

INSTRUCTIONS MANUAL


Asynchronous Three-phase Cage-rotor Electric Motors


MIF-0010/01-I

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1.- GENERAL INFORMATION

1.1.- Safety warning.


 To avoid hazards to people, installations and the environment it is necessary to pay special attention to the information given in the pump manual when running this motor.


 All safety legislation in force in the country in which the pump is to be used must be observed.

2.- DESCRIPTION

This manual applies to standard asynchronous three-phase motors with a squirrel-cage rotor, when used either in horizontal or vertical configurations, protected up to IP-23, IP-54 and IP-55, with casing protection between 56L and 355S inclusive, at voltages of 200 to 500 volts between phases.

3.- CONNECTIONS

 Whilst connecting cables ensure that they cannot become live.

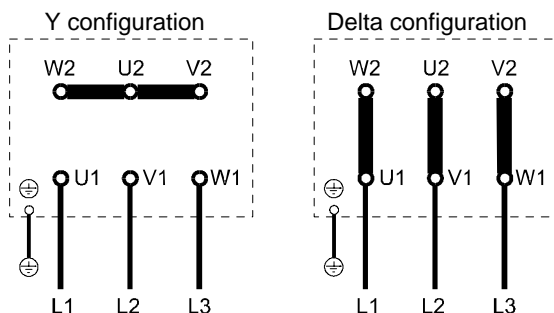
 Check that the earth connection is made in accordance with national regulations.

3.1.- Connection of single-velocity motors

Direct starting:

The motor can be started up directly in two different ways.

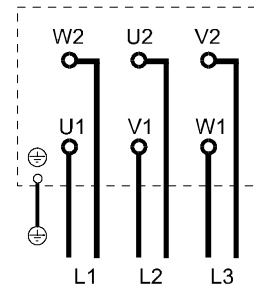
The voltage and the connection, for example 660 VY, 380 VD, are stamped on the motor rating plate. This means that the motor may be connected to 660 volts in a Y configuration and 380 volts in a delta configuration.



Y-Delta starting.

When the motor is started in a Y-delta configuration the line voltage must be the same as the voltage indicated on the motor name plate for delta configuration (D). The six connections are made as shown in the following diagram:

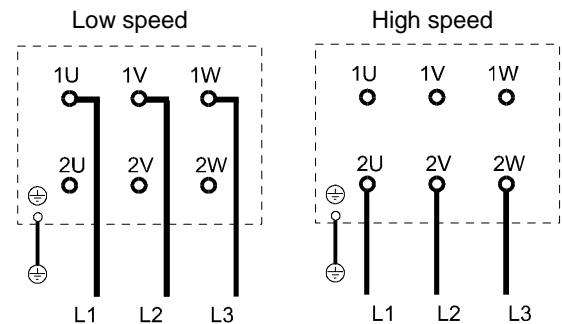
Connection to the Y-delta connector



3.2.- Connection of double velocity and special motors

Connect the motor according to the diagram given inside the terminal box. For example:

Diagram for connection of double velocity motors



3.3.- Direction of rotation


The direction of rotation required by the pump must be observed. This is indicated by arrows marked on the pump. If the direction of rotation is incorrect two of the three phases connected to the motor should be swapped over.

4.- MAINTENANCE OF STORED MOTORS

Whenever possible motors should be stored in a dry, clean, vibration-free environment.

If the motor has been exposed to damp for any length of time it will be necessary to measure the isolation resistance between the winding and the case with a DC voltage of up to 500 volts. If the resistance is less than 25 MW at a winding temperature of 25°, the motor must be dried in an oven at 80° for 24 hours.

WARNING Winding temperature during the drying process must not exceed 80°.

 The terminals should not be touched during or immediately after testing and drying on account of the dangerous voltages that may be present.

Consult the factory if you wish to dry the winding by connecting it to a low voltage.

The bearings must be examined both after drying and after a storage period of more than four years. In the case of motors fitted with a self-greasing mechanism it is only necessary to grease with twice the usual amount of grease.

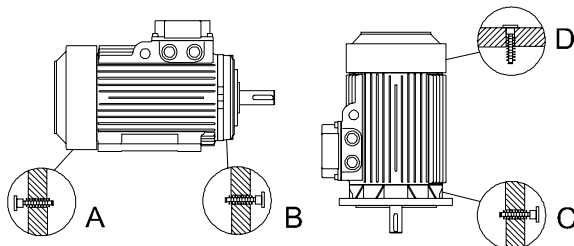
5.- MOTOR PROTECTION

Protection against short-circuit (in case of motor jam), overload or running on only two phases, must be placed in the electrical control panel. (Fuses often protect the mains supply and power cables, but not the motor).

Motors are normally supplied with drain holes. These should only be used in damp or humid environments so as to drain out the condensation which forms inside the pump. Note that when the plug is removed the motor loses part of its protection against dust getting into the mechanism, so this will decrease the motor's degree of protection, eg from IP-54 to IP-44.


With some motors it is not necessary to remove the plug entirely. It can be partially unscrewed, thus preventing a reduction in the degree of protection.

When there is more than one condensation drain hole use only the one that is situated at the lowest point.




A: Open
B: Open

C: Open
D: Closed

 *Unused access holes in the junction box must be closed.*

6.- INSTALACIÓN Y PUESTA EN MARCHA

 *The following checks must be carried out during installation and start up. Remember that these checks are additional to those indicated in the manual for the pump to which the motor is connected.*

6.1.- Before start up

Before installing the motor it is necessary to:

- Ensure that the installation and operating conditions correspond to those shown on the rating plate (voltage, strength, frequency, connection type, construction type, degree of protection, etc.).

When it is being installed it is necessary to:

- Align the motor correctly (see the section on alignment in the pump manual or coupling manual).
- Allow enough space for adequate ventilation of the motor.
- Make the connections to the terminal box.
- Earth correctly.
- Lubricate the bearings if necessary (see section 7).
- Connect all the auxiliary devices (e.g. heating resistors temperature gauges etc.) that the motor uses.
- Check that the fan cover is in perfect, undented condition.

6.2.- Start up

During start up it is necessary to:

- Check that the motor is turning in the right direction for the correct operation of the pump (see arrows indicating direction of turn marked on the pump body).
- Check that there are no strange noises or excessive vibrations. If there are stop the motor immediately and check the mounting of the assembly on its base and the condition of the fan cover.
- Put all the auxiliary devices used by the pump into operation.
- Check that the voltage and power are correct using the appropriate instruments.

7.- LUBRICATION

7.1.- Bearings without greasing valves

Most small motors have a sufficient supply of grease for several years running and so have no openings for greasing. Therefore before adding fresh grease it is necessary to open the bearing housing and clean it with benzine or benzol to remove the old grease and the soap resulting from its decomposition.

WARNING *Sealed permanently lubricated bearings (bearings 2 RS and 2 Z) cannot be cleaned or greased. They must be replaced.*

The interval between greasing for two pole motors is 10,000 hours and for motors of more than two poles, 20,000 hours or four years.

7.2.- Bearings with a grease valve

All motors fitted with grease valves bear a plate specifying the interval between greasing. It is important that these instructions be obeyed rigorously. Stated lubrication intervals refer to normal running conditions. If a location is particularly dusty or if the motor is sprayed by water the interval between lubrication must be shortened. The amount of grease used however, may be reduced.

After 12 applications of grease the bearings and covers must be cleaned with benzine or benzol.

Lubrication is carried out as follows:

- Inject half the grease with the motor stopped.
- Start the motor and let it run a few minutes at normal speed.
- Stop the motor again and inject the remaining grease.

WARNING *If all the grease is injected at once with the motor stopped, there is the risk of it penetrating the motor itself.*

7.3.- Lubricant

Grease with a lithium based grease and as the basic oil a mineral oil of water resistance to DIN 51807 part 1, grade 0 or 1 and the following characteristics:

MOTOR MANUFACTURER	GREASE TYPE AS PER DIN 51.825
ABB	K2K
AEG	K3N
LEROY SOMER	K3N
SIEMENS	K3N
WEG	K3N