

# LIEBHERR *AeroNews*

The Customer Support and Services Newsletter of Liebherr-Aerospace

Issue N° 23 / April 2017



Dear Reader,

We are excited to share with you in this issue the two major events that the Customer Services organization of our Aerospace Division has experienced during the first quarter of 2017, demonstrating the continuity of our long term strategy to operate close to our customers worldwide for enhanced and efficient communication.

The first event has been the opening of our new regional office in Bangalore, India, early February, in conjunction with our attendance to the Aero India Airshow, materialising our project "Footprint in India".

The second one in March has been the celebration of ten years of presence of Liebherr Middle East FZE, the Liebherr company that is hosting our aerospace employees, offices and spares distribution center since eight years now. We were honored to host during this event distinguished representatives from local airline customers.

You will also read news about the ramp up of our service center based in Saline, Michigan (USA) in the repair of heat transfer equipment, an activity that we started mid 2016.

Additionally, we continue to invest in people, technology and facilities to enhance our services to our customers.

We also received the annual ratings from our airframe customers: your responses to these surveys are essential for us to better understand your expectations and focus on what we can do better, as well as appreciating what you consider we are doing well.

Enjoy your reading!



Charles Thoyer-Rozat  
Executive V.P., Customer Support & Services



With its new facility in Saline, Michigan (USA) Liebherr-Aerospace has added the capability to repair heat transfer equipment. Meet here the proud team and read more about our activities on page 5 in this issue of our newsletter.

## Organization

### Personnel Changes



**Awibhawan Dhakharia** joined Liebherr-Aerospace's India Office in March 2017 as Senior Manager to develop Customer Services activities in India.

Awibhawan has 18 years of experience in the aerospace industry in India, supporting business development activities and managing program and customer relationship.

**Contact:** awibhawan.dhakharia@liebherr.com



**Remi Jeannequin** joined the Customer Services team of Liebherr-Aerospace in Dubai in November 2016 as a Middle East Regional Representative.

Previously a project manager for an American International Group, Remi was in charge of developing operational infrastructures in hot spots in the Middle East (e.g. Iraq).

Remi graduated from Vatel Institute with a Master's Degree in Business Management. He is in charge of supporting customers in the Middle East Region for all our products and services.

**Contact:** remi.jeannequin@liebherr.com



**Jet Du** has graduated from Tongji University (P.R. China) majoring in aviation electronics. He has been involved in the aerospace industry for 12 years, including base line maintenance, engineering and quality management.

He joined the Customer Services team in Shanghai in last December as Quality Manager.

**Contact:** jet.du@liebherr.com



**Cece Zhang** joined the Customer Services team of Liebherr-Aerospace in Shanghai (P.R. China) this year as a Sales Administrator. Cece graduated in Logistics Management from civil aviation university. She worked for ten years in Customer Service of a Maintenance Repair Organization. She has a strong background in customer service and

customers' relationship.

**Contact:** cece.zhang@liebherr.com



**Chun Kiat Sim** joined the Customer Services team of Liebherr-Aerospace Singapore as the new Head of Regional Sales in March 2017.

Chun Kiat has a Master of Business Administration (MBA) and a Bachelor of Engineering (Hons) in Mechanical and Production Engineering. His previous functions in fleet management and program management in a local Maintenance Repair Organization and an Original Equipment Manufacturer have equipped him with solid experience in the aviation industry. He will add value and further strengthen the force of our sales team to a higher level.

**Contact:** chunkiat.sim@liebherr.com



**Martin Groh** has joined Liebherr-Aerospace Lindenberg GmbH (Germany) in 1989 as engineer in the Environmental Control System Qualification and Testing Department.

Later he changed to Technical Project Management and to Program Management for Development, working on Bombardier programs, Rolls-Royce power gear programs and also on the Airbus A320 program. Since January 2017 he is working as Program Manager Support in the Customer Services team.

With a strong background gathered in leading program management positions, Martin is looking forward to bringing his management experience into the Customer Service organization as the new Program Manager Customer Service – responsible for Bombardier and Embraer programs.

**Contact:** martin.groh@liebherr.com

## Strategic Steps in the Indian Aerospace Market

Liebherr-Aerospace expects India to evolve as one of the world's major aerospace markets, both for aircraft manufacturing and also regarding aircraft operation.

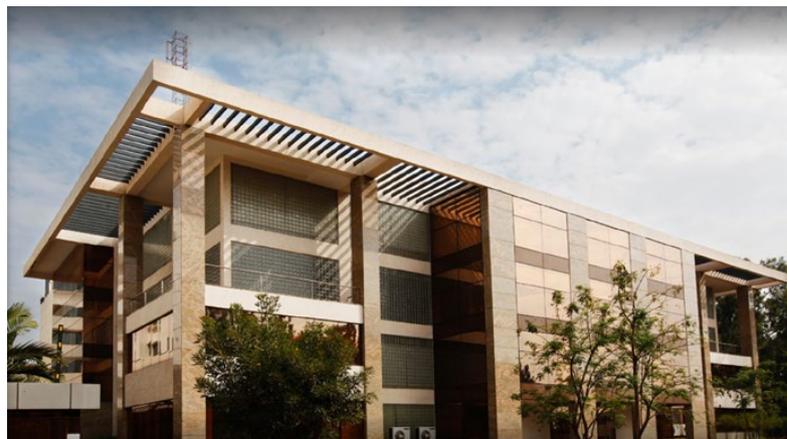
That is why the company, a leading supplier of systems for the aviation industry, has recently opened a new regional office in Bangalore. The opening marks an important milestone as it underlines Liebherr's long-term strategy to increase its presence in India and to implement a major footprint in the country.

The facility is ideally located in Whitefield, in the heart of Bangalore's aerospace hub. The main task of the Liebherr-Aerospace team on site will be to liaise with aircraft operators and Indian suppliers and to coordinate projects with the European based OEM facilities Liebherr-Aerospace Lindenberg GmbH (Germany), Liebherr's center of excellence for flight control, actuation, gears, gearboxes and landing gear systems, and Liebherr-Aerospace Toulouse SAS (France), Liebherr's center of excellence for air management systems.

The new regional office will serve as a basis for the various strategic steps of Liebherr-Aerospace in the Indian Aerospace market: The company is investing in the continuous growth of the development of its capabilities in order to support Indian customers operating the existing fleets of for example Airbus, ATR, Embraer, Dornier and Dassault aircraft. The customer service office based in Bangalore will reinforce the presence with each operator and ensure contact with Liebherr-Aerospace's repair station in Singapore which is in charge of providing customer services in India and the Asian/Pacific Rim Region.



Representatives of Liebherr India and Liebherr-Aerospace during the ribbon cutting ceremony at the new office in Bangalore



Liebherr-Aerospace plans further to accelerate the development of its supply chain in India, where the company purchases today for example gearboxes and engineering services. In parallel, partnerships with Indian companies are being discussed regarding the transfer of some technologies that will enable the manufacture of Liebherr-Aerospace parts in India.

The aircraft equipment manufacturer focuses also in the coming years on proposing highly integrated and engineered products to the Indian air framers for their up-coming aircraft programs in its product lines of air management systems, flight control and actuation, landing gear systems as well as gears and gearboxes, and electronics.

Liebherr-Aerospace is already supplying and servicing many parts to aircraft built in India by HAL, such as for example heating and ventilation systems components for the ALH helicopter, the cabin pressure control system for the Jaguar and the flap actuation system as well as landing gear actuators and the nose wheel steering system for the Do 228.

Liebherr-Aerospace is offering also innovative solutions to the Indian operators of foreign-built aircraft in terms of field service support, repair services and spare part availability, through its worldwide repair network. In addition, its partner company OEMServices acts as maintenance integrator offering customized Nose-to-Tail Service Solutions.

Pursuing its aims, Liebherr-Aerospace can rely on and profit from the leverage of already existing industrial facilities in India that belong to the Liebherr Group of Companies, in order to carry out, for example, possible maintenance and assembly tasks in the country.

## Celebration of 10th Anniversary in Dubai

On March 30th 2017, Liebherr Middle East FZE, based in Dubai (UAE) hosted a celebration regarding its 10th anniversary. The event was held at the facilities in Jebel Ali Free Zone in the presence of Mrs Sophie Albrecht and Mrs Stéphanie Wohlfarth, members of the administrative board of Liebherr-International AG, the holding company of the Liebherr Group as well as of Mr Andreas Boehm, member of the Liebherr-International AG board of directors. Key customers serviced by all Liebherr division had come together to participate in the celebration.

Customers of Liebherr-Aerospace were of course also present: Mr Mohammad Al Sirhan and guests from Emirates Airlines, Mr Osama Al Nabhani from Saudi Arabian Airlines, and Dr Falah Salman from Kuwait Airways.



Mrs Stéphanie Wohlfarth, member of the Liebherr Family, delivered a speech during the event.

Mrs Stephanie Wohlfarth launched the event with a statement highlighting the Core Values of Liebherr and honoring customers for making the ventures so successful. One of the event's highlights was the moment when Emirates' own Mohammad Al Sirhan handed over a "Crystal A380" along with signed certificates to thank Liebherr-Aerospace for its exceptional support and valuable services to Emirates Airlines.

The event was a memorable one in providing guests with an opportunity to exchange views with the Liebherr Family members as well as with international representatives of various Liebherr companies.

## Lean Initiative to Further Improve the Repair Performance

Liebherr-Aerospace Toulouse SAS (France) has been launching several lean initiatives aiming at continuously improving the company's performance. Among the initiatives launched in 2016, a Value Stream Mapping (VSM) of the repair process has been conducted. The aim was to further improve the repair On Time Delivery (OTD) performance, to enhance the customer satisfaction and to prepare for the future.

During the 4th quarter of 2016, the VSM team composed of nine people covering the activities of the whole process – including the logistics partner – met on a regular basis to map and analyze the existing process and identify the necessary improvements whether it deals with organization, IT and communication.

Some of the solutions have been immediately implemented and the remaining ones are under development in line with the schedule of the project.

The first benefit of this VSM was the strengthening of the team spirit of everyone involved in the repair process and a better communication.

The monitoring has been reinforced to immediately allow the triggering of necessary actions and launching the development of even more sustainable process solutions.

The first results are very promising as evidenced by the KPI's. The team is confident in pushing the repair performance and the customer satisfaction to the highest levels starting this year.



An air cycle machine in the repair shop

## Liebherr-Aerospace Saline, Inc.: Heat Transfer Equipment Servicing is Progressing

In our Customer Support and Services Newsletter No. 20 dtd. April 2016 we communicated that we had completed in spring of the same year our new facility in Saline, Michigan (USA). The building was constructed adjacent to the existing facility and covers 35,000 sq ft (ca. 3,250 sqm). It is the first industrial utilization of the 54 acres (22 hectares) parcel of land Liebherr acquired in 2008.

To celebrate the investment and highlight the fact that we are commencing a totally new type of service within the Liebherr-Aerospace and Transportation division, the facility was officially inaugurated on April, 21st 2016, in the presence of a member of the Liebherr Family, customers and partners as well as local dignitaries and colleagues.

On June 27th, 2016 we received our Occupancy Permit from the City of Saline, while on August 2nd 2016 we were granted our FAA approval which allows us to release equipment to service.

In the same month we started work on the first components: a mix of Liebherr owned equipment for exchanges and customer equipment, i.e. for Bombardier CRJ series aircraft and Fuel Tank Inerting System equipment for Airbus. In October we added the Airbus ATA 21 equipment to our capability and in the latter half of November we started to release that type of equipment to service as well.

As of December 5th, 2016 we had already received 140 orders: 21 re-cores and 119 repairs including cleaning as well as minor/major repair.

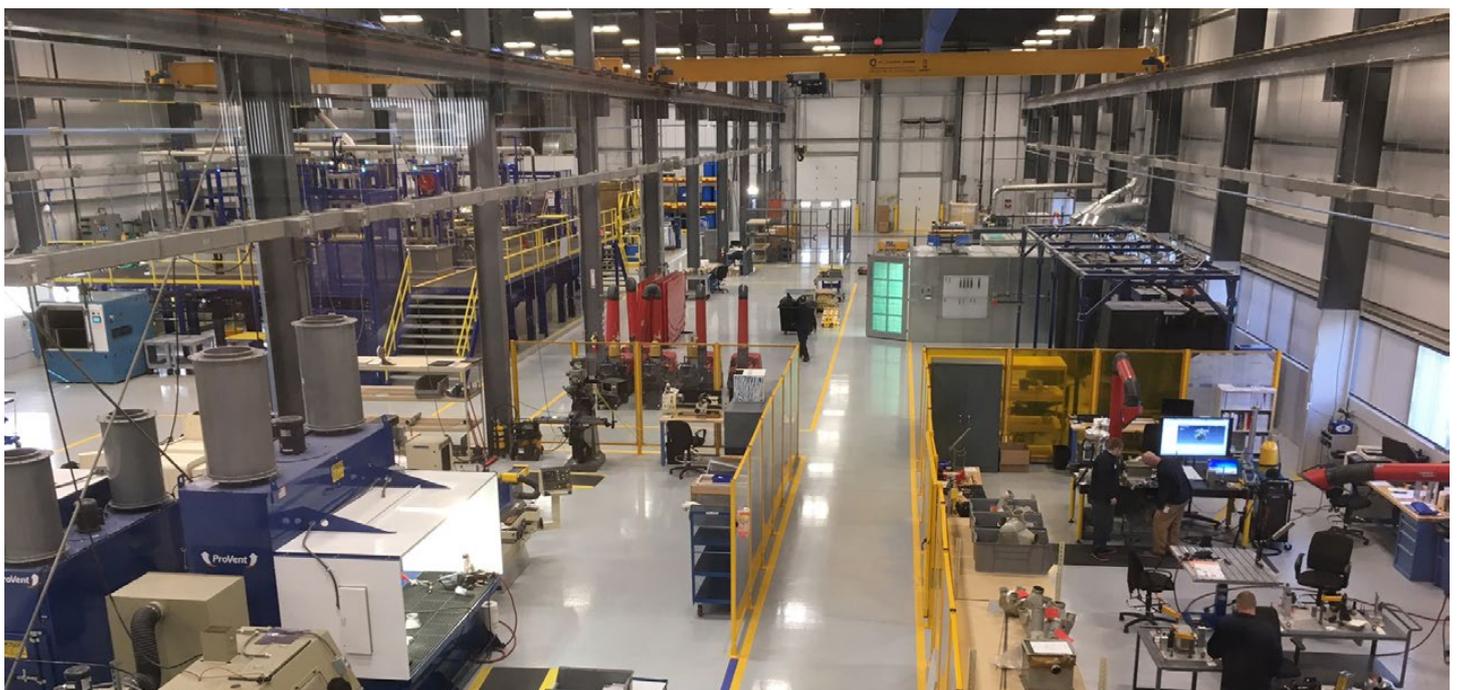
Our dedicated staff in the new facility consists so far of one supervisor/engineer, two machinists, six process technicians (cleaning, chemical conversions, testing, painting, resin, lab) and seven welders. We expect to hire two more welders this year. At this point we are already ahead of schedule in hiring based on input and prospects.

In addition, there is one shared resource Non Destructive Test (NDT) inspector and one shared resource warehouse clerk.

In order to implement the latest technological developments, to ensure accuracy and generate time savings, it was decided to implement non-contact metrology. This technique featuring, through laser guidance, fixturing, welding and eventually cutting, is commonplace in manufacturing, but had not been implemented in this type of service industry. Where feasible, it will allow for robotic welding and cutting as well.

At the same time, we want to be as quick and efficient as possible and to ensure the quality standards of Liebherr. This includes especially our responsibility to our customers, colleagues and our community we live in. Cleanliness and safety are of top priority. That is why we invested in a wastewater treatment plant that allows us to process waste efficiently and the most secure way by not only meeting but exceeding the requirements of the local, state and federal regulations.

We are enthused by the progress so far, and confident that 2017 will allow us to show a full year's worth of activity in a new environment for us.



Overall view of the heat exchanger facility of Liebherr-Aerospace Saline Inc., Michigan (USA)

## Tailored Support Solutions for the CRJ700/900/1000 Air Cycle Machine



© Bombardier

Based on continuous in service-feedback analysis, Liebherr-Aerospace engineered new air cycle machine standards to address the harsh environmental conditions impacts and to thus provide optimized equipment reliability to the CRJ700/900/1000 customers.

The modification targeting the identified key reliability drivers (thrust bearings, turbine wheel and ventilation system) is already available and positively implemented by the operators benefiting from an enhanced operational availability.

In addition, specific maintenance packages ranging from adjusted “flexibility” to “partnership program” offers which are available through the usual customer Liebherr-Aerospace point of contact, ensure the most cost effective solutions for the customer.

## Regional Technical Workshop on Superjet 100

On April 6th and 7th 2016, Liebherr-Aerospace organized in Toulouse a technical workshop on the Superjet 100 program. As the fleet continues to grow – the year 2016 has seen the first delivery to a European operator – the event gathered an unprecedented level of participation from the airlines, as well as Sukhoi Civil Aircraft Company (SCAC) and Superjet International (SJI).

The customer support and engineering teams from Liebherr-Aerospace and SCAC had jointly prepared presentations covering an in-depth technical update on Liebherr systems fitted in the aircraft. The session was a great opportunity for the participants to exchange on experience of aircraft operation and share best maintenance practices. It was finished with a visit of the Liebherr-Aerospace Toulouse site. The feed-back from the participants was very positive, and the community confirmed that the event should be maintained in the future.

On the Superjet 100, Liebherr-Aerospace designs, manufactures and services the flight control system, the integrated air conditioning system, and the tank inerting pre-conditioning system.



François Lehmann, Managing Director of Liebherr-Aerospace Toulouse (France) delivered the welcoming speech.

## Liebherr-Aerospace Will Attend the Following Events



April 25-27, 2017

MRO Americas  
Orange County Convention  
Center  
Orlando, FL, USA



June 19-25, 2017

Le Bourget  
Parc des Expositions  
Paris  
France

## Liebherr-Aerospace Training Calendar 2017: Save the date

Type	ATA Chapter	Date	Location
<b>Airbus</b>			
Single Aisle (SA)	ATA 21/36 Engine Bleed Air System & Air Conditioning System Level I, II, III	March 7 to 9 September 5 to 7	Toulouse
	ATA 21 Environmental Control System (old system)	On request	Toulouse
	ATA 36 Engine Bleed Air System (A320neo) Level I, II, III	June 1	Toulouse
	ATA 27 High Lift System and Rudder Level III	July 17 September 25	Lindenberg
Long Range (LR)	ATA 21/36 Engine Bleed and Environmental Control System Level I, II, III (A330)	September 19 to 21	Toulouse
	ATA 21/36 Engine Bleed & Environment Control System (A340-500/600)	On request	Toulouse
	ATA 27 High Lift System, Rudder and Spoiler Level III	July 18 September 26	Lindenberg
A350	ATA 27/32 High Lift & Nose Landing Gear System Level III	July 20 & 21 September 28 & 29	Lindenberg
A380	ATA 21 Supplemental Cooling System Level I, II, III	December 13 & 14	Toulouse
	ATA 36 Engine Bleed Air & Pneumatic Air Distribution System Level I, II, III	December 12	Toulouse
	ATA 29 Hydraulic Cooling System Level I, II	December 15	Toulouse
	ATA 27 High Lift System and Spoiler Level III	July 19 September 27 December 11	Lindenberg Lindenberg Toulouse
A400M	ATA 27 Flight Control Components Level III	On request	Lindenberg
	ATA 27 Flight Control Components Level V	On request	Lindenberg
	ATA 52 Door Ramp and Actuation System Level III	On request	Lindenberg
	ATA 52 Door Ramp and Actuation System Level V	On request	Lindenberg
SA/LR/A380/747-8	ATA 36 Bleed Test Set GSE Level IV	On request	Customer facility
<b>Boeing</b>			
747-8	ATA 21/36 Engine Bleed & Environmental Control System Level I, II, III	June 13 to 16	Toulouse
<b>Bombardier</b>			
CRJ1000	ATA 27 Rudder System Level III	May 19	Lindenberg
CRJ700/900/1000	ATA 21/30/36 Integrated Air Management System Level I, II, III	May October 4 to 6	Saline Toulouse
CSeries	ATA 32 Landing Gear System Level III, IV	May 15 & 16 November 7 & 8	Lindenberg
	ATA 32 Landing Gear Servicing Level IV on Aircraft	On request	Customer facility
	ATA 21/30/36 Integrated Air Management System Level I, II, III	May 9 to 12 November 14 to 17	Toulouse
<b>Comac</b>			
ARJ21	ATA 32 Landing Gear System Level III, IV	August 23 & 24	Lindenberg
	ATA 32 Landing Gear Servicing Level IV on Aircraft	On request	Customer facility
C919	ATA 32 Landing Gear System Level III, IV	On request	Lindenberg
	ATA 32 Landing Gear Servicing Level IV on Aircraft	On request	Customer facility
<b>Embraer</b>			
E170/175	ATA 32 Landing Gear System Level III, IV	July 11 & 12	Lindenberg
	ATA 32 Landing Gear Servicing Level IV on Aircraft	On request	Customer facility
E190/195	ATA 32 Landing Gear System Level III, IV	October 18 & 19	Lindenberg
	ATA 32 Landing Gear Servicing Level IV on Aircraft	On request	Customer facility
<b>Sukhoi Civil Aircraft</b>			
Superjet 100	ATA 27 Flight Control System Level III	October 12 & 13	Lindenberg
	ATA 21/30/36 Integrated Air Management System Level I, II, III	May 19 to 21 October 17 to 19	Toulouse
	ATA 27 Level IV Rigging on Aircraft	On request	Customer facility
<b>Leonardo</b>			
AW109, AWT129, AW169, AW189	Environmental Control System (please contact Leonardo Helicopters for coordination)	On request	Customer facility

## Liebherr-Aerospace Looks Back at a Successful MRO Middle East 2017

Liebherr's successful participation in this conference focused mainly on providing its key customers and operators in the Gulf region with a platform to share market insights and opportunities.

Liebherr-Aerospace presented itself alongside with OEMServices, a component, logistics and trading services provider for airlines and original equipment manufacturers, which was founded by the four OEMs Diehl Aerospace, Liebherr-Aerospace, Thales Avionics and Zodiac Aerospace.

The exhibits of Liebherr, a heat exchanger for a single aisle aircraft, as well as a flap power control unit for a large commercial aircraft program, attracted many interested visitors.

The MRO Middle East 2017 Conference can look back at over 280 exhibitors and 2,968 attendees interested in maintenance, repair and overhaul activities in the commercial aircraft sector.



The booth of Liebherr-Aerospace at MRO Middle East 2017 was very well frequented.

## Liebherr-Aerospace Participating for the First Time at Aero India

Liebherr-Aerospace participated for the very first time at Aero India, that took place from February 14 to 18, 2017 at Yelahanka Air Force Station in Bangalore.

Besides its activities in the fields of air management, flight control and actuation, gears and gearboxes as well as landing gear systems, the company presented its offers for lifecycle support and full range of customer services. Furthermore, an animated film about

the capabilities of the company as a developer, manufacturer and integrator of aircraft systems informed visitors about all the products that Liebherr-Aerospace offers and how they function on board an aircraft.

"We expect India to evolve as one of the world's major aerospace markets, both for aircraft manufacturing and for aircraft operation. Therefore, we are planning to enlarge our footprint in

the country. This footprint will encompass engineering support, manufacturing and customer service. In addition, we will further intensify the relationship with our Indian supply base," explains Nicolas Bonleux, Managing Director and Chief Sales Officer of Liebherr-Aerospace & Transportation SAS. "Aero India provided us with a perfect platform to present ourselves, reach out and meet with our customers, partners and suppliers in the region."

Liebherr-Aerospace products are already flying every day in India, operated by airline customers and maintained by our facility in Singapore. (Please see also our feature on page 3 of this newsletter)



It's "Thumbs Up!" for Liebherr-Aerospace at Aero India 2017. The Liebherr-Team was very content with the participation in the exhibition.

## Boeing Awards Liebherr-Aerospace Toulouse as “Gold Supplier”

Thanks to a quality performance of 100%, Liebherr-Aerospace Toulouse, center of excellence for air management systems, reached the « Gold » status for the General Performance Assessment with the best performance ratings ever.

Liebherr-Aerospace Toulouse SAS (France) supplies the air management system for the Boeing B747-8 program. The “Gold Supplier” award is the result of the teams’ efforts and involvement that demonstrate Liebherr’s professionalism and expertise. It is also proof for a long-term and trustfully partnership.

“Meeting Boeing’s expectations requires from our whole organization a strong involvement and precision in whatever we do and at any level”, said Clément Pin, In-Service Program Manager at Liebherr-Aerospace Toulouse SAS for the B747-8 program.

Boeing supports its suppliers to always improve in order to reach the level of excellence.



Boeing 747-8

## Agreements

### Liebherr Signs Agreement on E-Jet 190 Landing Gear Overhaul with Norra and Finnair

Liebherr-Aerospace, Nordic Regional Airlines (Norra) and Finnair signed a contract at the beginning of December 2016 which covers the overhaul of the main and nose landing gear system of the 12 Embraer 190 regional jets operated by Norra on behalf of Finnair.



Arne Ziessler, Head of Procurement at Finnair Technical Operations declared: “We are satisfied to be currently working in a close relationship with Liebherr in order to ensure the success of this overhaul campaign.”

Frank Steinmaier, Head of Sales & Marketing, EUMEA, Customer Services at Liebherr-Aerospace Lindenberg GmbH commented: “This new contract is a success for us as it reflects the trust our customers have in our experience and expertise that we have developed over the past five decades.”

The agreement will also further enhance Liebherr’s business relationship with Finnair, the flag carrier of Finland, whose headquarters are located at the Helsinki airport.

From left to right: Juha Ojala, Head of Engineering (Finnair), Frank Steinmaier, Head of Sales & Marketing (Liebherr), Markku Lindholm, Procurement Manager (Finnair) and Pierre Herbillon, Regional Sales Manager (Liebherr) after the signing ceremony