

Capacity Guide for Alpaca 1500 Trike & Bike Racks.

Factors that determine rack capacity:

- vehicle type
- rack height
- distance from hitch to rear axle
- hitch size
- load size
- center of gravity
- rack size
- wind load
- road condition

The load limits we set on the racks are a guide. The suggested load for the 2 inch racks are reasonable for the rack at the tall height adjustment with no 'vehicle to carrier' straps. 'Vehicle to carrier' straps will add stability and increase rack capacity. A lower height adjustment will also add stability and increase rack capacity. The trip is much more fun if the load is stable. Look at the examples below. This information is used for our suggested capacities.

With Delta Trikes the center of gravity is lower, there is less wind load, but the rack weighs more. Because of the lower center of gravity, heavier trikes can be carried without 'vehicle to carrier' straps.



Motorhomes, 5th wheels and campers can create a rougher ride because of the distance from the rear axle to the hitch. We suggest a camera to monitor the load. The warranty on the racks is limited to the part on the rack that fails.

Two HP Velotechnik Scorpion FS 26 S-Pedelec Trikes at 62 pounds each, tallest height adjustment on Alpaca Long Tadpole Adaptable Rack. Total rack load 124 pounds, plus 32 pound rack for a total hitch load of 156 pounds on a 600 pound TW, 2 inch hitch. Customer was concerned of too much movement but did not want to use 'vehicle to carrier' straps necessary with this load. This load is too big for motorhomes, 5th wheel trailers or campers.

A 45 pound trike, plus a 45 pound tandem and a 25 pound bike, middle height adjustment on Alpaca Long Tadpole Adaptable Rack. Total rack load 115 pounds plus a 32 pound rack for a hitch load of 147 pounds on a 300 pound TW 1.25 inch hitch 'vehicle to carrier' straps are used there is very little movement.

This load on a 2 inch hitch would require a 2 Tadpole 2 Rack. The load is a little lighter than the load to the left and the center of gravity is lower 'vehicle to carrier' straps are not needed in this situation.



90 pounds of trike on a 2 inch rack, no straps, very stable load.

Vehicle, Hitch & Rack Selection Guide.

Vehicle determines hitch size and capacity, which determines rack selection choices, which then determines possible loads.

The load is leveraged, so install the largest tongue weight (TW) capacity hitch available.

With Class I/II hitches, the weight of the load, including the rack should be less than 50% of the hitch tongue weight (TW) capacity.

Class III hitches do not exceed rack capacity.

Every situation is different. Do not overload the vehicle, hitch, adapter or rack,

Rack Choices and Loads for a 1.25 Inch, Class I Hitch.

Class I
100 LB TW
1.25" Hitch

There are no Alpaca Racks available for a hitch with a tongue weight (TW) capacity of 100 pounds.

Class I
200 LB TW
1.25" Hitch

The only Alpaca Trike Racks for these small vehicles and hitches are the 1500 1.25 RSA Racks, The load is limited to small light weight Tadpole Trikes.

- * Less than 40 pounds each.
- * 20 inch or smaller tires.
- * Shortest trikes with 26 inch rear tire.
- * Removing front tires reduces weight and wind load to carry larger trikes.
- * For one light weight long laid back tadpole trike, a taller customize rack can be used.
- * 'Vehicle to carrier' Straps are needed.



1500 1 Tadpole 1.25RSA



1500 2 Tadpole 1.25RSA



1500 2 Tadpole 1.25RSA-TP

Rack Choices and Loads for a 1.25 Inch, Class II Hitch.



It is possible to fit these racks to a Class I Hitch, but in most situations the hitch and vehicle are not adequate.

**Class II
300 LB TW
1.25" Hitch**

All 1500 1.25RSA Rack Choices for Class I Hitches, with slightly heavier trikes up to 45 pounds.
*Be sure to use the 'vehicle to carrier' straps.

Rack Choices for a 1.25 Inch, Class II Hitch with Adapter.

**Class II
300 LB TW
1.25" Hitch**

Purchase a 1.25" to 2" adapter for a Class II Hitch, and a much stronger 1500 Adaptable Rack, to carry everything the 1500 1.25RSA Racks will plus longer light weight Tadpole Trikes & Bikes.

- * Trikes less than 45 pounds each.
- * 20 inch or smaller front tires.
- * longer laid back Tadpole Trikes with 26 inch rear tire.
- * Removing front tires will reduce weight and wind load making it possible to carry a larger trike.
- * Carry two bikes with a trike.
- * Purchase 'Vehicle to carrier' Straps for these hitches.

and

**1.25"-2" Receiver
Hitch Adapter
or
1.25"-2" Hitch
Riser Adapter**



1500 1 Long Tadpole
Adaptable



1500 2 Long Tadpoles
Adaptable



1500 2 Long Tadpoles
Adaptable-TP

Purchase an adapter for a Class II Hitch and a Delta Customized Rack to carry 45 pound Delta Trikes or a combination with small light weight Tadpole Trike or bikes.

- * Trikes less than 45 pounds each.
- * 20 inch or smaller front trikes tires.
- * Shortest tadpole trikes with 26 inch rear tire.
- * A hitch riser would be necessary to carry a long laid back Tadpole Trike with a Delta Trike.
- * Purchase 'Vehicle to carrier' Straps for these hitches.



1500 1 Delta
Customized



1500 2 Deltas
Customized



1500 1 Delta 1 Tadpole
Customized

Rack Choices and Loads for a 2 Inch, Class III Hitch.

**Class III
350 LB TW
2" Hitch**

The 1500 Adaptable Racks, will carry all the Tadpole Trikes the other Tadpole Racks will plus longer light weight Tadpole Trikes.

- * Trikes less than 50 pounds each.
- * 24 inch or smaller front tires.
- * longer laid back trikes with 29 inch rear tire.
- * Removing front trike tires reduces weight and wind load.
- * A few of the more extreme trikes can be carried.
- * Larger fat tire trikes can be carried if the Front tires are removed.
- * A 2' Receiver Extension or customized rack is needed for bikes.
- * With bigger heavier loads, optional 'Vehicle to carrier' Straps are needed.



1500 1 Long Tadpole Adaptable



1500 2 Long Tadpoles Adaptable



1500 2 Long Tadpoles Adaptable-TP

The 1500 Tadpole 2 Racks carry short Tadpole Trikes with 20 inch rear tires.

- * Trikes less than 50 pounds each.
- * 24 inch or smaller front tadpole trikes tires.
- * Shortest trikes with 26 inch rear tire.
- * Removing front trike tires reduces weight and wind load.
- * With bigger heavier loads, optional 'Vehicle to carrier' Straps are needed.



1500 1 Tadpole 2



1500 2 Tadpoles 2



1500 2 Tadpoles 2-TP



1500 1 Delta 1 Tadpole 2



1500 2 Deltas 2



1500 1 Delta 2

A 55 pound Delta Trike and a Tadpole Trike or bikes.

- * Trikes less than 50 pounds each.
- * 24 inch or smaller front front tadpole trikes tires.
- * Shortest tadpole trikes with 26 inch rear tire.
- * Removing front trike tires reduces weight and wind load.
- * With bigger heavier loads, optional 'Vehicle to carrier' Straps are needed.

RACK CHOICES

The Alpaca 1500 Trike & Bike Racks have three height adjustments to accommodate a variety of trike lengths with the ability to position the trikes and bikes in the proper location behind the vehicle.

Rack model selection determines the start position.

The height adjustments and pin choice help fine tune these adjustments.

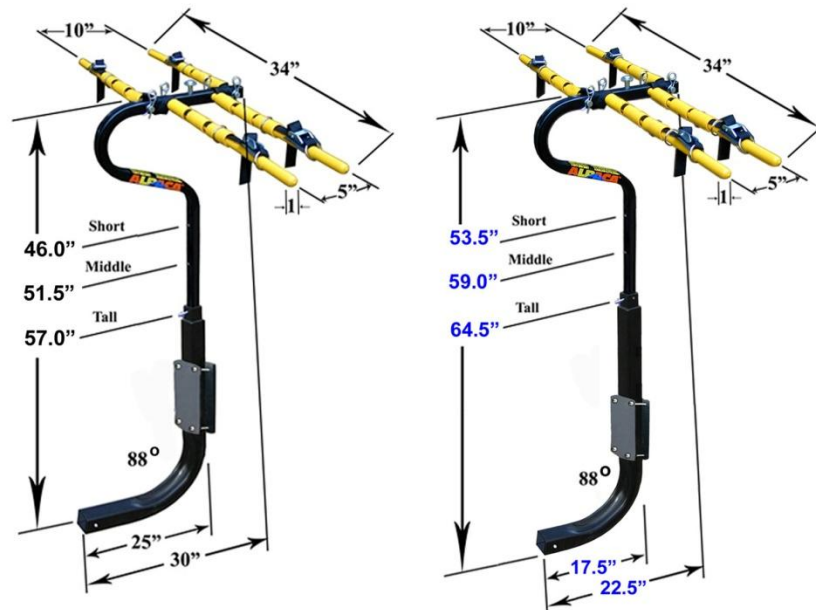
The cinch straps are 1-inch heavyweight polypropylene 600-pound test. The cam-buckle 1-inch zinc plated steel, the rings 1.25-inch zinc plated steel.

The pins are .625-inch 1018 cold roll steel. They are yellow zinc plated, then dipped in a yellow plastisol or vinyl coating. The spacers are made from the same material.

The steel tubing is 1.25 X 1.25 X 11 gauge and 2 X 2 X 11 gauge. It is powder coated satin black.

The carriers as shown weight 34 pounds setup for two Tadpole Trikes. Setup for one trike they weigh 28 pounds. The Silent Hitch Pin Lock adds one pound.

When the 1500 2 Tadpoles 2 is inserted into the hitch the support tube will extend about 21-inches from the hitch. This rack will work on vehicles with rear mounted spare tires.



The 1500 2 Tadpoles 2 and 1500 2 Long Tadpoles Adaptable Racks are very similar. **The blue numbers are where the racks differ.** With the 1500 2 Long Tadpoles Adaptable Rack above right, the load starts closer to the vehicle to accommodate an adapter, for Class II, 1.25 inch hitches. The rack also has higher height adjustments to accommodate the longer laid back trikes. Because of vehicle design and the higher height adjustments, the rack also works with 2 inch hitches and no adapter to carry Tadpole Trikes, but not bikes,

PIN CHOICES

Pin choice determines spacing combinations:



The standard 18" carrier pin must be unequally spaced at 5", 7.5", or 10".



The through pin must be equally spaced at 5", 7.5", or 10".

General Information for all Alpaca Racks.

***Alpaca Racks work where others will not. The racks are adjustable so each rack fits many vehicles and loads, Many combinations work with more than one rack.**

***'Vehicle to carrier' straps help stabilize the load. They also reduce leverage and wind load.**

***Generally because of vehicle design, for bikes and delta trikes, the rack must extend farther from the vehicle than a rack for tadpole trikes.**

***With tadpole trikes the extra front tire adds weight and wind load at a higher position, If the front tires can be easily removed, a larger trike can be carried with a smaller vehicle and hitch.**

***The RSA and Adaptable Rack lines are designed so the adapter positions the rack at the same approximate position behind the vehicle as the 1500 2 Tadpole 2 Rack with no adapter.**

***When an adapter is added hitch, capacity is lost because the load moves farther from the vehicle.**

***Two equal loads in the same position behind a vehicle, exert the exact same force on the hitch with or without an adapter. However the loads will never be equal because the adapter adds weight.**

***When the vehicle has a 2 inch, Class III Hitch, the rack choices improve. Everything is stronger making the load more stable. A few of the more extreme trikes can be carried. It is best to remove front tires from fat tire trikes.**

***If lifting the trike is an issue, buy a smaller, shorter trike from which the seat, front tires and power assist can easily be removed. The trike will be lighter and you will not need to lift it very high. Many trikes are available with easy to remove front tires and seats. A lighter trike is a better choice than any lift system I have seen or tried.**

***Alpaca Carriers, Inc. doesn't manufacture sell or rate receiver hitches, hitch adapters, hitch extenders or hitch risers. The information we provide on these products is from the product manufacture. We provide the information because our racks are used with these items. Before you purchase a rack, look at the information we provide on hitches and adapters. It will help you choose the best rack for your situation. Alpaca Carriers, Inc. only warranty our products and the warranty is limited to the defective part.**