Power Capacitors

Functional Specification Guide

Type NR Oil Switch

PS230001EN

1. Specification

Single phase, electrically operated oil switch, with quick close, quick-open mechanism, and close-and-latch capability. The Type NR oil switch is intended for application on a 14.4/24.9 kV grounded wye system, where both the system neutral and the capacitor bank neutral are solidly grounded.

2. Applicable Standards

2.1. The switches covered by this specification shall be manufactured and tested in accordance with ANSI C37.66-1969 (R 1988).

3. Ratings

3.1. The Type NR Oil Switch shall have the following ratings.

Description	Standard	15 kV with 17" Creepage	15 kV with 125 kV BIL	22 kV
Maximum Design Voltage, kV	15.0	15.0	15.0	22.0
Nominal Operating Voltage, kV	2.4-14.4	2.4-14.4	2.4-14.4	20.0
Basic Insulation Level (BIL), kV	95	95	125	125
60 Hertz Withstand Voltage, kV				
Dry, One Minute	35	35	42	60
Wet, Ten Seconds	30	30	36	50
Continuous Current Rating, Amps	200	200	200	60
Load Interrupting Ability (Inductive) Symmetric Amps				
75-100% power factor	200	200	200	60
50-75% power factor	100	100	100	60
<50% power factor	50A	50A	50A	60
Maximum Capacitive Current, Amps (parallel bank max.)	200	200	200*	60*
High Frequency Transient Current, Amps	12000	12000	12000	12000
Transient Frequency, Hz	6000	6000	6000	6000
High Frequency Damping Factor	.40-.55	.40-.55	.40-.55	.40-.55
Momentary Rating, Amps asym.	9000	9000	9000	9000
Short time Current, Amps				
½ sec. sym.	6000	6000	6000	6000
1 sec. sym.	4500	4500	4500	4500
Close and Latch Rating, Amps asym.	9000	9000	9000	9000

*The 125 kV BIL switch and the 22.0 kV switch are rated for single bank switching only.

4. Duty Cycle

4.1. The Type NR Oil Switch will have the following operations for a parallel capacitor.

200 Amps	400 operations
94 Amps	400 operations
36 Amps	400 operations

5. Features

5.1. The Type NR Oil Switch will have the following features.

5.1.1. The moving contacts of the switch shall be solid silver-tungsten and the stationary contacts shall be solid copper tungsten to prevent contact overheating.

5.1.2. The contacts of the switch shall be mounted to the head casting.

5.1.3. The stationary contacts of the switch shall not be mounted on the bushing stud.

5.1.4. The motor housing shall be metal for long life in high temperature or high ultra-violet applications.

5.1.5. The mechanical life of the switch shall be certified to be at least 10,000 operations.