DECORGLASS®
MASTERGLASS®

Processing Guidelines

SAINT-GOBAIN

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1. GENERAL

1.1. Product description

DECORGLASS® is a range of patterned clear, body-tinted or wired glasses. The translucent patterned glasses are produced by casting and rolling the glass between two cylinders with at least one engraved roller.

MASTERGLASS® is a glass range featuring different stunning geometric designs. It is produced by casting and rolling the glass between two cylinders with at least one engraved roller. The glasses of this serie have one structured and one even or flat side. This precisely controlled process produces the distinctive textures on one surface of the glass whilst the other remains flat.

1.2. Thickness, dimensions, and tolerances

The complete product range of patterns, including thicknesses and dimensions, is available on SG websites.

If need be, please use the contact form available on the website, or contact your local sales team.

1.3. CE-Marking

DECORGLASS® and MASTERGLASS® comply with the EN572-1 “Glass in building — basic soda lime silicate glass products — Part 1: Definitions and general physical and mechanical properties”, the EN 572-5’’ Glass in building — basic soda lime silicate glass products — Part 5: Patterned glass “and with the EN 572-6 “.Glass in building — basic soda lime silicate glass products — Part 6 patterned wired glass “

These products receive the CE-Marking. The Declaration of Performance (DOP) of each CE marked product is available at the web site:
www.saint-gobain-glass.com/ce

1.4. Quality criteria

1.4.1. Definition of visible defects

The following definitions are given by the standard EN 572-5 and EN 572-6.

1.4.2. Conditions of observation

The conditions of observation are given in the standard EN 572-5 and EN 572-6. Please refer to it for details.

1.4.3. Acceptance criteria

Without prior agreement between both parties, the standard EN 572-5 and EN 572-6 will apply.

1.5. Direction of pattern

All patterned glasses, including patterns with no visible direction, have one direction of pull. Due to production conditions, a slight difference between both directions of the glass can be observed.

Therefore we recommend to position next to the other glasses cut in the same direction of the DLF.

1.6. Structural differences

Due to production conditions slight differences can be observed from one production to the other and from one thickness to the other.

Therefore we recommend to position next to the other glasses of the same production and of the same thickness.

1.7. Color

Along EN 572 norm, the color of the glass is assed in built-in vertical state only.

As for any glass, color is also influenced by its thickness.

1.8. ALTDEUTSCH K®

ALTDEUTSCH K® is a pattern glass whose surface structure is not applied and embossed with structured roll.

The type of fabrication is a combination of a special process before lamination and lamination.

Unlike other patterned glasses, the structure of ALTDEUTSCH K® is not uniform.

Product presents irregularities such as streaks and bubbles in the glass core, bare zones, as well as surface-opening bubbles.

2. TRANSPORT, ACCEPTANCE, STORAGE AND HANDLING

2.1. Transport

- The patterned glass sheets are usually transported with L-Racks, VEC, end caps, ….
- Glass sheets must be transported vertically (at 3 – 7 degrees).
- The glass panes never come into direct contact with each other: the glass sheets are always separated by neutral polymeric powder.
- During transport, violent and repeated shocks should be avoided as well as intensive breaking.
- When handling with a manipulator, care must be taken not to damage the pack.

2.2. Receipt of the delivery

- Every pack must be opened with care in order not to damage the glass sheets (contacts, scratches, etc.). Handling instructions must be respected, especially the instructions for opening.
- All deliveries are identified with a label providing the following data:

2.3. Storage

All glass products will become stained if they are stored in humid conditions; the iridescence has the appearance of a "rainbow" or milky white coating on the surface of the glass.

The glass sheets have to be stored vertically (at 3 - 7 degrees) under the following conditions:

- In a dry, well ventilated store, to prevent any condensation on the surface;
- Protected from rain and running water (e.g. any roof leaks must be rectified);
- Never outside or in the open air;
- Protected from wide changes in temperature and humidity to avoid condensation.

3. QUALITY FOR PATTERN GLASS

DECORGLASS® and MASTERGLASS® range has 3 different qualities, **each quality being linked to different processing:**

- **Quality 33:** All standard application out of the cases below.
- **Quality 37:** Lamination with float glass in big sizes (up to 3.21m x 2.4m).
- **Quality 38:** Small size lamination with float glass and tempering.

These three qualities follow the standard quality according EN 572-5 and EN 572-6.

For detailed information contact your customer service.

4. PROCESSING

4.1. Handling on the production lines

The patterned glass sheets must be handled with dry, clean gloves.

In case you cannot avoid handling operations with vacuum cups, make sure that the vacuum cups are silicone free and perfectly clean.

4.2. Cutting

- If the patterned glass has one even flat side, cut on this side.
- In case the both glass sides are patterned, you must reduce the angle of cutting wheel between 10 to 20° and use the same pressure than for the float glass of the same thickness.
- Make sure, that the cut has no interruption. Reduce the cutting speed.
- If you face problems during automatic breaking, ensure that the glass cut is positioned at a distance of approximately 2 cm from the breaking bar.

4.3. Edge working

It is good practice to edge work the glass directly after cutting. Pattern glass can be grinded on several types of machines. Choose of the position of the pattern could change depending of the edge work machine used. Goal is to avoid dirt accumulation in the pattern (ex. double edger with pattern down).

Glasses with a deep regular pattern intended for tempering (e.g. ESTRIADO, VISIOSUN) should be at least grinded (ground edge as minimum quality). Quality of edge work will have important impact on the possible on the breakage risk (tempering and thermal breakage in final installation).

4.4. Washing

It is recommended to wash the glass immediately after edge working. In case of washing on horizontal washing machine it is recommended to put glass patterned side bottom into the rollers to avoid accumulation of dirt in the recesses of the pattern.

4.5. Tempering

Q38 quality glass is the only quality dedicated to tempering.

In general:

- Put the flat side in contact with the roller (it is permissible to temper glass with a pattern facing the rollers). If the design has lines, place the line perpendicular to the roller.
- Use the recipe of float glass with the same color/thickness and increase the heating time for ca.10%.
- For the quench, start with the pressure for a float glass of the same thickness and adapt during the first and second batch to reach a good fragmentation test. Adapt the air balance to get a good global bow.

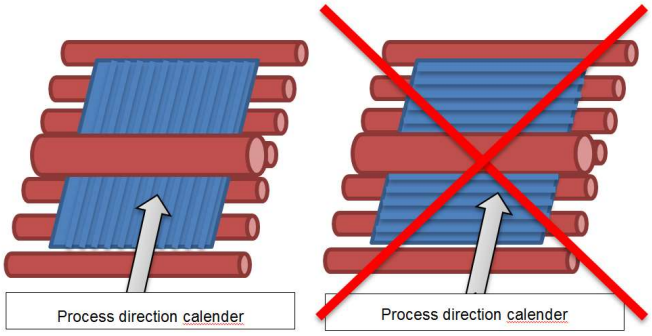
Specific case of VISION SUN and ESTRIADO SR:

- Tempering of the Visio Sun, Estriado glasses requires special parameters
- It is mandatory to place the line perpendicular to the furnace rollers
- To obtain the flatness and avoid breakages issues, put pattern face on the furnace ceramic rollers and increase the nozzle distance and the quenching pressure.
- Check the final tempering quality (fragmentation level for instance)
- If it is the first time you are processing this type of pattern glass, it is recommended to contact your local technical support

4.6. Lamination

Q38 quality glass is dedicated to lamination with float glass in small size range. In case of big size lamination, Q37 quality is mandatory. Please refer to section 3 of the current guideline.

If the design has lines, place the line perpendicular to the roller of the calender to avoid bubbles.



If the glass has the quality 37 you can use it for lamination with two foils of 0,38mm. For the other qualities you must use three foils or more.

Production settings for laminating patterned glass vary from one pattern to the other.

Laminating patterned glass with float glass requires an adjustment of the settings of the line: main parameter is the line speed that should be decreased. Other parameters to control are glass temperature at the furnace exit (better is higher) as well as pressure of the calendar rollers. For technical support, you can ask for your technical support manager or your commercial contact.

5. ENVIRONMENT / WASTE GLASS / HEALTH ISSUES

DECORGLASS® and MASTERGLASS® can be recycled. Collection of substrates in what we call cullet is important for many reasons**. Collection should respect rules to get clean cullet possible to reuse in new glass production**.

DECORGLASS® and MASTERGLASS® can be collected with standard PLANICLEAR® and/or ORAÉ® / DIAMANT®.

Tinted pattern glass should be collected in different way and per type of color (brown, yellow…).

Here is a not exhaustive list of cullet pollutant:

- Papers and cartons
- All metallic sources as aluminium spacer bar
- Pyro ceramic glass
- Borosilicate glass
- Bottle glass
- Wired glass

Please contact your local commercial team and technical support to have full details about rules of glass collection.

Edge working residues have to be continuously and completely collected during the grinding process. These residues must be further treated in compliance with national legislation about industrial wastes. In some legislation, residues from grinding process have to be treated as toxic wastes.

As for any dust coming from the grinding process, any inhalation or skin contact of these residues must be avoided.

On request, a **S**afety **U**se **I**nstruction **S**heet (SUIS) relating to the ECDirective 91/155/EEC can be supplied.

6. PROTECTION, CLEANING AND MAINTENANCE OF THE END PRODUCTS

6.1. Protection of the glazing during building works

As for any type of glass products, it is important to respect the following instructions with the DECORGLASS® and MASTERGLASS®:

- In order to avoid damaging the glass with aggressive contaminants from site-works (e.g. paint, plaster, mortar…), it is recommended that glazings are installed after all other work on site has been completed. In case this cannot be respected, efficient protection of the glazing, by means of polyethylene film for instance, must be positioned on the glass;
- Minimize, as much as possible, the time of storage on site prior to installation;
- Follow the usual recommendations: store in a dry, well ventilated location, protected from weather conditions, temperature and humidity variations;
- Avoid splashes of concrete, plaster, mortar residues as much as possible. To prevent a chemical attack on the glass, such substances must be removed from the glass immediately. It is recommended that the glass is cleaned as soon as it is installed.
- Glazing and fixing techniques must comply with the relevant national standards. Glazing blocks, frame size and maximum frame deflection for double-glazed units are not specific to DECORGLASS® and MASTERGLASS®.

6.2. Removal of labels and markings

The identification labels on the glass sheets must be removed before or immediately after installation. Do not use a sharp tool for this purpose. Acetone and alcohol are the approved solvents.

6.3. Cleaning and maintenance

Alkaline products may be emitted from concrete, plaster, mortar... Such materials or materials containing fluorine and acids will lead to a staining or matting of the surface. To prevent such an occurrence, all such substances must be removed from the glass immediately. It is recommended that the glazing is cleaned as soon as it is installed.

Cleaning means: washing, rinsing and drying the glass. A mild soap or neutral detergent can be used, and subsequently and immediately rinsing with clear water. Excess water must be removed quickly. Washing tools and towels must be free of abrasive particles. Never use abrasive cleaning products, or compounds likely to generate fluorine salts or hydrofluoric acid.

Grease, oil and materials used for facilitating the installation must be removed. The materials recommended for cleaning are isopropyl alcohol or ethanol. Cleaning with solvents must be immediately followed by standard washing with water and rinsing.

The owner of the building must make sure that glass is regularly and properly maintained. This entails washing the windows, checking and if necessary repairing joints and frames, checking and as necessary unclogging the drain and ventilation holes and detecting any anomaly.

7. DISCLAIMER

SAINT-GOBAIN GLASS has taken every reasonable measure to ensure that the information contained in the present leaflet was exact at the time of its publication.

However, SAINT-GOBAIN GLASS keeps the right to modify or add any information without previous notice. SAINT-GOBAIN GLASS is not liable for the possible lack of information on DECORGLASS® and MASTERGLASS® products that would not be contained in the present document.

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