



# SAF INTRA

SAF INTRADISC *PLUS INTEGRAL*  
SAF INTRADISC AIRVENT  
SAF INTRADRUM  
SAF INTRA CD  
SAF INTRA CD TRAK  
SAF INTRA MEGA  
SAF INTRA SELF-STEERING AXLE  
SAF INTRA ZINC-SPRAYED

# THE INTRA FAMILY

The SAF INTRA is available both with disc brake and with drum brake



## **Efficient and without compromises**

The INTRA family has set new standards – both at home and on an international level. Today, after having been proven and tested millions of times, it is distinguished by its particularly high economic efficiency. Precisely matched to the specific transportation task, INTRA provides – in its different versions – ideal and above all safe solutions for the 9t range. And does so regardless of which area of application is required – for less wear and tear and more planning reliability.

# ONE UNIT – MANY VARIANTS AND APPLICATIONS ...

Especially protected due to its position in the functional suspension arm: the shock absorber



Long-term conservation of value and functional safety through sophisticated cathodic dip coating with optimum corrosion protection down to the last detail

The patented SAFE-GUARD-DESIGN of the functional suspension arm protects the brake cylinder reliably from damage

Functional suspension arm and axle tube form an inseparable and maintenance-free unit. This eliminates the need for U-bolts, clamping plates and nuts. The entire design is extremely robust and yet very lightweight

# THE INTRA FAMILY AND ITS AREAS OF APPLICATION AT A GLANCE

## P.8



SAF INTRADISC *PLUS INTEGRAL*

Especially in the trailer area: The SAF INTRADISC *plus INTEGRAL* has a two-piece brake disc that is one of a kind worldwide. This design principle protects the material and prolongs its service life.

## P.10



SAF INTRADISC AIRVENT

With the SAF INTRADISC AIRVENT, internal AirVent ventilation channels cool the brake disc down avoiding the heat accumulation. In addition, they support purposefully a low temperature management in the overall system.

## P.12



SAF INTRADRUM

The tried-and-tested SAF INTRA with drum brake and INTRADRUM technology is a winner in virtually any transport situation, with special functional reliability and unprecedented economic efficiency.

## P.14



SAF INTRA CD

Systematically optimised for specific transport needs – the SAF INTRA CD is especially suitable for particularly demanding traffic routes.

P.14



SAF INTRA CD TRAK

**WINNER OF THE TRAILER INNOVATION AWARD 2017:** The SAF INTRA CD TRAK supports the truck on inclines and difficult terrain, using a hydraulically driven motor – simply by pressing a button.

P.18

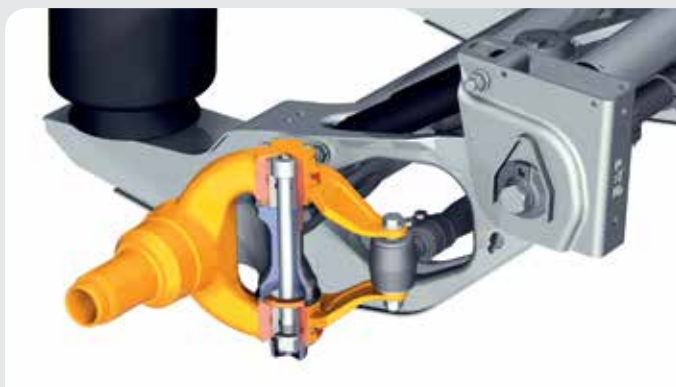


SAF INTRA MEGA

More load capacity and a lighter suspension – the SAF INTRA MEGA is ideal for volume semi-trailers and trailers.



## P.20



SAF INTRA SELF-STEERING AXLE

Developed for special requirements of delivery vehicles, the SAF INTRA self-steering axle provides significant weight optimisation and more flexibility on routes with tight corners.

## P.22



SAF INTRA ZINC-SPRAYED

SAF-HOLLAND is the first manufacturer to offer a zinc-sprayed axle in the 9t range. The special zinc-aluminium coating makes the zinc-sprayed SAF INTRA particularly resistant to corrosion.

# SAF INTRADISC PLUS INTEGRAL


**Proven over decades in the trailer area: The special design principle of the SAF INTRADISC plus INTEGRAL protects the material and significantly improves the service life of the brake disc.**

Unlike conventional brake discs, the SAF INTEGRAL is a two-piece brake disc. It is manufactured in composite casting from different, specially matched materials and thus achieves a significantly higher economic efficiency in the trailer area.

The unique design principle prolongs the service life of the pads and the disc and, at the same time, achieves:

- more km – less wear
- more planning reliability
- more efficiency
- more economic efficiency

**SAF-HOLLAND PATENT**



*The INTEGRAL disc is cast onto a splined adapter ring and bolted to the wheel hub. The connection between the adapter ring and the brake disc has absolutely no play – without the two parts being fused together. This is the advantage: By composite casting of disc and adapter, the disc can expand radially and contract again during cooling down.*

*The dreaded hot spots in conventional brake discs, which can result in stresses in the material and possible cracks, up to the failure of the disc, are avoided – and: Since the braking surfaces stay absolutely flat in every operating state, the pads last far longer.*



## INTEGRAL GUARANTEE

As the first trailer axle manufacturer in the world, SAF-HOLLAND grants a special guarantee against continuous cracks in brake discs in trailers. 500,000 km, or 3 years, on the 22.5-inch disc. 350,000 km, or 2 years, on the 19.2-inch disc.

### INTEGRAL advantage

With 15 large radiator-like ventilation cross-sections in the wheel flange, the *INTEGRAL* achieves at least **60% more ventilation cross-section** compared to a design with closed wheel flange – depending on the size of the openings in the fitted wheels

### INTEGRAL advantage

Compared to a design with one-piece brake disc and closed wheel flange, the SAF INTRADISC *plus INTEGRAL* has **100% more heat dissipating surface**

### INTEGRAL advantage

Significantly lower heat transfer due to **small contact areas** between the *INTEGRAL* disc and wheel hub

Targeted long-term corrosion protection also on hub caps and screw connections, wheel bolts and nuts

### INTEGRAL advantage

**Conical ventilation channels** in the brake disc for maximum interior ventilation

### INTEGRAL advantage

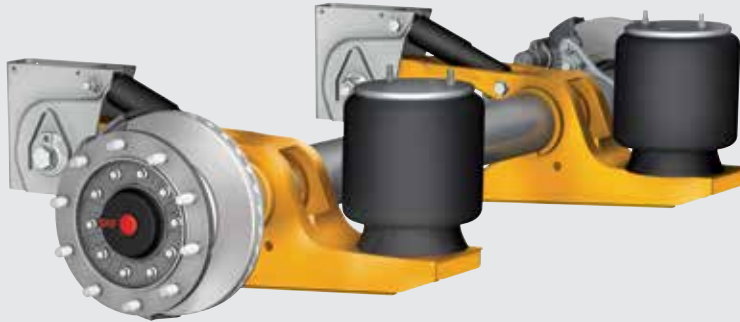
**10 ventilation channels** under the brake disc

### INTEGRAL advantage

**10 additional ventilation channels** under the adapter ring

The SAF hub unit is a compact hub and bearings unit. It is fully factory-adjusted and encapsulated. The SAF hub unit is maintenance-free

# SAF INTRADISC AIRVENT



**The 9t air suspension system with optimised disc brake technology and an exemplary price-performance ratio.**

The SAF INTRADISC AirVent raises the bar again in terms of economic efficiency and reliability in the area of 9-t axle systems with disc brakes. The core of the system is the SAF AirVent head unit. It is equipped with an asymmetrically cast, specially alloyed 22.5-inch or 19.5-inch disc that has been tried and tested over many years. Particularly efficient and safe, the SAF INTRADISC AirVent makes the transport business more profitable again.



*The patented SAF SAFE-GUARD-DESIGN of the functional suspension arm reliably protects the brake cylinder from damage.*



**Asymmetric air duct design**

The specific shape of the flange disc made of a special alloy ensures not only exact concentricity under all driving conditions – it also reduces the umbrella effect and therefore prolongs the service life of the brake disc and pads

**Internal AirVent ventilation channels**

cool the brake disc, avoid heat accumulation and support purposefully a low temperature management in the overall system.

**Large compact wheel bearing unit and special long-life seals**

The factory-set maintenance-free wheel bearing unit with particularly high-value temperature-resistant components is designed for long-term use in demanding transport

**Optimised friction pairing**

for an efficient stopping and longer service life of disc and pads

**Closed flange cover**

for lower contamination from the outside, e.g. at extreme road conditions

**Brake disc attachment**

The fitting on a pitch circle Ø 215 mm for absolutely safe brake disc installation: Closed blind holes instead of open through holes design specifically to avoid any corrosion on the threads

**Monobloc wheel hub**

in one piece and specifically weight-optimised

**Wheel hub coating**

The end-to-end cathodic dip coating ensures optimal corrosion protection and long-term conservation of value

**Reduced contact surfaces between disc and wheel hub**

reduce the heat transfer from the disc to the hub unit and contribute to a thermal discharge of the complete head unit

# SAF INTRADRUM



**Perfectly thought-out: The SAF INTRA drum brake combines proven components into a successful system.**

Efficient, profitable and virtually maintenance-free – the SAF INTRA-DRUM is a winner with its powerful and precisely matched components and guarantees planning reliability right from the first kilometre.

## BENEFITS AT A GLANCE

### **New brake lining**

with **exceptional brake fade stability**, over the **entire life of the lining**. The lining has **exceptional corrosion characteristics**, reduces noise generation and guarantees a long and eco-friendly service life.

### **Improved corrosion protection**

by **galvanising and cathodic dip coating**, the **cover plate** is even better protected. In order to increase the corrosion protection of the INTRADRUM even more, the **coating thickness on the wheel hub has also been doubled**.

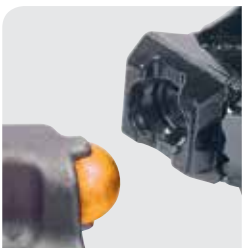
### **The use of steel-brass bushings**

allows for more accurate manufacturing tolerances compared to synthetic bearings, so that **they can be installed with almost no play**, less **vibration** and a **better brake performance**. Noise generation is also significantly reduced.

### **SAF brake shoes**

are **asymmetrically shaped by computer modelling** and are subject to strict production control on an ongoing basis. The **optimised brake shoe geometry** guarantees improved distribution of force between brake pad and brake shoe, **improving brake performance**.





**Spherical bearing**

The brake shoes on the SAF INTRADRUM are mounted around a spherical head. Thanks to their special geometry, the shoes can move in all directions. This will cause the force to be more evenly distributed across the linings, and a longer service life is guaranteed.



**Precise cam roller guide**

The precision-machined S-cams precisely control the movement of the brake shoes and the contact pressure, so optimal braking action is ensured.



**Replacing brake shoes in seconds**

The change is quickly done with a screwdriver and only a few simple manual actions.



**Fewer parts**

The SAF INTRADRUM saves space in storage, and the effort involved in maintenance and repair is considerably reduced.

# SAF INTRA CD



*CUSTOM DESIGN*



## **Specially designed for off-road use: The SAF INTRA CUSTOM DESIGN**

Under the label of INTRA CD CUSTOM DESIGN, SAF-HOLLAND offers pioneering 9-t air suspension systems with special product properties – purposefully optimised for specific transport requirements and challenging transport infrastructure. The label CD marks a new performance dimension reflected in the following features:

- **model variant with drum brake as SAF INTRA DRUM CD**
- **model variant with disc brake as SAF INTRADISC *plus* INTEGRAL CD or as SAF INTRADISC CD with AirVent head unit**

## TECHNICAL DATA

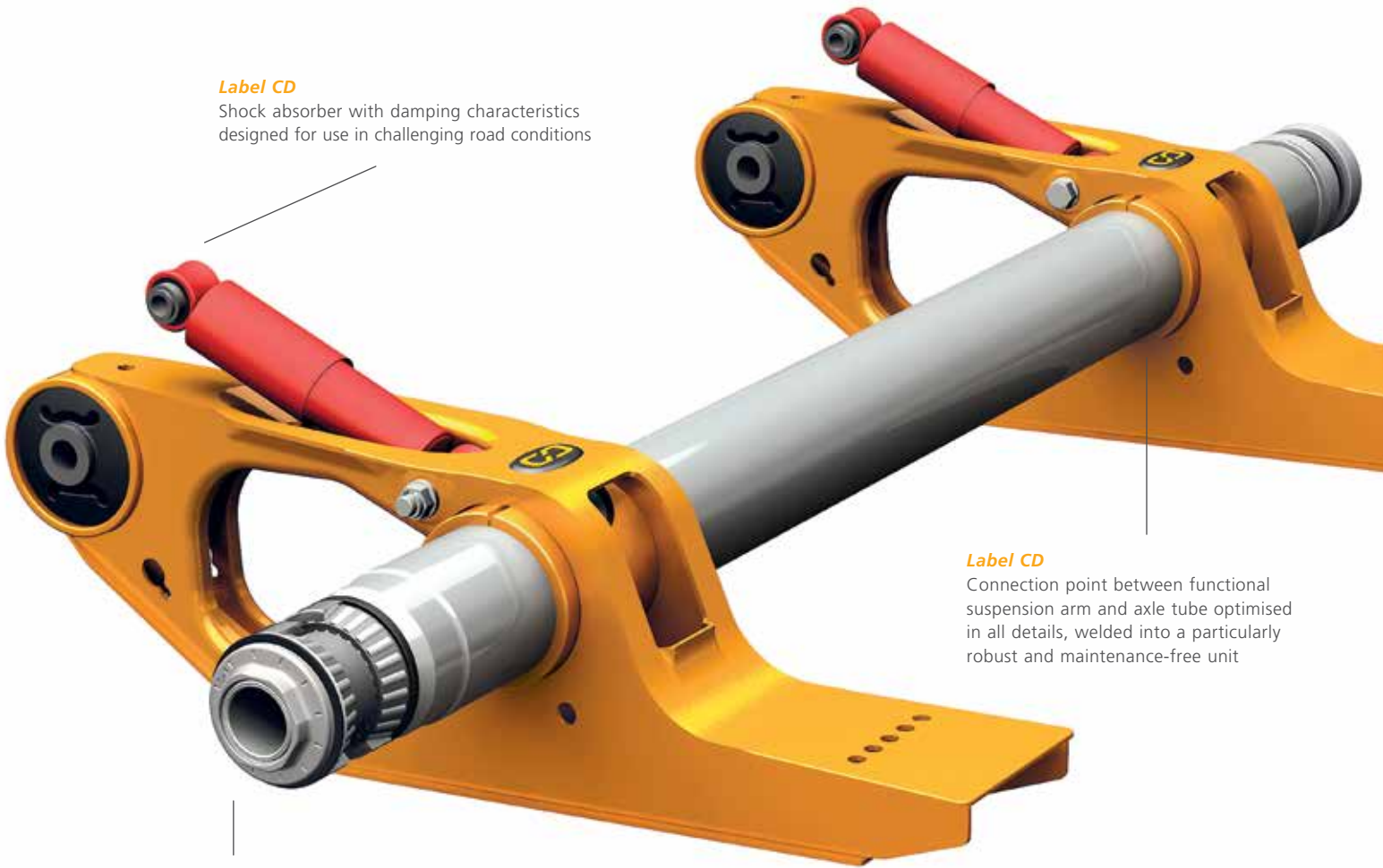
### **SAF INTRADRUM CD**

Axle load: 9t  
Track width: 2040 and 2090 (other tread widths on request)  
Brakes: Drum brake 420 x 180 mm track  
Offset: ET 0  
Tyres: single

### **SAF INTRADISC *plus* INTEGRAL CD**

Axle load: 9t  
Track width: 2040 and 2090 (other tread widths on request)  
Brakes: Disc brake optional 22.5" and 19.5" tracks  
Offset: ET 120  
Tyres: single





**Label CD**  
Shock absorber with damping characteristics designed for use in challenging road conditions

**Label CD**  
Connection point between functional suspension arm and axle tube optimised in all details, welded into a particularly robust and maintenance-free unit

**Label CD**  
Reinforced and generously dimensioned 88 mm tapered wheel bearings

# SAF INTRA CD TRAK



**For the first time as standard in the trailer: The hydraulically driven SAF INTRA CD TRAK axle brings drive to the trailer – simply by pressing a button.**

The new SAF INTRA CD TRAK is optimised for trailers in the 9t standard range – both **on-road** and **off-road**. Specially developed for dump trailers and walking floor vehicles operating in the area of construction sites or landfills, **the drive axle supports the truck on inclines and difficult terrain with its integrated additional drive**. The special motor takes the required performance precisely where it is needed – right to the trailer. Here the drive axle carries the full axle load and is able to transmit complete drive torque. The hydraulically driven motor is long-lasting and low in maintenance, thereby ensuring that the new trailer axle has an exceptionally long service life.

## BENEFITS AT A GLANCE

- the supply comes via the truck's hydraulics
- the SAF INTRA TRAK can be retrofitted on existing trailers
- controlled from the cab
- high flexibility through the use of different trucks with 2-circuit hydraulics

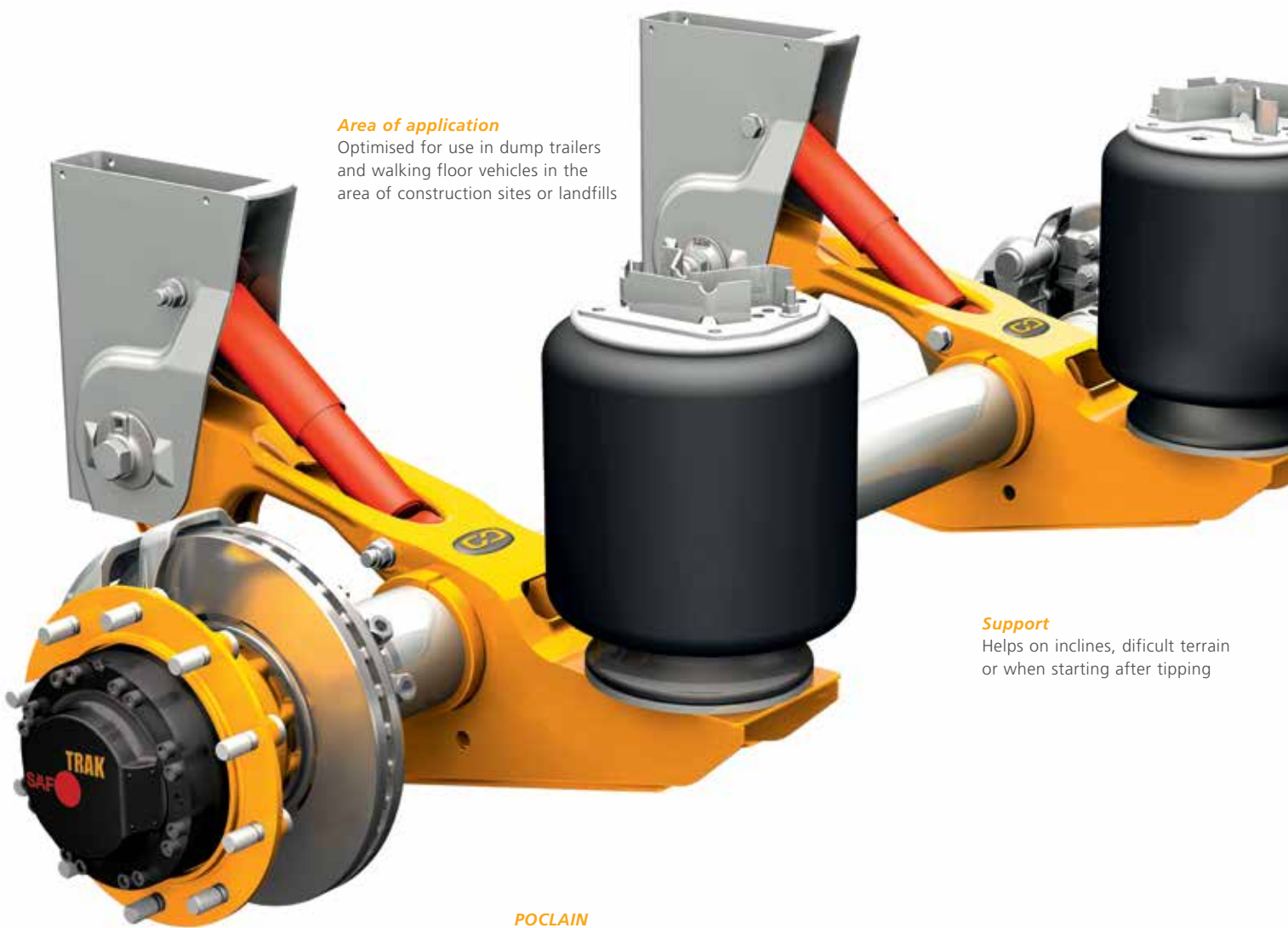
**EXPECTED TO BE AVAILABLE FROM  
THE END OF 2017!**

WINNER OF THE  
TRAILER INNOVATION  
AWARD 2017



**Area of application**

Optimised for use in dump trailers and walking floor vehicles in the area of construction sites or landfills



**Support**

Helps on inclines, difficult terrain or when starting after tipping

**POCLAIN**

Proven SAF INTRA CD quality in combination with a POCLAIN hydraulic auxiliary drive

# SAF INTRA MEGA

**The perfect system solution for volume and weight-optimised semi-trailers and trailers.**

With increasing transport volume, the market share of volume-optimised semi-trailers is growing at the same time. SAF-HOLLAND has prepared itself for this development and offers, based on its modular INTRA TECHNOLOGY, a complete system solution: the MEGA of the SAF INTRADISC *plus INTEGRAL*.

**A SAF system solution with all the advantages of the INTRA TECHNOLOGY:**

- maintenance-free connection between the suspension arm and the axle tube
- weight from 390 kg with 19.5" SBS 1918 disc brake without brake cylinder
- weight from 405 kg with 22.5" SAF disc brake without brake cylinder
- also as a SAF self-steering axle
- also as CD CUSTOM DESIGN VERSION for special applications
- SAF-HOLLAND EXCELLENCE GUARANTEE\*
- SAF-HOLLAND INTEGRAL GUARANTEE\*

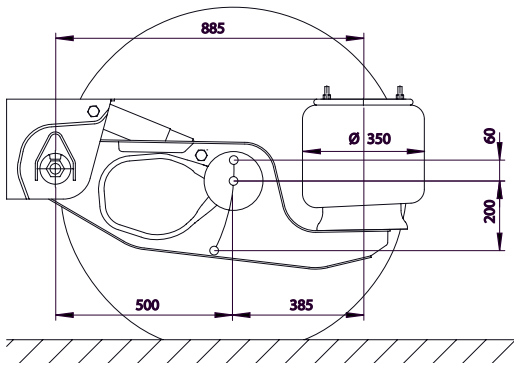
\*according to the SAF-HOLLAND guarantee conditions

## TECHNICAL DATA

**For all requirements of vehicle manufacturers and transportation companies**

- maximum axle load 9t
- driving height 230 mm
- axle travel of 260 mm for loading ramp adjustment
- suitable for the new generation of tyres with sizes such as 455/40 R22.5", 445/45 R19.5" and 435/50 R19.5"
- aluminium and steel wheels
- use of 19.5" and 22.5" disc brakes

MEGA IS ALSO AVAILABLE WITH AIRVENT HEAD UNIT!



Total suspension travel:  
260 mm



More offset:  
The new functional suspension arm allows low ride heights



Designed asymmetrically:  
The spring offset ensures freedom of choice in terms of tyres

# SAF INTRA SELF-STEERING AXLE



**Light and agile:** The SAF INTRA self-steering axle is 35 kg lighter due to weight-optimised steering knuckles and axle stub.

The steering axle SAF INTRADISC *plus INTEGRAL* was developed for special transportation requirements in delivery services – such as tight and winding roads.

**The steering axle is a winner owing to:**

- less tyre wear
- less fuel consumption
- a high level of driving comfort
- optimal maneuverability
- precise run
- higher resale value of the trailer

## TECHNICAL DATA

Axle load:	9t
Track:	2040 and 2090 (other track widths on request)
Brake:	<i>INTEGRAL</i> disc brake optionally 22.5 inch and 19.5 inch with B9 or BI9 hub unit (standard or <i>INTEGRAL</i> )
Offset:	ET 120
Tyres:	single
Max. 20° steering angle subject to the track, spring centres and attachments	



**Innovative steering damper**

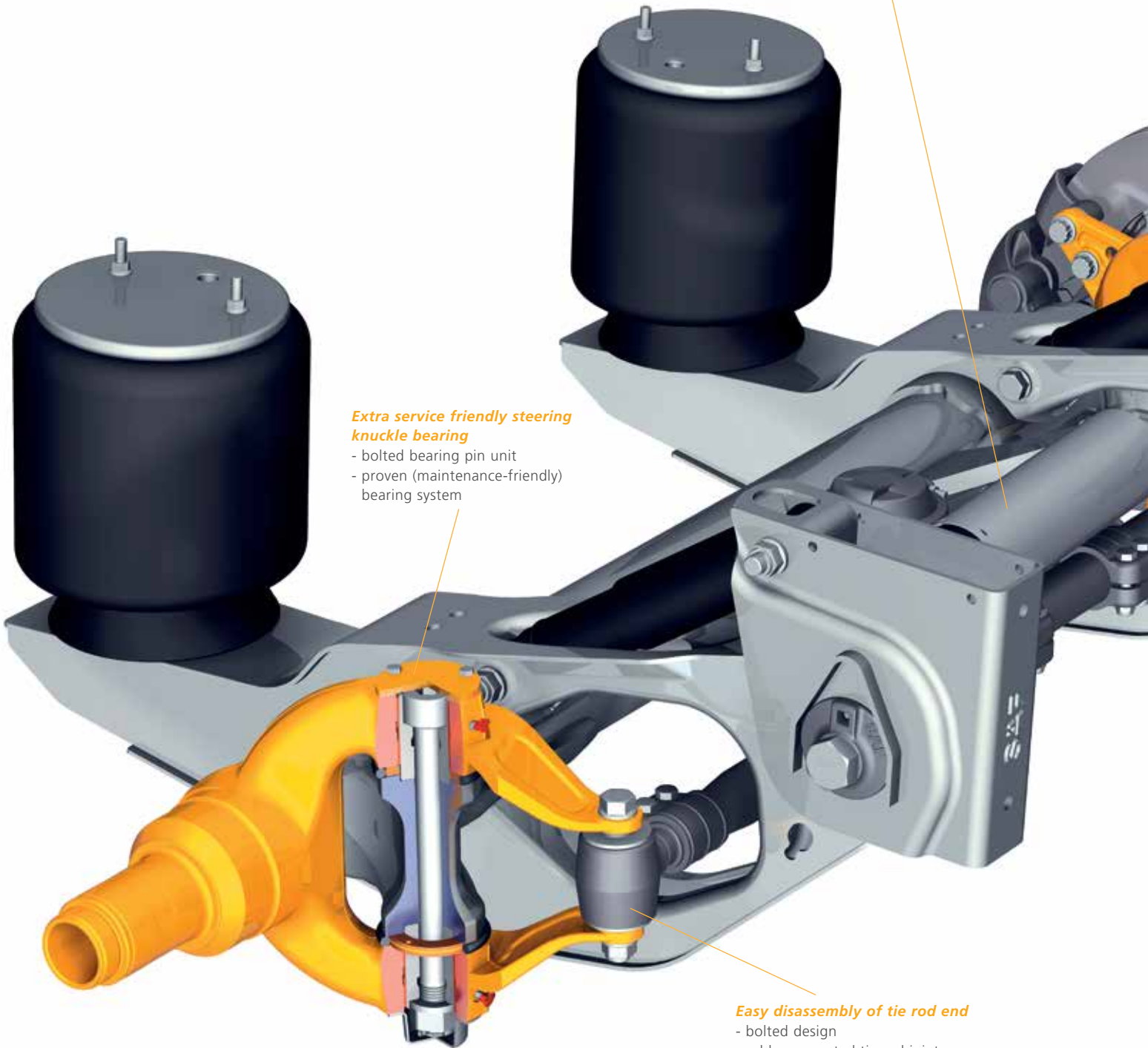
- optimised running behaviour when driving in a straight line and when cornering
- weight-optimised steering stabiliser

**Extra service friendly steering knuckle bearing**

- bolted bearing pin unit
- proven (maintenance-friendly) bearing system

**Easy disassembly of tie rod end**

- bolted design
- rubber mounted tie rod joint



# SAF INTRA ZINC-SPRAYED

**New in the trailer area: SAF-HOLLAND is the first manufacturer to offer a zinc-sprayed axle in the 9t range – for less corrosion and more economic efficiency.**

Straight axles are particularly heavily exposed to outside influences such as dirt and moisture and thus very susceptible to corrosion. With the new zinc-sprayed axle, SAF-HOLLAND provides the solution against this: With the aid of a specially developed, multi-stage procedure, the axle is sand-blasted and coated with zinc and aluminium using a special zinc spray. The special zinc-based primer together with a grey top coat also directly prevent the zinc-oxide from blooming.

Thanks to the active cathodic corrosion protection combined with the zinc coating, the axle's base material still remains fully protected – even if small areas of minor damage do appear on the surface over time.

Therefore SAF-HOLLAND is the **first axle manufacturer to offer a 10-year-guarantee against corrosion in the 9t range.**

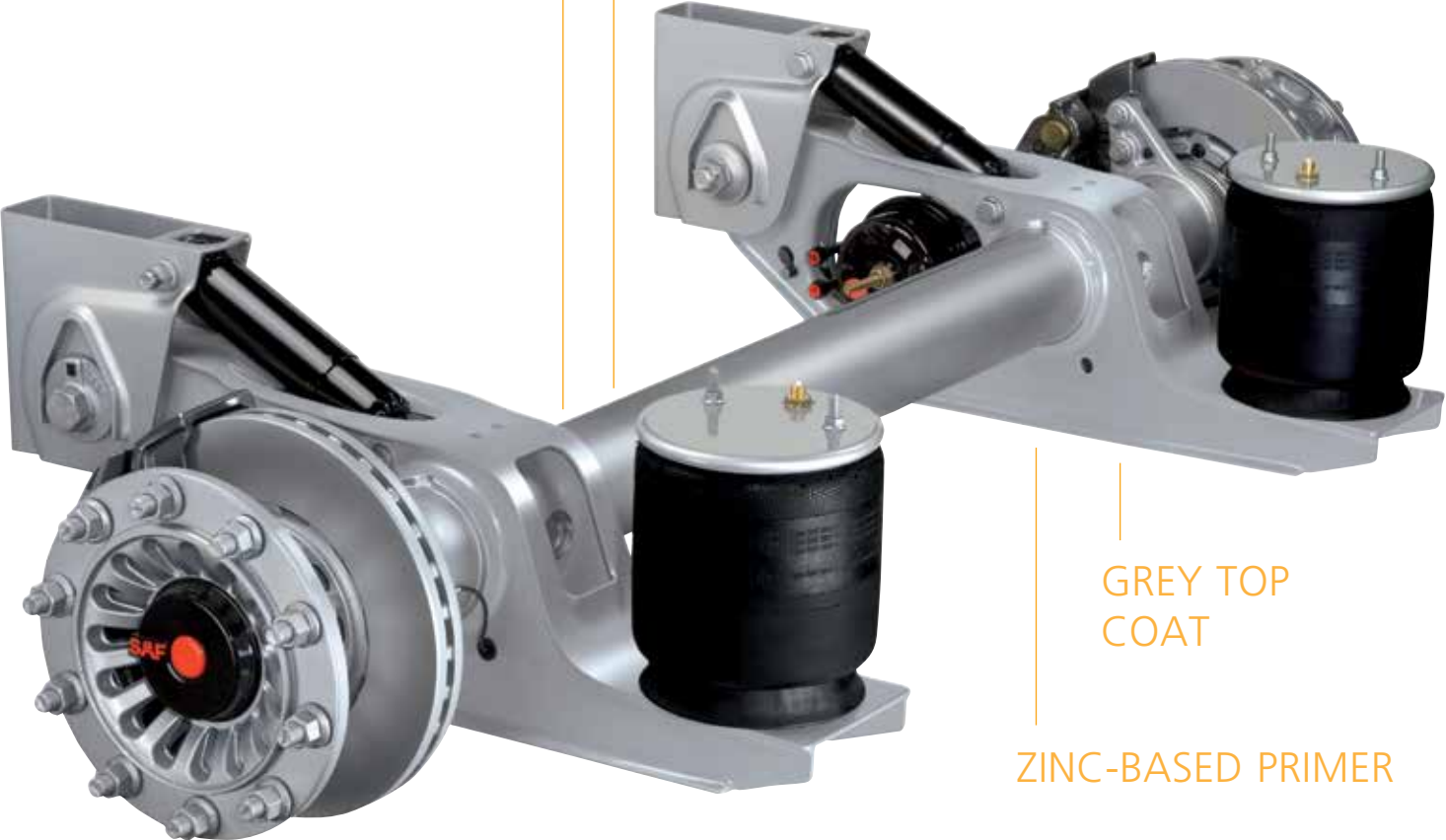
## BENEFITS AT A GLANCE

- significant increase in corrosion resistance
- 10-year-guarantee against rust perforation
- continuous increase in operating efficiency
- available with disc brakes on virtually all SAF-HOLLAND suspensions

10-YEAR-GUARANTEED AGAINST RUST PERFORATION!

SAND-BLASTED AXLE

ZINC-ALUMINIUM COATING



GREY TOP COAT

ZINC-BASED PRIMER

# OPTIONS

ABS SENSING

SAF TWO-SIDE AXLE LIFT

SAF ONE-SIDE AXLE LIFT

SAF KILOMETRE COUNTER

SAF TIRE PILOT

BRAKE CYLINDERS

SAF UP TRAIN LOADING SYSTEM

PAD WEAR SENSING

SAF PROTECTOR SHEET

SAF ZINC-SPRAYED

SAF REINFORCED AIR SPRINGS

# OPTIONS FOR THE AXLES

			
PRODUCT >	SAF ABS SENSING	SAF TWO-SIDE AXLE LIFT	SAF ONE-SIDE AXLE LIFT
DESCRIPTION >	<ul style="list-style-type: none"> <li>- exciter ring and sensor holder (as standard/pre-assembled)</li> <li>- can be activated using simple and reliable plug connections</li> </ul>	<ul style="list-style-type: none"> <li>- for 22.5" wheels</li> <li>- only weighs approx. 21 kg per axle</li> <li>- very simple retrofit</li> </ul>	<ul style="list-style-type: none"> <li>- specifically for low ride heights</li> <li>- only weighs approx. 30 kg</li> <li>- very simple retrofit</li> </ul>
AXLE v			
SAF INTRADISC PLUS INTEGRAL	X	X	X
SAF INTRADISC AIRVENT	X	X	X
SAF INTRADRUM	X	X	X
SAF INTRA CD DRUM	X	X	X
SAF INTRA CD DISC	X	X	X
SAF INTRA CD TRAK	X	-	-
SAF INTRA MEGA	X	X	X
SAF INTRA SELF-STEERING AXLE	X	-	X



### SAF HUBODOMETER

- measures the exact mileage of trailers
- simple retrofit
- quick and reliable mounting



### SAF TIRE PILOT

- tyre-inflating system for trailers and semi-trailers
- monitoring and preservation of the set tire pressure in the trailer



### SAF BRAKE CHAMBERS

- complete surface coating
- high-quality internal components
- fully integrated air connections

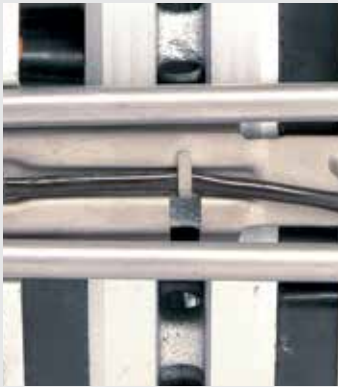


### SAF UP TRAIN LOADING SYSTEM

- one of the lightest train loading suspension on the market
- springs not clamped during rail loading

X	X	X	X
X	X	X	X
X	X	X	X
X	X	X	on request
X	X	X	on request
X	-	X	-
X	X	X	X
X	<b>NEW FROM IAA 2016</b>	X	X





### SAF PAD WEAR SENSING

- simple retrofit
- can be connected to the Trailer EBS or to a separate control and display unit



### SAF PROTECTOR SHEET

- protects the brake disc against stone chipping and other foreign objects



### SAF ZINC-SPRAYED

- with a special zinc-aluminium coating for special uses
- very high corrosion protection



### SAF REINFORCED AIR SPRINGS

- with steel plungers for extreme loads

X	X	X	X
X	X	X	X
-	standard	-	X
-	standard	-	X
X	X	X	X
X	X	-	X
X	X	X	X
X	X	-	X



TRAILER AXLES AND  
SUSPENSION SYSTEMS



COUPLING AND LIFTING  
TECHNOLOGY



SUSPENSIONS FOR  
TRUCKS AND BUSES

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