

## Product datasheet

Loading ramp with telescopic lip leveller

Type: PAT

Load capacity: 60 kN

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## General information

The PAT loading ramp is a new product of PROMStahl's wide product range. This top-quality product benefits from over 25 years of experience in designing and manufacturing docking systems.

This ramp is a complete loading system which is mounted in front of a door opening or a building as a self-supporting unit. It consists of a hydraulic dock leveller with a telescopic lip and lateral treads which are reinforced on their bottom side. The PT leveller of the PAT system is operated at the touch of a button and after exact positioning the telescopic lip automatically follows the movements of the vehicle during the loading or unloading process (automatic floating position). The big advantage of this type of dock leveller is the maximum flexibility of the lip contact length. Thanks to this feature effective loading and unloading even of vehicles that are not completely correctly positioned can be guaranteed and time-consuming and complicated repositioning of the vehicle is not necessary.

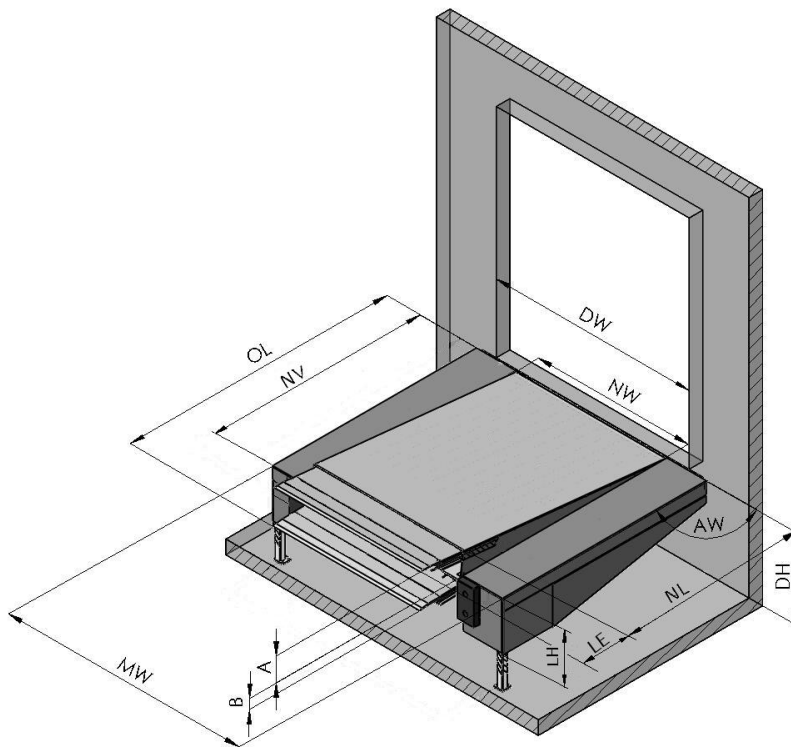
The PROMStahl PAT systems suggests itself as an extension to an existing building by means of a loading system as the necessary constructional preparation work is limited and operating costs are reduced. The PROMStahl PAT system can be installed at various angles (45°, 60°, 75°, 90°, 105°, 120°, 135°) at the front of the building so that it is possible to optimally utilize the available space and to guarantee smooth and efficient loading and unloading operations. The steel elements of the PAT system are available either hot-dip galvanized or painted.

The stepped version of the PROMStahl loading ramp enables docking of various types of vehicles and is used when the loading height of the vehicle is lower than the height of the loading station. The stepped version guarantees trouble-free opening of the vehicle doors after vehicle dock-in.

As an option the PROMStahl PAT system can be extended to form a PROMStahl loading house. The loading house is a cladding house that in combination with a loading ramp and a dock shelter forms an independent unit that can be installed in front of the building and includes all components of a loading station. Together with the loading ramp as the support the dock leveller, dock shelter and sectional door form a complex loading system.

The PROMStahl loading ramp meets the latest European standards (DIN EN 1398) and is GS certified.

## Overview



In accordance with the EN 1398 standard, the leveller must not be used beyond the permissible gradient range of  $\pm 12.5\%$  (around  $\pm 7^\circ$ ). The limits may only be exceeded if the operator ensures that the danger of slipping has been eliminated (e.g.: due to dry and clean surfaces).

NV	Loading ramp nominal length (NL + 20)
NL	Dock leveller nominal length
NW	Dock leveller nominal width
OL	Overall length
LE	Lip extension
LH	Leveller height
DH	Dock height
DW	Dock width
MW	Loading ramp module width
A	Level equalisation above dock
B	Level equalisation below dock
AW	Installation angle *

\* All loading ramps available standard installation angles of  $90^\circ$ ,  $45^\circ/135^\circ$ ,  $60^\circ/120^\circ$  and  $75^\circ/105^\circ$ . Further angles are available on request.

### Lip length: 500 mm

LE	500			
NL	2000	2450	3000	3500
LH	700	700	700	800
A	315	470	450	520
B	405	400	400	400
OL	2500	2950	3500	4000
NW	All dimensions 1750, 2000, 2200, 2250, 2400			
MW	All dimensions 3300, 3500, 3600			
All dimensions in mm.				

Load capacity for all dimensions: 60 kN (dynamic), 84 kN (static).  
Other load capacities and dimensions on request.

## Lip length: 1000 mm

LE	1000			
NL	2000	2450	3000	3500
LH	700	700	700	800
A	390	555	520	590
B	480	460	450	450
OL	3000	3450	4000	4500
NW	All dimensions 1750, 2000, 2200, 2250, 2400			
MW	All dimensions 3300, 3500, 3600			
All dimensions in mm.				

Load capacity for all dimensions: 60 kN (dynamic), 84 kN (static).  
Other load capacities and dimensions on request.

## Standard parameters

### - Dock leveller

Lip (steel)	Lip length: 500 mm Chamfered section: 40 mm Tear-plate thickness: 13 mm/15 mm
Platform	Tear-plate thickness: 8 mm/10 mm
Leveller height	LH ≥ 700 mm
Surface	Painted, standard colours: RAL 5010, RAL 7016
Hydraulic unit	Hydraulic unit: - 2 lift cylinders with emergency stop valve - 1 lift cylinder for the telescopic lip
Control unit	Control unit with auto button

### - Loading ramp

Module width	3300 mm
Installation angle	90°
Dock height	1100 mm to 1250 mm

## Options

### - Dock leveller

Lip (steel)	Lip length: 1000 mm (as of a nominal length of $\geq 2450$ mm) Chamfered section: 100 mm Telescopic lip with tapered edges (125 mm on both sides) Telescopic lip with lateral retracting tongues (150 mm on each side, only for telescopic lip of 500 mm) with tear plate thickness of 13 mm/15 mm
Surface	Painting in different RAL colours and various layer thicknesses Hot-dip galvanisation
Hydraulic oil	Organic oil Low-temperature oil (- 30°C to + 60°C)
Control unit	Special control unit with additional options PROMControl
Others	EPDM sealing Anti-slip / anti-noise coating

### - Loading ramp

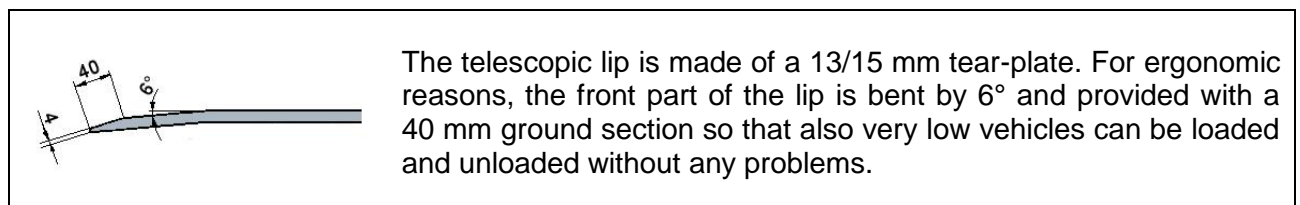
Module width	3500 mm, 3600 mm
Frame	Rear support frame (four-leg version) Stepped version
Installation angle	Angular platform of 45°/135°, 60°/120°, 75°/105°
Dock height	950 mm to 1050 mm 1300 mm to 1500 mm

## Design characteristics

The integrated PT telescopic lip leveller is provided with the CE and the GS (safety-tested) labels and meets all requirements of the EN 1398 standard. The standard load capacity of 60 kN (dynamic axle load) corresponds to the EN 1398 standard for a forklift wheel contact surface of 100x150 mm. Higher concentrated loads as well as higher load capacities are available on request at short notice.

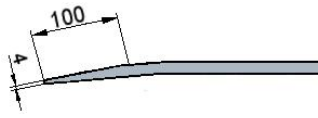
## Telescopic lip

### Standard telescopic lip



The telescopic lip is made of a 13/15 mm tear-plate. For ergonomic reasons, the front part of the lip is bent by 6° and provided with a 40 mm ground section so that also very low vehicles can be loaded and unloaded without any problems.

## Telescopic lip options

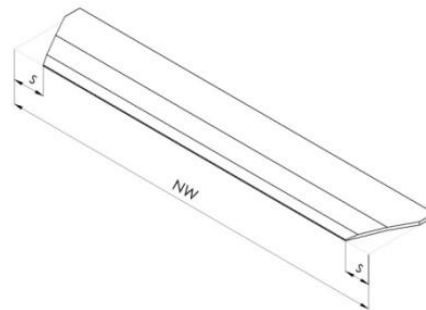
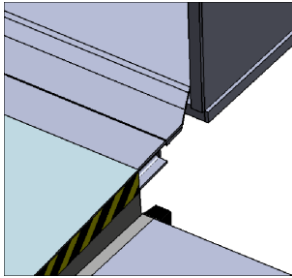


### Chamfered section: 100 mm

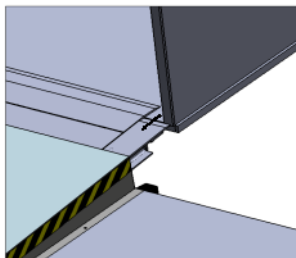
The chamfered section of the lip can be extended to 100 mm so that transition from the telescopic lip to the lorry bed becomes even smoother.

### Tapered lip

The most cost-effective way to reduce the contact area of the telescopic lip is to provide it with tapered edges on both sides. This option offers 125 mm bevels on both sides. Recommended for NW > 2,200 mm.



s (tapered; s = 125 mm)

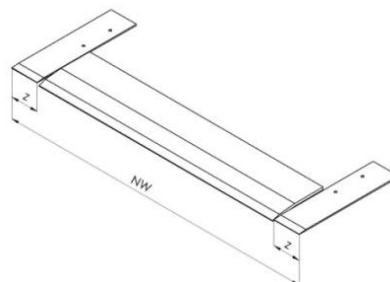


### Telescopic lip with lateral retracting tongues

The integrated dock leveller is also available with retracting tongues.

In this case the lip consists of a central element and two side elements (located on left and right hand side). The side elements move backwards independently of the central element. Thus, the lip width is automatically reduced so that vehicles with narrow beds can also be loaded and unloaded. When the lip is fully retracted, the side elements are automatically locked in their original position so that the central and side elements are extended together again during the subsequent loading process.

Recommended for NW > 2,200 mm.



retracting tongues  
z = 150mm  
(only for LE= 500)

# Platform

## Tear-plate thickness

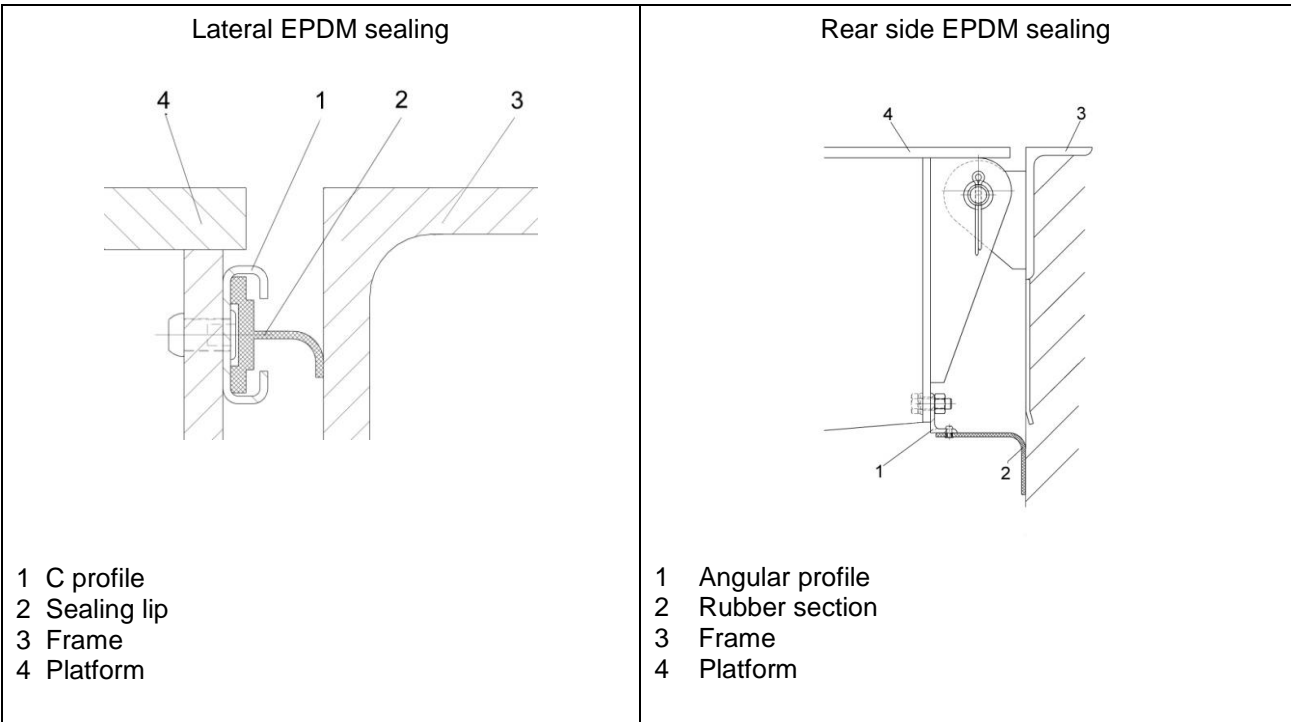
The dock leveller platform is made of high-quality tear plate material (S235JRG2) and supplied with a thickness of 8/10 mm. It is strengthened by means of special reinforcements guaranteeing optimal stability as well as a sufficient transverse torsion strength of up to 10% of the platform's width.

## Toe guards

The dock leveller is always provided with lateral toe guards to prevent foot injuries when the leveller moves downwards.

## EPDM sealing

The EPDM sealing is used to seal the gap between the dock leveller and the pit so that draught in the warehouse building is reduced, the staff's working conditions are improved and energy can be saved. The EPDM sealing is installed on the three sides of the leveller.

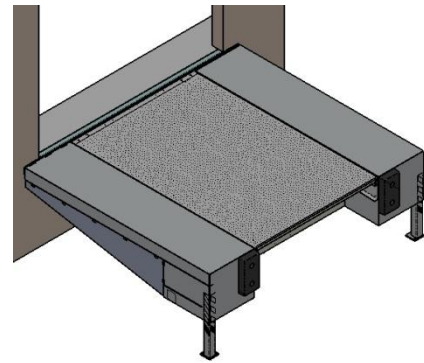




## Anti-slip / anti-noise coating

As an option, it is possible to provide the platform and the telescopic lip with a special anti-slip / anti-noise layer. This coating consists of high-elasticity solvent-free polyurethane with a material thickness of 3-4 mm filled with sharp-edge broken basalt (grain size 1-1.6 mm).

This type of coating guarantees a high degree of anti-slip and anti-noise protection and is applied to profiled material. That's why the requirements of DIN EN 1398 regarding slip prevention are met even if this coating is damaged.



## Surface treatment

### Painting

Before final assembly, the individual components of the dock leveller are sandblasted and provided with a two-component paint. Standard RAL colours are RAL 5010 and RAL 7016 in a layer thickness of 80 µm. Further RAL colours and layer thicknesses of up to 160 µm are available as an option.

To increase corrosion protection, the dock leveller can also be delivered with hot-dip galvanized steel parts.

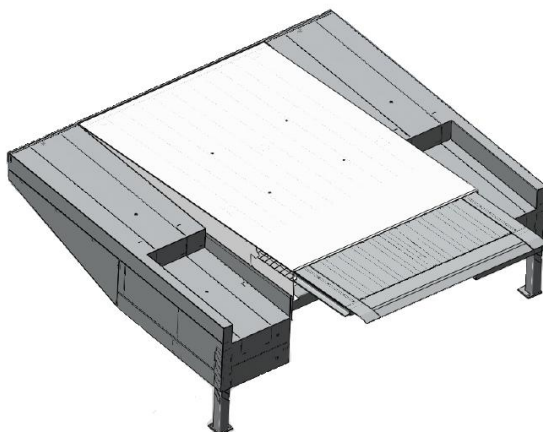
### Hydraulic unit

The dock leveller is operated by means of a tried and tested under-oil hydraulic unit (1,5 kW). The closed system stands out for its high reliability even under very difficult operating conditions. We offer special hydraulic oils for use with low-temperature applications.

The dock leveller is lifted by means of two cylinders (Ø 45 mm) to ensure safe positioning even if the lorry leaves the dock during loading or unloading. In this case the down movement of the leveller has to be stopped; this is guaranteed by means of special emergency valves in the lift cylinders.

The telescopic lip is advanced by means of a cylinder with a piston rod of 22 mm in diameter (for a telescopic lip of 500 mm) and of 25 mm in diameter (for a telescopic lip of 1000 mm).

## Loading ramp (stepped version)

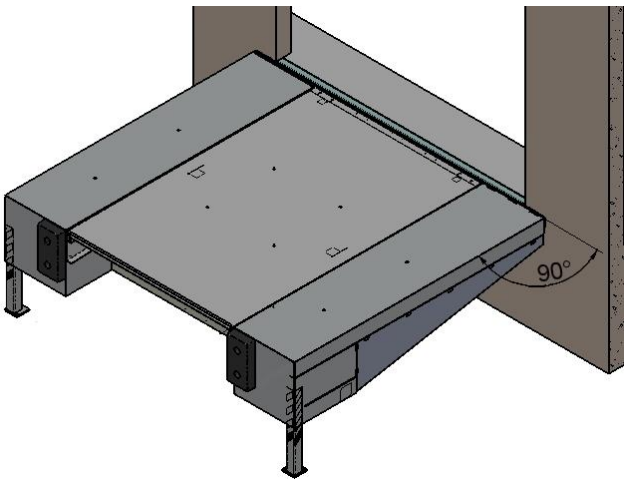


The stepped version of the loading ramp is used when the lorry docks in with its rear doors closed; the doors are opened only after completion of the dock-in process. Compared to the leveller platform, the areas on the left and on the right side of the dock leveller are lowered by 300 mm over a length of 1200 mm or 1300 mm, i.e. over the width of the lorry doors. The stepped version of the loading ramp can also be delivered with different installation angles.

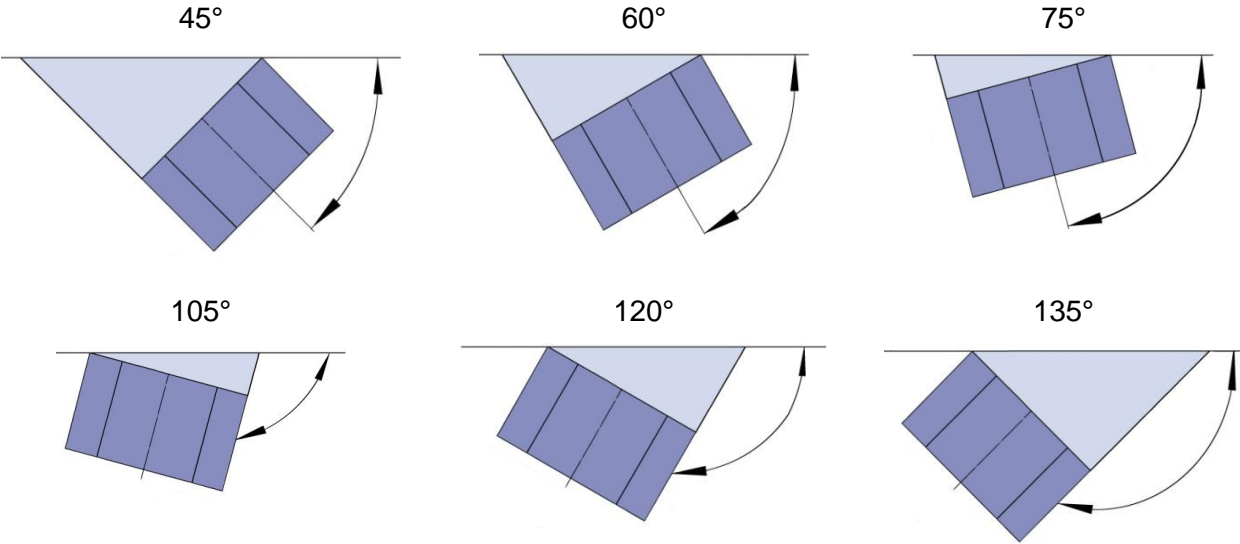
# Installation angles

PROMStahl loading ramps are available with different installation angles which guarantee smooth and optimal loading and unloading processes even for small and complicated yard situations. In its standard version, the PROMStahl external loading ramp is delivered with an angle of 90°. Other installation angles are optionally available; for such a special installation angle, an angular platform is required to connect the building to the loading ramp.

## Installation angle: 90° (standard)



## Further installation angles (option)



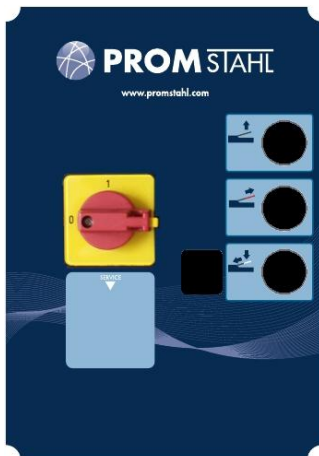
# Control units

Standard DOCKController (PBES 2 MV 16)



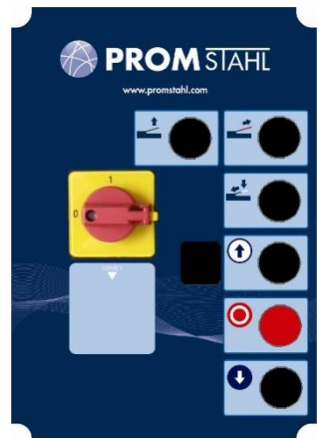
- Main switch
- "Lift" button to lift the platform
- "Extend" button to position the lip on the lorry
- "Auto" button (to return the leveller to its resting position by shortly pushing this button)
- Connection possibility: leveller/door interlock / door/leveller interlock

Option PROMControl (PBES 2 MV 10 01)  
easy programming, display



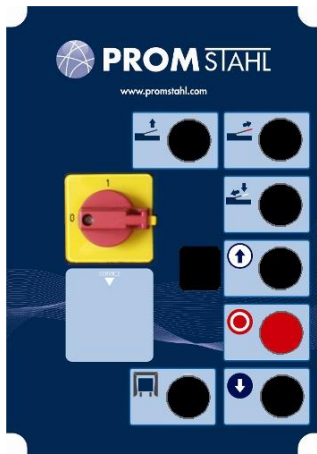
- Main switch
- "Lift" button to lift the platform
- "Extend" button to position the lip on the lorry
- "Auto" button (to return the leveller to its resting position by shortly pushing this button)
- Possibility of connecting a wheel chock, a vehicle detection system, traffic lights, dock lights, a dock shelter and a door locking system

Option PROMControl (PBES 2 MV 15)  
easy programming, operating status and error code display



- Main switch
- "Lift" button to lift the platform
- "Extend" button to position the lip on the lorry
- "Auto" button (to return the leveller to its resting position by shortly pushing this button)
- Possibility of connecting a wheel chock, a vehicle detection system, traffic lights, dock lights, a pneumatic dock shelter and a door locking system
- Including door operation button

Option PROMControl (PBES 2 MV 17)  
easy programming, operating status and error code display



- Main switch
- "Lift" button to lift the platform
- "Extend" button to position the lip on the lorry
- "Auto" button (to return the leveller to its resting position by shortly pushing this button)
- Possibility of connecting a wheel chock, a vehicle detection system, traffic lights, dock lights, a pneumatic dock shelter and a door locking system
- Including door operation button and button for inflatable dock shelter

Option control unit (PBES 2 MV 01)  
only for special sequences



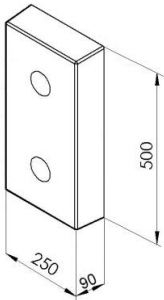
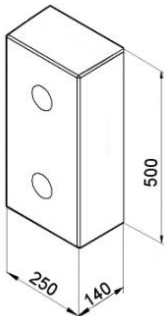
- Main switch
- "Lift" button to lift the platform
- "Extend" button to position the lip on the lorry
- "Auto" button (to return the leveller to its resting position by shortly pushing this button)
- Possibility of connecting a wheel chock, traffic lights, dock lights and a door locking system

## Accessories

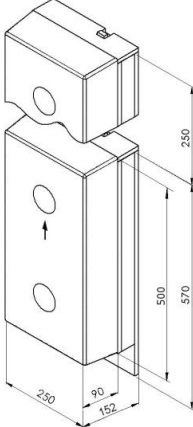
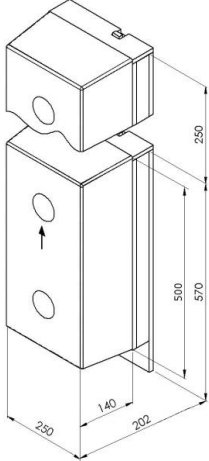
### Buffers

Fixed as well as movable buffers are designed to absorb impact during the docking process protecting both the vehicle and the loading system from damage. All rubber elements of our PROMStahl buffer series are made of high-quality rubber material ensuring a long service life.

## Rubber elements without plate

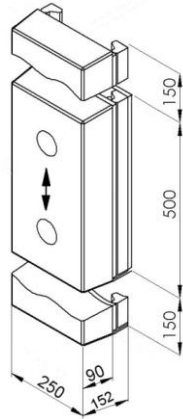
	<p><b>PBGP 90</b></p> <p>Dimension [mm]: 500x250x90</p>		<p><b>PBGP 140</b></p> <p>Dimension [mm]: 500x250x140</p>
<p>PBGP The rubber buffers consist of high-quality new rubber material and stand out for their high resistance to wear and tear; they are available in two different versions.</p>			

## Height-adjustable buffers

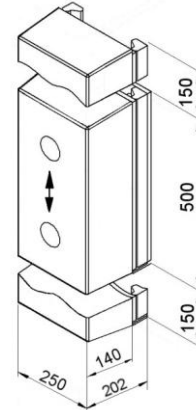
<p><b>PGV 90</b> Buffer with vertical guide (rubber element: thickness 90 mm)</p> 	<p><b>PGV 140</b> Buffer with vertical guide (rubber element: thickness 140 mm)</p> 
<p>These buffers are used for loading and unloading of vehicles whose lorry beds are higher than dock level. Height-adjustable buffers can be lifted by up to 250 mm above dock edge. During loading and unloading the buffer adjusts to the lorry's vertical movements. It moves up to 50 mm upwards and 250 mm downwards. Thus, the buffer's wear is reduced to minimum and its durability is extended. After docking the buffer can be fixed at dock level so that the lorry tailgates can be opened.</p>	

## Floating buffers

Buffer with vertical guide  
(rubber element: thickness 90 mm)



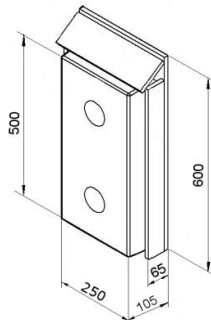
PGB 140  
Buffer with vertical guide  
(rubber element: thickness 140 mm)



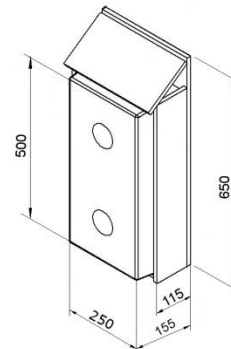
These buffers have the highest possible durability. They follow the lorry's vertical movements by 150 mm upwards and 150 mm downwards so that the buffers' wear is almost reduced to zero.

## Buffers with protective housing

PGFS 90  
Buffer with protective housing  
(rubber element: thickness 90 mm)



PGFS 140  
Buffer with protective housing  
(rubber element: thickness 140 mm)



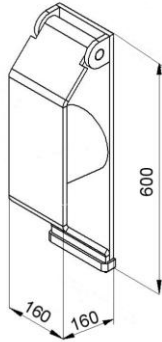
For higher impact loads buffers with protective housing are recommended. The sloped protective plate prevents the buffers from being heavily damaged.

Thanks to the lateral flat steel guides the fixing bolts of rubber buffers are optimally protected against shearing.

## Spring steel buffer

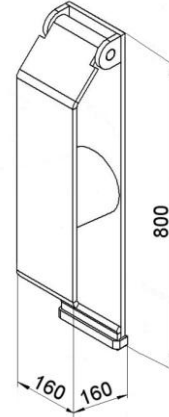
### PGS 600

Spring steel buffer with plate (hot-dip galvanized)  
Spring steel plate (t=15 mm) and rubber buffer (Ø 130 mm)



### PGS 800

Spring steel buffer with plate (hot-dip galvanized)  
Spring steel plate (t=15 mm) and rubber buffer (Ø 130 mm)



Spring steel buffers provide optimum protection for heavy-duty loading and unloading. These buffers stand out for their excellent shock-absorbing characteristics, maximum resistance to wear and long service life.

During loading/unloading only the buffer steel plate gets into contact with the vehicle. Thus, normal tear of the surface caused by the vehicle's height movements is excluded. Costly buffer replacement is avoided and operating costs are reduced.

The spring steel buffer is either welded to the frame or dowelled to the leveller.

Optionally, it is possible to mount the buffer 200 mm above the dock edge by means of a support.

### Wheel chock



The PZK wheel chock equipped with a position-dependent ultrasonic sensor and connected to the control unit via a robust cable guarantees safety during the whole loading and unloading process. As soon as one of the rear wheels of the lorry is stopped by means of the wheel chock, the leveller control function is “released” so that operation of the dock leveller can be started.

### Traffic lights



Inside and outside traffic lights represent a reasonable completion of the docking station. It is recommended to provide the loading station not only with a wheel chock but also with a traffic lights system.

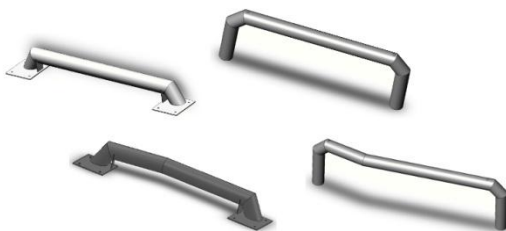
PROMStahl PBEA traffic lights systems assure communication between the lorry driver and the warehouse staff. They show the driver when the docking station can be approached and left safely. The traffic lights are connected to the PROMStahl control unit and adjustments/programming can be adapted to your individual requirements.

### Dock light



In general, the danger of accidents during loading/unloading is very high due to bad lighting of the docking area. PROMStahl dock lights provide the best solution for perfect lighting of the docking area and the vehicle lorry bed.

### Wheel guides



Wheel guides help the truck driver to reverse to the loading bay without any complicated maneuvering actions. They are installed on yard level, either by being cast directly into concrete (types PEK and PEKE) or by being bolted on the ground (types PEF and PEFE); they represent a good and reasonable investment into the safety at your loading bay.



# Electrical preparations (by others)

1 Electrical control unit (included in the scope of delivery)

2 Cable conduit (by others)

3 Wire conduit, min. internal diameter 50 mm, angled pipe  $\leq 45^\circ$  (by others)

4 Mains supply: : 3 / N / PE AC 50 Hz  
400 V/ CEE 16 A  
Mains fuse: D0 10 A gL  
Motor power: 1,5 kW

5 Cable: 7 x 0,75 mm<sup>2</sup>

6 Motor cable: 4 x 1,5 mm<sup>2</sup>

7 Door/dock leveller light sensor \*)

\*) Option