



DOLL

We lift you to success

HIGHLOADER SOLUTIONS FOR GSE

Product Range

THE ART TO TRANSPORT



MORE



DOLL Fahrzeugbau

CONTENTS

Company profile.....	4
Experience and know-how all along the line.....	4
Quality with the sense of responsibility	4
Product range.....	5
DOLL AMERICA INC	6
DOLL worldwide	8
Ground Support Equipment – Catering trucks.....	10
General information	10
X-Cat L.....	12
X-Cat M.....	14
Option packages	16
Ground Support Equipment – Medical lifts.....	18
General information	18
X-PRM M.....	20
Option packages	22
Ground Support Equipment – Maintenance lifts	24
General information	24
After-Sales Service – Powerful in operation	26
General information	26
Service range	27

DOLL FAHRZEUGBAU GMBH

Company profile

EXPERIENCE AND KNOW-HOW ALL ALONG THE LINE

DOLL Fahrzeugbau GmbH is a dynamic and internationally oriented company combining innovative strength, long-standing expertise and sophisticated technology to produce vehicles of excellent quality **“Made in Germany”**.



DOLL headquarters in Oppenau

Providing movement for more than 135 years

Founded in 1878, the trailer manufacturer has established itself firmly in its market as the high-tech specialist for transport solutions. Today the extensive business activities are concentrated on the four main business areas Heavy Haulage, Timber Transport, Ground Support Equipment and After-Sales Service.

Its headquarters are located in Oppenau where 300 employees are involved in the production of different kinds of trailers for clearly defined applications. The reliability and expertise of our staff are based on a profound training which is the foundation of the competitiveness and the continuous improvement of our products. All disciplines reflect the **DOLL core competencies** in steel construction, hydraulics, pneumatics, electrics and electronics.

The profound training of DOLL employees begins in our in-house workshop and is expanded by continuous further education.

Global growth is our guiding principle

Our basic goal is to maintain and extend our leading market position and to face the increasing and changing requirements in the trailer sector. For this reason, DOLL Sachsen GmbH started operating in Saxony as a production site of DOLL in 2009 to meet the growing demands of the Eastern European markets. Our market presence is complemented by a widely spread **network of service and sales partners**.

QUALITY WITH THE SENSE OF RESPONSIBILITY

The international prestige of DOLL products is based on the performance of our highly qualified and motivated employees, a distinct spirit of innovation and the customer orientation we practice in our day-to-day work.

DOLL is a symbol of quality and reliability

This applies to everything we manufacture and to everyone involved in our production processes. For this reason we utilise an integrated and efficient quality management system certified in accordance with **DIN ISO 9001:2008** which is complemented by **AQAP 2120** in terms of military trailers and bodies.

The protection of the environment is also a crucial part of our business philosophy:

measures for noise protection, recycling, water treatment technologies, facilities to minimise air pollution, heat exchangers and photovoltaic system are just a few examples for a **responsible and environmentally conscious attitude**.



Leading edge quality according to DIN ISO 9001:2008

PRODUCT RANGE



HEAVY HAULAGE

DOLL trailers are classified into five product groups, namely platform semi-trailers, semi low-loaders, low-loaders, self-steering trailers and off-road vehicles to cover the various requirement profiles for applications in Europe and worldwide. Besides the proven VARIO heavy haulage series, DOLL offers the panther series with its innovative steering technology and an independent suspension system.



TIMBER TRANSPORT

No matter the type of wood you need transported – DOLL has the right vehicle. Whether for long, short or sawn timber, for light or heavy logs, we deliver the optimum transport solution. The product portfolio is completed by superstructures for cranes, self-steering trailers and semi-trailers. Here is where more than 135 years of tradition merge with modern engineering to produce robust high-quality vehicles.



GROUND SUPPORT EQUIPMENT

DOLL is one of the leading manufacturers of GSE and is therefore familiar with the requirements for modern scissor lift vehicles. The product range covers catering and cleaning trucks as well as medical and maintenance lifts adapted to the needs for daily operations at airports while focusing the vision of a “greener” tarmac. GSE made by DOLL stands for easy handling, reliability as well as technical and constructional longevity.



AFTER-SALES SERVICE

The mobility of our customers and their satisfaction is our priority. This is why we are at your disposal for on-time spare parts deliveries, retrofit projects, repairs and maintenance works and questions of warranty at any times due to a well-structured service partner network throughout the world. For DOLL, competence in trailer manufacturing also means responsibility and professional service even beyond the regular warranty period of one year.

DOLL AMERICA INC.

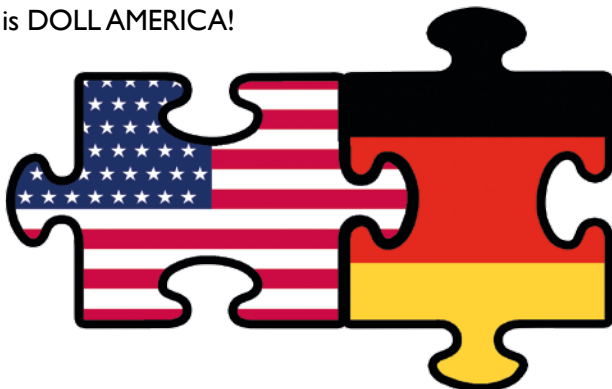
Company profile

COMBINATION OF KNOW-HOW



The USA is one of the most favorable markets regarding Ground Support Equipment. As one of the leading manufacturers of all kinds of aircraft vehicles DOLL has recognized this potential and has founded a subsidiary company in the land of boundless opportunities in the area of Philadelphia. With our new location we can assure a better service and support to our clients and show the US our innovative strength, outstanding expertise and sophisticated know-how from face to face.

Our DOLL AMERICA team consists of American and German specialists who combine their engineering skills and their experience of the American market. This allows us to focus on the needs of our American clients. This is the power of two strong countries. This is DOLL AMERICA!



DOLL AMERICA INC.
522 Pedricktown Rd.,
Bridgeport, New Jersey, 08014
www.doll-america.com

GERMAN ENGINEERING - INSTALLED IN THE US!



Manufacturing in Oppenau, Germany



Manufacturing in Oppenau, Germany



X-CAT L in operation



Manufacturing in Oppenau, Germany

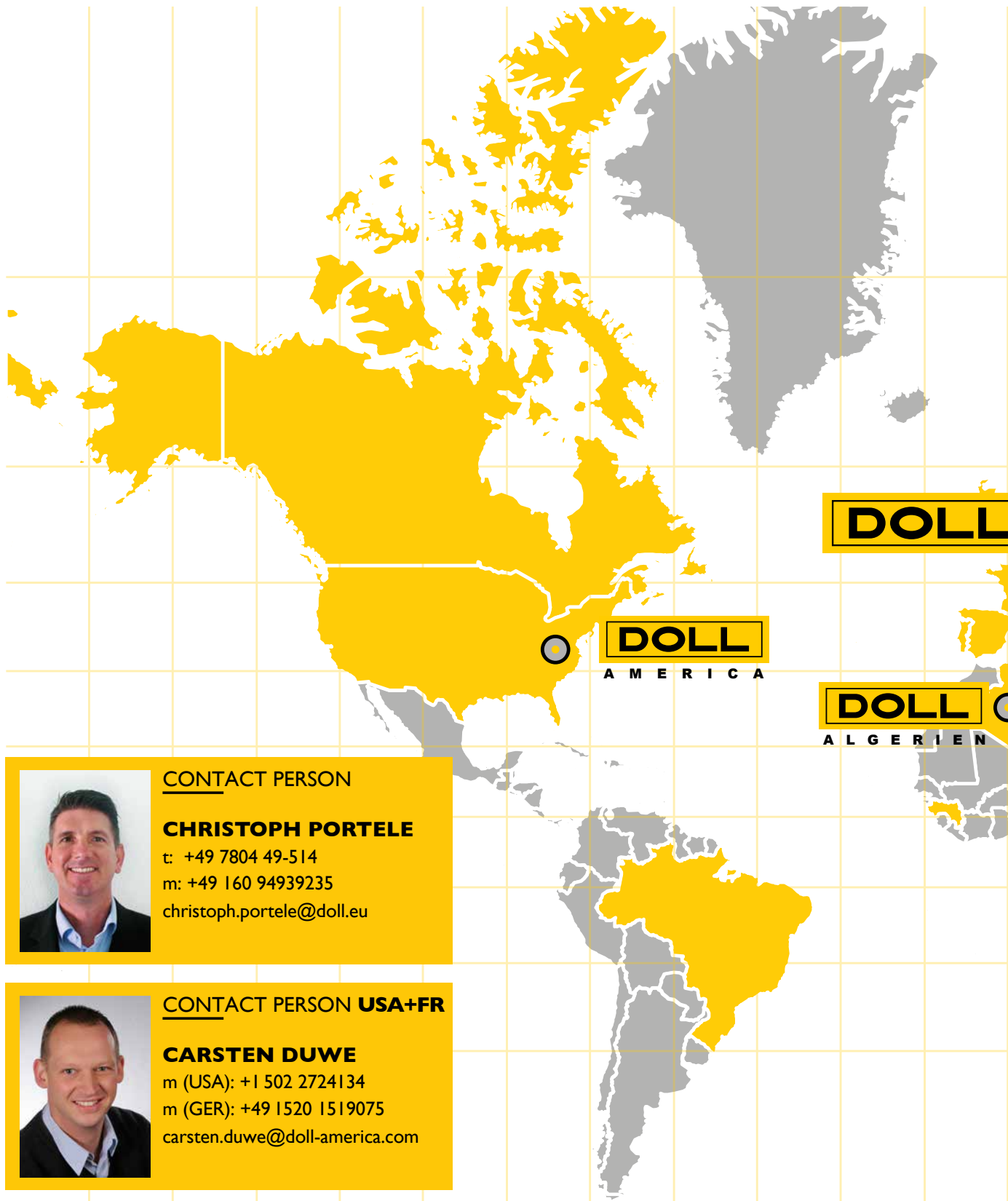


Manufacturing in Oppenau, Germany

DOLL FAHRZEUGBAU GMBH

Company profile

DOLL WORLDWIDE



CONTACT PERSON

CHRISTOPH PORTELE

t: +49 7804 49-514

m: +49 160 94939235

christoph.portele@doll.eu



CONTACT PERSON **USA+FR**

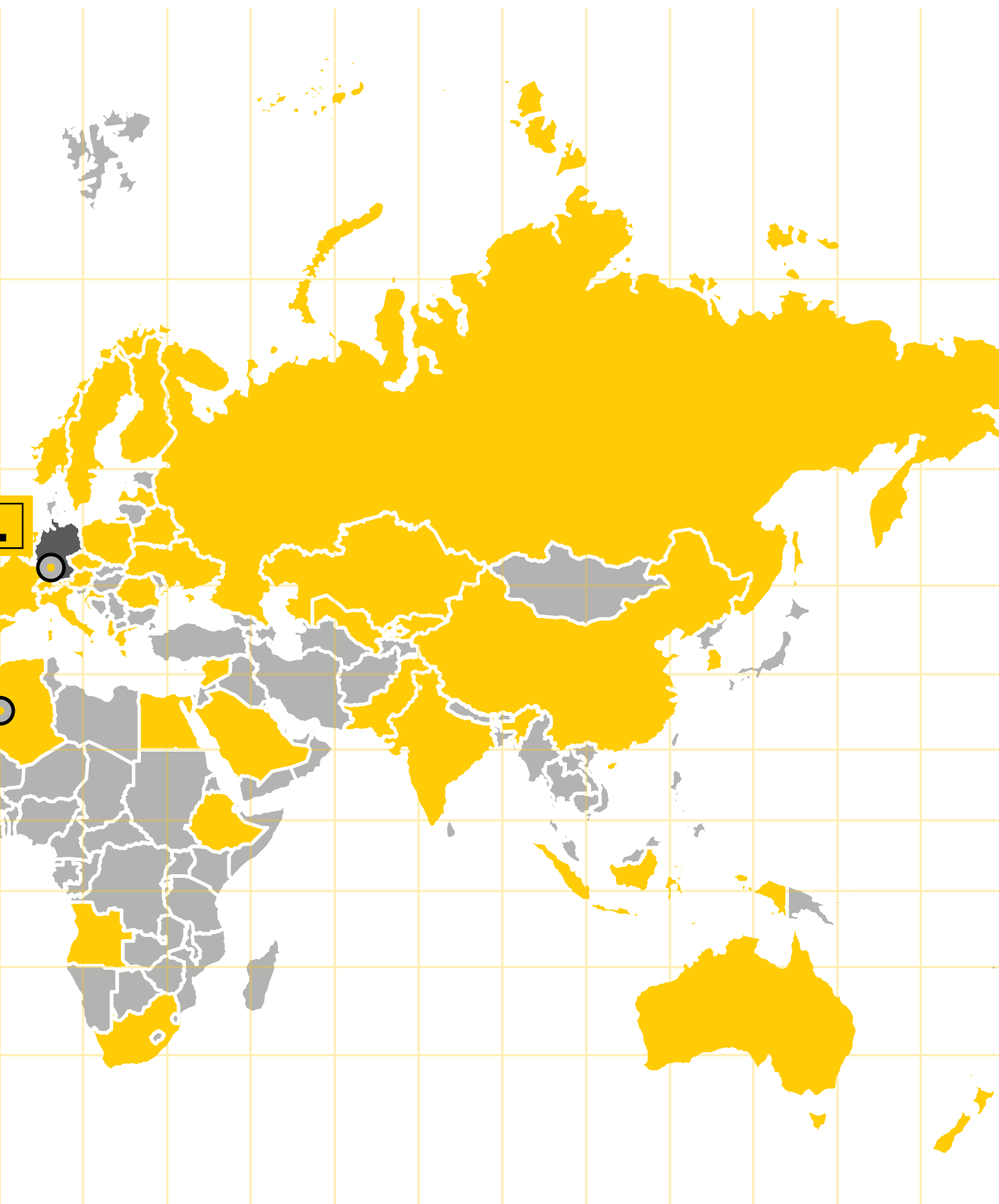
CARSTEN DUWE

m (USA): +1 502 2724134

m (GER): +49 1520 1519075

carsten.duwe@doll-america.com

DOLL WORLDWIDE



GROUND SUPPORT EQUIPMENT

Catering trucks

GENERAL INFORMATION



Well-known all over the world

DOLL has been manufacturing airport ground equipment for more than 20 years. Resulting from this **long-term experience** in trailer manufacturing, DOLL is familiar with your requirements for modern scissors lift vehicles which are in everyday use to provide food at international airports throughout the whole world.

DOLL is the **most important and leading manufacturer** of catering high loaders throughout the whole world.



X-Cat M

Wide range of high loaders with focus on a green environment

The extensive portfolio of scissors lift vehicles covers catering truck models in an **X-Cat L, X-Cat M and X-Cat S** version. Their transfer heights reach from 36" (1,100 mm) to over 326" (8,300 mm) for the A380 covering payloads of 3,300 lbs (1,500 kg) to 11,000 lbs (5,000 kg). If necessary, the driver's cab can be converted into a low-cab or half-cab version.

DOLL catering trucks can be used on most common truck chassis which makes them suitable not only for airfield operations but also for public roads.

When it comes to environmental protection, DOLL is always putting a focus on **energy efficiency**. This orientation lead to the development of the first electrically powered high loader DOLL ecacat.



X-Cat M

GENERAL INFORMATION



X-Cat L for A380

Available in three versions

X-Cat L

- Full size driver's cabin
- Sill heights: 114" to 326" (2,900 - 8,300 mm)*
- Payload: 11,000 lbs (5,000 kg)*

X-Cat M

- Sill heights: 55" to 236" (1,400 - 6,000 mm)*
- Payloads: 9,900 lbs (4,500 kg)*

X-Cat S

- Informations on request

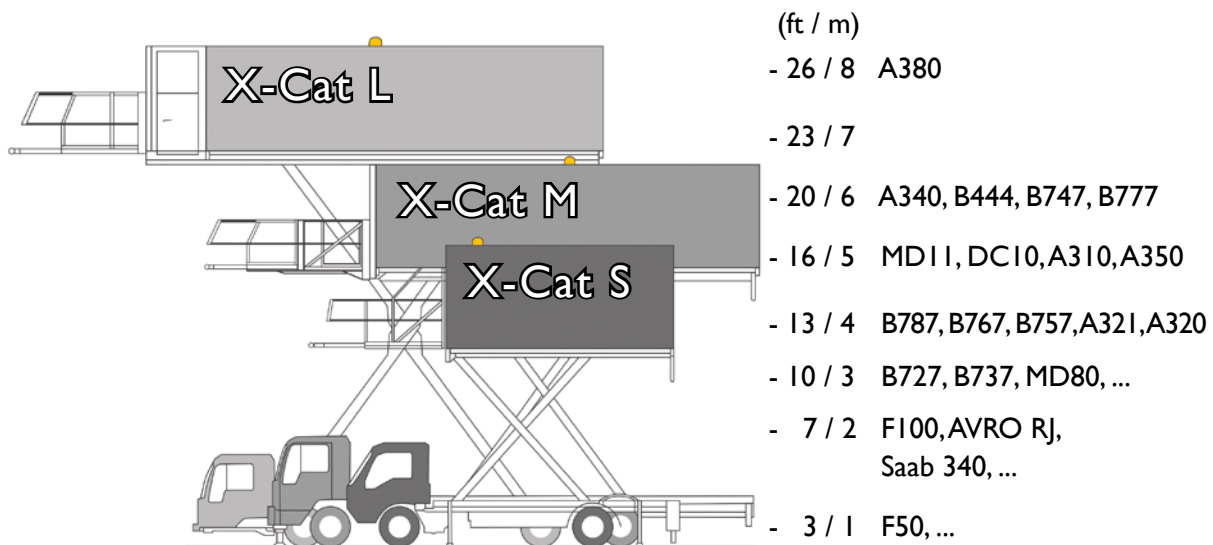
The various advantages of DOLL catering trucks are rounded off by customer-specific option packages.



X-Cat ML (Low Cab)



X-Cat S



Lifting heights for catering trucks

* Depending on chassis and options

GROUND SUPPORT EQUIPMENT

Catering trucks

X-CAT L



Data sheet

Dimensions over all:	L= 433" (11,000 mm), W= 100" (2,550 mm), H= 157" (4,000 mm)*
Dimensions body:	L= 307" + 47" (7,800 + 1,200 mm), W= 100" (2,550 mm), H= 94" (2,400 mm)*
GVW:	approx. 48,500 - 66,000 lbs (22,000 - 30,000 kg)*
Payload:	up to 11,000 lbs (5,000 kg)*
Sill height min.:	approx. 100" (2,900 mm)*
Sill height max.:	approx. 326" (8,300 mm)*
Loading height rear:	approx. 58" (1,480 mm)*
Wind stability:	max. 78 knots
Operating temperature:	-13 °F to +140 °F (-25 °C to +60 °C)

SAFETY FEATURES

- ✓ Full protection to avoid contact with aircraft wing
- ✓ Platform completely covered
- ✓ Driving lock in case the stabilisers are completely out and handbrake will be released
- ✓ Lifting of body up to the height of the loading ramp is also possible without stabilisers
- ✓ Lifting of body over ramp height is only possible when side door is closed and stabilisers are extended
- ✓ Side door is locked when body is in lifted position
- ✓ Signal in van body when stabilisers are lowering
- ✓ Retracting stabilisers is only possible when body is lowered
- ✓ Safety shoe to monitor height level between the transfer platform and the aircraft.



X-Cat L for A380

* Data may change depending on chassis and additional equipment

X-CAT L

Technical details

Chassis

- Different chassis models with 3rd axle available

Body

- Body consists of sandwich panels
- Floor is equipped with anti slip covering
- Restraint and skirting boards
- Side door with security switch and access ladder
- Forward movement of 118" (3,000 mm)
- Front and rear opening with roller shutter

Platform

- 4-way aluminium platform with extendible side walls and limited forward movement (400 N)
- Laterally movable by 23" (600 mm)
- Telescopic bridge, extendible by up to 39" (1,000 mm)
- Extendible canopy for a dry operation and aircraft protection
- Crossing plate made of aluminium to pass over the door sill



X-Cat L



X-Cat L



X-Cat L



Aluminium platform during docking process

Scissors lift

- Robust steel scissors lift with two four stage cylinders, equipped with check valves
- Electrically driven emergency valve

Stabiliser

- Four hydraulic jacks equipped with check valves

Hydraulic systems

- With oil tank, high and low pressure filter
- Control unit integrated into a protective box
- Hand pump for emergency operation

Electricity

- 24V/12V power supply
- Operation panels in the driver cab and integrated into the platform
- Main distribution at the side frame

GROUND SUPPORT EQUIPMENT

Catering trucks

X-CAT M



Data sheet	Full Size
Dimensions over all:	L= 354" (9,000 mm), W= 100" (2,550 mm), H= 149" (3,800 mm)*
Dimensions body:	L= 244" - 295" (6,200 - 7,500 mm), W= 433" (2,550 mm), H= 433" (2,300 mm)*
GVW:	approx. 26,500 - 35,200 lbs (12,000 - 16,000 kg)*
Payload:	up to 9,900 lbs (4,500 kg)*
Sill height min.:	approx. 108" (2,750 mm)*
Sill height max.:	approx. 236" (6,000 mm)*
Loading height rear:	approx. 57" (1,450 mm)*
Wind stability:	max. 78 knots
Operating temperature:	-13 °F to +140 °F (-25 °C to +60 °C)

SAFETY FEATURES

- ✓ Electrical supply to avoid operating errors
- ✓ Driving lock in case the stabilisers are completely out and handbrake will be released
- ✓ Lifting of body up to the height of the loading ramp is also possible without stabilisers
- ✓ Lifting of body over ramp height is only possible when side door is closed and stabilisers are extended
- ✓ Side door is locked when body is in lifted position
- ✓ Signal in van body when stabilisers are lowering
- ✓ Retracting stabilisers is only possible when body is lowered



X-Cat M

* Data may change depending on chassis and additional equipment

X-CAT M

Technical details

Chassis

- Different chassis models available

Body

- Body consists of sandwich panels
- Floor is equipped with anti slip covering
- Restraint and skirting boards
- Side door with security switch and access ladder
- Front and rear opening with roller shutter

Platform

- 4-way aluminium platform with hand rails and limited forward movement (400 N)
- Telescoping and laterally movable
- Crossing plate made of aluminium to pass over the door sill



X-Cat M



X-Cat M



X-Cat M

Scissors lift

- Robust steel scissors lift with two double stage cylinders, equipped with check valves
- Electrically driven emergency valve

Stabiliser

- Four hydraulic jacks equipped with check valves

Hydraulic systems

- With oil tank, high and low pressure filter
- Control unit integrated into a protective box
- Hand pump for emergency operation

Electricity

- 24V/12V power supply controlled by CAN bus or relays
- Operation panels in the driver cab and integrated in the body
- Main distribution at the side frame

GROUND SUPPORT EQUIPMENT

Catering trucks

OPTION PACKAGES



Different shelves for food storage



COOLING SYSTEMS

We provide our trucks with the most durable and economical cooling systems of renowned international manufacturers. You can choose between the brands Thermoking, Carrier and Zanotti. Other cooling systems are available upon request.



Safety shoe for aircraft door protection



Tail lift 1,100 lbs (500 kg)

OPTION PACKAGES



Tail gate 2,200 lbs (1,000 kg)



Rear flaps

OTHER POSSIBLE OPTIONS

- ✓ Rear camera
- ✓ Additional cameras in driver's cab
- ✓ Additional working lights
- ✓ Battery charger
- ✓ Key switch (18 mph)
- ✓ Beacon light
- ✓ Extinguisher
- ✓ ... and many more



Body interior of catering trucks

Body equipment

DOLL catering trucks can be equipped and delivered with the following accessories:

- Lashing straps
- Scuff rails
- Shelves
- Roller shutters in different sizes, also available with electrical drive
- ATP certificate
- Motion sensor for van body lighting
- Logos and stickers
- ... and many more

GROUND SUPPORT EQUIPMENT

Medical lifts

GENERAL INFORMATION



Reliable quality throughout the world

DOLL has been manufacturing airport ground equipment for more than 20 years. Resulting from this **long-term experience** in trailer manufacturing, DOLL is familiar with the requirements for modern medical lifts being in use at international airports throughout the world.

Our basic principle is to continuously optimise our products. For this reason, we are anxious to make necessary adjustments from time to time to offer our customers **reliable and high quality products** that will contribute their part to an economic vehicle fleet.



X-PRM MH



X-PRM MH

High loaders with a focus on comfort

The extensive portfolio of scissors lift vehicles covers medical lift models in an **X-PRM L**, **X-PRM M** and **X-PRM S** version which are an efficient solution for safe transportation of passengers with restricted mobility. DOLL medical lifts are suitable for a wide range of aircrafts with different transfer heights.

The travelling persons are taken on board from ground level using a tail gate which guarantees a **smooth and comfortable transfer** into the aircraft at any time.

GENERAL INFORMATION



Wheelchairs



Body interior

Available in three versions

X-PRM L

- Full size driver's cabin
- Sill heights: from 114" to 326" (2,900 - 8,300 mm)*

X-PRM M

- Half size driver's cabin
- Sill heights: from 43" to 232" (1,100 to 5,900 mm)*

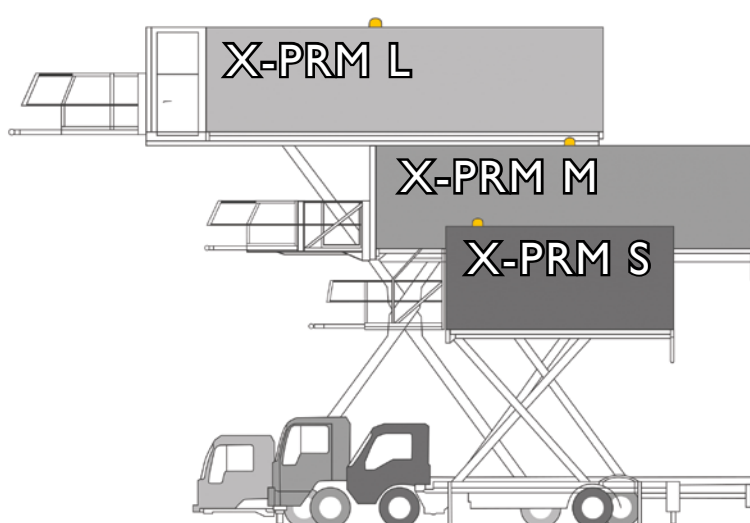
X-PRM S

- Half size driver's cabin
- Sill heights: from 43" to 169" (1,100 to 4,300 mm)*

The various advantages of DOLL medical lifts are rounded off by customer-specific option packages.



Standard tail gate



Lifting heights for medical lifts

(ft / m)

- 26 / 8 A380

- 23 / 7

- 20 / 6 A340, B444, B747, B777

- 16 / 5 MD11, DC10, A310, A350

- 13 / 4 B787, B767, B757, A321, A320

- 10 / 3 B727, B737, MD80, ...

- 7 / 2 FI00, AVRO RJ,
Saab 340, ...

- 3 / 1 F50, ...

* Depending on selected chassis and platform version

GROUND SUPPORT EQUIPMENT

Medical lifts

X-PRM M



Data sheet

Dimensions over all:	L= 334" (8,500 mm), V= 100" (2,550 mm), H= 141" (3,600 mm)
GVW:	approx. 23,150 lbs (10,500 kg)*
Payload (30/80 km/h):	up to 3300/1760 lbs (1,500/800 kg)*
Sill height min.:	approx. 43" (1,100 mm)*
Sill height max.:	approx. 232" (5,900 mm)*
Wind stability:	78 knots
Operating temperature.	-13 °F to +140 °F (-25 °C to +60 °C)

SAFETY FEATURES

- ✓ All necessary functions are provided for a safe and comfortable transportation of persons with restricted mobility
- ✓ Driving lock in case the stabilisers are completely out and handbrake will be released
- ✓ Lifting of body up to the height of the loading ramp is also possible without stabilisers
- ✓ Lifting of body over ramp height is only possible when side door is closed and stabilisers are extended
- ✓ Side door is locked when body is in lifted position
- ✓ Signal in van body when stabilisers are lowering
- ✓ Retracting stabilisers is only possible when body is lowered



X-PRM M for Turkmenistan

* Data may change depending on chassis and additional equipment

X-PRM M

Technical details

Chassis

- Different chassis models available

Body

- Body consists of sandwich panels with a minimum of four side windows
- Extensive medical interior fittings
- Seats for assistance

Platform

- 4-way aluminium platform with hand rails and limited forward movement (400 N)
- Telescoping and laterally movable
- Crossing plate made of aluminium to pass over the door sill



X-PRM M front view



X-PRM M rear view



X-PRM M side view

Scissors lift

- Robust steel scissors lift with two double stage cylinders, equipped with check valves
- Electrically driven emergency valve

Stabiliser

- Four hydraulic jacks equipped with check valves

Hydraulic systems

- With oil tank, high and low pressure filter
- Control unit integrated into a protective box
- Hand pump for emergency operation

Electricity

- 24V/12V power supply controlled by CAN bus or relays
- Operation panels in the driver cab and integrated in the body

Tail lift

- Aluminium platform with foldable side guards and guard at the rear controlled by an operation panel as well as by foot buttons

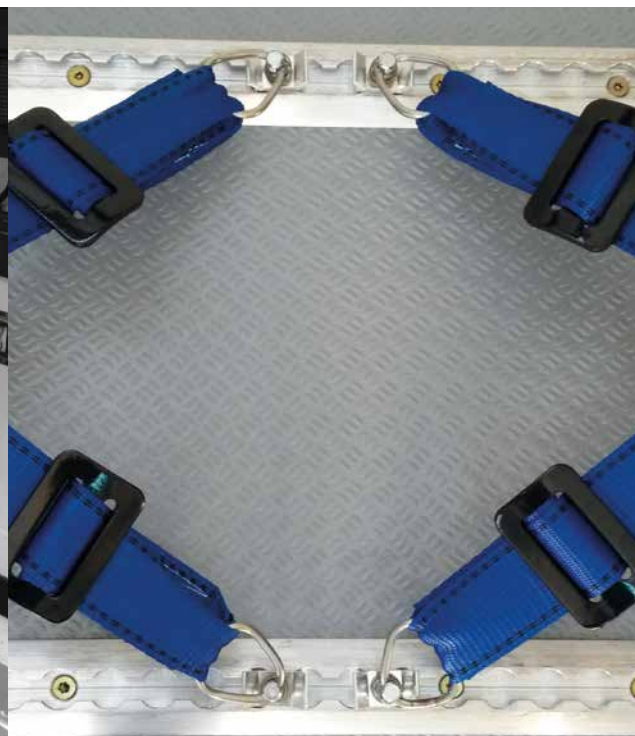
GROUND SUPPORT EQUIPMENT

Medical lifts

OPTION PACKAGES



Fixation for wheelchairs



TAIL GATE

All tail gates of DOLL medical lifts are equipped with an emergency stop button to interrupt any kind of movement. They can either be operated via control panel or via footswitch.



Tail gate with railing and roll stop at the end



Tail gate 2,200 lbs (1,000 kg)

OPTION PACKAGES



Seats with Intercom system in the body



Intercom system in the driver's cab

OTHER POSSIBLE OPTIONS

- ✓ Rear camera
- ✓ Additional cameras in driver's cab
- ✓ Additional working lights
- ✓ Battery charger
- ✓ Key switch (30 mph)
- ✓ Beacon light
- ✓ ... and many more



Body interior of medical lifts

Body equipment

DOLL medical lifts can be equipped and delivered with the following accessories:

- Wheelchairs
- Lashing straps for wheelchairs
- Safety belt for wheelchairs
- Cupboard (first aid kit and litter)
- Scuff rails
- Roller shutters in different sizes, also available with electric drive
- Window integrated in roller shutter
- Intercom system
- Heating and air conditioning system

GROUND SUPPORT EQUIPMENT

Maintenance lifts

GENERAL INFORMATION



Suitable for different kinds of applications

DOLL has been manufacturing airport ground equipment for more than 20 years. Resulting from this **long-term experience** in trailer manufacturing, DOLL is familiar with the requirements for modern maintenance lifts being in use at international airports throughout the world.

The design and concept of DOLL scissors lift vehicles is equally suitable for other applications with which the **transportation of goods** needs to be combined with the **overcoming of height differences**. For this reason, DOLL offers working platforms for maintenance work on airport grounds and on aircrafts.



X-FLAT M



X-FLAT H

All in one: transport and lifting vehicle

The extensive portfolio of scissors lift vehicles covers maintenance lift models in an **X-FLAT H** and **X-FLAT M** version. They are a flexible and reliable solution for maintenance work up to a height of **more than 354" (9,000 mm)** offering the following benefits:

- Time saving due to short setup times
- Efficient and trouble-free work flow
- Highest payloads
- Flexibly deployable superstructures
- High operational safety and healthier working
- Short payback period
- Longevity due to high quality components

GENERAL INFORMATION



X-FLAT H

Available in two versions

X-FLAT H

- Working height of up to 354" (9,000 mm)*
- Can be pulled forward by 118" (3,000 mm)*
- Payload of up to 3,080 lbs (1,400 kg)*

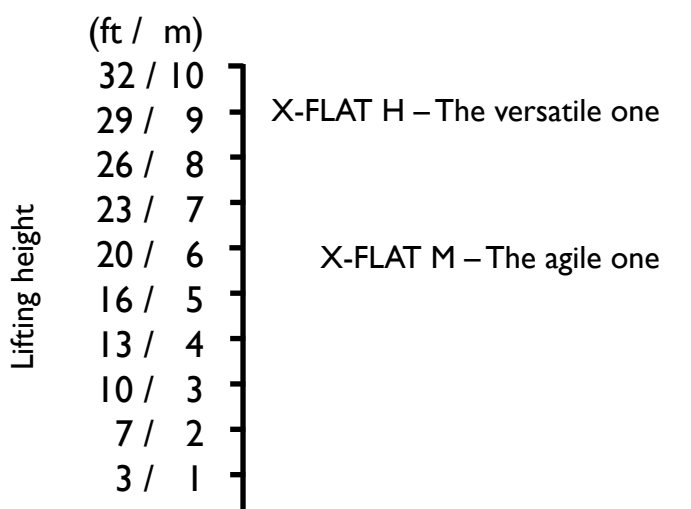
X-FLAT M

- Working height of up to 236" (6,000 mm)*
- Cannot be pulled forward
- Payload of up to 11,000 lbs (5,000 kg)*

The various advantages of DOLL maintenance lifts are rounded off by customer-specific equipments.



X-FLAT back view



Lifting heights for maintenance lifts

* Depending on selected chassis and platform version

Application examples

- Service and maintenance
- Cleaning companies
- Furniture moving companies
- Removal transportations
- Container transports
- Swap body systems
- Inplant transports

AFTER-SALES SERVICE

Powerful in operation

GENERAL INFORMATION

The DOLL After-Sales team is the high-performing partner by your side always keeping you on safe course. Our well-qualified and experienced staff designs and manufactures your vehicle and is always at your disposal with a wide range of services that we offer during the whole life cycle of your trailer – no matter whether you are in possession of a DOLL trailer or a competitor's model, our expert group will support you at any times.

Furthermore, our customers appreciate the After-Sales Service as a cross-divisional complement of the business units Timber Transport, Heavy Haulage and Ground Support Equipment.

For DOLL, quality is the basis of our corporate philosophy. Whether your trailer needs to be overhauled, an emergency repair has to be effected or a legal inspection is due – the DOLL core competencies steel construction, hydraulics, pneumatics,

electrics and electronics also run like a red thread through the After-Sales Service to ensure highest customer satisfaction.

Our perfectly trained specialists receive continuous training to be able to assist you with your individual transport requirements not only at our premises in Oppenau but anywhere in the world. With more than 100 service partners throughout Germany and Europe we are thus able to guarantee the mobility of your trailer –

24 h a day
and 365 days
a year.



SERVICE RANGE



SPARE PARTS & LOGISTICS

A prompt spare parts supply is an essential element of our After-sales Service. The availability of urgently required parts guarantees keeping downtime periods to a minimum and ensures the usability of trailers in the long term. At the same time, DOLL customers benefit from the high quality of original spare parts which are being sent throughout the whole world. For orders reaching us before 2:00 pm the required goods can be shipped just the same day.

MAINTENANCE & REPAIR

The regular maintenance and care extend the lifetime of your trailer and retain its value. This is why we consider ourselves as a service provider for all types of commercial vehicles – even for competitors' trailers. Our well-trained experts repair and maintain your trailers in the most modern workshops and are pleased to assist you with all your wishes and individual requirements.

SERVICE RANGE



WARRANTY

Quality and longevity characterise our vehicles – this is what we stand for with our good name. However, warranty claims can never be excluded completely. Therefore, our comprehensive care-free package offers you the extra plus over and above the usual legal warranty liability. Our maxim in this matter is responsibility, professionalism and competence exceeding well the vehicle handover.



RETROFIT & SPECIAL VEHICLES

Technical developments are one big reason for the obsolescence of vehicles. DOLL modernises whole vehicle fleets and refurbishes old vehicles with the latest technology according to the customers' needs and requirements. In this way, trailers regain reliability in use and experience an improvement in efficiency. Driven by the desire to entusiast our customers, we also design special vehicles for specific purposes.



TRAINING ACADEMY

The daily use of the trailer leads to increasing requirements for the operating personnel. This is why we have elaborated a comprehensive training programme which allows customers and service partners can get well acquainted with the maintenance and technical handling of the vehicle. Our well-trained service technicians will bring you right up to date either in our in-house training academy or directly at your site.



USED VEHICLES

Our used vehicles market offers our customers great options with benefit. Our After-sales Service staff inspects, valuates and buys your trailers. Furthermore, we do not only support you in marketing your vehicles but also assist you with questions concerning financing and insurance.

Please find our current used vehicles on:
<http://home.mobile.de/DOLLFahrzeugbauGmbH>

DOLL AMERICA INC.

522 Pedricktown Rd. ▪ Bridgeport, New Jersey, 08014

t: +1 856 241 7355 ▪ tf: +1 866 806 3634

info@doll-america.com ▪ www.doll-america.com