Industrial Motors

Commercial & Appliance Motors

**Automation**

Digital & Systems

Energy

Transmission & Distribution

Coatings

# THE SOLUTION FOR ELEVATORS

## **Safe**, comfortable, **reliable** lifts


**Driving efficiency and sustainability**

# SUMMARY

# SAFE, COMFORTABLE, RELIABLE LIFTS

## WEG solutions satisfy all of the requisites for civil lift drives:

### Safety

- Safety certification for operation with single output contactor in accordance with EN 81-20, EN 81-50
- Safety certification for operation in contactorless mode in accordance with EN 81-20, EN 81-50
- Safe Torque Off (STO) EN 61800-5-2:2007 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

# Market segments

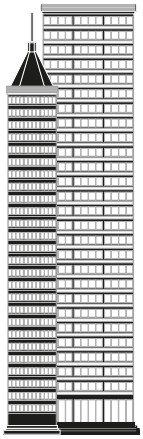
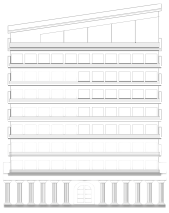
Home lift

Low rise

Medium rise

High rise

# Applications

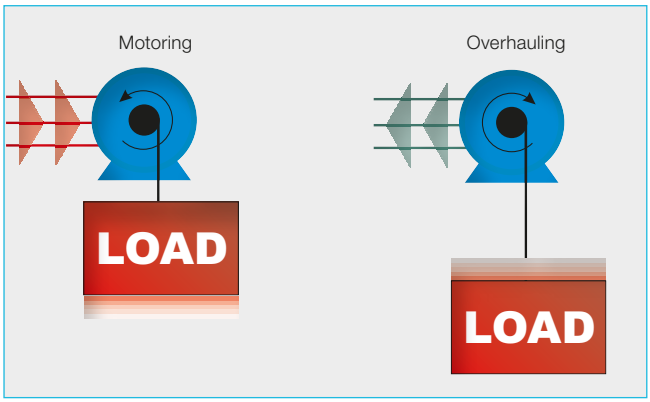



| | High rise | Mid rise | Low rise | Home lift |
|---|---|---|---|---|
| **Profile** | - Height: 90+ m<br>- Floors: 30+<br>- Speed range: 2.5...5 m/s | - Height: 18...90 m<br>- Floors: 6...30<br>- Speed range: 0.8...2.5 m/s | - Height: 12...18 m<br>- Floors: 3...6<br>- Speed range: 0.6...0.8 m/s | - Height: 4...8 m<br>- Floors: 1...2<br>- Speed range: 0.3...0.6 m/s |
| **Requirements** | - High speed<br>- Reliability<br>- Smooth acceleration and ride comfort<br>- Limited passengers' waiting and travel time<br>- Regenerative solution | - Cost saving<br>- Space saving<br>- Low energy consumption<br>- Smooth acceleration and ride comfort<br>- Regenerative solution | | - Cost saving<br>- Space saving (MRL)<br>- Low energy consumption<br>- Easy commisioning |
| **Specific functions** | - Premium components and design<br>- Pre-torque and precise landing at floor<br>- Door pre-opening<br>- AFE regenerative units | - Optimized hardware solutions<br>- Pre-torque and precise landing at floor<br>- Contactor-less<br>- External +24 V dc power supply for stand-by control<br>- Regenerative units | | - Optimized hardware solutions<br>- Contactor-less<br>- External +24 V dc power supply for stand-by control<br>- Rapid commissioning |

# Guide to selection

| | High rise | Mid rise | Low rise | Home lift |
|---|---|---|---|---|
| **Regenerative** |  <br>AFE200 + ADL300 | | | |
| **Non regenerative** |  <br>ADL300-4<br>ADL300-2T |  <br>VDL200 | |  <br>ADL300-2M |

# The advantages of regeneration

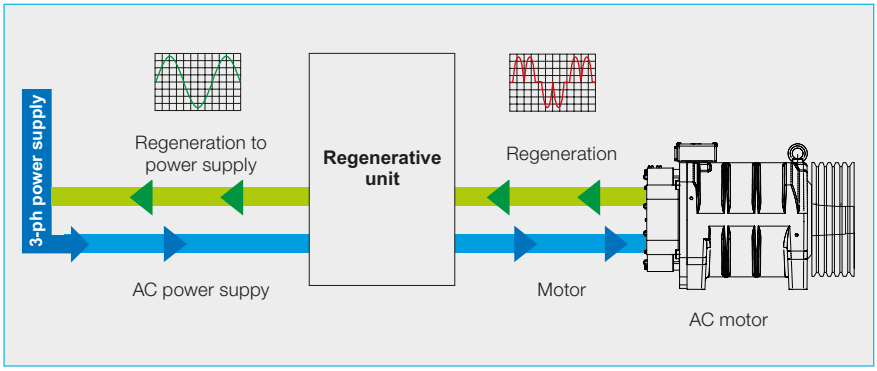


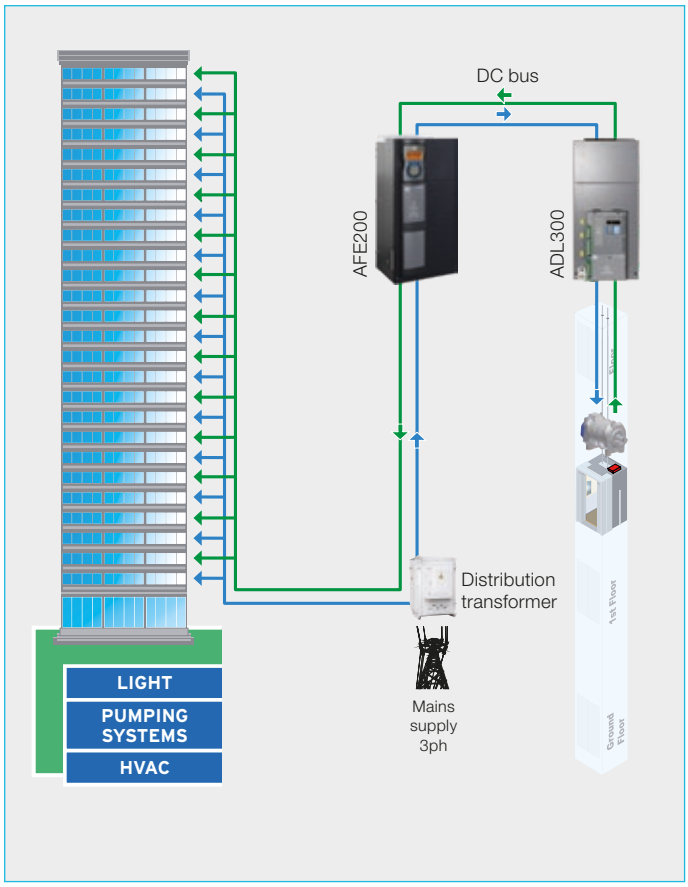

### Lower operating costs

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).

# 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.

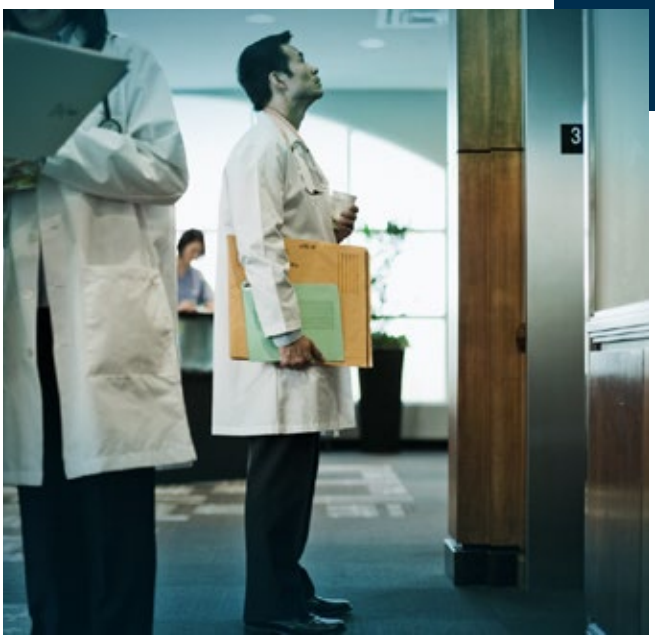
### Hotels

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.

# Fields of application

## 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 interfloor 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.
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


IMQ
CERTIFICATO DI ESAME UE DEL TIPO
EU TYPE EXAMINATION CERTIFICATE

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 EN 81-20, EN 81-50.

### Safety certification for a contactorless operations

ADL300 is certified as EN 81-20, EN 81-50; SIL3 according to EN 61800-5-2-2007.
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 +24 V dc power supply
- CE marked
- cULus (UL 508C)

## Power supply

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

## Motor ratings

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

## 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 |

# 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 V ac (-15%/+10%) @50 Hz (±5%)

## Motor ratings

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

## Dimensions and weights

| Sizes VDL200 | 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 392 x 159 | 6.38 x 15.43 x 6.26 | 7.6 | 16.7 |
| VDL200-3... | 235 x 392 x 180 | 9.25 x 15.43 x 7.08 | 10.5 | 23.5 |

# Notes

# Notes

# **Global presence** is essential, as much as understanding your needs.

## Global Presence

With more than 30,000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our ***Solution for Elevators*** are the right choice for your application and business, assuring safety, efficiency and reliability.

- **Availability** is to have a global support network
- **Partnership** is to create solutions that suits your needs
- **Competitive edge** is to unite technology and inovation

# Know More

## High performance and reliable products to improve your production process.


Excelence is to provide a whole solution in industrial automation that improves our customers productivity.

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