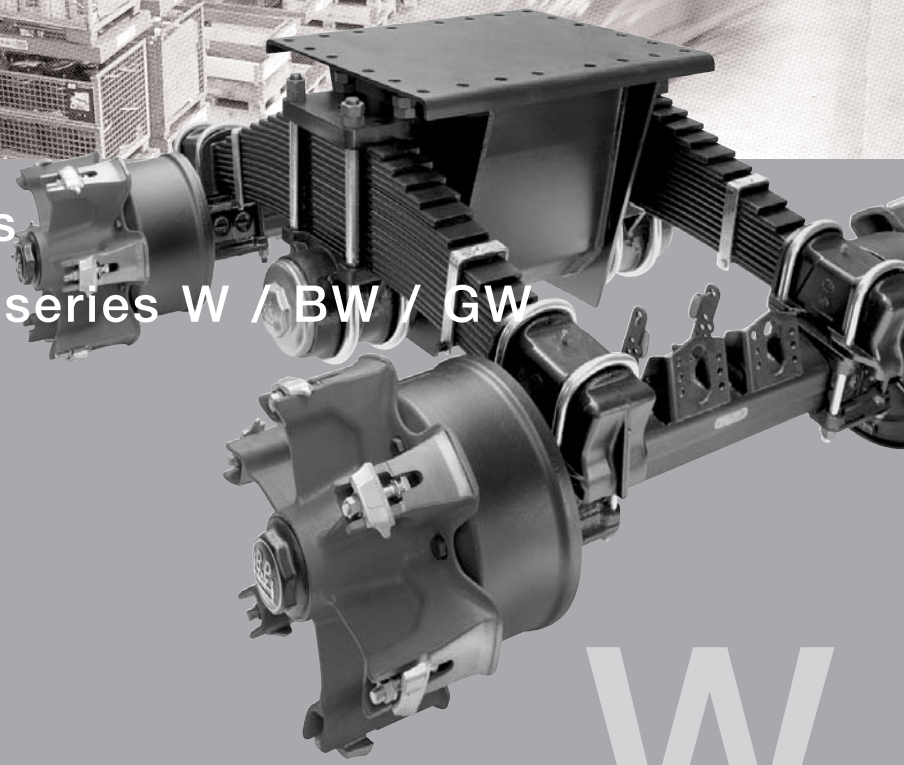
BPW BERGISCHE ACHSEN

BPW Original spare parts
Mechanical suspensions series W / BW / GW



W

BW

BPW ORIGINAL SPARE PARTS

GW

Contents

Valid: **1.10.2005**

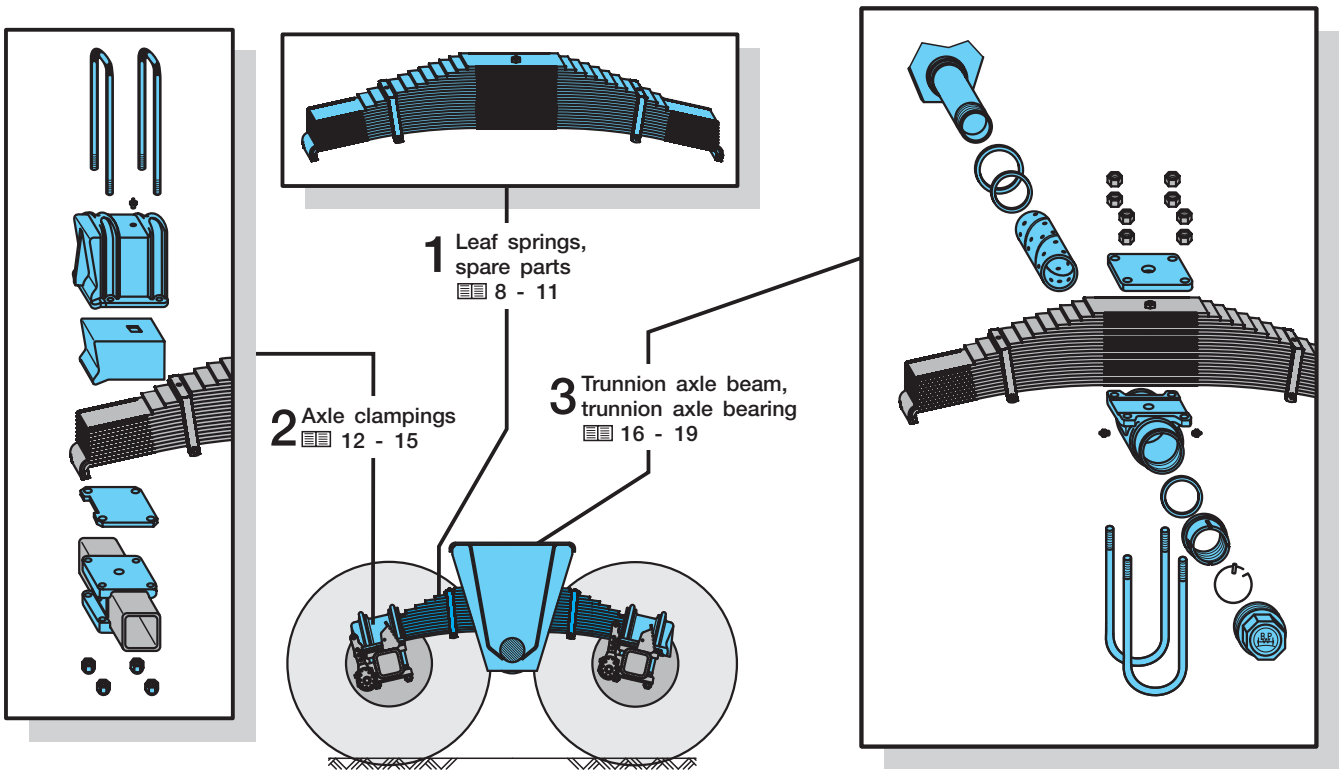
This spare parts list shows fast moving parts for BPW suspensions **series W / BW / GW.**

For further spare parts see BPW spare parts catalogue and / or spare parts lists of the corresponding single axles without bogie parts.

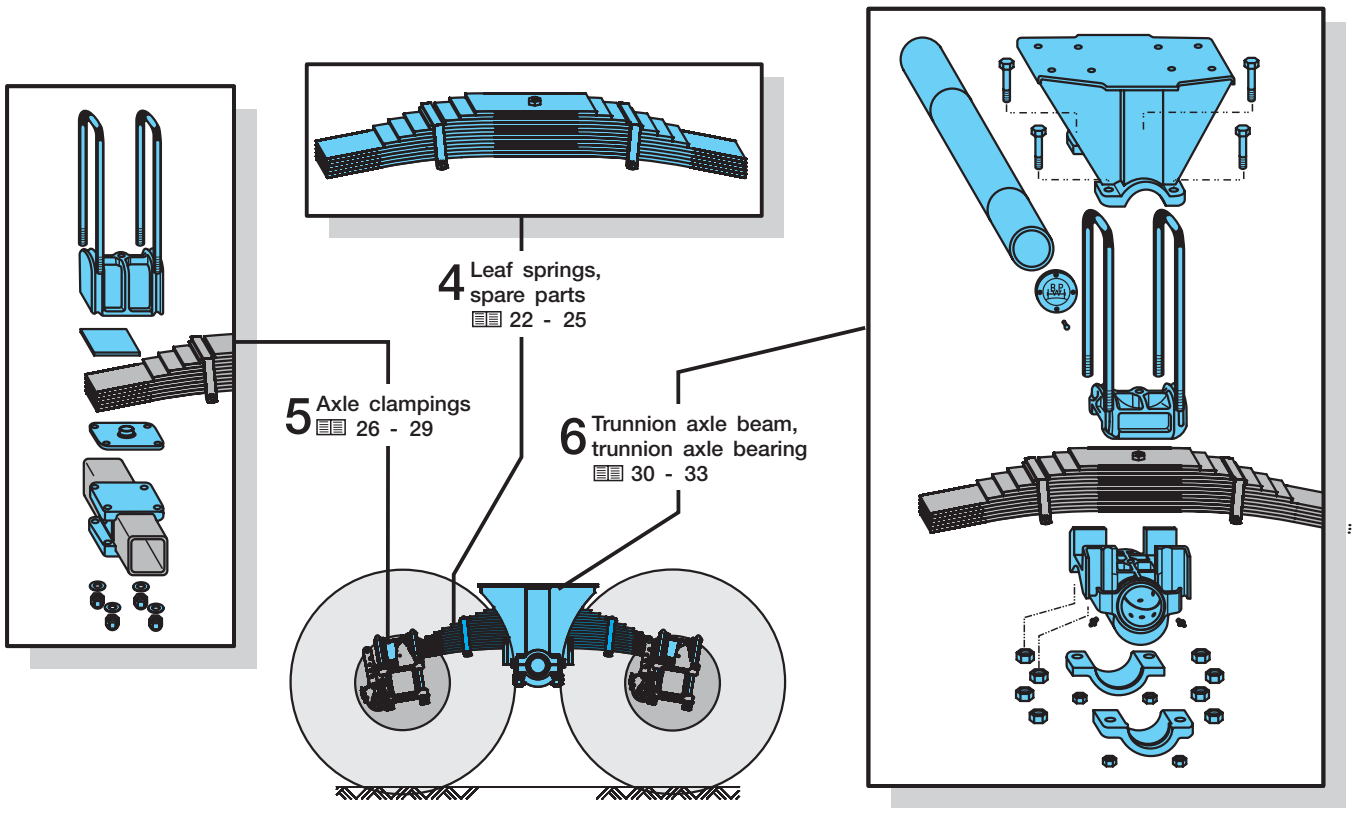
-parts are embossed with BPW Code no.

Subject to change (without notice).

BPW Tandem axle assembly series W



BPW Tandem axle assembly series BW / GW



Explanation of BPW suspension type codes (extract)

Example:										
EH	**Z**	**F**	**D**	**H**	**W**	**2 /**	**12010**	**B**	**ECO**	

			Trailer axle	**Brake**	**Tyre size**
EH			**EH..**	SN 420	20” - 24” up to year of manuf. 1982
H			**H..**	SN 420	20” - 24” as of year of manuf. 1983
a.o.			Further axle types see BPW type designations		
	S		For single wheels, wheels without offset		
	Z		For twin wheels		
	I		Wheel spiders for TRILEX wheel rims, single wheels		
	IZ		Wheel spiders for TRILEX wheel rims, twin wheels		
		F	Wheel studs M 22 x 1.5 without wheel nuts, order wheel nuts for stud or spigot alignment separately		
		M	For spigot alignment		
			D	German “Dauerbremse” approval StVZO regulation 41 para 15	
				H	For hanging boosters
					Suspension series
				W	**W** Tandem axle assembly, rigid, with two leaf springs and support axle, bearing blocks or high mounting bracket between the leaf springs, with bronze bushes
				BW	**BW** Tandem axle assembly, rigid, with two leaf springs and support axle, bearing blocks above the leaf springs, with bronze bushes
				GW	**GW** Tandem axle assembly, rigid, with two leaf springs and support axle, bearing blocks above the leaf springs, with rubber bushes
					2 / Tandem axle suspension
					8010 to **20010** Axle load (kg) + quantity of wheel studs per hub
					B Version index **B** Exec. for harshest conditions
					C **C** Exec. for street conditions
					-1 **-1** Type of hub bearings (14 tons)
					-20 **-20** Axle beam wall thickness (eg. 20 mm)
					7/8 IN **7/8 IN** Type of wheels studs
					ECO Single axle with BPW ECO hub system
					ECO-MAXX Weight-optimized ECO-axle built as from 1997
					ECO^{Plus} Weight-optimized axle with BPW ECO^{Plus} hub system
					MAXX Weight-optimized axle with conventional hub bearing system

Explanation of BPW code numbers (extract)

Example:							
32.	**14.**	**743.**	**000**				
				1. + 2. digit			
22.				**Tandem axle assembly**			
32.							
				3. + 4. digit			
				Axle load	**Axle series**	**Roller bearings**	**Hub bearing system**
	08. **09.**			8000 - 9000 kg	H..	33116 / 32310	Conventional hub bearing system
	10.			10000 - 12000 kg	H..	33118 / 32313	
	14.			13000 - 14000 kg	H..	32219 / 33215	
	16.			16000 - 18000 kg	H..	32222 / 33214	
	20.			20000 kg	H..	32224 / 32316	
	72.			12000 kg	EH.. 12000 EH.. 12000-1 EH.. 12000-2	32222 / 32314 32219 / 33215 33118 / 33213	
	73.			13000 / 14000 kg	EH.. 13000-1 EH.. 14000-1	32219 / 33215	
	74.			14000 kg	EH.. 14000	32222 / 32314	
	76.			9000 kg	EH.. 9000	33215 / 32310	
	80.			11000 kg	EH.. 11000	33217 / 33213	
	85.			8000 kg	EH.. 8000	33215 / 32310	
	86.			10000 kg	EH.. 10000	33217 / 33213	
	86.			20000 kg	EH.. 20000	32224 / 32316	
	89.			16000 kg	EH.. 16000	32222 / 32314	
	38.			8000 - 9000 kg	H..	33116 / 32310	ECO hub bearing system
	40.			10000 - 12000 kg	H..	33118 / 33213	
	44.			13000 - 14000 kg	H..	32219 / 33215	
	48.			8000 - 9000 kg	H..	33118 / 33213	ECO^{Plus} hub bearing system
	50.			10000 - 12000 kg	H..	33118 / 33213	
				5. - 7. digit			
		501. to **839.**		**Designation of wheel brake in the case of ref. number 20... - 39...** For explanation of code number, see EL-HKN or BPW code number designation			
				8. - 10. digit			
			000	**Consecutive number** 000 - 999			

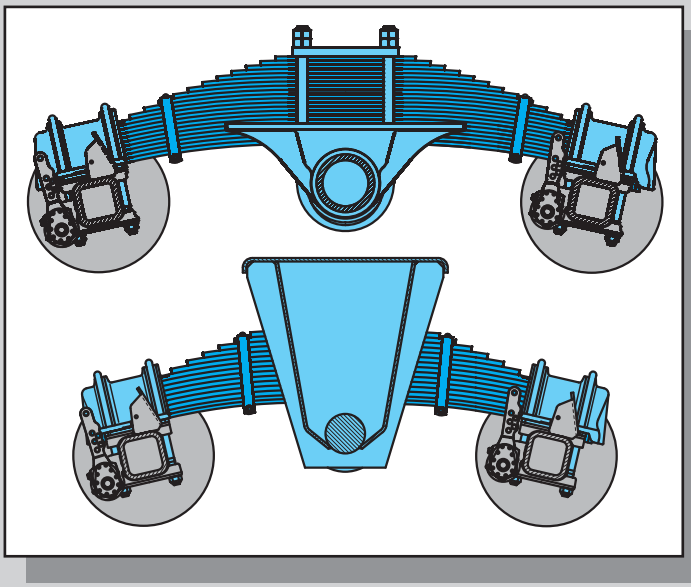
General

W

BPW W-units for tropical and arctic off-road applications.
For transporting robust goods on roads, off-road and on construction sites.

W-units designed by BPW for tandem axles are extremely well suited to use under even the harshest conditions.
Whether on or off-road, on construction sites, in the arctic or in the tropics – these robust and long-lasting multiple leaf spring suspension systems ensure reliable goods transport.

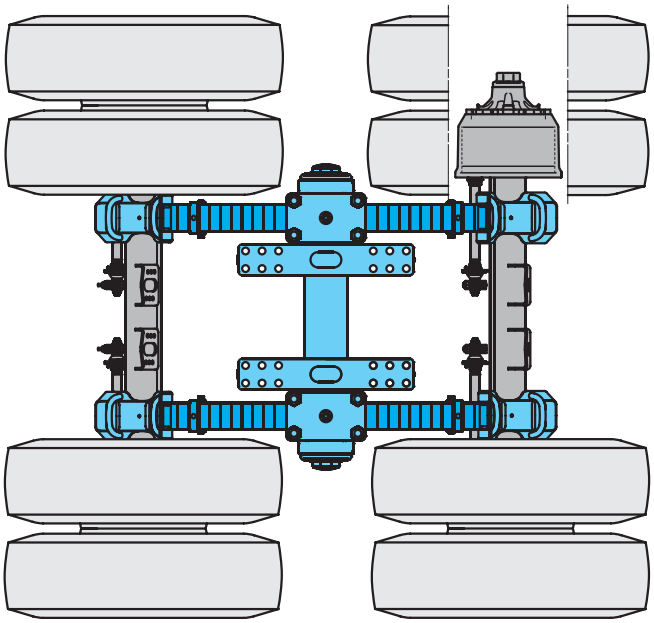
They operate purely mechanically.
For example, they can easily be repaired even if the infrastructure is underdeveloped.

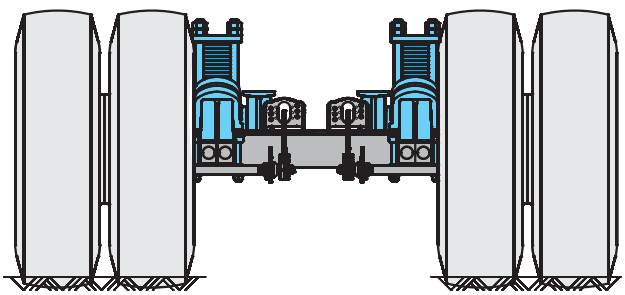


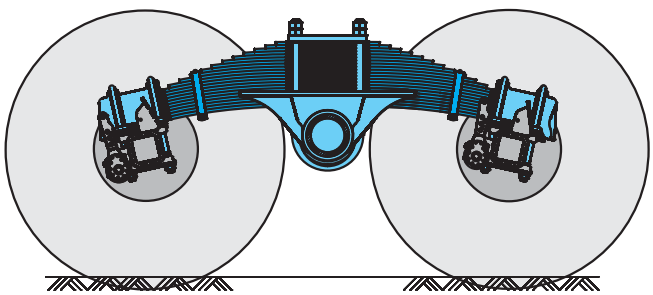
Description

BPW W-unit with low mounting brackets.

- For axle loads from 2 x 8 t to 2 x 20 t
- Delivered as ready-to-fit, completely assembled unit
- Proven for many years in harsh off-road and tipper applications
- Constructed with a high level of lateral stability
- Equipped with robust and long-life multi-leaf springs
- Very long axle load equalization distances
- Not sensitive to semitrailer tilt
- Insensitive to heat, cold and dirt
- High-quality mounting of the trunnion axle in bronze bushes
- Simple installation to the vehicle frame using bolt connection







Function

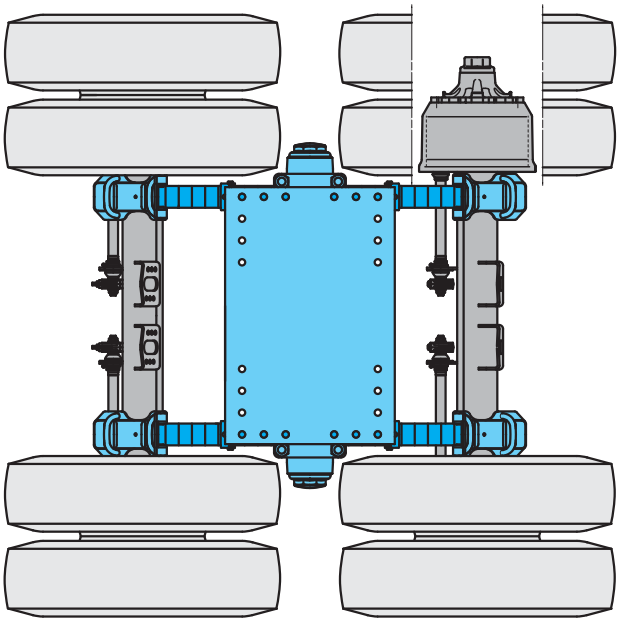
Whenever you need the ruggedness to cope with high axle loads under difficult operating conditions, choose leaf-sprung tandem axle units with an intermediate pivoting trunnion axle for holding the frame connecting pieces.
The spring packs are extremely sturdy and comprise several spring steel layers.
They are mounted in swinging bearings on the trunnion axle using bronze bushes.
The axles are clamped onto the spring ends and are controlled by the offset main spring layers.

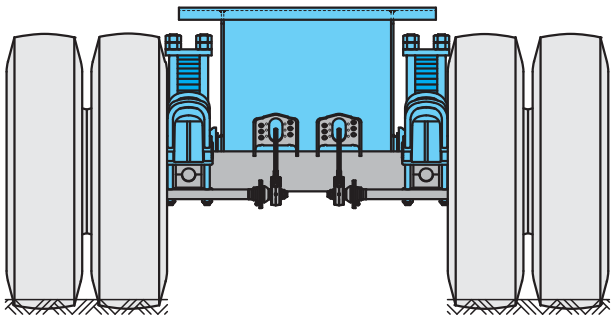
An even distribution of tension across the length of the spring is achieved thanks to the use of spring layers with different lengths.
This produces a trapezoidal shape in the side view, which explains why the arrangement is also referred to as a trapezoidal spring.
Two low supports between the springs are used for attachment below the vehicle, or a tall central block provides for direct mounting on the vehicle frame.

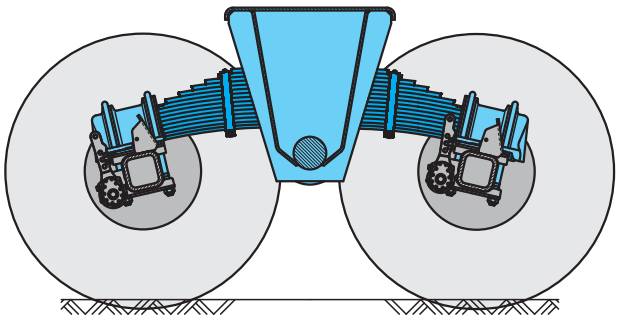
Description

BPW W-unit with tall bearing blocks.

- For axle loads from 2 x 8 t to 2 x 20 t
- Delivered as ready-to-fit, completely assembled unit
- Proven for many years in harsh off-road and tipper applications
- Constructed with a high level of lateral stability
- Equipped with robust and long-life multi-leaf springs
- Very long axle load equalization distances
- Not sensitive to semitrailer tilt
- Insensitive to heat, cold and dirt
- High-quality mounting of the trunnion axle in bronze bushes
- Simple installation to the vehicle frame using bolt connection

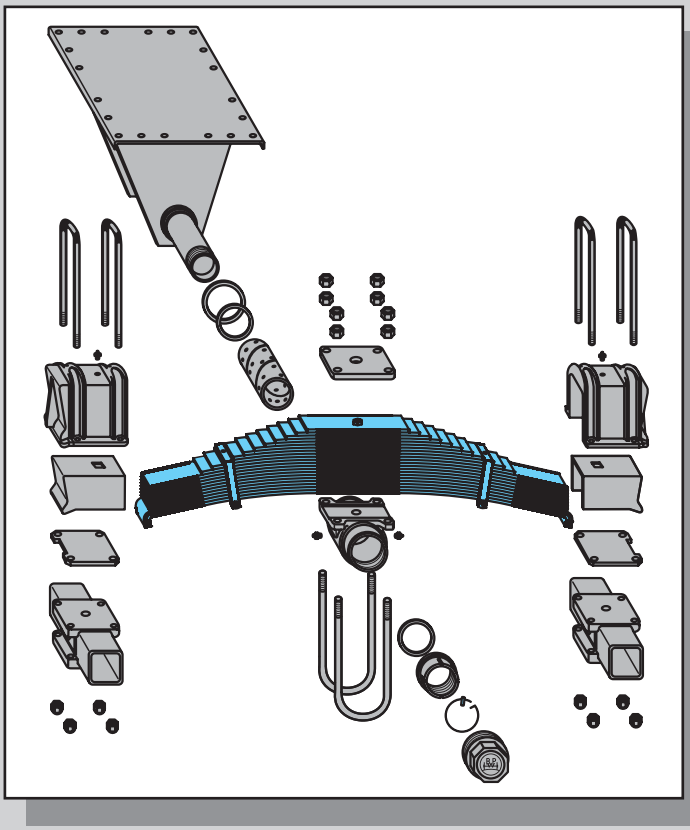






1 Leaf springs for W suspensions

General



BPW W-units are equipped with multi-leaf springs.

Multi-leaf springs (trapezoidal springs) contain a stack of spring layers with different cross-sections and graded lengths to give a trapezoidal shape.

They are characterised by their robustness and good default driving properties as well as the ease of replacing individual spring layers.

The spring ends of the leaf springs are connected to the axles with spring U-bolts.

As a load-bearing component of the suspension unit, the leaf spring requires particular attention. The following instructions should be carefully adhered to during repair and maintenance work:

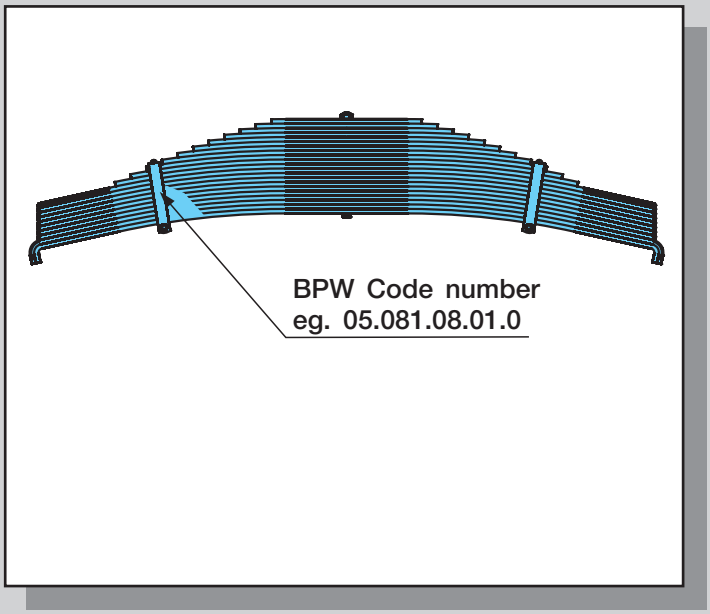
- Do not work on leaf springs with a hammer or any sharp objects.
- Do not work on leaf springs with cutters or grinders.
  In the event that replacement springs or leaves do not fit exactly into the seat of the spring pads or spring housing, the mounting seat must always be widened.
- Individual leaves can be replaced in multi-leaf springs.

Important for all welding work !

The leaf springs, plastic pipings and other sensitive parts should be protected against sparks and weld splashes during all welding work. The earth terminal must under no circumstances be attached to the leaf spring or hub.

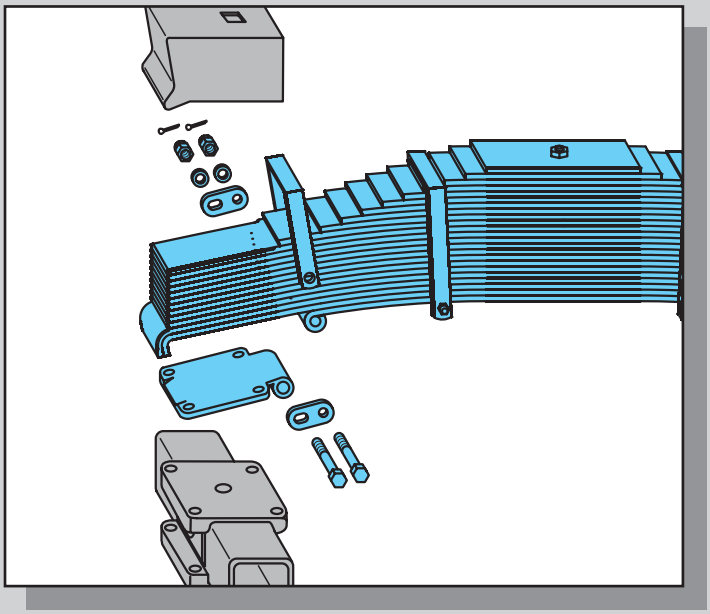
BPW Code number

The BPW code number of the leaf spring is stamped into the spring shackle.



Leaf springs with safety catch

With a catch device, the lowest layer of the leaf springs is rolled in at the ends and is connected at the axle connection using shackles and bolts as well as an additional spring clamp.

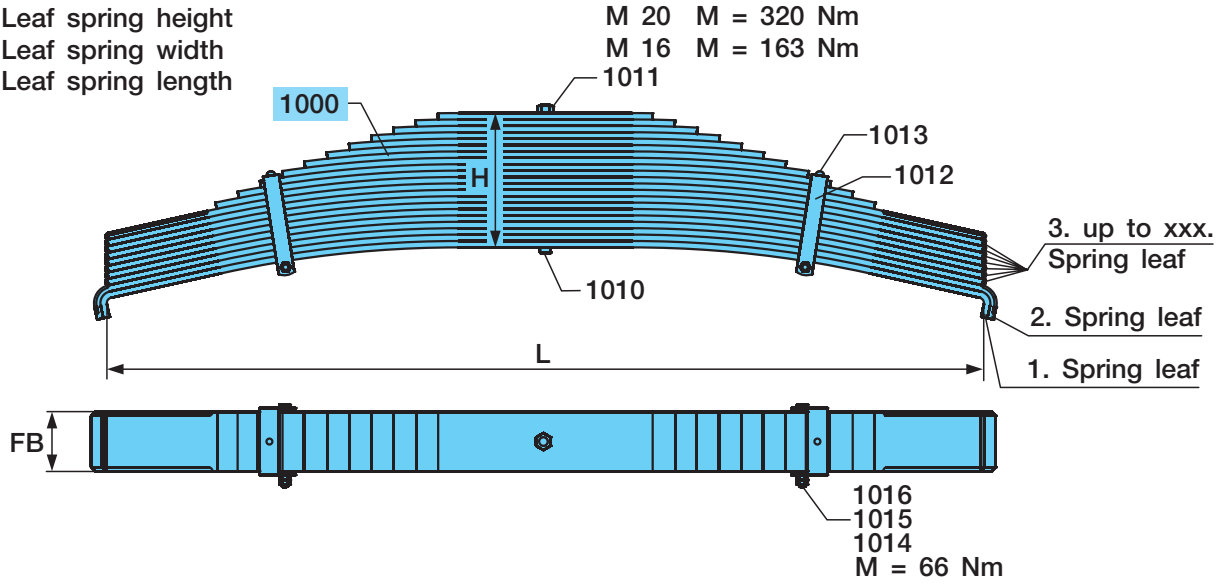


Further information, along with installation and safety instructions, can be found in our current workshop manuals.

1.1 Leaf springs for W suspensions

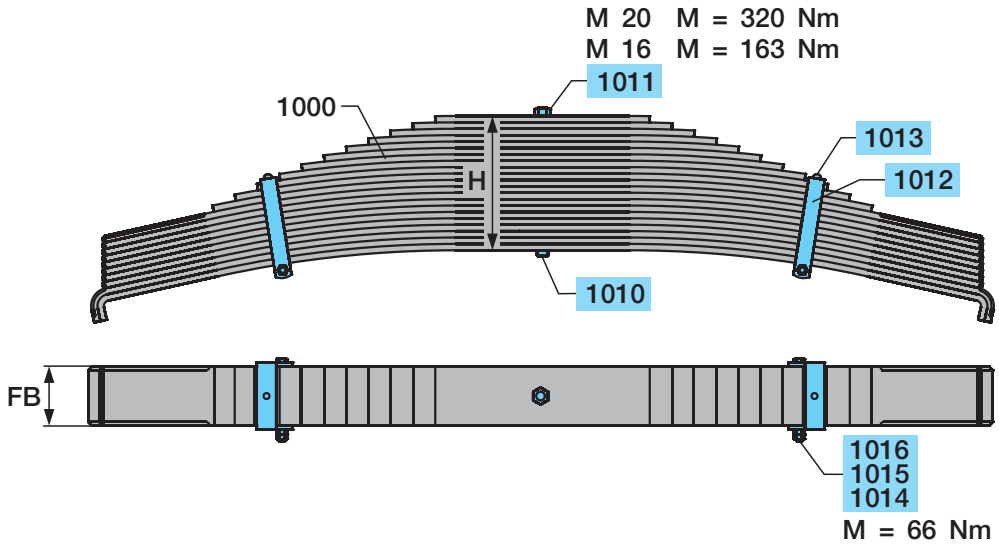
Leaf springs for W suspensions

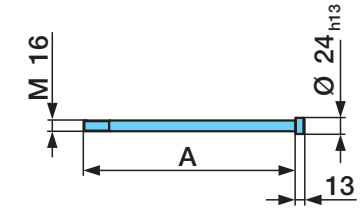
H = Leaf spring height
FB = Leaf spring width
L = Leaf spring length

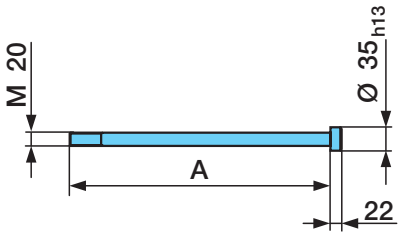


	Wheel base	Axle load	H	L	FB	BPW Code no.	Spring leaves
17-layer leaf springs (Item 1000)							
	1550	16 - 18 t	302	1820	120	05.081.08.07.0	1. 02.1012.08.86
							2. 02.1012.08.87
							3.-4. 02.1012.08.88
	1550	18 - 20 t	302	1820	120	05.081.08.13.0	1. 02.1013.08.33 *
							2. 02.1013.08.34
							3.-4. 02.1013.08.35
	* = with riveted plates Further spring leaves upon request.						
18-layer leaf springs (Item 1000)							
	1400	11 - 12 t	298	1640	90	05.081.08.18.0	1. 02.1013.08.77
							2. 02.1013.08.78
							3.-8. 02.1013.08.79
	1500	11 - 12 t	216	1740	90	05.081.07.12.0	1. 02.1013.08.56
							2. 02.1013.08.57
							3.-8. 02.1013.08.58
	Further spring leaves upon request.						
19-layer leaf springs (Item 1000)							
	1500	13 - 14 t	266	1770	120	05.081.08.04.0	1. 02.1013.08.01
							2. 02.1013.08.02
							3.-9. 02.1013.08.03
	Further spring leaves upon request.						
21-layer leaf springs (Item 1000)							
	1650	14 t	294	1920	120	05.081.08.01.0	1. 02.1012.08.20
							2. 02.1012.08.21
							3.-9. 02.1012.08.22
	Further spring leaves upon request.						

Spare parts for leaf springs







Item	Designation	Leaf spring thickness H	Dimension (A)	BPW Code no.
1010	Spring screw	216	AM 16 x 235-8.8	upon request
		236	AM 16 x 255-8.8	02.5038.67.80
		275	AM 16 x 295-8.8	02.5038.60.80
		284	AM 16 x 300-8.8	upon request
		298	AM 16 x 315-8.8	02.5038.65.80
		300	AM 16 x 320-8.8	upon request
		310	AM 16 x 330-8.8	upon request
		332	AM 16 x 350-8.8	02.5038.66.80
		350	AM 16 x 370-8.8	02.5038.64.80
		238	AM 20 x 2 x 260-8.8	upon request
		248	AM 20 x 2 x 270-8.8	02.5038.73.80
		266	AM 20 x 2 x 290-10.9	02.5038.77.10
		294	AM 20 x 2 x 315-8.8	02.5038.71.80
		302	AM 20 x 2 x 325-8.8	02.5038.72.80
		398	AM 20 x 2 x 420-8.8	02.5038.75.80
		410	AM 20 x 2 x 430-8.8	02.5038.76.80
1011	Hexagon nut		M 16 / 934-8	02.5202.20.80
			M 20 x 2 / 934-8	02.5202.33.80
1012	Spring clamp	FB = 90	C 90 x ...	upon request
		FB = 120	C 120 x ...	
1013	Button head rivet		12 x 28 / 124	upon request
1014	Hexagon screw	FB = 90	M 12 x 130	upon request
		FB = 120	M 12 x 160	
1015	Lock nut (1x)		VM 12 / 980-8	02.5220.14.82
	Hexagon nut (2x)		M 12 / 934-8	02.5202.16.80
1016	Tube	FB = 90	Ø 14 / 18 x 94	upon request
		FB = 120	Ø 14 / 18 x 124	

2 Axle clampings

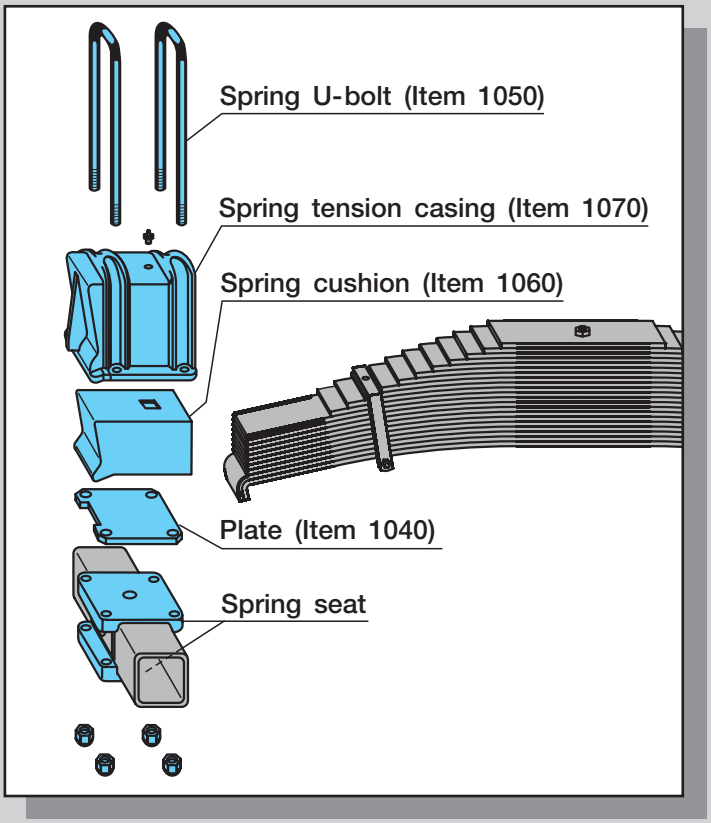
General

Axle – leaf spring connection

The axle is connected to the leaf spring using the **axle connection comprising**: spring U-bolts, spring housing, spring cushions, spring pads, etc.

The (rubber) spring cushion inserted in the spring housing prevents vibration and helps to cushion shocks.

The bent-over spring ends are located in the recess in the plates (no. 1040) arranged on the spring pads. In many leaf springs, these plates are riveted onto the lowest spring layer.



Axle alignment

After repairs have been carried out on the axle beam, connecting piece, connecting rods etc., the axle alignment must be checked and if necessary corrected.

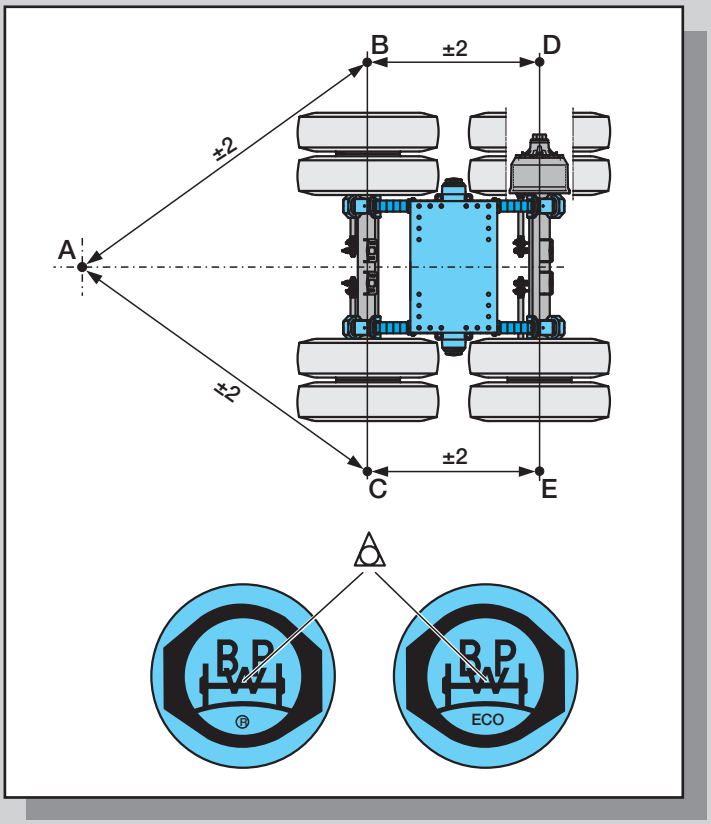
Determine the diagonal dimensions **A - B** and **A - C** for the centre axle (reference axle) by means of comparative measurements (± 2 mm tolerance).

Check and if necessary correct the wheel base dimensions **B - D** and **C - E** for the rear axle (max. tolerance ± 2 mm).

In case of deviations, the parallel arrangement of the axles must be achieved by welding on the upper spring pads.

Measurement is generally carried out by means of the hub cap centre point (see illustration) or the centring hole in the axle stub.

It can also be carried out using screwed-on graduated tubes.



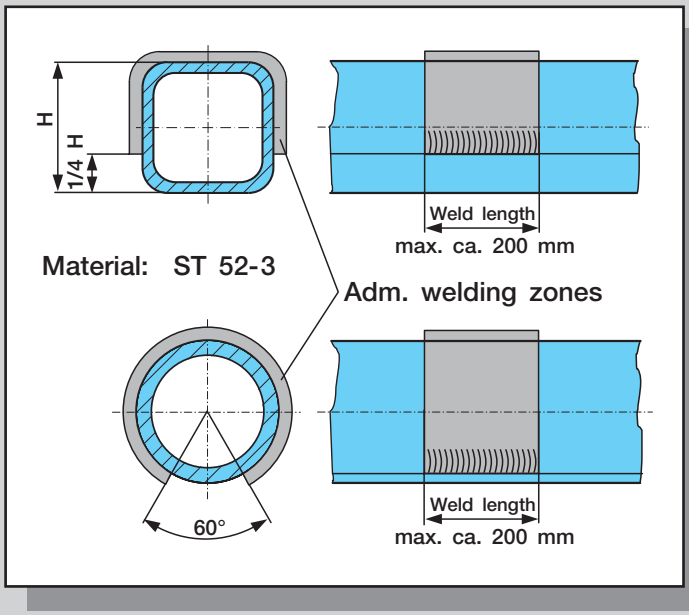
Hub cap centre point in the BPW logo.

The triangle (△) in the BPW logo is positioned centrally if there is an ® or ECO (ECO^{Plus}) stamped below the BPW logo (since 1989/1994).

Welding guidelines for axle beams.

When fitting or repairing trailer axles it may be necessary to weld components onto the axle beam.
For that reason BPW axles are made of materials that can be welded. The axle beams do not have to be pre-heated before welding.

The carrying capacity and faultless operation of BPW axles are not impaired by welding, if the following points are complied with.



Welding process

- Inert gas-shielded arc welding
  Welding wire quality G 42 0 (DIN EN 440)
- Manual arc welding
  Stick electrodes E 42 2 (DIN EN 499)

Mechanical quality values must correspond to the basic material ST 52-3.

Max. weld thickness a 5 ◺ (DIN EN 25817)

Avoid end craters and undercuts.

Miscellaneous

No unauthorised change to the camber angle of the axle.

Adherence to the welding zones and weld lengths as shown in the adjacent sketch.

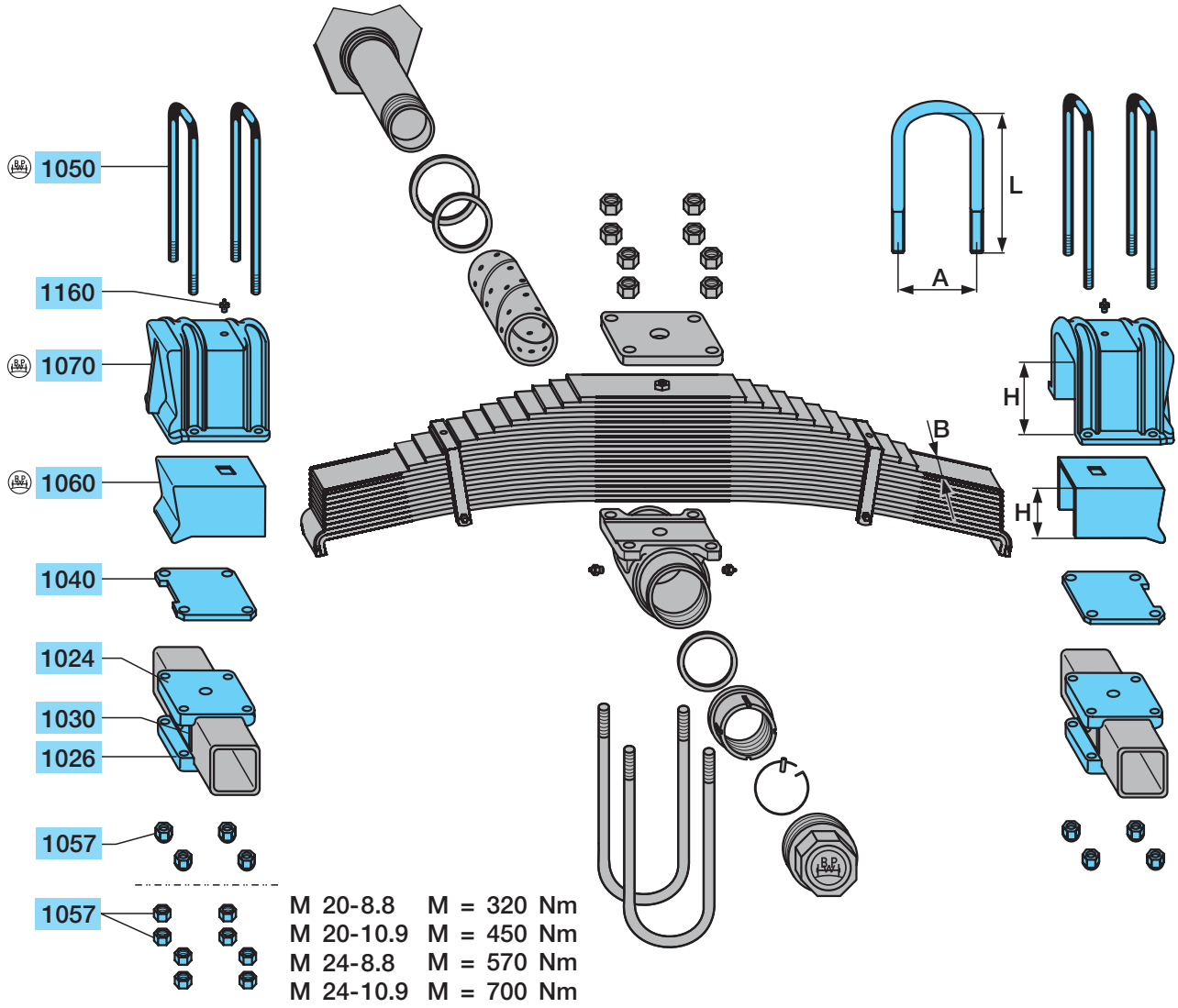
Warning: No welding must be carried out in the lower tensile zone of the axle beam!

Important for all welding work !

The leaf springs, plastic pipings and other sensitive parts should be protected against sparks and weld splashes during all welding work. The earth terminal must under no circumstances be attached to the leaf spring or hub.

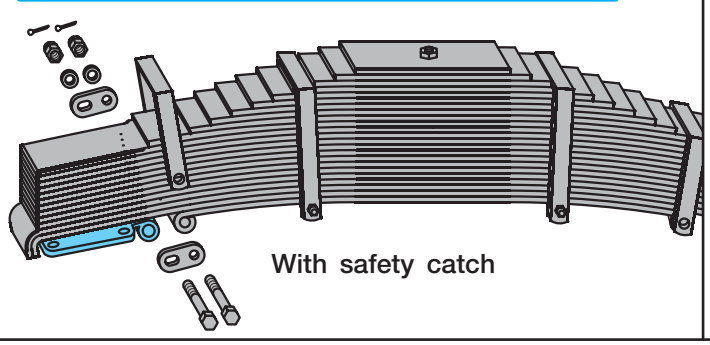
2.1 Axle clampings

Spring seats, axle clamping, safety catch



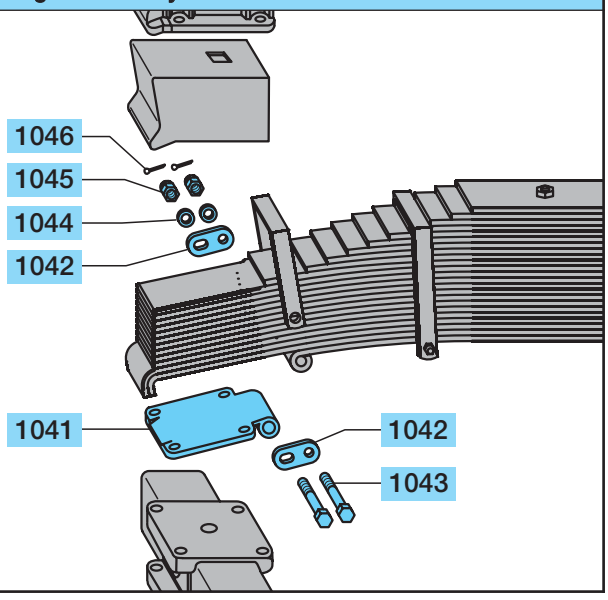
Leaf springs with riveted plates

Without safety catch



With safety catch

Leaf springs with safety catch



Spring seats

Item	Designation (Remark)	BPW Code no.			
		Leaf spring width (B) = 90 mm			Leaf spring width (B) = 120 mm
		8 - 12 t Ø 127	8 - 9 t □ 120	10 - 12 t □ 150	10 - 20 t □ 150
1024	Spring seat, upper	03.032.38.65.0 4x	03.032.17.63.0 2x	03.032.19.24.0 2x	03.032.19.32.0 2x
1026	Spring seat, lower	-	03.032.17.06.0 2x	03.032.19.23.0 2x	03.032.19.34.0 2x
1030	Shaped plate	-	03.161.64.06.0	03.161.64.07.0	03.161.64.05.0

Axle clamping

Item	Designation	Dimension	BPW Code no.		
			8 - 10 t B = 90	10 - 12 t B = 90	12 - 20 t B = 120
1040	Plate	200 x 180 x 12	03.285.76.07.0		
		224 x 200 x 12		03.281.76.03.0 *	
		240 x 234 x 12			03.285.76.01.0
1050	Spring U-bolt	M 20 / A 133 / L 332	03.138.34.02.0		
		M 20 / A 133 / L 346	03.138.34.03.0		
		M 20 / A 152 / L 405	03.138.37.01.0		
		M 24 / A 152 / L 415		03.138.41.29.4 [1]	
		M 24 / A 192 / L 415			03.138.42.01.4 [1]
1057	Hexagon nut (32x)	M 20-10.9 / 934	02.5202.24.10		
		M 24-10.9 / 934		02.5202.30.10	02.5202.30.10
	Lock nut (16x)	VM 24-10.9 / 980		02.5220.74.12	02.5220.74.12
1060	Spring cushion	H = 103	03.140.14.02.0		
		H = 151	03.140.14.01.0	03.140.14.01.0	
		H = 147			03.140.16.01.0
1070	Spring tension casing	H = 106	03.146.03.02.0		
		H = 155	03.146.03.06.0	03.146.06.06.0	
		H = 151			03.146.06.05.0
1160	Grease nipple	AS 10 x 1	02.6850.06.02		

* Not with leaf springs with riveted plates

[1] Important! Use short spring U-bolts, only locknuts (02.5220.74.12)

Safety catch

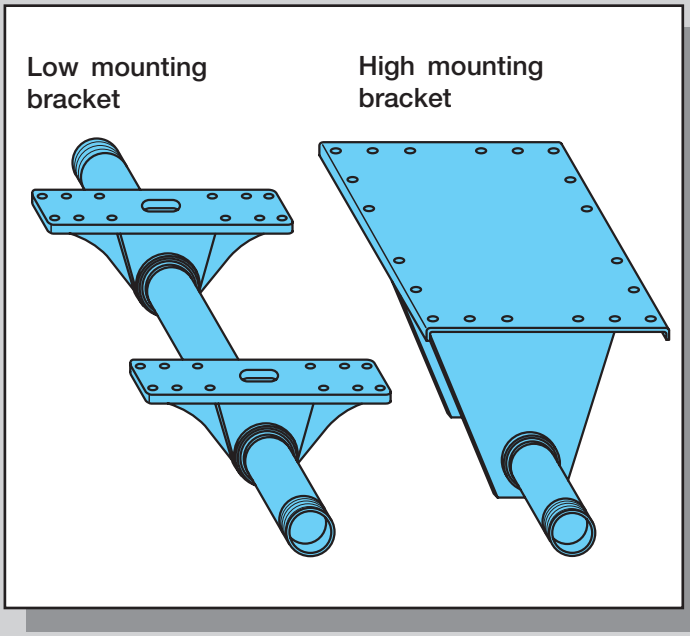
Item	Designation	Dimension	BPW Code no.		
Leaf springs with safety catch				B = 90	
1041	Locking plate			03.351.00.07.0	
1042	Shackle			03.232.74.02.0	
1043	Hexagon screw	M 20 x 160		02.5023.09.82	
1044	Washer	20 / 1440		02.5407.20.01	
1045	Castle nut	M 20 / 937		02.5207.18.04	
1046	Splint	4 x 36 / 94		02.6201.44.01	

3 Trunnion axle beam, trunnion axle bearing

General

Trunnion axle beam

The trunnion axle consists of a thick-walled tube to which are attached two low supports for attachment below the vehicle, or a tall central block between the springs provides for direct mounting to the vehicle frame.

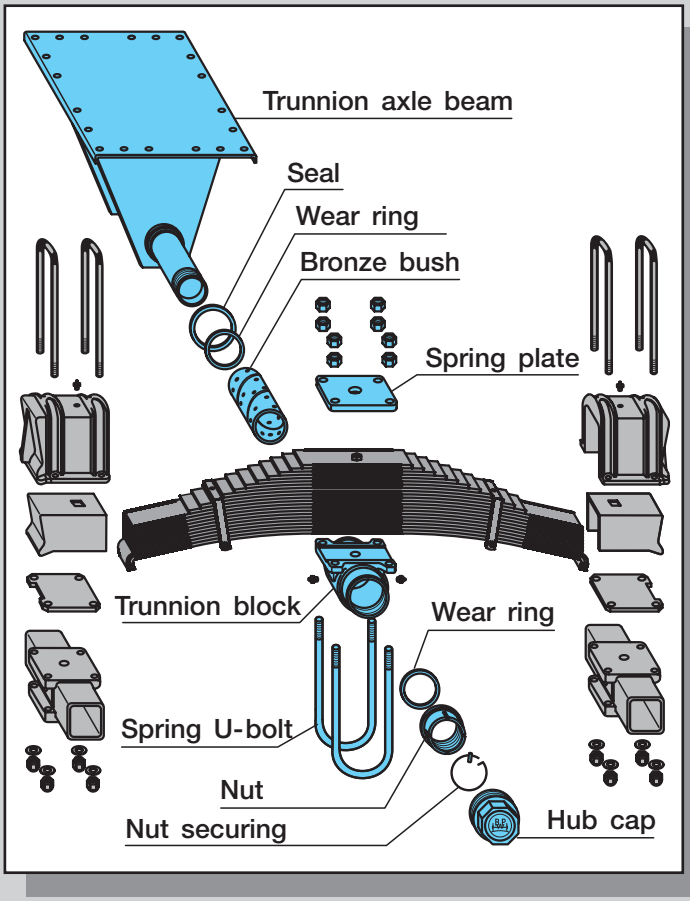


Trunnion axle – leaf spring connection

The leaf spring axle is connected to the trunnion axle beam using the **trunnion axle connection** comprising: spring U-bolts, mounting brackets, spring plates, etc.

The generously sized bronze bushes in the mounting brackets ensure a low-maintenance, long-lasting mounting.

Grease nipples attached to the mounting brackets permit straightforward greasing of the bearing points.



Trunnion axle bearing

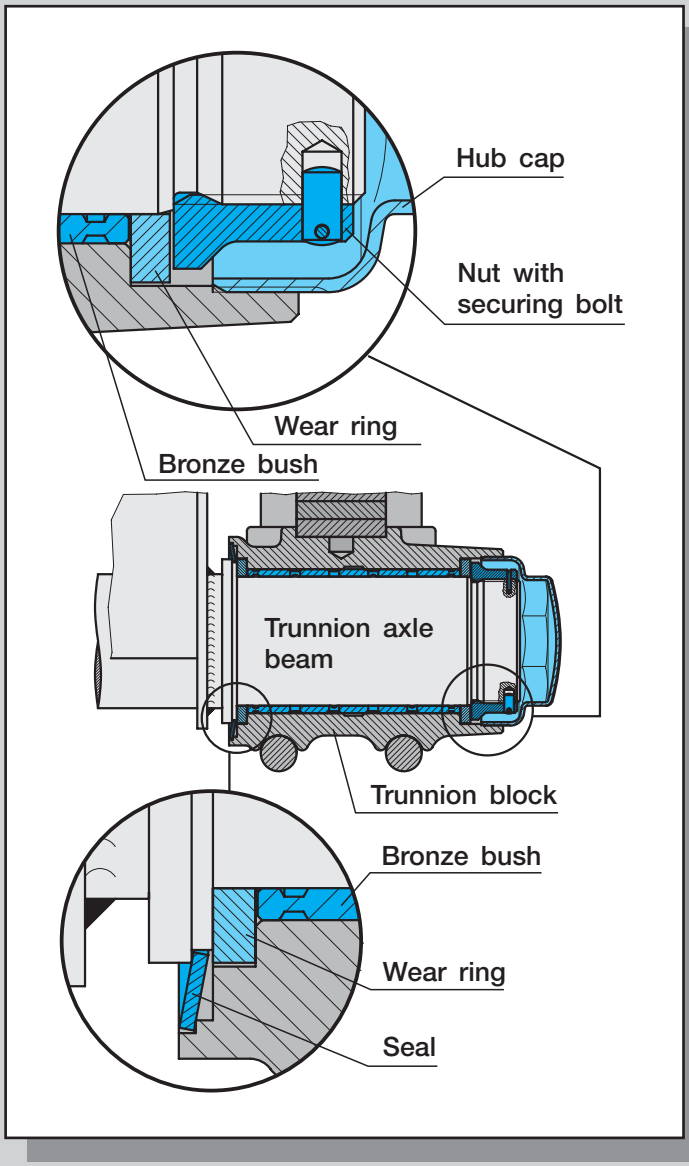
The axle support bearing consists of bronze bushes equipped with lubrication holes and ducts.

A sealing ring on the side facing the middle of the vehicle prevents dirt and dust from penetrating.

On the side facing the outside of the vehicle, a screwed-in hub cap prevents foreign bodies from penetrating.

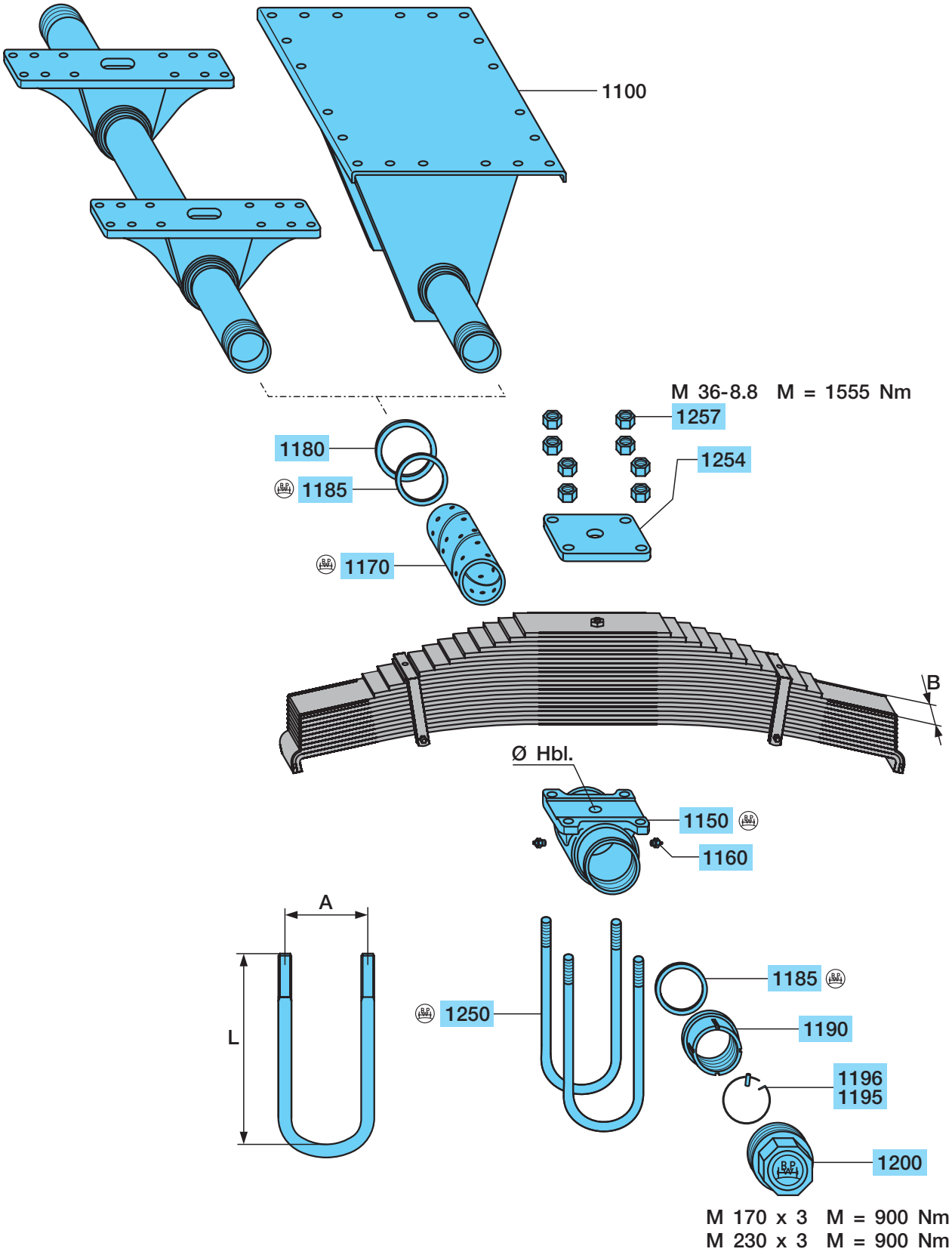
If necessary, the closing rings and bronze bushes can be changed in a straightforward procedure.

The slotted nuts bolted onto the ends of the trunnion axle beam are secured with hooked spring rings and pins to prevent them coming loose.



3.1 Trunnion axle beam, trunnion axle bearing

Trunnion axle bearing



Trunnion axle bearing

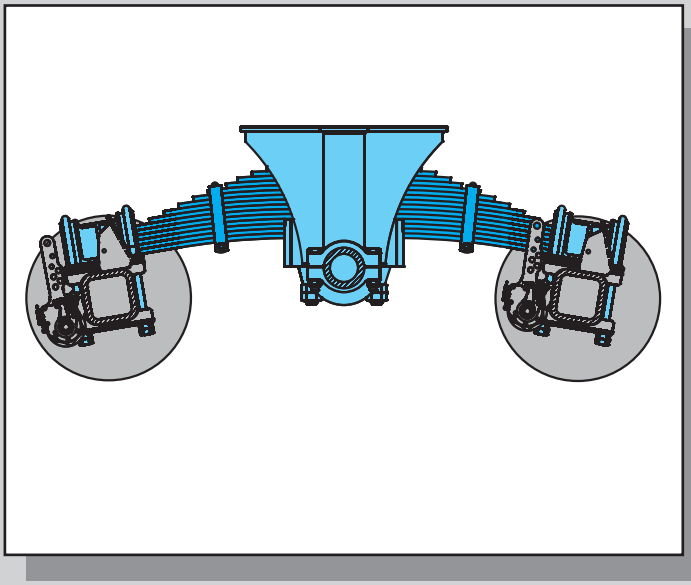
Item	Designation	Dimension	BPW Code no.		
			8 - 12 t B = 90	(12 t) 14 t (16 t) B = 120	16 - 20 t B = 120
1100	Trunnion axle beam		When ordering trunnion axle beam please state suspension type and BPW code-no. (name plate).		
1150	Trunnion block	Ø 145 / Hbl. Ø 24	03.224.17.01.1		
		Ø 200 / Hbl. Ø 24		03.224.19.02.1	
		Ø 200 / Hbl. Ø 35			03.224.19.03.1
1160	Grease nipple	AS 10 x 1	02.6850.06.02		
1170	Bush	Ø 130 / 145 x 214	03.112.99.02.0		
		Ø 185 / 200 x 243		03.112.99.04.0	
1180	Ring	Ø 160 / 196 x 3.5	03.310.88.03.0		
		Ø 214 / 250 x 3.5		03.310.89.08.0	
1185	Ring	Ø 130 / 165 x 10	03.310.38.01.0		
		Ø 185 / 220 x 10		03.310.39.02.0	
1190	Nut	M 125 x 4	03.264.19.02.0		
		M 180 x 4		03.264.19.03.0	
1195	Spring ring	Ø 119 x 3.2	03.188.06.04.0		
		Ø 159 x 3.2		03.188.07.04.0	
1196	Bolt	Ø 10 x 20	03.084.72.01.0		
1200	Hub cap	M 170 x 3 / SW 130	03.212.26.06.0		
		M 230 x 3 / SW 120		03.212.27.01.0	
1250	Spring U-bolt	M 36 / A 233 / L 498	03.138.60.02.0		
		M 36 / A 233 / L 520	03.138.60.07.0		
		M 36 / A 233 / L 558	03.138.60.03.0		
		M 36 / A 233 / L 568	03.138.60.11.0		
		M 36 / A 233 / L 585	03.138.60.04.0		
		M 36 / A 233 / L 600	03.138.60.10.0		
		M 36 / A 233 / L 625	03.138.60.12.0		
		M 36 / A 290 / L 590		03.138.61.05.0	
		M 36 / A 290 / L 613		03.138.61.01.0	
		M 36 / A 290 / L 627		03.138.61.04.0	
		M 36 / A 290 / L 649		03.138.61.02.0	
		M 36 / A 290 / L 670		03.138.61.07.0	
		M 36 / A 290 / L 725		03.138.61.08.0	
		M 36 / A 290 / L 765		03.138.61.06.1	
		M 36 / A 290 / L 780		03.138.61.09.0	
1254	Plate	190 x 296 x 25	03.281.97.10.0	-	-
		220 x 356 x 30	-	03.281.97.12.0	-
		220 x 356 x 50	-	-	03.280.97.06.0
1257	Hexagon nut (16x)	M 36 / 934-8	02.5202.44.80		

General

BPW BW and GW-units for medium-duty off-road applications.
For transporting robust goods on roads, off-road and on construction sites.

BW and GW-units designed by BPW for tandem axles are extremely well suited to use under medium-duty conditions. Whether on-road, off-road or on construction sites – these robust and long-lasting multiple leaf spring suspension systems ensure reliable goods transport.

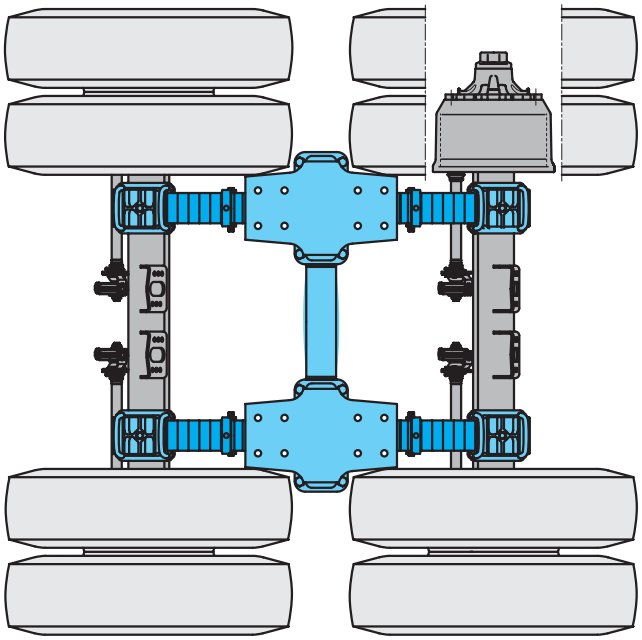
They operate purely mechanically. For example, they can easily be repaired even if the infrastructure is underdeveloped.

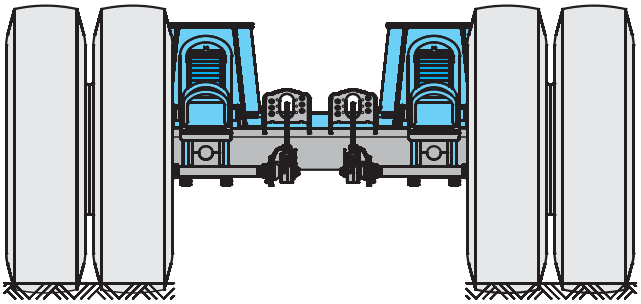


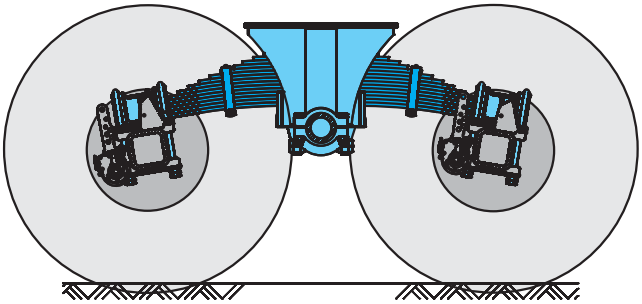
Description

BPW BW-unit (with bronze bushes)

- For axle loads from 2 x 8 t to 2 x 12 t
- Delivered as ready-to-fit, completely assembled unit
- Proven for many years in off-road and tipper applications
- Constructed with a high level of lateral stability
- Equipped with robust and long-life multi-leaf springs
- Very long axle load equalization distances
- Not sensitive to semitrailer tilt
- Insensitive to heat, cold and dirt
- High-quality mounting of the trunnion axle in bronze bushes
- Simple installation to the vehicle frame using bolt connection







Function

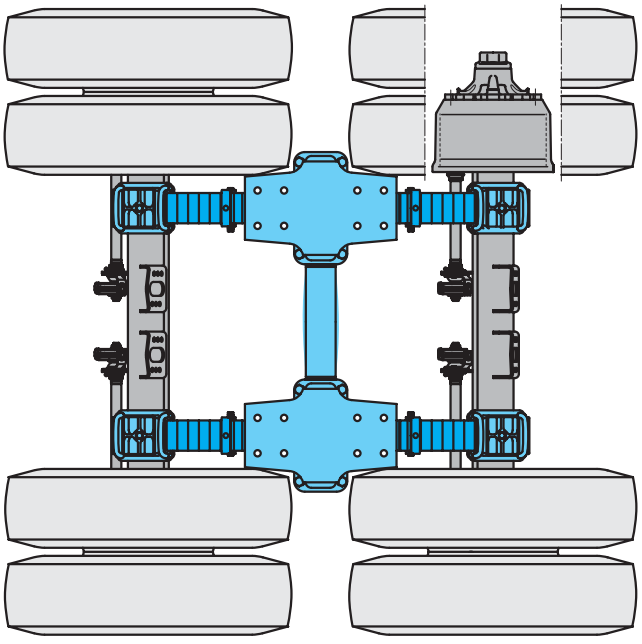
Whenever you need to cope with high axle loads under difficult operating conditions, choose leaf-sprung tandem axle units with an intermediate pivoting trunnion axle for holding the frame connecting pieces.
The spring packs are extremely sturdy and comprise several spring steel layers.
They are mounted in swinging bearings on the trunnion axle using bronze or rubber bushes.
The axles are clamped onto the spring ends and are controlled by the main spring layers.

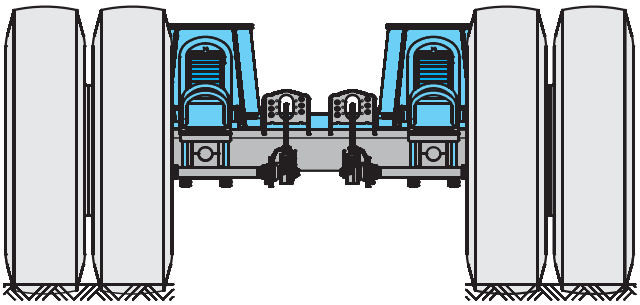
An even distribution of tension across the length of the spring is achieved thanks to the use of spring layers with different lengths. This produces a trapezoidal shape in the side view, which explains why the arrangement is also referred to as a trapezoidal spring.
Two tall blocks for direct mounting on the vehicle frame are used for attachment under the vehicle.

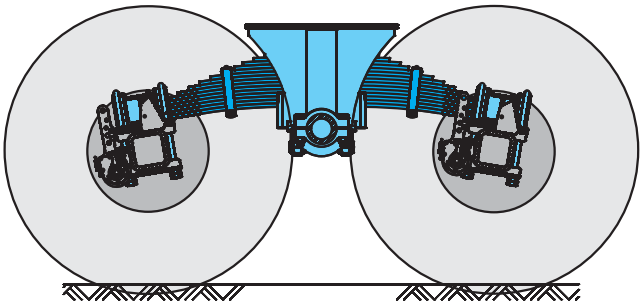
Description

BPW GW-unit (with rubber bushes)

- For axle loads from 2 x 8 t to 2 x 10 t
- Delivered as ready-to-fit, completely assembled unit
- Proven for many years in off-road and tipper applications
- Constructed with a high level of lateral stability
- Equipped with robust and long-life multi-leaf springs
- Very long axle load equalization distances
- Not sensitive to semitrailer tilt
- Insensitive to heat, cold and dirt
- Low-maintenance mounting of the trunnion axle in rubber bushes
- Simple installation to the vehicle frame using bolt connection







4 Leaf springs for BW / GW suspensions

General

BPW BW and GW-units are equipped with multi-leaf springs.

Multi-leaf springs (trapezoidal springs) contain a stack of spring layers with different cross-sections and graded lengths to give a trapezoidal shape.

They are characterised by their robustness and good default driving properties as well as the ease of replacing individual spring layers.

The spring ends of the leaf springs are connected to the axles with spring U-bolts.

The pins of the upper spring pads project into the two lower, drilled spring layers.

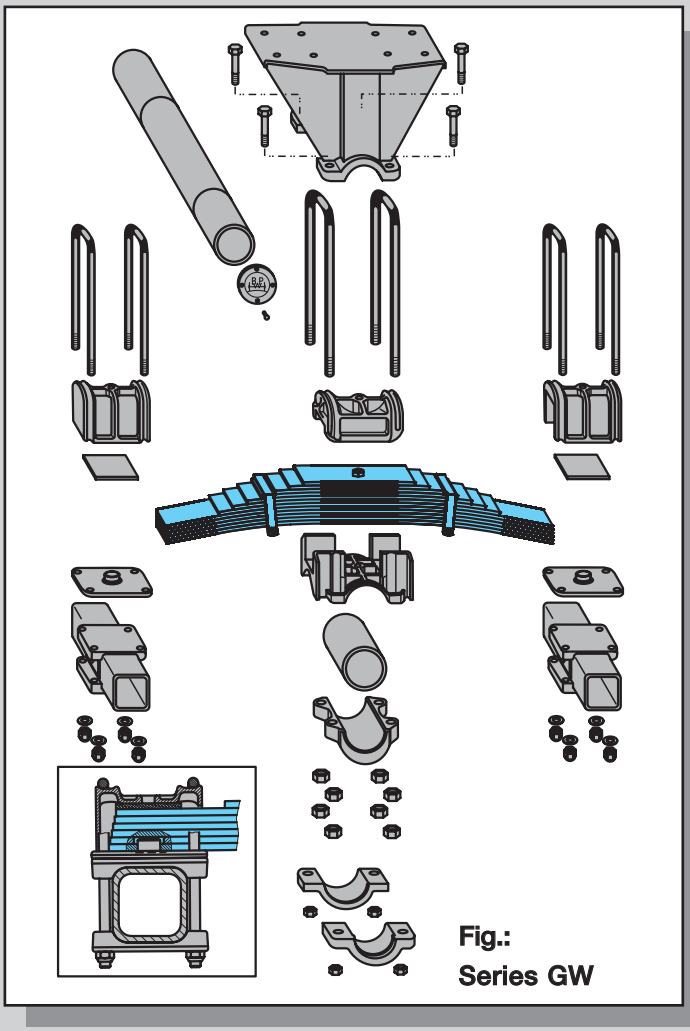
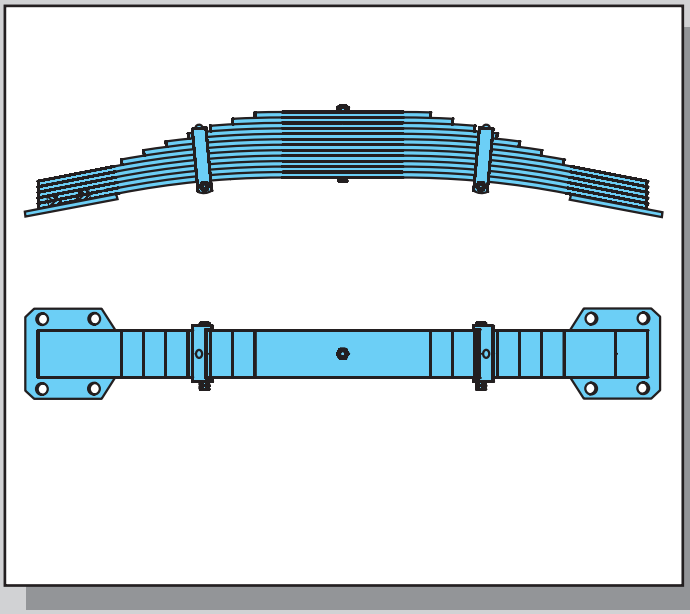


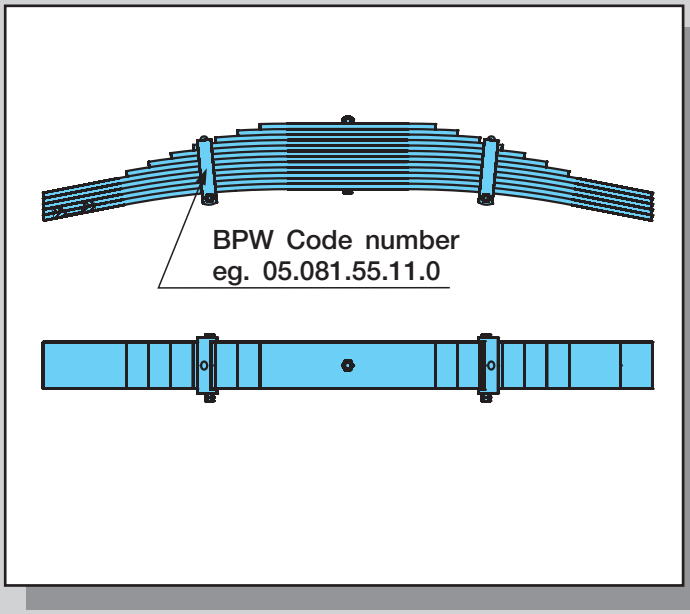
Fig.:
Series GW

In many leaf springs, plates are riveted onto the lower spring layers.



BPW Code number

The BPW code number of the leaf spring is stamped into the spring shackle.



As a load-bearing component of the suspension unit, the leaf spring requires particular attention. The following instructions should be carefully adhered to during repair and maintenance work:

- Do not work on leaf springs with a hammer or any sharp objects.
- Do not work on leaf springs with cutters or grinders.
  In the event that replacement springs or leaves do not fit exactly into the seat of the spring pads or spring housing, the mounting seat must always be widened.
- Individual leaves can be replaced in multi-leaf springs.

Important for all welding work !

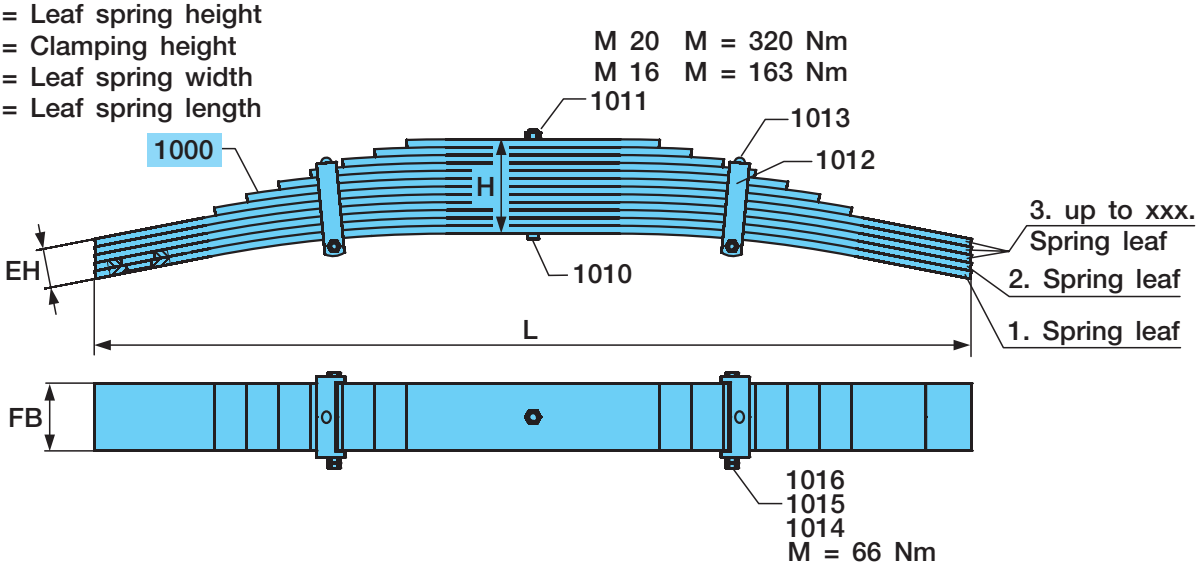
The leaf springs, plastic pipings and other sensitive parts should be protected against sparks and weld splashes during all welding work. The earth terminal must under no circumstances be attached to the leaf spring or hub.

Further information, along with installation and safety instructions, can be found in our current workshop manuals.

4.1 Leaf springs for BW / GW suspensions

Leaf springs for BW / GW suspensions

H = Leaf spring height
EH = Clamping height
FB = Leaf spring width
L = Leaf spring length

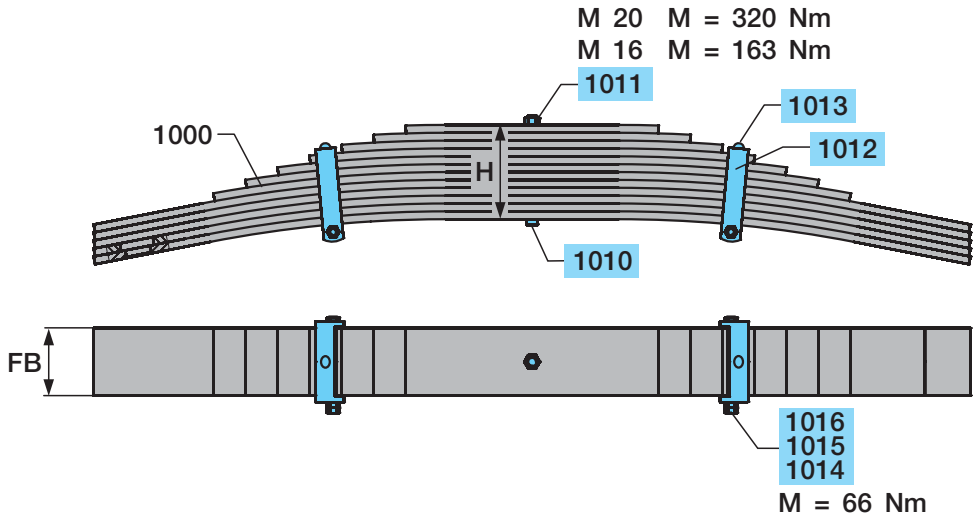


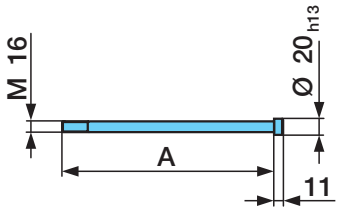
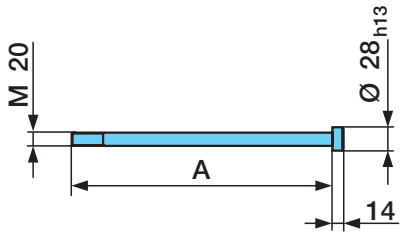
	Wheel base	Axle load	H	L	FB	EH	BPW Code no.	Spring leaves
11-layer leaf springs (Item 1000)								
	1300	8 t	154	1460	120	70	05.081.55.09.0	1. 02.1012.55.00
								2. 02.1012.55.01
								3.-5. 02.1012.55.02
12-layer leaf springs (Item 1000)								
	1400	8 t	168	1560	120	70	05.081.55.11.0	1. 02.1012.55.20
								2. 02.1012.55.21
								3.-5. 02.1012.55.22
13-layer leaf springs (Item 1000)								
	1400	9 t	182	1560	120	70	05.081.56.01.0	1. 02.1012.56.00 *
								2. 02.1012.56.01
								3.-5. 02.1012.56.02
15-layer leaf springs (Item 1000)								
	1400	10 t	210	1560	120	84	05.081.57.04.0	1. 02.1012.57.00
								2. 02.1012.57.01
								3.-6. 02.1012.57.02
	1400	11 t - 12 t	228	1590	120	84	05.081.58.03.0	1. 02.1012.58.00 *
								2. 02.1012.58.01
								3.-6. 02.1012.58.02
17-layer leaf springs (Item 1000)								
	1500	16 t	296	1690	120	96	05.081.58.04.0	1. 02.1012.58.36 *
								2. 02.1012.58.37
								3.-5. 02.1012.58.38
18-layer leaf springs (Item 1000)								
	1400	14 t	252	1590	120	96	05.081.58.06.0	1. 02.1012.58.51 *
								2. 02.1012.58.52
								3.-7. 02.1012.58.53

Further spring leaves upon request.

* = with riveted plates

Spare parts for leaf springs



	Item	Designation	Leaf spring thickness H	Dimension (A)	BPW Code no.
	1010	Spring screw	154	AM 16 x 170-8.8	02.5038.51.80
			168	AM 16 x 185-8.8	02.5038.52.80
			182	AM 16 x 200-8.8	02.5038.61.80
			210	AM 16 x 225-8.8	02.5038.50.80
			228	AM 16 x 245-8.8	02.5038.58.80
			252	AM 20 x 2 x 275-8.8	upon request
			260	AM 20 x 2 x 280-8.8	02.5038.70.80
			296	AM 20 x 2 x 315-8.8	upon request
	1011	Hexagon nut		M 16 / 934-8	02.5202.20.80
				M 20 x 2 / 934-8	02.5202.33.80
	1012	Spring clamp	FB = 120	C 120 x ...	upon request
	1013	Button head rivet		12 x 28 / 124	upon request
	1014	Hexagon screw	FB = 120	M 12 x 160	upon request
	1015	Lock nut (1x)		VM 12 / 980-8	02.5220.14.82
		Hexagon nut (2x)		M 12 / 934-8	02.5202.16.80
	1016	Tube	FB = 120	Ø 14 / 18 x 124	upon request

5 Axle clampings

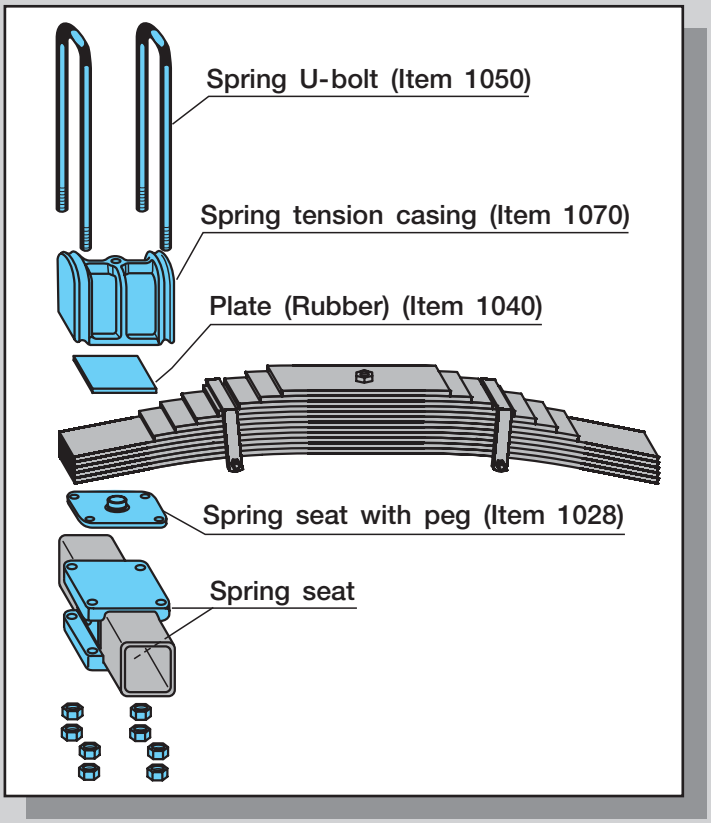
General

Axle – leaf spring connection

The axle is connected to the leaf spring using the **axle connection** comprising: spring U-bolts, spring housing, spring pads, etc.

The (rubber) plate inserted in the spring housing prevents vibration and helps to cushion shocks.

A pin on the top spring pad projects into the two lower drilled spring layers and ensures a secure axle connection.



Axle alignment

After repairs have been carried out on the axle beam, trunnion axle, etc., the axle alignment must be checked and if necessary corrected.

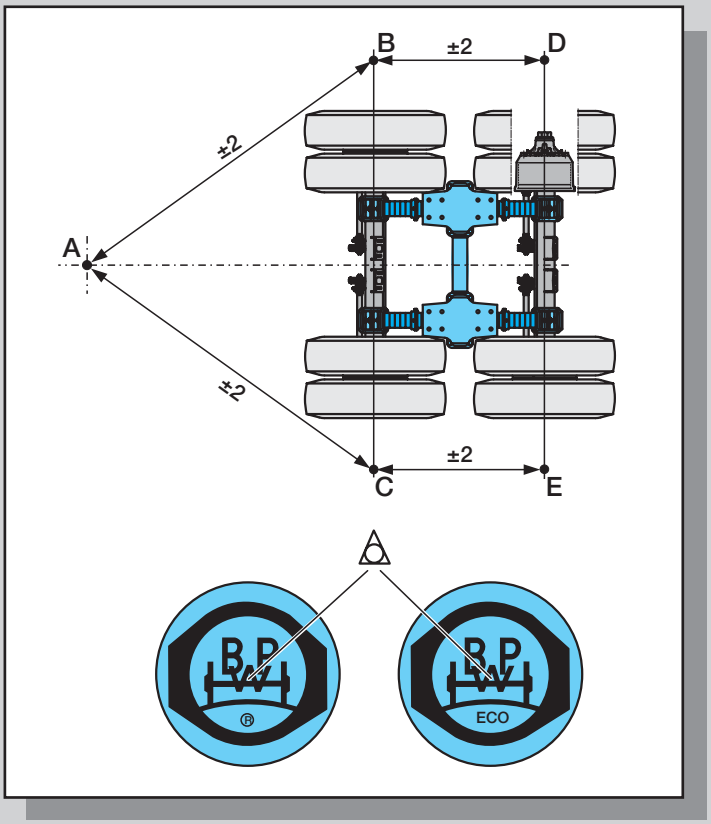
Determine the diagonal dimensions **A - B** and **A - C** for the centre axle (reference axle) by means of comparative measurements (± 2 mm tolerance).

Check and if necessary correct the wheel base dimensions **B - D** and **C - E** for the rear axle (max. tolerance ± 2 mm).

In case of deviations, the parallel arrangement of the axles must be achieved by aligning and then welding the pin plates (no. 1028) onto the upper spring pads.

Measurement is generally carried out by means of the hub cap centre point (see illustration) or the centring hole in the axle stub.

It can also be carried out using screwed-on graduated tubes.



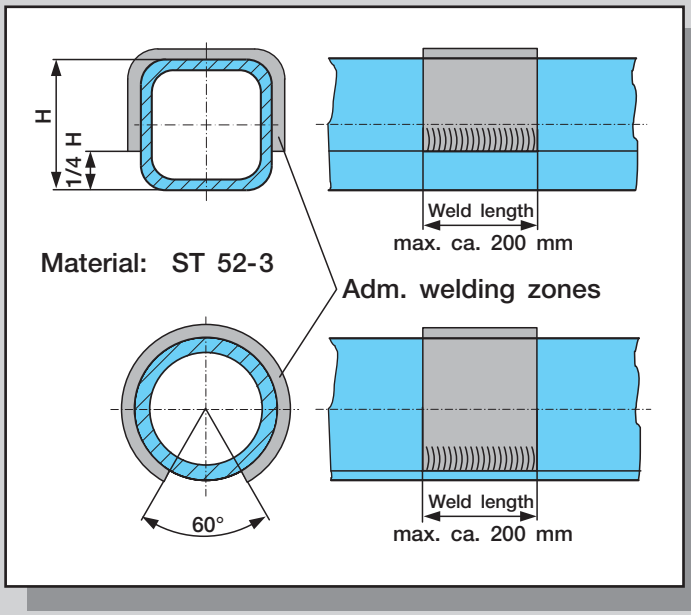
Hub cap centre point in the BPW logo.

The triangle (△) in the BPW logo is positioned centrally if there is an ® or ECO (ECO^{Plus}) stamped below the BPW logo (since 1989/1994).

Welding guidelines for axle beams.

When fitting or repairing trailer axles it may be necessary to weld components onto the axle beam.
For that reason BPW axles are made of materials that can be welded. The axle beams do not have to be pre-heated before welding.

The carrying capacity and faultless operation of BPW axles are not impaired by welding, if the following points are complied with.



Welding process

- Inert gas-shielded arc welding
  Welding wire quality G 42 0 (DIN EN 440)
- Manual arc welding
  Stick electrodes E 42 2 (DIN EN 499)

Mechanical quality values must correspond to the basic material ST 52-3.

Max. weld thickness a 5 ◺ (DIN EN 25817)

Avoid end craters and undercuts.

Miscellaneous

No unauthorised change to the camber angle of the axle.

Adherence to the welding zones and weld lengths as shown in the adjacent sketch.

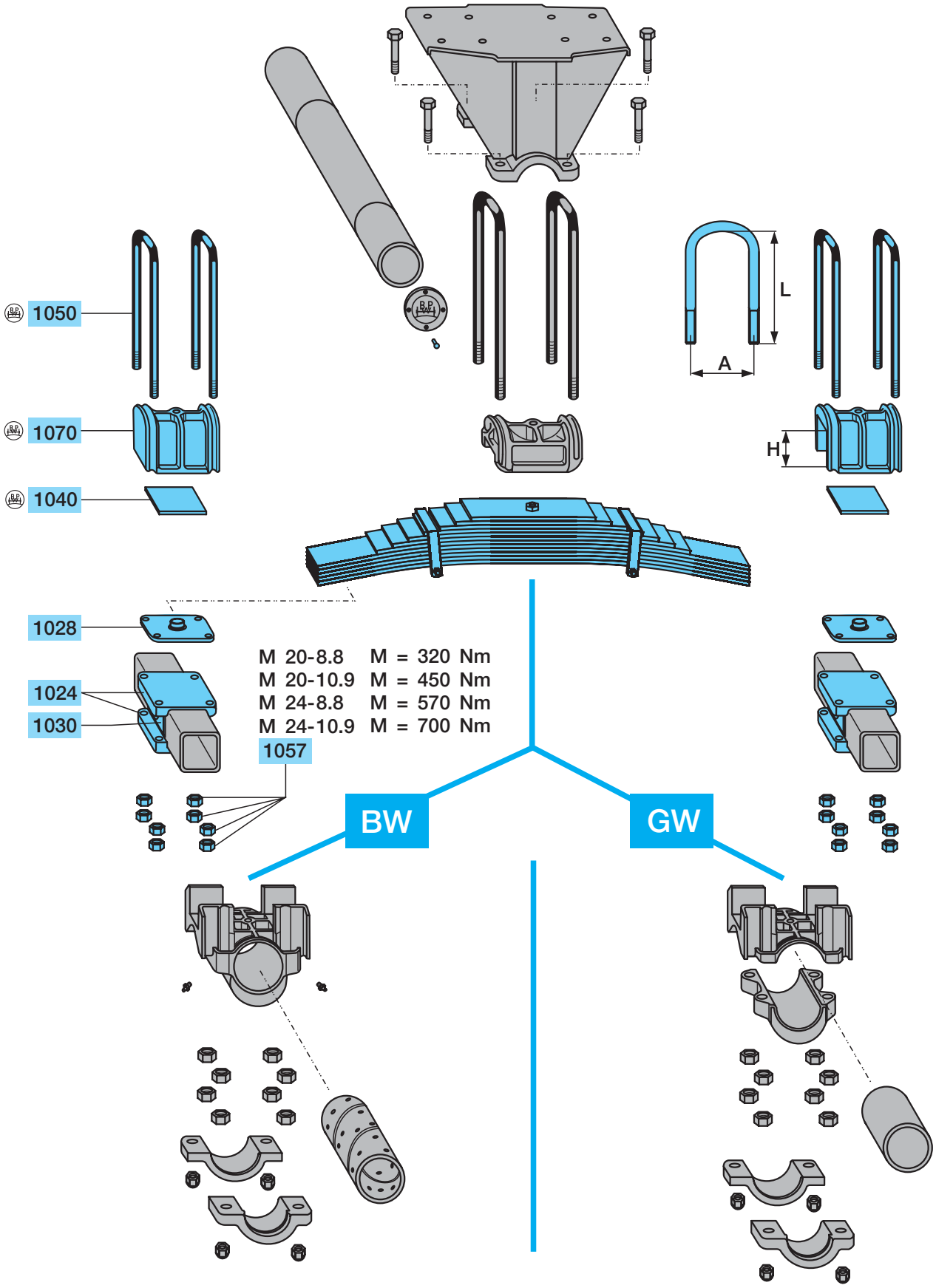
Warning: No welding must be carried out in the lower tensile zone of the axle beam!

Important for all welding work !

The leaf springs, plastic pipings and other sensitive parts should be protected against sparks and weld splashes during all welding work.
The earth terminal must under no circumstances be attached to the leaf spring or hub.

5.1 Axle clampings

Spring seats, axle clamping



Spring seats

Item	Designation (Remark)	BPW Code no.			
		Leaf spring width (B) = 120 mm			
		8 - 12 t Ø 127	8 - 10 t □ 120	9 - 12 t □ 150	13 - 20 t □ 150
1024	Spring seat	03.032.38.09.0 4x	03.032.17.76.0 4x	03.032.19.22.0 4x	03.032.19.82.0 2x
1026	Spring seat	-	-	-	03.032.19.83.0 2x
1028	Spring seat with peg	03.032.17.77.0 2x	03.032.17.77.0 2x	03.032.19.27.0 2x	03.032.19.84.0 2x
1030	Shaped plate	-	03.161.64.06.0 4x	03.161.64.07.0 4x	03.161.64.07.0 4x

Axle clamping

Item	Designation	Dimension	BPW Code no.		
			8 - 10 t □ 120 / Ø 127	9 - 12 t □ 150	13 - 20 t □ 150
1040	Plate	115 x 130 x 16	03.289.85.01.0		
1050	Spring U-bolt	M 20 / A 160 / L 310 M 20 / A 160 / L 330 M 20 / A 160 / L 360	03.138.35.02.0 03.138.35.09.0	 03.138.35.10.0	
		M 24 / A 192 / L 415			03.138.43.05.0 [1]
1057	Hexagon nut (32x) Lock nut (16x)	M 20-10.9 / 934 M 24-10.9 / 934 VM 20-10.9 / 980 VM 24-10.9 / 980	02.5202.24.10 02.5220.50.12		 02.5202.30.10 02.5220.74.12
1070	Spring tension casing	H = 81 H = 95 H = 107	03.146.12.03.0	03.146.12.11.0 03.146.12.07.0	 03.146.13.01.0

* Not with leaf springs with riveted plates

[1] Important! Use short spring U-bolts, only lock nuts (02.5220.74.12)

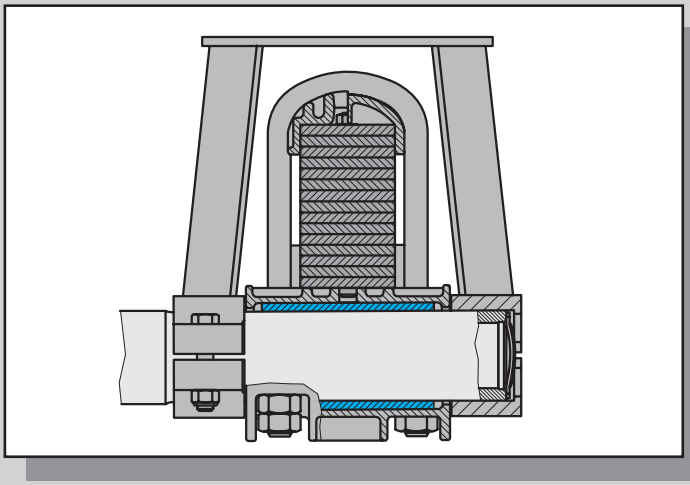
6 Trunnion axle beams, trunnion axle bearing

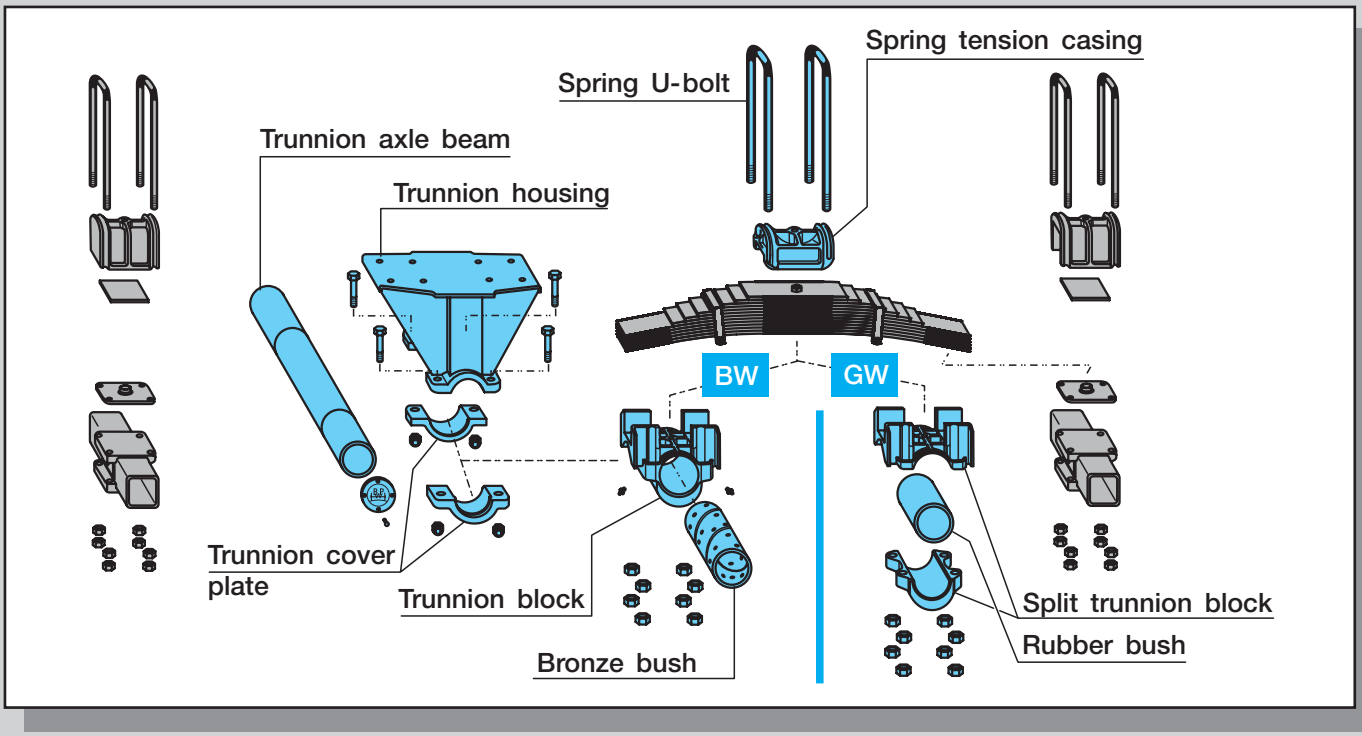
General

Trunnion axle beam

The trunnion axle consists of a thick-walled tube (or solid round stock if necessary) with two high mounting brackets bolted onto it using clamping brackets for attachment under the vehicle.

The leaf springs are enclosed by the bearing block in a U-shaped arrangement.





Trunnion axle – leaf spring connection

The leaf spring axle is connected to the trunnion axle beam using the **trunnion axle connection** comprising: spring U-bolts, spring housing, mounting brackets, etc.

The generously sized bronze bushes in the mounting brackets of **BW-units** ensure a low-maintenance, long-lasting mounting.

Grease nipples attached to the mounting brackets permit straightforward greasing of the bearing points on **BW-units**.

In **GW-units**, the bearing block is split and long-life rubber bushes permit an almost maintenance-free bearing to be achieved.

Trunnion axle bearing

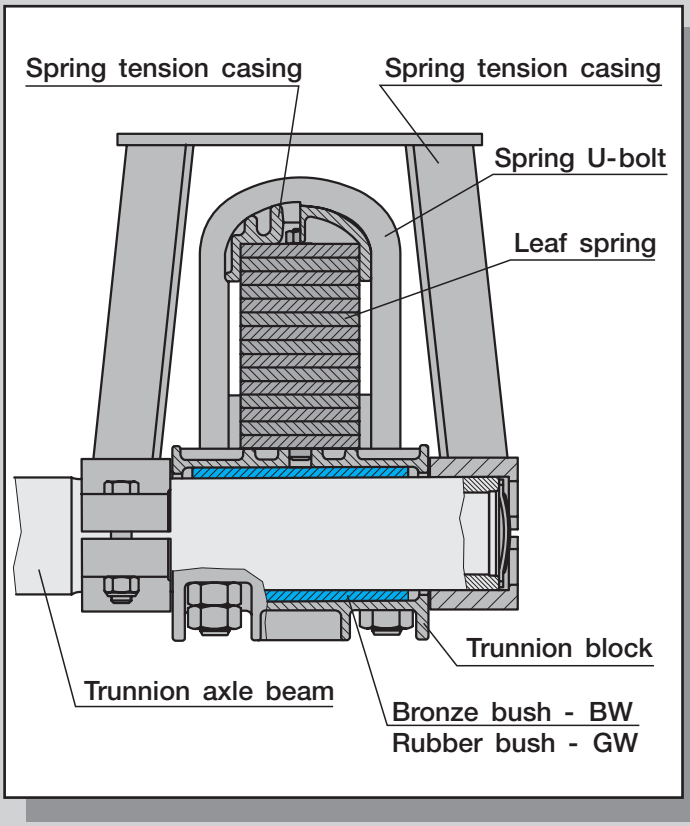
BW

The axle support bearing consists of bronze bushes equipped with lubrication holes and ducts as well as a one-piece bearing block.

If necessary, the bronze bushes can be changed in a straightforward procedure.

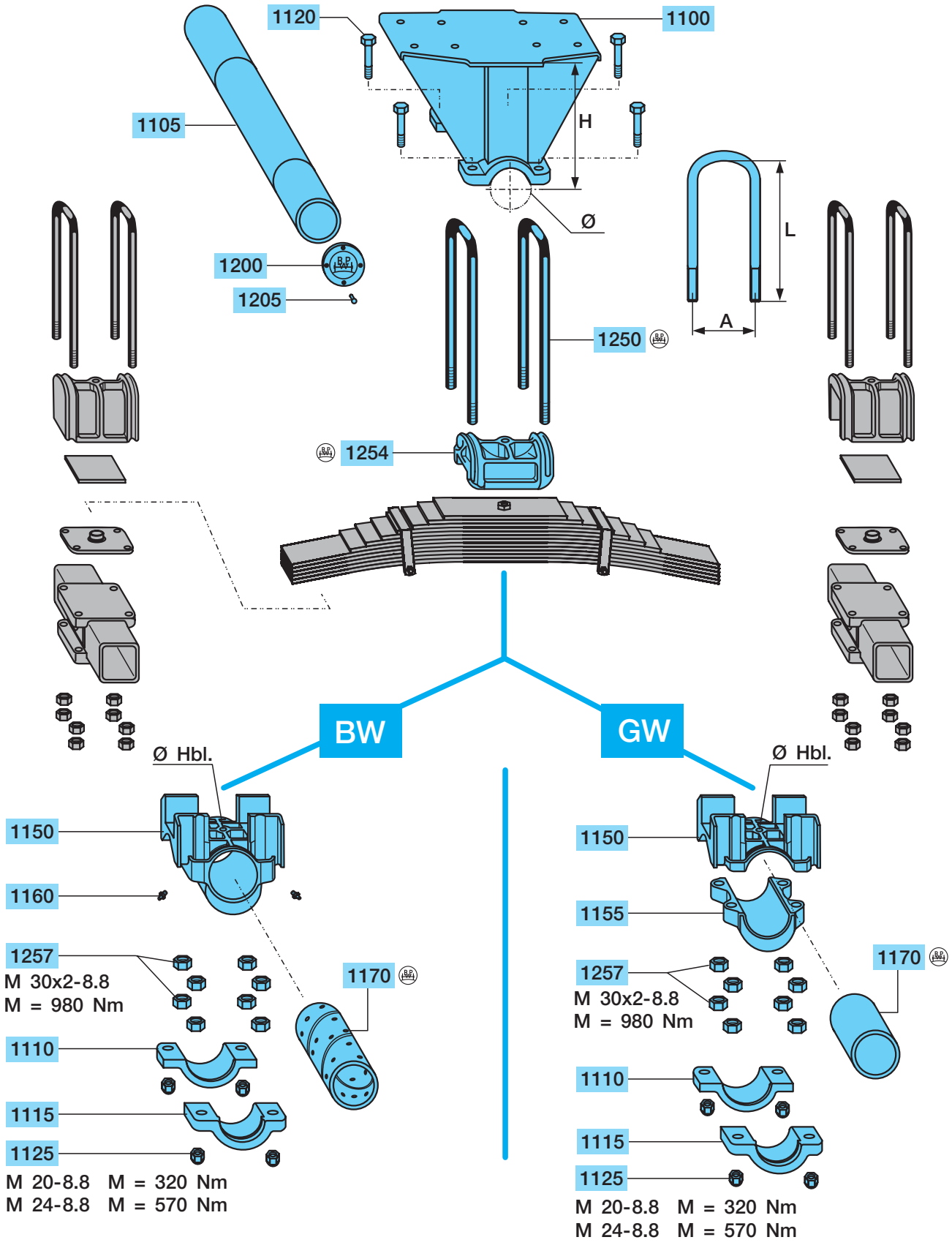
GW

The axle support bearing consists of low-maintenance rubber bushes as well as a block split bearing block.



6.1 Trunnion axle beam, trunnion axle bearing

Trunnion axle bearing

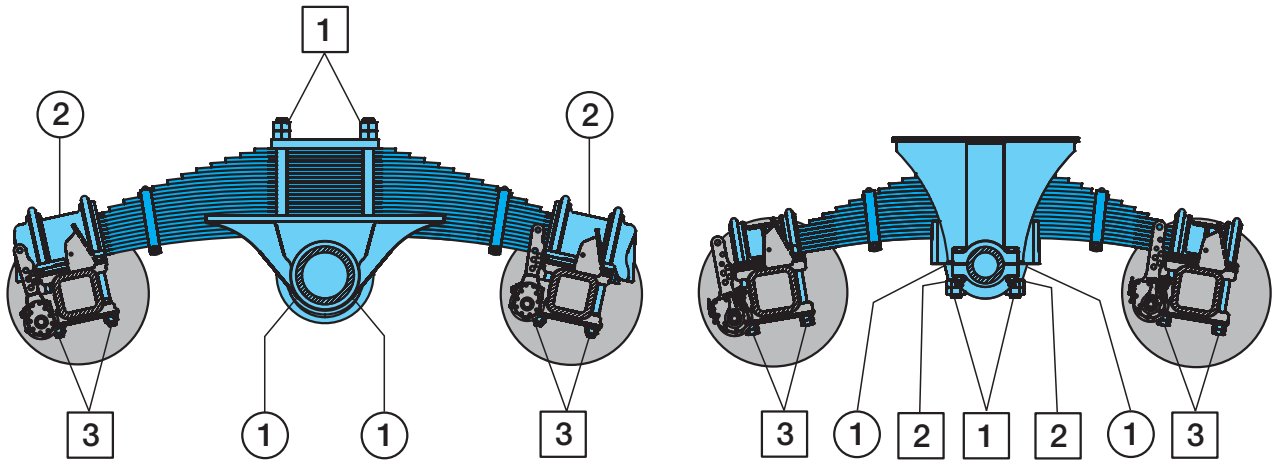


Trunnion axle bearing

Item	Designation	Dimension	BPW Code no.		
			8 - 10 t □ 120 / Ø 127	9 - 12 t □ 150	13 - 14 t □ 150
1100	Trunnion housing	H = 370 / Ø 115	05.226.06.09.0		
		H = 410 / Ø 113		05.226.06.07.0	
		H = 460 / Ø 130			05.226.07.06.0
		H = 500 / Ø 130			05.226.07.05.0
1105	Trunnion axle beam		When ordering trunnion axle beam please state suspension type and BPW code-no. (name plate).		
1110	Trunnion cover plate	Ø 115	03.227.04.14.0		
		Ø 130			03.227.05.06.0
1115	Trunnion cover plate	Ø 115	03.227.04.12.0		
		Ø 130			03.227.05.05.0
1120	Hexagon screw	M 20 x 110 / 931-8.8	02.5023.12.80		
		M 24 x 110 / 931-8.8			02.5023.46.80
1125	Lock nut	VM 20 / 980-10	02.5220.50.12		
		VM 24 / 980-10			02.5220.74.12
GW					
1150	Trunnion housing, upper	Ø 136	03.226.06.08.0		-
1155	Trunnion housing, lower	Ø 136	03.226.06.04.0		-
1170	Bush	Ø 113 / 129 x 215	03.113.99.07.0		-
BW					
1150	Trunnion block	Ø 129 / Hbl. Ø 20	03.224.17.05.0		
		Ø 145 / Hbl. Ø 28			03.224.17.06.0
1160	Grease nipple	H 1 / S 10 x 1	02.6850.06.02		
1170	Bush	Ø 113 / 129 x 249	03.112.98.05.0		
		Ø 130 / 145 x 249			03.112.99.08.0
1200	Cover plate	Ø 109 / BPW	03.115.32.01.0		
1205	Drive pin	4 x 10 / 1476	02.6005.25.40		
1250	Spring U-bolt	M 30 x 2 / A 175 / L 390	03.138.50.06.0		
		M 30 x 2 / A 175 / L 410		03.138.50.10.0	
		M 30 x 2 / A 175 / L 432		03.138.50.08.0	
		M 30 x 2 / A 175 / L 465		03.138.50.09.0	
		M 30 x 2 / A 175 / L 505			03.138.50.11.0
		M 30 x 2 / A 175 / L 550			03.138.50.12.0
1254	Spring tension casing		03.146.14.03.0		
					03.146.15.01.0
1257	Hexagon nut	M 30 / 934-8	02.5202.38.80		

7 Lubrication and maintenance work

Lubrication and maintenance work



Overview ◯ Lubricate ☐ Maintenance	initially after 2 weeks	every 6 weeks	every 26 weeks (twice annually) [1]
① Greasing the trunnion axle (Not required with rubber bushes). Raise the vehicle to take the weight off the bearing points.	◯ [1]	◯ [1]	
② Grease the spring housing. (Grease for the first time when the vehicle is taken into service!)	◯ [1]	◯ [1]	
- Visual inspection Check all parts for damage and wear.			☐
3 Use a torque wrench to check the spring U-bolts on the trunnion axle are firmly tightened. M 30 x 2-8.8 M = 980 Nm M 36-8.8 M = 1555 Nm	☐ [1]		☐ [1]
4 Check that the mounting bolts on the bearing cups are firmly tightened. M 20-8.8 M = 320 Nm M 24-8.8 M = 570 Nm			☐
5 Use a torque wrench to check the spring U-bolts on the spring housings are firmly tightened. M 20-8.8 M = 320 Nm M 20-10.9 M = 450 Nm M 24-8.8 M = 570 Nm M 24-10.9 M = 700 Nm	☐ [1]		☐ [1]

[1] under extreme conditions, with more frequency.

Further information, along with installation and safety instructions, can be found in our current workshop manuals.

Notes

BPW-EL-W-05/1 e

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