Transport solutions for

MILITARY TRANSPORT

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 ground support equipment 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, serving to maintain a high standard for our services.

We completed our first major military project as far back as the 1950s. This was followed by many more national and international orders in the course of which we acquired a profound understanding of military requirements in vehicles and of the special features involved in handling such complex projects. Quality assurance and vehicle documentation in line with military regulations are essential steps in the process. It was therefore only consistent that we were the first and only company in vehicle construction to have ourselves AQAP 2120-certified.

The two areas of specialisation in military vehicles are tank transporters, where DOLL possesses extensive know-how, and vehicle bodies of all kinds. This is where DOLL’s body expertise proves its worth, which only a few other vehicles manufacturer can lay claim to.

We are proud to contribute to the delivery of any major military equipment, whenever, wherever needed, notwithstanding climate and road condition.

Frank Sattler, Head of Public Authorities Business

OPTIMUM QUALITY FOR 140 YEARS

Frank Sattler, Head of Public Authorities Business
RUGGED.
RELIABLE.
PRODUCT LINES

DOLL has specialised on two vehicle types in military transport: tank transporters in various payload classes and vehicle bodies for transporting personnel and all kinds of military equipment.

SEMI LOW-LOADERS

DOLL is one of the leading European manufacturers of heavy transport vehicles with highly innovative products and is specialised in transporting heavy goods, machinery and plant.

The basis for DOLL’s expertise in transporting wheeled and tracked vehicles is provided by heavy loads transported over millions of kilometres and its great experience in the special challenges of military transports. Sturdy, reliable and durable vehicles testify to DOLL’s high quality standards.

DOLL’s performance is rounded off by its experience in handling military products; the quality assurance installed, certified according to ISO 9001 and AQAP 2110, and an after-sales service that guarantees fast supply with spare parts even after many years.

THE STRONG ONE

Thanks to its many versions and options, this series is highly versatile and flexible. The different types of DOLL running gear can move wheeled and tracked vehicles of every weight class both over the road network and off-road in extremely inaccessible terrain and under challenging climatic conditions.

<table>
<thead>
<tr>
<th>NUMBER OF AXLES</th>
<th>2 to 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAYLOAD</td>
<td>over 80 t</td>
</tr>
<tr>
<td>STEERING</td>
<td>rigid, friction or hydraulically steered</td>
</tr>
<tr>
<td>AXLE SYSTEMS</td>
<td>beam axle, independent suspension (DOLL panther) or pendular axles</td>
</tr>
<tr>
<td>SUSPENSION</td>
<td>leaf spring, air or hydraulic suspension</td>
</tr>
</tbody>
</table>

BODIES

Armed forces worldwide transport troops and cargo with platform bodies. DOLL’s product range in this segment is correspondingly diverse. The torsion-free versions with extended off-road capability and the low-torsion version for maximum off-road capability ensure safe transport of people and goods even under the most extreme conditions.

When it comes to body projects DOLL either works as the general contractor itself and coordinates the process sequences in the project or is integrated under the management of a truck manufacturer in its processes. DOLL benefits from its outstanding reputation as body manufacturer in joint ventures in the European market.

<table>
<thead>
<tr>
<th>CARRIER VEHICLES</th>
<th>all standard 2 – 5 axle truck chassis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAYLOAD</td>
<td>2 – 15 t and more, depending on chassis</td>
</tr>
<tr>
<td>PLATFORM LENGTH</td>
<td>3 – 8 m or more</td>
</tr>
<tr>
<td>DESIGN</td>
<td>low-torsion, torsion-free</td>
</tr>
<tr>
<td>VERSIONS</td>
<td>troop/cargo transport and swap systems</td>
</tr>
</tbody>
</table>
The semi series is tried-and-tested, sturdy, versatile and flexible – and as a result ideally suited to what the military needs to do.

**BASIC FEATURES**

- Especially suitable for heavy and wide goods
- 2–8 axles with different axle, suspension and steering systems
- Different low bed versions
- Comprehensive ramp program
- Military lashing system and tie-down points (for air, sea and rail loading)
- Storage concepts
SEMI LOW-LOADERS

TYPE OVERVIEW

GOOSENECK

TECHNICAL DETAILS

FIXED GOOSENECK
- For low-loaders with 2 – 6 axles
- Military application
- Heavy Duty version and
- Off-road version

COMPENSATING GOOSENECK
- For low-loaders with 6 – 8 axles
- To ensure the off-road capability
- Military application
- Heavy Duty version and
- Off-road version

LOW-LOADERS

TECHNICAL DETAILS
- Variable length of the platform according to the transport task
- Options: Telescoping and Side-Extension
- Load Securing system with various options

RUNNING GEAR

TECHNICAL DETAILS
- 2 – 8 axles: rigid, friction- or hydraulic steering
- Axle systems: beam axle, independent suspension (DOLL panther) or pendular axles
- Suspension: Leaf spring, air or hydraulic suspension
- Highest manoeuvrability with hydraulic steering
- Highest off-road capability with hydraulic suspension
RUNNING GEAR

Manoeuvrability and off-road capability are the decisive criteria when it comes to evaluating military transport vehicles. The most important vehicle features in this respect are the axle system used, the steering type and the suspension. The specifications required for these components depend on the armed force’s requirements for its equipment and the geographic and climatic conditions in the planned deployment region.

RIGID AND FRICTION STEERING

In rigid vehicles the towed unit is not actively steered, but instead towed in an altered direction by the tractor unit. Friction steering is the simplest kind of steering in which the frictional forces acting in curves is transferred to the wheels. Both of these systems are used if no enhanced requirements are set on the manoeuvrability of the vehicle when deployed.

HYDRAULIC STEERING

In this steering system the steering angle of the tractor unit is transferred to the axles of the towed unit via hydraulic cylinders. This steering acts directly and precisely and ensures great manoeuvrability. It is in particular required if the overall length of the semi-trailer reaches approximately 20 m and is recommended if it has more than five axles.
FEATURE VARIATIONS

GOOSENECK
- Fixed or compensating gooseneck
- Power supply:
  - Diesel unit
  - Electro-hydraulic pump unit
  - Motor hydraulic
  - Hand pump
- Rope guide system
  - Single-/double winch operation
  - Window version
- Spare wheel carrier in different versions (electrical/mechanical)

LANDING LEGS
- Hydraulic or mechanical landing legs for front and rear

LOW BED
- Variable length according to customer requirements
- Side extensions
- Telescopic length extension

RAMP PROGRAM
- Single or double ramps
- Hydraulically operated or spring assisted ramps
- Hydraulic or mechanical width adjustment

RUNNING GEAR
- 2–8 axles
- Different axle, suspension and steering systems
- Tyre inflation systems and tyre pressure monitoring
- Run flats

LOAD SECURING SYSTEM
- Tie-down points, lashing lifting points (for air sea and rail loading)
- Lashing system (lashing straps and rings, chains etc)
- Load securing wedges and chain guide devices
- Twist locks

STORAGE CONCEPT
- Storage boxes
- Tool box
- Box for camouflage net

OPTIONS
- Winch equipment
- Generator
- Compressor (air)
- Winter package (adjustment to operational environments)
- Fording capability
- ADR equipment (dangerous goods)
- Rear camera
- Remote control from driver’s cabin (for hydraulic functions)
- Camouflage paint
- Blackout lights
- Different tyre sizes according to customers’ specifications

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The requirements for military transports with vehicle bodies are as diverse as the product range of DOLL for these operational areas. The portfolio ranges from two-axle platform bodies for troop/cargo transports and swap systems to fifth wheel coupling bodies with adapters for the flexible deployment of different semi-trailers.

DOLL is an important partner in this field for all truck manufacturers for large and small batch series as well as of test vehicles and prototypes. DOLL also provides its products on the basis of kits and in this way meets the demand for local content.

**BASIC FEATURES**
- 2 to 5 axles
- Low-torsion and torsion-free
- Wide range of options for body design
- Customised design according to operational requirement

**TRACTOR UNIT**

**BODY**
BODIES

TYPE OVERVIEW

TRUCK CHASSIS

- All standard 2–5 axle truck types
- Truck type according to customer requirements

BODIES

- Suspension subchassis: low-torsion and torsion-free
- Use of high-tensile fine-grained steel
- High quality attachments: storage boxes, spare wheel carrier, digging tool, container locks, etc.
- Customer-specific storage concepts
- Spare wheel carrier in different versions
- Deployment in all climatic conditions
- Forging ability
- Systems for air, sea and rail shipping
- Option: equipment as dangerous goods transporter (ADR)

LOW-TORSION

Torsion of the truck frame by uneven terrain is cushioned by the special suspension of the DOLL subchassis. The off-road capability is reduced, but is compensated by a lower dead weight.

VERSIONS

- Steel or aluminium side board body – designed as troop carrier with different seating versions or cargo transporter with different lashing systems
- Tarpaulin framework, also lowerable for rail transport
- Platforms with crane
- Container frames
- Swap systems
- Hook lifts
- Shelter systems

TORSION-FREE

A subframe, integrated between the truck frame and subchassis with a double three-point bearing, decouples the body from the truck frame and does not transfer torsional forces into the body. As a result the payload area is free of torsion and the high off-road capability of the truck is not impaired.
POWERFUL TECHNOLOGY AND COMPREHENSIVE SERVICE. FOR YOU.

PROJECT MANAGEMENT
A professional and experienced DOLL project team looks after the customer from the first inquiry or public call for tenders and vehicle trials or pilot series acceptance to delivery of the vehicles. Production of the vehicles is monitored by DOLL’s quality management in accordance with ISO 9001 and AQAP 2120. The vehicles are only transferred to the customer once all the approvals by the quality testers of the truck manufacturer or quality inspectors are available.

DOCUMENTATION
Vehicle documentation is an important part of the military scope of delivery. It consists either of the standard commercial documents, i.e. operating instructions and spare parts lists or is derived from customer guidelines. The two standards S1000D and S2000M have become established in the field of procurement of defence technology, with a standardised presentation of technical documentation and data transfer. The entire scope of documentation can be obtained from DOLL.

LIFE CYCLE SUPERVISION
The task of after-sales supervision is to ensure that a military vehicle can be deployed over its entire life cycle (up to 30 years). The subjects of “training”, “maintenance” and “care” are important as well as the properly regulated supply of spare parts. These are frequently documented in the ILS (Integrated Logistic Support Plan). After deployment, DOLL also assumes the inspection and overhaul of the vehicles (retrofit) or updates them technologically in line with the state of the art.
RELIABLE.
FOR YOUR SECURITY.