

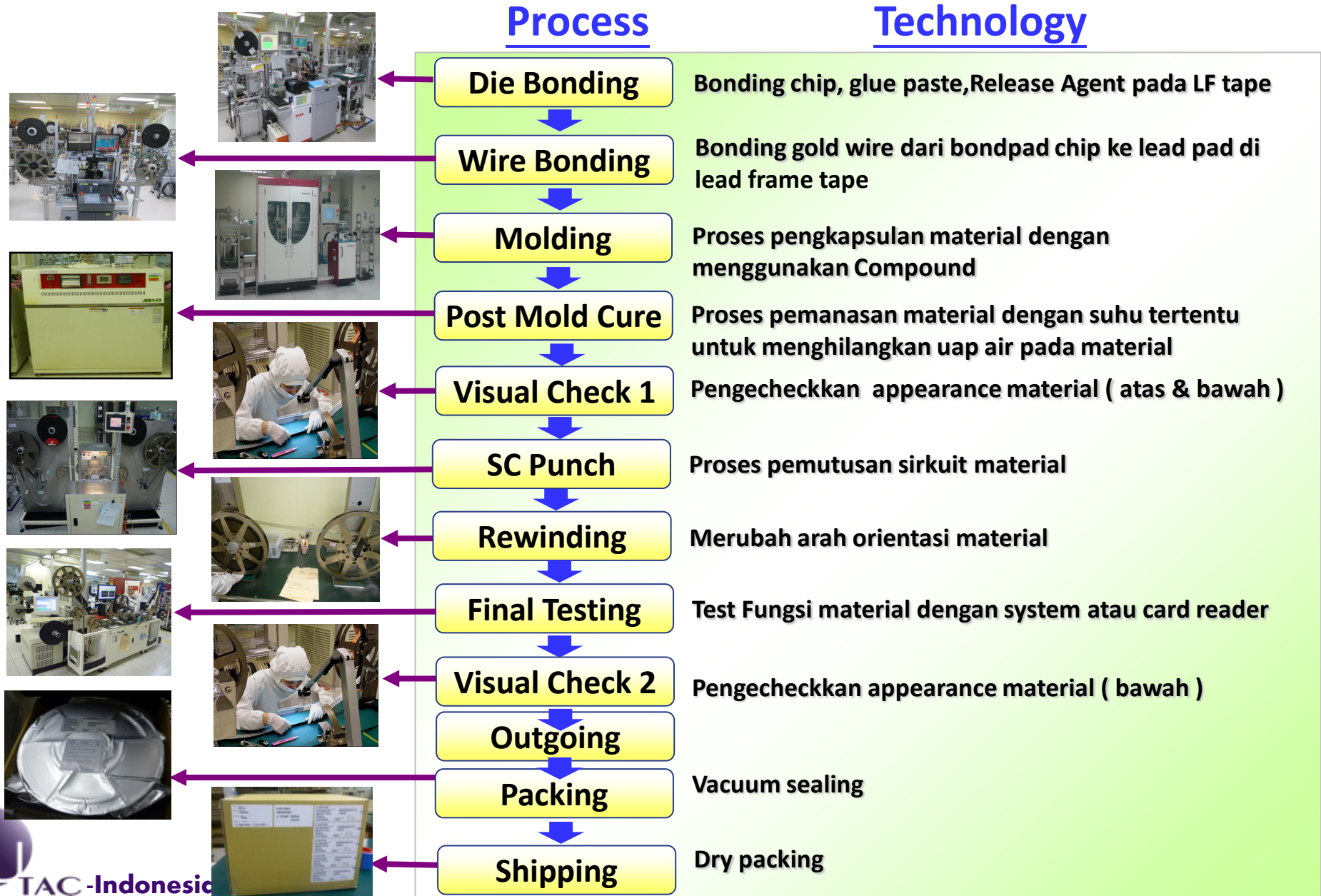
MATERI TRAINING SMART CARD



Smart Card Process Flow

Contact Type & Contactless

Assembly Flow Process Smartcard (C-TYPE & C-LESS)



DIE BOND

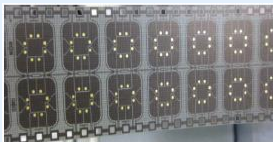
Direct Material

1. Die



Contact type & Contactless

2. Lead frame tape



Contact type & C-less Lead frame tape

3. Glue



Ablebond 2035SC(non-conductive) 7 gr



Heraeus NCA 5-008

4. Release Agent



Machine: ESEC-2008

Machine: ESEC-2007, ESEC-2008

Purpose: Proses pembondingan Chip,glue paste dan Release agent pada lead frame tape.

Critical Point	Control Plan
1. Glue Type	1. Die Peel Off
2. Lead Frame tape type	2. Die + Glue Thickness
3. Die type & size	
4. Die position	

OS Material

1. Rubber Collate



2. Ejector Needle



3. Nozzle



4. Metal Reel



5. Die Bond emboss spacer tape



6. Brown Leading tape



WIRE BOND

Direct Material

1. Gold Wire



- a. GLD-25um (TANAKA)
- b. Gold Wire AU-WO.018-0.2K AW 99

2. Polyimide tape



7418-15mm Amber join tape



Machine: ESEC-3088, ESEC-3018

Purpose: Proses pembondingan Wire dari Bondpad Chip ke lead pad lead frame tape.

Critical Point	Control Plan
1. Bonding parameter	1. Wire pull measuring
2. Heater temperature	2. Ball shear measuring
3. Wire and capillary condition	3. Loop height measuring
	4. Wire loop on die edge

OS Material

1. Capillary



Capillary type : DYT SB-1525M-3XL

Capillary type : DYT SA-0918-3XL

2. Metal Reel



3. Wire Bond emboss spacer tape



Wire Bond emboss spacer tape

4. Brown Leading tape



MOLDING

Direct Material

1. Mold Compound



ELER-8-380IS(84%)

2. Polymide tape



7418-15mm Amber join tape



Machine: Boschman

Purpose: Proses pengkapsulan material setelah proses wire bonding dengan menggunakan compount agar material terlindungi dari faktor External

Critical Point	Control Plan
1. Compound type	1. Mold body appearance
2. Molding temperature	2. Mold body thickness
3. Curing time	3. Mold body shift
	4. Warpage

OS Material

1. Cleaning Resin



CM-AB-CLEAN (11x2.2gram)

2. Conditioning Resin



ELER-8-6-MR-1 (11x2.1gram)

3. Cleaning Sheet



SMI-CM (350x15x5mm), AME CLEAN, AME WAX

4. Metal Reel

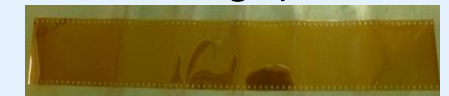


5. Molding emboss spacer tape



Molding emboss spacer tape (heatproof)

6. Brown Leading tape



POST MOLD CURE

Direct Material



Machine: Chinee

Purpose: Proses oven material dengan suhu tertentu

Untuk menghilangkan uap air yang ada pada body

Material.(suhu $130 \pm 5^{\circ}\text{C}$) selama (4.5 jam)

Critical Point	Control Plan
1. Temperature Setting	1. Curing Temperature
2. Time Setting	2. Curing time

OS Material

1. Metal Reel



5. Molding emboss spacer tape



VISUAL CHECK 1

Direct Material

1. Polyimide tape



7418-15mm Amber join tape



Machine: Magnifier Lamp

Purpose: Pengecheckkan kondisi material dengan menggunakan Luxo Lamp dan Visual Mata. (Mold body side & Contact Side)

Critical Point	Control Plan
1. Orientation	1. Appearance both of side
2. Reject hole position	(Contact side and mold
3. Joint tape condition	body side)

OS Material

1. Metal Reel



5. Die Bond emboss spacer tape



SHORT CIRCUIT PUNCH

Direct Material

1. Polymide tape



7418-15mm Amber join tape



Machine: Auto punch machine

Purpose: Pemotongan Sirkuit pada material dengan menggunakan Dies Punch

Critical Point		Control Plan	
1.	Punch type	1.	Product appearance
2.	Punch condition		

OS Material

1. Metal Reel



2. Die Bond emboss spacer tape



REWINDING

Direct Material

1. Polymide tape



7418-15mm Amber join tape



Machine: Manual rewinding machine

Purpose: Proses perubahan Arah Orientasi material di Reel

Critical Point	Control Plan
1. Product Orientation	1. Product appearance

OS Material

1. Metal Reel



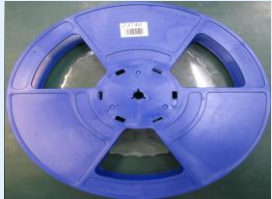
2. Die Bond emboss spacer tape



TESTING

Indirect Material

1. Blue Reel



PLASTIC REEL TX 36-08-A2

2. Shipping embos spacer tape



3. ESD Caution sticker



4. No reel label sticker



5. Polyimide tape



7418-15mm Amber join tape



Machine: SPEA C320MX, Chroma C3360P

Purpose: Proses test material untuk mengetahui fungsi dari material Good atau NG

Critical Point	Control Plan
1. Testing program	1. Electronic function test
2. Puncher condition	2. Open/short test
	3. Reject hole shift

OS Material

VISUAL CHECK 2

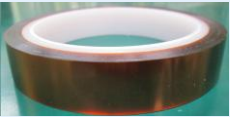
InDirect Material

1. Transparent leading tape



35wide lead tape(LT35SL12)

2. Polymide tape



7418-15mm Amber join tape



Machine: Magnifier Lamp

**Purpose: Pengecheckkan kondisi material dengan menggunakan Luxo Lamp dan Visual Mata.
(Contact Side)**

Critical Point	Control Plan
1. Orientation 2. Reject hole position 3. Joint tape condition	1. Product appearance (contact side only)

OS Material

PACKING

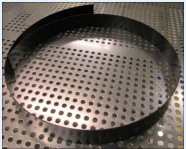
InDirect Material

1. Aluminium bag



anti ESD AL bag -(TSSOP-S/C)

2. Protective Band



3. Desicant Pack



4. Humidity Indicator



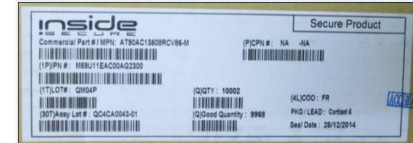
Machine: TA FUNG Vacuum packing machine

Purpose: Proses pembungkusan material dengan Al Bag,dengan mesin Vaccum Sealing.

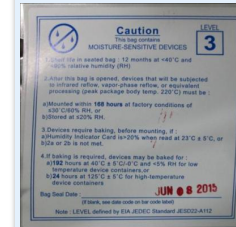
Critical Point	Control Plan
1. Sealing parameter	1. Label 2. Packing condition

InDirect Material

5. Shipping Label



6. Humidity indicator caution label



SHIPPING

InDirect Material

1. Inner Box



2. QA Accepted sticker



3. Security Tape



4. Outer Box



Machine: N/A

Purpose: Proses Memasukkan material kedalam Carton Packing untuk pengiriman ke konsumen

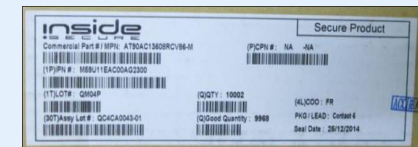
Critical Point	Control Plan
1. Packing condition	1. Label 2. Packing condition

InDirect Material

5. Kraft Tape



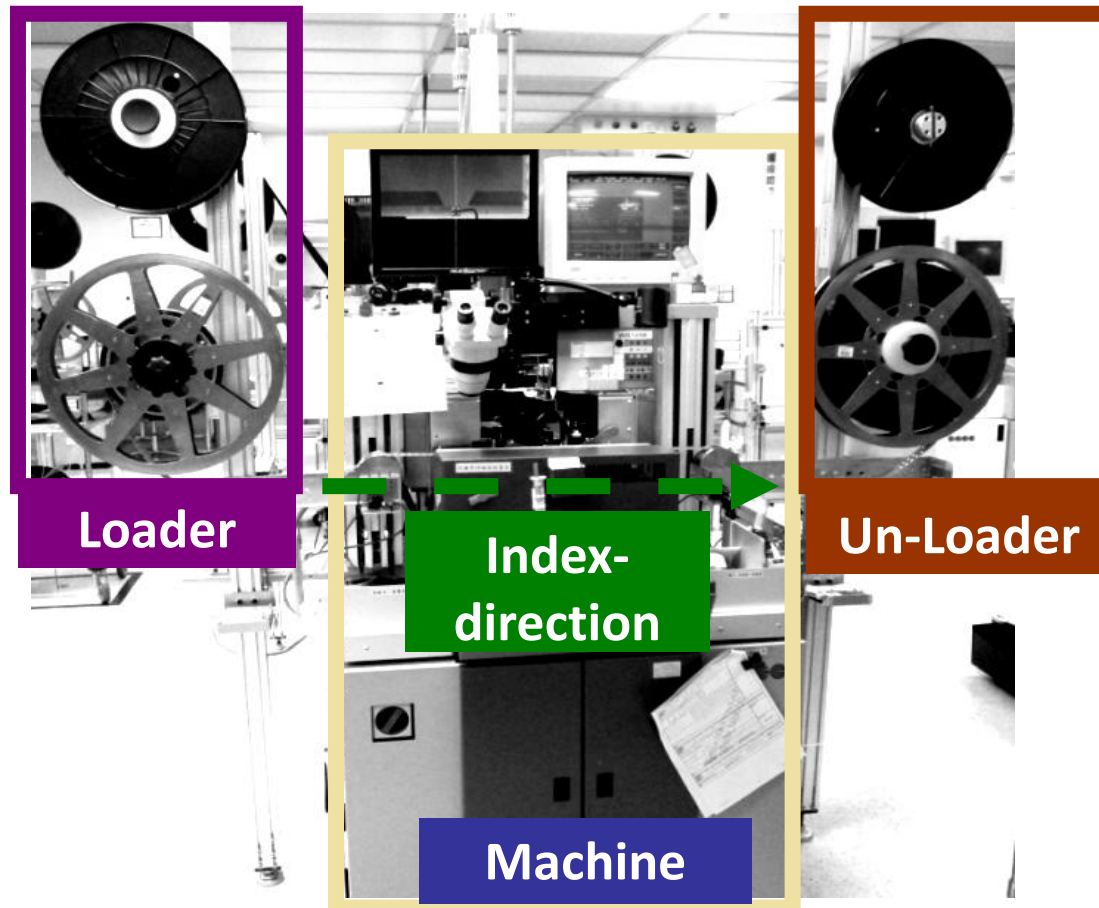
6. Shipping Label






SMART CARD INFORMATION

Loader vs Un-loader

- Loader adalah area atau tempat untuk material sebelum proses di mesin
- Un-Loader adalah area atau tempat untuk material selesai proses di mesin
- Index direction bergerak dari kiri ke kanan (dari loader ke Unloader)













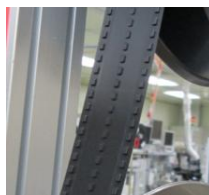
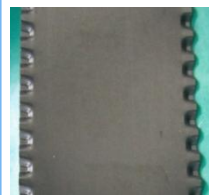
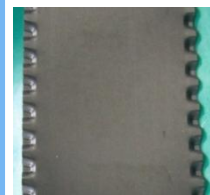











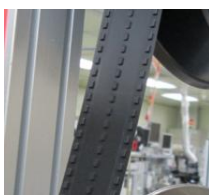
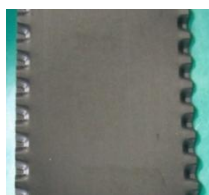
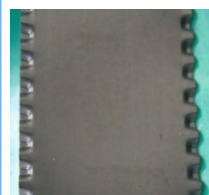



Reel Category & Purpose

ITEM	METAL REEL	BLACK PLASTIC REEL	BLUE PLASTIC REEL
LEGEND			
PURPOSE	<p>1.Untuk tempat material selesal proses dari DB sampai sebelum Testing</p>	<p>1.Tempat lead frame tape dari Supplier 2.Tempat emboss spacer tape</p>	<p>1.Tempat material selesai proses dari Testing sampai Packing 2.Sebagai tempat material untuk dikirim ke Costomer</p>

Spacer Tape Category & Purpose

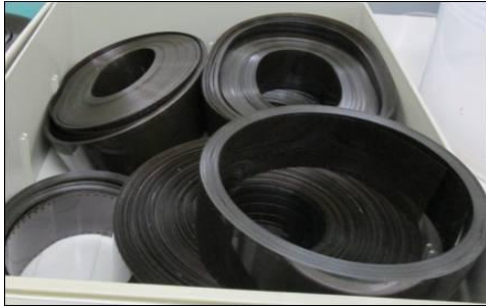
ITEM	DB & SC PUNCH	WB	MOLDING & VC1	FT & VC2 & SHIPPING
LEGEND				
PURPOSE	Untuk melindungi material setelah selesai proses DB dari kotoran dan crack pada chip	Untuk melindungi material setelah proses WB dari kotoran, broken wire atau kerusakan pada wire	<ul style="list-style-type: none"> -Heatproof (tahan panas) -untuk melindungi material setelah proses Molding & Suhu panas pada proses PMC 	<ul style="list-style-type: none"> -Untuk melindungi material setelah proses testing dari kotoran dan mold body broken -ikut terkirim ke konsumen

Reel & Spacer Tape of Smart Card Process

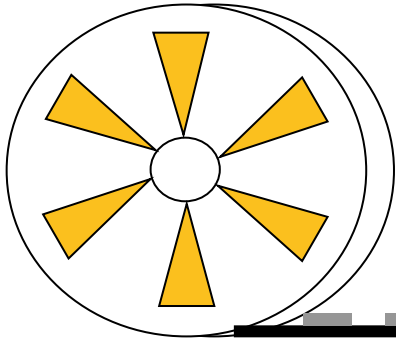
		Die Bond	Wire Bond	Molding (Curing)	1st Visual Check	Short Circuit Punch	Final Test	2nd Visual Check	Packing
Loader	Reel								
	Spacer Tape								X
Un-Loader	Reel								
	Spacer Tape								X

Leading Tape of Smart Card Process

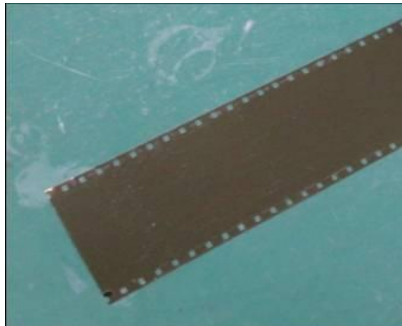
- In-process leading tape



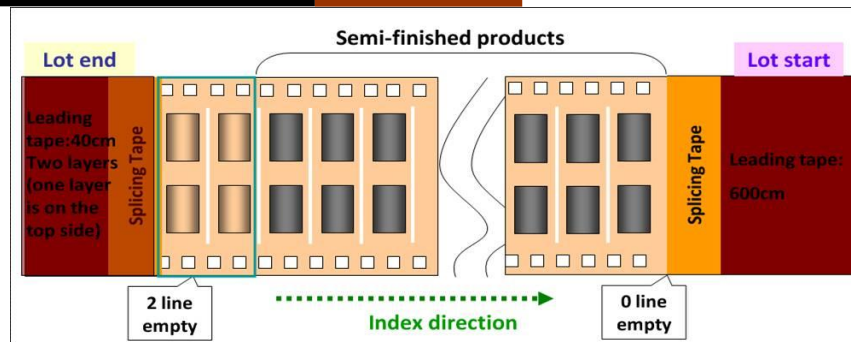
Aplikasi untuk setiap Lot dari DB sampai Testing					
Lot Start			Lot End		
Beforehand line (except splicing)	Leading Tape (cm)	Splicing Method	Beforehand line (except splicing)	Leading Tape (cm)	Splicing Method
0 line Dummy	600cm	sambungan Atas dan Bawah	2 line Dummy	600cm & 40cm (40cm dibagian atas)	Sambungan Atas dan Bawah



Die Bond Loader

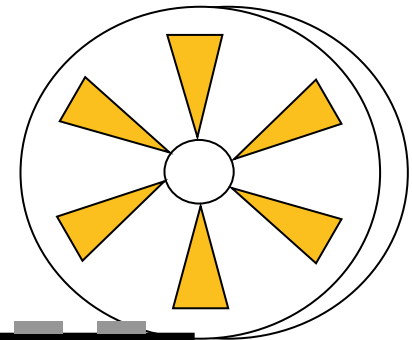


Lot start



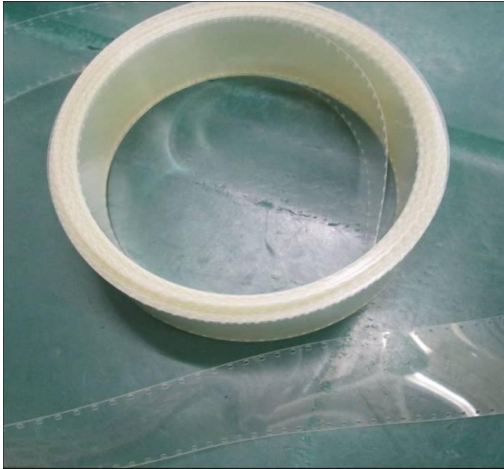
Lot end

Die Bond Un-Loader

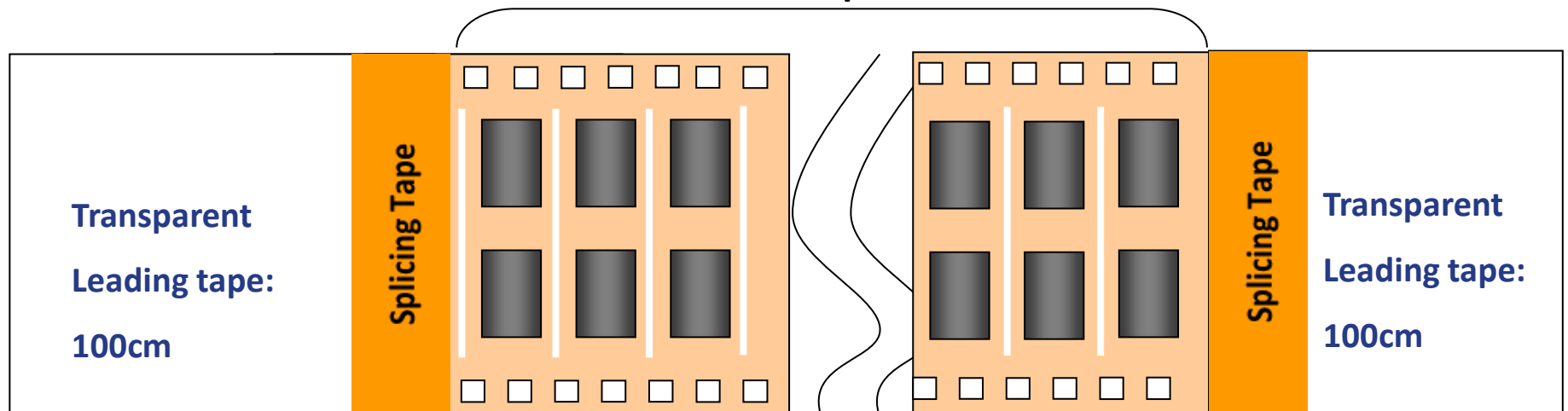


Leading Tape of Smart Card Process

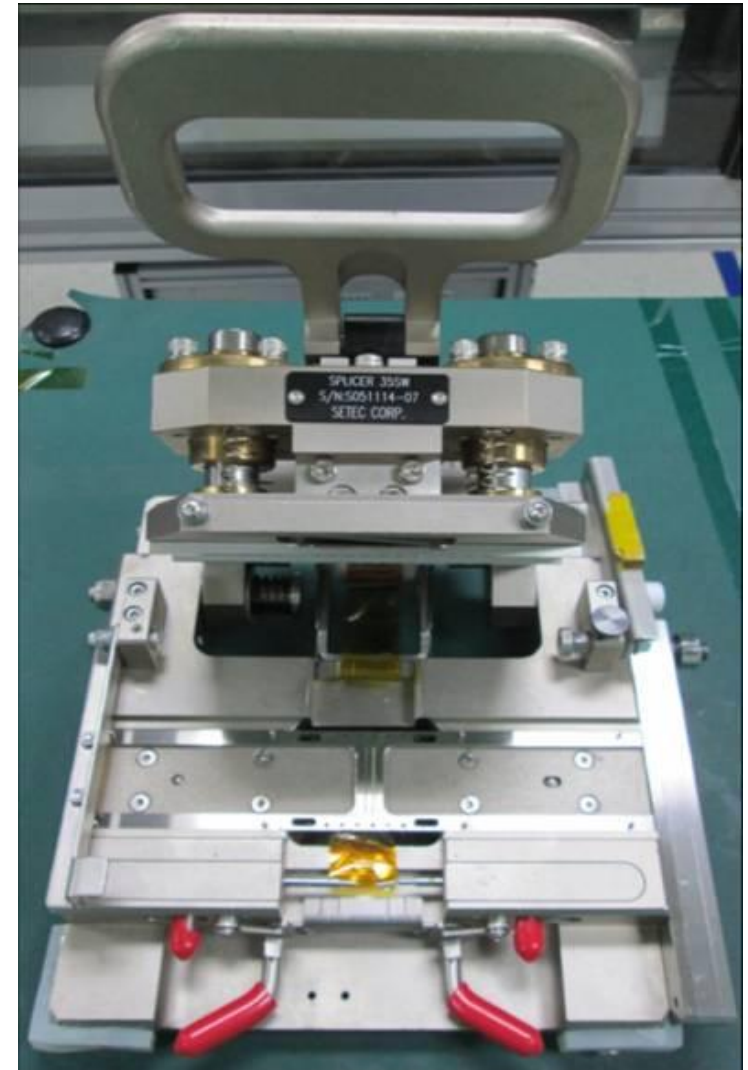
- Transparent leading tape dari VC2



Semi-finished products



Splicing Tool of Smart Card Process

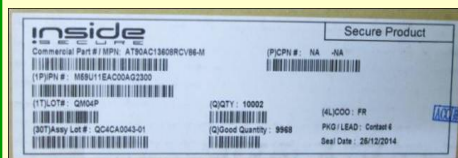


Packing Material of Smart Card

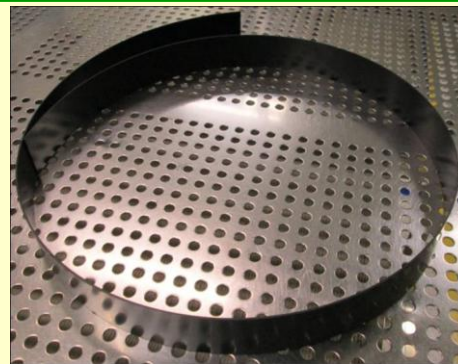
Pizza Box



Shipping Label



Protection Ring



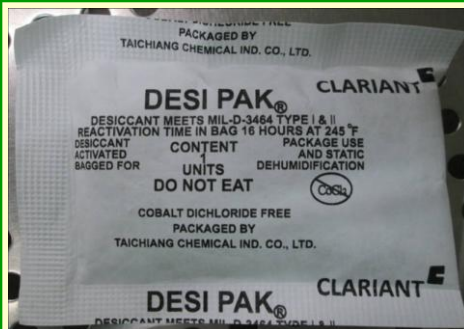
Al Bag



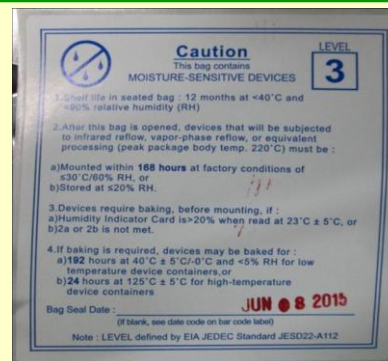
QA Label



Desiccant



Humidity Level



Static Electricity Level

