

# Aluminum Double Break Switch

Switch Types DB-A, DB-AV  
345 kV, 1300 kV BIL ■ 2000A – 5000A



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9147537B1



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## Designed for Simplicity

The Cleaveland/Price 345 kV DB-A is an aluminum double break switch that continues the Cleaveland/Price tradition of manufacturing reliable, low-maintenance, non-cast switches. It is available in a traditional parallel insulator configuration, as well as a low-profile “V” configuration.

In application, the double break switch design is interchangeable with the vertical break as it can be installed on the same phase spacing. An advantage of a double break over a vertical break is that overhead clearance is less of a consideration because the blade operates in a horizontal plane. The blades are naturally counterbalanced so a counterbalance mechanism is unnecessary.

The Cleaveland/Price DB-A switch design features a patented blade rotation mechanism. The bearings for blade roll-over are adjacent to the blade and offset from the blade's rotational axis rather than around the

outer surface of the blade. This allows the bearings to be a very small diameter, which greatly reduces the force needed to operate the switch. The mechanism also utilizes the weight of the blade pivoting on the offset bearings to assist in opening the switch.

DB-A contacts are designed to take advantage of electromagnetic forces by using a reverse-loop configuration at the breakjaws. Current transfer points are kept to a minimum.

The DB-A and DB-AV meet applicable NEMA and IEEE Standards and the rating requirements of applicable IEC Standards. Testing included short circuit, temperature rise, dielectric, mechanical endurance, ice, corona, and radio influence voltage.

### **Cleaveland/Price has a very basic approach to design ... keep it simple.**

It is an approach that is employed from material selection to mechanical design. All Cleaveland/Price disconnect switch, current-carrying parts are manufactured from high-strength, high-conductivity copper or extruded aluminum. Switch performance is not compromised by flaws that could occur in the casting process. To assure product quality, all incoming copper and aluminum material is tested for conductivity and composition verification. Every current-carrying part is fabricated in the United States at the Cleaveland/Price manufacturing facility for maximum quality control.

### **Testing of the 345 kV DB-A to IEEE Standards**



Short circuit testing



Temperature rise testing

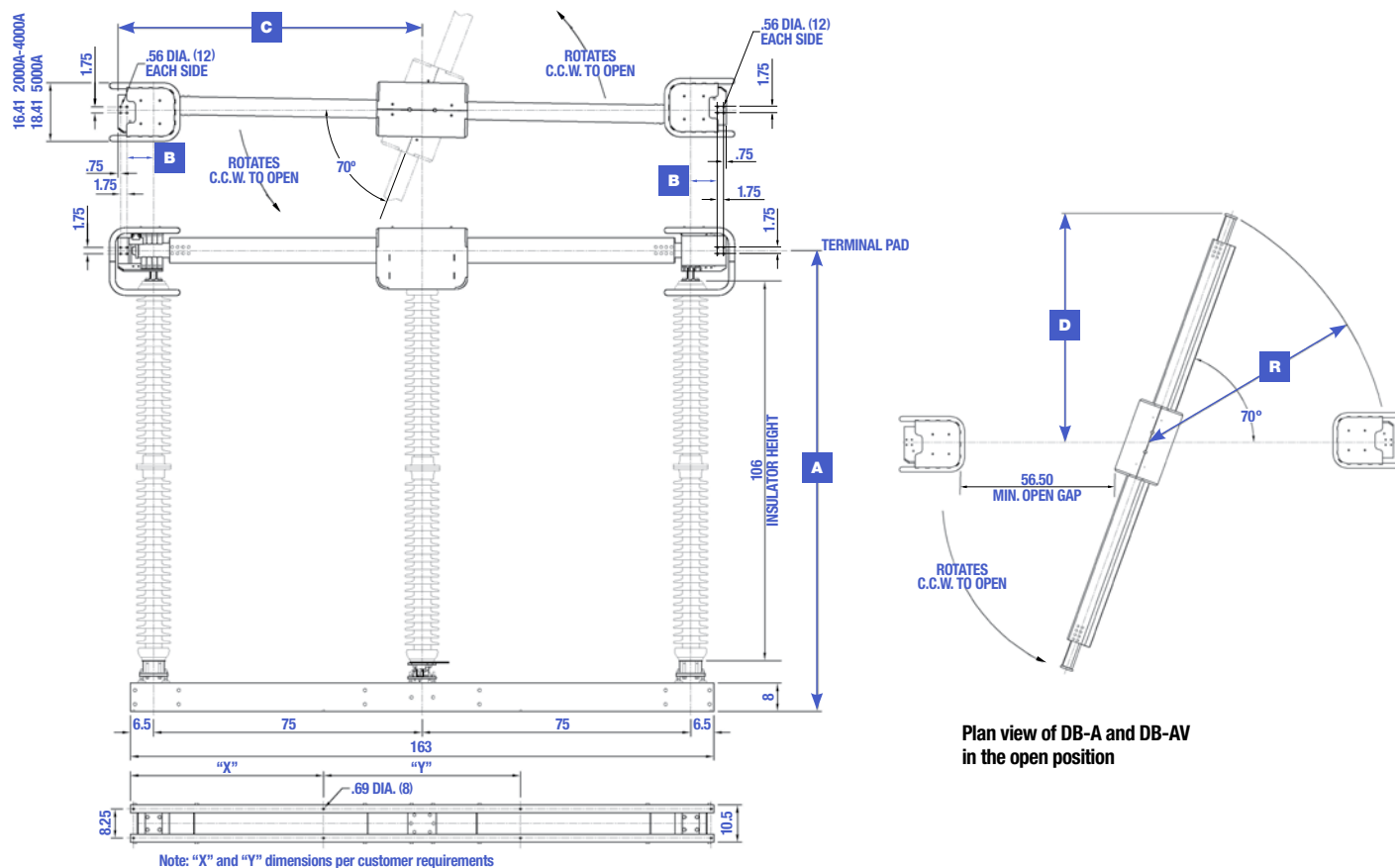


Ice testing



Dielectric testing

# DB-A Technical Data

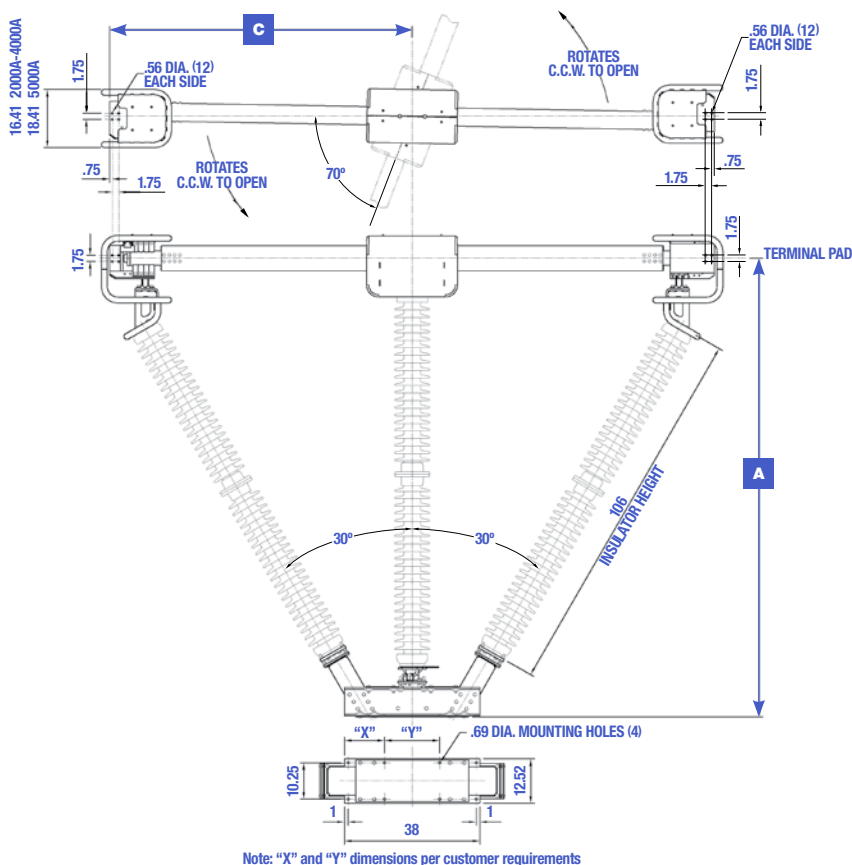


## Legend for DB-A and DB-AV

- A—Base to centerline of the terminal pad
- B—Centerline of insulator to the centerline of the nearest terminal pad hole
- C—Centerline of the rotating insulator to the end of the terminal pad
- D—Centerline of the pole unit to the end of the blade in the open position
- R—Blade radius

		Ratings						Dimensions						
Nom. kV	Max. kV	kV BIL	Amp.	Momentary kA	Peak Short-Circuit kA	Short-Time kA	Insulator TR Number	Switch Style Number	A	B	C	D	R	Wt./ Pole (lbs.)
345	362	1300	2000	100	164	63	324	C04B119	128.72	7.48	84.98	74.87	79.25	1895
			3000	120	195	75		C04B120	128.72	7.48	84.98	76.25	80.75	1941
			4000	120	195	75		C04B121	128.72	7.48	84.98	76.25	80.75	1996
			5000	120	195	75		C04B122	130.46	10.50	88.00	78.50	83.13	2166
		2000	100	164	63	367	C04B123	127.65	7.48	84.98	74.58	79.25	2033	
		3000	120	195	75		C04B124	127.65	7.48	84.98	75.99	80.75	2079	
		4000	120	195	75		C04B125	127.65	7.48	84.98	75.99	80.75	2134	
		5000	120	195	75		C04B126	129.49	10.50	88.00	78.21	83.13	2304	

# DB-AV Technical Data



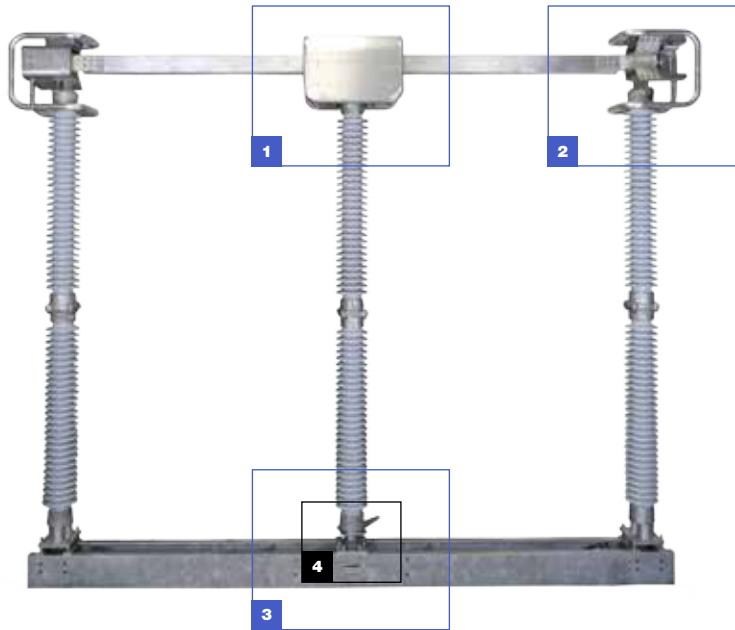
## DB-AV Application

The DB-AV uses the same current-carrying parts as the DB-A; however, the jaw-end insulators are inclined. By having the jaw-end insulators inclined, the cable conductors establish electrical clearance from the base without the need for wire guides or outriggers. The inclined insulator design makes the switch suitable for mounting on a single beam.



		Ratings							Dimensions						
Nom. kV	Max. kV	kV BIL	Amp.	Momentary kA	Peak Short-Circuit kA	Short-Time kA	Insulator TR Number	Switch Style Number	A	B	C	D	R	Wt. / Pole (lbs.)	
345	362	1300	2000	100	164	63	324	C04B127	129.06	7.48	84.96	74.87	79.25	1801	
			3000	120	195	75		C04B128	129.06	7.48	84.96	76.25	80.75	1847	
			4000	120	195	75		C04B129	129.06	7.48	84.96	76.25	80.75	1902	
			5000	120	195	75		C04B130	129.80	10.50	88.00	78.50	83.13	2072	
			2000	100	164	63	367	C04B131	129.06	7.48	84.96	74.87	79.25	1939	
			3000	120	195	75		C04B132	129.06	7.48	84.96	76.25	80.75	1985	
			4000	120	195	75		C04B133	129.06	7.48	84.96	76.25	80.75	2040	
			5000	120	195	75		C04B134	129.80	10.50	88.00	78.50	83.13	2210	





## Blade Rotation Mechanism

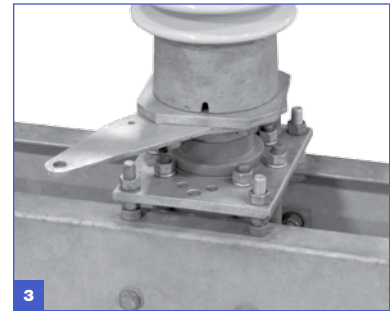
The switch operating force is minimized through a unique, patented mechanism that is housed within a protective ice shield. When the switch closes, the mechanism applies the greatest rotational torque to the blade as it compresses the contact finger springs. Compared to other double break switch designs, the mechanism significantly reduces the operating force to close.

Premature blade roll-over, often a cause of contact burning on double break switches, is averted by providing ample clearance in the breakjaw so that the blade begins to rotate into the contact fingers only after it engages the back of the breakjaw assembly.



## Stationary Contact Ends

- Unbreakable non-cast terminal pads with NEMA standard hole pattern on three planes
- Tin-plated, high-conductivity copper breakjaw fingers
- Reverse-loop silver-to-silver contacts
- Stainless steel contact springs located outside of the current path
- Generous blade guide-in for switch closing
- Ice shields
- Aluminum corona rings
- Arc horns



## Base and Bearing Assembly

- Hot-dip galvanized double-channel base
- Rotating insulator stop assembly
- Insulator-aligning jacking bolts on all insulators
- Heavy-duty bearing assembly



## Bearing Assembly

- Maintenance-free, permanently lubricated construction
- High-strength, non-cast, hot-dip galvanized steel shaft
- Special ozone-resistant and UV-resistant seals that outlast conventional seals and contain no metal parts that typically corrode
- Individually sealed ball bearing assemblies in a sealed, grease-packed housing with outer silicone boot-shaft seal
- Permanently adjusted bearing assembly



345 kV DB-A switches with ground blades on the load side of the switch.  
Wire guides with corona rings were provided to extend the conductors away from the switch.



Geared handcrank operator



Optional TP-C2 or TP-C3 motor operator

## Standard Operator Features

- 40:1 ratio geared handcrank
- Padlock provision in both the open and closed positions
- Ground strap for vertical operating pipe
- Adjustable stops
- Open and closed position indicators
- Self-lubricating, maintenance-free outboard bearing
- 2" IPS galvanized steel vertical operating pipe
- Adjustable radius outboard bearing lever
- Threaded interphase and drive lever adjustment

## Ordering Information

### Furnish:

- Switch type
- Voltage
- Amperage
- Peak and short-time short-circuit ratings
- BIL level
- Insulator TR number
- Mounting position
- Operator type
- Accessories required
- Base mounting details

## Available Accessories

- Auxiliary switch assembly
- Braidless ground contact
- Ground blades
- Ground blade mechanical interlock
- Key interlock
- Operator grounding platform
- Wire guides
- Outriggers
- Terminal connectors

*This brochure describes standard products and does not show variations in design that are available. Contact the factory for additional details. Cleveland/Price reserves the right to make changes or improvements in the products shown in this brochure without notice or obligation.*

**CLEVELAND/PRICE INC.**