

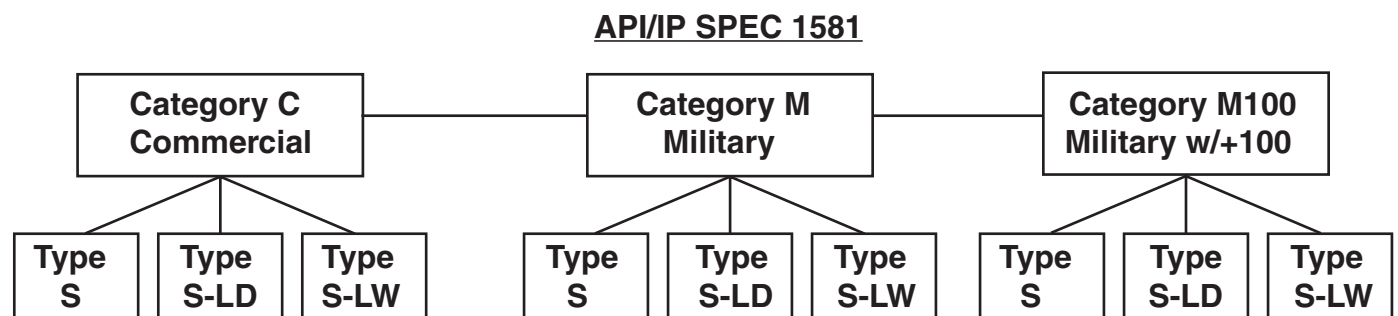


API/IP 1581 5th Edition Specification* Key Points

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” qualifies for both Category “M” and 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.
5. **Type “S-LD”** filter/separators are used at filtration points where significant levels of water but minimal amounts of dirt can be expected. (Note: testing to Type “S” qualifies for both Type “S” and Type “S-LD”.)
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. 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.
8. The API/IP specification procedures qualify the entire filter/separator, not just the elements. Strictly speaking, there is no such thing as an API/IP qualified element. There are only elements that are used in an API/IP qualified filter/separator.
9. 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 API/IP qualification for existing equipment in the field. API/IP Specification 1582** details the similarity specifications that have to be met in order for a filter/separator to be qualified by similarity.
10. In order for a filter/separator to be accepted as meeting the API/IP specification, it must be tested to the specification with an official witness designated by the API/IP 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 API/IP.


* API/IP Specification 1581, Fifth Edition, “Specifications and Qualification Procedures for Aviation Jet Fuel Filter/Separators”, July 2002

** API/IP Specification 1582, “Specifications for Similarity For API/IP 1581 Aviation Jet Fuel Filter/Separators”, February, 2001



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 DEG F
	MAXIMUM TEMPERATURE	90 DEG F
	DEVIATION FROM TEST START TEMPERATURE	+/- 11 DEG F
MAXIMUM CLEAN INITIAL DIFFERENTIAL PRESSURE		6 PSID ACROSS FILTER/COALESCER STAGE, 10 PSID ACROSS VESSEL
STRUCTURAL STRENGTH OF FILTER/COALESCER ELEMENTS		75 PSID WITH NO RUPTURE, BYPASSING OF SEALS, OR PINHOLE LEAKS
STRUCTURAL INTEGRITY OF FILTER/COALESCER ELEMENTS		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 DEPTA 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)
VESSEL LENGTH TO DIAMETER RATIO	VESSEL ≤ 24 INCHES	1.75
	VESSEL > 24 INCHES	2.5
MINIMUM SPACING BETWEEN ELEMENTS AND BETWEEN ELEMENTS & VESSEL WALL		0.5 INCHES



Velcon products are sold and serviced by a world-wide representative network. To order, contact Headquarters or your LOCAL REPRESENTATIVE:

COMPANY HEADQUARTERS:
 Velcon Filters, Inc.
 1210 Garden of the Gods Road
 Colorado Springs, CO 80907-3410
 Phone: 1.800.531.0180 / 1.719.531.5855
 Fax: 719.531.5690
 e-mail: vfsales@velcon.com
 www.velcon.com

MANUFACTURING PLANTS LOCATED AT:
 Colorado Springs, Colorado
 Sylacauga, Alabama

OVERSEAS AFFILIATES:
 Frankfurt/M., Germany & Singapore

**Liquid Filtration
 and Separation
 Specialists**