

simrit® insight.

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The Magazine for Simrit Customers



Vinay Nilkanth,
Simrit Americas

Dear Readers,

Extreme heat and cold, radical temperature fluctuation, pressure, moisture, ozone, and UV radiation are just a few of the hostile elements challenging aircraft design. Simrit supports aerospace technology with its specialized sealing solutions and materials, as well its technical knowledge, guaranteeing a reliable and safe functioning machine. Because one thing is clear: a seal must never fail in aircrafts where lives are ultimately depending on these inconspicuous rubber parts. Simrit has a broad range of products for the aerospace industry: o-rings, radial shaft seals and a whole bunch of special sealing products. You can visit us at the Paris Air Show in Le Bourget in hall 3, stand B3!

Kind regards,
Vinay Nilkanth

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Vice President of Supply Chain,
Eclipse Aviation

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Freudenberg and NOK Group



The eclipse 500 VLJ
from Eclipse Aviation
has Simrit on board.

Taking off with Simrit Seals

Seals play a key role in the Eclipse 500 VLJ, a lightweight jet for six passengers, from Eclipse Aviation Corporation. With its innovative technologies, Simrit plays a major part in guaranteeing a safe flight.

Seals usually form just a small part in an application but they fulfill an important role. Simrit's history as a producer of seals dates back to 1929 when the company started as a leather seal supplier for the automotive industry. Today, aerospace technology is not only one of Simrit's seminal fields but is integral to the ongoing evolution of aviation. In our pursuit of traveling further, faster and higher than was previously possible, the industry must continually find

ways around severe environmental barriers. Extreme heat and cold, radical temperature fluctuation, pressure, moisture, ozone, and UV radiation are just a few of the hostile elements challenging aircraft design. In addition, the systems themselves include man-made threats to design integrity with corrosive oils, fuels, de-icing fluids, and other hydrocarbon and synthetic solvents that add

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to the test of every successful flight. With so many critical aerospace applications dependent on the technology that seals them, it is clear that there can be no second guessing the quality and integrity of the sealing systems.

Customizing sealing solutions to virtually any application

Simrit is the industrial sealing products division of the Freudenberg and NOK Group companies, the world's largest supplier of elastomeric seals and custom-molded products. Yet despite the great size of its parent company, one of Simrit's important advantages in serving industrial customers, OEMs and distributors alike, is the profound ability to customize the total sealing solutions to virtually any size and application. Moreover, Simrit's service-minded structure is

designed to focus personally on the customer's individual needs. As both leader and dynamic innovator in the sealing industry, Simrit has a unique position which allows for the continual improvement of its products and services as Simrit is discovering new materials and exploring advanced processes to help take your technologies to greater heights.

Simrit goes onboard

The Eclipse 500 VLJ, a lightweight jet for six passengers from Eclipse Aviation Corporation, has Simrit on board. Both companies have entered into a long-term contract that will supply the Eclipse 500 VLJ program with Simrit seals. This Very Light Jet that acts as a taxi is not just a future concept for the engineers at Eclipse Aviation. In September 2006 the Federal Aviation Administration of the United States Department of Transportation gave its full authorization for

the Eclipse 500 VLJ. Using novel technology, the aircraft manufacturer wants to add new dimensions to the emerging personal aircraft marketplace. Additionally, they want to achieve this with end prices that are half of what rival companies offer. Using a Pratt & Whitney engine, Eclipse builds a two engine turbo jet aircraft that can carry up to six passengers. Simrit's aerospace seals are part of this revolutionary aircraft. With its specialized sealing and materials, as well as its technical knowledge, Simrit guarantees a reliable and safe functioning machine. Because one thing is clear: a seal must never fail in an aircraft where lives are ultimately depending on these inconspicuous rubber parts. With the supplier's materials competency and strong technical ability, Simrit Americas combined with Simrit of Canada are firm partners to both Pratt & Whitney and Eclipse.

"Simrit's team sets the supplier apart from its competitors"

Simrit is a proud supplier of seals being used in the Pratt & Whitney engine of the Eclipse "taxi" jets and the other parts of these aircrafts. Vinay Nilkanth, Vice President of Business Development of Simrit interviewed Bill Bonder, Vice President of Supply Chain, Eclipse Aviation.

Nilkanth: Eclipse 500 Very Light Jet is making news these days, but I am sure it wasn't so in the early stages of development. Can you describe how this journey has been for Eclipse from a supply chain standpoint?

Bonder: During the early stages of development, the majority of the supply base was really skeptical of how successful Eclipse Aviation would be in the "taxi in air" concept, as well as the volumes we were predicting. Everyone viewed us as a "risky" investment from the tooling and product development standpoint.

Now, seven years after its inception, suppliers are viewing us as an "oppor-

tunity" and knocking on our doors. This journey involved several ups and downs as we worked with our suppliers.

Nilkanth: What criteria did you use to select your supply base for such an important program? How did you implement your criteria in your selection process?

Bonder: From the beginning, the main selection criteria used by Eclipse included several elements: partnership, long-term relationship and financial stability, product capability, consistent performance and your transparency in open communication. In addition,

Eclipse was also interested in working with suppliers with a quick ramp-up ability, cost effective solutions and high quality levels.

Nilkanth: Why did you choose Simrit as a supplier for the Eclipse 500 VLJ program?

Bonder: The Simrit/Freudenberg-NOK name was recognized in the aerospace industry in a very positive way ... especially related to product quality. It was clear from our early meetings with Simrit that the required attributes for supplier selection were all met, so it made the decision for partnership much easier.

Eclipse Corp. wants to achieve end prices for its air taxi jets which are half of what rival companies offer.



Nilkanth: What do you feel are the advantages of working with key suppliers like Simrit? What, in your opinion, is unique about Simrit's products and services?

Bonder: Predictable delivery performance and high quality are almost a given with suppliers like Simrit. But what Simrit proved early on is its ability to be responsive to our needs, flexibility in design modifications and proven quality and product performance.

Nilkanth: Since Eclipse's sourcing philosophy is dual sourcing whenever possible, how do you rate Simrit in comparison to its competitors?

Bonder: Simrit is not only the top seal supplier, but is also one of the best partner suppliers across Eclipse Aviation's supply base. Simrit's team approach between sales, manufacturing and customer service sets them apart from their competitors.

Nilkanth: Is there an advantage for Eclipse in that Simrit also works directly

with Pratt & Whitney for its PW610 engine?

Bonder: Simrit's relationship with Pratt & Whitney – although not directly related – proved to us that Simrit is a valued player in the industry. It also showed that Simrit is entrenched at major OEMs in the aerospace industry.

Nilkanth: How has Simrit helped you meet your goals for production quality?

Bonder: So far, Simrit has done well with its product quality and initial cost expectations, as well as at the initial FAA approval stage.

The key will be continued support during the ramp-up stage of the Eclipse 500 aircraft.

Nilkanth: What do you see as the biggest challenges facing your supply chain management in the next five years?

Bonder: Since most aerospace supply companies are familiar with low volumes, our biggest challenge is to make sure that the supply quality re-

mains the same or improves as our volumes ramp-up. Supply continuity and consistency during this ramp-up phase and cost reductions, as a result of higher volume efficiencies, is what we are anticipating and expecting from our suppliers.

In brief

- The Eclipse 500 VJ is a light-weight jet ("air taxi") for six passengers.
- Simrit and Eclipse have entered into a long-term contract for sealing solutions for the Eclipse jet.
- With its specialized sealing and materials, Simrit guarantees a reliable and safe functioning machine.



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Simrit Aerospace Sealing Solutions

Simrit's products contain AMS-, MIL-, AS-, and NAS-approved materials, and the company continues to develop unique materials for individual customer requirements and specific applications. The Simrit aerospace advantage is proven not only by its vast product lines, but by innovative processes like model cell technology.

Simrit offers product availability, engineering expertise, and advanced technology that far exceeds industry standards.

All standard parts are cataloged on www.simrit.com so they can be accessed at any time via the internet.

Model cell production

But the core of Simrit's developmental strength is its exclusive aerospace Model Cells. Dedicated entirely to aerospace part production, model cell production maintains the specific quality certifications

and products available for aircraft sealing applications. Because of the maximized efficiency of the model cell, Simrit manufacturing is exceptionally lean, reducing in-process inventory and waste while increasing quality. Simrit offers a complete variety of processes to match the size, material and quantity of parts you need with the most efficient manufacturing process, including: compression, transfer and injection molding, liquid injection molding, calendaring, extruding, die cutting, hand fabrication (strip molding, mandrel wrap,

splicing). Simrit processes can incorporate elastomers with various substrates such as metals, fabrics, composite materials, and EMI, offering you broad flexibility in the design.

Extensive testing

Simrit's design expertise is surpassed only by the extensive testing regimen that ensures the quality of the end result. Simrit's Finite Element Analysis simulates the environmental conditions each seal will experience in actual operation.



Simrit offers a wide variety of seals for the aerospace industry.

O-Rings for aerospace

Simrit offers off-the-shelf availability for standard AS568-size O-rings in a wide range of AMS-, MIL-, AS-, and NAS-approved materials including:

- Ethylene propylene (EPR/EPDM)
- Fluorocarbon (FKM)
- Fluorosilicone (FVMQ)
- Hydrogenated nitrile (HNBR)
- Liqui-Last™ (pFKM)
- Nitrile (NBR)
- Silicone (VMQ)
- Simriz® perfluoroelastomer (FFKM)

Other available product materials are:

- Polyetheretherketone (PEEK)
- Polytetrafluoroethylene (PTFE)
- Polyurethane (AU/EU)



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