

Technical Specification for Remote Racking System for Medium Voltage Switchgear

Specification Number: 26 01 10.14

Product Name: Remote Racking System for MV Switchgear

1.01 SCOPE

1. This specification serves to define the requirements for installation and operation of a remote racking mechanism for use with circuit breakers mounted in medium voltage switchgear.

2.01 STANDARDS

1. The equipment shall conform to, and tests shall be conducted in accordance with, the latest revisions of applicable standards of the American National Standards Institute (ANSI), National Electrical Manufacturers' Association (NEMA), and the Institute of Electrical and Electronic Engineers, Inc. (IEEE) unless otherwise stated herein.

3.01 GENERAL REQUIREMENTS

1. The remote racking system shall be suitable for use in existing metalclad switchgear. The design, installation and performance of the remote racking system shall be in accordance with the requirements of IEEE/ANSI C37.20.2 for the components installed within a metalclad switchgear compartment. The complete system (including the medium voltage circuit breaker modifications) shall be tested in accordance with IEEE/ANSI C37.59. The design testing shall be formed on the complete assembly, in the switchgear compartment and the system shall be capable of performing a minimum of 250 racking operations.
2. The remote racking system can be used by a qualified person to remotely control and monitor the medium voltage circuit breaker racking function from a minimum of 25 feet from the breaker cell.

4.01 REMOTE RACKING SYSTEM

1. Unless otherwise specified, the remote racking system shall be rated to allow for racking of the drawout circuit breaker without overheating, operate the shutter mechanism in the circuit breaker compartment and generate adequate forces to make or break the primary and secondary connections of the medium voltage circuit breaker during the racking operation.
2. The mechanism shall be sized to operate the existing circuit breaker interlocks. The remote racking mechanism shall retain the functionality of the existing circuit breaker interlocks. The remote racking mechanism shall be designed to be capable of moving the medium voltage circuit breaker between the Connected, Test, and Disconnected positions (if applicable). The remote racking mechanism shall also have provisions to allow the circuit breaker to be open and close the circuit breaker mechanism in the Test position.
3. The medium voltage circuit breaker shall be maintained in the "trip free" condition during the racking operation between the Connected and Test positions. Closing and tripping mechanisms shall operate satisfactorily over the voltage range in accordance with ANSI C37.06, table 10.
4. A remote racking system shall include of the following components unless otherwise specified:
 - (a) Racking actuator with motor in each cell.
 - (b) Circuit breaker guide.
 - (c) Circuit breaker "quick disconnect" device.
 - (d) Limit switches.
 - (e) Control wiring disconnect.
 - (f) Manually operable remote control unit.

5. If specified, the remote racking system shall be designed to allow automatic control of the racking operation of the medium voltage circuit breaker using a programmable logic controller from a control room in a remote location. In such case, the requirements of sections 4.01.1 to 4.01.3 of this Specification shall remain the same.

5.01 TESTS AND INSPECTION

1. Upon installation, the remote racking system shall be subjected to a series of Acceptance tests that should include, but not be limited to the following:
 - (a) Five (5) complete racking operations between Disconnected, Test and Connected positions at the nominal operating voltage. During each racking operation, the operation of the mechanical interlocks (trip-free, spring discharge) shall be verified.
 - (b) Insulation resistance test of the newly installed control wiring.
2. The purchaser shall have the right to inspect at the factory all equipment covered by these specifications, at any time during manufacture and assembly, and shall have the right to be present during any testing made on the equipment.
3. The vendor, upon request, shall furnish the purchaser with advance notice of final assembly and testing.
4. The vendor must have a dedicated Quality Assurance Department that is separate from production, answerable only to the president of the company, to insure the quality workmanship of the production department. A copy of the vendors Quality Assurance Program must be included with the proposal.

6.01 DRAWINGS, DESCRIPTIVE MATERIALS, AND TEST REPORTS

1. Within 15 days ARO the vendor will supply the schematic diagram of the remote racking system.

7.01 INSTALLATION

1. The vendor shall provide qualified technicians for installation and conformance testing of the remote racking system.

8.01 INSURANCE

1. Qualified converters/installers shall carry the following minimum insurance with insurance carriers rated A- or better by A. M. Best Company:

<u>Description of Coverage</u>	<u>Limit of Liability</u>
Comprehensive General Liability Insurance	\$2 Million Combined Single Limit Bodily Injury and Property Damage
Automobile Liability Insurance	\$2 Million Combined Single Limit Bodily Injury and Property Damage
Workers' Compensation	Statutory
Employer's Liability Comprehensive Liability Coverage	\$2 Million