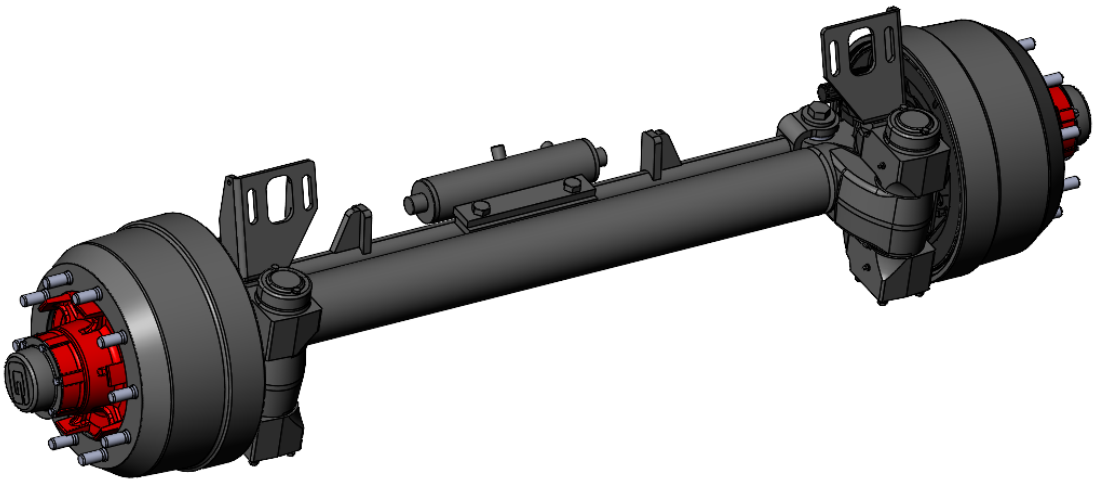
Steer Axle Introduction

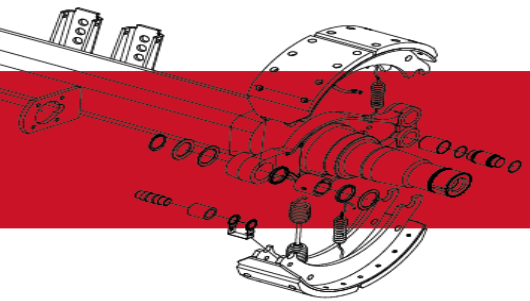


Steer axle main components.

Chassis considerations when using a steer axle.

Benefits of a steer axle.

How to choose your steer axle.



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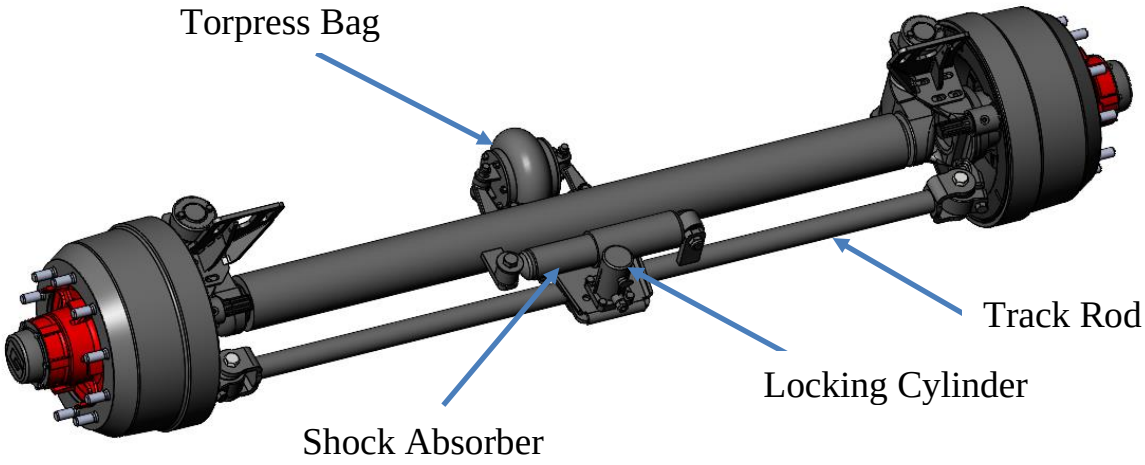
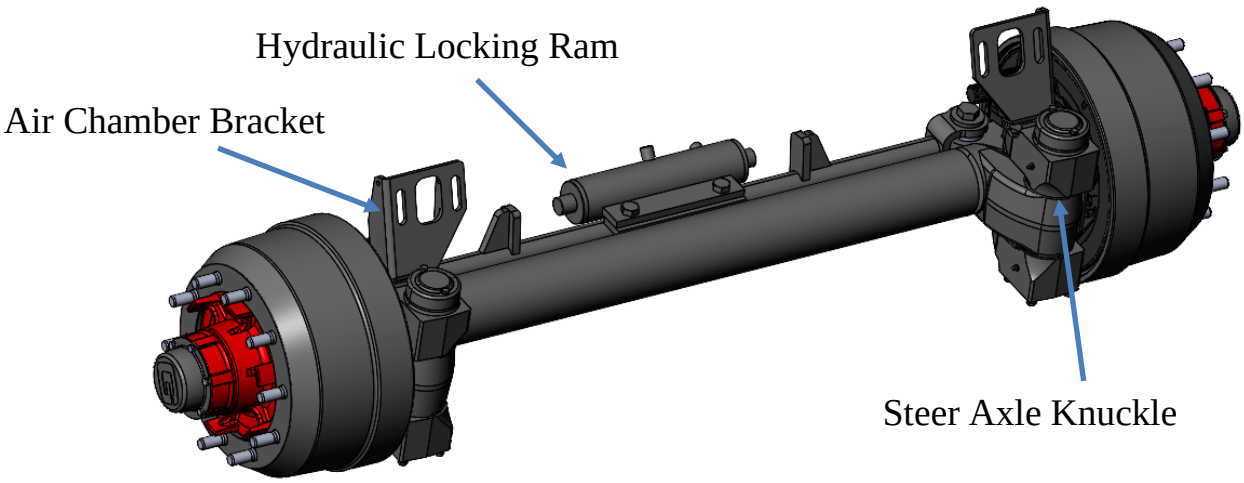


Air Locking Steer Axle



Hydraulic Locking Steer Axle

Torpress Bag – On an air locking steer axle the torpress bag helps to keep the steer axle straight when not turning. A hydraulic locking steer axle does not have a torpress bag.

Track Rod - The track rod connects the left and right side of the steer axle. The track rod is part of the locking mechanism on air and hydraulic locking axles.

Locking cylinder – On air locking steer axles a locking pin, controlled by an air supply, locks and unlocks the axle steering. The air supply can be controlled by a manual valve, speed sensor or electrical switch.

Shock Absorber – On air and hydraulic locking steer axles the shock absorber prevents rapid movement of the track rod for smoother steering.

Hydraulic Locking Ram – On hydraulic locking steer axles the hydraulic ram can lock the steer axle straight by getting pressurized hydraulic fluid from the tractor.

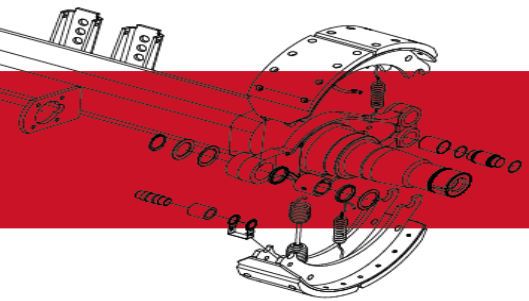
Air Chamber Bracket – The steer axle brake chambers attach to the axle by the air chamber brackets. There are many variations of ACB's to suit air/hydraulic/dual chambers, offset slack adjusters, underslung mounted brake chambers or custom set ups.

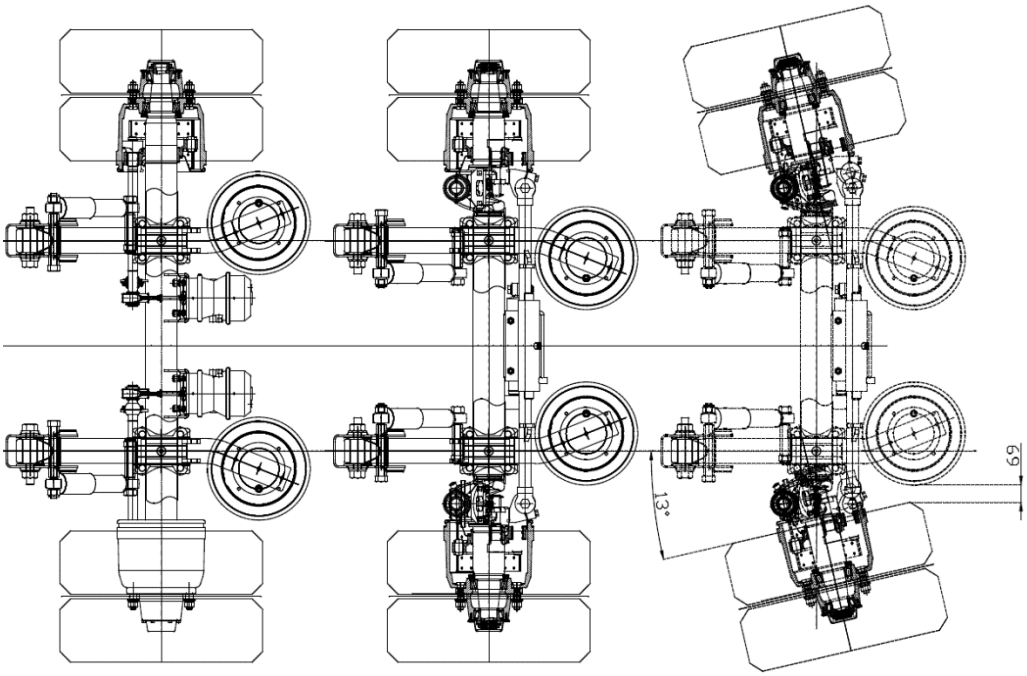
Steer Axle Knuckle – The hub and drum assemblies pivot on the knuckles. On self steer axles the knuckles are forward of the axle center line, on command steer axles the knuckles are on the center line. The steer axle knuckles can be adjusted to limit the amount of steer.

Chassis considerations when using Steer Axles.

The main consideration when using steer axles is clearance between the moving parts of the steer axle and the vehicle chassis. Areas that have to be checked are

- Tyre and chassis clearance at maximum steer
- Brake chamber clearance with tyre
- Brake chamber clearance with chassis at maximum steer
- Track rod and hydraulic ram clearance with suspension





There are many solutions if the above steer axle checks result in interference between parts:

- Offset slack adjusters and ACB's
- Cranked air suspension springs and offset air bags
- Brake chamber ACB's above or below axle beam
- Different locking mechanism's – air/hydrualic/command

With self steer axles there are no new valves that need to be fitted to the chassis other than to control the steer axle locking mechanism. If the axle is hydraulic steer locked then the control is from the tractor cab. If the axle is an air locking steer axle the steer axle can be locked through a manual valve on the side of the trailer, a speed signal from the EBS module or a reverse signal from the vehicle lights.

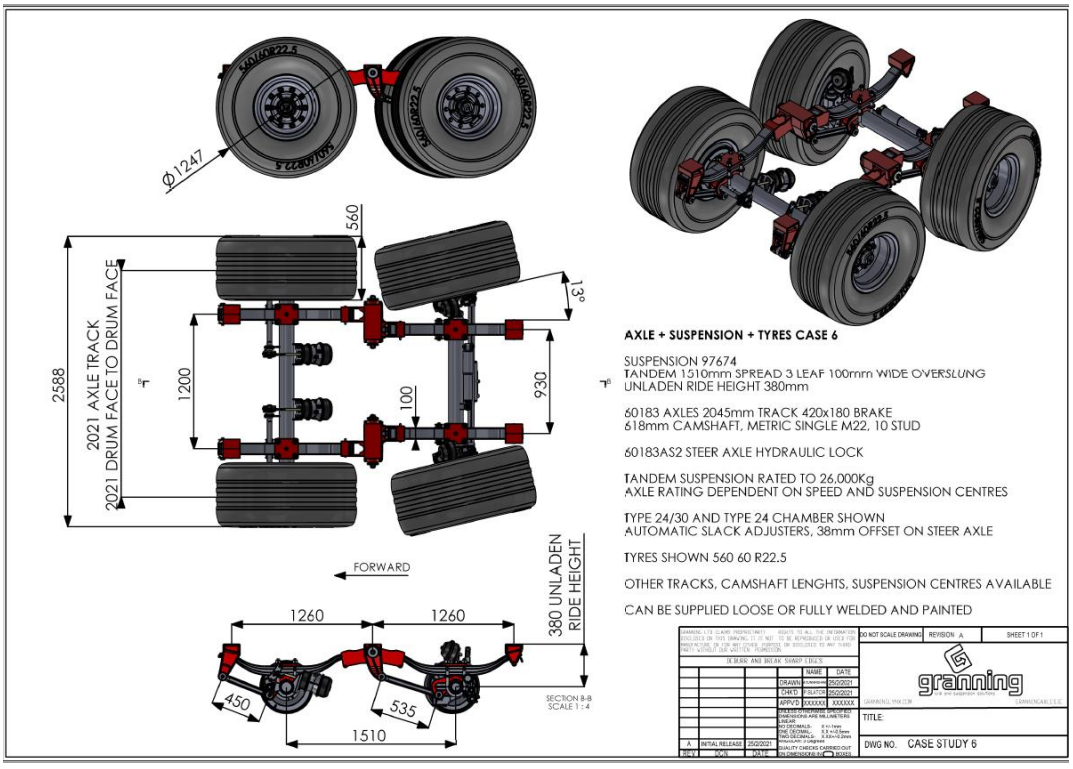
Benefits of a steer axle.

The main benefit to fitting a steer axle is the improved manoeuvrability of the vehicle which makes it easier for the vehicle to get in and out of tight spaces. As a result of the improved manoeuvrability vehicles have reduced tyre scrubbing increasing their life span and also improves the vehicle fuel efficiency. With command steer axles the manoeuvrability has the added benefit of working when the vehicle reverses and can force steer the axle to reduce the turning circle.

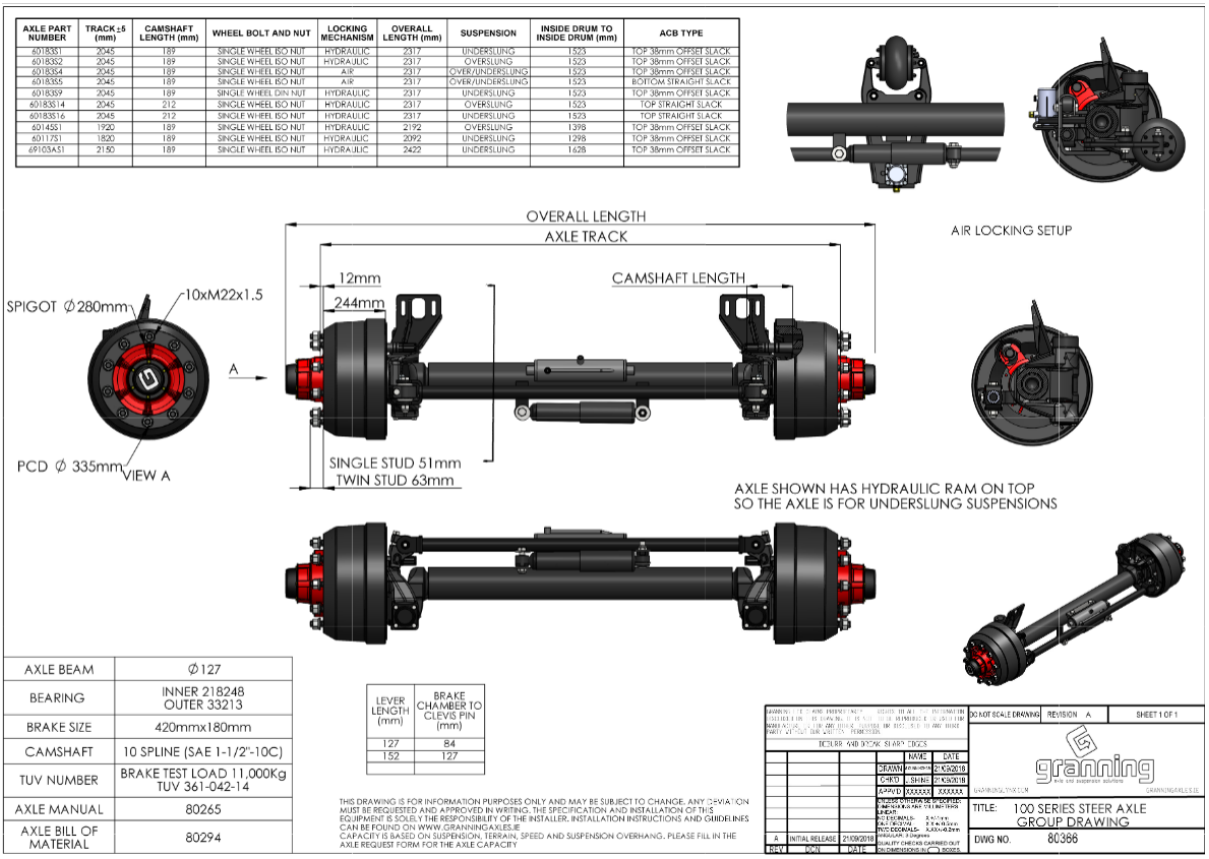
How to choose your Steer Axle.

We have a large range of steer axles in stock. As clearance is so important with steer axles, we recommend getting a clearance drawing done of the axle, suspension and tyre as shown in the below example. We can then check the set up for clearance and can mount the suspension to the steer axle if needed.

Or you can look through the steer axle table and part numbers on the Granning Website.



granning
axle and suspension solutions



AXLE PART NUMBER	TRACK ±6 (mm)	CAMSHAFT LENGTH (mm)	WHEEL BOLT AND NUT	LOCKING MECHANISM	OVERALL LENGTH (mm)	SUSPENSION	INSIDE DRUM TO INSIDE DRUM (mm)	ACB TYPE
6018351	2045	189	SINGLE WHEEL ISO NUT	HYDRAULIC	2317	UNDERSLUNG	1523	TOP 38mm OFFSET SLACK
6018352	2045	189	SINGLE WHEEL ISO NUT	HYDRAULIC	2317	OVERSLUNG	1523	TOP 38mm OFFSET SLACK
6018354	2045	189	SINGLE WHEEL ISO NUT	AIR	2317	OVER/UNDERSLUNG	1523	TOP 38mm OFFSET SLACK
6018355	2045	189	SINGLE WHEEL ISO NUT	AIR	2317	OVER/UNDERSLUNG	1523	BOTTOM STRAIGHT SLACK
6018359	2045	189	SINGLE WHEEL DIN NUT	HYDRAULIC	2317	UNDERSLUNG	1523	TOP 38mm OFFSET SLACK
60183514	2045	212	SINGLE WHEEL ISO NUT	HYDRAULIC	2317	OVERSLUNG	1523	TOP STRAIGHT SLACK
60183516	2045	212	SINGLE WHEEL ISO NUT	HYDRAULIC	2317	UNDERSLUNG	1523	TOP STRAIGHT SLACK
6014551	1920	189	SINGLE WHEEL ISO NUT	HYDRAULIC	2192	OVERSLUNG	1398	TOP 38mm OFFSET SLACK
6011751	1820	189	SINGLE WHEEL ISO NUT	HYDRAULIC	2092	UNDERSLUNG	1298	TOP 38mm OFFSET SLACK
69103A51	2150	189	SINGLE WHEEL ISO NUT	HYDRAULIC	2422	UNDERSLUNG	1628	TOP 38mm OFFSET SLACK

AXLE BEAM	Ø127
BEARING	INNER 218248 OUTER 33213
BRAKE SIZE	420mmx180mm
CAMSHAFT	10 SPLINE (SAE 1-1/2"-10C)
TUV NUMBER	BRAKE TEST LOAD 11,000Kg TUV 361-042-14
AXLE MANUAL	80265
AXLE BILL OF MATERIAL	80294

LEVER LENGTH (mm)	BRAKE CHAMBER TO CLEVIS PIN (mm)
127	84
152	127

THIS DRAWING IS FOR INFORMATION PURPOSES ONLY AND MAY BE SUBJECT TO CHANGE. ANY DEVIATION MUST BE REQUESTED AND APPROVED IN WRITING. THE SPECIFICATION AND INSTALLATION OF THIS EQUIPMENT IS SOLELY THE RESPONSIBILITY OF THE INSTALLER. INSTALLATION INSTRUCTIONS AND GUIDELINES CAN BE FOUND ON WWW.GRANNINGAXLES.IE
CAPACITY IS BASED ON SUSPENSION, TERRAIN, SPEED AND SUSPENSION OVERHANG. PLEASE FILL IN THE AXLE REQUEST FORM FOR THE AXLE CAPACITY

REV	DCR	DATE	NAME	DATE
A	INITIAL RELEASE	21/09/2018	DRAWN	21/09/2018
			CHKD	21/09/2018
			APPVD	XXXXXX

[Steer-Axle-Form]

[Air-Suspension-and-Axle-Set-Form]