

OTIS

GeN2™ Flex

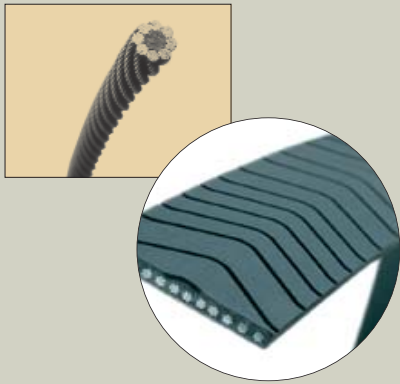


GeN2™ Flex. Dynamic solutions for the installation of new lifts in existing buildings.

GeN2 Flex Lift

A machine-roomless system with outstanding levels of comfort, reliability, safety and environmental protection.

CONVENTIONAL STEEL ROPES

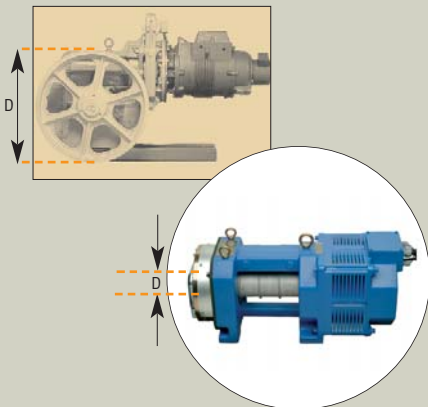


1 FLEXIBLE STEEL BELTS

The polyurethane-coated flat steel belt is up to 20% lighter and lasts up to 3 times longer than conventional ropes. What's more, it requires no lubricants.

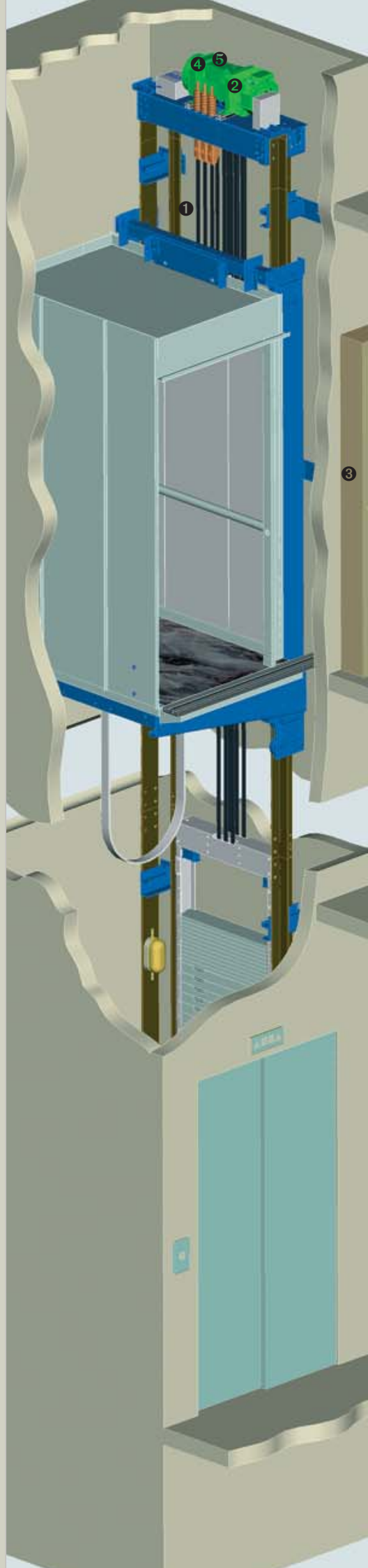
CONVENTIONAL MACHINE

Heavy and space-consuming, the conventional machine also has high energy requirements.



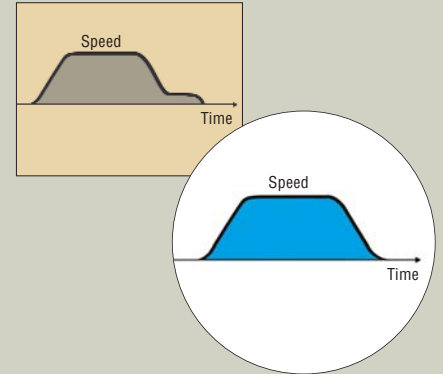
2 COMPACT GEARLESS MACHINE

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 DRIVES

Conventional open loop systems mean inconsistent motion profile resulting in jerking, tripping hazards and longer flight time.



3 CLOSED LOOP VF DRIVE

A smooth ride, quicker flight time, accurate floor levelling, significant energy savings and greater reliability count among the numerous benefits of the closed loop VF drive.

CONVENTIONAL SHEAVE

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

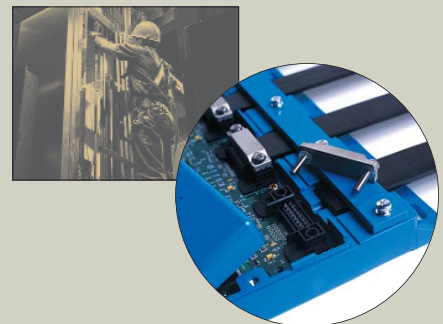


4 COMPACT SHEAVE

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 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.



5 PERMANENT MONITORING OF THE BELTS

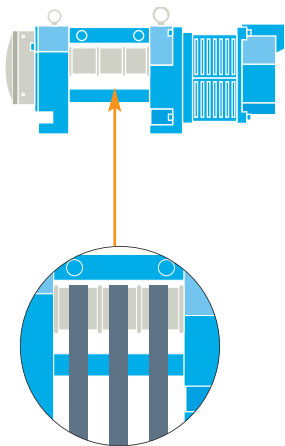
The PULSE™ electronic system permanently monitors the status of the belt's steel cords 24h/7d.

The coated steel-reinforced belt: technology that transforms an industry.

In the year 2000, the GeN2 drive system – an innovation developed and patented by Otis – radically changed the lift industry by replacing the conventional traction steel rope with a flexible polyurethane-coated steel belt. This pioneering advance complies with all relevant EU lift regulations.



Otis GeN2 Flex system: The Benefits



- 1 Replacing conventional steel ropes with smooth, polyurethane-coated steel belts results in a quieter and smoother ride.
- 2 A gearless machine controlled by a closed-loop, variable-frequency drive provides a comfortable ride with outstanding stopping accuracy.
- 3 A low-inertia gearless machine with a permanent magnet (PM) synchronous motor means energy savings and reduced operating costs.
- 4 The belts and gearless machine with sealed-for-life bearings require no addition of oil or polluting lubricants and thus protect the environment.
- 5 The interaction of the flat, coated steel belt with the smooth-surface crowned sheaves results in reduced belt wear.
- 6 A counterweight that can be placed at the side or at the rear of the hoistway results in greater flexibility. Extra hoistway efficiency is achieved so enabling a larger car to be installed.
- 7 The PULSE™ system continually monitors the status of the belt's steel cords 24h/7d.
- 8 A patented battery-operated rescue system with electronic speed monitoring enables safe and fast rescue of a trapped passenger in the event of a power failure.
- 9 With the machine on the rails, loads are transferred down to the pit thereby improving interface and reducing structural building costs.
- 10 GeN2 Flex technology enables rapid, safe and controlled installation that doesn't interfere with other building trades.

GeN2™ Flex

The GeN2 Flex system protects the environment at the same time as achieving new levels of ride quality and energy savings.

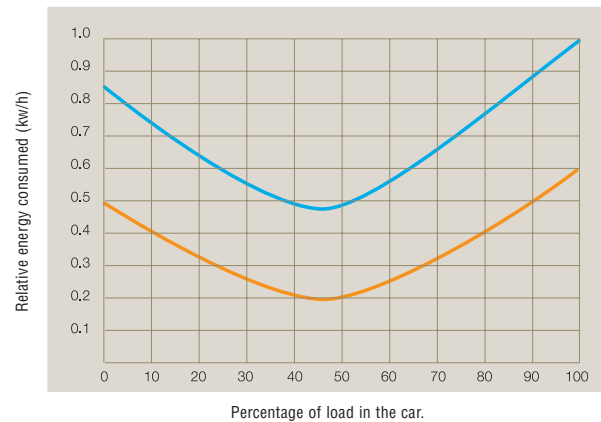
ENVIRONMENTALLY FRIENDLY

Lubrication-free and more energy-efficient.

Neither the belts nor the gearless machine with sealed-for-life bearings require any form of polluting lubricants.

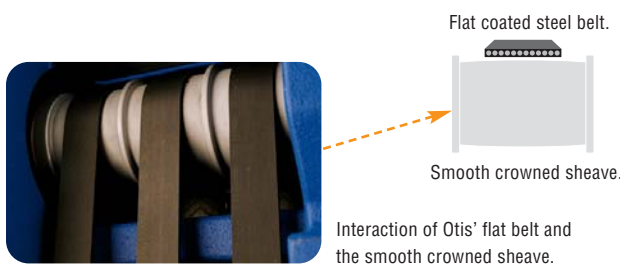
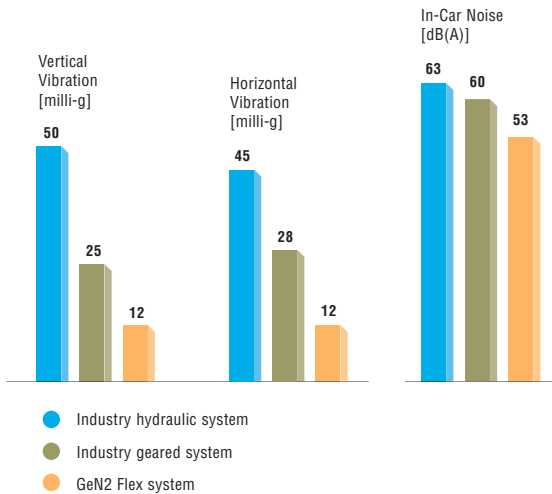
The low-inertia gearless PM machine, controlled with a closed-loop, variable-frequency drive with vector control, results in substantial energy and cost savings when compared with conventional machines.

Additionally, the VF drive suspend-mode feature further reduces energy consumption.



Based on 630kg at 1.0 m/s.

- Industry geared system
- GeN2 Flex system



UNRIVALLED RIDE QUALITY

Replacing metal ropes with smooth, flat belts means a quieter and smoother ride.

Enhanced ride quality is achieved through the combination of a number of factors.

Otis' flat polyurethane-coated steel belt which eliminates the metal-to-metal effect of conventional ropes results in quiet operation.

The gearless machine together with a closed-loop, variable-frequency drive with vector control enables a smooth ride with outstanding stopping accuracy (within +/- 3 mm at each landing).

With appropriate treatment of the hoistway walls, the low noise gearless machine mounted on isolation rubber pads reduces vibration to the building and keeps average noise levels in adjacent rooms to below 30 dB(A) - in compliance with strict EU building regulations.

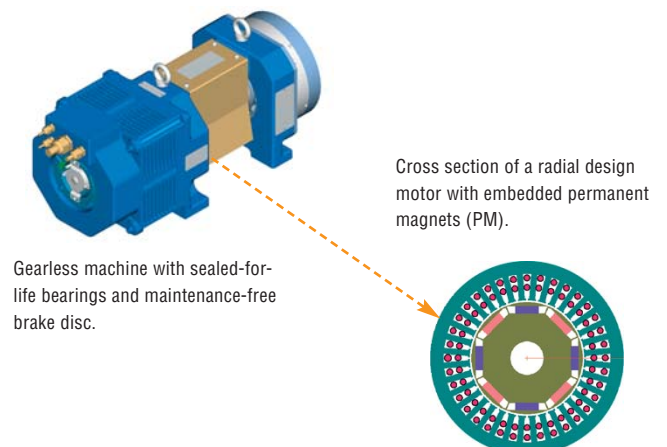
A HIGHLY EFFICIENT MACHINE

A flexible belt means a more compact machine.

The low inertia gearless machine with sealed-for-life bearings is equipped with a highly efficient PM synchronous motor of radial construction.

The result is a machine which is up to:

- 50% more efficient than conventional geared machines.
- 10% more efficient than conventional gearless machines with induction asynchronous motors.



Otis GeN2 Flex innovative features reflect an absolute commitment to safety.

SAFETY FEATURES

- **Automatic Rescue System**

A battery-operated rescue system with electronic speed monitoring enables the safe and fast rescue of trapped passengers in the event of power failure.

- **LAMBDA™ 2D Entrance Protection**

A screen of infrared beams acts as an invisible safety curtain. When an obstacle breaks this screen, the sensitive LAMBDA 2D system detects it and immediately reopens the doors.

- **Stopping Accuracy**

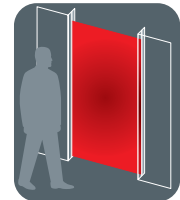
The belt's reduced stretch compared to conventional steel ropes together with a closed-loop VF control results in outstanding stopping accuracy.

- **Door Deterrent Device**

If the car is stopped between floors, a deterrent device prevents the car door from opening.

- **Hoistway Access Detection**

To protect a person entering the hoistway, a special safety feature prevents the lift from operating after a landing door has been opened.



LAMBDA 2D entrance protection.



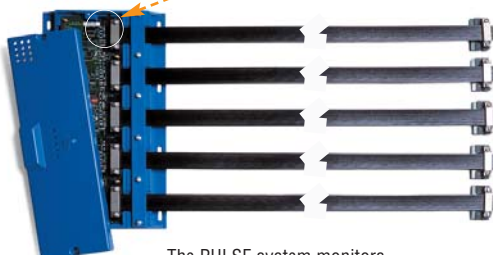
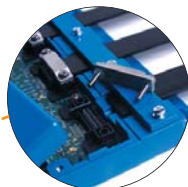
Stopping accuracy: to within +/- 3 mm.

INCREASED RELIABILITY

Reliable by design and durable by construction.

The long-lasting coated steel belt, the smooth crowned sheaves and the reduction of moving parts in the gearless machine dramatically reduce wear and increase durability.

Reliability and safety are further enhanced with the PULSE electronic system which continually monitors the status of the belt's steel cords 24h/7d.



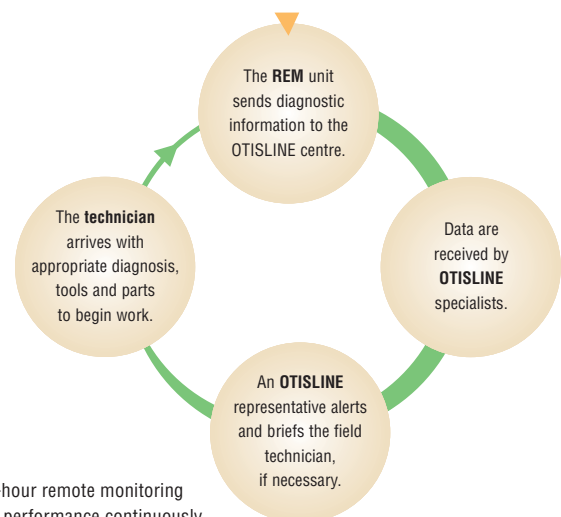
The PULSE system monitors the integrity of belt cords 24h/7d.

REM® MONITORING



The REM system is the most advanced of its kind for ensuring lift reliability.

Twenty-four hours a day, the REM system continuously monitors lift functions – detecting deteriorating components, intermittent anomalies, and small nuisances that might otherwise go unnoticed. It provides immediate, two-way voice communication between passengers and trained Otis personnel at the OTISLINE™ centre, simultaneously delivering greater peace of mind.



Twenty-four-hour remote monitoring observes lift performance continuously.

Flexibility is a key strength of the Gen2 Flex concept. So, too, is increased passenger capacity.

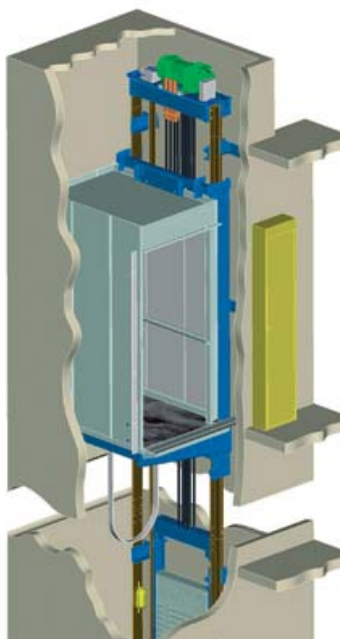
FLEXIBILITY

The advantages offered by the Gen2 Flex system when replacing or installing a new lift in an existing building are compelling.

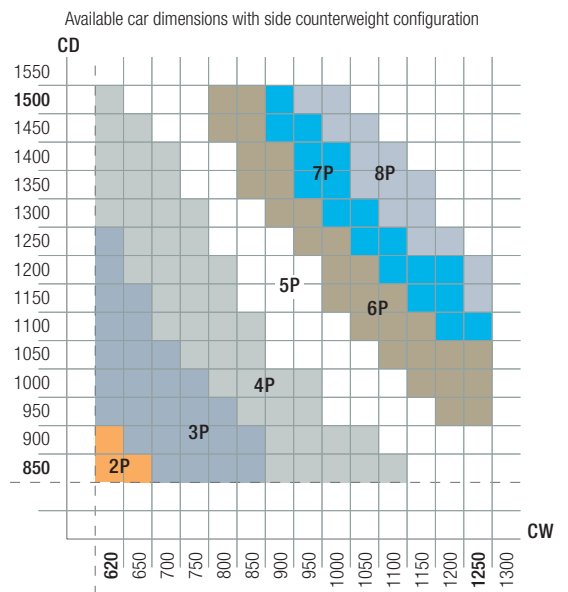
Essentially, the Gen2 Flex system is designed to maximise passenger capacity and to adapt itself to virtually every hoistway.

In order to optimise hoistway efficiency, the design offers variable car dimensions from 2 to 8 passengers.

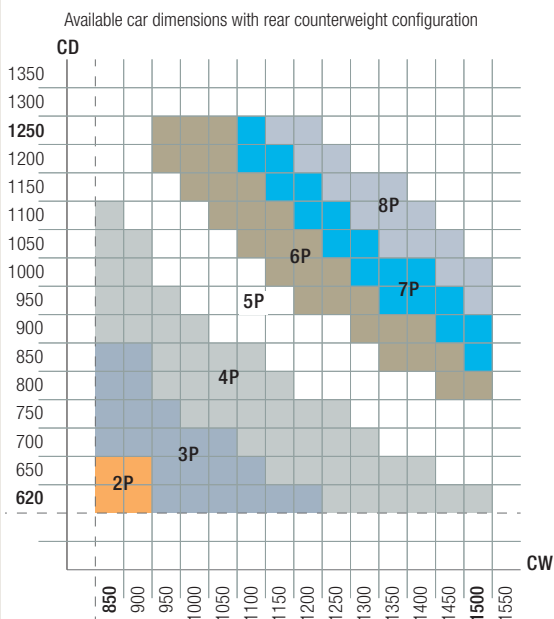
Flexibility is further enhanced as the counterweight can be located either at the rear or at the side of the hoistway. Additionally, because of the compact design, overhead and pit dimensions are minimised.



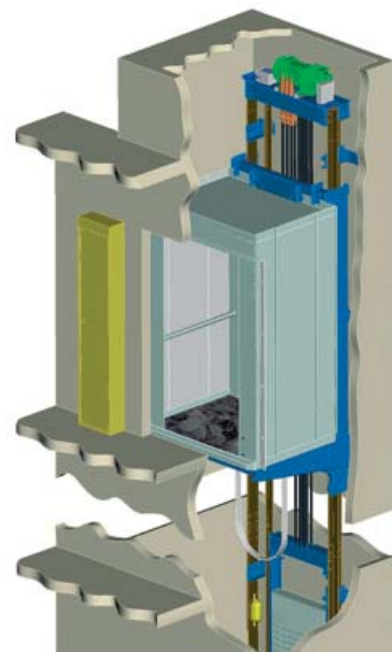
Side counterweight configuration



NOTE: Car width and car depth increments are in 5 mm. Shown in the two tables, for simplicity's sake, are 50 mm increments. Minimum car size is 620 x 850 mm.



Rear counterweight configuration



The GeN2 Flex system has been specially conceived for the installation of new lifts in existing buildings...

In the past, regulations did not require lifts to be installed in low rise buildings with less than 6 stops. But with an ageing population, such buildings provide restrictions for the elderly, for the disabled and for people carrying loads or children. The GeN2 Flex system effectively removes all such constraints.

Economically, too, the installation of a new lift in an existing building offers important incentives. Because not only does it increase the overall value of a property but it enhances rental potential as well.



BEFORE



AFTER

In existing buildings, every centimetre of space counts. Whatever the type or age of the building, the GeN2 Flex system is designed to provide a highly efficient solution.

- As the GeN2 Flex lift has no machine room, space savings are achieved.
- With a cantilever configuration, only one bearing wall is needed.
- Offering either back or side counterweight configurations, the car depth or width can be as small as 620mm which allows installation in very small hoistways.
- As the machine is fixed on the rails, loads are transferred down to the pit which reduces the stress on the building. This allows the GeN2 Flex system to be installed in hoistways with different types of walls such as brick, concrete or a steel tower with metallic or glass panels.
- Importantly, too, the system can be installed on the interior or the exterior of the building.

...and, equally, the replacement of older lifts by new designs.

The drawbacks associated with old lifts are numerous. Lack of reliability, poor ride quality, inconsistent floor levelling, outdated aesthetics and limited accessibility are typical criticisms.

With the latest state-of-the-art technology, the GeN2 Flex system comprehensively resolves all the design, comfort and accessibility issues.



BEFORE



AFTER

The GeN2 Flex design offers considerable benefits such as:

- Enhanced reliability through the replacement of electro-mechanical controllers by microprocessor systems.
- Superior ride quality and stopping accuracy.
- Maximised lift car dimensions.
- Improved accessibility by enlarging the door opening or upgrading a manual door to an automatic door.
- Reduced operating costs through lower energy consumption.
- A green product with no polluting lubricants.

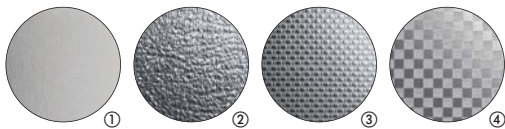
To satisfy a variety of requirements, a wide range of door types is offered.

5 DOOR TYPES

GeN2 Flex landing doors can be either manual or automatic and adapt themselves to different configurations and dimensions.

Panels, door frames and the telescopic door surround are supplied in either a choice of stainless steel finishes or with a prime coat finish ready for painting on site.

The manual door panel can be glazed.



Stainless steel door finishes

- ① Brushed
- ② Buffalo skin
- ③ Linen
- ④ Dama



Manual/Swing



Two panel centre-opening



Two panel telescopic side-opening.



Four panel centre-opening



Three panel telescopic side-opening

An extensive range of car designs provides solutions to differing aesthetic needs.

OPTIMA

The Optima car perfectly illustrates the notion that elegance can be achieved through simplicity - provided it's based on an inspired idea.

In the Optima design's case, the idea is embodied by the car operating panel actually illuminating the car. Besides bathing the car in a soft diffused light, the panel also acts as a focal point for passengers.

The design of the COP is of course critical. With a curved faceplate, it is both simple and handsome. Chicklets with solid stainless steel target buttons add a touch of luxury as well as providing increased reliability.

Important to the refined appearance are the car panels themselves. In three finishes for different market needs, they are pleasing to the eye and easy to maintain. In fact it is the balance between the aesthetic and the practical that defines the Optima car.

Landing fixtures: Actua with red LED technology.



SKINPLATE



LAMINATE



STAINLESS STEEL

○ CAR PANELS

- ① Zircon Blue
- ② Sky Blue
- ③ Sand
- ④ Cream
- ⑤ Grey
- ⑥ Green

◇ FLOORING

- Rubber
- Artificial stone

○ CAR PANELS

- ① Lotus Noon
- ② Morello Cherry
- ③ American Maple
- ④ White Carrara
- ⑤ Grey Luxor
- ⑥ Crystal Loft

◇ FLOORING

- Rubber
- Artificial stone

○ CAR PANELS

- ① Brushed
- ② Buffalo skin

◇ FLOORING

- Rubber
- Artificial stone



SELECTA

The name unequivocally defines the car. The Selecta design is all about choice.

Around the engaging lighting concept of the car operating panel - the panel actually illuminates the car and bathes it in a soft diffused light - an extravagant choice unfolds.

To satisfy the most diverse market requirements, there are four car designs with 24 car finishes. The same extensive choice is extended to the flooring - three types with 10 variations in all - and to the two handsome handrail designs.

Additionally, the car operating panel is offered in two versions: with chicklets and without chicklets, the latter featuring lazer-cut floor numbers.

The possibilities are indeed endless. In fact, the Selecta car has been conceived by us to be designed by you.

Landing fixtures: Actua or Classica with blue LED technology.



SKINPLATE

○ CAR PANELS

- ① Zircon Blue
- ② Sky Blue
- ③ Sand
- ④ Cream
- ⑤ Grey
- ⑥ Green

◇ FLOORING

Rubber
Artificial stone
Natural stone



LAMINATE

○ CAR PANELS

- ① Lotus Noon
- ② Morello Cherry
- ④ Crystal Loft
- ⑦ Brushed Blue
- ⑧ Brushed Grey
- ⑨ White Marble

◇ FLOORING

Rubber
Artificial stone
Natural stone



WOOD

○ CAR PANELS

- ① Mahogany
- ② Beech
- ③ Cherry
- ④ Pear
- ⑤ Maple
- ⑥ Birch

◇ FLOORING

Artificial stone
Natural stone



STAINLESS STEEL

○ CAR PANELS

- ① Brushed
- ② Buffalo skin
- ③ Linen
- ④ Dama
- ⑤ Pallinato
- ⑥ Chess

◇ FLOORING

Rubber
Artificial stone
Natural stone



PANORAMA

A novel and exciting way to travel in a commercial or residential complex, the attraction of the Panorama lift is that it is both designed to offer passengers a view and the public a focal viewpoint.

Adding the drama of movement to an architectural concept, the Panorama lift is increasingly chosen for installation in a lobby or atrium.

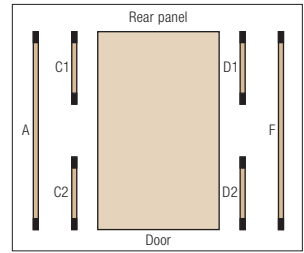
The glass panels are available in clear or smoked glass and the frames around them in white skinplate, one of three stainless steel finishes or prime coated steel ready for finishing on site.

The lift can be adapted to any number of architectural and decorative specifications.

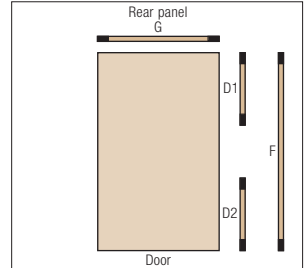
Landing fixtures: Actua or Classica with blue LED technology.

Glass panel arrangements

Rear counterweight



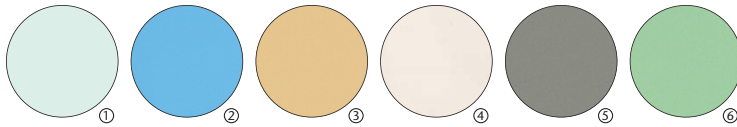
Side counterweight



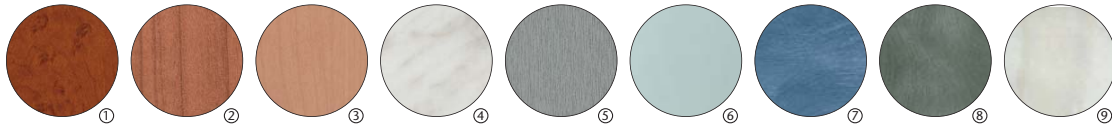
NOTE: shown here is a machine with left side configuration. For machine with right side, the same arrangements of glass panels are on the left side.

CAR FINISHES

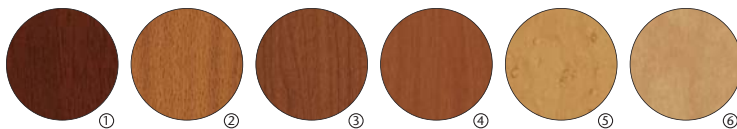
SKINPLATE CAR PANELS



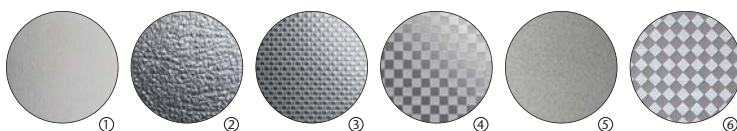
LAMINATE CAR PANELS



WOOD CAR PANELS



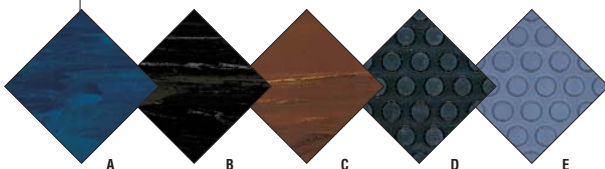
STAINLESS STEEL CAR PANELS



FLOORING*

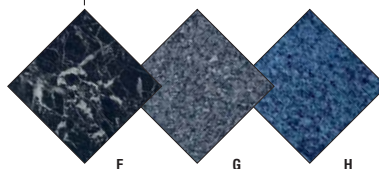
Rubber

- A Midnight Blue
- B Charcoal
- C Coffee
- D Black slip-resistant
- E Grey slip-resistant



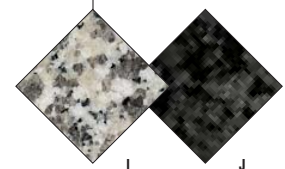
Artificial Stone (HPL)

- F Black Marble
- G Grey Granite
- H Blue Stone



Natural Stone

- I White Granite
- J Black Granite



*CAR CAN BE SUPPLIED WITHOUT FLOORING IF PREFERRED.

LUMINA

Probably the single factor that defines the character of a car is the lighting. With the Lumina car, we have created an extravagant range of four lighting arrangements. Each offers a different level of illumination, from the discreet to the sumptuous. In combination with a choice of four wall types, a host of decorative effects can be achieved.

Embedded in the side wall panels, the car operating panel is in stainless steel hence astutely complements the ambience of the car. So, too, do the metallic handrails.

Painstaking attention to detail can also be found in the car fittings – from the Car Direction Lantern which employs blue LED diodes to provide increased light intensity to the metallic plated kickplates. Such features, cumulatively, help establish the prestige of the Lumina car. And demonstrate that while lift travel is short in time, it can be long on pleasure.

Landing fixtures: Actua or Classica with blue LED technology.



Halogen spot lighting.

› Flat, white skinplate or brushed stainless steel finish.



Halogen spot lighting.

› Curved, white skinplate or brushed stainless steel finish.



Fluorescent lighting with protruding diffusers.

› Flat, white skinplate or brushed stainless steel finish.



Fluorescent lighting, indirect and direct, with protruding diffusers.

› Curved, white skinplate or brushed stainless steel finish.



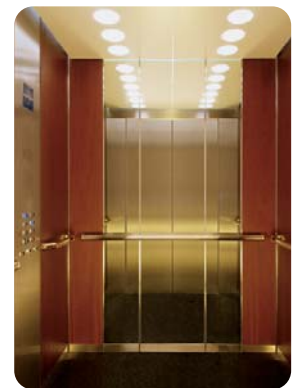
SKINPLATE



LAMINATE



STAINLESS STEEL



WOOD

CAR PANELS

- ① Zircon Blue
- ② Sky Blue
- ③ Sand
- ④ Cream
- ⑤ Grey
- ⑥ Green

FLOORING

- Rubber
- Artificial stone
- Natural stone

CAR PANELS

- ① Lotus Noon
- ② Morello Cherry
- ③ Crystal Loft
- ④ Brushed Blue
- ⑤ Brushed Grey
- ⑥ White Marble

FLOORING

- Rubber
- Artificial stone
- Natural stone

CAR PANELS

- ① Brushed
- ② Buffalo skin
- ③ Linen
- ④ Dama
- ⑤ Pallinato
- ⑥ Chess

FLOORING

- Rubber
- Artificial stone
- Natural stone

CAR PANELS

- ① Mahogany
- ② Beech
- ③ Cherry
- ④ Pear
- ⑤ Maple
- ⑥ Birch

FLOORING

- Artificial stone
- Natural stone



CAR OPERATING PANELS

Two types of car operating panel are available.

With the Optima and Selecta cars, two fluorescent tubes integrated into the car operating panel emit a soft diffused light which illuminates the car.

With the Lumina car, the car operating panel is set discreetly into the wall panel.

SAFER ACCESS

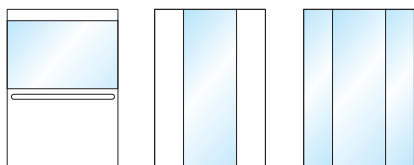
The Flex concept is designed to be in line with the European standard, EN81-70 that provides recommendations to facilitate general lift use and also use by the disabled.

Minimum entrance widths for car sizes are:

- > **Type 1 (450 kg) - Car 1000 x 1250 mm**
Accommodates 1 wheelchair user.
- > **Type 2 (630 kg) - Car 1100 x 1400 mm**
Accommodates 1 wheelchair user and one passenger.

CAR FITTINGS

Quality fittings enhance overall design. With the Optima car, kickplates and panel trims are available in a satin chrome, mirror chrome or a natural anodized finish. With the Selecta and Lumina cars, they are offered with a satin chrome, mirror chrome or mirror gold finish.



MIRRORS

The bright, clear, non-tinted mirrors are in compliance with safety regulations to provide maximum passenger protection. Various arrangements are possible according to panel layouts.



Liquid Crystal Display Screen (LCD)

Car Position and Direction Indicators plus information display.

Bezel surround finished in satin chrome.

Multicolour Liquid Crystal Display

Car Position and Direction Indicators plus personalised information display.

Bezel surround with satin chrome or mirror gold finish.



Electro Luminescent Display

Car Position and Direction Indicators plus personalised information display.

Bezel surround with satin chrome or mirror gold finish.

DISPLAYS

In one of three types, the Display is designed to be easily visible from all angles. It houses the Car Position Indicator and the Car Direction Indicator. The dataplate contains load capacity and car alarm pictograms.

HANDRAILS

The Onda and Vento handrails consist of a bar and end cap with contrasting finishes. The handrails are designed to comply with the EN81-70 standard and as such the ends are inset into the car wall. A selection of the 11 finish combinations is shown below.



Onda

- A** Bar Satin chrome
Cap Mirror chrome
- B** Bar Mirror chrome
Cap Satin chrome
- C** Bar Satin chrome stainless steel
Cap Mirror gold

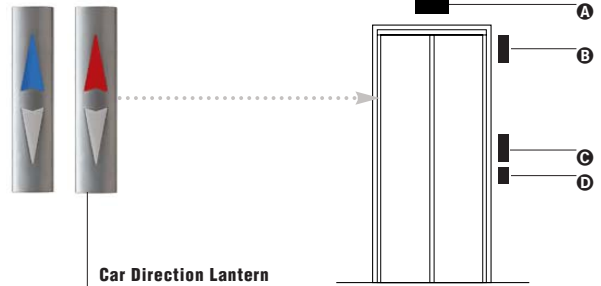
Vento

- D** Bar Satin chrome
Cap Mirror chrome
- E** Bar Mirror chrome
Cap Mirror gold

LANDING FIXTURES

Three types of landing fixtures are available with the GeN2 Flex design. The Actua fixtures are slightly in relief and are available with red or blue LED technology. The Classica fixtures lie flush and offer blue LED technology only.

The fixtures are either in steel with a gold-plated finish or solid stainless steel with a mirror or brushed finish.

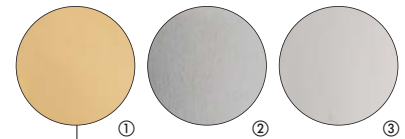


Car Direction Lantern

Located in the door jamb, the Car Direction Lantern is finished in satin chrome.

ACTUA

CLASSICA



Finishes for all the range

- ① Mirror gold plating
- ② Brushed stainless steel
- ③ Mirror stainless steel

A Combined Hall Position Indicator and Signal Hall Lantern

B Combined Hall Position Indicator and Signal Hall Lantern

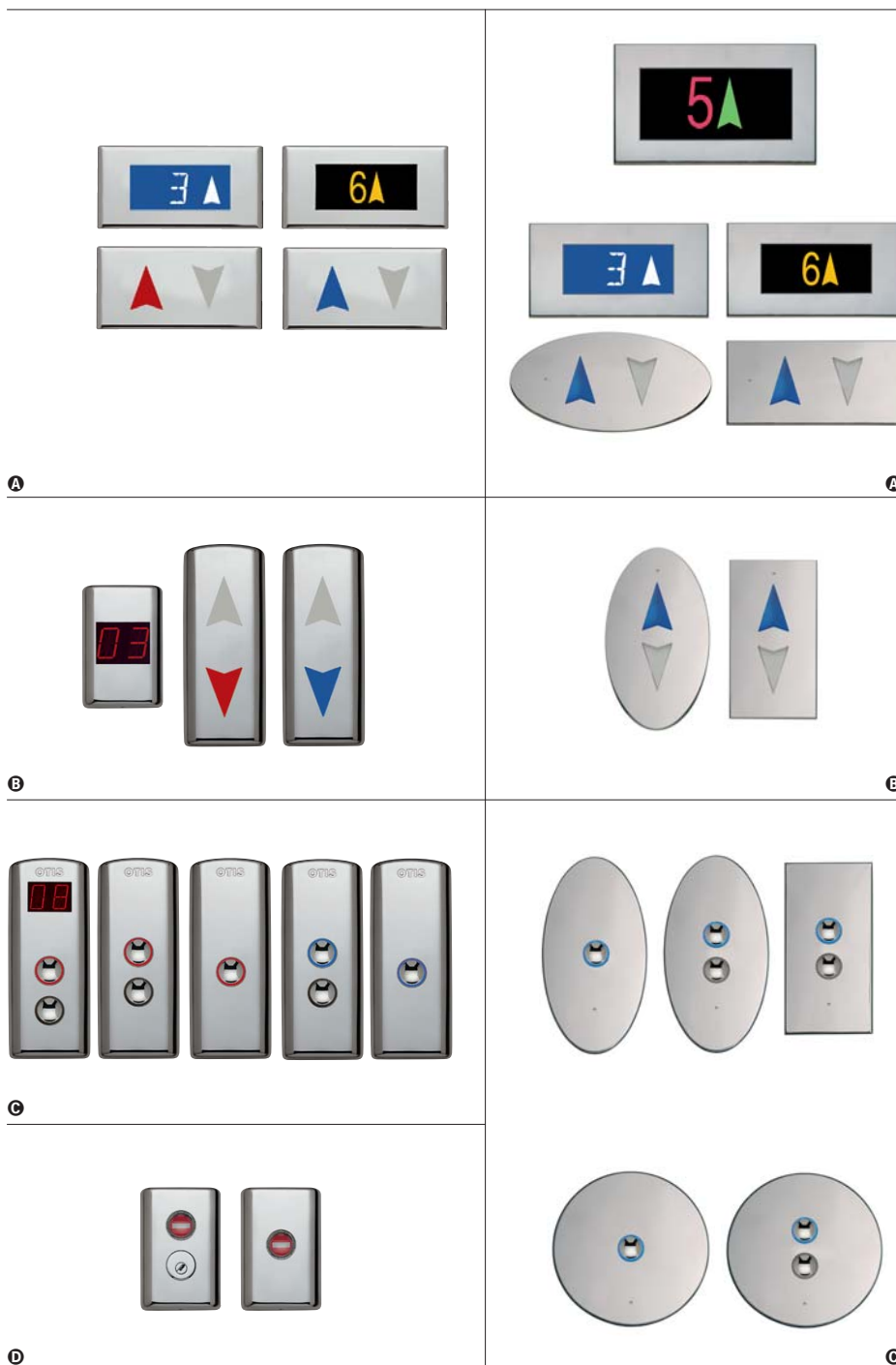
Positioned on the upper side of door entrance.

C Hall Button Box

D Keyswitches and Jewels (option)

For special facilities.

Actua landing fixtures are available with red or blue LED technology. Classica fixtures are offered with blue LED technology only.



Service and quality assurance.

e*SERVICE

- Through e*Service at www.otis.com customers with units under Otis service contract can have round-the-clock access to maintenance records, a snap-shot of the lift performance history and fast verification of the work done.

SERVICE

- Otis maintenance systems reflect the philosophy that the best time to resolve problems is before they arise. Otis technicians pursue a rigorous service programme to meet a building's requirements. Working with the REM system's 24-hour monitoring capabilities, Otis service technicians can more effectively locate performance anomalies and correct them before they affect lift service.

QUALITY ASSURANCE AND TESTING

- Otis has met the stringent ISO 9000 international standards for quality assurance. The control of processes, from design to manufacturing to field operations, makes it possible to consistently produce and supply high quality lifts, while meeting customer specifications.
- The entire Gen2 system – including machine, coated steel belts, brakes, controller and drive – has been tested worldwide. The system has weathered conditions of extreme temperatures and has withstood tests of thermal shock, voltage variations, power shortages and interruptions, and transient power surges – representing virtually every possible breakdown of a building's electrical system.

Gen2 Flex lift – Specifications

Load capacity (kg)	from 180 to 630	
Passenger capacity	from 2 to 8	
Speed	1.0 m/s	
Maximum rise	45 metres	
Maximum number of stops	16	
System configuration	Side counterweight	Rear counterweight
Car dimensions (mm)	Width	from 620 to 1250
	Depth	from 850 to 1500
	Height	2100, 2200, 2300
Door opening width (mm)	Manual	N.A.
	TLD/CLD	from 600 to 900
	TLD3/CLD2	from 600 to 1000
Door opening height (mm)	2000, 2100	
Car entrances	1, 2 (opposite) or 2 (90°)	
Machine	Gearless with permanent magnet synchronous motor	
Drive	Otis OVF Variable Frequency with closed loop vector control	
Control system	MCS 220 TCBC modular control system	
Cars in a group	up to 2	
Power (3 phases + neutral)	400 volts (+/- 10%)	
Frequency	50 or 60 Hz	

TLD: Two panel telescopic side-opening
 CLD: Two panel centre-opening
 TLD3: Three panel telescopic side-opening
 CLD2: Four panel centre-opening