

GeN2™ Mod

OTIS

United Technologies



THE WAY TO GREEN™



Modernization, customized solutions, exceptional results

PRODUCT ADVANTAGES

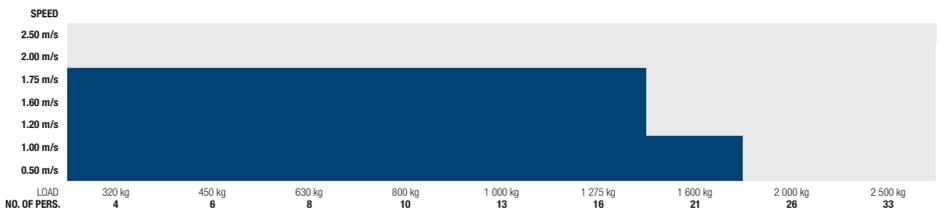
- Very high efficiency of GeN™ technology
- Belts lasting 2–3 times longer than conventional steel ropes with no need of lubrication
- Dramatic reduction of wear and increase of durability thanks to smooth crowned sheaves and the reduction of moving parts in the gearless machine
- Low power consumption – either non-regenerative machine or regenerative machine
- Reduced noise level and improved running comfort with noticeably smoother acceleration and deceleration
- Pulse system constantly monitors the belts 24/7 to ensure that the maximum life cycle is achieved
- Improved floor levelling and ride quality

Otis brings extensive experience, expertise and a full complement of innovative solutions and cutting-edge technologies to customers who look to improve performance, reduce energy consumption and green existing properties.

Moving up to green is easy with advanced GeN2 technology

Solutions like our Gen2 Mod package make it easy to increase the value of existing properties while raising the bar in terms of performance, comfort and appearance. The Gen2 Mod solution lets older buildings benefit from increased energy efficiency and substantial cost savings by taking full advantage of the latest green technologies, including Otis' polyurethane-coated flat-belts, compact and highly efficient gearless machines, ReGen drives and LED lighting. Otis' solutions can also help eliminate the hundreds of gallons of oil some systems use for lubrication by incorporating new technologies that do not require any additional lubrication.

Range of application GeN2™ Mod 2:1 roping



TECHNICAL PARAMETERS

Parameter	Minimum	Maximum	Remark
Type of the lift	Traction lift		Regenerative machine and drive after modernization is standard
Roping	2:1		Possible modernization for lift with 1:1 roping but new position of holes for slab are necessary
Speed	$\geq 0,5 \text{ m/s} \leq 1,00 \text{ m/s}$ for load $\leq 1\ 600 \text{ kg}$ $\geq 0,5 \text{ m/s} \leq 1,75 \text{ m/s}$ for load $\leq 1\ 250 \text{ kg}$		Depends on load
Load	$\geq 320 \text{ kg} \leq 1\ 600 \text{ kg}$		Higher load must be verified by supplier
Operation controller	SAPB (simple) / DCL (down-collected) / FCL (full-collected)		–
Units in group	1	5	–
No. of stops	≤ 14 or ≤ 21 stops / opening / simplex or duplex (G1C and G2C) ≤ 96 stops / openings / triplex (G3C) ≤ 105 stops / openings / quadruplex (G4C) ≤ 105 stops / openings / quintex (G5C)		Depends on door operator type
Rise	$\leq 75 \text{ m}$		Rise has an impact into drive specification
Power (max.)	3 kW	9 kW	Depends on lift characteristic
Starts per hour	150	240	Starts per hour depends on drive / speed
Flight time (3m run)	7 sec		–
Stopping accuracy	$\pm 5 \text{ mm}$		–
Floor distance	0,38 m	12 m	Unlimited number of short landing are possible
Power supply	380V / 400V / 415V, 3Ph, 50 Hz		–
Earthing	TN-C (four wire net – local modification required)	TN-S (five wire net)	–
Number of car entrances	1	2	–
Door arrangement	Automatic – automatic (central opening) CLD Automatic – automatic (side opening) TLD Automatic – manual (no retiring cam) ACG-1 Automatic – manual (with retiring cam) ACG-2		Depends on lift characteristic
Door operators	AT120 / D05 / D05-EM / DOC9 / 10 / 12 / 25 / 27 / 28 / 29 / 30 / 40 / DOT-1		D02000 requires replacement to D05EM, DOT-2 requires replacement to GMP900 with AT120 or GMP1100 with DOC25
Car door detectors	IRC or LRD		30 Vdc / 110 Vac and 230 Vac requires application of GCS2112MMR controller
Car position indicators	CPI7 / 10 / 11 / 15 / 16 / 18 / 18B / 21		CPI7/12 adjustable on jobsite
Hall position indicators	HBHPI + HPI7/10/11/12/13/14/15/18		HPI7/10/11/12 adjustable on jobsite
Additional advantages	Manual electrical rescue operation / Standby power consumption for controller is about 55W / Remote Elevator Monitoring system / Unintended Car Movement Protection (EN 81-1 +A3) / Emergency Hospital Service / Emergency Fireman Service / Emergency Power Operation		Additional power consumption must be added when peripheral components like car and hall link fixtures, traveling cable, safety chain, car light are in use and very much depends on individual installation parameters

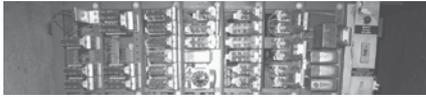


MICROPROCESSOR CONTROLLER

Microprocessor controller equipped to rescue passengers in case of power failure.

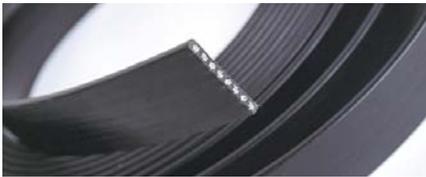


Relay controller



FLEXIBLE STEEL BELTS

The polyurethane-coated flat steel belt is up to 20% lighter and lasts up to 3 times longer than conventional ropes. Its flexibility results in a much smaller bending radius. What is more, it requires no lubricants.



Conventional steel ropes

The stiffness of conventional steel ropes requires a large bending radius.



COMPACT GEARLESS MACHINE

The low inertia gearless machine is equipped with a permanent magnet synchronous motor of radial design. The result is up to 50% more efficiency than a conventional geared machine.



Conventional machine

Heavy and space-consuming machine with high energy consumption.



COMPACT SHEAVE

The GeN2™ sheave, as small as 8 cm in diameter, has allowed Otis to design a machine up to 70% smaller than conventional machines.



Conventional sheave

The broad-bending radius of steel ropes requires a large machine with a sheave that is typically 50–60 cm in diameter.



PERMANENT MONITORING OF THE BELTS

No dangerous inspections of the ropes inside the hoistway anymore. The PULSE™ electronic system permanently monitors the status of the belt's steel cords 24h/7d. When connected with REM® system, full monitoring of all major functions via internet is possible.



Conventional inspection of steel ropes

Traditional visual inspections of the ropes are only undertaken at intervals and require taking the lift out of operation for maintenance.



CLEAN POWER

Energy-conserving ReGen™ drive makes GeN2™ systems up to 75% more energy efficient than conventional systems with non-regenerative drives.



Unrivalled solution for passenger safety and comfort

STOPPING ACCURACY, PASSENGER SAFETY

The Gen2 system's patented flat belt reduces stretch compared to conventional steel ropes. With its gearless machine and variable-frequency drive, the lift delivers outstanding stopping accuracy. This helps ensure passengers' safety as they board and exit the elevator.

SMOOTH, QUIET OPERATION

The Gen2 system was designed with passenger and tenant comfort in mind. Careful component design and selection enabled Otis to engineer a remarkably smooth and quiet lift. This means a more comfortable passenger experience as well as the quiet operation that is critical to those tenants located near the Lift system.

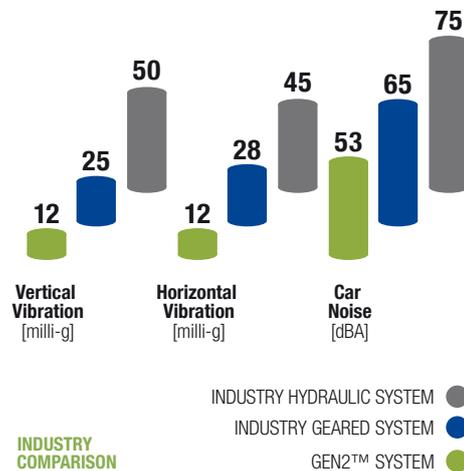


SUPERIOR RIDE

By taking an in-depth look at the sources of noise and vibration within lift systems, Otis engineers designed the Gen2 family to be exceptionally quiet and dramatically minimize noise and vibration.

QUIETER BY DESIGN

Reduced vibration results in reduced noise. And that results in a quieter, better experience for those riding inside, as well as for those living nearby.



PULSE™ SYSTEM PRECISION, SUPERIOR MONITORING

To further enhance reliability and safety, Otis developed the Pulse™ system, which continually monitors the status of the belts' steel cords. Unlike visual inspections of conventional steel ropes, the Pulse™ system automatically detects and reports belt faults to maintenance personnel for rapid response, providing owners with greater peace of mind. This technological breakthrough represents a significant advance compared with traditional inspection methods. The Pulse™ system reinforces the regulations in terms of monitoring, maintenance and reliability of your lifts.



ADVANCE NOTICE – IMMEDIATE, ACCURATE, AUTOMATIC REPORTING

The Pulse system automatically provides precision diagnosis of the need for belt replacement more than a year in advance so that repairs can be managed and scheduled conveniently.

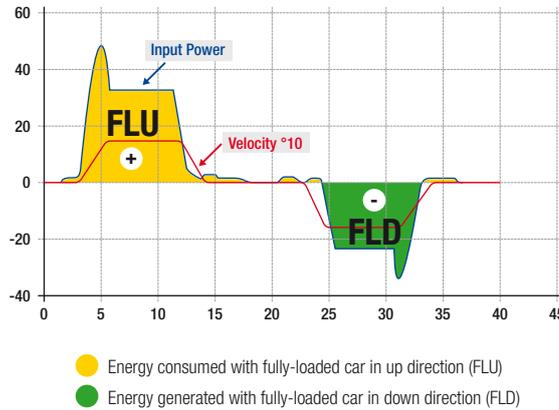
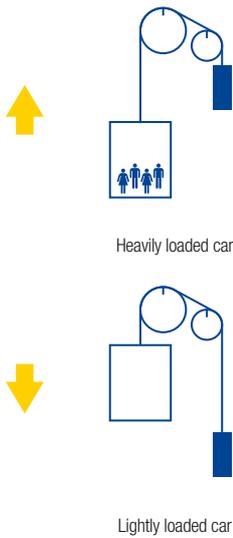
On lifts equipped with REM® monitoring service, the system can remotely report belt wear and system faults for rapid response.



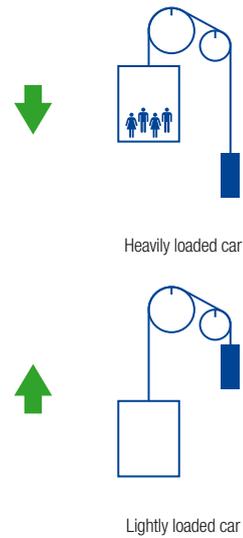
EXCEPTIONAL ENERGY SAVINGS

The Gen2 Mod solution delivers energy savings of up to 75 percent compared to conventional systems, saving operational costs and ensuring efficient performance.

ELECTRICAL POWER CONSUMPTION



ELECTRICAL POWER GENERATION



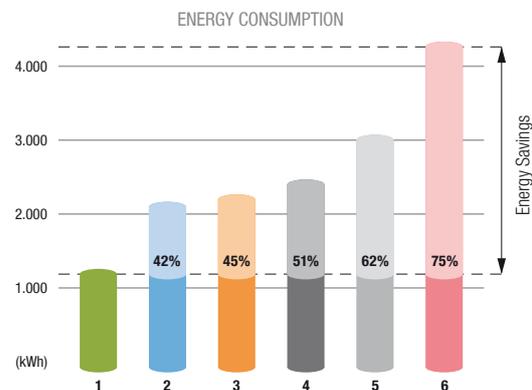
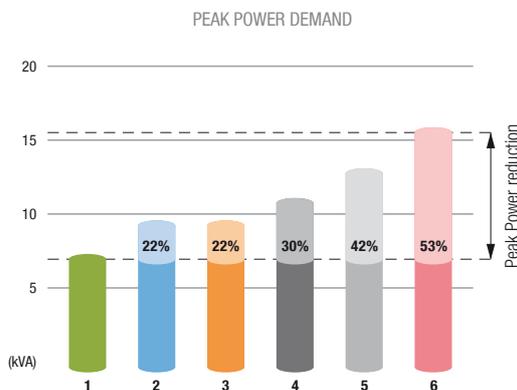
BEST-IN-CLASS PERFORMANCE



GEN2 ENERGY EFFICIENCY RATINGS

When it comes to energy efficiency, Otis is proud to announce that its GeN2™ systems have earned outstanding ratings. This validation of Otis' environmental commitment is based on standards set by the prestigious engineering association Verein Deutscher Ingenieure (VDI) who established its VDI 4707 standards to clearly assess Lift energy performance. Measurements taken on GeN2™ installations with standard configurations earned Otis the highest efficiency class rating.

The amount of energy savings for modernization of lift due to regeneration depends on various system parameters and configurations such as car load, speed, length of run, traffic pattern and system efficiency. The drives are so efficient that their power factor is close to unity.



● Gen2 with ReGen drive ● Gen2 with non-regen drive ● Gearless induction motor ● Gearless PMSM motor axial design ● Geared induction motor ● Hydro

These graphs represent energy consumption of machine and drive. Graphs do not include energy for door operators, lighting, controller, fan and other features.

Expert service, optimal performance.



Otis' service offerings provide standardized and efficient programs for ensuring optimal performance over the life of your equipment.

The right technology

Innovative technologies like the REM[®] monitoring system, combined with our customer-focused Otis Elite[™] service program, allow our experts to proactively address potential issues and precisely identify the root cause when they do occur. As a result, our service teams frequently resolve issues before a customer is aware they even exist and complete repairs quickly and efficiently. Thanks to these service innovations, our customers enjoy unprecedented equipment reliability and the peace-of-mind that comes with knowing their equipment is achieving top performance.

The right processes

From dispatching mechanics to completing repairs, we are committed to ensuring our maintenance actions reflect our environmental commitment. It starts by optimizing service routes for maximum efficiency while also striving to minimize the impact of our vehicle fleet. And when our experts arrive on-site, they arrive with the right tools, parts and information to avoid extra trips and get systems up and running as fast as possible. They also work in the greenest way possible incorporating recycling, safe waste removal and environmentally friendly cleaners into their activities. Our maintenance programs are also centered on standard processes to ensure part and component replacements are identified well in advance so they can be managed efficiently with the least amount of downtime.

The right people

Knowing the right actions to take – and the right time to take them – is what drives optimal performance. After all, the most energy-efficient elevators are backed by a strong maintenance program that is carried out by highly trained experts. Otis has the world's largest network of branch offices and service centers, which are staffed by dedicated professionals, ready – 24 hours a day, 365 days a year – to ensure rapid response and minimal downtime. Our efforts are all aimed at helping your equipment perform at its best.



References



SWEDEN



GERMANY



CZECH REPUBLIC



BELGIUM



AUSTRIA



SLOVAKIA



SWITZERLAND



SWITZERLAND



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