Cooldock

energy efficient & hygienically loading

The Loading Docksystem

for hygienic and

temperature-controlled logistics

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More Information: www.nani.de

Loading House
Nani COOLDOCK

INTRODUCTION

The COOLDOCK

» Description

The Nani COOLDOCK is probably the most energy-efficient truck loading dock system currently in the market. The loading house is highly insulated, designed simply as a "box" in front of the building opening. Trucks dock with closed rear doors, and these doors are only opened AFTER the truck has already been sealed from 3 sides. Then the docked trucks get sealed from all sides via the airbag below and the energy waste is limited as good as possible.

» Technical Information

Temperature range: +40 °C to -30 °C
External Dimensions:
L 4635 mm, W 4160 mm, H 6400 mm
Truck-Loading Platforms-Height:
from 600 mm - 1700 mm
Specifications: Steel construction hot-galvanized

The placement of the loading dock in front of the building benefits from interior space and also reduces costs. The exact technical design is adapted to the existing building, or in a new building, according to the customer's requirements.

Subject to Technical Changes

ADVANTAGES

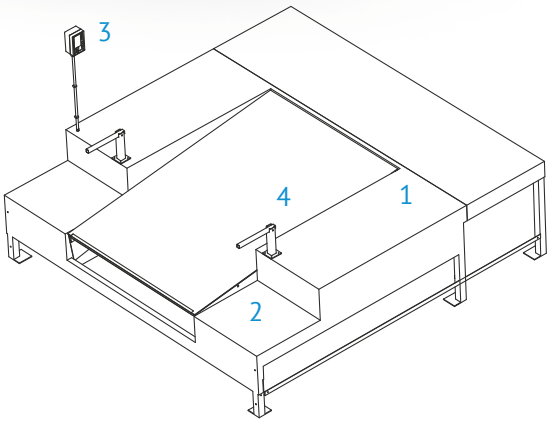
COOLDOCK vs. Insulated Loading House

- **Reduction of air exchange** 40-50 %
- Possible **end-energy savings** p. a. approx. 15 %-25 %
- Preventing **ice formation** on the ramp
- Interruption of loading **without maneuvering the truck**

The 11 Components of the COOLDOCK

Subject to Technical Changes

Stepped Steel Plateau
With door stops



Stepped Steel Plateau

» 1th Component

The Nani COOLDOCK includes various components, which are listed and described below:

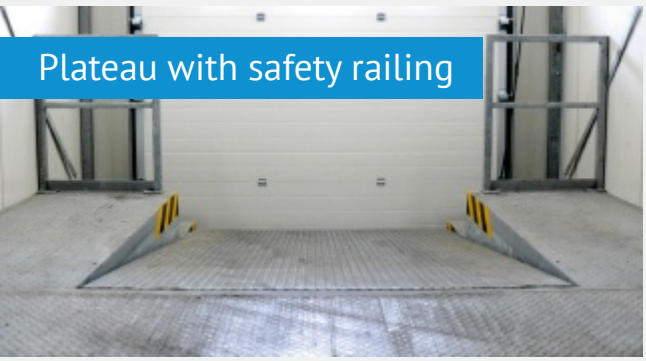
The basic structure of the COOLDOCK is a steel frame with stepped plateau. In this, the Dockleveler is hung at an angle, so that the truck doors can be opened above it. This steel frame is covered with ISO-Panels all around.

» Technical Information

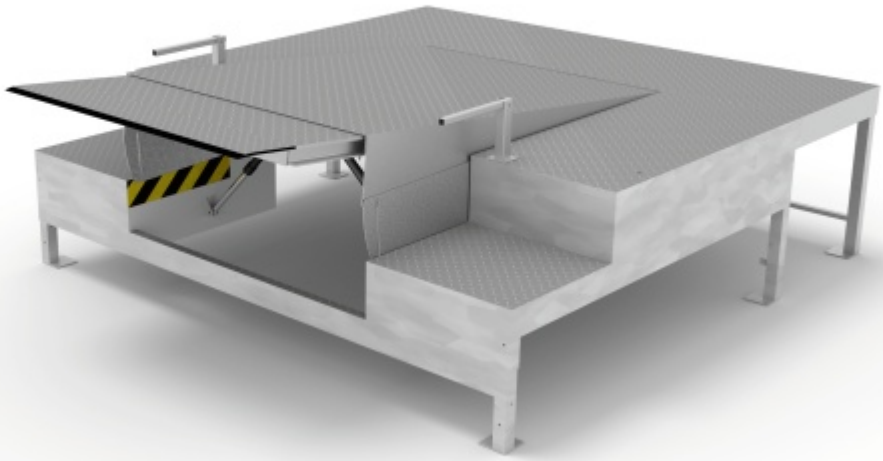
1. Steelwork: Hot-dip galvanized, 8 / 10 mm cover plate; Nominal width 4000 mm
2. Step Dimension:
W 855 mm, L 830 mm, H 300 mm
3. Control Box: Master Control Unit
4. Door lock: Manually hinged

Subject to Technical Changes

REFERENCES



Extended Dockleveler
Different models



Dockleveller with Telescopic Lip

» 1th Component

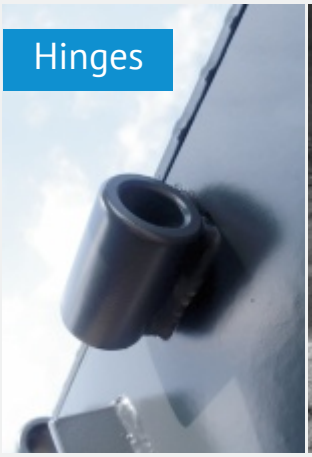
In the steel plateau, a Dockleveller with telescopic lip is hung at an angle. As a result, the front part of the Dockleveler is located at about 900 mm above the yard level and the back part located at about 1200 mm above the building level. This solution ensures that the truck doors can be opened inwards AFTER the docking above the ramp. The lip of the Dockleveler must be at least 1000 mm long. In order to be able to optimally reach the loading areas of the refrigerated trucks, with insulated doors and floor, feeds of 1200 mm and 1300 mm are also regularly used.

» Technical Information

1. Measurements: BR 2250 mm, BL 2900 mm
2. Lip length: 1000 mm - 130 mm Feed
3. Lip Loading Capacity: From 6 kN to 300 kN +
4. Material: Hot-dip galvanized steel,
8 / 10 mm cover plate, 15 / 17 mm feed

Subject to Technical Changes

REFERENCES



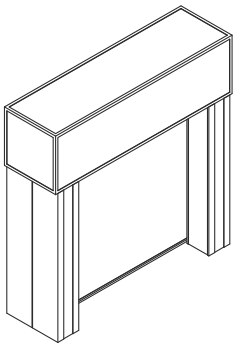
High-Speed Freezer Door on warm side
Coupling to Master Control

High-Speed Freezer Door

» 2th Component

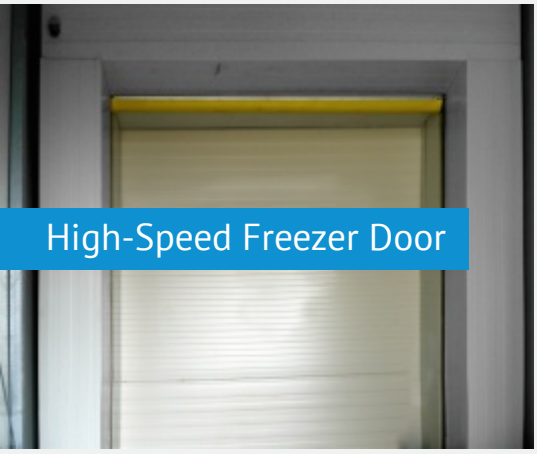
The Frozen High-Speed Doors are the links to the inside of the building. By using the Nani COOLDOCK, it is possible to load directly from the truck into the deep-freeze area up to -30 ° C degrees. Pre-zones are no longer necessary.

A Hight-Speed Freezer Door can also reduce the air exchange between the loading house and the building.



The installation is possible with a variety of models on the hot and cold side.

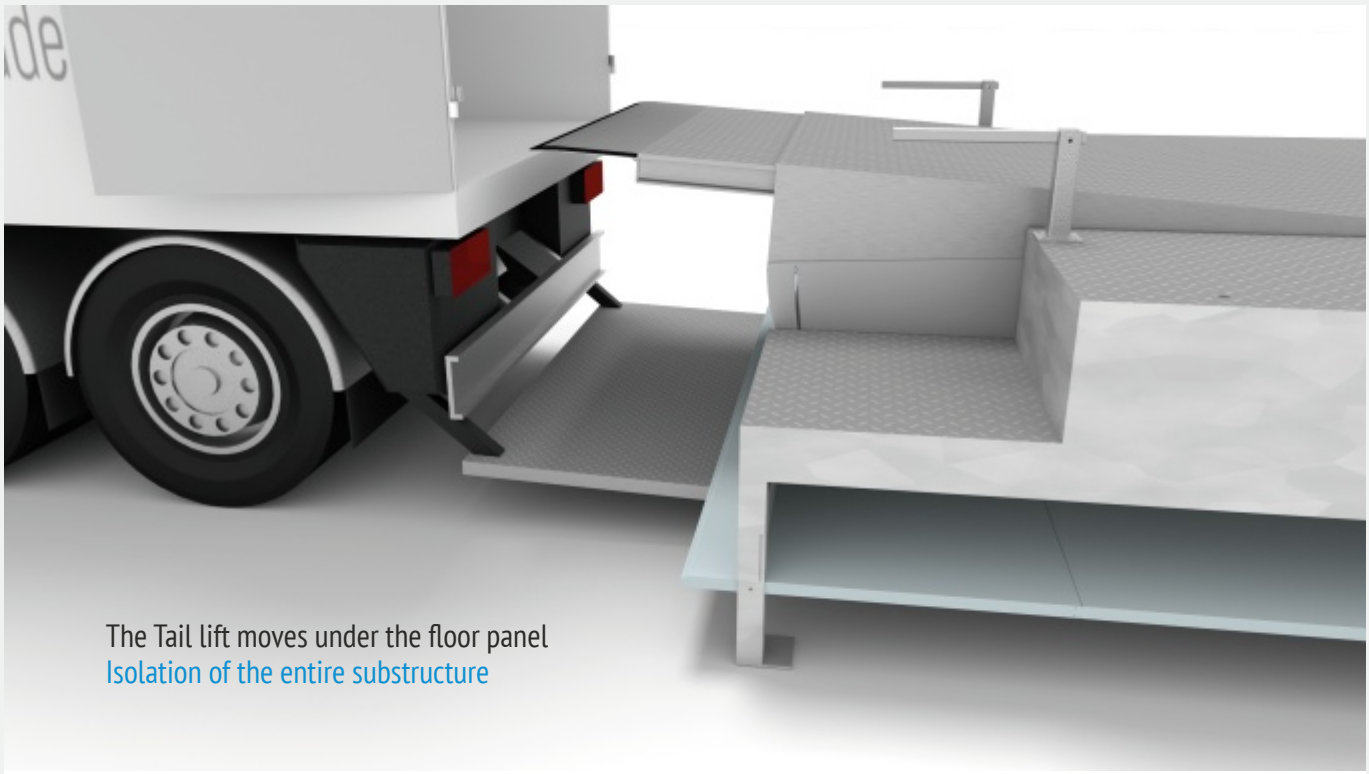
REFERENCES



High-Speed Freezer Door

Conventional High-Speed Door

Different Hangings



The Tail lift moves under the floor panel
Isolation of the entire substructure

ISO-Floor Panel

» 3th Components

From below, a Floor Panel isolation is beeing installed on the steel frame with stepped plateau. The Thermo Sectional Door closes on to this Floor Panel, so that the entire auxiliary loading house is tight when its closed. This helps to avoid the gaps around the loading dock. At the same time the necessary space remains underneath for the tail lift access.

» Technical Information

Material: ISO-Panel 40 mm - 120 mm +
Freeplace: Approx. 400 mm for driving under

REFERENCES

Thermo Sectional Door closes on Floor Panel

Tail Lift

Front Steel Construction
Hot-dip galvanized robust steel construction

Front Steel Construction

» 4th Components

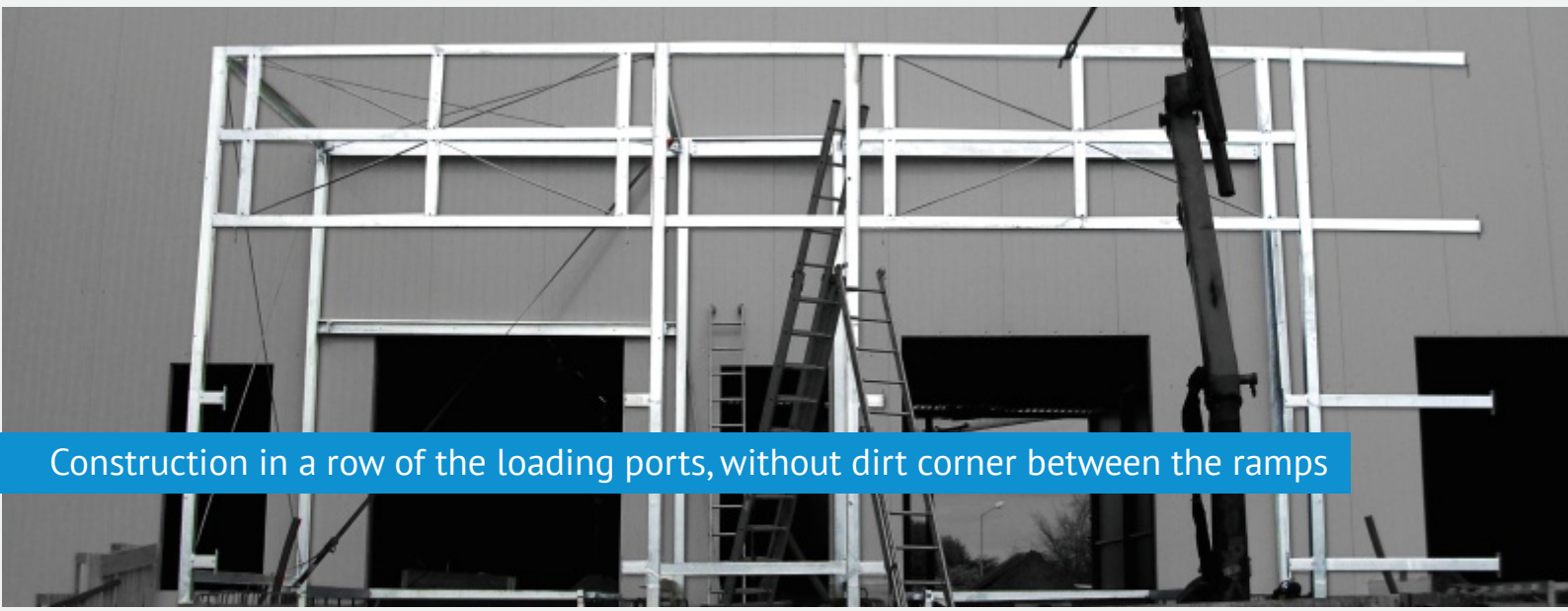
As a "real" steel construction company, we deliver the entire auxiliary lock including steel and panel construction from a single source. The design is adapted by our design department to the local conditions.

» Techical Information

Material: Hot-dip galvanized steel
Service on the part of the builder:
Foundations and ramp connection (usually connection profile U 150 / 200, according to static requirements)

Subject to Technical Changes

REFERENCES



Construction in a row of the loading ports, without dirt corner between the ramps

Crash Guard with airbag
And device for horizontal lifting

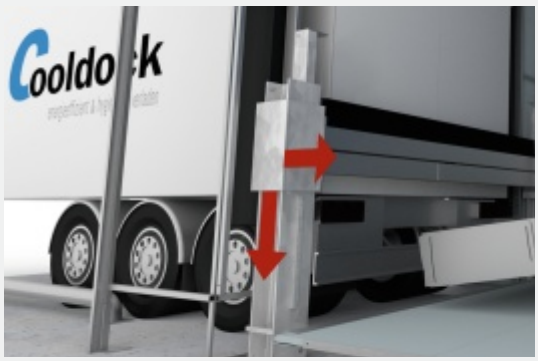
Hydraulic Crash Guard

» 5th Component

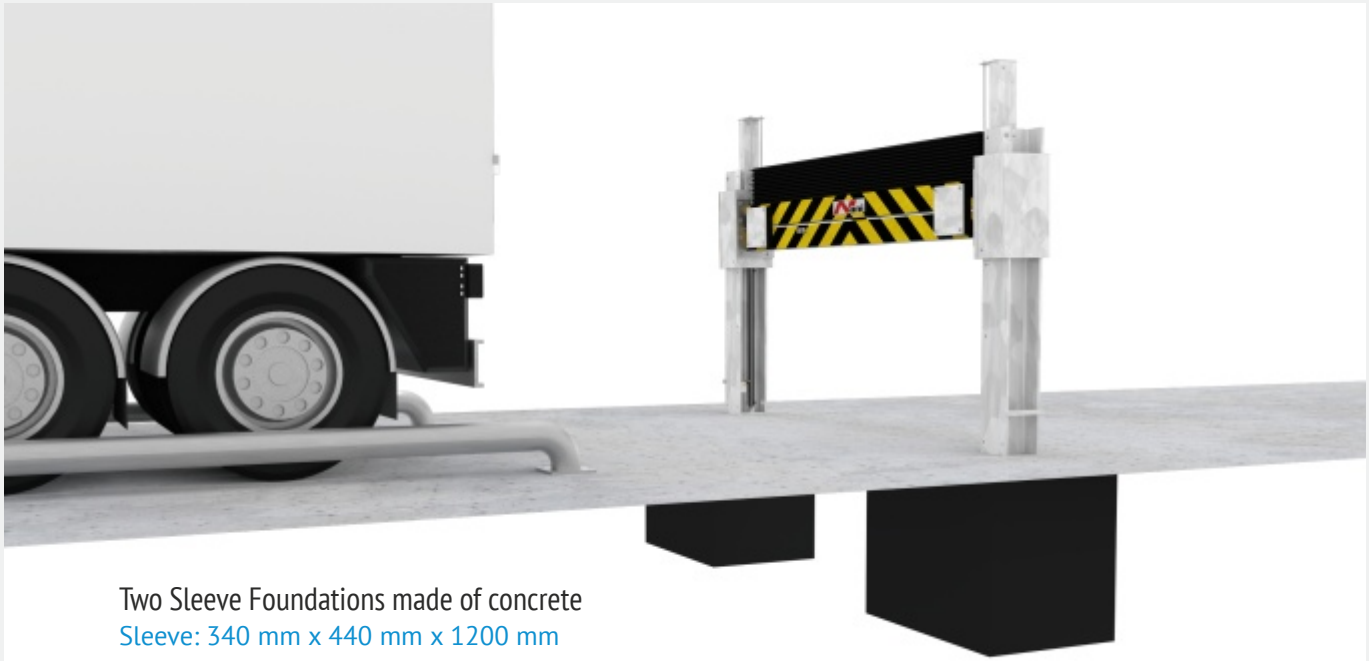
The Hydraulic Crash Guard forms an essential part of the Nani COOLDOCKs. It ensures that the loading house with panel construction and door is protected against possible damages which can happen during loading of the truck. Conventionals lowered loading docks often rely only on traffic lights to protect the doors and facades. In practice, it has been showing for a long time that this is not sufficient and leads to rising repair costs for damaged loading doors and facades. At the same time, the Crash Guard guarantees the space for the tail lift access below the whole loading house. Moreover, height-adjustable buffers will take no more place! The Crash Guard moves down hydraulically after docking and opening the door. Also, it does not only go down in the vertical stroke, but also a horizontal stroke away from the truck. This functionality, which is patented by us, guarantees that the tightly docked truck will not be pulled down and be damaged. The fourth airbag of the Four-Side Inflatable Dockshelter A-TAD-U-2 is integrated into the Nani Crash Guard at the COOLDOCK.

REFERENCES

Step Plate



Buffer

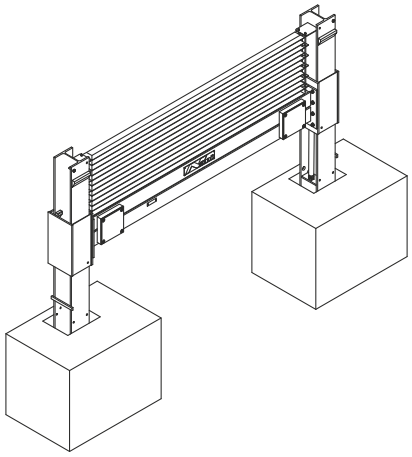


Two Sleeve Foundations made of concrete
Sleeve: 340 mm x 440 mm x 1200 mm

Sleeve Foundation

» 5th Component

The Crash Guard is fixed in a Sleeve Foundation. As a result, no impact forces affect the building! The impact force of the truck is derived into the Sleeve Foundation.

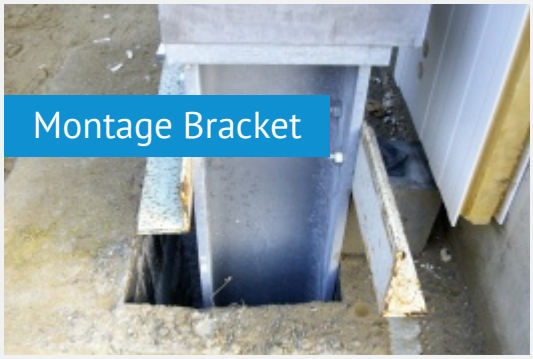


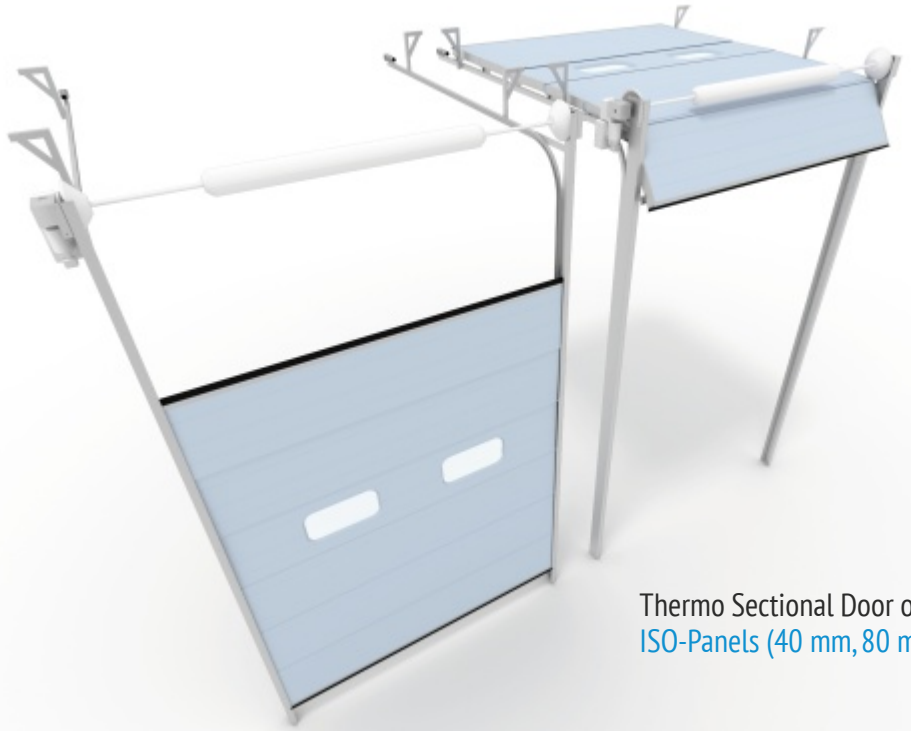
» Technical Information

Clear Width Crash Guard: Approx. 3620 mm
Clear Width Lower Airbag: Approx. 2890 mm
Variants: Other dimensions possible
Foundation Size: According to static Requirements

Subject to Technical Changes

REFERENCES





Thermo Sectional Door open and closed
ISO-Panels (40 mm, 80 mm, +)

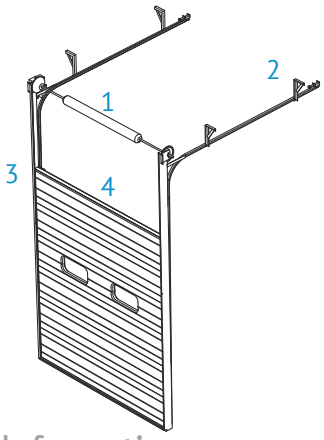
Thermo Sectional Door

» 6th Component

The Thermal Sectional Door forms the external door of the Nani COOLDOCK.

It is made of 80mm ISO-Door panels and goes in the loading house in front of the loading bridge down to the floor panel.

Thus, it closes the entire loading house tightly (without any gaps remain). The door can be equipped with a high-speed package, resulting in an opening speed of 0.5 m / s.

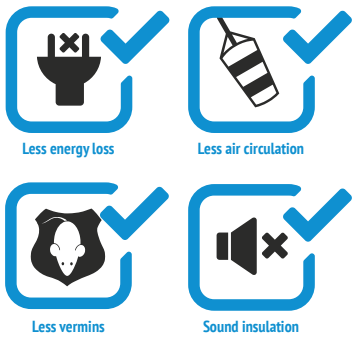


» Technical Information

1. Power Unit: Electric, with or without spring
2. Fittings And Rails: Hot-dip galvanized or V2A
3. Door Height: 3800 mm
4. Sectional Door Panel: 40 mm / 80 mm; V2A possible
5. Window: With or without

Subject to Technical Changes

REFERENCES



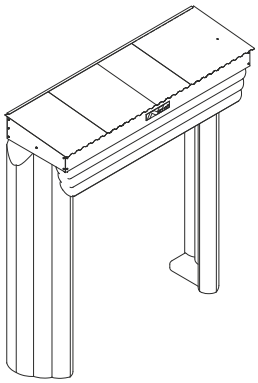
Dock seal with Crash Guard
And saddled fourth airbag

Four-Sided Inflatable Dockshelter

» 7th Component

The Four-Sided Inflatable Dockshelter forms another essential part of the Nani COOLDOCK. The docked truck is also sealed from below by the fourth airbag. This is inflated after the telescopic lip has been placed onto the truck.

The energy loss during the loading process is thereby maximally reduced. Furthermore, the air circulation is minimized and the entry of vermin on this ramp is prevented. In addition, the Four-Sided Inflatable Dockshelter contributes to passive noise protection at the loading dock

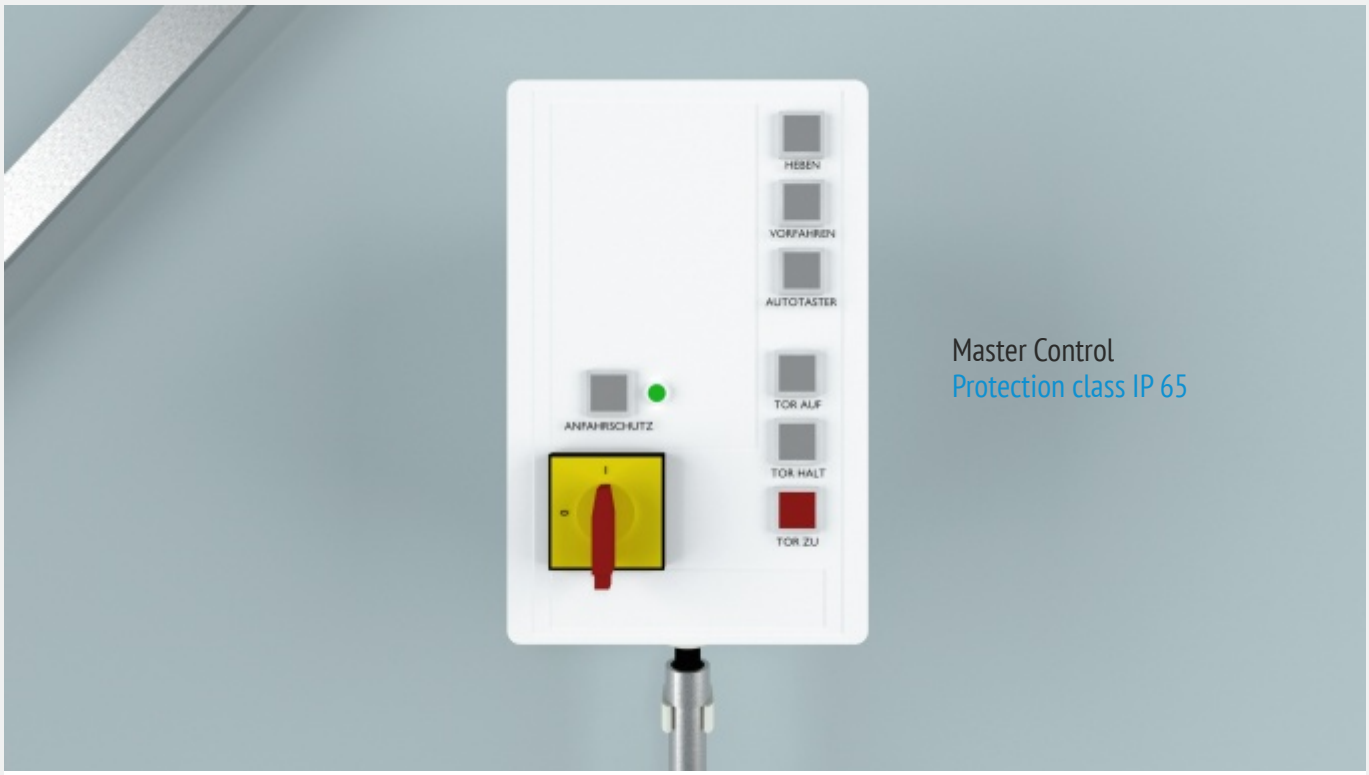


» Technical Information

Material: Polyamide fabric, neoprene coating or Cordura®
Properties: Permanently elastic and weather-resistant; Special material for the telecommunications sector or deepfreeze
Dimensions:
NB 3400 mm, NH 3800 mm, NT 800

Subject to Technical Changes

REFERENCES

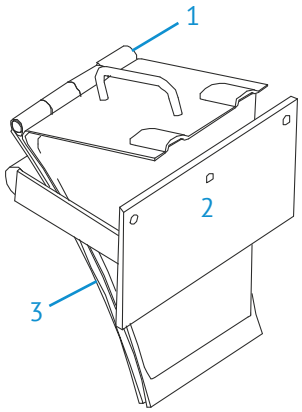


Master Control
Protection class IP 65

Electrical Wheel Chock and Master Control

» 8th Component

The entire COOLDOCK is controlled by a control box. The controls were assembled and programmed in our factory by our electrical department. The electronic wheel chock is usually integrated into the system in such a way that it is the underlaying of the wheel chock that activates the entire system, which is controlled by a fully integrated control system. If the truck driver does not place the wheel chock under the truck wheel, no component of the system can be operated by the controller.



» Technical Information

1. Material: Hot-dip galvanized
2. Wall bracket: Covering panel
3. Sheet metal flap: The contact of truck-wheel makes the master control on

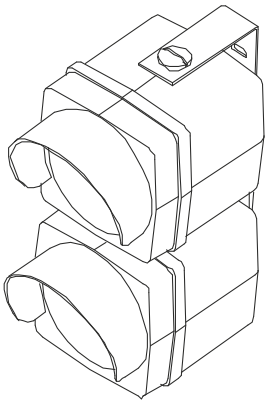
Subject to Technical Changes

REFERENCES

Traffic Light

» 9th Component

The traffic light system allows the loading staff to indicate when the docked truck can be loaded and unloaded and also it informs the truck driver when he can leave the loading dock. These functions can be coupled with signal horns in case of incorrect operations caused by visual signals, e. g. if the Electric Wheel Chock is removed despite of the Dockleveler is still in place, the loud audible signals would be switched on. The safety at the loading dock is thereby increased.

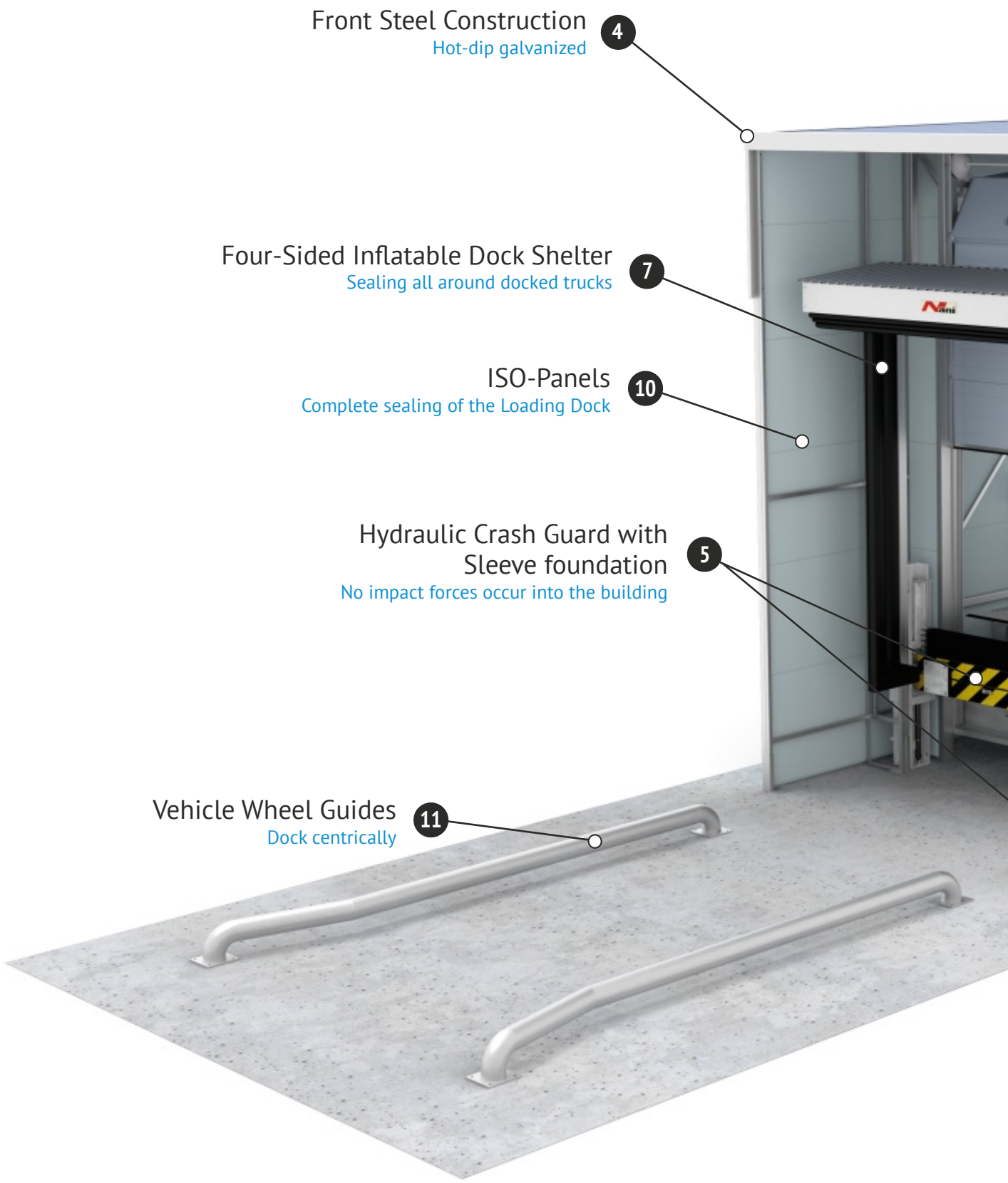


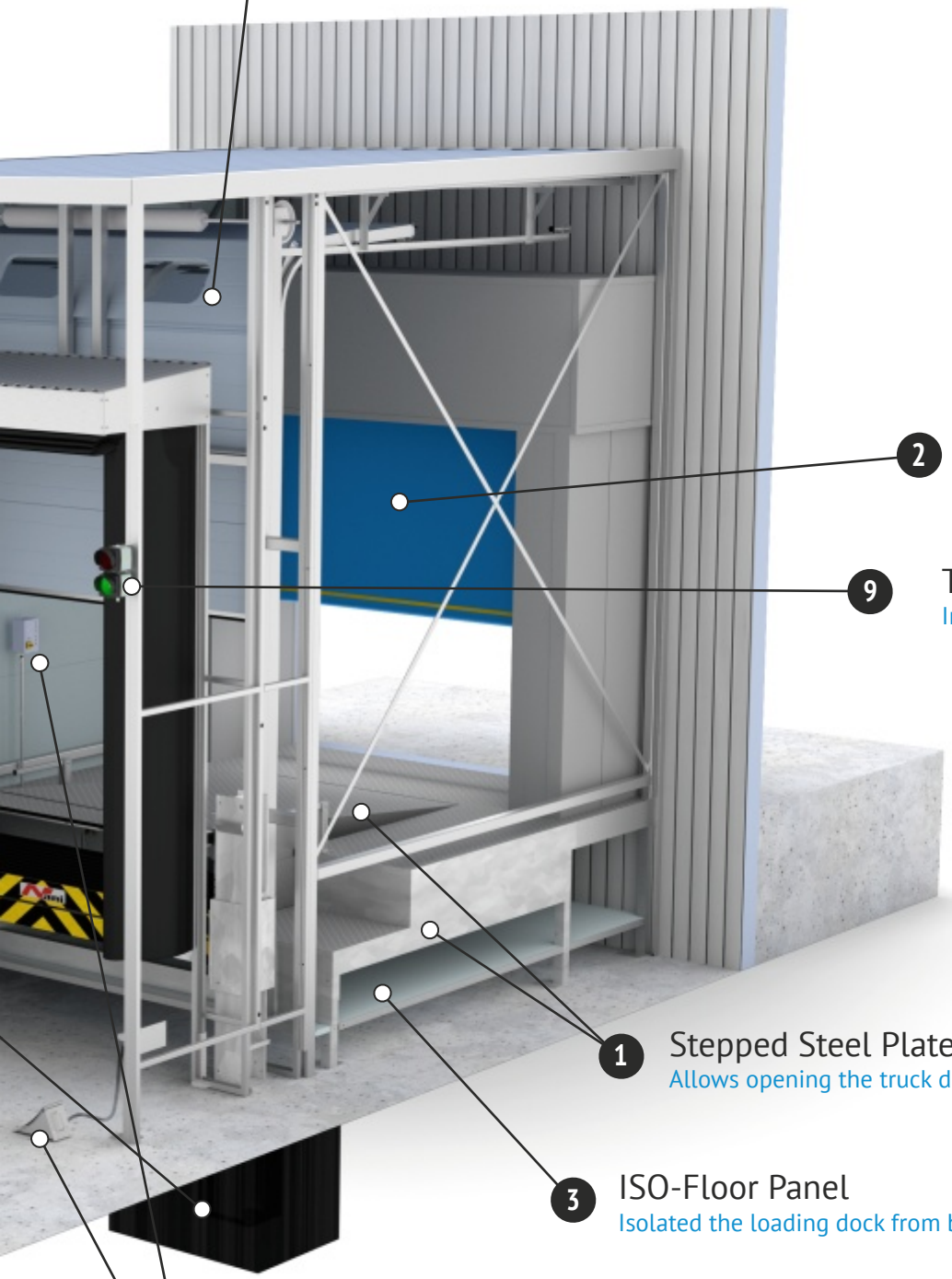
» Technical Information

Power: 6 W - 7 W
Voltage: 145 V - 265 V; 50 / 60 Hz
Protection class: IP 65
Special feature: Rotatable

Subject to Technical Changes

REFERENCES


Front Steel Construction
Hot-dip galvanized
4
Four-Sided Inflatable Dock Shelter
Sealing all around docked trucks
7
ISO-Panels
Complete sealing of the Loading Dock
10
Hydraulic Crash Guard with
Sleeve foundation
No impact forces occur into the building
5
Vehicle Wheel Guides
Dock centrically
11



6 **Thermo Sectional Door**
40 mm / 80 mm door panels; closes until the ISO-Floor Panel

2 **Frozen High-speed Door**
Low air circulation between loading dock and building

9 **Traffic Light System**
Inside and outside

1 **Stepped Steel Plateau with Dockleveler**
Allows opening the truck doors after docking at the loading dock

3 **ISO-Floor Panel**
Isolated the loading dock from below

8 **Electric Wheel Chock and Master Control**
Run-off protection; activation of the COOLDOCK; control of all components

Subject to Technical Changes

Sandwich Panels
Available in many colors

ISO-Panels

» 10th Component

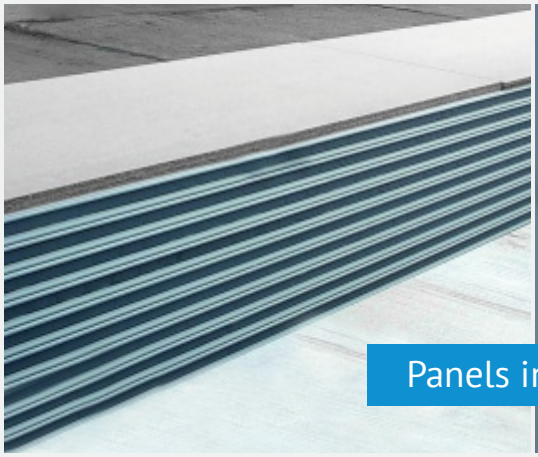
The steel frame is covered with ISO panels all around. The enclosure provides dense space, which is opened only through the two doors. Depending on the specific requirements, we can use different panel materials.

» Technical Information

Material: Polyurethane (PUR) or mineral wool
Construction: Sandwich panels (corrugated profile)
Features: High load capacity; stiffness, high insulation properties
Dimensions: 40 mm, 60 mm, 80 mm, 100 mm, +
Colors: RAL 3003, RAL 5010, RAL 5015, RAL 6011, RAL 7016, RAL 7035, RAL 7037, RAL 8004, RAL 8012, RAL 9002, RAL 9006, RAL 9007, RAL 9010, ...

Subject to Technical Changes

REFERENCES



Vehicle Wheel Guides
For setting in concrete or dowelled

Vehicle Wheel Guides

» 11th Component

The Vehicle Wheel Guides ensure that the docking trucks drive to the loading dock as centrically and thereby also close as possible.

» Technical Information

Diameter: Approx. 160 mm
Material: Hot-dip galvanized steel
Color: With warning mark possible
Montage: Concreting 800 mm below the yard level, or for dowelling

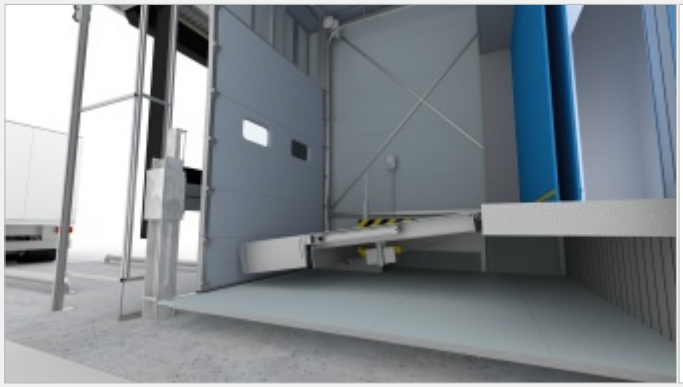
Subject to Technical Changes

REFERENCES


With warning mark


Guide with Wheel Chock

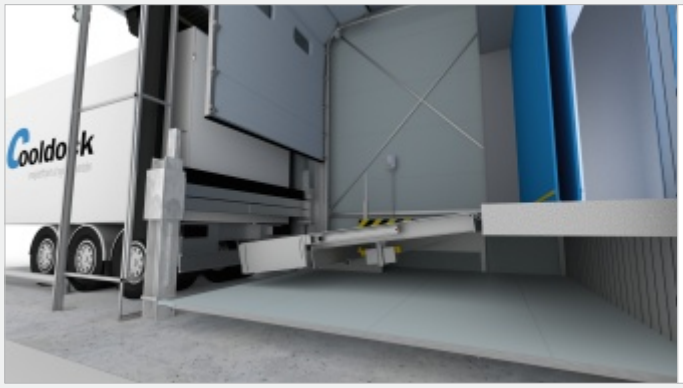

Guides for dowelling



1. The loading dock is closed

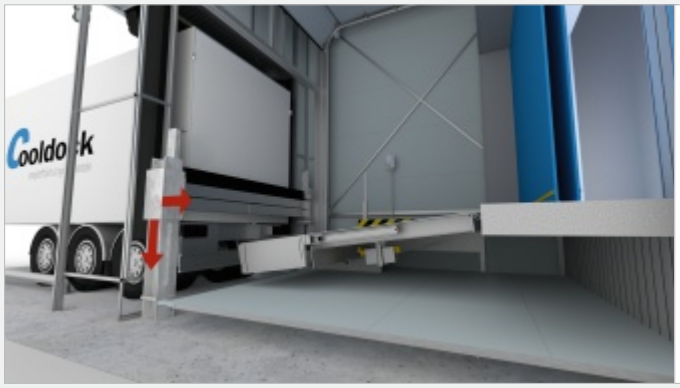
– No truck there
– Dockleveller in home position
– Door closed
– Safety position for Crash Guard
– Dockshelter vented

The steps of the loading process



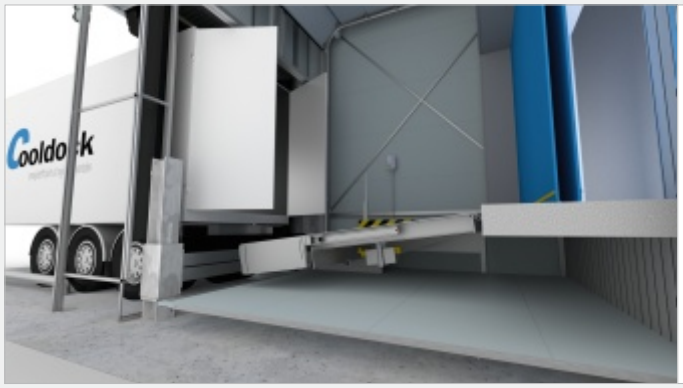
2. Truck docked and

– is detected by a sensor that switches the system ready for operation
– Hedging with Electric Wheel Chock
– Sectional door opened by push button and
– Dockshelter is automatically inflated before



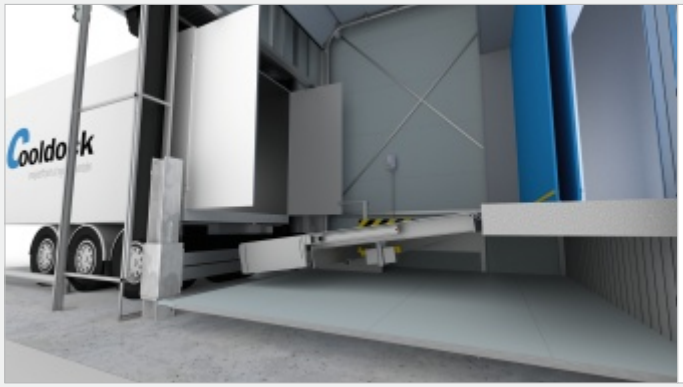
3. Crash Guard is lowered

– Crash Guard lowered by pressing a button in the loading position
– Vertical movement downwards and horizontal movement away from the truck for preventing possible damages.



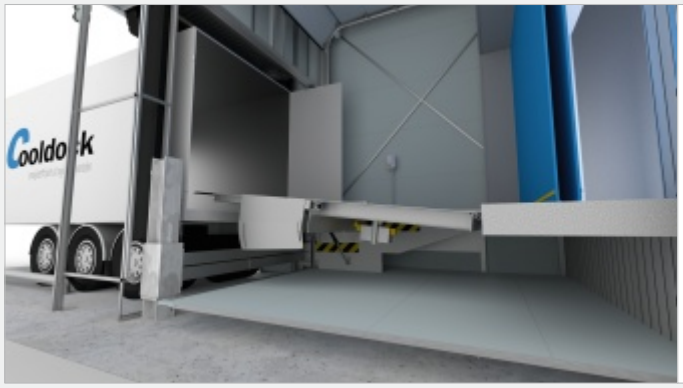
4. Truck rear doors are opened

– Truck rear doors are opened and secured through the open door above the Dockleveller.



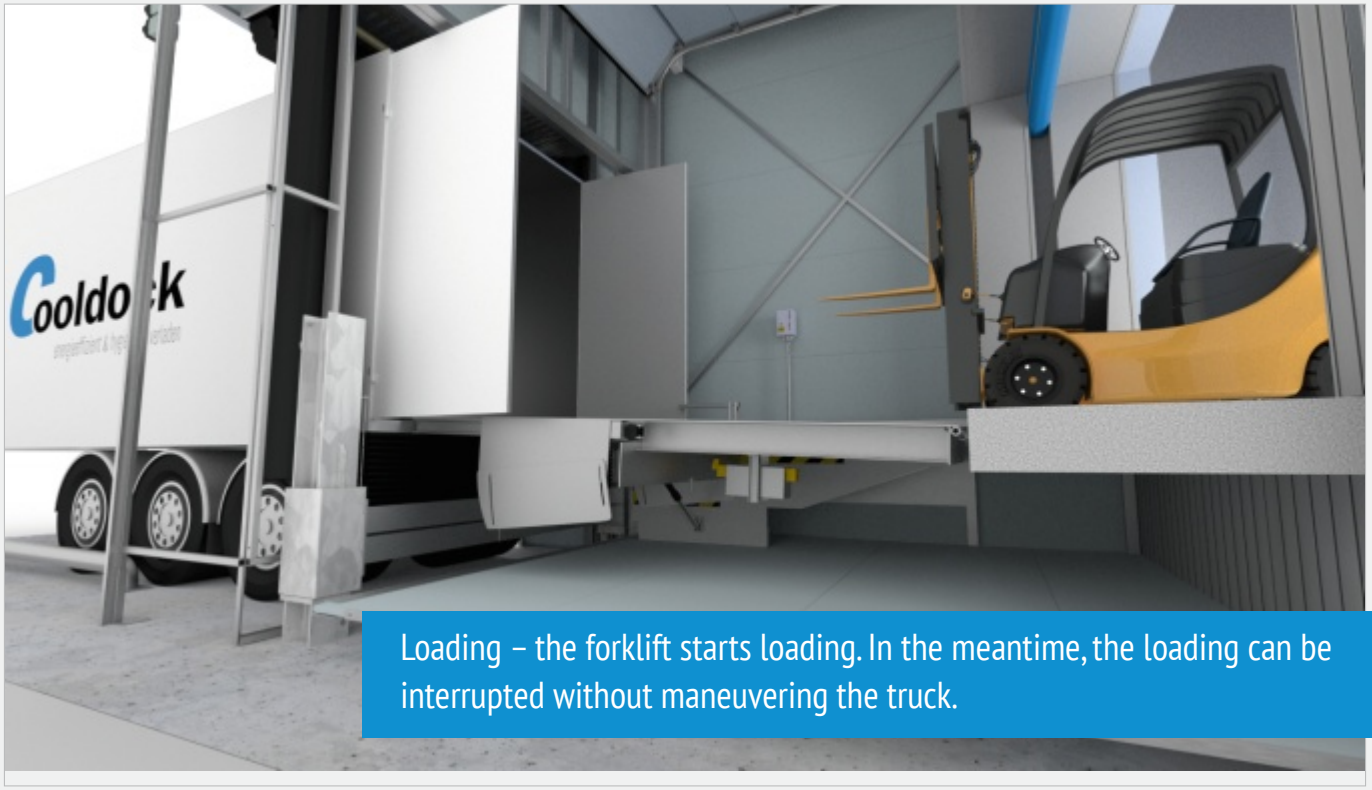
5. Door stops secure the rear doors of a truck

– During loading, the truck moves up and down and the rear doors move as well. This is the reason they are secured with door stops.

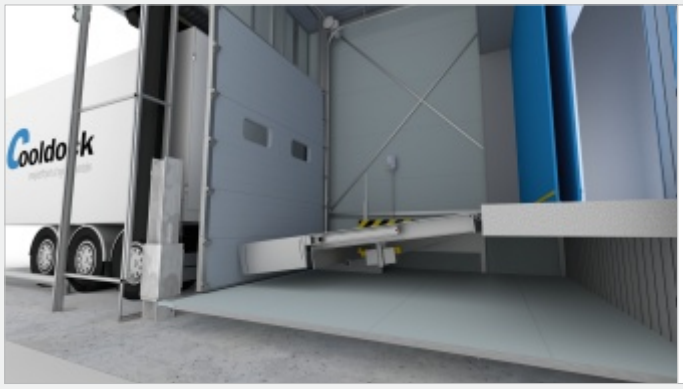


6. Dockleveller in position

– The loading bridge is laid on. When the lip is extended and lowered onto the truck bed, the lower air bag is automatically blow up.
– The external traffic lights switched red. The indoor traffic lights are green.



Loading – the forklift starts loading. In the meantime, the loading can be interrupted without maneuvering the truck.



7. Interruption of loading

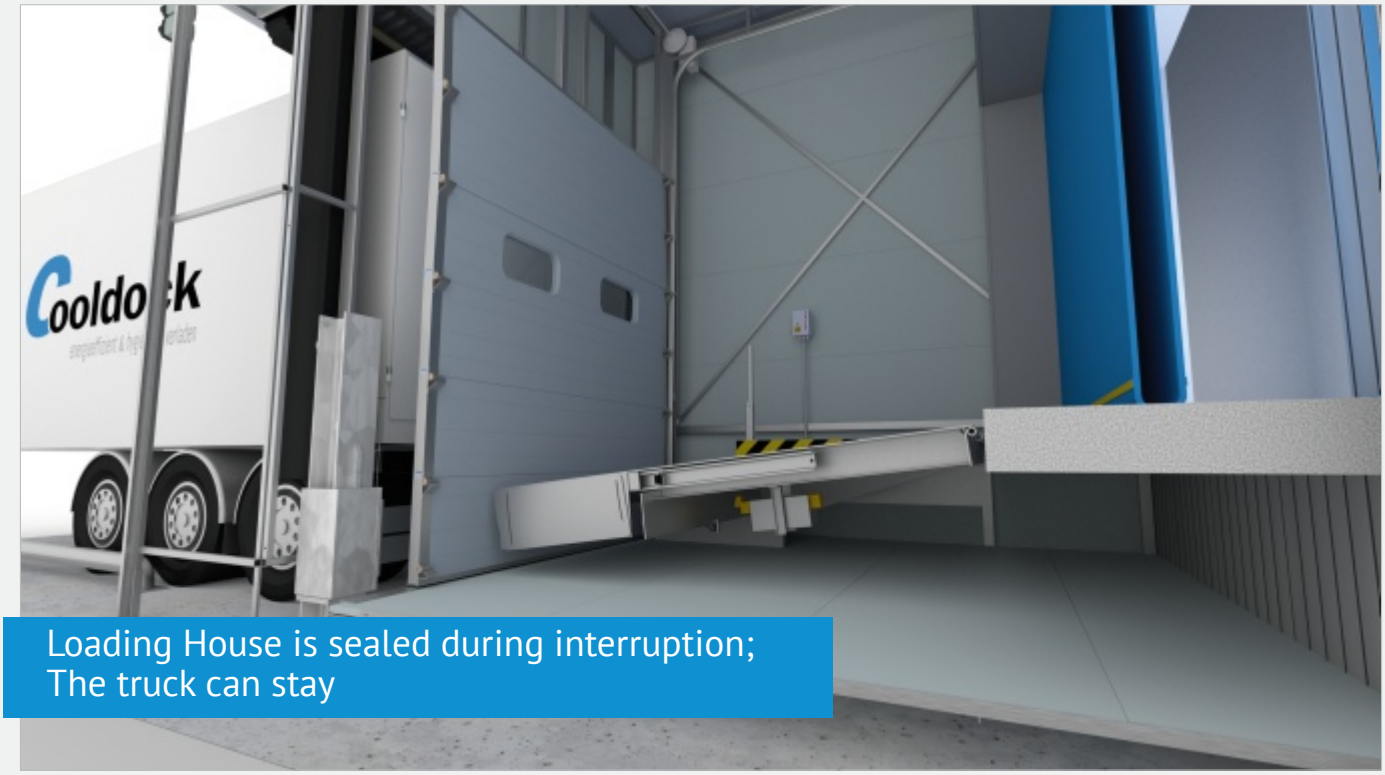
– Dockshelter should be deflated; Dockleveller back to home position; Truck rear doors are closed; Sectional door is closed; Truck stops at the ramp; The truck and loading dock are closed and can be reopened for the continuation of loading. No maneuvering necessary!

COOLDOCK Interior view
Cross section

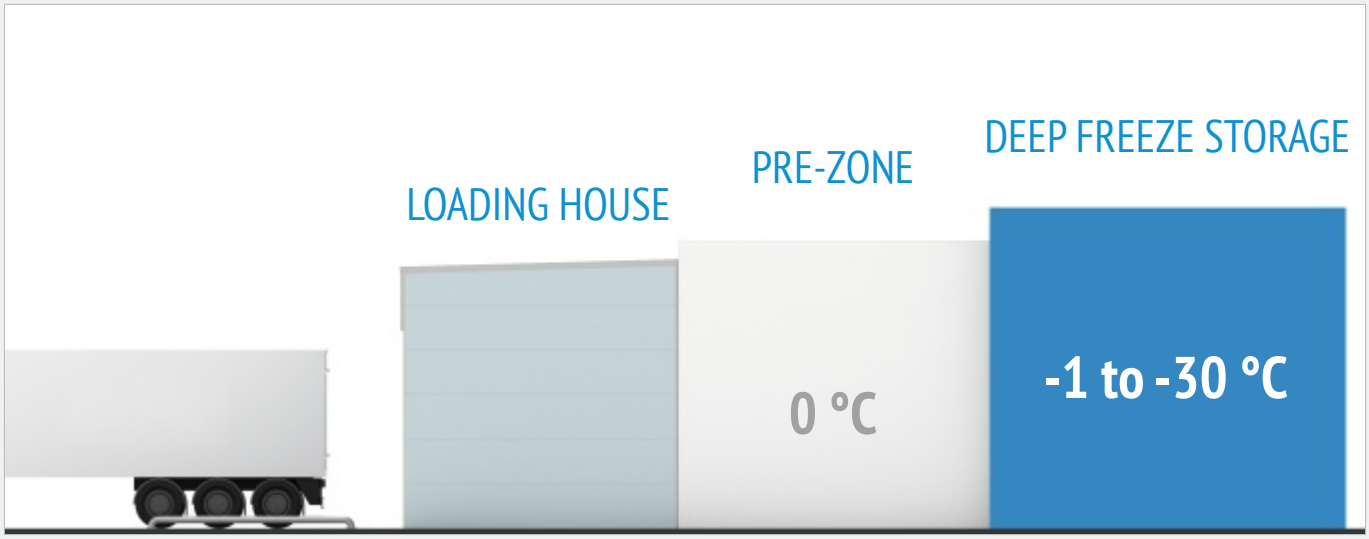
Interruption of loading

» Further Advantages of the COOLDOCKS

In many industries, it is now an advantage that the docked truck, semi-trailer, interchangeable platform etc. can stay at the loading dock if the loading is being interrupted. For example, during a shift change or just because it is suitable for the production process. Therefore, another big advantage of the COOLDOCK is that in this case the rear doors and then the sectional door can be closed and maneuvering is not necessary.



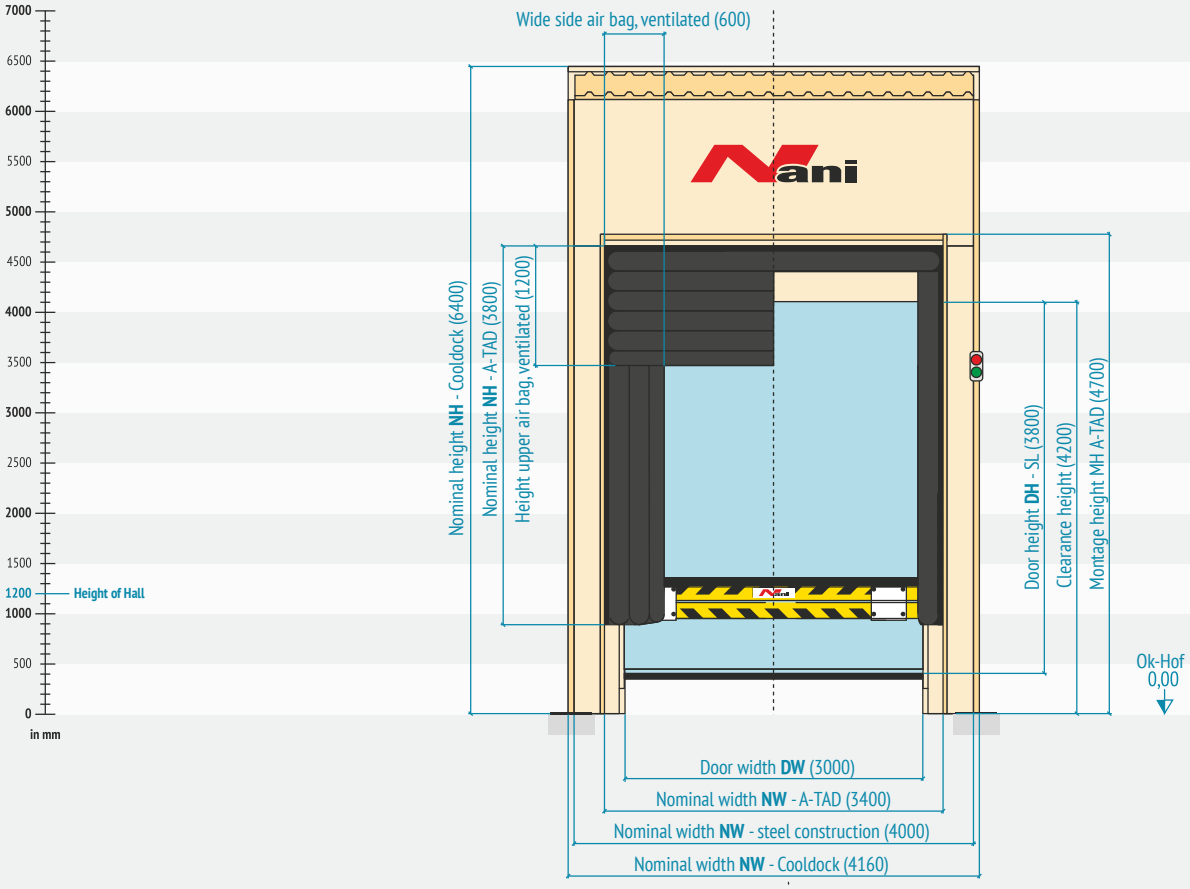
Loading House is sealed during interruption;
The truck can stay



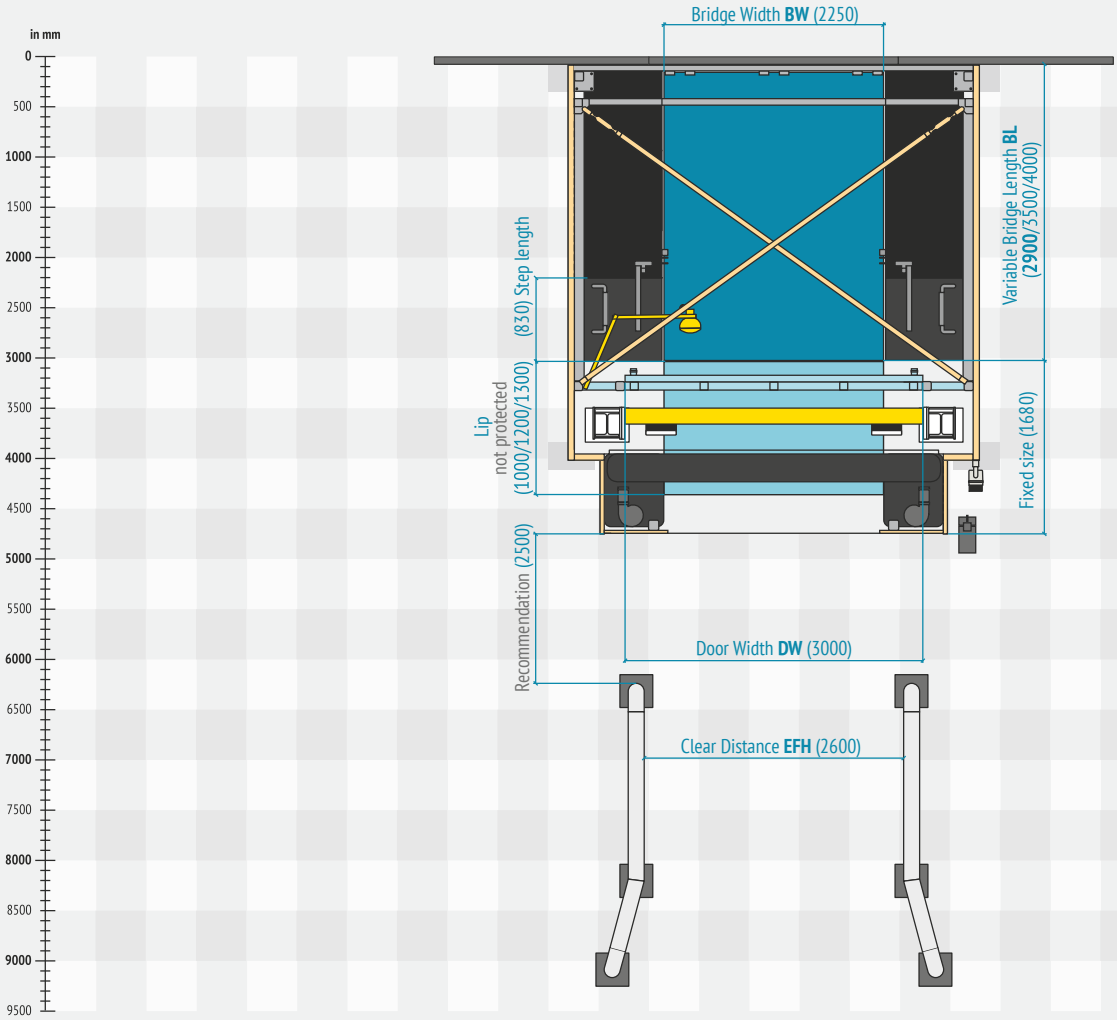
Advantages over conventional loading houses

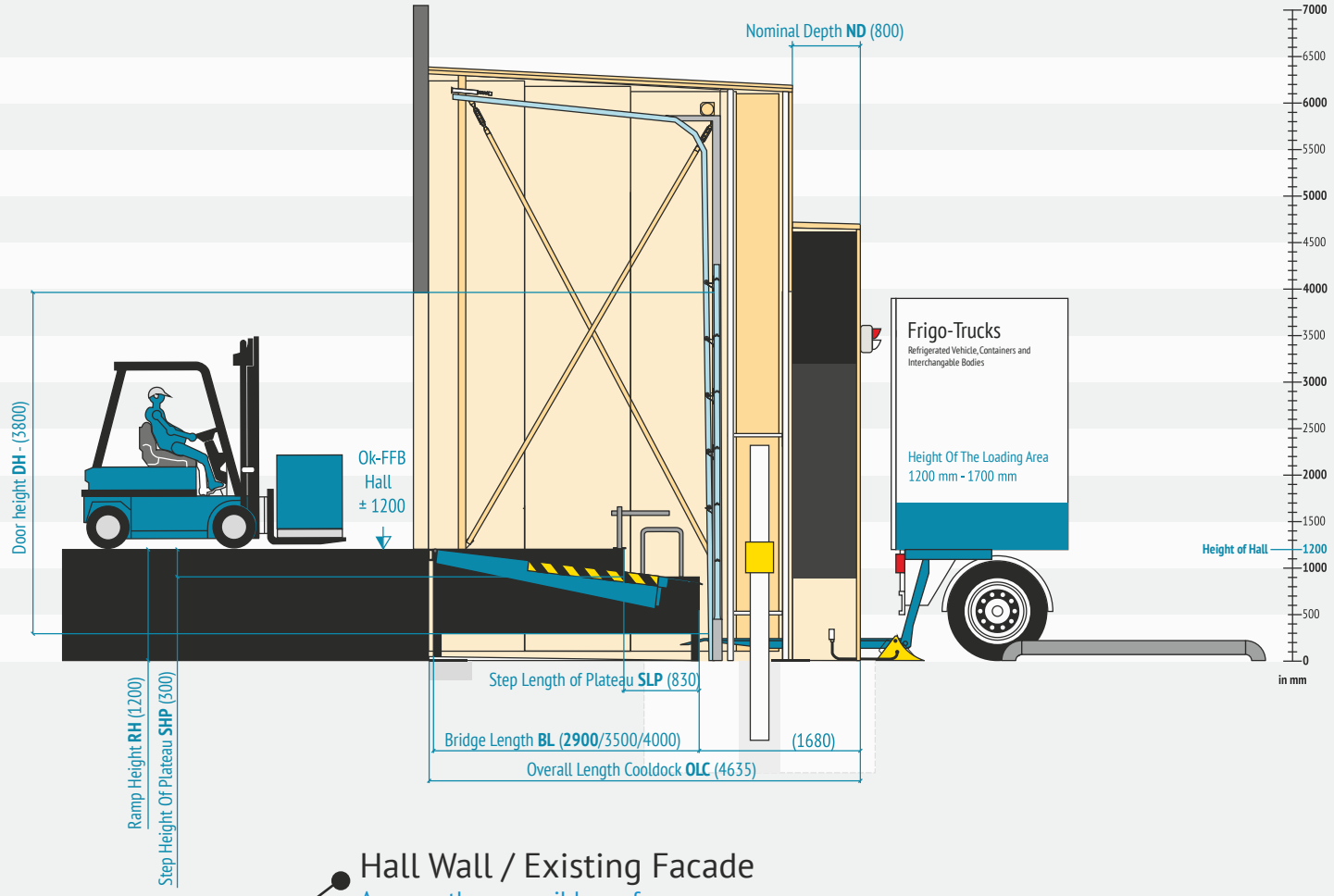
» Function Description

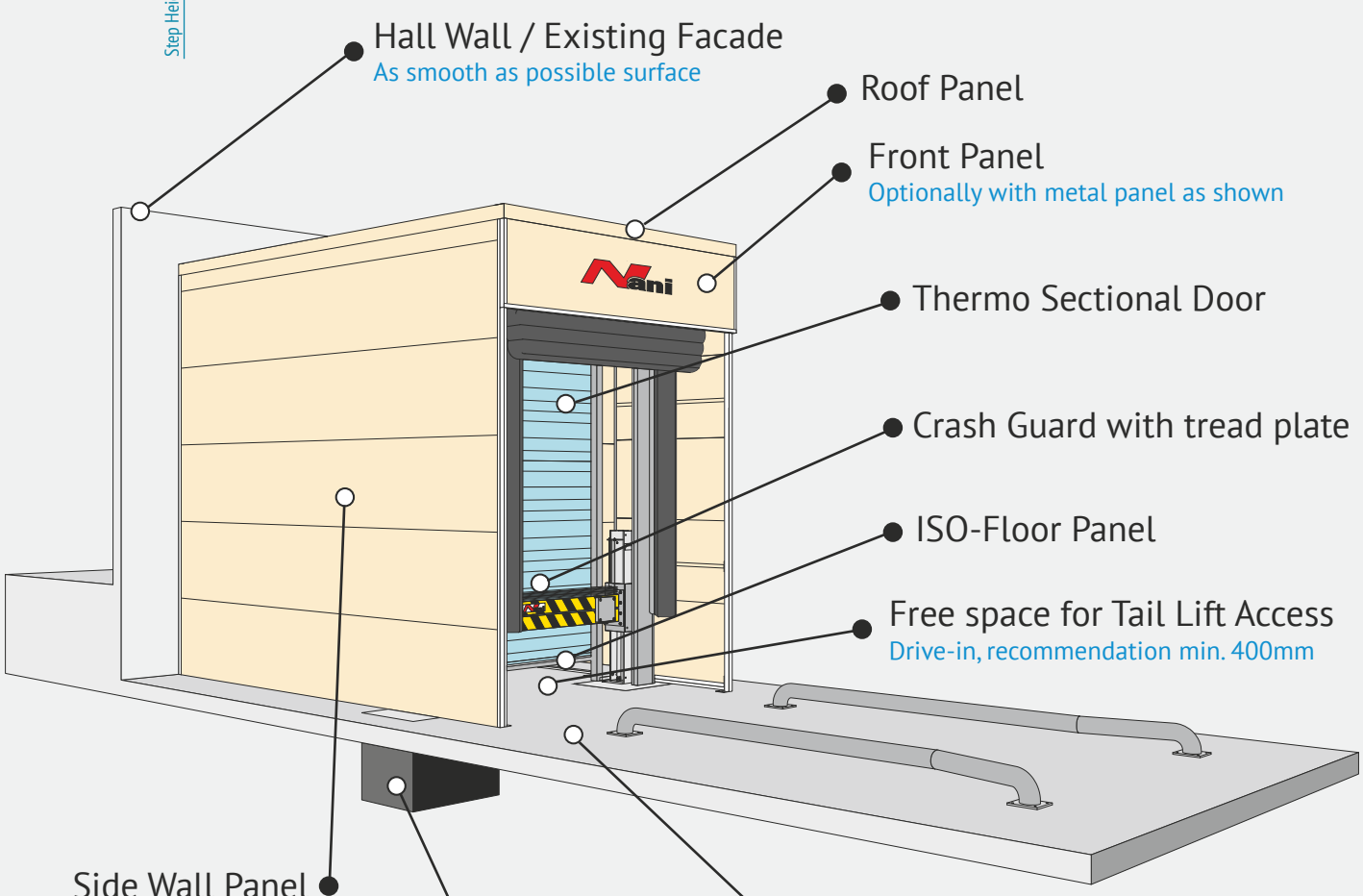
1. Docking with **closed rear doors**
2. **Complete insulation** of the loading house, sectional door closes in front of the Dockleveller
3. **Tail Lift Access**
4. **No impact forces** into the building due to Sleeve Foundations
5. **Less energy loss and drafts** in the building
6. **Less insects and vermin** in the building
7. Improvement of **house insulation**
8. **Interruption of loading** without maneuvering the truck
9. **Loading directly** into the deep-freeze zone, pre-zones can be dispensed with
10. Mostly **no dehumidifier** is necessary anymore; **Preventing the icing** of the ramp
11. **Automatic functional sequence** guarantees safe loading and securing for the next loading process: Protection against damage to the doors and facade



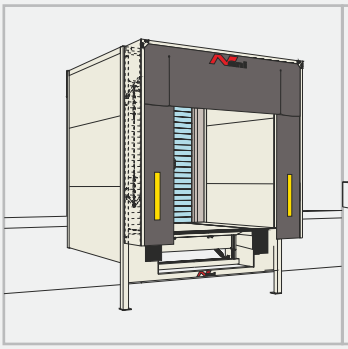
Foundation and electrical plans are created on a project-specific basis



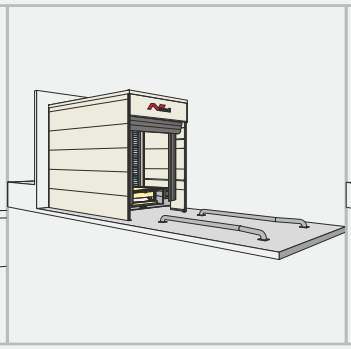




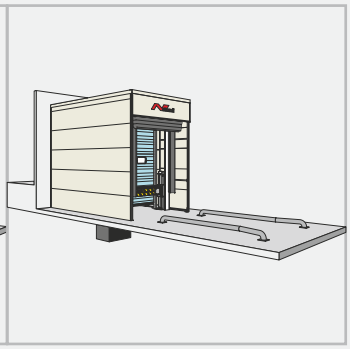
Subject to Technical Changes



Loading House



Insulated Loading House



Cooldock

	P-TAD-2 Continuous Upper-Curtain Shelter	A-TAD-2 Three-Sided Inflatable Dockshelter	A-TAD-U-2 Four-Sided Inflatable Dockshelter
Explanation of the test setup	**Comparison of conventional loading houses with the COOLDOCK** Three docking module types were compared by an independent climate engineer in a simuation model for thermal construction physics: P-TAD-2, A-TAD-2 and A-TAD-U-2. Three cold stores were compared with each other for this purpose. Each hall was equipped with six docking stations. Over a one year period, all thermal processes in the docking station were simulated during, before and after unloading from the truck transport area to the interior of the deep-freeze warehouse via the loading ramp. The aim was to determine the energy flows for the cooling capacity and the required dehumidification for conventional systems. *The following table illustrates different concepts.* *No guarantee can be given for the realisation of the values stated* **Reference-Weather Data Set Germany 2011*		
Infiltration Surfaces Air Inflow And Heat Input	approx. 55 % of the door cross-section	approx. 35 % of the door cross-section	approx. 5 % of the door cross-section
Air Exchange Reduction of internal air exchange between trucks, ramp refrigerated warehouse	0 %	10 % to 20 %	40 % to 50 %
Volume Flow Air exchange between truck-dock-hall	approx. 800 l/s	approx. 700 l/s	approx. 450 l/s
Heat Input[2] per day Air exchange between truck-dock-hall	approx. -12 kW	approx. -9 kW	approx. -2 kW
average air **temperature**[3] (hall) Temperature fluctuation in the summer Temperature fluctuation in winter	-23.5 °C 5-6 K 10-12 K	-24.5 °C 3 K 5-6 K	-25.5 °C 0-1 K 0-1 K
possible **End-Energy-Savings** for cooling and anti-freeze protection	0 %	approx. 5-10 %	approx. 15-25 %
U-Class[4] - ISO-Panels	0.53 40 mm Profile	0.30 80 mm Profile	0.30 / 0.24 80 mm Profile / 100 mm Profile
Dehumidifying device to prevent the icing of the ramp (depending on the remaining building and the docked trucks)	required	required	usually **not** required

[1] *The* **Volume Flow** *indicates how much volume is transported through a fixed cross-section per period of time.*
[2] *The* **Heat Input** *indicates how much thermal energy is transferred from one body to another body. Heat always flows from the place of higher temperature to the place of lower temperature.*
[3] **Air Temperature** *refers to the temperature of the ground-level atmosphere that is not affected by solar radiation, soil heat or heat conduction.*
[4] **U-Value** *is therefore a measure of the "heat permeability" or the thermal insulation properties. The U-value indicates the heat that is lost per hour and square meter area with a temperature difference between inside and outside of one degree Celsius. The smaller the U-value, the better the insulation properties.*

COOLDOCKs (Bavaria)

COOLDOCK Assembling

COOLDOCKs (Thuringia)

COOLDOCK (Lower Saxony)

Crash Guard of the COOLDOCK

COOLDOCKs - Frozen storage approx. 135.000 m³ mobile shelving warehouse

COOLDOCK (Saxony-Anhalt)

Dockshelter

COOLDOCKs (Bavaria)


Verladetechnik
Nani


Überladebrücken


Blockdock
Die Lkw-Wegfahrsperre
für sicheres und
unfallfreies Verladen


Logdock
... ideal, um mit geschlossenen
Hecktüren anzudocken.


Parkdock


Hebetechnik


Säulenhubtische


Industrietore


Anfahrschutz


Torabdichtungen


Rampenpuffer


Zubehör


Händler


Safety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lösungen


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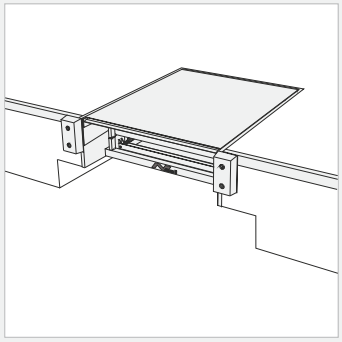
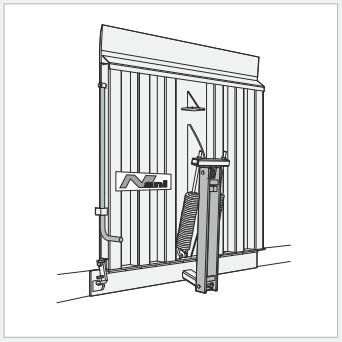
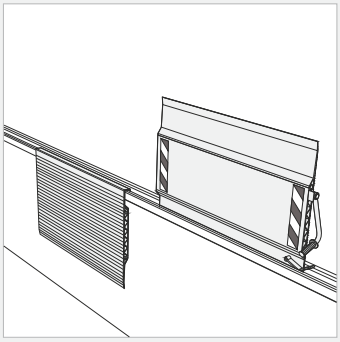
LOADING TECHNOLOGY



Stationary Docklevellers



Swivel Docklevellers

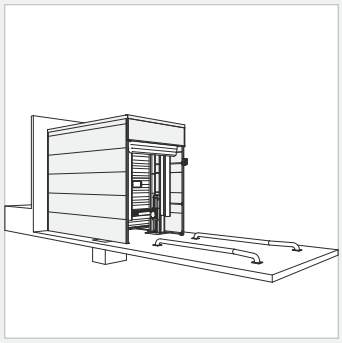


Aluminium Docklevellers

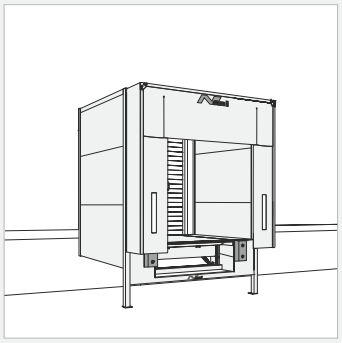
» Buffer
» Vehicle Wheel Guides
» Electronic Wheel Chock
» Traffic Lights
» Loading Light
» Crash Guard

Accessories & spare parts

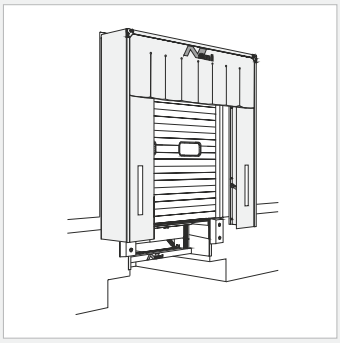
(also for other makes)



Cooldock Loading Locks



Insulated Loading House



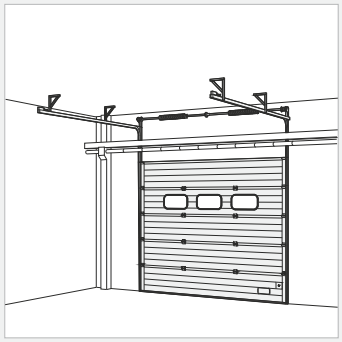
Dockshelters

» Hydraulic kits
» Controls
» Dockdrain
» Reinforcement lamellas
» Corner seals
» Airbags
» Foam pads

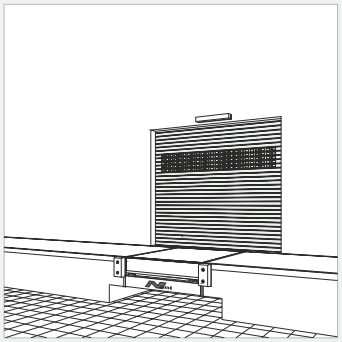
Accessories & spare parts

(also for other makes)

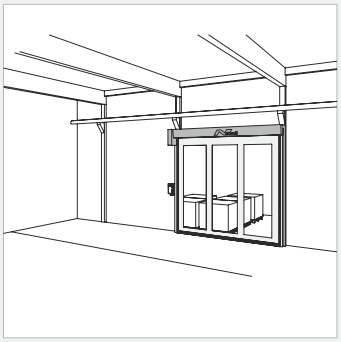
Industrial Doors



Sectional Doors



Roller Shutters



High Speed Doors

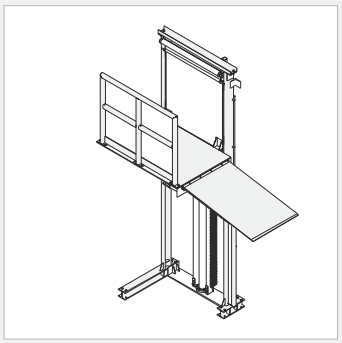
» Suspension Ropes
» Torsion spring
» Window sections
» Rollers
» Drives
» Door panels
» Montage frame

Accessories & spare parts

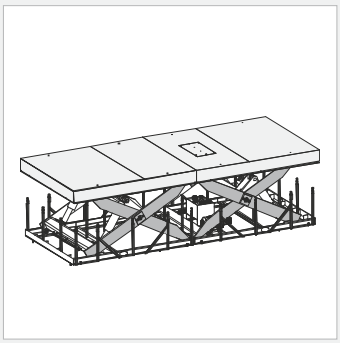
(also for other makes)

LIFTING TECHNOLOGY

Scissor Lift Tables



Column Lift Tables



Long-Load Lifts

» Drive-over flaps
» Mech. Roll-off safety
» Safety railing
» Controls
» Platform strengthening
» Hydraulic cylinder
» Hydraulic power pack

Accessories & spare parts

(also for other makes)

Cooldock

https://www.nani.de/products/loading-dock-equipment/cooldock-iso-loadhouse/?lang=en

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