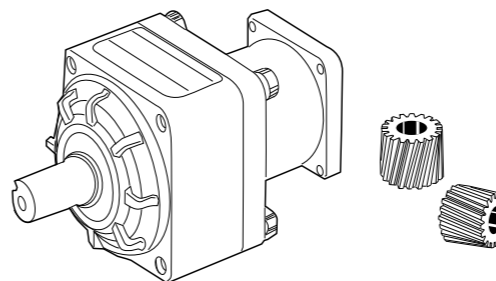


**SHIMPO**

Gear Reducer for servomotor

**ABLE Gear Reducer VR series**

Instruction Manual Normal Type  
LB Type  
High Precision Type



Congratulations upon your purchase of the ABLE Gear Reducer.













Please make sure to hand this instruction manual to the actual user of the ABLE Gear Reducer.

The ABLE Gear Reducer is a gear reducer for servomotor developed originally by the Nidec-Shimpo Corporation.

Since this product is precision equipment, incorrect usage will not only impair its performance, but also be causes of malfunction. Therefore, please study the instruction manual thoroughly for installation, operation, and maintenance.


**Safety Precautions**


Before operation, please read this 『Safety Precautions』 carefully


Caution for Installation	
 <p>Only connect to specified voltage. If connected to any voltage other than the voltage displayed on the identification plate, the motor will burn out, and possibly cause fire.</p>	 <p>Caution for electric shock Do not connect with wet hands (including sweat). When wiring, make sure the power is off.</p>
 <p>Do not touch the keyway of input and output shaft with bare hands. Since the edge of the keyway is knife-edged, there is a danger of cutting your hand.</p>	 <p>Do not install to places where rain or water hits directly. May be a cause of electric shock, fire, and malfunction. Please use the outdoor type in case of installing or using ABLE reducer in open air.</p>
 <p>Installation must be done to a solid and vibration-free surface. If the surface is not solid enough, the device may fall down while operating, or too much vibration may damage the device.</p>	 <p>Do not hit hard when installing coupling and sprocket to output shaft.</p>
 <p>Place safety cover on the rotating part. Hands or fingers may be injured, if placed on the rotating part.</p>	 <p>Do not use in the environment of below 0°C or above 40°C.</p>
 <p>In case of using ABLE reducer for lifting, lowering, or transporting system, safety protective device has to be equipped to the system.</p>	 <p>When connecting to motor, make sure the motor is turned off.</p>
 <p>In preparation of oil leak by malfunction or duration of life, install protective device such as oil receiver, especially for food, chemical and other machineries that is vulnerable to oiliness.</p>	 <p>Very Heavy! Pay special attention when carrying. Please be very careful when carrying, since the device can cause serious damage if it falls on foot.</p>


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## Caution for Operation


 Do not use under circumstances which include danger of catching fire or explosion.  
In case of using under these circumstances, use the special safety explosion protection type or the pressure proof explosion protection type.  
Caution) Contact our company or the servomotor manufacturer beforehand.


 Do not touch the body while operating.  
The body gets hot and may cause burn wound.

 Do not touch the rotating part while operating.  
Do not touch the output shaft, input shaft, and fan.

 Do not perform overload operation  
If operated over the rated value displayed in the catalog, motor and other parts will produce heat and burn out, which may cause fire.

## Caution for Maintenance and Inspection

 Turn the power off while inspection.  
To avoid electric shock, make sure the motor is off before any inspection or repair.

 To avoid electric shock, make sure the motor is off before any inspection or repair.  
The device will not cool down immediately after operation. When touching the device for disassembly or repair, make sure the heat is gone.

## Caution for Storage

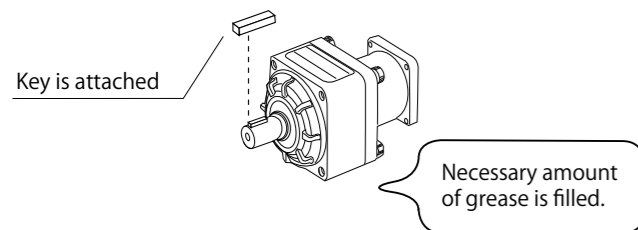
When storing this product, follow the instructions below.

- ① Store in clean and dry places.
- ② In case of storing in a place with humidity or in open air, in order not to expose to external air or rain drops, cover the product with plastic sheets and place it in a box.

## 1-1 When the gear reducer arrives...

Remove the tape on the output shaft and wipe off the anti-rust agent with light oil.

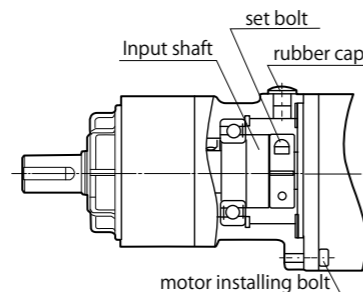
- \* Key is attached to the output axis.
- \* Grease is filled beforehand in the gear reducer.  
Please use as it is.



## 2-1 Installation of servomotor

- \* Please follow the instructions below in case of installation of servomotor at your company.
- \* The size of the motor installment flange portion of the ABLE Gear Reducer depends on the type of servomotor. Therefore, there is a possibility that motors other than the specified one cannot be installed. Please be sure to install the specified servomotor at the time of purchase.
- \* Output shaft of the servomotor may be coated with anti-rust agent.

(When installing motor without key, VRSF spec)



●Table①

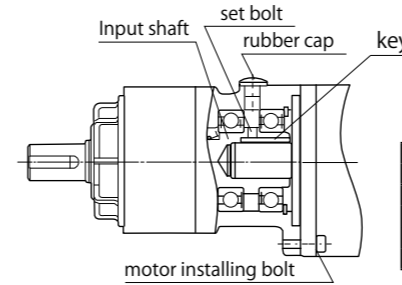
motor installing bolt	tightening torque	
	N · m	kgf · cm
M3	1.0	10
M4	2.9	30
M5	5.9	60
M6	9.8	100
M8	19.6	200
M10	39.2	400
M12	68.6	700
M16	162	1650

●Table①

set bolt	tightening torque	
	N · m	kgf · cm
M3	1.5	15
M4	3.5	36
M5	7.1	72
M6	12	122
M8	30	306

- ① Wipe off anti-rust agent and oil on the motor shaft.
- ② Take off the rubber cap, turn the input shaft, and fit the bolt head into the rubber cap hole. Make sure the set bolt is loosened.
- ③ Carefully insert the motor shaft into the gear reducer input shaft (make sure it does not get stuck and inserts smoothly). Please be very careful not to tilt the motor while inserting.
- ④ Place the motor on the gear reducer and tighten the bolt with specified tightening torque (See Table① above).
- ⑤ Tighten the set bolt of the input shaft with specified tightening torque with a tool such as a torque wrench (See Table② above).
- ⑥ Place the rubber cap on. The procedure is done.

(When installing motor with key VRKF spec)



●Table③

set bolt	tightening torque	
	N · m	kgf · cm
M4	2.0	20
M5	4.3	44
M6	7.3	74
M8	16.8	171

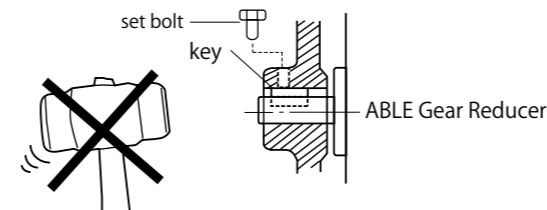
- ① Take off the rubber cap, turn the input shaft, and place the keyway adjacent to the rubber cap hole.
- ② Apply anti-seizing compound (molybdenum dioxide etc.) on the motor shaft, fit the key in the keyway, and insert into the input shaft carefully (make sure it does not stick and inserts smoothly).
- ③ Install motor to the gear reducer and tighten the bolts with specified tightening torque (See Table① previous page lower right).
- ④ Holding the key firmly, tighten the set screw of the input axis with specified tightening torque with a tool such as a torque wrench (See Table③ above).
- ⑤ Place the rubber cap on. The procedure is done.

## 2-2 Installation and Setting

- Avoid places where rain or water hits directly.  
In case of using the device in open air or in a place where dust or rain may fall, please contact our company first.
- Install in an environment between 0°C~40°C.  
Please be sure to contact our company before using the device other than in the environment above.
- Installation must be done firmly to a solid and vibration-free surface with bolts.
- Please install to a convenient place for maintenance and inspection.

## 2-3 Connection to Output Shaft

- When placing coupling or sprocket on the output shaft, do not impose an excessive thrust load.
- If the shaft is struck during installation, the roller bearing or the interior portion of the gear reducer will be damaged.
- If the output shaft coupling or sprocket is not tightly attached, due to an incorrect key or any other reason, it may be cause for failure of the gear reducer. Therefore, please be careful with installation.  
For connection of ABLE Gear Reducer and coupling, use set screw to stabilize the key.
- Upon connection, make sure enough centering is done.



## 2-4 Caution before Operation

- Unless otherwise noted, the specified amount of grease is filled in before shipment. Therefore, the device can start to operate immediately after its arrival.
- For the first operation, confirm the rotation direction of the output shaft and put on load gradually.

## 2-5 Caution during Operation

- Avoid overload.
- Please keep the input rotation speed under the specified limit.
- Stop the operation and perform inspection in the following cases:
  - Temperature started to rise suddenly
  - Abnormal sound came out suddenly
  - Rotating speed became unstable suddenly
- Following items can be the cause. Please handle it immediately.
  - Over load is put on.
  - Lack or deterioration of grease, or unspecified lubrication type is used.
  - Damage on roller bearing, gear, conducting plane.
  - Condition with other device, such as connection is not proper.

## 3-1 Management of Grease

- All models of ABLE Gear Reducers use a grease lubrication system.  
Specified amount of grease is filled in before shipment. Therefore, the device can start to operate immediately after its arrival.  
Specified grease is as follows:
  - VR series A,B,C,D,E frame: KYODO YUSHI CO., LTD. Product: marutenpu AC-D
  - VR series F frame (custom ordered); KYODO YUSHI CO., LTD. Product: marutenpu AC-D
  - VR series G frame (custom ordered); KYODO YUSHI CO., LTD. Product: WR-500
 \* Please refer to instruction booklet(No.92681) for VRHF series F frame
- Exchange of grease is not recommended.
- Please refer to us beforehand, before using the device other than in an ambient temperature of between 0°C~40°C.

## 4-1 Daily Inspection

- The case temperature of the device is too high  
(It is safe if the temperature is lower than ambient temperature + 50°C)
- There is abnormal sound coming out from bearing or gear part
- The gear reducer is showing abnormal vibration
  - \* If those abnormal cases are observed, stop operation immediately and report to our company.
- There is grease leakage
  - \* If there is any grease leakage, report to our company.

## 4-2 Periodic Inspection

- Load condition, abnormal rotation
- If pulley, sprocket, gear reducer installing bolt are loosening or not.
- Troubles in electrical system
- Inspection and maintenance of the main parts.
  - \* If abnormal cases are observed, stop operation immediately and report to our company.
- Exchange of grease.
  - \* If there is any grease leakage, contact our company.