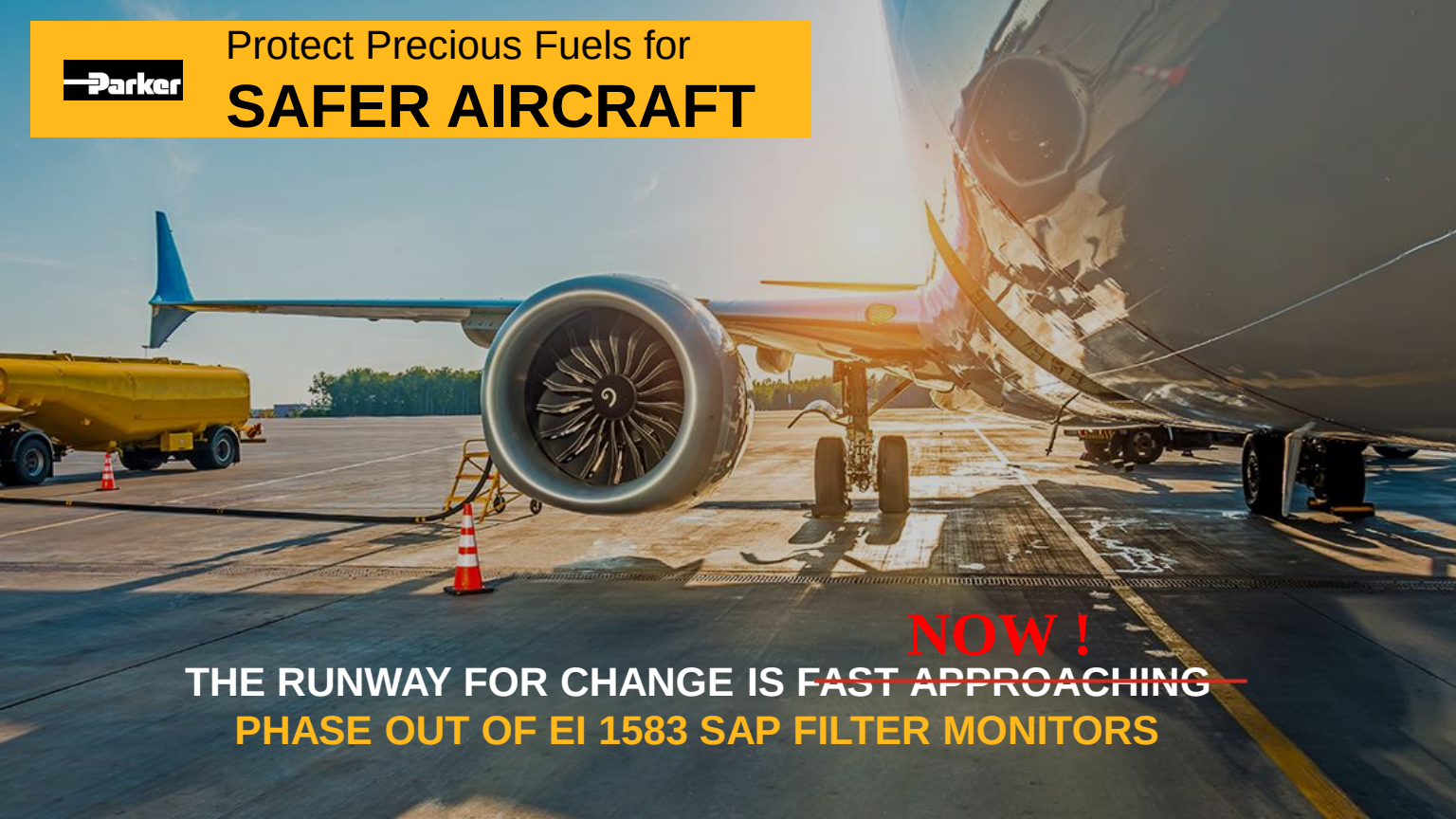
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Protect Precious Fuels for
SAFER AIRCRAFT
NOW !
THE RUNWAY FOR CHANGE IS FAST APPROACHING
PHASE OUT OF EI 1583 SAP FILTER MONITORS

CDFX™ 2” WATER BARRIER FILTER
A TRUE DROP-IN REPLACEMENT

- **INNOVATIVE WATER BARRIER TECHNOLOGY**
  - Water and dirt are prevented from passing downstream allowing only clean dry fuel without the use of SAP
- **PERFORMANCE TO MEET/EXCEED EI-1583 SPECIFICATIONS**
  - Defense against emulsified water and full water slug protection
- **RESOURCE EFFICIENT**
  - Fits currently deployed monitor housings without the need for costly retrofitting or additional equipment
- **NO MORE MEDIA MIGRATION CONCERNS**
  - Zero uncertainties about SAP media migration or extractables downstream and in fueling systems
- **COMPATIBLE MATERIALS**
  - Utilizes industry known materials of construction (nylon, PTFE and urethane)
- **SIMPLE PROCEDURE CHANGES**
  - Same diameter, length and flow rates as all 2” monitor elements

EI 1588
BARRIER TECHNOLOGY

EI1588 Test Specification

Test	Description	EI 1588	EI 1583
4.4.1	Media migration and starting differential pressure test	✓	✓
4.4.2	50 ppm water test, full rated flow	✓	✓
4.4.3	Water slug test, full rated flow	✓	✓
4.4.4	Mechanical integrity of saturated element test	✓	✓
4.4.5	Water slug test, 10% rated flow	✓	✓
4.4.6	Solids test	✓	✓
4.4.7	Mechanical integrity of solids contaminated element	✓	✓
4.4.8	Freeze/thaw tests	✓	✓
4.4.9	Full water immersion tests	✓	✓
4.4.10	Compatibility tests	✓	✓
4.4.11	Full-scale vessel 50 ppm water test	✓	✓
4.4.12	Full scale vessel water slug test	✓	✓
4.4.13	50 ppm with saline solution	✓	✓
4.4.14	Slug test at rated flow with saline solution	✓	✓
4.4.15	End-to-end filter monitor element resistance	✓	✓
4.4.16	End-cap adhesion integrity test	✓	✓
4.4.17	Media migration and starting differential pressure test (with FSII)	✓	
4.4.18	50 ppm water test, full rated flow (with FSII)	✓	
4.4.19	Water slug test, full rated flow (with FSII)	✓	
4.4.20	Solids test (with FSII)	✓	
4.4.21	Mechanical integrity of solids contaminated element (with FSII)	✓	
	Partial Water Imersion Test		✓
	50 ppm Water Test, low flow		✓
	Electrostatic Charge Generation	✓	

Performance requirements for EI 1588 are as stringent as EI 1583 (without SAP)

- **Removal** of SAP testing
- **Water Slug** Testing
- **Emulsified Water** Testing
- **Solids** Testing
- **Compatibility** Testing
- **Structural** Testing

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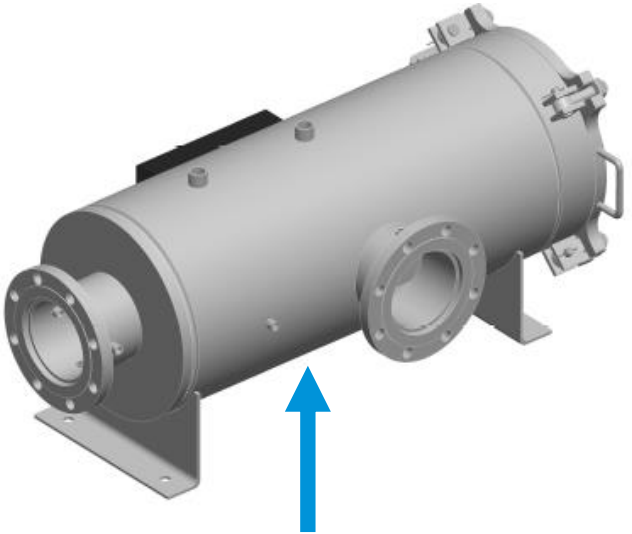
EI 1588
BARRIER TECHNOLOGY

30 PPM Water Removal (4-hour time lapse)

CDFX™
BARRIER TECHNOLOGY

Product Application Differences

- Daily sumping will be required
- Education on differential pressure effects



Upstream Housing Drain

EI 1588 CDFX™ OPERATION

CDFX elements are designed to replace SAP monitor elements and operation will be essentially the same. Since they do not absorb water, a few things to note:

1. The low point on the vessel should be “sumped” or drained daily to remove any water that may settle to the bottom.
2. Differential Pressure (DP) should be closely monitored.
3. Potential causes of differential pressure:
   - Build-up of solid contaminants. Differential pressure due to solids will remain and not go down.
   - Slow build-up of entrained or emulsified free water. This pressure will likely reduce if the system is left to sit, water settles to the vessel bottom and the vessel is sumped.
   - Water slug. This will cause the pressure to rise very quickly and will shut down the flow even if the entire vessel is filled with water. The water should be thoroughly drained, and the system allowed to sit overnight and then water drained again. Upon startup, if the DP is over 22 psid, the filter elements should be changed.
   - The differential pressure should not fall below the initial “starting differential pressure” when operated at rated flow. If this happens, open the vessel to inspect the filter elements.

INDUSTRY ACCEPTANCE TIMELINE
CDFX™ BARRIER TECHNOLOGY

- Technology Development and Launch Steps

  - ✓ Proof of concept and initial testing: 2016-2018
  - ✓ EI Specification Development and Publication (EI 1588): May 2018
  - ✓ EI 1588 1st Edition Qualification: April 2019
    - ✓ Electrostatic Charge Generation: May 2019
    - ✓ Robustness Phase 1: June 2019
    - ✓ Robustness Phase 2: July 2019-Feb 2020
    - ✓ Field Trials: July 2020 – Jan 2022
  - ✓ Acceptance in ATA-103 (A4A) & B836-22 (CSA) Operating Standards
  - ✓ EI-1588 2nd Edition requalification (CDFX-B) Sept 2022
    - ✓ End Cap redesign to meet adhesion integrity test
  - ✓ Extended brief JIG field trials – Oct 2022 – April 2023
  - ✓ Acceptance in JIG standards

WATER BARRIER TECHNOLOGY FOR GENERAL AVIATION

ACOX™ 5” & 6” WATER BARRIER FILTER
GENERAL AVIATION

- **Ideal for Low Throughput Operations**

- Minimal changes to your current operational procedures
- Drop-in solution for existing housings without the need for retrofitting or additional equipment
- Filter change at max 22 PSID or 1 year service life
- Daily sumping recommended as with combination coalescer/separator cartridge however not critical if not performed daily, water *will not* pass WBF
- Water and dirt are prevented from passing downstream allowing only clean, dry fuel
- Effective against low-water emulsions and water slugs
- Effective in fuel containing FSII (anti-icing additive)
- Currently meets the effluent fuel quality and structural requirements of EI-1588 and proposed EI-1587 RP “Single Cartridge Filtration Units”

THANK YOU

Louis Miceli
Aerospace Filtration Division

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