

# IRS

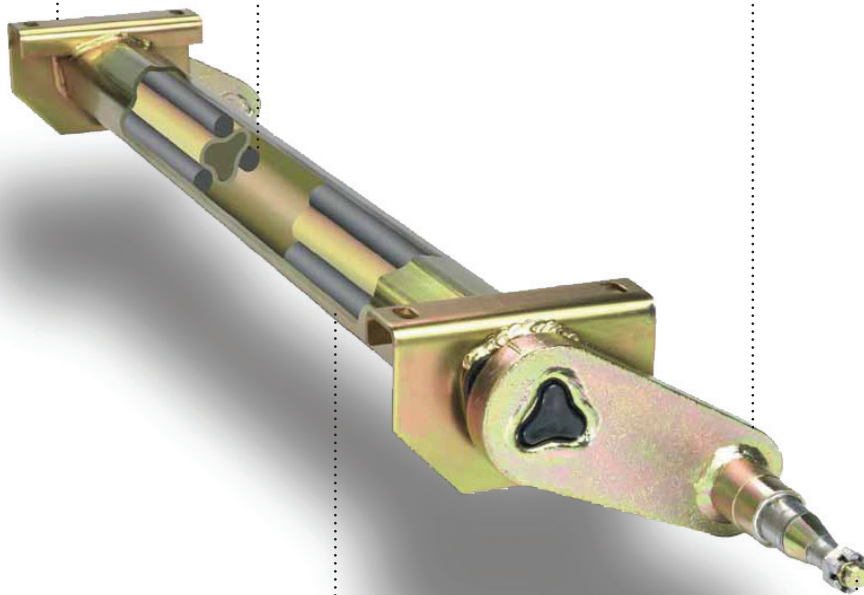
## INDEPENDENT RUBBER SUSPENSION (IRS) AXLES

The state of the art AL-KO Independent Rubber Suspension (IRS) Axle represents the benchmark in fully independent trailer suspension

A special feature of the AL-KO IRS axle system is its mounting flexibility. Standard brackets make installation an ease with traditional under chassis mounting, side mount options for a professional finish or U Bolt fixing where required.

Rubber cords at either end of the beam offer independent suspension action and work similar to an inbuilt shock absorber effect providing a self dampening nature to the suspension.

Multiple start angles are available to achieve a more desirable ride height. Setting up the trailer for optimum towing performance.



Formed DIN 1016 hot rolled steel creates the hexagonal tube for crucial strength in the backbone of the axle.

Quality is important and, as such, each individual IRS axle is manufactured to exact engineering standards. AL-KO also uses the most advanced technology to test each axle for toe-in and camber, as well as load rated deflection.

# INDEPENDENT RUBBER SUSPENSION (IRS) AXLES

With over 17 million produced around the world for caravans and trailers, the AL-KO IRS axle system is now the benchmark for fully independent trailer suspension. The trend to independent suspension first revolutionised the passenger car, then four wheel drives and is now the choice for trailers too.

The AL-KO IRS axle has been proven in tough Australian conditions for well over 20 years – from dirt tracks to fast freeways, from mountain tracks to desert highways. The demands of marine trailer towing – with the additional affect of salt water are also met with the AL-KO IRS system.

AL-KO IRS axles are a form of independent wheel suspension, this improves stability of the trailer/caravan and reduces the risk of dangerous snaking under heavy loads.

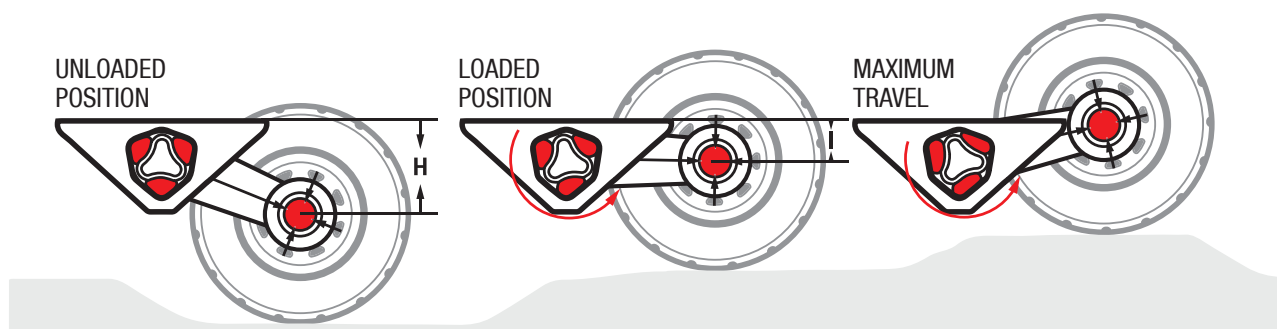
## How does it work?

The AL-KO IRS axle uses simple and effective engineering to provide a smooth, stable and safe towing experience. Unique to the AL-KO IRS axle is the hexagonal outer axle tube, which houses three rubber elements held in place by a triple-fluted inner tube. Road shocks are dampened through compression of these rubber elements via suspension movement between full bump and rebound.

The unique self-dampening characteristics of the rubber element slow down the suspension rebound (as shown in the figure below), which ensures a smooth ride over all types of road surfaces.

## Mounting options

A special feature of the AL-KO IRS axle system is its mounting flexibility. The standard axle can be bolted through the brackets top or side mounting fixtures which connect to chassis. A further universal, easy mount bracket has been developed for single and tandem options (see page 16). In marine configuration, it can be U-bolted onto the chassis rails to allow repositioning along the chassis. This provides optimum tow-ball weight under situations where the load centre is varied.



AL-KO's Independent Rubber Suspension axle system is extensively used in a range of applications, from off-road to marine and heavy-duty trailers.

This enables caravans and trailers of all styles to handle rough terrain and varying conditions better than ever. Its strength and versatility ensure that this axle is perfect for use in Australia.

# IRS

## AL-KO INDEPENDENT RUBBER SUSPENSION AXLES

### Highway Use

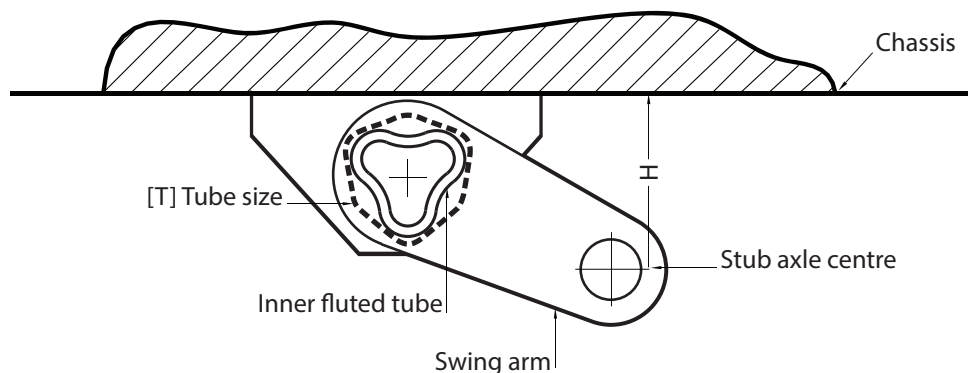
Zinc plated or hot dipped galvanised outer tube, plated swing arm, stub and inner fluted tube

Capacity (kg)	Outer Tube Size (T)	Brake Options *	Most Common Stub Length / Stub Profile (mm)	Chassis To Stub Centre (mm) Unloaded ** "Nominal" - (H)	Max Wheel Diameter
100 - 400	62mm	Unbraked	205 / LM	85	13"
401 - 850	80mm	10" Electric, 9" Hyd, Hyd or Mech Disc	205 / LM	110	14"
851 - 1450	97mm	10" Electric, 9" Hyd, Hyd or Mech Disc	205 or 235 / SL	130	14"
1000 - 1600	110mm	10" Electric, 10" Hyd, Hyd or Mech Disc	235 / SL / Parallel	145	16"
1601 - 2500	120mm	12" Electric, 12" Hyd, Hyd or Mech Disc	255 / 2T/2.5T	135	16"

\* All axles are available unbraked or with the brake options as shown.

\*\* "Unloaded" refers to the chassis being supported and suspension arms hanging free.

\*\*\* Nominal suspension travel is 50mm at design load & a further 40-45mm at bump



## Marine Use

(U-bolt fitted double width brackets) - Hot dipped galvanised outer tube, plated swing arm, stub and inner fluted tube

Capacity (kg)	Outer Tube Size (T)	Brake Options *	Most Common Stub Length / Stub Profile (mm)	Chassis To Stub Centre (mm) Unloaded ** "Nominal" - (H)	Max Wheel Diameter
100 - 400	62mm	Unbraked	205 / LM	85	13"
401 - 850	80mm	10" Electric, 9" Hyd, Hyd or Mech Disc	205 / LM	110	14"
851 - 1450	97mm	10" Electric, 10" Hyd, Hyd or Mech Disc	205 or 235 / SL	130	14"
1000 - 1600	110mm	10" or 12" Electric, 10" Hyd, Hyd or Mech Disc	235 / SL / Parallel	145	16"
1601 - 2500	120mm	12" Electric, 12" Hyd, Hyd or Mech Disc	255 / 2T/2.5T	135	16"

## Off Road Use

(15"/16" Wheels only) - Zinc plated or hot dipped galvanised outer tube, plated swing arm, stub and inner fluted tube

Capacity (kg)	Outer Tube Size (T)	Brake Options *	Most Common Stub Length / Stub Profile (mm)	Chassis To Stub Centre (mm) Unloaded ** "Nominal" - (H)	Max Wheel Diameter
851 - 1600	110mm	10" Electric, 12" Electric, Hyd or Mech Disc	235 / SL / Parallel	145	16"
1601 - 2500	120mm	12" Electric, Hyd or Mech Disc	255 / 2T/2.25T	135	16"

\*\* All axles are available unbraked or with the brake options as shown.

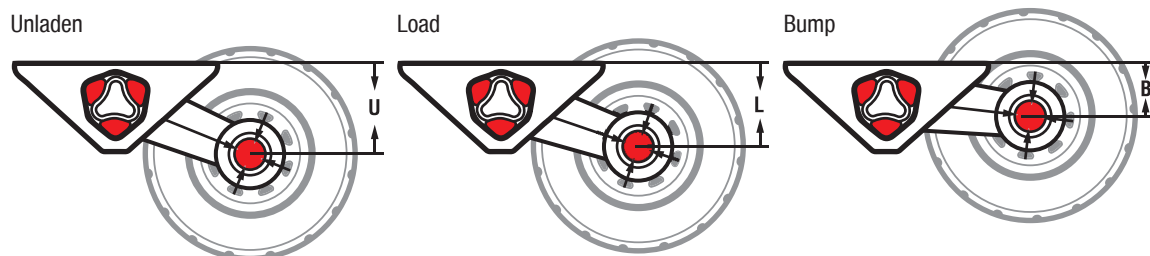
\*\* "Unloaded" refers to the chassis being supported and suspension arms hanging free.

\*\* Nominal suspension travel is 50mm at design load & a further 40-45mm at bump.

## Typical AL-KO IRS Specifications

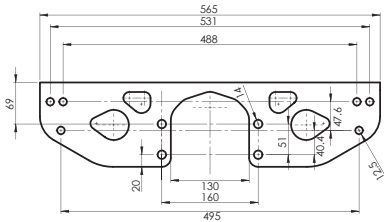
Measurements are nominal for typically constructions. Use of some components, hubs, rims may affect measurements, any build critical details should be confirmed prior to ordering.

Detail	100 - 400 kg	401 - 600 kg	601 - 850 kg	851 - 1250 kg	1251 - 1450 kg	Off Road	1601 - 2000 kg	2001 - 2200 kg	2201 - 2500 kg
Outer Tube Size	62 x 3	80 x 3	80 x 3	97 x 4	97 x 4	110 x 4	120 x 5	120 x 5	120 x 5
Swing Arm Tickness	25mm	25mm	25mm	32mm	32mm	32mm	40mm	40mm	40mm
Stub Axle Diameter	39mm	39mm	39mm	45mm	45mm	45mm	56mm	56mm	56mm
Swing Arm - Centres	130mm	145mm	145mm	160mm	160mm	175mm	200mm	200mm	200mm
Stub Axle Bearing Configuration	LM	LM	LM	SL	SL	SL	2T	2T	2T
<b>Standard Arms</b>									
Chassis to stub centre Unladen Standard Arms (U)	85mm	110mm	110mm	130mm	130mm	145mm	135mm	135mm	135mm
Chassis to stub centre at Load Standard Arms (L)	50mm	70mm	70mm	80mm	80mm	100mm	90mm	90mm	90mm
Chassis to stub centre at Bump Standard Arms (B)	10mm	10mm	10mm	50mm	50mm	70mm	35mm	35mm	35mm
<b>Lo-Line Arms</b>									
Chassis to stub centre Unladen Lo-Line Arms (U)	N/A	45mm	45mm	70mm	70mm	85mm	75mm	75mm	75mm
Chassis to stub centre at Load Lo-Line Arms (L)	N/A	10mm	10mm	30mm	30mm	40mm	30mm	30mm	30mm
Chassis to stub centre at Bump Lo-Line Arms (B)	N/A	N/A	N/A	10mm	10mm	20mm	10mm	10mm	10mm
<b>Super Lo-Line Arms</b>									
Chassis to stub centre Unladen Super Lo-Line Arms (U)	N/A	N/A	N/A	20mm	20mm	N/A	N/A	N/A	N/A
Chassis to stub centre at Load Super Lo-Line Arms (L)	N/A	N/A	N/A	-20mm	-20mm	N/A	N/A	N/A	N/A
Chassis to stub centre at Bump Super Lo-Line Arms (B)	N/A	N/A	N/A	-40mm	-40mm	N/A	N/A	N/A	N/A



## Universal Chassis Bracket

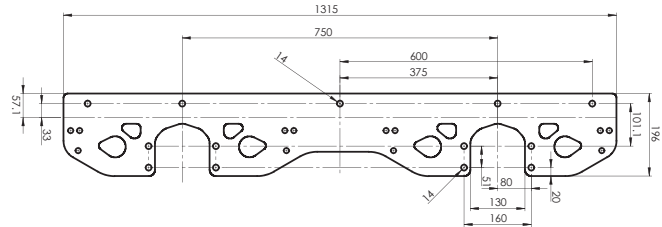
To assist in fitting AL-KO IRS axles to individual chassis, a universal bracket has been developed which is welded to the trailer chassis and the AL-KO IRS axle is bolted to the bracket through side mounting bolts.



### 200170

#### Universal Chassis Bracket

Suit 80-120mm outer tube, Zinc plated – Suits standard and low line ride height/ incorporates shock absorber mounting holes.



### 200172

#### Tandem Chassis Bracket

Suit 80-120mm outer tube, Zinc plated – Suits standard and low line ride height/ incorporates shock absorber mounting holes.

## Octagon Shock Absorber

Optimal damping thanks to precise tuning. AL-KO octagon shock absorbers have overload protection and are characterised by high-quality seals and a special oil. They are precisely optimised for a clearly defined weight range and significantly improve the driving characteristics of trailers and caravans. Trailer oscillations and "hopping" are reduced significantly.

For a long time drivers have been worried about trailer vibrations on uneven roads. Until now, conventional standard shock absorbers have barely delivered a noticeable improvement on driving safety. They are designed for a weight range that is too large (for example 0 to 4.0 t). Optimum damping was only achieved at medium trailer weights (2.0 t). Damping in the lower weight range is excessive, causing trailer bumps and jolts, while the damping in the upper weight range is inadequate. AL-KO Octagon axle shock absorbers on the other hand improve the trailer's drive characteristics and provide optimum damping – thanks to precise, weight based tuning.



Part Number	Description	Color	Single Axle Capacity (kg)	Tandem Axle Capacity (kg)
280000HD	European caravan spare part shock absorber, heavy duty	Blue	1350kg	2700 kg
280005HD	Shock absorber red heavy duty suit 1800kg	Red	2000 kg	3000 kg
99244084	European caravan spare part shock absorber octagon	Green	900 kg	1600 kg
99244085	European caravan spare part shock absorber octagon	Blue	1350kg	2700 kg
99244086	European caravan spare part shock absorber octagon	Red	2000 kg	3500 kg