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— GLOBAL NETWORK —

MACHINE TOOLS & MECHATRONICS BUSINESS OPERATIONS

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TG SERIES

Grinding Center

TG4-32
TG4-63



<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.

The best and the fastest

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

Grinding center

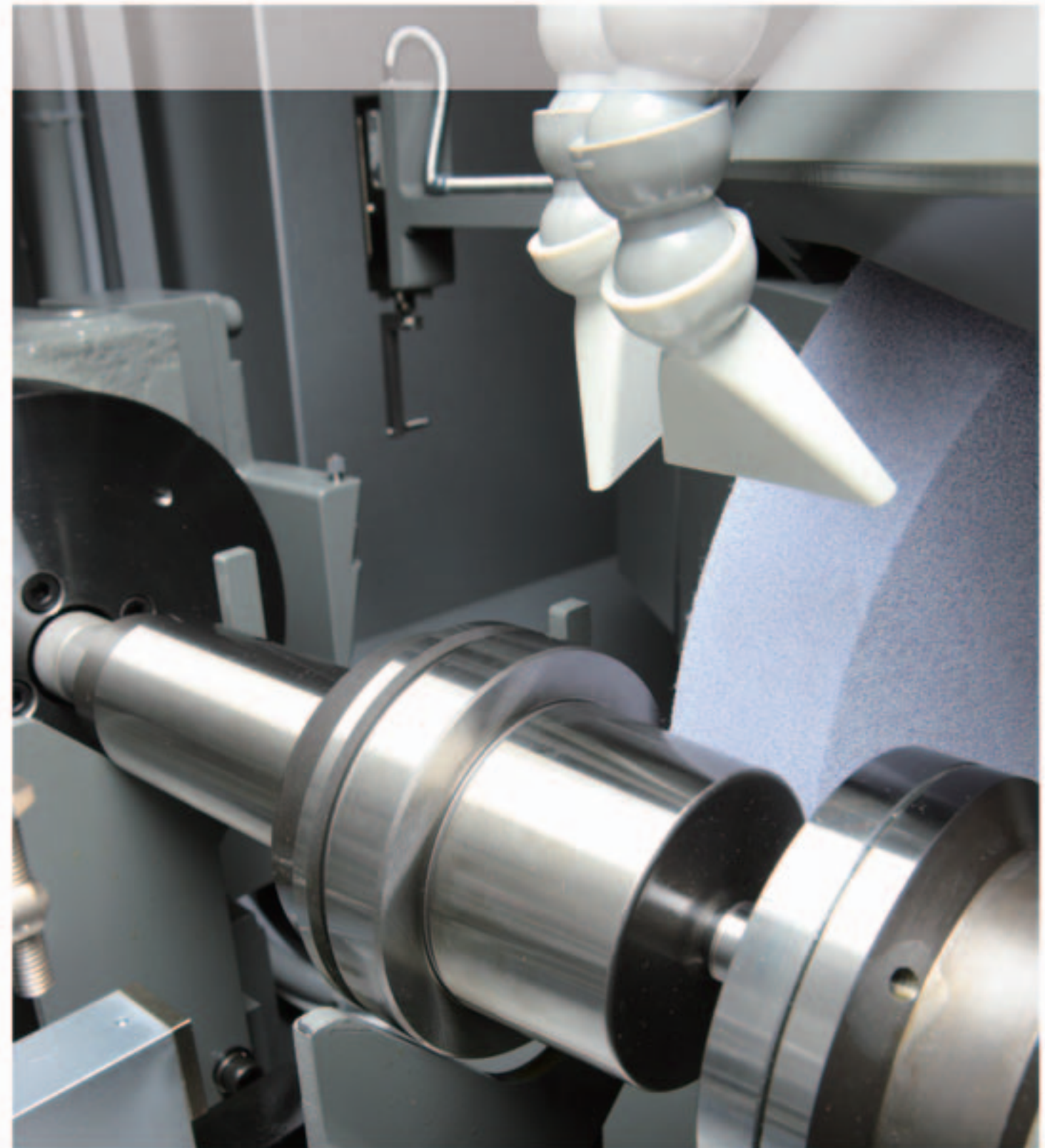
TG4



TG4.32

TG4.63

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



Grinding example



Roundness
Taper: 0.76 μm



Steadfast technology performing high accuracy grinding

Stable high quality grinding

Example of both ends grinding

[Machine model] TG4-32

Grinding conditions

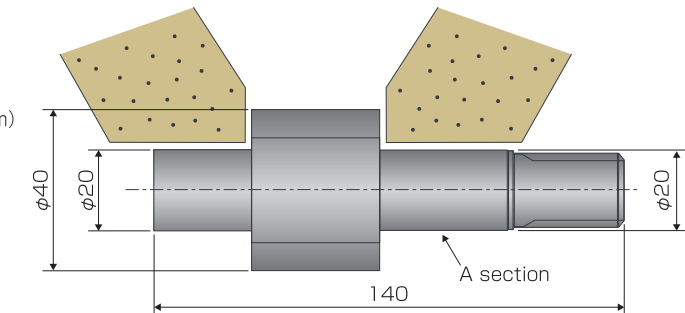
[Working wheel] SA80L7V75 ($\phi 405\text{mm}$)

[Wheel surface speed] 45m/s

Workpiece

[Name] Drive gear

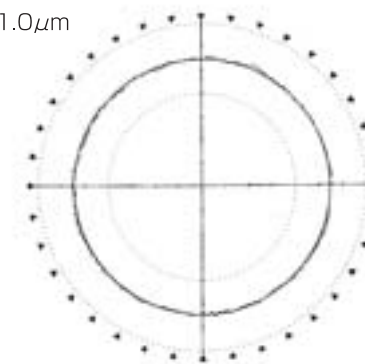
[Material] SCM420H



Roundness

A section: $1.0\mu\text{m}$

Surface roughness: $0.19\mu\text{mRa}$



Example of die grinding

[Machine model] TG4-32

Grinding conditions

[Working wheel]

SA80M7V (O.D. grinding) ($\phi 405\text{mm}$)

SH80K8V (I.D. grinding) ($\phi 25\text{mm}$)

[Wheel surface speed]

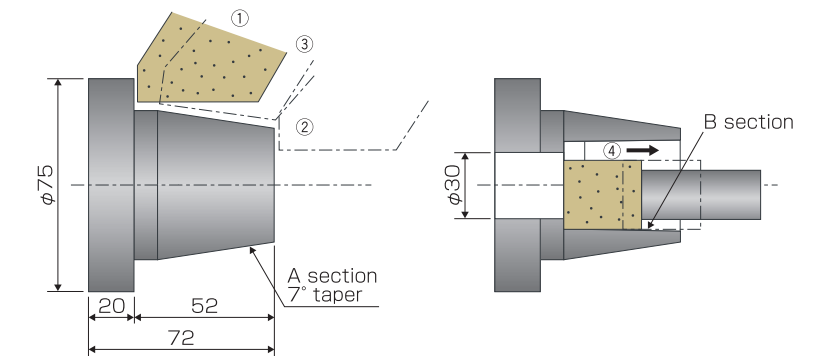
45m/s (O.D. grinding)

30m/s (I.D. grinding)

Workpiece

[Name] Die (model test piece)

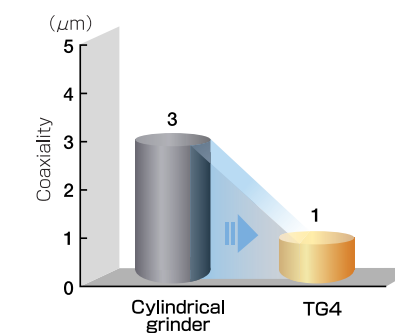
[Material] STAVAX



Coaxiality

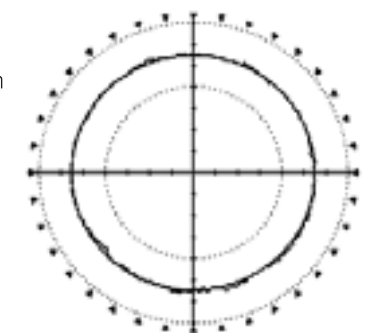
B section:

$1\mu\text{m}$ (Datum A)



Roundness

A section:
 $0.8\mu\text{m}$



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

Steadfast technology performing high accuracy grinding

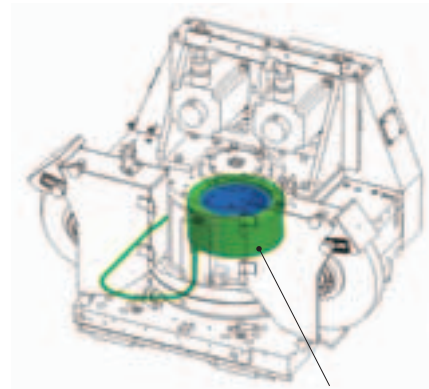
A machine structure supporting high accuracy and high productivity

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	$\pm 0.0002^\circ (\pm 0.72'')$ (Backlash-free)
Swiveling time	2s/180°

High accuracy

[Dimensional variation]
 $5\mu\text{m}$ without auto-sizer

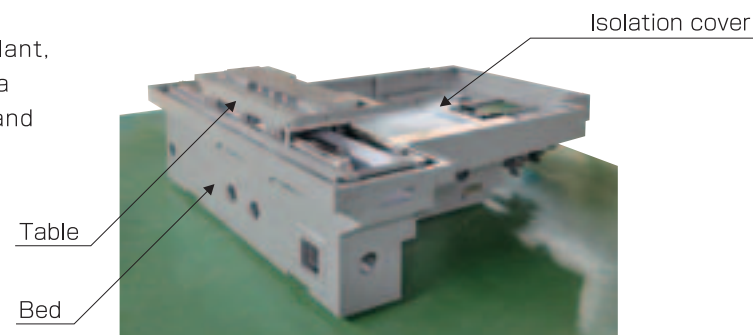
[Straightness]
Straightness of $1\mu\text{m}$ with swivel grinding

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.



Isolation cover

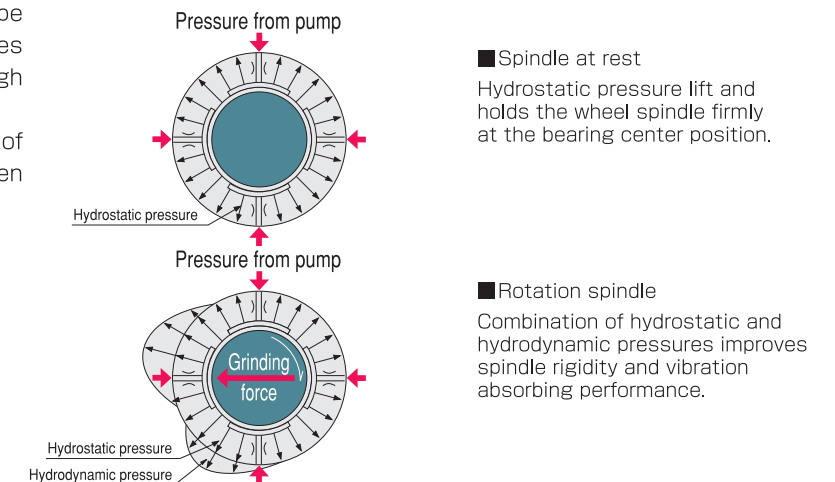
Table

Bed

Development technology supporting high accuracy

TOYODA STAT BEARING as the wheel spindle

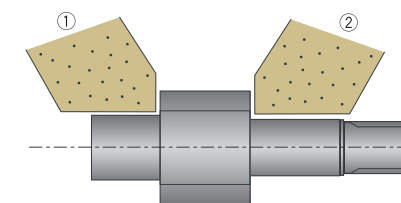
Equipped with extremely rigid hybrid-type TOYODA STAT BEARING which provides no metal-to-metal contact and has a high vibration damping capacity. High accuracy grinding and longevity of the machine is achieved by using proven JTEKT spindle technology.



Achieving one-chuck grinding

Process integration of both ends grinding

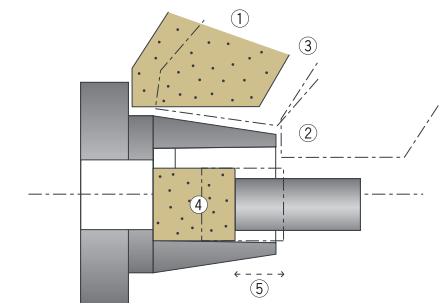
- Angular/reverse angular one-chuck grinding
- Improved coaxiality thanks to one-chuck grinding



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

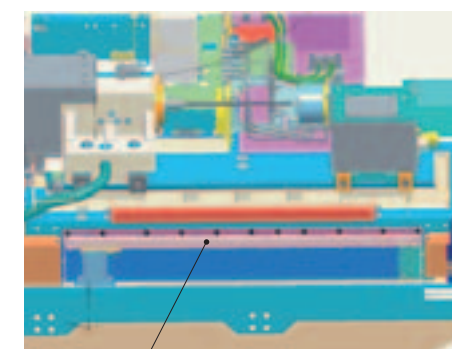
Linear scale pursuing high accuracy

Linear scale for wheelhead feed and table feed

By adopting a linear scale, 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.



Linear scale for wheelhead feed



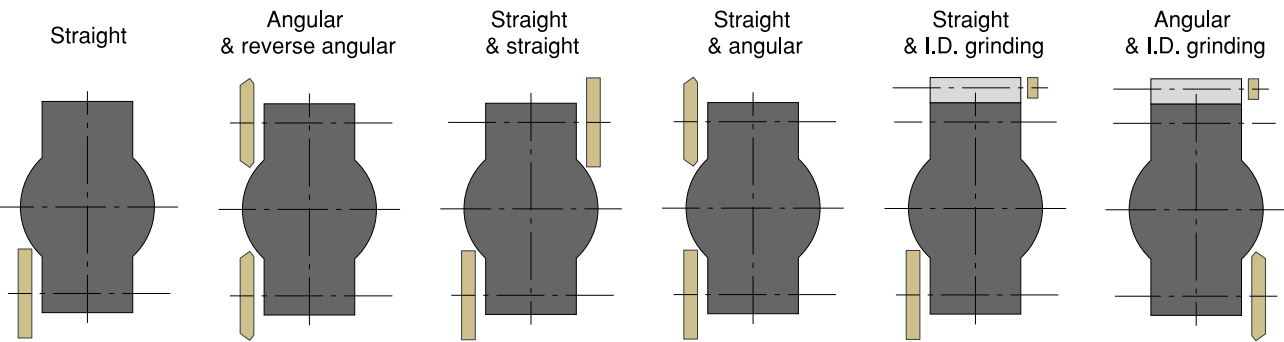
Linear scale for table feed

Option

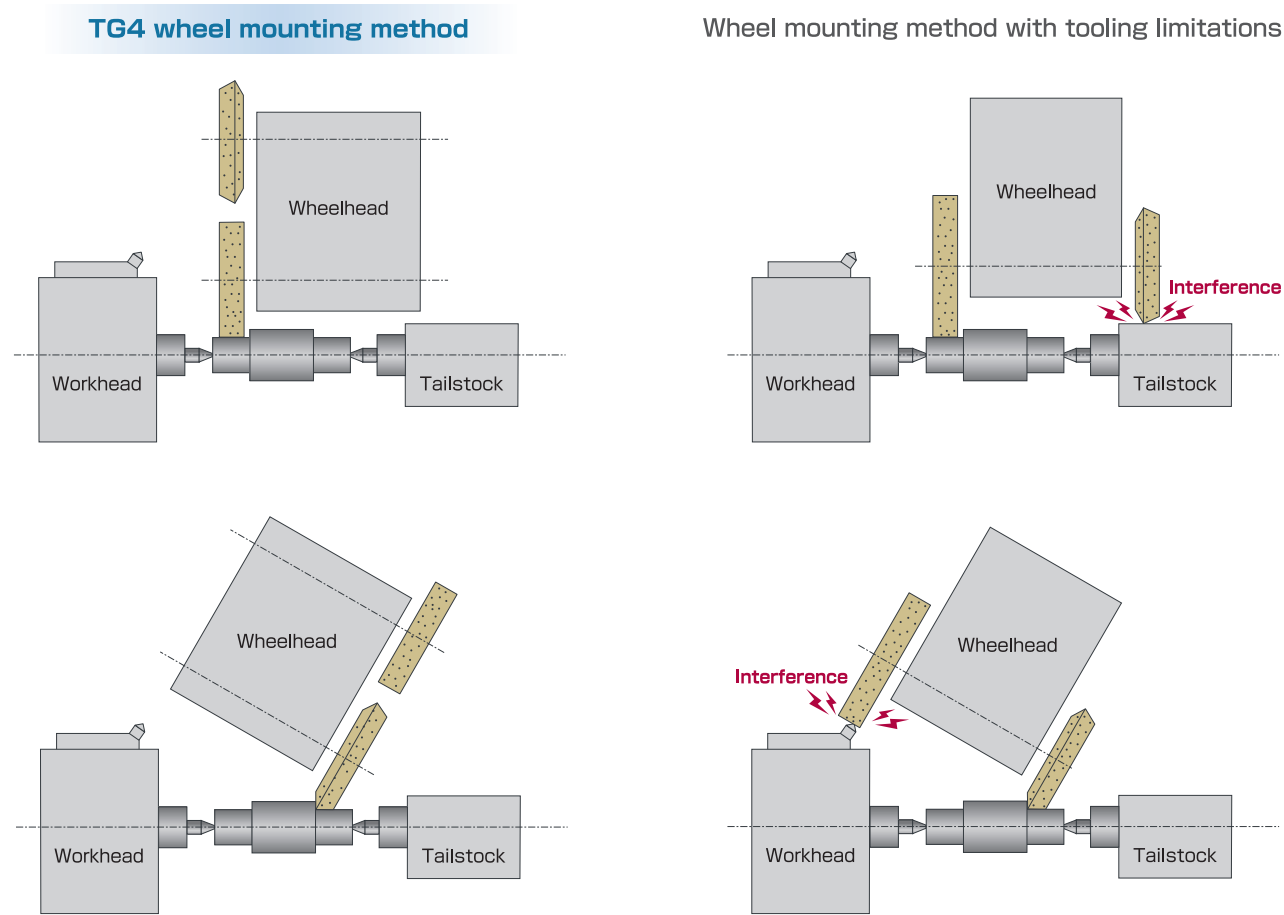
High productivity

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.

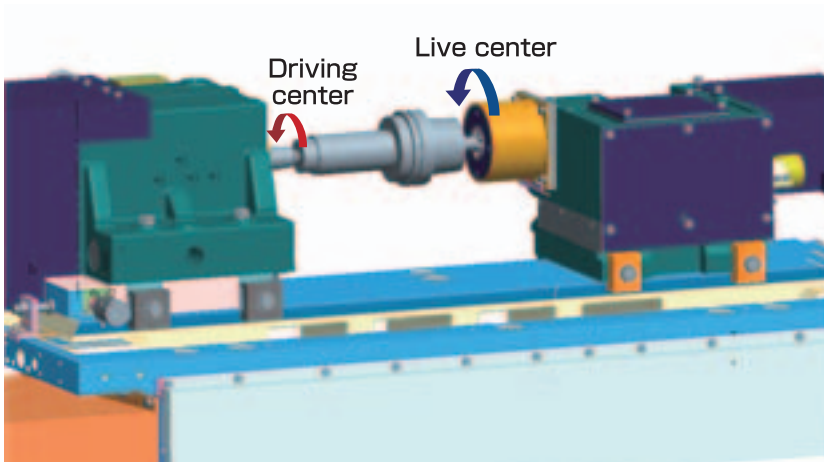


Ideal wheel mounting with little interference

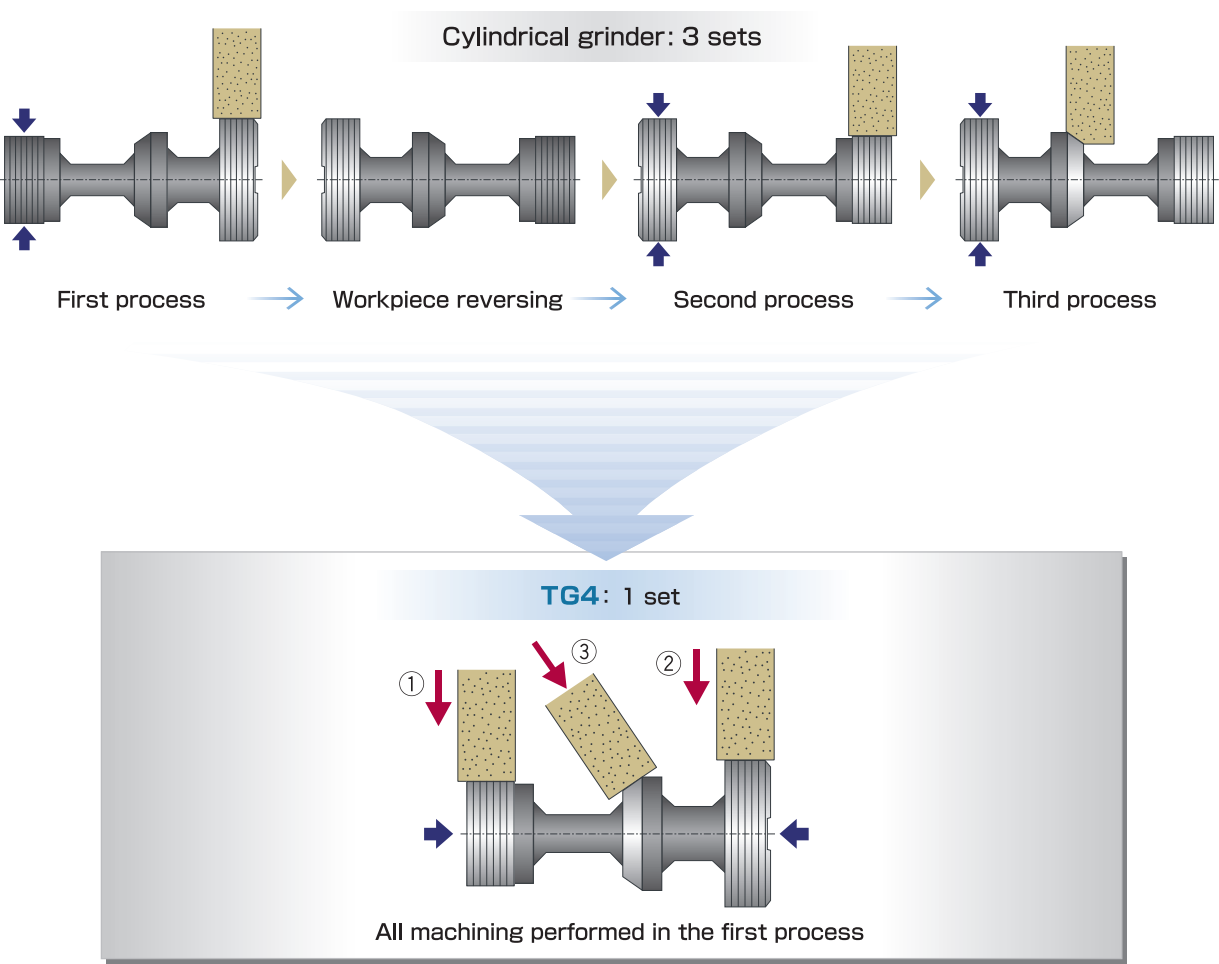


Center drive grinding

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 center drive specifications

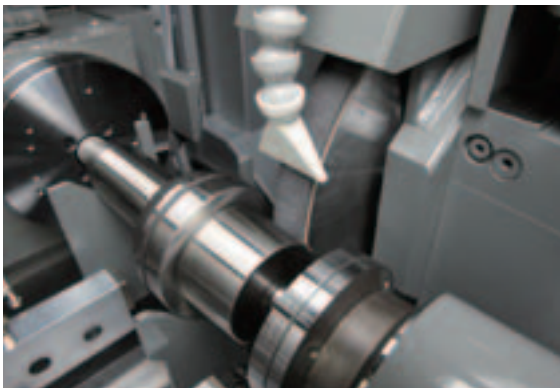
※⬆ : Shows driving portions

Abundant options

CBN wheel specifications

Option

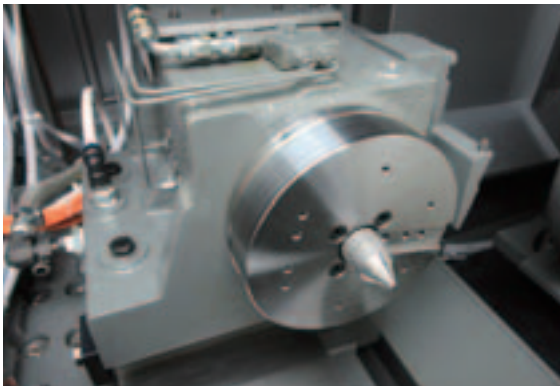
CBN wheel specifications are prepared to achieve high productivity and the grinding of hard-to-cut material. (Select from wheel surface speeds of 30m/s, 45m/s, 60m/s or 80m/s.)



C-axis workhead

Option

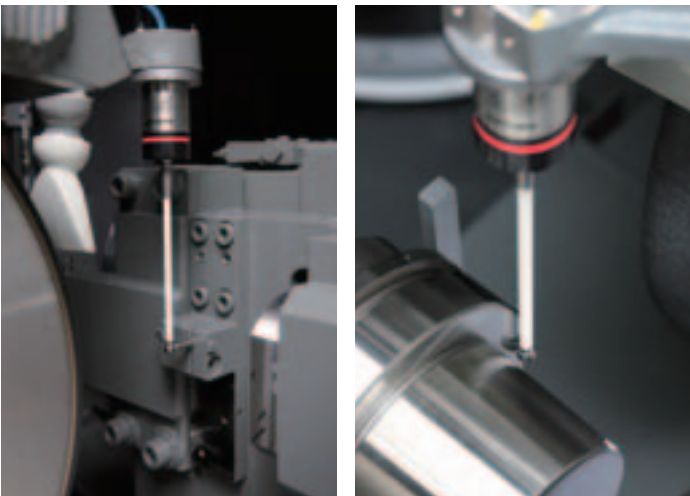
Non-circular workpieces are grinded by synchronizing the wheelhead and workhead. For this reason, by featuring a C-axis workhead with proven results on the cam grinder (highest RPM of 250min-1), high accuracy, non-circular grinding is achieved.
※The X-axis linear scale is necessary for non-circular grinding



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

Option

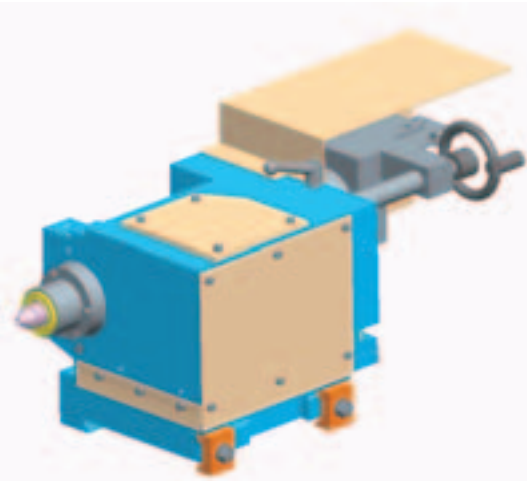
For non-circular workpieces, the misalignment of the wheel diameter recognized by the machine and the actual diameter effects the profile accuracy. For this reason, by including a touch probe able to accurately measure the wheel diameter after truing is performed, high accuracy non-circular grinding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

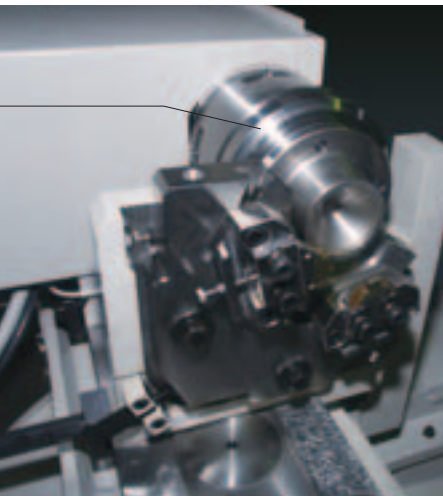


Electromagnetic chuck

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	

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	

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	
	6. Taper plunge (right) grinding	
	7. Taper plunge traverse (right) grinding	
	8. Left end	
	9. Taper plunge (left) grinding	
	10. Taper plunge traverse (left) grinding	
	11. Profile (CX grinding)	

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	
	6. Oscillation with indirect auto-sizing	
	7. Taper plunge (right) grinding	
	8. Taper plunge traverse (right) grinding	
	9. Right end	

Machine specifications

		[] Items enclosed in parentheses are optional	
Item		Unit	TG4-32TG4-63
			Specifications
Distance between centers		mm	320630
Swing on table		mm	φ320
Grinding diameter	O.D.	mm	φ0 ~ φ220
	I.D.	mm	φ10 ~ φ120
Load between centers		kg	150
O.D. wheel	Bearing		TOYODA STAT BEARING
	Normal wheel specification	O.D. x width x I.D.	mmStraight: φ405 × 50 [75] × φ127
			mmAngular: φ405 × 50 [75] × φ127
		Surface speed	m/s30 [45/60]
	CBN wheel specifications*1	O.D. x width x I.D.	mmStraight: φ350 × 30 × φ127 [φ203.2] *2
			mmAngular: no setting
		Surface speed	m/s30 [45/60/80]
	Wheelhead infeed	Rapid feedrate	m/minφ20
Wheelhead swiveling unit		Smallest input increment	mmφ0.0001
		Swivel angle	°0 ~ 210
		Swivel unit	°0.00001
		Swiveling method	Auto (DD motor)
		Swivel positioning method	NC
Table traverse	Rapid feedrate	m/min	2015
	Smallest input increment	mm	0.0001
Workhead	Type		Workhead with live center
	Center		MT No.4 [Special center] *3
	Rotation speed	min ⁻¹	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 200Control 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	kW	1.31.6
	Wheel spindle bearing oil pump	kW	1.5
	Hydraulic oil pump	kW	0.75
	Lubrication oil pump	kW	0.090.09 + 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	L	66 + 6 [6 + 20]
	Lubrication oil (for truer roll) *1	L	6
	Coolant	L	250
Required floor space		mm	2,750×2,1003,700×2,300
Net mass		kg	7,0008,000

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 GC50

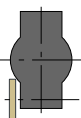
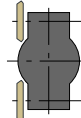
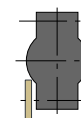
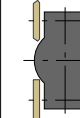
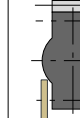
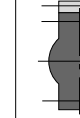
		● : Standard / □ : Optional	
Items	No.	Specifications	Included
Control axis	1	X-axis (wheelhead infeed)	●
	2	Z-axis (table traverse)	●
	3	B-axis (wheelhead swivel)	●
	4	Multi-spindle specification (Max. 7 axes)	□
Display unit	5	Color LCD (Japanese)	●
	6	Color LCD (English)	□
File control	7	Hierarchization 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 GC50 JTEKT-made
4	Wheelhead	11	NC data format input
5	Wheelhead infeed device	12	GC50 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.
									
Workhead	1	Live spindle workhead (center drive workhead) 1,000min ⁻¹		●	●	●	●	—	—
	2	Live spindle workhead with taper adjustment (Workpiece chucking workhead) 1,000min ⁻¹		○	○	○	○	●	●
	3	Dead spindle workhead 500min ⁻¹		○	○	○	○	—	—
	4	Dead spindle workhead with auto chuck 500min ⁻¹		○	○	○	○	—	—
	5	Live/dead spindle combination workhead with taper adjustment 1,000min ⁻¹		○	○	○	○	○	○
	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 2-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 φ405×50×φ127)		●	—	● 2 sets	●	●	—
	31	Normal wheel (angular φ405×50×φ127)		—	● 2 sets	—	●	—	●
	32	CBN wheel (straight φ350×30×φ127)		○	—	○	○	○	—
	33	CBN wheel (straight φ350×30×φ203.2)	CBN60/80M	○	—	○	○	○	—
	34	Wheel flange (for φ405mm wheel dia., round nut, for 20~65mm width)		● 1 set	● 2 set	● 2 set	● 2 set	● 1 set	● 1 set
	35	Wheel flange (for φ405mm wheel dia., round nut, for 33~75mm width)		□	□	□	□	□	□
	36	Wheel flange (for φ350mm wheel dia., round nut, for 20~50mm width)	CBN60/80M	□	—	□	□	□	—
	37	Guard for φ405 wheel (width:~50mm)		●	●	●	●	●	●
	38	Guard for φ405 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 (linear scale specification)	Item 45 is necessary.	□	□	□	□	□	□
	40	High accuracy of table traverse (linear scale specification)	Item 45 is necessary.	□	□	□	□	□	□
	41	Hydraulic pump unit (standard)		●	●	●	●	●	●
Hydraulic/pneumatic device	42	Hydraulic pump unit (specifications of profile grinding and chucking)	One piece is added.	□	□	□	□	□	□
	43	Pneumatic device (standard)		●	●	●	●	●	●
	44	Pneumatic device (diamond/truing roll specification)		□	□	□	□	□	□
	45	Pneumatic device (linear scale specification)		□	□	□	□	□	□
	46	Coolant supply unit (250L, with coolant low confirmation device) (coolant pump 250W, washing pump 180W)		●	●	●	●	●	●
Coolant supply unit	47	Coolant supply unit (250L, with coolant low confirmation device) (coolant pump 750W, washing pump 180W)		○	○	○	○	○	○
	48	Magnetic separator (processing ability 80L/min)		□	□	□	□	□	□
	49	Magnetic separator (processing ability 80L/min) Rare metal separator		□	□	□	□	□	□
	50	Magnetic separator (processing ability 120L/min)		□	□	□	□	□	□
	51	Magnetic separator (processing ability 120L/min) Rare metal separator		□	□	□	□	□	□
	52	Coolant cooler, separated: KTCG7.5AS-CNCE		□	□	□	□	□	□
	53	Bed washing		●	●	●	●	●	●
	54	Auto-sizer cooling		□	□	□	□	□	□
	55	I.D. unit (drive motor 2.0kW)	*1	—	—	—	—	●	●
	56	I.D. unit (drive motor 5.0kW)	*1	—	—	—	—	○	○
I.D. unit	57	I.D. grinding spindle (G920TQ MT. NO.3 12,000~20,000 min ⁻¹ speed) with taper quill (MT3-18-80-8) and I.D. wheel with pulley for setting 12,000/15,000/18,000/20,000min ⁻¹ speed	*1	—	—	—	—	●	●
	58	I.D. grinding spindle (G940TQ MT. NO.1 25,000~33,000 min ⁻¹ speed) with collet arbor (MT1-6-8) with pulley for setting 25,000/33,000min ⁻¹ speed	*1	—	—	—	—	□	□
	59	I.D. grinding spindle (G925TQ MT. NO.2 18,000~25,000 min ⁻¹ speed) with taper quill (MT2-14-60-6) and I.D. wheel with pulley for setting 18,000/20,000/25,000min ⁻¹ speed	*1	—	—	—	—	□	□
	60	I.D. grinding spindle (G915TQ MT. NO.4 8,000~15,000 min ⁻¹ speed) with taper quill (MT4-23-80-10) and I.D. wheel with pulley for setting 8,000/10,000/13,000/15,000min ⁻¹ speed	*1	—	—	—	—	□	□
	61	Collet arbor (for above selected I.D. spindle)		—	—	—	—	□	□
	62	Taper quill (for above selected I.D. spindle, 1 wheel included)		—	—	—	—	□	□
	63	Wheel dresser (mounting to workhead rear)	*3	●	●	●	●	●	●
	64	Wheel dresser (mounting on table)	*3	□	□	□	□	□	□
	65	Diamond holder for I.D./O.D. grinding (mounting on table)	*3	□	□	□	□	□	□
	66	Diamond roll type wheel dresser (for normal wheel)	*2 Item 44 is necessary.	○	○	○	○	○	○
Wheel dresser	67	Truing roll type wheel dresser (for CBN wheel)	*2 Can not be used with item 65. Item 44 is necessary.	□	□	□	□	□	□
	68	Forming diamond		●	●	●	●	●	●
	69	Single point diamond		□	□	□	□	□	□
	70	Diamond roll		○	○	○	○	○	○
	71	Truing roll		□	□	□	□	□	□
	72	Center drive (rotating together)		●	●	●	●	□	□
	73	Automatic dog(φ5~φ45) (1 set of 5 within range)		□	□	□	□	□	□
	74	Automatic dog (φ45~φ80) (1 set of 4 within range)		□	□	□	□	□	□
	75	Automatic chuck	*2 Item 4 is necessary.	□	□	□	□	□	□
	76	I.D. drive unit	*2 Item 4 is necessary.	□	□	□	□	□	□
Drive fittings	77	3-jaw scroll chuck (6")		□	□	□	□	●	●
	78	3-jaw scroll chuck (select from 4", 5" or 7")		□	□	□	□	□	□
	79	Electromagnetic chuck	*2	□	□	□	□	□	□
	80	Sizing device FX-1001 (JTEKT-made, CNC built-in amp., 3P, φ5~φ80)		□	□	□	□	□	□
Sizing/locating unit	81	Sizing device FX-1001 (JTEKT-made, CNC built-in amp., 3P, φ10~φ160)		□	□	□	□	□	□
	82	Spline sizing device FX1501 (JTEKT-made, CNC built-in amp., 3P, φ5~φ80, FX1501)	Item 83 is necessary.	□	□	□	□	□	□

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.
Sizing/locating unit	83	Post gauge for I.D. measurement FX-1810 (JTEKT-made, CNC built-in amp, φ15~φ135)	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, φ10~φ120)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steady rest	88	Manual type steady rest (φ10~φ100)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	89	Manual type steady rest (φ100~φ200)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	90	3-point type steady rest (φ10~φ100)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	91	3-point type steady rest (φ100~φ200)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover	92	Hydraulic type steady rest	*2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	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"/>
Tools	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"/>
Control	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"/>
Overseas specifications	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	GC50 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	●	●	●	●	●	●
	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"/>
Special cycle	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	○	○	○	○	○	○
	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.

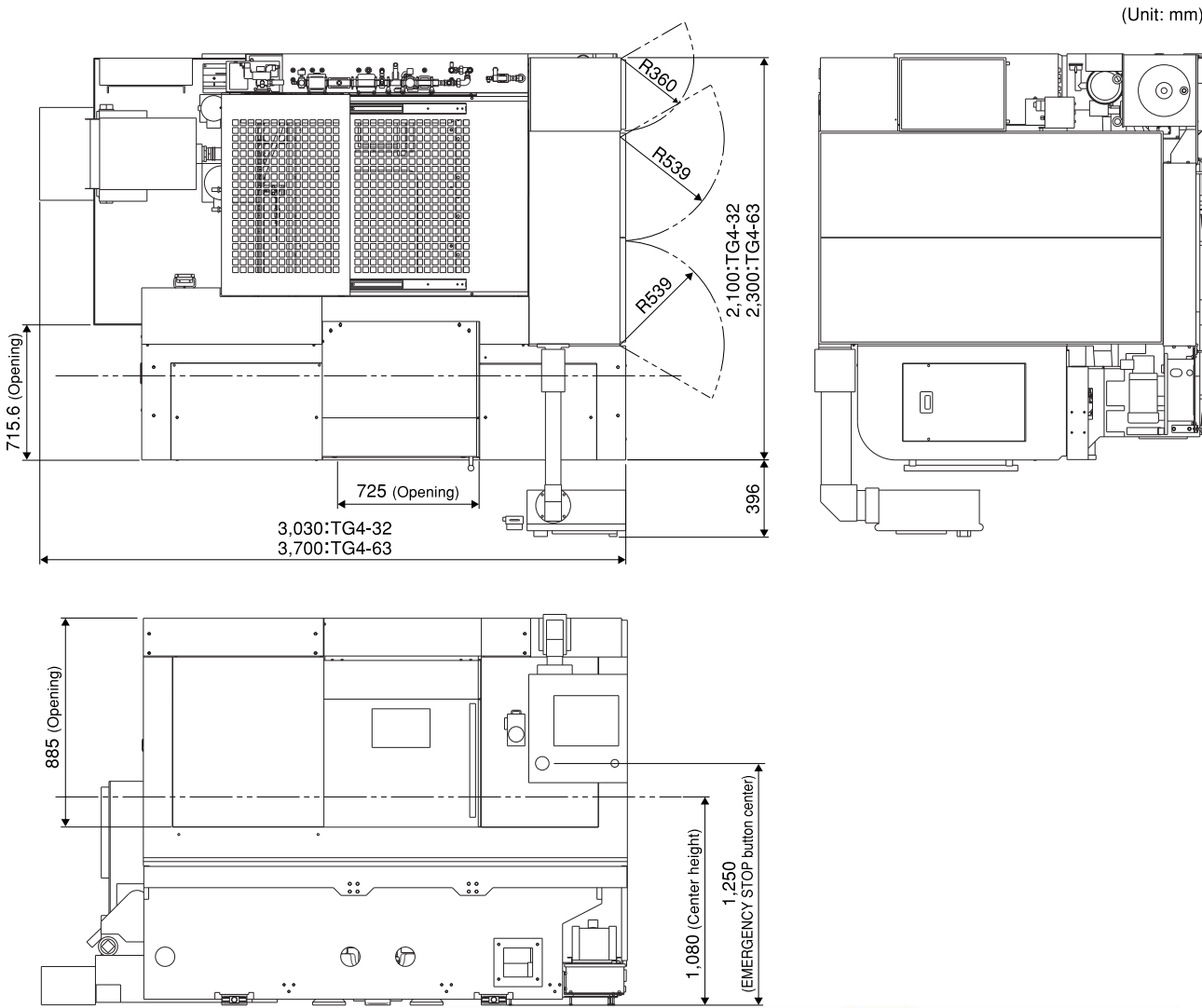
*5. Grinding content differs according to wheel mounting patterns.

*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



The machine in this photo shows standard cover specification.