CKD

SMB−68A

INSTRUCTION MANUAL

INDEXMAN
ROLLER GEAR CAM UNIT

RGIS RGOS RGCS
RGIL RGOL
RGIT RGCT
RGIB
~~RGIM RGCM~~
~~RGID RGCD~~ Series

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

CKD Corporation

⚠ TO Use This Product Safely

Read this manual carefully before use.

All customers designing and manufacturing a device which employs this index unit have the responsibility to manufacture a device that is safe by checking that the safety of the device's machine mechanism, the electrical controls, and the system can be secured. Selecting, operating, handling, and maintaining this unit appropriately are important factors in ensuring that it is used safely. Please observe all precautions indicated by WARNING and CAUTION to ensure the safety of your device.

⚠ **WARNING :** **If unobserved, a hazardous situation in which the user may suffer a fatal or serious injury is expected.**

⚠ **CAUTION :** **If unobserved, a hazardous situation in which the user may suffer a minor injury or there is only property damage is expected.**

Please note that even some items labeled as "CAUTION" may lead to serious results depending on the particular situation. In any case, make sure to observe all instructions since important information is described in each one.

Specifications of a custom order product may differ from the specifications described in this instruction manual. Please refer to the relevant product drawing for confirmation.

⚠ WARNING:

- Use this index unit within its stated specifications. Operating it with a load or rpm outside of the specifications may result in damage, malfunction, and/or accuracy failure of the unit.
- Never touch any moving part during the operation of the index unit. Doing so may result in injury.
- Do not stop the input shaft revolution suddenly when the output is in operation.

(1) Suddenly stopping the input shaft with, for example, a clutch brake will apply overload to the unit. This may cause an overrun of the dial plate on the unit.
(2) If a torque saver is provided, a sudden stop will release the torque saver. This may cause an overrun of the dial plate on the unit.
(3) If it must be capable of emergency stops, install a safety measure that prevents sudden stops, and select a larger torque saver that endures overload.

- Shut off the power before maintenance and inspection. A sudden movement caused by malfunction or control circuit failure may result in personal injury.
- Do not use the product in an explosive or ignitable atmosphere.

⚠ CAUTION:

- The product must be assembled by a person who has basic knowledge about assembling machines.
- Start and stop the index unit at a dwelling section. A start or stop at other than the dwelling section will cause an overload. This may result in damage to the unit.
- If a position detection cam is provided on the input shaft, periodically check that the cam is properly positioned. A misalignment of the cam caused by a loose set screw may result in malfunction.
- Do not use the product in wet or oily environment. The product is neither water-proof nor drip-proof. In cases where the product is subject to splashes of water or oil, it must be protected with a cover and such.
- The index unit contains lubricant oil, which may ooze out through the oil packing or another part during use. Check the packing periodically, and install an oil pan if necessary.

Terms of warranty

The warranty period and the scope of warranty shall be as follows.

1) Warranty period
The warranty period of this product is one year from the date of delivery.
(However, this is based on normal use of up to eight hours per day.
Moreover, if the durability limit is reached within one year, the period to the durability limit is the warranty period.)

2) Scope of warranty
If a product failure occurs for reasons attributable to CKD during the above warranty period, we will promptly repair the product free of charge.
However, the following cases are excluded from the scope of warranty.

(1) Operation under conditions and/or in environments deviating from those specified in the product specifications

(2) Failure caused by faulty maintenance and improper operation such as negligence

(3) Failure caused by equipment other than the delivered product

(4) Failure caused by use of the product in a manner for which the product is not intended

(5) Failure caused by modification in the structure, performance, specification or other features made by other than CKD after delivery, or failure caused by repairs performed by other than our designated contractor

(6) Damages that could have been avoided if the customer's equipment, into which this product is incorporated, had functions, structure, and other features generally accepted in the industry

(7) Failure caused by reasons that is unforeseeable with technology put into practical use at the time of delivery

(8) Failure caused by fire, earthquake, flood, lightning, other acts of nature, terrestrial disaster, pollution, salt damage, gas damage, excessive voltage, or other external causes

(9) Failure caused by a part provided by the customer or a part designated for use by the customer.

(10) When consumable parts such as bearing or oil seal used in the product wear out or deteriorate

The optional parts (switch, driving part, etc.) will carry a warranty equivalent to the warranty provided by the manufacturer of those parts since their operating life differs by driving condition.

Please note that this warranty covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.

3) Warranty of products exported outside Japan

(1) CKD will repair any product returned to our factory or to a company or a factory designated by CKD. Work and expense involved in returning the product are not covered under the warranty.

(2) The repaired product will be packed according to the domestic packing specification and delivered to a designated location inside Japan.

This warranty clause stipulates basic provisions. If warranty information given on individual specification drawings or specification sheets differs from that given herein, priority will be given to specification drawings and specification sheets.

CONTENTS

Indexman Roller Gear Cam Unit
RGIS, RGOS, RGCS
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Instruction Manual No. SMB-68E

INTRODUCTION

Thank you for choosing our roller gear cam unit.
This unit has a simple construction consisting of a precise roller gear cam and a turret w/cam follower and realizes high speed, high performance, and high accuracy indexing.
Precautions and service/inspection information follow. Please read this manual carefully before use and maintenance.

1. UNPACKING

Check that the product is as ordered.

1) Model No.

2) Check for any damage that may have been caused during transportation.
If any problem such as a missing screw, oil leak, or bent shaft is found, contact the branch, sales office, or agency from which the product was purchased.

2. ASSEMBLY AND INSTALLATION

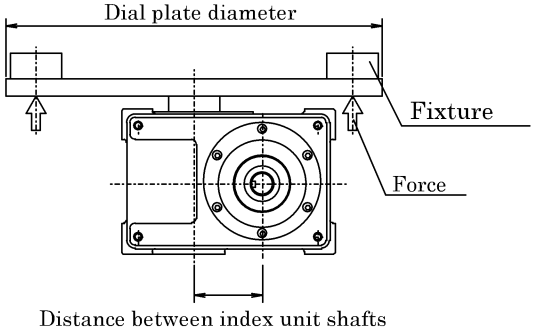
⚠ CAUTION: The product must be assembled by a person who has basic knowledge about assembling machines.

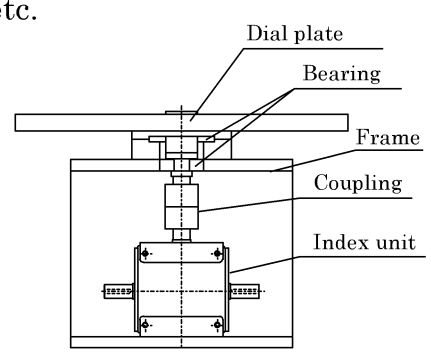
1) Install the product in accordance with the specified orientation.
The oil supply/drain ports and oil level gauge are placed according to the installation orientation.

2)Install the product where it can be easily inspected, overhauled, and reassembled and the oil level gauge can be read.

3)Allowable maximum dial plate diameter
The maximum dial plate diameter should not exceed the allowable maximum diameter defined in the specifications.

4)Allowable output shaft thrust
Do not exceed the allowable thrust shown in the catalogue.
If the applied torque is within the dynamic rated torque but exceeds the allowable torque, the dial plate should be so constructed that the force will be separately applied to the thrust bearing, rollers, etc.

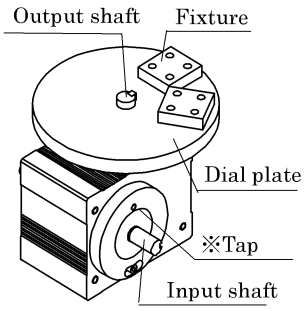




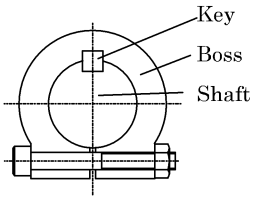
5)Handling precautions

(1)Do not apply torque to cam followers when attaching a dial plate and/or fixtures onto the output shaft of a compact index unit with a bolt. Such torque exceeding the static torque indicated in the catalog may result in bending and/or damaging cam followers. Set the output shaft in a position that allows it to rotate freely and hold the dial plate with a hand when fastening the bolt.

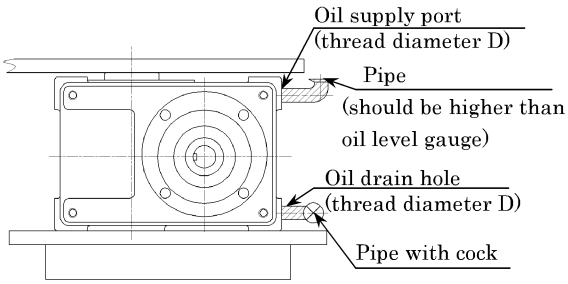
(2)The housing of RGIS 025 and 032 is made of aluminium. The heliserts (reinforcement inserts) are inserted in the tapping holes on the output shaft side and on the opposite side only. Be careful of the tightening torque on the other tapped holes since no helisert is inserted.
Do not use the tapping hole on the boss of input shaft (indicated by ※ in the figure on the right) for any purpose.



6)Keys are often used to secure the dial plate, coupling, gear, sprocket, pulley, cam, boss, and other parts to the shaft, but the chattering key method always leads to shock or vibration. Class 1 key (JIS B1301-1959) is recommended for RGIS/RGOS/RGCS040-450/RGIT/RGCT and standard class key (JIS B1301-1996) is recommended for other models. Do not rely only on keys when securing important parts; use a more reliable method such as split model, friction fasteners, etc.



7)Piping for easier lubricant oil change
Assembling the index unit into an automatic machine sometimes prevents changing of the lubricant oil. In this case, it is recommended to extend the oil supply/drain ports of the index unit so that the oil can be changed easily.



Model	※ D
RGIS·RGOS 025	—
〃 032	
RGIS·RGOS·RGCS 040	Rc 1/4
〃 050	
〃 063	
〃 080	Rc 3/8
〃 110	
〃 140	
〃 180	Rc 1/2
〃 250	
〃 300	
〃 350	Rc 1
〃 450	Rc 1 1/2

Model	※ D
RGIL·RGOL 063	Rc 1/4
〃 080	Rc 3/8
〃 110	
〃 140	
〃 180	Rc 3/4
〃 250	
RGIL·RGCT 063	Rc 1/4
〃 080	Rc 3/8
〃 110	
〃 140	Rc 1/2
〃 180	Rc 3/4
〃 250	Rc 1
〃 350	Rc 3/4
〃 450	Rc 1

Model	※ D
RGIB 250	Rc 3/4
〃 350	
〃 450	Rc 1
RGIM·RGCM 063	Rc 1/4
〃 080	
〃 100	Rc 3/8
RGID·RGCD 200	Rc 3/8
〃 250	
〃 300	Rc 1/2
〃 350	
〃 450	Rc 1
〃 600	
〃 700	

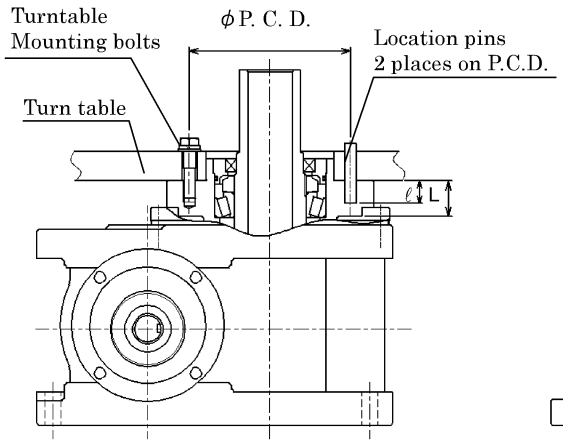
※Thread diameter of oil supply/drain ports

[SMB-01E]

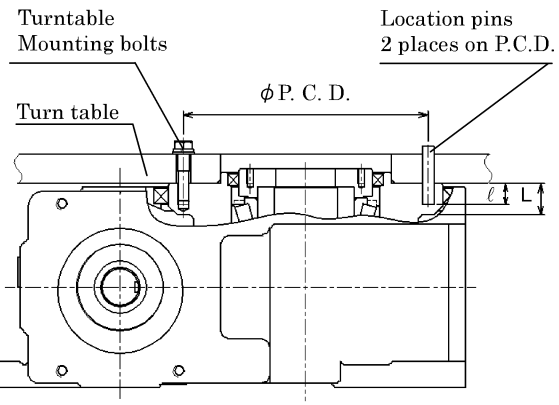
8)Designing the dial plate fixture

(1) The dial plate diameter, the fixture mounting pitch diameter, and the mass should be as small as possible. The applied torque increases with the square of the diameter.
A smaller diameter dial plate also has the advantage in manufacturing and transportations.

(2) The dial plate must be secured with two dowel pins in addition to fixing bolts to reproduce the proper mounting position when reassembling.
Drawing showing the turntable and location pin positions in RGIT/RGCT/RGIB (contact CKD for other models)



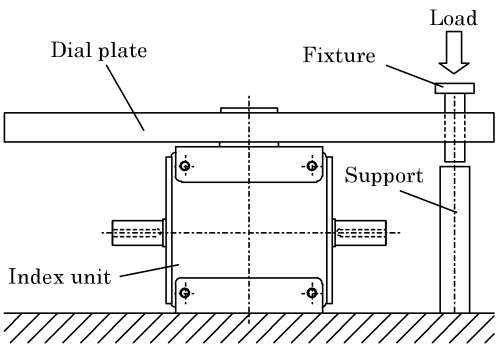
RGIT・RGCT



RGIB

The Unit size	Guide Hole Depth Limit(ℓ)	Flange Thickness (L)	ϕP. C. D.
RGIT 063	19	24	80
RGIT 080	20	25	105
RGIT 110	27	32	145
RGIT 140	29	34	220
RGIT 180	34	39	300
RGIT 250	38	43	420
RGIT 350	60	70	440
RGIT 450	65	75	560
RGIB 250	37	42	330
RGIB 350	55	65	430
RGIB 450	70	80	560

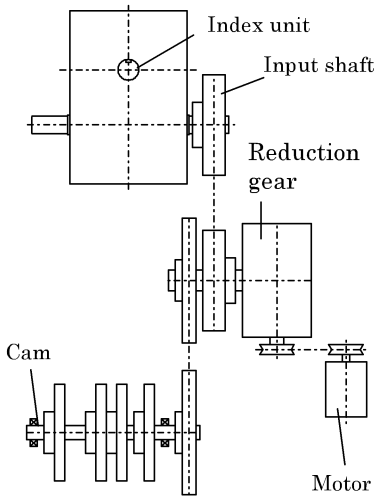
(3) If a vertical load can be applied to the unit during automatic process by such as pressing, marking or caulking, avoid direct application of the load to the dial plate or index unit by providing a support and the like.



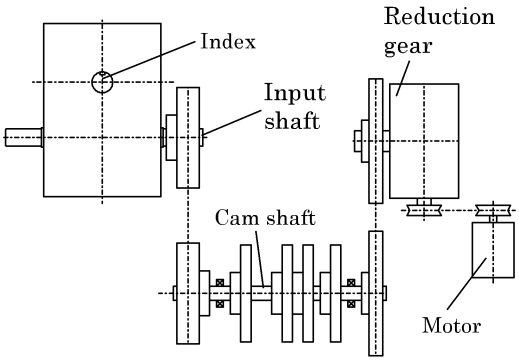
Example of support

9)The driveline from the motor to the index unit input shaft should be rigid and without backlash. A backlash may cause a shock during the dial plate rotation, shorten the service life of the unit, and/or damage some parts.

(1)Do not use another input shaft in series between the motor and the index unit input shaft. If used, it should be sufficiently rigid.

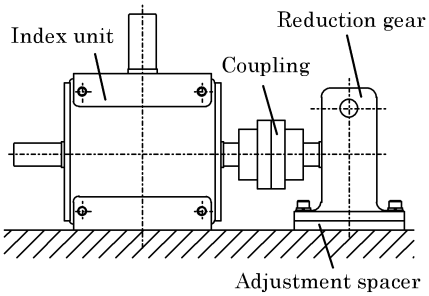


Good example



Bad example (causes a shock)

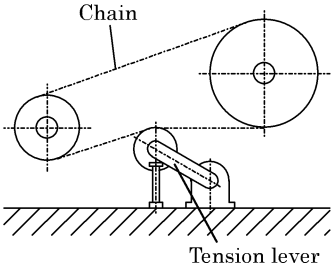
(2)When directly connecting the index unit input and reduction shafts with a coupling, use a coupling that produces no backlash and consider the adjustment alignment capability. (If space permits, a model in which the index unit and reducer are integrated may be used.)



An example of driveline

(3)A brake motor can be used when the unit is used for continuous rotation or with a smaller load and the starting/stopping frequency does not exceed five cycles per minute.
In other cases, use a clutch brake unit or motor w/clutch brake.

(4)Properly install a tension adjuster if a timing belt or chain is used.
The lack of the tension adjuster may lead to shock or vibration.



Example of tension lever

10)Center the shafts.
Center the shafts when they are connected with a coupling. Eccentric shafts may be broken.

11)Do not put any obstacles that prevent ventilation around the motor. Failure to observe this may result in burns or fire due to abnormal overheating.

12)Do not put combustibles around the motor.

13)If driven by an inverter, use the product within the specified frequency range of the inverter.

14)When working torque such as eccentric load is applied, rpm of input shaft, motors, etc., will be faster than the setting value depending on the installation orientation of CKD index unit, causing the inverter to trip by regenerative electric power. Install a safety device on the machine side; otherwise, falling objects and such can occur.

⚠ CAUTION: When applying radial force or bending moment on output shaft and fixed shaft. make sure the index is in the dwelling zone.

15)If radial force or bending moment is forcibly applied on the output shaft and fixed shaft of RGIB during rotation, provide a guide and a coupling mechanism externally, and apply only the load required for rotation to the output shaft of index unit.

3. PREPARING FOR OPERATION

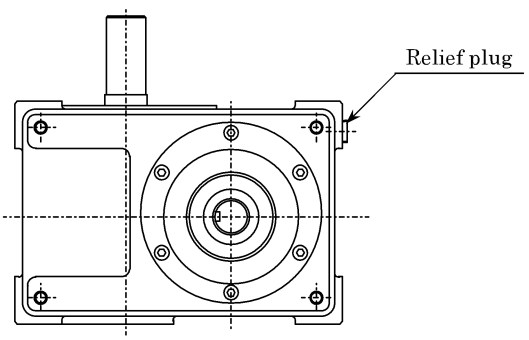
Before operation:

1) Check for loose bolts and screws.

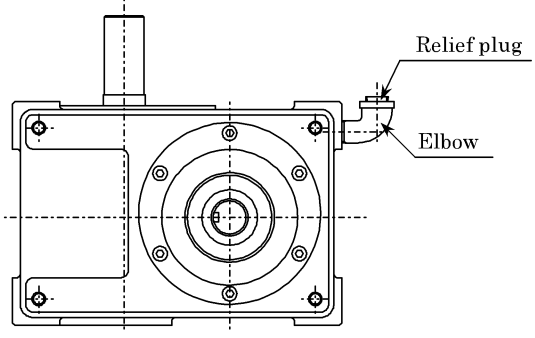
2) Check the input and output shafts for loose or chattering connections.
A loose or chattering connection may lead to shock or stiff table motion.

3) Lubrication
The index unit body contains lubricant oil. Check that the oil level is higher than the middle of the oil level gauge. Replace with the plug w/air hole provided before operation. Failure to do this may lead to oil leak.
(This check is not necessary for RGIS/RGOS 025 and 032 since they are grease-sealed.)
Lubricant oil may overflow through the plug w/air hole due to a higher revolving speed or internal temperature rise as a result of an environmental effect. In this case, extend the piping using an elbow to prevent the overflow.

· Normal piping



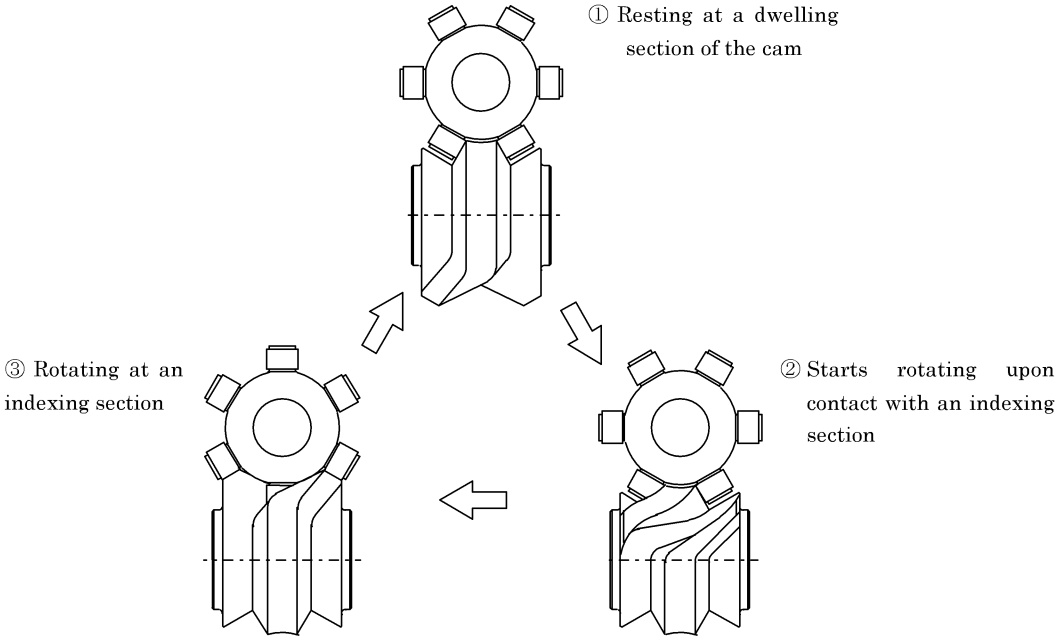
·Additional piping (to be prepared by the customer)



4. PROPER OPERATION

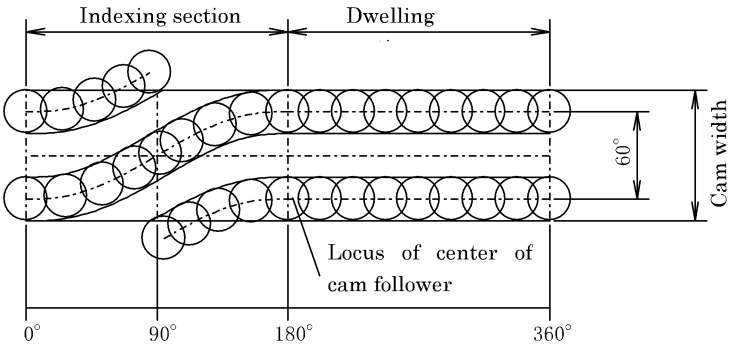
1)Description of the operation

(1)Relative positions of the roller gear cam and turret w/cam follower are illustrated below.

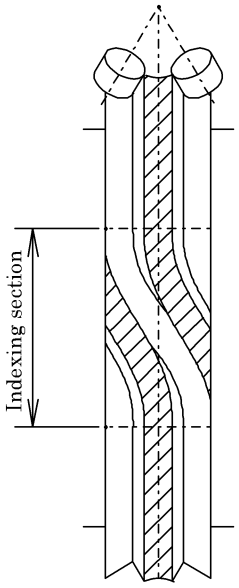


(2)Cam indexing angle

Single turn (360 degrees) of the cam groove consists of dwelling (straight) and indexing (curved) sections. The dwelling section rotates the cam but not the output shaft. With the cam follower at an indexing section, the output shat rotates with the cam. The cam rotating angle for output shaft rotation is referred to as indexing angle.



Development view of 6 stop indexing, angle of 180 degrees



Development view of cam

[SMB-01E]

2) Proper operation

> **⚠ WARNING:** **Use the product within its stated specifications. Operating it with a load or rpm outside of the specifications may result in damage, malfunction, and/or accuracy failure of the unit.**

(1)Adjust applied torque (output torque) below the rated dynamic output torque. (See catalogue.)

> **⚠ WARNING:** **Do not touch any moving part during the operation of the index unit.**

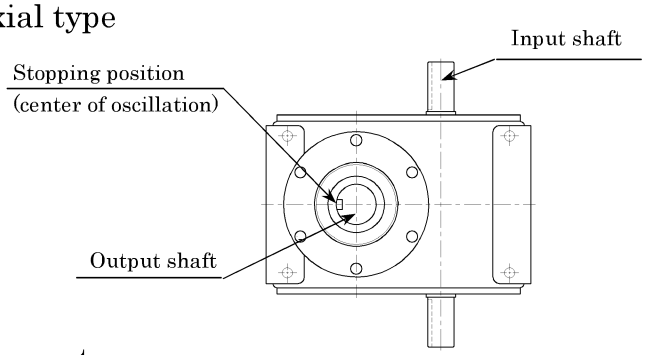
(2)Input shaft revolving speed

Use the input shaft rpm within the specifications. At 200 rpm or higher, the pre-load and other parameters need to be adjusted. Please contact CKD.

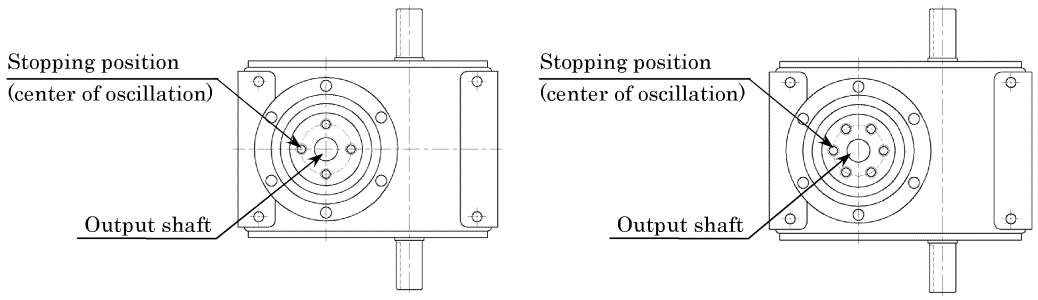
> **⚠ CAUTION:** **Start and stop the index unit at a dwelling section. A start or stop other than the dwelling section will cause overload. This may result in damage of the unit.**

(3)Stopping position of output shaft

[1] Axial type



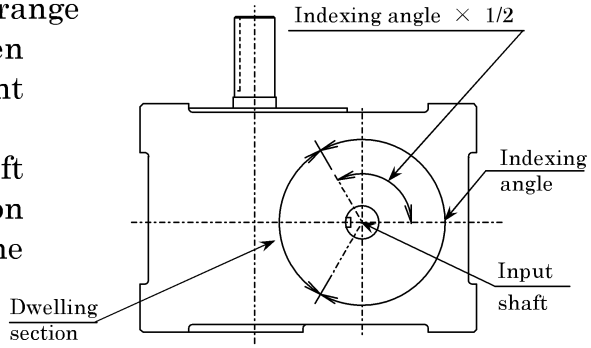
[2] Flange type



(4)Input shaft keyway and output shaft stopping range

This relationship should be noted when adjusting the timing of another attachment from the input shaft keyway.

The output shaft rotates with the input shaft keyway within the indexing angle as shown on the right and stops with the keyway within the dwelling section.



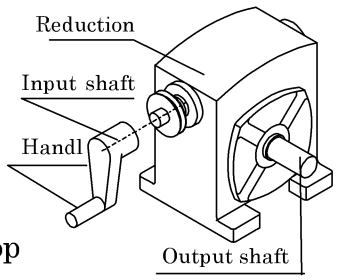
⚠ WARNING: **Do not stop the input shaft revolution suddenly when the output is in operation.**

1) Suddenly stopping the input shaft with, for example, a clutch brake will apply overload to the unit. This may cause an overrun of the dial plate on the unit.

2) If a torque saver is provided, a sudden stop will release the torque saver. This may cause an overrun of the dial plate on the unit.

3) If it must be capable of emergency stops, install a safety measure that prevents sudden stops, and select a larger torque saver that endures overload.

(5)After emergency stop, manually rotate the shaft to the dwelling section and start again. A handle should be provided with the driving system to permit the manual rotation of the input shaft in such a case.



(6)Check for unusual sound.
If any unusual sound is heard during use, immediately stop the operation. The cam follower or an internal part may have failed. Contact the nearest sales agency or factory.

⚠ WARNING : Do not use the product in an explosive or ignitable atmosphere.

⚠ CAUTION : Do not use the product in wet or oily environment.
The product is neither water-proof nor drip-proof.
In cases where the product is subject to splashes of water or oil, it must be protected with a cover and such.

(7)Prevention of water intrusion and corrosion
The index unit input and output shafts and mounting surfaces are not protected from corrosion. They may corrode depending on the storing conditions or the operating atmosphere.
Always apply a coat of rust-preventive oil, grease, or rust proof paint over the machined surfaces.

(8)CKD index unit input shaft torque should not exceed the output shaft allowable torque of geared motor, reducer, etc. When CKD index unit drive and stop are executed by an inverter, check that the sum of control time required for both are within the CKD index unit dwelling time.

(9) Select an inverter whose required capacity is more than the motor capacity.

(10) When one-rotation detection switch or the like is installed, the response time of detection switch must be checked. Fast input shaft rotational speed may prevent the detection switch from detecting.

5. MAINTENANCE

⚠WARNING: **Shut off the power before maintenance and inspection. A sudden movement caused by malfunction or control circuit failure may result in personal injury.**

⚠CAUTION: **If a position detection cam is provided on the input shaft, periodically check that the cam is properly positioned. A misalignment of the cam caused by a loose set screw may result in malfunction.**
The index unit contains lubricant oil, which may ooze out through the oil packing or another part during use. Check the packing periodically, and install an oil pan if necessary.

Changing the lubricant oil

Change the lubricant oil 500 hours after the start of operation and every 2000 hours afterwards. (RGIS/RGOS 025 and 032 are lubricated by sealed grease providing maintenance-free normal operation. In case an operation more than 10,000 hours or an application in high temperature surroundings is required, please consult CKD.)

Check the oil level every week and refill if necessary.

Use the recommended oil listed below.

Type / Manufacturer	Lubricant oil		Grease
	For less than 200 rpm input shaft speeds	For 200 rpm or more input shaft speeds	
JX Nippon Oil & Energy (standard for CKD)	BONNOC M 220	Gear Grand GL-5 80W-90	
Kyodo Yushi (standard for CKD)			Citrax EP No.2
JX Nippon Oil & Energy (standard for CKD)			EPONEX Grease AP2
Idemitsu Kosan	DAPHNE Super Gear Oil 220	APOLLOIL Wide Gear LW 80W-90	DAPHNE Eponex EP No. 2
Showa Shell	Shell OMALA Oil 220	Shell GELCO Power Gear 80W-90	Shell ALVANIA EP Grease RO2
Exxon Mobil	Mobil Gear 600XP 220	MOBILUBE HD 80W-90	Mobilux EP2
Cosmo Sekiyu	Cosmo Gear SE 220	Cosmo Gear GL-5 80W-90	Cosmo Grease DYNAMAX EP No. 2

Prepare the lubricant oil according to the following requirement.

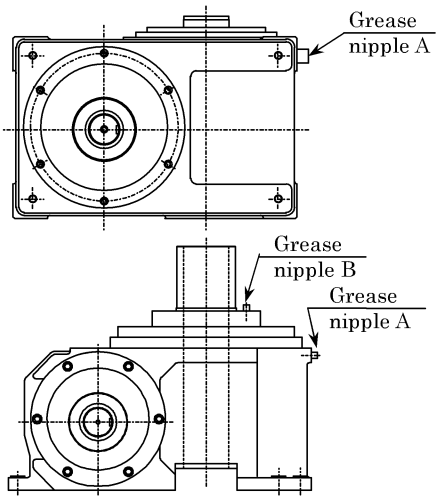
Series	Oil capacity (liters)
RGIS･RGOS･RGCS 040	0.1
〃 050	0.5
〃 063	0.8
〃 080	1.2
〃 110	3.8
〃 140	6.0
〃 180	12.5
〃 250	38
〃 300	58
〃 350	70
〃 450	220
RGIL･RGOL 063	0.3
〃 080	0.8

Series	Oil capacity (liters)
RGIL･RGOL 110	2.0
〃 140	3.5
〃 180	8.0
〃 250	16
RGIT･RGCT 063	0.3
〃 080	0.6
〃 110	1.0
〃 140	4.0
〃 180	9.0
〃 250	24
〃 350	35
〃 450	70

Series	Oil capacity (liters)
RGIB 250	6.0
〃 350	25
〃 450	42
RGIM･RGCM063	0.3
〃 080	0.7
〃 100	1.2
RGIM･RGCM200	1.1
〃 250	2.2
〃 300	3.3
〃 350	6.0
〃 450	19
〃 600	47
〃 700	80

Grease must also be changed for the following series.

Model	Grease required	
	Nipple A	Nipple B
RGIS·RGOS·RGCS450	500 cc	-
RGIT・RGCT350	300 cc	90 cc
〃 450	500 cc	150 cc



Apply the specified amount of grease through the grease nipple provided at the side of the housing while slowly rotating the output shaft if possible.
Old grease will be pushed into the housing and discharged with old lubricant oil at the time of lubricant oil change.

6. TROUBLESHOOTING

Symptom			Remedy
Rotary table generates a shock or does not stop at the proper position	Index unit body	There is no shock at lower input shaft revolving speeds.	Output shaft torque is excessive. Reconsider index unit model No.
		Continuous shock	Applied torque or driving system may have a problem. Contact CKD for remedy.
		Internal unusual sound or temperature rise is suspected.	Internal damage is suspected. Contact CKD for replacement of index unit.
	Driveline	Input shaft has a backlash between gears when driven.	Reduce backlash between gears.
		Key chatters when driven by gear.	Replace key to reduce chatter.
		Chain or timing belt is significantly deflected when driven.	Tighten with tension adjuster.
		Input shaft angular position sensor switch is out of place.	Relocate input shaft angular position sensor switch.
		Faulty input shaft angular position sensor.	Replace.
		Backlash at worm reduction gear	Overhaul worm reduction gear.
		Overload on geared motor reduction gear	Prevent output shaft overload or use worm reduction gear
		Clutch release error	Check clutch.
		Frequent emergency stops	Remove cause(s) of emergency stop.
	Mounting of index unit body	Incomplete mounting or securing	Firmly secure.
	Mounting of subsidiary table	Insufficient tightening torque or loose knock pins	Check and tighten.
	Unusual load	Rated dynamic output torque for index unit is exceeded.	Calculate applied torque and contact CKD for countermeasures.
	Overload protector	Wrong torque setting	Adjust torque setting.
		Poor repeatability	Replace.
Index unit does not rotate.	Index unit body or driveline	Internal failure of index unit body	Replace or contact CKD.
		Faulty motor	Replace.
		Brake has been applied.	Repair or replace.
		Lubricant viscosity has increased too much due to lower temperature.	Change lubricant oil (use a less viscous one listed in this manual)

7. DISPOSING

Metal, rubber, and lubricant are used for this product. Since this product cannot be burned, it must be disposed as industrial waste.

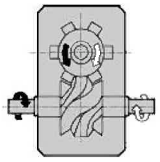
8. PRODUCT SPECIFICATIONS

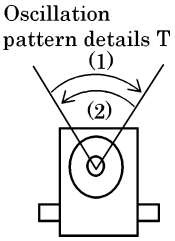
1)How to order

RGIS 080 – 006 120 S 1 S 1 –X 123456

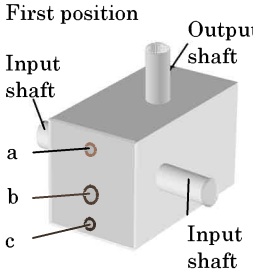
(1) (2) (3) (4) (5) (6) (7) (8) (9)

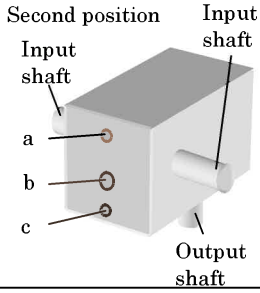
(1)Series		(2)Size		(3)Number of Stops Oscillating angle Reduction ratio		(4)Total Index angle		(5)Cam curve		(6) Helix direction / dwell number of cam Oscillation pattern Helix direction of cam	
RGIS	Standard	025	25mm	002	2 indexes	45	45°	S	MS	1	Left helix / 1 dwell
RGIL	Wide angle	∫	∫	∫	∫	∫	∫	C	MC	∫	∫
RGIT	Table	700	700	096	96 indexes	360	360°	T	MT	4	Left helix / 4 dwells
RGIB	Basic		mm					R	Constant	5	Right helix / 1 dwell
RGIM	Small multi			180	180°				vrelocity	∫	∫
RGID	Flat			∫	∫				revolution	8	Right helix / 4 dwells
RGIS	Indexing			030	030°					T	Refer to the following diagram.
RGOS	Oscillation									S	Refer to the following diagram.
RGCS	Reducer			003	1/3					L	Left helix
				∫	∫					R	Right helix
				040	1/40						

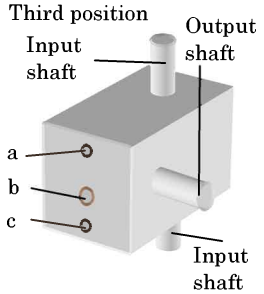


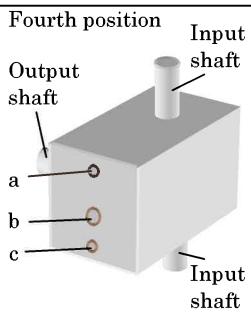


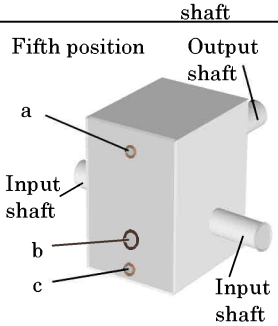
(7)Output shaft shape		(8) Installation position / housing material				
S	Straight Specification	1	First position FC housing	First position	Second position	Third position
F	Flange Specification	2	Second position FC housing			
		3	Third position FC housing			
		4	Fourth position FC housing			
		5	Fifth position FC housing			
		6	Sixth position FC housing			
		A	First position AL housing	Fourth position	Fifth position	Sixth position
		B	Second position AL housing			
		C	Third position AL housing			
		D	Fourth position AL housing			
		E	Fifth position AL housing			
		F	Sixth position AL housing			
		For RGIB series, parts a, b, and c are located on the surface opposite to that illustrated in the drawing.		a : oil supply port b : oil level gauge c : oil drain port		
(9)Custom specifications No. 6 digits after "X"						

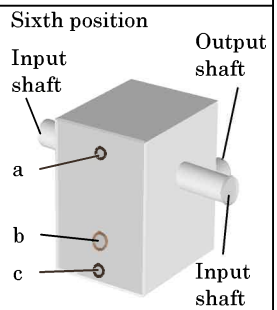












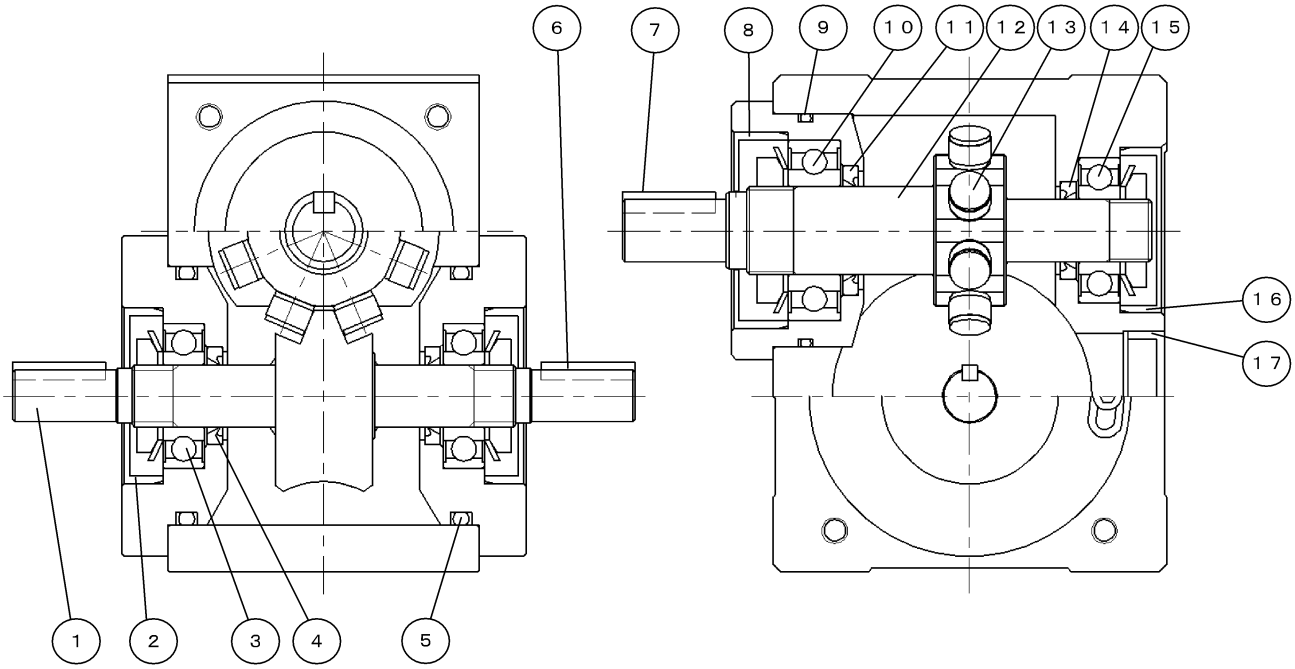
Refer to catalog for model No. with options.

2)Other important information to note

Refer to the catalog for characteristic values, dimensions, static rated output torque, dynamic rated output torque, and accuracy.

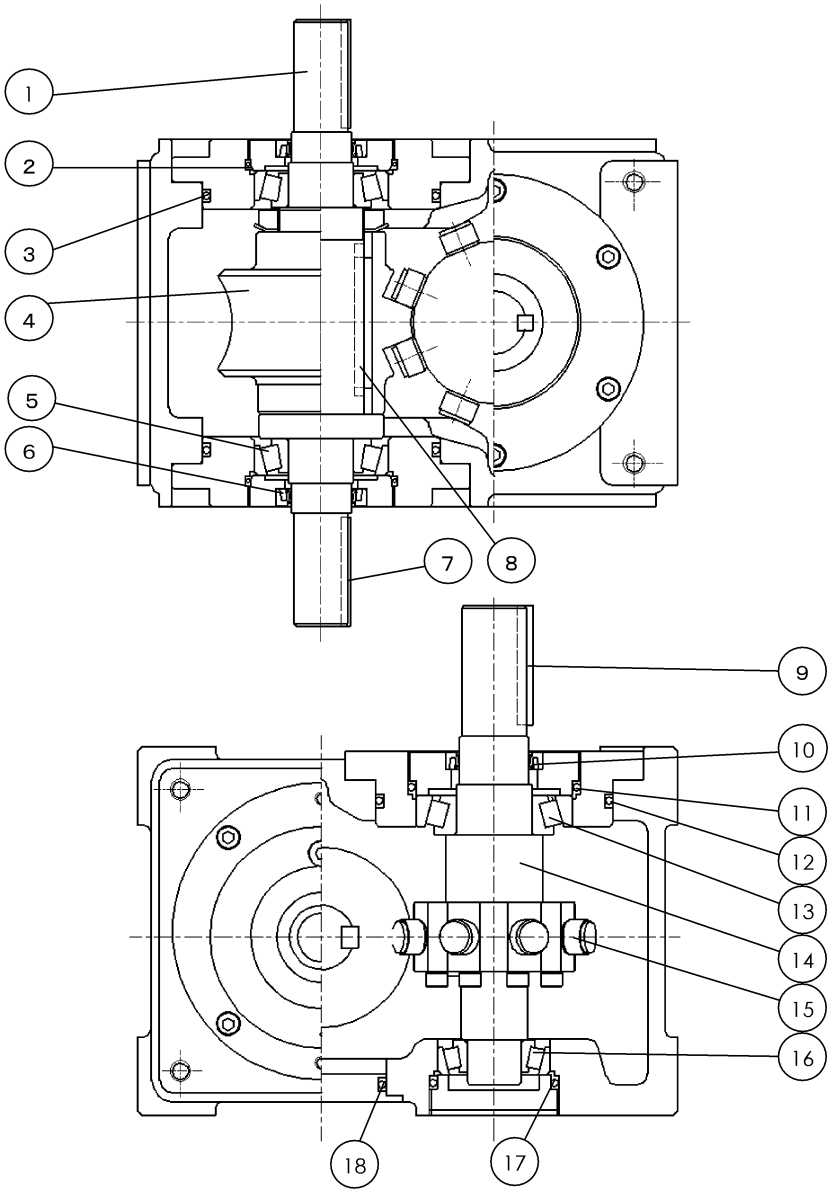
9. INTERNAL STRUCTURE DRAWINGS

1) RGIS025・032



Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Cam	7	Parallel key	13	Cam follower assembly
2	Input shaft cover	8	Output shaft cover(A)	14	Oil seal
3	Bearing	9	O ring	15	Bearing
4	Oil seal	10	Bearing	16	Output shaft cover(B)
5	O ring	11	Oil seal	17	Seal cap
6	Parallel key	12	Output shaft		

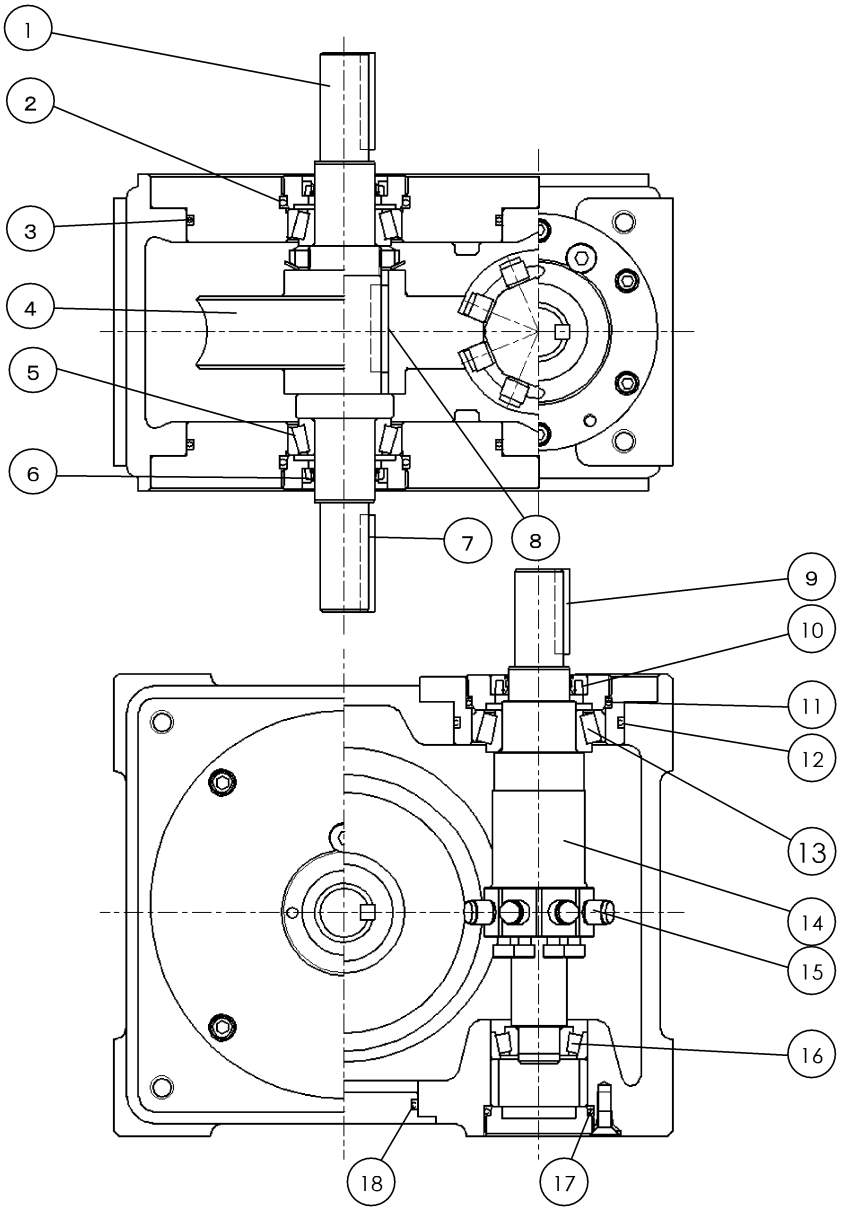
2) RGIS040 to 450



Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Input shaft	7	Parallel key	13	Bearing
2	O ring	8	Parallel key	14	Output shaft
3	O ring	9	Parallel key	15	Cam follower assembly
4	Cam	10	Oil seal	16	Bearing
5	Bearing	11	O ring	17	O ring
6	Oil seal	12	O ring	18	O ring

Note: O ring, Oil seal, and Bearing are consumable parts.

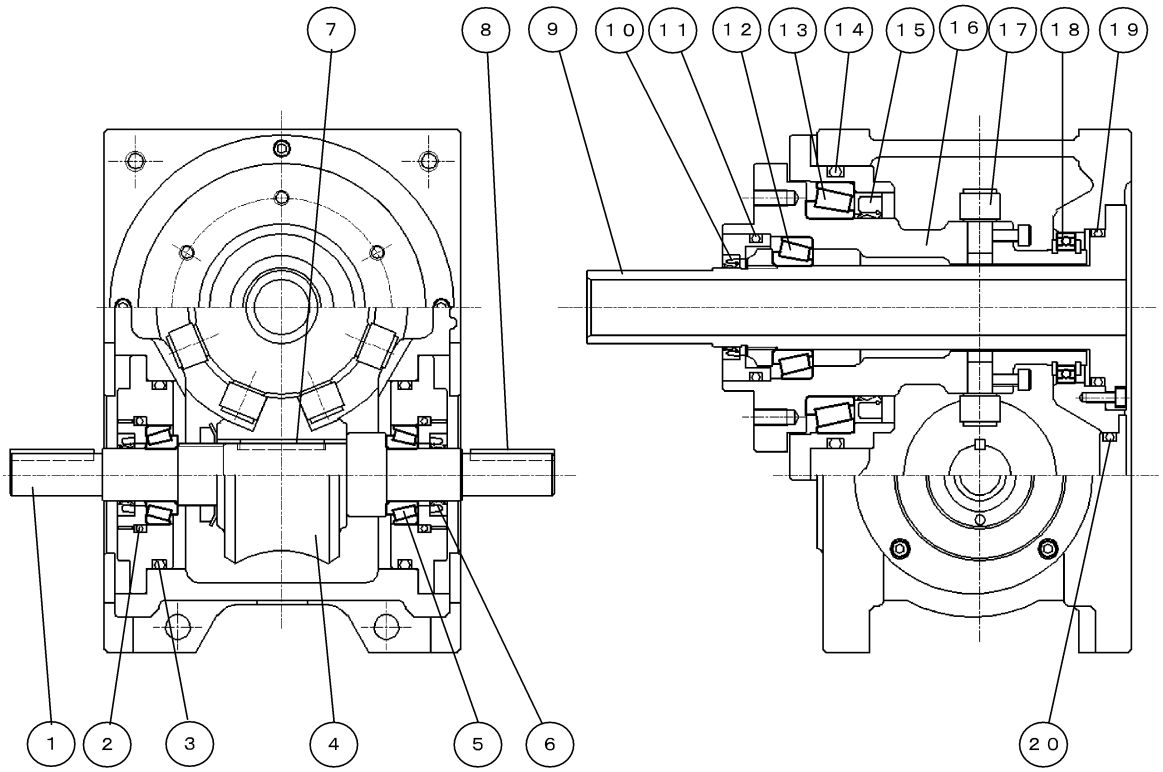
3) RGIL series



Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Input shaft	7	Parallel key	13	Bearing
2	O ring	8	Parallel key	14	Output shaft
3	O ring	9	Parallel key	15	Cam follower assembly
4	Cam	10	Oil seal	16	Bearing
5	Bearing	11	O ring	17	O ring
6	Oil seal	12	O ring	18	O ring

Note: O ring, Oil seal, and Bearing are consumable parts.

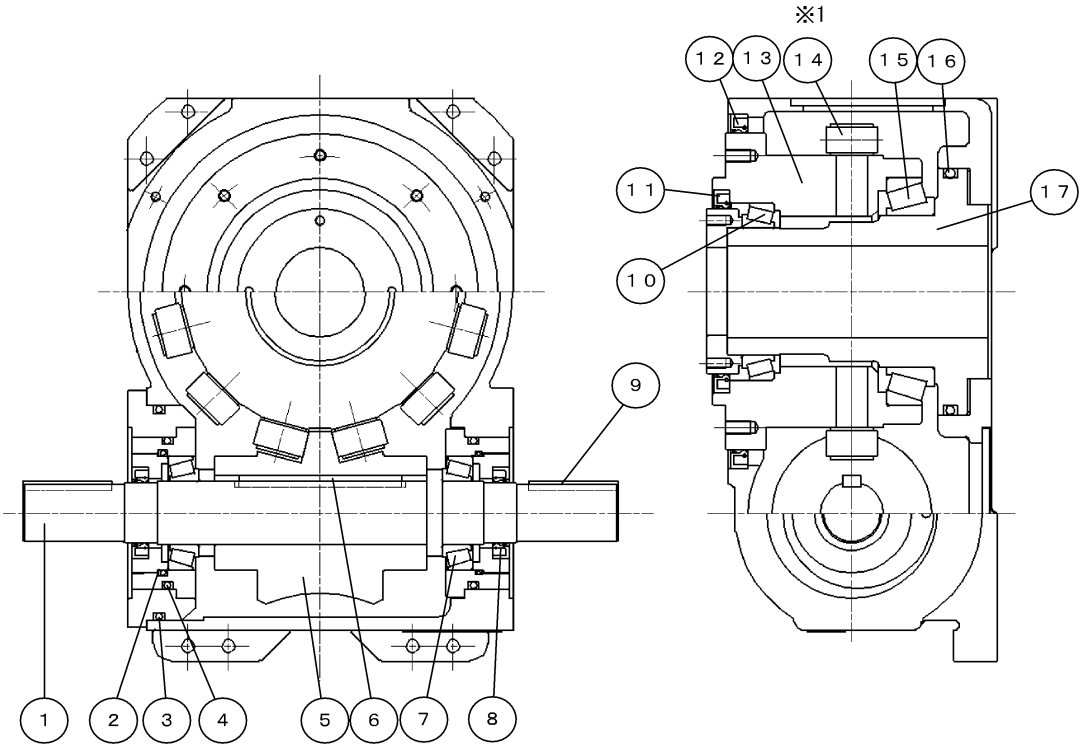
4) RGIT series



Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Input shaft	8	Parallel key	15	Oil seal
2	O ring	9	Hollow fixed shaft	16	Output shaft
3	O ring	10	Oil seal	17	Cam follower assembly
4	Cam	11	O ring	18	Bearing
5	Bearing	12	Bearing	19	O ring
6	Oil seal	13	Bearing	20	O ring
7	Parallel key	14	O ring		

Note 1: (15) Oil seal is not used for RGIT/RGCT 140 or larger models.
Note 2: Dust seal is provided for (10) oil seal of RGIT/RGCT 140 to 250.
Note 3: O ring, Oil seal, and Bearing are consumable parts.

5) RGIB series

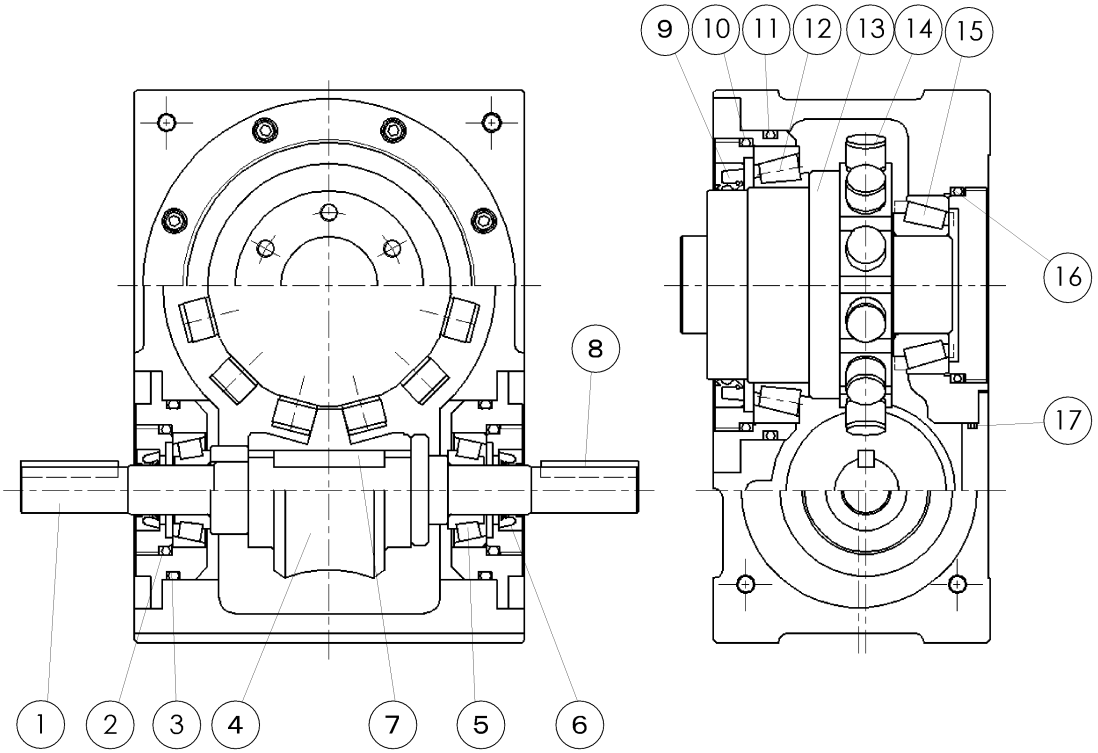


Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Input shaft	7	Bearing	13	Output shaft
2	O ring	8	Oil seal	14	Cam follower assembly
3	O ring	9	Parallel key	15	Bearing
4	O ring	10	Bearing	16	O ring
5	Cam	11	Oil seal	17	Hollow fixed shaft
6	Parallel key	12	Oil seal	18	

Note 1: O ring, Oil seal, and Bearing are consumable parts.

Note 2: (17) Cam follower assembly is controlled by a serial number, so please check the serial number (7-digit number) listed on the product name plate.

6) RGIM series

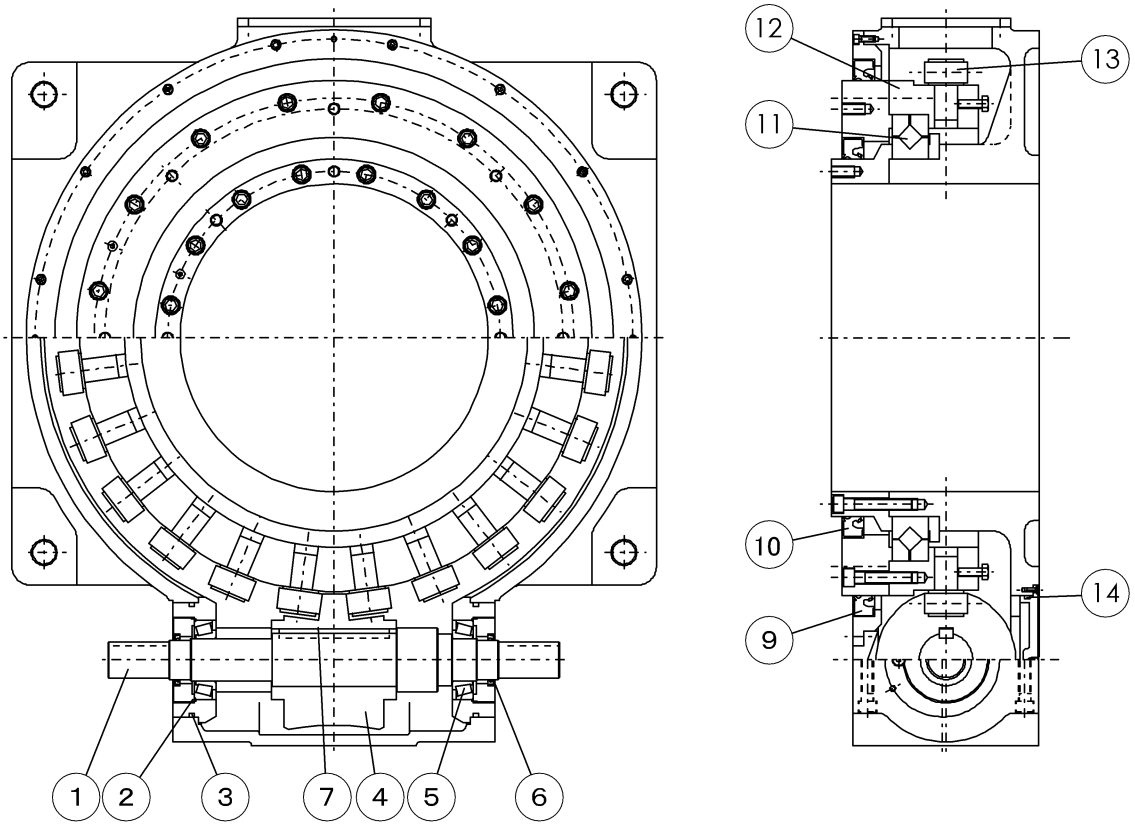


Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Input shaft	7	Parallel key	13	Output shaft
2	O ring	8	Parallel key	14	Cam follower assembly
3	O ring	9	Oil seal	15	Bearing
4	Cam	10	O ring	16	O ring
5	Bearing	11	O ring	17	O ring
6	Oil seal	12	Bearing	18	

Note 1: (11) O ring is not used for RGIM/RGCM080 and 100.

Note 2: O ring, Oil seal, and Bearing are consumable parts.

7) RGID series



Part No.	Part name	Part No.	Part name	Part No.	Part name
1	Input shaft	6	Oil seal	11	Bearing
2	O ring	7	Parallel key	12	Output shaft
3	O ring	8	Parallel key	13	Cam follower assembly
4	Cam	9	Oil seal	14	O ring
5	Bearing	10	Oil seal		

Note: O ring, Oil seal, and Bearing are consumable parts.

10.OTHER IMPORTANT INFORMATION

If you have problems and require repairs or replacement parts, please check the model number or the part number on the name plate before contacting your nearest business office or distributor.
If you have any questions on handling this product, please contact CKD.