

GeN2™

Nova

MR/MRL

OTIS

United Technologies



The coated steel reinforced belt: technology that has transformed the industry.

The environmentally-friendly Gen2™ Nova system with both **machine room above** and **machine roomless** arrangements establishes new standards for elevator performance,

reliability and design flexibility. And while offering passengers more comfort, it also achieves energy savings.

Gen2™ Nova MRL: In the machine-roomless arrangement, the PM gearless machine, controller and drive are placed within the shaft completely eliminating the need for a machine room.

Gen2™ Nova MR: In a machine-room arrangement, the controller and drive are installed in a machine room located above the shaft. The room in which the machine is placed allows for space saving due to the compact size of the permanent magnet (PM) gearless machine.

Benefits



Otis Gen2™ Nova system: The benefits

An innovative elevator system which provides:

Environmental sustainability

- The belts and gearless machine with sealed for life bearings do not require any form of polluting lubricant.
- A compact permanent magnet gearless machine together with an energy conserving ReGen™ drive achieves energy savings of up to 75% compared to a conventional system with a non-regenerative drive. It also reduces operational costs.
- LED lighting offers increased efficiency and long lasting as compared to conventional tubes.



Enhanced ride quality

- Replacing conventional steel ropes with smooth, polyurethane-coated steel belts results in a quieter and smoother ride.
- A gearless machine controlled by a closed-loop ReGen™ drive provides a comfortable ride with improved stopping accuracy.
- Smoother elevator acceleration and deceleration.

Safety and reliability

- The PULSE™ system continually monitors the status of the belt's steel cords enhancing both their lifetime and their reliability.



The Gen2™ Nova system is the smart choice for 'green' buildings.

ReGen™ drive

A typical elevator includes three major components: the machine, the elevator car and the counterweight. The counterweight is designed to balance a half-loaded car. Electrical power is generated when a heavily-loaded car travels in a 'down' direction or a lightly-loaded car travels in an 'up' direction (green area of graph).

With a non-regenerative drive the energy generated is dissipated in a set of resistors creating a waste heat load in the building.

With a regenerative drive, the energy generated is fed back into the building's grid where it can be used by other loads connected to the same network. The energy consumed with a non-regenerative drive is represented by the yellow area while with a regenerative drive the energy consumed is just the difference between the yellow and green areas.

The amount of energy savings due to regeneration depends on various system parameters and configurations such as car load, speed, length of run, traffic pattern and system efficiency.

As the preferred choice for 'green' building initiatives, ReGen™ drives deliver substantial energy savings while helping to meet or exceed established worldwide standards.

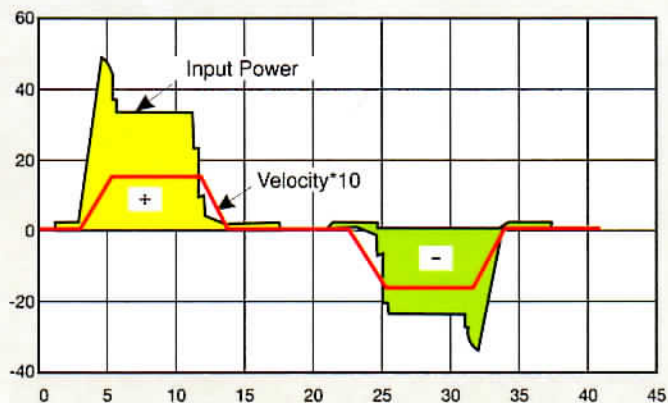
- Energy savings (up to 75%)
- Low harmonic distortion (typically below 5%) and reduced Radio Frequency Interference.
- Operational cost savings through reduced peak power demand and decreased energy consumption.

Electrical power generation



Heavily-loaded car in down direction

Lightly-loaded car in up direction



- Energy consumed with fully-loaded car in 'up' direction.
- Energy generated with fully-loaded car in 'down' direction.

Elevator Reimagined

Environmental responsible

A 'green' machine

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

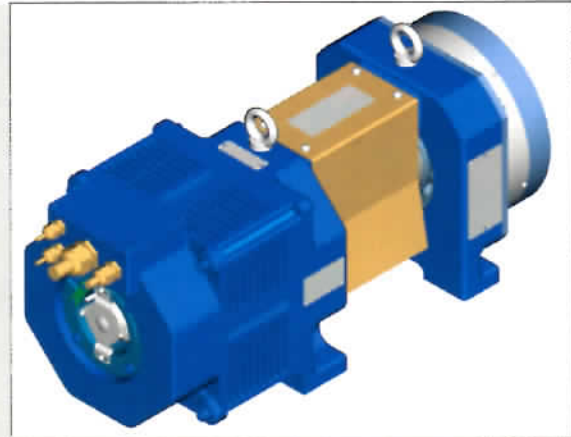
The low inertia gearless machine is equipped with a highly efficient PM synchronous motor of radial construction.

The result is a machine which is up to:

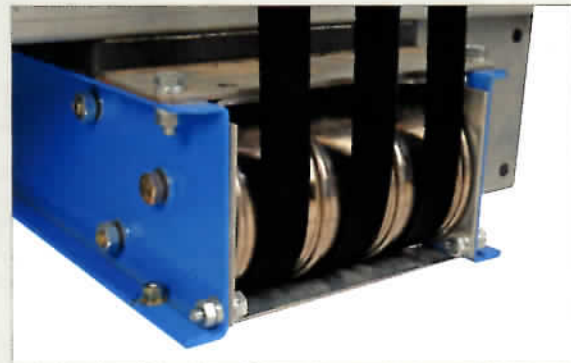
- 50% more efficient than conventional geared machines.
- 10% more efficient than conventional gearless machines with induction asynchronous motors.
- 15% more efficient than other machines with PM motors of axial construction design.

A gearless machine with a closed-loop VF drive increases passenger comfort.

The gearless machine combined with a sophisticated load weighing device and a closed loop variable frequency drive with vector control contribute to a smooth and quiet ride. Furthermore, they result in outstanding stopping accuracy of within +/- 3mm at every landing.



Gearless machine with sealed-for-life bearings and maintenance-free brake disc.



Interaction of Otis' flat belt and the smooth crowned sheave.



Flat coated steel belt.



Smooth crowned sheave.

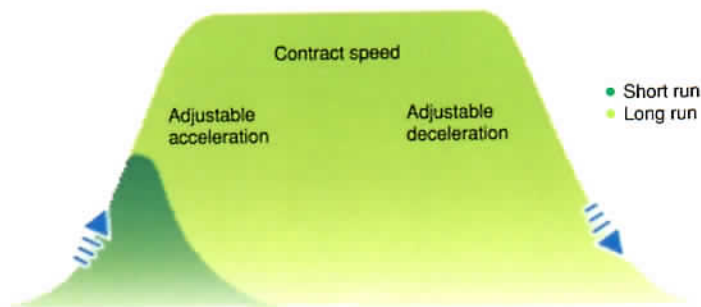
Performance Excellence



The Gen2™ Nova elevator offers exceptional levels of performance.

Faster operation

With adjustable acceleration and deceleration rates, up to 0.6 m/s^2 , the Gen2™ Nova elevator rapidly reaches its nominal speed and furthermore decelerates and stops both smoothly and quickly.



While advanced security features demonstrate an absolute commitment to both safety and reliability.

Safety features

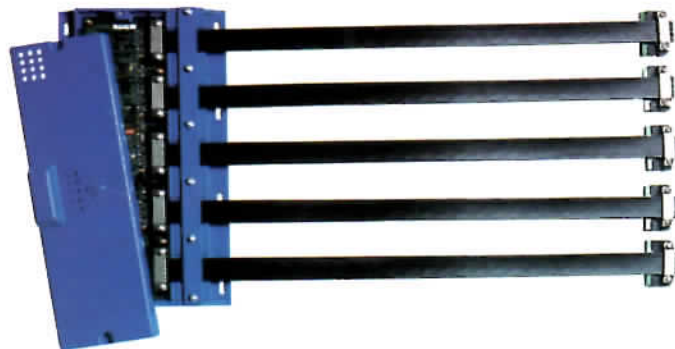
For elevator users and service technicians.

- **Door deterrent device**
If the car is stopped between floors, a deterrent device prevents the car door from opening. Hence a person cannot take the risk of exiting.
- **Hoistway access detection**
To protect a person entering the hoistway, a special safety feature prevents the elevator from operating after a landing door has been opened.
- **Rescue system**
Battery-operated rescue system with electronic speed monitoring enables the safe and fast rescue of trapped passengers in the event of a power failure.

- **Infra-red entrance protection**
A screen of infrared beams acts as an invisible safety curtain. When an obstacle breaks this screen, the sensitive 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 (within $\pm 3 \text{ mm}$ at every landing).

Increased reliability

The PULSE™ electronic system monitors the status and integrity of the belt's steel cords 24/7d providing advance notice of the need for replacement. Not only does this improve their reliability and extend their life but it also reduces the downtime required for inspection.



Otis' PULSE™ system monitors the integrity of belt cords 24h/7d.

Fixtures

Hall fixture



With chrome finish button

Surface mounted - Combined hall button with 16 segment position indicator and direction arrows. No large pockets required in the walls. Easy and quick to install.

Handrail



While passengers feel comfortable holding on to the handrail during travel, the special mirror finish adds to the aesthetic appeal.

Car operating panel



Simple. Sleek.

- One-touch micro-stroke buttons with illuminated LEDs make your journey more exciting.
- Anti-glare lens cover for the display on the car position indicator lends easy visibility from any position inside the car.
- Scrolling Dot Matrix display in car panel.

Note:- Fixtures shown are representative. Actual design will vary according to elevator cab size.

Cab Design

Gen2™ Nova

Base in painted finish, Munshell Grey

Base

Munshell Grey



Cream



D. A. Grey



Optional

Desert Sand



GP Silver Grey



Textured

D. A. Grey



Broken White



Antique Copper



Siemens Grey



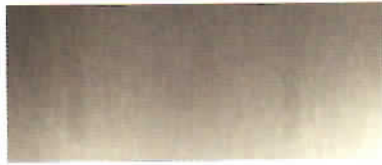
Note: Colours and finishes shown are indicative. Please allow for minor variations.

Metal effects

Polka Delite



Hairline # 4



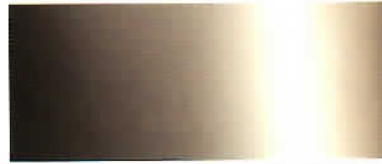
Egyptian Gold



Interlock



Mirror



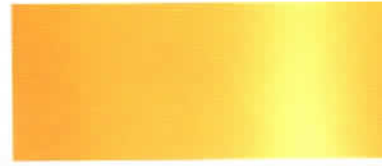
Maple Glory



Honeycomb



Mirror Gold



Splendour Maze



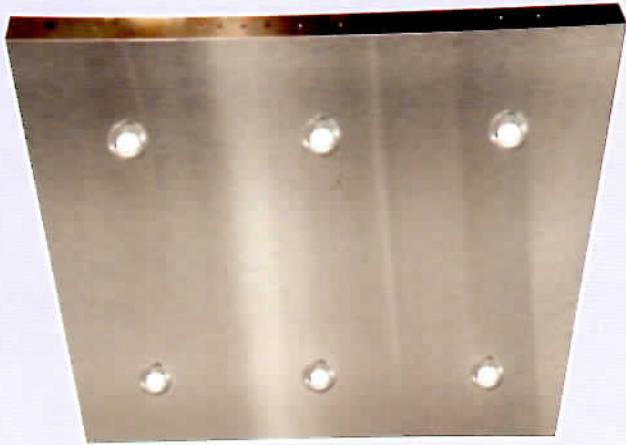
Note: Colours and finishes shown are indicative. Please allow for minor variations.

Cab Design

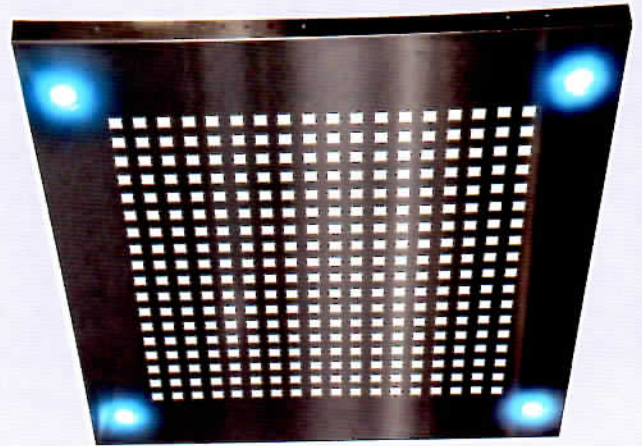
Vinyl flooring



Note: Colours and finishes shown are indicative. Please allow for minor variations.



CD 41: Powder painted finish / stainless steel hairline / stainless steel mirror



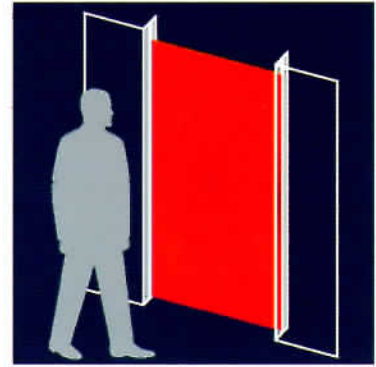
CD 42: Powder painted finish / stainless steel hairline / stainless steel mirror



CD 35: Stainless steel hairline / stainless steel mirror

Note:- Ceilings shown are representative. Actual design will vary according to elevator cab size.

Features



Standard features

Anti-nuisance car call protection

The elevator identifies that there is only a single passenger load in the car but more than three or four calls have been registered. It would then cancel the calls. This feature is to prevent unnecessary movement due to playful children.

Independent service (for duplex only)

When the independent key switch is turned on, all registered hall calls are cancelled and the elevator responds only to car calls. No hall calls can be registered during this service.

Overload device

When an overload is detected the car does not start and the doors remain open. The elevator operation resumes only upon removal of the overload.

Nudging

If the doors are prevented from closing for a fixed period of time, a buzzer is activated and the doors begin to close at a reduced speed.

Emergency firemen's service

This feature automatically places the car at the designated return landing with the doors fully open. The fireman can then enter and take control of the elevator.

Emergency car light unit

An automatically rechargeable emergency power supply will switch on upon failure of the normal lighting supply.

Infrared curtain door protection

Entrance protection system forms a safety net across the effective entrance area with invisible infrared beams that are able to detect passengers and objects in the path of closing doors, within a fraction of second. Therefore, should a passenger enter or exit the elevator just when the doors close, the system instantaneously reopens the elevator doors allowing the passengers to enter or exit freely.

Due to its design superiority, even if a single beam is interrupted, the elevator door opens automatically and remains open until the passenger clears the door way.

Door time protection

If the car door does not close completely within an adjustable time after the door close command, the elevator will enter the DTC mode: remove itself from group operation. Hall calls will be assigned to other elevators in the group. Open its doors and sound the buzzer in the car operating panel. Attempt closing the doors again. After three unsuccessful retries, the car will shut down with its doors open. Pending car calls will be cleared.

Emergency alarm button

The emergency alarm bell located at the ground floor / lobby will be activated by pressing the alarm button in the car operating panel, the device is powered by battery.

Extra door time of lobby & parking

The lobby door time is normally longer than the time at other landings to allow extra passenger traffic at the lobby. Door timing is adjustable to suit the needs of the building.

Door open / close button

Door open / close button in the car operating panel permits independent, opening / closing of automatic door, and to keep it open / closed by constant pressure.

Manual rescue operation

The rescue of people trapped within the car is carried out by the manual inspection rescue device. It allows the movement of the car to the closest floor.

Belt inspection device

Reliability and safety are further enhanced with Otis' PULSE™ Electronic system which continually monitors the status of the belt's steel cords 24h/7d. Contrary to current visual inspections of conventional steel ropes, the Otis PULSE™ system automatically detects and indicates through LED. This feature helps Otis technicians to monitor the quality of the belt cord and greatly enhances the reliability of the inspection.

Optional features

Car chime

When the car arrives at a landing, the chime on top of the car will be activated to indicate arrival.

Emergency power operation

This feature is activated during power supply failure. The car will be sent to designated landings and will remain idle with doors open.

Down collective operation

The system has UP hall buttons at the bottom floor and/or at the main landing only. All other floors have DN hall buttons.

Parking key switch

When this feature is activated, the car will discontinue serving any hall or car calls. After responding to the last car call, the car will go to the designated floor and shut down.

Audible car call button

The car call buttons give an audio signal when calls are registered.

Automatic rescue operation

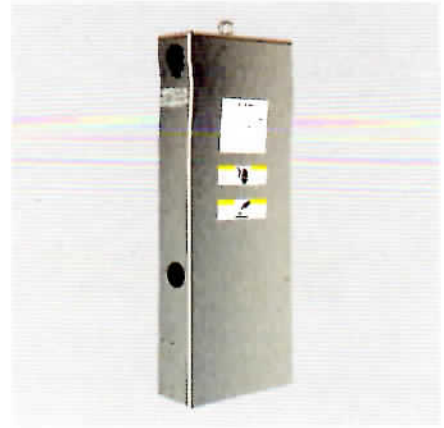
This device is used for rescue operation in case of power shutdown; it is powered by a re-chargeable battery. When there is a sudden power cut a sound signal will comfort the trapped passenger indicating that the automatic rescue operation has been activated. The car then moves towards the nearest floor and opens the doors enabling trapped passengers to safely come out of the elevator car.

Voice synthesizer

A pleasant voice announces the floor on arrival to give an added sense of comfort.

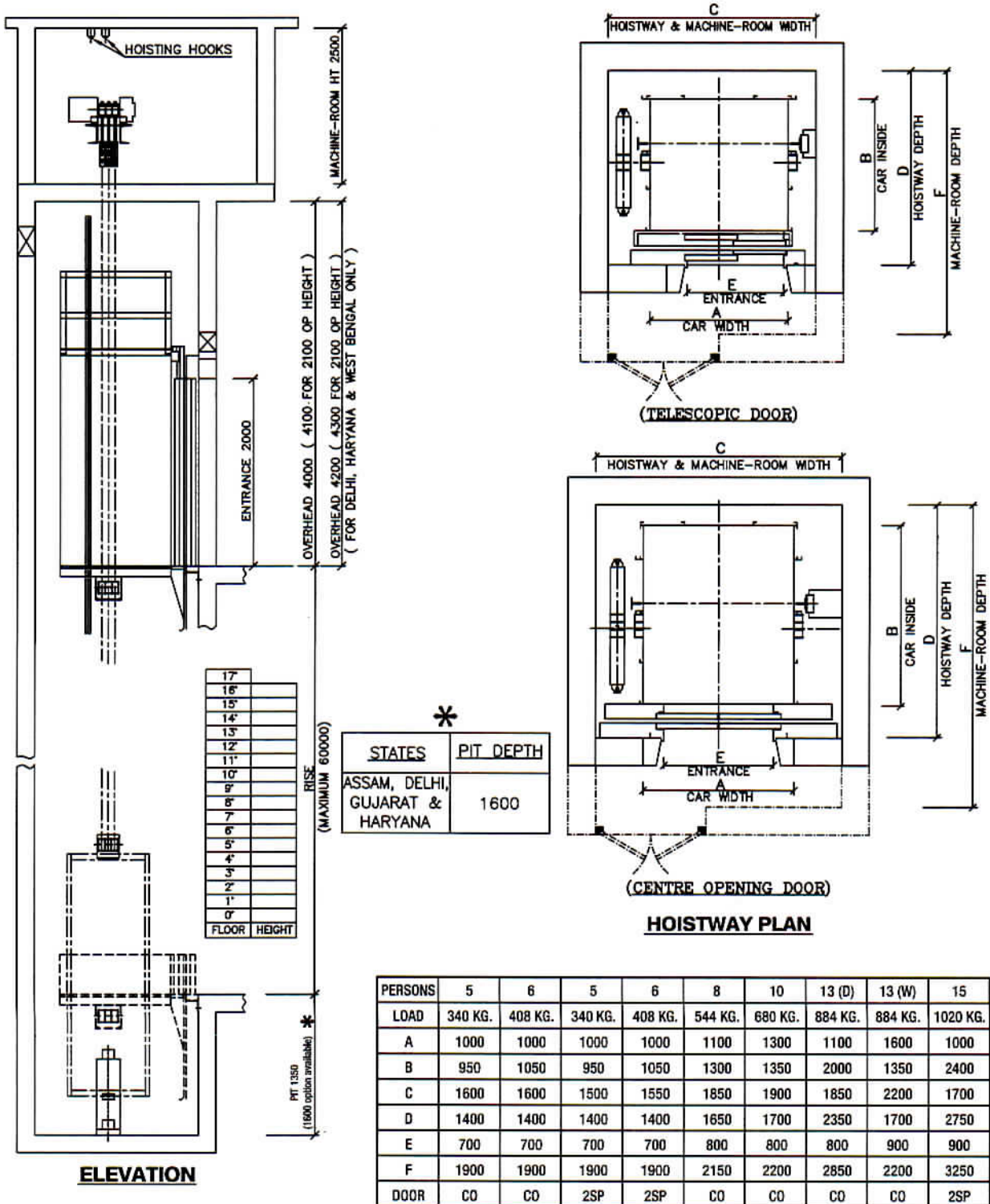
Inter-communication car to controller and lobby

The intercom system is primarily an emergency alarm device, which by definition is used to seek outside assistance when necessary.



Configuration and Dimensions

PM GEARLESS: (MACHINE ROOM) Speed: 1.00mps

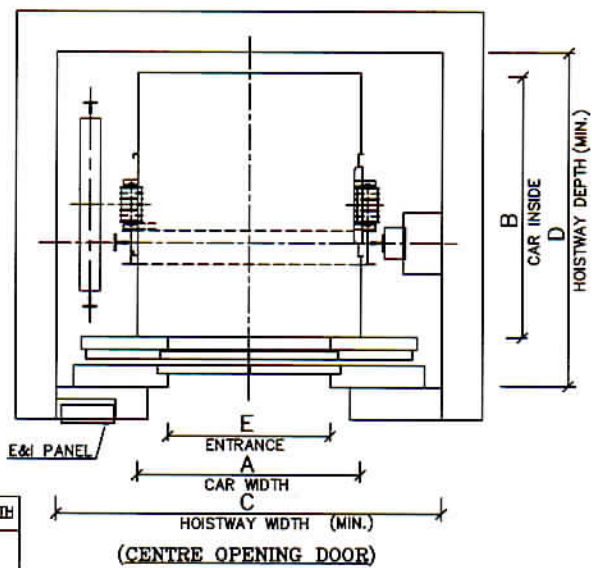
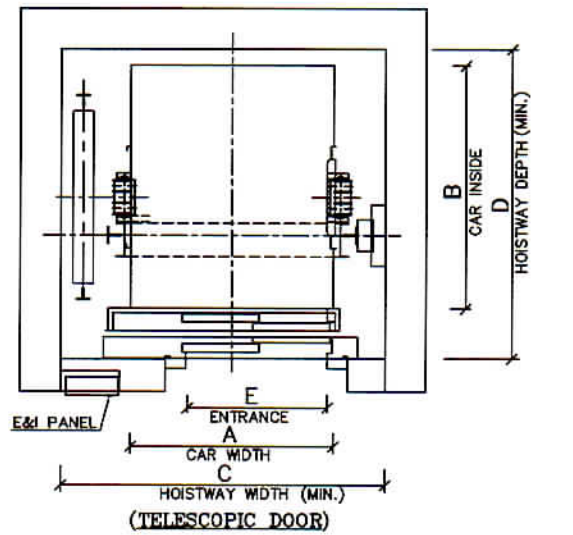
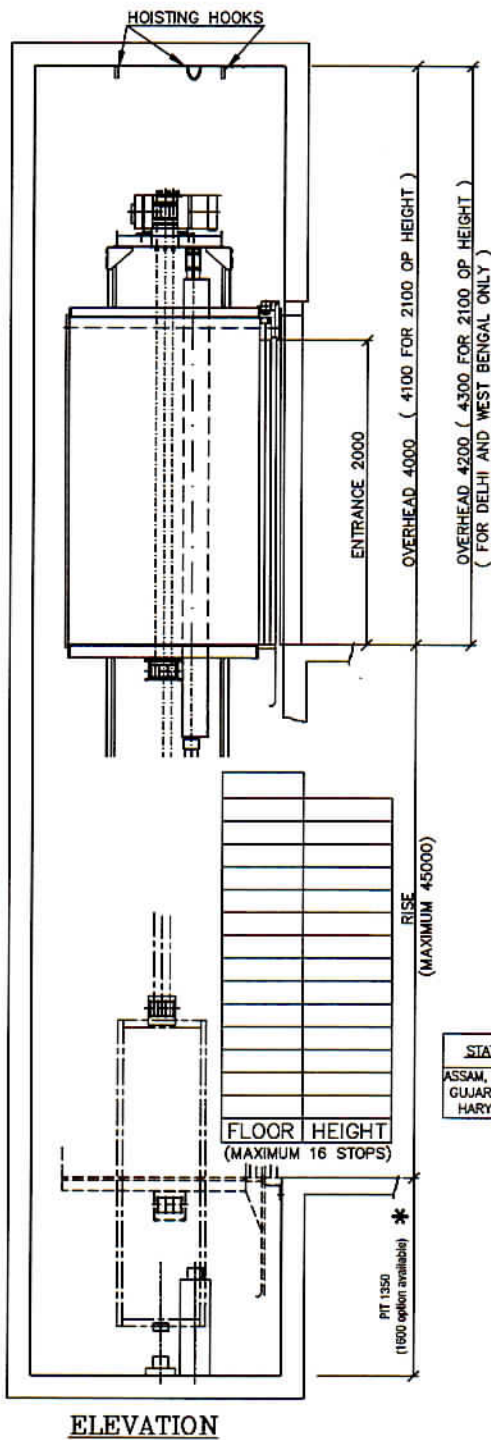


REFER OTIS DETAILED DRAWING FOR ADDITIONAL INFORMATION

ALL DIMENSIONS ARE IN mm.

Details of product design are subject to change.

PM GEARLESS: (MACHINE ROOMLESS) Speed: 1.00mps



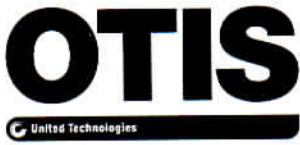
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STATES	PIT DEPTH
ASSAM, DELHI, GUJARAT & HARYANA	1600

HOISTWAY PLAN

PERSONS	5	6	8	10	13 (D)	13 (W)	15
LOAD	340 KG.	408 KG.	544 KG.	680 KG.	884 KG.	884 KG.	1020 KG.
A	1000	1000	1100	1100	1100	1600	1000
B	950	1100	1300	1600	2000	1350	2400
C	1600	1600	1850	1850	1850	2300	1700
D	1300	1500	1650	1950	2350	1700	2750
E	700	700	800	800	800	900	900
DOOR	2SP	2SP	CO	CO	CO	CO	2SP

Specifications



Gen2™ Nova

MODEL	MR	MRL
Capacity - Passenger	5, 6, 8, 10, 13, 15	
Duty - Kgs	340, 408, 544, 680, 884, 1020	
Speed	1.00 Mps	
Controller Type	Microprocessor Based	
Drive	VF Regenerative (Closed Loop)	
Power Supply	400/415 Volts (3 Phase AC)	
Operation	Full Collective	
Car Group	Simplex / Duplex / Triplex	
Machine	PM Gearless	
Ropes Type	Flat coated Steel Belt	
Max. Stop	21 (Same side opening)	16 (Same side opening)
Max. Rise	60 Metres	45 Metres
Car Finish	Powder painted / Stainless steel / Metal effects	
Ventilation	Cross Flow fan	
False Ceiling	Base: CD 41; Option CD 35 and CD 42	
Entrance Height	2000 mm (2100 mm option)	
Car Height	2200 mm (2300 mm option)	
Hand Rails	5 & 6 Passenger only at rear: Base - Painted: Option - SS 8,10,13,15 Passenger Base config - rear: Base - Painted: Option - SS 3 side option Base - Painted: Option - SS	
Flooring	Vinyl as standard / Option provided for Recess in flooring (Marble or Granite to be provided by owner)	
Fire Rated	As applicable per Code (Fire rating of 1 Hour)	
Door Operator	DC Door operator	
COP Type	Box Type - SS finish	
COP Buttons	Round Illuminated Button (LED - Red Colour / Optional - Blue Colour)	
Car Position Indicator	Scrolling Type	
Auto Fan Cut Off	Included in base	
Hall Fixtures	HB with PI (16 segment display LED - Red Colour / Optional - Blue Colour)	
Hall Fixture Face Plates	Base: Pan type is SS #4 finish, Option: flat type in SS finish	

OFFICES

Head Office & Western Region (Mumbai Operations):

Otis Elevator Company (India) Ltd.,
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Link Road, Malad (West), Mumbai - 400 064.
Tel.: 022 - 2844 9700 / 6679 5151,
Email: response@otis.com

Eastern Region:

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4th floor, Block EP&GP, Sector V, Salt Lake
Electronics Complex, Kolkata - 700091.
Tel.: 033 - 40524343 / 40524300 /
40524301

Northern Region:

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C-7, Netaji Subash Place, Pitampura,
New Delhi - 110034.
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46069100

Southern Region:

Otis House, MK Towers, # 27 Langford
Road, Shanti Nagar, Bangalore - 560025.
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1st Floor, Amar Synergy Building, Next to
Vijay Sales & Sadhu Vaswani Chowk, Near
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No.92, Kiadb Industrial Estate, Phase II,
Jigani Industrial Area, Anekal Taluk,
Bangalore - 560105.
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Email: response@otis.com

SERVICE CENTRES :

Western Region:

Mumbai, Navi Mumbai, Thane, Nashik.

Eastern Region:

Agartala, Angul, Bhubaneswar, Bokaro,
Dhanbad, Durgapur, Guwahati,
Jamshedpur, Jhadsuguda, Kahalagaon,
Kolkata, Patna, Ranchi, Shillong, Siliguri.

Northern Region:

Agra, Aligarh, Allahabad, Amritsar, Bareilly,
Chandigarh, Dehradun, Ghaziabad,
Gurgaon, Gwalior, Haridwar, Jalandhar,
Jaipur, Jodhpur, Jammu, Kanpur, Kota,
Ludhiana, Lucknow, Meerut, Moradabad,
New Delhi, Noida, Rohtak, Shimla,
Shaktinagar, Sonebhadra, Srinagar,
Udaipur, Varanasi.

Southern Region:

Bengaluru, Calicut, Chennai, Coimbatore,
Ernakulam, Erode, Hubli, Hyderabad, Kaiga,
Kottayam, Madurai, Mangalore, Mysore,
Ootakamund, Pondicherry, Qulion,
Ramagundam, Salem,
Thiruvananthapuram, Thirunelveli, Trichy,
Trichur, Vellore, Vijaywada, Vishakapatnam.

Western Region - Area Operations:

Ahmedabad, Ankleshwar, Aurangabad,
Bhopal, Goa, Indore, Jabalpur, Kolhapur,
Korba, Nagpur, Pune, Rajkot, Raipur,
Solapur, Surat, Vadodara, Valsad.