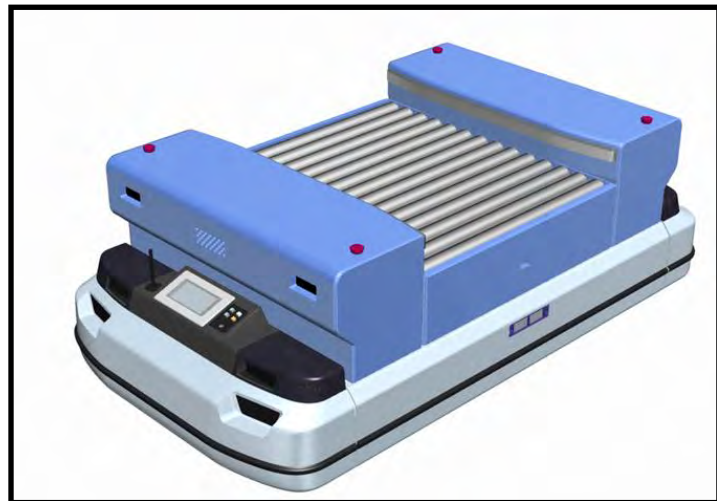
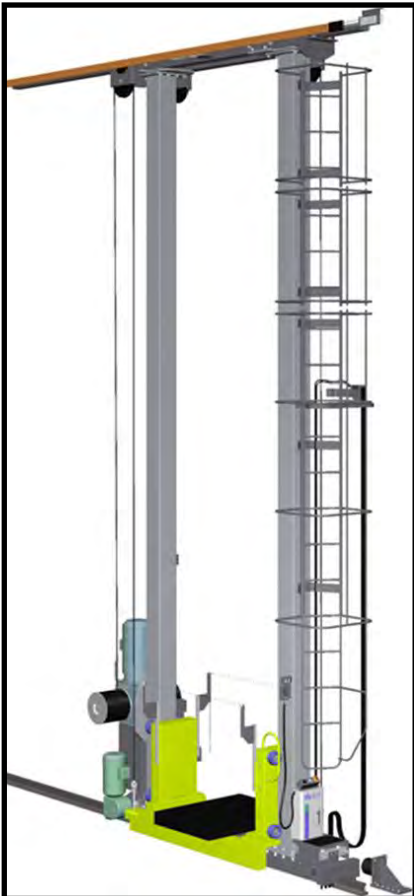
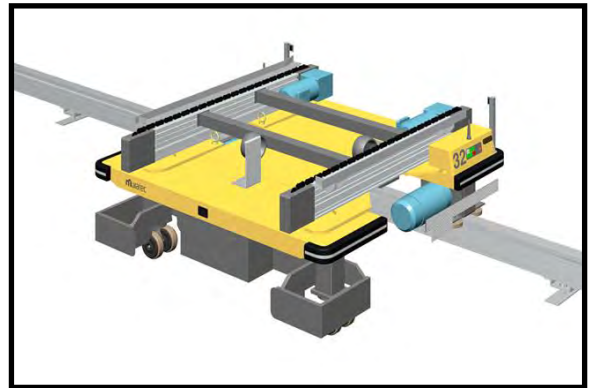


Preventive Maintenance Program

***For Murata Factory
Automated Storage and
Retrieval Systems***



muratec

MURATA MACHINERY USA INC.

PREVENTIVE MAINTENANCE PROGRAM

Preventive maintenance (PM) programs are performed and/or supervised by **MURATA** technicians to ensure that the customer's **MURATEC** material handling equipment is correctly maintained and in good running condition. A comprehensive PM program will extend the life of the system and increase its reliability. Since this equipment was designed to operate 24/7, with a proper PM program downtime is greatly reduced. **MURATA**'s technicians will identify potential problems before the problem creates equipment shut down. In today's production environments, maintenance personnel have been greatly reduced to save labor costs. **MURATA MACHINERY USA** has a trained staff to support all our customers' needs. A PM program is recommended by **MURATA MACHINERY** to be performed on a biannual basis. During a PM, **MURATEC** equipment is inspected to standardized check sheets that are used to record and track equipment condition and adjustments made to the equipment. The PM check sheets along with a comprehensive report are submitted to the customer upon completion of the PM service.



The purpose of a biannual PM is to properly maintain the equipment, as well as to evaluate equipment condition and possible equipment concerns. Due to the limited down time often allotted by customers for **MURATA** to complete a PM there are often equipment problems that cannot be fixed immediately during the PM. If an equipment problem cannot be fixed during a PM, the **MURATA** lead technician and the customer will discuss the severity of the problem and determine when the problem should be fixed.

PM Outline

The scope of a typical PM:

- 1) The customer is interviewed and system log files are checked to determine if there are any system or equipment concerns.
- 2) The system will be shut down and inspected for any remaining product and potential safety hazards.
- 3) The equipment is run-tested in manual mode. The **MURATA** technicians listen and watch for any potential problems. Potential problems are noted on the equipment check sheet so equipment problems can be further investigated after the equipment is powered off and locked out properly.
- 4) After the equipment power is turned off, the **MURATA** technicians check all items on the equipment check sheets and make the necessary adjustments. The **MURATA** technicians will use **MURATEC** equipment specifications and their professional judgment to evaluate any problems or potential problems that the equipment might experience.
- 5) After the equipment is inspected and necessary adjustments are made, the **MURATA** technician will turn the equipment power back on and again run test the equipment in manual mode. The equipment will be evaluated to assure problems discovered during step (4) have been corrected and that no new problems have occurred.
- 6) If new problems are discovered steps (3) and (4) will be repeated until all problems that can be fixed in the allotted time have been corrected.
- 7) The system will then be returned to Auto (On-Line) mode and tested with the customer present to assure that the system is again ready for operation.
- 8) The **MURATA** technician will remain on stand-by for a pre-determined amount of time (according to customer request)



PM Service Agreements

Murata Machinery USA is proud to offer Preventive Maintenance Service Agreements. **Murata Machinery** highly recommends that Automated Storage and Retrieval equipment have periodic maintenance and have **Murata** trained technicians PM the equipment every six months (biannually). The PM is an important tool to keep **Muratec** machines running at their best. Because of this, PM Contracts have been set up to provide this valuable service. With a PM contract, the customer does not have to worry about having the PM's done each year. **Murata Machinery USA** will schedule the PM service and provide the customer with the needed information to keep **Muratec** equipment in top condition. After the PM's are performed, the customer will be given a summary of the work done and what work will be needed to maintain the equipment. Also, customers with a PM contract receive "**Preferred**" status, including special service rates, when additional service is required. New "Flat Rate" pricing also takes all the guess work out of the PM service cost. With this "Flat Rate" pricing, the customer knows exactly the PM cost - no surprises. All expenses are included in this price - travel costs, travel time, hotel, meals, rental car, etc. The customer only pays the flat rate per machine.



Per machine costs average about \$300 per month. This is a small cost compared with the cost of emergency service and downtime of the machine.

Murata Machinery USA is prepared to service all our customers needs. Please feel free to contact our service department for quotations on **PM Service Agreements** and all your service needs.

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