

G2 - POWER⁺

Geared to gearless modernization



Geared elevators: yesterday's technology

For many years, geared elevators were the industry standard. But today, they're nearly obsolete. With their older design and many moving parts, geared elevators present many challenges to building owners and managers.

Old challenges

Machine-gear technology

- Old-fashioned relay logic controller and hundreds of moving parts
- Worm and ring gear housing leaks oil and elevates energy costs; degrades ride performance with vibration
- Only 65 – 70 percent of energy supplied is harnessed; the loss in energy creates heat, increasing air conditioning costs
- Carbon brushes create dust that contains pollutants and require frequent replacement
- Requires petroleum-based lubricant
- Can lead to frequent shutdowns and may require increased service calls

Relay logic controller

- Obsolete technology
- Hundreds of moving parts often need replacement
- Electromechanical relays produce heat
- Unreliable elevators aggravate passengers and building owners
- Large environmental footprint
- Leveling and positioning controlled by mechanical means, which allows for alignment issues
- Can lead to frequent shutdowns and may require increased service calls

Motor generator

- Carbon brushes create dust that contains pollutants and require frequent replacement
- High heat and British thermal unit (BTU) output increase air conditioning needs
- Energy is wasted even when the elevator is idle
- Can lead to frequent shutdowns and may require increased service calls

Geared machine

Controller

1. Selector: mechanical position and leveling system
2. Relay logic controller

Machine-gear technology

3. Worm and ring gear housing
4. Drive sheave
5. Drum brake
6. Direct current (DC) motor with carbon brushes
7. Deflector sheave

Generator

9. Motor generator set with carbon brushes



Gearless elevators: today's innovations

While geared elevators were an acceptable option for decades, today's gearless technology provides maximum efficiency and many additional benefits. Modernizing with an upgrade to a gearless arrangement — with the latest in digital controls, advanced dispatching

and an efficient AC-drive system — can be done with minimal disruption to your building's traffic flow. And this advanced technology will lower your energy costs, increase your property value and provide improved sustainability.

New benefits

Machine-gearless technology

- Advanced TAC microprocessor controller with diagnostic capabilities
- Permanent magnet AC motor only runs when elevator is in use and significantly reduces energy consumption
- Cleaner system; eliminates carbon dust
- Petroleum-free machine room
- Reduces heat, requiring less air conditioning in machine room
- Direct drive technology maximizes energy efficiency
- Smooth ride with minimal vertical vibrations
- Better control and floor leveling
- Dual brake system provides additional safety features

Controller: TAC series

- Advanced technology, including micro-processor controllers, increases reliability
- Adjusts to high-traffic-demand buildings via technology that comprehends changes in patterns
- Self-diagnostics reduce downtime
- Quicker floor-to-floor times
- Load weigher technology eliminates stops when elevator is fully loaded
- MAX predictive maintenance technology reduces downtime via real-time diagnostics

Sustainable regenerative drives

- Replaces motor generator
- Harnesses unused energy captured for reuse in the building
- Reduces heat, requiring less air conditioning
- Consistent performance
- Less space required
- Smaller environmental footprint

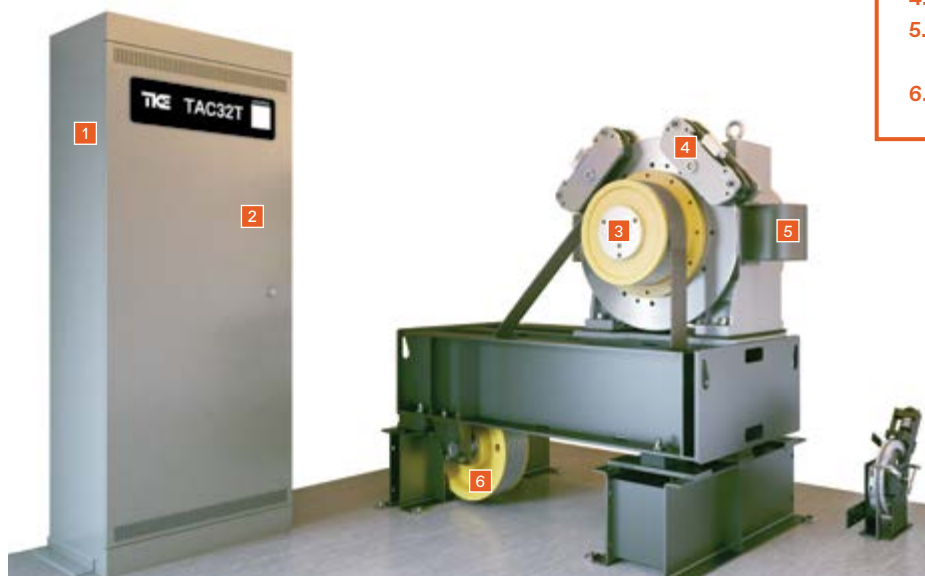
Gearless machine

Controller

1. Controller: TAC Series, Microprocessor
2. Sustainable regenerative drive (Inside controller cabinet)

Machine-gearless technology

3. Drive sheave
4. Dual brake system
5. Direct-drive permanent magnet alternating current (AC) motor
6. Deflector sheaves



Modernization provides extensive benefits.

After a G-Power+ modernization, your elevator passengers will experience a smoother and safer ride. This is achieved by installing the following components:

Upgraded components

You'll have the latest elevator technology and top-quality components, such as:

- Dual brake system — prevents unintended motion; no additional equipment required
- Elevator cab door interlock — ensures doors stay closed from inside of elevator
- Door reversal electronic safety edge — prevents car door from making contact with passengers

Enhanced ride quality

Up to 42 percent improvement in ride quality provides is achieved, which includes:

- Reduced vibration — due to elimination of the worm and ring gear by using a gearless machine. Vibration is reduced due to new roller guides on the car and isolation pads on the machine bedplate
- Better control and floor leveling — due to controller's SIL 3-rated absolute positioning technology
- Noise reduction — due to an upgraded linear door operator

Powerful energy savings

When you go gearless, you'll use less energy – and even reclaim unused energy. Plus, there are less moving parts and less heat generated. Overall, gearless technology provides a minimum of 35 percent savings on energy while reducing the need for cooling.

- Regenerative drive — reclaims unused energy created by the elevator and feeds back into the building's power grid (optional)
- New drive — produces less heat, reducing need for air conditioning
- Elevator cab LED lighting with optional motion sensor — turns off lights and fans when the elevator is not in use



Why modernize?

- Increased building value
- Lower long-term maintenance costs
- Regenerative drive actually creates usable energy
- Noise reduction
- Permanent magnet drive motor saves space and energy
- High energy rating
- Smoother ride
- Cleaner machine rooms

Improved passenger experiences.

From new buttons and indicators to smoother door operation, passengers will instantly notice you've modernized. Our comprehensive selection of fixtures, included with your modernization, is easy to install and safe for walls. All fixtures are in full compliance with U.S. and Canadian National Fire Service Codes.



Horizontal hall lantern

Hall lanterns

A light fixture mounted in the hallway that provides visual and audible indication that a car is about to arrive and the direction of travel when it leaves.



Intermediate hall station with fire services devices

Hall stations and position indicators



Combination hall and position indicator

A sleek hall and position indicator combination that can be mounted in your hallway or lobby.

- Informs passengers that a car is about to arrive
- Indicates the direction of travel when it leaves and the relative position of the car in the hoistway

Typically, hall stations includes the fire service switch and signage in the main hall station.



Universal door operator

Linear door operator with permanent magnet drive motor for quick, smooth and quiet elevator door operation.



Car operating panel

Car operating panels

Choose from a variety of attractive panel options that contain buttons and key switches necessary for operation.

Mounted inside the car, the car operating panel (COP) includes:

- Call register (floor) pushbuttons
- Door open and door close
- Alarm
- Emergency stop
- Any other buttons or keyswitches required for operation

Button types

We offer a wide variety of pushbutton styles to coordinate with your building's décor. Each metal button is available in brushed or polished muntz and stainless steel. These have brilliant LED illumination for extended life span. LED illumination is available in blue, white, red or green. Vandal-resistant options available.



Traditional and vandal-resistant (illuminating jewel and halo style)

ENHANCE EFFICIENCY. REDUCE TRAFFIC.

AGILE enhances elevators and buildings.

Upgrade your elevators — and your building — by adding AGILE. It combines technologies that give passengers more efficient elevator experiences and reduce building traffic.

AGILE kiosks can display traditional up-and-down mode or floor buttons. Displaying floor buttons indicates the elevators are in Estimated Time to Dispatch (ETD) mode. This intelligent dispatching mode analyzes passenger destination information and groups the riders with similar destinations. This grouping leads to less crowding, fewer stops and more efficient elevator usage.

Optimize your elevator performance and adapt to tenant demands with management center software. Survey traffic, disable and enable operation, view status and control access to certain floors at specified times. You can also generate summaries displaying a range of elevator performance statistics and use this data to make smarter decisions.

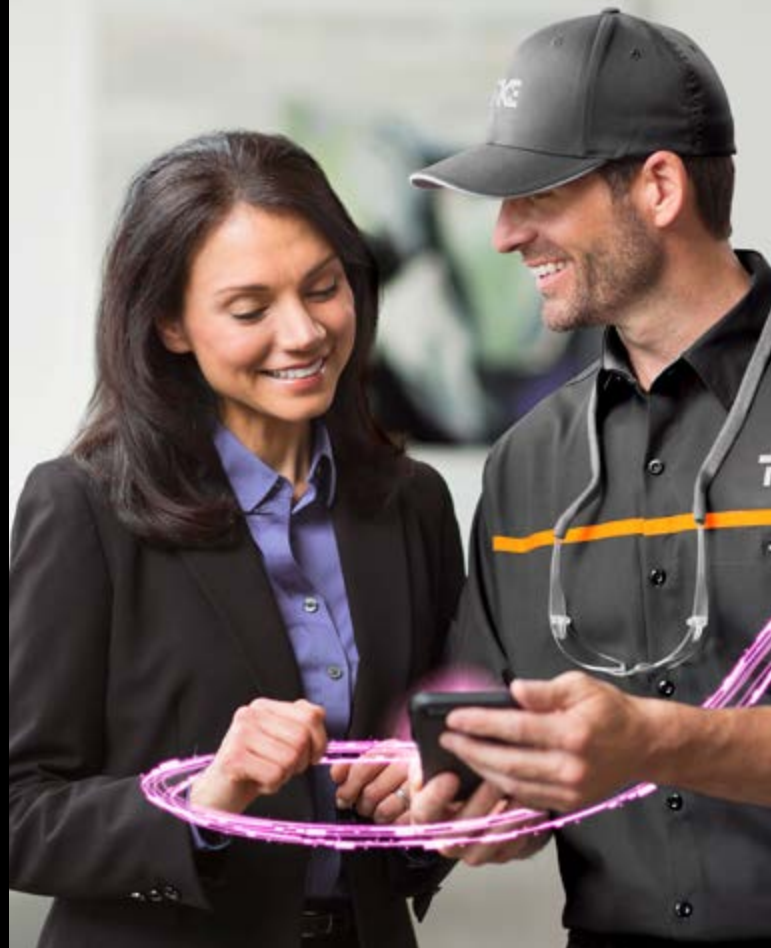
AGILE also integrates with your building's security system, can function as a standalone system and can be used as a card reader to provide floor access. You're also set for future upgrade opportunities with built-in cameras and RFID readers.

You can customize the kiosk backgrounds with preloaded options — or upload your own.



AGILE kiosks can be programmed to handle either traditional up-and-down mode (left) or ETD mode (right) depending on your building's needs.

MAXIMIZE YOUR UPTIME.



Get smarter service and less downtime with MAX.

Combining the power of cloud computing, big data and machine learning, MAX continuously collects data about your elevator's components and systems, and sends it to the cloud.

The data is analyzed, and algorithms determine when your elevator will

require maintenance from our technicians. We call this predictive maintenance. It's revolutionary and can reduce your elevator downtime by up to 50 percent.

MAX also determines if an elevator issue is critical and needs immediate attention, or can be solved during

a scheduled visit. All of this means smarter, more efficient maintenance and higher elevator uptime. Plus happier tenants.

We're continuously improving MAX, so you can expect its benefits to get bigger and better over time.



MAX works onsite 24/7/365.



MAX sends equipment diagnostic analysis.



Repairs are completed in less time.

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