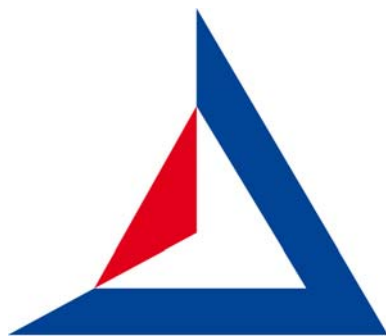


**Technical
Information**

DELODUR® Design

as digital print with
DesignJet



**FLACHGLAS
WERNBERG**

Technical Information DELODUR Design® as digital print with DesignJet
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In general

DELODUR® Design is a toughened safety glass which can be produced either with ceramic screen printing or with digital printing via the DesignJet. By means of a plotter ceramic colours are laid on directly on the glass.

The printable resolution is 360 dpi. The strength of the applied colour and the colour density resulting from it can be varied by the drop number (2 dots per pixel or 4 dots per pixel). At present the colours black and white are available (see also page 4).

Range of glass thickness:	3-19 mm
Maximal dimensions:	2,400 mm x 3,700 mm
Minimal dimensions	200 x 300 mm
Maximal weight of panes	500 kg

A full surface background enamelling is exclusively possible with the colours indicated above.

The glasses are tempered after printing on - as also with the screen printing - and the colour is melted and annealed (email).

For further information of the characteristics of digital printed glasses see "Technical Information TI E 012 – Assessment of the visual quality with DesignJet".

Requirements on the illustrations

Artworks

We would appreciate your artworks to be prepared to its optimum with regard to resolution, colouring and dimensions; otherwise we have to charge you with costs that might arise for additional graphical rework. If a new artwork is necessary, we will discuss it with you before.

File format

All special fonts have to be integrated.

Adobe Photoshop	(MAC/PC)	EPS, TIFF
Adobe Illustrator ¹	(MAC/PC)	AI, EPS (with integrated fonts)
Adobe Freehand ¹	(MAC/PC)	editable EPS

Availability of data

CD / DVD	(MAC/PC)
Http / FTP	upload / download from a server
E-mail	attachment up to 10 MB

¹fonts to be converted

Scaling, picture resolution, file size

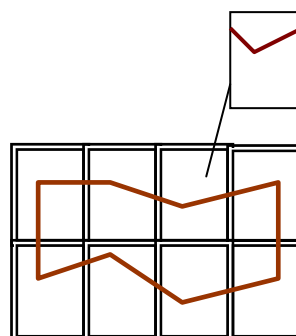
For easier handling the files should ideally be scaled 1:10. However, we also accept other scaling. In general, image files need to have a minimum resolution of 150 dpi - 200 dpi (60-80 pixel/cm) of the final picture. The size of bitmap files should be between 50 to 250 MB. The higher the picture resolution, the better it is.

The design has to be created peripherally 10 mm smaller than the final glass dimension will be.

By creating the images it has to be noticed that the printed points, squares etc. will increase by 0.2 mm.

Large picture screens

Large picture screens are realized by assembling smaller glass panes. Please note the necessary joints between the single glass panes in order to avoid direct contact between them.



Colours

For DELODUR® Design, manufactured as digital printing with ceramic colours, at present only two colours (black and white) are available. In the future in addition it will be possible to print acid etched imitation as well as some other colours (red, blue, green, yellow, grey). Intermediate tones and special colours following colour systems e.g. RAL, Sikkens, NCS, HKS, Pantone **are not possible**.

Using the digital printing process up to 3 different colours can be applied at the same time. By differently thick application of the colour you can produce different acid etched imitation tones. It is **not** possible to produce coloured acid etched imitations.

The final colour and printing quality control has to be done with a glass sample, not via colour charts or electronic media.

The black colour is covering and UV-close ($T_L < 0.1$). Thus the procedure is suitable also as edge printing for covering the double-glazing edge seal.

Gluing which do not need any permission of the building inspection can be applied on the colour – optionally you have to do some adhesive tests before.

Colourfastness

Information concerning the colourfastness can be taken out of the documents of the colour manufacturer, which we put to you when desired gladly at the disposal.

Weathering resistance

For outside applications the digital printing must only be applied to position 2 or within the laminated unit composition.

Weather resistance (outdoor installation) of the digitally printed glass is greatly influenced by environmental conditions. Glass- and glass-enamel surfaces may already become unsightly after few month (loss of brilliance of the colour surface), depending on the rain intensity and the air pollution by aggressive substances, such as SO₂, NO_x and airborne dust. The assessment of the weather-proof characteristics of ceramic glass colours is a complex subject which cannot be answered flatly. The reason for this is the fact, that every ceramic glass system, just as uncoated float glass also, can be more or less vigorously impacted by environmental influences.

The visual assessment of the enamel is generally performed through the glass (colour on pos. 2). For very transparent colours, however, even light scratch-marks, run-off traces of water or soiling may already be visible on the print and/or corrosion traces may be left!

Types of glass

All types of glass which are suitable for screen printing can be printed on digitally. Printing on satin finished glass may create a veil formation at the printing edges because of an easy colour tone.

Permitted characteristics and tolerances

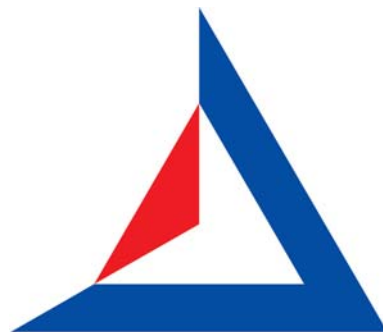
See our Technical Information TI 012 E - Assessment of visual quality of digital printing with DesignJet.

This technical information

superseeds all previous editions

This information provided, particularly suggestions for working and using our products, is based on our knowledge and experience. We cannot accept liability arising from this information provided verbally unless there is intent or gross negligence on our part.

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