

MITSU NEWS



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A most sincere word of gratitude and appreciation for the reception and support you have accorded to the first issue of MitsuNews.

The world is changing and so is Mitsulift. The necessity to implement changes is the clear message deriving from the market place. Our objective is to enhance and evolve our organization through the complete participation of all its members and their maximum contribution. This will guarantee a motivational environment while focusing on our mission of being the best service company in the elevator and escalator field, and our goal of being a regional dominant player in the elevator and escalator industry.

The success of a company depends above all on its management and employees. However, the process of innovation cannot be achieved without the full involvement and dedication of not only the internal team, but also our partners, suppliers, clients and community in which Mitsulift has been growing over the past decade.

In line with the evolution of our organization, we have been awarded the new ISO 9001:2000 that will be implemented in the near future to all our affiliated companies in Greece, Cyprus and Syria.

We, at Mitsulift, highly believe in innovation, the main guarantee of our continuity and long term growth, and it is through reading correctly the market requirements that we will drive our organization to create better products and unique services that cater to our customers' needs.

I take this opportunity to wish you a very fruitful 2003!

Karim Abillama, Managing Director



Our recent projects include:

Lebanon

- St. George Hospital - 16 elevators*
- Metropolitan City Center - 20 escalators, 19 elevators*
- Le Verdun Four Points Hotel - 5 elevators, 1 entrance door, 1 BMU*
- Twin Towers + REB 3646 - 10 elevators*
- St George Towers - 6 elevators*

Greece

- Athens City Center - 13 escalators*
- Lambda Development - 2 elevators*
- Sidenor SA - 2 elevators*

Cyprus

- Hellenic Bank - 4 elevators*
- EB Executives bldg. - 2 elevators*
- Natioti athletic shop - 1 escalator*

Syria

- Royal Suites - 2 elevators*
- Al Furat Petroleum Co. - 4 elevators*
- Potable Water Est. - 2 elevators*



The new Ministry of Finance building in Nicosia provides modern office spaces for about 1200 employees. The buildings are four stories high, about 33000sq.m. in total. A further 20000sq.m. is available in two underground levels. Cylift delivered 7 Mitsubishi GPS III elevators at 1.75m/s.



Crystal Tourniket®

from **BOON EDAM**
The first name in entrance technology

Use glass constructively? Boon Edam does just that! The result is the dazzling all-glass Crystal Tourniket. The entire door is made of glass - the wings, the walls of the compartments and even the canopy - and the fact that there is no centre column makes the door even more transparent.

The Crystal Tourniket fits perfectly with the latest architectural trends, in which glass plays a prominent role. Yet the fact that glass is timeless means that the door also blends beautifully with other more classical architectural styles.

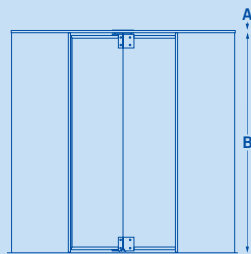
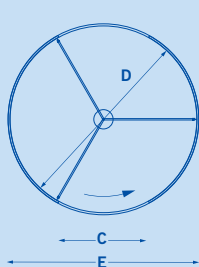
It goes without saying that the Crystal Tourniket meets all of the current standards and requirements related to safety and quality.



Operational features:

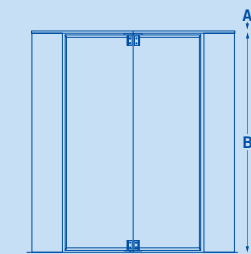
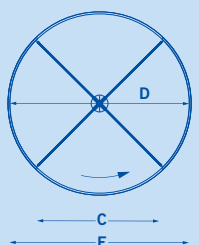
- **The doorset** is constructed from 12mm toughened glass clamped at the top and bottom pivot points without the need for a centre column. All outer edges are fitted with replaceable weather-stripping in 25mm profiles.
- **Soffit** is fully glazed and constructed in two halves which fit directly onto the glass curved walls and are secured with special fixing clamps. Glass is an 18mm laminate with a toughened upper layer.
- **“Frameless” curved walls** are constructed from 17mm laminated glass recessed into the matwell trim which is installed in the finished floor. The vertical edges of the glass are covered by protective cappings.
- **Surface finish** is stainless steel for maximum strength. This is usually 240 grit finish or polished but polyester powder coating can be supplied if preferred.
- **Security** is provided by special locks on the glass doorset.

- **Operation:** Manual, semi-automatic (door positioning / speed control) or fully automatic.
- **Matwell trim** 50mm deep stainless steel profile with provision for glazed curved walls which must be installed within the finished floor.
- **Collapsible doorset** allows the door leaves to be manually collapsed and the centre column to provide a clear through-passage.
- **Door handles** from Boon Edam include standard horizontal or vertical push bars, or alternatively, the doorset can be prepared for specialist handles.
- **Additional security** can be achieved with external night sliding doors. Constructed in the same manner as the curved walls, these are mounted on a special stainless steel track fixed to the glass soffit and can be used to close off the door opening.
- **Remote locking** of the doorset can be provided by the Tourlock 360 which when activated will lock the centre shaft, preventing the door from turning.



Crystal Tourniket 3-winged

- **Safety features:** A full range of sensors is available to ensure compliance with European Safety Standards. These include; emergency stop buttons, active and passive rubber safety buffers, temporary speed reduction buttons and infra-red presence sensors. Requirements differ depending on the location and size of the door and we will be pleased to offer advice for any specific application.
- **Power supply:** Single phase, 240V, 50 Hz, 10A supply is required to the drive with all external cabling and conduit runs provided by others.



Crystal Tourniket 4-winged

D	A	B*	C 3-w**	C 4-w**	E
1600	17.5	2200 / 2600	725	1072	1650
1800	17.5	2200 / 2600	825	1214	1850
2000	17.5	2200 / 2600	925	1356	2050
2200	17.5	2200 / 2600	1026	1497	2250
2400	17.5	2200 / 2600	1126	1639	2450
2600	17.5	2200 / 2600	1226	1780	2650
2800	17.5	2200 / 2600	1326	1922	2850
3000	17.5	2200 / 2600	1426	2064	3050

* minimum / maximum ** 3-winged / 4-winged



The Permanent Magnet (PM) Motor



- **Outline:** One of Mitsubishi firsts: a new type of gearless traction machine with a permanent-magnet motor for high speed elevators. This application enables several improvements: Higher efficiency, greater comfort and miniaturization.

Because it no longer requires an exciting current, the PM motor delivers higher efficiency and faster response speed compared to conventional motors. Furthermore, the synchronous motor maintains this level of efficiency regardless of the number of poles.

The PM motor uses optimal control to suppress harmonic noise to a level below that of conventional induction motor. The reduced noise and vibration translates into a more comfortable ride for passengers.

PM motors are also smaller and more compact. At the same time, the unit's height is reduced by the application of a dual disk-brake system.

The use of PM machine on the series NexWay high speed elevators results in several improvements compared to previous model:

- 1- Energy savings
- 2- Reduced vibration and noise
- 3- Smaller size
- 4- Refined safety

- **Development of the PM Motor:**

- **PM details:** Mitsubishi has developed a new type of gearless traction machine for high speed elevators with the application of extensively researched PM motor technology. Mitsubishi elevators are the first in the industry to utilize these PM motors.

The magnet used for the PM machines is a rare earth type material which has a high magnetic flux density and a large coercive force. The three main materials used for permanent magnets are samarium (SmCo), neodymium (Nd) and praseodymium (Pr), all of which have the desired properties described above.

- **Miniaturization method:** The general method of the miniaturization of a motor is to arrange the multiple design. This results in core dimension and coil end length.

Power supply frequency is increased by a multiple arrangement, but the number of poles can be freely selected because recent advances in power electronics technology have enabled expansion of the operating output frequency range of modern inverters, thus eliminating the frequency limitations in motor design. Since the block size of the magnetic material is limited for the PM motor, there is a limit to the pole-arc length to be covered by one magnet and the pole lower limit value can be determined. Also, as the pole number increases, the number of components and processing and manufacturing times are increased. The number of poles was selected taking these points into account.

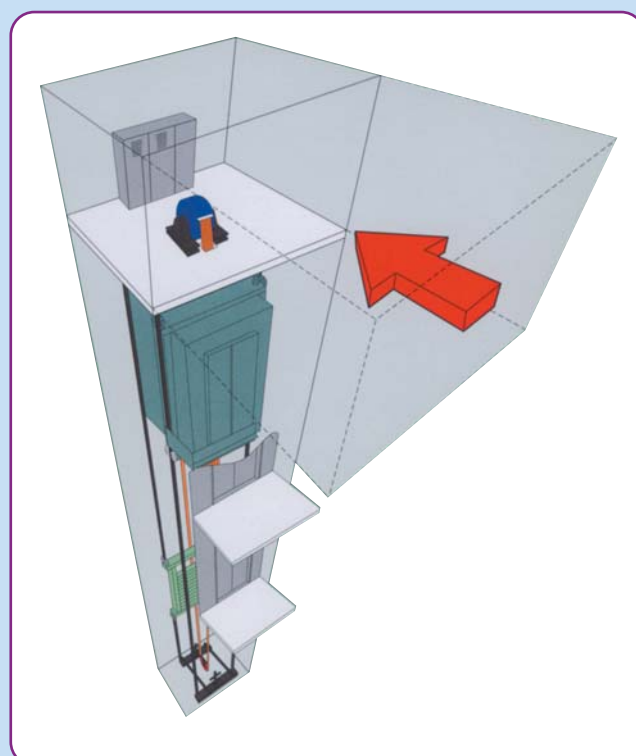
The table below shows the comparison of induction motor and PM motor:

	Induction motor	PM motor
Power factor	63%	94%
Efficiency	90%	92%
Volume	100%	65%

- **Rotor structure and protection:** Although the strength and process ability of rare-earth magnets have been improved, it is generally difficult to make holes in a magnet itself. For this, the magnet has been fixed with non-magnetic spacers. Because of the limitation in the block size, several magnets are arranged in the axis direction for one pole. The magnet is structurally made so that it will not be affected by factors such as external atmosphere and dust collection.

- **Endurance against demagnetization:** The magnetic property is classified into reversible or irreversible range depending on the scale of the external magnetic field. This property is easily influenced by magnet temperature. Therefore, the temperature must be kept as low as possible and the reactance of the motor must be taken into consideration so that the opposing magnetic field caused by armature current would not exceed the reversible range and magnet demagnetizing would not occur.

- **Countermeasure for torque pulsation:** If the induced voltage in the motor has a harmonic component, high harmonic current flows as a result of the difference in the sine wave voltage of the power, which causes torque pulsation. Since traction machines for the elevators require less pulsation and smooth torque generation, the armature was arranged in one slot skew and selected the fractional slot design with an adequate winding constant in order to improve the waveform.



Training

Owing to its rapid expansion and growth on the market, Mitsulift and Equipment has realized that meeting the challenges requires better trained and skilled staff. In fact, the more confident and professional they become, the more satisfactory the services they offer will be.

Therefore a conference room and a laboratory has been recently equipped with modern audio-visual facilities and simulation machines.

The trainee approaches each case theoretically before moving to the laboratory for a closer more practical case study. Upon completion of the training sessions or workshops scheduled over the year, the trainee is granted a certificate of achievement that is subject to annual evaluation and renewal.



Organization

With recruitment focused on recent graduates, Mitsulift is developing a new style of leadership.

For the fresh out of school young individual, joining M & E represents a chance to develop one's skills in top level teams, where open minded spirits are called upon daily to stimulate interactivity, activity and reactivity. Teamwork and conviviality are essential values for our projects.

Strategy

The market is not the only place where we are competing for leadership. Every employee enters the new year with one goal in mind: Remain the market leader and expand.

At M & E, striving to be the best service company in the region is one of our most cherished traditions, which is reinforced by our ISO 9001:2000 certificate.

Our priority now is to maintain the progress we have made in quality, training, and leadership.

Congratulations on the new-borns of:

Nelly El Khazen, Sarah Boulos Sfeir, Murielle Laudy Keddissy, Myriam Jamal Allawi, Joey Joseph Sleiman, Jennifer Nasser El Merheb, Oula Najj Azzi, Karen Francis Saadeh, Youssef

Annual dinner

The annual dinner was held on 16 December in an Italian restaurant. We have organized some games and we have all voted for the sexiest male and female, Mr Mitsulift... etc.



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