



Transformer Surge Protection - RC Snubbers -

General

NEPSI's RC Snubbers protect medium-voltage transformer primary windings from high frequency voltage transients. Key applications requiring RC Snubber protection include:

- Medium voltage transformers switched with primary side vacuum or SF6 circuit breakers.
- Transformers that are fed with short feeder cables or short bus duct runs.
- Dry-type and cast-coil-type transformers and some liquid-filled transformers.

Product Scope

- Operating Voltage: 2.4kV through 34.5kV (38kV Max)
- Impulse Withstand Voltage: 60kV BIL - 200kV BIL
- Surge Capacitance Rating (μF): 0.125, 0.25, 0.5, 1, or as specified
- Surge Resistance Rating: 30 Ohms to 200 Ohms, 1kW/Phase
- Phase-to-Phase and Phase-to-Ground MOV's (lightning arresters) rated for your application to 48kV Duty Rating; Heavy Duty Distribution Class or Station Class
- Integral protection, control, and monitoring systems
- Integral air-disconnect /ground switch
- Metal-Enclosed Design: NEMA 1, 3R, 4X, 12 | IEC IP10, IP14, IP56, IP52
- Comes fully assembled, tested, and ready for inter-connection



Product Benefits

- Protect against inter-turn insulation failure
- Extend transformer life
- Reduce the likelihood of circuit breaker pre-strike, re-strike, and re-ignition
- Reduce the magnitude and rate-of- rise of voltage transients
- Dampen resonant transients
- Reduce production downtime due to insulation failures
- Easy installation



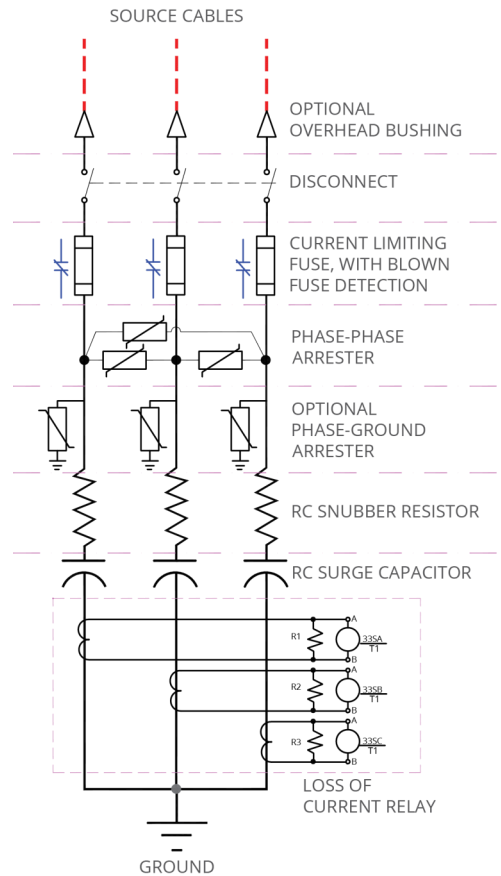
RC Snubber Ordering Guide

RC Snubbers manufactured by NEPSI are custom built to meet your requirements. In general, they are composed of a combination of a capacitor and a resistor (as shown in the figure to the right) to reduce the magnitude and frequency of a transformer transient terminal voltage. Fuses are often applied for short circuit protection and to disconnect the RC Snubber should it fail.

Resistance value are most often rated 30 ohms as this value of resistance is suitable for virtually all installations.

Lightning arresters, if not included in the transformer terminal box are provided to limit the magnitude or peak voltage associated with phase-to-phase and phase-to-ground transients. These are rated based on system grounding.

Other supporting equipment, such as an air-disconnect switch, current loss detection, and blown fuse detection are also available with our systems.



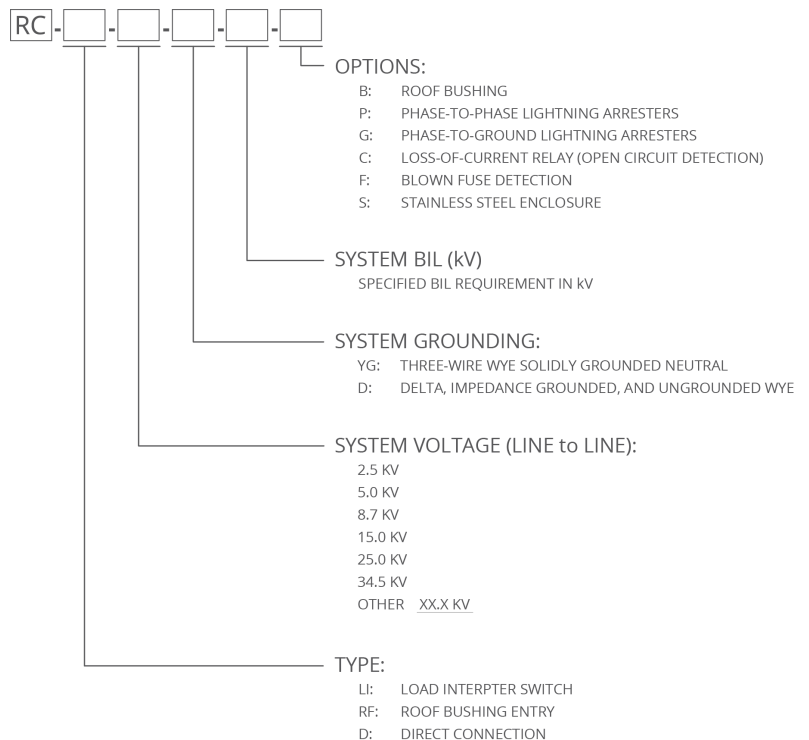
Part Number Creation

Example Part Number Creation

The Part Number for a RC Snubber rated for application on a 24.9kV three-wire solidly ground system requiring phase-to-phase lightning arresters, phase-to-ground lightning arresters, and blown fuse detection would have the following part number:

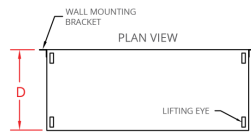
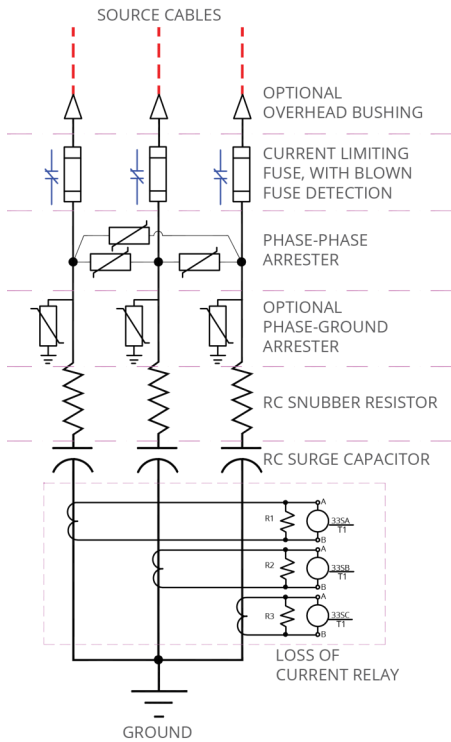
RC-D-24.9-YG-150-PGF

Contact the NEPSI for options and voltages not shown.

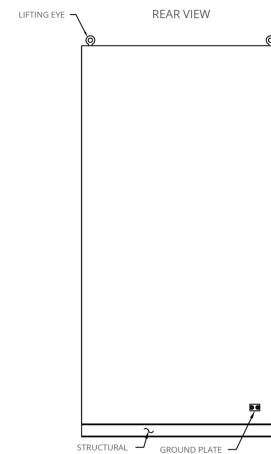
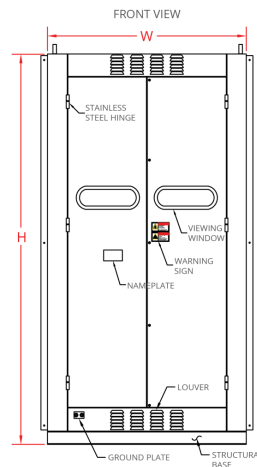




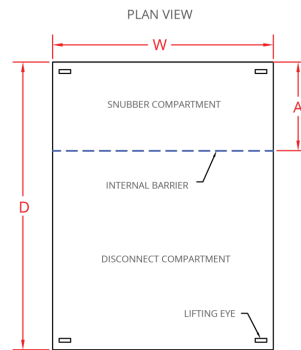
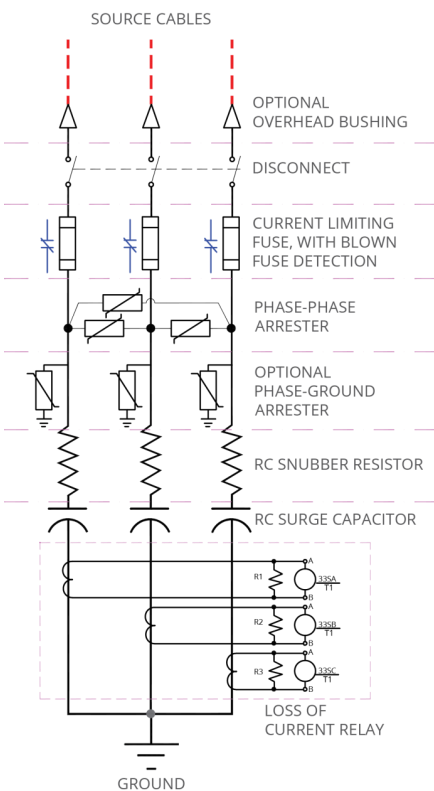
RC Snubber - Direct Connection



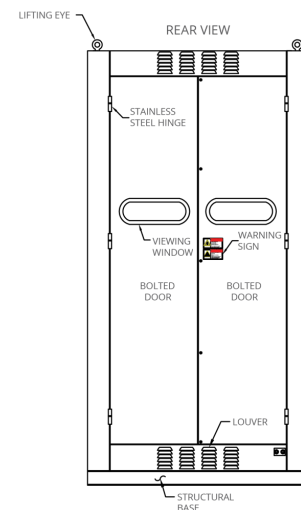
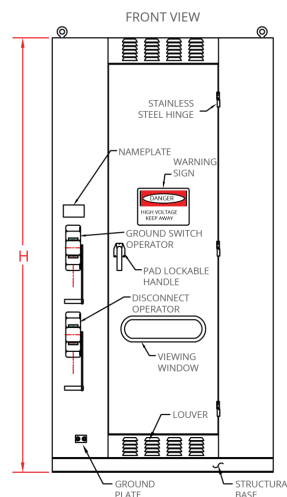
NOMINAL VOLTAGE (KV)	DIMENSIONS / WEIGHT			
	H (in)	W (in)	D (in)	Wt (lbs)
2.5	96	30	12	420
5.0	96	30	16	490
8.7	96	30	16	490
15.0	96	40	20	525
25.0	108	48	24	650
34.5	120	60	24	760



RC Snubber - With Optional Disconnect Switch



NOMINAL VOLTAGE (KV)	DIMENSIONS / WEIGHT				
	H (in)	W (in)	D (in)	A (in)	Wt (lbs)
2.5	96	30	72	12	3500
5.0	96	30	76	16	3500
8.7	96	30	76	16	3500
15.0	96	40	80	20	4000
25.0	108	48	84	24	4300
34.5	120	60	84	24	4800





Other NEPSI Products and Services

Metal-Enclosed Harmonic Filter Banks

NEPSI's Medium Voltage Metal-enclosed Harmonic Filter Banks are custom designed for application on industrial, commercial, and utility power systems that require medium voltage power factor correction, var and voltage support, and mitigation from harmonic resonance or harmonic distortion. The harmonic filter banks are configurable as fixed or automatic controlled with 1 or more stages at voltages from 2.4kV through 38kV (60kV BIL through 200kV BIL).

Available filter types include C-High-Pass (damped filters), High-Pass, Notch (Band-Pass), double-tuned, and multi-tuned filters. NEPSI's filters find wide application in many different industries including wind, mining, paper, chemical, and petroleum - See more at: <http://nepsi.com/products/metal-enclosed-harmonic-filter-banks> for additional information.

actiVAR®- Thyristor Switched Harmonic Filter Bank

NEPSI's actiVAR® is a fast switching thyristor switched harmonic filter bank that provides near instantaneous reactive power (VARs) on a cycle-by-cycle basis. This product provides voltage sag and voltage flicker mitigation for large dynamic loads and large synchronous and induction motor starts.

Where soft starters (RVSS) are not capable of meeting utility voltage sag/inrush limits, or simply fail to provide adequate voltage support for the motor to start, the actiVAR® is a much more economical alternative when compared to VFD drive that are being used for starting and not for process or speed control.

The actiVAR® cost benefits are compounded when multiple motors need to be started as one actiVAR® provides voltage and fast var support for all motor starts on your system.

Power System Studies

NEPSI performs power system studies to evaluate the expected performance of our metal-enclosed harmonic filter, power capacitor banks and **actiVARs®** products. Studies include the following:

- Stability
- Motor Starting
- Load flow
- Reactive Power / Var Flow Studies
- Coordination
- Voltage Drop | Voltage Rise Analysis
- Harmonic Analysis
- Short Circuit
- Protective Coordination

Our Power System Studies are tailored to your needs and project requirements.