

## Air Suspension Introduction

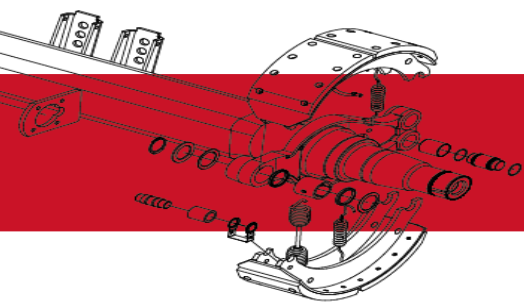


Air suspension main components.

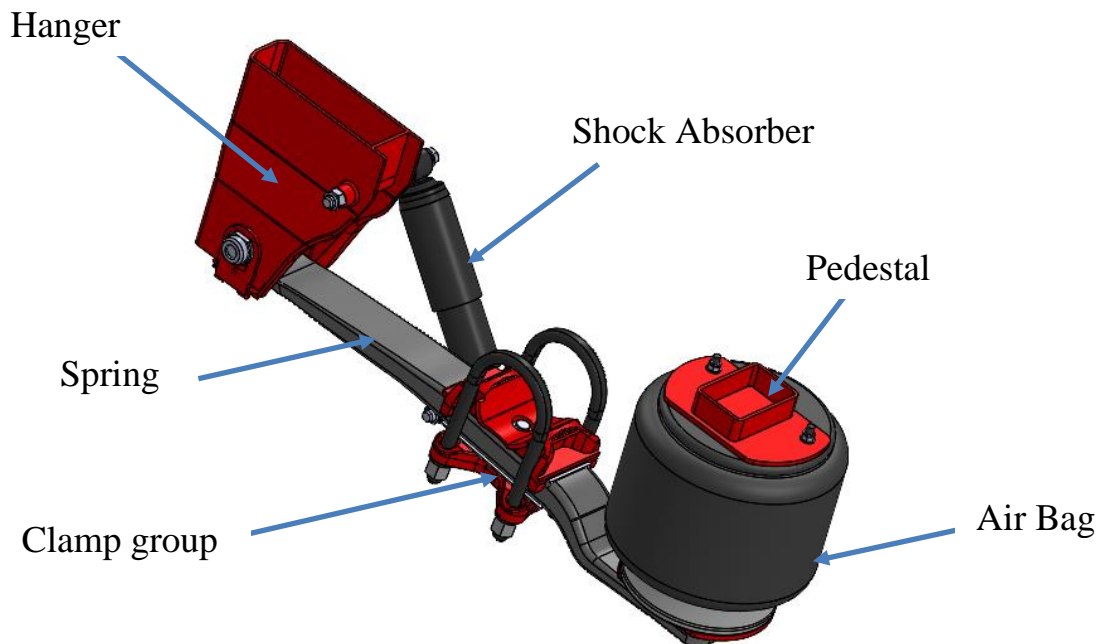
Chassis considerations when using air suspension.

Benefits of Air suspension.

How to choose your air suspension system.



## Air suspension main components.

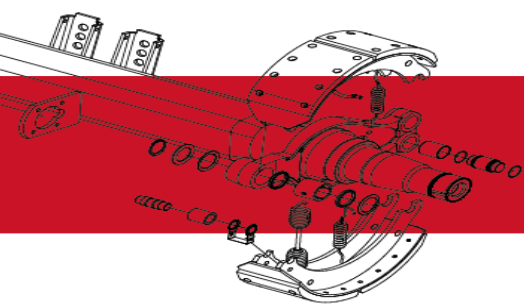


**Hanger** - This is the main connection of the suspension to the chassis. It supports the suspension spring and shock absorber. The hanger must be properly braced to the chassis to give the suspension the strength to withstand the forces on the suspension when cornering.

**Shock Absorber** - The shock absorber or ‘damper’ smooth’s out any sudden changes in height of the air bag. The shock absorber can also protect the air bag from being over stretched.

**Spring** - Distributes the load of the vehicle through both the mountings at the hanger and the air bag to the axle and therefore the road. Restrains the movement of the axle to only move through a vertical arc. Transfers sideways loads from the axle to the hanger brackets.

**Clamp group** — The axle seat in the clamp group is welded to the axle beam. Along with the torqued U bolts the clamp group holds the suspension to the axle beam. Clamp groups are available in different sizes such as 150mm square, 127mm round and 120mm square.



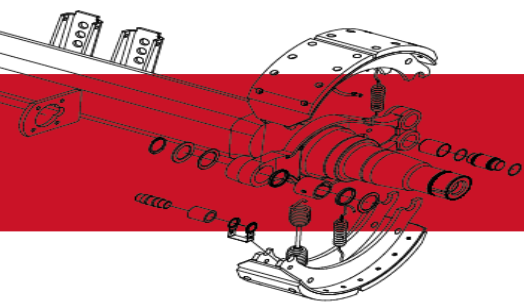
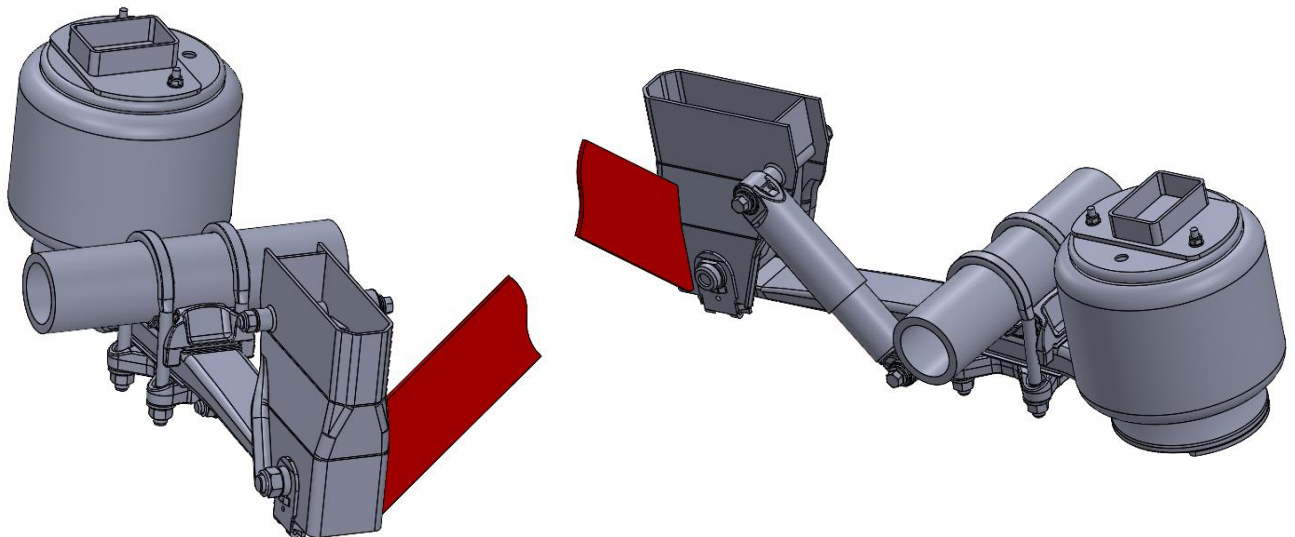
**Pedestal** — Most air suspensions have a pedestal. The pedestal is welded to the chassis. The suspension air bag then bolts to the pedestal. The pedestal can be important to give enough clearance for air bag air fitting and to be able to offset the airbag.

**Air bag** — The air bag carries and absorbs most of the load of the vehicle. The air bag can also be used to change the ride height of the vehicle by being inflated or deflated. There are different size air bags available. It is always important to do a clearance check on new vehicles between the air bag and the vehicle tires and brake chambers.

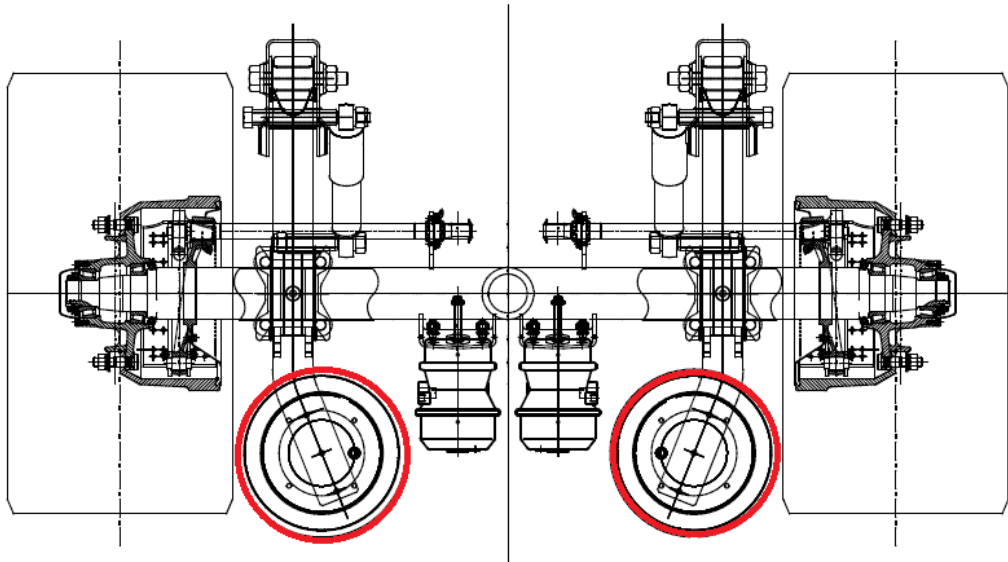


### Chassis considerations when using air suspension.

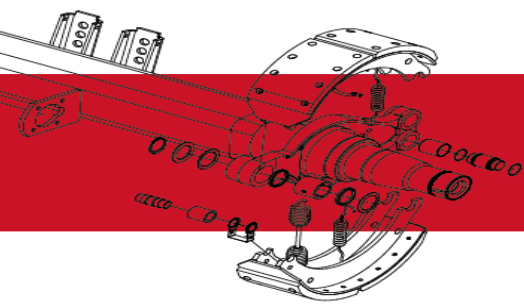
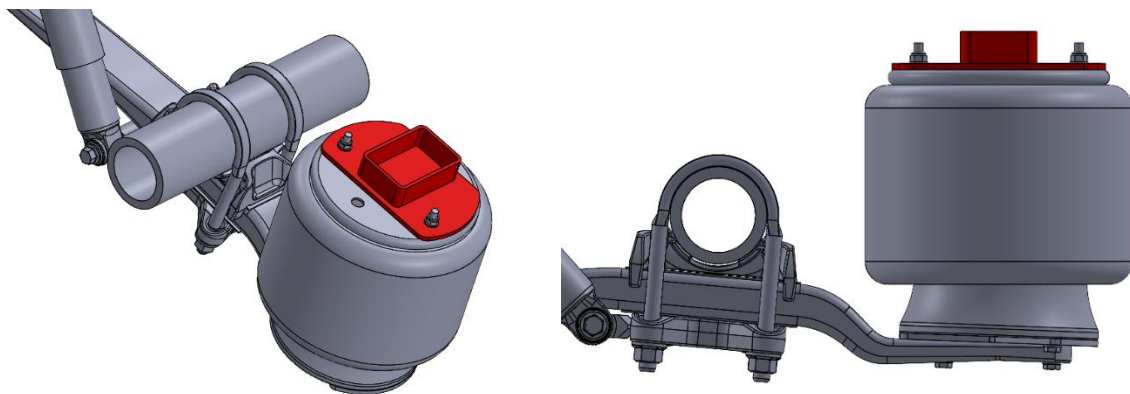
To support the suspension hanger a bracing plate must be welded from the hanger to the vehicle chassis. There are different options on how to do this and examples can be found on the Granning website.



Clearance is needed around the air suspension air bag to prevent it being damaged. The vehicle tires and brake chambers can overlap with the clearance of the air bag so it is important to get a set up drawing made for you axle and suspension. There are several options to get air bag clearance including cranked springs and offset air bags.



The air suspension air bag requires an air fitting and needs to be bolted to the vehicle chassis. If the vehicle has an enclosed box design a pedestal above the air bag would be needed to give space to secure the air bag mounting bolts and access for air fitting.



In the most basic air suspension set up only one extra valve is needed for the air suspension to work, a levelling valve. The valve is fitted to the vehicle chassis and the middle axle. The levelling valve controls the height the air suspension is set at. Full details on setting the valve can be provided by Granning.



## Benefits of Air suspension.

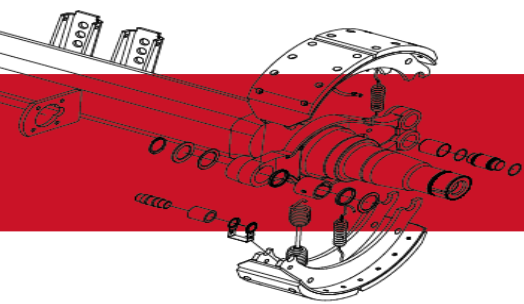
With air suspension the vehicle load is sitting on essentially cushions of air. The air suspension air bags are also connected to each other. This helps distribute the vehicle load over all the vehicle evenly, reduces shock loads on the vehicle chassis and improves the vehicle stability.

You can take advantage of the pressure in the air suspension air bags. By connecting to the air bag you can accurately know the weight on each axle by using a load pressure graph. You can use this information to check you are not overloading your vehicle, you can easily set a Load Sensing Valve to control your brakes when laden and unladen. You can also use the air bag pressure reading to lift and lower a lift axle at preset axle weights.

An air suspension also has the advantage of being able to change the height of the vehicle. By installing a raise lower valve, the chassis bed height can be raised or lowered to suit your application. Return to ride height functions can be added or different ride height settings for different applications can also be set up.

## How to choose your air suspension system.

We have a huge range of different air suspensions, but it is easy to select the one best suited to your application.

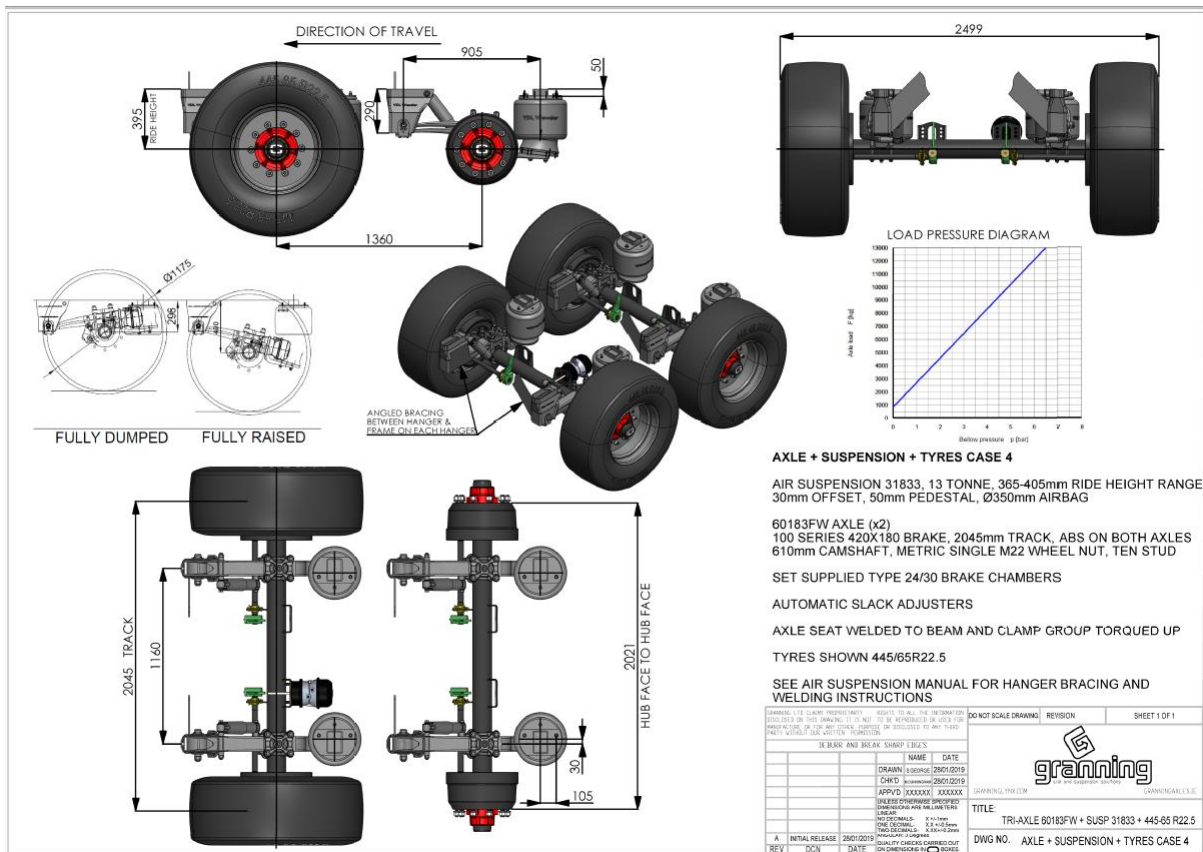


Each suspension has a capacity limit. The first step is to know the max weight you need each row of suspension to carry. If you are carrying 8000Kg per axle you can select the 9000Kg range of suspensions, if you are carrying 11700Kg you need to go up to the 13000Kg range.

Each suspension works with in a set ride height range. This is the height from the centre of the axle to the underside of your chassis. If you are not sure the ride height you need just fill in the air suspension request form and we can work out the ride height you need based on the tyre you are using and your chassis height.

If your chassis is an enclosed box, you need to select an air suspension with a pedestal.

Once you know the above details you can then easily pick the air suspension that will work for your application. We can then do an axle and suspension set up drawing to check for clearances and you can then fit the set up to your chassis drawing.



[Air-Suspension-and-Axle-Set-Form](#)

[Suspension-request-form](#)

