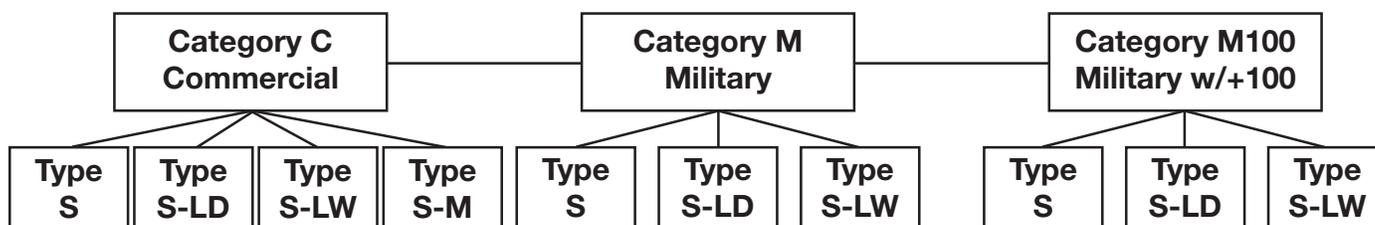


# EI 1581 6<sup>th</sup> Edition Specification Summary

## EI 1581 6th Edition Specification\* Key Points

1. Category “C” filter/separators are for use in commercial Jet-A or Jet-A1 fuel. They are tested in fuel containing anti-static additive Stadis 450 and corrosion inhibitor DCI-4A.
  2. Category “M” filter/separators are for use in military JP-8 or JP-5 fuel. They are tested in fuel containing Stadis 450, DCI-4A, and anti-icing additive Di-EGME. (Note: testing to Category “M” also qualifies for Category “C”.)
  3. Category “M100” filter/separators are for use in military JP8+100 fuel. They are tested in fuel containing Stadis 450, DCI-4A, Di-EGME, and thermal stability additive Spec Aid 8Q462.
  4. Type “S” filter/separators are used at filtration points where significant levels of both dirt and water can be expected. (Note: testing to Type “S” also qualifies for both Type “S-LD” and Type “S-LW”.)
  5. Type “S-LD” filter/separators are used at filtration points where significant levels of water but minimal amounts of dirt can be expected.
  6. Type “S-LW” filter/separators can be used for mobile applications where minimal amounts of water can be expected in the jet fuel.
  7. Type “S-M” filter/separators can be used for some into-aircraft applications (Cat C).
  8. Multi-Stage Systems can be used at all filtration points in addition to filter/separators where additional performance is desired. Multi-stage devices can include upstream pre-filters and downstream water absorbing filters.
  9. The EI specification procedures qualify the entire filter/separator, not just the elements. Strictly speaking, there is no such thing as an EI qualified element. There are only elements that are used in an EI qualified filter/separator.
  10. A filter/separator of similar geometry to the tested vessel can be qualified by similarity providing that a complex set of criteria are met. This is particularly significant in establishing EI qualification for existing equipment in the field. EI Specification 1582\*\* details the similarity specifications that have to be met in order for a filter/separator to be qualified by similarity.
  11. In order for a filter/separator to be accepted as meeting the EI specification, it must be tested to the specification with an official witness designated by the EI committee present. This witness ensures that all procedures are followed per specification and that all test results meet the specification requirements. An official test report is then issued by the EI.
  12. Addition of 50 mm and 100 mm nominal filter/separator elements (not for retrofit into existing 150 mm filter/water separator systems).
  13. Standardized lengths of 50 mm nominal diameter filter/separator elements.
  14. Removal of requirements for vessels/accessories (per EI1596)
- \* EI Specification 1581, Sixth Edition, “Specifications and Qualification Procedures for Aviation Jet Fuel Filter/Separators”, December, 2016.  
 \*\* EI Specification 1582, “Specifications for Similarity For EI1581 Aviation Jet Fuel Filter/Separators”, December, 2011.

### EI SPEC 1581



**FILTER/SEPARATOR SPECIFICATIONS  
MAJOR MECHANICAL, TEST, & PERFORMANCE REQUIREMENTS**

Criteria		Specification Requirement
Test Fuel Additives	Category C	1.0 mg/l STADIS 450 + 15.0 mg/l DCI-4A
	Category M	2.0 mg/l STADIS 450 + 15 mg/l DCI-4A + 0.15% DI-EGME
	Category M100	2.0 mg/l STADIS 450 + 15 mg/l DCI-4A + 0.15% DI-EGME + 256 mg/l SPEC AID 8Q462
Test Series To Be Run		Single element
		Full scale
Fuel Handling	Single Element	Single pass from 1 tank to another
	Full Scale	Recirculate
Fuel Temperature	Minimum Temperature	40°F
	Maximum Temperature	90°F
	Deviation From Test Start Temperature	+/- 11°F
Maximum Clean Initial Differential Pressure		6 psid across filter/coalescer stage, 10 psid across vessel
Structural Strength Of Filter/Coalescer Element		75 psid with no rupture, bypassing of seals, or pinhole leaks
Structural Integrity Of Filter/Coalescer Element		No media or structural deterioration such as leaks or tears
Maximum Effluent Contaminant Levels During Tests	Fiber Content	10 fibers per liter
	Solids Content	1.0 milligram per gallon
	Free Water Content	15 parts per million
Conditioning Run Test	Flow Rate	3 gpm for single element test, 10% of rated flow for full scale test
	Test Duration	30 minutes
Water Coalescence Test - Clean Element	Flow Rate	Rated flow
	Test Duration	30 minutes
	Water Injection Rate	0.01% By volume
Solids Holding Test	Flow Rate	Rated flow
	Test Duration - Type S	75 minutes for single element, 45 min for full scale
	Test Duration - Type S-LD	Add solids until pressure reaches 22.5 psid, Then run additional 45 minutes with no addition
	Solids Injection Rate	72 mg/gal
	Maximum Delta P At 50 Minutes - Type S	15 psid
	Maximum Pressure At 75 Minutes - Type S	45 psid
Water Coalescence Test - Dirty Element	Flow Rate	Rated flow
	Test Duration - Single Element	1st period: 150 minutes, 2nd period: 30 minutes
	- Full Scale	1st period: 90 minutes, 2nd period: 15 minutes
	Water Injection Rate	1st period: 0.01%, 2nd period: 3.0% (0.5% For S-LW)
Vertical Vessel Length To Diameter Ratio	Vessel ≤ 24 Inches	1.75
	Vessel > 24 Inches	2.5
Minimum Spacing Between Elements And Between Element & Vessel Wall		0.5 inches

