



FIRE RATED SAFETY WINDOWS

OUR HISTORY

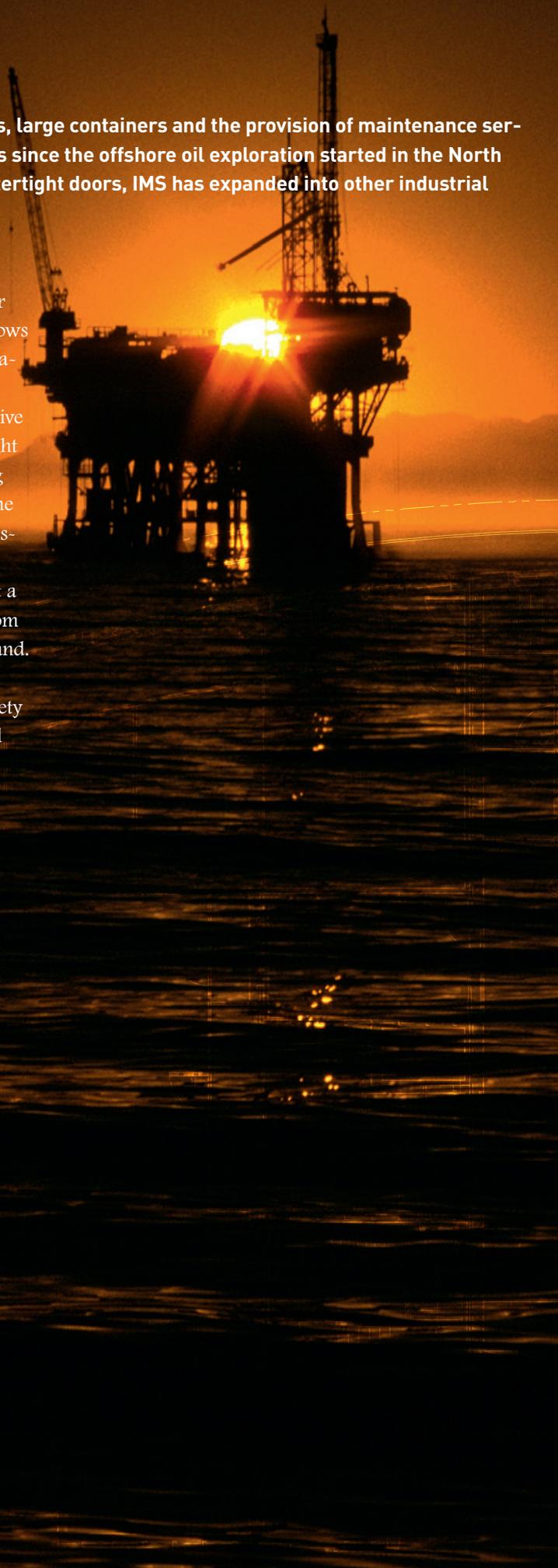
Our company was founded in 1972, specializing in gantries, large containers and the provision of maintenance services to the process industry. IMS has been in the business since the offshore oil exploration started in the North Sea. As a global leading manufacturer and supplier of watertight doors, IMS has expanded into other industrial areas.

Safety Windows and Watertight Doors

When TeamTec transferred the Fire Rated Windows to IMS, our product range became even more complete as Fire Rated Windows from TeamTec was highly recognized in the market as high quality fire-rated windows (A-60, A-0 and H-120) for the marine environment, like IMS Watertight Doors. The company's extensive marine background has enabled IMS to construct both watertight doors and fire rated windows according to the most demanding international standards. IMS Safety Windows provide state of the art products as required exceptional protection against fire, pressure, heat and noise.

The origin is back to the sixties and seventies with Golar, and at a time both the fire rated windows and the water-tights doors from IMS, was manufactured at the same place by Golar in Tvedestrand.

Today the IMS Group consist of IMS Watertight Doors, IMS Safety Windows, IMS Automation, IMS Laser, IMS Machining, IMS Oil Recovery and IMS Lifecycle Service.



SAFETY IS NOT NEGOTIABLE

The ships and offshore rigs of today are amazing constructions which float despite enormous weight and size.

At IMS, we assure our customers that IMS safety products are reliable. Our products are certified by all leading classification societies recognized by leading international ship yards and offshore operators and can comply with regulations such as IMO, ISO, NORSOK etc.

IMS is one of the leading manufacturers specializing in fire rated windows (A-60, A-0 and H-120) for the marine environment. Our Highly Automated production process, in-house fire testing facility and staff makes us the manufacturer of the future, a supplier to rely on and superior quality.

IMS Safety Windows are approved and certified according to IMO standards and undergo strict quality control procedures resulting in high quality with reliable performance and therefore meet all requirements.

Rules and Regulations

- The complete window units shall have the same fire rating as the walls, in which they are installed
- The windows shall have relevant type approval acc. to IMO res. A754 (18) based upon fire test against the high risk side – external side
- The total window assembly in external walls shall provide a minimum sound reduction index $r_w = 45\text{dB}$ in general, and $r_w = 53\text{dB}$ in living quarters according to ISO 717/1 (1982) and ISO 140
- The windows shall have the same blast pressure resistance as the adjoining wall, specified as a static design pressure in bar
- The U-value (heat transmittance) for windows shall not exceed $1.5 \text{ w/m}^2 \text{ }^\circ\text{C}$ windows shall be fitted with blackout blinds as required by the project, in cabins, offices or other areas

Norsok requirements for Fire Rated Windows

- The windows shall have relevant type approval acc. to IMO res. A754 (18) based upon fire test against the high risk side (passenger ships – inside; tankers – outside)
- A-60 windows are listed under MEd directive 96/98 EC. For delivery to EU-countries certificates acc. to module B and D, E or F is a requirement
- The windows shall have toughened safety glass dimensioned as per ISO 3254 and ISO 1095 for side scuttles
- The windows shall have mechanical strength as required by ISO 3903 and ISO 1751 for side scuttles
- A-60 windows where the mechanical strength is relying on spacers between the different layers of glass, is not acceptable
- A-60 windows shall be efficiently protected against Uv-rays by Uv-stop film
- For Offshore supply vessels with FiFi class see spec. under A-0 window

Norsok requirements for Wheelhouse Windows

- Framing between navigation bridge windows shall be kept to a minimum and not be installed immediately forward of any workstation
- To help avoid reflections, the bridge front windows shall be inclined from the vertical plane top out, at an angle of not less than 10° and not more than 25°
- Polarized and tinted windows shall not be fitted
- At all times regardless of weather conditions, at least two of the navigation bridge front windows shall provide a clear view
- The windows shall have toughened safety glass dimensioned as per ISO 3254.
- The tolerance on flatness for bridge windows shall not exceed $2\text{mm}/1000\text{mm}$ for standard glass and $3\text{mm}/1000\text{mm}$ for heated glass
- The windows shall have mechanical strength as required by ISO 3903
- There is no allowance for optical distortion



FIRE RATED WINDOWS

As a leading manufacturer specializing in Fire Rated Windows (A-0, A-60 and H-120) for the marine and offshore environment, IMS Safety Windows provide required exceptional protection against fire, pressure, heat and noise. IMS has a high technology production facility that gives IMS the cutting edge in production. The production line for Safety Windows ensure great advantages for both shipyards and owner / operator:

IMS fire-rated marine windows are available in fire classes A-0, A-60 and H-120. They withstand fire, water pressure and explosions, and are gas and water tight with a range of sound-reduction values that satisfy NORSOK requirements.

Benefits:

- Exceptional results for fire resistance, sound reduction and opacity tests
- Quick and easy installation
- Flexible installation solutions
- Rugged construction
- Wide range of options
- Simple change of glass
- Easy to upgrade
- Lightweight
- Competitive delivery time
- Quality throughout
- Industry approved
- Good overall economy

Advantages for the shipyard

- Labour saving installation
- Quick installation
- Short delivery time – including replacement glass
- Competitive prices
- Engineering support

Advantages for the owner / operator

- Effective protection against UV-rays (glass stays clear)
- Superior mechanical strength against green water load (no load on spacers)
- Easy replacement from “cabin side” (bolted construction)
- Superior optical quality
- Higher efficiency of the HVAC system due to double glazing

IMS Safety Windows are used on:

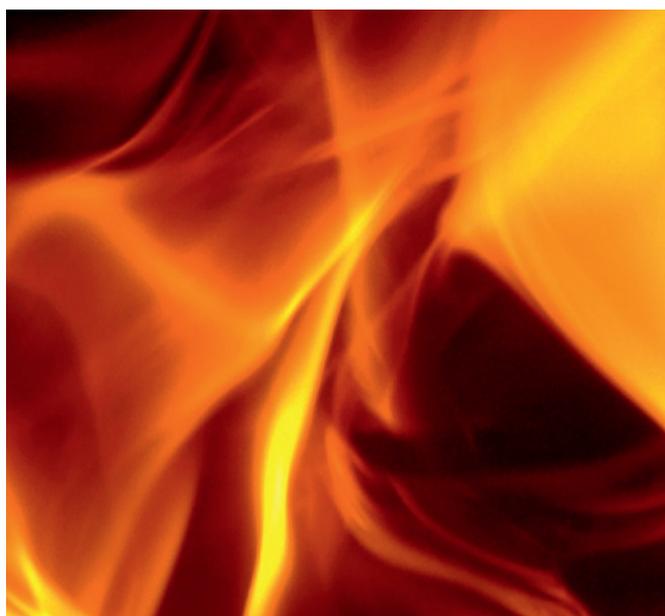
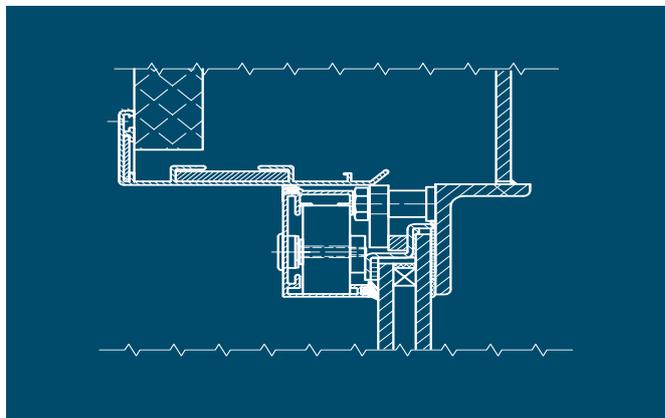
- Tankers
- Passenger ships, ferries and flotels
- Floating production units
- Offshore Accomodation and technical modules
- Drilling rigs
- Offshore supply ships with fire-fighting capability
- Blast walls



FIRE RATED WINDOWS — A-0

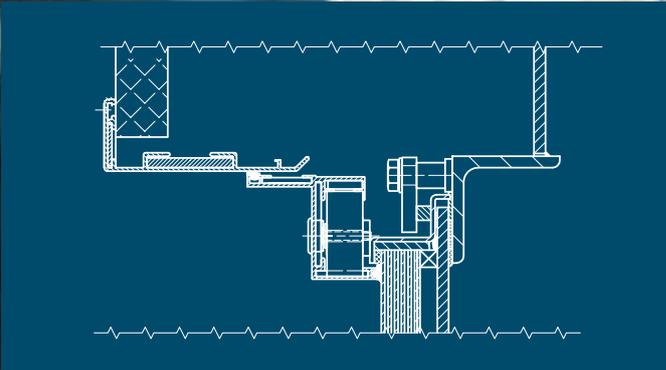
DNV requires all new supply ships with Fi-Fi class to be equipped with A-0 windows.

This requirement includes the wheelhouse as well as cabins. In order to meet the general requirements of fire-protection for vessels, the fire-test shall be conducted from the external side (high risk side). Some of the windows fitted on Offshore supply ships are approx. two meters high. The windows in front are angled outwards 10-25 degrees and the optical requirements are challenging. Furthermore the windows shall have sufficient strength to withstand the impact of green sea.



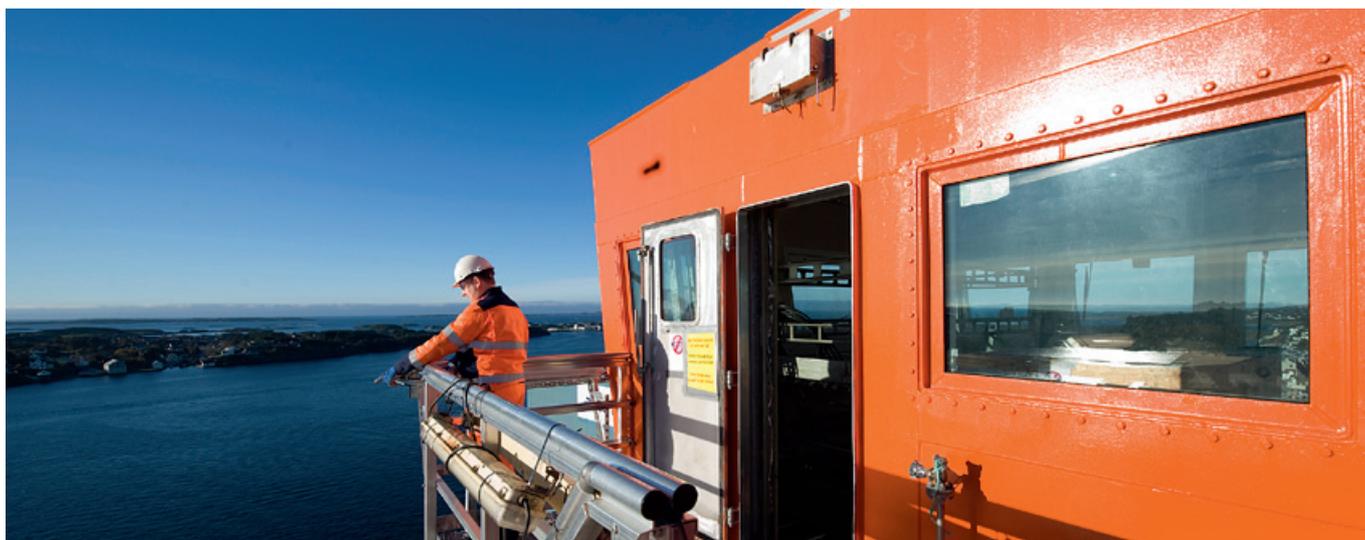
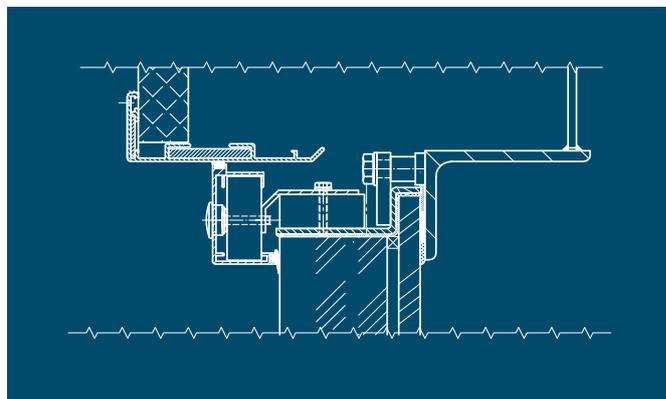
FIRE RATED WINDOWS — A-60

According to SOLAS requirements exterior boundaries of superstructures and deckhouses enclosing accommodations on tank ships facing the cargo area are to be insulated to A-60 standard, and also for the side portion of the boundaries 3 m back from the front boundary.



FIRE RATED WINDOWS — H-120

H-120 bulkheads are required on offshore installations between production and accommodation areas, while some FPSO and drill ships have requirements for H-60 bulkheads. IMS certified H-120 windows consist of a toughened pressure glass and a 78 mm fire barrier consisting of layers of float glass and tumescent laminate and can safely be installed in H-60 / H-120 bulkheads. Due to the superior optical quality IMS H-120 windows are considered first choice for wheelhouse applications.





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