



Machine-roomless lifts

450 -1000 Kg

# The world moves with Silens Pro Revolution®

## Smart technology that improves your quality of life

Silenspro®

**Learns your traffic habits** and automates calls. Shows relevant **information** about your journey, updated **in real time**. Equipped with software that keeps it **always up to date**, with functionality improvements now and in the future.





## A real *Revolution* with the latest technology

Equipped with the **latest technological advances**: silent, gearless traction; cutting-edge, programmable PESSRAL devices; and Direct-to-Floor system for **better comfort** and **energy savings**. The only lift on the market with Varispeed technology, making it **the fastest in its category.** 

### More speed, less waiting

Saves travel and wait time by travelling faster than its nominal speed without extra construction requirements or increased energy consumption.



Thanks to more than 55 years' experience in developing vertical transportation solutions to improve people's lives and mobility across 5 continents, we have created the **Silens Pro Revolution**<sup>®</sup>:

#### The smartest, most technologically advanced and efficient machine-roomless lift with gearless traction we have ever designed.

### **Energy efficiency that** meets your needs

A Class energy efficiency in accordance with VDI 4707 and ISO 25745-2 standards. Stand-by mode, gearless traction and LED lighting. Manufactured in accordance with ISO 14001.





First lift on the market to include SIL 3 (Safety Integrity Level) safety devices.

### With more choices than ever before

More choices available for decorations, push buttons, doors and safety gear for greater flexibility.



## Silenspro®

## High standards on a global scale

**Gearless machine: compact** & energy efficient as well as easier to install due to its reduced weight.

The car platform, flooring, ceilings and sling arrangment make for a **robust and hard**wearing product.

The **machined guide rails** are of the highest quality and are delivered cut to size to suit the particular project.

Automatic fire-rated doors, side or central opening are safe and realiable. Available in brushed stainless steel or epoxy finish.



#### In full compliance with:

- · 2014/33/EU Directive
- EN 81-20/50 Standards
- EN 81-28 Remote alarms

\*Optional: EN81-73 · EN81-70

State-of-the-art electronic overspeed governor.

Overspeed governor and traditional safety gear available as extra.

The robust **conventional under-slung sling arrangement** allows for excellent ride quality. A modern **electrically triggered safety gear** replaces the traditional linkage bar mechanism whilst providing a lower tripping speed.

In-shaft safety devices (limit switches, absolute positioning, door zone magnets, final limits) are integrated into a LIMAX Safe device.

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The mechanics mentioned above correspond to a Silens Pro Revolution<sup>®</sup> 450 and 630kg





## **Varispeed:** Faster travel for optimum traffic management

For the first time as a standard feature, the **Silens Pro Revolution**<sup>®</sup> incorporates innovative **Varispeed** technology that allows the lift to travel faster, cut passengers' travel and waiting times and increase the building's lift traffic capacity.

#### LIFT WITH VARISPEED®



\* & \*\*\*: based on traffic analysis during the late evening in a residential building with 24m travel, 9 floors and an occupation of 10 people per floor.

\*\*: based on data collected of random traffic in a residential building over 6 floors with 15.5m travel.



Varispeed is a technology exclusively available for **Silens Pro Revolution**<sup>®</sup> lifts that enables:

- Faster and shorter travel.
- Save travel and waiting time.
- Streamline traffic flow in the building.
- Reduce the bill for energy consumption.

With Varispeed,

Silens Pro Revolution<sup>®</sup> is faster than other similar lifts without taking up more space.

![](_page_7_Picture_0.jpeg)

GREEN TECH

## **Direct Approach System** Supreme precision and comfort

**The Silens Pro Revolution**<sup>®</sup> offers passengers a unique travel experience characterised by smooth and silent travel with no abrupt movements.

Our **Direct Approach System** allows the lift's control system to calculate the optimum speed curve for each trip, avoiding the delays typically experienced with lifts that do not benefit from this function.

As a result, lift travel and waiting times are drastically reduced and passenger experience in terms of comfort, smoothness of travel and car-to-landing stopping accuracy are significantly improved.

On top of that, the Direct Approach System gets rid of the need for a series of sensors and devices inside the lift shaft, thereby simplifying, shortening and economising on the lift installation process and subsequent maintenance work.

![](_page_8_Picture_0.jpeg)

## A smart way of moving...

**The Silens Pro Revolution**<sup>®</sup> is a smart, connected lift with all the functionalities needed to improve user experience throughout its service life. It is a lift that is always learning.

For the first time, the Silens Pro Revolution® includes a standard **SIRES (Shaft Intelligent Revolutionary Elevator System)**. The concept is based on a PESSRAL\* device providing absolute positioning in the lift shaft using the latest magnetic technology.

\*The PESSRAL system is designed for control, protection or monitoring based on one or more programmable electronic devices, including system elements such as power supplies, sensors and other input devices, data highways and communication gear, and actuators and other output devices, used in safety-related applications

![](_page_8_Picture_5.jpeg)

## ...that also benefits technicians

- Offers the exact location of the car in the shaft, accurate to less than 1 mm
- Installation & maintenance: faster, easier and more adaptable.
- Lift car location: always available in real time.
- Simplified fault detection: thanks to advanced diagnostic capacities and the removal of outdated components.
- Covers various safety functions of the EN81-20/50 standard such as bottom limits, uncontrolled movement, overspeed governor, and control and triggering for shaft stopping.
- It also covers other safety functions such as door area positioning for the emergency rescue control system.

The PESSRAL device is silent and resistant to dust, smoke and humidity.

![](_page_9_Picture_0.jpeg)

![](_page_10_Picture_0.jpeg)

PERS- 630 KG

## Modern design - all to the customer's taste

The new range of design options specifically developed for the **Silens Pro Revolution**<sup>®</sup> caters for our customers' most demanding tastes, right down to the last detail, both in terms of appearance and of function. The result is a relaxed user experience and the capacity to shine, whatever the architectural setting.

![](_page_11_Picture_0.jpeg)

![](_page_12_Picture_1.jpeg)

![](_page_12_Picture_2.jpeg)

![](_page_12_Picture_3.jpeg)

![](_page_12_Picture_4.jpeg)

## 200 Revolution Series

**200 Revolution Series** cars are built with galvanised steel sheeting with plastic laminates available in a wide range of colours or with stainless steel in a choice of different patterns.

- **In-car lighting:** direct, using LED spotlights from either range.
- · Lift-car doors and front returns: finished in stainless steel.
- **Car operating panel:** BCR 1 model which includes the 7" TFT colour indicator. Other operating panels available.
- · Optional **skirting** in anodised aluminium finish.
- · Car floors available in hard-wearing polymer options.
- **Handrails** (optional): finished in AISI 304 stainless steel. Lift car is also available with handrails on all walls or without.
- Mid-height mirror.
- Design in full accordance with 2014/33/EU Directive, EN 81-20, EN 81-50 and EN 81/70.

![](_page_13_Picture_0.jpeg)

![](_page_14_Picture_1.jpeg)

![](_page_14_Picture_2.jpeg)

![](_page_14_Picture_3.jpeg)

![](_page_14_Picture_4.jpeg)

![](_page_14_Picture_5.jpeg)

The ST *Revolution* Series cabins are made with stainless steel sheets in different textures.

- · Direct **car lighting** through various LED spotlight options.
- · Car doors and front returns in stainless steel finish.
- BCR2 model **car operating panel** with 7" TFT colour display. Other operating panels available.
- · Optional **skirting** in anodised aluminium finish.
- **Car floors** available in hard-wearing polymer options. Other finishes available to order.
- **Handrail** in AISI 304 stainless steel Cabin available with handrail on all walls or without handrail.
- Mid-height mirror.
- Design in full accordance with 2014/33/EU Directive, EN 81-20, EN 81-50 and EN81-70.

![](_page_15_Picture_0.jpeg)

![](_page_16_Picture_1.jpeg)

![](_page_16_Picture_2.jpeg)

![](_page_16_Picture_3.jpeg)

![](_page_16_Picture_4.jpeg)

![](_page_16_Picture_5.jpeg)

**300** *Revolution* **Series lift cars** are built with galvanised steel sheeting and clad with high-pressure laminates in a wide range of colours.

- · In-car lighting: direct, using LED spotlights from eiher range.
- · Lift-car doors and front returns: finished in stainless steel.
- **Car operating panel:** BCR 2 model which includes the 7" TFT colour indicator. Other operating panels available.
- **Skirting** in anodised aluminium finish.
- · Car floors available in hard-wearing polymer options.
- **Handrail** in AISI 304 stainless steel. Caravailable with handrail on all walls or without handrail.
- · Height mirror.
- Design in full accordance with 2014/33/EU Directive, EN 81-20, EN 81-50 and EN81-70.

Lift car's real internal dimensions with decoration 300 will be less than what shown in our drawings/charts.

EN81:20, EN 81:70 and AS1735-12 norms state that internal lift car measurements are to be calculated between structural walls, allowing surface reductions caused by the different wall finishes. 300R's decoration complies with the above mentioned norms.

![](_page_17_Picture_0.jpeg)

![](_page_17_Picture_1.jpeg)

Light Reflectance Value

#### 200 Revolution® Series · Skinplate

PB10	35	PB15	51	PB20	64	PB25	37	PB30	53	PB35	18
						and a second					
PB40	64	PB50	43	PB55	57	PB60	15	P422	32	P432	35
		R									
PB80	30	PB65	32	PB70	15	PB75	7	P222	72		

#### **Revolution Series ST® · Stainless steel**

![](_page_17_Picture_6.jpeg)

#### 300<sup>®</sup> Revolution Series · High-pressure laminates

![](_page_17_Picture_8.jpeg)

![](_page_18_Picture_1.jpeg)

Light Reflectance Value

#### **Rubber**

![](_page_18_Picture_4.jpeg)

square

PSR

\*Wide safety mirror from above the handrail to the ceiling

\*\* Tall safety mirror from skirting level to the ceiling

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#### Silenspro® REVOLUTION

## Car operating panels, landing push stations & indicators

#### **Car operating panels**

![](_page_19_Picture_3.jpeg)

#### **Car push-buttons**

![](_page_19_Figure_5.jpeg)

- \* Stainless steel push buttons with tactile legend and Braille (EN81-70 compliant).
- \*\* For BIR1 and BIR2 panels only.
- \*\*\* Push buttons US91, 10 floor limit.

#### **Car display**

![](_page_19_Picture_10.jpeg)

Smartech (7")

#### **Landing Push Stations**

![](_page_19_Picture_13.jpeg)

BER1\* BER2 BER3

\* Push buttons installed directly in the door frame.

\*\* Flush mounted on door frame.

\*\*\* Surface mounted on door frame.

#### Landing push buttons

![](_page_19_Picture_19.jpeg)

![](_page_19_Picture_20.jpeg)

\* Only for BER2 push station.

\*\* Only for BER2 and BER3 push stations

#### **Landing indicators**

![](_page_19_Picture_24.jpeg)

Display Smartech HR\*

![](_page_19_Picture_26.jpeg)

FERV

\*Option EN81-70: with "next direction arrow" and gong \*\* EN81-70

HLER - Cabina\*\*

### Lift car Smartech display

![](_page_20_Picture_1.jpeg)

**Lift availability before travel.** The screen tells you if the lift is available for use.

**Smartech AutoTest Function.** Checks and displays the correct functioning of the safety components and system before the start of each journey.

**Position & direction.** Shows the location of the lift within the building at all times, as well as direction of travel.

**Destination floor & time remaining before arrival.** Indicates the floor to which the lift is travelling and the time remaining before arrival, expressed in seconds. **Speed.** Passengers are kept informed in real time of the car's speed on each journey, from departure until arrival at the destination floor.

**Energy consumption.** Indicates if the lift is consuming energy or generating it during travel, thereby reducing the building's operating costs.

**Arrival at destination floor alert.** Informs passengers when the lift reaches the destination floor.

**Date & time.** Displays the time and date in real time.

**Load & passenger capacity.** Indicates the maximum permissible load, in kilograms, and the maximum number of passengers that can travel in the lift car.

### Landing Smartech HR display\*

#### \*Optional

**Welcome messages.** The screen greets passengers with messages corresponding to the particular time of day.

**Position & direction.** Indicates to passengers waiting on a landing the location of the car and its direction of travel in real time.

Flashing LED display by the lift entrance. Alerts passengers to the imminent arrival of the lift.

![](_page_20_Picture_16.jpeg)

**Situation reports.** The display transmits relevant information to passengers: such as when there are too many people in the lift car, when the lift door is blocked and when people are entering or leaving the car, among others.

**Lift arrival countdown.** The display shows a progress bar and countdown in seconds, accurately updated in real time, so that passengers know exactly when their lift will arrive. **Energy consumption.** Indicates if the lift is consuming energy or generating it during travel, thereby reducing the building's operating costs.

**Voice messages.** The screen device shares travel information with passengers via a voice synthesiser built into the door frame. Its volume is automatically adjusted according to the particular time of day.

All the visual and acoustic messaging has been designed in full accordance with EN 81-70 (Safety rules for the construction and installation of lifts. Particular applications for passenger and goods passenger lifts. Part 70: Accessibility to lifts for persons including persons with disability).

![](_page_21_Picture_0.jpeg)

## The best possible choice for lift professionals

The **Silens Pro Revolution**<sup>®</sup> has been specifically designed to assist the work of lift professionals throughout the working life of the lift system.

#### A fully-integrated solution

The innovative **ALEC system** represents another step in the integration of all electrical and mechanical components of the lift, raising benefits to another level.

#### **Intelligent packaging**

The **Silens Pro Revolution**<sup>®</sup> is delivered on-site in packaging designed to facilitate the work of installation personnel. All the lift components and parts are delivered in a logically-organised series of packs that are clearly identified and strictly ordered according to their place in the installation sequence. The lift system comes with all the parts labelled and numbered and with all the detailed checklists, documents and installation manuals required.

![](_page_22_Picture_0.jpeg)

#### **Fast & straightforward installation**

The **Silens Pro Revolution**<sup>®</sup> can be installed in under 90 hours.

#### **Plug and Play**

Thanks to our Plug and Play manufacturing concept our electrical packages are supplied pre-tested and pre-wired to the specific gearless machine that is shipped with the lift.

#### **Quick Spin**

Instant synchronisation of the gearless machine and VF drive removing expensive commissioning costs.

#### **Easy to maintain**

Maintenance work on a **Silens Pro Revolution**<sup>®</sup> lift system by the qualified servce technician is safe, quick and supremely straightforward.

#### **Permanent technical support service**

We offer clients all the technical support they require, whether mechanical or electrical: our highly qualified staff advise and assist them in real time and in their own language.

#### **Spare parts guaranteed**

The availability of original spare parts is guaranteed, as is the full traceability of all replacement parts installed.

#### **Speed of delivery**

Once an order has been received and confirmed, the corresponding **Silens Pro Revolution**<sup>®</sup> lift system will be manufactured in just four weeks.

![](_page_23_Picture_0.jpeg)

![](_page_23_Picture_1.jpeg)

## Altamira II control system: Silens Pro Revolution's<sup>®</sup> brain

The Altamira II control system has been completely designed and manufactured by IMEM Lifts alone. It was conceived to control, with maximum precision, all the actions of any lift or group of lifts in the **Silens Pro Revolution**<sup>®</sup> range.

Altamira II is ready to solve, in a simple way, both the most common functions and the most complex and sophisticated, avoiding traditional electro-mechanical solutions.

#### Seamless integration for perfect performance

**Altamira II** is fully integrated with the mechanisms of the entire **Silens Pro Revolution**<sup>®</sup> lift range. Therefore, in a **Silens Pro Revolution**<sup>®</sup> lift, the mechanical and the electrical act as one to provide exceptional functionality and performance.

**Altamira II** minimises the sensors and components required, making it possible to utilise space to the maximum. It provides optimum travel comfort for the lift and reduces electrical consumption.

As electrical and mechanical manufacturers we not only offer our customers lifts that provide integrated electrical and mechanical solutions with perfect compatibility: we also offer integral technical support to our customers, saving time and providing efficient support throughout the lifecycle of our lifts.

#### **Easy and quick installation**

**Altamira II** is supplied pre-assembled, preconnected and pre-tested which simplifies installation and minimises any margin of error.

Perfectly configured inverter and machine operating patterns match the operation of **Altamira II** with the mechanics of every **Silens Pro Revolution**<sup>®</sup>

Installation times are reduced thanks to the almost complete elimination of traditional sensors and magnets.

**Altamira II** integrates software that allows a single person to perform a levelling operation in minutes and from inside the lift car.

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![](_page_24_Picture_0.jpeg)

#### **Easy maintenance**

A simple smartphone allows, without the need for cables or additional tools, rapid, easy and userfriendly access to the control system to perform lift maintenance tasks. The **App** provides access to documentation, manuals and communication with our customer support department.

In the event of an unexpected anomaly, **Altamira II** will automatically proceed to correct it in a selflearning process by recording the event for later analysis by the maintenance department without interrupting the lift service.

Our technical support department can provide remote support and real-time monitoring of lifts via telephone or internet.

![](_page_25_Picture_0.jpeg)

#### **Operational and service** functions

#### Direct approach

The lift approaches the floor with no intermediate speeds to stop gently at the floor level. The position of the car is calculated at all times without the need for magnets.

#### Homing Mode

The lift car returns to the specified homing floor. You can set any floor as the return floor.

#### Maximum no. of calls

Limited number of car calls registered. Anti-vandal mode.

#### **Fire control**

In the event of a fire, a control is activated that sends the lift to the fire emergency floor. If the lift is going away from the fire emergency floor, it will stop at the first possible stop and without opening the doors, it will return to the fire emergency floor. If the lift is going in the direction of the fire emergency floor, it will not stop until it arrives at that floor. This complies with EN81-73. When this movement is completed, it can return to normal operation by means of reset or not.

#### Stand-by mode

Disconnects the lighting inside the car as well as the car and landing displays, thus reducing the electrical consumption of the lift.

#### 🖉 Car fan

There is a timer to activate/deactivate the fan.

#### Service control keyswitch

Only calls made from the car operating panel are registered.

#### Seismic sensor

The equipment is delivered ready for the installation of a seismic sensor

![](_page_25_Picture_18.jpeg)

#### Multiple movement functions

#### 🛇 Multiple

A group of up to 4 lifts can be controlled.

#### Limited out of service

Allows a group of lifts to self-manage a singular lift with continous faults and leave it out of service whilst other lifts handle calls.

#### Standard Function 🛛 💙 Optional Function

![](_page_25_Picture_25.jpeg)

#### Door operation functions

#### Fast closing of doors

This allows the time between stops to be shortened by means of a push button in the car that can be activated if there are car calls registered.

#### Nudge

The doors close slowly in the event of a prolonged interruption of the safety edge, notifying the persons in the car visibly and/or acoustically.

#### Safety edge

Safety edge according to EN81-20.

#### Self-diagnosing safety edge

Autodiagnosis of the safety edge in which the door sensors are automatically checked.

<u>با</u>ت\_

![](_page_25_Picture_36.jpeg)

#### Automatic rescue device

The automatic rescue operation is carried out via a UPS whereby the lift will park at the most favorable floor with the doors open.

Overspeed governor limiter and traditional safety gear

#### Mechanical arrangement 450 and 630 kg

입장 RATED LC	DAD • <b>450kg</b>	/ 6 people	, a	T ROPING .	2:1 M	IAXIMUM SPEED • <b>1.2</b>	m/s
Entrances	с	ar	Sh	aft	Door type	Min. Headroom	Dia
Angle	Width <b>(A)</b>	Depth <b>(B)</b>	Width <b>(C)</b>	Depth <b>(D)</b>	(C/O)	CH 2175mm	PIC
1/0°	950	1300	1450	1565			
2/180°	950	1300	1450	1690			
1/0°	1000	1200	1500	1465			
2/180°	1000	1200	1500	1590	Side opening		1050
1/0°	1000	1250	1500	1515	2H 800		
2/180°	1000	1250	1500	1640	(FERMATOR	- 3400	
1/0°	1000	1300	1500	1565	COMPACT)		
2/180°	1000	1300	1500	1690			
1/0°	1050	1200	1550	1465			
2/180°	1050	1200	1550	1590			
1/0°	950	1300	1750	1530			
2/180°	950	1300	1750	1618			
1/0°	1000	1200	1750	1430			
2/180°	1000	1200	1750	1518	Central		
1/0°	1000	1250	1750	1480	2H 800		
2/180°	1000	1250	1750	1568	(FERMATOR		
1/0°	1000	1300	1750	1530	COMPACT)		
2/180°	1000	1300	1750	1618			
1/0°	1050	1200	1750	1430			
2/180°	1050	1200	1750	1518			

Δ.....

កុំហ៊ុំ RATED LO	AD• 630kg	/ 8 people	Ca.	ROPING	2:1 (1) N	AXIMUM SPEED · 1.2	m/s
Entrances	Ci	ar	Sh	aft	Door type	Min. Headroom	Pit
Angle	Width (A)	Depth <b>(B)</b>	Width <b>(C)</b>	Depth (D)	(C/O)	CH 2175mm	
1/0°	1050	1450	1550	1715			
2/180°	1050	1450	1550	1840	Side opening		
1/0°	1100	1400	1600	1665	2H 800		
2/180°	1100	1400	1600	1790	(FERMATOR		
1/0°	1150	1350	1650	1615	COMPACT)	COMPACT)	
2/180°	1150	1350	1650	1740			
✓ 1/0°	1100	1400	1600	1665	Side opening		
✓ 2/180°	1100	1400	1600	1790	2H 900		
✓ 1/0°	1150	1350	1650	1615	(FERMATOR		
✓ 2/180°	1150	1350	1650	1740	COMPACT)	3400	1050
1/0°	1050	1450	1750	1680		3400	1050
2/180°	1050	1450	1750	1768	Central	ral	
1/0°	1100	1400	1750	1630	2H 800		
2/180°	1100	1400	1750	1718	(FERMATOR		
1/0°	1150	1350	1750	1580	COMPACT)		
2/180°	1150	1350	1750	1668			
✓ 1/0°	1100	1400	1925	1630	Central		
✓ 2/180°	1100	1400	1925	1718	2H 900		
✓ 1/0°	1150	1350	1925	1580	(FERMATOR		
✓ 2/180°	1150	1350	1925	1668	COMPACT)		

All dimensions are based on the door sill being 25mm inside the lift shaft.

- EN81-70: T1 car dimensions
- EN81-70: T2 car dimensions
- EN81-70: T2 car dimensions with a 800mm C/O only for existing buildings.
- Standard car

#### Operational ranges (standard arrangement)

Maximum travel	Up to 60 m (Maximum	n 15 floors)					
	Pit	Minimum: 1050 mm · Maximum: 1550 mm					
	Headroom	Minimum: 3400mm (CH 2175mm) and 3500mm (CH 2275mm)					
	Minimum width	Car width + 500 mm					
	Maximum width	Car width + 1100mm					
ch-fr	With Fermator Compa	ct 2HT doors inside the shaft (only sills) add 85mm per door.					
Shart	With Fermator Compa	ct 2HC doors inside the shaft (only sills) add 49mm per door.					
	Option for doors completely in the shaft.						
	Shaft width tolerance -10/+50mm						
	Shaft depth tolerance with single entry 0° -10/+infinite mm						
	Shaft depth tolerance with through car 180° -0/+30 mm						
	Minimum depth	1200 mm					
	Maximum depth	1450 mm					
Car	Minimum width	950 mm					
	Maximum width	1150 mm					
	Standard height	2175mm with 2000mm high doors (option for 2275mm with 2100mm high doors)					

![](_page_26_Picture_10.jpeg)

ဂိုဂို RATED LO	DAD • 700kg	/ 9 people	No.	ROPING	• 2:1 🕕 M	AXIMUM SPEED · 1.2	2 m/s
Entrances	c	ar	Sh	aft	Door type	Min. Headroom	Pit
Angle	Width (A)	Depth <b>(B)</b>	Width <b>(C)</b>	Depth <b>(D)</b>	(C/O)	CH 2175mm	
1/0°	1100	1500	1600	1765	Telescónica		
2/180°	1100	1500	1600	1890	2H 900		
1/0°	1200	1400	1700	1665	(FERMATOR		
2/180°	1200	1400	1700	1790	COMPACT)		
1/0°	1100	1500	1750	1730			
2/180°	1100	1500	1750	1818	Central 2H 800		
1/0°	1200	1400	1750	1630	(FERMATOR	3450*	1050
2/180°	1200	1400	1750	1718	COMPACT)		
1/0°	1100	1500	1950	1730	Control		
2/180°	1100	1500	1950	1818	2H 900		
1/00	1200	1400	1950	1630	(FERMATOR		
2/1800	1200	1400	1950	1718	COMPACT)		
2/100	1200	1400	1550	1,10			
ဂိုဂို RATED LO	DAD • 800kg	j / 10 people		ROPING	• 2:1 🕕 M	AXIMUM SPEED · 1.2	2 m/s
Entrances	c	ar	Sh			Ada the design	
					Door type	Min. Headroom	Dit
Angle	Width <b>(A)</b>	Depth <b>(B)</b>	Width (C)	Depth (D)	(C/O)	CH 2175mm	Pit
Angle 1 / 0°	Width <b>(A)</b> 1100	Depth <b>(B)</b> 1600	Width <b>(C)</b> 1600	Depth <b>(D)</b> 1865	(C/O)	CH 2175mm	Pit
Angle 1 / 0° 2 / 180°	Width <b>(A)</b> 1100 1100	Depth <b>(B)</b> 1600 1600	Width <b>(C)</b> <u>1600</u> <u>1600</u>	Depth <b>(D)</b> 1865 1990	(C/O)	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0°	Width <b>(A)</b> 1100 1100 1100	Depth (B) 1600 1600 1700	Width (C) 1600 1600 1600	Depth (D) 1865 1990 1965	(C/O)	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180°	Width (A) 1100 1100 1100 1100	Depth (B) 1600 1600 1700 1700	Width (C) 1600 1600 1600 1600	Depth (D) 1865 1990 1965 2090	(C/O)	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0°	Width (A) 1100 1100 1100 1100 1100 1100	Depth <b>(B)</b> 1600 1600 1700 1700 1800	Width <b>(C)</b> 1600 1600 1600 1600 1600 1600	Depth (D) 1865 1990 1965 2090 2065	C/O) Telescópica 2H 900	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0° 2 / 180°	Width (A) 1100 1100 1100 1100 1100 1100 1100	Depth (B) 1600 1600 1700 1700 1800 1800	Width <b>(C)</b> 1600 1600 1600 1600 1600 1600 1600	Depth (D) 1865 1990 1965 2090 2065 2190	Telescópica 2H 900 (EERMATOR	MIN. Headroom CH 2175mm	Pit
Angle 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0°	Width (A)  1100 1100 1100 1100 1100 1100 1100 1	Depth (B) 1600 1600 1700 1700 1800 1800 1500	Width (C) 1600 1600 1600 1600 1600 1600 1700	Depth (D) 1865 1990 1965 2090 2065 2190 1765	Telescópica 2H 900 (EERMATOR COMPACT)	MIN. Headroom CH 2175mm	Pit
Angle 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180°	Width (A) 1100 1100 1100 1100 1100 1100 1100 11	Depth ( <b>B</b> ) 1600 1600 1700 1700 1800 1800 1500 1500	Width (C) 1600 1600 1600 1600 1600 1600 1700 1700	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890	Telescópica 2H 900 (EERMATOR COMPACT)	Min. Headroom CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0°	Width (A) 1100 1100 1100 1100 1100 1100 1100 1200 1200	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1500 1600	Width (C) 1600 1600 1600 1600 1600 1600 1700 1700 1700 1700	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865	Telescópica 2H 900 (FERMATOR COMPACT)	Min. Headroom CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0° 2 / 180° 1 / 0° 2 / 180°	Width (A) 1100 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1500 1600 1600	Width (C) 1600 1600 1600 1600 1600 1600 1700 1700 1700 1700	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990	Telescópica 2H 900 (FERMATOR COMPACT)	MIR. Headroom CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0°	Width (A) 1100 1100 1100 1100 1100 1100 1100 11	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1500 1600 1600 1400	Width (C) 1600 1600 1600 1600 1600 1600 1700 1700 1700 1700 1800	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665	Telescópica 2H 900 (FERMATOR COMPACT)	MIR. Headroom CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1500 1600 1600 1400	Width (C) 1600 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1800 1800	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665 1790	Telescópica 2H 900 (FERMATOR COMPACT)	MIR. Headroom CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 1 / 0°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1500 1600 1600 1400 1400 1500	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1800 1800	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665 1790 1765	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000	CH 2175mm	Pit
Angle 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300 1300	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1600 1600 1400 1400 1400 1500	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1800 1800 1800	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665 1790 1765 1890	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0°	Width (A) 1100 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 13	Depth (B) 1600 1600 1700 1700 1800 1500 1500 1600 1600 1400 1400 1500 1500 1500 1400	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1700 1800 1800 1800 1900	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665 1790 1765 1890 1665	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR COMPACT)	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180°	Width (A) 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300 1300 1300 1400	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1600 1600 1600 1400 1500 1400 1500 1400	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1700 1700 1800 1800 1800 1800 1900	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665 1790 1765 1890 1665 1790	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR COMPACT)	CH 2175mm	Pit
Angle 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1200 1300 1300 1300 1300 1400 1100	Depth (B) 1600 1600 1700 1700 1800 1500 1500 1600 1600 1400 1500 1500 1400 1400 1400 1600	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1700 1800 1800 1800 1800 1900 1900 1750	Depth (D) 1865 1990 2090 2065 2190 1765 1890 1865 1990 1665 1790 1765 1890 1665 1790 1665 1890 1665 1890 1665 1890 1665 1890 1665 1890 180 180 180 180 180 180 180 18	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR COMPACT)	CH 2175mm	Pit
Angle 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0° 2/180° 1/0°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300 1300 1300 1400 1400 1100	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1600 1600 1400 1500 1500 1500 1400 1400 1600 1600	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1700 1800 1800 1800 1800 1900 1900 1900 1750	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1665 1790 1765 1890 1665 1790 1665 1790 1665 1790 1830	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR COMPACT)	CH 2175mm	Pit
Angle 1/0° 2/180° 1/0°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300 1300 1300 1400 1400 1100 1100	Depth (B) 1600 1600 1700 1700 1800 1800 1500 1600 1600 1400 1400 1500 1500 1400 1400 1500 1500 1400 1600 1600 1600 1600 1600 1700 1700 1600 1600 1600 1600 1600 1600 1700 1500 1600 1700 1700 1700 1700 1700 1700 1600 1600 1700 1	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1800 1800 1800 1800 1900 1900 1750 1750	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1665 1790 1765 1890 1665 1790 1665 1790 1830 1918 1930	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR COMPACT)	CH 2175mm	Pit
Angle 1 / 0° 2 / 180° 1 / 0° 2 / 180°	Width (A) 1100 1100 1100 1100 1100 1100 1200 1200 1200 1200 1300 1300 1300 1300 1400 1400 1100 1100 1100	Depth (B) 1600 1700 1700 1700 1800 1800 1500 1500 1600 1400 1500 1400 1500 1400 1600 1400 1600 1600 1700 1500 1500 1500 1500 1600 1700 1500 1700	Width (C) 1600 1600 1600 1600 1600 1700 1700 1700 1700 1800 1800 1800 1800 1900 1900 1900 1750 1750	Depth (D) 1865 1990 1965 2090 2065 2190 1765 1890 1865 1990 1665 1790 1765 1890 1665 1790 1665 1790 1830 1918 1930 2018	Telescópica 2H 900 (FERMATOR COMPACT) Telescópica 2H 1000 (FERMATOR COMPACT)	MIR. Headroom CH 2175mm	<b>Pit</b>

, 1/0°

2/180°

1/0°

2/180°

1/0°

2/180°

1/0°

2/180°

1/0°

2/180° 1/0°

1/0°

2 / 180º

1/00

2/1800

1/0°

2/180°

2 / 180°

Ø

1100

1100

1200

1200

1200

1200

1300

1300

1300

1300

1400

1400

1300

1300

1300

1300

1400

1400

1600	1700	1990			
1400	1800	1665			
1400	1800	1790	Telescópica		
1500	1800	1765	2H 1000		
1500	1800	1890	(FERMATOR		
1400	1900	1665	COMPACT)		
1400	1900	1790			
1600	1750	1830			
1600	1750	1918			
1700	1750	1930		2450*	1050
1700	1750	2018	Central	3450"	1050
1800	1750	2030	2H 800		
1800	1750	2118	(FERMATOR		
1500	1750	1730	COMPACT)		
1500	1750	1818			
1600	1750	1830			
1600	1750	1918			
1400	1950	1630			
1400	1950	1718	Central		
1500	1950	1730	2H 900		
1500	1950	1818	(FERMATOR		
1400	1950	1630	COMPACT)		
1400	1950	1718			
1400	2150	1630			
1400	2150	1718	Central		
1500	2150	1730	2H 1000		
1500	2150	1818	(FERMATOR		
1400	2150	1630	COMPACT)		
1400	2150	1718			

ဂိုဂို RATED LO	AD • 900kg	/ 12 people	0	ROPING .	2:1	(1) M	AXIMUM SPEED · 1.2	m/s
Entrances	Ci	ar	Sh	aft	Door t	уре	Min. Headroom	Dit
Angle	Width (A)	Depth <b>(B)</b>	Width (C)	Depth <b>(D)</b>	(C/C	))	CH 2175mm	
1 / 0°	1100	1900	1600	2165	Telescó	pica		
2 / 180°	1100	1900	1600	2290	2H 90			
1/0°	1200	1700	1700	1965	(FERMATOR			
2/180°	1200	1700	1700	2090	COMPA	ACT)		
1/0°	1300	1600	1800	1865				
2 / 180°	1300	1600	1800	1990	Telescó	pica		
1/0°	1400	1500	1900	1765	2H 10	000		
2 / 180°	1400	1500	1900	1890	(FERMA	TOR		
1/0°	1500	1400	2000	1665	COMPA	ACT)		
2/180°	1500	1400	2000	1790				
1 / 0°	1100	1900	1750	2130	Centr	ral		
2 / 180°	1100	1900	1750	2218	2H 80	00		
1 / 0°	1200	1700	1750	1930	(FERMA	TOR	R 2450*	1050
2 / 180°	1200	1700	1750	2018	COMPA	ACT)	3450^	1050
1 / 0°	1300	1600	1950	1830				
2 / 180°	1300	1600	1950	1918	Centr	ral		
1 / 0°	1400	1500	1950	1730	2H 90	00		
2 / 180°	1400	1500	1950	1818	(FERMA	TOR		
1 / 0°	1500	1400	2050	1630	COMPA	ACT)		
2 / 180°	1500	1400	2050	1718				
1 / 0°	1300	1600	2150	1830				
2 / 180°	1300	1600	2150	1918	Centi	ral		
1 / 0°	1400	1500	2150	1730	2H 10	00		
2 / 180°	1400	1500	2150	1818		ATUR ACT)		
1 / 0°	1500	1400	2150	1630	COMP			
2 / 180°	1500	1400	2150	1718				

#### **Mechanical arrangement** 700, 800, 900 and 1000kg

![](_page_27_Picture_4.jpeg)

#### NOTES

All cabin dimensions comply with EN81-70 T2.

The table is based on Fermator Compact doors mounted on the landing (the sill is placed 25mm inside the shaft).

\* A 3400mm headroom can be achieved if the lifting beam is removed once the installation is completed.

ក៉ីល៉ី RATED LO	AD • 1000kg	g / 13 people		ROPING ·	2:1 🕕 N	AXIMUM SPEED · 1.2	2 m/s
Entrances	c	ar	Sh	aft	Door type	Min. Headroom	Pit
Angle	Width (A)	Depth (B)	Width <b>(C)</b>	Depth <b>(D)</b>	(C/O)	CH 2175mm	
1/0°	1100	2000	1600	2265			
2 / 180°	1100	2000	1600	2390			
Q 1 / 0°	1100	2100	1600	2365			
2 / 180°	1100	2100	1600	2490	Side opening		
1/0°	1200	1800	1700	2065	2H 900		
2/180°	1200	1800	1700	2190	(FERMATOR		
1/0°	1200	1900	1700	2165	COMPACT)		
2 / 180°	1200	1900	1700	2290			
1/0°	1200	2000	1700	2265			
2 / 180°	1200	2000	1700	2390			
1 / 0°	1300	1700	1800	1965			
2 / 180°	1300	1700	1800	2090			
1 / 0°	1300	1800	1800	2065			
2 / 180°	1300	1800	1800	2190			
1 / 0°	1400	1600	1900	1865			
2 / 180°	1400	1600	1900	1990			
1 / 0°	1400	1700	1900	1965	Side opening		
2 / 180°	1400	1700	1900	2090	2H 1000		
1 / O°	1500	1500	2000	1765	(FERMATOR		
2 / 180°	1500	1500	2000	1890	COMPACT)		
1 / 0°	1500	1600	2000	1865			
2 / 180°	1500	1600	2000	1990			
1/0°	1600	1400	2100	1665			
2 / 180°	1600	1400	2100	1790			
1/0°	1600	1500	2100	1765			
2/1800	1600	1500	2100	1890		3450*	1050
1/00	1100	2000	1750	2230			
2/1800	1100	2000	1750	2318			
1/00	1100	2100	1750	2330			
2/180*	1200	2100	1750	2418	Central		
2/1909	1200	1800	1750	2030	2H 800		
2/100-	1200	1000	1750	2120	COMPACT)		
2/1809	1200	1900	1750	2130	,		
1/00	1200	2000	1750	2230			
2 / 180°	1200	2000	1750	2318			
1/00	1300	1700	1950	1930			
2 / 180°	1300	1700	1950	2018			
1/0°	1300	1800	1950	2030			
2 / 180°	1300	1800	1950	2118			
1/0°	1400	1600	1950	1830	Central		
2 / 180°	1400	1600	1950	1918	2H 900		
1/0°	1400	1700	1950	1930	(FERMATOR		
2 / 180°	1400	1700	1950	2018	COMPACT)		
1 / 0°	1500	1500	2050	1730			
2 / 180°	1500	1500	2050	1818			
1 / 0°	1500	1600	2050	1830			
2 / 180°	1500	1600	2050	1918			
1 / 0°	1600	1400	2150	1630	Central		
💙 2 / 180°	1600	1400	2150	1718	2H 1000		
1 / 0°	1600	1500	2150	1730	(FERMATOR		
2 / 180°	1600	1500	2150	1818	COMPACT)		

![](_page_28_Figure_1.jpeg)

![](_page_28_Figure_2.jpeg)

\* A 3400mm Headroom can be achieved if the lifting beam is removed once the installation is completed.

Standard car

#### Operational ranges (standard arrangement)

Maximum travel	Up to 60 m (Maximum 15 floors)						
	Pit	Minimum standard: 1050 mm · Maximum: 1900 mm					
		Minimum standard (lift car 2175mm): 3450mm, (lift car 2275mm) 3550 mm					
	Headroom	<ul> <li>Headroom 3450 mm with car height of 2175 mm (3400 mm is possible by removing the lifting beam after installation)</li> <li>Headroom 3550 mm with car height of 2275 mm (3500 mm is possible by removing the lifting</li> </ul>					
		beam after installation)					
	Minimum width measured from lift car	Car width + 500 mm					
Shaft	For lift shafts with >40m travel, the recon	nmended shaft width: Car width + 550 mm					
	Shaft width tolerance -10/+50mm						
	Shaft depth tolerance with single entry 0° -10/+infinite mm						
	Shaft depth tolerance with through car 18	80° -0/+30 mm					
	Minimum width	1600mm					
	Maximum width measured from lift car	Car width + 1100mm					
	Maximum width	2700mm (based on a car width of 1600 mm)					
	Minimum depth	1400 mm					
. 16-	Maximum depth	2100 mm					
Lift car (in 100 mm increments)	Minimum width	1100 mm					
,	Maximum width	1600 mm					
	Standard height	2175mm with 2000mm high doors (option for 2275mm with 2100mm high doors)					

#### BUILDING CODE OF AUSTRALIA

If travel is <12m Any cabin from the table is valid. / If travel is >12m Only 1400x1600 cabins are valid / Minimum door sill 900mm

![](_page_29_Picture_0.jpeg)

#### Shaft depths for other door arrangements

#### For Fermator Compact doors with the sills inside the shaft and door frames on landings

\_\_\_\_\_

2 Panel Side Opening - Single Entry 0°	Shaft depth + 85mm
2 Panel Central Opening - Single Entry 0°	Shaft depth + 49mm
2 Panel Side Opening - Through Cabin 180°	Shaft depth + 170mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 98mm

#### For Fermator Compact doors completely installed inside the shaft, including door frames

2 Panel Side Opening - Single Entry 0°	Shaft depth + 125mm
2 Panel Central Opening - Single Entry 0°	Shaft depth + 89mm
2 Panel Side Opening - Through Cabin 180°	Shaft depth + 250mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 178mm

#### For Augusta Evo doors mounted on the landings (sill overhang into the shaft is 25mm)

2 Panel Side Opening - Single Entry 0°	Shaft depth - 10mm
2 Panel Central Opening - Single Entry 0°	Shaft depth - 14mm
2 Panel Side Opening - Through Cabin 180°	Shaft depth - 20mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth - 28mm

#### For Augusta Evo doors with the sills inside the shaft and door frames on landings

2 Panel Side Opening - Single Entry 0°	Shaft depth + 65mm
2 Panel Central Opening - Single Entry 0°	Shaft depth + 21mm
2 Panel Side Opening - Through Cabin 180°	Shaft depth + 130mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 42mm

#### For Augusta Evo doors completely installed inside the shaft, including door frames

2 Panel Side Opening - Single Entry 0°	Shaft depth + 105mm
2 Panel Central Opening - Single Entry 0°	Shaft depth + 61mm
2 Panel Side Opening - Through Cabin 180°	Shaft depth + 210mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 122mm

#### For Hydra doors mounted on the landings (sill overhang into the shaft is 25mm)

2 Panel Side Opening - Single Entry 0°	Equal shaft depth
2 Panel Central Opening - Single Entry 0°	Shaft depth + 21mm
2 Panel Side Opening - Through Cabin 180°	Equal shaft depth
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 42mm

#### For Hydra doors with the sills inside the shaft and door frames on landings

2 Panel Side Opening - Single Entry 0°	Shaft depth + 85mm
2 Panel Central Opening - Single Entry 0°	Shaft depth + 91mm
2 Panel Side Opening - Through Cabin 180°	Shaft depth + 170mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 182mm

## For Hydra doors completely installed inside the shaft, including door frames2 Panel Side Opening - Single Entry 0°Shaft depth + 125mm2 Panel Central Opening - Single Entry 0°Shaft depth + 131mm

2 runer central opening single Entry o	
2 Panel Side Opening - Through Cabin 180°	Shaft depth + 250mm
2 Panel Central Opening - Through Cabin 180°	Shaft depth + 262mm

Hydra doors only available for mechanic arrangements **700, 800, 900 and 1000kg** 

**One product Configurator:** 

Unlimited possibilities.

![](_page_30_Picture_2.jpeg)

![](_page_30_Figure_3.jpeg)

![](_page_31_Picture_0.jpeg)

![](_page_31_Picture_1.jpeg)

#### **EXPORT DEPARTMENT**

C/ Adarzo 167-B.· 39011 Peñacastillo · Santander, Spain Tel: (00 34) 942 34 60 20 Fax: (00 34) 942 35 53 64 E-mail: comex@imem.com

![](_page_31_Picture_4.jpeg)

![](_page_31_Picture_5.jpeg)

May 2024