

# Processing Guideline Guardian Ultra Mirror®

## Introduction

**Guardian Ultra Mirror®** product is a high quality mirror offering durability and beautiful reflectance. The possibilities for decoration are unlimited: small and confined spaces become bigger, dark and dull rooms fill up with light. **Guardian Ultra Mirror®** is an ecologically friendly product that can be used on many applications such as interior architectural applications and internal automotive applications.

### The basic properties of UltraMirror can be summarized into:

- **Appearance:** A highly reflective mirror offering a true image reflectance
- **Environmentally Friendly:** Respective for the environment thanks to its copper free manufacturing process and option to choose from a reduced lead content protective paint (<0.5%) or zero lead content protective paint
- **Quality:** The same copper free manufacturing process enhances mirror protection against corrosion. It offers more protection than conventional mirror – in accordance with ISO 3770
- **Heat resistance:** It can be used in environments up to 60°C. However, proximity with a strong heat source must be avoided

*This document provides specific instructions regarding storage, handling and processing. Noncompliance with these processing directives may lead to damage of the glass and will invalidate any claims.*

## Packaging / Storage

**Guardian Ultra Mirror®** can be bought in the several standard sizes with a maximum dimension of 2440mm x 3660mm; thicknesses from 2mm to 8mm; for more details concerning sizes and thicknesses please enquire through your Guardian Glass sales contacts.

Proper receiving and storage is critical for UltraMirror. Unloading of the product from containers/trucks must be done under a covered area and protected from elements such as rain, water splashing, snow, etc... Incoming material should be inspected for damage, presence of water or moisture prior to acceptance and any problems must be reported immediately to Guardian Glass.

The type of packaging and the arrangement of the panes are indicated on a label attached to the first pane in each pack. The label should be retained for reference until the whole pack has been satisfactorily processed. A separator is placed between the panes to ensure the separation and prevent damage during transportation.

Separator material can be in powder or paper type. If paper separator has been requested for the mirror order, it is advised that the paper separator be kept in between the mirror sheets when stacking or transporting the sheets.

Environmental conditions that affect float glass products can also have adverse effects on mirror glass. Therefore, the product must not be stored outside. Storage should be in a dry and clean place, a suitable distance away from glass washers, external doors/windows and corrosive chemicals. If a pack has become particularly cold during transportation to the warehouse, do not open the pack until the glass has reached the ambient temperature in the warehouse, to avoid condensation forming on the paint surface. The warehouse should be well ventilated, not subject to major temperature variation and all stock rotated (first in, first out).

## Handling

Do not open the glass pack until all the people responsible for handling and processing the glass have been properly trained on the correct handling, storage processing and transportation of mirror glass. Glass is sensitive to scratches please try to limit the manipulations amount. Always wear suitable clean gloves when handling any glass product.

## Cutting

The cutting table must be free of any impurities. Care must be taken to prevent scratches on mirror backing paint coating from glass chips on the cutting table. Mirrors of original stock sheet size will have coatings covering all its edges and are called the "factory edges". Whenever possible, try to keep these or any of these edges in the final cut size mirror. The mirrors with factory edges can be used in high humid environments particularly in locations where puddling happens.

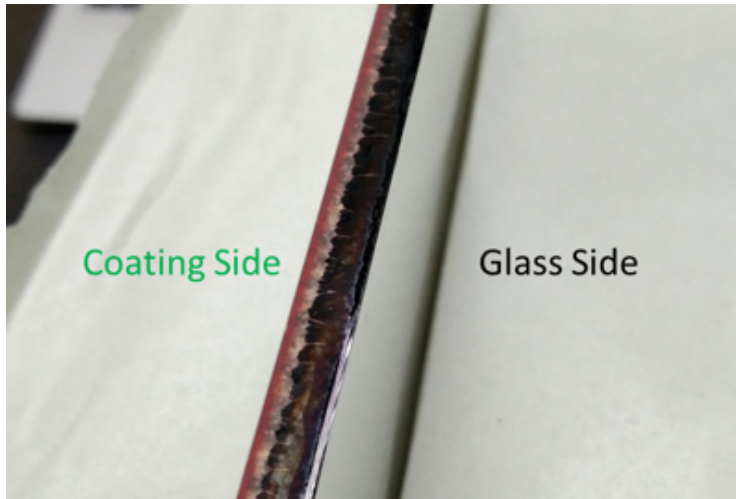


Figure 1: Factory Edge

## Beveling, grinding and drilling

When beveling **Guardian Ultra Mirror**<sup>®</sup> be sure to maintain a Ph value between 7 and 10 for the water used in the process and ensure proper cooling of the grinding wheels.

Edge work of **UltraMirror** can be carried out manually or on automated machines. The products are suitable for edge grinding, polishing, as well as arising.

During manual processing, contact of grinding wheels or cross belts with the paint side should be minimized, limited to the edges. When using automated machines surface clamping or conveyor devices should not be excessive.

With any type of grinding equipment always ensure an adequate supply of clean water. In order to prevent paint damage by glass debris accumulation from either arising or grinding, the glass should be rinsed with copious amounts of water before washing directly after mechanical transformation operation.

## Washing during processing

**Guardian Ultra Mirror**<sup>®</sup> glass may be cleaned in the same fashion as float glass. Use mild detergents only when necessary and with minimum residence time. Detergent must be Ph-neutral and free of abrasives. The washing machine must be checked, cleaned and maintained at regular intervals in order to ensure that it operates correctly. The brushes, in particular, must be checked for cleanliness, alignment and ample supply of water.

### Recommended inspection of machine before washing:

- Water hardness and cleanliness of the brushes (e.g. no lime deposits)
- Correct adjustment of the brushes (as recommended by the washing machine manufacturer)
- Cleanliness of the entire washing machine...no accumulated dirt and no debris (e.g. glass splinters, sand, lubricants, etc.)
- Washing machine manufacturer instructions should be followed at all times.

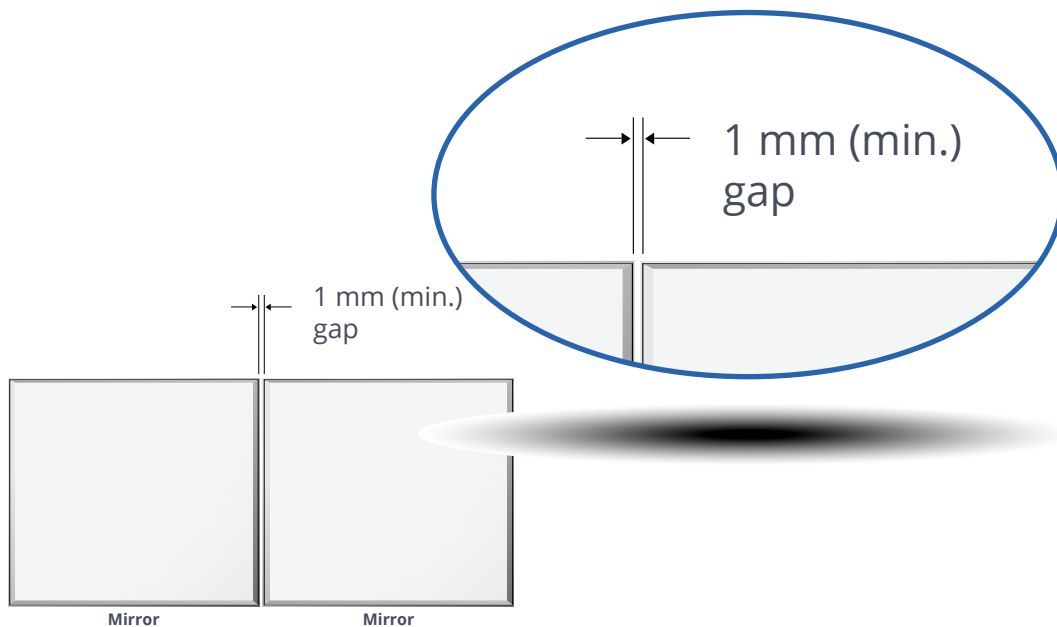
### Specific details to be considered:

- Always use clean and de-ionized water (< 30 µS). The water must not contain any cleaning agents or non-dissolved particles (such as lime)
- Standard float glass washer settings may be utilized.
- During the washing process the glass must not remain stationary in the washing machine with the brushes revolving as excessive brushing may damage the paint surface.
- To prevent watermarks on the paint side, glass must exit the washing machine completely and must be dry.

# Installation

## Important Recommendations:

- When more than one mirror is installed on the same surface, keep a gap of at least 1mm between the edges of these mirrors.



- The base where the mirror is installed must be clean, dry, completely free of moisture, acidic or alkaline substances, or any other aggressive material. Avoid installing mirror on freshly painted walls and in solvent borne fumes in the environment. Do not use a base- materials that absorb moisture, such as wood, cork, newspaper, etc..
- Do not accept Guardian mirrors that have scratches on the paint face. In the future, this risk could turn into a defect in the mirrored face.

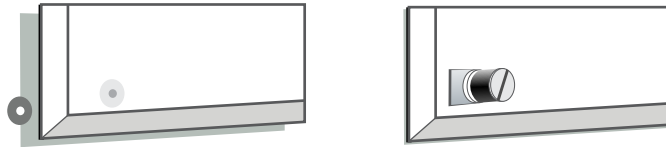
## Two types of fixation:

- Mechanical: for example: frame or studs to support edges
- Bonding: Silicones or double tape bonding

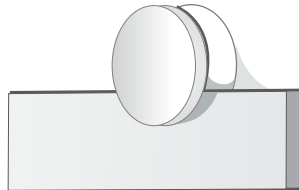
The back of the mirror should remain unscratched during installation, to avoid oxidation of glass that could create black or brown traces on the reflective side of the mirror.

## Clips, Bolts, French Buttons

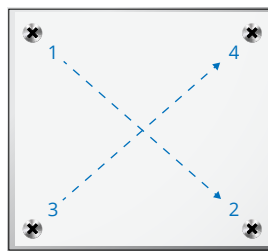
- Use washers or plastic spacers on both sides of the mirror to avoid excessive localized effort and ensure a minimum spacing of 3 mm between the mirror and the base, favoring air circulation



- Use plastic or rubber support to avoid direct contact of the metal with the mirror.



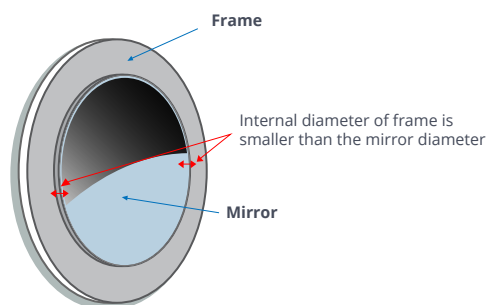
- The final tightening should only be done at the end of the installation and always through the diagonals of the parts, reducing the risk of breakage and deformations in the image.



- Avoid direct contact between the fixing screws and the mirror surface, minimizing the risk of breakage and oxidation in the contact area. One solution to this is to use spacers.
- If shatter proofing sheets are applied on the mirror backing, ensure that its adhesive is mirror compatible. Guardian offers UltraMirror with vinyl sticker backing for safety glazing requirements.

## Frames

- Try to use frames and fasteners that do not absorb moisture.
- In case of metal frames, use soft spacers to avoid direct contact of the mirror with the frame
- The mirrors must be fitted at least 5mm inside the frame, in all its edges.
- Avoid using fasteners (nails and clips) that may cause damage or scratches to the surface or edges of the mirror.



## Types of double tape bonding

Guardian does not manufacture bonding tapes and we are not able to guarantee the effects of their application on **UltraMirror**. We can recommend Acrylic, Modified Acrylic and Rubber Tapes as compatible tapes but we recommend performing your own test before actual installation and strictly adhering to the manufacturer's recommendations for use.

If shatter proofing sheets are applied on the mirror backing, ensure that its adhesive is mirror compatible. Guardian offers **UltraMirror** with vinyl sticker backing for safety glazing requirements.

## Cleaning

Cleaning of the **Guardian Ultra Mirror**<sup>®</sup>, as well as removal of residue from stickers and spacing pads is to be carried out using clean water or mild cleaning agents.

Sharp-edged tools such as razor blades and scrapers may cause fine scratches in the surface and the use thereof should be avoided.

Should residues of sealants come onto the Guardian Ultra Mirror<sup>®</sup> during sealing works, they should also be removed immediately.

Strong alkali solutions as well as acids, particularly liquid acids, and cleaning agents containing fluoride should never be used. These solutions may irreparably damage the glass surface.

[www.guardianglass.com](http://www.guardianglass.com)

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