



PARTS APPROVAL



Parts Approval

Nr. / No. 1200/17
vom / of 19.10.2017



**on the compliance of a vehicle when vehicle parts are properly installed
and fitted to the car in accordance with § 19 Par. 3 No. 4 StVZO**

Modification

fbaus / Continuously adjustable suspension system for
lowering the car body

Part type(s)

: ... 20 014
... 20 714
... 20 814
... 20 914
... 20 0BV

Manufacturer

: KW automotive GmbH
Aspachweg 14
D-74427 Fichtenberg

Vehicle Manufacturer / Type(s)

: BMW / 3/1, 3/R

max. axle load

: VA (front axle) 865 kg
HA (rear axle) 1030 kg

0. Instructions for vehicle owner

Performance and confirmation without delay of modification acceptance

With the modification the type approval of the vehicle will expire if the modification acceptance provided for in StVZO § 19 Par. 3 is not performed and confirmed without delay or if conditions laid down are not complied with.

After performance of the technical modification, the vehicle must be pre-sented without delay together with the present TÜV parts approval to an officially recognised inspector at a Technical Inspection Centre or to an inspection engineer from an officially recognised inspection organisation to perform and confirm the specified modification acceptance.

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Compliance with Conditions and Notes

The Conditions and Notes given in III. and IV. must be complied with.

Availability of documents

After the acceptance procedure the certificate with confirmation of the modification acceptance must be carried in the car and presented to authorised persons on demand; this will not apply once the vehicle documents have been amended.

Amendment of vehicle documents

The vehicle owner must apply, in accordance with the provision in the confirmation of modification acceptance, for the competent licensing authority to amend the veh. documents (vehicle registr. documents).

Further conditions can be found in the confirmation of modification acceptance.

I. Field of application

Vehicle manufacturer	Trade name	Vehicle type	Variants and versions	Type approval
BMW	3er Reihe (E30)	3/1	alle / all	9637/2, .1/3, .1/4
		3/R		E147, .1/1

As long as the vehicle has not been modified in parts that are relevant for the lowering of the car body, the present parts approval is also valid for vehicles that were build according to addendums of the above mentioned type approvals or extension respectively.

II. Description of the modification

Front axle

	Pre spring	Main spring
Marking	20-60-80	50-170*
Corrosion protection	imprinted EPS-powder coating	imprinted EPS-powder coating
Wire size	5,4 x 9,4 mm	9,6 mm
Outer diameter	- mm	- mm
oben / top	80 mm	81 mm
mitte / middle	- mm	- mm
unten / bottom	80 mm	170 mm
Untensioned height	6	6,15
Number of coils	Cylinder, head(s) baselined	Cylinder, head(s) baselined
Coil shape	linear	linear
Spring characteristic		

	Spring cup seat (top)	Spring cup seat (bottom)
Max. diameter	80 mm	82 mm
Diameter rest	61 mm	61 mm
Height	14 mm	24 mm
Spring height adjustment	Infinitely adjustable cup seat (Strut)	

	Strut
Damping adjustment (rebound/ compression)	without / manual
Marking	200 1004 L/R

	Rubber or polyurethane foam element
Bump stop	
High/Diameter	50/50 mm
Bump travel	extended by 5 mm

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Rear axle

	Pre spring	Main spring
Marking	non existent	2002
Corrosion protection		imprinted EPS-powder coating
Wire size		13,9 mm
Outer diameter		89 mm
oben / top		142 mm
mitte / middle		69 mm
unten / bottom		170 mm
Untensioned height		6
Number of coils		
Coil shape		Barrel, head(s) baselined
Spring characteristic		progressiv

	<i>Spring cup seat (top)</i>	<i>Spring cup seat (bottom)</i>
<i>Max. diameter</i>	80 mm	Serie <i>OEM part</i>
<i>Diameter rest</i>	61 mm	
<i>Height</i>	28 mm	
<i>Spring height adjustment</i>	<i>Infinitely adjustable cup seat (Bushing)</i>	

	Shock absorber
Damping adjustment (rebound/ compression)	without / manual
Marking	200 1104

	Rubber or polyurethane foam element
Bump stop	
High/Diameter	35/50 mm
Bump travel	extended by 5 mm

III.

Notes on possible combination with other modifications

III. 1 Wheel/tyre combinations

There are no technical objections against the use of all O. E. wheel/tyre combinations.

If other wheel-/ tyre combinations are used, the examination in accordance with § 21 German Road Traffic Licensing Code - StVZO must be carried out by an officially recognised expert.

III. 2 Aerodynamic devices, special exhaust systems etc.

The dynamic ground clearance is decreased by the provision of special springs/dampers which increase the bump travel of the front and rear axle. In the case of the test vehicle, the min. ground clearance of 80 mm is complied with (below front axle). Care must be taken when driving over humps, barriers and heightened paving or road surfaces.

If special spoilers, aprons and exhaust systems are mounted, attention must be paid to the decreased overhang angle (driving up ramps etc.).

IV. Conditions and Notes

Conditions and notes for the installation shop and modification acceptance

Mounting of the vehicle bodywork components will be performed in accordance with the vehicle manufacturer's specifications which must be included in the delivery and should be carried out by a specialist shop.

The headlight adjustment has to be checked.

After modification an axle alignment must be carried out on the vehicle.

The bump stops (rubber or polyurethane foam element) must correspond to the descriptions of this report. Additional travel limiters are not allowed.

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Use of the lowering kit on vehicles with levelling system is not permitted.

The vehicle height must be laid down in the vehicle documents in box 20. The precise measure of the lowering will depend on the specific vehicle tolerances, tyre size and vehicle version.

adjustment ranges and sizes of lowering [mm]

Vehicle	(min. - max.)		Clearances		Size of lowering	
	VA/front ¹⁾	HA/rear ²⁾	VA/front ³⁾	HA/rear ³⁾	VA/front	HA/rear
BMW 3er Reihe 3/1, 3/R	330 - 350	17 - 32	305	310	60 - 80	55 - 80

- 1) Distance from the spring rest to the nearest fastening screw
- 2) Distance from contact point of the car to the adjustable spring perch
- 3) Minimum distance from wheel centre to wheelhouse rim

Amendment of vehicle documents:

Amendment of the vehicle documents is only necessary the next time the approval authority has to do with the vehicle documents. The following example is suggested for the entry:

Item	Entry
22	Mit stufenlos verstellbarem Fahrwerk der Fa. KW automotive GmbH; Kennz. Federn vorn: 20-60-80 / 50-170*, hinten: 2002; Federbein vorn: 200 1004 L/R, Dämpfer hinten: 200 1104; Maß Radmitte bis Radhausausschnittkante VA/HA.../... *

V. Basis of tests and test results

The test vehicle and the modification parts were subjected to a test in accordance with the test conditions regarding raising / lowering of vehicles contained in VdTÜV Merkblatt 751 (08.2008).
The test conditions were fulfilled.

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VI. *Annex: none*

VII. Concluding certification

It is hereby certified that the vehicles described under field of application satisfy the regulations of StVZO in the current version after modification and performed and confirmed modification acceptance, provided the conditions/notes given in the present TÜV approval are observed.

The manufacturer KW automotive GmbH maintains a quality management system according to ISO 9001: 2008 (Certificate Registration No.: 12 102 22913 TMS).

The parts approval may only be reproduced and passed on by the manufacturer in its unabbreviated form.

The TÜV parts approval shall cease to be valid if technical modifications are made to the vehicle part or if modifications made to the vehicles described affect use of the part and in the case of any changes to the statutory specifications.



INSTALLATION INSTRUCTIONS



KW automotive

INSTALLATION INSTRUCTIONS

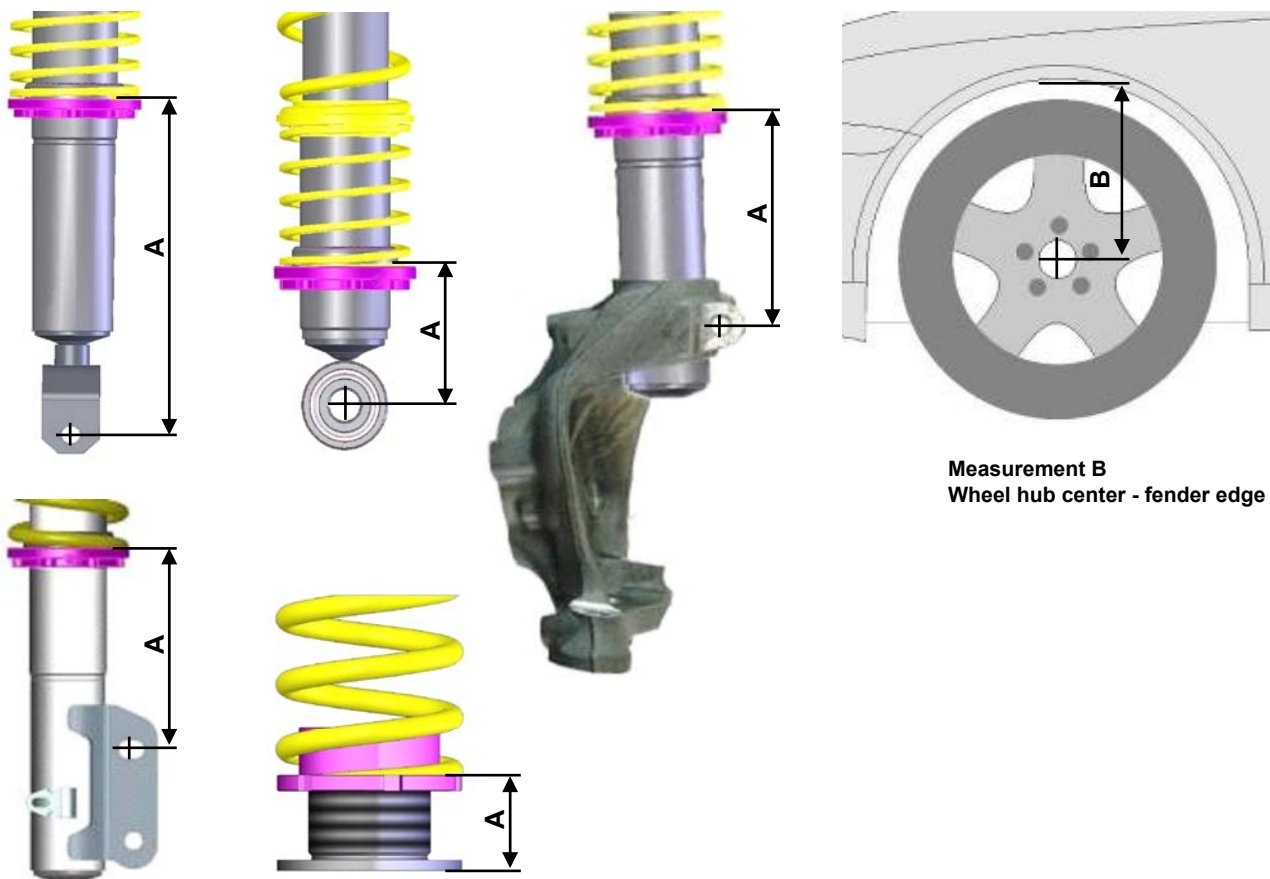
**Before you begin installation,
please read the following carefully:**

- **Ensure that the certificate matches the vehicle specifications (front vehicle identification number (VIN)) etc...**
- **The suspension components must match the suspensions application specifications (springs and shock/struts identification numbers).**
- **The instructions have to be strictly observed.**

KW Coilovers for automobile suspensions are designed for easy installation. If not otherwise stipulated in these instructions, all suspension components are installed and removed in accordance with the manufacturer's specifications for installing and removing standard springs and damper components. At the time of printing all instructions and specifications are correct.

Technical data	Coilover part number ... 20 0BV			
Vehicle model	BMW 3er (E30) type 3/1,3/R		max. permissible front axle load: - 865 kg	
	front axle		rear axle	
Spring signature	20-60-80 / 50-170*		2002	
Coilover strut / Shock absorber signature	200 1004		200 1104	
Approximate distance measurement A Front axle: Fastening screw - spring contact area Rear axle: Seating height adjustment - spring contact area or fastening screw - spring contact area	min:	max:	min:	max:
	330 mm / 13,0 inch	350 mm / 13,8 inch	17 mm / 0,67 inch	32 mm / 1,26 inch
Approximate measurement* B in mm / inch: wheel hub center to fender edge	min:		min:	
	305 mm / 12,0 inch		310 mm / 12,2 inch	

Calculating the adjustment range (distance measurement A) : (Photos are examples only)



Please enter the adjusted height of the modified car into the list:

Coilover part no	Vehicle type	Measurement A		Wheel hub center - fender edge Measurement B	
		Front	Rear	Front	Rear

* **IMPORTANT:** The allowable measurement between wheel hub center and fender edge as indicated above, may not exceed these measurements when using standard fenders.

Danger:

Always follow the latest accident prevention regulations (not applicable for North America) for each step to prevent any serious bodily harm or injury.

1. We recommend the use of a vehicle hoist or lift when installing the suspension. If a lift is not available and jacking equipment is used, make sure that the vehicle is secured with commercial wheel blocks and jack stand to ensure safety.
2. The suspension components may only be installed by trained technical personnel using the proper tools.
3. The General Installation instructions, as well as the Technical Inspectorate documents must be read BEFORE attempting installation.
4. Never use impact wrenches or guns to install or remove shock absorber piston hardware.
5. Never disassemble or cut open shock absorbers and/or shock absorber inserts. They contain oil under pressure. Danger of explosion.
6. Before driving on public highways, carry out the work steps on page 7, items 11 through 14 after installation.
7. The suspension regulation (when available) needs to be disabled through an authorized dealer.
8. Please take care in any case that fittings (for example fittings of shock absorber housings or fittings of the lower control arm in the housing of the wheel bearing) are free of dust and oil. (see manufacturer guideline)

General Instructions for Use:

1. When adjusting the vehicle height, make sure that the threads are clean and free of debris. After initial cleaning, move the perch by 10 mm (0.4 Inches) downwards, and then clean the area that you desire to adjust the perch (up or down).
2. During height adjustments on separate shock and spring systems, remove the perch from the vehicle to adjust the height.
3. After adjusting the vehicle height, repeat steps 11 through 14 from page 7.
4. In the area of the piston rod and the sealing package of the new and used damper there might be oil and grease collected. This could either be caused by using a special black grease during assembling the washer or due to accumulation of streak oil. Further more oil is used during assembling the cartridge and rod guide. There is no reason of worrying about and damage, as in this area also dust and dirt used to be collected.

Tightening torque for the piston rod nut:

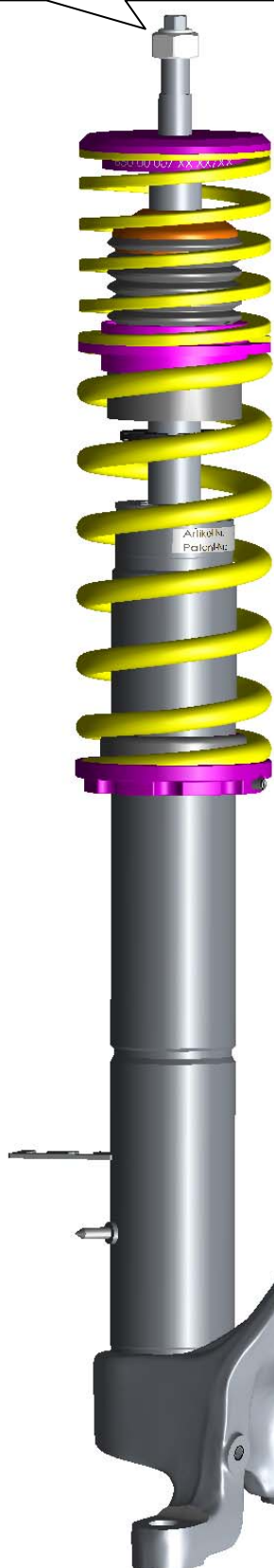
M8 = **25Nm (18 ft-lb)**, M10x1 = **20Nm (15 ft-lb)**, M10x1,25 = **20Nm (15 ft-lb)**, M12x1,25 = **35Nm (26 ft-lb)**,
M12x1,5 = **40Nm (29 ft-lb)**, M14x1,5 = **50Nm (37 ft-lb)**, M16x1,5 = **50Nm (37 ft-lb)**

General Mounting Specifications:

1. We recommend the use of a vehicle hoist or lift when installing the suspension.
2. **Caution:** If the vehicle is equipped with ride height sensors, they should be removed before removal of struts or dampers, otherwise damage may occur.
3. The struts should be removed as specified by manufacturer's instructions.
4. Manufacturer recommended tools for removal of the original struts, or a suitable spring compressor, must be used in order to remove most factory mounted suspension systems.
5. Mount the complete suspension system as described on the following pages.
6. Never use impact drivers to install nuts on the piston rods as permanent damage may occur. It is imperative that you do not damage the piston rod surface, through use of pliers etc, as the smallest damage will result in seal damage, and will not be covered under warranty.
7. Stay within the lowering range specified in the table on page 3.
Example: With a specified range of 20 - 60 mm (0.8 - 2.3 Inches), 40 mm (1.5 Inches) is your height adjustment range.
8. Ensure that the set screw on each spring collar is tightened to prevent movement of the spring perch. On vehicles with separate shock/spring combinations, no set screw is necessary.
Caution: Do not over tighten the set screw. Maximum torque is 1 - 2 Nm (0.74-1.47 ft-lb).
9. Install the suspension components in the vehicle as specified by the vehicle manufacturers in their document.
10. Except as noted, all torque values must comply with manufacturer recommended specifications.
11. After assembly and installation is complete, the vehicle should be rolled onto level ground. Once on level ground, measure the vehicle height and adjust to the customer's requirements, within the prescribed lowering range.
Caution: Wheel hub center—wheel arch maximum measurement in the table of page 3 must not be exceeded! Also take into account minimum road clearances specified in the table on page 7 (only valid for Germany!).
Caution: It is common for the vehicle suspensions to settle by an additional 5 - 10 mm (0.2 - 0.4 Inches)
12. Examine the clearance between the tires and the suspension over the full range of motion of the wheel. The minimum clearance between the suspension and the tire is 4 mm (0.16 Inches). If this clearance is less than 5 mm (0.2 Inches), wheel spacers may be necessary. With strut designs that are located close to the wheel, but that have no steering functions, use 100 mm (3.9 Inches) spacers on diagonally opposed wheel (e.g. front right, rear left). In this position, you must be able to achieve the minimum clearance required. You can also check the clearance between tire and body.
Caution: With torsion beam trailing arm axles, this method is not sufficient. The wheel must be under full load as well as test driven to properly calculate the clearances of 5 mm (0.2 Inches) from any other components.
13. The geometry of the suspension needs to be adjusted according the regulations of the vehicle manufacturer. If a value cannot be reached due to the difference in the height, a optimal value next to the tolerance range of the vehicle manufacturer needs to be adjusted.
14. All components that are controlled by vehicle ride height (e.g. headlights, brake bias regulator etc.) must be adjusted as specified by the vehicle manufacturer instructions and procedures.
15. For vehicles with ESP, DSC or EPC your new suspension components may cause an engine fault code to appear. This is only temporary as the vehicle electronics adjust to the new components/height. On some models this will end after driving approximately 3-5 miles, or through turning the steering wheel from full left to full right. On other models, this must be reset through the factory diagnostic port by a qualified technician.

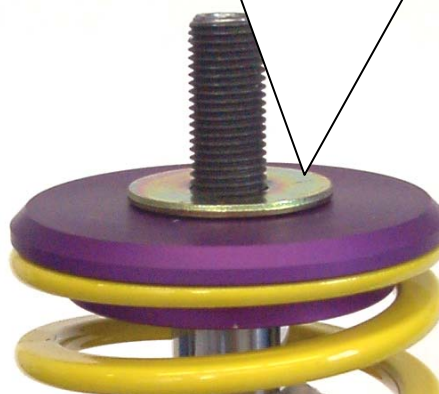
Front axle:

Supplied coilover strut.



The assembly of the new bearing kit is carried out according to the vehicle manufacturer.
Pay attention to a clean and zinc-free surface of the axle journal. The zinc coating on the axle journal must be removed with fine sandpaper or abrasive fleece.

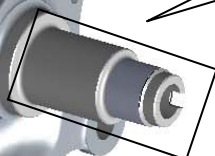
Original washer has to be installed between spring perch and supporting bearing.



The original supporting bearing has to be mounted with the supplied stop nut. Tightening torque to 35 Nm (26 ft-lb). The instructions of the strut can be found in the documents of the car manufacturer.



Axle journal



Front axle:

Disassemble the OEM cable holder (if available) from the OEM damper and install it on the supplied damper.

The strut unit has to be installed according to manufacturers instructions settings regarding tightening torque and fixing specifications.

Install all remaining OEM parts by according to the vehicle manufacturers on the strut. **We recommend to use new wheel bearings!**

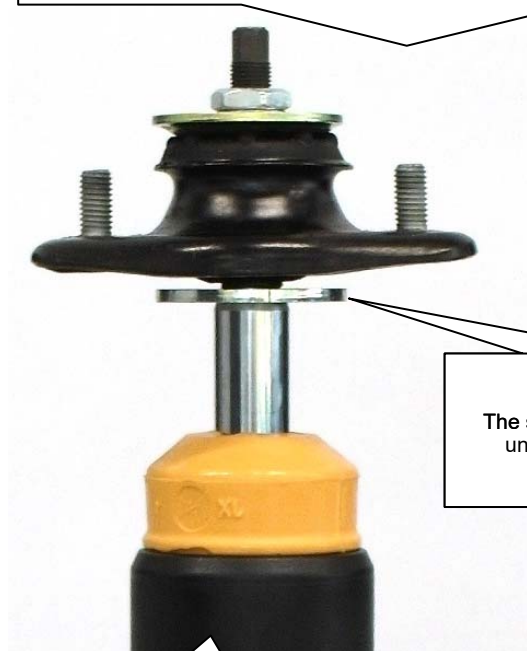


Rear axle:

Mount the rear axle adjustment between spring and chassis, the original spring support is no longer used. You have to remove the rear axle adjustment to correct (screw up the threaded ring) the car height. Attention: Before the installation of the height adjustment perch the touching surface area have to be cleaned.

Use the original spring support at the bottom end of the spring.

Install the OEM top mount on the supplied damper. Tightening torque for the piston rod nut is 20 Nm (15 ft-lb). The damper unit has to be installed according to manufacturers instructions settings regarding tightening torque and fixing specifications.



Adjustable damper



Non-adjustable dampers

The supplied washer must be mounted under the top mount!

Rear axle:

Please use the supplied washer on installing the shock absorbers. The washer has to be installed towards car centre (as shown on the picture).