AIRCRAFT COMPONENTS TRANSPORT

MACHINES AND APPLICATIONS
IN AIRCRAFT PRODUCTION AND MAINTENANCE

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HUBTEX.

WE CREATE THE UNIQUE

Combined intra-logistics and assembly systems in aircraft construction

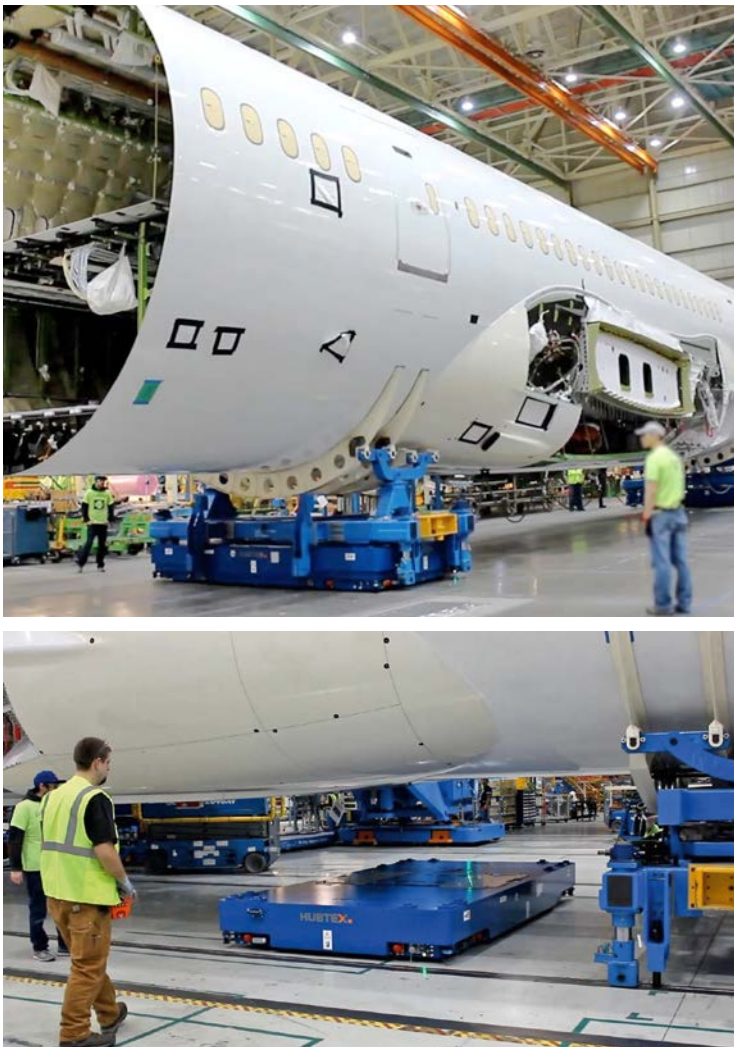
HUBTEX are a global manufacturer of innovative mobile solutions operating within the aviation manufacturing sector. The systems offer numerous possibilities for individualisation and can be seamlessly integrated into the respective logistics or production process.

The intelligent use of fully and semi-automated solutions are key to the efficient factory planning offering significant reductions in production delivery times. In addition, the use of optional lithium-ion batteries guarantees long operating times at low follow-up energy costs, ensuring maximum productivity and use of the individual solutions.

Fuselage transport

Platform trucks and rail cars are self-propelled vehicles that transport loads on and with the help of their large loading area. They are used for handling and transporting all types of heavy loads.
In the aviation industry for example, there are aircraft segments, fuselages and other components.

One application utilises is the HUBTEX **SL-AGV** platform truck with a load capacity of 35 tonnes and an overall height of only 457 mm. The vehicle transports aircraft fuselage parts and work platforms in a large production hall. The platform trucks can also be interconnected to form a system with a higher load capacity. The vehicles are controlled via radio remote controls.



The SL-AGV platform truck transports an aircraft fuselage

The FTT is docked and then the aircraft is lifted, transported and repositioned.

If no assembly frame is available, the HUBTEX fuselage transport trolleys (FTT for short) can transport heavy aircraft fuselages (up to a 70-tonne), from one assembly spot to the next.

To be able to move the aircraft, a tractor is attached to the nose wheel next to the FTT and is used to steer the fuselage. The FTT is equipped with an auxiliary steering system for exact positioning at the next assembly location.

MOBILISATION OF WORK PLATFORMS

Another application example is the HUBTEX platform truck **HL-AGV**, which lifts work platforms when coupled with a second vehicle.

The target position under the load is approached accurately and collision-free with the aid of a sensor-supported assistance system.
In coupled operation via Bluetooth, both HL-AGVs can be controlled via a control panel located on the work platform, up to a 3.5 meter lift height. Multidirectional steering, sensitive movements and lifting are always synchronised and purely electric.

FLEXIBLE USE

As an alternative to mobilising work platforms, our **ODV (Omni Directional Vehicle)** can be docked to work platforms.

In coupled operation several ODV can move a work platform. In addition, the vehicles can be used as conventional tractors in production.

LiTION

USE OF LITHIUM-ION BATTERIES

By using lithium-ion batteries, users with long operating times benefit from a fast return on investment through significantly reduced ancillary and follow-up costs.

The use of exchangeable batteries can usually be dispensed with in these cases. Batteries can fully recharge within one hour.

With advancements in energy regeneration, lithium-ion batteries absorb energy flows fed back from the vehicle.

MOBILISATION OF STATIONARY INSTALLATIONS

An innovative automation solution in the aviation industry is the combination of the electrically steered drive units **WDU** and load wheel units **WU**. These units can be retrofitted to existing stationary work platforms in order to upgrade them to a mobile system through the coupling operation.

This drive concept is completed by an electric cabinet, a lithium-ion battery and a radio remote control to operate the chassis. With the help of the specific multidirectional steering, the precise positional movement of the load in all directions is now possible.

In addition, extensive safety and track guidance equipment can be integrated to monitor the routes and guide the vehicle to an exact location.

WDU and WU can be extended to up to 15 units, depending on the load capacity requirements, allowing a maximum system load of up to 125 tonnes to be moved.

Drive unit (WDU)

Load bearing capacity 6 t

Load wheel unit (WU)

Load bearing capacity 9 t

Radio remote control

MOBILE ASSEMBLY AND SUPPLY PLATFORMS

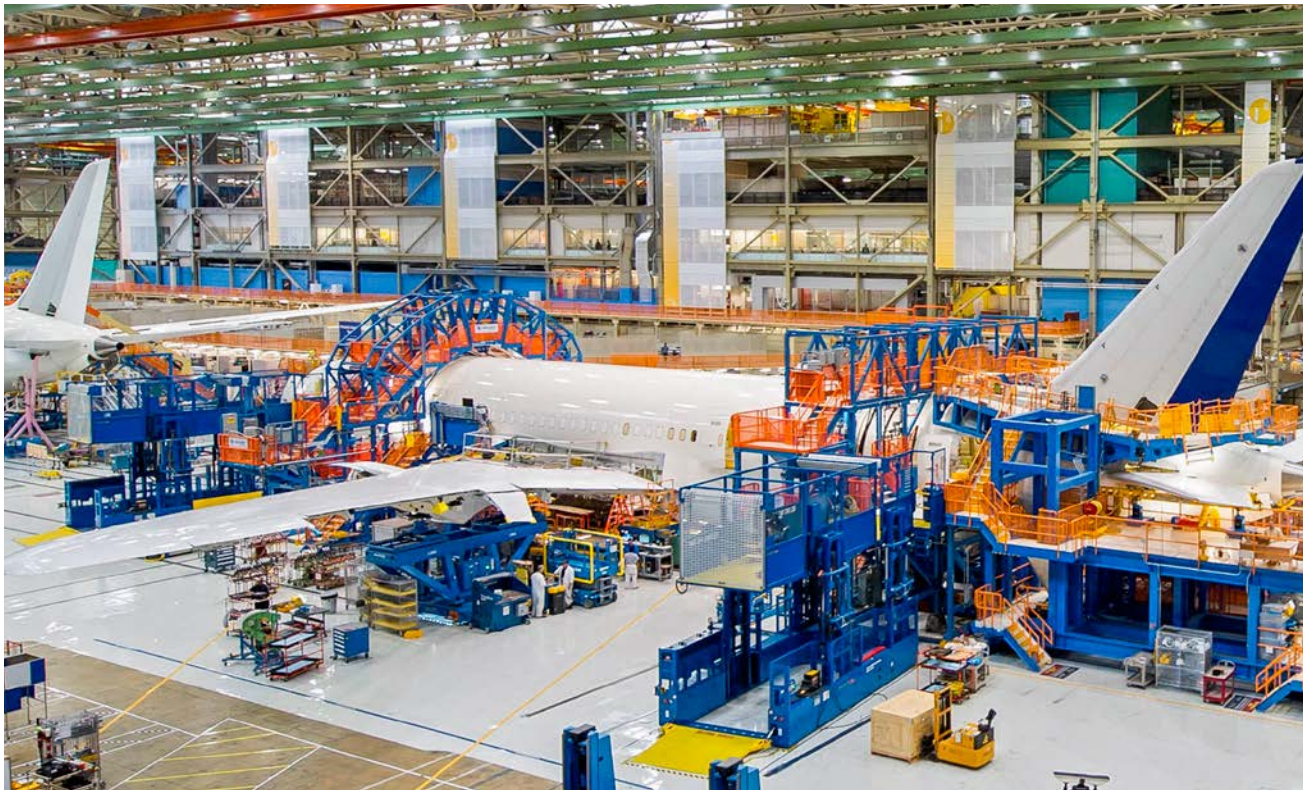
HUBTEX assembly and working platforms type **EPL** are used in various work steps within the aircraft assembly, bringing the fitters and the material to the desired position without any hassle.

An assembly and work platform with 4-mast lift system

These self-propelled, omnidirectional freight elevators with load capacities up to 5 tons are electrically driven and can be controlled via radio remote control or work-stand. The vehicles are optionally available with slow and line moving functions.

Optionally, the vehicle can be manufactured in a 2-mast or 3/4-mast versions. The advantage of the 3/4-mast lifting system is that one part of the platform remains firmly positioned on the aircraft, while the other part functions as a freight elevator.

All vehicles of this type are prepared for automation in AGV operation.

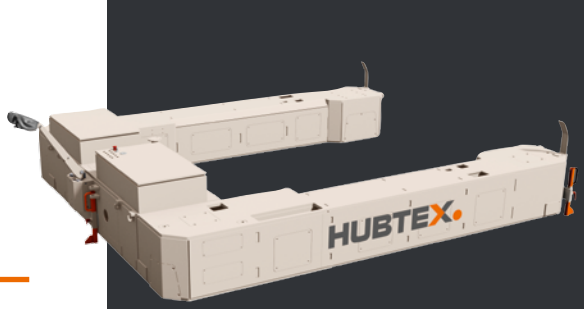


Tool changer

HUBTEX tool changers are used for changing pressing and punching tools, handling injection moulding tools or individual GRP mould carrier systems - and adapted individually.

Tool changers boast compact vehicle dimensions and low entry heights under the tools, and can handle loads of up to 65 tonnes.

Individual adaptation of the tool changers to their application



Platform trucks

CHASSIS INSTALLATION

For the installation of complete aircraft landing gear or landing gear components, HUBTEX manufactures vehicles for easy assembly.

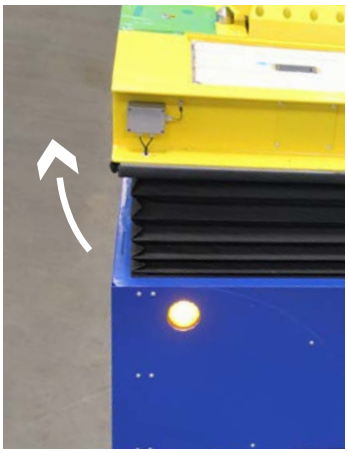
Due to the low entry heights, these vehicles are usually operated via a drawbar or remote control. The multidirectional steering allows the respective components to be precisely guided into their installation positions.
If necessary, assistance systems can help with exact positioning.

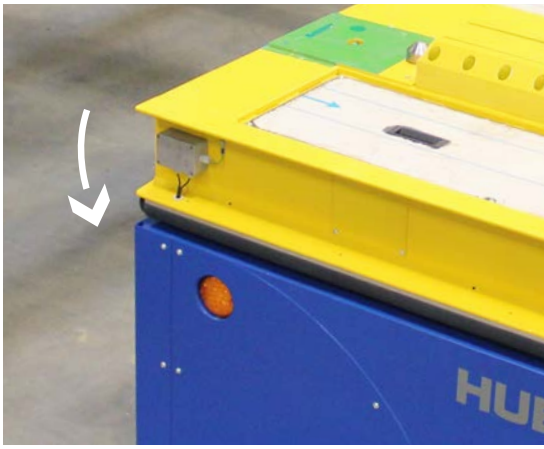
The **SFB** platform transporter is self-propelled and is operated by radio remote control. If required, the vehicle can also be automated.

It has a chassis with multidirectional steering, with which heavy and bulky loads such as entire segments of an aircraft can be precisely manoeuvred even in the tightest of spaces. With its electronic control of steering, travel and lifting functions, the SFB also offers significantly better automation options than hydraulic systems.

With its modular design, the platform truck covers a large number of applications. Users can combine the desired equipment variants and assistance systems based on the modular principle.

For special transport tasks, such as the transport of wings into a painting plant, the SFB determines its position via sensors and calculates the optimum steering geometry for the specific driving task. The exact positioning is then fully automatically.
In addition, numerous safety systems such as personal protection systems or impact protection strips are available for the SFB series, as is the possibility of using two vehicles in a wireless coupling operation.





Platform truck for transporting the tail unit in a painting plant with platform lift

Electric multidirectional sideloaders

HUBTEX multidirectional sideloaders are individually geared to the requirements of the aviation industry.

Typical applications for multidirectional sideloaders can be found in many sections of the value chain handling long and heavy loads. Be it in the warehouse or production logistics, the prefabrication of aircraft segments or handling of mould carrier systems for GRP parts, tools or finished components, through to assembly support or finally in spare parts logistics.

Multidirectional sideloaders in engine assembly

Handling of mould carriers

The docking operation of two vehicles is one way of transporting very heavy loads, such as wings or fuselages. The load is absorbed by both vehicles at the same time. They then connect to each other under Bluetooth control. This creates a stable transport system with double the total load-bearing capacity. Both systems are in permanent communication during transport and can be operated together via a radio remote control.

Connectable multidirectional sideloaders

HUBTEX SECTORS

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