

# **AXLES & SUSPENSION UNITS**

**THE AXLE AND SUSPENSION SYSTEM  
FOR COMMERCIAL AND LEISURE USE**

**FEATURES & BENEFITS**

# CONTENTS

*Click on arrow to skip to a particular page*

▶	<b>Introduction</b>
▶	<b>Axle Assemblies</b>
▶	<b>Rubber in Compression</b>
▶	<b>Ease of Mounting</b>
▶	<b>“Softride”</b>
▶	<b>Hub Assemblies</b>
▶	<b>Quality Materials</b>
▶	<b>Capacity Range</b>
▶	<b>Independent Suspension Units</b>
▶	<b>Special Build Options</b>
▶	<b>Wheel &amp; Tyre Assemblies</b>

**Axles have been manufactured in the Knott -Avonride factory in South Wales for over 40 years offering rapid, made to measure axle solutions to trailer builder customers all over the World.**

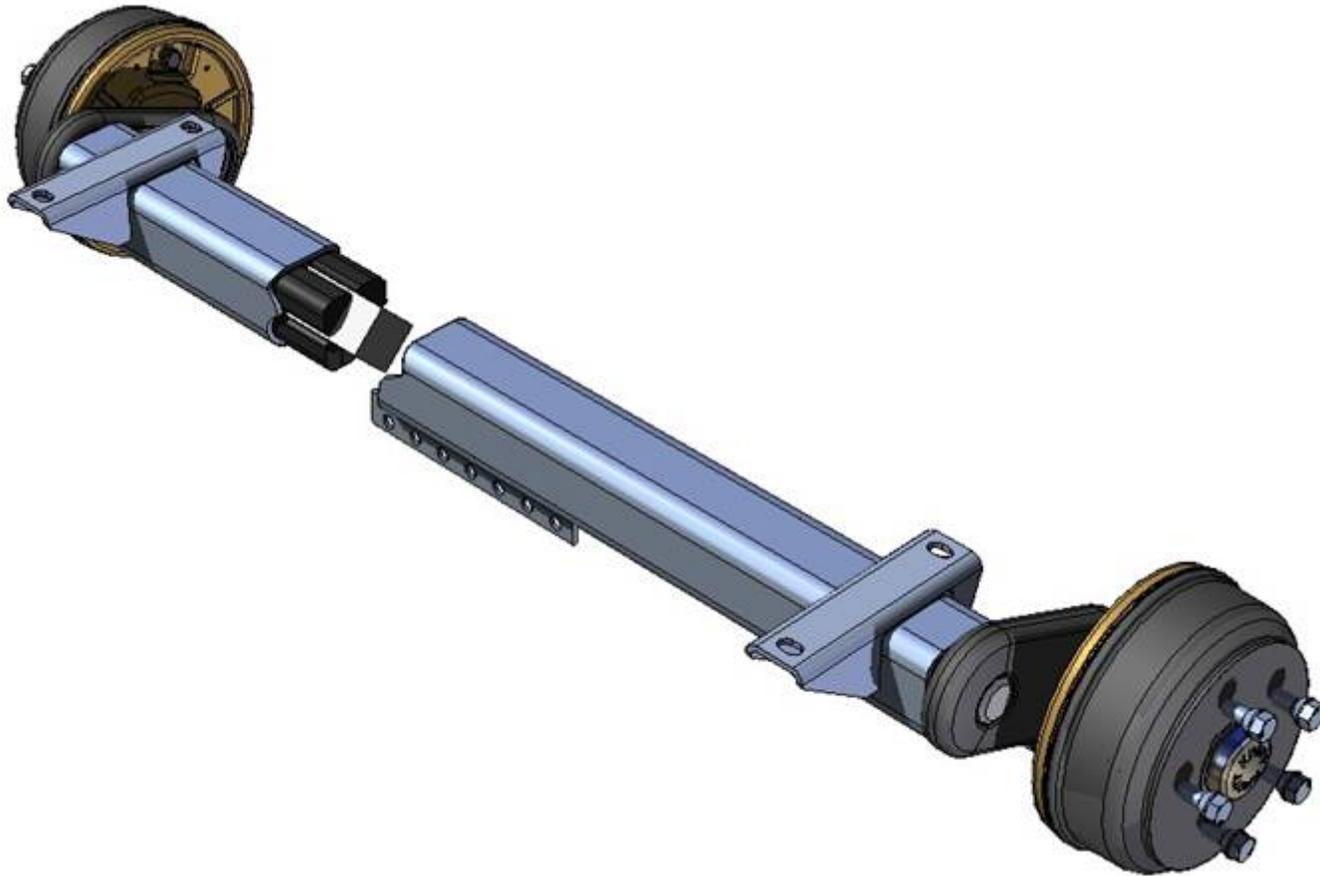
**During this period Knott-Avonride Ltd has become the UK's brand leader by a considerable margin in the manufacture of top quality trailer suspension systems.**

**Our suspension products include the following:**

- Two types of rubber in compression beam axles.**
- A full range of beam axles turned from solid bar – up to 5000kg, for use with leaf springs.**
- A full range of Independent Suspension Units.**
- Heavy duty rubber in compression axles up to 3,000kgs per axle.**
- Tandem axle assemblies.**
- T bar chassis.**
- Steering axles.**
- Lowering axles (Ground Level Load).**



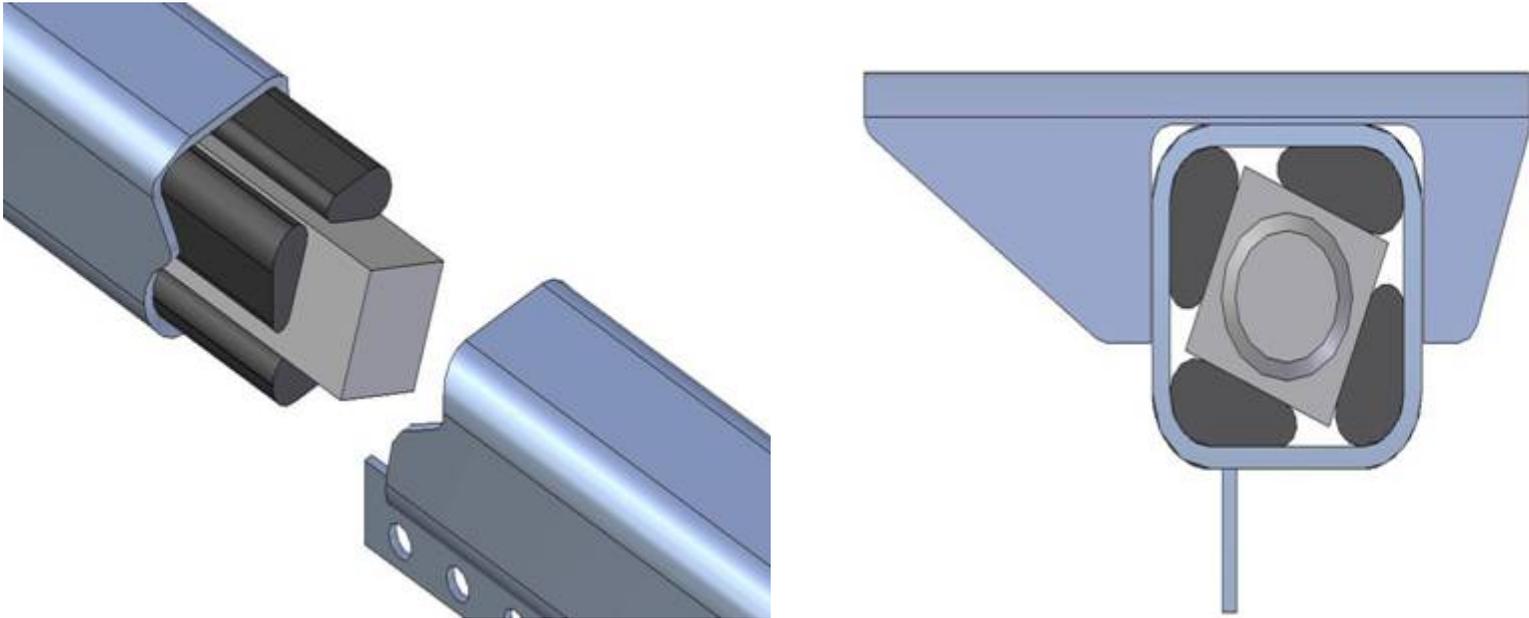
# AXLE ASSEMBLIES



- **Knott-Avonride Ltd suspension axles & units have many unique features.**



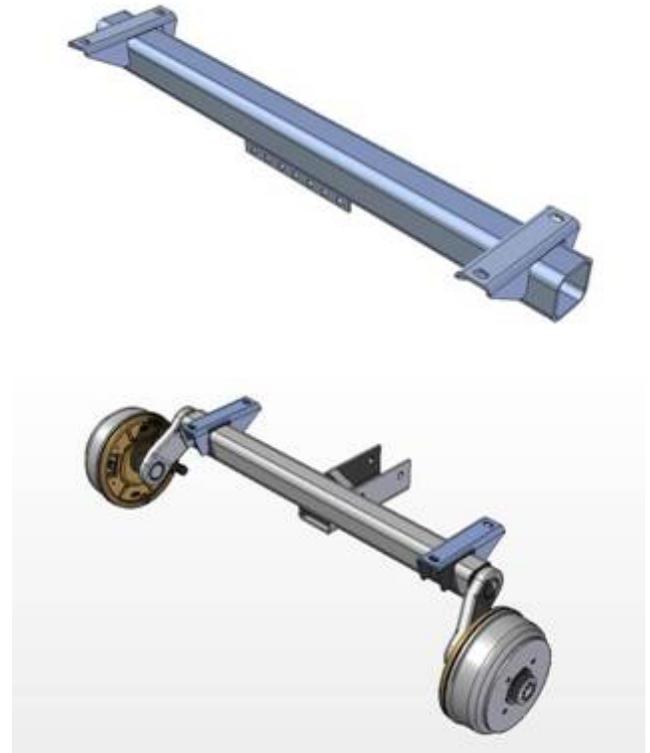
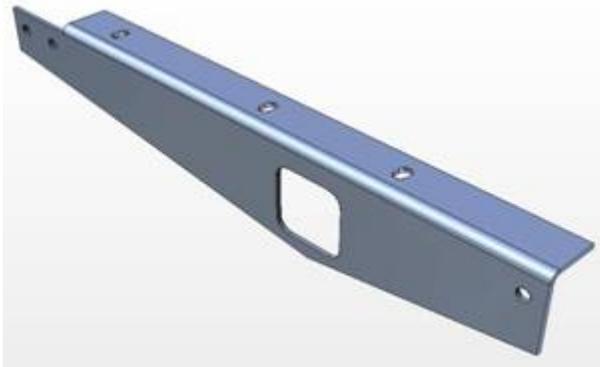
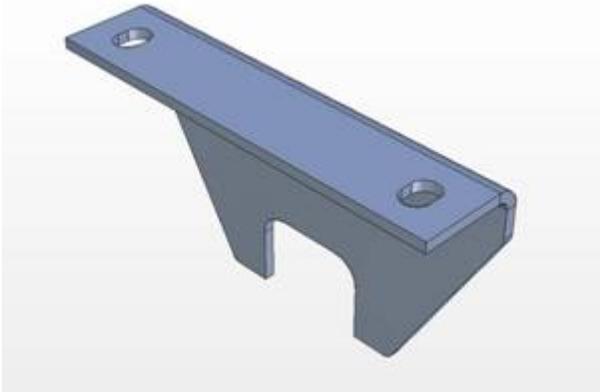
# **RUBBER IN COMPRESSION**



- **Standard ride rubber in compression system with solid inner member, resulting in a sturdy construction and a top quality performance under all load conditions.**
- **Low maintenance & trouble free service.**
- **Preset toe in and camber.**
- **Quiet performance.**
- **Lower ride than spring suspension.**



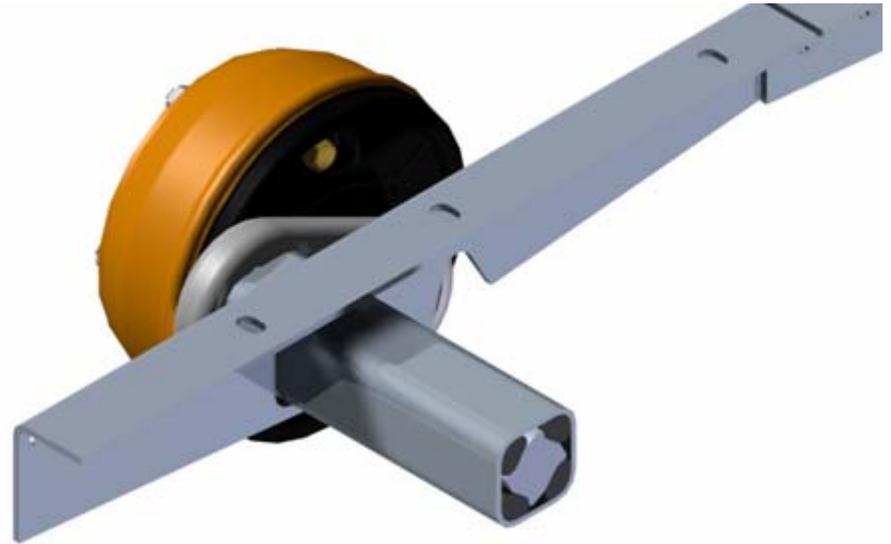
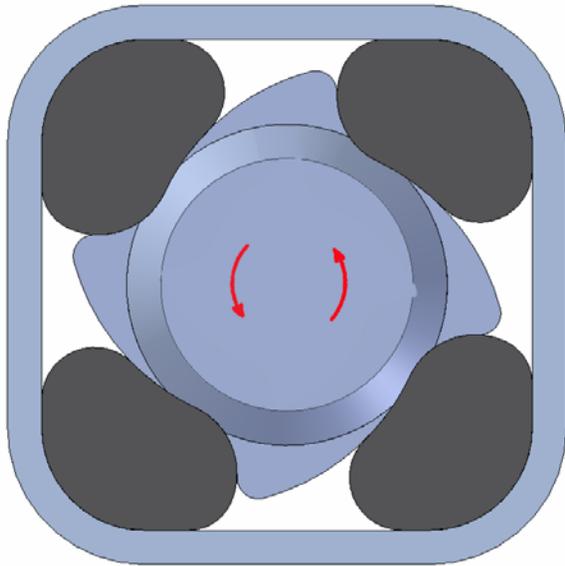
# EASE OF MOUNTING



- Rubber suspension axles offer extremely easy attachment to the trailer chassis with a wide variety of mounting bracket styles.
- Complete axle manufactured to customers track width and chassis fixing requirements.
- 4 bolt fixing, connect to overrun braking system, check and drive off!



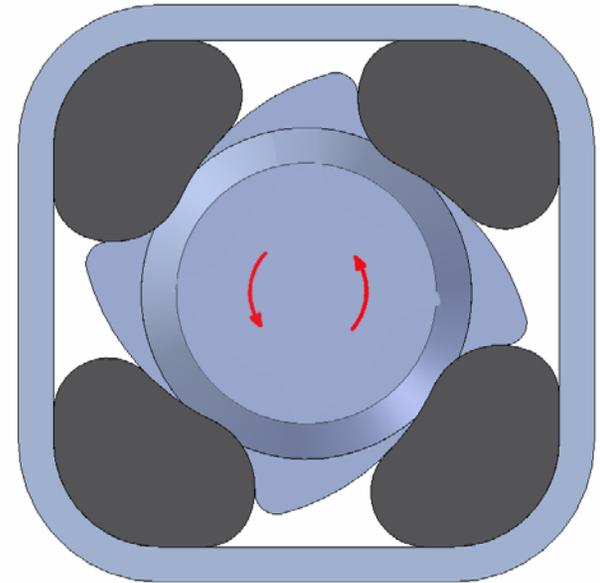
# “SOFRIDE”



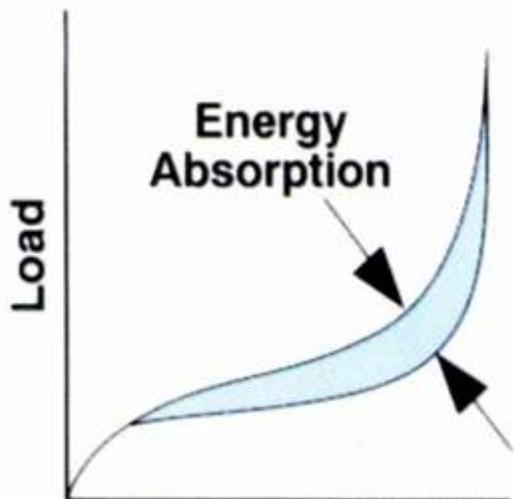
- Axles are available in Standard or “Softride” options.
- Standard suspension gives 22 ½ degree movement from unladen to laden. “Softride” suspension gives 28 degree movement from unladen to laden.
- Special involute “S” shaped solid inner member for smoother compression giving a more even suspension travel, laden & unladen.
- Progressive suspension deflection.
- Axle beams 66 & 77mm – less steel used in manufacture and thus a lighter axle.

## Additional Advantages of the Knott-Avonride "Softride" Axle How is the superior ride achieved?

- Specially shaped inner member.
- Closely controlled inner radii of axle tube to permit smoother movement of axle rubbers.
- Resulting in smoother suspension travel, laden & unladen.
- The suspension travel is progressive.
- Effective suspension movement is 42.5 degrees against standard suspension movement of 35 degrees.
- Excellent damping characteristics with less trailer bounce when towing unladen.
- Can be used with shorter, lighter suspension arm.



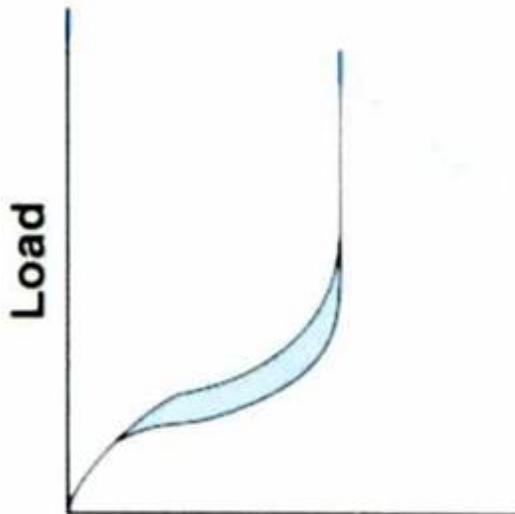
## The Comparisons



Deflection

**SOFTTRIDE**

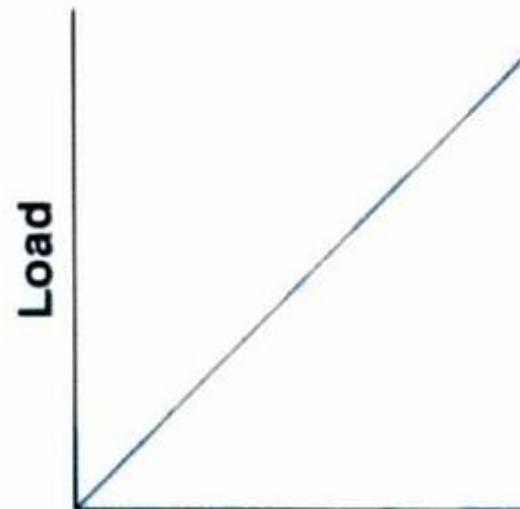
Rubber compression axle



Deflection

**CONVENTIONAL**

Rubber compression axle



Angular Deflection

**LEAF SPRING**

Beam axle



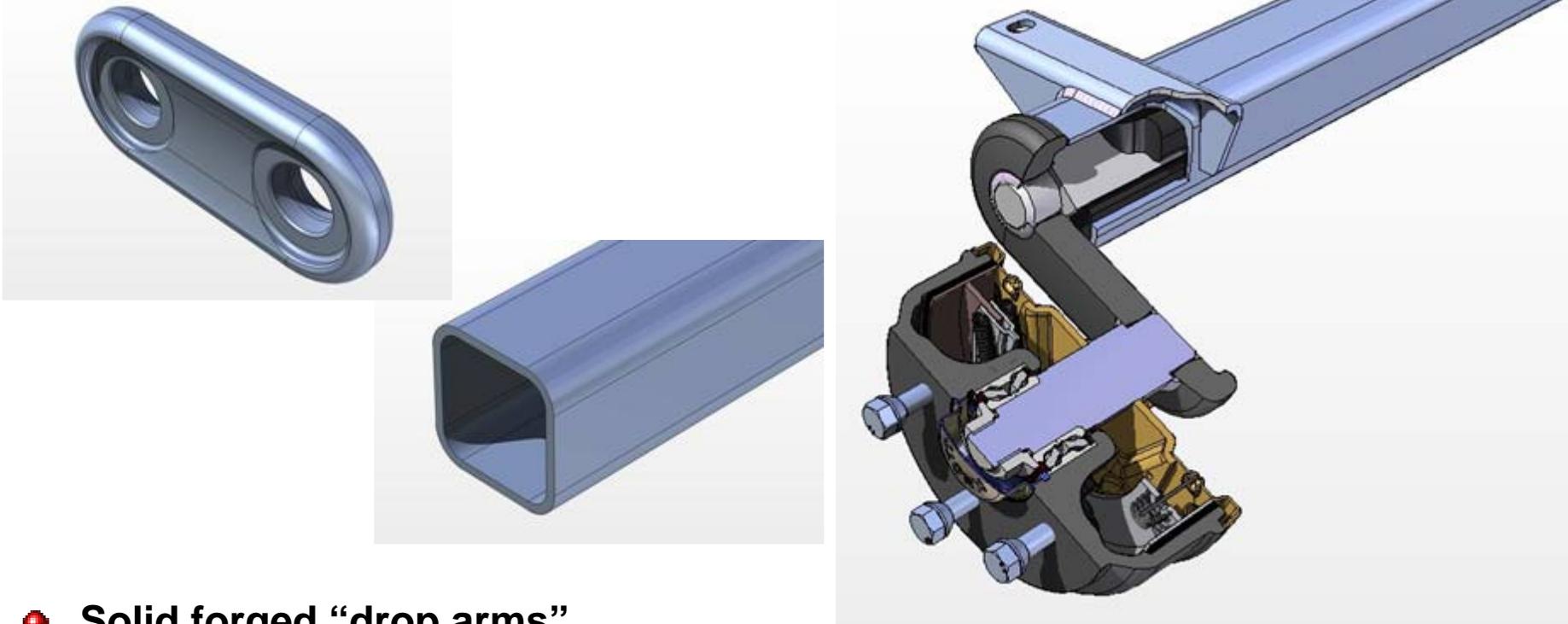
# HUB ASSEMBLIES



- Various hub assemblies available to suit all wheel rim options, for many different PCD's, resulting in optimum bearing life.
- Braked & un-braked assemblies.
- Taper roller & unitized “sealed for life” bearing options.
- Standard, auto reverse & power brake options (e.g. hydraulic & air brakes).



# QUALITY MATERIALS



- Solid forged “drop arms”.
- Rounded inner beam section for more progressive suspension.
- Solid inner members.
- Robotically welded joints for consistently high quality results.
- Galvanised or painted finish.



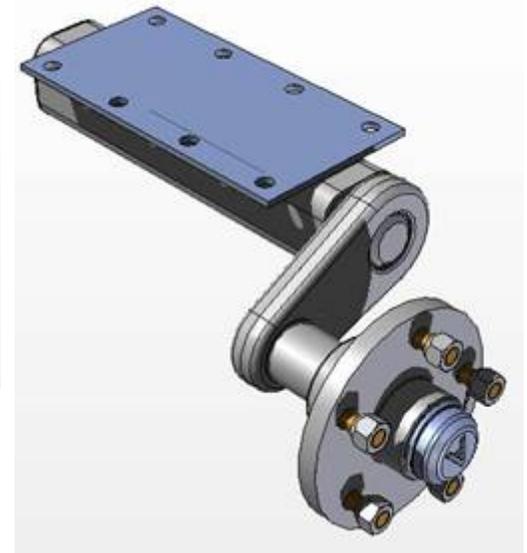
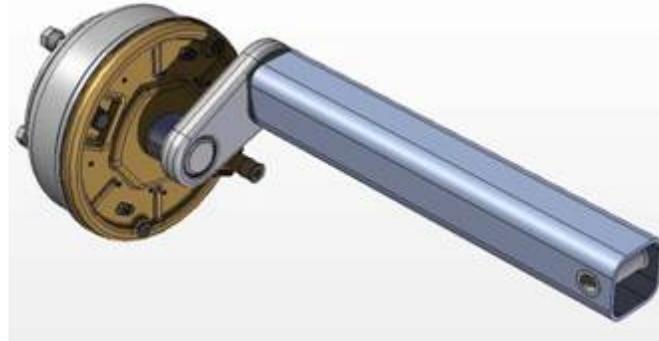
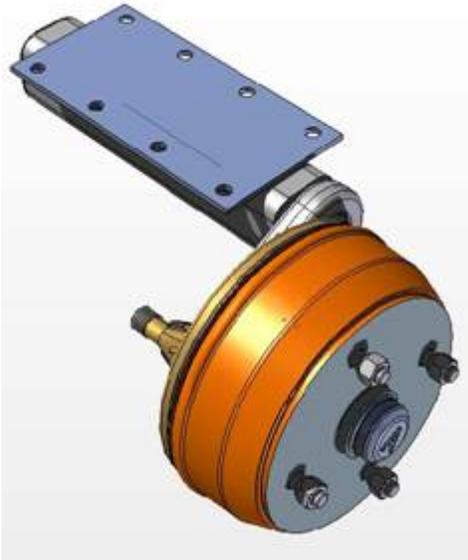
# CAPACITY RANGE



- **Unbraked axles from 350kg.**
- **Braked rubber suspension axles up to 4000kg capacity.**
- **Beam axles turned from solid bar up to 5000kg capacity, for use with leaf springs.**



# INDEPENDENT SUSPENSION UNITS



- Built to the same high specification as our standard rubber suspension axles.
- Capacities from 350kg to 1550kg.
- 4mm thick mounting plates; separate fixing plates also supplied for welding to trailer chassis
- Plated or painted finish.
- 'Off the shelf' availability.



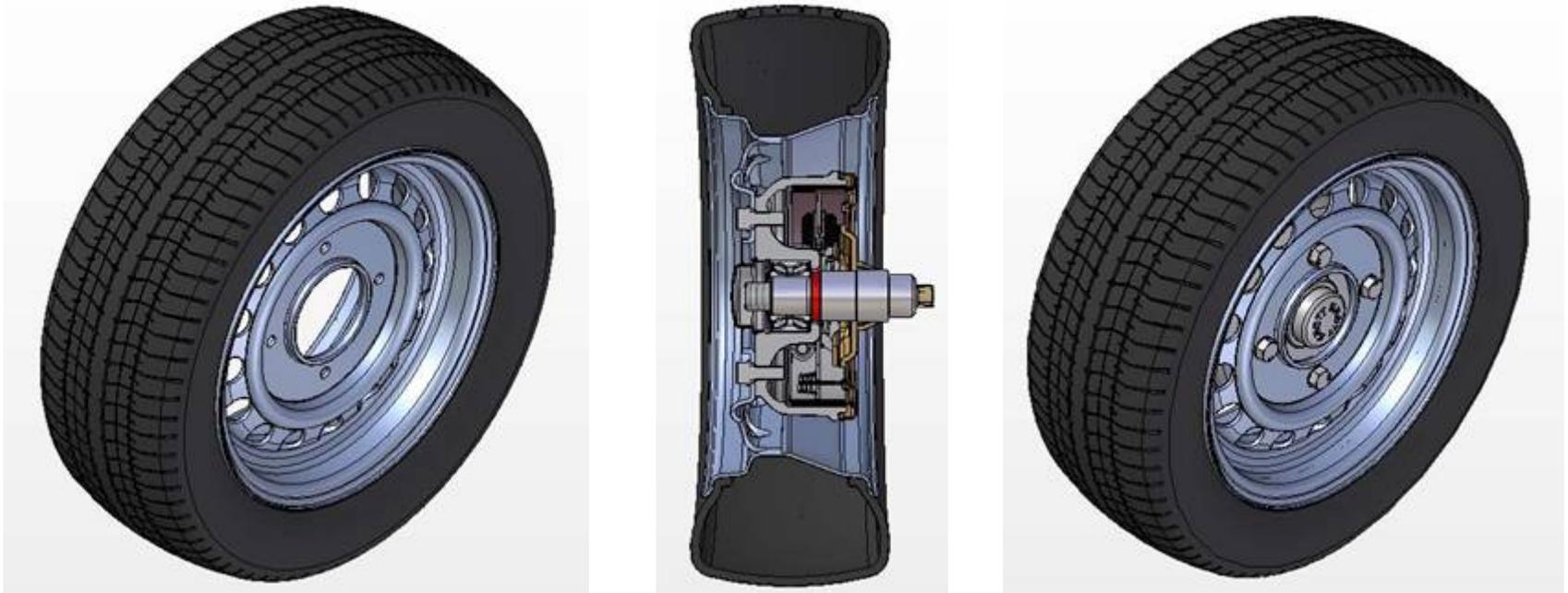
# SPECIAL BUILD OPTIONS



- **Single or twin axle T bar chassis to suit all mounting and towing requirements up to 3,500kgs GTW.**
- **Single or twin steering axles up to 3,500kgs GTW.**
- **Tandem axle assemblies up to 3,500kgs GTW.**
- **Lowering axles, single and twin combinations from 1,500kgs to 9,000kgs GTW.**



# WHEEL & TYRE ASSEMBLIES



- Extensive range to accommodate most design requirements.
- Fully compatible with Knott-Avonride Ltd hub assemblies.
- Up to date technical & dimensional data.
- Approved 'quality' brands for all inset/offset and PCD requirements.
- See following information sheets, our website or contact our offices for further information specific to your requirements.

## Tyre Data

### Data Sheet A

TYRE SIZE	CAPACITY PER SINGLE AXLE (up to 100km/h) kg	OUTSIDE TYRE DIA. mm	SECTION WIDTH mm	STATIC TYRE RADIUS mm	PRESSURE		WHEEL CODE
					BAR	P.S.I.	
4.00-8 4PR	540	415	114	193	- 3.5	51	1,2
4.00-8 6PR	660	415	114	193	4.25	62	1,2
5.00-10 8PR	1000	516	134	239	4.5	65	6
145R10 4PR	693	493	140	223	2.4	35	4,5,6
145R10 C 8PR	1000	489	145	229	4.5	65	6
195/55R10	1500	468	193	215	5.2	76	7
155R12 4PR	880	551	151	250	2.4	35	8,9
155/70R12	1800	523	157	242	6.25	91	10,11,12
145/80R13	825	562	145	255	2.4	35	13,14
155/80R13	935	578	157	262	2.4	35	13,14
165/80R13	1045	594	165	268	2.9	42	13,14
175R13	1165	608	178	273	2.5	36	13,14
175R13 C 6PR	1407	611	178	281	3.75	54	13,14,15
185R13 C 6PR	1500	617	189	284	3.75	54	14,15
185/70R13 C	1900	600	186	278	6.0	87	16
195/50R13 C	1800	526	196	249	6.5	94	16
175R14 C 6PR	1491	628	180	287	3.75	54	17,19
175R14 C 8PR	1627	628	180	287	4.5	65	17,19
185R14 C 8PR	1782	648	190	303	4.5	65	17,19
195R14 C 6PR	1785	670	194	307	3.75	54	17,19
195R14 C 8PR	1995	670	194	307	4.5	65	17,19
205R14 C 8PR	2163	685	211	314	4.5	65	17,19
215R14 C 8PR	2352	700	218	323	4.5	65	17,18,19
7.50R16 C 6PR	2100	802	208	371	4.0	58	20
7.50R16 C 8PR	2352	802	208	371	4.5	65	20
7.50R16 12PR	3045	795	206	368	6.25	91	21,22,23
175/75R16 C	1800	668	177	305	4.75	69	20
205/75R16 C	2226	714	203	326	4.75	69	20
205R16 REIN	1980	736	211	337	3.2	46	20
215/75R16 C	2750	728	216	329	5.25	76	20
205/75R17.5	3000	765	214	352	6.25	91	24,25
215/75R17.5 (135J)	4360	767	211	351	8.1	117	24,25

All information provided for guidance only.

Issue 2

## Wheel Data

### Data Sheet B

WHEEL CODE	WHEEL SIZE	RIM INSET (-) RIM OUTSET (+)	NO. OF STUDS	PCD mm	STUD SIZE	SEATING OF NUT	TIGHTENING TORQUE Nm	CAPACITY PER SINGLE AXLE kg
1	2.50 x 8	0	4	101.6	3/8"	SPH	48	680
2	2.50 x 8	0	4	100	M12	60°	81	680
3	5.00 x 8	+5	5	140	M14 BOLT	SPH	120	1500
4	3.50 x 10	0	4	101.6	3/8"	SPH	48	860
5	3.50 x 10	0	4	100	M12	60°	81	860
6	3.50 x 10	+6.35	4	139.7	M12	60°	81	1000
7	6.00 x 10	0	5	112	M12	SPH	85	1500
8	4.50 x 12	-30	4	101.6	3/8"	SPH	48	900
9	4.50 x 12	-30	4	100	M12	60°	81	900
10	4.50 x 12	0	5	112	M12	60°	88	1800
11	4.50 x 12	0	5	140	M16	SPH	108	1800
12	4.50 x 12	0	5	165.1	M16	80°	108	1800
13	4.50 x 13	-25.4	4	139.7	M12	60°	88	1300
14	4.50 x 13	-30	4	100	M12	60°	88	1500
15	5.50 x 13	-31.75	4	139.7	M12	60°	88	1500
16	5.50 x 13	-7	5	165.1	M16	80°	108	1900
17	5.50 x 14	-39	5	152.4	M12	60°	81	2352
18	6.00 x 14	+5	6	205	M18	SPH	323	2352
19	5.50 x 14	-30	5	112	M12	60°	81	1800
20	5.50 x 16	-32	5	165.1	M16	80°	108	2640
21	6.00 x 16	0	5	165.1	M16	80°	235	3000
22	6.00 x 16	0	6	205	M18	SPH	323	3000
23	6.00 x 16	0	6	205	M22	80°	460	3000
24	6.00 x 17.5	0	6	205	M18	SPH	323	4000
25	6.00 x 17.5	0	6	205	M22	80°	460	4000

All information provided for guidance only.

Issue 2



# CONTACT DETAILS

Europa House, Second Avenue  
Centrum 100  
BURTON UPON TRENT  
Staffordshire  
DE14 2WF

 +44 (0) 1283 531541  
 +44 (0) 1283 534840  
 [sales@knottuk.com](mailto:sales@knottuk.com)  
 [www.knottuk.com](http://www.knottuk.com)

Spelter Site  
Caerau  
MAESTEG  
Mid Glamorgan  
CF34 0AQ

 +44 (0) 1656 739111  
 +44 (0) 1656 737677  
 [maestegsales@knottuk.com](mailto:maestegsales@knottuk.com)  
 [www.knottuk.com](http://www.knottuk.com)