Transport solutions for

HEAVY HAULAGE

product range
Founded in 1878, DOLL draws on almost 140 years of tradition in vehicle construction and has grown into an international technology leader for vehicles for the heavy haulage, timber transport and airport apron sectors.

With its headquarters in the Black Forest and a second location in Saxony, Germany the company guarantees German-made quality: practice-based training for own employees, continuous enhancement of products by experienced engineers, the use of high-grade components and raw materials, and a willingness to constantly improve processes all serve to maintain a high standard for our services.

The result is innovative vehicle concepts which, along with time-tested manufacturing quality, mean added value for customers – added value not only in terms of safety for vehicle users, but also in terms of security of investment in vehicles, assured thanks to a long service life, a high resale value and lower operating costs.

If a visit to the workshop should ever be necessary, DOLL also offers you the assurance that repairs, maintenance and supply of spare parts are guaranteed at all times thanks to its global network of partner workshops.

40 YEARS OF DOLL, 40 YEARS OF HEAVY HAULAGE – I AM VERY PLEASED TO HAVE BEEN ABLE TO USE MY EXPERIENCE AND PASSION FOR OUR SPECIAL PRODUCTS FOR SO MANY YEARS.

Rolf Gerhardt, Heavy Haulage Product Management

OPTIMUM QUALITY FOR 140 YEARS
HEAVY HAULAGE

MUSCLE YOU CAN RELY ON
SERIES

DOLL has the right vehicles for a variety of complex heavy haulage tasks thanks to innovative technology and time-tested quality.

PLATFORM SEMI-TRAILERS

- **NUMBER OF AXLES**: up to 4
- **GROSS LOAD WEIGHT**: up to 73 t
- **PAYLOAD**: up to 60 t
- **TELESCOPIC**: extendible in 3 segments
- **STEERING**: rigid, passive, hydraulic

**THE SOLID PERFORMER**

The platform series is especially suitable for transporting long, heavy and bulky goods. Thanks to its trouble-free, telescopic length extensions, the vehicle can easily be adapted to the length of the cargo and can be universally used in the vehicle fleet.

SEMI LOW LOADERS

- **NUMBER OF AXLES**: up to 10
- **GROSS LOAD WEIGHT**: up to 155 t
- **PAYLOAD**: up to 120 t
- **TELESCOPIC**: extendible in 3 segments
- **STEERING**: rigid, passive, hydraulic
- **AXLE SYSTEM**: conventional or DOLL panther
- **DOLLY VARIANTS**: variety

**THE VERSATILE CONVEYOR**

This series is very versatile and flexible thanks to extensive variations and options. Due to its lower loading height, a vehicle can be configured for almost everything that is high, heavy or wide. An ideal range for construction companies and their transport logistics.

LOW LOADERS

- **NUMBER OF AXLES**: up to 6
- **GROSS LOAD WEIGHT**: up to 97 t
- **PAYLOAD**: up to 70 t
- **TELESCOPIC**: extendible in 2 segments
- **STEERING**: rigid, hydraulic
- **AXLE SYSTEM**: conventional or DOLL panther
- **DOLLY VARIANTS**: diverse types

**THE ALL-ROUNDER**

The higher and heavier the load, the greater the demands are which are placed on the transport vehicle. DOLL has the right solutions with its low bed series. A lower loading height, a large stroke and unusual agility even with high payloads can be achieved, especially when combined with the DOLL panther chassis.

SELF-STEERING TRAILER

- **NUMBER OF AXLES**: 3 – 8
- **GROSS LOAD WEIGHT**: up to 114 t
- **PAYLOAD**: up to 95 t
- **LONG TRANSPORT FREIGHT**: up to 80 m
- **STEERING**: hydraulic

**THE ACHIEVER**

The self-steering trailer is an unbeatably economical vehicle for transporting long, sizable and self-supporting cargo - and therefore an indispensable complement for transporting of unusually products, such as wind blades and concrete elements.

OVERVIEW OF DIFFERENT SERIES
The platform series is especially suitable for transporting long and heavy goods. Thanks to its smooth-operating with telescopic extensions, the vehicle can easily be adapted to the length of the cargo and is thus flexible in its use. Robust and resilient, this vehicle type delivers exceptional manoeuvrability when fitted with a DOLL steering system.

### BASIC FEATURES
- Universally applicable vehicle for long, bulky and heavy loads
- Servo-slide system made for easy telescopic extension
- Payload-optimised design
- Big steering angle
- Low load height
- High manoeuvrability with hydraulic turntable steering

### INDUSTRIES
- Prefabricated components
- Tube and steel structure haulage
- Bridge elements
- Roof structures
- Wind turbine elements
- Crane systems
- Mining
GOOSENECK
TECHNICAL DETAILS

- Basic version: Height 210 mm
  Fifth-wheel load 18/23 t
- VARIO-Step: Height 210 mm
  Fifth-wheel load 23 t
  Cranked gooseneck
- Megatrailer: Height 135 mm, hydraulic steering
  Height 80 mm, passive steering
  Fifth-wheel load 12/18 t
  Low loader tyres
- Overhang variable according to truck slewing radius

LOAD PLATFORM
TECHNICAL DETAILS

- Various load and weight versions
- Up to triple telescopic extension
- Platform length variable according to haulage job
- Wide range of load-securing options and add-on parts

RUNNING GEAR
TECHNICAL DETAILS

- 9, 10 or 12 t axles
- Steering, rigid, passive or with hydraulic turntable steering
- Suspension, air or hydraulic
- Tyres depending on the selected steering system and frame height
FEATURE VARIATIONS

FRONT WALL CONCEPT
- Front boards at different heights
- Pluggable or screwed into position
- Storage of stakes

GOOSENECK
- Integrated steering unit
- Different fifth-wheel loads
- Different overhangs
- In Mega or step version

BODY
- Different drop-side superstructures
  Short or all the way round and at different heights

ATTACHMENT PARTS UNDER THE LOAD BED
- Underride guard
- Storage compartments
- Storage box design tailored to industry concerned

LOAD BED
- Different load and weight variants

SECURING THE LOAD
- Anchor points and rings
- Stanchion pockets and pocket rails
- Spindle stakes and diagonal struts
- Container locks
- Load securing package tailored to industry concerned

FLOORING
- Hardwood or softwood flooring

CHASSIS
- 1–4 axles, rigid, trailing steered or hydraulically steered
- Steering radio operated
- Tracking aid
- Different tyres
THE VERSATILE

The semi series offers a whole range of design options that cater for an extensive variety of purposes, making it versatile and highly flexible.

BASIC FEATURES

- Especially suitable for long, wide or high loads
- 2–10 axles with various axle and steering systems
- Flexibility with 1 to 3-axle dolly (steered or self-steering, lifting)
- Telescopic extension up to a length of 50 metres
- Payload-optimised design
- Low loading height
- Various low loader versions
- Comprehensive range of ramps

INDUSTRIES

- Construction machinery (building and civil engineering)
- Construction elements
- Forestry and agricultural machinery
- Conveyor and crusher installations
- Industrial and wind turbine installations
- Mining
- Crane systems
- Rail vehicles
SEMI LOW LOADERS

MODEL OVERVIEW

GOOSENECK
TECHNICAL DETAILS

- Height 210 mm, fifth-wheel load 23 to 35 t
- Straight or slanted, fixed neck with central frame
- External main frame
- Hydraulically hinged or with compensating neck with 6 axles or more
- Height 135 mm, fifth-wheel load 18 t
- Fixed neck with central frame

LOAD PLATFORM
TECHNICAL DETAILS

- Platform length variable according to haulage job
- Low loader bed with recesses for wheels or excavator tracks
- Low design as a variant
- Wide range of load-securing options and add-on parts
- Telescopic extension possible in individual stages
- Pin/plate coupling for mounting extension supports
- Dolly variants: 1 to 3-axle dolly
  Permanently installed, hinged to the gooseneck, can be fitted to increase the number of axles, plus additional axle (between dolly and rear axle running gear)

RUNNING GEAR
TECHNICAL DETAILS

- 1 – 10 axles, rigid, passive or hydraulic steering
- Axle systems VARIO with torsion beam axle or with DOLL panther system
- High manoeuvrability with knuckle steering
- "Twin tyres, 17.5"
**FEATURE VARIATIONS**

**GOOSENECK**
- Integrated steering unit
- Integrated CAN bus control
- Different fifth-wheel loads
- Different overhangs

**SUPERSTRUCTURES**
- Different front and drop-side superstructures
- Transportation options

**SECURING LOADS**
- Lashing points and rings
- Stakes and pocket rails
- Support frames
- Container locks
- Load securing packages tailored to industry concerned

**ATTACHMENT PARTS**
- Open racks
- Storage for safety devices
- Stowing concept tailored to industry concerned

**LOW BED**
- Liftable low bed
- Various loading surface widening
- Lowered low bed
- Wheel recesses with different covers
- Intermediate tables
- Inclination for wheel loaders

**CHASSIS**
- 1–10 axles, dolly variants
- DOLL panther or conventional VARIO chassis
- Rigid, passive or hydraulic steering system
- Air or hydraulic suspension
- Tracking aid

**FLOORING**
- Flooring type is tailored to customer requirements and can be made from:
  - Different types of wood
  - Rubber coating
  - Steel plate with sand cover

**RAMP OPTIONS**
- Single and double ramps
- Hydraulic ramps
- Hydraulic displacement
- Different ramp coverings (wood, rubber, climbing bar, grid covering in combination)
- Spring lifting ramp

**DOLLY CONCEPT**
- 1–3-axle dollies
- Dolly permanently linked to gooseneck
- Dolly flexible in its installation
- Additional mountable axle

**FRONT BOARD**
- At different heights
- Front board as tool box

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- Liftable low bed
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**FRONT BOARD**
- At different heights
- Front board as tool box
The low bed series is used for transporting heavy and high goods, when every centimetre counts and if the payload is crucial. The advantages of the DOLL panther are conclusive here. It has a low weight, a lower loading height, a large stroke and therefore has a very universal and flexible usage in any fleet.

**BASIC FEATURES**
- Flexible in use for tall, heavy items with point loads
- High variability in the layout of the load bed
- Flexibility with 1 to 2-axle dollies (steered, lifting)
- Payload-optimised design
- Telescopic extension up to a length of 55 metres
- Big steering angle
- Low loading height, large lift
- High manoeuvrability with hydraulic knuckle steering

**INDUSTRIES**
- Heavy construction machinery and building elements
- Heavy agricultural and forestry machinery
- Mining
- Wind turbine elements
- Heavy industrial and plant components
- Conveyor and crusher installations
- Containers
- Boat haulage
LOW LOADERS

MODEL OVERVIEW

GOOSENECK
TECHNICAL DETAILS
- Height 210/490 mm
- Fifth-wheel load up to 35 t
- Fixed gooseneck in central box or Segmenti design
- Hinged or compensating and detachable gooseneck

LOAD PLATFORM
TECHNICAL DETAILS
- Low bed with central box frame
- Lowered running surfaces
- Flat bed
- Vessel bed
- Tracked excavator bed
- Dolly variants: 1 to 2-axle dolly steered or passive self-steering, permanently installed, hinged to the gooseneck, can be fitted to increase the number of axles, plus additional axle (between dolly and rear axle running gear)

RUNNING GEAR
TECHNICAL DETAILS
- 1–6 axles, rigid or hydraulic steering
- DOLL panther or conventional VARIO running gear

GOOSENECK

LOAD PLATFORM

RUNNING GEAR
FEATURE VARIATIONS

**SUPERSTRUCTURES**
- Different front and drop-side superstructures possible

**GOOSENECK**
- Integrated steering unit
- Integrated CAN bus system
- Different fifth-wheel loads
- Different overhangs

**DOLLY CONCEPT**
- 1–2-axle dollies
- Dolly permanently linked to gooseneck
- Dolly flexible in its installation
- Additional mountable axle

**FLOORING**
- Made of hardwood or softwood
- Fixed or loose, flooring sections removable

**LOAD SECURING**
- Lashing points and rings
- Stanchion pockets and pocket rails
- Bolsters and levelling wedge
- Container locks
- Load securing package tailored to industry concerned

**RAMP RANGE**
- Single and double ramps with different bearing capacities
- Hydraulic ramps
- Hydraulic positioning
- Different ramp coverings (wood, rubber, ribbed border, grating; also combinations)
- Spring-lifted ramp

**LOW BED**
- Low bed with central box frame
- Flat bed and excavator bed
- Vessel bridge
- Lowered low bed
- Different outriggers

**LOW LOADER**

**CHASSIS**
- 1–6 axles
- DOLL panther or conventional VARO chassis
- Rigid or hydraulic steering system
- Air or hydraulic suspension
- Tracking aid
- Excavator trough
As a result of their usage in timber transportation, DOLL has been building self-steering trailers for almost 100 years. Since the mid-60s, this expertise has also been applied to heavy haulage, which has gradually become our core business. It is used to transport very long and heavy self-supporting loads.

### EQUIPMENT
- DOLL heavy-duty bolster with 4x spindle adjustment
- Comprehensive options for load securing with concrete bolster other supports, stakes, diagonal struts, a variety of adapters to transport turbine blades and tower sections

### APPLICATION AREAS
- Components
- Precast concrete
- Long material
- Wind turbines – blades and tower components

### SELF-STEERING TRAILER

### THE ACHIEVER

<table>
<thead>
<tr>
<th>Number of axles</th>
<th>3–5 axles – extendable with dolly with 2–3 axles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross load weight</td>
<td>up to 114 t</td>
</tr>
<tr>
<td>Payload</td>
<td>up to 95 t</td>
</tr>
<tr>
<td>Maximum length of the cargo</td>
<td>80 metres</td>
</tr>
<tr>
<td>Stool impact</td>
<td>85 degrees</td>
</tr>
<tr>
<td>Steering</td>
<td>for 3- or 4-axles: direct linkage to 1st axle, adjustable steering angle</td>
</tr>
<tr>
<td></td>
<td>for 5-axles: hydraulic turntable steering, adjustable steering angle; additional steering remotely controlled</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SELF-STEERING TRAILER</th>
<th>SELF-STEERING TRAILER</th>
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<tbody>
<tr>
<td>26</td>
<td>27</td>
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</table>
STEERING IS A MATTER OF TRUST

A steering system on a semi-trailer generally means better cornering, greater manoeuvrability, lower tyre wear and fewer tensile forces acting on the frame. Steering is particularly necessary when vehicles exceed an overall length of 20 metres.

As all the model series from DOLL have the telescoping function and hence significantly exceed this limit, the appropriate steering system is available for every vehicle model.

However, there are quality differences between steering systems. DOLL has employed its own steering systems - refined in development and proven in use – for many years. The DOLL steering system is extraordinarily precise, reacting quickly and very directly to the steering movements in the towing vehicle. This gives drivers a sense of security – they know that they can rely on their DOLL steering system.

RIGID AND PASSIVE SELF-STEERING

In the case of rigid vehicles the towed unit is not actively steered, but drawn by the towing vehicle in any modified direction. Self-steering is the simplest form of steering, in which the frictional forces that act when cornering are transferred to the wheels. These two systems are used when no excessive requirements are placed on the manoeuvrability of the vehicle when in use.

HYDRAULIC TURNTABLE STEERING

With this steering system the turning angle of the towing vehicle is transferred via hydraulic cylinders in the gooseneck (master cylinders) to the cylinders in the running gear (slave cylinders). The turning angle is transferred to the axles by means of the turntable. Manoeuvrability when cornering, at roundabouts or on building sites is excellent with this steering system, as is the handling, especially when reversing.

HYDRAULIC KNUCKLE STEERING

With hydraulic steering the turning angle of the towing vehicle is transferred via hydraulic cylinders in the gooseneck to the cylinders in the running gear. The turning angle is then transferred to the axles by means of the stub axles. The hydraulic steering delivers excellent manoeuvrability and handling. The redundant, dual-circuit hydraulic system and the possibility of manual adjustment ensure safety at all times, including in the most extreme driving situations.
KAPITEL

The millions of kilometres covered confirm the low operating costs
§
Low wear
§
Low maintenance costs
§
Reliability in use
§
High resale value

Stable handling, high centres of gravity are possible even with a low ride height
§
Especially manoeuvrable as a result of good turning angle of up to 55°
§
No tilting as a result of spirit level function
§
Load protection by means of optimised suspension

Universal range of applications: The high payload and the low loading height of the DOLL panther make it flexible in use
§
Equipment options take care of customer-specific configurations

MAXIMUM FLEXIBILITY

MAXIMUM SAFETY

MAXIMUM PROFITABILITY

The millions of kilometres covered confirm the low operating costs
§
Low wear
§
Low maintenance costs
§
Reliability in use
§
High resale value

The all-rounder for heavy haulage, especially resilient, especially stable tracking, especially manoeuvrable and off-road-capable, especially flexible in use, especially durable. With split axle, hydraulic suspension, innovative independent suspension and levelling.

DOLL panther

DOLL panther

DOLL panther

DOLL panther
The characteristic element of DOLL panther independent suspension is the double wishbone suspension. In conjunction with hydraulic suspension and hydraulic knuckle steering it offers optimum handling, vehicle weight and payload, as well as optimum suspension travel and ground clearance.

6 years experience with over 4,000 axle lines delivered. Low maintenance and wear costs for the customer. Not a single claim against the DOLL 5-year warranty.

DOLL panther-AXLE TECHNOLOGY

DOLL engineering and know-how, the use of high-quality raw materials and components, precise production techniques, the experience of the highly skilled DOLL workforce – all this ensures a level of quality that guarantees the lasting durability of the vehicle.

Durable QUALITY

Changes in the camber angle and toe are indicators of tyre wear. The two graphs above show that DOLL panther chassis technology presents only small deviations to these two angles throughout the entire suspension travel. This exhibits optimum suspension behaviour.

Feedback from DOLL customers substantiates our calculations. These calculations show that tyre wear on vehicles with DOLL panther independent wheel suspension lies completely within acceptable levels, even after driving millions of miles, use on a daily basis and often in extreme driving situations.
DOLL is not only a leader in the field of running gear technology and steering systems, but also in the operation of its vehicles by means of electronics. The DOLL tronic system enables the advantages of the DOLL panther running gear technology to be exploited to the fullest extent. With its DOLL tronic system, DOLL is the first in the industry to develop an electronic operating and control system based on radio technology. At the heart of this development lies the decentralised, computer-based CAN bus system. All trailer functions can be easily and safely controlled using various control panels (keypads) on the semi-trailer. The radio remote control unit required for this was developed specifically for this purpose and is integrated into the system. The central control of all the functions is a significant handling advantage and leads to considerable time savings when loading and unloading.

DOLL tronic means: Operation of all trailer functions via radio remote control and/or keypads on the semi-trailer.
For more than 40 years DOLL has been developing steering systems for different vehicles and axle types for use in heavy haulage. This know-how in accurate, efficient and robust steering systems has always been a core competence at DOLL. DOLL expertise in steering systems has developed over decades of experience with other vehicle manufacturers, fulfilling modern-day requirements with easily installed steering systems.

DOLL steering system users benefit from the experience of a renowned vehicle manufacturer and specialist in steering.

**THE KITS CONSIST OF**
- Steering trailer base
- Swivelling bolster or turntable steering
- Control unit with aggregate
- Operating elements
- Optional technical design, calculation and supply of telescopic frames and other vehicle-specific modules

**USER BENEFITS**
- Easily mountable
- Industry solutions
- Support for the vehicle hydraulics and onboard electronics (CAN bus)
- DOLL not only offers decades of experience in developing steering systems, but also the experience of a vehicle manufacturer in fitting, initial operation, maintenance and servicing of such systems
- Time-tested and reliable, DOLL steering systems deliver full customer satisfaction

**ROBUST, EFFICIENT STEERING SYSTEMS**
SERVICE

DOLL Technology provides all vehicles with adequate safety margins in their design. Vehicles are manufactured to a high standard, guaranteeing that they will experience a long service life even when used in tough conditions. As with all vehicles, regular maintenance is required to ensure that the vehicle remains fully functional and safe. Even the best components show wear over time. DOLL Service offers all the services that you require for your vehicles, twenty-four hours a day no matter where you happen to be.

MORE AT:
www.doll.eu

SPARE PARTS LOGISTICS

There are numerous original spare parts for all DOLL vehicles. These are delivered as quickly as possible when needed wherever the vehicle happens to be.

REPAIR AND MAINTENANCE

DOLL experts will handle any repairs with diligence, providing servicing and maintenance tailored to your needs. Vehicles thus retain their maximum value and offer permanent driving pleasure.

AVAILABILITY AND SERVICE NETWORK

The Service line and the free Truck Hotline are available across Europe twenty-four hours a day. There is an extensive partner network and service stations worldwide.

TRAINING

Service partners and dealers need to be highly familiar with DOLL vehicles to ensure that they can offer precisely the right assistance at all times. They thus receive training for the different individual DOLL vehicle types on a regular basis. There are also special training courses for operating and maintaining DOLL vehicles for those interested.

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You can reach us on:
Mon.–Fri. between 8 a.m. and 8 p.m.

Benefit from the advantages of our loyalty card

Rapid assistance from the ADAC network and transfer to a DOLL Service Partner twenty-four hours a day.

LOYALTY CARD

Free hotline – available across Europe 24 hours a day.