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TONGIL INDUSTRIES CO.,LTD.

# PRODUCT LINE UP

AUTOMOBILE DIVISION



BALL SCREW DIVISION

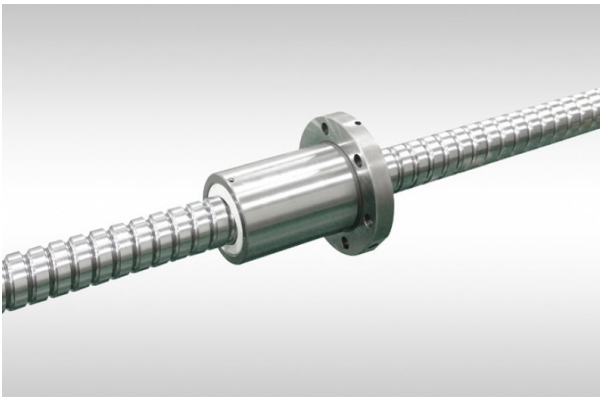


GRINDER DIVISION



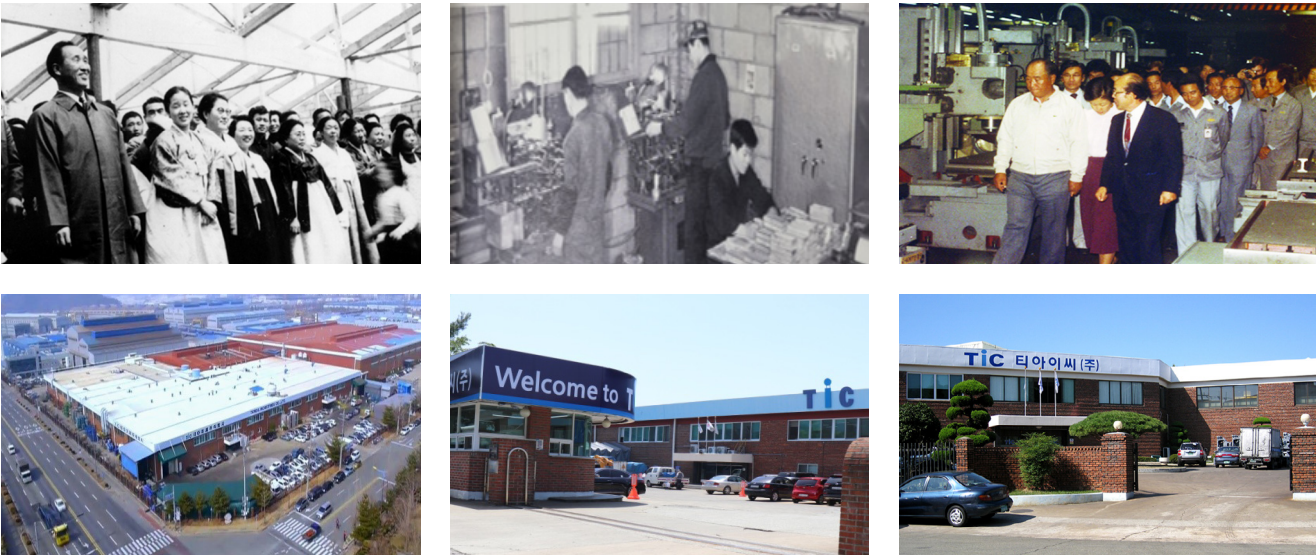
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		Defense Industry		D Series (Deflector)		Tool Grinding Machine	
		Overseas Export		E Series (Endcap)		NC Internal Grinding Machine	
		Transmission		R Series (Rolled)		Exclusive Grinding Machine	
				H Series (Tube, Endcap)			





History



1959~2000

- 1995.10.**  
ISO9001 certification obtained
- 1988.08.**  
Jinheung Machine Co., Ltd. Dongyang Gear Co., Ltd. Sunil Heat Co., Ltd. Duckheung Ind. Co., Ltd. Daesung Ind. Co., Ltd. Company founding
- 1979.12.**  
Completion of the Changwon Plant
- 1972.04.**  
Designation as a defense industry company
- 1962.08.**  
Establishment of Tongil Industries
- 1959.05.**  
Establishment of Yehwa Ammunition Factory

2001~2010

- 2010.12.**  
30 million dollar export tower award
- 2010.08.**  
Selected as a company with an excellent labor-management culture (Ministry of Employment and Labor)
- 2008.10.**  
Merger of TIC Co., Ltd. into TIC Integrated Corporation (Incorporating Jinheung, Deokheung, Ball Screw Division)
- 2008.03.**  
Adoption of Six Sigma for management innovation
- 2007.11.**  
20 million dollar export tower award
- 2006.12.**  
Merger of TIC Dongyang Co., Ltd., TIC Sunil Co., Ltd., and TIC Jinheung Co., Ltd.
- 2004.11.**  
3 million dollar export tower award
- 2004.11.**  
TS16949 certification obtained

2011~2019

- 2019.10.**  
Won the Management Division Award at the Changwon Chamber of Commerce and Industry
- 2019.07.**  
Selected as a company with an excellent labor-management culture (Ministry of Employment and Labor)
- 2017.05.**  
Selected as an excellent workplace for labor-management partnership (Ministry of Employment and Labor)
- 2016.07.**  
Selected as a company with an excellent labor-management culture (Ministry of Employment and Labor)
- 2015.10.**  
Selected as a global leading company by the Korea Industrial Management Corporation/Minister of Trade, Industry and Energy Award
- 2014.06.**  
ISO 14001 certification obtained
- 2014.03.**  
Gold, silver, and bronze awards in the Learning Organization Support Business Competition (Busan, Ulsan, Gyeongnam)
- 2011.02.**  
Started mass production of K-10 defense ball screw

2020~Present

- 2024.06.**  
Won Changwon Best CEO Award
- 2023.02.**  
Awarded at Hyundai Transys Award for Outstanding Partner in the Technical Sector
- 2023.01.**  
Awarded at Hyundai WIA Partnership Day for Cooperation Companies
- 2020.12.**  
Received the Prime Minister's Award for Labor Culture in 2020
- 2020.04.**  
Commenced joint development with Hyundai Motor Group on the world's first multi-stage hydrogen power transmission device
- 2020.03.**  
Received commendation from the Prime Minister at the 47th Trade Day



# AUTOMOBILE DIVISION

Axle (Hypoid Gear)  
Automation Line (Axle)  
Commercial Vehicle  
Transmission  
Defense Industry  
Overseas Export

## Inquiry

Please feel free to contact us with any questions or inquiries at any time.  
We are dedicated to providing our customers with the best service.



### Location

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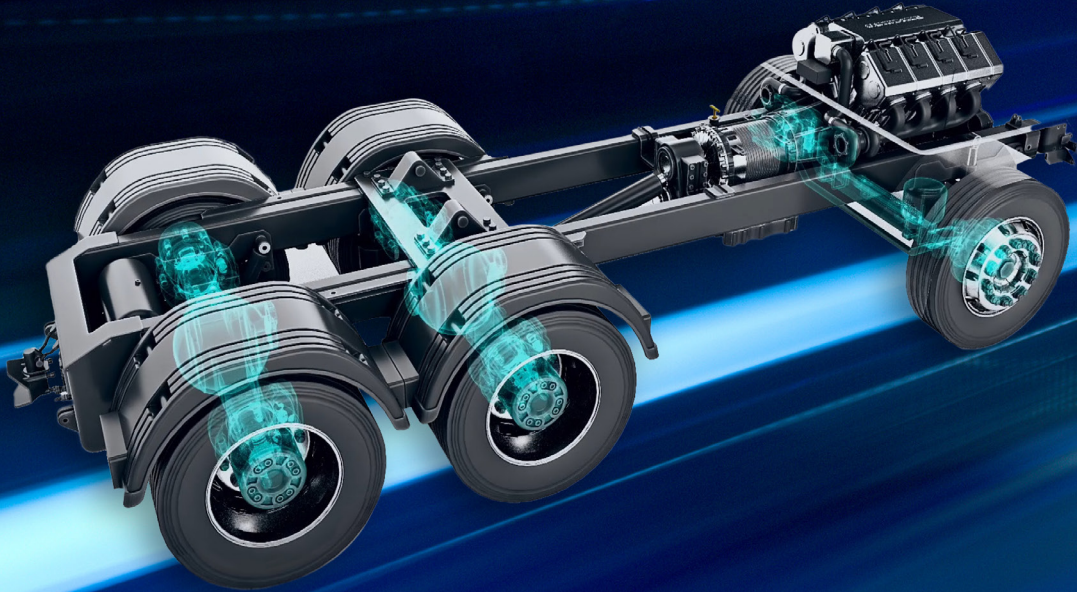


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# Axle (Hypoid Gear)

**Axles Developed with World-Class Technology as Core Part of Power Transmission System**

TIC specializes in automotive axle assembly and components production, and it supplies axle parts that play key roles in automotive power transmission systems.



## Hypoid & Bevel Gar Line up

Passenger SUVs		Main Vehicle Types	Size	Main OEM
		NX4_Tucson	Ø100 ~ Ø200	Hyundai-Transys Hyundai-Wia
		MQ4_Sorento		
		TK_Tasman		
Medium & Heavy Commercial Vehicle		Main Vehicle Types	Size	Main OEM
		HR/PU_Truck 1ton	Ø180 ~ Ø480	Hyundai-Transys
		QZ_Xcient		
		PY_Unicity		
Export, Military, and Forklifts		Main Vehicle Types	Size	Main OEM
		TY_Medium Tactical Vehicle	Ø180 ~ Ø480	Kia OSHKOSH AM General HD-Xitesolution
		JLTV/MTVR_US Military Tactical Vehicle		
		Construction Equipment – Forklift		

## Line up of Vehicle Equipped



NX4\_Tucson



HR/PU\_Truck 1ton



TY\_Medium Tactical Vehicle



MQ4\_Sorento



QZ\_Xcient



JLTV/MTVR\_US Military Tactical Vehicle



TK\_Tasman



PY\_Unicity



Construction Equipment – Forklift

**Other Applicable Vehicles :** MQ5\_Santafe / SX2\_Kona / GV70\_Genesis / LX2\_Palisade  
US4\_Staria / SP2\_Seltos / HM\_Mohave / NQ5\_Sportage



# Automation Line (Axle)

## Advanced Automation Line for Supply of High-Quality Products

TIC is equipped with advanced automation systems that ensure efficient and precise gear set production. TIC continuously upgrades its facilities to maximize product quality and achieve fast and precise production.



## Dry Cutting & Lapping



**G280CX**  
Main equipment for small and medium-sized cutting line

- Automated equipment applied with advanced technology for high-performance gear machining
- High-speed and high-precision machining for efficient mass production

Maximum Gear Machining Diameter	280mm
Dimension Range	1-300
Maximum Cutter Diameter	9inch
Maximum Cutter Radius	105mm



**600HTT**  
Main equipment for small and medium-sized lapping TEST line

- Fast and flexible test for spiral bevel and hypoid gear sets
- Contact pattern inspection, single flank test, and structural noise transmission measurement

Maximum Gear Diameter	600mm
Maximum Pinion Speed	3,000rpm
User-friendly control	Software Based on the Fanuc 31i Controller



**600HTL**  
Main equipment for small and medium-sized lapping line

- Lapping machine with maximum production and reliability
- Equipment with high-speed, ergonomic, and compact design

Maximum Gear Diameter	600mm
Maximum Pinion and Gear Drive Speed	3,000rpm
System	SmartLAP™ SmartLAP™ Automated Torque Control System

## Equipment Status

Facility status								
Cutting				Lapping				Cleaning
Cutting M/C	Cutter Grinding	Cutter Assembly	Cutter Inspection	Lapping	Test	Deburring cleaning	Laser marking machine	Cleaning machine
44	5	5	4	20	23	19	4	1



# Commercial Vehicle

## Commercial Components Trusted for Accumulative Technology and Quality

TIC's third factory produces components optimized for commercial vehicles, showing outstanding performance and durability in various transportation conditions. TIC's components earned strong customer trust for their excellent facilities and technology.



## Commercial Vehicle



### 3.5T FRONT AXLE ASS'Y

- Transmits power to front wheels
- Enhances driving force with 4WD system



### Commercial Truck Retarder

- Generates braking force through fluid resistance in the rotor and stator to prevent brake milling on downhill

## Equipment Status

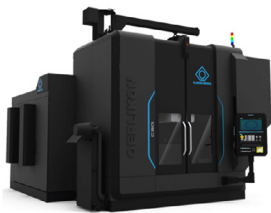


### G600HC

Medium and Large Cutting Line

- Vertical gear hobbing machine for high-precision gear machining
- Ideal for large gear machining and shows high productivity and precision

Maximum Gear Machining Diameter	600mm
Dimension Range	1-300
Maximum Cutter Diameter	18inch
Maximum Cutter Radius	210mm



### C50

Medium and Large Cutting Line

- 6-axis CNC vertical dry cutting machine for high-precision spiral bevel gear machining
- Eco-friendly and cost-effective machining without cutting oil

Maximum Gear Machining Diameter	500mm
Dimension Range	90
Cutter Head Diameter	88 – 181mm
Spindle Speed (Maximum)	450 rpm

## Equipment Status

Facility status									
Cutting				Grinding			Lapping		
Cutting	Test	Chamfering	ETC	Internal Grinding	External Grinding	Tooth Grinding	Lapping	Test	Deburring & Cleaning
27	5	3	7	2	4	2	5	4	4

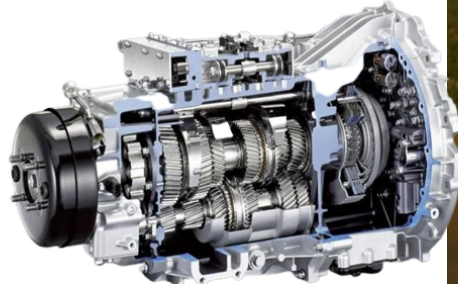




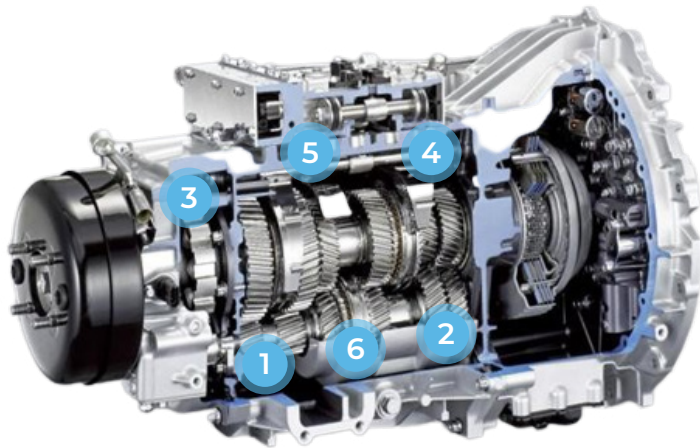
# Transmission

## Top-Quality Transmission Based on Continuous Technological Innovation

TIC has demonstrated its product quality to its clients by developing intermediate transmissions for commercial vehicles, Chunmoo MLRS, and mid-sized standard vehicles, leveraging its technology and know-how accumulated from gear and shaft production.



## Transmission



1



### SHAFT COUNT

**MODEL** Commercial Truck, Bus  
**CLIENT** Hyundai Transys, OTC, etc.

2



### REV IDLER GEAR

**MODEL** Commercial Truck, Bus  
**CLIENT** Hyundai Transys, OTC, etc.

3



### SHAFT PINION DRIVE

**MODEL** Commercial Truck, Bus  
**CLIENT** Hyundai Transys, OTC, etc.

4



### SHAFT MAIN

**MODEL** Commercial Truck, Bus  
**CLIENT** Hyundai Transys, OTC, etc.

5



### GEAR M/S 2NT

**MODEL** Commercial Truck, Bus  
**CLIENT** Hyundai Transys, OTC, etc.

6



### HUB SYN PART

**MODEL** Commercial Truck, Bus  
**CLIENT** Hyundai Transys, OTC, etc.



Defense Industry

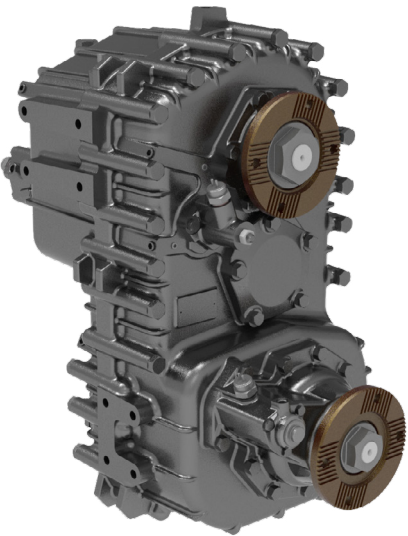


Division		2½Ton Cargo	5Ton Cargo
Type	Drive Type	Potal 4 × 4	Potal 6 × 6
	Portal Upet (mm)	148.5mm	←
Allowable load (kgf)	Front	8,000 kg	←
	Rear (2nd)	8,000 kg	←
	Rear (3nd)	-	8,000 kg
Axial Distance (mm)		Double Reduction (Portal)	←
Differential Gear Ratio		Diff. Lock	Diff. Lock / Inter Lock
Differential Torque Ratio		Full Air,Disc	←
Differential Lock Type		CTIS, ABS	←

Defense Industry

TIC's Original Advanced Technology Supporting National Defense Industry

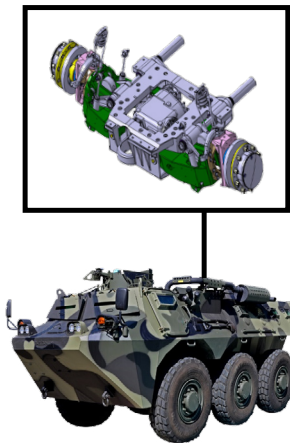
TIC specializes in producing axle assemblies for military vehicles by leveraging its technology and know-how accumulated from passenger/commercial vehicle component production. TIC also has demonstrated its technological competence to domestic and foreign clients by successfully developing axles for mid-sized tactical vehicles.



Division	Transfer Case
Type	Full Time
Gear Ratio	1:1.000 / 1:1.750
Allowable Input Torque (N.m)	20,000
Axial Distance (mm)	396
Differential Gear Ratio	2.39 (Planetary Type)
Differential Torque Ratio	FWD:RWD = 28:67
Differential Lock Type	Dog Clutch / Air Cylinder

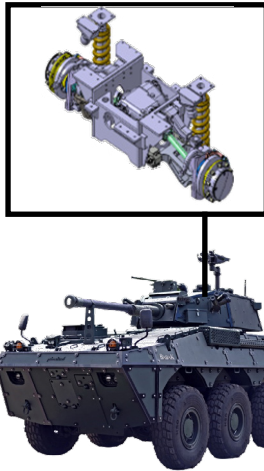


Overseas Export



Division		ANOA2
Drive Type		Torsion bar 4 × 4
Allowable load (kgf)	Front	5,000 kg
	Rear (2nd)	5,000 kg
	Rear (3rd)	5,000 kg
Gear Type		Double Reduction
Locking system		Diff. Lock
Break system		Full Air, Disc

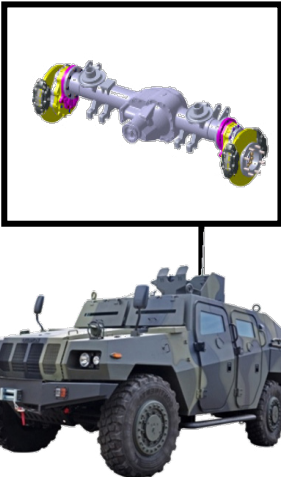
Division		BADAK
Drive Type		Double Wishbone 4 × 4
Allowable load (kgf)	Front	7,500 kg
	Rear (2nd)	7,500 kg
	Rear (3rd)	7,500 kg
Gear Type		Double Reduction
Locking system		Diff. Lock
Break system		Full Air, Disc
Additional system		CTIS



Overseas Export

TIC's Globally Recognized Development Capability

TIC successfully attracted domestic and foreign clients for excellent quality through continuous development of axle assembly technology. TIC is rapidly expanding into global markets by developing rigid axle and independent suspension axles (ISAS) for clients in foreign countries such as Indonesia and Vietnam.



Division		KOMODO
Drive Type		Potal 4 × 4
Allowable load (kgf)	Front	5,500 kg
	Rear (2nd)	5,500 kg
	Rear (3rd)	-
Gear Type		Double Reduction
Locking system		Diff. Lock
Break system		Full Air, Disc
Additional system		CTIS



# BALL SCREW DIVISION

T Series (Tube)

L Series (High Lead)

D Series (Deflector)

E Series (Endcap)

R Series (Rolled)

H Series (Tube, Endcap)

## Inquiry

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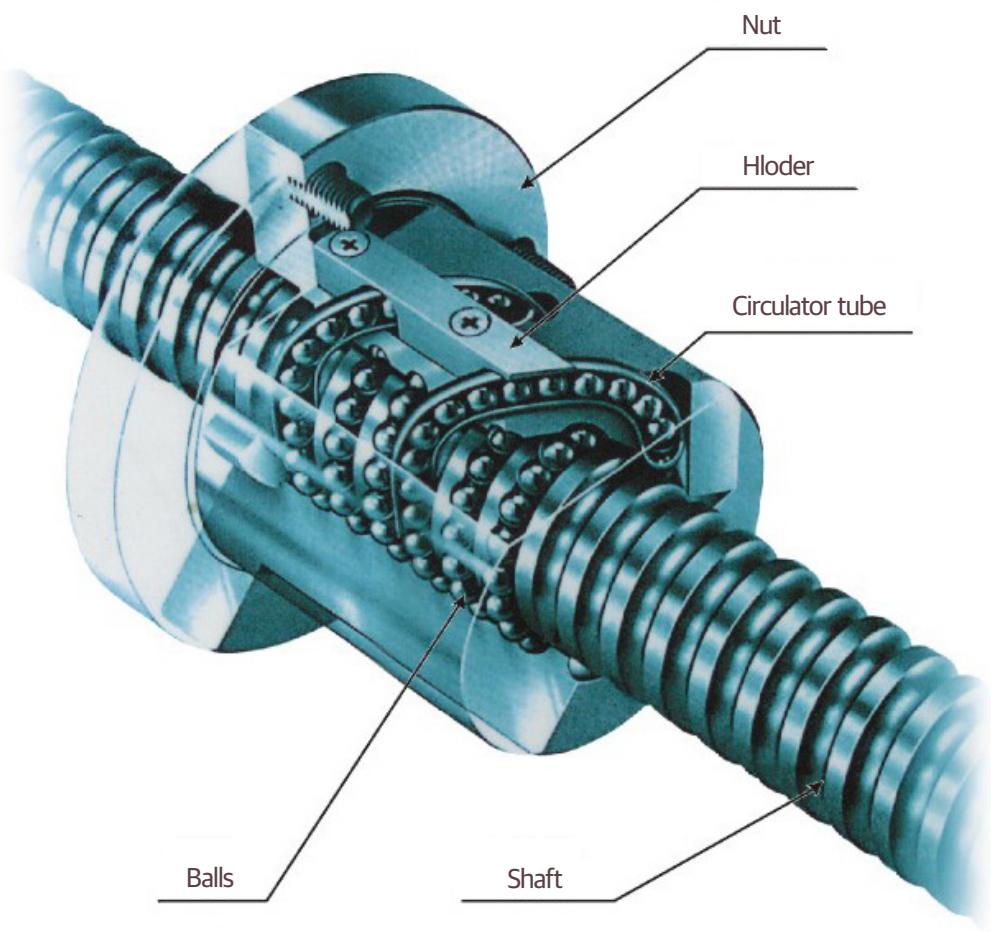


# High-Precision Ball Screw

## Features

- High transfer efficiency
- Long service life, Easy maintenance
- High rigidity with preload

## Construction



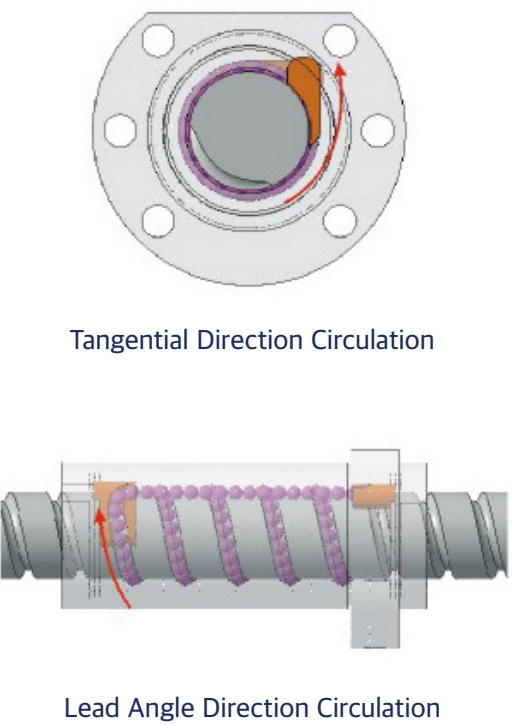
# High-speed Low-Noise Ball Screw

## Features

- Low noise and good sound quality achieved improved ball circulation structure.(Structure to reduce ball impulsive sound)
- Noise reduction achieved by change of material. (Adoption of material with low impulsive sound)
- Higher precision of ball track shape (Improvement in track shape and surface roughness)

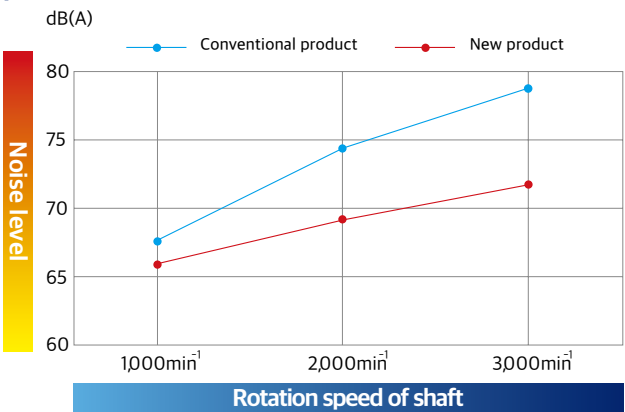


## Construction



## Performance

Noise comparison between conventional and new products



Shaft diameter	Ø40mm
Lead	16mm
Diameter of steel ball	6.35mm
Lubricant	Multemp SRL
Number of turns	5.7卷x1列
Noise rating	1000mm between sample and microphone : 1,000mm

As the speed increases, the noise reduction becomes more obvious

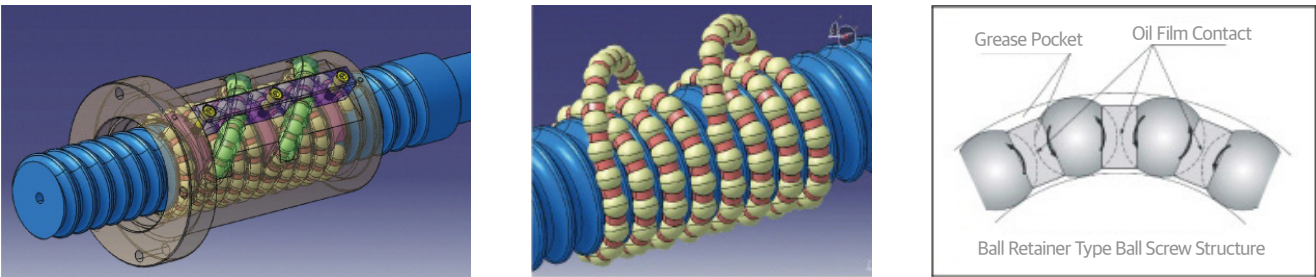


# High speed · Heavy load Ball Screw

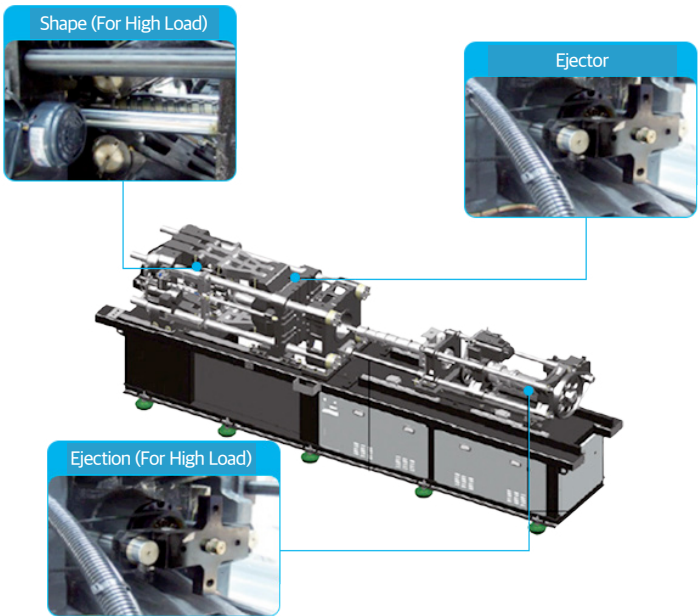
## Features

- **High Load, Long Service Life**  
Has optimum design with high-load conditions (ball retainer, ball contact angle, radius curvature, number of turns) to extend rated service life by twofold to threefold
- **High-Speed Compatibility**  
Ball circulation components designed for high-load conditions
- **Lubricity**  
Applied with retainer to prevent contact between balls and ensure low friction and low torque. This eliminates the need for lubrication for a long time.

## Construction



## Mounting Recommended

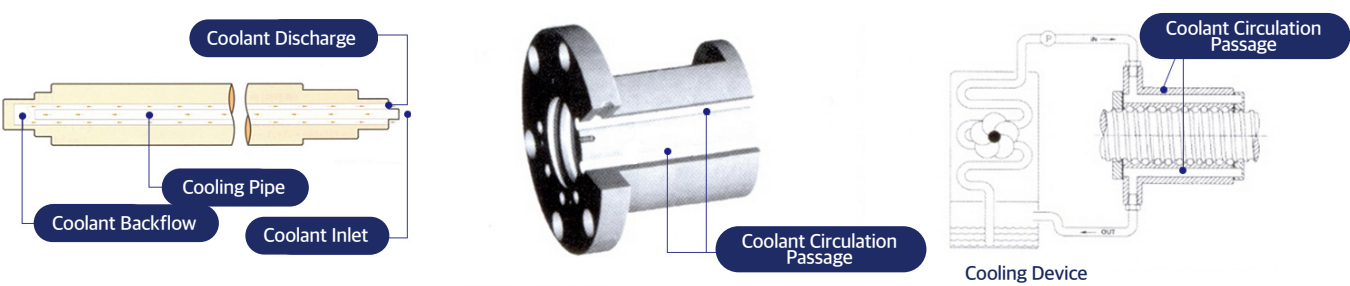


# Cooling Ball Screw

## Features

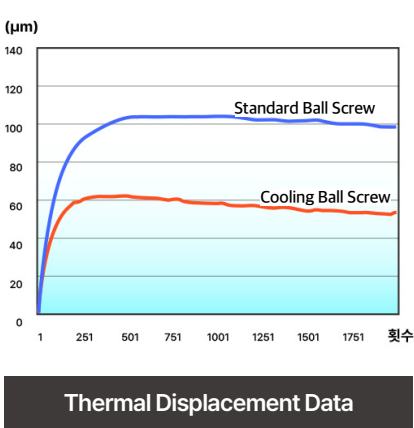
- Shaft and nut applied with a cooling circulation channel to introduce coolant and control temperature
- Suitable for high-speed rotation by controlling temperature rise
- Minimum thermal displacement of ball screw to extend durability and service life

## Construction



## Ball Screw Cooling Test

Test Conditions	
Spec	YEF4010-R670-C3-1091
Shaft Diameter	ø 40
Lead	10
Torque	3.5~4 kgf·cm
Number of Effective Turns	5
Maximum Speed	30m/min
Weight	150kg





# T Series (Tube)

## Broadly Applicable Standard Mass-Production Series

### 1) TF Type (Tubular Single Nut with One-Side Flange)

A basic-type single nut is available in two options of round type (Type A) and concave type (Type B). When installing the nut, select the type suitable for the installation space.

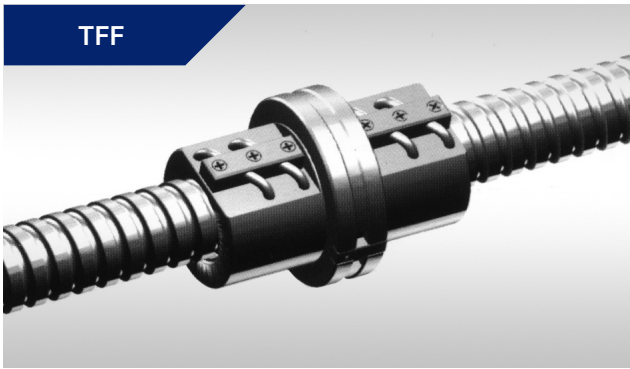
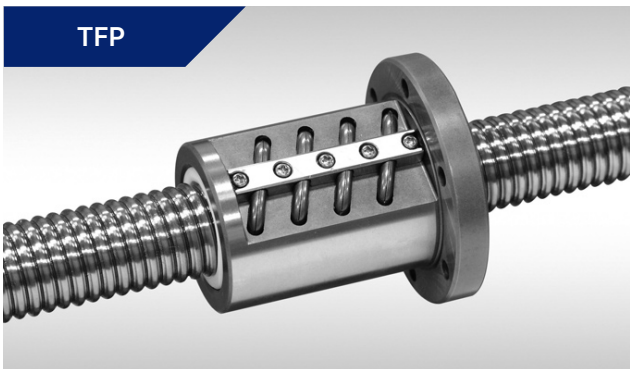
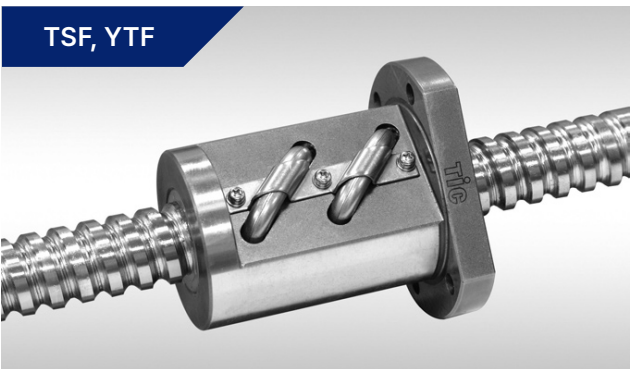
- ① TSF Type (No Preload) : Has a slight axial clearance.
- ② YTF Type (Oversized Ball Preload) : Insert a steel ball slightly larger than the screw shaft and nut grooves to apply preload. The ratio of load ball to spacer ball is 1:1. This type is suitable for light preload.
- ③ TFP Type (Integral Preload) : Shift the lead at the center of nut by the amount required for preload. It has an appearance of integral nut but it uses the same preload method to double nuts. This type is suitable for light to medium preload.

### 2) TFN Type (Tubular Double Nut with One-Side Flange)

Insert a spacer between two nuts with a thickness corresponding to the preload amount to apply preload. This type is suitable for light to medium preload.

### 3) TFF Type (Tubular Double Nut with Butt Weld Flange)

Insert a spacer between two nut flanges with a thickness corresponding to the preload amount to apply preload. This type is suitable for light to medium preload.



# D Series (Deflector)

## Compact Nut with Ball Circulating Inside Nut

### 1) DF Type (Deflector Single Nut with One-Side Flange)

A basic-type single nut is available in two options of round type (Type A) and concave type (Type B).

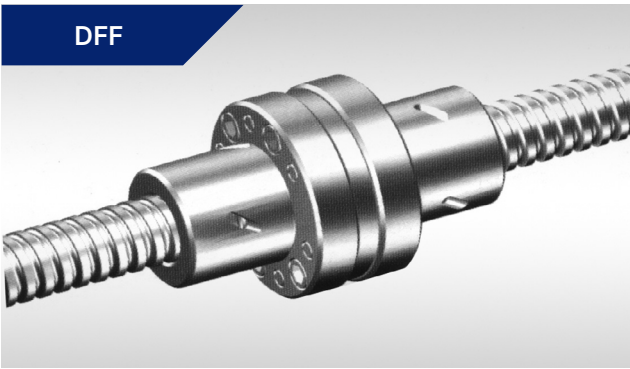
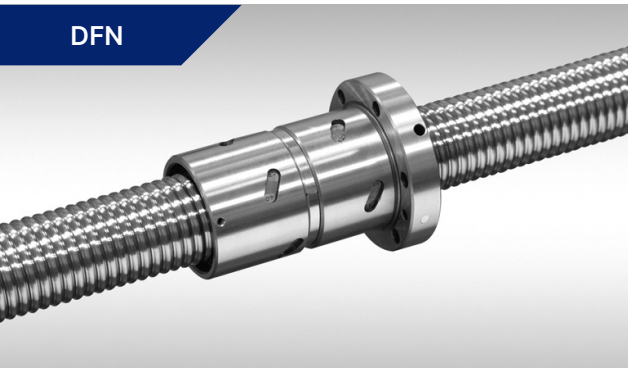
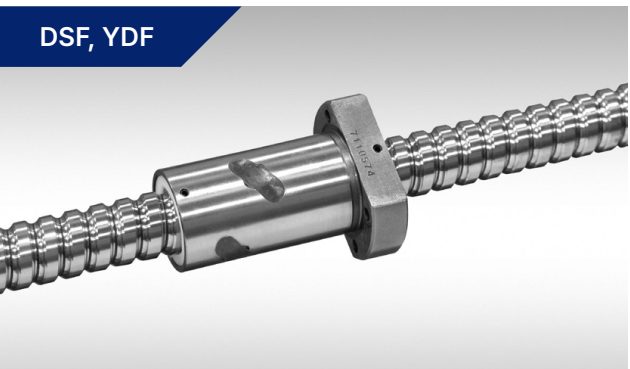
- ① DSF Type (No Preload) : Has a slight axial clearance.
- ② DFP Type (Integral Preload) : Shift the lead at the center of nut by the amount required for preload. It has an appearance of integral nut but it uses the same preload method to double nuts. This type is suitable for light to medium preload.
- ③ YDF Type (Over Size Preload) : Insert a ball larger than the screw shaft and nut grooves to apply preload.

### 2) DFN Type (Deflector Double Nut with One-Side Flange)

Insert a spacer between two nuts with a thickness corresponding to the preload amount to apply preload. This type is suitable for light to medium preload.

### 3) DFF Type (Deflector Double Nut with Butt Weld Flange)

Insert a spacer between two nut flanges with a thickness corresponding to the preload amount to apply preload. This type is suitable for light to medium preload.





# L Series (High Lead)

## Large Lead for Precise Positioning in High-Speed Feed

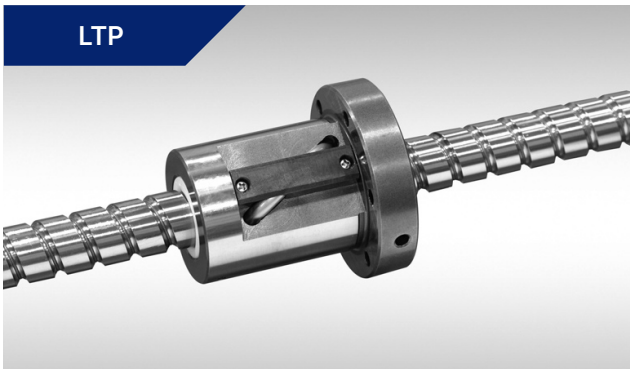
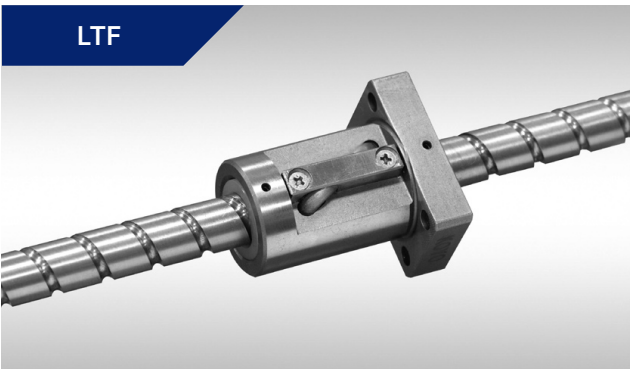
### 1) LTF Type (Tubular Single Nut with One-Side Flange)

① LTF Type (No Preload)

Has a slight axial clearance.

② LTP Type (Oversize Ball Preload)

Insert a steel ball slightly larger than the screw shaft and nut grooves to apply preload.



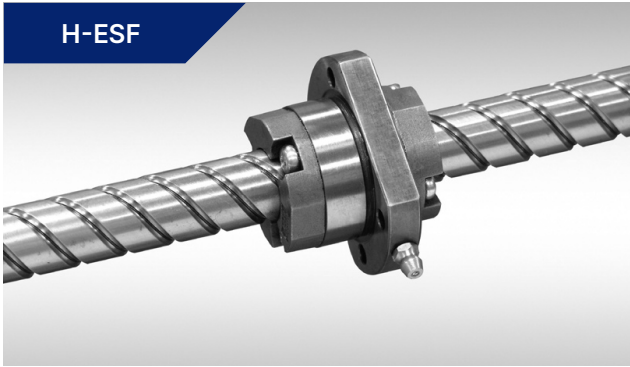
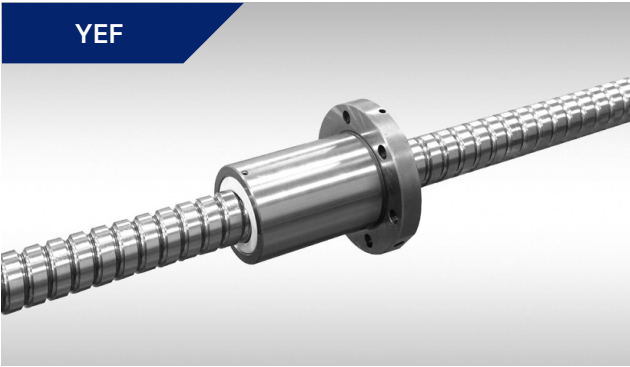
# E Series (Endcap)

### 1) YEF Type Low-Noise High-Speed Ball Screw (Oversize Ball Preload)

Insert a steel ball slightly larger than the screw shaft and nut grooves to apply preload.

### 2) H-END CAP Type Low-Noise High-Speed Ball Screw

This type is suitable for high-speed feed, and its design shows excellent quality against jamming and noise.



# R Series (Rolled)

### 1) TBSF Type Rolled Ball Screw (Built-In Tubular Flange Nut)

In a built-in tubular ball screw, tube is fully inserted inside the outer diameter of the nut and completely sealed with adhesive.

### 2) TNSF Type Rolled Ball Screw (Compact Outside Flange Nut)

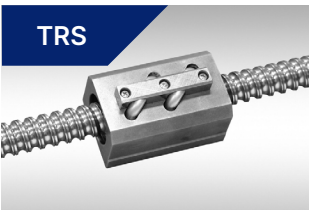
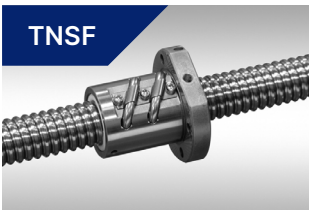
In a small-type ball screw, tube and holder protrude from the nut.

### 3) TMS Type Rolled Ball Screw (Triangular Threaded Nut)

This type is assembled directly by using a triangular thread on the nut's outer diameter without flange.

### 4) TRS Type Rolled Ball Screw (Angular Nut)

This angular nut has attachment screw holes for compact attachment on the machine body without a housing.



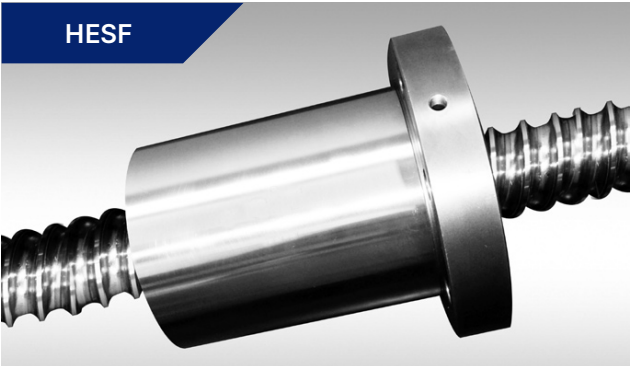
# H Series (Tube, Endcap)

### 1) HLFR Type (Heavy Load Tube Retainer Nut)

This ball screw is designed to withstand heavy loads. The ball circulates based on tube retainer, and it has a protruding tube.

### 2) H-END CAP Type Low-Noise High-Speed Ball Screw

This ball screw is designed to withstand heavy loads. The ball circulates using an END CAP retainer mechanism.





# GRINDER DIVISION

Manual Cylindrical Grinding Machine  
NC Cylindrical Grinding Machine  
Tool Grinding Machine  
NC Internal Grinding Machine  
Exclusive Grinding Machine

## Inquiry

Please feel free to contact us with any questions or inquiries at any time.  
We are dedicated to providing our customers with the best service.



**Location**  
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[ssw705@ticg.co.kr](mailto:ssw705@ticg.co.kr)



TNIG-150

CNC Internal grinding machine

High-Productivity CNC Grinder for Internal Diameter



Item	Sect	Unit	TNIG-150
Capacity	Grinding Diameter	mm	2 SPINDLE Ø6~100
		mm	1 SPINDLE Ø6~150
	Max. Grinding Stroke	mm	2 SPINDLE 80
		mm	1 SPINDLE 125
	Swing Over Table	mm	Ø600
Wheel head	Max. Feed Distance	mm	300
	Gear Shifting Speed	m/min	0.00002~5
	Rapid Feed Speed	m/min	5~10
	Min.Control Unit	mm	0.001
	Lubrication Method	-	Oil mist / Oil cooling
	Option Spindle	rpm	10,000, 30,000
		rpm	60,000, 75,000
Work head	Main Spindle Rotation Speed	rpm	100~850
	Swivel Angle	deg	Manual (-5 ~ +25°)
Table	Max.Feed Travel	mm	500
	Table Speed	m/min	0.00002~10
	Min.Setting Unit	mm	Ø0.001
	Rapid Feed Speed	m/min	10
	MPG	mm	0.2, 0.002
		mm	0.001
Motor	Wheel spindle	kw, p	5.5kw-2p~15kw-4p Frequency Inverter Control
	Work Head	kw, p	1.5/4
	X-Axis	kw	1.6(Fanuc)/AC Servo
	Z-Axis	kw	2.9(Fanuc)/AC Servo

GUN-35

CNC cylindrical grinding machine

CNC Cylindrical Grinder for Productivity, Operability, and Cost Effectiveness



\* FULL COVER OPTION

Item	Sect	Unit	GUN-35	
			600	1200
Capacity	Swing Over Table	mm	Ø350	
	Distance Between Center	mm	600	1200
	Max. Grinding Diameter	mm	Ø300	
	Max. Center Support Weight	mm	130	
		kg		
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø355×32×Ø152.4 (Ø405×50×Ø152.4)	
	Speed	rpm	1675, 2000	
Wheel head (X-axis)	Total Travel	mm	270	
	Rapid Feed Travel	m/min	5	
Table (Z-axis)	Total Distance	mm	740	1350
	Rapid Feed Speed	m/min	7	
Work head	Center Taper	MT	NO 4	
	Speed	rpm	NC Control(max.400)	
Tail stock	Center Taper	MT	NO 4	
	Spindle Stroke	mm	50	
Motor	Wheel Spindle	kw-p	3.7-4(5.5-4)	
	Work Head	kw	1.3(1.6)	
	Wheel Head(Xaxis)	kw	1.3(1.6)	
	Table(Zaxis)	kw	1.3(1.6)	1.3(3)
	Hydraulic Pump	kw-p	0.75-4	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
	Coolant Pump	kw-p	0.18-2	
	Hydraulic	ℓ	40	
Tank capacity	Wheel Spindle Lubrication Pump	ℓ	18	
	Coolant	ℓ	120	
	NC Device	-	SENTROL(FANUC)	
Othres	Center Height	mm	1100	
	Floor Area	mm	3950×3000	5500×3000
	Machine Weight	kg	3700	4200

GUN-41

CNC cylindrical grinding machine

CNC Cylindrical Grinder for Productivity, Operability, and Cost Effectiveness



Item	Sect	Unit	GUN-41(55)	
			1800	2200
Capacity	Swing Over Table	mm	Ø410(Ø550)	
	Distance Between Center	mm	1800	2200
	Max. Grinding Diameter	mm	Ø400	
	Max. Center Support Weight	mm	500	
		kg		
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø455×50×Ø152.4 (Ø510×50×Ø152.4)	
	Speed	rpm	1570, 1790	
Wheel head (X-axis)	Total Travel	mm	285	
	Rapid Feed Travel	m/min	10	
Table (Z-axis)	Total Distance	mm	1900	2300
	Rapid Feed Speed	m/min	10	
Work head	Center Taper	MT	NO 5	
	Speed	rpm	NC Control(max.250)	
Tail stock	Center Taper	MT	NO 5	
	Spindle Stroke	mm	50	
Motor	Wheel Spindle	kw-p	7.5-4	
	Work Head	kw	(4)	
	Wheel Head(Xaxis)	kw	(4)	
	Table(Zaxis)	kw	(7)	
	Hydraulic Pump	kw-p	1.5-4	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
	Coolant Pump	kw-p	0.4-2	
	Hydraulic	ℓ	40	
Tank capacity	Wheel Spindle Lubrication Pump	ℓ	18	
	Coolant	ℓ	200	
	NC Device	-	FANUC	
Othres	Center Height	mm	1147	
	Floor Area	mm	6000×2650	
	Machine Weight	kg	6000	

GUN-65

CNC cylindrical grinding machine

CNC Large Cylindrical Grinder for High Value-Added Machining Based on High-Precision, High-Efficiency Grinding of Large Components



Item	Sect	Unit	GUN-65(55)	
			2500	3000
Capacity	Swing Over Table	mm	Ø550(Ø650)	
	Distance Between Center	mm	2500	3000
	Max. Grinding Diameter	mm	Ø500	Ø600
	Max. Center Support Weight	mm	1000	
		kg		
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø610×100×Ø254 (Ø660×100×Ø304.8)	
	Speed	rpm	1043, 965	
Wheel head (X-axis)	Total Travel	mm	440	
	Rapid Feed Travel	m/min	5	
Table (Z-axis)	Total Distance	mm	2600	3100
	Rapid Feed Speed	m/min	10	
Work head	Center Taper	MT	NO 6	
	Speed	rpm	NC Control(max.250)	
Tail stock	Center Taper	MT	NO 6	
	Spindle Stroke	mm	80(100)	
Motor	Wheel Spindle	kw-p	15-4	
	Work Head	kw	(6)	
	Wheel Head(Xaxis)	kw	(6)	
	Table(Zaxis)	kw	(9)	
	Hydraulic Pump	kw-p	3.7-4	
	Wheel Spindle Lubrication Pump	kw-p	2.2-4	
	Coolant Pump	kw-p	0.4-2	
	Hydraulic	ℓ	200	
Tank capacity	Wheel Spindle Lubrication Pump	ℓ	40	
	Coolant	ℓ	400	
	NC Device	-	FANUC	
Othres	Center Height	mm	1100	1150
	Floor Area	mm	10000×40000	
	Machine Weight	kg	12,000	13,000



GAN-20

CNC Angular slide cylindrical grinding machine

Next-Generation Grinder for High Productivity/  
Quality/Precision! Simultaneous Multi-Step Grinding,  
Process Shortening, and Simultaneous Grinding of  
Complex Shapes



Item	Sect	Unit	GAN-20 (GPN-20)
Capacity	Swing Over Table	mm	Ø200
	Distance Between Center	mm	250
	Max. Grinding Diameter	mm	195
	Max. Center Support Weight	kg	20
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø455×50×Ø152.4
	Speed	rpm	Max. 1,900
Wheel head (X-axis)	Total Travel	mm	240
	Rapid Feed Travel	m/min	5
Table (Z-axis)	Total Distance	mm	350
	Rapid Feed Speed	m/min	10
Work head	Center Taper	MT	NO 3
	Speed	rpm	NC Control(max.650)
Tail stock	Center Taper	MT	NO 3
	Spindle Stroke	mm	20
Motor	Wheel Spindle	kw-p	3.7-4(5.5-4)
	Work Head	kw	1.4
	Wheel Head(Xaxis)	kw	1.6
	Table(Zaxis)	kw	3
	Hydraulic Pump	kw-p	0.75-4
	Wheel Spindle Lubrication Pump	kw-p	0.2-4
Tank capacity	Coolant Pump	kw-p	0.18-2
	Hydraulic	ℓ	20
	Wheel Spindle Lubrication Pump	ℓ	18
Othres	Coolant	ℓ	80
	NC Device	-	FANUC
	Center Height	mm	1,000
	Floor Area	mm	2,500×2,800
	Machine Weight	kg	3,500

GAN-30

CNC Angular slide cylindrical grinding machine

Next-Generation Grinder for High Productivity/  
Quality/Precision! Simultaneous Multi-Step Grinding,  
Process Shortening, and Simultaneous Grinding of  
Complex Shapes



Item	Sect	Unit	GAN-30(GPN-30)
Capacity	Swing Over Table	mm	Ø350
	Distance Between Center	mm	400
	Max. Grinding Diameter	mm	Ø300
	Max. Center Support Weight	kg	130
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø510×50×Ø152.4 (Ø405×50×Ø152.4)
	Speed	rpm	1675
Wheel head (X-axis)	Total Travel	mm	275
	Rapid Feed Travel	m/min	5
Table (Z-axis)	Total Distance	mm	600
	Rapid Feed Speed	m/min	10
Work head	Center Taper	MT	NO 4
	Speed	rpm	NC Control(max.400)
Tail stock	Center Taper	MT	NO 4
	Spindle Stroke	mm	50
Motor	Wheel Spindle	kw-p	5.5-4
	Work Head	kw	1.3(1.6)
	Wheel Head(Xaxis)	kw	1.3(1.6)
	Table(Zaxis)	kw	1.3(3.0)
	Hydraulic Pump	kw-p	0.75-4
	Wheel Spindle Lubrication Pump	kw-p	0.2-4
Tank capacity	Coolant Pump	kw-p	0.4-2
	Hydraulic	ℓ	40
	Wheel Spindle Lubrication Pump	ℓ	18
Othres	Coolant	ℓ	200
	NC Device	-	SENTROL(FANUC)
	Center Height	mm	1150
	Floor Area	mm	2450×3300
	Machine Weight	kg	5000

GAN-33

CNC Angular slide cylindrical grinding machine

Next-Generation Grinder for High Productivity/  
Quality/Precision! Simultaneous Multi-Step Grinding,  
Process Shortening, and Simultaneous Grinding of  
Complex Shapes



※ FULL COVER OPTION

Item	Sect	Unit	GAN-33	
			500	1000
Capacity	Swing Over Table	mm	Ø330	
	Distance Between Center	mm	500	1000
	Max. Grinding Diameter	mm	Ø260	
	Max. Center Support Weight	kg	200	
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø610×50×Ø254	
	Speed	rpm	1405	
Wheel head (X-axis)	Total Travel	mm	275	
	Rapid Feed Travel	m/min	5	
Table (Z-axis)	Total Distance	mm	750	1310
	Rapid Feed Speed	m/min	10	
Work head	Center Taper	MT	NO 4	
	Speed	rpm	NC제어(max.400)	
Tail stock	Center Taper	MT	NO 4	
	Spindle Stroke	mm	50	
Motor	Wheel Spindle	kw-p	7.5-4	
	Work Head	kw	2.9(1.6)	
	Wheel Head(Xaxis)	kw	1.8(3.0)	
	Table(Zaxis)	kw	1.8(3.0)	
	Hydraulic Pump	kw-p	0.75-4	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
Tank capacity	Coolant Pump	kw-p	0.4-2	
	Hydraulic	ℓ	40	
	Wheel Spindle Lubrication Pump	ℓ	18	
Othres	Coolant	ℓ	200	
	NC Device	-	SENTROL(FANUC)	
	Center Height	mm	1110	
	Floor Area	mm	3700×3055	4300×3450
	Machine Weight	kg	4500	5500

GU-20

Universal cylindrical grinding machine

Ideal for precision grinding of small components



Item	Sect	Unit	GU-20	
			200×250	200×500
Capacity	Swing Over Table	mm	Ø200	
	Distance Between Center	mm	250	500
	Max. Grinding Diameter	mm	Ø195	
	Max. Center Support Weight	kg	20	
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø305×25×Ø127 (Ø355×32×Ø127)	
	Speed	rpm	2000, 2240	
Wheel head (X-axis)	Total Travel	mm	165	
	Swivel Angle	○	Left and Right 30	
	Rapid Feed Travel (Hydraulic)	mm	20	
Table (Z-axis)	Total Distance	mm	330	600
	Swivel Angle (Wheel Head Side)	○	11	9
	Swivel Angle (Operator Side)	○	5	4
Work head	Center Taper	MT	NO 2(3)	
	Speed	rpm	77~650, 6 Stages	
Tail stock	Center Taper	MT	NO 2(3)	
	Spindle Stroke	mm	20	
Motor	Wheel Spindle	kw-p	2.2-4	
	Work Head	kw-p	0.2-4	
	Hydraulic Pump	kw-p	0.75-4	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
	Coolant Pump	kw-p	0.18-2	
	Internal Grinding	kw-p	0.75-2	
Tank capacity	Hydraulic	ℓ	60	
	Wheel Spindle Lubrication Pump	ℓ	18	
	Coolant	ℓ	80	
Othres	Floor Area	mm	1090	
	Floor Area	mm	1720×1915	2720×1915
	Net Weight	kg	1400	1600
	Type		Manual (H) / Automatic (A)	



GU-32

Universal cylindrical grinding machine

Customer-oriented universal cylindrical grinder



Item	Sect	Unit	GU-32	
			320×500	320×1100
Capacity	Swing Over Table	mm	Ø320	
	Distance Between Center	mm	500	1100
	Max. Grinding Diameter	mm	Ø200	
	Max. Center Support Weight	kg	130	
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø355×32×Ø152.4 (Ø405×50×Ø152.4)	
	Speed	rpm	1710, 1935	
Wheel head (X-axis)	Total Travel	mm	160	
	Swivel Angle	○	Left and Right 30	
	Rapid Feed Travel (Hydraulic)	mm	40	
Table (Z-axis)	Total Distance	mm	640	1250
	Swivel Angle (Wheel Head Side)	○	11	7
	Swivel Angle (Operator Side)	○	1	1
Work head	Center Taper	MT	NO 4	
	Speed	rpm	33~363, 7 Stages	
Tail stock	Center Taper	MT	NO 4	
	Spindle Stroke	mm	30(Hydraulic Type 50)	
Motor	Wheel Spindle	kw-p	3.7-4	
	Work Head	kw-p	0.3-8	
	Hydraulic Pump	kw-p	0.75-4	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
	Coolant Pump	kw-p	0.18-2	
	Internal Grinding	kw-p	0.75(1.5)-2	
Tank capacity	Hydraulic	ℓ	60	
	Wheel Spindle Lubrication Pump	ℓ	18	
	Coolant	ℓ	80	
Othres	Center Height	mm	1110	
	Floor Area	mm	2700×2000	5300×2000
	Net Weight	kg	2700	3400
	Type		Manual (H) / Automatic (A)	

GU-35

Universal cylindrical grinding machine

Universal cylindrical grinder with high precision and high quality



Item	Sect	Unit	GU-35		
			350×600	350×1000	350×1200
Capacity	Swing Over Table	mm	Ø350		
	Distance Between Center	mm	600	1000	1200
	Max. Grinding Diameter	mm	Ø300		
	Max. Center Support Weight	kg	130		
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø355×32×Ø152.4 (Ø405×50×Ø152.4)		
	Speed	rpm	1675, 2000		
Wheel head (X-axis)	Total Travel	mm	175(265)		
	Swivel Angle	○	Left and Right 30		
	Rapid Feed Travel (Hydraulic)	mm	40		
Table (Z-axis)	Total Distance	mm	750	1150	1350
	Swivel Angle (Wheel Head Side)	○	9	7	7
	Swivel Angle (Operator Side)	○	1	1	1
Work head	Center Taper	MT	NO 4		
	Speed	rpm	33~363, 7 Stages		
Tail stock	Center Taper	MT	NO 4		
	Spindle Stroke	mm	30(Hydraulic Type 50)		
Motor	Wheel Spindle	kw-p	3.7-4		
	Work Head	kw-p	0.3-8		
	Hydraulic Pump	kw-p	0.75-4		
	Wheel Spindle Lubrication Pump	kw-p	0.2-4		
	Coolant Pump	kw-p	0.18-2		
	Internal Grinding	kw-p	0.75(1.5)-2		
Tank capacity	Hydraulic	ℓ	60		
	Wheel Spindle Lubrication Pump	ℓ	18		
	Coolant	ℓ	120		
Othres	Center Height	mm	1110		
	Floor Area	mm	3120×2100	4520×2100	5100×2100
	Net Weight	kg	3100	3800	4000
	Type		Manual (H) / Automatic (A)		

GU-41

Universal cylindrical grinding machine

Universal cylindrical grinder for high-precision grinding of mid to large components



Item	Sect	Unit	GU-41	
			410×1800	410×2200
Capacity	Swing Over Table	mm	Ø410	
	Distance Between Center	mm	1800	2200
	Max. Grinding Diameter	mm	Ø400	
	Max. Center Support Weight	kg	500	
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø405×50×Ø152.4	
	Speed	rpm	1570, 1790	
Wheel head (X-axis)	Total Travel	mm	270	
	Swivel Angle	○	Left and Right 30	
	Rapid Feed Travel (Hydraulic)	mm	40	
Table (Z-axis)	Total Distance	mm	1850	2300
	Swivel Angle (Wheel Head Side)	○	2	
	Swivel Angle (Operator Side)	○	5	4
	2-Step Handle	mm	0.86/1Rotation	3.6/1Rotation
Work head	Center Taper	MT	NO 5	
	Speed	rpm	15~203, 6 Stages	
Tail stock	Center Taper	MT	NO 5	
	Spindle Stroke	mm	50	
Motor	Wheel Spindle	kw-p	5.5-4	
	Work Head	kw-p	0.75-8	
	Hydraulic Pump	kw-p	2.2-6	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
	Coolant Pump	kw-p	0.4-4	
	Internal Grinding	kw-p	1.5-2	
Tank capacity	Hydraulic	ℓ	120	
	Wheel Spindle Lubrication Pump	ℓ	18	
	Coolant	ℓ	200	
Othres	Center Height	mm	1110	
	Floor Area	mm	6120×2570	7130×2570
	Net Weight	kg	6500	7000
	Type		Manual (H) / Automatic (A)	

GU-55

Universal cylindrical grinding machine

Universal cylindrical grinder for high-precision grinding of mid to large components



Item	Sect	Unit	GU-55	
			550×1800	550×2200
Capacity	Swing Over Table	mm	Ø550	
	Distance Between Center	mm	1800	2200
	Max. Grinding Diameter	mm	Ø500	
	Max. Center Support Weight	kg	500	
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø510×50×Ø152.4	
	Speed	rpm	1570, 1790	
Wheel head (X-axis)	Total Travel	mm	270	
	Swivel Angle	○	Left and Right 30	
	Rapid Feed Travel (Hydraulic)	mm	40	
Table (Z-axis)	Total Distance	mm	1850	2300
	Swivel Angle (Wheel Head Side)	○	2	
	Swivel Angle (Operator Side)	○	5	4
	2-Step Handle	mm	0.86/1Rotation	3.6/1Rotation
Work head	Center Taper	MT	NO 5	
	Speed	rpm	15~203, 6 Stages	
Tail stock	Center Taper	MT	NO 5	
	Spindle Stroke	mm	50	
Motor	Wheel Spindle	kw-p	5.5-4	
	Work Head	kw-p	0.75-8	
	Hydraulic Pump	kw-p	2.2-6	
	Wheel Spindle Lubrication Pump	kw-p	0.2-4	
	Coolant Pump	kw-p	0.4-4	
	Internal Grinding	kw-p	1.5-2	
Tank capacity	Hydraulic	ℓ	120	
	Wheel Spindle Lubrication Pump	ℓ	18	
	Coolant	ℓ	200	
Othres	Center Height	mm	1110	
	Floor Area	mm	6120×2570	7130×2570
	Net Weight	kg	7000	7500
	Type		Manual (H) / Automatic (A)	



GU-65

Universal cylindrical grinding machine

Universal large cylindrical grinder for high value-added machining based on high-precision, high-efficiency grinding of large components

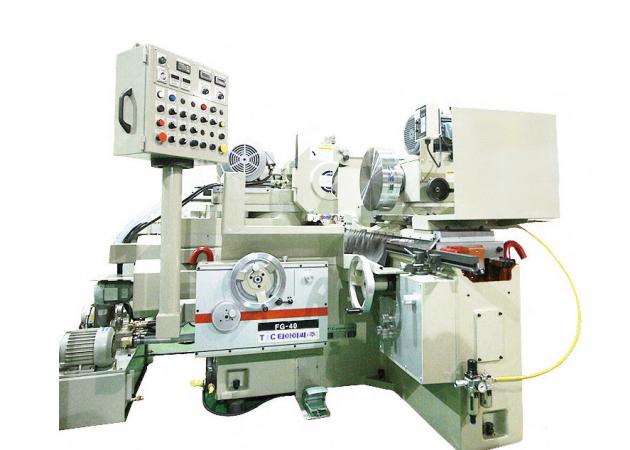


Item	Sect	Unit	GU-65(55)	
			650(550)×2500	650(550)×3000
Capacity	Swing Over Table	mm	Ø550(Ø650)	
	Distance Between Center	mm	2500	3000
	Max. Grinding Diameter	mm	Ø500(Ø600)	
	Max. Center Support Weight	kg	1,000	
Wheel spindle	Grinding Wheel Size (O.D X W X L.D)	mm	Ø610×100×Ø254 (Ø660×100×Ø304.8)	
	Speed	rpm	965, 1043	
Wheel head (X-axis)	Total Travel	mm	350	
	Swivel Angle	○	Fixed Type	
	Rapid Feed Travel (Hydraulic)	mm	100	
Table (Z-axis)	Total Distance	mm	2700	3200
	Swivel Angle (Wheel Head Side)	○	1	
	Swivel Angle (Operator Side)	○	1	
Work head	Center Taper	MT	NO 5(6)	
	Speed	rpm	18~195, Infinitely Variable Transmission Control	
Tail stock	Center Taper	MT	NO 5(6)	
	Spindle Stroke	mm	80(100)	
Motor	Wheel Spindle	kw-p	15-4	
	Work Head	kw-p	5.5-6	
	Hydraulic Pump	kw-p	3.7-4	
	Wheel Spindle Lubrication Pump	kw-p	2.2-4	
	Coolant Pump	kw-p	0.4-2	
	Internal Grinding	kw-p	1.5-2	
Tank capacity	Hydraulic	ℓ	200	
	Wheel Spindle Lubrication Pump	ℓ	40	
	Coolant	ℓ	400	
Othres	Center Height	mm	1200(1250)	
	Floor Area	mm	7730×2900	10000×2900
	Net Weight	kg	11500	13000
	Type		Manual (H) / Automatic (A)	

FG-40

Hydraulic automatic face grinding machine

Face grinder for achieving high-precision flatness and parallelism



Item	Sect	Unit	FG-40	
Capacity	Swing Over Table	mm	Ø450	
	Max. Distance from Wheel OD to Chuck Face	mm	210	
	Max. Grinding Diameter	mm	Ø600	
	Max. Grinding Diameter (Including Chuck and Flange Weight)	kgf	Approximately 50	
Wheel spindle	Swivel Angle	○	±30	
	Grinding Wheel Size (O.D X W X L.D)	mm	Ø355×50×Ø127	
	Standard Grinding Wheel Width	mm	25-50	
	Wheel Spindle Speed, Stepless Variable Speed Inverter	rpm	1200~1800	
	Manual Travel Distance	mm	275	
	Hydraulic Feed Distance	mm	20	
	Distance Per Handle Rotation	mm	1	
	Distance Per Handle Increment	mm	0.005(0.001)	
Automatic Gear Shifting	Pre-travel Distance for Automatic Gear Shifting	mm	99.9	
	Automatic Gear Shifting Speed	mm/min	0.001~0.049	
	Automatic Gear Shifting Amount	mm	0.001~0.099	
	Spark Out Adjustment Range (One-Way Counter)	-	99	
Table	Manual Handle Travel Per Revolution	mm	15	
	Automatic Traverse Speed	mm/min	50~3000	
	Minimum Hydraulic Transfer Distance	mm	7	
	Table Travel Distance	mm	550	
Work head	Swivel Angle (Applicable for Rotary Type Only)	○	-	
	Main Spindle Rotation, Swivel Angle	○	Left and Right 50	
	Main Spindle Rotation Speed, Infinitely Variable Inverter	rpm	Max 200	
	Magnetic Chuck	mm	Ø350×80	
Motor	Magnetizing Range	mm	Ø20~Ø310	
	Wheel Spindle	kw-p	7.5, 4, V3	
	Electric Grinding Stone Stand (Option)	kw, p, Rat.	0.2, 4, 1/20	
	Work Head	kw-p	2.2, 6	
	Hydraulic Pump	kw-p	0.75, 4	
	Lubrication Pump (For Manual Type Only)	kw-p	-	
	Wheel Spindle Lubrication Pump	kw-p	0.2, 4	
	Coolant Pump	kw-p	0.18, 2	
Tank capacity	Coolant Pump (For Coolant Gun)	kw-p	0.18, 2	
	Wheel Spindle Lubrication Pump	ℓ	18	
	Hydraulic Tank	ℓ	54	
	Cutting Fluid Tank	ℓ	120	
Othres	Center Height	mm	1,200	
	Floor Area	mm	3,170×2,400	
	Height	mm	1,740	
	Weight	kgf	2,900	
	Power	-	3상, 380V, 50/60HZ	

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