



Transparent

Lift as a Working *Exhibit*

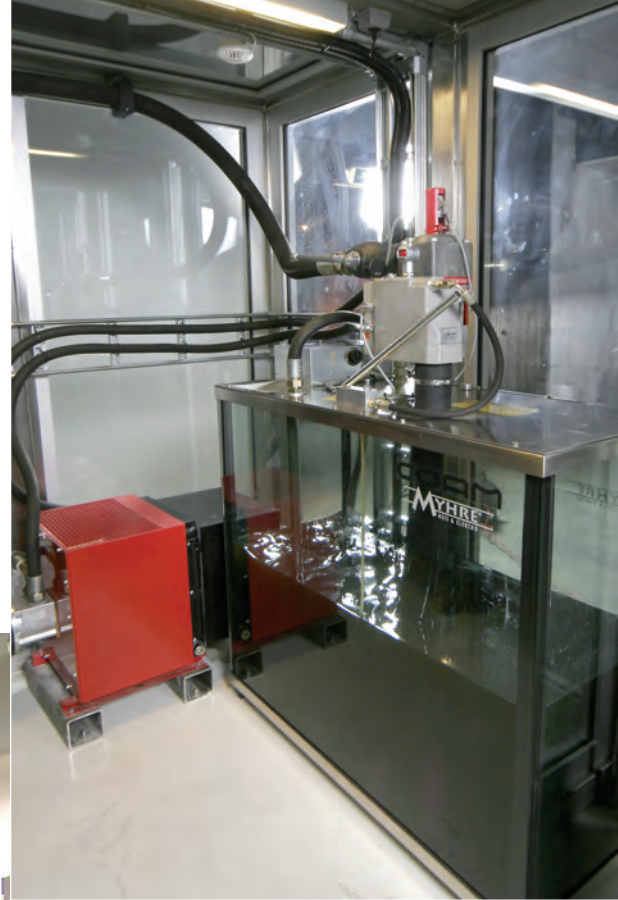
by John Gale, EW Correspondent

Project Spotlight

Readers of ELEVATOR WORLD and aficionados of lift technology have surely seen examples of panoramic traction lifts where the machine room has also been exposed and open to view. However, it is quite unusual to see a hydraulic example, but at the Norwegian Museum of Science and Technology, visitors can view such an installation and be fascinated by an engineering and visual masterpiece.

While the lift serves to provide access between the museum's three exhibition floors, the museum also envisioned the lift itself as a key part of its exhibition since the project's inception. The design team considered the visitors to the museum through all stages of the project, for they had to see the installation both as a means of transportation and as a working exhibit.

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Top: This is an internal view of the machine room and glass oil tank. Some readers might miss the coffee and oil stains that are parts of most machine rooms. We are sure that polishing a glazed oil tank is not a normal part of a service contract.

Left: The panoramic car under construction

Opposite page: View from middle level with car at the top floor





Transparent *Lift*

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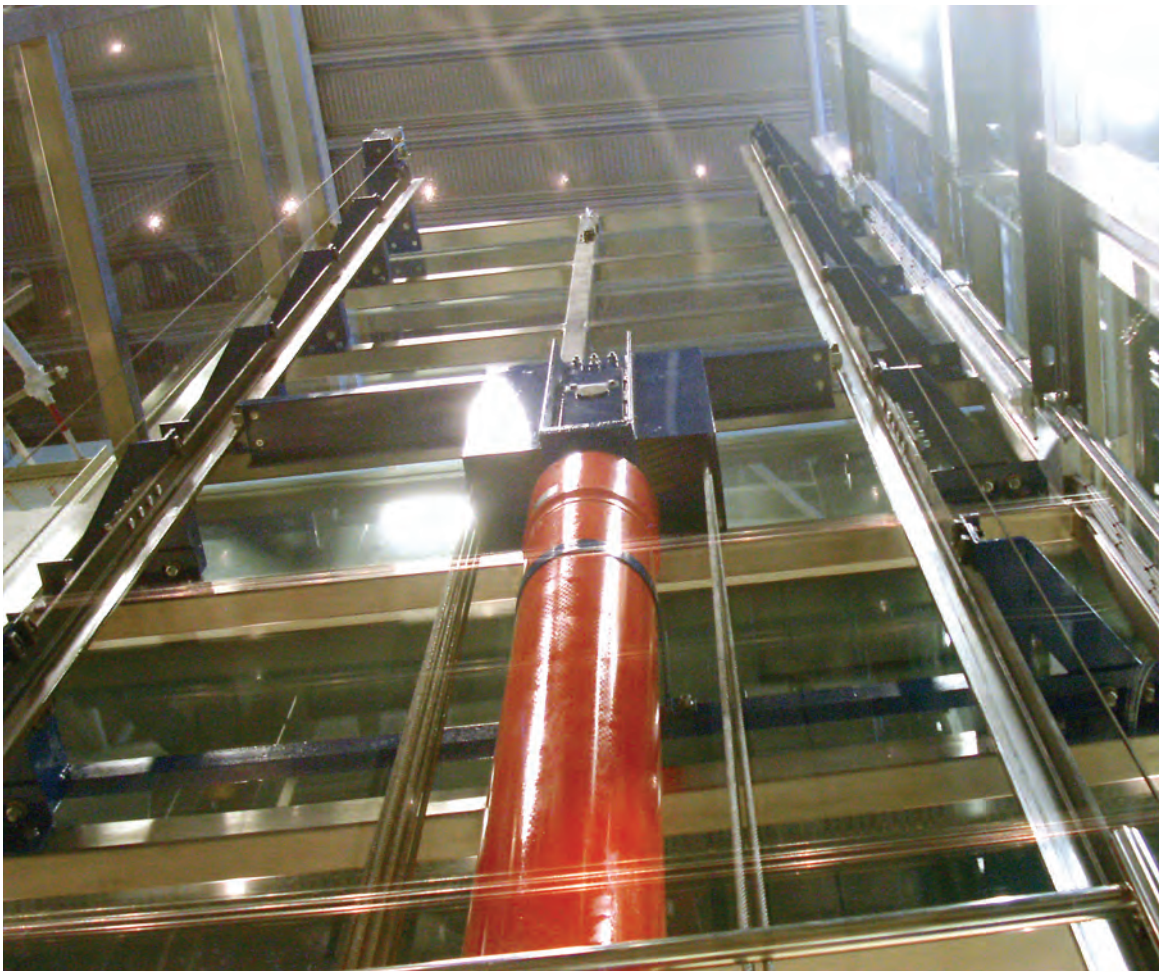
Project Manager Morten B. Taraldsen commented on the project:

Thanks to the museum, what started as an inquiry for a standard lift soon extended to become a very special project. During the planning of the project, we [searched] for designs and materials to display as much of the technology as possible – not only for the mechanical parts in the shaft and machine room, but also the hydraulics, doors and control system. The project has challenged our creative minds to find the best solutions together with our suppliers.

The result of the collaboration is a very dynamic object in the museum that visually highlights the workings of the hydraulic lift. Particularly exciting is the machine room, which

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Left: Hydraulic ram and guide rails in shaft

Opposite page top: The car-operating panel is also transparent.

Opposite page bottom: Top-of-car equipment, including car door operators

System Highlights

- ◆ The shaft is a stainless-steel frame with glass inserts.
- ◆ All mechanical parts in the shaft (including struts, brackets, piston, pulley and car frame) are painted in different colors to help the visitors explore the different components of the lift, piston, ropes and pulley.
- ◆ The machine room is encased in fireproof glass and constructed of steel (with an additional Argonite™ fire-suppression system) to show the interaction between the controller/power supply, hydraulic pump/valve, hydraulic tank/oil-level, oil cooling system and hoses from machine room to the shaft.
- ◆ The hydraulic tank is made of glass in the form of an aquarium to show the oil moving in and out of the tank during the movement of the lift.
- ◆ The controller-cabinet has glass doors to show the electrical parts and controller systems.
- ◆ The car-station and landing-station panels are all made of glass to visually expose the push buttons, wiring, floor indicators and emergency alarm system.
- ◆ All doors are glass to show the interaction between the car and landing doors.
- ◆ The cabin is made with glass walls and a partially glass roof so that the lift parts are exposed during travel.

Lift Specifications

Capacity:	2700 kilograms 36 persons
Speed:	0.6 mps
Stops:	3
Services:	3
Travel:	7.2 meters
Car guides:	T127 X 89 X 16
Ropes:	7 X 13 millimeters
Cylinder:	1 indirect lateral: Ø210 X 12, 3.9 meters long
Hydraulic unit:	47 kW, 217A, 230V, 610 l/min
Doors:	1.2 X 2 meters
Cabin:	2 meters wide, 2.5 meters deep, 2.2 meters high

Transparent Lift

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shares the glazing of the rest of the system and sits on the middle floor with as much of its equipment open to view as possible. When the lift is used, visitors can see the sequencing and operation of all the components.

Another interesting element to this project is that the museum staff offers schools a special guided tour that focuses on the lift as a core exhibit. The theme of the tour is design, function and how interaction between different companies and manufacturers affect an engineering project. This interplay between the clients' vision, individual professional specialties and core manufacturing skills is a very important educational exercise. This lift project is just the right size and complicity to clearly demonstrate to the students the working partnerships that are needed to realize a design project in today's technological age.

Acknowledgements

In closing, your author and EW would like to thank all the elevator professionals who have contributed to the article – in particular, Anna De Lio and Morten B. Taraldsen, who brought the installation to our attention. It is always interesting to see such elevator projects that promote and inform the general public about our industry's products.



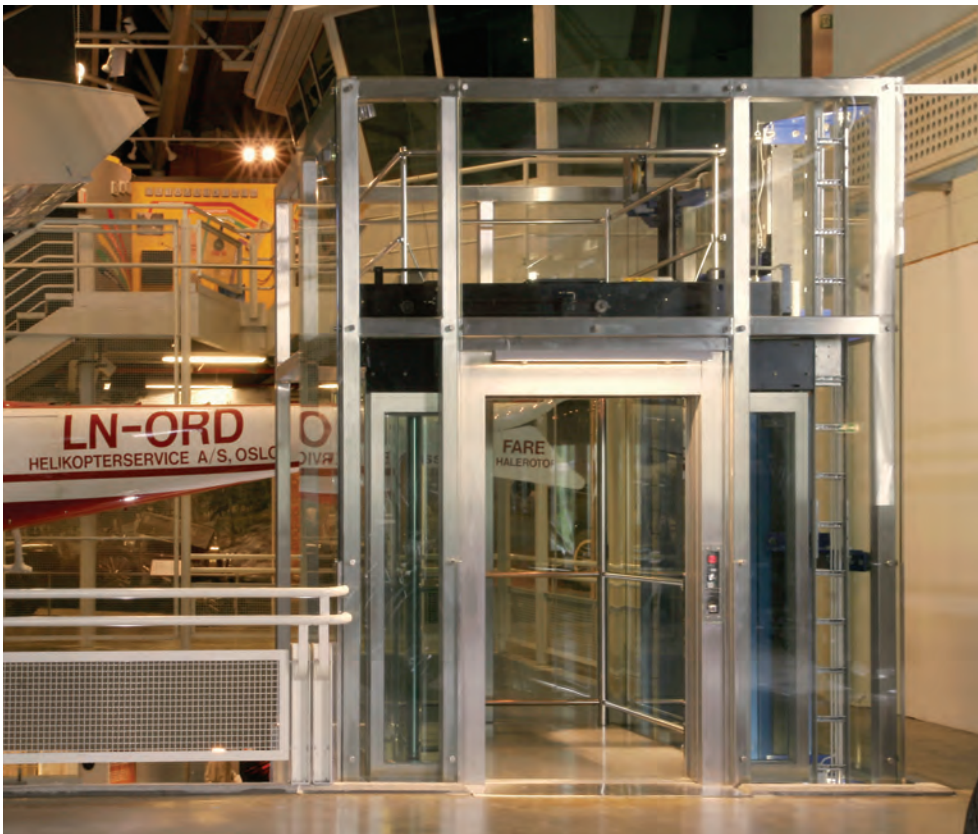
Top: Interior view of the car roof

Right: Hydraulic ram as seen through the lift car

Opposite page top: A bird's-eye view of the installation in the museum atrium

Opposite page bottom: Lift at top level with doors open





Credits

- ◆ Myhre Heis & Elektro AS (Oslo, Norway) – installation/project management
- ◆ Sideron s.r.l. (Milano, Italy) – cabin, brackets, car-frame and struts manufacturer, and supplier of all hydraulic components, ropes, doors and guides
- ◆ Bucher Hydraulics (Switzerland) – valve manufacturer
- ◆ C.O.A.M. SpA (Venezia, Italy) – cylinder, rupture-valve and hydraulic-tank manufacturer
- ◆ Kinds Elteknik AB (Sweden) – manufacturer of controller, car and landing panels 🌐