

Fuel-filtration solutions

Velcon Filters continues to develop solutions for the fuel-filtration challenges facing the military and the commercial aviation industry, ensuring that high-quality fuel is always available.

For years, the fuel-filtration industry worldwide has relied on joint publications from the American Petroleum Institute and the Energy Institute (formerly the Institute of Petroleum) for standards relating to aviation fuel cleanliness. In March 2010, the American Petroleum Institute decided to transfer responsibility for all aviation fuel-handling issues to the Energy Institute; effective 1 July 2010, all titles jointly published by the two organisations were solely branded and made available through the Energy Institute.

Military organisations around the world have adopted the standards in 'API/EI 1581 Specification and qualification procedures for aviation jet fuel filter/separators, fifth edition'. These specifications have defined testing procedures for jet fuel filter/separator systems since the 1980s. The fifth edition of this specification marked the first time that standards for military fuels (JP8 and JP5) were included, in addition to commercial jet fuel (Jet-A and Jet-A1). The fuel tests are distinguished by categories: Category C for commercial fuels and Category M for military fuels. It also includes an additional category, M100, for military fuels that contain a thermal-stability additive. In early 2011, Velcon tested and qualified several vessels, two of which were Category M qualifications.



The SI-522E separator is used in filter/separator vessels designed for the US Army Tank-automotive and Armaments Command.

electronic fuel-monitoring device that can be installed on fuelling equipment and pipelines to protect against contaminated or wet fuel, and determine the relative cleanliness of fuel as it passes between suppliers.

Contaminant analysis

The VCA is a laser-sensing device that simultaneously detects water and solids in fuels. It uses specialist sensing technology and a microprocessor to ensure that the fuel being loaded onto aircraft and other vehicles is clean and dry. In the presence of wet or dirty fuel, the system



The VCA-CV automatically shuts off fuel flow at the control valve if contaminant levels exceed a pre-set threshold.

Military testing expertise

In addition to the Energy Institute's specifications, Velcon has tested and qualified a number of vessel configurations specifically for military requirements. The company has qualified its I-420MMA coalescer to army specification MIL-PRF-52308J. This coalescer and the SI-522E separator feature in filter/separator vessels designed by Velcon for the US Army Tank-automotive and Armaments Command, for use in remote field fuelling.

The filter/separator vessels are available in 50gal/min, 100gal/min and 350gal/min models. Designed for portability, they are currently being used in various remote locations around the world to provide the military with filtration wherever helicopters stop for refuelling.

Additional concerns about jet fuel quality led Velcon to develop the Velcon Contaminant Analyser (VCA), an

can shut down the operation and alert the user, and thus provide a final quality check after filtration is completed.

Velcon, jointly with Physical Sciences Inc, received a patent in April 2009 for its flow switch operation. This, and other technological enhancements, makes operation of the VCA much more automatic, with minimal user support required. When the VCA senses fuel flow, it self-activates and begins to monitor and report fuel cleanliness. Two international airports, three major oil companies and two branches of the US military have conducted field trials of the VCA.

In March 2010 a technical paper titled 'State-of-the-art real-time jet fuel quality measurement' was presented at the Aviation Information Technology, Engineering and Management Conference in New Orleans, US. The paper describes the use of a new type of laser-sensing system, which has been designed to specifically measure aviation

fuel quality. The limitations of similar technology created for other industries and applications are also discussed.

Velcon's VCA technology meets the requirements for the simultaneous determination of contaminants and water in jet fuel. The VCA unit can also be installed on a fuelling pantograph, and is capable of being integrated into the outlet of a Cla-Val flow control valve body. This combined unit, the VCA-CV, makes installation within an existing pipe or fuel line much more convenient, streamlined and cost-effective.

The VCA-CV has the ability to automatically shut off fuel flow at the control valve when water or solid contaminant concentration rises above a pre-set threshold. This important feature helps



Velcon's FDPM MKII calculates corrected differential pressure across a filter vessel.

to prevent wet or dirty fuel from being delivered to helicopters and other aircraft. The VCA-CV also fully complies with the current EI 1598 technical specification.

Even flow

Another product developed by Velcon is the Flow Differential Pressure Module (FDPM) MKII, which automatically calculates the corrected differential pressure across a filter vessel, as per the ATA 103 standard. The condition of the filters inside the vessel is automatically determined based on the differential pressure, the actual flow rate and the rated flow of the specific vessel.

At present, Velcon is continuing the development of a number of products to tackle fuel-filtration challenges, as part of an ongoing effort to ensure that quality fuel is available to the military and the commercial aviation industry. ■

“ In addition to the Energy Institute’s specifications, Velcon has tested and qualified a number of vessel configurations specifically for military requirements. ”

Further information

Velcon Filters
www.velcon.com



CLEAN FUEL. Any Time. Any Place.

Velcon is a trusted name in the commercial and military aviation industry.

Velcon[®]

NEW COMPLIMENTARY VELCON POSTERS

F-35



Apache



Please send an email request to vfsales@velcon.com

Include your name, address, and your choice of the Apache, F-35, or both posters.

Velcon Filters, LLC 1.800.250.1985
Colorado Springs, CO 719.531.5855
USA Fax 719.531.5690
www.velcon.com vfsales@velcon.com



Fuel Filtration and Separation Specialists for over 50 years