



News Release

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Revolutionary new drive mechanism will change the way elevators move.

Talon™

A World First in Advanced Elevator Technology

Fujitec, a world leader in elevator and escalator systems, has recently completed the development of a new drive mechanism that saves space, energy and resources.

This original drive mechanism, jointly developed by Fujitec America, Inc., Fujitec Singapore, Fujitec Japan and the Research and Development Division of Fujitec World Headquarters, operates the elevator ropes with a specially designed belt, uniquely designed through complex technological advancements. This technology is totally different from a conventional elevator hoist machine, and hereafter, Fujitec will implement this new development as the primary drive mechanism for the company's new generation of elevators that will soon be introduced to the world market.

This original drive mechanism is named the *Talon*. With the meaning "claw that clutches something," the name **Talon™** effectively conveys the accurate image of the technologically-advanced belt firmly and securely clutching the elevator ropes, imparting appropriate force to control the upward and downward movement of an elevator system.

With the application of the **Talon™** drive mechanism, it is now possible for building owners and managers to install and run the most environmentally friendly elevator system that is available on the world market. **Talon™** saves energy, space and resources due to the following:

- 1) Savings in the total weight of the drive mechanism and hoist machine.
- 2) Significant weight savings in the elevator cab and guide rails.
- 3) Reduction of the load on the building structure.
- 4) Improved noise reduction.
- 5) Shorter installation period.

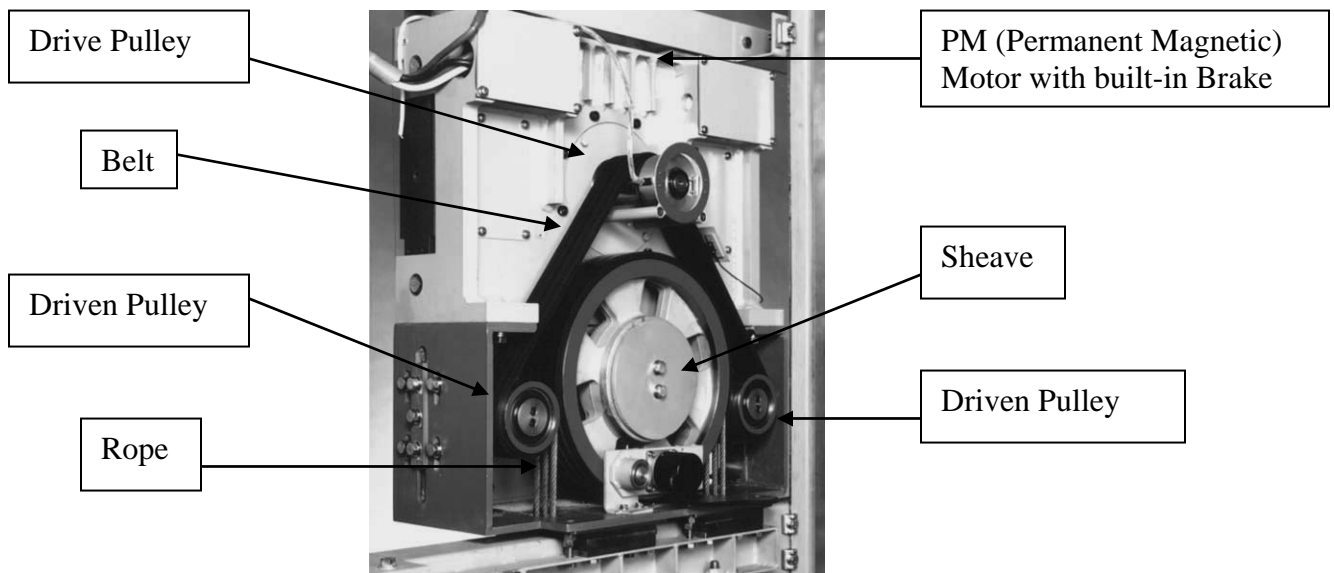
A conventional, traction sheave drive system.

Conventional rope type elevators are called “traction sheave systems,” that move the cab up and down through the use of frictional force created when the elevator ropes come in contact with the grooves of the drive sheave. In this system, weight ratio of the elevator cab versus counterweight should be less than a certain value so that the elevator can move up and down without the slipping of the ropes from the drive sheave. Therefore, for any specific elevator capacity, the lighter we make the car weight the more critical the rope-slip ratio becomes, thus placing limits on how light an elevator car can be for effective operation.

The Talon difference.

The Talon drive mechanism, developed by Fujitec, moves the elevator cab up and down by pressing the technologically advanced belt against the rope surface. The ropes themselves pass over a non-traction sheave. In this system, the unbalance generated by the difference of gravity between the cab and counterweight is not as critical because the ropes are directly driven by the pressure force of the belt. Therefore, the elevator can be effectively moved up and down without concern of rope slippage while at the same time realizing significant weight savings of the cab – a key advantage offered by the **Talon™** drive mechanism.

- The technologically advanced belt of Talon was developed jointly between Fujitec and Nitta Co., Ltd., also based in Osaka, Japan.



The **Talon™** drive mechanism consists of a “drive pulley” located at the top center and connected directly to the slim PM (Permanent Magnetic) motor. Two additional “driven pulleys” are located on either side of the sheave. The unique belt and the sheave are located at the center of the drive mechanism. The belt is specially treated and presses firmly on the surface of the main ropes that are hung on the sheave. When the motor

starts, the drive pulley transmits power to the belt and imparts the motion to the main ropes.

The benefits of the Talon drive mechanism.

- 1) ***Significant weight savings of the cab.*** The new system allows significant weight savings of the elevator cab without concern for rope slip problems that existed with a conventional or traditional system. Reduced weight creates a more environmentally-friendly elevator due to reduced resources required for manufacturing and installation as well as less energy used for operation.
- 2) ***Reduction of the load on the building structure.*** In addition to the lighter weight of the elevator cab, the counterweight can also be lightened. Also, the rails can be reduced in size and the required number of ropes is less. As a result, the loads on the building structure can be reduced, achieving cost savings in building construction.
- 3) ***Space-saving and increased flexibility in elevator system layout.*** Downsizing of the motor is achieved because the diameter of the belt drive pulley is $\frac{1}{4}$ the size of a conventional traction sheave. As a result, necessary motor torque is reduced. Along with the downsizing of the motor, the mechanical drive system also can be lightened and downsized, which improves flexibility of the hoist way layout and installation plan.
- 4) ***Longer service life of ropes.*** Rope life is extended compared to those used in a conventional traction sheave system. On the **Talon™** drive mechanism, the belt is non-abrasive to the hoist ropes and does not wear down the ropes as does the grooves found on a traditional system.
- 5) ***Easily adaptable for modernization of existing elevator systems.*** The weight savings and downsizing benefits of the **Talon™** drive mechanism makes can be easily adapted to many kinds of existing elevators without major changes in the layout elevator systems.

