

Safffety first.



FEHRMANN
WINDOWS

From the worldwide quality and innovation leader for pressure-tight windows comes an innovative new window that is popular with shipyards, designers and shipowners alike. fff reinforced ship windows are only installed in the vessel's hull once the "hot work" is finished. This eliminates various time-consuming and cost-intensive problems. The fff windows are much stronger and lighter than conventional products. That's why people trust fff windows wherever it matters: On the extremely seaworthy lifeboats of the legendary German Maritime Search & Rescue Service (DGzRS) for instance, which are equipped to cope with heavy weather. On police boats and navy vessels with the maximum safety standards, where no one can risk a mistake. At trials for naval standards (MIL-S-901 & MIL-STD-167) with shock and vibration tests, where the windows were subjected to more than ten times the Earth's gravitational acceleration, they fulfilled all the requirements. fff reinforced ship windows keep freak waves and polar bears out – and the costs down!



ffforward thinking.

+ 600% safffety

The patented fff window system is guaranteed to be up to 600% stronger against failure than ISO 3903 windows. And in the unlikely event that something goes wrong, no screwheads can break off the frame and injure people, for the simple reason that there are no screws.

- 85% upgrade costs

fff is the only system on the market to enable simple replacement or an upgrade of the complete windows while a vessel is in service, without any hot works.

- 70% risk

The fff window system reduces the risks of damage and delays as
-> it is installed without hot work and after all hot works have been completed,
-> it is fitted in a single step (frame and glass), and
-> can be installed flexibly depending on the progress of construction.

- 80% installation

The clamping system developed in-house cuts installation costs by an average of 80% and makes installation considerably easier.

fff Reinforced ship windows



- no welding or drilling
- higher tolerances acceptable on window openings
- large selection of frames and glass
- maximum visibility – thinner window mullions possible
- without black border on the glass
- with or without corner radius

- complies with all relevant rules and regulations
- no screwed joints – no corrosion
- less danger of injury in the event of damage
- manufactured and tested in compliance with ISO 3903
- patented

Building more ffflexibly.



FEHRMANN
WINDOWS

We've always built the best windows in the maritime world, and we've headed the German Industrial Standard's ship-window committee since it was founded over 50 years ago. So it's no surprise that we know how to develop and manufacture high-performance windows that cut costs, avoid risks and save time. For proof, check out this direct comparison:

Cost example fff vs. welded frame:

Comparison of the time taken to fit a 1400 x 1600 mm window with a welded frame versus an fff window of the same size:

	Hourly rate	Minutes	fff Costs	Minutes	welded frame Costs
Fitting					
Without preparation time on board	70.00 €	20	23.33 €	90	105.00 €
After fitting					
Sanding welded joint	70.00 €	0	0.00 €	20	23.33 €
Treating with primer	70.00 €	0	0.00 €	10	11.67 €
Painting	70.00 €	0	0.00 €	10	11.67 €
Total working time / total costs per window		20	23.33 €	130	151.67 €
Total working time / total costs per set of 30 windows		600	700.00 €	3,900	4,550.00 €
Risk of broken glass / damage (assuming 3% of a set of windows)					
Glass price approx.			0.00 €		1,500.00 €
Material overheads approx. 10%			0.00 €		150.00 €
Time needed to remove the old pane of glass on board		0	0.00 €	420	490.00 €
Working time / costs incl. broken glass / damage per set of 30 windows:		600	700.00 €	4,320	6,690.00 €
Hours saved per set of windows:		62			
Cost saving in euros per set of windows			about 6,000.00 €		

Preparation times, alignment of the welding gun and drying times between priming and painting not included.

fffabulous idea.

- The windows are fitted in a single step, thus minimizing the risk of broken glass.
- The frame cannot bend or warp, as there are no hot works involved.
- The fff window has a fairly low weight compared with a welded frame.
- fff windows are made of lightweight aluminum; thanks to the clamp system, they are perfect for fitting into steel bulkheads too.