



NexTek  
SurgeGuard

# NexTek™

High Current  
DC Feedthrough Filters



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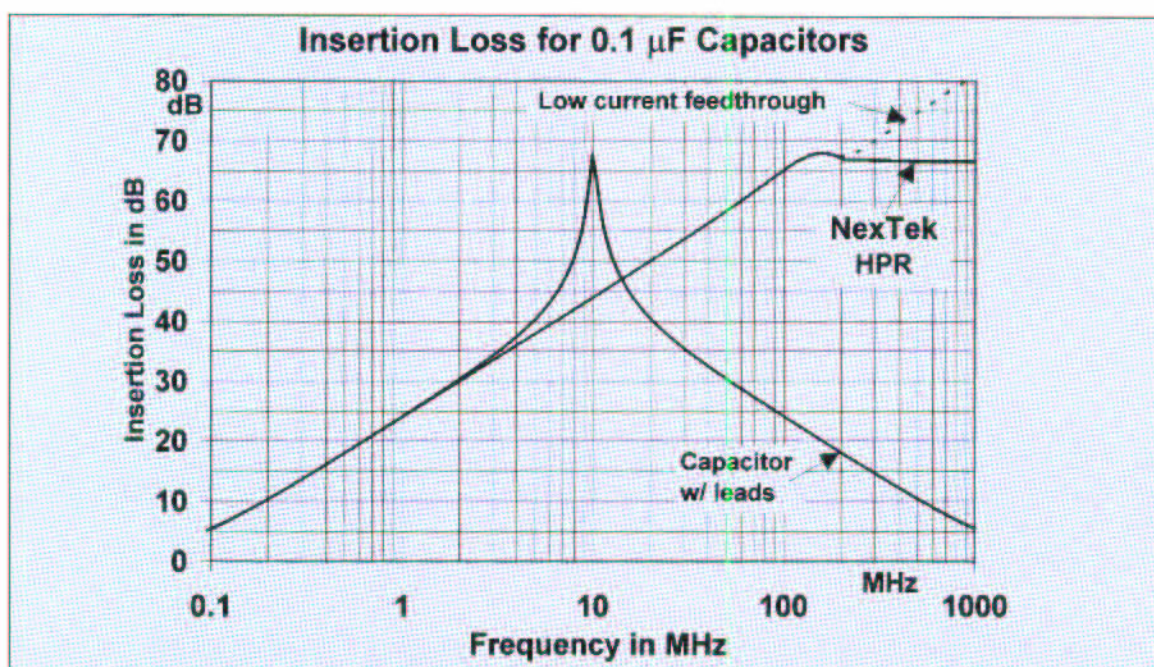
# High Current Filtering Technology

EMI filters use two basic elements: series impedances, usually inductors, and shunt impedances, usually capacitors. These capacitors and inductors, configured as a low pass filter, reduce unwanted electrical energy entering or leaving a circuit. The capacitor's impedance is severely affected by lead inductance. Leaded capacitors are ineffective filters above the self resonant frequency, usually greater than a few megahertz,

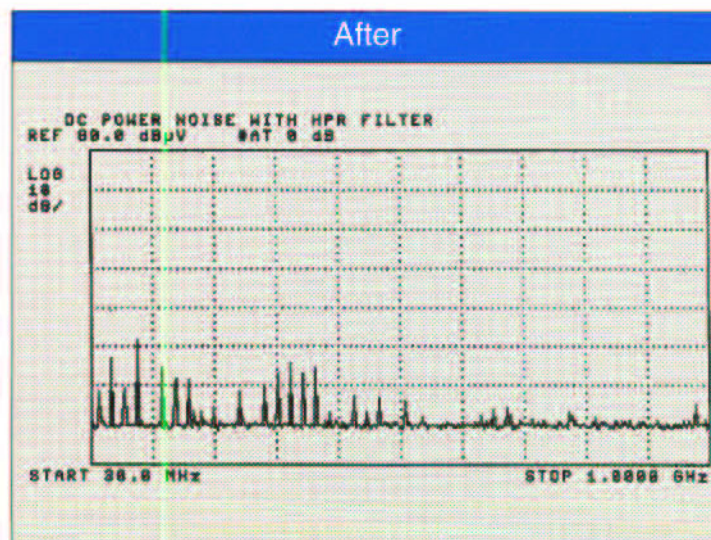
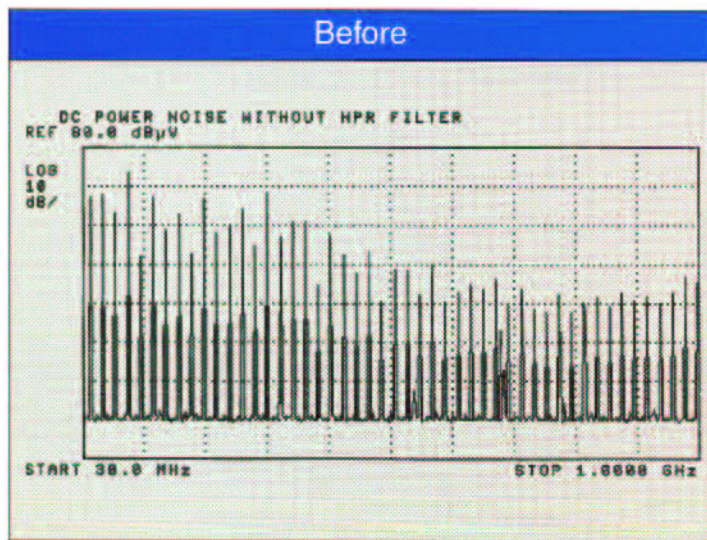
due to parasitic lead inductance. To achieve high frequency filtering, lead length must be very near zero.

The preeminent filtering challenge is to maintain the required capacitive shunting performance at high frequencies. It is difficult to attach capacitors to high current lines while maintaining the required minimum lead length.

The HPR high current filter capacitor from NexTek provides a unique solution to designers faced with these high frequency filtering needs on high current lines, especially noise from 1 MHz to over 1 GHz, for currents up to 250 Amperes. Unwanted RF noise is filtered to improve power and/or signal quality.

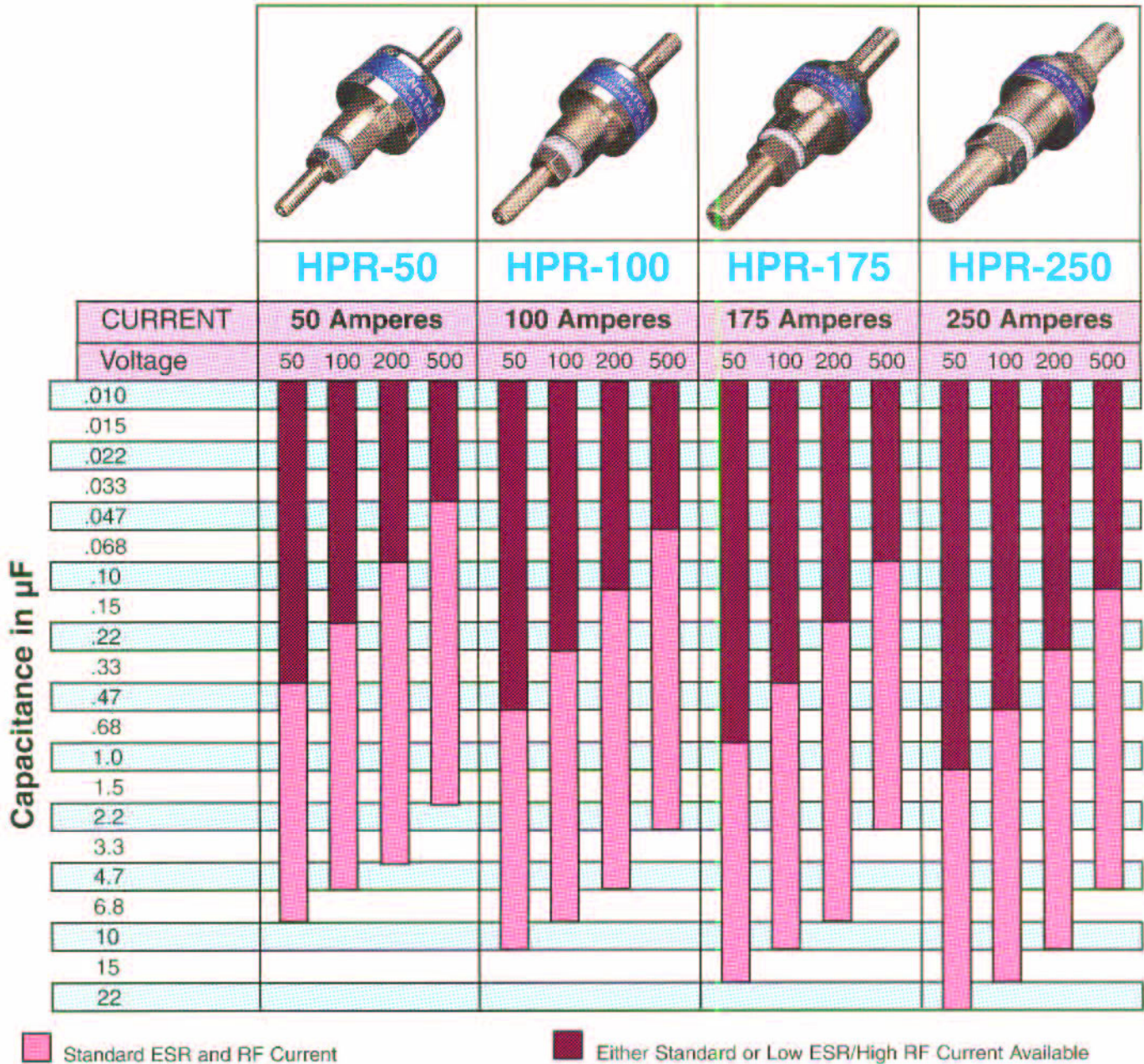


These figures illustrate noise reduction achieved with HPR filter.



# HPR SERIES High Current Feedthrough Filters

## HPR Capacitance Available



NexTek is pleased to provide technical assistance for component selection. NexTek has developed computer aided tools to characterize filter requirements and assist in component selection.

CAE software for filter design and HPR selection

## HPR SERIES High Current Feedthrough Filters

This series of extremely high current filters is ruggedly designed to operate at current levels up to 250 amperes and voltages up to 500 Vdc. A large range of available capacitance provides significant insertion loss at frequencies as low as 1 KHz, and provides over 60 db insertion loss to above 1 GHz. The unique ability to remove *high frequency noise* from *very high current lines* makes our patented HPR a proven and economical solution to your high current filter application.

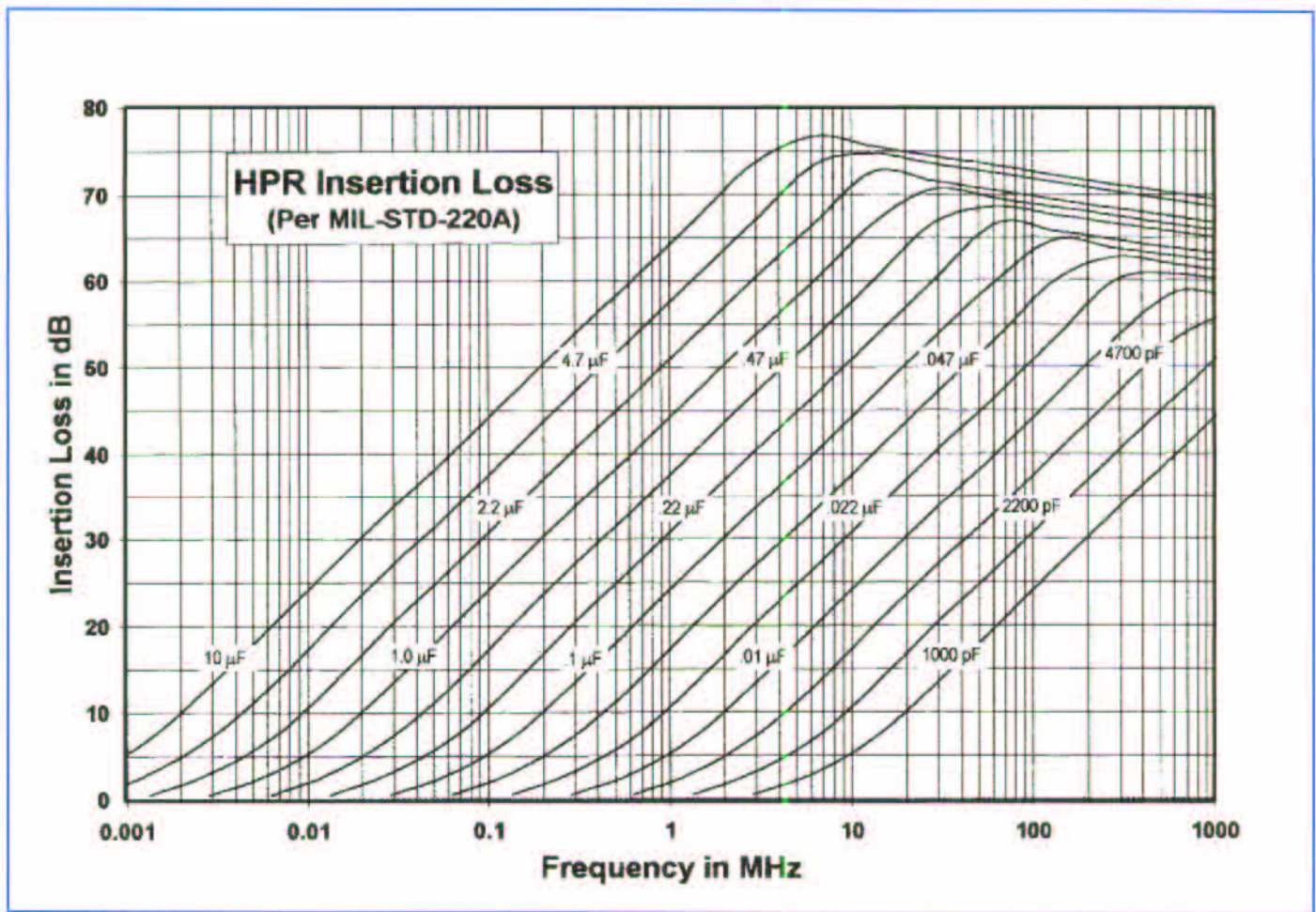
### Features:

- High current - 50, 100, 175, and 250 Amps
- High capacitance - up to 22 $\mu$ F
- High frequency filtering - 1 kHz to over 1 GHz
- High insertion loss - over 60 dB
- Rugged compact design
- Reliable and minimal space requirements
- Bolt-on/bulkhead mount
- Easier installation to wire/bus and enclosure
- RF Current - over 10 Arms



#### RATINGS:

- DWV:** 2.5 times voltage rating  
(for 5 seconds at 50 mA maximum)
- Insulation Resistance:** 100 ohm Farad at 25°C  
(100 Megohm maximum)
- Temperature Range:** -55°C to +125°C

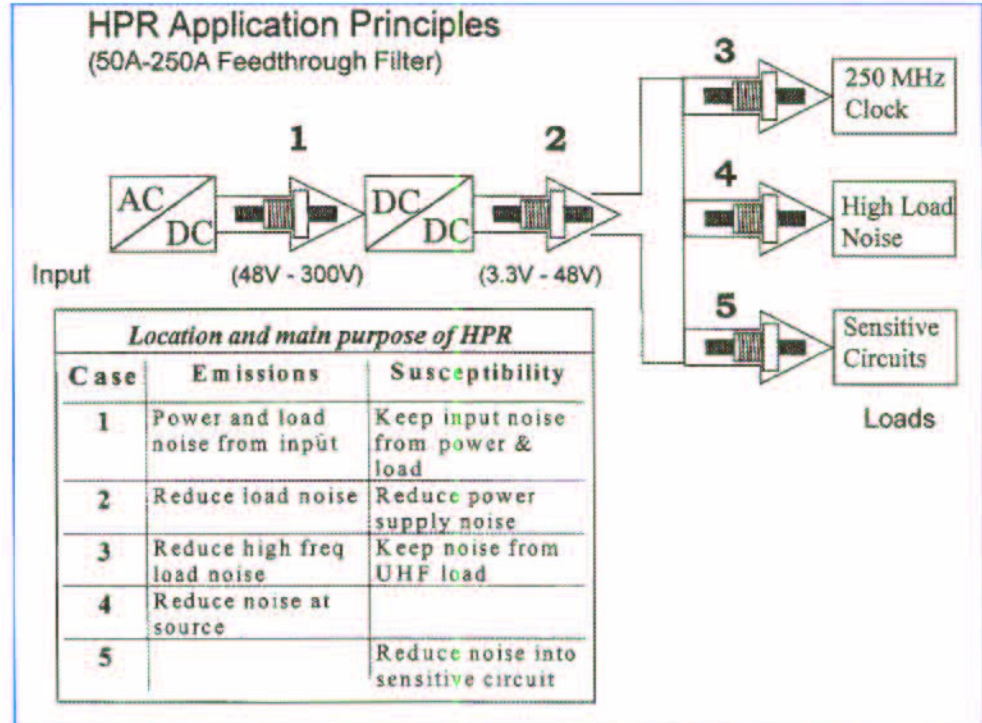


Patented HPR for high frequency and high current.

# High Current Feedthrough Filters

## HPR APPLICATION

The HPR is ideal for reducing high frequency noise on high current lines, within specified RF current limits. HPR can be used to reduce noise emitted from the power system or to isolate noise from loads. Call NexTek to help select proper filter for your specific application.



## SELECTING HPR FEEDTHROUGH FILTERS

### ORDERING INFORMATION

Model number

HPR	XXX	XXXX	X	XX
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Voltage Rating divided by 10 (05=50v, 10=100v, 20=200v, 50=500v)

Tolerance code (Z= +80%-20%, P=+100% - 0%, M= ± 20%)

Capacitance in Picofarads – First two digits are significant last two digits are # of zeros  
1502 = 100 pF; 2203 = 22,000 pF; 4704 = 0.47 μF

Current rating in Amperes (50,100,175, 250)

### Call for immediate evaluation

The current rating, voltage rating and capacitance are the most important feedthrough parameters to specify in your application.

Application needs	Used to specify
1) RMS through current	HPR current rating
2) Peak voltage	HPR voltage rating
3) Capacitance and/or insertion loss requirements	HPR capacitance value

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# High Current DC Feedthrough Filters

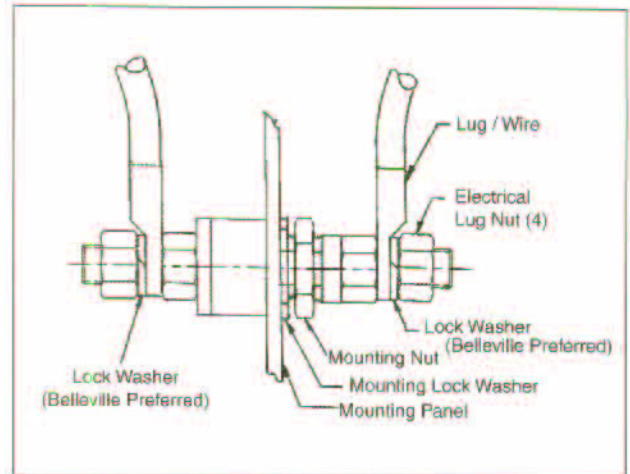
## HPR INSTALLATION:

Mount the HPR in the required mounting hole. The filter must be well grounded. Connect electrical lugs using the two wrench method. Tighten both the electrical lug nuts and the HPR mounting nut with the torques listed in table below.

### SAFETY FIRST

Remember it is good design practice to cover or adequately insulate the dangerous voltages at the HPR lugs.

Ground fault is a possible failure mode for HPR filters. Applications should protect against possible over current and over heating.

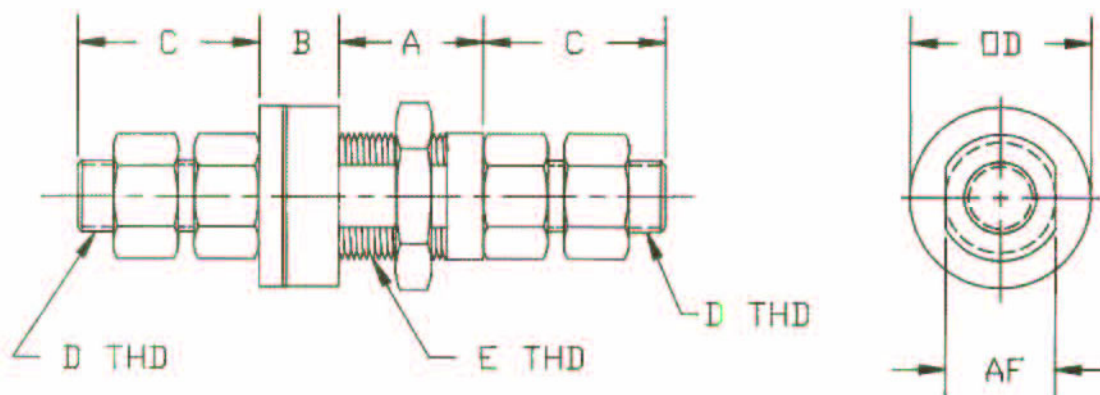


## HPR Tightening Torques

(electrode and mounting nuts)

Model	HPR-50	HPR-100	HPR-175	HPR-250
Torque	10 in-lbs	25 in-lbs	90 in-lbs	190 in-lbs

## HPR MECHANICAL DIMENSIONS in inches



HPR FAMILY	A	B	C	D	E	DD	AF
250	.81	.59	1.30	1/2-20	7/8-20	1.25	.770
175	.73	.59	1.00	3/8-28	3/4-16	1.13	.660
100	.70	.59	.63	1/4-28	5/8-24	1.00	.550
50	.67	.59	.44	10-32	1/2-28	.94	.440

Best RF performance in the industry