

Operating and Installation Instruction

BPW Brake Components

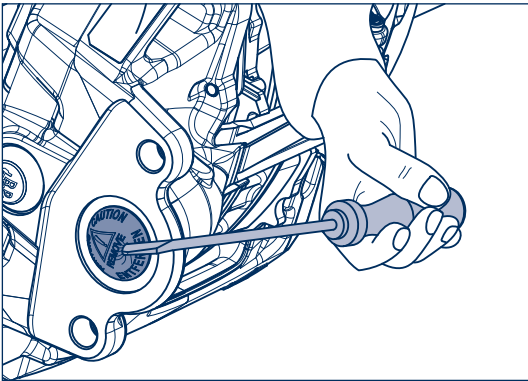


BPW Trailer Disc Brake - ECO Disc

- Installation instructions for vehicle manufacturers

! The tightening torques, safety instructions, care and maintenance specifications as well as information on component changing can be found in the workshop manual „BPW trailer axles with trailer disc brakes - ECO Disc” at www.bpw.de **!**

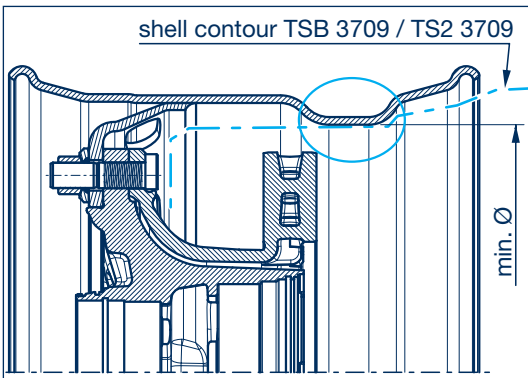
General installation instructions



1. Before assembling the brake cylinder, remove the yellow / orange sealing cap.

Using a thin screwdriver, pierce the plug in the middle and lift the sealing cap out of the brake caliper.

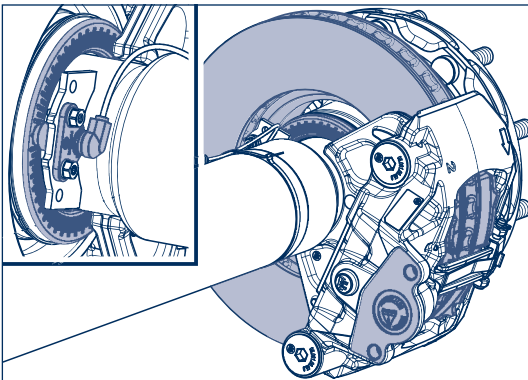
2. Specifications for assembling the brake cylinder according to the workshop manual :
 “BPW trailer axles with disc brakes - ECO Disc” and
 “BPW trailer axles with disc brakes - ECO Disc TS2”
 at www.bpw.de



3. Only use rims with valves outside the wheel face!

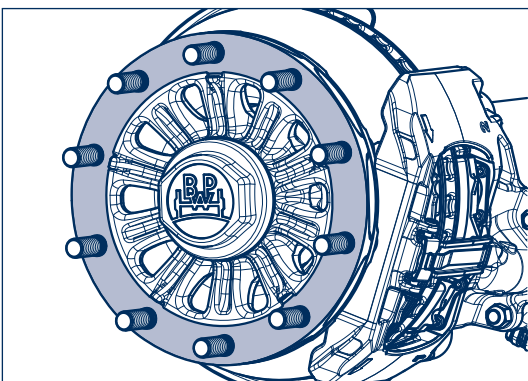
4. Use only rims which ensure the following minimum inner rim diameter:

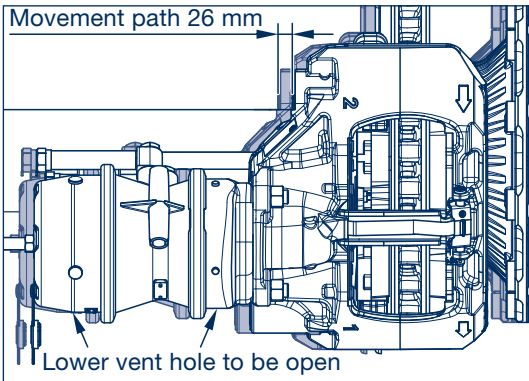
TSB 3709 / TS2 3709:	min. Ø 418 mm
TSB 4309 / TS2 4309:	min. Ø 487 mm
TSB 4312:	min. Ø 490 mm



5. The following areas of the disc brake must be covered before any painting work:

- Brake disc,
- Contact surface of the exciter rings, ABS sensor,
- Brake pad retention clip,
- Contact surface of brake cylinder in the case of non-assembled, brake cylinders
- Wheel contact surfaces



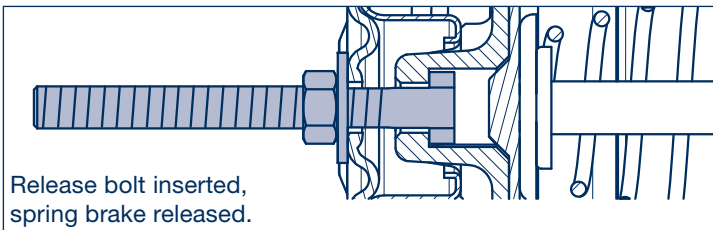


6. When disc brake axles are installed, ensure smooth movement of the floating calliper and all add-on pieces!

Depending on the wear level of the brake lining, the movement path is 26 mm to the centre of the axle.

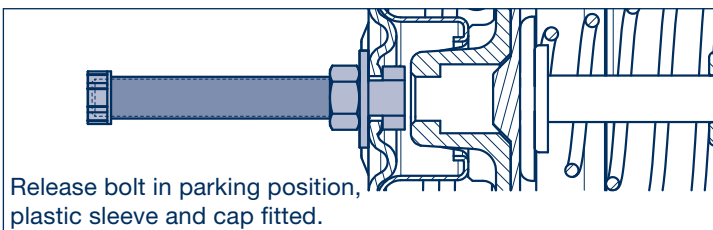
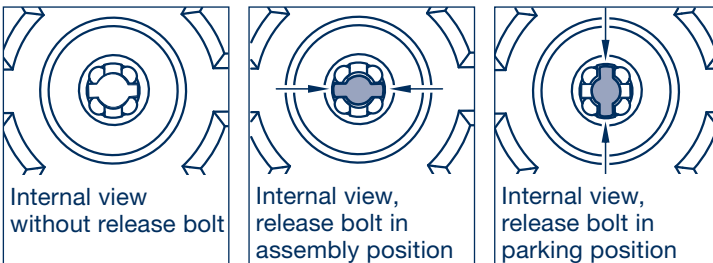
Remove the lower vent plugs from the brake cylinder.

The ventilation line for diaphragm piston cylinders must be facing upwards.



7. The brake cylinder release bolt must be installed in one of the two possible parking positions before vehicle is taken into operation.

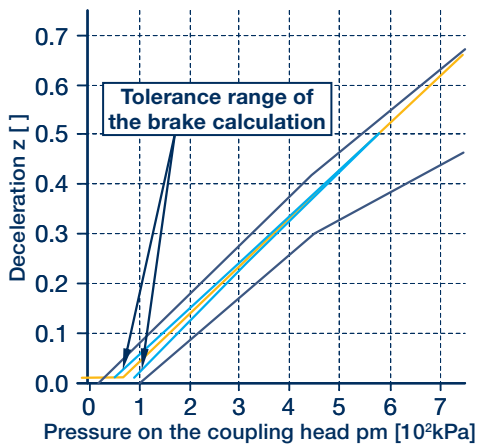
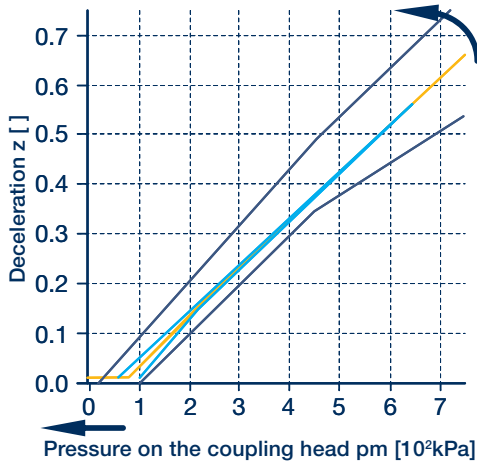
Brake cylinders are usually delivered with released parking brake. When driving, the release bolt can be fixed in the keyhole of cylinder cover (cf. Figure) or the side fixture.



BPW Trailer Disc Brake - ECO Disc

- Installation instructions for vehicle manufacturers

Design recommendation



8. Recommendation for Scandinavian version

For vehicles with disc brakes that are intended for use in Scandinavia, the brake systems must be designed so that braking lies within the upper range of the tolerance bands. This should help to guard against underloading the brakes and avoid reducing the effectiveness of the brakes.

Braking should start at approx. 0.4 bars.

Compatibility bands in braking calculations in accordance with UN R13, Annex 11:

For braking problems in everyday use, the vehicles can also be subsequently adjusted without needing to adapt the approval, insofar as the braking calculations have a corresponding tolerance range. This must be checked by the vehicle manufacturer, which is generally the case for BPW braking calculations.

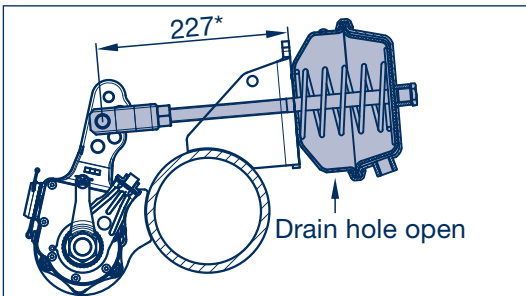
The vehicle documentation must correspond to the amended EBS parameters.

BPW Drum Brake

- Installation instructions for vehicle manufacturers

! The tightening torques, safety instructions, care and maintenance specifications as well as information on component changing can be found in the appropriate workshop manuals at www.bpw.de. **!**

General installation instructions

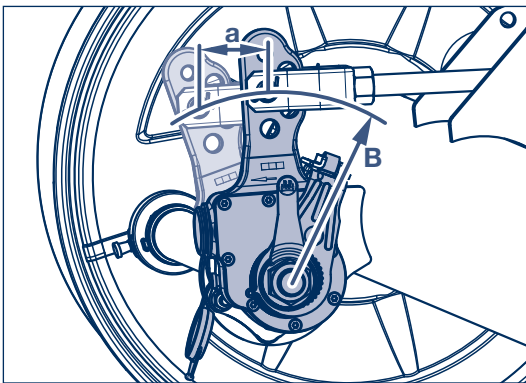


* 227 mm (standard dimension)
The length of the specific air cylinder bracket can be derived from the technical data for the axle.

1. Assembly of BPW brake cylinder

- Adjust to the prescribed push rod length.
- Use the correct position on the base plate (comply with the details of the vehicle-specific brake calculation).
- Remove the drain hole plug.
- Tightening torques:
 - Base plate fastening nuts 180 Nm (180 - 210 Nm)
 - Lock nut of the yoke 80 Nm

2. Specifications for assembling the brake cylinder according to the workshop manuals and assembly instructions at www.bpw.de!

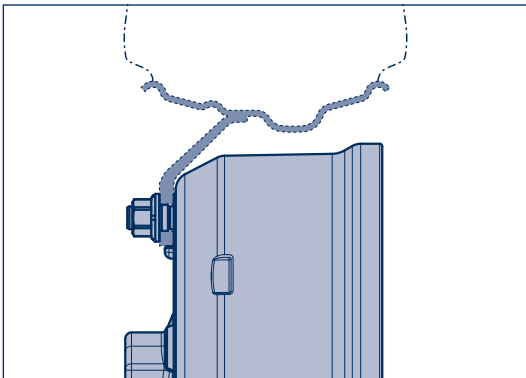


3. ECO-Master function check

Operate the slack adjuster by hand or with 0.8 bar. In the case, the idle stroke „a” corresponds to 10 - 15% of the connected brake lever length „B”, e.g. brake lever length 150 mm = idle stroke 15 - 22 mm.

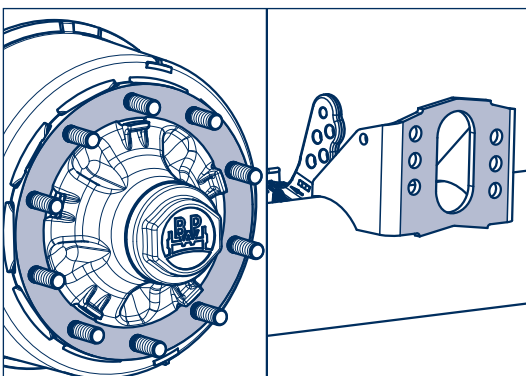
Check the adjustment if the idle stroke is not within tolerance.

4. Specification for assembly and adjustment of the ECO-Master according to the workshop manuals and „Installation instructions for ECO-Master” at www.bpw.de!



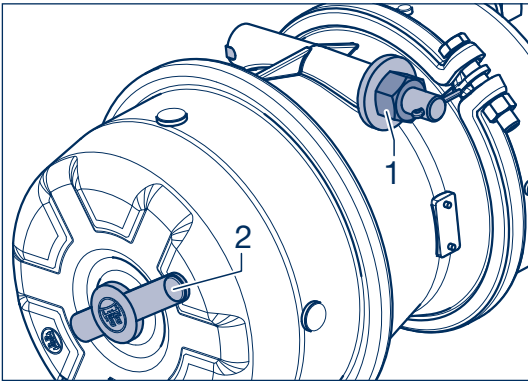
5. Use only rims which ensure sufficient clearance to the brake drum and all installed brake components.

The minimum spacings between the brake drum and rim as given in the TÜV surveys must be maintained, if necessary, borderline cases must be agreed with the appropriate registration office.



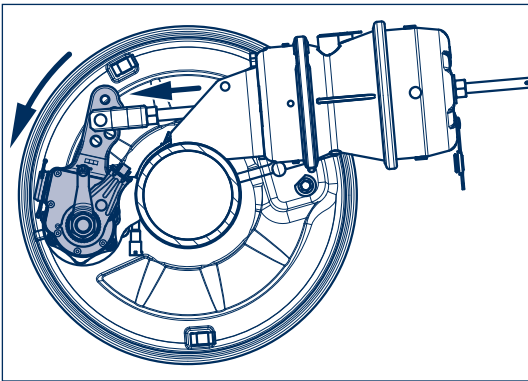
6. The following areas of the disc brake must be covered before any painting work:

- Contact surface of the brake cylinder and fastening nuts in the case of non-assembled brake cylinders.
- Wheel contact surfaces.



7. Once cylinder has been installed, the mechanical release bolt has to be removed and inserted into the corresponding fixture.

Nut (1) must be secured with 20 Nm. Insert plug (2) into the cylinder again.



8. When braking, it is important to ensure that the rotational direction of the brake camshaft and the operating direction of the slack adjuster correspond to the rotational direction of the wheel. Otherwise, low-frequency noise may result.

Any other installations must be approved by BPW.

BPW Disc and Drum Brakes

- Operating instructions for end users

1. To maintain the performance of the brake system, we recommend regular use of the wheel brakes with an appropriate thermal input (approx. 400°C for disc brakes and 200°C for drum brakes).
2. Longer periods of vehicle non-use with the parking brake engaged may cause the linings on the brake disc or brake drum to rust.

Preventive measure:

- Warm up the brakes before shut-down, in order to park the brakes dry,
- Do not clean the vehicle with solvent cleaners before shut-down. This causes corrosion on shiny metal surfaces,
- Avoid vehicle shut-down with the parking brake engaged, if necessary use wheel chocks.

Measures before recommissioning:

- Test free running when the brake is released,
- If the wheel is blocked, despite the brake being released, dismantle the brake linings and clean or exchange them (see workshop manual).

3. Possible measures to help prepare the vehicle brakes for the annual test, the periodic safety inspection or the Type 'O' test (roller brake test).

For vehicle type approvals (vehicle homologations), further preparatory measures are required (consultation BPW).

1. Step: Greasing (with drum brakes)

2. Step: Start-up

Brake	Brake lining	Number of braking operations	Time	Starting speed	End speed	Cylinder pressure	End temperature of brake disc and brake drum
TSB 3709 TS2 3709	BPW 8200 BPW 8201	20x	1 min.	60 km/h	40 km/h	3 bar	approx. 500°C
TSB 4309 TS2 4309	BPW 8200 BPW 8201	20x	1 min.	60 km/h	40 km/h	3 bar	approx. 475°C
TSB 4312	BPW 8301	10x	1 min.	60 km/h	40 km/h	3 bar	approx. 400°C
SN 300	T 090	5x	1 min.	60 km/h	40 km/h	3 bar	approx. 200°C
SN 360	T 090	20x	1 min.	60 km/h	40 km/h	3 bar	approx. 300°C
SN 420	T 090	5x	1 min.	60 km/h	40 km/h	3 bar	approx. 200°C

3. Step: Clean the brake

Brake	Brake lining	Number of braking operations	Starting temperature	Starting speed	End speed	Cylinder pressure (alternating)	
TSB 3709 TS2 3709	BPW 8200 BPW 8201	not required					
TSB 4309 TS2 4309	BPW 8200 BPW 8201	20x	approx. 100°C	60 km/h	40 km/h	3 bar	
TSB 4312	BPW 8301	10x	approx. 100°C	60 km/h	40 km/h	2 / 4 bar	
SN 300	T 090	not required					
SN 360	T 090	10x	approx. 100°C	60 km/h	40 km/h	2 / 4 bar	
SN 420	T 090	10x	approx. 100°C	60 km/h	40 km/h	2 / 4 bar	

4. In the case of early brake wear, carry out a trailer synchronisation (ISO 20918).

The following are available for assembly at a later date:

- Wear sensor (b/w) for connection to the BPW Brake Monitor or EBS:
 - Disc brake TSB: 05.801.50.38.0 (comply with installation instructions 04.00.539017)
 - Disc brake TS2: 05.801.48.92.0 (comply with installation instructions 04.00.572105)
 - Drum brake: 05.801.50.05.0 (comply with assembly instructions 04.001.21.22.0)
- Shaft cover for disc brakes for off-road use:
 - Disc brake TSB: 03.010.95.32.0
 - Disc brake TS2: 03.010.95.42.0

5. Observe this for new vehicles and/or after a brake service

The braking effect of new brake drums and brake discs or pads is only at its optimum after a few braking actions. Therefore, run in new brake pads. This involves avoiding lengthy application of the brakes and unnecessarily sharp braking.

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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