

TECHNICAL BULLETIN

TRAILER SUSPENSION SYSTEMS

SUBJECT: Wide Base Tires and Offset Wheels

LIT NO: L846

DATE: June 2024

REVISION: E

Wide Base "super single" tires (such as the 445/50R22.5 and the 455/50R22.5) require a 14" wide rim that is currently available with a zero, 1.13" or 2" offset. The width of the tires, along with the available wheel offsets, result in tire width spacings that should be considered when choosing a trailer suspension. Examples of these variations are described below:

WHEEL SPACING

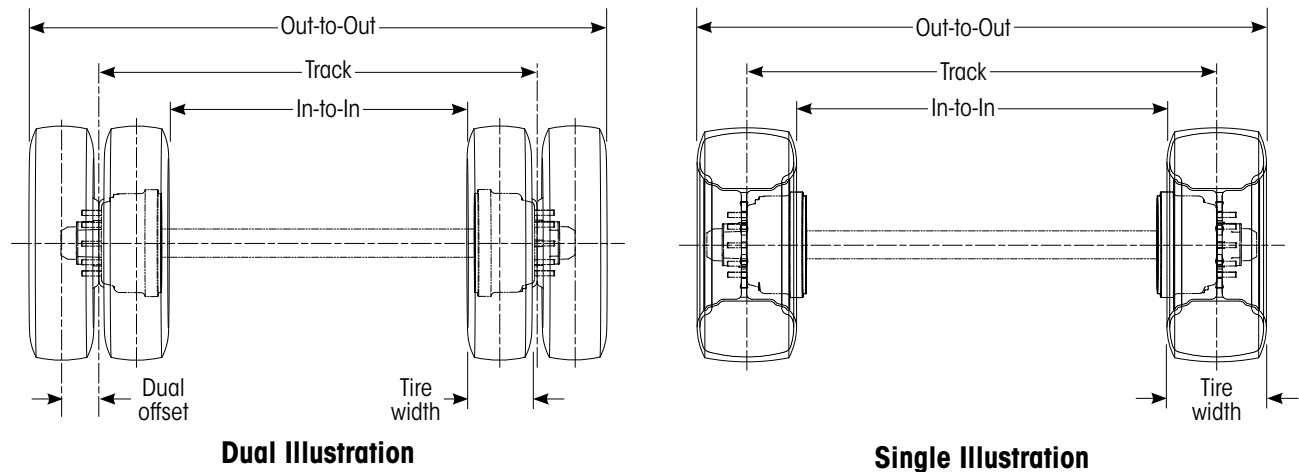


Figure 1: Tire-to-tire dimension

The values in the table on the next page show the dimensions illustrated above with the following wheel arrangements:

- Ductile hub
- Aluminum wheel
- Dual wheels -
 - 275/80R22.5 tire
 - 22.5" x 8.25" rim
 - Zero offset
- Cast Drum
- Wide base single wheels
 - 445/55R22.5 tire (17.6" width)
 - 22.5" x 14" rim
 - Offsets vary as shown

WHEEL OFFSET	TIRE WIDTH	OUT-TO-OUT ^{1, 2}	TRACK (U.S.)	IN-TO-IN ¹
DUAL WHEELS @ 77.5" Axle Track				
Zero	10.89"	102.55"	78.42"	54.29"
WIDE BASE SINGLE @ 77.5" Axle Track				
Zero	17.60"	94.15"	76.55"	58.95"
1.13"		96.41"	78.81"	61.21"
2.00"		98.15"	80.55"	62.95"
WIDE BASE SINGLE @ 83.5" Axle Track				
Zero	17.60"	100.15"	82.55"	64.95"

¹ The OUT-TO-OUT and IN-TO-IN values will change if a different width tire is used (Figure 1).

² The tire OUT-TO-OUT dimension corresponds to the Canadian Memorandum of Understanding definition of axle track. Canada requires a 2.5 meter (98.4") minimum OUT-TO-OUT (i.e. track) width. Some wheel component combinations may be used to meet this requirement with a 77.5" nominal (U.S.) axle track, but the 83.5" nominal (U.S.) axle track is typically recommended.

NOTE: Reductions in the tire track spacing could have an impact on overall trailer stability and should be reviewed for each application.

In addition to the tire spacing, the impact of the wheel offset on the axle and axle components must be considered. Hendrickson INTRAAX®, VANTRAAX®, ULTRAAX-K®, CONNEX® and CONNEX® ST axle and axle components are rated for these wheel offsets as follows:

WHEEL AXLE RATINGS

For 1.13" and 2" offsets

- HP Spindle only
- 20K per axle maximum
- All INTRAAX, VANTRAAX and ULTRAAX-K suspension systems
- All CONNEX and CONNEX ST suspension systems

SPINDLE BEARING RATINGS

SPINDLE TYPE	WHEEL OFFSET	LOAD RATING
HN	Zero	Same as axle rating
	1.13"	Not Approved
	2.00"	
HP	Zero	Same as axle rating
	1.13"	20,000 lbs. max
	2.00"	
HX	Zero	Same as axle rating
	1.13"	20,000 lbs. max
	2.00"	

The above rating limits apply to systems where Hendrickson supplies the spindle bearings. For components not supplied by Hendrickson, we

recommend that the anticipated component performance be reviewed with the respective component manufacturer.

BRAKE RATINGS

For 1.13" and 2.00" Wheel Offsets

Use of offset wheels does not affect Hendrickson's brake ratings. See *L809 Brake Certifications* for a complete listing of brake types and their ratings.

OTHER WHEEL OFFSET AMOUNTS

Contact Hendrickson's Product Engineering Department for reduced axle ratings when other wheel offsets are used. Hendrickson cannot provide a revised rating for the spindle bearings. Spindle bearings used with offset wheels should be inspected more frequently due to the reduction in predicted operating life of the bearing.

NOTE:

- The actual axle rating should be determined by reviewing all of the components attached to the axle including the hubs and tires.
- The standard suspension system warranty as stated in Hendrickson literature number *L583 Comprehensive Warranty Statement* will continue to apply to those components supplied by Hendrickson when the system is operated within the parameters noted above and installed and operated per Hendrickson's recommendations. This would include the standard one-year coverage for wheel hubs and bearings when installed by Hendrickson.
- Contact Hendrickson concerning the availability of extended service warranty options for offset wheels.



STANDARD SINGLE OUTSET TIRES AND WHEELS

Standard 6.6 inch offset 22.5x8.25-disc wheel used in a single outset wheel application. Specific hubs, bearing settings, and spindles are required when using a standard outset single tire.

HENDRICKSON WHEEL END SPECIFICATIONS FOR A STANDARD SINGLE OUTSET WHEEL/TIRE.

1. HP and HX spindles only
2. KIC brand ductile iron hubs (drum or disc brakes) – 12,200 lbs. GAW
3. Quality industry standard bearings (cup & cone from same vendor).
4. Use pre-load bearing setting for optimal performance

FIELD EQUIPMENT RECOMMENDATIONS:

1. Use heavy duty disc wheels with a rated capacity of 8,000 lbs. or higher
2. Avoid the use of plastic wheel guards.

MAINTENANCE PRACTICES

1. Wheel end play per TMC RP618 must be maintained at the recommended 0.001" to 0.005" setting.
2. Use a more frequent wheel nut retorque schedule:
 - A. Initial retorque between 50 – 100 miles
 - B. Retorque after 3,000 to 5,000 miles or 3 to 6 months, whichever comes sooner until 10,000-mile mark.
 - C. Retorque at 10,000 miles
 - D. Retorque at every additional 10,000 miles
3. For air disc brakes:
 - A. During wheel nut retorque - Visually inspect the hub to rotor fasteners for signs of loosening, retighten rotor fasteners if necessary.
 - B. More frequent visual inspection of the rotor, brake pads, and guide pin boots is necessary since the single outset wheel exposes these parts to an increased amount of contamination exposure.

- C. Accelerated brake pad and rotor wear should be expected due to rotor face contamination.

Call Hendrickson at **866.RIDEAIR (743.3247)** for additional information.



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