

RITTER MOTOR OPERATED LOAD BREAK DC DISCONNECTS

Features and Application

RITTER Type RGL DC SWITCH-DISCONNECTORS which are designed and tested in accord with European Standards EN 50123 have been used for many successful railway traction power applications in Europe and around the World. These standards define a SWITCH-DISCONNECTOR as a mechanical switching device capable of making, carrying, and breaking currents in normal circuit conditions and when specified in given overload conditions. RITTER Type RGL Disconnects rated 3150 amps and 4000 amps are available for both 750 VDC and 1500 VDC Railway applications. A new 6000 amp 750 VDC Load Break Disconnect is also available.

These Load Break Disconnects have equal breaking capacity ratings in both directions of current flow thru the switch. This is accomplished by a two-step contact system consisting of a main contact and arcing contact in combination with an electromagnetic blow-out coil and an arc chute. The arcing contacts are connected to the blow-out coil in such a way that the breaking current flows for a short time thru the coil after the main contacts open. This arrangement guarantees a high breaking capacity as well as safe interruption of low current in both directions of current flow.

RITTER Type RGL DC Load Break Disconnect features include:

- > *compact construction*
- > *high breaking capacity*
 - > *short circuit making capacity*
- > *reliable breaking of low current*
- > *long lifetime due to the use of corrosion-resistant materials*
- > *small maintenance effort due to simple and robust construction*

These disconnects are suitable for all kinds of indoor application. They are used in substations or besides the track in outdoor enclosures.

Configuration and Operation

The basic frame is composed of two heavy stainless steel cross braced channels and four insulating bars which support the connecting copper busbars. The busbar on top supports the fixed arcing contact and the electromagnetic blowout. The movable main contact which is seated by a heavy compression spring and movable arcing contact are above the lower busbar. Main contacts are high pressure silver to silver on high strength copper supports. The non metallic arcing chamber is secured with a retaining spring requiring no special tools for installation and removable.

The RITTER Type RGL Disconnect is operated either locally or by remote control by a strong, over center, switching spring. When energized an electric gear motor winds the spring to top dead center position. After passing top dead center the switching spring opens the main contacts. This causes breaking current to flow for a short time thru the arcing contact into the blow-out coil. The magnetic field created by the breaking current is reinforced by a blowout insert in the arc chute. After the arcing contacts are opened the arc which forms is expanded by the residual magnetic field away from the contacts into the arc chute where it is extinguished. Arcing time between the formation of the arc until its extinction in the arc chute is 25 milliseconds. Total operating time is less than 3 seconds.

The RITTER Type RGL Disconnect can be operated manually by a removable crank in case of control power failure or during maintenance. A integral mechanical indicator provides a direct indication of the drive shaft position. These indicator flags are as shown thru the viewing window on the photo on the preceding page.

Two integrated auxiliary contacts provide direct indication of the drive shaft position to stop the motor. The Ritter disconnect can be equipped with up to 8 additional auxiliary switches (1 N.C + 1 N.O.) operated by the drive shaft to provide electrical signal indication of switch position. Another optional auxiliary contact signals when the arc chute is attached.