

Mayfran International BV

MAYFRAN GEARMOTORS

INSTALLATION & MAINTENANCE INSTRUCTION
OF CMFA SERIES
FOR CHIP CONVEYOR
(WITH OVERLOAD PROTECTION DEVICE)

Applicable types

A: CMFA010-200H400GVN6 (low torque)

B: CMFA020-230H360GVN6 (high torque)

Document date

Rev. a0 : 2014.9.3 (TEM)

Rev. a1 : 2015.6.24 (TEM)

Rev. a2 : 2015.8.06 (TEM)

Rev. a3 : 2015.11.05 (MF)

Rev. a4: 2016.02.22 (MF)

INSTALLATION & MAINTENANCE INSTRUCTION

Read this installation manual carefully before use. Be sure to deliver this installation manual to your final user and advise them to read it to ensure that they operate the equipment correctly.

1 . When the units are received

The following must be checked when the units are received.

- (1) Check if the units are what you require by description on a nameplate of the units.
- (2) Check if no damage is on the units in transportation.
- (3) Check if the bolts is fixed.

2.Installation

2-1. Environmental conditions

Location of use	Indoor
Ambient temp	0°C~40°C
Humidity	Below 85%
Altitude	Below 1000m
Atmosphere	Avoid corrosive or volatile gases, vapor ,condensation, and dust

2-2. Installation

- a. The grease is to be applied to the output shaft inside of the speed reducer and to the driving shaft of the device.
Recommended grease type : Shell Mobilux EP2.
- b. The hollow shaft inner diameter is finished with JIS H8 fitting.
The finish of the driving shaft is recommended with g7 fitting.
The speed reducer should be mounted by hand to the driving shaft of the device. If that is not possible due to somewhat firm fit, light struck by a soft hammer may be used to the part which is near to the output shaft of the case main body of speed reducer. However, take sufficient care so that it may not give damage by striking the oil seal.
- c. The key uses the parallel type (JIS B1301-1976).
Never use tapered keys or those with head. This will shorten the life of the reducer.
- d. Rotating stop of the speed reducer.
The speed reducer is equipped with an integrated torque arm to assure the rotating stop of the speed reducer on the driven shaft of the device. Please always use this torque arm and provide sufficient warning that this is properly connected at all times.
Warning : Always first connect the torque arm before connecting it to the power source.

Wiring

2-3. Wiring

* Please construct the wiring in accordance with the applicable electrical installation, technical standards and regulations.

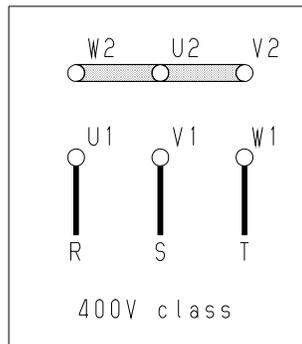
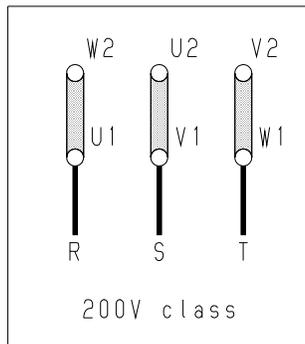
2-4. Earth

* Please connect the earth wire in order to prevent electric leakage accident by the insulation degradation. In addition, it is advisable to use an earth leakage circuit breaker.

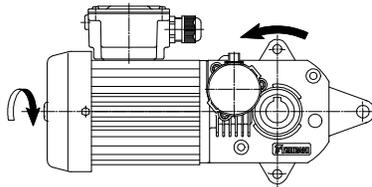
2-5. Wiring and Rotation Direction

* Verify the power indication on nameplate with that of the power supply.

- ① Check the supply voltage and wiring as below.
- ② Supply power to the motor via a magnetic contactor.
- ③ Rotational direction of output shaft with the wiring at below is as figure.



Terminal bolt size : M4
Tightening torque : 1.4~1.8 N·m



NOTE) Rotational direction can be changed by switching any two of R,S,T.



ATTENTION

- Keep cutting fluid away from the Motor.
- Be certain to tighten the screws of the terminal box and close the unused hole on the terminal box with the rubber bushing, etc. to protect from misty cutting fluid. Otherwise damage to electrical parts may occur.
- When using inverter with a 400V class ,motor is not equipped with measures for high voltage surges caused by inverter switching. Therefore,connect the surge voltage suppression filter on the inverter output side.



DANGER

- Do not open the terminal box during operation, otherwise electrical shock may occur.
- Do not operate with the terminal box open, otherwise electrical shock or damage to the device may occur.
- Do not leave the unused screws in the terminal box, otherwise short circuit may be caused.

3. Overload protection device

3-1. Features of mechanical overload protection device

This type of motor is equipped with a mechanical safety device developed for this purpose.
The device operates when an unexpected overload occurs to protect the machine.

① When tripped

When an overload occurs, force greater than the disk spring load acts in the direction of thrust. This disengages the driven flange and the steel ball, and the center plate starts idling. While there should be no noise or vibration during normal operation, larger noise and vibration may occur in the event of an unexpected overload. If this occurs, immediately stop the device.

② Recovery

The overload protection device automatically recovers, so simply restarting the drive side of the motor automatically resets it

1. When the overload protection device is activated due to an overload, stop the motor and remove the cause of the overload.

2. When recovering the device, reset it (re-engage it with the motor) by lower, or by inching the motor.

In the event that it is difficult to reset the device, apply a little load when inching the motor. Do not reset the device by manually rotating the overload protection device or shaft, etc., as it is dangerous to do so.

3. When the ball slots into the pocket, you should hear a click.

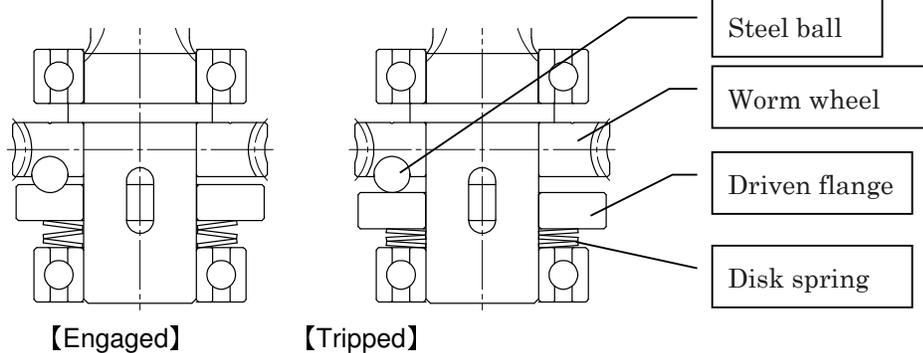
3-2. Trip torque

Trip torque has set up as following value at shipment.

Preset torque: Low type A : CMFA010 series / WCX10735.001C-3 80~110 N·m

High type B: CMFA020 series / WCX10602.001C-5 150~110 N·m

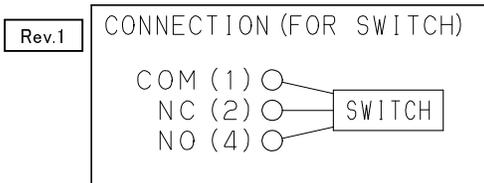
Caution)when the unexpected overload occurred, immediately stop the motor.



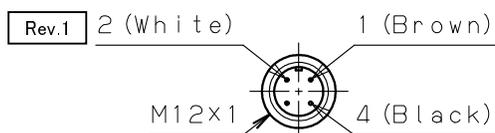
3-3. Overload detection switch

This product is built in the overload detection switch.

The device can detect unexpected overload and stop the motor or generate an alarm, therefore connect the circuit to the alarm circuit of the customer machine.



Switch model	SS10 (OMRON)
Rated voltage	AC250V
Resistive load	10.1A
Minimum applicable load	DC5V 160mA



Detail of detecting connector:M12(male)

4. Lubrication

The gearmotor is supplied including lubricating oil without replacement need.

- a. Enclosing lubricating oil specification and quantity.

Rev.3

TYPE

The lubricating oil brand

Amount

A: CMFA010-200H400GVN6 MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL) approx 200ml

B: CMFA020-230H360GVN6 MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL) approx 350ml

- b. Change of lubricant

* Since the gearmotor is a closed structure, exchange and supply of lubricating oil is not needed in most cases. However, should a need exist to exchange the lubricating oil use above oil reference and quantities.

- c. The operating temperature

* In the first 2~3 days the gearmotor may be a bit hot during operation (>60 °C). This is not abnormal. However, if the case surface temperature of the reducer reaches over 93°C then the unit is defect and the machine should be stopped immediately and inspection or replacement should be initiated.

5. General attention, precaution for safe usage

- a. Pre-operation Inspection

After installation and wiring, please check the following points prior to use;

- a) There is no mistake of the wiring ?

* Therefore, the wiring is given for electric installation technical standards and extension regulation and regulation for the electric power company.

* The voltage drop, which is the case in which the wiring distance is long, increases and may not be able to start the motor.

- b) The grounding conductor has surely been connect ?

* Please take the earth wire in order to prevent electric leakage accident by the insulation degradation. In addition, the approach can use safely the earth leakage circuit breaker, when it is added.

- c) Are adequate devices such as circuitbreaker and/or overcurrent protection relay installed?

- d) Is the connection with the partner machine good ?

- b. Load

Please make sure the gearmotor is running smoothly and is not under heavy load condition. Actual measured amperage value of the gearmotor should not exceed the nominal amperage value as indicated on the name plate of the motor.

- c. Voltage and variation of the frequency

Please make sure the gearmotor is used in the correct voltage and frequency conditions as indicated on the name plate of the motor.

- d. Confirmation after starting operation.

Please confirm following items after starting operation.

- a) Is it right the rotation's direction ?

- b) Are there no abnormal vibrations and noises ?

- c) Is there an abnormal temperature rise ?

6. The precaution on the maintenance

(1) In the maintenance

- a) Please wear clothes suitable for the work and use appropriate protection (safety glasses, gloves, safety shoes, etc.) in the time of maintenance works.
- b) The circumstances and work environment are arranged so that it may not cause a secondary disaster, and it is done in the safe condition.
- c) Certainly the power supply must be cut and it is secured that the customer machine completely stopped and put in a safe state.
- d) Please be advised and warn that there is a danger of the skin burn. The speed reducer under operation may become hot when it is touched in the direct hand.
- e) Safety equipment must be provided in accordance with provisions of ANSI/ASME B15.1-1984"Safety Standards for Mechanical Power Transmission Apparatus", and ANSI/ASME B20.1-1990"Safety Standards for Conveyors and Related Equipment", or other applicable safety standards.

(2) The maintenance item.

Usually, using the necessary measurement jig, it is a point like the next table, and the maintenance is carried out by the attention to the operating state.

ITEM	CONTENT
NOISE	Isn't the approach noise always high? Isn't the abnormal sound being generate?
VIBRATION	There is no the abnormal vibration?
TEMPERATURE RISE	There is no the abnormal rise?
LEAK OF THE LUBRICANTING OIL	The following points have been checked; Each joint, oil seal, lubricating oil.

NOTE) In case of a problem, the operation must be stopped immediately when the abnormality is discovered, and a detailed inspection must be carried out.

CAUTION

1. Installation Manual

- Read the installation manual carefully before use. Installation manuals are supplied with Tsubaki Mayfran products.
- Be sure to deliver the installation manual to your final users and advise them to read it to ensure that they operate the equipment correctly.
- If you cannot find the installation manual, ask your supplier or Tsubaki Mayfran sales office for a copy. Supply them with the name of the product, model, size, and number.

2. For Safety

- If danger is expected from operation of your Tsubaki Mayfran products, take the necessary steps to ensure that they are operated safely.
- If your Tsubaki product does not operate normally, take care to ensure that dangerous operating conditions do not occur.

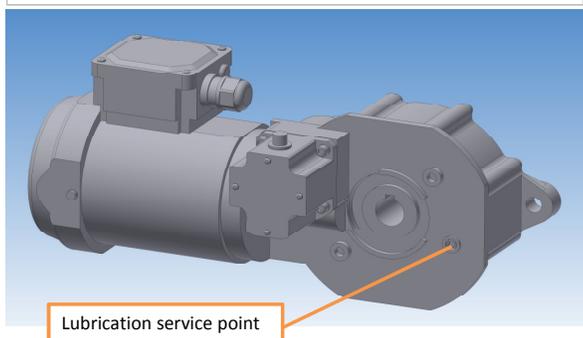
3. Maintenance and Inspection

- Wear suitable clothing and protective equipment (safety glasses, gloves and safety shoes).
- Keep your work place tidy and safe to prevent secondary accidents.
- Make sure to cut the power source and check that the machine has stopped completely before maintenance and inspection. Take utmost care to prevent sudden starting of the machine.
- Safety equipment must be provided in accordance with provisions of ANSI/ASME B15.1-1984 "Safety Standards for Mechanical Power Transmission Apparatus", and ANSI/ASME B20.1-1990 "Safety Standards for Conveyors and Related Equipment", or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.

Lubrication chart for CMFA-Motors

Motor type	MFE Art. No.	Type of Lubricating Oil	Type series	Filling capacity
CMFA020-230H360GVN6	1310651	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2	420g
CMFA020-230H220GVN6	1310652	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2	420g
CMFA040-230H110GVN6	1310653	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2	420g
CMFA020-260H450GVN6	1310654	Klübersynth GH6-320 (Klüber Lubrication)	#3	945g
CMFA040-260H190GVN6	1310655	Klübersynth GH6-320 (Klüber Lubrication)	#3	945g
CMFA055-260H110GVN6	1310656	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#3	945g
CMFA010-200H400GVN6	1310660	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#1	170g
CMFA020-230H220GVN6	1310662	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2(DMG)	430g
CMFA040-230H110GVN6	1310663	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2(DMG)	430g
CMFA020-200H150GVN6	1310664	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#1	170g
CMFA012-200H240GVN6	1310665	Klübersynth GH6-150 (Klüber Lubrication)	#1Paper filter	196g
CMFA010-200H240GVN6	1310666	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#1Paper filter	182g
CMFA020-230AH220GVN6	1310667	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2A	430g
CMFA035-230AH110GVN6	1310668	MOBIL 600W SUPER CYLINDER OIL (EXXON MOBIL)	#2A	430g

Lubricating service point for Type Series #1, #2, #2A



Lubricating service point for Type Serie #3

