

**TOYODA**

# TG SERIES

Grinding Center

TG4-32  
TG4-63



**JTEKT**  
JTEKT CORPORATION

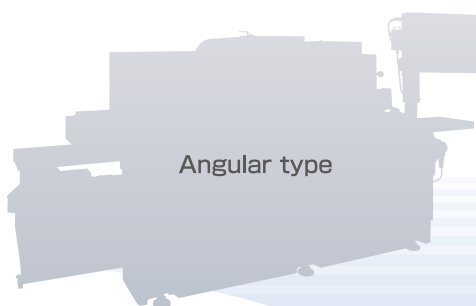
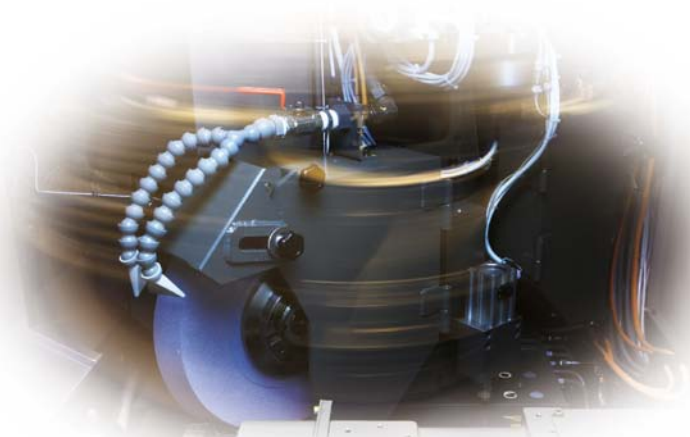
**JTEKT**  
Koyo | TOYODA

# The best and the fastest

Combination grinder achieving high accuracy  
and high speed grinding through  
process integration

Grinding center

# TG4



Angular type



Straight type



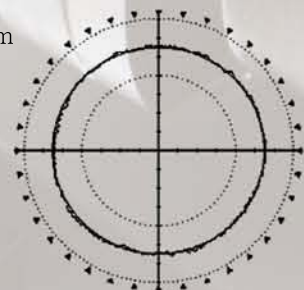
# TG4.32 TG4.63

U.S. Patent Pending Applications  
The machine in this photo has exhibition specifications.



Grinding example

■ Roundness  
Taper:  $0.76 \mu\text{m}$





# Steadfast technology performing high accuracy grinding

## Stable high quality grinding

### Example of both ends grinding

[Machine model] TG4-32

■ Grinding conditions

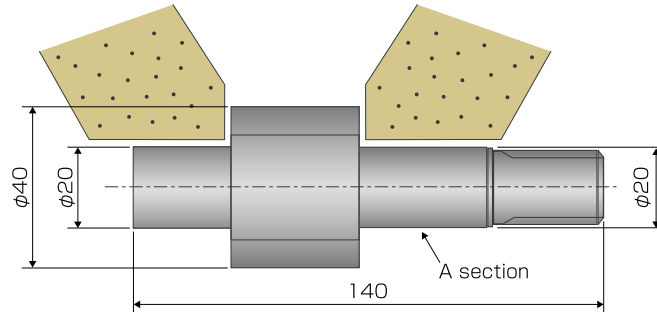
[Working wheel] SA80L7V75 (φ405mm)

[Wheel surface speed] 45m/s

■ Workpiece

[Name] Drive gear

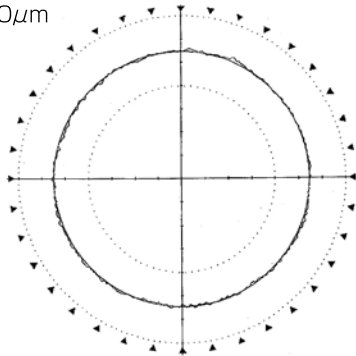
[Material] SCM420H



### Roundness

A section: 1.0μm

Surface roughness: 0.19μmRa



### Example of die grinding

[Machine model] TG4-32

■ Grinding conditions

[Working wheel]

SA80M7V (O.D. grinding) (φ405mm)

SH80K8V (I.D. grinding) (φ25mm)

[Wheel surface speed]

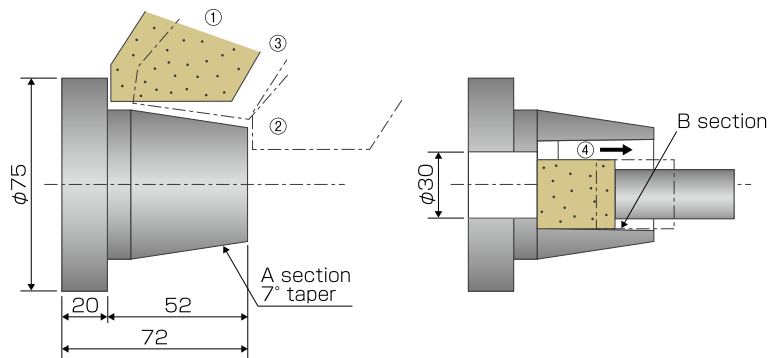
45m/s (O.D. grinding)

30m/s (I.D. grinding)

■ Workpiece

[Name] Die (model test piece)

[Material] STAVAX

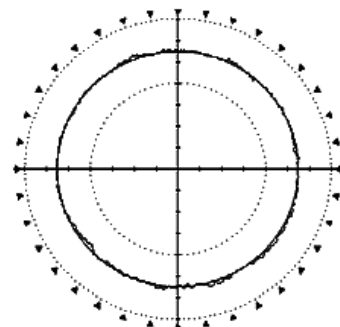
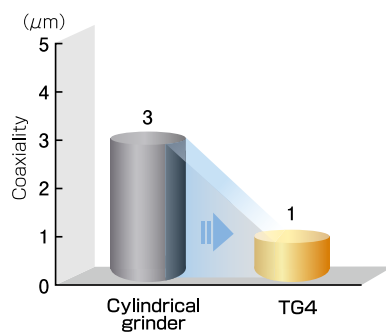


### Coaxiality

B section:  
1μm (Datum A)

### Roundness

A section:  
0.8μm



Machining examples use standard JTEKT test pieces. They do not reflect machine guaranteed accuracy.

## Steadfast technology performing high accuracy grinding

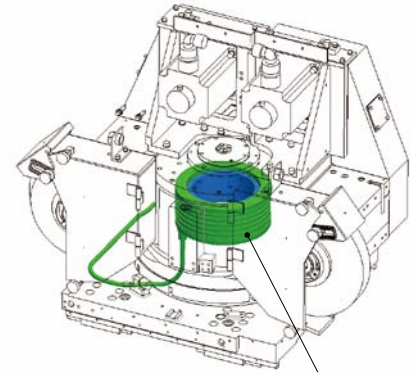
### A machine structure supporting high accuracy and high productivity

#### Adoption of a DD motor for the wheelhead swivel section

- Achieving high accuracy positioning and high speed rotation of the wheelhead unit.  
Equipped with a coolant penetration-free DD motor making for a highly reliable machine structure.



Wheelhead unit



Wheelhead swiveling section DD motor

※A direct drive motor is shown for the DD motor.

- A machine structure supporting high accuracy and high productivity

By adopting a DD motor, backlash in the swivel feed section as been eliminated, improving swivel accuracy and contributing to the improvement of production through high speed swiveling.

Because the swivel section is a non-contact type without a gear-mediated drive, it has been made maintenance-free with a long service life.

#### Swiveling ability

Swiveling position	Index position is arbitrary (Unit: 0.00001°)
Swivel accuracy	±0.0002°(±0.72") (Backlash-free)
Swiveling time	2s/180°

#### High accuracy

[ Dimensional variation ]  
5μm without auto-sizer

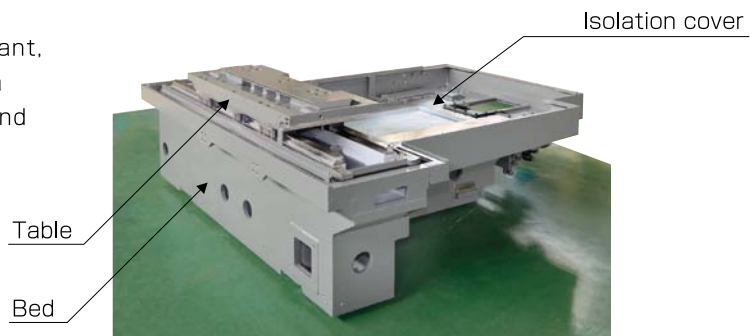
[ Straightness ]  
Straightness of 1μm with swivel grinding

Post-swiveling dressing not necessary.

(Change in grinding environment/room temperature: 5°C/hour)

#### Isolation cover shutting out heat

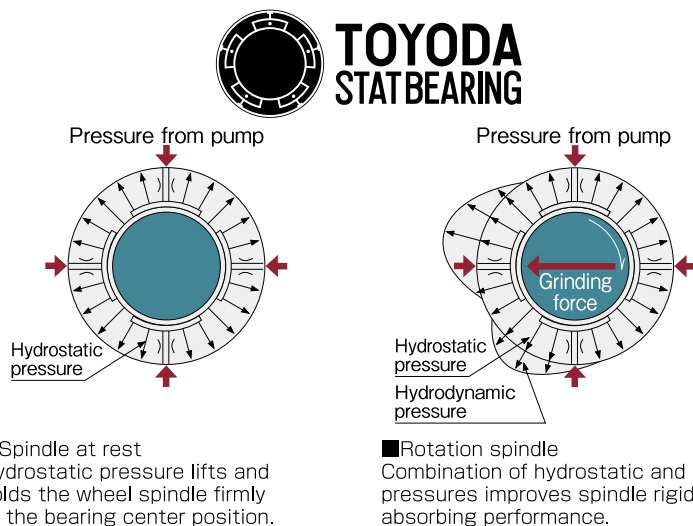
The isolation cover which reduces thermal displacement shuts out coolant, the main heat generating source of a grinder, suppressing bed distortion and allowing stable accuracy to be maintained for a long period of time.



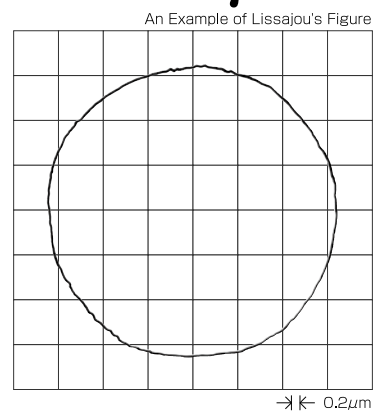
# Development technology supporting high accuracy

## 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.



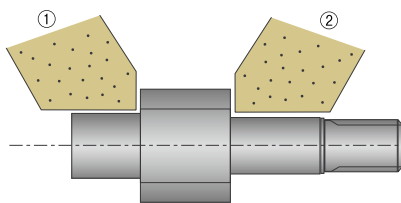
Wheel spindle rotational accuracy  
**0.016μm**



## Achieving one-chuck grinding

### Process integration of both ends grinding

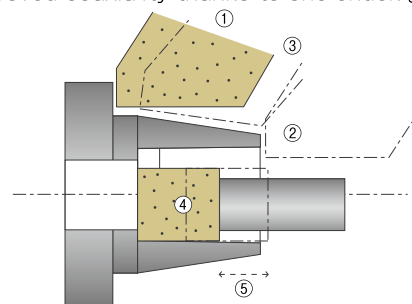
- Angular/reverse angular one-chuck grinding
- Improved coaxiality thanks to one-chuck grinding



Workpiece does not need to be turned

### Example of process integration for I.D. grinding/O.D. grinding

- One-chuck grinding in I.D. grinding/O.D. grinding
- Improved coaxiality thanks to one-chuck grinding



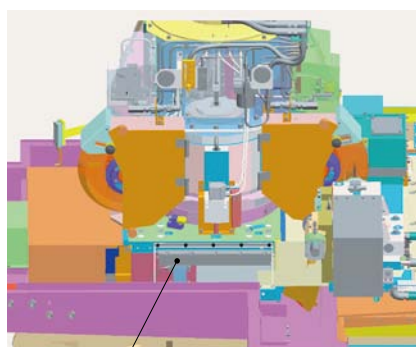
Alignment work not necessary thanks to one-chuck grinding

## Scale feedback pursuing high accuracy

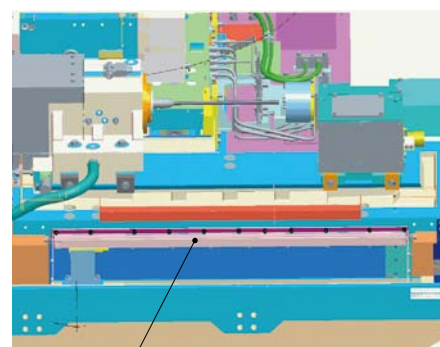
Option

### Scale feedback for wheelhead feed and table feed

By adopting a scale feedback, misalignment of machine coordinates caused by thermal displacement of the ball screw for feeding or mounting bracket, there is no longer any need for manual compensation during high accuracy grinding where there is strict dimension accuracy.



Scale feedback for wheelhead feed



Scale feedback for table feed

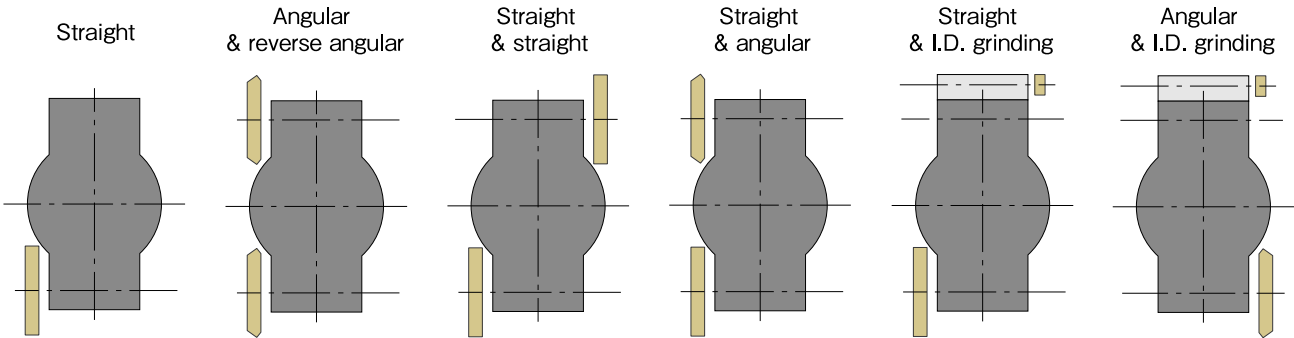
## High productivity

### Improved productivity with a ideal wheel mounting

#### Abundant wheel mounting patterns

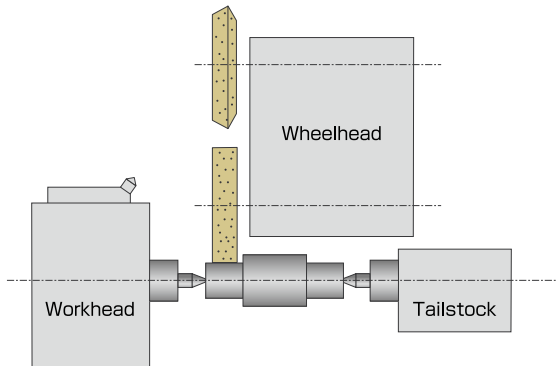
6 types of wheel mounting patterns have been prepared.

JTEKT selects the ideal wheel mounting pattern depending on workpiece, grinding location and grinding accuracy.

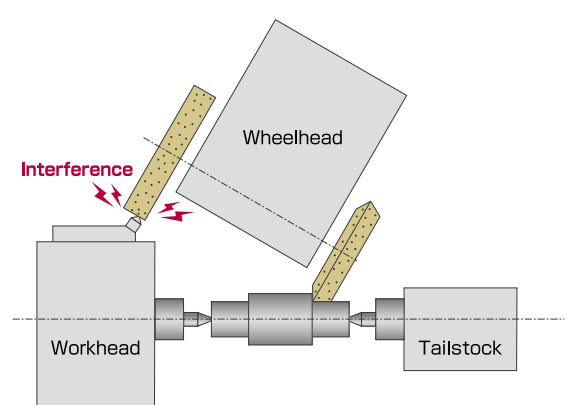
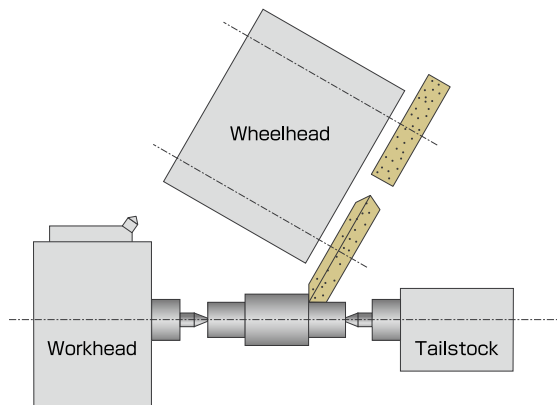
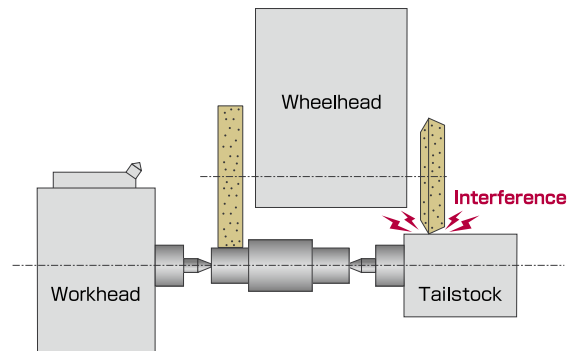


#### Ideal wheel mounting with little interference

##### TG4 wheel mounting method



##### Wheel mounting method with tooling limitations

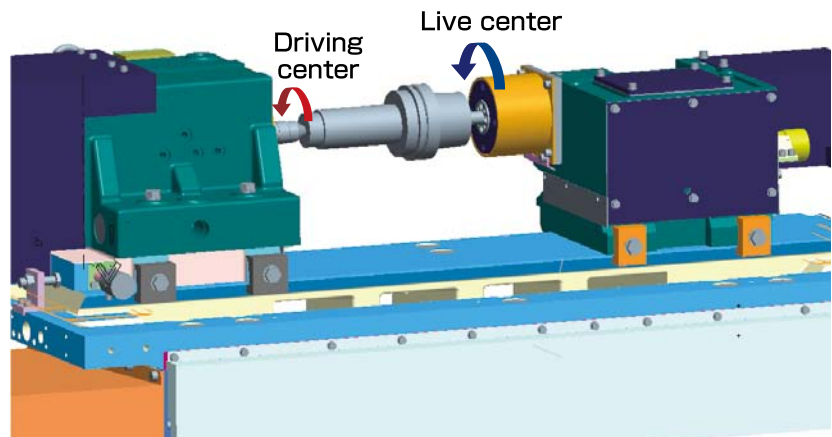




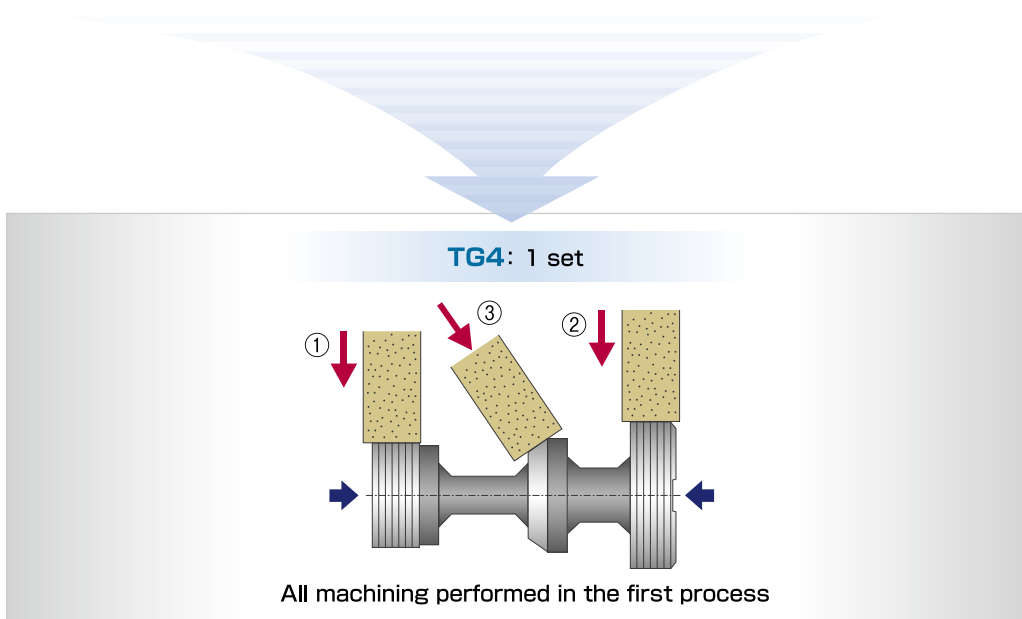
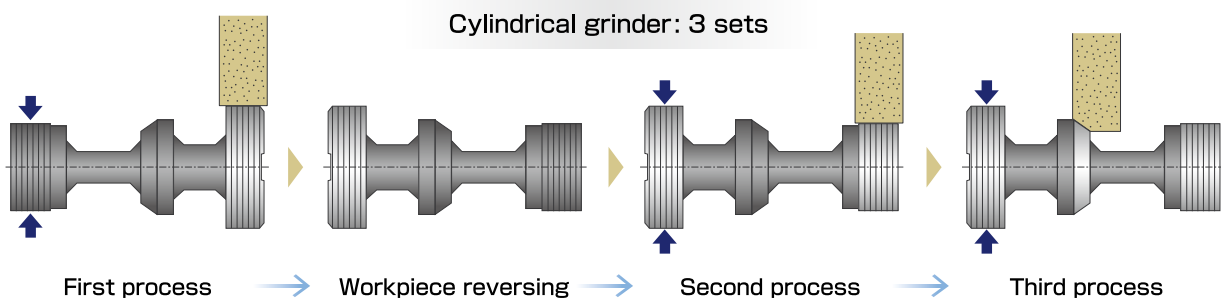
# Improved productivity with a dual-center drive

## Center drive grinding

For small workpieces, workpiece drive section geometry and interference with the wheel, etc., may mean a complex drive unit, which may present grinding area limitations. For this reason, we have standardly adopted a center drive which utilizes the friction force of both centers to drive, allowing easy grinding tooling.



## Example of reduction in amount of installed equipment



An example of dual-center drive specifications

※↑: Shows driving portions

## Abundant options

### CBN wheel specifications

Option

CBN wheel specifications are prepared to achieve high productivity and the grinding of hard-to-cut material. (Select from wheel surface speeds of 30m/s, 45m/s, 60m/s or 80m/s.)



### C-axis workhead

Option

Non-circular workpieces are grinded by synchronizing the wheelhead and workhead. For this reason, by featuring a C-axis workhead with proven results on the cam grinder (highest RPM of 250min-1), high accuracy, non-circular grinding is achieved.

※The X-axis linear scale is necessary for non-circular grinding

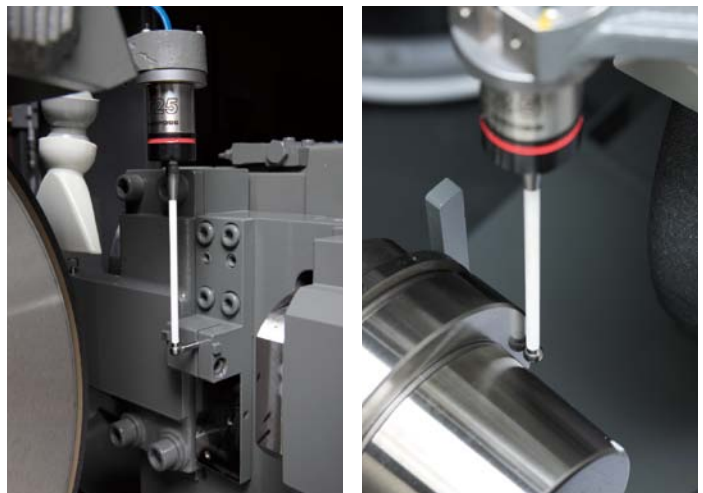


### Touch probe for wheel diameter measurement (Automatic end face locating unit)

Option

For non-circular workpieces, the misalignment of the wheel diameter recognized by the machine and the actual diameter effects the profile accuracy. For this reason, by including a touch probe able to accurately measure the wheel diameter after truing is performed, high accuracy non-circular grinding is achieved.

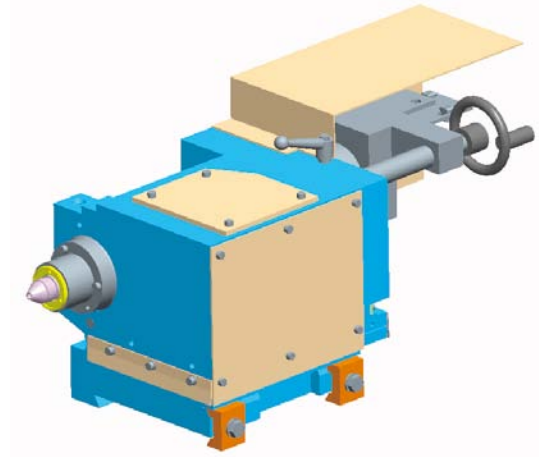
※The X-axis linear scale is necessary for non-circular grinding



### Manually center distance adjustment hydraulic type tailstock

Option

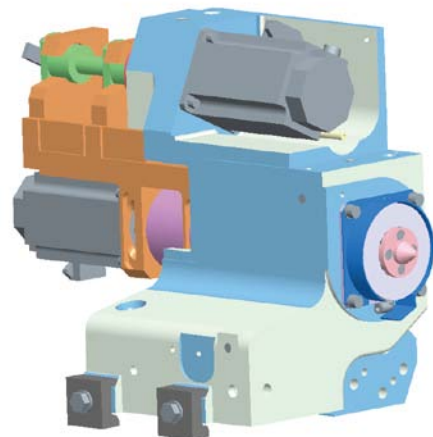
To reduce set-up changeover time when grinding multi-variety workpieces with differing lengths, we have prepared a manually center distance adjustment hydraulic type tailstock which allows between-center adjustments.



### Automatic between-center adjusting type dual-side drive workhead

Option

In cases where there is frequent set-up changeover to suit multi-variety workpieces, in order to reduce set-up changeover time and achieve random production, we have prepared an automatic between-center adjusting type dual-side drive workhead.

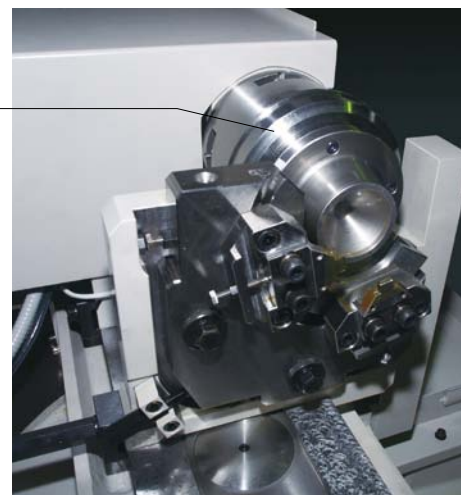


### Electromagnetic chuck

Option

By using an electromagnetic chuck, internal grinding and external grinding can be performed with high accuracy in a single chuck. Designed in accordance with customer's needs. Please contact our sales staff.

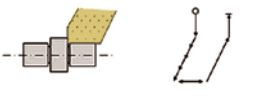

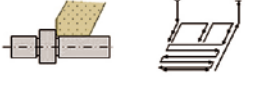







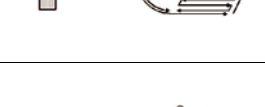
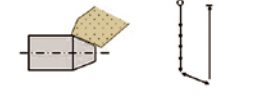

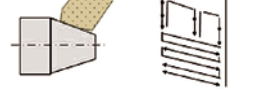
Electromagnetic chuck



The photo is a sample of electromagnetic chuck

# Grinding cycle / wheel dressing cycle

## ■ Angular wheel

Grinding cycle		Wheel dressing cycle
	1. Plunge grinding with direct auto-sizing	
	2. Plunge grinding with indirect auto-sizing	
	3. Plunge traverse grinding with direct auto-sizing	
	4. Plunge traverse grinding with indirect auto-sizing	
	5. Plunge and shoulder grinding with direct auto-sizing	
	6. Plunge and shoulder grinding with indirect auto-sizing	
	7. Plunge traverse and shoulder grinding with direct auto-sizing	
	8. Plunge traverse and shoulder grinding with indirect auto-sizing	
	9. Plunge and curve (shoulder) grinding with direct auto-sizing	
	10. Plunge and curve (shoulder) grinding with indirect auto-sizing	
	11. Plunge traverse and curve (shoulder) grinding with direct auto-sizing	
	12. Plunge traverse and curve (shoulder) grinding with indirect auto-sizing	
	13. Taper plunge (right) grinding	
	14. Taper plunge traverse (right) grinding	

End curve




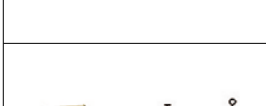
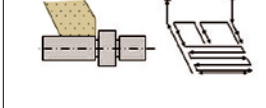




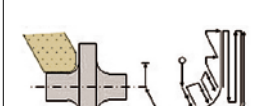

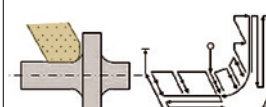

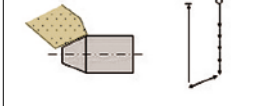

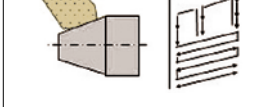
End taper



Point input  
(15 points or less)



## ■ Reverse angular wheel

Grinding cycle		Wheel dressing cycle
	1. Plunge grinding with direct auto-sizing	
	2. Plunge grinding with indirect auto-sizing	
	3. Plunge traverse grinding with direct auto-sizing	
	4. Plunge traverse grinding with indirect auto-sizing	
	5. Plunge and shoulder grinding with direct auto-sizing	
	6. Plunge and shoulder grinding with indirect auto-sizing	
	7. Plunge traverse and shoulder grinding with direct auto-sizing	
	8. Plunge traverse and shoulder grinding with indirect auto-sizing	
	9. Plunge and curve (shoulder) grinding with direct auto-sizing	
	10. Plunge and curve (shoulder) grinding with indirect auto-sizing	
	11. Plunge traverse and curve (shoulder) grinding with direct auto-sizing	
	12. Plunge traverse and curve (shoulder) grinding with indirect auto-sizing	
	13. Taper plunge (left) grinding	
	14. Taper plunge traverse (left) grinding	

End curve



End taper



Point input  
(15 points or less)



### ■ Straight wheel

Grinding cycle		Wheel dressing cycle
	1. Plunge grinding with direct auto-sizing	
	2. Plunge grinding with indirect auto-sizing	
	3. Plunge traverse grinding with direct auto-sizing	
	4. Plunge traverse grinding with indirect auto-sizing	
	5. Right end	Straight plain type 
	6. Taper plunge (right) grinding	Dual curve 
	7. Taper plunge traverse (right) grinding	Left curve    Right curve 
	8. Left end	Convex type with dual curve 
	9. Taper plunge (left) grinding	Convex type with left curved    Convex type with right curved 
	10. Taper plunge traverse (left) grinding	Dual tapers 
	11. Profile (CX) grinding	Left side taper    Right side taper 
	11. Profile (CX) grinding	Point input (15 points or less) 

### ■ I.D. wheel

Grinding cycle		Wheel dressing cycle
	1. Plunge grinding with direct auto-sizing including post-compensation	
	2. Plunge grinding with indirect auto-sizing	
	3. Plunge traverse grinding with direct auto-sizing including post-compensation	
	4. Plunge traverse grinding with indirect auto-sizing	
	5. Oscillation with direct auto-sizing including post-compensation	Straight plain type 
	6. Oscillation with indirect auto-sizing	End face 
	7. Taper plunge (right) grinding	Taper 
	8. Taper plunge traverse (right) grinding	
	9. Right end	

## Machine specifications

[ ] Items enclosed in parentheses are optional

Item	Unit	TG4-32	TG4-63	
		Specifications		
Distance between centers	mm	320	630	
Swing on table		φ320		
Grinding diameter	O.D.	φ0 ~ φ220		
	I.D.	φ10 ~ φ120		
Load between centers	kg	150		
O.D. wheel	Bearing	TOYODA STAT BEARING		
	Normal wheel specification	O.D. x width x I.D.	Straight: φ405 × 50[75] × φ127	
			Angular: φ405 × 50[75] × φ127	
C.B.N. wheel specifications *1	O.D. x width x I.D.	Surface speed	30[45/60]	
			Straight: φ350 × 30 × φ127[φ203.2] *2	
			Angular: no setting	
	Surface speed	30[45/60/80]		
Wheelhead infeed	Rapid feedrate	φ20		
	Smallest input increment	φ0.0001		
Wheelhead swiveling unit	Swivel angle	° 0 ~ 210		
	Swivel unit	° 0.00001		
	Swiveling method	Auto (DD motor)		
	Swivel positioning method	NC		
Table traverse	Rapid feedrate	20	15	
	Smallest input increment	0.0001		
Workhead	Type	Workhead with live center		
	Center	MT No.4[Special center] *3		
	Rotation speed	min <sup>-1</sup> 10 ~ 1,000		
Tailstock	Type	Hydraulic type		
	Center	Special center[MT No.4] *3		
Internal grinding attachment *1	Driving method	Belt		
	Wheel diameter	mm φ8 ~ φ80(Normal wheel) φ8 ~ φ50(CBN wheel)		
	Spindle mounting hole diameter	mm φ90		
Electric unit	V	Power voltage 200 Control voltage DC24		
Electric motor	O.D. wheel spindle	kW 3.5[5.0/7.0]		
	I.D. wheel spindle	kW 2.0[5.0]		
	Workhead spindle	kW 1.3		
	Wheelhead feed	kW 1.3		
	Wheelhead swivel	kW 0.9		
	Table feed	1.3	1.6	
	Wheel spindle bearing oil pump	kW 1.5		
	Hydraulic oil pump	kW 0.75		
	Lubrication oil pump	0.09	0.09 + 0.4	
	Lubrication oil pump (for truer roll) *1	kW 0.09		
	Wheel spindle oil fan cooler	kW 0.035		
	Wheel spindle oil cooler pump *1	kW 0.75 + 0.09		
	Coolant supply pump	kW 0.25[0.75]		
	Washing pump	kW 0.18		
	Electromagnetic separator *1	kW 0.025		
	Tank capacity	Wheel spindle bearing oil	L 50	
Hydraulic oil		L 10		
Lubrication oil		6	6 + 6[6 + 20]	
Lubrication oil (for truer roll) *1		L 6		
Coolant		L 250		
Required floor space	mm	2,750×2,100	3,700×2,300	
Net mass	kg	7,000	8,000	

Specifications may be limited depending on customer tooling.

\*1: Options

\*2: The I.D. of CBN wheel differs depending on surface speed. I.D. φ127mm at 30m/s and 45m/s surface speed  
I.D. φ203.2mm at surface speed 60m/s, 80m/s

\*3: Type differs depending on the workhead and tailstock used.

## CNC unit JTEKT TOYOPUC-GC70

● : Standard / □ : Optional

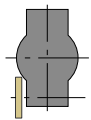
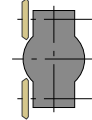
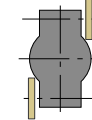
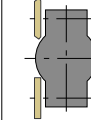
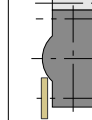
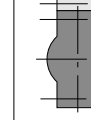
Items	No.	Specifications	Included
Control axis	1	X-axis (wheelhead infeed)	●
	2	Z-axis (table traverse)	●
	3	B-axis (wheelhead swivel)	●
	4	Multi-spindle specification (Max. 7 axes)	□
Display unit	5	12 inch TFT color (Japanese)	●
	6	12 inch TFT color (English)	□
File control	7	Hierarchization of data control (production, operation, maintenance)	●
	8	Grinding data Max.64 process data / each workpiece: 30, Max. 1920 processes	●
Coordinate setting	9	Position memory (various)	●
Compensation function	10	Dimension compensation	●
Display	11	Operation monitor	●
	12	Sequence circuit monitor	●
	13	Sequence circuit edit	●
	14	Operation procedure	●
	15	Inspection, maintenance item	●
	16	Metric display	●
	17	Imperial display	□
Operation	18	Canned cycle	●
	19	Test cycle	●
	20	Dressing cycle	●
	21	Return cycle	●
	22	Single block	●
	23	Additional optional block skip	●
	24	Grinding step skip	●
	25	Program No. search start	●
Sizing	26	Sizer control portion	□
Programming	27	Simple automatic decision (plunge, traverse grinding)	●
	28	NC data format input	●
Maintenance	29	Wheel replacement prediction/ Wheel min. wheel dia. display	●
	30	Self-diagnostic function	●
	31	Alarm history display	●
Counter (on display screen)	32	Production volume counter	●
	33	Quality check counter	●
Cycle time display (on display screen)	34	Machine operating time	●
	35	Machining cycle time	●
	36	Grinding cycle time	●
	37	Wheel dressing time	●
Others	38	MDI on / off switch	●
	39	USB memory I/F	●

\*Servomotor and drive are made by Bosch Rexroth.

### ■ Main common standard accessories

No.	Name	No.	Name
1	High rigidity bed with isolation cover	8	Hydraulic devices, lubrication devices, pneumatic devices
2	Table	9	Tools (special tools)
3	Table feed unit	10	CNC TOYOPUC-GC70 JTEKT-made
4	Wheelhead	11	NC data format input
5	Wheelhead infeed device	12	TOYOPUC-GC70 exclusive USB flash memory (JTEKT-made, 1 pce, backup data inputted)
6	Wheelhead unit swivel unit	13	One electric control unit set
7	Pump unit (wheel spindle bearing oil, hydraulic oil, lubrication oil)	14	Transformer

# Accessory list

Classification	No.	Name	Remarks	Wheel mounting pattern						
				Straight	Angular & reverse angular	Straight & straight	Straight & angular	Straight & I.D.	Angular & I.D.	
										
				Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	
Workhead	1	Live spindle workhead (center drive workhead) 1,000min <sup>-1</sup>		●	●	●	●	—	—	
	2	Live spindle workhead with taper adjustment (Workpiece chucking workhead) 1,000min <sup>-1</sup>		○	○	○	○	●	●	
	3	Dead spindle workhead 500min <sup>-1</sup>		○	○	○	○	—	—	
	4	Dead spindle workhead with auto chuck 500min <sup>-1</sup>		○	○	○	○	—	—	
	5	Live/dead spindle combination workhead with taper adjustment 1,000min <sup>-1</sup>		○	○	○	○	○	○	
	6	C-axis workhead (for profile grinding)	Item 39, 85 is necessary.	○	○	○	○	○	○	
	7	Both centers drive workhead with automatic adjustment of distance between centers (NC type: 85mm···right and left workheads)	Special center	○	○	○	○	—	—	
	8	Spindle fixed position stop	*2	□	□	□	□	□	□	
	9	Carbide tipped center		●	●	●	●	□	□	
Tailstock	10	Hydraulic tailstock with center drive (with manual taper adjustment, hydraulic stroke: 60mm)	Special center	●	●	●	●	□*6	□*6	
	11	The tailstock is not standardly equipped for internal grinding specifications (wheel mounting pattern: 5, 6). If necessary, please select from No.10 or No.12 through to 16.								
	12	Hydraulic tailstock (with manual taper adjustment, hydraulic stroke: 60mm)		○	○	○	○	□*6	□*6	
	13	Manually center distance adjustment hydraulic type tailstock with center drive (with manual taper adjustment, hydraulic stroke: 60mm, center distance adjustment: 80mm)	Special center	○	○	○	○	□*6	□*6	
	14	Manually center distance adjustment hydraulic type tailstock (with manual taper adjustment, hydraulic stroke: 60mm, center distance adjustment: 80mm)		○	○	○	○	□*6	□*6	
	15	Automatic center distance adjustment NC type tailstock with center drive (with manual taper adjustment, NC stroke: 80mm)	Special center	○	○	○	○	□*6	□*6	
	16	Automatic center distance adjustment NC tailstock (with manual taper adjustment, NC stroke: 80mm)		○	○	○	○	□*6	□*6	
	17	Pedal operation for hydraulic type tailstock		□	□	□	□	□	□	
	18	Carbide tipped center		●	●	●	●	□	□	
Wheelhead	19	Straight (reverse angular) wheel spindle		●	●	●	●	●	—	
	20	Angular wheel spindle		—	●	—	●	—	●	
	21	Straight wheel spindle (CBN60M/80M)		○	—	○	○	○	—	
	22	Wheel speed normal wheel 30M/3.5kW 1-speed spec.		●	●	●	●	●	●	
	23	Wheel speed normal wheel 45M/5.0kW 1-speed spec.		○	○	○	○	○	○	
	24	Wheel speed normal wheel 60M/7.0kW 1-speed spec.		○	○	○	○	○	○	
	25	Normal wheel speed 3-speed spec.		□	□	□	□	□	□	
	26	Wheel speed CBN wheel 30M/3.5kW 1-speed spec.		○	—	○	○	○	—	
	27	Wheel speed CBN wheel 45M/5.0kW 1-speed spec.		○	—	○	○	○	—	
	28	Wheel speed CBN wheel 60M/7.0kW 1-speed spec.		○	—	○	○	○	—	
	29	Wheel speed CBN wheel 80M/7.0kW 1-speed spec.		○	—	○	○	○	—	
	30	Normal wheel (straight $\phi 405 \times 50 \times \phi 127$ )		●	—	● 2 sets	●	●	—	
	31	Normal wheel (angular $\phi 405 \times 50 \times \phi 127$ )		—	● 2 sets	—	●	—	●	
	32	CBN wheel (straight $\phi 350 \times 30 \times \phi 127$ )		○	—	○	○	○	—	
	33	CBN wheel (straight $\phi 350 \times 30 \times \phi 203.2$ )	CBN60/80M	○	—	○	○	○	—	
	34	Wheel flange (for $\phi 405$ mm wheel dia., round nut, for 20~65mm width)		● 1 set	● 2 set	● 2 set	● 2 set	● 1 set	● 1 set	
	35	Wheel flange (for $\phi 405$ mm wheel dia., round nut, for 33~75mm width)		□	□	□	□	□	□	
	36	Wheel flange (for $\phi 350$ mm wheel dia., round nut, for 20~50mm width)	CBN60/80M	□	—	□	□	□	—	
	37	Guard for $\phi 405$ wheel (width:~50mm)		●	●	●	●	●	●	
	38	Guard for $\phi 405$ wheel (width:~75mm)		○	○	○	○	○	○	



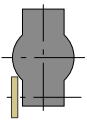
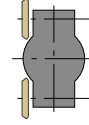
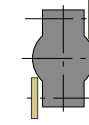
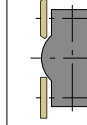
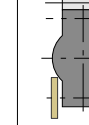
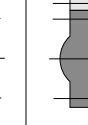
●Standard accessories ○Option A □Option B (Note: Standard accessory not included if option A is selected.)

Classification	No.	Name	Remarks	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6
High accuracy	39	Wheelhead infeed high accuracy specification of (Scale feedback specification)	Item 45 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	40	High accuracy of table traverse (Scale feedback specification)	Item 45 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydraulic/pneumatic device	41	Hydraulic pump unit (standard)		●	●	●	●	●	●
	42	Hydraulic pump unit (specifications of profile grinding and chucking)	One piece is added.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	43	Pneumatic device (standard)		●	●	●	●	●	●
	44	Pneumatic device (diamond/truing roll specification)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	45	Pneumatic device (linear scale specification)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coolant supply unit	46	Coolant supply unit (250L, with coolant low confirmation device) (coolant pump 250W, washing pump 180W)		●	●	●	●	●	●
	47	Coolant supply unit (250L, with no-coolant confirmation device) (coolant pump 750W, washing pump 180W)		○	○	○	○	○	○
	48	Magnetic separator (processing ability 80L/min)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	49	Magnetic separator (processing ability 80L/min) Rare metal separator		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	50	Magnetic separator (processing ability 120L/min)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	51	Magnetic separator (processing ability 120L/min) Rare metal separator		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	52	Coolant cooler, separated: KTCG7.5AS-CNCE		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	53	Bed washing		●	●	●	●	●	●
54	Auto-sizer cooling		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I.D. unit	55	I.D. unit (drive motor 2.0kW)	*1	—	—	—	—	●	●
	56	I.D. unit (drive motor 5.0kW)	*1	—	—	—	—	○	○
	57	I.D. grinding spindle (G920TQ MT. NO.3 12,000-20,000 min <sup>-1</sup> speed) with taper quill (MT3-18-80-8) and I.D. wheel with pulley for setting 12,000/15,000/18,000/20,000min <sup>-1</sup> speed	*1	—	—	—	—	●	●
	58	I.D. grinding spindle (G940TQ MT. NO.1 25,000-33,000 min <sup>-1</sup> speed) with collet arbor (MT1-6-8) with pulley for setting 25,000/33,000min <sup>-1</sup> speed	*1	—	—	—	—	<input type="checkbox"/>	<input type="checkbox"/>
	59	I.D. grinding spindle (G925TQ MT. NO.2 18,000-25,000 min <sup>-1</sup> speed) with taper quill (MT2-14-60-6) and I.D. wheel with pulley for setting 18,000/20,000/25,000min <sup>-1</sup> speed	*1	—	—	—	—	<input type="checkbox"/>	<input type="checkbox"/>
	60	I.D. grinding spindle (G915TQ MT. NO.4 8,000-15,000 min <sup>-1</sup> speed) with taper quill (MT4-23-80-10) and I.D. wheel with pulley for setting 8,000/10,000/13,000/15,000min <sup>-1</sup> speed	*1	—	—	—	—	<input type="checkbox"/>	<input type="checkbox"/>
	61	Collet arbor (for above selected I.D. spindle)		—	—	—	—	<input type="checkbox"/>	<input type="checkbox"/>
62	Taper quill (for above selected I.D. spindle, 1 wheel included)		—	—	—	—	<input type="checkbox"/>	<input type="checkbox"/>	
Wheel dresser	63	Wheel dresser (mounting to workhead rear)	*3	●	●	●	●	●	●
	64	Wheel dresser (mounting on table)	*3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	65	Diamond holder for I.D. / O.D. grinding (mounting on table)	*3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	66	Diamond roll type wheel dresser (for normal wheel)	*2 Item 44 is necessary.	○	○	○	○	○	○
	67	Truing roll type wheel dresser (for CBN wheel)	*2 Can not be used with item 65, Item 44 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	68	Forming diamond		●	●	●	●	●	●
	69	Single point diamond		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70	Diamond roll		○	○	○	○	○	○	
71	Truing roll		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Drive fittings	72	Dual-center drive (rotating together)		●	●	●	●	<input type="checkbox"/>	<input type="checkbox"/>
	73	Automatic dog(φ5~φ45) (1 set of 5 within range)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	74	Automatic dog(φ45~φ80) (1 set of 4 within range)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	75	Automatic chuck	*2 Item 4 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	76	I.D. drive unit	*2 Item 4 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	77	3-jaw scroll chuck (6")		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	●
	78	3-jaw scroll chuck (select from 4", 5" or 7")		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79	Electromagnetic chuck	*2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sizing/locating unit	80	Sizing device FX-1001 (JTEKT-made, CNC built-in amp., 3P, φ5~φ80)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	81	Sizing device FX-1001 (JTEKT-made, CNC built-in amp., 3P, φ10~φ160)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	82	Spline sizing device FX1501 (JTEKT-made, CNC built-in amp., 3P, φ5~φ80, FX1501)	Item 83 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When the scale feedback is equipped, the model name becomes TG4-L.

# Accessory list

● Standard accessories ○ Option A □ Option B (Note: Standard accessory not included if option A is selected.)

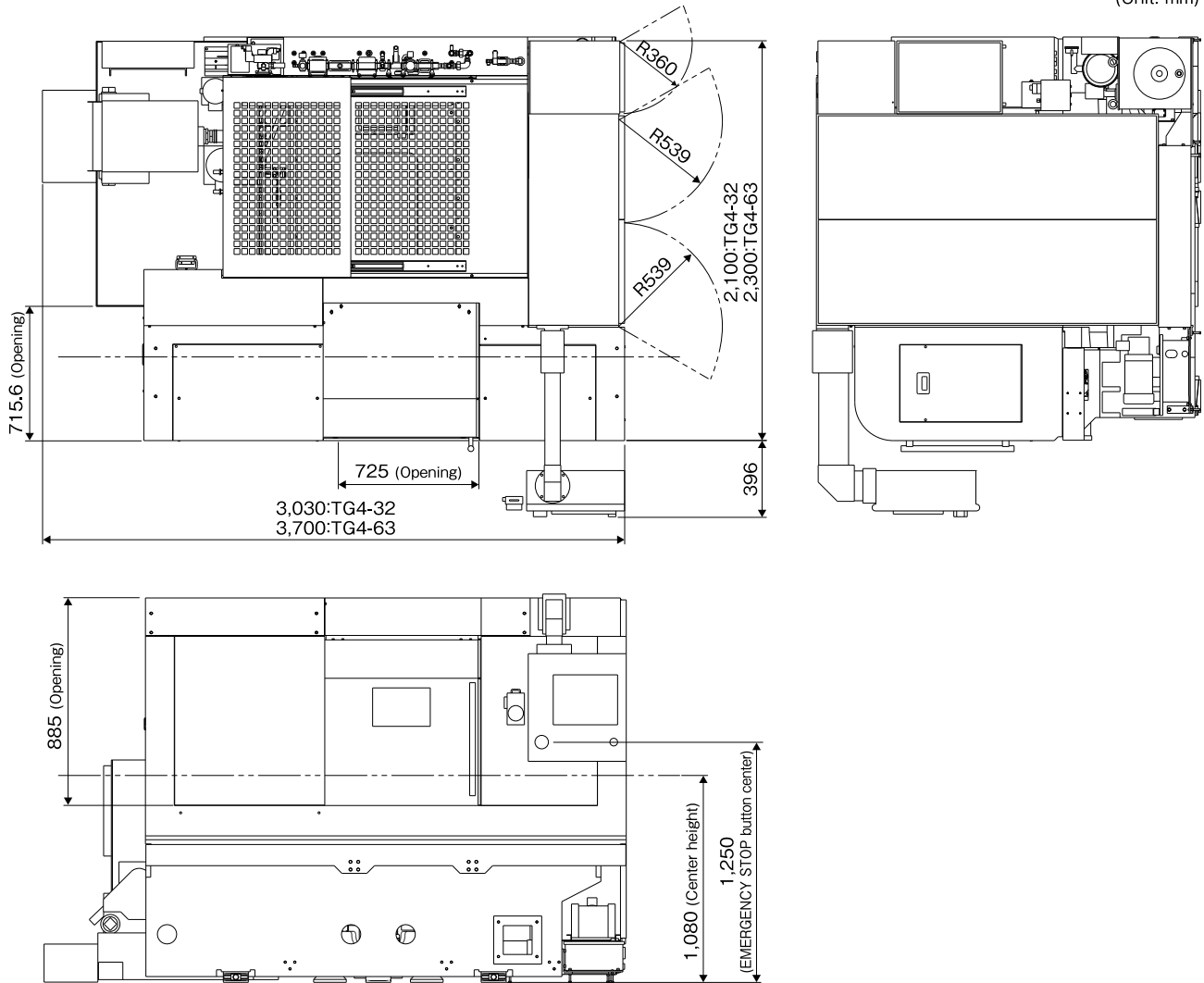
Classification	No.	Name	Remarks	Wheel mounting pattern					
				Straight	Angular & reverse angular	Straight & straight	Straight & angular	Straight & I.D.	Angular & I.D.
									
				Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6
Sizing/locating unit	83	Post gauge for I.D. measurement FX-1810 (JTEKT-made, CNC built-in amp, $\phi 15 \sim \phi 135$ )	Item 83 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	84	Pneumatic device for opening/closing of the auto-sizing device feeler		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	85	Automatic end face locating unit (Mounting on wheelhead, Metrol-made)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	86	Automatic end face locating unit (Mounting on wheelhead, Marposs-made: touch probe method)	Necessary for non-circular grinding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary holder	87	Workpiece temporary holder (One each of left & right, $\phi 10 \sim \phi 120$ )		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	88	Manual type steady rest ( $\phi 10 \sim \phi 100$ )		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	89	Manual type steady rest ( $\phi 100 \sim \phi 200$ )		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	90	3-point type steady rest ( $\phi 10 \sim \phi 100$ )		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	91	3-point type steady rest ( $\phi 100 \sim \phi 200$ )		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	92	Hydraulic type steady rest	*2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover	93	Coolant splash prevention cover (Enclosed cover including ceiling, manual open/close type)		●	●	●	●	●	●
	94	Coolant splash prevention cover, with automatic open/close response		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	95	Cover for exhibition (additional decoration)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	96	Wheel safety cover		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	97	Dust collector (for enclosed cover): Showa-made CRD-750		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	98	Special tools (wheel sleeve, wrench for leveling block, etc.)		●	●	●	●	●	●
	99	Tools (wrench, spanner, etc.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tools	100	Wheel lifting bracket		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	101	Wheel balance stand		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	102	Wheel balance arbor		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	103	Jib crane for wheel change (100kg)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control	104	Cover internal lighting unit (spotlight)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	105	TOYOPUC-GC70 exclusive USB flash memory (JTEKT-made)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	106	Operation panel bracket (pendant type)	*7	●	●	●	●	●	●
Special cycle specifications	107	Operation panel bracket (mounting to machine front)	*7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	108	Supporting English (English NC screen, etc.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	109	Supporting different voltage		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	110	Supporting CE (including electromagnetic lock, wheel front safety guard)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	111	Profile grinding specifications	Item 6 is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
paint color	112	Standard paint color (silver metallic, dark gray metallic)		●	●	●	●	●	●
	113	Specified color other than our standard specified color. But, accessories, pump unit, etc. are dark grey.	*4	○	○	○	○	○	○
Customer run-off	114	JTEKT standard TP grinding	*5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	115	Customer TP grinding (including tooling arrangement)	*2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instruction manual	116	Machine specification sheets, operation manual, maintenance manual (one set each)		●	●	●	●	●	●

- \*1. The wheel diameter of I.D. unit may be limited depending on customer specifications.
- \*2. Tooling design is necessary. Please contact our sales in advance.
- \*3. 1) If the O.D. grinding wheel end face is large, there may be interference between the wheel and the tooling during wheel dressing.  
2) For 1), use the accessory No.64 [Wheel dresser (mounting on table)].  
3) When there is interference between the I.D. unit and the tooling parts, use accessory No.65 [Diamond holder for I.D./O.D. grinding (mounting on table)].
- \*4. A separate meeting is necessary for specified paint colors.
- \*5. Grinding content differs according to wheel mounting patterns.
- \*6. There may be interference between the tailstock(option) and the I.D. spindle when using the I.D. unit. It is necessary to move or remove the tailstock if this occurs. Please contact our sales staff beforehand.
- \*7. For loader mounting, accessory No.107 [Operation panel bracket (mounting to machine front)] is applicable.

# Machine layout

## TG4

(Unit: mm)



The machine in this photo shows standard cover specification.

# JTEKT JTEKT CORPORATION

## NAGOYA HEAD OFFICE

No. 7-1, Meieki 4-chome, Nakamura-ku, Nagoya, Aichi Pref., 450-8515, JAPAN TEL: (81)52-527-1900 FAX: (81)52-527-1911

## OSAKA HEAD OFFICE

No. 5-8, Minamisemba 3-chome, Chuo-ku, Osaka, 542-8502, JAPAN TEL: (81)6-6271-8451 FAX: (81)6-6245-3712

## SALES & MARKETING HEADQUARTERS

No. 5-8, Minamisemba 3-chome, Chuo-ku, Osaka, 542-8502, JAPAN TEL: (81)6-6245-6087 FAX: (81)6-6244-9007

### — GLOBAL NETWORK —

#### MACHINE TOOLS & MECHATRONICS BUSINESS OPERATIONS

#### MACHINE TOOLS & MECHATRONICS OVERSEAS SALES DEPT.

1, Asahimachi 1-chome, Kariya, Aichi Pref., 448-8652, JAPAN

TEL: (81)566-25-5171 FAX: (81)566-25-5467

#### OVERSEAS AFFILIATED COMPANIES

##### TOYODA MACHINERY USA CORP.

###### HEADQUARTERS

316 W.University Drive,  
Arlington Heights, IL 60004  
U.S.A.

TEL: (1)847-253-0340

FAX: (1)847-577-4680

##### TOYODA MACHINERY USA CORP.

###### AUTOMOTIVE PRODUCTS & SPECIAL

###### MACHINES DIVISION

51300 W. Pontiac Trail  
Wixom, MI. 48393-1003  
U.S.A.

TEL: (1)248-624-5755

FAX: (1)248-624-8597

##### TOYODA MACHINERY AND ENGINEERING

###### EUROPE SAS

2 Grande Allee P.A des Petits Carreaux  
94380 Bonneuil sur Marne, FRANCE

TEL: (33)1-49.56.85.80

FAX: (33)1-43.77.47.50

##### TOYODA MACHINERY EUROPE GmbH

###### HEADQUARTERS

Bischofstr. 118 47809 Krefeld GERMANY

TEL: (49)2151-5188-300

FAX: (49)2151-5188-333

##### TOYODA MACHINERY (DALIAN) CO., LTD.

###### HEADQUARTERS

46 Developing Zone In DaLian, 116600 China  
Dalian, CHINA

TEL: (86)-411-8733-4601

FAX: (86)-411-8733-4602

##### TOYODA MACHINERY (DALIAN) CO., LTD.

###### BEIJING OFFICE

Room 1017, Fortune Building No.5 Dong  
San Huan North Road Chaoyang,  
Beijing, 100004 CHINA

TEL: (86)-10-6590-9356~58

FAX: (86)-10-6590-9359

##### TOYODA MACHINERY (DALIAN) CO., LTD.

###### SHANGHAI OFFICE

Room 25B3, V-Capital Building 333 Xianxia  
Road Changning District,  
Shanghai, 200336 CHINA

TEL: (86)-21-5178-1088

FAX: (86)-21-5178-1099

##### TOYODA MACHINERY (DALIAN) CO., LTD.

###### FOSHAN OFFICE

2 Wushaxinhui Road, Daliang Street Shunde  
District, Foshan,  
Guangdong, 52833 CHINA

TEL: (86)-757-2232-6651~52

FAX: (86)-757-2232-6650

##### TOYODA MACHINERY (DALIAN) CO., LTD.

###### CHONGQING OFFICE

14-2Room, Block 3, Jinkai Sincere Center,  
Jinkai Road68#, Northern new District,  
Chongqing, 401121 CHINA

TEL: (86)-23-6305-6070

FAX: (86)-23-6305-6077

##### TPA ENGINEERING CORP.

84BL-19Lot,

Namdong Industrial Complex,  
675-18, Gojan-Dong, Namdong-ku,  
Incheon, KOREA

TEL: (82)-032-822-0305

FAX: (82)-032-822-0306

##### TOYODA MACHINERY S.E. ASIA CO., LTD.

313, Bangna-Trad Road, KM.1

Kwang Bangna, Khet Bangna,  
Bangkok, 10260 THAILAND

TEL: (66-2)361-8250~1

FAX: (66-2)361-8252

##### PT.JTEKT INDONESIA

MM2100 Industrial Town

Jl. Halmahera Block DD-3

Cikarang Barat, Bekasi 17520 INDONESIA

TEL: (62)21-8998 3275

FAX: (62)21-8998 3274

##### TOYODA KOKI DO BRASIL INDUSTRIA

###### E COMERCIO DE MAQUINAS, LTDA.

Alameda Ulderico Ferrari, 100,  
Itaim Guacu, Itu, SP 13312-655, BRASIL

TEL: (55)4023-1730

##### TOYODA MICROMATIC MACHINERY INDIA

###### LIMITED

506-507, 5th Floor, Suncity Business Tower,

Golf Course Road, Sector-54

Gurgaon-122002, Haryana, INDIA

TEL: (91)-124-4264602

FAX: (91)-124-4288355

<http://www.jtekt.co.jp>

Information presented in this brochure is subject to change without prior notice.

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

The export of products defined as restricted commodities (or technologies) under Japan's "Foreign Exchange and Foreign Trade Act" requires an export license issued by the Japanese Government. Furthermore, similar licenses may be required for re-transfer, re-sale or re-export of such products, therefore please do not fail to contact JTEKT in advance.

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 : TG4

©JTEKT CORPORATION 2009, 2015

Cat. No. M2098-3E

Printed in Japan 150906T

This publication was made using recycled paper for the protection of forests.