

Freudenberg Expertise, Collaboration Help New Commercial Aircraft Take Flight

Company's support of UTC Aerospace Systems key to success

Paris (France), June 15, 2017. When Brazilian aircraft manufacturer Embraer Commercial Aviation recently celebrated the successful maiden mission of its E195-E2 jet, more than a little collaboration from Freudenberg Sealing Technologies was on board.

Precisely engineered pylon seals, developed by Freudenberg with input from UTC Aerospace Systems, helped the newest member of the Embraer E-Jets E2 program take flight despite a very challenging production schedule. Pylon seals are an integral part of the aircraft's nacelle thrust reverser system.

Freudenberg will be on hand at next week's International Paris Air Show to celebrate the appearance of the E195-E2 aircraft at the event and to highlight its extensive portfolio of aerospace products and materials. The company's project collaboration with UTC Aerospace Systems underscores its ability to analyze challenging aerospace applications and work jointly with customers on unique solutions.

"The success of the recent UTC Aerospace Systems seal program – a program that literally ran against the clock – is testament to how we approach our work on behalf of the industry," said Paul Hailey, Senior Vice President of Freudenberg's Global Gaskets Division. "Our employees delivered an advanced sealing solution that not only met critical performance factors but also kept flight testing on track. Collaboration and customer value are essential elements of our business success."

Freudenberg was already providing nacelle and thrust reverser seals for inclusion on the E195-E2 aircraft when UTC Aerospace Systems asked the company to handle development of new pylon seals. The seals had to be delivered in record time and meet rigid "burst duct" conditions involving higher pressures and larger system gaps.

Freudenberg engineers launched seal development in July 2016. Multiple, complex engineering and development studies helped facilitate communications

and collaboration with UTC Aerospace Systems in selecting a final component design. Additional efforts from material and tool shop suppliers allowed Freudenberg to manufacture and deliver the seals in January 2017, two months ahead of the originally communicated schedule. Everyone involved in the program worked as a cohesive unit to meet and exceed delivery deadlines.

“Freudenberg’s efforts to expedite the development and manufacturing of this seal helped us deliver UTC Aerospace Systems thrust reversers on time,” said Gary Reynolds, Vice President, Regional and Engine Programs, UTC Aerospace Systems. “It was rewarding to see how the many challenges along the way were overcome through great teamwork and communications.”

Visitors at this year’s Paris Air Show will be able to see a variety of fireproof sealing solutions and other aerospace components from Freudenberg at the company’s booth in Hall 5, #D266. In addition to pylon seals, Freudenberg will showcase:

- O-Rings
- Plate seals and gaskets
- Polytetrafluoroethylene (PTFE) back-up rings and cylinder seals
- Simmerring® radial shaft seals
- Fire seals
- Aerodynamic seals
- Electrical grommets
- Self-fusing silicone tape
- Elastomeric shrouding and ducting.

"Freudenberg offers customers an extensive portfolio of aerospace sealing solutions, and we invite them to our booth to explore technology options," said Sean Morgan, Global Segment Director-Aerospace, for Freudenberg. "Equally important, we offer engineering support and material testing to assist our customers in developing unique solutions to their application requirements."

For more information on Freudenberg’s aerospace product portfolio, go to:

<https://www.fst.com/markets/mobility/aerospace>.

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About Freudenberg Sealing Technologies

As the leading specialist in sealing applications and their markets, Freudenberg Sealing Technologies is a supplier as well as a development and service partner serving customers in a wide variety of sectors including the automotive industry, civil aviation, mechanical engineering, shipbuilding, the food and pharmaceuticals industries, and agricultural and construction machinery. In 2016, Freudenberg Sealing Technologies generated sales of more than €2.3 billion and employed approximately 15,000 people.

Freudenberg-NOK Sealing Technologies runs the business operations of Freudenberg Sealing Technologies (FST) in the Americas. Being part of the global Freudenberg Group, the company is a leading producer of advanced sealing technologies for a variety of markets including: aerospace; agriculture; appliance; automotive; construction; diesel engine; energy; food and beverage; heavy industry; and pharmaceutical. Freudenberg-NOK Sealing Technologies is a joint venture between Freudenberg and NOK Corp. in Japan, is headquartered in Plymouth, Mich. and operates more than 20 facilities across the Americas. More information at www.fst.com.