

# FBK

High Speed DC Circuit Breaker



Controlled Power, LLC

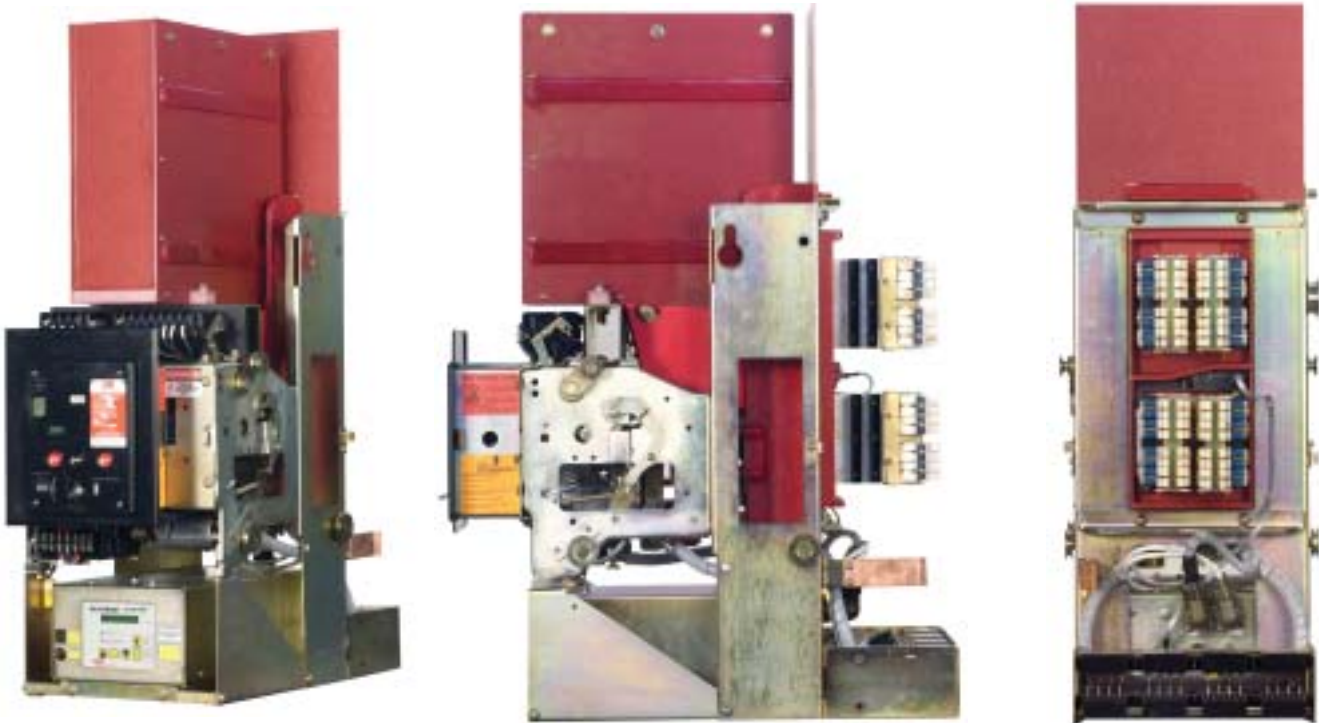
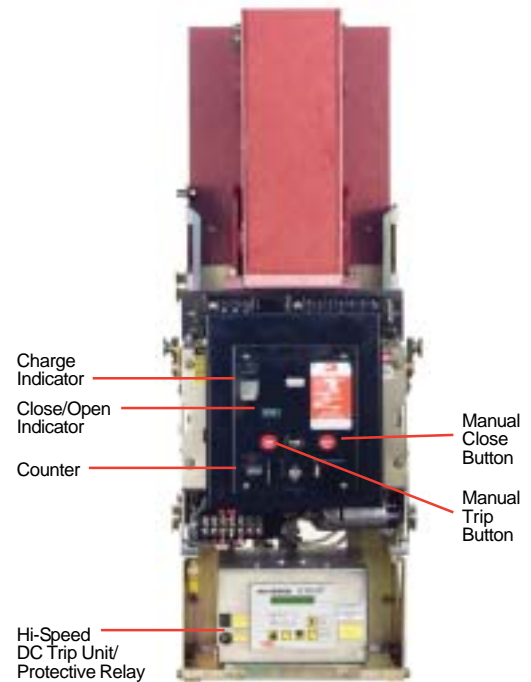
# Controlled Power FBK High Speed DC Circuit Breakers

Controlled Power FBK high speed DC circuit breaker can be configured to feed and protect a wide variety of DC applications. Available as a semi-high speed or high speed circuit breaker with electronic and/or electromechanical trip devices, the FBK can be furnished as a single pole or two pole device.

The FBK mechanism is operated electrically or mechanically. The breaker is offered in both drawout or stationary forms. The following continuous current ratings are available: 1600, 2500, 4000, 6000, 8000, 10000, and 12000 (fan cooled).

One of two FBK models is furnished depending on the application and number of poles. FBK circuit breakers may be applied on systems with maximum voltage of 300, 800 or 1000 VDC. The charging system, closing system, and tripping system can be specified with the following control voltages: 125VDC, 250VDC, 120VAC, and 240VAC. All breakers feature standard operation counters and have auxiliary contacts available.

Typical FBK Breaker Elements



FBK Single Pole High Speed DC Circuit Breaker.

## FBK Circuit Breaker Short Circuit Ratings:

Type Tests carried out at 1000 volts exceeds the requirements of ANSI C37-16:1980 table 11A. As applications having longer time constants develop, proving tests are being performed using the special equipment necessary.

**Performance Ratings Table based on 800 Volt.**

Circuit Breaker Size	4000	6000	8000	10000	12000
Continuous Current Rating Max. (A)	4000	6000	8000	10000	12000
Voltage Rating (V)	800	800	800	800	800
Short Circuit Rating - Peak (kA Prospective)	200	200	200	200	200
Sustained (kA)	120	120	120	120	120
Short Time Withstand Current Ratings - 250ms	80	80	125	125	125
Overload Current Setting Range (kA)	4-16	6-24	8-32	10-40	12-48
Control Voltage (VDC) (Other Ratings Available)	125	125	125	125	125
Close Coil - Operating Voltage Range (VDC)	90-140	90-140	90-140	90-140	90-140
Current Average at 125VDC (A)	3.0	3.0	3.0	3.0	3.0
Trip Coil - Operating Voltage Range (VDC)	70-140	70-140	70-140	70-140	70-140
Current Average at 125VDC (A)	2.0	2.0	2.0	2.0	2.0

## FBK Circuit Breaker Net Weights (LBS):

TYPE	STATIONARY MOUNTED				DRAWOUT				
	FBK-S		FBK-H		FBK-S		FBK-H		FBK
Rating (AMPS)	1-Pole (LBS)	2-Pole (LBS)	1-Pole (LBS)	2-Pole (LBS)	1-Pole (LBS)	2-Pole (LBS)	1-Pole (LBS)	2-Pole (LBS)	Cradle (LBS)
1600	230	405	260	435	245	420	270	450	128
2500	230	405	260	435	245	420	270	450	128
4000	230	405	260	435	245	420	270	450	128
6000	246	405	276	451	261	435	286	466	134
8000	375	405	410	820	390	780	420	840	155
10000	455	910	486	972	470	940	496	992	155
12000	455	910	486	972	470	940	496	992	155

**FBK-S:** Semi-High Speed Breaker

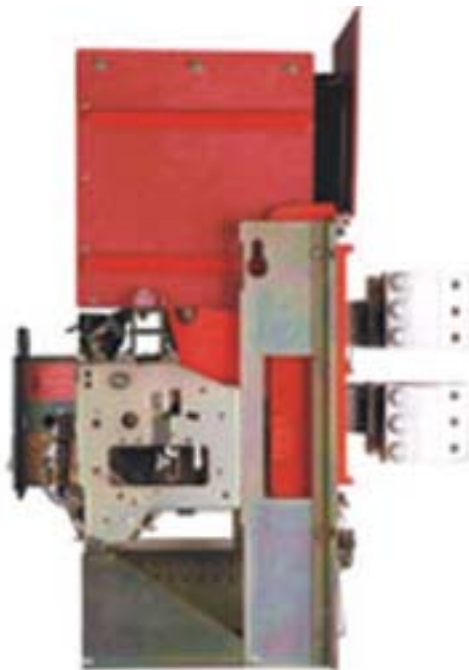
**FBK-H:** High-Speed Breaker

## FBK High Speed DC Circuit Breaker Options:



FBK Breaker in Cradle Assembly

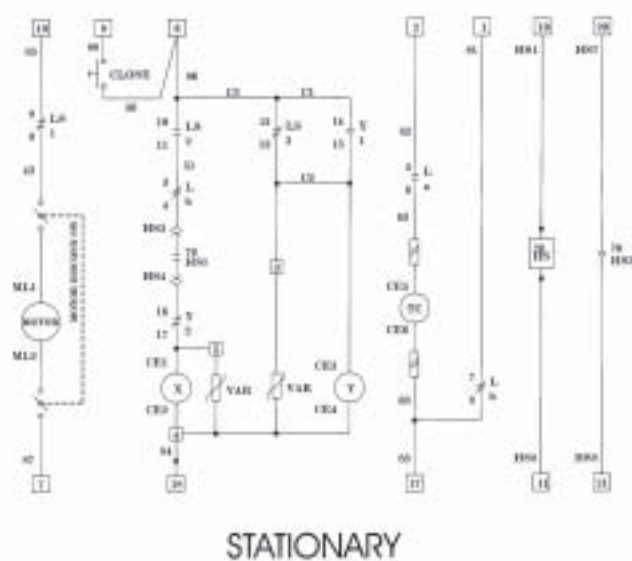
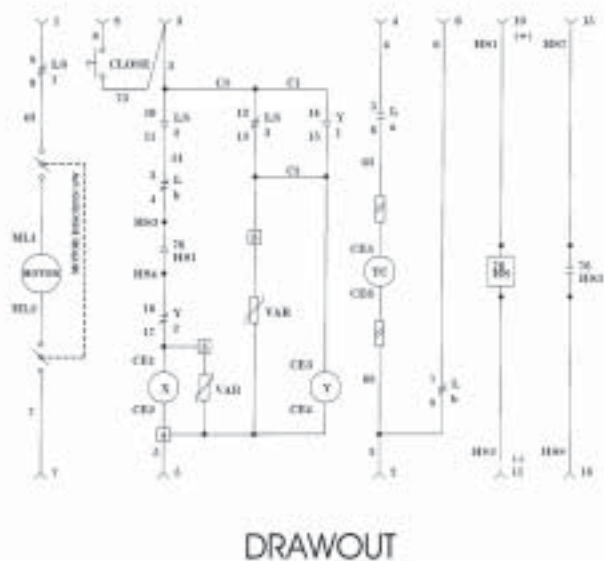
- Cradle assembly for use in switchgear.
- Kirk Key Interlock provision.
- Under Voltage Direct Acting Device (125VDC, 250VDC, 120VAC, and 240VAC).
- Type 69 Permissive Switch.
- Alarm Switches: Momentary and maintained contact for electro-mechanical and electronic trip devices.
- Local electric trip push button. (Local electric close is standard).
- Loss of control power trip on high speed devices.



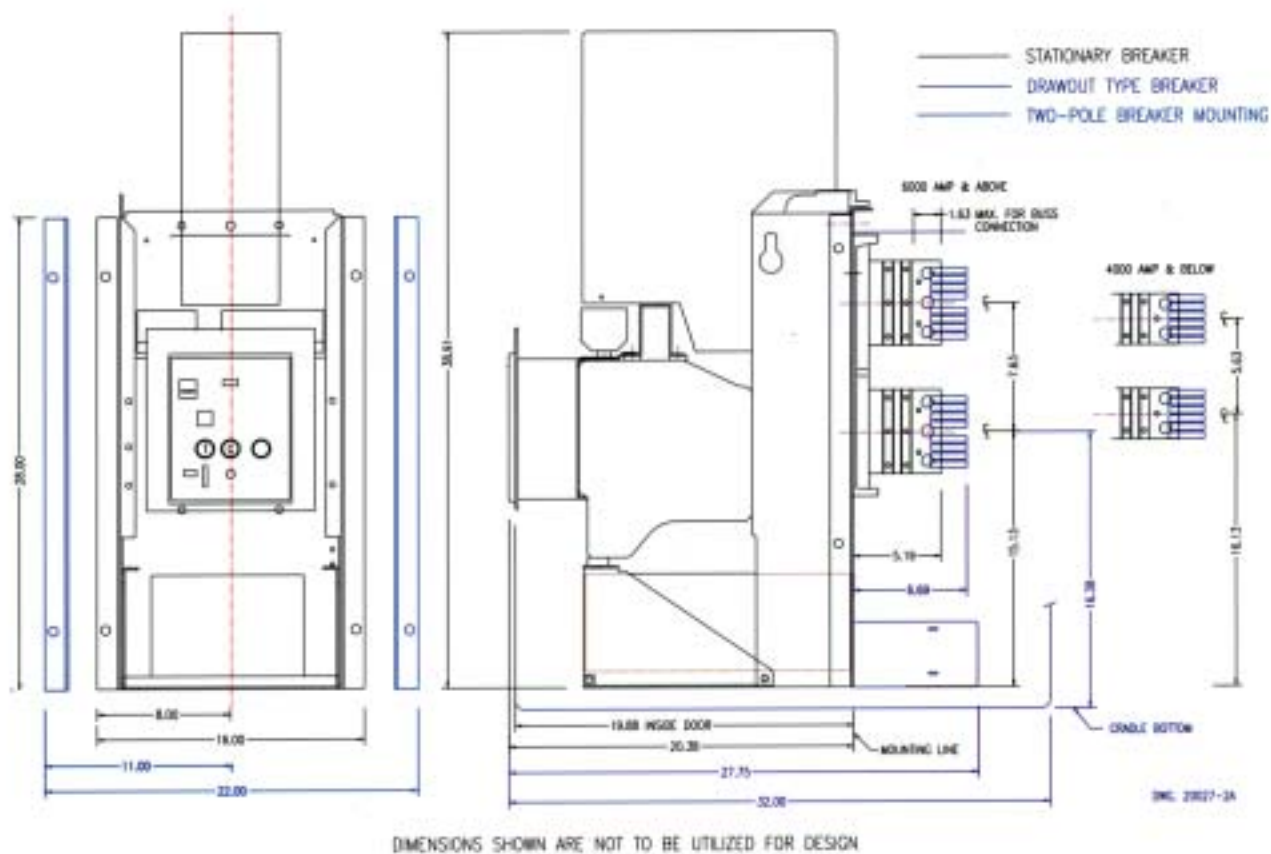
FBK Double Pole High Speed DC Circuit Breaker based for Single Pole operation with CP Hi-Speed Trip Unit.



## Typical FBK Circuit Diagram:



## FBK Circuit Breaker Dimensions:



## **Controlled Power**

# **Hi-Speed DC Trip Unit**

For use with FBK High Speed DC Circuit Breaker

### **The system consists of three basic components:**

- 1.) The trip unit.
- 2.) A bi-directional hall effect transducer (sensor).

### **Standard features include:**

- 1.) Bi-directional current sensing with one transducer (sensor).
- 2.) All settings made directly in amps or seconds.
- 3.) Display last trip data.
- 4.) Permissive relay.
- 5.) Momentary alarm relay.
- 6.) Rate-of-rise function available.

### **Optional features include:**

- 1.) Bi-directional rate of rise protection.
- 2.) Supervisory trip (remote).
- 3.) Lockout relay.
- 4.) Indicator lamp relay.

---

## **Controlled Power Hi-Speed DC Trip Unit Upgrade**

The CP Hi-Speed DC Trip unit is a state-of-the-art micro-controller based trip system designed to directly replace and upgrade the ABB high-speed trip unit on FBK DC Circuit Breakers. The CP Hi-Speed Trip system mounts directly in place of the ABB trip unit and fits with the existing wiring harness connector and impulse trip coil. The newly designed CP Hi-Speed trip unit includes all previously used trip functions in addition to full function displays and improved reliability. Visit the CP Website for details.



Phone: 330.834.3200 • Fax: 330.834.3201

---

**[www.controlledpower.com](http://www.controlledpower.com)**