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Installation and  
Operation Manual

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## 1329R Small AC Motors

- 1/3 through 3 HP
- 56-W180T

## Installation and Operation

### Unpacking

Unpack motor carefully and inspect for possible damage during shipment. Check packing materials and save any instruction tags or wiring diagrams found in the carton. Report any damages or shortages immediately to the local transportation agent.

Before connecting motor to the electrical supply, inspect for any damage resulting from shipment. Turn shaft by hand to assure free rotation. If the motor has been in storage or subjected to adverse moisture conditions, have it dried thoroughly before operating. After drying, run motor (not connected to load) for a short time to assist drying and as a bearing check.



**ATTENTION:** High voltage and rotating parts can cause serious or fatal injury. The use of electric machinery, like all other utilization of concentrated power and rotating equipment, can be hazardous. Installation, operation, and maintenance of electric machinery should be performed by qualified personnel. Familiarization with NEMA safety standards, national electrical code and sound local practices is recommended.

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### Mounting

Mount the motor on a foundation sufficiently rigid to prevent vibration. After careful alignment, bolt motor securely in place.

#### Mounting Instructions for 56C & 140TC Face Mounted Motors

Before mounting a “C” face motor to a mating flange, be sure both surfaces and all mounting holes are smooth and free of debris.

When mounting into a quill type reducer, make sure the input and output shafts are coated with an anti-seize compound suitable for the application.

When mounting through a flexible coupling, verify that there is adequate clearance between the driven equipment shaft, the coupling interface and the motor shaft. Lack of clearance may result in binding of the shafting and premature bearing failure.

Always slide the motor tenon into the mating flange to its full depth before tightening the mounting bolts. Do not allow the motor to hang by the shaft extension while assembling it to the driven equipment (i.e. quill input gear case). This may bend or crease the shaft and damage any seals that are present.

Only use the proper mounting bolts. These should be 3/8”-16 threads per inch and sized for length such that engagement into the motor flange does not exceed 9/16”. For example, a gear case with a 3/8” flange thickness requires a bolt that is:

$3/8'' + 9/16'' = 15/16'' = \text{Maximum Bolt Length.}$

Since 15/16" is not a standard bolt length, a 7/8" bolt or a 1" bolt with a lockwasher can be used.



**ATTENTION:** To guard against motor damage such as premature failure and/or a loose assembly, use only mounting bolts that are the correct length. A bolt that is too long may cause damage to the motor.

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## Wiring

Check nameplate data on motor before installing to assure correct rating and that the available power supply agrees with the motor power supply. If in doubt, check local power company. Fuses, wires, thermal cutouts and other protective devices should be the proper size and rating to safely carry the load and to interrupt the circuit on overloads. Built in thermals, when installed, are of proper size to provide the required protection



**ATTENTION:** Ground the machine properly to avoid serious injury to personnel. Grounding should be in accordance with the National Electrical Code and consistent with sound local practices.

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All motors contain wiring instructions either as a label on the inside of the conduit box cover or by separate sheet or tag. All motors should be installed in accordance with the National Electric Code and local requirements. Check leads or terminals with connection diagrams or label so the proper connections to the incoming power leads are made.

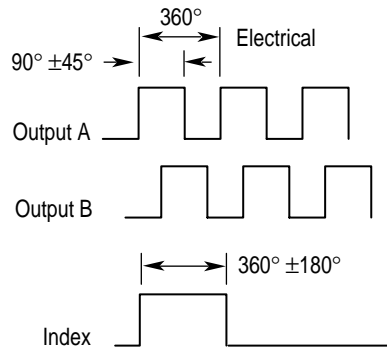
**Important:** When motors are provided with thermal protection (typically thermostats), it is important to properly connect and apply the devices. This will ensure that the motor is properly protected from being operated if thermal limits are reached and/or exceeded. The control system must be configured to reduce the motor load and/or shut down the motor control system to allow the motor to cool to a level within acceptable operating ranges. If the motor is operated with the thermal protective devices tripped (indicating an over temperature condition), the motor insulation could be damaged and complete failure of the motor insulation is possible. In the event of motor failure due to an over temperature condition, Rockwell Automation requires that motor thermal protective devices (when supplied) be adequately monitored and incorporated into the motor control system to maintain warranty. Failure on the part of the individual installing this equipment to take these steps will result in the factory warranty being voided.

## Blower Motor Connection

Vector Duty W180T frame motors may incorporate the use of a blower motor for cooling. In these cases a single-phase, 115V, 60 Hz blower motor is used.

## Encoder Connection Diagrams

Dynapar H20 – 10 pin M/S Connector



### Output Terminations

Signal	Pin
Output A	A
Output B	B
Output Z	C
Vcc	D
Common	F
Case	G
No Connection	E
Output A (NOT)	H
Output B (NOT)	I
Output Z (NOT)	J

Lakeshore – Epic Connector

The following table is a universal wiring guide for the latching Epic connector.

### Epic Connector or Plain Cable Connections

Pin	Signal	Color	Pin	Signal	Color
1	Common	Black	6	5-15V	Red
2	B	Green	7	B (NOT)	Yellow
3	A	Blue	8	A (NOT)	Gray
4	Z	Violet	9	Z (NOT)	Orange
5	No Connection	-	10	Shield	Braid

## Starting



**ATTENTION:** Check direction of motor rotation before coupling motor to load.

The motor should start quickly and run smoothly. If the motor fails to start, it may be that the load is too great, the applied voltage low or the motor improperly connected. In any case, immediately shut motor off, disconnect from power supply, and investigate the cause.

## Rotation

Refer to notation on wiring diagram for method of changing rotation.

## Ambient Temperature

Each motor nameplate carries a maximum ambient temperature rating. Motors should not be operated at ambients above this rating.

## Maintenance



**ATTENTION:** High Voltage. Electric shock may cause serious or fatal injury. Disconnect power before touching any internal part.

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The fundamental principle of electrical maintenance is – **Keep The Apparatus Clean And Dry**. This requires periodic inspection of the motor, the frequency depending upon the type of motor and service.

The following should be checked at regular intervals.

1. Windings should be dry and free of dust, grease, oil, and dirt. Windings may be cleaned by suction cleaners or by wiping. Nozzles on suction type cleaners should be non-metallic. Gummy deposits of dirt and grease may be removed by using a commercially available mineral solvent. Do not use gasoline or other inflammable solvents.
  2. Terminal connections, assembly screws, bolts and nuts should be tight. They may loosen if motor is not securely bolted and tends to vibrate.
  3. Insulation resistance of motors in service should be checked periodically at approximately the same temperature and humidity conditions to determine possible deterioration of the insulation. When such measurements at regular intervals indicate a wide variation, the cause should be determined. Motor should be reconditioned if it has been subjected to excessive moisture, or by re-winding or re-insulating if necessary. Enclosed motors require very little attention. Be sure that external air chamber of fan cooled motors does not become clogged with foreign material which will restrict passage of air.
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**ATTENTION:** Mineral solvents are flammable and moderately toxic. The usual precautions for handling chemicals of this type should be observed. These include:

1. Avoid excessive contact with skin.
  2. Use in well ventilated areas.
  3. Take necessary precautions to prevent fire or explosion hazards.
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## Lubrication

### Ball Bearings

The ball bearing has deep grooved, double shielded bearings with sufficient lubricant packed into the bearings by the manufacturer for “life Lubrication.” The initial lubricant is supplemented by a supply packed into larger reservoirs in the end shield at time of assembly. No grease fittings are provided as the initial lubrication is adequate for up to 10 years of operation under normal conditions.

## Sleeve Bearings

The bearing sleeve is steel on the outside for strength with a tin base babbitt lining on the inside for low friction and long wear. A storage space around the bearing is filled with Permawick, a commercial composition of special cellulose fiber highly saturated with oil. The initial factory lubrication is normally adequate for approximately one year under normal operation. Thereafter, lubricate about every six (6) months. This requires about 3 to 4 squirts from a 4 in. oil can. Use only LIGHT grade mineral oil (similar to SAE 10W) having viscosity of 210 sec. at 100°F. If the motor has been subjected to storage prior to operation, it is advisable to lubricate in accordance with the above.

## Overload Protection

Motors supplied with thermal protectors are furnished with either a manual or automatic reset type to protect against destructive overheating. If the protector trips, proceed as follows:

### Manual Reset Type

1. Wait two minutes.
2. Push in reset plunger until it catches.

### Automatic Reset Type

This type will reset itself when the motor cools sufficiently.

If the thermal protector continues to trip, an abnormal condition exists. This condition must be corrected before motor will operate normally.



**ATTENTION:** Motors with automatic reset thermal protectors should be used in applications where an unexpected restart would not be hazardous.

If a motor using an automatic reset thermal protector has tripped “off” make sure to disconnect motor from line before working near the motor or any equipment driven by it. Serious injuries could occur otherwise due to an unexpected “reset” and motor start up.

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## Troubleshooting

If trouble develops in operation of motor, be sure that:

1. The bearings are in normal condition and have been properly lubricated with a high grade, ball bearing lubricant, free of dirt or grit. (If dirt enters bearing, flush and relubricate.)
2. There is no mechanical misadjustment to prevent free rotation of moving parts of motor and drive.
3. All bolts and nuts are properly tightened.
4. Motor instructions have been carefully carried out.
5. That rated voltage is available in all phases at the motor terminals.

6. That the line voltage, frequency and phase correspond to the values stamped on the nameplate.
7. That all connections and contacts are properly made in all circuits between motor and line, and between motor and control.

## Warranty

Allen-Bradley warrants workmanship and materials on each Fractional Horsepower AC Motor for one year from date of shipment. This warranty does not extend to failures induced by misuse, abuse or misapplication. For warranty service, contact your nearest sales office.

## Repair Procedures

**Important:** Allen-Bradley cannot be held responsible for expense incurred in any repairs performed by other than the Company's Engineers or Authorized Service stations unless authorization has been granted by Allen-Bradley Field Representatives or the factory.



**ATTENTION:** Internal parts of this motor may be at line voltage even when motor is not rotating. Disconnect all AC line connections before contacting any internal part.

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## Disassembly

If it becomes necessary to disassemble the motor, care should be taken not to damage the stator windings as the insulation may be injured by improper or rough handling. Precautions to keep bearings clean should be exercised.

Before removing either end shield:

1. Disconnect motor from power source. Tag the leads to insure proper re-connection.
2. Remove motor from mounting base.
3. Mark end shields relative to position on frame so they can be easily replaced.

## Removing End Shields And Rotor

1. Remove any bearing cartridge nuts or screws.
2. Remove end shield through bolts.
3. Pull end shields by tapping lightly on screw driver in slot between end shield and frame with fiber mallet.
4. Remove rotor.

## Removing and Replacing Ball Bearings

Should it become necessary to replace bearings, the bearing bore and cavity should be thoroughly cleaned and repacked with approximately 1/2 teaspoonful of recommended grease (Chevron SRI #2 or equivalent).

Bearings should be removed with bearing pullers using a center insert in the end of the shaft to protect the shaft center. If a puller is not available, use a fiber hammer and transmit blows through a hard wood block.

To re-install ball bearings, either in a press or on the bench, pressure should be applied to the inner race by using a square faced sleeve or piece of pipe that will fit over the shaft, to avoid damaging the bearing. If a press is not available and a hammer is used, the blows should be transmitted against the sleeve by a block of wood or fiber.

## Reassembly

Follow reverse procedure as outlined for Disassembly. Having marked the brackets in the original position, replace as marked.



**ATTENTION:** The use of electrical equipment in hazardous locations is restricted by the national electrical code, article 500. Original equipment manufacturers and user customers must read, understand and apply these rules for installation and use of all equipment in such locations and consult local code inspection and enforcement agencies as necessary to insure compliance. Motors listed by Underwriters Laboratories, Inc., for use in specific locations have been designed, tested, and approved for use in such locations only.

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### Online Documentation

The latest motor information can be obtained from the Allen-Bradley Drives & Motors home page on the World Wide Web at:  
<http://www.controlmatched.com>

[www.rockwellautomation.com](http://www.rockwellautomation.com)

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