

INCH-POUND

MIL-PRF-28861/4D
w/Amendment 2
20 August 2019
SUPERSEDING
MIL-PRF-28861/4D
w/Amendment 1
23 January 2009

PERFORMANCE SPECIFICATION SHEET

FILTERS, RADIO FREQUENCY/ELECTROMAGNETIC INTERFERENCE
SUPPRESSION, HERMETICALLY SEALED, STYLE FS40

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein
shall consist of this specification sheet and [MIL-PRF-28861](#).

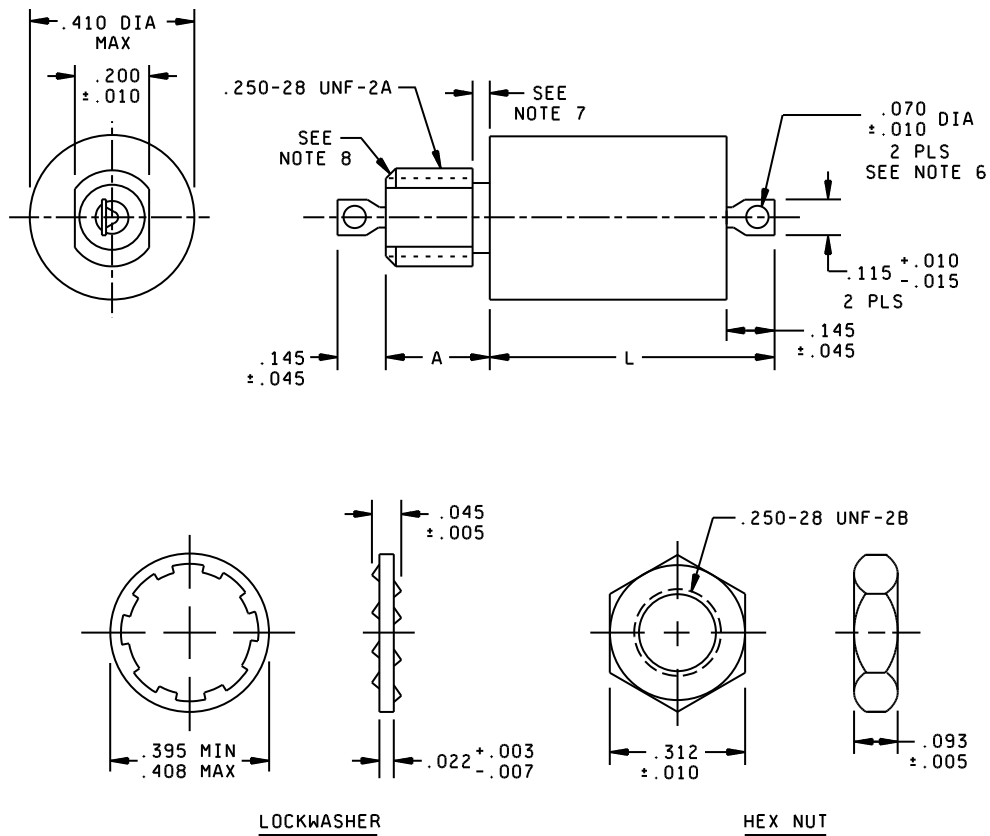
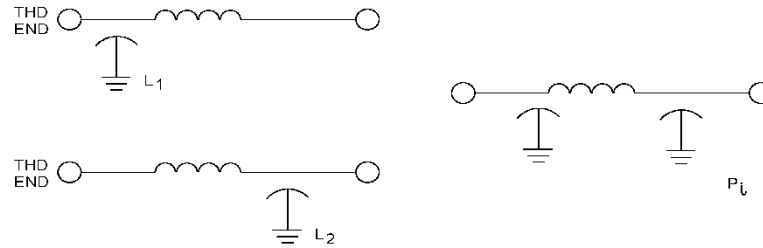


FIGURE 1. Case and hardware dimensions and circuit diagrams.



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CIRCUIT DIAGRAMS

Dash number	A dimension (± 0.10)	L dimension max	Dash number	A dimension (± 0.10)	L dimension max
001	.187	.630	019	.312	.630
002	.187	.630	020	.312	.630
003	.187	.730	021	.312	.730
004	.187	.630	022	.312	.630
005	.187	.630	023	.312	.630
006	.187	.730	024	.312	.730
007	.187	.630	025	.312	.630
008	.187	.630	026	.312	.630
009	.187	.730	027	.312	.730
010	.187	.630	028	.312	.630
011	.187	.630	029	.312	.630
012	.187	.730	030	.312	.730
013	.187	.630	031	.312	.630
014	.187	.630	032	.312	.630
015	.187	.730	033	.312	.730
016	.187	.630	034	.312	.630
017	.187	.630	035	.312	.630
018	.187	.730	036	.312	.730

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.003	0.08	.022	0.56	.145	3.68	.395	10.03
.005	0.13	.045	1.14	.187	4.75	.408	10.36
.007	0.18	.070	1.78	.200	5.08	.410	10.41
.010	0.25	.093	2.36	.250	6.35	.630	16.00
.015	0.38	.115	2.92	.312	7.92	.730	18.54

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Circuit diagrams are for information only.
4. All filters shall be supplied with mounting hardware (hex nut and lockwasher). Mounting hardware shall be furnished with the same finish as the filter case.
5. Terminal identification (nonsymmetrical filters): The case shall be marked at the threaded end of the filter with the symbol "C" or the symbol "L" as follows, or the circuit diagram shall be marked on the case.

Circuit	Symbol
L ₁	C
L ₂	L
6. Optional slot may be supplied, $.050 \pm .010$ inches (1.27 ± 0.25 mm) x $.070 \pm .010$ inches (1.78 ± 0.25 mm).
7. Imperfect thread or undercut optional $.050$ inch (1.27 mm) maximum.
8. One imperfect thread allowed $.035$ inch (0.89 mm) maximum.
9. Recommended mounting torque: 44 inch-ounces ± 4 inch-ounces.

FIGURE 1. Case and hardware dimensions and circuit diagrams - Continued.

REQUIREMENTS:

Design and construction:

Dimensions and configuration: See figure 1.

Weight: 10 grams maximum.

Case finish: T, S, or G in accordance with [MIL-PRF-28861](#) (pure tin finish is prohibited).

Mounting hardware: Shall be furnished with the same finish as the filter case (pure tin finish is prohibited).

Terminals: Solderable.

Operating temperature range: -55°C to +125°C.

Rated voltage: 70 V dc.

Rated current: See table I.

Capacitance: See table I for minimum capacitance value.

Dissipation factor: 3 percent maximum.

Voltage and temperature limits of capacitance: +15 percent, -40 percent.

Insulation resistance:

At +25°C: 1,000 megohms minimum or 1,000 megohm-microfarads minimum, whichever is less.

At +125°C: 100 megohms minimum or 100 megohm-microfarads minimum, whichever is less.

Insertion loss: See table I.

Voltage drop: See table I.

DC resistance: See table I.

Seal: In accordance with [MIL-PRF-28861](#). Leakage rate for class S filters shall not exceed 1×10^{-7} atm cm³/s.

Temperature rise: +25°C maximum.

Solderability of terminals: In accordance with [MIL-PRF-28861](#).

Product assurance level: In accordance with [MIL-PRF-28861](#) and table I.

Part or Identifying Number (PIN): The PIN shall be as follows:

M28861/04 - <u>XXX</u>	<u>X</u>	<u>X</u>
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Dash no. in accordance with figure 1 and table I	Case finish	Product assurance level in accordance with MIL-PRF-28861 and table I

TABLE I. Electrical characteristics.

Dash number	Product assurance level		Circuit	Maximum current (amps)	Minimum capacitance (μF)	Maximum voltage drop (volts)	Maximum DC resistance (ohms)	Minimum insertion loss (dB) in accordance with MIL-STD-220 1/ 2/																							
	Class							At +25°C												At -55°C and +125°C											
								15 kHz	30 kHz	50 kHz	100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz	15 kHz	30 kHz	50 kHz	100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz				
	B	S																													
001, 019	X	X	L1	0.10	0.70	0.17	1.70	9	20	29	41	48	60	70	70	70	70	7	18	27	39	46	58	68	70	70	70				
002, 020	X	X	L2	0.10	0.70	0.17	1.70	9	20	29	41	48	60	70	70	70	70	7	18	27	39	46	58	68	70	70	70				
003, 021	X	X	π	0.10	1.40	0.17	1.70	15	36	50	69	79	80	80	80	80	80	13	34	48	67	77	78	78	80	80	80				
004, 022	X	X	L1	0.30	0.70	0.23	0.77	6	15	23	35	42	54	70	70	70	70	4	13	21	33	40	52	68	70	70	70				
005, 023	X	X	L2	0.30	0.70	0.23	0.77	6	15	23	35	42	54	70	70	70	70	4	13	21	33	40	52	68	70	70	70				
006, 024	X	X	π	0.30	1.40	0.23	0.77	---	29	44	62	73	80	80	80	80	80	---	27	42	60	71	78	78	80	80	80				
007, 025	X	X	L1	0.50	0.70	0.18	0.36	5	12	19	29	36	48	69	70	70	70	3	10	17	27	34	46	67	70	70	70				
008, 026	X	X	L2	0.50	0.70	0.18	0.36	5	12	19	29	36	48	69	70	70	70	3	10	17	27	34	46	67	70	70	70				
009, 027	X	X	π	0.50	1.40	0.18	0.36	---	21	37	56	67	80	80	80	80	80	---	19	35	54	65	78	78	80	80	80				
010, 028	X	X	L1	1.0	0.70	0.14	0.14	5	11	15	21	26	36	55	70	70	70	3	9	13	19	24	34	53	70	70	70				
011, 029	X	X	L2	1.0	0.70	0.14	0.14	5	11	15	21	26	36	55	70	70	70	3	9	13	19	24	34	53	70	70	70				
012, 030	X	X	π	1.0	1.40	0.14	0.14	---	---	20	46	57	75	80	80	80	80	---	---	18	44	55	73	78	80	80	80				
013, 031	X	X	L1	3.0	0.70	0.15	0.05	5	10	14	20	24	31	45	70	70	70	3	8	12	18	22	29	43	70	70	70				
014, 032	X	X	L2	3.0	0.70	0.15	0.05	5	10	14	20	24	31	45	70	70	70	3	8	12	18	22	29	43	70	70	70				
015, 033	X	X	π	3.0	1.40	0.15	0.05	---	---	---	17	36	51	80	80	80	80	---	---	---	15	34	49	78	80	80	80				
016, 034	X	X	L1	5.0	0.70	0.075	0.015	---	---	---	14	17	24	36	60	70	70	---	---	---	12	15	22	34	60	70	70				
017, 035	X	X	L2	5.0	0.70	0.075	0.015	---	---	---	14	17	24	36	60	70	70	---	---	---	12	15	22	34	60	70	70				
018, 036	X	X	π	5.0	1.40	0.075	0.015	---	---	---	---	16	38	75	80	80	80	---	---	---	---	14	36	73	80	80	80				

1/ Insertion loss measurements shall be made under full load over the frequency range of 100 kHz to 10 MHz. Insertion loss measurements above and below this frequency range shall be under no load.

2/ The insertion loss requirements between any two adjacent specified frequencies shall be that of the lower of the two frequencies in order to accommodate resonant dips.

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Reference documents. In addition to [MIL-PRF-28861](#), this specification sheet references the following document:

[MIL-STD-220](#)

Amendment notations. The margins of this specification sheet are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC
NASA - NA

Preparing activity:

DLA - CC

(Project 5915-2019-010)

Review activities:

Army - AV, MI
Navy - AS, MC, OS, SH
Air Force - 19

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.