

# Powell Lightning DC Switchgear

*DC SWITCHGEAR INCORPORATING THE HAWKER SIDDELEY NDC HIGH SPEED CIRCUIT BREAKER*

## Introduction

Powell Lightning DC Switchgear incorporating the Hawker Siddeley NDC High Speed DC circuit breaker provides a reliable product with proven technology for application in your transit project. Building on the 80 year track record of DC design this switchgear solution offers optimal safety and the high speed performance you require.

## Key Features

1. Proven technology and minimal maintenance
2. A long service life designed to exceed 30 years
3. Superior compact design concept
4. High speed operation
5. Direct overload and electrical tripping
6. Simple and reliable mechanism - no mechanical latch
7. Ergonomic, intuitive truck isolation and interlocking
8. Enhanced electrical and mechanical endurance
9. Patented arc transfer coil
10. Fully bi-directional current interruption
11. Silver tungsten carbide main contacts
12. Hard-wearing and long-life main contacts



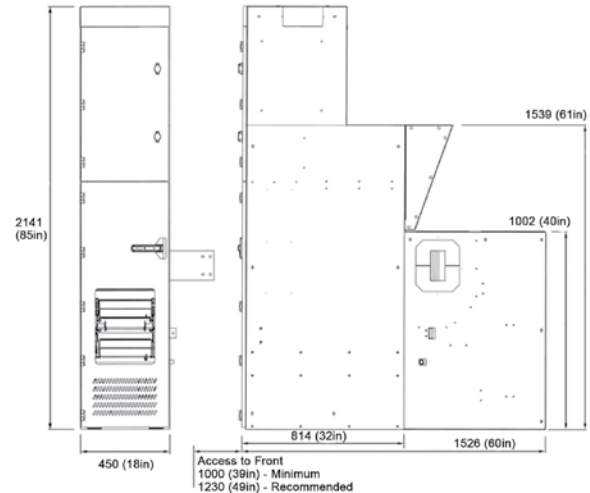
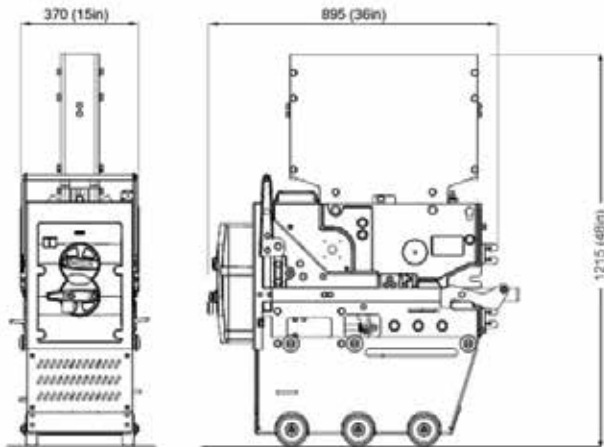
Ratings		
Rated Voltage (VDC)	800	1600
Rated Service Current (A)	4000/6000/8000	4000/6000
Nominal Voltage (VDC)	750	1500
Power-Frequency Withstand Level (kV)	9	9
Rated Short-Time Withstand Current (kA <sub>p</sub> /kA)	100/72 250ms	100/72 250ms
Rated Track- Time-Constant (ms)	100	100
Rated Short-Circuit Current (kA <sub>p</sub> /kA)	200/120	100/60
Bi-directional Critical Current (A)	25	25
Mechanical Endurance	20,000 operations	20,000 operations
Breaking Characteristic	High Speed	High Speed
Rated Insulation Voltage (kV)	1.8	3
Auxiliary Operating Supply (VDC)	110 <sup>1</sup>	110 <sup>1</sup>

<sup>1</sup> - other options available

## Standards

Circuit breaker enclosure has been subjected to an internal arc withstand test in accordance with the requirements of IEC 60694:2002 and IEC 62271:2003. The equipment has been designed to ANSI C37.14:2002, ANSI C37.16:2000, and ANSI C37.20.1:2002.

## Dimensions

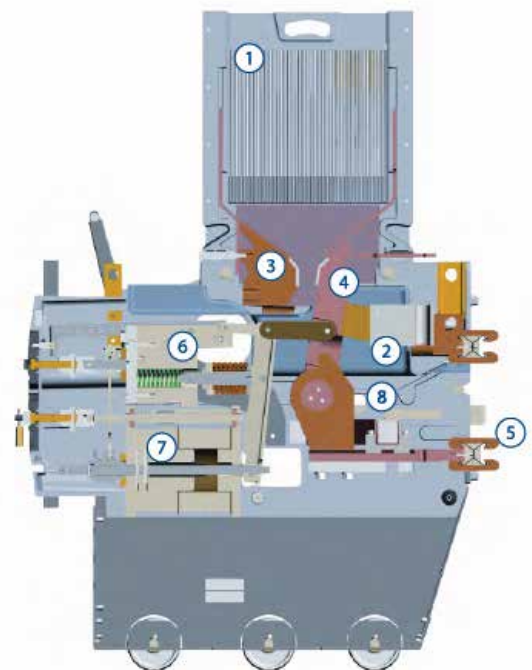


## Typical weights including circuit breaker

	800VDC	1600VDC
4000A	1276lbs	1364lbs
6000A	1320lbs	1408lbs

## Features

1. The arc transfer system prevents internal contamination of the circuit breaker compartment and cubicle.
2. The Cold Cathode Arc Chute Assembly (1) dissipates all arcs while the transfer coil (2) provides additional magnetic flux across the contact gap, assisting with the interruption of low currents that would lead to long arcing times.
3. Fixed Contact
4. Moving Contact Assembly
5. Primary Disconnects
6. The patented Magnetic Latch mechanism provides the primary means of 'high speed' tripping of the circuit breaker. Working in conjunction with the Magnetic Actuator, the latch directly holds the circuit breaker contacts closed.
7. The Magnetic Actuator is based on a solenoid plunger, and provides the motion required to close the main contacts and to reset the latch device on tripping.
8. The unidirectional Direct Acting Release trips the circuit breaker when the current in the main circuit exceeds the overload setting.



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