Table 3-114. Type BR Breakers, 1-Inch (25.4 mm) per Pole 240V AC, 10,000, 22,000 and 42,000 AIC

Note: All Type BR 1-, 2-, and 3-pole circuit breakers carry listing for HACR application.
For circuit breakers with a shunt trip, add ST suffix and obtain pricing from table on **Page 3-75**.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	3-Pole 240V AC Common Trip Requires Three 1-Inch (25.4 mm) Spaces 			
		5 per Shelf Carton			
		10 kAIC		22 kAIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
10	#14 – 4	**BR310**	148.	**—**	—
15 ①②		**BR315**	148.	**BRH315**	226.
20 ①②		**BR320**	148.	**BRH320**	226.
25		**BR325**	148.	**BRH325**	226.
30		**BR330**	148.	**BRH330**	226.
35	#14 – 4	**BR335**	148.	**BRH335**	226.
40		**BR340**	148.	**BRH340**	226.
45		**BR345**	148.	**BRH345**	226.
50		**BR350**	148.	**BRH350**	226.
55	#14 – 3	**BR355**	148.	**BRH355**	226.
60	#4 – 1/0	**BR360**	148.	**BRH360**	226.
70		**BR370**	148.	**BRH370**	284.
80		**BR380**	148.	**BRH380**	317.
90		**BR390**	220.	**BRH390**	317.
100		**BR3100**	220.	**BRH3100**	317.

① One pole, 1-inch (25.4 mm) per pole circuit breakers are available with high magnetic setting for switching large tungsten lamp loads. Add suffix H to catalog number.
② Switching duty rated.

Discount Symbol **22-CD**

Product Specifications

General

A. The Contractor shall furnish and install deadfront loadcenters incorporating circuit breakers of the number, rating and type as specified herein and as shown on the contract drawings.

B. The loadcenter and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of UL, NEMA and NEC including:

1. UL 67 — Standards for Panelboards.
2. UL 50 — Standards for Cabinets and Boxes.
3. UL 489 — Standards for Molded Case Circuit Breakers.
4. UL 869 — Standards for Service Equipment.
5. Federal Specification W-C 375B — Circuit Breakers.
6. Federal Specification W-C P115b — Panel Power Distribution Type 1, Class 2.

Qualifications

A. The manufacturer of the load-center shall be the manufacturer of the circuit breaker within the loadcenter.

B. For the equipment specified herein, the manufacturer shall be ISO 9000 certified.

C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of seven (7) years.

Manufacturers

A. Cutler-Hammer.

Ratings

A. Loadcenters shall be rated for 120/240V AC and shall have short circuit ratings as shown on the drawings or as herein scheduled, but not less than 10,000 amperes RMS symmetrical.

B. Circuit breakers shall be a minimum of 125 ampere frame. Circuit breakers 15 through 125 amperes trip size shall take up the same pole spacing.

C. Loadcenters shall be labeled with a UL short circuit rating. When series combination ratings are applied with integral or remote upstream devices, a label shall be provided. Series combination ratings shall cover all trip ratings of installed frames. It shall state the conditions of the UL series ratings including:

1. Size and type of upstream device.
2. Branch devices that can be used.
3. UL series short circuit rating.

Construction

A. All interiors, with the exception of the branch circuit breakers, shall be completely factory assembled with main breakers, main lugs, or no main device.

B. Interiors shall be designed so that circuit breakers can be replaced without disturbing adjacent units and without removing the main bus connectors and shall be designed so that circuits may be changed without machining, drilling, or tapping.

C. Physical means shall be provided to prevent the installation of more overcurrent devices than that number for which the enclosure was designed, rated, and approved. Half-size breakers shall have a UL listed rejection tab over the line terminals. Loadcenter interiors must have notched stabs to accept these rejection tab class CTL breakers, if required and approved.

Bus

A. Bus bars for the main and cross connectors shall be [tin-plated aluminum] [copper] in accordance with Underwriters Laboratories standards. Busing shall be braced throughout to conform to industry standard practice governing short circuit stresses in loadcenters.

Note: Note to spec writer — select one (copper available in limited ratings).

B. Neutral busing shall have a suitable lug for each outgoing feeder requiring a neutral connection of same ampacity as branch.

Wiring/Termination

A. All wire connectors and terminals shall be of the anti-turn solderless type and shall be suitable for copper or aluminum wire of the sizes indicated. All connectors must meet the “Requirements for Wire Connectors and Soldering Lugs” as stated in UL 486B.

B. All loadcenters where marked shall be suitable for use with 60°C or 75°C rated wire.

Circuit Breakers

A. Circuit breakers shall be molded case type. Circuit breakers shall have four-rivet construction (GFI Type — 5 rivets). Multipole circuit breakers shall be of a stack pole design to provide electrical phase isolation.

B. Each pole of the circuit breaker will provide inverse time delay overload and instantaneous short circuit protection by means of both thermal and magnetic sensors.

C. The circuit breaker calibration shall not be affected by environmental changes in relative humidity. The thermal bimetal element shall be welded to the steel frame and calibration shall be set independent of the molded case by computer controlled equipment.

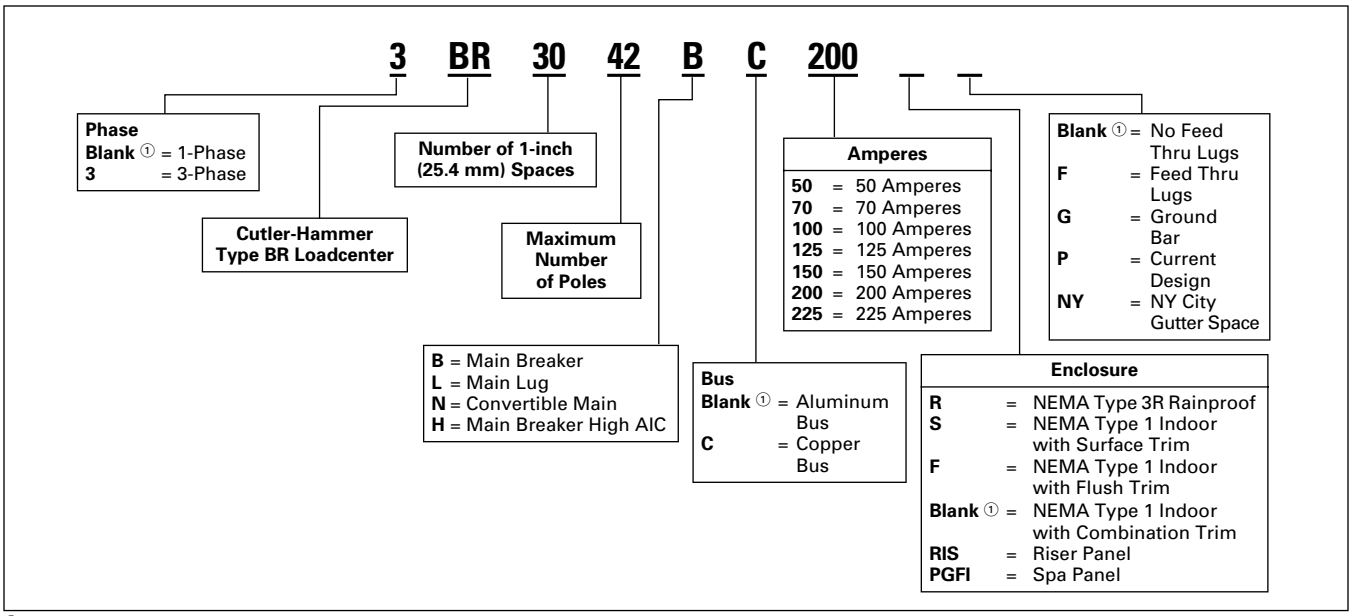
D. All circuit breakers shall be operated by a toggle-type handle and multipole circuit breakers shall have an internal common trip mechanism. The circuit breakers shall incorporate trip mechanisms that are mechanically trip-free from the handle. The handle position shall provide visual trip indication.

E. Contacts shall be of non-welding silver alloy.

F. All circuit breakers shall have the trip rating inscribed on the handle on each circuit breaker pole. Also, unique color-coded cases that indicate the UL listed 10 kA or 22 kA interrupting ratings. Breakers shall be able to be used as main or branch disconnect devices.

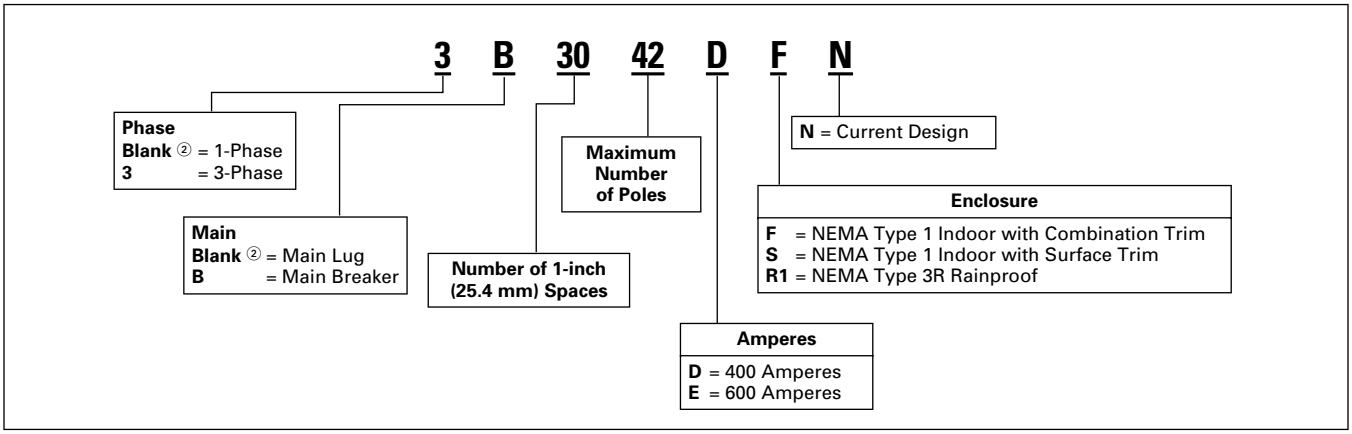
Product Selection

Table 3-65. Single- and Three-Phase Through 225 Amperes Catalog Numbering System



① No character space used.

Table 3-66. Single- and Three-Phase 400 Amperes Through 600 Amperes Catalog Numbering System



② No character space used.

Example No. 1: BR1224L125G

1-Phase Cutler-Hammer Type BR Loadcenter Rated at 125 Amperes with Main Lugs, 12 Spaces Allowing 24 Poles, Indoor Combination Enclosure, Aluminum Bus, and Ground Bar.

Example No. 2: BR24L70RP

1-Phase Cutler-Hammer Type BR Loadcenter Rated at 70 Amperes with Main Lugs, 2 Spaces Allowing 4 Poles, Rainproof Enclosure with Aluminum Bus.

Example No. 3: 3B4242EFN

3-Phase Cutler-Hammer Type BR Loadcenter Rated at 600 Amperes with Main Breaker, 42 Spaces Allowing 42 Poles, Indoor Combination Enclosure.

Plug-On Circuit Breakers, Types BR
10,000/22,000/42,000 Amperes
Interrupting Capacity 120V AC, 120/240V AC and 240V AC

3

BR120

BR215

BR320

Table 3-113. Type BR Breakers, 1-Inch (25.4 mm) per Pole 120/240, 10,000, 22,000 and 42,000 AIC

Note: All Type BR 1-, 2-, and 3-pole circuit breakers carry listing for HACR application.
For circuit breakers with a shunt trip, add ST suffix and obtain pricing from table on **Page 3-75**.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240V AC Requires One 1-Inch (25.4 mm) Space				2-Pole 120/240V AC Common Trip Requires Two 1-Inch (25.4 mm) Spaces					
		10 per Shelf Carton				5 per Shelf Carton					
		10 kAIC		22 kAIC		10 kAIC		22 kAIC		42 kAIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
10	#14 – 4	**BR110**	18.70	—	—	**BR210**	42.25	—	—	—	—
15		**BR115** ①②	18.70	**BRH115**	41.25	**BR215** ④	42.25	**BRH215**	85.50	—	—
20		**BR120** ①②	18.70	**BRH120**	41.25	**BR220** ④	42.25	**BRH220**	85.50	—	—
25		**BR125**	18.70	**BRH125**	41.25	**BR225** ④	42.25	**BRH225**	85.50	—	—
30		**BR130**	18.70	**BRH130**	41.25	**BR230** ④	42.25	**BRH230**	85.50	—	—
35	#14 – 4	**BR135**	18.70	**BRH135**	41.25	**BR235** ④	42.25	**BRH235**	85.50	—	—
40		**BR140**	18.70	**BRH140**	41.25	**BR240** ④	42.25	**BRH240** ④	85.50	—	—
45		—	—	**BRH145**	41.25	**BR245** ④	42.25	**BRH245**	85.50	—	—
50		**BR150**	18.70	**BRH150**	41.25	**BR250** ④	42.25	**BRH250** ④	85.50	—	—
55	#14 – 3	**BR150**	18.70	**BRH155**	41.25	**BR255**	42.25	**BRH255**	85.50	—	—
60	#4 – 1/0	**BR160**	18.70	**BRH160**	41.25	**BR260**	42.25	**BRH260**	85.50	**BRHH260**	131.00
70		**BR170**	40.50	**BRH170**	51.50	**BR270**	84.50	**BRH270**	131.00	**BRHH270**	200.00
80		—	—	—	—	**BR280**	122.00	**BRH280**	159.00	**BRHH280**	281.00
90		—	—	—	—	**BR290**	122.00	**BRH290**	165.00	**BRHH290**	281.00
100		—	—	—	—	**BR2100**	122.00	**BRH2100**	165.00	**BRHH2100**	281.00
110		—	—	—	—	**BR2110**	254.00	**BRH2110**	610.00	**BRHH2110**	—
125	#4 – 2/0	—	—	—	—	**BR2125**	254.00	**BRH2125**	610.00	**BRHH2125**	810.00
150		—	—	—	—	**BR2150** ③	269.00	—	—	—	—

① One pole, 1-inch (25.4 mm) per pole circuit breakers are available with high magnetic setting for switching large tungsten lamp loads. Add suffix H to catalog number.
② Switching duty rated.
③ For use as a branch circuit breaker in 400 and 600 ampere panels only.
④ On the black handle breaker, add suffix "B" to the catalog number and $4.00 to the list price to obtain a tapped molded opening for proper use with hold-down kits.

Discount Symbol **22-CD**