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How To...

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How To Select Tubular Axles & Running Gear

Determining GVW, what axles, brakes, springs, and hanger kit you need

1. **How to Determine the GVW - the Gross Vehicle Weight**
 The total Gross Vehicle Weight of the trailer to be built must be determined in order to select the axle or axles to properly fit the application. GVW is the Gross Vehicle Weight including the weight of the empty trailer and the weight of the intended cargo. (Example: GVW of 10,000 lbs. = 2,000 lb. empty trailer weight + 8,000 lbs. cargo.)
2. **How Many Axles?**
 After GVW is known, you must select the number and capacity of the axles. For example, if you want 10,000 lb. GVW and want tandem axles, the minimum required capacity is 6,000 lb. per axle.
3. **Brakes?**
 Determine if you want brakes on each axle. Most provinces require by law that one axle has brakes. Some provinces require that all axles have brakes. To determine how many brakes are necessary in a state, contact the local Department of Motor Vehicles. What type of brake do you prefer: Electric, Hydraulic Single-Serve, Hydraulic Free-Backing, Hydraulic Duo-Serve, Hydraulic Disc or Air "S" Cam Brakes?
4. **What Type of Trailer Are You Preparing?**
 Is the trailer you are outfitting going to be a Bumper Pull, Gooseneck, King Pin or Pintle Eye Type?
 Is the trailer going to be a flat bed with the bed above or between the tires?
 Is the trailer going to need to be built with a low ground clearance? With an extra wide bed?
5. **What Type of Spindles Are Going To Be Required?**
 Straight spindles are used mostly when the bed is over the tires or when low ground clearance is not required. Examples are flat beds, pull-type utility trailers, etc.
 Drop spindles are used when the lowest possible ground clearance is desired. Examples are Livestock and Horse Trailers, Car Haulers, Enclosed Cargo Van Trailers, etc.

6. What Are the Spring Centers?

Spring Centers are the CL (centerline) measurement of the Spring Mounting Pads on the axle. (Usually matched to the approximate frame width of the trailer.)

7. What Bolt Pattern?

The Bolt Pattern of the axles can vary depending on the capacity of the axle. The Bolt Pattern also determines what type tire and wheel can be used. If there is a specific tire and wheel you would like to use. Please relay that information so we can help you to determine the proper bolt pattern and axle.

8. What is the Length of the Axle?

The next step is to determine the length of the axle. Of the several ways and industry terms to describe this procedure. The most popular term is “Hub Face” which is the measurement from the base of the wheel stud to the base of the wheel stud on the opposite end of the axle.

Another term frequently used is “Track”. Track is the center of the tire to the center of the opposite tire. This measurement varies depending on what type of wheel used because each type of wheel (White Spoke, O.E.M., Custom) could have a different offset and this changes the tire center.

9. What Type of Springs?

There are two basic types of springs to choose from: Double Eye or Slipper Springs . Double Eye Springs are used on the shackle-type suspensions.

Slipper Springs are the heavy-duty type of springs used with slipper-type suspensions and will provide longer and more rugged service.

Springs are sold with axles in sets of (2 each) and (1 each) U-Bolt Kit per axle.

10. What Hanger Kit?

There are several Hanger Kits to choose from -- single, tandem or triple for double eye or slipper-type springs. Complete Hanger Kits consist of the Equalizer and Spring Hangers to attach to the frame.

Shackle Straps (if double eye springs). Equalizers for tandem or triple Hanger Kits. Hangers and all the necessary bolts and nuts to attach the Equalizers, Springs and Shackle Straps.

How To Select Torflex Axles

Determining GVW, what axles, brakes, and frame dimensions you need.

1. How to Determine the Gross Vehicle Weight (GVW)

When building a trailer, the total Gross Vehicle Weight (GVW) must be determined in order to select the right axle or axles for the application. GVW includes the weight of the empty trailer and the weight of the intended cargo. (Example: 2,000 lb empty trailer weight + 8,000 lb cargo = GVW of 10,000 lbs.)

2. How Many Axles?

After determining the GVW, the number and capacity of the axles must be selected. For example, if you want 10,000 lb GVW and want tandem axles, the minimum required capacity is 6,000 lb per axle.

3. Brakes?

First, determine if you want brakes on each axle. Most provinces require by law that at least one axle has brakes. Many provinces require that all axles have brakes. To determine how many brakes are necessary in a province, contact the local Department of Motor Vehicles. Second, determine what type of brake do you prefer. Choose from Electric, Hydraulic Single-Serve, or Hydraulic Dual-Serve.

4. What is the Length of the Axle?

Of the several ways and industry terms to describe this procedure, the most popular term is “Hub Face” which is the measurement from the base of the wheel stud to the base of the wheel stud on the opposite end of the axle.

5. Which Bolt Pattern?

The Bolt Pattern of the axles can vary depending on the capacity of the axle. The Bolt Pattern also determines what type tire and wheel can be used. If there is a specific tire and wheel you would like to use, please relay that information so we can help you to determine the proper bolt pattern and axle.

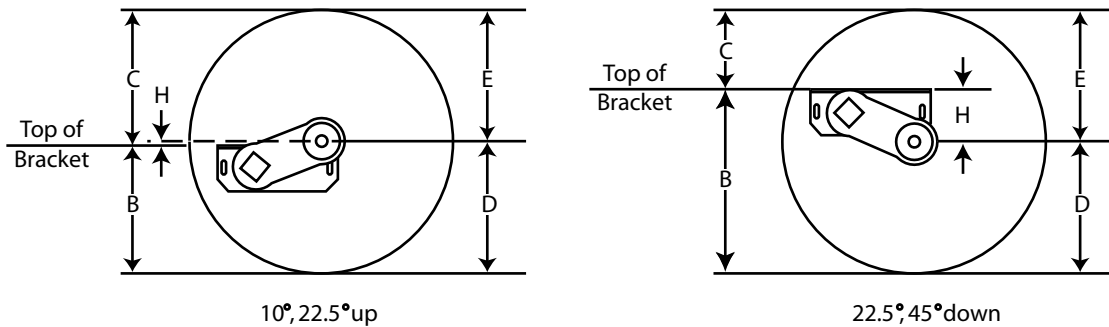
6. What is the Outside Frame Dimension?

Since the mounting brackets of the Torflex axles mount directly to the frame of your trailer, it is necessary to know the outside frame measurement in order to install them on the axle correctly.

7. How to Determine the Trailing Arm Starting Angle

The starting angle is the position of the spindle in reference to the trailer frame. In order to select the starting angle for your Torflex axle, call our office and speak to a sales representative.

Figure 1: 600lb - 900lb Torflex Axle Articulation Dimensions



<p>0° **2K BTRR4 (4" Drop) With 25 1/4" Double Eye Springs</p>	<p>10° up **None</p>	<p>22.5° up **None</p>
<p>10° down **2K BTR4 (4" Drop) With 20" Double Eye Springs</p>	<p>22.5° down **None</p>	<p>45° down **2K BTR Straight with 20" or 25 1/4" Double Eye Springs</p>

How To Understand Tubular Axle Part Numbers

Understanding the break-down of assembly part #'s

Our part numbers for Axles are assigned in accordance to the capacity, bolt pattern, type of brakes (if any) and what type of spindle is used. When ordering axles, the following information should be helpful to you:

EX: 205451 - ST - EZ 2,000 lb., 5 on 4 1/2" Idler Straight with E-Z Lube

20 / 545 / I / -ST / -EZ

20: The first group of digits represent the capacity (20 = 2.000 lb. capacity)

545: The next group represents the number of studs and the bolt pattern of the studs (545 = 5 on 4 1/2". 655 = 6 on 5 1/2". 865 = 8 on 6 1/2", etc.)

I: This tells you what type of brakes are used, if any.

(I = Idler. E = Electric. H = Hydraulic. HFB = Hydraulic Free-Backing. A = Air)

ST: This tells you what type of spindles are used (ST = straight. 4D = 4" Drop)

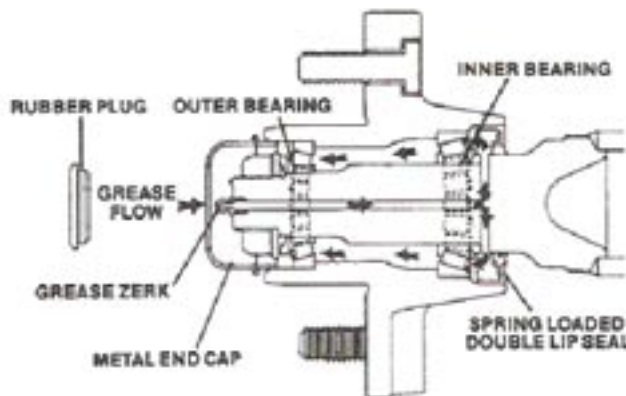
EZ: Any other options (EZ = E-Z Lube Spindle. SPR = Springs Mounted)

How To Lubricate the E-Z Lube Way

Protect your bearings with E-Z Lube.

Keep bearings protected the easy way. Use the E-Z Lube Axle from Dexter. The E-Z Lube design allows grease to flow with EASE to both outer and inner bearings for a complete repack. It's E-Z because all you need to do is attach a grease gun at the end and insert the grease. No disassembly required! E-Z Lube's end cap allows for easy access, extra protection and no mess. With such complete lubrication, your running gear is protected from corrosion and water entry. E-Z Lube protection and maintenance features make it ideal for most any towable axle, whether it's for work or play. Give your running gear the protection and maintenance with E-Z Lube from Dexter and us!

Figure 4: EZ-Lube Diagram



How To Determine The Correct Axle Position

Axle position is important for proper weight distribution.

1. Weigh the trailer (under wheels) "Wheel Weight"
2. Obtain "Tongue Weight" (Actual)
3. Measure distance from tongue to axle, or to C between Dual Axle Set (D)
4. Determine Total Weight
Total Weight = Tongue Weight + Wheel Weight

If tongue weight is greater than 10% of Total Weight, decrease distance "D" by "X" where

$$X = \frac{(\text{Tongue Weight} - 10\% \text{ Total}) \times \text{Times D}}{\text{Total Weight}}$$

Example #1

Tongue greater than 10% of Wheel Weight

Tongue Weight = 1025#

Wheel Weight = 7200#

D = 264" Total Weight = 8225#

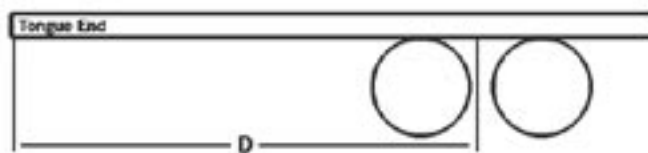
% Tongue Weight = $1025 / 8225 = 0.1246$ or 12.5%

"X" = $1025 - 822.5 / 8225 \times 264 = 6.499$ "

Move the Axle(s) toward the Tongue of the trailer approximately 6 1/2"

New D = $264 - 6 \frac{1}{2} = 257.5$

Figure 5: Axle Position



If tongue weight is less than 10% of Total Weight, increase distance "D" by "X" where

$$X = \frac{(10\% \text{ Total} - \text{Tongue Weight}) \times \text{Times D}}{\text{Total Weight}}$$

Example #2

Tongue less than 10% of Wheel Weight

Tongue Weight = 300#

Wheel Weight = 8200#

D = 264" Total Weight = 8500#

% Tongue Weight = $300 / 8500 = 0.035$ or 3.5%

"X" = $850 - 300 / 8500 \times 264 = 17$ "

Move the Axle(s) toward the rear of the trailer approximately 17"

New D = $D + 17 = 264 + 17 = 281$ "