



**RECOMMENDED PREVENTATIVE MAINTENANCE  
AND HANDLING GUIDE FOR THE E200 DOOR**

*April 2013*



## General Inspection Criteria

### Overview

The purpose of this section is to provide the customer with recommended guidelines for preventative maintenance and inspection criteria for the E200 SMIF pod door and replacement.

### Ninety-day Inspection Guidelines

Criteria	Description	Recommended Frequency	Customer Action
Cleanliness	Door cleanliness	Before each wafer lot or once every 90 days	Clean door using approved method
Cracks	A partial split or break; a separation of material	Before each wafer lot or once every 90 days	Discontinue use and consult Entegris, Inc.
		Immediately after mishandling accidents	Discontinue use and consult Entegris, Inc.
Scratches (door cover)	A thin shallow cut, which could potentially release particles from the door surface	Before each wafer lot or once every 90 days	Discontinue use due to potential contamination risk; review handling procedures
		Immediately after mishandling accidents	Discontinue use due to potential contamination risk; review handling procedures
Chipped/broken edges	Areas where a section of material is missing, potentially causing a functional issue	Before each wafer lot or once every 90 days	Discontinue use and consult Entegris, Inc.
		Immediately after mishandling accidents	Discontinue use and consult Entegris, Inc.
Alignment tabs	Damage or breakage on the alignment tabs, potentially causing alignment issues	Before each wafer lot or once every 90 days	Discontinue use and consult Entegris, Inc.
		Immediately after mishandling accidents	Discontinue use and consult Entegris, Inc.
Chemical attack	Crazing or pitting on the surface where chemicals have attacked the material	Before each wafer lot or once every 90 days	Discontinue use and consult Entegris, Inc.
		After each cleaning	Discontinue use and consult Entegris, Inc.
Gasket	Small cuts or nicks on the gasket, potentially causing the gasket to lift from the channel, restricting the door from sealing correctly	Before each wafer lot or once every 90 days	If cuts or nicks are discovered, replace gasket
		After each cleaning	If cuts or nicks are discovered, replace gasket

## Six-month Inspection Guidelines

Criteria	Description	Specification	Recommended Frequency	Customer Action
Latches or "fingers"	Inspect the latches for general damage or breakage	NA	Every six months	If damage is found, order door replacement
Closing torque*	Amount of force required to fully lock the door mechanism	$\leq 15$ in•lb	Every six months	If measured torque value is above spec limit, consult Entegris, Inc.
Opening torque*	Amount of force required to fully open the door	$> 2$ in•lb	Every six months	If measured torque value is below spec limit, consult Entegris, Inc.

\*Entegris, Inc. recommends using a handheld torque wrench. When turning the latch mechanism, it should be done at a slow and steady pace to ensure proper readings. Please consult Entegris, Inc. for questions regarding torque measuring.

## Annual Inspection Guidelines

Criteria	Description	Specification	Recommended Frequency	Customer Action
Gasket	Replace gasket	NA	Yearly	Please refer to page 4 for gasket replacement instructions
Door flatness	Verify door is flat	$< 0.030$ "	Yearly or after door mishandling	If measured value is above the upper spec value, consult Entegris, Inc.

## General Maintenance Procedures

### Door Assembly

- The E200 door assembly is designed to be cleaned in an HTC or ATCORE wash and dry tool. If a wash tool is not available in your facility, please contact your Entegris, Inc. regional customer service center. The door may also be cleaned by hand by wiping down with isopropyl alcohol or DI water.
- The gasket should be removed prior to cleaning and inspected for signs of wear and discoloration

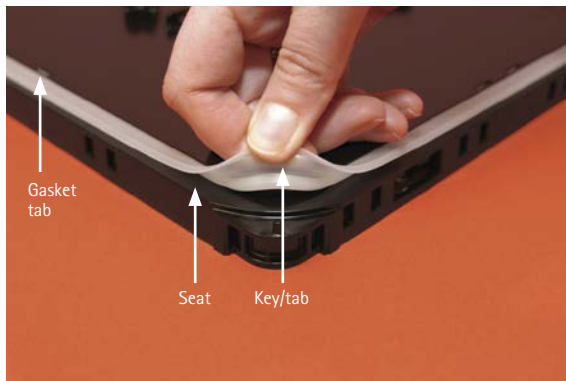
After door cleaning is complete, the door and shell should be assembled quickly to ensure the product's internal mini-environment remains as clean as possible. If any residual humidity is visible, the drying cycle should be repeated.

Entegris recommends cleaning every E200 series pod door, as well as the wafer transport carrier, at least once every 90 days or after a complete process cycle. Frequency may be increased at user's discretion, but never decreased.

### E200 Door Gasket Removal and Installation

#### MATERIALS NEEDED

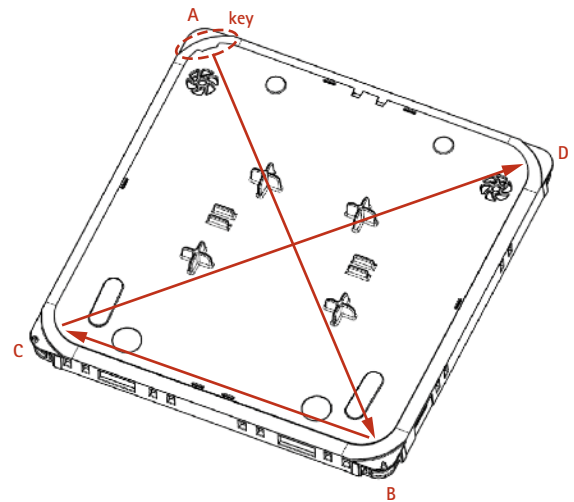
Pod door	E200-XXXX
Gasket	E200-0250
Clean wipe	5% IPA solution
DI water	



#### Gasket Removal

1. Place pod door on flat surface.
2. Remove the gasket by pulling the key/tab upward.

#### Inserting the New Gasket



1. Start by placing the corner of the gasket with the lip into the keyed corner of the door (A).
2. Next, move to the opposite corner (B) and insert.
3. Move to the next corner (C) and insert. Repeat the process for corner D.
4. Using a gloved hand, push the gasket into the remaining areas and ensure it is fully seated by securing all the gasket tabs in the proper position.

#### Pod Door Cleaning

1. Combine 5% IPA solution with DI water in a spray bottle.
2. Spray the solution on a clean wipe until saturated.
3. Wipe down all surfaces of the door, making sure to remove all debris on the surface. DO NOT immerse the door into the cleaning solution.
4. You may remove excess solution with a nitrogen air gun, wipe or let air dry.

#### Gasket Cleaning

The gasket can be cleaned in an ultrasonic tank or with a solution of 5% IPA and 95% DI water. You may remove excess solution with a nitrogen air gun, wipe or let air dry.

### E200 Door Check Valve and Grommet Removal Procedure

**MATERIALS NEEDED**

Long nose pliers as depicted in procedure photos

1. Insert pliers into center of grommet and check valve. Gently squeeze center and outside of grommet.



2. Gently lift grommet up and out of the hole.



3. Inspection: Check to make sure all valve and filter components are out of the door prior to reassembly.

### E200 Door Filter and Grommet Replacement Procedure

**MATERIALS NEEDED**

Existing grommet (re-use)

Filter 01-025639



1. Insert filter (there is no top or bottom).
2. Insert grommet into hole. Using both thumbs, maintain even downward pressure until the grommet is fully seated under the clear bottom cover.



3. Inspection: Make sure the grommet is fully seated. Verify filter is in place and is not bent or distorted in any way.

## General Handling Guidelines

### Overview

This section provides guidelines for the proper placement and manual handling of Entegris E200 Series SMIF Pod Doors to optimize performance of the door pod and carrier system in your fab.

### Optimum Wafer Handling Performance

The E200 Pod is designed to allow reliable performance with SEMI®-compliant SMIF load ports, precise access to wafers and secure wafer protection. Improper placement and poor manual handling can dramatically affect the performance and lifetime of the door and wafer carrier handling system. Appropriate use of this system will provide optimum wafer handling performance for your fab.

### Placement

Proper pod placement procedures help prevent damage to the pod and wafers, and limit potential contamination.

#### Place Door on Flat Surfaces

Place doors on flat, level surfaces. Do not place pod/doors on uneven surfaces that will cause the weight of the pod/door to be out of balance, such as:

- Tables of different heights
- Uneven work surfaces created by pens, books, cables and small tools
- Misaligned load ports

Placement on flat surfaces will maintain door flatness and latch functionality, and reduce particulate contamination to the door surface.

#### Effects of Improper Placement

##### DOOR DEFORMATION

When the pod is not placed on a flat surface, the weight of the pod is out of balance, thus inducing stress and deforming the door. This deformation can cause the pod to rock, increasing wafer handling issues such as:

- Latch mechanism damage that prevents pod from opening and closing
- Load port to pod door interface problems requiring manual assistance
- Unpredictable wafer location, causing missed wafer transfers and increased abrasion during wafer transfers, which increase wafer scratches and breakage.

Ultimately, the pod may be required to be removed from use prematurely.

##### PARTICULATE CONTAMINATION

Uneven surfaces can abrade the bottom surface of the door, increasing particle contamination and requiring additional pod cleaning operations.

#### Place Pods on Work Surfaces

Place pods only on appropriate work surfaces. Do not place pods on non-work surfaces such as:

- Sharp edges on equipment
- Surfaces with pins or screw heads
- Equipment cabinets

#### Effects of Improper Placement

##### DOOR DAMAGE AND CONTAMINATION

Edges, pins and spikes can damage the door, causing wafer handling issues such as:

- Latch mechanism damage that prevents the pod from opening and closing
- Load port to pod door interface problems requiring manual assistance
- Abrasion to the bottom surface of the door, increasing particle contamination and requiring additional door cleaning operations

**Improper Inclined Placement on Load Ports**

It is especially detrimental to door integrity to place the pod incorrectly on a load port, such as partially on the guide rail, partially on the rail and partially on the platform. The load port's registration and latch pins can interfere and damage the door's latch mechanism.

If the equipment software, process flow or work procedure requires inclined pod placement as an intermediate step prior to lot dispatch, Entegris recommends one of the following short-term solutions until modifications can be made to the software or procedures.

1. Rotate the pod 45° so the edges of the pod are on the load port guide rails. This may require extensions to the guide rails be installed so there is enough support provided for the pod's weight.
2. Mount a rack above the load port at a convenient height for the operators to pick and place pods.

Keep in mind, these two options are only short-term solutions. Entegris recommends changes to the equipment software allowing lot dispatch from work-stream control.

## For More Information

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [www.entegris.com](http://www.entegris.com) and select the Customer Service link for the center nearest you.

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