

SmartStack® Multilayer Nonwoven Inserts

Cost-effective, clean inserts that can be safely transported by all automation systems

Many device manufacturers utilizing automation systems with horizontal wafer shippers have experienced difficulties picking up noncarbon inserts using vacuum or Bournoulli end effectors. Now, the automation challenge presented by noncarbon inserts has been solved by Entegris.

SmartStack® multilayer nonwoven inserts provide excellent ionic and outgassing protection. They are also compatible with all automation systems. The multilayer design of this product reduces the porosity of the insert, therefore enabling safe handling of the insert with vacuum wands and end effectors.

FEATURES

- 0.25 mm (0.010") thickness
- Soft, nonwoven material provides excellent protection for wafers with delicate surface geometries (lensed, bumped, MEMS)
- Low-particle, low-ionic inserts increase protection against die bond corrosion and particle contamination
- ESD safe for maximum wafer/device protection
- Vacuum pickable for superior automation performance
- Converted in an ISO Class 7 cleanroom or cleaner
 - Particle level per IEST-STD CC1246D, Class 200
 - Double-bagged in ultraclean polyethylene bags
- Rigid outer packaging maintains insert flatness



Entegris multilayer nonwoven inserts are transferred into a 300 mm SmartStack horizontal wafer shipper by an automated tool.

WAFER SIZES/QUANTITY

- 150 mm
- 200 mm
- 300 mm
- Full case quantity (250 inserts)

SPECIFICATIONS

Property	Test method	Units	Typical values
Material	—	—	Nonwoven polyethylene
Color	—	—	White
Surface resistivity	STM 11.11 @ 25% RH	ohms/sq.	<10 ¹²
Static decay	FTMS 101C M4046.1 MIC-B-81705C	Seconds	<2

Note: The information on physical properties included in this document is based on our experience to date, and we believe it to be reliable. Data is obtained from specimens measured under controlled conditions from representative samples of the material described. Properties of the described article may be affected by many agents or conditions. We cannot guarantee favorable results and no assurances can be implied that all articles have the same properties as those listed.

Organic contamination limits

Outgassing	<25 µg
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Ion contamination limits

Fluoride (F)	<2 µg
Bromide (Br)	<6 µg
Chloride (Cl)	<10 µg
Nitrite (NO ₂)	<2 µg
Sodium (Na)	<4 µg
Ammonium (NH ₄)	<20 µg
Magnesium (Mg)	<1 µg
Calcium (Ca)	<4 µg
Potassium (K)	<40 µg
Nitrate (NO ₃)	<5 µg
Sulfate (SO ₄)	<20 µg
Phosphate (PO ₄)	<20 µg

ORDERING INFORMATION

Part umber	Wafer size	Description
HWS150-3LR500-INS	150 mm	SmartStack multilayer nonwoven inserts
HWS200-3LR500-INS	200 mm	SmartStack multilayer nonwoven inserts
HWS300-3LR500-INS	300 mm	SmartStack multilayer nonwoven inserts

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the [Contact Us](#) link to find the customer service center nearest you.

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