

Commercial and Industrial
Circuit Breakers for OEM Applications

Quality and Innovation
for Global Solutions

Make the most of your energySM

Schneider
Electric



One World Source

The Opportunity: The world is opening up to OEMs capable of meeting diverse domestic and international standards for circuit protection.

The Challenge: Keeping pace with new demands of your customers to address a widening variety of applications while building business profitably.

The Solution: Schneider Electric circuit breakers that meet those design requirements and standards anywhere they are needed.

Now there's **one source, one solution**, for all your circuit breaker and equipment needs – **Schneider Electric**.

Schneider Electric offers a truly global solution and the broadest array of circuit breakers in the industry. From the legendary QO® circuit breaker to the Masterpact® power circuit breaker, our Square D® product lines deliver solutions your customers demand. The PowerPact® line of molded case circuit breakers sets the standard in circuit protection, delivering class-leading size, performance and features.

Beside performance, Schneider Electric's products contain certifications for standards from around the world, allowing you to build, ship and support the product anywhere.

As the world's leading supplier of miniature, molded case and power circuit breakers, Schneider Electric offers the widest range of products available, with frame sizes, accessories and features that meet every application. And we back those lines with the industry's most comprehensive distribution network and unparalleled technical support. That's why people around the globe trust Schneider Electric for circuit protection more than any other manufacturer.

We've built over a 100-year reputation for quality and innovation by applying leading-edge technology to our circuit breakers. It's a dedication that sets new standards for circuit protection with superior levels of flexibility, repeatability and reliability.

The complete Schneider Electric circuit breaker product portfolio includes options in three major categories:

- **Molded case circuit breakers** – includes our flagship PowerPact range of circuit breakers. Delivering a flexible, high-performance offering that is certified to global standards, yet still keeps selection and ordering simple. PowerPact circuit breakers incorporate many common design elements and provide unmatched flexibility through multiple configurations, operators and standardized accessories.
- **Power circuit breakers** – includes the Masterpact line for high-performance industrial and OEM applications.
- **Miniature circuit breakers** – includes the QO, QOU and the Multi 9™ line for unmatched flexibility in custom applications.



> Molded Case Circuit Breakers

Square D PowerPact® Molded Case Circuit Breaker 15 A to 3,000 A



Global Standards

- UL 489 listed
- CSA C22.2 No. 5-02
- NOM/NMX
- IEC 60947-2
- BS, VDE, UTE, CEI and UNE
- CE marked

PowerPact circuit breakers set the new standard for reliability and performance of molded case circuit breakers. As Schneider Electric's flagship breaker offering for commercial and industrial applications, PowerPact circuit breakers incorporate many common design elements and provide unmatched flexibility through multiple mounting configurations, operators and standardized accessories.

Available in various frame sizes, in ratings from 15 A to 3,000 A, PowerPact circuit breakers provide heavy-duty operation with interrupting performances as high as 125 kA at 240 V and 100 kA at 480 V. The PowerPact range covers panel applications from 240 V through 600 V and are available as standard 80%-rated devices and 100%-rated devices to meet your requirements. Designed to use less mounting space, the PowerPact range allows simplified installation with smaller footprints and higher density installations for panelboards and switchboards.

In addition, we understand your time is valuable and to help you increase your productivity, Schneider Electric has simplified the PowerPact circuit breaker selection process. The entire range of PowerPact circuit breakers is defined by a common system of interruption ratings and features to create catalog numbering that is easier to apply and understand.

We have also updated our suffix system for accessory features to better identify and provide a more precise circuit breaker description. This new system will allow for quick and accurate selection of the circuit breakers you need each and every time.

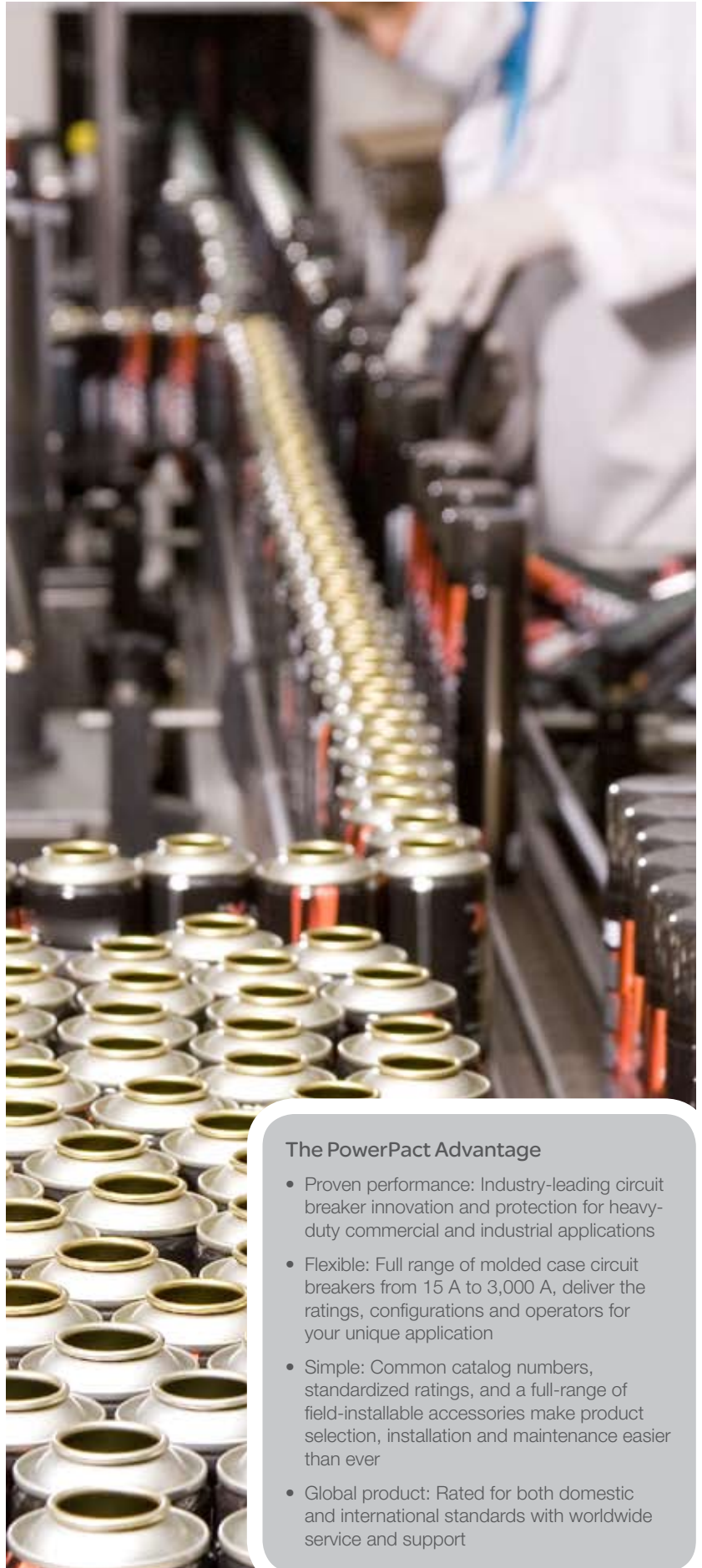


Available Ratings

- H-Frame: available from 15 A to 150 A. Interrupting ratings (AIR) include D-18 kA, G-35 kA, J-65 kA and L-100 kA at 480 Vac
- J-Frame: available from 150 A to 250 A. Interrupting ratings (AIR) include D-18 kA, G-35 kA, J-65 kA, and L-100 kA at 480 Vac
- Q-Frame: available from 70 A to 250 A, 240 Vac. Interrupting ratings (AIR) include B-10 kA, D-25 kA, G-65 kA and J-100 kA at 240 Vac
- D-Frame: available in both standard and 100% ratings with standard amperage ratings 150 A to 600 A. Interrupting ratings (AIR) include G-35 kA, J-65 kA and L-100 kA at 480 Vac
- M-Frame: available from 300 A to 800 A. Interrupting ratings (AIR) include G-35 kA and J-65 kA at 480 Vac
- P-Frame: available from 100 A to 1,200 A. Interrupting ratings (AIR) include G-35 kA, J-65 kA, K-50 kA and L-100 kA at 480 Vac
- R-Frame: available from 240 A to 3,000 A. Interrupting ratings (AIR) include G-35 kA, J-65 kA, K-65 kA and L-100 kA at 480 Vac



- [1] PowerPact H-Frame circuit breakers
- [2] PowerPact J-Frame circuit breaker
- [3] PowerPact R-Frame circuit breaker
- [4] PowerPact D-Frame circuit breaker
- [5] PowerPact P-Frame circuit breaker
- [6] PowerPact M-Frame circuit breaker



The PowerPact Advantage

- Proven performance: Industry-leading circuit breaker innovation and protection for heavy-duty commercial and industrial applications
- Flexible: Full range of molded case circuit breakers from 15 A to 3,000 A, deliver the ratings, configurations and operators for your unique application
- Simple: Common catalog numbers, standardized ratings, and a full-range of field-installable accessories make product selection, installation and maintenance easier than ever
- Global product: Rated for both domestic and international standards with worldwide service and support

> Power Circuit Breakers

Square D Masterpact® NW and NT Power Circuit Breakers – 100 A to 6,300 A



Global Standards

- UL 489 listed, including 4-pole through 6,000 A
- UL 1066 listed/ANSI C37.13
- IEC certified
- CE marked

Masterpact NW circuit breakers feature a modular design and provide a common architecture, versus a model-by-model approach. That means they use common accessories, a single door cutout for the entire line, and a single size that fits 100 A to 3,000 A (UL 489).

In addition, we've reduced the necessary distance above the circuit breaker to zero, thanks to an arc chute cover in the drawout versions. This makes Masterpact NW circuit breakers easier to design into new and retrofit applications.

Masterpact NT power circuit breakers are the latest addition to the Masterpact line to meet your needs where small size, flexible configuration, low maintenance, increased productivity and reduced downtime are key issues.

These fully-tested, drawout circuit breakers feature four racking positions (connected, test, disconnected and removed) and a status indicator on the cradle. Masterpact NT circuit breakers have the smallest footprint available on the market today – 70% smaller than the Masterpact NW circuit breaker.

Combined with the Power-Zone® 4 switchgear and the Power-Style® QED-6 switchboard, the Masterpact NT is the most competitive power circuit breaker on the market today.

In addition, both the Masterpact NT and NW circuit breakers incorporate the latest advances in breaker technology, including interchangeable Micrologic® trip units with PowerLogic® power metering, communication and monitoring capabilities.

Factory- and Field-Installed Accessories

- Push button lock
- Open position padlock and key lock provisions
- Disconnected position lock
- Door interlock
- Racking interlock between racking crank and OFF position
- Open door racking interlock
- Automatic spring discharge mechanism
- Rail padlock
- Mechanical operation counter
- Shutter and shutter lock
- Door escutcheon
- Transparent cover for door escutcheon



[1] Masterpact NW circuit breaker

[2] Masterpact NT circuit breaker

Arc Flash Protection with Masterpact NW and NT Circuit Breakers

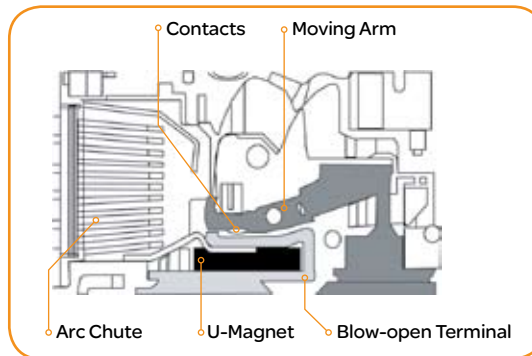
Designed to interrupt large fault currents without fuses, Masterpact NW and NT circuit breakers go into current-limiting mode at 35,000 A. These circuit breakers provide arc flash protection comparable to fuses at high currents and better arc flash protection at lower currents. Plus, they eliminate problems common to fused switches and fused circuit breakers, including:

- Hazards associated with changing fuses
- Dependence on mechanical hardware (fuse holders, blown fuse indicators, anti-single-phasing devices, etc.) that require maintenance or replacement, or can dislodge, causing arcing events
- High energy costs due to additional resistance in the fuse holder and connections
- Large equipment footprints
- High installation and service-life costs
- The need to stock and replace fuses

Arc Flash Circuit Breakers

The design of the Masterpact NW current-limiting circuit breaker is unique to the industry. It is available in both current-limiting designs and in withstand construction “blow closed” designs to meet your application requirements.

The drawing at the right shows a cross-section view of one pole of the circuit breaker. The shaded areas constitute the current path. The blow-open terminal is shaped so there is a reverse current loop at the moving arm. This reverse current flow creates a magnetic force that is proportionate to the amount of current. When the current is high enough, the force pushes open the contacts. The contacts open very quickly, without waiting for the mechanism to unlatch and the springs to pull the moving arm open. The U-magnet, which intensifies the magnetic opening force, is located between the folds of the blow-open terminal where the current loop is found.



The design of this circuit breaker is current-limiting. Because of the mass of parts involved to carry large currents, this design is not as fast as smaller current-limiting circuit breakers, but it is comparable to fuse limiters.



What is an Arc Flash?

According to NFPA 70E, an arc flash is a “dangerous condition associated with the release of energy caused by an electrical arc.” It is measured in terms of arc flash incident energy (AFIE), which is used to determine the level of personnel protection equipment (PPE), and in terms of an arc flash protection boundary.

> Miniature Circuit Breakers

Square D QO®/QOU Miniature Circuit Breakers – 10 A to 200 A



Global Standards

- UL 489 listed
- CSA certified
- Nom/ANCE
- CE conformity (declaration available upon request)

QO and QOU miniature circuit breakers, provide a wide range of options to meet your needs. QOU miniature circuit breakers have lugs at both ends and can be DIN rail-, flush- or surface-mounted. QO miniature circuit breakers can be plug-on or bolt-on for installation in Square D load center and panelboard interiors or mounting bases.

QO and QOU miniature circuit breakers have a factory-preset thermal and magnetic trip element in each pole. Multi-pole circuit breakers have a single handle with a common internal trip that indicates whether the circuit breaker is OFF, ON or TRIPPED. Plus, the devices feature a red Visi-Trip® indicator that becomes visible when the breaker has tripped and interrupted the circuit.

Both breakers allow reverse connections without restrictive line/load marking.

Available Ratings

- 120 Vac
- 120/240 Vac
- 240 Vac
- 48 Vdc per pole
- 60 Vdc per pole
- 277 Vac (only as UL 1077 recognized supplementary protector)
- 1 A to 125 A current ratings for QO and QOU circuit breaker, with an expanded QO range of up to 200 A

Factory- and Field-Installed Accessories

- Shunt trip
- Auxiliary switch
- Alarm switch
- Handle accessories
- Padlock attachment, including OFF only
- Finger-safe covers
- Jumper bar accessories
- Cover plates
- Rainproof covers

Connectors

- Clamp plate (two wires)
- Box lug
- Reversible lugs (rear or front access) up to 70 A
- Plug-on
- Bolt-on
- Optional ring tongue terminals
- Quick connectors



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[1] To accommodate your design, Schneider Electric offers a variety of QO interiors

[2] QO miniature circuit breakers

[3] QOU miniature circuit breakers



> Miniature Circuit Breakers (cont.)

Multi 9™ Miniature Circuit Breakers and Supplementary Protectors – 0.5 A to 63 A



Global Standards

- UL 489 listed and CSA C22.2 No. 5-02 certified
- UL 1077 recognized and CSA C22.2 No. 235 certified
- IEC 60947-2
- CE marked

The Multi 9 family is comprised of an extensive, modular system of miniature circuit breakers, supplementary protectors and accessories. DIN rail-mounting and a compact size (typically two 9 mm modules or less than 3/4 in. per pole) allows easy installation. Plus, fast-responding Multi 9 devices provide maximum protection of circuits in OEM equipment by limiting damaging currents.

Multi 9 C60 is the first extensive range of DIN rail-mounted miniature circuit breakers to be UL 489 listed for branch circuit protection. Other Multi 9 devices are UL recognized as supplementary protectors, suitable for applications where branch circuit protection is already provided or not required. Multi 9 C60 products also have IEC ratings. In addition, other IEC-rated products complement the UL line up to 125 A at up to 440 Vac.

Available Ratings

- UL 489 range of C60: 0.5 A to 35 A at 240 Vac; 0.5 A to 20 A at 480 Y/277; and 0.5 A to 63 A at 60 Vdc for 1-pole and 125 Vdc for 2-pole
- UL 1077 range of C60N: 0.5 A to 63 A at 480 Y/277 Vac and 65 Vdc for 1-pole and 125 Vdc for 2-pole
- UL 1077 C60H-DC: 0.5-40 A at 250 Vdc for 1-pole and 500 Vdc for 2-pole

Tripping System

The following time/current curves (trip characteristics) are available for greater flexibility to meet your system needs.

- B curve – instantaneous magnetic trip between 3.2 and 4.8 times the Amp rating for computers, electronics and generators
- C curve – instantaneous magnetic trip between 7 and 10 times the Amp rating for general purpose applications
- D curve – instantaneous magnetic trip between 10 and 14 times the Amp rating for motors, transformers and similar applications



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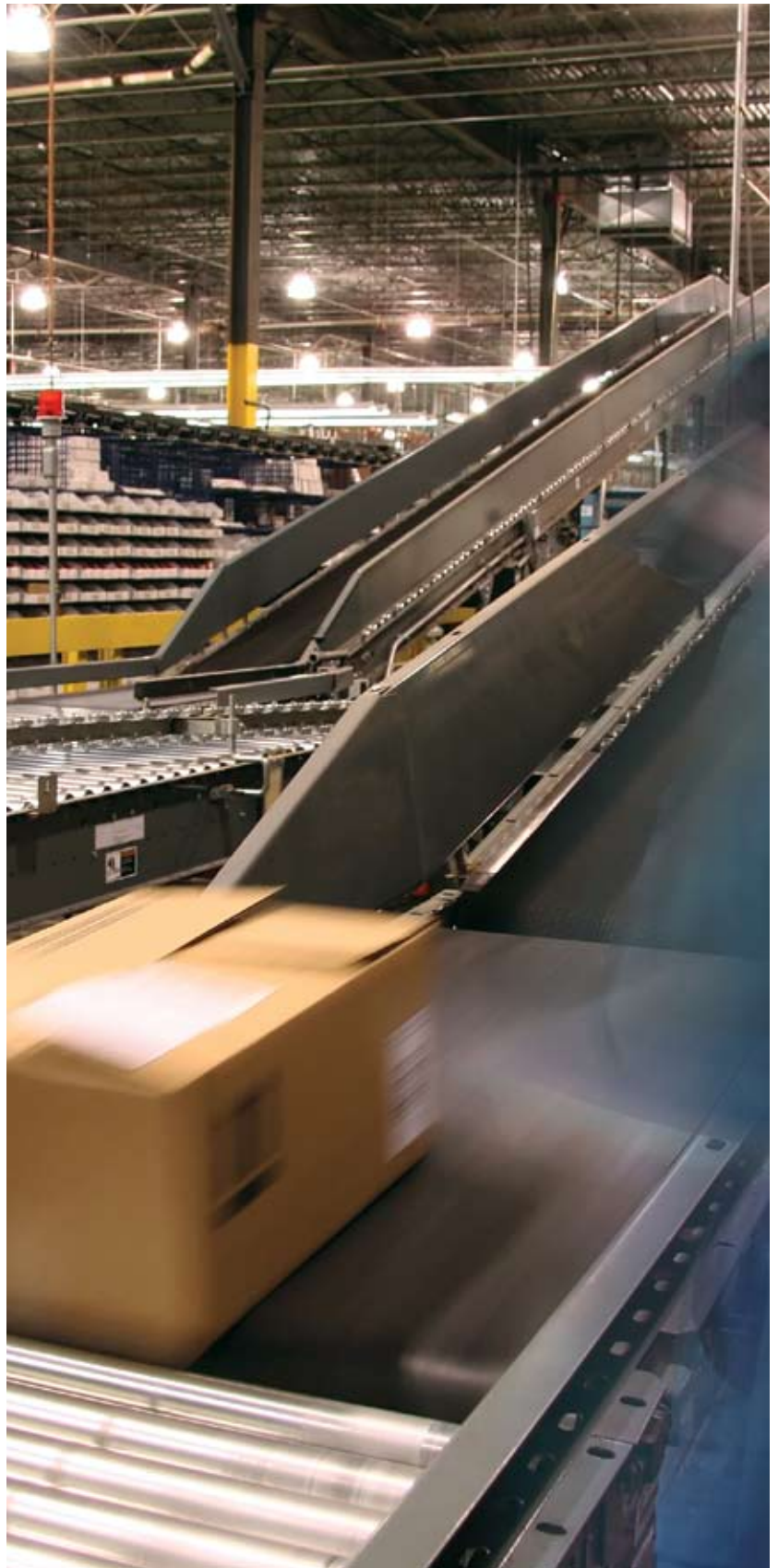
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Field-installed Accessories

- Shunt trip with auxiliary switch
- Auxiliary switch
- Alarm switch
- Under-voltage release
- Comb bus bars (UL and IEC)
- Motor operators
- Rotary operating handles

Related Products

- Surge protection devices (UL and IEC)
- Ground fault protection devices (UL and IEC)
- Mounting base for up to 60 poles of C60 circuit breakers
- Enclosures



- [1] Multi 9 UL 489-listed miniature circuit breakers
- [2] Multi 9 UL 1077-recognized supplementary protectors
- [3] Flexible installation with UL-recognized comb bus bar
- [4] Mounting base for up to 60 poles of C60 UL 489 circuit breakers
- [5] Kaedra space-saving enclosures

Square D PowerPact Electronic Motor Circuit Protector

PowerPact electronic motor circuit protectors (MCP) offer simple solutions that deliver more reliable start-ups, provide better protection for your equipment, and adjust for a wide range of your motor starters.

The unique design of PowerPact MCPs include two dials to allow quick and confident adjustment of settings based on the characteristics of the motor. The first dial allows for full load amperes (FLA) adjustment across the range of the frame size, while the second dial selects the type of motor protection based on Automatic 1 for Standard Energy Efficiency or Automatic 2 for High Energy Efficiency. Dial 2 also allows for traditional motor protection from eight to 13 times the selected FLA.

These simple adjustments are all you need to ensure your motor circuit is set to the in-rush characteristics of the motor and is a fully National Electrical Code® (NEC®) compliant installation.

This product has a number of significant advantages in managing your facility's motorized equipment:

More Reliable Start-up of Your Equipment

Motor in-rush creates many problems for sizing and setting the circuit breaker in motor circuits. The high in-rush demands of energy-efficient motors can create nuisance tripping or installations that are not NEC compliant. The PowerPact MCP has instantaneous trip points that align with the motor and NEC to ensure your installation works every time.

Better Equipment Protection and Safety

The PowerPact MCP provides for quick and decisive tripping when your motor exceeds its current limitations, improving the longevity of your equipment. This eliminates a common misapplication that occurs when instantaneous trip points are adjusted too far above the motor's locked rotor current, in order to avoid nuisance tripping on high in-rush currents. The mechanism is also designed to ensure that the handle of the breaker provides positive indication that the contacts are in the ON, OFF or tripped position.

High SCCR Rating

The PowerPact MCP also helps achieve the high Short Circuit Current Ratings (SCCR) needed to meet recent code changes for industrial control panels. They deliver up to 100 kA at 480 V SCCR rating when used in combination with Square D NEMA or Schneider Electric IEC motor starters.

Lower Life Cycle Cost

This product delivers high performance levels and precise adjustment for a wide variety of motor circuits. It also eliminates the need to stock the wide variety of fuses required to keep your equipment running.

Easier Installation

With a wide adjustment range, there is no need to swap devices to cover the horsepower range of a starter. For example, the 30 A MCP has an FLA adjustment range of 1.5 A to 27 A, covering the entire range of NEMA size 00, 0 and 1 starters. The settings align directly with information published on the motor nameplate. Likewise, just five MCPs cover the complete range from 1/2 HP to 200 HP at 480 V.



Settings for Standard or Energy-Efficient Motors

The automatic setting on the PowerPact MCP allows for a transient motor in-rush to safely clear before aligning the protection to the motor's locked rotor current. Device settings align directly with the various classifications found on the motor nameplate.

Square D DC-Rated Circuit Breakers

Protect Control Circuits and Power Supplies

A wide range of Square D circuit breakers are rated for use in dc circuits and power supplies, including low amperage and voltage applications.

Multi 9 and QO/QOU circuit breakers offer amperages from 0.5 A to 100 A and dc voltage ratings of 48 Vdc, 60 Vdc, 125 Vdc, 250 Vdc or 500 Vdc. These devices are ideal for protecting control circuits and other automation and control equipment.

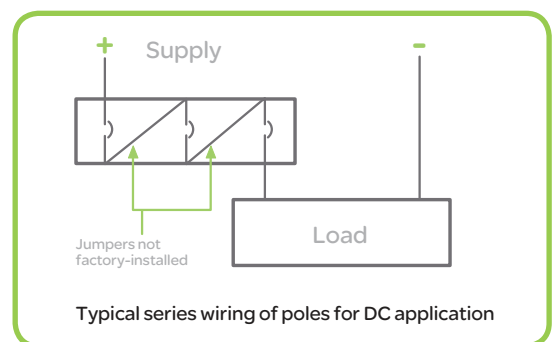
Solutions for Ungrounded DC Applications

A special range of molded case circuit breakers are designed for use on ungrounded dc systems requiring a maximum short-circuit voltage of 500 Vdc or a maximum floating (unloaded) voltage of 600 Vdc. These circuit breakers are suitable for use only with uninterruptable power supplies (UPS) and ungrounded systems. The 500 Vdc breakers have an adjustable magnetic trip (typically from two to five times handle rating), to provide maximum protection of batteries (see table on the right).

Circuit Breaker Family	Amperage	Interrupting Rating @ 500 Vdc
FHL	30-100	20 kA
JGL	150-250	20 kA
LHL	250-400	20 kA
MHL	450-1,000	20 kA
MHL	1,200	25 kA
PAF	1,200-2,000	25 kA
PCF	2,500	25 kA
NW	800-4,000	35 kA

DC Characteristics Provide Unique Challenges

At lower voltages and currents, a breaker can have both ac and dc ratings. The current ratings for both would be the same, but the maximum voltage and the AIR may be less for the dc applications, due to the fact that dc currents are more difficult to interrupt. DC-system short-circuit and overload characteristics are much different than those of alternating-current (ac) systems. To interrupt high dc voltages, up to three poles of the breaker may be wired in series with the load.



Generator dc systems produce a short-circuit current with a rapid current rise that quickly reaches a steady state, whereas dc battery systems produce a short circuit with rapid rise to its maximum level that then decays as a function of the battery's chemistry.



- [1] J-Frame circuit breaker
- [2] QOU circuit breaker
- [3] Masterpact NW circuit breaker

Ground Fault Protection Products

Approximately 85% of short circuits are initially manifested as ground faults. Avoid costly repairs and downtime by adding low-level ground fault protection to your power systems.

Miniature Circuit Breakers

At low amperages, Square D QO and QOB GFIs have built-in circuitry designed to protect people from electrical shock hazard above 6 mA per UL 943 Class A. QO and QOB-EPDs (equipment protection devices) are also available, which trip on ground faults above 30 mA. Circuits using UL 489 Multi 9 miniature circuit breakers and other small loads can also be protected by installing them in series with our UL 1053 GFPs (ground fault protectors), which protect at 30 mA, 100 mA or 300 mA.

Vigirex™ Ground Fault Relays

Square D Vigirex ground fault relays and associated sensors measure the residual current (leakage to ground) to detect levels which may be damaging. When used for protection, they cause an associated circuit breaker or switch (via shunt trip) to interrupt the circuit. They may also be used for monitoring only, with output to an alarm, thus allowing planned maintenance. These are available with fixed sensitivities from 30 mA to 1 A, and adjustable sensitivities up to 30 A.

GC-200 Ground Fault Relays

For high amperages (up to 1,200 A) or when real-time display is beneficial, GC-200 ground fault relays can be used. These products include an optional GC DSP display to allow real-time display of ground fault levels.



Ground Fault Modules

The Micrologic® ground fault module (GFM) is a UL listed circuit breaker accessory for equipment protection. This module is a combination ground fault relay and ground fault sensing device. It has an integral ground fault push-to-test feature and ground fault indicator. When a ground fault exceeds the module pickup setting and is present for longer than the preset time delay, a signal is sent to the ground fault shunt trip to trip the circuit breaker. Although functionally similar, the earth leakage module (ELM) is a UL 1053 listed module with greater sensitivity (30 mA to 3 A) than the add-on ground fault module (20 A to 200 A). The GFM and ELM modules are available for PowerPact H- and J-Frame circuit breakers.

Electronic Trip Units

PowerPact P- and R-Frame circuit breakers and Masterpact circuit breakers offer optional integral ground fault protection through the Micrologic trip unit. Sensitivity of the trip unit ranges from 20% to 100% of rated current for circuit breakers up to 1,200 A, and 500 A to 1,200 A for the higher amperages. All of the Micrologic 5.0 P and 5.0 H trip units come standard with ability to sense and report a ground fault alarm, without tripping of the breaker. The 6.0 A, 6.0 P, and 6.0 H trip units offer ground fault protection by tripping the breaker. The 6.0 P and 6.0 H trip units additionally offer a ground fault alarm.



Coordinated Systems

With a wide range of trip settings and time delays, the ground fault system can be coordinated so that tripping occurs at the lowest level, with minimum disruption of service. Also, the ZSI (zone selective interlocking) feature of the Micrologic trip system and GC-200 relays causes higher-level equipment to delay tripping until lower level breakers have cleared the ground fault.

Planned Maintenance with Alarming

Vigirex and GC-200 ground fault relays, and circuit breakers with Micrologic trip units can be set to alarm (rather than trip) when they detect ground faults. This allows maintenance of the system without untimely and costly shutdowns.



- [1] QO EPD (equipment protection device)
- [2] Multi 9 GFP (ground fault protector)
- [3] Vigirex sensors
- [4] Vigirex relay
- [5] GC-DSP (ground fault display)
- [6] Micrologic trip units
- [7] GFM (ground fault module)
- [8] GC200 ground fault

Complete Component Offering to Match Your Assembly Requirements

Schneider Electric offers a wide range of products to help you build a complete electrical system. Whether the need is for a few small circuit breakers, or large, busfed systems, our components allow you to assemble your own electrical system, or Schneider Electric can provide the complete solution.

These components include:

- Mounting bases
- Square D NQ, NF, I-Line® panelboards and interiors
- Switchboards and switchgear

Mounting Bases

When large numbers of branch breakers are needed, mounting bases are an ideal solution, providing both the mounting and feeding of line power. These products range from 2 to 42 poles for QO/QOB and 12 to 60 poles for the Multi 9 C60.



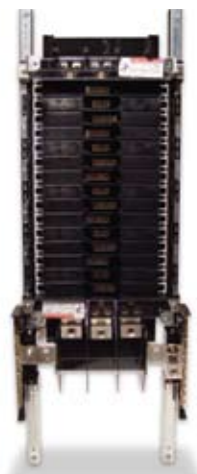
NQ Panelboards and Interiors

A change in the 2008 NEC eliminates the 42-circuit limit for lighting panelboards.

NQ panelboards are now available with six interior circuit counts – 18, 30, 42, 54, 72 and 84 poles of QO/QOB circuit breakers. The branch breakers can range from 10 A to 150 A and the main breakers from 100 A to 600 A, all at 240 V maximum. They are also available as interiors.

NF Panelboards and Interiors

NF panelboards and interiors are designed for 480 Y/277 and 600 Y/347 Vac applications, using 18, 30, 42, 66 and up to 84 poles of EDB, EGB and EJB bolt-on branch circuit breakers, which range from 15 A to 125 A. NF panelboards are available with main lugs rated for 125 A to 800 A, or main circuit breakers from 125 A to 600 A.



I-Line Panelboards and Interiors

The unique design of I-Line panelboards provides easy and flexible mounting of a wide range of branch breakers with nothing more than a screwdriver. I-Line panelboards are available with main lugs or main breakers through 1,200 A. The panelboards can use a wide range of Square D circuit breakers, including thermal-magnetic molded case circuit breakers, I-Limiter circuit breakers, electronic trip circuit breakers, and Micrologic trip circuit breakers, ranging from 15 A to the 1,200 A.

Additionally, special distribution panels allow smaller, less expensive QO circuit breakers to be installed to feed lighting or receptacle circuits. I-Line panelboards are available custom-assembled at the factory or ready-to-install from local distributor stock. For OEMs wishing to install the breakers in their own panels, single-sided I-Line interiors are available with up to 1,000 A bus rating.

Switchboards and Switchgear

Power-Style™ QED-6 switchboards use individually-mounted Powerpact H-, J- and D-Frame circuit breakers to provide complete flexibility for branch circuits in the 150 A to 600 A range. Masterpact NT circuit breakers cover branch circuits in the 600 A to 1,200 A range. Main breakers are Masterpact NW insulated-case circuit breakers covering the 800 A to 5,000 A range.

The foundation of Power-Zone 4 switchgear is the proven, reliable Masterpact ANSI power circuit breakers with Micrologic trip units. With main bus ratings up to 5,000 A and interrupting ratings to 200 kA, Power-Zone 4 switchgear can help to ensure continuity of service for the largest systems.



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- [1] Multi 9 mounting base
- [2] NQ interior
- [3] NF interior
- [4] I-Line panelboard
- [5] I-Line OEM panel
- [6] QED-6 switchboards
- [7] Power-Zone 4 low voltage switchgear

Complete Component Offering to Match Your Assembly Requirements (cont.)

Schneider Electric offers the most rugged line of motor control products – from open-style contactors and starters to a complete line of enclosed motor control products. Our products are available worldwide and meet most global standards.

These components include:

- Type S NEMA and TeSys U motor starters
- Motor controllers
- Circuit breaker operating mechanisms

Type S NEMA Motor Starter

The Type S NEMA motor starter, introduced in 1965, is a rugged, no-compromise way to meet NEMA standards – the benchmark to which other domestic starters are produced.

TeSys U Motor Starter

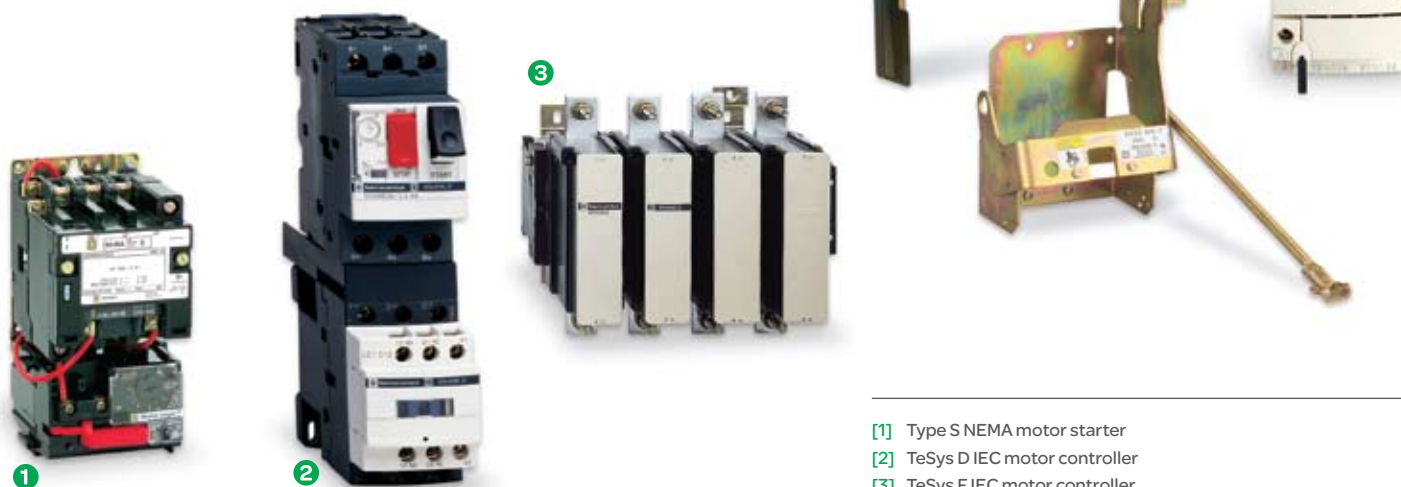
TeSys U motor, self-protected starters are now available with NEMA rating. They offer ingenious simplicity. The TeSys U motor control system brings power, protection and control all together in one incredibly compact, modular device. It's flexible and easily upgradeable, with a full range of protection, communication and application modules that literally plug into the starter base unit to meet your specific needs.

Motor Controllers

The TeSys® D and F families of IEC motor controllers includes everything you need in panels, from contactors to overload relays. Ranging from 9 A to 800 A, this powerful line can control up to 800 HP at 600 Vac and reduce energy usage with low consumption coil options.

Circuit Breaker Operating Mechanisms

Our circuit breaker operating mechanisms deliver unmatched design flexibility and are well suited for a wide range of applications. They provide accessibility to a full complement of field installable accessories and trip units which deliver improved interrupting ratings.



- [1] Type S NEMA motor starter
- [2] TeSys D IEC motor controller
- [3] TeSys F IEC motor controller
- [4] Circuit breaker operating mechanisms
- [5] TeSys U motor starter

Circuit Breaker Selection Information



Molded Case Circuit Breakers

		PowerPact Circuit Breakers													
															
Breaker Type		GJL■	HD	HG	HJ	HL	QB	QD	QG	QJ	JD	JG	JJ	JL	
Number of poles		3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	
Current Range		15-100	15-150	15-150	15-150	15-150	70-250◆	70-250◆	70-250◆	70-250◆	150-250	150-250	150-250	150-250	
Interrupting Ratings															
UL/CSA/NOM Rating (kA RMS) (50/60 Hz AC)	240 Vac	100	25	65	100	125	10	25	65	100	25	65	100	125	
	480 Y/277 Vac	65	...	...	...	...	...	...	...	...	...	...	...	...
	480 Vac*	65	18	35	65	100	...	...	...	...	18	35	65	100
	600 Y/347 Vac	18	...	...	...	...	...	...	...	...	...	...	...	...
	600 Vac	...	14	18	25	50	...	...	...	...	14	18	25	50
DC Ratings	250 Vdc	...	20	20	20	20	...	...	...	...	20	20	20	20
	500 Vdc†	...	...	...	...	...	...	...	...	...	20	...	...	...
IEC 60947-2 kA RMS (50/60 Hz AC) Icu/Ics●	220/240 Vac	65/65	25/25	65/65	100/100	125/125	10/5	10/5	10/5	10/5	25/25	65/65	100/100	125/125	
	380/415 Vac	65/65	18/18	35/35	65/65	100/100	10/5	10/5	10/5	10/5	18/18	35/35	65/65	100/100	
Special Ratings															
Fed. Specs W-C-375B/GEN	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HACR (2-, 3-pole)	✓	✓	✓	✓	✓	✓	✓	✓	✓	...	✓	✓	✓	✓	
Connections/Terminations															
Unit Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
I-Line	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Rear Connection	...	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Drawout	...	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Optional Lugs	...	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Accessories and Modifications															
Shunt Trip	✓	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Undervoltage Trip	✓	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Auxiliary Switches	✓	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Alarm Switch	✓	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Motor Operator	...	✓▼	✓▼	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Handle Operators	✓	✓▼	✓▼	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Mechanical Interlocks	...	✓	✓	✓	✓	✓	✓★	✓★	✓★	✓★	✓	✓	✓	✓	
Handle Padlock Attachment	✓	✓▼	✓▼	✓	✓	✓	✓+	✓+	✓+	✓+	✓	✓	✓	✓	
Cylinder Lock (3-pole)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Optional GF Protection	...	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	✓
Trip System Type															
Thermal Magnetic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Instantaneous Trip (3-pole)	✓	...	...	✓	✓	✓	...	...	...	...	...	...	...	✓
Molded Case Switch (Automatic)	...	...	✓	...	✓	✓	✓+	...	...	...	...	...	...	✓
Electronic	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enclosures															
General Purpose (NEMA Type 1)	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	...	
Raintight (NEMA Type 3R)	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	...	
Dusttight (NEMA Type 12)	...	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	...
Watertight (NEMA Type 4, 4x, 5)	...	✓	✓	✓	✓	✓	...	...	...	...	✓	✓	✓	...
Explosion Proof (NEMA Type 7, 9)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions (3-pole Unit Mount)	Height in. (mm)	4.72 (120)	6.4 (163)				6.47 (164)				7.5 (191)				
	Width in. (mm)	3.54 (90)	4.1 (104)				4.5 (114)				4.1 (104)				
	Depth in. (mm)	3.94 (100)	3.4 (86)				3.93 (100)				3.4 (86)				

Note: All circuit breakers on this chart are UL listed and CSA certified unless otherwise noted

- ✓ Feature available
- Not CSA certified
- ◆ See Supplemental Digest for 3-phase corner grounded systems
- ♦ I-Line Q-Frame to 225 A only
- † UPS and ungrounded systems only
- See Product Data Bulletin No. 0500PD9502R5/97
- ✦ Switch is rated at 225 A
- ★ Field-installable 2- or 3-pole mechanical interlock
- ✧ Field-installable padlock attachment, ON/OFF or OFF only
- ▼ Not available in HD and HG 2-pole module

PowerPact Circuit Breakers





Breaker Type	DG	DJ	DL	MG	MJ	PG	PJ	PL	RG	RJ	RL	FI	KI	LI	LXI		
Number of poles	3,4	3,4	3,4	2,3	2,3	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3	2,3	2,3	3		
Current Range	150-600	150-600	150-600	300-800	300-800	100-1,200	100-1,200	100-1,200	240-3,000	240-3,000	240-3,000	20-100	110-250	300-600	100-600		
Interrupting Ratings																	
UL/CSA/NOM Rating (kA RMS) (50/60 Hz AC)	240 Vac	65	100	150	65	100	65	100	125	65	100	125	200	200	200	200	
	480 Y/277 Vac	...	...	...	...	...	...	...	...	...	...	...	200	200	200	200
	480 Vac*	35	65	100	35	65	35	65	100	35	65	100	200	200	200	200	
	600 Y/347 Vac	...	...	...	...	...	...	...	...	...	...	...	100	100	100	100
	600 Vac	18	25	25	18	25	18	25	25	18	25	50	100	100	100	100	
UL DC Ratings	250 Vdc	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	500 Vdc	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
IEC 60947-2 kA RMS (50/60 Hz AC) Icu/Ics	220/240 Vac	85/85	100/100	150/150	50/25	65/35	50/25	65/35	125/65	50/25	65/35	125/65	...	...	...	...
	380/415 Vac	45/45	70/70	150/150	35/20	50/25	35/20	50/25	85/45	35/20	50/25	85/45	6/1.5	130/65	...	...
Special Ratings																	
Fed. Specs W-C-375B/GEN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HACR (2-, 3-pole)	...	...	...	✓	✓	✓	✓	✓	✓	✓	✓	...	...	...	...
Connections/Terminations																	
Unit Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
I-Line	...	...	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rear Connection	✓	✓	✓	...	...	...	...	...	...	...	...	...	...	...	...	...
Drawout	✓	✓	✓	...	...	✓	✓	✓	...	...	...	...	...	...	...	...
Optional Lugs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Accessories and Modifications																	
Shunt Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓▲	✓▲	✓	✓	✓	
Undervoltage Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓▲	✓▲	✓	✓	✓	
Auxiliary Switches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓▲	✓▲	✓	✓	✓	
Alarm Switch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓▲	✓▲	✓	✓	✓	
Motor Operator	✓	✓	✓	...	...	✓	✓	✓	...	...	...	✓	✓	...	...	...
Handle Operators	✓	✓	✓	...	...	✓	✓	✓	...	...	...	...	...	...	...	...
Mechanical Interlocks	✓	✓	✓	...	...	✓	✓	✓	...	...	...	...	...	...	...	...
Handle Padlock Attachment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Cylinder Lock (3-pole)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Optional GF Protection	✓	✓	✓	...	...	✓	✓	✓	✓	✓	✓	✓■	✓■	...	...	✓▲
Trip System Type																	
Thermal Magnetic	...	...	...	...	...	...	...	...	...	...	...	✓	✓	✓	...	...
Instantaneous Trip (3-pole)	...	✓	...	...	...	...	✓	✓	...	...	...	...	...	...	...	...
Molded Case Switch (Automatic)	...	✓	...	...	...	...	✓	✓	...	...	...	✓	...	...	...	...
Electronic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	...	...	...	...	✓
Enclosures																	
General Purpose (NEMA Type 1)	...	...	...	✓	✓	✓	✓	✓	...	...	...	✓	...	...	...	...
Raintight (NEMA Type 3R)	...	...	...	✓	✓	✓	✓	✓	...	...	...	✓	✓	...	...	...
Dusttight (NEMA Type 12)	...	...	...	✓	✓	✓	✓	✓	...	...	...	✓	✓	✓	✓	✓
Watertight (NEMA Type 4, 4x, 5)	...	...	...	✓	✓	...	...	...	...	...	...	✓	✓	✓	...	...
Explosion Proof (NEMA Type 7, 9)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions (3-pole Unit Mount)	Height in. (mm)	13.38 (340)			12.8 (325)		12.8 (325) 800 A; 16.20 (413) 1,200 A				15 (381)		8 (203)		8 (203)		11.86 (301)
	Width in. (mm)	5.51 (140)			8.3 (210)		8.3 (210)				16.5 (420)		4.5 (114)		4.5 (114)		7.5 (190)
	Depth in. (mm)	4.33 (110)			8.10 (205)		8.10 (205)				14.40 (366)		4.75 (121)		4.75 (121)		6.74 (171)

Note: All circuit breakers on this chart are UL listed and CSA certified unless otherwise noted

- ✓ Feature available
- + See Supplemental Digest for 3-phase corner grounded systems
- See Product Data Bulletin No. 0500PD9502R5/97
- ▲ Factory-installed option only
- Requires factory installed "G" Shunt trip and 3-pole module

Molded Case Circuit Breakers

		100 A	150 A	250 A	400 A			
								
Breaker Type		NSE100	NSF150H	NSF250N	NSF250H	NSJ400N	NSJ400H	NSJ400L
Number of poles		3,4	3,4	3,4	3,4	3,4	3,4	3,4
Current Range		15-100	15-150	175-250	175-250	150-600	150-600	400-600
Interrupting Ratings								
UL/CSA/NOM Rating (kA RMS) (50/60 Hz AC)	120 Vac	...	...	...	...	...	...	...
	120/240 Vac	...	...	...	...	...	...	...
	240 Vac	65	100	65	100	65	100	150
	277 Vac	...	...	...	...	...	...	...
	480 Y/277 Vac	18	65	35	65	35	65	100
	480 Vac	18	65	35	65	35	65	100
	600 Y/347 Vac	...	25	18	25	18	25	25
DC Ratings	600 Vac	...	...	...	...	18	25	25
	48 Vdc	...	...	...	...	...	...	...
	60 Vdc	...	...	...	...	...	...	...
	125 Vdc	...	...	...	...	...	...	...
	250 Vdc	...	...	...	...	...	...	...
IEC 60947-2 kA RMS (50/60 Hz AC) Icu/Ics	500 Vdc	...	...	...	...	...	...	...
	380/415 Vac	30	70	36	70	45	70	150
	Ultimate Rating	50%	100%	100%	100%	100%	100%	100%
Special Ratings								
	Fed. Specs W-C-375B/GEN	...	...	...	...	...	...	...
	Other Standard	IEC	IEC	IEC	IEC	IEC	IEC	IEC
Connections/Terminations								
	Unit Mount	✓	✓	✓	✓	✓	✓	✓
	I-Line	...	...	...	...	...	...	...
	Rear Connection	...	✓	✓	✓	✓	✓	✓
	Drawout	...	✓	✓	✓	✓	✓	✓
	Optional Lugs	...	✓	✓	✓	✓	✓	✓
Accessories and Modifications								
	Shunt Trip	✓	✓	✓	✓	✓	✓	✓
	Undervoltage Trip	✓	✓	✓	✓	✓	✓	✓
	Auxiliary Switches	✓	✓	✓	✓	✓	✓	✓
	Alarm Switch	✓	✓	✓	✓	✓	✓	✓
	Motor Operator	...	✓	✓	✓	✓	✓	✓
	Handle Operators	✓	✓	✓	✓	✓	✓	✓
	Mechanical Interlocks	...	✓	✓	✓	✓	✓	✓
	Handle Padlock Attachment	✓	✓	✓	✓	✓	✓	✓
	Cylinder Lock	...	...	...	...	...	...	...
	Add-on GF Protection	...	...	...	...	...	...	...
Trip System Type								
	Thermal Magnetic	✓	✓	✓	✓	...	...	...
	Instantaneous Trip (MAG-GARD®)	✓	✓	✓	✓	✓	✓	✓
	Molded Case Switch (Automatic)	✓	✓	✓	✓	✓	✓	✓
	Electronic Trip Unit	...	...	...	...	✓	✓	✓
	4-pole Neutral Protection	None or 100%	...	None, 100%, 166%	...	Adjustable Protection None – 50%-100% or None – 83%-166%	...	...
Enclosures								
	General Purpose (NEMA Type 1)	...	...	...	...	...	...	...
	Raintight (NEMA Type 3R)	...	...	...	...	...	...	...
	Dusttight (NEMA Type 12)	...	...	...	...	...	...	...
	Watertight (NEMA Type 4, 4x, 5)	...	...	...	...	...	...	...
	Explosion Proof (NEMA Type 7, 9)	...	...	...	...	...	...	...
Dimensions (3-pole Unit Mount)	Height in. (mm)	4.72 (120)	7.44 (189)	7.44 (189)	13.38 (340)	13.38 (340)		
	Width in. (mm)	3.54 (90)	4.13 (105)	4.13 (105)	5.51 (140)	5.51 (140)		
	Depth in. (mm)	3.14 (80)	3.38 (86)	3.38 (86)	4.33 (110)	4.33 (110)		

✓ Feature available



Molded Case Circuit Breakers (IEC only)

	NS100 to NS250			NS400 to NS630				NS630b to NS1600			NS1600 to NS3200		
													
Breaker Type	N	H	L	N	H	L	H-DC	N	H	L	N	H	
Number of poles	2,3,4	2,3,4	2,3,4	3,4	3,4	3,4	3	3,4	3,4	3,4	3,4	3,4	
Current Range	15-250	15-250	15-250	150-630	150-630	150-630	400-600	630-1,600	630-1,600	630-1,000	1,600-3,200	1,600-3,200	
Interrupting Ratings													
IEC 947-2 Icu/Ics ac 50/60 Hz●	220/240 Vac	85/85	100/100	150/150	85/85	100/100	150/150	...	50/37	70/35	150/150	85/64	125/94
	380/415 Vac	25/25	70/70	150/150	45/45	70/70	150/110	...	50/37	70/35	150/150	70/52	85/64
	440 Vac	25/25	65/65	130/130	42/42	65/65	130/130	...	50/37	65/32	130/130	65/65	85/64
	500 Vac	18/18	50/50	100/100	30/30	50/50	70/70	...	40/30	50/25	100/100	65/65	...
	525 Vac	18/18	35/35	100/100	22/22	35/35	50/50	...	40/30	50/25	100/100	65/65	...
DC Ratings	660/690 Vdc	8/8	10/10	75/75	10/10	20/20	35/35	...	30/22	42/21	25/25	65/65	...
	250 Vdc	50	50	50	...	...	...	85	...	...	...	...	...
	500 Vdc	50	50	50	...	...	...	85	...	...	...	...	...
Special Ratings													
Fed. Specs W-C-375B/GEN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HACR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connections/Terminations													
Unit Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
I-Line	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rear Connection	✓	✓	✓	✓	✓	✓	✓	✓	...	...	...	...	...
Drawout	✓	✓	✓	✓	✓	✓	✓	✓	...	...	✓	...	...
Accessories and Modifications													
Shunt Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Undervoltage Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auxiliary Switches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alarm Switch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor Operator	✓	✓	✓	✓	✓	✓	✓	✓	...	...	✓	...	...
Handle Operators	✓	✓	✓	✓	✓	✓	✓	✓	...	...	✓	...	...
Mechanical Interlocks	✓	✓	✓	✓	✓	✓	✓	✓	...	...	...	...	...
Optional GF Protection	✓	✓	✓	✓	✓	✓	✓	✓	...	...	✓	✓	✓
Trip System Type													
Thermal Magnetic	✓	✓	✓	...	...	...	...	...	...	...	...	...	...
Instantaneous Trip (3-pole)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Molded Case Switch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Electronic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dimensions (3-pole Unit Mount)	Height in. (mm)	6.3 (161)			10 (255)				12.8 (340)			15 (381)	
	Width in. (mm)	4.1 (105)			5.5 (140)				8.30 (210)			16.5 (420)	
	Depth in. (mm)	3.4 (86)			4.3 (110)				5.8 (148)			6.63 (168)	

Note: All circuit breakers on this chart are UL listed and CSA certified unless otherwise noted

- ✓ Feature available
- See Product Data Bulletin No. 0500PD9502R5/97




Power Circuit Breakers

		Masterpact NT 1,200 A					Masterpact NW 6,000 A							
														
Breaker Type		NT-N	NT-H	NT-L1	NT-L	NT-LF■	NW-N	NW-H	NW-L	NW-LF■	NW-H	NW-L	NW-H	NW-L
Number of poles		3,4	3,4	3	3	3	3,4	3,4	3	3	3,4	3	3,4	3
Current Range		100-1,200	100-1,200	100-1,200	100-1,200	100-1,200	100-2,000	100-2,000	100-2,000	100-2,000	640-3,000	640-3,000	1,200-6,000	1,200-6,000
Interrupting Ratings														
UL/CSA/NOM Rating (kA RMS) (50/60 Hz AC)	240 Vac	50	65	100	200	200	65	100	200	200	100	200	100	200
	480 Y/277 Vac	50	50	65	100	100	65	100	150	150	100	150	100	150
	480 Vac	50	50	65	100	100	65	100	150	150	100	150	100	150
	600 Y/347 Vac	35	...	...	...	...	50	85	100	100	85	100	85	100
	600 Vac	35	...	...	...	...	50	85	100	100	85	100	85	100
DC Ratings	250 Vdc	...	...	...	...	...	...	...	...	...	...	...	...	...
	500 Vdc	...	...	...	...	...	...	...	...	...	...	...	...	...
IEC★ (kARMS) Icu/Ics	240 Vac	...	...	...	...	...	...	...	...	...	...	...	...	...
	415 Vac	...	...	...	...	...	...	...	...	...	...	...	...	...
Special Ratings														
Fed. Specs W-C-375B/GEN	...	...	...	...	...	...	...	...	...	...	...	...	...	...
HACR (2-, 3-pole)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Connections/Terminations														
Unit Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
I-Line	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rear Connection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Drawout	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Optional Lugs	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Accessories and Modifications														
Shunt Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Undervoltage Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auxiliary Switches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alarm Switch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor Operator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Handle Operators	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mechanical Interlocks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Padlock Attachment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cylinder Lock	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Optional GF Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trip System Type														
Thermal Magnetic	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Instantaneous Trip (3-pole)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Molded Case Switch (Automatic)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Electronic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Enclosures														
General Purpose (NEMA Type 1)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Raintight (NEMA Type 3R)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dustight (NEMA Type 12)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Watertight (NEMA Type 4, 4x, 5)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Explosion Proof (NEMA Type 7, 9)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions (3-pole Unit Mount)	Height in. (mm)	12.67 (322)					17.28 (439)			17.28 (439)			17.28 (439)	
	Width in. (mm)	11.25 (286)					17.74 (450)			17.74 (450)			30.94 (786)	
	Depth in. (mm)	13.00 (331)					18.38 (467)			18.38 (467)			18.38 (467)	

Note: All circuit breakers on this chart are UL listed and CSA certified unless otherwise noted

- ✓ Feature available
- Tested to show arc flash hazard risk category as reference by NFPA70E
- ★ See catalog 0813CT0001 for additional ratings and other information




Miniature Circuit Breakers

MULTI 9 (Photos not to scale)													
													
Breaker Type	UL 489 C60 (240 V)			UL 489 C60 (480Y/277 Vac)			UL 489 A● C60	UL 1077 C60N			UL 1077 C60H-DC		
Number of poles	1	2	3	1	2	3	1	1	2	3,4	1	2	
Current Range	0.5-35	0.5-35	0.5-35	0.5-20	1-20	1-20	0.5-63	0.5-63	1-63	1-63	0.5-40	0.5-40	
Interrupting Ratings													
UL/CSA Rating (kA RMS) (50/60 Hz AC)	120 Vac	10	...	...	10	...	...	...	10	...	...	...	...
	120/240 Vac	...	...	...	...	...	...	...	...	...	...	...	...
	240 Vac	10	10	10	10	10	10	...	10	10	10	...	...
	277 Vac	...	...	...	10	10	10	...	5	...	...	...	...
	480 Y/277 Vac	...	...	...	10	10	10	...	...	5	5	...	...
	480 Vac	...	...	...	...	...	...	...	...	...	...	...	...
	600 Y/347 Vac	...	...	...	...	...	...	...	...	...	...	...	...
DC Ratings	600 Vac	...	...	...	...	...	...	...	...	...	...	...	...
	48 Vdc	...	...	...	...	...	...	...	...	...	5	5	
	60 Vdc	10	10	...	...	...	10	10	...	...	5	5	
	125 Vdc	...	10	...	...	...	...	...	10	...	5	5	
	250 Vdc	...	...	...	...	...	...	...	...	...	5	5	
IEC 60947-2 (50/60 Hz AC)	500 Vdc	...	...	...	...	...	...	...	...	...	...	5♣	
	240 V	10	20	20	10	10	10	...	10	20	20	10	20
	415 V	10	10	10	10	10	10	...	3	10	10	...	...
	440 V	...	6	6	...	6	6	...	...	6	6	...	10
Special Ratings													
Fed. Specs W-C-375B/GEN	✓	✓	✓	✓	✓	✓	✓	✓	...	...	...	...	...
Other Standard	IEC	IEC	IEC	IEC	IEC	IEC	...	IEC	IEC	IEC	...	...	...
Connections/Terminations													
Unit Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
I-Line	...	...	...	...	...	...	...	...	...	...	...	...	...
Rear Connection	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓	✓★	✓★	✓★	✓★	✓★	✓★
Drawout	...	...	...	...	...	...	...	...	...	...	...	...	...
Lugs	✓	✓	✓	✓■	✓■	✓■	✓	✓	✓	✓	✓	✓	✓
Accessories and Modifications													
Shunt Trip	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Undervoltage Trip	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Auxiliary Switches	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Alarm Switch	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Motor Operator	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Handle Operators	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Mechanical Interlocks	...	...	...	...	...	...	...	...	...	...	...	...	...
Handle Padlock Attachment	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★
Cylinder Lock	...	...	...	...	...	...	...	...	...	...	...	...	...
GF Protection (GFP)	✓★	✓★	✓★	✓★	✓★	✓★	✓★	✓★	...	✓★	✓★	...	...
Trip System Type													
Thermal Magnetic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Instantaneous Trip (MAG-GARD)	...	...	...	...	...	...	...	...	...	...	...	...	...
Molded Case Switch (Automatic)	...	...	...	...	...	...	...	...	...	...	...	...	...
Electronic Trip Unit	...	...	...	...	...	...	...	...	...	...	...	...	...
Enclosures													
General Purpose (NEMA Type 1)	...	...	...	...	...	...	...	...	...	...	...	...	...
Raintight (NEMA Type 3R)	...	...	...	...	...	...	...	...	...	...	...	...	...
Dusttight (NEMA Type 12)	...	...	...	...	...	...	...	...	...	...	...	...	...
Watertight (NEMA Type 4, 4x, 5)	...	...	...	...	...	...	...	...	...	...	...	...	...
Explosion Proof (NEMA Type 7, 9)	...	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions (3-pole Unit Mount)	Height in. (mm)	4.21 (107) (box lug)			5.55 (141)			3.19 (81.02)			3.19 (81)		
	Width in. (mm)	2.13 (54)			2.13 (54)			2.13 (54)			.71 (18)	1.42 (36)	
	Depth in. (mm)	3.00 (76)			3.00 (76)			3.00 (76)			2.56 (65)		

Note: All circuit breakers on this chart are UL listed and CSA certified unless otherwise noted

- ✓ Feature available
- ★ Field-installable accessory
- UL 489 A for DC Telcom applications (1-pole only)
- Available with 2-barrel lug or ring terminal
- ♣ 2 poles must be wired in series for 500 Vdc
- ▲ Factory-installed option only

Miniature Circuit Breakers

		QO Circuit Breakers																	
																			
Breaker Type	Plug-on	QO			QO-H			QO-VH						QH		QO-GFI		QO-EPD	
	Bolt-on	QOB			QOB-H						QOB-VH			QHB		QOB-GFI		QOB-EPD	
	Unit Mount																		
Number of poles	1	2	3	2	1	2	3	1	2	3	1,2	3	1	2	1	2			
Current Range	10-70	10-200	10-100	15-100	15-30	15-125	15-100	15-30	15-150	15-150	15-30	15-30	15-30	15-60	15-30	15-60			
Interrupting Ratings																			
UL/CSA Rating (kA RMS) (50/60 Hz AC)◆	120 Vac	10	10	10	10	22	22	22	22	22	22	65	65	10	10	10	10		
	120/240 Vac	10	10	10	10	22	22	22	22	22	22	65	65	...	10	...	10		
	240 Vac✦	...	...	10	10	...	...	22	...	...	22	...	65	...	...	...	...
	277 Vac	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	480 Y/277 Vac	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
DC Ratings	48 Vdc	5†	5†	5†	...	...	...	...	...	...	...	...	...	...	...	...
	60 Vdc	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
IEC 60947-2● (50/60 Hz AC) (Ultimate Rating)	IEC	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
				
				
Special Ratings																			
Fed. Specs W-C-375B/GEN	✓	...	...	...	✓	...	...	...	...	...	✓	...	✓	...	✓	...
Other Standard	HACR, NOM✧			HACR✧						...	...	NOM		NOM			
Accessories and Modifications																			
Shunt Trip	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲■	✓▲	✓▲	...	...	...	...
Undervoltage Trip	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Auxiliary Switches	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲■	✓▲	✓▲	✓▲	✓▲	✓	✓▲		
Alarm Switch	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲■	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲		
Handle Operators	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Handle Padlock Attachment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Trip System Type																			
Thermal Magnetic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Molded Case Switch	✓	✓	✓	...	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions (Width is for 1-pole, unit mount)	Height in. (mm)	3.5 (89)✦										4.12 (103)							
	Width in. (mm)	0.75 (19)✦										0.75 (19)							
	Depth in. (mm)	2.92 (75)✦										2.92 (75)							

Note: All circuit breakers on this chart are UL listed and CSA certified unless otherwise noted

- ✓ Feature available
- ◆ AFI, EPD, and GFI products are rated 60 Hz only
- ✦ See Supplemental Digest for 3-phase corner grounded systems
- † 1- and 2-pole, 10-70 A and 3-pole 10-60 A only
- See Supplemental Digest for circuit breakers with IEC ratings
- ▲ Factory-installed option only
- ✧ HACR on QO, QOB 1-pole 10-70 A; 2-pole 15-100 A; 3-pole 10-100 A; QOB-VH 1-pole 15-70 A, 2-pole 15-125 A, 3-pole 15-100 A
- Factory-installed accessories not available on QOB-VH 2-pole 150 A and 3-pole 110-150 A
- ✦ See Digest page 6-49 for dimensions for: QOB2150VH, QOB3110VH, QOB3125VH and QOB3150VH
- ★ QOU 1- and 2-pole 10-70 A and 3-pole 10-60 A only
- ▼ QOU is UL listed for 60 Vdc per pole 80-100 A 1-pole; 80-125 A 2-pole; and 70-100 A 3-pole
- ✧ HACR on QOU 1-pole and 3-pole 15-100 A; 2-pole 15-125 A
- ★ QYU is a UL 1077 supplementary protector

EDB Circuit Breakers



QO-VHGFI	QOU			QOU-H	QYU*	QOU-VH			EDB		EGB		EJB		EDB-EPD	EGB-EPD	EJB-EPD
1	1	2	3	2	1	1	2	3	1	2,3	1	2,3	1	2,3	1	1	1
15-30	10-100	10-125	10-100	15-30	10-30	15-60	15-60	15-30	15-70	15-125	15-70	15-125	15-70	15-125	15-50	15-50	15-50
22	10	10	10	...	...	...	...	...	25	25	65	65	100	100	25	65	100
...	10	10	10	...	...	22	22	...	18	25	35	65	65	100	18	35	65
...	...	...	10	5	...	...	...	22	18	25	35	65	65	100	18	35	65
...	...	...	...	...	5	...	...	...	18	18	35	35	65	65	18	35	65
...	...	...	...	...	...	...	...	...	...	18	...	35	...	65	...	...	...
...	5★	5★	5★	5	...	...	5	5	...	...	...	...	...	...	...	...	...
...	5▼	5▼	5▼	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...
...
...
...	✓	✓	✓	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...	HACR*			HACR			HACR					
...	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲
...
✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲
✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲	✓▲
...
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...	...	✓	✓
	4.05 (103)								5.66 (144)				5.66 (144)				
	0.75 (19)								0.98 (25)				1.96 (50)				
	2.92 (74)								4.05 (103)				4.05 (103)				

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