

BUFFS AND BRUSHES FOR PWB



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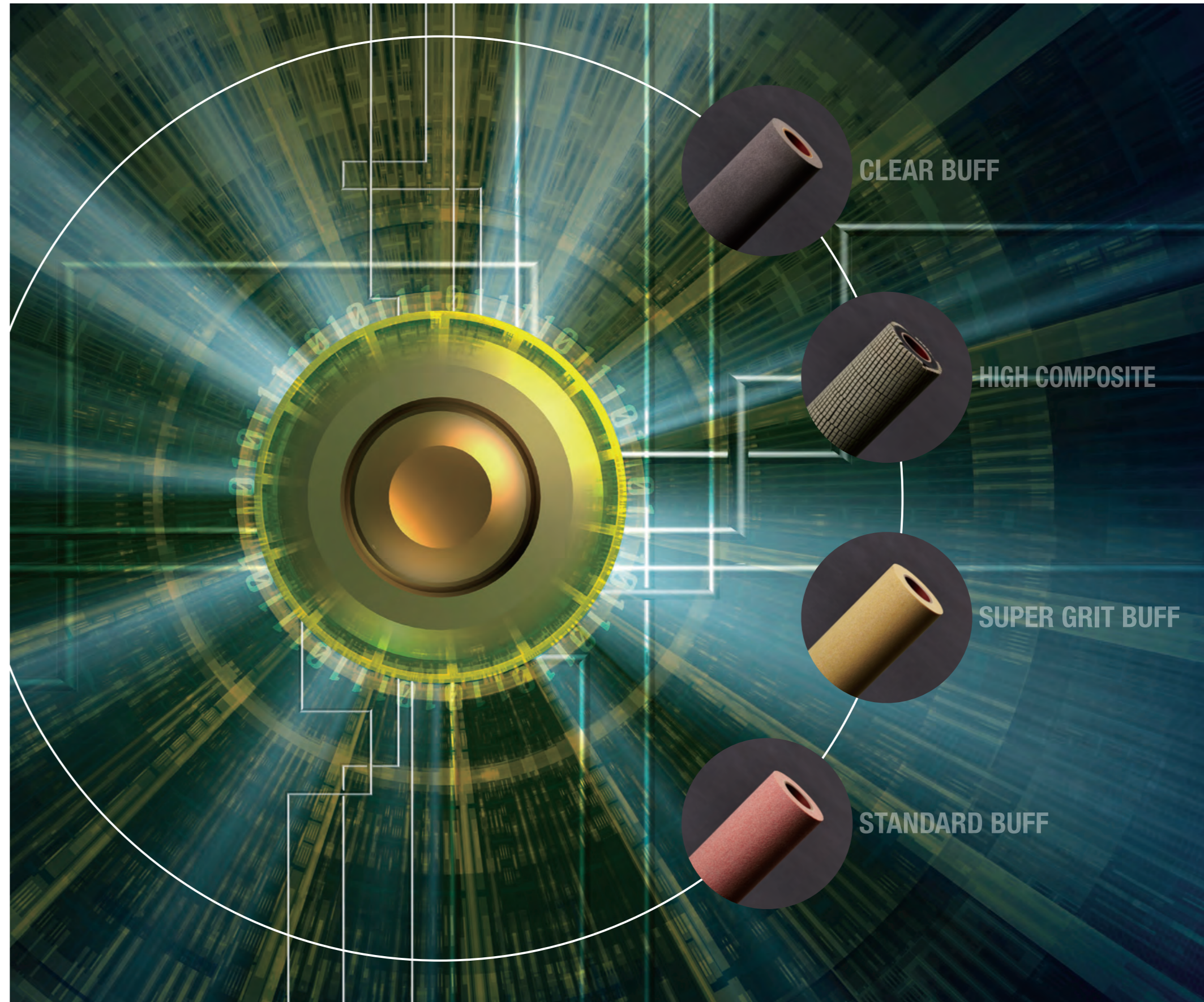
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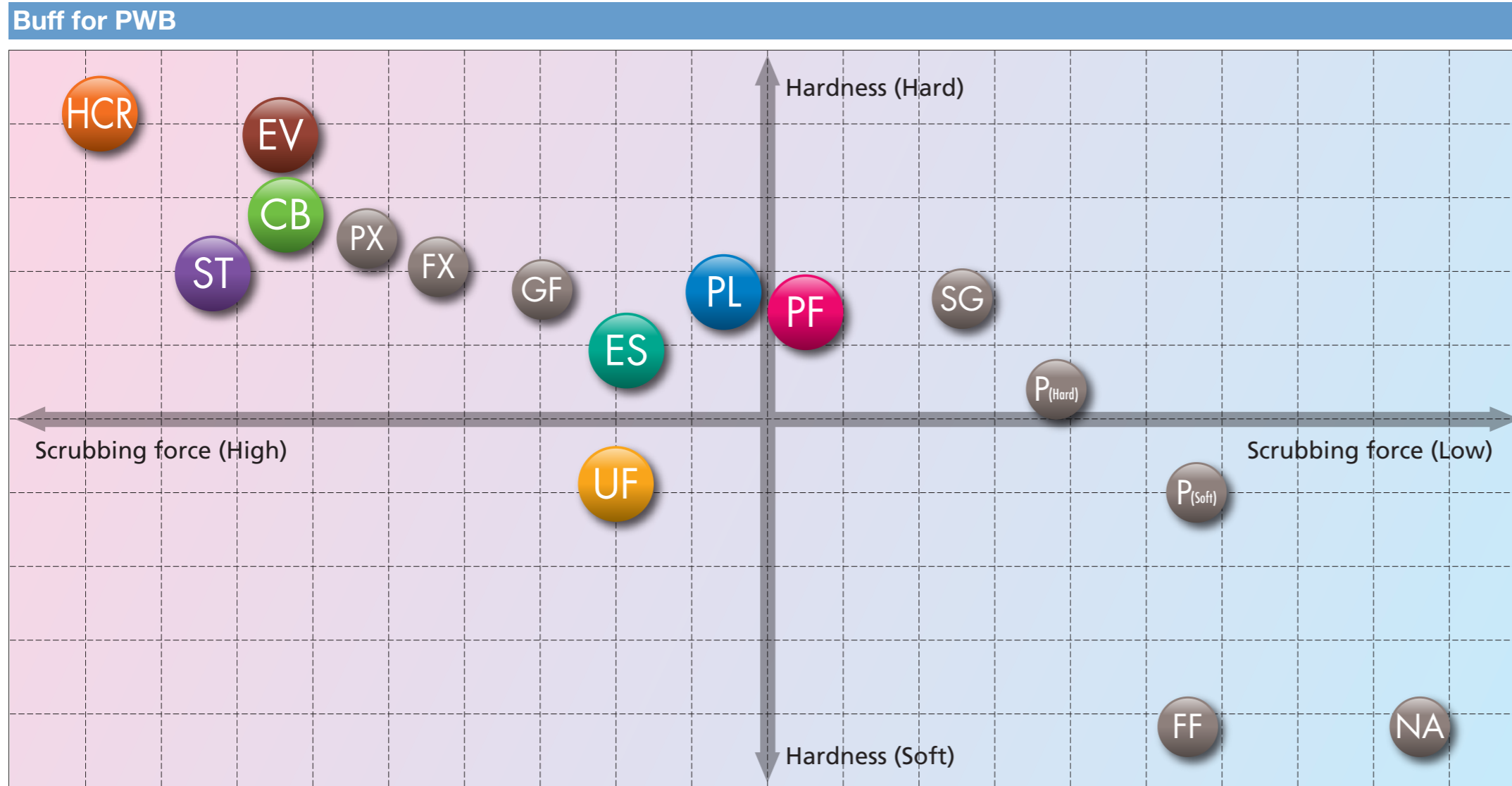
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THE BEST CHOICE FOR KINDS OF SCRUBBING



The related products for PWB

- All kinds of brush
- Cleaning rubber roller
- Rubber roller for lamination and coating
- Sponge roller to liquid absorption
- Anti-static material and products
- Filter
- Mercury lamp
- Scrubbing machinery
- Machinery maintenance

Symbols



Recommendation for each process

* We can suggest best solution for each customers and process.

Process	Copper plating pretreatment	Pattern pretreatment	After building up lamination	Press (SUS / AL)	S/R pretreatment	Post-treatment ink plugging		Gold plating pretreatment
Application	Surface conditioning Deburring	Surface conditioning To smooth the uneven plating	Surface conditioning Resin particle removing	Surface conditioning Resin particle removing	Surface conditioning Particle removing	Plugged ink removing	Flat surface conditioning	Surface conditioning Particle removing
Most recommended	PF	PL	EV	EV	UF	EV	ST	UF
Recommended	ES	ST	ST	CB	ES	HCR	PL	
Average	UF	PF		ST		CB		

Other products for PWB process

Process	Copper plating pretreatment	Pattern pretreatment	After building up lamination	Press (SUS / AL)	S/R pretreatment	Post-treatment in plugged ink	Gold plating pretreatment
Brush (grit type and non-grit type)	●	●	●	●	●	●	●
Laminate roller		●					
Sponge roller	●	●	●	●	●	●	●
Mercury lamp		●			●	●	
Cleaning roller		●	●	●	●	●	●
ESD solutions	●	●	●	●	●	●	●

Rich lineup according to the application

CLEAR BUFF



EV-GC



Feature

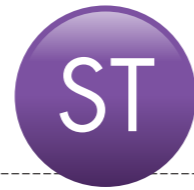
- Designed for removing the plugged ink especially.
- Longer life but less buff dust. Less risk for dent problem.
- Alternative solution to the ceramic buff.

Recommended process

- Plugged ink Removing / Surface conditioning of SUS board

Variety

Grit type		▽C (Silicon carbide)				
Grit mesh		240	320	400	600	800
Hardness	S	●	●	●	●	●
	M	●	●	●	●	●
	H	●	●	●	●	●



ST-FC



Feature

- Fine finishing with strong scrubbing force.
- Covering wide range of processes for reliable scrubbing force.
- Especially available for scrubbing after thick copper plating.

Recommended process

- After copper plating, Plugging ink removing. etc

Variety

Grit type		▽C (Silicon carbide)					
Grit mesh		400	600	800	1000	1500	2000
Hardness	2S	●	●	●	●	●	●
	S	●	●	●	●	●	●
	M	●	●	●	●	●	●

Rich lineup according to the application

CLEAR BUFF



SFC/SPC



Feature

- Strong scrubbing force. SFC is available in half-cut type.
- Applicable to plugged ink removing, SUS board scrubbing.

Recommended process

- Plugged ink removing / Surface conditioning of SUS board

Variety

Grit type		▽C (Silicon carbide)					
Grit mesh		240	400	600	800	1000	1200
Hardness	S	●	●	●	●	●	●
	M	●	●	●	●	●	●
	H	●	●	●	●	●	●



High Composite Roll



Feature

- Designed for removing projections.
- Get powerful and stable scrubbing force.

Recommended process

- Plugged ink removing

Variety

Grit type		▽GC (Green carborundum)			
Grit mesh		400	600	800	1200
		●	●	●	●

Rich lineup according to the application

SUPER GRIT BUFF



PF-PC



Feature

- Special fabric filament reduce the buff dust into the through-holes.

Recommended process

- Deburring / Pattern pretreatment

Variety

Grit type		▽C (Silicon carbide)				
Grit mesh		400	600	800	1000	1500
Hardness	2S	●	●	●	●	●
	S	●	●	●	●	●



PL-PC



Feature

- Strong scrubbing force and long life model.

Recommended process

- Pattern pretreatment

Variety

Grit type		▽C (Silicon carbide)				
Grit mesh		400	600	800	1000	1500
Hardness	S	●	●	●	●	●

Rich lineup according to the application

SUPER GRIT BUFF



ES-FC



Feature

- Best surface conditioning in pattern pretreatment after copper plating and S/R pretreatment.
- Best fit to the thin board deburring.

Recommended process

- Deburring, Pattern pretreatment, S/R pretreatment, Thin board surface conditioning

Variety

Grit type		▽C (Silicon carbide)				
Grit mesh		400	600	800	1000	1200
		1500	2000	2500	3000	



UF-FA



Feature

- Fine finishing with less clogging buff dust between the patterns.

Recommended process

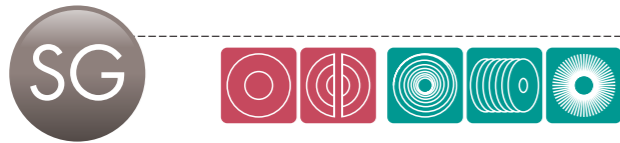
- S/R pretreatment, Kinds of surface conditioning process

Variety

Grit type		⊞A (Aluminum oxide)				
Grit mesh		600	800	1000	1500	2000

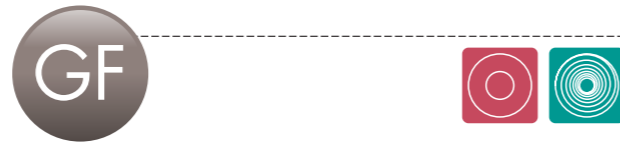
Rich lineup according to the application

STANDARD BUFF



Variety

Grit type	▽C (Silicon carbide)				
Grit mesh	400	600	800	1000	
Hardness	S	●	●	●	●
	M	●	●	●	●
	H	●	●	●	●



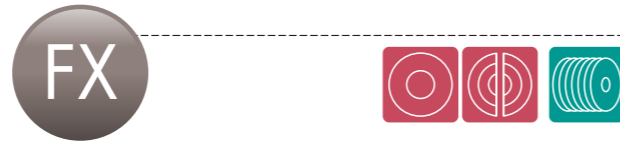
Variety

Grit type	⊞A(Aluminum oxide)	▽C (Silicon carbide)				
Grit mesh	320	400	600	800	1000	
Hardness	S	●	●	●	●	●
	M	●	●	●	●	●
	H	●	●	●	●	●



Variety

Grit type	⊞A(Aluminum oxide)	▽C (Silicon carbide)			
Grit mesh	320/400	600	800	1000	1500/2500
Hardness	S	●	●	●	●
	SM	●	●		
	M	●	●		



Variety

Grit type	⊞A(Aluminum oxide)	▽C (Silicon carbide)			
Grit mesh	240	320/400	600	800/1000	1500
Hardness	S		●	●	●
	SM	●	●	●	●
	M	●	●		



Variety

Grit type	⊞A(Aluminum oxide)	▽C (Silicon carbide)			
Grit mesh	320/400	600	800	1000	1500/2500
Hardness	SS	●	●	●	●



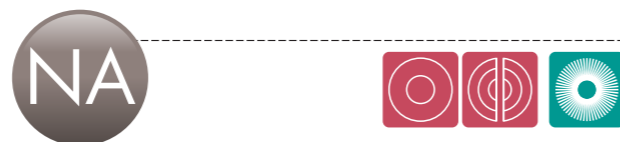
Variety

Grit type	⊞A(Aluminum oxide)	▽C (Silicon carbide)			
Grit mesh	600	800	1000	1500	2500
Hardness	S	●	●	●	●
	SM	●	●	●	●
	M	●	●		
	H	●	●		



Variety

Grit type	▽C (Silicon carbide)				
Grit mesh	400	600	800	1000	1500
Hardness	2S	●	●		
	S	●	●	●	●



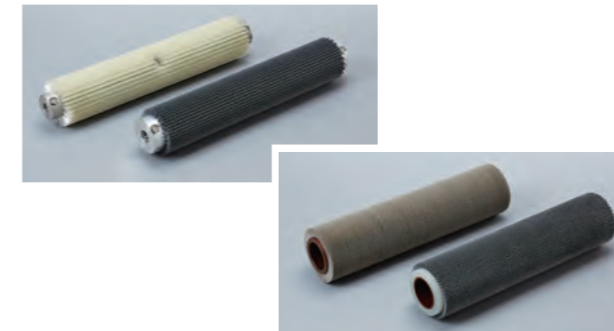
Variety

Grit type	No grit	
Color	White	Blue
Material	Polyester	Nylon

Rich lineup according to the application

BRUSH-RELATED PRODUCTS

Grit brush



Mainly nylon filament within 10~30% C and A grit, the balance is totally excellent for strength, rigidity, toughness, durability, chemical resistance and scrubbing force.

Variety: Transplantation type (half-cut, cylinder), Strip type

Recommended process

- Deburring
- Gold plating pretreatment

Variety

Grit type	A							C			AS
Grit mesh	240	320	500	600	600	800	1000	240	320	500	2000
Filament OD	0.75	0.55	0.45	0.3	0.45	0.4	0.3	0.75	0.55	0.45	0.2

A = Aluminum oxide C = Silicon carbide AS = Aluminum silicate

Dresser



Lamination of coated abrasive or diamond layer electrodeposited on the stainless board respectively.

Application: To maintain stable scrubbing effect by recovering the buff's surface unevenness.

Fabric sheet



Non-woven nylon and the other elastomer which coated abrasive. Rich in elasticity and flexibility on several process.

Application: To remove the dust and the rust. The surface treatment for aluminum, copper and brass etc.

Cleaning brush



Cleaning brushes are used in dry or wet condition. Can select filament (nylon, PP, PVC, natural filament etc.) freely. Can select base material (stainless, aluminum or PVC, etc.)

Variety: Transplantation type (half-cut, cylinder), Strip type

Recommended process

- Post-treatment after chemical process
- Surface conditioning after buff scrubbing

Variety

Grit mesh	No grit							
Filament OD	0.06	0.08	0.1	0.15	0.2	0.3	0.4	0.5

Coated abrasive



According to the high uniformity, special sander (include diamond sander) can be used to grind copper foil and membrane with stable scrubbing force and roughness.

Application: Plugging ink removing, Pattern pretreatment, Plating pretreatment

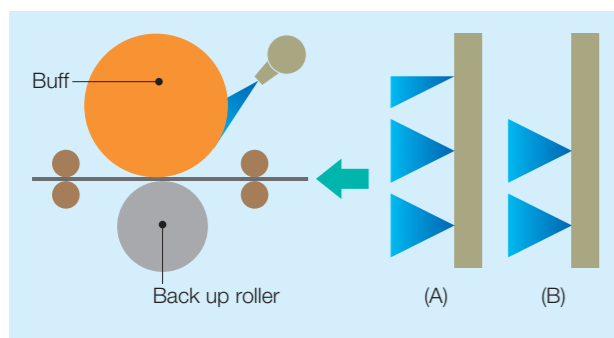
Fundamental precautions in wet grinding

What is condition of ideal surface control

- 1 **Appropriate usual management.**
 - Regularly dressing.
 - Proper storage (avoiding direct sunray, high temperature and high humidity).
- 2 **Water nozzle management (moderate wet condition on the PWB and avoiding unnecessary buff dust).**
- 3 **Regular maintenance inside deburring machine (part of water rinse, drive shaft and conveyer).**
- 4 **When removing the buff from machine, must be made buff dry condition.**

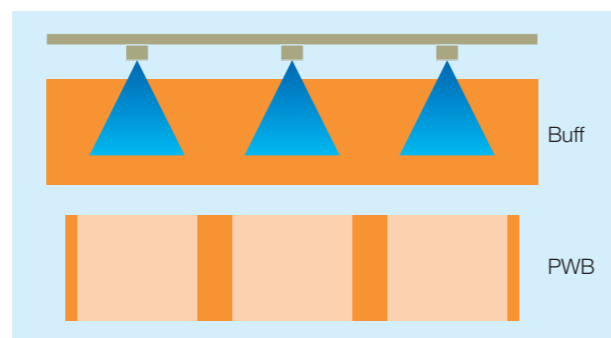
Examples and countermeasure to the trouble

Nozzle clogging



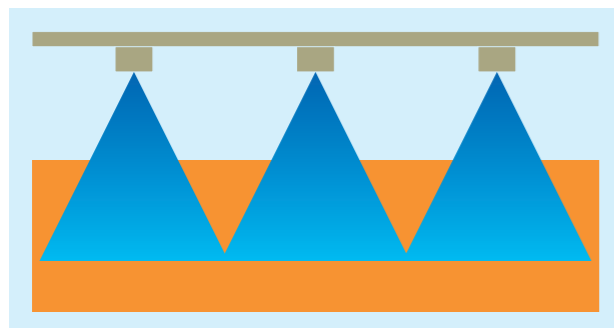
- (A) The nozzle clogging causes a uneven water covering on the PWB. As a result, uneven polishing condition happens like wavy lines.
- (B) The nozzle clogging completely means no rinse, it causes baking the buff or serious scratching.

Unmatched of nozzle angle and miss arrangement

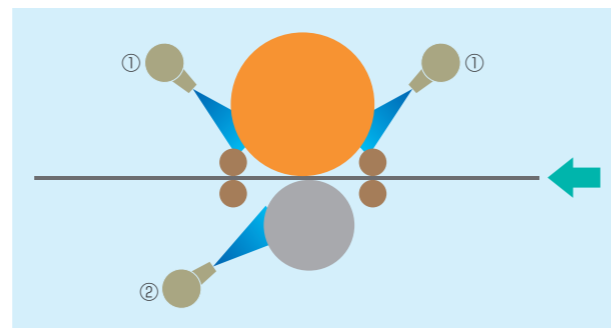


Important point is even water supply to the buff. Uneven water supply causes uneven surface condition or scratching on the PWB.

Ideal nozzle management



Arranging the nozzle angle as hitting water supply evenly to the buff.



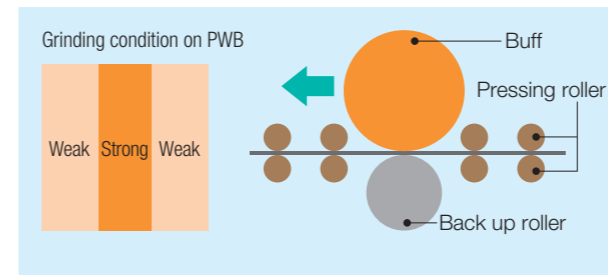
- Special setting is 3 line nozzle system.
- ① Before and after polishing.
 - ② To back up roller for avoiding the buff dust which causes dent problem.

The trouble by abnormal condition of back up roller and buff

Situation

Over grinding in the center on PWB appears perpendicular to the direction which convey

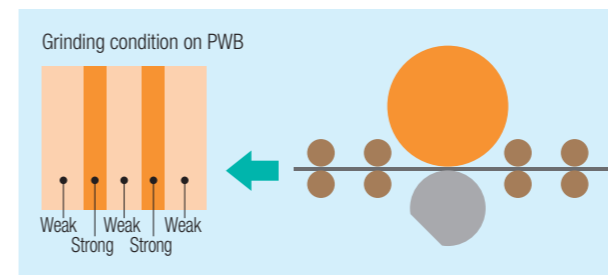
Cause: Displacement of back up roller in horizontal level.
Countermeasure: Arrangement of balance and horizontal level of back up roller.



Situation

Appearing weak and strong grinding alternately and vertically on PWB to the direction which convey

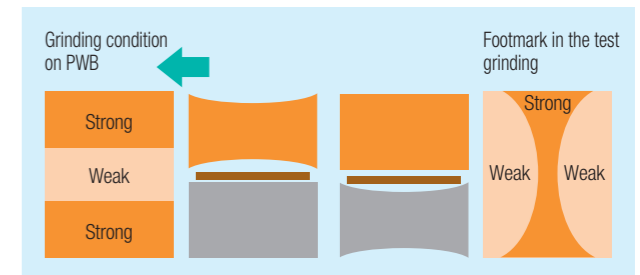
Cause: Deformation of back up roller, uneven wear of pressing roller, less grip of pressing roller.
Countermeasure: Replacement of back up roller, pressing roller, conveying system parts. Re-adjustment (pressing spring, related metal parts, drive chain)



Situation

Over grinding either side on PWB appears horizontally to the direction which convey

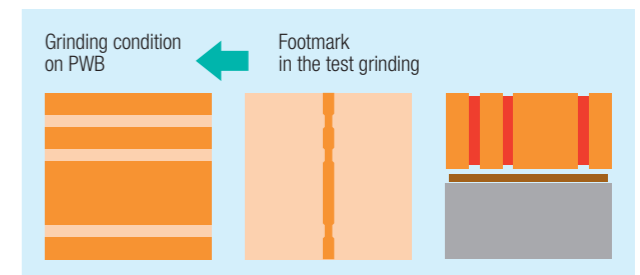
Cause: Deformation of back up roller or buff.
Countermeasure: Buff dressing or replacement of buff or back up roller.



Situation

Appearing weak and strong grinding alternately and horizontally on PWB to the direction which convey

Cause: Deformation of buff (uneven wear by uneven PWB conveying), wide scratch on the surface of buff (caused by overlapping PWB).
Countermeasure: Dressing or replacement of buff.



Attention to buff dressing

Regularly dressing is necessary to keep buff condition but all day running. It prevents the problem which caused by deformation of buff.

The precautions of dressing

- Do under wet condition.
- Do under moderate pressure.
- Be careful about sound generated at the time of dressing.
- Complete dressing after becoming a regular sound generated at the time of dressing.
- Promptly wash out the any dust inside the scrubbing chamber after dressing.

The precautions after dressing

- Any buff dust remaining on back up roller, pressing roller and conveyer roller caused the trouble of dent and hole clogging.
- Start scrubbing after confirming the normal condition. Test scrubbing is necessary loading by enough dummy board (not out yet condition immediately after dressing).
- Be careful the abnormal sound and vibration after machine running in case of insufficient dressing.
- Machinery trouble must be checked if buff deforming happen oftenly.

Cleaning system

Special adhesive tape for cleaning machinery

These adhesive tapes are for removing dust on PWB along with the cleaning rubber roller. Quickly peel off straightly if adhesive surface dirty. You can choose appropriate stickiness or size or non-silicon type easily to want.



Special cleaning rubber roller for cleaning machinery

These cleaning rubber roller is removed dust on PWB transferring to the adhesive tape. It fits both transfer system and direct system. You can choose appropriate stickiness or size or non-silicon type easily to want.

Physicality

Rubber variety	Stickiness	Hardness	Tensile strength	Tear strength	Extend ratio	Width	Outer diameter
	×10-1mN/mm	±5°C	Mpa	N/mm	%	mm	φ
MS-50	10.5	50	5.7	29	450	200~1450	30~150
MS-20	5.7	55	8.4	16	250	200~1450	30~150
MS-5	3.3	55	9.4	15	150	200~1450	30~150
MS-1	2.4~2.8	30~70	4.3~8.6	16~44	475~555	200~ Special made	30~ Special made

Handy cleaning roller

Variety	Type	Material	Transfer pad	Performance	Feature
MS Series	MS1~50	Silicon	PCR pad	Workability	
MIMOSA	SGT~LT	Special synthetic rubber	Rubber pad (fit for handy rubber)	Particle removal	Can choose most fit solution depending on material and particle condition.
	ULT30~60		MIMOSA sheet		
Carbonless MIMOSA	GT~LT	Special synthetic rubber	Rubber pad (fit for handy rubber)	Particle removal with preventing reattachment	Conductive rubber is effective to ESD problem.
	ULT		MIMOSA sheet		
BETARON	L, M, H, HH	PVC	Rubber pad (fit for handy rubber)	For relatively uneven board surface	Soft rubber covers the uneven material surface.



The other feature

- ① Our handy roller operating in the bearing system which prevents another particle come from drive parts.
- ② Supply order made size which you want.

Functional roller

Laminate roller

Special rubber roller which corresponding to the function of obtaining and applications.



Variety	Feature	Hardness	Heat resistance	Material
General - purpose	Heat resistance around 200°C. Rich in high elasticity and long product life. Recommended after physical scrubbing.	40~80°	200°C	Special silicon rubber
Acid resistance	Not only acid resistance but also alkali resistance and wear resistance. Excellent balance of resilience and releasing property. Recommended after chemical scrubbing.	30, 50, 70°	160°C	Synthetic silicon rubber
High heat resistance	Excellent heat resistance that can withstand up to 250°C. In addition strong acid or alkali resistance, recommended severe situation.	60~80°	250°C	Fluorine-containing rubber
High mechanical strength and extreme long product life	Not only excellent mechanical strength but also to reduce the frequency of replacement.	55, 70°	180°C	Special silicon rubber

Conveyor roller

Rich lineup according to the application.



Material	Feature	Application
EPDM	Heat resistance and chemical resistance	General - purpose
Polyolefin series	Acid resistance	Roller inside acid machinery, liquid off
Polyurethane	Wear resistance	Back up roller
Fluorine-based tube	Strengthen the chemical resistance by fluorine-based tube, prevent adhesion of crystallized chemical.	General - purpose
PP wheel, Rubber ring	Less contact area and easily to replace.	General - purpose

Sponge roller to liquid absorption

Effective for wet process in PWB, plating, glass.
Not only liquid absorption but also proper coating such as ink.



Feature

Variety		Rubycell P roll Rubycell Ag+	Rubycell CSQ roll	Porous	IC roller SS (very soft) / R(medium)	PVA roller	PE roller
Classification							
General physical properties	Material	Polyurethane	Polyolefin	Polyolefin	Polyvinyl chloride	Polyvinyl alcohol	Polyethylene
	Hardness	10°	25°	15°	10°	—	—
	Heatproof temperature (base material)	120°C	100°C	100°C	60°C	60°C	—
	Water-absorbing capacity	◎	○	○	△	○	△
	Comparison of water absorption capacity*1	160	120	120	70	100	70
Chemical resistance	Water-soluble flux(OSP)	○	○	○	×	×	○
	Sulfuric acid and hydrogen peroxide 5% (soft etching)	△	○	○	△	×	○
	Hydrochloric acid 10%	○	○	○	○	× (2%○)	○
	Hydrochloric acid 35%	×	○	○	△	×	△ (30%○)
	Sulfuric acid 10%	△	○	○	○	×	○
	Sulfuric acid 35%	×	○	○	×	×	○
	Sodium hydroxide 10%	×	○	○	△	×	○
	Sodium hypochlorite	×	○	○	○	×	○
	Ferric chloride	△	○	○	○	×	○
	Cupric chloride	○	○	○	○	×	○
Feature	<ul style="list-style-type: none"> · Highest level of the water-absorption. · Does not become hard when dry. · Bacteria is unlikely to occur. 	<ul style="list-style-type: none"> · Outstanding chemical performance. · Excellent heat resistance. · Excellent water-absorption. 	<ul style="list-style-type: none"> · Outstanding chemical performance. · Excellent heat resistance. · Excellent follow-up property to the substrate. 	<ul style="list-style-type: none"> · Outstanding acid and alkali resistance. · Does not become hard when dry. 	<ul style="list-style-type: none"> · Cost performance. · Good water-absorption. 	<ul style="list-style-type: none"> · Outstanding chemical performance. · Does not become hard when dry. 	

*1 When PVA is 100 (conveyer speed 3m/min).

The other industrial materials

Anti-static protecting sheet



Feature

- Special material difficult marked with dust due to static electricity.
 - Do not coating and do not use surfactant.
 - No leakage. Guarantee long time sustainability.
 - Toxic gases are not in the disposal.
- Correspondence to the regulations to the RoHS directive.

Filter (cartridge and housing)



Provide generic and chemical resistance type created by special materials.

Professional support

Supply tailored machinery and after-sales service

Mercury lamp

Extra high pressure mercury lamp



Excellent illuminance uniformity. Widely used in PWB, LCD related industries. Provide tailored lamp to your needs.

Expendable parts



Supply expendable parts (drive gear, bearing and so on) in the several manufacturing process which corresponding to the special sizes and materials widely.

Data measurement and requested scrubbing test