Ultimate Guide Low Bed Trailer

Help You Become a Expert

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Have you ever seen a trailer carrying 150 tons or more? How would you transport huge machinery, an excavator, or a crane from one location to another?

Would you like to know more about a trailer that can transport such heavy loads? Have you heard of a low bed trailer and its capacity to transport up to 150 tons?

In this guide, you will learn everything about a low bed trailer. We will show how you can choose the best low bed trailer for your business. You can follow this guide and purchase a cost-effective low bed trailer from China.

This guide has a detailed discussion on the structure of a low bed trailer, its components, and quality control process. We discuss different types of low bed trailers and the advantages of each type.

You will also learn the manufacturing process of the heavy transporters.

Low Bed Trailer

Low bed trailers are used in different industries including heavy-cargo transportation and trucking among others. The trailers are referred to as lowboys in some countries. Others consider the hydraulic axles modular trailer as a low bed trailer.

This guide does not cover a hydraulic trailer. We will release another complete handbook with all the details you need about a hydraulic module trailer. This guide focuses on low bed trailers without hydraulic suspension.

Hydraulic low bed trailer

If you have just joined the logistics industries, you will benefit from this handbook. We will give you all the information on how the low loaders technology works.

Chapter 1: What is a low bed trailer?

A low bed trailer is a heavy-duty vehicle that is to transport heavy, wide, and tall cargo. In this chapter, you will learn:

- The history of low bed trailers
- Applications and advantages of low bed trailers
- Different types of low bed trailers with detailed pictures for each type
- Different structures of low bed trailers with pictures of all the components
- Load capacity calculation

This chapter has all the basic information about the heavy-duty trailers. Here are some pictures of different types of low bed trailers.

1.1 The History of Low Bed Trailers

The first low bed trailer was manufactured in the 1920s. This first model had a riveted gooseneck that would be attached to a truck from the front part of the trailer.

The model had solid rubber tires on the rear part. It could only be loaded from the rear part. The design limited the method of loading heavy cargo. Operable equipment would be driven onto the deck of the trailer over the rubber back tires.

A better model of low boy trailers was introduced in the 1950s. The loading capacity of the improved model was higher and loading heavy equipment on the deck was easier.

The trailers with a detachable gooseneck were introduced in 1958. The design made loading the deck even easier. The first model could only be loaded from the back because of the riveted gooseneck.

The new models introduced in the 1950s could be loaded front the front.

detachable gooseneck trailers

The detachable gooseneck trailers back then operated in the same way as the current models of RGN trailers. The design eliminated the need for loading ramps in low boy trailers.

Low bed trailers have evolved over the year to include hydraulic systems. A hydraulic ram is used in modern trailers to lift the trailer to meet the unit after loading.

Modern models of low bed trailers have air breaks, which were missing in old models. The lowboy can be towed by trucks.

1.2 Applications and Advantages of Low Bed Trailers

Applications

Low bed trailers are used to transport heavy cargo is different industries. Here are most common uses of the heavy-duty trailers.

Heavy vehicles: Vehicle manufactures use low bed trailers to transport heavy vehicles from one showroom to another. The transporters are used to move the vehicles from the port to showrooms and sometimes to clients.

Some of the heavy vehicles that low bed trailers transport include buses, tractors, and special vehicles. A low bed trailers can transport stacks of small vehicles at the same time.

Rail vehicles: There are different categories of rail vehicles including road-rail vehicles, goods wagon, locomotives, and rail motor coach among others.

The common characteristic of these vehicles is that they are heavy and bulky. Low bed trailers are among the best ways to transport rail vehicles.

Mining machinery: Mining requires heavy machinery for drilling and transporting materials including crude oil and minerals. The machinery is assembled offsite and then transported to the mining sites using low bed trailers.

The heavy haulers are preferred because the structure of mining machinery. Mining equipment is perhaps the heaviest cargo that machinery manufacturers transport on the road.

Mining machinery transportation by low loader

Forestry machinery: The forestry industry uses heavy machinery as well. Heavy equipment is required to cut down and transport logs. Sometimes the logs are processed into timber and other by-products at the site before transporting the products.

The machinery is manufactured assembly halls or imported before it is transported to the forest. Low bed trailers are used to move the forestry machinery from the assembly to the forests.

The wheels of the trailers can navigate the rough terrain in forests. Low bed trailers are also used to move forestry machinery from one forest to another or back to assembly halls after a project is completed.

Agricultural machinery: Agriculture is another field that uses heavy machinery. The machinery is mostly used for large-scale farming. Such large farms are located far from towns and cities.

The major agricultural machinery that low bed trailers transport includes loaders, excavators, bulldozers, cranes, and pavers. The heavy trailers can navigate muddy agricultural farms and move machinery from one farm to another.

Construction: Low bed trailers are used in the construction industry as well. The heavy duty vehicles are commonly used in the construction of roads and bridges.

Excavator transportation by low loader trailer

Some construction equipment and blocks cannot be transported with the normal semi-trailers. Low bed trailers are used to transport concrete blocks to the construction sites.

The blocks are not only heavy but also large. Constructors use the trailers to transports materials in bulk such as cement and beams

Windmill components: The components of windmills are usually assembly in a factory and then transported to their sites. Similar to other heavy cargo, the components are wide and heavy.

The components cannot fit on a closed trailer because of their design and structure. Lowboy trailers are efficient way of transport these components to their site.

Windmill components transportation by low bed trailers

Low bed trailers are not only used to transport machinery and vehicle but all categories of heavy loads. For instance, finished products from these industries are packed in containers and stacked on lowboys for transportation.

The transporters can move stacks of heavy containers without toppling over. Hence, many manufacturers prefer to transported finished products to retailers with low bed trailers.

- ## Advantages of low bed trailers

Low bed trailers are widely used in different sectors because of their advantages over other heavy transporters. The main advantages are outlined below.

- **Stability**

The deck of the lowboys is extremely compared to other heavy haulers. A low-lying deck means that the center of gravity is low. Hence, low bed trainers are more stable when transporting heavy cargo than trailers.

One of the ways of increasing stability is widening the base of support. This is possible with low bed trailers because the cargo plane width can be widened. The trailers remain stable on the road irrespective of the height and weight of the cargo.

- **Safety**

Low bed trailers are specifically designed to carry heavy loads. The trailers are made of high-strength materials that can withstand pressure of up to 700mpa.

In addition, the height of the main beams can be as high as 550mm. Hence, manufacturers are assured of the safety of their equipment and products during the transportation process. Below is a picture of the heavy beams that are used to make low bed trailers:

A full discussion of all components and materials used to make low bed trailers follows in Chapter 2.2.1.

- **Complying with height restrictions**

Some countries have laws that restrict the height of cargo that can be transported on the road.

Low bed trailers offer companies a solution to transport extra tall equipment safely without breaking the laws.

Loading tall equipment on a trailer is often a huge challenge to transport companies.

Tank transport by low bed trailer

Some types of low bed trailers allow the user to lower the rear part, which makes loading heavy cargo easier and safer.

More details about different types of low bed trailers including the detachable trailers are outlined in the next section.

- **Versatility**

One reason why many companies buy low bed trailers is that they are versatile. The trailers can heavy loads and over-width cargo. In most cases, heavy machinery and equipment are extra wide.

The structure of low bed trailers enable companies to transport such wide cargo easily. Remember that trailers can handle extra tall cargo as well.

A company that handles different types of cargo does not need to buy different trailers for each category. A low bed trailer can transport any type of goods as long as the goods are packaged appropriately.

All that transporters worry about after buying a low bed trailer is how to maintain it in good condition.

Learn More:

How To Keep Cargo Stable On A Low Bed Trailer

Low Bed Trailer Wiki

1.3 Different Types of Low Bed Trailers

- ## Ordinary low bed trailer

An ordinary low bed trailer has a flat plate type, that is, the cargo plate is a flatbed. The trailer has only one drop, which is after the goose-neck as shown in the picture below.

The trailer is used to transport normal heavy cargo. It cannot transport cargo with a high height as other trailers. This type of trailer has a higher working platform than other low bed trailers because of the flat plate type.

The position of the working platform explains its limitations in transporting cargo with a high height.

Ordinary low bed trailer

A standard two-axle low bed trailers can transport up to 40,000 pounds. However, it is possible to increase the load capacity by increasing the number of axles.

The load capacity will also depend on the model. Some factories produce standard low bed trailers with additional axles depending on the customer's needs. You can request for a customized standard trailer depending on the type of cargo.

Advantages

One of the benefits of using the ordinary low bed trailer is that it is cost-effective. The trailer is cheaper than other heavy-duty trailers.

Another advantage is that the cargo platform is longer. The second half of the ordinary low bed trailers can be used as a cargo platform. The picture below shows this second part that extends the cargo platform.

- ## Low loader trailer

This type of a trailer is also referred to as a double drop deck trailer. The main characteristic of the trailer is that it has a lower cargo platform.

Its cargo platform is positioned lower than the rear half of the trailer. The structure of the cargo platform is call a staircase structure or a concave beam.

Low loader trailer

Advantages

The main advantage of the low loader trailer is high stability. The staircase structure lowers the height of the cargo center, which increases stability during transportation.

The trailer is commonly used to move heavy equipment and cargo with a high height. It is best suited in countries that have strict height restrictions. Below is are pictures of a double drop deck trailer.

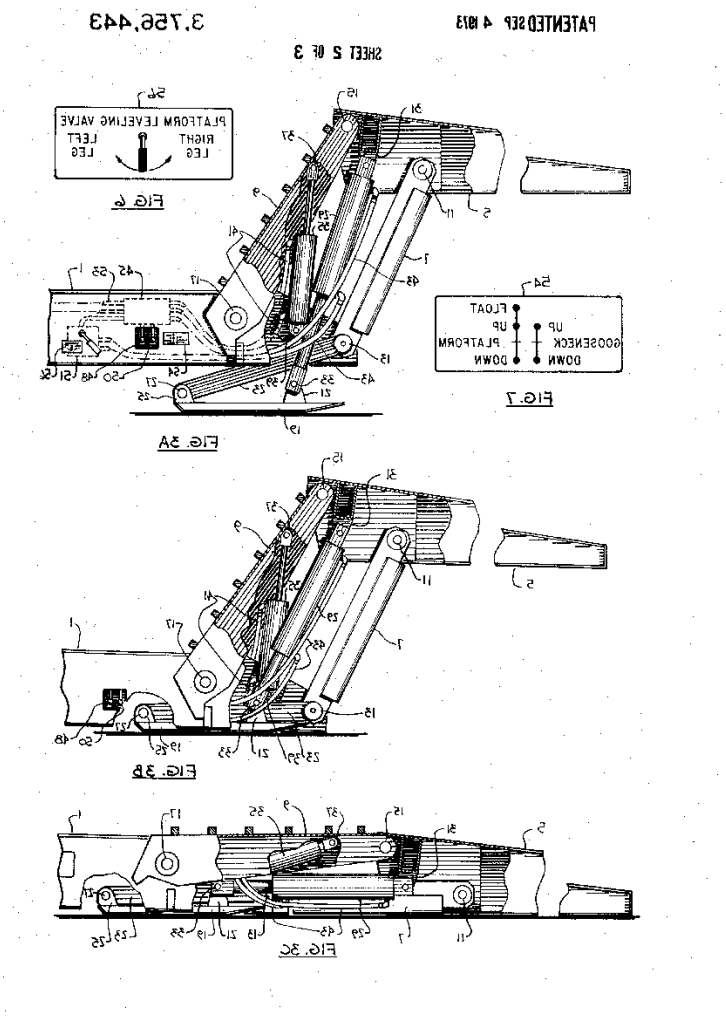
- ## Removable gooseneck trailers (RGN trailers) and folding gooseneck trailers

RGN trailers have the same staircase structure at the real part as the low loader trailers. The major difference in these trailers is that the gooseneck can be removed.

RGN trailers are used for transporting heavy equipment and machinery. When using an ordinary low bed trailer, the heavy cargo is loaded from the rear part. However, the cargo is loaded from the front part when using a RGN trailer.

Loading heavy cargo from the front is possible because the gooseneck is removable. Folding gooseneck trailers offer the same convenience of loading cargo from the front.

Folding gooseneck trailers for rail vehicles



Patent US3756443 Folding gooseneck trailer

The difference with RGN trailers is in the movement of the gooseneck. Both RGN and folding gooseneck trailers do not have rear ladders as other trailers.

RGN trailer

There are two major types of detachable gooseneck trailers. The first type is the hydraulic RGN trailer. It is the easiest and fastest to detach compared to other types of detachable gooseneck trailers.

The hydraulic RGN is versatile and the most common type of low boy trailers. The trailer uses hydraulic cylinders to detach the gooseneck. The cylinder lower and raise the trailer as required when loading cargo.

The hydraulic RGN trailer has a small cylinder that attaches the gooseneck to the truck. Heavy cargo can be driven from the front part to the deck of the trailer when the gooseneck is detached.

Hydraulic RGN trailers can be operated from the truck auxilliary. An alternative way is to run from a pony motor that can be mounted in the gooseneck of the RGN trailer. The shortcoming of hydraulics is that they are heavy and have a shorter deck length.

The second type of RGN trailers is the mechanical detachable goosneck trailer. Raising and lowering the trailer in this type is harder and slower compared to the hydraulics.

The main advantage of mechanical RGN trailers is that they are lighter and cheaper. In addition, they have a longer decking that makes them suitable for long and heavy cargo.

Many of the folding gooseneck trailers are mechanical. In the case of folding gooseneck trailers, the deck folds down to the ground. Hydraulic detachable goosenecks have more maintenance needs than mechanical detachabel goosenecks.

The hydraulic system increase the maintenance needs and costs. The ease and speed of loading cargo come at an additional cost of maintain the hydraulic system.

Transporting bulldozer by detachable goosneck trailer

Advantages

Why should you choose a removable or folding goose-neck trailer instead of other low bed trailers?

One benefit is that loading heavy from the front is safer than loading from the rear part or from the sides.

Loading from the back is unsafe especially when moving heavy equipment.

The rear part has a staircase structure. Hence, a long ladder is required to load heavy equipment.

The heavy cargo may fall off the ladder or from the rear part to the cargo platform.

Such falls will damage the equipment or cargo even before they are transported.

Read More:

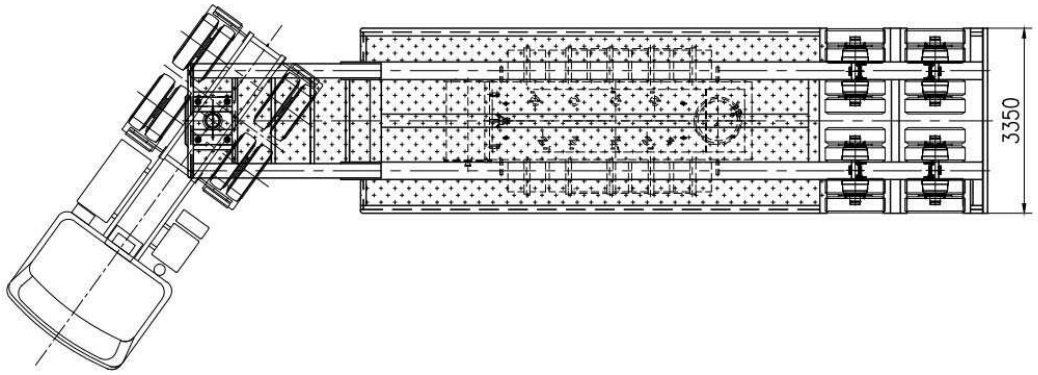
Detachable gooseneck for trailers and the like

Folding gooseneck trailer

1.4 Different Structures of Low Bed Trailers

There are different types of low bed trailers as outlined above. However, low bed trailers have different structures as well. Hence, you may find the same type of trailers with different structures. There are four main structures of low bed trailers.

First, The differentiating factor in this structure is the number of main beams. The trailer may have 2 or 3 beams depending on the load capacity. 3 beams may be used to enhance the safety of the cargo. Below is an illustration of a 3-beam trailer:



2 axle-lines low bed trailer with 3 main beams

Second, Most low bed trailers have an iron plate, which is strong and durable. However, some countries prefer to use wooden boards instead of iron plate.

The main reason for using a wooden board is to reduce the total weight of the trailer. Here is an example of a low bed trailer with a wood board.

Low bed trailer with wood board

Third, Sometimes the cargo that needs to be transported requires the dimensions of the low bed trailers to be adjusted. The cargo may be wide or long.

This structure is different from others in that the trailer's board can be widened to carry a wide cargo. Trailers with this structure have a widening device on the side as shown in the picture below:

Widen device on low loader trailer

Fourth, The tires of a low bed trailer can either be exposed or unexposed. The main purpose of exposing the tires is to reduce the height of the trailer.

The practice is common in countries with strict height restrictions. Unexposed tires are common in countries with no height limitations. Here is a picture of a trailer with unexposed tires:

Unexposed tires

Here is an example of a low bed trailer with exposed tires:

Exposed tires

1.5 Load Capacity Calculation

The best way to purchase a low bed trailer is to consult an engineer. The professional help of an engineer will guide you in determining the load capacity of the trailer.

Your first consideration when buying a low bed trailer is the maximum weight that you intend to transfer with the trailer. The right trailer should have the capacity to transport that weight.

However, you will not always get quick feedback from an engineer. Here is the method to use to calculate the load capacity without an engineer:

Maximum load capacity = number of axles x each axle's load capacity + the load capacity of the towing truck

This formula enables you to estimate the maximum weight you can transfer using any trailer. However, you need another formula the right axle capacity.

Axles have different load capacities. The most common axles are 13t, 26t, and 30t or heavy load model. Here is the formula for choosing axles.

Total weight = empty weight (vehicle weight) + cargo weight = 2 x number of axles x each axle's load capacity

The assumption in this formula is that the total axle's load capacity is approximately equal to the load capacity of the towing truck. With this formula, you can choose the right axle type without an engineer.

Chapter 2: Factors to Consider When Purchasing a Low Bed Trailer

China has many excellent manufacturer of heavy-duty vehicles including low bed trailers. This chapter provides a buying guide to help you buy the right low bed trailer for your business. The aspects of the purchasing process covered in this chapter include:

- How to choose a suitable model
- How to choose components
- The complete manufacturing processes
- How to choose a company

Let us now focus on each of these aspects in detail. By the end of the chapter, you will have all the information you need to buy a cost-effective trailer from China.

2.1 How to Choose a Suitable Model

The ordinary low bed trailers, RGN trailers, and low loaders have their advantages and disadvantages. Then right model for your business will depend on the type of cargo that you want to transport.

Choosing the right low boy trailer is important because of the safety of your goods. You want your goods to arrive to their destination in a good condition at all times. Any accidents and damages on the road will lead to huge losses.

Since lowboy trailers carry heavy and expensive cargo, any damages will have a huge effect on your business profits. If you are operating a freight company, accidents and damages will ruin the reputation of your business.

3 axle line low bed trailer

Another disadvantage of choosing the wrong model of low bed trailer is downtime. You will always disappoint your clients because of occasional downtime if you choose a trailer to low quality components.

Here are major considerations you should make to choose the right model.

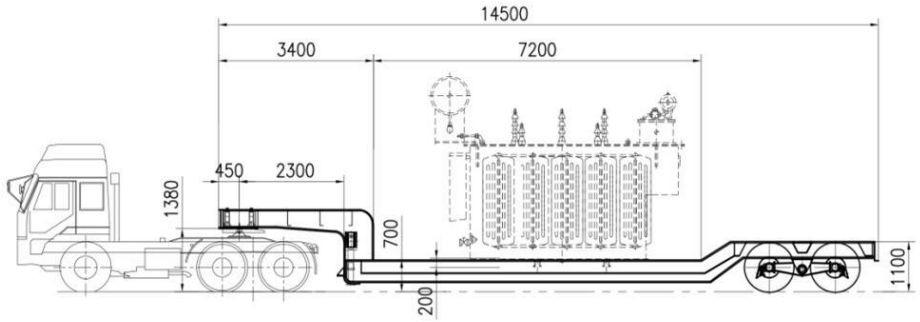
Price: Always start the purchases process with a budget in mind. The prices of low bed trailers vary with their load capacities and performance.

The ordinary low bed trailers have a higher cost performance for transporting heavy goods than trailers. The best model should fit your budget.

If you are looking for a trailer to transport heavy cargo at the least cost possible, the ordinary low bed trailers are your best choice.

Cargo dimension: It is important to consider the dimensions of your cargo when choosing a trailer model. Consider the width and height, especially if your country has height limitations for transportation vehicles.

If the height of your cargo is too high, choose a low loader, an RGN trailer, or a folding gooseneck trailers. The models allow you to lower the rear part and reduce the total height of the cargo.



Consider the dimensions of your cargo

Cargo weight: The right model will depend on the maximum weight of your cargo. If you intend to transport more than 70 tons, consider buying low loaders, RGN trailers, and folding gooseneck trailers.

The three models have a high load capacity to transport heavy cargo. In addition, the lower deck ensures that the heavy cargo remains stable during transportation.

When you lower the rear part to load the cargo, you lower the center of the cargo or the center of gravity. Lowering the center of a heavy load increases its stability.

Loading process: Loading heavy cargo on trailers is often a challenge to many businesses. However, the process can be easier if you choose the right model. It is cumbersome to load heavy and bulky on trailers with no drop deck.

You do not just need a staircase structure to reduce the height of the cargo but also to make loading easy. Trailers have different loading processes.

While RGN and low loaders are good for loading heavy cargo, an ordinary trailer may be the best if you have lifting equipment. Most low bed trailers are loaded either from the front or from behind.

However, you will find some models in the market that allow you to place the trailer under the cargo load and then lift it. This method is convenient and reduces the risk of damaging the goods while loading.

Maintenance costs: The buying price is not the only cost you will incur on your trailer. You have to service the trailer regularly to maintain its optimal performance. Some factories make the best trailers but use expensive parts.

You will learn about maintain different parts in chapter 7. However, you need to consider the cost of keeping the trailer running at all times. If you choose a cheap trailer, you may incur a higher cost in replacing worn out parts.

Sometimes expensive trailers have lower maintenance costs because the components are of high quality. You can research on the maintenance requirements from the manufacturer's recommendation.

At the end of the day, you should get a cost-effective trailer that can handle your type of cargo. Balance the cost with the performance or loading capacity of the trailer.

Future business needs: You are likely to buy a trailer based on type of cargo that your business has been transporting. However, you must consider the possible that the type of cargo may change in the future.

If you just started a freight company, the initial cargo may be within the standard weight, width, and height. As you grow your business, the cargo may get heavier, bulkier, and wider.

The best approach is to buy a versatile trailer that can handle current and future needs of your business. For instance, a standard trailer can transport your current cargo but you will need a low loader or an RGN trailer in the future.

It is cheaper and better to buy an RGN trailer that can last for several years. You will not need to replace the trailer when the business grows.

Learn more:

How to secure truck load? Use these vital tips to keep your load secure!

2.2 How to choose components

After choosing the right model for your cargo type, you need to consider each component of the trailer. Remember that you will not always have an engineer to help you inspect the capacity of the components. In this chapter, you will learn how to choose different components including:

- Material
- Main beam
- Landing leg
- Kingpin
- Tires
- Axles and brake
- Suspension
- Ramp
- ABS

Different gooseneck's structures, production procedures of RGN and folding gooseneck trailers will be introduced in next guide (coming soon).

Material

You need a low bed trailer for heavy-duty transportation. Hence, the right materials should be high-strength steel. The most common types of steel used in the main structure of low bed trailers include Q345, Q550, and Q690.

Aluminum is also used in the main structure in some countries. Here is a discussion of the different types of materials.

Q345 (ASMT Grade 50), Low Alloy Steel: In this discussion, Q represents the material yield strength. Hence, this type of material has yield strength of 345 MPa.

The specifications of the low alloy steel are C≤0.20，Mn≤1.7，Si≤0.55，P≤0.035，S≤0.035，V 0.02~0.15. One of the advantages of choosing this material is that is it economic or cost-effective.

Other advantages include a high cutting and welding performance. The material is widely used in buildings, pressure vessels, vehicles, bridges, and ships.

Q550 (ASTM Type8 Grade 80), Q690 (ASTM 100 [690] Type Q: The two materials are quenched and tempered high tensile strength plates. They have yield strength of 550 Mpa and 690 Mpa respectively.

The materials are widely used in coalmine machinery and engineering machinery such as port cranes, hydraulic support, and shipyard transporters. Below is a picture of a Q690 steel plate:

Design ation	Grade	Components / %														
		C	Si	Mn	P	S	Nb	V	Ti	Cr	Ni	Cu	N	Mo	B	Ala
		≤														≥
Q345	A	≤0.20	≤0.50	≤1.70	0.035	0.035	0.07	0.15	0.20	0.30	0.50	0.30	0.012	0.10	—	—
	B				0.035	0.035										
	C				0.030	0.030										0.015
	D	≤0.18			0.030	0.025										
	E				0.025	0.020										
Q390	A	≤0.20	≤0.50	≤1.70	0.035	0.035	0.07	0.20	0.20	0.30	0.50	0.30	0.015	0.10	—	—
	B				0.035	0.035										
	C				0.030	0.030										0.015
	D				0.030	0.025										
	E				0.025	0.020										
Q420	A	≤0.20	≤0.50	≤1.70	0.035	0.035	0.07	0.20	0.20	0.30	0.80	0.30	0.015	0.20	—	—
	B				0.035	0.035										
	C				0.030	0.030										0.015
	D				0.030	0.025										
	E				0.025	0.020										
Q460	C	≤0.20	≤0.60	≤1.80	0.030	0.030	0.11	0.20	0.20	0.30	0.80	0.55	0.015	0.20	0.004	0.015
	D				0.030	0.025										
	E				0.025	0.020										
Q500	C	≤0.18	≤0.60	≤1.80	0.030	0.030	0.11	0.12	0.20	0.60	0.80	0.55	0.015	0.20	0.004	0.015
	D				0.030	0.025										
	E				0.025	0.020										
Q550	C	≤0.18	≤0.60	≤2.00	0.030	0.030	0.11	0.12	0.20	0.80	0.80	0.80	0.015	0.30	0.004	0.015
	D				0.030	0.025										
	E				0.025	0.020										
Q620	C	≤0.18	≤0.60	≤2.00	0.030	0.030	0.11	0.12	0.20	1.00	0.80	0.80	0.015	0.30	0.004	0.015
	D				0.030	0.025										
	E				0.025	0.020										
Q690	C	≤0.18	≤0.60	≤2.00	0.030	0.030	0.11	0.12	0.20	1.00	0.80	0.80	0.015	0.30	0.004	0.015
	D				0.030	0.025										
	E				0.025	0.020										

Material components

牌号	Grade	Yield strength/MPa		Tensile strength /MPa	Elongation	AkV/J			180°Cold bending test d=Bend diameter a=Specimen thickness
		Thickness/mm			δ5(%)	0℃	-20℃	-40℃	
		≤50	>50~100		≥				
Q420	CDE	420	400	520~670	18	40	40	27	d=3a
Q460	CDE	460	440	550~710	17	40	40	27	d=3a
Q500	DE	500	480	610~770	16		40	27	d=3a
Q550	DE	550	530	670~830	16		40	27	d=3a
Q620	DE	620	600	720~890	15		40	27	d=3a
Q690	DE	690	670	770~940	14		40	27	d=3a

Material strength

Aluminium: Some countries use aluminum instead of steel for the main structure. Aluminum has lower yield strength than steel and is more expensive. However, its cutting performance is very good.

Aluminum is lighter than steel and hence the trailers made of aluminum are very light. The light weight is not suitable for transporting very heavy loads.Aluminum trailers are recommended for tranporting cargo below 50 tons.

Advantages of aluminum include anti-corrosion properties and high prevention of rust. Its disadvantages include low wear resistance and low hardness or strength. Here is a picture of an aluminum trailer:

Aluminium low bed trailer

- ## Main beam

The most common type of main beam in low bed trailers is the I-beam. I-beams consist of an upper plate, a vertical plate, and a lower plate. The vertical plate in most cases requires to be punched.

Main beams

The vertical plate can reduce the weight of the trailer and increase the strength of the main beam. Most low bed trailers have 2 main beams. However, 3 beams are used for heavier transportation to improve the safety of the cargo.

A trailer with 3 beams is safer but heavier and more expensive than other trailers. Hence, you need to choose the right number of beams depending on your cargo type.

The main beams should have high yield strength to support a trailer. Hence, the ideal materials for main beams include Q345, Q550, and Q690 steel. Other beams can use materials of Q235 steel.

Cross beams and side beams are usually welded on the main beam as shown in the picture below:

Beams of low bed trailer

- ## Landing gear

The landing leg is used to support the trailer when it is disconnected from the truck. The most important consideration when choosing the landing leg is the loading capacity.

The landing leg can carry half of the total weight of the trailer. The main models of landing legs include individual operation and linkage.

The landing leg has a gear case for changing the speed of lowering or raising the trailer. Here is an important point to note when operating the landing leg.

Do not use the Quick Mode when the trailer is carrying a heavy load. Always ensure that the landing ground is horizontal. Below is a picture is of a disconnected trailer and the supporting landing leg.

Landing gear

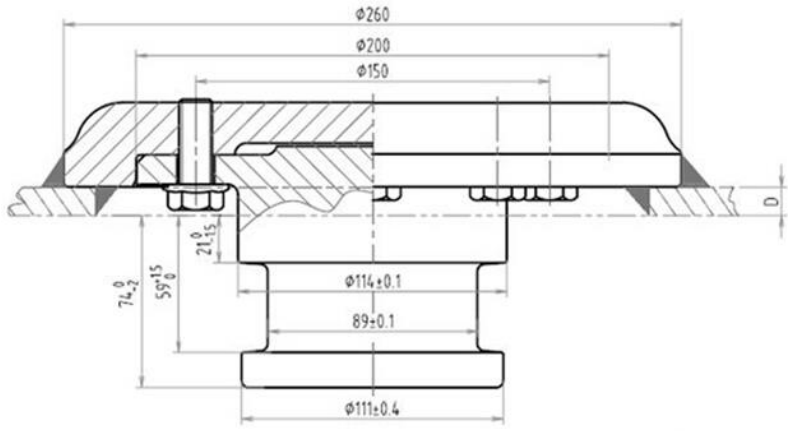
- ## King Pin

The kingpin is made of chromium alloy. There are two types of kingpins. The first type is 50mm (2”) while the second type is 90mm (3.4”). The kingpin is the hardest part of a trailer because it can bear the greatest force or pressure.

The kingpin is installed in two ways, which include welding and a bolted connection. Welding is the safety method of installation.

Welding kingpin

It is hard to separate the kingpin after welding and hence it remains in place during transportation. The main disadvantage of welding is that replacing the kingpin with a new one is troublesome. Here is a picture of a kingpin:



Kingpin drawing

- ## Tires

Low bed trailers use two major types of tires. The types include tube tires and tubeless tires. Which type of tires should you choose for your trailer? Let us look at the advantages and disadvantages of tubeless tires to help you make this decision.

Advantages of tubeless tires

1. Tubeless tires have high security on the road compared to tube tires. It is tubeless tires is pierced, the pressurized air leaks slowly. A tube tire, on the other hand, may blow out immediately after it is pierced.

2. The heat dissipation in tubeless tires is good. Hence, the tires have a long service life compared to tube tires.
3. Tubeless tires reduce the weight of the trailer and lower the fuel consumption rate. Hence, choosing trailers with tubeless tires will help you save on fuel costs
4. The tires can be used for long distance transportation because their wear resistance is good.

Disadvantages of tubeless tires

1. Tubeless tires are unpressurized and hence they are unsuitable for heavy loads. The tires cannot support an overloaded trailer because of the low pressure.
2. Reparation is cumbersome and its cost is high
3. The stability of the tires is poor on rough terrains

The table below outlines the specifications of the common types of tires for low bed trailers:

specification	layer	rim
8.25R20	10/12/14	6.5
9.00R20	10/12/14	7.0
10.00R20	10/14/16	7.5
11.00R20	10/14/16	8.0
11.00R22.5	10/14/16	8.25/22.5
12.00R20	14/16/18	8.5
12.00R22.5	12/14/16	9.0/22.5

- ## Axles and brakes

Axles

Axles have different load capacities including 9T, 12T, 13T, and 16T among others. You can choose the most suitable axles for your low bed trailer based on their capacity.

Chapter 1.4 provides a complete guide on how to calculate the load capacity of axles and choose the right axles.

Axles have a self-steering model that uses a hydraulic / air system. The self-steering system is commonly used in multi-axles trailers to prevent tire wear.

The rear tires in multi-axles trailer wear out fast. Most of the tires in trailers do not have the steering function.

Self-steering axles

Brakes

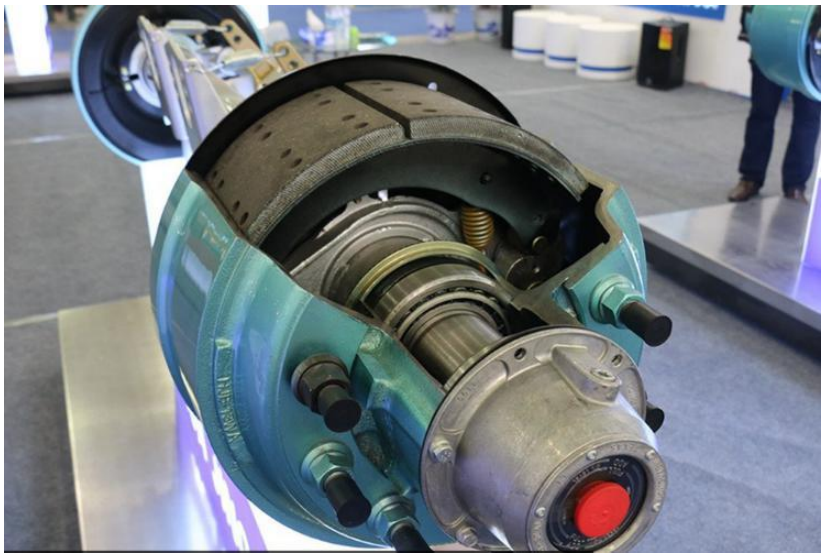
Brakes are installed in the axles. Trailers use either a drum brake or a disc brake. Each model is discussed in detail below:

Drum brake: A drum brake as the name suggests is in the shape of a round drum with a set of shoes inside. The brake pad is pressed inside the brake drum to slow down the wheels.

A drum brake is cheap but its heat dissipation is poor. Repair and maintenance of drum brakes is also cost-effective. This type of brakes is commonly used in the low-speed and heavy-duty trailers.

The drum brake achieves brake fade faster than a disc brake on steep hills or at high speeds. Its level of efficiency is low compare to a disc brake.

Hence, the drum brake is mostly used for trailers and vehicles that drive at low speed. Here is an example of a drum brake:



Drum brake

Disc brake: This type of brake consists of a disc-shaped metal rotor that spins within a wheel. When a driver applies pressure on the brake pedal, a caliber presses the brakes pads against the disc.

This causes the wheels to slow down and the vehicle to stop when continuous pressure is applied. A disc brake is expensive compared to a drum brake.

Inspecting a disc brake for mechanical problems is easy because of its location outside the wheel. The brake pad requires regular replacement, which increases the maintenance costs.

However, the heat dissipation of a disc brake is good and the brake response is fast. Here is a picture of a disc brake:

Disc brake

- ## Suspensions

You can choose from four different types of suspensions for your trailer. The characteristics, advantages, and disadvantages of each type of suspension are outlined below:

Mechanical suspensions

This type of suspensions is also referred to as multi-leaf suspensions. Mechanical suspensions consist of a series of reaction arms that keep the axles horizontal at all times.

The axles remain in the right position even in times of extreme motion. Hence, the suspensions are highly stable and hence prevent tumbling when transporting heavy loads.

The load distribution in low bed trailer with mechanical suspensions remains constant even when brakes are applied. Mechanical suspensions are suitable for heavy-duty trailers.

The suspensions are cheap and reliable. They are also easy to maintain and have a high load capacity. The suspensions can handle heavy loads on rough terrains.

Hence, if you are working with a limited budget for buying and maintaining your trailer, mechanical suspensions are a good choice. The maintenance costs of mechanical suspensions are low compared to other types of suspensions.

Most models require minimal or no lubrication. Here is an image of mechanical suspensions:

Spring mechanical suspension

The most common models of mechanical suspensions have a spring mechanism. The mechanism reduces the vibrations that are sent to different components of a trailer during movement.

The effect of reducing vibration is that the components have a longer life because the rate of wear and tear is reduced.

Air suspensions

The main benefit of air suspensions over other suspensions is that they are light. In addition, air suspensions offer good stability. Drivers prefer air suspensions when carrying heavy loads because they are flexible.

The stiffness of the spring adjusts to the weight of the cargo on the trailer. Hence, drivers can enjoy a comfortable and better ride with air suspensions.

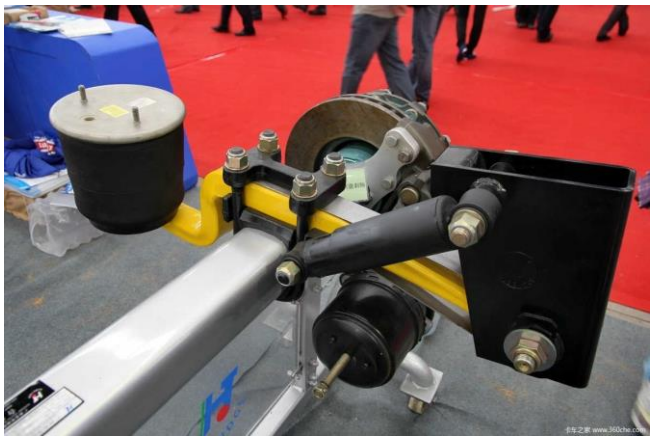
Air suspensions are associated with a longer tire life and better fuel economy. The suspensions reduce the vibrations to different components, which leads to less wear and tear.

Some models of air suspensions lift the axles in a trailer that are not in use. The suspensions allow the driver to adjust the height of the ride depending on the weight of the cargo and the terrain.

The driver can also adjust the height of the vehicle when empty. Keeping the height low when the trailer is fully loaded enables the driver to maintain stability of the trailer.

The low height also improve steering and vehicle control. Air suspensions can handle different terrains.

The main shortcoming is that air suspensions are expensive. Hence, the price of trailers with air suspensions is higher than the price of other trailers. The picture below shows an example of an air suspension:



Rigid suspensions

Rigid suspensions are sometimes referred to as double oscillation bogies because of their structure. They are among the oldest and simplest types of suspensions used in trailers.

This type of suspension is mostly used in heavy-duty low bed trailers. Rigid suspensions are also suitable for low speed transportation. With rigid suspensions, the movement of one wheel depends on the movement of other wheels.

Most modern models of trailers use independent wheels but some manufacturers are still using rigid suspensions.

Some of the reasons why some manufacturers choose to go back to the rigid suspensions are that they are cost-effective and easy to maintain. The suspensions have low maintenance needs and are simple to install.

Rigid suspensions are robust and have a high load capacity. Hence, they can be use in heavy-duty low bed trailers. The suspensions can easily handle large axle movements.

Rigid axle beams are associated with improve stability and wheel alignment. The driver maintains control of the trailer because the wheels remain perpendicular to the road at all times.

Hence, the tires have a longer service life because they have a firm grip on the road.

The main shortcoming of these suspensions is the poor damping effect. In addition, the driver cannot adjust the ride height whether the trailer is loaded or empty. Here is the structure of rigid suspensions:

Double oscillation bogies

Single point suspension

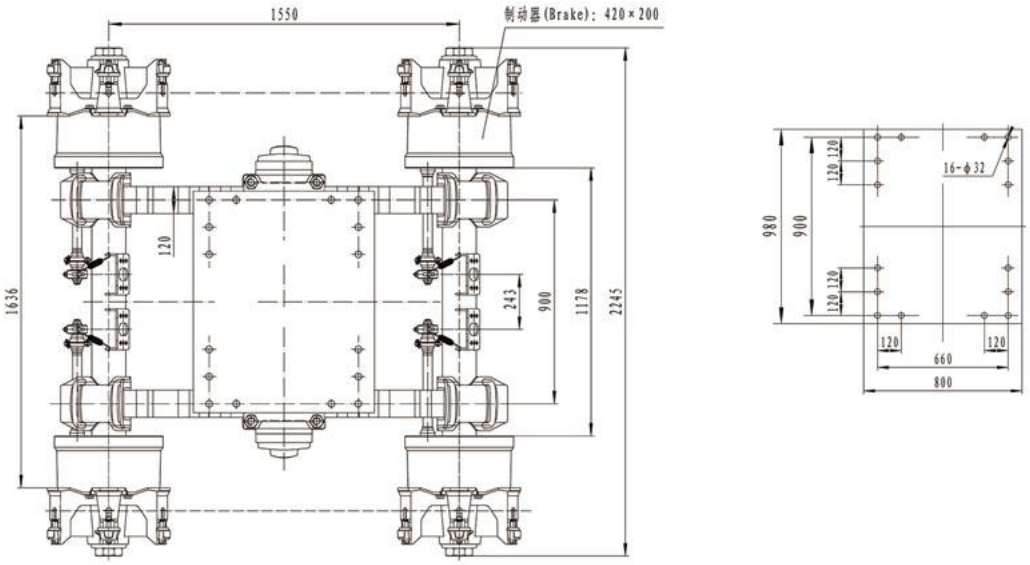
The suspension is also referred to as heavy-duty walking beam suspension. Single point suspensions can handle a high load capacity of up to 100 tons.

Hence, these suspensions are a good choice if your business handles very heavy cargo. The suspensions are common in trailers designed to carry heavy loads.

In addition to the high loading capacity, single point suspensions have a good damping effect.

Single point suspensions have reduces vibrations to the components of the trailer. This reduces wear and tear of the parts and increases the driver’s comfort on rough terrains or bumpy roads.

The major disadvantage is that they are expensive. A single point suspension is pictured below:



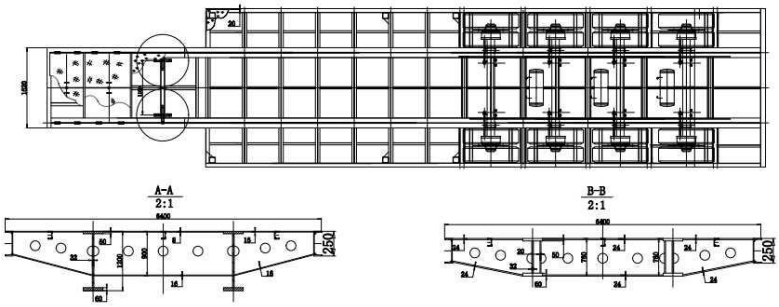
Single point suspension drawing

heavy-duty walking beam suspension

The type of suspensions used in low bed trailers depend on the capacity of the trailers. For instance, mechanical suspensions are commonly use in ordinary low bed trailers.

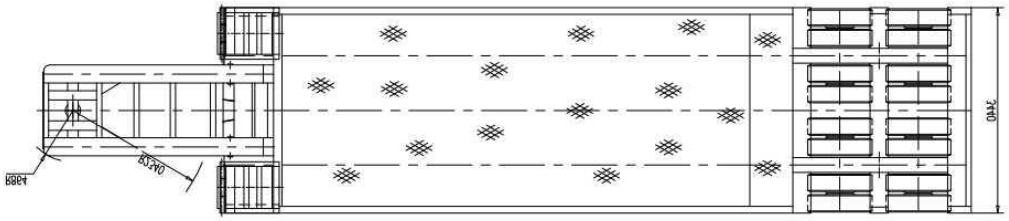
However, heavy-duty trailers (axle-line model) require suspensions with a higher capacity to withstand the pressure of heavy cargo.

Here is an illustration of an ordinary low bed trailer with 4 axles:



4 axles low bed trailer

A heavy duty low bed trailer with two lines of 4 axles are picture below requires suspensions with a high load capacity.



Two lines 4 axles low bed trailer

- ## Ramp

The ramp is used to move the cargo on a low bed trailer. The length of the ramp depends on the weight of the cargo. A longer ramp is required to move heavy cargo on the trailer.

Using a longer ramp reduces the slope, which makes it easier to move heavy cargo. You need to consider the maximum weight of your cargo when choosing a ramp.

There are two types of ramps, namely, a mechanical ramp and a hydraulic ramp.

Mechanical ramp: A manual mechanism or a spring is used to lift the ramp to the right height. A mechanical ramp is cheap and easy to maintain.

However, the ramp is cumbersome to operate especially when moving heavy loads.

Mechanical ramp

Hydraulic ramp: With this type of ramp, a hydraulic cylinder is used instead of a spring to lift the ramp. A hydraulic ramp is efficient and easy to use.

You can move heavy cargo fast with a hydraulic ramp. However, the ramp is more expensive than a mechanical ramp. Here is an example of a hydraulic ramp:

Hydraulic ramp

- ## ABS

You need to pay much attention to the ABS when buying and maintaining a trailer for safety reasons. A low bed trailer is mostly used to transport heavy loads.

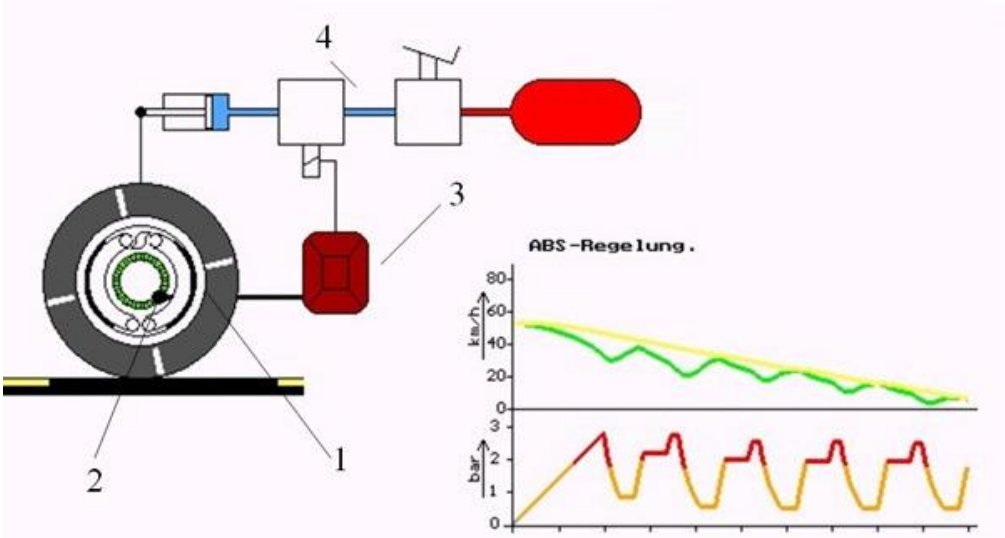
Heavy-duty trailers have higher chances of causing accidents than other vehicles on the road. The wrong choice of an ABS may lead to fatal accidents.

Wabco is still the most famous brand of ABS in the world. The brand has maintained its popularity because of its high safety level. When the emergency brake is applied, the ABS model keeps the trailer manipulable.

The ABS model also shortens and optimises the braking distance, which enhances safety in times of emergencies.

The ABS sensor monitors the rotation of the wheel when the vehicle is moving at a high speed. However, when the wheel is not turning, the sensor allows the controller to reduce the braking pressure to keep the wheel rolling.

The controller will also keep the wheel’s lateral surface suspension and keep the wheel from slipping on the side. Hence, the driver maintains controls of the vehicle and keeps it moving in the right direction.



1. Sensor 2. Tooth ring 3. ECU 4. Solenoid valve

ABS

ABS parts

Learn more:

How ABS System Works For Heavy-Duty Trailer Transportation

2.3 The Manufacturing Process

Why do you need to know the manufacturing process of a low bed trailer? Should you inspect the final product and make a decision from its components?

The knowlegde of the manufacturing process is important because it can help you determine if you are buying a high-quality trailer. Some indiviudual workshops cut corners and skip some important steps in the manufacturing process.

Below is a discussion of all the major steps in the manufacturing process.

- ## Cutting and punching

A CNC cutting machine is used to cut out the steel plates including the web plate, reinforcing plate, and accessories. In other words, the machine is used to cut all steel plates required to make a complete low bed trailer.

Punching is important because it reduces the weight and stress of the trailer. In addition, punching increases the strength of the beams.

Below is an illustration of the cutting process using a CNC machine:

CNC cutting

Punching

- ## Bending and Correcting

The next step after cutting the steel plate is bending according the drawing. Every manufacturing process starts with a drawing of the final product.

Hence, the manufacturers must use the dimensions and shape on the drawing when bending the steer. A fixture is used to fix the components to ensure that they are vertical and straight.

This stage involves correcting and measuring to ensure that the plate are in the right dimension, straight, and vertical.

Bending

Correcting

- ## Joint and Welding

Several components of a trailer require welding including the main beam, cross beam, spring brackets, and the floor. Welding is a very important step in the manufacturing process.

It must be done in the right way to ensure that the final structure is strong enough to handle heavy loads. Welding starts with the I beam, which is the main beam and proceeds to the cross beams.

The manufacturer must ensure that the 2 or 3 mains beams are parallel to each other when welding. The two joints on the sides of the steel plate should be fully welded to ensure that the plates and beams are strong enough.

The main beam is usually welded by submerged arc welding machine. Other parts (cross beams, plate, accessories, etc.) are welded by welder.

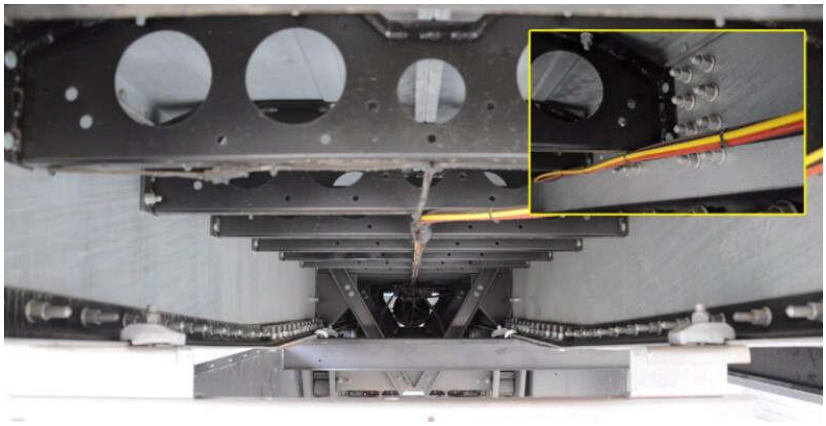
So, the welding quality require for high welding techniques of welders.

Welding

The alternative methods of joining beams is using bolted connections. Some countries prefer this method because it is modularised.

In addition, changing beams is easy with bolted connections compared to welded beams. Bolting requires no welding and hence the manufacturer is not concerned about thermal deformation.

Joining beams using bolts is easier and faster than welding. Here is an example of plates joined using bolts:



Bolted connections

- ## Repair welding and reinforcement

After connecting all the beams and plates through welding, the manufacturer must check the strength of the key positions. Sometimes the processs of joining heavy beams causes some joints to loosen.

Hence, repair welding and reinforcement is necessary before the trailer leaves the workshop.

- ## Cleaning, polishing, and sandblasting

One of the last stages of the manufacturing process is cleaning, polishing, and sand blasting the surface. The purpose of this process to ensure that all the surfaces are smooth before painting.

The process is also important to reduce stress concentration on some parts of the trailer.

- ## Painting

The next process after polishing and sandblasting the surfaces is painting. The painted surfaces will only look good is the surfaces are smooth.

Hence, if you notice any lumps of paint on the surfaces of a trailer, realize that the manufacturer skipped or hurried the smoothening process.

High-quality paint should be used to avoid chipping. Since low bed trailers are designed for heavy cargo, it is possible for low-quality paint to chip off when loading cargo.

- ## Installing other components

The last process in the manufacturing is installing all other components of the trailers. Manufacturers start with the large parts and then finish with the smaller components.

The tires, electric system, suspension system, lighting, ABS, and axles are installed at this stage. The quality of these components is important because it determines the strength and functionality of the trailer.

Installing components

If low quality parts are used, you will incur high maintenance and repair costs. Remember some parts are welded into the trailer and replacing them is cumbersome. The right manufacturers use quality parts to minimize maintenance costs.

Now that you know the full manufacturing process of a trailer, you can inspect the components and determine if the manufacturer skipped some steps.

You can also use the knowledge to diagnose the technical problems even without the help of a mechanic. For instance, if the welded parts are worn out, you can estimate the cost and time required to repair your trailer.

2.4 How to Choose a Good Supplier

Choosing the right supplier is important because your choice determines the quality of your low bed trailer. The idea supplier takes time to inspect all the components of the trailer before selling it.

Be careful when choosing suppliers because some buy trailers from manufacturer and then advertise them as their own products.

The supplier’s marketing techniques can lead you to buy a poor quality product even without inspecting it. Here is a guide on how to choose the best supplier of a low bed trailer.

- ## Consider the price

Price is one of the most important considerations when buying a trailer. Always start the purchase process with a budget. You now know the advantages and disadvantages of different types of components including the maintenance cost.

High-quality and durable parts are more expensive than the ordinary parts. However, some suppliers overcharge buyers even for ordinary.

Before making the final purchase decision, compare the prices of the same trailer with different suppliers. You can now compare prices on the internet because most suppliers have online shops.

Sometimes it is cheaper to import a heavy-duty vehicle directly from the manufacturer. Comparing the prices will help you determine if a supplier is charging the standard market price.

- ## Insist on high quality

We have stated the price is an important factor when buying a trailer. However, you must go beyond the price and consider the quality of trailer.

The purpose of learning different parts and the manufacturing process is to help you determine if the manufacturer uses high quality products. Some manufacturer cut corners in the production process and then sell their products at lower prices.

Do not compromise the quality of the trailer while trying to save costs. A cheap and ordinary trailer may be affordable at the moment but you will need to replace it soon.

In addition, you will incur high repair and maintenace costs even if the initial price is low. Hence, ensure that you balance between good quality and standard prices. You need a trailer that will serve your business for several years without regular breakdowns.

- ## Check the supplier’s certification

One of the best ways to determine if a supplier is reliable or not is to check their certification. Certification boards and authorities inspect the quality of products before issuing a certificate to a supplier.

Most suppliers claim to be certified in their adverisements. You must go a step further and confirm that the supplier has a certificate of good quality.

The major certification boards include ISO, ADR, DOT, CCC, BV, SGS, etc. Buy low bed trailers from suppliers with certificate from any of these boards. Ensure that the certification is not outdate.

You can get some information online on a supplier's certification.

Supplier certification

- ## Awards and Recognition

Most countries hold annual events where top companies are recognised for their quality products or services. Sometimes only the best company received an award.

In other countries, the organising board ranks the top companies. When looking for suppliers, prioritise those who have been recognised as the best companies at their national and international level.

Check the board that has given the awards to the company. If a company has been awarded as the leading manufacturer or supplier of heavy-duty vehicles, you are likely to get a durable and quality trailer.

Top companies

- ## Conduct a field study

Suppliers will engage you in very persuasive discussions so that you can buy their products. The reality is that most of them hire sales representative who exaggerate the details about trailers.

They will promise you high performance or a higher loading capacity even when they know their quality is low. Do not believe everything you hear or read. Go out and test the trailer or see a supplier's trailer in action before buying.

You can visit any construction or transportation company that uses low bed trailers. Ask them about their experience in using the trailers.

The information from other clients is more reliable than the supplier's because the client is already using the products. Check online reviews of suppliers as well. Some clients prefer to share their experiences online.

Production line

- ## Compliance with industrial standards

Every industry has a set of rules and regulations to ensure that companies offer quality products to customers.

National and global institutions add to the laws and standards that manufacturers must meet before releasing their products to the market.

Compliance with industrial standards means that the supplier is observing quality requirements in that industry. The standards in this case include maximum dimensions for the trailer.

The supplier should comply with the legal weight, height, and width. In the case of low bed trailers, find out if the nation of origin has any quality standards.

The right supplier should be willing to comply with all the laws, regulations, and standards in manufacturing and distributing trailers.

- ## Supplying customized trailers

Sometimes the models of low bed trailers do not meet your requirement. The length and width of the deck of the trailer may not suit the type of cargo that you handle. You need a customized model that suits your business.

Top manufacturer do not just supply one model of low bed trailer. They also customize their trailers to suit their client's need. However, the dimensions of the customized trailers must be within the maximum dimensions allowed by the country's laws.

Hence, as you explore the range of trailers that a supplier is offering, ask about the possibility of buying a customized trailer. The price of the customized model can guide you in choosing between your model and the common models in the market.

In addition, the manufacturer should use the same high quality standards for the customized trailer.

Customized trailers

We have given you the most important aspects to consider when choosing a supplier. You need to do your research well and learn everything about a supplier before ordering a product.

Do not order for a trailer before seeing the same type of trailer in use. The best approach is to allocate enough time to look for the best trailer. You need time to inspect the parts and do your field study.

You will not always have an engineer to help with the decision but this guide provides you with all the information you need to make the right decision.

Chapter 3: Low Bed Trailer Quality Control

We have established in the previous chapter that you need to buy a high-quality trailer for your business. Buying such a trailer increases efficiency and reduces maintenance costs. However, it is important to ensure that your trailer operates at its optimal level at all times. This is only possible if you know how to conduct control of a low bed trailer. Quality control involves checking the performance of various components. The most important components to check are covered in this chapter.

This chapter focuses on the quality control process and covers:

- inspecting whether the surface of the trailer is slick
- fastener inspection
- welding inspection
- Beams inspection
- Axles inspection
- Load test

Inspecting Whether The Surface Is Slick

The state of the surface of a trailer depends on the polishing and sandblasting processes. Inspecting the surface before buying a trailer and while maintaining is important because of rust.

Ensure that the surface is rough to reduce the rate of rust. The surface is likely to wear out and rust if it is slick. Whether the surface is rough or slick should the effectiveness of the blasting process.

You can tell if the manufacturer followed the right process by inspecting the surface.

Surface

- ## Fastener inspection

The main reason for fastener inspection is to ensures that all fasteners are tight. A fastener can be loose if it was not fixed properly or if the dimensions are wrong.

Hence, you need to determine if the fastener requires to be tightened or replaced with another fastener with the right measurements. You need tight fasteners for the strength and stability of the trailer especially when it fully loaded.

- ## Welding inspection

Welding all the beams and plates is cumbersome. Many mechanics take short cuts in this process. Hence, you must be careful when inspecting the welded parts and joints.

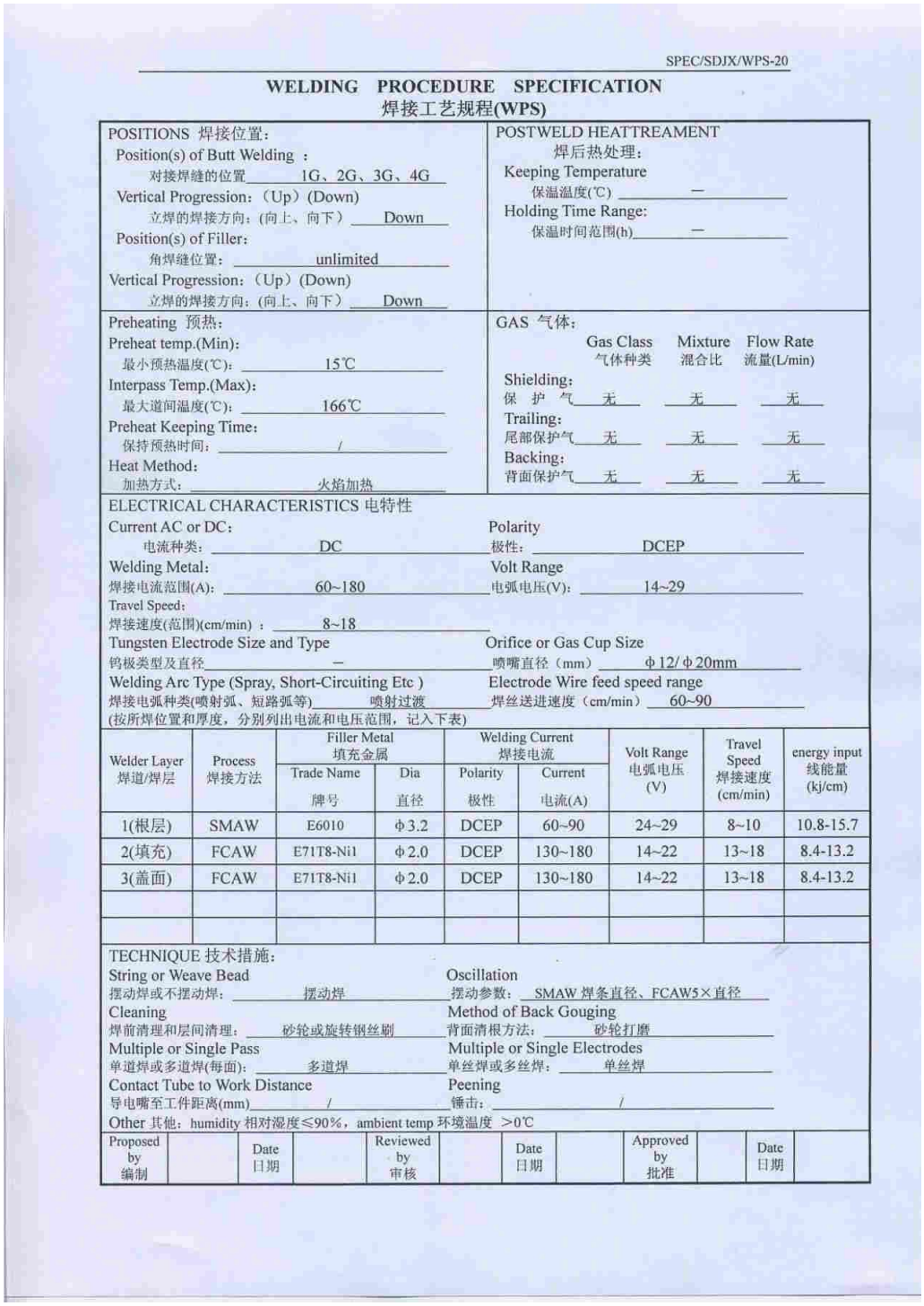
All the welded parts should be smooth and uniform. Sometimes welding leave some rough surfaces because of heat deformation. Check all the joints for rough surfaces.

Another thing to look out for when inspecting welded parts is cracks and penetration to adjacent beams.

If the manufacturer is not careful with the welding process, the welding machine can penetrate through the steel plate or cause cracks. Such deformations will reduce the strength of the beams.

In addition, you need to check the parts or joints that are not welded. Sometimes the manufacturer may skip some joints in the process, which will affect the loading capacity of the trailer.

Welding is the most important part of manufacture process. WPS (Welding Procedure Specification) is a strict standard to keep high quality of the trailers. It defines the process of each step in detail and record the each parts welded by different welders.



SPEC/SDJX/WPS-20

WELDING PROCEDURE SPECIFICATION
焊接工艺规程(WPS)

POSITIONS 焊接位置:
Position(s) of Butt Welding :
对接焊缝的位置 1G、2G、3G、4G
Vertical Progression:（Up）(Down)
立焊的焊接方向:(向上、向下) Down
Position(s) of Filler:
角焊缝位置: unlimited
Vertical Progression:（Up）(Down)
立焊的焊接方向:(向上、向下) Down

POSTWELD HEATTREAMENT
焊后热处理:
Keeping Temperature
保温温度(℃) —
Holding Time Range:
保温时间范围(h) —

Preheating 预热:
Preheat temp.(Min):
最小预热温度(℃): 15℃
Interpass Temp.(Max):
最大道间温度(℃): 166℃
Preheat Keeping Time:
保持预热时间: /
Heat Method:
加热方式: 火焰加热

GAS 气体:

	Gas Class 气体种类	Mixture 混合比	Flow Rate 流量(L/min)
Shielding: 保护气	无	无	无
Trailing: 尾部保护气	无	无	无
Backing: 背面保护气	无	无	无

ELECTRICAL CHARACTERISTICS 电特性
Current AC or DC:
电流种类: DC
Polarity
极性: DCEP
Welding Metal:
焊接电流范围(A): 60~180
Volt Range
电弧电压(V): 14~29
Travel Speed:
焊接速度(范围)(cm/min) : 8~18
Tungsten Electrode Size and Type
钨极类型及直径 —
Orifice or Gas Cup Size
喷嘴直径（mm） φ12/φ20mm
Welding Arc Type (Spray, Short-Circuiting Etc)
焊接电弧种类(喷射弧、短路弧等) 喷射过渡
Electrode Wire feed speed range
焊丝送进速度（cm/min） 60~90
(按所焊位置和厚度，分别列出电流和电压范围，记入下表)

Welder Layer 焊道/焊层	Process 焊接方法	Filler Metal 填充金属 Trade Name 牌号	Filler Metal Dia 直径	Welding Current 焊接电流 Polarity 极性	Welding Current Current 电流(A)	Volt Range 电弧电压 (V)	Travel Speed 焊接速度 (cm/min)	energy input 线能量 (kj/cm)
1(根层)	SMAW	E6010	φ3.2	DCEP	60~90	24~29	8~10	10.8-15.7
2(填充)	FCAW	E71T8-Ni1	φ2.0	DCEP	130~180	14~22	13~18	8.4-13.2
3(盖面)	FCAW	E71T8-Ni1	φ2.0	DCEP	130~180	14~22	13~18	8.4-13.2

TECHNIQUE 技术措施:
String or Weave Bead
摆动焊或不摆动焊: 摆动焊
Oscillation
摆动参数: SMAW 焊条直径、FCAW5×直径
Cleaning
焊前清理和层间清理: 砂轮或旋转钢丝刷
Method of Back Gouging
背面清根方法: 砂轮打磨
Multiple or Single Pass
单道焊或多道焊(每面): 多道焊
Multiple or Single Electrodes
单丝焊或多丝焊: 单丝焊
Contact Tube to Work Distance
导电嘴至工件距离(mm) /
Peening
锤击: /
Other 其他: humidity 相对湿度≤90%, ambient temp 环境温度 >0℃

Proposed by 编制		Date 日期		Reviewed by 审核		Date 日期		Approved by 批准		Date 日期	

welding procedure specification

- ## Beams Inspection

Proper welding of the beams is not enough. You need to check the perpendicularity of the beams on all sides. Inspect the upper, middle, and lower plate of all the main beams to ensure that they are perpendicular and straight.

You may ask, why is it important to inspect the perpendicularity of the beams? If the beams are not straight and properly position, the stress will be imbalanced.

The beams can easily fracture or break if they not straight and if the plates are not perpendicular. You may require some measure devices to inspect the beams.

Main beam

- ## Axles Inspection

Another important aspect of quality control is inspecting the axles. When inspecting axles, you need to measure the parallelism and perpendicularity of each axle.

All the axles should be parallel and their central lines should be coherent. The purpose of inspecting axles is to ensure that the tires are properly positioned. It is easy to install the tires and keep the trailer stable when the axles are well installed.

- ## Load Test

Manufacturer give the loading capacity of each trailer but you cannot rely on that information alone. You need to test if the trailer can handle the maximum load as specified by the manufacturer.

Inspect the process of loading the cargo on the trailer to ensure that the ramp is working properly. If the trailer has the loading capacity as specified, it should be easy to load and transport heavy cargo with the trailer.

Load test

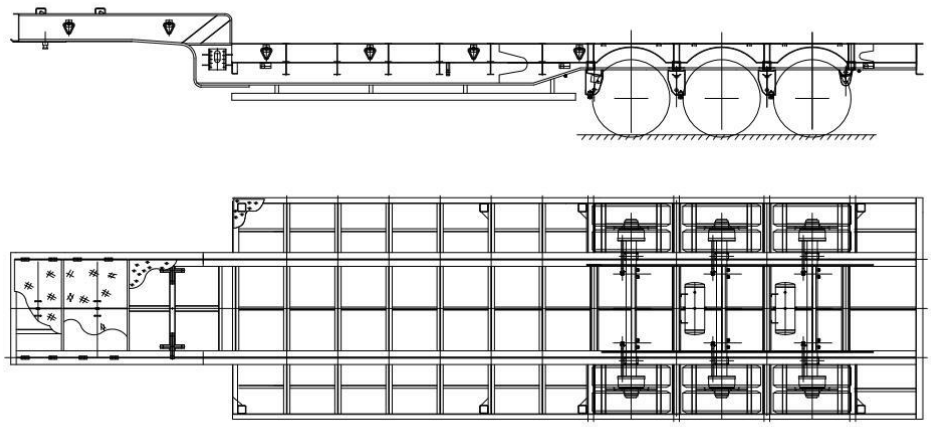
Chapter 4: Low Bed Trailer's Drawings

We have discussed different components in a trailer in chapter 2.2 and how to inspect some of those components in chapter 3. In this chapter, you will see in diagrams how all the components fit together to make up a low bed trailers.

The chapter include illustrations of different types of low bed trailers including the ordinary low bed trailers, low loaders, and RGN trailers. In addition, the section will illustrate some dimensions of the trailers and diagrams of different parts.

- ## Low bed trailer

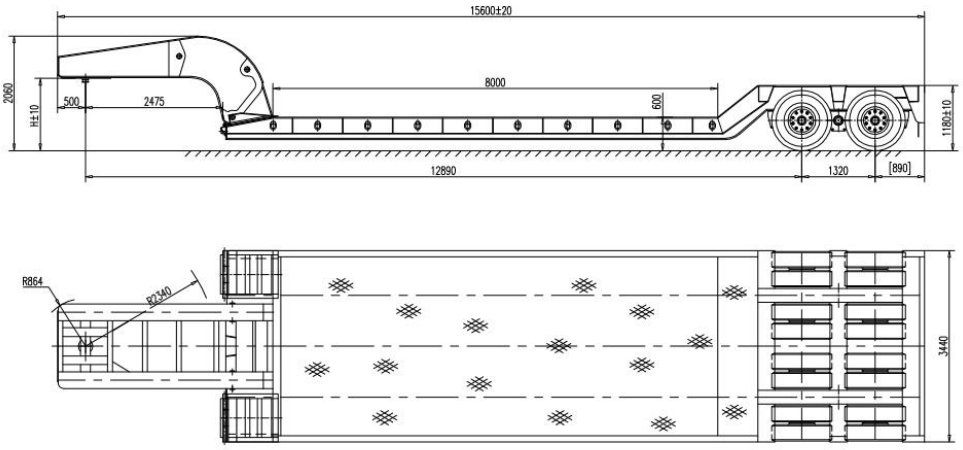
The ordinary low bed commonly used in many countries because it is cost-effective and has a high load capacity. Below is an illustration of an ordinary low bed trailer with 4 axles lines. The diagram also gives some dimensions of some of the parts.



Low bed trailer drawing

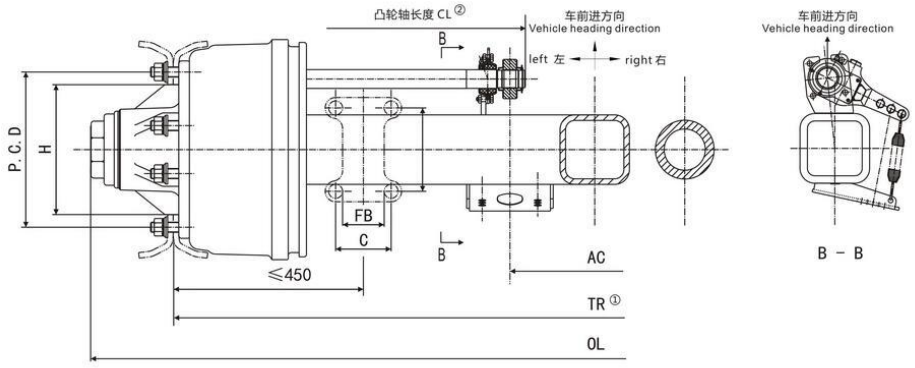
- ## RGN trailer

Here is an illustration of an RGN trailer:

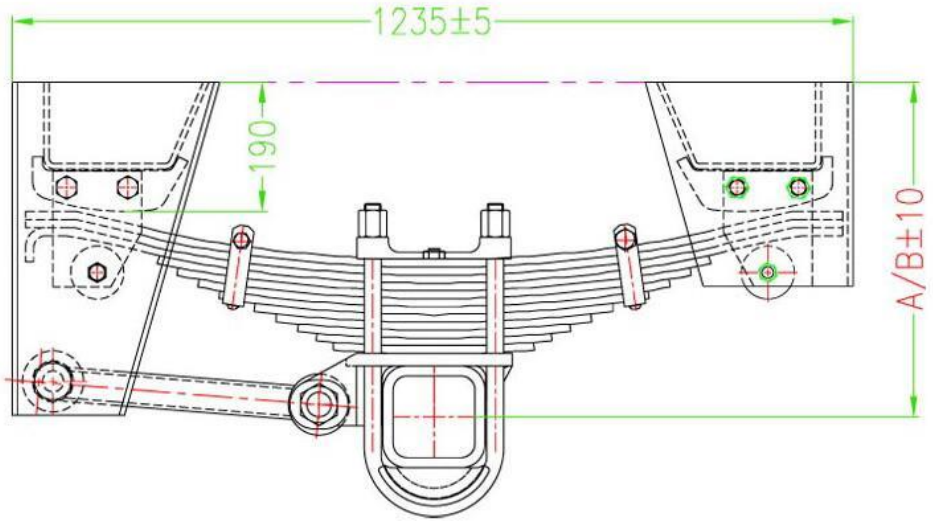


RGN trailer drawing

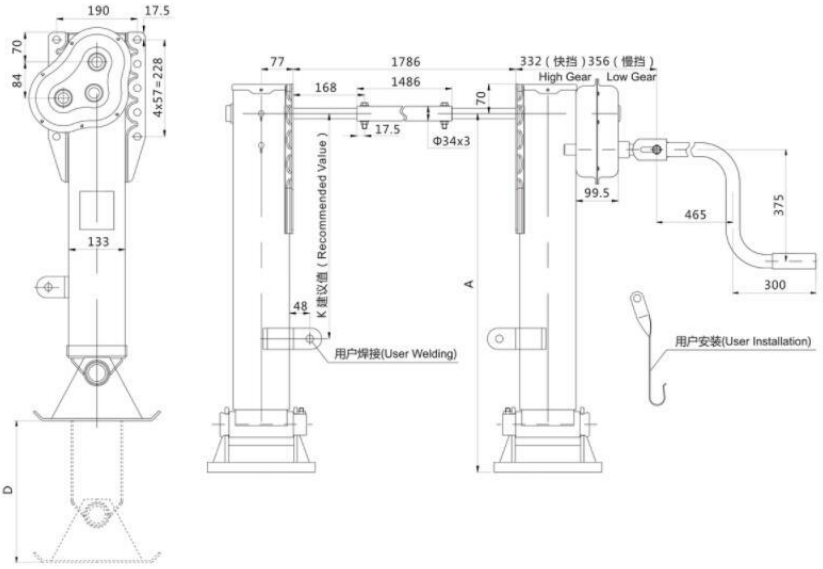
- **Components**



Axle



Spring suspension



Landing gear

The drawings are only for reference. If you need more detailed drawing, please contact us.

info@anstertrailer.com

- ## Dimensions of Low Bed Trailers

The dimensions of lowboy trailers vary depending on the model that you choose. Manufacturers have the freedom to choose the width and length of their trailers.

However, there are maximum dimensions that the manufacturers cannot exceed. Note that the legal dimensions depending on the country laws. However, most manufacturers work with the dimensions outlined above.

As we will discussed earlier, the right supplier of low bed trailers should comply with government laws. Manufacturers are not allowed to exceed the legal width, height, and weight in their assembly processes.

If you order for a customised low bed trailers, the manufacturer has to comply with the legal dimensions.

Chapter 5: Low Bed Trailer in China

Many people think that all products from China are low quality products. Hence, they are unwilling to order for heavy-duty vehicles or their parts from China.

Some transporters do not trust Chinese manufacturers even when they offer high-quality guarantee. Why do people think that China only produces and sells low-quality products?

Should you be worried about quality when ordering for a low bed trailer from China?

5.1 Is a trailer made in China low Quality?

The reality is that China does not have strict standards on the quality for products. This is because of the prevailing market conditions. Manufacturers produce goods for specific markets.

Most workshops that manufacturer vehicles including heavy-duty vehicles like low bed trailers target the low-end market. Since many people know they can get cheap products from China, the demand for products in the low-end market is high.

Hence, manufacturers focus on this market to make profits and produce less high-end products.

The fact that quality standards in China are not strict does not mean that all manufacturers produce low quality products. In fact, some produce goods for both high-end and low-end markets.

Buyers choose the quality of products to order from the country depending on their budget. Many people do not know that Chinese manufacturers are doing OEM (Original Equipment Manufacturer) for leading companies in developed countries.

The manufacturer are supplying such equipment to companies in Korea, Australia, and Japan among other countries.

Special low bed trailer

5.2 China’s Development Forecast

China’s special transportation machinery will reach a wider market in the near future. The transportation machinery in this case include low bed trailers and module trailers.

Manufacturers in China ar shiftin their focus from the low end market to product components and machinery for leading companies in the world. Hence, the world market will soon have many high-quality products from China.

People will no longer talk of China as the source of low quality products but as a leading supplier of top quality heavy-duty vehicles. Some of the factors that will lead to this change are outlined below.

1. The transportation industry in China is developing rapidly. This means that the quality of vehicles in the country will improve include heavy-duty trailers and semi-trailers. More manufacturers will join this transportation industry to respond to the expected increase in demand for heavy-duty vehicles from China.

2. Some of the manufacturers are already assembling heavy-duty vehicles with good technical strength. China is also home to one of the most popular brands of conventional trailers, that is CIMC.
3. The vehicle factories in China have been working over the years to improve the quality of final products. Most of factories are now focusing on technological innovation.
4. China has a huge market for heavy-duty vehicles including international markets. The manufacturers have been making huge profits from the market. The earnings are sufficient to expand the production and turn China into a leading global supplier of high-quality vehicles and parts.
5. The number of OEMs from China for foreign companies has been increasing. Consequently, the manufacturing technology has been evolving rapidly. Factories are using the latest technology in their manufacturing processes to keep up with the world's standards.

China's transportation industry will continue to expand with the technological innovation and development in China.

Hence, if you are planning to buy a low bed trailer or any other heavy-duty vehicle, do not exclude the Chinese suppliers from your list of options.

Soon, China will overtake some countries that have been leading in the manufacture heavy duty trailers. As mentioned above, some manufacturers in China like CIMC are already selling quality trailer with high technical strength.

Follow the guide in chapter 2.4 and choose the right supplier.

Read more:

Chinese trailer manufacturer plans Bahrain plant

Chapter 6: Precautions for Use

You have learned in this guide how to choose the right low bed trailer and the supplier. You can inspect all the parts and determine if the right manufacturing process was followed before buying one.

The guide teaches how to order and inspect a low bed trailer without any help from an engineer or technician. The next big step is to learn how to use and maintain the trailer after purchase. The service life of the trailer and all the components will depend on how you use the trailer.

Most manufacturers will provide a manual on how to take care of the parts. The assumption is that buyer knows how to use the trailer. Hence, they only provide information on how to replace broken parts. In this chapter, you will learn how to use a low bed trailer in the right way. The specific lessons include:

- How to pack a low bed trailer
- How to prevent tires from wearing out easily
- Loading the trailer with the right cargo weight

6.1 How to back a low bed trailer

Driving a trailer may not a hard task if you are properly trained to drive heavy-duty vehicles. If you are considering buying a low bed trailer, it is possible that you are experienced in driving such long vehicles.

If not, you need to take a driving class before trying to drive one. Trailers are different from standard cars in terms maneuverability, control, and balance.

However, one of the most difficult tasks when operating a low bed trailer is backing it up at a specific angle and into a specific spot.

Backign a trailer in an open space or garage is easy. However, you will encounter many situations where you need to back it between cars without hitting them. Here are tips on how to back a low bed trailer safely:

Prepare to back: The first step is to prepare yourself to move the trailer into the specific spot. Roll down your windows so that you can see the positions of all other vehicles in the space.

Adjust the mirrors is necessary to ensure that you have the full view of the spot. Check the position of the trailer using all the mirror and come up with a plan on how you will back. If you do not know, keep reading and learn how to do it right.

Get a spotter: You may not see all the objects behind the trailer using the side and rear mirrors. It helps to have another pair of eyes as the parking spot to check the movement of the trailer.

The only challenge with this plan is that the spotter has to yell for you to get the directions. Remember a low bed trailer is long.

Turning the trailer: Turn the wheels to the right if you want the trailer to go to the left or turn them left if you want it to go right.

Position yourself in a way that you can turn and see the rear and front of the trailer while holding on to the steering wheel. Check the positions of the cars in front of you when turning the wheels.

Remember that the bottom part of the steering wheel directs the trailer. In case you need to turn the trailer around a corner, turn the steering wheel towards that corner.

Truck Reverse

Back towards the driver's side: The easiest way to back up a trailer is to use the driver's side. It is hard to master the movements on the passenger's side. Pull the trailer the spot and then turn it right in the middle of the road.

Remember that the most common way of backing a trailer is at a right angle. Turn the trailer sharply left until you are positioned at an angle less than 180 degrees to the left side.

Reverse: Keep your hands at the bottom of the steering wheel and then reverse the trailer. Keep checking on the mirror and adjust the steering in a way that the trailer moves in the right direction.

Reverse slowly no matter how much pressure you get from those watching you. It is easier to control the trailer and avoid damages when reversing at a low speed.

Pull forward and back up again if necessary: You will not only always get it right with the first few turns. Backing is hard for new drivers. Step out of the trailer where necessary and check your progress.

You can pull forward and back up repeatedly until you get the trailer into the right spot. Stay focused and listener to one spotter if you have one at the site. Listening to many people will confuse you.

The best way to learn how to back a trailer to start with an open space. Start with a long trailer and then try a small trailer. It is easier to correct your mistakes and adjust a long trailer than a smaller trailer.

Once you learn how back in open space, you can back in a specific spot between other vehicles without causing any damages.

6.2 How to prevent tires from wearing out easily

If you do not use a trailer properly, you will incur a high maintenance costs for all parts. Most trailers owners complain about the tires wearing out easily.

The challenge is greater for multi-axle trailers because their tires tend to wear out faster than other trailers. As mentioned in chapter 2.2.6, you need to have an axle lifting function when operating a multi-axle trailer.

In a multi-axle trailer, the rear tires wear out faster than the front tires do. The more the rear tires the more the tires wear out easily. Hence, you need to invest in the lifting funtion immediately after buying the trailer.

If you have been replacing tires every other week, you need to inspect the alignment of the axles in your trailer.

One of leading causes of fast tire wear is misaligned axles. You can use a tape measure, a straightedge or any straight object to check the alignment of the axles.

Placing the straightedge on each tires will help you identify any bulges on the tires. Check the gap between the bulges and the straight object or straightedge you are using. If the gap is large, the trailer will skid on those particular tires on the road.

Skidding increases the heat as the trailer moves. Frictions also increases when a tire skids, which leads to quick wear and tear. Hence, before loading a trailer for a long distance trip, always check the axle alignment.

This should be part of the regular maintenance practice as we will discuss later. However, you need to lift the tires and check axle alignment even before the next service date.

Axle lifting

6.3 Never Overweight

Low bed trailers are built to transport heavy machinery and equipment. The beams are strong enough to withstand pressure from such cargo. However, each model has a limit of the total weight it can transport.

The manufacturer specifies the maximum load capacity of the trailer before you buy. Never exceed this limit because the excess may fracture the beams. You will incur a high cost of replacing the beams once they are fractured.

Remember that as we learned in chapter 2.3, welding is part of the manufacturing process. Once beams are firmly welded into the right place, removing them is cumbersome.

The mechanic may damage the adjacent beams if not careful. To avoid such damages and challenging tasks, limit your cargo weight to the recommended load capacity of the trailer.

The trailer will have a longer and efficient service life if you follow the manufacturer;s direction on weight limits.

Chapter 7: How to maintain different parts of a trailer

Many trailer owners have hired drivers and mechanics to take of the trailer. You can hire experts to take of your trailer if you have limited knowledge in trailer maintenance. However, such an approach when dealing with low bed trailers is risky. You will not always have the experts on site to assess the trailer when it develops mechanical issues. The trailer may stop in the middle of the road while driving it.

If you have no idea how to maintain different components of a trailer, you have no way of assesing its breakdowns. In addition, sometimes mechanics take shortcuts when you take your trailer for regular service. They may ignore some worn out parts or replace them with low quality parts. You need to go beyond calling an engineer or qualified mechanic to inspecting the trailer on your own.

You learned in chapter 2.2 how to inspect different components when buying a trailer. The parts will not remain in that condition because of wear and tear as you use the trailer. However, you can reduce the wear and tear by maintaining each part according to the manufacturer's recommendation. In this chapter, you will learn how to maintain some of the most important parts. The chapter outlines how to maintain

- Tires
- Fasterner
- Landing leg
- Brakes

Now let us look at each part in details.

- ## Tires

The most important thing to check when maintaining tires is the level of inflation. Inspect the low bed trailer's tires carefully and regularly. Buy a reliable pressure gauge that will give accurate readings of the inflation level.

Check the inflation when the tire is cool. When carrying the maximum load weight allowed for the trailer model, you can inflate the tires to the maximum pressure limit. However, never exceed this limit no matter the weight of the cargo.

Always keep a tight air seal using valve stem caps. The caps also help in preventing moisture and dirt. Sometimes tires bulge on the sides even with proper inflation.

The bulding is associated with under inflation, which is the worst condition on trailer tires. Once you check and inflate the tires, recheck the pressure after 48 hours. Remember to inflate the tires in safe cages to avoid accidents.

When tires are in use, the pressure increases because of the increase in temperature. The pressure may increase to 10psi or 15psi. Such high levels of pressure are signs of under inflation of tires, overloading, and improper size of tires.

The high pressure is also a sign of over-speeding. Sometimes a combination of several of these factors cause the inflation pressure to rise beyond the recommended level.

Always ensure that you have right size of tires at all axle lines and keep the load weight within the recommended limit. Avoid overspeeding especially when the trailer is fully loaded.

Check the axle alignment and ensure it is in place. When axles are not property aligned, they increase the friction on the road. Consequently, the tires wear out unevenly and faster.

You know the causes of abnormal pressure in the tires. Always correct the issues before any trip. Do not rely on past inflation records.

Check the inflation before every trip using a reliable pressure gauge or at least once in a week. When checking the tires, check the rims as well for deformation, cracks, and corrosion.

If you find that the rim is deformed or cracked, do not weld it. Instead, follow the manufacturer’s recommendation on repairing the rim. You may cause further damages on the tires and wheels when welding a damaged rim.

Tire damage

- ## Fasteners

You buy a trailer with tight bolts and nuts. However, the bolts and nuts become loose after carrying heavy loads for several trips. Sometimes the fasteners appear lose because the mechanic picked the wrong size.

Hence, as you adjust the bolts or nuts, ensure that you have the right size for each joint. Check the fasteners regularly, especially after long trips. Loose fastener reduce the strength and stability of a loaded trailer.

Replace any damaged or missing fasteners and maintain the recommended torgue value for each. The manufacturer’s manual contain the right torgue value for all models of bolts and nuts.

When inspecting the pivot bolts, ensure that the axles are properly aligned before tightening loose pivot bolts.

- ## Landing leg

The landing leg supports the trailer when it is disconnected from the truck. The leg is normally welded into its right position during the assembly process.

Inspect the landing leg especially the welded parts to ensure that there are not cracks or fractures. Repair welding and reinforcement is necessary in case of cracks.

The landing leg cannot support its load capacity if it welding spot if deformed in any way.

- ## Brake

Inspecting the braking system is very important because it involves your life as well. Driving a loaded trailer with poor brakes is very risky. The most important aspect to inspect in the braking system is the gas pressure.

Inspect the brakes to ensure that no air is escaping in addition, check the anchor pins for wear and misalignent. The brake shoes tend to wear out fast at the anchor pin holes and hence the need to inspect them regularly.

Replace the shoe-return springs during the general maintenace of the braking system. In case your trailer uses drum brakes, inspect the drums for damage or cracks.

Other important components to inspect are the brake liners. Check the liners for saturation with oil or grease and for tear. Tighten any loose bolts in the liners.

If the brake liners are saturated with any lubricant, replace them with new liners. You cannot fix the problem by cleaning the lubricant. Brake inspections should be scheduled as often as possible.

However, you need to check the system immediately if the trailer develops braking problems while on the road.

Conclusion

Low bed trailer are designed to transport the heaviest and bulkiest loads. The most common applications of low bed trailers include transporting heavy vehicles, rail vehicles, construction beams, windmill components and heavy machinery. The main advantages of low bed trailers include high stability, safety, versatility, and ability to transport tall equipment.

The number of beams, axle lines, and dimensions of the trailer vary across brands. Before ordering for a low bed trailer, it is important consider the cargo weight and dimensions, price, maintenance costs, future business needs and the loading process. The major components to inspect when buying a trailer include the ramp, suspension system, material, tires, landing leg, axles, kingpin, brake system, and the ABS.

Low bed trailers use different suspension systems include mechanical, air, single-point, and rigid suspensions. Each suspension system has a different capacity, efficiency, and damping effect. Buyers should learn the manufacturing process to pick the right model of a low bed trailer. The major steps in the process include cutting and punching steel plates, bending and correcting, welding, repair welding and reinforcement. The final processes include cleaning, polishing, sandblasting, painting and installing all the components required.

The best supplier of a low bed trailer should offer a fair price, high quality, and comply with national standards. Other considerations include the supplier’s certifications, awards, and ability to supply customized low bed trailers. The main inspections involved in the quality control process include beams, axles, fasteners, surface, and welding inspections. Most people associate China with low-quality products. However, if you follow this guide, you can identify reliable supplier and purchase a high-quality low bed trailer from China.