

The circuit breaker of choice  
for the mining industry.



## Mining Circuit Breakers

Answers for industry.

**SIEMENS**

## Mining Service Molded Case Circuit Breakers

You asked for and we delivered...

### Reliable and Rugged Design

Design features include large contacts, handle shields, inter-phase barriers, rugged handle materials, low power auxiliary switches for PLC application and more. Siemens did not stop at testing this rugged design for interruption capability and calibration, but also put the breakers through rigorous load endurance and on site testing. This Mining Breaker and UVR combination offers trip free operation, and will endure reset attempts when the UVR is not powered. With less than pick up voltage applied to the UVR, the breaker contacts will not touch when a closing operation is attempted.

### Reduced Inventory

Siemens electronic trip mining breakers cover all trailing cable pickup settings in just one frame and two trip units. With the widest range of MSHA 30 CFR 75 pick up settings, and adjustable Amperage ratings, Siemens covers trailing cable applications using far fewer breakers than the competition. Electromechanical breakers also offer the most complete range of exact trailing cable settings, further reducing inventory. Both electronic and electromechanical trip units are interchangeable, and work in either 600 V or 1000 V frames.

### Increased Interrupting Ratings

Siemens has matched or increased the interrupting ratings of our competitors, and offers series combination ratings at 480 V. Siemens Mining Breakers have extra high 480V interrupting capacity using 1000V construction, and offer 500 V DC interrupting ratings from 15 to 1600A.

### Easy Application

Siemens mining breakers have special trip units that are specifically designed for trailing cable application. All setting values are marked on the front of our trip units, with the trailing cable settings highlighted.

Electronic trip catalog numbers ending in the CA or CB include MSHA 30 CFR 75 settings as follows

CA:	50	75	150	200	300	500	600	800	1000	1250
CB:	200	300	500	600	800	1000	1250	1500	2000	2500

Electromechanical catalog numbers ending in C1, C2 or C3 include MSHA 30 CFR 75 settings as follows

C1:	50	75	150	200	
C2:	300	500	600	800	1000
C3:	1250	1500	2000	2500	

### Lower Installed Cost

Siemens gives you the versatility to use either electromechanical or electronic trip breakers through 1600A. Because we developed trailing cable trip units in both versions, each having a wider range of exact MSHA 30 CFR 75 601-2 pick up settings, you will reduce your costs and inventory. In addition, our JM (400A) frame trip units have been designed to work in the LM (600A) frame, and our MM (800A) trip units are designed to work in the NM (1200A) frame.

### Complete and Flexible Breaker Offering

Siemens offers mine proven breakers through 1600A at both 600V and 1000V, with one interchangeable trip unit for both frames. In addition, our 400A breaker trip units operate in the 600A frame, and our 800A trip units operate in the 1200A frames. Internal accessories are common for the 400 and 600A frames, as well as for the 800A, 1200A, and 1600A frames. A wide variety of external accessories are also available in every frame, including compression or mechanical lugs, plug in assemblies for quick change out, rear connectors, inter phase barriers and more.

### Less Design Effort and Simplified Upgrades

Siemens offers common footprints and accessories for the 400A and 600A frames, as well as the 800A, 1200A and 1600A frames.

### Repairable and Serviceable Breakers

Siemens mining breakers offer extended service, with the option for repair or refurbishment.

**We're Siemens. We can do that.**

# Mining Service Molded Case Circuit Breakers

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<sup>1</sup> <http://www.sea.siemens.com/power/autocad/autocad.asp>

## Mining Service Molded Case Circuit Breakers

### Interrupting Capacities



#### Standard Mining Duty Interrupting Rating

Frame:

	EM6	FM6	JM6	LM6	MM6	NM6	PM6
Volts	125A	250A	400A	600A	800A	1200A	1600A
600 V AC	18KA	18KA	25KA	25KA	25KA	25KA	25KA
480 V AC	25KA	35KA	35KA	35KA	50KA	50KA	50KA
240 V AC	65KA	65KA	65KA	65KA	65KA	65KA	65KA
250 V DC <sup>1</sup>	30KA	30KA	30KA	30KA	30KA	30KA	30KA
500 V DC <sup>1 2</sup>	18KA	18KA	25KA	25KA	25KA	25KA	25KA



#### Heavy Mining Duty Interrupting Rating

Frame:

	EMK	FMK	JMK	LMK	MMK	NMK	PMK
Volts	125A	250A	400A	600A	800A	1200A	1600A
1000Y/577 V AC	10kA	10kA	14kA	14kA	25kA	25kA	25kA
600 V AC	50kA	25kA	50kA	50kA	50kA	50kA	50kA
480 V AC	100kA	100kA	100kA	100kA	65kA	65kA	65kA
500 V DC <sup>1 2</sup>	50kA	50kA	—	—	50kA	50kA	50kA

**Note:** Siemens Mine Duty Circuit Breakers are ideally suited, designed, and rigorously tested for mining duty application only. Contact Siemens for testing and certification before using in other applications.

#### Mining Breaker Replacement Chart

600V Classic	Series C <sup>®</sup>	E2	SENTRON Standard Mine Duty	1000V Classic	Series C <sup>®</sup>	E2	SENTRON Heavy Mine Duty
FMB HFMB	FDBM FDM HFDM (Mag. Only)	E2F	EM6	HFM		E2FM	EMK
	JDM	E2J	FM6		JDCM	E2JM	FMK
KAM KAMH	KDM	E2K	JM6	HKAM	KDCM	E2KM	JMK
LAM LAMH LCM LCMH	LDM	E2L	LM6	HLAM HLCM	LDCM	E2LM	LMK
MAM MAMH MCM MCMH			MM6	HMAM HMCM			MMK
NBM NBMH NCM NCMH		E2N	NM6	HNBM HNCM HNBMH HLCLM		E2NM	NMK
		E2R	PM6	HPBM		E2RM	PMK

<sup>1</sup> 250 V DC Ratings use the outside 2 poles of a 3P breaker. 500 V DC breakers are 3P wired in series.

<sup>2</sup> DC ratings do not apply to the mag only version of the 125A E frame or electronic trip units.

## Mining Service Molded Case Circuit Breakers

### Trailing Cable Fast Finder (Electronic Instantaneous Only Breakers)

Siemens Mining Breakers correspond exactly to all MSHA 30 CFR 75 trailing cable settings in just ONE frame and two trip units.

#### Trailing Cable Protection Setting per MSHA 30 CFR 75

Conductor Size	Ampere Insulated Conductor	Maximum Instantaneous Trip Setting	Siemens Frame	Trip Unit
14	15	50	JM	JMKT200X CA
12	20	75		
10	30	150		
8	50	200		
6	65	300		
4	85	500		
3	100	600		
2	115	800		
1	130	1000		
1/0	150	1250		
2/0	175	1500		JMKT400X CB
3/0	200	2000		
4/0	230	2500		
250	255	2500		
300	285	2500		
350	310	2500		
400	335	2500		
500	380	2500		

CA, CB indicate that all these trip settings are available on Siemens catalog numbers with that suffix.

#### Electronic Trip Instantaneous Only Breakers

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Setting										Instantaneous Only Complete Breaker	
		Low	2	3	4	5	6	7	8	9	High	600V Cat #	1000V Cat #
JM	200	<u>50</u>	<u>75</u>	<u>150</u>	<u>200</u>	<u>300</u>	<u>500</u>	<u>600</u>	<u>800</u>	<u>1000</u>	<u>1250</u>	JM6B200XCAW	JMKB200XCAW
	300	<u>200</u>	<u>300</u>	<u>500</u>	<u>600</u>	<u>800</u>	<u>1000</u>	<u>1250</u>	<u>1500</u>	<u>2000</u>	<u>2500</u>	JM6B300XCBW	JMKB300XCBW
	400 <sup>1</sup>	<u>200</u>	<u>300</u>	<u>500</u>	<u>600</u>	<u>800</u>	<u>1000</u>	<u>1250</u>	<u>1500</u>	<u>2000</u>	<u>2500</u>	JM6B400XCBW	JMKB400XCBW
LM	600	<u>200</u>	<u>300</u>	<u>500</u>	<u>600</u>	<u>800</u>	<u>1000</u>	<u>1250</u>	<u>1500</u>	<u>2000</u>	<u>2500</u>	LM6B600XCBW	LMKB600XCBW

<sup>1</sup> Trip unit will also work in 600A LM frame.

**Note:** Factory installed accessory: Add ...UN for a 120V AC UVR, and ...SN for a 120 V AC shunt trip.

MSHA 30 CFR 75.601-2 Pick up settings are highlighted and underlined.

# Mining Service Molded Case Circuit Breakers

## Trailing Cable Fast Finder (Magnetic Only Breakers)

Siemens Electromechanical Mining Breaker settings correspond exactly to all MSHA 30 CFR 75 trailing cable settings.

### Trailing Cable Protection Setting per MSHA 30 CFR 75

Conductor Size	Max Ampere 75°C Insulated Conductor	Maximum Instantaneous Trip Setting	Breaker Options (Any one has all exact pick-up settings within the range shown)
14	15	50	EM 50A
12	20	75	
10	30	150	
8	50	200	
6	65	300	EM 125A
4	85	500	FM 250A
3	100	600	JM 225A
2	115	800	JM 400A
1	130	1000	LM 400A
Jan-00	150	1250	FM 250A JM 225A JM 400A LM 600A MM 800A NM 1200A
Feb-00	175	1500	
Mar-00	200	2000	
Apr-00	230	2500	
250	255	2500	
300	285	2500	
350	310	2500	
400	335	2500	
500	380	2500	

Watermarks C1, C2 and C3 indicate that all these trip settings are available on mag. only catalog numbers with this suffix.

Siemens also offers the option to meet each magnetic only pick up setting in the smallest frame possible or an oversized frame.

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Setting								Magnetic Trip Only Complete Beaker	
		Low	2	3	4	5	6	7	High	600V Cat #	1000V Cat #
EM	50	50	75	100	150	200	—	—	—	EM6B050MC1	EMKB050MC1
	125	300	500	600	800	1000	—	—	—	EM6B125MC2	EMKB125MC2
FM	250	300	375	450	500	550	600	700	800	FM6B250MC2W <sup>2</sup>	FMKB250MC2W <sup>2</sup>
	250	1000	1250	1350	1500	1800	2000	2250	2500	FM6B250MC3W	FMKB250MC3W
JM	225	350	400	500	600	700	800	900	1000	JM6B225MC2W	JMKB225MC2W
	400	1100	1250	1500	1650	1800	2000	2250	2500	JM6B400MC3W	JMKB400MC3W
LM	400 <sup>1</sup>	300	400	500	600	700	800	900	1000	LM6B400MC2W	LMKB400MC2W
	600	1100	1250	1500	1650	1800	2000	2250	2500	LM6B600MC3W	LMKB600MC3W
MM	800	1250	1500	1650	1800	1900	2000	2250	2500	MM6B800MC3W	MMKB800MC3W
NM	1200	1250	1500	1650	1800	1900	2000	2250	2500	NM6B1200MC3W	NMKB1200MC3W

<sup>1</sup> TU also to work in 400A frame.

<sup>2</sup> The 1000A setting is part of the C3 (not C2) range for this trip unit only.

**Note:** Factory installed accessory: Add ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.

MSHA 30 CFR 75.601-2 Pick up settings are highlighted and underlined.



# Mining Service Molded Case Circuit Breakers

## Trailing Cable Fast Finder

### Electronic Trip Long Time and Instantaneous Only Breakers

Breaker Type	Maximum Continuous Amperes <sup>1</sup>	Nominal AC Adjustable Trip Setting										Complete Breaker with LI Trip Unit	
		Low	2	3	4	5	6	7	8	9	High	600V Cat #	1000V Cat #
JM-E	100 125 150 175 200	50	75	150	250	300	500	600	800	1000	1250	JM6B200ECAW	JMKB200ECAW
JM-E	150 175 200 225 300	200	300	500	600	800	1000	1250	1500	2000	2500	JM6B300ECBW <sup>2</sup>	JMKB300ECBW <sup>2</sup>
JM-E	200 225 300 350 400	200	300	500	600	800	1000	1250	1500	2000	2500	JM6B400ECBW <sup>2</sup>	JMKB400ECBW <sup>2</sup>
LM-E	300 350 400 500 600	200	300	500	600	800	1000	1250	1500	2000	2500	LM6B600ECBW	LMKB600ECBW

<sup>1</sup> In addition to adjustable trailing cable settings, Siemens now offers an independently adjustable amperage rating in the same unit.

A sealable, clear plastic cover gives the option to limit access once the amperage rating is set. The trailing cable pick settings remain field adjustable.

<sup>2</sup> TU will also work in the LM frame.

### Thermal Magnetic Breakers

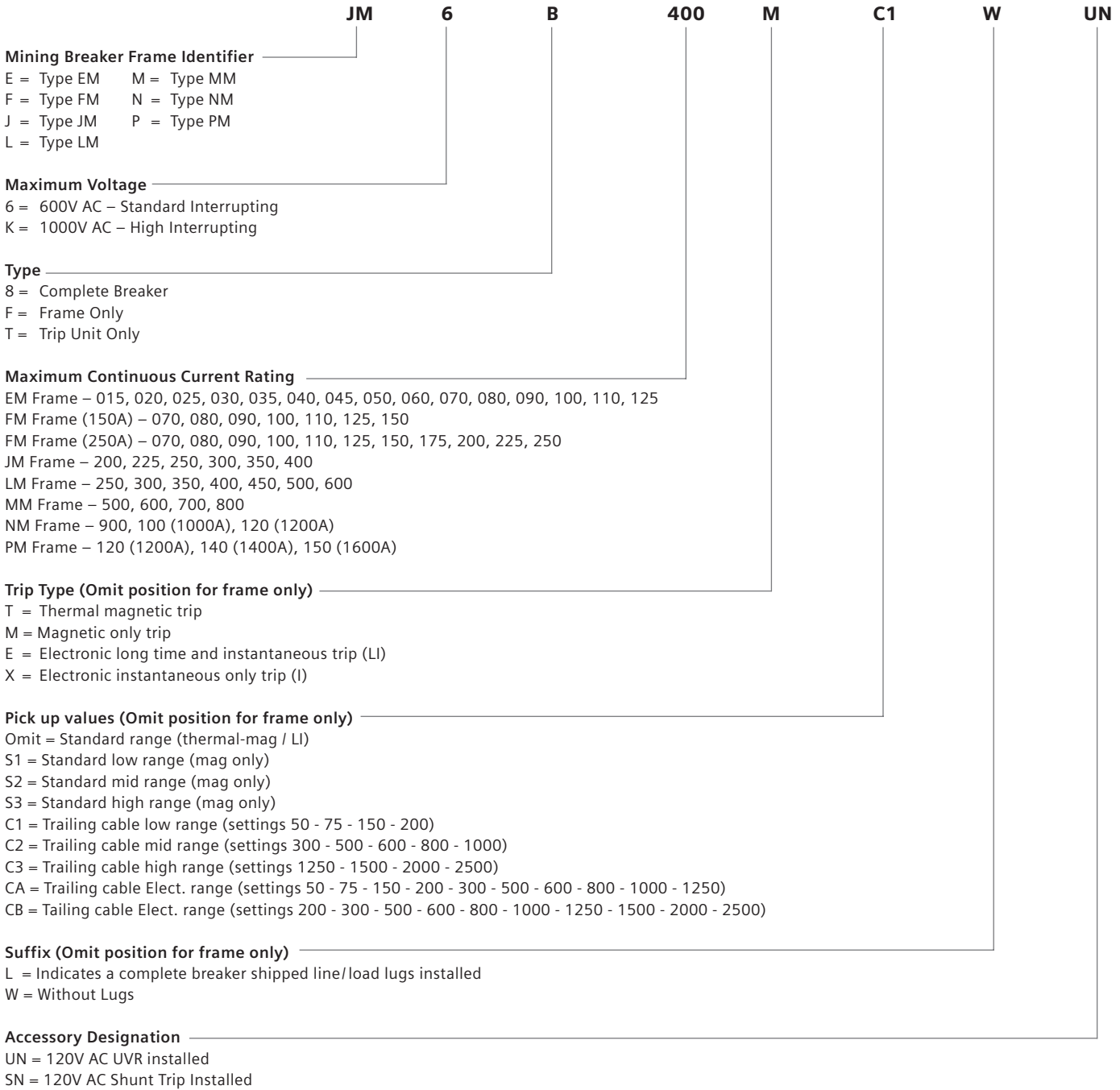
Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Setting										Complete Breaker with Thermal Magnetic Trip Unit	
		Low	2	3	4	5	6	7	High	600V Cat #	1000V Cat #		
FM	70	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B070TC2W	FMKB070TC2W		
FM	90	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B090TC2W	FMKB090TC2W		
FM	100	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B100TC2W	FMKB100TC2W		
FM	125	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B125TC2W	FMKB125TC2W		
FM	150	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B150TC2W	FMKB150TC2W		
FM	150	<u>1000</u>	<u>1250</u>	1350	<u>1500</u>	1800	<u>2000</u>	2250	<u>2500</u>	FM6B150TC3W	FMKB150TC3W		
FM	175	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B175TC2W	FMKB175TC2W		
FM	175	<u>1000</u>	<u>1250</u>	1350	<u>1500</u>	1800	<u>2000</u>	2250	<u>2500</u>	FM6B175TC3W	FMKB175TC3W		
FM	200	<u>1000</u>	<u>1250</u>	1350	<u>1500</u>	1800	<u>2000</u>	2250	<u>2500</u>	FM6B200TC3W	FMKB200TC3W		
FM	225	<u>300</u>	375	450	<u>500</u>	550	<u>600</u>	700	<u>800</u>	FM6B225TC2W	FMKB225TC2W		
FM	225	<u>1000</u>	<u>1250</u>	1350	<u>1500</u>	1800	<u>2000</u>	2250	<u>2500</u>	FM6B225TC3W	FMKB225TC3W		
FM	250	<u>1000</u>	<u>1250</u>	1350	<u>1500</u>	1800	<u>2000</u>	2250	<u>2500</u>	FM6B250TC3W	FMKB250TC3W		
JM	200	350	400	500	<u>600</u>	700	<u>800</u>	900	<u>1000</u>	JM6B200TC2W	JMKB200TC2W		
JM	200	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	JM6B200TC3W	JMKB200TC3W		
JM	225	350	400	500	<u>600</u>	700	<u>800</u>	900	<u>1000</u>	JM6B225TC2W	JMKB225TC2W		
JM	225	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	JM6B225TC3W	JMKB225TC3W		
JM	250	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	JM6B250TC3W	JMKB250TC3W		
JM	300	350	400	500	<u>600</u>	700	<u>800</u>	900	<u>1000</u>	JM6B300TC2W	JMKB300TC2W		
JM	300	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	JM6B300TC3W	JMKB300TC3W		
JM	350	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	JM6B350TC3W	JMKB350TC3W		
JM	400	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	JM6B400TC3W	JMKB400TC3W		
LM	300	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	LM6B300TC3W	LMKB300TC3W		
LM	350	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	LM6B350TC3W	LMKB350TC3W		
LM	400	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	LM6B400TC3W	LMKB400TC3W		
LM	450	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	LM6B450TC3W	LMKB450TC3W		
LM	500	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	LM6B500TC3W	LMKB500TC3W		
LM	600	1100	<u>1250</u>	<u>1500</u>	<u>1650</u>	1800	<u>2000</u>	2250	<u>2500</u>	LM6B600TC3W	LMKB600TC3W		
MM	500	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	MM6B500TC3W	MMKB500TC3W		
MM	600	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	MM6B600TC3W	MMKB600TC3W		
MM	700	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	MM6B700TC3W	MMKB700TC3W		
MM	800	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	MM6B800TC3W	MMKB800TC3W		
NM	900	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	NM6B900TC3W	NMKB900TC3W		
NM	1000	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	NM6B100TC3W	NMKB100TC3W		
NM	1200	<u>1250</u>	<u>1500</u>	1650	1800	1900	<u>2000</u>	2250	<u>2500</u>	NM6B120TC3W	NMKB120TC3W		

Factory installed accessory: Add ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.

MSHA 30 CFR 75.601-2 Pick up settings are highlighted and underlined.

# Mining Service Molded Case Circuit Breakers

## Catalog Numbering System





## Mining Service Molded Case Circuit Breakers

### EM Frame

#### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			Volts DC
	Volts AC (50/60 Hz)		1000Y/577	
	480	600		250
EM6	25,000	18,000	—	30,000
EMK	100,000	50,000	10,000	30,000



#### Magnetic Only Circuit Breakers with Non-Interchangeable Trip Unit

Maximum Continuous Ampere Rating at 40C	Pick Up	600 V AC Maximum	1000Y/577 V AC Maximum
		25 kA at 480 V AC 3 Pole	10 kA at 1000 V AC 3 Pole
		Catalog Numbers	Catalog Numbers
3	Oct - 35	EM6B003MS2L	—
5	16 - 54	EM6B005MS2L	—
10	30 - 100	EM6B010MS2L	—
25	40 - 150	EM6B025MS1L	—
25	55 - 180	EM6B025MS2L	—
30	80 - 270	EM6B030MS2L	—
40	115 - 375	EM6B040MS2L	—
50	180 - 600	EM6B050MS2L	EMKB050MS2L
50	<b>50 - 200</b>	<b>EM6B050MC1L</b>	<b>EMKB050MC1L</b>
100	150 - 550	EM6B100MS1L	EM6B100MS1L
100	315 - 1000	EM6B100MS2L	EMKB100MS2L
125	<b>300 - 1000</b>	<b>EM6B125MC2L</b>	<b>EMKB125MC2L</b>
125	500 - 1250	EM6B125MS2L	EMKB125MS2L

#### Thermal Magnetic Circuit Breakers with Non-Interchangeable Trip Unit

Maximum Continuous Ampere Rating at 40C	600V AC Maximum	1000Y/577V AC Maximum
	500V DC, 25 kA at 480V AC 3 Pole	10 kA at 1000V AC 3 Pole
	Catalog Numbers	Catalog Numbers
15	EM6B015TL	—
20	EM6B020TL	—
25	EM6B025TL	—
30	EM6B030TL	—
35	EM6B035TL	—
40	EM6B040TL	—
45	EM6B045TL	—
50	EM6B050TL	EMKB050TL
60	EM6B060TL	EMKB060TL
70	EM6B070TL	EMKB070TL
80	EM6B080TL	EMKB080TL
90	EM6B090TL	EMKB090TL
100	EM6B100TL	EMKB100TL
125	EM6B125TL	EMKB125TL

**Note:** E Frame breakers are shipped complete with line and load terminals.

Trip units in BOLD TYPE include all exact TRAILING CABLE setting within their trip range (C1, C2, C3)

Factory installed accessory: Add suffix ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip

## Mining Service Molded Case Circuit Breakers

### FM Frame

#### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			Volts DC
	Volts AC (50/60 Hz)			
	480	600	1000Y/577	250
FM6	35,000	18,000	—	30,000
FMK	100,000	25,000	10,000	30,000



#### Circuit Breakers with Interchangeable Magnetic Only Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 10 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
150	FMKT150MS1	400 - 820	FM6F250	FM6B150MS1W	FMKF150 <sup>1</sup>	FMKB150MS1W
150	FMKT150MS2	800 - 1500		FM6B150MS2W		FMKB150MS2W
150	FMKT150MS3	1100 - 2500		FM6B150MS3W		FMKB150MS3W
250	<b>FMKT250MC2</b>	<b>300 - 800</b>	FM6F250	FM6B250MC2W	FMKF250	FMKB250MC2W
250	FMKT250MC3	1100 - 2500		FM6B250MC3W		FMKB250MC3W

#### Circuit Breakers with Interchangeable Thermal Magnetic Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 10 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
70	<b>FMKT070TC2</b>	<b>300 - 800</b>	FM6F250	FM6B070TC2W	FMK150 <sup>1</sup>	FMKB070TC2W
70	FMKT070T	600 - 900		FM6B070TW		FMKB070TW
80	FMKT080T	600 - 900		FM6B080TW		FMKB080TW
90	<b>FMKT090TC2</b>	<b>300 - 800</b>		FM6B090TC2W		FMKB090TC2W
90	FMKT090T	600 - 900		FM6B090TW		FMKB090TW
100	<b>FMKT100TC2</b>	<b>300 - 800</b>		FM6B100TC2W		FMKB100TC2W
100	FMKT100T	700 - 1200		FM6B100TW		FMKB100TW
125	<b>FMKT125TC2</b>	<b>300 - 800</b>		FM6B125TC2W		FMKB125TC2W
125	FMKT125T	800 - 1500		FM6B125TW		FMKB125TW
150	<b>FMKT150TC2</b>	<b>300 - 800</b>		FM6B150TC2W		FMKB150TC2W
150	<b>FMKT150TC3</b>	<b>1000 - 2500</b>	FM6B150TC3W	FMKB150TC3W		
150	FMKT150T	800 - 1500	FM6B150TW	FMKB150TW		
175	<b>FMKT175TC2</b>	<b>300 - 800</b>	FM6F250	FM6B175TC2W	FMK250	FMKB175TC2W
175	<b>FMKT175TC3</b>	<b>1000 - 2500</b>		FM6B175TC3W		FMKB175TC3W
175	FMKT175T	900 - 2000		FM6B175TW		FMKB175TW
200	<b>FMKT200TC3</b>	<b>1000 - 2500</b>		FM6B200TC3W		FMKB200TC3W
200	FMKT200T	900 - 2000		FM6B200TW		FMKB200TW
225	<b>FMKT225TC2</b>	<b>300 - 800</b>		FM6B225TC2W		FMKB225TC2W
225	<b>FMKT225TC3</b>	<b>1000 - 2500</b>		FM6B225TC3W		FMKB225TC3W
225	FMKT225T	1100 - 2500		FM6B225TW		FMKB225TW
250	<b>FMKT250TC3</b>	<b>1000 - 2500</b>		FM6B250TC3W		FMKB250TC3W
250	FMKT250T	1100 - 2500		FM6B250TW		FMKB250TW

<sup>1</sup> Trip units from 70 - 150A will also work in the 1000V 250A frame (FMK250).

Trip units in **BOLD TYPE** include all exact TRAILING CABLE settings within their trip range (C1, C2, C3).

Factory installed accessory: Add suffix ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.

# Mining Service Molded Case Circuit Breakers

## JM Frame



### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			Volts DC
	Volts AC (50/60 Hz)			
	480	600	1000Y/577	250
JM6	35,000	25,000	—	30,000
JMK	100,000	50,000	14,000	—

### Circuit Breakers with Interchangeable Magnetic Only Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 14 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
225	JMKT225MC2	<u>350 - 1000</u>	JM6F400	JM6B225MC2W	JMKF400	JMKB225MC2W
300	JMKT300MC2	<u>600 - 1000</u>		JM6B300MC2W		JMKB300MC2W
400	JMKT400MC2	<u>600 - 1000</u>		JM6B400MC2W		JMKB400MC2W
400	JMKT400MC3	<u>1100 - 2500</u>		JM6B400MC3W		JMKB400MC3W
400	JMKT400MS3	2000 - 4000		JM6B400MS3W		JMKB300MS3W

### Circuit Breakers with Interchangeable Thermal Magnetic Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 14 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
200	JMKT200TC2	<u>350 - 1000</u>	JM6F400	JM6B200TC2W	JMKF400	JMKB200TC2W
200	JMKT200TC3	<u>1100 - 2500</u>		JM6B200TC3W		JMKB200TC3W
225	JMKT225TC2	<u>350 - 1000</u>		JM6B225TC2W		JMKB225TC2W
225	JMKT225TC3	<u>1100 - 2500</u>		JM6B225TC3W		JMKB225TC3W
250	JMKT250TC3	<u>1100 - 2500</u>		JM6B250TC3W		JMKB250TC3W
300	JMKT300TC2	<u>350 - 1000</u>		JM6B300TC2W		JMKB300TC2W
300	JMKT300TC3	<u>1100 - 2500</u>		JM6B300TC3W		JMKB300TC3W
350	JMKT350TC3	<u>1100 - 2500</u>		JM6B350TC3W		JMKB350TC3W
350	JMKT350T	2000 - 4000		JM6B350TW		JMKB350TW
400	JMKT400TC3	<u>1100 - 2500</u>		JM6B400TC3W		JMKB400TC3W
400	JMKT400T	2000 - 4000		JM6B400TW		JMKB400TW

## Mining Service Molded Case Circuit Breakers

JM Frame (continued)

### Circuit Breakers with Interchangeable Electronic Trip Unit, Instantaneous Only<sup>1</sup>

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 14 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
200	JMKT200XCA	<u>50 - 1250</u>	JM6F400	JM6B200XCAW	JMKF400	JMKB200XCAW
300	JMKT300XCB	<u>200 - 2500</u>		JM6B300XCBW		JMKB300XCBW
400	JMKT400XCB	<u>200 - 2500</u>		JM6B400XCBW		JMKB400XCBW

### Circuit Breakers with Interchangeable Electronic Trip Unit, Long / Instantaneous Only <sup>1</sup>

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 14 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
100	JMKT200ECA	<u>50 - 1250</u>	JM6F400	JM6B200ECAW	JMKF400	JMKB200ECAW
125						
150						
175	JMKT300ECB	<u>200 - 2500</u>	JM6F400	JM6B300ECBW	JMKF400	JMKB300ECBW
200 <sup>1</sup>						
150						
175	JMKT400ECB	<u>200 - 2500</u>	JM6F400	JM6B400ECBW	JMKF400	JMKB400ECBW
200						
225						
300 <sup>1</sup>				JM6B200EW		
200						
225						
300				JM6B300EW		
350						
400 <sup>1</sup>						
200 <sup>2</sup>		2		JM6B400EW		
300 <sup>2</sup>						
400 <sup>2</sup>						

<sup>1</sup> In addition to adjustable trailing cable settings, Siemens offers an independently adjustable amperage rating in the same unit.

<sup>2</sup> Non-interchangeable trip breaker. Ampere rating is adjustable from 20% to 100% without a rating plug.

A sealable clear plastic cover gives the option to limit access once the amperage rating is set. The trailing cable pick setting remains field adjustable.

Trip units in **BOLD TYPE** include all exact TRAILING CABLE settings within their trip range (C1, C2, C3).

Factory installed accessory: Add suffix ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.

## Mining Service Molded Case Circuit Breakers

### LM Frame

#### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			
	Volts AC (50/60 Hz)			Volts DC
	480	600	1000Y/577	250
LM6	35,000	25,000	—	30,000
LMK	100,000	50,000	14,000	—



#### Circuit Breakers with Interchangeable Magnetic Only Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 1 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
300	JMKT300MC2	<u>350 - 1000</u>	LM6F600	LM6B300MC2W	LMKF600	LMKB300MC2W
400	JMKT400MC2	<u>600 - 1000</u>		LM6B400MC2W		LMKB400MC2W
600	LMKT600MC3	<u>1100 - 2500</u>		LM6B600MC3W		LMKB600MC3W
600	LMKT600MS1	2000 - 4000		LM6B600MS1W		LMKB600MS1W
600	LMKT600MS3	3000 - 6000		LM6B600MS3W		LMKB600MS3W

#### Circuit Breakers with Interchangeable Thermal Magnetic Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 14 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
300	JMKT300TC3	<u>1100 - 2500</u>	LM6F600	LM6B300TC3W	LMKF600	LMKB300TC3W
350	JMKT350TC3	<u>1100 - 2500</u>		LM6B350TC3W		LMKB350TC3W
350	JMKT350T	2000 - 4000		LM6B350TW		LMKB350TW
400	JMKT400TC3	<u>1100 - 2500</u>		LM6B400TC3W		LMKB400TC3W
400	JMKT400T	2000 - 4000		LM6B400TW		LMKB400TW
450	LMKT450TC3	<u>1100 - 2500</u>		LM6B450TC3W		LMKB450TC3W
450	LMKT450T	2000 - 4000		LM6B450TW		LMKB450TW
500	LMKT500TC3	<u>1100 - 2500</u>		LM6B500TC3W		LMKB500TC3W
500	LMKT500T	3000 - 6000		LM6B500TW		LMKB500TW
600	LMKT600TC3	<u>1100 - 2500</u>		LM6B600TC3W		LMKB600TC3W
600	LMKT600T	3000 - 6000		LM6B600TW		LMKB600TW
600	LMKT600TC3	<u>1100 - 2500</u>		LM6B600TC3W		LMKB600TC3W

## Mining Service Molded Case Circuit Breakers

LM Frame (continued)

### Circuit Breakers with Interchangeable Electronic Trip Unit, Instantaneous Only <sup>1</sup>

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 10 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
400	JMKT400XCB	<u>200 - 2500</u>	LM6F600	LM6B400XCBW	LMKF600	LMKB400XCBW
600	LMKT600XCB	<u>200 - 2500</u>		LM6B600XCBW		LMKB600XCBW

### Circuit Breakers with Interchangeable Electronic Trip Unit, Instantaneous Only<sup>1</sup>

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 35 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 10 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
200	JMKT400ECB	<u>200 - 2500</u>		LM6B400ECBW		LMKB400ECBW
225						
300						
350						
400 <sup>1</sup>	LMKT600ECB	<u>200 - 2500</u>	LM6F600	LM6B600ECBW	LMKF600	LMKB600ECBW
300						
350						
400						
500						
600 <sup>1</sup>		2		LM6B300EW		—
300 <sup>2</sup>						
400 <sup>2</sup>						
500 <sup>2</sup>						
600 <sup>2</sup>		2		LM6B600EW		

<sup>1</sup> In addition to adjustable trailing cable settings, Siemens offers an independently adjustable amperage rating in the same unit.

<sup>2</sup> Non-interchangeable trip breaker. Ampere rating is adjustable from 20% to 100% without a rating plug.

A sealable clear plastic cover gives the option to limit access once the amperage rating is set. The trailing cable pick setting remains field adjustable.

Trip units in **BOLD TYPE** include all exact TRAILING CABLE settings within their trip range (C1, C2, C3).

## Mining Service Molded Case Circuit Breakers

### MM Frame

#### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			
	Volts AC (50/60 Hz)			Volts DC
	480	600	1000Y/577	250
MM6	50,000	25,000	—	30,000
MMK	65,000	50,000	25,000	30,000



#### Circuit Breakers with Interchangeable Magnet Only Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 25 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
800	<b>MMKT800MC3</b>	<b>1250 - 2500</b>	MM6F800	MM6B800MC3W	MMKF800	MMKB800MC3W
800	MMKT800MS1	3000 - 6000		MM6B800MS1W		MMKB800MS1W
800	MMKT800MS2	4000 - 8000		MM6B800MS2W		MMKB800MS2W
800	MMKT800MS3	5000 - 10000		MM6B800MS3W		MMKB800MS3W

#### Circuit Breakers with Interchangeable Thermal Magnet Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 25 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
500	<b>MMKT500TC3</b>	<b>1250 - 2500</b>	MM6F800	MM6B500TC3W	MMKF800	MMKB500TC3W
500	MMKT500T	3000 - 6000		MM6B500TW		MMKB500TW
600	<b>MMKT600TC3</b>	<b>1250 - 2500</b>		MM6B600TC3W		MMKB600TC3W
600	MMKT600T	3000 - 6000		MM6B600TW		MMKB600TW
700	<b>MMKT700TC3</b>	<b>1250 - 2500</b>		MM6B700TC3W		MMKB700TC3W
700	MMKT700T	4000 - 8000		MM6B700TW		MMKB700TW
800	<b>MMKT800TC3</b>	<b>1250 - 2500</b>		MM6B800TC3W		MMKB800TC3W
800	MMKT800T	4000 - 8000		MM6B800TW		MMKB800TW
800	<b>MMKT800TC4</b>	<b>2500 - 5000</b>		MM6B800TC4W		MMKB800TC4W

#### Circuit Breakers with Interchangeable Electronic Trip Unit, Long/Instantaneous

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 25 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
600 <sup>1</sup>	—	2	—	MM6B600EW	—	—
700 <sup>1</sup>	—	2	—	MM6B700EW	—	—
800 <sup>1</sup>	—	2	—	MM6B800EW	—	—

<sup>1</sup> Long time rating is adjustable from 20% to 100% of value shown.

<sup>2</sup> Inst. setting is 2 to 40 times the selected amperage rating (overrides at 10x frame rating).

Trip units in **BOLD TYPE** include all exact TRAILING CABLE settings within their trip range (C1, C2, C3).

Factory installed accessory: Add suffix ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.

## Mining Service Molded Case Circuit Breakers NM Frame



### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			Volts DC
	Volts AC (50/60 Hz)			
	480	600	1000Y/577	250
NM6	50,000	25,000	—	30,000
NMK	65,000	50,000	25,000	30,000

### Circuit Breakers with Interchangeable Magnetic Only Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 25 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
1200	<b>NMKT120MC3</b>	<b>1250 - 2500</b>	NM6F120	NM6B120MC3W	NMKF120	NMKB120MC3W
1200	NMKT120MC4	2500 - 5000		NM6B120MC4W		NMKB120MC4W

### Circuit Breakers with Interchangeable Thermal Magnetic Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 25 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
900	<b>NMKT900TC3</b>	<b>1250 - 2500</b>	NM6F120	NM6B900TC3W	NMKF120	NMKB900TC3W
900	NMKT900T	5000 - 10000		NM6B900TW		NMKB900TW
1000	<b>NMKT100TC3</b>	<b>1250 - 2500</b>		NM6B100TC3W		NMKB100TC3W
1000	NMKT100T	5000 - 10000		NM6B100TW		NMKB100TW
1200	<b>NMKT120TC3</b>	<b>1250 - 2500</b>		NM6B120TC3W		NMKB120TC3W
1200	NMKT120T	5000 - 10000		NM6B120TW		NMKB120TW

### Circuit Breakers with Interchangeable Electronic Trip Unit, Long / Instantaneous Only

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum 25 kA at 1000V AC 3 pole	
			Catalog Numbers		Catalog Numbers	
			Frame	Complete Breaker	Frame	Complete Breaker
800 <sup>1</sup>		2		NM6B800EW		
1000 <sup>1</sup>		2		NM6B100EW		
1200 <sup>1</sup>		2		NM6B120EW		

<sup>1</sup> Long time rating is adjustable from 20% to 100% if value shown.

<sup>2</sup> Instantaneous setting is 2 to 40 times the selected amperage rating (overrides at 10x frame rating).

Trip units in **BOLD TYPE** include all exact TRAILING CABLE settings within their trip range (C1, C2, C3).

Factory installed accessory: Add suffix ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.



# Mining Service Molded Case Circuit Breakers

## PM Frame<sup>1</sup>

### Interrupting Capacities

Circuit Breaker Type	Interrupting Capacity (Symmetrical Amperes)			Volts DC
	Volts AC (50/60 Hz)			
	480	600	1000Y/577	
PM6	50,000	25,000	—	30,000
PMK	65,000	50,000	25,000	30,000



### Circuit Breakers with Interchangeable Thermal-Magnetic Trip Unit

Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum, 500V DC 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum, 500V DC 25 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
1400	PMKT140T	10,000	PM6F160	PM6B140TW	PMKF160	PMKB140TW
1600	PMKT160T	10,000		PM6B160TW		PMKB160TW

### Circuit Breakers with Interchangeable Electronic Trip Unit, Long / Instantaneous

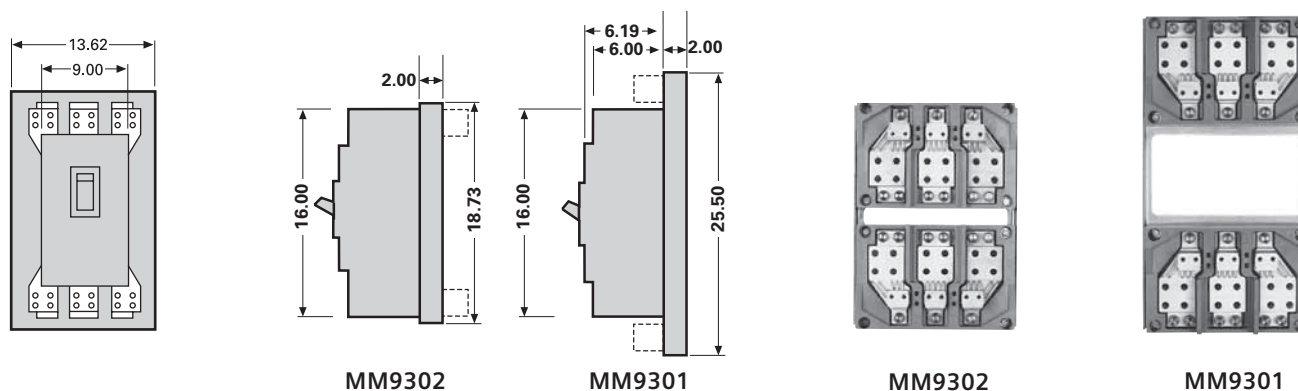
Max Cont. Ampere Rating at 40 C	Trip Unit	Trip Range	600V AC Maximum 50 kA at 480V AC 3 Pole		1000Y/577V AC Maximum 25 kA at 1000V AC 3 pole	
			Frame	Complete Breaker	Frame	Complete Breaker
1400 <sup>1</sup>		2		PM6B140EW		
1600 <sup>1</sup>		2		PM6B160EW		

<sup>1</sup> Factory installed accessory: Add suffix ...UN for a 120V AC UVR, and ...SN for a 120V AC shunt trip.

<sup>2</sup> Long time rating is adjustable from 20% to 100% if value shown.

<sup>3</sup> Instantaneous setting is 2 to 40 times the selected amperage rating (overrides at 10x frame rating). Contact Siemens for information on the TD 2000A, 2500A, and 3200A frames.

### Mounting Block (One required for each frame or each complete breaker ordered).



Maximum Continuous Amperage Rating at 40 C	Mounting Block	Maximum Voltage
1600	MM9301 or MM9302	1000V

# Mining Service Molded Case Circuit Breakers

## Accessories

Siemens offers a full line of internal accessories, including auxiliary and alarm switches, shunt trips and undervoltage releases. Siemens mining duty UVRs are “kiss free,” assuring that if an attempt is made to close the circuit breaker with the UVR de-energized, the mechanism will trip open before the contacts can close, and the load will not be energized, even briefly.

Siemens offers a complete line of mechanical (wire compression via a binding screw) and compression lugs for its mining circuit breakers. Mechanical lugs are available in aluminum and copper bodies.

In addition to lugs, we offer plug-in accessories, a variety of handle operators, padlocking attachments, interphase barriers and other accessories for every application. Many of these are cataloged on the following pages. Consult Siemens product catalog, the SPEEDFAX™ or your Siemens representative for accessories not listed here.



EM family internal accessories mount to the side of the breaker and add 1" to its width



FD through PD family internal accessories are housed in robust plastic cases and mount inside the circuit breaker



Plug-in Breaker



Mechanical Lug



Rotary Handle



Flange Mounted Handle



Compression Lug



Interphase Barriers Installed

## Mining Service Molded Case Circuit Breakers

### EM Frame Internal Accessories

#### Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch and 1 Alarm Switch	1 Shunt Trip and 1 Auxiliary Switch	1 Shunt Trip and 1 Alarm Switch	1 Shunt Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
24V		S17ED60	—	—	—	—
48V		S18ED60	—	—	—	—
120V		S01ED60	S01ED62A	S01ED62AB	S01ED62B	S01ED62AA
208V		—	S02ED62A	S02ED62AB	S02ED62B	S02ED62AA
240V		S03ED60	S03ED62A	S03ED62AB	S03ED62B	S03ED62AA
277V		S15ED60	S15ED64A	S15ED64AB	S15ED64B	—
480V		S04ED60	S04ED64A	S04ED64AB	S04ED64B	—
	12V	S16ED60	—	—	—	—
	24V	S07ED60	S07ED62A	S07ED62AB	S07ED62B	S07ED62AA
	48V	S09ED60	S09ED62A	S09ED62AB	S09ED62B	S09ED62AA
	125V	S11ED60	S11ED62A	S11ED62AB	S11ED62B	S11ED62AA
	250V	S13ED60	S13ED62A	S13ED62AB	S13ED62B	S13ED62AA

#### Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120V		U01EM60	U01EM62A
	125V	U10EM60	U10EM62A

UVRs are specifically designed for mining application. Contact Siemens for additional standard industrial UVR voltages.

#### Auxiliary Switch Combinations

Maximum Voltage		1 Auxiliary Switch	1 Alarm Switch and 1 Auxiliary Switch	2 Auxiliary Switches	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number
240V	250V	A01ED62	A01ED62B	A02ED62	A02ED62B
480V		A01ED64	A01ED64B	—	—

#### Alarm Switch Only

Control Voltage		1 Alarm Switch
AC	DC	Catalog Number
120V		B00ED62
480V	250V	B00ED64

**Note:** EM frame internal accessories are mounted to the side of the breaker, and require no cover removal.

## Mining Service Molded Case Circuit Breakers

### FM Frame Internal Accessories

#### Shunt Trip Combinations

Control Voltage		1 Shunt Trip
AC	DC	Catalog Number
24V		S17FD60
120V		S01FD60
240V		S03FD60
277V		S15FD60
480V		S04FD60
600V		S06FD60
	12V	S16FD60
	24V	S07FD60
	48V	S09FD60
	125V	S11FD60
	250V	S13FD60

#### Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120V		U01FM60	W01FM64
	125V	U10FM60	W10FM64

UVRs are specifically designed for mining application. Contact Siemens for additional standard industrial UVR voltages.

#### Auxiliary Switch Combinations

Maximum Voltage		1 Auxiliary Switch	1 Alarm Switch and 1 Auxiliary Switch	2 Auxiliary Switches	Gold-Plated Contacts For PLC Use
AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number
240V	250V	A01FD62	C01FD62	A02FD62	
480V		A01FD64	C01FD64	A02FD64	
	12V				A01FDLV

#### Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
480V	250V	B00FD64	C01FD64

## Mining Service Molded Case Circuit Breakers

### JM and LM Frame Internal Accessories

#### Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
24V		S17JLD6	—
48V		S18JLD6	—
120V		S01JLD6	S01JLD62A
240V		S03JLD6	S03JLD62A
277V		S15JLD6	S15JLD64A
480V		S04JLD6	—
	12V	S16JLD6	S16JLD62A
	24V	S07JLD6	S07JLD62A
	48V	S09JLD6	S09JLD62A
	125V	S11JLD6	S11JLD62A
	250V	S13JLD6	S13JLD62A

#### Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120V		U01JLM6	U01JLM62A
	125V	U10JLM6	U10JLM62A

UVRs are specifically designed for mining application. Contact Siemens for additional standard industrial UVR voltages.

#### Auxiliary Switch Combinations

Maximum Voltage		1 Form C Auxiliary Switch	2 Form C Auxiliary Switch	Gold-Plated Contacts for PLC Use
AC	DC	Catalog Number	Catalog Number	Catalog Number
480V	250V	A01JLD64	A02JLD64	
	12V			A01JDLV

#### Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
480V	250V	B01JLD64	A01JLD64B

## Mining Service Molded Case Circuit Breakers

MM, NM and PM Frame Internal Accessories

### Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120V		S01MN6	S01MN64A
208V		S02MN6	S02MN64A
240V		S03MN6	S03MN64A
277V		S15MN6	S15MN64A
480V		S04MN6	S04MN64A
600V		S06MN6	—
	12V	S16MN6	S16MN64A
	24V	S07MN6	S07MN64A
	48V	S09MN6	—
	125V	S11MN6	S11MN64A
	250V	S13MN6	S13MN64A

### Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120V		U01MNM6	U01MNM64A
	125V	U11MNM6	U11MNM64A

UVRs are specifically designed for mining application. Contact Siemens for additional standard industrial UVR voltages.

### Auxiliary Switch Combinations

Maximum Voltage		1 From C Auxiliary Switch	2 From C Auxiliary Switch	Gold-Plated Contacts for PLC Use
AC	DC	Catalog Number	Catalog Number	Catalog Number
480V	250V	A01MN64	A02MN64	
	12V			A01MNVL

### Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480V	250V	B00MN64	A01MN64B	A02MN64B

## Mining Service Molded Case Circuit Breakers

### Connection Accessories

#### EM6 Frame Mechanical Lugs (600V)

Amp Rating	Location	Catalog Number	Wire Range
15 - 25A	Line/ Load	SA1E025	#14 - #10 CU #12 - #10 AL
30 - 100A	Line/ Load	LN1E100	#10 - 1/0 CU/AL
110 - 125A	Line/ Load	TA1E6125	#3 - 3/0 CU #1 - 2/0 AL
30 - 125A (CU Body)	Line/ Load	TC1ED6150	#10 - 1/0 CU Only

#### EMK Frame Mechanical Lugs (1000V)

Amp Rating	Location	Catalog Number	Wire Range
15 - 25A	Line/ Load	SA1E025	#14 - #10 CU #12 - #10 AL
30 - 100A	Line	LN1E100	#10 - 1/0 CU/AL
30 - 60A	Load	LD1E060	#10 - #4 CU/AL
70 - 100A	Load	LD1E100	#6 - 1/0 CU/AL
110 - 125A	Line/ Load	TA1E6125	#3 - 3/0 CU #1 - 2/0 AL
30 - 125A (CU Body)	Line/ Load	TC1ED6150	#10 - 1/0 CU Only

#### EM6 and EMK Compression Lugs

Amp Rating	Location	Catalog Number	Lugs Per Kit	Wire Range
15 - 125A	Line/ Load	CCE125	1	#14 - #2/0

#### FM Frame Mechanical Lugs

Amp Rating	Location	Catalog Number	Wire Range
250A	Line / Load	TA1FD350A	#6 - 350 Kcmil CU #4 - 350 Kcmil AL
250A	Line / Load	TC1FD350	#6 - 350 Kcmil CU

#### FM Frame Compression Lugs

Amp Rating	Location	Catalog Number	Lugs Per Kit	Wire Range
250A	Line/ Load	CCF250	1	#6 - 350 Kcmil CU / AL

## Mining Service Molded Case Circuit Breakers

### Connection Accessories (continued)

#### JM / LM Frame Mechanical Lugs

Amp Rating	Catalog Number	Cables Per Lug	Wire Range
400-600A	TA2J6500	1,2 2	#3/0 - 500 Kcmil CU #4/0 - 500 Kcmil AL #250 - 500 Kcmil AL
400-600A	TA1L6750	1 1	#500 - 750 Kcmil AL #500 - 600 Kcmil CU
400-600A	TC1J6600	1	#3/0 - 600 Kcmil CU
400-600A	TC2J6500	1,2	#3/0 - 500 Kcmil CU

#### JM / LM Frame Compression Lugs

Amp Rating	Catalog Number	Cables Per Lug	Lugs Per Kit	Wire Range
400-600A	CCL600	1	1	#1/0 - 500 Kcmil CU / AL

#### MM / NM Frame Mechanical Lugs

Amp Rating	Catalog Number	Cables Per Lug	Lugs Per kit	Wire Range
800-1200A	TA2K500	1-2	1	# 1 - 500 kcmil CU/AL
800-1200A	TA3K500	1-3	1	1/0 - 500 kcmil CU/AL
800-1200A	TC2K500	1-2	1	# 1 - 500 kcmil CU
800-1200A	TC3K350	1-3	1	# 1 - 350 kcmil CU
800-1200A	3TA2N8750	1-2	3	600 - 750 kcmil CU/AL
800-1200A	3TA3N8750	1-3	3	500 - 750 kcmil CU/AL
800-1200A	3TA4N8500	1-4	3	250 - 500 kcmil CU/AL
800-1200A	3TA4P8500	1-4	3	250 - 500 kcmil CU/AL

#### MM / NM Frame Compression Lugs

Amp Rating	Catalog Number	Cables Per Lug	Lugs Per Kit	Wire Range
800A	CCM800K3	1	9	#2 - 500 Kcmil
1200A	CCN1200K3	1	12	#2 - 500 Kcmil

#### PM Frame Mechanical Lugs

Amp Rating	Catalog Number	Cables Per Lug	Wire Range
1600A	TA5P600	1-5	300 - 600 Kcmil CU / AL
1600A	TC5R600	1-5	300 - 600 Kcmil CU Only
1600A	TA4P750	1-4	500 - 750 Kcmil CU / AL
1600A	TA6R600	1-6	300 - 600 Kcmil CU / AL



## Mining Service Molded Case Circuit Breakers

### External Accessories

#### Replacement Mounting Screws (included with breaker shipment)

Frame	Catalog Number	# Required Per Breaker
EM	MSE6	1
EMK	MSE6	2
FM	MSF6	1
JM / LM	MSJ6	1
MM / NM	MSMN	1
PM	MSPR6	1

#### Replacement Handle Extensions (600V and 1000V) (included with breaker shipment)

Frame	Catalog Number
MM / NM / PM	EX11

#### Padlocking Device (600V and 1000V)

Frame	Catalog Number
EM	ED2HPL
FM	FD6PL1
JM / LM	JD6HPL
MM / NM / PM	MN6PLD

#### Plug-in Mounting Assemblies (600V)

Frame	Line Side	Load Side	Mounting Plate <sup>1</sup>
EM6	PC2657	PC2658	PL2616
FM6	PC4754	PC4754	PL4762
JM6	PC5778	PC5778	PL5796
LM6	PC5661	PC5661	PL5796
MM6	PC5663	PC5663	PL9698
NM6	PC5666	PC5666	PL9699

#### Plug-in Mounting Assembly (1000V)

Frame	Line Side	Load Side	Mounting Plate <sup>1</sup>
EMK	PM2657	PM2658	PL2617
FMK	PM4754	PM4754	PL4762
JMK	PM5778	PM5778	PL5796
LMK	PM5661	PM5661	PL5796
MMK	PM5663	PM5663	PL9698
NMK	PM5666	PM5666	PL9699

#### Inter Phase Barriers

Frame Amps	Catalog Number
EM (100A)	ETS
FM (250A)	FTS
JM / LM (600A)	LTS
MM / NM / PM (1600A)	NDTS

**Note:** Included with 1000V Frames through 600A (EMK, FMK, JMK, LMK). For optional use on other frames.

<sup>1</sup>Furnished at no charge when ordered with plug-in mounting assembly.

Contact Siemens for information on other external accessories (rear-connecting studs, handle operators, motor operators, etc.)

## Mining Service Molded Case Circuit Breakers

### Series Ratings

#### 480 Volt MCCB Series Ratings

Series Connected Ratings (A)	Thermal Magnetic Main Breaker	Max. Amps	Thermal Magnetic Branch Breaker	Max. Amps
50,000	MM6, MMK	1200A	FM6	250A
	NM6, NMK		JM6	400A
			LM6	600A
	PM6, PMK	1600A	FM6	250A
			JM6	400A
			LM6	600A
65,000	FMK	250A	EM6	125A
			FM6	250A
	MMK	800A	JM6	400A
			LM6	600A
	NMK	1200A	FM6	250A
			JM6	400A
100,000			LM6	600A
			MM6	800A
	PMK	1600A	FM6	250A
	EMK	125A	EM6	125A

#### 480 Volt Fuse Series Ratings

Series Connected Ratings (A)	Main Type	Amperes	Thermal Magnetic Branch Breaker	Amperes
100,000	T, J	70 - 600A	FM6	70 - 250A
			JM6	200 - 400A
	T, J, R	200 - 600A	LM6	300 - 600A
	T	70 - 1200A	FM6	70 - 250A
			JM6	200 - 400A
	T, L	601 - 1200A	LM6	300 - 600A
L			FM6	70 - 250A
		601 - 6000A	MM6, MMK	500 - 800A
			NM6, NMK	800 - 1200A

## Mining Service Molded Case Circuit Breakers

### Mining Breakers Outline and Installation Drawings

The following pages present dimensional drawings for the Siemens Mining Breaker product line, from EM through PM frames.

To obtain Autocad® format files, please log on to:

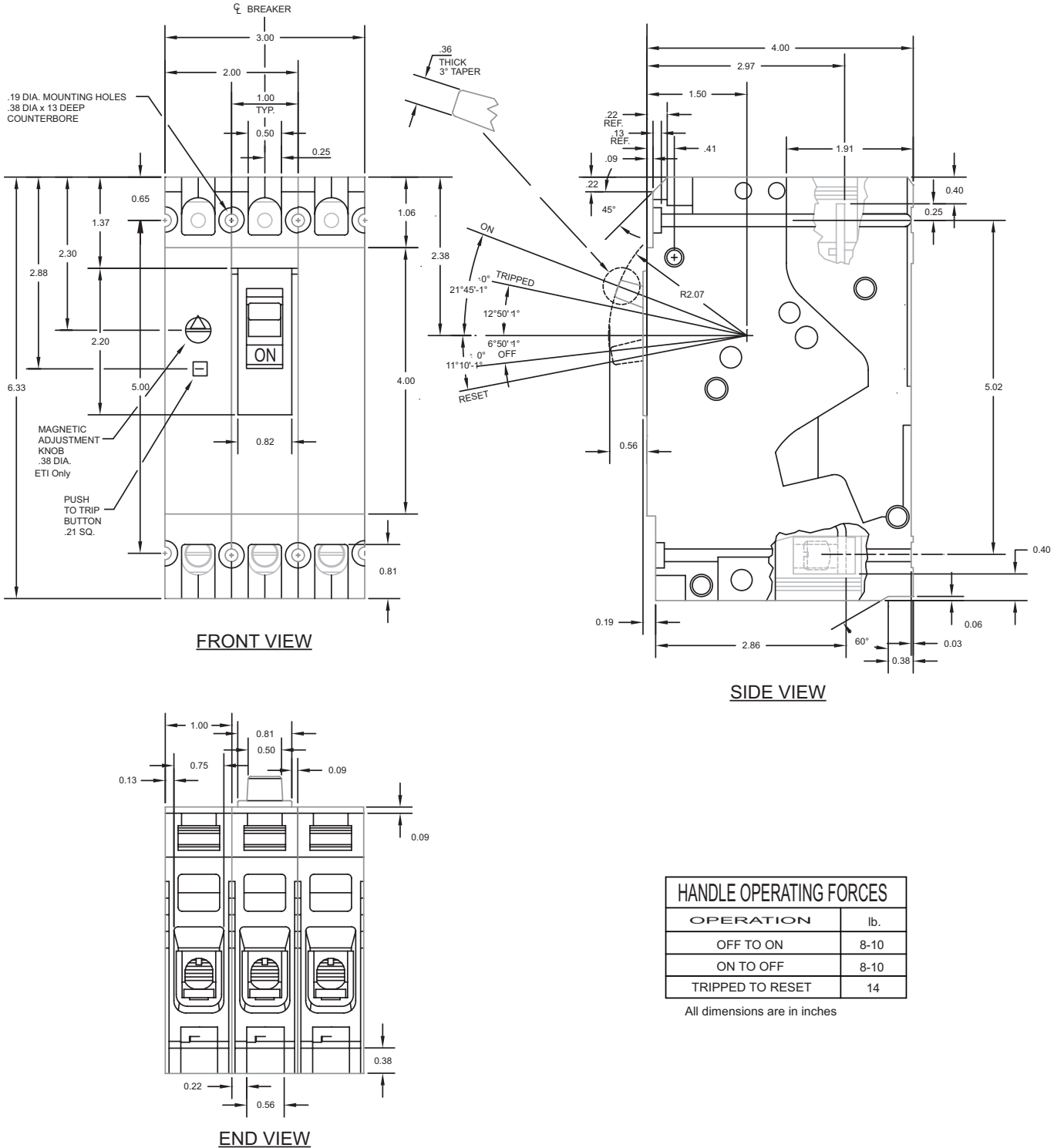
<http://www.sea.siemens.com/power/autocad/autocad.asp>

Here you will find .dwg and .dxf drawings not only for our mining breakers, but also for the rest of Siemens comprehensive line of low voltage circuit breakers.

If you are not web-connected, or have difficulty downloading these files, please contact your Siemens representative to obtain these drawings on CD ROM.

# Mining Service Molded Case Circuit Breakers

## EM Frame 600V Mine Duty Breakers

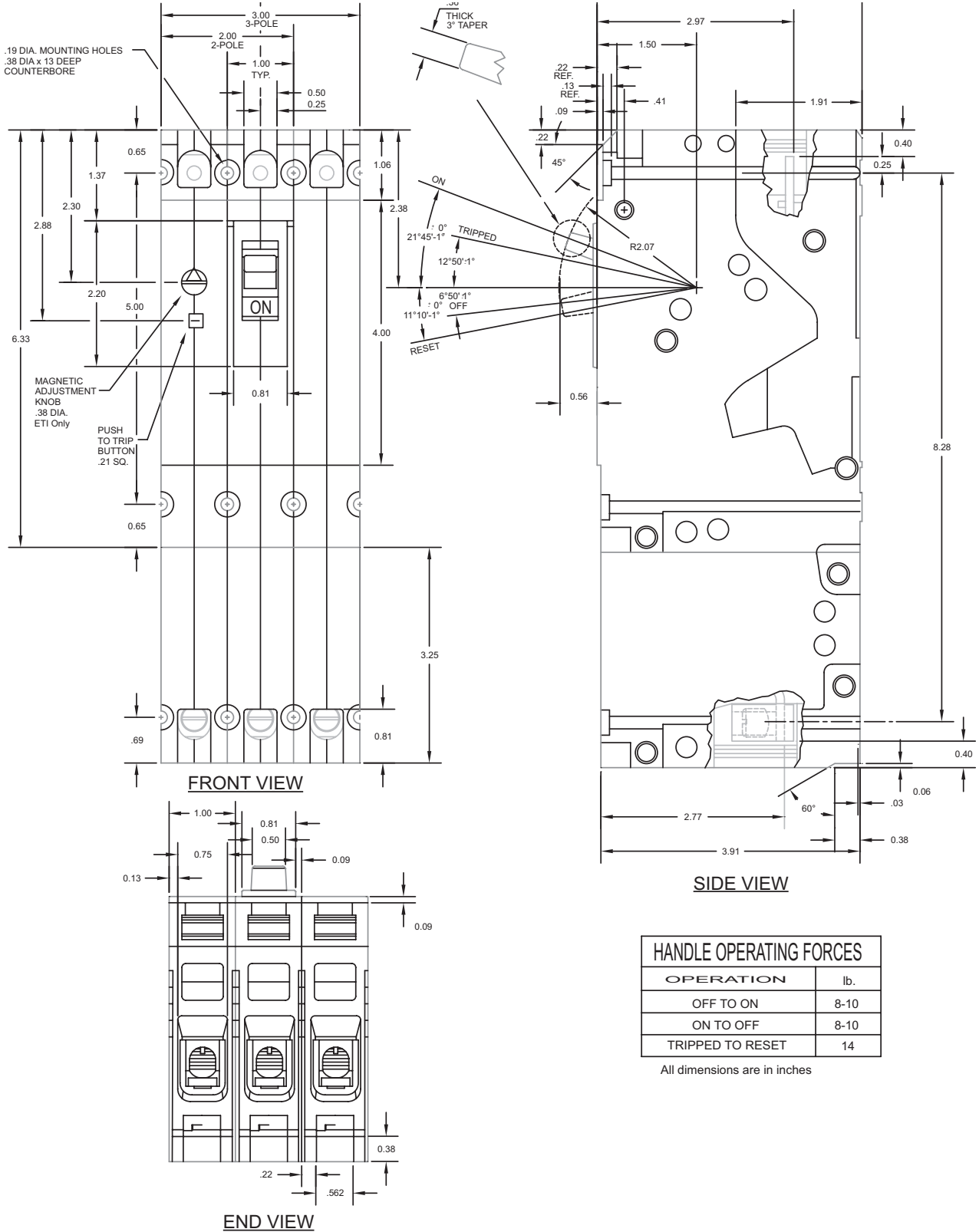


HANDLE OPERATING FORCES	
OPERATION	lb.
OFF TO ON	8-10
ON TO OFF	8-10
TRIPPED TO RESET	14

All dimensions are in inches

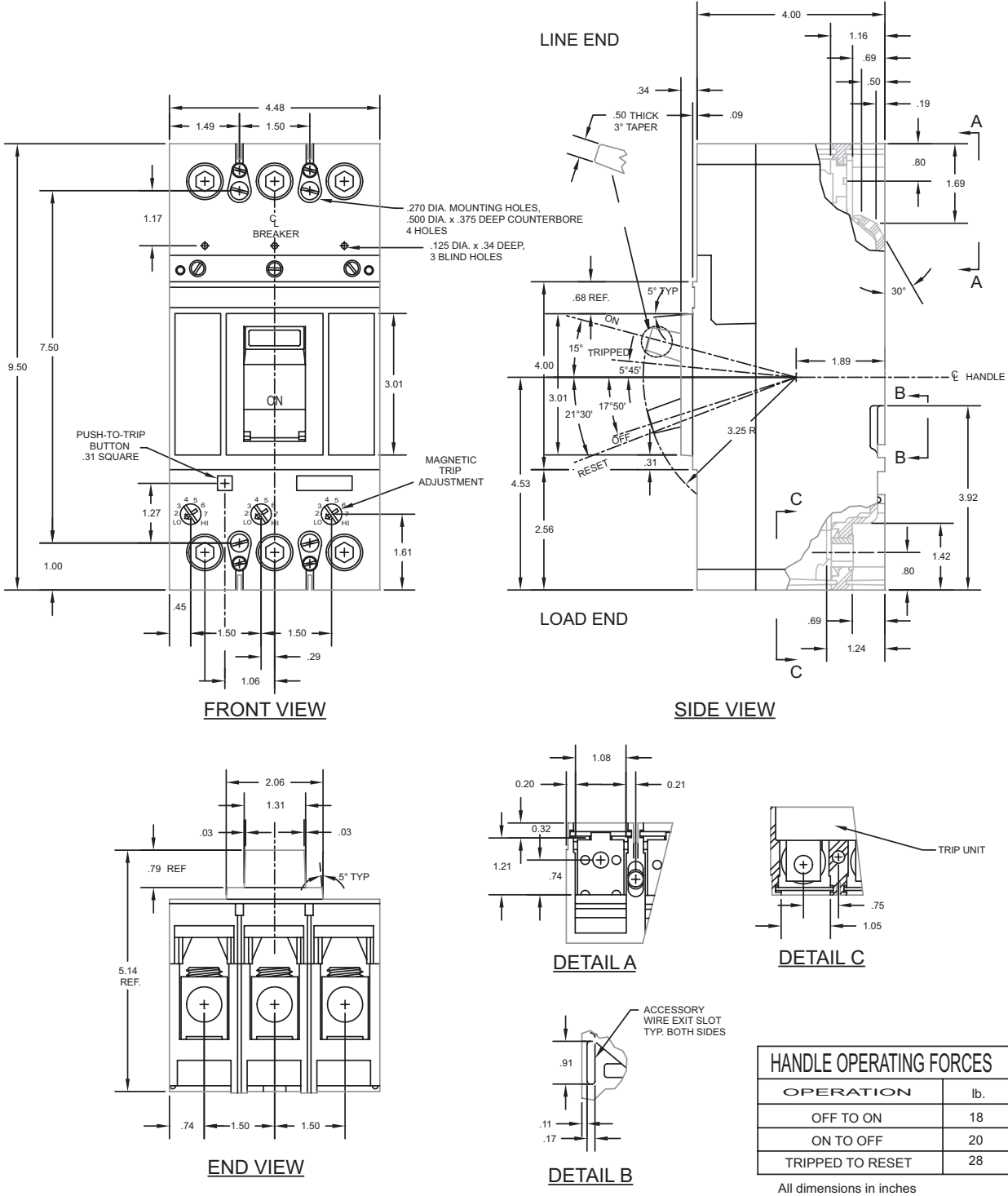
# Mining Service Molded Case Circuit Breakers

## EMK Frame 1000V Mine Duty Breakers



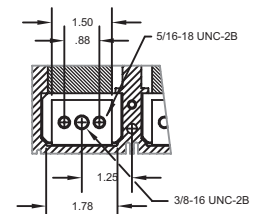
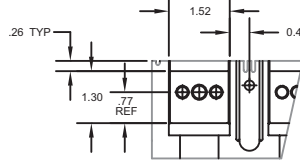
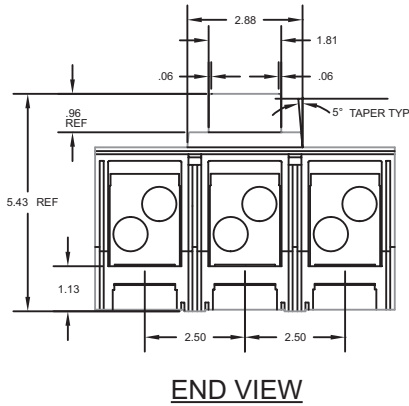
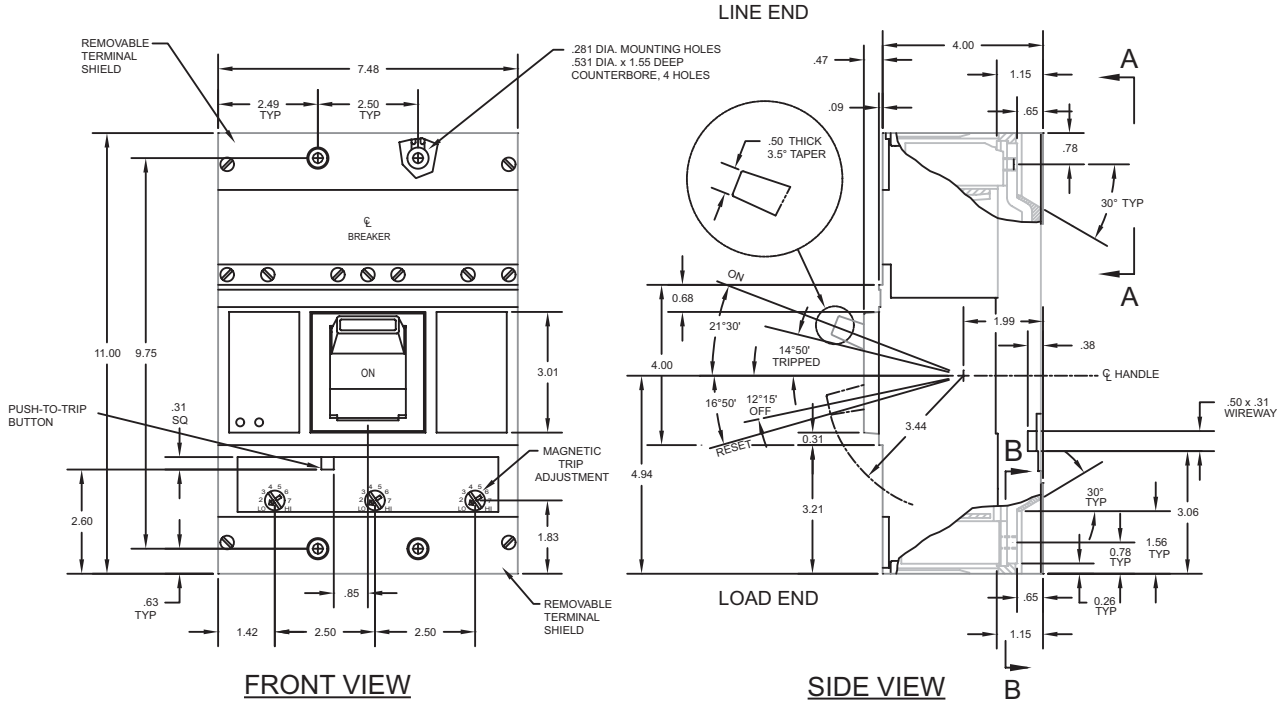
# Mining Service Molded Case Circuit Breakers

## FM6 and FMK Frame Mine Duty Breakers



# Mining Service Molded Case Circuit Breakers

JM and LM Frame 600V and 1000V Mine Duty Breakers



HANDLE OPERATING FORCES		
OPERATION	JD-FRAME (lb.)	LD-FRAME (lb.)
OFF TO ON	44	44
ON TO OFF	50	44
TRIPPED TO RESET	60	60

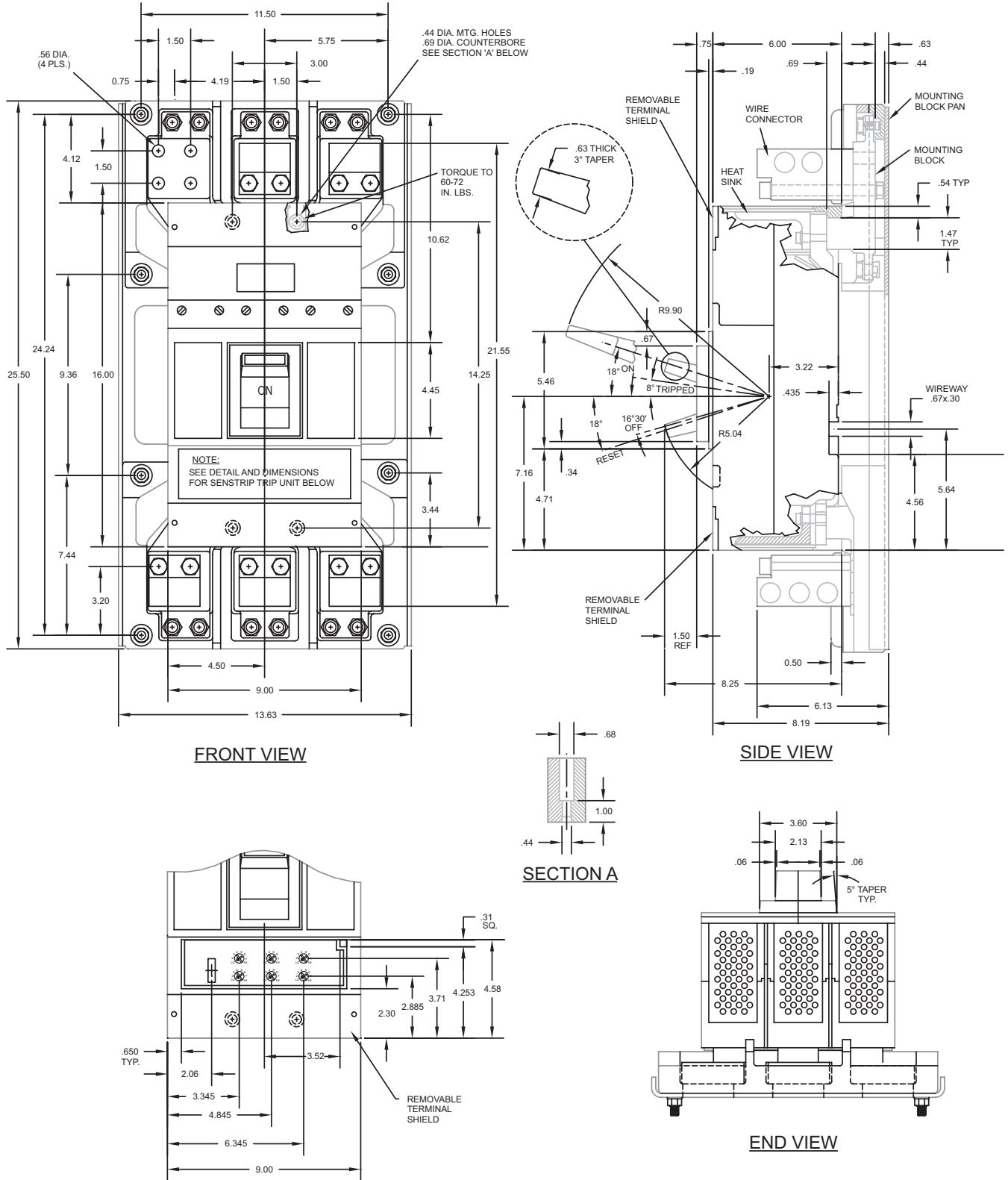
All dimensions are in inches.





# Mining Service Molded Case Circuit Breakers

PM Frame 600V and 1000V Mine Duty Breakers



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