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# Laminated safety glass -

especially developed for maritime needs

marine glazing Brombach + Gess GmbH & Co. KG Obere Talstraße 5 72172 Sulz am Neckar Germany

Phone +49 (0) 7454 8704 - 300 +49 (0) 7454 8704 - 314 Fax Email info@brombach-gess.de Web www.brombach-gess.de







# DUROmare

Brombach + Gess, in collaboration with the glass finisher Hero-Glas, has developed and licensed DUROmare laminated safety glass especially for maritime requirements. Laminated safety glass made from DUROmare can withstand higher pressure loads than a monolithic single pane.

As a result, glass thicknesses can be significantly reduced, particularly where high load requirements result in glass thicknesses which are not available as single panes and therefore have to be manufactured as laminated glass.

Inter layer out of polyvinyl butyral (PVP) cannot assign loads lossless from one glass layer to another. Therefore conventional laminated safety glasses have to be stronger dimensioned as the equivalent mono panes.

DUROmare Glass arises through high-grade, thermally toughened single glasses which is consolidated with an Inoplat inter layer to a laminated safety glass. This new laminate can hold the load as a comparable single pane.

### **Characteristics**

This results in beneficial properties for shipyards and shipping companies:

# **WEIGHT**-saving

The thickness of the glass and thus the total weight of a glazing unit can be significantly reduced with DUROmare.

## **MULTI** functional

Solar-filtering and heat protection requirements as well as sophisticated insulation can be factored into the DUROmare glass. In the following example, we compare standard insulating glass with solar-filtering and heat protection properties with type 86 DUROmare.

# **CHARACTERISTICS**

in comparison

DUROmare (proofed by DNV GL)				
Туре		Size (mm)	Weight (kg/m²)	Proof loading (KN)
64		11,52	26,44	15,5
	Reduction	-4,0%	-11,9%	
66		13,52	31,44	24
	Reduction	-9,9%	-16,2%	
86		15,52	36,44	33,4
	Reduction	-18,3%	-23,3%	
126		19,52	46,44	53
	Reduction	-21,9%	-25,7%	

	Tempered safety glass (single pane)				
	Size (mm)	Weight (kg/m²))	Proof loading (KN)		
	12	30	15,5		
d	15	37.5	24		
	19	47,5	33,4		
	25	62,5	53		

compare



DNV-GL
. CERTIFICATE
undernoted products have been approved in accordance with of the DNV GL Approval System.
95 280 - 14 HH
HERO-GLAS Veredelungs GmbH Inductioninal 1 Inductioninal 2 2000 Dessur, GERMANY
Duromare
Various types of laminated glas with a DuPont SentryGlas Interlayer (1.52mm)
Size of samples: 500 x 500 mm Tested laminates: 12/1.82/6; 10/1.82/6; 8/1.52/6; 6/1.52/6; 6/1.52/4
Product description:  Limited (1) and the control of the control o
- Guidelines for the Performance of Type Approvals Chapter 2, Edition 2003 - 150 614
Test reports signed and stamped for each laminate on the 2014-05-22     Program for connection type heater     Production and quality documentation HERO Glas (ESO 5001 certificate)     Specification of the test mechine used (Serial no. 4306)
- apecincation of the test machine uses (sensitive: 4500)
The product is not permitted in areas with specific requirements for fire resistance and where any requirement of the administration may refuse the use.
The product is not permitted in areas with specific requirements for fire resistance and where any requirement of the administration may refuse the
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