



Lufthansa Cargo

planet

Special Edition: Enabling Spare Parts – Oil & Gas, Machinery, Aviation

www.lufthansa-cargo.com



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24/7

availability

Equipment breakdowns do not respect opening hours. This is why Lufthansa Cargo is available 24 hours a day, 365 days a year, to ensure that vital spare parts can be delivered as quickly as possible to anywhere in the world where they are urgently needed.

Spare parts industries

Keep it going

Machinery must be kept running – downtime is not part of the plan. If the German manufacturer's beverage bottling plant refuses to work in the Brazilian midsummer, if an aircraft has to stay on the ground in Beijing without a replacement engine from the UK, and if only a spare part from Korea can get a container ship moving again off the coast of San Francisco, then time certainly is money. A lot of money. Superfast worldwide spare parts logistics (also called "after sales logistics") has become ever more important for manufacturers and users of machinery of all kinds in our era of global markets. What matters is to have quick solutions at hand to counter any emergency, anytime and anywhere.

A key component for dealing with this scenario is a well-established airfreight network, one that allows spare parts to be delivered literally anywhere in the world within just a few hours if necessary, so that production stoppages and engine failures can be remedied quickly. This also makes it easier to meet the requirements under maintenance contracts and optimise the working hours of service technicians on site. Fast handling processes and well-designed networks also contribute to a cost-effective centralized warehousing structure. While digital processes such as software-controlled supply chain management, remote monitoring and predictive maintenance can often reduce the time pressure on the supply chain, sometimes speed is the only thing that will really make a difference. When ships and trucks are simply too slow, airfreight is brought into play to avert major financial losses.

The numbers produced by the analysts from Seabury Consulting also show that airfreight is becoming increasingly important for the shipment of machinery parts. Following the slump in 2009 to around 3 million tons, the volume of machinery parts, components, supplies & manufactures rose dynamically to around 4.2 million tons in 2017. For 2019, Seabury predicts a further increase, to around 4.6 million tons.

Lufthansa Cargo

Smart, quick, global

Urgent deliveries worldwide – international players simply cannot operate without airfreight. Lufthansa Cargo has the right solution. When time is important but not the only factor, Lufthansa Cargo can also transport spare parts using their “td.Basic” service, which comes at a more affordable price, yet still with the customary Lufthansa quality. With the standard product “td.Pro”, delivery times for spare parts to reach their destination become significantly shorter still.

For situations in which it is not a matter of days but hours, the express service “td.Flash” is ready for action. “td.Flash” is the global leader in airfreight express services for airport-to-airport shipments. With its mix of speed, quality and rapid access to available capacities “td.Flash” is the best choice for urgent deliveries. This holds true for consignments of any dimensions, and without any weight limits – no matter whether they weigh 50 kilograms or 5 tons. “Courier.Solutions” can take sensitive freight onto the fast lane, with constant proactive monitoring. And when it looks like you may be all out of options, Lufthansa Cargo will come to the rescue with their “Emergency.Solutions” for freight emergencies – a unique solution in the airfreight business that pulls out all the stops to carry your freight to the required destination airport without delay – anywhere in the world, regardless of the capacity required, and with a money-back guarantee.

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52

tons heaviest
single consignment

With “td.Flash”, “Courier.Solutions” and
“Emergency.Solutions”, Lufthansa Cargo
has the right solution for anything that is
urgent or super urgent.



Emergency.Solutions
High speed for emergencies



Courier.Solutions
Personal supervision for
time critical goods



td.Flash
When time is everything



td.Pro
When time is crucial



td.Basic
When price is crucial

BGO



100

thousand US dollars

It can cost that much if a drilling head such as this three-roller drill bit made of highly resistant steel fails for 24 hours.





Freight from the fjords

In crude oil production, industry is increasingly relying on offshore production. Many of the more recently discovered oil and gas fields are located off the coast of West Africa, for example. Whenever parts need to be replaced, Lufthansa Cargo comes into play – for example, when transporting a drilling head for a production platform off the coast of Namibia. Manufactured in Bergen (BGO) in Norway, the valuable cargo was transported by truck to Stavanger airport, some 200 kilometers away, and arrived just in time for the take-off of a Lufthansa Cargo plane headed for Frankfurt. From there, the freight plane went on to Johannesburg in South Africa. The third and final airborne stage led to Walvis Bay (WVB) on the coast of Namibia. There the crew of a platform supply ship took delivery of the drilling head. Total transport time for the “td.Pro” shipment from Bergen to Walvis Bay: a mere five days.

Kuehne + Nagel

Rapid. Guaranteed

A helicopter whirrs over the Kuehne + Nagel site in the bay of Tananger on its way to one of the oil rigs out in the North Sea. Anyone driving from here by car through the Nordic landscape, passing wooden huts, does not get the impression of being in the center of the Norwegian oil industry. Very little indicates that specialist firms in the region produce and stock extremely important parts for the oil, gas and shipping industries worldwide. Kuehne + Nagel is a long-standing partner of many of these firms and has 80 employees stationed near Stavanger, 16 of whom work in airfreight.

“Particularly in the oil & gas and ships spares segment, we see a lot of urgent shipments,” says Synnøve Thormodsæter from Bergen. She is responsible for airfreight at Kuehne + Nagel in Norway. “Logistically, our job is particularly complicated when it comes to large and outsized parts.” In such cases, a lot of organizing and improvising is required. Under pressure, various options have to be checked and immediate decisions taken. Lufthansa Cargo therefore offers a product that specifically caters to such cases. Its desired qualities: highest priority, short-term availability and absolute reliability. The result: “Emergency.Solutions.” “In addition, our product management developed intelligent ground processes under the keyword ‘planned emergency situation’ in order to reduce improvisation to a minimum in an emergency case,” explains Christoph Harneid, Country Manager Norway at Lufthansa Cargo.

The cargo airline brings along the best credentials for this exquisite premium product: employees with the necessary experience to resolve related tasks and offer comparable processes and a route network with short-term connections to destinations worldwide. As most flights are established scheduled flights, landing permissions or aircraft do not, as a rule, have to be additionally organized. Transfer times at the airport are kept extremely short thanks to well-coordinated processes. The direct transshipment from one aircraft to another is ensured without having to take the detour via the transit warehouse. If required, the Lufthansa Cargo Charter Agency is also involved in the process. The shipment thus stays “under one roof” and can be shipped with just one air waybill and one invoicing channel. This reduces complexity and simplifies the processes. And a team in Frankfurt keeps an eye on the shipment during its entire transportation.

“Logistically, it’s a challenge to transport an urgently required shipment without delay. In this business, we need partners with flexible planning”: Synnøve Thormodsæter, responsible for airfreight at Kuehne + Nagel in Bergen, Norway, with Christoph Harneid, Country Manager Norway at Lufthansa Cargo





A Crane Worldwide employee gets a spare part urgently required for an oil drilling site ready for transport via "Emergency.Solutions"



Crane Worldwide Logistics

“Houston, we have a problem”

Phone calls with this opener are not always meant ironically.

When the equipment on oil drilling sites in the Middle East or West Africa breaks down, the number of Crane Worldwide Logistics, Houston, is often dialed. Troubleshooting is one of the main specialties of the global player with 103 offices in 25 countries and revenues of 575 million dollars. If oil stops flowing because of a faulty drill head or broken piping, every minute counts. "Rig down" means hundreds of thousands of dollars in lost revenue, so the costs of transporting spare parts are of minor significance in comparison. What matters most is that work can resume as quickly as possible.

"In such cases we contact Lufthansa Cargo's Sales Team in Houston and talk about 'Emergency.Solutions,'" says Josh Jungwirth, Regional Vice President at Crane Worldwide Logistics. This product ensures that an urgently required item of cargo reaches the destination airport via the fastest route, no matter what weight.

Also important: drilling equipment doesn't fit into a standard container. For such urgent cases Lufthansa Cargo also offers charter options with "Emergency.Solutions". "Our job in Houston is to make transportation happen," Rohan Lobo, Lufthansa Cargo's Station Manager there, confirms. "That is always a challenge. Our heaviest 'Emergency.Solutions' shipment so far weighed 14 metric tons."

Lobo refers to Malabo to explain how flexibly Lufthansa Cargo works. "Malabo is an airport on the coast of Equatorial Guinea, where there's a lot of oil drilling but where few airlines with sufficient cargo carrying capacity operate flights. Crane has a customer there. If the booking is made in the morning, we can reserve the full capacity of the lower deck on the passenger flight at 4:30 p.m."

The maximum weight in the belly is normally around 4.5 tons. "In an emergency we go to the limit," says Lobo. "Even on a Saturday: the aircraft landed at 9:10 a.m. next day in Frankfurt. The "Emergency.Solutions" Team stepped in straight away: the shipment was transferred tail-to-tail to flight LH 562, which took off on a non-stop flight to Malabo at 10:30 a.m."



Despite their weight and size, these drill bits must reach their destination as quickly as possible. A typical case for "Emergency.Solutions"

3,000

meters deep

To produce oil and gas, companies are making ever-increasing efforts – highly developed exploration and production technologies are deployed worldwide.



Benthic

Beyond the sea

Far off the coast of Mozambique, a piece of drilling equipment is lowered into the water. From a ramp at the stern, the metal colossus slowly slips down into the sea. It will be doing its work at the bottom, at depths of up to 3,000 meters. The drill screws itself into the seabed and then removes samples. Whether it is mud, sand, stones or rocks – the material provides oil and gas companies with information on where it is possible to build pipelines, foundations or anchoring systems for their oil platforms.

Benthic specializes in the collection of the valuable information from the depths of the oceans. Over the past decade, the company has developed into an end-to-end provider of geophysical and geotechnical consulting, engineering and data collection services. The company operates its custom-built PRODs (Portable Remotely Operated Drills) around the world. For Benthic, this means that time is precious. “As soon as we start work on an expensive offshore vessel, the fast and efficient transportation of spare parts and consumables becomes a decisive factor for us,” says Shannon Martin, Offshore Manager at Benthic. The primary reason why the company relies on airfreight, however, is that the samples from the seabed must arrive at the laboratory in Houston

in perfect condition. Their consistency and temperature must not be altered during the trip to Texas. For this reason, the samples must be kept at a constant low temperature during transport, and Benthic spares no effort to ensure that there will be no disruptions in the transport chain. Kuehne + Nagel is the company in charge of the sophisticated logistics. For the airfreight legs of the journey, the forwarder uses Lufthansa Cargo’s “Cool” service.

Operating from South Africa, Kuehne + Nagel and Lufthansa Cargo organize the transport runs on behalf of Benthic from eastern Mozambique to the United States every six weeks. The samples are brought to the mainland in a refrigerated container. A truck then takes them to the airport in Pemba, where they go on a charter flight to Johannesburg. In South Africa, Lufthansa Cargo takes over and the journey continues in a Unicooler, via Frankfurt to Houston. Shannon Martin: “Working with Kuehne + Nagel and Lufthansa Cargo, we once were able to ship 18.7 tons of samples in seven consignments to Houston – without any damage, and without any delays!”

>>> First published in **planet** 2/2014



MTC

Control panel with a screen and buttons.

VOITH



Voith

A passion for technology

Generators for Angola, trams for Taiwan, paper-making machinery for the Netherlands. Voith is an international technology conglomerate with a workforce of more than 39,000 “Voithians” and generating over five billion euros in sales. Ensuring that the cooperation between the different Voith production sites and suppliers and customers all over the world functions smoothly and speedily calls for sophisticated logistics chains. In spare parts logistics, Voith relies on Lufthansa Cargo – and together they are breaking new ground: a product is currently being prepared that will allow technicians and spare parts to travel together in the same aircraft. Because a spare part will not work without a technician, and a technician without the spare part is of no use. The obvious solution is therefore: put them both on the same plane so that they will arrive at the same time.

>>> Extract from **planet** 2/2015

Whether it is turbines like these destined for Angola or sorting equipment for stock preparation plants (photo on the right) – Andreas Sedlatschek from Voith and Michael Butz from Lufthansa Cargo certainly have the global supply chain under control




18

A Herrenknecht mixshield with a diameter of 13.7 meters was used at a depth of up to 106 meters to bore the Istanbul Eurasia Tunnel

Herrenknecht

Tunneling a way through





Real giants: tunnel boring machines as those pictured in Lötschberg, Switzerland, can be up to several hundred meters long with a diameter running to 19 meters (r.)



Regions come together, trade is supported and the environment is protected. Whether the Bosphorus or the Alpine massif: today, geographical barriers can be overcome in many cases thanks to modern tunnel structures. In that respect, small as well as huge tunnel boring machines from Herrenknecht play a key role worldwide. A rotating cutting wheel, equipped with so-called cutting knives and disc cutters, swiftly works its way through the underground ahead. Depending on the type of machine, protection provided by the shield chamber means precast concrete segments can be additionally transported through the completed part of the tunnel and assembled by the erector to form a new tunnel ring. The tunnel carcass is therefore extended ring by ring.

No challenge seems too big for the founder and Chairman of the Board of Management, Martin Herrenknecht, and his team of engineers, machine operators, geologists and more than 90 other professionals. For example, at the Bosphorus crossing, the huge boring machine needed to withstand a water pressure of eleven bar. A particular challenge involved developing a cutting wheel that allows for the safe replacement of extraction tools from inside the cutting wheel, including under enormous pressure. The solution comprised cutting wheel arms that are accessible under atmospheric conditions and a transfer system developed for the tools by Herrenknecht.

Herrenknecht can look back on 3,100 completed projects in 80 countries. 5,000 employees worldwide now work for the company. New motorway and metro tunnels are just as much a part of the area of application as expansion of the supply and disposal infrastructure for waste water, drinking water, electricity, oil and gas.

Herrenknecht tunnel boring machines (TBMs) are normally unique, in particular if large diameters are required. Design, production and assembly of the giants can take up to one year. Of course, following comprehensive tests and acceptance by the customer, the high-tech

equipment needs to be brought to the location where it is to be used.

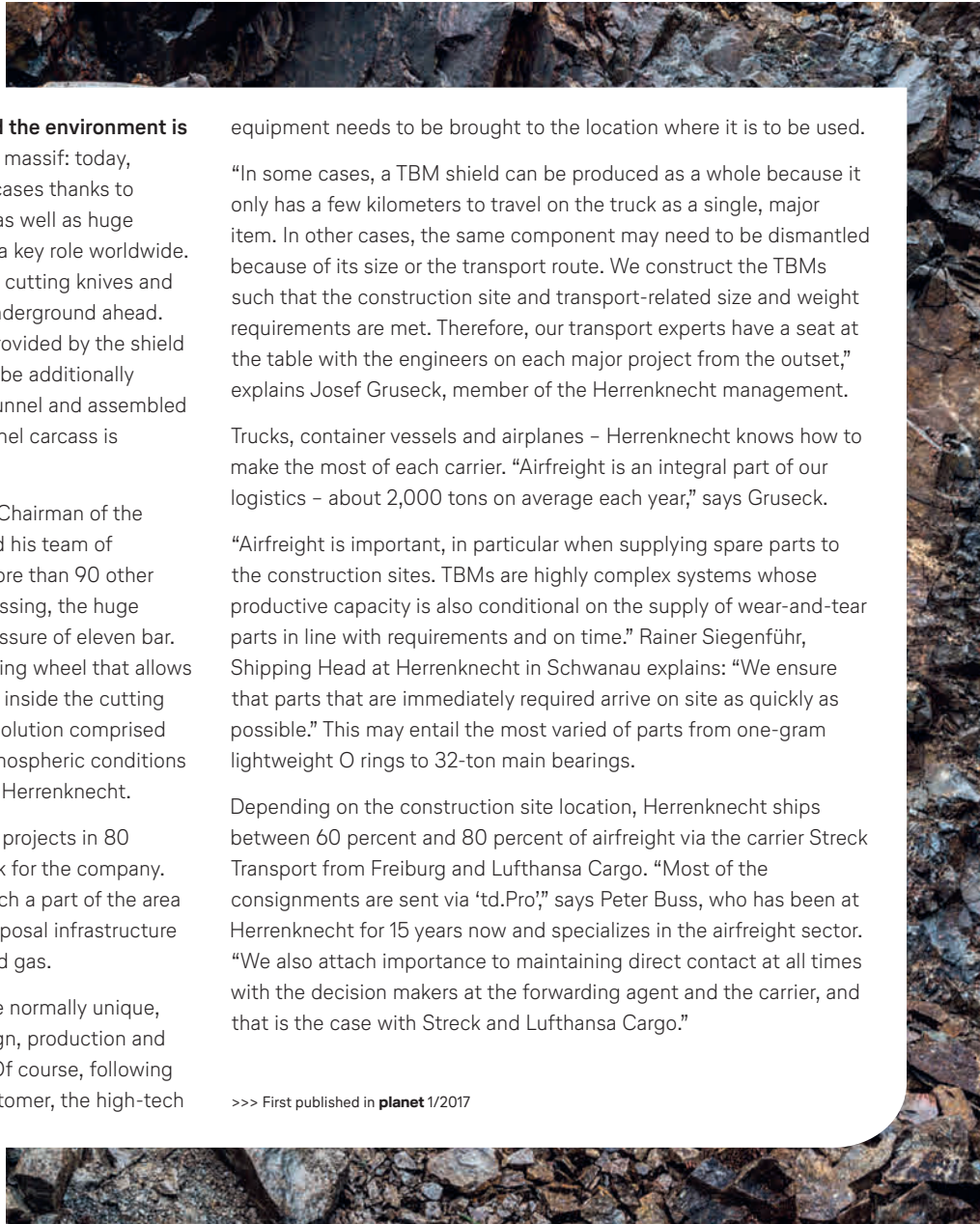
“In some cases, a TBM shield can be produced as a whole because it only has a few kilometers to travel on the truck as a single, major item. In other cases, the same component may need to be dismantled because of its size or the transport route. We construct the TBMs such that the construction site and transport-related size and weight requirements are met. Therefore, our transport experts have a seat at the table with the engineers on each major project from the outset,” explains Josef Gruseck, member of the Herrenknecht management.

Trucks, container vessels and airplanes – Herrenknecht knows how to make the most of each carrier. “Airfreight is an integral part of our logistics – about 2,000 tons on average each year,” says Gruseck.

“Airfreight is important, in particular when supplying spare parts to the construction sites. TBMs are highly complex systems whose productive capacity is also conditional on the supply of wear-and-tear parts in line with requirements and on time.” Rainer Siegenführ, Shipping Head at Herrenknecht in Schwanau explains: “We ensure that parts that are immediately required arrive on site as quickly as possible.” This may entail the most varied of parts from one-gram lightweight O rings to 32-ton main bearings.

Depending on the construction site location, Herrenknecht ships between 60 percent and 80 percent of airfreight via the carrier Streck Transport from Freiburg and Lufthansa Cargo. “Most of the consignments are sent via ‘td.Pro,’” says Peter Buss, who has been at Herrenknecht for 15 years now and specializes in the airfreight sector. “We also attach importance to maintaining direct contact at all times with the decision makers at the forwarding agent and the carrier, and that is the case with Streck and Lufthansa Cargo.”

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FRA





Jet engines for Argentina

Ushuaia (USH) is the gateway to Patagonia and to the Antarctic. Most travelers arrive in this city via the Aeropuerto Internacional de Ushuaia Malvinas Argentinas. One of the biggest carriers operating out of this airport is the Argentine airline Austral Líneas Aéreas. The company operates a modern fleet of 26 Embraer 190 aircraft. These planes are powered by two CF34-10E series jet engines. Like any other engine, the CF34 must be serviced and repaired at regular intervals. On the premises of Lufthansa Technik AERO Alzey in Rhine-Hesse, for example. The fleets of around 100 customers worldwide are serviced here. Once the engines have been overhauled, Central Global Cargo GmbH, based in Kelsterbach, Germany, takes over and then uses Lufthansa Cargo's network of routes for shipping them to their destinations. Lufthansa Cargo flies the 11,400-kilometer route from Frankfurt (FRA) to Aeropuerto de Ezeiza in Buenos Aires twice a week. After a journey of almost 14 hours, the overhauled CF34 engine will either be installed directly in an Embraer 190 by Austral's own technicians, or it will be delivered to the Ushuaia aircraft maintenance facility as a standby spare part for the fleet's internal circulation.

Airbus

It fits!

The new Airbus A350 represents a milestone for aviation. And Lufthansa Cargo is becoming part of the global service infrastructure. The transport rack carrying the huge engine module slowly makes its way through the tailgate of the Boeing 777F. Just a few centimeters of daylight remain between the packaged fan module and the ceiling of the freight plane's cargo hold. They are important centimeters for Lufthansa Cargo. Working with Lufthansa Technik, the airfreight company successfully trialed a new transport rack from Rolls-Royce. In doing so, the manufacturer of the Trent XWB engines for the Airbus A350 had taken an enormous leap: it managed to transport one of these gigantic engines – disassembled into just a few modules – inside a Boeing 777F. For Lufthansa Cargo, this small piece of a mosaic is of strategic importance. Because of its range and efficiency, the A350 is the aircraft is one of the great hopes for the future of passenger airlines worldwide – and Lufthansa Cargo stands ready to support their service infrastructure around the globe.

When fully assembled, each Trent XWB engine weighs seven tons, stands three meters high and three meters wide, and has a total length of five meters. Added to that is the transport rack, whose dimensions are even bigger. And that is too big even for the large cargo door of the Lufthansa Cargo B777F, and so the engine can really only be transported by air using special airfreighters like the Antonow An-124, the Airbus Beluga or a Boeing C-17. This is a decisive disadvantage, especially when an “Aircraft on Ground” (AOG) is reported with engine problems – serious losses in revenue and high costs can quickly add up, and the situation therefore needs to be remedied in the shortest possible time. This is when a spare engine must be delivered – to wherever in the world it happens to be needed. With a loading concept that is now optimally tailored to meet the requirements of both cargo and freight planes, Lufthansa Cargo is ready for the era of the A350.

>>> First published in **planet** 1/2017

Dimensions such as those of the XWB modules are not listed in the Weight & Balance Manual for the B777F. A new lashing concept was therefore required



The fan module needs to be separated from the core engine to transport the huge A350 Trent XWB engine in a B777F – the only way it will fit in the hold of the Lufthansa Cargo Triple Seven





4 5 00

orders for the
A350-900...
were received at the
end of 2017. The
modern passenger jet
consumes 25 percent
less kerosene than
comparable models. Its
noise footprint is up to
50 percent smaller.



Because sometimes fast is not fast enough.

td.Flash – Your shipment. Your speed. Your choice.

When every second counts, **td.Flash** is the answer. With this high-speed service for airport-to-airport shipments, we fly your freight using the fastest route to more than 100 countries in the world.

Find out more at lufthansa-cargo.com/tdflash



Lufthansa Cargo
Networking the world.