

we think transport



PROGRESS
IS IN THE DETAIL.

BPW Wheel End



THE SUM OF OUR EXPERIENCE.

For over 120 years, BPW has been developing and producing pioneering running gear systems that revolutionise day-to-day business in the transport industry.

As a partner of vehicle manufacturers and operators, we have a holistic approach to logistics and employ our experience and our innovative strengths to ensure greater efficiency, increased safety and more predictable costs for your processes in the long term, with intelligent products and services.

SIMPLY BETTER.

It's often the little differences that transform a good solution into something much better. The BPW Wheel End is a prime example of this, as many of the details have been explored and perfected – so you can be confident that your vehicle will keep moving safely and reliably.



BEARING TECHNOLOGY

Advantages of the ECO Unit

ECO Plus axle nut

ECO Seal

Offset of 120 and 0

ECO Plus Warranty

Page 6



DISC BRAKE

Changing the brake disc

Compact design

Collar disc concept

Versions

Page 16



ECO DRUM

DRUM BRAKE

ECO Drum

Versions

ECO Technology

Brake cylinder

Page 22

ECO UNIT OUR MASTERPIECE.





THE CENTRE OF INTELLIGENT RUNNING GEAR.

The many millions of BPW axles that have been sold speak for themselves. A large part of this success is down to the ECO Unit: its encapsulated and stepped design guarantees maximum mileage and availability. Plus, the use of DIN ISO roller bearings means that it far outstrips the competition when it comes to ease of maintenance and repair.

FEATURES AND BENEFITS

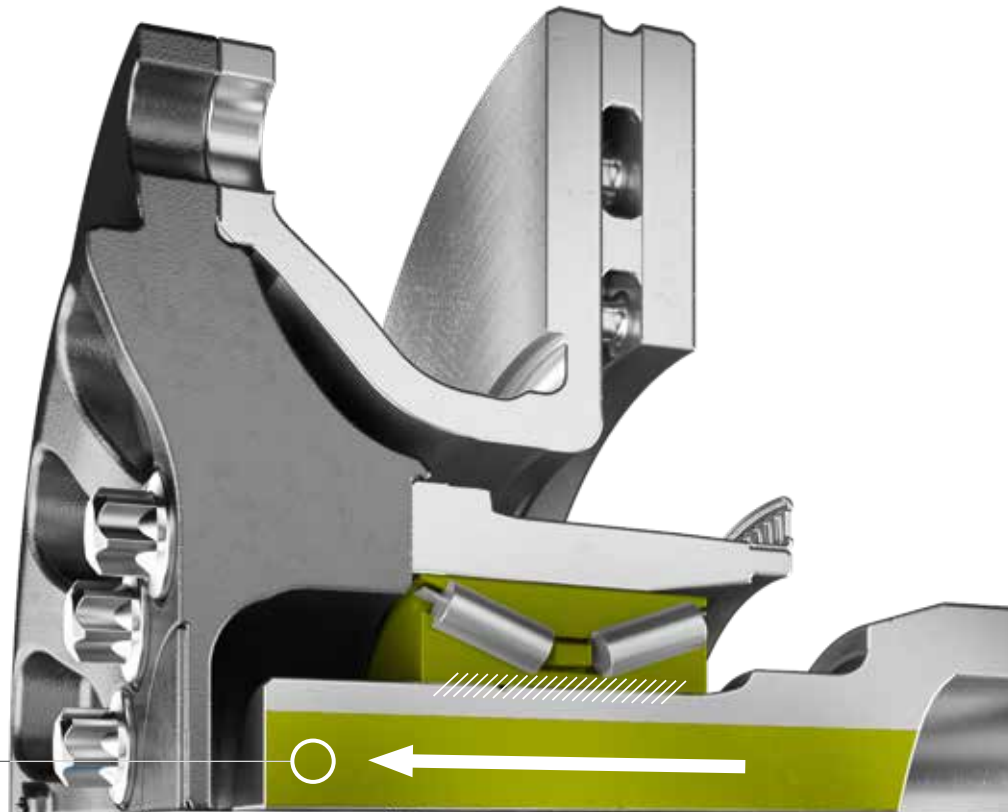
- Sealed bearing system that requires no maintenance.
- Excellent mileage due to encapsulated design of the bearing technology.
- DIN ISO roller bearings are available worldwide, meaning high availability and quick service.
- ECO Technology – quick disassembly and assembly via the central axle nut, using the Formula 1 method.
- 5+3 years ECO Plus Warranty with no mileage limit.
- Convenient bearing lubrication via grease cartridge.
- Automatic adjustment of play of the bearing via central axle nut with integrated torque limiting.

FEATURES AND BENEFITS IN SERVICE

- Requires no maintenance for five years in on- and off-road use.
- Large spacing between inner and outer bearings for a long life expectancy.
- Needs-based maintenance of bearing for low life-cycle costs.
- No need for special tools such as a pulling device.
- Low pull-off force thanks to stepped bearing and small contact areas with the axle spindle.

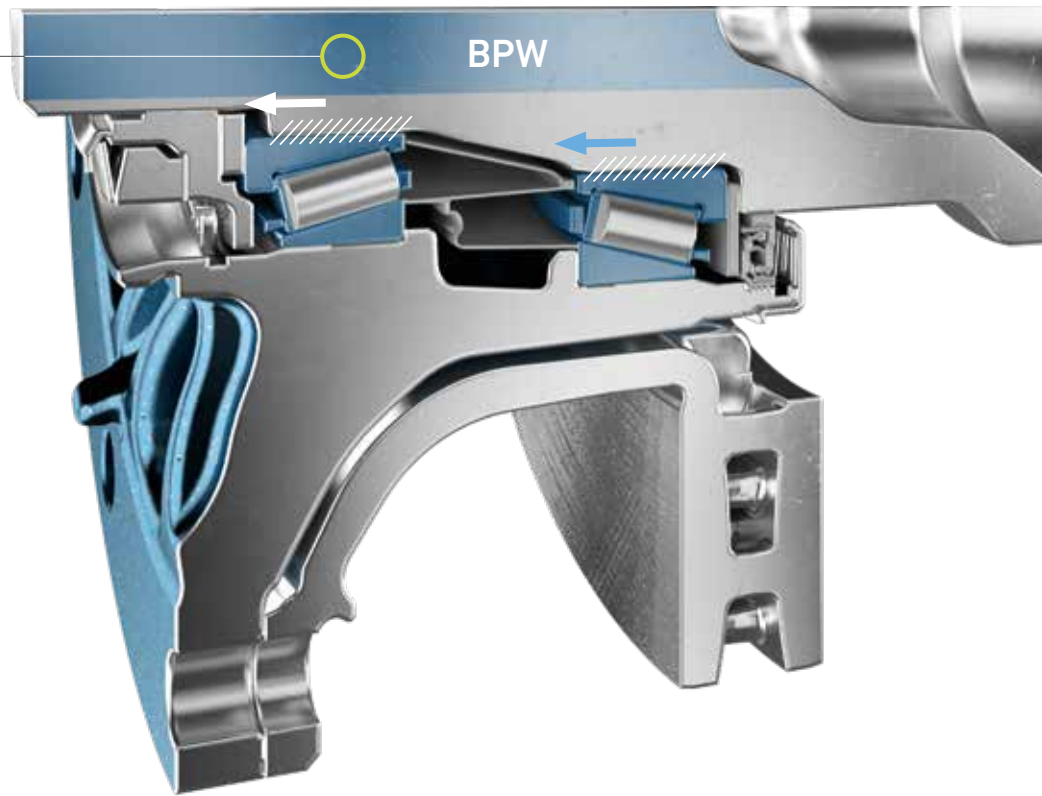
5+3
YEARS

**ECO PLUS
WARRANTY**



COMPETITOR'S SOLUTION

Narrow bearing spacing
Not stepped – high pull-off forces



BPW SOLUTION

Large bearing spacing
Stepped – low pull-off forces
DIN ISO roller bearings –
High availability worldwide
Quick service

THE BPW EFFECT

3h

**TIME SAVING
WITH BEARING SERVICE***

*In the semi-trailer with 3-axle unit during bearing change compared to conventional competitive solutions.

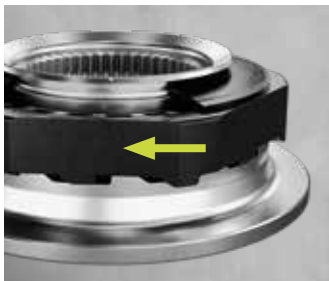
THE PATENTED AXLE NUT WITH INTEGRATED TORQUE LIMITING.

The patented BPW axle nut ensures that the Wheel End is considerably quicker and easier to disassemble and assemble than solutions from competitors. The integrated torque limiting means that you don't need a torque wrench for assembly and the play of the bearing is always easy to set correctly.

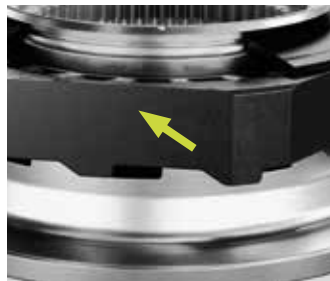
FEATURES AND BENEFITS

- Unlike on a hub unit, which is tightened as far as possible, the ECO Plus bearing is always set to the correct play.
- The play of the bearing can always be set correctly wherever you are, with no need for a torque wrench.
- It is impossible to get it wrong.
- A standard box spanner (size 95) can be used for loosening and tightening.
- Lower torque compared to conventional solutions from competitors; easy and convenient to adjust.

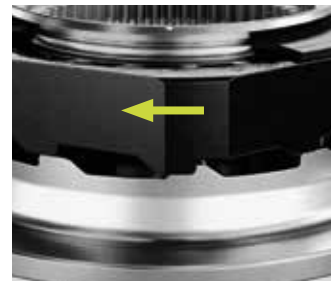
- 01** Spring
- 02** Upper threaded ring
- 03** Lower screw face



1 The threaded ring is used to tighten the axle nut until the nominal torque is reached.



2 Then the threaded ring slides upwards on the screw face ...



3 ... against the force of the spring washer.



4 The threaded ring ratchets and jumps over with a 'Click!' – The bearing play is always set correctly.

TIGHTLY SEALED.

Clever solution from BPW: optimal lubrication at all times. Dirt and grime stand no chance against the ECO Seal.



- 01 Hermetic seal on hub and axle spindle
- 02 Inward-facing and spring-preloaded main sealing lip with venting function
- 03 Labyrinth seal including upstream sealing lips
- 04 Integrated bearing race for low circumferential speed
- 05 ABS exciter ring/dirt seal for disc brake

FOR LONG-LASTING BEARINGS

- Multifunctional wheel bearing seal consisting of upstream dust and dirt sealing lips and a pretensioned main sealing lip.
- Pretensioned main sealing lip with integrated bearing race for low wear.
- An approximately 30% reduction in frictional resistance inside the seal (compared with conventional seals).
- With integrated venting function, which means no opening with negative pressure.

THE RIGHT SOLUTION FOR EVERY OFFSET.

On single tyre wheels with an offset, the wheel mounting surface is shifted to the outside and flush with the hub cap. Modern standard trailers with disc brakes mostly have wheels with an offset of 120 mm (ET 120). As the position of the wheel bearings relative to the wheel centre does not change, a differently shaped hub must be used to match this. The disc brake lies protected within the wheel here.

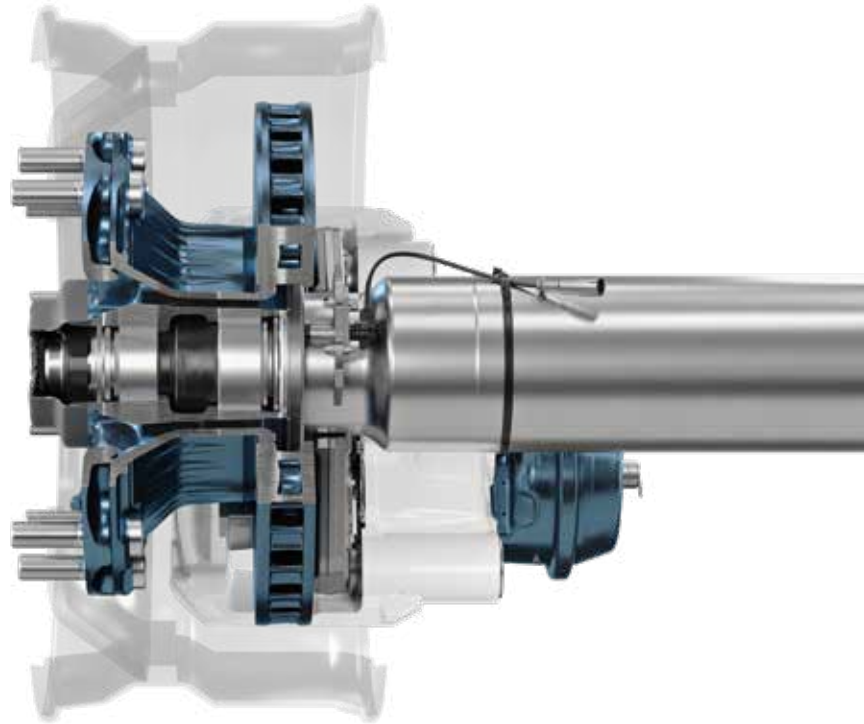
The choice of wheels has a significant influence on the entire axle design: in the case of single tyre wheels without offset – also referred to as ET 0 wheels – and in the case of twin wheels, the wheel mounting surface is positioned exactly in the centre. The wheel forces are therefore fed directly into the hub. The wheel and the hub can be dimensioned to save weight.



ET120

FEATURES AND BENEFITS

- The market standard with the disc brake TS2 4309
- Greater design freedom (e.g. due to larger spring centres)
- Brake disc is protected in the rim
- Wheel can also be used for the truck in an emergency.

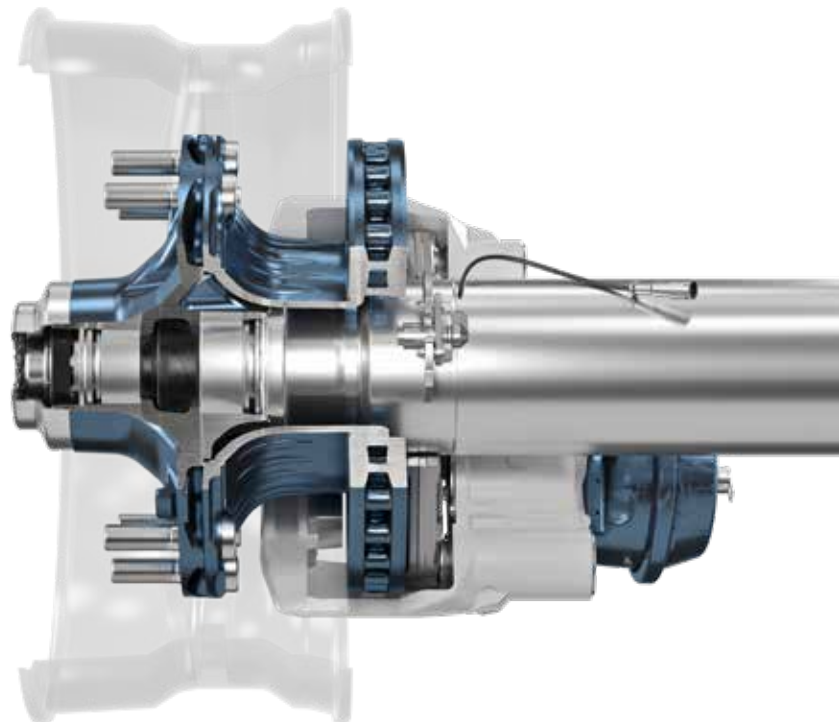


**UP TO
54 KG MORE
PAYLOAD***

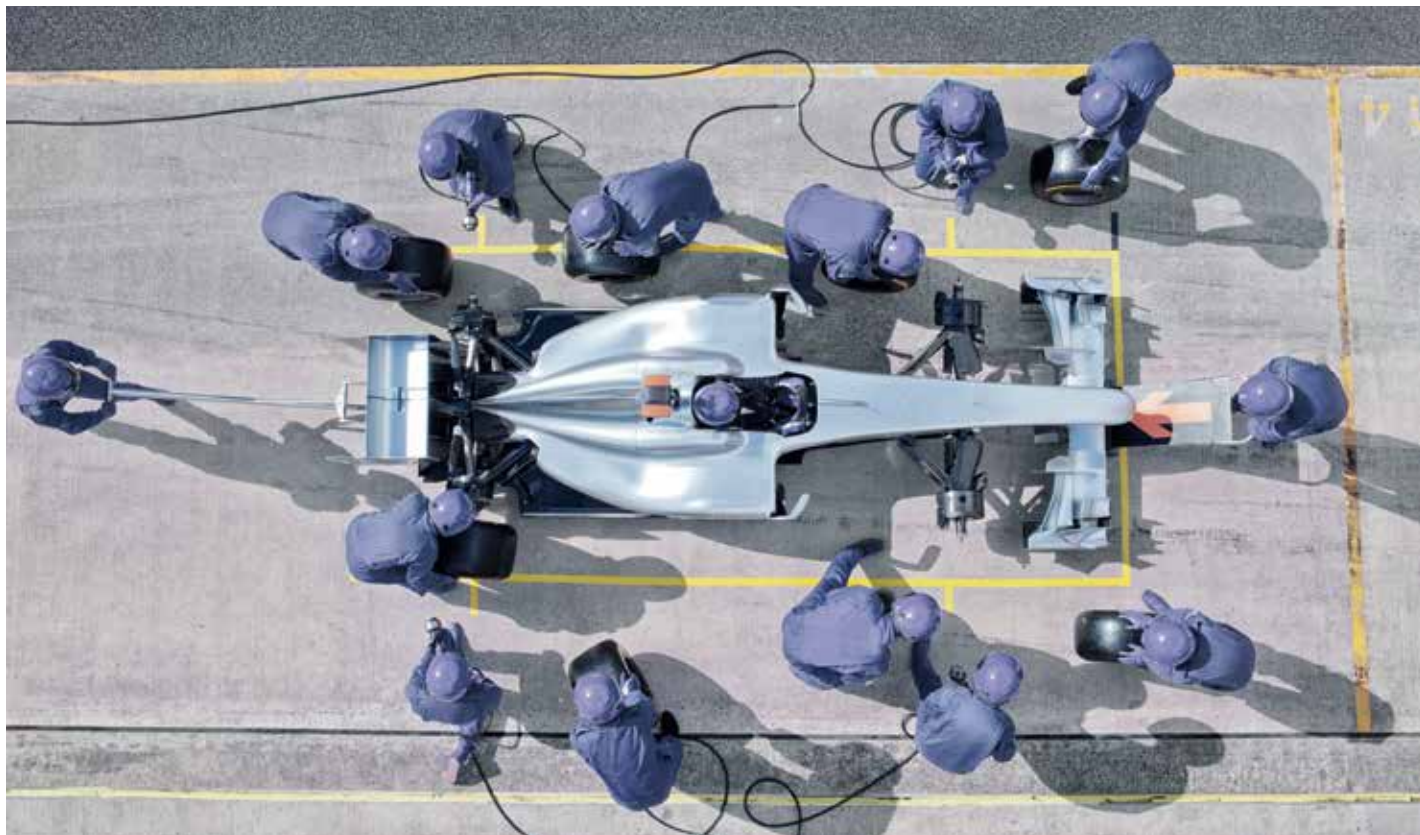
ETO

FEATURES AND BENEFITS

- The lightweight choice on the market with the disc brake TS2 3709
- The brake disc is in the airstream and has optimal cooling
- In a mixed fleet, the same wheel can be used for disc and drum brakes



*With the BPW aluminium hub in a three-axle unit



RAPID WHEEL END DISASSEMBLY LIKE IN FORMULA 1 WITH ECO TECHNOLOGY.

The ECO Technology from BPW puts you firmly in pole position – whether on the road or in the garage. Once the central axle nut has been released, the wheel can be completely removed in an instant – just like in Formula 1. Together with the innovative detailed solutions, the design principle not only ensures maximum mileage and availability, but also creates the ideal conditions for service and repair.

KEY BENEFITS AT A GLANCE

- Time-saving brake lining replacement as the Wheel End is disassembled with the Formula 1 method.
- Automatically adjusted bearing play thanks to central bolt with integrated torque limiting.
- Convenient bearing lubrication via grease cartridge and improved ECO Seal system.
- Minimal downtime thanks to worldwide availability of DIN ISO roller bearings and interchangeable sealing elements.
- Straightforward servicing, using standard tools.

THE UNIQUE 5+3 YEARS WARRANTY FOR MAXIMUM PEACE OF MIND.

Well over half a million vehicles with air suspension already have the all-round protection of the 5+3 years ECO Plus Warranty. We believe 100% in the quality of our running gear systems and components, which is why we have significantly expanded the scope of our ECO Plus Warranty. In addition to the standard five-year warranty on the specified parts, you can also benefit from an additional three-year extension. Simply have the service check done after five years, as is required anyway, and keep the invoice. In the event of any warranty-relevant damage in the following three years, we will reimburse you for the cost of the necessary repairs on presentation of the original invoice for the service check.*

KEY BENEFITS AT A GLANCE

- Also valid for air suspension ECO Air COMPACT, ECO Air, ECO Air COMPACT HD, AIRLIGHT II in on-road and off-road use.
- Three-year warranty on brake cylinders, shock absorbers and air bags within the 5+3 years ECO Plus Warranty.
- Including for second-hand trailers.

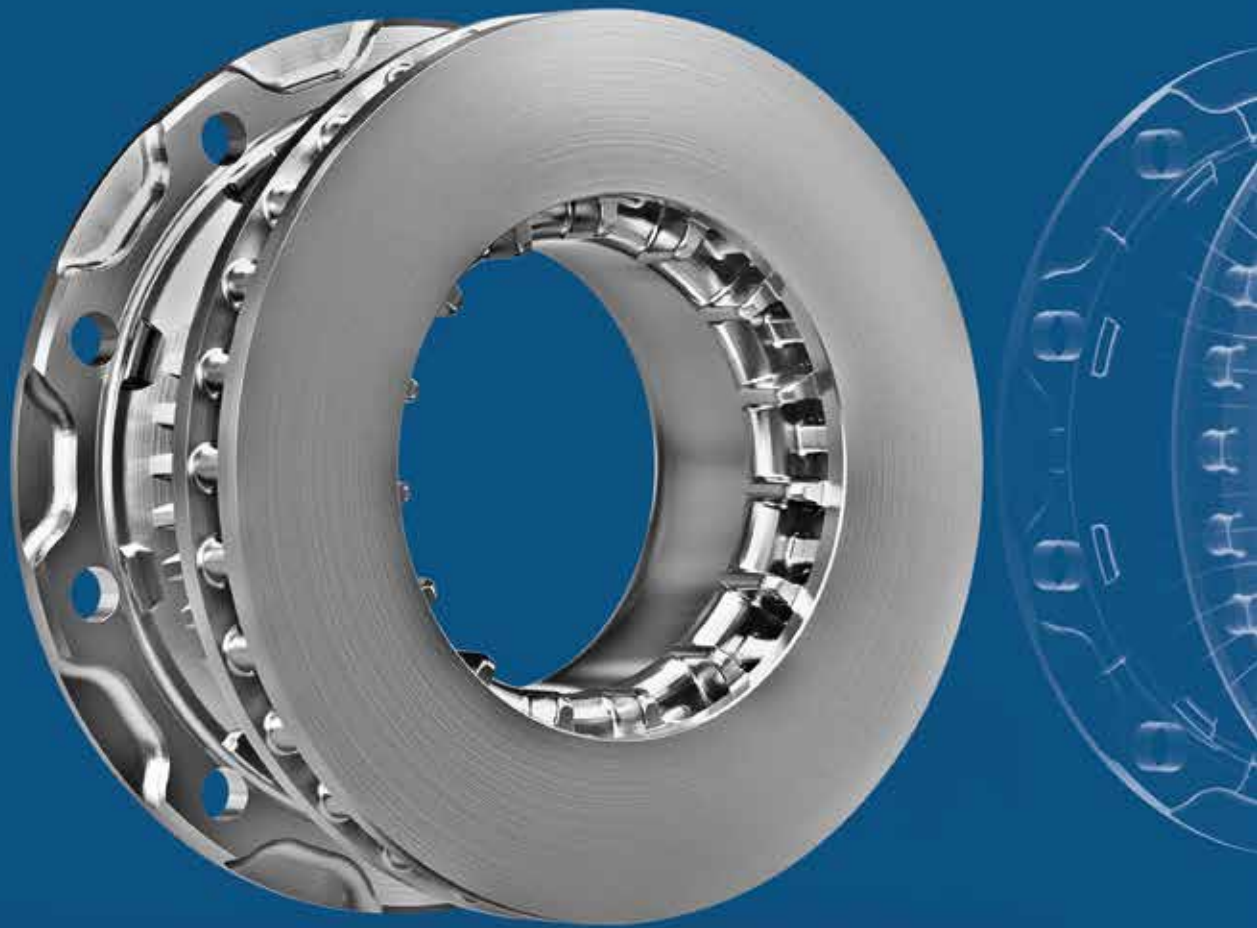
ADDITIONAL SERVICES FOR THE +3 YEARS EXTENDED WARRANTY

- Full service at a BPW Direct Service Partner or BPW service garage in accordance with the BPW warranty conditions.
- With simplified +3 years extended warranty with reduced maintenance costs.



*More information about the ECO Plus

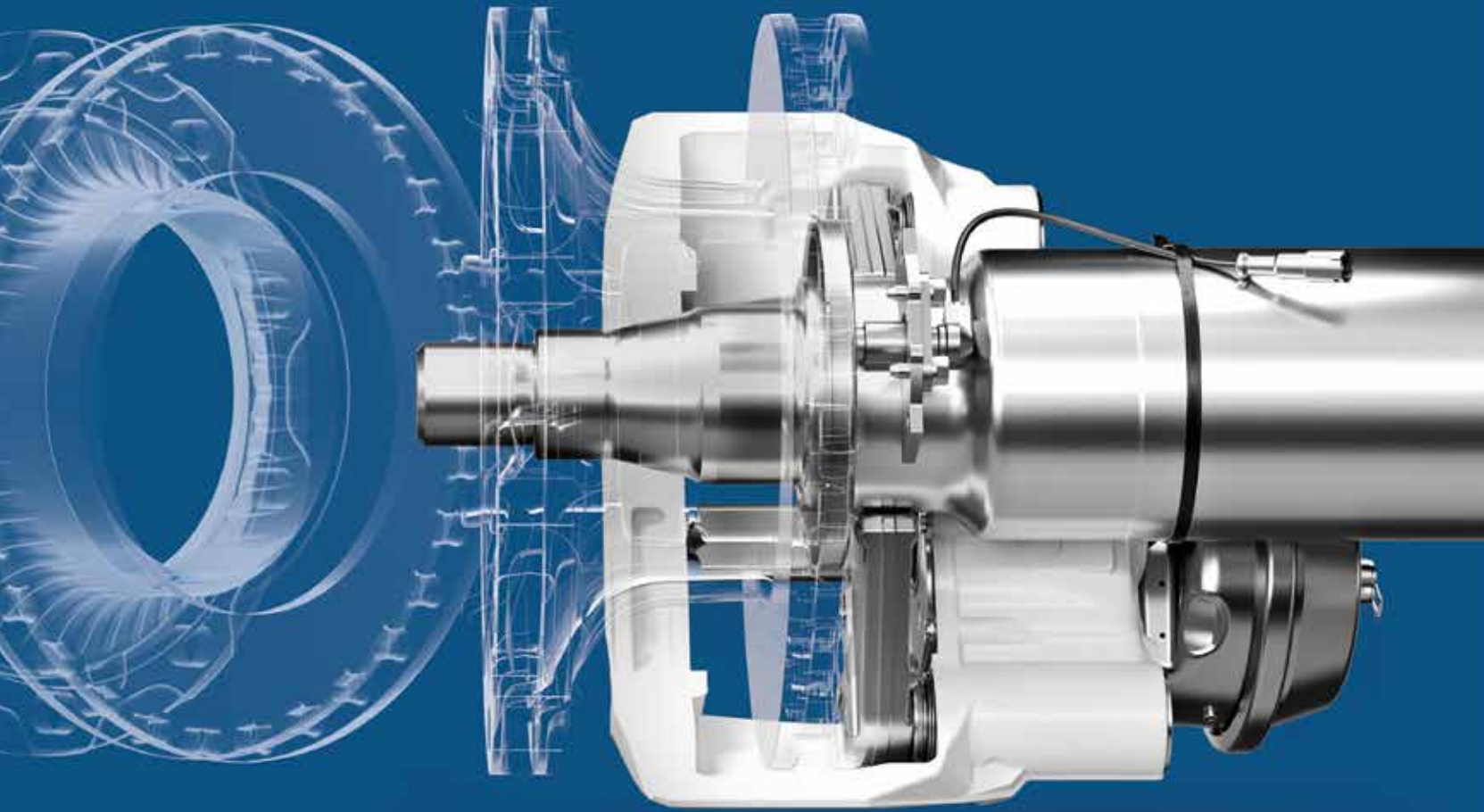
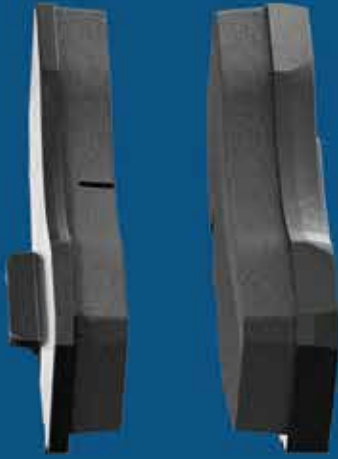
ECO DISC OUR DISC BRAKE.



THE BPW EFFECT

3h

FASTER BRAKE
DISC REPLACEMENT



A MILESTONE IN BRAKE TECHNOLOGY.

The innovative and unique compact design of the ECO Disc not only reduces axle weight but also eliminates the need to disassemble the brake caliper during disc replacement. A smart solution that, together with the proven ECO Technology, saves you valuable time.

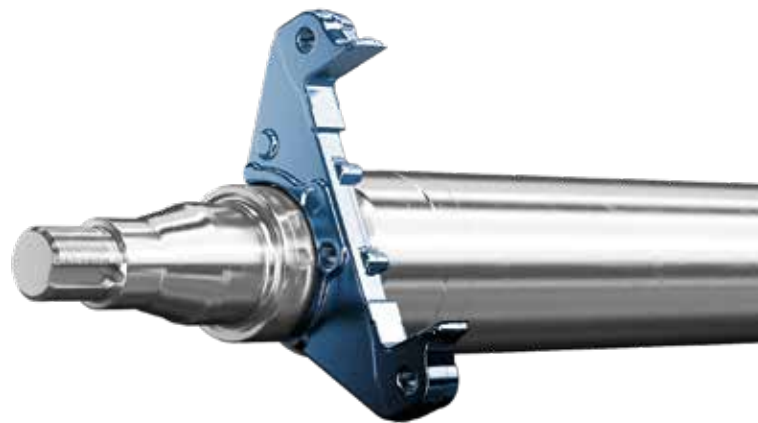
After disassembling the wheel studs and pulling the hub unit off the axle spindle, you can simply 'swing' the brake disc out of the caliper. Assembly is equally straightforward: swing the brake disc back into the caliper, position the hub and couple with the disc. All done! This enables you to replace your linings and discs in record time and means reduced downtimes, lower maintenance costs and less assembly work during brake servicing.

FEATURES AND BENEFITS

- With the unique compact design, the brake is directly connected to the axle beam.
- There is no need for additional adapters, such as a brake frame, to assemble the brake.
- The compact design makes the TS2 one of the lightest brakes on the market.
- The combination with the ECO Technology enables brake discs to be changed more quickly without disassembling the brake caliper (3 h time saving compared to conventional solutions from competitors).
- Additional wearing plates under the brake linings protect the axle even in the toughest off-road applications.



Our best disc brake. The ECO Disc.

**Compact design**

With the compact design, the brake is directly connected to the axle.

THE CONCEPT FOR IDEAL HEAT DISSIPATION.

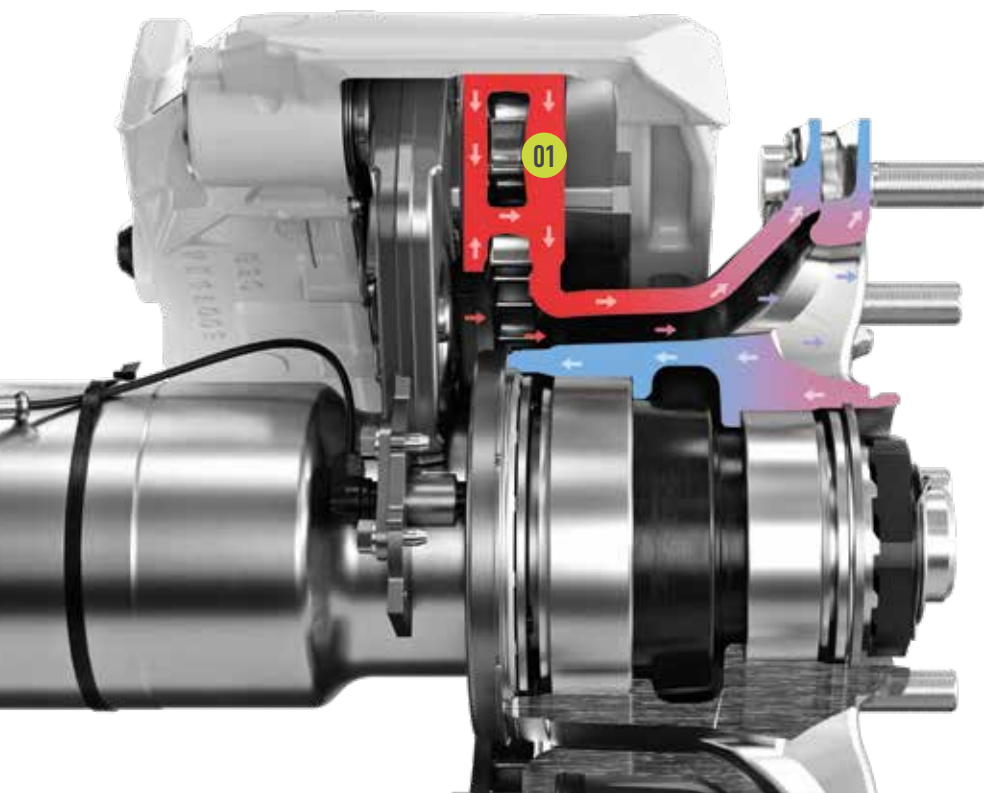
Connecting the disc to the hub via the wheel studs means that the path of heat conduction is significantly extended, while heat is also dissipated through the wheel. As a result, heat transfer to the hub is dramatically reduced. This means lower temperatures and a longer life expectancy for the bearing grease – and therefore the roller bearings. The disc wear is also considerably reduced.

FEATURES AND BENEFITS

- Lower bearing grease temperatures for a longer bearing life.
- Lower disc temperatures for reduced wear.
- Robust and easy-to-service connection of the disc via wheel studs.
- Optimal compromise between temperature regulation, weight and ease of service.
- Straightforward disassembly and assembly of the disc on the hub.

FEATURES AND BENEFITS OF THE HEAT CONDUCTION

- The special shape and arrangement of the pillars in the 'Y design' improves resistance to heat cracks.
- The offset ventilation channel ensures improved internal ventilation of the disc and thus low operating temperatures and reduced wear.
- The friction rings for the disc vary in thickness while the overall wear volume remains the same. The increased mass of the flange-side friction ring increases the heat absorption capacity and improves resistance to heat cracks.



01 Pillars in 'Y design'



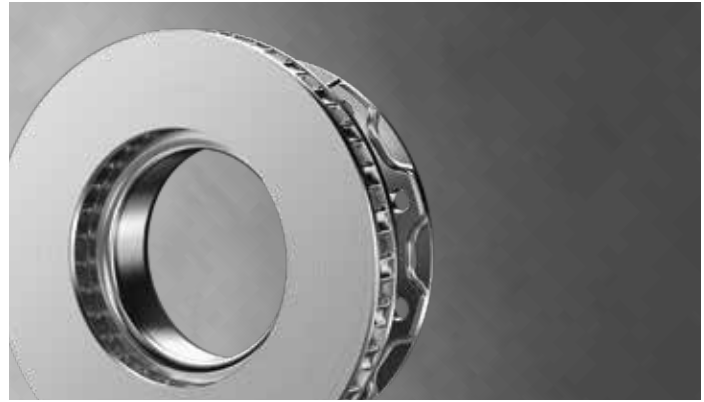
CURRENT ACCESSORIES

THE ECO DISC AT A GLANCE.



DISC PROTECTOR

Additional protection for trailer disc brakes in rugged applications.



BRAKE DISC AND LININGS

Original brake disc and linings from BPW: high wear and crack resistance guaranteed.

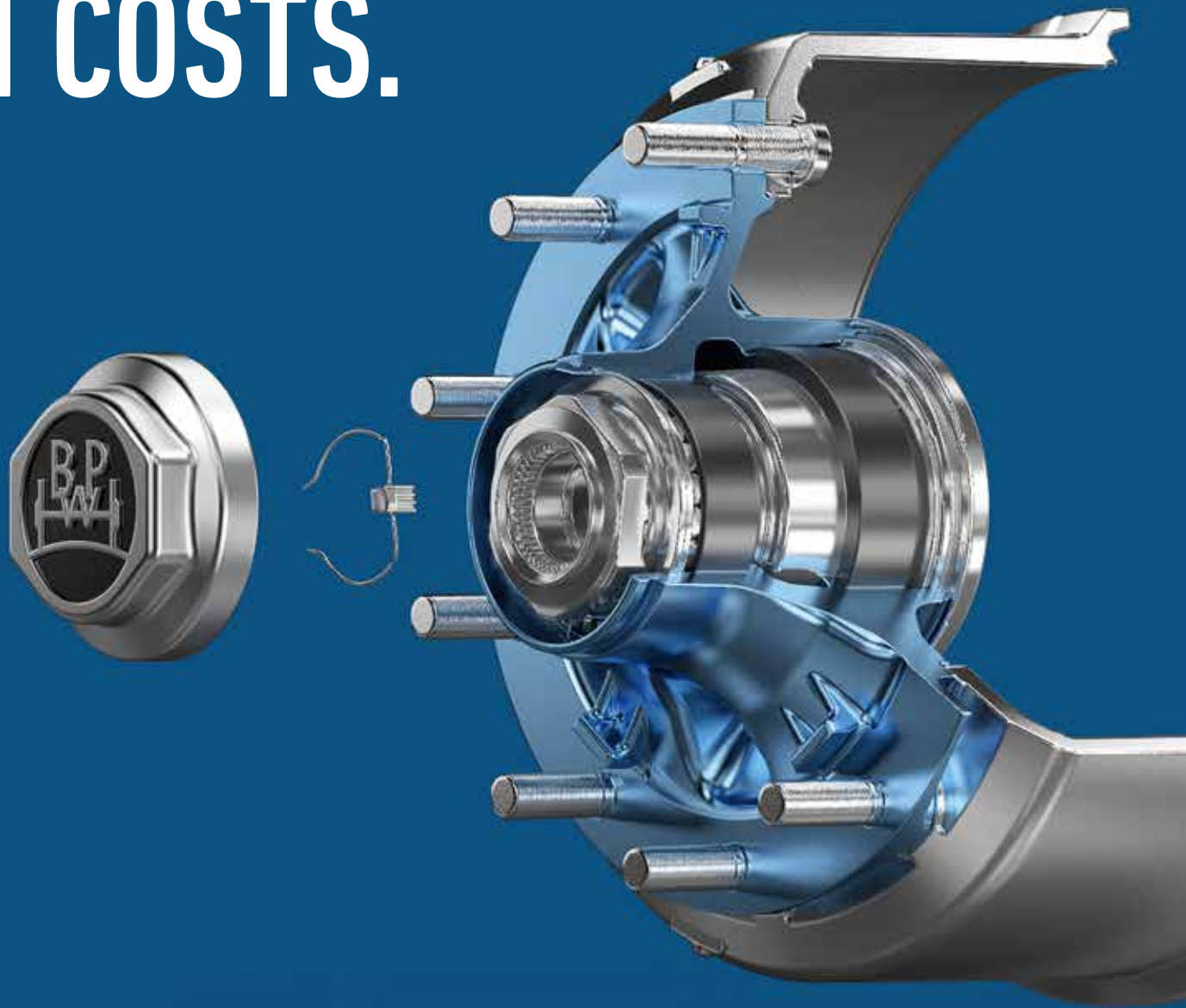
CURRENT VERSIONS

TS2	43	09	
TS2			Trailer disc brake
	43		Brake disc diameter 430 mm
		09	9 t axle load

Axle load	Wheel size		Brake	Brake disc Diameter × thickness	Offset
	19.5"	22.5"			
9 t	•	•	TS2 3709	370 × 45 mm	0/120
10 t	•		TS2 3709	370 × 45 mm	0
9 t		•	TS2 4309	430 × 45 mm	0/120
10 t		•	TS2 4309	430 × 45 mm	0

All brake sizes can be equipped with ABS and delivered for single or twin wheels.

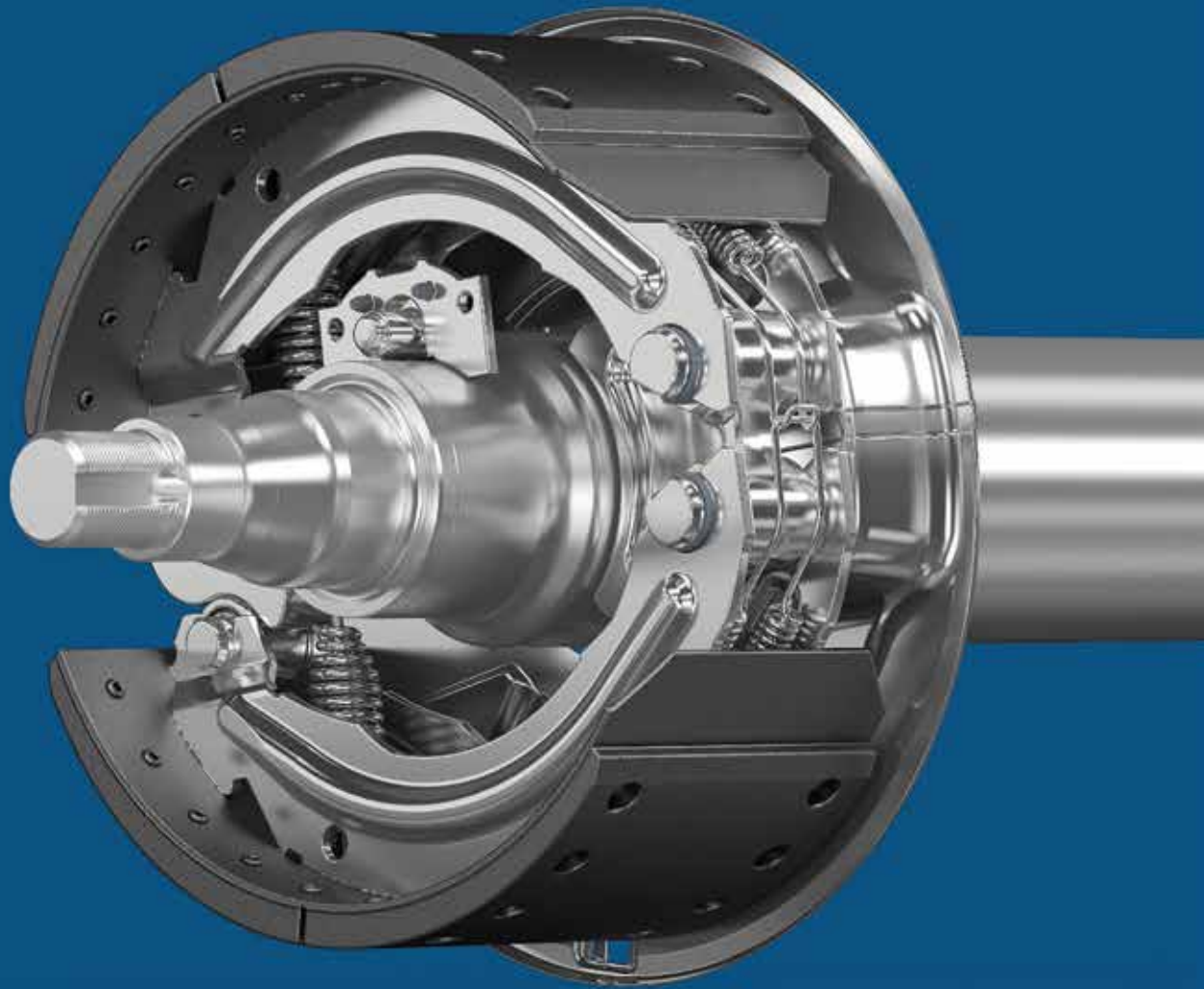
ECO DRUM PUTTING THE BRAKES ON COSTS.



THE BPW EFFECT

1h

TIME SAVING
IN THE SEMI-TRAILER
WITH 3-AXLE*



THE ROBUST ALL-ROUNDER.

With several million units sold, the BPW drum brake is the epitome of a reliable brake for towed vehicles. Thanks to its robust construction and unparalleled ease of service, it sets the standard for life-cycle costs. Our design engineers have perfected the classic among drum brakes – the BPW ECO Drum. The result is a high-performing all-rounder with minimal wear.

FEATURES AND BENEFITS

- Usable anywhere.
- Sealed design provides the best basis for the most rugged applications.
- Reduced wear for low life-cycle costs.
- Low operating and spare parts costs.
- No dirt ingress thanks to the perfect sealing system.
- Straightforward inspection of drum and lining wear.
- Best surface protection thanks to cataphoretic dip-coating (KTL_{Zn}).

EXAMPLE OF TYPE NAME FOR SN 4218

SN 4218	42	18	
SN 4218			Drum brake
	42		Drum brake diameter 420 mm
		18	Drum brake width 180 mm

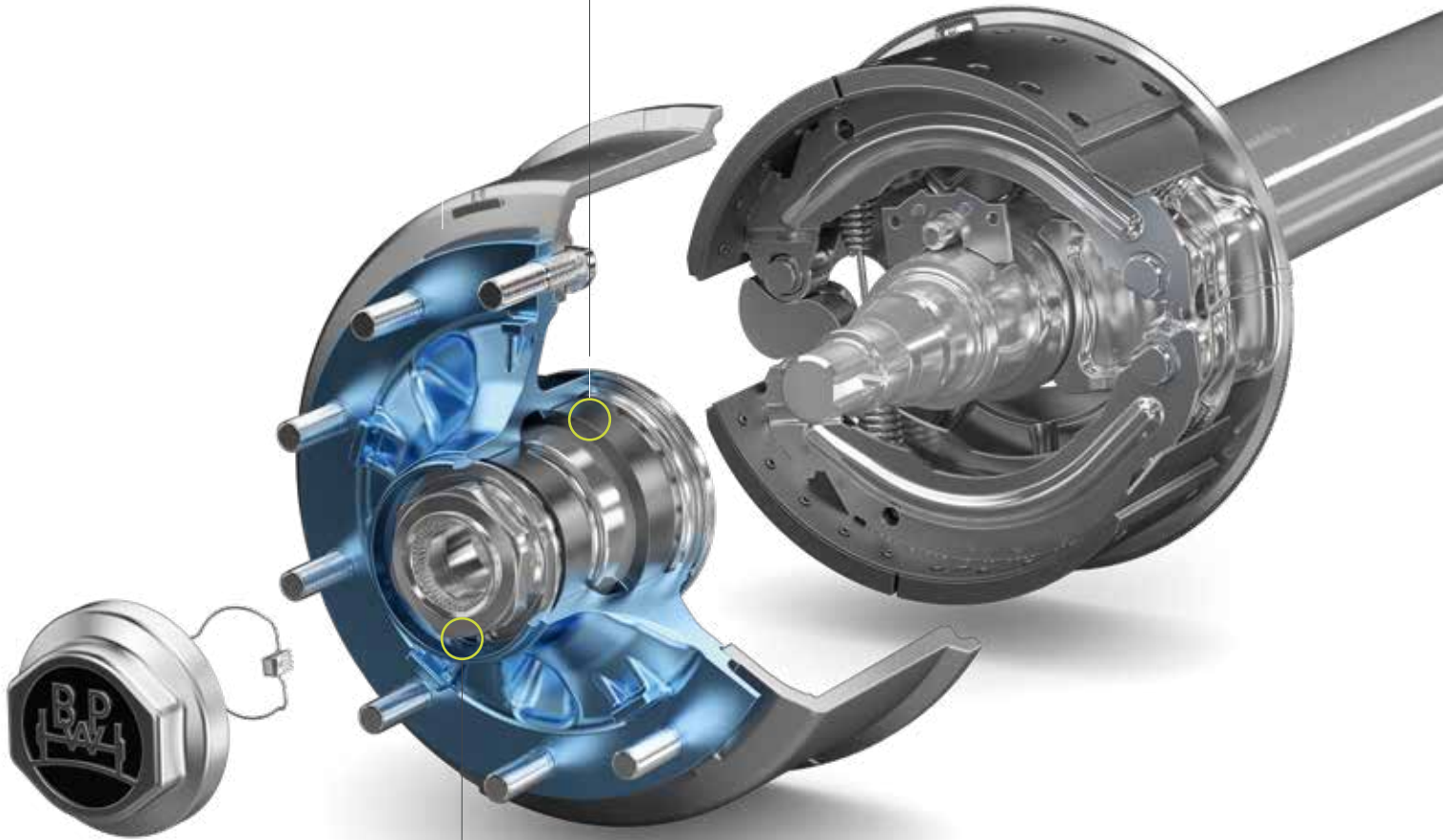
BRAKE SIZE (SN)

Brake	Axle load	Wheel size					
		15"	17.5"	19.5"	20"	22.5"	24"
SN 3010	5.5 t	•*	•*	•*	•*	•*	
SN 3015	6.4 t	•	•				
SN 4212	6.5 t				•	•	
SN 3020	9–10 t	•	•				
SN 3020	12–13 t	•	•				
SN 3620	9–12 t			•			
SN 4218	9 t				•	•	
SN 4220	9 t				•	•	
SN 4220	10–12 t				•	•	•

* Depending on wheel connection (6- or 8-hole connection).

All brake sizes can be equipped with ABS and delivered for single or twin wheels. BPW also offers EC/ECE brake calculations.

Convenient bearing
lubrication via grease
cartridge and improved
ECO Seal system



**Time-saving
brake lining replacement**
as the Wheel End is
disassembled with the
Formula 1 method



Brake shoes made in Germany.

THE SUPERIOR BPW DESIGN.



The smart, maintenance-friendly BPW ECO Drum is far superior to conventional designs and outboard drum systems:

You'll be back on the road while your competitors are stuck in the garage.

THE ECO TECHNOLOGY:

The entire wheel, including the brake drum, is disassembled via the central axle nut, just like in Formula 1!

DRUM BRAKE SYSTEMS ON THE MARKET.

3
STEPS



1 Spend time loosening all the wheel nuts – one after the other.



2 Disassemble the wheel.



3 **A. Outboard drum:**
Disassemble the brake drum.
B. Conventional:
Disassemble the drum hub unit with pulling device.

THE POWERHOUSE FOR YOUR BRAKING.

In a brake system, it is of the utmost importance to achieve an optimal interface between the individual components. The brake cylinders have a decisive role to play in this, because they have to provide a perfectly modulated transmission of force within the brake system. As a system provider, BPW supplies diaphragm and spring-type cylinders including a three-year warranty.*



FEATURES AND BENEFITS

- Continuously high quality control such as dimension testing, release pressure testing, on-vehicle function testing, vibration testing, soiling testing, fatigue testing with over a million braking cycles, cold and heat testing (-40°C to +80°C), force output analysis.
- Significantly improved sealing thanks to flanging technique.
- Optimal corrosion protection for the housing components thanks to high-quality coating procedures.
- Optimal corrosion protection for the springs thanks to double coating.
- Easy to install due to compressed air connection extension (standard in spring-type cylinders for disc brakes).
- For drum brakes, no outer return springs are needed between the slack adjuster and baseplate.
- New ECE certificates and test reports are available via the BPW website at any time.



Parking brake

The spring mechanism is vented, the spring actuates the brake via the push rod.



Braking mode

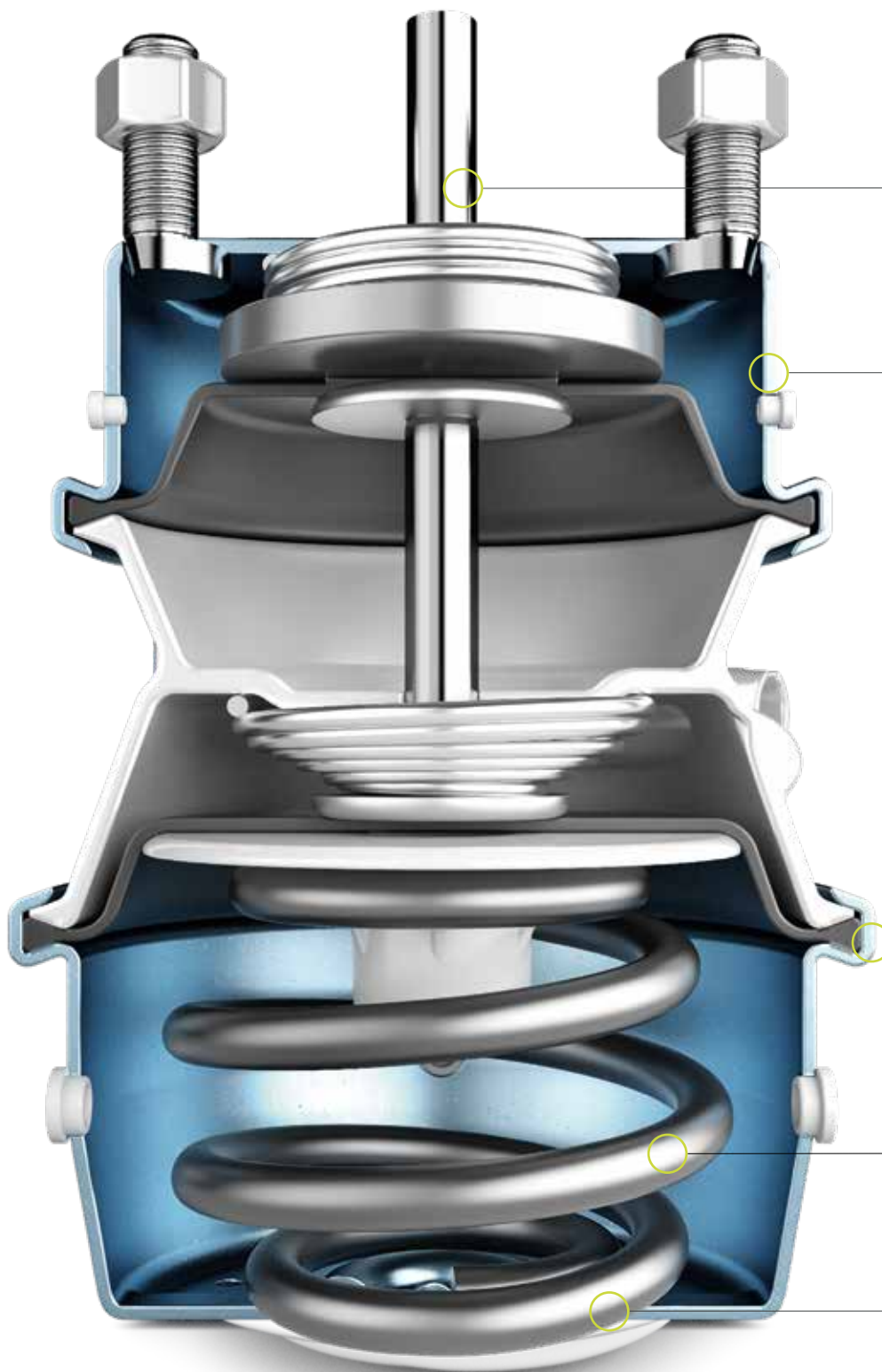
Air pressure in the brake mechanism actuates the brake via the push rod. Air pressure in the spring mechanism holds back the spring of the parking brake.



Driving mode

Air pressure in the spring mechanism holds back the spring of the parking brake.

*On brake cylinders within the 5+3 years ECO Plus Warranty. Please see the warranty conditions for details.



Cylinder pushrod
for optimal
transmission of force.

Powder-coated
housing for maximum
protection against corrosion.

Optimum sealing thanks to
flanging techniques which
protects internal parts
against penetrating water.

Pressure plate with maximum
diameter for best possible
transmission of force and thus
protection of the diaphragm.

High-performance springs
with improved pretreatment,
coil optimisation and double
coating for maximum life





Original Parts

Pièces d'origine



Original Parts

Pièces d'origine



Original Parts

Pièces d'origine



Original Parts



The brands of the BPW Group:



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BPW Bergische Achsen Kommanditgesellschaft

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