

THE QUALITY FACTOR. BPW BERGISCHE ACHSEN



# Quality meets Innovation

**New**  
BPW Products  
**2007**



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## 1. Introduction

Once again in 2007, BPW's mission is to put quality onto the road – and to offer you decisive cost and competitive advantages with innovative technologies.

**The result: A host of product innovations with two principal objectives:**

1. Reducing production costs for the vehicle manufacturer
2. Reducing lifecycle costs of vehicles in transport companies

In this brochure, you can find out about our innovations and read all about the most important characteristics and advantages of the new BPW products.

### Some highlights in advance:

The new ECO Plus 2 hub assembly offers a significant weight reduction of up to 23 kg per axle, therefore reducing lifecycle costs. The 120-offset versions in particular have been thoroughly revised and given a new, innovative design.

The Airlight II air-suspension series has been optimally adapted for the use of cold joining techniques. This offers the vehicle manufacturer clear advantages in terms of cost and logistics when it comes to decentralised frame production and surface coating. Greater flexibility in production is made possible and repair capability is improved.

On more than 11 million occasions, vehicle manufacturers have chosen the product quality, reliability, proven technology and robust construction of the BPW drum brake. BPW, the Europe-wide market leader, has further improved the economy of the tried-and-tested ECO Drum solution.

**All of these new product innovations will be available from september of this year.**

## Overview of product innovations entering series production in September of 2007

	Product innovations	Effect on the current series production
	ECO Plus 2 - ET 120 - ET 0	ECO Plus 2 replaces all existing versions up to 9 t, whilst all other ECO <sup>Plus</sup> versions of 10 t and heavier will remain unchanged for the time being.
	ECO Drum	The ECO Drum replaces all existing SN 4218 versions
	Bolt-on Airlight II air suspension hanger bracket incl. axle lift	Expansion of the Airlight II air suspension hanger bracket range
	Conversion of complete Airlight II range to spring pivot bolt Ø 24 mm incl. axle lift	Replaces all existing AL II version including axle lifts

## 2. ECO Plus 2 (6.5 - 9 t axle load)

Revision of the existing ECO<sup>Plus</sup> hub assembly for axle loads up to 9 t with the introduction of the following features:

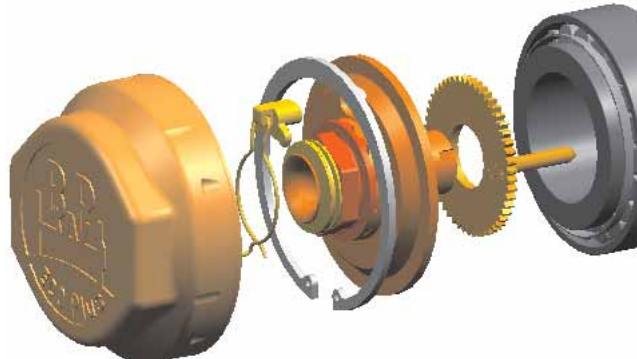
- Axle stub with deep forging features
- Axle bolt
- Grease cartridge
- New hub cap with bayonet lock

### General advantages for customers:

- More convenient to attach and release the hub cap (with BPW tool 120 mm) using the bayonet lock
- Bearing pre-load can be easily set (ECO Plus 2 axle bolt with integrated torque limiter)
- Standard socket (46 mm) for installing the axle bolt
- Simple bearing lubrication with the grease cartridge
- Globally available DIN ISO tapered roller bearings
- Bearings can be replaced individually
- Improved multi-seal system (ECO Seal)
- Significant weight reduction

### Cost benefits of ECO Plus 2 with 120 offset

- In conjunction with the new air suspension, 23 kg weight reduction per axle
- New, modern design of the hub and brake anchor plate
- Wider track and larger spring centres possible than in zero-offset
- Only one spare wheel needed for the towing vehicle and trailer, depending on specification

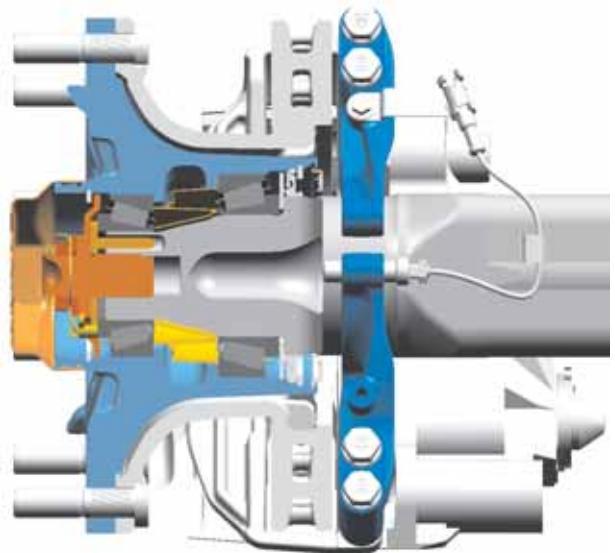


### Cost benefits of ECO Plus 2 with 0 offset

- In conjunction with the new air suspension, 9 kg weight reduction per axle
- Lowest system weight
- Lowest wear due to lowest system temperature during braking

**Production start:** September 2007

**Effects on the current series production:** ECO Plus 2 replaces all existing ECO<sup>Plus</sup> versions up to 9 t, whilst all other ECO<sup>Plus</sup> versions (e.g. 10 t) will remain unchanged for the moment.



### 3. ECO Drum (SN 4218)

The proven technology and robust construction of BPW drum brakes (over 11 million of which have been sold) makes them suitable for every application.

#### Features of the new ECO Drum:

Revision of the following components of the BPW 95 drum brake:

Brake drum, brake shoe assembly, dust cover and brake anchor plate

#### Customer advantages:

- Weight reduction of approx. 10 kg/axle
- Complies with current test criteria (annex 7 approval)
- The improved dust cover attachment simplifies installation during maintenance work
- Simple to check drum and lining wear using the redesigned inspection holes
- Improved sealing between dust cover and brake drum prevents dirt ingress
- Reduced wear

**Production start:** September 2007

**Effects on the current series production:** The ECO Drum replaces all existing SN 4218 versions



### 4. ECO Plus 2 self-steering axle

Transfer of the features of ECO Plus 2 to the self-steering axle.

#### Customer advantages:

- Significant weight reduction up to 18 kg by ECO Plus 2
- Tyre life doubled
- Even tyre wear => less time off the road
- Reduction in fuel consumption of up to 1 l/100 km
- Reduced strain on the chassis of the semi-trailer and tractor vehicle because of reduction in transverse forces
- Significant improvement in manoeuvrability
- Compliance with statutory regulation
- Protection of roads and loading bays

**Production start:** September 2007

**Effects on the current series production:** Effects on the current series production: ECO Plus 2 replaces all comparable ECO<sup>Plus</sup> axles up to 9 t from the start of series production.



## 5. ECOMETER

With the introduction of the ECO Plus 2, the ECOMETER digital kilometre counter is adapted to the new hub cap with a bayonet lock.

### Features of the new revised ECOMETER:

- More accurate than conventional mechanical kilometre counter
- Tamper proof
- Only one type for all tyre sizes (default setting for tyre size 385/65 R22.5)
- Also easily legible in the dark
- Maintenance-free, long-life
- Approved for cross-border transport of dangerous goods by road (GGVS/ADR)

### Other versions:

- Mechanical kilometre counter remains available for certain tyre sizes
  - 385/65 R22.5
  - 385/55 R22.5
  - 315/70 R22.5
  - 445/45 R19.5
  - 11.00 R22.5
- Hub cap with hole for attaching third-party hubodometers

**Production start:** September 2007

**Effects on the current series production:** Accessory, existing versions are replaced



## 6. ECO Plus 2 with Airlight<sup>Direct</sup>

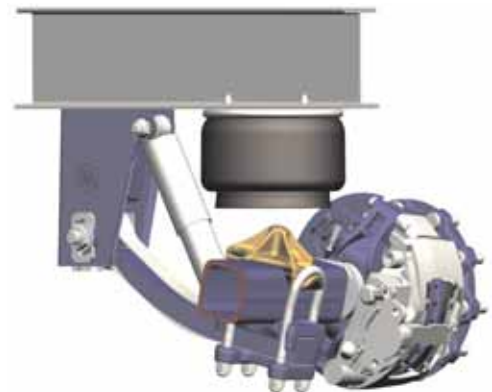
The integration of ECO Plus 2 significantly reduces the weight of the direct air suspension. Airlight<sup>Direct</sup> air suspension is the lightest standard BPW running gear with 120 offset.

### Customer advantages:

- Maximum driving comfort due to direct air suspension
- Lightest standard running gear with 120-offset -> 404 kg
- Brake calliper easily accessible for brake servicing
- Brake and brake cylinder are protected behind the axle
- Air bags are protected between the axle and vehicle frame
- Compact construction
- Zero maintenance for on-road use
- Flexible trailing arm (low tyre wear, low strain on the chassis)
- All running gear components can be replaced (modular construction)
- Integrated BPW combination air bag system
- Automatic separation and recombining of axle and air bag during railway and ferry transshipment
- Provides effective protection against creasing and damage of the airbags
- Low ride heights are achieved by integrating the air bag into the axle connection
- The air bag is only attached to the frame using two bolts during installation
- Can be used in standard chassis because of the small bag offset

**Production start:** September 2007

**Effects on the current series production:** Existing versions are replaced.



## 7. Bolt-on Airlight II air suspension hanger bracket

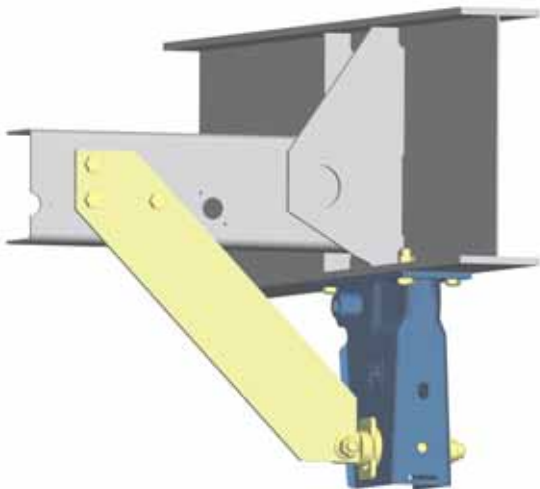
The bolt-on system offers the vehicle manufacturer the opportunity to coat compact vehicle frames without air suspension hanger brackets, and connect them to the complete axle unit later on during the production process. The bolt-on air suspension hanger bracket system consists of the air suspension hanger bracket including screw plate, complete spring bolt assembly with flange, bolts and nuts for fastening the brackets to the vehicle frame and the lower bolt and nut with pressure plate for the gusset plate/spring pin bolt connection. The gusset plate and the top bolt connection to the crossmember can be included separately.

### Customer advantages:

- For mounting on standard frames with bottom flange width as narrow as 120 mm
- No changes to the frame required
- Installation of the entire chassis (incl. bracing struts) by cold-joining technology
- Suitable for aluminium frame
- Significant cost and logistical advantages with decentralised frame production and surface coating
- Expansion of production flexibility
- Improved repair capability

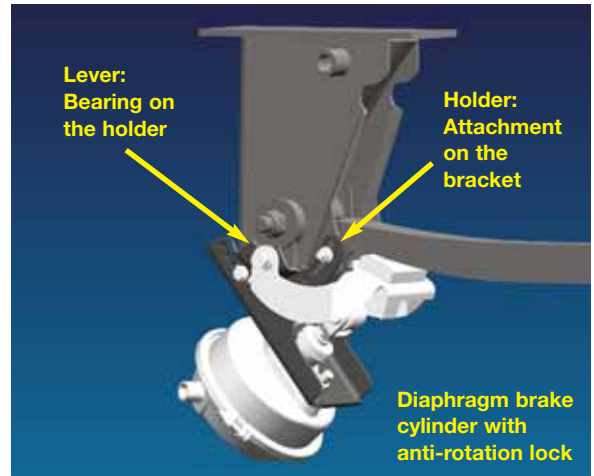
**Production start:** September 2007

**Effects on the current series production:** Expansion of the Airlight II air suspension hanger bracket range



## 8. Axle lift for bolt-on Airlight II air suspension hanger bracket

Vehicles with several axles can be equipped with axle lift devices in order to reduce tyre wear when driving unladen. The two-sided lift has established itself as the standard in this area, and BPW has adapted it to the bolted bracket.



### Features of the new two-sided lift:

- Easy installation using only two bolts, without removal of the spring bolt
- No additional spring bolt assembly required
- Fewer components (18 rather than 21)
- Weight saving of 3.7 kg per axle
- Diaphragm brake cylinder with anti-rotation lock using square piston rod
- Improved fixing under the hanger bracket



**Production start:** September 2007

**Effects on the current series production:** Accessory, expansion to the axle lift range

## 9. Conversion of trailing arm bolts from 30 mm to 24 mm diameter

The spring eye bolt connection was also reviewed as part of the development projects. This involved reducing the spring bolt diameter from 30 mm to 24 mm.

Introducing a more flexible M24 spring bolt whilst at the same time increasing the size of the contact surfaces in the screw connection provides additional security against the spring eye bolt connection coming loose. Overall, the bolt connection has been made even less susceptible to settling. All road tests and test results have been so successful that this improvement is also being adopted in the ALII range.

### Features:

- Increased security against loosening of the spring bolt connection due to elastic M24 spring bolts
- Bolt connection is even less susceptible to signs of settling
- Modification to the SGS bush in the trailing arms and the bushes in the air suspension hanger bracket and the channel cross member
- The adaptation to the 24 mm spring bolt is made using the SGS bush, therefore old trailing arms can be adapted to the 24 mm bolt by replacing the SGS bush
- The M24 spring bolts are Geomet-coated, which means no additional greasing is required
- Environmental protection: Does not contain any chrome-6 (end-of-life regulations)

**Production start:** September 2007

**Effects on the current series production:** All Airlight II versions are replaced

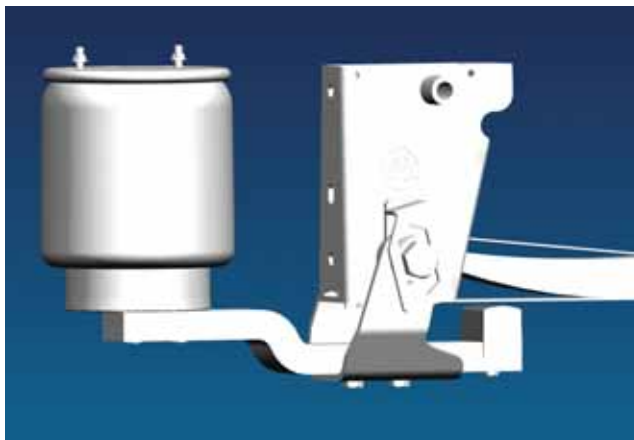


## 10. Axle lift for weld-on Airlight II air suspension hanger bracket

### Features:

- Adaptation of axle lift geometry to M24 spring bolts
- New code numbers

### One-sided lift



### Two-sided lift



**Production start:** September 2007

**Effects on the current series production:** All Airlight II versions are replaced



## 11. Recommended applications for air suspension

In BPW's opinion, it is impossible to exclude the possibility that the entire lifecycle of tipper-type vehicles may be spent in off-road applications. Due to unfavourable experience in the past, BPW has decided to issue an even clearer recommendation in this case.

The former designation "Standard Western Europe tipper" has been deleted.

This means that all tippers must be equipped with reinforced trailing arms (1 x 62 mm) and a reinforced axle tube (120 x 15 mm). In addition SL-HD packages must be used, depending on the application.

## Equipment features for BPW air-sprung running gear

Axle and axle assembly combinations for use outside Europe require the approval of the BPW Order Design Department.

Conditions	Axle load	Air suspension series	Type	Spring centre	Trailing arm 70 mm	Trailing arm 100 mm	Hanger brackets	Shock absorber	Air bag	Axle beam	Axle clamping	Remarks
Standard use in Western Europe, on-road	9 t	AL II	S	≥ 1200	1 x 56		Standard	Standard	Ø 300 / Ø 360	120 x 10	clamped	for container and coil vehicles: check straps or quick release valves
			Z	< 1200	1 x 62	120 x 15						
	10 t	SL	Z	≥ 1100		Standard / HD			120 x 15	clamped		
			Z	< 1100	1 x 57/ 2 x 43				150 x 10			
Mega trailers	9 t / 10 t	SL	S / Z			Standard	Standard	Ø 360*	120 x 10	clamped	* = Long-stroke air bag 36-1	
Eastern Europe or comparable operational conditions	9 t	AL II	S	≥ 1200	1 x 62		Standard	HD	Ø 360 with reinforced disc	120 x 15	clamped	
			Z	< 1200		HD		150 x 16				
Tippers Western Europe	9 t	AL II	S	≥ 1200	1 x 62		Standard	Standard	Ø 300 / Ø 360 with reinforced disc	120 x 15	clamped	Check straps or quick release valves
			Z	< 1200		Standard / HD	Standard	Ø 360 with reinforced disc	120 x 15	clamped	welded	Check straps or quick release valves
Tippers severe heavy duty e.g. behind all-wheel drive tractor units	9 t	SL	S	≥ 1200			Standard / HD	Standard		120 x 15	clamped	
			Z	< 1200	1 x 57/ 2 x 43	HD		150 x 16	welded			
Timber transport	9 t	SL	S	≥ 1200			HD	Standard / HD	Ø 360 with reinforced disc	120 x 15	clamped	
			Z	< 1200	1 x 57/ 2 x 43			150 x 16	welded			
	10 t		Z									

## 12. 5.5 t series for drum and disc brakes

### Features of the new 5.5 t axle with optimised weight:

- Round tubular axle beam  $\varnothing$  101.6 mm for disc and drum brake
- Weight of suspension, e.g. with 2000 mm track and in conjunction with BPW air suspension
  - with drum brake 298 kg
  - with disc brake 310 kg
- For single or twin tyres
- For tyres from 15" to 22.5" on drum brake axle and 17.5" to 19.5" on disc brake axle
- Use of the BPW wear sensor for drum brakes in conjunction with BPW Brake Monitor (BWI 03) and EBS possible

### Features of BPW air suspension for 5.5 t axles

- Ride height ranges from 170 to 480 mm with the drum brake axle and from 215 to 480 mm with the disc brake axle
- Hanger brackets with integrated wheel alignment guarantee precise tracking and long tyre service lives
- Suitable for narrow bottom flanges because of the reduced width of the hanger brackets in the welding area
- Ideal for tandem axle trailers with a wheelbase of less than one metre, in order to take advantage of beneficial registration and driving licence arrangements
- Available as a complete air suspension unit with brake cylinders

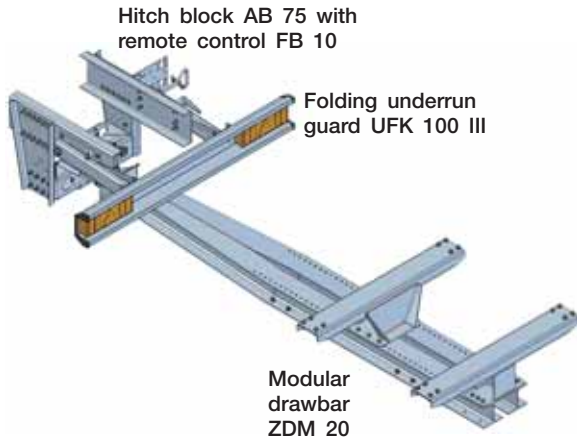
**Production start:** Since April 2006

**Effects on the current series production:** Existing versions are replaced.



## 13. Commercial vehicle components

BPW has redeveloped or revised all the connecting assemblies for fitment to tractor vehicles and centre axle trailers, as well as the new 25.25 m tractor/trailer combinations.



### EC-approved hitch block AB 75

- Permitted total trailer weight up to 24 t (D-value 190 kN)
- Drawbar loads up to 2,000 kg (V-value up to 70 kN)
- Available with EC approval E4\*94/20\*3173\*00 or individual certificate for vehicle-specific hole pattern
- A significant weight reduction of up to 30 kg increases the payload
- Optionally as a complete system with mounted trailer coupling from the well known manufacturers Rockinger, Ringfeder and Orlandi, BPW tension cable remote actuation system and plug holder
- Three side part variants are suitable for an extremely wide range of installation configurations
- Crossmember also available as end member for internal installation
- Automobile standards of surface coating: Electrodip coating with zinc phosphating (KTL<sub>Zn</sub>)

**Production start:** available

**Effects on the current series production:** Existing product is replaced

Three variants



Version SV  
(inclined front)

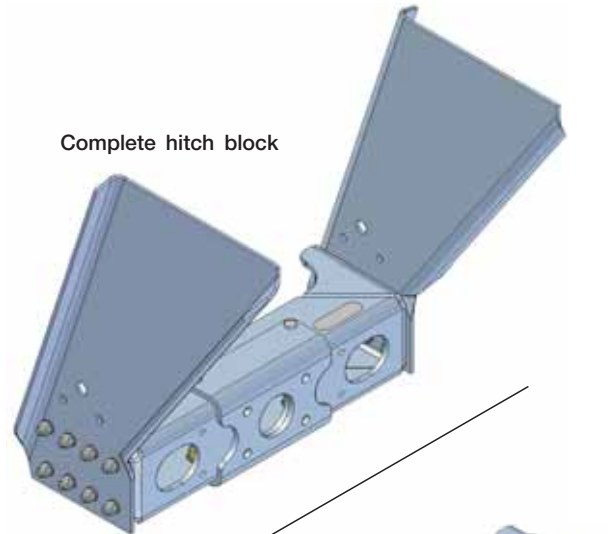
Version SH  
(inclined rear)

Version GK  
(offset)

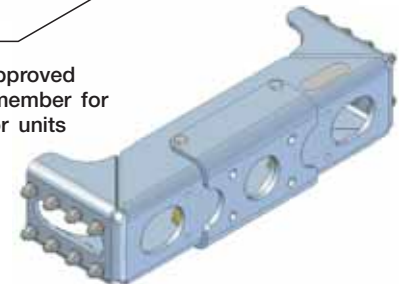
Optional: Drilling patterns specific to vehicle



Complete hitch block



EC-approved  
end member for  
tractor units

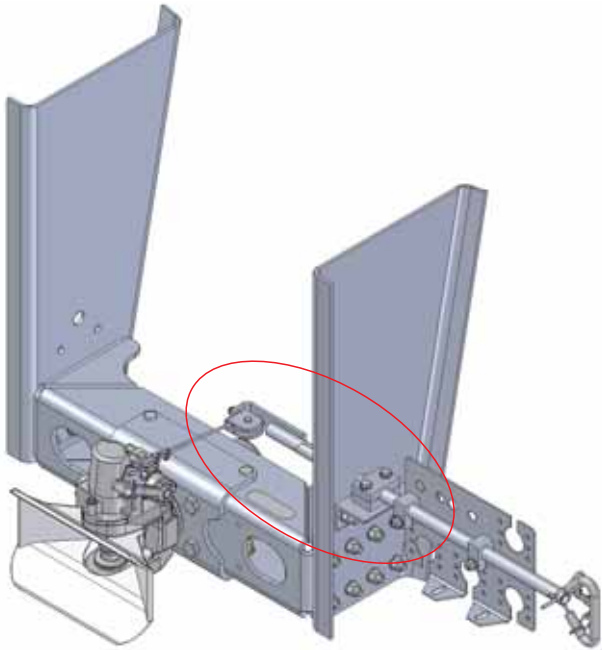


## Cable remote control FB 10 with general certification and plug holding plate

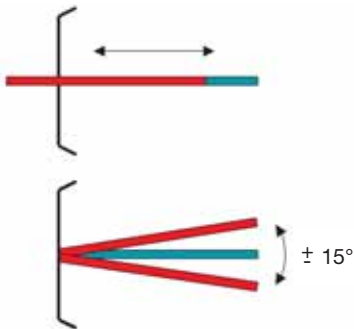
- High levels of functional reliability due to protected tension cable with integrated reversing roller for all current trailer hitches
- Greatest levels of flexibility in installation because of the bolted configuration
- Accessories: Plug holder plate for variable installation

**Production start:** Available

**Effects on the current series production:** Existing product is replaced



Adjustment ranges:

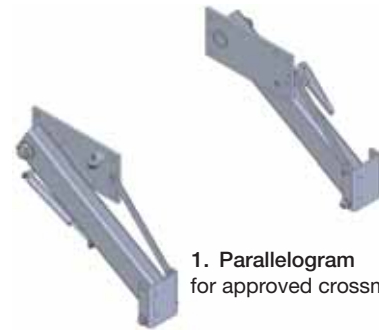


## EC-approved underrun guard UFK 100 III

- Heights 350 to 500 mm
- With gas spring support
- Three versions available

**Production start:** Available

**Effects on the current series production:** Extended product range



1. Parallelogram  
for approved crossmembers



2. Clamped  
for quick installation



3. Welded  
for individual adaptation

## Modular drawbar ZDM 20

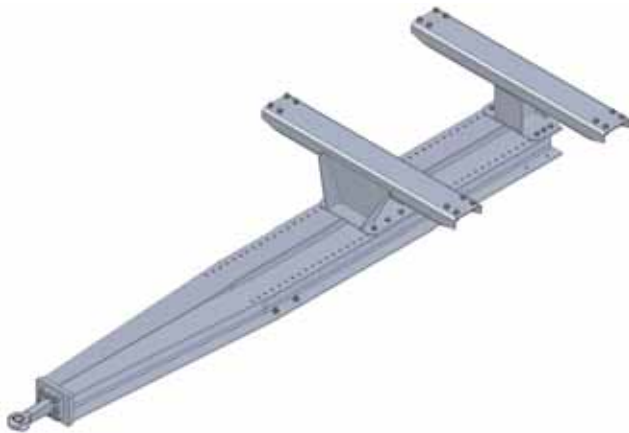
The new modular drawbar ZDM 20 offers the enduser a significant payload boost due to the light weight of the system. The modular structure permits a wide variety of combinations in length, height and width, as well as quick and easy installation on the vehicle. This means the drawbar can be readjusted again as late as the point of delivery of the vehicle.

- Significantly increased payload because of low system weight
- Wide range of combinations in length, height and width
- System quick and easy to install
- High flexibility thanks to modular structure

All BPW connecting assemblies have electro-dip coating with zinc phosphating (KTL-Zn), which means they are in accordance with the standard in the automobile industry.

**Production start:** Available

**Effects on the current series production:** Extended product range







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