Time & Space, Hyundai’s high-speed elevator for passengers, is a high-tech, new concept elevator that realizes a high level of riding comfort and reliability. Time & Space employs a high efficient Gearless Traction Machine with a Permanent Magnet Synchronous Motor, a high precision inverter drive system, advanced Microprocessor, and data Network Systems.
Easy and comfortable space movement begins with Time & Space technology. You will ride in comfort and quietness surrounds you. You will experience a smooth, fast but undistributed ride through space and get to your destination swiftly and comfortably.
Comfort and Safety

We are pursuing reliability and safety

In Time & Space, microprocessors are distributed throughout the elevator system in the car operating panel, hall fixtures, and control system in the machine room, monitoring the elevator operation and maintaining the reliability of the system to ensure passenger safety. The Elevator Data Network collects system operation data from the moment the hall or car call is registered until the passenger arrive at their destination floor.

- Self-checking System
  Time & Space technology enhances the reliability of the entire system with the use of microprocessors to control speed and movement and has a self-checking system that monitors the safety functions of the operation system.

- Data Network and Fiber Optic Transmission Device
  Fiber Optic is used for the communication between the microcomputers that controls dispatching, car speed and door operations. This provides a fast, accurate signal delivering network. In addition, there are enough optional specifications to meet various passenger needs.
Gearless Traction Machine with a Permanent Magnet Synchronous Motor, developed for the first time in Korea, is the core technology of Hyundai Elevator, a company striving for passenger's safety and elevator technology for two decades. Discover Korea's high technology in Korea’s first core technology, Time & Space.
We guarantee a pleasant and comfortable ride

You will experience new riding pleasure in Time & Space with its adoption of a high efficient Gearless Traction Machine with a Permanent Magnet Synchronous Motor and energy saving inverter (VVVF).

- **Quiet Ride**
  Quiet and smooth riding was realized since the optimal control of harmony noise successfully reduced the noise and vibration due to the application of high responding synchronous motor.

- **Leaner and Lighter**
  Since Multiple Arrangement is available, the size of the traction machine has become 50% smaller and lighter compared with existing Induction Motor type.

- **Safe Braking**
  Double brakes in which one brake takes over if the other does not work were adopted to enhance the level of safety. This product fulfills EN81 of the European elevator standards.

- **VVVF Inverter Control**
  The VVVF inverter controls the motor speed at the optimal level by changing the voltage and frequency continuously to provide a super and quiet ride. In addition, a converter for restoring electric power (PWM Converter) is adopted to improve control efficiency.

- **Korea’s First Synchronous Motor, Gearless Traction Machine**
  Unlike the existing AC-Geared Machine, the Gearless Traction Machine using Permanent Magnet is installed for the first time in Korea to improve safety as well as a smooth ride..

Core Technology
High technology in elevator is here now. Meet the future-oriented service that Hyundai provides with optional features like EDS (Electronic Display System) - a full-color screen that provides internet-based news, weather, local traffic, and financial market information to elevator passengers. New elevator life style, Time & Space, will be with you in the future.
Group Control Operating System

The group control operating system is designed to optimize elevator operational efficiency by operating, dispatching, and controlling such operation information as location, speed, number of passengers, and regulated call numbers for each of the elevators when a hall call occurs. This service enhances the overall efficiency of elevator operation.

Basic Functions of Group Control

- Car Arrival Lantern
- Service Reservation Indication
- Cut Service
- Elevators for the Handicapped
- Group Control including
  - Automatic bypass
  - Allocation in Priority
  - Peak Traffic Control
  - Rush Hour Service (Up)
  - Multi-purpose Control
  - Overall Evaluation
  - Minimize Long Waiting
  - Learning Function
- Artificial Intelligence

Basic Functions Descriptions

- Car Arrival Lantern: Lantern begins flashing 4 or 5 seconds prior to car arrival to alert passengers to the arriving elevator.
- Service Reservation Indication: Service reservation information is displayed in the corridor to indicate reserved passengers.
- Cut Service: Elevators are stopped or bypassed at a certain floor.
- Elevators for the Handicapped: Elevators are not operated separately but are included in group control.
- Group Control: Various functions are controlled by group control including:
  - Automatic bypass: Full-loaded cars will bypass hall calls.
  - Allocation in Priority: Elevators with calls for a certain floor are allocated to that floor as a priority.
  - Peak Traffic Control: Idle elevators are distributed to other floors with higher demand.
  - Rush Hour Service: During rush hour, elevators under group control will return to the base floor during intensive service.
  - Multi-purpose Control: Considering other floor services, elevators are allocated to the floors with the highest demand.
  - Overall Evaluation: Calls are allocated to minimize the average waiting time of passengers.
  - Minimize Long Waiting: Optimal car usage is determined by forecasting traffic and evaluating car suitability for the calls.
  - Learning Function: Operational parameters automatically to enhance group control due to various reasons including blackout. The learning function is reported to the RMS center through phone line emergency is reported to the RMS center through phone line and other data that will help trouble shooting and preventive maintenance.
- Artificial Intelligence: Various colors. Index trends, floor guides, and headline news using LEDs of various colors.

A broad range of information is provided by the elevator

Let’s receive the latest information and various conveniences in Time & Space with the advanced information system of our high-speed elevators.

- EDS (Electronic Display System): Inside or outside the elevator, or on the lobby of the building, on TFL-LCD (Thin Film Transistor Liquid Crystal) or PDP (Plasma Display Panel) provides important information such as car operation status, weather, stock market data, news, and headlines using LEDs of various colors.
- Hall Information Display System: This basic information system provides basic information such as elevator operation status, weather, stock market data, news, and headlines using LEDs of various colors.
- CRT Monitoring: A CRT Monitor in the machine room provides simple information such as car operation status, weather, and headlines, and also helps with power saving and preventive maintenance.
- RMS (Remote Monitoring System): The Time & Space system comes with an RMS (Remote Monitoring System). This system provides the timely and efficient maintenance of elevator due to various reasons including blackout. The emergency is reported in the 24-hour control center through phone line and other data that will help trouble shooting and preventive maintenance.

Refined elegance is added for special value.
Optional Feature

Time & Space

Remote Monitoring System (HELMON)
Computer Monitoring System (RMS)

Emergency Power
Firefighting Operation
Fire Emergency Service
P wave
Earthquake Service - Earthquake Service -
Function
Performance Monitoring
System)
EDS (Electronic Display Information Display System
Touch Button
Voice Guidance System
Multi-Beam Door Protection
Auxiliary Car Operating Panel
Light, Fan Shut-Off
Car Call Cancel
Parking
Each Floor Stop
Safety Shoe
Cancel Reverse Direction Call
Anti-Ruination
Car Call Cancel
Light, Fan Shut-Off
Auxiliary Car Operating Panel
Multi-Beam Door Protection
Photo Eye Door Protection
Voice Guidance System
Touch Button
Information Display System
EDS (Electronic Display System)

Services

Applicable Item by Building Type

<table>
<thead>
<tr>
<th>Description</th>
<th>Office</th>
<th>Hotel</th>
<th>Multiplex Skyscraper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Operation</td>
<td>Cars can be separated from group control and converted into independent operation by car calls.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Programmable Door Timer</td>
<td>Timing can be set to automatic control of opening/closing of doors according to the call registered.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Repetitive Door Operation</td>
<td>If the door cannot fully close, it will repeatedly open and close for a specified number of times.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Door Open by Hall Button</td>
<td>If the hall button in the same moving direction of the car is pressed when the door is closing, the door will reopen.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Parking</td>
<td>The car can be parked at a specified floor at night or on holidays.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Each Floor Stop</td>
<td>The car can stop at each floor up to its arrival on the specified floor for the purpose of crime prevention during the night or on holidays.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Safety Shoe</td>
<td>If the door cannot fully close because of an object in the door track, it will repeatedly open and close until the object has been removed.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cancel Reverse Direction Call</td>
<td>Car call registration in the reverse direction can be cancelled.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Anti-Ruination</td>
<td>Evaluates the number of people in the car and compares that value to the number of car calls registered. If the number of calls exceeds the number of people in the car, the car call exceeding the number of passengers is not registered.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Car Call Cancel</td>
<td>When the registered car call button is pressed, it is cancelled.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Light, Fan Shut-Off</td>
<td>Light and fan in the car are automatically shut off if there is no call registered for a predetermined period of time.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Auxiliary Car Operating Panel</td>
<td>Even when the car is crowded, calls can be registered easily.</td>
<td>★ ★</td>
<td>★</td>
</tr>
<tr>
<td>Multi-Beam Door Protection</td>
<td>Multi-beam sensor installed in the door senses any obstruction caught in the door, causing the door to reopen or stay open before the door touches such obstruction.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Photo Eye Door Protection</td>
<td>If the safety ray from the beam sensor in the door is interrupted, the door reopens or stays open.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Voice Guidance System</td>
<td>A synthesized voice instructs passengers on current status, including floor numbers, etc.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Touch Button</td>
<td>Calls can be registered only by touching.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Information Display System</td>
<td>Information display installed on each floor and/or inside the car shows traffic information and other necessary information.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>EDS (Electronic Display System)</td>
<td>Information display is installed outside of the elevator or on the building hallway, on TFT LCD (Thin Film Transistor-Liquid Crystal Display) or PDP (Plasma Display Panel) and provides various information such as news, weather, transportation, financial news, music videos, commercials, etc.</td>
<td>★</td>
<td>★</td>
</tr>
</tbody>
</table>

Supervisory Operation

Applicable Item by Building Type

<table>
<thead>
<tr>
<th>Description</th>
<th>Office</th>
<th>Hotel</th>
<th>Multiplex Skyscraper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Monitoring Function</td>
<td>The operation and performance of the elevator can be monitored in the machine room.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Earthquake Service - S wave</td>
<td>When the seismic sensor detects an earthquake, all cars proceed to stop at the nearest floor to prevent damage.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Earthquake Service - P wave</td>
<td>When the seismic sensor detects a delicate tremor (P wave) before an earthquake (S wave) arrives, all cars in operation are forced to stop at the nearest floor to prevent damage.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Fire Emergency Service</td>
<td>When a fire breaks out, all cars are immediately called to the specified rescue floor for service.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Firefighting Operation</td>
<td>Elevators can be used for firefighting activities with key switches. (Emergency Elevator)</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Emergency Power</td>
<td>Service continues by automatically or manually selecting the number of cars covered by the building’s emergency power source.</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Computer Monitoring System (HELMON)</td>
<td>Monitors operation of all elevators in the building and within the apartment complex. (Floors where the cars do not stop can be set.)</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Remote Monitoring System (RMS)</td>
<td>Monitors operation of elevators with RMS remotely by telephone line and computer.</td>
<td>★</td>
<td>★</td>
</tr>
</tbody>
</table>

Standard feature ★ Optional feature ☆
Significant style delivers pliability. Refined delicacy attracts our attention. A beautiful and spatial elevator added with high performance increases the value of the building. Increase the value of your building with Time & Space, a deep and special value.

Group Control Operating System

The group control operating system is designed to optimize elevator operational efficiency by operating, distributing, and controlling each operation information in location, speed, number of passengers, and regulated call number for each of the elevators when a hall call occurs. This serves to enhance the overall efficiency of elevator operation.

| Function | Description | Symbols
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Monitoring</td>
<td>Monitors and manages all the elevators including each hall's status and car's operational status.</td>
<td>✅</td>
</tr>
<tr>
<td>Time &amp; Space Indicator</td>
<td>Indicates the status of the elevator system and helps manage situations.</td>
<td>✅</td>
</tr>
<tr>
<td>Fire Alarm System</td>
<td>Monitors and manages fire emergencies.</td>
<td>✅</td>
</tr>
<tr>
<td>Tension Control System</td>
<td>Manages tension to maintain the elevator system's stability.</td>
<td>✅</td>
</tr>
<tr>
<td>Energy Saving Management</td>
<td>Manages energy consumption to minimize costs.</td>
<td>✅</td>
</tr>
<tr>
<td>Idle Elevator Distribution</td>
<td>Distributes idle elevators to other floors with higher demand.</td>
<td>✅</td>
</tr>
<tr>
<td>Restoring Function</td>
<td>Returns the elevator to its normal state after an emergency.</td>
<td>✅</td>
</tr>
<tr>
<td>Optimized Group Control</td>
<td>Optimizes elevator allocation based on traffic status.</td>
<td>✅</td>
</tr>
<tr>
<td>Elevator System</td>
<td>Manages the elevator system in the building.</td>
<td>✅</td>
</tr>
</tbody>
</table>

A broad range of information is provided by the elevator

You receive the latest information and various conveniences in Time & Space with the advanced information system of our high-speed elevators.

- **EDS (Electronic Display System)**: Inside or on the bulletin board on the lobby, or on the ceiling of the building, an EDS (Electronic Display System) shows EDS (Electronic Display System) provides various basic information such as car operation, weather, stock price, and various basic information. Various colors are used for a wide range of information.

- **Hall Information Display System (HIS-82)**: This hall information display system provides various information such as car operation status, weather, stock price, and various basic information. Various colors are used for a wide range of information.

- **CRT Monitoring**: The Time & Space system comes with a CRT (Color Television) for monitoring and showing operational status, and various, more flexible, and other information will be provided to the maintenance staff in various colors. The information is provided in a clear, easy-to-read manner, and various colors are used for a wide range of information.

- **RMS (Remote Monitoring System)**: The Time & Space system comes with a RMS (Remote Monitoring System) for distributed hall information. When a hall call occurs, the maintenance staff receives the trouble call and is on their way for fast recovery.
Notes:
1. White colored dimensions shall be applied for Malaysia & Singapore market.
2. The minimum hoistway dimensions are shown in the above table. Therefore, some allowances should be made considering the sloping of the hoistways.
3. Above dimensions are based on center opening doors. For applicable dimensions with side opening doors, consult Hyundai.
4. For elevators with more than 24 persons capacity, consult Hyundai.
5. When non-standard capacities and dimensions are required, refer to the local code, consult Hyundai.
6. The capacity in persons is calculated at 120 lbs/person. (318 kg/person)

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Overhead (OH)</th>
<th>Top Clearance (TC)</th>
<th>P/O (P/P)</th>
<th>M/C Room Height (M/R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>5500</td>
<td>1800</td>
<td>2100</td>
<td>2400</td>
<td>3000</td>
</tr>
<tr>
<td>150</td>
<td>5700</td>
<td>2000</td>
<td>2400</td>
<td>2600</td>
<td>3200</td>
</tr>
<tr>
<td>180</td>
<td>6000</td>
<td>2300</td>
<td>2700</td>
<td>2500</td>
<td>3000</td>
</tr>
<tr>
<td>210</td>
<td>6400</td>
<td>2700</td>
<td>3200</td>
<td>2800</td>
<td>3600</td>
</tr>
<tr>
<td>240</td>
<td>7100</td>
<td>3350</td>
<td>3850</td>
<td>2800</td>
<td>4000</td>
</tr>
<tr>
<td>300</td>
<td>7700</td>
<td>4000</td>
<td>4050</td>
<td>3000</td>
<td>4000</td>
</tr>
<tr>
<td>360</td>
<td>7700</td>
<td>4000</td>
<td>4050</td>
<td>3000</td>
<td>4000</td>
</tr>
</tbody>
</table>

Notes:
- White colored dimensions shall be applied for Malaysia & Singapore market.
- The minimum hoistway dimensions are shown in the above table. Therefore, some allowances should be made considering the sloping of the hoistways.
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- Above dimensions are based on center opening doors. For applicable dimensions with side opening doors, consult Hyundai.
- White colored dimensions shall be applied for Malaysia & Singapore market.
**Typical Entrance Layouts**

**JP050 Type (Basic)**
- Entrance
- Structural Opening of Entrance
- Jamb Height (JH)
- Entrance Height (EH): 2100
- Concrete Opening Height (Jambs Height + 50mm)
- Fixing Jambs

**JP100 Type (Optional)**
- Entrance
- Structural Opening of Entrance
- Hall Position Indicator
- Clear Access Above Ceiling or Trench in Floor

**JP200 Type (Optional)**
- Entrance
- Structural Opening of Entrance

---

**Work to be Done by Other Contractors (Conditions for Estimate)**

The following works are not included in the elevator contract, and shall be done by other contractors in accordance with the Hyundai Elevator’s drawings and the applicable codes and regulations. The reference rules shown are from ANSI A17.1 Code.

### Building Work
- **Hoistway**
  1. Light outlet for each elevator, in center of hoistway in machine room.
  2. Convexity of panel and light fixture in pit with switch located adjacent to the entrance door of the machine room.

- **Structural Opening of Entrance**
  1. Stability of entrance sill against elevator car movement.
  2. Insulation of entrance sill against elevator car movement.

- **Other**
  1. Building structural elements shall be designed for the elevator car movement.

### Electrical Work
- **Hoistway**
  1. Lighting, convenience outlets, ventilation, heating of machine room, and hallways above.
  2. Convenient outlet in pit with switch located adjacent to the entrance door of the machine room.

- **Transformer**
  1. Transformer capacity (kVA) = Number of elevator x Diversity factor

- **Earth Wire**
  1. Earth wire from machine room to secondary level.

### Electric Power Requirements / 1 Car (By others)

<table>
<thead>
<tr>
<th>Persons (n)</th>
<th>Power (kW)</th>
<th>Motor (HP)</th>
<th>Transformer Capacity (kVA)</th>
<th>Power Factor (kW)</th>
<th>Earth Wire (mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>11.1</td>
<td>50</td>
<td>16</td>
<td>16</td>
<td>5.5</td>
</tr>
<tr>
<td>3-10 (120)</td>
<td>15.0</td>
<td>13.8</td>
<td>75</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>15 (120)</td>
<td>16.6</td>
<td>75</td>
<td>26</td>
<td>16</td>
<td>5.5</td>
</tr>
<tr>
<td>120 (120)</td>
<td>15.4</td>
<td>75</td>
<td>25</td>
<td>16</td>
<td>5.5</td>
</tr>
<tr>
<td>180 (120)</td>
<td>18.4</td>
<td>75</td>
<td>28</td>
<td>16</td>
<td>5.5</td>
</tr>
<tr>
<td>210 (120)</td>
<td>23.0</td>
<td>100</td>
<td>32</td>
<td>25</td>
<td>5.5</td>
</tr>
<tr>
<td>240 (120)</td>
<td>26.0</td>
<td>100</td>
<td>35</td>
<td>25</td>
<td>5.5</td>
</tr>
<tr>
<td>210 (120)</td>
<td>15.4</td>
<td>75</td>
<td>23</td>
<td>16</td>
<td>5.5</td>
</tr>
<tr>
<td>180 (120)</td>
<td>17.3</td>
<td>75</td>
<td>28</td>
<td>16</td>
<td>5.5</td>
</tr>
<tr>
<td>210 (120)</td>
<td>21.2</td>
<td>100</td>
<td>32</td>
<td>25</td>
<td>5.5</td>
</tr>
<tr>
<td>240 (120)</td>
<td>26.0</td>
<td>100</td>
<td>37</td>
<td>25</td>
<td>5.5</td>
</tr>
</tbody>
</table>

**Notes:**
- 1. The above power sizes are for lengths of electric wires up to 50 meters from the elevator machine room to the transformer.
- 2. Power factor sizes are for copper wires inside electric-metal tubing.
- 3. The transformer capacity shall be applied for lengths of electric wires up to 120 meters from the elevator machine room to the transformer.
- 4. Transformer capacity shall be applied for lengths of electric wires up to 120 meters from the elevator machine room to the transformer.
- 5. Transformer capacity shall be applied for lengths of electric wires up to 120 meters from the elevator machine room to the transformer.
- 6. Transformer capacity shall be applied for lengths of electric wires up to 120 meters from the elevator machine room to the transformer.