



SideBull 2.0

for the boarding of
passengers with reduced
mobility (PRM) at airports



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Internationally in operation

Your solution for PRM boarding

The number of air passengers with reduced mobility (PRM) who find it difficult to cover longer distances at airports and to use passenger stairs on remote positions continues to climb around the world. This trend poses a great challenge to airports and to their PRM assistance providers.

Safety, efficiency and flexibility are key factors in the ground handling process. The SideBull was developed to ensure short turn-around times as well as comfortable boarding and disembarking for air passengers.

The unique, patented SideBull concept, a lift vehicle based on a sideloader chassis, was developed in 2002 in collaboration with Lufthansa LEOS and was later adapted to the specific requirements of PRM handling with the support of FRAPORT (Frankfurt Airport). The SideBull Ambulift sets new standards in PRM assistance and has been used successfully for years at numerous international hubs as well as mid-sized and small airports.

The lift vehicle underwent further development between 2013 and 2015 based on user feedback and with the support of a number of airports, in particular Careport (PRM service providers at Zurich Airport) and VIAS (Vienna Airport).



SideBull 2.0

Your advantage worldwide



70% faster docking procedure

Thanks to the use of an extremely rugged sideloader chassis, stabilisers are unnecessary. The passenger cabin can be lifted while approaching the aircraft, which eliminates the need to reverse and reposition the vehicle as well as to extend and retract stabilisers. This saves valuable time and makes the docking procedure easier for the operator.

This design ensures quick handling during peak times, so that operators can better meet the short turn-around times required by many airlines.



Simultaneous operation with cargo loaders

In some aircraft types (specifically A319), the front right passenger door is very close to the container/cargo door. Conventional scissor lift vehicles with a half cabin and front platform on the right side cannot simultaneously dock to the aircraft, due to space constraints. This is no problem for the SideBull! The special front platform design with a 15° turning dock-tongue allows the vehicle to dock at a highly skewed angle. This means the SideBull does not have to wait for the container/cargo loader to finish, but can operate at the same time.

Wind stability up to 100 km/h

The SideBull's robust, torsion-resistant sideloader chassis allows it to be used in winds up to 100 km/h without any additional stabilisers.

Functional one-man operation

The driver's stand is integrated into the passenger cabin of the SideBull, so there is no spatial separation between the driver and the passengers. Therefore the driver isn't forced to inconveniently switch between cabins.



Suitable for use with all aircraft types

Due to the specially designed front platform and the absence of a separate driver's cabin (necessary in conventional scissor lift vehicles), the vehicle can dock on to all wide-body aircraft as well as all most common short-range aircrafts with low door sill heights.



Docking on to buses

The SideBull can dock directly on to most minivans and PRM buses. As a result passengers neither have to surmount steps nor do they have to individually exit the bus and enter the ambulift.

This simplifies the procedure substantially, which results in time savings, especially at international hubs with long driving distances where buses are used to bring PRMs to the aircraft position.



Safe and comfortable boarding

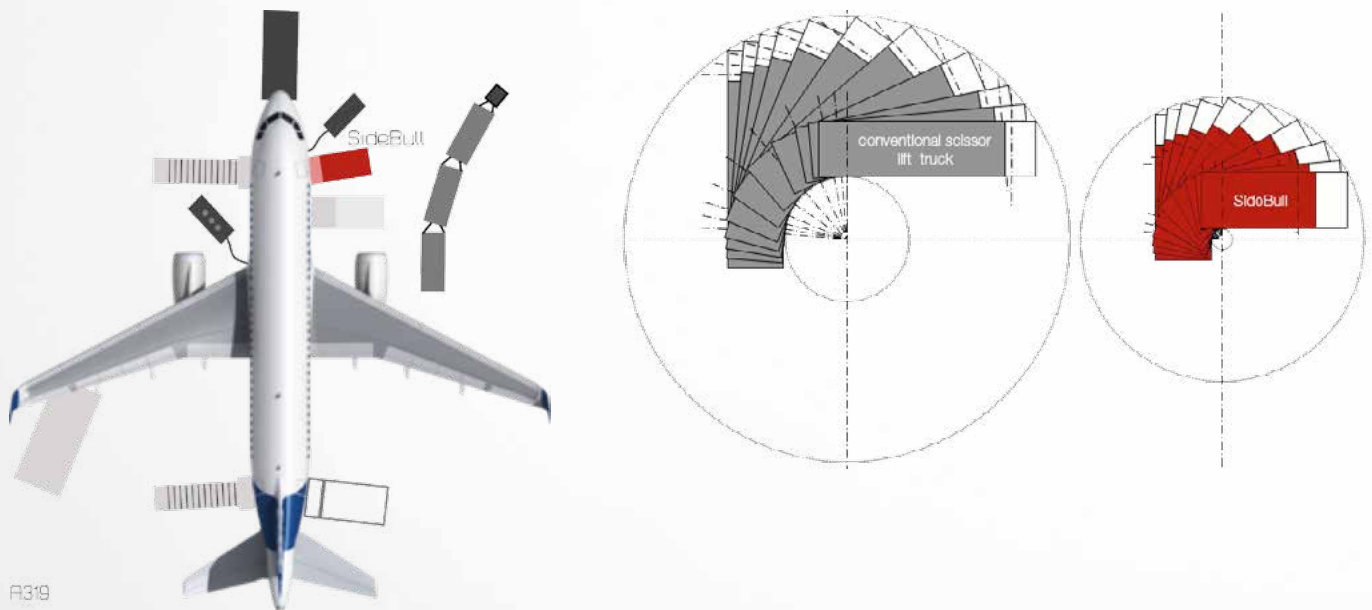
The passenger cabin can be lowered completely to ground level alongside the chassis. This speeds up the entire boarding procedure when several PRMs need to be brought into the cabin. It is no longer necessary to repeatedly raise or lower a tail lift platform as in conventional scissor lift trucks.



Manoeuvrability and usability

Since the SideBull does not have a separate driver's cabin, it is shorter than conventional scissor lift vehicles. The sideloader steering system enables a steering angle of almost 90°. The vehicle can just about rotate around its rear axle and needs only half the turning radius of ordinary scissor lift trucks.

The SideBull needs less space, is more agile and therefore easier to manoeuvre when space is limited.



Reduction in Delay Codes

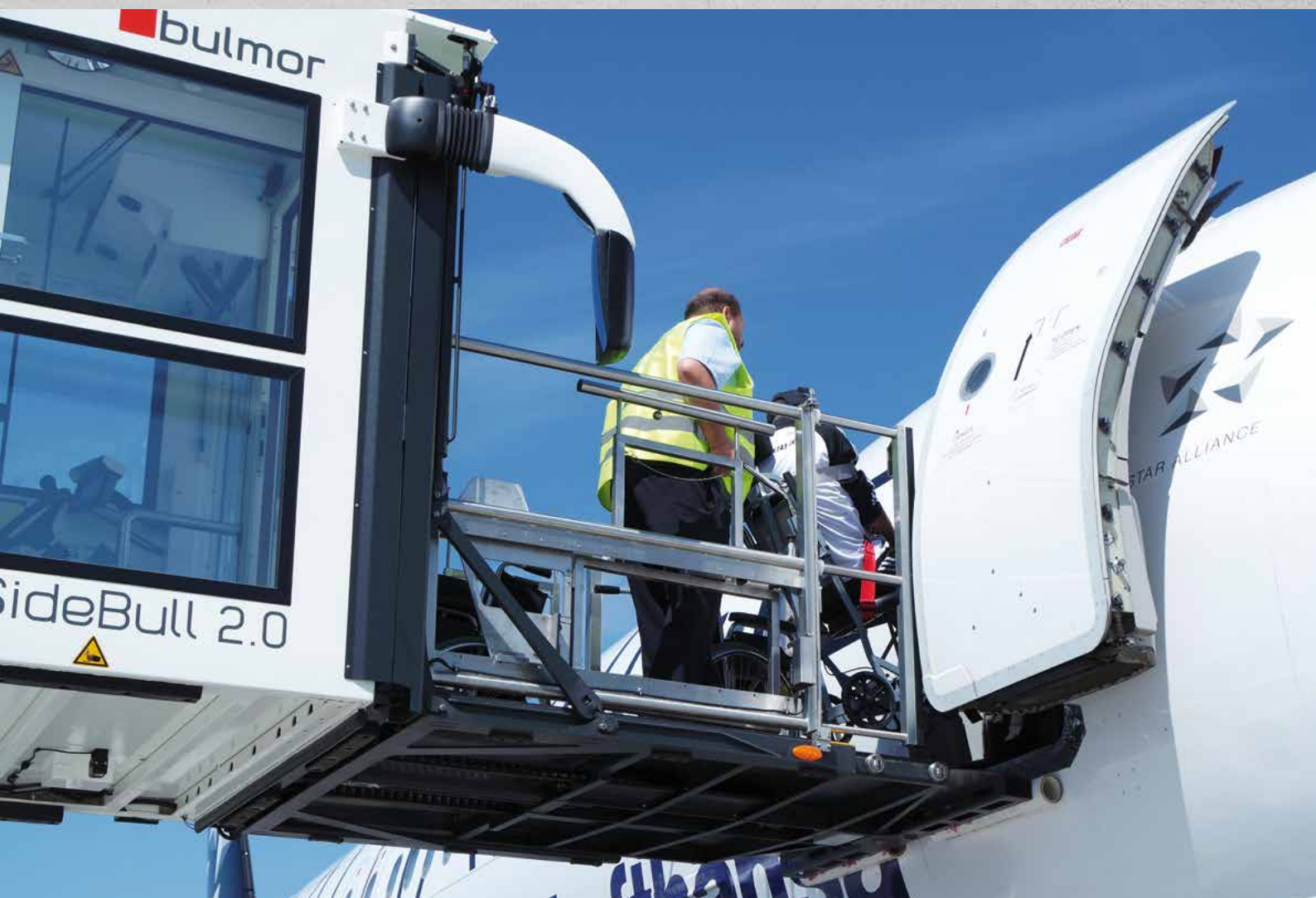
Ambulifts usually are the last vehicles to approach the aircraft during outbound processes (on departure). Very often, their way is blocked by other GSE which can cause delays. More often than not, delay codes (PW 19) are attributed to the service provider, justified or not.

Due to the SideBull's superior agility and better manoeuvrability in comparison with scissor lift vehicles, it is possible to move efficiently between other GSE and thus reduce delay codes.

Optimising the overall process

The significantly faster boarding and docking procedure, the simplified operation for the driver and the superior vehicle agility enable a substantial optimisation and improved flexibility of the overall PRM assistance process at the airport apron/tarmac.

In the medium and long term, this leads to a reduction in overall process costs in comparison with using conventional scissor lift trucks.









SideBull 2.0

Vehicle description

A modified sideloader is used as the **chassis** for the SideBull. These special-purpose side forklift trucks pick up their load from the side and have been used in intralogistics, particularly in the steel industry, for over 50 years in rough multi-shift operation around the world.



sideloader chassis

The welded U-frame, unlike a truck chassis, has a completely torsion-resistant design.

The vehicle features a hydrostatic drive with continuously variable speed control and, when cabin is raised, can be freely driven at crawling speed – no additional stabilisers are necessary.

The simple and robust design of the **sideloader steering system** is ideal for steering manoeuvres in the most confined spaces. The vehicle is equipped with a hydraulic **comfort suspension system** for each individual wheel.

The lifting unit is a **three-stage lift mast**, which is suitable and approved for passenger transport. Mounted on an extendable lift carriage with steel rollers, the lift mast can be moved to the side on rails by means of two hydraulic cylinders within the U-frame.

The **passenger cabin** consists of a self-supporting steel frame construction, which is lined with panel insulation plates and attached to the lift mast. The cabin can be entered through one main manual swing door with 950mm passage width. A strong, for continuous operation designed auxiliary heating and air condition (AC) come as a standard.

The **driver's stand** is fully integrated into the passenger cabin and consists of an air suspension driver's seat with adjustable steering column and foot pedals. A joystick is used to perform all operational hydraulic functions. The colour touchscreen is both display and input tool.

A wide **front platform** is used for docking on to the aircraft. The front part can be hydraulically extended by 700 mm. With the turning dock-tongue, it is possible to dock on in an maximum angle of 15°. Platform rails that can be swivelled in and telescoped forward are attached on the side. There are two additional rails on the front end that serve as fall protection; these can be locked as well as swivelled inward.

A **vertical lift** is integrated in the front platform and can be used when there is not enough space to lower the entire passenger cabin to the ground.

SideBull 2.0

Technical details

Passenger cabin



strong auxiliary heating system and AC for continuous operation



Driver's stand with air suspension comfort seat, joystick and colour touchscreen



Extendable front platform with turning dock-tongue and swivelling/telescoping side rails



Integrated vertical inward-opening



Triplex lift mast – all load-bearing components with a tenfold margin of safety



Easily accessible maintenance and emergency operation panels



Mast traverse with crossed-over cylinders



Robust sideloader chassis



al lift with front rails



Innovative hydraulic single-wheel suspension system

Robust sideloader steering system with almost 90° steering angle

SPECIFICATIONS

Lifting capacity	1.500 kg / 15 persons
Number of wheelchairs	4 - 5, fixed with restraint system
Number of seats	4 - 10 (depending on type and position)
Lifting height	5,700 / 8,100mm (A380 UD)
Engine / drive	74,5kW (Diesel) / hydrostatic drive
Length x width x height	8.3 x 2.7 x 3.4m
Vehicle suspension	single-wheel suspension, hydraulic
Speed	25 - 30km/h, 2km/h (crawling speed)
Chassis	Sideloader DQ70/19/57TV
Lifting unit	Triplex mast
Standards/directives	EU Machinery Directive, EN1915, EN12312-14
EC type examination/certification	by DGUV (notified body 0417)

Safety First!

The safety of passengers, operators, aircraft and other GSE was of crucial importance when developing the SideBull 2.0. The vehicle is designed and built in accordance with the EU Machinery Directive, EN1915 1-4 as well as EN12312-14 and has undergone an EC type examination by the independent testing and certification body DGUV (Deutsche gesetzliche Unfallversicherung [German Statutory Accident Insurance], notified body 0417). A safety control system ensures that all driving and operating movements are safety related and comply with the relevant standards and rules for ground support equipment.

All load-bearing components of the lift unit are designed with a tenfold margin of safety. The lift chains are doubled and monitored by safety sensors, check valves on the lift cylinders prevent the cabin from dropping in the event of loss of hydraulic pressure, and between the cabin and the vertical lift, there is a shut-off bar that serves as protection against crushing and shearing. Electric rail and door locks with an emergency opening function serve as fall protection. The SideBull has been successfully tested in winds of 100 km/h and higher.

A camera system that automatically switches between various views, shows all areas that are not directly visible when docking and lowering the cabin.

The docking procedure

When the cabin is being lifted during the approach to the aircraft, the vehicle speed is automatically reduced to 2 km/h so that the vehicle can be moved to the exact position. The distance to the aircraft and lifting height are indicated on the display.

The driver also has a direct and unobstructed view of the closed aircraft door, eliminating the need for repeated reversing and re-positioning of the vehicle.

An adjustable automatic drive shut-off places the vehicle in neutral if it gets too close to the aircraft. The remaining distance can be closed by the 700 mm extendable front platform. This extension movement is shut off automatically at a pre-set distance from the aircraft. A 15° turning dock-tongue compensates for a somewhat skewed docking position. The maximum possible contact pressure between the rubber bumpers and the fuselage is limited.

As soon as the vehicle is docked to the aircraft, the side rails can be swivelled in for easier opening of the aircraft door by the cabin crew. Then, the side rails are telescoped forward and the front-end fall protection is opened.



Passenger Experience

Together with safety for both human and machine, comfort is of highest importance. The new SideBull 2.0 ambulift offers a modern, new design, rounded corners result in a harmonious overall appearance.

The large, tinted panoramic windows are opaque from the outside. From the inside however, they offer a perfect view on what's happening on the tarmac. The entire passenger cabin has a bright and friendly appearance. The new interior lighting creates a pleasant atmosphere in the cabin.

The innovative comfort suspension system, combined with high-quality comfort swivel seats, offers a first class ride both for the passengers and the driver.

One special feature is the airport-specific interior design decals applied to each vehicle. With the SideBull 2.0, boarding becomes a special experience for your passengers.



Ready for Airbus A380!

Lifting operation up to 8m to the A380 UD, yet small and agile to serve all other mid-sized and short range aircrafts - not a problem for the SideBull 2.0

The vehicle can optionally be equipped with a higher lift mast. However this will not change the length and width of the vehicle.



SideBull

Internationally in operation





The SideBull is not just agile, robust, comfortable and fast; it can also be adapted to suit any climate or weather and to meet any challenge. Anywhere in the world.

Photos and approval by:
Aicher Ambulanz (Munich Airport), VIAS (Vienna International Airport), Careport, Mr Jens Bayard, (Zurich Airport), Fraport (Frankfurt am Main Airport), Axxicom Airport Caddy (Brussels Airport), Falck (Copenhagen Airport), Viggo (Eindhoven Airport) and Marco Einfeldt.



Bulmor Airground technologies GmbH

The SideBull 2.0 is distributed by Bulmor airground technologies GmbH, a subsidiary of the Bulmor Group. The vehicle is fully manufactured at the production location in Perg, Austria. Producing around 300 lift vehicles annually, the Bulmor Group is a world-leading developer and manufacturer in the intralogistics niche market for sideloaders as well as customised special-purpose lifting vehicles.

Protected by utility model and patent protection.
Winner of the Berlin Brandenburg Innovation Award.

The SideBull concept was developed in collaboration with



EC type examination and certification by



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