

Marketch Integrated Pte Ltd

Subsidiary
of



Marketech International Corp.

Achilles Wafer Shipping Products



Wafer Shipping Product Introduction

● Wafer shipping container

Protos Carrier NA series

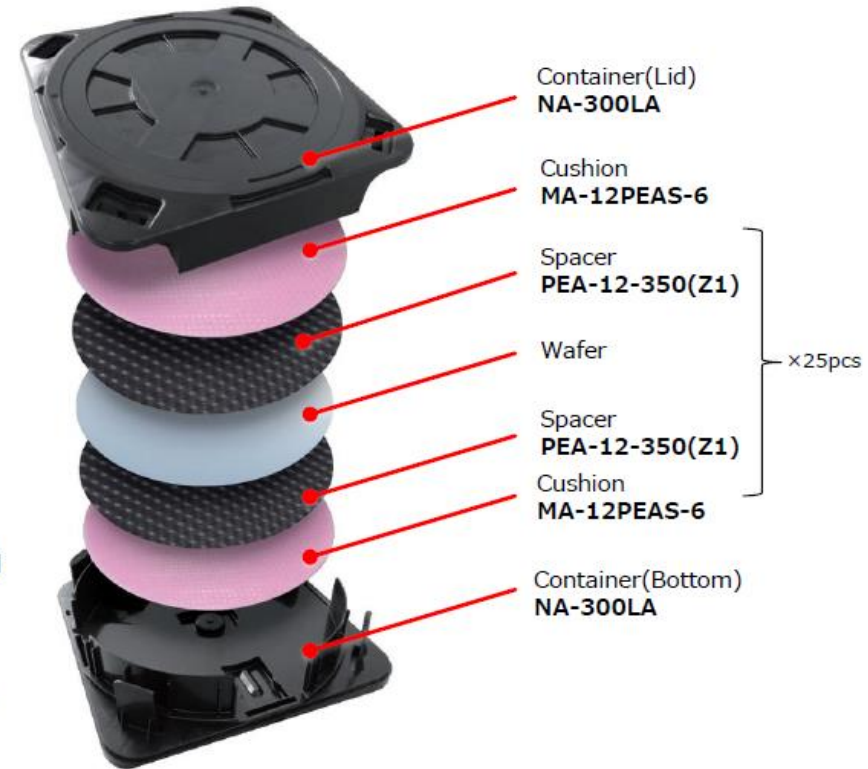
- NA-300LA (for 300mm wafer)



● Features

- The wafer edge hold structure (Compression Tab) prevents breakage during transporting wafer.
- Can pack Wafer MAX 25 Pieces
- Improvement of Shipping efficiency
- Made from low-particle, low-ionic, conductive PP (Surface resistivity $<1 \times 10^9 \Omega$)
- Automatic wafer packing machine correspondence

● Packaging Style



Achilles can provide improved protection & safety transportation system for valuable Semiconductor.



The professional technology service provider

Wide Product Line-up

Wafer size	Horizontal Wafer Shipper	Film Frame Shipper
4inch 100mm	 <p><i>MA-6S & Inner Tray VFS-4-6 For compound semiconductor</i></p>	
6inch 150mm	 <p><i>MA-6S</i></p>	 <p><i>ND-6</i></p>
8inch 200mm	 <p><i>MA-8S NA-8M</i></p>	 <p><i>ND-8</i></p>
12inch 300mm	 <p><i>NA-12F NA-300LA</i></p>	 <p><i>NDM-12 NDM-12M</i></p>

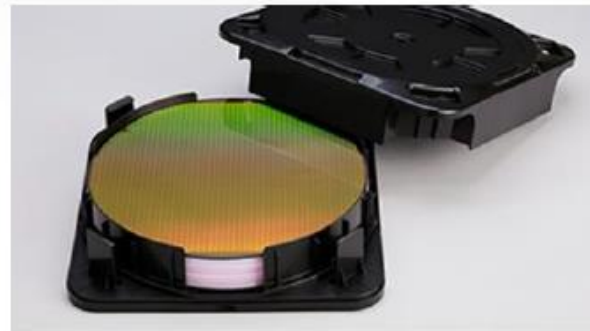
Achilles Horizontal Wafer Shipper

Features

- I. Safety of transporting
- II. Cost reduction of transportation
- III. Automated machine applicable
- IV. Cleanliness & ESD protection
- V. Wide product Line-up





NA-8M for 8inch wafer



NA-300LA for 12inch wafer

Cost Reduction of Transportation

	Photo	Size(mm)	Volume(cm ³)	Weight (including 25wafers)
Others		W404 *L360 *H331	48,141	7.9kg
Achilles		W328 *L328 *H76	8,176	4.4kg

83% down

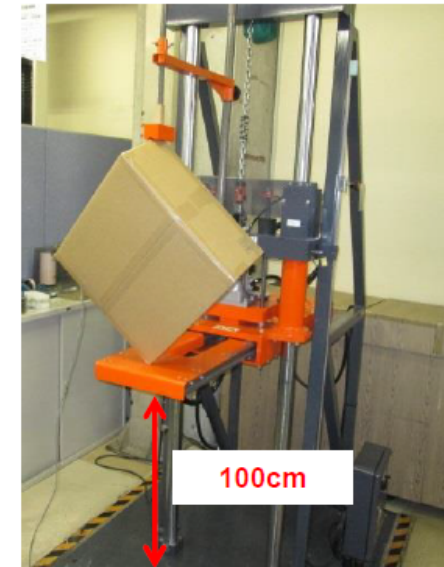
55% down

Transport Breakage Test

The wafer edge hold structure (Compression Tab) prevents breakage during transporting wafer.

※We dropped it from the height of 100 cm(Severe Level!!!) to the concrete floor. based on evaluation method of ISO 2248:1985.

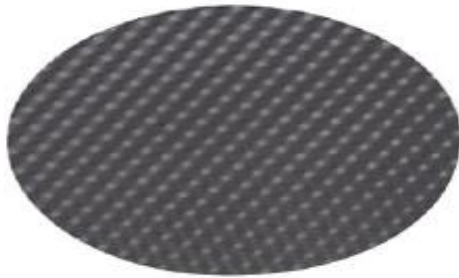
Drop Condition	Drop Direction	Shock Acceleration(G)	Result Wafer State
Drop Height: 100cm Free fall to concrete floor <ISO 2248:1985> Wafer Thickness: 775μm 【G/W:4.7kg】 【N/W:5.7kg】	1 Corner	34.5	No Crack
	2 Edge	51.6	No Crack
	3 Edge	44.6	No Crack
	4 Edge	44.8	No Crack
	5 Side	50.1	No Crack
	6 Side	51.2	No Crack
	7 Side	51.1	No Crack
	8 Side	52.0	No Crack
	9 Side(TOP)	89.2	No Crack
	10 Side(BTM)	75.8	No Crack



Achilles Horizontal Wafer Shipper

Features

- I. ESD protection
- II. High cleanliness (Low particle & Low ion contamination)
- III. Automated machine applicable, easy to separate from wafer
- IV. Contactless transportation by using the ring spacer



Anti-static type
PEA (Z1)



Conductive type
CPS (Z2)

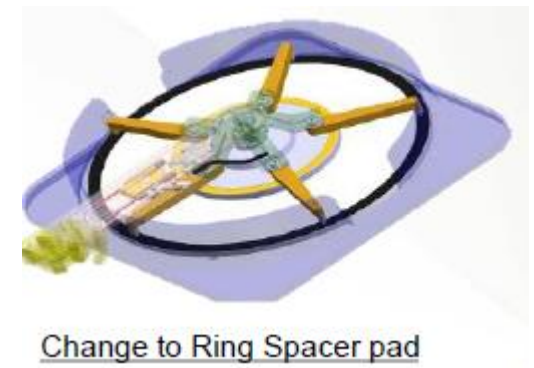


Ring Spacer
T-WSR

Achilles' unique compounding technology gives the interleaf the performance, low particles, and low ion contamination.

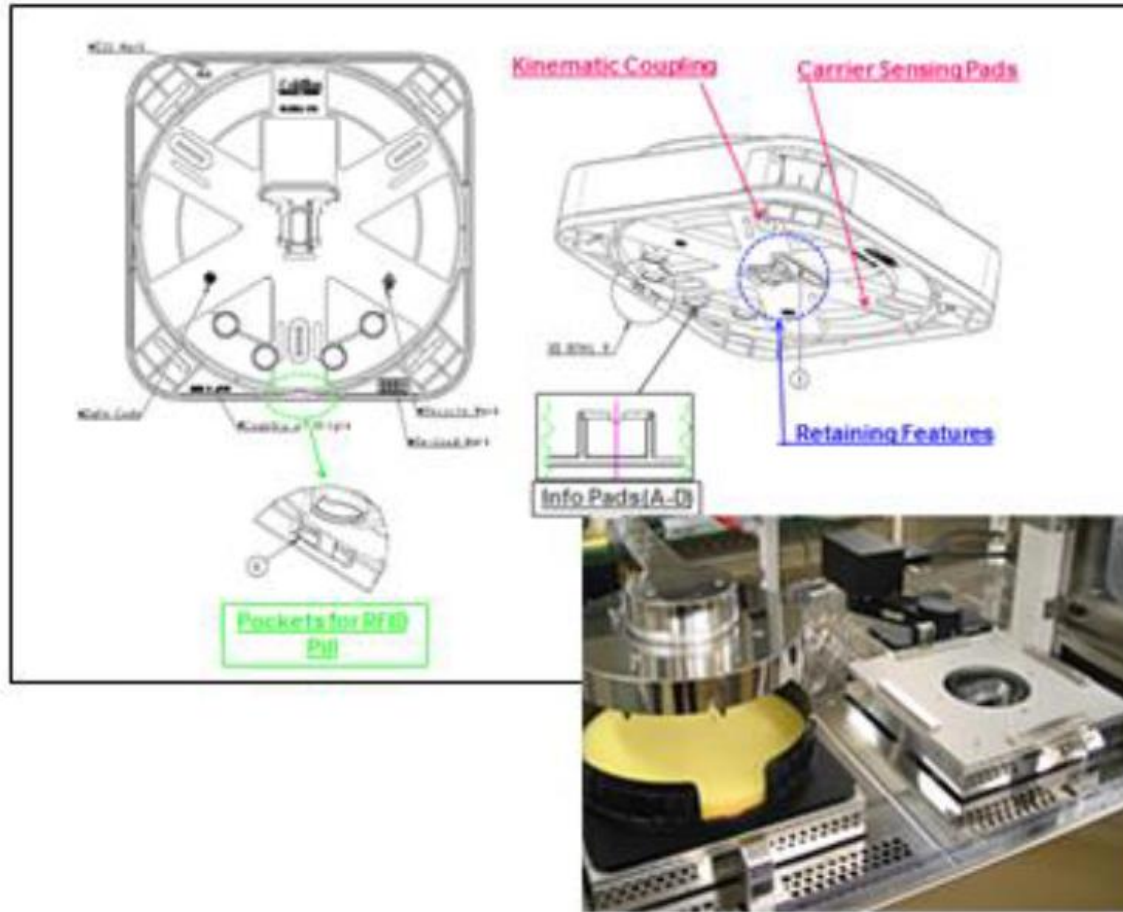
Contactless Horizontal Wafer Shipper (for 12")

- No -contact on both side of the wafer surface by using ring spacer
- Enables safe transport and storage of wafers without the risk of contamination
- For transporting and storage of lens of bumped wafers
- Automated machine applicable



Change to Ring Spacer pad

Automation Interface



Packing Equipment
EVO (nbs Tech)

Wafer, interleaf and cushion in NA-300LA Horizontal Wafer Shipper easily handled by the automation tool.

Spacer

1. Lower particle counts
2. Less ion contamination
3. ESD controlled
4. Both faces same design
5. Machine handling
6. Easy to separate from wafer



PEA Type
Antistatic



CPS Type
Conductive

- **Protos Spacer PEA type**

Product code ; PEA-□-350 (Z1)

Material : Anti-static Polyethylene

Electrical Resistance : $< 1 \times 10^{12} \Omega$

Thickness : 350 μ m

- **Protos Spacer CPS type**

Product code: CPS-□-350 (Z2)

Material : Conductive Polyethylene

Electrical Resistance : $< 1 \times 10^8 \Omega$

Thickness : 350 μ m

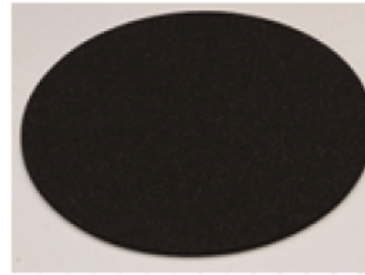
Cushion

1. Polyethylene cushion
2. Shock absorbing feature
3. Controlled low ion contamination
4. Ideal for protecting ultra thin wafers
5. Independent foaming structure for anti-dust protection

PEAS Type
Antistatic



PESD Type
Conductive



- **Protos Cushion PEAS type**

Product code: MA-□PEAS-1/3/5/6/10

Material: Antistatic

Electrical resistance: $< 1 \times 10^{12} \Omega$

Thickness: 1/3/5/6/10 mm

- **Protos Cushion PESD type**

Product code: MA-□PESD-1/3/5/10

Material: Conductive polyethylene foam

Electrical resistance: $1 \times 10^5 \Omega < R < 1 \times 10^9 \Omega$

Thickness: 1/3/5/10 mm

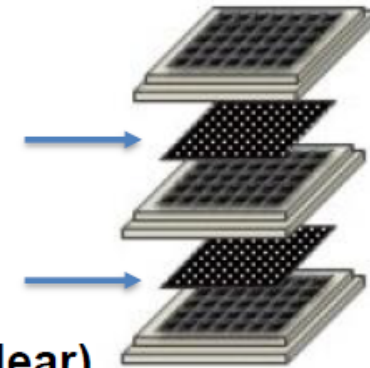
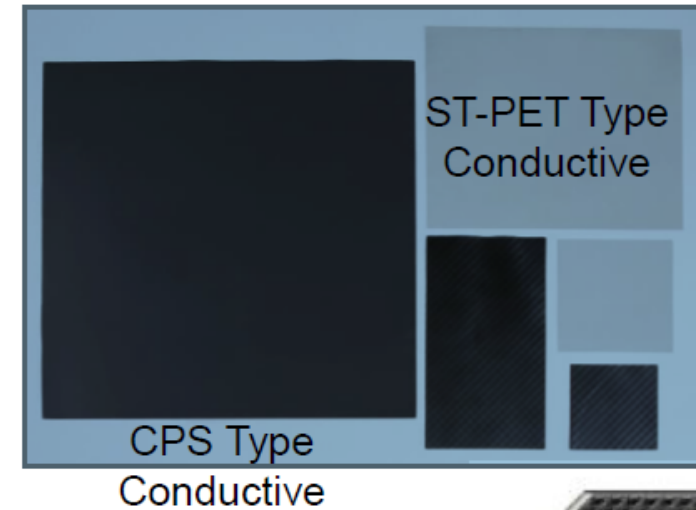
Conclusion

		Memory ...etc.	Logic ...etc.	Image Sensor, Glass ...etc.
HWS	MA Series	●	●	
	NA Series	●	●	●
Cushion	MA-□PEAS	●		●
	MA-□PESD		●	
Spacer	PEA-□	●		
	CPS-□		●	

- Achilles wafer package systems are used by many semiconductor manufactures around the world.
- We can provide all items for your wafer package (HWS System).
- We can provide many products of low particle, low ion contamination.
- We can propose various ESD counter measures by utilizing our many years of experience.

Add-on: Chip Tray Spacer

1. Lower particle counts
2. Less ion contamination
3. ESD controlled
4. Both faces same design
5. Machine handling
6. Easy to separate from wafer



Protecting Power devices from ESD

● Protos Spacer CPS type

Product code : CPS-166 × 90-250

Material : Polyethylene + Carbon Black

Electrical Resistance : $<1 \times 10^9 \Omega$

Thickness : 250 μ m

● Protos Spacer ST-PET type (Clear)

Product code : ST-PET88 × 88-100ANNAL

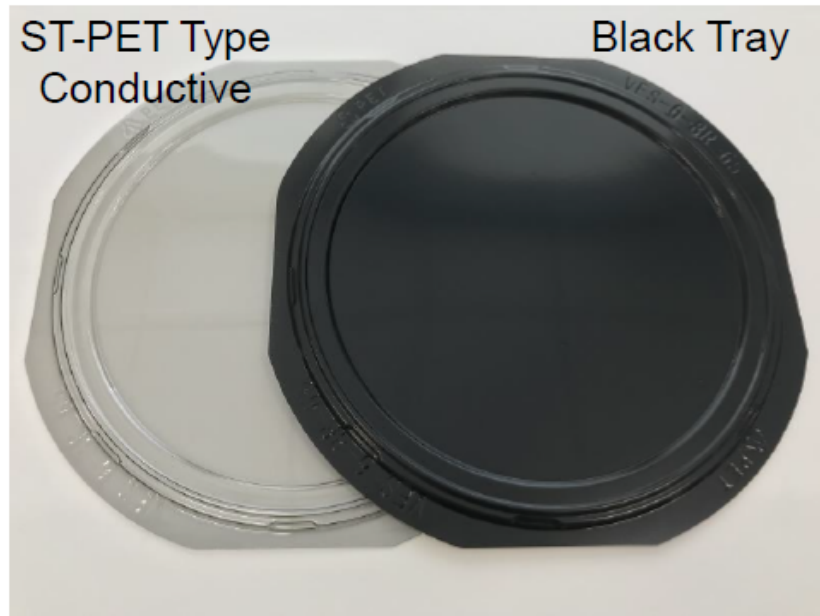
Material : PET + ST(Conductive Coating)

Electrical Resistance : $<1 \times 10^7 \Omega$

Thickness : 100 μ m

Add-on: Tray for Compound Wafer

1. Safely transport and easily handle fragile 6" GaN/GaAs.
2. ESD controlled
3. Machine handling

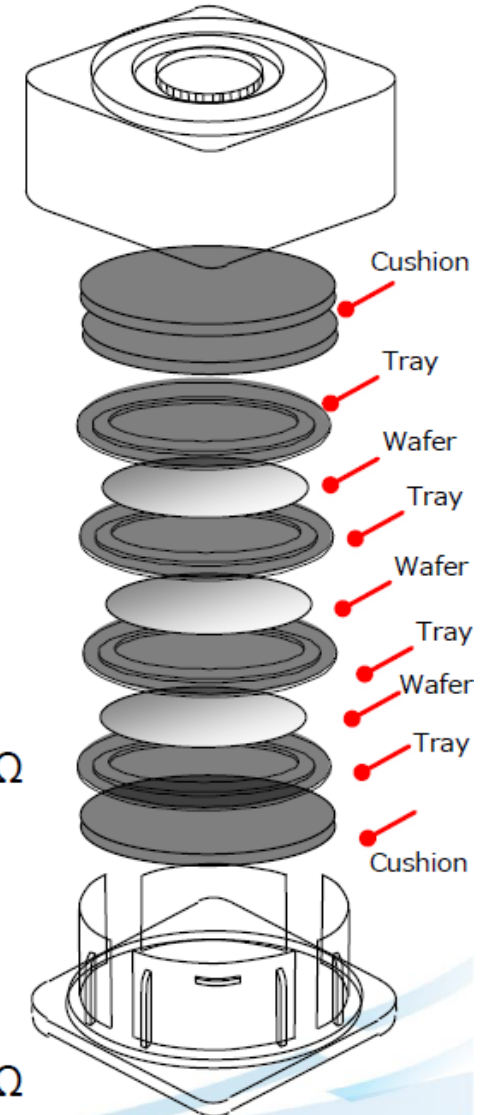


● VFS Tray

Product code : VFS-6-8R-65A
Material : A-PET+ST Coating
Electrical Resistance : $<1 \times 10^7 \Omega$

● VFS(Black Tray)

Product code : VFS-6-8R-65B
Material : A-PET+CB Coating
Electrical Resistance : $<1 \times 10^7 \Omega$



Add-on: Antistatic Bag

1. Moisture-proof without using Metal vapor deposition or foil
2. Antistatic coating treatment
AS-TED Inner and outer coat
AS-TED II Outer coat only
3. Excellent transparency



● AS-TED II Bag

Product code : AS-TED2 180 × 300

Moisture Permeability <math><0.1\text{[g/m}^2 \cdot 24\text{h]}</math>

Material : Coat / PET / NY/ PE

Electrical Resistance : <math><1 \times 10^9\Omega</math>