

## Multifunction Reset / Test Button

The thermal overload relay has a multifunction **RESET / TEST** button that can be set in four different positions:

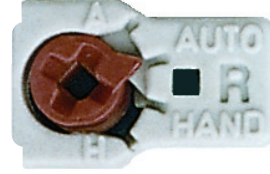
**A** - Automatic **RESET** only;

**AUTO** - Automatic **RESET / TEST**;

**HAND** - Manual **RESET / TEST**;

**H** - Manual **RESET** only.

In **HAND** and **AUTO** positions, when **RESET** button is pressed, both NO (97-98) and NC (95-96) contacts change states.



### Operation description:

In H (manual RESET only) or A (automatic RESET only) position, the test function is blocked. However in the positions HAND (manual RESET / TEST) or AUTO (automatic RESET / TEST) it is possible to simulate the test and the trip functions by pressing the RESET button.

When set in the H or HAND position the RESET button must be pressed manually to reset the overload relay after a tripping event. On the other hand, when set in A or AUTO position, the overload relay will reset automatically after a tripping event.

The H, HAND, AUTO and A function setting is carried out by rotating without pressing the red button and placing it on the desired position of the RESET button.

When changing from HAND to AUTO, the RESET button must be slightly pressed while the red button is rotated.

| Functions                              | H                    | HAND            | AUTO            | A                    |
|----------------------------------------|----------------------|-----------------|-----------------|----------------------|
| Relay reset                            | Manual1)             | Manual1)        | Automatic       | Automatic            |
| Auxiliary contact trip test 95-96 (NC) | Function is disabled | Test is allowed | Test is allowed | Function is disabled |
| Auxiliary contact trip test 97-98 (NO) | Function is disabled | Test is allowed | Test is allowed | Function is disabled |

Note: 1) A recovery time of a few minutes is necessary before resetting the thermal overload relay.

### Recovery Time

The RW thermal overload relays have thermal memory.

After tripping due to an overload, the relay requires a certain period of time for the bimetal strips to cool down. This period of time is so-called recovery time. The relay can only be reset once it has cooled down. The recovery time depends on the characteristic tripping curves and the level of the tripping current. After tripping due to overload, the recovery time allows the load to cool down.

### Operation in the Output Side of Frequency Inverters

The RW27-2D thermal overload relays are designed for operation on 50/60 Hz up to 400 Hz and the tripping values are related to the heating by currents within this frequency range. Depending on the design of the frequency inverter, the switching frequency can reach several kHz and generate harmonic currents at the output that result in additional temperature rise in the bimetal strips. In such applications, the temperature rise not only depends on the rms value of the current, but on the induction effects of the higher frequency currents in the metal parts of the device (skin effect caused by eddy currents).

Due to these effects, the current settings on the overload relay should be higher than the motor rated current.

### Dial FLA Setting

The trip-current is set via an infinitely adjustable dial designed with the motor's full load current (FLA) in mind.

### Temperature Compensation

Because RW overload relays include a forth bimetallic strip in addition to the three that are directly heated by the motor current, ambient temperature variations in the range of -4°F to +140°F are no obstacle for accurate protection of your motors even in the toughest conditions.

### Phase Failure Sensitivity

WEG overload relays include phase failure sensitivity protection as a standard. This feature ensures fast tripping in case of phase loss, protecting your motor and avoiding expensive repairs/corrective maintenance.

# Overloads

## RW Series - Bi-Metallic

### For use with CWC and CWM Contactors

#### Three-pole Thermal Overload Relay Class 10

- Adjustable tripping current
- Phase-loss sensitivity
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation from -40F to +140F
- Hand/Auto/Reset button

| Matching Contactor                          | Setting Range [A] |      | Max. Fuse [A] | Catalog Number | List Price | Multiplier |
|---------------------------------------------|-------------------|------|---------------|----------------|------------|------------|
|                                             | Min.              | Max. |               |                |            |            |
| CWC07...CWC016<br>CWCA0<br>(Mini-contactor) | 0.28              | 0.40 | 15            | RW17-1D3-D004  | \$46       | Z2         |
|                                             | 0.40              | 0.63 | 15            | RW17-1D3-C063  | \$46       |            |
|                                             | 0.56              | 0.80 | 15            | RW17-1D3-D008  | \$46       |            |
|                                             | 0.80              | 1.20 | 15            | RW17-1D3-D012  | \$46       |            |
|                                             | 1.20              | 1.80 | 15            | RW17-1D3-D018  | \$46       |            |
|                                             | 1.80              | 2.80 | 15            | RW17-1D3-D028  | \$46       |            |
|                                             | 2.80              | 4.00 | 15            | RW17-1D3-U004  | \$46       |            |
|                                             | 4.00              | 6.30 | 25            | RW17-1D3-D063  | \$46       |            |
|                                             | 5.60              | 8.00 | 30            | RW17-1D3-U008  | \$46       |            |
|                                             | 7.00              | 10.0 | 40            | RW17-1D3-U010  | \$46       |            |
|                                             | 8.00              | 12.5 | 50            | RW17-1D3-D125  | \$46       |            |
|                                             | 10.0              | 15.0 | 60            | RW17-1D3-U015  | \$46       |            |
| CWC025 (Mini-contactor)                     | 11.0              | 17.0 | 60            | RW17-1D3-U017  | \$46       |            |
|                                             | 15.0              | 23.0 | 90            | RW17-2D3-U023  | \$46       |            |
|                                             | 22.0              | 32.0 | 100           | RW17-2D3-U032  | \$46       |            |
| CWM9...CWM40<br>CWM9N...CWM32N              | 0.28              | 0.40 | 15            | RW27-1D3-D004  | \$50       |            |
|                                             | 0.40              | 0.63 | 15            | RW27-1D3-C063  | \$50       |            |
|                                             | 0.56              | 0.80 | 15            | RW27-1D3-D008  | \$50       |            |
|                                             | 0.80              | 1.20 | 15            | RW27-1D3-D012  | \$50       |            |
|                                             | 1.20              | 1.80 | 15            | RW27-1D3-D018  | \$50       |            |
|                                             | 1.80              | 2.80 | 15            | RW27-1D3-D028  | \$50       |            |
|                                             | 2.80              | 4.00 | 15            | RW27-1D3-U004  | \$50       |            |
|                                             | 4.00              | 6.30 | 25            | RW27-1D3-D063  | \$50       |            |
|                                             | 5.60              | 8.00 | 30            | RW27-1D3-U008  | \$50       |            |
|                                             | 7.00              | 10.0 | 40            | RW27-1D3-U010  | \$50       |            |
|                                             | 8.00              | 12.5 | 50            | RW27-1D3-D125  | \$50       |            |
|                                             | 10.0              | 15.0 | 60            | RW27-1D3-U015  | \$50       |            |
|                                             | 11.0              | 17.0 | 60            | RW27-1D3-U017  | \$50       |            |
|                                             | 15.0              | 23.0 | 90            | RW27-1D3-U023  | \$50       |            |
|                                             | 22.0              | 32.0 | 90            | RW27-1D3-U032  | \$50       |            |
| CWM32...CWM40<br>CWM32N                     | 25.0              | 40.0 | 90            | RW67-1D3-U040  | \$87       |            |
|                                             | 32.0              | 50.0 | 125           | RW67-1D3-U050  | \$94       |            |
|                                             | 25.0              | 40.0 | 90            | RW67-2D3-U040  | \$95       |            |
| CWM50...CWM80<br>CWM50N                     | 32.0              | 50.0 | 125           | RW67-2D3-U050  | \$95       |            |
|                                             | 40.0              | 57.0 | 150           | RW67-2D3-U057  | \$95       |            |
|                                             | 50.0              | 63.0 | 150           | RW67-2D3-U063  | \$95       |            |
|                                             | 57.0              | 70.0 | 175           | RW67-2D3-U070  | \$112      |            |
|                                             | 63.0              | 80.0 | 175           | RW67-2D3-U080  | \$112      |            |
|                                             | 63.0              | 80.0 | 200           | RW117-1D3-U080 | \$150      |            |
| CWM95...CWM105<br>CWM95N                    | 75.0              | 97.0 | 225           | RW117-1D3-U097 | \$192      |            |
|                                             | 90.0              | 112  | 250           | RW117-1D3-U112 | \$192      |            |
|                                             | 75.0              | 97   | 225           | RW117-2D3-U097 | \$232      |            |
| CWM112...CWM150<br>CWM150N                  | 90.0              | 112  | 250           | RW117-2D3-U112 | \$232      |            |
|                                             | 100               | 150  | 300           | RW317-1D3-U150 | \$285      |            |
| CWM112...CWM300<br>CWM300N                  | 140               | 215  | 350           | RW317-1D3-U215 | \$285      |            |
|                                             | 200               | 310  | 500           | RW317-1D3-U310 | \$320      |            |
|                                             | 275               | 420  | 700           | RW317-1D3-U420 | \$320      |            |
| CWM400...CWM800                             | 400               | 600  | 1000          | RW407-1D3-U600 | \$690      |            |
|                                             | 560               | 840  | 1250          | RW407-1D3-U840 | \$690      |            |

Note: RW117-2D, RW317-1D and RW407-1D are for separate mounting -  
Connector links for contactors CWM112...CWM300 are available as an accessory on page 212.

### For use with CWB Contactors

### Three-pole Thermal Overload Relay Class 10

- Adjustable Trip Current
- Phase Loss Sensitivity
- Trip Class 10
- Built-In Auxiliary Contacts: 1NO + 1NC
- Ambient Temperature Compensation: -4°F to +140°F
- Multi-Function Button: Hand/Auto/Reset

| Matching Contactor | Setting Range [A] |      | Max. Fuse [A] | Catalog Number                | List Price | Multiplier |
|--------------------|-------------------|------|---------------|-------------------------------|------------|------------|
|                    | Min.              | Max. |               |                               |            |            |
| CWB9 - CWB38       | 0.28              | 0.40 | 15            | <a href="#">RW27-2D3-D004</a> | \$50       | Z2         |
|                    | 0.40              | 0.63 | 15            | <a href="#">RW27-2D3-C063</a> | \$50       |            |
|                    | 0.56              | 0.80 | 15            | <a href="#">RW27-2D3-D008</a> | \$50       |            |
|                    | 0.80              | 1.20 | 15            | <a href="#">RW27-2D3-D012</a> | \$50       |            |
|                    | 1.20              | 1.80 | 15            | <a href="#">RW27-2D3-D018</a> | \$50       |            |
|                    | 1.80              | 2.80 | 15            | <a href="#">RW27-2D3-D028</a> | \$50       |            |
|                    | 2.80              | 4.00 | 15            | <a href="#">RW27-2D3-U004</a> | \$50       |            |
|                    | 4.00              | 6.30 | 25            | <a href="#">RW27-2D3-D063</a> | \$50       |            |
|                    | 5.60              | 8.00 | 30            | <a href="#">RW27-2D3-U008</a> | \$50       |            |
|                    | 7.00              | 10.0 | 40            | <a href="#">RW27-2D3-U010</a> | \$50       |            |
|                    | 8.00              | 12.5 | 50            | <a href="#">RW27-2D3-D125</a> | \$50       |            |
|                    | 10.0              | 15.0 | 60            | <a href="#">RW27-2D3-U015</a> | \$50       |            |
|                    | 11.0              | 17.0 | 60            | <a href="#">RW27-2D3-U017</a> | \$50       |            |
|                    | 15.0              | 23.0 | 90            | <a href="#">RW27-2D3-U023</a> | \$50       |            |
|                    | 22.0              | 32.0 | 90            | <a href="#">RW27-2D3-U032</a> | \$50       |            |
|                    | 32.0              | 40.0 | 90            | <a href="#">RW27-2D3-U040</a> | \$60       |            |
| CWB40-CWB80        | 25.0              | 40.0 | 90            | <a href="#">RW67-5D3-U040</a> | \$95       | Z2         |
|                    | 32.0              | 50.0 | 125           | <a href="#">RW67-5D3-U050</a> | \$95       |            |
|                    | 40.0              | 57.0 | 150           | <a href="#">RW67-5D3-U057</a> | \$95       |            |
|                    | 50.0              | 63.0 | 150           | <a href="#">RW67-5D3-U063</a> | \$95       |            |
|                    | 57.0              | 70.0 | 175           | <a href="#">RW67-5D3-U070</a> | \$112      |            |
|                    | 63.0              | 80.0 | 200           | <a href="#">RW67-5D3-U080</a> | \$112      |            |

# Overloads

RW Series - Bi-Metallic

For use with CWC and CWM Contactors

## Two-pole Thermal Overload Relays Class 10 (used for single phase applications)

- Adjustable tripping current
- Phase-loss sensitivity
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation from -40°F to +140°F
- Hand/Auto/Reset button

| Matching Contactor | Setting Range [A] |      | Max. Fuse [A] | Catalog Number                | List Price | Multiplier |
|--------------------|-------------------|------|---------------|-------------------------------|------------|------------|
|                    | Min.              | Max. |               |                               |            |            |
| CWM9...CWM40       | 0.28              | 0.40 | 15            | <a href="#">RW27-1D2-D004</a> | \$40       | Z2         |
|                    | 0.40              | 0.63 | 15            | <a href="#">RW27-1D2-C063</a> | \$40       |            |
|                    | 0.56              | 0.80 | 15            | <a href="#">RW27-1D2-D008</a> | \$40       |            |
|                    | 0.80              | 1.20 | 15            | <a href="#">RW27-1D2-D012</a> | \$40       |            |
|                    | 1.20              | 1.80 | 15            | <a href="#">RW27-1D2-D018</a> | \$40       |            |
|                    | 1.80              | 2.80 | 15            | <a href="#">RW27-1D2-D028</a> | \$40       |            |
|                    | 2.80              | 4.00 | 15            | <a href="#">RW27-1D2-U004</a> | \$40       |            |
|                    | 4.00              | 6.30 | 25            | <a href="#">RW27-1D2-D063</a> | \$40       |            |
|                    | 5.60              | 8.00 | 30            | <a href="#">RW27-1D2-U008</a> | \$50       |            |
|                    | 7.00              | 10.0 | 40            | <a href="#">RW27-1D2-U010</a> | \$50       |            |
|                    | 8.00              | 12.5 | 50            | <a href="#">RW27-1D2-D125</a> | \$50       |            |
|                    | 10.0              | 15.0 | 60            | <a href="#">RW27-1D2-U015</a> | \$50       |            |
|                    | 11.0              | 17.0 | 60            | <a href="#">RW27-1D2-U017</a> | \$50       |            |
|                    | 15.0              | 23.0 | 90            | <a href="#">RW27-1D2-U023</a> | \$50       |            |
| CWM32...CWM40      | 22.0              | 32.0 | 90            | <a href="#">RW27-1D2-U032</a> | \$50       |            |
|                    | 25.0              | 40.0 | 90            | <a href="#">RW67-1D2-U040</a> | \$81       |            |
| CWM50...CWM80      | 32.0              | 50.0 | 125           | <a href="#">RW67-1D2-U050</a> | \$88       |            |
|                    | 25.0              | 40.0 | 90            | <a href="#">RW67-2D2-U040</a> | \$95       |            |
|                    | 32.0              | 50.0 | 125           | <a href="#">RW67-2D2-U050</a> | \$95       |            |
|                    | 40.0              | 57.0 | 150           | <a href="#">RW67-2D2-U057</a> | \$95       |            |
|                    | 50.0              | 63.0 | 150           | <a href="#">RW67-2D2-U063</a> | \$95       |            |
|                    | 57.0              | 70.0 | 175           | <a href="#">RW67-2D2-U070</a> | \$105      |            |
|                    | 63.0              | 80.0 | 175           | <a href="#">RW67-2D2-U080</a> | \$105      |            |

Note: 1 Availability upon request.

### For use with CWB Contactors

### Two-pole Thermal Overload Relays Class 10 (used for single phase applications)

- Adjustable tripping current
- Phase-loss sensitivity
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation from -40F to +1400F
- Hand/Auto/Reset button

#### 2 POLE THERMAL OVERLOAD RELAYS - CLASS 10

| Matching Contactor | Setting Range [A] |      | Max. Fuse [A] | Catalog Number                | List Price | Multiplier |
|--------------------|-------------------|------|---------------|-------------------------------|------------|------------|
|                    | Min.              | Max. |               |                               |            |            |
| CWB9 - CWB38       | 0.28              | 0.40 | 15            | <a href="#">RW27-2D2-D004</a> | \$50       | Z2         |
|                    | 0.40              | 0.63 | 15            | <a href="#">RW27-2D2-C063</a> | \$50       |            |
|                    | 0.56              | 0.80 | 15            | <a href="#">RW27-2D2-D008</a> | \$50       |            |
|                    | 0.80              | 1.20 | 15            | <a href="#">RW27-2D2-D012</a> | \$50       |            |
|                    | 1.20              | 1.80 | 15            | <a href="#">RW27-2D2-D018</a> | \$50       |            |
|                    | 1.80              | 2.80 | 15            | <a href="#">RW27-2D2-D028</a> | \$50       |            |
|                    | 2.80              | 4    | 15            | <a href="#">RW27-2D2-U004</a> | \$50       |            |
|                    | 4                 | 6.30 | 25            | <a href="#">RW27-2D2-D063</a> | \$50       |            |
|                    | 5.60              | 8.00 | 30            | <a href="#">RW27-2D2-U008</a> | \$50       |            |
|                    | 7.00              | 10.0 | 40            | <a href="#">RW27-2D2-U010</a> | \$50       |            |
|                    | 8.00              | 12.5 | 50            | <a href="#">RW27-2D2-D125</a> | \$50       |            |
|                    | 10.0              | 15.0 | 60            | <a href="#">RW27-2D2-U015</a> | \$50       |            |
|                    | 11.0              | 17.0 | 60            | <a href="#">RW27-2D2-U017</a> | \$50       |            |
|                    | 15.0              | 23.0 | 90            | <a href="#">RW27-2D2-U023</a> | \$50       |            |
|                    | 22.0              | 32.0 | 90            | <a href="#">RW27-2D2-U032</a> | \$50       |            |
|                    | 32.0              | 40.0 | 90            | <a href="#">RW27-2D2-U040</a> | \$50       |            |
| CWB40-CWB80        | 25.0              | 40.0 | 90            | <a href="#">RW67-1D2-U040</a> | \$81       | Z2         |
|                    | 32.0              | 50.0 | 125           | <a href="#">RW67-1D2-U050</a> | \$88       |            |
|                    | 25.0              | 40.0 | 90            | <a href="#">RW67-2D2-U040</a> | \$95       |            |
|                    | 32.0              | 50.0 | 125           | <a href="#">RW67-2D2-U050</a> | \$95       |            |
|                    | 40.0              | 57.0 | 150           | <a href="#">RW67-2D2-U057</a> | \$95       |            |
|                    | 50.0              | 63.0 | 150           | <a href="#">RW67-2D2-U063</a> | \$95       |            |
|                    | 57.0              | 70.0 | 175           | <a href="#">RW67-2D2-U070</a> | \$105      |            |
|                    | 63.0              | 80.0 | 200           | <a href="#">RW67-2D2-U080</a> | \$105      |            |

RW Series - Bi-Metallic

Separate Mounting Bracket

| Description                                                                                                                                                            | Mounting on Overload Relays (2 or 3 pole) | Catalog Number          | List Price  | Multiplier |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------|-------------|------------|
|  Enables overload relay to be directly mounted to a back panel via screws or DIN rail | RW27-1D                                   | <a href="#">BF27D</a>   | <b>\$14</b> | Z2         |
|                                                                                                                                                                        | RW27-2D                                   | <a href="#">BF27-2D</a> | <b>\$14</b> |            |
|                                                                                                                                                                        | RW67-1D and RW67-2D                       | <a href="#">BF67.1D</a> | <b>\$23</b> |            |
|                                                                                                                                                                        | RW117-1D                                  | <a href="#">BF117D</a>  | <b>\$30</b> |            |

External Reset Button

| Description                                                                                                                                                        | Mounting in Cover of Control Panel | Catalog Number             | List Price  | Multiplier |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------|-------------|------------|
|  Enables overload relay to be Reset from control panel, without opening the cover | 22 MM Flush Reset PB Blue 'R'      | <a href="#">CSW-RSBF4R</a> | <b>\$20</b> | Z5         |
|                                                                                                                                                                    | 30 MM Flush Reset PB Black 'Reset' | <a href="#">CSW30-RSBW</a> | <b>\$22</b> |            |

Connector links (3 per package)

| Description                                                                                                                                                 | Contactor       | Overload Relay | Catalog Number            | List Price   | Multiplier |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|---------------------------|--------------|------------|
|  Link connectors for easier CWM contactors and RW overload relays assembly | CWM112          | RW117-2D3      | <a href="#">GA117D</a>    | <b>\$41</b>  | Z2         |
|                                                                                                                                                             | CWM150          | RW317-1D3      | <a href="#">GA317-1D</a>  | <b>\$68</b>  |            |
|                                                                                                                                                             | CWM180          | RW317-1D3      | <a href="#">GA317-2D</a>  | <b>\$70</b>  |            |
|                                                                                                                                                             | CWM250 / CWM300 | RW317-1D3      | <a href="#">GA317-3D</a>  | <b>\$118</b> |            |
|                                                                                                                                                             | CWM400          | RW317-1D3      | <a href="#">GA317-10D</a> | <b>\$118</b> |            |

| Lugs for RW Series (Overload Relay) (3 units per package)                                             |                       |                                      |              |            |  |
|-------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------|------------|--|
| Description / Wire Range                                                                              | Mounting on Overloads | Catalog Number                       | List Price   | Multiplier |  |
|  (2) 600 MCM...2AWG | RW407-2D (400A-840A)  | <a href="#">LW1-2S600-B</a>          | <b>\$230</b> | Z2         |  |
|                                                                                                       | 600 MCM...4AWG        | <a href="#">RW317-1D (200A-420A)</a> | <b>\$75</b>  |            |  |
|                                                                                                       | 300 MCM...6AWG        | <a href="#">RW317-1D (100A-215A)</a> | <b>\$35</b>  |            |  |

## General Data and Main Contacts

| Catalog Number                                                                                          |           |       | RW17                          | RW27      | RW67    | RW117    | RW317     | RW407     |
|---------------------------------------------------------------------------------------------------------|-----------|-------|-------------------------------|-----------|---------|----------|-----------|-----------|
| Standards                                                                                               |           | Units | IEC 60947 / UL 508            |           |         |          |           |           |
| Setting current                                                                                         |           | (A)   | 0.28...17                     | 0.28...32 | 25...80 | 75...112 | 100...420 | 400...840 |
| Tripping class                                                                                          |           |       | 10                            |           |         |          |           |           |
| Temperature compensation                                                                                |           |       | Continuous                    |           |         |          |           |           |
| Rated insulation voltage Ui                                                                             | IEC 60947 | (V)   | 690                           |           |         |          | 1,000     |           |
| (pollution degree 3)                                                                                    | UL/CSA    | (V)   | 600                           |           |         |          |           |           |
| Rated impulse withstand voltage Uimp                                                                    |           | (kV)  | 6                             |           |         |          | 8         |           |
| Rated operational frequency                                                                             |           | (Hz)  | 0...400                       |           |         |          |           |           |
| Degree of protection                                                                                    |           |       | IP 20                         |           |         |          |           |           |
| Protection against direct contact from the front when actuated by a perpendicular test finger (IEC 536) |           |       | Finger and back-of-hand proof |           |         |          |           |           |
| Ambient temperature                                                                                     |           |       | -25 oC to +60 oC              |           |         |          |           |           |
| Operating temperature                                                                                   |           |       | -40 oC to +70 oC              |           |         |          |           |           |
| Storage temperature                                                                                     |           |       |                               |           |         |          |           |           |
| Climating proof                                                                                         |           |       | Damp heat. constant           |           |         |          |           |           |
| IEC 60 068-2-3                                                                                          |           |       | Damp heat. constant           |           |         |          |           |           |
| IEC 60 068-2-30                                                                                         |           |       |                               |           |         |          |           |           |
| Current heat loss                                                                                       |           |       |                               |           |         |          |           |           |
| Lower value of setting range                                                                            | (W)       | 0.9   | 0.9                           | 1.5       | 2.3     | 1        |           |           |
| Higher value of setting range                                                                           | (W)       | 1.4   | 1.7                           | 4.7       | 4.7     | 1.9      |           |           |

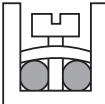
## Auxiliary Contacts

| Models                                               |                | RW17                      | RW27 | RW67        | RW117 | RW317 | RW407 |
|------------------------------------------------------|----------------|---------------------------|------|-------------|-------|-------|-------|
| Standards                                            |                | IEC 60 947-4-1 and UL 508 |      |             |       |       |       |
| Rated insulation voltage Ui<br>(pollution degree 3)  | IEC<br>UL, CSA | (V)<br>(V)                |      | 690<br>600  |       |       |       |
| Rated operational voltage Ue                         | IEC<br>UL, CSA | (V)<br>(V)                |      | 690<br>600  |       |       |       |
| Rated thermal current Ith (θ ≤55 °C)                 |                | (A)                       |      | 6           |       |       |       |
| <b>Rated operational current Ie</b>                  |                |                           |      |             |       |       |       |
| AC-14 / AC-15 (IEC 60947-5-1)                        | 24 V           | (A)                       |      | 4           |       |       |       |
|                                                      | 60 V           | (A)                       |      | 3.5         |       |       |       |
|                                                      | 125 V          | (A)                       |      | 3           |       |       |       |
|                                                      | 230 V          | (A)                       |      | 2           |       |       |       |
|                                                      | 400 V          | (A)                       |      | 1.5         |       |       |       |
|                                                      | 500 V          | (A)                       |      | 0.5         |       |       |       |
| UL, CSA                                              | 690 V          | (A)                       |      | 0.3         |       |       |       |
|                                                      |                |                           |      | C600        |       |       |       |
|                                                      | 24 V           | (A)                       |      | 1           |       |       |       |
|                                                      | 60 V           | (A)                       |      | 0.5         |       |       |       |
|                                                      | 110 V          | (A)                       |      | 0.25        |       |       |       |
|                                                      | 220 V          | (A)                       |      | 0.1         |       |       |       |
| DC-13 / DC-14 (IEC 60947-5-1)                        |                |                           |      | R300        |       |       |       |
|                                                      |                |                           |      | 6           |       |       |       |
|                                                      |                |                           |      |             |       |       |       |
|                                                      |                |                           |      |             |       |       |       |
|                                                      |                |                           |      |             |       |       |       |
|                                                      |                |                           |      |             |       |       |       |
| Short-circuit protection with fuse (gL/gG)           |                | (A)                       |      | 6           |       |       |       |
| Minimum voltage / admissible current (IEC 60947-5-4) |                |                           |      | 17 V / 5 mA |       |       |       |

## Terminal Capacity and Tightening Torque - Main Contacts

| Reference                            |                | RW17      | RW27      | RW67     | RW117    | RW317                         | RW407                     |
|--------------------------------------|----------------|-----------|-----------|----------|----------|-------------------------------|---------------------------|
| Current setting                      | (A)            | 0.28...17 | 0.28...32 | 25...80  | 75...112 | 100...215 200...420           | 400...840                 |
| <b>Cable size (75 °C / Cu cable)</b> |                |           |           |          |          |                               |                           |
| Flexible cable                       | 1 cable (mm²)  | 1,5...10  |           | 6,0...35 | 25...35  | 35...120                      | 95...150                  |
|                                      | 2 cables (mm²) |           |           | -        | -        |                               | -                         |
| Cable with terminal or rigid cable   | 1 cable (mm²)  | 1,5...6,0 |           | 6,0...35 | 25...35  | 35...120                      | 95...150                  |
|                                      | 2 cables (mm²) |           |           | -        | -        |                               | -                         |
| Busbar                               | (mm²)          |           | -         |          |          | Max 2x (25x5)                 | Max 2x (60x10)            |
| Tightening torque                    | (N.m)          | 2,3       |           | 4,0      | 6,0      | 16,0 26,0                     | 26,0                      |
| UL cable size (75 °C - Cu cable)     | AWG            | 16...8    |           | 10...3   | 6...1/0  | 3-300 kc- mil 3/0 - 600 kcmil | 2x 600 kcmil 2x (1/4"x2") |
| Tightening torque (UL)               | (lb.in)        | 20        |           | 35       | 53       | 141 230                       | 230                       |

## Terminal Capacity and Tightening Torque - Auxiliary Contacts

| Models                         |               | RW17                                                                                | RW27        | RW67 | RW117 | RW317 | RW407 |
|--------------------------------|---------------|-------------------------------------------------------------------------------------|-------------|------|-------|-------|-------|
| Type of screws                 |               | M3.5 x 10 Philips                                                                   |             |      |       |       |       |
| Cable size (75 °C / Cu cable)  |               |                                                                                     |             |      |       |       |       |
| Cable with or without terminal | (mm²)         |  | 2 x 1...2.5 |      |       |       |       |
| AWG-wire                       |               |                                                                                     | 16...12     |      |       |       |       |
| Tightening torque              | (N.m / lb.in) |                                                                                     | 1.5 / 13    |      |       |       |       |

## RW Series - Bi-Metallic

## Technical Data

## Main Data

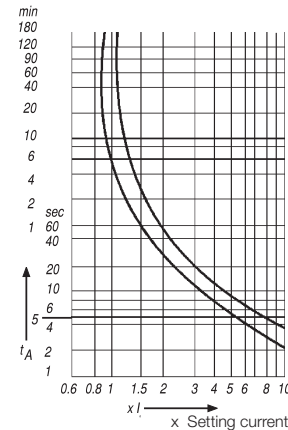
| Models                                                  | RW27                     |                 |
|---------------------------------------------------------|--------------------------|-----------------|
| Standards                                               | IEC 60947-1 and UL 508   |                 |
| Rated insulation voltage $U_i$ (pollution degree 3)     | IEC 60947-4-1 (V)        | 690             |
|                                                         | UL, CSA (V)              | 600             |
| Rated impulse withstand voltage $U_{imp}$ (IEC 60947-1) | (kV)                     | 6               |
| Rated operational frequency                             | (Hz)                     | 25...400        |
| Use with direct current                                 |                          | Yes             |
| Maximum operation per hour                              | (ops./h)                 | 15              |
| Protection degree (IEC 60529)                           | Main contacts            | IP10            |
|                                                         | Auxiliary contacts       | IP20            |
|                                                         | Frontal                  | IP20            |
| Mounting                                                | Direct on the contactor  |                 |
| Resistance to impact (IEC 60068-2-27 - 1/2 sinusoid)    | (g/ms)                   | 10/11           |
| Ambient temperature                                     | Transport and storage    | -50 °C...+80 °C |
|                                                         | Operating                | -20 °C...+70 °C |
|                                                         | Temperature compensation | -20 °C...+60 °C |
| Altitude                                                | (m)                      | 2000            |

## Main Contacts

| Models                               | RW27              |                 |
|--------------------------------------|-------------------|-----------------|
| Rated operational voltage $U_e$      | IEC 60947-4-1 (V) | 690             |
|                                      | UL, CSA (V)       | 600             |
| Setting current / max fuse (gL/gG)1) | (A)               | 0.28...0.4 / 2  |
|                                      |                   | 0.43...0.63 / 2 |
|                                      |                   | 0.56...0.8 / 2  |
|                                      |                   | 0.8...1.2 / 4   |
|                                      |                   | 1.2...1.8 / 6   |
|                                      |                   | 1.8...2.8 / 6   |
|                                      |                   | 2.8...4 / 10    |
|                                      |                   | 4...6.3 / 16    |
|                                      |                   | 5.6... 8 / 20   |
|                                      |                   | 7...10 / 25     |
|                                      |                   | 8...12.5 / 25   |
|                                      |                   | 10...15 / 35    |
|                                      |                   | 11...17 / 40    |
|                                      |                   | 15...23 / 50    |
|                                      |                   | 22...32 / 63    |
|                                      |                   | 32...40 / 90    |
| Average power dissipation per pole   | (W)               | ≤3              |

## RW Tripping Characteristics

These tripping characteristics show the tripping of RW in relation to the current. They show the mean values of the tolerance ranges at an ambient temperature of 68°F (20°C), starting from cold stats. The tripping time of the overload releases at operational temperature is reduced to approximately 25% of the values shown. Under normal operational conditions, all three phases of the RWs should be loaded.



## Altitude & Temperature Derating

The derating of a RW overload relay has two possible factors:

### 1) Ambient temperature

- Temperature compensation considers a factor according to which the rated current must be reduced when ambient temperature is higher than 60°C (140°F).

### 2) Altitude

- Altitude compensation involves both, rated current and voltage.
- Current compensation considers a factor according to the rated current must be reduced.
- For voltage, altitude limits the higher operating voltage the overload relay can be used.

| Temperature Compensation |        | Current Correction factor |
|--------------------------|--------|---------------------------|
| 149°F                    | (65°C) | 0.94                      |
| 158°F                    | (70°C) | 0.87                      |
| 167°F                    | (75°C) | 0.81                      |
| 176°F                    | (80°C) | 0.73                      |

| Altitude                | Voltage Correction [Ue] |
|-------------------------|-------------------------|
| Up to 2,000m (6,667ft)  | 690                     |
| Up to 3,000m (10,000ft) | 550                     |
| Up to 4,000m (13,333ft) | 480                     |
| Up to 5,000m (16,667ft) | 420                     |

The derating of the permissible operating current for installation altitudes above 2,000m (6,667 ft) and ambient temperatures over 60°C (140°F) is calculated according to:

Total derating = Derating altitude x Derating ambient temperature

Example;

Altitude: 3,000 m (10,000 ft)

K1 = 0.96

Ambient temperature: 70°C (158°F)

K2 = 0.87

Total current derating =  $0.96 \times 0.87 = 0.84 \times I_e$

In this case, the maximum rated voltage we can connect to our RW overload relay is 550V.

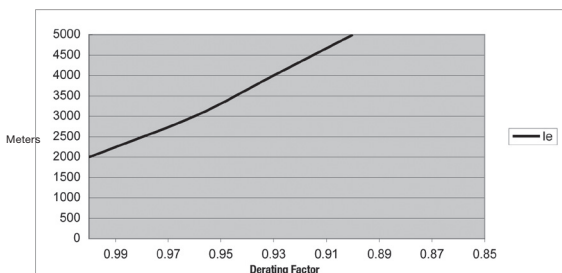
In order to select the proper overload relay, you have to choose a device with a current range that accommodates:

Overload Setting Point =  $FLA_{motor} / (K1 \times K2)$

As in the example above,  $K1 \times K2 = 0.84$

For a motor with FLA = 20Amps

Overload Setting Point =  $20 / 0.84 = 23.8\text{Amps}$



# Overloads

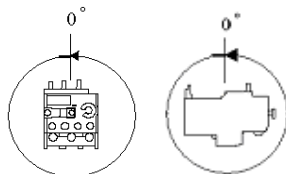
## RW Series - Bi-Metallic

### Operating Positions<sup>1</sup>

#### RW17D, RW27D, RW67D, RW117D, RW317D, RW407D

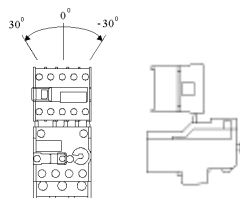
Mounting without contactor

The overload relays can be mounted at any position.



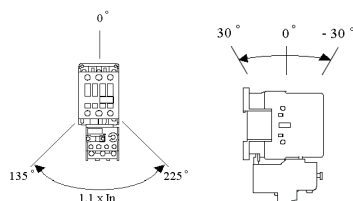
#### RW17D with CWC Series

As showed at the left figure below, the inclination can not exceed  $\pm 30^\circ$  degrees for a perfectly functioning of the contactor. Laterally, as showed at the right figure below, the mounting position is equivalent to  $0^\circ$  degrees - not requiring a correction factor on the dial of the relay. The assembly can work with mounting variations of  $0^\circ$  to  $180^\circ$



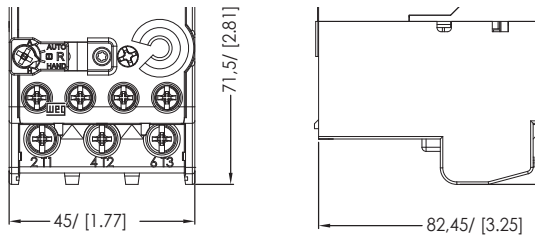
#### RW27D, RW67D, RW117D, RW317D, RW407

The mounting position showed at the left figure below is equivalent to  $0^\circ$  degrees - not requiring a correction factor on the dial of the relay. The assembly can work with mounting variations of  $0^\circ$  to  $135^\circ$  for each side, however the mounting with the relay above the contactor, position between  $135^\circ$  and  $225^\circ$ , is required a correction factor of +10% on the dial of the relay. Laterally, as showed at the right figure below, the inclination can not exceed  $\pm 30^\circ$  for a perfect functioning of the contactor. [D with CWM/CWM Series](#)

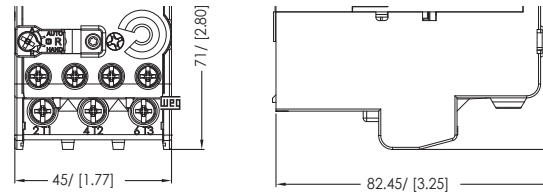


Note: 1) Please consult WEG for different mounting positions.

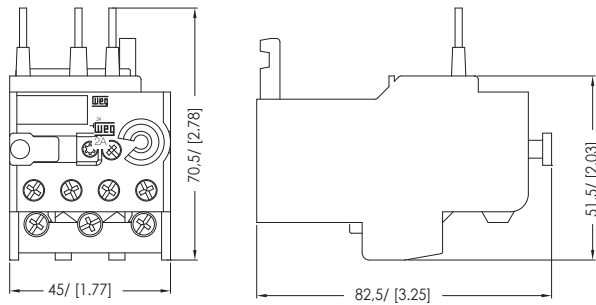
### RW17-1D



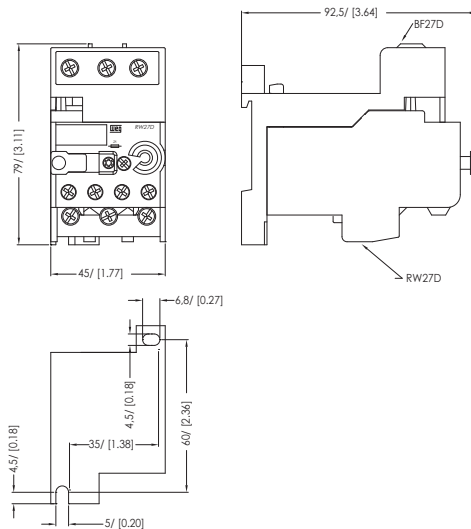
### RW17-2D



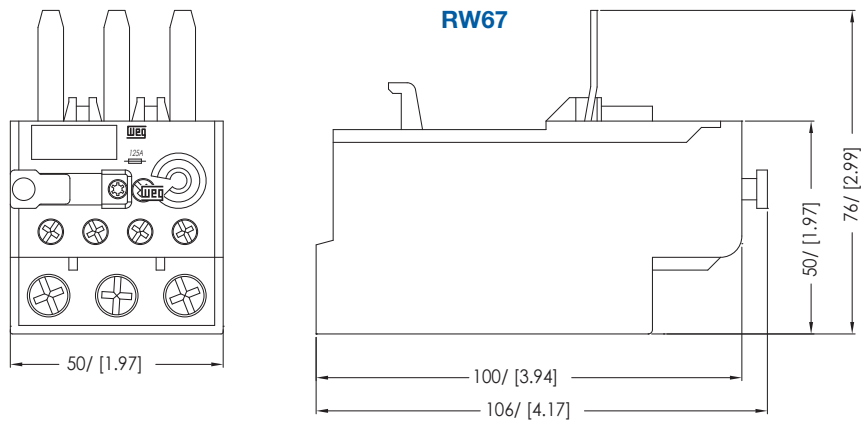
### RW27



### RW27 + BF27

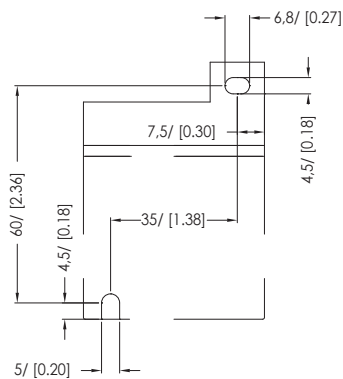
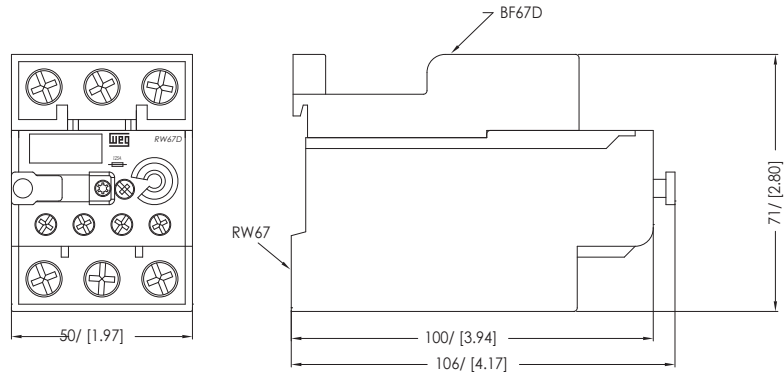


### RW67



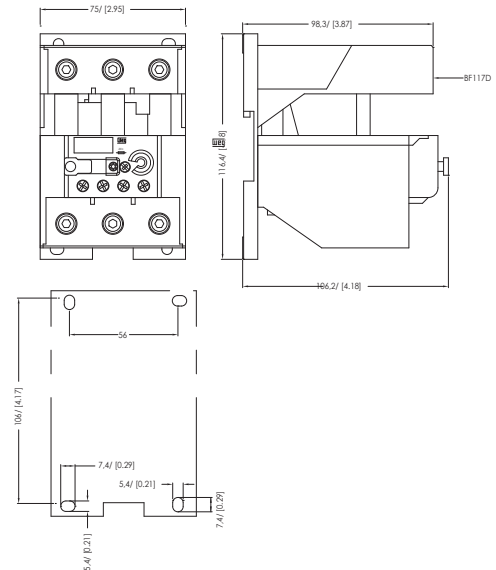
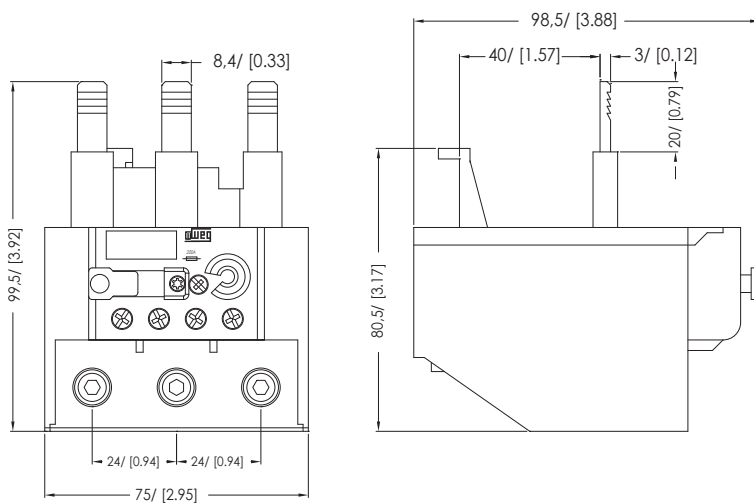
## RW Series - Bi-Metallic

## RW67 + BF67

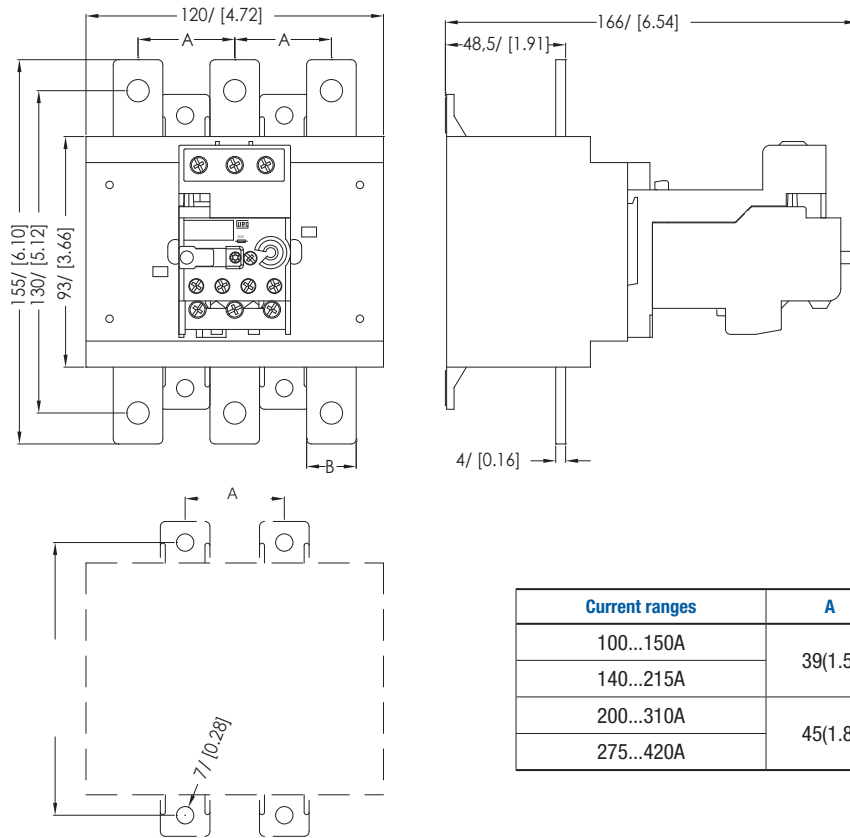


## RW117-1D

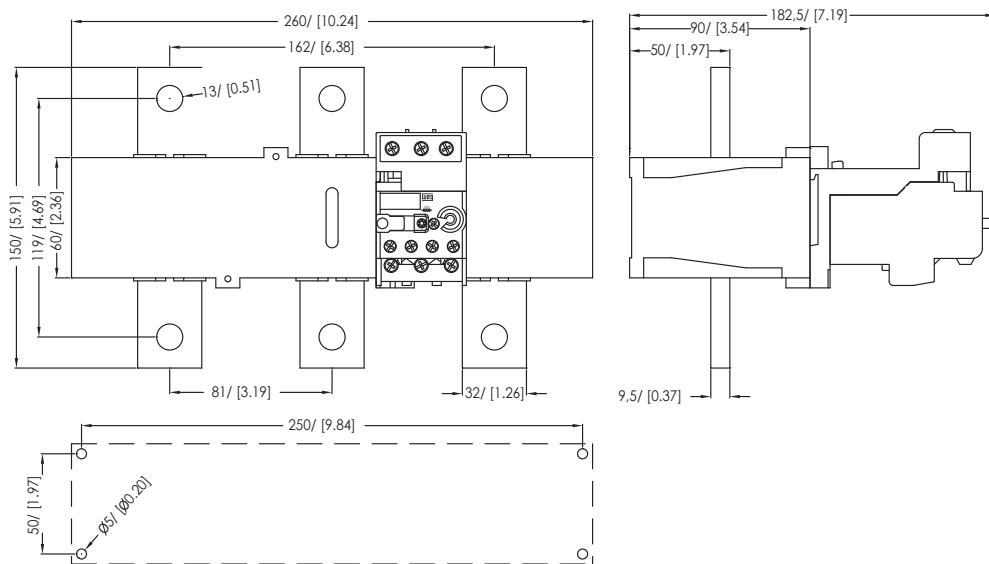
## RW117-2D



### RW317



### RW407



General Information

Circuit Protection

Disconnect Switches

Motor Protectors

Contactors

Overloads

Enclosed Starters

Relays

Pushbuttons and Pilot Lights

Terminal Blocks

Power Factor Correction

Appendix A

Appendix B

# Overloads



## Solid-State Overload Relays

### RW-E

The new RW\_E Solid State Overload relays are developed with cutting edge technology according to the most demanding standards worldwide. With its wide current/AMP setting; the RW\_E OL Relay can be used for protection of electric motors of different power ratings. The benefit is versatility and flexibility for manufacturers due to the possibility of standardization of control panels. This Solid State Overload Relay can be directly mounted on WEG Contactors (CWM and CWB lines) providing very reliable and flexible motor starter units. The RW\_E counts on two independent and highly reliable built in auxiliary contacts that assure the motor is switched off when a failure occurs.

#### Standard Features:

- 3-pole solid state overload relays with adjustable trip class: 10, 20 and 30
- Self-powered
- Wide adjustment range (5:1)
- Thermal memory
- Phase loss protection (less than 5 seconds)
- Phase unbalance protection (>40% between phases)
- Temperature compensated (-20 °C up to +60 °C)
- Manual or automatic reset modes
- Direct mounting on CWB9...38 and CWM9...105 contactors
- Separate mounting is possible with accessories
- 1NO + 1NC built in auxiliary contacts



UL File No. E189202

#### Solid-State Overload Relay Catalog Number Sequence

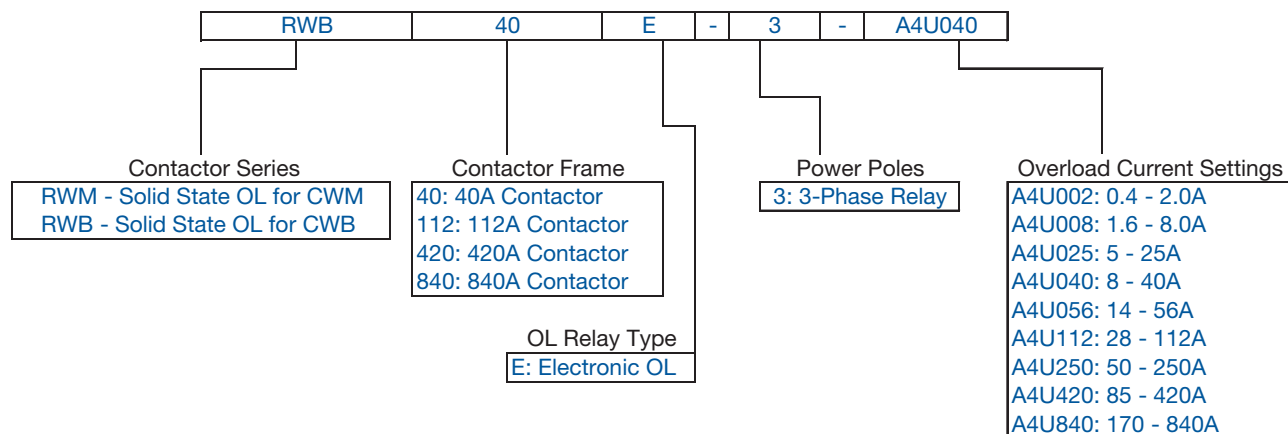


Chart intended as reference only and not to create part numbers.

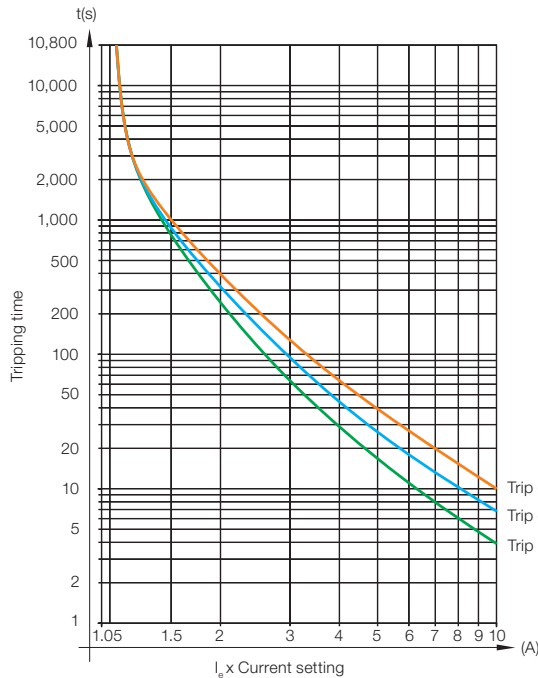


### Suitable for Great Variety of Applications

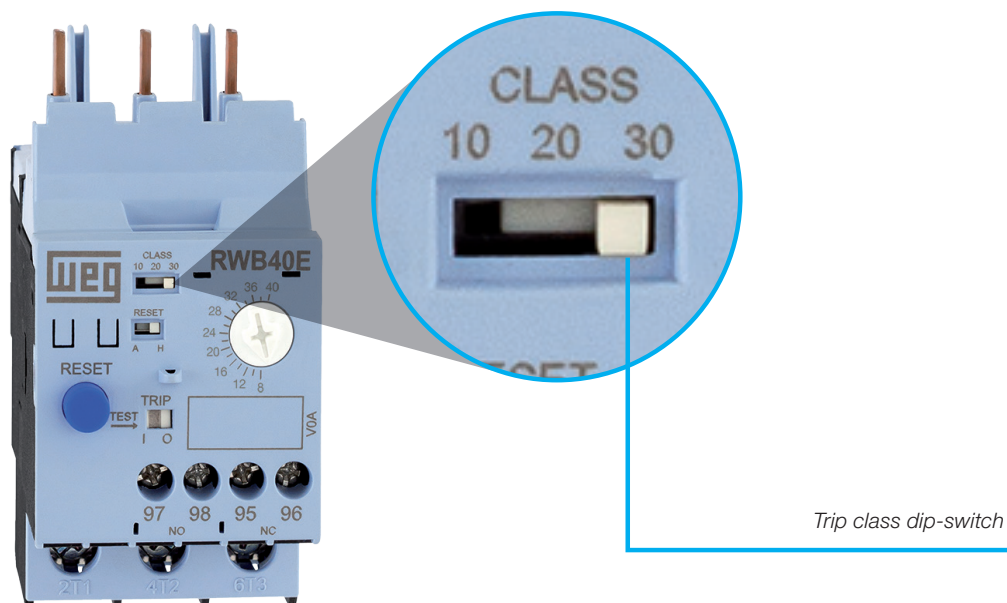
The solid-state overload relays RW\_E are suitable to protect motors in a wide range of industrial applications including those where long starting time is required. This way, motors on low, medium or heavy duty applications can be properly protected just by selecting the proper trip class (10, 20 or 30 according to IEC 60947-4-1) in the DIP-switches.

Additionally, the microprocessed electronic circuits of RW\_E are temperature compensated according to IEC 60947-4-1, which means that throughout the temperature range of -20 °C up to +60 °C, the tripping point is not affected and it performs consistently without undesirable tripping.

The RW\_E also features thermal memory which assures that the heating and cooling effects of motors are modeled and proper protection is guaranteed even after downtime periods.

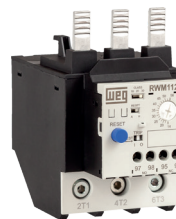


| Trip class | Multiples of current setting |                      |                      |                      |
|------------|------------------------------|----------------------|----------------------|----------------------|
|            | 1.05 x I <sub>r</sub>        | 1.2 x I <sub>r</sub> | 1.5 x I <sub>r</sub> | 7.2 x I <sub>r</sub> |
| 10         | -                            | Tp <2h               | Tp <4min             | 4 <Tp ≤10s           |
| 20         | -                            | Tp <2h               | Tp <8min             | 6 <Tp ≤20s           |
| 30         | -                            | Tp <2h               | Tp <12min            | 9 <Tp ≤30s           |



## Solid-State Overload Relays

## RW\_E Solid-State Overload Relays from 0.4 up to 840 A



| For direct mounting on contactors | Current range A | Diagram | Max fuse (gL/gG) A | Catalog Number                   | Weight kg | List Price   | Multiplier |
|-----------------------------------|-----------------|---------|--------------------|----------------------------------|-----------|--------------|------------|
| CWB9...38                         | 0.4...2         |         | 16                 | <a href="#">RWB40E-3-A4U002</a>  | 0.250     | <b>\$92</b>  | Z2         |
| CWB9...38                         | 1.6...8         |         | 32                 | <a href="#">RWB40E-3-A4U008</a>  |           |              |            |
| CWB9...38                         | 5...25          |         | 63                 | <a href="#">RWB40E-3-A4U025</a>  |           |              |            |
| CWB9...38                         | 8...40          |         | 125                | <a href="#">RWB40E-3-A4U040</a>  | 0.250     | <b>\$145</b> |            |
| CWM9...40                         | 0.4...2         |         | 16                 | <a href="#">RWM40E-3-A4U002</a>  | 0.250     | <b>\$92</b>  |            |
| CWM9...40                         | 1.6...8         |         | 32                 | <a href="#">RWM40E-3-A4U008</a>  |           |              |            |
| CWM9...40                         | 5..25           |         | 63                 | <a href="#">RWM40E-3-A4U025</a>  |           |              |            |
| CWM9...40                         | 8...40          |         | 125                | <a href="#">RWM40E-3-A4U040</a>  | 0.918     | <b>\$145</b> |            |
| CWM50...105                       | 14...56         |         | 160                | <a href="#">RWM112E-3-A4U056</a> | 0.918     | <b>\$225</b> |            |
| CWM50...105                       | 28...112        |         | 250                | <a href="#">RWM112E-3-A4U112</a> | 0.918     | <b>\$240</b> |            |

Note: Not to be used in single-phase applications.



| For separate mounting or by connector links <sup>1)</sup> | Current range A | Diagram | Max fuse (gL/gG) A | Catalog Number                   | Weight kg | List Price     | Multiplier |
|-----------------------------------------------------------|-----------------|---------|--------------------|----------------------------------|-----------|----------------|------------|
| CWM112...500                                              | 50...250        |         | 500                | <a href="#">RWM420E-3-A4U250</a> | 2,520     | <b>\$490</b>   | Z2         |
|                                                           | 85...420        |         | 710                | <a href="#">RWM420E-3-A4U420</a> |           | <b>\$580</b>   |            |
| CWM150...800                                              | 170...840       |         | 1,250              | <a href="#">RWM840E-3-A4U840</a> | 4,150     | <b>\$1,300</b> |            |

Note: Not to be used in single-phase applications.

Note: 1) RWM840E model allows two different types of connection to contactor:

a) By connecting the contactor cables to relay busbars;

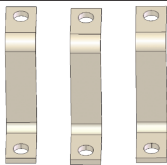
b) By removing the relay busbars and using the Ø32 mm window for the passage of the contactor cables.

## Accessories

## Mounting Kit

| Image                                                                             | For use with relays | Description                                                                               | Catalog Number | Weight kg | List Price | Multiplier |
|-----------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------|----------------|-----------|------------|------------|
|  | RWM40E              |                                                                                           | BF27D          | 0.050     | \$14       | Z2         |
|                                                                                   | RWB40E              |                                                                                           | BF27D-2D       |           |            |            |
|  | RWM112E             | Enables the overload relay to be mounted directly to a panel via screws or 35 mm DIN rail | BF112          | 0.230     | \$35       |            |

## Connector Links for Direct Mounting of Overload Relay on Contactor

| Image                                                                              | For use with relays | For use with contactors | Catalog Number | Weight kg | List Price | Multiplier |
|------------------------------------------------------------------------------------|---------------------|-------------------------|----------------|-----------|------------|------------|
|  | RWM112E             | CWM112/150              | GA117D         | 0.135     | \$41       | Z2         |
|                                                                                    | RWM420E             | CWM150                  | GA317-1D       | 0.250     | \$68       |            |
|                                                                                    |                     | CWM180                  | GA317-2D       | 0.270     | \$70       |            |
|                                                                                    |                     | CWM250/300              | GA317-3D       | 0.630     | \$118      |            |
|                                                                                    |                     | CWM400                  | GA317-10D      | 0.500     | \$118      |            |

## Phase Barriers

| Image                                                                               | For use with relays | Description                                                                                                                                                                       | Catalog Number | Weight kg | List Price | Multiplier |
|-------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|------------|------------|
|  | RWM420E             | Contains 1 set of plastic insulators (top / bottom) and fixing screws to be used where the overload relay power terminals external dimension exceed the busbar external dimension | IBRW317        | 0.044     | \$4        | Z2         |

## Reset Pushbutton with Shaft

| Image                                                                               | For use with relays | Description                                                                               | Catalog Number | Weight kg | List Price | Multiplier |
|-------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------|----------------|-----------|------------|------------|
|  | RW_E                | Blue Flush pushbutton - Engraved Reset - with shaft. Length: max. 250 mm and min. 22.5 mm | CSW-BHF437     | 0.032     | \$12       | Z2         |

# Overloads

## Solid-State Overload Relays

### Technical Data

#### General Data

| Product model                                                   |                                        |          | RWM40E / RWB40E                                                                 | RWM112E | RWM420E | RWM840E |
|-----------------------------------------------------------------|----------------------------------------|----------|---------------------------------------------------------------------------------|---------|---------|---------|
| Standards                                                       |                                        |          | IEC 60947-4-1, IEC 60947-5-1, IEC 60947-1, UL 60947-1, UL 60947-4-1A and UL 508 |         |         |         |
| Rated insulation voltage U <sub>i</sub><br>(pollution degree 3) | IEC 60947-4-1                          | (V)      | 690                                                                             |         | 100     |         |
|                                                                 | UL, CSA                                | (V)      | 600                                                                             |         |         |         |
| Rated impulse withstand voltage U <sub>imp</sub> (IEC 60947-1)  |                                        | (kV)     | 6                                                                               |         | 8       |         |
| Rated operational frequency (sinusoidal networks)               |                                        | (Hz)     | 50/60                                                                           |         |         |         |
| Suitable for use                                                | Three phase loads                      |          | Yes                                                                             |         |         |         |
|                                                                 | Single phase / two phase loads         |          | No                                                                              |         |         |         |
|                                                                 | DC current loads                       |          | No                                                                              |         |         |         |
| Trip class (IEC 60947-4-1)                                      |                                        |          | 10, 20 or 30 - selectable                                                       |         |         |         |
| Additional featured protections                                 | Phase loss                             |          | Yes / less than <5s                                                             |         |         |         |
|                                                                 | Phase unbalance                        |          | Yes / >40%                                                                      |         |         |         |
| Reset                                                           | Manual / minimum downtime for reset    |          | Yes / instantaneous                                                             |         |         |         |
|                                                                 | Automatic / minimum downtime for reset |          | Yes / ≥90s                                                                      |         |         |         |
| Maximum operation per hour                                      |                                        | (ops./h) | 30                                                                              |         |         |         |
| Protection degree (IEC 60529)                                   | Main contacts                          |          | IP10                                                                            |         | IP00    |         |
|                                                                 | Auxiliary contacts                     |          | IP20                                                                            |         |         |         |
| Mounting                                                        |                                        |          | 1)                                                                              |         | 2)      |         |
| Mechanical shock resistance - 1/2 sinusoid                      |                                        |          | 15 g / 11ms                                                                     |         |         |         |
| Vibration resistance (IEC 60068-2-6)                            |                                        |          | 6 g / 30...300 Hz                                                               |         |         |         |
| Ambient temperature                                             | Transport and storage                  |          | -50 °C...+80 °C                                                                 |         |         |         |
|                                                                 | Operating                              |          | -20 °C...+60 °C                                                                 |         |         |         |
|                                                                 | Temperature compensation               |          | -20 °C...+60 °C                                                                 |         |         |         |
| Altitude                                                        |                                        |          | 2,000 m                                                                         |         |         |         |

Notes: 1) Direct mounting on contactor or directly on the panel via screws or 35 mm DIN rail when using the mounting kit accessory (BF27D and BF112)

2) Direct mounting on contactor when using the Connector Link GA117 / GA317 accessory or directly on the panel via screws.

#### Main Contacts

| Product model                                        |               |     | RWM40E / RWB40E                                                   | RWM112E                          | RWM420E                          | RWM840E           |
|------------------------------------------------------|---------------|-----|-------------------------------------------------------------------|----------------------------------|----------------------------------|-------------------|
| Rated operational voltage Ue                         | IEC 60947-4-1 | (V) | 690                                                               |                                  | 100                              |                   |
|                                                      | UL, CSA       | (V) | 600                                                               |                                  |                                  |                   |
| Current setting / max fuse (gL/gG)                   |               | (A) | 0.4...2 / 16<br>1.6...8 / 32<br>5...25 / 63<br>8...40 / 125       | 14...56 / 160<br>28....112 / 250 | 50...250 / 500<br>85...420 / 710 | 170...840 / 1,250 |
| Setting current / average power dissipation per pole |               | (W) | 0.4...2 / 0.07<br>1.6...8 / 0.06<br>5...25 / 0.38<br>8...40 / 1.5 | 14...56 / 2<br>28....112 / 2.6   | 50...250 / 12<br>85...420 / 12   | 170...840 / 14.5  |

Notes: 1) Direct mounting on contactor or directly on the panel via screws or 35 mm DIN rail when using the mounting kit accessory (BF27D and BF112);

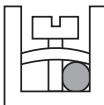
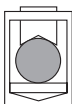
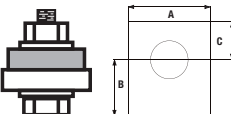
2) Direct mounting on contactor when using the Connector Link GA117 / GA317 accessory or directly on the panel via screws.

## Technical Data

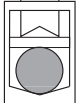
### Auxiliary Contacts

| Product model                                        |               |      | RWM40...840E / RWB40E |  |
|------------------------------------------------------|---------------|------|-----------------------|--|
| Rated insulation voltage Ui<br>(pollution degree 3)  | IEC 60947-4-1 | (V)  | 250                   |  |
|                                                      | UL, CSA       | (V)  | 600                   |  |
| Rated impulse withstand voltage Uimp (IEC 60947-1)   |               | (kV) | 4                     |  |
| Rated operational voltage Ue                         | IEC 60947-4-1 | (V)  | 250                   |  |
|                                                      | UL, CSA       | (V)  | 600                   |  |
| Rated thermal current Ith ≤ 60 °C)                   |               | (A)  | 5                     |  |
| Rated operational current Ie                         |               |      |                       |  |
| AC-14/AC-15 (IEC 60947-5-1)                          | 24 V          | (A)  | 3                     |  |
|                                                      | 120 V         | (A)  | 3                     |  |
|                                                      | 250 V         | (A)  | 1.5                   |  |
| DC-13 (IEC 60947-5-1)                                | 24 V          | (A)  | 2                     |  |
|                                                      | 60 V          | (A)  | 0.4                   |  |
|                                                      | 110 V         | (A)  | 0.22                  |  |
|                                                      | 125 V         | (A)  | 0.22                  |  |
|                                                      | 250 V         | (A)  | 0.1                   |  |
| NEMA control circuit ratings                         | UL, CSA       |      | C300 / R300           |  |
| Short-circuit protection with fuse                   |               | (A)  | 6                     |  |
| Minimum voltage / admissible current (IEC 60947-5-4) |               |      | 12 V / 10 mA          |  |

### Terminal Capacity and Tightening Torque - Main Contacts

| Product model                     |       |                                                                                     | BF27D               | RWM40E / RWB40E    | RW112E              | BF112    |
|-----------------------------------|-------|-------------------------------------------------------------------------------------|---------------------|--------------------|---------------------|----------|
| Type of screw                     |       |                                                                                     | M4                  | M3.5               | M10                 | M10      |
|                                   |       |                                                                                     | Flat / Phillips #2  | Flat / Phillips #2 | Allen #4            | Allen #4 |
| Cable size                        |       |                                                                                     |                     |                    |                     |          |
| Flexible cable                    | (mm²) |  | 1.5...10            | -                  | -                   | -        |
| Cable with terminal / rigid cable | (mm²) |                                                                                     | 1.5...6             | -                  | -                   | -        |
| AWG wire                          |       |                                                                                     | 16...10             | -                  | -                   | -        |
| Tightening torque                 | (Nm)  |                                                                                     | 2.3                 | -                  | -                   | -        |
| Flexible cable                    | (mm²) |  | -                   | 1...10             | 2.5...35            | 2.5...35 |
| Cable with terminal / rigid cable | (mm²) |                                                                                     | -                   | 1...10             | 2.5...35            | 2.5...35 |
| AWG wire                          |       |                                                                                     | -                   | 16...8             | 14...2              | 14...2   |
| Tightening torque                 | (Nm)  |                                                                                     | -                   | 1.7                | 6                   | 6        |
| Product model                     |       |                                                                                     | RWM420E             |                    | RWM840E             |          |
| Type of screw                     |       |  | M10<br>Hexagon Head |                    | M12<br>Hexagon Head |          |
| Cable with terminal               | (mm²) |                                                                                     | 2 x (25...150)      |                    | 2 x (60 x 10)       |          |
| Busbar (A x B x C)                | (mm)  |                                                                                     | 25 x 18.5 x 12.5    |                    | 31.7 x 28.3 x 15    |          |
| Tightening torque                 | (Nm)  |                                                                                     | 26                  |                    | 26                  |          |

### Terminal Capacity and Tightening Torque - Auxiliary Contacts

| Product model                  |                    |                                                                                     | RWM40...840E / RWB40E |  |
|--------------------------------|--------------------|-------------------------------------------------------------------------------------|-----------------------|--|
| Type of screw                  |                    |                                                                                     | Flat / Phillips<br>#1 |  |
| Cable size                     |                    |                                                                                     |                       |  |
| Cable with or without terminal | (mm <sup>2</sup> ) |  | 1 x 1...2.5           |  |
| AWG wire                       |                    |                                                                                     | 16...12               |  |
| Tightening torque              | (Nm)               |                                                                                     | 0.8                   |  |

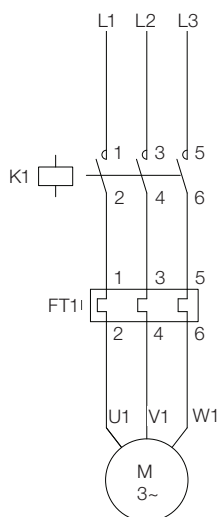
# Overloads

## Solid-State Overload Relays

### Technical Data

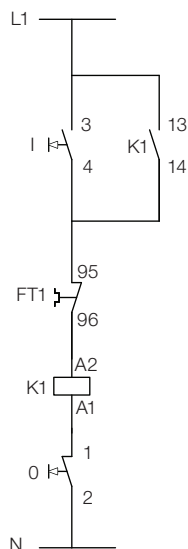
#### Motor Protection - Alternating Current

##### 3-pole

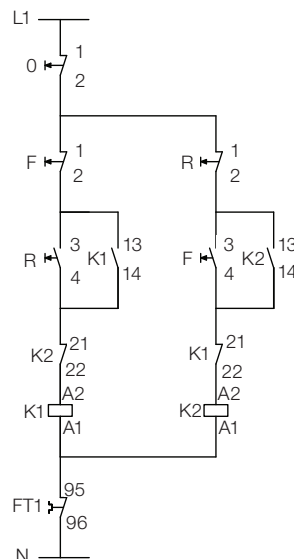


#### Typical Connection - Contactor + Overload Relay

##### Direct On Line Starter (1 Direction of Rotation)

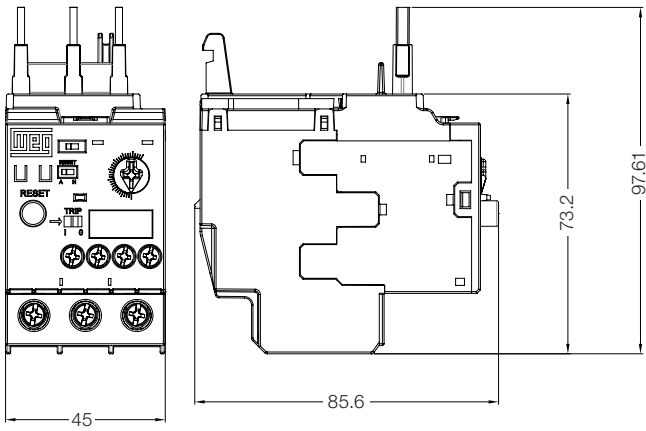


##### Direct On Line Starter (2 Directions of Rotation)

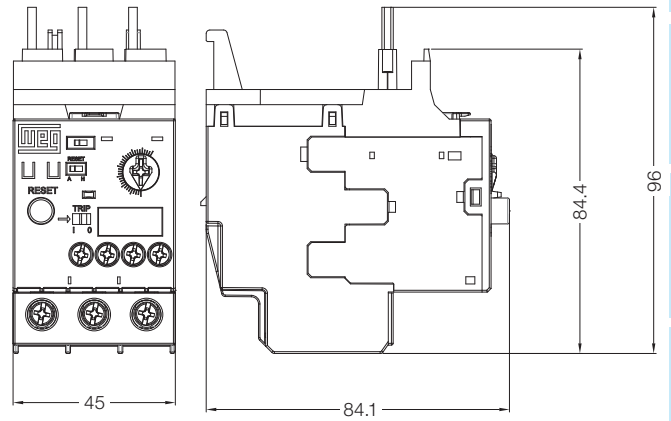


### Dimensions (mm)

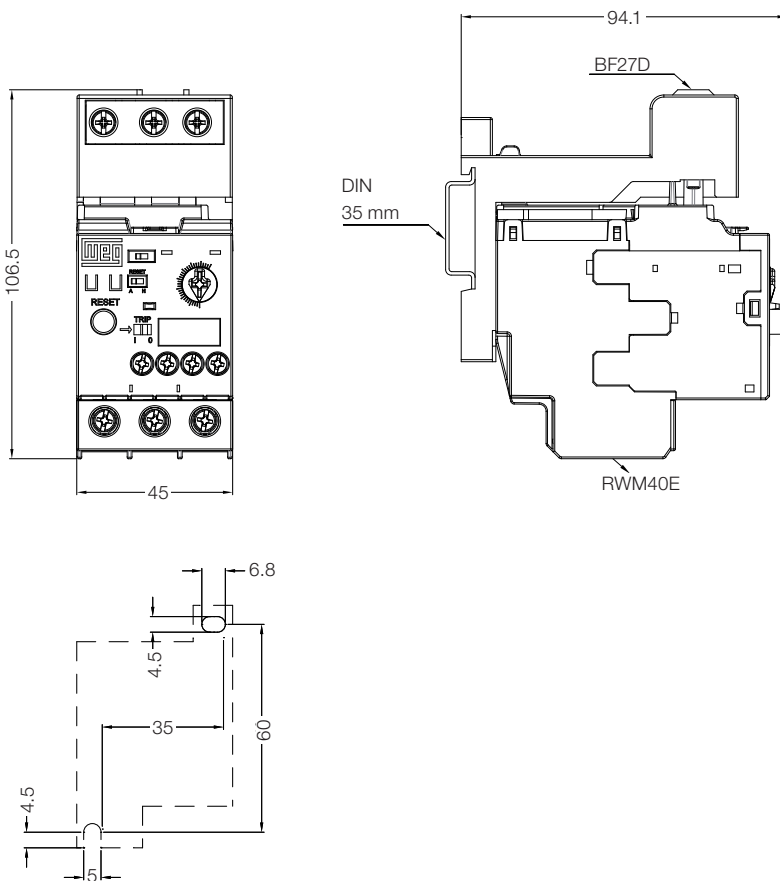
#### RWM40E



#### RWB40E



#### RWM40E + BF27



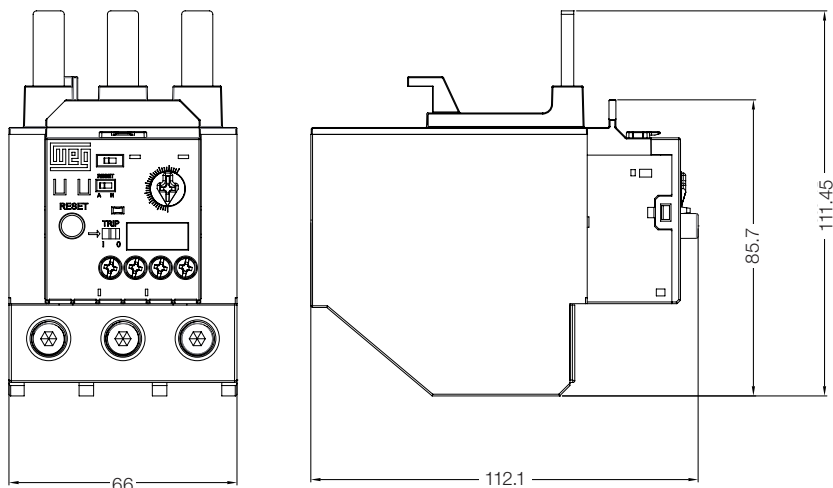
# Overloads

## Solid-State Overload Relays

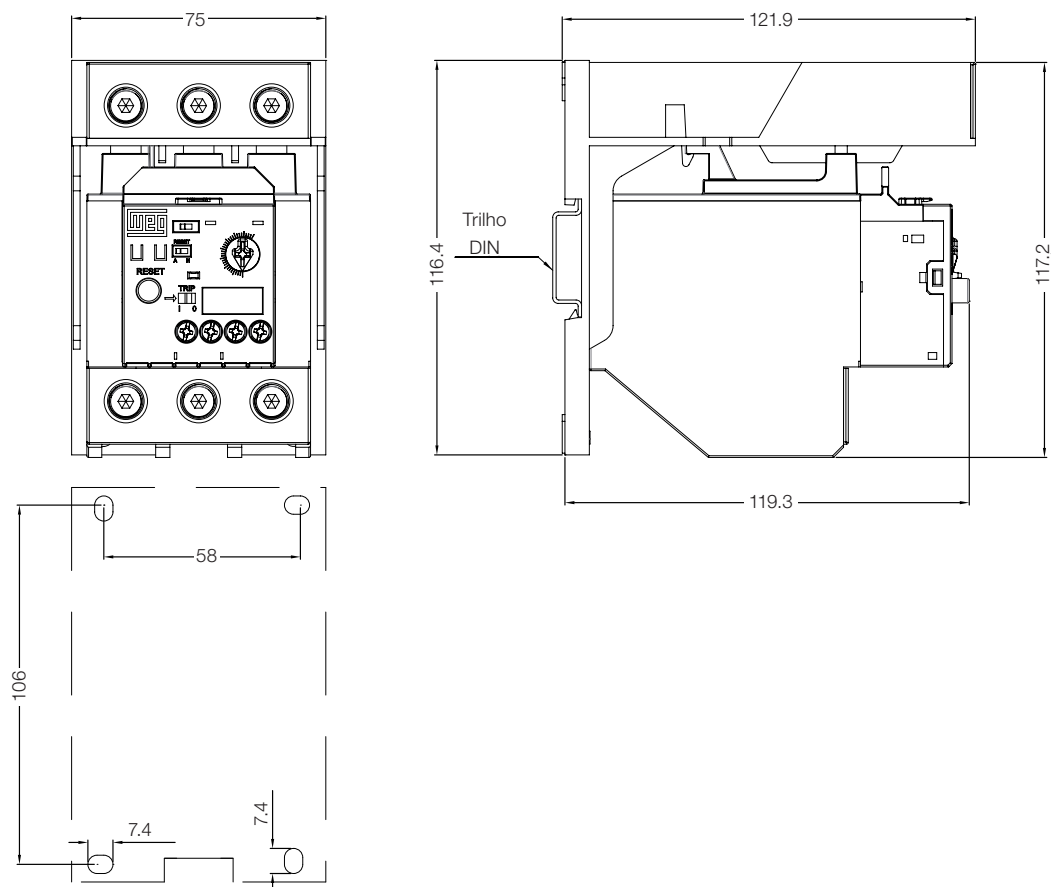


### Dimensions (mm)

#### RWM112E

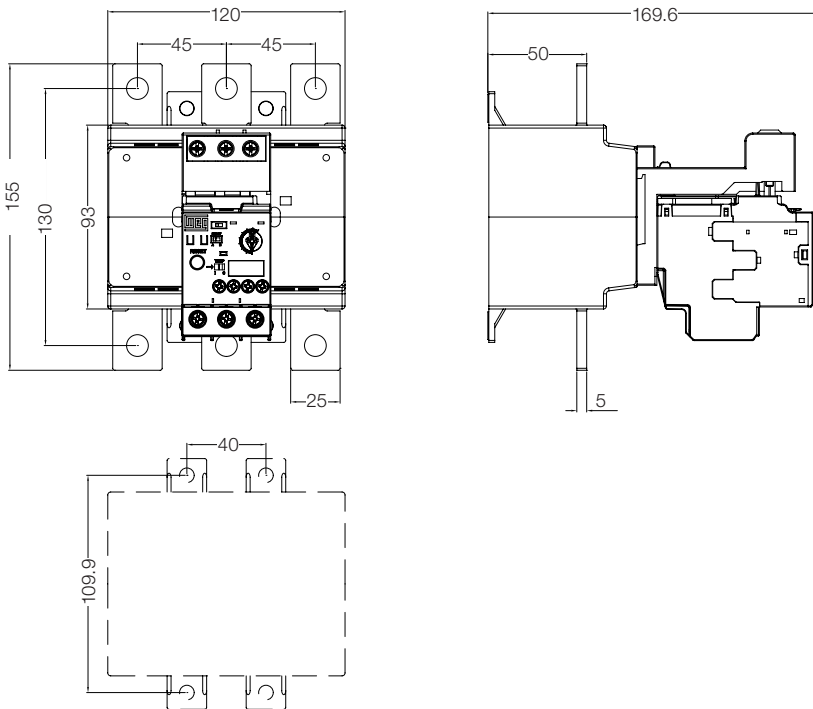


#### RWM112E + BF112

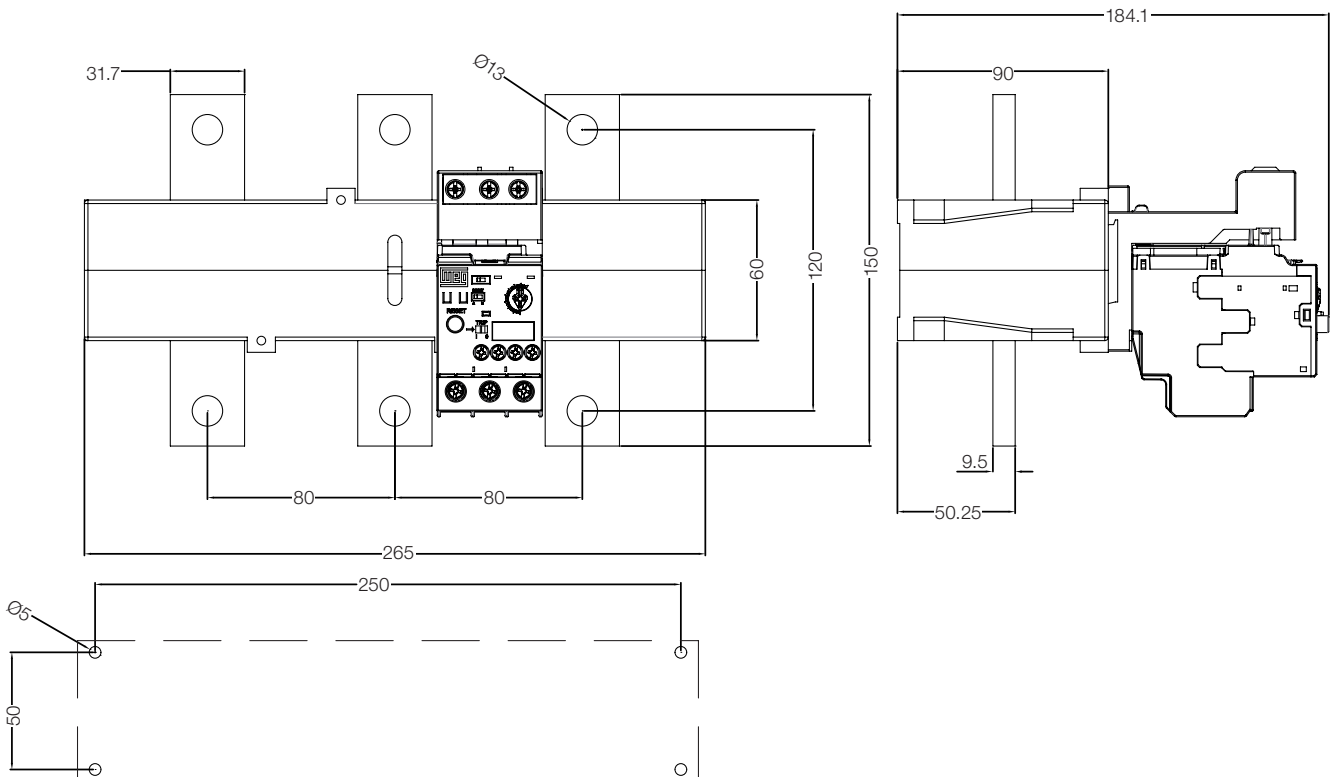


### Dimensions (mm)

#### RWM420E



#### RWM840E



General Information

Circuit Protection

Disconnect Switches

Motor Protectors

Contactors

Overloads

Enclosed Starters

Relays

Pushbuttons and Pilot Lights

Terminal Blocks

Power Factor Correction

Appendix A

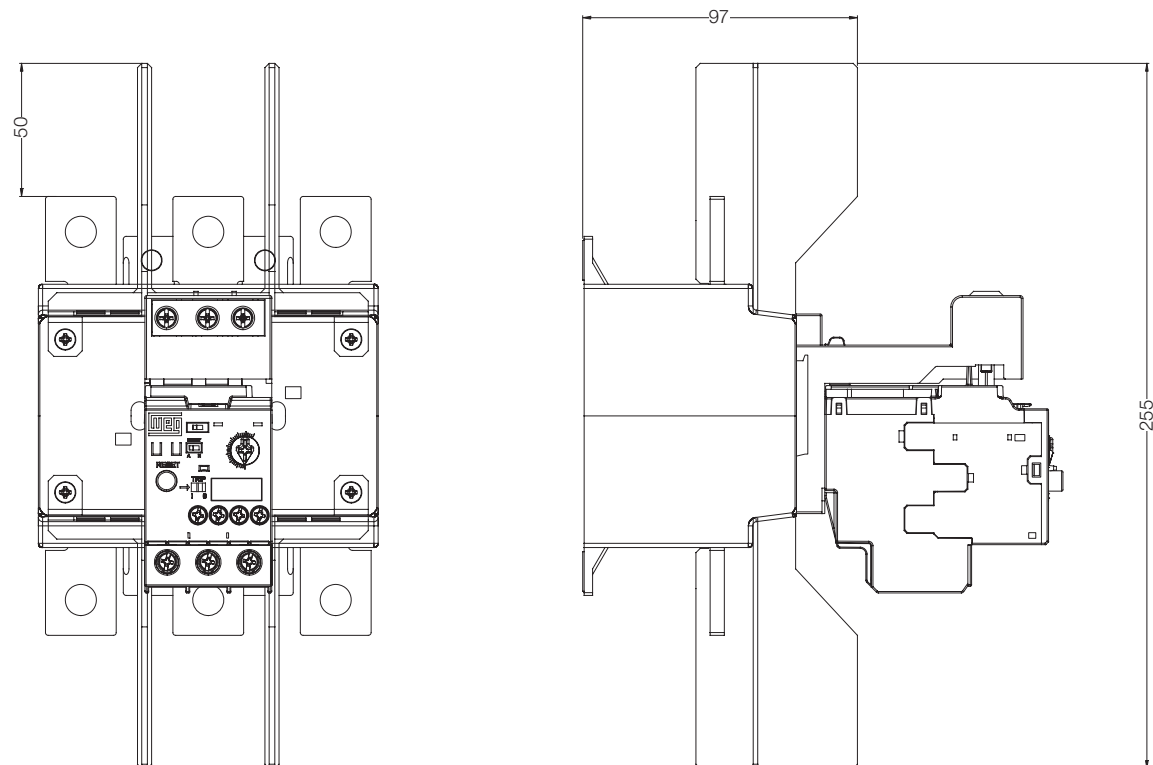
Appendix B

# Overloads

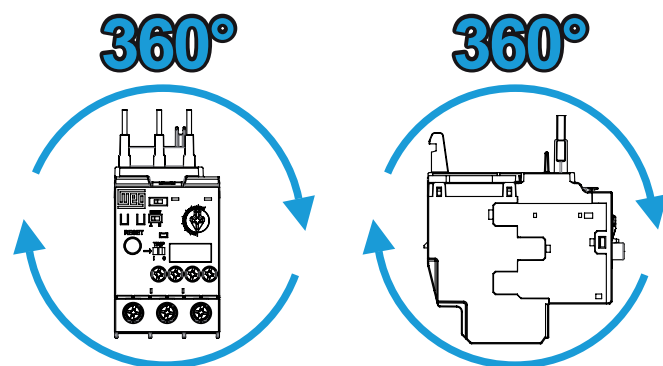
## Solid-State Overload Relays

### Dimensions (mm)

RWM420E + IBRW317



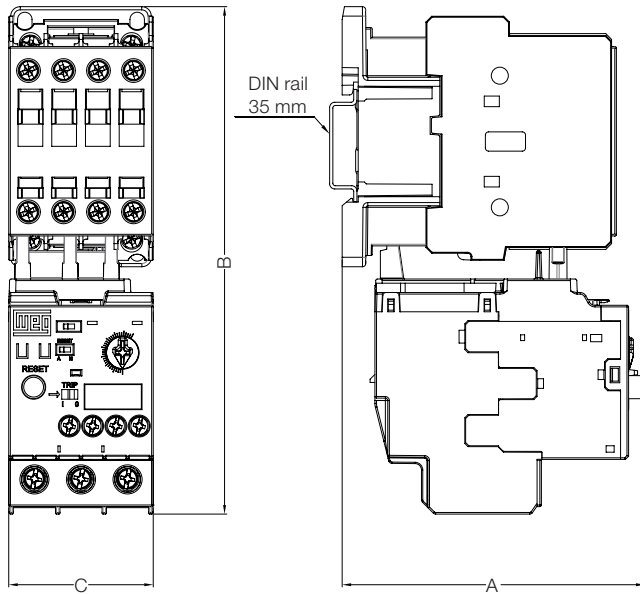
RWM40...840E / RWB40E



Mounting Position

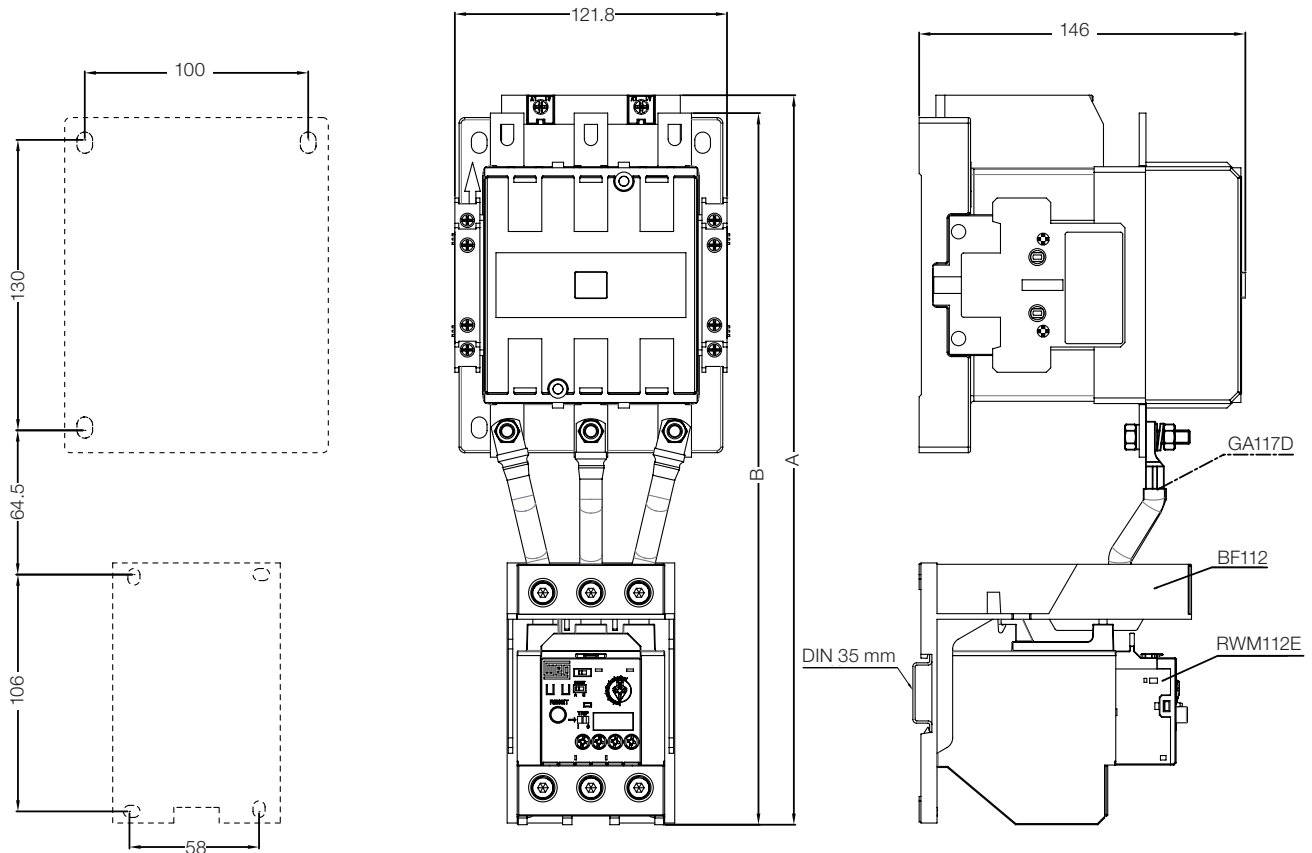
### Dimensions (mm)

#### CWM9...105 + RWM40...112E and CWB9...38 + RWB40E



| Contactor  | Type of<br>contactor coil | A     | B     | C    |
|------------|---------------------------|-------|-------|------|
| CWM9...18  | CA                        | 94.3  | 158   | 45   |
|            | CC                        | 125.1 |       |      |
| CWM25      | CA                        | 94.9  | 159.3 | 45   |
|            | CC                        | 124.8 |       |      |
| CWM32/40   | CA                        | 98.6  | 166.5 | 55   |
|            | CC                        | 118.6 |       |      |
| CWM50...80 | CA                        | 122.6 | 202.7 | 66   |
|            | CC                        |       |       |      |
| CWM95/105  | CA                        | 126   | 201.1 | 75.4 |
|            | CC                        |       |       |      |
| CWB9...18  | CA                        | 89.5  | 163.1 | 45   |
|            | CC                        | 98.7  |       |      |
| CWB25...38 | CA                        | 93    | 166.5 |      |
|            | CC                        | 102.2 |       |      |

#### CWM112 + RWM112E + BF112



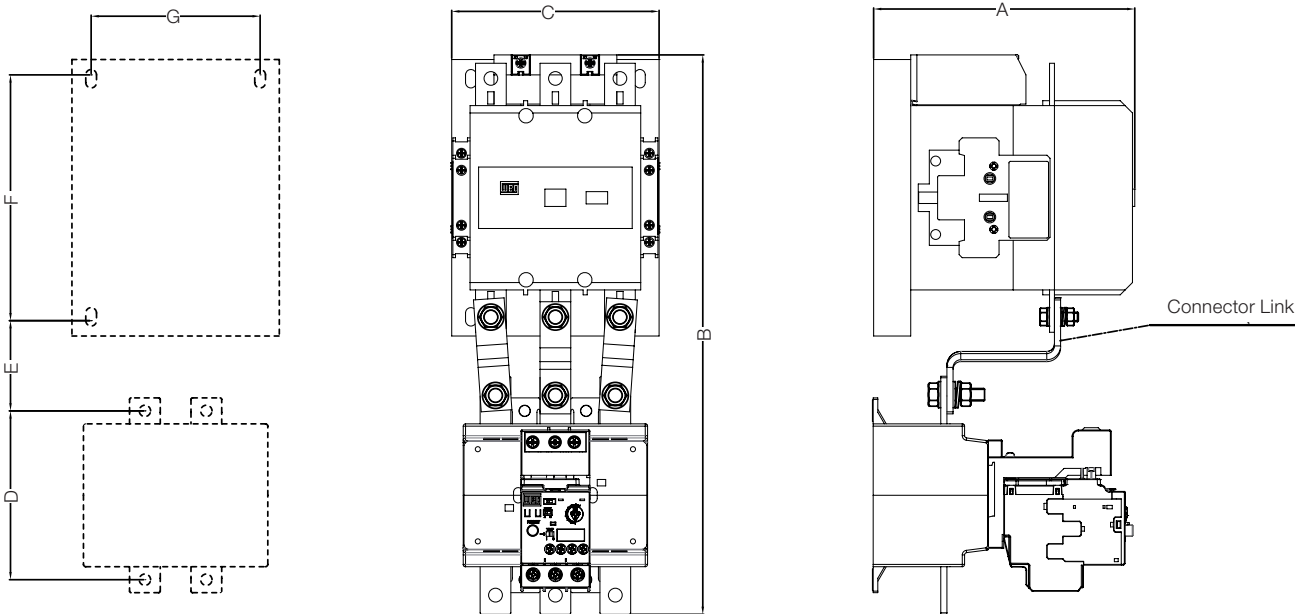
| CWM112               | A     | B     |
|----------------------|-------|-------|
| AC conventional coil | -     | 318.5 |
| Electronic coil      | 326.5 | 318.5 |

# Overloads

## Solid-State Overload Relays

### Dimensions (mm)

#### CWM112...300 + RWM112/420E



| Contactor  | Connector links | Overload relay | A   | B   | C     | D   | E    | F   | G   |
|------------|-----------------|----------------|-----|-----|-------|-----|------|-----|-----|
| CWM112/150 | GA117D          | RWM112E        | 147 | 325 | 121.5 | 106 | 64   | 130 | 100 |
| CWM112/150 | GA317-1D        | RW420E         | 166 | 343 |       | 110 | 60.5 |     |     |
| CWM180     | GA317-2D        | RW420E         | 172 | 358 | 139   |     | 52.5 | 160 | 110 |
| CWM250/300 | GA317-3D        | RW420E         | 181 | 380 | 148.4 |     | 55   | 180 | 120 |

#### CWM400 + RWM420E

