

ENG

THE SOLUTION FOR LIFTS

DRIVES AND MOTION



COD. 82161E

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Over fifty years of experience, an organisation highly focused on the customer's needs and constant technological innovation make Gefran a benchmark in the design and production of sensors and components for industrial process automation and control.

Expertise, flexibility and process quality are the factors that distinguish Gefran in the production of integrated tools and systems for specific applications in various industrial fields, with consolidated know-how in the plastics, mobile hydraulics, heating and lift sectors.

Technology, innovation and versatility represent the catalogue's added value in addition to the ability to create specific application solutions in association with the world's leading machine manufacturers.



MARKET SECTORS



HOME LIFT



LOW RISE



LOW RISE



MEDIUM RISE



HIGH RISE

SPECIFIC DRIVES FOR MODERN LIFTS

With over 50 years of experience in designing and building electric drives, Gefran has reached the third generation of inverters to control traction lift motors.

They are specifically designed for this type of application, with mechanics and software functions that reduce costs and installation space, and guarantee high performance of the entire system.

The 700,000 drives installed in systems around the world are proof of our expertise in designing and building quality products. Thanks to a complete range of certified products for the sector, Gefran offers solutions for the main geared or gearless applications, whether, and can propose advanced regenerative systems where demanded by specific conditions.

SAFE, COMFORTABLE, RELIABLE LIFTS

Gefran solutions satisfy all of the requisites for civil lift drives:

> SAFETY

- Safety Certification for operation with single output contactor in accordance with **EN81-20**, EN81-50
- Safety Certification for operation in CONTACTORLESS mode in accordance with **EN81-20**, EN81-50
- Safety Torque Off (STO) EN61800-5-2:2007 SIL3
- Floor return in case of black-out with external emergency power supplies.

> COMFORT

- Compact size and low noise for MRL installations
- Perfect landing at floor for safe entrance into / exit from the car
- Approach to floor controlled directly or with slowdown
- Pre-torque function for more gradual start and specific jerks.

> COST EFFECTIVE

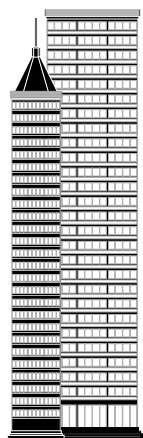
- Flexible configuration
- Low installation costs
- Small controller
- Contactorless configuration.

> RELIABILITY

- State-of-the-art design and technology
- Specific testing and inspection of every drive.



APPLICATIONS



	HIGH RISE	MID RISE	LOW RISE	HOME LIFT
Profile	<ul style="list-style-type: none"> Height: 90+ m Floors: 30+ Speed Range: 2.5...5 m/s 	<ul style="list-style-type: none"> Height: 18...90 m Floors: 6...30 Speed Range: 0.8...2.5 m/s 	<ul style="list-style-type: none"> Height: 12...18 m Floors: 3...6 Speed Range: 0.6 ... 0.8 m/s 	<ul style="list-style-type: none"> Height: 4...8 m Floors: 1...2 Speed Range: 0.3 ... 0.6 m/s
Requirements	<ul style="list-style-type: none"> High Speed Reliability Smooth Acceleration and Ride comfort Limited passengers' waiting and travel time Regenerative Solution 	<ul style="list-style-type: none"> Cost Saving Space Saving Low Energy Consumption Smooth Acceleration and Ride comfort Regenerative Solution 		<ul style="list-style-type: none"> Cost Saving Space Saving (MRL) Low Energy Consumption Easy Commissioning
Specific functions	<ul style="list-style-type: none"> Premium components and design Pre-torque and precise landing at floor Door pre-opening AFE regenerative units. 	<ul style="list-style-type: none"> Optimized hardware solutions Pre-torque and precise landing at floor Contactless External +24VDC power supply for stand-by control Regenerative units. 		<ul style="list-style-type: none"> Optimized hardware solutions Contactless External +24VDC power supply for stand-by control Rapid commissioning.

GUIDE TO SELECTION

Different applications require specific products for both regenerative and traditional solutions.

The product-solution match is not binding. The following table gives a number of examples based on systems already installed.

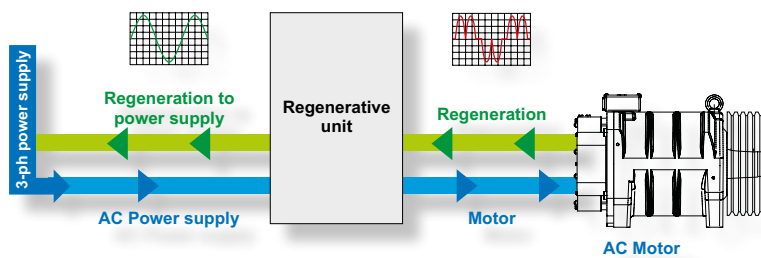
	HIGH RISE	MID RISE	LOW RISE	HOME LIFT
Regenerative	 <p>AFE200 + ADL300</p>			
		 <p>AVRy</p>		
Non Regenerative	 <p>ADL300-4 ADL300-2T</p>	 <p>VDL200</p>	 <p>AGL50 EV</p>	 <p>ADL300-2M</p>

THE ADVANTAGES OF REGENERATION



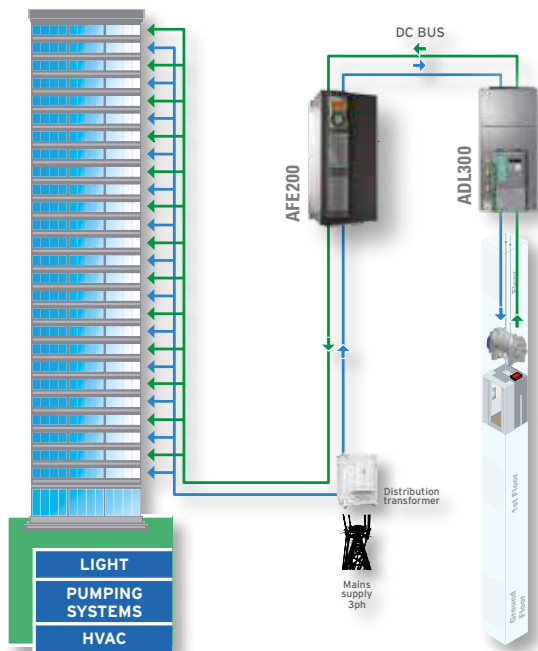
LOWER OPERATING COSTS

Regenerative units in lift systems provide significant benefits in terms of Building Automation and Energy Efficiency. Where justified by traffic profiles, a system with regenerative units provides both economic and technical advantages. The operating principle is simple: when the empty car goes up or the full car goes down, the mechanical system generates potential energy that the electric motor, "pulled" by the car load, converts into electrical energy.



CLEAN ENERGY

The regenerative unit transforms the electrical energy generated by the motor into clean energy, namely with reduced harmonic distortion (THD <4%), making it reusable by other electrical equipment in the building.



MORE EFFICIENT BUILDINGS

In addition to reducing installation space (because braking resistors are no longer needed), this solution reduces the building's energy consumption, most of which is attributable to air conditioning systems, refrigeration, pump systems, and lifts. Regenerative systems can be used with external Active Front End (AFE) solutions (coupled with the ADL300 series), as well as with the AVRy series (which integrates the regenerative unit in the inverter).

FIELDS OF APPLICATION



TRAFFIC PROFILES

Although an application may be defined initially in terms of floor number and car speed, the various traffic profiles are another essential factor for its better definition.

Buildings used for offices, apartments, businesses or public services require an adequate analysis of their traffic profile in order to choose the best system and all of its components.

The number of people, direction of movement, and specific time bands determine different traffic profiles, characterized by:

- people entering or leaving the loading lobby;
- inter-floor traffic;
- traffic on specific floors;
- peak hours;
- average car load.

Each type of building will have different traffic profiles to be managed by the lift system.

• OFFICE BUILDINGS

These have two peak periods: up-peak in the morning and down-peak in the evening, with inter-floor traffic limited to specific floors (restaurants, car parks, and common areas).

The system must be designed to reduce waiting times for people entering the loading lobby in the morning, to efficiently receive calls from people leaving in the evening, and to manage full loads at peak hours.

Homing functions are typically used, in which the car automatically goes to the floor in specific time bands.

Functions such as door pre-opening and express arrival (available in the ADL300 family) reduce waiting times and increase the traffic handled.

Functions such as pre-torque increase comfort regardless of the number of people in the car.



• HOTELS

There is a peak in the morning to the restaurant floor for breakfast and to the exit, whereas incoming traffic has no specific peaks.

Inter-floor traffic mainly regards the hotel staff or specific floors (leisure, catering).

The entire system is improved by functions that reduce waiting times and that best manage full cars.

The ADL300 provides functions such as pre-torque and door pre-opening to improve system performance.



• HOSPITALS

Peak hours are during visiting hours (if concentrated in specific time bands).

Hospitals have heavy inter-floor traffic due to patients moving from one ward to another and to movements of personnel.

Hospitals can greatly reduce energy costs by using regenerative solutions, even in Low and Mid Rise applications.

Regardless of height, comfort and landing speed are critical for handling emergencies and for moving people with physical limitations.

Functions such as precise landing at the floor and comfort when running and starting/arriving are requirements that cannot be entrusted to general purpose drives.

The ADL300, designed for civil lift applications, is the best answer.



• RESIDENTIAL BUILDINGS

Residential buildings have no peak traffic hours, although traffic in the morning and in the evening is higher than the daily average. There is practically no inter-floor traffic.

Because of the progressively aging population, system down-time must be reduced to an absolute minimum, and all components must be selected on the basis of quality and reliability.

ADL300



The ADL300 series, designed for new installations and modernizations, provides maximum safety, comfort, and reliability for all types of civil lift systems and offers customers lower installation and operating costs.

It is also available in an Integrated version, which combines the drive and control card in a single solution.

The modern software, developed for both geared systems (including in open loop) and gearless systems in closed loop with absolute or incremental encoder, provides outstanding control.

Precise landing at the floor, with both direct landing and creeping, and load compensation at start give passengers an extremely comfortable ride.

The ADL300's compact size and operation in contactor or contactorless mode make it perfect for Machine Room-Less (MRL) applications.

SAFETY CERTIFICATION

Safety” inputs for use with a single output contactor or in contactorless mode

Single output contactor

The ADL300 is certified for the use of a single output contactor, in accordance with **EN81-20**, EN81-50.

Safety Certification for a CONTACTORLESS operations

ADL300 is CERTIFIED as **EN81-20**, EN81-50; SIL3 according to EN61800-5-2-2007.

Monitoring function of the correct lifting or dropping of the machine brake according to 5.6.7.3 of EN 81-20:2014 and 5.8 of EN 81-50:2014.

FEATURES

- Control in Speed
- Control in Position
- Short Floor Management
- Off-floor detection
- Emergency single-phase power supply for floor return
- Flexible ramps management
- DCP3 & DCP4 Protocol
- CANopen Protocol
- CANopen Cia® 417 Protocol
- Integrated Breaking Unit
- External +24Vdc power supply
- CE Marked
- cULus (UL508C)

POWER SUPPLY

- Version ADL300-4: 3ph 230 – 400 – 480Vac (-15% / +10%) @ 50/60Hz (±5%)
- Version ADL300-2T: 3ph 200 – 230Vac (±10%) @ 50/60Hz (±2%)
- Version ADL300-2M: 1ph 200Vac (±10%), 1ph 230Vac (-15% / +10%) @ 50/60Hz (±2%)

MOTOR RATINGS

- Version ADL300-4: 4kW (5Hp) ... 75kW (100Hp)
- Version ADL300-2T: 4kW (5Hp) ... 37kW (40Hp)
- Version ADL300-2M: 1.1kW (1Hp) ... 5.5kW (7.5Hp)

DIMENSIONS AND WEIGHTS

Sizes ADL300	Dimensions: Width x Height x Depth		Weight	
	(mm)	(inches)	(kg)	(lbs)
ADL300.-1...	162 x 343 x 159	6.38 x 13.50 x 6.26	5.8	12.8
ADL300.-2...	162 x 396 x 159	6.38 x 15.59 x 6.26	7.8	17.2
ADL300.-3...	235 x 401 x 179.4	9.25 x 15.79 x 7.06	10.5	23.5
ADL300.-4...	267.6 x 616 x 276	10.53 x 24.25 x 10.87	32	70.6
ADL300.-5...	311 x 767 x 331.4	12 x 30.2 x 13.05	60	132.3

AVRy



The Lift drive with built-in power recovery

The AVRy series inverter offers the latest technology to meet the high demands of today's civil lift engineering sector. A single solution that integrates synchronous motor control and a “clean power” regeneration system. Reduced harmonic distortion (THD <4%), a unity power factor and cutting-edge technology all guarantee significant savings in terms of operating costs and enhanced performance in terms of dynamics and comfort.

FEATURES

- Ramp generation
- Landing control
- Unit cosphi operation
- Low harmonic distortion of input current < 4%
- Self-tuning of motor parameters
- Integrated programming keypad
- PROFIBUS-DP, CANopen or DeviceNet
- CE Marked

POWER SUPPLY

- 3 ph 400 – 480Vac (-15% / +10%) @ 50Hz (-2%) / 60Hz (+2%)

MOTOR RATINGS

- 11 kW, 20 kW, 27 kW (High Voltage Motor)
- 7.5 kW, 14 kW, 17 kW (Standard Motor)

DIMENSIONS AND WEIGHTS

Sizes	Dimensions: Width x Height x Depth		Weight	
	(mm)	(inches)	(kg)	(lbs)
AVRy 11425	350 x 670 x 150.3	13.78 x 26.38 x 5.92	28.7	63.27
AVRy 12545	350 x 670 x 150.3	13.78 x 26.38 x 5.92	32	70.55
AVRy 2 3360	420 x 788 x 180	16.53 x 31.02 x 7.09	55	121.25

VDL200



The VDL200 drive series is designed for low and medium rise geared applications in both open and closed loop with asynchronous motors.

High-performance control algorithms allow installation in sensorless configuration while maintaining the comfort level provided by high-range inverters.

Simple installation and configuration make the VDL200 ideal for modernizing obsolete systems as well as for new installations.

MAIN FEATURES

- Multispeed control
- Short floor management
- Emergency single-phase power supply for floor return with low energy optimization
- Flexible ramp management
- Integrated braking unit
- Communication with control board via I/O
- Management of TTL incremental digital encoders
- Integrated EMI filter for versions (VDL200....-F)
- 200% overload for 10 seconds
- The drive complies with the monitoring requirements of the correct lifting or dropping of the machine brake according to 5.6.7.3 of EN 81-20:2014 and 5.8 of EN 81-50:2014.
- CE mark.

POWER SUPPLY

- 3 ph 230 – 400 Vac (-15% / +10%) @ 50 Hz (±5%)

MOTOR RATINGS

- 4kW (5Hp) ... 22kW (30Hp)

DIMENSIONS AND WEIGHTS

Sizes	Dimensions: Width x Height x Depth		Weight	
	(mm)	(inches)	(kg)	(lbs)
VDL200-1...	162 x 343 x 159	6.38 x 13.50 x 6.26	5.6	12.3
VDL200-2...	162 x 396 x 159	6.38 x 15.59 x 6.26	7.6	16.7
VDL200-3...	235 x 456.5 x 180	9.25 x 17.97 x 7.08	10.5	23.5

AGL50-EV



The AGL50 EV drive, available in a single mechanical size, is ideal for modernizations or new geared low rise installations controlled in open loop, that do not require highly sophisticated control and fieldbus communication with the control card.

Easy to install and configure, the drive is a cost effective solution that ensures maximum reliability and technological quality.

FEATURES

- Control in Speed
- 16 Multispeed
- 4 multiramps (linear, S-shaped with independent jerk settings)
- Short Floor Management
- Management of space calculated by the drive
- Integrated Breaking Unit
- Integrated Key-pad
- Self-tuning of motor parameters
- CE Marked

POWER SUPPLY

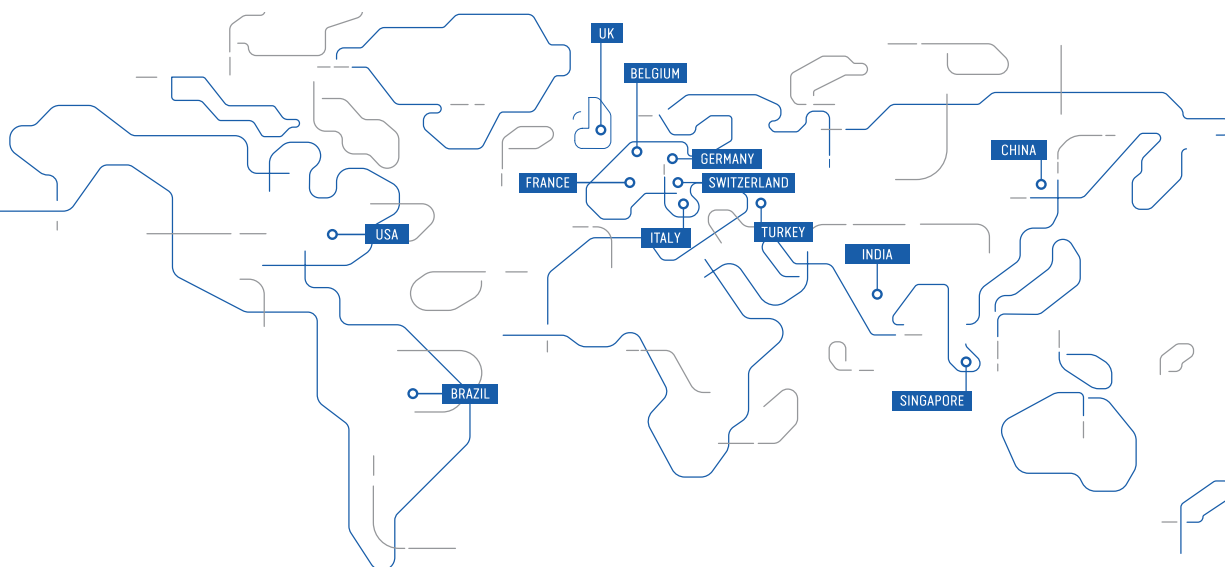
- 3 x 400 – 480Vac (-15% / +10%) @ 50Hz (-2%) / 60Hz (+2%)

MOTOR RATINGS

- 4kW (5Hp)
- 5.5kW (7.5Hp)
- 7.5kW (10Hp)

DIMENSIONS AND WEIGHTS

Sizes AGL50 EV	Dimensions: Width x Height x Depth		Weight	
	(mm)	(inches)	(kg)	(lbs)
AGL 2040	130 x 221 x 176.5	5.12 x 8.7 x 6.95	3.0	6.6
AGL 2055				
AGL 2075				



GEFRAN DEUTSCHLAND GmbH

Philipp-Reis-Straße 9a
D-63500
Seligenstadt
Ph. +49 (0) 61828090
Fax +49 (0) 6182809222
vertrieb@gefran.de

SIEI AREG - GERMANY

Gottlieb-Daimler Strasse 17/3
D-74385
Pleidelsheim
Ph. +49 (0) 7144 897360
Fax +49 (0) 7144 8973697
info@sieiareg.de

SENSORMATE AG

Steigweg 8,
CH-8355 Aadorf, Switzerland
Ph. +41(0)52-2421818
Fax +41(0)52-3661884
http://www.sensormate.ch

GEFRAN FRANCE SA

PARC TECHNOLAND
Bâtiment K - ZI Champ Dolin
3 Allée des Abruzzes
69800 Saint-Priest
Ph. +33 (0) 478770300
Fax +33 (0) 478770320
commercial@gefran.fr

GEFRAN BENELUX NV

ENA 23 Zone 3, nr. 3910
Lammerdries-Zuid 14A
B-2250 OLEN
Ph. +32 (0) 14248181
Fax +32 (0) 14248180
info@gefran.be

GEFRAN UK Ltd

Clarendon Court
Winwick Quay
Warrington
WA2 8QP
Ph. +44 (0) 8452 604555
Fax +44 (0) 8452 604556
sales@gefran.co.uk

GEFRAN MIDDLE EAST

Yeşilköy Mah. Atatürk Cad.
EGS Business Park
No:12 B1 Blok K:12 D:393
Bakırköy/İstanbul/TÜRKİYE
Ph. +90 212 465 91 21
Fax +90 212 465 91 22
info@gefran.com.tr

GEFRAN SIEI Drives Technology Co., Ltd

No. 1285, Beihe Road, Jiading
District, Shanghai,
China 201807
Ph. +86 21 69169898
Fax +86 21 69169333
info@gefran.com.cn

GEFRAN SIEI - ASIA

31 Ubi Road 1
#02-07,
Aztech Building,
Singapore 408694
Ph. +65 6 8418300
Fax +65 6 7428300
info@gefran.com.sg

GEFRAN INDIA

Survey No. 191/A/1,
Chinchwad Station Road,
Chinchwad,
Pune-411033, Maharashtra
Ph. +91 20 6614 6500
Fax +91 20 6614 6501
gefran.india@gefran.in

GEFRAN Inc.

400 Willow Street
North Andover, MA
01845 USA
Toll Free 1-888-888-4474
Fax +1 (617) 340 2761
info.us@gefran.com

GEFRAN BRASIL ELETRÔELETRÔNICA

Avenida Dr. Altino Arantes,
377 Vila Clementino
04042-032 SÃO PAULO - SP
Ph. +55 (0) 1155851133
Fax +55 (0) 1132974012
comercial@gefran.com.br

GEFRAN HEADQUARTER

Via Sebina, 74
25050 PROVAGLIO D'ISEO (BS) ITALY
Ph. +39 030988881
Fax +39 0309839063

GEFRAN DRIVES AND MOTION S.R.L.

Via Carducci, 24
21040 GERENZANO (VA) ITALY
Ph. +39 02967601
Fax +39 029682653
info.motion@gefran.com
Technical Assistance:
technohelp@gefran.com
Customer Service
salesmotion@gefran.com



www.gefran.com

GEFRAN

BEYOND TECHNOLOGY