



Dragontrail

AGC Glass Technology Solution to Highly Functional Display Needs

Takahiro IKEZAKI

Vice President

Electronics Glass General Division, AGC Electronics,
Asahi Glass Co., Ltd.

June 5, 2012

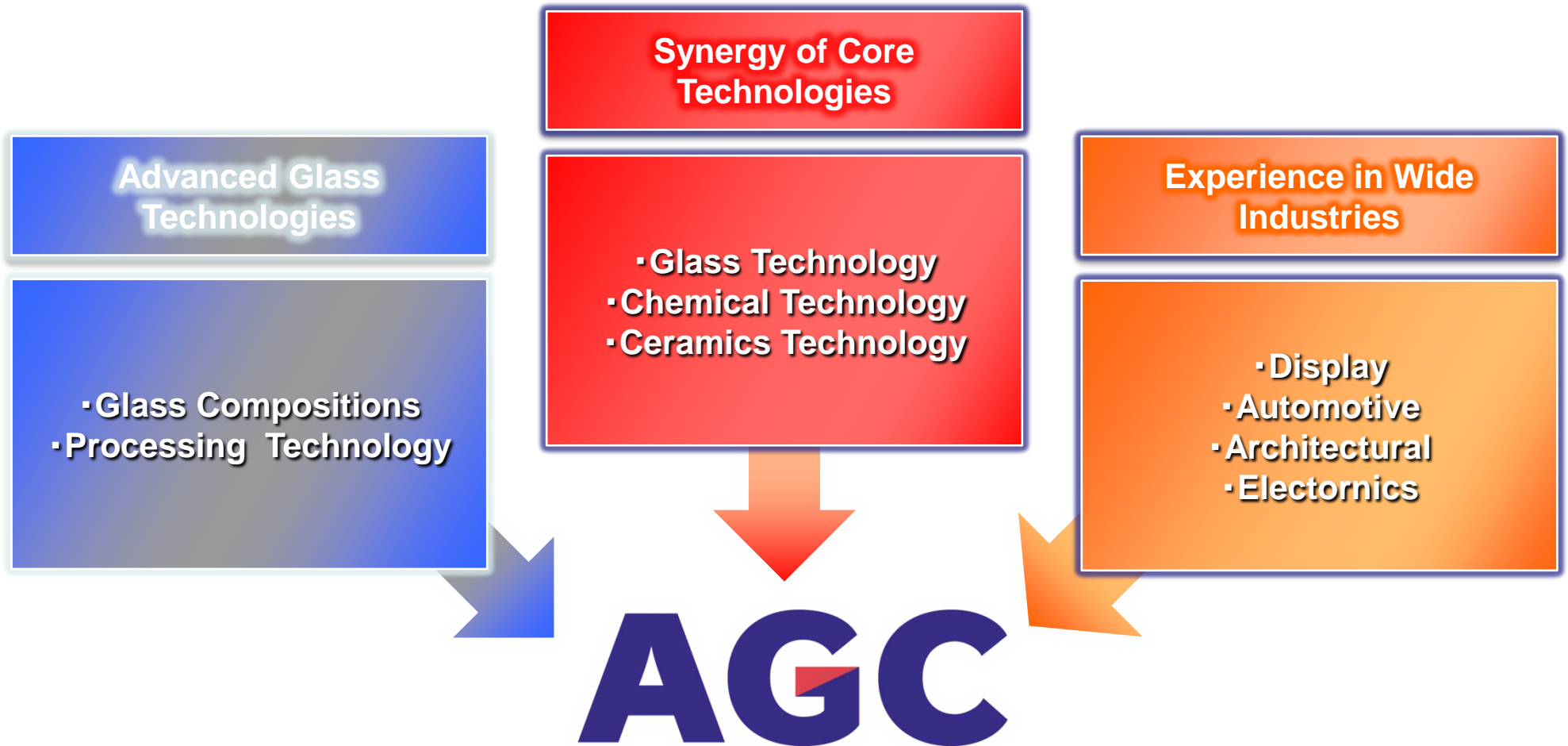
-Contents-

- ✓ AGC Strengths
- ✓ AGC Display-Related Products Lineups
- ✓ AGC Technology Differentiators for Displays

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- ✓ **AGC strengths**
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AGC Strengths

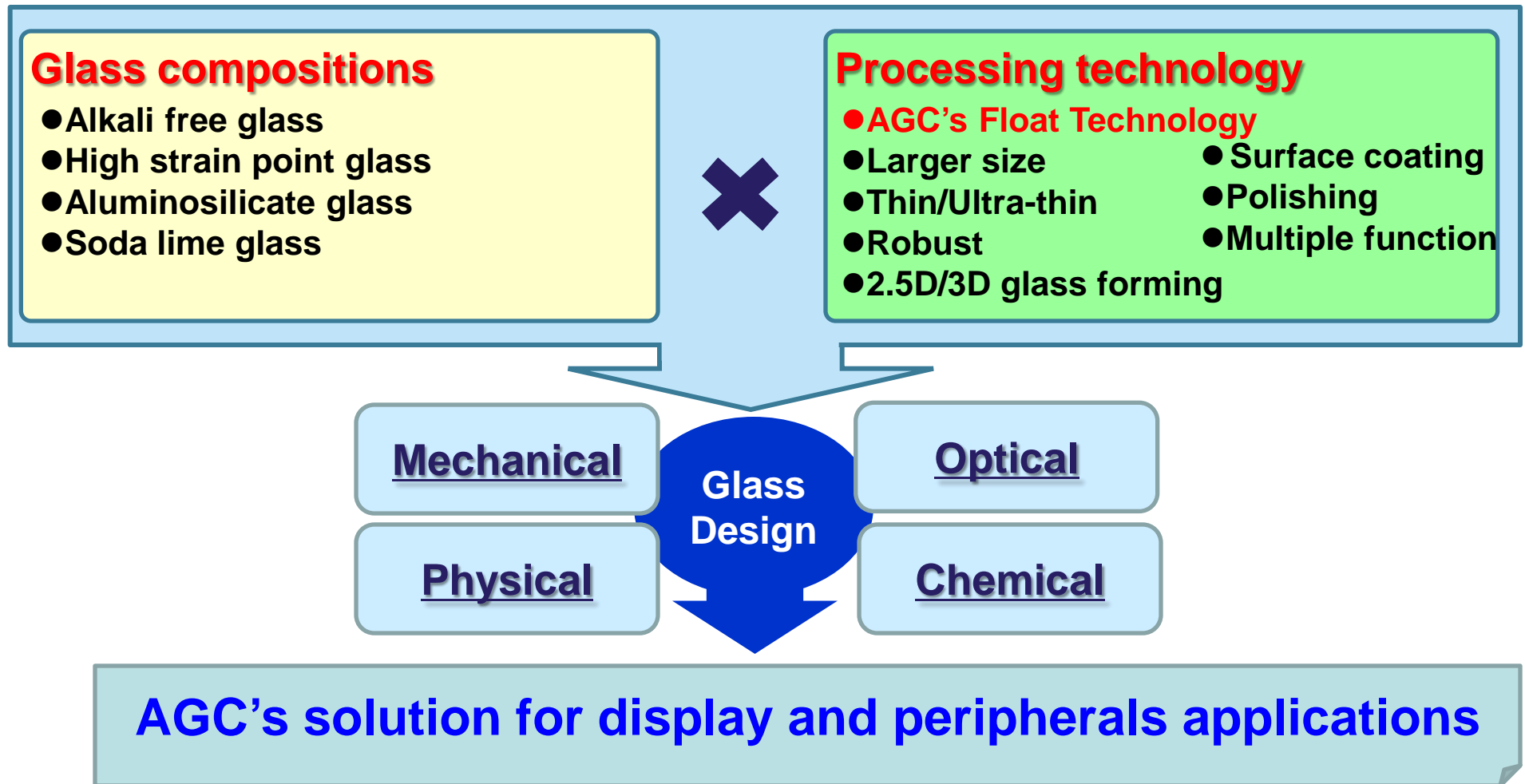


Utilize our strengths for the future display industry.

Global Market Position



What is AGC's Technological Advantage?

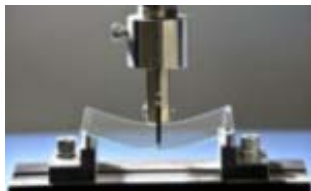


-Contents-

- ✓ AGC strengths
- ✓ **AGC Display-Related Products Lineups**
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Smartphone

Dragontrail®



Cover Glass

Anti Fingerprint Coating

AS Thin glass

CARBOGLASS®



Touch Screen

Ultra Thin Glass

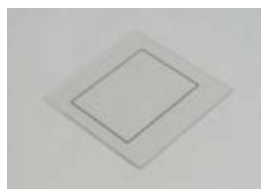
AN100



TFT-LCD / OLED Glass Substrate

- EPRIMA®AL-X6
Gate Insulation
- EPRIMA® Cu Paste
Conductive paste
- Glass for Photomask

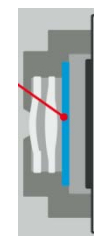
**Electro Printable
Materials etc**



Glass Frit Laser Seal for OLED

Dragontrail®

2.5D/3D-Glass Chassis



Camera Unit

NF-50 series



**Visibility Compensation Filter
for Camera module**

CARBOGLASS®

Polycarbonate film

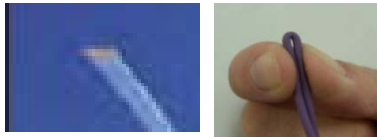


Light Diffuser, BEF

- EPRIMA® AL-X6
Gate Insulation
- EPRIMA® Cu Paste
Conductive paste
- Glass for Photomask

**Electro Printable
Materials etc**

FONTEX®



Plastic Optical Fiber



Glass Frit Laser Seal for OLED

AN100



Ultra Thin Glass



PD200

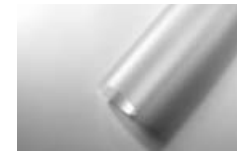


TFT-LCD /PDP/OLED Glass Substrate

Dragontrail®



CARBOGLASS®

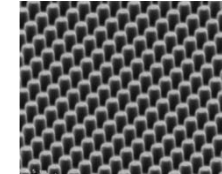


Designed Front Panel

AR coating



**Fluoropolymer
for Moth-eye**



Anti Reflection Film/Coating

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Solutions by Glass Materials

Glass Processing Technologies

- Cutting for chemically strengthened Glass
- Fine precision drilling for thin glass
- Lapping and polishing
- Rolling for thin glass

Glass Surface Technologies

- Anti-reflection coating
- Anti-glare coating
- Anti-fingerprint coating
- Nano-scale texture by nanoimprint lithography
- ITO coating

Glass Forming Technologies

- Molding
- Bending
- 3D precise pressing

Glass Composite Technologies

- Laminated substrate
- Glass frit laser seal
- Cu hybrid conductive paste

AGC provides [Glass] & [Glass *plus*] solutions

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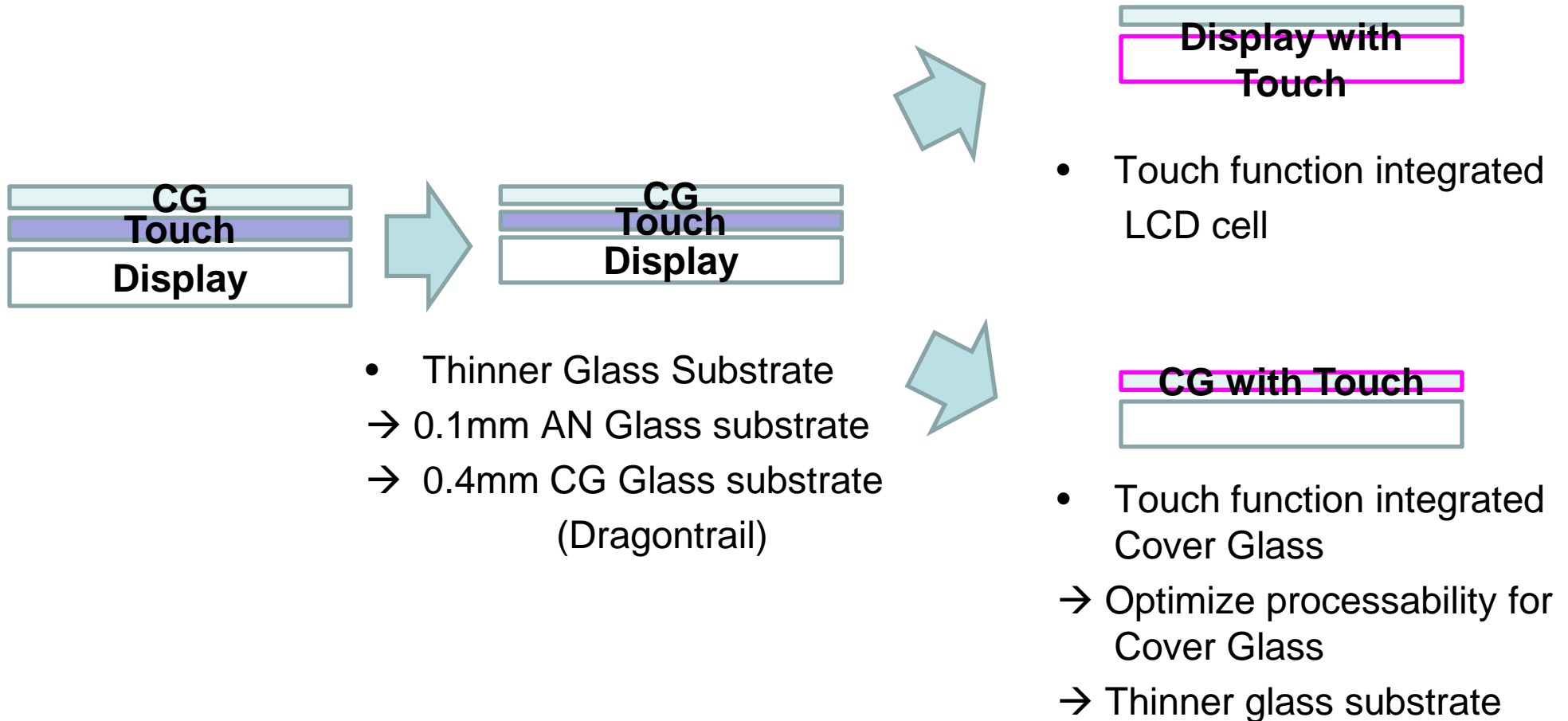
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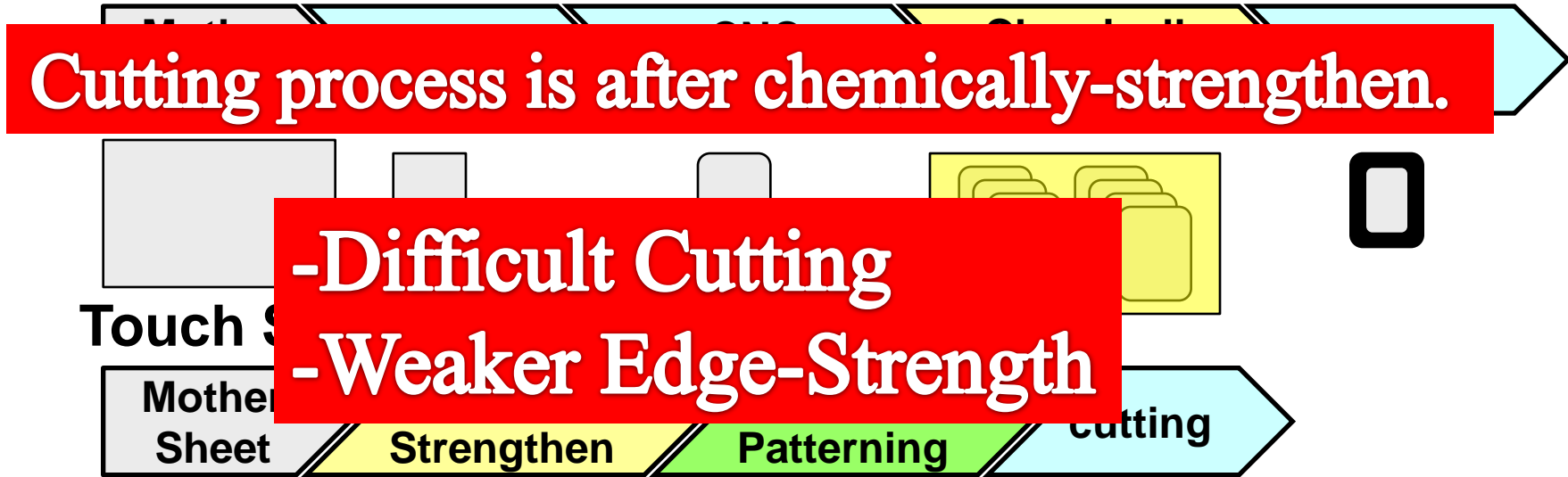
AGC provides [Glass] & [Glass *plus*] solutions

Concept of Form Factor Improvement

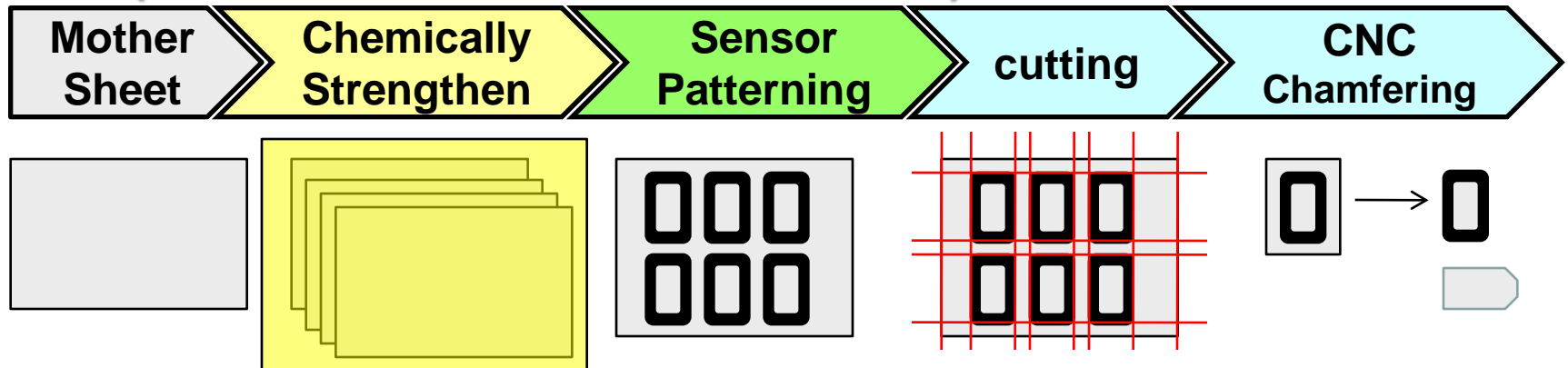


Process Comparison for Touch & Cover Glass

■ Conventional Process Flow for Cover Glass



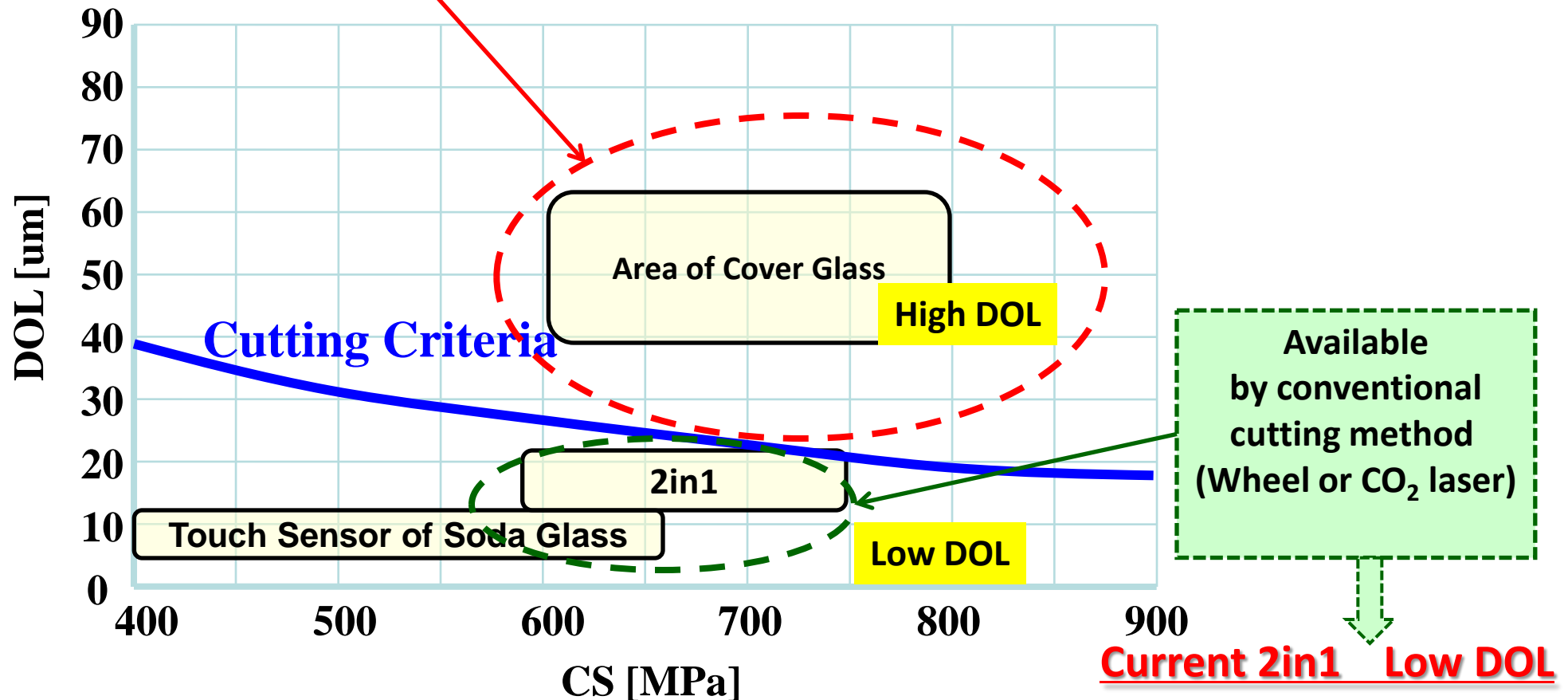
■ 2in1 (Combination with CG and TS)



Chemically-strengthened glass cutting method

Difficult cutting area
by conventional cutting method

AGC developed cutting technology
for High DOL

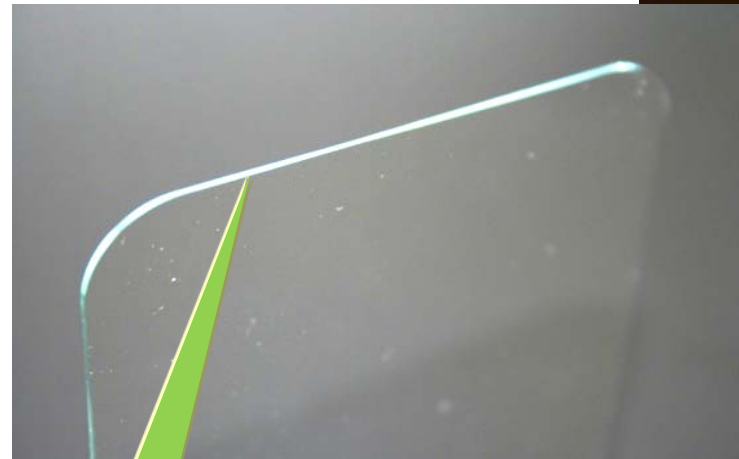


New Cutting Technology for High DOL

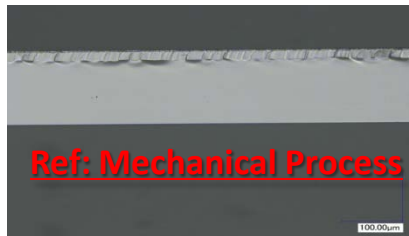
Glass: High-DOL Dragontrail (0.7mmt)

CS condition: CS=762MPa, DOL=40 μ m, CT=49MPa

Cutting: AGC new cutting technology



Size 70mm * 100mm



Ref: Mechanical Process



Crack-less edge after cutting

- High-DOL available (ex. >30 μ m@0.7mmt)
- Direct corner forming
- Crack-less & vertical edge
- No glass cullet

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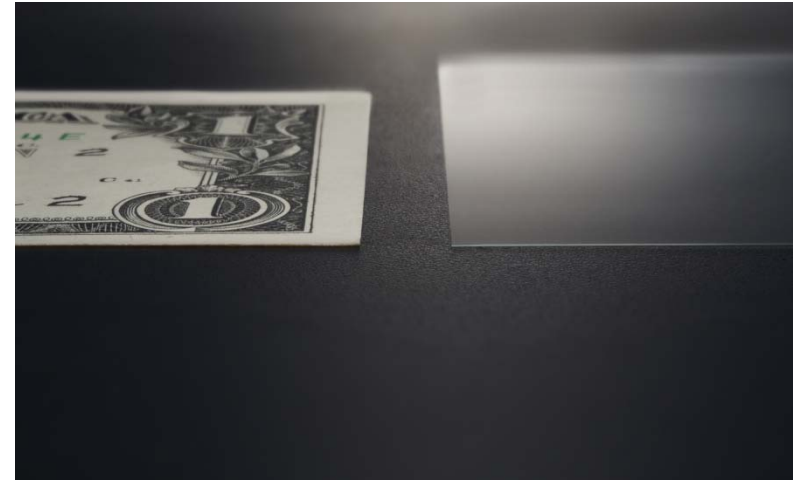
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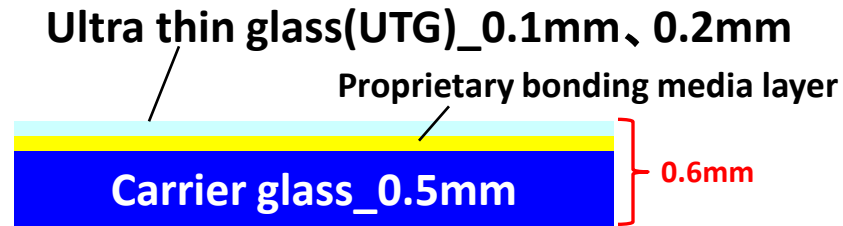
Ultra Thin Glass : World's Thinnest Glass by Float Process



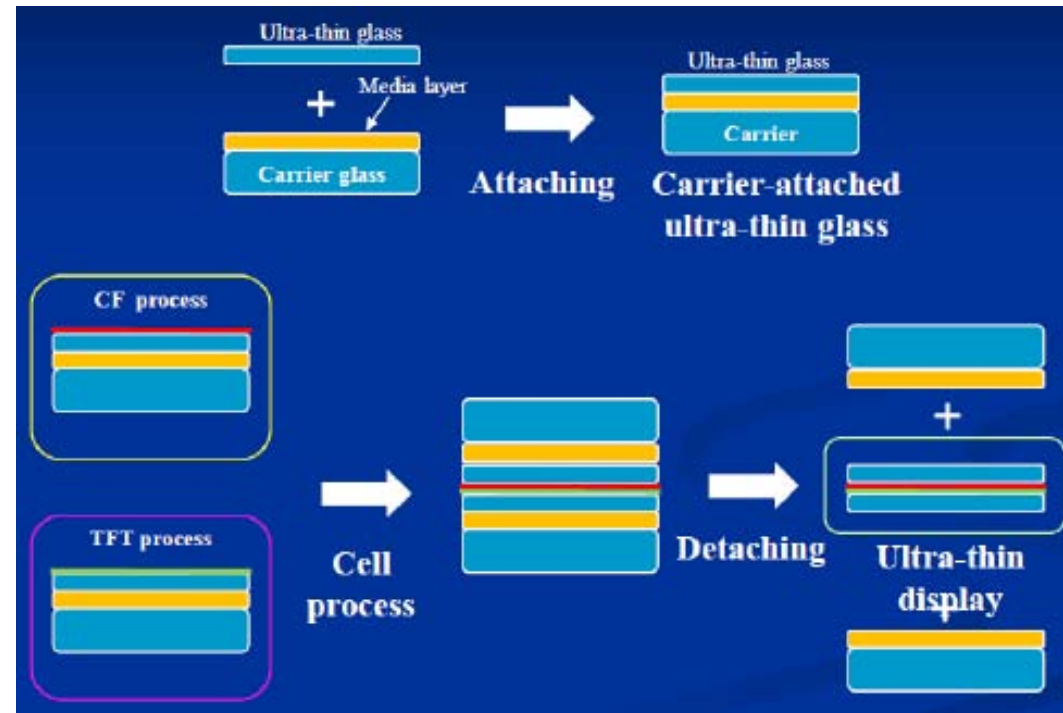
Rolled UTG Solutions



Carrier Glass attached UTG (Under Development)



- High thermal durability (High Temp.)
- High chemical durability
- Proper adhesion property



Carrier glass attached UTG

Laminating 0.1(0.2)mm ultra-thin glass for easy handling without changing the current process

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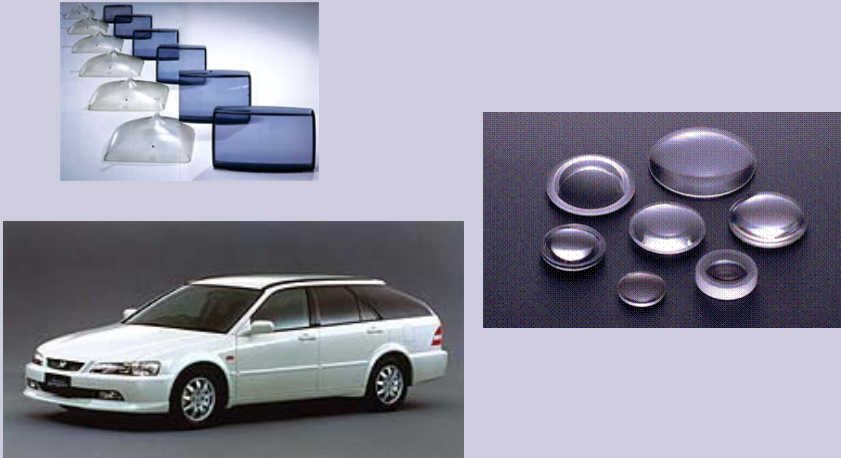
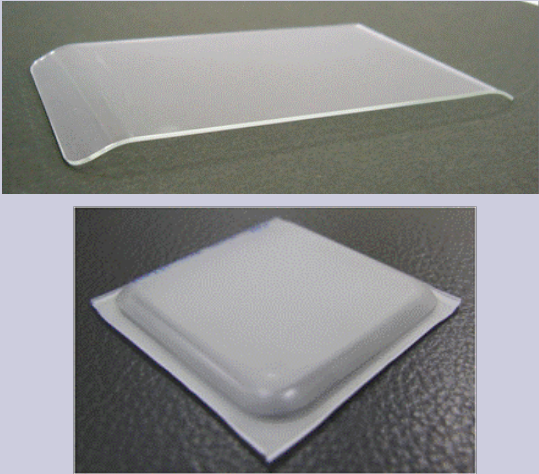
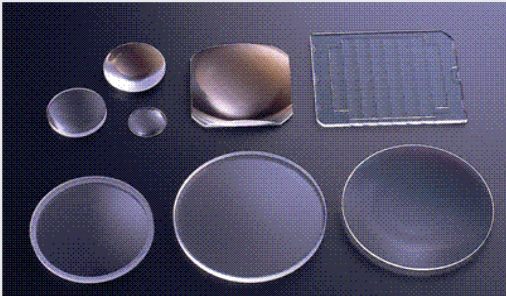
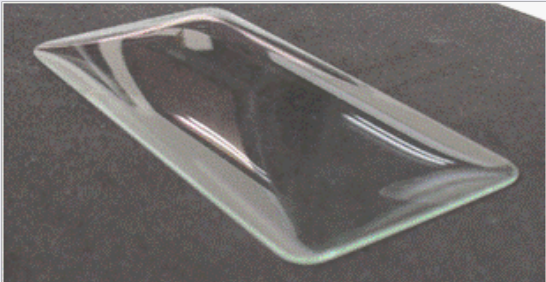
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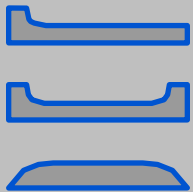
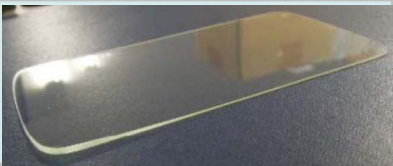


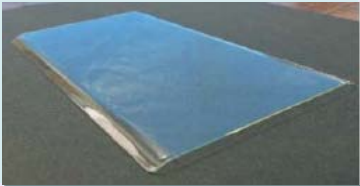


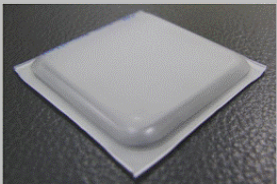

AGC provides [Glass] & [Glass *plus*] solutions

AGC Forming Products

	MP	R&D
3D	 <p>The image shows a collection of 3D glass products. On the left, there is a stack of blue and white glass components, including a car side mirror housing and a rearview mirror. On the right, there is a white station wagon.</p>	 <p>The image shows two 3D glass components. The top one is a rectangular plate with rounded corners. The bottom one is a square plate with rounded corners.</p>
2.5D	 <p>The image shows a collection of 2.5D glass components. There are several circular lenses of different sizes, a rectangular plate, and a square plate with rounded corners.</p>	 <p>The image shows a 2.5D glass component, a rectangular plate with rounded corners.</p>

Currently under R&D for Mobile devices

Glass Forming Technology for Mobile devices Chassis

Shape			Details	
2.5D		Curved surface & Flat surface		
3D		2 side Bending shape		
3D		4 side Bending shape		

Glass material : Dragontrail
Be able to provide samples

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Features of AGC's AFP Film Coating

1) Highly durable AFP films

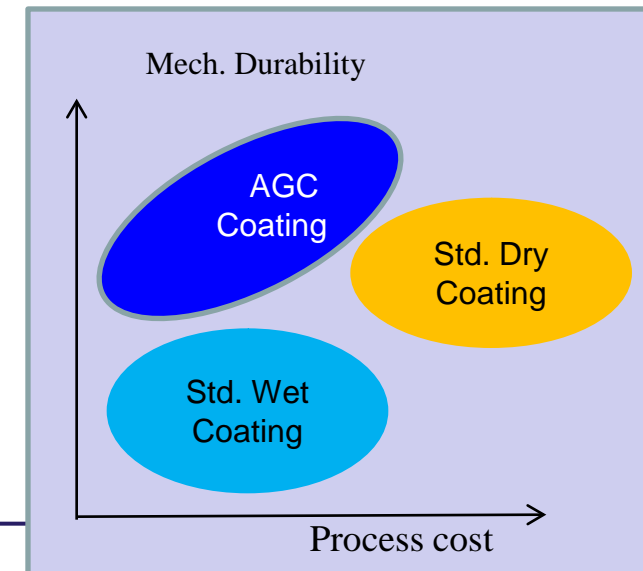
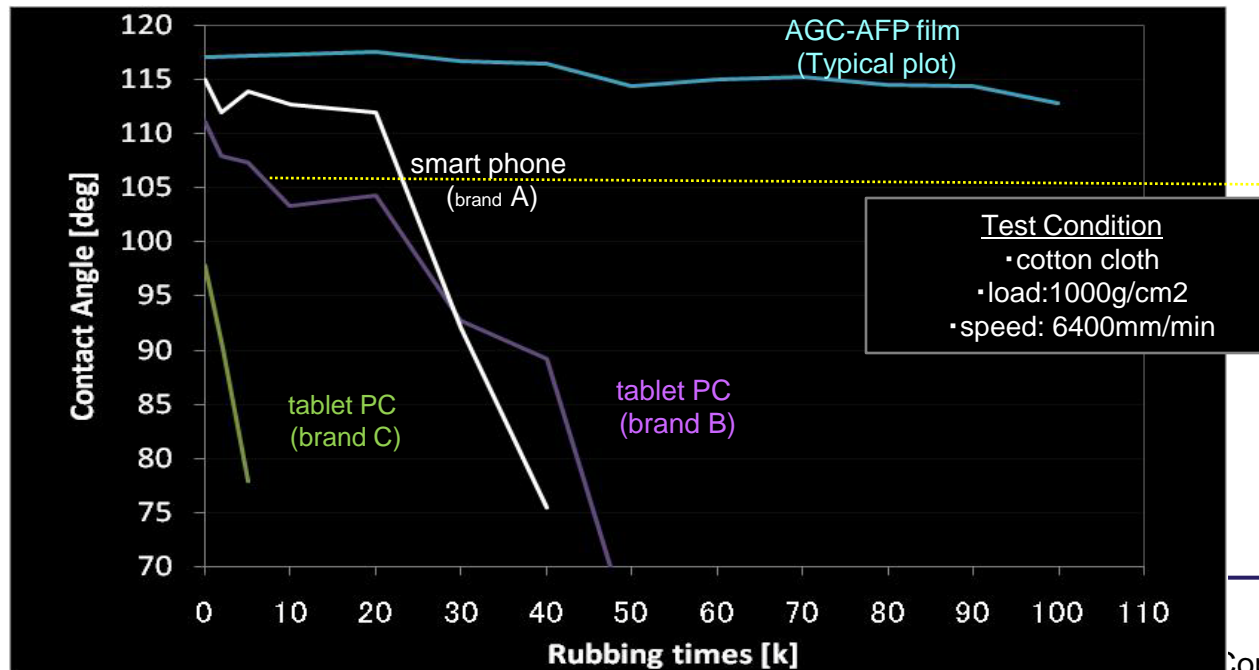
- ✓ Totally optimized processes from cutting to AFP coating on Dragontrail™
- ✓ High durability and reliability

2) Excellent productivities

- ✓ Coating on large-size mother glasses
- ✓ Markedly high productivity

3) Coating on glasses of various size

- ✓ Applicable to variations of cover glass process
- ✓ Cost reduction of the production line of cover glasses at customers' sites



What makes AGC different?

- Technological and business platform in wide variety of business segment
- Glass manufacturing and processing technologies for display and peripherals applications
- Many excellent products

AGC provides [Glass] & [Glass *plus*] solutions for functional improvement of future display



Your Ideal Business Partner

The logo for Asahi Glass Co. (AGC) is displayed in a large, bold, dark blue sans-serif font. The letters 'A', 'G', and 'C' are dark blue, while the middle 'G' features a red triangle pointing to the right, integrated into its design. The background is a light blue gradient with a glass pane visible on the right side.

AGC

Please visit our booth # 837
We look forward to talking to you