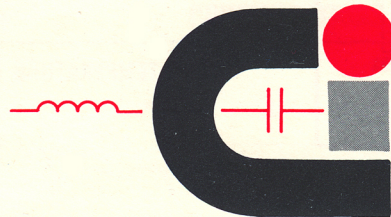
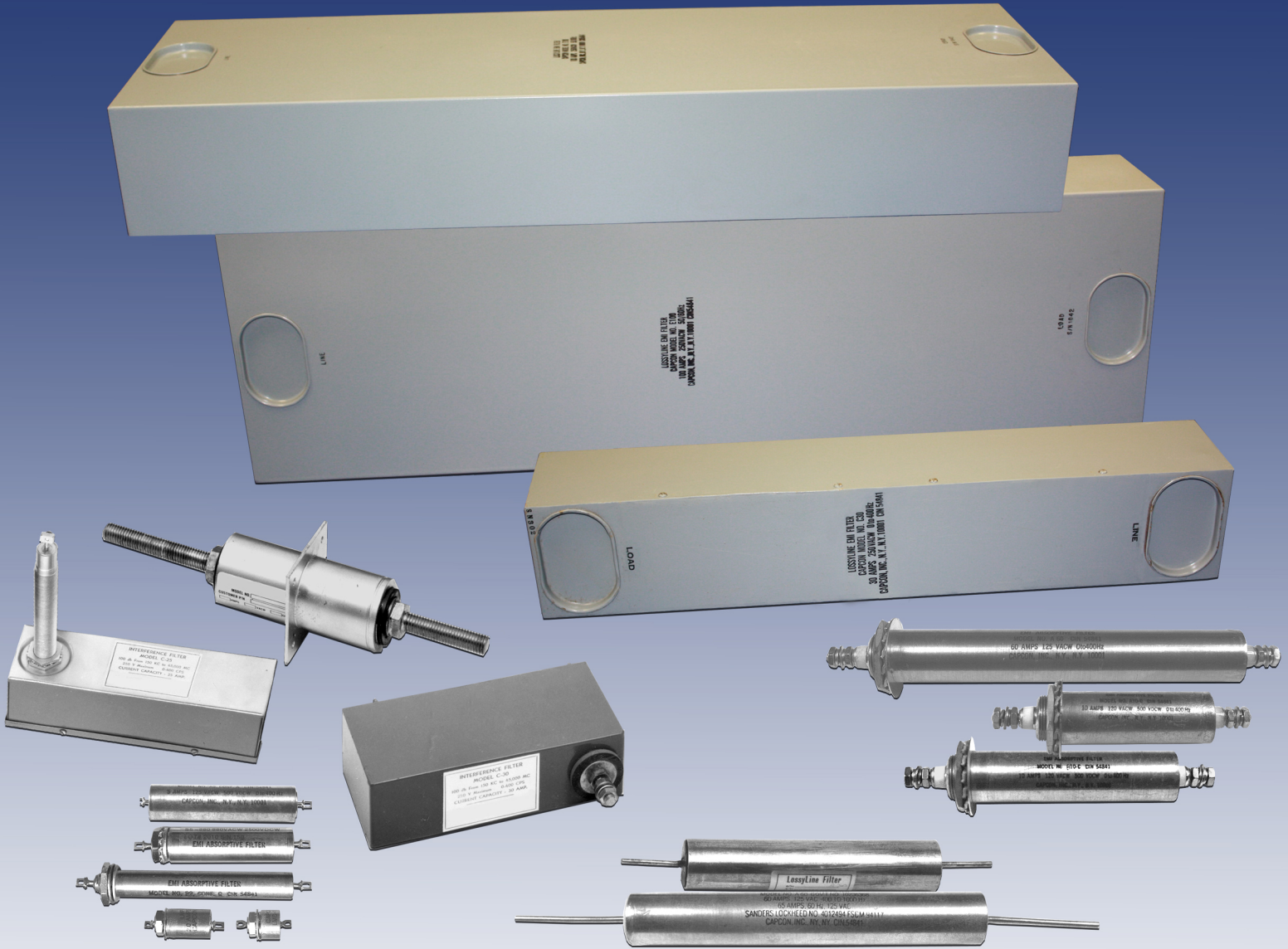


LSF-6

CAPCON®

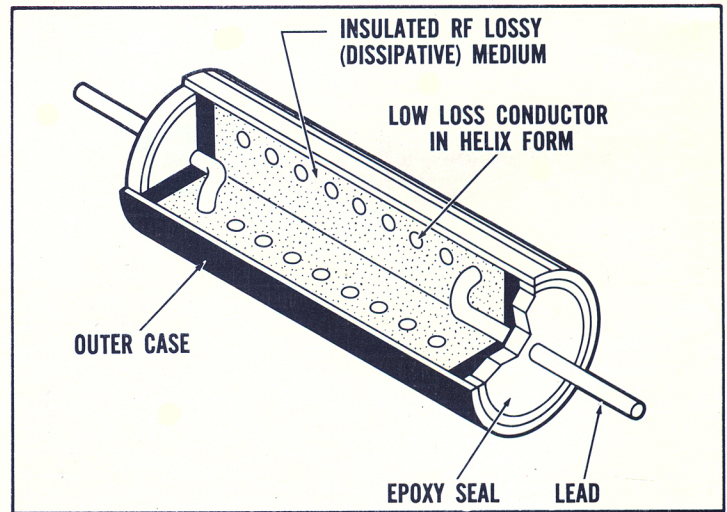
LossyLine EMI Absorptive Filters



CAPCON® INTERNATIONAL, INC.

120 Craft Avenue
Inwood, NY 11096-1708
Tel: (516) 371-5600
Fax: (516) 239-5481

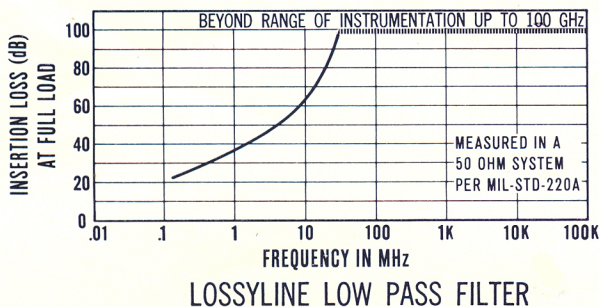
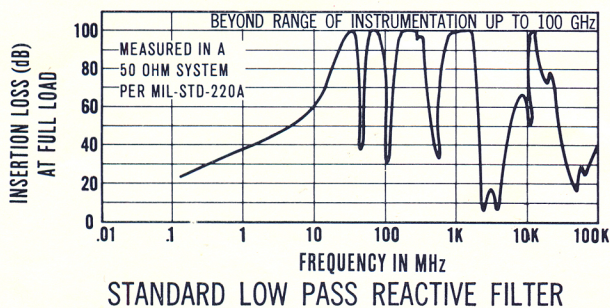
The heart of a LossyLine Filter is the dissipative element. This element embodies a high temperature resisting (175°C) epoxy resin, optimized as a magnetic lossy core, molded around the conductor, and case shielded. Hence, a true magnetic trap that absorbs rather than rejects or reflects unwanted energy. No oil is required to cool since there is a minimum heating effect. Practically no reactive current is present because there is little, if any, shunt capacity. LossyLine attenuates 100dB minimum, or beyond of standard instrumentation, from 100 KHz up to 100 GHz and attenuation does not fall off with current. The level of RF attenuation at full load currents is maintained because of freedom from saturation. The electrical characteristics of LossyLine suppress sine waves per MIL-STD-220A, and cause the collapse of transient spikes of all kinds, particularly those with short rise times. These spikes are not reflected or transferred to other conductors, but are dissipated as heat within the lossy element (no ringing effects).



FEATURES

- Extremely low reactive current because of small shunt capacity (no power factor correction coils).
- Filter performance maintained under full load due to replacement of saturable iron cores with dissipative elements.
- Low voltage drop results in extremely low losses in pass band. No oil is required for cooling.
- With microwave version, superior noise suppression up to 100 GHz without dips or leaks.
- All transient spikes effectively dissipated in the lossy mixture rather than reflected or transferred.
- Eliminates ringing effect.

TYPICAL PERFORMANCE COMPARISON



SPECIFICATIONS

1. OPERATING VOLTAGES:

500 VDCW or 125 VACW
Also available in 240 and 480 VACW

2. OPERATING FREQUENCIES:

25, 60, 400 and 1,000 Hz

3. OPERATING CURRENTS:

1-1,000 amps

4. ATTENUATION CHARACTERISTICS:

per MIL-STD-220A, 50Ω System

5. APPLICABLE MIL-SPECS:

MIL-F-15733D
MIL-I-6181D
MIL-I-26600

6. END SEALS (Optional):

Hermetically glass sealed
Epoxy resin sealed
Silicon rubber press-seal

7. END TERMINALS:

Threaded stud with nuts
Solder lugs
Screw terminals
Also to customer specifications

8. FINISH:

Tubular Filters: Cadmium plated or hot-tinned
Boxed Filters: Hot-tin dipped, paint if required

9. SURGE CURRENTS:

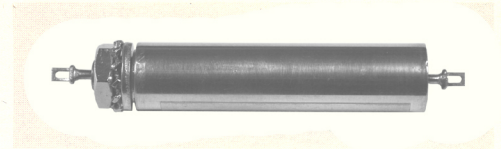
For 10 seconds at least 3 times maximum specified rating

10. TEMPERATURE RANGE:

-55°C to +100°C continuous duty
Up to 150°C on request

"LossyLine" EMI ABSORPTIVE FILTERS

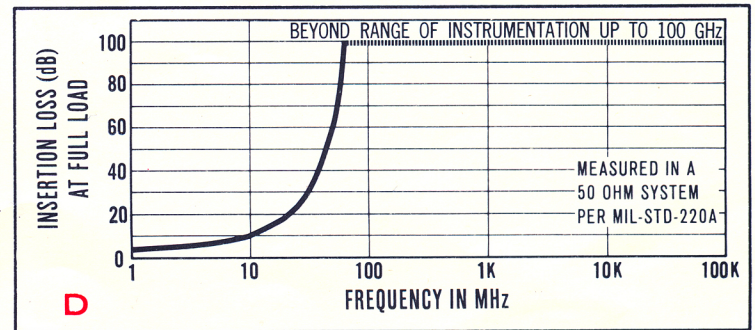
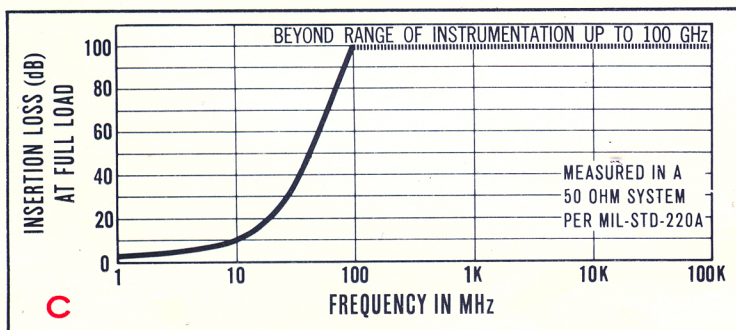
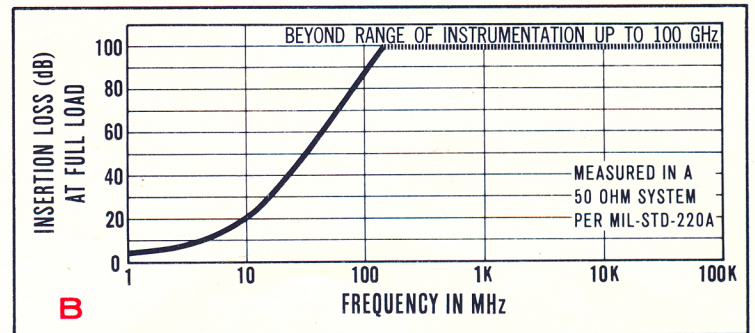
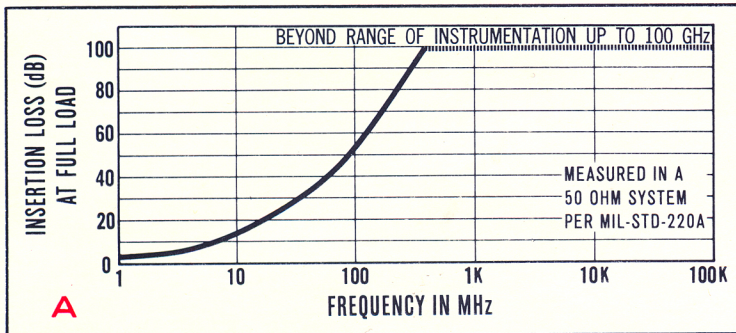
A Series



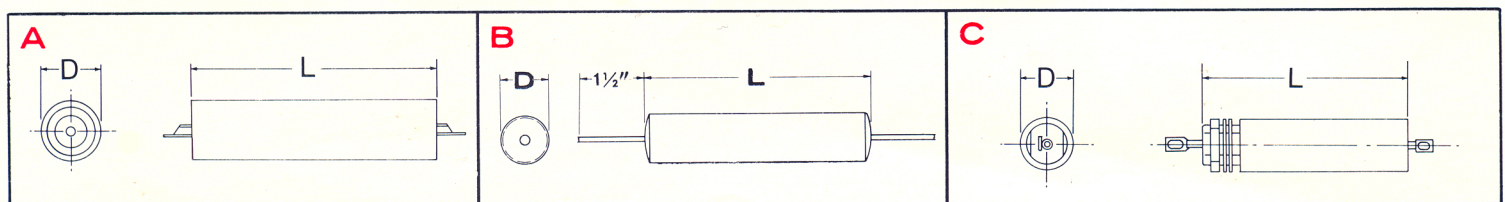
ELECTRICAL CHARACTERISTICS								PHYSICAL CHARACTERISTICS			
P/N	RATED CURRENT (Amperes)	RATED VOLTAGE* (Volts)	LINE FREQ. (Hz)	MAXIMUM VOLT. DROP (Volts)	REACTIVE CURRENT (Milliamps)	MAX. SHUNT CAPACITANCE (Mmf)	ATTENUATION CURVE	L (Length)	D (Diameter)	WEIGHT	CONFIGURATION
A2	2	500	DC	Negligible	Negligible	600	A	1 13/16"	.400	0.5 oz.	A, B, C
	2	125	60	.15	Negligible	600					
	2	125	400	1.0	.15	600					
A5	6	500	DC	Negligible	Negligible	1000	B	2 1/2"	3/16"	1.3 oz.	A, B, C
	5	125	60	.15	Negligible	1000					
	5	125	400	1.0	.3	1000					
A10	12	500	DC	Negligible	Negligible	2000	C	2 7/8"	1"	2.5 oz.	A, B, C
	10	125	60	.15	.1	2000					
	10	125	400	1.0	.8	2000					
A20	22	500	DC	Negligible	Negligible	2500	C	3 3/8"	1"	8 oz.	A, B, C
	20	125	60	.15	.1	2500					
	20	125	400	1.0	.8	2500					
A30	35	500	DC	Negligible	Negligible	3000	D	4 7/8"	1"	13 oz.	A, B, C
	30	125	60	.15	Negligible	3000					
	30	125	400	1.0	.9	3000					
A50	60	500	DC	Negligible	Negligible	4000	D	6 1/2"	1"	1 lb.	B, C
	50	125	60	.15	Negligible	4000					
	50	125	400	1.0	1.2	4000					
A60	65	500	DC	Negligible	Negligible	4000	D	6 1/2"	1"	1 lb.	B, C
	60	125	60	.15	Negligible	4000					
	60	125	400	1.0	1.2	4000					

*Special Voltages available upon request

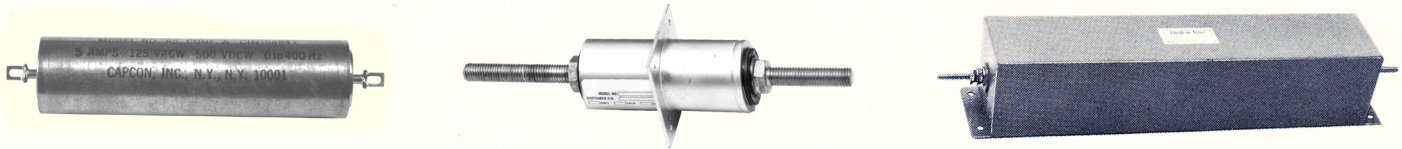
ATTENUATION CURVES



CONFIGURATIONS



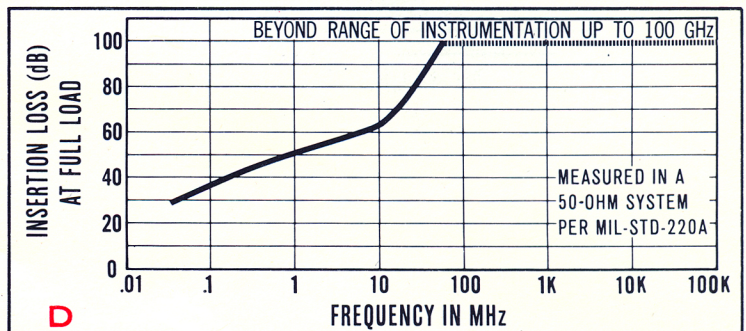
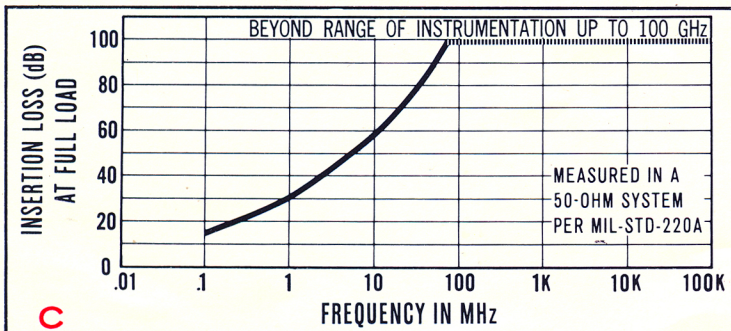
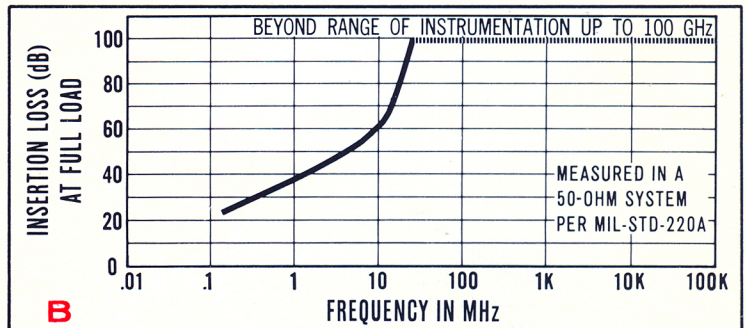
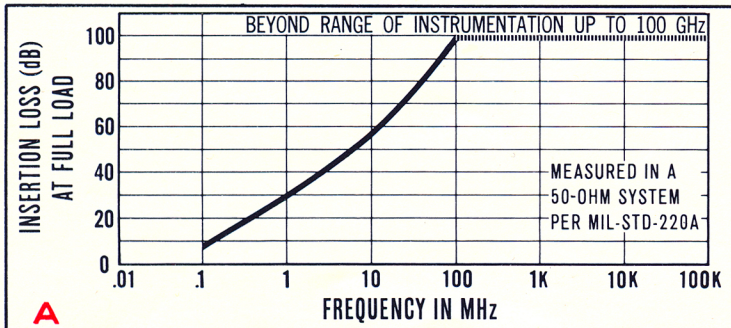
Special Mountings — Available to customer specifications



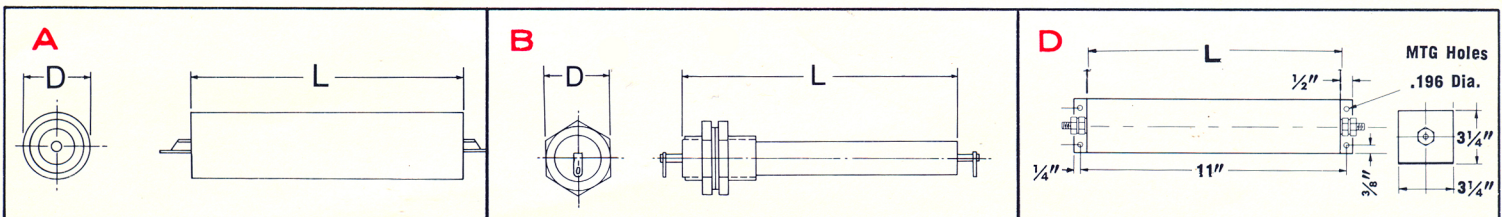
ELECTRICAL CHARACTERISTICS								PHYSICAL CHARACTERISTICS			
P/N	RATED CURRENT (Amperes)	RATED VOLTAGE* (Volts)	LINE FREQ. (Hz)	MAXIMUM VOLT DROP (Volts)	REACTIVE CURRENT (Amperes)	SHUNT CAPACITANCE (Mfd)	ATTENUATION CURVE	L (Length)	D (Diameter)	WEIGHT	CONFIGURATION
B2	2	500	DC	Negligible	Negligible	.1	A	2 11/16"	.400	2 oz.	A, B, C
	2	125	60	.15	.006	.1					
	2	125	400	1.0	.04	.1					
B5-1	6	500	DC	Negligible	Negligible	1.0	B	4"	5/8"	5 oz.	A, B, C
	5	125	60	.15	.047	1.0					
	5	125	400	1.0	.34	1.0					
B5-2	6	500	DC	Negligible	Negligible	.1	C	3 7/16"	5/8"	1.4 oz.	A, B, C
	5	125	60	.15	.006	.1					
	5	125	400	1.0	.04	.1					
B5-3	6	500	DC	Negligible	Negligible	1.0	B	4"	5/8"	2.5 oz.	A, B, C
	5	125	60	.15	.047	1.0					
	5	125	400	1.0	.34	1.0					
B5-4	6	500	DC	Negligible	Negligible	.25	C	4 19/32"	7/8"	6 oz.	A, B, C
	5	125	60	.92	.015	.25					
	5	125	400	.9	.1	.25					
B50	55	500	DC	Negligible	Negligible	4	D	10 1/2"	see diagram D	5.5 lbs.	D
	50	125	60	.15	.015	4					
	50	125	400	1.0	.1	4					

*Special Voltages available upon request

ATTENUATION CURVES

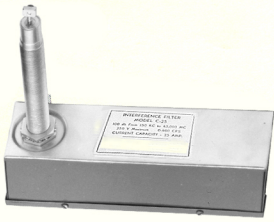


CONFIGURATIONS



Special Mountings — Available to customer specifications

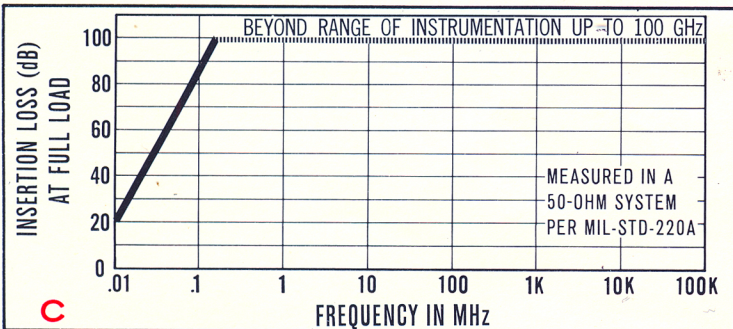
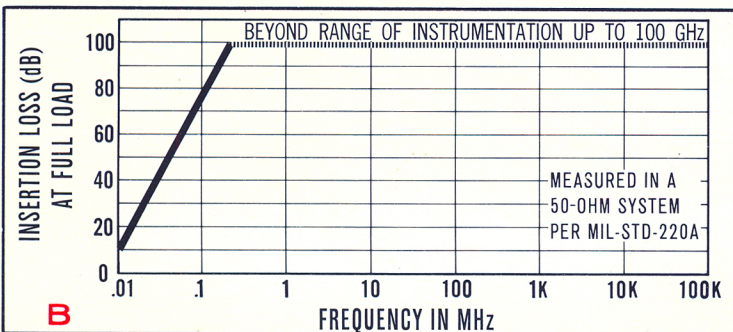
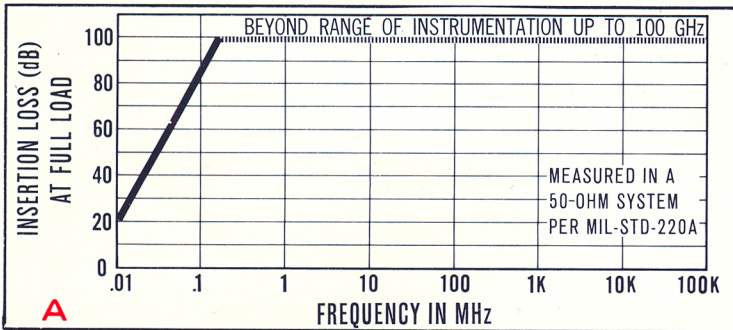
For configuration "C" reference pg. 1



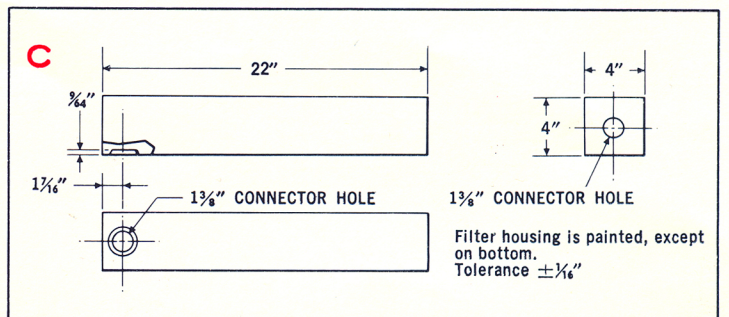
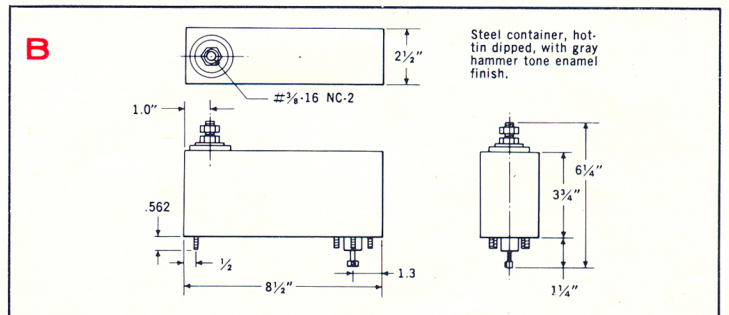
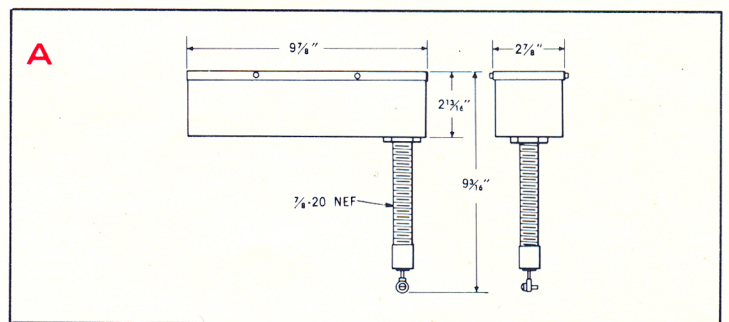
P/N	ELECTRICAL CHARACTERISTICS						PHYSICAL CHARACTERISTICS					
	RATED CURRENT (Amperes)	RATED VOLTAGE* (Volts)	LINE FREQ. (Hz)	MAXIMUM VOLT DROP (Volts)	REACTIVE CURRENT (Amperes)	SHUNT CAPACITANCE (Mfd)	ATTENUATION CURVE	L (Length)	W (Width)	H (Height)	WEIGHT	CONFIGURATION
C25	30	500	DC	Negligible	.17	4.25	A	9 7/8"	2 7/8"	2 13/16"	5 lbs.	A
	25	125	60	.97	.17	4.25						
	25	125	400	3.6	1.15	4.25						
C30-1	35	500	DC	.56	Negligible	8.25	B	9 1/2"	3 1/2"	6 1/4"	5.5 lbs.	B
	30	125	60	.9	.35	8.25						
	30	125	400	2.5	2.3	8.25						
C30 and C50	55	600	DC	.5	Negligible	8.0	C	22"	4"	4"	20 lbs.	C
	50	250	60	1.0	.35	8.0						
	50	250	400	5.0	2.3	8.0						

*Special Voltages available upon request Note: Also available C100 & C200.

ATTENUATION CURVES



CONFIGURATIONS



Special Mountings — Available to customer specifications

D Series

"LossyLine" ABSORPTIVE POWER FILTERS

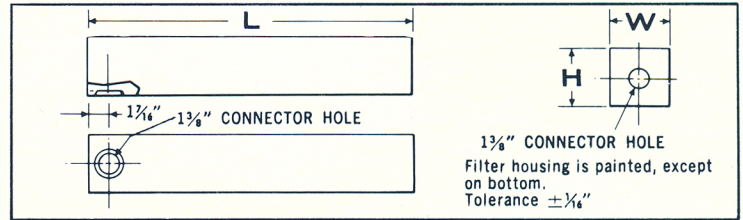
ELECTRICAL CONFIGURATIONS					PHYSICAL CONFIGURATIONS			
P/N	RATED CURRENT (Amperes)	RATED VOLTAGE* (Volts)	LINE FREQ (Hz)	ATTENUATION CURVE	L (Length)	W (Width)	H (Height)	Weight
D30	35	600	DC	A	30"	4 1/8"	4 1/8"	20 lbs.
	30	250	60					
	30	250	400					
D50	55	600	DC	B	30"	4 1/8"	4 1/8"	25 lbs.
	50	250	60					
	50	250	400					
D100	110	600	DC	B	30"	10"	5"	50 lbs.
	100	250	60					
	100	250	400					

*Current ratings up to 1000 Amperes and 100 KV operating available.



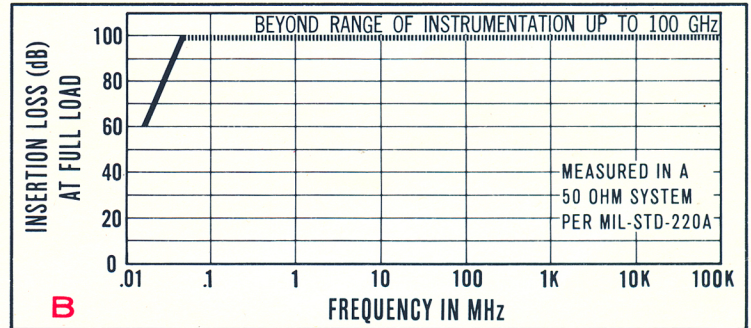
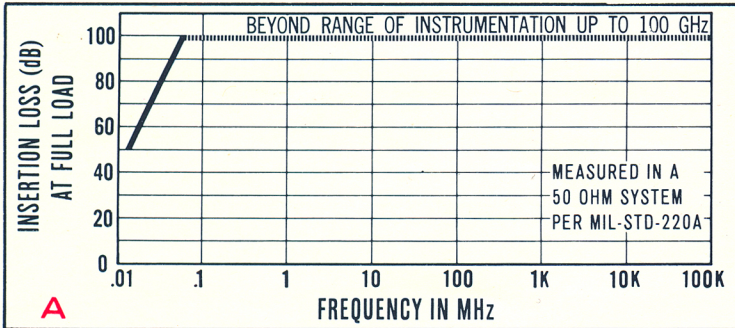
LossyLine absorptive/dissipative filters produce **No Ringing Effects.**

CONFIGURATIONS



Special Mountings — Available to customer specifications

ATTENUATION CURVES



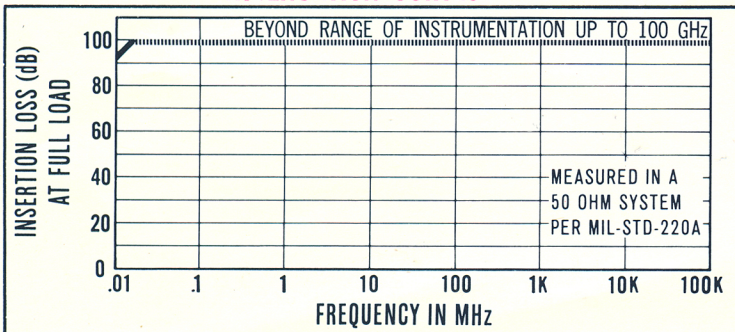
E Series

"LossyLine" ABSORPTIVE POWER FILTERS

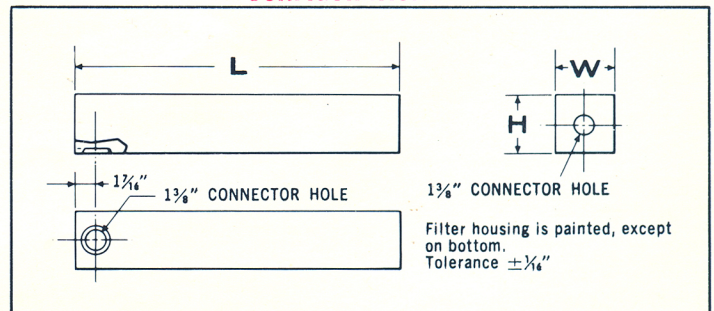
ELECTRICAL CHARACTERISTICS				PHYSICAL CHARACTERISTICS			
P/N	RATED CURRENT (Amperes)	RATED VOLTAGE* (Volts)	LINE FREQ (Hz)	L (Length)	W (Width)	H (Height)	Weight
E30	35	600	DC	34"	4 1/2"	4 1/2"	30 lbs.
	30	250	60				
	30	250	400				
E50	55	600	DC	34"	4 1/2"	4 1/2"	30 lbs.
	50	250	60				
	50	250	400				
E100	110	600	DC	34"	10"	5"	90 lbs.
	100	250	60				
	100	250	400				

*Current ratings up to 1000 Amperes and 100 KV operating available.

ATTENUATION CURVES



CONFIGURATIONS



Special Mountings — Available to customer specifications

LOSSYLINE ABSORPTIVE EMI NOISE SUPPRESSION FILTERS

SPECIFICATIONS

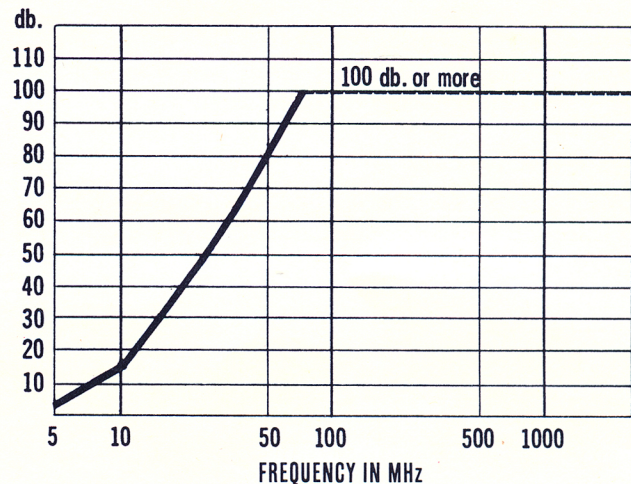
ELECTRICAL

WORKING VOLTAGE:	0-500 volts DC
FREQUENCY:	0-400 cps
LINE VOLTAGE DROP:	0.25 volts nom. at 60 cps and 100°C case temp.
SHUNT CAPACITANCE:	4500 μ f. nom.
OPERATING TEMPERATURE:	-55°C to +100°C

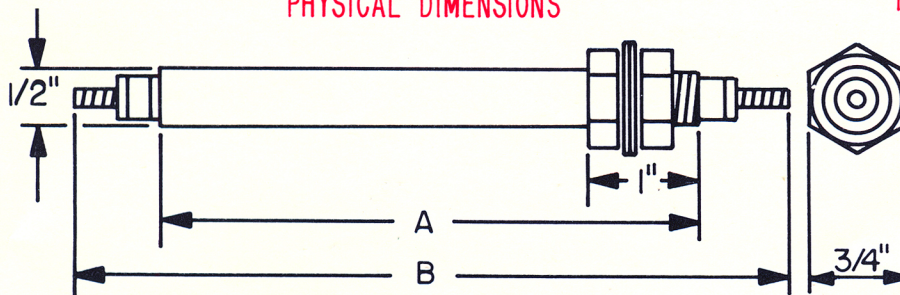
MECHANICAL

CASE:	.050" wall, hard brass round tubing, hot solder dipped
TERMINALS:	metallized ceramic with 10-32 NF threaded stud (other stud sizes optional)
MOUNTING:	1/2-20 NF

MODEL	RATING	A	B	WEIGHT
S2001	1 amp	2 "	3 1/2"	3 oz. approx.
S2002	2 amp	2 1/2"	4 "	4 oz. approx.
S2005	5 amp	3 "	4 1/2"	4 oz. approx.
S2010	10 amp	4 "	5 1/2"	6 oz. approx.
S2015	15 amp	5 1/4"	6 3/4"	8 1/2 oz. approx.



PHYSICAL DIMENSIONS



MINIMUM ATTENUATION

DESCRIPTION:

These filters are distributed parameter devices utilizing high efficiency energy absorptive materials to produce nearly ideal attenuation characteristics in the stop band.

Measured in A 50-ohm system per MIL-STD-220A

In the EMI Filter product line CAPCON has a very unique proprietary item; a most unusual type of filter and one which very nearly approaches the theoretically ideal EMI suppression filter - exceptionally high attenuation throughout the stop band. The normal EMI lumped constant filter consists of a number of discrete components arranged electrically and mechanically to provide high attenuation in the stop band area. Due to distributed interwiring capabilities, lead inductance and built in component capacities and inductances multiple resonance points are an inherent part of every lumped constant filter. These points of resonance prevent them from ever approaching the truly desirable attenuation characteristics one seeks in any EMI filter.

The development of the CAPCON absorption filter has eliminated all of the detrimental features of the lumped constant filter by providing a true distributed type filter whose attenuation characteristics are produced by the energy absorptive action of ferrites and ferromagnetic materials when exposed to electromagnetic energy. The end result is nearly perfect stop band attenuation characteristic, no ringing effects and high overload capabilities. Single phase and three phase units from 1 amp to 200 amps are available.

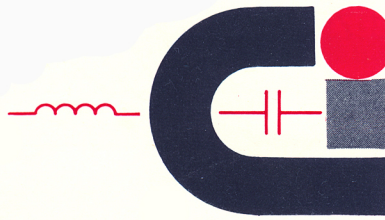
As a supplementary addition to this line of EMI filters, CAPCON also markets a group of filters utilizing lumped parameters. These filters are designed to fill in the low frequency attenuation area and to provide units where unusual shapes and sizes limit the utilization of the absorption type filter and extremely high stop band attenuation is not required.

The Engineering group of CAPCON encompasses many years of design, development and manufacturing experience in filters. This experience includes military, industrial, NASA and consumer applications.

Our facility is geared to perform Q.C. operations as per MIL-Q 9858C and has adopted its own Quality Assurance program to continuously ensure adherence to requisite performance requirements of all products produced.

We offer versatility, engineering and manufacturing knowhow and most important - immediate results to any problem tackled.

'LOSSYLINE' FLEXIBLE FILTER



CAPCON® INTERNATIONAL, INC.

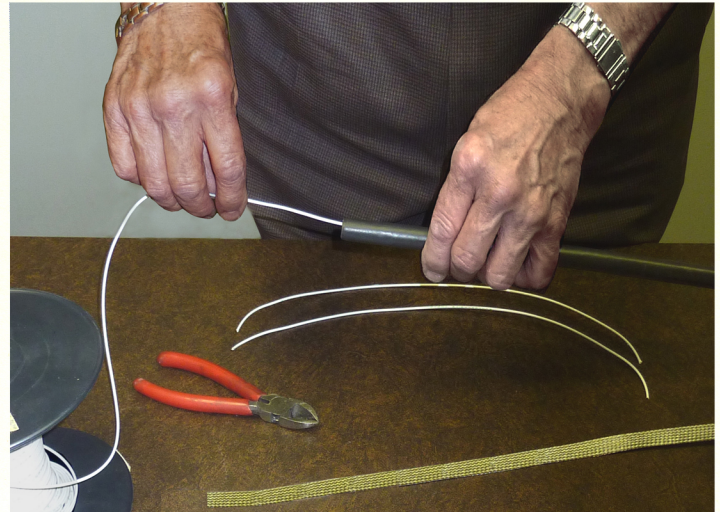
**120 Craft Avenue
Inwood, NY 11096-1708
Tel: (516) 371-5600
Fax: (516) 239-5481**

The "LossyLine" Flexible Filter is a new and unique filter for microwave EMI suppression up to 100GHz. It is wire-like in form and unlike other filters, absorbs and dissipates EMI, thus eliminating characteristic problems of conventional types of EMI filters, such as, mismatch, reflection, necessity for grounding and high VSWR.

Two to five inch lengths of the "LossyLine" Flexible Filter usually provide the required attenuation. When compared with conventional filtering methods, the "LossyLine" Flexible Filter is substantially lower in cost. No special fittings, connectors or housings are necessary. The Flexible Filter can also be installed in series or employed in conjunction with existing harnesses or cables.

FEATURES

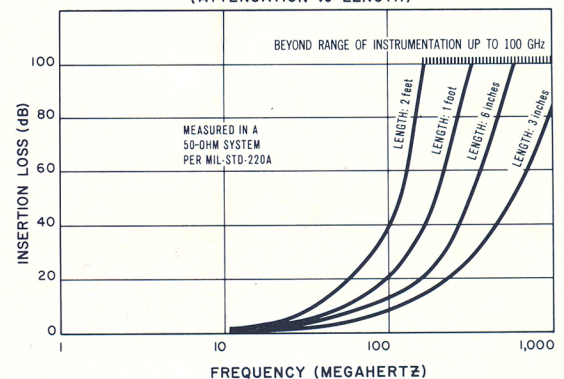
- EMI suppression of over 100dB from 10MHz to over 45GHz.
- Attenuation provided by absorption and dissipation of undesired radio frequency energy.
- Negligible inductance and capacitance does not affect circuit constants, eliminating mismatch and reflection problems.
- Flexible, low cost, light weight, small diameter and sharp bend radius.
- No special, bulky, weighty or costly connectors, fittings or terminations required.
- Length can be trimmed to exact attenuation or EMI suppression requirements.



TYPICAL ATTENUATION CURVE

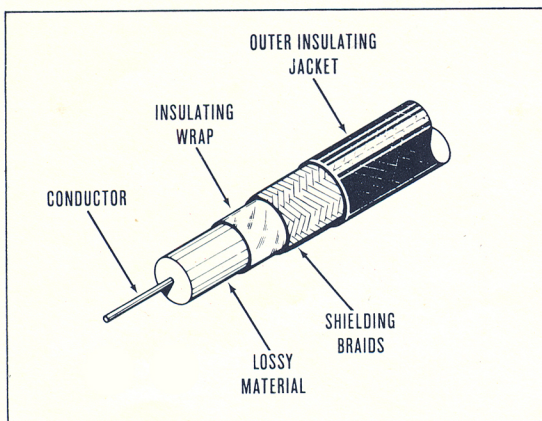
P/N S001-6K-15S

(ATTENUATION vs LENGTH)



TYPICAL APPLICATIONS

- Suppression of EMI generated by TWT's, magnetrons, klystrons, microwave heating tubes and other microwave producing devices.
- EMI suppression occurring in electronic-communications equipment of all types, and by microwave heating equipment.
- Harmonic suppression in microwave systems such as radar, telecommunications, radio relay systems and transmitters.
- Line and in-circuit EMI suppression in power supplies, test equipment, instrumentation, amplifiers and subsystems.
- Radio noise suppression due to resonances, mutual coupling, undesired oscillations and spurious radio frequency energy.



SPECIFICATIONS

"LossyLine" Flexible Filters are available in the following nominal ratings:

CURRENT CAPACITY AC/DC: 1, 5, 10, 25 and 50 Amperes (Surge currents several times above value).
VOLTAGES AC/DC: 500, 1000, 6000, 12K, 25K, 50K and 100K Volts (Test voltages are twice the rated DC voltage).
SHIELDING: Available shielded or unshielded.

OPERATING TEMPERATURE RANGES: From minus 67°C to plus 100°C, 150°C, 200°C and 250°C.
NOMINAL OUTSIDE DIAMETER: From .135 to .285 inches
MINIMUM BEND RADIUS: From .50 to 1.0 inches
WEIGHT PER FOOT: From 1/3 to 1 ounce.