Crawford
611 Autodock Swingdock

Product datasheet

Q1.0 - 2011

Crawford

ASSA ABLOY

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Technical facts

Features

Sizes - nominal length*	2000, 2450, 3000 (mm)	
Sizes - nominal width AD	3300, 3500, 3600 (mm)	
Sizes - leveller width	2000, 2200 (mm)	
Vertical working range	Above dock:	0 - 430 mm
	Below dock:	0 - 360 mm
Platform tear plate	Standard:	Thickness: 6 mm (6/8)
	Option:	Thickness: 8 mm (8/10)
Surface treatment:	Standard:	RAL 5010
		RAL 6005
	Option:	RAL 3002
		RAL 9005
		Hot dip galvanised
Control Unit	Supervision 105, 105A, i105, i305	
	Fault & service indicator	

* Other sizes are available on request

Performance

Load capacity:	6 tonnes (60kN)
Max. point load:	1,3 N / mm² (6 mm tear plate)
Motor hydraulic unit:	0,75 kW
Mains supply:	400V 3-phase, 230V 3-phase
Control unit protection class:	Supervision Series: IP 65
Allowable oil types:	Shell Tellus DO 10 (-20°C - +60°C) AeroShell Fluid 41 (-30°C - +60°C) Fuchs Plantolube Polar 15S (-20°C - + 60°C)
Magnetic valves:	24V/DC 18W S1
Surface treatment paint class 1:	80 µm Corrosive Category C2 M acc. DIN EN ISO 12944-2
Surface treatment paint class 3:	160 µm Corrosive Category C3 M acc. DIN EN ISO 12944-2
Surface treatment galvanised:	Hot dip galvanised 80 µm Corrosive category C4 & C5-I M acc. DIN EN ISO 12944-2

Q2.0 - 2010

Contents

Q2.0 - 2010

1. Description

1.1 General

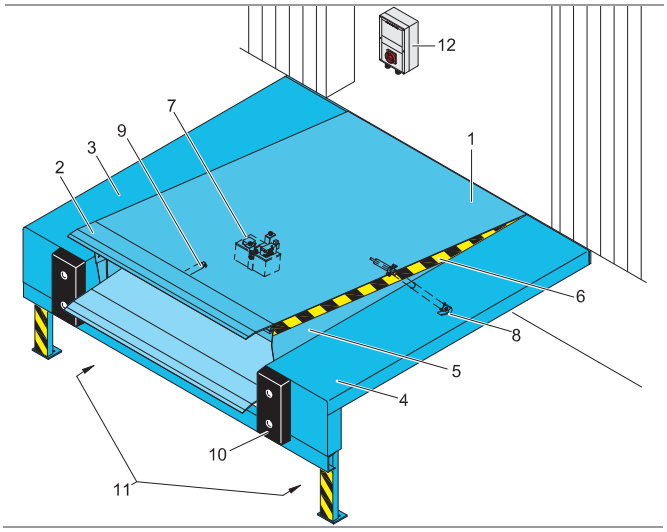
1.1.1 Application

The Crawford 611 autodock swingdock is an externally installed and self-supporting dock leveller that is ideal for applications where there are insufficient installation possibilities within the building. The Crawford 611 autodock swingdock system meets the standard demands of most loading operations and fully complies with rules and regulations of the European Standard EN 1398.

1.1.2 Mode of operation

The swing lip safely bridges the gap between the ramp and the lorry bed. When the dock leveller is raised, the lip swings out and the leveller lowers gently onto the lorry bed. After loading or unloading, the leveller is raised again, the lip swings down and the platform returns to its parking position, i.e. to ramp level.

1.1.3 Overview



1	Leveller platform
2	Swing lip
3 + 4	Autodock frame
5	Toe guards
6	Warning stripes
7	Hydraulic unit
8	Lift cylinders
9	Swing lip cylinder
10	Buffers (option)
11	Tail lift recess
12	Control unit

1.1.4 Standard

Surface:	Painting RAL 5010 or RAL 6005
Hydraulic Equipment	Low noise hydraulic unit Two hydraulic lift cylinders One hydraulic lip cylinder
Lip	Lip length 400 mm Bevelled 40 mm Bent lip
Installation angle	90°

1.1.5 Options

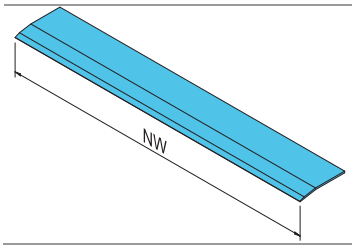
Surface	Painting RAL 3002 or RAL 9005 Hot galvanised
Hydraulic equipment	Low temperature oil Bio oil
Lip options	Lip length 500 mm Bevelled 100 mm Straight lip 2 fold down segments Tapered lip
Energy & Ergonomics	Slip protection/noise reduction
Installation angles	45°/135° 60°/120° 75°/105°

Q2.0 - 2010

1.2 Swing Lip

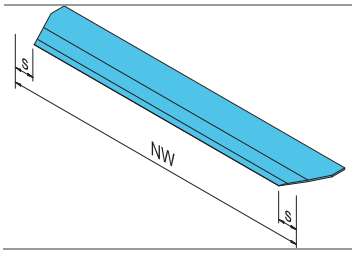
1.2.1 Lip shapes

1.2.1.1 Standard swing lip



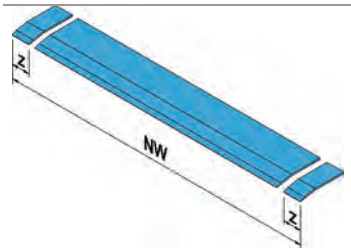
The standard swing lip is a single rectangular lip for use with a fleet of vehicles that is a standard size.

1.2.1.2 Tapered swing lip



A tapered swing lip ensures that the lip reaches the lorry bed, even when the lorry is not parked in the exact centre position. Avoids damage to the truck and interruptions of the dock-in procedure. s = 125 mm

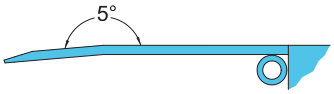
1.2.1.3 Fold down segments



Ensures that the swing lip reaches the lorry bed by folding down one or both outer segments when the lorry is smaller than usual, or not parked in the exact centre position. Avoids damage to the truck and interruption of the dock-in procedure. Only available for 60 kN. Z = 125 mm

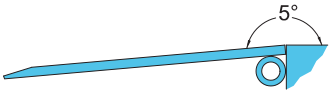
1.2.2 Lip angles

1.2.2.1 Bent lip



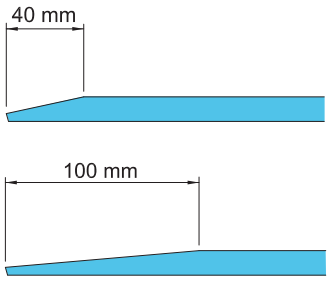
The standard bent steel swing lip ensures smooth transition to a lorry bed both above and below dock level. Avoids tripping hazards according EN 1398.

1.2.2.2 Straight lip



A straight steel swing lip ensures smooth transition when the lorry bed is below or equal to dock level. Avoids tripping hazards according EN 1398.

1.2.2.3 Bevelled lip 100 mm



The standard steel lip is 40 mm bevelled.
Optionally, the lip can be bevelled 100 mm, designed to provide maximum comfort and smooth transition from the lip.

Q2.0 - 2010

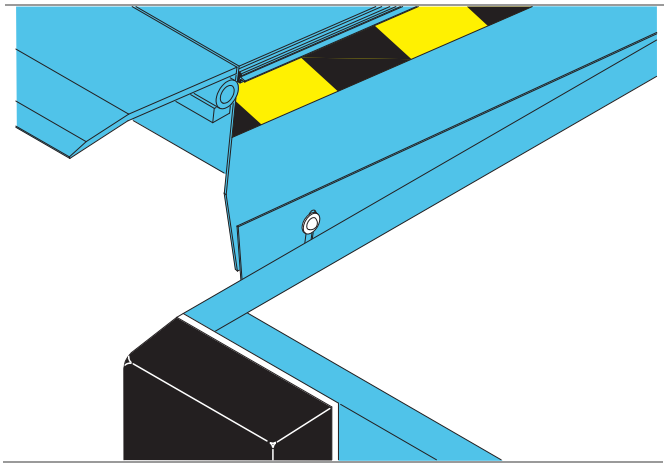
1.3 Platform

1.3.1 Platform tear-plate thickness

The 6 mm (6/8) tear-plate is designed for loading and unloading with typical 4 wheel pneumatic-tired fork-lift trucks. Alternatively an 8 mm (8/10) tear-plate is available for handling equipment with high point loads, such as electric pallet trucks. However, potential platform deformations do not reduce the functionality of the leveller.

1.3.2 Toe guards

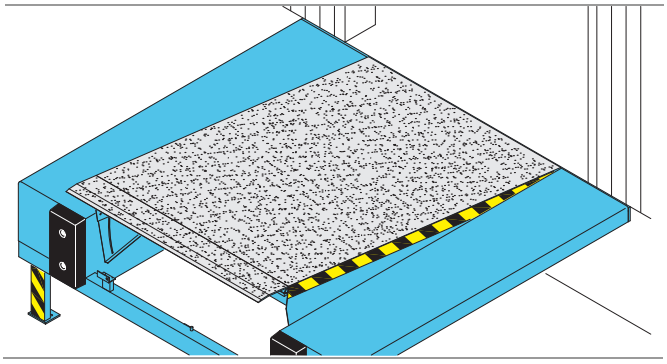
The leveller is as standard equipped with toe guards; steel plates between the platform and the frame. The toe guard prevents the pinching of feet when the leveller is lowered.



1.3.3 Slip protection / noise reduction

Applying a polyurethane slip protection coating on the lip and platform ensures a durable non-slip and noise reduction surface. The effect is a smooth and comfortable surface for handling equipment that is less receptive to wear and tear.

The PU coating material is resistant to impact, to thermal impact and most types of chemicals and it has a high loading capacity.



1.4 Surface

1.4.1 Painting

1.4.1.1 Colours

The dock leveller standard finish is painted. The standard colours are:

	RAL 5010
	RAL 6005

Colours available as option are:

	RAL 3002
	RAL 9005

1.4.1.2 Standard paint class

If the dock leveller is to be used in a rural area, the standard finish is:

- Paint class 1; 80 µm factory painted for corrosive category C2 M

1.4.1.3 Paint classes

If the dock leveller is to be used in an urban or industrial atmosphere, or in a coastal area, it may be appropriate to select an alternative paint class with increased resistance to corrosion C3 M.

- Paint class 3; 160 µm factory painted for corrosive category C3 M

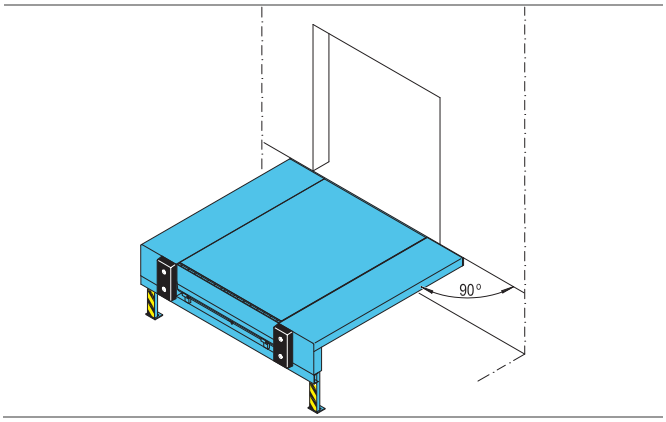
1.4.2 Hot galvanising

To increase corrosion protection to C4 for saline coastal areas or C5-I for aggressive or humid atmospheres, the dock leveller can be delivered with hot dip galvanised (80 µm) steel parts.

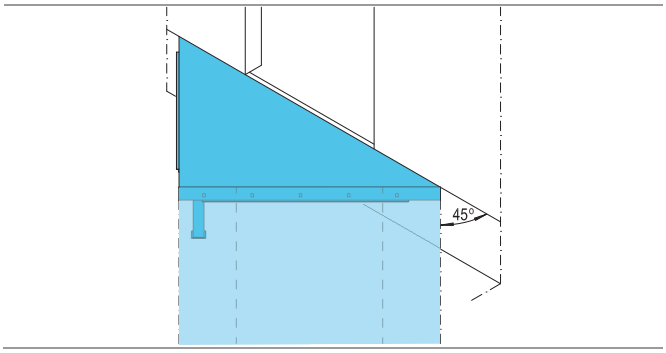
1.5 Installation angles

Because of its external installation construction, the Crawford 611 autodock swingdock can be installed in an angle, to reduce the required vehicle parking space in front of the building. For dock levellers with NWAD = 3750 mm only the 90° installation is available.

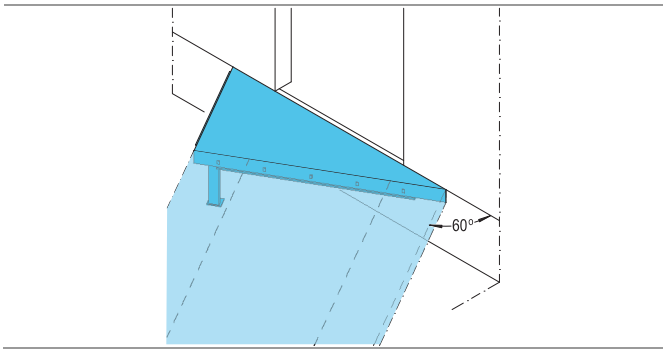
1.5.1 90° angle (standard)



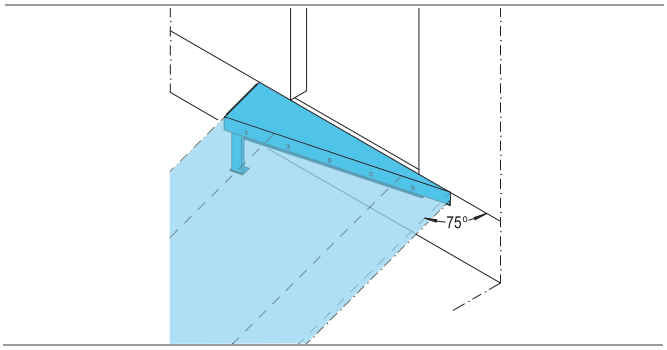
1.5.2 45° angle



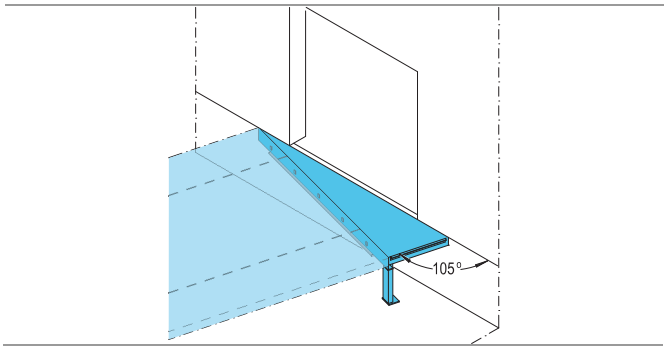
1.5.3 60° angle



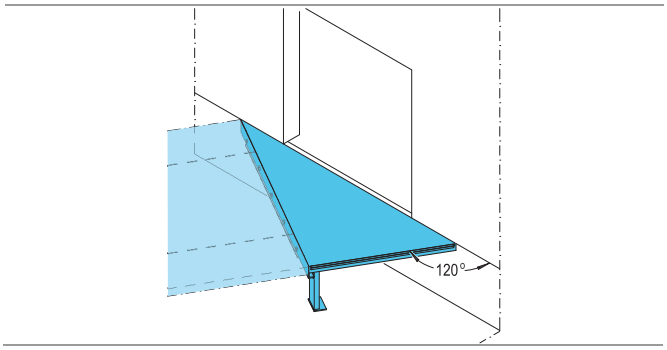
1.5.4 75° angle



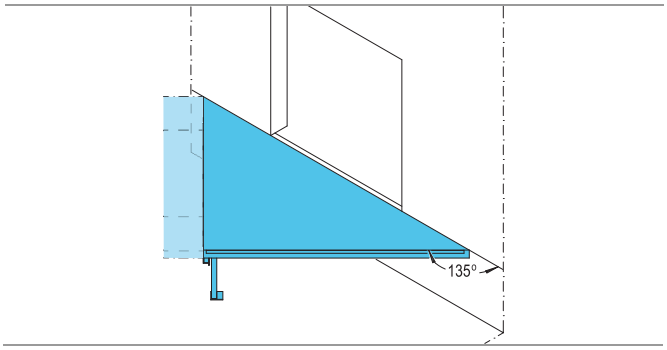
1.5.5 105° angle



1.5.6 120° angle



1.5.7 135° angle



Q2.0 - 2010

1.6 Docking control systems

1.6.1 105 Docking control system

- Hold-to-run button to position the lip on the truck bed.
- Hold-to-run button to put the leveller back in parking position.
- Mains isolator or emergency stop button.

1.6.2 105A Docking control system

- Hold-to-run button to position the lip on the truck bed.
- Impulse auto button to put the leveller back in parking position.
- Mains isolator or emergency stop button.

1.6.3 i105 Docking control system

- Hold-to-run button to position the lip on the truck bed.
- Impulse auto button to put the leveller back in parking position.
- Mains isolator or emergency stop button.
- 3-digit display for service diagnostics
- Interface to incorporate Crawford EYE and/or wheel chock.
- Can be connected to Crawford 101 dock management network.

1.6.4 i305 Docking control system

- Hold-to-run button to position the lip on the truck bed.
- Impulse auto button to put the leveller back in parking position.
- Mains isolator or emergency stop button.
- Interface to incorporate Crawford EYE and/or wheel chock.
- Can be connected to Crawford 101 dock management network.
- Designed to operate an overhead sectional door and an inflatable shelter in the docking station.

1.7 Monitoring systems

As an option on all our products, a Crawford Monitoring System can be installed. This system helps to ensure efficiency and security in daily operations. All doors or docking stations are connected to the Monitoring System's server, which gives the opportunity to supervise, monitor and report a wide variety of aspects in a facility.

1.7.1 Saving energy

A monitoring system reduces energy costs and contributes to a better environment. Energy is lost every time a door is open. If a door is open when no truck is at the bay, even more energy is lost.

A Crawford Monitoring System automatically ensures that no door will open unless there is a truck at the bay and even set it to close when there an activity is delayed.

1.7.2 Security enhancement

Closing and locking doors is an obvious daily routine. However, checking this manually can be time consuming in a busy facility.

A Crawford Monitoring System can automatically ensure that all doors are closed and locked when they need to be. It can also activate all doors and locks from its remote location, and give a real-time overview of the building's situation.

1.7.3 Dock management

A good way to increase throughput and thereby efficiency at a logistics facility is to reduce the time of having no truck – or the wrong truck – at a loading bay.

A Crawford Monitoring System makes visible – in real-time – which bays are occupied or free, and for how long. It makes it possible to reserve bays for docking activities and to inform drivers via SMS. Since it incorporates information from cameras and other inputs (RFID, card readers, etc.), the system stays updated in real-time.

1.7.4 Facility management

The Crawford Monitoring System gives a real-time service status for all your door and docking equipment. If an error code occurs, the Crawford service organisation is automatically notified, and will respond quickly. Other maintenance information can easily be integrated, further reducing the overall costs.

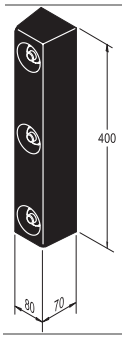
Q2.0 - 2010

1.8 Equipment

1.8.1 Buffers

Buffers placed in front of the dock leveller absorb the energy of a vehicle that accidentally or intentionally hits the building. Buffers are available in various sizes, in fixed or moving models, and with rubber finishing or steel plate and spring function.

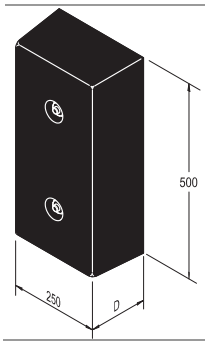
1.8.1.1 RS



Application

The RS buffer is the economical solution for docking stations where vehicles of equal sizes load and unload.

1.8.1.2 RB



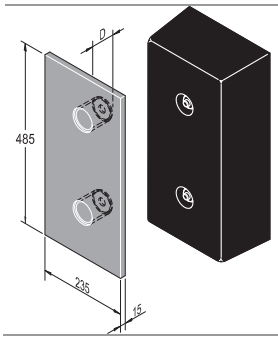
Application

The RB buffer is a large fixed rubber. It is the universal building and vehicle protection solution.

Available depths:

- 90 mm
- 140 mm

1.8.1.3 RB with steel front plate



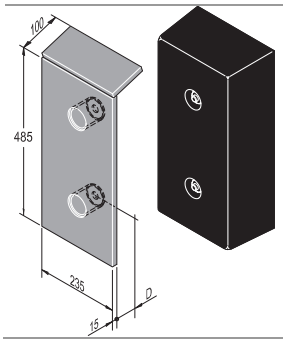
Application

The RB buffer with steel protection front plate increases the building protection and the buffer service life.

Available depths:

- 90 mm
- 140 mm

1.8.1.4 RB with steel front and top plate



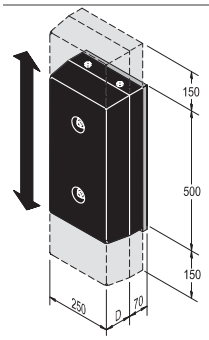
Application

The RB buffer with steel protection front and top plate is designed for vehicles with high lorry beds like interchangeable open bodies and containers.

Available depths:

- 90 mm
- 140 mm

1.8.1.5 EBF



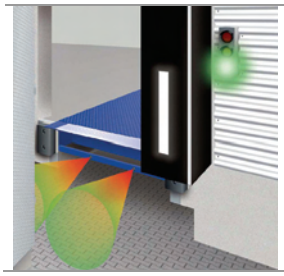
Application

The EBF buffer is the ideal solution for docking stations where vehicles are expected to make notable vertical suspension changes when loading or unloading. This buffer follows vertical movements of the vehicle.

Available depths:

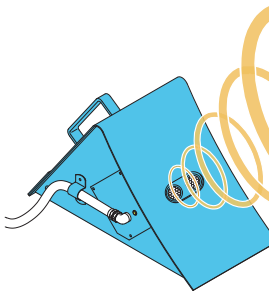
- 90 mm
- 140 mm

1.8.2 Crawford Eye



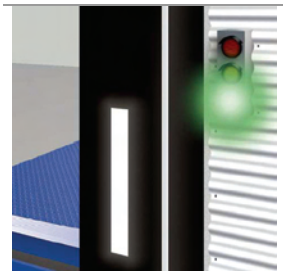
The Crawford Eye is an electronic, sensor-based dock-in system, that measures the distance between the vehicle and the building. This makes it easier for the driver to complete the dock-in procedure, but also detects objects or people behind the vehicle.

1.8.3 Wheel chock



The wheel chock has an ultrasonic sensor to detect the presence and position of the vehicle and is connected to the dock leveller control panel. If no vehicle is detected, the docking station is blocked for safety reasons. Furthermore, the wheel chock prevent the vehicle from moving during loading/unloading.

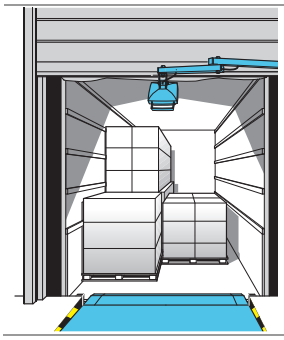
1.8.4 Traffic light



The traffic light system has a sensor above the dock leveller that measures the presence of a vehicle.

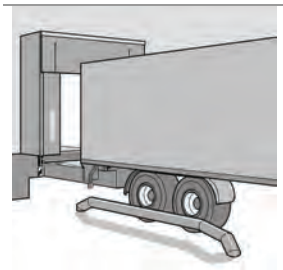
If there is no vehicle (dock leveller is free), the traffic light inside gives red, outside gives green.
The traffic light can also be combined with a wheel chock, CrawfordEYE or door/leveller interlocking.

1.8.5 Dock light



A lorry docked for loading and unloading most likely creates a dark zone which endangers a safe and fast transfer of goods. The dock light ELS is the ideal solution for an optimum of light at the loading bay area and inside the lorry.
The wide scattering allows an extensive illumination.

1.8.6 Parking guides



This visual aid makes it easier to park the vehicle and reduces the risk of collision. Especially advantageous for docking stations with wide leveller lips and cushion shelters. Parking guides can be bolted or cast in concrete on the floor before the leveller.

2. Selection guide

2.1 Load capacity according to EN 1398

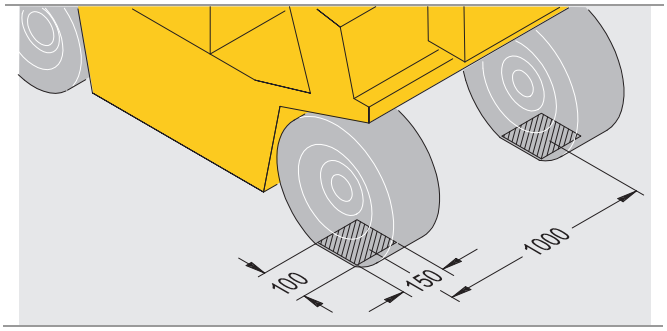
The EN 1398 describes 3 key definitions about loads.

2.1.1 Rated load

The rated load is the total weight of the goods, the forklift truck and the driver.

2.1.2 Axle load

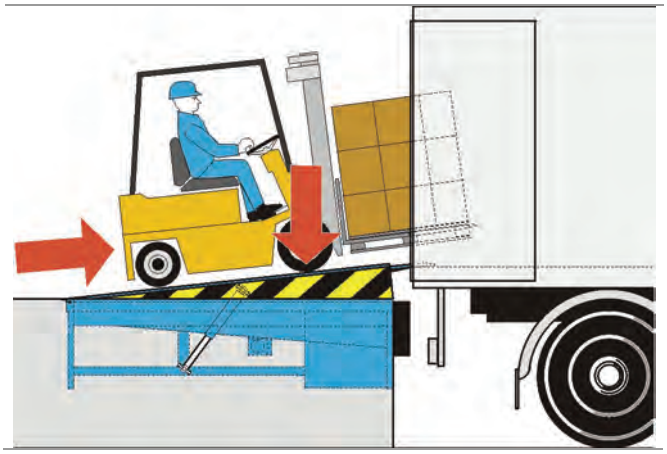
Axle loads shall be taken acting over two rectangular contact areas at 1 m lateral distance. These areas shall only apply if the actual conditions do not call for more severe loading. The size of the footprint [mm²] is derived from the wheel load [N] divided by 2 [N/mm²]. The ratio of the rectangular print is W:L = 3:2.



In the drawing measures for a leveller with a load capacity of 60kN.

2.1.3 Dynamic load

The dynamic load is the movement of the rated load and is the pressure on the leveller platform caused by the moving forklift truck.



2.2 Select the load capacity

The load capacity of a dock leveller must always be higher than the rated load.

2.2.1 Example

Weight of forklift truck	3600 kg
Weight of goods	1500 kg
Weight of driver	100 kg
Total weight/rated load	5200 kg
Suitable load capacity of the leveller	6000 kg/60kN

2.3 Select the appropriate platform tear plate thickness

The 6 tonnes (60kN) 611 autodock swingdock is as a standard equipped with a tear plate of 6 mm (6/8). Optionally an 8 mm (8/10) tearplate is available.

2.3.1 Handling equipment traffic situation

Each handling-equipment traffic situation creates a certain point load impact on the dock leveller platform depending on the contact area of the wheels. The typical 4 wheel pneumatic-tired forklift trucks have a lower point load impact than electric pallet trucks with small hard wheels.

2.3.2 Example

Vehicle	Rated load	Point load	Tear plate	Load capacity
Roll cage	750 kg	Medium	6 mm	60 kN
Hand pallet truck	3200 kg	High	8 mm	60 kN
Electric pallet truck	3200 kg	High	8 mm	60 kN
Forklift truck	5200 kg	Medium	6 mm	60 kN

2.4 Select the leveller length

When determining the leveller length, measure the maximum height difference between the truck bed and the dock level. Next, determine which vehicles will be used and lookup the maximum gradient the vehicles are allowed to be used on.

Vehicle	Max gradient
Roll cage	3%
Hand pallet truck	3%
Electric pallet truck	7%
Forklift truck (battery)	10%
Forklift truck (gas / petrol)	15%

2.4.1 The calculation

Minimal leveller length = height difference / gradient (%)

2.4.2 Example

Vehicle:	Electric pallet truck (max 7% gradient)
Truck height:	1350 – 1000 mm
Dock height:	1150 mm

The difference between Truck height and Dock height = 175 mm

175 mm / 7% = 2500 mm leveller length

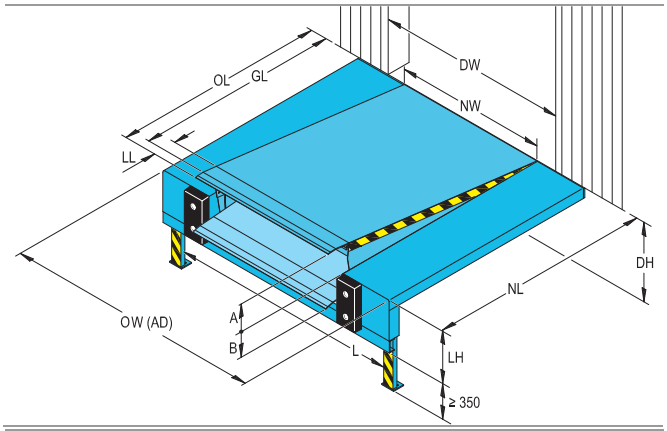
2.5 Nominal width

The Crawford 611 autodock swingdock is available with a nominal width of 2000 mm or 2200 mm. The correct nominal width must exceed the widest loading vehicle by at least 700 mm.

Q2.0 - 2010

3. Specifications

3.1 Dimensions



NL	Nominal length
OL	Overall length
GL	Gradient length
NW	Nominal width
LL	Leveller length
LH	Leveller height
A	Working range above dock level
B	Working range below dock level
DH	Dock height
DW	Door width
NW (AD)	Nominal width Autodock (incl. side tread panels)
L	Distance between plinths
OW (AD)	Overall width Autodock = NW(AD) - 20

Dimensions				Vertical working range			
				LL 400		LL 500	
NL	OL	GL	LH	A	B	A	B
2000	NL+350	NL+210	700	290	340	190	360
2450	NL+335	NL+195	700	380	340	270	340
3000	NL+350	NL+210	700	430	330	320	330

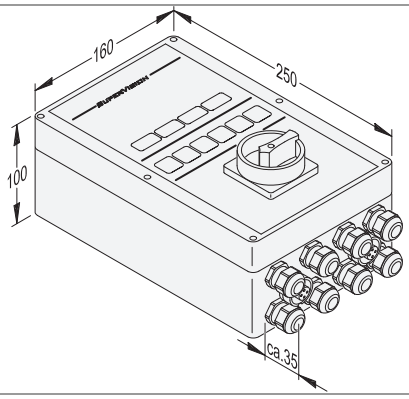
Nominal width NW 2000, 2200
Nominal width NW (AD) 3300, 3500, 3600

3.2 Platform thickness

Thickness	Max. point load
6 mm	1,3 N / mm²
8 mm	6,5 N / mm²

3.3 Control units

3.3.1 Dimensions



3.3.2 Functions

Functions included	105	105A	i105	i305
				
Hold to run button	■	■	■	■
Impulse auto button		■	■	■
Mains isolator	□	□	□	□
Emergency pb.	□	□	□	□
400V	■	■	■	■
230V	□	□	□	□
Maintenance indicator	■	■	■	■
Fault indicator	■	■	■	■
Integrated clock			■	■
BUS network interface			■	■
3-Digit display			■	■
Crawford Eye			□	□
Wheel chock			□	□
Door control				■
Shelter control				■

■ Standard
□ Option / Available

Q2.0 - 2010

4. CEN Performance

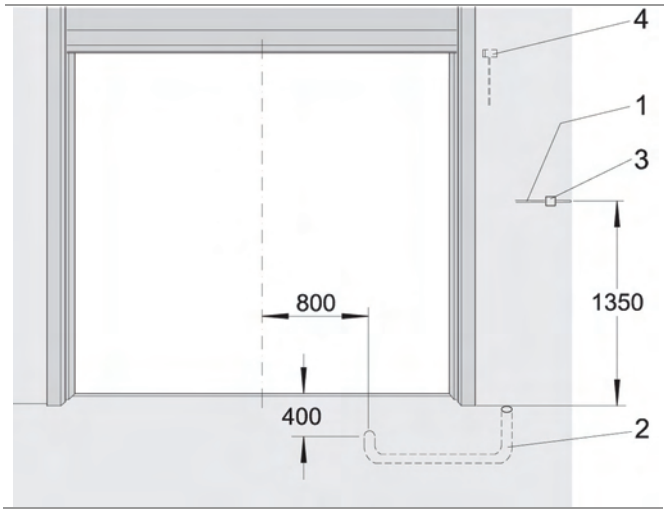
4.1 Safety according to the European Standard EN 1398

- Emergency Stop Function.
  - Safety valves block lowering movement after max. 6% of the nominal length of the leveller.
  - Two lift cylinders make sure the leveller stops in a horizontal position.
- Free floating position.
- Platform torsion. Lateral deflection of at least 3% of nominal width.
- Toe guards cover gap between platform and pit in leveller´s highest position.
- Working range gradient max. 12,5% (~7°).
- Warning stripes on side plates and on frame (black/yellow).

Q2.0 - 2010

5. Building and space requirements

5.1 Electrical preparations



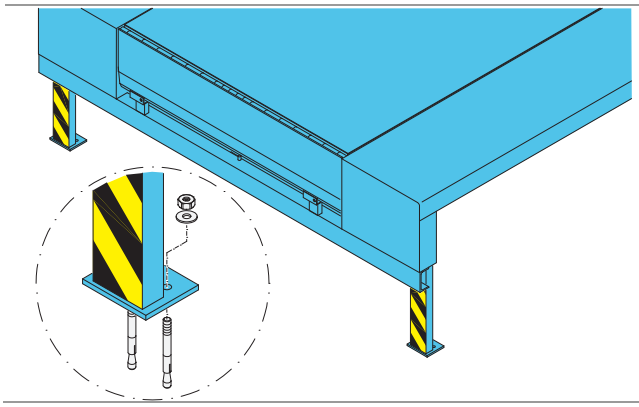
1	Mains supply: Mains fuse: Motor power:	3/N/PE AC 50 Hz 230/400V D0 10 A gL 0,75 kW
2	Conduit for wiring internal diameter 70, angles <45° (by others)	
3	Mains isolator*:	Only for control box with emergency stop
4	Optional safety switch on sectional door to disable leveller when door is closed*	

* non-standard

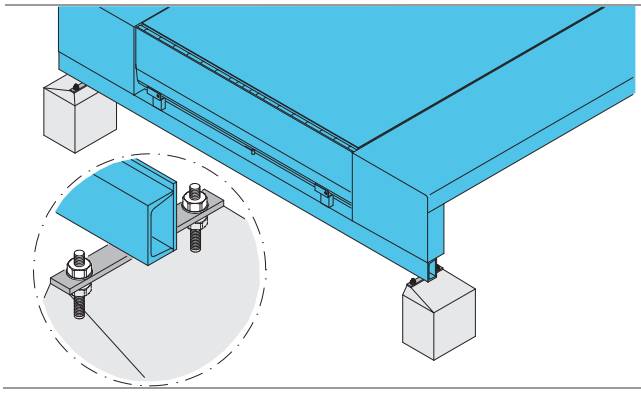
Q2.0 - 2010

5.2 3 Ways of installation

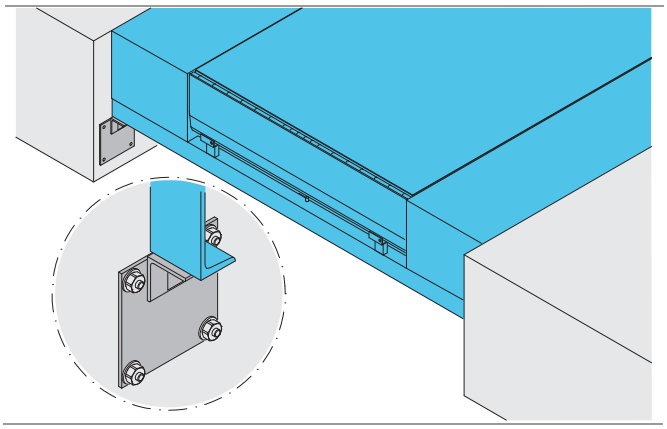
5.2.1 Steel plinths



5.2.2 Concrete plinths



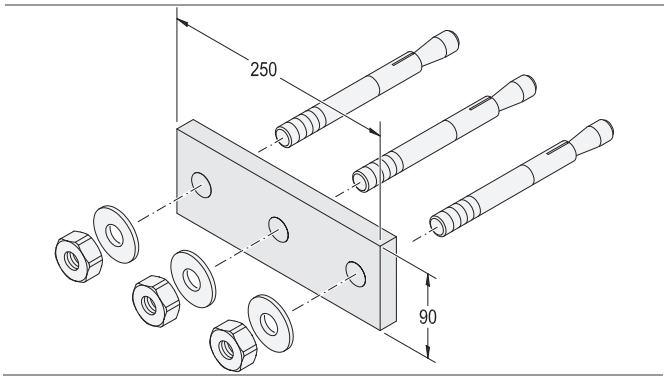
5.2.3 Wall connection brackets



5.3 Additional equipment of installation

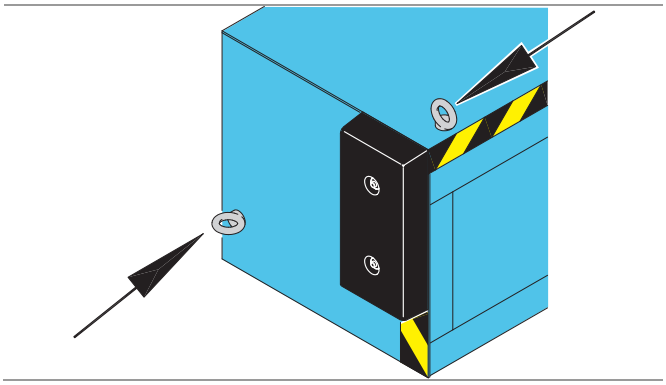
5.3.1 Support brackets

The optional brackets have to be used if it is not possible to weld the autodock side units on the whole width on the dock edge. The brackets support only the autodock side units. Chemical anchors M16 are delivered together with the brackets.



5.3.2 Eye bolt

The optional eye bolts are used to secure a demountable container or any other truck at the autodock with the aid of a tension strap.



6. Service

These keys open doors to better business

Regardless of their function, age or manufacturer, your industrial doors and dock loading systems have an important role in the flow of your business. That's why it makes sense to plan their maintenance long before the need for service occurs.

A Key Customer Service agreement from Crawford is your best assurance of safe and trouble-free door and dock operation. By becoming a key customer, you not only reduce the risk of breakdowns, but also guarantee compliance with local regulations and the new harmonised EU standards. You also ensure that your doors and dock loading systems retain their classifications for wind load, air permeability, water penetration and more.

Four types of Key Customer Service agreement – Green, Yellow, Blue and Red – allow us to tailor our service to your specific needs. Based on the role of your doors and dock loading systems, and the intensity with which you use them, you receive service that provides the perfect balance of economy, safety and security.

Best of all, the maintenance is performed by Crawford's renowned team of service technicians. As a qualified specialist in industrial doors and dock loading systems, we have the knowledge and skills to service any door or dock, regardless of its type, age or manufacturer. With Crawford as a single source for all your door and docking equipment brands, you can easily reduce costs while increasing equipment availability.

Q2.0 - 2010

7. Index

Q2.0 - 2010

Q2.0 - 2010

Q2.0 - 2010

Crawford is a leading ASSA ABLOY brand focusing on automated entrance solutions for efficient movement of vehicles and goods. With a complete portfolio of door and docking solutions, an extensive service offer and professional advice, we help customers ensure convenient, safe, secure and energy saving operations around-the-clock.

Crawford is represented in more than 30 countries and is part of ASSA ABLOY Entrance Systems, which also includes the globally recognized Megadoor and Besam brands.