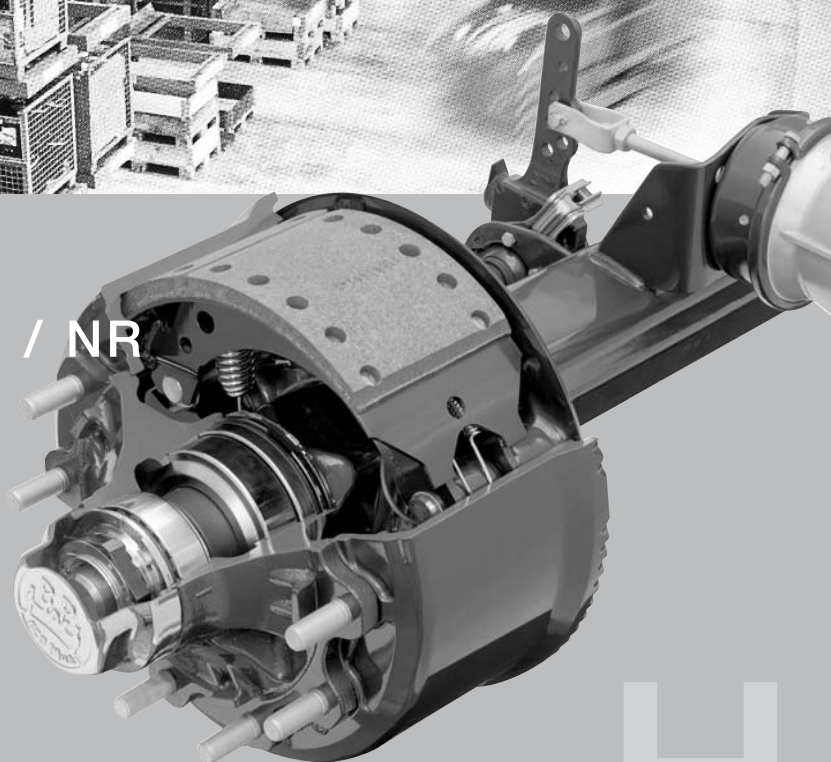




BPW Original spare parts
Series H / R; KH / KR; NH / NR



H

K

BPW ORIGINAL SPARE PARTS

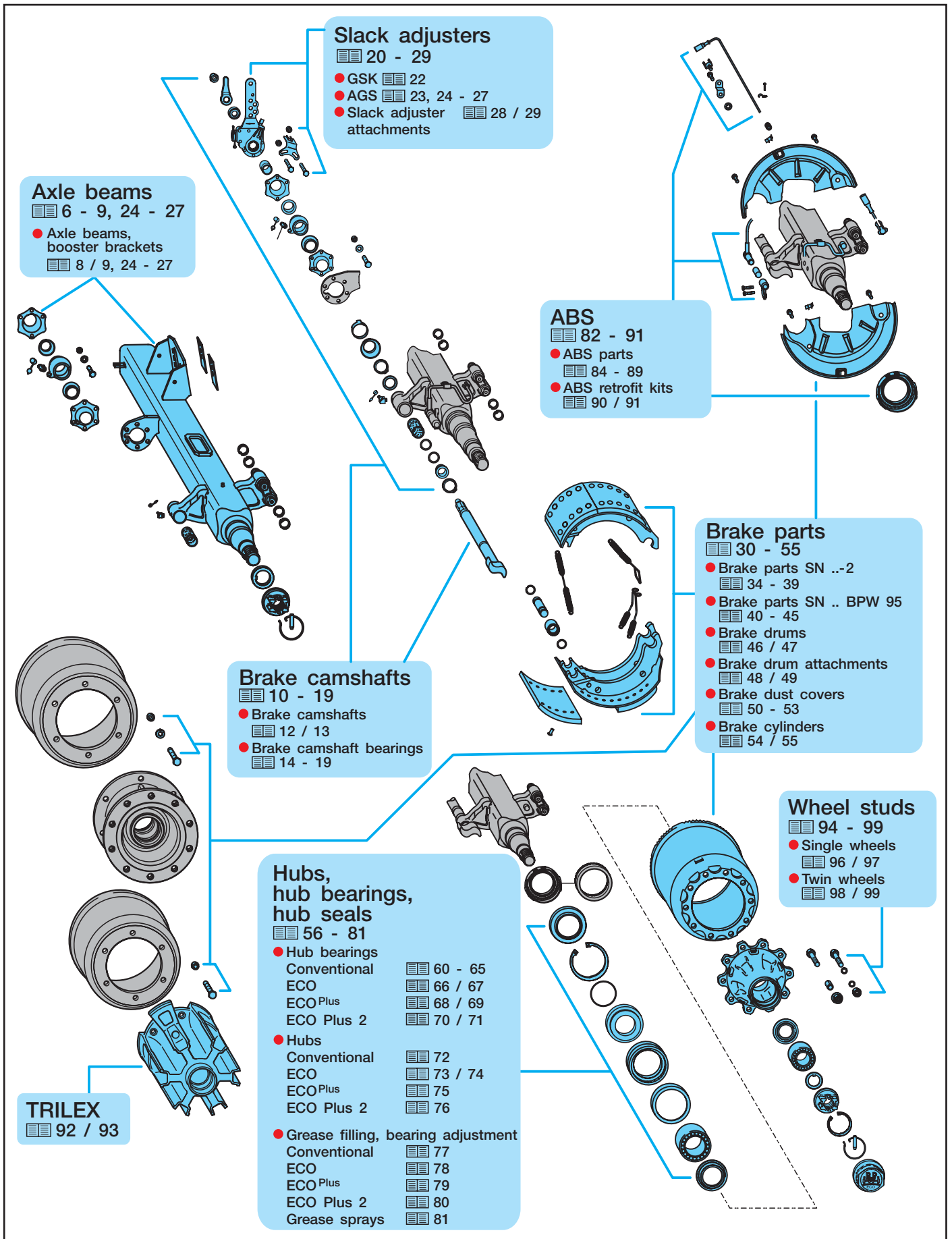
N

Contents		Page		
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Valid: 1.12.2009

This spare parts list shows fast moving parts for BPW trailer axles series H.. / K.. / N.. 6.5 - 18 tons from 1983 (1982) onwards. Additional spare parts as per spare parts catalogue. Subject to change (without notice).





BPW Original spare parts • Series H / R; KH / KR; NH / NR

Riveted type plate up to year of manufacture 1999

BPW BERGISCHE ACHSEN KG D-51674 WIEHL GERMANY

30.38.743.000 9549518421

HSF 9010 ECO SN 4218

zul. Achslast perm. axle capacity charge adm. kg STAT. 9000 v max. km/h max. speed vitesse maxi. 105

TECH. 9450

TYP S 90 TDB 00 07

Max. static axle load on ground
"Permissible techn. axle load"
= Test load of wheel brakes

Adhesive type plate from year of manufacture 2000

BPW BERGISCHE ACHSEN KG D-51674 Wiehl Germany

HSF 9010 ECO SN 4218

30.38.743.000 Bj. 993110227

TYP S 90 TDB 00 07

zul. Achslast perm. axle capacity charge adm. stat. 9000 kg 105 km/h

Type plate from year of manufacture 2006
(Adhesive type plate) with barcode

BPW BERGISCHE ACHSEN KG Made in Germany

HSF 9010 ECO-P SN 4218 073110227

S90TDB0007 / S100-1TDB0014 / H102TDB0752

27.58.743.000 zul. Achslast perm. axle capacity charge adm. stat. 9000 kg 105 km/h

Explanation of BPW axle type codes

Example:											
H	S	F	A	H	9010	-15	ECO	Axle series	Axle beam	Brake	Tyre
H								H..	□	SN 420	20" - 24"
R								R..	○		
KH								KH..	□	SN 360	19.5
KM								KM..	■		
KR								KR..	○		
KRD								KRD..	●		
NH								NH..	□	SN 300	15" / 17.5"
NR								NR..	○		
NRD								NRD..	●		
	B							For single wheels, wheels with offset			
	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			
			A					With alloy hubs			
				(D)				(German Dauerbremse)			
				H				For hanging boosters			
					6006 to 18010			Axle load (kg) + quantity of wheel studs per hub			
						-15		Axle beam - wall thickness, e.g. 15 mm			
						-1		Type of hub bearing (e.g. 14 t)			
						/3		Wheel connection - 10 wheel studs, pitch circle 335 mm			
							ECO	ECO hub system			
							ECO-MAXX	Weight optimized trailer axle with ECO hub system			
							ECOPlus	Weight optimized trailer axle with ECOPlus hub system			
							ECO Plus 2	Weight optimized trailer axle with ECO Plus 2 hub system			
							MAXX	Weight optimized trailer axle with helical fit wheel bolts			

Explanation of BPW axle code numbers

Example:					
30.	38.	743.	000		
20.				Trailer axle without suspension parts	
24.					
25.					
27.					
30.					
31.					
				Axle load	Roller bearing
06.			6500 kg	33116 / 32310	
08.			8000 - 9000 kg	33116 / 32310	
09.					
10.			10000 - 12000 kg	33118 / 32313	
14.			13000 - 14000 kg	32219 / 33215	
16.			16000 - 18000 kg	32222 / 33214	
36.			6500 kg	33116 / 32310	
38.			8000 - 9000 kg	33116 / 32310	
40.			10000 - 12000 kg	33118 / 33213	
44.			13000 - 14000 kg	32219 / 33215	
48.			8000 - 9000 kg	33118 / 33213	
50.			10000 - 12000 kg	33118 / 33213	
56.			6500 kg	33118 / 33213	
57.			8000 - 9000 kg	33113 / 33213	
58.					
59.					
65.			6400 kg	33215 / 32310	
				Wheel brake type	Dimension
582.			SN 3015-1 HWG closed	Ø 300 x 150	
586.			SN 3020-1 HWG closed	Ø 300 x 200	
592.			SN 3015 HWG closed	Ø 300 x 150	
596.			SN 3020 HWG closed	Ø 300 x 200	
501.			SN 3015 BPW 95 closed	Ø 300 x 150	
502.			SN 3020 BPW 95 closed	Ø 300 x 200	
542.			SN 3616 closed	Ø 360 x 160	
546.			SN 3620 closed	Ø 360 x 200	
551.			SN 3616 BPW 95 closed	Ø 360 x 160	
552.			SN 3620 BPW 95 closed	Ø 360 x 200	
790.			SN 4212-2 HWG open	Ø 420 x 120	
794.			SN 4212-2 HWG closed	Ø 420 x 120	
710.			SN 4218-2 HWG open	Ø 420 x 180	
714.			SN 4218-2 HWG closed	Ø 420 x 180	
718.			SN 4220-2 HWG open	Ø 420 x 200	
723.			SN 4220-2 HWG closed	Ø 420 x 200	
739.			SN 4222-2 HWG closed	Ø 420 x 220	
741.			SN 4212 BPW 95 closed	Ø 420 x 120	
743.			SN 4218 BPW 95 closed	Ø 420 x 180	
744.			SN 4220 BPW 95 closed	Ø 420 x 200	
745.			SN 4222 BPW 95 closed	Ø 420 x 220	
				000	Consecutive number 000 - 999

1 Axle beams, booster brackets

General

BPW Axle beams

Square, reliable, light – the BPW axle beam. It's the stable foundation for a long vehicle life. And in combination with our brakes and suspension systems, the square axle produces axle systems which offer convincing all round performance with long service lives and maintenance intervals.

The BPW square axle beam consists of two high-quality, specially rolled "U" sections which are welded together inside and out.

The special feature of the BPW standard axle tube with a 120 mm axle cross-section is its Q.U.A.D. profile (Quality Upgraded Advanced Design). This profile features more material at the corner radii and less material in the top and bottom areas. As a result, the axle cross-sections are reinforced at the points where the force is applied and are optimally shaped to cope with the load.

The Q.U.A.D. profile ensures that the maximum service life can be achieved. BPW axle tubes are available with various cross-sections and wall thickness values depending on the axle load and the application conditions.

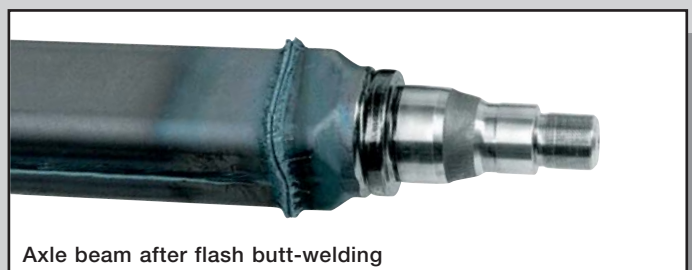
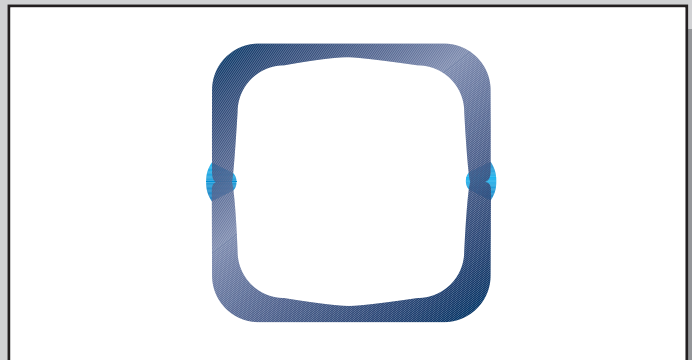
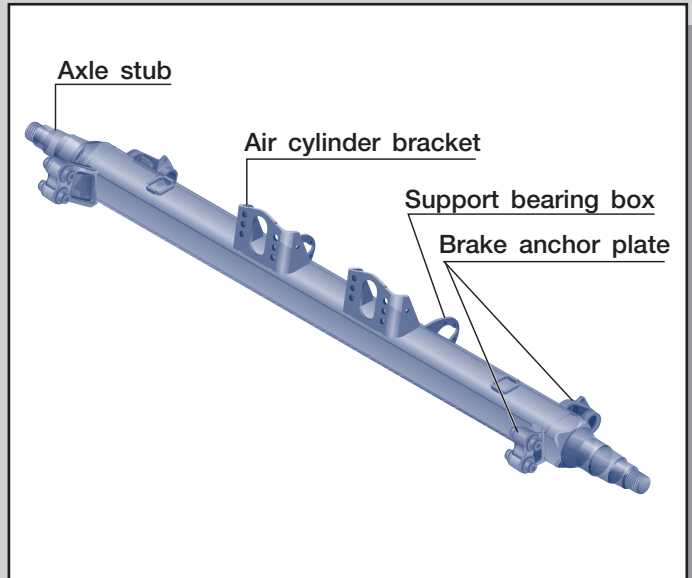
BPW axle stubs are forged, quenched and tempered. They have two stepped bearing seats.

The axle stubs and axle tube are flash butt welded together to produce the one piece BPW axle beam.

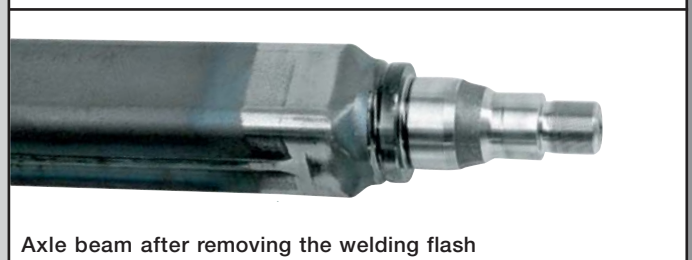
In this welding process, the axle tube and the ends of the axle stubs are heated up to welding temperature by an electric current applied at their joining faces, whilst at the same time being forced together.

This produces an absolutely homogeneous connection without any inclusions. In contrast to conventional welding processes, no filler metals are needed.

At the same time, the axle beam is given its camber and toe-in.



Axle beam after flash butt-welding



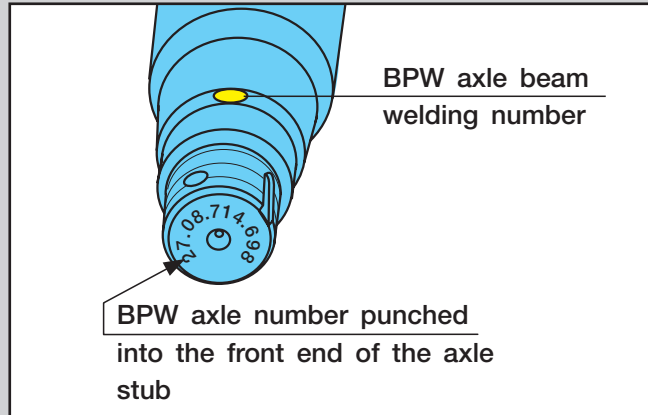
Axle beam after removing the welding flash

Determining replacement axle beams

The BPW axle number is shown on the type plate. If this is missing or no longer legible, the BPW axle number can be read off the front end of the axle stub in most cases.

When ordering the axle beam, quote this BPW axle number with the reference to a replacement axle beam.

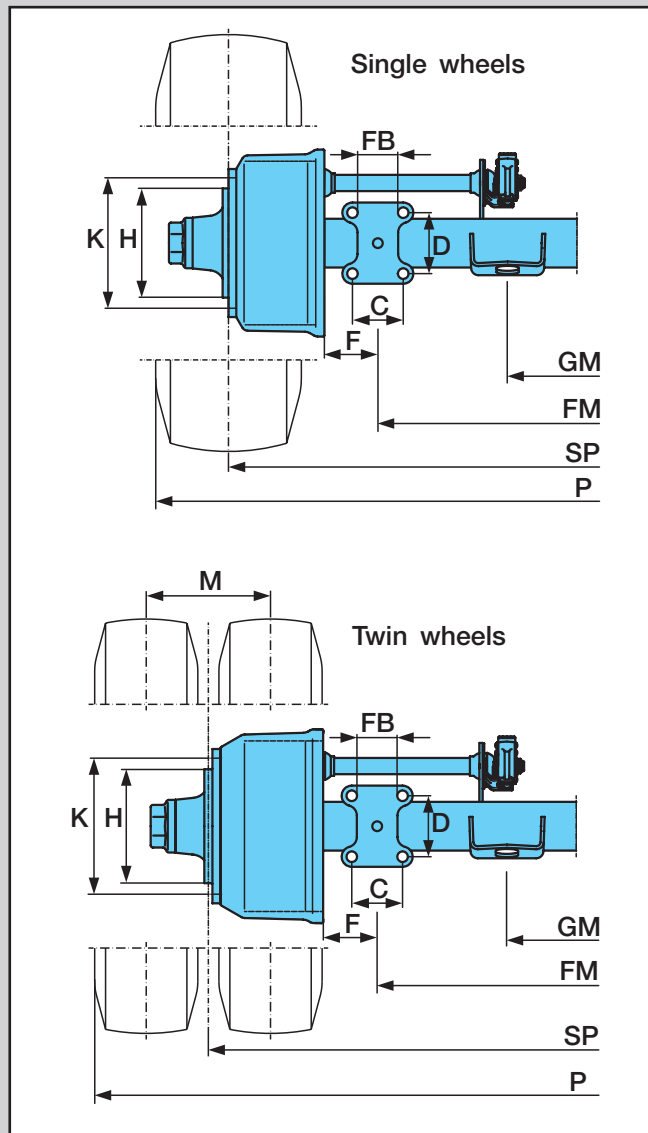
In steering axles and ECO Plus 2 bearings, there is no code number embossed on the front end of the stub.



If there is no BPW axle number or none is known, BPW can identify the axle on the basis of the axle beam welding number or the dimensions.

1. Axle beam cross section (□ 120 / 150, Ø 127)
2. Axle beam wall thickness
3. Booster bracket centre (GM)
4. Spring centre (FM)
5. Track (SP)
6. Overall width (P)
7. Leaf spring width (FB)
8. Spring pad hole pattern (C and D)
9. Wheel seat (H)
10. Pitch circle and number of wheel studs (K)

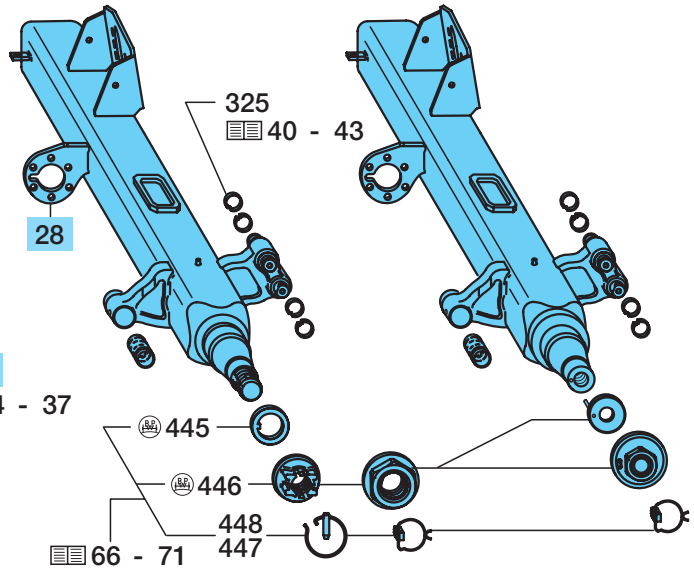
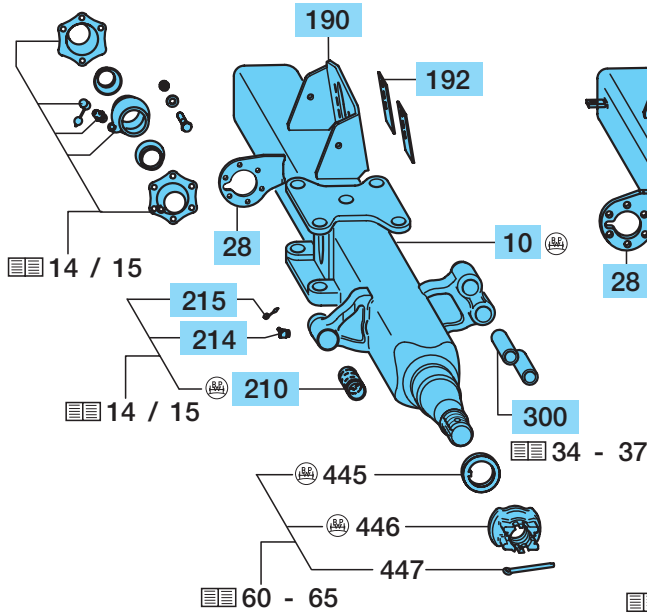
Furthermore, the **type of tyres**, the **brake size** and the approximate **year of manufacture** (first registration) should be specified.



1 Axle beams, booster brackets

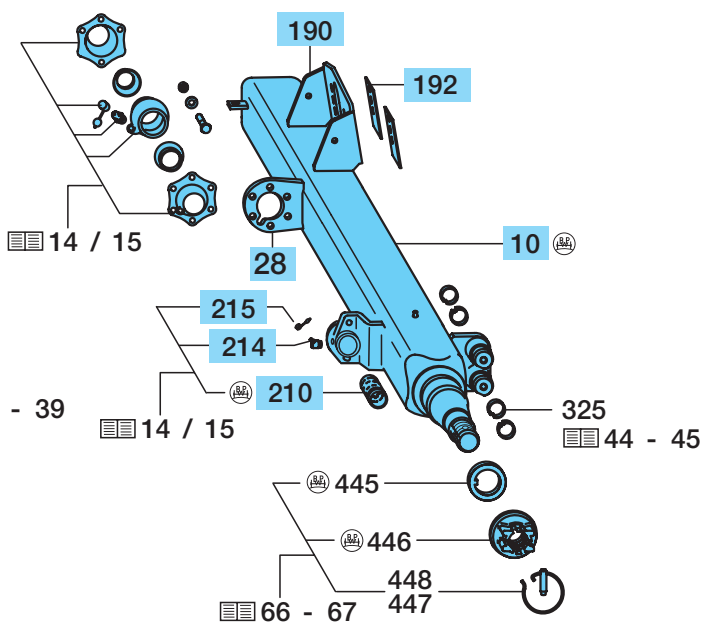
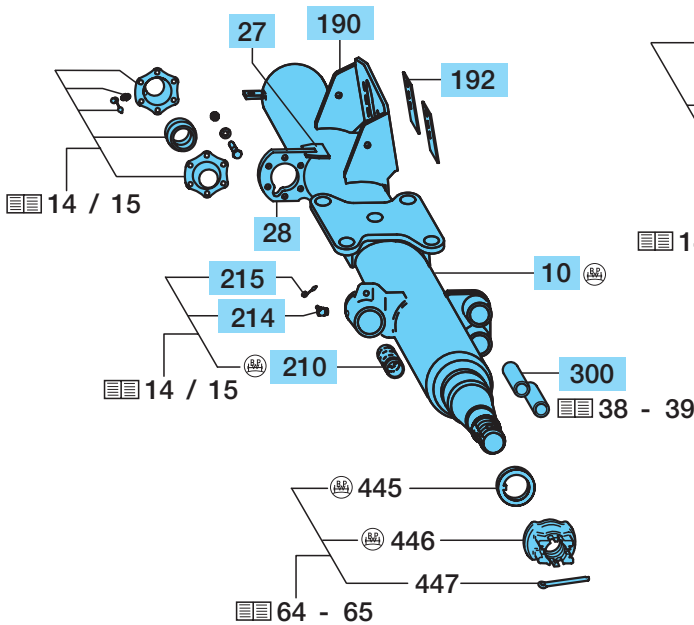
H.. / KH.. Conv. / ECO
Brake ...-1 / 2

H.. / KH.. ECO / ECO^{Plus} / ECO Plus 2
Brake with split roller (BPW 95 / ECO Drum)

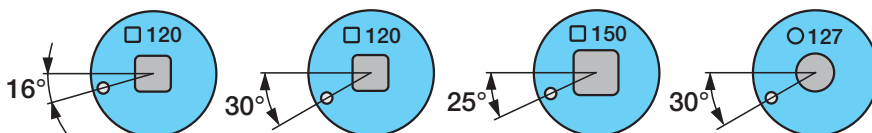


NR.. Conv. / ECO
Brake ...-1 / 2

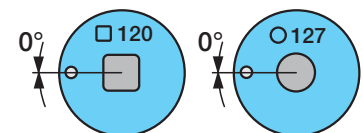
NH.. ECO
Brake with split roller (BPW 95)



Axle series H.. / R..



Axle series K.. / N..



Axle beams, booster brackets 1

H
K
N

Item	Designation (Remark)	BPW Code no. Dimension		
		H.. / R..	KH.. / KR.. / KM..	NH.. / NR..
10	Axle beam assembly (incl. item 27, 28, 190-194 210-215, 220-230, 300, 445-447)	When ordering axle beam assembly, please state axle type and BPW code-no. (axle type plate).		
27	Plate	-	-	03.287.43.03.0 Brake 30...-1
28	Plate	03.285.55.71.0 □ 120 16° 03.285.55.22.0 □ 120 30° 03.285.55.48.0* □ 120 30° 03.285.55.21.0 □ 150 25° * flattened 03.285.55.23.0 ○ 127 30°	03.285.54.12.0 □ 120 03.285.56.18.0 ○ 127	03.285.54.16.0 □ 120 03.285.55.19.0 ○ 127

Booster brackets welded on				
		H.. / R..	KH.. / KR.. / KM..	NH.. / NR..
190	Booster bracket (standard) ¹⁾	03.182.35.78.0 □ 120 16° 03.182.34.77.0 □ 120 30° □ 150 25° 03.182.34.58.0 ○ 127	03.182.35.42.0 □ 120 03.182.34.65.0 ○ 127 03.182.34.95.0 ○ 127 15°	03.182.35.80.0 □ 120 03.182.34.65.0 ○ 127
192	Plate (Reinforcement plate for spring brakes)	03.281.54.10.0	03.281.54.10.0	03.281.54.10.0

¹⁾ for further types refer pages 24 - 26.

Adjustable booster brackets		Adjustable booster brackets are not included with axle beam assembly 09.....		
190	Booster bracket	05.182.34.23.0		
192	Shaped plate	03.165.56.01.0 □ 120 / 150		
193	Shaped plate	03.165.56.02.0		
		03.165.56.05.0 ○ 127		
		03.165.56.06.0		
194	Screw assembly (incl. item 198, 200)	05.865.01.04.0 M 12 x 40/933		
198	Spring washer	02.5601.12.90 A 12 / 128		
200	Hexagon nut	02.5202.16.80 M 12 / 934		

		H.. / R..	Dimension	KH.. / KR.. / KM..	Dimension	NH.. / NR..	Dimension
210	Bush	03.112.44.34.0	Ø 42/46x73	03.112.44.34.0	Ø 42/46x73	03.112.44.34.0	Ø 42/46x73
214	Grease nipple e.g. SN 4222	02.6802.03.50	AM 10 x 1	02.6802.03.50	AM 10 x 1	02.6802.03.50	AM 10 x 1
		02.6802.06.50	BM 10 x 1	02.6802.06.50	BM 10 x 1	-	-
		02.6850.12.50	BM 10 x 1/67°	-	-	-	-
215	Cap	02.3505.20.00		02.3505.20.00		02.3505.20.00	
300	Bush (for brake ...-1 / -2)	03.112.33.08.0	Ø 36/40x60	03.112.33.08.0	Ø 36/40x60	03.112.33.08.0	Ø 36/40x60

-parts are embossed with BPW Code no.

2 Brake camshafts and brake camshaft bearings

General

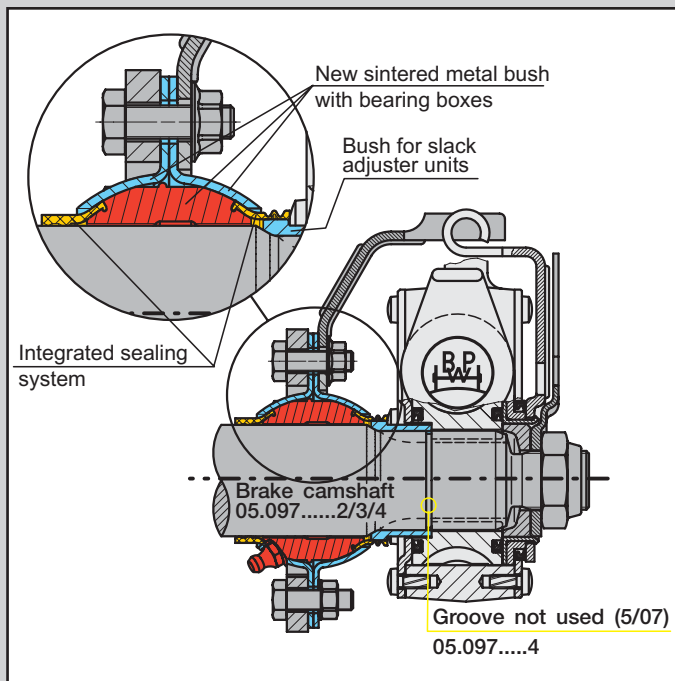
BPW Brake camshafts and bearings

Optimized sealing and improved support for brake camshaft bearings on BPW drum brake axles

As from **October 2000**, an innovative sintered bush in conjunction with a new integrated sealing system will mean double life expectancy for bearing and brake camshaft units.

Advantages:

- Double life expectancy for brake camshaft and bearing units
- Increased reliability of operation
- Integrated sealing system
- Compact design
- Easy, secure installation
- For use with all BPW drum brake axles



Slack adjuster system on the brake camshaft

- 4 / 91

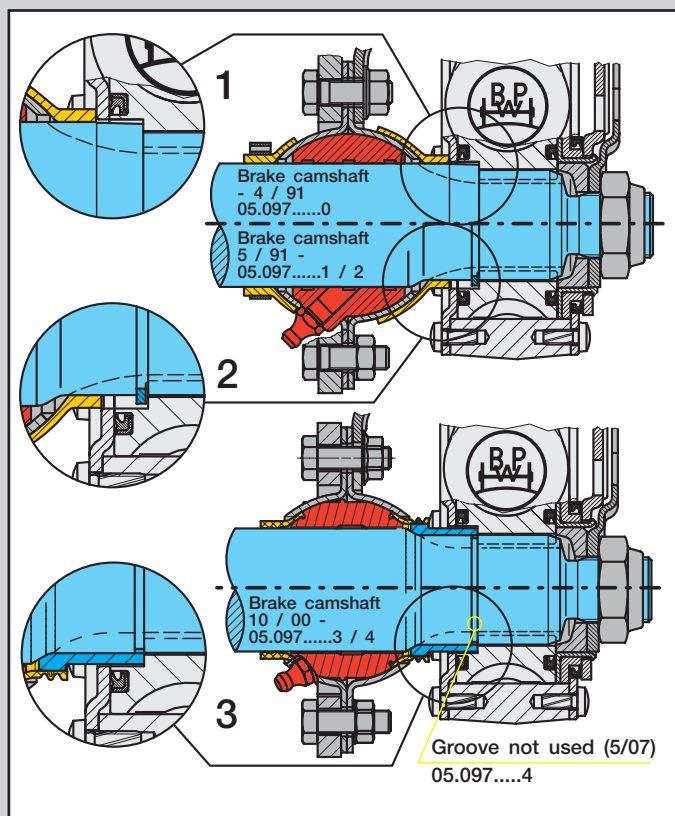
Contact on shoulder of brake camshaft (1)

5 / 91 - 10 / 00

Contact on circlip (2)

10 / 00 -

Contact on the brake camshaft sleeve (3)

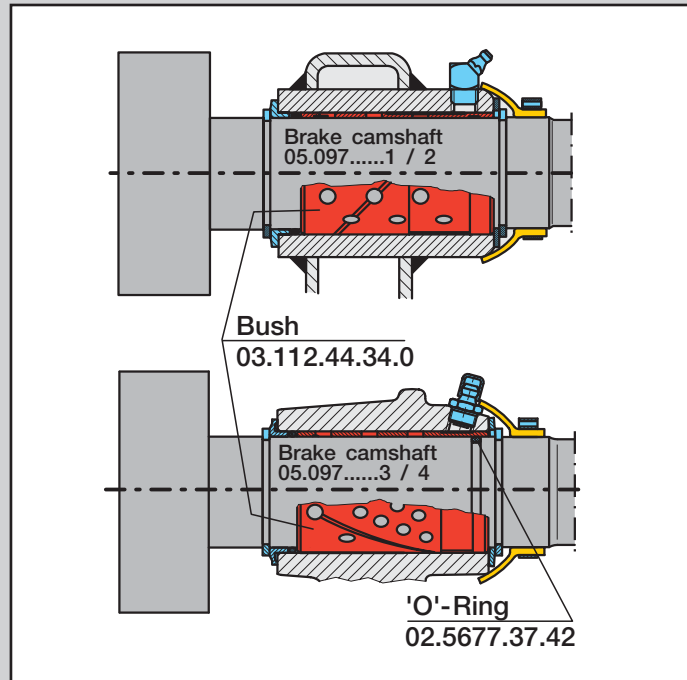


Optimized brake camshaft bush and additional 'O'-Ring

From **February 2002**, BPW drum brake axles with support bearings for brake sizes SN 300, SN 360, and SN 420 will be fitted with a further development of our camshaft bearing on the brake anchor plate side.

Features:

- The layout of the lubricating grooves inside the brass bush **03.112.44.34.0** has been improved. The bush has a machined annular groove on the outside. The previous code number for the bush will apply.
- The brake camshaft has an additional groove in the bearing seat on the cam side in order to accommodate the 'O'-ring **02.5677.37.42** (Ø 37 x 2.6 (black)). The code number of the brake camshaft has changed. The last digit of the former number (**1, 2** or **3**) is changed to indicate version **4**.



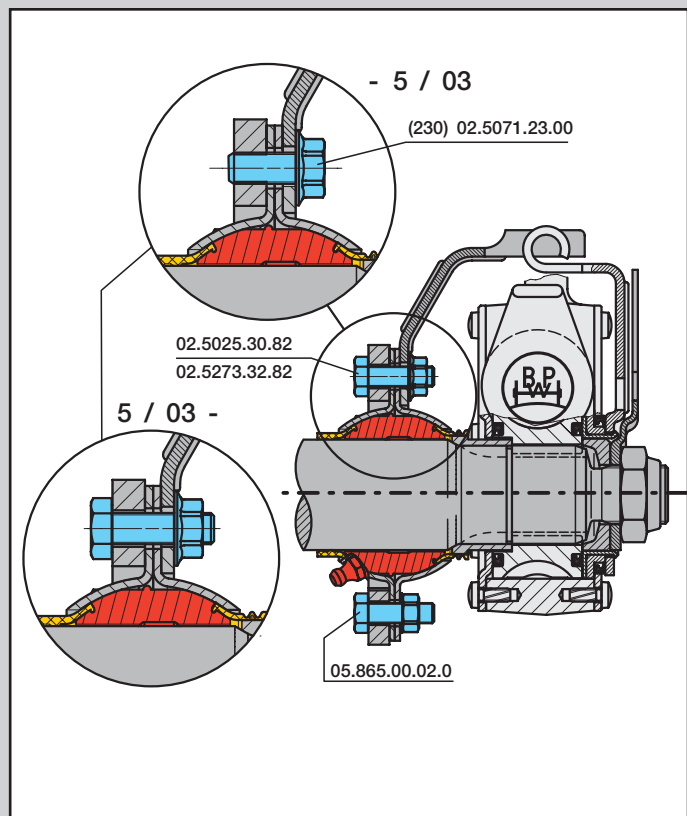
Modified inner camshaft support bearing fixing bolts on drum brake axles !

From week **23/2003** onwards, the inner camshaft support bearing fixing bolts will be modified on series production drum brake axles. The self-cutting bolts **02.5071.23.00** used as standard up to now will be replaced by hexagon bolts **02.5025.30.82** with nuts.

In automatic slack adjusters (AGS), the shaped plate for the slack adjuster support is secured using these bolts in conjunction with the Tensilock lock nuts (BPW no. **02.5273.32.82**).

The other bolt connection of the support bearing is made with bolts, spring washers and standard hexagon nuts (BPW no. cpl. **05.865.00.02.0**).

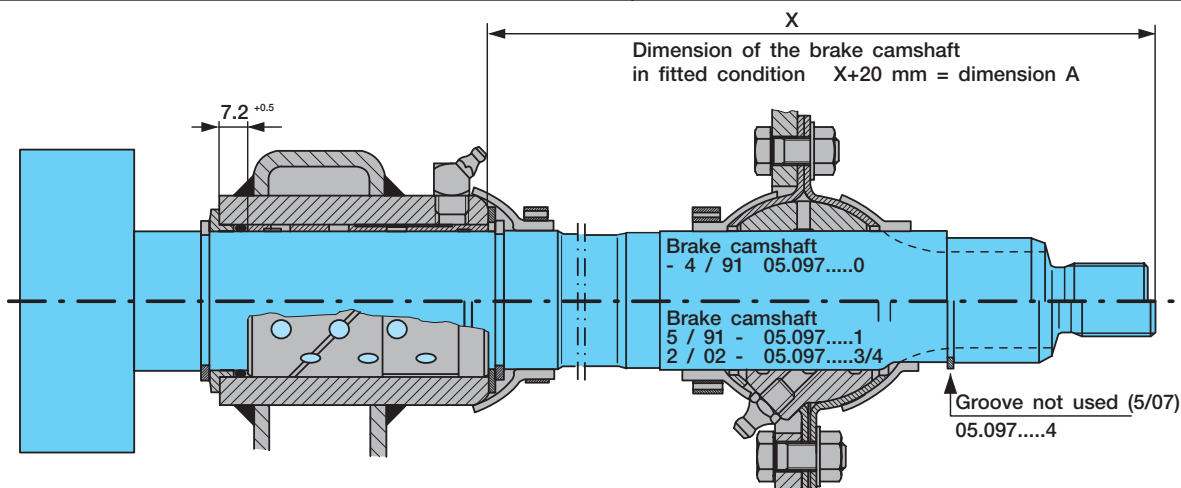
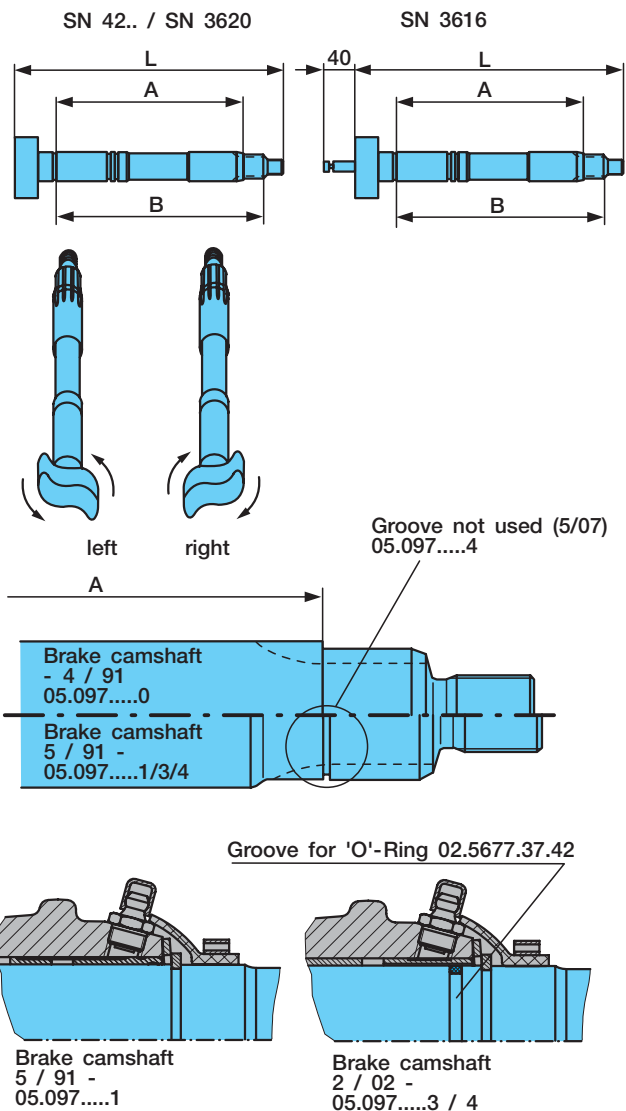
The bolts are fitted towards the centre of the axle.



2.1 Brake camshafts

Item	Designation (Remark)	BPW Code no.		
240	Brake camshaft, left	05.097.....4		
241	Brake camshaft, right	05.097.....4		
H.. / R..		SN 42.. --..7xx---		
KH.. / KR..		SN 3620 --..546. / 552---		
A	L	B	left	right
285.5	404	316	05.097.05.01.4	05.097.05.02.4
299.5	418	330	03.4	04.4
311.5	430	342	05.4	06.4
322.5	441	353	07.4	08.4
337.5	456	368	35.4	36.4
361.5	480	392	09.4	10.4
397.5	516	428	11.4	12.4
422.5	541	453	13.4	14.4
431.5	550	462	15.4	16.4
457.5	576	488	45.4	46.4
469.5	588	500	17.4	18.4
484.5	603	515	47.4	48.4
499.5	618	530	19.4	20.4
509.5	628	540	21.4	22.4
522.5	641	563	23.4	24.4
547.5	666	578	25.4	26.4
557.5	676	588	39.4	40.4
577.5	696	608	27.4	28.4
615.5	734	646	29.4	30.4
634.5	753	665	37.4	38.4
649.5	768	680	57.4	58.4
699.5	818	730	49.4	50.4
741.5	860	772	31.4	32.4
751.5	870	782	55.4	56.4
KH.. / KR..		SN 3616 --..542. / 551---		
A	L	B	left	right
172.5	291	203	05.097.09.07.4	05.097.09.08.4
649.5	768	680	13.4	14.4
699.5	818	730	15.4	16.4
751.5	870	782	09.4	10.4
866.5	985	897	17.4	18.4

Brake camshafts with last digit of code number **0** (until 4/91), **1** (until 2/02) and **3** (until 5/07) will be replaced with brake camshafts with last digit **4**.
Note modified assembly parts.

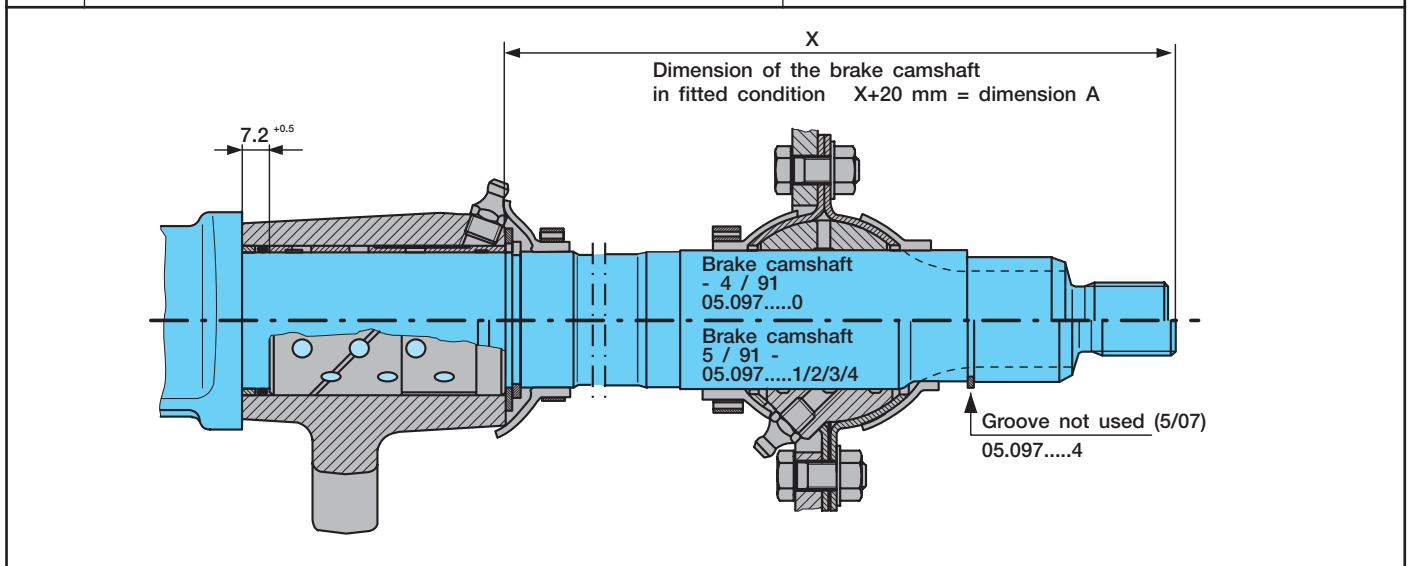


Brake camshafts 2.1

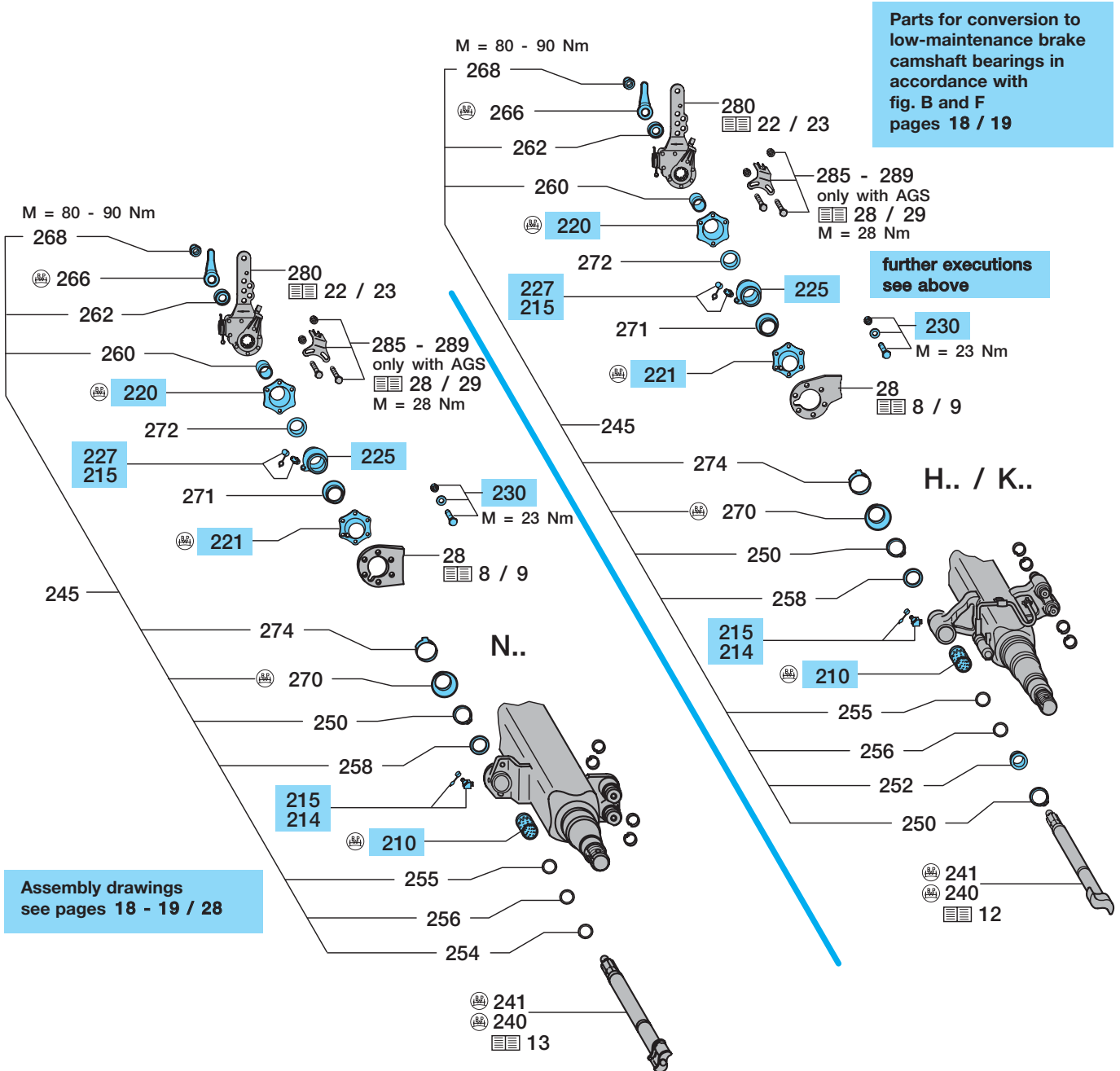
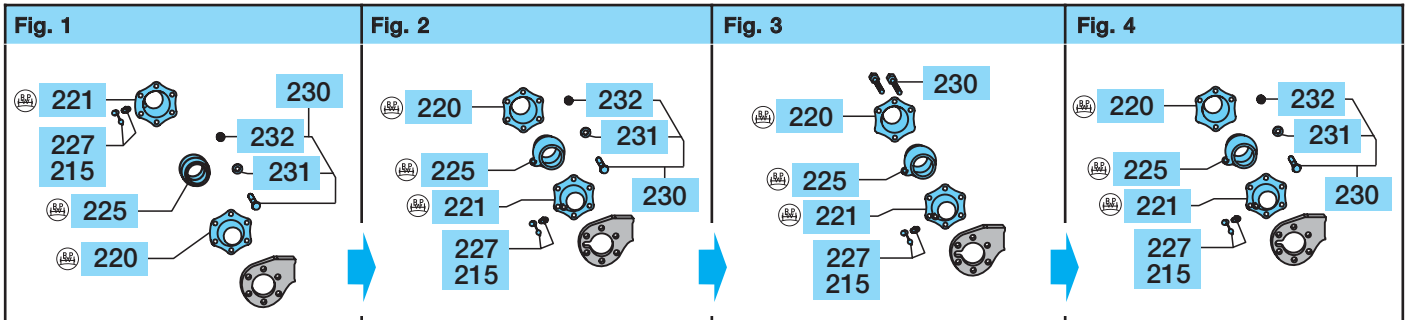
Item	Designation (Remark)	BPW Code no.		
240	Brake camshaft, left	05.097.60...4		
241	Brake camshaft, right	05.097.60...4		
			NH.. / NR..	SN 30..
			--..50x---	
			--..58x---	
			--..59x---	
	A	L	B	
				left
				right
	182.5	307 (333)	213	05.097.60.27.4
	212.5	337 (363)	243	19.4
	311.5	436 (462)	342	39.4
	337.5	462 (488)	368	11.4
	380.5	505 (531)	411	43.4
	395.5	520 (546)	426	01.4
	422.5	547 (573)	453	15.4
	457.5	582 (608)	488	13.4
	469.5	594 (620)	500	03.4
	509.5	634 (660)	540	09.4
	522.5	647 (673)	553	07.4
	548.5	673 (699)	579	23.4
	557.5	682 (708)	588	05.4
	567.5	692 (718)	598	49.4
	582.5	707 (733)	613	45.4
	598.5	723 (749)	629	41.4
	615.5	740 (766)	646	17.4
	638.5	763 (789)	669	47.4
	648.5	773 (799)	679	25.4
	675.5	800 (826)	706	21.4
	698.5	823 (849)	729	37.4
	723.5	848 (874)	754	31.4
	748.5	873 (899)	779	33.4
	798.5	923 (949)	829	35.4
	848.5	973 (999)	879	29.4

Brake camshafts with last digit of code number **0** (until 4/91), **1** (until 12/95), **2** (until 4/02) and **3** (until 5/07) will be replaced with brake camshafts with last digit **4**.

Note modified assembly parts.



2.2 Brake camshaft bearings



When converting to low-maintenance brake camshaft bearings, low-maintenance automatic slack adjusters type ECO-Master should be used.

Use only BPW special grease ECO-Li 91 or ECO-LiPlus for low-maintenance brake camshaft bearings.

Brake camshaft bearings 2.2

Item	Designation (Remark)	BPW Code no. Dimension		
		H.. / R..	KH.. / KR..	NH.. / NR..
28	Plate	see page 9		
208	Repair kit low-maintenance brake camshaft bearing (item 210 - 214, 220 - 230, 245, 270, 272, 274, 288, 289)	09.801.02.13.1	for 1 axle side Brake camshafts with last digit 0 / 1 / 2	
		09.801.06.09.1	for 1 axle Brake camshafts with last digit 3 / 4	
210	Bush	03.112.44.34.0	Ø 42 / 46 x 73	
214	Grease nipple e.g. SN 4222	02.6802.03.50	AM 10 x 1	
		02.6802.06.50	BM 10 x 1 / 45°	
		02.6850.12.50	BM 10 x 1 / 67°	
215	Cap	02.3505.20.00		

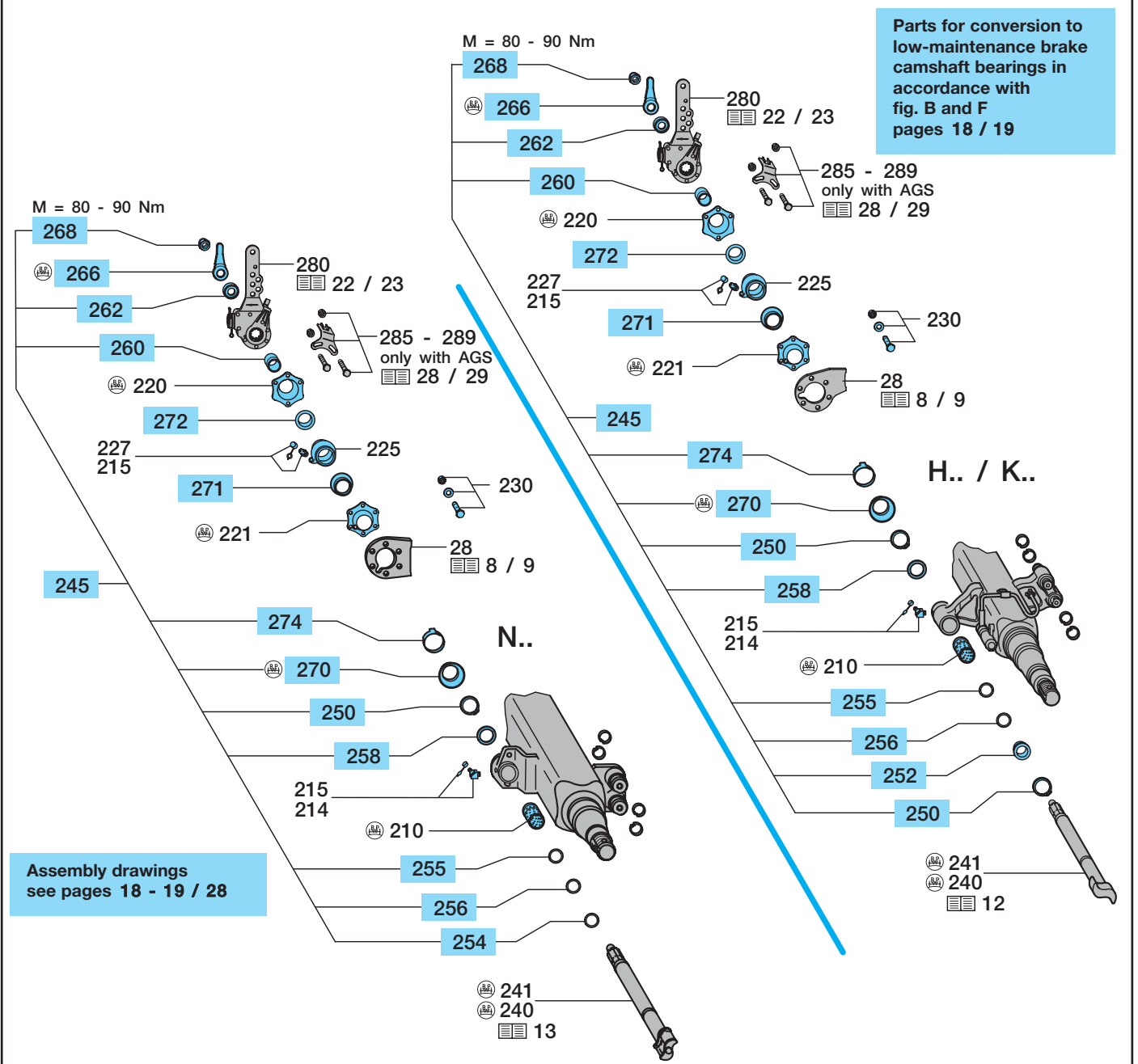
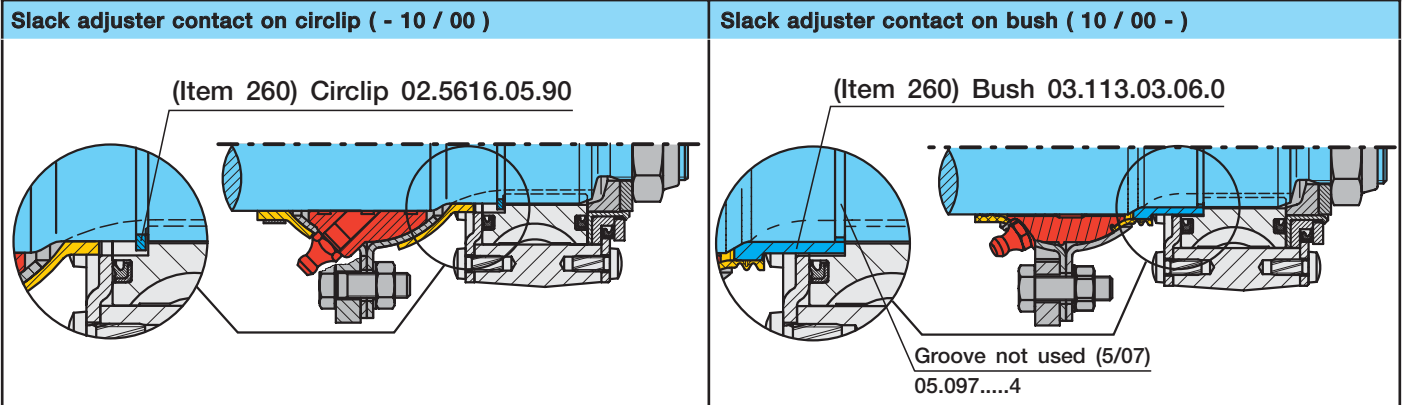
H

K

N

		Conventional brake camshaft bearing, (- 12 / 92) Fig. D / E, page 18 / 19	Low-maintenance brake camshaft bearing, bearing box attachment with 6 hexagon bolts, (1 / 93 - 8 / 97) Fig. F, page 18 / 19
		Fig. 1	Fig. 2
219	Repair kit support bearing (incl. item 220 - 230)	09.801.02.15.0 for 1 axle side	-
220	Bearing box	03.229.02.09.0	03.229.02.16.0
221	Bearing box (for grease nipple)	03.229.02.10.0	03.229.02.17.0
225	Spherical bearing	03.113.14.01.0	03.113.14.03.0
227	Grease nipple e.g.	02.6850.01.50 02.6850.06.50 05.865.00.02.0	02.6802.17.00 02.6802.17.00 05.865.00.02.0
230	Screw assembly (incl. item 231, 232)	05.865.00.02.0 x 25 (6x)	05.865.00.02.0 x 25 (6x)
231	Lock washer	02.5403.08.92 B 8 / 137	02.5403.08.92 B 8 / 137
232	Hexagon nut	02.5202.12.82 M 8 / 934	02.5202.12.82 M 8 / 934
		Low-maintenance brake camshaft bearing, bearing box attachment with 4 locking bolts, (8 / 97 - 10 / 00) Fig. F, page 18 / 19	Low-maintenance brake camshaft bearing, bearing box attachment with 4 hexagon bolts, (10 / 00 -) Fig. G, page 18 / 19
		Fig. 3	Fig. 4
219	Repair kit support bearing (incl. item 220 - 230, 260, 271, 272)		09.801.02.15.1 for 1 axle side
220	Bearing box	03.229.02.16.1	03.229.02.18.0
221	Bearing box (for grease nipple)	03.229.02.17.0	03.229.02.19.0
225	Spherical bearing	03.113.14.01.0	03.113.14.04.0 Ø 42 / 60 x 38
227	Grease nipple	02.6850.06.50 02.6850.12.50	02.6850.17.00 BM 8 x 1 / 71412
230	Locking screw	02.5403.08.92 x 20 (4x)	-
230	Screw assembly (incl. item 231, 232)		05.865.00.02.0 M 8 x 25 (4x)
231	Lock washer	-	02.5403.08.92 B 8 / 137
232	Hexagon nut	-	02.5202.12.82 M 8 / 934

2.2 Brake camshaft bearings



When converting to low-maintenance brake camshaft bearings, low-maintenance automatic slack adjusters type ECO-Master should be used.

Use only BPW special grease ECO-Li 91 or ECO-LiPlus for low-maintenance brake camshaft bearings.

H
K
N

Brake camshaft bearings 2.2

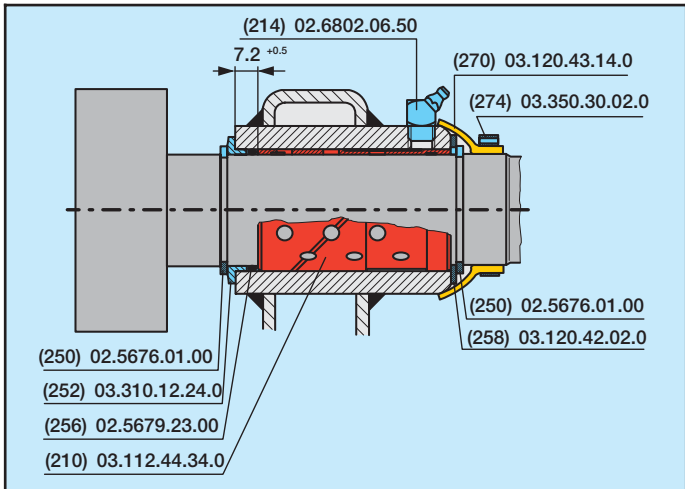
Item	Designation (Remark)	BPW Code no.			Dimension		
		H.. / R..	KH.. / KR..	NH.. / NR..	H.. / R..	KH.. / KR..	NH.. / NR..
		Brake camshaft with last digit 0 / 1 / 2, - 2 / 02 Fig. A / B / D / E / F, page 18 / 19			Brake camshaft with last digit 3 / 4, 2 / 02 - Fig. C / G, page 18 / 19		
245	Assembly kit (item 250 - 262, 268, 270, 274)	09.801.00.14.2	for 1 axle side		09.801.00.43.1	for 1 axle side	
250	Circlip	02.5676.01.00	A 42 x 2.5 (N.. 2x)		02.5676.01.00	A 42 x 2.5 (N.. 2x)	
252	Ring (Thrust ring)	03.310.12.24.0	1) Ø 42 / 46 / 55 x 7		03.310.12.24.0	Ø 42 / 46 / 55 x 7	
254	Ring	03.310.81.02.0	Ø 42 / 46 x 4 (only N..)		03.310.81.02.0	Ø 42 / 46 x 4 (only N..)	
255	'O'-Ring	-			02.5677.37.42	Ø 37 x 2.6 (black)	
256	'O'-Ring	02.5679.23.00	Ø 40 x 2.5 (green)		02.5679.23.00	Ø 40 x 2.5 (green)	
258	Seal	03.120.42.02.0	Ø 42 / 56 x 2		03.120.42.02.0	Ø 42 / 56 x 2	
260	Circlip (- 10 / 00)	02.5616.05.90	2) Ø 37 / 41 x 2		-		
260	Bush (10 / 00 -)	03.113.03.06.0	Ø 37.4 / 45 x 21.3		03.113.03.06.0	Ø 37.4 / 45 x 21.3	
262	Washer (for GSK/ECO-Master 5 / 91 -)	03.320.11.16.1	Ø 22.5 / 42 x 10.5		03.320.11.16.1	Ø 22.5 / 42 x 10.5	
266	Lever (Brake lining wear indicator)	03.190.14.07.1	85 mm		03.190.14.07.1	85 mm	
		03.190.14.08.1	60 mm		03.190.14.08.1	60 mm	
268	Lock nut	03.260.14.08.0	M 22 x 1.5 / SW 32		03.260.14.08.0	M 22 x 1.5 / SW 32	
		Conventional brake camshaft bearing, brake camshaft with last digit 0, - 12 / 92 Fig. A / C, page 18 / 19		Low-maintenance brake camshaft bearing, brake camshaft with last digit 1 and 2, 1 / 93 - 10 / 00 Fig. B/C/E/F, page 18 / 19		Low-maintenance brake camshaft bearing, brake camshaft with last digit 3 / 4, 10 / 00 - Fig. C / G, page 18 / 19	
270	Seal	03.120.43.14.0	Ø 41 x 25		03.120.43.14.0	Ø 41 x 25	
271	Seal	-			03.120.43.12.0	Ø 41 x 20	
272	Seal	-			03.120.43.10.0	Ø 34 x 26	
274	Circlip	03.350.30.02.0	Ø 49 x 9		03.350.30.02.0	Ø 49 x 9	
						03.120.42.09.0 Ø 42 x 15	
						03.120.42.08.0 Ø 45 x 13.5	
						03.350.30.02.0 Ø 49 x 9	

1) Replacement for rings 03.310.32.09.0 and 03.310.81.02.0, only for H.. / K..

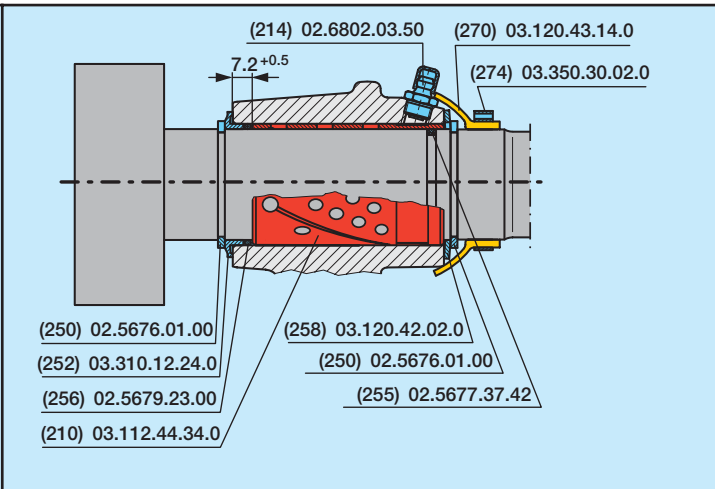
2) With brake camshaft having 1 or 2 as last digit

2.2 Brake camshaft bearings

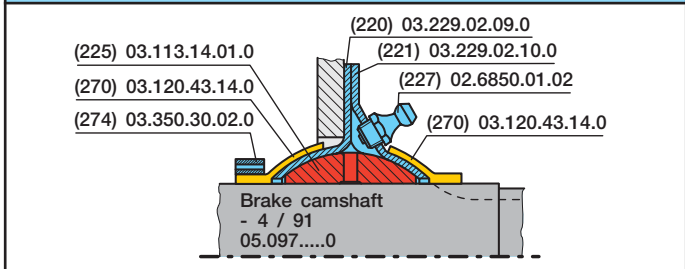
H
K



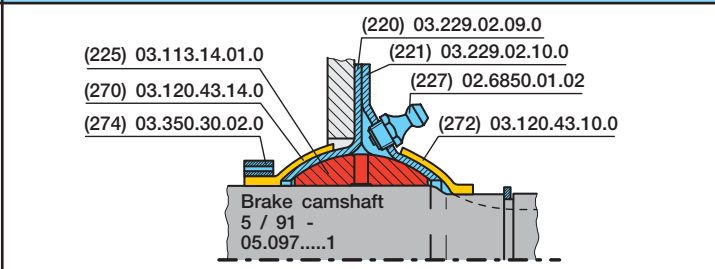
A Conventional brake camshaft bearing
B Low-maintenance brake camshaft bearing, - 2 / 02



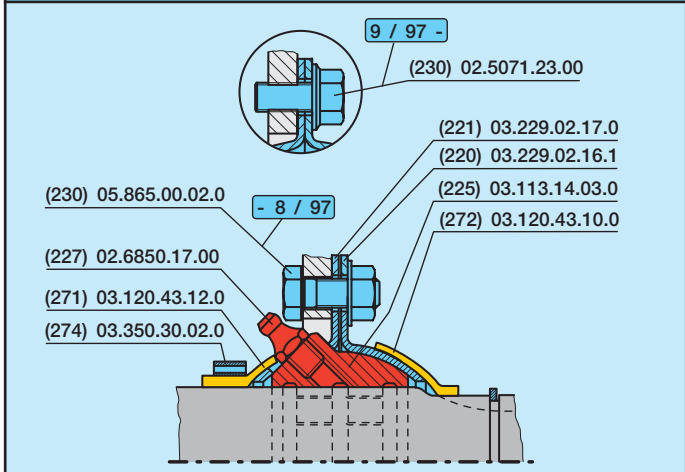
C Low-maintenance brake camshaft bearing, 2 / 02 -
New brake camshaft 05.097.60....3, 2 / 02 -



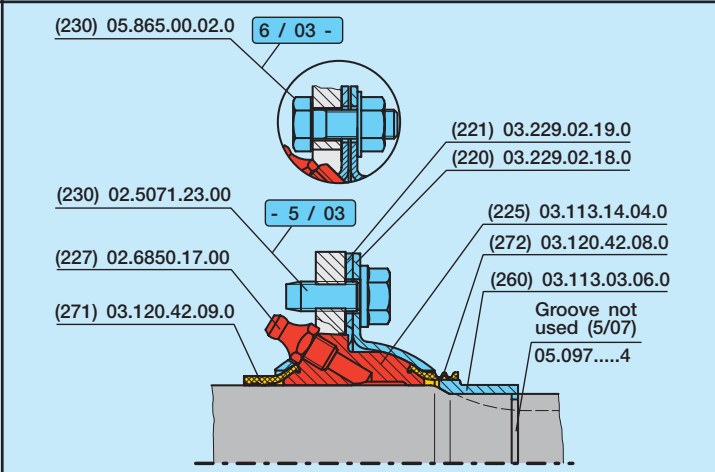
D Conventional brake camshaft bearing, - 12 / 92
Old brake camshaft 05.097.05(09)....0, - 4 / 91



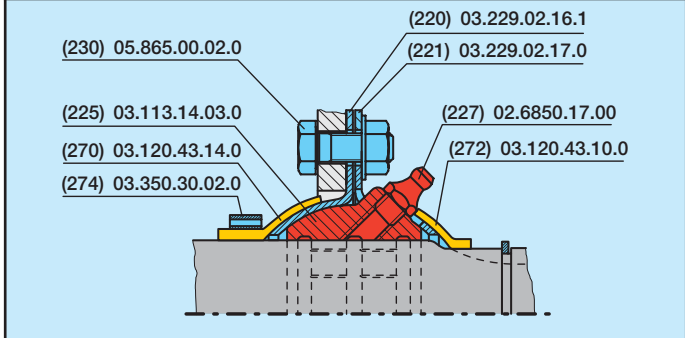
E Conventional brake camshaft bearing, - 12 / 92
Brake camshaft 05.097.05(09)....1, 5 / 91 - 10 / 00



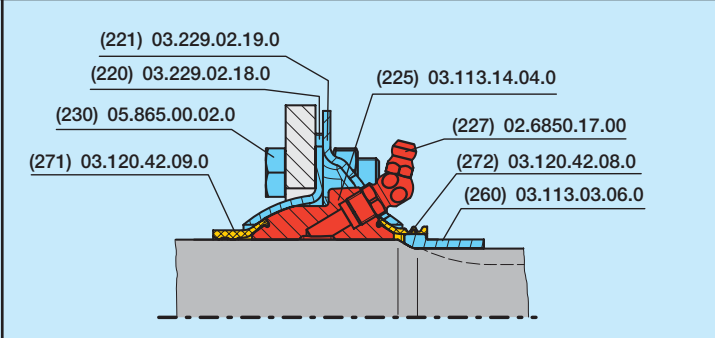
F Low-maintenance brake camshaft bearing, 1 / 93 - 10 / 00



G Low-maintenance brake camshaft bearing, 10 / 00 -



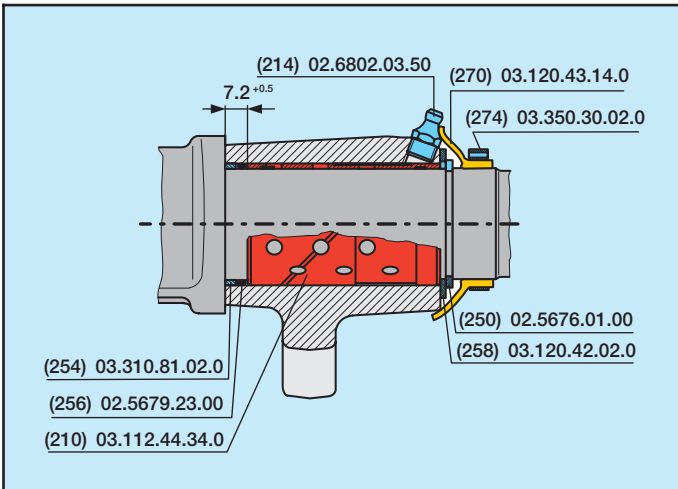
H Conversion to low-maintenance brake camshaft bearing
Support plates without a lubrication nipple recess
Brake camshaft 05.097.05....1/2, 5 / 91 -



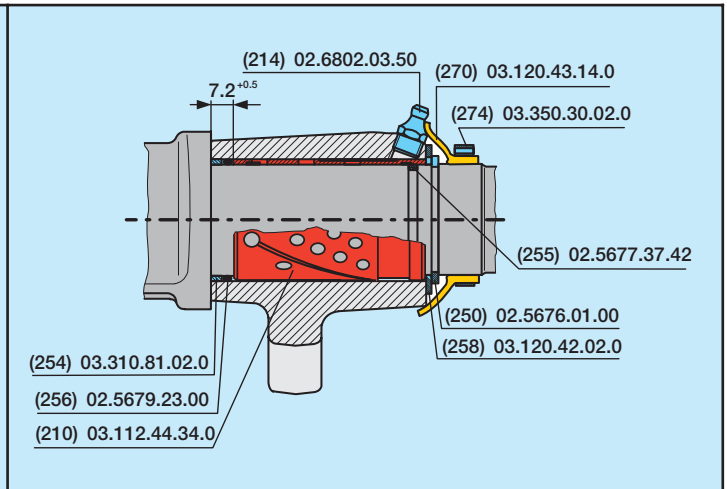
H Conversion to low-maintenance brake camshaft bearing
Support plates without a lubrication nipple recess
Brake camshaft 05.097.05....3/4, 5 / 02 -

Brake camshaft bearings 2.2

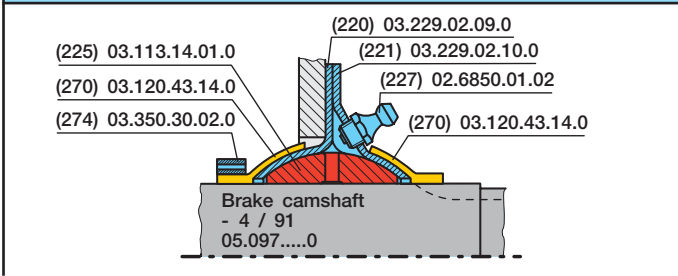
N



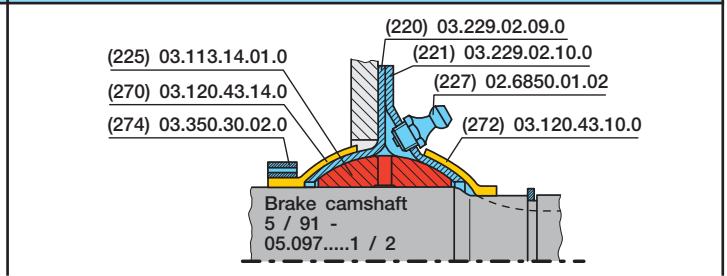
A Conventional brake camshaft bearing
B Low-maintenance brake camshaft bearing, - 2 / 02



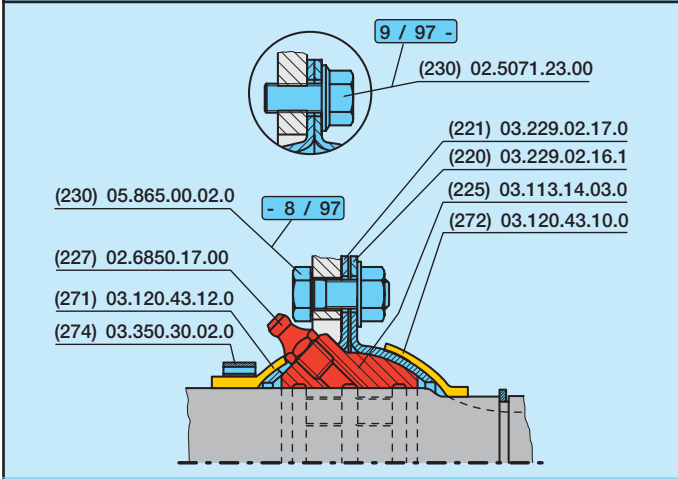
**Low-maintenance brake camshaft bearing, 2 / 02 -
 New brake camshaft 05.097.60....3/4, 2 / 02 -**



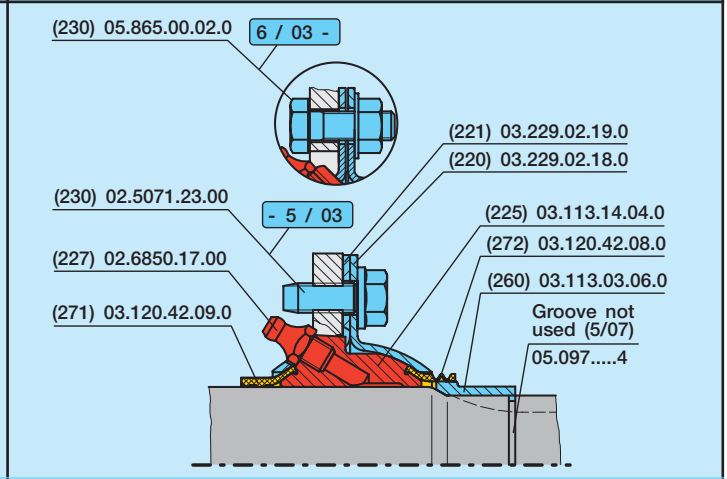
D Conventional brake camshaft bearing, - 12 / 92
 Old brake camshaft 05.097.60....0, - 4 / 91



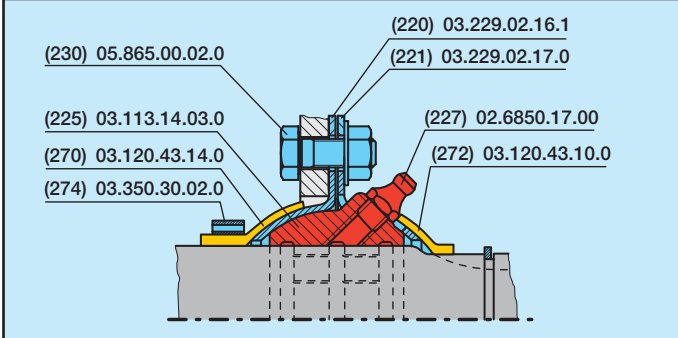
E Conventional brake camshaft bearing, - 12 / 92
 Brake camshaft 05.097.60....1/2, 5 / 91 - 10 / 00



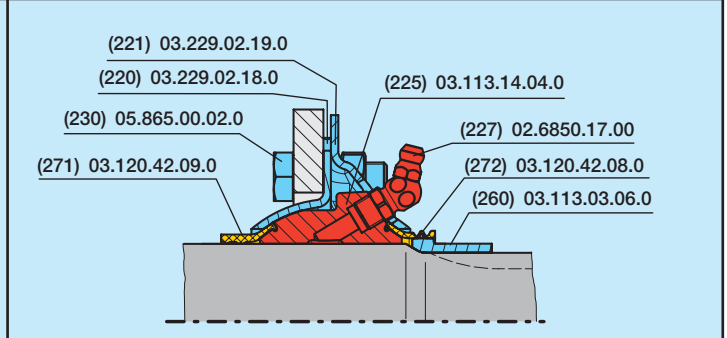
F Low-maintenance brake camshaft bearing, 1 / 93 - 10 / 00



G Low-maintenance brake camshaft bearing, 10 / 00 -



H Conversion to low-maintenance brake camshaft bearing
 Support plates without a lubrication nipple recess
 Brake camshaft 05.097.60....1/2, 5 / 91 -



H Conversion to low-maintenance brake camshaft bearing
 Support plates without a lubrication nipple recess
 Brake camshaft 05.097.60....3/4, 5 / 02 -

3 Slack adjusters

H

General

BPW Slack adjusters

The required brake cylinder stroke increases as the brake lining thickness reduces. The slack adjuster makes up for this change and keeps the brake cylinder stroke in the optimum range at all times.

In most countries, fitting automatic slack adjusters is a statutory requirement.

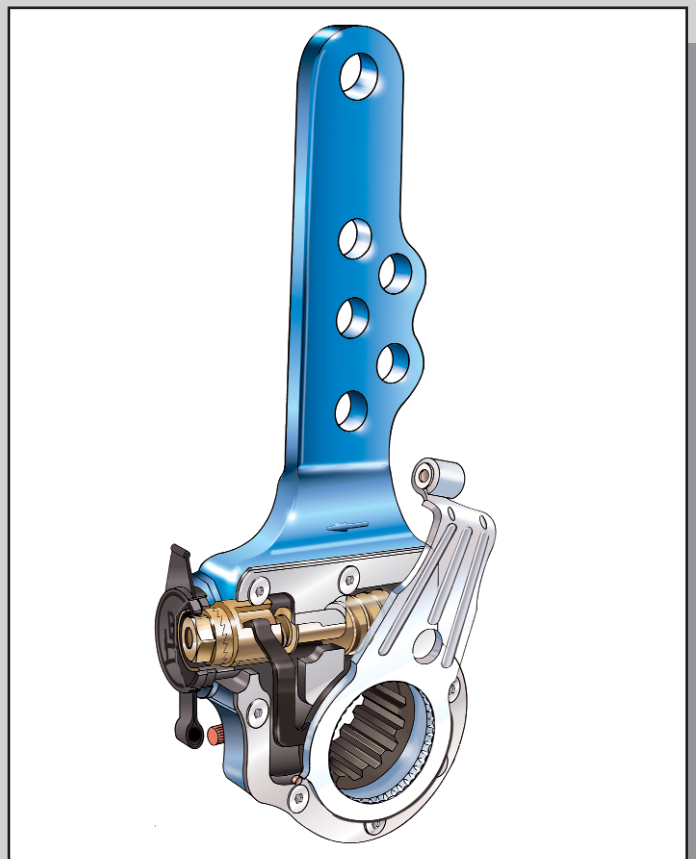


The principle of automatic adjustment

Brake linings and brake drums are parts subject to wear. As the thickness of the material is reduced, the brake cylinder stroke increases, meaning that the brake camshaft has to rotate further. In this case, the automatic function of the ECO-Master automatic slack adjuster provides the necessary adjustment. As a result, the brake cylinder stroke is always kept within the same, optimum range.

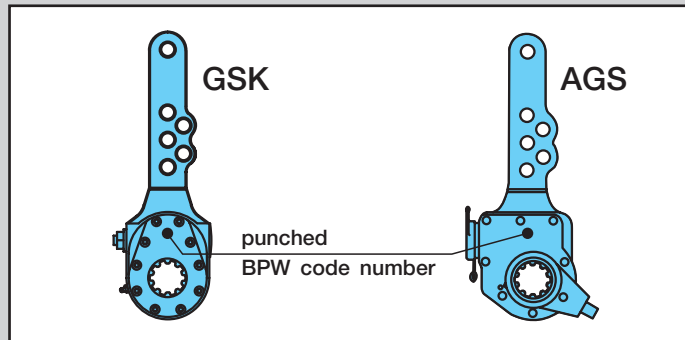
The adjustment stroke is designed so that there is always sufficient air gap even at higher levels of elasticity and given thermal expansion of the adjacent components (e.g. the brake drum).

Levers with different shapes and crank values are available depending on the particular installation conditions.



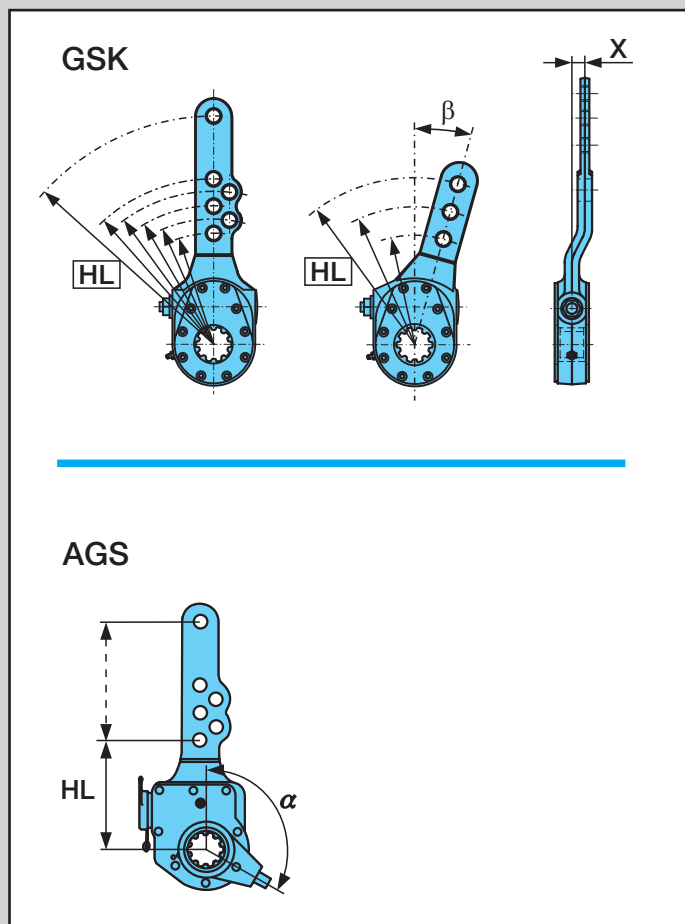
Determining replacement slack adjusters

The BPW code number is punched into the cover plate of the slack adjuster.



If there is no BPW code number or it is not legible, the slack adjuster can be identified on the basis of the shape and dimensions.

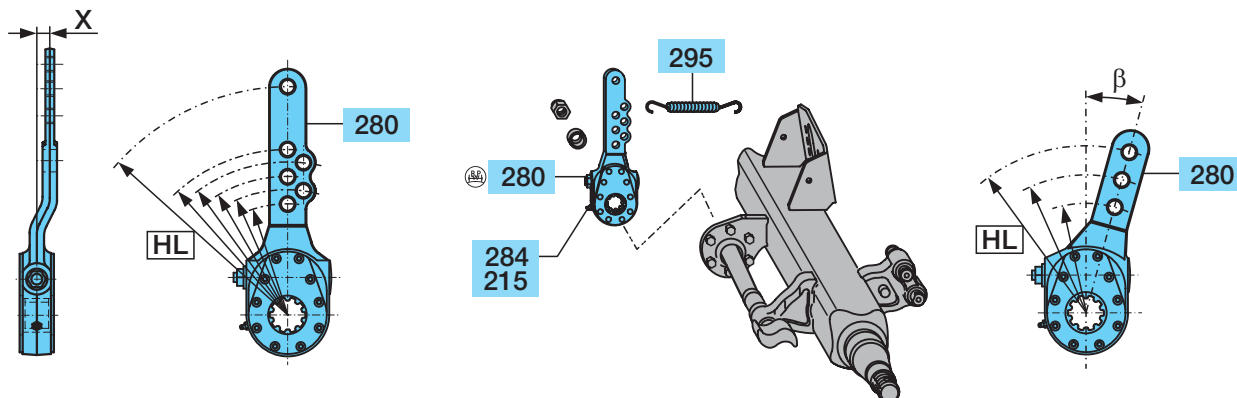
1. **Automatic (AGS) or manual slack adjuster (GSK)**
2. **Lever length (H L)**
3. **Crank value (β)**
4. **Offset (X)**
5. **Position of fixed point holder in AGS (α)**



Return springs

When fitting BPW brake cylinders with round-hole yokes and with a lever length of more than 100 mm, the return spring does not have to be fitted.

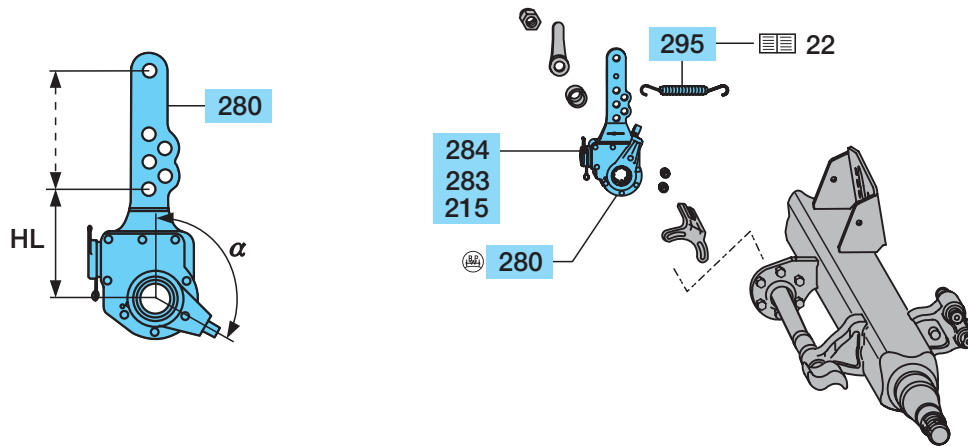
3.1 Manual slack adjusters (GSK), return springs



Item	Designation (Remark)	BPW Code no.	Dimension				
280 / 281	Slack adjuster (incl. item 215, 284)	GSK (manual)					
		H.. / R..		KH.. / KR..		NH.. / NR..	
	HL 120 / 150 / 180	05.174.52.34.0	3-holes	05.174.52.34.0	3-holes	05.174.52.34.0	3-holes
				05.174.65.20.0	3-holes / β 15°	05.174.65.20.0	3-holes / β 15°
	HL 230 / 260 / 290 / X=14	05.174.58.13.0	3-holes left	-	-	-	-
		05.174.58.14.0	3-holes right	-	-	-	-
	HL 150 / 150 / 180 / 250	05.174.52.61.0	4-holes	05.174.52.61.0	4-holes	05.174.52.43.0	4-holes / β 15°
		-		05.174.52.43.0	4-holes / β 15°	-	-
	HL 120 / 150 / 195 / 250	-		-		05.174.65.14.0	4-holes / β 15°
	HL 120 / 135 / 150 / 165 / 180	05.174.65.22.0	5-holes	05.174.65.22.0	5-holes	-	-
	HL 120 / 135 / 150 / 165 / 180 / 250	05.174.65.13.0	6-holes	05.174.65.13.0	6-holes	05.174.65.13.0	6-holes
284	Grease nipple	02.6850.01.02	AS 8 x 1 / 0°				
215	Cap	02.3505.20.00					

Item	Designation (Remark)	BPW Code no.	Dimension				
		H.. / R..		KH.. / KR..		NH.. / NR..	
295	Return spring	03.397.26.04.0	\emptyset 24/2.8x69	03.397.26.04.0	\emptyset 24/2.8x69	03.397.26.08.0	\emptyset 21/2.8x84
		03.397.26.09.0	\emptyset 24/2.8x72	03.397.26.08.0	\emptyset 21/2.8x84	03.397.26.06.0	\emptyset 24/2.8x89
		03.397.26.08.0	\emptyset 24/2.8x84	03.397.26.06.0	\emptyset 24/2.8x89	05.397.28.01.0	\emptyset 31/2.8x120
		03.397.26.06.0	\emptyset 24/2.8x89	05.397.28.01.0	\emptyset 31/2.8x120	05.397.26.03.0	\emptyset 26/2.8x148
		05.397.28.01.0	\emptyset 31/2.8x120	05.397.26.03.0	\emptyset 26/2.8x148	05.397.26.02.0	\emptyset 22.5/2.5x235
		05.397.26.03.0	\emptyset 26/2.8x148	05.397.28.02.0	\emptyset 22.5/2.5x235		
		05.397.26.05.0	\emptyset 22.5/2.5x185				
		05.397.26.02.0	\emptyset 22.5/2.5x235				

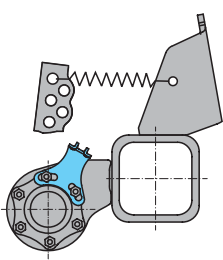
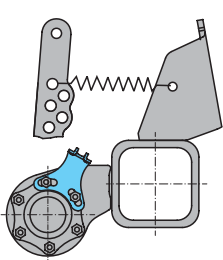
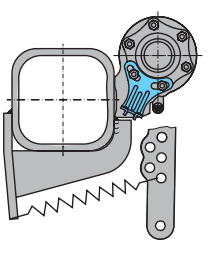
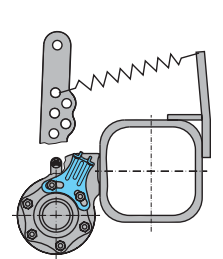
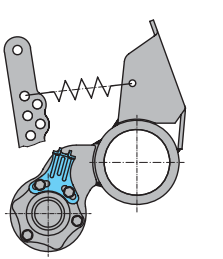
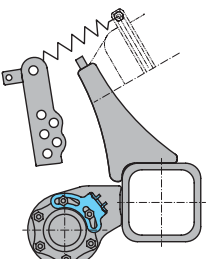
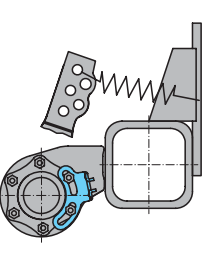
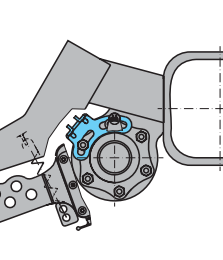
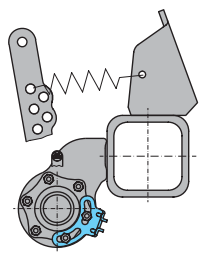
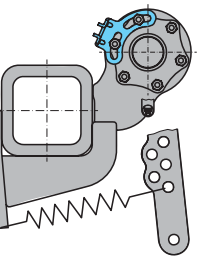
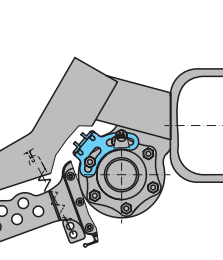
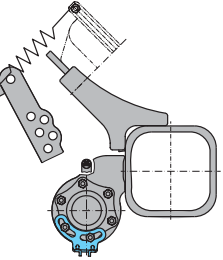
Automatic slack adjusters (ECO-Master) 3.2



Item	Designation (Remark)	BPW Code no.		Dimension
280	Slack adjuster (incl. item 215, 283, 284)	ECO-Master (autom.) (5 / 91 -)		Slack adjuster kit (item 280, 285 - 289)
		H.. / R..	KH.. / KR..	
	HL 120 / 135 / 150 / 165	05.174.82.67.3	5-holes, $\alpha = 24^\circ$	05.574.83.01.3
		05.174.83.06.3	5-holes, $\alpha = 60^\circ$	05.574.82.68.3
		05.174.82.75.3	5-holes, $\alpha = 60^\circ$	05.574.83.08.3
		05.174.82.22.3	5-holes, $\alpha = 120^\circ$	05.574.82.55.3
		05.174.82.31.3	5-holes, $\alpha = 180^\circ$	05.574.82.67.3
		05.174.88.51.3	5-holes, $\alpha = 210^\circ$	05.574.88.22.3
		05.174.82.32.3	5-holes, $\alpha = 210^\circ$	05.574.82.66.3
	HL 120 / 135 / 150 / 165 / 240	05.174.82.40.3	6-holes, $\alpha = 210^\circ$	05.574.82.45.3
	HL 120 / 135 / 150 / 165 / 250	05.174.82.63.3	6-holes, $\alpha = 24^\circ$	05.574.82.87.3
		05.174.83.05.3	6-holes, $\alpha = 60^\circ$	05.574.83.07.3
		05.174.82.21.3	6-holes, $\alpha = 120^\circ$	05.574.82.43.3
		05.174.82.24.3	6-holes, $\alpha = 180^\circ$	05.574.82.44.3
		05.174.82.26.3	6-holes, $\alpha = 210^\circ$	05.574.82.65.3
		05.174.83.04.3	6-holes, $\alpha = 210^\circ$	05.574.82.88.3
			NH.. / NR..	
HL 150 / 165	05.174.89.05.3	3-holes, $\alpha = 180^\circ$	05.574.88.46.3	
HL 120 / 135 / 150 / 165	05.174.82.67.3	5-holes, $\alpha = 24^\circ$	05.574.83.01.3	
	05.174.82.31.3	5-holes, $\alpha = 180^\circ$	05.574.82.67.3	
	05.174.82.32.3	5-holes, $\alpha = 210^\circ$	05.574.82.66.3	
HL 120 / 135 / 150 / 165	05.174.88.51.3	5-holes, $\alpha = 210^\circ$	05.574.88.22.3	
HL 120 / 135 / 150 / 165 / 250	05.174.82.63.3	6-holes, $\alpha = 24^\circ$	05.574.82.87.3	
	05.174.82.24.3	6-holes, $\alpha = 180^\circ$	05.574.82.44.3	
	05.174.83.04.3	6-holes, $\alpha = 210^\circ$	05.574.82.88.3	
283	Cap	03.211.90.15.0		
284	Grease nipple	02.6850.01.02	AS 8 x 1 / 0°	
215	Cap	02.3505.20.00		

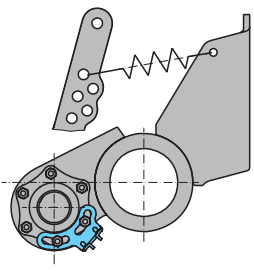
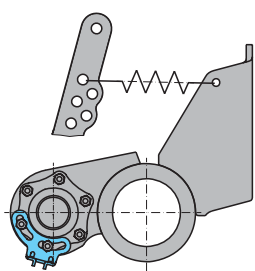
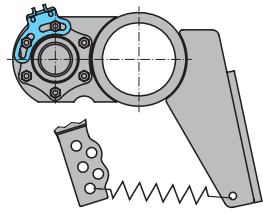
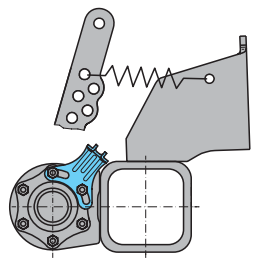
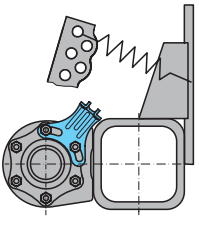
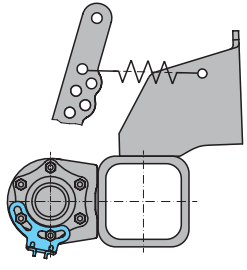
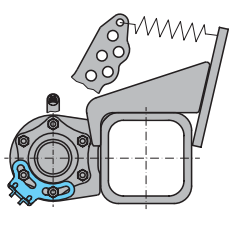
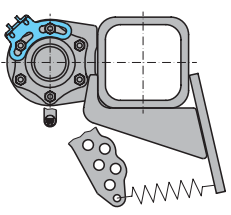
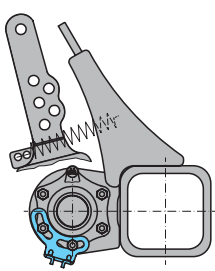
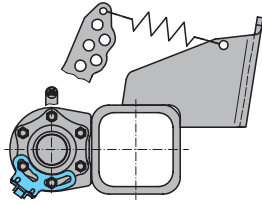
3.2 Slack adjusters (ECO-Master) - Axle series H.. / R..

H

<p>H..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.67.3 Return spring 05.397.26.03.0 Booster bracket $25^\circ/30^\circ$ 03.182.34.77.0 16° 03.182.35.78.0 Piston rod 227 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.63.3 Return spring 05.397.26.03.0 Booster bracket 30° 03.182.34.77.0 16° 03.182.35.78.0 Piston rod 227 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.63.3 Return spring 05.397.26.05.0 Booster bracket \square 150 05.182.07.26.0 Piston rod 227 mm</p>
<p>H..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.63.3 Return spring 05.397.26.05.0 Booster bracket 03.182.07.21.0 Piston rod 227 mm</p>	<p>R..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.63.3 Return spring 05.397.26.03.0 Booster bracket 03.182.34.58.0 Piston rod 227 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=60^\circ$ 05.174.83.05.3 Return spring 05.397.26.03.0 Booster bracket 05.182.17.46.0 Piston rod 110 mm</p>
<p>H..</p>  <p>ECO-Master $\alpha=60^\circ$ 05.174.82.75.3 Return spring 05.397.26.03.0 Booster bracket 05.182.16.57.0 Piston rod 180 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=60^\circ$ 05.174.82.36.3 Return spring 03.397.26.04.0 Booster bracket $25^\circ/30^\circ$ 05.182.33.15.0 16° L 05.182.45.03.0 16° R 05.182.45.04.0 Piston rod 80 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=120^\circ$ 05.174.82.21.3 Return spring 05.397.26.03.0 Booster bracket 30° 03.182.34.77.0 16° 03.182.35.78.0 Piston rod 227 mm</p>
<p>H..</p>  <p>ECO-Master $\alpha=120^\circ$ 05.174.82.21.3 Return spring 05.397.26.05.0 Booster bracket \square 120 30° 05.182.07.25.0 \square 150 05.182.07.26.0 Piston rod 227 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.82.14.3 Return spring 05.397.26.03.0 Booster bracket 05.182.07.37.0 Piston rod 190 mm</p>	<p>H..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.82.40.3 Return spring 05.397.26.03.0 Booster bracket 05.182.15.36.0 Piston rod 110 mm</p>

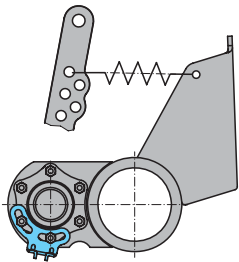
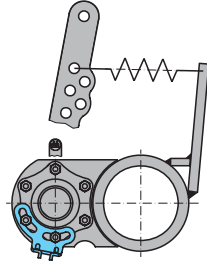
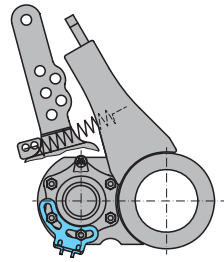
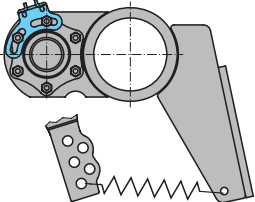
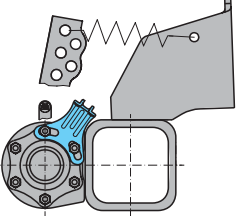
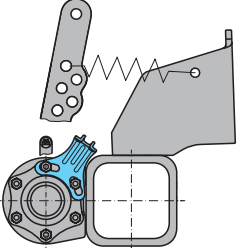
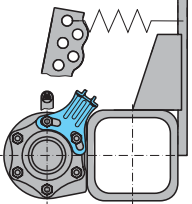
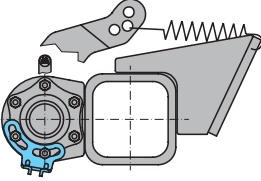
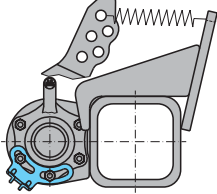
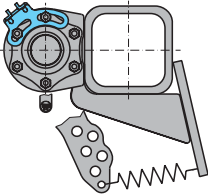
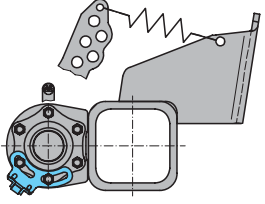
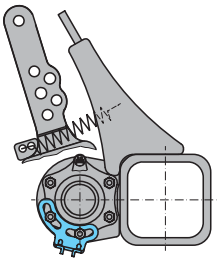
Slack adjusters (ECO-Master) - Axle series KH.. / KR.. 3.2

K

<p>KR..</p>  <p>ECO-Master $\alpha=120^\circ$ 05.174.82.21.3 Return spring 05.397.26.03.0 Booster bracket 03.182.34.95.0 Piston rod 227 mm</p>	<p>KR..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.82.24.3 Return spring 05.397.26.03.0 Booster bracket 03.182.34.95.0 Piston rod 227 mm</p>	<p>KR..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.82.32.3 Return spring 05.397.26.03.0 Booster bracket 05.182.16.60.0 Piston rod 227 mm</p>
<p>KH..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.63.3 Return spring 03.397.26.03.0 Booster bracket 03.182.35.80.0 Piston rod 227 mm</p>	<p>KH..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.67.3 Return spring 05.397.26.03.0 Booster bracket 03.182.33.10.0 Piston rod 180 mm</p>	<p>KH..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.82.24.3 Return spring 05.397.26.03.0 Booster bracket 03.182.35.80.0 Piston rod 227 mm</p>
<p>KH..</p>  <p>ECO-Master $\alpha=194^\circ$ 05.174.88.51.3 Return spring 05.397.28.01.0 Booster bracket 05.182.27.03.0 Piston rod 155 mm</p>	<p>KH..</p>  <p>ECO-Master $\alpha=194^\circ$ 05.174.88.51.3 Return spring 03.397.28.01.0 Booster bracket 05.182.27.03.0 Piston rod 155 mm</p>	<p>KH..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.83.04.3 Return spring 05.397.26.06.0 Booster bracket 03.182.17.45.0 Piston rod 82 mm</p>
<p>KH..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.88.51.3 Return spring 05.397.26.03.0 Booster bracket 03.182.35.83.0 Piston rod 227 mm</p>		

3.2 Slack adjusters (ECO-Master) - Axle series NH.. / NR..

N

<p>NR..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.82.24.3 Return spring 05.397.26.03.0 Booster bracket $25^\circ/30^\circ$ 03.182.34.65.0 Piston rod 227 mm</p>	<p>NR..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.82.24.3 $\alpha=180^\circ$ PAL 05.174.82.14.3 Return spring 05.397.26.03.0 Booster bracket 03.182.07.21.0 Piston rod 180 mm</p>	<p>NR..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.82.40.3 Return spring 05.397.26.03.0 Booster bracket 05.182.17.14.0 Piston rod 82 mm</p>
<p>NR..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.82.14.3 Return spring 05.397.26.03.0 Booster bracket 03.182.16.60.0 Piston rod 227 mm</p>	<p>NH..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.67.3 Return spring 05.397.26.03.0 Booster bracket 03.182.35.80.0 Piston rod 227 mm</p>	<p>NH..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.63.3 Return spring 05.397.26.03.0 Booster bracket 05.182.35.80.0 Piston rod 227 mm</p>
<p>NH..</p>  <p>ECO-Master $\alpha=24^\circ$ 05.174.82.67.3 Return spring 05.397.28.01.0 Booster bracket 03.182.33.10.0 Piston rod 180 mm</p>	<p>NH..</p>  <p>ECO-Master $\alpha=180^\circ$ 05.174.89.05.3 Return spring 05.397.26.03.0 Booster bracket 05.182.16.95.0 Piston rod 190 mm</p>	<p>NH..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.88.99.3 05.174.88.51.3 Return spring 05.397.28.01.0 Booster bracket 05.182.27.03.0 Piston rod 155 mm</p>
<p>NH..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.88.99.3 05.174.88.51.3 Return spring 05.397.28.01.0 Booster bracket 05.182.27.03.0 Piston rod 155 mm</p>	<p>NH..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.88.51.3 Return spring 05.397.26.03.0 Booster bracket 03.182.35.83.0 Piston rod 227 mm</p>	<p>NH..</p>  <p>ECO-Master $\alpha=210^\circ$ 05.174.82.64.3 Return spring 03.397.26.06.0 Booster bracket 03.182.17.45.0 Piston rod 82 mm</p>

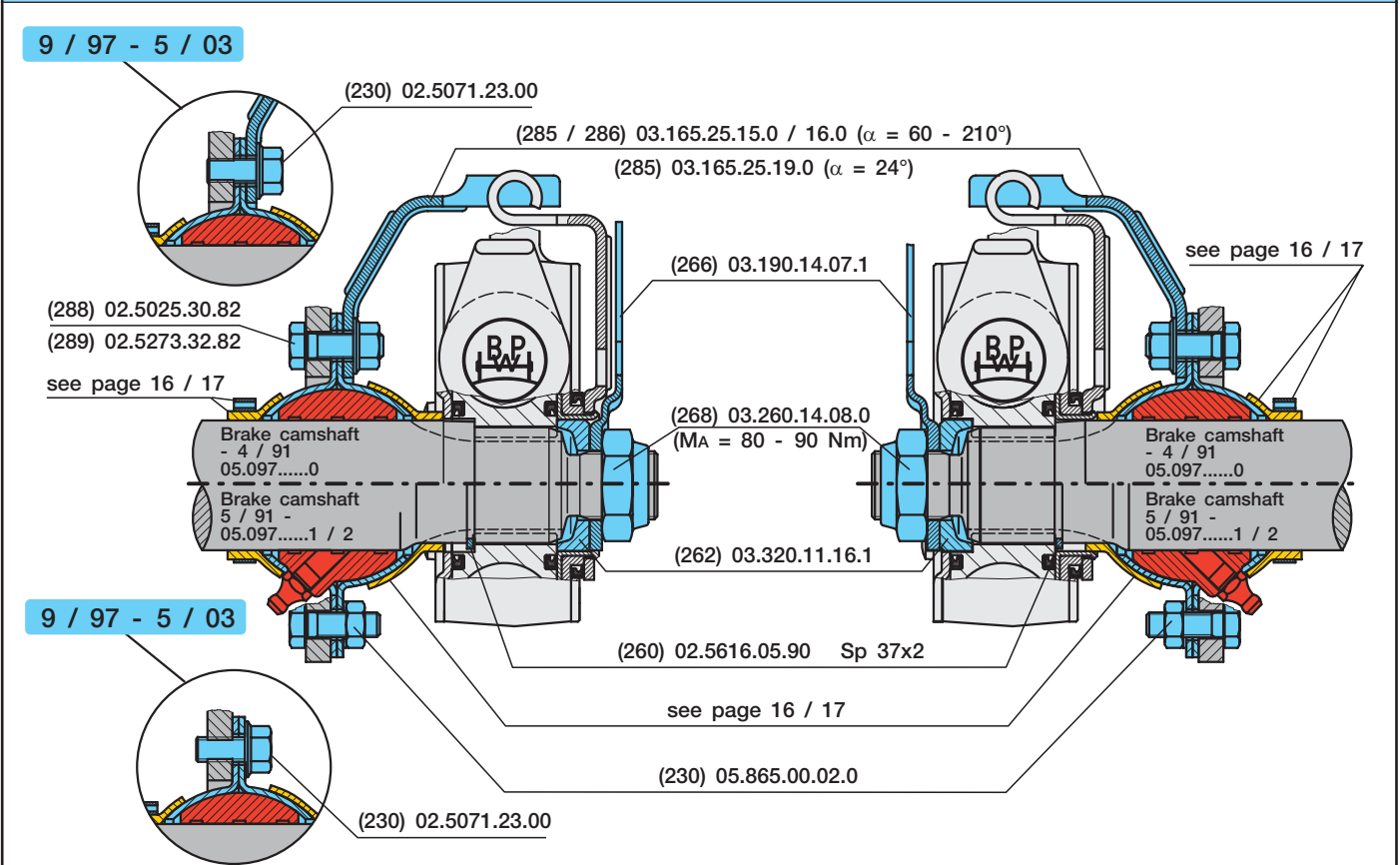
Installation instructions ECO-Master 3.3

H
K
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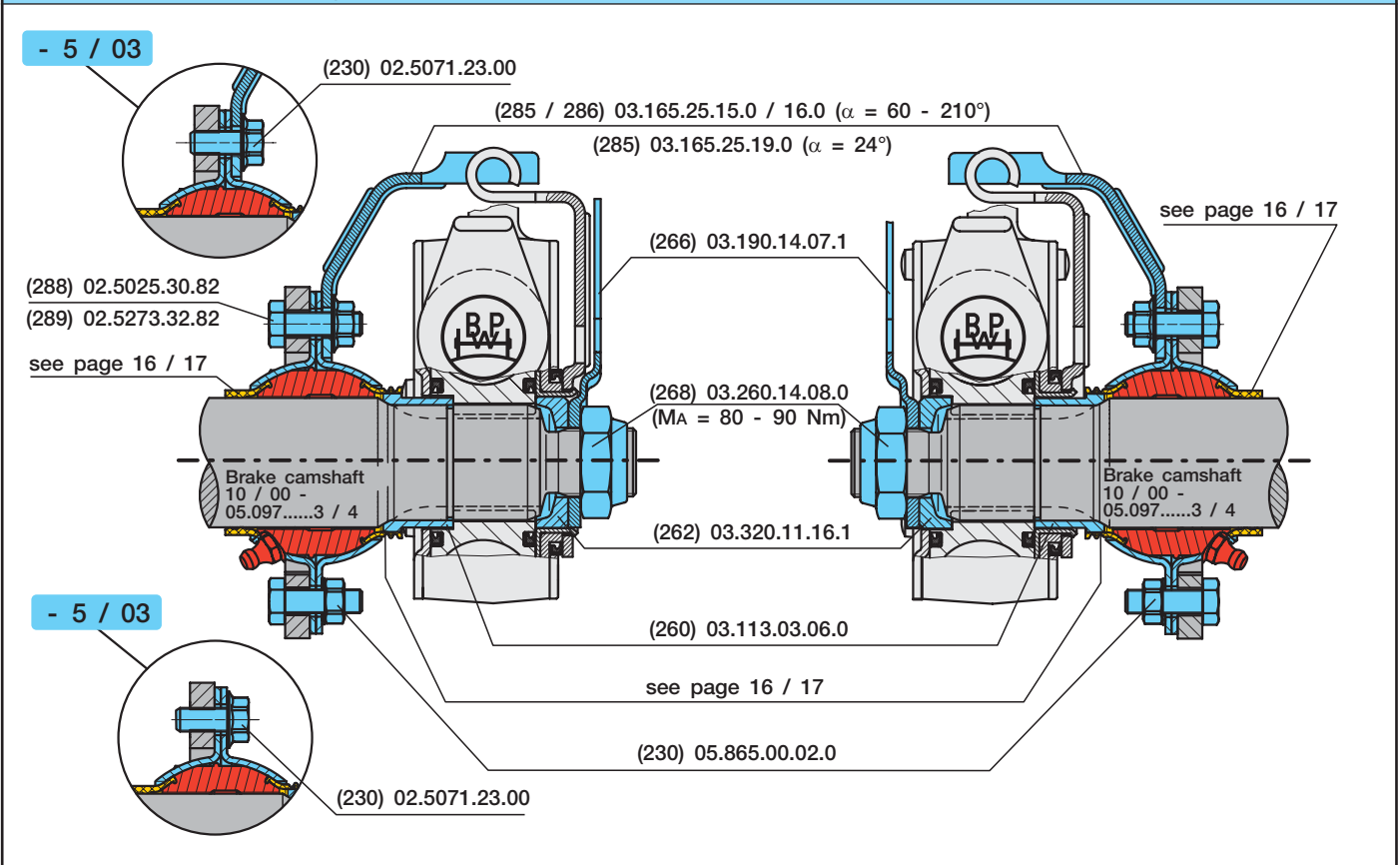
<p>1</p>	<p>2</p> <p>80 - 90 Nm</p>
<p>3</p>	<p>4</p>
<p>5</p>	<p>6</p>
<p>7</p> <p>$a_{min} = 0.1 \times b$ $a_{max} = 0.15 \times b$</p>	<p>8</p>

3.5 Slack adjuster attachments

Automatic slack adjuster ECO-Master, 5 / 91 - 10 / 00



Automatic slack adjuster ECO-Master, 10 / 00 -



Slack adjuster attachments 3.5

Item	Designation (Remark)	BPW Code no.	Dimension	
		for ECO-Master (autom.) (5 / 91 -) $\alpha = 60 - 210^\circ$		
285	Shaped plate	03.165.25.15.0		
286	Shaped plate	03.165.25.16.0		
288	Hexagon bolt	02.5025.30.82	M 8 x 25 / 933	
289	Lock nut	02.5273.32.82	M 8	
		for ECO-Master (autom.) (3 / 95 - 9 / 97) (6 / 03 -) $\alpha = 24^\circ$		
285	Shaped plate	03.165.25.19.0		
288	Hexagon bolt	02.5025.30.82	M 8 x 25 / 933	
289	Lock nut	02.5273.32.82	M 8	
		for ECO-Master (autom.) (9 / 97 - 5 / 03) $\alpha = 24^\circ$		
285	Shaped plate	03.165.25.19.0		
230	Locking bolt	02.5071.23.00	M 8 x 20	
		<p>No longer available.. Retrofit to hexagon screw with lock nut, see above.</p>		

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4 Brake parts

H

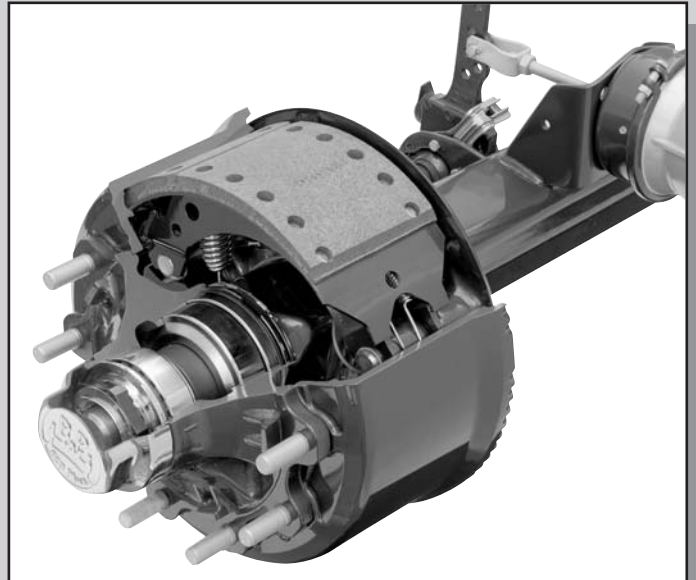
General

BPW Drum brakes

The proven technology and robust construction of BPW drum brakes makes them suitable for every application. They shrug off dirt and are extremely hard wearing, even under the harshest conditions.

K

N

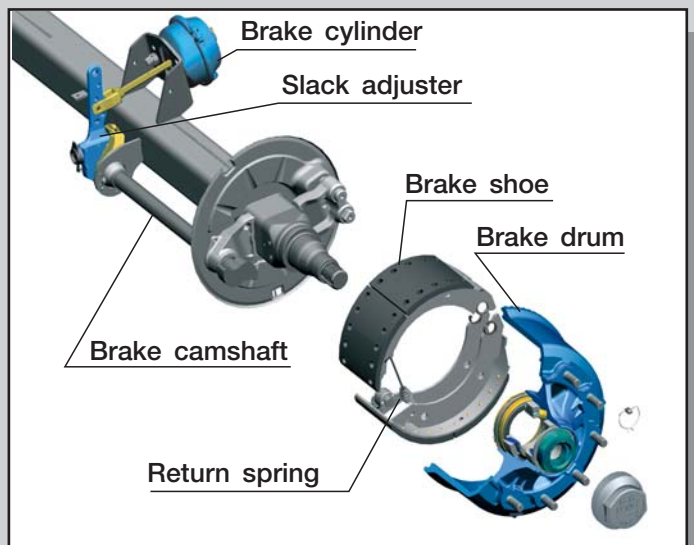


Function

The force from the brake cylinders is transmitted by the slack adjuster to the brake camshaft causing it to rotate.

The S-cam forces the brake shoes apart, pressing them against the inside of the brake drum.

When the brake is released, the brake camshaft rotates the S-cam back to its neutral position. The brake shoes are returned to their initial position by return springs.



Conversion to brake with split roller (BPW 95 brake)

Brakes of the former version should be changed over to new brake technology.

High degree of safety

Short response time and a consistent braking effect throughout the entire life of the lining thanks to the permanently lubricated brake rollers.

Reduced own weight

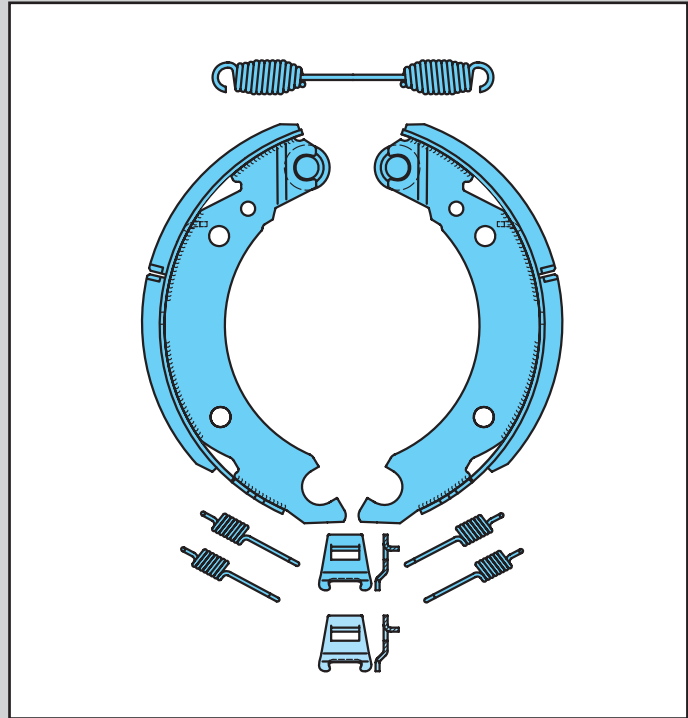
Weight-optimized design with fewer wear parts.

Easy to change brake linings

Fast and easy brake shoe replacement.

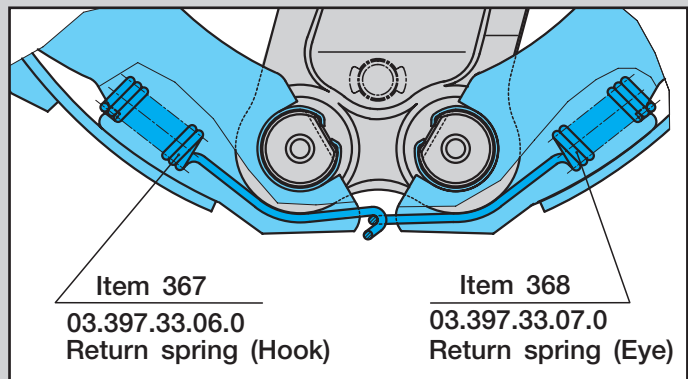
Same brake components on all axles of the corresponding series.

The technical specifications of the brake remain unchanged. Consequently existing EC test certificates remain valid.



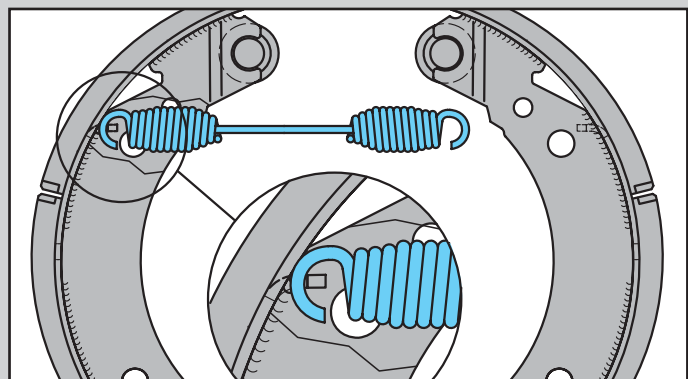
Position springs

The position springs ensure the brake shoes are firmly and securely seated on the C-clamps (Fig. SN 42..).



Brake return springs

The brake return spring is hooked into lugs that are formed on the brake shoes.



4 Brake parts

H

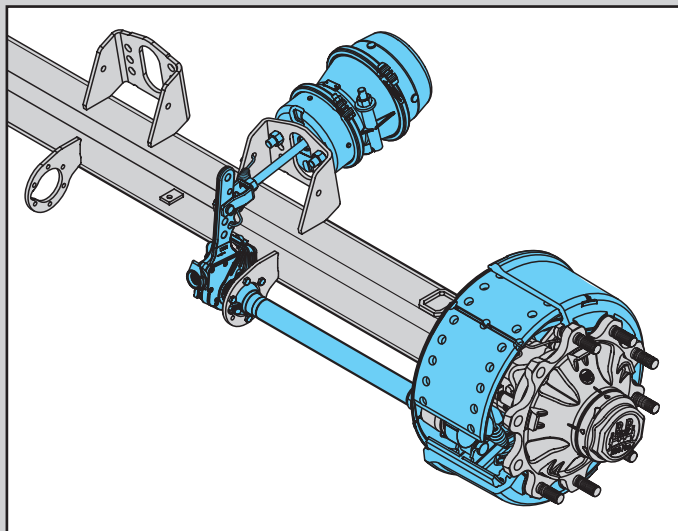
BPW ECO Drum

BPW Bergische Achsen KG has been a leader in the field of drum brake technology for many years, and has significantly extended its position as the market leader.

The customers of over 11 million drum brakes from BPW value the proven technology, the sturdy construction and the simple maintenance of the BPW drum brake.

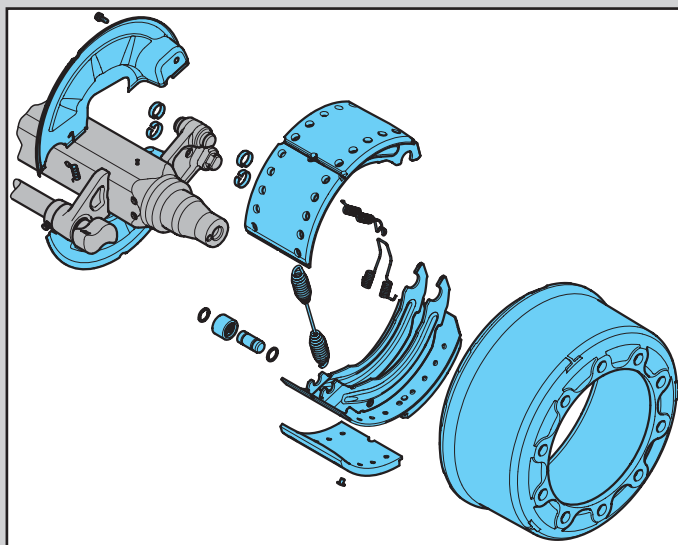
In a further development stage the tried and tested SN 4218 and SN 4220 brakes have now been improved yet again in terms of weight, wear behaviour and service-friendliness.

The result of this development is called the **ECO Drum**.



BPW axles with ECO Drum brakes include BPW's proven drum brake technology along with a reduction in weight.

As a result of improved component design, the weight of the 9-tonne drum brake axle with ECO Drum SN 4218 in conjunction with the revised air suspension has been reduced by approx. 18 kg per axle (see also BPW NEWS Gen. 7125703e). For you that means reduced weight and increased payload.

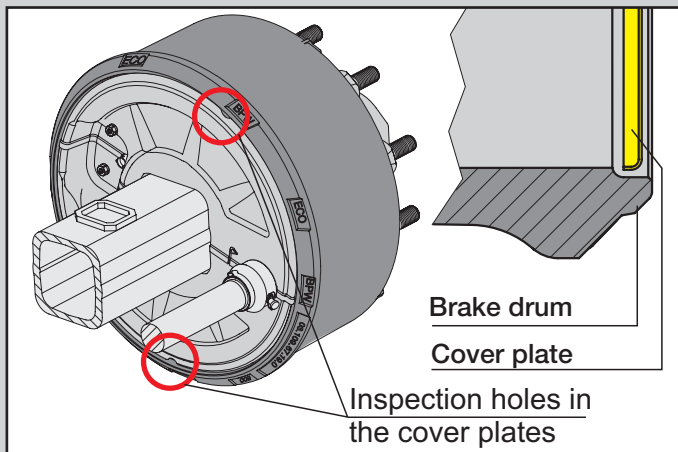


The most noticeable feature of the ECO Drum brake is the new drum contour in the flared area, plus a new cover plate design. The newly designed inspection holes in the cover plates make it simple to check the wear edges of the brake linings and the brake drums.

The improved seal between the cover plate and the brake drum reduces the ingress of dirt into the brake, and thus extends the life of the brake components.

The benefit to the user is obvious:

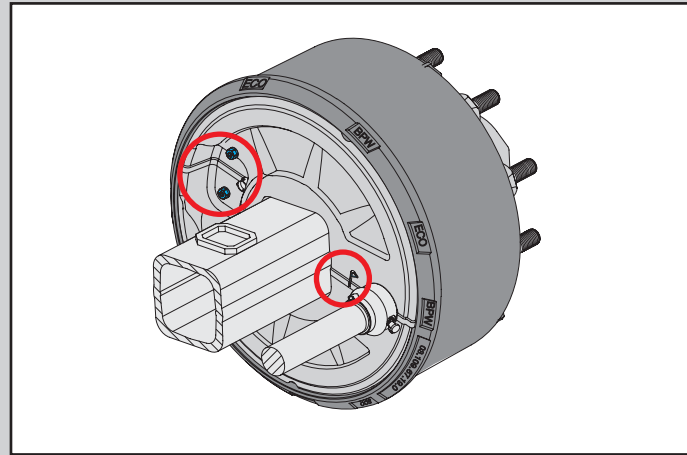
Less time and effort, and hence less cost.



BPW ECO Drum

The quality of the cover plate attachment has been improved by the use of bolts. They ensure that the cover plate can be removed with no difficulty at all, even after years of use under the harshest conditions.

On the camshaft side the cover plate is simply and quickly plugged in and held by a spring.

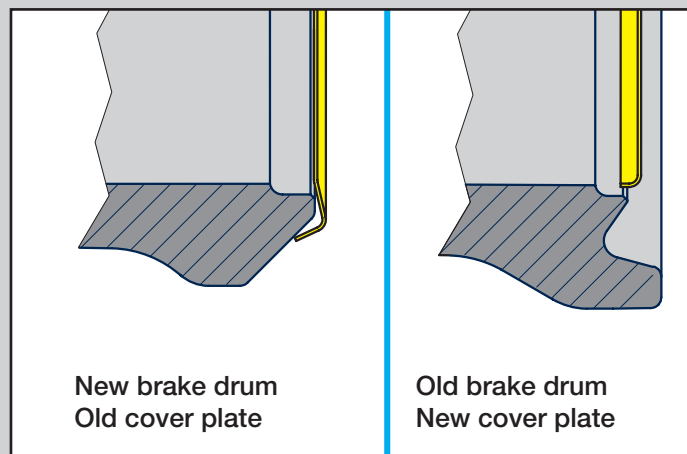


Spares compatibility

In future there will only be the new ECO Drum brake drums and brake shoes available.

The new brake drums and brake shoes can also be used on the old drum brake axles without replacing the cover plate.

There is also the opportunity to get cover plates with the new external contour and the old brake anchor plate connection. In this way customers can benefit from the improved seal between the new cover plate and the brake drum design even with old drum brake axles.



Brake certificates

No new homologations are required for the ECO Drum. The updated brake certificates for the ECO Drum SN 42.. can be found under the familiar TDB numbers in the download centre on the BPW homepage at www.bpw.de.

The BPW axle with ECO Drum brakes can be fitted to a vehicle together with the previous drum brake axle.

4.1 Brake parts

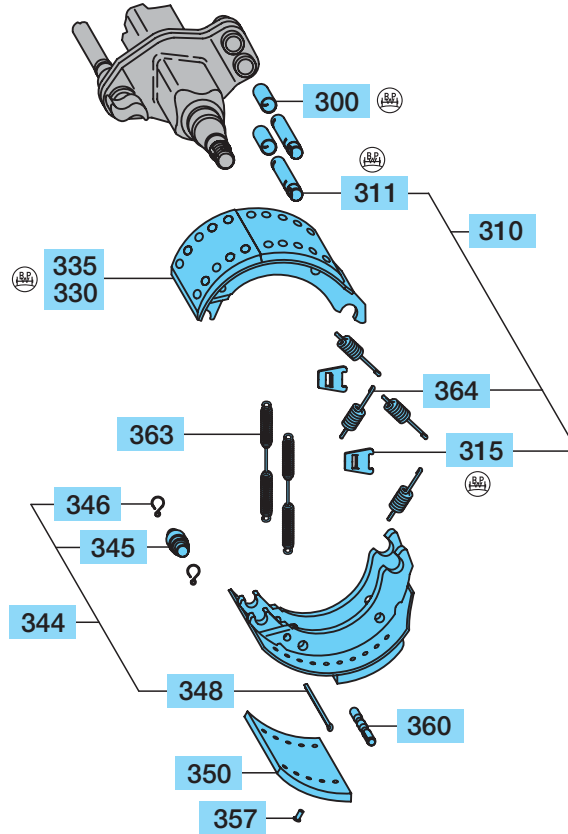
SN 42..-2

H

Conventional brake (Year of manufacture 1983 - 1995)

H.. / R..

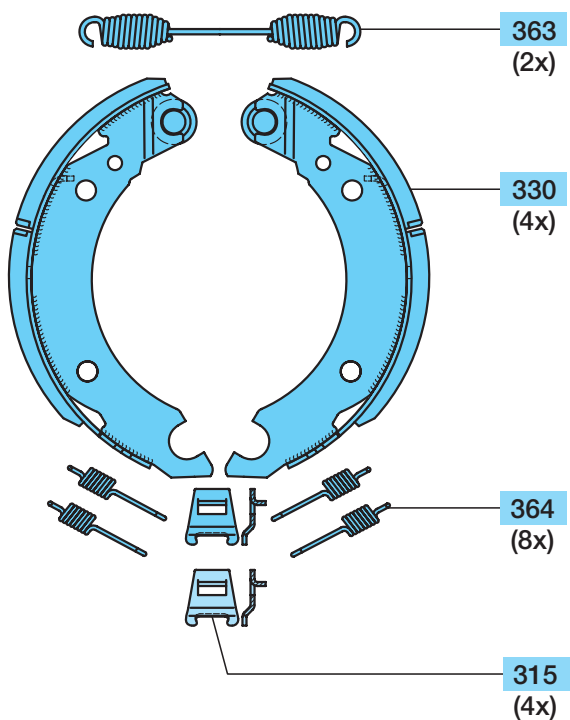
SN 4212-2 / 4218-2 / 4220-2 / 4222-2



Conversion to brake with split roller (BPW 95 / ECO Drum)

H.. / R..

SN 4212-2 / 4218-2 / 4220-2 / 4222-2



Conversion to brake with split roller (BPW 95 brake)

High degree of safety

Short response time and a consistent braking effect throughout the entire life of the lining thanks to the permanently lubricated brake rollers.

Reduced own weight

Weight-optimized design with fewer wear parts.

Easy to change brake linings

Fast and easy brake shoe replacement.

Same brake components on all axles of the corresponding series

The technical specifications of the brake remain unchanged. Consequently existing EC test certificates remain valid.

SN 42..-2

Brake parts 4.1

H

Conventional brake (Year of manufacture 1983 - 1995)					H.. / R..
Item	Designation (Remark)	BPW Code no.	Dimension		
Brake type		SN 4212-2	SN 4218-2	SN 4220-2	SN 4222-2
		SN 4212-2 ---,---,790. / 794,--- SN 4218-2 ---,---,710. / 714,--- SN 4220-2 ---,---,718. / 723,---	SN 4222-2 ---,---,739,---		
300	Bush	03.112.33.08.0	Ø 36 / 40 x 60		03.112.33.08.0 Ø 36 / 40 x 60
310	Brake pin (cpl. item 311, 315)	09.084.46.36.0			09.084.46.35.0
311	Brake pin	03.084.46.22.0	Ø 36 x 135		03.084.46.23.0 Ø 36 x 145
315	Shaped plate	03.167.23.02.0			03.167.23.02.0
330	Brake shoe assembly, with lining (incl. item 345 - 357)	No longer available. Retrofit to brake with split roller (BPW 95 / ECO Drum). (see below, item 328)			
335	Brake shoe assembly, without lining (incl. item 345 - 348)				
344	Repair kit brake shoe roller (item 345 - 348)	-			09.801.02.10.0 (for 1 axle)
345	Roller Ø 26 / 42 x 52 Ø 26 / 42 x 78	03.331.34.06.0 -			- 03.331.34.05.0
346	Circlip	03.350.00.13.0			03.350.00.13.0
348	Split pin 6.3 x 71 / 1234 6.3 x 90 / 1234	02.6201.64.01 -			- 02.6201.66.03
349	Repair kit brake lining (item 350 (8x))	18 mm 19 mm 20 mm	- -	09.801.07.41.0 09.801.07.42.0 09.801.07.43.0	09.801.07.45.0 09.801.07.46.0 09.801.07.47.0
350	Brake lining (Textar T090)	18 mm 19 mm 19.5 mm 20 mm	03.092.29.53.0 03.092.29.54.0 03.092.29.55.0 -	03.092. * 03.092. * - 03.092. *	03.092. * 03.092. * - 03.092. *
357	Rivet (Steel)	B 8 x 15/7338	02.5805.80.35	02.5805.80.35	
360	Splined pin Ø 12 x 70 Ø 12 x 90	03.001.08.04.0 -			- 03.001.08.05.0
363	Return spring Ø 25 / 5 x 269 Ø 25 / 4 x 262	05.397.56.07.0 (1x) -			- 05.397.46.07.0
364	Return spring	Ø 21 / 4 x 105	03.397.44.06.0	03.397.44.06.0	

* not available loose - see repair kit brake lining (item 349)

Conversion to brake with split roller (BPW 95 / ECO Drum)					H.. / R..
Item	Designation (Remark)	BPW Code no.	Dimension		
Brake type		SN 4212-2	SN 4218-2	SN 4220-2	SN 4222-2
315	Shaped plate		03.167.23.09.0		
330	Brake shoe assembly, with lining (incl. item 345 - 357)	05.091.29.92.1	05.091.46.32.1	05.091.47.04.1	05.091.28.28.1
345	Roller		05.331.44.02.0	Ø 26 / 45 x 33.5	
346	Bolt		03.084.75.24.0	Ø 26 x 58.5	
348	Ring		03.310.70.15.0	Ø 31 / 24 / 3.5	
350	Brake lining 18 mm (Textar T090)	03.092.29.53.0	see above	see above	03.092.28.32.0
357	Rivet (Steel)		02.5805.80.35	B 8 x 15 / 7338	
363	Return spring		05.397.58.03.0	Ø 34 / 5 x 274	
364	Return spring		03.397.44.06.0	Ø 21 / 4 x 105	

4.1 Brake parts

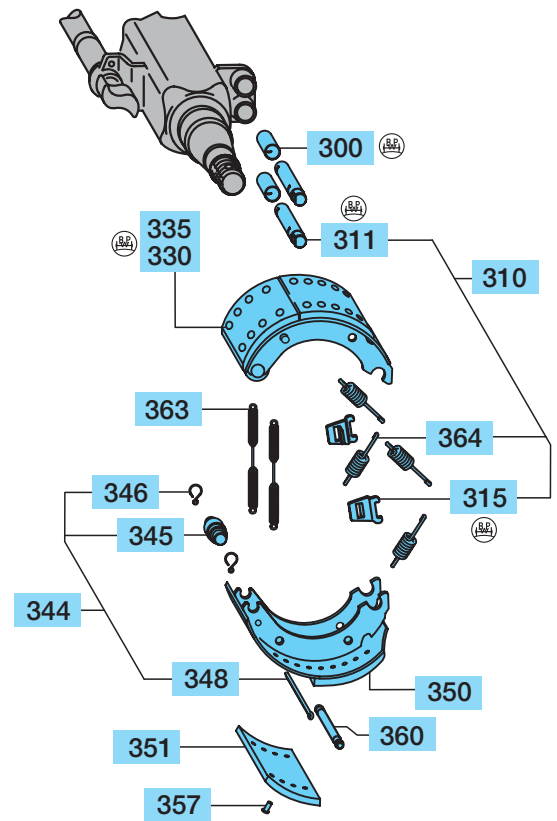
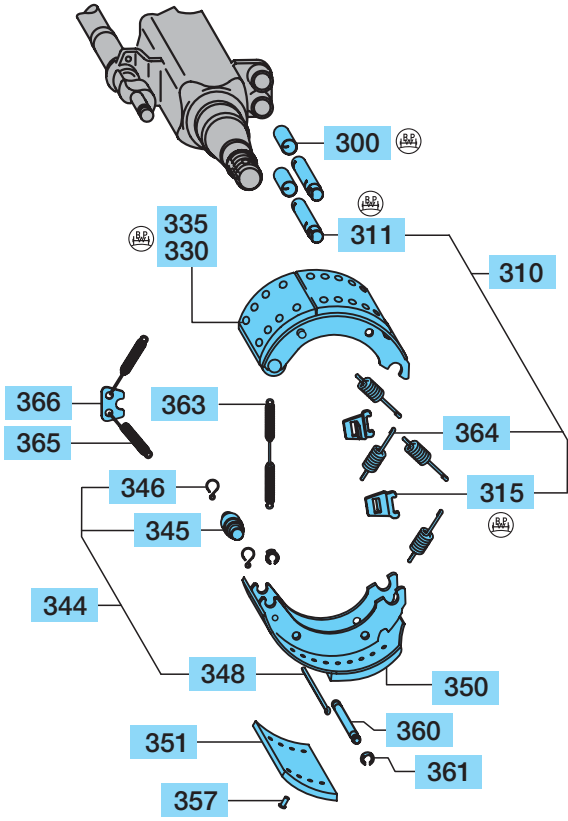
SN 36..

K

Conventional brake (Year of manufacture 1983 - 1995) KH.. / KR..

SN 3616

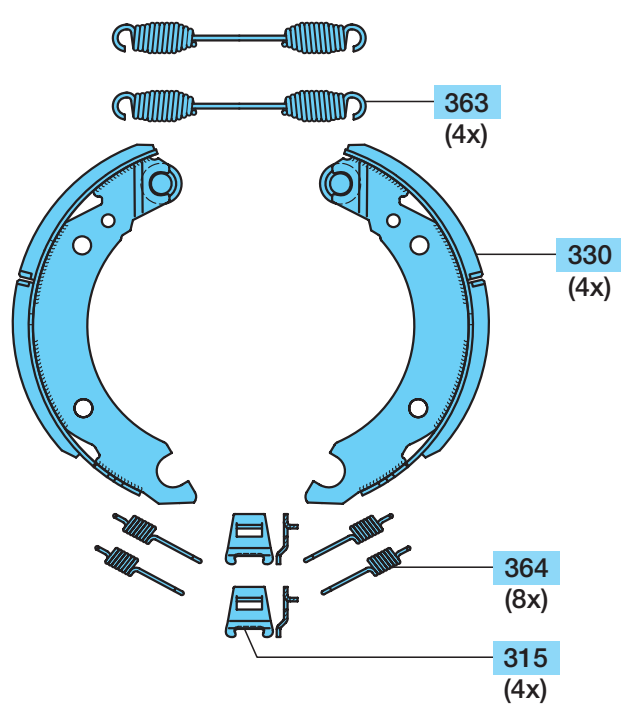
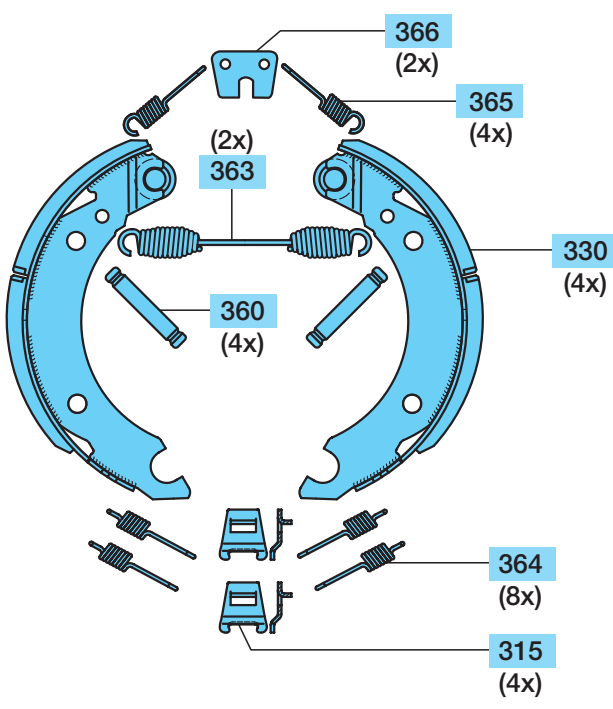
SN 3620



Conversion to brake with split roller (BPW 95) KH.. / KR..

SN 3616

SN 3620



Conventional brake (Year of manufacture 1983 - 1995)						KH.. / KR..	
Item	Designation (Remark)		BPW Code no.		Dimension		
			SN 3616	---,---,542,---			
			SN 3620	---,---,546,---			
300	Bush		03.112.33.08.0	Ø 36 / 40 x 60			
310	Brake pin (cpl. item 311, 315)		09.084.46.36.0				
311	Brake pin		03.084.46.22.0	Ø 36 x 135			
315	Shaped plate		03.167.23.02.0				
	Brake type		SN 3616	---,---,542,---	SN 3620	---,---,546,---	
330	Brake shoe assembly, with lining (incl. item 345 - 357)		No longer available. Retrofit to brake with split roller (see below, item 328)		No longer available. Retrofit to brake with split roller (see below, item 328)		
335	Brake shoe assembly, without lining (incl. item 345 - 348)						
344	Repair kit brake shoe roller (item 345 - 348)			09.801.02.10.0	(for 1 axle)		
345	Roller			03.331.34.05.0	Ø 26 / 42 x 78		
346	Circlip			03.350.00.13.0			
348	Split pin			02.6201.66.03	6.3 x 90 / 1234		
			Brake pin side 10 Rivets Item 350	Camshaft side 8 Rivets Item 351	Brake pin side 10 Rivets Item 350	Camshaft side 8 Rivets Item 351	
350	Brake lining	18 mm	03.092.19.63.0	03.092.19.62.0	03.092.19.54.0	03.092.19.55.0	
351	(Textar T090)	19 mm	03.092.19.64.0	03.092.19.65.0	03.092.19.56.0	03.092.19.57.0	
		19.5 mm	03.092.19.66.0	03.092.19.67.0	03.092.19.58.0	03.092.19.59.0	
357	Rivet (Steel)			02.5805.80.35	B 8 x 15 / 7338		
360	Bolt		03.084.42.03.0	Ø 12 x 120	03.084.42.02.0	Ø 12 x 120	
361	Circlip		02.3301.17.00	12 SxN 09	-		
363	Return spring			05.397.45.14.0	Ø 24 / 4 x 218		
364	Return spring			03.397.44.06.0	Ø 21 / 4 x 105		
365	Return spring		03.397.45.10.0	Ø 22 / 4 x 108	-		
366	Plate		03.285.22.05.0		-		

Conversion to brake with split roller (BPW 95)						KH.. / KR..	
Item	Designation (Remark)		BPW Code no.		Dimension		
			SN 3616		SN 3620		
328	Retrofit kit cpl. for 1 axle, with brake shoes (item 329 + 330))		09.801.02.41.0		09.801.02.40.0		
329	Retrofit kit cpl. for 1 axle, without brake shoes (item 315, 360 - 366)		09.801.02.46.0		09.801.02.45.0		
315	Shaped plate			03.167.23.09.0			
330	Brake shoe assembly, with lining (incl. item 345 - 357)		05.091.19.24.1		05.091.19.22.1		
345	Roller			05.331.44.02.0	Ø 26 / 45 x 33.5		
346	Bolt			03.084.75.24.0	Ø 26 x 58.5		
348	Ring			03.310.70.15.0	Ø 31 / 24 / 3.5		
			Brake pin side 10 Rivets Item 350	Camshaft side 8 Rivets Item 351	Brake pin side 10 Rivets Item 350	Camshaft side 8 Rivets Item 351	
350	Brake lining	18 mm	03.092.19.63.0	03.092.19.62.0	03.092.19.54.0	03.092.19.55.0	
357	Rivet (Steel)			02.5805.80.35	B 8 x 15 / 7338		
360	Bolt		03.084.42.05.0	Ø 12 x 125	-		
363	Return spring			05.397.46.13.0	Ø 24.5 / 4 x 236		
364	Return spring			03.397.44.06.0	Ø 21 / 4 x 105		
365	Return spring		03.397.45.10.0	Ø 22 / 4 x 108	-		
366	Plate		03.285.22.05.0		-		

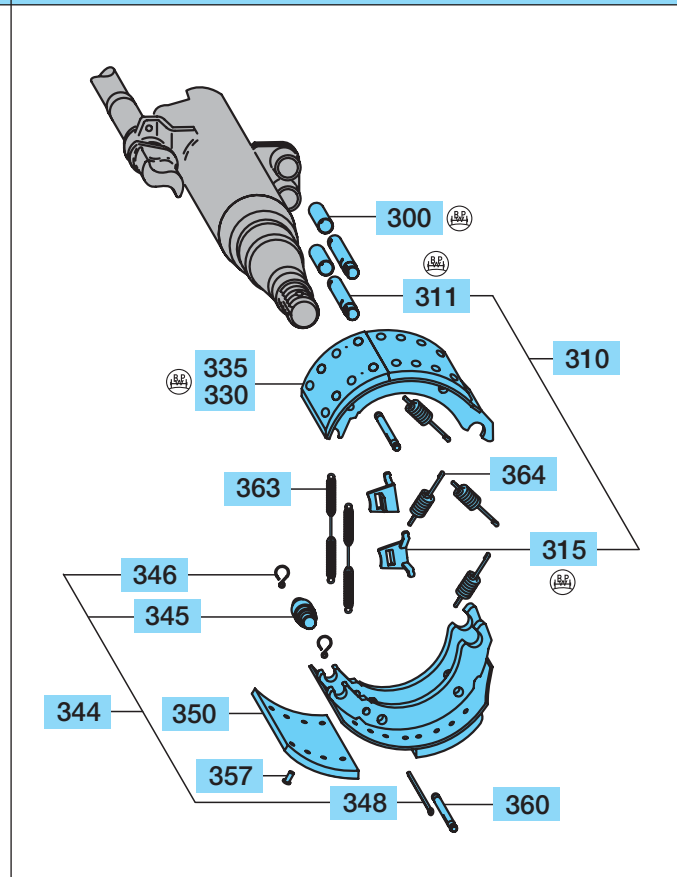
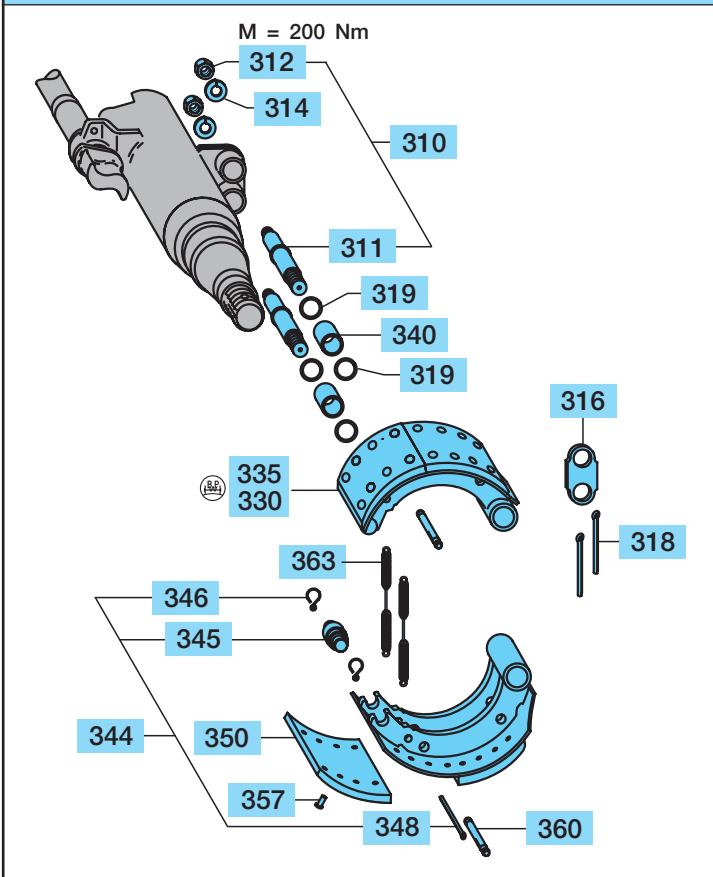
4.1 Brake parts

SN 30..

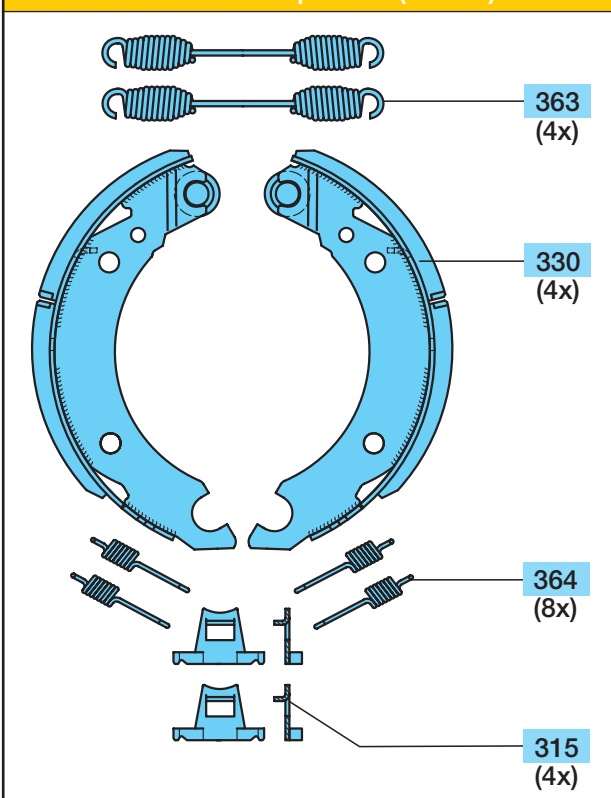
Conventional brake (Year of manufacture 1983 - 1995) NH.. / NR..

SN 3015-1 / 3020-1,
Brake shoes with closed anchor eye
1982 - 1989

SN 3015 / 3020,
Quick-release brake shoes
1990 - 1995



Conversion to brake with split roller (BPW 95) NH.. / NR..



Brake type		SN 3015	SN 3020
Item	Designation (Remark)	BPW Code no.	BPW Code no.
328	Retrofit kit cpl. for 1 axle with brake shoes (item 329 + 330)	09.801.02.43.0	09.801.02.42.0
329	Retrofit kit cpl. for 1 axle without brake shoes (item 315, 363, 364)	09.801.02.47.0	09.801.02.47.0
315	Shaped plate	03.167.24.01.0	
330	Brake shoe assembly with lining (incl. item 345 - 357)	05.091.15.05.1	05.091.14.77.1
345	Roller	05.331.44.02.0	Ø 26 / 45 x 33.5
346	Bolt	03.084.75.24.0	Ø 26 x 58.5
348	Ring	03.310.70.15.0	Ø 31 / 24 / 3.5
350	Brake lining (Textar T090) 18 mm	03.092.13.44.0	03.092.14.45.0
357	Rivet (Steel)	02.5805.80.35	B 8 x 15 / 7338
363	Return spring	05.397.34.17.0	Ø 20 / 3.5 x 180
364	Return spring	03.397.44.06.0	Ø 21 / 4 x 105

Conventional brake (Year of manufacture 1983 - 1995)				NH.. / NR..	
Item	Designation (Remark)	BPW Code no.	Dimension		
		SN 3015-1 * / SN 3020-1 * Brake shoes with closed anchor eye ---.582. / 586.--- 1982 - 1989		SN 3015 / SN 3020 Quick-release brake shoes ---.592. / 596.--- 1990 - 1995	
300	Bush	-		03.112.33.08.0	Ø 36 / 40 x 60
310	Thread bolt cpl. (cpl. item 311, 314, 315)	09.177.23.09.0		-	
310	Brake pin cpl. (item 311, 315)	-		09.084.46.39.0	
311	Brake pin	-		03.084.46.30.0	Ø 36 x 145 (135)
311	Thread bolt	03.177.23.10.1	Ø 32 / 38 x 153	-	
312	Hexagon nut	02.5201.76.06	BM 20 x 1.5 / 439	-	
314	Spring washer	03.143.00.02.0	Ø 22.5 / 34 / 80°	-	
315	Shaped plate	-		03.167.24.01.0	
316	Shackle (standard) (for ABS, brake drum width until 260 mm)	03.232.44.02.0 03.232.44.04.0		-	
318	Split pin	02.6201.80.01	8 x 45 / 1234	-	
319	'O'-Ring	02.5677.86.40	Ø 28 x 2.5	-	
	Brake type	SN 3015-1 *	SN 3020-1 *	SN 3015	
		NR.. ○ 127 ---.582.---	NR.. ○ 127 ---.586.---	NR.. ○ 127 ---.592.---	NH.. □ 120 ---.592.---
		NR.. ○ 127 ---.582.---	NR.. ○ 127 ---.586.---	NR.. ○ 127 ---.592.---	NH.. □ 120 ---.596.---
330	Brake shoe assembly, with lining (incl. item 345 - 357)	05.091.13.85.0	05.091.14.70.0	No longer available. Retrofit to brake with split roller (BPW 95). (see page 45, Item 328)	
335	Brake shoe assembly, without lining (incl. item 345 - 348)	05.091.13.20.0	05.091.14.19.0	No longer available. Retrofit to brake with split roller (BPW 95). (see page 45, Item 328)	
340	Bush	03.112.22.30.0	Ø 32 / 36x54	-	
344	Repair kit brake shoe roller (item 345 - 348)	09.801.02.11.0	(for 1 axle)	09.801.02.12.0	(for 1 axle)
345	Roller	03.331.34.01.0	Ø 22 / 42x59	03.331.34.01.0	Ø 22 / 42 x 59
346	Shackle	03.232.13.01.0		-	
346	Circlip	-		03.350.00.14.0	
348	Split pin	02.6201.83.03	Ø 8 x 71/1234	02.6201.66.03	Ø 6.3 x 90 / 1234
350	Brake lining (Textar T090)	18 mm 19 mm 19.5 mm	03.092.13.44.0 03.092.13.45.0 03.092.13.46.0	03.092.14.45.0 03.092.14.46.0 03.092.14.47.0	03.092.13.44.0 03.092.13.45.0 03.092.13.46.0
357	Rivet (Steel)	02.5805.80.35	B 8 x 15/7338	02.5805.80.35	B 8 x 15/7338
360	Splined pin	03.001.08.03.0	Ø 12 x 70	03.001.08.05.0	Ø 12 x 90
363	Return spring	05.397.35.03.0	Ø 22/3.663	-	
	Ø 24/4x167	-		05.397.46.12.0	-
	Ø 20/3.6x166	-		-	05.397.34.16.0
364	Return spring	-		03.397.44.06.0	Ø 21 / 4 x 105
* Brake shoes with closed location eyes (Execution-1) can not be fitted to brake with split roller (BPW 95).					

4.2 Brake parts

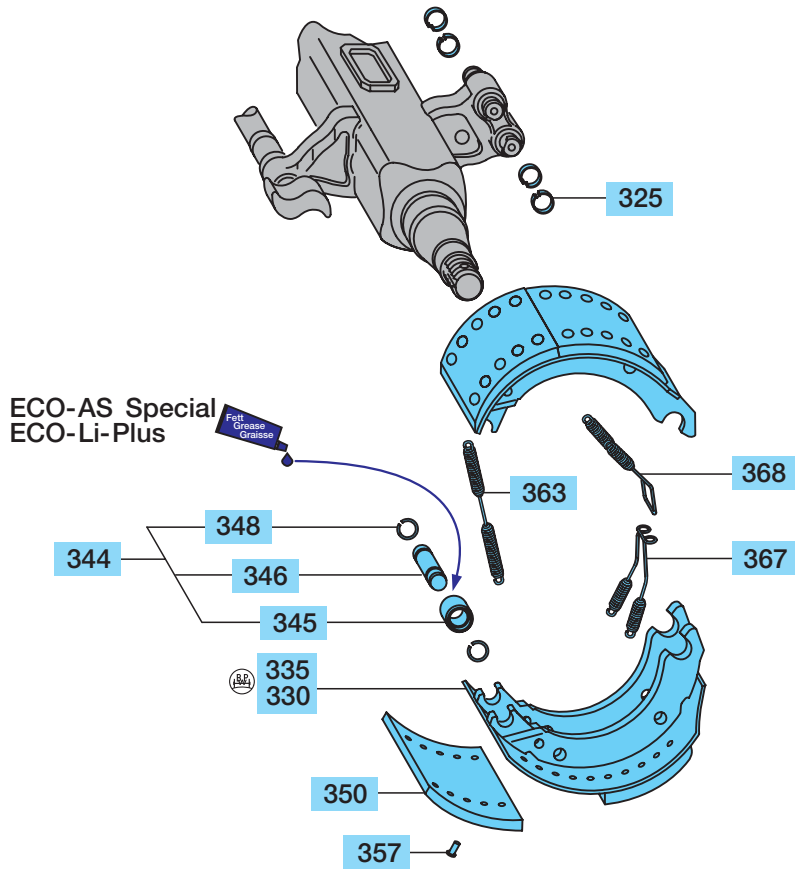
SN 42.. with split roller (BPW 95 / ECO-Drum)

H

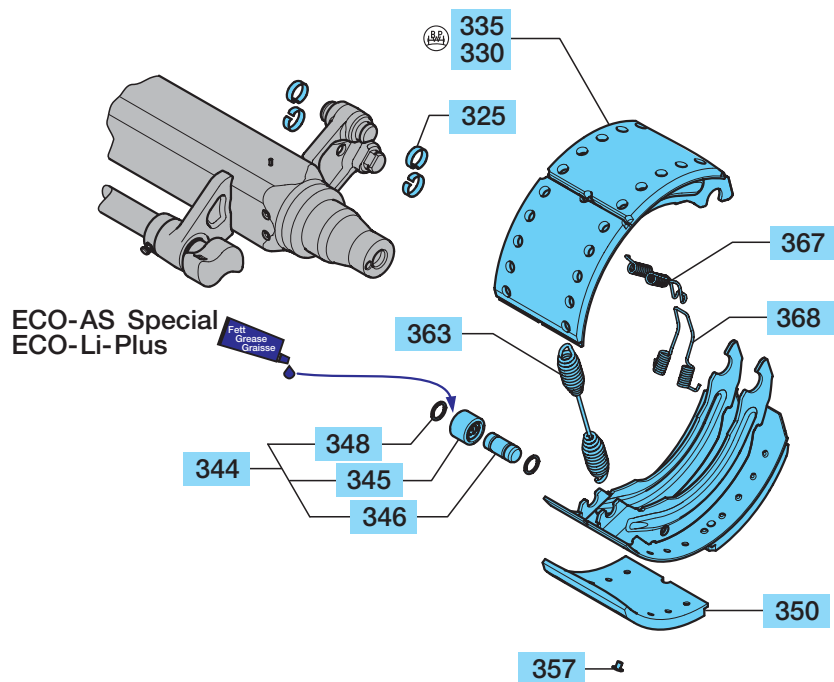
Brake with split roller (BPW 95 / ECO-Drum) (Manufactured from 3/95)

H.. / R..

SN 42.. BPW 95



SN 42.. ECO Drum



SN 42.. with split roller (BPW 95 / ECO-Drum)

Brake parts 4.2

Brake with split roller (BPW 95 / ECO Drum) (Manufactured from 3/95)					H.. / R..
Item	Designation (Remark)	BPW Code no.		Dimension	
	Brake type Brake designation	SN 4212 ---.741.---	SN 4218 ---.743.---	SN 4220 ---.744.---	SN 4222 ---.745.---
325	'C' Clip		03.188.02.02.0		
327	Repair kit brake, without brake shoes (item 325, 363 - 368)		09.801.06.79.0		
328	Repair kit brake, with brake shoes (item 327, 330)	-	09.801.07.39.0	09.801.07.49.0	09.801.02.53.0
330	Brake shoe assembly, with lining, (incl. item 345 - 357)	05.091.29.92.1	05.091.46.32.1	05.091.47.04.1	05.091.28.28.1
335	Brake shoe assembly, without lining, (incl. item 345 - 348)	05.091.29.93.0	05.091.46.36.0	05.091.47.09.0	05.091.28.29.0
344	Repair kit brake shoe roller (item 345 - 348)		09.801.02.91.0 (for 1 axle side)		
345	Roller		05.331.44.02.0	Ø 26 / 45 x 33.5	
346	Bolt		03.084.75.24.0	Ø 26 x 58.5	
348	Ring		03.310.70.15.0	Ø 24 / 31 / 3.5	
349	Repair kit brake lining (item 350 (8x))	-	09.801.07.41.0	09.801.07.45.0	-
	18 mm	-	09.801.07.42.0	09.801.07.46.0	-
	19 mm	-	09.801.07.43.0	09.801.07.47.0	-
	20 mm	-			-
350	Brake lining	03.092.29.53.0	03.092. *	03.092. *	03.092.28.32.0
	(Textar T090)	03.092.29.54.0	03.092. *	03.092. *	03.092.28.33.0
	18 mm	03.092.29.55.0	-	-	-
	19 mm		03.092. *	03.092. *	03.092.28.34.0
	19.5 mm				
	20 mm				
357	Rivet (Steel)		02.5805.80.35	B 8 x 15 / 7338	
363	Return spring		05.397.58.03.0	Ø 34 / 5 x 268	
367	Return spring (Retention spring)		03.397.33.06.0	(Hook)	
368	Return spring (Retention spring)		03.397.33.07.0	(Eye)	

* not available loose - see repair kit brake lining (item 349)

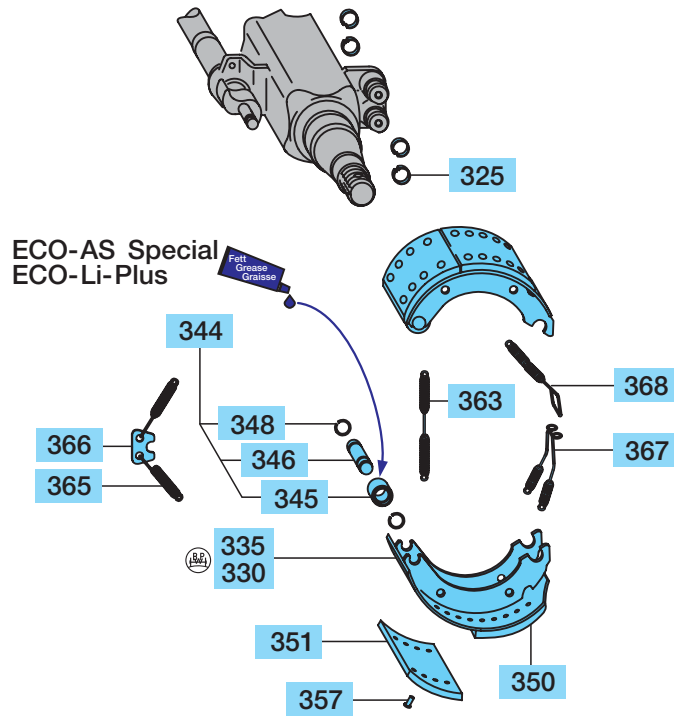
4.2 Brake parts

SN 36.. with split roller (BPW 95)

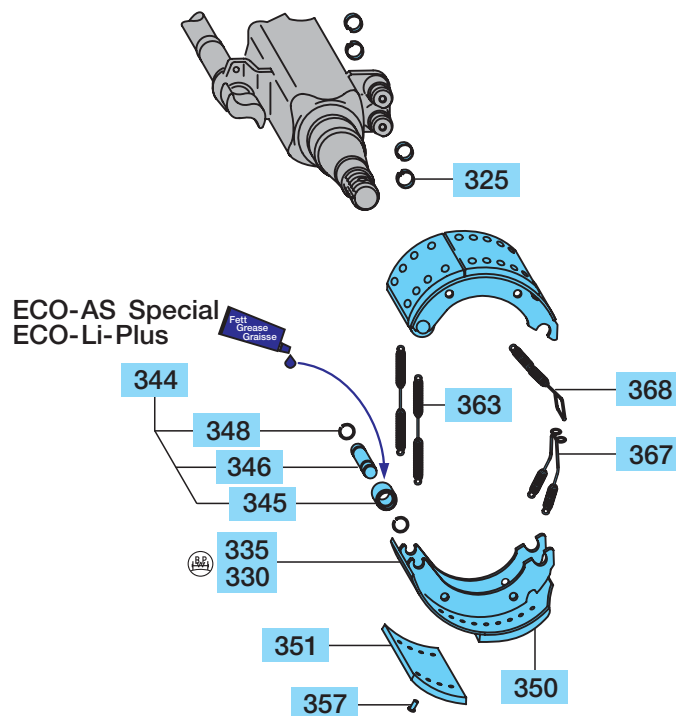
Brake with split roller (BPW 95) (Manufactured from 3/95)

KH.. / KR..

SN 3616 BPW 95



SN 3620 BPW 95



SN 36.. with split roller (BPW 95)

Brake parts 4.2

Brake with split roller (BPW 95) (Manufactured from 3/95)					KH.. / KR..	
Item	Designation (Remark)		BPW Code no.	Dimension		
	Brake type		SN 3616	SN 3620		
	Brake designation		---.551.---	---.552.---		
325	'C' Clip			03.188.02.02.0		
327	Repair kit brake, without brake shoes (item 325, 363 - 368)		09.801.06.82.0	09.801.06.81.0		
328	Repair kit brake, with brake shoes (item 325, 330, 363 - 368)		09.801.02.41.0	09.801.02.40.0		
330	Brake shoe assembly, with lining, (incl. item 345 - 357)		05.091.19.24.1	05.091.19.22.1		
335	Brake shoe assembly, without lining, (incl. item 345 - 348)		05.091.19.33.0	05.091.19.34.0		
344	Repair kit brake shoe roller (item 345 - 348)			09.801.02.91.0 (for 1 axle side)		
345	Roller			05.331.44.02.0 Ø 26 / 45 x 33.5		
346	Bolt			03.084.75.24.0 Ø 26 x 58.5		
348	Ring			03.310.70.15.0 Ø 24 / 31 / 3.5		
			Brake pin side 10 Rivets Item 350	Camshaft side 8 Rivets Item 351	Brake pin side 10 Rivets Item 350	Camshaft side 8 Rivets Item 351
350	Brake lining (Textar T090)	18 mm 19 mm 19.5 mm	03.092.19.63.0 03.092.19.64.0 03.092.19.66.0	03.092.19.62.0 03.092.19.65.0 03.092.19.67.0	03.092.19.54.0 03.092.19.56.0 03.092.19.58.0	03.092.19.55.0 03.092.19.57.0 03.092.19.59.0
357	Rivet (Steel)			02.5805.80.35 B 8 x 15 / 7338		
363	Return spring			05.397.46.13.0 Ø 24.5 / 4 x 236		
365	Return spring		03.397.44.10.0	Ø 22 / 4 x 119		
366	Plate		03.285.22.05.0	-		
367	Return spring (Retention spring)			03.397.33.06.0 (Hook)		
368	Return spring (Retention spring)			03.397.33.07.0 (Eye)		

K

4.2 Brake parts

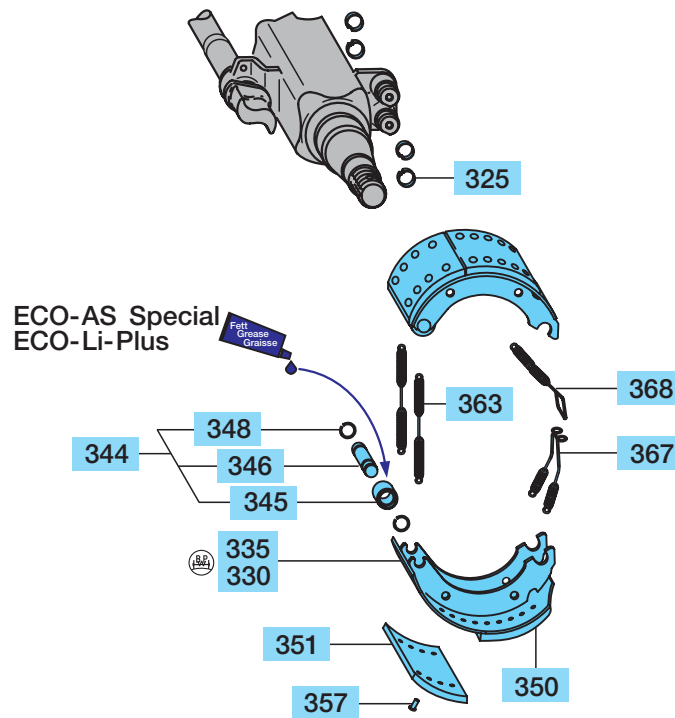
SN 30.. with split roller (BPW 95)

Brake with split roller (BPW 95) (Manufactured from 3/95)

NH.. / NR..

SN 30.. BPW 95

N



SN 30.. with split roller (BPW 95)

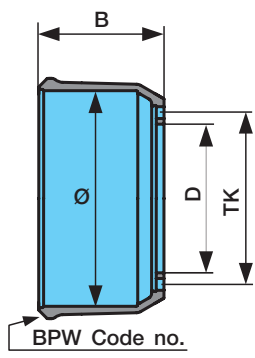
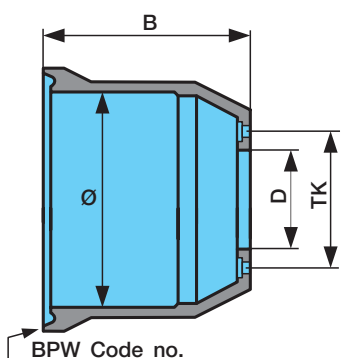
Brake parts 4.2

Brake with split roller (BPW 95) (Manufactured from 3/95)			NH.. / NR..	
Item	Designation (Remark)	BPW Code no.	Dimension	
Brake type Brake designation		SN 3015 --...501.---	SN 3020 --...502.---	
325	'C' Clip		03.188.02.02.0	
327	Repair kit brake, without brake shoes (item 325, 363 - 368)		09.801.06.80.0	
328	Repair kit brake, with brake shoes (item 325, 330, 363 - 368)	09.801.02.43.0	09.801.02.42.0	
330	Brake shoe assembly, with lining, (incl. item 345 - 357)	05.091.15.05.1	05.091.14.77.1	
335	Brake shoe assembly, without lining, (incl. item 345 - 348)	05.091.15.13.0	05.091.14.80.0	
344	Repair kit brake shoe roller (item 345 - 348)		09.801.02.91.0 (for 1 axle side)	
345	Roller		05.331.44.02.0	Ø 26 / 45 x 33.5
346	Bolt		03.084.75.24.0	Ø 26 x 58.5
348	Ring		03.310.70.15.0	Ø 24 / 31 / 3.5
350	Brake lining 18 mm (Textar T090) 19 mm 19.5 mm	03.092.13.44.0 03.092.13.45.0 03.092.13.46.0	03.092.14.45.0 03.092.14.46.0 03.092.14.47.0	
357	Rivet (Steel)		02.5805.80.35	B 8 x 15 / 7338
363	Return spring		05.397.34.17.0	Ø 20 / 3.6.5 x 180
367	Return spring (Retention spring)		03.397.33.08.0	(Hook)
368	Return spring (Retention spring)		03.397.33.09.0	(Eye)

N

4.3 Brake drums

Item	Designation (Remark)	BPW Code no.		Dimension		
SN 42..						H.. / R..
380	Brake drum					
	Brake type	Ø 420 x 120 B	Ø 420 x 180 B	Ø 420 x 200 B	Ø 420 x 220 B	
	Brake designation	---,741,---	---,710,---	---,718,---	---,739,---	
		---,790,---	---,714,---	---,723,---	---,745,---	
		---,794,---	---,743,---	---,744,---		
	D 290 / TK 335 / 6 x Ø21					
	HB.. / HI.. / HX..	03.106.97.16.0 197	03.109.67.17.0 226	03.109.77.13.0 260	-	
		-	03.109.67.01.0 252	03.109.77.03.0 287	-	
	HIZ. / HXZ..	-	03.109.67.17.0 226	03.109.77.35.0 ¹⁾ 240	03.106.87.16.0 265	
	D 230 / TK 275 / 8 x Ø21					
	HS.. / HZ.. / HZD..	03.106.95.16.0 197	03.106.65.08.0 252	-	-	
	D 230 / TK 275 / 8 x Ø23					
	HS.. ECO / ECO-MAXX	03.109.73.02.0 197	-	-	-	
	D 240 / TK 285 / 8 x Ø21					
	HZ.. Japanese	-	-	03.109.77.28.0 287	-	
	D 240 / TK 285 / 8 x Ø21					
	HZ.. Japanese	-	03.109.67.05.0 252	03.106.79.06.0 287 *	-	
	D 240 / TK 285 / 8 x Ø20					
	HZ.. Japanese	-	-	-	03.109.87.03.0 294	
	D 240 / TK 285 / 10 x Ø21					
	HZ.. Japanese	-	03.109.67.06.0 252	03.109.77.02.0 287	-	
	D 290 / TK 335 / 10 x Ø23					
	HS..	-	03.109.67.13.0 226	03.109.77.16.0 260	-	
	HS.. MAXX / ECO MAXX / ECOPlus / ECO Plus 2	03.109.73.01.0 197	03.109.67.29.0 ¹⁾ 221	03.109.77.33.0 ¹⁾ 254	-	
		-	03.109.67.32.0 ¹⁾ 221 *	-	-	
	HZ.. MAXX / ECO MAXX / ECOPlus / ECO Plus 2	-	03.109.67.31.0 ¹⁾ 243	03.109.77.32.0 ¹⁾ 279	-	
	HS.. / HZ..	03.106.97.17.0 197	03.109.67.74.0 252	03.109.77.30.0 ¹⁾ 279	03.106.87.12.0 294	
		-	-	-	03.109.87.01.0 294	
	HZ.. for rim 14.00-20	-	-	03.106.77.61.0 287	-	
	HZ.. MAXX for rim 14.00-20	-	-	03.109.77.23.0 284	-	
	HZ.. 14010-1	-	-	03.109.77.34.0 ¹⁾ 289 *	-	
		-	-	03.106.77.59.0 297	-	
	HZ.. 14010-1 MAXX	-	-	03.109.77.21.0 294	-	
		-	-	03.109.77.22.0 294 *	-	
	HZD..	03.106.97.17.0 197	03.106.67.55.0 252 *	03.109.77.36.0 ¹⁾ 279 *	-	
	Max. diameter permissible after machining Ø mm	423	423	423	423	
	Max. utilisation Ø mm	424	424	424	424	

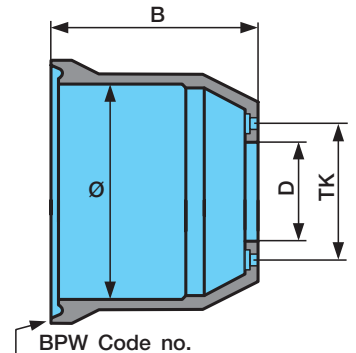


B = overall width
 * = ribbed
¹⁾ = ECO Drum

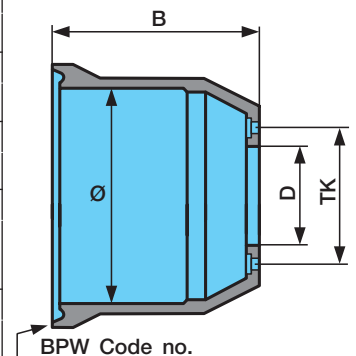
03.109.... = ECO brake drum with integrated wear indicator

Brake drums 4.3

Item	Designation (Remark)	BPW Code no.	Dimension	
SN 36..				KH.. / KR..
380	Brake drum			
	Brake type	Ø 360 x 160 B	Ø 360 x 200 B	
	Brake designation	---.542.---	---.546.---	
		---.551.---	---.552.---	
	D 230 / TK 275 / 8 x Ø23 / 2 x Ø11			
	KRBM.. 6408 30.65.542....	03.105.90.05.0 221	-	
	D 230 / TK 275 / 8 x Ø23			
	KRB.. 30.06.542....	03.105.90.09.0 328	-	
	D 230 / TK 275 / 8 x Ø23			
	K.. ECO-MAXX /	-	03.109.90.03.0 260	
	ECOPlus / ECO Plus 2	-	03.109.90.22.0 263	
	D 190 / TK 225 / 10 x Ø23			
	K.. ECO-MAXX /	-	03.109.90.04.0 260	
	ECOPlus / ECO Plus 2	-	03.109.90.24.0 263	
	KH.. / KR.. / KM (13t)	-	03.109.90.24.0 263	
	D 290 / TK 335 / 10 x Ø23			
	KHS.. 9010/3 / 11010/3	-	03.109.90.02.0 263	
	D 290 / TK 335 / 10 x Ø23			
	KHS.. 9010/3 30.38.551...	03.109.92.01.0 205	-	
	Max. diameter permissible after machining Ø mm	363	363	
	Max. utilisation Ø mm	364	364	



SN 30..				NH.. / NR..
380	Brake drum			
	Brake type	Ø 300 x 150 B	Ø 300 x 200 B	
	Brake designation	---.582.---	---.586.---	
		---.592.---	---.596.---	
		---.501.---	---.502.---	
	D 165 / TK 205 / 6 x Ø 21			
	N..	03.105.34.08.0 210	-	
	D 165 / TK 205 / 6 x Ø23 / 2 x Ø11			
	N.. 12" tyres	03.105.34.09.0 345 ¹⁾	-	
	D 190 / TK 230 / 6 x Ø21			
	N..IZ / N..XZ	03.105.34.10.0 210	03.105.47.05.0 255	
	D 200 / TK 240 / 6 x Ø21 / 2 x Ø13			
	N..IZ / N..XZ 13 t	-	03.105.48.02.0 255	
	D 230 / TK 275 / 8 x Ø21 / 2 x Ø11			
	N.. 8-holes	03.105.38.03.0 210	03.105.49.03.0 295	
	N.. 8-holes	03.105.38.01.0 328	-	
	D 230 / TK 275 / 8 x Ø23			
	N.. 8-holes	03.105.38.05.0 210	-	
	D 185 / TK 225 / 10 x Ø23 / 2 x Ø13			
	N.. 13 t 10-holes	-	03.105.46.25.0 265	
	N.. 13 t 10-holes	-	03.105.46.27.0 315	
	D 190 / TK 225 / 10 x Ø23			
	N.. Conv. / ECO	03.105.36.12.0 210	03.105.46.22.0 245	
	N.. Conv. / ECO	-	03.109.46.49.0 260	
	N.. ECO-MAXX / MAXX	03.109.44.02.0 210	03.109.46.06.0 260	
	N.. Conv. / ECO	-	03.109.46.40.0 295	
	Max. diameter permissible after machining Ø mm	303	303	
	Max. utilisation Ø mm	304	304	



¹⁾ + Cylinder peg for wheel stud bolt securing 4 x 16 / 1472, BPW Code no. 02.6004.06.01

4.4 Brake drum attachments

Item	Designation (Remark)	BPW Code no.	Dimension	
HB..				
390	Bolt assembly (incl. item 391 + 392)	05.865.03.12.0	M 20 x 55 - 8.8	
391	Spring washer	02.5601.20.90	A 20 / 128	
392	Hexagon nut	02.5202.24.80	M 20 / 934	

HI.. / HIZ..				
390	Bolt assembly (incl. item 392)	05.865.03.02.0	M 20 x 45 - 10.9	
392	Lock nut	03.260.03.12.0	M 20-10 / SW30	

KRBM.. 6408				
390	Locking bolt	02.5070.63.02	M 10 x 25	

Brake drum attachments 4.4

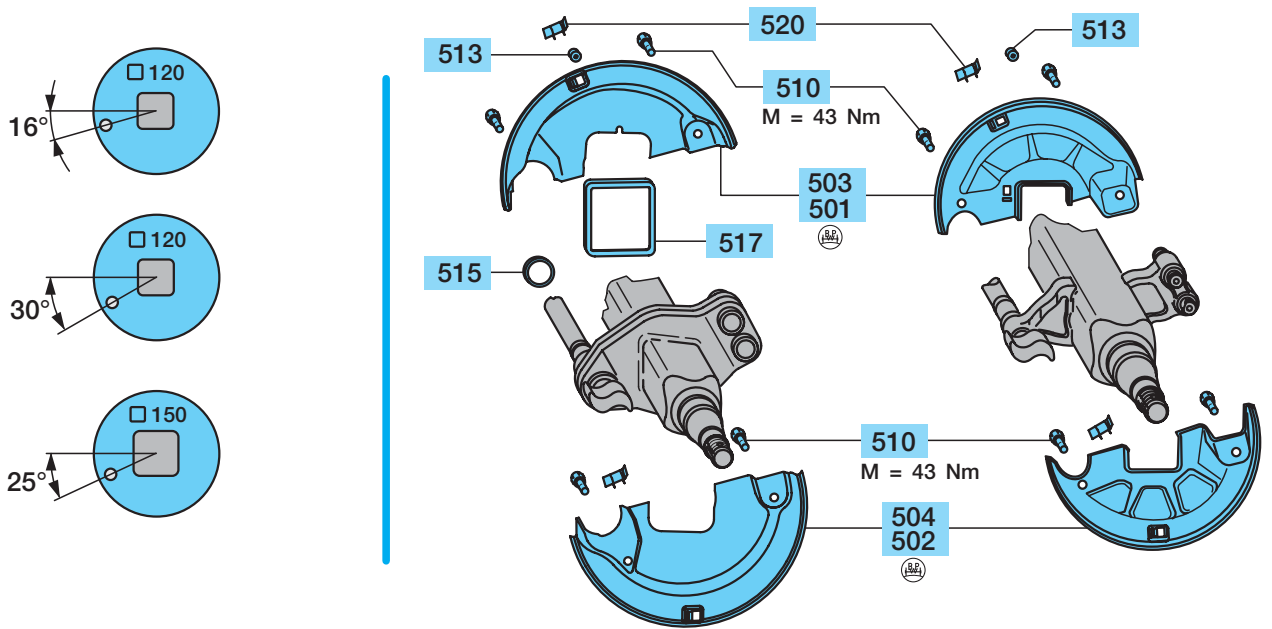
Item	Designation (Remark)	BPW Code no.	Dimension	
NR.. 6006 12" and NR.. 8-holes				
390	Locking bolt	02.5070.63.00	M 10 x 25	
NR 13 t..				
390	Countersunk bolt	02.5002.20.40	M 12 x 25 / 963 - 4.8	

N

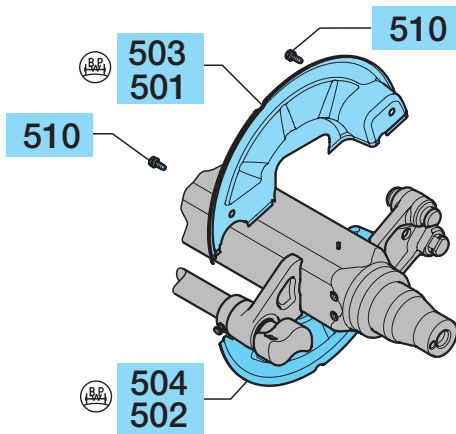
4.5 Dust covers

H

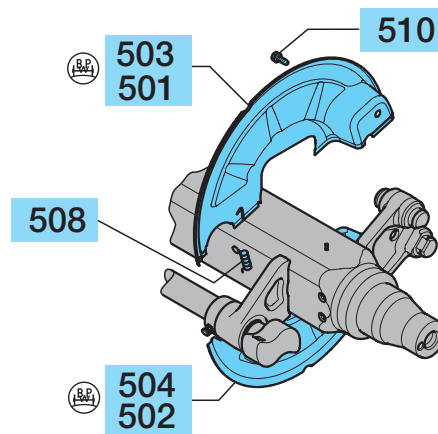
Dust covers available as sets (upper + lower)



ECO Drum



ECO Drum - dust covers / old axle beam (attachment with locking bolts)



ECO Drum - dust covers / ECO Drum - axle beam (attachment with shouldered bolts + return spring)

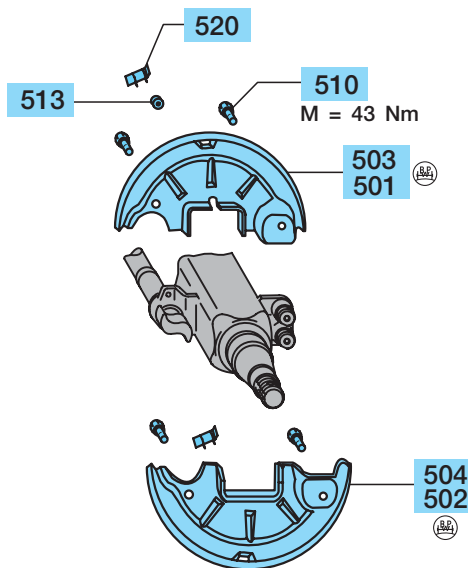
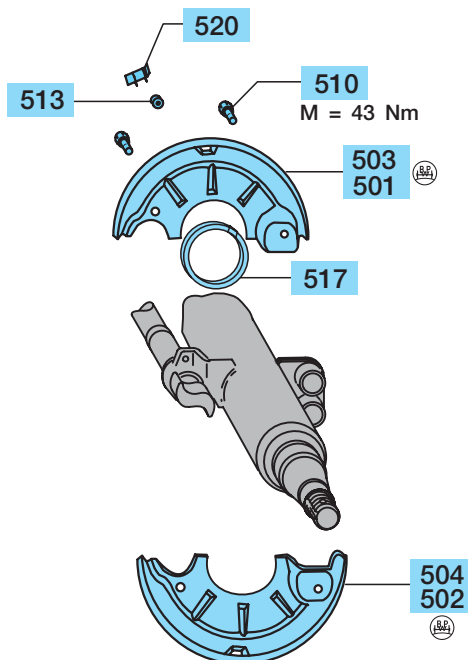
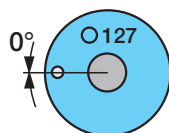
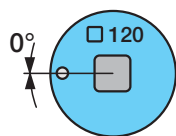
Item	Designation (Remark)	BPW Code no.					H.. / R..
SN 42..							
500 - 504	Brake designation Axle type Axle beam Brake position	item 500 Set of dust covers cpl. item 501 - 520	item 501 Dust cover left upper	item 502 Dust cover left lower	item 503 Dust cover right upper	item 504 Dust cover right lower	
SN 4212-2 ---,---,790,--- / ---,---,794,---							
	H.. <input type="checkbox"/> 120 30°	99.00.000.0.70	03.010.98.53.0	03.010.98.24.0	03.010.98.54.0	03.010.98.25.0	
	H.. <input type="checkbox"/> 120 16°	99.00.000.0.87	03.010.99.38.0	03.010.99.37.0	03.010.99.40.0	03.010.99.39.0	
SN 4212 BPW 95 ---,---,741,---							
	H.. <input type="checkbox"/> 120 16°	-	03.010.91.32.0	03.010.91.31.0	03.010.91.34.0	03.010.91.33.0	
SN 4218-2 ---,---,710,--- / ---,---,714,---							
	H.. <input type="checkbox"/> 120 30°	99.00.000.0.71	03.010.98.45.1	03.010.98.08.0	03.010.98.46.1	03.010.98.09.0	
	H.. <input type="checkbox"/> 120 16°	99.00.000.0.88	03.010.99.34.0	03.010.99.33.0	03.010.99.36.0	03.010.99.35.0	
	H.. <input type="checkbox"/> 150 25°	99.00.000.0.80	03.010.98.91.0	03.010.98.12.0	03.010.98.92.0	03.010.98.13.0	
	R.. ○ 127 30°	99.00.000.0.72	03.010.98.69.0	03.010.98.06.0	03.010.98.70.0	03.010.98.05.0	
SN 4218 BPW 95 / ECO Drum ---,---,743,---							
	H.. <input type="checkbox"/> 120 30°	99.00.000.1.07	03.010.99.93.0	03.010.99.94.0	03.010.99.91.0	03.010.99.92.0	
		99.00.000.1.14 ¹⁾	03.010.71.13.0	03.010.71.14.0	03.010.71.11.0	03.010.71.12.0	
	H.. <input type="checkbox"/> 120 16°	99.00.000.0.93	03.010.99.59.0	03.010.99.60.0	03.010.99.57.0	03.010.99.58.0	
		99.00.000.1.13 ¹⁾	03.010.71.09.0	03.010.71.10.0	03.010.71.07.0	03.010.71.08.0	
		99.00.000.1.12 ²⁾	03.010.91.97.0	03.010.91.96.0	03.010.91.95.0	03.010.91.94.0	
	H.. <input type="checkbox"/> 150 25°	99.00.000.0.95	03.010.99.67.0	03.010.99.68.0	03.010.99.65.0	03.010.99.66.0	
	R.. ○ 127 30°	99.00.000.0.94	03.010.99.75.0	03.010.99.73.0	03.010.99.73.0	03.010.99.75.0	
SN 4220-2 ---,---,718,--- / ---,---,723,---							
	H.. <input type="checkbox"/> 120 30°	99.00.000.0.75	03.010.98.51.1	03.010.98.16.0	03.010.98.52.1	03.010.98.17.0	
	H.. <input type="checkbox"/> 120 16°	99.00.000.0.89	03.010.99.42.0	03.010.99.41.0	03.010.99.44.0	03.010.99.43.0	
	H.. <input type="checkbox"/> 150 25°	99.00.000.0.73	03.010.98.47.1	03.010.97.94.0	03.010.98.48.1	03.010.97.95.0	
	R.. ○ 127 30°	99.00.000.0.85	03.010.98.65.0	03.010.97.98.0	03.010.98.66.0	03.010.97.97.0	
SN 4220 BPW 95 / ECO Drum ---,---,744,---							
	H.. <input type="checkbox"/> 120 16°	99.00.000.0.97	03.010.99.55.0	03.010.99.56.0	03.010.99.53.0	03.010.99.54.0	
		99.00.000.1.18 ¹⁾	03.010.71.27.0	03.010.71.28.0	03.010.71.25.0	03.010.71.26.0	
		99.00.000.1.17 ²⁾	03.010.91.87.0	03.010.91.86.0	03.010.91.85.0	03.010.91.84.0	
	H.. <input type="checkbox"/> 120 30°	-	03.010.91.37.0	03.010.91.38.0	03.010.91.35.0	03.010.91.36.0	
		99.00.000.1.19 ¹⁾	03.010.71.17.0	03.010.71.18.0	03.010.71.15.0	03.010.71.16.0	
	H.. <input type="checkbox"/> 150 25°	99.00.000.0.98	03.010.99.63.0	03.010.99.64.0	03.010.99.61.0	03.010.99.62.0	
		99.00.000.1.16 ¹⁾	03.010.71.41.0	03.010.71.42.0	03.010.71.39.0	03.010.71.40.0	
		99.00.000.1.15 ²⁾	03.010.91.91.0	03.010.91.90.0	03.010.91.89.0	03.010.91.88.0	
	R.. ○ 127 30°	-	03.010.99.71.0	03.010.99.69.0	03.010.99.69.0	03.010.99.71.0	
SN 4222-2 ---,---,739,---							
	H.. <input type="checkbox"/> 150 25°	99.00.000.0.76	03.010.98.49.1	03.010.98.20.0	03.010.98.50.1	03.010.98.21.0	
SN 4222 BPW 95 ---,---,745,---							
	H.. <input type="checkbox"/> 150 25°	-	05.010.91.21.0	05.010.91.22.0	05.010.91.24.0	05.010.91.23.0	
¹⁾ ECO Drum - dust covers / old axle beam (attachment with locking bolts) ²⁾ ECO Drum - dust covers / ECO Drum - axle beam (attachment with shouldered bolts + return spring)							

508	Return spring ⁴⁾	03.397.11.02.0				
510	Locking bolt	02.5071.22.00	M 10 x 15			
	Locking bolt	02.5070.83.00	M 10 x 20			
	Shouldered bolt ⁴⁾	02.5071.55.80	M 10 x 1.5 x 15			
513	Plug (without ABS)	02.3704.33.00	Ø 10.7			
	Seal (with ABS)	02.5681.78.00	Ø 6 / 10 / 13			
515	Seal ³⁾	03.120.23.06.0	Ø 52 / 68 / 8			
517	Seal ³⁾	05.121.30.06.0	L = 340, <input type="checkbox"/> 8			
	<input type="checkbox"/> 150			05.121.30.07.0	L = 450, <input type="checkbox"/> 8	
520	Plug	03.379.00.23.0				

³⁾ not necessary with brake position 16°
⁴⁾ for ECO Drum

4.5 Dust covers

Dust covers available as sets (upper + lower)





Dust covers 4.5

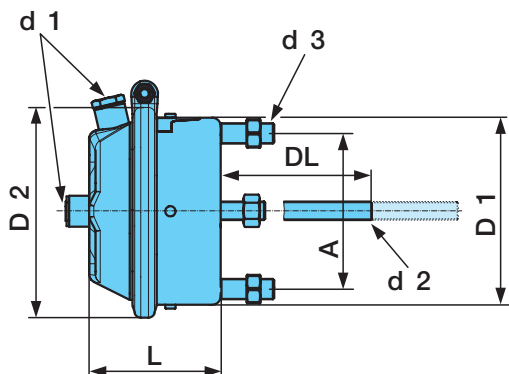
Item	Designation (Remark)	BPW Code no.				
SN 36..		KH.. / KR..				
500 - 504	Brake designation Axle type Axle beam Brake position	item 500 Set of dust covers cpl. item 501 - 520	item 501 Dust cover left upper	item 502 Dust cover left lower	item 503 Dust cover right upper	item 504 Dust cover right lower
SN 3616 ---.542.---						
	KR.. <input type="radio"/> 127	99.00.000.0.81	03.010.96.53.0	03.010.96.50.0	03.010.96.52.0	03.010.96.51.0
	KM.. <input checked="" type="checkbox"/> 120	99.00.000.1.08	03.010.91.10.0	03.010.91.09.0	03.010.91.12.0	03.010.91.11.0
SN 3616 BPW 95 ---.551.---						
	KH.. <input type="checkbox"/> 120	99.00.000.1.06	03.010.99.79.0	03.010.99.80.0	03.010.99.77.0	03.010.99.78.0
SN 3620 ---.546.---						
	KR.. <input type="radio"/> 127	99.00.000.0.81	03.010.96.53.0	03.010.96.50.0	03.010.96.52.0	03.010.96.51.0
	KH.. / KM.. <input type="checkbox"/> 120	99.00.000.0.83	03.010.96.67.0	03.010.96.68.0	03.010.96.70.0	03.010.96.69.0
SN 3620 BPW 95 ---.552.---						
	KR.. <input type="radio"/> 127	99.00.000.0.81	03.010.96.53.0	03.010.96.50.0	03.010.96.52.0	03.010.96.51.0
	KH.. / KM.. <input type="checkbox"/> 120	99.00.000.1.06	03.010.99.79.0	03.010.99.80.0	03.010.99.77.0	03.010.99.78.0

SN 30..		NH.. / NR..				
500 - 504	Brake designation Axle type Axle beam Brake position	item 500 Set of dust covers cpl. item 501 - 520	item 501 Dust cover left upper	item 502 Dust cover left lower	item 503 Dust cover right upper	item 504 Dust cover right lower
SN 3015-1 ---.582.---						
	NR.. <input type="radio"/> 127	99.00.000.1.00	03.010.96.48.0	03.010.96.40.0	03.010.96.49.0	03.010.96.41.0
SN 3015 ---.592.---						
	NR.. <input type="radio"/> 127	99.00.000.1.01	03.010.96.84.0	03.010.96.83.0	03.010.96.85.0	03.010.96.86.0
	NH.. <input type="checkbox"/> 120	99.00.000.1.02	03.010.91.08.0	03.010.91.07.0	03.010.91.06.0	03.010.91.05.0
SN 3015 BPW 95 ---.501.---						
	NH.. <input type="checkbox"/> 120	-	03.010.99.83.0	03.010.99.84.0	03.010.99.81.0	03.010.99.82.0
SN 3020-1 ---.586.---						
	NR.. <input type="radio"/> 127	99.00.000.1.03	03.010.96.33.0	03.010.96.20.0	03.010.96.32.0	03.010.96.21.0
SN 3020 ---.596.---						
	NR.. <input type="radio"/> 127	99.00.000.0.84	03.010.96.80.0	03.010.96.79.0	03.010.96.82.0	03.010.96.81.0
	NH.. <input type="checkbox"/> 120	99.00.000.1.05	03.010.91.02.0	03.010.91.01.0	03.010.91.03.0	03.010.91.04.0
SN 3020 BPW 95 ---.502.---						
	NH.. <input type="checkbox"/> 120	99.00.000.1.09	03.010.99.87.0	03.010.99.88.0	03.010.99.85.0	03.010.99.86.0

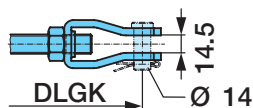
510	Locking bolt	02.5071.22.00	M 10 x 18			
	Locking bolt	02.5070.83.00	M 10 x 20			
513	Plug (without ABS)	02.3704.33.00	Ø 10.7			
	Seal (with ABS)	02.5681.78.00	Ø 6 / 10 / 13			
517	Seal <input type="checkbox"/> 120 / <input type="radio"/> 127	05.121.30.06.0	L = 340, <input type="checkbox"/> 8			
520	Plug	03.379.00.23.0				

4.6 Brake cylinder

Diaphragm cylinders



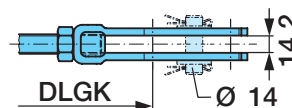
Brake cylinder set incl. yoke with round hole
BPW Code no.: 05.444.xx.xx.1



Pre-assembled spring-type cylinder, ready for installation

Yoke head loose:
BPW Code no.:
M 16 x 1.5 05.171.03.34.0
5/8"-18 UNF 05.171.03.37.0

Brake cylinder set incl. yoke with elongated hole
BPW Code no.: 05.444.xx.xx.2



Only for diaphragm cylinder version

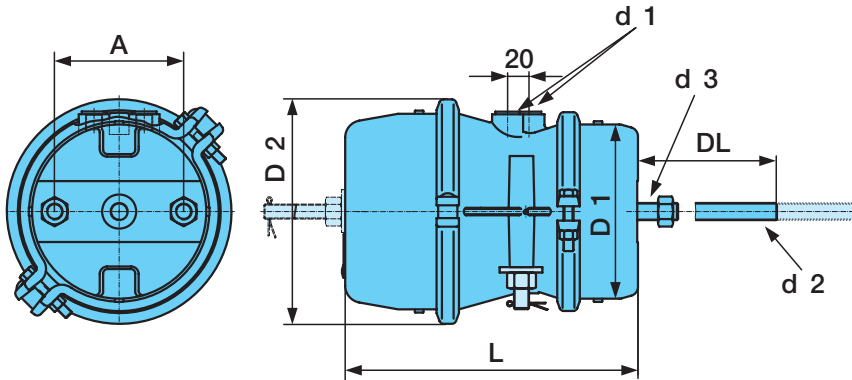
Yoke head loose:
BPW Code no.:
M 16 x 1.5 05.171.04.10.0

Brake cylinder size	BPW Code no.	Air connection thread d 1	Push rod thread d 2	Fixing bolts thread d 3	L (mm)	D 1 (mm)	D 2 (mm)	A (mm) Connection dimension	DL (mm) without yoke	DLGK (mm) with yoke
9"	02.0327.98.00		M 12 x 1.5		108	112	135	76.2	186	227
12"	02.0327.99.00		M 12 x 1.5		114	123	144	76.2	186	227
16"	05.444.13.01.0		M 16 x 1.5		120	145	165	120,7	185	227
20"	05.444.14.01.0		M 16 x 1.5		120	151	180	120,7	185	227
	05.444.14.02.0	3/8"-18 NPTF	5/8"-18 UNF							
24"	05.444.15.01.0		M 16 x 1.5		120	162	190	120,7	185	227
	05.444.15.02.0	3/8"-18 NPTF	5/8"-18 UNF							
	05.444.15.04.0 1)		M 16 x 1.5						142	184
	05.444.15.10.0		M 16 x 1.5							
	05.444.15.11.0		M 16 x 1.5							
30"	05.444.16.01.0		M 16 x 1.5		125	178	215	120,7	185	227
	05.444.16.02.0	3/8"-18 NPTF	5/8"-18 UNF							
	05.444.16.04.0 1)		M 16 x 1.5						142	184
	05.444.16.05.0	1/2" NPTF	5/8"-18 UNF							
	05.444.16.10.0		M 16 x 1.5							
	05.444.16.11.0		M 16 x 1.5							
36"	05.444.17.01.0		M 16 x 1.5		135	201	225	120,7	185	227
	05.444.17.02.0	3/8"-18 NPTF	5/8"-18 UNF							

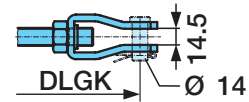
1) Air connection turned on 90°

Attachment nuts for brake cylinder	
Thread	BPW Code no.
M 16 x 1.5	02.5202.21.80
5/8"-18 UNF	02.5202.80.00

Diaphragm-diagram (M-M) cylinders



Brake cylinder set incl. yoke with round hole
BPW Code no.: 05.444.xx.xx.1



Pre-assembled spring-type cylinder, ready for installation

Yoke head loose:
BPW Code no.:
M 16 x 1.5 05.171.03.34.0
5/8"-18 UNF 05.171.03.37.0

Brake cylinder size	BPW Code no.	Air connection thread d 1	Push rod thread d 2	Fixing bolts thread d 3	L (mm)	D 1 (mm)	D 2 (mm)	A (mm) Connection dimension	DL (mm) without yoke	DLGK (mm) with yoke
16 / 24"	05.444.18.01.0		M 16 x 1.5		232	145	185	120.7	185	227
20 / 30"	05.444.19.01.0		M 16 x 1.5		274	163	211	120.7	185	227
	05.444.19.02.0	3/8"-18 NPTF	5/8"-18 UNF							
24 / 30"	05.444.20.01.0		M 16 x 1.5		274	163	211	120.7	185	227
	05.444.20.02.0	3/8"-18 NPTF	5/8"-18 UNF							
	05.444.20.04.0 ¹⁾		M 16 x 1.5							
	05.444.20.10.0		M 16 x 1.5						142	184
	05.444.20.11.0		M 16 x 1.5						170	212
30 / 30"	05.444.21.01.0		M 16 x 1.5		274	185	211	120.7	185	227
	05.444.21.02.0	3/8"-18 NPTF	5/8"-18 UNF							
	05.444.21.04.0 ¹⁾		M 16 x 1.5							
	05.444.21.05.0	1/2" NPTF	5/8"-18 UNF						142	184
	05.444.21.10.0		M 16 x 1.5						170	212
	05.444.21.11.0		M 16 x 1.5							

¹⁾ Air connection turned on 90°

Attachment nuts for brake cylinder

Thread	BPW Code no.
M 16 x 1.5	02.5202.21.80
5/8"-18 UNF	02.5202.80.00

5 Hub bearings, hub seals

General

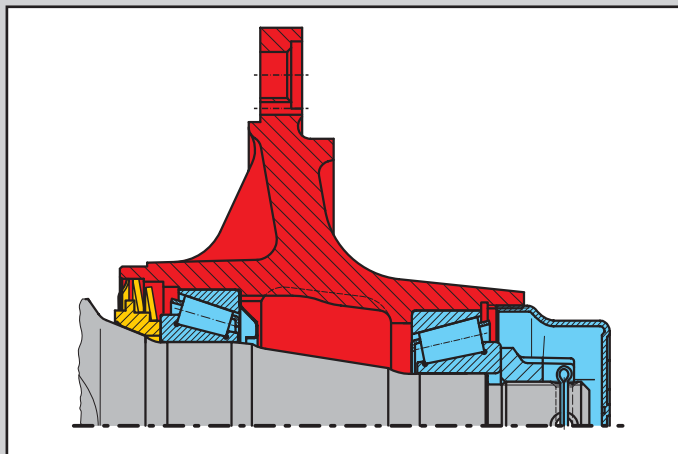
BPW hub bearings

Conventional hub bearing system

Until introduction of the ECO hub system, BPW supplied trailer axles with conventional hub bearings.

In this hub bearing, the 2 sealing rings are mounted on the stepped thrust washer (oil seals are used in the N.. axle series).

A pulling device is required to pull off the complete hub unit, the tapered inner roller bearing race as well as the thrust washer and seal assembly.



ECO hub bearing system

Dismantling the patented BPW ECO hub system (European patent 0 407 719 B1) couldn't be simpler:

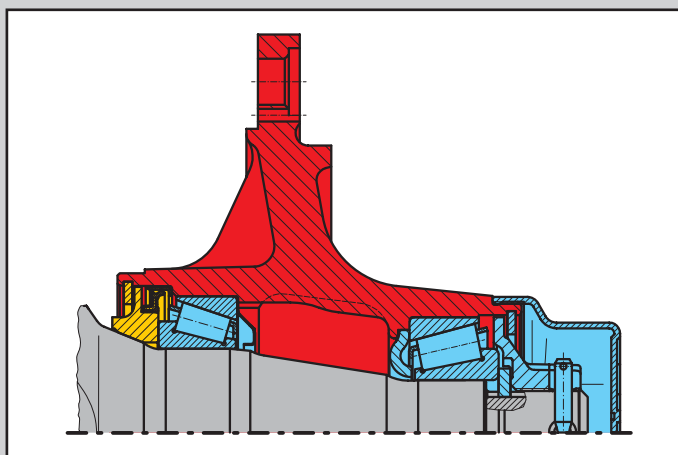
In only a few operations, the wheel (complete with the hub, roller bearings and brake drum) is removed using the central threaded connection – just like wheel changes in motor racing.

The stepped bearing means there is no need to use a puller or other special tools.

The roller bearings remain in the hub where they are well protected against dirt and moisture.

Installation is also quick and easy: Box spanners are all that are required for the hubcap and axle nuts.

The wheel can remain fitted to the hub during removal and installation.



ECOPlus hub bearing system

If you expect high mileages, rapid servicing and low maintenance costs from your axles, then only ECOPlus will do.

Ground-breaking ECOPlus bearing technology was developed on the basis of the special BPW ECO hub system.

The maintenance-free hub has an integrated multi-seal system for protecting the tapered roller bearings against dust and dirt.

A central threaded connection with integrated torque limiting function ensures the bearing preload is always optimum.

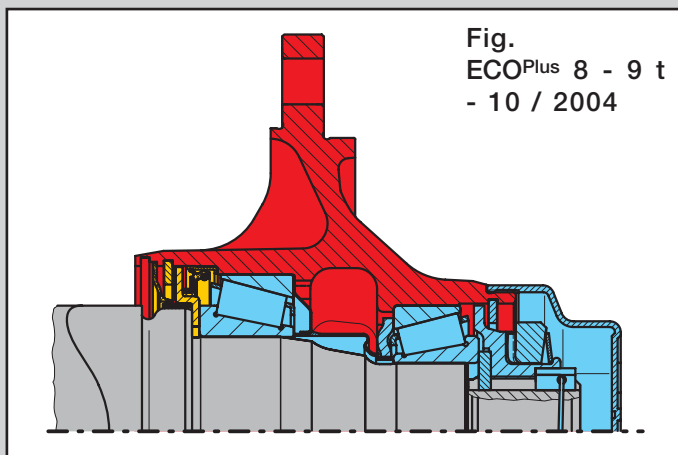


Fig.
ECOPlus 8 - 9 t
- 10 / 2004

Uniform axle stubs for all BPW trailer axles

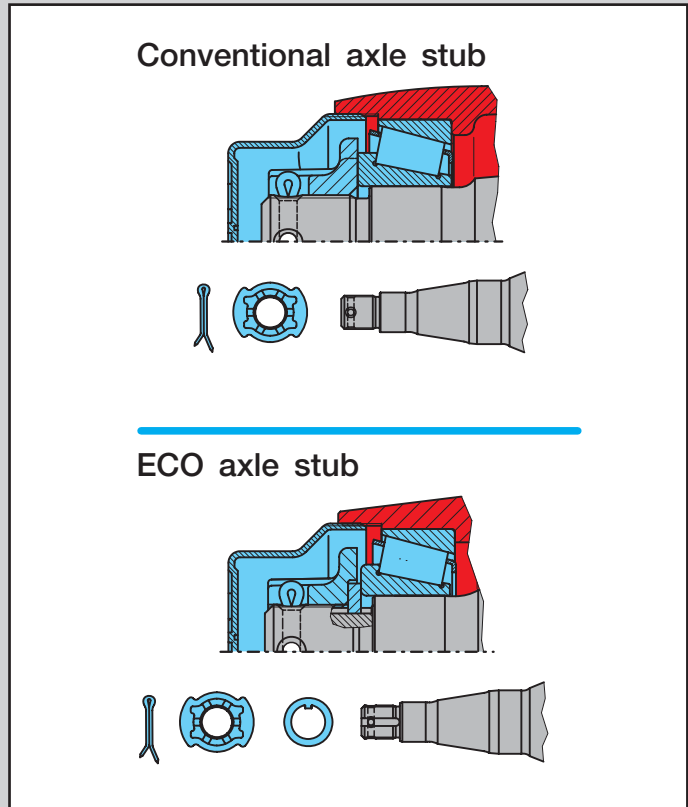
As of January 1995 BPW axle beams and steering pivots will be converted to ECO axle stubs.

These differ from the conventional axle stubs by a keyway in the thread area.

A new axle nut and in addition a washer is used to fit the conventional bearing to ECO axle stubs.

Where spare axle beams and steering pivot assemblies are supplied, these are fitted throughout with these new axle nuts and washers.

If the ECO hub system is fitted, these parts are dispensed with.



New seals for ECOPlus hub bearing system

Starting in October 2004, BPW will be introducing the new ECOSeal hub bearing sealing system.

With a larger dirt seal and new two stage dust seal, the proven concept of the ECOPlus seal has clearly been further improved in a number of areas.

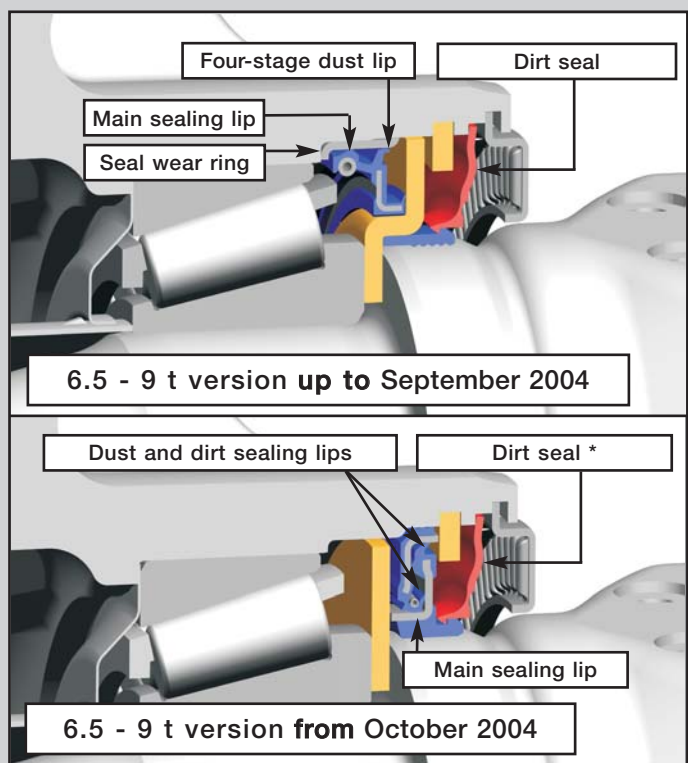
For example, the primary sealing lip is no longer fitted directly against the hub bearing, but instead fits against a special thrust race integrated into the seal assembly.

This new design enables the circumferential velocity of the seal to be significantly reduced, and with that, the amount of wear. In addition, the wheel bearing is provided with even better protection against dirt penetration by means of the covering dust and dirt sealing lips.

The seal wear ring remains in the hub when changing over to the new seal.

New ECOPlus bearings are supplied without a race.

* The dirt seal is dropped for the ECOSeal from 7 / 07



5 Hub bearings, hub seals

H

K

ECO Plus 2 - the new generation of the tried and tested BPW ECO unit

The BPW ECO unit, proven a million times over in its ECO^{Plus} version, will be replaced from September 2007 by the still further improved, new **ECO Plus 2** design.

A rigorous upgrade of the components has resulted in a significant weight reduction compared with the current ECO^{Plus} unit. In the case of the **ECO Plus 2** the hubcap has a bayonet fitting, enabling convenient fitting and removal of the cap.

Grease is supplied to the wheel bearings by means of a grease cartridge located between the bearings.

The axle nut previously used is replaced by an axle bolt with integrated torque limiter.

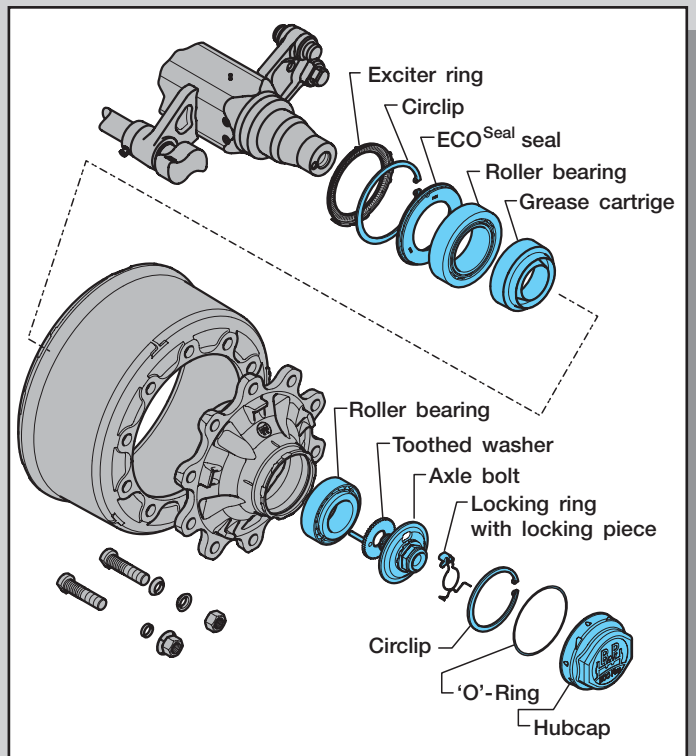
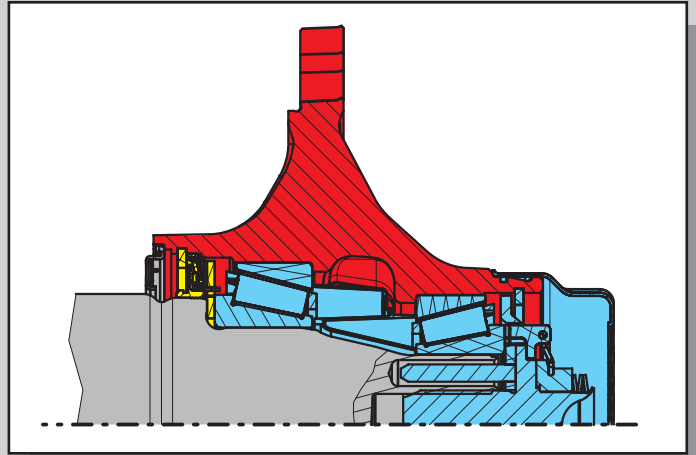
This product introduction affects all H and KH ECO^{Plus} versions up to 9 tonnes axle load (drum-braked rigid and steering axles).

Advantages of ECO Plus 2:

- In conjunction with the revised air suspension system there are significant weight-savings depending on the axle model:
Drum brake axle with ECO DRUM: 18 kg (SN 4218 see also BPW NEWS TB 7143709e)
- Axle screw with torque limiter for optimum bearing adjustment
- Simple greasing of the bearing by means of a grease cartridge
- Existing approvals and homologations remain in force

You can still rely on the proven benefits of ECO^{Plus} bearings:

- Encapsulated ECO bearing unit
- 5+3 years ECO Plus warranty (on-road)
- ECO system: Bearing removal according to the Formula 1 principle
- Globally available DIN ISO taper roller bearings, which can be replaced individually, as can the seal elements




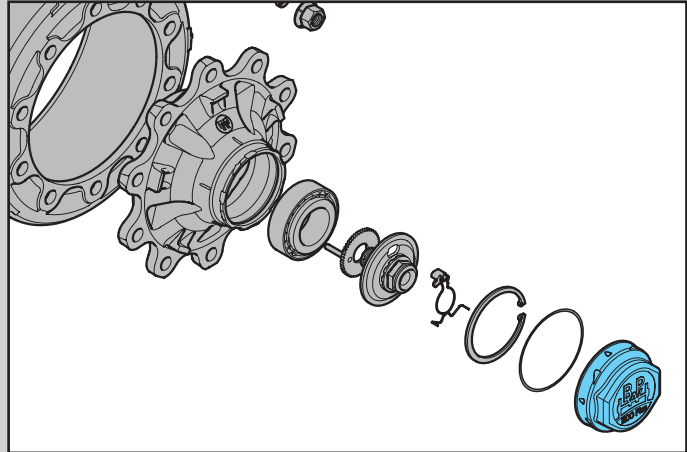
1. Hubcap / ECOMETER

BPW trailer axles with the ECO Plus 2 unit have hubcaps (and ECOMETERS) with a bayonet fitting.

The bayonet fitting replaces the previously usual threaded connection.

A 120 mm installation spanner (BPW part number 03.339.05.02.0, see also BPW tool catalogue) is needed for fitting or removing the new hubcaps with the bayonet fitting.

 **An impact driver must not be used for fitting / removing hubcaps or ECOMETERS with a bayonet fitting!**



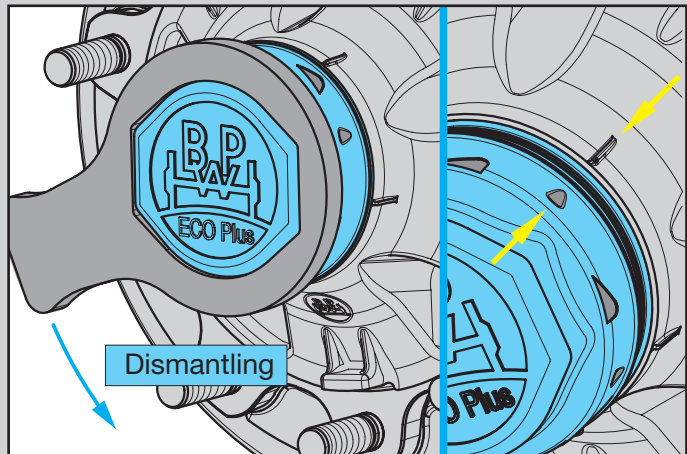
Removal

To remove the hubcap it is turned anticlockwise through approx. 30 degrees with the installation spanner (Fig.).

When turned further, the hubcap lifts clearly away from the hub seat.

The released position is also indicated by markings on the hubcap and on the wheel hub (Fig. / Arrows).

In the released position the hubcap can be removed from the wheel hub by pulling it away.



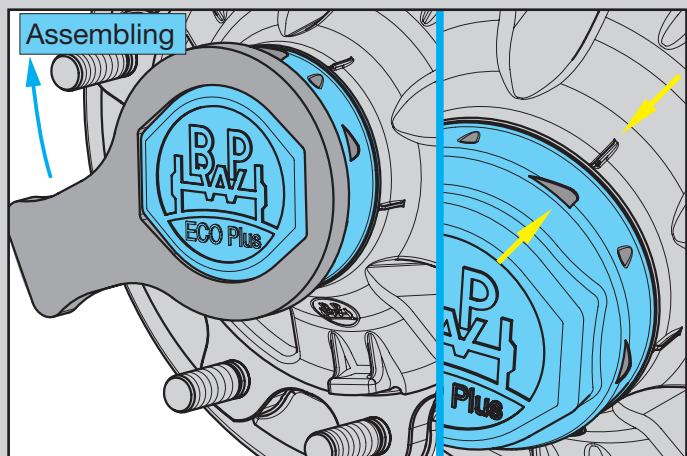
Assembly

The seal between the hubcap and the wheel hub takes the form of an O-ring in the case of the ECO Plus 2 unit.

The O-ring is inserted in the groove on the hub collar of the wheel hub, and **is to be replaced every time**. The hubcap itself is to be given a thin coating of **BPW ECO-LiPlus special long-life grease** inside in the area of the bayonet fitting, before assembly.

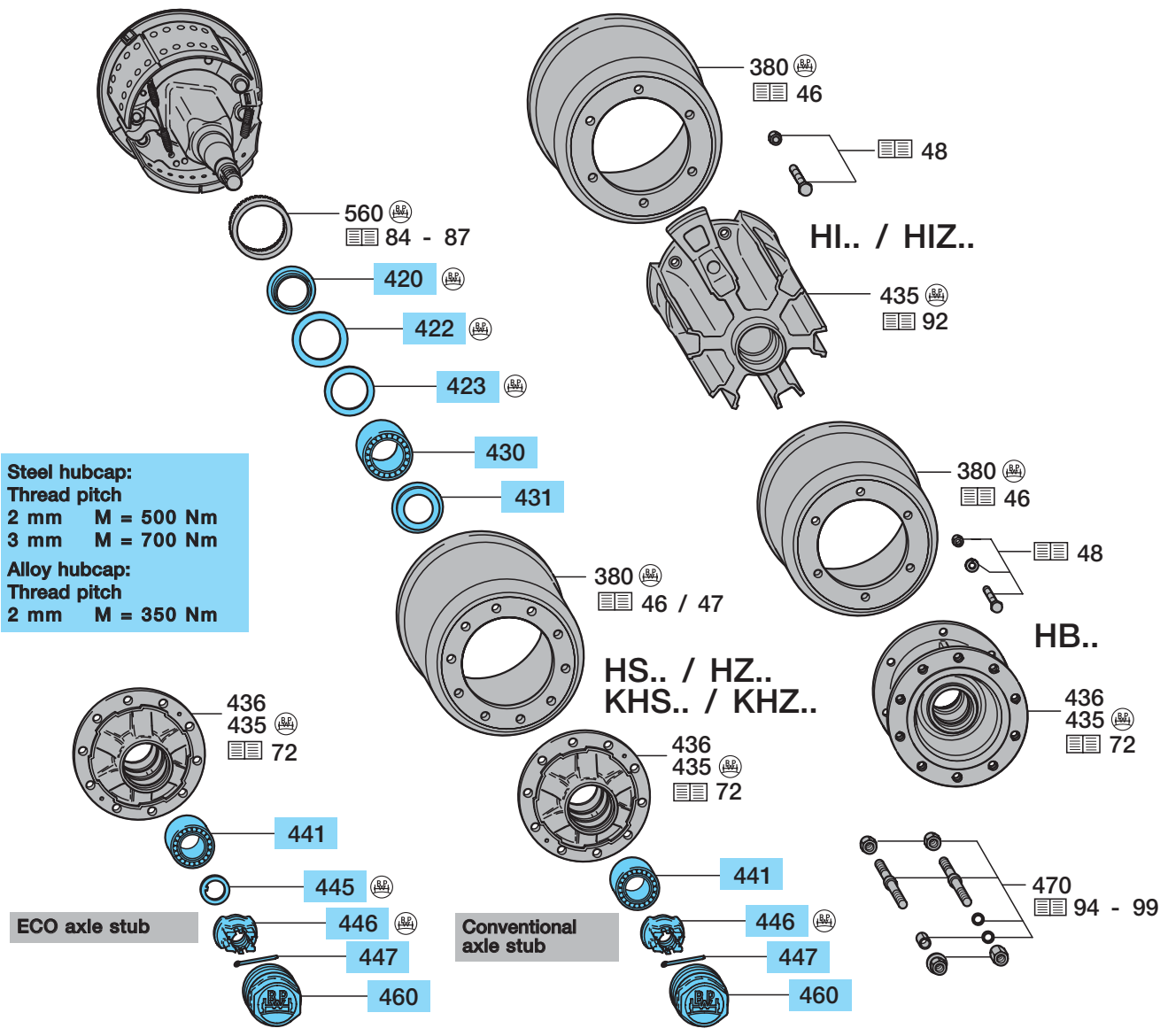
Corresponding markings in the hubcap and on the hub make it easier to fit the hubcap. The figure shows the hubcap in the correct position for fitting, with the spanner engaged. After been placed in position, the hubcap is pressed onto the hub and at the same time turned in clockwise direction.

The hubcap is firmly in place when the position shown in Fig. (arrows) has been reached.



5.1 Hub bearings, hub seals

Conventional hub bearing system

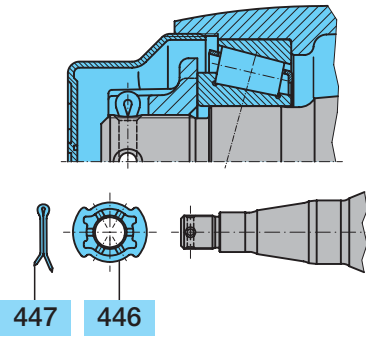


Hubcaps with integrated Hubodometer see page 100 - 102

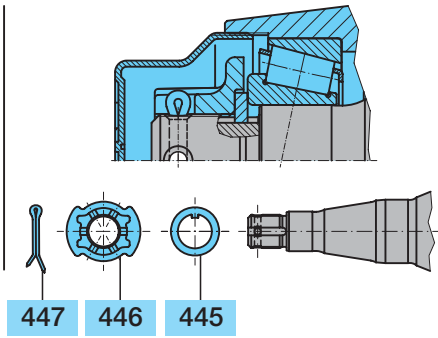
Uniform axle stubs for all BPW trailer axles

As of January 1995 BPW axle beams and steering pivots will be converted to ECO axle stubs. These differ from the conventional axle stubs by a keyway in the thread area. A new axle nut (item 446) and in addition a washer (item 445) is used to fit the conventional bearing to ECO axle stubs. Where spare axle beams and steering pivot assemblies are supplied, these are fitted throughout with these new axle nuts and washers. If the ECO hub system is fitted, these parts are dispensed with.

Conventional axle stub



ECO axle stub



Conventional hub bearing system

Item	Designation (Remark)	BPW Code no.	Dimension	H. / R.; KH. / KR. 6.5 - 9 t --.06. / 08. / 09.---,---	H. / R.; KH. / KR. 10 - 12 t --.10.---,---
		KRBM 6408 --.65.---,---			
380	Brake drum	see page 47		see page 46 / 47	see page 46 / 47
418	Repair kit roller bearing, with thrust washer and hub cap (item 420 - 431, 441, 447, 460)	-		09.801.02.17.0 for 1 axle side	09.801.02.18.0 for 1 axle side
419	Repair kit roller bearing, without thrust washer and hub cap (item 422 - 431, 441, 447)	-		09.801.02.24.0 for 1 axle side	09.801.02.98.0 for 1 axle side
420	Thrust washer	05.370.06.11.0		05.370.06.48.0	05.370.07.43.0
422	Ring (Nylon)	03.310.97.14.0	Ø 105/141x2.5	03.310.97.31.0	03.310.98.21.0
423	Ring (Nylon)	03.310.97.13.0	Ø 100/134x2.5	03.310.97.32.0	03.310.97.30.0
430	Roller bearing	02.6410.29.00	33215	02.6410.24.00	02.6410.23.00
431	Dust cover	03.010.04.09.0	Ø 79/129x8.5	03.010.04.15.0	03.010.05.22.0
435	Hub	see page 72		see page 72	see page 72
441	Roller bearing	02.6410.25.00	32310	02.6410.25.00	02.6410.22.00
Conventional axle stub (see page 58)					
446	Castle nut	03.262.16.10.0	M 42x2/SW65/ H 36	03.262.16.08.0	03.262.17.12.0
447	Split pin	02.6201.82.01	8 x 50 / 1234	02.6201.82.01	02.6201.84.01
ECO axle stub (see page 58)					
445	Washer	03.320.73.13.0	Ø 43/61x5.8	03.320.73.13.0	03.320.64.01.0
446	Castle nut	03.262.16.15.0	M 42x2/SW65	03.262.16.15.0	03.262.17.18.0
447	Split pin	02.6201.82.01	8 x 50 / 1234	02.6201.82.01	02.6201.84.01
460	Hubcap (normal) (chrome)	03.212.23.32.0 -	M 115 x 2 / SW 95 - 8kt. Alu.	03.212.23.09.0 03.212.23.21.0	03.212.24.07.0 03.212.24.23.0

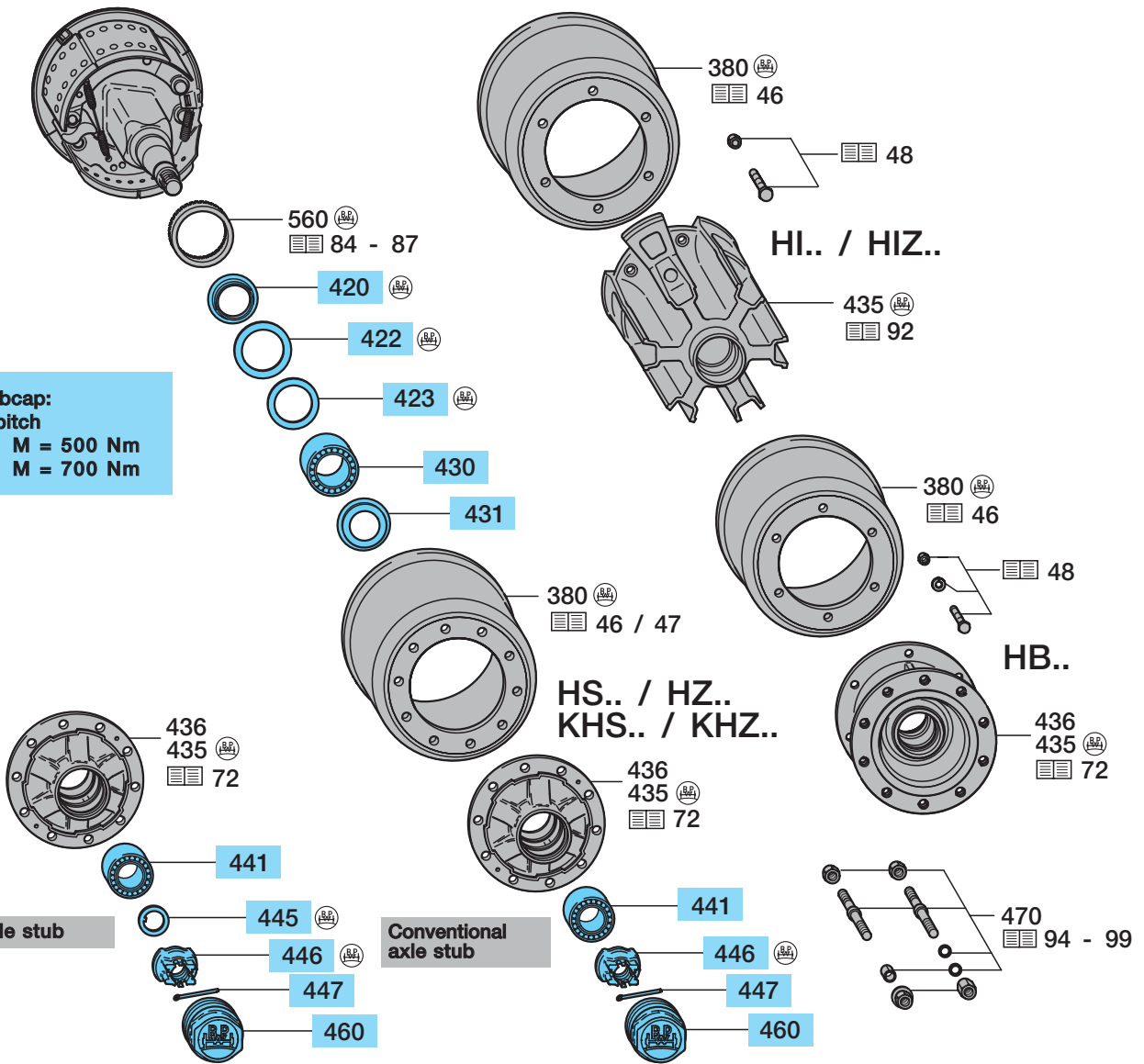
5.1 Hub bearings, hub seals

Conventional hub bearing system

Steel hubcap:
Thread pitch
2 mm M = 500 Nm
3 mm M = 700 Nm

ECO axle stub

Conventional axle stub



Grease filling, grease quantity and bearing adjustment see page 77

Hubcaps with integrated Hubodometer see page 100 - 102

Uniform axle stubs for all BPW trailer axles

As of January 1995 BPW axle beams and steering pivots will be converted to ECO axle stubs.

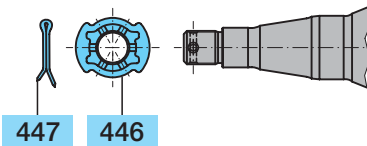
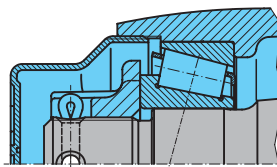
These differ from the conventional axle stubs by a keyway in the thread area.

A new axle nut (item 446) and in addition a washer (item 445) is used to fit the conventional bearing to ECO axle stubs.

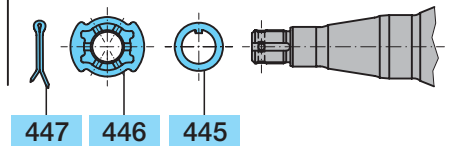
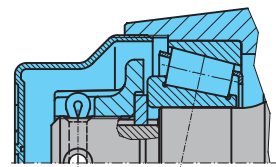
Where spare axle beams and steering pivot assemblies are supplied, these are fitted throughout with these new axle nuts and washers.

If the ECO hub system is fitted, these parts are dispensed with.

Conventional axle stub



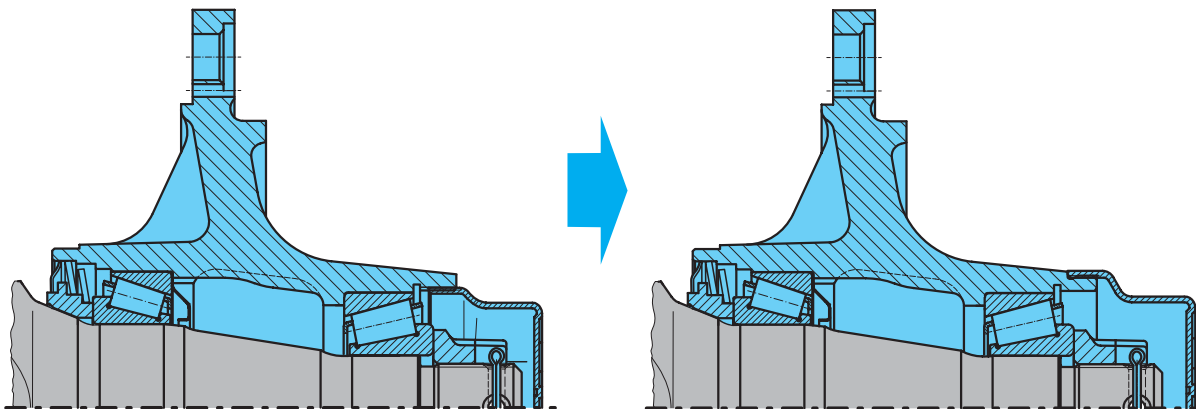
ECO axle stub



Conventional hub bearing system

Item	Designation (Remark)	BPW Code no.	Dimension
		H. / K.. 13 - 14 t (14000-1) --.14.---.---	H.. 16 - 18 t --.16.---.---
380	Brake drum	see page 46 / 47	see page 46
420	Thrust washer	05.370.07.20.0	05.370.07.04.0
422	Ring (Nylon)	03.310.38.21.0	Ø 130/186x4
423	Ring (Nylon)	03.310.38.20.0	Ø 124/181x4
430	Roller bearing	02.6410.28.00	32219
431	Dust cover	03.010.05.21.0	Ø 99/169x8.5
435	Hub	see page 72	see page 72
441	Roller bearing	02.6410.29.00	33215
Conventional axle stub (see page 60)			
446	Castle nut	03.262.17.11.0	M 60x2/SW85
447	Split pin	02.6202.03.01	10 x 71/1234
ECO axle stub (see page 60)			
445	Ring	03.310.75.12.0	Ø 61/88x5.8
446	Castle nut	03.262.17.19.0	M 60x2/SW85
447	Split pin	02.6202.03.01	10 x 71/1234
460	Hubcap (outer thread)	03.212.25.02.0	M 135 x 3 / SW 120
	Hubcap (inner thread)	03.212.26.20.0	M 150 x 2 / SW 120

Only 14 t hubs and hubcaps with M 135 x 3 hub/hubcap thread are replaced by hubs and hubcaps with M 150 x 2 thread. Note the modified components.

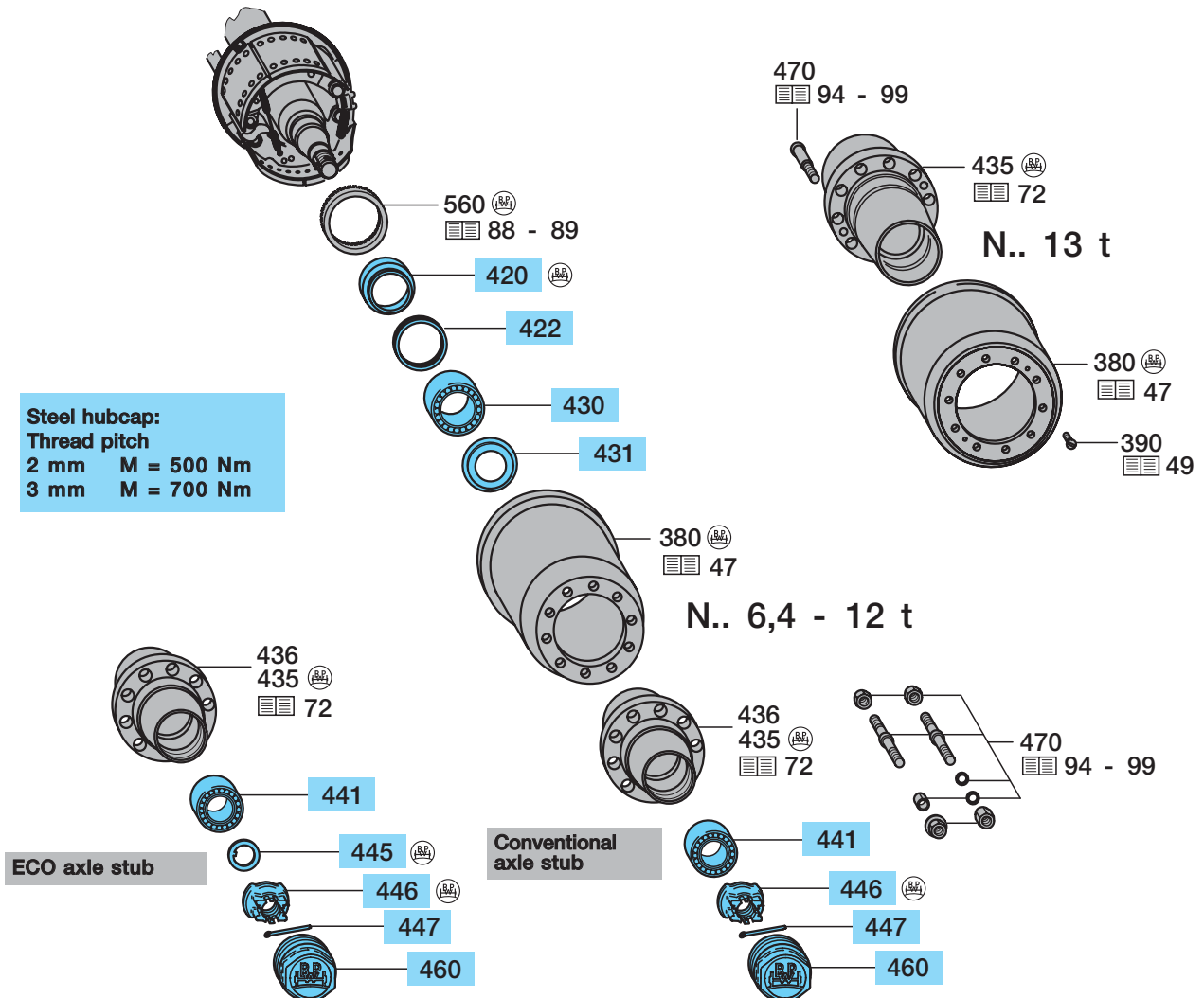


until 11/2004
Hub with inner thread M 135 x 3
Hubcap with outer thread M 135 x 3

up to 11/2004
Hub with outer thread M 150 x 2
Hubcap with inner thread M 150 x 2

5.1 Hub bearings, hub seals

Conventional hub bearing system



Steel hubcap:
 Thread pitch
 2 mm M = 500 Nm
 3 mm M = 700 Nm

ECO axle stub

Conventional axle stub

Grease filling, grease quantity and bearing adjustment see page 77

Hubcaps with integrated Hubodimeter see page 100 - 102

Uniform axle stubs for all BPW trailer axles

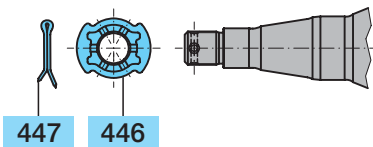
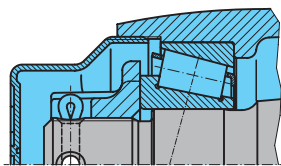
As of January 1995 BPW axle beams and steering pivots will be converted to ECO axle stubs.

These differ from the conventional axle stubs by a keyway in the thread area. A new axle nut (item 446) and in addition a washer (item 445) is used to fit the conventional bearing to ECO axle stubs.

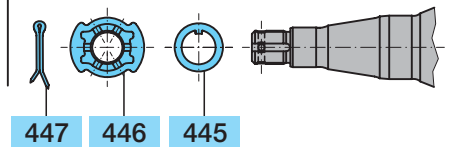
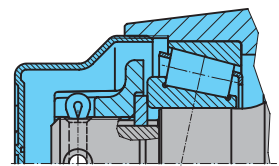
Where spare axle beams and steering pivot assemblies are supplied, these are fitted throughout with these new axle nuts and washers.

If the ECO hub system is fitted, these parts are dispensed with.

Conventional axle stub



ECO axle stub



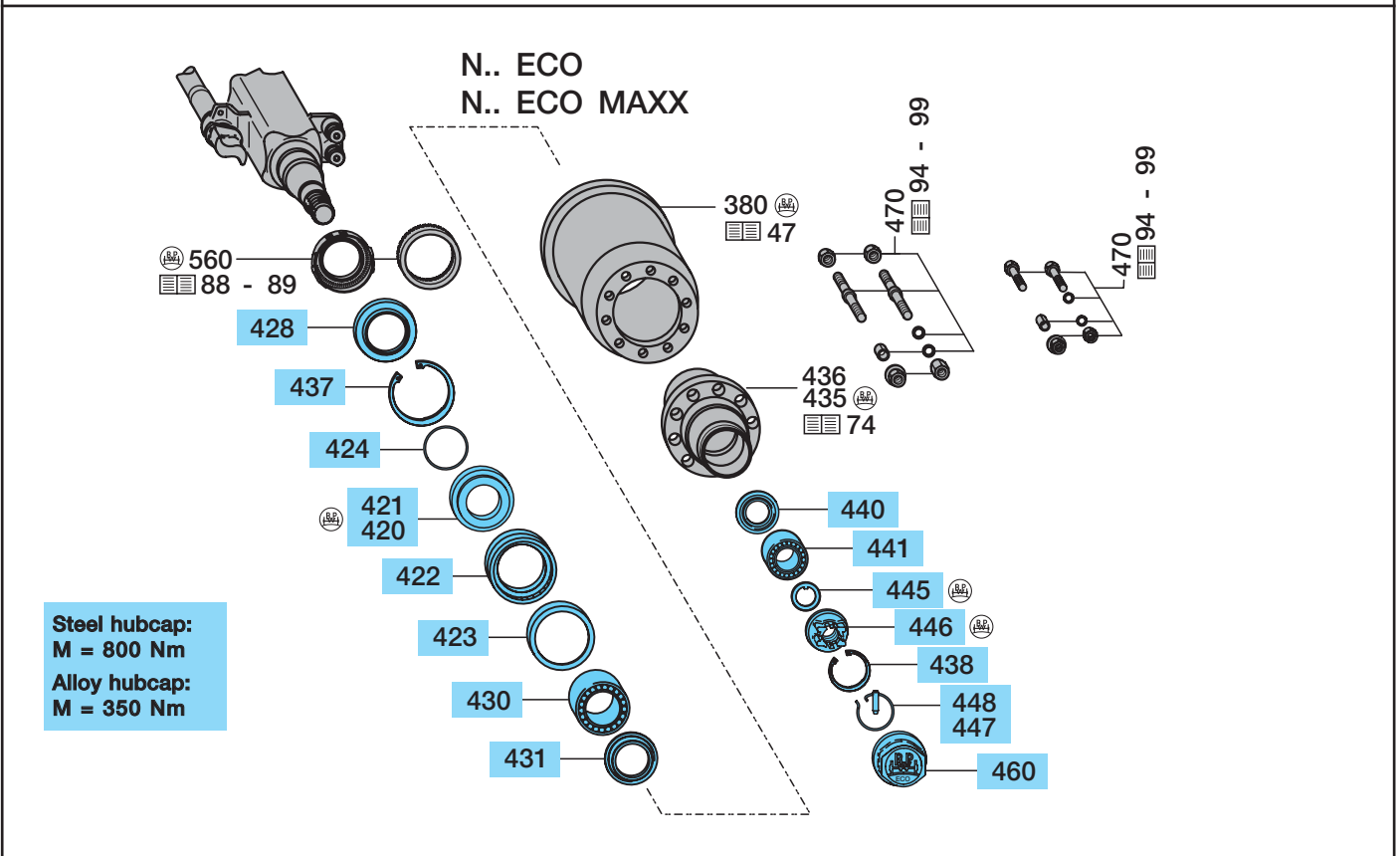
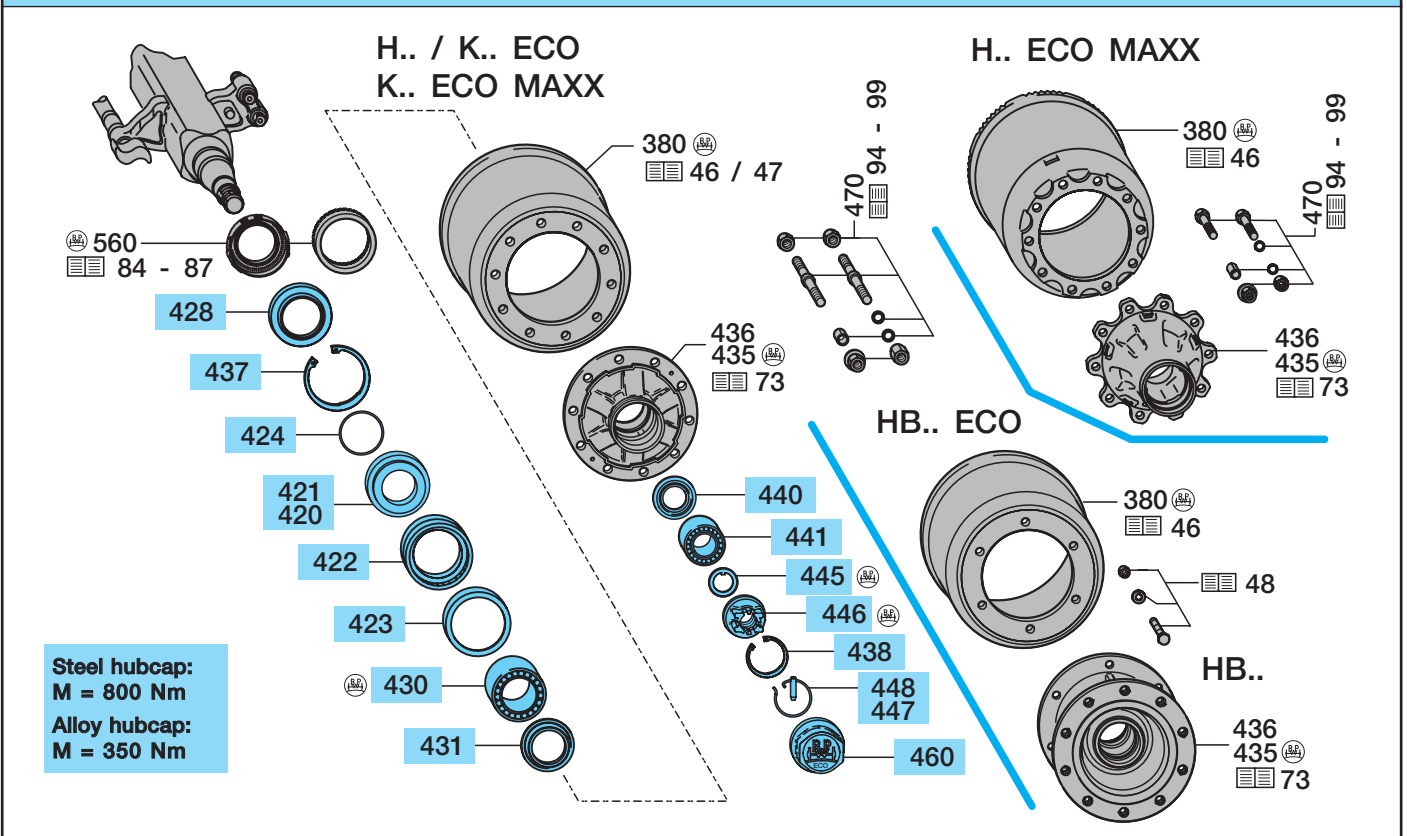
Conventional hub bearing system

Item	Designation (Remark)	BPW Code no.	Dimension
		NH.. / NR.. 6.4 - 9 t --.06 / 08 / 09.----,---	NH.. / NR.. 10 - 12 t --.10.----,---
380	Brake drum	see page 47	see page 47
418	Repair kit roller bearing, with thrust washer and hub cap (item 420 - 431, 441, 447, 460)	09.801.02.19.0 for 1 axle side	09.801.02.20.0 for 1 axle side
420	Thrust washer	03.370.07.45.0 Ø 86/125x22	03.370.07.44.0 Ø 96/145x22
422	Lip seal	02.5664.26.57 Ø 125/143x13	02.5664.46.57 Ø 145/167x13
430	Roller bearing	02.6410.24.00 33116	02.6410.23.00 33118
431	Dust cover	03.010.04.15.0 Ø 84/129x8.5	03.010.05.22.0 Ø 94/149x8.5
435	Hub	see page 72	see page 72
441	Roller bearing	02.6410.25.00 32310	02.6410.22.00 33213
Conventional axle stub (see page 62)			
446	Castle nut	03.262.16.08.0 M 42x2/SW65	03.262.17.12.0 M 52x2/SW80
447	Split pin	02.6201.82.01 8 x 50 / 1234	02.6201.84.01 8 x 63 / 1234
ECO axle stub (see page 62)			
445	Washer Ring	03.320.73.13.0 Ø 43/61x5.8 -	03.320.64.01.0 Ø 53/76x5.8 -
446	Castle nut	03.262.16.15.0 M 42x2/SW65	03.262.17.18.0 M 52x2/SW80
447	Split pin	02.6201.82.01 8 x 50 / 1234	02.6201.84.01 8 x 63 / 1234
460	Hubcap (normal) (chrome)	03.212.23.09.0 M 115 x 2 / 03.212.23.21.0 SW 95	03.212.24.07.0 M 125 x 2 / 03.212.24.23.0 SW 110

N

5.2 Hub bearings, hub seals

ECO / ECO-MAXX hub system (ECO Unit)



Grease filling, grease quantity and bearing adjustment see page 78

Hubcaps with integrated Hubodometer see page 100 - 102



Hub bearings, hub seals 5.2

ECO / ECO-MAXX hub system (ECO Unit)

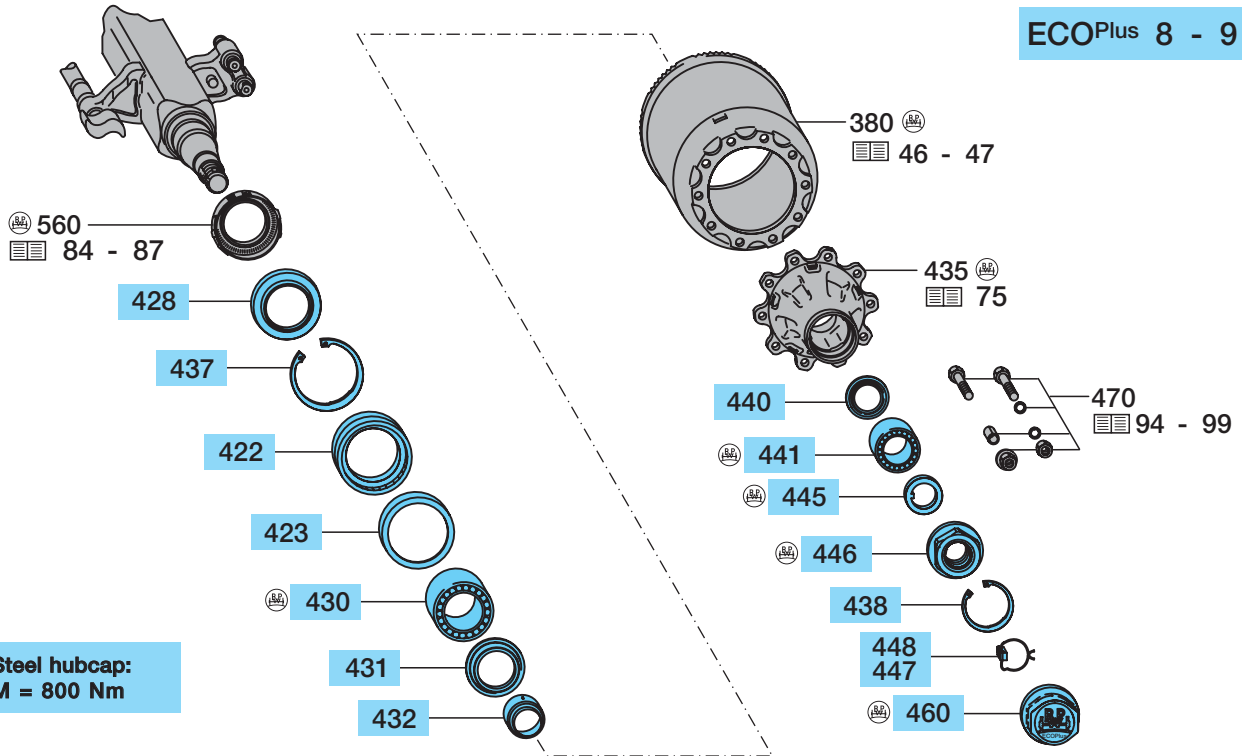
Item	Designation (Remark)	BPW Code no.	Dimension	H.. / R.. / KH.. / KR.. / NH.. / NR.. ECO / ECO-MAXX 6.5 - 9 t ---36 / 38.---,---	H.. / R.. / KH.. / KR.. / NH.. / NR.. ECO / ECO-MAXX 10 - 12 t --.40.---,---	H.. ECO 13 - 14 t --.44.---,---
380	Brake drum	see page 46 / 47		see page 46 / 47		see page 46
418	Repair kit roller bearing, with axle nut and hubcap (item 420, 423, 428 - 431, 437 - 460)	09.801.02.33.0	for 1 axle side	09.801.02.34.0 M 135 x 2	09.801.07.21.0 M 136 x 2.5	-
419	Repair kit roller bearing, without axle nut and hubcap (item 420, 423, 430, 431, 441 - 445)	09.801.02.72.0	for 1 axle side	09.801.06.89.0	for 1 axle side	-
420	Thrust washer cpl. (item 421, 422, 424)	05.370.07.67.0		05.370.07.65.0		05.370.08.19.0
421	Thrust washer	03.370.07.60.0	Ø 86 / 115 / 139 x 22	03.370.07.62.0	Ø 96 / 135 / 159 x 22	03.370.08.18.0 Ø 97 / 177 / 179 x 34
422	Lip seal	02.5664.57.00	137-115-10.5	02.5664.58.00	157-135-8	02.5664.59.00 177-155-8
423	Ring	02.5683.62.00	Ø 131/140x12	02.5683.63.00	Ø 151/160x12	02.5683.69.00 Ø 171/179x12
424	'O'-Ring	02.5677.90.40	Ø 90 x 3	02.5678.00.00	Ø 100 x 3	-
428	Dirt seal	02.5681.98.00	Ø 103/147x15	03.120.48.13.0	Ø 133/168x15	-
430	Roller bearing	02.6410.24.00	33116	02.6410.23.00	33118	02.6410.28.00 32219
431	Dust cover	03.010.93.33.0	Ø 84/129x8.5	03.010.93.34.0	Ø 94/149x8.5	03.010.23.03.0 Ø 103/169x8.5
435	Hub	see page 73 / 74		see page 73 / 74		see page 73
437	Circlip	02.5606.40.90	140 x 4 / 472	02.5606.60.90	160 x 4 / 472	02.5606.68.90 180 x 4 / 472
438	Circlip	02.5606.12.90	112 x 4 / 472	02.5606.22.90	122 x 4 / 472	02.5606.32.90 132 x 4 / 472
440	Thrust washer	03.370.25.16.0	Ø 54 / 98 x 9	03.370.26.24.0	Ø 71/108x9.5	03.370.26.23.0 Ø 77/120x10
441	Roller bearing	02.6410.25.00	32310	02.6410.22.00	33213	02.6410.29.00 33215
445	Washer Ring	03.320.73.13.0	Ø 43/61x5.8	03.320.64.01.0	Ø 53/76x5.8	-
446	Axle nut	03.266.46.02.0	M 42 x 2 / SW65 / Ø 110	03.266.47.03.0	M 52 x 2 / SW80 / Ø 120	03.310.75.12.0 Ø 61/88x5.8
447	Bolt	03.084.71.17.0	Ø 8 x 45	03.084.71.17.0	Ø 8 x 45	03.262.17.17.0 M 60 x 2 / SW85 / Ø 130
448	Locking ring	03.188.03.06.0	Ø 54 x 2	03.188.04.08.0	Ø 66 x 2	03.084.72.63.0 Ø 10 x 45
460	Hubcap (normal) (chrome)	03.212.24.25.0	M 125 x 2 / SW 110	03.212.25.08.0* M 135 x 2 / SW 110	03.212.25.23.0* M 136 x 2.5 SW 110	03.212.26.14.0 M 150 x 2 / SW 120
	(Alloy, for alloy hub)	03.212.25.27.0	M 135 x 2 / SW 110	-	-	-

* Modified cap thread from 09/00
M 135 x 2 was changed to M 136 x 2.5
Note thread size stamped on the cap!

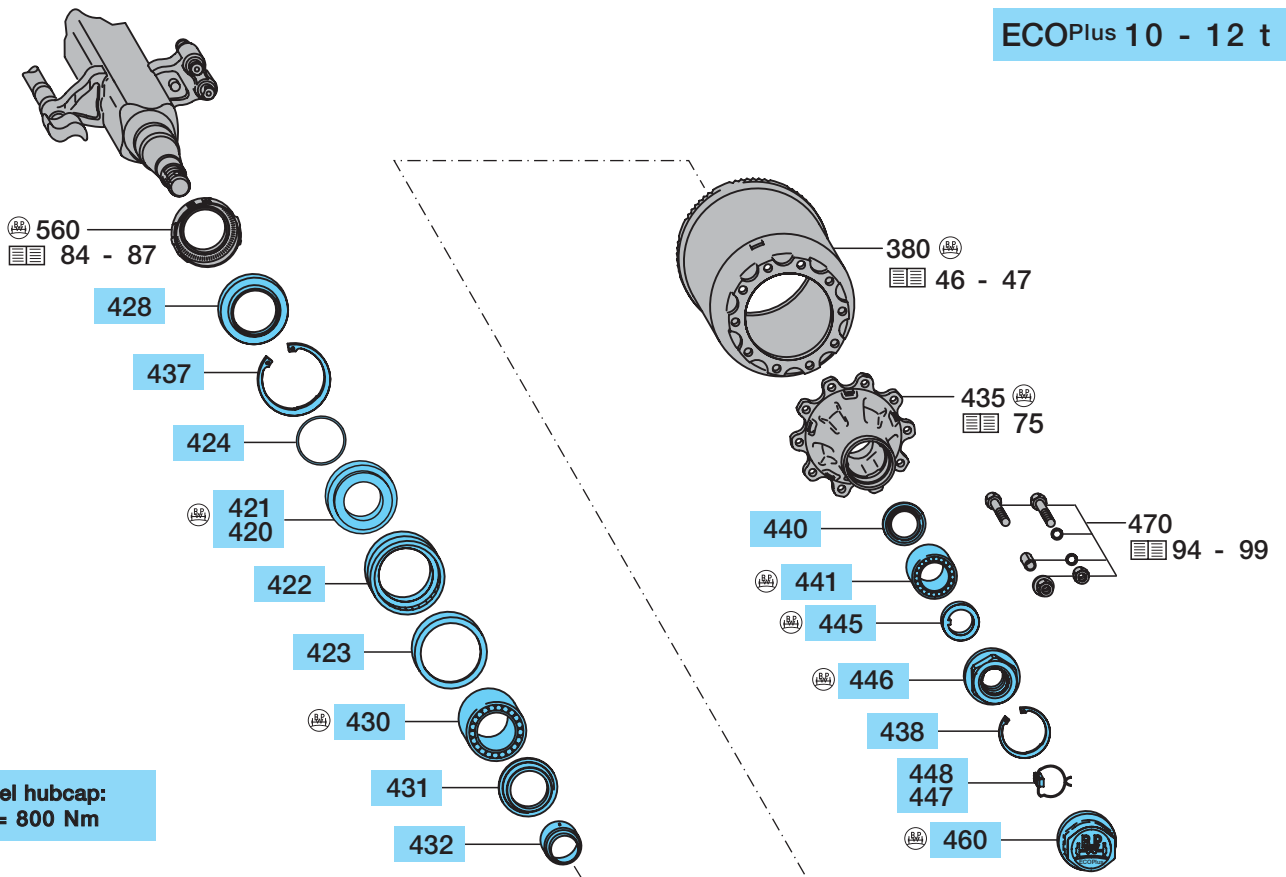
5.3 Hub bearings, hub seals

ECOPlus hub system (ECOPlus Unit)

ECOPlus 8 - 9 t



ECOPlus 10 - 12 t



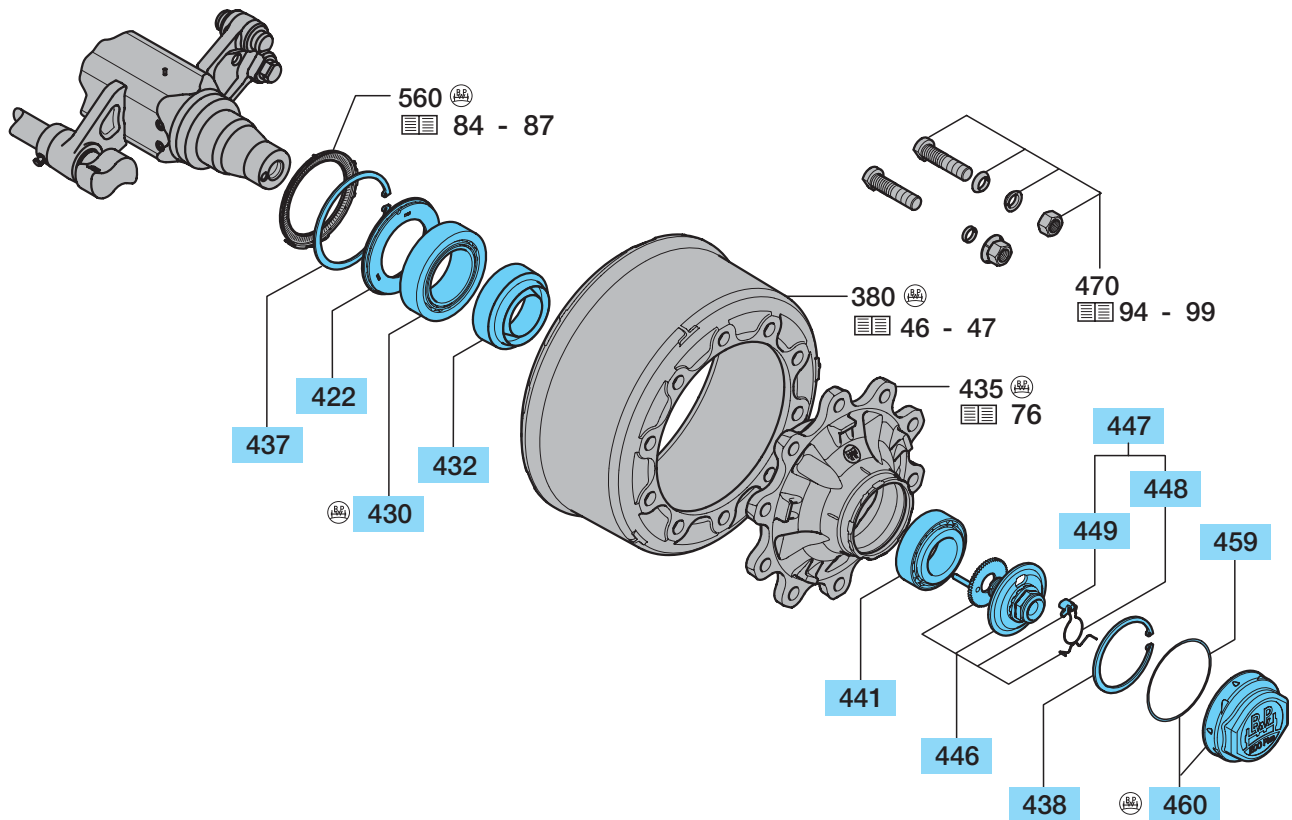
Grease filling, grease quantity and bearing adjustment see page 79

Hubcaps with integrated Hubodometer see page 100 - 102

ECOPlus hub system (ECOPlus Unit)			
Item	Designation (Remark)	BPW Code no.	Dimension
		H.. / KH.. ECOPlus 8 - 9 t --.48.----	H.. / KH.. ECOPlus 10 - 12 t --.50.----
380	Brake drum	see page 46 / 47	see page 46 / 47
		ECOPlus sealing system - 10 / 04	ECOPlus sealing system - 1 / 05
419	Repair kit roller bearing, without axle nut and hubcap (item 420, 423, 428, 430, 431, 432, 440 - 445)	-	09.801.06.27.0 for 1 axle side
420	Thrust washer cpl. (item 421, 422, 424)	-	05.370.07.65.0
421	Thrust washer	-	03.370.07.62.0 Ø 96 / 135 / 159 x 22
422	Lip seal	02.5664.68.00 Ø 120 / 157.5 x 20	02.5664.58.00 Ø 151 / 160 x 12.5
423	Ring	02.5683.80.00 Ø 151 / 157.6 x 20	02.5683.63.00 Ø 151 / 160 x 12.5
424	'O'-Ring	-	02.5678.00.00 Ø 100 x 3
428	Dirt seal	03.120.48.15.0 Ø 117.5 / 160 x 9.5	03.120.48.13.0 Ø 133 / 168 x 15
		ECOSeal sealing system 10 / 04 -	ECOSeal sealing system 1 / 05 -
419	Repair kit roller bearing, without axle nut and hubcap (item 420, 422, 428, 430, 431, 432, 440 - 445)	09.801.06.26.0 for 1 axle side	09.801.07.04.0 for 1 axle side
420	Thrust washer cpl. (item 421, 424)	-	05.370.07.73.0
421	Thrust washer	-	03.370.07.72.0 Ø 96 / 117.5 / 132 x 22
422	ECOSeal seal	02.5664.74.00 Ø 117.5 x 158 x 17.5	02.5664.74.00 Ø 117.5 x 158 x 17.5
424	'O'-Ring	-	02.5678.00.00 Ø 100 x 3
428	Dirt seal ¹⁾	03.120.48.15.0 Ø 117.5 / 160 x 9.5	03.120.48.15.0 Ø 117.5 / 160 x 9.5
430	Roller bearing	02.6410.23.00 33118	02.6410.23.00 33118
431	Dust cover	03.010.93.34.0 Ø 94 / 149 x 8.5	03.010.93.34.0 Ø 94 / 149 x 8.5
432	Seal	03.120.45.15.0 Ø 67 / 95 x 49.5	03.120.45.16.0 Ø 67 / 93 x 90.5
435	Hub	see page 75	see page 75
437	Circlip	02.5606.58.90 158 x 4 / 472	02.5606.60.90 140 x 4 / 472 (- 1 / 05) 02.5606.58.90 158 x 4 / 472 (1 / 05 -)
438	Circlip	02.5606.22.90 122 x 4 / 472	02.5606.22.90 122 x 4 / 472
440	Thrust washer	03.370.26.24.0 Ø 71 / 108 x 8	03.370.26.24.0 Ø 71 / 108 x 8
441	Roller bearing	02.6410.22.00 33213	02.6410.22.00 33213
445	Washer	03.320.64.01.0 Ø 53 / 76 x 5.8	03.320.64.01.0 Ø 53 / 76 x 5.8
446	Axle nut	05.266.47.06.0 M 52 x 2 / SW 95	05.266.47.06.0 M 52 x 2 / SW 95
447	Locking piece	03.277.00.07.0	03.277.00.07.0
448	Locking ring	03.188.04.10.0	03.188.04.10.0
460	Hubcap Observe hubcap thread!	03.212.25.30.0* M 135 x 2 / SW 110 03.212.25.31.0* M 136 x 2.5 / SW 110	03.212.25.30.0* M 135 x 2 / SW 110 03.212.25.31.0* M 136 x 2.5 / SW 110
1) Dropped from 7 / 07 with ECOSeal.		<div style="background-color: #ADD8E6; padding: 5px;"> * Modified cap thread from 09/00 M 135 x 2 was changed to M 136 x 2.5 Note thread size stamped on the cap! </div>	

5.4 Hub bearings, hub seals

ECO Plus 2 hub system (ECO Plus 2 Unit)



Grease filling, grease quantity and bearing adjustment see page 80

Hubcaps with integrated Hubodimeter see page 100 - 102

ECO Plus 2 hub system (ECO Plus 2 Unit)

Item	Designation (Remark)	BPW Code no.	Dimension
		H.. ECO Plus 2 KH.. ECO Plus 2 6.5 t --.56.---- 8 - 9 t --.58.----	
380	Brake drum	see page 46 / 47	
418	Repair kit roller bearing, with axle bolt and hubcap (item 422, 430, 432, 437 - 460)	09.801.07.33.0	for 1 axle side
419	Repair kit roller bearing, without axle screw and hubcap (item 422, 430, 437, 438, 441, 459)	09.801.07.34.0	for 1 axle side
422	ECO ^{Seal} seal	02.5664.74.00	Ø 117.5 x 158 x 17.5
430	Roller bearing	02.6410.23.00	33118
432	Grease cartridge	03.120.47.08.0	Ø 101 / 130 x 50
435	Hub	see page 76	
437	Circlip	02.5606.58.90	158 x 4 / 472
438	Circlip	02.5606.22.90	122 x 4 / 472
441	Roller bearing	02.6410.22.00	33213
446	Axle bolt with toothed washer (incl. item 447)	09.001.37.03.0	M 32 x 2 / SW 46
447	Locking ring cpl. (item 448 + 449)	05.188.03.10.0	
448	Locking ring	03.188.03.09.0	
449	Locking piece	03.277.10.01.0	
459	'O'-Ring	02.5678.65.00	Ø 128 x 3
460	Hubcap (Bayonet) (incl. item 459)	05.212.25.78.0	Ø 137 / 142.6 x 56.3

H

K

5.5 Hubs

Conventional hub bearing system						
Item	Designation (Remark)	BPW Code no.				
H.. / R..						
	Hubcap thread	6.5 - 9 t --.06/08/09,----,---	10 - 12 t ---.10,----,---	13 - 14 t --.14,----,---	16 - 18 t ---.16,----,---	
435	Hub (incl. item 436, page 73)					
	280.5 / 335 / 10 x Ø 22 / 6 x Ø 21					
	HB.. Steel and alloy wheels	M 115 x 2	03.275.66.23.0	-	-	-
	220.5 / 275 / 8 x Ø 20					
	HS.. / HZ.. Steel wheels	M 115 x 2	03.272.28.52.0	-	-	-
	220 / 285 / 8 x Ø 20					
	HZ.. Japanese	M 125 x 2	-	03.272.47.21.0	-	-
	220 / 285 / 10 x Ø 20					
	HZ.. Japanese	M 125 x 2	-	03.272.47.20.0	-	-
	280.5 / 335 / 10 x Ø 22					
	HS.. Steel and alloy wheels	M 115 x 2	03.272.30.41.0	-	-	-
	HZ.. Steel wheels	M 125 x 2	-	03.272.48.46.0	-	-
		M 115 x 2	03.272.30.49.0	-	-	-
	HS.. MAXX	M 135 x 3	-	-	03.272.62.32.0	-
	HZ.. MAXX	M 155 x 3	-	-	-	03.272.80.22.0
	HZ.. Alloy wheels	M 115 x 2	03.272.30.56.0	-	-	-
		M 125 x 2	-	03.272.48.52.0	-	-
	HS.. / HZ.. Steel wheels	M 135 x 3 *	-	-	03.272.62.27.0 *	-
		M 150 x 2	-	-	03.272.62.35.0	-
		M 155 x 3	-	-	-	03.272.80.14.0
Hub with M 135 x 3 internal thread is changed to hub with M 150 x 2 external thread (see also page 61).						

KH.. / KR..						
	Hubcap thread	KRBM 6408 --.65,----,---	6,4 - 9 t ---.06/08,----,---	10 - 12 t --.10,----,---	13 t --.14,----,---	
435	Hub (incl. item 436, page 73)					
	220.5 / 275 / 8 x Ø 22					
	KRB..	M 115 x 2	03.272.28.35.0	03.272.28.47.0	-	-
		M 115 x 2	-	03.272.28.46.0	-	-
	KH.. / KR..	M 125 x 2	-	-	03.272.46.11.0	-
		M 135 x 3	-	-	-	03.272.60.03.0
	175.5 / 225 / 10 x Ø 22					
	KH.. / KR..	M 115 x 2	-	03.272.27.24.0	-	-
		M 125 x 2	-	-	03.272.44.24.0	-
	280.5 / 335 / 10 x Ø 22					
	KHS.. 9010/3	M 115 x 2	-	03.272.30.49.0	-	-

NH.. / NR..						
	Hubcap thread	6 - 9 t --.06/08,----,---	10 - 12 t ---.10,----,---	13 t --.14,----,---		
435	Hub (incl. item 436, page 73)					
	160.5 / 205 / 6 x Ø 20					
	NRS.. / NRZ.. 6006 / 7006	M 115 x 2	03.272.26.07.0	-	-	-
	160.5 / 205 / 6 x Ø 18 / 2 x M 10					
	NRZ 6006 12" Tyre	M 115 x 2	03.272.26.10.0	-	-	-
	220.5 / 275 / 8 x Ø 20 / 2 x M 10					
	NRS.. / NRZ..	M 115 x 2	03.272.28.32.0	-	-	-
	175.5 / 225 / 10 x Ø 22					
	NRS.. / NRZ.. / NHS.. / NHZ..	M 115 x 2	03.272.27.20.0	-	-	-
		M 125 x 2	-	03.272.44.30.0	-	-
	175.5 / 225 / 10 x Ø 22 / 2 x M 12					
	NR.. 13 t without ABS	M 135 x 3	-	-	-	03.272.63.12.0

ECO / ECO-MAXX hub system (ECO Unit)

Item	Designation (Remark)	BPW Code no.				
H.. / R.. ECO / ECO-MAXX						
	Hubcap thread	6.5 - 9 t --.36 / 38.----.---	10 - 12 t --.40.----.---	13 - 14 t --.44.----.---	Complete hub BPW Code no.	
435	Hub (incl. item 436)					
	280.5 / 335 / 10 x Ø 22 / 6 x Ø 21					
	HB.. ECO Steel and alloy wheels	M 125 x 2	03.275.66.30.0	-	-	-
	220.5 / 275 / 8 x Ø 20					
	HS.. / HZ.. ECO Steel wheels	M 125 x 2	03.272.28.62.0	-	-	-
	HS.. / HZ.. ECO-MAXX	M 125 x 2	03.272.28.70.0	-	-	09.801.06.55.0
	220.5 / 285 / 8 x Ø 20					
	HZ.. ECO Japanese	M 136 x 2.5*	-	03.272.47.33.0	-	-
	280.5 / 335 / 10 x Ø 22					
	HS.. ECO Steel and alloy wheels	M 125 x 2	03.272.30.87.0	-	-	09.801.06.03.0
	HZ.. ECO Steel wheels	M 136 x 2.5*	-	03.272.43.20.0	-	09.801.06.72.0
		M 150 x 2	-	-	03.272.62.30.0	-
	HS.. ECO-MAXX Steel and alloy wheels	M 125 x 2	03.272.30.97.0	-	-	09.801.06.05.0
	HZ.. ECO-MAXX Steel wheels	M 136 x 2.5*	-	03.272.43.12.0	-	09.801.06.06.0
		M 150 x 2	-	-	03.272.62.33.0	-
HZ.. ECO Alloy wheels	M 125 x 2	03.272.32.01.0	-	-	-	
	M 135 x 2	-	03.272.48.88.0	-	09.801.06.15.0	
HZ.. ECO-MAXX Alloy wheels	M 125 x 2	03.272.30.98.0	-	-	-	
	M 136 x 2.5*	-	03.272.43.15.0	-	09.801.06.97.0	

KH.. / KR.. ECO / ECO-MAXX					
	Hubcap thread	8 - 9 t --.36 / 38.----.---	10 - 12 t --.40.----.---	Complete hub BPW Code no.	
435	Hub (incl. item 436)				
	220.5 / 275 / 8 x Ø 22				
	KH.. / KR.. ECO	M 125 x 2	03.272.28.56.0	-	09.801.06.51.0
		M 135 x 2	-	03.272.46.15.0	09.801.06.53.0
	KH.. ECO-MAXX	M 125 x 2	03.272.28.70.0	-	09.801.06.55.0
		M 136 x 2.5 *	-	03.272.46.25.0	09.801.06.57.0
	KHZ.. ECO-MAXX Alloy wheels	M 135 x 2	-	03.272.46.19.0	-
	175.8 / 225 / 10 x Ø 22				
	KH.. / KR.. ECO	M 125 x 2	03.272.27.41.0	-	09.801.06.50.0
		M 135 x 2	-	03.272.44.34.0	09.801.06.52.0
	KH.. / KR.. ECO-MAXX	M 125 x 2	03.272.27.48.0	-	09.801.06.54.0
		M 136 x 2.5 *	-	03.272.44.40.0	09.801.06.56.0
	KHZ.. ECO Alloy wheels	M 135 x 2	-	03.272.44.35.0	-
	280.5 / 335 / 10 x Ø 22				
	KH.. 9010 / 3 ECO-MAXX	M 125 x 2	03.272.30.91.0	-	-
	KH.. 10010 / 3 ECO/ECO-MAXX	M 136 x 2.5 *	-	03.272.48.90.0	-
	280.5 / 335 / 10 x Ø 22 Alloy hub				
	KHSMA.. 8010 / 3 ECO	M 135 x 2	03.272.30.94.0	-	-

436	Spined pin	02.6010.25.60	Ø 5x19.5	(for 8-holes hub Ø 20)
		02.6010.35.60	Ø 6x19.5	(for 10-holes hub Ø 22)

* Modified cap thread from 09/00
M 135 x 2 was changed to M 136 x 2.5
Note thread size stamped on the cap!
03.212.25.31.0 = M 136 x 2.5 ECOPlus
03.212.25.33.0 = M 136 x 2.5 ECO-MAXX

5.6 Hubs

ECO / ECO-MAXX hub system (ECO Unit)				
Item	Designation (Remark)	BPW Code no.		
NH.. / NR.. ECO				
	Hubcap thread	6,4 - 9 t --.36 / 38.---,---	10 - 12 t --.40.---,---	Complete hub BPW Code no.
435	Hub (incl. item 436)			
	160.5 / 205 / 6 x Ø 20			
	NRS.. / NRZ.. 6006 ECO	M 125 x 2	03.272.26.13.0	-
	NHZ.. 6006 ECO	M 125 x 2	03.272.26.14.0	-
	220.5 / 275 / 8 x Ø 20 / 2 x M 10			
	NRS.. / NRZ.. 6008 ECO	M 125 x 2	03.272.28.64.0	-
	NHZ.. 6008 ECO-MAXX (Light weight)	M 125 x 2	03.272.28.70.0	09.801.06.55.0
	175.5 / 225 / 10 x Ø 22			
	N.S.. / N.Z.. ECO	M 125 x 2	03.272.27.41.0	09.801.06.50.0
	N.S.. / N.Z.. ECO-MAXX (Light weight)	M 125 x 2	03.272.27.48.0	09.801.06.54.0
	N.Z.. ECO	M 125 x 2	03.272.27.44.0	-
	N.Z.. ECO	M 135 x 2	-	03.272.44.34.0
	N.Z.. ECO-MAXX (Light weight)	M 136 x 2.5 *	-	03.272.44.40.0
	N.Z.. Alloy wheels	M 135 x 2 *	-	03.272.44.35.0
436	Splined pin	02.6010.25.60	Ø 5x19.5 (for 8-holes hub Ø 20)	
		02.6010.35.60	Ø 6x19.5 (for 10-holes hub Ø 22)	

* Modified cap thread from 09/00
 M 135 x 2 was changed to M 136 x 2.5
 Note thread size stamped on the cap!
 03.212.25.33.0 = M 136 x 2.5 ECO-MAXX

ECOPlus hub system (ECOPlus Unit)					
Item	Designation (Remark)	BPW Code no.			
H.. ECOPlus					
	Hubcap thread	8 - 9 t --.48.---.---	10 - 12 t --.50.---.---	Complete hub BPW Code no.	
435	Hub				
	280.5 / 335 / 10 x Ø 22				
	HS.. ECOPlus Steel and alloy wheels HZ.. ECOPlus Steel wheels	M 135 x 2 *	03.272.32.05.0	-	-
		M 136 x 2.5 *	03.272.43.10.0 03.272.43.10.2 ¹⁾	-	09.801.06.07.0
			-	03.272.43.12.0 03.272.43.23.2 ¹⁾	09.801.06.08.2
HZ.. ECOPlus Alloy wheels	M 136 x 2.5 *	-	03.272.43.15.0 03.272.43.25.2 ¹⁾	09.801.07.08.2	

¹⁾ New ECOPlus hubs with end digit 2 can only be used in conjunction with the new ECOPlus seal (02.5664.74.00).

* Modified cap thread from 09/00
M 135 x 2 was changed to M 136 x 2.5
Note thread size stamped on the cap!
03.212.25.31.0 = M 136 x 2.5 ECOPlus

KH.. ECOPlus					
	Hubcap thread	8 - 9 t --.48.---.---	10 - 12 t --.50.---.---	Complete hub BPW Code no.	
435	Hub				
	220.5 / 275 / 8 x Ø 22				
	KH.. ECOPlus	M 136 x 2.5 *	03.272.46.28.0 03.272.46.28.2 ¹⁾	-	09.801.06.69.0
		M 136 x 2.5 *	-	03.272.46.25.0 03.272.46.31.2 ¹⁾	09.801.06.61.2
	KHZ.. ECOPlus Alloy wheels	M 136 x 2.5 *	-	03.272.46.26.0 03.272.46.32.2 ¹⁾	09.801.07.13.2
	175.8 / 225 / 10 x Ø 22				
	KH.. ECOPlus	M 136 x 2.5 *	-	03.272.44.40.0 03.272.44.43.2 ¹⁾	09.801.06.60.0
	280.5 / 335 / 10 x Ø 22				
KH.. 9010/3 ECOPlus	M 135 x 2 *	03.272.32.05.0	-	-	
	M 136 x 2.5 *	03.272.43.10.0 03.272.43.10.2 ¹⁾	-	09.801.06.07.0	

¹⁾ New ECOPlus hubs with end digit 2 can only be used in conjunction with the new ECOPlus seal (02.5664.74.00).

Further types upon request.

* Modified cap thread from 09/00
M 135 x 2 was changed to M 136 x 2.5
Note thread size stamped on the cap!
03.212.25.31.0 = M 136 x 2.5 ECOPlus

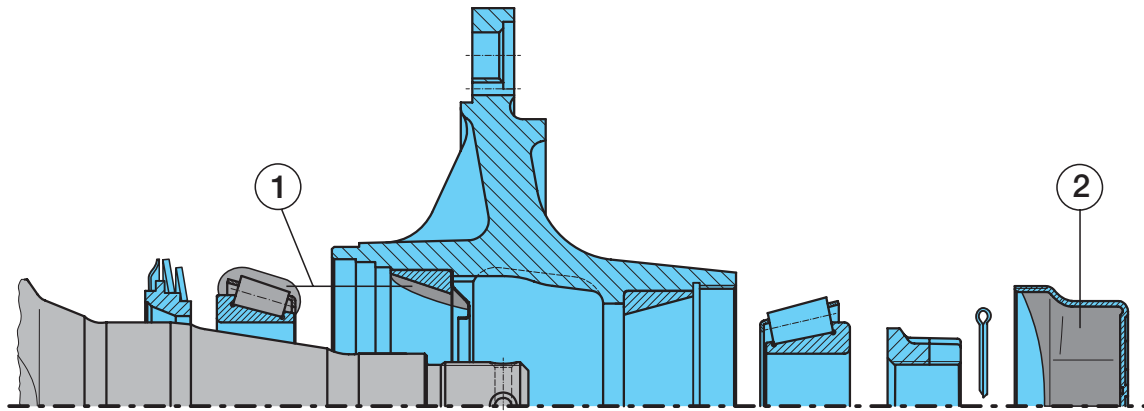
5.8 Hubs

ECO Plus 2 hub system (ECO Plus 2 Unit)					
Item	Designation (Remark)	BPW Code no.			
H.. ECO Plus 2					
		Hubcap thread	6.5 t --.56.---,---	8 - 9 t --.58.---,---	Complete hub BPW Code no.
435	Hub				
	220.5 3 / 275 / 8 x Ø 22				
	HS.. ECO Plus 2 Steel wheels	Bayonet lock	03.272.46.33.0	-	09.801.07.36.0
	280.5 / 335 / 10 x Ø 22				
	HS.. ECO Plus 2 Steel and alloy wheels HZ.. ECO Plus 2 Steel and alloy wheels		03.272.43.29.0	03.272.43.29.0	09.801.07.35.0

KH.. ECO Plus 2				
		Hubcap thread	8 - 9 t --.58.---,---	Complete hub BPW Code no.
435	Hub			
	220.5 / 275 / 8 x Ø 22			
	KH.. ECO Plus 2	Bayonet lock	03.272.46.33.0	09.801.07.36.0
	280.5 / 335 / 10 x Ø 22			
	KH.. 9010/3 ECO Plus 2		03.272.43.29.0	09.801.07.35.0

Conventional hub bearing system

Grease filling per wheel hub



Clean taper roller bearings (using diesel oil) thoroughly, dried, check for serviceability and re-grease.

		BPW longlife roller bearing grease ECO-Li 91, quantity per tapered roller bearing			
		① inner		② outer	
Axle load	Axle type	Roller bearing	Quantity	Roller bearing	Quantity
6400 kg	KRBM 6498	33215	170 g	32310	290 g
6000 - 9000 kg	H.. 6.5 - 9 t K.. 6.4 - 9 t N.. 6 - 9 t	33116	170 g	32310	290 g
10000 - 12000 kg	H.. 10 - 12 t K.. 10 - 12 t N.. 10 - 12 t	33118	180 g	33213	320 g
13000 - 14000 kg	H.. 13 - 14 t K.. 13 t N.. 13 t	32219	240 g	33215	500 g
16000 - 18000 kg	H.. 16 - 18 t	32222	400 g	32314	800 g

① Work **BPW longlife roller bearing grease ECO-Li 91** into the spaces between the tapered rollers and the races. Apply remainder to outer race of the hub.

② The bearing grease for the outer tapered roller bearing is pressed into the bearing as the hub cap filled with grease is screwed on.

Bearing adjustment

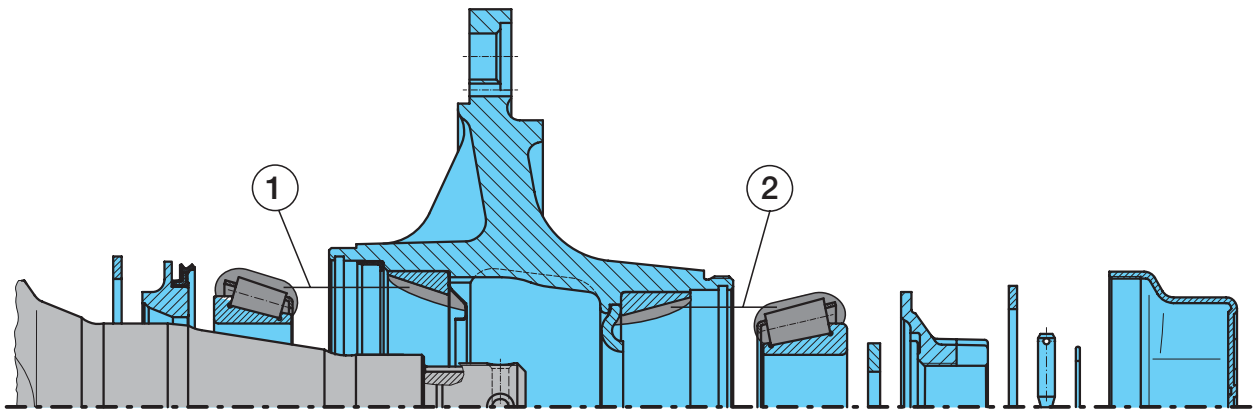
1. Unscrew the hubcap.
2. Remove the axle nut split pin.
3. Tighten the axle nut using a torque wrench to 150 Nm (6 - 14 t) or 350 Nm (16 - 20 t) while simultaneously turning the wheel hub.
(When using the normal axle nut wrench (tool kit), tighten the axle nut until the wheel hub race is slightly braked).
4. Turn the axle nut back to the next possible pin hole. Should they be in line turn back to the next hole (30° at the maximum).
5. Insert the split pin and bend slightly outwards.
6. Refill the hubcap as required with **BPW longlife roller bearing grease ECO-Li 91**, grease thread of the hubcap all round, screw in and tighten to the prescribed tightening torque.

5.10 Grease filling, bearing adjustment

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ECO / ECO-MAXX hub system (ECO Unit)

Grease filling per wheel hub



The BPW ECO hub system is designed for longlife lubrication (500,000 km or 3 years under normal conditions). Thereafter clean taper roller bearings (using diesel oil) thoroughly, dried, check for serviceability and re-grease (observe the current BPW maintenance instructions).

		BPW longlife roller bearing grease ECO-Li 91, quantity per tapered roller bearing			
		① inner		② outer	
Axle load	Axle type	Roller bearing	Quantity	Roller bearing	Quantity
6000 - 9000 kg	H.. 6.5 - 9 t ECO K.. 6.4 - 9 t ECO N.. 6 - 9 t ECO	33116	120 g	32310	120 g
10000 - 12000 kg	H.. 10 - 12 t ECO K.. 10 - 12 t ECO N.. 10 - 12 t ECO	33118	170 g	33213	120 g
13000 - 14000 kg	H.. 13 - 14 t ECO	32219	230 g	33215	150 g

① and ② Work **BPW longlife roller bearing grease ECO-Li 91** thoroughly into the spaces between the tapered rollers and the races. Apply remainder to outer races in the hub.
Renew the lip seal and smear contact area with **BPW longlife roller bearing grease ECO-Li 91**.

Bearing adjustment

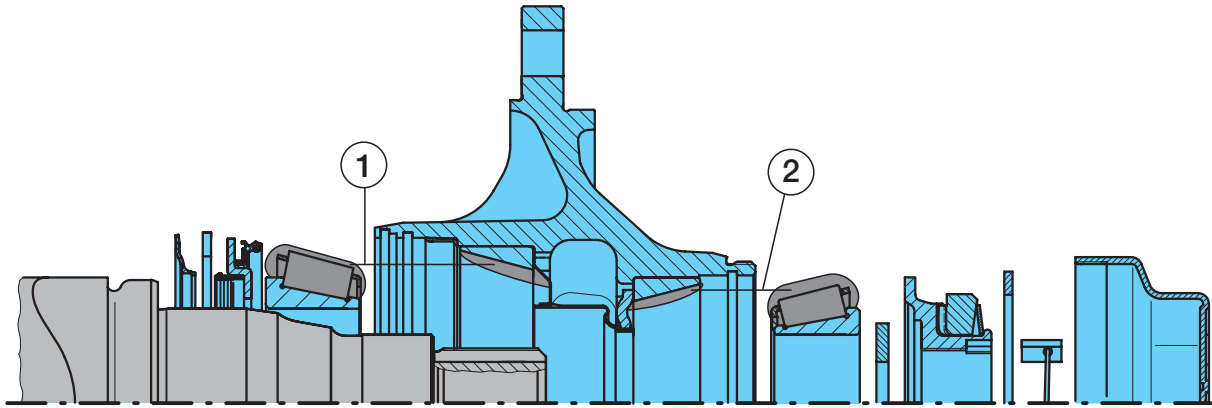
1. Unscrew the hubcap.
2. Remove the locking bolt with spring ring.
3. By turning wheel hub simultaneously, tighten axle nut with torque wrench to 150 Nm and turn back to the next possible securing hole, max. 15°. - Because of the asymmetric crown of the axle nut the next securing hole will be reached after max. 15°.
4. Re-assemble locking bolt with spring ring.
5. Grease thread of the hubcap around with ECO-Li 91, screw on hubcap and tighten to the prescribed tightening torque (steel hubcap 800 Nm, alloy hubcap 350 Nm).

BPW longlife roller bearing grease ECO-Li 91	Container	BPW Code no.
	0.4 kg Cartridge	02.1040.34.00
	2.5 kg Bucket	02.1040.30.00
	5 kg Bucket	02.1040.31.00
	15 kg Bucket	02.1040.52.00
	50 kg Drum	02.1040.33.00

ECOPlus hub system (ECOPlus Unit)

Grease filling per wheel hub

Fig. ECOPlus 8 - 9 t



The ECOPlus hub system is designed for the use of longlife grease. On expiry of the guarantee, the roller bearings, the inside of the hub and the seals are to be thoroughly cleaned (with diesel oil), dried, checked to see if they can be re-used; and regreased every three years when used off-road, or every 5 years when used on the road, within Europe (or every year when off-road and every two years when on the road outside of Europe) (observe the current BPW maintenance instructions). Spray the stub-axle bearing seats with **BPW ECO Assembly and Protection Spray** (BPW no. 02.3521.12.00).

		BPW longlife roller bearing grease ECO-LiPlus, quantity per tapered roller bearing			
		① inner		② outer	
Axle load	Axle type	Roller bearing	Quantity	Roller bearing	Quantity
8000 - 12000 kg	H.. 8 - 12 t ECOPlus K.. 8 - 12 t ECOPlus	33118	170 g 130 g *	33213	120 g 90 g *

① and ② **Work BPW longlife roller bearing grease ECO-LiPlus** thoroughly into the spaces between the tapered rollers and the races. Apply remainder to outer races in the hub.
Renew the lip seal and smear contact area with **BPW longlife roller bearing grease ECO-LiPlus**.

* Greasing with grease cartridge (see page 81)

Bearing adjustment

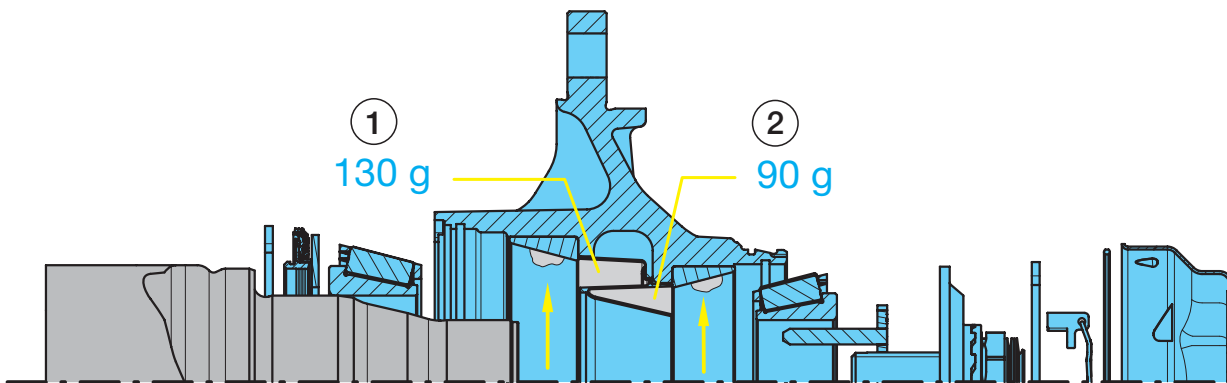
1. Unscrew the hubcap.
2. Remove the hooked spring ring with a wedge from the axle nut.
3. Use a spanner to tighten the axle nut whilst at the same time turning the wheel hub, until the axle nut torque limiter operates (do not use an impact driver).
4. Fit the retaining key in the groove between the axle stub and the nut (do not reset the axle nut).
5. Insert the hooked spring ring, depending on the version, behind the flange on the axle nut or in the thread on the axle stub.
6. Screw on hubcap and tighten to 800 Nm.

BPW longlife roller bearing grease ECO-LiPlus	Container	BPW Code no.
	0.4 kg Cartridge	02.1040.45.00
	5 kg Bucket	02.1040.47.00
	25 kg Bucket	02.1040.49.00
	50 kg Drum	02.1040.50.00

5.12 Grease filling, bearing adjustment

ECO Plus 2 hub system (ECO Plus 2 Unit)

Grease filling per wheel hub



The ECO Plus 2 hub system is designed for the use of longlife grease. On expiry of the guarantee, the roller bearings, the inside of the hub and the seals are to be thoroughly cleaned (with diesel oil), dried, checked to see if they can be re-used; and regreased every three years when used off-road, or every 5 years when used on the road, within Europe (or every year when off-road and every two years when on the road outside of Europe) (observe the current BPW maintenance instructions). Spray the stub-axle bearing seats with **BPW ECO Assembly and Protection Spray** (BPW no. 02.3521.12.00).

		BPW longlife roller bearing grease ECO-LiPlus, quantity per tapered roller bearing			
		① inner		② outer	
Axle load	Axle type	Roller bearing	Quantity	Roller bearing	Quantity
6500 - 9000 kg	H.. 6.5 - 9 t ECO Plus 2 K.. 8 - 9 t ECO Plus 2	33118	130 g	33213	90 g

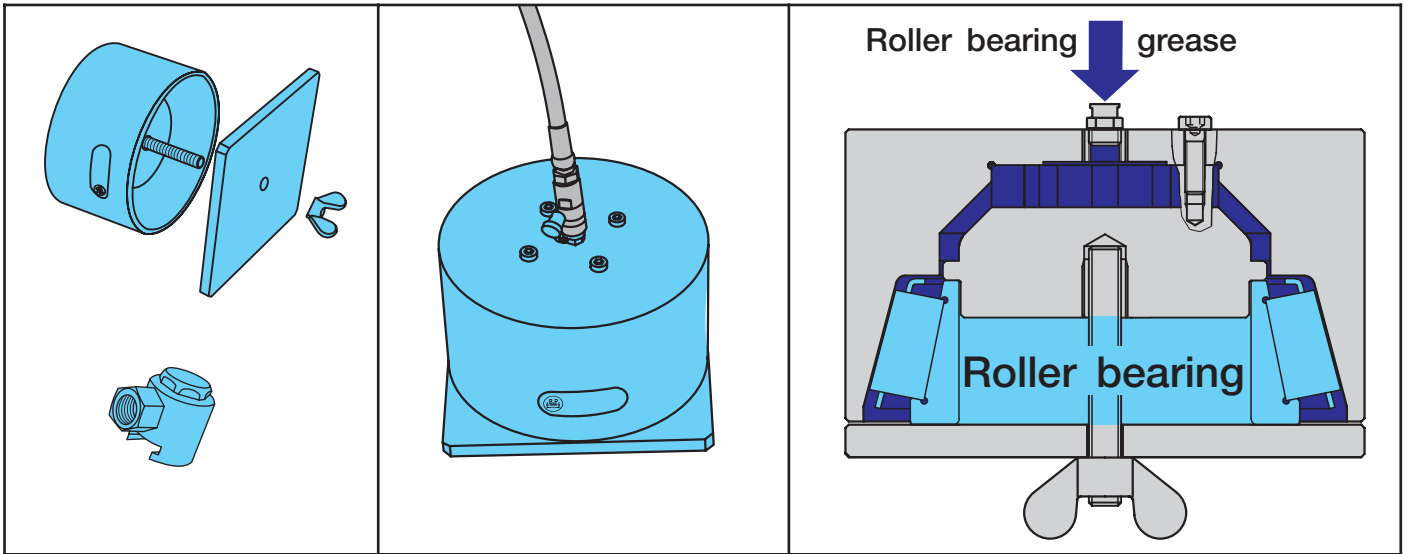
① and ② Clean the grease cartridge and fill it on both sides up to the edge with **BPW ECO-LiPlus special long-life grease**.
 Apply a ring-shaped bead of grease to the running surfaces of the outer bearing races.
 Apply a coat of **BPW ECO-LiPlus special long-life grease** all around the lip of the seal.

For other procedures see the current maintenance instructions (BPW-W-ECO Plus 1203...e).
 When BPW grease applicators are used there is no need to fill the grease cartridge or to apply the bead of grease.
 Greasing with grease cartridge (see page 81)

Bearing adjustment

- Undo the hubcap by turning it through approx. 30 degrees in an anticlockwise direction (see page 59).
When turned further the hubcap lifts clearly away from the ECO unit and can be removed by pulling it away.
- Remove the hooked spring ring and retaining key from the axle bolt.
- Tighten the axle bolt while at the same time turning the ECO unit with a 46 mm hexagon spanner until the crown of the axle bolt clicks round.
NB! Do not use an impact driver.
- Insert the retaining key into the recess in the axle bolt and into the crown of the toothed lock washer (do not turn the axle bolt back).
- Insert the hooked spring ring into the groove at the end of the hexagon profile of the axle bolt.
- Insert a new O-ring into the groove in the wheel hub.
- Apply a thin layer of **BPW ECOLIPlus special long-life grease** to the hubcap in the area of the bayonet fitting.
- Put the hubcap on (position 1, page 59). Use the 120 mm hubcap spanner to lock the hubcap in place by turning it through approx. 30 degrees in a clockwise direction, while at the same time pressing on the hubcap. It is firmly in place when it reaches position 2 (page 59).
NB! Do not use an impact driver - bayonet fitting.

Grease sprays for greasing taper roller bearings 5.13



Grease spray	for taper roller bearing	BPW Code no. grease spray loose	BPW Code no. complete set
	33116	16.076.22935	99.00.000.9.54
	32310	16.072.22935	
	33118	16.062.22935	99.00.000.9.55
	33213	16.068.22935	
Complete set including adapter for flat grease nipple			
Adapter for flat grease nipple			BPW Code no.
			15.069.22935

H
K
N

6 ABS parts

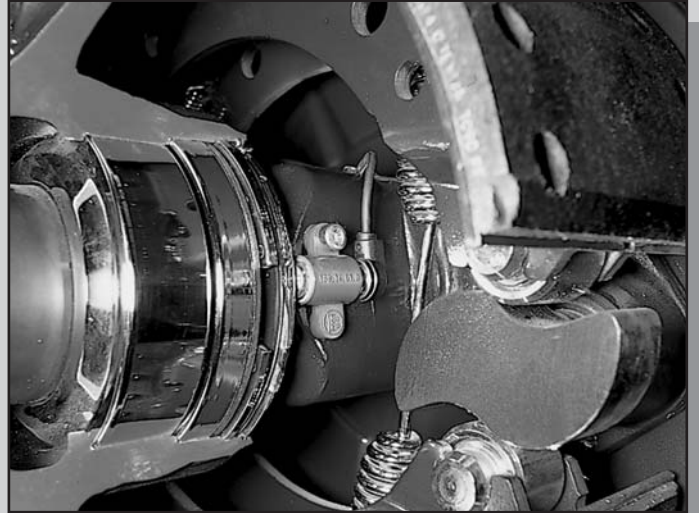
H
K
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General

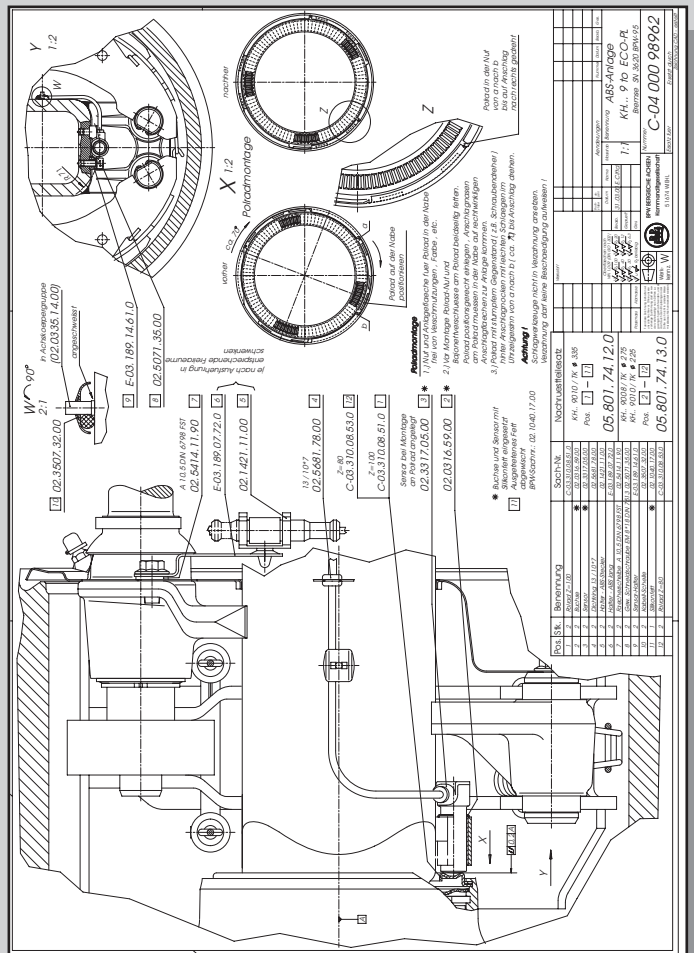
ABS

In the anti-lock brake system (ABS), the wheel movement is recorded using a proximity-type arrangement with an exciter ring attached to the hub and a sensor (speed sensor) that generates the pulses.

As a result, the wheel speed of each wheel is continuously sent to the central control ECU. This runs a complex program for processing the received information about the movement of the wheel as well as for calculating and performing logical operations on the control signals. Using the pressure control valves assigned to each wheel, it adjusts the air pressure and therefore the braking of each individual wheel (depending on the ABS system).



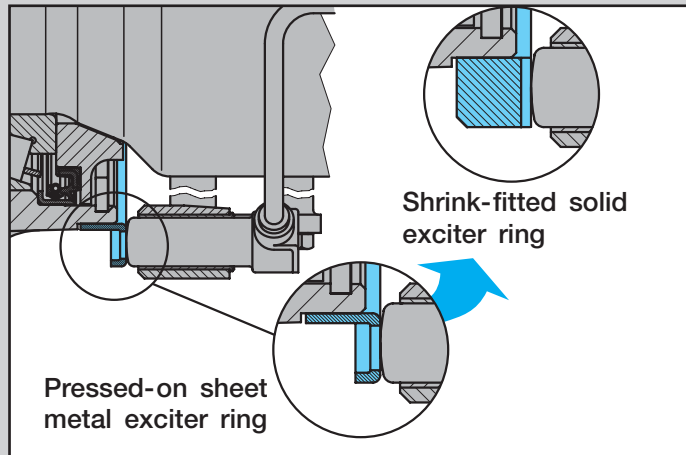
Almost all BPW axles can be retrofitted with ABS without problems. To do this, simply take the exciter ring, sensor holder, sensors and fastening parts contained in the retrofit kit and attach them to the axle in accordance with the supplied installation drawing, then connect them to the vehicle electronic system.



Pressed-on sheet metal exciter rings

For replacement purposes, pressed-on sheet metal exciter rings are replaced by solid exciter rings.

To do this, heat the new solid exciter ring to approx. 80 to 120 °C and shrink-fit.



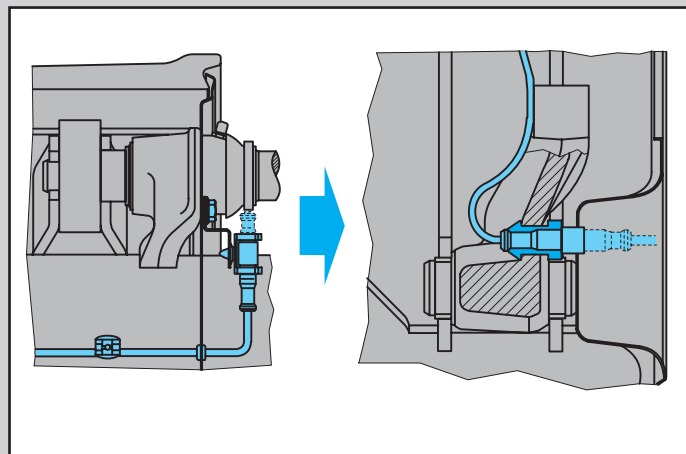
Protected ABS sensor plug connection

Since 1997 BPW trailer axles of the H-series are available with the new innovative ABS sensor plug connection.

With this design the sensor plug, which sits in a recess in the brake dust covers, is optimally protected against in-transit damage.

The connection of the ABS cables (sensor cable / connection cable to the control unit) is made in the same way as with a normal plug socket by simply inserting the plug into the bracket located in the brake anchor plate.

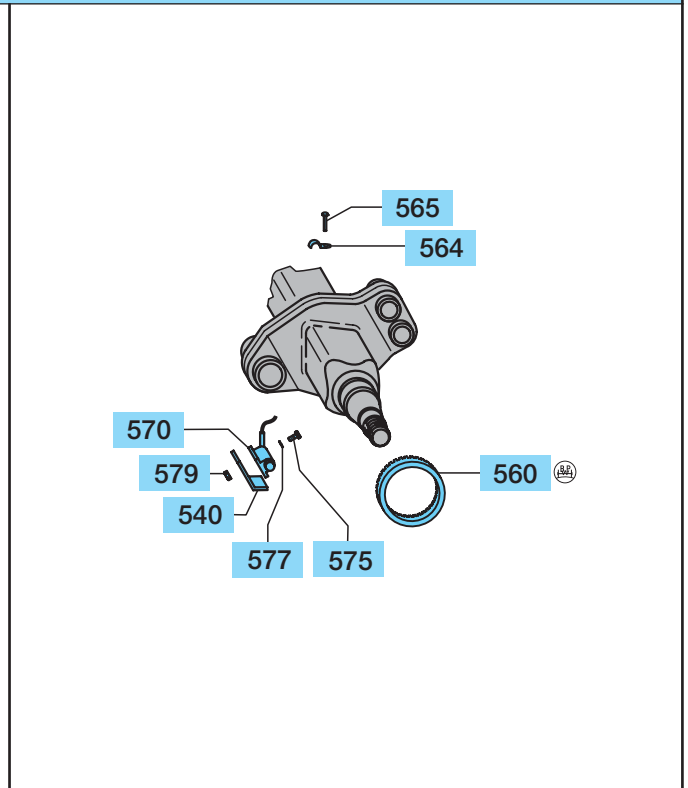
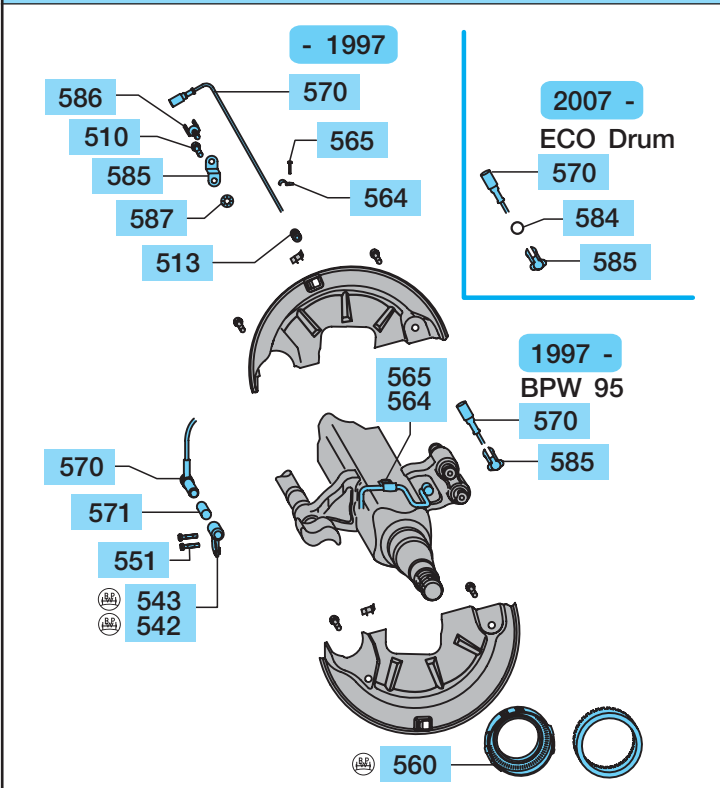
The firm attachment of the sensor bracket to the brake anchor plate ensures that no damage whatsoever can occur to these ABS components even under the most arduous deployment conditions (assuming that the sensor cable is laid properly).



6.1 ABS parts

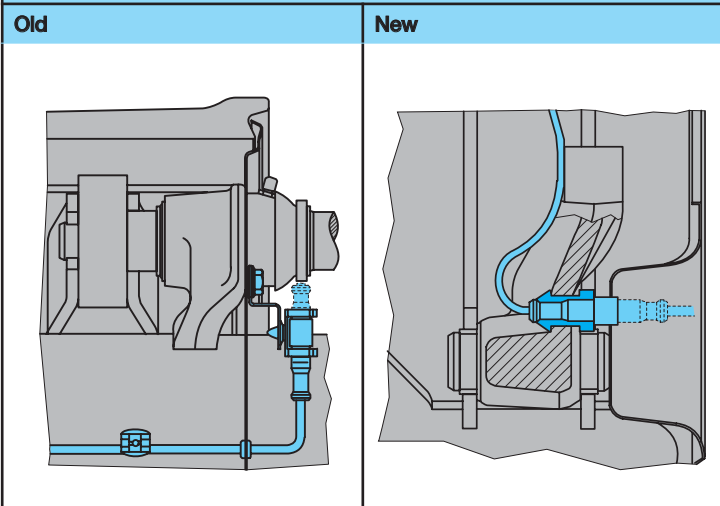
H. / R..			
<p>A</p>	<p>B</p>	<p>C</p>	<p>D</p>

Retrofit part sets, see page 90



for ABS Wabco / Bosch / Grau-Girling DGX / Grau-Girling MGX100 / Knorr

for ABS Grau-Girling MGX-2



Protected ABS sensor plug connection
 Since 1997 BPW trailer axles of the H-series are available with the new innovative ABS sensor plug connection. With this design the sensor plug, which sits in a recess in the brake dust covers, is optimally protected against in-transit damage.
 The connection of the ABS cables (sensor cable / connection cable to the control unit) is made in the same way as with a normal plug socket by simply inserting the plug into the bracket located in the brake anchor plate.
 The firm attachment of the sensor bracket to the brake anchor plate ensures that no damage whatsoever can occur to these ABS components even under the most arduous deployment conditions (assuming that the sensor cable is laid properly).

H.. / R..						
Item	Designation (Remark)	BPW Code no.	Dimension			
Sensor bracket for ABS Wabco / Bosch / Grau-Girling DGX / Grau-Girling MGX 100 / Knorr		H.. 6.5 - 9 t □ 120 16° Brake position			H.. 10 t □ 120 16° Brake position	
		H.. 6.5 - 9 t □ 120 30° Brake position			H.. ECO^{Plus} 10 t □ 120 16° Brake position	
		H.. 10 - 14 t □ 150				
542	Sensor bracket (right)	03.189.07.10.0	L 25, H 17	Fig. A	03.189.11.66.0	L 48, H 22 Fig. A
543	Sensor bracket (left)	03.189.07.09.0	L 25, H 17		03.189.11.67.0	L 48, H 22
542	Sensor bracket (right)	03.189.07.58.0	L 37.5, H 14	Fig. A		
543	Sensor bracket (left)	03.189.07.59.0	L 37.5, H 14			
551	Locking bolt	02.5071.23.00	M 8 x 20 (4x)		02.5071.23.00	M 8 x 20 (4x)
		H.. ECO^{Plus} 8 - 9 t □ 120				
		H.. ECO Plus 2 8 - 9 t □ 120				
542	Sensor bracket	03.189.14.61.0	Fig. B			
551	Locking bolt	02.5071.23.00	M 8 x 20 (2x)			

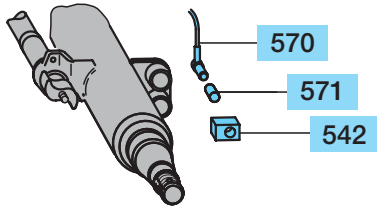
		H.. 9 t □ 150			
542	Sensor bracket (right)	05.189.07.18.0	Fig. C		
543	Sensor bracket (left)	05.189.07.19.0			
		R.. 6.5 - 9 t ○ 127		R.. 10 - 12 t ○ 127	H.. 16 t □ 150
540	Attachment plate	03.080.04.01.0	H 21, α 10°	03.080.03.38.0	H 30, α 5°
542	Sensor bracket	03.189.07.87.0	Fig. D	03.189.07.87.0	03.189.07.87.0
551	Cap screw		02.5015.00.80	M 6 x 16 - 8.8 (4x)	
553	Spring washer		02.5601.06.90	A 6 / 128 (4x)	

Item	Designation (Remark)	Wabco / Bosch for ABS Grau-Girling DGX Grau-Girling MGX 100 / Knorr		for ABS Grau-Girling MGX-2	
		560	Ring (Exciter ring)		
	6.5 - 9 t □ 120 / ○ 127	03.310.08.15.0	Ø 152/170x15 100 teeth (Z)	03.310.08.28.0	Ø 152/170x15 60 teeth (Z)
	8 - 9 t ECO ^{Plus} □ 120	03.310.08.51.0	Ø 125/156x8.5 100 teeth (Z)	-	
	8 - 9 t ECO ^{Plus} 2 □ 120	03.310.08.51.0	Ø 125/156x8.5 100 teeth (Z)	-	
	6.5 - 9 t □ 150	03.310.09.31.0	Ø 152/217x15 100 teeth (Z)	03.310.09.32.0	Ø 152/217x15 60 teeth (Z)
	10 - 12 t □ 120 / 150 / ○ 127	03.310.08.14.0	Ø 176/194x15 100 teeth (Z)	03.310.08.31.0	Ø 176/194x15 60 teeth (Z)
	10 - 12 t ECO ^{Plus} □ 120	03.310.08.54.0	Ø 176/194x15 120 teeth (Z)	-	
	13 - 14 t □ 150	03.310.08.25.0	Ø 194/216x17.5 100 teeth (Z)	-	
	13 - 14 t □ 150	03.310.09.27.0	Ø 209/218x24 100 teeth (Z)	-	
	16 t □ 150	03.310.09.36.0	Ø 232/218x24 100 teeth (Z)	-	
564	Clip (for drive pin)	02.0326.32.00	1 x 6 / 72571-St	02.0326.32.00	1 x 6 / 72571-St
	Clip (Clip for welded bolt)	02.3507.32.00		02.3507.32.00	
565	Drive pin	02.6005.25.40	Ø 4 x 10 / 1476-St	02.6005.25.40	Ø 4 x 10 / 1476-St
570	Sensor	02.3317.05.00		02.3317.03.00	Grau-Girling MGX 2
571	Bush	02.0316.59.00		-	
575	Cap screw	-		02.5015.01.80	M 5 x 20 / 912
		-		02.5015.02.80	M 5 x 16 / 912 8-9t □ 150
577	Spring washer	-		02.5601.05.90	A 5 / 128 8-9t □ 150
579	Lock nut	-		02.5220.06.82	VM 5 / 980
		Old Conventional ABS sensor plug connection		New Protected ABS sensor plug connection	
584	"O"-Ring	-		02.5679.96.40	Ø 16 x 2,5
585	Support	03.189.07.35.0		03.189.13.90.0	BPW 95
	Support (incl. item 584)	-		05.189.15.59.0	ECO Drum
586	Support	02.1421.11.00		-	
587	Serrated lock washer	02.5414.11.90	A 10.5 / 6798	-	

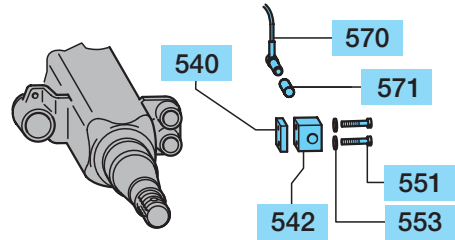
6.1 ABS parts

KH.. / KR..

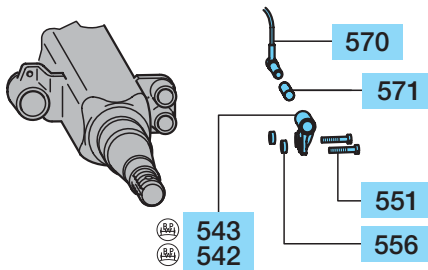
A



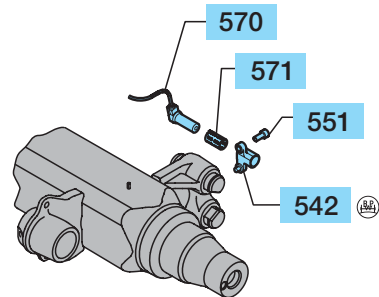
B



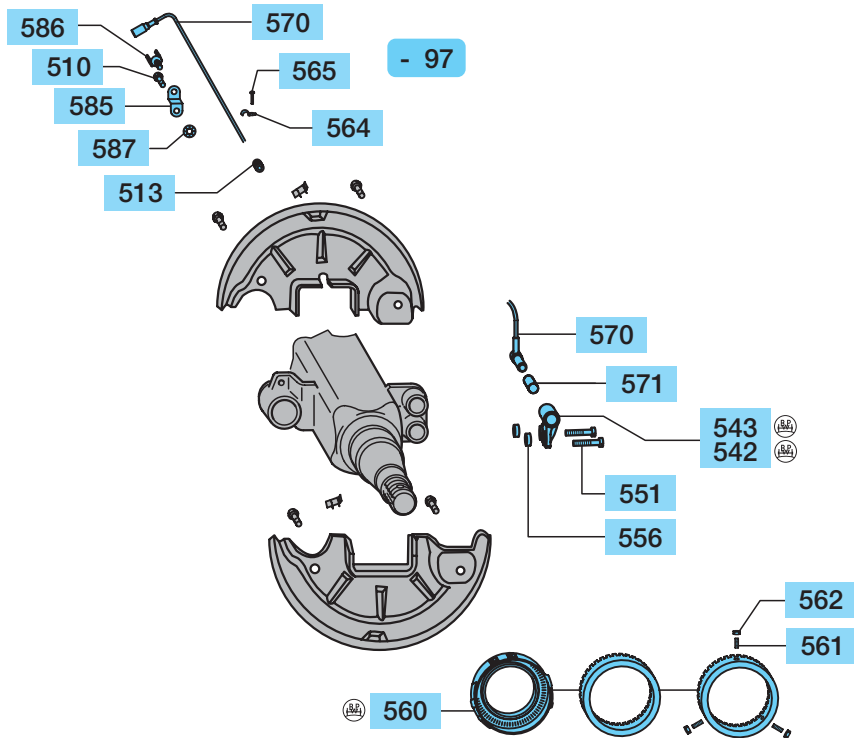
C



D



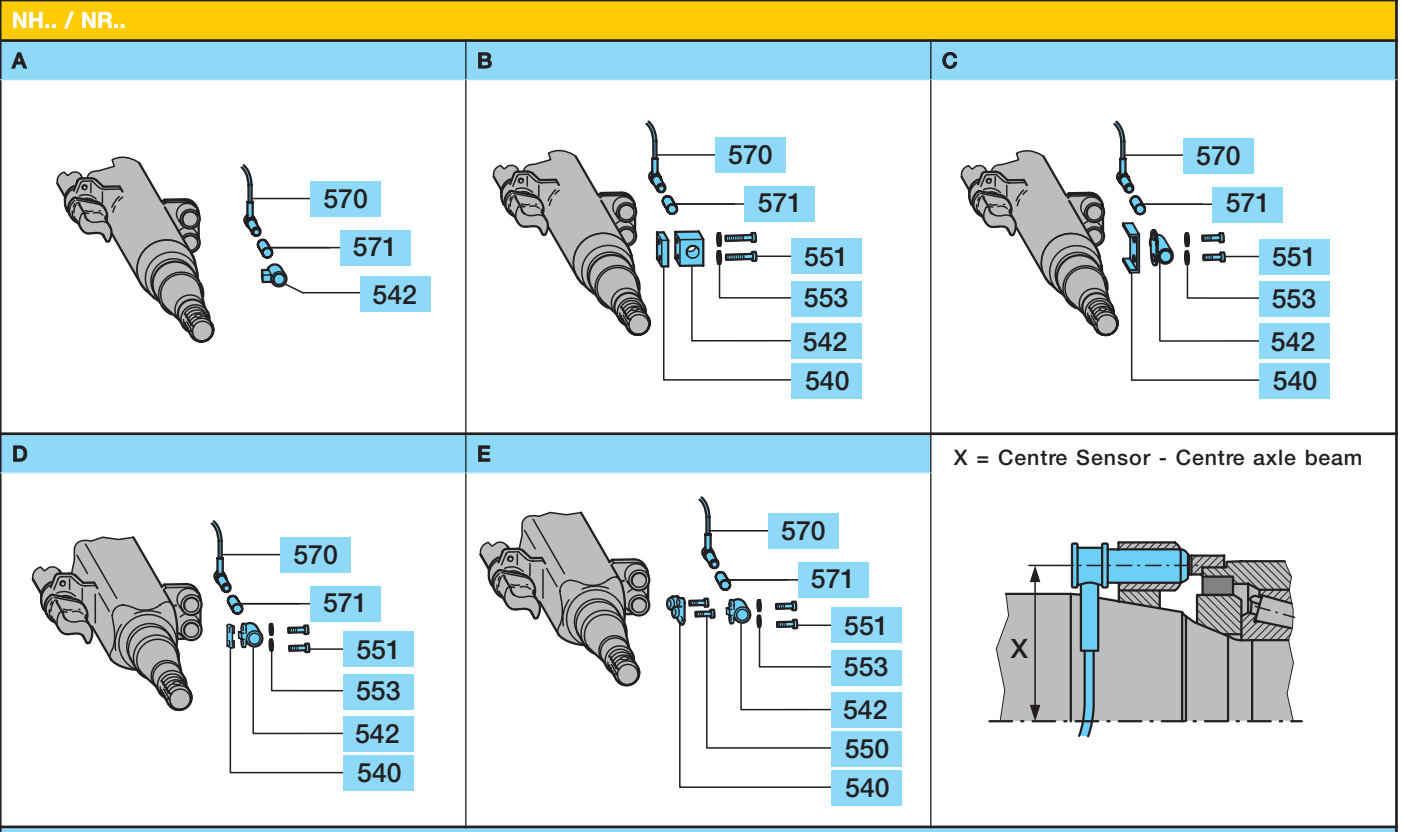
Retrofit part sets, see page 91



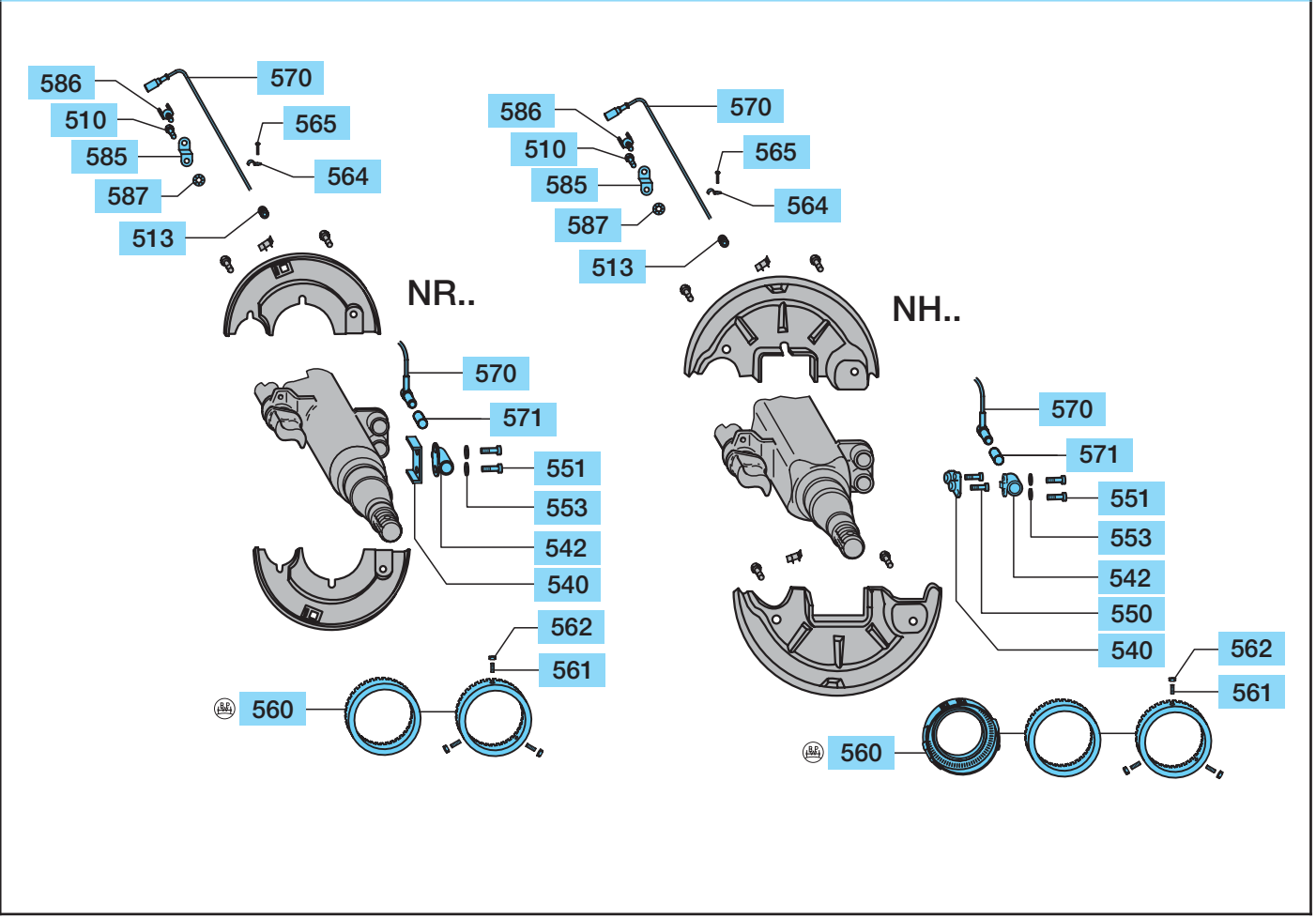
KH.. / KR..				
Item	Designation (Remark)		BPW Code no.	Dimension
			Sensor bracket for ABS Wabco / Bosch / Grau-Girling DGX / Grau-Girling MGX 100 / Knorr	
			Axle type	
Fig. A				
542	Block		03.221.56.16.0	KRBM 6408 30.65.542....
	Sensor bracket		05.189.05.19.0	KRB.. 6408 30.06.542....
Fig. B				
540	Attachment plate		03.080.03.09.0 03.080.03.05.0 03.080.03.03.0 03.080.03.16.0	KR.. 8 - 9 t KH.. 10 t KR.. 10 - 12 t KM.. 13 t
542	Block		03.221.67.21.0	KR.. 8 - 12 t / KH.. 10 t
	Sensor bracket		05.189.06.15.0	KM.. 13 t
	Sensor bracket		03.189.07.87.0	KR 8 - 12 t / 3
551	Hexagon bolt		02.5021.10.80	M 6 x 35 / 931
	Cap screw		02.5015.00.80	M 6 x 16 / 912
	Cap screw		02.5015.06.80	M 6 x 20 / 912
553	Spring washer		02.5601.06.90	A 6 / 127
Fig. C				
542	Sensor bracket (right)		03.189.07.58.0	KH.. 8 - 12 t
543	Sensor bracket (left)		03.189.07.59.0	
551	Self-tapping screw		02.5047.14.00	AM 8 x 20 / 7513
			02.5047.16.00	AM 8 x 30 / 7513
556	Sleeve		03.200.71.06.0	Ø 8.5 / 15 x 10
Fig. D				
542	Sensor bracket		03.189.14.61.0	KH.. 8 - 9 t ECO^{Plus} /
551	Locking bolt		02.5071.23.00	M 8 x 20 (2x) KH.. 8 - 9 t ECO Plus 2
560	Ring (Exciter ring)	80 teeth	03.310.08.18.0	Ø 152/170x15 KH.. / KR.. 6.4 - 9 t
		100 teeth	03.310.08.15.0	Ø 152/170x15 KH.. / KR.. 8010/3, 9010/3
		100 teeth	03.310.08.51.0	Ø 125/156x8.5 KH.. 8 - 9 t ECO^{Plus} / KH.. 8 - 9 t ECO Plus 2
		80 teeth	03.310.08.53.0	Ø 125/156x8.5 KH.. 8 - 9 t ECO^{Plus} / KH.. 8 - 9 t ECO Plus 2
		80 teeth	03.310.08.26.1	Ø 170/176/194x17.5 KH 10008 / KR 10008 - 12008
		80 teeth	03.310.08.24.1	Ø 170/176/194x17.5/3xM6 KH 10010 / KR 10010 - 12010
		100 teeth	05.310.08.50.1	Ø 150/176/180x18.5 KH.. / KR.. 10010/3
		80 teeth	05.310.08.44.1	Ø 150/176/180x19.5 KH.. 10 - 12 t ECO^{Plus}
		80 teeth	03.310.08.34.0	Ø 194/213x15 KM 13008
561	Grub screw		02.5018.09.08	M 6x15/914-45H KH 10010 / KR 10010 - 12010
562	Hexagon nut		02.5202.10.82	M 6/934
564	Clip (for drive pin)		02.0326.32.00	1 x 6 / 72571-St
	Clip (Clip for welded bolt)		02.3507.32.00	
565	Drive pin		02.6005.25.40	Ø 4 x 10 / 1476-St
570	Sensor		02.3317.05.00	
571	Bush		02.0316.59.00	
585	Support		03.189.07.72.0	
586	Support		02.1421.11.00	
587	Serrated lock washer		02.5414.11.90	A 10.5 / 6798

6.1 ABS parts

N



Retrofit part sets, see page 91



NH.. / NR..					
Item	Designation (Remark)	BPW Code no.	Dimension		
Year of manufacture		Axle type		X	suitable for exciter ring
Fig. A					
542	Sensor bracket	1982 - 1989	05.189.06.23.0 NR.. 6006 05.189.05.19.0 NR.. 6010 / 6410 05.189.05.19.0 NR.. 8010 / 9010 Brake drum 295 mm	77 81 81	03.310.08.27.0 03.310.08.18.0 03.310.08.18.0
Fig. B					
540	Attachment plate	1985 - 1989	03.080.03.03.0 NR.. 10010 - 12010 Brake drum 295 mm	93	03.310.08.24.1
542	Block		03.221.67.21.0		
551	Hexagon screw		02.5021.10.80 M 6 x 35 / 931		
553	Spring washer		02.5601.06.90 A 6 / 127		
Fig. C					
540	Attachment plate	1990 - 1995 1982 - 1989 X = see fig. 1990 - 1995 1982 - 1989 1990 - 1995	03.080.03.20.0 NR.. 6006 / 6408 / 6410 03.080.04.01.0 NR.. 8010 / 9010 Brake drum 260 mm 03.080.04.01.0 NR.. 8010 / 9010 03.080.03.20.0 NR.. 10010 - 12010 Brake drum 260 mm 03.080.03.20.0 NR.. 10010 - 12010	77 81 81 81 81	03.310.08.27.0 03.310.08.18.0 03.310.08.18.0 05.310.08.44.1 05.310.08.44.1
542	Sensor bracket		03.189.07.87.0		
551	Cap screw		02.5015.00.80 M 6 x 16 / 912		
553	Spring washer		02.5601.06.90 A 6 / 127		
Fig. D					
540	Shaped plate		03.160.23.01.0 NH.. 6006 / 6408 / 6410	77	03.310.08.43.0
542	Sensor bracket		03.189.12.02.0		
551	Cap screw		02.5015.94.80 M 6 x 12 / 912		
553	Spring washer		02.5601.06.90 A 6 / 127		
Fig. E					
540	Sensor bracket		03.189.11.77.0 NH.. 8010 / 9010 NH.. 10010 - 12010	81 81	03.310.08.18.0 05.310.08.44.1
542	Sensor bracket		03.189.07.87.0		
550	Self-tapping screw		03.341.00.07.0 M 8 x 20		
551	Cap screw		02.5015.00.80 M 6 x 16 / 912		
553	Spring washer		02.5601.06.90 A 6 / 127		

560	Ring (Exciter ring) utilization see above	ABS Wabco / Bosch / Grau-Girling DGX / Grau-Girling MGX 100 / Knorr (Exciter ring 80 teeth)	ABS Grau-Girling MGX-2 (Exciter ring 45 teeth) 1986 - 1993
	X = see fig.	X = 77 X = 77 X = 81 X = 81 X = 93	03.310.08.27.0 Ø 145/152/163x17 03.310.08.43.0 Ø 145/152/163x14.5 03.310.08.18.0 Ø 152/170x15 05.310.08.44.1 ¹⁾ Ø 150/176/180x19.5 03.310.08.24.1 ¹⁾ Ø 170/176/194x17.5/3xM6
561	Grub screw	02.5018.09.08 M 6 x 15 / 914-45H	02.5018.09.08 M 6 x 15 / 914-45H
562	Hexagon nut	02.5202.10.82 M 6 / 934	02.5202.10.82 M 6 / 934
564	Clip (for drive pin) Clip (Clip for welded bolt)	02.0326.32.00 1 x 6 / 72571-St 02.3507.32.00	02.0326.32.00 1 x 6 / 72571-St 02.3507.32.00
565	Drive pin	02.6006.25.40 Ø 4 x 10 / 1476-St	02.6006.25.40 Ø 4 x 10 / 1476-St
570	Sensor	02.3317.05.00	02.3317.03.00 Grau-Girling MGX-2
571	Bush	02.0316.59.00	-
575	Cap screw	-	02.5015.02.80 M 5 x 12 / 912
577	Spring washer	-	02.5601.05.90 A 5 / 128
585	Support	03.189.07.72.0	-
586	Support	02.1421.11.00	-
587	Serrated lock washer	02.5414.11.90 A 10.5 / 6798	-

¹⁾ Exciter rings with mounting bore Ø 176 can also be bolted to hubs with exciter ring seat Ø 175.

6.2 ABS retrofit part sets

ABS retrofit part sets for one axle consisting of exciter rings, sensors, sensor retainers, fastening components and mounting drawings.	ABS System
	Wabco / Bosch also for: Grau DGX / M Grau MGX 100 Knorr

H.. / R..

Axle type	Brake	BPW Code no.
H.. 6500 - 9000 <input type="checkbox"/> 120 (up to production week 31/87), Welded sensor bracket	SN 42..-2	05.801.72.17.0
H.. 6500 - 9000 <input type="checkbox"/> 120 (from production week 32/87), Bolted sensor bracket	SN 42..-2/ SN 42.. BPW 95	05.801.72.01.0
H.. 8000 - 9000 ECOPlus <input type="checkbox"/> 120, Bolted sensor bracket	SN 42.. BPW 95	05.801.74.03.0
H.. 8000 - 9000 ECO Plus 2 <input type="checkbox"/> 120, Bolted sensor bracket	SN 42.. ECO Drum	05.801.74.36.0
R.. 6510 - 9010 <input type="radio"/> 127, Bolted sensor bracket	SN 42..-2/ SN 42.. BPW 95	05.801.73.29.0
H.. 9200 <input type="checkbox"/> 150, Welded sensor bracket	SN 42..-2	05.801.72.03.0
H.. 10000 - 12000 <input type="checkbox"/> 150 (up to production week 12/88), <input type="checkbox"/> 150 x 16 (up to production week 03/89), Welded sensor bracket	SN 42..-2	05.801.72.19.0
H.. 10000 - 12000 <input type="checkbox"/> 150 (from production week 13/88), <input type="checkbox"/> 150 x 16 (from production week 04/89), Bolted sensor bracket	SN 42..-2 SN 42.. BPW 95	05.801.72.07.0
H.. 9100 / 10100 <input type="checkbox"/> 150, Brake position 16°, Bolted sensor bracket	SN 42..-2 SN 42.. BPW 95	05.801.72.59.1
H.. 13000 - 14000 <input type="checkbox"/> 150, Bolted sensor bracket	SN 42..-2 SN 42.. BPW 95	05.801.73.25.0

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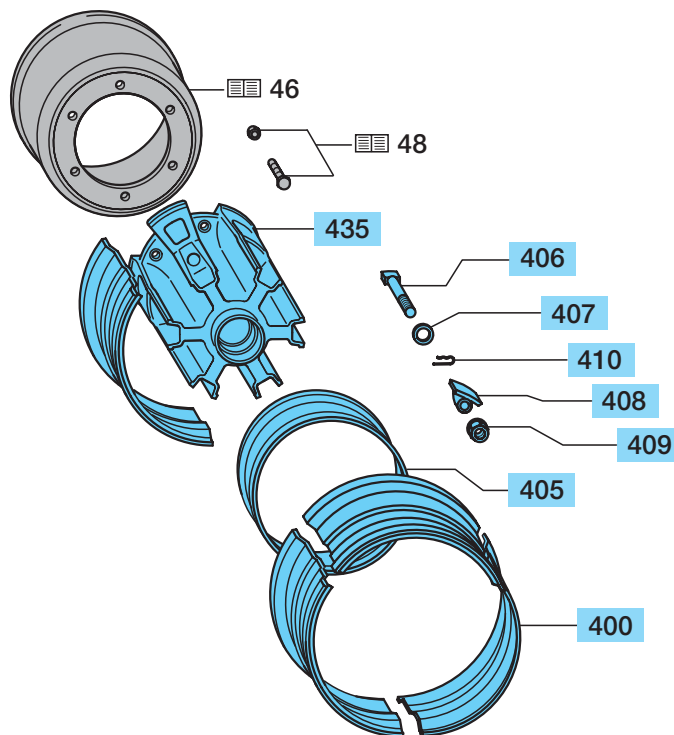
ABS retrofit part sets 6.2

ABS retrofit part sets for one axle consisting of exciter rings, sensors, sensor retainers, fastening components and mounting drawings.			ABS System
			Wabco / Bosch also for: Grau DGX / M Grau MGX 100 Knorr
KH.. / KR..			
Axle type		Brake	BPW Code no.
KH.. 6500 - 9000	<input type="checkbox"/> 120, Bolted sensor bracket	SN 36..	05.801.72.29.0
KH.. 6500 - 9000	<input type="checkbox"/> 120, Bolted sensor bracket	SN 36.. BPW 95	05.801.72.29.0
KH.. 8000 - 9000 ECOPlus / ECO Plus 2	<input type="checkbox"/> 120, Bolted sensor bracket	SN 36.. BPW 95	05.801.74.13.0
KH.. 8010/3	<input type="checkbox"/> 120, Bolted sensor bracket	SN 36.. BPW 95	05.801.73.72.0
KH.. 8010/3 ECOPlus / ECO Plus 2	<input type="checkbox"/> 120, Bolted sensor bracket	SN 36.. BPW 95	05.801.74.12.0
KR 9008 / 9010	<input type="radio"/> 127	SN 36..	05.801.72.53.0
KH.. 10008	<input type="checkbox"/> 120 (up to production week 52/88), Welded sensor bracket	SN 36..	05.801.72.31.0
KH.. 10008	<input type="checkbox"/> 120 (from production week 1/89), Bolted sensor bracket	SN 36..	05.801.72.35.0
KR.. 10008	<input type="radio"/> 127	SN 36..	05.801.72.51.0
KH.. 10010	<input type="checkbox"/> 120 (up to production week 52/88), Welded sensor bracket	SN 36..	05.801.72.33.0
KH.. 10010	<input type="checkbox"/> 120 (from production week 1/89), Bolted sensor bracket	SN 36..	05.801.72.37.0
KH.. 10010 - 12010	<input type="checkbox"/> 120, Bolted sensor bracket	SN 36.. BPW 95	05.801.73.67.0
KR.. 10010	<input type="radio"/> 127	SN 36..	05.801.72.43.0

ABS retrofit part sets for one axle consisting of exciter rings, sensors, sensor retainers, fastening components and mounting drawings.			ABS System
			Wabco / Bosch also for: Grau DGX / M Grau MGX 100 Knorr
NH.. / NR..			
Axle type		Brake	BPW Code no.
NR.. 6006	<input type="radio"/> 127	SN 30..-1	05.801.72.49.0
NR.. 6008 / 6010	<input type="radio"/> 127	SN 30..-1	05.801.72.47.0
NH.. 6000 / 6400	<input type="checkbox"/> 120	SN 3015 BPW 95	05.801.73.51.0
NR.. 6400	<input type="radio"/> 127	SN 30..-1	05.801.72.92.0
NR.. 7006	<input type="radio"/> 127	SN 30..-1	05.801.72.63.0
NR.. 8008 / 8010	<input type="radio"/> 127	SN 30..-1	05.801.72.45.0
NR.. 8010	<input type="radio"/> 127, Brake drums 260 mm wide	SN 30..-1	05.801.72.70.0
NR.. 9010	<input type="radio"/> 127, Welded sensor bracket	SN 30.. Quick-release brake shoes	05.801.73.01.0
NH.. 8010 / 9010	<input type="checkbox"/> 120, Bolted sensor bracket	SN 3020 BPW 95	05.801.73.53.0
NR.. 10010	<input type="radio"/> 127, Brake drums 260 mm wide	SN 30..-1	05.801.72.72.0
NR.. 10010	<input type="radio"/> 127	SN 30.. Quick-release brake shoes	05.801.72.98.0
NH.. 10010 - 12010	<input type="checkbox"/> 120	SN 3020 BPW 95	05.801.73.55.0
NR.. 13010	<input type="radio"/> 127	SN 30..-1	05.801.72.57.0

7 TRILEX

Conventional hub bearing system



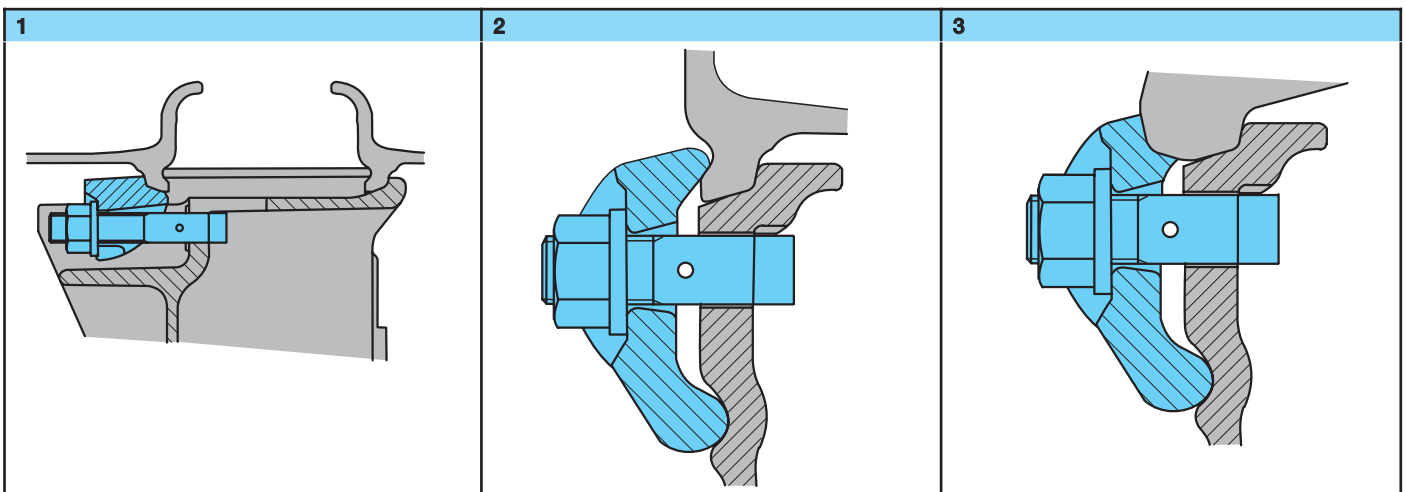
Item	Designation (Remark)	BPW Code no.	Dimension
		6.5 - 9 t --.06. / 08.----,---	10 - 12 t --.10.----,---
435	TRILEX wheel		
	HI.. 20" / 22.5"	02.3910.31.16 ¹⁾ BSI / GF	02.3910.49.38 ³⁾ BSI / GF
	HIZ.. 20" / 22.5"	02.3910.31.24 ²⁾ BSI / GF	03.328.76.48.0 ²⁾ BPW
	HIZ.. 24"	02.3910.31.26 ²⁾ BSI / GF	03.328.76.47.0 ²⁾ BPW
		13 - 14 t (14000-1) ---.14.----,---	16 - 18 t ---.16.----,---
	HIZ.. 20" / 22.5"	02.3910.63.02 ¹⁾ BSI / GF	02.3910.82.01 ¹⁾ BSI / GF
	HIZ.. 20" / 22.5"	02.328.83.04.0 ²⁾ BPW	-
	HIZ.. 24"	03.328.83.06.0 ³⁾ BPW	02.3910.82.03 ¹⁾ BSI / GF
	HIZ.. 24"	-	03.328.86.05.0 ²⁾ BPW, small spoke

¹⁾ for TRILEX bolts M 18 x 2

²⁾ for TRILEX bolts M 20 x 2

³⁾ for rim 7.5 to 8.5 - 20" and Unilex/Tublex
TRILEX bolts M 20 x 2

H.. / R..					
Item	Designation (Remark)	BPW Code no.	Dimension	BSI or GF - No.	
400	Rim	02.1034.06.00	7.0 - 20	650 - 410 - 318	
		02.1034.05.00	7.5 - 20	650 - 410 - 323	
		02.1034.04.00	8.0 - 20	650 - 410 - 327	
		02.1034.02.00	8.5 - 20	650 - 410 - 355	
		02.1034.03.00	10.0 - 20	650 - 410 - 373	
		02.1034.13.00	10.00V - 20	650 - 311 - 235	
		02.1034.29.00	9.00x22.5	650 - 511 - 913	
		02.1034.18.00	14.00x22.5	650 - 511 - 450	
		02.1034.01.00	8.5 - 24	650 - 410 - 357	
		02.1034.07.00	10.0 - 24	650 - 410 - 374	
405	Spacer	02.5671.54.00	124 - 20	656 - 042 - 044	
		02.5671.53.00	130 - 20	656 - 042 - 046	
		02.5671.61.00	139 - 20	656 - 042 - 049	
		02.5671.58.00	177 - 20	656 - 062 - 059	
		02.5671.52.00	130 - 24	656 - 042 - 446	
		02.5671.56.00	139 - 24	656 - 042 - 449	
		02.5671.59.00	147 - 24	656 - 042 - 451	
		02.5671.63.00	177 - 24	656 - 062 - 459	
406	Bolt	02.5070.25.00	M 18x2x95	659 - 112 - 454	
		02.5070.21.00	M 18x2x110	659 - 112 - 455	
		02.5070.22.00	M 18x2x125	659 - 112 - 456	
		02.5070.23.00	M 18x2x140	659 - 112 - 457	
		02.5070.89.00	M 20x2x57	659 - 112 - 616	
		02.5070.86.00	M 20x2x100	659 - 112 - 611	
		02.5070.32.00	M 20x2x115	659 - 112 - 612	
		02.5070.87.00	M 20x2x130	659 - 112 - 613	
		02.5070.88.00	M 20x2x145	659 - 112 - 614	
407	Washer	02.5450.22.00	Ø 20.5/34x2.5	659 - 120 - 228	
408	Clamping plate	HIZ.. 1	02.1816.14.00	Ø 21 20"/24"	659 - 002 - 171
		HI.. 2	02.1816.18.00	Ø 21 20"/24"	659 - 002 - 193
		HI.. Unilex/Tublex E 3	02.1816.19.00	Ø 21 20"/22.5"	659 - 002 - 199
409	Nut	02.5270.03.00	M 18x2/SW27	659 - 115 - 300	
		02.5270.04.00	M 20x2/SW27	659 - 115 - 304	
410	Clip	02.1818.10.00		659 - 130 - 017	



8 Wheel studs

H

General

BPW wheel studs

The wheel nave (or wheel disc) connects the rim to the wheel hub. It must absorb the vertical, lateral and longitudinal forces which arise and transmit them to the wheel hub via the wheel studs (wheel bolts).

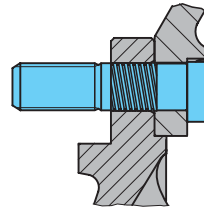
BPW axles are suitable for wheels with either stud or hub centring. BPW axles are supplied with either collar studs or spiral studs, depending on the axle type and axle load.

Spiral studs are easy to maintain and connect the brake drum to the hub using a pressfit. As a result, there is no need for internal nuts.

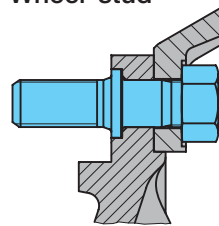
The hub bore is not damaged even after several removal/installation operations (in contrast to the situation with splined studs) and the holding forces for the wheel studs remain constant. A collar stud also allows repeated removal and installation, although it is secured using an internal nut.

The prescribed BPW tightening torques for wheel attachment are listed in the current BPW maintenance instructions and must be observed.

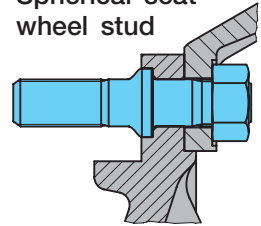
Helical fit wheel bolt (Spiral stud)



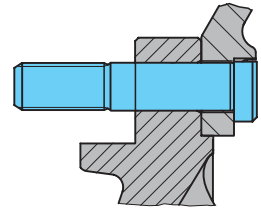
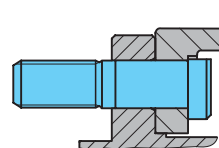
Wheel stud



Spherical seat wheel stud



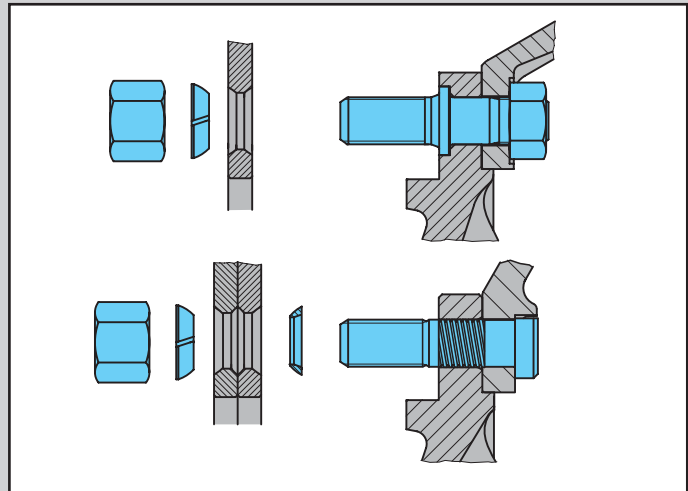
Wheel bolt



Stud alignment

In stud centring, the wheel nave (with countersunk stud holes) is centred using wheel studs with (spring) centring rings.

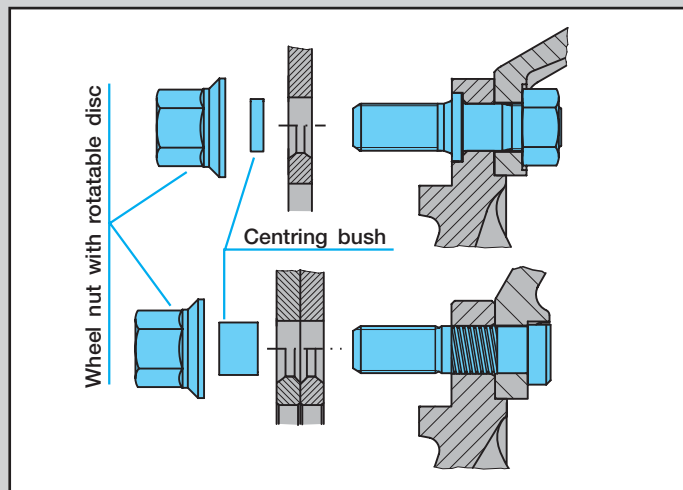
In the case of spherical studs, the wheel nave is directly centred on the collar of the wheel studs.



Spigot alignment

In hub centring, the wheel nave is centred using a centring spigot or ring surfaces on the wheel hub.

In the case of 8-hole disc wheels with countersunk stud holes and 10-hole disc wheels, a centring bush is mounted on 2 opposite wheel studs for each hub.

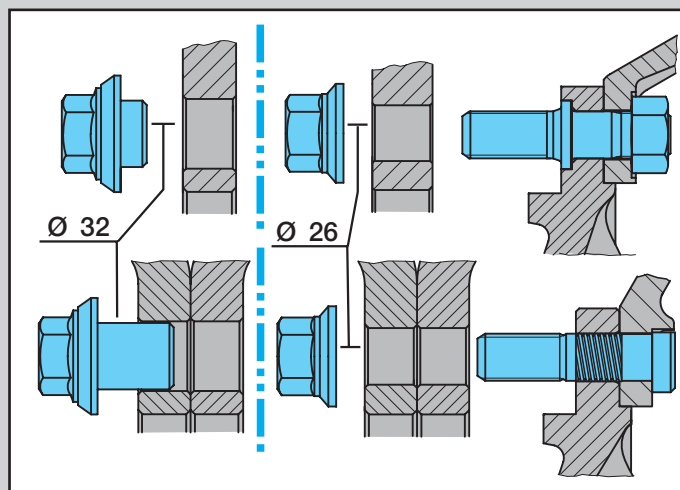


Alloy wheels

In the case of aluminium wheels, the wheel nave is centred using a centring cam or ring surfaces on the wheel hub.

The flange thickness of aluminium wheels is greater than that of steel wheels, so it is necessary to check whether the vehicle is equipped for having aluminium wheels fitted (with stud hole $\text{\O} 26$), i.e. whether there is a sufficient hub shoulder and longer wheel studs).

If not, aluminium wheels with stud hole $\text{\O} 32$ can be used in conjunction with shaft nuts without replacing the hub or the wheel studs.



8.1 Wheel studs, single wheels

Single wheels

Thread (D) Wheel stud	Hub		Wheel type						Wheel nut type						Fig.	item 470 Wheel stud assembly cpl. 09.806. (item 472-474, 477-479)	Dimension Wheel stud L / L1 / L2	item 472 Wheel stud 03.296.	item 474 Rear nut 03.260.	
	Steel hub	Alloy hub	Steel wheel with offset	Steel wheel without offset	Alloy wheel Ø 26 with offset	Alloy wheel Ø 26 without offset	Alloy wheel Ø 32 with offset	Alloy wheel Ø 32 without offset	Stud alignment	Spigot alignment	normal SW 24	normal SW 27	normal SW 30	normal SW 32						Cap nut SW 33
M 18 x 1.5																				
Wheel stud	•		•					•		•						2 A	21.14.0	87/36/47	21.11.0	03.05.0
	•		•					•		•						~2 B	21.18.0	89/41/44	21.14.0	03.05.0
M 20 x 1.5																				
Wheel stud	•		•					•		•						2 B	22.05.0	94/43/47	22.04.0	03.05.0
	•		•					•		•						2 D	22.18.0	94/43/47	22.04.0	03.05.0
M 22 x 1.5																				
Wheel stud	•		•					•						•		1 A	23.23.0	84/46/33	23.14.0	04.06.0
	•		•					•						•		1 C	23.17.0	84/46/33	23.14.0	04.06.0
	•		•					•						•		~1 C	23.36.0	84/46/33	23.14.0	04.06.0
	•		•					•						•		2 A	23.27.0	100/46/49	23.15.1	04.06.0
	•		•					•						•		2 C	23.18.0	100/46/49	23.15.1	04.06.0
	•		•					•						•		~2 C	23.37.0	100/45/49	23.15.1	04.06.0
	•			•										•		1 E	23.56.0	101/60/36	23.16.0	04.06.0
	•				•									•		2 E	23.41.0	114/60/49	23.17.0	04.06.0
	•				•									•		~2 E	23.51.0	114/60/49	23.17.0	04.06.0
	•					•								•		1 F	23.52.0	84/46/33	23.14.0	04.06.0
	•						•							•		2 F	23.43.0	100/46/49	23.15.1	04.06.0
	Helical fit wheel bolt	•		•					•					•		3 A	33.57.0	89/54	33.14.1	-
•			•					•					•		3 A	33.75.0	80/45	33.11.1	-	
•			•					•					•		3 C	33.11.0	89/54	33.14.1	-	
•			•					•					•		3 C	33.76.0	80/45	33.11.1	-	
•			•					•					•		~3 C	33.61.0	89/54	33.14.1	-	
•			•					•					•		~3 C	33.77.0	80/45	33.11.1	-	
•				•									•		3 E	33.68.0	97/62	33.12.1	-	
•					•								•		~3 E	33.63.0	103/58	33.13.1	-	
•						•							•		3 F	33.64.0	89/50	33.14.1	-	
•							•						•		3 F	33.78.0	80/45	33.11.1	-	
•		•		•					•				•		3 A	33.65.0	103/58	33.13.1	-	
•		•		•					•				•		3 C	33.59.0	103/58	33.13.1	-	
•		•		•					•				•		~3 C	33.66.0	103/58	33.13.1	-	
•		•			•								•		3 E	33.59.0	103/58	33.13.1	-	
•		•			•								•		~3 E	33.66.0	103/58	33.13.1	-	
•	•					•						•		3 F	33.60.0	103/58	33.13.1	-		
M 22 x 2																				
Spherical seat wheel stud	•		•					•					•		1 A	23.01.0	84/46/33	23.02.0	04.06.0	
	•		•					•					•		2 A	23.02.0	100/46/49	23.05.0	04.06.0	
	•		•					•					•		~2 A	23.25.0	100/46/49	23.05.0	04.06.0	

1) Bush not included in wheel stud assembly 09.806..... (page 95).

SW = Spanner width

Wheel studs, single wheels 8.1

item 476	item 478	item 479
Bush 1) 03.112.	Spring washer 02.5615.	Wheel nut
-	18.94	02.5213.12.10
-	-	05.260.53.07.0
-	20.90	02.5213.14.10
-	-	02.5219.20.10
-	22.90	03.260.04.12.0
00.43.0	-	05.260.54.10.0
00.43.0	-	05.260.54.19.0
-	22.90	03.260.04.12.0
00.43.0	-	05.260.54.10.0
00.43.0	-	05.260.54.19.0
-	-	05.260.54.10.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.21.1
-	-	05.260.54.21.1
-	22.90	03.260.04.12.0
-	22.90	03.260.04.12.0
00.43.0	-	05.260.54.10.0
00.43.0	-	05.260.54.10.0
00.43.0	-	05.260.54.19.0
00.43.0	-	05.260.54.19.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.21.1
-	-	05.260.54.21.1
-	22.90	03.260.04.12.0
00.43.0	-	05.260.54.10.0
00.43.0	-	05.260.54.19.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.21.1
-	22.90	03.260.04.01.0
-	22.90	03.260.04.01.0
-	22.90	05.260.14.05.0

Wheel stud		Helical fit wheel bolt											
Wheel stud Wheels with offset 1 	Wheel stud Wheels without offset 2 	Helical fit wheel bolt 3 <p>Steel hub x = 20 Alloy hub x = 30</p>											
Steel wheels Stud alignment A 		B Tightening torques for wheel nuts item 479 <table border="1"> <thead> <tr> <th>Thread</th> <th>Stud alignment</th> </tr> </thead> <tbody> <tr> <td>M 18 x 1.5</td> <td>290 Nm (275-305)</td> </tr> <tr> <td>M 20 x 1.5</td> <td>380 Nm (360-400)</td> </tr> <tr> <td>M 22 x 1.5</td> <td>510 Nm (485-535)</td> </tr> <tr> <td>M 22 x 2</td> <td>460 Nm (435-485)</td> </tr> </tbody> </table>		Thread	Stud alignment	M 18 x 1.5	290 Nm (275-305)	M 20 x 1.5	380 Nm (360-400)	M 22 x 1.5	510 Nm (485-535)	M 22 x 2	460 Nm (435-485)
Thread	Stud alignment												
M 18 x 1.5	290 Nm (275-305)												
M 20 x 1.5	380 Nm (360-400)												
M 22 x 1.5	510 Nm (485-535)												
M 22 x 2	460 Nm (435-485)												
Steel wheels Spigot alignment C 		D Tightening torques for wheel nuts item 479 <table border="1"> <thead> <tr> <th>Thread</th> <th>Spigot alignment</th> </tr> </thead> <tbody> <tr> <td>M 18 x 1.5</td> <td>350 Nm (330-370)</td> </tr> <tr> <td>M 20 x 1.5</td> <td>480 Nm (455-505)</td> </tr> <tr> <td>M 22 x 1.5</td> <td>630 Nm (600-660)</td> </tr> </tbody> </table>		Thread	Spigot alignment	M 18 x 1.5	350 Nm (330-370)	M 20 x 1.5	480 Nm (455-505)	M 22 x 1.5	630 Nm (600-660)		
Thread	Spigot alignment												
M 18 x 1.5	350 Nm (330-370)												
M 20 x 1.5	480 Nm (455-505)												
M 22 x 1.5	630 Nm (600-660)												
Alloy wheels Ø 26 E 		F Alloy wheels Ø 32 F 											
03.260.03.05.0 = M 20 x 1.5 03.260.04.06.0 = M 22 x 2		Tightening torques for rear nuts item 474 <table border="1"> <thead> <tr> <th>Thread</th> <th></th> </tr> </thead> <tbody> <tr> <td>M 20 x 1.5</td> <td>300 Nm (270-330)</td> </tr> <tr> <td>M 22 x 2</td> <td>400 Nm (360-440)</td> </tr> </tbody> </table>		Thread		M 20 x 1.5	300 Nm (270-330)	M 22 x 2	400 Nm (360-440)				
Thread													
M 20 x 1.5	300 Nm (270-330)												
M 22 x 2	400 Nm (360-440)												

H
K
N

8.2 Wheel studs, twin wheels

Twin wheels

Thread (D)	Hub		Wheel type				Wheel nut type					Fig.	item 470 Wheel stud assembly cpl. 09.806. (item 472-474, 477-479)	Dimension Wheel stud L / L1 / L2	item 472 Wheel stud 03.296.	item 474 Rear nut 03.260.	item 476 Bush 1) 03.112.
	Steel hub	Alloy hub	Steel wheels	Alloy wheels Ø 26	Alloy wheels Ø 32	Stud alignment	Spigot alignment	normal SW 24	normal SW 27	normal SW 32	Cap nut SW 32						

M 18 x 1.5

Wheel stud	•	•	•	•	•	•	•	•	•	•	•	•	1 C	21.19.0	102/51/47	21.15.0	03.05.0	-
Spherical seat wheel stud	•	•	•	•	•	•	•	•	•	•	•	•	2 B	11.11.0	97/46/47	11.10.0	03.05.0	-
Wheel bolt	•	•	•	•	•	•	•	•	•	•	•	•	4 A	31.08.0	81/50	31.03.0	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	4 D	31.09.0	81/ 50	31.03.0	-	-

M 20 x 1.5

Wheel stud	•	•	•	•	•	•	•	•	•	•	•	•	1 A	12.03.0	101/48/47	12.04.0	03.05.0	-
Wheel bolt	•	•	•	•	•	•	•	•	•	•	•	•	4 A	32.07.0	89/56	32.03.0	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	4 D	32.06.0	89/56	32.03.0	-	-

M 22 x 1.5

Wheel stud	•	•	•	•	•	•	•	•	•	•	•	•	1 A	23.28.0	114/60/49	23.17.0	04.06.0	-
	•	•	•	•	•	•	•	•	•	•	•	•	1 C	23.22.0	114/60/49	23.17.0	04.06.0	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	~1 C	23.29.0	114/60/49	23.17.0	04.06.0	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	1 E	23.50.0	139/85/49	23.24.0	04.06.0	-
	•	•	•	•	•	•	•	•	•	•	•	•	~1 E	23.49.0	139/85/49	23.24.0	04.06.0	-
	•	•	•	•	•	•	•	•	•	•	•	•	1 F	23.44.0	139/85/49	23.24.0	04.06.0	-
Helical fit wheel bolt	•	•	•	•	•	•	•	•	•	•	•	•	3 A	33.67.0	97/62	33.12.1	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	3 C	33.68.0	97/62	33.12.1	-	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	~3 C	33.69.0	97/62	33.12.1	-	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	3 E	-	117/82	33.17.1	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	3 F	-	97/62	33.12.1	-	-
Wheel bolt	•	•	•	•	•	•	•	•	•	•	•	•	5 A	33.06.0	92/70	33.08.0	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	5 C	33.07.0	92/70	33.08.0	-	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	~5 C	33.09.0	92/70	33.08.0	-	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	6 A	33.70.0	128/84	33.09.0	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	6 C	33.71.0	128/84	33.09.0	-	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	~6 C	33.72.0	128/84	33.09.0	-	00.42.0
	•	•	•	•	•	•	•	•	•	•	•	•	6 D	33.73.0	128/84	33.09.0	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	~6 D	33.72.0	128/84	33.09.0	-	-
	•	•	•	•	•	•	•	•	•	•	•	•	6 F	33.74.0	128/84	33.09.0	-	-

M 22 x 2

Spherical seat wheel stud	•	•	•	•	•	•	•	•	•	•	•	•	2 B	13.02.0	111/57/49	13.09.0	04.06.0	-
	•	•	•	•	•	•	•	•	•	•	•	•	~2 B	13.09.0	111/57/49	13.09.0	04.06.0	-
	•	•	•	•	•	•	•	•	•	•	•	•	~2 B	13.23.0	111/57/49	13.09.0	04.06.0	-

1) Bush not included in wheel stud assembly 09.806..... (page 95).

SW = Spanner width

2) Centring ring with spherical wheel stud and twin wheels.

Wheel studs, twin wheels 8.2

item 477	item 478	item 479
Centring ring 2) 03.310.	Spring washer 02.5615.	Wheel nut
-	-	05.260.53.07.0
-	18.94	02.5213.12.14
10.27.0	18.94	02.5213.12.14
-	-	05.260.53.07.0
-	20.90	02.5213.14.10
10.02.0	20.90	02.5213.14.10
-	-	02.5219.20.10
10.13.0	22.90	03.260.04.12.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.14.1
10.13.0	22.90	03.260.04.12.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.10.0
-	-	05.250.54.14.1
10.13.0	22.90	03.260.04.12.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
10.13.0	22.90	03.260.04.12.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.10.0
-	-	05.260.54.19.0
-	-	05.260.54.14.1
-	22.90	03.260.04.01.0
-	22.90	05.260.14.03.0
-	22.90	05.260.14.05.0

Wheel stud	Spherical seat wheel stud	Helical fit wheel bolt	Wheel bolt										
Wheel stud 472 	1 Spherical seat wheel stud 472 	Helical fit wheel bolt 472 	3										
Wheel bolt 472 	4 Wheel bolt NR.. 472 	5 Wheel bolt, Alloy hub 472 	6										
Steel wheels Stud alignment 479 	A	B	Tightening torques for wheel nuts item 479										
			<table border="1"> <thead> <tr> <th>Thread</th> <th>Stud alignment</th> </tr> </thead> <tbody> <tr> <td>M 18 x 1.5</td> <td>290 Nm (275-305)</td> </tr> <tr> <td>M 20 x 1.5</td> <td>380 Nm (360-400)</td> </tr> <tr> <td>M 22 x 1.5</td> <td>510 Nm (485-535)</td> </tr> <tr> <td>M 22 x 2</td> <td>460 Nm (435-485)</td> </tr> </tbody> </table>	Thread	Stud alignment	M 18 x 1.5	290 Nm (275-305)	M 20 x 1.5	380 Nm (360-400)	M 22 x 1.5	510 Nm (485-535)	M 22 x 2	460 Nm (435-485)
Thread	Stud alignment												
M 18 x 1.5	290 Nm (275-305)												
M 20 x 1.5	380 Nm (360-400)												
M 22 x 1.5	510 Nm (485-535)												
M 22 x 2	460 Nm (435-485)												
Steel wheels Spigot alignment 479 	C	D	Tightening torques for wheel nuts item 479										
			<table border="1"> <thead> <tr> <th>Thread</th> <th>Spigot alignment</th> </tr> </thead> <tbody> <tr> <td>M 18 x 1.5</td> <td>350 Nm (330-370)</td> </tr> <tr> <td>M 20 x 1.5</td> <td>480 Nm (455-505)</td> </tr> <tr> <td>M 22 x 1.5</td> <td>630 Nm (600-660)</td> </tr> </tbody> </table>	Thread	Spigot alignment	M 18 x 1.5	350 Nm (330-370)	M 20 x 1.5	480 Nm (455-505)	M 22 x 1.5	630 Nm (600-660)		
Thread	Spigot alignment												
M 18 x 1.5	350 Nm (330-370)												
M 20 x 1.5	480 Nm (455-505)												
M 22 x 1.5	630 Nm (600-660)												
Alloy wheels Ø 26 479 	E	F	Tightening torques for wheel nuts item 479										
			<table border="1"> <thead> <tr> <th>Thread</th> <th>Alloy wheels</th> </tr> </thead> <tbody> <tr> <td>M 22 x 1.5</td> <td>630 Nm (600-660)</td> </tr> </tbody> </table>	Thread	Alloy wheels	M 22 x 1.5	630 Nm (600-660)						
Thread	Alloy wheels												
M 22 x 1.5	630 Nm (600-660)												
			Tightening torques for rear nuts item 474										
			<table border="1"> <thead> <tr> <th>Thread</th> <th></th> </tr> </thead> <tbody> <tr> <td>M 20 x 1.5</td> <td>300 Nm (270-330)</td> </tr> <tr> <td>M 22 x 2</td> <td>400 Nm (360-440)</td> </tr> </tbody> </table>	Thread		M 20 x 1.5	300 Nm (270-330)	M 22 x 2	400 Nm (360-440)				
Thread													
M 20 x 1.5	300 Nm (270-330)												
M 22 x 2	400 Nm (360-440)												
			<p>03.260.03.05.0 = M 20 x 1.5 03.260.04.06.0 = M 22 x 2</p>										

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K
N

9 Hubcaps with integrated Hubodometer

Axle load	Axle series	Axle type	Hubcap thread	for tyre e.g.	Developed area	Hubcap with integrated Hubodometer BPW Code no.
6.5 - 9 t	H.. / R..	H.. / R..	M 115 x 2	365 / 80 R 20	3280 - 3310	05.212.23.27.0
				385 / 65 R 22.5	3240 - 3260	05.212.23.35.0
				10.00 R 20	3175 - 3220	05.212.23.34.0
				11.00 R 22.5		
		H.. ECO H.. ECO-MAXX	M 125 x 2	365 / 80 R 20	3280 - 3310	05.212.24.56.0
				385 / 65 R 22.5	3240 - 3260	05.212.24.29.0
				425 / 65 R 22.5	3410 - 3470	05.212.24.54.0
				10.00 R 20	3175 - 3220	05.212.24.49.0
				11.00 R 22.5		
				315 / 70 R 22.5	3015 - 3134	05.212.24.33.0
				275 / 70 R 22.5	2915	05.212.24.52.0
				255 / 70 R 22.5	2830 - 2860	05.212.24.53.0
		H.. ECOPlus	M 136 x 2.5	255 / 70 R 22.5	2830 - 2860	05.212.25.41.0
				275 / 70 R 22.5	2915	05.212.25.42.0
				385 / 55 R 22.5	3015 - 3134	05.212.25.44.0
				315 / 70 R 22.5		
				10.00 R 20	3175 - 3220	05.212.25.45.0
				11.00 R 22.5		
	385 / 65 R 22.5			3240 - 3260	05.212.25.46.0	
	12.00 R 22.5			3280 - 3310	05.212.25.47.0	
	425 / 65 R 22.5			3410 - 3470	05.212.25.48.0	
	13.00 R 22.5					
	445 / 65 R 22.5	3505	05.212.25.49.0			
	H.. ECO Plus 2	Bayonet lock	385 / 55 R 22.5	3015 - 3134	05.212.25.73.0	
			315 / 70 R 22.5			
			11.00 R 22.5	3175 - 3220	05.212.25.74.0	
			385 / 65 R 22.5	3240 - 3260	05.212.25.75.0	
	KH.. / KR..	KH.. / KR..	M 115 x 2	265 / 70 R 19.5	2620 - 2650	05.212.23.29.0
				KH.. ECO KH.. ECO-MAXX	M 125 x 2	385 / 65 R 19.5
		425 / 55 R 19.5	2960			05.212.24.46.0
		445 / 45 R 19.5	2730 - 2790			05.212.24.50.0
		265 / 70 R 19.5	2620 - 2650			05.212.24.34.0
245 / 70 R 19.5		2560	05.212.24.44.0			
KH.. ECOPlus		M 136 x 2.5	265 / 70 R 19.5	2620 - 2650	05.212.25.38.0	
			285 / 70 R 19.5	2712 - 2750	05.212.25.39.0	
			445 / 45 R 19.5	2730 - 2790	05.212.25.40.0	
			425 / 55 R 19.5	2960	05.212.25.43.0	
			KH.. ECO Plus 2	Bayonet lock	445 / 45 R 19.5	2790
NH.. / NR..		NH.. / NR..	M 115 x 2	215 / 75 R 17.5	2350	05.212.23.30.0
	235 / 75 R 17.5			2425	05.212.23.31.0	
	245 / 70 R 17.5			2464 - 2520	05.212.23.36.0	
	NH.. ECO NH.. ECO-MAXX	M 125 x 2	215 / 75 R 17.5	2350	05.212.24.35.0	
			235 / 75 R 17.5	2464 - 2520	05.212.24.58.0	
			245 / 70 R 17.5	2425	05.212.24.36.0	
			205 / 65 R 17.5	2170	05.212.24.48.0	

 Hubcaps for BPW ECO axles have internal thread.

Further types upon request.

* Modified cap thread from 09/00.
Note thread size stamped on the cap!

Hubcaps with integrated Hubodometer

9

Axle load	Axle series	Axle type	Hubcap thread	for tyre e.g.	Developed area	Hubcap with integrated Hubodometer BPW Code no.
10 - 12 t	H.. / R..	H.. / R..	M 125 x 2	425 / 65 R 22.5	3410 - 3470	05.212.24.32.0
				445 / 65 R 22.5	3505	05.212.24.37.0
				385 / 65 R 22.5	3240 - 3260	05.212.24.43.0
				275 / 70 R 22.5	2915	05.212.24.38.0
				10.00 R 20	3175 - 3220	05.212.24.31.0
				11.00 R 22.5		
				12.00 R 22.5	3280 - 3310	05.212.24.39.0
				13.00 R 22.5	3410 - 3470	05.212.24.32.0
		H.. ECO H.. ECO-MAXX	M 135 x 2	425 / 65 R 22.5	3410 - 3470	05.212.25.11.0
				445 / 65 R 22.5	3505	05.212.25.12.0
				385 / 65 R 22.5	3240 - 3260	05.212.25.19.0
				275 / 70 R 22.5	2915	05.212.25.13.0
				10.00 R 20	3175 - 3220	05.212.25.10.0
				11.00 R 22.5		
				12.00 R 22.5	3280 - 3310	05.212.25.14.0
				13.00 R 22.5	3410 - 3470	05.212.25.11.0
				255 / 70 R 22.5	2830 - 2860	05.212.25.24.0
				315 / 70 R 22.5	3015 - 3134	05.212.25.25.0
		H.. ECO H.. ECO-MAXX H.. ECOPlus	M 136 x 2.5	255 / 70 R 22.5	2830 - 2860	05.212.25.41.0
				275 / 70 R 22.5	2915	05.212.25.42.0
				315 / 70 R 22.5	3015 - 3134	05.212.25.44.0
				10.00 R 20	3175 - 3220	05.212.25.45.0
				11.00 R 22.5		
				385 / 65 R 22.5	3240 - 3260	05.212.25.46.0
				12.00 R 22.5	3280 - 3310	05.212.25.47.0
				425 / 65 R 22.5	3410 - 3470	05.212.25.48.0
				13.00 R 22.5		
				445 / 65 R 22.5	3505	05.212.25.49.0
	KH.. / KR..	KH.. / KR..	M 125 x 2	285 / 70 R 19.5	2712 - 2750	05.212.24.40.0
				285 / 70 R 19.5	2712 - 2750	05.212.25.16.0
		KH.. ECO KH.. ECO-MAXX	M 135 x 2	265 / 70 R 19.5	2620 - 2650	05.212.25.20.0
				245 / 70 R 19.5	2560	05.212.25.28.0
				265 / 70 R 19.5	2620 - 2650	05.212.25.38.0
		KH.. ECO KH.. ECO-MAXX KH.. ECOPlus	M 136 x 2.5	285 / 70 R 19.5	2712 - 2750	05.212.25.39.0
				445 / 45 R 19.5	2790	05.212.25.40.0
				425 / 55 R 19.5	2960	05.212.25.43.0
				235 / 75 R 17.5	2425	05.212.24.41.0
		NH.. / NR..	NH.. / NR..	M 125 x 2	245 / 70 R 17.5	2464 - 2520
	9.50 R 17.5				2560	05.212.24.42.0
	8.25 R 15					
	NH.. ECO NH.. ECO-MAXX		M 135 x 2	245 / 75 R 17.5	2425	05.212.25.17.0*
				235 / 70 R 17.5	2464 - 2520	05.212.25.51.0*
				9.50 R 17.5	2560	05.212.25.28.0*
				8.25 R 15		
	NH.. ECO NH.. ECO-MAXX		M 136 x 2.5	205 / 65 R 17.5	2170	05.212.25.34.0*
				215 / 75 R 17.5	2350	05.212.25.35.0*
				245 / 70 R 17.5	2425	05.212.25.36.0*
235 / 75 R 17.5						
9.50 R 17.5		2560		05.212.25.37.0*		
8.25 R 17.5						

9.1 Hubcaps with digital odometer (ECOMETER)



The BPW hubcap with its integrated digital odometer is an important instrument for checking the mileage of your trailer or semitrailer. This means you can always track the real trailer mileage, especially when the trailer is used with different tractor units.

A built-in watertight mini-computer counts the wheel revolutions by means of a magnet and a reed contact.

The digital ECOMETER with the special hooked spring ring and integrated magnet is available for all BPW ECO^{Plus} axles with an M 136 x 2.5 hubcap thread, as well as ECO Plus 2 axles with a bayonet fitting.

	BPW Code no.:
Hub thread M 136 x 2.5	05.212.75.02.0 KTL _{Zn}
Bayonet lock	05.212.75.05.0 KTL _{Zn} incl. 'O'-Ring
Circlip loose	
ECO ^{Plus}	05.188.04.13.0
ECO Plus 2	05.188.10.03.0
Replacement battery	02.0130.97.00

Further information see service and installation instruction 'Digital ECOMETER' - BPW No.: 04.001.21.24.0 and 04.001.21.25.0.

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BPW-EL-HKN 3102901e

