VDL WEWELER

LEADING IN VEHICLE SUSPENSION SYSTEMS

STRENGTH THROUGH COOPERATION

CONTENTS

VDL WEWELER
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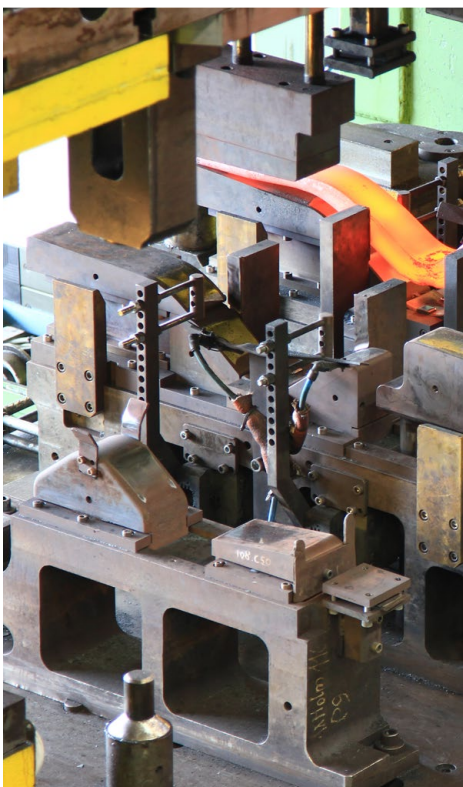
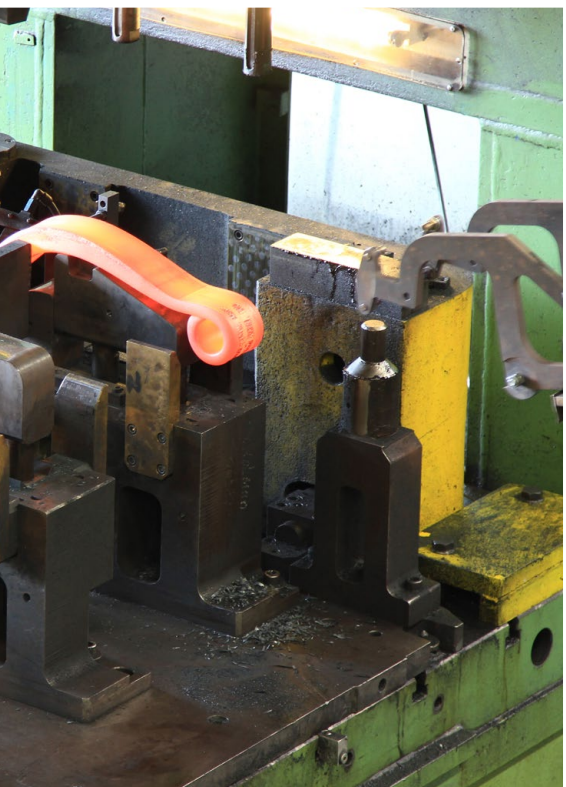
Established in 1924 in Apeldoorn by Dirk Weweler, Dutch company Weweler started off as a wholesale business selling replacement parts for heavy commercial vehicles. In 1948, the company started producing springs and later moved on to designing air suspension systems.

Since 2001 VDL Weweler became part of VDL Groep, an international industrial family-owned company, founded in 1953. VDL Groep develops and produces a wide variety of industrial products, from parts to advanced finished products. The activities can be summarised in the 'five worlds of VDL': Science Technology & Health, Mobility, Energy & Sustainability, Infratech and Foodtech. Each of these 'worlds' has its own characteristics and challenges, with one common denominator: a unique combination of thinking and doing. The strength of VDL Groep lies in the mutual cooperation between the companies.

VDL Weweler has approximately 180 employees and over the last nearly 100 years has developed into a leading international designer and manufacturer of (air) suspension solutions for trailers, trucks and busses. VDL Weweler produces, tests and sells air suspension systems, axle lift systems and parabolic springs.

VDL Weweler's suspension system is characterised by a spring steel parabolic trailing arm, which acts as an integrated roll stabiliser and as a guiding arm for the axle. The spring steel parabolic trailing arms are manufactured and tested in-house and the suspension system is supplied in a modular, do-it-yourself kit.





VDL WEWELER
LEADING IN VEHICLE SUSPENSION SYSTEMS

Advanced technology guarantees quality
VDL Weweler's policy is intended to stimulate innovation of products and production methods, with a focus on cooperation, sustainability, quality, professionalism as well as cost optimization. This approach has resulted in a highly automated production facility, in which robotics play a vital role and where advanced logistics enable large Kanban and Just In Time deliveries around the globe.

Furthermore this has created durable, state of the art, reliable and cost-effective products that are being used by leading OE axle, trailer and truck & bus manufacturers worldwide.

To constantly provide superior value to the customers, VDL Weweler continuously seeks the best solution by carefully listening to the customers' wishes and developing those wishes into efficient high-tech solutions in a creative and flexible manner.

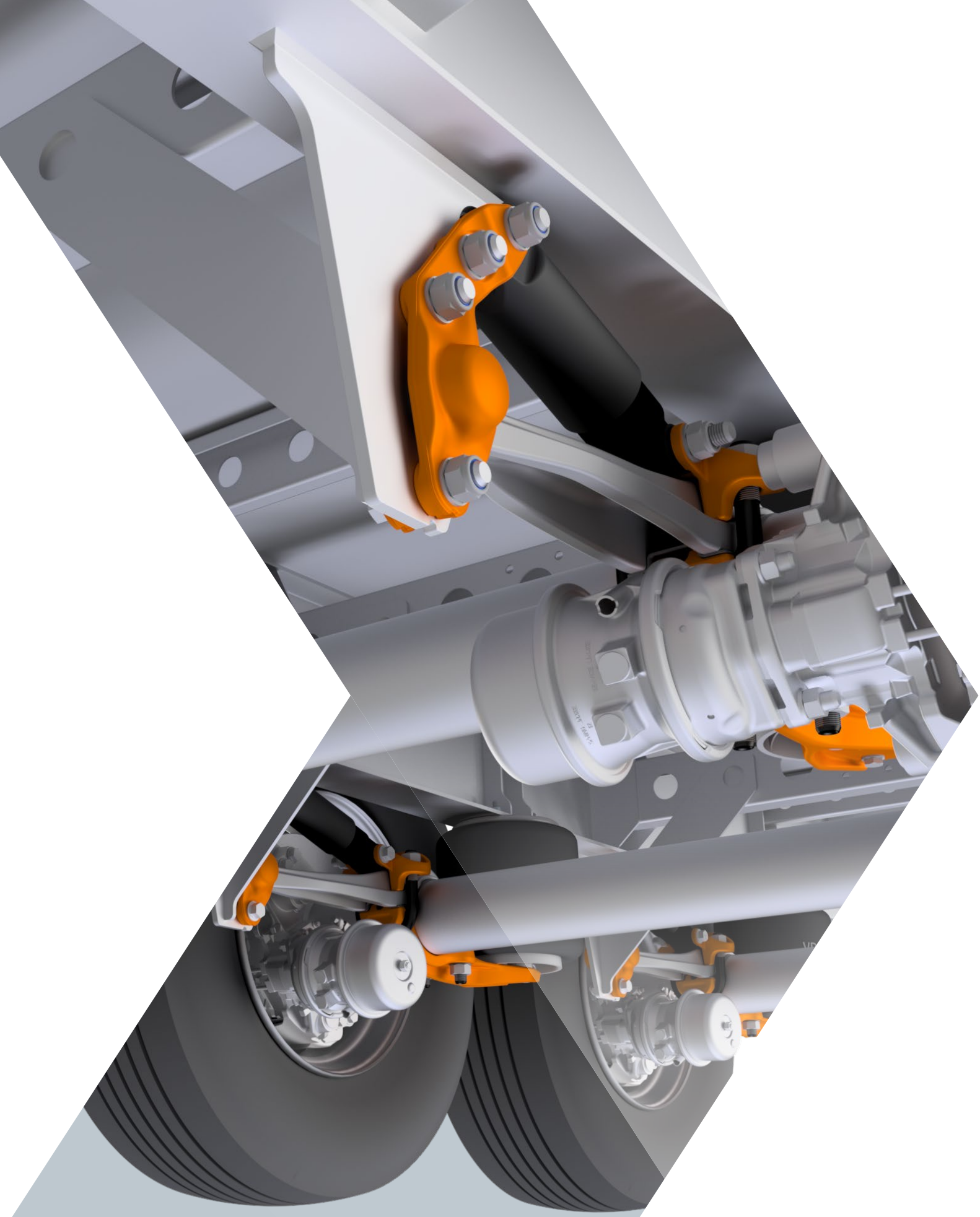
Professionalism makes the difference
VDL Weweler has a flat organizational structure with short lines of communication. Continuous effort is put into improving the existing no-nonsense culture in which informal, personal, professional and open communication predominates. The company's culture is best described by the collective VDL credo: "Strength through cooperation". As within all VDL companies, the heart of VDL Weweler is formed by the dedicated employees and the expert craftsmanship at all levels. VDL Weweler has attained and maintained their competitive position through the efforts of motivated and flexible professionals.

Mission
At VDL Weweler we work together every day on the development and production of sustainable innovations to create the ultimate added value for our customers. By combining smart solutions, customization and a unique and efficient production process, we guarantee the best quality at the best price. Strength through cooperation!

Based on its mission, VDL Weweler offers the Industry (customer specific) Modular Bolt-On Solutions, or MBS for short. Modular Bolt-On Solutions all share the same criteria, by being modular, innovative, light weight, multi-purpose and above all have a philosophy, that is based on minimal components, cost-effectiveness, a lean supply chain and bolting instead of welding.

By adapting this philosophy, VDL Weweler have created certain "building blocks", that form the basis for every MBS, and offers a high level of flexibility without the necessity to test every single suspension variety. By using certain building blocks in different configurations, VDL Weweler can create customer or region specific solutions, that are maintenance-friendly and provide the customer with the added-value they are looking for.

Modular Bolt-On air suspension solutions for example can now combine the finesse of an air suspension system with the simplicity of a mechanical one, creating the perfect package, that can be put together at the customers convenience, without the need for special tooling or special skills, but still offering the possibility to change whatever part needs replacing. (Even an axle beam.)



The current chapter

To maintain the status of technological expert, VDL Weweler officially opened a new high-tech plant in Apeldoorn in 2013. With it's unique one-off machinery and advanced robotics, state-of-the-art test facility, optimum logistics, a critical quality policy and world-class craftsmanship, the production plant provided the new basis to ensure VDL Weweler's customers receive the added-value they so desire and deserve.

The impressive 22,000m2 complex in the upmarket Ecofactorij district in Apeldoorn, some 80km west of the German border, is home to a world-unique innovative suspension arm production line that has allowed VDL Weweler to completely reinvent the MBS concept for each target market.

The new production line is capable of three-dimensional metal shaping, presenting a whole range of new design opportunities to the production team.

Using the very latest in 3D design and rolling & forming technology, VDL Weweler creates very strong and cost-effective, lean and light-weight flexible trailing arms that increase the system's overall functionality. This mix between strength and light weight has ensured that VDL Weweler systems have been used all over the world in the most demanding conditions.

The new three-dimensional metal shaping process does not only simplify the engineering process, but also helps improve VDL Weweler's environmental footprint: By preventing waste throughout the forming process and consciously moving to induction-heating, VDL Weweler saves up to 35% of energy for each suspension produced in the new factory and reduces waste to below 1%.

The new chapter

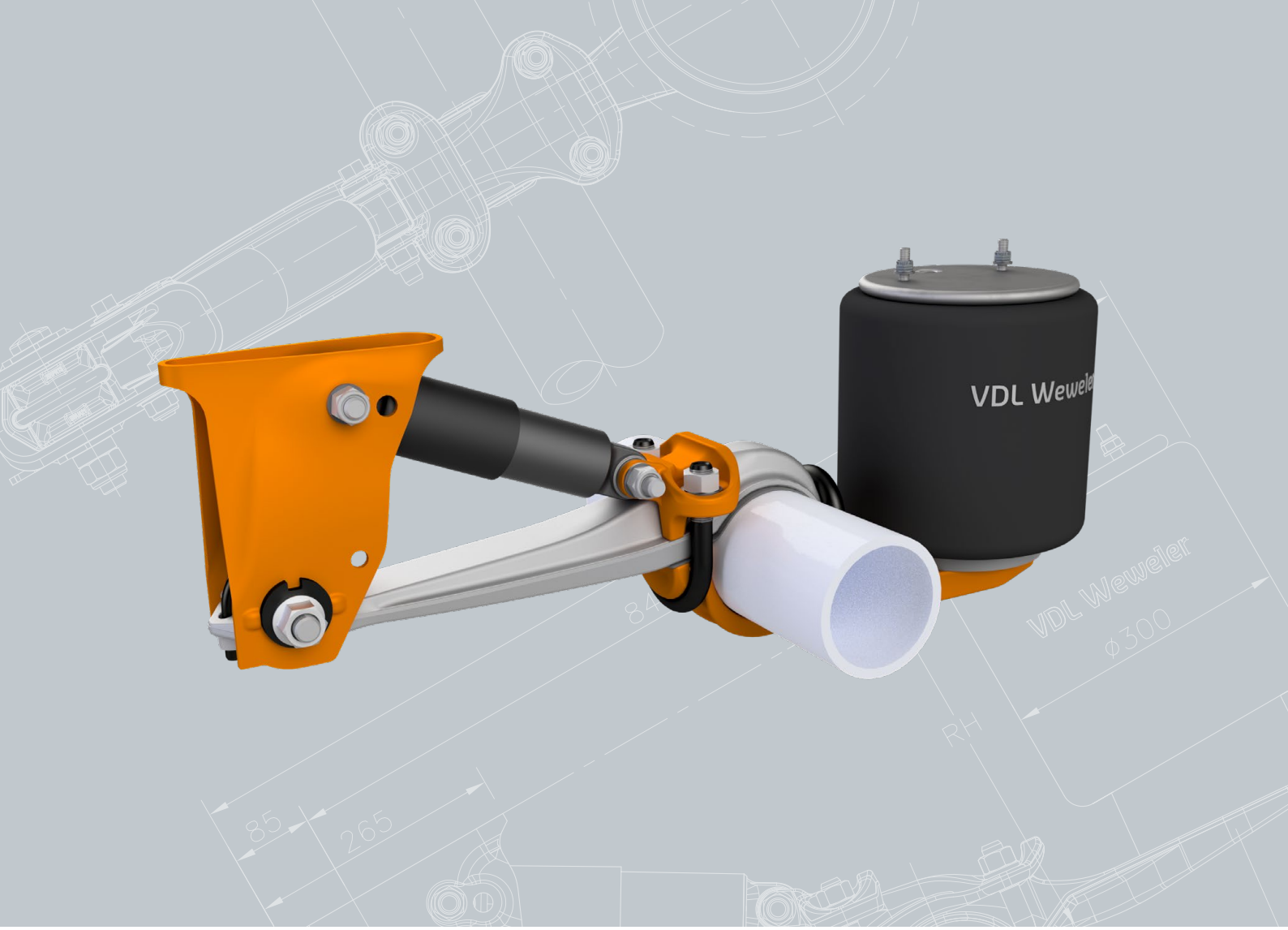
One of VDL Weweler's core strengths is the ability to continuously innovate and prepare for a whole range of future scenarios to ensure not getting caught off guard. With this in mind and the emerging markets seeking to scale up fast, VDL Weweler is finalising a new generation of the Modular Bolt-On Solutions, named the MBS OMEGA.

The concept behind the future MBS-OMEGA family is as simple as it is ingenious. The clamping area – including the trailing arm and VDL Weweler's world-unique, non-welded, low weight axle clamping system – is standardised, meaning it's easy to stock and replace. At the same time VDL Weweler still leaves room to customise the system by choosing a conventional or Blade-style hanger bracket, or by adding a Bolt-On axle lift.

The name OMEGA is derived from the trailing arm's special 3D Ω shape. At the same time, the shape contributes largely to the extreme low weight of the system. Weighing approximately 100 kg per axle row, the MBS OMEGA systems are the lightest 9/10 tonnes spring steel suspension systems available in the European market today. The MBS OMEGA air suspension system can be used worldwide for 9 tonnes on- and off-road single and twin-wheel applications, 10 tonnes on- and off-road super-single applications worldwide and 10 tonnes twin-wheel on-road applications in Europe.

With just two OMEGA trailing arms and very little variation in the remaining suspension parts, a range of ride heights from 180mm to 550mm can be achieved.

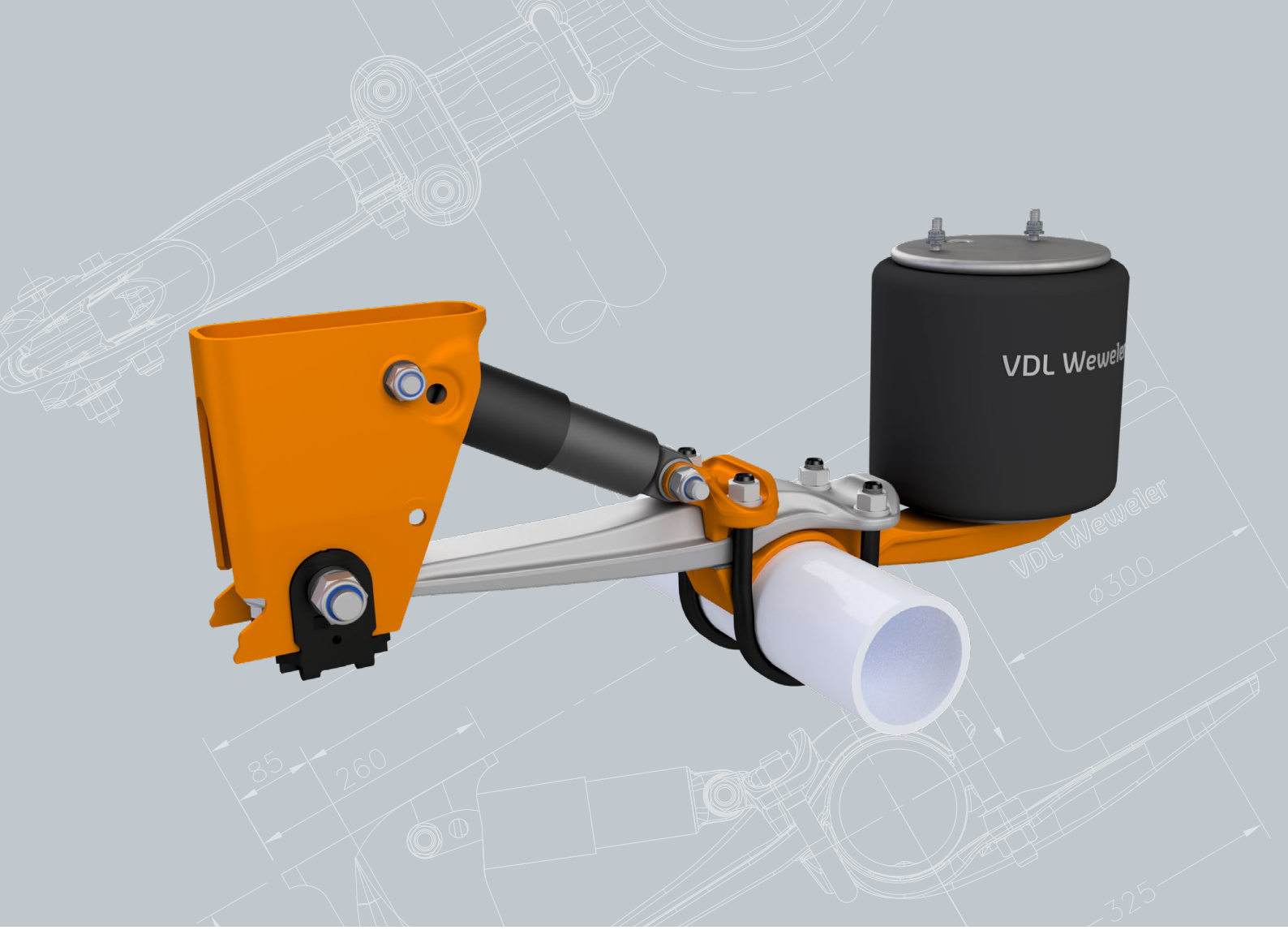
Confident it will set a new industry standard, VDL Weweler is in the process of setting up a dedicated production line for the MBS OMEGA variant. Current planning is for a 2024 opening.



MBS-OMEGA

FEATURES & BENEFITS

- With several patented innovations, the new MBS OMEGA is a completely new revolutionary light weight air suspension system, suitable for most Ø146mm axles for applications up to 10t axle load.
- With a system weight of approx. 100kg per row it is the lightest spring steel air suspension system on the market.
- This multi-purpose air suspension can be used on a wide range of standard trailers operating in on- and off-road conditions.
- The air suspension is clamped around the axle using U-bolts and is held in position by an ingenious cold formed recess in the axle beam, which in most cases can be made in the axle at any stage of the axle assembly process.
- The unique forged flexible spring steel trailing arm has a revolutionary new "omega" shape which optimizes the weight whilst sustaining the desired capacity and strength.
- The complete range consists of two concepts with only two types of trailing arms.
- Maintenance-free system.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.



SPECIFICATIONS

- Maximum axle load: 10t
- Single leaf trailing arms: Forged
- Trailing arm dimensions: L1 = 520mm / L2 = 325mm
- Available axle clamping: Ø146mm (clamped)
- Ride height range: 180-550mm
- Air spring options: Ø300mm, Ø335mm & Ø350mm
- Air spring offset options:
  - 25mm / 50mm (Ø300mm / Ø335mm)
  - 30mm / 50mm / 60mm / 75mm / 90mm (Ø350mm)
- System weight: ≥ 100kg
- Optional Bolt-On axle lift

MBS-W

FEATURES & BENEFITS

- MBS-W75 is a compact designed lightweight standard range suitable for 9t. Ø127mm or thin wall Ø146mm axles and suitable for a wide range of trailers operating on highway conditions. The MBS-W95 is a variation on the W75 range suitable for the more demanding conditions and can be used on a wide range of trailers operating on/off highway.
- Both ranges make use of an axle seat that only requires welding on one side.
- The axle seats are interchangeable between both ranges.
- Both ranges are also available for 9t. Ø146mm groove axles in combination with the clamped Ø146 axle seat.
- Full ride height range can be achieved by using various hanger brackets and pedestals.
- Weight optimization is achieved by 2D rolling of the flexible high strength spring steel trailing arms.
- The tapered design of the hanger brackets offers great compatibility and allows for a more optimum frame width. The hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis. This bracing is mandatory on the MBS-W95 range.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Furthermore the range offers easy alignment with re-alignment free bushing, fully interchangeable air springs and low & easy maintenance.

SPECIFICATIONS

- Maximum axle load: 9t
- Single leaf trailing arm: 75x54mm / 95x49mm
- Trailing arm dimensions: L1 = 520mm / L2 = 330mm & 380mm
- Available axle clampings: Ø146mm (welded & clamped), Ø127mm (welded)
- Ride height range: 280-505mm
- Air spring options: Ø300mm & Ø335mm
- Air spring offset options: 20mm / 45mm
- System weight: ≥ 135kg
- Optional Bolt-On axle lift

MBS-W TIPPER

FEATURES & BENEFITS

- MBS-W Tipper is a model within the MBS-W range, specifically design for "Tipper" and "Container" trailers operating on/off highway conditions.
- The range makes use of an axle seat that only requires welding on one side.
- The range is also available for 9t. Ø146mm groove axles in combination with the clamped Ø146 axle seat.
- Weight optimization is achieved by 2D rolling of the flexible high strength spring steel trailing arms.
- The tapered design of the hanger brackets offers great compatibility and allows for a more optimum frame width. The hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Furthermore the range offers easy alignment with re-alignment free bushing, fully interchangeable air springs and low & easy maintenance.

SPECIFICATIONS

- Maximum axle load: 9t
- Single leaf trailing arm: 95x49mm
- Trailing arm dimensions: L1 = 520mm / L2 = 325/330mm
- Available axle clampings:
  Ø146mm (welded & clamped), Ø127mm (welded)
- Ride height range: 455-550mm
- Air spring options: Ø300mm, Ø335mm & Ø350mm
- Air spring offset options:
  - 20mm / 45mm (Ø300mm / Ø335mm)
  - 50mm / 90mm (Ø350mm)
- System weight: ≥ 150kg
- Optional Bolt-On axle lift

MBS-HD 9T

FEATURES & BENEFITS

- The HD 9t. is a well proven, robust single leaf air suspension range, that can best be described as an all-round solution for many trailer types and suitable for most road conditions worldwide.
- This air suspension range is equipped with flexible high strength spring steel trialing arms and can be fitted to all standard trailer axle sizes (Ø127mm, Ø146mm, □120mm and □150mm).
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Furthermore the range offers easy alignment with re-alignment free bushing, a higher overload threshold and low & easy maintenance.

SPECIFICATIONS

- Maximum axle load: 9t
- Single leaf trailing arm: 100x48mm
- Trailing arm dimensions: L1 = 530mm / L2 = 380mm
- Available axle clampings:
  Ø127mm, Ø146mm, □120mm, □150mm
- Ride height range:
  - Underslung: 205-345mm
  - Overslung: 340-525mm
- Air spring options: Ø300 & Ø350mm
- Air spring offset options:
  - 20mm / 65mm (Ø300mm)
  - 30mm / 50mm (Ø350mm)
- System weight: ≥ 138kg
- Optional Bolt-On axle lift

MBS-HD 10T

FEATURES & BENEFITS

- The HD 10t. is a weight conscious 10t. single leaf air suspension range suitable for most trailer types and suitable for the more demanding road conditions worldwide.
- This air suspension range is equipped with flexible high strength spring steel trailing arms and can be fitted to all standard trailer axle sizes (Ø127mm, Ø146mm, □120mm and □150mm).
- Except for the trailing arms, all parts in the suspension are fully interchangeable with the HD 12t. single leaf suspensions.
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Furthermore the range offers easy alignment with re-alignment free bushing and low & easy maintenance.
- Standard double bounded Steel-Rubber-Steel high density rubber bushings are fitted.

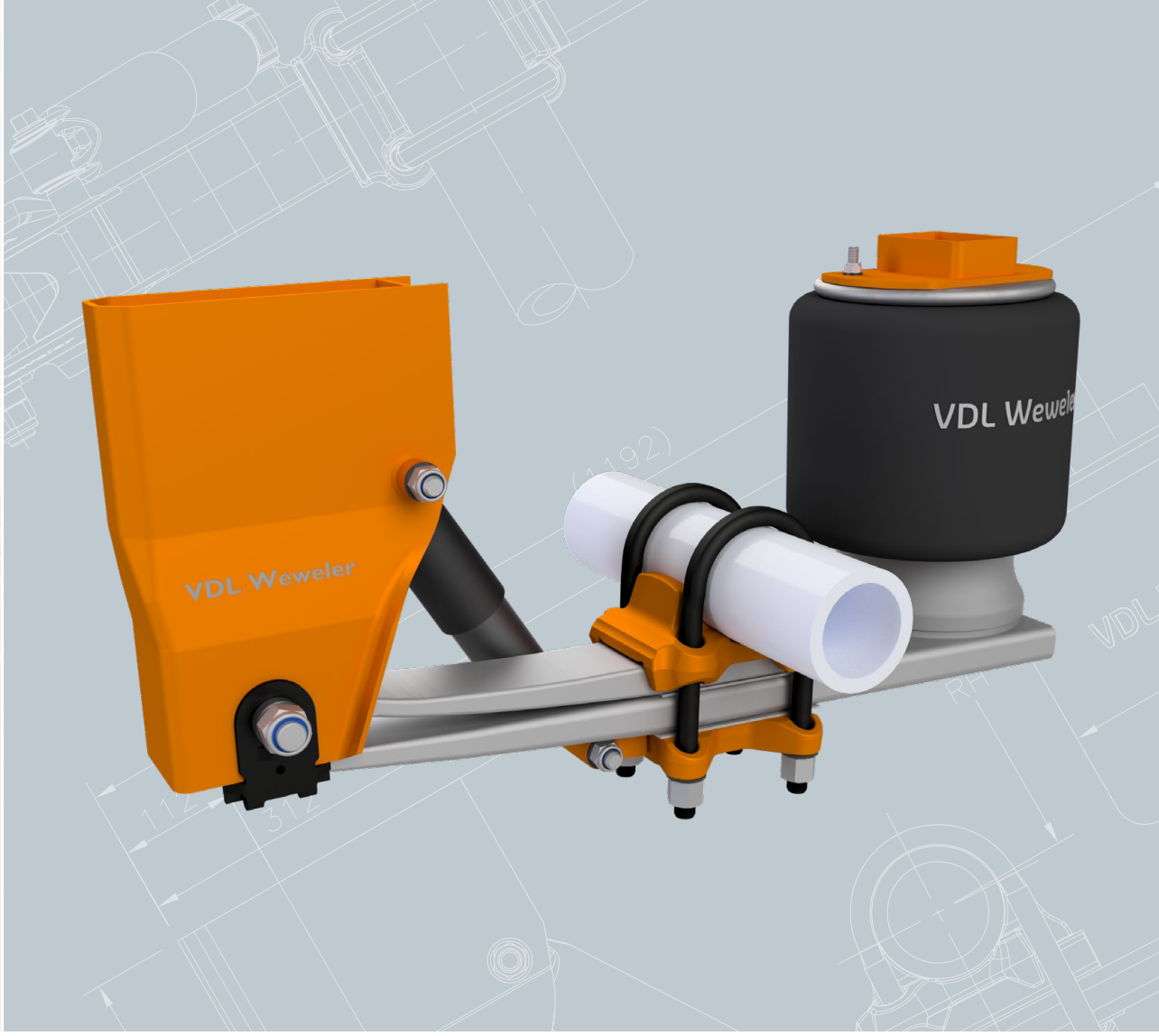
SPECIFICATIONS

- Maximum axle load: 10t
- Trailing arm dimensions: L1 = 530mm / L2 = 380mm
- Available axle clampings:
  Ø127mm, Ø146mm, □120mm, □150mm
- Ride height range:
  - Underslung: 250-375mm
  - Overslung: 385-575mm
- Air spring options: Ø350mm
- Air spring offset options:
  - 30mm / 50mm / 60mm / 75mm / 90mm
    (standard swivel)
  - 30mm / 50mm / 95mm
    (optional with separate support plate)
- System weight: ≥ 180kg
- Optional Bolt-On axle lift

MBS-HD 11T

FEATURES & BENEFITS

- The HD 11t. is a well proven, extremely robust double leaf air suspension range with an immaculate track record.
- With more than 35 years of experience across the world, this all-round solution can be fitted to any trailer imaginable and is suitable for the toughest road conditions worldwide.
- The twin leaf air suspension range is specifically suitable for narrow track, high center of gravity and rough (off-road) conditions.
- This air suspension range is equipped with flexible high strength spring steel trailing arms and can be fitted to all standard disc brake, drum brake or (self)steered axles equipped with single or dual tires.
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Furthermore the range offers easy alignment in the axle clamping, a high overload threshold and very low maintenance.
- For demanding conditions optional double bounded Steel-Rubber-Steel high density rubber bushings or rear-mounted shock absorbers can be fitted.



SPECIFICATIONS

- Maximum axle load: 11t
- Twin leaf trailing arm: 100x35mm + 100x45mm
- Trailing arm dimensions:
  L1 = 530mm / L2 = 325mm & 380mm
- Available axle clampings:
  Ø127mm, Ø146mm, □120mm, □150mm
- Ride height range:
  - Underslung: 200-365mm
  - Overslung: 385-575mm
- Air spring options: Ø350mm
- Air spring offset options:
  - 30mm / 50mm / 60mm / 75mm / 90mm
    (standard swivel)
  - 30mm / 50mm / 95mm
    (optional with separate support plate)
- System weight: ≥ 205kg
- Optional Bolt-On axle lift

MBS-HD 12T

FEATURES & BENEFITS

- The HD 12t. is a weight conscious 12t. single leaf air suspension range suitable for most trailer types and suitable for demanding road conditions worldwide.
- This air suspension range is equipped with flexible high strength spring steel trailing arms and can be fitted to all standard trailer axle sizes (Ø127mm, Ø146mm, □120mm and □150mm).
- Except for the trailing arms, all parts in the suspension are fully interchangeable with the HD 10t. single leaf suspensions.
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Furthermore the range offers easy alignment with re-alignment free bushing and low & easy maintenance.
- Standard double bounded Steel-Rubber-Steel high density rubber bushings are fitted.

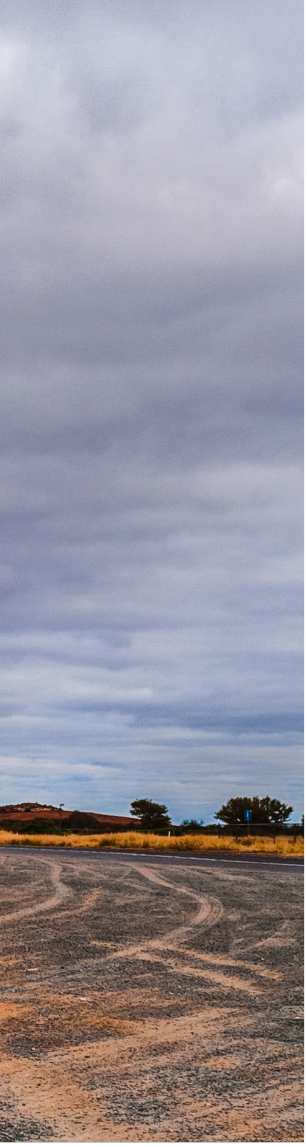
SPECIFICATIONS

- Maximum axle load: 12t
- Single leaf trailing arm: 100x59mm
- Trailing arm dimensions: L1 = 530mm / L2 = 380mm
- Available axle clampings:
  Ø127mm, Ø146mm, □120mm, □150mm
- Ride height range:
  - Underslung: 205-345mm
  - Overslung: 355-575mm
- Air spring options: Ø350mm
- Air spring offset options:
  - 30mm / 50mm / 60mm / 75mm / 90mm
    (standard swivel)
  - 30mm / 50mm / 95mm
    (optional with separate support plate)
- System weight: ≥ 185kg
- Optional Bolt-On axle lift

MBS-HD 13T

FEATURES & BENEFITS

- The HD 13t is the strongest double leaf air suspension range VDL Weweler has to offer.
- This well proven, extremely sturdy and robust air suspension range, with more than 35 years of experience across the world, is being used in the harshest off-road environments imaginable.
- Suitable for all standard trailer axle sizes (Ø127mm, Ø146mm, □120mm and □150mm).
- This air suspension range is equipped with flexible high strength spring steel trailing arms that come with double bounded Steel-Rubber-Steel high density rubber bushings.
- This range is specifically suitable for narrow track, high center of gravity and can be fitted to all standard disc brake, drum brake or (self)steered axles equipped with single or dual tires.
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Optional rear-mounted shock absorbers can be fitted.



SPECIFICATIONS

- Maximum axle load: 13t
- Twin leaf trailing arm: 100x45mm + 100x45mm
- Trailing arm dimensions:
  L1 = 530mm / L2 = 325mm & 380mm
- Available axle clampings:
  Ø127mm, Ø146mm, □120mm, □150mm
- Ride height range:
  - Underslung: 205-335mm
  - Overslung: 395-575mm
- Air spring options: Ø350mm
- Air spring offset options:
  - 30mm / 50mm / 60mm / 75mm / 90mm
    (standard swivel)
  - 30mm / 50mm / 95mm
    (optional with separate support plate)
- System weight: ≥ 215kg
- Optional Bolt-On axle lift

MBS-HD SPECIAL

FEATURES & BENEFITS

- The HD Special is a specific, well proven, robust 9/10t. single leaf air suspension range within the HD family.
- This suspension range is predominantly used in underslung configuration on 17.5 or 19.5 inch axles that require disc brakes and run at low ride height. The longer front-end of the spring steel trailing arms allows for more up and down axle travel, whilst still maintaining enough clearance for the brake booster.
- The air suspension systems are equipped with flexible high strength spring steel trailing arms and can be fitted to all standard trailer axle sizes (Ø127mm, Ø146mm, □120mm and □150mm).
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter of the suspension system.
- Used in an overslung configuration, these air suspension systems can be used for tipper applications, with the option of long- or short-stroke air springs.
- Furthermore the suspension offers easy alignment with re-alignment free bushing and low & easy maintenance.

SPECIFICATIONS

- Maximum axle load: 10t
- Single leaf trailing arms: 100x54mm & 100x59mm
- Trailing arm dimensions:
  L1 = 565mm & 620mm & 690mm /
  L2 = 315mm, 380mm & 400mm
- Available axle clampings:
  Ø127mm, Ø146mm, □120mm, □150mm
- Ride height range:
  - Underslung: 195-340mm
  - Overslung: 350-550mm
- Air spring options: Ø350mm
- Air spring offset options: 50mm / 90mm
- System weight: ≥ 175kg
- Optional Bolt-On axle lift

MBS-MAXI

FEATURES & BENEFITS

- The MBS-MAXI system is a 9t. single leaf air suspension specifically designed for swap-body applications.
- With the Maxi it is possible to use a more common, cost-effective long-stroke air spring whilst still maintaining a total stroke of 440mm.
- The solution is equipped with flexible high strength spring steel trailing arms incl. safety clip and can be fitted to Ø146mm drum or disc brake trailer axle.
- The closed reinforced hanger brackets can be fitted with a patented casted bracing option, that ensures forces going straight into the chassis.
- The shock absorbers are equipped with high temperature Viton seals.
- Furthermore the range offers easy alignment with re-alignment free bushing and low & easy maintenance.

SPECIFICATIONS

- Maximum axle load: 9t
- Single leaf trailing arm: 100x59mm
- System dimensions: L1 = 690mm / L2 = 310mm
- Available axle clamping: Ø146mm
- Ride height range: 315-555mm
  (bump dimension: 245mm)
- Air spring options: Ø360mm
- Air spring offset options: 90mm
- System weight: ≥ 230kg
- Optional Bolt-On axle lift

MBS-GF

FEATURES & BENEFITS

- With numerous patented innovations, the MBS-GF is a revolutionary light weight air suspension system, suitable for 9t. thin wall Ø146mm grooved axles.
- Sold in Europe through Valx, this multi-purpose air suspension can be used on a wide range of standard trailers operating on highway conditions.
- The air suspension is clamped around the axle using three bolts and is held in position by an ingenious groove in the axle beam, offering unique modularity in spring track.
- A first in trailing arm suspension design, the unique forged flexible trailing arm eliminates the need for U-bolts and U-bolt plates. The tapered trailing arm with its wider clamping area and small diameter maintenance-free bushing provides unequalled roll stiffness while putting less stress on the axle, therefore maximizing the service life.
- By releasing a single bolt, both tail ends can be given offsets of 0, 25, 50, 65, and 90mm in either direction, eliminating the need for a left and right version.
- The HTLT shock absorbers are equipped with high/low temperature Viton seals and designed to be the stroke limiter.

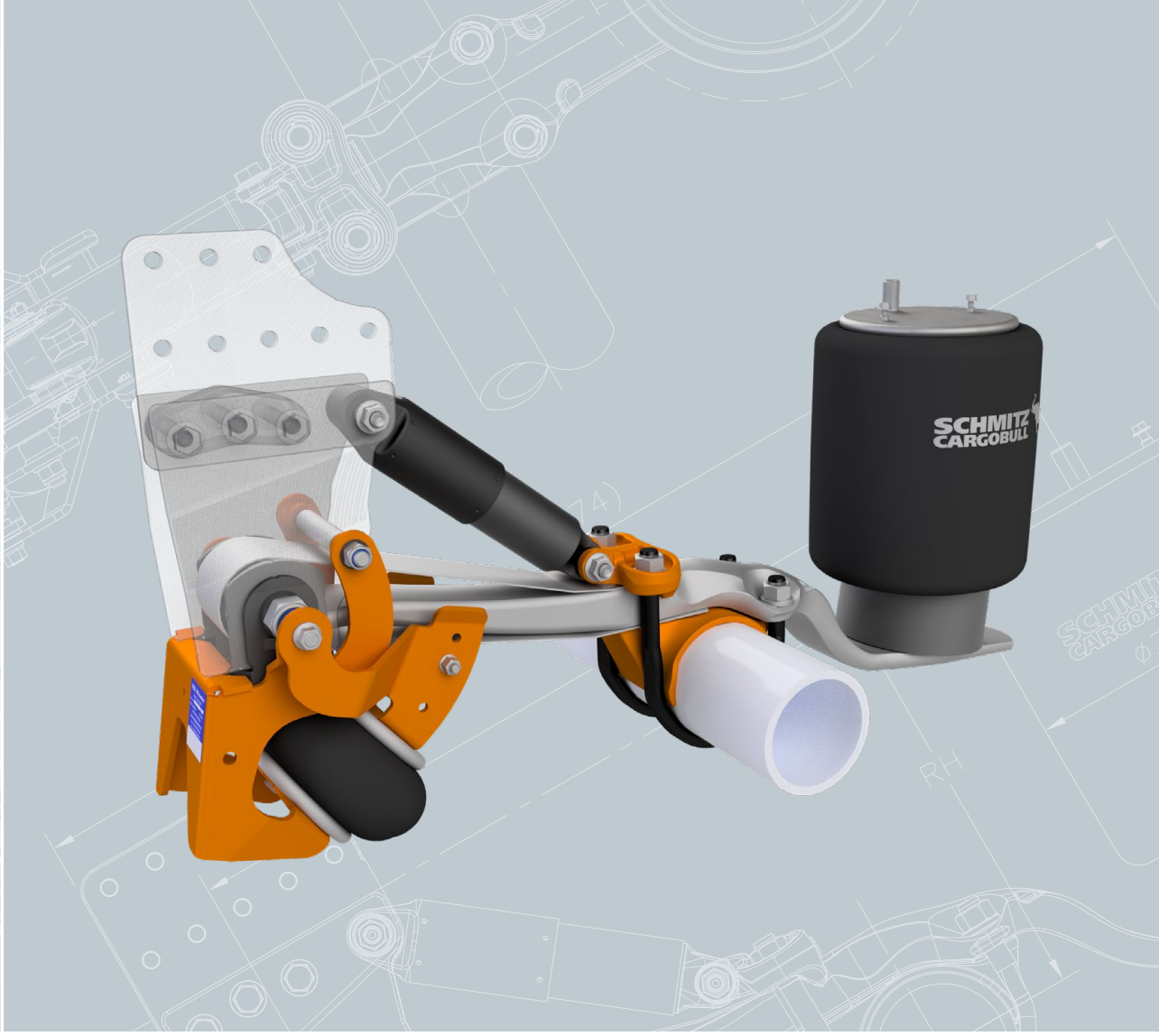
SPECIFICATIONS

- Maximum axle load: 9t
- Single leaf trailing arm: Forged
- Trailing arm dimensions: L1 = 520mm / L2 = 325mm
- Available axle clamping: Ø146mm (clamped)
- Ride height range:
  - MBS-100 Range: 210-450mm
  - MBS-200 Range: 310-460mm
- Air spring options: Ø300mm & Ø335mm
- Air spring offset options:
  0mm / 25mm / 50mm / 65mm / 90mm
- System weight: ≥ 125kg
- Optional Bolt-On axle lift

SCHMITZ CARGOBULL

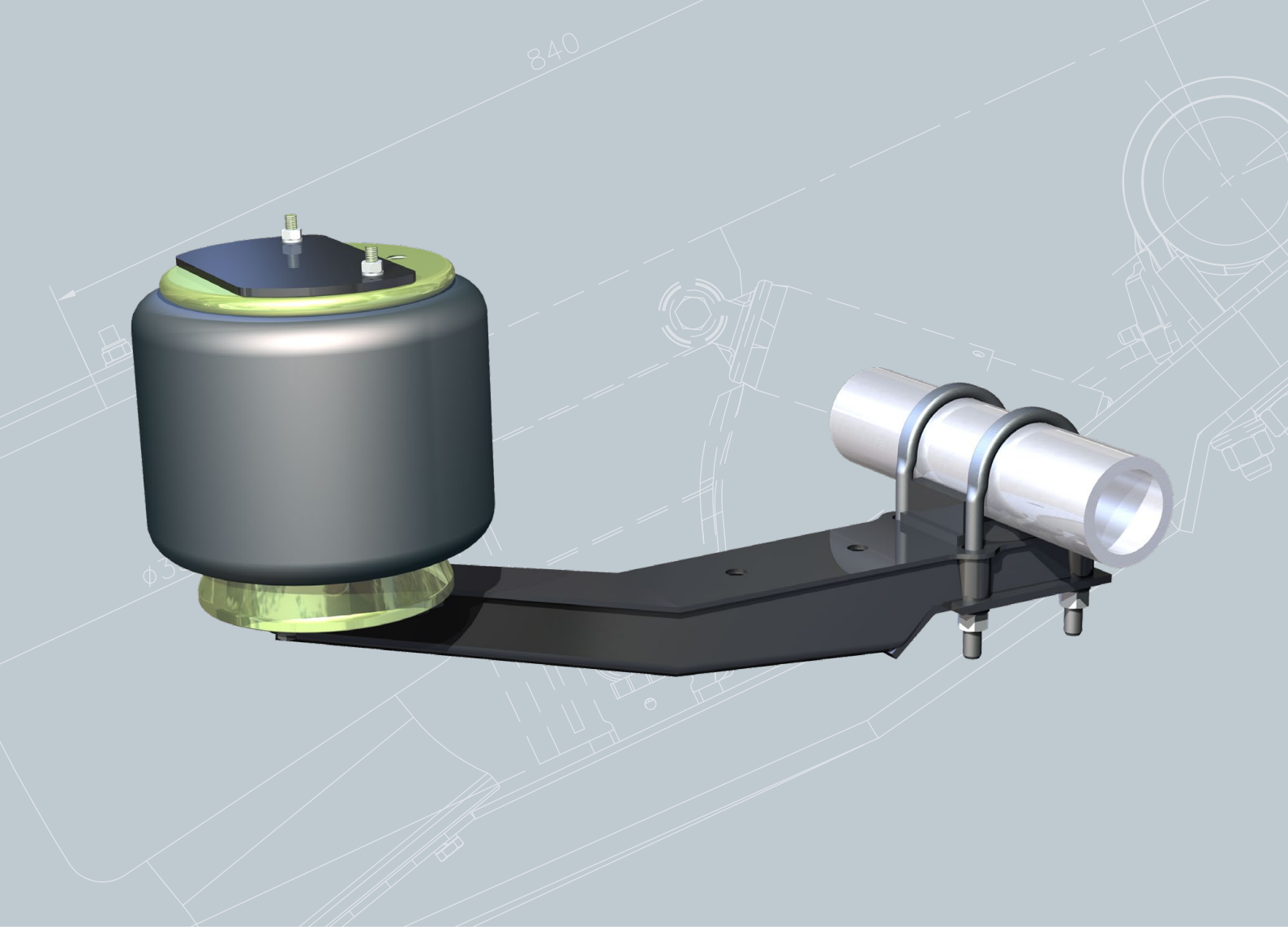
FEATURES & BENEFITS

- This revolutionary, high-tech, multi ride height suspension range is designed solely for and in combination with the biggest trailer builder in Europe.
- Sold exclusively through Schmitz Cargobull AG, this multi-purpose, light weight air suspension range is being used on nearly every Schmitz trailer.
- The range is predominantly used on 9t. Ø146mm axles, both in a clamped or welded configuration.
- In the clamped configuration, the air suspension range is held in place by an ingenious, Schmitz patented, indentation in the axle beam.
- The range was specifically designed to allow Schmitz to standardize their chassis and offer them a way to optimize production time.
- The customer specific double-bend spring steel trailing arms allow for an extreme ride height range whilst still using an overslung configuration.
- Compact design is achieved by using center mounted shock absorbers.
- Furthermore the range offers easy alignment with re-alignment free bushing, interchangeable air springs and low & easy maintenance.



SPECIFICATIONS

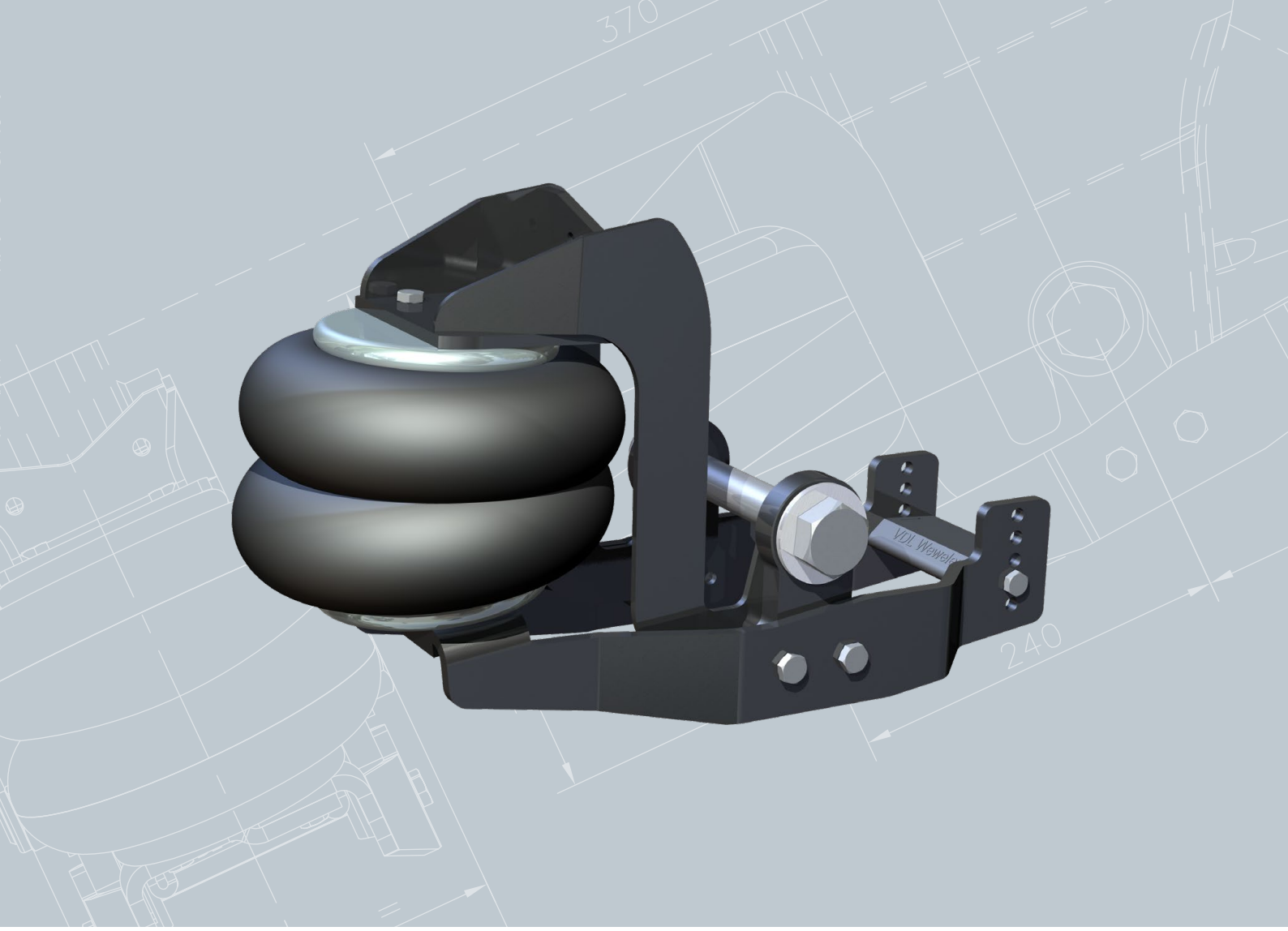
- Maximum axle load: 9t
- Tailor made air suspension range for Schmitz Cargobull
- Suitable for Ø146mm drum and disc brake axles
- Multi Ride Height system range: 190-540mm (including Mega & Tipper)
- Air spring options: Ø300mm / Ø335mm / Ø350mm
- Air spring offset options:
  - 20mm (Ø300mm)
  - 50mm (Ø335mm / Ø350mm)
- System weight: ≥ 120kg
- Optional Bolt-On axle lift
- Optional Bolt-On Splitter



MID-LIFT

SPECIFICATIONS & BENEFITS

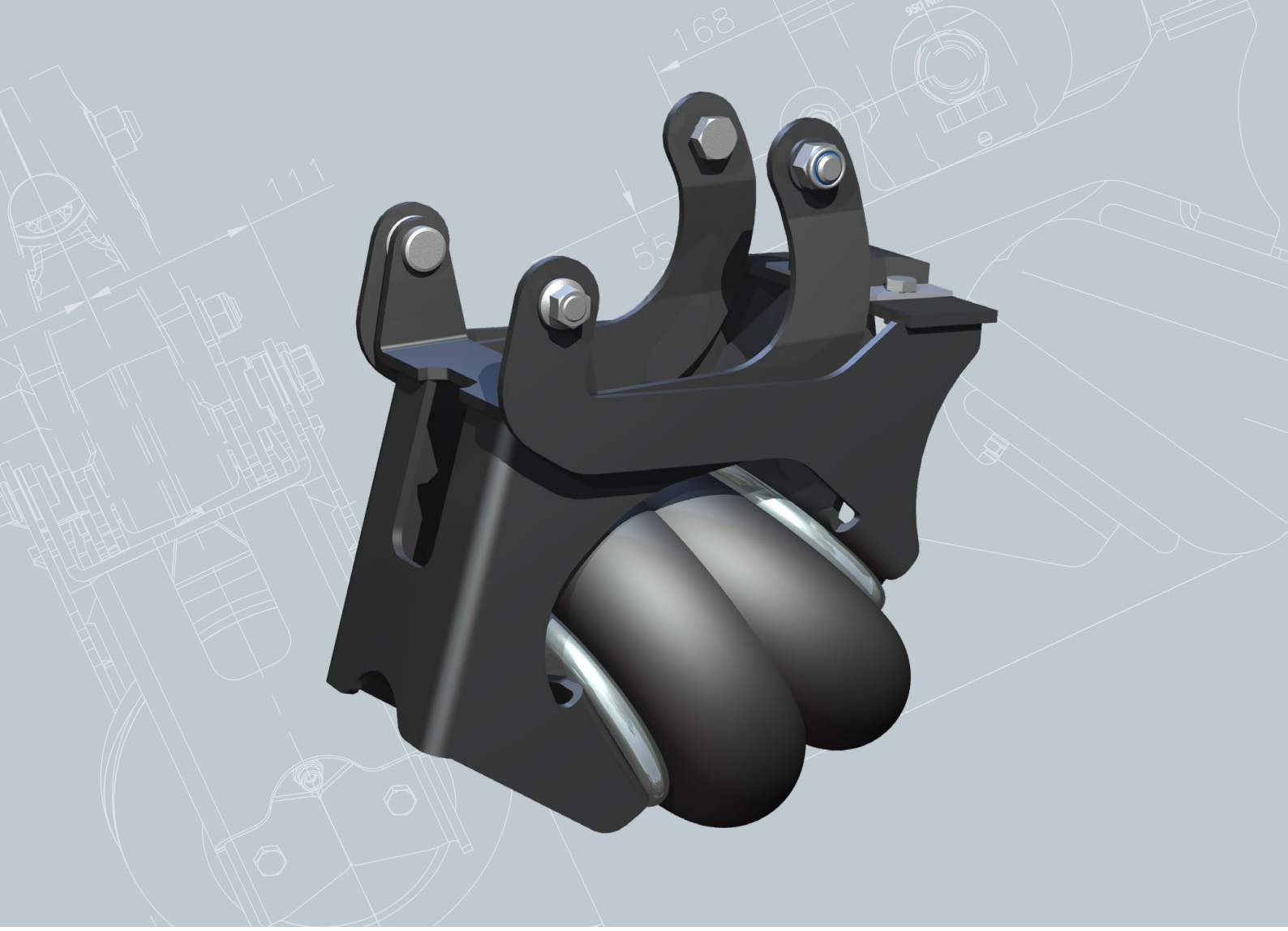
- The Mid Lift range is developed for universal under slung air suspension systems.
- Available for the following axles:
  - AL-138 for Ø127mm axles
  - AL-191 for □120mm axles
  - AL-193 for Ø146mm axles
  - AL-057 for □150mm axles
- Highly suitable for systems that have limited ground clearance.
- Suitable for drum and disc brake systems.
- All axle lifts parts are end-coated.
- Reduced tire wear, fuel consumption and maintenance cost.



AL-491

SPECIFICATIONS & BENEFITS

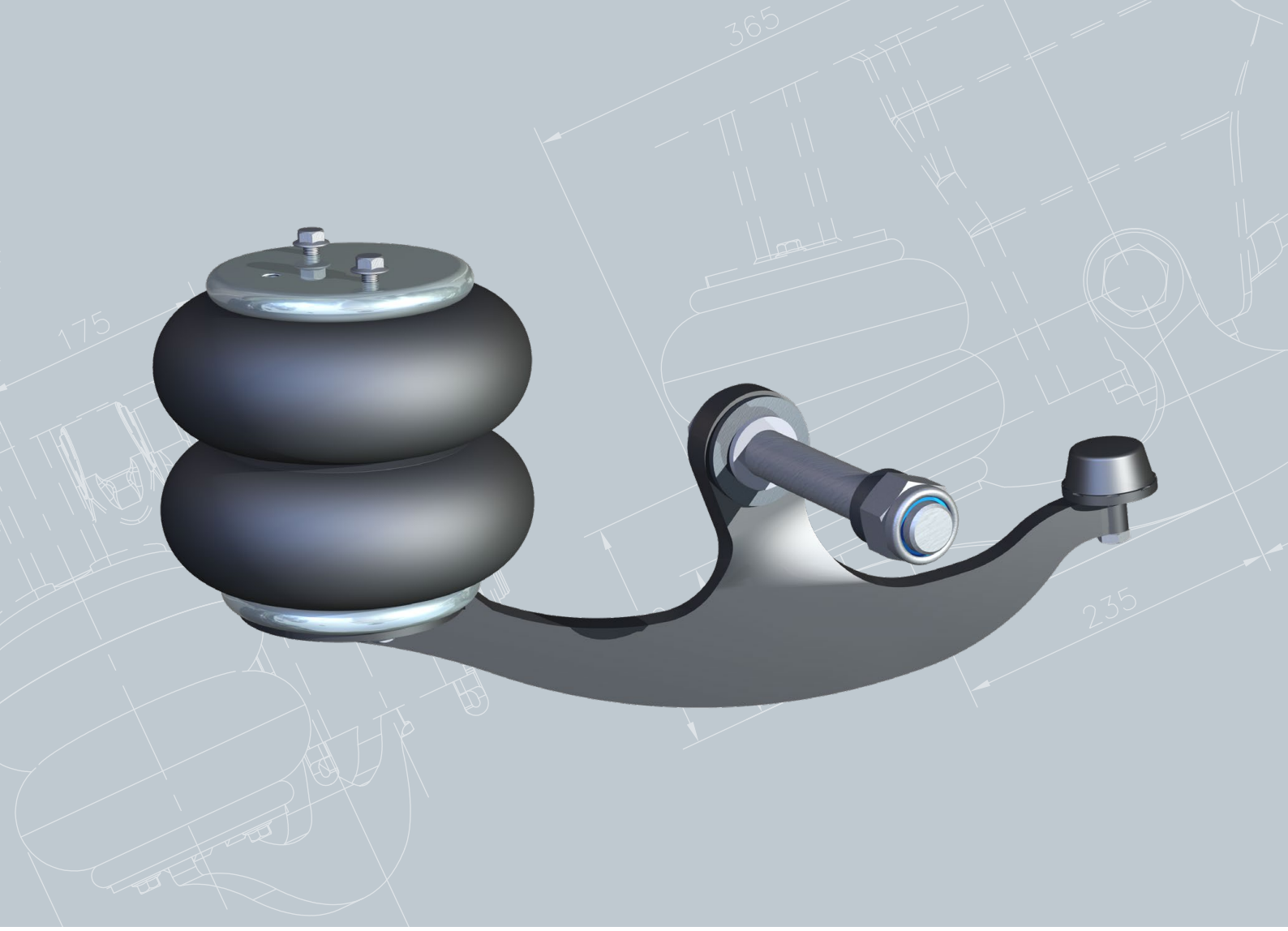
- The AL-491 Mega Axle Lift is developed for VDL Weweler air suspension systems.
- Lightweight alternative for the Mid Lift.
- Highly suitable for systems that have extreme limited ground clearance.
- Suitable for drum and disc brake systems.
- All axle lifts parts are end-coated.
- Reduced tire wear, fuel consumption and maintenance cost.
- Also available:
- The AL-491-III with separate air spring pedestal which can be welded to the chassis.



AL-478-II / AL-484-II

SPECIFICATIONS & BENEFITS

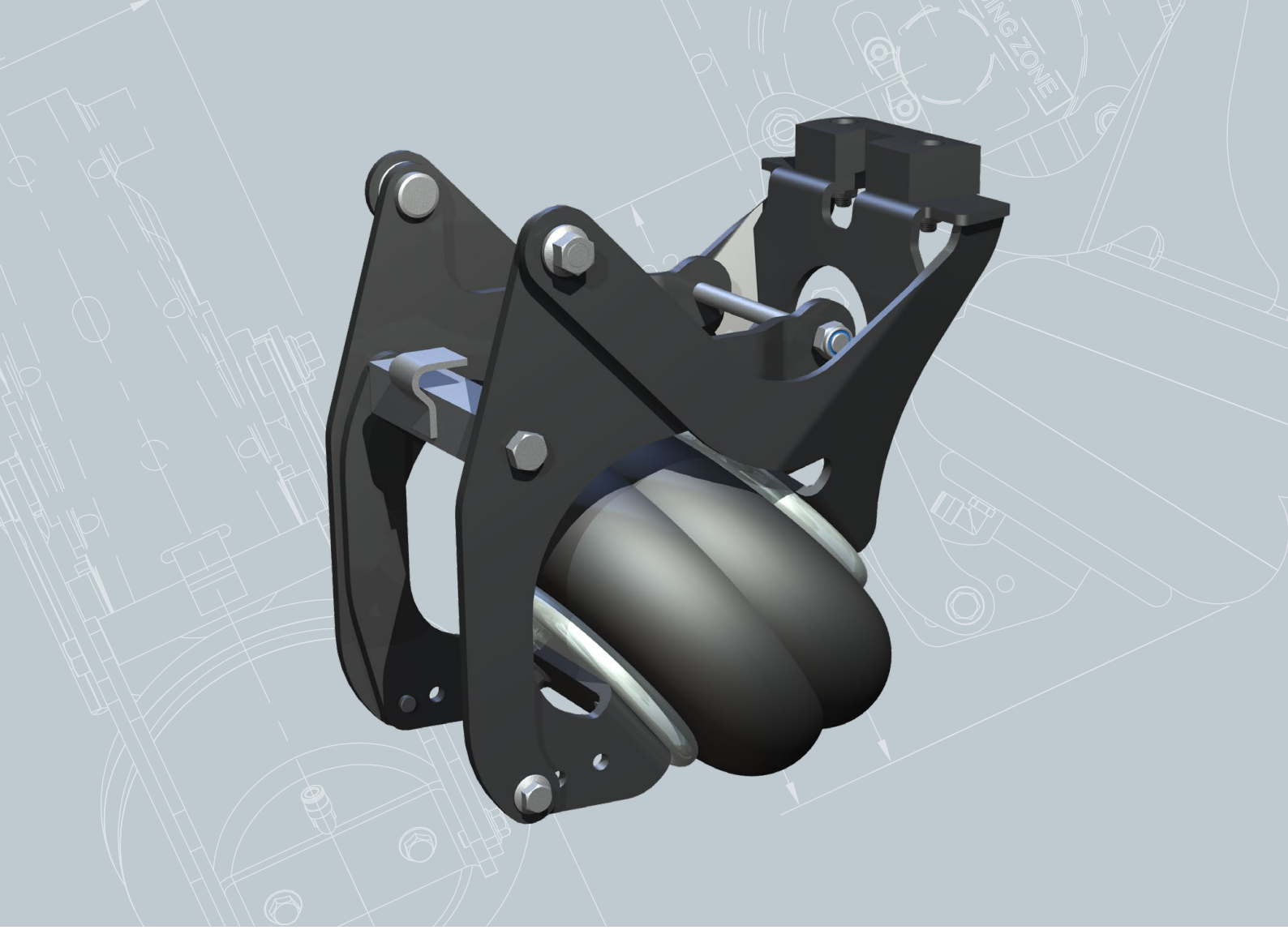
- The Bolt-On AL-478-II & AL-484-II are developed for VDL Weweler MBS drum and disc brake systems:
  - MBS-100 range
  - MBS-200 range
  - MBS-V range
  - MBS-W range
- The hanger bracket mounted lift design eliminates the need to remove the pivot bolt, resulting in an assembly time of under 5 minutes.
- Extremely suitable for retrofitting.
- Easy to fit, with no special need for specific tools or equipment.
- All axle lifts parts are end-coated.
- Reduced tire wear, fuel consumption and maintenance cost.
- Also available:
  - Bolt-On axle lifts AL-456, AL-457, AL-462(V)-III for MBS-HD



AL-495

SPECIFICATIONS & BENEFITS

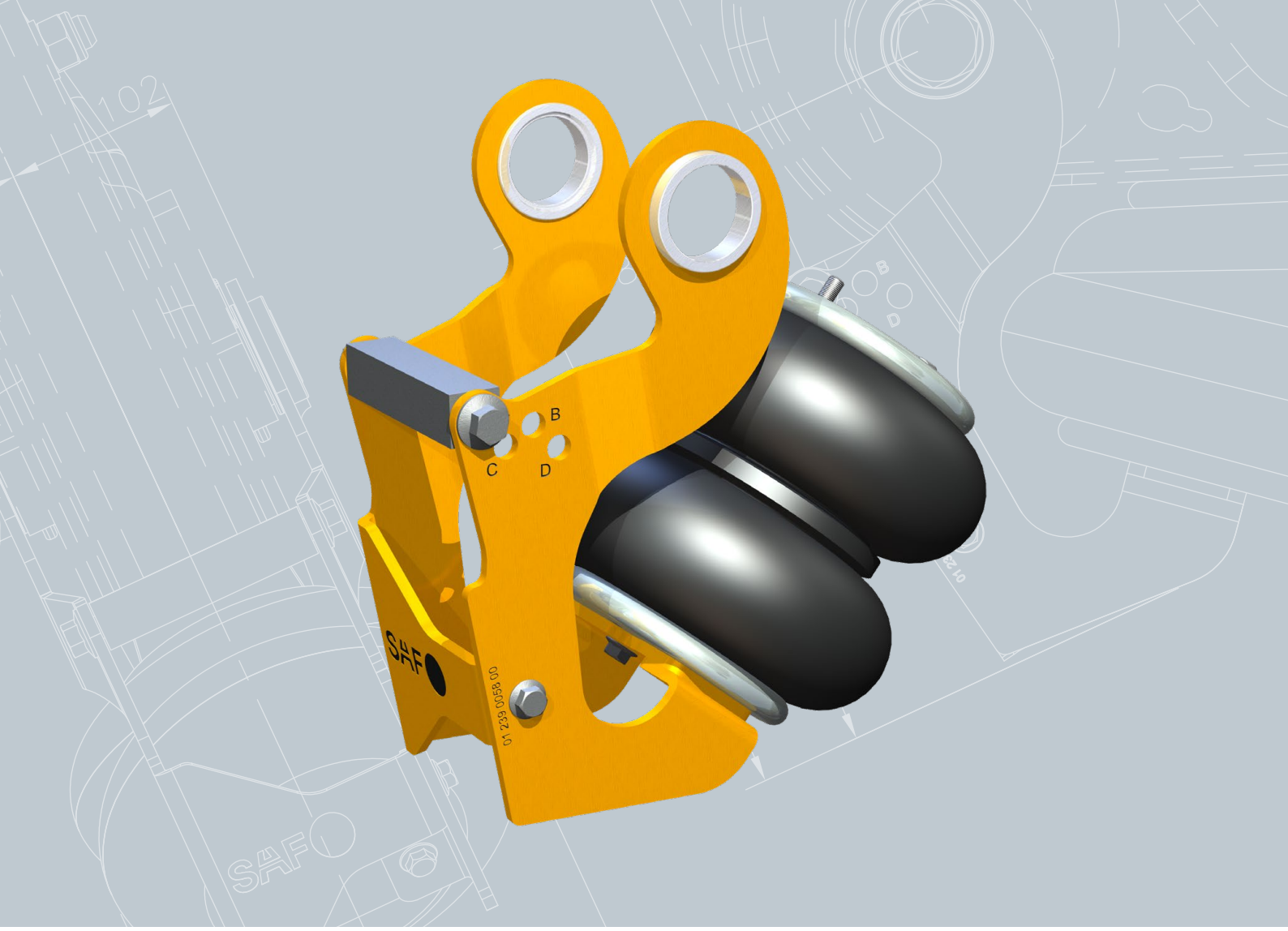
- The universal lightweight Bolt-On AL-495 "Rocker" axle lift is developed and suited for several different running gear brands.
- Specific for low loader applications with disc or drum brakes and small 17.5" tires. Also for (self) steer axles.
- Optimal ground clearance on low underslung applications. The axle lift is also suitable for overslung suspensions
- The clever patented rocker design places the air spring ingeniously on the inside of the vehicle, protecting it from the tires and potential debris. With the additional advantage that the axle lift is suitable for nearly all axles under a vehicle.
- Suitable for truck applications with the advantage that the lift air spring is located underneath the chassis rail.
- All axle lifts parts are end-coated.
- Reduced tire wear, fuel consumption and maintenance cost.



AL-490-II

SPECIFICATIONS & BENEFITS

- The Bolt-On AL-490-II is developed for BPW Eco Air drum and disc brake systems:
  - AU / AM / BM / BO
- The AL-490-II can be used with the welded and bolted bracing.
- One lightweight solution that covers the whole BPW EA range without the need of any additional parts.
- The hanger bracket mounted lift design eliminates the need to remove the pivot bolt, resulting in an assembly time of under 5 minutes.
- Extremely suitable for retrofitting.
- Easy to fit, with no special need for specific tools or equipment.
- All axle lifts parts are end-coated.
- Reduced tire wear, fuel consumption and maintenance cost.
- Also available:
  - Bolt-On axle lift AL-459 for BPW SL
  - Bolt-On axle lift AL-476 for BPW ALII



AL-489-II

SPECIFICATIONS & BENEFITS

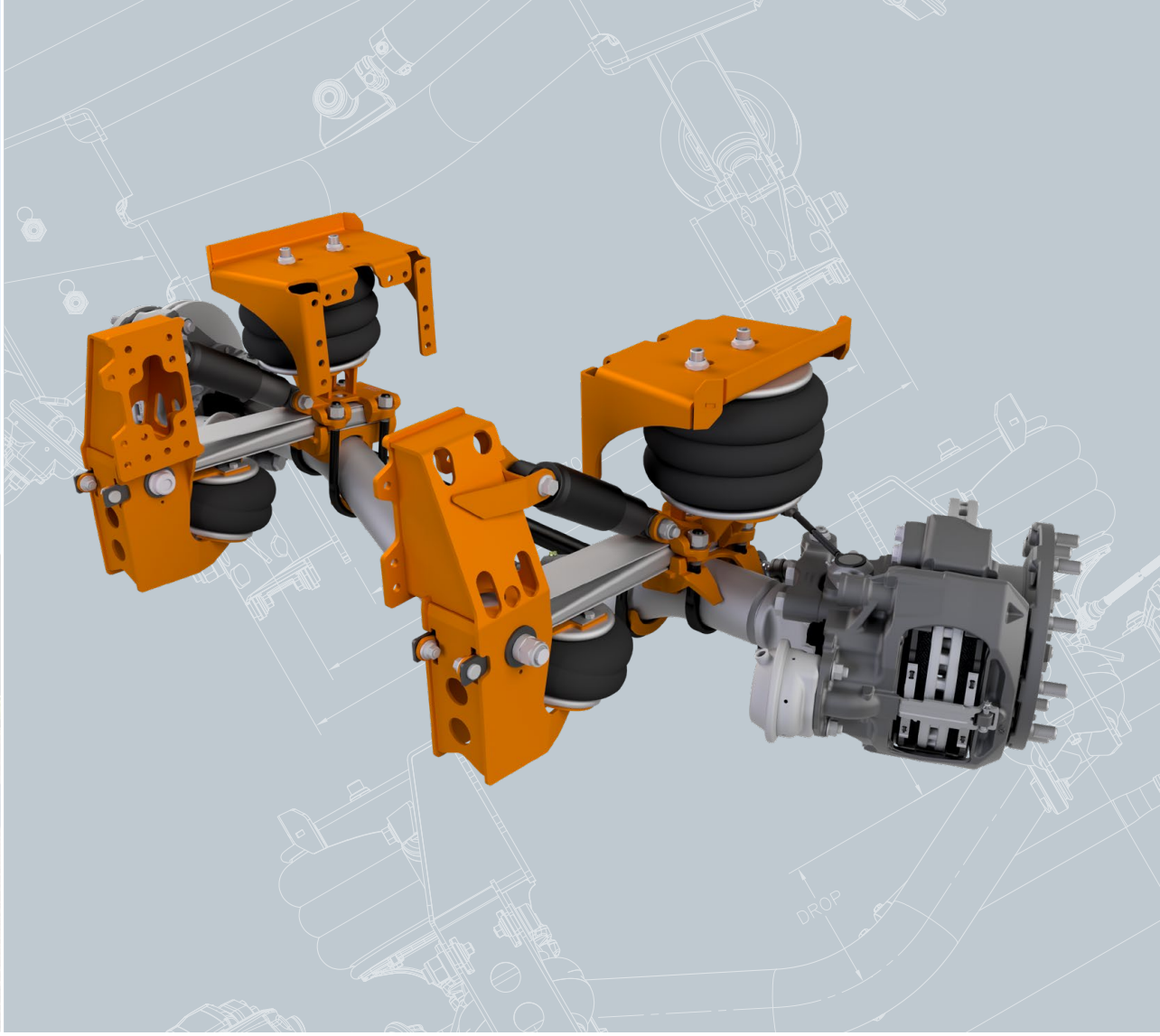
- The Bolt-On AL-489-II is developed for SAF Intradisc Plus and Intradrum air suspensions:
  - IU Serie
  - IO Serie
- Sold exclusively through SAF-Holland.
- Lightweight solution with improved ground clearance.
- The patented hook lift design eliminates the need to remove the pivot bolt, resulting in an assembly time of under 5 minutes.
- Extremely suitable for retrofitting.
- Easy to fit, with no special need for specific tools or equipment.
- All axle lifts parts are end-coated.
- Reduced tire wear, fuel consumption and maintenance cost.
- Also available:
  - Bolt-On axle lift AL-460-II for SAF Modul.

TRUCK & BUS

SPECIFICATIONS & BENEFITS

VDL Weweler offers several designs of auxiliary pusher and tag axle solutions, steered and non-steered. The solutions as mentioned below are completely pre-assembled with axle, suspension, wheelends and brakes. Optional electronic steering system or axle lift system are also available.

- All VDL Weweler Truck & Bus auxiliary axles benefit from Ø127mm axle beams.
- The (bend) axle beams are gradually formed, torsional stiff and combined with axle specific VDL Weweler two bag air suspension solutions with flexible spring steel trailing arms.
- There is no requirement for anti-roll bars or panhard rods. This results in a light weight solution with only two pivot points which also contributes to simplified axle alignment.
- The position and depth of the axle drop is optimized for each application.
- The axle track and load capacity are application and customer specific.
- Wheelends and brakes can be customer specific and standard OEM components can be integrated.
- VDL Weweler wheelend components are available as an option for 17.5”, 19.5” and 22.5”.
- Axle load design capacities range from 4 to 10 tonnes.
- Steering systems are ETS (electronically controlled and hydraulically powered) meaning no mechanical linkages are required.
- VDL Weweler auxiliary axles are also compatible with certain designs of electronic drive motors or are able to create clearance for these types of drive lines.



AVAILABLE CONFIGURATIONS

- SK Range - 3 Bend axle beam - Non steered
  The SK axle is used as pusher (mid) axle in front of the drive axle. Axle track and drop are customer specific. This SK axle shape gives clearance to the prop shaft as well as the chassis rails. The range will accept most offsets and angles of the driveline.

- SKS Range - 3 Bend axle beam – Steered
  The SKS axle is used as a mid-steer pusher located in front of the driven axle.The design can also be applied as a tag axle when the engine is located at the rear of a chassis. Both wide and narrow track options are available as a complete solution.

- ST Range - 4 Bend axle beam - Non steered
  The ST axle shape gives possibilities of extra clearance for the chassis rails in case of a lifting tag axle in combination with a mechanically suspended drive axle. This range can also be used as a 17.5" pusher axle.

- STS Range - 4 Bend axle beam – Steered
  The STS axle shape allows for extra clearance from the top of the axle beam to the underside of the chassis rails in case of a lifting tag axle. The design can also be used as a second steer axle to give clearance to gearbox or engine.

- SRS Range - Straight axle beam – Steered
  The swivel of the VDL Weweler wheelends on the SRS axle benefits from an offset of 69mm in relation to the axle beam center line. Because of this feature a straight axle beam can be used in case of tag axle applications.

TRAILING ARMS

FEATURES & BENEFITS

- Over 40 years of experience in designing, producing and testing of parabolic trailing arms for trailers.
- A highly automated production facility, in which robotics play a vital role, ensure high efficiency, flexibility and very reliable products.
- A major strong point is VDL Weweler's ability to be a design partner and to create tailor made trailing arms that meet the customer's specific needs perfectly.
- VDL Weweler parabolic trailing arms vary in length, thickness and width and depending on the application can take axle loads of 3t. up to 13t.

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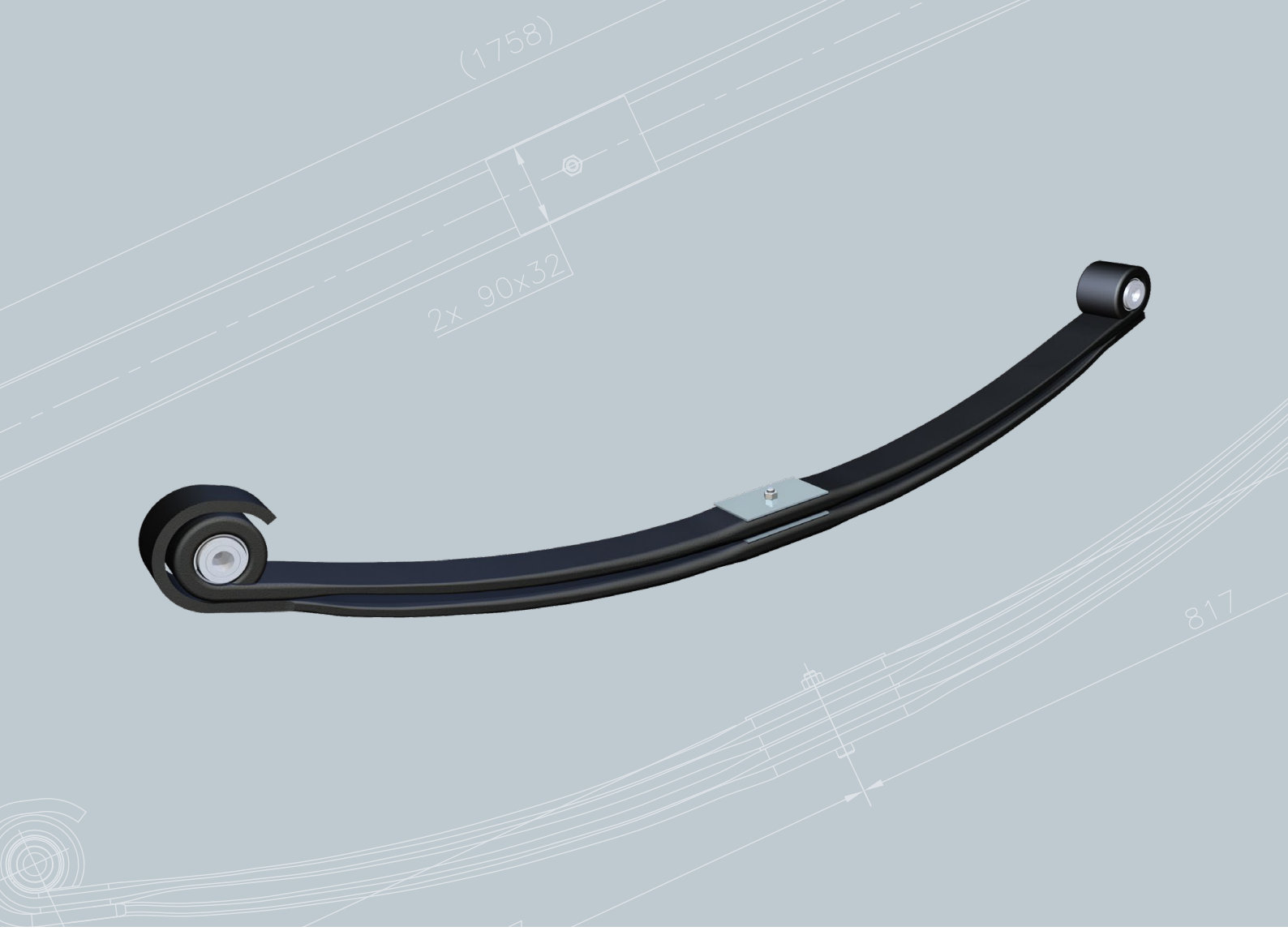

PARABOLIC SPRINGS

SPECIFICATIONS & BENEFITS

- Over 90 years of experience in designing, producing and testing of parabolic springs for trucks and busses.
- Strong partnership with VDL Weweler-Colaert when it comes to leaf- and parabolic springs manufacturing.
- Manufactured in a highly automated production facility, in which robotics play a vital role, ensure high efficiency, flexibility and very reliable products.
- A major strong point is VDL Weweler's ability to be a design partner and to create tailor made parabolic springs that meet the customer's specific needs perfectly.

ROLLING ROAD TEST FACILITY

FEATURES & BENEFITS

In 2015, the VDL Groep and their collaborating partners completed the Rolling Road and dynamometer test facility. This truly unique facility located at the Automotive Campus in the south of Holland houses one of the biggest test benches in Europe. Designed and developed by VDL Weweler, the objective is to offer an indoor alternative for outdoor endurance testing and to assess the axle and suspension behaviour of heavy vehicles such as trucks, buses, trailers when they are exposed to (severe) vibrations. Together with the Eindhoven University of Technology and the HAN University of Applied Science the Rolling Road was benchmarked and calibrated to simulate an outdoor test track. Decennia of outdoor testing on the DAF and MIRA test track, provided VDL Weweler with the necessary reference-knowledge to create a starting point from where (future) test results from the Rolling Road will provide additional (specific) know-how.

CURRENT TEST POSSIBILITIES FOR (PARTS OF) TRUCKS, BUSES AND TRAILERS.

- Fatigue testing
- Endurance testing
- Behavioural testing
- Vibration testing
- Performance testing (Without cleats)
- Brake testing (Without cleats)
- Calibrating of simulation models

ADVANTAGES

- Unique optimisation & improvement tool.
- Testing under controlled circumstances.
- Cost saving. No need for complete vehicle combination of truck and trailer.)
- No need for special outdoor (cobble-stoned) test track.
- Time saving. (Improved development time equals to lower development cost.)

- The electrically driven test bench results in a smaller footprint on the environment.
- Brakes and drivetrain can be tested simultaneously when the Rolling Road is used as a dynamometer.
- More realistic axle behavior. (In comparison to a hydro pulse test bench.)

As of 2019 VDL Weweler has opened the doors of this facility to the outside world. The Rolling Road is now also available for you as a valuable addition to your R&D process. If you are interested and want to find out more about the Rolling Road and its possibilities for you, please do not hesitate to contact us.


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