# 4. Sectional overhead doors

Loading Systems PowerDoor is an industrial sectional door. When the door is opened, the door panels move under the ceiling or move vertically along the warehouse wall.

## Designed for industrial and intensive use

# Safety, durability, ease of use and optimal insulation

The product is designed not to encroach into valuable warehouse space and further ensures that the door is optimally protected from damage.

Loading Systems PowerDoor can be made bespoke to your own requirements by offering many variations in design, finishes, operational systems and installation options. User-friendliness and safety are our main priorities.



Loading Systems overhead doors are specifically designed for intensive industrial applications and are manufactured to the highest quality standards. The door panel finish guarantees durability, optimal insulation characteristics and low lifetime maintenance costs.

## 4.1 Panels

Loading Systems overhead doors are supplied with a wide variety of panel designs and finishes.

### Long life span

Because overhead doors are often subjected to extreme weather conditions, Loading Systems ensures that our door panels are protected against corrosion and warping. All doors are manufactured from high quality, galvanised, coated steel coil with a thickness 0.5 mm. By selecting the highest choice of materials we can guarantee the longest possible product life span, even when the door is subjected to the most extreme of weather conditions.

The panels are also provided with an additional integrated steel reinforcement strip which ensures greater stability and guarantees the longevity of all the related door components.

## High insulation characteristics

Loading Systems standard overhead door panels are designed with a 40 mm thickness which seamlessly close to ensure an insulation value in the highest classifications by CE standards. The insulation characteristics can significantly lower the energy consumption of any building, warehouse or similar facility when installed with Loading Systems PowerDoors.

The polyurethane foam core between the high grade steel coil is also fire retardant and CFC-free.

## Aesthetics

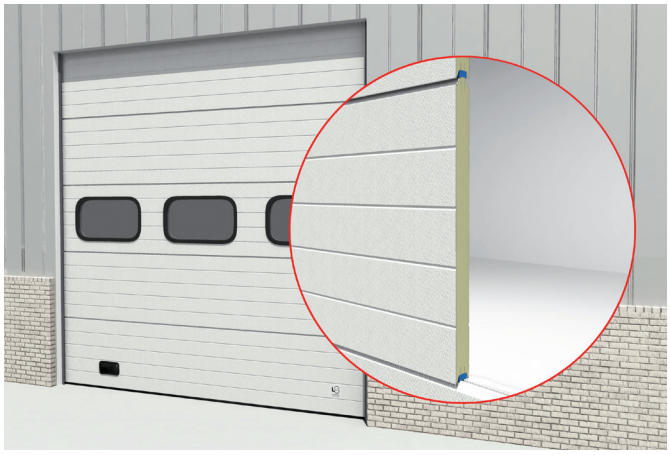
Loading Systems offers an extensive range of standard panel colours and finishes so that your doors can be fully adapted to suit the architectural or functional aspects of your building.

Loading Systems door panels are available with a standard tongue and groove connection, with or without finger protection. Whichever panel type you choose it will be supplied with excellent insulation and corrosion resistant qualities, with a strong CFC-free polyurethane core which is highly stable and durable.

## Technical specifications panels

| Type of panel | Panel thickness | Plating thickness | Thermal resistance | Heat insulation |
|---|---|---|---|---|
| | mm | mm | R $m^2$/K/W | U W/$m^2$K |
| Industrial panel | 40 | 0.5 | X | 0.51 |
| Panel with finger protection | 40 | 0.5 | 1.54 | 0.58 |
| Extra insulating panel | 80 | 0.5 | 3.43 | 0.28 |

## 4.1.1 Industrial panel

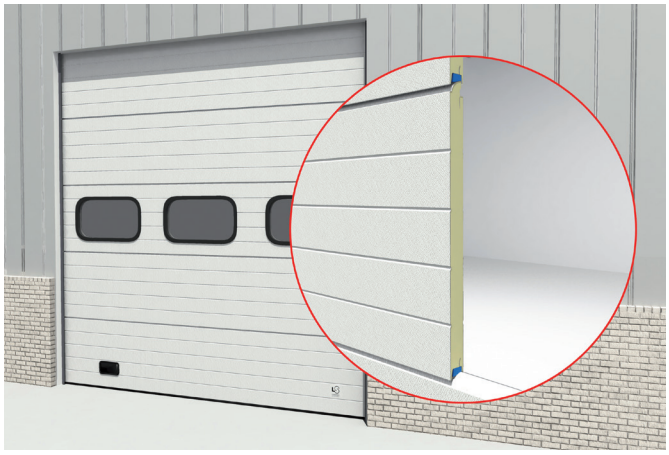


The Loading Systems traditional industrial panel is provided with an in-built thermal break. The tongue and groove design ensures an almost seamless seal between the panels preventing air and/or water from penetrating through the seals, ensuring the best possible insulation properties.

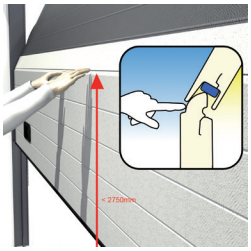
## Technical specifications of overhead doors with industrial panel

| | |
|---|---|
| **Size range** | Width up to 4000 mm<br>Height up to 3500 mm |
| Resistance to wind load 1) | Class 3 |
| Resistance to water penetration 2) | Class 1 |
| Air permeability 3) | Class 3 |
| Heat insulation 4) | 14 $m^2$ door surface area without wicket door<br>U = 1.16 W/$m^2$K<br>14 $m^2$ door surface area with wicket door<br>U = 1.48 W/$m^2$K |
| Noise reduction 5) | R = 25 dB |

## 4.1.2 Finger protection design



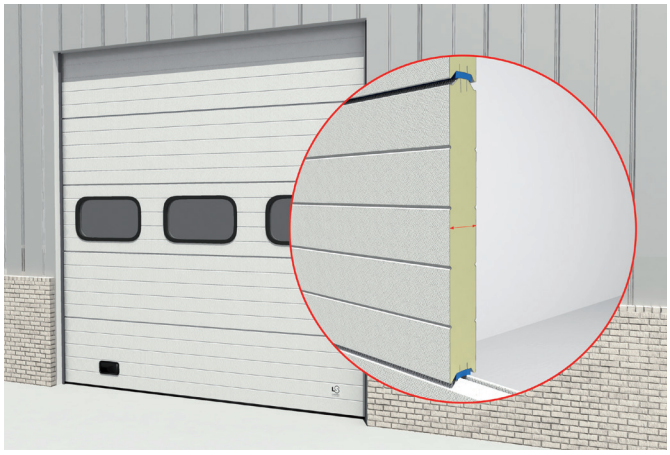
Loading Systems offers a "finger-safe" door panel profile which protects operatives from trapping their fingers between the panels when the door is operated. A finger protection device, or "finger-safe" design is legally required according to CE standards for all overhead doors with an opening height of 2750 mm or less (door panel deviates below 2750 mm).



### Technical specifications of overhead doors with finger protection

| | |
|---|---|
| **Size range** | Width up to 4000 mm<br>Height up to 3500 mm |
| Resistance to wind load 1) | Class 3 |
| Resistance to water penetration 2) | Class 3 |
| Air permeability 3) | Class 4 |
| Heat insulation 4) | 14 m² door surface area without wicket door<br>U = 1.43 W/m²K<br>14 m² door surface area with wicket door<br>U = 1.75 W/m²K |
| Noise reduction 5) | R = 24 dB |

## 4.1.3 Extra insulating panel



Loading Systems extra insulating panels are perfectly suited for buildings where it is important to have an optimal division between the inside and outside temperature, such as cold storage. These 80 mm thick sandwich panels have a high insulation value, which results in a decrease in your energy costs.

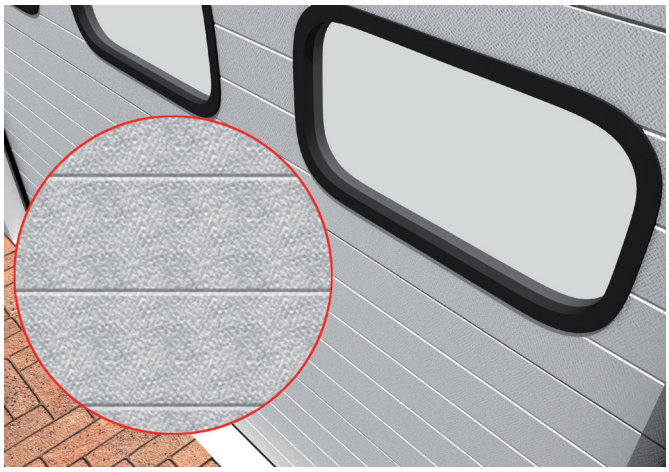
### Technical specifications of overhead doors with extra insulating panel

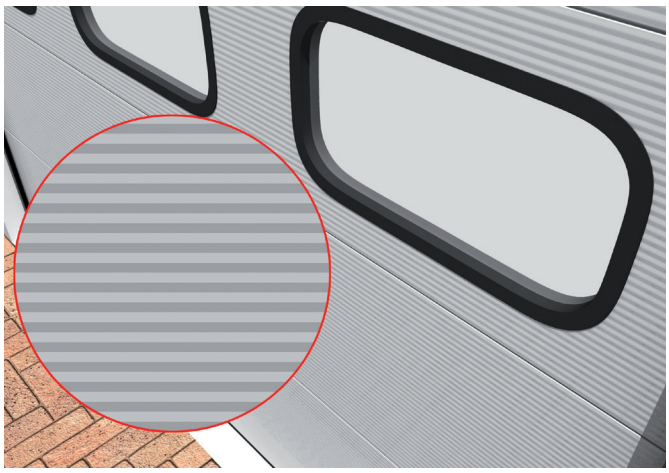
| | |
|---|---|
| **Size range** | Width up to 4000 mm<br>Height up to 3500 mm |
| Resistance to wind load 1) | Class 4 |
| Resistance to water penetration 2) | Class 3 |
| Air permeability 3) | Class 4 |
| Heat insulation 4) | 14 m² door surface area without wicket door<br>U = 0.86 W/m²K |
| Noise reduction 5) | R = 25 dB |

1) EN 12424; 2) EN 12425; 3) EN 12426;
4) EN 13241, annex B EN 12428

*The aforementioned values are dependent on the overhead door's particular specifications. The rating of the door supplied to you may vary.*

For the door panel finish you can choose the industrial stucco design or the elegant V-profile.





### Colours

The standard range of colours for Loading Systems overhead doors is determined by industry trends and expectations and is wide and varied. The panel finish is further enhanced by increased UV protection to prevent colour fading.

As well as an extensive range of standard colours, our door panels can be manufactured in almost any other RAL, BS or NCS colours upon request.

## 4.2 Track systems

During the planning stages of building design it is crucially important to choose the correct door track system or door hardware, so that it follows as closely as possible the path of the building wall and roof. This method of door design ensures that the door leaf can be positioned in such a way so that the door opening, as well as the space around it remains free when the door is opened. In this way the door does not become an obstruction within the building.

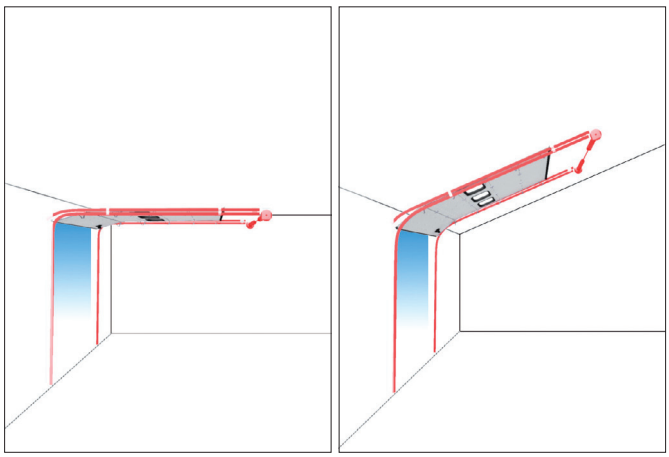
The life span of a door is certainly determined by the quality of its hardware, which is why all Loading Systems door guide tracks are manufactured from the highest quality galvanised steel.

The hardware for every overhead door is custom made and manufactured in our own Loading Systems factory. The door track systems can be adapted for every type of overhead door application.

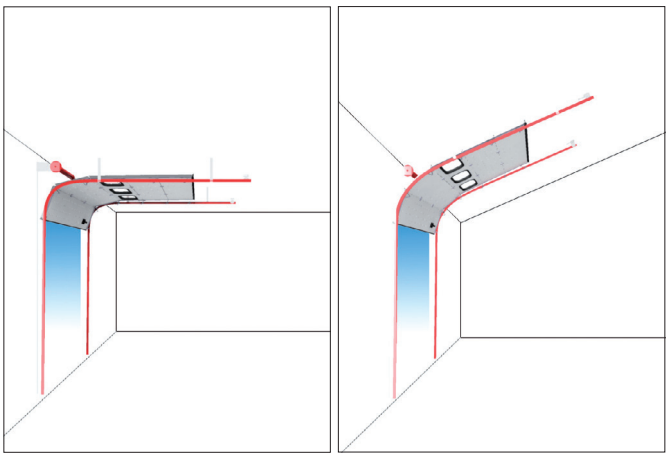
The choice of hardware depends on the design characteristics of the building. One important aspect to consider is the available headroom above the door opening (the free space above the door opening up to the height of the ceiling).

The standard hardware is suitable for most applications, whereas the vertical track system and the high track system are used in applications where there is additional free headroom above the door; in this scenario it is possible to achieve optimal space within the building envelope. In cases where headroom space is limited, the low track system is a more suitable option.

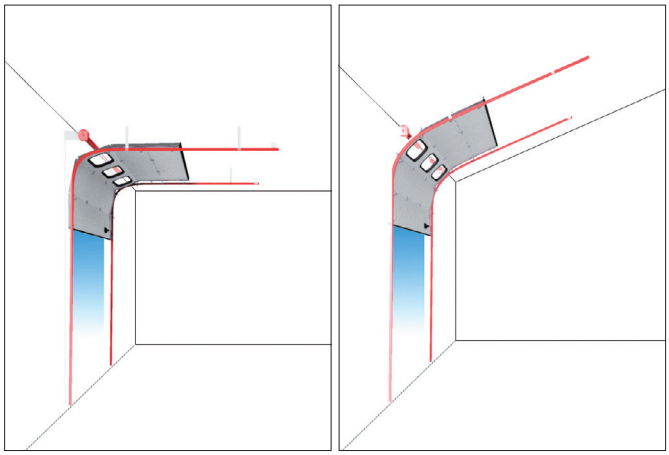
With the exception of the vertical track system, all other track systems can be installed to follow the roofline of the building. We also offer a variety of other track system options which are preassembled and supplied with a low spring assembly. This enables considerable savings in installation time and subsequent lifetime maintenance cost benefits.



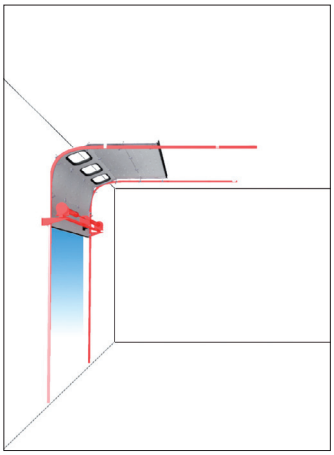
Low track system



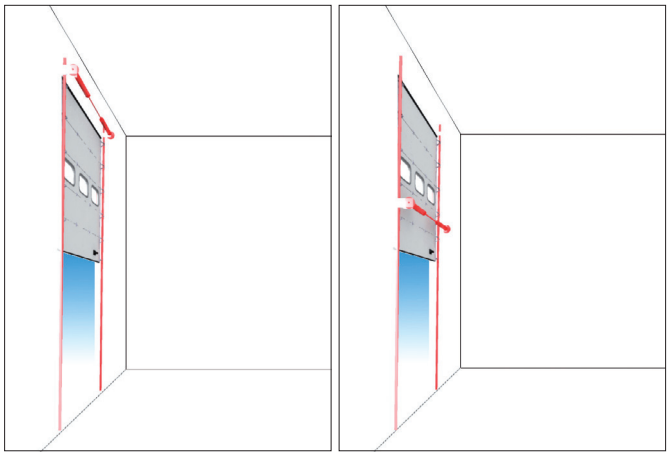
Standard track system



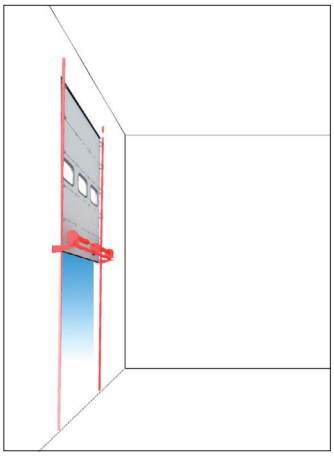
High track system



Preassembled high track system



Vertical track system



Preassembled vertical track system

# Maximum available free space by choosing the right track system

## 4.3 Door types

### 4.3.1 Dock door for loading and unloading bays

The Loading Systems dock door is especially designed for applications at loading and unloading bays. The intensive usage and the crucial function within the logistical process places higher demands on the quality and the functioning of these overhead doors.

Due to innovative construction and our choice materials, this dock door is extremely reliable and less prone to wear and tear. This door will continue to perform well even under the most extreme conditions.

Our dock door has a modular construction. The construction is largely delivered pre-assembled. This means that any required maintenance can be done quickly. The dock door's pre-assembled construction also results in considerably lower engineering and operational costs. In compliance with CE standards, all cables run internally.

### 4.3.2 Extra-large overhead door

Loading Systems can supply large overhead doors for extra-large openings, for example on a hangar warehouse. Due to the size and weight of overhead doors installed in these types of applications, the materials and components are often subjected to extremely high demands.

The Loading Systems' extra-large overhead doors are specifically constructed for use in applications where there is a width of up to 12 metres. To prevent the door from warping, the sections have been equipped with extra reinforcements on the door leaf.

Supported by advanced software, Loading Systems' experienced product engineers calculate the specifications for each overhead door to ensure that a custom made, safe and reliable, extra-large overhead door is always guaranteed.

# Tailor-made door designs for specific applications

### 4.3.3 Wicket and side doors

To increase safety in and around the vicinity of your building, it is sometimes important to separate pedestrian and vehicle traffic as much as possible. To this end, Loading Systems has a complete range of wicket and side doors.

In cases where there is ample space around the overhead door, a side door offers an economical and safe solution. Where this space is unavailable, a wicket door can be integrated in the Loading Systems overhead door.

The wicket doors and side doors can be fully customised, to open inside or out and to the left or right.

Loading Systems wicket and side doors with a low threshold also decrease the risk of pedestrians tripping. They also facilitate the passage of internal traffic. With a lower threshold the side doors can also serve as escape doors.

### Wicket door contact point

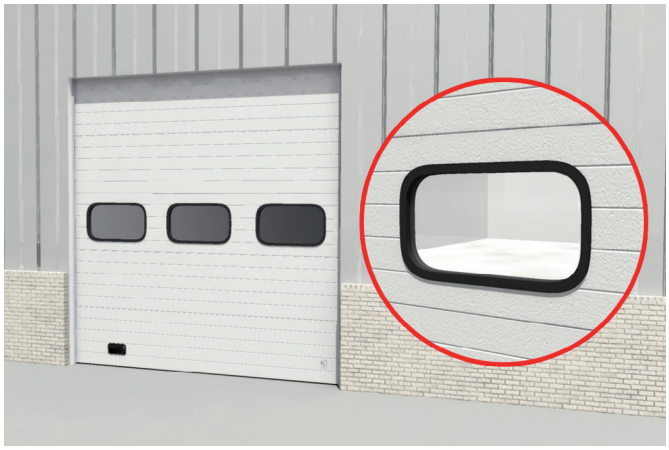
Electrically operated overhead doors with wicket doors are provided with standard integrated double wicket door contact points. The contact points ensure that the overhead door cannot be operated when the wicket door is still open. This prevents potential hazardous situations and damage to the overhead door and/or the wicket door.

## Additional natural light and visibility

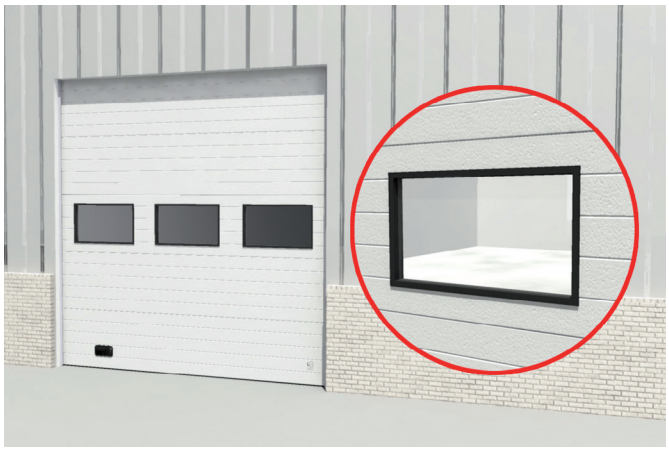
When additional internal light is required, or when visibility to the external environment is important, Loading Systems overhead doors can be provided with one or more windows.

## Windows

You can choose from a variety of double insulated windows.



Double insulated oval windows

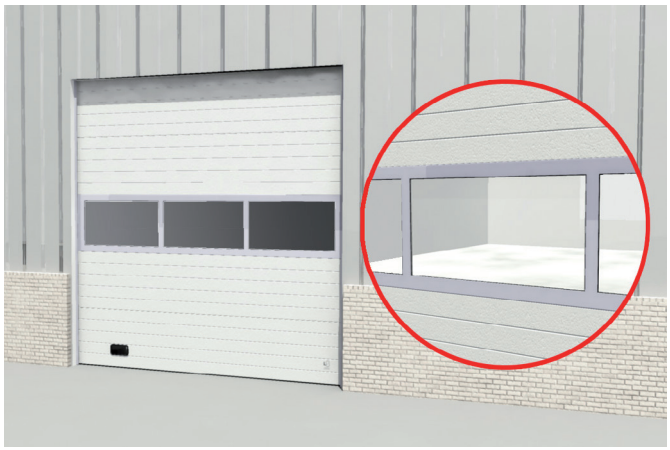


Double insulated rectangular windows

Double insulated peephole windows

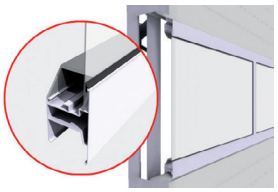
## Aluminium sections over the entire width

To increase natural lighting in the internal environment, aluminium glazed sections can be fitted over the entire width of the overhead door. All aluminium glazed sections are available in single or double insulated varieties.



Aluminium glazed section over the entire width

The aluminium sections can be manufactured with your choice of window, dependant on the desired heat insulation, light or appearance.

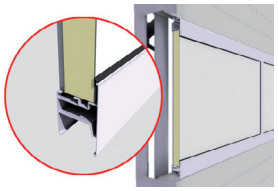


**Single glazing**
*Material*:
SAN UV, polycarbonate

*Glass design (for SAN UV):*
transparent, satin, opal

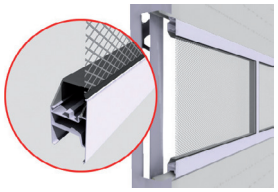
**Double insulated glazing**
*Material:*
SAN UV, polycarbonate

*Glass design (for SAN UV):*
transparent, satin, opal



**Heat insulating aluminium filling**
*Material:*
aluminium, polystyrene

*Glass design:*
stucco, smooth



**Wire mesh**
*Material:*
aluminium

*Glass design:*
l/w

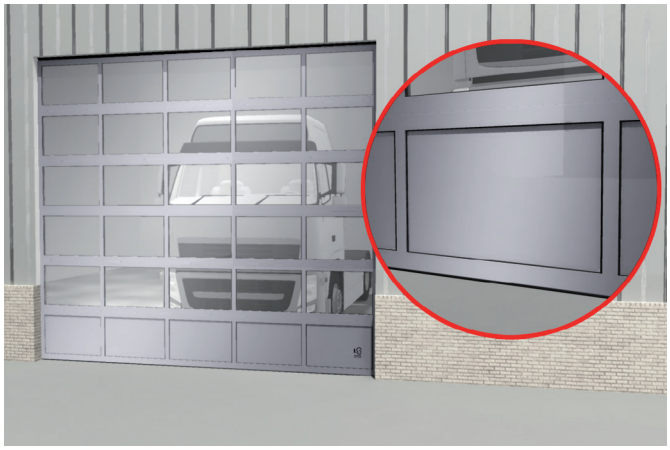
## 4.4 Full vision doors

When optimal natural light is required, Loading Systems supplies a full vision panel overhead door. This overhead door is available in an almost endless number of variations and is designed and manufactured completely to your bespoke requirements. The adonised, aluminium sections of the full vision overhead door can be produced with a wide variety of panel options and colours.

### Maximum natural light and cost savings

Loading Systems aluminium full vision overhead doors are constructed from high quality materials and are incredibly durable. Using aluminium sections with a transparent panel in the design enables the optimal use of natural light. This creates a very attractive, full vision overhead door which is particularly suited to showrooms. Due to the optimum amount of natural light, additional secondary internal lighting becomes superfluous which can save you considerable energy costs.

It is worth noting that the lowest section of this type of overhead door can be prone to attracting dirt. With this in mind, Loading Systems recommends a bottom section without windows. This bottom section can be aesthetically matched to the style of the complete overhead door.



### Technical specifications for full vision overhead doors

| | | Without finger protection | With finger protection |
|---|---|---|---|
| | **Size range** | Width up to 4000 mm<br>Height up to 3500 mm | Width up to 4000 mm<br>Height up to 3500 mm |
|  | Resistance to wind load 1) | Class 3 | Class 4 |
|  | Resistance to water penetration 2) | Class 3 | Class 3 |
|  | Air permeability 3) | Class 3 | Class 4 |
|  | Heat insulation 4) | 14 m² door surface area without wicket door<br>U = 3.83 W/m²K<br>14 m² door surface area with wicket door<br>U = 3.97 W/m²K | 14 m² door surface area without wicket door<br>U = 3.83 W/m²K<br>14 m² door surface area with wicket door<br>U = 3.97 W/m²K |

1) EN 12424; 2) EN 12425; 3) EN 12426;
4) EN 13241, annex B EN 12428

*The aforementioned values are dependent on the overhead door's particular specifications. The rating of the door supplied to you may vary.*

## Window options for the sections in full vision overhead doors

| Name | Glazing | Description |
|---|---|---|
| **Acrylic / SAN UV** | Single<br>Double insulated | Transparent |
| **Hard glass (safety glass)** | Single<br>Double insulated | Transparent |
| **Polycarbonate (impact resistant)** | Single<br>Double insulated | Transparent |
| **Perforated aluminium** | Single | Aluminium colour |
| **Closed in-fill panels** | Insulated | Aluminium in-fill, in RAL-colour of choice |
| **Specials** | Single<br>Double insulated | Opal 30% (30% translucence)<br>Opal 80% (80% translucence)<br>Pearl (transparent with air bubbles)<br>Smoked (grey transparent) |

## DuraCoat scratch resistant windows

Loading Systems windows can be supplied with a DuraCoat coating. This special coating produces a durable surface resistant to scratches, abrasion and many chemicals.

## Other characteristics:

1. Weighs about half that of standard glass.
2. Ensures better insulation than glass.
3. Offers excellent clarity.
4. Extremely weather and age resistant and maintains a stable colour for many years.

# Maximum natural light and cost savings

## 4.5 Locking systems

Loading Systems overhead doors, wicket doors and side doors can be locked in a variety of ways.

### Slide bolt and cylinder locks

Hand and chain operated overhead doors can be fitted with sliding bolts or cylinder locks.

### Interlocks

With the electrically operated overhead doors used in combination with a slide bolt or cylinder lock an interlock is required. The interlock ensures that the drive system can only be activated when the overhead door is not locked by the slide bolt or cylinder lock. This prevents unnecessary damage to the overhead door or the drive system.

### Burglary prevention anti-lift security

With the burglary prevention and anti-lift security device the overhead door can be secured against lifting. This is primarily of importance with smaller electrically operated overhead doors. By installing the anti-lift security device unauthorised visitors are unable to enter your premises through the overhead door.

The anti-lift security device is a mechanical lock that works without power. This means that even when the power is cut the door remains secure against unauthorised lifting. When the door is closed it is automatically locked by the anti-lift device.

### Electronic lock

With the Loading Systems' electronic lock the overhead door is automatically locked when closed. The overhead door is automatically unlocked as soon as it is operated. Damage to products and potentially hazardous situations can be prevented and your warehouse is secured at all times against unwanted intruders.

By integrating the electronic lock with the Advanced Control Centre it is also possible to remotely lock your overhead door.

### Panic lock

Loading Systems wicket and side doors can be equipped with a panic lock. A panic lock is locked by means of a key. The door can only be opened from the ouside with the key. From the inside the door can be opened at all times by means of a handle, even if the door is locked from the outside.

### Panic bar

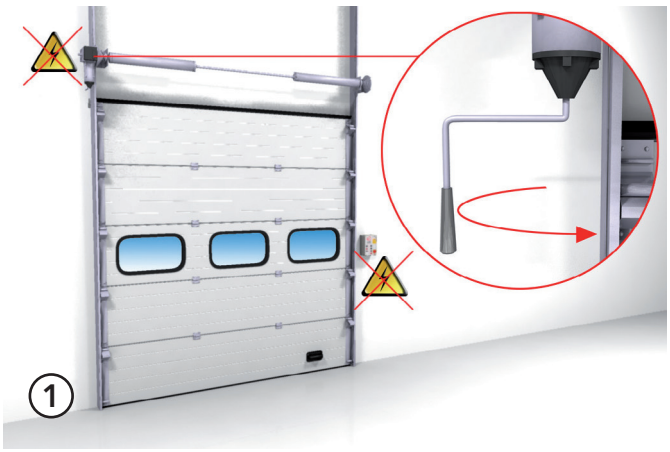
Loading Systems side doors can be provided with a panic bar. Pressing the panic bar directly unlocks the door.

## 4.6 Operating Method

Loading Systems doors can be operated manually or electrically by means of a door motor. The choice of operation will be influenced by factors such as the weight of the door and frequency of use. All our doors are equipped with torsion springs which are specifically manufactured to ensure the door is perfectly balanced. Thus, minimum effort is required from the motor or your personnel when opening or closing the door.

### Manual operation

Standard operation is by means of a pull cord, rod, or chain operation.

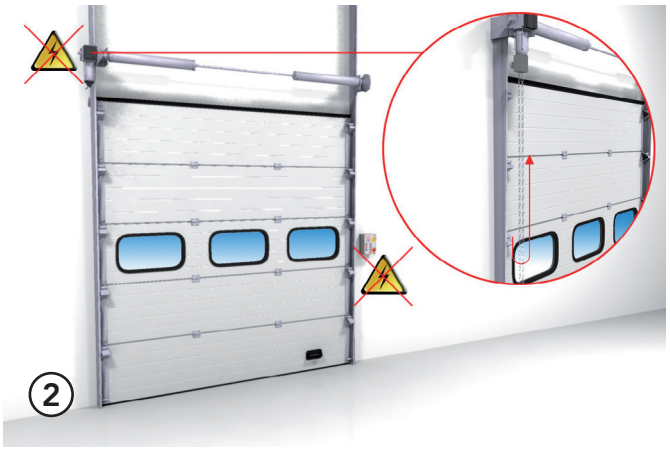



### Electrical operation

Loading Systems supplies a suitable motor for nearly all applications.

The standard motors supplied with Loading Systems electrical doors have an emergency control system which allows the opening and closing of the door in the event of a power failure. The emergency control comes in the form of:

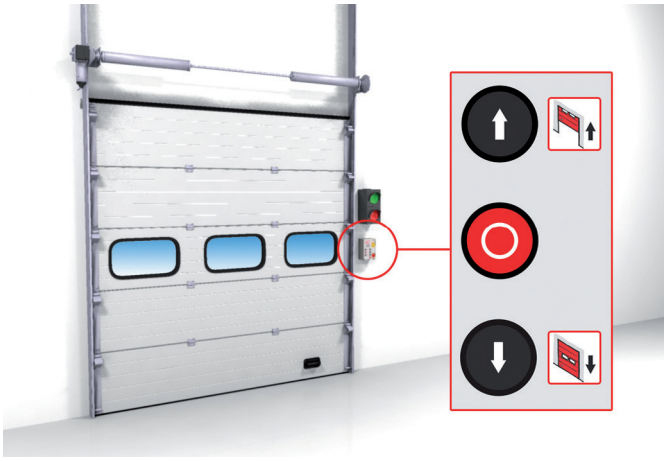
1. Emergency hand crank;
2. Hand chain;
3. De-clutching of the motor to enable manual operation.



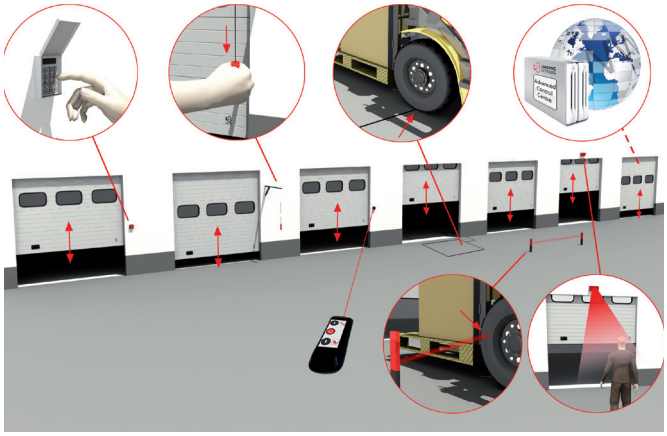

All Loading Systems motors are provided with digital limit switches making them simpler, more accurate and quicker to adjust. Modifications can be programmed directly from the control box, saving installation time and costs. Additionally, the digital limit switches can be provided with a function that automatically corrects the overhead door if it doesn't stop at its lowest point, for example; when the wire door cable becomes slack. Readjusting a slack wire door cable can be a thing of the past.

### Operation

Loading Systems overhead doors have a standard three button 'up-stop-down' control system. Dependant on your preferred safety options, this can be operated either by deadman control or automatically.

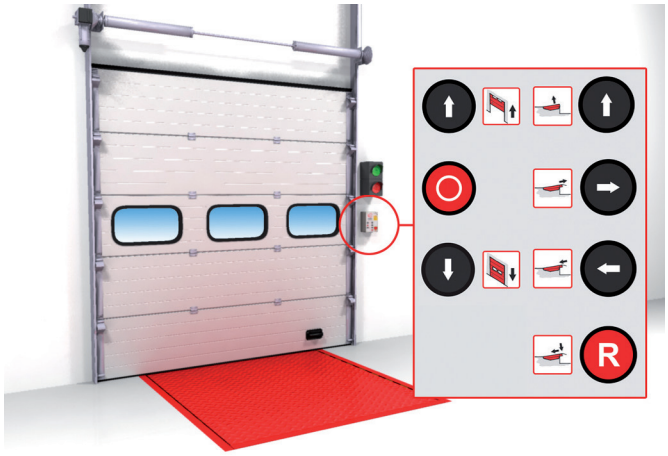


Due to the modular concept of Loading Systems controls these can easily be expanded with a number of additional control options. Possible expansion options are: remote control, automatic closing, infrared sensors, and detection loops or radars.



## 4.7 CombiControl

Loading Systems is a total solutions supplier and not only provides control systems for basic operation of individual products, but we also provide control systems for totally integrated operating systems. This means that Loading Systems delivers combined control boxes for dock levellers, inflatable dock shelters, dock shelters with electrically operated top curtains, industrial doors and accessories.




### Integrated solutions

From an aesthetic perspective, integrated solutions are more attractive than individual control boxes delivered by some suppliers. By combining the operation of your loading bay products into one single control station, only one power supply is required. You will not only save on installation costs but lifetime maintenance and repair costs can also be reduced.

### Sequential logic

When using sequential logic, the Loading Systems products and accessories combined with the CombiControl control boxes can be programmed to suit your exact operating sequence as a standard feature.

### Standard "Auto-Return" and possibility to include automatic sequential logic

The automatic sequential logic ensures that the CombiControl can be set so that upon activation of the "Auto-Return" button the industrial door, in conjunction with the door safety edge option, automatically closes as soon as the dock leveller returned to its home position.

### Main power switch

All control boxes include a main power switch with padlock safety in accordance with EN 418 as a standard.

## Advanced Control Centre

All controls have been prepared for the Advanced Control Centre. No error-sensitive and expensive control boxes are required to detect the product status when Loading Systems control boxes are used. All controls include LED indication to display the product status, and as an option can immediately report a failure.

## Easy to install

By designing the controls so that only a limited amount of space is required, our controls can easily be installed in even the most space restricted environments.

## Accessories

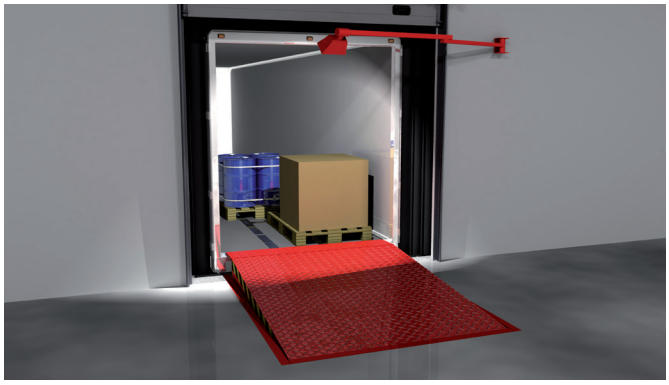
All control boxes can easily be adapted to accept most Loading Systems Accessories, and can easily and retrospectively be modified to be integrated in the sequential logic to improve safety on or around the loading dock to reduce damage and reduce energy consumption.

## Warning lights

It is possible to include traffic signal lights to work either independently or in conjunction with a warning light in the control station to improve safety on or around the loading bay. As soon as the loading and unloading system is activated, the external stop light switches from green to red (unsafe to depart), and as soon as the dock leveller lip is positioned on the vehicle bed, the warning light on the control box inside, switches from red to green. As soon as loading and unloading is completed, and the system returned to its home position, the external signal light switches from red to green and the warning light inside switches from green to red (unsafe to load and unload).

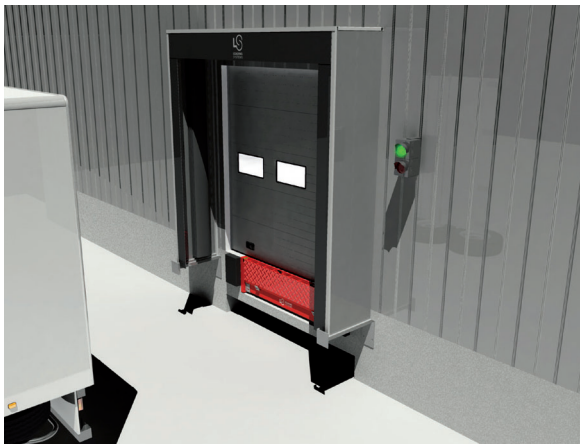
## Dock lights

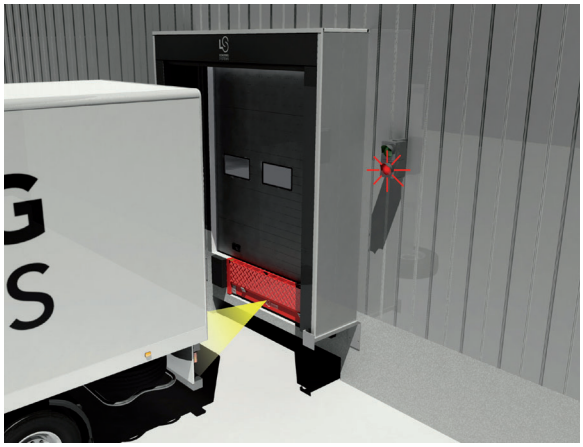
Dock lights increase visibility around the loading and unloading bay. Dock lights can be programmed so that they illuminate the rear of the vehicle as soon as the dock leveller is activated.



## Docking Assistant

By means of "green and red" signals the Docking Assistant provides an indication of the distance between the rear of the vehicle and the loading and unloading bay. This system simplifies docking and reduces risk of vehicle damage.





## Alarm

The control box can be supplied with an acoustic alarm which is combined with a vehicle detection system. If the vehicle departs the loading and unloading bay prematurely, thus creating a dangerous situation, the acoustic warning signal will automatically be activated.


## Wheel chocks

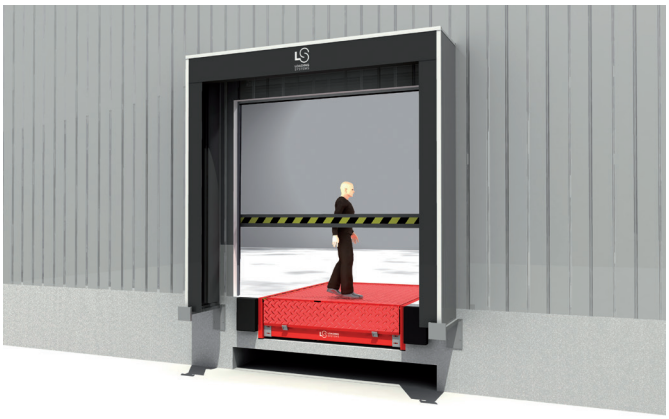
The wheel chock electric sensor detects the presence of a vehicle at the loading and unloading bay similar to the vehicle detection sensor. After the vehicle is detected, the sequential logic can be operated by means of the products (door or leveller).

## Vehicle detection sensor

The sequential logic in the control box can be set according to your preferred choices. The sequential logic, combined with the vehicle detection sensor, can ensure that the industrial door opens only after a vehicle is docked. This creates a safer loading or unloading situation on and around the loading and unloading bay: a fork-lift driver can no longer drive backwards onto the platform unexpectedly. Furthermore, this also significantly reduces energy loss, as the door only opens after the vehicle is "sealed' onto the loading bay.

## Roll off safeguard fence

The roll off safeguard fence is positioned in front of the dock door to ensure that no one can accidentally fall from the loading platform when the door is opened.



## Safe and CE-TUV certified

The control boxes comply with all relevant European standards and are CE-TUV certified. Quality and safety are in accordance with all relevant standards.

## 4.8 Safety

### Quality, safety and durability

To ensure the quality and safety of our industrial doors, our products are designed, manufactured and installed in compliance with European Commission guidelines. All Loading Systems overhead doors are CE labelled and fully compliant with all criteria for safety as established by European guidelines EN 13241-1.

### Spring break protection

When a door spring breaks (for example at the end of its operating life) the overhead door could suddenly close at a high speed. This can potentially cause hazardous situations, particularly with manually operated overhead doors. Thus, all the springs used in Loading Systems overhead doors are provided with standard, compulsory spring break protection. For non-manually operated doors the spring break protection can be fitted as an additional option.

### Slack cable protection

With electrically operated overhead doors the slack cable protection device ensures that the motor stops when the cables tension unexpectedly falls away, for example when the door is obstructed during lowering. Hazardous situations can thus be prevented. With electrically operated overhead doors it is compulsory for one slack cable protection device to be installed.

### Overview safety options

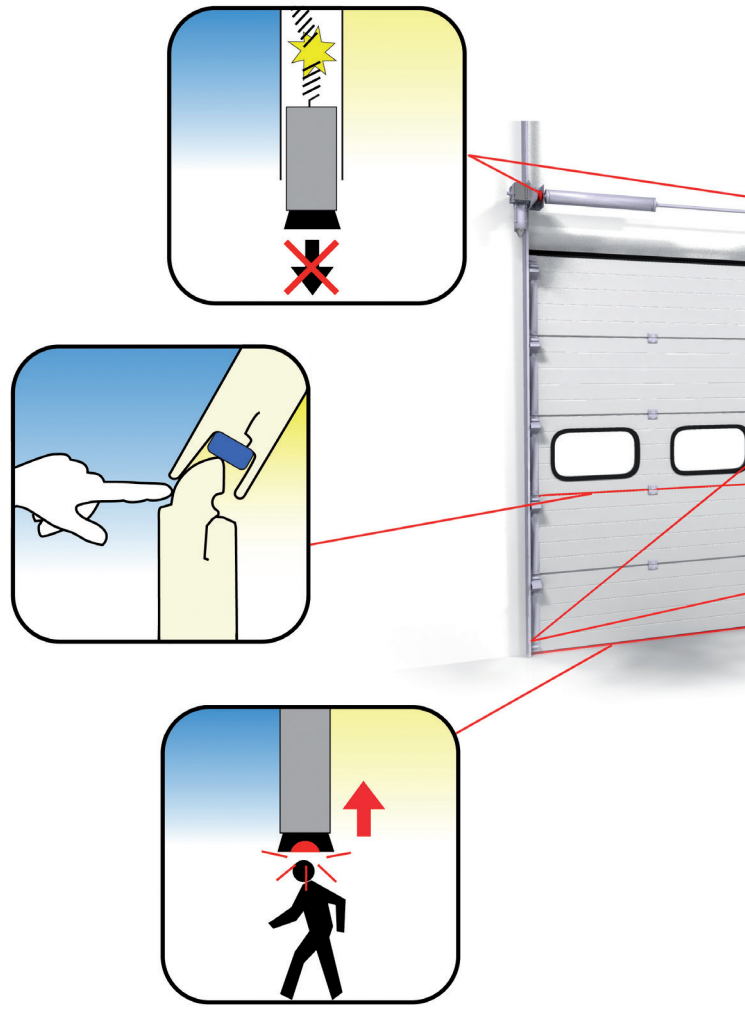
| Description | Compulsory |
|---|---|
| Spring break protection | With manually operated doors (pull rope, pull chain or chain) and declutchable motors |
| Slack cable protection | With electrical operation |
| Cable break protection | If the cables are less than 6x over-sized |
| Obstacle detection safety | Not compulsory |
| Finger protection | Top joint section is under 2750 mm |
| Anti-lift security | Not compulsory |

### Cable break protection

In the improbable event that one or both the overhead door's lifting cables break, an unwanted, hazardous situation can develop. In order to minimise the risk of cables breaking, Loading Systems uses cables which are rated to six times the load which is lifted. The chance of both cables breaking simultaneously on both sides of the door is almost zero. Although it is not compulsary, for optimum safety, we always advise the installation of additional cable break protection.

### Obstacle detection safety

The obstacle detection safety device guards the underside of the overhead door and ensures that it automatically stops and returns if something or someone is under the door. This can prevent unnecessary damage or injury. The obstacle detection system can be applied as an additional safety device for electrically operated overhead doors.

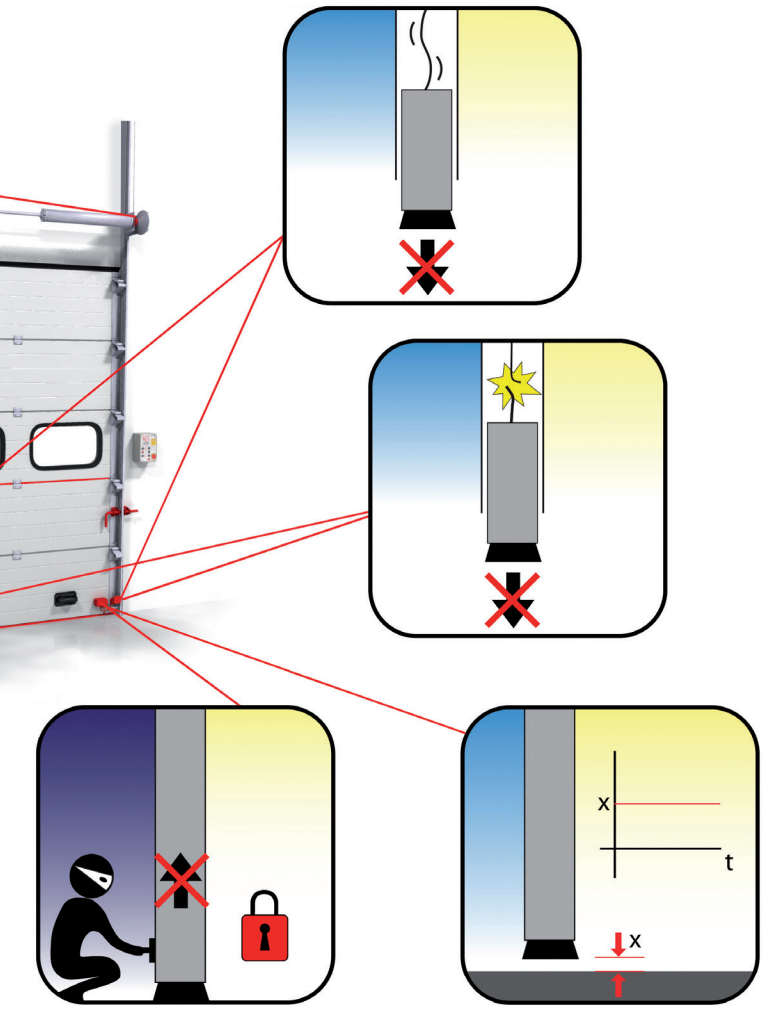


### Finger protection (Finger-Safe)

With finger protection, fingers cannot come between the panels when the door is opening or closing. The finger protection is in accordance with CE-standards and legally required for overhead doors up to a height of 2750 mm (door panel deviates below 2750 mm).

### Burglary prevention, anti-lift safety device

Due to Loading Systems burglary prevention and anti-lift security, the overhead door automatically locks when it is closed. Intruders are prevented from entering through the overhead door. The anti-lift safety device is a mechanical security device that works without a power supply. This means that the door is secure against unauthorised lifting even in the event of a power failure. When the door is closed, it is automatically locked by the anti-lift safety device.




### Torsion springs and lifting cables

Loading Systems overhead doors are provided with steel torsion springs and wire rope lifting cables to raise, hold open and close the overhead door. The torsion springs are high quality robust steel which are shot peened and powder-coated prior to delivery. Special springs are available for high frequency use overhead doors. For additional safety, the lifting cables are rated to at least six times the weight of the door panels.

### Motor protection using a thermal relay

The motor systems that are used with the electrically operated overhead doors have a standard thermal safety device. This prevents the motor from overheating and avoids damage to the door when, for example, the opening is blocked.

### Automatic ground levelling adjustment

All Loading Systems motors supplied with a digital limit switch can also be supplied with an automatic ground levelling adjustment system. This device ensures that the overhead door will automatically adjust and stop if the door fails to stop at the lowest point due to a slack lifting cable. With this option installed, adjustment of the overhead door limits due to a slack cable will be a thing of the past.

## Loading Systems, a safe choice