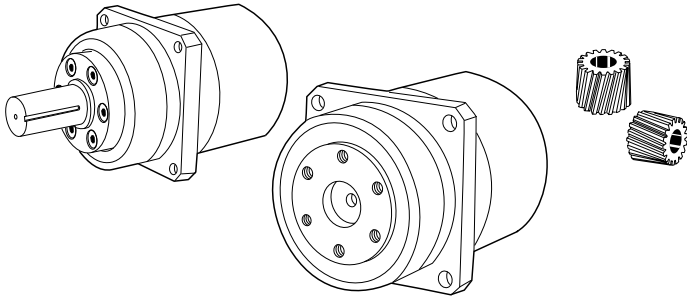


Gear Reducer for servomotor

**ABLE Gear Reducer VRG series**

Instruction Manual



**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.

Congratulations upon your purchase of the ABLE Gear Reducer.

## 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>

### 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 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.



Do not touch the rotating part while operating.

Do not touch the rotating part while operating.

### 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 Speed Reducer arrives...

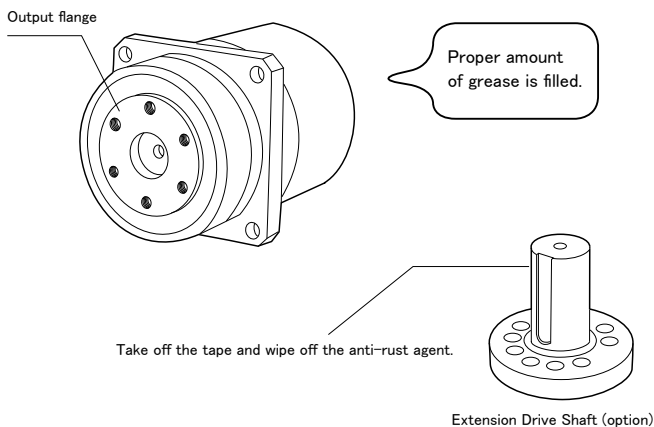
Confirm that the model number and the name plate are the same.

Wipe off anti-rust agent applied to the output flange face with light oil.

- \* The key is fixed with a tape for option type extension drive shaft.

Take off the tape and wipe off anti-rust agent with light oil.

- \* Grease is filled at the factory.

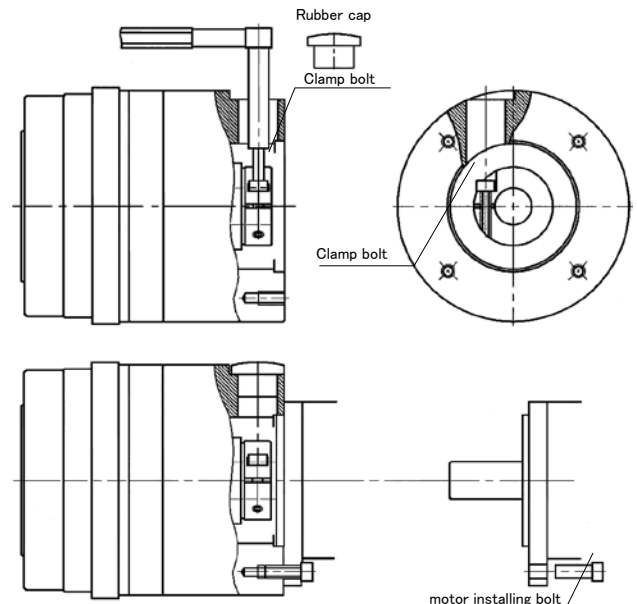


#### 2-1 Installation of servomotor

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.



## 【Work procedure instruction for mounting VRG series to motors.】

- 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 Please place a speed reducer (VRG) vertically on the flat surface as the motor mounting part faces up.
- ④ Carefully insert the motor shaft into the input shaft (make sure it does not get stuck and inserts smoothly). Be very careful not to tilt the motor while inserting. Please make sure the motor flange is perfectly fit to the gear reducer's flange.
- ⑤ Please clench the motor's set bolt with specified torque. (\* Please refer to the below table)
- ⑥ Tighten the set bolt of the input shaft with specified tightening torque with a tool such as a torque wrench (\* Please refer to the below table)
- ⑦ Place the rubber cap on. The procedure is done.

### 【Bolt tightening torque】

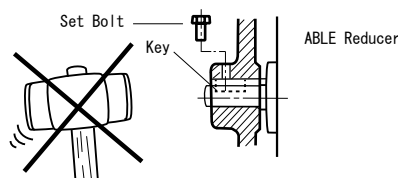
Bolt size	Motor installing bolt		Clamp bolt	
	Nm	kgfm	Nm	kgfm
M3	1.0	0.10	1.8	0.18
M4	2.3	0.23	4.3	0.44
M5	4.7	0.48	8.7	0.89
M6	8.0	0.82	15	1.5
M8	19	1.9	36	3.7
M10	38	3.9	72	7.3

## 2-2 Installation and Setting

- Avoid places where rain or water hits directly. Please contact our company beforehand, in case of using the device in open air or place where dust or rain drops fall on.
- Install the unit in an environment between 0°C ~ 40°C.
- Installation must be done firmly to a solid and vibration-free surface with bolt.
- Install the unit to a convenient place for maintenance and inspection.

## 2-3 Connection to Output Flange

- When installing gear, pulley, sprocket to the output flange, use the follow diameter on the output flange.
- Do not put on excessive thrust load on the output flange.
- When placing coupling and sprocket on the extension drive shaft, do not put on excessive thrust load. Pounding these components into place on the shaft can damage bearings and other reducer components.
- Make sure proper connection. Large clearance between mounted coupling and shaft key may occur flattening.



## 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 ABLER 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:

Sumiplex MP2 (Sumico Lubricant Co., Ltd)

- 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.

**SHIMPO** →All for dreams

---

**NIDEC-SHIMPO CORPORATION**

1 Terada,Kohtari,Nagaokakyo-City,Japan

Phone: (075) 958-3608 Fax: (075) 958-3647

URL:<http://www.nidec-shimpo.co.jp/> E-mail:[info@nidec-shimpo.co.jp](mailto:info@nidec-shimpo.co.jp)

