

SUSPENSION SYSTEMS

making everyday smoother



VB-AIRSUSPENSION,

THE IDEAL SOLUTION FOR ANY (SUSPENSION) PROBLEM.

Product selection assistance

Find the perfect solution for you!

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WE MAKE EVERY JOURNEY A GOOD ONE.

A good suspension system must provide both spring force and damping, so that the vehicle feels both stable and comfortable to drive. In order to achieve this, each vehicle is fitted with suspension (coil spring suspension, leaf suspension or torsion bar suspension) and shock absorbers. The suspension under the vehicle ensures that passengers and/or the cargo do not feel every bump in the road surface. The shock absorbers dampen the movement of the suspension; without shock absorbers, the vehicle would continue to pitch and roll.

Unfortunately, the standard suspension fitted to your vehicle often does not provide optimum comfort. If the level of comfort does not meet your expectations, it can leave you feeling dissatisfied. We offer a suitable solution for every (suspension) problem to help resolve this dissatisfaction. Our innovative air suspension systems and suspension applications help to ensure optimum ride comfort, increased stability and greater safety, so that you can enjoy a safe and worry-free journey and be more satisfied with your vehicle.

THE RIGHT BALANCE.

Before we can provide you with the perfect solution, we first need to establish what the (suspension) problem is. It is also equally important to clarify what your expectations are. Using this brochure and the 'solution table(s)', we will advise you on which product is the best solution for your (suspension) problems. The tables contain information about our complete product range, and will help you ascertain what the (suspension) problem is and find the ideal solution.



**WE MAKE EVERY JOURNEY
A GOOD ONE.**



VB-AIRSUSPENSION IS ACTIVE WORLDWIDE.

As a leading company experiencing rapid growth, we want all our customers across the globe to benefit from our premium suspension applications. These suspension applications provide for improved comfort, better driving characteristics and increased safety. In turn making every day smoother.

MAKING EVERYDAY SMOOTHER.

According to this motto, we aim to provide our customers with the best possible service – and we've been very successful so far! With the help of a motivated team, we have been developing and building suspension applications and various air suspension systems for light commercial vehicles, ambulances, car transporters, motorhomes, 4x4 vehicles and off-road vehicles for over 25 years. Our product portfolio ranges from reinforced springs to full air suspension solutions with active shock absorbers for the front and rear axle.

We are especially proud of our official recognition from big names such as Mercedes-Benz, Volkswagen, Ford and Renault – this is the highest recognition that an accessory specialist can receive from a vehicle manufacturer. TÜV approvals and „letters of no objection“ (LONO) mean that our products are also available for a number of other vehicles.

- MORE THAN 25 YEARS' EXPERIENCE
- 150 EMPLOYEES
- 7 SUBSIDIARIES WORLDWIDE
- REPRESENTED BY PARTNERS IN 40 COUNTRIES
- SUPPLYING TO MORE THAN 60 COUNTRIES
- MORE THAN 225 ACCREDITED INSTALLATION PARTNERS
- MORE THAN 825 TRAINED SPECIALISTS
- AROUND 200,000 AIR SUSPENSION SYSTEMS SOLD

Our products fall into one of four product groups. These product groups contain a variety of systems for many different makes and models, meaning that there is always a suitable solution for you. Unfortunately, it may be the case that not all products are available for certain types of vehicle. However, don't be disappointed! Our extensive product range means that we always have a suitable solution for every model.



FULL AIR SUSPENSION



SEMI AIR SUSPENSION



HELPER AND REINFORCED SPRINGS



SPECIAL COMPONENTS



DISCOVER OUR PRODUCT GROUPS.

Full air suspension

Full air suspension is an automatic, adjustable solution for a suspension problem where the existing leaf or coil spring suspension is replaced by a full air suspension system. Depending on the make and model of vehicle, full air suspension is available for both the front and rear axle.

Products available: VB-NivoAir – VB-FullAir – VB-ActiveAir

Semi air suspension

Semi air suspension is a suspension system that helps the existing suspension on the vehicle to correct suspension problems. The auxiliary air suspension system is fitted between the original leaf suspension and the vehicle chassis. Semi air suspension is available for the vehicle's rear axle.

Products available: VB-SemiAir – VB-LevelAir

Helper and reinforced springs

Helper and reinforced springs are suspension systems that support or reinforce the existing suspension system in order to correct a suspension problem. The helper and reinforced springs are either fitted to the existing leaf suspension/original coil spring suspension or replace the original coil spring suspension. The two systems are available for both the front and rear axle.

Products available: VB-CoilSpring

Special components

Reinforced stabiliser

A reinforced stabiliser is a U-shaped metal rod that supports the existing suspension. The roll stabiliser is added to the existing suspension system and is available for both the front and rear axle.

Reinforced shock absorbers

Reinforced shock absorbers have their own characteristics. They replace the original shock absorbers, thus becoming part of the existing suspension. Reinforced shock absorbers are available for both the front and rear axle.

VB-FSD technology

VB-FSD shock absorbers use VB-FSD technology (FSD stands for 'Frequency Selective Damping'). VB-FSD shock absorbers replace the original shock absorbers, thus becoming part of the existing suspension. Shock absorbers with VB-FSD technology are available for both the front and rear axle.

Products available: Roll stabilisers – Reinforced shock absorbers – VB-FSD technology

TABLE 1: ARE ANY OF THESE PROBLEMS FAMILIAR?

	Full air suspension	Semi air suspension	Helper and reinforced springs	Special components
Vehicle sags - front	++++		++++	
Vehicle sags - rear	++++	+++	++	
Vehicle drifts - front	++++		++++	
Vehicle drifts - rear	++++	+++	++	
Vehicle is lopsided	++++	++		
Vehicle leans	++++	+++		++ Roll stabiliser
Background noise in the vehicle - rattling in the interior	++++	+	+	++ VB-FSD technology
Vehicle is unstable	++++	+++	++	++ VB-FSD technology/roll stabiliser
Vehicle feels stiff	++++	++	+	
Minor unevenness/small bumps felt distinctly in the vehicle	++++	+	+	++ VB-FSD technology
Vehicle too high	++++			
Vehicle too low	++++	+++	++	
The access height of the vehicle is too high	++++			
The ramp angle of the vehicle is too high	++++			
Vehicle is not level	++++	+		
Vehicle must be able to kneel/lower	++++			
Vehicle must always have a standard ride height	++++	++		
Vehicle requires greater ground clearance	+++	++	+	
Option to uprate the maximum gross vehicle weight (GVW)	++	++	++	

THESE PRODUCT GROUPS CAN OFFER A SOLUTION:	Full air suspension PAGE 11	Semi air suspension PAGE 21	Helper and reinforced springs PAGE 29	Special components PAGE 33
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TABLE 1: WHICH PRODUCT GROUP?

If you are dissatisfied with the behaviour of your vehicle, we can help. Before we can find the perfect solution for you, it is important to correctly determine what the problem is. It is therefore necessary to assess why you are dissatisfied with the behaviour of your vehicle – not just for you, but also for us!

The solutions table on the left contains a summary of common problems. You can use this to ascertain which product group and system can provide the most suitable solution for your problem. Once you have established what the problem is, we will then provide you with appropriate information on the relevant system.

Most suitable ++++

 ++

 +

Suitable +

A suitable product group will be suggested based on the problem you have identified. Follow the instructions for the relevant product group for more information on the different systems within it.

Full air suspension

Go to page 11.

Semi air suspension

Go to page 21.

Helper and reinforced springs

Go to page 29.

Special components

Go to page 33.



TABLE 2A: ARE ANY OF THESE PROBLEMS FAMILIAR?

	VB-NivoAir	VB-FullAir 2C front axle	VB-FullAir 2C rear axle	VB-FullAir 4C front and rear axle
Vehicle sags - front		+		+
Vehicle sags - rear	+		+	+
Vehicle drifts - front		+		+
Vehicle drifts - rear	+		+	+
Vehicle is lopsided	+		+	+
Vehicle leans	+		+	+
Background noise in the vehicle - rattling in the interior	+	+	+	+
Vehicle is unstable	+		+	+
Vehicle feels stiff	+	+	+	+
Minor unevenness/small bumps felt distinctly in the vehicle	+	+	+	+
Vehicle too high	+	+	+	+
Vehicle too low	+	+	+	+
The access height of the vehicle is too high	+	+	+	+
The ramp angle of the vehicle is too high		+	+	+
Vehicle is not level				+
Vehicle must be able to kneel/lower		+	+	+
Vehicle must have a standard ride height	+	+	+	+
Vehicle requires greater ground clearance	+	+	+	+
Option to uprate the maximum gross vehicle weight (GVW)	+	+	+	+

TABLE 2B: FUNCTIONS

Memory function - M1/M2		+	+	+
Raise/lower		+	+	+
Ferry - raise rear			+	+
Load space - lower rear			+	+
AutoLevel - level vehicle				+
Sport				+
Off Road				+
Car Park/Parking				+
Water discharge				+

THIS SYSTEM MAY OFFER A SUITABLE SOLUTION:	VB-NivoAir	VB-FullAir 2C front axle	VB-FullAir 2C rear axle	VB-FullAir 4C front and rear axle
	PAGE 13	PAGE 15	PAGE 15	PAGE 17

TABLE 2: FIND THE PERFECT SOLUTION FOR YOU!

Based on the problem you identified in table 1, our **full air suspension** is the ideal solution for your problem. The tables on the left give an overview of the functions of full air suspension systems. Use these tables to find out more about the different systems within this product group.

Most suitable

Suitable

Identify the problem with your vehicle using table 2A and select your desired functions from those available in table 2B. This information is used to suggest the system that offers the most suitable solution.

VB-NivoAir

VB-NivoAir is a full air suspension system that has been specifically developed for vehicles with coil spring suspension. The existing coil spring suspension is replaced with a full air suspension system. [Read more about this system on page 13.](#)

VB-FullAir 2C

VB-FullAir 2C is an automatic, adjustable solution for suspension problems. The existing leaf or coil spring suspension is replaced with a full air suspension system on either the front or rear axle. [Read more about this system on page 15.](#)

VB-FullAir 4C

VB-FullAir 4C is an automatic, adjustable solution for suspension problems. The existing leaf or coil spring suspension is replaced with a full air suspension system on both the front and rear axle. [Read more about this system on page 17.](#)

VB-ActiveAir

Our VB-ActiveAir system is a combination of a full air suspension system (VB-FullAir 4C) and adaptive shock absorbers (VB-DynActive). At present, VB-ActiveAir is only available for motorhomes with an Iveco Daily 60C-70C chassis, as an upgrade kit and as a new kit. The system is in development for a number of vehicle makes and models. [Read more about this system on page 19.](#)



A VB-FULLAIR SOLUTION

THE RIGHT SOLUTION.

VB-NivoAir is a non-adjustable solution for suspension problems and was specially developed for vehicles fitted with coil spring suspension. The existing coil spring suspension is replaced with a full air suspension system. This system includes air springs, shock absorbers, height sensors, a compressor and an electronic control unit (VB-ASCU).

The air suspension system filters out unevenness in the road surface, improving ride comfort. While driving, the vehicle will constantly remain at the ride height set by VB-Airsuspension during installation. The standard ride height is determined during the development of the air suspension and is fixed.

OUR (AIR) SUSPENSION SYSTEMS PROVIDE MORE STABLE ROAD HANDLING WHILE DRIVING YOUR VEHICLE.

The ride height is the ideal height for comfort and stability. The driveability and stability of the vehicle are improved, which in turn increases safety.

BENEFITS OF VB-NIVOAIR:



- CONSTANT RIDE HEIGHT
- INCREASED COMFORT
- OPTIMUM DRIVEABILITY
- INCREASED STABILITY
- COMFORTABLE RIDE FOR PASSENGERS
- IMPROVED PROTECTION FOR FRAGILE GOODS
- LESS WEAR ON TYRES/BRAKES
- SPARE WHEEL REMAINS UNDER THE VEHICLE

	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Increasing safety	Improving stability	Control options
VB-NIVOAIR Full air suspension	++	++	++	++	++	+	+	

VB-FULLAIR 2C - LCV

	Memory function – stored height is activated.	< 0 km/h
	Manual control to vary the loading/unloading height.	< 0 km/h



The height of the air suspension can only be set when the vehicle is at a standstill (for loading and unloading).

VB-FULLAIR 2C - MOTORHOME

	Ferry – the rear is raised to the maximum level, for example to make the vehicle easy to drive onto a ferry.	< 30 km/h
	Load space – the front axle is automatically raised and the rear is lowered to the maximum level to make it easy to load and unload the vehicle at the rear.	< 0 km/h
	Manual control to vary the loading/unloading height.	< 0 km/h

The Ferry function lets you temporarily adjust the ride height at a maximum speed of 30 kilometres an hour. The other functions can only be operated when the vehicle is at a standstill.


ADJUSTING THE HEIGHT OF THE VEHICLE IS SIMPLE.

Full air suspension is an automatic, adjustable solution for a suspension problem where the existing leaf or coil spring suspension is replaced with a full air suspension system (available as a VB-FullAir 2C kit for the front or rear axle of the vehicle). This system includes air springs, shock absorbers, height sensors, a compressor and an electronic control unit (VB-ASCU).

The air suspension system filters out unevenness in the road surface, improving ride comfort. While driving, the vehicle will constantly remain at the ride height set by VB-Airsuspension during installation. The standard ride height is determined during the development of the air suspension and is fixed.

VB-FULLAIR 2C AIR SUSPENSION SYSTEMS FROM VB-AIRSUSPENSION COME WITH A REMOTE CONTROL THAT CAN BE USED TO EASILY OPERATE VARIOUS FUNCTIONS OF THE SUSPENSION SYSTEM.

The ride height is the ideal height for comfort and stability. The driveability and stability of the vehicle are improved, which in turn increases safety. When the vehicle is at a standstill (in some cases with the handbrake on), the access/loading platform height can be increased and decreased to comfortably enter and exit the vehicle and for goods to be conveniently loaded and unloaded.

BENEFITS OF VB-FULLAIR 2C:

- CONTROL OPTIONS
- CONSTANT RIDE HEIGHT
- INCREASED COMFORT
- OPTIMUM DRIVEABILITY
- INCREASED STABILITY
- COMFORTABLE RIDE FOR PASSENGERS
- IMPROVED PROTECTION FOR FRAGILE GOODS
- LESS WEAR ON TYRES/BRAKES
- SPARE WHEEL REMAINS UNDER THE VEHICLE

	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Increasing safety	Improving stability	Control options
VB-FULLAIR 2C Full air suspension	++	++	++	++	++	+	+	+

	AutoLevel – includes a digital levelling function that can be used to set your vehicle level (as far as the spring travel permits).	< 0 km/h
	Sport – lower the level of the vehicle by around 30 mm for better handling and firm chassis adjustment.	< 0 km/h
	Off Road – an increase of approximately 30 mm provides more ground clearance on rough terrain.	< 30 km/h
	Car Park – lower the vehicle to virtually the maximum level to make it easier to get in and out. You can also use this function (depending on the original vehicle height) to reduce the ride height in order to enter a car park with a low roof or to drive under a gate.	< 30 km/h
	Memory function – stored height is activated.	< 0 km/h
	Manual control to vary the loading/unloading height.	< 0 km/h



VB-FULLAIR 4C - LCV

The Off Road and Car Park functions let you temporarily adjust the ride height at a maximum speed of 30 kilometres an hour. The Sport function works at all speeds. The other functions can only be operated when the vehicle is at a standstill.

	AutoLevel – includes a digital levelling function that can be used to set your vehicle level (as far as the spring travel permits).	< 0 km/h
	Ferry – the rear is raised to the maximum level, for example to make the vehicle easy to drive onto a ferry.	< 30 km/h
	Off Road – an increase of approximately 30 mm provides more ground clearance on rough terrain.	< 30 km/h
	Parking – lower the vehicle to virtually the maximum level to make it easier to get in and out. You can also use this function (depending on the original vehicle height) to reduce the ride height in order to enter a car park with a low roof or to drive under a gate.	< 30 km/h
	Water drain – tips the vehicle towards the side of the waste pipes to ensure the waste tanks are completely empty.	< 0 km/h
	Load space – the front axle is automatically raised and the rear is lowered to the maximum level to make it easy to load and unload the vehicle at the rear.	< 0 km/h
	Manual control to vary the loading/unloading height.	< 0 km/h



VB-FULLAIR 4C - MOTORHOME

The Ferry, Off Road and Parking functions let you temporarily adjust the ride height at a maximum speed of 30 kilometres an hour. The other functions can only be operated when the vehicle is at a standstill.

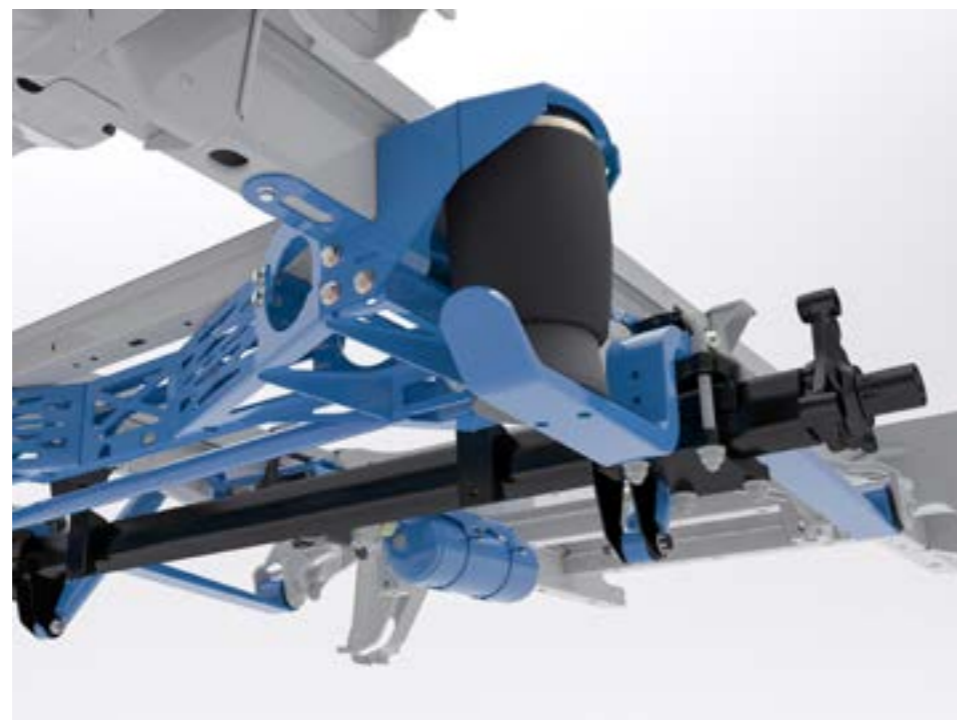
THE BEST SOLUTION FOR SUSPENSION PROBLEMS.

Full air suspension is an automatic, adjustable solution for a suspension problem where the existing leaf or coil spring suspension is replaced with a full air suspension system (available as a VB-FullAir 4C kit for the front or rear axle of the vehicle). This system includes air springs, shock absorbers, height sensors, a compressor and an electronic control unit (VB-ASCU).

The air suspension system filters out unevenness in the road surface, improving ride comfort. While driving, the vehicle will constantly remain at the ride height set by VB-Airsuspension during installation. The standard ride height is determined during the development of the air suspension and is fixed.

VB-FULLAIR 4C AIR SUSPENSION SYSTEMS FROM VB-AIRSUSPENSION ARE SUPPLIED WITH A SOPHISTICATED REMOTE CONTROL THAT CAN BE USED TO EASILY OPERATE ALL FUNCTIONS OF THE SUSPENSION SYSTEM.

The ride height is the ideal height for comfort and stability. The driveability and stability of the vehicle are improved, which in turn increases safety. When the vehicle is at a standstill (in some cases with the handbrake on), the access/loading platform height can be increased and decreased to comfortably enter and exit the vehicle and for goods to be conveniently loaded and unloaded.



	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Increasing safety	Improving stability	Control options
VB-FULLAIR 4C Full air suspension	++	++	++	++	++	+	+	++

BENEFITS OF VB-FULLAIR 4C:

- SOPHISTICATED CONTROL OPTIONS
- CONSTANT RIDE HEIGHT
- INCREASED COMFORT
- OPTIMUM DRIVEABILITY
- INCREASED STABILITY
- COMFORTABLE RIDE FOR PASSENGERS
- IMPROVED PROTECTION FOR FRAGILE GOODS
- LESS WEAR ON TYRES/BRAKES
- SPARE WHEEL REMAINS UNDER THE VEHICLE



HANDLING, SAFETY OR COMFORT. WHY SHOULD YOU HAVE TO CHOOSE?

Our VB-ActiveAir system is a combination of a full air suspension system (VB-FullAir 4C) and adaptive shock absorbers (VB-DynActive). This intelligent suspension and shock absorber system adapts in real time to the condition of the road surface, driving characteristics and the load. The system ensures better handling as well as a more comfortable and safer trip.

The air suspension compensates for varying load states by means of the air pressure in the air springs, and the variable shock absorbers control damping via a valve in the shock absorber. You can choose to put the system in fully automatic mode or engage it manually using a selector switch depending on your preference. The shock absorbers can be adjusted from minimum damping force to maximum damping force in just a few milliseconds, allowing you to alternate between more sporty handling and a comfortable driving experience as required.

THE SYSTEM ADAPTS PERFECTLY TO THE DRIVING SITUATION.

We believe it's important that the suspension system should adapt to the driver and not the other way round. The system remembers cornering speeds and braking manoeuvres and adjusts the shock absorbers based on your driving style, no matter how the body is configured. So, in Sport mode the ride is automatically made more comfortable when the driver slows down and in Comfort mode the vehicle automatically provides better handling when taking fast bends. The system has three different driving modes (Comfort, Sport and Standard) and can be operated using a switch. Of course, all of the options of the VB-FullAir 4C system are also available for this system. Two systems, double the benefit!

BENEFITS OF VB-ACTIVEAIR:

- 15% SHORTER BRAKING DISTANCE
- INCREASED STABILITY
- THE VEHICLE LEANS LESS
- LESS SIDEWAYS MOVEMENT
- REDUCED CROSSWIND SENSITIVITY
- UP TO 10 TEN TIMES MORE DAMPING THAN WITH STANDARD SHOCK ABSORBERS
- AUTOMATICALLY ADAPTS TO THE CONDITION OF THE ROAD SURFACE

ONE MOMENT YOU'RE DRIVING SMOOTHLY OVER AN UNEVEN ROAD SURFACE AND THE NEXT YOU'RE EFFORTLESSLY SWERVING TO AVOID AN OBSTACLE.



	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Increasing safety	Improving stability	Minimising fuel consumption
VB-ACTIVEAIR*	++	++	+++	+++	+++	++	++	++
Full air suspension and active shock absorbers								

* At present, VB-ActiveAir is only available for motorhomes with an Iveco Daily 60C-70C chassis, as an upgrade kit and as a new kit. The system is in development for a number of vehicle makes and models.

TABLE 3A: ARE ANY OF THESE PROBLEMS FAMILIAR?

	VB-SemiAir basic system	VB-SemiAir comfort system	VB-LevelAir
Vehicle sags - rear	++++	++++	++++
Vehicle drifts - rear	++++	++++	++++
Vehicle is lopsided	++++	++++	++
Vehicle leans	++++	++++	++
Background noise in the vehicle - rattling in the interior	+	+	+
Vehicle is unstable	++++	++++	++++
Vehicle feels stiff	++	++	++
Minor unevenness/small bumps felt distinctly in the vehicle	+	+	+
Vehicle too low	++++	+++	+++
Vehicle is not level	+	+	
Vehicle must have a standard ride height	++	+++	++++
Vehicle requires greater ground clearance	++	++	++
Option to uprate the maximum gross vehicle weight (GVW)	++	++	++
Vehicle has a variable load	+	+++	++++

TABLE 3B: SYSTEM COMPONENTS

Compressor		++++	++++
Control options	+	++++	
Control panel		++++	
Automatic level control			++++

THIS SYSTEM MAY OFFER A SUITABLE SOLUTION:

VB-SemiAir basic system PAGE 23	VB-SemiAir comfort system PAGE 25	VB-LevelAir PAGE 27
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TABLE 3: FIND THE PERFECT SOLUTION FOR YOU!

Based on the problem you identified with table 1, our **semi air suspension** could correct your problem. The tables on the left give an overview of the functions of semi air suspension systems. Use these tables to find out more about the different systems within this product group.

Most suitable ■■■■
■■■
■■
Suitable ■

Identify the problem with your vehicle using table 3A and select your desired system components from those available in table 3B. This information is used to suggest the system that offers the most suitable solution.

VB-SemiAir basic system

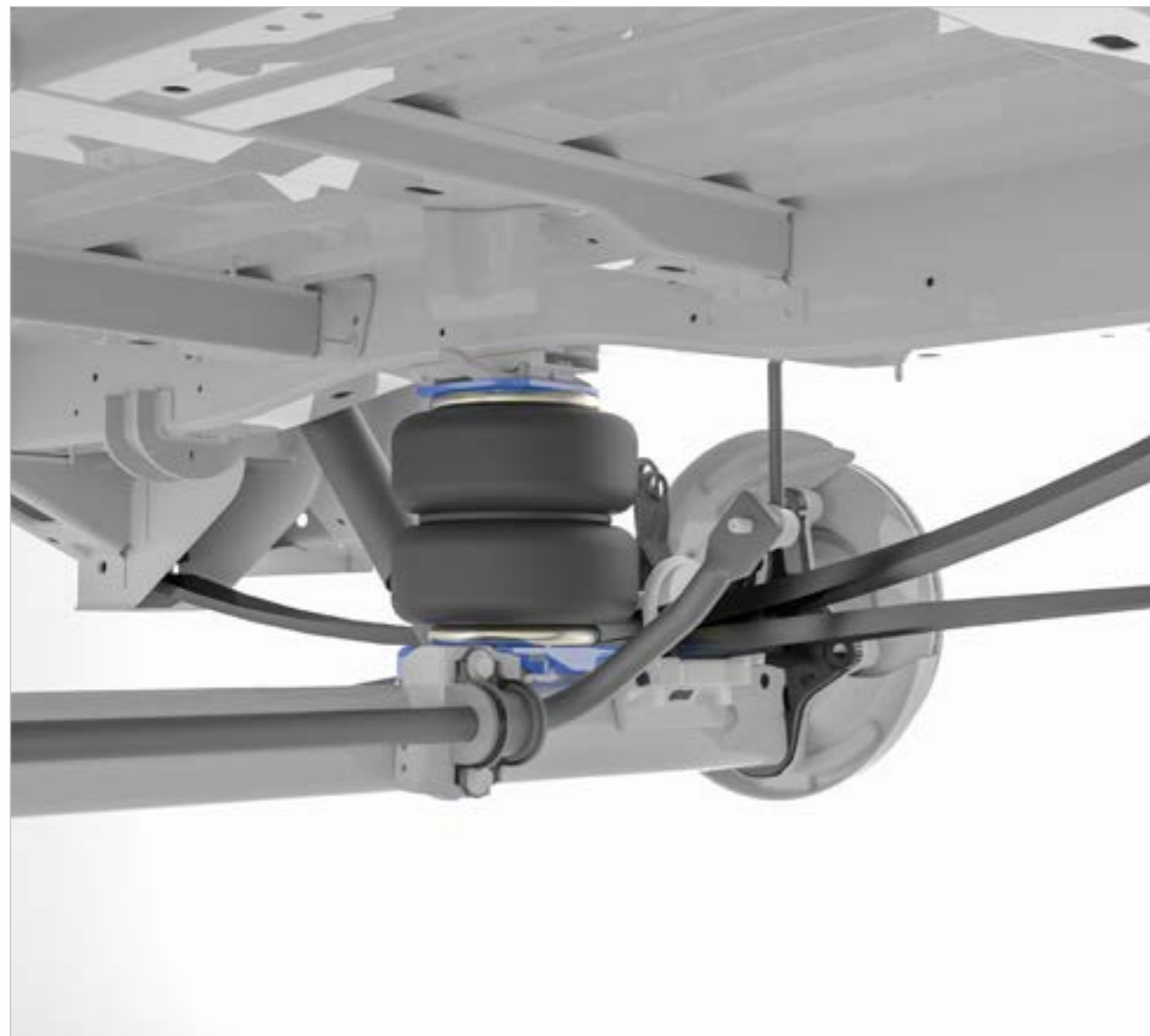
The VB-SemiAir basic system enables the suspension to be adjusted within specific limits. On a vehicle with leaf springs, an air spring is fitted between the chassis and the rear axle. [Read more about this system on page 23.](#)

VB-SemiAir comfort system

VB-SemiAir comfort system enables the suspension to be easily adjusted (manually) within specific limits. On a vehicle with leaf springs, an air spring is fitted between the chassis and the rear axle. [Read more about this system on page 25.](#)

VB-LevelAir

VB-LevelAir is a VB-SemiAir basic system with automatic level control. On a vehicle with leaf springs, an air spring is fitted between the chassis and the rear axle. [Read more about this system on page 27.](#)



WORRY LESS ABOUT YOUR LOAD.

VB-SemiAir basic system enables the suspension to be adjusted within specific limits. On a vehicle with leaf springs, an air spring is fitted between the chassis and the rear axle. This air spring supports the existing leaf spring. The VB-SemiAir basic system is therefore a good option for vehicles that always carry a heavy load and that occasionally carry variable loads (the pressure can stay the same more or less all of the time).

OUR SEMI AIR SUSPENSION WON'T SHIRK YOUR LOAD.

VB-SemiAir is supplied as a two-chamber system. This means that the air springs are not connected to each other. The use of a two-chamber system allows left and right to be adjusted separately, enabling the vehicle to be levelled even when it is loaded unevenly.

The VB-SemiAir basic system consists of two air springs, fasteners, air tubes and two inflation valves. You will need to pressurise the VB-SemiAir basic system yourself using an external air supply, e.g. a tyre inflator.



A VB-SEMIAIR BASIC SYSTEM CONTAINS:
 2 AIR SPRINGS FROM 6" TO 8"
 FASTENERS AND BRACKETS
 AIR TUBES
 2 INFLATION VALVES
 DETAILED FITTING INSTRUCTIONS
 USER MANUAL
 TÜV APPROVAL DOCUMENTATION



BENEFITS OF THE VB-SEMIAIR BASIC SYSTEM:

- HIGHER RIDE HEIGHT AND INCREASED SPRING TRAVEL
- IMPROVED STABILITY
- REDUCED OFF-CENTRE LEVEL
- VARIABLE SPRING FORCE
- GOOD VALUE FOR MONEY
- 'PLUG-AND-PLAY' SYSTEM ALLOWS FOR QUICK INSTALLATION
- THE BODY, EQUIPMENT AND LOAD REMAIN PROTECTED AGAINST DAMAGE
- HEAVY LOADS ARE NO LONGER NOTICEABLE FROM THE OUTSIDE
- LESS STRAIN ON THE SHOCK ABSORBERS

	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Automatic adjustment
VB-SEMIAIR Semi air suspension	++	++	+	+	+	



EASY-TO-OPERATE SYSTEM.

The VB-SemiAir comfort system enables the suspension to be adjusted (manually) within specific limits. On a vehicle with leaf springs, an air spring is fitted between the chassis and the rear axle. This air spring supports the existing leaf spring. The VB-SemiAir comfort system is therefore a good option for vehicles that always carry a heavy load and that regularly carry variable loads (the pressure can stay the same more or less all of the time).

EASY TO OPERATE.

VB-SemiAir is supplied as a two-chamber system. This means that the air springs are not connected to each other. The use of a two-chamber system allows left and right to be adjusted separately, enabling the vehicle to be levelled even when it is loaded unevenly.

The VB-SemiAir comfort system consists of a VB-SemiAir basic system, including control panel with two pressure gauges, two high/low switches and a powerful heavy-duty compressor. The high/low switches enable you to raise or lower the ride height of your vehicle easily. The pressure gauges give an accurate reading of the pressure (in bar) in the air springs, allowing you to inflate the air springs to the optimum level.



THE CONTROL PANELS FOR THE VB-SEMIAIR COMFORT SYSTEMS ARE AVAILABLE IN TWO VERSIONS:

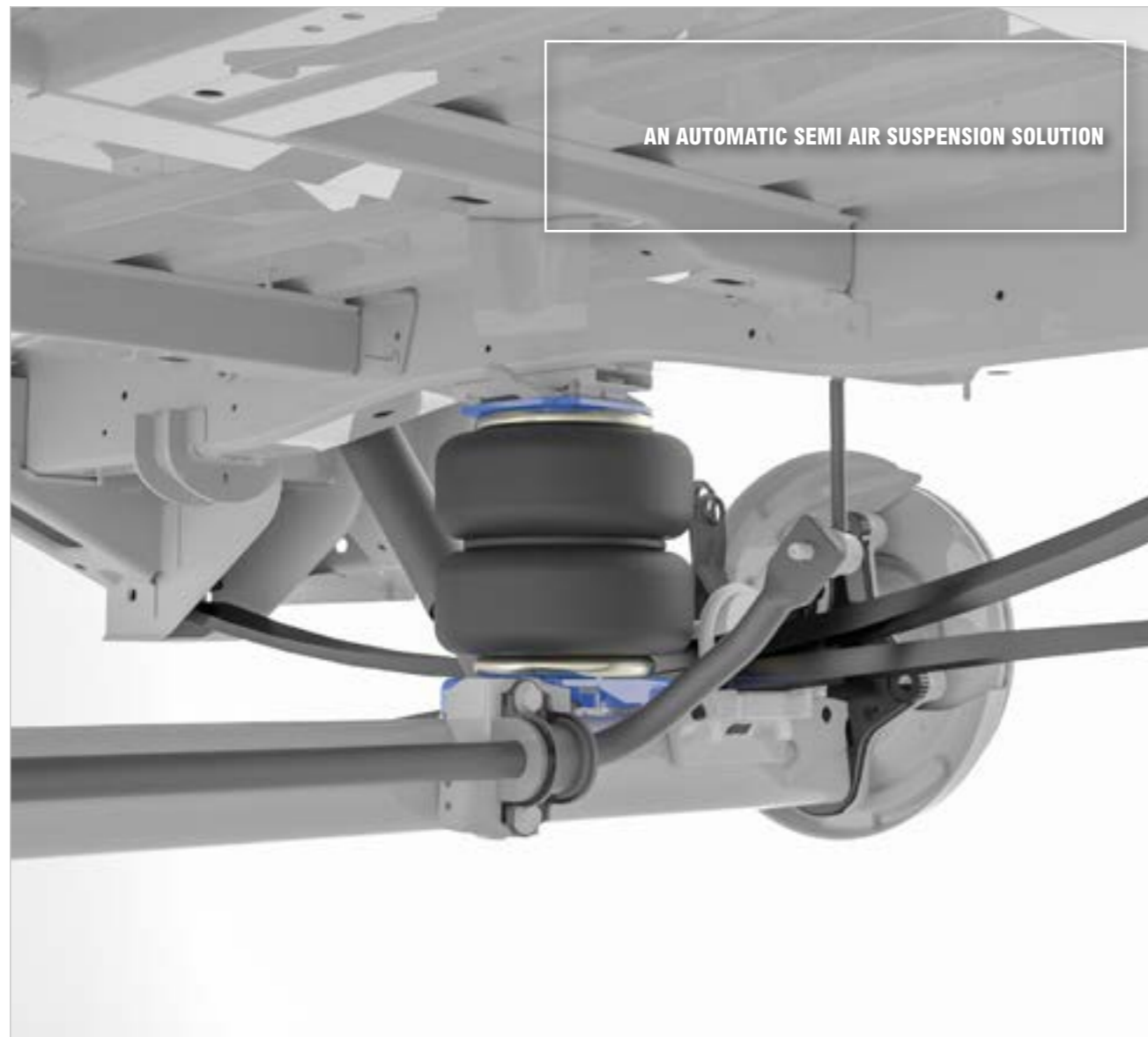
LCV – INSTALLATION - DRIVER'S SEAT
MOTORHOME – INSTALLATION - DASHBOARD



BENEFITS OF THE VB-SEMIAIR COMFORT SYSTEM:

- SIMPLE CONTROL OPTIONS
- HIGHER RIDE HEIGHT AND INCREASED SPRING TRAVEL
- IMPROVED STABILITY
- REDUCED OFF-CENTRE LEVEL
- VARIABLE SPRING FORCE
- GOOD VALUE FOR MONEY
- 'PLUG-AND-PLAY' SYSTEM ALLOWS FOR QUICK INSTALLATION
- THE BODY, EQUIPMENT AND LOAD REMAIN PROTECTED AGAINST DAMAGE
- HEAVY LOADS ARE NO LONGER NOTICEABLE FROM THE OUTSIDE
- LESS STRAIN ON THE SHOCK ABSORBERS

	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Automatic adjustment
VB-SEMIAIR Semi air suspension	++	++	+	+	+	



AN AUTOMATIC SEMI AIR SUSPENSION SOLUTION

SIMPLY GET IN AND GO.

VB-LevelAir is a VB-SemiAir basic system with automatic level control. With the VB-LevelAir system the height is adjusted automatically, as is the minimum and maximum pressure in the air springs, so that the vehicle is always at the right height and the air springs are always at the correct pressure.

The VB-LevelAir system is a good option for vehicles that carry variable loads. The VB-LevelAir system ensures the vehicle is at the right height and that the system is at the right pressure whenever the load is changed. The automatic level control removes the need for the driver to do anything if the vehicle load changes. This is beneficial particularly if the vehicle has several different drivers.

FREQUENTLY CHANGING LOADS? AUTOMATIC LEVEL CONTROL IS THE IDEAL SOLUTION.

The VB-LevelAir system is made up of the VB-SemiAir basic system including a high quality compressor box with air filter, air dryer, valve block, height sensor and an electronic control unit (VB-ASCU – Air Suspension Control Unit).



VB-LEVELAIR IS THE IDEAL COMBINATION OF A VB-SEMIAIR BASIC SYSTEM AND AUTOMATIC LEVEL CONTROL



- BENEFITS OF VB-LEVELAIR:
- AUTOMATIC LEVEL CONTROL
 - IMPROVED VEHICLE BEHAVIOUR FOR ALL LOAD CONDITIONS
 - AUTOMATIC LEVEL CONTROL MEANS NO FURTHER ACTION IS REQUIRED ON THE PART OF THE DRIVER
 - HIGHER RIDE HEIGHT AND INCREASED SPRING TRAVEL
 - IMPROVED STABILITY
 - 'PLUG-AND-PLAY' SYSTEM ALLOWS FOR QUICK INSTALLATION
 - THE BODY, EQUIPMENT AND LOAD REMAIN PROTECTED AGAINST DAMAGE
 - HEAVY LOADS ARE NO LONGER NOTICEABLE FROM THE OUTSIDE
 - LESS STRAIN ON THE SHOCK ABSORBERS

VB-LEVELAIR	Increasing the ride height	Reducing the off-centre level	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics	Automatic adjustment
Semi air suspension (automatic level control)	++	++	+	+	+	+

TABLE 4A: ARE ANY OF THESE PROBLEMS FAMILIAR?

	VB-CoilSpring front axle	VB-CoilSpring rear axle
Vehicle sags - front	++++	
Vehicle sags - rear		++++
Vehicle drifts - front	++++	
Vehicle drifts - rear		++++
Background noise in the vehicle - rattling in the interior	+	+
Vehicle is unstable	++	++
Vehicle feels stiff	+	+
Minor unevenness/small bumps felt distinctly in the vehicle	+	+
Vehicle too low	++++	++++
Vehicle requires greater ground clearance	+	+
The payload of the vehicle is too low	++	++

THIS SYSTEM MAY OFFER A SUITABLE SOLUTION:

VB-CoilSpring front axle
PAGE 31

VB-CoilSpring rear axle
PAGE 31

TABLE 4: FIND THE PERFECT SOLUTION FOR YOU!

Based on the problem you identified with table 1, our **helper and reinforced springs** could correct your problem. The table on the left gives an overview of the functions of helper and reinforced springs. Use the table to find out more about the different systems within this product group.

- Most suitable** + + + + +
- + + +
- + +
- Suitable** +

Identify the problem with your vehicle using table 4A. This information is used to suggest the system that offers the most suitable solution.

VB-CoilSpring

Helper and reinforced springs are suspension systems that support or reinforce the existing suspension system in order to correct a suspension problem. The helper and reinforced springs are either fitted to the existing leaf suspension/original coil spring suspension or replace the original coil spring suspension. These reinforced springs will largely ensure that the vehicle returns to its original ride height, which increases spring travel and thus improves stability and, to some extent, comfort levels. *Read more about this system on page 31.*





IMPROVED DRIVING CHARACTERISTICS THANKS TO SUSPENSION APPLICATIONS.

Helper and reinforced springs are suspension systems that support or reinforce the existing suspension system in order to correct a suspension problem. A helper spring or replacement spring is used on vehicles that already have coil spring suspension. Helper springs are fitted on vehicles with leaf suspension. These reinforced springs will largely ensure that the vehicle returns to its original ride height, which increases spring travel and thus improves stability and, to some extent, comfort levels.

VB-CoilSprings are a good option for vehicles that are always heavily laden and that do not carry variable loads. This is because the reinforcement to the spring force is permanent and cannot be adjusted.

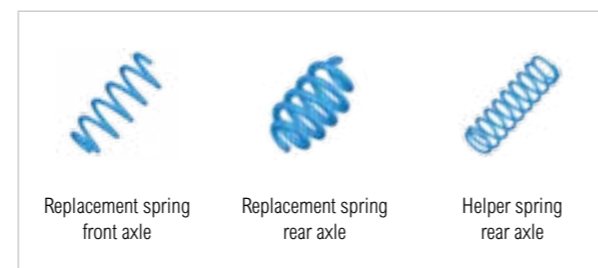
PERMANENT SPRING FORCE.

Replacement spring

As the name suggests, the original coil spring is removed and replaced by the replacement spring, i.e. by a reinforced spring.

Helper spring

The original leaf or coil spring is retained when a helper spring is fitted. The helper spring is installed alongside the original. Installing the helper spring reinforces the original suspension.



Increasing the ride height	Minimising sagging	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics
++	+	++	+	+





VB-COILSPRING

Helper and reinforced springs

BENEFITS OF VB-COILSPRING:

- SUPPLIED AS A COMPLETE INSTALLATION KIT
- LESS SAGGING
- INCREASED COMFORT
- INCREASED STABILITY
- STRONGER SUSPENSION
- LESS CROSSWIND SENSITIVITY

TABLE 5A: ARE ANY OF THESE PROBLEMS FAMILIAR?

	Roll stabiliser	VB-FSD technology
 Vehicle leans	++	
 Background noise in the vehicle - rattling in the interior		++
 Vehicle is unstable	+	+
 Minor unevenness/small bumps felt distinctly in the vehicle		+++

THIS SYSTEM MAY OFFER A SUITABLE SOLUTION:	Roll stabiliser	VB-FSD technology
	PAGE 35	PAGE 37



TABLE 5: FIND THE PERFECT SOLUTION FOR YOU!

Based on the problem you identified using table 1, our **special components** could correct your problem. The table on the left gives an overview of the functions of our special components. Use the table to find out more about the different systems within this product group.

- Most suitable** ++++
- ++
- +
- Suitable** +

Identify the problem with your vehicle using table 5A. This information is used to suggest the system that offers the most suitable solution.

Reinforced stabilisers

A reinforced stabiliser is a U-shaped metal rod that supports the existing suspension and reduces vehicle roll. The roll stabiliser is added to the existing suspension system and is available for both the front and rear axle. *Read more about this system on page 35.*

Reinforced shock absorbers

Reinforced shock absorbers have their own characteristics that improve vehicle stability. They replace the original shock absorbers, thus becoming part of the existing suspension. Reinforced shock absorbers are available for both the front and rear axle. *Read more about this system on page 35.*

VB-FSD technology

Our VB-FSD technology is available for both the front and the rear axle and has been specifically developed to improve the vehicle behaviour. *Read more about this system on page 37.*

THE RIGHT SUPPORT FOR EVERY SITUATION.

The original suspension system of the vehicle was fundamentally designed for light commercial vehicles. Practical experience demonstrates that the original springs and shock absorbers often struggle to cope with the increased weight of a vehicle (for example ambulances and motorhomes). As a result, the vehicle spring travel is reduced and the bump stops/end stops are reached more quickly, resulting in uncomfortable and unstable driving characteristics. Our diverse range of special components can provide the solutions to these problems.

EVERY SYSTEM HAS ITS OWN SPECIALITY.



Reinforced stabilisers

A reinforced stabiliser is a U-shaped metal rod that supports the existing suspension and reduces vehicle roll. The effect of a roll stabiliser is such that vertical movements in one wheel are reproduced (to a lesser degree) by the same wheel on the other side of the vehicle.

Reinforced shock absorbers

Reinforced shock absorbers have their own characteristics that improve vehicle stability. The installation of reinforced shock absorbers helps to absorb vehicle movements in relation to the road surface more effectively. The vehicle returns to the correct ride height after each movement. Vehicles with softer suspension are usually considered to be more comfortable, but often have unstable road contact. The installation of reinforced shock absorbers improves the stability and therefore is good for the vehicle too.

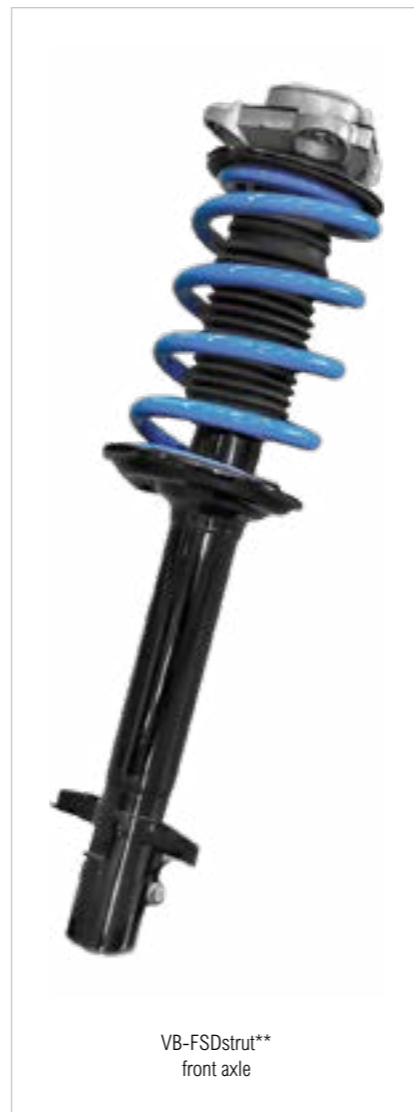
	Increasing the ride height	Minimising sagging	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics
REINFORCED STABILISERS VB-SpecialParts		++	++		+
REINFORCED SHOCK ABSORBERS VB-SpecialParts			+	+	+



VB-FSDshockabsorber*
front axle



VB-FSDshockabsorber*
rear axle



VB-FSDstrut**
front axle

STABILITY AND COMFORT.

FSD stands for ,frequency selective damping'. The addition of a special valve allows the shock absorber to vary its own damping force. This directly results in more comfortable driving characteristics, improved stability, greater safety and less vibration and background noise, since unevenness in the road surface is not felt as distinctly in the vehicle.

THE RIGHT COMBINATION.

Our VB-FSD shock absorber is a shock absorber for both the front and the rear axle that has been specifically developed to improve the vehicle behaviour. The addition of a special valve allows the shock absorber to vary its own damping force. This immediately results in better vehicle behaviour in terms of comfort and stability.

The VB-FSD strut is a suspension strut specifically developed for motorhomes with an X250/X290 chassis (Peugeot Boxer, Fiat Ducato, Citroën Jumper). The suspension strut consists of an VB-FSD shock and a special coil spring from VB-Airsuspension (VB-CoilSpring). The VB-FSD strut makes the vehicle stand higher at the front, prevents it sagging as much and creates more spring travel so that unevenness in the road surface is better absorbed. Combining these two FSD technologies gives you the ,VB Suspension Upgrade Kit'. This kit offers the best in comfort and stability in this class on both the front and rear axle.

STABILITY AND COMFORT – A STANDARD SHOCK ABSORBER WILL ONLY EXHIBIT ONE OF THESE CHARACTERISTICS. THE VB-FSD SHOCK ABSORBER OFFERS BOTH THESE CHARACTERISTICS, THUS ENABLING A SAFER RIDE.



	Increasing the ride height	Minimising sagging	Reducing vehicle roll	Improving suspension comfort	Improving driving characteristics
VB-FSDSHOCKABSORBER* VB-FSD technology			++	++	++
VB-FSDSTRUT** VB-FSD technology	++	+	++	++	++
VB SUSPENSION UPGRADE KIT*** VB-FSD technology	++	+	+++	+++	+++

* The VB-FSD shock absorber is a shock absorber for both the front and rear axle.
 ** The VB-FSD strut is a combination of a VB-FSD shock absorber and VB-CoilSpring for the front axle. It is only available for a PFC X250/X290 chassis.
 *** The VB Suspension Upgrade Kit is a combination of a VB-FSD strut on the front axle and a VB-FSD shock absorber on the rear axle. It has been specifically developed for motorhomes with a PFC X250/X290 chassis.

ADVANTAGES OF VB FSD TECHNOLOGY:

- MORE COMFORTABLE DRIVING CHARACTERISTICS
- IMPROVED STABILITY
- UNEVENNESS IN THE ROAD SURFACE NOT FELT SO DISTINCTLY IN THE VEHICLE
- LESS VIBRATION
- LESS BACKGROUND NOISE



OUR AIR SUSPENSION SYSTEMS OR SUSPENSION APPLICATIONS HELP TO ENSURE A RELIABLE AND PLEASANT JOURNEY IN YOUR VEHICLE.



YOU HAVE FOUND THE PERFECT SOLUTION!

This brochure provides an overview of the many options our systems have to offer. There are a number of product groups containing different systems, each with their own unique functions. However, all of our systems have the same goal, namely to improve the driving characteristics of your vehicle as much as possible.

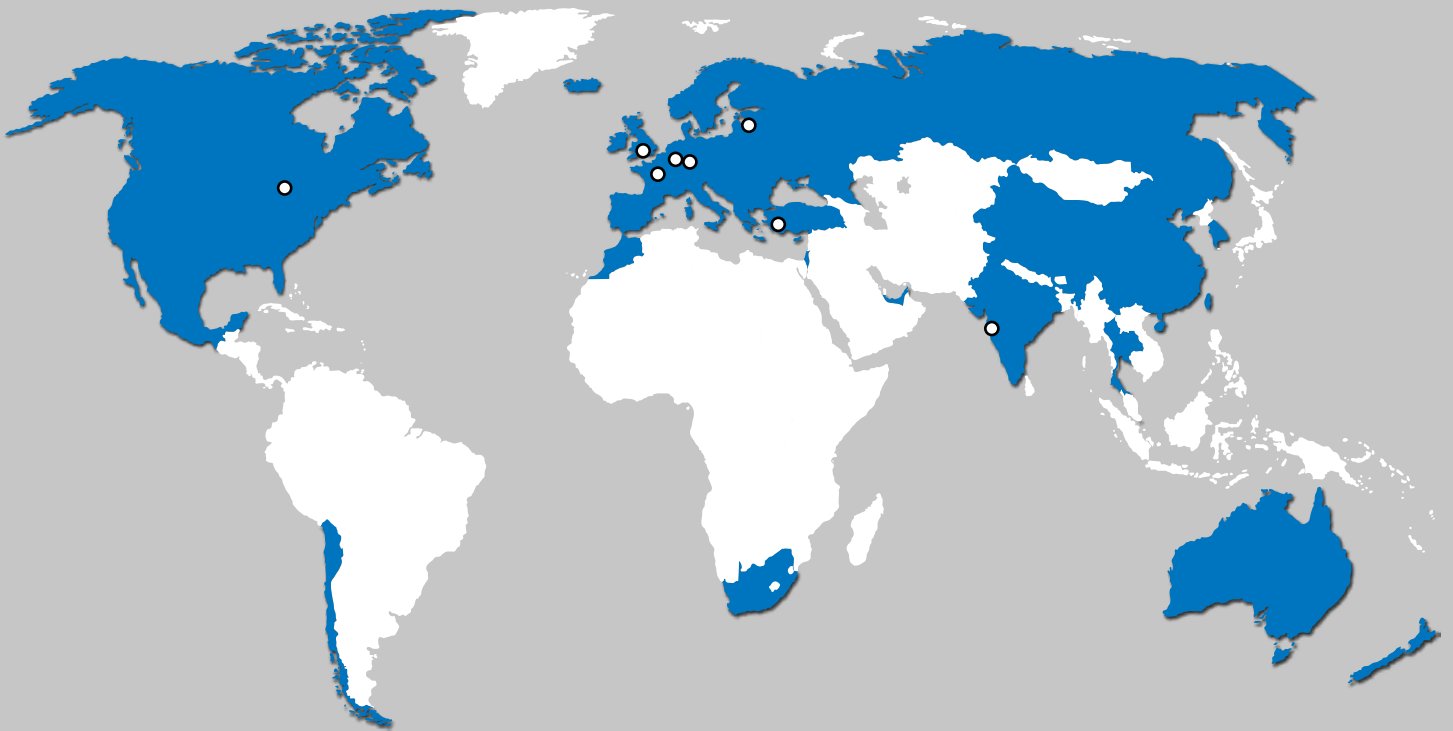
A wide variety of systems are available for all makes and models, meaning that you are sure to find the ideal solution for you. Unfortunately, it may be the case that not all products are available for certain types of vehicle. However, don't be disappointed! Our extensive product range means that we always have a suitable solution for every model.

FIND YOUR NEAREST AUTHORISED VB-PARTNER.

Our global network made up of subsidiaries, partners and service locations in more than 60 countries means there is always an authorised VB-Airsuspension specialist near you to install our products, to provide service and to give you the advice you need.

Visit our website to find your closest VB-Partner and find out more about the options available.

www.vbairsuspension.com



DISCOVER OUR PRODUCTS.

Our products find their way to satisfied users through an extensive network of international partners and dealers. Our partners and dealers are authorised specialists that have received extensive training in the installation of our products and in the provision of a high-quality service and appropriate advice.

To find your nearest partner or dealer, visit www.vbairsuspension.com.

