

**SPECIFICATION NUMBER ENG 99-03**

**SPECIFICATION**

**FOR**

**THREE PHASE ELECTRONICALLY CONTROLLED**

**VACUUM INTERRUPTED 15 kV**

**RECLOSER**

**MARCH 24, 1999**

**LAKELAND ELECTRIC**

**LAKELAND, FLORIDA**

## SPECIFICATION

1.0 **SPECIAL NOTE: FAILURE TO QUOTE EQUIPMENT PER THIS SPECIFICATION WILL BE CAUSE FOR DISQUALIFICATION. RECLOSER AND CONTROLLER MUST BE QUOTED SEPARATELY.**

2.0 **EQUIPMENT SPECIFICATIONS:**

Automatic Circuit Recloser shall be equipped with vacuum interrupters insulated in air, SF6, oil, or axial-magnetic field vacuum interrupters encapsulated in cycloaliphatic epoxy modules. Reclosers shall be quoted **WITHOUT** control, but should include all mounting hardware and any options stated below.

3.0 **CONTROL COMPATABILITY**

All reclosers will be **compatible with SEL 351R type recloser control or approved equivalent**, and shall accept Cooper standard recloser control plugs and adapters.

4.0 **STANDARDS**

The reclosers (**exclusive of control**) covered by this specification shall be manufactured and tested in accordance with ANSI C37.60.

5.0 **QUALITY**

The manufacturing facility shall be independently certified to meet ISO 9001 Standards or an approved equivalent.

6.0 **RATINGS**

Maximum Design Voltage, Kv		15.5
Nominal Operating Voltage, Kv		2.4-14.4
Minimum Basic Insulation Level (BIL), Kv		110
60 Hertz Withstand Voltage, Kv		
Dry, One Minute		50
Wet, Ten Seconds		45
Continuous Current Rating, Amps	600	
Interrupting Rating, Symmetric Amps		12,000

## 7.0 DUTY CYCLE

<u>PERCENT OF INTERRUPTING RATING</u>	<u>NUMBER OF UNIT OPERATIONS</u>	<u>MAXIMUM CIRCUIT X/R VALUE</u>
15-20	88	4
45-55	112	8
90-100	32	15

## 8.0 RECLOSER FEATURES

The recloser type shall be Cooper Type VWE or Lakeland Electric approved equivalent. The overcurrent sensing, reclosing sequencing and tripping shall be electronically controlled. **(Controller to be Schweitzer SEL 351R type or Lakeland Electric approved equivalent that will be quoted in a separate quote.)** Recloser will be installed in a Distribution Automation scheme and must be capable of properly operating for the interruption of loads and faults in either direction.

The recloser shall be mechanically and electrically trip free.

All three poles of the recloser shall be operated simultaneously by a solenoid-controlled spring operating mechanism.

The solenoid shall provide energy for closing the main contacts and for storing energy in the opening spring for a **tripping operation with or without AC supply present.**

Continuous current carrying rating of **600 amps (minimum)** is required.

Minimum fault interruption rating shall be 12,000 amp (sym.) at nominal voltage.

Current interruption shall occur in vacuum interrupters, providing long contact life.

Low voltage closing and tripping is required. The voltage for **closing shall be 120 Vac.**

Bushings shall be of wet process porcelain; terminals shall be stud type terminals, 1-1/8 – 12 UNF-2A. Four hole NEMA pad stud connectors shall be furnished with the recloser. **Non-porcelain bushings may be quoted as an option, but must be of same stud type design.**

Bushing creepage distance shall be 17" minimum.

A three-stage, six contact minimum, auxiliary switch shall be provided.

The recloser interrupting time shall be 0.045 seconds maximum.

An O-ring shall be used in a groove in the head casting to provide controlled compression (If applicable).

A lever shall be provided for manually tripping the recloser with or without **control** voltage present.

If recloser contains oil, the recloser shall be shipped filled with oil to the proper level. A dipstick shall be provided for checking oil level, a low oil level sight gauge shall be provided.

The recloser shall be equipped with single-pole mounting hanger. **As an option, an end-mounted pole hanger shall be quoted.**

The mounting hanger shall have a grounding pad, which will accommodate two No. 2/0 to 250 MCM conductors.

Sensing bushing current transformers, 1000:1 ratio, for use with the static overcurrent control, shall be mounted internally in the recloser on bushings 1,3,5.

1. If the recloser design employs pressurized SF<sub>6</sub> gas, the recloser shall be design, fabricated, tested, inspection and certified per the application rule of the ASME Boiler and Pressure Vessel Code, Section VIII, and all applicable state and local laws.
2. If the recloser contains pressurized SF<sub>6</sub> gas, it shall meet ANSI C37.04-1979 for pressurized metal components.
3. If the recloser design employs pressurized SF<sub>6</sub> gas for insulation and arc interruption, a pressure relief device is required that meets ASME Pressure Vessel Code, Section VIII.
4. Reclosers must be shipped in compliance with applicable state transportation codes. if the recloser contains SF<sub>6</sub> gas pressurized to more than 40 psia (25 psig), any shipment of this material to our stated destination should be considered hazardous material and shall, therefore, comply with all applicable state and federal intrastate and interstate commerce regulations regarding transportation of hazardous material.

#### 9.0 **SURGE PROTECTION:**

Surge arrester mounting brackets shall be provided for source and load side surge arrester mounting on recloser.

#### 10.0 **CONTROL CABLE:**

Control cables of 30, 35, and 40 foot length complete with Cooper Power Systems recloser compatible connectors shall be quoted as a separate items. Only one length control cable will be purchased for each recloser.