



4th Quarter

ELEVATEafrica

The voice of the elevator industry in Africa

December 2022



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22•23•24

August 2023

6

Lift mods
Wittur
leads
the way

12

CX Day
Schindler
honours
customers
and
employees

32

Fireman's
v
Firefighter's
Which
lift
is it?

Different targets for lift modernisation and service

Keeping a growing installed lift base in perfect working order is the main occupation of many lift companies. This is evident if we consider more mature markets, such as Europe and the US, but in other markets, such as China, the increasing number of installed lifts with more than 15 years of operation is creating the prerequisites for extended lift modernisation activities

By Carlo Ferrari, Wittur Corporate Marketing Communication

According to the latest data published in 2022 by the European Elevator Association, 30 000 new lifts were installed in 2021 in Africa. We can estimate that around 220 000 elevators were installed in the last 15 years, while the total installed base can be estimated at 350 000 units. This gives us a total of about 130 000 installed lifts with more than 15 years of operation, which are the target for modernisation activities.

Lift modernisation is not only driven by the age of the lift; there are many other reasons to modernise, as can be seen in Table 1.

| Targets for modernisation | Components to be modernised |
|--|--|
| New aesthetics | Visible parts: landing and car doors, sill group, internal car walls |
| Improved performance | New car door operator Replacing the geared drive with a gearless drive |
| Reduced energy consumption | New car door operator with "0-watt stand-by" Replacing the geared drive with a gearless drive + inverter package New control board |
| Increased reliability | New landing door mechanisms New car door operator |
| Increased security level | New landing doors certified according to EN81-58 UCM solution installation Installation of components according to EN 81-77 |
| Increased user-friendliness | New control board with new indicators and push-buttons |
| Better accessibility | Replacement of swing doors with automatic doors, components according to EN81-82 |
| Better operations in difficult environmental conditions (humidity, heat, salt) | New car door operator with special components New landing door mechanisms with special components |
| Better service at reduced costs | Installation of smart components for remote monitoring and maintenance planning (predictive maintenance) |

Table 1: Components to be modernised according to customer targets

Modernisation targets: Global vs local

Some of the targets for modernisation have a global appeal. New appearance, improved performance, increased reliability and security, user-friendliness and better accessibility are important, no matter where in the world the lift is installed.

Some other modernisation targets became very important in specific world areas due to local conditions. For example, any modernisation to reduce energy costs was important to fight global warming and aim for a more sustainable infrastructure all over the world; and recently, the Ukraine crisis and the steep rise in energy prices all over Europe made it extremely relevant in that area.

There are two targets for modernisation that are particularly appropriate for lifts installed in Africa. The first one is the modernisation of lift components to achieve better operations in difficult environment conditions (humidity, heat, salt). Coastal cities in Africa are usually



HYDRA

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WSG-29

Mid- and High-rise applications. brakes monitored for wear customized groove profiles frame, diverter pulley available double-wrap possible.



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Expert technicians from Wittur help you select the best mod solutions for your needs, powered by Wittur automatic doors, gearless drives, safety gears and cars. Ask for advice: info.es@wittur.com

In many cases, lift modernisation means replacing a specific component of the elevator. Typically, these activities focus on the components that add the most value to the lift

An example of a complete Wittur Electrical Modernisation package, with door operator, gearless drive and inverter.



exposed to both high temperatures and humidity, as well as salty mist coming in from the sea. This can reduce operational reliability of elevators quite considerably if proper and timely maintenance is not performed.

The second modernisation target that might become important for the African market is the installation of smart components for remote monitoring and maintenance planning. This would help installation companies to use their service potential in an efficient way, by planning maintenance interventions to hard-to-reach elevators based on real data.

From single component modernisation to modernisation packages

In many cases, lift modernisation means replacing a specific component of the elevator. Typically, these activities focus on the components that add the most value to the lift. The main candidates are the car door operator, the geared or gearless drive, internal car walls and other aesthetic components (landing door panels, mirror, car ceiling and lighting). Such replacements are normally carried out as a result of component failure, integration of updated functionalities into existing systems, improvement of lift accessibility (a typical example is the replacement of landing swing doors with automatic landing doors or the replacement of a manual car door with an automatic car door), or user requests for an aesthetic improvement of the visible components of the system.

To simplify this activity, component manufacturers have developed specific products for modernisation, featuring:

1. Compact dimensions to facilitate installation in existing lifts with limited space;
2. Easy interfacing with existing components (e.g. elements for connecting the new automatic car door with existing swing landing doors);
3. Availability of solutions designed specifically for replacement of an original component, including interface elements, custom fixing solutions and complete installation instructions. These solutions drastically reduce on-site adaptations to the existing elevator and any related masonry work, reducing complexity and installation time.

The limitations of this approach to modernisation lie in the fact that user satisfaction is often linked to multiple factors. Modernising an elevator with a latest-generation car door operator brings tangible benefits. However, the end-user perception can be frustrated by the presence of floor swing doors, which limit accessibility in any case, by old-style indicators that are difficult to read, or by an outdated car appearance.

For this reason, a large part of the modernisation works on elevators is moving towards the adoption of multi-component modernisation packages. These packages, although requiring a slightly more extensive downtime, make it possible to greatly increase the performance of the modernised elevator in terms of operation, safety level, compliance with new regulations that have come into effect in the meantime, energy efficiency, level of accessibility, and user experience and satisfaction.

Some examples are the replacement of the control board and all the indicators and push-buttons, which improve the operating



experience; or the replacement of the geared drive with a latest-generation gearless drive controlled by an inverter, which significantly reduces the energy consumption of the system. This level also includes aesthetic interventions such as replacing or cladding the internal walls of the car or the renovation of landing doors.

Let's have a look at some of Wittur's modernisation products that achieve different customer modernisation targets.

Reducing energy consumption, and improving performance and ride comfort: Drive modernisation

Lift drives account for the majority of energy consumption of a lift, so replacing old drives with latest generation gearless drives offers many benefits:

1. Energy consumption reduction (in some cases 20% or more);
2. Improved performance – the latest-generation drives can offer higher speed or increased weightlifting capabilities;
3. Increased ride comfort – the latest-generation drives with an inverter offer significantly better handling of acceleration and deceleration, and reduced operating noise.

Wittur designs and manufactures a complete range of gearless drives at the Wittur Electric Drives factory in Dresden, Germany. Wittur gearless motors for machine-room-less applications (series WSG) offer compact, powerful and energy-efficient design, and are available for different applications, including belts and coated ropes, with a wide range of options.

For modernisation projects, Wittur can also integrate third-party gearbox solutions, and refine the project by providing bed plates, deflection pulleys, and other ancillary equipment for a perfect fit.

Wittur also provides high-performance drives for intensive-use lifts, healthcare lifts, and mid- and high-rise applications that can substitute old, power-hungry lift drives. Also in this case, bedplates with adaptable pulley positions and a wide range of options for voltage, speed, torque, measuring system and traction sheave parameters make it possible to install the new drive with minimum on-site adaptations required.

In the most extreme cases where the machine room has a difficult access or where space is very limited, Wittur has developed a special execution, in which the gearless drive housing can be disassembled and reassembled on site. Thanks to this patented split housing, narrow access doors are no longer a problem.

The latest-generation gearless drives from Wittur are more energy-efficient and take up much less space than older-generation ones (which can be seen in the background of this machine room during its modernization project.

WGG-29 with patented split housing can be used for lift drives modernisation in very limited spaces.



Better accessibility in reduced spaces: Swing doors replacement with Wittur Fineline doors

FINELINE® landing doors feature an extremely compact footprint, and have been designed to insert an automatic car door and an automatic landing door in a minimal sill depth. FINELINE® advantages are very relevant in a modernisation project for existing lifts: when modernising an old lift with manual swing doors, space is usually at a premium, and fitting automatic car and landing doors means extensive works to the car or to the shaft to accommodate the new doors. FINELINE® offers a very compact footprint: car door + sill gap + landing door = 115mm only. In the space where previously only an automatic car door could be installed, it is now possible to install an automatic car door and automatic landing doors for best accessibility.



Above: Due to its reduced sill thickness, a Wittur FINELINE® door is the ideal solution to modernise old manual lift doors.

Below: Wittur Pegasus high-performance doors installed in the high-rise lifts at Tower 42 skyscraper in London.

Increased reliability in difficult environments and public spaces: Wittur Pegasus doors

Pegasus is a multifunctional elevator door capable of withstanding heavy traffic in hotels, public buildings, hospitals and shopping centres. Pegasus comes equipped with reinforced structure, large diameter rollers and special panel fixing bolts to account for smooth operation and high reliability in heavy traffic lift installations

Wittur Pegasus range of landing and car door types is also available with full compliance to the vandal-resistant certification category 2, according to the EN81-71 European standard. This execution not only surpasses the requirements of EN81-1/2 A3 for vandal-resistant lifts but also offers full compliance, including landing door lock vandal-resistant EN81-71 execution and special design to protect the operating area from acts of vandalism. The major applications for EN81-71-compliant lift doors include installations in scarcely attended public areas, social housing projects, and high-traffic installations in commercial centres and sport facilities.

By substituting a standard door with a Pegasus vandal-resistant execution, door reliability in difficult environments is maximised, and maintenance and service costs are greatly reduced.

Spare parts kits: The most efficient way to maintain a lift

To maintain the efficiency of a lift, timely maintenance is crucial. To optimise maintenance activities, many manufacturers have created specific packages of spare parts for each product type, which include several wear-and-tear components.

This activity is similar to the maintenance interventions on existing lifts, with the replacement of some worn or malfunctioning components. However, replacing a series of components specified by the manufacturer at defined intervals and within a single operation offers some advantages to both the lift company and the end users of the elevator:

1. The interventions are planned in the periods and times of least use of the system, and cause the least disturbance to users;



Above: Lifts equipped with Wittur doors at Fourways Mall in Johannesburg.

Below: Spare parts kits for specific products and executions simplify maintenance interventions to Wittur doors.

2. The lift company does not incur any additional costs because of urgency of out-of-service installations – it can obtain supplies of components in due time and modulate the workloads of its technical intervention teams in a suitable manner;
3. The complete replacement of all the worn components, for example in the case of elevator doors, allows the correct restoration of the initial level of functionality, and prevents subsequent interventions on the components not replaced, which in a short time can reach the end of their operating cycle, causing the system to stop.

Make sure to check the available Wittur maintenance packages for the most common doors, including Hydra, Pegasus and FINELINE®.

Service is essential

To get the most out of these modernisation packages, it is important to rely on partners who provide an adequate level of support throughout the modernization process. In addition to providing the components and packages, the best manufacturers offer:

1. On-site inspection and measurement services of the lift to be modernised, to properly check the situation and identify any specific issues;
2. Engineering services, to find the most appropriate technical solution for each elevator to be modernised, complete with all the necessary accessories and adaptations;
3. Logistics services, which allow the procurement in a short time of all necessary components;
4. Training services, to facilitate the activities of lift installation technicians, and transfer the best practices of modernisation;
5. After-sales services, to quickly solve any problems on site.

These services are essential to be able to perform a modernisation activity within predetermined times and costs, and to obtain the maximum satisfaction of the final users.

Moreover, checking the correctness of the installation and monitoring in real time the status of components of each elevator after commissioning are becoming the key to optimised maintenance, based on predictive algorithms. Wittur is developing – and will soon release – a digital platform called ElevatorSense, which provides an array of innovative, easy-to-use, powerful cloud-based solutions to support customers during installation and service operations in the field. This is extremely important for installation in places that are difficult to reach or far away from lift company's premises.

Wittur's extensive sales and after-sales network covers Africa from its offices in Meadowdale, South Africa.



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