

## Boeing in Benelux & Nordics

The Boeing Company enjoys a mutually beneficial business and industrial partnership with countries that form the company's Benelux & Nordics region (i.e., Belgium, the Netherlands and Luxembourg; Denmark, Finland, Norway and Sweden). This region, with its large commercial airplane fleet and strong defense sector, is of high importance to Boeing. Boeing's direct, annual supplier spend in the region is more than US\$280 million. The company directly employs more than 550 people across the Benelux and the Nordic countries, representing more than 20 different nationalities.

Boeing is proud of many long-lasting relationships with industry, academia and government in the region that is led by **Tineke Bakker - van der Veen**, managing director for Benelux & Nordics.

## Boeing in the Benelux Countries

### *Boeing in Belgium*

Boeing has around 20 employees in Belgium and an office in Brussels as well as valuable customer and supplier partnerships.

#### *Boeing Commercial Airplanes in Belgium*

Belgium-based commercial airlines operating Boeing airplanes include Jetairfly, which operates Next-Generation 737-700s and -800s and 767-300ER (Extended Range) airplanes, and cargo carrier TNT Airways, with a fleet of 737s Freighters, 747-400ERFs (Extended Range Freighters) and Boeing 777 Freighters.

Boeing also has a long and productive supplier relationship with ASCO Industries, based in Zaventem, Belgium. ASCO provides Boeing with machined metal components such as 737 flap tracks and slat tracks. It has provided a variety of sheet metal parts over the years and is actively involved with Boeing on nearly every commercial airplane program, including the 787 Dreamliner.

#### *Boeing Defense, Space & Security in Belgium*

The Belgian armed forces have purchased the Joint Direct Attack Munition (JDAM) guidance kit and Harpoon missiles. They also participate in the NATO Airborne Warning and Control System (AWACS) program.

Belgian supplier partner Thales Belgium provided the digital audio system and radio control units for the NATO AWACS program. Another Belgian supplier, Société Anonyme Belge de Constructions Aéronautiques (SABCA), worked with Boeing on the NATO AWACS program, manufacturing fairings for the electronic support measures system.

## ***Boeing in the Netherlands***

Boeing has partnered with the Netherlands and with Dutch industry for eight decades. In the 1930s, Royal Dutch Airlines (known by the Dutch acronym KLM for Koninklijke Luchtvaart Maatschappij) became the first airline outside the United States to fly a Douglas airliner.

Boeing has more than 365 employees in the Netherlands with more than 170 employees in the headquarters in Amsterdam. The offices are placed at a number of locations as well as at its Spare Parts Center near Amsterdam's Schiphol Airport.

### ***Boeing Commercial Airplanes in the Netherlands***

Boeing has delivered more than 300 commercial aircraft to Dutch customers. Royal Dutch airlines (KLM), is part of the Air France-KLM Group, the world's oldest international airline.

In 1960, KLM entered the jet age with the purchase of the DC-8. Today, the KLM fleet includes Boeing Next-Generation 737, 747, 777 and 787 models. In partnership with Air France, KLM has one of the largest fleets of 777s in the world. Boeing and KLM Engineering and Maintenance cooperate in offering a component service program to the Next-Generation 737 by using the Boeing Spare Parts Center near Schiphol Airport, which provides fast access to critical parts and offers airlines cost savings that can equal 30 percent of their component repair and inventory costs.

KLM is also a member of the Sustainable Aviation Fuel Users Group, of which Boeing is a co-founder.

Boeing is working with KLM and a sustainable biofuel provider to commercialize jet fuel sources to increase supply and lower cost. In March 2013, a KLM Boeing 777-200 airplane flew roundtrip from Amsterdam Airport Schiphol to John F. Kennedy International Airport in New York. It was the first of a series of "Optimal Flights," rolling all of Boeing's current flight efficiency projects together to create the most environmentally progressive flight possible. Each flight is powered in part by sustainable aviation biofuel.

The flights also feature new smart technology that uses advanced digital aviation, navigation and air traffic management concepts to increase efficiency and reduce fuel consumption. Boeing, KLM and international partners, including the NLR, TU Delft and the Schiphol Group used the data from Optimal Flights to establish new operational procedures and recommendations.

Air France-KLM Cargo and Martinair Cargo make up the dedicated air cargo business of the Air France-KLM Group. The Air France-KLM fleet includes 747-400 and 777 Freighters.

Transavia, branded as transavia.com, is a Dutch low-cost airline that offers charter flights and scheduled flights to summer and winter holiday destinations around Europe

and to the Mediterranean. Transavia was founded in 1965 as Transavia Holland and is a wholly owned subsidiary of KLM and a member of the Air France-KLM Group. It operates as an independent member within the group. Transavia operates an all-Boeing fleet of 737-700s and 737-800s.

### *Boeing Defense, Space & Security in the Netherlands*

The Defense, Space & Security business unit has a long record of working closely and successfully with Dutch military customers and the country's defense industry. The Royal Netherlands Air Force (RNLAf) was the first international customer of the Apache AH-64D, which has supported several Dutch missions around the world. The Netherlands armed forces also operate other Boeing products such as Chinook helicopters, Harpoon missiles, Joint Direct Attack Munition (JDAM) guidance kits, the Joint Helmet Mounted Cueing System (JHMCS), KDC-10 tankers, Small Diameter Bombs and Insitu ScanEagle unmanned aircraft system and Integrator Short Range Tactical Unmanned Aircraft Vehicles.

In 2016, the Netherlands ordered an additional 14 Chinooks to be delivered in 2020. So far, more than 40 Boeing rotorcraft have been delivered to the Royal Netherlands Air Force.

The Netherlands is also a member of the 12-nation Strategic Airlift Capability (SAC) consortium that operates the C-17 Globemaster III. It is also one of the 15 countries involved in the NATO AWACS program, with a fleet of 17 Boeing AWACS E-3A aircraft and three trainer airplanes.

### *Boeing Partners and Suppliers in the Netherlands*

Dutch suppliers make valuable contributions to Boeing Commercial Airplanes products. In 2006, Boeing and Avio-Diepen signed a long-term supply-chain solution agreement as part of Boeing's Integrated Materials Management (IMM) initiative. TenCate Advanced Composites has a long-term supply agreement with Boeing for various composite material parts on the 787 program. Luchtverkeersleiding Nederland (LVNL), the Dutch air traffic control authority, provides studies of environmental issues at Schiphol Airport such as noise and air quality. The Dutch National Aerospace Laboratory (Nationaal Lucht en Ruimtevaartlaboratorium, or NLR) does performance studies and tests for Commercial Airplanes.

Defense, Space & Security values the ability of the Dutch defense industry to meet the high standards of quality, schedule and delivery requirements of the U.S. government. Military contracts between Boeing and the Netherlands armed forces include industrial participation requirements that have resulted in many successful supplier relationships with Dutch companies and public agencies.

In June 2017, Boeing and Airborne Services BV signed a licensing agreement for the maintenance, repair and overhaul (MRO) of legacy Apache AH-64 main rotor blades.

This partnership will allow for improved turnaround time of repairs and increase availability of rotor blades for the RNLAF.

Boeing and AAR Aircraft Component Services in Amsterdam have also been working together since 2011 on component MRO capabilities to support RNLAF Chinook operations.

#### *Boeing Technical Partnerships in the Netherlands*

Boeing values Dutch technical expertise and works in partnership with local companies to develop new technology that often results in technology transfer to industry in the Netherlands. Examples include:

- High-speed machining technology transfer with the VDL Enabling Technologies Group and DutchAero.
- Ammunition side loader design and development with Thales Nederland.
- Integrated electronic technical manual development in various languages to include upgrades with Etteplan/Tedopres International.
- Composites design and manufacturing technology with Kok & Van Engelen (KVE).

In addition, Boeing subsidiary Jeppesen supplied its Total Airspace and Airport Modeler software package to the Dutch firm To70 for use in capacity studies of airport planning and management.

Boeing also has a number of technical partnerships with Dutch universities, research institutes and governmental bodies to develop innovative aerospace technology and improve world aviation infrastructure. These include

- The Netherlands Aerospace Centre (NLR).
- The Netherlands Organisation for Applied Scientific Research (TNO).
- Delft University of Technology (TU Delft).
- The University of Twente in Enschede.

The following organizations are partners in the ThermoPlastic Composite Research Centre (TPRC) that Boeing helped found and which conducts research and development in advanced composite materials:

- Boeing Fokker Aerostructures, a division of Fokker Aerospace.
- TenCate Composites, a division of the multinational Royal TenCate, based in Almelo.

- The University of Twente.

In June 2010, a Boeing AH-64D Apache operated by the RNLAF became the first military helicopter in the world to fly using a blend of sustainable biofuel and standard aviation jet fuel. Boeing, which is engaged in sustainable biofuel research around the world, supported the Apache flight and the RNLAF through preflight planning, testing and technical consultation. Boeing also supplied technical support to a KLM-Royal Dutch Airlines biofuel flight aboard a Boeing 747 in November 2009.

Boeing and its Dutch partner, the Rotary Wing Training Center (RWTC), also operate a CH-47 Chinook helicopter maintenance training facility near Royal Netherlands Air Base Gilze-Rijen.

### *Boeing Global Engagement in the Netherlands*

Our Boeing Global Engagement portfolio includes ongoing, companywide efforts that build, enhance and contribute to the social fabric of our world. These strategic collaborations engage local stakeholders in every community in which we live and operate. Working with strong, local partners ensures that our projects are sustainable and impactful. More than 3,000 students in the Netherlands have benefited from Boeing's community projects since 2013.

In partnership with the community surrounding the Thermoplastic Composite Research Facility Center in Enschede, Boeing supported the RED Engineers Challenge together with Lego, Twente Branding, Saxion University of Applied Sciences and the University of Twente between the years 2013 and 2016. More than 100 schools and 2,500 students participated in the challenge for middle and high school students with the objective to introduce children to engineering, technology and renewable energy sciences as well as to build critical soft skills such as teamwork and communication.

In 2018, Boeing partnered with *FIRST* Scandinavia to expand the successful Newton Flight Academy concept from Norway to the Netherlands. The new Mobile Newton Aviation Room features innovative, interactive educational modules that support teachers in explaining aeronautical principles and the importance of STEM education in a unique learning environment with access to state-of-the-art flight simulator technology. With this project, Boeing and *FIRST* Scandinavia sought to inspire students aged 10 to 14 to learn more about aerospace and eventually pursue a career in the STEM fields.

Building on past success in Belgium, Boeing and its NGO partner ThinkYoung hosted a five-day Summer Coding School in Amsterdam in 2018, with a focus on 21<sup>st</sup> century coding skills. Teenagers learned the basics of computer programming and experienced the importance of coding in the aerospace industry. During the school, participants experienced a comprehensive and unique introduction to programming and explored future job opportunities in Information and Communications Technology in a fun and inclusive learning environment.

## ***Boeing in Luxembourg***

### ***Boeing Commercial Airplanes in Luxembourg***

Boeing Commercial Airplanes has long enjoyed valued partnerships in the Grand Duchy of Luxembourg.

The LuxairGroup, including Luxembourg Airlines and Luxair Tours, operates 737-800 and 737-700 airplanes.

In October 2011, air cargo carrier Cargolux Airlines took delivery of the first Boeing 747-8 Freighter. The airline operates nine 747-400 Freighters and seven 747-8 Freighters, with six more of the new-generation airplanes on order.

In addition, Luxembourg's aerospace industry provides parts and components for Boeing products through a variety of Boeing suppliers including Alenia, General Electric and Rolls-Royce.

### ***Defense, Space & Security in Luxembourg***

Luxembourg is also a valued satellite customer. In a partnership that spans more than four decades, Boeing has built more than 50 communications satellites for Intelsat S.A. Currently, Boeing is providing nine 702MP (medium-power) satellites to Intelsat, one of the leading providers of satellite services worldwide, with offices in Luxembourg and Washington, D.C.

Boeing also maintains a relationship with Luxembourg-based SES since the 1990s. A Boeing 702HP (high-power) satellite, SES-9, was successfully launched in March 2016 to expand direct-to-home broadcasting and other communications services to the fast-growing markets of Northeast Asia, South Asia and Indonesia as well as maritime communications for vessels in the Indian Ocean.

Most recently, the 12th satellite that SES ordered from Boeing, SES-15, an all-electric propulsion high-throughput Boeing 702 satellite, was successfully launched in May 2017. It passed all tests and became operational in January 2018. The satellite bolsters connectivity for Wi-Fi and entertainment services on flights over North America, Mexico and Central America. It also serves government, enterprise and maritime sectors.

## ***Boeing in the Nordic Countries***

Boeing and the Nordic aerospace industry have a mutually beneficial business and industrial partnership that began decades ago.

## ***Boeing in Denmark***

### ***Boeing Commercial Airplanes in Denmark***

Det Danske Luftfartselskab A/S (Danish Air Lines), formed in 1918, joined with Norwegian and Swedish national airlines in 1946 to create Scandinavian Airlines System (SAS), now SAS Group, based in Stockholm. SAS is the national airline of Denmark, Norway and Sweden and operates three primary hubs at Copenhagen-Kastrup Airport, Stockholm Arlanda Airport and Oslo Gardermoen Airport. Its fleet includes 737-400, -500, -600, -700 and -800 airplanes and MD-81/82 aircraft.

### ***Boeing Defense, Space & Security in Denmark***

Since June 2011, Defense, Space & Security has secured contracts totaling more than US\$49 million from sales and services related to weapons and space programs.

In 2012, Denmark became a partner nation of the U.S. Air Force's Wideband Global SATCOM (WGS), the Department of Defense's highest-capacity communications satellite system. Four other partner nations — Canada, the Netherlands, Luxembourg and New Zealand — executed similar agreements to gain global access to the WGS system.

WGS provides modern MILSATCOM wideband services to meet a variety of civilian and military missions, minimizing cost by leveraging the existing infrastructure of compatible wideband ground and user terminals. Existing international partners have recently demonstrated how quickly existing equipment can be used to access the WGS system.

### ***Boeing Supplier Partnerships in Denmark***

On June 7, 2012, Boeing accepted delivery of the first Aluminum Launch Support Structure (ALSS), produced by supplier Danish Aerotech A/S, for ship-based deployment of the Harpoon weapon system. Based in Karup, Denmark, Danish civil defense and aerospace company Aerotech received the contract, valued at nearly US\$1.5 million, from Boeing in 2010.

In 2010, Boeing purchased 18 Harpoon missile simulators from Terma, and in 2009, Boeing assisted Terma in receiving a contract for its electronic warfare suite to be installed on the Chinook helicopters bought by Canada from Boeing.

Boeing continues to work with Danish companies of all sizes on a variety of industrial projects that will provide long-term sustainable growth and open new markets for world-class Danish aerospace products.

### ***Boeing Technical Partnerships in Denmark***

The Boeing 787 Dreamliner provides passengers with better flight experiences in part because of the findings of a two-year study on cabin environment conducted by Boeing with the Technical University of Denmark (Danmarks Tekniske Universitet), based in

Lyngby, Denmark. Researchers conducted the study in a simulated cabin environment and discovered that humidity was not the key factor in passenger comfort; rather, it was air purity. As a result of this research, the 787 was engineered with a much more advanced air-filtration system than originally planned.

### *Boeing Global Engagement in Denmark*

Through its Global Engagement program, Boeing worked together with science teachers at Risbjergskolen, a school located in Hvidovre, south of Copenhagen, as well as with school leadership and the Norwegian nonprofit organization *FIRST* Scandinavia to add the Norwegian “Newton Room” concept to the school’s curriculum. The room opened in 2015 with a Robots and Math module for 5<sup>th</sup> to 7<sup>th</sup> graders. The room still provides middle school children with state-of-the-art laboratory equipment and exciting simulated situations to get creative with science.

### ***Boeing in Finland***

#### *Boeing Commercial Airplanes in Finland*

Boeing heritage companies have delivered dozens of commercial airplanes to Finnair since the 1940s. The national carrier operated Boeing 757-200s for nearly two decades.

#### *Boeing Defense, Space & Security in Finland*

In 1992, Finland acquired 64 Boeing F/A-18C fighter aircraft with a 100 percent industrial participation obligation. Final assembly of 57 of the 64 F/A-18s was performed in Finland by Patria Aviation. In August 2000, this highly successful partnership was completed five years ahead of schedule and has served as a model for industrial cooperation programs.

In December 2016, Boeing completed an upgrade program that included air-to-ground weapons, interoperability, advanced communications and integrated enhanced cockpit displays. The upgrade included work from two Finnish suppliers, Patria and Insta.

This plan supported the goals of the Finnish government to have autonomy and self-sufficiency for their F/A-18C aircraft, help Patria further enhance its capability to support the F/A-18C aircraft and help Insta achieve in-country support capability for the new systems that were incorporated into the F/A-18C aircraft.

The Super Hornet is currently a contender in Finland’s HX Fighter Replacement Program. The Finnish Air Force is looking at replacing its fleet of F/A-18C aircraft, and contract award is expected in 2021.

Finland is also a member of the SAC C-17 consortium.



## ***Boeing in Norway***

### ***Boeing Commercial Airplanes in Norway***

Norwegian Air Shuttle ASA, based in Oslo, is Scandinavia's largest low-fare airline company and the third largest low-cost airline in Europe. Norwegian operates more than 100 737-800s.

In January 2012, Norwegian announced a firm order for 100 737 MAX airplanes and 22 Next-Generation 737-800s. In 2016, Norwegian added another eight 737 MAXs to its order book. Norwegian took delivery of its first two Boeing 737 MAX aircraft in June 2017.

Norwegian currently operates 28 787-8s and 787-9s. Its latest order in October 2015 for an additional 19 787-9s expanded its total 787 fleet to nearly 40 airplanes in the coming years.

In July 2016, Norwegian signed a commitment to extend GoldCare coverage to its 737 MAX fleet, while expanding coverage to its planned 787 fleet. The agreement, which provides for GoldCare coverage through 2034, is the largest in Boeing commercial support and services history.

Commercial Airplanes and its heritage companies also have a long history with Scandinavian Airlines (SAS), the flag carrier of Norway, Denmark and Sweden, delivering nearly 250 airplanes over more than six decades. Today, SAS operates a fleet of more than 70 Next-Generation 737s.

### ***Boeing Defense, Space & Security in Norway***

In a public statement on November 25, 2016, the Norwegian government announced its decision to procure five P-8A Poseidon aircraft to replace their aging fleet of P-3 aircraft and three DA-20 Jet Falcons. First delivery is planned for 2021. The P-8 captures the benefits of being a military derivative of the Next-Generation 737-800 and provides extremely high reliability; it can fly higher, farther and faster than other maritime patrol aircraft and can detect, track and report on more targets.

Norway is also a member of the SAC C-17 consortium and one of the countries that participates in the NATO AWACS program with a fleet of 17 Boeing AWACS E-3A radar aircraft.

Under the Norwegian Industrial Cooperation policy, Boeing is committed to meeting its obligations and will build on its existing work with the Norwegian defense industry to cultivate long-term, sustainable business partnerships that will extend the benefits and support economic growth throughout the country.

### *Boeing Global Engagement in Norway*

In partnership with the nonprofit *FIRST* Scandinavia, the Norwegian Aviation Museum and the Bodø Council, Boeing established the Newton Flight Academy in 2016. The academy provides education in exciting aviation-related topics such as aerodynamics, navigation, climate and meteorology. The training process includes several activities that prepare the students to be able to fly in flight simulators. Newton Flight Academy also offers curriculum-based education during school hours. The project aims to bring more students to choose an education in STEM.

### ***Boeing in Sweden***

#### *Boeing Commercial Airplanes in Sweden*

SAS Group is based in Stockholm and was formed in 1946 when the national airlines of Sweden, Norway and Denmark began operating together on international flights. Its inaugural flight was on September 17, 1946, when a newly acquired DC-4 flew from Stockholm to New York.

SAS is positioned as the “world’s first green airline” and has established itself as a leader in environmentally sound operations by using innovative technology and processes to minimize fuel burn and emissions. It is also a member of the Boeing-founded Sustainable Aviation Fuel Users Group, which is chartered to enable commercial use of renewable fuel sources that can reduce greenhouse gas emissions while lessening commercial aviation’s exposure to oil price volatility and dependence on fossil fuels. SAS’s environmental commitment has made SAS a good customer for the Boeing 737 models. The SAS Group fleet includes 737-400, -500, -600, -700 and -800 airplanes and MD-81/82 aircraft.

#### *Boeing Defense, Space & Security in Sweden*

Sweden is a member of the SAC consortium that acquired three Boeing C-17 Globemaster III advanced airlifters in 2009.

#### *Boeing Partnerships with Swedish Industry*

On December 6, 2013, Boeing and Saab AB announced a Joint Development Agreement (JDA) to jointly develop and build a new advanced, cost-efficient T-X Family of Systems training solution for a competition to replace the U.S. Air Force's aging T-38 aircrew training system. The JDA, with Boeing as the prime contractor and Saab AB as primary partner, covered areas including design, development, production, support, sales and marketing.

On September 27, 2018, the U.S. Air Force announced that Boeing and Saab won the contract for the T-X pilot training program worth up to \$US9.2 billion. The contract includes 351 jets, 46 simulators and associated ground equipment. The T-X fighter-like trainer aircraft is the cornerstone of the all-new pilot training system that also includes

classroom training and simulators. It will help train future fighter and bomber pilots for generations to come.

Saab Aerostructures also designs and manufactures large cargo doors, bulk cargo doors and access doors for the 787 at its base in Linköping, Sweden.

CTT Systems AB of Nyköping will provide 787 cabins with its Zonal Drying System to regulate humidity and control condensation for increased passenger comfort.

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