

# Installation Instructions

Mountable Base Plate for AGRO Turn axle



## Introduction

The variably mountable base plate makes it easier for the customer to use different tire sizes. An adjustable base plate ensures more flexibility and more ground clearance. In the case of mountable base plate must be observed special requirements, both in terms of manufacture and assembly. BPW offers its customers mountable and adjustable base plates to meet the special requirements of various vehicles.

### Valid legislation:

Regulation (EU) No 167/2013 Of The European Parliament And Of The Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles.

COMMISSION DELEGATED REGULATION (EU) 2015/68 of 15 October 2014 supplementing Regulation (EU) No 167/2013 of the European Parliament and of the Council with regard to vehicle braking requirements for the approval of agricultural and forestry vehicles.

As of : 22 July 2022

Subject to change without notice.

Current versions and additional information can be found online at [www.bpwagr.com](http://www.bpwagr.com)

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# General informations

## Mountable base plate

- ⦿ These instructions contain important information for the proper design and installation of the mountable base plate on the AGRO Turn steering axle.
- ⦿ If the customer designs an own-specific brake chamber holder (base plate), the specified technical requirements (e.g. total weight, angular position of the brake cylinder rod, coating, fastening, holder shape, etc.) must be observed.
- ⦿ In order to be able to use all functions of the product and to guarantee a long service life, please read these instructions carefully before you start to design and use your own base plate.
- ⦿ The observance of these instructions and information is necessary, important and useful for the operational safety and reliability of the wheel brake.



# 1 Safety regulations, safety information

## 1.1 Safety regulations

- ⊙ All work must be performed by trained mechanics at competent repair facilities or authorised specialised workshops who have access to all relevant tools and have acquired the know-how required for this work. Anyone who performs maintenance and repair work must have been trained as an automotive mechanic and already have experience in repairing trailers. Anyone who performs brake work must be trained in brake systems.
- ⊙ Comply with local safety regulations.
- ⊙ The relevant operations and service regulations as well as safety regulations of the vehicle manufacturer and of the manufacturers of the vehicle parts must be adhered to.
- ⊙ The dust created from grinding brake linings comprises particles that can cause lung damage. A safety mask must therefore be worn to prevent brake dust from being inhaled.
- ⊙ Use prescribed dust washing devices or vacuum cleaners for cleaning, never use compressed air or other high-pressure devices.
- ⊙ Ensure adequate ventilation at the workplace.
- ⊙ The vehicle must be prevented from moving during repair work. Please observe the relevant safety regulations for repair work on commercial vehicles, in particular the safety regulations for jacking up and securing the vehicle.
- ⊙ During repair work, make sure that the brake is not operated inadvertently.
- ⊙ Do not perform repair work unless wearing protective clothing (gloves, safety boots, safety goggles, etc.) and using the recommended tools.
- ⊙ Work on brake components removed from the vehicle must be carried out with the components fixed in place such as in a vise.
- ⊙ Only use recommended tools.
- ⊙ A second mechanic must provide assistance when working with heavy components (brake drums or brake removal/installation).
- ⊙ All air lines and components must be depressurized before being removed.
- ⊙ Following each repair, perform a function check or a test drive in order to make sure that the brakes are functioning correctly. New drums and linings only have maximum effect after a few braking actions. Avoid hard braking.
- ⊙ All exchanged components must be reused or disposed of in accordance with the applicable environmental regulations, laws and directives.
- ⊙ Tighten bolts and nuts with the prescribed tightening torque.

## Safety information 1.2

This workshop manual contains different types of safety instructions, each of which is designated an icon and a signal word. The signal word describes the severity of the potential danger.



Danger !

**Immediate** potential danger of serious or fatal injury (severe injury or death).

Warning !

**Possible** potential danger of serious or fatal injury (severe injury or death).

Caution !

**Possible** dangerous situation (slight injury or damage to property).



Repair Guide:

Risk of damage to property or consequential damage if this information is not observed.



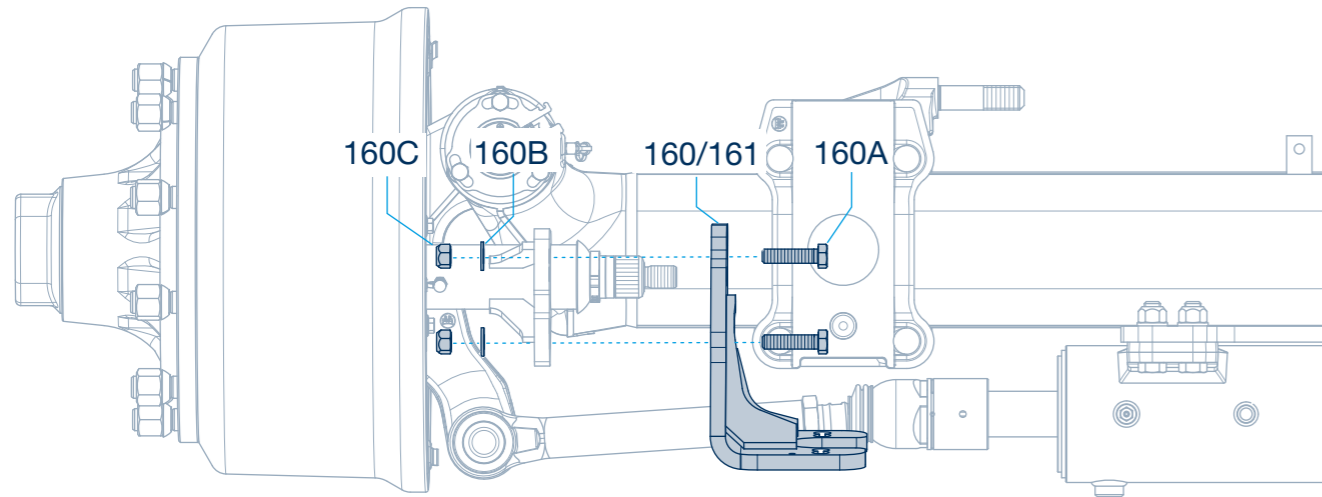
Note:

Application hints and especially useful information.

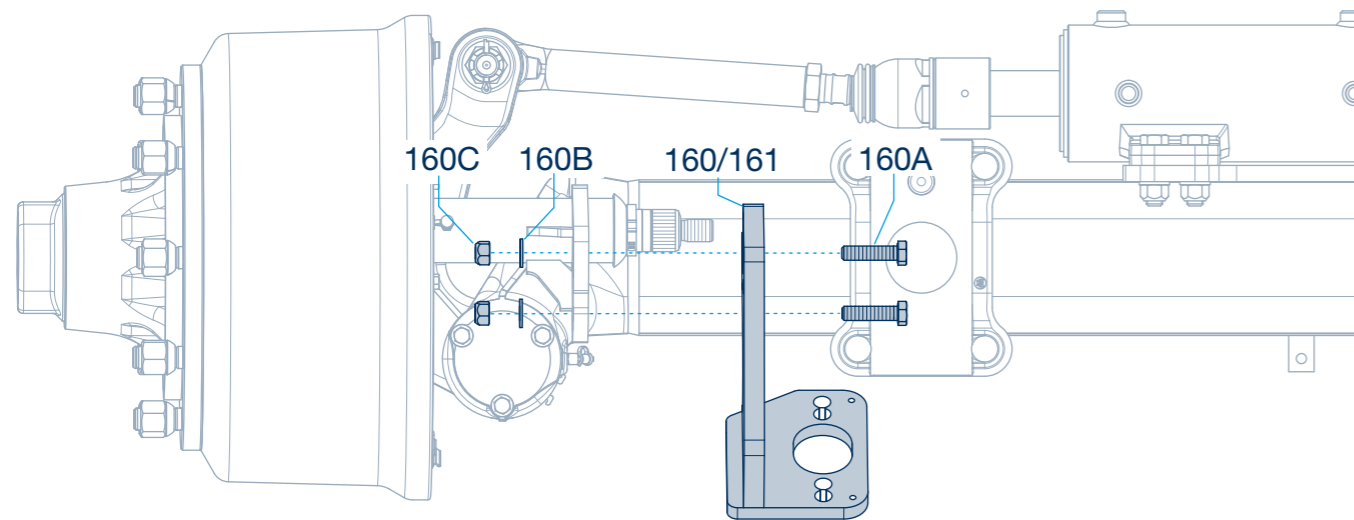
## 2 Exploded view / Designation

### 2.1 Mountable base plate

#### Position of the diaphragm cylinder is above the axle



#### Position of the diaphragm cylinder is under the axle



Pos.	Designation
160 / 161	Base plate left / right
160A	Bolt
160B	Washer
160C	Self-locking nut

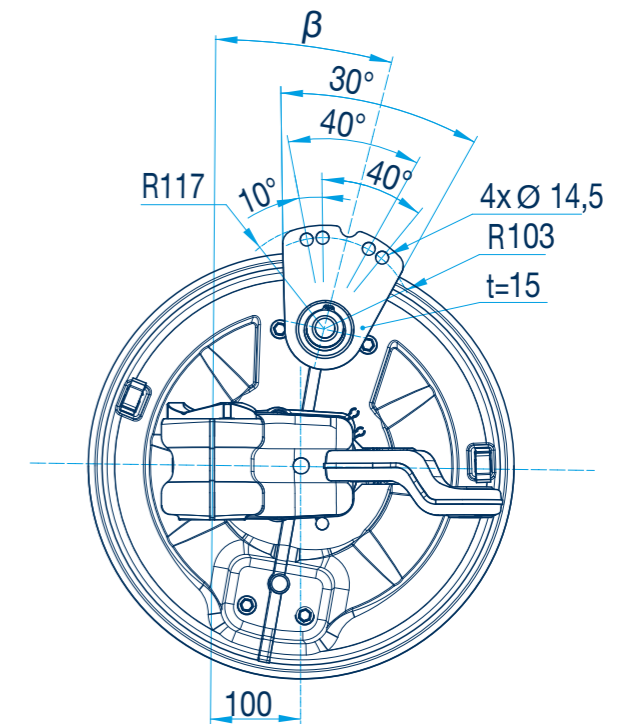
## 3 Technical specifications

### Requirements for the base plate 3.1

Two pairs of holes - 4x  $\varnothing 14.5$  mm - are available on the axle for mounting the base plate.

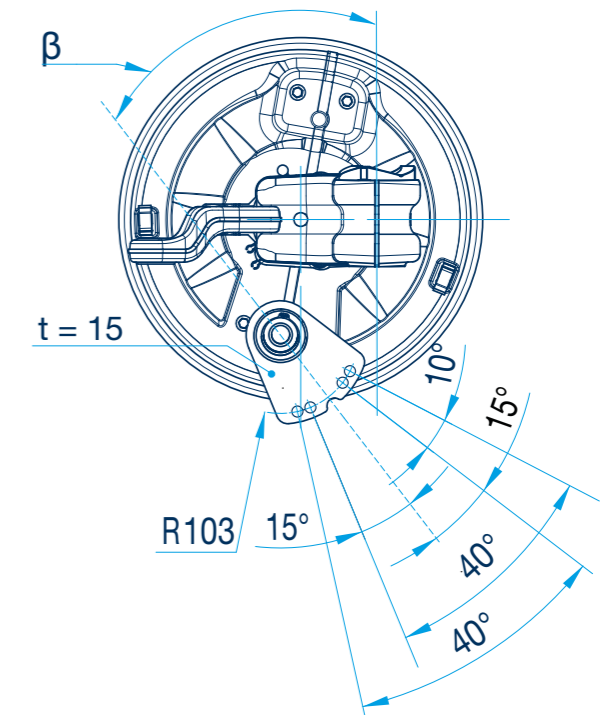
The possible positions of the base plate are to be coordinated in advance.

#### Dimensions of the mounting plate (top)



$\beta$ : coordinate with the fabrication drawing.

#### Dimensions of the mounting plate (bottom)



$\beta$ : coordinate with the fabrication drawing.

## 3 Technical Specifications

### 3.2 Permissible total weight

Weight data of the base plate:

- the base plate without brake cylinder may have a maximum permissible total weight of **7 kg**.
- the base plate with the installed brake cylinder and the associated components may have a maximum permissible total weight of **22 kg**.

#### Warning!



**The maximum permissible total weight must not be exceeded. If the maximum permissible gross weight is exceeded, damage can occur during braking which can seriously injure or die the driver and/or other persons.**

#### Note:



**For information on the maximum permissible cylinder stroke of the brake cylinder used, please contact the manufacturer.**

#### Technical specifications:

- maximum permissible deflection of the piston rod in any direction must not exceed  $3^\circ$ .
- geometric dimensions of the diaphragm cylinder:  $X =$  depending on the brake cylinder design,  $Y = 120.7 \text{ mm}$ .
- the cylinder push rod may be max. 227 mm (with a stroke of 0 mm).
- maximum permissible deformation of the base plate in the brake actuation direction up to 4 mm.

#### Examination requirements:

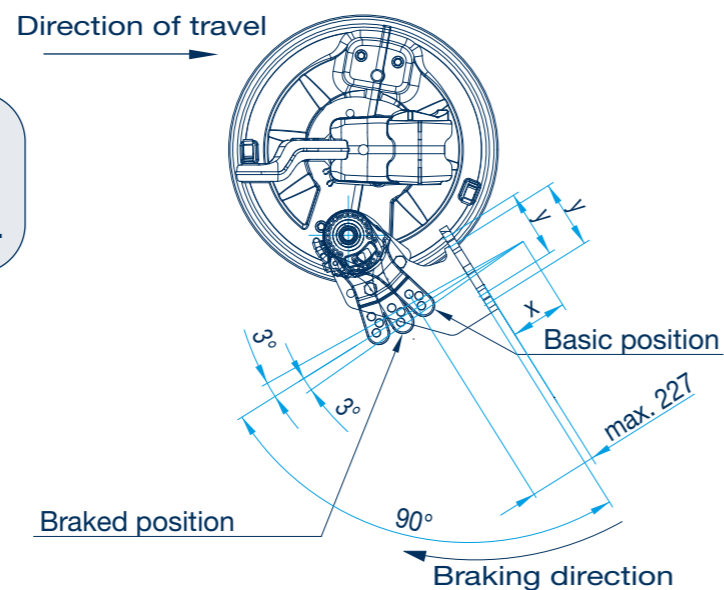
For diaphragm cylinder: operating pressure: 6.5 bar / type of diaphragm cylinder: 36" / lever length: 180 mm.

For hydraulic cylinders: operating pressure: 120 bar / piston diameter: 40 mm / lever length: 180 mm.

#### Note:



**The deflection of the push rod on the BPW diaphragm cylinder is specified by  $\pm 3^\circ$  in each direction.**



### Possible designs for the Slack adjuster 3.3

A straight or bented (30 mm left or right) slack adjuster (manual or automatic) can be used for every mountable base plate. Slack adjusters can be installed quickly and easily and are optimally designed.

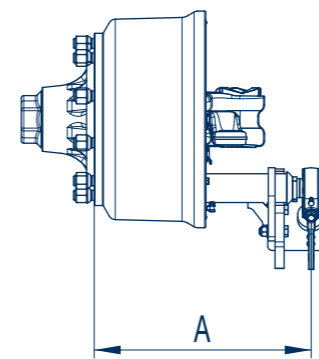
The use of the manual slack adjuster (GSK) or automatic slack adjuster (AGS) depends on:

- the base plate solution,
- the tire size and
- from the free space,
- the legal regulation.

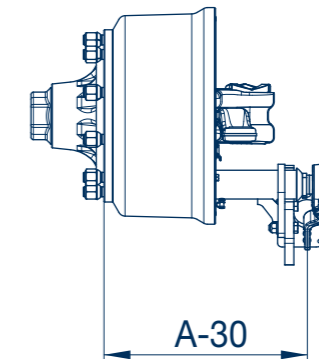
#### Slack adjuster options (manual or automatic)

A: Distance between wheel hub flange and brake cylinder centre.

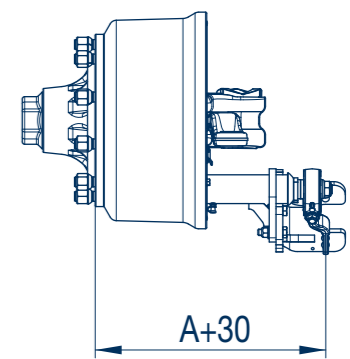
a) straight Slack adjuster



b) bent Slack adjuster  
A - 30 mm



c) bent Slack adjuster  
A + 30 mm

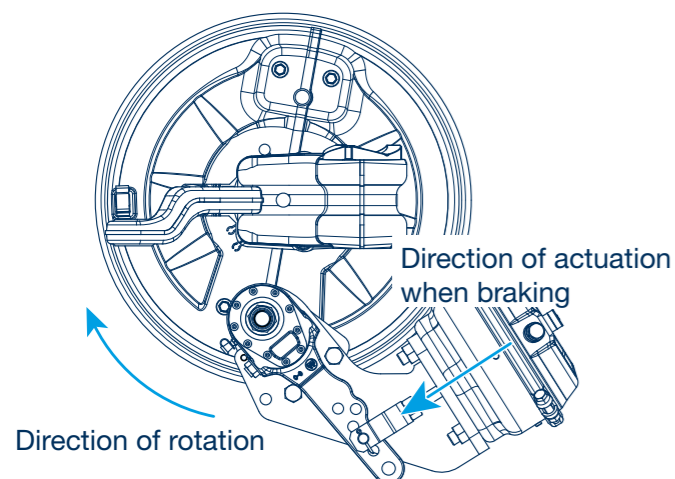
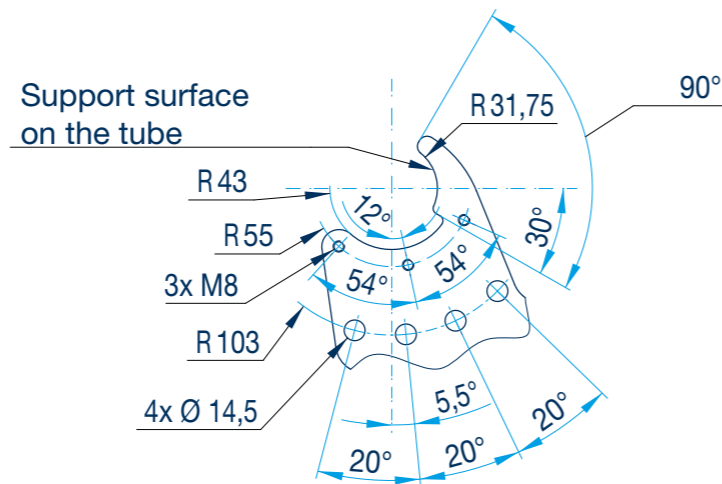
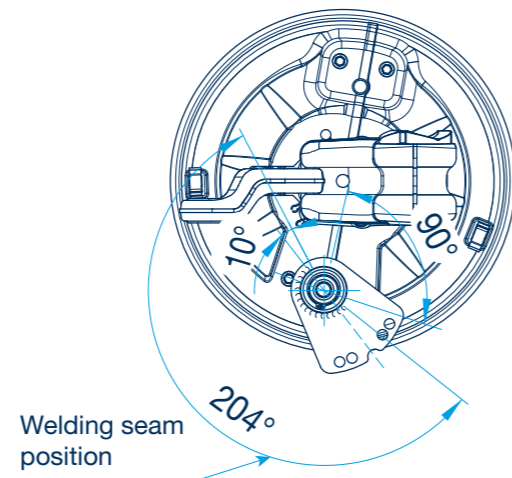
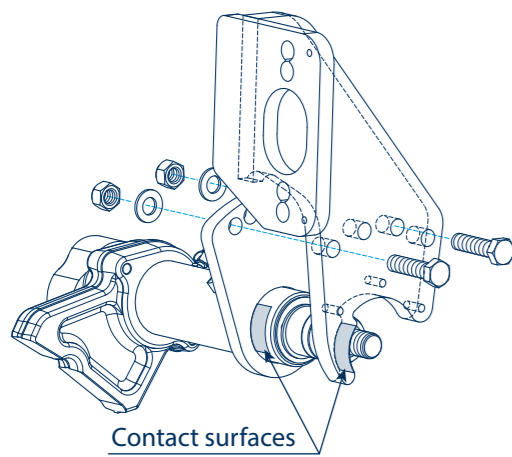


# 4 Assembly

## 4.1 Assembly instructions


The following requirements must be observed when mounting the base plate:

- The base plate determined surface must be rest on the pipe
- Keep free space for the weld seam on the base plate. (204°)
- Make sure that the brakes are applied correctly.

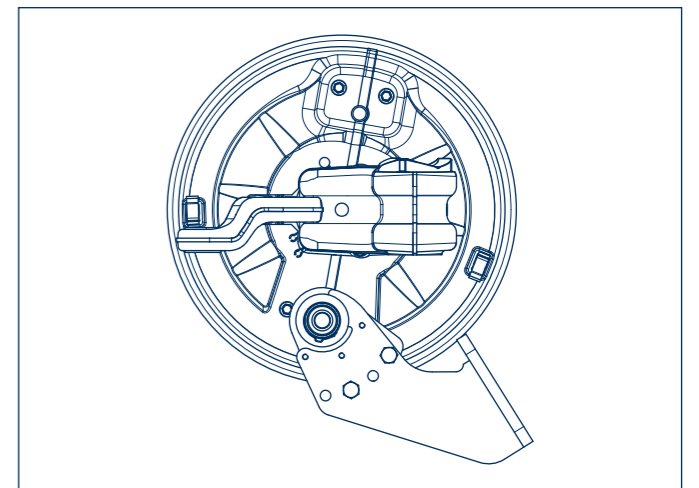
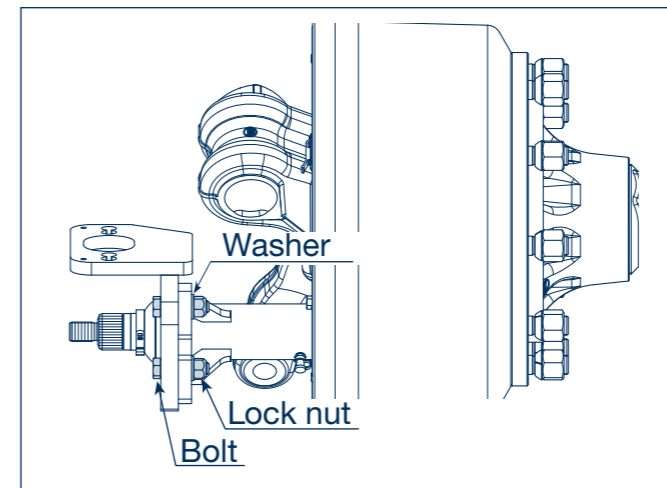


## Fastening materials 4.2

The base plate can be fixed to the mounting plate through two holes. The prescribed quality fittings must be used for fastening.

**Note:**  
 The prescribed strength classes (or higher quality) of the fastening materials must be complied with.

Designation	Size	Tech. parameter	Tightening torque
Lock nut	M 14		M = 105 Nm
Washer	A 15	200 HV	
Bolt	M 14	8.8	



## 5 Surface treatment

### 5.1 Principles

The contact surface of the single areas on the axle and base plate must be covered or masked before painting. The contact surfaces of the parts must be free of scale, rust and grease, as well as free of mineral solid particles.

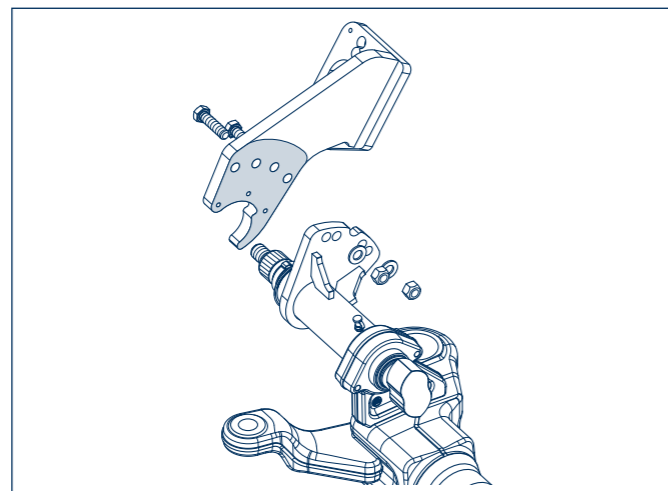
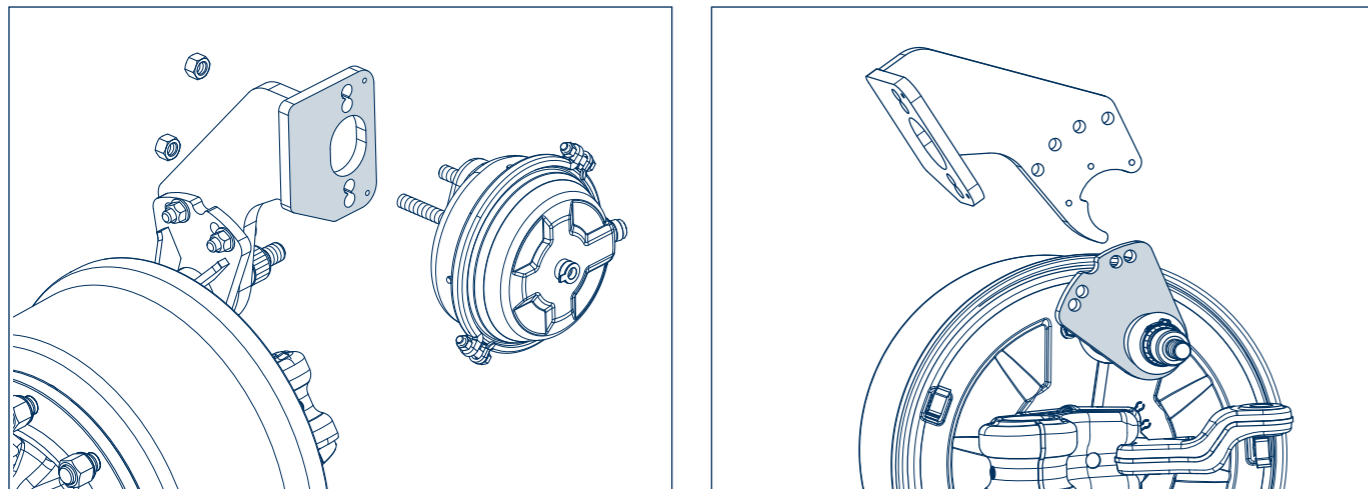
The following areas of the base plate and the mounting plate on the axle must be covered or masked before painting:

- Contact surface of the mounting plate and the base plate.
- Contact surface of the brake cylinder and fastening nuts when the brake cylinder is not installed.



#### Note:

The maximum permissible paint layer thickness can be on the base plate no more than 40 µm.



## Braking regulations 6

### General information 6.1

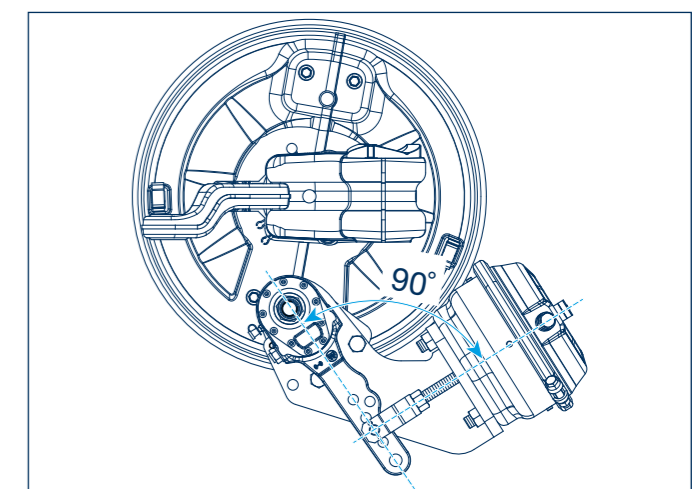
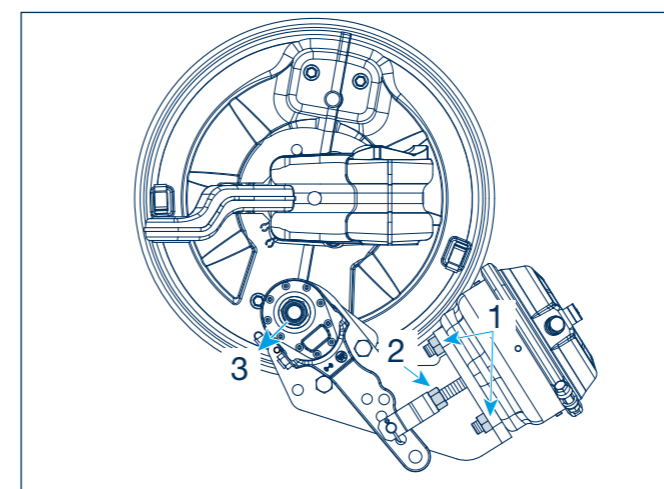
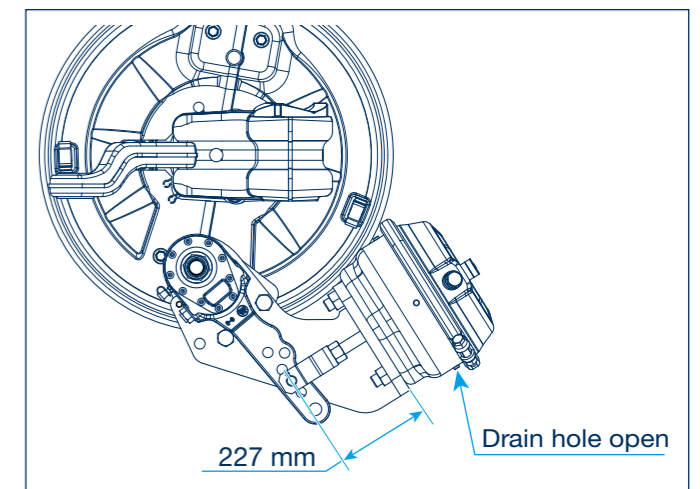
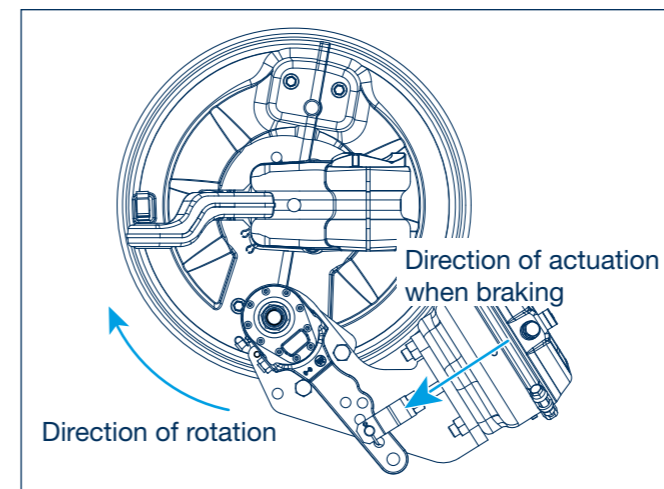


#### Note:

It must be ensured that the direction of rotation of the brake camshaft or the direction of actuation of the slack adjuster when braking corresponds to the direction of rotation of the wheel. Otherwise, low-frequency noise may occur. Any installation that deviates from this must be coordinated with BPW.

#### Mount of BPW brake cylinders

- Set the prescribed push rod length.
- Use the correct position on the base plate (note the information given in the vehicle-specific brake calculation).
- Remove the plug from the drain hole on the underside of the diaphragm cylinder.
- Tightening torque:
  - Tighten the fastening nut (1) of the base plate to **180 Nm**
  - Tighten the lock nut (2) of the clevis to **80 Nm**
  - Tighten the locking nut (3) of the slack adjuster from **90 Nm**
- The cylinder push rod and slack adjuster positions with each other an angle of max. 90° when the brake is applied.



# Notes

# Notes



BPW-EA-MG AGT 57092201e

BPW is a globally leading manufacturer of intelligent running gear systems for trailers and semi-trailers. As an international mobility and system partner, we offer a wide range of solutions for the transport industry from a single source, from axle to suspension and brake to user-friendly telematics applications. We thereby ensure outstanding transparency in loading and transport processes and facilitate efficient fleet management. Today, the well-established brand represents an international corporation with a wide product and service portfolio for the commercial vehicle industry. Offering running gear systems, telematics, lighting systems, composite solutions and trailer superstructures, BPW is the right system partner for automotive manufacturers.

BPW, the owner-operated company, consistently pursues one target: To always give you exactly the solution which will pay off. To this end, we focus our attention on uncompromising quality for high reliability and service life, weight and time-saving concepts for low operating and maintenance costs as well as personal customer service and a close-knit service network for quick and direct support. You can be sure that with your international mobility partner BPW, you always use the most efficient method.

# Your partner on the path to economic viability



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