



A Rockwell Automation Company

**MagneMover LITE User Manual
Addendum,
Air-cooled Motors**

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MagneMotion, Inc.
A Rockwell Automation Company
139 Barnum Road
Devens, MA 01434
USA

Phone: +1 978-757-9100
Fax: +1 978-757-9200

www.magnemotion.com

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About This Addendum

This document is an addendum to the *MagneMover LITE User Manual* and describes the air-cooled motor option.

Purpose

This document explains how to install, operate, and maintain the MagneMover[®] LITE (MM LITE[™]) air-cooled motors on an MM LITE transport system. Use this document in combination with the *MagneMover LITE User Manual* and other documentation that accompanies the transport system to design, install, configure, test, and operate a MagneMover LITE system. Instructor-led training classes that provide additional experience are available.

Audience

This document is intended for all users of MagneMover LITE transport systems and provides information on how to install, configure, and operate the air-cooled motors on MagneMover LITE transport systems.

Prerequisites

The information and procedures in this manual assume the following:

- Familiarity with personal computers and with the Windows[®] operating system.
- Full documentation for the transport system is available.
- All personnel operating the transport system are properly trained.

Reference Documents

- 990000410, MagneMover LITE User Manual

Introduction

Overview

This section provides an overview of the MagneMover LITE air-cooled motors. These motors include air inlet and exhaust ports to provide forced air-cooling of the motor, which allows larger continuous current and power draw.

Air-cooled Motor Overview

The air-cooled MagneMover LITE linear synchronous motor (LSM) provides integral ports for air connections (1.0 psig [6.9 kPa] max). Use both ports to provide active cooling using forced air convection for sustained high-power operation. The primary benefit of cooling the motor is that heat that is generated from motor operation can be quickly removed from the motor with convection, thus allowing larger continuous current and power draw. Use one port with the second port closed, to operate the motors in a positive-pressure mode, which helps prevent ingress of foreign material into the motor body.

The motor is delivered with plugs installed in the ports, which allows the motor to be used as a standard MagneMover LITE motor. Remove the plugs to use the air-cooled option.

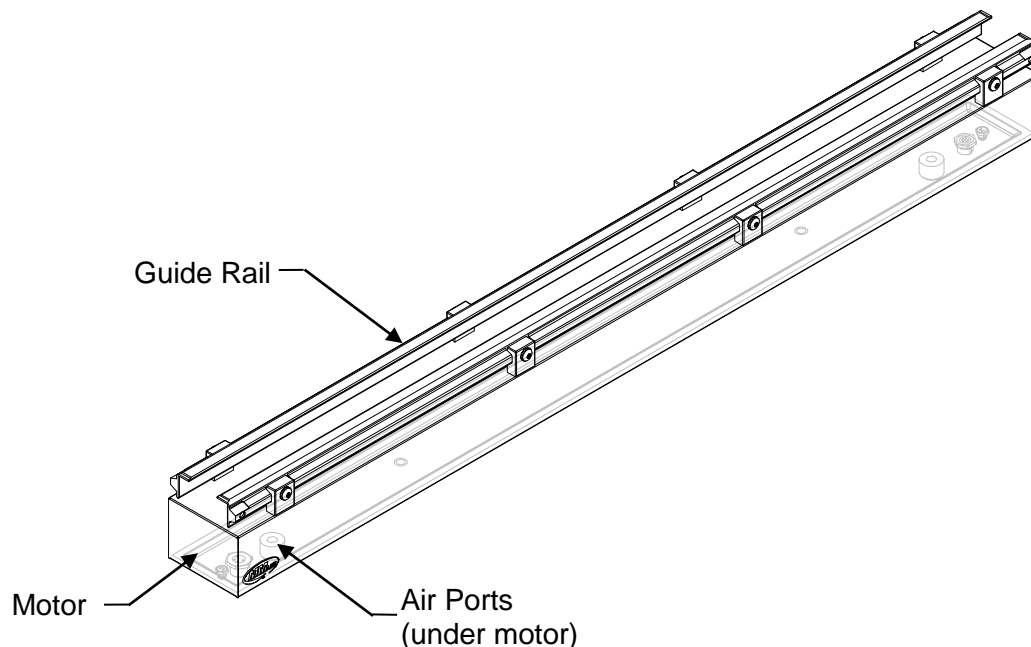


Figure 1: Detailed View of the 1000 mm MM LITE Air-cooled RS-422 Motor

- **Motor** – The MagneMover LITE linear synchronous motor (LSM) with integral rails.
- **Guide Rail** – Makes sure vehicles (pucks) are maintained in the proper relationship to the motors.
- **Air Ports** – Provides a connection for pressurized air that is supplied to the motor for positively pressurizing the motor body or for forced air cooling.

Safety

Overview

This section describes safety guidelines for the air-cooled motors and their use in a transport system. All personnel that are involved in the operation or maintenance of the MM LITE components and system must be familiar with the safety precautions that are outlined in this section.

Regulatory Compliance

See the *MagneMover LITE User Manual* for all regulatory compliance information.

Safety Considerations

See the *MagneMover LITE User Manual* for all personnel and equipment safety information.

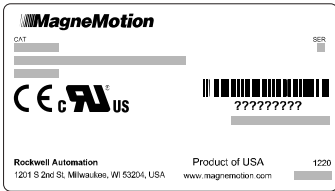
Symbol Identification

See the *MagneMover LITE User Manual* for all symbol identification and use information.

Label Identification and Location

Safety and identification labels are placed on those MagneMover LITE components that require them to provide hazard identification and information about the components at the point of use. This section describes each label, identifies its location, and for safety labels identifies the hazard and possible injuries.

Table 1: Labels Used on the 1000 mm RS-422 Air-cooled Motors

 The image shows a rectangular label with the MagneMotion logo at the top left. Below the logo is a barcode. To the right of the barcode is a small square with the text 'SER'. Below the barcode is a row of question marks '?????????'. At the bottom left, it says 'Rockwell Automation' and '1201 S 2nd St, Milwaukee, WI 53204, USA'. At the bottom right, it says 'Product of USA' and 'www.magnemotion.com'.	<p>Product Information Label</p> <p>Qty: 1</p> <p>Location: On the bottom of the motor</p>
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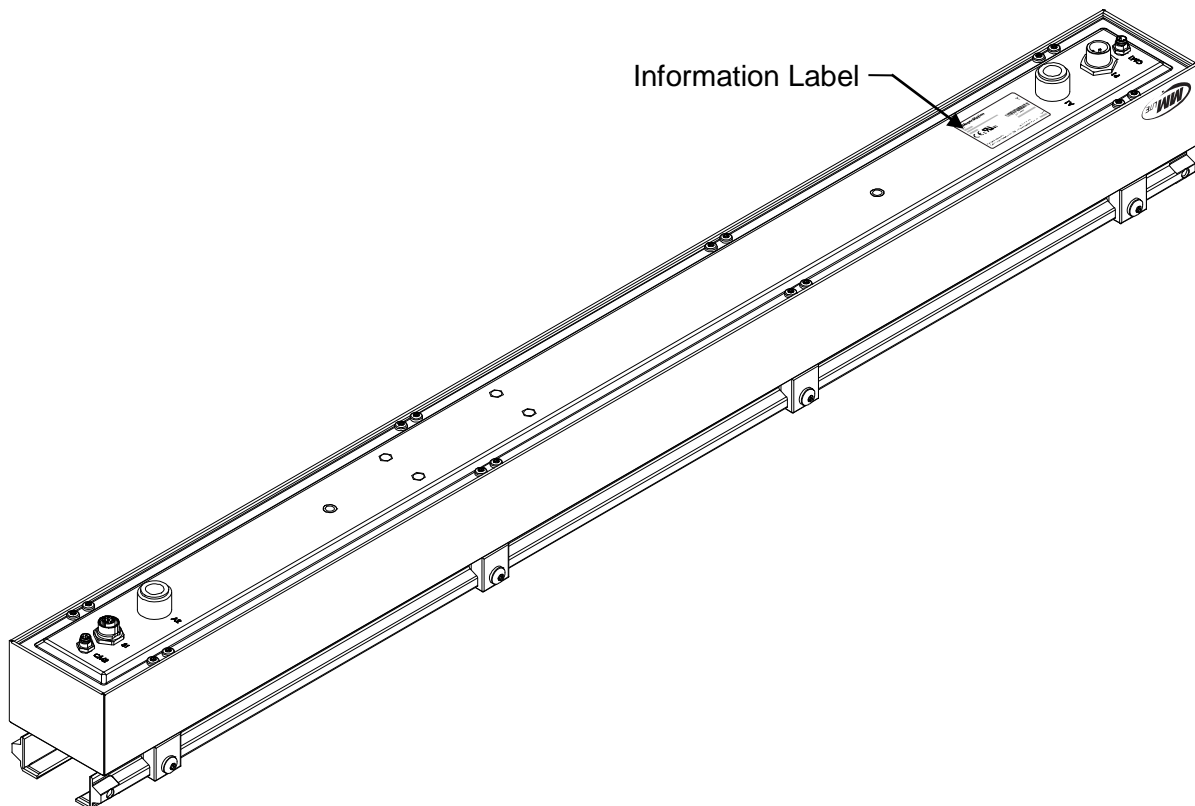
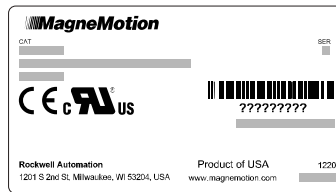


Figure 2: of Label Locations on the 1000 mm RS-422 Air-cooled Motors

Table 2: Labels Used on the 250 mm RS-422 Air-cooled Motors



Product Information Label

Qty: 1

Location: On the side of the motor

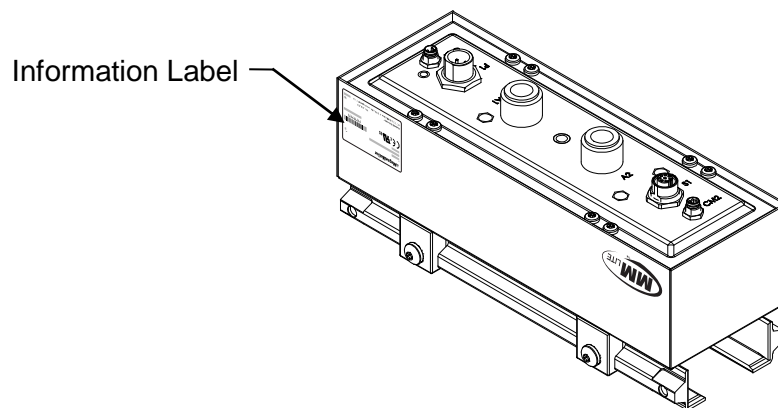
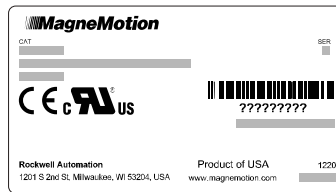


Figure 3: Label Locations on the 250 mm RS-422 Air-cooled Motors

Table 3: Labels Used on the 125 mm R 90° Curve RS-422 Air-cooled Motors



Product Information Label

Qty: 1

Location: On the side of the motor

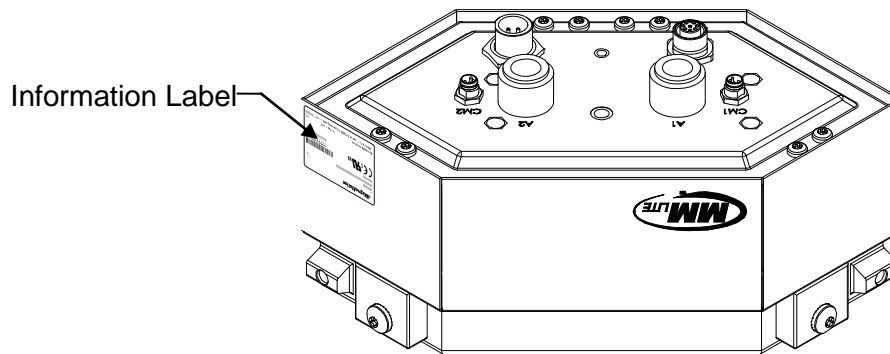
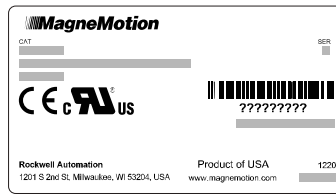


Figure 4: Label Locations on the 125 mm R 90° Curve RS-422 Air-cooled Motors

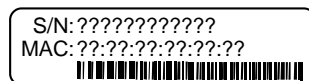
Table 4: Labels Used on the 1000 mm Ethernet Air-cooled Motors



Product Information Label

Qty: 1

Location: On the bottom of the motor



MAC ID Label

Qty: 2

Location: On the bottom and side of the motor

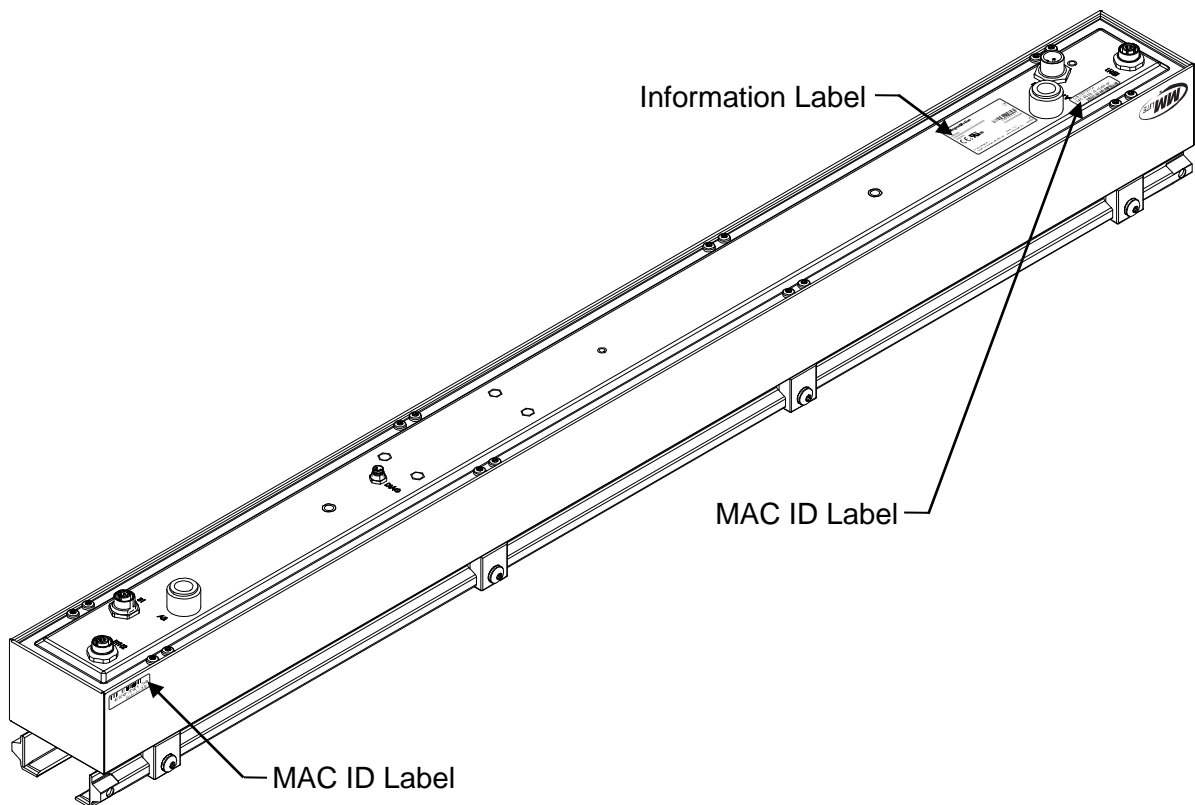
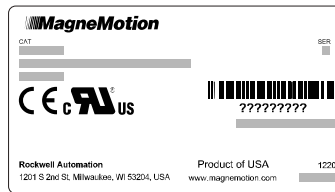


Figure 5: Label Locations on the 1000 mm Ethernet Air-cooled Motors

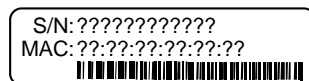
Table 5: Labels Used on the 250 mm Ethernet Air-cooled Motors



Product Information Label

Qty: 1

Location: On the side of the motor



MAC ID Label

Qty: 2

Location: On the bottom and side of the motor

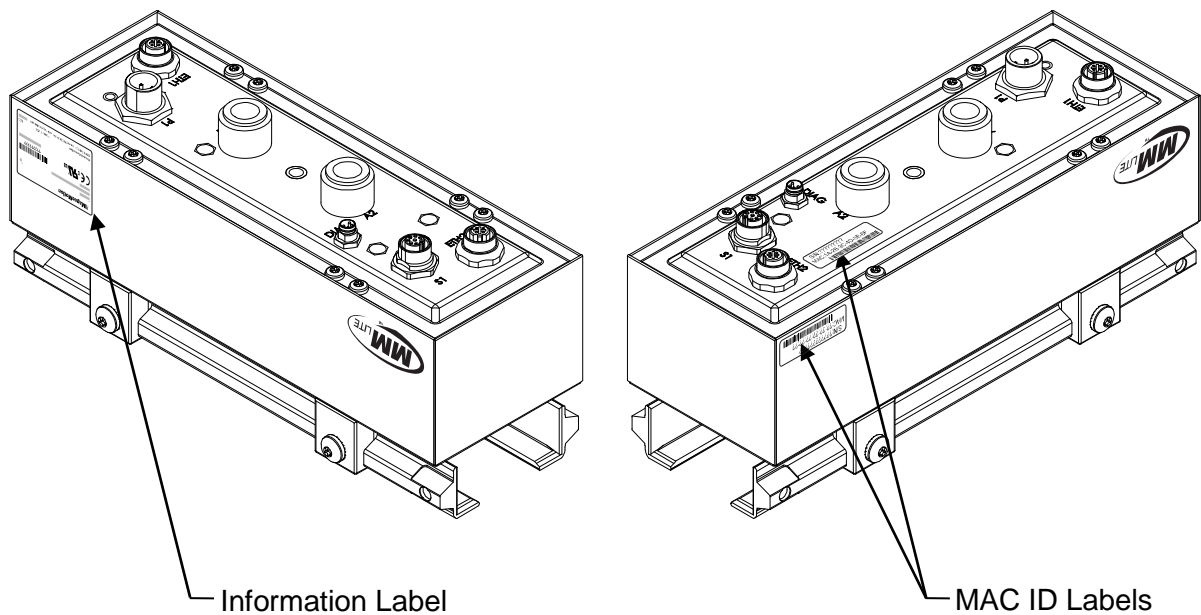
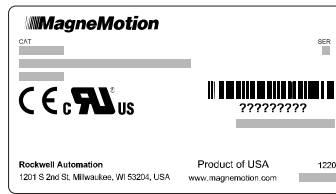


Figure 6: Label Locations on the 250 mm Ethernet Air-cooled Motors

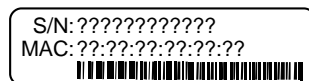
Table 6: Labels Used on the 125 mm R 90° Curve Ethernet Air-cooled Motors



Product Information Label

Qty: 1

Location: On the side of the motor



MAC ID Label

Qty: 1

Location: On the side of the motor

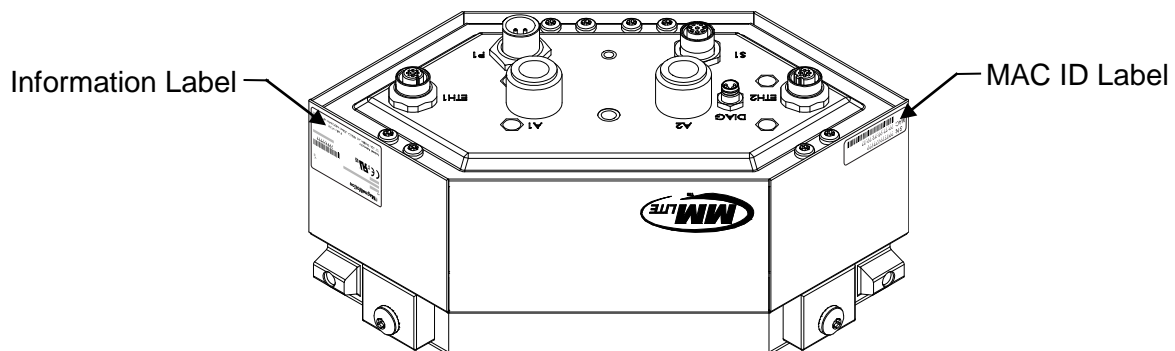






Figure 7: Label Locations on the 125 mm R 90° Curve Ethernet Air-cooled Motors


Mechanical, Electrical, Magnetic Hazards

See the *MagneMover LITE User Manual* for detailed hazard and safety information.

	 CAUTION
	<p style="text-align: center;">Crush/Pinch Hazard</p> <p>Moving mechanisms have no obstruction sensors.</p> <p>Do not operate the MagneMover LITE components without barriers in place or personal injury could result in the squeezing or compression of fingers or other body parts between moving mechanisms.</p>

	 CAUTION
	<p style="text-align: center;">Strong Magnets</p> <p>To avoid severe injury, people with pacemakers and other medical electronic implants must stay away from the magnet array on the vehicles (pucks).</p> <p>To avoid injury from strong magnetic attractive forces:</p> <ul style="list-style-type: none"> • Handle only one vehicle (puck) or magnet array at a time. • Do not place any body parts, such as fingers, between a vehicle (puck) or magnet array and any ferrous material or another magnet array. • Vehicles (pucks) or magnet arrays not being used must be secured individually in isolated packaging. <p>To avoid damage to watches, electronic instruments, and magnetic media (for example, cell phones, memory disks/chips, credit cards, and tapes) keep these items away from the magnet arrays.</p>

Recycling and Disposal Information

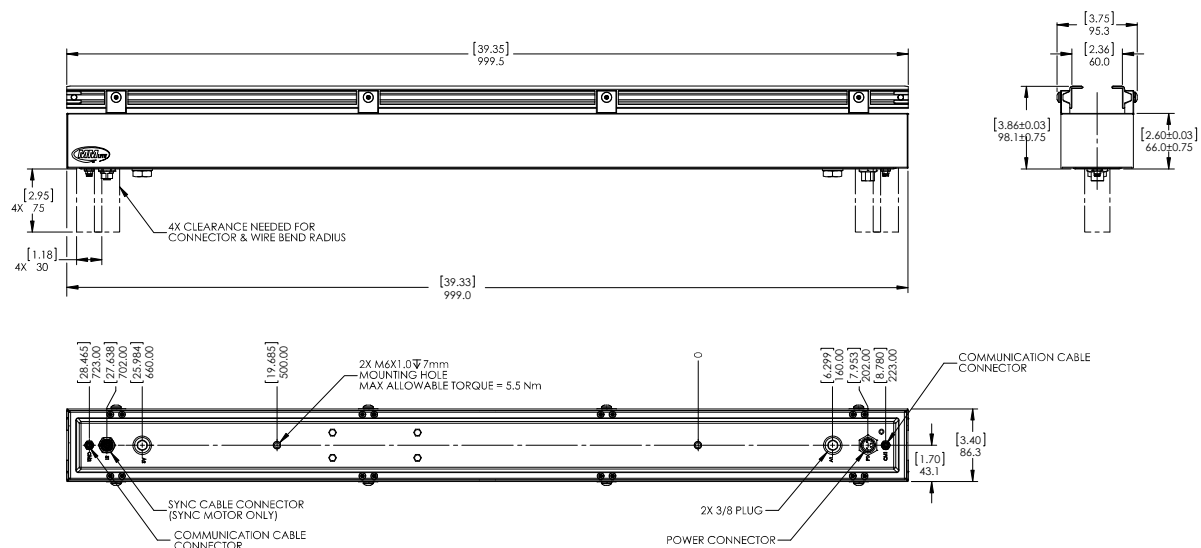
 At the end of its life, this equipment must be collected separately from any unsorted municipal waste. Follow all facility, local, and national procedures for the disposal of hazardous materials.

See the *MagneMover LITE User Manual* for additional disposal information.

Specifications

Mechanical Specifications

1000 Millimeter Motor



Weight: 7.3 kg [16 lb]

All Dimensions in Millimeters

Figure 8: 1000 mm Air-cooled RS-422 Motor Mechanical Drawing

NOTE: Aluminum rails shown. Dimensions are the same for stainless steel rail and rail-less versions.

The Sync connection is only present if the Synchronization option is installed.

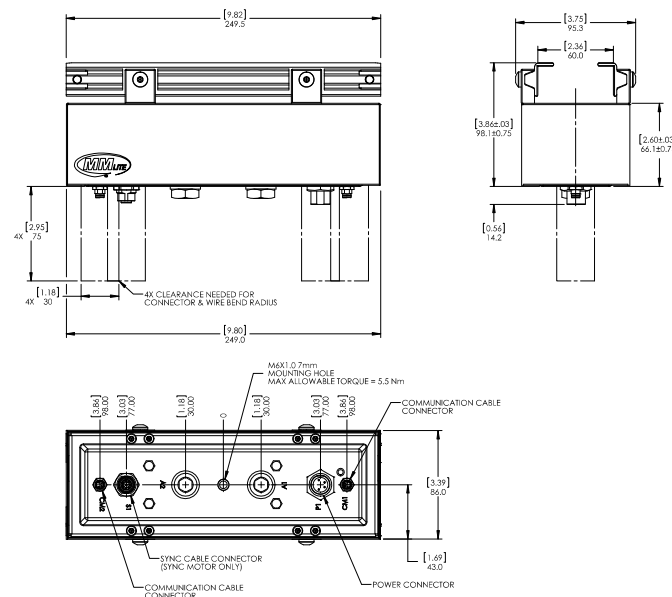
The exclusion zones that are shown are for the MM LITE motor only. Additional exclusion zones may be required based on the use of the motor.

See the *MagneMover LITE User Manual* for the electrical specifications.

Exposed Materials

- 316/316L Stainless Steel.
- 304L Stainless Steel with Electroless Nickel plating (SS rails).
- 6061-T6 Aluminum (Al rails).
- 6063-T5 Aluminum (Al rails).
- EPDM (synthetic rubber).
- 303 Stainless Steel with Electroless Nickel plating (air ports)
- Zinc-plated steel (air-port plug)
- Dow Corning® Silicone 737 and 734.

250 Millimeter Motor



Weight: 2.0 kg [4.4 lb]

All Dimensions in Millimeters

Figure 9: 250 mm Air-cooled RS-422 Motor Mechanical Drawing

NOTE: Aluminum rails shown. Dimensions are the same for stainless steel rail and rail-less versions.

The Sync connection is only present if the Synchronization option is installed.

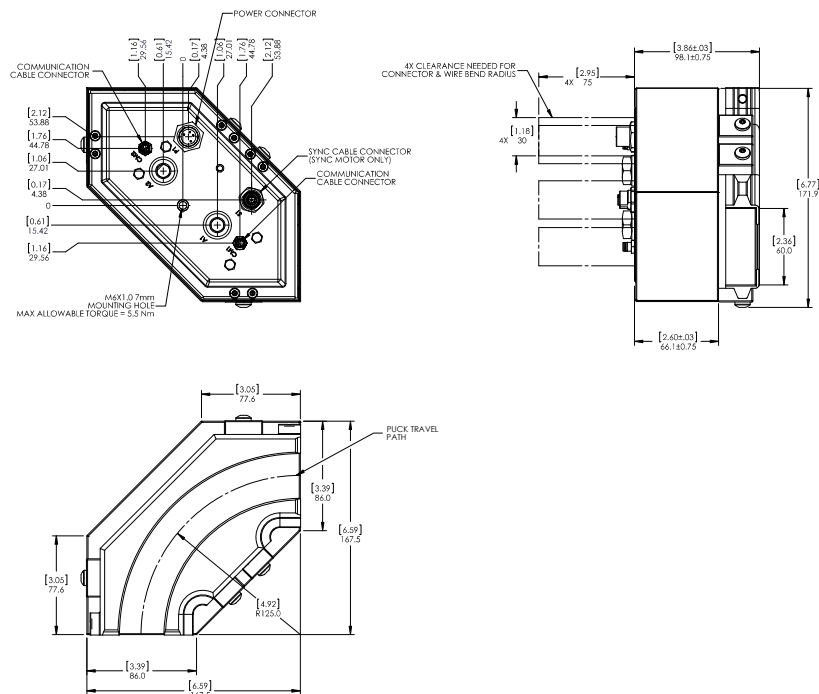
The exclusion zones that are shown are for the MM LITE motor only. Additional exclusion zones may be required based on the use of the motor.

See the *MagneMover LITE User Manual* for the electrical specifications.

Exposed Materials

- 316/316L Stainless Steel.
- 304L Stainless Steel with Electroless Nickel plating (SS rails).
- 6061-T6 Aluminum (Al rails).
- 6063-T5 Aluminum (Al rails).
- EPDM (synthetic rubber).
- 303 Stainless Steel with Electroless Nickel plating (air ports)
- Zinc-plated steel (air-port plug)
- Dow Corning® Silicone 737 and 734.

125 Millimeter R 90° Curve Motor



Weight: 1.7 kg [3.7 lb]

All Dimensions in Millimeters

Figure 10: 125 mm R 90° Curve Air-cooled RS-422 Motor Mechanical Drawing

NOTE: Aluminum rails shown. Dimensions are the same for stainless steel rail and rail-less versions.

The Sync connection is only present if the Synchronization option is installed.

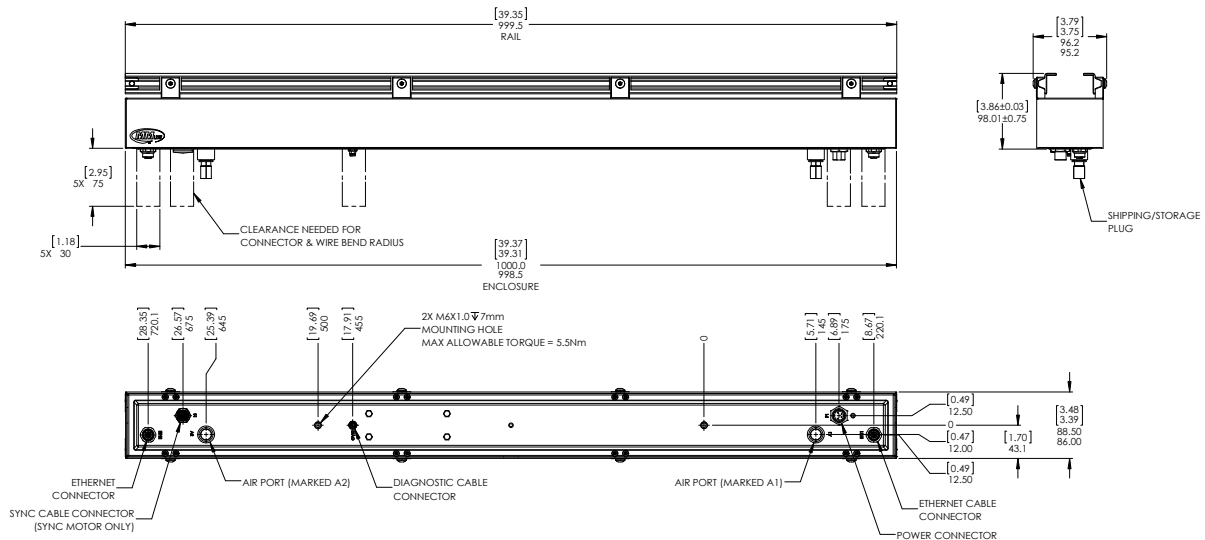
The exclusion zones that are shown are for the MM LITE motor only. Additional exclusion zones may be required based on the use of the motor.

See the *MagneMover LITE User Manual* for the electrical specifications.

Exposed Materials

- 316/316L Stainless Steel.
- 303 Stainless Steel with Electroless Nickel plating (SS rails).
- 6061-T6 Aluminum (Al rails).
- EPDM (synthetic rubber).
- 303 Stainless Steel with Electroless Nickel plating (air ports)
- Zinc-plated steel (air-port plug)
- Dow Corning® Silicone 737 and 734.

1000 Millimeter Motor



Weight: 7.3 kg [16 lb]

All Dimensions in Millimeters

Figure 11: 1000 mm Air-cooled Ethernet Motor Mechanical Drawing

NOTE: Aluminum rails shown. Dimensions are the same for stainless steel rail and rail-less versions.

The Sync connection is only present if the Synchronization option is installed.

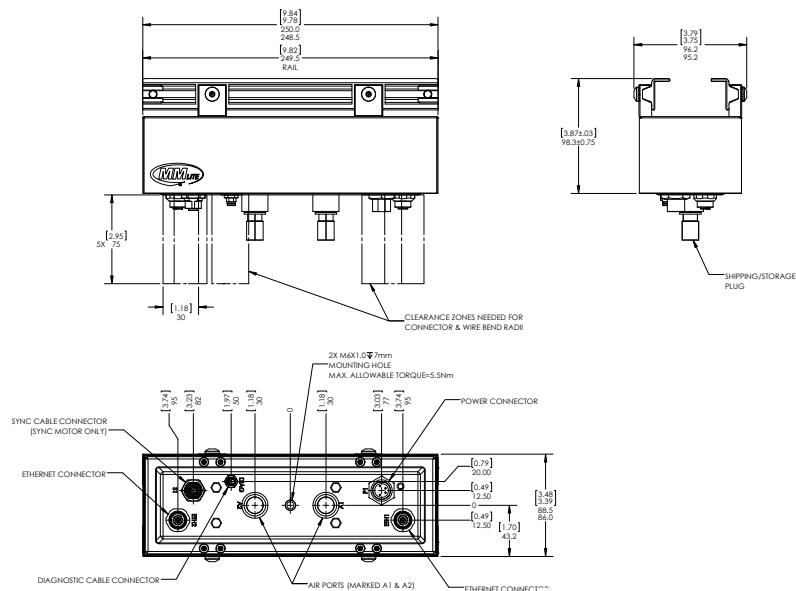
The exclusion zones that are shown are for the MM LITE Ethernet motor only. Additional exclusion zones may be required based on the use of the motor.

See the *MagneMover LITE User Manual* for the electrical specifications.

Exposed Materials

- 316/316L Stainless Steel.
- 304L Stainless Steel with Electroless Nickel plating (SS rails).
- 6061-T6 Aluminum (Al rails).
- 6063-T5 Aluminum (Al rails).
- EPDM (synthetic rubber).
- 303 Stainless Steel with Electroless Nickel plating (air ports)
- Zinc-plated steel (air-port plug)
- Dow Corning® Silicone 737 and 734.

250 Millimeter Motor



Weight: 2.0 kg [4.4 lb]

All Dimensions in Millimeters

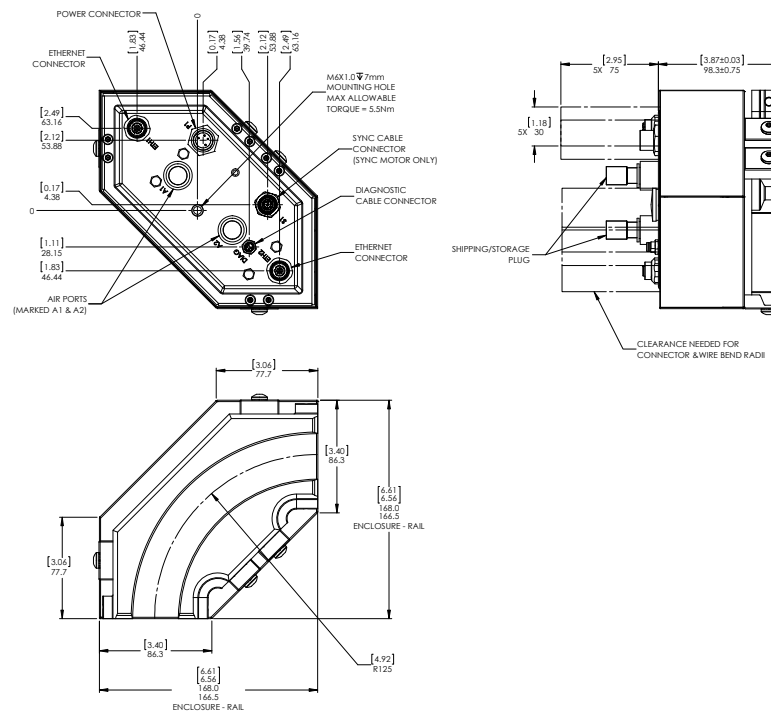
Figure 12: 250 mm Air-cooled Ethernet Motor Mechanical Drawing

NOTE: Aluminum rails shown. Dimensions are the same for stainless steel rail version.
The Sync connection is only present if the Synchronization option is installed.
The exclusion zones that are shown are for the MM LITE Ethernet motor only.
Additional exclusion zones may be required based on the use of the motor.
See the *MagneMover LITE User Manual* for the electrical specifications.

Exposed Materials

- 316/316L Stainless Steel.
- 304L Stainless Steel with Electroless Nickel plating (SS rails).
- 6061-T6 Aluminum (Al rails).
- 6063-T5 Aluminum (Al rails).
- EPDM (synthetic rubber).
- 303 Stainless Steel with Electroless Nickel plating (air ports)
- Zinc-plated steel (air-port plug)
- Dow Corning® Silicone 737 and 734.

125 Millimeter R 90° Curve Motor



Weight: 1.7 kg [3.7 lb]

All Dimensions in Millimeters

Figure 13: 125 mm R 90° Curve Air-cooled Ethernet Motor Mechanical Drawing

NOTE: Aluminum rails shown. Dimensions are the same for stainless steel rail version.

The Sync connection is only present if the Synchronization option is installed.

The exclusion zones that are shown are for the MM LITE Ethernet motor only. Additional exclusion zones may be required based on the use of the motor.

See the *MagneMover LITE User Manual* for the electrical specifications.

Exposed Materials

- 316, 316L Stainless Steel.
- 303 Stainless Steel with Electroless Nickel plating (SS rails).
- 6061-T6 Aluminum (Al rails).
- EPDM (synthetic rubber).
- 303 Stainless Steel with Electroless Nickel plating (air ports)
- Zinc-plated steel (air-port plug)
- Dow Corning® Silicone 737 and 734.

Pneumatic Specifications

The MagneMover LITE air-cooled motors allow a continuous flow of clean, dry air to provide additional cooling. These motors can be run as normal MM LITE motors by installing the supplied plugs in the port locations.

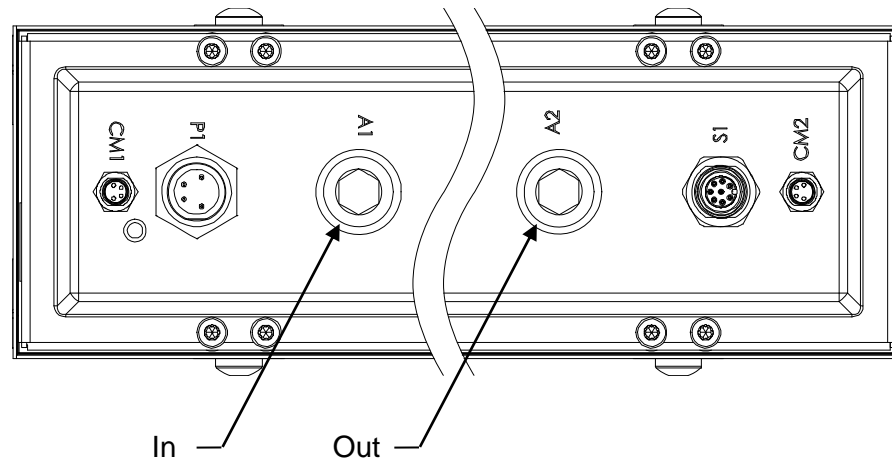


Figure 14: Air-cooled Serial Motor Pneumatic Connections

Table 7: Air-cooled Motor Pneumatic Connectors

Label	Description	Connector Type
A1	Air In	12 mm push to connect fitting
A2	Air Out	12 mm push to connect fitting

Air Cooling

A1: Supply air per ANSI 7.0.01-1996, *Quality Standard for Instrument Air*. Do not exceed 1.0 psig [6.9 kPa] inlet pressure or 4.0 scfm [113 L/min] inlet flow.

A2: Exhaust to atmosphere.

NOTE: Any hose connected to the A2 port generates a backpressure, which can limit the cfm capability to satisfy the 1 psi specification.

Pressurizing

A1: Supply air per ANSI 7.0.01-1996, *Quality Standard for Instrument Air*. Do not exceed 1.0 psig [6.9 kPa] inlet pressure.

A2: Plugged.

Environmental Requirements

Motors

Temperature:

Operating: 0 °C to 50 °C [32 °F to 122 °F]

Storage: -18 °C to 50 °C [0 °F to 122 °F]

Humidity:

85% Maximum (relative, noncondensing)

Maintenance

Preventive Maintenance

Table 8: MagneMover LITE Air-cooled Motor Preventive Maintenance Schedule

Component	Maintenance Action	Frequency*	Page #
Motor	Verify that the air supply is at or below 1.0 psig [6.9 kPa] pressure and the flow is at or below 4.0 SCFM [113 L/min]. Verify that the air quality is per ANSI 7.0.01-1996, <i>Quality Standard for Instrument Air</i> .	3 months or as required	—

- The specified frequency is based on a certified clean, inert environment. The user must adjust their Preventative Maintenance Schedule to account for any deviations from this environment.

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More Information

MagneMotion Website: www.magnemotion.com

Questions and Comments: www.magnemotion.com/contact/

Revision History

Ver.	Change Description
00	Initial release
01	Added Ethernet air-cooled motors, WEEE disposal information, and mechanical specifications for all motors. Updated label location information, the Pneumatic Specifications and Environmental Requirements, and Preventive Maintenance. Removed the Design Guidelines section (moved the contents to the Overview), the Installation overview, and Pneumatic System maintenance.

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

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Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846