

Thermal Circuit Breaker

0.5 Amp to 70 Amp

UL 1077, Ignition Protected

Cadmium - Free

Superior Current Interrupt Capabilities



Series 16

Raising the Bar

MP - Count on it



Series 16 Overview

Robust 0.5-70A Proven Design

The Series 16 is a proven reliable, single-pole thermal circuit breaker designed for your equipment protection needs in the 0.5 to 70 amp range. The MP Series 16 is suitable for diverse applications such as Medical Equipment, Uninterruptable Power Systems (UPS), Portable Generators, Welders, Industrial Cleaning Equipment, and Transportation.

Series 16 offers:

- AC/DC ratings from 0.5 to 70 Amps
- UL 1500 Ignition Protection
- UL, cUL, CSA, VDE, CCC
- RoHS compliant
- Choice of snap-in or thread mounting
- Multiple hardware and boot options
- Variety of termination options

Series 16 Specifications

Standard Amp Ratings

Series 16 thermal circuit breakers are available in current ratings of 0.5A, 0.75A, 1.0A, 1.5A, 2A, 2.5A, 3A, 3.5A, 4A, 4.5A, 5A, 6A, 7A, 7.5A, 8A, 9A, 10A, 12A, 14A, 15A, 18A, 20A, 25A, 30A, 35A, 40A, 45A, 50A, 55A, 60A, & 70A.

Minimum Ultimate Trip

The Series 16 offers a minimum ultimate trip of 100% of rated current at 25°C/77°F.

Overload Capacity

10X of rated current for 5.0 A - 70.0A and
6X of rated current for 0.5A - 4.5A.

Ignition Proof

The Series 16 in ratings of 0.5 - 70A conforms to USCG Title 33, DFR, Section 183.410(a), per UL1500 standard for safety for ignition-protection test for marine products

Interrupt/Voltage Ratings

1,000A @ 50VDC - up to 35A
3,000A @ 32VDC - 5 to 70A*
2,000A @ 120VAC - up to 35A
1,000A @ 250VAC - 40A and above

Maximum Ultimate Trip

Below 1A - 145%
Between 1A and 35A inclusive - 135%
At 40A and above - 140%
- of rated current at 25°C/77°F.

Dielectric Strength

Series 16 has a dielectric strength that exceeds 1,500V per UL, CSA and VDE.

Regulatory Approvals

UL/cUL recognition per UL 1077 (E66224), CSA per C22.2-235-04 (LR27156), VDE to IEC Std 60934 (40003670 & 40003682), and CCC. All are RoHS compliant.

*MP Certified

Overload Trip Time Data (in seconds)

| Current Rating | 200% | 300% | 400% | 500% | 600% | 800% | 1000% |
|----------------|---------|-----------|-----------|-----------|-------------|-----------|-------------|
| 0.5 - 4.5 A | 10 - 32 | 5 - 12 | 3.5 - 6.3 | 3.0 - 4.7 | 2.3 - 4.2 | - | - |
| 5.0 - 7.5 A | 4 - 15 | 1.4 - 5.2 | .75 - 3.0 | 0.5 - 1.8 | 0.35 - 1.25 | 0.2 - 0.8 | 0.16 - 0.66 |
| 8 - 70A | 5 - 30 | 1.5 - 7.5 | 0.8 - 4.5 | 0.5 - 2.8 | 0.4 - 1.9 | 0.2 - 1.1 | 0.15 - 0.78 |

Ambient Temperature Correction Factor

| Current Rating | °F | 77 | 104 | 122 | 140 |
|----------------|------|------|------|---------------|-----|
| | °C | 25 | 40 | 50 | 60 |
| 0.5 - 4.5A | 1.00 | 1.16 | 1.33 | 1.61 | |
| 5 - 7.5A | 1.00 | 1.32 | 1.87 | Call for info | |
| 8 - 35A | 1.00 | 1.15 | 1.31 | 1.55 | |
| 40 - 70A | 1.00 | 1.11 | 1.21 | 1.34 | |

Voltage Drop

| Ampere Range | Voltage Drop |
|--------------|--------------|
| 0.50-0.75 | 3V |
| 1.0 - 4.5 | 1V |
| 5.0 - 9.0 | 0.25V |
| 12.0 - 14.0 | 0.20V |
| 15.0 - 35.0 | 0.15V |
| 40.0 - 45.0 | 0.10V |
| 60.0 - 70.0 | 0.06V |



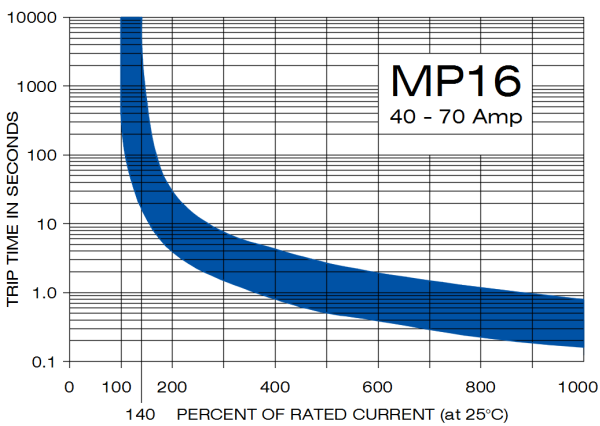
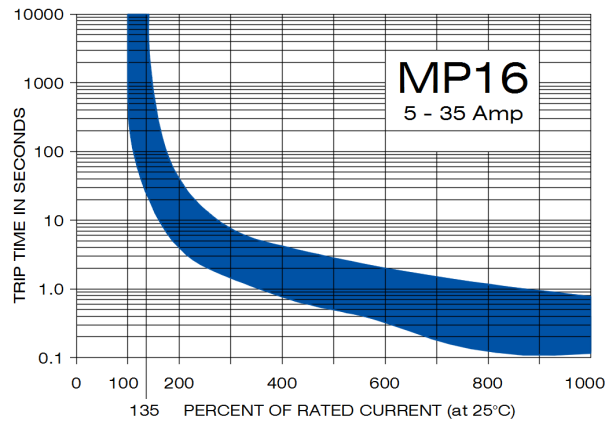
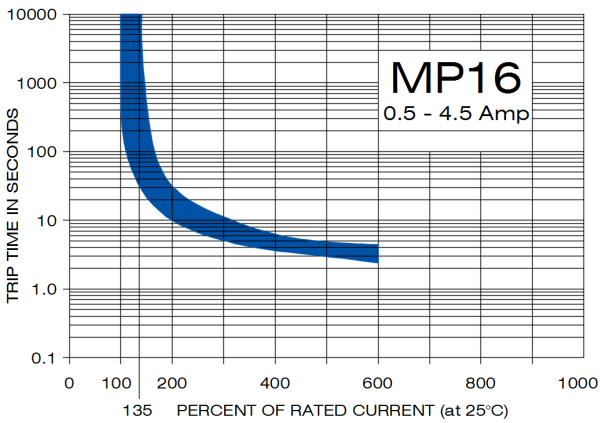
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Specifications Subject to Change

QC-4006-A

Series 16 Operating Characteristics



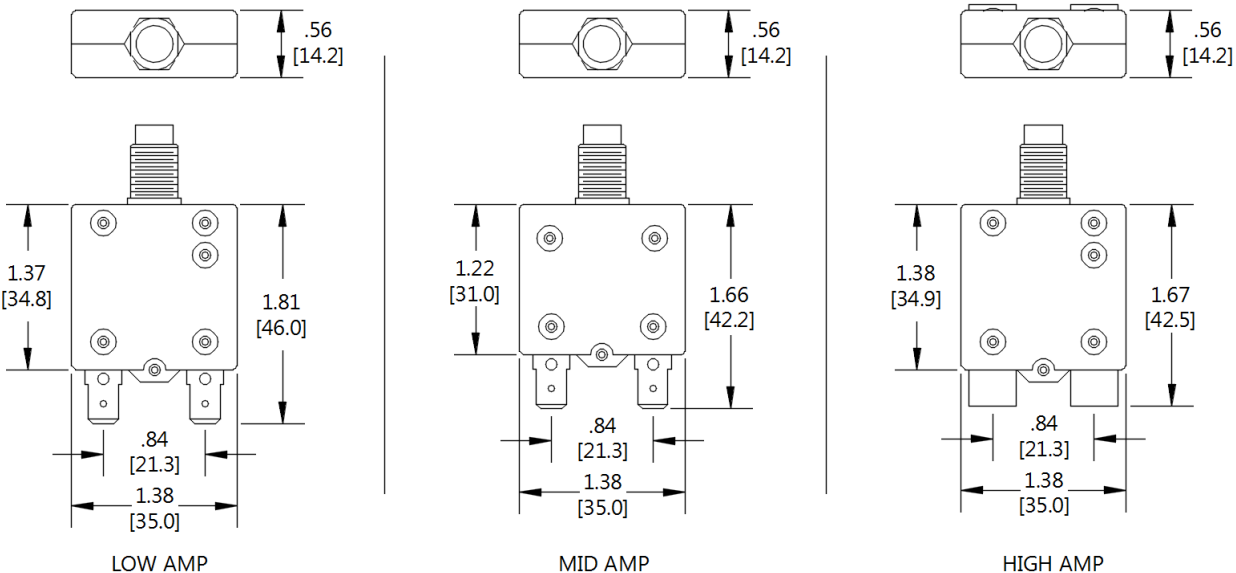
Trip curves presented here are based on typical samples and are for reference. Please consult the factory for more specific application information.

Trip curves are specified at 25°C / 77°F

Series 16 Physical Configuration

Case Sizes

(See Part Numbering Guide)



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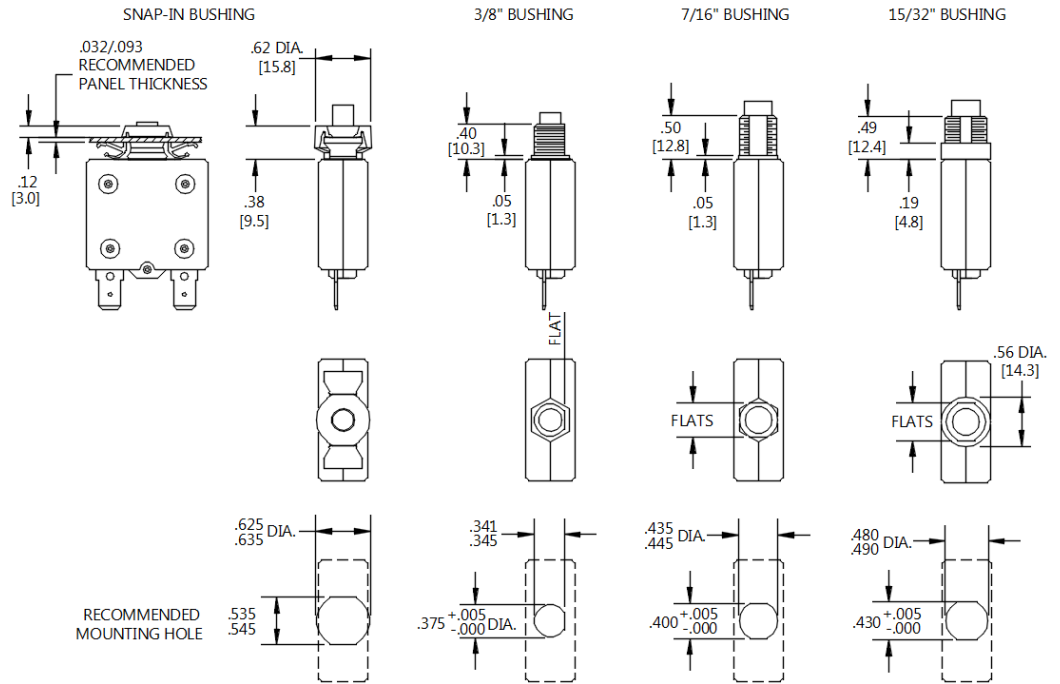
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Series 16 Physical Configuration

Bushing Options

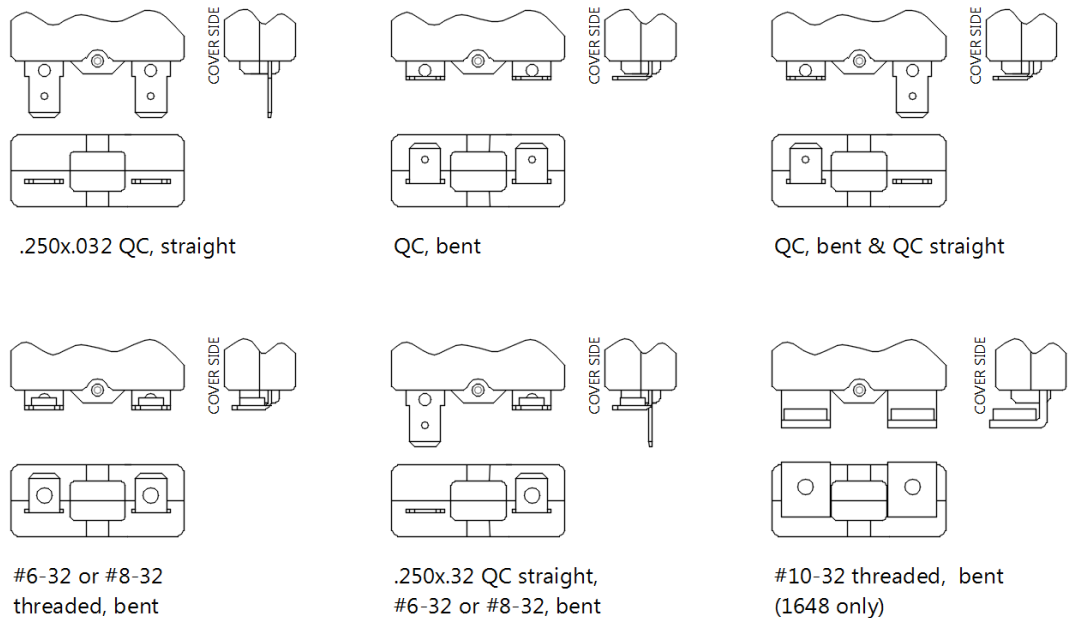
(See Part Numbering Guide)

All dimensions in inches. (mm)



Terminal Options

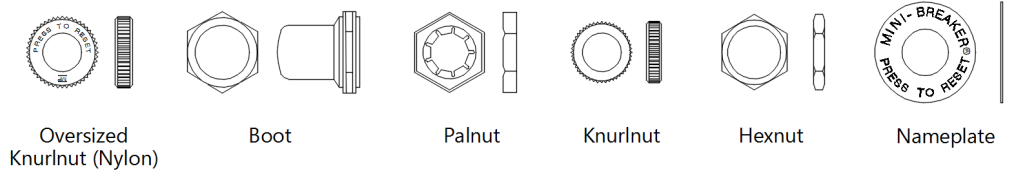
(See Part Numbering Guide)



- For VDE approved screw terminal devices, the use of ring or "U" shaped wire connectors is required

Hardware Options

(See Part Numbering Guide)



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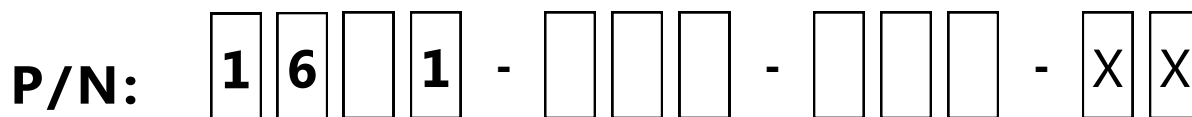
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Specifications Subject to Change

QC-4006-A

Low Amp 0.5-4.5

Series 16 Part Numbering Guide



XX = Unspecified

| 1601 Model Variation Codes | | | |
|----------------------------|------------------|--------------------------|-------------------------|
| Model Code | Bushing Mounting | Button / Amp Stamp Color | Terminal Type |
| 1601-001 | 7/16"-28 Diecast | White / None | 0.250" quick connect |
| 1601-015 | | White / Black | |
| 1601-065 | | | #6-32 threaded, bent 90 |
| 1601-073 | Snap-In Black | White / Red | 0.250" quick connect |
| 1601-067 | | White / None | |
| 1601-251 ¹ | | | |

| Amp Rating | |
|------------|------|
| Code | Amps |
| 050 | 0.5 |
| 075 | 0.75 |
| 100 | 1.0 |
| 200 | 2.0 |
| 250 | 2.5 |
| 300 | 3.0 |
| 350 | 3.5 |
| 400 | 4.0 |
| 450 | 4.5 |

| 7/16"-28 Hardware | |
|-------------------|---|
| Code | Hardware Configurations |
| 00 | No Hardware |
| 06 | Hexnut |
| 07 | Knurlnut/Palnut/Nameplate |
| 11 | Knurlnut (aluminum) |
| 15 | Knurlnut/Palnut |
| 18 | Hexnut/Hexnut/Nameplate |
| 23 | Hexnut/Hexnut |
| 32 | Knurlnut / Hexnut / Lockwasher |
| A0 | Knurlnut/Hexnut (2) #6 Terminal Screws & Washers |
| A1 | Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers |
| B4 | Protective Rubber Boot/Palnut |

| 1681 Model Variation Codes | | | |
|----------------------------|------------------|--------------------------|-------------------------|
| Model Code | Bushing Mounting | Button / Amp Stamp Color | Terminal Type |
| 1681-001 | 3/8"-27 Nylon | White / None | 0.250" quick connect |
| 1681-015 | | White / Black | |
| 1681-111 | | White / None | #6-32 threaded, bent 90 |
| 1681-254 ¹ | | | 0.250" quick connect |

| 3/8"-27 Hardware | |
|------------------|---|
| Code | Hardware Configurations |
| 00 | No Hardware |
| 44 | Hexnut |
| 50 | Knurlnut/Palnut/Nameplate |
| 51 | Knurlnut/Palnut |
| 54 | Hexnut/Hexnut |
| 75 | Hexnut/Hexnut/Nameplate |
| 79 | Knurlnut (aluminum) |
| 97 | Knurlnut (black nylon) / Lockwasher |
| A4 | Knurlnut/Hexnut (2) #6 Terminal Screws & Washers |
| A5 | Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers |
| D3 | Knurlnut (black nylon) |
| F4 | (2) Knurlnuts / Lockwasher |

All models are UL, CSA, & CCC, ¹includes IEC

Popular configurations are listed. If the variation you are looking for is not found, contact the factory for assistance. MP has over 2,000 variations and custom requirements is our specialty - electrical, mechanical, environmental and agency approval capabilities.



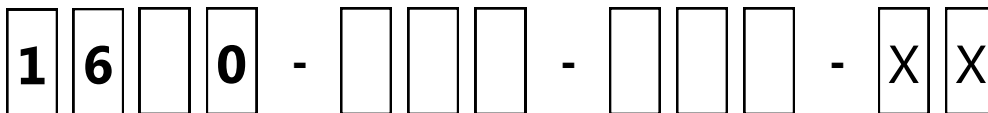
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Specifications Subject to Change

QC-4006-A

P/N:



XX = Unspecified

| 1600 Model Variation Codes | | | |
|----------------------------|-------------------|--------------------------|--|
| Model Code | Bushing Mounting | Button / Amp Stamp Color | Terminal Type |
| 1600-001 | 7/16"-28 Diecast | White / None | 0.250" quick connect |
| 1600-037 | | White / Black | |
| 1600-055 | | White / None | #6-32 threaded, bent 90 |
| 1600-082 | | White / Black | |
| 1600-180 | | White / None | 0.250" quick connect, bent 90 |
| 1600-235 | | | (1) #8-32 threaded, bent 90* (1) 0.250" quick connect |
| 1600-007 | 15/32"-32 Diecast | White / None | 0.250" quick connect |
| 1600-107 | | White / Black | |
| 1600-111 | | #6-32 threaded, bent 90* | |
| 1600-144 | Snap-In Black | White / None | 0.250" quick connect |
| 1600-175 | | | #8-32 threaded, bent 90 |
| 1600-254 ¹ | | White / Black | 0.250" quick connect |
| 1600-255 ¹ | | | |
| 1600-263 ¹ | | White / None | 0.250" quick connect, bent 90 away from case |

| Amp Rating | |
|------------|------|
| Code | Amps |
| 050 | 5.0 |
| 060 | 6.0 |
| 070 | 7.0 |
| 075 | 7.5 |
| 080 | 8.0 |
| 090 | 9.0 |
| 100 | 10.0 |
| 120 | 12.0 |
| 140 | 14.0 |
| 150 | 15.0 |
| 180 | 18.0 |
| 200 | 20.0 |
| 250 | 25.0 |
| 300 | 30.0 |
| 350 | 35.0 |

| 7/16"-28 Hardware | |
|-------------------|---|
| Code | Hardware Configurations |
| 00 | No Hardware |
| 06 | Hexnut |
| 07 | Knurlnut/Palnut/Nameplate |
| 11 | Knurlnut (aluminum) |
| 15 | Knurlnut/Palnut |
| 18 | Hexnut/Hexnut/Nameplate |
| 23 | Hexnut/Hexnut |
| 32 | Knurlnut / Hexnut / Lockwasher |
| A1 | Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers |
| A2 | Knurlnut/Palnut (2) #6 Terminal Screws & Washers |
| B4 | Protective Rubber Boot/Palnut |

| 1680 Model Variation Codes | | | |
|----------------------------|------------------|--------------------------|-------------------------------|
| Model Code | Bushing Mounting | Button / Amp Stamp Color | Terminal Type |
| 1680-001 | 3/8"-27 Nylon | White / None | 0.250" quick connect |
| 1680-037 | | White / Black | |
| 1680-055 | | White / None | #6-32 threaded, bent 90 |
| 1680-082 | | White / Black | |
| 1680-217 | | Black / None** | 0.250" quick connect |
| 1680-219 | | | #8-32 threaded, bent 90 |
| 1680-228 | | Black / None | 0.250" quick connect |
| 1680-252 ¹ | | White / None | |
| 1680-253 ¹ | | White / Black | |
| 1680-271 | | | 0.250" quick connect, bent 90 |

| 3/8"-27 Hardware | |
|------------------|--|
| Code | Hardware Configurations |
| 00 | No Hardware |
| 44 | Hexnut |
| 50 | Knurlnut/Palnut/Nameplate |
| 51 | Knurlnut/Palnut |
| 54 | Hexnut/Hexnut |
| 75 | Hexnut/Hexnut/Nameplate |
| 79 | Knurlnut (aluminum) |
| 97 | Knurlnut (black nylon) / Lockwasher |
| A5 | Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers |
| A9 | Knurlnut / Lockwasher (2) #8 Terminal Screws & washers. |
| B8 | Knurlnut (black nylon)/ Lockwasher (2) #8 Terminal Screws & Lockwashers |
| D3 | Knurlnut (black nylon) |
| E2 | Knurlnut/Palnut (2) #6 Terminal Screws & Washers |
| F4 | (2) Knurlnuts / Lockwasher |

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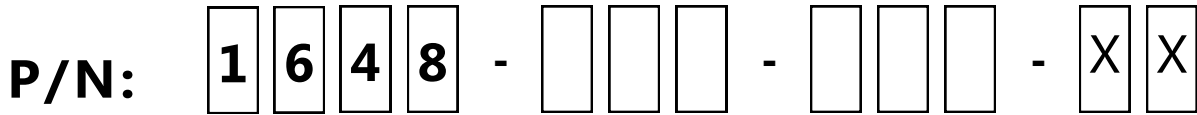
*Terminal Hardware Included
**With white trip indicator

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High Amp 40 to 70

Series 16 Part Numbering Guide



XX = Unspecified

| 1648 Model Variation Codes | | | |
|----------------------------|-------------------|--------------------------|---------------------------|
| Model Code | Bushing Mounting | Button / Amp Stamp Color | Terminal Type |
| 1648-025 | 3/8"-27 Metal | White / Black | #10-32 threaded, bent 90* |
| 1648-006 | 7/16"-28 Diecast | White / None | |
| 1648-009 | | White / Black | |
| 1648-001 | 15/32"-32 Diecast | | |
| 1648-017 | Snap-In Black | White / None | |

All models are UL, CSA, & CCC

*Terminal Hardware Included

| Amp Rating | |
|------------|----------|
| Code | Amperage |
| 040 | 40.0 |
| 045 | 45.0 |
| 050 | 50.0 |
| 055 | 55.0 |
| 060 | 60.0 |
| 070 | 70.0 |

| 7/16"-28 Hardware | |
|-------------------|--------------------------------|
| Code | Hardware Configurations |
| 00 | No Hardware |
| 06 | Hexnut |
| 07 | Knurlnut/Palnut/Nameplate |
| 11 | Knurlnut (aluminum) |
| 15 | Knurlnut/Palnut |
| 18 | Hexnut/Hexnut/Nameplate |
| 23 | Hexnut/Hexnut |
| 32 | Knurlnut / Hexnut / Lockwasher |
| B4 | Protective Rubber Boot/Palnut |

| 3/8"-27 Hardware | |
|------------------|-------------------------------------|
| Code | Hardware Configurations |
| 00 | No Hardware |
| 44 | Hexnut |
| 50 | Knurlnut/Palnut/Nameplate |
| 51 | Knurlnut/Palnut |
| 54 | Hexnut/Hexnut |
| 75 | Hexnut/Hexnut/Nameplate |
| 79 | Knurlnut (aluminum) |
| 97 | Knurlnut (black nylon) / Lockwasher |
| D3 | Knurlnut (black nylon) |
| F4 | (2) Knurlnuts / Lockwasher |

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QC-4006-A