REX POWER MAGNETICS
DIVISION OF TRANSFACTOR INDUSTRIES INC.
65 Basaltic Rd. Concord, ON, L4K 1G4 Canada
Tel: 905-695-8844, 1-800-387-2840 Fax: 905-695-8855
www.RexPowerMagnetics.com

GUIDE SPECIFICATION

R.C. Snubbers

Note to User: Sections of the spec written in red font require modification by user. Whenever an * is used in the specification, it is to indicate that one of the following options in square brackets should be selected. The first option listed after the asterisk is the standard option which should be used if there is no preference. When [Other] is listed, the user may specify an unlisted alternative of their preference.

1 GENERAL

1.1 SCOPE

A The Contractor shall furnish and install three-phase R.C Snubbers, as specified herein, and as shown on the contract drawings.

1.2 RELATED DOCUMENTS

A Drawing and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.3 QUALIFICATIONS

A The manufacturer shall be ISO 9001 certified

B The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years

1.4 SUBMITALS

A The following information shall be submitted to the engineer:

i Outline Dimensions & Weights

ii Voltage Class

iii Insulation Class (BIL)

iv Submit shop drawing and product data for approval and final documentation in the quantities listed according to the conditions of the contract. Customer name, customer location and customer order number shall identify all transmittals.

1.5 STORAGE AND HANDLING

A Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from potential damage from weather and construction operations. Store so condensation will not form on or in the R.C Snubber housing and if necessary, apply temporary heat where required to obtain suitable service conditions.

B Handle R.C. Snubbers using proper equipment for lifting and handling, use when necessary lifting eye and/or brackets provided for that purpose.

1.6 WARRANTY

A The R.C. Snubbers shall carry a 12/18 month limited warranty.

2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A Rex Power Magnetics

The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety. Products in compliance with the specification and manufactured by others not named will be considered only if pre-approved by the Engineer ten (10) days prior to bid date.

2.2 RATING

A Voltage Class: *[2.5], [5.0], [8.7], [15.0], [25.0], [34.5] kV

B BIL: *[60 kV], [95], [110], [125], [150] kV

C # of Phases: 3

D System Frequency: *[50], [60] Hertz

E System grounding: *[Solidly Grounded], [Ungrounded], [Resistance grounded]

2.3 GENERAL CONSTRUCTION:

A Each R.C. Snubber shall include current limiting fuses, tubular non-inductive resistors and a low inductance surge capacitor.

B R.C. Snubbers shall be equipped with a1/4” x 2” bare copper bus bare along the base of the enclosure.

C Nameplate material: *[Black Anodized Aluminum], [Stainless Steel]

D Incoming Fuses:

i The R.C. Snubbers will be equipped with incoming current limiting fuses.

ii Fuses shall be equipped with blown fuse indicators.

E Surge Capacitors:

i A low inductance surge capacitor shall be provided for decreasing the slope of impending voltage surges. The capacitor shall have a voltage rating equal to or higher than the voltage class, and be rated *[0.5], [0.25], [0.13] micro-farads to ground.

ii The capacitor shall be equipped with discharge resistors that reduce the capacitor voltage to 50 volts in 5 minutes when disconnected from the source

iii The surge capacitor shall be capable of operating in the temperature range between -50°C to +50°C.

F Non-Inductive Resistors:

i The RC-Snubber shall be equipped with non-inductive ceramic resistors able to withstand high peak power or high-energy pulses. The resistor shall have a *[20-100] ohm, 1000 watt rating.

ii The resistors shall be clip mounted with metalized ends for electrical contact to clips.

iii The resistors shall be rated for -55°C to +350°C with a resistance temperature coefficient of +0.2 to -0.08%/°C

2.4 ENCLOSURE

A The enclosure shall be made of heavy-gauge *[Steel], [Grade 304 stainless steel], [Grade 316 stainless steel].

B The base of the enclosure shall consist of C2 channel for floor mounting and skidding into place.

C The enclosure shall be equipped with *[removable panels], [hinged door(s)] for maintenance and termination.

D The enclosure shall be totally enclosed, *[NEMA 1], [NEMA 3R], [Type 4,], [Type 4X] suitable for floor mounting, and supplied with lifting provisions

E The enclosure shall be equipped with a lexan viewing window to allow visual check of the blown fuse indicators on the incoming fuses.

F Steel enclosures shall be finished with *[ANSI 61], [Other] color, weather-resistant epoxy powder coat.

G The enclosure shall accept *[bottom], [top] entry of cables.

2.5 OPTIONAL ACCESSORIES

A Lightning Arresters:

i The R.C. Snubber shall be equipped with line-to-ground *[heavy duty distribution class], [Intermediate class], [station class] lightning arresters for limiting the crest of impending voltage surges to safe values.

ii The lightning arrester shall be silicone rubber housed and shall utilize MOV blocks. The arresters shall comply with ANSI/IEEE C62.11 standards.

iii The voltage rating and MCOV ratings shall be appropriately rated for the system voltage and grounding as specified above.

B R.C. Snubber Monitor:

i Current transformers shall be placed in each phase of the R.C. Snubber. The current transformer secondaries shall be connected to an appropriate protection relay to indicate the

R.C. Snubber is properly operating (not open, not shorted, and drawing the correction amount of current). Incorrect operation shall trip a relay contact to either alert plant personal of improper operation of the RC-Snubber or trip the upstream breaker lockout relay.

ii Snubber Monitor must provide the following functionality:

- Phase A, B & C Fuse Monitor Lights (Green)
- Phase A, B & C Capacitor Monitor Lights (Green)
- Phase A, B & C Blown Fuse or Failed Capacitor Alarm lights (Red)
- Phase A, B & C Failed Capacitor Alarm contacts (N.O. & N.C.)
- Phase A, B & C Blown Fuse Alarm Contacts (N.O. & N.C.)

iii All lights must include “push to test” operator for bulb testing.

C Voltage Indicators:

i Voltage indicating *[glow tubes], [LED lights], must be installed directly on the bus, on all three phases, after the incoming fuses to provide a visual indication if the bus is energized. For enclosed units, the voltage indicators must be viewable through a lexan viewing window on the front panel.

3 EXECUTION

3.1 FACTORY TESTING

A The manufacturer shall perform a complete operational test on the RC Snubber prior to shipping from the factory. A certified test report shall be provided. Equipment supplied shall be fully tested at the factory for function and performance.

3.2 INSTALLATION

A The installing contractor shall install the R.C Snubber per the manufacturer's recommended installation practices as found in the installation, operation, and maintenance manual in compliance with all applicable national and local codes.

B Make sure that the R.C. Snubber is level.

C Check for damage and loose connections.

D Mount R.C. Snubber to comply with all applicable codes.

E Coordinate all work in this section with all work of other sections.