



In the interests of simplicity, the product to which these instructions apply will be referred to throughout as an "electric motor". Before commissioning the electric motor, be sure to read carefully and follow the instructions given in the "technical manual", which can be obtained from our sales network or, if requested, supplied by our engineering department. Staff or technicians entrusted with the installation, testing, operation and maintenance of the products to which these instructions refer must be properly trained, with regard in particular to the observance of all pertinent technical and safety standards. In addition, it must be remembered that these instructions are not exhaustive, and that all technical and safety standards applicable in the country where the product is installed and utilized must also be observed.

Safety warnings



Customers are responsible for ensuring correct selection and use of the product on the basis of their industrial and/or business needs. With the state of the art constantly evolving, C.F.R. reserves the right to update and improve the content of this literature at any time, making changes which however cannot ever be regarded as binding. The electric motor must be operated in accordance with the ratings on the data plate and the instructions given in the technical manual. Do not deactivate or tamper with protection devices. If an electric motor develops a fault and/or is not running smoothly, withdraw it from use and label it out of service. If repairs are required, contact C.F.R. Technical Assistance. **An electric motor must not be installed in areas where potentially explosive atmospheres can be created or where there is a high fire risk. Do not wash/clean the motor with solvents or pressurized water jets, and do not apply paint.**

Residual risks



LIVE PARTS



MOVING PARTS



HIGH TEMPERATURES

Installation and commissioning

Acceptance: On taking delivery, check that the motor is intact and undamaged. If damage has occurred, do not install. Contact CFR for instructions on how to proceed. Check that the motor and the data plate details are as ordered.

Handling and storage: Always use suitable lifting gear (slings, eyebolts) as specified in the technical manual. Store electric motors in clean, dry, temperate surroundings, sheltered from the weather and protected from vibration or impact. Motors to be stored for longer than 60 days should be placed in sealed plastic bags.

Protect the drive shaft and mounting flanges with a non-aggressive corrosion inhibitor.



Before commissioning: Check that the details on the data plate and the specifications of the motor are compatible with the intended application. Check the insulation. If the motor is equipped with an electromagnetic brake, check that the brake disc is not binding against the contact plate. If necessary, remove the brake from the motor, clean the contact surfaces, reassemble and check that the brake operates correctly when the nominal voltage is applied.

Mechanical installation: Since motors are generally coupled to other mechanical components, it is important to remember that:

Surfaces must be clean and of suitable thickness, with acceptable flatness and/or rectangularity tolerances, and free from vibration.

The motor must be positioned in such a way that air can flow freely through the inlet and outlet vents.

Pulleys, pinions or other components must be installed with maximum care, making certain not to damage bearings or seals.

The recommended tightening torques for screws and bolts must be observed (see technical manual).

Extreme care must be taken not to fix screws or bolts that might penetrate internally of the motor housing, as these could damage the electrical windings.

All hot parts must be shielded to prevent possible contact with persons and with other machine components.







Electrical installation: Check that the motor voltage corresponds to the input voltage.

Do not connect or start up the motor if the wiring diagram is not available; do not start the motor with the key unrestrained on the shaft.

All wiring must be carried out by an expert service technician.



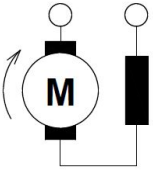
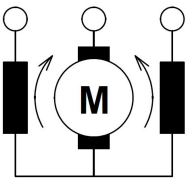
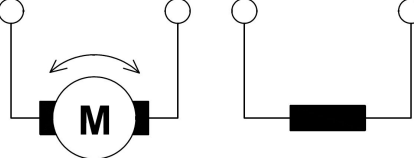
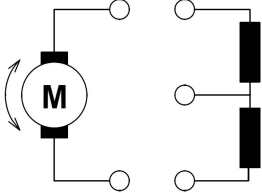
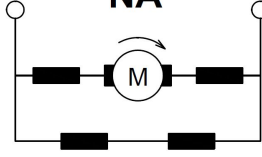
	<p>Each electrical circuit must be protected against damage deriving from faults or malfunctions.</p> <p>It is the responsibility of the installer to deploy all safety devices required under statutory regulations for the particular machine. The motor does not come with protection devices, unless agreed otherwise.</p>
<p>Electrical connections must be made using cables of suitable cross section and insulation class (responding to EN60204-1); proceed in accordance with the wiring diagram provided by C.F.R. and with that of the electronic control unit, if supplied.</p> <p>Check that the cables are long enough to ensure they remain free of tension and will not be pressed or pinched against other elements of the machine structure. When tightening cables at the terminal box, always use two wrenches, one held stationary underneath to prevent the terminal from turning, and the other, once the termination lug is in place, to tighten the nut above so that a secure and durable contact is obtained.</p> <p>All cables or unused connections must be sealed to ensure the IP enclosure rating remains effective.</p>	
	<p>Checks on starting up: Once the mechanical and electrical installation procedures have been completed, a series of preliminary checks must be carried out:</p> <ul style="list-style-type: none"> - Check that the motor is equipped with the mandatory safety devices. - Check that all threaded fasteners are properly tightened. - Check the insulation resistance of the motor between phase and earth. - Check that the user cannot suffer any kind of injury or damage when mechanical or electrical parts are set in motion. - Check that the brake (if installed) applies and releases freely, and that other accessories are fully operational. - Supply power to the motor, check that the direction of rotation is correct, and ensure there is no vibration or abnormal noise. - Check the gap between brushes and commutator. When correctly adjusted, the spark should be minimal. - Check the current draw in no-load conditions and at the nominal rated power.
<p>Maintenance/Parts: before commencing work, isolate the motor from the power supply, likewise any accessories installed, wait for moving parts to come to a standstill, and wait further until the surface temperature drops below 40 °C so as to avoid the risk of skin burn.</p>	
	<p>Periodic inspections:</p> <ul style="list-style-type: none"> - check that the fan, fan cowl and electrical connections are free from deposits of dust, oil and dirt; - inspect O-rings and seals, check the tightness of connections, and verify that there is no vibration and noise generated during operation; - check the extent of wear on the brushes, and the condition of the commutator; - test the insulation of the motor.
<p>In the event of maintenance being required on the motor, entrust the work to a qualified or CFR-approved service technician, and use only original spare parts. Whenever maintenance and inspection procedures are completed, always test the safety and operation of the motor (thermal overload protection, brake, etc.).</p>	
<p>Warranty: The motors referred to in these instructions are guaranteed for 12 months from the delivery date.</p> <p>Claims under warranty are acknowledged only for malfunction of the product attributable to defects of manufacture.</p> <p>Where a claim is acknowledged as valid, CFR will replace or repair the defective component free of charge. The warranty does not cover parts subject to normal wear and tear.</p> <p>All transport costs incurred in returning the product to CFR and restoring it subsequently to the customer are excluded from the warranty.</p> <p>Warranty will be invalidated by: incorrect installation and/or maintenance, the use of non-original materials, or of operating parameter values higher than those permitted, improper application.</p>	
<p>Decommissioning: This item of equipment may contain hazardous substances. Do not dispose of electric motors as household refuse but as industrial waste, to be sorted in accordance with local regulations.</p>	
	<p>C.F.R. srl, with registered office at Via Raimondo dalla Costa, 625, 41122 – Modena (MO) – Italy, declares that the products of its own manufacture designated DC electric motors - type CA, MP, are in compliance where applicable with directives: 2006/95 (Low Voltage), 2004/106 (Electromagnetic Compatibility), 2006/42/CE (Machinery), insofar as they meet applicable safety requirements and are capable of being incorporated into a machine.</p> <p>Electric motors must not be commissioned until the overall system or the machine into which they will be</p>



incorporated have been declared as meeting the requirements of applicable directives.

ELECTRICAL CONNECTIONS

SERIES excited motors

<p>RA</p>  <p>2 Terminals</p>	<p>Series-wound motor with 2 terminals: this motor can have one direction of rotation only. Important: the required direction of rotation must be specified when ordering.</p>
<p>RC</p>  <p>3 Terminals</p>	<p>Series-wound motor with 3 terminals: this motor can have two directions of rotation.</p>
<p>RE</p>  <p>4 Terminals</p>	<p>Series-wound motor with 4 terminals: this motor can have two directions of rotation.</p>
<p>RF</p>  <p>5 Terminals</p>	<p>Series-wound motor with 5 terminals: this motor can have two directions of rotation and two speeds.</p>
<p>COMPOUND excited motors</p>	
<p>NA</p>  <p>2 Terminals</p>	<p>Compound-wound motor with 2 terminals: this motor can have one direction of rotation only. Important: the required direction of rotation must be specified when ordering.</p>



SHUNT excited motors	
<p>PA</p> <p>2 Terminals</p>	<p>Shunt-wound motor with 2 terminals: this motor can have one direction of rotation only. Important: the required direction of rotation must be specified when ordering.</p>
<p>PB</p> <p>4 Terminals</p>	<p>Shunt-wound motor with 4 terminals: this motor can have two directions of rotation.</p>
SEPARATELY excited motors	
<p>SB</p> <p>4 Terminals</p>	<p>Separately-wound motor with 4 terminals: this motor can have two directions of rotation.</p>
PERMANENT MAGNET motors	
<p>MP</p> <p>2 Terminals</p>	<p>Permanent magnet motor with 2 terminals: this motor can have two directions of rotation and two speeds.</p>

The code for the type of winding is indicated on the motor data plate.