

TYPES VSA12, VSA16 AND VSA20 RECLOSERS

EQUIPMENT SPECIFICATIONS:

Automatic Circuit Reclosers with Vacuum Interruption and Air Insulation

STANDARDS:

The reclosers covered by this specification shall be designed, manufactured, and tested in accordance with ANSI C37.60 and ANSI C37.61.

QUALITY

The manufacturing facility shall be independently certified to meet ISO 9001 Standards.

RATINGS:

	<u>VSA12</u>	<u>VSA16</u>	<u>VSA20</u>
Maximum Design Voltage (kV)	15.5	15.5	15.5
Nominal Operating Voltage (kV)	2.4-14.4	2.4-14.4	2.4-14.4
Basic Insulation Level-BIL (kV)	110	110	110
60 Hertz Withstand Voltage (kV)			
Dry, one minute	50	50	50
Wet, ten seconds	45	45	45
Max RIV at 1.0 MHZ/9.41 kV (microvolts)	100	100	100
Continuous Current rating (amps)	800	800	800
Symmetric Interrupting Current (amps)	12,000	16,000	20,000
Cable Charging Current (amps)	2	2	2
Magnetizing Current (amps)	28	28	28
General Purpose Capacitance Current	250	250	250
Switching (amps)			
3 Second Current, Symmetric (amps)	12,000	16,000	20,000
Momentary Current, Asymmetric (amps)	19,200	25,600	32,000

MECHANICAL LIFE:

2500 Close-Open Operations

DUTY CYCLE:

<u>PERCENT OF INTERRUPTING RATING</u>	<u>MAXIMUM CIRCUIT X/R RATIO</u>	<u>NUMBER OF UNIT OPERATIONS</u>
15-20	4	88

45-55	8	112
90-100	16	32

FEATURES:

The recloser will be mechanically and electrically trip-free

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

The recloser will be opened and closed by means of energy provided by a motor operating at 240 Vac, 60 Hz and stored in springs for both tripping and closing operations.

Bushings will be of "wet" process porcelain and will have a standard creepage distance of 12" inches. A 17" creepage distance bushing will be available as an option.

Bushing terminals will be of the universal clamp type and will accommodate conductors ranging in size from 4/0 to 1000 MCM, inclusive,

Current interruption will occur in vacuum interrupters, one interrupter per phase.

It will be possible to replace one or all bushings without any re-alignment or adjustment of the vacuum interrupters or operating mechanism.

The recloser interrupting time will be 0.042 seconds

Resistance-type heaters will be provided in the interrupter and operating mechanism cabinets, to prevent moisture condensation.

The recloser will be shipped mounted in a substation mounting frame.

The mounting frame extension will have a ground pad which will accommodate two No. 2/0 to 250 MCM conductors

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

A 4 - digit counter will be provided in the operating mechanism.

The recloser will use a motor operator to charge opening and closing springs; solenoids will be used for the tripping and closing operations.

A contact position indicator, externally visible, will be provided.

Two external pull rings will be provided, one to close the recloser and one to trip the recloser.

A spring operator condition indicator will be provided to indicate whether the closing springs are energized. The indicator consists of a mechanical flag for indication and will be visible from the front of the operator cabinet.

The recloser will be capable of manual trip and manual close on a maximum fault. Closing springs can be charged manually by means of a crank (150 turns), through a gear box.

SPRING CHARGING MOTOR:

	<u>STANDARD</u>	<u>ACCESSORY</u>
Operating voltage (Vac)	240	120
Voltage Range (Vac)	160-257	90-127
Maximum Current RMSA (amperes)	13	18
Steady State Current (amperes)	8	9
Motor Running Time (cycles)	40	40

CONTROLS:

The recloser will be capable of operation with any of the following: form 3, Form 3A, Form 4A, or Form 4C Type ME Recloser control.