Local Support, Total Commitment
TLD is a Group totally dedicated to the design, assembly, distribution and after-sales support of aviation Ground Support Equipment (GSE), with a history of 60 years in the industry.

7 factories in 4 countries

1,000 employees

Over 100 R&D engineers and 10 MUSD spent on R&D each year

Over 100 employees dedicated to after sale support through spare parts and field technical service

Group spare parts inventory of 32 MUSD

More than 2,500 motorized units delivered in 2013

513 customers in 127 countries (in 2012 and 2013)

TLD manufactures and distributes worldwide, through its global sales and service network, a complete range of GSE equipment, designed by its R&D teams and assembled in its seven facilities located in North America, Asia and Europe.

TLD strongly invests in product innovation with a focus on energetic efficiency, green technologies, and optimization of equipment total cost of ownership.

TLD is highly committed to bringing to its customers in the field, beyond and after the equipment sale, the highest level of support through its extensive network of technical and parts centers around the world.
33 sales and service offices in 20 countries

- Sales and service office
- Manufacturing facility
Airplanes burn a lot of jet fuel using engines while taxiing between terminals and runways, adding to polluting emissions and costing airlines money in fuel and maintenance. Airlines are projected to spend almost $7 billion on fuel just for taxiing in 2020. Then add in foreign object damages on the ground, push back operations and projected carbon emission taxes and the total cost may approach $8.7 billion... Just for taxiing operations!

The main goal of TaxiBot is to significantly reduce fuel burn. With TaxiBot in operation in all busy airports, this $8.7 billion expense would drop to $2.9 billion, generating a $5.8 billion annual savings plus cutting CO₂ emissions by 20 million tons.

TaxiBot is a tractor that tows the aircraft with its jet engine off from the gate to the runway. After a normal push back of the aircraft controlled by the tractor driver, the command is transferred to the aircraft pilot, who, with an innovative “Pilot-in-Control” concept, maneuvers the tractor from the cockpit through a transparent system with the aircraft’s normal steering and braking control devices. After disconnection of the TaxiBot, the tractor driver returns back to the gate.

Powered by two hybrid diesel-electric engines, TaxiBot reduces the amount of fuel used in taxi operations by 85 per cent. For example, the average taxiing-time in Frankfurt is 10 to 12 minutes. The net saving generated by using TaxiBot to tow a Boeing 737 to a disconnecting point close to the runway is 35 gallons of jet fuel, which cost more than $100 at today’s prices. For an Airbus A380 superjumbo jet on a 10-minute taxi, TaxiBot will cut 95% of the fuel burn, generating a net saving for each departure of 130 gallons of jet fuel costing nearly $400.

Totally in line with TLD’s Green philosophy, TaxiBot is the perfect combination of the ecological and economic interests of its users. TaxiBot solves the two main problems encountered in dispatch towing applications:

• The liability issue of the pilot versus driver liability during taxiing; this is a key requirement of the application because once passengers are onboard, the pilot is fully responsible for the aircraft.
• Nose landing gear fatigue; in addition to ensuring that the system is under pilot control, there is also a major concern about the stress applied during traction and braking, not only to the nose landing gear but also to the front fuselage.

The Taxibot is designed so that the aircraft’s nose wheel connects to a rotary turret on the tractor. This interface allows the pilot to control the aircraft using the cockpit steering systems just as he would if the aircraft was moving with its own engine power. Sophisticated sensors combined with velocity control algorithms and GPS enable the pilot to maneuver the aircraft easily. Thanks to Taxibot’s rotating turret and force control system, very low loads are applied to the nose landing gear. Braking is achieved by the aircraft itself with all kinetic energy being absorbed by the airplane braking system, and not by the tractor, which simply adjusts its speed.

The two models of Taxibot - one for single-aisle aircraft under final certification tests, and one for wide-bodies - are suitable for all Airbus and Boeing aircraft with no or very minor modification. A major advantage is that TaxiBot, being a completely separate vehicle, does not bring extra weight to the airplane and no reduction in the cargo bay space. There are no motors or equipment to install on-board that add weight and increase fuel burn during flights. In terms of speed, TaxiBot is able to tow an aircraft at maximum take-off weight at 23 knots, equal to the normal taxing speed.

TaxiBot have been granted the Award of the Innovation of the Year 2013 by the France Ministry of Industry.

Lufthansa Technik’s subsidiary LEOS has been testing the Narrow Body TaxiBot since June 2013 at Frankfurt International Airport at night. All No Technical Objection (NTO) tests and the certification tests on the B-737 and A-320 have.
Increasing safety of ramp operations is a much broader challenge than it appears. As part of its innovative culture, TLD has decided to develop a new solution, bringing GSE to a higher level of safety during operations, with the ASD (Aircraft Safe Docking System).

As this safety challenge concerns the aircraft docking of any GSE, TLD has developed a solution adapted to belt loaders, passenger steps and loaders. The goal of the system is to prevent damage by GSE to the aircraft, and moreover to ensure that no aircraft should depart with unreported impact. The TLD ASD is a simple, reliable and easy to maintain solution.

An important objective of our R&D has been to develop a solution retrofittable on most existing equipment, from any manufacturer, as this safety improvement, once implemented, will most preferably need to be installed on the whole fleet of equivalent equipment. As a matter of fact, it would be dangerous for an operator already accustomed to this safety system, to be suddenly deprived of it when using the equipment from another brand.

Q How does the ASD work?

The ASD system prevents the equipment from approaching the aircraft too fast, thus avoiding a potential contact resulting in damage to the fuselage. With this view, we have defined 3 different areas in the airport for equipment speed control.

In the ramp area, the GSE can be driven without any speed limitation (up to 25km/h) and without specific supervision.

As the driver approaches the aircraft, he enters the safety area. The operator reduces his speed and presses the ASD button to activate the system. Immediately, a dedicated flashing beacon alerts the management and the other operators on the ramp that the equipment is now in safe mode. In this area, the GSE speed is limited to 5km/h, and the proximity sensor, associated to a sensitive bumper, are activated. The sensor is a 3D camera able to detect any obstacle in front of the GSE up to 7 meters (fuselage, engines, other GSE, other operators...). A buzzer warns the driver if he gets too close to the speed limit and in case of slow or no reaction from him, the system will automatically stop the equipment.

In the final phase of the docking, or approaching closer than few meters from an obstacle (mainly the fuselage), the ASD system automatically limits the speed of the vehicle to 0.7 km/h. At that speed, even in case of contact, the GSE’s kinetic energy can hardly cause any significant damage to the aircraft.

In case an impact with the aircraft occurs (or in case the operator does not activate the ASD system for instance) the impact strength will be measured and the GSE will be stopped until the responsible manager un-locks the vehicle after fuselage inspection. This procedure is comparable to the one existing on towbarless tractors in case of reported overtorque events.

Q Why is the ASD system safe?

ASD is not only a system, it is a combination between an operational process (systematic and easy to enforce and to control) and an electronic control supervising the speed of the GSE according to the area of operations.

The process is based on the fact that the driver is still in charge and responsible. So the ASD is initially not taking the lead on the driver but supervises his behavior. This supervision ensures that the driver operates in a safe manner, avoiding potential accidents with severe consequences. Within the aircraft area, the ASD is assisting the driver, and only acts on the equipment speed if the operator does not respond properly in time.

Being in charge and not relying on a fully automated system, the driver is much less exposed to possible system or equipment technological failure or adverse conditions. He must still ensure that he operates in a safe way.

This concept is also allowing us to design a system with a reasonable level of complexity. There is no 100% foolproof system and overly complex systems are difficult to maintain. If the driver totally relies on the system, technical failures can have disastrous consequences.

Q What makes the ASD unique to other systems?

The concept is simple, systematic and still largely relies on the operator supervised by the system, and not the other way around. In case of system failure (harsh meteorological conditions, electronic failure, etc...) the GSE remains just as safe as today.

The ASD is based on a single 3D camera instead of multiple sensors or radars. We believe that a solution based on a single sensor is a key advantage over solutions based on multiple radars. First, those radars are more sensitive than a camera to interference due to meteorological conditions. Second, when a large number of radars is deployed, the potential of technical failure is increased, and it is difficult to make the difference between a radar not detecting any obstacle and a radar not functioning. This creates a significant risk as operators may rely on a non-functioning system.

The 3D Camera requires very limited cabling, thus allowing an easy equipment retrofit, and maintains its own correct performance (the camera monitors itself every 150 milliseconds that it is functioning properly). In case of malfunctioning or extreme operations conditions, the camera detects the problem and
The TLD loaders range continues to expand with the 7.5 ton Extended Loader TXL-838-STD-XL

TLD offers the largest range of cargo loaders in the industry. The range spans from commercial applications to military applications, and even includes the giant loaders used by the leading aircraft manufacturers for their airlift operations.

The TXL-838 7.5 ton loaders range already offers the largest range of configurations from Standard, Wide, Combo, Universal to Superior. Today, the evolution of ground handling operations continues to create new requirements and has resulted in a new version in the TLD loaders range: the TXL-838-STD-XL, a 7.5 ton extended loader.

This new TLD model is a result of an increasing demand from ramp operations for longer loaders. The objective is to provide the baggage tractor and its dollies an easier and safer access to the rear platform of loader elevator, reducing the risk of interference with a long catering truck in operation in the same environment. Although TLD already provides the longest 7.5 ton loader on the market in order to address this requirement we have developed an extended Standard version offering an additional length of 1.2 meter.

The TXL-838-STD-XL brings safer operations and increased productivity through more rapid loading operations. This new answer to the numerous challenges of ground handling operations is one more example of how TLD supports its customers’ requirements everywhere in the world, for every application, by delivering innovative high quality products and industry-leading support.

Why is ASD reinforcing safety of ramp operations?

ASD, through its supervision, is making operators fully responsible while more controlled and managed.

More controlled, because in the aircraft area, the ASD is monitoring the environment and ensures that operators never drive too fast or too close to potential causes of impacts. ASD also acts as a black box, recording all events, including the conditions of the GSE during, before and after the event. So drivers know that ramp managers will know their operational behavior as well.

More managed, because through a beacon light, the GSE displays whether the operator is following the procedure or not.

Ultimately, ASD is increasing the operation’s safety. In case an impact should still occur, the GSE would stop and restart only after a manager comes and inspects the aircraft helping in eliminating unreported impacts.

Our loaders range include:

- 3.5 tons loader    TXL-737 & TFE-3.5
- 7.5 tons    TXL-838 & TFE-7-GR
- 15 tons    929
- 20 tons    929-S
- 23 tons    PFA-50 (military)
- 25 tons    PFA-25 (military)
- 30 tons    121
- 36 tons    121-S
- 70 tons    D8T-110

Although TLD loaders have continuously evolved in order to optimize reliability, ease of maintenance and operation, the main features of their mechanical design have remained the same for many years: Flat top Chains offering the most efficient conveying system, high-strength yellow grasshopper lift design for fast elevation, clear deck configuration with no sight or load obstruction, and optimized stress distribution on the platform and chassis. These features have earned a solid global reputation and have proven their merits in the field over the years.

The TXL-737 3.5 ton loader is available in diesel and electric versions with more than 50 electric units in operation today. The TXL-838 7.5 ton electric loader actually uses the TLD reGen technology with units in operation since 2010. These innovative designs bring important savings in fuel consumption and maintenance to their users. Our reGen loader is the only unit on the market capable of operating during one full day at the same speed as a diesel unit without recharging its batteries.
In order to accommodate its fast expansion in the China market, TLD opened a new facility in Wuxi in 2008, adding to its manufacturing capacity with a factory already existing in Shanghai Pudong. Wuxi is a city located 130 km west of Shanghai with easy accessibility by highway, high speed train, and commercial airlines. TLD Wuxi started as a rented facility in the Wuxi New District, near the airport. To keep up with the growing demand, TLD acquired a vast plot of industrial land in 2010 in the Wuxi Airport Industrial Park for the construction of a new plant. The architectural design and construction of the first phase of the project was begun in late 2011.

The 1st phase project was to construct a building area of 10,500 m², including over 1,600 m² office area. The entire building was designed to an advanced architectural concept, with key features in TLD blue and white. A large glass curtain wall and aluminum panel facade create a strong visual impact with vivid colors. In addition to environmental protection requirements, safety and energy-saving designs were applied. The roof design is a split-level containing daylighting panels with powered ventilation louvers. A large roof garden offers a pleasant and bright office environment. After final fitting of interior equipment and furniture, the TLD Wuxi factory moved into these new premises in May 2013.

TLD Wuxi produces the following TLD products ranges: loaders, aircraft conventional tractors and lavatory and water trucks. These products, also assembled in other countries by other TLD factories, benefit from the joint engineering forces of the TLD design offices. TLD also manufactures in Wuxi the JST, TLD’s diesel baggage tractor, for the worldwide market.

The TLD Wuxi factory has delivered 340 pieces of motorized ground support equipment in 2013 to customers in more than 30 countries and is on pace to surpass that volume in 2014.

The extension plan of this site is already starting, with the goal to be completed by the end of 2015. At that time, the capacity of the TLD Wuxi factory will double, and it will clearly be one of the largest GSE manufacturing facilities worldwide.
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