Air springs

Product competence from EUROPART

- Air springs/Air spring bellows
- Rolling piston
- Cab damper
- Screw sets
- Accessories

New edition with over 40 new EUROPART Premium Parts air spring bellows!

EUROPART – Europe's No. 1 for truck, trailer, van and bus spare parts.

How do air and steel springs differ? EUROPART explains:

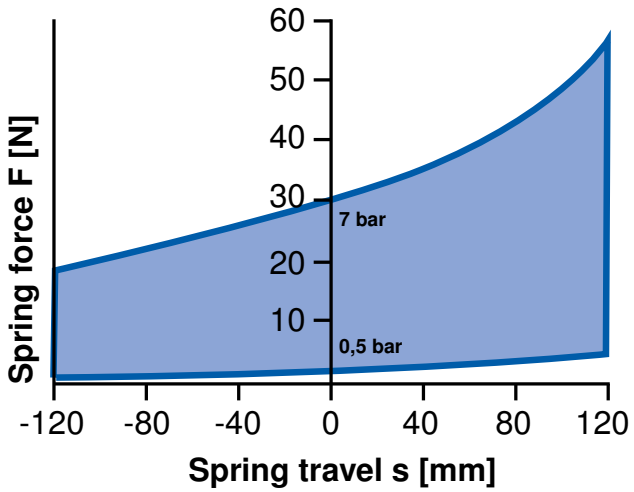
The spring rate of a steel spring can generally be described by a straight line on a force-path diagram. By contrast, air and gas springs are depicted by a set of curves. The maximum operating pressure is the upper limit, and the minimum pressure is the lower limit. This area is coloured blue in the right-hand diagram below.

Steel springs operating according to the shape suspension principle can only be optimally designed for a specific load state. This generally relates to the loaded state. Consequently this spring is too hard in the partial load and unloaded states.

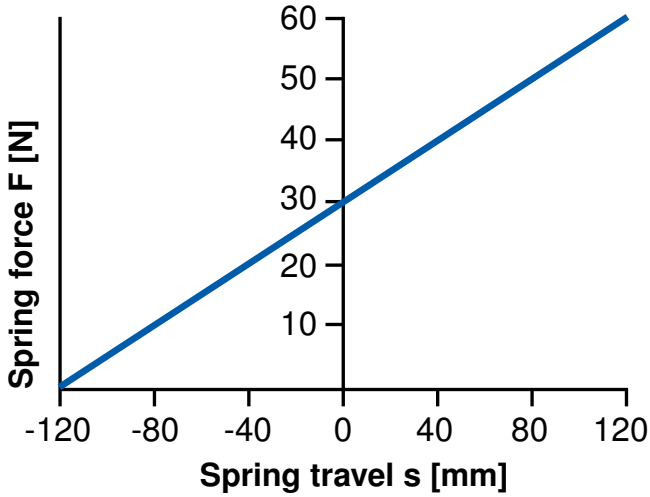
Air or gas springs operating according to the volume suspension principle adjust to the vehicle's load state by means of variable operating pressure.

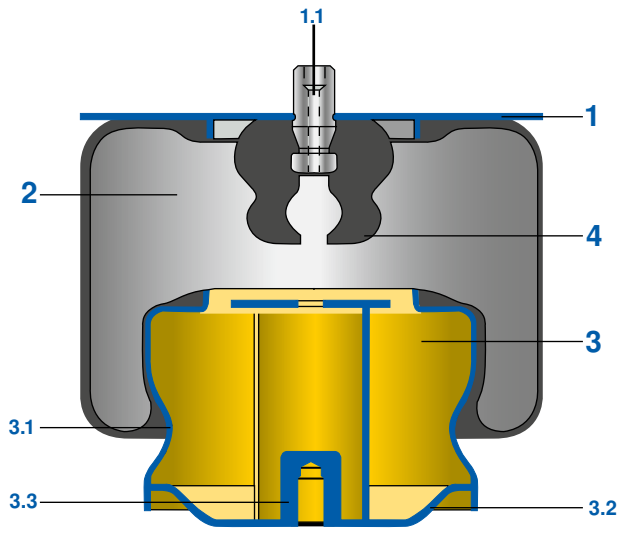
How is an air spring formed?

Characteristics for an air spring



Characteristic line of a leaf spring





The figure shows the individual components of an air spring using the example of air bellows with sealing cones on both sides.

1. Cone plate
1.1 Fixing bolts with air connection

2. Air spring bellows

3. Rolling piston
3.1 Piston skirt
3.2 Base plate
3.3 lower attachment

4. Buffer

Overview of the quality benefits of EUROPART air springs

EUROPART checks and documents

All primary materials such as plastic pistons, metal pistons, rubber buffer stops, metal plates and calendered fabric are subject to a thorough incoming goods inspection. Rubber compounds are delivered with material certificates and are additionally tested by authorised external test laboratories. Plastic parts, such as pistons are also examined externally for elasticity and bursting behaviour. The tensile strength and tearing strength of the rubber is ensured by regular tests. One extremely important criterion of rubber is the density of the material. All delivered rubber materials are tested using a rheometer test according to its formula specifications, and are only approved for production if the material complies with the specifications.

Periodic (continuous) tests

Salt spray test

The coatings of metal parts are tested for corrosion resistance by means of a salt spray test before production starts and the series is released. The original equipment manufacturer specification is 250 hours, and series approval only occurs at a value of 400 hours or more.

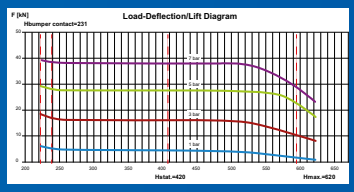
Continuous checks and calibration of tools

All air bellows are fully inspected visually for faults at every workstation.

All metal headplates are fully tested according to the crimping process for concavity and convexity. The air spring must not show any concavity and convexity, as this would mean studs could not be assembled on the chassis.

All crimped air springs are fully checked in the water tank under pressure for imperviousness.

Characteristic curve (space requirement):



All air springs have a specific space requirements on the vehicle (or chassis). So as not to exceed this space requirement, all air springs are subject to a characteristic curve test before series production. The air spring systems are tested here using the original equipment manufacturer specification at minimum, maximum and static height (installation height) at 1, 3, 5 and 7 bar load changes for specification characteristic curves (volume/force). These are recorded on force path diagrams. This test is to check the space requirement under load change (preventing damage to the air spring caused by contact with the chassis).

Service life test (fatigue test):

The air spring is installed at the target vehicle height and filled with 5 bar air pressure. The fatigue test takes place under the natural frequency of 3.3 Hz at cycles of ± 50 mm. A specification of the original equipment is that air springs carry out at least 3,000,000 cycles without damage to the outer structure or the assembly parts. This fatigue test is carried out for comparative purposes (brand manufacturer vs. EUROPART).

Burst test:

Burst tests are carried out on new air spring systems before series production and in air springs in current series to establish their maximum load capacity and to determine whether these meet the legal requirements. These tests are used both in developing a new air spring design as well as to determine the maximum load capacity. This means specifications of new designs can be determined and the operating conditions of existing designs can be tested.

The air spring is filled with water pressure until they finally burst. The values are recorded and documented by a manometer. This test is carried out and registered under the most stringent safety precautions in a closed area. As air pressure can lead to severe injury or death, water pressure is used instead of air pressure.

The original equipment specification for the maximum load is 20 bar.
EUROPART air springs significantly exceed this value (>25 bar).

Brief summary:

- all production processes are fully checked, documented step-by-step and archived.
- continuous documentation and labelling on products ensure every individual component, the batch and the individual employee can be accurately traced at all times.
- we have a quality management system in accordance with the internationally recognised standard ISO/TS 16949:2008 which is checked periodically by independent auditors.
- we have systematic, seamless documentation of all processes and **continuously improve our process capabilities.**

EUROPART
GOOD TO KNOW

Air springs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EURO PART

Air spring

New in the range

Connection VOSS 232

Suitable for	Piston ∅	Installation location	Screw set	Fig.	Order no	Comparative no
Mercedes-Benz Actros I/MP2/MP3	280 mm	front axle	K021	1	**1788 475 921**	Conti 4759 N P21
Mercedes-Benz Actros I/MP2/MP3, Axor I/II/III	220 mm	rear axle	K021	2	**1788 483 822**	Conti 4838 N P22
Mercedes-Benz Actros I/MP2/MP3, Axor I/II/III	230 mm	rear axle	K021	3	**1788 483 823**	Conti 4838 N P23
Mercedes-Benz Actros I/MP2/MP3, Axor I/II/III	265 mm	rear axle	K036	4	**1788 418 324**	Conti 4183 N P26
Mercedes-Benz Actros I/MP2/MP3, Axor I/II	265 mm	rear axle	K036	5	**1788 418 722**	Conti 4187 N P22
Mercedes-Benz Actros I/MP2/MP3, Axor I/II, Atego I, Econic	200 mm	rear axle	K036	6	**1788 439 022**	Conti 4390 N P22
Mercedes-Benz Actros I/MP2/MP3, Axor II/III, Atego I/II/III, Econic	280 mm	front axle	K021	7	**1788 475 721**	Conti 4757 N P21
Mercedes-Benz Actros I/MP2, Atego	265 mm	rear axle	K036	8	**1788 418 622**	Conti 4186 N P22
Mercedes-Benz Actros MP2, Axor II/III	265 mm	rear axle	K021	9	**1788 418 323**	Conti 4183 N P25
Mercedes-Benz Actros	280 mm	leading/trailing axle	K021	10	**1788 475 823**	Conti 4758 N P23
Mercedes-Benz New Atego (2013-), Atego I/II	250 mm	rear axle	K021	11	**1788 418 521**	Conti 4185 N P21
Mercedes-Benz New Atego (2013-), Atego I/II	280 mm	rear axle	K021	12	**1788 475 729**	Conti 4757 N P29
Mercedes-Benz Atego I/II	190 mm	front axle		13	**1788 478 621**	Conti 4786 N P21
Mercedes-Benz Atego, Econic	280 mm	rear axle	K021	14	**1788 473 725**	Conti 4737 N P25

Please observe the tightening torque during assembly.


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Air spring

Connection VOSS 232

Suitable for	Piston ∅	Installation location	Screw set	Fig.	Order no	Comparative no
Mercedes-Benz Actros	280 mm	leading/trailing axle	K021	1	**1780 475 823**	Conti 4758 N P23
Mercedes-Benz Actros I/MP2, Atego	265 mm	rear axle	K036	2	**1780 418 624**	Conti 4186 N P25
Mercedes-Benz Actros I/MP2/MP3	280 mm	front axle	K021	3	**1780 475 921**	Conti 4759 N P21
Mercedes-Benz Actros I/MP2/MP3, Axor I/II, Atego I, Econic	200 mm	rear axle	K036	4	**1780 439 022**	Conti 4390 N P22
Mercedes-Benz Actros I/MP2/MP3, Axor I/II/III	220 mm	rear axle	K021	5	**1780 483 822**	Conti 4838 N P22
Mercedes-Benz Actros I/MP2/MP3, Axor I/II/III	265 mm	rear axle	K021	6	**1780 418 326**	Conti 4183 N P28
Mercedes-Benz Actros I/MP2/MP3, Axor II/III, Atego I/II/III, Econic	280 mm	front axle	K021	7	**1780 475 721**	Conti 4757 N P21
Mercedes-Benz New Atego (2013-), Atego I/II	250 mm	rear axle	K021	8	**1780 418 521**	Conti 4185 N P21
Mercedes-Benz Atego I/II/III	190 mm	front axle	K021	9	**1780 478 621**	Conti 4786 N P21

Please observe the tightening torque during assembly.


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New in the range

Air spring

suitable for New Actros (2012-) (MP4)

Suitable for	Piston ∅	Installation location	Fig.	Order no	Comparative no
Mercedes-Benz New Actros (2012-)	168 mm	rear axle	1	**1788 612 740**	Conti 6127 N P40
Mercedes-Benz New Actros (2012-)	168 mm	rear axle	2	**1788 612 144**	Conti 6121 N P44
Mercedes-Benz New Actros (2012-)	197 mm	rear axle	3	**1788 612 340**	Conti 6123 N P40
Mercedes-Benz New Actros (2012-)	200 mm	rear axle	4	**1788 612 246**	Conti 6122 N P46
Mercedes-Benz New Actros (2012-)	200 mm	rear axle	5	**1788 612 247**	Conti 6122 N P47
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	6	**1788 612 640**	Conti 6126 N P40
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	7	**1788 612 048**	Conti 6120 N P48
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	8	**1788 612 049**	Conti 6120 N P49
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	9	**1788 612 641**	Conti 6126 N P41
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	10	**1788 613 140**	Conti 6131 N P40

Accessories

Description	Order no	Comparative no
Centering cone	**9463 281 311**	Mercedes-Benz 960 328 13 11


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Air spring

suitable for New Actros (2012-) (MP4)

Suitable for	Piston ∅	Installation location	Fig.	Order no	Comparative no
Mercedes-Benz New Actros (2012-)	168 mm	rear axle	1	**1780 612 740**	Conti 6127 N P40
Mercedes-Benz New Actros (2012-)	168 mm	rear axle	2	**1780 612 144**	Conti 6121 N P44
Mercedes-Benz New Actros (2012-)	197 mm	rear axle	3	**1780 612 340**	Conti 6123 N P40
Mercedes-Benz New Actros (2012-)	200 mm	rear axle	4	**1780 612 246**	Conti 6122 N P46
Mercedes-Benz New Actros (2012-)	200 mm	rear axle	5	**1780 612 247**	Conti 6122 N P47
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	6	**1780 612 640**	Conti 6126 N P40
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	7	**1780 612 048**	Conti 6120 N P48
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	8	**1780 612 049**	Conti 6120 N P49
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	9	**1780 612 641**	Conti 6126 N P41
Mercedes-Benz New Actros (2012-)	225 mm	rear axle	10	**1780 613 140**	Conti 6131 N P40

Accessories

Description	Order no	Comparative no
Centering cone	**9463 281 311**	Mercedes-Benz 960 328 13 11


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EUROPART

New in the range

Air spring/Air spring bellow

Suitable for	Description	Version	Screw set	Fig.	Order no	Comparative no
MAN TGX, TGA	Air spring	with steel piston	K033	1	**1788 488 205**	Conti 4882 N1 P05
MAN TGX, TGS, TGA	Air spring bellow	with plate, without piston	K033	2	**1788 470 501**	Conti 4705 N1 P01
MAN TGX (2013-), TGX, TGS, TGA	Air spring bellow	without fastening element	K033	3	**1788 188 800**	Conti 1888 N
MAN TGX (2013-), TGX (2007-), TGS (2013-), TGA, TGM	Air spring bellow	with plate, without piston	K033	4	**1788 488 201**	Conti 4882 N1 P01
MAN TGX (2013-), TGX (2007-), TGS (2013-), TGS, TGA, TGM	Air spring bellow	with plate, without piston	K033	5	**1788 488 401**	Conti 4884 N1 P01
MAN TGS, TGA	Air spring bellow	with plate, without piston	K032	6	**1788 488 301**	Conti 4883 N1 P01
MAN TGA	Air spring	with steel piston	K033	7	**1788 488 406**	Conti 4884 N1 P06
MAN TGL	Air spring	complete	K033	8	**1788 486 202**	Conti 4862 N1 P02
MAN F2000, M2000M/L, L2000	Air spring bellow	without fastening element	K033	9	**1716 162 002**	Conti 882 N1
MAN F2000, M2000, L2000	Air spring bellow	without fastening element		10	**1716 202 002**	Conti 1885 N1

The manufacture of air springs under the microscope: Textile cutting process

- high-grade raw material composition
- continuous incoming goods inspections ensure the highest quality
- exclusive use of raw materials from the same sources such as renowned manufacturers

EUROPART GOOD TO KNOW


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Air spring/Air spring bellow

Suitable for	Description	Version	Screw set	Fig.	Order no	Comparative no
MAN F2000, M2000, L2000	Air spring bellow	without fastening element		1	**1780 188 401**	Conti 1885 N1
MAN F2000, M2000M/L, L2000	Air spring bellow	without fastening element		2	**1780 882 001**	Conti 882 N1
MAN TGM	Air spring	complete	K033		**1780 488 419**	Conti 4884 N1 P09
MAN TGX (2013-), TGX, TGS, TGA	Air spring bellow	without fastening element		3	**1780 188 800**	Conti 1888 N
MAN TGX (2013-), TGA, TGM, TGL	Air spring bellow	with plate, without piston	K033	4	**1780 486 201**	Conti 4862 N1 P01
MAN TGX (2013-), TGS, TGA	Air spring bellow	with plate, without piston	K033		**1780 488 401**	Conti 4884 N1 P01

Life cycle of an air spring explained in diagrams

An air bellow changes its shape when in operation. It moves away from the vulcanisation shape and goes into operating shape. A new part (Fig. 1) therefore often looks different to the bellows being replaced (Figs. 2, 3). The diameter increases in comparison to the new part and approaches the operating diameter. In contrast with the diameter, the height decreases.


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EUROPART®

New in the range

Air spring

Suitable for	Piston ∅	Screw set	Fig.	Order no	Comparative no
Volvo FH III (2012-), FH II (2002-), FM III (2012-), FM II (2005-), FMX II (2013-), FMX I (2010-), FL6	197 mm	K005	1	**1325 262 431**	Conti 6606 N P02
Volvo FH III (2013-), FH II (2002-2013), FH12 (1994-), FH16 II (-2006), FM III (2013-), FM II (2002-2013), FM12, FM10, FM9, FM7 (1999-)	168 mm	K005	2	**1700 036 416**	Conti 6608 N P01
Volvo FH III (2013-), FH16 III (2013-), FM III (2012-), FMX II (2012-), FMX I (2010-)	197 mm		3	**1788 456 002**	Conti 4560 N P02
Volvo FH III (2013-), FH16 III (2013-), FM III (2012-), FMX II (2012-), FMX I (2010-)	197 mm		4	**1788 456 102**	Conti 4561 N P02
Volvo FH III (2013-), FH16 III (2013-), FM III (2012-), FMX II (2012-), FMX I (2010-)	168 mm		5	**1788 457 002**	Conti 4570 N P02
Volvo FH III (2013-), FH16 III (2013-), FM III (2012-), FMX II (2012-), FMX I (2010-)	168 mm		6	**1788 457 102**	Conti 4571 N P02
Volvo FH II (2002-2013), FH16 II (2002-2006), FH12 (1993-), FM II (2002-2013), FM12, FM10, FM9, FM7 (1999-)	197 mm	K005	7	**6170 582 206**	Conti 6605 N P01
Volvo FH II (2002-2013), FH12 (1993-), FM II (2002-2013), FM12, FM10, FM9, FM7 (1999-), FL6 (-2002)	197 mm	K005	8	**1788 660 601**	Conti 6606 N P01
Volvo FH II (2002-2013), FH12 (1993-), FM II (2002-2013), FM12, FM10, FM9, FM7 (1999-), FL6 (-2002)	168 mm	K005	9	**1788 660 701**	Conti 6607 N P01
Volvo FH II (2002-2013), FH16 II (2004-2006), FM II (2002-2013)	225 mm	K006	10	**6170 554 760**	Conti 6612 N P01
Volvo FH II (2002-2013), FH16 II (2004-2005), FM II (2002-2013)	225 mm	K006	11	**6170 554 762**	Conti 6613 N P01
Volvo FH12, FH16 I, FM7 I (-2001), FM12, FL7, FL10, FL12	189 mm	K006	12	**1788 471 300**	Conti 4713 N P02
Volvo FH, FM	225 mm		13	**1788 458 002**	Conti 4580 N P02
Volvo FH, FM	225 mm		14	**1788 458 001**	Conti 4580 N P01
Volvo FH, FM low	168 mm	K005	15	**6170 531 989**	Conti 6600 N P02
Volvo FH, FM XLow	220 mm		16	**1788 661 401**	Conti 6614 N P01
Volvo FE II (2013-), FE I (2010-2012)	228 mm	K018	17	**1788 491 213**	Conti 4912 N P13
Volvo FL I/II	228 mm	K018	18	**1788 491 210**	Conti 4912 N P10
Volvo	187 mm	K018	19	**1714 191 002**	Conti 4915 N P06


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EUROPART®

New in the range

Air spring/Air spring bellow

Suitable for	Description	Piston ∅	Screw set	Fig.	Order no	Comparative no
DAF	Air spring	260 mm		1	**5043 391 113**	Conti 4810 N P05
DAF XF105, XF95, CF85, CF75, CF65, LF55, LF45	Air spring	192 mm	K008	2	**1788 889 002**	Conti 889 M K2
DAF XF105, XF95, CF85, CF75, CF65, LF55, LF45	Air spring	185 mm	K008	3	**1788 088 704**	Conti 887 M K4
DAF XF105, XF95, CF85, CF75, CF65, LF55, LF45	Air spring	230 mm	K008	4	**1780 836 021**	Conti 836 M2 K1
DAF XF105, XF95, CF85, CF75, CF65	Air spring	230 mm	K008	5	**1780 836 001**	Conti 836 M K1
Iveco Stralis II/III (Hi-Way), EuroStar, EuroTech	Air spring bellow			6	**1715 250 190**	Iveco 41006926
Iveco Stralis 400/440 EFP/P4x2	Air spring	195 mm		7	**1789 588 660**	Iveco 41270466
Iveco Stralis 400/440 EFP/P4x2	Air spring	195 mm		8	**1789 588 661**	Iveco 41270465
Iveco Stralis 400/440 EFP/P4x2	Air spring	195 mm		9	**1789 588 662**	Iveco 41270463
Iveco Stralis 400/440 EFP/P4x2	Air spring	195 mm		10	**1789 588 663**	Iveco 41270462
Iveco EuroCargo I/II	Air spring	175 mm		11	**1788 490 464**	Iveco 98490464
Iveco EuroCargo I/II	Air spring bellow			12	**2590 002 127**	Iveco 98411807
Iveco EuroCargo	Air spring	240 mm		13	**1788 587 313**	Firestone W01 M58 7313
Renault Magnum I/II/III, Premium I/II **Volvo** FE II (2013-), FE I (2010-2012)	Air spring	228 mm	K018	14	**1788 491 213**	Conti 4912 N P13
Renault Magnum II, Premium I/II, Midlum I/II (18 t) **Volvo** FL I/II	Air spring	228 mm	K018	15	**1788 491 210**	Conti 4912 N P10
Renault Magnum II, Premium I	Air spring	187 mm	K018	16	**1714 191 002**	Conti 4915 N P06
Renault Magnum I, Premium I	Air spring	228 mm	K018	17	**1788 491 207**	Conti 4912 N P07
Renault Midlum **Volvo** FE II (2013-), FE I (2010-2012)	Air spring	260 mm		18	**1788 492 701**	Conti 4927 N P01
Scania R, G, P, 94, 114, 124, 164, 93, 113, 143	Air spring	238 mm		19	**1788 362 510**	Firestone W01 M58 8124


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EUROPART®

Suitable for	Description	Piston ∅	Screw set	Fig.	Order no	Comparative no
Scania R 730, R 620, R 580, R 560, R 520, R 500, R 490, R 480, R 470, R 460, R 450, R 440, R 420, R 410, R 400, R 380, R 370, R 360, R 340, R 310, R 270, R 230, G 620, G 490, G 480, G 470, G 460, G 450, G 440, G 420, G 410, G 400, G 380, G 370, G 360, G 340, G 320, G 310, G 280, G 270, G 250, G 230, P 480, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230	Air spring	228 mm	K004	20	**1788 670 002**	Conti 6700 N P02
Scania R 730, R 620, R 580, R 560, R 520, R 500, R 490, R 480, R 470, R 460, R 450, R 440, R 420, R 410, R 400, R 380, R 370, R 360, R 340, G 490, G 480, G 470, G 460, G 450, G 440, G 420, G 410, G 400, G 380, G 370, G 360, G 340, G 320, G 310, G 280, G 270, G 230, P 480, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, 164, 144, 124, 114, 94, 143, 113, 93	Air spring	260 mm		21	**1788 788 006**	Phoenix 1 DK 23 L-31
Scania R 730, R 620, R 580, R 560, R 520, R 500, R 490, R 480, R 470, R 450, R 440, R 420, R 410, R 400, R 380, R 370, R 360, R 340, R 310, R 270, R 230, G 490, G 480, G 450, G 440, G 420, G 410, G 400, G 380, G 370, G 360, G 340, G 320, G 310, G 280, G 270, G 250, G 230, P 500, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, T 580, T 500, T 470, T 420, T 380, 164, 144, 124, 114, 94	Air spring	249 mm	K031	22	**8000 012 731**	Phoenix 1 DF 23 D-1
Scania R 730, R 620, R 580, R 560, R 500, R 480, R 470, R 440, R 420, R 400, R 380, R 360, R 340, R 320, R 310, R 270, R 230, G 480, G 470, G 440, G 420, G 400, G 380, G 360, G 340, G 320, G 310, G 280, G 270, G 230, P 500, P 420, P 400, P 380, P 360, P 340, P 320, P 310, P 280, P 270, P 230, T 580, T 500, T 470, T 420, T 380, T 340, 164, 144, 124, 114, 94	Air spring	228 mm	K004	23	**1788 491 302**	Conti 4913 N P02
Scania R 730, R 620, R 580, R 560, R 500, R 480, R 470, R 440, R 420, R 400, R 380, R 360, R 340, R 310, R 270, R 230, G 480, G 440, G 420, G 400, G 380, G 360, G 340, G 320, G 310, G 280, G 270, G 230, P 230, P 250, P 270, P 280, P 420, P 400, P 380, P 360, P 340, P 320, P 310, T 580, T 500, T 470, T 420, 164, 144, 124, 114, 94	Air spring	249 mm	K031	24	**8000 012 741**	Phoenix 1 DF 23 C-1


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Air spring

Suitable for	Piston ∅	Screw set	Fig.	Order no	Comparative no
Volvo FH medium, FM medium	225 mm		1	**1780 661 701**	Conti 6617 N P01
Volvo FH, FM	197 mm			**1780 456 002**	Conti 4560 N P02
Volvo FH, FM	197 mm		2	**1780 456 102**	Conti 4561 N P02
Volvo FH, FM	197 mm		3	**1780 456 203**	Conti 4562 N P03
Volvo FH, FM	168 mm		4	**1780 457 002**	Conti 4570 N P02
Volvo FH, FM	168 mm		5	**1780 457 102**	Conti 4571 N P02
Volvo FH, FM	225 mm			**1780 458 001**	Conti 4580 N P01
Volvo FH, FM	225 mm			**1780 458 002**	Conti 4580 N P02
Volvo FH, FM	225 mm			**1780 458 201**	Conti 4582 N P01
Volvo FE II (2013-), FE I (2010-2012)	260 mm		6	**1780 492 701**	Conti 4927 N P01
Volvo FE II (2013-), FM, FE I (2010-2012), FL (2010-2012)	228 mm	K018	7	**1710 491 213**	Conti 4912 N P13


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Air spring

Suitable for	Piston ∅	Screw set	Fig.	Order no	Comparative no
DAF LF Euro 6 (2013-), LF45 II (2006-)	240 mm	K004	1	**1722 012 301**	Phoenix 1 D 23 G-1
DAF XF Euro 6 (2012-), XF105	242 mm			**1780 079 202**	Conti 792 N P02
Renault Midlum **Volvo** FE II (2013-), FE I (2010-2012)	260 mm		2	**1780 492 701**	Conti 4927 N P01
Renault Magnum II/III, Premium I/II **Volvo** FE II (2013-), FM, FE I (2010-2012), FL (2010-2012)	228 mm	K018	3	**1710 491 213**	Conti 4912 N P13
Scania R 730, R 620, R 580, R 560, R 520, R 500, R 490, R 480, R 470, R 460, R 450, R 440, R 420, R 410, R 400, R 380, R 370, R 360, R 340, R 310, R 270, R 230, G 620, G 490, G 480, G 470, G 460, G 450, G 440, G 420, G 410, G 400, G 380, G 370, G 360, G 340, G 320, G 310, G 280, G 270, G 250, G 230, P 480, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230	228 mm	K004	4	**1780 670 002**	Conti 6700 N P02
Scania R, new R (2016-)	228 mm	K004		**1780 670 001**	Conti 6700 N P01
Scania R, P, T	226 mm	K031	5	**1325 025 850**	Phoenix 1 DF 23 B-3
Scania R, G, P, series 4	228 mm	K004	6	**1780 491 301**	Conti 4913 N P02

This figure corresponds to 1788 788 003

Air spring

Suitable for	Piston ∅	Order no	Comparative no
Scania R	238 mm	**1788 788 003**	Firestone W01 M58 8124
Scania series 3		**8000 000 908**	Firestone W01 M58 6891

The manufacture of air springs under the microscope: Winding process

Coiling process/manufacturing (manual)

- Air spring bellows can be coiled both manually and automatically
- Trapped air between the individual layers must be avoided

Coiling process/manufacturing (automatic)

EUROPART GOOD TO KNOW

New in the range

Air spring/Air spring bellow

matching bolt kit K029 1723 052 754

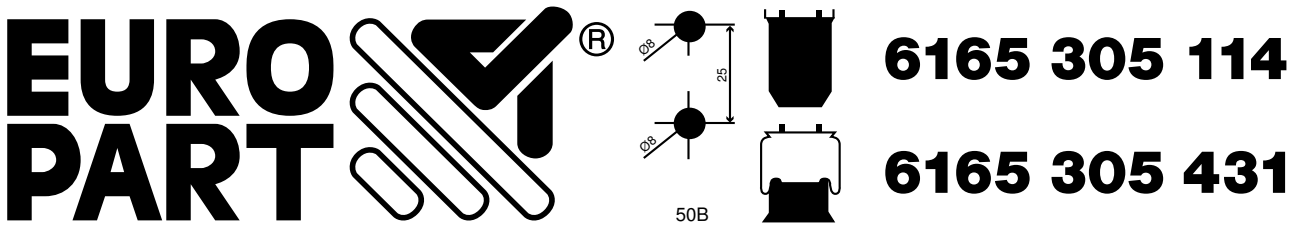
Suitable for	Description	Version	Fig.	Order no	Comparative no
BPW 30	Air spring	with plastic piston	1	**6165 305 431**	BPW 05.429.43.20.0
BPW 30 K	Air spring	with plastic piston	2	**6165 305 432**	BPW 05.429.43.21.0
BPW 30 K	Air spring	with plastic piston	3	**6165 305 434**	BPW 05.429.43.23.0
BPW 30 K	Air spring	with plastic piston	4	**6165 305 435**	BPW 05.429.43.24.0
BPW 30 K	Air spring bellow	with plastic piston	5	**6165 305 438**	BPW 05.429.43.27.0
BPW 36	Air spring	with plastic piston	6	**6165 305 462**	BPW 05.429.43.51.0
BPW 36-1	Air spring	with steel piston	7	**6165 305 270**	BPW 05.429.41.69.0
BPW 36 K	Air spring	with plastic piston	8	**6165 305 452**	BPW 05.429.43.41.0

Air spring

matching bolt kit K029 1723 052 754

Suitable for	Version	Order no	Comparative no
BPW	with plastic piston	**1722 074 299**	Phoenix 1 DK 21 K-4 BPW 05.429.43.86.0
BPW	with plastic piston	**1722 074 298**	Phoenix 1 DK 21-4 BPW 05.429.43.85.0

Identification



In future on selected air springs and air bellows suitable for BPW you will find both item numbers, those of the complete air spring and of the air bellows. In the example shown, item number 6165 305 114 is for the air bellows without piston and 6165 305 431 for the complete air bellows with piston.
All types are also obtainable without piston.

EUROPART GOOD TO KNOW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Air spring

matching bolt kit K029 1723 052 754

Suitable for	Version	Fig.	Order no	Comparative no
BPW 30	with plastic piston	1	**6054 294 324**	BPW 05.429.43.24.0
BPW 30	with plastic piston	2	**6054 294 329**	BPW 05.429.43.29.0
BPW 30 GFK	with central screw mounting		**6054 294 385**	BPW 05.429.43.85.0
BPW 30 K	with plastic piston	3	**6054 294 219**	BPW 05.429.43.21.0
BPW 30 K	with plastic piston	4	**6054 294 323**	BPW 05.429.43.23.0
BPW 30 K	with plastic piston	5	**6054 294 327**	BPW 05.429.43.27.0
BPW 30 K	with steel piston	6	**6054 294 205**	BPW 05.429.42.05.1
BPW 30 K	with central screw mounting		**6054 294 386**	BPW 05.429.43.86.0
BPW 30	with plastic piston	7	**6054 294 218**	BPW 05.429.43.20.0
BPW 36	with plastic piston	8	**6054 294 351**	BPW 05.429.43.51.0
BPW 36 K	with plastic piston	9	**6054 294 341**	BPW 05.429.43.41.0
BPW 36-1	with steel piston	10	**6054 294 058**	BPW 05.429.41.69.0
BPW 36-2	with steel piston	11	**6054 294 185**	BPW 05.429.41.85.0
BPW 36-2	with steel piston	12	**6054 294 186**	BPW 05.429.41.86.0

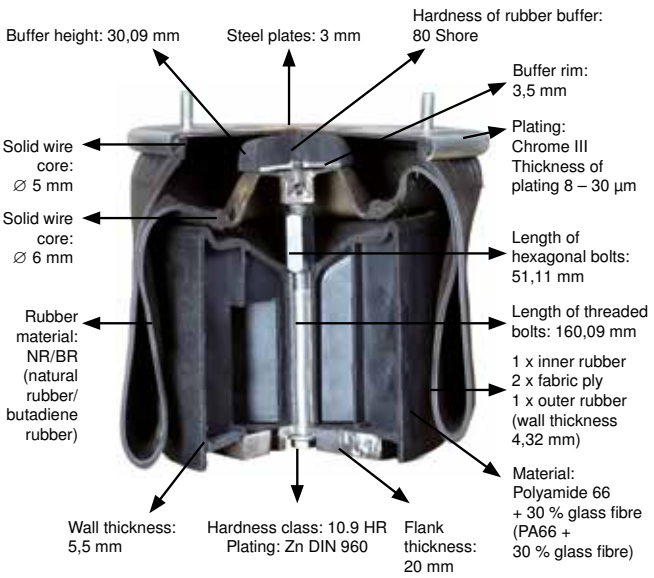
Comparing air springs

The air springs are installed at the target vehicle height and filled with 5 bar air pressure. The fatigue test takes place under the natural frequency of 3.3 Hz at cycles of ± 50 mm. A specification of the original equipment is that air springs carry out at least 3,000,000 cycles without damage to the outer structure or the assembly parts. This fatigue test is carried out for comparative purposes (EUROPART original equipment).

EUROPART air spring

Weight: 13.6 kg

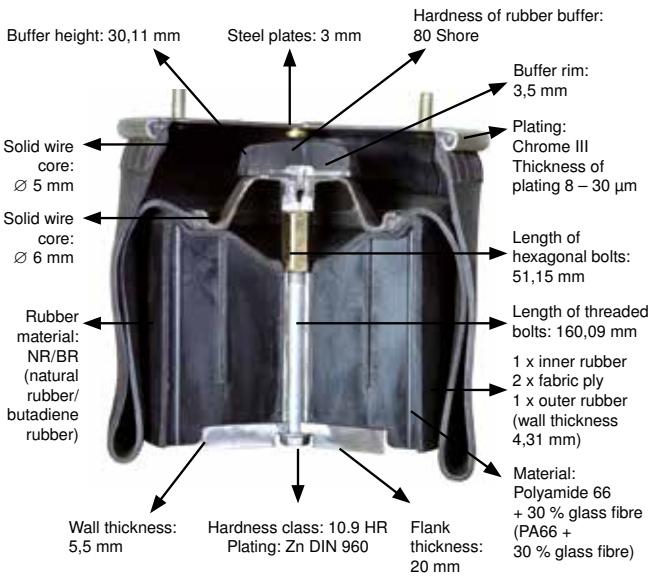
The EUROPART air spring was assembled together with an air spring from a well-known brand manufacturer. Both air springs were tested at a natural frequency of 3.3 Hz with cycles of ± 50 mm at 5 bar internal pressure on the rocker. Both air springs outperformed the specification of the original equipment. Both air springs were disassembled after 4,250,000 cycles



Air spring from a well-known manufacturer

Weight: 13.6 kg

Neither air springs malfunctioned in the test and did not lose any compressed air. Assembly parts, such as headplates and pistons, did not exhibit any damage. Small blisters formed only on the lower shoulder area as a result of the piston being rubbed. Both air springs had the same appearance following the fatigue test and the same properties during use.

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New in the range


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Air spring/Air spring bellow

matching bolt kit K013 1722 052 738

Suitable for	Description	Version	Screw set	Fig.	Order no	Comparative no
SAF 1608	Air spring	double bellows	K023	1	**5053 302 115**	SAF 4.229.1004.00
SAF 1608	Air spring	double bellows	K023	2	**5053 302 116**	SAF 4.229.1005.01
SAF 2618	Air spring	with plastic piston	K014	3	**5043 303 718**	SAF 3.229.0007.02
SAF 2618 V	Air spring	with plastic piston	K014	4	**5043 303 230**	SAF 3.229.0029.00
SAF 2619 V	Air spring	with plastic piston	K013	5	**5043 301 144**	SAF 3.229.0033.00
SAF 2621 V	Air spring	with plastic piston	K013	6	**5043 301 149**	SAF 3.229.0038.00
SAF 2626 V	Air spring	with plastic piston	K013	7	**5043 301 140**	SAF 3.229.0039.00
SAF 2918 V	Air spring	with steel piston	K001	8	**5043 301 138**	SAF 3.229.0027.00
SAF 2919 V	Air spring	with plastic piston	K014	9	**5043 301 153**	SAF 3.229.0042.00
SAF 2923 E2	Air spring	with steel piston	K002	10	**5043 391 114**	SAF 2.229.0003.00
SAF 2923 VK	Air spring	with plastic piston	K014	11	**5043 301 139**	SAF 3.229.0028.00
SAF 2923 VK	Air spring	with steel piston	K001	12	**5043 301 142**	SAF 3.229.0031.00
SAF 2924 V	Air spring	with plastic piston	K014	13	**5043 301 152**	SAF 3.229.0041.00
SAF 2926 V	Air spring	with steal piston	K001	14	**5043 301 141**	SAF 3.229.0030.00
SAF	Air spring bellow	without piston		15	**1788 313 801**	SAF 3.228.0019.00
SAF	Air spring	with steel piston		16	**5043 301 147**	SAF 3.229.0036.00
SAF	Air spring	with plastic piston		17	**5043 301 158**	SAF 3.229.0047.00


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Air spring

Suitable for	Version	Screw set	Fig.	Order no	Comparative no
SAF 2618 V	with plastic piston	K014	1	**5032 290 029**	SAF 3.229.0029.00
SAF 2918 V	with plastic piston	K001	2	**5032 290 027**	SAF 3.229.0027.00
SAF 2619 V	with plastic piston	K013	3	**5032 290 033**	SAF 3.229.0033.00
SAF 2919 V	with plastic piston	K014	4	**5032 290 042**	SAF 3.229.0042.00
SAF 2923 VK	with steel piston	K001	5	**5032 290 031**	SAF 3.229.0031.00
SAF 2923 VK	with plastic piston	K014	6	**5032 290 028**	SAF 3.229.0028.00
SAF 2924 V	with plastic piston	K014	7	**5032 290 041**	SAF 3.229.0041.00
SAF 2621 V	with plastic piston	K013	8	**5032 290 038**	SAF 3.229.0038.00
SAF 2626 V	with plastic piston	K013	9	**5032 290 039**	SAF 3.229.0039.00
SAF 2926 V	with steel piston	K001	10	**5032 290 030**	SAF 3.229.0030.00
SAF 3138	with plastic piston, left		11	**5032 280 023**	SAF 3.228.0049.00
SAF 3138	with plastic piston, right		12	**5032 280 022**	SAF 3.228.0048.00

New in the range


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Air spring

Suitable for	Version	Piston ∅	Screw set	Fig.	Order no	Comparative no
Mercedes-Benz DCA, DLS TE5/8 **Meritor** (ROR)	with steel piston	260 mm	K001	1	**1723 012 813**	Mercedes-Benz 946 328 19 01 Weweler US 07337RP
Mercedes-Benz DCA, DLS, TE5/8 **Schmitz** **Weweler**	with steel piston	260 mm	K011	2	**1788 283 001**	Mercedes-Benz 946 328 15 01 Schmitz 017924 Schmitz S015323
Meritor (ROR)	with plastic piston	200 mm	K025	3	**7600 001 080**	Meritor 21222442 Weweler US 07074 F
Meritor (ROR) **SAF** **Schmitz** **Weweler**	Double convolution bellows with crimped plate		K023	4	**1788 586 910**	Meritor 21221395 Meritor 21222663 Schmitz 016793
Schmitz	with steel piston	247 mm		5	**7771 410 189**	Schmitz FAG041-0189
Schmitz **Weweler**	with steel piston	260 mm	K028	6	**1788 402 800**	Schmitz 015323
Schmitz **Weweler**	with plastic piston	200 mm	Schmitz 016512	7	**7770 165 120**	Schmitz 016512
Schmitz **Weweler**	with steel piston	260 mm	K028	8	**1722 012 805**	Schmitz 017685
Schmitz **Weweler**	with plastic piston	262 mm	K009	9	**1788 750 999**	Schmitz 750999
Schmitz **Weweler**	with plastic piston	262 mm	K009	10	**7777 510 650**	Schmitz 751065


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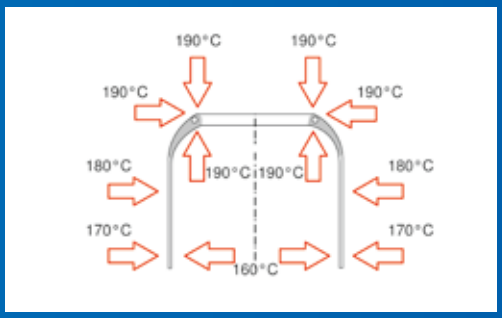
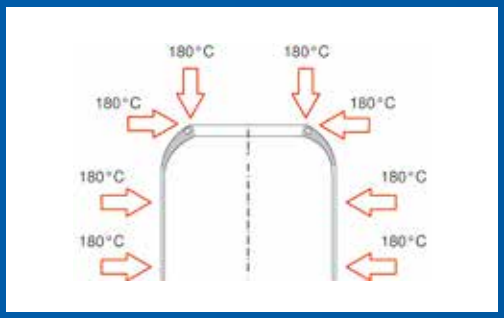
Air spring/Air spring bellow

Suitable for	Description	Version	Brand	Piston ∅	Screw set	Fig.	Order no	Comparative no
Meritor (ROR) Schmitz	Air spring bellow	Double bellows	Phoenix		K023	1	**7770 167 930**	Meritor 21221395 Meritor 21222663 Schmitz 016793
Meritor (ROR) Weweler	Air spring	with plastic piston	Firestone	200 mm	K025	2	**8000 005 099**	Meritor 21222442 Weweler US 07074 F
Schmitz	Air spring	with plastic piston	Firestone	262 mm	K009	3	**1788 586 185**	Schmitz 750999
Schmitz	Air spring	with steel piston	Phoenix	260 mm	K011	4	**1714 283 001**	Schmitz 015323
Schmitz	Air spring	with plastic piston	Schmitz	200 mm	Schmitz 016512	5	**7770 016 512**	Schmitz 016512

The manufacture of air springs under the microscope: Vulcanisation



Multipoint heating process
Different temperatures act on the air springs



Electronic process
Uniform temperature

All EUROPART air springs are produced according to the multipoint heating process. This is a gas process where different parts of the air springs may be heated to varying high temperatures over a period of 9 to 11 minutes. As a result, some areas are heated to higher temperatures than others, for example areas where rubber is in contact with metal. The process therefore has considerable advantages over the electric procedure, which lasts 30 minutes and during which a single temperature is used. If the air springs are heated too much, the rubber burns; too low a temperature can result in unheated patches and therefore premature failure of the air springs.

EUROPART GOOD TO KNOW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New in the range


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Air spring/Air spring bellow

Suitable for	Description	Version	Piston ∅	Screw set	Fig.	Order no	Comparative no
Gigant	Air spring	with steel piston	256 mm		1	**5210 166 252**	Gigant 700166252
Gigant	Air spring	with steel piston	202 mm		2	**5210 166 271**	Gigant 700166271
Gigant	Air spring	with steel piston	206 mm		3	**5210 166 225**	Gigant 700246169
Gigant	Air spring bellow	with plate, without piston			4	**1788 400 701**	Gigant 700247104
Fruehauf	Air spring	with plastic piston and cover	260 mm	K016	5	**9180 003 688**	Fruehauf M001774 Fruehauf UJB 0358001
Fruehauf	Air spring	triple bellows			6	**1700 026 660**	Conti FT 412-32 S Dunlop SP 2666 (12 x 3)
Fruehauf **Meritor (ROR)** FL11000	Air spring	with aluminium piston	258 mm	K030	7	**1700 012 015**	Fruehauf U-JB 0203001 Meritor 21215891 Meritor 21226039
Fruehauf **SMB** **Trailor**	Air spring	double bellows			8	**7565 052 720**	Fruehauf M078246
Fruehauf **SMB**	Air spring	with plastic piston	203 mm	K010	9	**9180 060 924**	Fruehauf UJB 0975 SMB M060924
Jost/Mercedes-Benz	Air spring	with plastic piston	200 mm		10	**1788 416 201**	Jost JAS 30 105 025 01 Jost JAE 30 105 025 01 Mercedes-Benz 946 328 25 01
Mercedes-Benz HT250	Air spring	with steel piston	260 mm	K027	11	**9463 280 401**	Mercedes-Benz 946 328 04 01
Meritor (ROR) **Mercedes-Benz** DCA, DLS	Air spring	with plastic piston	200 mm	K011	12	**1788 415 704**	Mercedes-Benz 946 328 14 01 Mercedes-Benz 946 328 19 01 Meritor 21221307
Meritor (ROR)	Air spring	with plastic piston	204 mm		13	**1789 588 587**	Meritor 21230298
Meritor (ROR)	Air spring	with plastic piston	205 mm		14	**1788 038 608**	Firestone W01 M58 8608

The manufacture of air springs under the microscope: Crimping process

Crimped plate (headplate) is tensioned in the crimping machine (magnetic uptake).

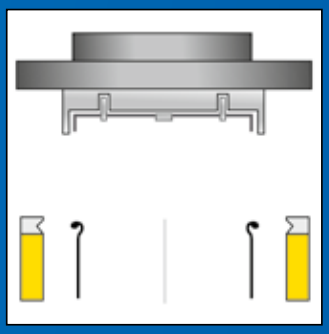
The air spring is put into the press.

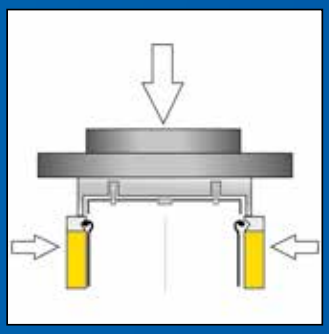
The retainer jaws close and the tool prepares the upper cone-shaped beaded rim:

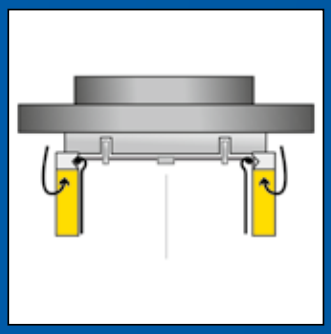
The plate frame is lowered and crimps the air spring:

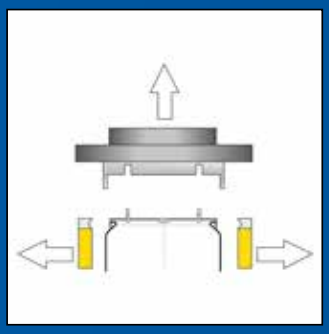
The press is then opened. The crimped air spring can now be removed.

The illustrations below summarise the crimping process:









EUROPART
GOOD TO KNOW

Check for concavity/convexity after crimping process

EUROPART GOOD TO KNOW

Air spring

Suitable for	Version	Piston ∅	Order no	Comparative no
Mercedes-Benz	with plastic piston	200 mm	**1780 416 201**	Conti 4162 N P01
Gigant **Krone**	with plastic piston	254 mm	**1722 012 005**	Phoenix 1 DK 20 C-5

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Air spring

Suitable for	Version	Piston ∅	Screw set	Fig.	Order no	Comparative no
Gigant	with plastic piston	200 mm		1	**5201 662 920**	Gigant 700166362
Mercedes-Benz TAS **Weweler**	with steel piston	260 mm	K001	2	**1722 012 813**	Phoenix 1 D 28 A-13
Mercedes-Benz TAS **Weweler**	with steel piston	200 mm	K011	3	**1780 415 704**	Conti 4157 N P14
Meritor (ROR)	with plastic piston	204 mm		4	**1788 588 587**	Phoenix 1 DK 22 E-17
Weweler	with plastic piston	203 mm	Schmitz 016512	5	**1788 586 318**	Firestone W01 M58 6318

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VALX
GOING THE EXTRA MILE

Air spring

Version	Piston ∅	Height, max.	Fig.	Order no	Comparative no
Without buffer stop	300 mm	450 mm	1	**8080 130 001**	Valx 80 130 001
With buffer stop	300 mm	450 mm	2	**8080 130 002**	Valx 80 130 002
Without buffer stop	335 mm	500 mm		**8080 131 001**	Valx 80 131 001

The air springs and air bellows shown here represent only part of our comprehensive range. You can find other items for your vehicle in EWOS under www.europart.net or in your EUROPART branch.


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New in the range


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Air spring/Air spring bellow

Suitable for	Description	Fig.	Order no	Comparative no
Fast Syter **MAN** Lion's City (A20/A21/A23/A26/A37/A39/A47/A78), Lion's Classic Ü (A72), Lion's Coach (R07/R08/R09), Lion's Regio (R12/R13), Lion's Star (R02/R03), EL (A12), NG (A11/A23), NL (A10/A15/A21), NÜ (A20) **Neoplan** Centroliner (N 45XX), Cityliner (N 12XX), Skyliner (2011-), Starliner (N 52XX), Tourliner (N 2216), Trendliner (N 3516) | **Temsa** Safari HD	Air spring bellow	1	**1716 215 002**	Conti 916 N1
Irisbus Arès, Arway, Axer, Evadys, Récréo **Setra** S 309/312/315 HD, S 315 HDH/2, S 315/317 HDH/3, S 328 DT, S 315 GT, S 315/317/319 GT-HD, S 315/319 NF, S 313/315/319 UL, S 315/319 UL-GT, SG 321 UL, S 431 DT **Van Hool** A300/308L/320/330, T815/816 Alicron, Acron, Altano, T915/917 Astron, T916 Acron, T924/925/927 Astromega | **Volvo** B7R, B9R, B10M	Air spring bellow	2	**1715 661 003**	Conti 661 N
Irisbus Eurorider **MAN** EL (A12), NG (A11), NL (A10/A15)	Air spring bellow	3	**1716 203 002**	Conti 884 N
Irisbus	Air spring bellow	4	**1789 786 003**	Conti 944 N
Mercedes-Benz Citaro I/II/C2 (O 530), Intouro II, Tourismo II, Travego II **Setra** S 415 HD, S 417 HDH, S 416/417 GT-HD, S 415 NF, S 415/419 UL, S 519 HD, S 516 HDH, S 515 MD	Air spring bellow	5	**1788 946 000**	Conti 946 N
Mercedes-Benz Citaro I (O 530), Conecto I (O 345), Integro II (O 550), O 404, O 405 N, O 407, O 408, Tourismo I/II (O 350), Travego I (O 580) **Setra** S 309/312/315 HD, S 315 HDH/2, S 315/317 HDH/3, S 328 DT, S 315 GT, S 315/317/319 GT-HD, S 315/319 NF, S 313/315/319 UL, S 315/319 UL-GT, SG 321 UL, S 411/415 HD, S 415/416/417 HDH, S 431 DT, S 415/416/417 GT-HD, S 415/417/419 UL **Van Hool** A300/508, CL, TL, T8 Alizee, T815/816 Altano, T916 Acron, T917 Astron, T924/925/927 Astromega **Volvo** B10B, B10M, B12	Air spring bellow	6	**1715 285 003**	Conti 644 N
Neoplan Skyliner (N 1122) | **Setra** series 300 **Van Hool** A320 | **VDL**	Air spring bellow	7	**1715 662 003**	Conti 662 N
Volvo B7R LE, B12B, B12R	Air spring	8	**1788 135 832**	Conti 6604 N P01
Volvo B58	Air spring bellow	9	**1788 802 003**	Conti 720 N
Volvo	Air spring bellow	10	**1788 142 103**	Conti 1421 N

We offer selected bellows such as 1715 661 003, 1715 285 003, 1715 662 003 and 1788 802 003, in a pre-folded variant optimised for installation. In this way, assembly is made easier.

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Air spring/Air spring bellow

Suitable for	Description	Fig.	Order no	Comparative no
Fast Syter **MAN** Lion's City (A20/A21/A23/A37/A47/A78), Lion's Classic Ü (A72), Lion's Coach (R07/R08/R09), Lion's Regio (R12/R13), Lion's Star, NG (A23), NL (A10/A21), NÜ (A20) **Neoplan** Centroliner (N 45XX), Cityliner (N 12XX), Skyliner (2011-), Starliner (N 52XX), Tourliner (N 2216), Trendliner (N 3516) **Temsa** Safari HD	Air spring bellow	1	**1780 916 001**	Conti 916 N1
Heuliez GX 107, 187 **Mercedes-Benz** Travego I/II (O 580) **Setra** S 417 HDH	Air spring bellow	2	**1780 921 001**	Conti 921 N
Irisbus Arès, Arway, Axer, Evadys, Récréo **Setra** S 431 DT **Van Hool** A300/308/320/330, T815/816 Alicron, Altano, T915/917 Astron, T916 Acron, T924/925/927 Astromega	Air spring bellow	3	**1780 661 001**	Conti 661 N
Irisbus Arès, Axer, Citelis, Iliade, Récréo	Air spring	4	**1780 462 942**	Conti 661 N P03
Mercedes-Benz Citaro I/II/C2 (O 530), Intouro II, Tourismo II, Travego II **Setra** S 415 HD, S 417 HDH, S 431 DT, S 416/417 GT-HD, S 415 NF, S 415/419 UL, S 519 HD, S 516 HDH, S 515 MD	Air spring bellow	5	**1780 946 000**	Conti 946 N
Mercedes-Benz Citaro I (O 530), Conecto I (O 345), Integro II (O 550), O 405 N, O 407, O 408, Tourismo I/II (O 350), Travego I/II (O 580) **Setra** S 315 UL, S 411/415 HD, S 416/417 HDH, S 431 DT, S 415/416/417 GT-HD, S 415/417/419 UL **Van Hool** A300/508, CL, TL, T8 Alizee, T815/816 Altano, T916 Acron, T917 Astron, T924/925/927 Astromega **Volvo** B10B, B10M, B12	Air spring bellow	6	**1780 644 001**	Conti 644 N
Neoplan Skyliner (N 1122) **Van Hool** A320	Air spring bellow	7	**1780 662 001**	Conti 662 N
Optare | **Temsa**	Air spring bellow	8	**1780 819 001**	Conti 819 N
VDL Bova Magiq	Air spring bellow	9	**1722 012 600**	Phoenix 1 E 26 A
VDL	Air spring		**1780 929 001**	Conti 929 N P01

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Air spring

Suitable for	Piston ∅	Fig.	Order no	Comparative no
Mercedes-Benz Citaro I (O 530)	205 mm	1	**1780 064 421**	Conti 644 N P21
Solaris Urbino III, Vacanza	225 mm	2	**1722 012 520**	Phoenix 1 DF 25 A-20
Solaris Urbino III, Vacanza	225 mm	3	**7750 101 060**	Phoenix 1 DF 25A-1
Solaris Urbino III (U18)	225 mm	4	**7750 101 052**	Phoenix 1 DF 25A-11

The manufacture of air springs under the microscope: Piston assembly

Piston assembly machine - air springs without base plate

Piston assembly machine - air springs with vulcanised base plate or clamping plate

EUROPART GOOD TO KNOW

Rolling piston

Rolling piston
for air bellows Conti 882 N/883 N

Suitable for MAN

Order no	Comparative no
5236 030 041	MAN 81.43603-0041

Rolling piston
for air bellows Conti 644 N

Suitable for DAF, Mercedes-Benz, Neoplan, Setra, Van Hool, Volvo

Order no	Comparative no
1788 000 021	Mercedes-Benz 357 320 15 34, Neoplan 100110300, Setra 4.771.110.000, Van Hool 624319-610, Volvo 1134445

Rolling piston
for air bellows Conti 661 N/644 N

Suitable for Mercedes-Benz, Setra, Volvo
Installation location front

lower attachment: M14 x 1,5

Order no	Comparative no
1788 000 008	Mercedes-Benz 410 327 00 01, Setra 107-23.10.101.04D, Volvo 1137888

Rolling piston
for air bellows Conti 644 N

Suitable for Mercedes-Benz, Setra
Installation location rear

lower attachment: M14 x 1,5

Order no	Comparative no
1788 000 007	Mercedes-Benz 629 320 00 18, Setra 103-23.10.103.03D

Attachment plate
for air bellows Conti 644 N

Suitable for Setra
Installation location rear axle
Version top

Order no	Comparative no
1788 000 002	Setra 107-23.36.102.11C

Rubber bumps
for rolling pistons

Suitable for MAN

Order no	Comparative no
1788 000 034	MAN 81.96020-0186

Rolling piston
for air bellows Conti 916N1

Suitable for MAN
Material aluminium

lower attachment: M18 x 2

Order no	Comparative no
1788 000 023	MAN 81.43603-0055

Rolling piston
for air bellows Conti 916 N1

Suitable for MAN

lower attachment: M18 x 2

Installation location	Order no	Comparative no
front axle	**1788 000 039**	MAN 36.43603-0008
rear axle	**1788 000 038**	MAN 36.43603-0009

The manufacture of air springs under the microscope: Cabin bellows assembly process

Ring clamping machine

Carding machine

Total leakage monitoring in the water tank under 1.0–1.5 bar air pressure

All air bellows are fully inspected visually for faults at every workstation.

All crimped air springs are fully checked in the water tank under pressure for imperviousness.

Cab damper

Cab damper

Suitable for	Version	Fastening	Fig.	Order no	Comparative no
DAF	Oil pressure, twin-tube system	Eye/pin	1	**9200 312 780**	DAF 1319672
DAF XF105, XF95, CF65/75/85, 75/85CF	Oil pressure, twin-tube system	eye/pin	2	**6011 622 211**	DAF 1371065
Iveco Stralis I/II/III (Hi-Way)	Gas pressure, twin-tube	eye/eye	3	**1788 128 012**	Iveco 500357351
Iveco Stralis I/II/III (Hi-Way)	Gas pressure, twin-tube system	Eye/eye	4	**1788 128 016**	Iveco 500357352
Iveco EuroTech	Oil pressure, twin-tube system	eye/eye	5	**9200 105 424**	Iveco 500348789
MAN TGX (2013-), TGX (2007-), TGS, TGA	gas pressure, twin-tube system	eye/eye	6	**5234 172 260**	MAN 81.41722-6075
MAN TGA, F2000	gas pressure, twin-tube system	eye/eye	7	**9200 001 256**	MAN 81.41722-6052
MAN F2000	gas pressure, twin-tube system	eye/pin	8	**9200 001 255**	MAN 81.41722-6051 MAN 81.41722-6048
MAN F2000	gas pressure, twin-tube system	eye/eye	9	**9200 001 035**	MAN 81.41722-6010 MAN 81.41722-6013
MAN F2000, F90	Gas pressure, twin-tube	eye/pin	10	**9200 001 085**	MAN 81.41722-6012 MAN 81.41722-6033

Suitable for	Version	Fastening	Fig.	Order no	Comparative no
Mercedes-Benz Actros I/MP2/MP3 **Scania** R 620, R 580, R 560, R 500, R 480, R 470, R 440, R 420, R 400, R 380, R 360, R 340, R 310, R 270, R 230, G 420, G 380, G 340, G 310, G 270, G 230, G 470, G 480, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, 164, 144, 124, 114, 94	gas pressure, twin-tube system	eye/eye	11	**9200 001 277**	Mercedes-Benz 942 890 59 19
Mercedes-Benz Actros I/MP2/MP3	Gas pressure, twin-tube system	Eye/eye	12	**9203 139 480**	Mercedes-Benz 943 890 03 19
Mercedes-Benz Actros I/MP2/MP3	Gas pressure, twin-tube system	eye/eye	13	**9200 001 270**	Mercedes-Benz 942 890 60 19
Mercedes-Benz Actros MP2/MP3, Axor I/II	Oil pressure, twin-tube	Eye/eye	14	**9200 001 278**	Mercedes-Benz 942 890 61 19
Mercedes-Benz Actros MP2/MP3	Oil pressure, twin-tube system	Eye/eye	15	**9200 313 952**	Mercedes-Benz 943 890 29 19
Renault Premium I/II, Kerax I			16	**1780 509 003**	Renault 5010130797
Renault Premium I/II, Kerax	Gas pressure, twin-tube system	Eye/eye	17	**9201 310 410**	Renault 5010228908A Renault 5010228908B Renault 5010228908C
Renault Premium I/II	Oil pressure, twin-tube system	fork/eye	18	**1788 228 879**	Renault 5010615879
Renault Magnum	with steel piston		19	**1780 816 003**	Renault 5010320096
Scania R, G, P, 164, 144, 124, 114, 94	without fastening element		20	**6170 122 722**	Scania 1444016
Scania R 620, R 580, R 560, R 500, R 480, R 470, R 440, R 420, R 400, R 380, R 360, R 340, R 310, R 270, R 230, G 620, G 480, G 470, G 440, G 420, G 380, G 340, G 310, G 270, G 230, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, 164, 144, 124, 114, 94	gas pressure, twin-tube system	pin/pin		**9200 290 988**	Scania 1424228
Scania R 620, R 580, R 560, R 500, R 480, R 470, R 440, R 420, R 400, R 380, R 360, R 340, R 310, R 270, R 230, G 620, G 480, G 470, G 440, G 420, G 380, G 340, G 310, G 270, G 230, P 480, P 470, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, T 580, T 500, T 470, T 420, T 380, T 340, 164, 144, 124, 114, 94	gas pressure, twin-tube system	pin/pin	21	**9200 290 987**	Scania 1424227
Scania R 620, R 580, R 560, R 500, R 480, R 400, R 470, R 440, R 420, R 380, R 340, R 310, G 480, G 470, G 440, G 420, G 380, G 340, G 310, G 270, P 480, P 470, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, 164, 144, 124, 114, 94		without fastening element	22	**8000 012 660**	Scania 1476415
Scania R 620, R 580, R 560, R 500, R 480, R 400, R 470, R 440, R 420, R 380, R 340, R 310, G 480, G 470, G 440, G 420, G 380, G 340, G 310, G 270, P 480, P 470, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, 164, 144, 124, 114, 94	gas pressure, twin-tube system	pin/pin	23	**9200 290 203**	Scania 1435859
Scania R 420, P 480, P 470, P 460, P 450, P 440, P 420, P 410, P 400, P 380, P 370, P 360, P 340, P 320, P 310, P 280, P 270, P 250, P 230, 124, 114, 94, 3		without fastening element	24	**8000 012 736**	Scania 1424231
Volvo FH II (2002-2013), FH12 (1993-), FM III (2012-), FM II (2002-), FMX II (2013-), FMX I (2010-)	oil pressure, twin-tube system	eye/pin	25	**1550 128 024**	Volvo 21111932
Volvo FH II (2002-2013), FM II (2002-2013)	Oil pressure, twin-tube system	Eye/eye	26	**9200 312 694**	Volvo 3198859
Volvo FH II (2002-2013), FH16 II (2002-2006), FH12, FH16 I (1993-)	Oil pressure, twin-tube system	eye/eye	27	**6170 003 617**	Volvo 20889134
Volvo FH II (-2008), FM, FMX, NH	Oil pressure, twin-tube system	eye/pin	28	**6172 045 325**	Volvo 20889132 Volvo 20453256
Volvo FH12, FH16 I (1993-), FH16 II (2002-)	Oil pressure, twin-tube	eye/eye	29	**6171 629 722**	Volvo 1629722
Volvo FH, FH12, FH16, FM	oil pressure, twin-tube system	eye/eye	30	**6170 003 414**	Volvo 1622227

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Cab damper

Suitable for	Version	Fastening	Fig.	Order no	Comparative no
DAF XF105, XF95, 95XF, F95	Oil pressure, twin-tube system	eye/pin	1	**6001 387 326**	DAF 1319673
DAF XF105, XF95, F95, CF65	Oil pressure, twin-tube system	eye/pin	2	**6001 353 454**	DAF 1353454
MAN TGA	Gas pressure, twin-tube system	Eye/eye	3	**5234 172 200**	MAN 85.41722-6022
Mercedes-Benz Actros I/MP2/MP3	Gas pressure, twin-tube system			**9200 316 692**	Mercedes-Benz 942 890 56 19
Mercedes-Benz Actros I/MP2/MP3, Axor I/II/III, Atego I/II/III	Gas pressure, single-tube	Eye/eye	4	**9750 290 995**	Mercedes-Benz 940 890 39 19
Renault Magnum II/III			5	**1788 121 086**	Renault 5010491301
Renault Magnum	Oil pressure, twin-tube system	pin/fork	6	**6420 228 849**	Renault 5010228849
Volvo FH II (2002-2013), FM II (2002-2013)	Oil pressure, twin-tube system	Pin/eye	7	**6173 198 836**	Volvo 3092136 Volvo 3198836
Volvo FH16 II (2003-), FH12, FH16 I (1993-)	Oil pressure, twin-tube system	Eye/eye	8	**6171 629 719**	Volvo 1629719 Volvo 1629724 Volvo 3172984

WABCO

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Cab damper

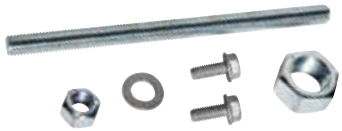
Fastening eye/eye

Suitable for	Installation location	Fig.	Order no	Comparative no
MAN TGX (2013-), TGX (2007-), TGS (2013-), TGS, TGA	front	1	**0620 060 010**	MAN 81.41722-6069
MAN TGX (2013-), TGX (2007-), TGS (2013-), TGS, TGA	rear	1	**0620 060 030**	MAN 81.41722-6073
MAN TGX (2007-), TGS, TGA, TGM, TGL	rear	2	**3800 060 220**	MAN 81.41722-6056

Screw sets

Screw set

Suitable for	Order no	Comparative no
Schmitz Cargobull	**1722 084 958**	Schmitz 016512



Screw set

Suitable for	Version	Order no
SAF	Phoenix K001	**1722 052 726**

Screw set

Suitable for	Version	Order no
Hendrickson | **Meritor (ROR)** | **SAF** | **Weweler**	Phoenix K002	**1722 052 727**

Fastening set

Suitable for	Version	Order no
Scania R, G, P, T, series 4	Phoenix K004	**1722 052 729**

Screw set

Suitable for	Version	Order no
Volvo	Phoenix K005	**1722 052 730**

Screw set

Suitable for	Version	Order no
Volvo	Phoenix K006	**1722 052 731**

Screw set

Suitable for	Version	Order no
DAF | **VDL**	Phoenix K008	**1722 052 733**

Screw set

Suitable for	Version	Order no
Schmitz Cargobull | **Weweler**	Phoenix 009	**1722 052 734**

Screw set

Suitable for	Version	Order no
Acerbi | **Fruehauf** | **SMB**	Phoenix K010	**1722 052 735**

Screw set

Suitable for	Version	Order no
Mercedes-Benz TAS | **Meritor (ROR)** | **Schmitz Cargobull** | **Weweler** | **Holland Hitch**	Phoenix K011	**1722 052 736**

Screw set

Suitable for	Version	Order no
SAF	Phoenix K013	**1722 052 738**

Screw set

Suitable for	Version	Order no
SAF	Phoenix K014	**1722 052 739**

Screw set

Suitable for	Version	Order no
Cardi | **Fruehauf** | **Samro** | **SMB**	Phoenix K016	**1722 052 741**

Screw set

Suitable for	Version	Order no
Renault | **Volvo**	Phoenix K018	**1722 052 743**

Screw set

Suitable for	Version	Order no
Mercedes-Benz Actros	Phoenix K021	**1722 052 746**

Screw set

Suitable for	Version	Order no
Bellows 1/4", M10	Phoenix K023	**1722 052 748**

Screw set

Suitable for	Version	Order no
Meritor (ROR) | **Weweler**	Phoenix K025	**1722 052 750**

Screw set

Suitable for	Version	Order no
Mercedes-Benz TAS	Phoenix K027	**1722 052 752**

Screw set

Suitable for	Version	Order no
Schmitz Cargobull | **Weweler**	Phoenix K028	**1722 052 753**

Screw set

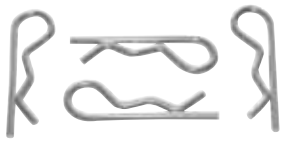
Suitable for	Version	Order no
BPW	BPW K029	**1723 052 754**

Screw set

Suitable for	Version	Order no
Bertoja | **Fruehauf** | **SMB**	Phoenix K030	**1722 052 755**

Fastening set

Suitable for	Version	Order no
Scania	Phoenix K031	**1722 053 106**



Screw set

Suitable for	Version	Order no
MAN	Phoenix K032	**1722 053 107**

Screw set

Suitable for	Version	Order no
MAN	Phoenix K033	**1722 053 108**

Screw set

Suitable for	Version	Order no
Mercedes-Benz	Phoenix K036	**1722 053 112**

Accessories

Union bolt

Adapter for VOSS screw joints, VOSS 232 to VOSS 230

Scope of supply
with O-ring

Suitable for	Order no
Mercedes-Benz Actros (-2005)	**0307 000 030**

Straight quick-fit coupling

Suitable for	Type	Order no
poly piping 4 x 1 mm	G-L 4 SV-T	**9010 030 000**
poly piping 5 x 1 mm	G-L 5 SV-T	**9010 030 060**
poly piping 6 x 1 mm	G-L 6 SV-T	**9010 030 010**
poly piping 8 x 1 mm	G-L 8 SV-T	**9010 030 020**
poly piping 9 x 1.5 mm	G-L 9 SV-T	**9010 030 070**
poly piping 10 x 1 mm	G-L 10 SV-T	**9010 030 030**
poly piping 11 x 1.5 mm	G-L 11 SV-T	**9010 030 080**
poly piping 12 x 1.5 mm	G-L 12 SV-T	**9010 030 040**
poly piping 15 x 1.5 mm	G-L 15 SV-T	**9010 030 050**

Screw joint case

for RAUFOSS ABC system

Scope of supply
3 x ABC connection pieces, Regular, M12 x 1,5
2 x ABC connection pieces, Regular, M14 x 1,5
5 x ABC connection pieces, Regular, M16 x 1,5
3 x ABC connection pieces, Regular, M22 x 1,5
2 x ABC connection pieces, Heavy Duty, M16 x 1,5
2 x ABC connection pieces, Heavy Duty, M22 x 1,5
3 x ABC New Line straight connectors, M12 x 1,5, pipe ∅ 6 x 1 mm
3 x straight connectors ABC New Line, M16 x 1,5, pipe ∅ 6 x 1 mm
5 x ABC New Line straight connectors, M12 x 1,5, pipe ∅ 8 x 1 mm
5 x straight connectors ABC New Line, M16 x 1,5, pipe ∅ 8 x 1 mm
3 x straight connectors ABC New Line, M22 x 1,5, pipe ∅ 8 x 1 mm
5 x straight connectors ABC New Line, M16 x 1,5, pipe ∅ 12 x 1,5 mm
3 x straight connectors ABC New Line, M22 x 1,5, pipe ∅ 12 x 1,5 mm
2 x straight connectors ABC New Line, M16 x 1,5, pipe ∅ 16 x 2 mm
3 x straight connectors ABC New Line, M22 x 1,5, pipe ∅ 16 x 2 mm
1 x Rotolock, Regular, hex 18 mm
2 x Rotolock, Regular, hex 20 mm
1 x Rotolock, Regular, hex 22 mm
2 x Rotolock, Regular, hex 28 mm
3 x plugs for connectors, pipe ∅ 8 x 1 mm
3 x plugs for connectors, pipe ∅ 12 x 1,5 mm
2 x ABC threadless connector, Regular, pipe ∅ 6 x 1 mm
5 x ABC threadless connector, Regular, pipe ∅ 8 x 1 mm
5 x ABC threadless connector, Regular, pipe ∅ 12 x 1,5 mm
2 x ABC threadless connector, Regular, pipe ∅ 16 x 2 mm
5 x ABC straight connectors, Regular, length 45 mm
5 x 90° elbows, Regular, length 29 mm
2 x 90° elbows, Heavy Duty, length 34 mm
3 x T & L pieces, Regular, length 62/26 mm
1 x T & L piece, Heavy Duty, length 73/31 mm
2 x Y pieces, Regular, length 55 mm
2 x ABC reducers, Regular, length 15 mm
2 x dismantling tool, standard, pipe ∅ 6 x 1 mm
2 x dismantling tool, standard, pipe ∅ 8 x 1 mm
2 x dismantling tool, standard, pipe ∅ 12 x 1,5 mm

Version	Order no
101-piece	**6302 600 960**

EUROPART®

Plastic pipe

Contains plasticiser for extrusion, stabilised against thermal ageing and light

Length 25 m
Material Polyamide 12
Colour black

operating pressure at +20 °C: 45 bar

Application range
for compressed air systems

Outer ∅	Wall thickness	Bending radius	Version	Order no
4 mm	1 mm	30 mm	operating pressure at +20 °C: 45 bar	**9194 310 021**
5 mm	1 mm	30 mm	operating pressure at +20 °C: 45 bar	**9176 720 161**
6 mm	1 mm	30 mm	operating pressure at +20 °C: 45 bar	**0492 519 177**
8 mm	1 mm	40 mm	operating pressure at +20 °C: 45 bar	**0492 519 167**
9 mm	1,5 mm	60 mm	operating pressure at +20 °C: 45 bar	**9176 720 131**
10 mm	1 mm	60 mm	operating pressure at +20 °C: 45 bar	**0492 519 157**
10 mm	1,5 mm	60 mm	operating pressure at +20 °C: 45 bar	**9176 720 081**
11 mm	1,5 mm	60 mm	operating pressure at +20 °C: 45 bar	**9194 270 001**
12 mm	1,5 mm	60 mm	operating pressure at +20 °C: 45 bar	**0492 519 147**
14 mm	2 mm	75 mm	operating pressure at +20 °C: 45 bar	**9176 720 141**
15 mm	1,5 mm	90 mm	operating pressure at +20 °C: 45 bar	**0492 519 137**
16 mm	2 mm	100 mm	operating pressure at +20 °C: 45 bar	**9010 060 445**
18 mm	2 mm	100 mm	operating pressure at +20 °C: 45 bar	**0492 519 127**

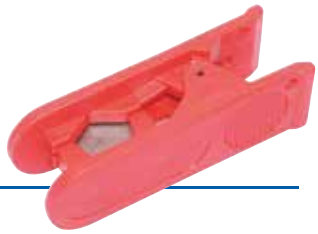
Cutting pliers
for plastic pipe

Material metal

Order no
9172 090 130

Service parts

Description	Order no
Spare blade	9172 090 280



Pipe cutter
for plastic pipe

Material plastic

Order no
9172 090 100

Service parts

Description	Order no
Spare blade	9172 090 270

PREMIUM-WERKZEUGE KSTOOLS PREMIUM TOOLS

Pry bar set
with one-part handle, case hardened

Material Chrome-molybdenum steel

Application range
Disassembly and assembly work

Version	Order no
4-piece	9509 118 100

EUROPART

Assembly paste

Colour white

Application range
for fitting truck, bus and passenger car tyres and air springs

Contents	Container	Order no
5 kg	Bucket	9547 250 003

EUROPART

Leak Detector Spray

Temperature resistance -20 to +50 °C

Application range
Leak detection agent for pressurised systems, for detecting leaks in pipelines and tanks under pressure, e.g. compressors, steel bottles, fittings, shut-off valves, breathing equipment, autogenous and inert gas welding equipment, bunsen burners, valves, screw fittings, air brakes etc., suitable for compressed air, refrigerant, acetylene, butane, natural gas, carbon dioxide, oxygen, propane, town gas, nitrogen, hydrogen, ammoniac

Non-toxic according to DIN-DVGW (German Gas and Water Association)

Contents	Container	Order no
400 ml	Spray can	9230 000 150

Special paintbrush
for mounting paste and cream

Length 500 mm
Head ∅ 50 mm

Order no
2300 016 852

PREMIUM-WERKZEUGE
KS TOOLS
PREMIUM TOOLS

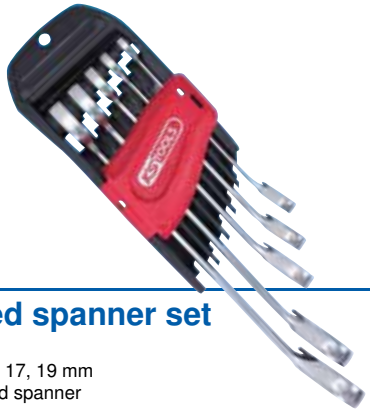
Socket wrench set

1/4, 1/2 ", SUPERLOCK®

with quick-release function and ratchet

Drive form	Flank Traction, hexagon
Number of teeth	45
Material	chrome-vanadium steel
Surface	matt satin chrome-plated

Version	Order no
94-piece	**9509 110 694**



PREMIUM-WERKZEUGE
KS TOOLS
PREMIUM TOOLS

Ring open-jawed spanner set

Scope of supply
1 of each spanner 8, 10, 13, 17, 19 mm
Ratchet ring and open-ended spanner

Version	Order no
5-piece	**8000 035 905**

PREMIUM-WERKZEUGE
KS TOOLS
PREMIUM TOOLS

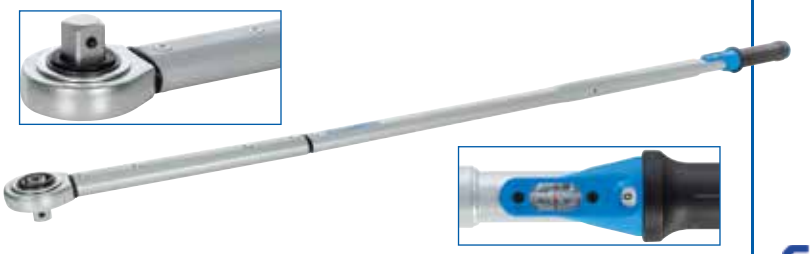
Telescopic lever

Lever extension with a push of a button with ratchet steps, rolling head adjustable in steps, extra slim, with inset press stud, maximum power transmission in small spaces, optimum approach even with minimal working gap.

Version	adjustable
Width	20 mm
Height	120 mm
Overall length	600-915 mm
Material	Special steel

Application range
ideal for use in utility vehicles and trucks.

Order no
9509 118 187



GEDORE
WERKZEUGE FÜRS LEBEN

Torque wrench

3/4 ", TORCOFIX K

adjustable, releasing and robust tubular torque wrench with integrated ratchet, calibrated with a permissible deviation of +/- 4 % or better, for controlled clockwise and counter-clockwise tightening, 3/4" with sliding square and locking pin, double scale Nm and lbfft below a view window with magnifying effect, release system triggers a tactile and audible signal, ergonomic system for torque adjustment.

Working range	250-850 Nm
Length	1379 mm
Scale division	1 Nm
Standard	EN ISO 6789:2003 Type II Class A

Application range
in all industrial production areas

Scope of supply
Test certificate, operating instructions

Order no
9240 455 185

GEDORE
WERKZEUGE FÜRS LEBEN

Torque wrench

1/2 ", TORCOFIX K

adjustable torque wrench with square drive and integrated ratchet function for controlled clockwise and counter-clockwise tightening, 1/2" mushroom head interchangeable square with ball locking device, bending mechanism with slide roll guarantees an actuating signal that is tactile and audible, release precision: 1/- 4 % tolerance from configured scale value, double scale Nm and lbfft below a view window with magnifying effect, handle has notch for calibration assistance.

Working range	40-200 Nm
Length	485 mm
Scale division	1 Nm
Standard	DIN EN ISO 6789:2003 Type II Class A

Application range
in all industrial production areas

Scope of supply
Test certificate, operating instructions

Order no
9240 000 060

Error causes and how to resolve them

**Installation by trained staff only;
the vehicle manufacturer's installation instructions must be followed!**

Deformed cone area

Cause	Resolution
– Improper storage – Improper handling – Improper transport – Failed assembly attempt (crow bar etc.)	– Storage in accordance with DIN 7716/ISO 5285, dark, dry, at normal temperature – Prevent improper transport – Observe manufacturer's installation instructions

Tapered sealing surface destroyed

Cause	Resolution
– Cone plate assembled incorrectly – Air bellows caught by fasteners – Incorrect assembly attempt using sharp object	– Keep the tapered sealing surface free of corrosion, dirt and burrs – Align the air bellows assembly part – Observe manufacturer's installation instructions

Air bellows chafed/damaged because of abrasion

Cause	Resolution
– Bellows in contact with other vehicle parts – Bellows in contact with foreign bodies – Bellows used too long	– Check the indicated installation space – Regular checks if there are foreign objects in the roll area – remove if applicable – Observe manufacturer's installation instructions

Damaged caused by chemicals

Cause	Resolution
– Solvents used	– Avoid mineral oil-based solvents and cleaning products – Check air spring system periodically

Air bellows ruptures (piston breakage)

Cause	Resolution
– Vehicle overloaded (increase of internal pressure to maximum pressure)	– Observe the maximum permissible total weight according to the manufacturer's specifications

Threaded stud stripped

Cause	Resolution
– Tightening torque too high – Grease or oil used	– Observe the manufacturer's specifications in the maintenance manual – Avoid using oil or grease on the thread

Damage to the assembly parts/worn thread

Cause	Resolution
– Improper storage – Improper handling – Improper transport – Assembly attempted incorrectly	– Prevent improper transport – Observe manufacturer's installation instructions

Recommendations for storing air bellows

Extract from DIN 7716

The regulations for storing elastomers refer to the DIN standard 7716 (Rubber products, requirements for storage, cleaning and maintenance). Here you will find an extract with the most important conditions.

1. General information on storage

Properly stored and treated rubber products - excluding unvulcanised rubber compounds - generally retain their properties for several years. A large proportion of rubber products undergo changes to their physical properties when not handled correctly or are kept in unfavourable storage conditions.

For example, the effect of heat, moisture, light, oxygen, ozone, solvents or storing under tension can cause their service life to shorten or can become unusable due to:

– excessive hardening
– softening
– permanent deformation
– flaking
– tearing
– other surface damage

2. Storage rooms

The storage room should be dry and cool with as little dust as possible and only moderately ventilated. Storage in the open air without sufficient protection from the elements is prohibited.

3. Heating

If rubber products are stored in heated storage rooms, they have to be shielded from heat sources, whereby there should be at least one metre between the stored goods and the heat source. This distance must be larger in rooms heated by a hot blast stove.

Please observe the safety and storage instructions.

4. Moisture

Storage in damp rooms and the formation of condensation must be avoided. Ideally, the humidity in the storage room will be below 65 %.

5. Lighting

Light can damage the products. For this reason, they should be protected from strong artificial light with a high ultraviolet component and from direct sunlight. Lighting with normal light bulbs is favoured. A red or orange protective coating on the window panes of the storage rooms - but under no circumstances a blue coating - can help to prevent damage caused by light.

6. Oxygen and ozone

The products must also be protected from intensive circulation of air, in particular draughts. Ideally this will be by storage in airtight containers, by packaging or other means. This particularly applies to products such as rubberised materials or cellular materials which have a large surface in relation to their volume. Ozone is particularly harmful to the products. Therefore there must be no facilities which produce ozone in the storage areas. This includes, for example, electric motors or other devices that may cause sparks or other electrical discharges. Vapours and combustion gases that can cause ozone formation by photochemical process must be avoided.

7. Other

Fuel, lubricants, acids, disinfectants, solvents or other chemicals must not be be kept in the storage room under any circumstances. The legal regulations for the storage and transport of flammable liquids apply to rubber solutions. They must be stored in a separate room.

8. Storage and handling

Pressure, draughts or other influences create stresses which can cause permanent deformation of the products and also the formation of cracks. For this reason the products must be stored without stress and without any mechanical influences.

Certain metals, in particular manganese and copper, also have a harmful effect on rubber products. Storing products where they might come into contact with these metals should therefore be prevented. Alternatively, the products can be protected by closure or packaging in a suitable material. This includes anti-static foils or bags made of paper, nylon or polyethylene.

Foils containing plasticisers must also be avoided, as should packaging and covering containing materials whose components contain substances harmful to the products, such as copper or copper alloys, petrol, oil and similar products.

Storage time should be kept as short as possible.

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