Safran unveils an electric motor from its ENGINeUS range, designed for future hybrid and electric aircraft

NBAA aviation trade show, Orlando, FL, USA – October 15, 2018
Safran is presenting the first electric motor from its ENGINeUS range designed for future hybrid and electric aircraft, at NBAA’s Business Aviation Convention & Exhibition (NBAA-BACE) in Orlando, Florida.

The ENGINeUS 45 motor has a continuous power of 45kW. It has built-in, dedicated control electronics with an energy efficiency of over 94%. It also has an excellent power-to-weight ratio of 2.5kW / kg at 2,500rpm. The ENGINeUS product line will eventually include a range of electric motors with a power output of up to 500kW.

The motor on display has been tested and validated on Safran's electrical integration benches to verify its performance. Safran has also tested four of these electric motors on the ground on a full distributed propulsion hybrid-electric system, which reflects the demands of hybrid and electric aircraft.

This motor technology optimizes the electrical architecture by consolidating several key conversion, control and battery interface functions. Its mechanical and structural characteristics are also perfectly suited to aircraft structures.

"We are proud to present this cutting-edge equipment that boasts top-level aeronautical performance from an electromagnetic, thermal and mechanical perspective. With this range of engines, we are making a major strategic shift towards the development of VTOL\(^1\) and STOL\(^2\) aircraft, thus opening up promising new markets for Safran," said Hervé Blanc, Vice President & General Manager of the electrical systems and motors division at Safran Electrical & Power.

Visit Safran’s stand (2235 – South Hall) at NBAA-BACE, October 16-18.

1. Vertical Take-off and Landing Aircraft
2. Short Take-off and Landing Aircraft
**ELECTRICAL & POWER**

**ENGINEUS**

**ELECTRIC MOTORS**

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**PERFORMANCE**

- **UNRIVALLED SMART MOTOR POWER DENSITY AT LOW SPEED:**
  - 2.5 kW/kg @2500 RPM for 45 kW continuous power > POWER DENSITY BASED ON SMART MOTOR TOTAL WEIGHT.
  - 15 N.M/kg @2500 RPM for 172 N.M continuous torque > TORQUE DENSITY BASED ON MOTOR ELECTRIC MOTOR ONLY BASED ON SMART MOTOR TOTAL WEIGHT.
  - 10 N.M/kg @2500 RPM for 172 N.M continuous torque > POWER DENSITY BASED ON SMART MOTOR TOTAL WEIGHT.

- **EFFICIENCY > 94%** for the whole smart motor

- **CUSTOMIZED POWER RATING FROM 45 KW** based on a large power range building brick family.

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**APPLICATION**

- **ACTUATION**
- **PROPULSION**
- **HYBRIDATION**

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**SAFRAN**
Safran is an international high-technology group, operating in the aircraft propulsion and equipment, space and defense markets. Safran has a global presence, with more than 58,000 employees and sales of 16.5 billion euros in 2017. Safran is listed on the Euronext Paris stock exchange, and is part of the CAC 40 and Euro Stoxx 50 indices. Including Zodiac Aerospace, acquired by Safran in February 2018, the Group has over 91,000 employees and would have around €21 billion in adjusted revenues (pro forma 2016).

Safran Electrical & Power is one of the world market leaders in electrical systems in aeronautics, number 1 in wiring and number 2 in power systems. A key player in the field of more electric aircraft, the company employs more than 13,000 people in 12 countries.

For more information: www.safran-group.com and www.safran-electrical-power.com / Follow us on Twitter @Safran and @SafranElectric