

Selection Information

Molded Case Circuit Breakers

Class 500, 600, 800

DE3 CIRCUIT BREAKERS

		100 A Frame					100 A F-Frame	
								
Circuit Breaker Type		FA (240 V)	FA		FH	FH■	FH	FI
Number of Poles		1, 2, 3	1	2, 3	1	1	2, 3	2, 3
Current Range		15–100	15–100	15–100	15–30	35–100	15–100	20–100
Interrupting Ratings								
UL/CSA/NOM Rating (kA RMS) (50/60 Hz)	240 Vac	10●	25●	25	65	25	65	200
	480Y/277 Vac	—	18	18	65	25	25	200
	480 Vac	—	—	18	—	—	25	200
	600Y/347 Vac	—	—	14	—	—	18	100
	600 Vac	—	—	14	—	—	18	100
DC Ratings	250 Vdc*	5◆	10◆	10	10◆	10◆	50	—
	500 Vdc▲*	—	—	—	—	—	20	—
IEC Rating (kA RMS) Icu/Ics★	240 Vac	—	18/9	—	18/9	—	—	—
	415 Vac	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5	6/1.5
Special Ratings								
CCC		—	—	—	—	—	—	—
Fed. Specs W-C-375B/GEN		X	X	X	X	X	X	X
HACR (2P, 3P)		X	—	X	—	—	—	—
Connections/Terminations								
Unit Mount		X	X	X	X	X	X	—
I-Line™		X	X	X	X	X	X	X
Rear Connection		X	X	X	—	—	—	—
Drawout		—	—	—	—	—	—	—
Optional Lugs		X	X	X	X	X	X	—
Accessories and Modifications								
Shunt Trip		X△▼	—	X△	—	—	X△	X△
Undervoltage Trip		X△▼	—	X△	—	—	X△	X△
Auxiliary Switches		X△▼	—	X△	—	—	X△	X△
Alarm Switch		X△▼	X△	X△	X△	X△	X△	X△
Motor Operator		—	—	X	—	—	X	X
Handle Operators		X	—	X	X	X	X	—
Mechanical Interlocks (3P)		—	—	X	—	—	X	—
Handle Padlock Attachment		X	X	X	X	X	X	X
Cylinder Lock (3P△)		—	—	X	—	—	X	—
Optional GF Protection□		—	—	X	—	—	X	—
Trip System Type								
Thermal-magnetic		X	X	X	X	X	X	X
Instantaneous-only (MCP)		—	—	X	—	—	X	—
Molded Case Switch (Automatic)		—	—	—	—	—	X	—
Electronic		—	—	—	—	—	—	—
Enclosures (Pages DE3-56–DE3-58)								
General Purpose (NEMA 1)		X	X	X	X	X	X	—
Raintight (NEMA 3R)		X	X	X	X	X	X	—
Dust-tight (NEMA 12)		X	X	X	X	X	X	—
Watertight (NEMA 4, 4X, 5)		X	X	X	X	X	X	—
Explosion Proof (NEMA 7, 9)		X	X	X	X	X	X	—
Dimensions (3P Unit Mount) in. (mm)	Height	6 (152)	6 (152)					8 (203)
	Width	4.5 (114)	4.5 (114)					4.5 (114)
	Depth	4.13 (105)	4.13 (105)					4.75 (121)
Pages (Unit Mount)/(I-Line)		DE3-59 / Section DE5		DE3-59 / Section DE5			DE3-61/Section DE5	

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

- ▲ Ungrounded UPS systems only. See page DE3-35.
- 65 kA @120 Vac
- ◆ 1Ø 125 Vdc rating only.
- ★ Dual CSA/UL and IEC ratings and CE markings on circuit breakers.
- ▼ Not available on 1P FA (240 V).

- △ Factory-installed option only.
- Requires factory-installed "G" Shunt trip and 3P module.
- ◇ Not available in HD and HG 2P rating (2P module).
- ☆ 2P in a 3P module.
- ▽ 3P only.
- 1P FA is 120 Vac.
- * Not available with electronic trip units

QO™ and QOU Miniature Circuit Breakers

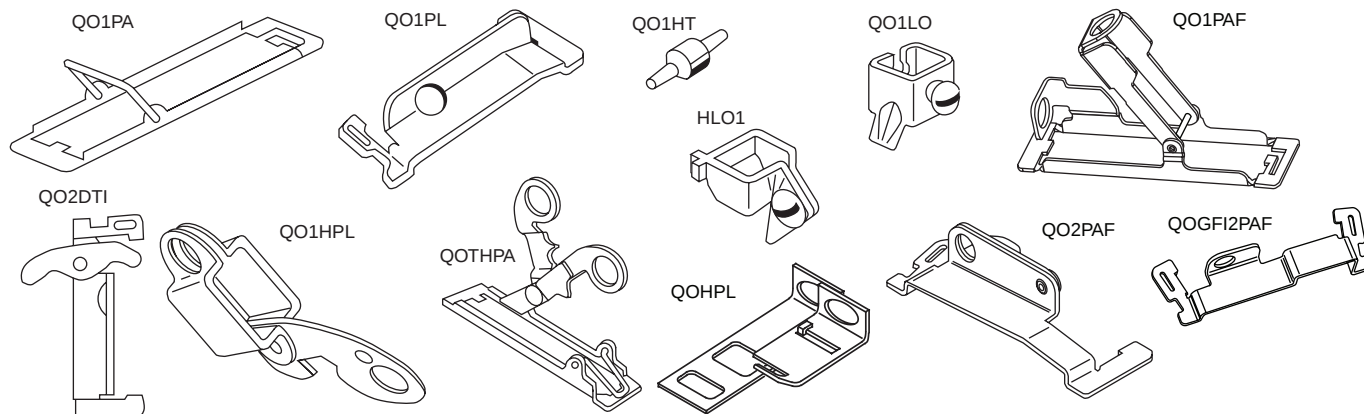
QO™ Circuit Breaker Accessories

Class 1130 / Refer to Catalog 0730CT9801

Accessories for Use with QO™ and QOB Miniature Circuit Breakers

Handle Attachments	Description	Cat. No.	\$ Price
Handle Tie:	Converts any two adjacent 120/240 Vac 1P QO circuit breakers to independent trip 2P Converts any two adjacent 120/240 Vac 1P side-by-side QOT circuit breakers to independent trip 2P Handle tie and lock-off for three 1P QO, QOB circuit breakers	QO1HT QOTHT QO3HT	
Handle Clamp:	Clamp for holding QO 1P handle in ON or OFF position Clamp for holding QO or Q1 1P, 2P or 3P circuit breaker handles in ON or OFF position	QO1LO HLO1	
Handle Padlock Attachment: for Padlocking in ON or OFF position	For padlocking 1P QO circuit breaker in ON or OFF position Loose attachment Fixed attachment For padlocking 1P side-by-side QOT circuit breaker in ON or OFF position For padlocking 2P and 3P QO-GFI, QO-EPD, and QO-EPE in either ON or OFF position, fixed attachment. For 2P and 3P QO and Q1 standard circuit breakers which require padlocking in either ON or OFF position. Loose attachment Fixed attachment	QOHPL QO1PA QOTHPA GFI2PA QO1HPL QO1PL	
Handle Padlock Attachment: for Padlocking in OFF position	For padlocking 1P QO circuit breaker in OFF position only, fixed attachment. For padlocking 2P and 3P QO circuit breakers in OFF position only, fixed attachment. For padlocking 1P QO-GFI, QO-AFI, QO-CAFI, and QO-EPD circuit breakers in OFF position only, fixed attachment. For padlocking 2P and 3P QO-GFI, QO-EPD, and QO-EPE circuit breakers in OFF position only, fixed attachment.	QO1PAF QO2PAF QOGFI1PAF QOGFI2PAF	
Sub-Feed Lugs	60 A 2P plug-on – 2 spaces required (6–2 Al/Cu) 125 A 2P plug-on – 2 spaces required (12–2/0 Al/Cu) 225 A 2P plug-on – 4 spaces required (4–300 Al/Cu) 125 A 3P plug-on – 3 spaces required (12–2/0 Al/Cu)	QO60SL QO2125SL QO2225SL▲ QO3125SL	
Mechanical Interlock Attachment	For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be ON at a time (Not QOU)	QO2DTI	
With Retaining Kit:	QO2DTI mechanical interlock attachment with retaining kits for securing two adjacent back-fed circuit breakers in dual power supply applications. Can be used with (2) 2Ps or (1) 2P and (1) 1P QO circuit breakers in QO816L100 load centers.	QO2DTIM	

▲ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.



Factory-Installed Accessories for Use with QO and QOB Miniature Circuit Breakers

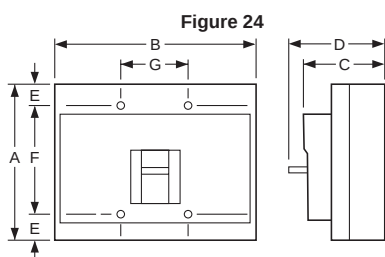
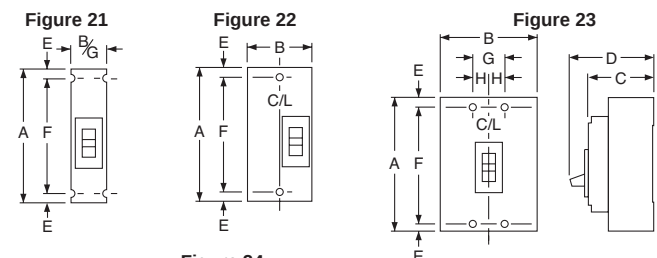
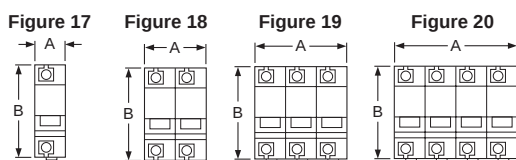
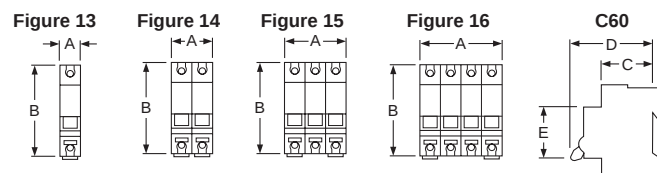
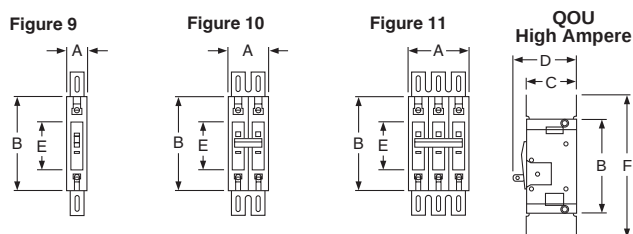
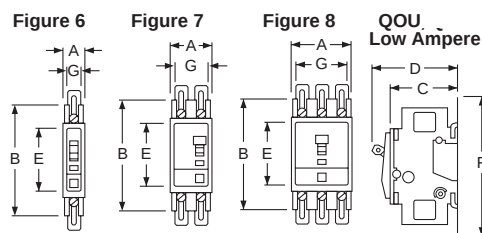
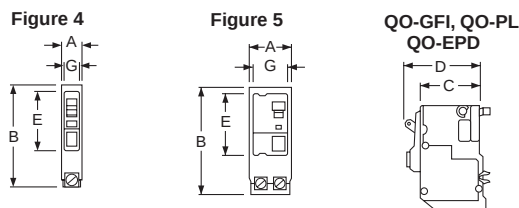
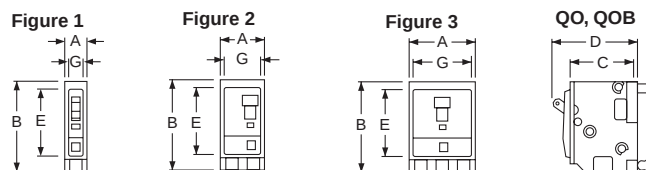
Factory-installed electrical accessories take up an additional pole space on QO™, QO-GFI, QO-EPD, QO-SWN and QOU circuit breakers. All AC electrical accessories shown below are rated for 50/60 Hz. Accessories are not available for QOB-VH (2P 150 A and 3P 110–150 A) circuit breakers or QO, QOU molded case switches. QO circuit breakers will accept only one accessory per circuit breaker. Undervoltage trip is not available on miniature circuit breakers. Factory-installed accessories are not available for QO-AFI or QO-CAFI Arc Fault Circuit Breakers or on QO2150, QO2175, or QO2200 circuit breakers.

Factory-Installed Accessories

Accessory	Description	Rated Voltage	Coil Burden	Cat. No. Suffix	\$ Price Adder	Accessory	Description	Contact Comb.	Max. Voltage	Max. Load	Cat. No. Suffix	\$ Price Adder	
Shunt Trip	Trips the circuit breaker from a remote location by means of a trip coil energized from a separate circuit. A 120 Vac shunt trip will operate at 55% or more of rated voltage. All other shunt trips will operate at 75% or more of rated voltage. Application - For use with momentary or maintained push button. - Not available on QO-GFI, QO-EPD, QO-AFI, QOCAFI. - Shunt trip terminals accept (2) 14–12 AWG Cu.	AC/DC	12 24	60 VA 168 VA	-1042	Auxiliary Switches	Monitors circuit breaker contact status and provides a remote signal indicating the circuit breaker contacts are OPEN or CLOSED. Application Auxiliary switch terminals accept (2) 14–12 AWG Cu leads.	1A 1B	AC 120 AC 120	5 A 5 A	-1200 -1201		
		AC	120 208 240	72 VA 228 VA 288 VA	-1021								
							Alarm Switches	Used with control circuits and is actuated only when the circuit breaker has tripped. Standard construction includes a normally-open contact. Application Alarm switch terminals accept (2) 14–12 AWG Cu leads.	1A	AC 120	5 A	-2100	

Dimensions and Shipping Weights

Miniature and Molded Case Circuit Breakers



QO™, QOU, Multi 9™ Circuit Breakers

Circuit Breaker Catalogue No. Prefix	No. Poles	Fig. No.	Dimensions—Inches						
			A	B	C	D	E	F	G
QO, QOB	1	1	0.75	3.00▲	2.31	2.91	2.25	...	0.59
	2	2	1.50	3.00▲	2.31	2.91	2.25	...	1.34
	3	3	2.25	3.00▲	2.31	2.91	2.25	...	2.09
QOB-VH 150 A QOB-VH 110–150 A	2	2	3.0	5.72	2.53	4.90	3.78	...	2.85
	3	3	4.50	5.72	2.53	4.90	3.78	...	4.35
QO-PL QO-GFI QO-EPD	1	4	0.75	4.12■	2.31	2.91	2.25	...	0.59
	2	5	1.50	4.12■	2.31	2.91	2.25	...	1.34
	3	5	2.25	4.12■	2.31	2.91	2.25	...	2.09
QOU Low Ampere	1	6	0.75	4.05♦	2.38	2.98	2.25	5.00▼	0.62
	2	7	1.50	4.05♦	2.38	2.98	2.25	5.00▼	1.37
	3	8	2.25	4.05★	2.38	2.98	2.25	5.00△	2.12
QOU High Ampere	1	9	0.75	4.45	2.37	2.96	2.25	6.78	...
	2	10	1.50	4.45	2.37	2.96	2.25	6.78	...
	3	11	2.25	4.45	2.37	2.96	2.25	6.78	...
Multi 9™ C60	1	13	0.71	3.19	1.73	2.76	1.77	—	—
	2	14	1.42	3.19	1.73	2.76	1.77	—	—
	3	15	2.13	3.19	1.73	2.76	1.77	—	—
	4	16	2.84	3.19	1.73	2.76	1.77	—	—

- ▲ 35–70 A is 3.12 in; 80–100 A 2-pole and 70–100 A 3-pole are 3.50 in.
- QO-PL is 4.55 in.
- ♦ 80–100 A 1-pole and 80–125 A 2-pole are 4.45 in.
- ★ 70–100 A 4.45 in.
- ▼ 80–100 A 1-pole and 80–125 A 2-pole are 6.78 in.
- △ 70–100 A is 6.78 in.

QB, QD, QG, QJ, Q4, FA, FI, KI, LA, LH Circuit Breakers

Circuit Breaker Catalogue No. Prefix	No. Poles	Fig. No.	Dimensions—Inches							
			A	B	C	D	E	F	G	H
QB, QD, QG, QJ	2	22	6.47	3.00	3.02	3.93	□	4.25	...	...
	3	23	6.47	4.50	3.02	3.93	□	4.25	1.50	0.75
FAL, FHL	1	21	6.00	1.50	3.16	4.13	0.44	5.13	1.50	...
	2	22	6.00	3.00	3.16	4.13	0.44	5.13	...	...
	3	23	6.00	4.50	3.16	4.13	0.44	5.13	1.50	0.75
FIL, KIL	2 & 3	23	8.00	4.50	3.66	4.75	0.44	7.13	1.50	0.75
Q4L, LAL, LHL	2 & 3	23	11.00	6.00	4.06	5.84	0.88	9.25	2.00	1.00

- Dimensions E are 1.59 in at ON end and 0.63 in at OFF end.

Shipping Weights ♦

Frame Size	Approx. Shipping Weight (Lbs.)	Frame Size	Approx. Shipping Weight (Lbs.)
FAL, FHL 1P	2	KIL	9
FAL, FHL 2P	3	LAL, LHL	15
FAL, FHL 3P	5	LIL LXIL	25
FIL	8	Q4L	15
QB, QD, QG, QJ	4		

- ♦ All weights are for 3P circuit breakers unless otherwise noted.

Moulded Case Circuit Breaker

F-Frame Thermal-Magnetic Circuit Breakers

Thermal-magnetic moulded case circuit breakers shown here are permanent trip CSA certified, UL listed, IEC rated. For I-LINE moulded case circuit breakers, see Section DE-5.

Ampere Rating	AC Magnetic Trip Settings Amperes	One Pole		Two Pole		Three Pole		Standard Lug Kit Wire Range
		Catalogue No.	Price	Catalogue No.	Price	Catalogue No.	Price	

100 Ampere Frame

FAL Standard Interrupting 120/240Volt

	Hold	Trip	120Vac	240Vac	240Vac	
15	275	600	FAL12015	FAL22015	FAL32015	AL50FA
20	275	600	FAL12020	FAL22020	FAL32020	#14-#4 Cu or
25	275	600	FAL12025	FAL22025	FAL32025	#12-#4 Al
30	275	600	FAL12030	FAL22030	FAL32030	
35	400	850	FAL12035	FAL22035	FAL32035	AL100FA
40	400	850	FAL12040	FAL22040	FAL32040	#14-#1/0 Cu or
45	400	850	FAL12045	FAL22045	FAL32045	#12-#1/0 Al
50	400	850	FAL12050	FAL22050	FAL32050	
60	800	1450	FAL12060	FAL22060	FAL32060	
70	800	1450	FAL12070	FAL22070	FAL32070	
80	800	1450	FAL12080	FAL22080	FAL32080	
90	900	1700	FAL12090	FAL22090	FAL32090	
100	900	1700	FAL12100	FAL22100	FAL32100	

FAL Standard Interrupting 277/480 Volt

	Hold	Trip	277Vac,125Vdc	480Vac,250Vdc	480Vac,250Vdc	
15	275	600	FAL14015	FAL24015	FAL34015	AL50FA
20	275	600	FAL14020	FAL24020	FAL34020	#14-#4 Cu or
25	275	600	FAL14025	FAL24025	FAL34025	#12-#4 Al
30	275	600	FAL14030	FAL24030	FAL34030	
35	400	850	FAL14035	FAL24035	FAL34035	AL100FA
40	400	850	FAL14040	FAL24040	FAL34040	#14-#1/0 Cu or
45	400	850	FAL14045	FAL24045	FAL34045	#12-#1/0 Al
50	400	850	FAL14050	FAL24050	FAL34050	
60	800	1450	FAL14060	FAL24060	FAL34060	
70	800	1450	FAL14070	FAL24070	FAL34070	
80	800	1450	FAL14080	FAL24080	FAL34080	
90	900	1700	FAL14090	FAL24090	FAL34090	
100	900	1700	FAL14100	FAL24100	FAL34100	

FAL Standard Interrupting 347/600 Volt

	Hold	Trip	347Vac,125Vdc	600Vac,250Vdc	600Vac,250Vdc	
15	275	600	FAL17015	FAL26015	FAL36015	AL50FA
20	275	600	FAL17020	FAL26020	FAL36020	#14-#4 Cu or
25	275	600	FAL17025	FAL26025	FAL36025	#12-#4 Al
30	275	600	FAL17030	FAL26030	FAL36030	
35	400	850	FAL17035	FAL26035	FAL36035	AL100FA
40	400	850	FAL17040	FAL26040	FAL36040	#14-#1/0 Cu or
45	400	850	FAL17045	FAL26045	FAL36045	#12-#1/0 Al
50	400	850	FAL17050	FAL26050	FAL36050	
60	800	1450	FAL17060	FAL26060	FAL36060	
70	800	1450	FAL17070	FAL26070	FAL36070	
80	800	1450	FAL17080	FAL26080	FAL36080	
90	900	1700	FAL17090	FAL26090	FAL36090	
100	900	1700	FAL17100	FAL26100	FAL36100	

FHL High Interrupting 347/600 Volt

	Hold	Trip	347Vac,125Vdc	600Vac,250Vdc	600Vac,250Vdc	
15	275	600	FHL17015	FHL26015	FHL36015	AL50FA
20	275	600	FHL17020	FHL26020	FHL36020	#14-#4 Cu or
25	275	600	FHL17025	FHL26025	FHL36025	#12-#4 Al
30	275	600	FHL17030	FHL26030	FHL36030	
35	400	850	FHL17035	FHL26035	FHL36035	AL100FA
40	400	850	FHL17040	FHL26040	FHL36040	#14-#1/0 Cu or
45	400	850	FHL17045	FHL26045	FHL36045	#12-#1/0 Al
50	400	850	FHL17050	FHL26050	FHL36050	
60	800	1450	FHL17060	FHL26060	FHL36060	
70	800	1450	FHL17070	FHL26070	FHL36070	
80	800	1450	FHL17080	FHL26080	FHL36080	
90	900	1700	FHL17090	FHL26090	FHL36090	
100	900	1700	FHL17100	FHL26100	FHL36100	



FAL/FHL
One Pole
15-100 Ampere



FAF/FHL
Two Pole
15-100Ampere



FAL/FHL
Three Pole
15-100Ampere

CSA Certified Interrupting Rating RMS Symmetrical Amperes

Breaker Catalogue No. Prefix	System Voltage AC					DC
	120/240	277/480	347/600	125	250	
FAL (240V.)						
1-Pole	10k			5k		
2, 3-Pole	10k			5k	5k	
FAL (480V.)						
1-Pole	18k	18k		10k		
2, 3-Pole	25k	18k		10k	10k	
FAL (600V.)						
1-Pole	25k	18k	14k	10k		
2, 3-Pole	25k	18k	14k	10k	10k	
FHL						
1-Pole						
15-30	65k	65k	18k	10k		
35-100	65k	25k	18k	10k		
2, 3-Pole	65k	25k	18k	50k	50k	

Dimensions-DE3-54
Enclosures -DE3-56

Thermal-Magnetic / Magnetic Only Molded Case Circuit Breakers

Introduction

Table 8: Breakdown of Typical Catalog Number

	FA	L	3	6	050	V	2100
Breaker Family FY - 30 Ampere Frame FA - 100 Ampere Frame KA - 250 Ampere Frame LA - 400 Ampere Frame MA 1000 Ampere Frame NA - 1200 Ampere Frame	NOTE: "A" is replaced by letter "H" for High Interrupting "A" is replaced by letter "C" for Extra High Interrupting "A" is replaced by letter "I" for Current Limiting. (FA, KA, LA circuit breakers only)						
Description NO LETTER - (I-Line®) Plug-on Breaker B - (I-Line) Bolt-on Breaker (400 ampere frame maximum) F - Terminal Pads Only (No Lugs) L - Lugs on Both Ends (Merchandised - Universal Breaker) P - Lugs OFF End Only R - Plug-on Breaker (I-Line Type DO with Plug-on Line and Load connectors)							
Poles 1 - 1-Pole 2 - 2-Pole 3 - 3-Pole							
Voltage Rating 2 - 240 Vac 4 - 480 Vac 6 - 600 Vac							
Ampere Rating 015-090 - 15-90 Ampere Rating 100-900 - 100-900 Ampere Rating 1000-1200 - 1000-1200 Ampere Rating 000 or 0000 - Molded Case Switch 000X or 000XX - Molded Case Switch							
Suffix The suffix indicates a special feature of the circuit breaker. A, B, C - indicated I-Line Phase Connections CV - Indicates Visi-Blade® M - Indicates Automatic Molded Case Switch XXM - Indicated Instantaneous Trip Only (Mag-Gard®) (i.e., 18M is 300-1100 ampere adjustable trip range) XXT - Indicates adjustable magnetic trip with responsive thermal (mining breakers) G - Indicates Ground Fault Shunt Trip accessory XXXX - I.e., 2100 Indicates a factory installed accessory							