How to use Utah's Online Bridge Calculator

The Utah Online Bridge Calculator is a valuable resource for determining federal bridge formula compliance according to Utah's law regarding weight limitations found in Utah Code 72-7-404. Utah uses groups to determine bridge formula compliance. A group is measured from the first axle in the group to the last axle in the group (more than 96 inches (8 feet) separation between 2 axles starts a new group).

Data is entered into the bridge calculator as follows:

1. Enter the axle count for group 1:

Axle Group	Axle Count
1	1

2. Enter the Requested Weight for group 1*:

Axle Group	Axle Count	Requested Weight
1	1	19900

*Because no group can exceed tire rating, it is recommended that group 1 be entered as the actual combined tire rating for the group.

3. Enter the Group Distance for group 1 in feet and inches*:

Axle Group	Axle Count	Requested Weight	Group Distance Ft / Inch
1	1	19900	0 / 0

*Groups with single axles are entered into the system as a Group Distance of 0'0".

4. Enter the Distance to the Next Group from group 1 to group 2 in feet and inches*:

Axle Group	Axle Count	Requested Weight	Group Distance Ft / Inch	Distance to Next Group Ft / Inch
1	1	19900	0 / 0	14 / 2

5. Enter the Axle Width for group 1*:

Axle Group	Axle Count	Requested Weight	Group Distance Ft / Inch	Distance to Next Group Ft / Inch	Axle Width
1	1	19900	0 / 0	14 / 2	8'6" or less

*Axle Width Measured from the outside edge of the tire on either side where the tread makes contact with the roadway.

6. If the load is a trunnion axle (having 8 tires per axle) check the 8 Tires Per Axle box:

Axle Group	Axle Count	Requested Weight	Group Distance Ft / Inch	Distance to Next Group Ft / Inch	Axle Width	8 Tires Per Axle
1	1	19900	0 / 0	14 / 2	8'6" or less	☐ Yes

7. The Delete Group function is to delete a group if one is added by mistake.

Axle Group	Axle Count	Requested Weight	Group Distance Ft / Inch	Distance to Next Group Ft / Inch	Axle Width	8 Tires Per Axle	Delete Group
1	1	19900	0 / 0	14 / 2	8'6" or less	☐ Yes	X

8. Press the Add Group button to continue to add groups using the method in numbers 1-6*.

Add Group

A running tally of Total Axle Count, Total Requested Weight, and Total Distances entered is tabulated below the entry table as axles are entered by the user.

*The final axle group's Distance to Next Group will be 0 feet 0 inches.

Axle Group	Axle Count	Requested Weight	Group Distance Ft / Inch	Distance to Next Group Ft / Inch	Axle Width	8 Tires Per Axle	Delete Group
1	1	19900	0 / 0	14 / 2	8'6" or less	☐ Yes	X

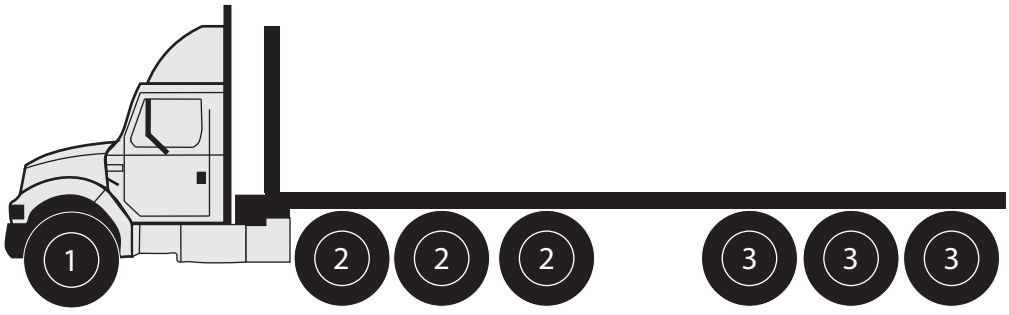
Total Axle Count: 1 **Total Requested Weight:** 11,800 lbs. **Total Distances:** 0'0"

9. When all groups are added and everything looks correct, press the Validate button.

Validate

10. The Validate button runs the entered information through the bridge calculator, applies the rounding criteria, and returns the data in a table format*:

*The truck in the results shows a composite vehicle with the correct number of axles and groups and is not intended to replicate what the specific configuration entered may look like.



Group 1
Req: 19,900 lbs.
Max: 29,500 lbs.

Group 2
Req: 63,000 lbs.
Max: 63,000 lbs.

Group 3
Req: 67,000 lbs.
Max: 68,500 lbs.

	Group 1	Group 2	Group 3
Group 1	Requested: 19,900 Allowed: 29,500	Requested: 82,900 Allowed: 86,000	Requested: 149,900 Allowed: 152,000
Group 2		Requested: 63,000 Allowed: 63,000	Requested: 130,000 Allowed: 132,000
Group 3			Requested: 67,000 Allowed: 68,500

Axle Group Validation Passed.
This bridge calculation is for the current configuration and may be used for enforcement.

11. If your configuration passes bridge formula, the table will be all green, and the message that Axle Group Bridge Validation Passed will be displayed. If your configuration fails bridge formula, the table will be red which group(s) do not pass. The message Axle Group Validation Failed! (please correct your weights to be actual or redistribute the weight in your load) will be in red.

	Group 1	Group 2	Group 3
Group 1	Requested: 19,900 Allowed: 29,500	Requested: 82,900 Allowed: 86,000	Requested: 149,900 Allowed: 152,000
Group 2		Requested: 63,000 Allowed: 63,000	Requested: 130,000 Allowed: 132,000
Group 3			Requested: 67,000 Allowed: 68,500

Axle Group Validation Passed.
This bridge calculation is for the current configuration and may be used for enforcement.

	Group 1	Group 2	Group 3
Group 1	Requested: 19,900 Allowed: 29,500	Requested: 82,900 Allowed: 86,000	Requested: 159,900 Allowed: 152,000
Group 2		Requested: 63,000 Allowed: 63,000	Requested: 130,000 Allowed: 132,000
Group 3			Requested: 76,400 Allowed: 68,500

Axle Group Validation Failed!
(Please correct your weights to be actual or redistribute the weight in your load.)
This bridge calculation is for the current configuration and may be used for enforcement.

12. Since bridge calculations are the result of weight and distance, the best way to correct a failure is to either add distance to your configuration, or reduce weight. If you are applying for a single trip overweight/oversize permit, you must pass bridge formula or the permit will be denied. If your permit is a semi-annual or annual permit, a condition of your permit is that you will stay within bridge formula limits.