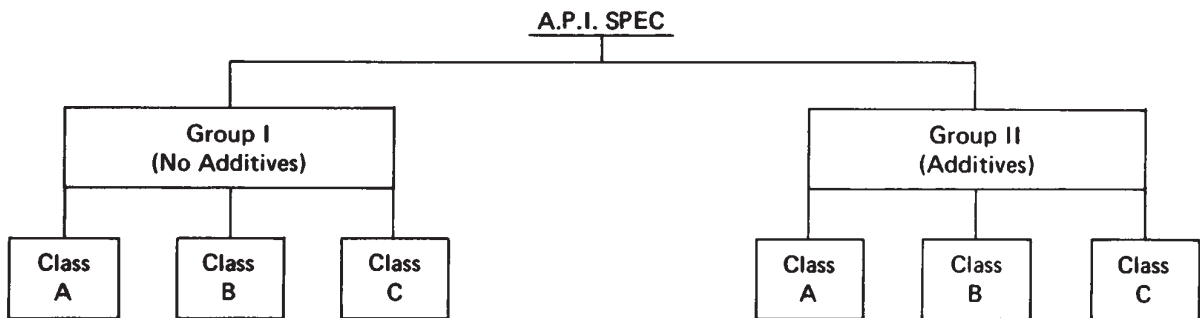


A.P.I. Publication 1581 Specification* Key Points

- GROUP I** products are for use in *uninhibited fuel*. **Group II** products are for use in fuel inhibited with Stadis 450 and/or other additives. Qualification for Group II automatically qualifies a filter/separator for Group I at the same flow rate and conditions.
- Class C** is intended for *mobile* use. **Class B** is intended for *most fixed* installations. **Class A** is intended for installations where a *heavy dirt and/or water load* is expected such as Barge Terminals. It is generally not intended for airport use.



- The A.P.I. specification procedures qualify the entire filter/separator, not just the elements. Strictly speaking, there is no such thing as an A.P.I. qualified element. There are only elements which are used in an A.P.I. qualified filter/separator.
- Qualification by similarity is an important provision of this specification whereby a filter/separator of similar geometry to the tested vessel can be qualified providing that complex set of criteria are met. This is particularly significant in establishing A.P.I. qualification for existing equipment in the field.
- Any manufacturer can claim his equipment is A.P.I. qualified. It is up to the purchaser to determine what he will accept for proof of compliance. If the purchaser wants to, he can just take the manufacturer's word for it. However, if a purchaser requests a witnessed test and the equipment fails, then the manufacturer loses the right to claim A.P.I. qualification.
- All manufacturers' Group II coalescers have very tight media.
- For lowest cost of filtration, Velcon recommends that all Class B filter/separator be operated with a full set of elements – even though reduced element conversions may be offered.
- Qualification for Class A automatically qualifies a filter/separator for Classes B and C. Qualification for Class B automatically qualifies a filter/separator for Class C.

* A.P.I. Publication 1581, Third Edition, "Specifications and Qualification Procedures for Aviation Jet Fuel Filter/Separators," with Addendum dated 1995.

FILTER/SEPARATOR SPECIFICATIONS MAJOR PERFORMANCE REQUIREMENTS

SPECIFICATION	A.P.I. 1581 GROUP II*			MIL-F-8901E	
	CLASS A	CLASS B	CLASS C	FIXED	MOBILE
INITIAL PRESSURE DIFFERENTIAL LIMITS	10 psid at rated flow			10 psid at 115% of rated flow (5 psid without elements)	
WATER REMOVAL	RATED FLOW WITH STOP/STARTS:			1. 115% of rated flow:	
ADD RATES BY % VOLUME:	0.01%-60 min. 3.0%-30 min. 10.0%-10 min.	0.01%-60 min. 3.0%-30 min.	0.01%-60 min. 0.5%-30 min.	0.5%-60 min. 5.0%-60 min. 10.0%-60 min.	0.5%-60 min. 5.0%-60 min.
REMARKS:	Key requirements are the runs which require water add after contaminant test on the same elements.			2. RATED FLOW: a. 3.0% with Red Iron Oxide – 70 min. b. 1.0% with inhibited Fuel – 130 min.	
MAXIMUM FREE WATER IN EFFLUENT:	15 ppm – Aqua-Glo			5 ppm for 1 min. on totameter (Turbidimeter)	
CONTAMINANT REMOVAL	Dry Red Iron Oxide with Stop/Starts			1. Red Iron Oxide Dry 2. R.I.O. with 3.0% water 3. A.C. Dust (see inhibited fuels)	
CAPACITY – PER RATED FLOW:	15 GMS/GPM	10 GMS/GPM	5 GMS/GPM	10 GMS/GPM	
MAXIMUM PRESSURE DIFF:	15 psid at 50-min., 40 psid at 75 min. – end of contaminant run			20 psid max. at 30 min. 40 psid max. at 70 min.	
MAXIMUM SOLIDS IN EFFLUENT:	1.0 MG./GAL. (0.26 MG/LITER)			Average 0.5 MG/Liter Single Samples 1.0 MG/Liter	
INHIBITED FUELS	All tests include 3.5 ppm Stadis 450 added to fuel Minimum outlet conductivity for series 1 & 2: 50 C.U. 100 C.U. 100 C.U.			Separate test. Fuel inhibited with 16 lbs. of Hitec E-515 per 1000 BBLs., plus 0.15% anti-icing. 1.0% Water – 60 min. 1.0% Water plus A.C. Dust Coarse – 70 mins. Stadis 450 (only when specified) to 200 - 600 C.U. (pS/m).	
Test Series 3 includes 10.8 gm/1000 gal. Hitec E-580 in addition to Stadis 450					
MEDIA MIGRATION MAX. ALLOWABLE	40 Fibers/Gallon (10 Fibers/Liter)			10 Fibers/Liter, average 15 Fibers/Liter, single sample	
COALESCER STRUCT. STRENGTH	75 psid without rupture or bypassing at seals			75 psid for 5 minutes without structural failure.	
MAX. FUEL IN SUMP WATER	No. Spec.			0.5% by volume	
LIFE TEST	NOT REQUIRED			125 hours when specified. Includes addition of 0.5% and 3.0% water and red iron oxide at various times.	
ENVIRONMENTAL	Manufacturer's guarantee it meets requirements of recognized procedures. (i.e. Mil-F-8901).			172 hour soak test in fuel and salt water followed by 0.5% water coalescing test and inspection for corrosion or deformation.	

*A.P.I. Group I requirements are the same as Group II except fuel is **uninhibited** and **full scale test only** is required.



Fischer-Robertson, Inc.
3890 Symmes Road
Hamilton, Ohio 45015
p: 513-860-3445
f: 513-860-4744
sales@fischer-robertson.com
www.fischer-robertson.com

COMPANY HEADQUARTERS:
Velcon Filters, Inc. 4525 Centennial Blvd.
Colorado Springs, CO 80919-3350
Phone: 1.800.531.0180
Fax: 719.531.5690
e-mail: vfsales@velcon.com
www.velcon.com

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