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## General information

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EI 1581 qualified filter/water separators (FWS), both 6 inch and 2 inch systems, will operate to efficiently remove particulate and water from very low flow to up to the maximum qualified flow rate that is shown on the operational nameplate and similarity data sheet.

## Operation below design flow rate

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Whilst FWSs may be operated at any flow rate, EI 1550 states that: “Operating a FWS at significantly less than its rated flow, coupled with extended periods of vessel inactivity, may increase the risk of establishing microbiological activity (leopard spotting) due to free water not being released from the filter/coalescer elements.” EI 1550 further comments that: “Allowing water to remain in FWS vessels will promote microbiological colonisation and this can cause ‘disarming’. In low flow conditions, water droplets may remain on filter/coalescer elements”.

FWS operating at flow rates continuously below 50% of design flow, risk leaving free water in the coalescer element that can result in the formation of microbiological growth. This growth may lead to colonisation of the coalescer which disarms the coalescing function, i.e. fails to coalesce water effectively. Microbial colonisation of the coalescer (typified by leopard spotting on the coalescer sock) can also result in contamination of the downstream jet fuel system with microbes, water and particulate.

In cases where the FWS operates predominantly at low flow rates but occasionally at high flow rates, FAUDI Aviation recommend the filter is operated at a flow rate greater than 70% of design flow rate for at least 5 minutes on a weekly basis, in order to flush any resident water from the coalescer elements. This high flow rate flushing may be accomplished during the weekly dP recording operation. Previous history of microbial contamination and/or climatic conditions may require the high flow rate flushing to be performed more frequently than weekly in order to ensure optimum FWS operation.

## De-rating the flow rate

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In cases where the FWS operates only at flow rates less than 70% of flow, with a system limitation that is incapable of reaching a higher flow rate, then the number of coalescer elements should be reduced to match more closely, the operating flow rates. FAUDI Aviation would be pleased to provide advice for de-rating the flow rate of an existing filter water separator. Note that de-rated FWS will require an updated similarity data sheet and operating vessel label (Further information may also be found in EI1550 Chapter 15).

Aviation fuel supply chain and filtration systems

