10~φ120mm)		□
Auto sizer	75	Auto-sizer for OD (3P, φ5~φ80mm)	*5 JTEKT-made, CNC built-in amplifier	□
	76	Auto-sizer for OD (3P, φ5~φ80mm)	*5 JTEKT-made, CNC built-in amplifier	□
	77	Auto sizer for large dia. cylindrical workpieces (3P, φ10 to φ160mm) Right offset/left offset	*5 JTEKT-made, CNC built-in amplifier	□
	78	Spline auto-sizer for OD (3P, with retract, φ5~φ80mm)	*5, 9 JTEKT-made, CNC built-in amplifier	□
Lateral locator	79	Automatic end face positioning device mounted on the wheelhead	*5	□
Pneumatic-related	80	Pneumatic device		□
Mist collector	81	Mist collector 1 set		□
Control unit	82	Manual pulse generator (mounted on operation panel)		●
	83	Spindle start-up/spindle stop/spindle inching switch (on the operation panel screen)		●
	84	One USB flash drive for TOYOPUC-GC70 (JTEKT-made, backup data entered)		●
	85	USB flash drive for TOYOPUC-GC70 (JTEKT-made)		□
	86	100V power		□
	87	100V outlet (mounted inside of control box)	*1	□
	88	Signal tower - 3 color specification		□
	89	Electrical leak breaker		□
	90	Cabinet interior lighting		□
	91	Automatic power isolation		□
	92	Manual door close confirmation device enable / disable switch	Manual door close confirmation device required	□

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●: Standard accessory ○: Optional A accessory □: Optional B accessory ×: Not available

Category	No.	Unit name	Remarks	GL4i-SWITCH
Control unit	93	Lighting unit (LED / fluorescent type)		□
	94	Lighting unit (LED / spotlight type)		□
Overseas supported	95	Multilanguage support	Please consult with us regarding available languages.	□
	96	Supporting different voltage		□
Machine color	97	JTEKT standard paint color (silver metallic, dark gray metallic, dark gray)		●
	98	Specified color other than JTEKT's standard specified color Machine body only 1 color		○
Customer's run off test	99	JTEKT's standard TP grinding		□
Instruction manual	100	Machine specifications, operation manual, maintenance manual, electric control drawings - 1 copy each (CD)	Submitted in CD form	●
	101	Machine specifications, operation manual, maintenance manual, electric control drawings - 1 copy each (bound)	Will bind and deliver	□
Full cover	102	Full-cover specifications	*14 Manual open / close type	○
	103	Door close confirmation device	*14 Manual open / close type	□
High-accuracy support	104	Wheelhead linear scale	Requires linear scale pneumatic device	□
	105	Table linear scale	Requires linear scale pneumatic device	□
	106	Linear scale pneumatic device		□
	107	Wheel spindle bearing oil fan cooler		●
	108	Wheel spindle bearing oil cooler		○
109	Wheelhead / workhead coolant cooler (cooling with coolant)	Coolant supply unit with coolant cooling is required	□	

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