

Fabrication Fact

Can Machined Glass Be Strengthened?

Glass that has been tempered or heat strengthened cannot be machined. Any fabrication done prior to the heat or tempering process must be smooth as well as chip and crack free. Any holes, notches, etc. should be located on the fabricated glass part so as to avoid breakage during the strengthening process.

Chemical Strengthening:

Unlike heat toughened glass, chemically strengthened soda lime glass may be cut after strengthening, but loses its added strength within the region of approximately 20 mm of the cut. Similarly, when the surface of chemically strengthened glass is deeply scratched, this area loses its additional strength.

High Ion-Exchange (HIE™) Chemically Strengthened Thin Glass CAN NOT be post fabricated.

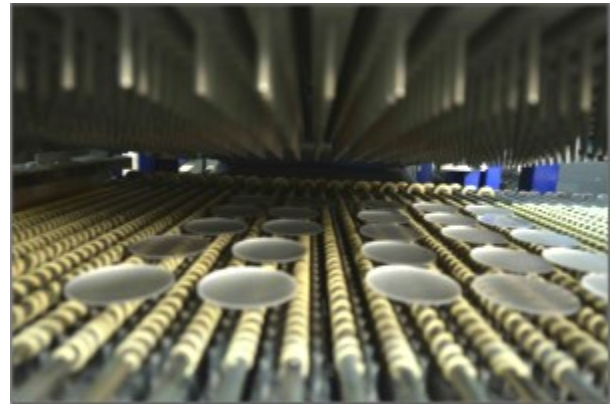
That includes:

- Asahi Dragontrail™
- Corning® Gorilla® Glass
- SCHOTT Xensation®

This glass can only be strengthened as a final step. It may be coated and screen printed, but not machined.

Why:

- Strengthened glass loses over 50% of its strength if successfully cut, so it would no longer be considered HIE™ chemically strengthened glass.
- HIE™ glass is under high levels of compressive stress making it extraordinarily difficult to machine.



Heat Strengthening/Tempering Process



Chemical Strengthening Process

Application Note

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Glass Fabrication



Coating Deposition



CNC Machining



Strengthening - Chemical & Heat



Screen Printing of Graphics



Abrisa Technologies, a member of HEF Photonics, is a globally recognized technology glass fabrication and optical thin film coating company with expertise in high volume manufacturing and engineering capabilities, delivering Total Solutions that provide excellent performance, fitness-for-use and economies of scale.

Our US based, state-of-the-art ISO 9001:2015 and ITAR registered facilities include Abrisa Industrial Glass in Santa Paula, CA and ZC&R Coatings for Optics in Torrance CA. These two divisions produce solutions from cut-to-order coated glass components to custom complex and ready-to-install fabricated, strengthened, optically coated, electronically enabled and branded sub-assemblies.

Our Total Solutions serve a variety of markets including Micro-Electronics, Defense and Avionics, Display, Industrial Automation, Optical Sensors, Imaging, Photonics, Medical & Dental, Life Science and more.



Abrisa Industrial Glass
200 South Hallock Drive
Santa Paula, CA 93060

ZC&R Coatings for Optics
1401 Abalone Avenue
Torrance, CA 90501

(877) 622-7472

www.abrisatechnologies.com
info@abrisatechnologies.com