

Vintage Cutler-Hammer panelboards and switchboards



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Description

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Powering Business Worldwide

Procedure for identifying renewal parts

1. Identify the type of panelboard (PB, PH, PM-L, EP, MP40, MP100, MP200, CDP, CHP/CHB, NFB) from the data found on the nameplate. Critical information includes:
 - Type of panelboard
 - Ampere rating of the main
 - Ampere rating of the neutral
 - Voltage
 - Type of service (phase/number of wires)
 - General order number

In the event that the nameplate is missing or unreadable, follow the procedure on **Page 3**.

2. Refer to the listing below and turn to the proper section in this renewal parts data to identify standard parts and components.

Description	Page
PB	4
PH	5
PH-L, NFB	9
EP, ES.	11
CDP, MP40, NFB	17
MP100, MP2, M50	21
Breaker cross-reference	23
Trim clamps	23
Trim locks.	23

3. This book identifies those replacement parts that are most frequently ordered and that are readily available from stock. These parts can be ordered by style, part, or catalog number to speed up processing and delivery.

Distributor ordering instructions

1. Specify the item by catalog or part number.
2. Refer to Price List PL01400003E for pricing information. Discount Symbol CE9 applies.
3. Enter the order on VISTA entry point SUM or Q49.

Note: For MP40 retrofit kits shown on **Page 19**, enter the catalog number, list price, standard multiplier, and location SUM or Q49.

When ordering a new circuit breaker to add to an MP40 panelboard, the following options are available:

- Take the required breaker from your stock (or order from W34) and order the connector kit on **Page 19** from the Sumter plant.
- or
- Select the correct breaker retrofit kit on **Page 19**, which includes the breaker and connector kit in one package—one shipment and one invoice from the Sumter plant.

4. Selling Policy 25-000 applies.
5. If additional assistance is required, contact the Panelboard and Switchboard Aftermarket Product Center in Sumter, SC, at 803-481-6677.

Sumter plant services

All the parts and kits shown in this renewal parts will come from the Sumter plant. To extend the life of your existing equipment, the Sumter plant will:

- Provide all new components
- Manufacture per original specifications
- Follow all UL® procedures
- Provide full Eaton warranty

Services offered include:

- Parts and kits for MP40 and MP100 panelboards
- Retrofit kits for MP2 switchboard distribution sections
- Connector kits for MP2 switchboard distribution sections
- Upgrades to meet changing system
- Requirements such as higher fault current and increased load

Procedure for identifying panelboard type

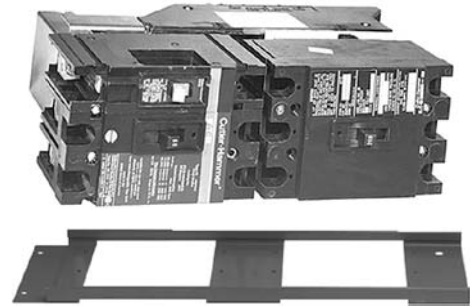
The nameplate could be located on the front or back of the deadfront cover. In the event that the nameplate is missing, it may still be possible to identify the panel type by the enclosure width, the ampere rating of the main device, and the branch devices from **Table 1** below.

**Table 1. Procedure for Identifying Panelboard Type—
Dimensions in Inches (mm)**

Enclosure Width in Inches (mm)	Main Lug or Device Rating	Branch Breakers or Fusible Switches	Panelboard Type	Page Reference
15.00 (381.0)	Up to 225A maximum	Are in two vertical cutouts measuring 7.00 inches (177.8 mm) from side to side and have either tan or gray breaker handles	PB	4, 5
21.00 (533.4)	Up to 400A maximum	Are in two vertical rows measuring 7.00 inches (177.8 mm) from side to side and have either tan or gray breaker handles	PB	4, 5
	Up to 600A maximum	Are CH, CHB, F, and C-Frames and are in a single cutout measuring 14.25 inches (362.0 mm) across	PH	6–8
	Up to 225A maximum	Are in two vertical cutouts measuring 14.25 inches (362.0 mm) across, are F-Frame, and have breakers with black handles	PH-L NFB ①	9, 10
26.00 (660.4)	Up to 800A maximum	Are CH, CHB, F and C-Frames and are in a single cutout measuring 14.25 inches (362.0 mm) across	PH	6–8
30.00 (762.0), 42.00 (1066.8) or 48.00 (1219.2)	Up to 1200A main breaker or 800A main fusible switch or 1200A MLO	Circuit breakers or fusible switches do not have metal side flanges. Circuit breaker covers are attached to the trim	EP ES	11–16
30.00 (762.0), 38.00 (965.2)	Up to 1200A main breaker or fusible switch or 1600A MLO	F-Frame through L-Frame are twin-mounted horizontal with center cover between breakers	NFB ② CDP MP40	17–20
		Fusible switches are labeled M50 30A through 1200A	MP100	21, 22

① 21.00-inch (533.4 mm) width.

② 26.50-inch (673.1 mm)–36.00-inch (914.4 mm) width.

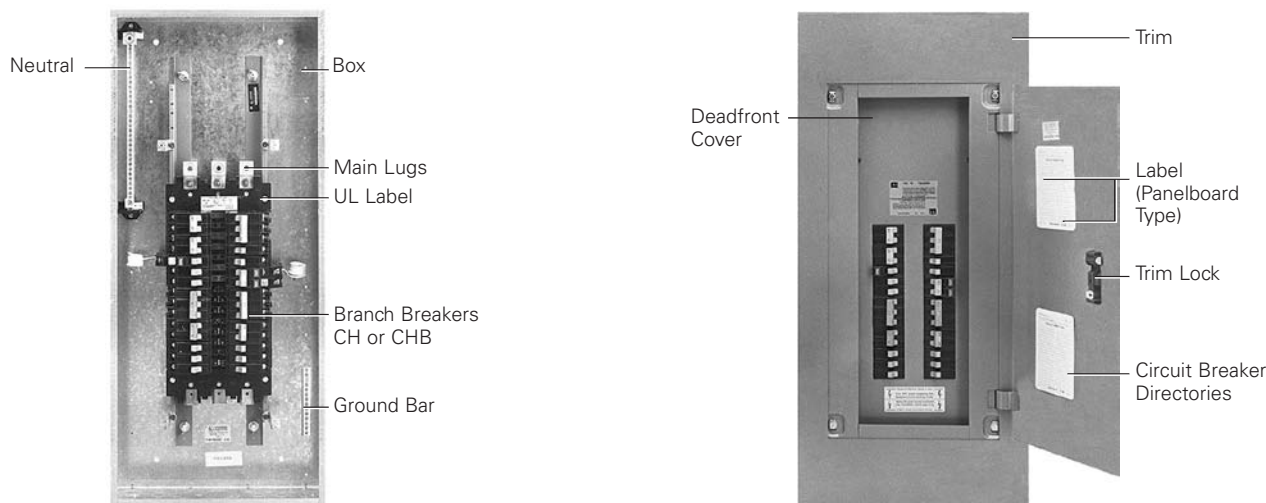


Circuit Breaker Unit for EP Panelboards



Fusible Switch Unit For EP Panelboards

PB panelboards



PB Panelboards

Table 2. Type PB Panelboard Trims and Deadfront Covers—Dimensions in Inches (mm)

Maximum Pole Space	Main Amperes	Indoor 15.00 (381.0) Wide		Indoor 21.00 (533.4) Wide	
		Box Height	Deadfront Cover Kit Part Number	Box Height	Deadfront Cover Kit Part Number
Main Lugs Only—Single-Phase, Three-Wire					
18	125	29.00 (736.6)	①	30.00 (762.0)	PW30KT1NB
30	225	34.00 (863.6)	99-3613-5	34.00 (863.6)	PW34KT1NB
42	225	38.00 (965.2)	99-3613-20	38.00 (965.2)	PW38KT1NB
42	400	—	—	54.00 (1371.6)	99-3613-9
Main Breaker—Single-Phase, Three-Wire					
18	100	34.00 (863.6)	99-3613-22	34.00 (863.6)	PW34KT2NB
30	150	42.00 (1066.8)	99-3613-8	42.00 (1066.8)	PW42KT1NB
30	255	42.00 (1066.8)	99-3613-8	42.00 (1066.8)	PW42KT1NB
42	225	48.00 (1219.2)	99-3613-16	50.00 (1270.0)	PW50KT1NB
42	400	—	—	63.00 (1600.2)	99-3613-29
Main Lugs Only—Three-Phase, Four-Wire					
18	125	29.00 (736.6)	①	30.00 (762.0)	PW30KT1NB
30	125	29.00 (736.6)	99-3613-11	30.00 (762.0)	PW30KT3NB
30	225 400	34.00 (863.6)	99-3613-17	34.00 (863.6)	PW34KT1NB
42	225	38.00 (965.2)	99-3613-27	38.00 (965.2)	PW38KT1NB
42	400	—	—	54.00 (1371.6)	99-3613-4
Main Breaker—Three-Phase, Four-Wire					
18	100	34.00 (863.6)	99-3613-13	34.00 (863.6)	PW34KT1NB
24	100	34.00 (863.6)	99-3613-30	34.00 (863.6)	PW34KT1NB
30	150	42.00 (1066.8)	99-3613-8	42.00 (1066.8)	PW42KT1NB
30	225	42.00 (1066.8)	99-3613-3	42.00 (1066.8)	PW42KT1NB
42	225	48.00 (1219.2)	99-3613-16	50.00 (1270.0)	PW50KT1NB
42	400	—	—	63.00 (1600.2)	99-3613-28

① Contact the Aftermarket Product Center in Sumter, SC, at 803-481-6677.

PB accessories

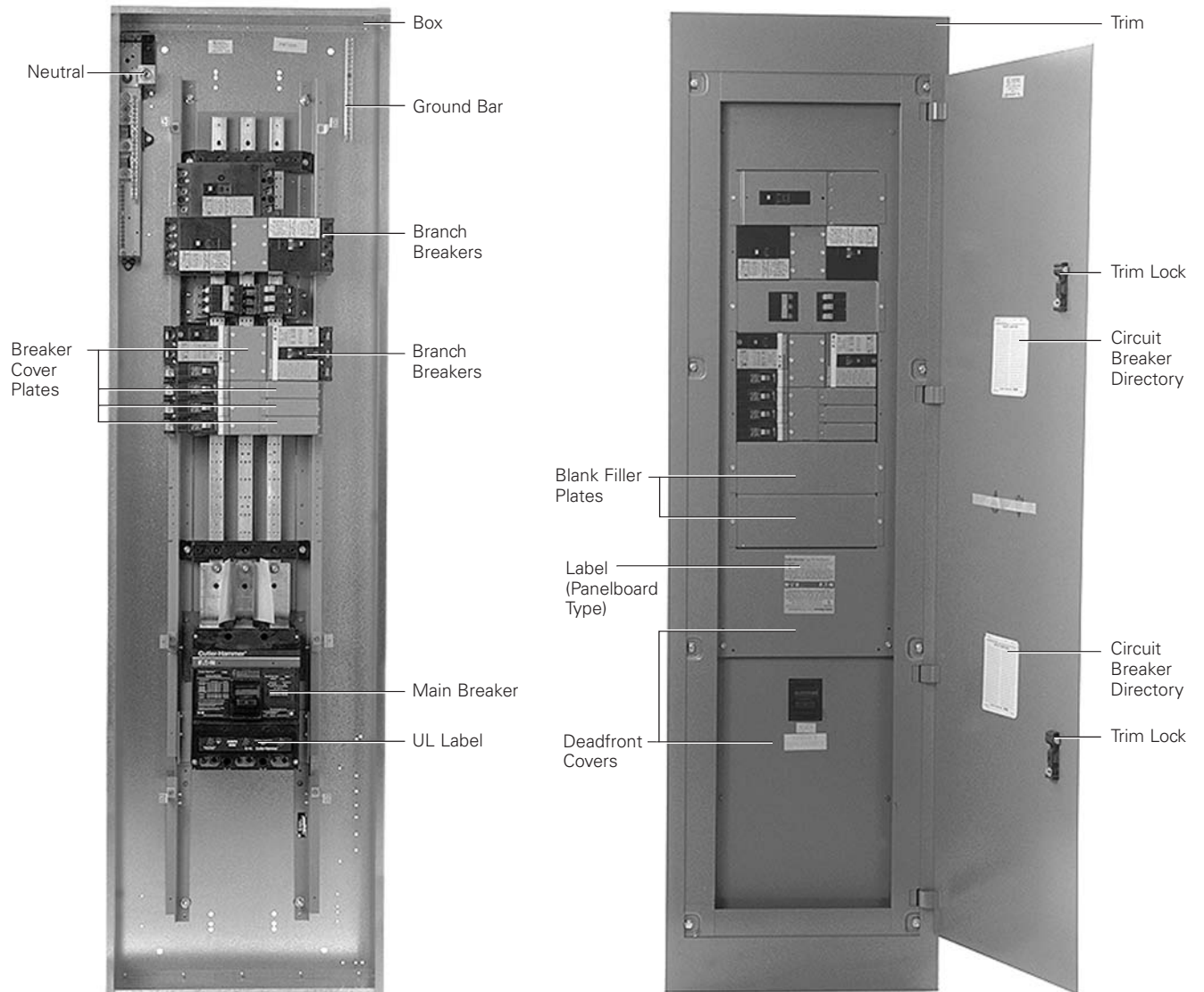
Table 3. Filler Plate

Description	Catalog Number
Filler plate	CH9CP



Filler Plate

PH panelboards



PH Panelboards

“B” space increments

Type PH panelboards are divided vertically into “B” space increments, each occupying four normal pole spaces for single-phase panels or six pole spaces in a three-phase panel. All circuit breakers mounted in one “B” space must be in the same family type (EHD, F-Frame, and CC, CCH, CHH). Each kit consists of a breaker, connectors, installation instructions, and a deadfront panel cover plate to mount all breakers in a single “B” space increment. Order one retrofit kit for each “B” space increment or a filler plate to cover unused “B” spaces.

PH breaker retrofit kits

A retrofit kit includes one breaker and all the associated parts required for mounting on a PH panel chassis.

Table 4. PH Panelboards

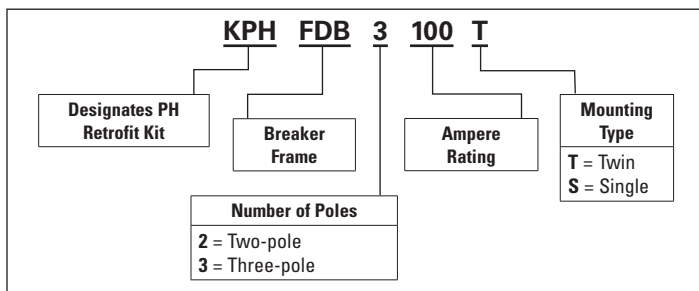
Frame Ampere Rating	Breaker Frame	Number of Poles	Trip Range	Mounting Type
240 Vac Maximum				
225	CC	2, 3	100–225	Single
	CCH	2, 3	100–225	Single
	CHH	2, 3	60–225	Single
277 Vac Maximum				
100	EHD	1	15–100	Twin
	FDB	1	15–100	Twin
	FD	1	15–100	Twin
	HFD	1	15–100	Twin
480 Vac Maximum				
100	EHD	2, 3	15–100	Twin
600 Vac Maximum				
100	FDB	2, 3	15–100	Twin
	FD	2, 3	15–100	Twin
	HFD	2, 3	15–100	Twin
150	FDB	2, 3	15–150	Twin
	FD	2, 3	15–150	Twin
	HFD	2, 3	15–150	Twin

How to create a retrofit kit catalog number

Use “KPH” prefix and add the catalog number of the specific breaker as shown in **Table 5**.

Example: The retrofit kit catalog number for a three-pole, 100A, FDB breaker is KPHFDB3100T.

Table 5. Catalog Numbering System



Twin mounting indicates that only one set of connectors is required to mount two breakers (of similar frames) opposite one another. A RETROFIT KIT INCLUDES ONE BREAKER ONLY, FOR EITHER SINGLE- OR TWIN-MOUNTED APPLICATIONS. If a second breaker is required for a twin-mounting application, it must be specified as a separate item.

Must specify in notes whether this is for a single-phase panel or a three-phase panel.

EHD and F-Frame retrofit kit

Each kit includes one breaker, copper connectors for twin mounting, covers, mounting brackets, hardware, and installation instructions.



CC, CCH, CHH single unit retrofit kit

Each kit includes one breaker, copper connectors, covers, mounting brackets, hardware, and installation instructions.



EHD, F-Frame connector/mounting kit



Three-Phase Shown

CC, CCH, CHH connector/mounting kit



Three-Phase Shown

Table 6. Connector/Mounting Kits for Branch Breakers ①

Branch Breaker Type	Volts Maximum	Amperes	Each "B" Space Increment Breaker Loading	Number of Poles	Catalog Number
Single-Phase Panel					
CC, CCH, CHH	240	225	Occupies all four-pole spaces	2	PH2CC1
Three-Phase Panel					
EHD and F-Frame ②	600	150	Any combination of single-pole, two-pole, or three-pole breakers up to a maximum of six poles	6	PH6E-3
CC, CCH, CHH	240	225	Occupies all six-pole spaces	3	PH3CC3

① CH, CHB connector kits are no longer available. Use F-Frame retrofit kits as listed on **Page 6**.

② Maximum amperes per breaker not to exceed 150A, and maximum amperes connected to any one connector not to exceed 200A (50A–150A).

Note: Each kit includes copper connectors, mounting brackets, covers, hardware, and installation instructions.

Table 7. PH Panelboard Trims and Deadfront Covers—Dimensions in Inches (mm)

21.00 (533.4) Wide			26.00 (660.4) Wide		21.00 (533.4) and 26.00 (660.4) Wide
Maximum Pole Space	Main Amperes	Box Height	Box Height	Box Height	Deadfront Cover Kits Part Number
Main Lugs Only—Single-Phase, Three-Wire					
28	225	42.00 (1066.8)	42.00 (1066.8)		①
40	225	50.00 (1270.0)	50.00 (1270.0)		99-3613-14
28	400	54.00 (1371.6)	54.00 (1371.6)		99-3613-31
40	400	63.00 (1600.2)	63.00 (1600.2)		99-3613-24
28	600	54.00 (1371.6)	54.00 (1371.6)		99-3613-21
40	600	63.00 (1600.2)	63.00 (1600.2)		①
28	800	—	59.00 (1498.6)		①
40	800	—	67.00 (1701.8)		①
Main Breaker—Single-Phase, Three-Wire					
28	225	59.00 (1498.6)	59.00 (1498.6)		①
40	225	67.00 (1701.8)	67.00 (1701.8)		①
28	400	67.00 (1701.8)	67.00 (1701.8)		①
40	400	75.00 (1905.0)	75.00 (1905.0)		①
28	600	67.00 (1701.8)	67.00 (1701.8)		①
40	600	75.00 (1905.0)	75.00 (1905.0)		①
Main Lugs Only—Three-Phase, Four-Wire					
18	225	34.00 (863.6)	—		99-3613-2
30	225	42.00 (1066.8)	42.00 (1066.8)		99-3613-7
42	225	50.00 (1270.0)	50.00 (1270.0)		99-3613-6
30	400	54.00 (1371.6)	54.00 (1371.6)		99-3613-15
42	400	63.00 (1600.2)	63.00 (1600.2)		99-3613
30	600	54.00 (1371.6)	54.00 (1371.6)		99-3613-18
42	600	63.00 (1600.2)	63.00 (1600.2)		99-3613-10
30	800	—	59.00 (1498.6)		①
42	800	—	67.00 (1701.8)		①
Main Breaker—Three-Phase, Four-Wire					
18	225	50.00 (1270.0)	50.00 (1270.0)		①
30	225	59.00 (1498.6)	59.00 (1498.6)		①
42	225	67.00 (1701.8)	67.00 (1701.8)		①
30	400	67.00 (1701.8)	67.00 (1701.8)		①
42	400	75.00 (1905.0)	75.00 (1905.0)		①
30	600	67.00 (1701.8)	67.00 (1701.8)		①
42	600	75.00 (1905.0)	75.00 (1905.0)		①

① Contact the Aftermarket Product Center in Sumter, SC, at 803-481-6677.

PH accessories

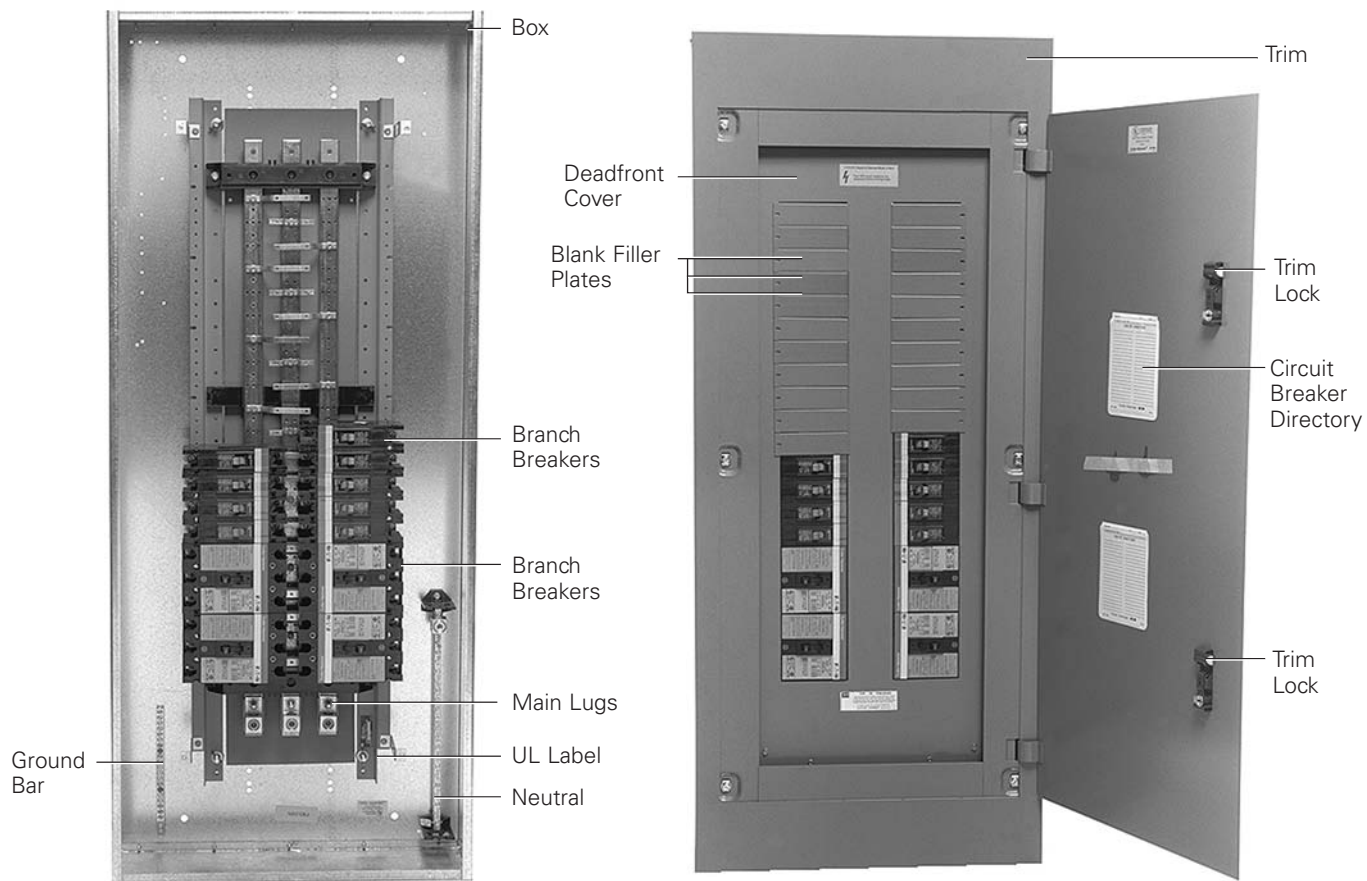
Table 8. Breaker Cover Plate

Description	Catalog Number
CH and CHB breakers	CH9CP
F- and C-Frame breakers	47-28266
Single-phase	47-28007
Three-phase	47-28008



Breaker Cover Plates

PH-L panelboards and NFB panelboards—21.00 inches (533.4 mm) wide



PH-L Panelboards and NFB Panelboards—21.00 Inches (533.4 mm) Wide

PH-L breaker retrofit kits

A retrofit kit includes one breaker and all the associated parts required for mounting on a PH-L panel chassis.

Note: The below PH-L retrofit kits and blank filler plate will fit a 21.00-inch (533.4 mm) wide NFB panelboard.

Table 9. PH-L Breaker Retrofit Kits

Frame Ampere Rating	Breaker Frame	Number of Poles	Trip Range	Mounting Type
277 Vac Maximum				
100	EHD	1	15–100	Twin
	FDB	1	15–100	Twin
	FD	1	15–100	Twin
	HFD	1	15–100	Twin
480 Vac Maximum				
100	EHD	2, 3	15–100	Twin
600 Vac Maximum				
100	FDB	2, 3	15–100	Twin
	FD	2, 3	15–100	Twin
	HFD	2, 3	15–100	Twin
150 ⊕	FDB	2, 3	15–150	Twin
	FD	2, 3	15–150	Twin
	HFD	2, 3	15–150	Twin

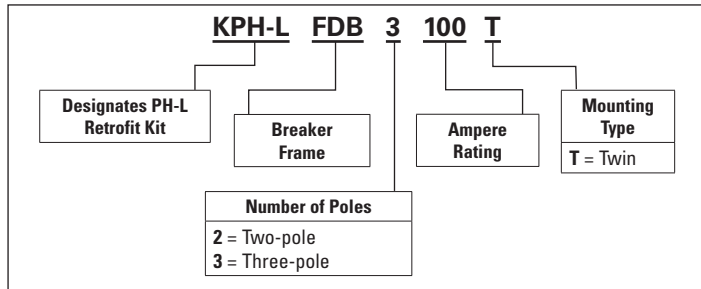
⊕ Kit contains A, B, and C phase connectors, hardware, and instructions to twin-mount two three-pole above-listed frame breakers. Maximum amperes per breaker not to exceed 150A and maximum amperes connected to any one connector not to exceed 200A (50A–150A).

How to create a retrofit kit catalog number

Use “KPH-L” prefix and add the catalog number of the specific breaker as shown in **Table 10**.

Example: The retrofit kit catalog number for a three-pole, 100A, FDB breaker is KPH-LFDB3100T.

Table 10. Catalog Numbering System



Twin mounting indicates that only one set of connectors is required to mount two breakers (of similar frames) opposite one another. A RETROFIT KIT INCLUDES ONE BREAKER ONLY, FOR TWIN-MOUNTED APPLICATIONS. If a second breaker is required for a twin mounting application, it must be specified as a separate item.

Deadfront cover



Contact the Aftermarket Product Center in Sumter, SC, at 803-481-6677.

EHD and F-Frame retrofit kit



Each kit includes one breaker, copper connectors for twin mounting, hardware, mounting brackets, and instructions. Blank filler plates are not included.

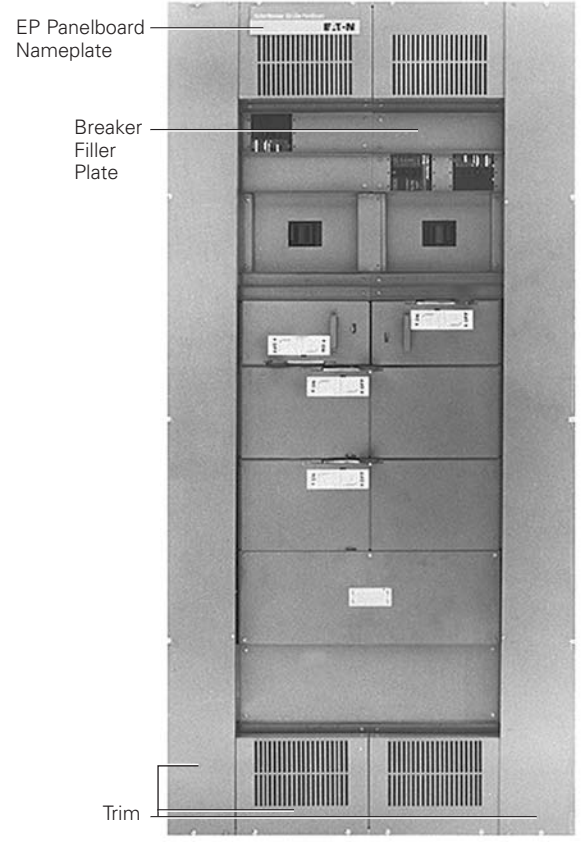
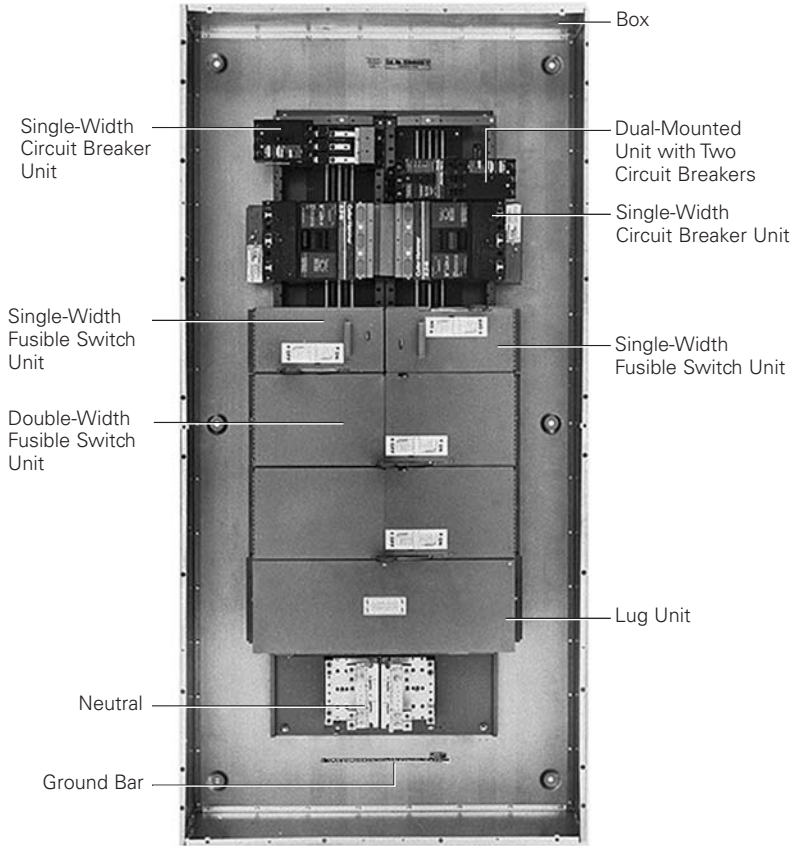
PH-L and NFB 21.00-inch (533.4 mm) wide blank filler plate



Table 11. PH-L and NFB 21.00-Inch (533.4 mm) Wide Blank Filler Plate

Description	Part Number
21.00-inch (533.4 mm) wide blank filler plate	47-15718-2

EP panelboards and ES switchboards



EP Panelboards

Branch circuit selection of EE2 units

Step 1: Select the correct branch circuit device. When selecting, you need to know the following:

- Amperage
- System voltage
- Available short-circuit rating
- Number of poles
- Size and number of wires per phase
- X space required 1X = 1.38 inches (35.1 mm)

Step 2: Refer to the EP panelboard layout on **Page 11** to verify the amount of X space available.

Step 3: Create an EE2 Unit catalog number, or order by description, by following the instructions on **Page 14**.

Step 4: Determine if extra filler covers are required. Additional filler covers may be necessary to fill the unused space. Refer to **Page 16** for filler plate information.

Table 12. Electrical Characteristics and X Space Requirements of Branch Circuit Breakers and Fusible Switches

Circuit Breaker	Ampere Rating	Number of Poles	Maximum Vac	UL Listed Interrupting Capacities—kA Symmetrical Amperes						X Space Required
				AC Rating Volts				DC Rating Volts ①		
				240	277	480	600	125	250	
EHD	15–100	1	277	—	14	—	—	10	—	3X
	15–100	2, 3	480	18	14	—	—	—	10	3X
FDB	15–225	2, 3	600	18	—	14	14	—	10	3X
FD	15–225	1	277	—	25	—	—	10	—	3X
	15–225	2, 3	600	65	—	25	18	—	10	3X
HFD	15–225	1	277	—	—	65	—	10	—	3X
	15–225	2, 3	600	100	—	65	25	—	22	3X
FDC	15–225	2, 3	600	200	—	100	35	—	22	3X
ED	100–225	2, 3	240	65	—	—	—	10	—	3X
EDH	100–225	2, 3	240	100	—	—	—	10	—	3X
EDC	100–225	2, 3	240	200	—	—	—	10	—	3X
JD, JDB	70–250	2, 3	600	65	—	35	18	—	10	3X
HJD	70–250	2, 3	600	100	—	65	25	—	22	3X
JDC	70–250	2, 3	600	200	—	100	35	—	22	3X
DK	250–400	2, 3	240	65	—	—	—	—	10	4X
KD, KDB	100–400	2, 3	600	65	—	35	25	—	10 ②	4X
HKD	100–400	2, 3	600	100	—	65	35	—	22 ②	4X
KDC	100–400	2, 3	600	200	—	100	50	—	22 ②	4X
LCL	100–400	2, 3	600	200	—	200	—	—	—	6X
LD, LDB	125–400	2, 3	600	65	—	35	25	—	22 ②	6X
HLD	300–600	2, 3	600	100	—	65	35	—	25 ②	6X
LDC	300–600	2, 3	600	200	—	100	50	—	25 ②	6X

① DC ratings apply to substantially non-inductive circuits.

② DC ratings not available with electronic trip.

Fusible switches

Fusible switches are not available. Replace with circuit breaker units from above.

⚠ WARNING

CIRCUIT BREAKER UNITS WILL NOT FIT ACROSS FROM A FUSIBLE SWITCH OR A LUG UNIT.

EP panelboards

“X” unit layout of circuit breaker and fusible switch units

Note: For current circuit breaker offering, refer to the cross-reference **Table 24** on **Page 23**.

Note: Switch and breaker units may be combined without transition space in the same panel, but not horizontally opposed in double-bus interiors.

1X = 1.38 inches (35.1 mm).

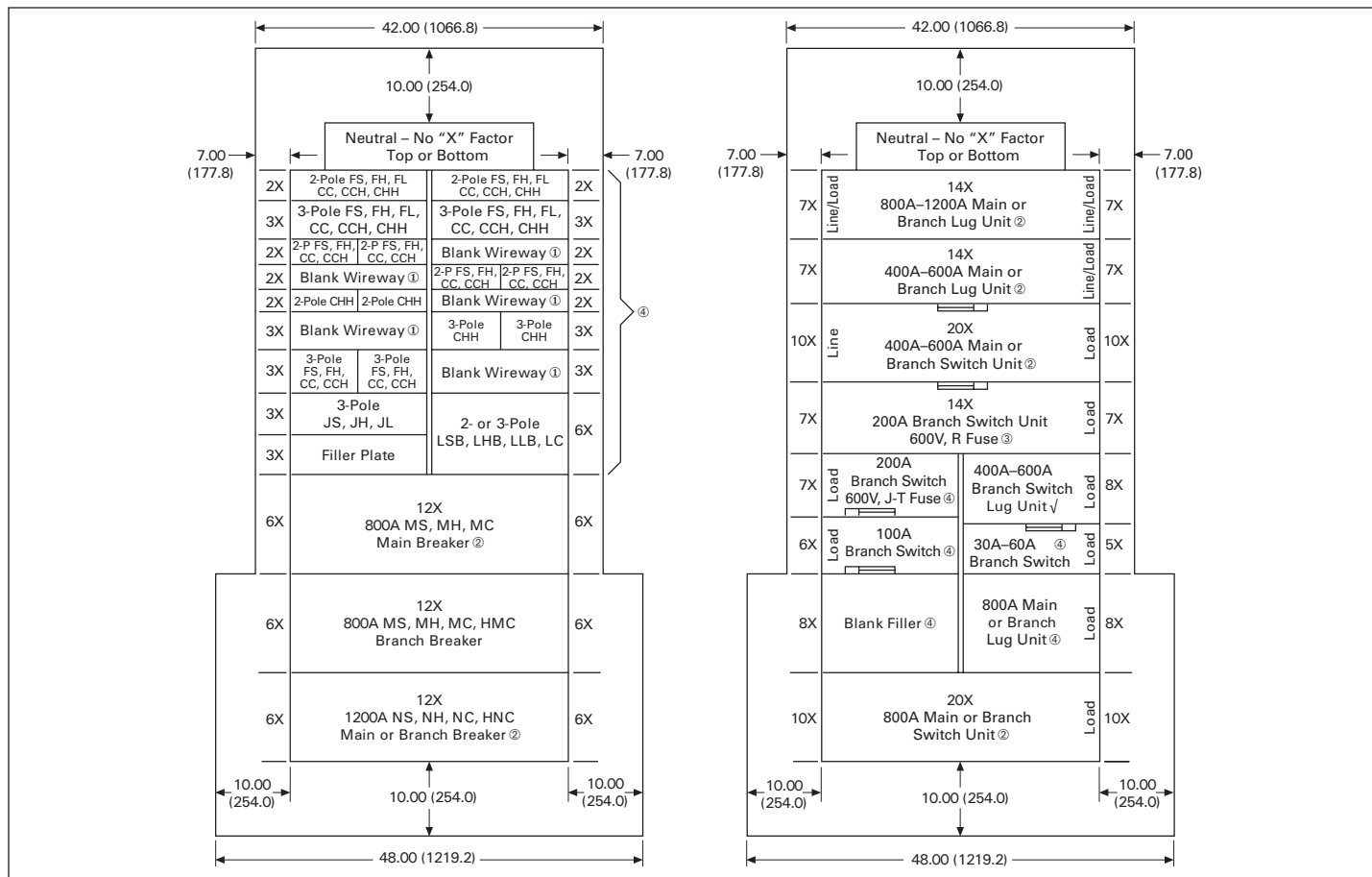


Figure 1. Double-Bus Interior Mounted in 42.00-Inch (1066.8 mm) or 48.00-Inch (1219.2 mm) Wide Enclosure—Dimensions in Inches (mm)

- ① Blank wireway fillers are required opposite any dual breaker unit or adapter.
- ② Main device must be mounted at the neutral end of double-bus panel.
- ③ Single plug-on connector provided opposite the load end of wide switch unit may require staggering to balance double-bus loading.
- ④ May be used in 30.00-inch (762.0 mm) wide single bus interiors.

Table 13. EP-Line Box Sizes and Maximum Component Unit Sizes—Dimensions in Inches (mm)

Box Width and Bus Type	Total “X” Factor	Box Height	Maximum Ampere of Plug-On Components							
			Main Lugs	Branch Lugs	Main Breaker	Branch Breaker	Main Switch	Branch Fusible Switch		
30.00 (762.0) wide single-bus	24X	64.00 (1625.6)	800	600	600	600	—	100A	200A	200A
	32X	75.00 (1905.0)	800	600	600	600	—	600V R Fuse	600V J or T Fuse	240V R Fuse
	40X	86.00 (2184.4)	800	600	600	600	—			
42.00 (1066.8) wide double-bus	48X	64.00 (1625.6)	1200 ①	1200 Twin 400 Single	800 ①	600	600 ①	600		
	64X	75.00 (1905.0)	1200 ①		800 ①	600	600 ①	600		
	80X	86.00 (2184.4)	1200 ①		800 ①	600	600 ①	600		
48.00 (1219.2) wide double-bus	48X	64.00 (1625.6)	1200 ①	1200 Twin 600 Single	1200 ①	800	800 ①	800		
	64X	75.00 (1905.0)	1200 ①		1200 ①	800	800 ①	800		
	80X	86.00 (2184.4)	1200 ①		1200 ①	800	800 ①	800		

① Mains must be twin-mount types (over 8X space factor), and must be mounted on the neutral end of the panel. Smaller 4X or 6X breakers may be used as the main breaker when a 1200A lug unit is used to tie across the double-bus. The 1200A lug unit must be mounted at the neutral end with the main breaker adjacent to the lug unit.

EP panelboards and ES switchboards

EE2 circuit breaker plug-on units

A plug-on unit is a complete assembly with a circuit breaker and a mounting adapter to mount on an EP panelboard.

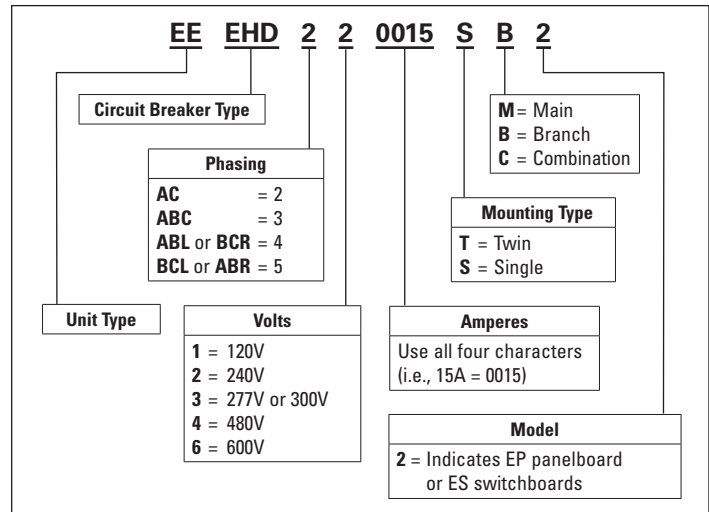
“Single” indicates units that may be mounted in a single or double bus panel, and “twin” indicates double bus panels only.

Table 14. EE2 Circuit Breaker Plug-On Units

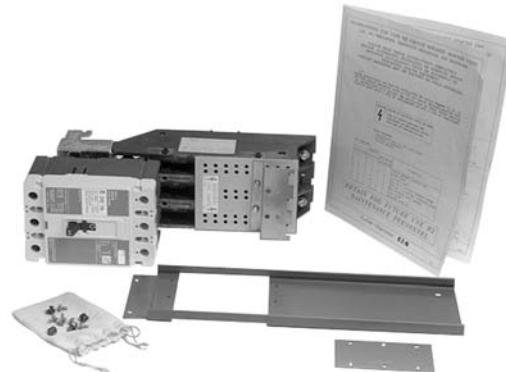
Frame Ampere Rating	Breaker Frame	Trip Range	Mounting Type	Space Required		
				Inches (mm)	X Space	
100	EHD	15–60	Single	4.13 (104.9)	3X	
	EHD	70–100	Single	4.13 (104.9)	3X	
	FDB	15–60	Single	4.13 (104.9)	3X	
	FDB	70–100	Single	4.13 (104.9)	3X	
	FD	15–60	Single	4.13 (104.9)	3X	
	FD	70–100	Single	4.13 (104.9)	3X	
	HFD	15–60	Single	4.13 (104.9)	3X	
	HFD	70–100	Single	4.13 (104.9)	3X	
	FDC	15–60	Single	4.13 (104.9)	3X	
	FDC	70–100	Single	4.13 (104.9)	3X	
	225	FDB	110–225	Single	4.13 (104.9)	3X
		FD	110–225	Single	4.13 (104.9)	3X
HFD		110–225	Single	4.13 (104.9)	3X	
FDC		110–225	Single	4.13 (104.9)	3X	
ED		100–225	Single	4.13 (104.9)	3X	
EDH		100–225	Single	4.13 (104.9)	3X	
EDC		100–225	Single	4.13 (104.9)	3X	
JD		70–225	Single	4.13 (104.9)	3X	
HJD		70–225	Single	4.13 (104.9)	3X	
JDC		70–225	Single	4.13 (104.9)	3X	
250		JD	250	Single	4.13 (104.9)	3X
		HJD	250	Single	4.13 (104.9)	3X
	JDC	250	Single	4.13 (104.9)	3X	
400	KD	100–400	Single	5.50 (139.7)	4X	
	HKD	100–400	Single	5.50 (139.7)	4X	
	KDC	100–400	Single	5.50 (139.7)	4X	
	LCL	125–400	Single	8.25 (209.6)	6X	
600	LD	300–600	Single	8.25 (209.6)	6X	
	HLD	300–600	Single	8.25 (209.6)	6X	
	LDC	300–600	Single	8.25 (209.6)	6X	

How to create an EE2 circuit breaker plug-on unit catalog number

Table 15. Catalog Numbering System

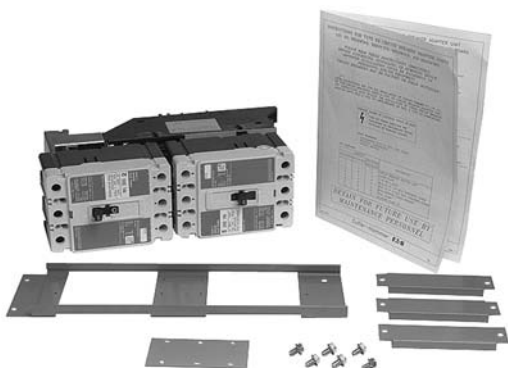


Type EE2 single plug-on unit



Each single plug-on unit comes as a complete assembly with one circuit breaker mounted to an adapter. Also included is a breaker cover plate, hardware, and installation instructions.

Type ED dual plug-on units



Each dual plug-on unit comes as a complete assembly with one or two circuit breakers mounted to an adapter. Also included is a breaker cover plate, hardware, and installation instructions. A blank wireway filler plate is required when a unit is mounted in a double bus panel.

ED dual plug-on units are ordered by description.

Specify:

- The number of three-pole breakers to be mounted on each unit (maximum two)
- The breaker frame with current rating and operating voltage

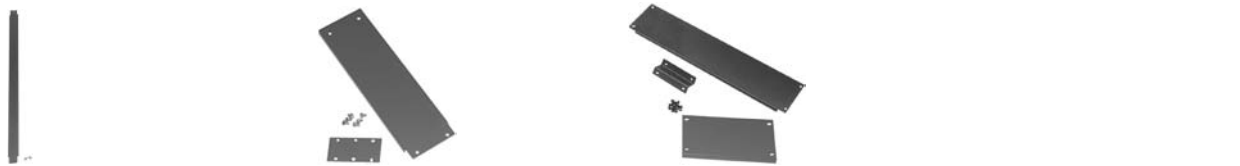
Note: The available frame ratings are listed in **Table 16**.

Table 16. Type ED Dual Plug-on Units

Frame Ampere Rating	Breaker Frame	Trip Range	Mounting Type	Space Required		
				Inches (mm)	X Space	
100	EHD	15-60	Single	4.13 (104.9)	3X	
	EHD	70-100	Single	4.13 (104.9)	3X	
	FDB	15-60	Single	4.13 (104.9)	3X	
	FDB	70-100	Single	4.13 (104.9)	3X	
	FD	15-60	Single	4.13 (104.9)	3X	
	FD	70-100	Single	4.13 (104.9)	3X	
	HFD	15-60	Single	4.13 (104.9)	3X	
	HFD	70-100	Single	4.13 (104.9)	3X	
	FDC	15-60	Single	4.13 (104.9)	3X	
	FDC	70-100	Single	4.13 (104.9)	3X	
	225	FDB	100-225	Single	4.13 (104.9)	3X
		FD	100-225	Single	4.13 (104.9)	3X
HFD		100-225	Single	4.13 (104.9)	3X	
FDC		100-225	Single	4.13 (104.9)	3X	
ED		100-225	Single	4.13 (104.9)	3X	
EDH		100-225	Single	4.13 (104.9)	3X	
EDC		100-225	Single	4.13 (104.9)	3X	

Type EE2 filler plates

Table 17. Type EE2 Breaker Filler Plates



Full-width plate for use with double bus interiors in 42.00-inch (1066.8 mm) and 48.00-inch (1219.2 mm) wide enclosures ①

Single-width for use with single bus width interiors and across from circuit breakers in wide panels

Single-width blank wireway to cover the bus across from a dual-mount adapter kit in a bus interior; also used opposite breakers with accessories

Single-width blank bus cover and trim fillers for use across from breakers for six disconnect rule (SUSE) applications

"X" Factor	Catalog Number	Catalog Number	Catalog Number	Catalog Number
1X	—	EEFPB1S1	—	—
2X	EEFPB2T2	EEFPB2S1	EEFPB2S2W	EEFPB2S2N
3X	—	—	EEFPB3S2W	EEFPB3S2N
4X	EEFPB4T2	EEFPB4S1	EEFPB4S2W	EEFPB4S2N
5X	—	EEFPB5S1	EEFPB5S2W	EEFPB5S2N
6X	EEFPB6T2	EEFPB6S1	EEFPB6S2W	EEFPB6S2N
8X	EEFPB8T2	—	—	—
10X	EEFPB10T2	—	—	—
12X	EEFPB12T2	—	—	—

① 2X filler is a 1X filler covering the left side and right side of a double bus interior.

Table 18. Type EE2 Fusible Switch Filler Plates



For use across from single-width fusible switches in double bus panels

Full width for use with double-width interiors ①

Wiring trays for use with fusible switches with accessories

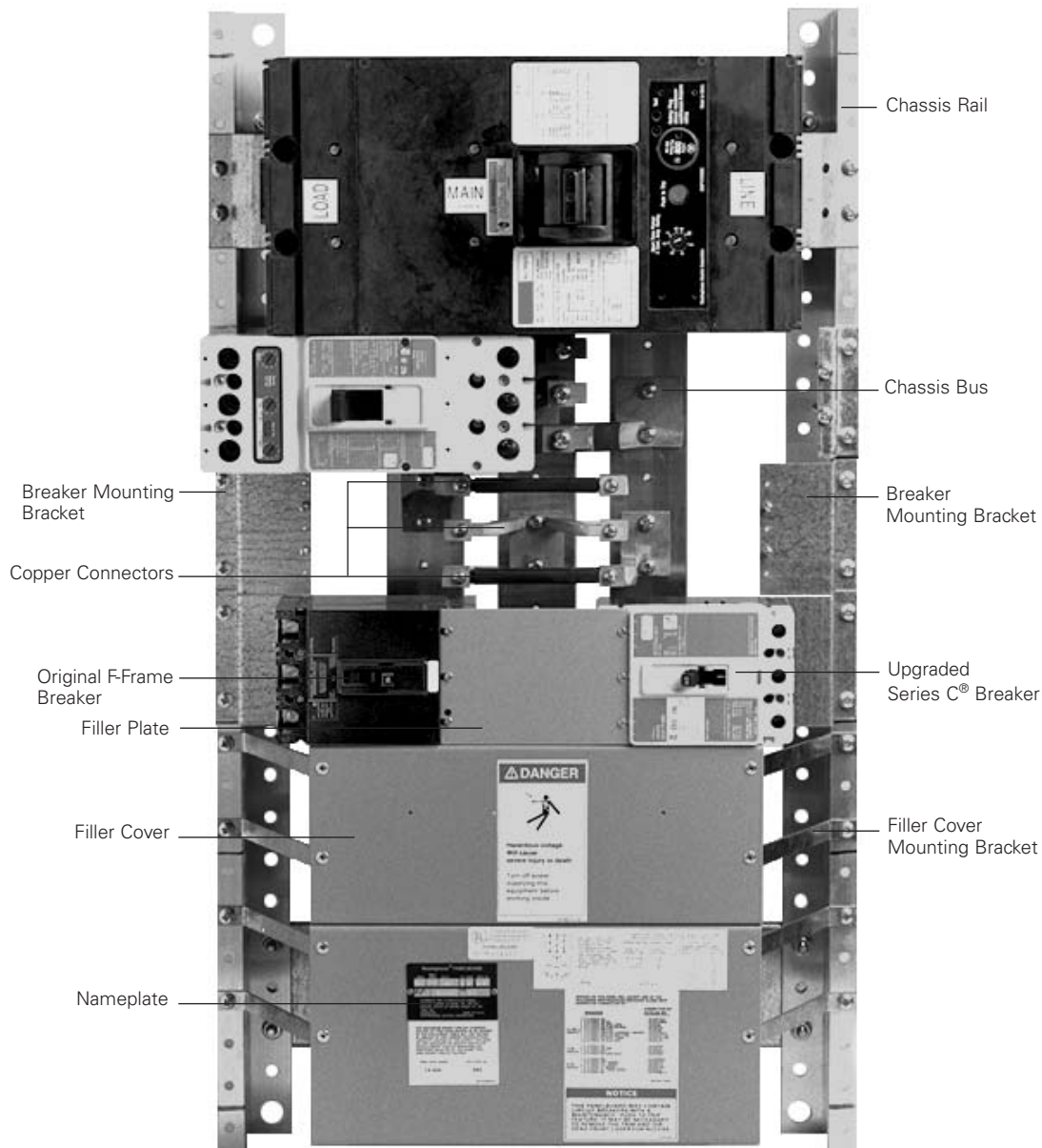
Single-width bus covers and trim fillers for use across from fusible switches for six disconnect rule (SUSE) applications

"X" Factor	Catalog Number	Catalog Number	Catalog Number	Catalog Number
1X	EEFPS1S2	—	—	—

① 2X filler is a 1X filler covering the left side and right side of a double bus interior.

CDP, MP40, and NFB panelboards

26.50–36.00-inch (673.1–914.4 mm) wide panelboards



MP40 Panelboard

Branch circuit breaker selection

Step 1: Select the correct breaker. When selecting a breaker, you need to know the following:

- Amperage
- System voltage
- Available short-circuit rating
- Number of poles
- Size and number of wires per phase

Step 2: Use the chart on **Page 19** to determine the space required.

Step 3: Create the retrofit kit catalog number by following the instructions on **Page 19**.

Step 4: Determine if extra filler covers are required. Additional filler covers may be necessary to fill the unused space.

Table 19. Electrical Characteristics of Branch Circuit Breakers

Circuit Breaker Type	Continuous Ampere Rating	Number of Poles	Vac	UL Listed Interrupting Capacities—kA Symmetrical Amperes					
				AC Rating Volts				DC Rating Volts ①	
				240	277	480	600	125	250
EHD	15–100	1	277	—	14	—	—	10	—
EHD	15–100	2, 3	480	18	—	14	—	—	10
ED	100–225	2, 3	240	65	—	—	—	—	10
EDH	100–225	2, 3	240	100	—	—	—	—	10
EDC	15–225	2, 3	240	200	—	—	—	—	10
FDB	15–225	2, 3	600	18	—	14	14	—	10
FD	15–225	1	277	—	25	—	—	10	—
FD	15–225	2, 3	600	65	—	25	18	—	10
HFD	15–225	1	277	—	65	—	—	10	—
HFD	15–225	2, 3	600	100	—	65	25	—	22
FDC	15–225	2, 3	600	200	—	100	35	—	22
CC ②	100–225	2, 3	240	10	—	—	—	—	—
CCH ②	100–225	2, 3	240	25	—	—	—	—	—
CHH ②	60–225	2, 3	240	100	—	—	—	—	—
JD, JDB	70–250	2, 3	600	65	—	35	18	—	10
HJD	70–250	2, 3	600	100	—	65	25	—	22
JDC	70–250	2, 3	600	200	—	100	35	—	22
DK	250–400	2, 3	600	65	—	—	—	—	10
KD, KDB	100–400	2, 3	600	65	—	35	25	—	10 ③
HKD	100–400	2, 3	600	100	—	65	35	—	22 ③
KDC	100–400	2, 3	600	200	—	100	50	—	22 ③
LCL	125–400	2, 3	480	200	—	200	—	—	—
LD	300–600	2, 3	600	65	—	35	25	—	22 ③
HLD	300–600	2, 3	600	100	—	65	35	—	25 ③
LDC	300–600	2, 3	600	200	—	100	50	—	25 ③
MDL	300–800	2, 3	600	65	—	50	25	—	22 ③
HMDL	300–800	2, 3	600	100	—	65	35	—	25 ③
ND	600–1200	2, 3	600	65	—	35	25	—	—
HND	600–1200	2, 3	600	100	—	65	35	—	—
NDC	600–1200	2, 3	600	200	—	100	50	—	—

① DC ratings apply to substantially non-inductive circuits.

② Not recommended for motor loads.

③ DC ratings not available with electronic trip.

**MP40 panelboards, CDP and NFB
26.50–36.00 inches (673.1–914.4 mm) wide,
MP2 switchboard chassis**

A retrofit kit includes one breaker and all the associated parts required for mounting on an MP40 or CDP panel chassis.

Table 20. MP40 Breaker Retrofit Kits

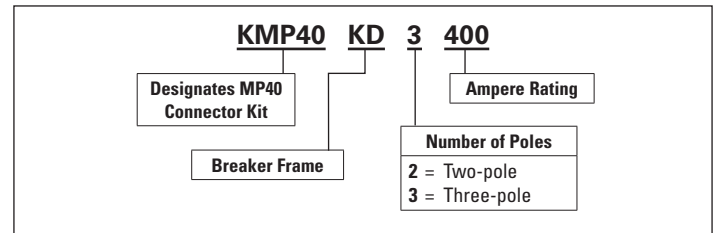
Frame Ampere Rating	Breaker Frame	Trip Range	Mounting Type	Space Required		
				Inches (mm)	X Space	
100	EHD	15–60	Twin	4.13 (104.9)	3X	
	EHD	70–100	Twin	4.13 (104.9)	3X	
	FDB	15–60	Twin	4.13 (104.9)	3X	
	FDB	70–100	Twin	4.13 (104.9)	3X	
	FD	15–60	Twin	4.13 (104.9)	3X	
	FD	70–100	Twin	4.13 (104.9)	3X	
	HFD	15–60	Twin	4.13 (104.9)	3X	
	HFD	70–100	Twin	4.13 (104.9)	3X	
	FDC	15–60	Twin	4.13 (104.9)	3X	
	FDC	70–100	Twin	4.13 (104.9)	3X	
	FCL	15–100	Twin	4.13 (104.9)	3X	
	FB-P	15–100	Twin	4.13 (104.9)	3X	
	150	FDB	110–225	Twin	4.13 (104.9)	3X
		FD	110–225	Twin	4.13 (104.9)	3X
HFD		110–225	Twin	4.13 (104.9)	3X	
FDC		110–225	Twin	4.13 (104.9)	3X	
225	ED	125–225	Twin	4.13 (104.9)	3X	
	EDH	125–225	Twin	4.13 (104.9)	3X	
	EDC	125–225	Twin	4.13 (104.9)	3X	
250	JD	70–225	Twin	4.13 (104.9)	3X	
	JD	250	Twin	4.13 (104.9)	3X	
	HJD	70–225	Twin	4.13 (104.9)	3X	
	HJD	250	Twin	4.13 (104.9)	3X	
	JDC	70–225	Twin	4.13 (104.9)	3X	
	JDC	250	Twin	4.13 (104.9)	3X	
400	KD	100–400	Twin	5.50 (139.7)	4X	
	HKD	100–400	Twin	5.50 (139.7)	4X	
	KDC	100–400	Twin	5.50 (139.7)	4X	
600	LD	300–600	Twin	8.25 (209.6)	6X	
	HLD	300–600	Twin	8.25 (209.6)	6X	
	LDC	300–600	Twin	8.25 (209.6)	6X	
800	MDL	400–800	Single	8.25 (209.6)	6X	
	HMDL	400–800	Single	8.25 (209.6)	6X	
1200	ND	600–1200	Single	8.25 (209.6)	6X	
	HND	600–1200	Single	8.25 (209.6)	6X	
	NDC	600–1200	Single	8.25 (209.6)	6X	

How to create a retrofit kit catalog number

Use “KMP40” prefix and add the catalog number of the specific breaker as shown in **Table 21**.

Example: The retrofit kit catalog number for a three-pole, 400A, KD breaker is KMP40KD3400.

Table 21. Catalog Numbering System



Twin mounting indicates that only one set of connectors is required to mount two breakers (of similar frames) opposite one another. A RETROFIT KIT INCLUDES ONE BREAKER ONLY, FOR EITHER SINGLE- OR TWIN-MOUNTED APPLICATIONS. If a second breaker is required for a twin-mounting application, it must be specified as a separate item.

MP40 retrofit kit

Each kit includes one breaker, copper connectors, mounting brackets, covers, hardware, and instructions.



MP40 Retrofit Kit

MP40 panelboards, MP2 switchboard chassis

A connector kit consists of copper connectors, mounting bracket covers, hardware, and instructions for mounting breaker(s) on an MP40 or MP200 switchboard chassis. If breaker is also required, see retrofit kits shown on **Page 19**.

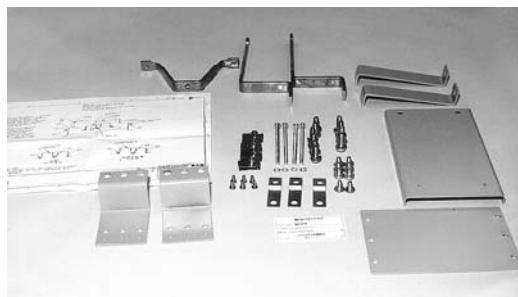
Table 22. MP40 Breaker Connector Kits

Maximum Amperes	Breaker Frames	Number of Poles	Mounting Type	Space Required		Connector Kit Catalog Numbers
				Inches (mm)	X Space	
100	EHD, FDB, FD, HFD, FDC	2	Twin	2.75 (69.9)	2X	MP40KF100-2
	EHD, FDB, FD, HFD, FDC	3	Twin	4.13 (104.9)	3X	MP40KF100-3
225	FDB, FD, HFD, FDC, ED, EHD, EDC	2	Twin	2.75 (69.9)	2X	MP40KF225-2
	FDB, FD, HFD, FDC, ED, EHD, EDC	3	Twin	4.13 (104.9)	3X	MP40KF225-3
	CC, CCH	2	Twin	2.75 (69.9)	2X	MP40KC225-2
	CC, CCH	3	Twin	4.13 (104.9)	3X	MP40KC225-3
	CHH	2	Twin	2.75 (69.9)	2X	MP40KCHH225-2
	CHH	3	Twin	4.13 (104.9)	3X	MP40KCHH225-3
250	JD, JDB, HJD, JDC	3	Twin	4.13 (104.9)	3X	MP40KJ225-3
400	DK, KD, KDB, HKD, KDC	3	Twin	5.50 (139.7)	4X	MP40KK400-3
600	LD, HLD, LDC	3	Twin	8.25 (209.6)	6X	MP40KL600-3
400	LCL	3	Single	8.25 (209.6)	6X	MP40KLL400-3
800	MDL, HMDL	3	Single	8.25 (209.6)	6X	MP40KM800-3
1200	ND, HND, NDC	3	Single	8.25 (209.6)	6X	MP40KN1200-3 ①

① Connector kits are not rated for 100 percent breakers.

Connector kit

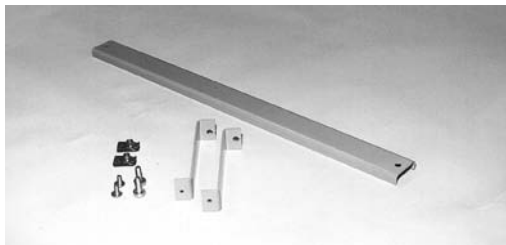
Each kit includes copper connectors, mounting brackets, covers, hardware, and instructions.



Connector Kit

MP40 filler covers

Filler covers are available in any increment of 1X = 1.38 inches (35.1 mm). Catalog number is: MP40FC_ X. Fill in the blank with the size. Included are cover, mounting brackets, and hardware.

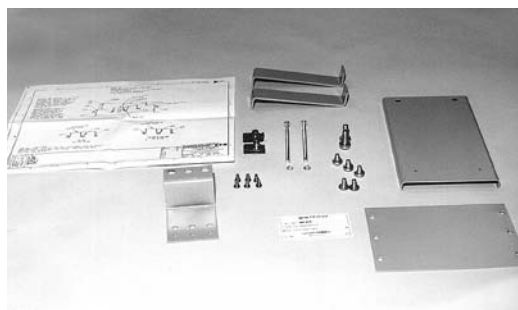


MP40 Filler Covers

Hardware kit

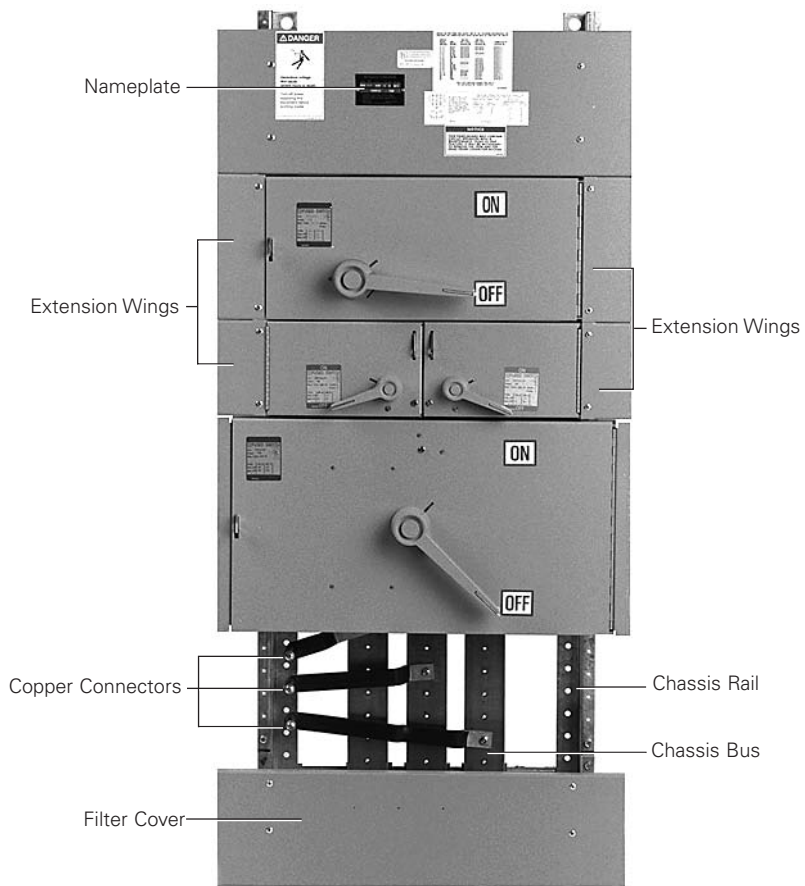
Each kit includes mounting bracket(s), filler plates, and mounting hardware ONLY. Use the appropriate connector kit catalog number and add an "H" to designate "hardware only."

Example: MP40KF100-3H



Hardware Kit

MP100 panelboards, MP2 switchboard chassis



MP100 Panelboard

Branch M50 switch selection

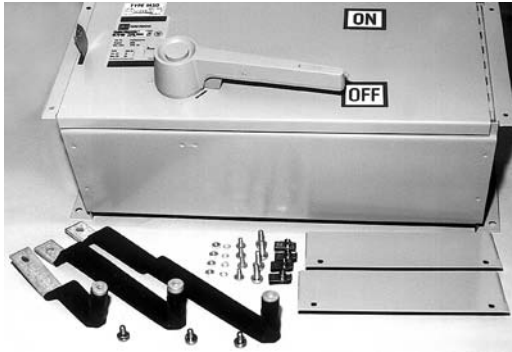
Step 1: Once you know the amperage and system voltage, choose the retrofit kit catalog number from **Table 23**.

Step 2: Check for space requirements from **Table 23**.

Step 3: Determine if extra filler covers are required. Additional filler covers may be necessary to fill the unused space.

M50 Retrofit Kit

Each kit includes a switch, copper connectors, covers, hardware, and instructions.



M50 Retrofit Kit

A retrofit kit includes one switch and all hardware to mount the switch as branch devices only. For main switches, contact the Aftermarket Product Center in Sumter, SC, at 803-481-6677.

Switches up to 600A are designed for use with rejection-type fuses. For other fuse applications, contact the Sumter Aftermarket Plant. Switches rated 800A and 1200A are designed for use with Class L fuses. Fuses are not included.

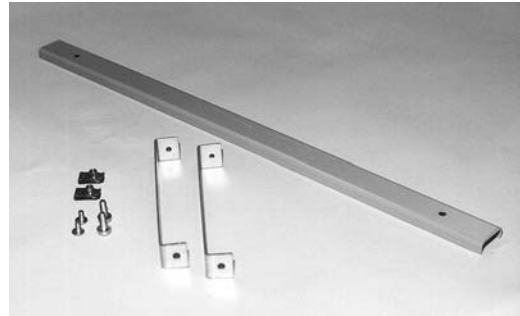
Table 23. M50 Retrofit Kits

Switch Ampere Rating	Mounting Type	Space Required		Catalog Number	
		Inches (mm)	X Space	250V	600V
30/30	Twin	5.50 (139.7)	4X	M50ATW3211R	M50ATW3611R
60/60	Twin	5.50 (139.7)	4X	M50ATW3222R	M50ATW3622R
100/100	Twin	5.50 (139.7)	4X	M50ATW3233R	—
100/100	Twin	6.88 (174.8)	5X	—	M50ATW3633R
200	Single	8.25 (209.6)	6X	M50ASB324R	M50ASB364R
400	Single	12.38 (314.5)	9X	M50ASW325R	M50ASW365R
600	Single	15.13 (384.3)	11X	M50ASW326R	M50ASW366R
800 ①	Single	24.75 (628.7)	18X	Use 600V Kit	M50ASW367_
1200 ①	Single	26.13 (663.7)	19X	Use 600V Kit	M50ASW368_

① 800A and 1200A switches must be vertically mounted and located at the top or bottom of the panelboard. Enter a "T" in the catalog number for top mounted or a "B" for bottom mounted.

MP100 filler covers

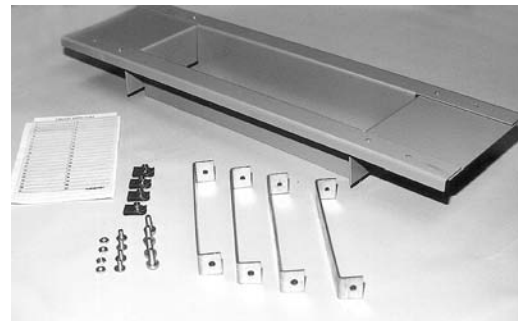
Filler covers are available in any increment of 1X = 1.38 inches (35.1 mm). Catalog number is: MP100FC_ X. Fill in the blank with the size. Included are cover, mounting brackets, and hardware.



MP100 Filler Covers

"Picture frame"

To permit installation of circuit breakers in an FDP panel, a "picture frame" is required. Add 2X to the breaker size for transition. Contact the Aftermarket Product Center in Sumter, SC, for technical assistance and pricing at 803-481-6677.



"Picture Frame"

Breaker cross-reference chart

Table 24. Breaker Cross-Reference Chart

Obsolete Cutler-Hammer Circuit Breaker Frame	Series C Replacement Circuit Breaker Frame
EC	EHD
EHC	FD
FS	FD
FC	FD
FH	HFD
FL	FDC
JS	JD, JDB
JH	HJD
JL	JDC
KS (A) 1	KD, KDB
KH (A) 1	KD
KS (D)	KD, KDB
KH (D)	KD
LS (A)	LD
LS (E)	LD
LH (A)	LD
LH (E)	LD
LL (E)	LDC
LSB (E)	LD
LH (E)	HLD
MS	MDL
NS	ND
MH	HMDL
NH	ND

① The Series C K-Frame family of breakers requires a TAD3 adapter kit when mounting a KD frame breaker onto existing KS (A) connectors. This adapter kit may be purchased separately for use with existing LB or KS (A) connectors.

Panelboard trim clamps

Contact the Aftermarket Product Center in Sumter, SC, for availability on styles listed below at 803-481-6677.



Table 25. Panelboard Trim Clamps

Description	Catalog Number
Used on MP40, PWW and all door-on-door trims	99-970
Used on PB and PW trims	99-1016

Panelboard trim locks

As panelboard trims have been redesigned over the years, so have trim locks. Contact the Aftermarket Product Center in Sumter, SC, for availability on the styles listed below in **Table 26** at 803-481-6677.

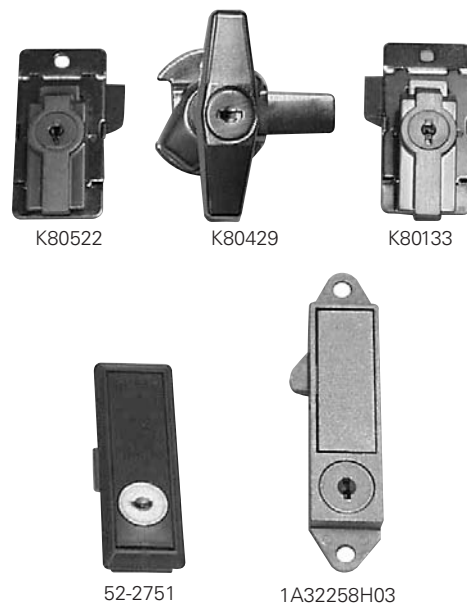


Table 26. Panelboard Trim Locks

Description	Catalog Number
For use on left-handed door (hinged on left side) WEM 1 key	K80522
For use on right-handed door (hinged on right side) WEM 1 key	K80133
T-Handle lock—at one time used on all trims over 48.00 inches (1219.2 mm) in height; also used on outdoor (N3R) trims. WEM 1 key	K80429
Used on lighting and small power panels as standard	1A32258H03
WEM 2 key; used on lighting and small panels as standard	52-2751

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