

KÖGEL
NOVUM: LIGHT & STRONG

KÖGEL LOAD-SECURING



PASSIONEERING FOR OUR CUSTOMERS

What’s more exciting than the transport sector? The future of the transport sector! We passionately believe that to stay profitable, you have to stay ahead of the game – and our experience has shown that to be true. Competitive pressure on our customers is building. That's why we want to lighten the load – along with the cargo that they transport with reliable Kögel trailers every day. A close, cooperative partnership with our customers is the starting point of all our innovations. Only then can we quickly identify their changing needs and requirements – and get the right solutions on the road. That’s where engineering comes in, which we have loyally practised for over 80 years. Our commitment to uncompromising quality. And, of course, our dedicated professional team.

From practice to theory and from plan to practice: Passioneering never stops.

All our customers’ challenges flow directly into the development process. We subject our innovations to intensive testing far beyond the usual requirements. Extreme driving manoeuvres, heavy loads, poor road surfaces, rain, ice, snow and scorching sun – our trailers have to withstand it all without a hitch. Only then are we satisfied – for now, at least. Because only then can we be sure that our most discerning customers are satisfied too. But the end of every development process is only the beginning of something new. After all, everything we do is with the future of the transport sector in mind.

Find out more about passioneering and our exceptional quality standards at www.koegel.com

LOAD-SECURING BASICS AND GUIDELINES.....	4	LOAD-SECURING WITH SLIDING TARPAULIN BODIES.....	6	LOAD-SECURING FOR PARTIAL LOADS.....	7
LOAD-SECURING FOR THE BEVERAGE INDUSTRY	12	KÖGEL COILFIX	14	LOAD-SECURING FOR AUTOMOTIVE TRANSPORT	16
KÖGEL TESTS	21	YOUR PLUS – QUALITY	22	YOUR PLUS – CUSTOMISATION	23



LASHING OPTIONS.....	8	KÖGEL FASTFIX TEXTILE LATTICE...	9	KÖGEL STRONG & GO BODY.....	10
LOAD-SECURING FOR PAPER TRANSPORT	16	OTHER SOLUTIONS	18	LOAD-SECURING FOR BOX TRAILERS.....	20

BASICS AND GUIDELINES

1. VDI 2700

VDI 2700 describes which inertial forces affect the load. In order to secure the load, these forces must be set against the load-securing measures. With stable cargo, through the friction of the load or the loading equipment (e.g. pallets) alone, one part of the inertial force is absorbed in the floor. Nevertheless, a large proportion of surplus inertial force remains. These forces must be neutralised with load-securing equipment (see Figure 1).

2. Certified body stability according to EN 12642

In order that the load is secured without any additional load-securing measures on the loading platform, body stability levels must be increased. Load-securing on vehicles built to EN 12642 XL is very easy: it's all in the body. If the trailer is loaded form-locked, the body's structure is used for load-securing purposes. The body absorbs the forces arising from the driving dynamics. This means no additional load-securing elements are required for form-locked loading (see Figure 3).

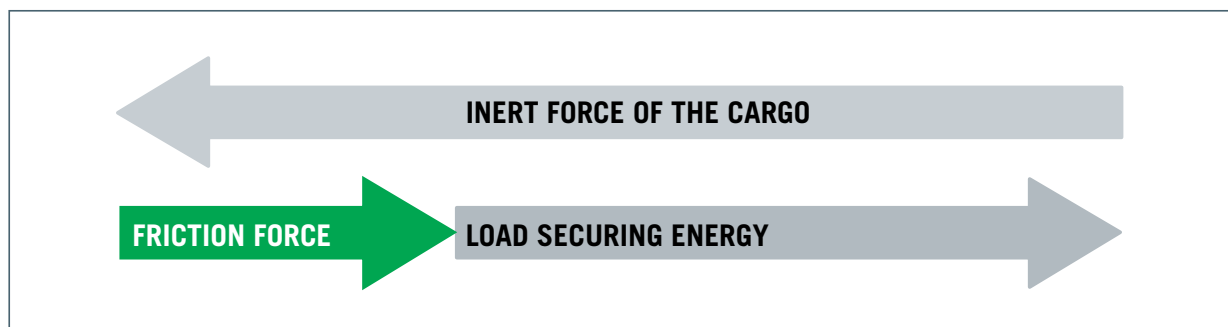


Figure 1: Corresponds to the maximum inertial forces arising from the driving dynamics. If the cargo is in a stable position, the inertial force then counteracts the frictional force between the load and vehicle floor.

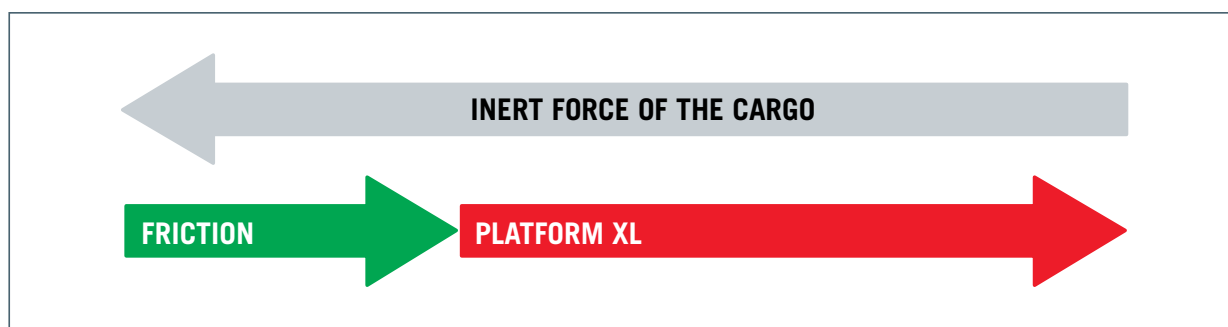


Figure 2: With form-locked loading, no additional load-securing measures are required.

LOAD-SECURING

With the following elements, the body fulfils the requirements in accordance with EN 12642 XL

WITH SLIDING TARPAULIN BODIES

..... front wall



Standard aluminium front wall with additional stabilising profiles.

..... roof



With the integrated roof cover reinforcing belts hanging in the inside are no longer a problem.

..... side wall



- Strengthened side tarpaulin made of high-strength, closely woven material with reinforcement; reinforced stakes
- Reinforced sliding sideposts
- Lattices are not required for appropriate cargo

..... rear wall doors



The body is additionally strengthened with the optimum arrangement of the integrated power brace locks and hinges.

THE FORCES OF DRIVING DYNAMICS



LOAD-SECURING FOR PARTIAL LOADS

The Kögel load-securing package for partial loads builds on the load-securing measures via the body in accordance with EN 12642 XL. The load can be fixed in position by form-locked securing using modular components at any point in the vehicle – either in the direction of travel or crosswise.

STEEL COMBI ANCHOR RAILS AND LOAD-SECURING BEAMS

..... as side
load-securing rail



The steel combi anchor rail with integrated adjustment steps form the basis for the partial load concept.

..... corner post with
mounting slots



These are used for installing locking beams or lashing eyelets for load-securing for partial loads at the rear of the vehicle if the distance between the load and rear portal is more than 15 cm.

..... locking beam



This can be mounted to the lateral load-securing rails, lateral pallet limiting rail or the Vario locking beam.

- Telescopic from 1,650 to 2,500 mm
- Suitable for securing loads vertically and horizontally

.....vario locking beam



The locking beam with variable fixing position grid is used to fix additional locking elements (additional locking beams or belts).

INSERTABLE STAKES WITH LOCK



The vehicle's frame provides the possibility of inserting square pipe stakes into the vehicle floor at different positions in longitudinal and lateral directions and can also be used for securing partial loads or at the front wall.

Insertable stakes with spring bolt locking that lock automatically are optionally available. They are extremely useful particularly for transport without body.

FRICTION-LOCKED LOAD-SECURING

LASHING OPTIONS

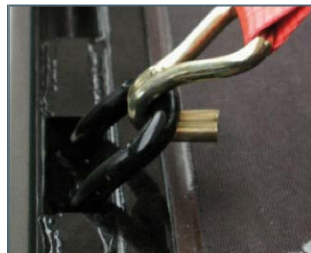
For the transportation of some goods, it is not possible to use the form-locking method to secure the load. Kögel also offers the ideal solutions for different industries.

..... lashing rings (standard)



- Fastening force up to 2 tonnes
- Visible from the inside in accordance with EN 12640

....lashing rings (heavy-duty)



- Fastening force up to 4 tonnes
- Optionally available in addition to standard lashing rings

....lashing eyelet on front wall



According to EN 12640 it is used to wrap around and secure goods positioned directly against the front wall.

..... non-slip coating



Increased sliding friction to reduce the number of fixing points.

..... VarioFix perforated steel external frame



- Cargo can be safely secured at any place on the vehicle with short distances between slots
- Lashing angle and lashing capacity in accordance with EN 12640
- The perfect lashing angle with optimised external frame design prevents wear on the tension straps

.....tension strap



The ergonomically designed long lever ratchets with pre-tensioning force offer optimum lashing.

.....chassis option: cargo control winch



For tie-down lashing of the load, tension straps or wire rope can be used which are tensioned by means of a cargo control winch.



THE KÖGEL FASTFIX TEXTILE LATTICE



The Kögel FastFix textile lattice is made of flexible belt material, which means it fits into any toolbox. It attaches to and detaches from the middle or corner posts for quick, easy, safe load-securing. Special bolted holders are attached to the stakes for this, and can be attached at other heights if necessary. If attaching the lattice between two stakes, simply tension it with the toggle fastener to obtain the required degree of restraint.

OPTIONAL EQUIPMENT FOR **NOVUM** PLATFORM TRAILERS

KÖGEL STRONG & GO BODY



The new Kögel Strong & Go body consists of the innovative body of the NOVUM generation combined with a Kögel integral roof tarpaulin with stiffening belts and a side tarpaulin, which complies with Daimler Guideline 9.5.

- ✓ **Faster, easier** and **safer** handling when loading and unloading
- ✓ **Improved safety** for both driver and load
- ✓ Optional equipment for **all NOVUM** platform trailers

Thanks to this solution, lattices are no longer required to comply with Daimler Guideline 9.5 for the transport of pallet cages and strapped loads. For certified beverage transport, only one row of lattices at the height of the first beverage crate as prescribed by VDI 2700 Sheet 12 is required for single-level and double-level beverage crates on standard pallets with the Strong & Go body, instead of three or four rows with the standard NOVUM generation body.

This means that Kögel not only complies with the requirements of the sector for shorter loading times, but that it also grants drivers faster, simpler and safer handling during loading and unloading. In addition, safety is improved for the driver and the load. Falling slats and damage to the goods from the slats are now a thing of the past.



LOAD-SECURING FOR THE

BEVERAGE INDUSTRY



Kögel FastFix, see page 9

In the beverage industry, cargo is transported first and foremost using standardised boxes placed on Euro pallets. For additional load-securing, on the one hand, in the floor area or partial loading and narrow cargo on the other, the following Kögel load-securing elements are used:

..... standard body



- Standard body according to EN 12642 XL
- The body includes patented roof construction, optimised front wall, reinforced side tarpaulins, high floor load-bearing capacity and rear doors with integrated power brace locks

.....aluminium lattices



For a cargo width of at least 2,400 mm.

TWIN-LEVEL TRANSPORTATION OF EMPTIES AND BARREL GOODS



Twin-level transport of empties is possible too.



The standard Kögel trailer transports barrel goods safely.

SPECIAL SOLUTIONS

For crates positioned on spring pallets (cargo width between 2,200 and 2,400 mm), other load-securing solutions have been developed.



- At least three rows of aluminium reversible slats are used for lateral load-securing
- The reversible slats can be inserted in the standard stake pockets



Securing of partial loads with reversible slats: The slats can be combined with the lateral load-securing rails.

LOAD-SECURING FOR STEEL TRANSPORT

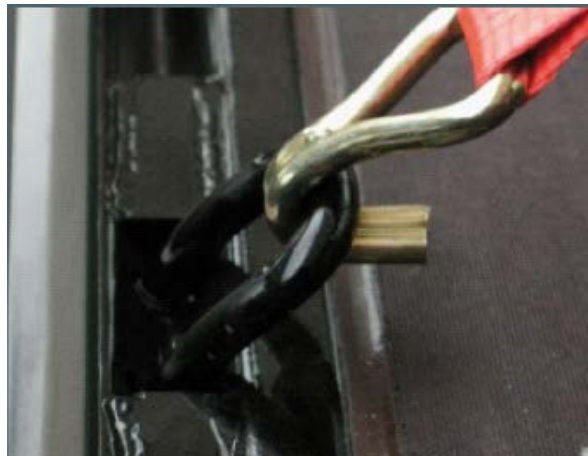
KÖGEL COILFIX



The COILFIX load-securing system is used for form-locked loading of coils and unstable split strips. The flat arrangement of the tension beam as well as the insertable stakes (according to the SIDMAR guideline) avoids any damage to the coils and split strips.



Coil trough: For guaranteed safe loading, the vehicle is equipped with a coil trough according to VDI 2700 which can accommodate steel coils and split strips with diameters ranging from 900 to 2,100 mm.



4-tonne heavy-duty lashing rings: These allow secure bracing of heavy coils and steel bands in the area around the coil trough and are compatible with standard split strip securing systems.



KÖGEL

KÖGEL

COILFIX

LOAD-SECURING FOR

AUTOMOTIVE TRANSPORT

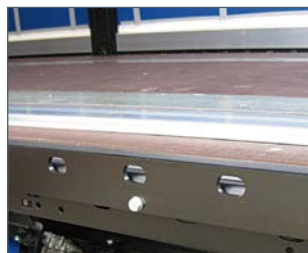
In most cases, automotive transport involves pallet cages and small-sized carriers, but sometimes special transport frames and even large frame components. As ever, the industry standard for this type of transport is Daimler Guideline 9.5.

..... standard body



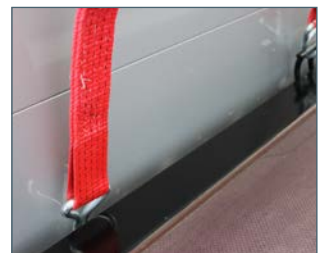
- Standard reinforced body according to EN 12642 XL
- The body includes patented roof construction, optimised front wall, reinforced side tarpaulins, high floor load-bearing capacity and rear doors with integrated power brace locks

.....pallet limiting strip



The pallet limiting strip prevents movement of the sharp-edged plate-type bases on the cage boxes to the tarpaulin and resulting damage.

..... VarioFix perforated steel external frame



- The standard perforated steel external frame meets the requirements of Daimler load-securing 9.5
- Many lashing options as per EN 12640
- Can be used even in combination with the screwed pallet limiting rail for friction-locked load-securing

LOAD-SECURING FOR

PAPER TRANSPORT

Paper transport is one of the biggest challenges in the business. Paper rolls are not only heavy but also prone to damage from moisture and mechanical loads. Kögel NOVUM generation trailers feature excellent body sealing, plus the correct load-securing thanks to special solutions for paper transport.

.....floor



- Non-slip floor with high load-bearing capacity for secure loading of large, heavy paper rolls
- Recessed loading tracks made of aluminium or steel for form-locked anchoring of the variable load-securing wedges
- Forklift axle load:
9 tonnes for paper model

.....adapter plate



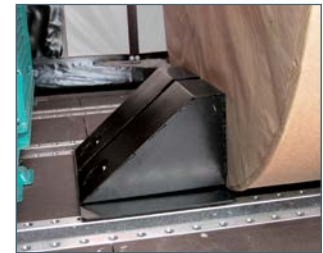
The plate can be flexibly mounted anywhere on the complete floor area and also allows form-locked load-securing at positions in the vehicle which are not covered by the loading track arrangement.

.....patented variable load-securing wedges



With the practical and easy-to-fit wedges, loads such as paper rolls can be securely transported in a form-locked fashion in all loading positions according to VDI 2700.

- Load-securing force of 2,500 daN per wedge
- Vertical rolls: wedge as end stop to the front



- Horizontal rolls crosswise to the direction of driving: wedge with inclined surface area towards the roll, secured to the front and rear
- Horizontal rolls longitudinal to the direction of driving: wedge with inclined surface area towards the roll, secured to the side
- Horizontal rolls longitudinal to the direction of driving: wedge with inclined surface area to the front side of the roll, secured to the front

..... VarioFix perforated steel external frame



For securing unstable rolls at any position on the external frame.

..... load-securing (storage) boxes



The load-securing box can be used as storage for wedges and load-securing gear.

..... certified front wall with Joloda container



- With integrated transport container for 24 load-securing wedges and 2 paper rollers
- Theft-proof

LOAD-SECURING

OTHER SOLUTIONS

WHITE GOODS

Household goods can be transported safely in Kögel Mega vehicles: due to the lifting roof and the internal height of 3 metres, the goods are extremely easy to load and transport.

..... centre stake bearing



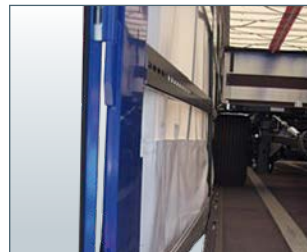
To take full advantage of the full load width, sliding sideposts are parked at another part of the external frame and additional stake bearings are required.

.....certified body without lattices



For the transportation of household appliances, a loading width of up to 2,540 mm is required. In order that the body has this width, it must comply with the requirements of EN 12642 XL without lattices and the welded pallet limiter. The body of Kögel sliding tarpaulin vehicles fulfils these conditions.

.....laterally-adjustable rear portal



In order to allow loading from the rear, the corner posts can be mechanically adjusted in a lateral direction.



TYRE TRANSPORT

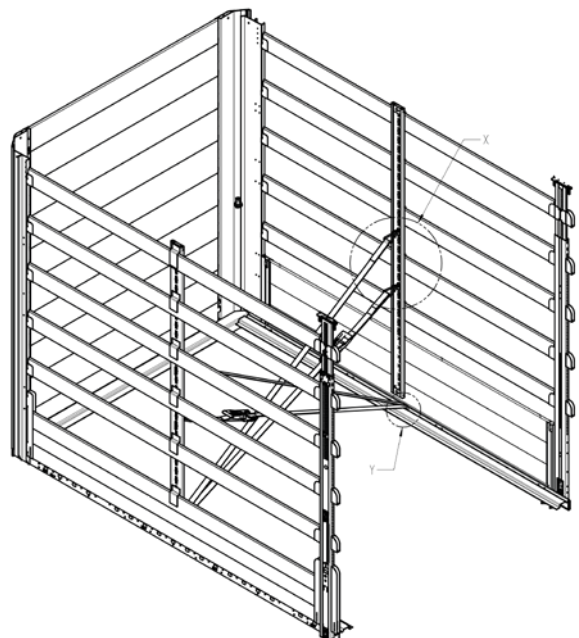
.....secure solution for tyres



Kögel vehicles conform to the EN 12642 XL certification for load-securing. The vehicle body with additional equipment makes tyre transport possible,



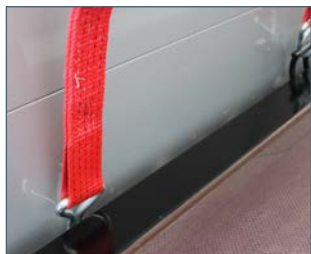
stacked, dressed and graded with a technical payload of up to 18,000 kg.



BOARDS AND PALLETED GOODS

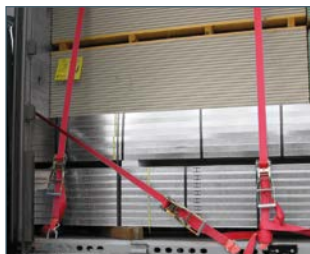
Boards and palleted goods such as cardboard stacks, bricks, bags or particle board can be secured with Kögel load-securing elements.

..... VarioFix perforated steel external frame



- Cargo can be safely secured at any place on the vehicle with short distances between slots
- Lashing angle and lashing capacity in accordance with EN 12640
- The perfect lashing angle with the optimised outer frame design prevents wear of the tension straps

.....friction-locked load-securing



Versatile Kögel load-securing elements such as tension straps with long-lever ratchets, and standard or 4-tonne heavy-duty lashing rings can secure the load at the VarioFix perforated steel external frame. Other auxiliary accessories recommended by manufacturers such as edge protectors are compatible with Kögel load-securing elements.

.....screwed stake bearings



In order that the full loading width can be also be flexibly used with boards and palleted goods, additional stake bearings on the external frame must also be available for this transport solution.

OCTABIN

..... locking beam

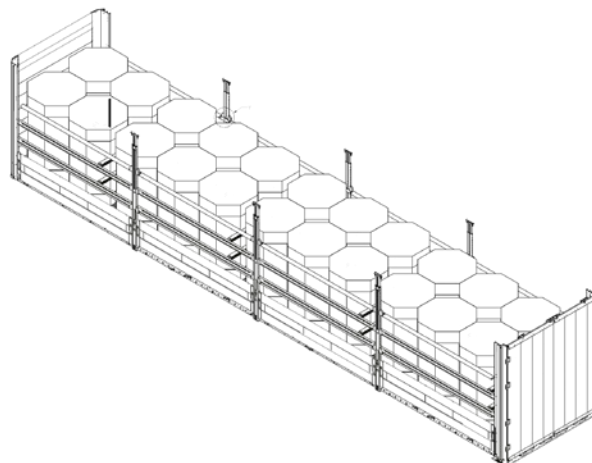


Partial loads are secured to the rear with locking beams combined with steel combi anchor rails.

..... octabin reversible slats



Loads are secured from the side using a minimum of three specially developed Octabin reversible slats.



LOAD-SECURING FOR

BOX TRAILERS

The loads on box trailers are secured by the body – at Kögel this also applies for the range of dry and refrigerated boxes. All vehicle types are statically and dynamically tested according to EN 12642 XL. Double-deck loading has also been certified in accordance with the forces defined in the standard. With the double-deck loading, the side walls are subjected to more load which is accordingly reflected in the test load which has been increased by 3 tonnes. With sliding tarpaulin bodies the body fulfils the requirements in accordance with EN 12642 XL with the following elements:

reinforced body



- The whole body absorbs all forces defined according to EN 12642 XL
- The front wall and the side wall meet the most rigid test requirements

stage rails



- Rail system completely integrated in the side wall
- Small adjustment raster for adapting to different pallet heights
- Two-level loading possible

anchor rail



- Recessed anchor rail for optimum load-securing over the entire load length, whether the load is secured from the front and/or rear with loading bars
- Optimum for load-securing for partial loads with general cargo
- It is used for securing heavy-duty locking beams (up to 2.7 tonnes)

Kögel Cool



- Full-surface aluminium covering

Kögel Box



- 12640 for friction-locked load-securing
- Allows other industrial goods etc. to be secured



Screen-printed surface: a non-slip surface with high friction coefficient ensures good adhesion:

PUT TO THE ACID TEST BY KÖGEL

KÖGEL TESTS



The vehicles are subjected to internal tests covering intensive handling and bad weather testing, in rain, on snow and ice and under a blazing sun.

This is because only products that pass these strenuous tests will be capable of withstanding all stresses and strains of day-to-day use for many more years to come. Kögel insists on high-quality materials, outstanding finish and quality-oriented processes throughout the production chain.

YOUR PLUS – QUALITY ✓



Safety

Complex components guarantee a high degree of active and passive safety: specially developed panelling elements on the frame for improved aerodynamics, underride guard compliant with the new EC Directive, standard load-securing as per EN 12642 XL, RSS for greater driving stability and safety-optimised height adjustment valve (lifting roof with BG support). Kögel trailers also have outstanding trailing characteristics.



Service

Visit www.koegel.com to take advantage of our comprehensive services at any time and from anywhere. Repair and warranty services can be managed conveniently online. Our Kögel Hotline Assistance is available around the clock in many European languages.



Electronic system and lighting

EBS is fitted as standard. Full LED lighting is available to provide a long life and minimise power consumption.



Extensive tests

All trailer components are tested to the highest standards in static and dynamic tests.



Underride guard

The reinforced side underride guard increases safety levels for all road users. It can be installed and replaced separately.



Environmental protection and sustainability

Kögel trailers make an active contribution to reducing fuel consumption and environmental pollution: The aerodynamics are optimised, noise emissions are reduced, and strict guidelines are observed during production to protect the environment and ensure that the materials used can be recycled.

Light mounting

The light mounting is made of impact-resistant plastic and guarantees 100% corrosion protection. It can be installed and replaced separately.



Corrosion protection

Nano-ceramic plus KTL coating, the most modern and highest quality industrial surface treatment on the market provides the same outstanding properties as the coating previously applied using zinc phosphate, but it is more environmentally friendly and provides a better energy balance. The durable, clean surface coating can be repainted at any time.



Load-securing and body stability

Kögel fulfils all stability requirements for reinforced bodies according to EN 12642 XL. Securing the load on trailers with this certificate is very simple: with a form-locked load secured at the rear, the body absorbs all forces generated arising from driving dynamics according to VDI 2700.



Kögel CLIMATEX –

the Kögel cool air distribution system



Kögel PurFerro –

the Kögel sandwich technology for box and refrigerated trailers



Kögel Trailer Axle –

the Kögel trailer axle



Kögel Telematics –

Kögel Trailer Telematics module + Kögel Telematics web portal

YOUR PLUS – CUSTOMISATION ✓

Kögel offers a host of different special solutions. Our wide range of variants for transport with special requirements allows us to offer customer-oriented equipment.

Kögel Telematics – the benefits at a glance

- ✓ Reduced operating costs
- ✓ Increased efficiency
- ✓ Transparency and optimisation of logistics processes
- ✓ Transparency of vehicle status and availability
- ✓ Checking and monitoring of loads, e.g. temperature of goods
- ✓ All important trailer data is displayed visually on the web-based telematics portal
- ✓ Trailer monitoring to prevent theft with timely alarms and location tracking of the trailer



Kögel Full Service

- ✓ All service work prescribed and recommended by Kögel as per the maintenance checklist, including all required spare parts and operating materials (except fuels)
- ✓ All repairs required due to wear and tear on the condition that the parts were used and deployed appropriately and for the appropriate purpose
- ✓ Accounting control, accounts management and workshop handling
- ✓ Labour costs, material costs, and acceptance fees for statutory inspections:
Roadworthiness test and safety assessment in accordance with §29 Road Traffic Regulations (StVZO) at licensed testing organisations, e.g. TÜV, DEKRA, GTÜ, and annual LASI check of the load-securing certificate in accordance with EN 12642 XL

Kögel load-securing packages

such as XL certificate (with beverages), Daimler load-securing 9.5 and other packages for the transportation of tyres, octabins and waste paper.

Kögel safety packages

such as OptiTyre tyre pressure monitoring, SAF Tire Pilot, RSAB and Telematics.

KÖGEL

Kögel Trailer GmbH | Am Kögel-Werk 1 | 89349 Burtenbach | Germany
Tel +49 8285 88-0 | Fax +49 8285 88-17905 | info@koegel.com
www.koegel.com

Safety note! The trailer may only be used subject to express compliance with all road traffic, employers' liability insurance association and load-securing technology regulations.
No liability can be accepted for errors or omissions. We reserve the right to make technical changes. Printed in Germany. Reprinting not permitted 11/18. Order No.: 100-1106-EN