

SAF MODUL RANGE

A SUSPENSION
SYSTEM THAT'S
MADE-TO-MEASURE



RIGID AXLES

OPTIMUM LIGHTWEIGHT CONSTRUCTION FOR UNCOMPROMISING SAFETY

Significant payload increases can be achieved through weight saving on your vehicle combinations. SAF can offer you this by utilizing the latest manufacturing techniques, modern materials and innovative designs.

SAF MODUL SUSPENSION OFFERS THE TRANSPORT INDUSTRY:

- The Modul Suspension permits every possible combination so that you can put together the optimum suspension system for your transport application.
- SAF combines the highest level of manufacturing expertise with extensive "real world" testing in Australian conditions to offer a solution for weight sensitive transport requirements. With an extensive warranty we've got you covered.

SAF - PREMIUM QUALITY WHEN COMPROMISES CANNOT BE ACCEPTED!

- SAF products utilise the highest technical standards of construction to meet the uncompromising demands of the modern transport operator.

AVAILABLE FOR DUAL TYRES IN BOTH DISC BRAKE AND DRUM BRAKE

- 19.5" and 22.5" tyres - disc brake
- 22.5" tyres - drum brake

SAF MODUL WITH DISC BRAKE TECHNOLOGY

One of the most versatile axle suspension systems on the market



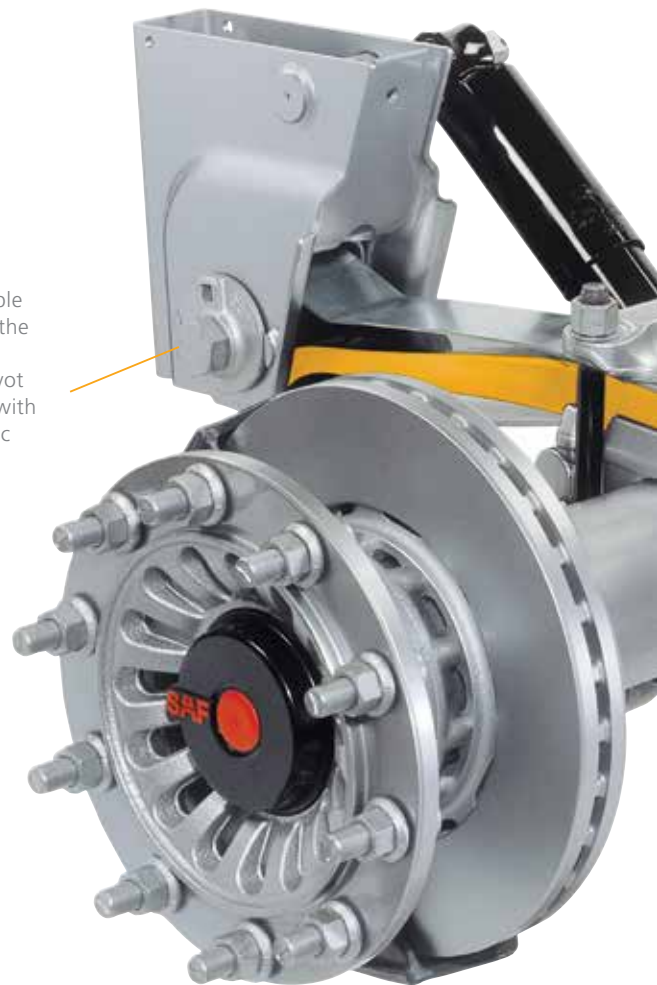
1 MILLION

STANDARD WARRANTY

Wheel bearing and hub	1 million km / 6 years	✓
Axle beam	5 years	✓
Brake caliper and disc rotor	2 years	✓

According to SAF-HOLLAND Warranty Conditions
(available at www.safholland.com.au)*

Quick and simple adjustment of the axle alignment provided by pivot bolt assembly with simple eccentric movement.



*(500,000 km or 3 years for off-road application)

KM OR 6 YEAR WARRANTY*

ALSO AVAILABLE IN DRUM BRAKE



The narrow foot print of the steel hanger bracket saves weight and allows easy installation. No top plate is required for mounting to trailer frame.

Shock absorbers are attached to the suspension having in mind easy suspension installation and no parts above the chassis flange.

High performance shock absorbers are specially designed for this suspension and are available in both - standard and road friendly versions.



Composite airbag piston for extended life and reduced weight.

Long-term value retention and functional reliability thanks to the high-quality KTL coating providing optimum corrosion protection is standard for all models.

STEERABLE AXLES

OPTIMUM MANOEUVRABILITY MATCHED WITH UNCOMPROMISING SAFETY

Steerable axles are available in two types: passive (self) steer and active steer, to suit a wide variety of trailer applications. Both feature the benefits of SAF's drum and disc brake axles.

FEATURES AND BENEFITS:

- Passive steer axles feature a locking mechanism that can be activated automatically (e.g via the electronic trailer brake system), or manually (e.g via a switch or external control). A pneumatic cylinder is fitted to prevent flutter at high speeds.
- Active steer axles are hydraulically-controlled, and feature an advanced sensor-based control system. It comprises a sensor on the trailer's kingpin that continually monitors articulation angle, and sends a signal to the control software to adjust the steering angle.
- In addition to providing optimal manoeuvrability, steerable axles also considerably reduce tyre wear.

AVAILABLE FOR DUAL TYRES IN BOTH DISC BRAKE AND DRUM BRAKE

- 19.5" and 22.5" tyres - disc brake
- 22.5" tyres - drum brake

SAF MODUL STEERABLE AXLE WITH DISC BRAKE TECHNOLOGY

One of the most versatile axle suspension systems on the market



1 MILLION

STANDARD WARRANTY

Wheel bearing and hub	1 million km / 6 years	✓
Axle beam	5 years	✓
Brake caliper and disc rotor	2 years	✓

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(available at www.safholland.com.au)*

Quick and simple adjustment of the axle alignment provided by pivot bolt assembly with simple eccentric movement.



KM OR 6 YEAR WARRANTY*

The narrow foot print of the steel hanger bracket saves weight and allows easy installation. No top plate is required for mounting to trailer frame.

Locking cylinder to provide manoeuvrability when reversing.

High performance shock absorbers are specially designed for this suspension and are available in both - standard and road friendly versions.

Composite airbag piston for extended life and reduced weight.

Long-term value retention and functional reliability thanks to the high-quality KTL coating providing optimum corrosion protection is standard for all models.

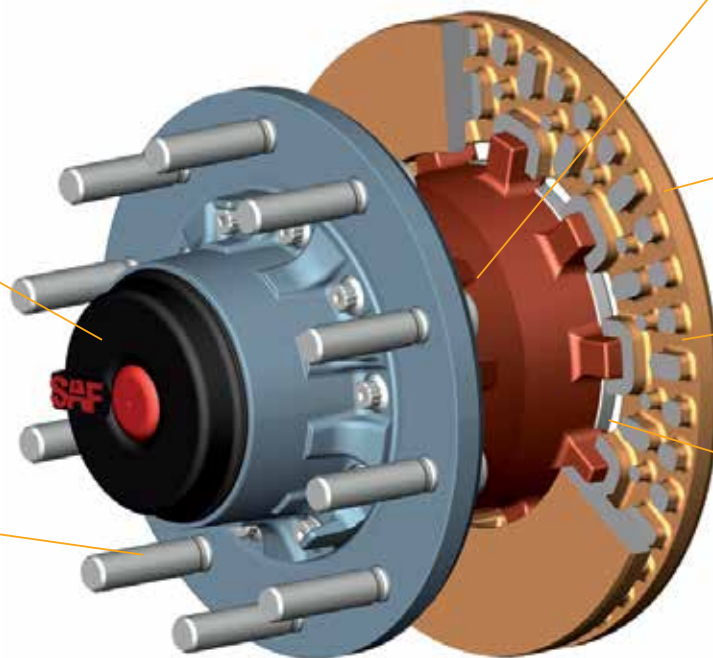


SAF DISC BRAKE AXLE *plus INTEGRAL*

INTRA "INTERGAL" PATENTED DISC BRAKE TECHNOLOGY AVAILABLE IN BOTH 19.5" AND 22.5" FOR DUAL TYRES

Maintenance-free Hub Unit is delivered pre-set and lubricated for 1 million kilometres (backed with 1,000,000 km or 6 year warranty - on road)

Selective long-term corrosion protection also on wheel bolts and nuts



Significantly reduced heat transmission thanks to small contact surfaces between INTEGRAL disc and wheel flange

Unique patent technology SAF lightweight

Unique conical ventilation channels provide the brake disc with maximum internal ventilation

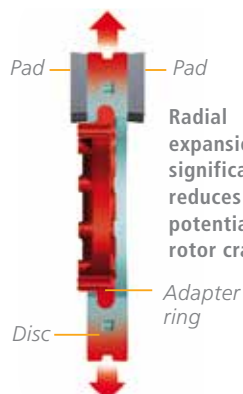
10 ventilation channels under the brake disc to maximise rotor cooling

Conventional disc



Increased potential for generating rotor cracks due to "umbrella effect"

INTEGRAL DISC



Radial expansion significantly reduces the potential for rotor cracks!

PATENTED INTEGRAL DISC

The unique design of the SAF Integral rotor increases brake rotor and pad life, and also your safety.

How does this work? When the brakes are applied to a standard one piece rotor, the generated heat tends to expand the material of the rotor surface to the side with the greatest mass, this bows the rotor into what is known as the "umbrella effect" shape. This results in uneven contact between the pads and rotor and creates "hot spots" on the rotor surface. The difference in temperatures between the rotor hot spots and the surrounding material can cause rotor cracks, or worse still failures.

SAF's unique patented Integral disc rotor is cast in two pieces, a splined adaptor ring and the rotor face itself. An absolute clearance free connection is achieved without fusing the two parts together totally eliminating the umbrella effect. This leaves the rotor face to expand radially and thus ensuring 100% pad contact with your rotors at all times. Hot spots are eliminated due to even heat distribution through the whole disc providing longer pad life, more reliable rotors, reduced maintenance costs and increased peace of mind for you.

SAF DRUM BRAKE AXLE

NEW DRUM BRAKE AXLE TECHNOLOGY

Offering security from the very first kilometre and for years to come, irrespective of the desired trailer type or manufacturer, SAF-HOLLAND has designed exceptionally reliable components to meet all your demands. Tailored to suit Australian conditions, SAF Drum Brake Axle is perfect for any application.

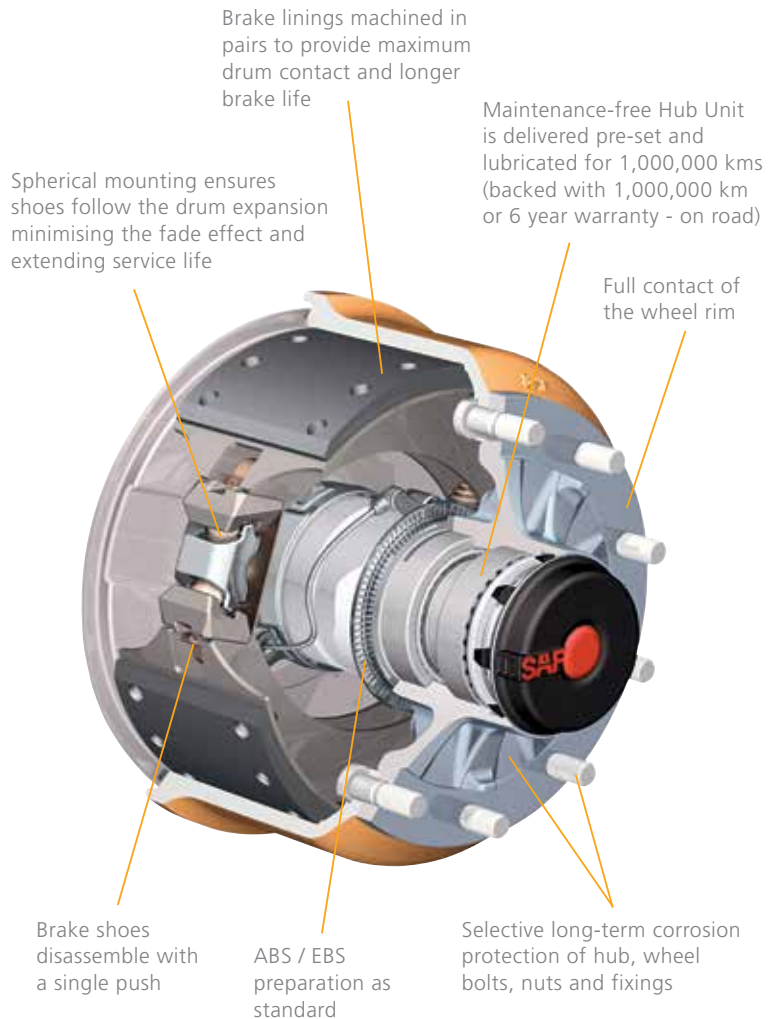
SAF DRUM BRAKE AXLE WILL OFFER YOU OUTSTANDING STRENGTHS

PREMIUM CLASS

with 420 x 180mm SNK drum brake 9 tonne axles with 22.5" wheels to suit dual tyres.

The MODUL suspension systems offer security because we attach the greatest importance to the quality of the brakes. SAF-HOLLAND ensures that you drive a safe and cost efficient air suspension system.

That means exceptional reliability, with outstanding performance in just about any transport application.



SAF DRUM BRAKES

The major benefits of a well designed and sophisticated mechanical brake system



Precise cam roller guide



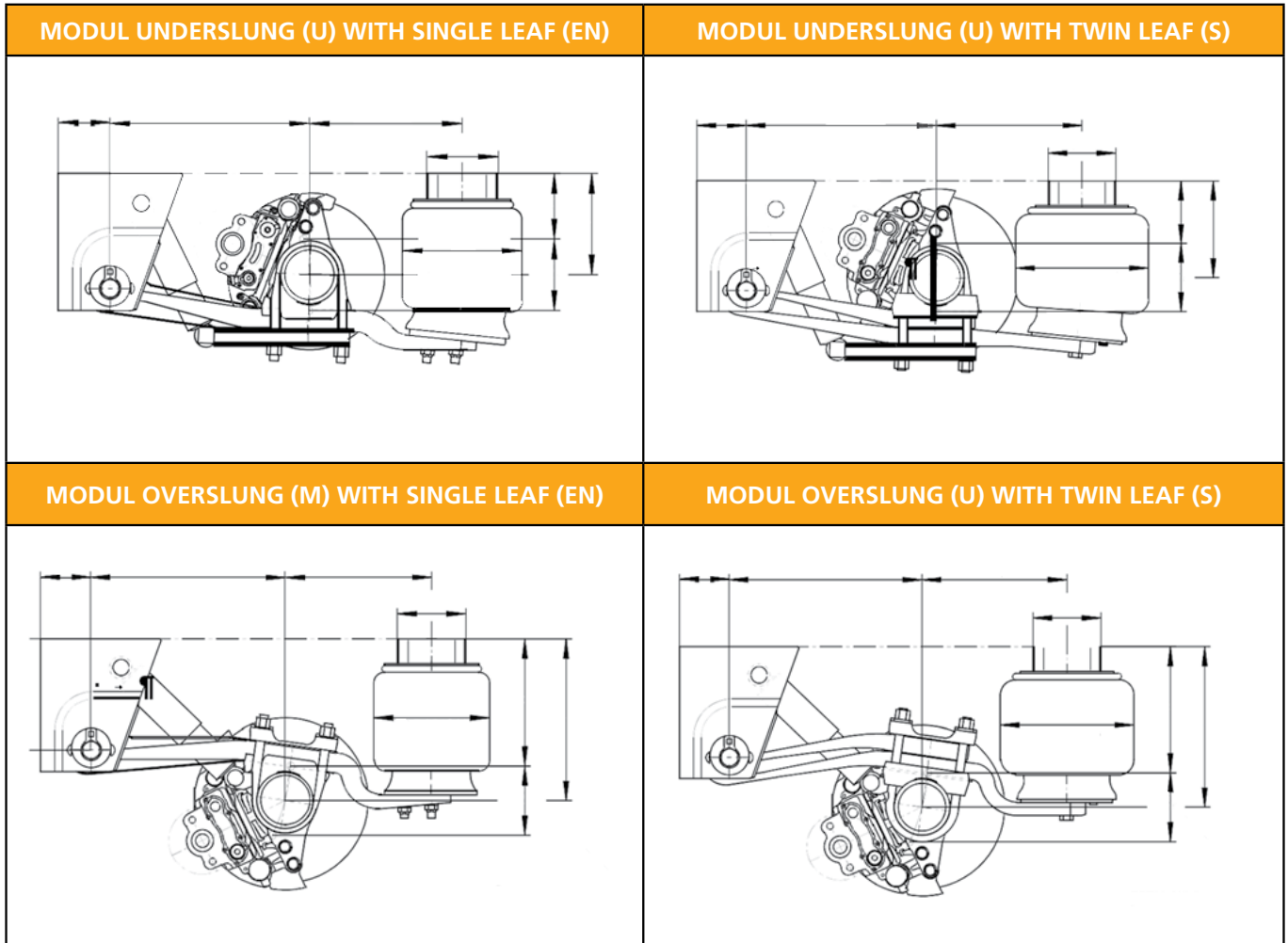
The ball joint advantage with SAF spherical bearing



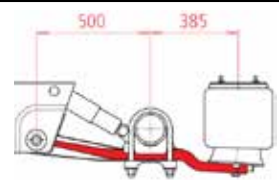
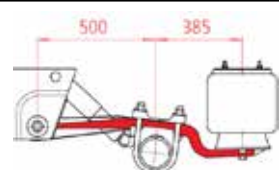
Brake lining change within seconds

MODUL RANGE - TECHNICAL INFORMATION

The Modul range comprises overslung and underslung configurations in either single-leaf or twin-leaf trailing arm specification, as illustrated below.



The table below shows the full range of ride height and air bag options available for the single and twin-leaf spring specifications, in both overslung and underslung.

	SERIES	FEATURE(S)	RIDE HEIGHT RANGE (MM)	TRAILING ARM (MM)		TOTAL AXLE TRAVEL WITH AIR BAG (MM)			
				100 X 51	100 X 43/43	2618V CODE:29 Ø300	2918V CODE: 27 Ø350	2923V CODE: 31 Ø350	2926V CODE: 30 Ø350
	U	UNDERSLUNG TRAILING ARM	170 to 380	✓	✓	180	180	200	260
	M	OVERSLUNG TRAILING ARM	340 to 530	✓	✓	180	180	200	260

UNDERSLUNG SINGLE LEAF TRAILING ARM SUSPENSION OVERVIEW

AIR SUSPENSION	NOMINAL RIDE HEIGHT (MM)	RIDE HEIGHT RANGE (MM)	X: OVERALL HEIGHT	
			UNLADEN WITHOUT AIR (MM)	LADEN WITHOUT AIR (MM)
U20/2500EN29	200	180-220	110	95
U22/2504EN29	220	200-240	130	115
U25/2907EN29	255	235-275	165	150
U30/3510EN29	300	280-320	210	195

U25/2504EN31	250	220-280	150	135
U28/2907EN31	285	255-315	185	170
U30/2910EN31	300	270-330	200	185

UNDERSLUNG DOUBLE LEAF TRAILING ARM SUSPENSION OVERVIEW

AIR SUSPENSION	NOMINAL RIDE HEIGHT (MM)	RIDE HEIGHT RANGE (MM)	X: OVERALL HEIGHT	
			UNLADEN WITHOUT AIR (MM)	LADEN WITHOUT AIR (MM)
U20/2500S27	200	180-220	110	100
U22/2504S27	220	200-240	130	120
U25/2907S27	255	235-275	165	155
U30/3510S27	300	280-320	210	200

U25/2504S31	250	225-285	155	145
U28/2907S31	285	260-320	190	180
U30/2910S31	300	275-335	205	195

OVERSLUNG SINGLE LEAF TRAILING ARM SUSPENSION OVERVIEW

AIR SUSPENSION	NOMINAL RIDE HEIGHT (MM)	RIDE HEIGHT RANGE (MM)	X: OVERALL HEIGHT	
			UNLADEN WITHOUT AIR (MM)	LADEN WITHOUT AIR (MM)
M36/2500EN29	365	345-385	275	260
M38/2504EN29	385	365-405	295	280
M42/2907EN29	420	400-440	330	315

M42/2504EN31	420	390-450	320	305
M45/2907EN31	455	425-485	355	340

OVERSLUNG DOUBLE LEAF TRAILING ARM SUSPENSION OVERVIEW

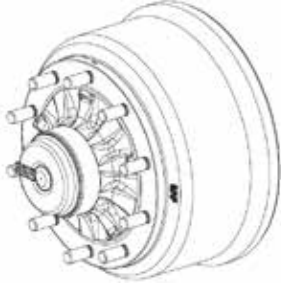
AIR SUSPENSION	NOMINAL RIDE HEIGHT (MM)	RIDE HEIGHT RANGE (MM)	X: OVERALL HEIGHT	
			UNLADEN WITHOUT AIR (MM)	LADEN WITHOUT AIR (MM)
M36/2500S27	365	350-395	280	270
M38/2504S27	385	370-410	300	290
M42/2907S27	420	405-445	335	325

M42/2504S31	420	395-455	325	315
M45/2907S31	455	430-490	360	350

AXLES FOR MODUL SUSPENSIONS

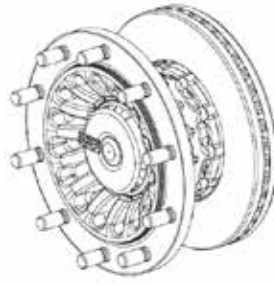
S and Z Series

with drum brakes for single wheels with offset 0/twin wheels



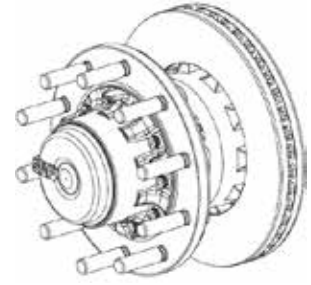
B Series

with disc brakes for single wheels with offset 120



S and Z Series

with disc brakes for single wheels with offset 0/twin wheels



SAF (RIGID) AXLE OVERVIEW

MODUL SERIES RIGID AXLES	BRAKE TYPE	BRAKE SIZE	TYRE SIZE	TYRE CONFIGURATION	AVAILABILITY	BASE PART NUMBER
	DRUM	300 x 200mm	17.5"	DUAL	YES	Z9-3020 Z11-3020
	DRUM	370 x 200mm	19.5"	DUAL	ON REQUEST	Z9-3720 Z11-3720
	DISC	377mm	19.5"	SUPER SINGLE	ON REQUEST	BI9-19W
				DUAL	YES	ZI9-19W
	DRUM	420 x 180mm	22.5"	SUPER SINGLE	ON REQUEST	Z9-4218
				DUAL	YES	K1328501
	DISC	377mm	22.5"	SUPER SINGLE	ON REQUEST	BI9-19W
DUAL				YES	ZI9-19W	
DISC	430mm	22.5"	SUPER SINGLE	ON REQUEST	BI9-22K	
			DUAL	ON REQUEST	ZI9-22K	

SAF (STEERABLE) AXLE OVERVIEW

MODUL SERIES RIGID AXLES	STEER OPTION	BRAKE TYPE	BRAKE SIZE	TYRE SIZE	TYRE CONFIGURATION	AVAILABILITY	BASE PART NUMBER
	PASSIVE STEER	DRUM BRAKES	370 x 200mm	19.5"	SUPER SINGLE	ON REQUEST	SL9-3720
					DUAL	ON REQUEST	ZL9-3720
		DISC BRAKES	377mm	19.5"	SUPER SINGLE	ON REQUEST	BIL9-19W
					DUAL	YES	ZIL9-19W
		DRUM BRAKES	420 x 180mm	22.5"	SUPER SINGLE	ON REQUEST	SL9-4218
					DUAL	YES	SL9-4218
	DISC BRAKES	377mm	22.5"	SUPER SINGLE	ON REQUEST	BIL9-19W	
				DUAL	YES	ZIL9-19W	
	ACTIVE STEER	DRUM BRAKES	370 x 200mm	19.5"	SUPER SINGLE	ON REQUEST	SK ZRLS-12037
					DUAL	ON REQUEST	SK ZRLS-12037
		DRUM BRAKES	420 x 180mm	22.5"	SUPER SINGLE	ON REQUEST	SZL11-4218
DISC BRAKES		430mm	22.5"	SINGLE SINGLE	YES	BIZL9-22K01	

TWO SIDE AND PENDULUM LIFT



- Individual solution for every application
- Very easy to retrofit
- Other variants on request

CROSS MEMBERS



- Longitudinal cross member for both rigid and self-steer combinations

ALUMINIUM HANGER BRACKET



- For trailers with aluminium chassis

ABS SENSING



- Exciter ring and sensor holder: As standard and pre-installed
- ABS/EBS sensing: Can be activated with simple and reliable plug connections

PAD WEAR SENSING



- Simple retrofit installation
- Can be connected to the trailer EBS or to a separate monitoring and display unit

ROAD FRIENDLY SHOCK ABSORBER



- Road-Friendly, approved shock absorbers available



SAF 's history begins in 1881 in a village forge in Germany with the invention of a new plough. The family business soon starts building steel axles for agricultural vehicles, and under the name Otto Sauer Achsenfabrik (SAF) develops into one of the leading manufacturers of trailer axles and suspension systems in Europe.

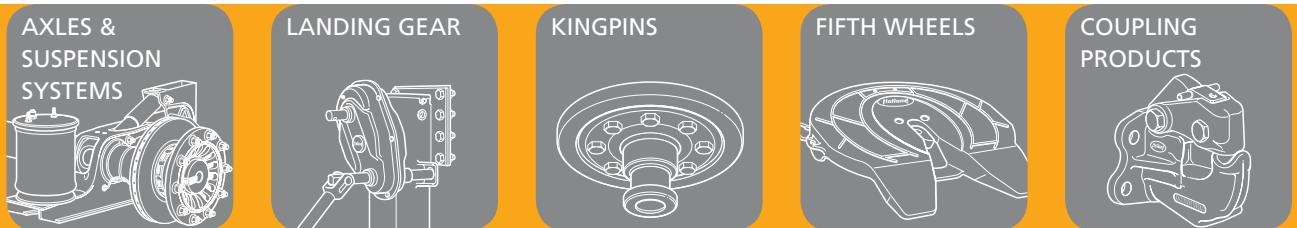
A safety coupling between plough and horse team can be found at the beginning of Holland's history. The Safety Release Clevis Company was founded in South Dakota, USA , in 1910. After its move to Holland, Michigan, the company emerges as one of the largest supplier companies to the commercial vehicles industry under the name The Holland Hitch Company.

The merger of the two companies to form SAF-HOLLAND in 2006 creates one of the leading global suppliers of high-quality components and services for the commercial vehicle industry. Alongside axle and suspension systems for trailers and semi-trailers, the product range also includes kingpins and landing gear as well as fifth wheels for tractors, air suspensions, coupling products and numerous other components for buses and trucks.

Today SAF-HOLLAND is represented on all continents and distributes its products and services worldwide under the brand names SAF and HOLLAND. It can boast of an extensive distribution network with global service and dealer locations.

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HIGH QUALITY COMPONENTS FOR THE COMMERCIAL VEHICLE INDUSTRY



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