HTC - HUMAN CENTRIFUGE FOR PILOT TRAINING

A worthwhile investment in effective pilot training.

Modern fast jet aircraft require high levels of G-tolerance and G-protection from the aircrew. Adequate training is necessary so that pilots can increase their physical and mental performance under high-G load and learn how to prevent G-LOC.

„AMST is a world leader in solutions for flight simulation, pilot training and aeromedical applications.

Since 1982, AMST has developed, manufactured, installed and successfully commissioned several human training centrifuges and became trusted market leader in its field.

Our customers benefit from customized equipment, realistic simulation and highest availability. Working with reliable partners like Venturetec enables us to deliver top quality that meets and exceeds our customers' expectations."

Franz Pflug, Managing Director
AMST-Systemtechnik GmbH

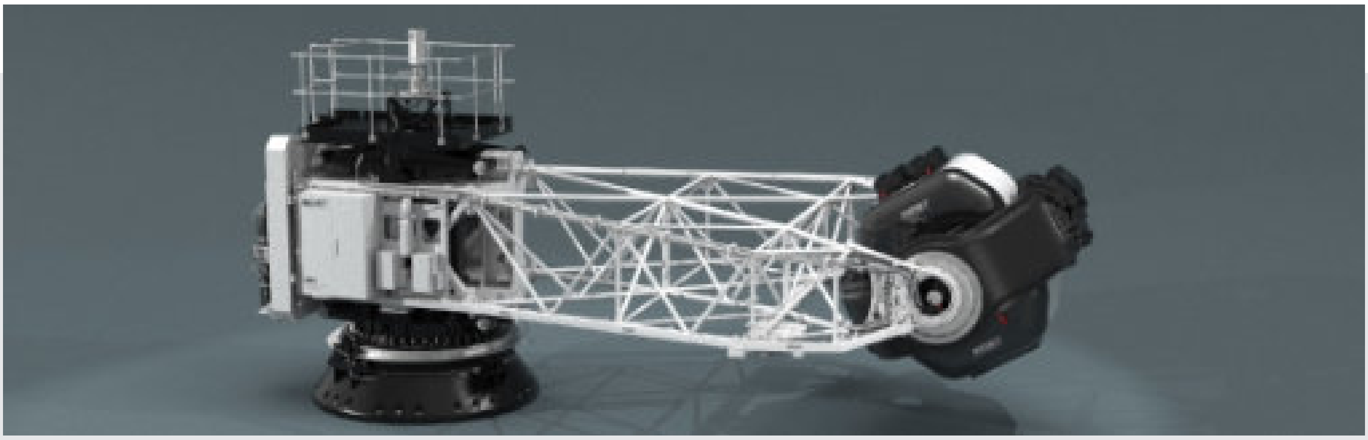
Highly agile fighter aircraft of the latest generation can perform super-manoeuvres with rapid, multi-axes motion. Such aircraft have a significant advantage and superiority in air combat.

Increased aircraft performance due to developments in engine power, airspeed, manoeuvrability, structural integrity, and electronic assistance make the pilot more and more a limiting factor. Physiological and psychological tolerance to mission stress and workload are critical.

G-induced Loss of Consciousness (G-LOC) is a continuing threat in fighter operations and remains a frequent cause of fatal aircraft mishaps.

Proper High-G Training requires a device that can reproduce genuine G-loads to which pilots are exposed in the real aircraft: the Human Training Centrifuge (HTC). With its Dynamic Flight Simulation (DFS) capability, the HTC induces these G-loads while pilots fly realistic scenarios and missions. To reduce the risk of G-LOC, pilots use the High-G Training to master protective anti-G training manoeuvres, which include muscular and breathing techniques. They can practise the use of the anti-G suit and self-control procedures.

For the transmission of data, power and media in the rotating system, complex rotating unions with contacting and optical transmitters are used, which are developed and manufactured by specialist suppliers such as Venturetec in Germany.



Solution

The HTC generates rapid onsets and sustained G-forces, typical for those in modern high-performance fighter aircraft. This facilitates efficient, sustainable, and cost-effective training in a highly reliable and safe environment. Pilots benefit from improved performance during missions and better situational awareness.

Advantages

With its Dynamic Flight Simulation, the HTC performs dynamic flight manoeuvres as commanded by the trainee. The pilot benefits from a realistic simulation of the natural high-G environment with sustained G-forces as in real flight. This makes the HTC a powerful and sophisticated training tool for realistic task loading and mission stress in training.

Realization

Based on a detailed technical specification from AMST with clear acceptance criteria, Venturetec was able to build and test an initial prototype for a slip ring in just a few months.

The results of these tests formed the basis for the final system design and the production of the ready-to-install module. Just a few months after the first inquiries, it was accepted together with the complete documentation and handed over “turnkey”.

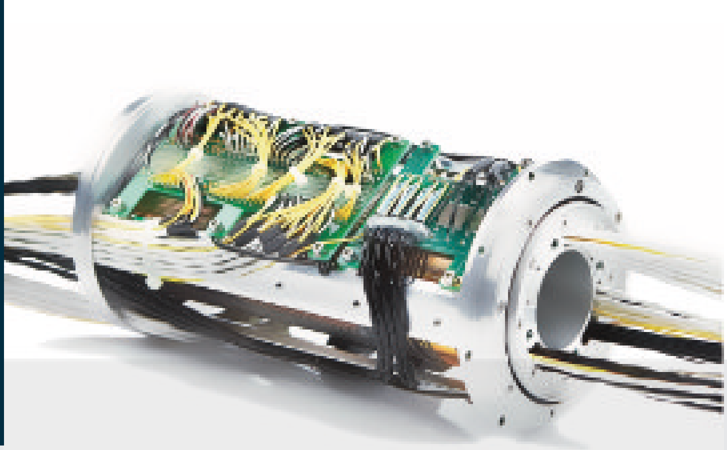
„Although the slip ring is no longer visible once it has been installed in the centrifuge and many users will hardly ever notice it, it still plays a central role in the reliable operation of the overall system.

Continuous rotation would not be possible without the transmission of data, power and media. For this demanding application we have confidence in the expertise of Venturetec's engineers.“

Helmut Lindlbauer, Head of Electrical Engineering
AMST-Systemtechnik GmbH

„The partnership-based cooperation with AMST enables us to make targeted use of our strengths. The comprehensive technical expertise of our engineers, combined with our flexibility and high quality in the realization of tailor-made projects, creates decisive added value for our business partners - and therefore also for their customers.“

Rainer Fasel, Sales Director
Venturetec Rotating Systems GmbH



Venturetec Rotating Systems GmbH specialises in the development and manufacture of slip rings and hybrid rotary transmitter. As a recognised partner of leading high-tech companies in the fields of medical technology, defense, industrial automation, surveillance and propulsion systems, Venturetec is based in Germany and has commercial agencies in China, France, Israel, Italy, Sweden, Spain and USA. Since 2014, Venturetec has been part of the successful Berndorf AG, a company based in Austria.

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