



## Molded Case Switch, 3p, 400A

**Part no.** NS3-400-NA  
**Catalog No.** 102687

**EL-Nummer (Norway)** 0004315511



Similar to illustration

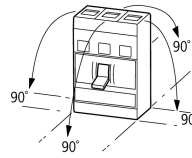
## Delivery program

|                                                                                     |                          |    |                                                                                                                                              |
|-------------------------------------------------------------------------------------|--------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------|
| Product range                                                                       |                          |    | Switch-disconnectors                                                                                                                         |
| Protective function                                                                 |                          |    | Disconnectors/main switches                                                                                                                  |
| Standard/Approval                                                                   |                          |    | UL/CSA, IEC                                                                                                                                  |
| Installation type                                                                   |                          |    | Fixed                                                                                                                                        |
| Construction size                                                                   |                          |    | N3                                                                                                                                           |
| Description                                                                         |                          |    | IEC/EN 60947-2: Circuit-breakers without overcurrent (CBI-X) with main switch characteristics and isolating characteristics to IEC/EN 60204. |
| Number of poles                                                                     |                          |    | 3 pole                                                                                                                                       |
| Standard equipment                                                                  |                          |    | Screw connection                                                                                                                             |
| Switch positions                                                                    |                          |    | I, +, 0                                                                                                                                      |
| Rated current = rated uninterrupted current                                         | $I_n = I_u$              | A  | 400                                                                                                                                          |
| Rated current = rated uninterrupted current                                         | $I_n = I_u$              | A  | 400                                                                                                                                          |
| <b>Switching capacity</b>                                                           |                          |    |                                                                                                                                              |
| SCCR 480V/277 V 60 Hz                                                               | $I_{cu}$                 | kA | 100                                                                                                                                          |
| SCCR 480 V 60 Hz                                                                    | $I_{cu}$                 | kA | 100                                                                                                                                          |
| SCCR 600V/347 V 60 Hz                                                               | $I_{cu}$                 | kA | 50                                                                                                                                           |
| SCCR 600 V 60 Hz                                                                    | $I_{cu}$                 | kA | 50                                                                                                                                           |
| <b>Short-circuit releases</b>                                                       |                          |    |                                                                                                                                              |
|   |                          |    |                                                                                                                                              |
| Non-delayed                                                                         | $I_i = I_n \times \dots$ |    | 6600 A fixed                                                                                                                                 |
|  |                          |    |                                                                                                                                              |

## Technical data

### Switch-disconnectors

|                                             |             |      |                                                                    |
|---------------------------------------------|-------------|------|--------------------------------------------------------------------|
| Rated surge voltage invariability           | $U_{imp}$   |      |                                                                    |
| Main contacts                               |             | V    | 8000                                                               |
| Auxiliary contacts                          |             | V    | 6000                                                               |
| Rated operational voltage                   | $U_e$       | V AC | 690                                                                |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A    | 400                                                                |
| Rated current = rated uninterrupted current | $I_n = I_u$ | A    | 400                                                                |
| Rated uninterrupted current                 | $I_u$       | A    |                                                                    |
| IEC/EN 61131-3                              | $I_u$       | A    | 600                                                                |
| UL 489, CSA 22.2 No. 5.1                    | $I_u$       | A    | 600                                                                |
| Overvoltage category/pollution degree       |             |      | III/3                                                              |
| Rated insulation voltage                    | $U_i$       | V    | 1000                                                               |
| Other technical data (sheet catalogue)      |             |      | Weight<br>Temperature dependency, Derating<br>Effective power loss |
| Ambient temperature                         |             |      |                                                                    |
| Ambient temperature, storage                |             | °C   | - 40 - + 70                                                        |
| Operation                                   |             | °C   | -25 - +70                                                          |

|                              |  |  |                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|--|--|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting position            |  |  | Vertical and 90° in all directions<br> | With residual-current release XFI:<br>- NZM1, N1, NZM2, N2: vertical and 90° in all directions<br>with plug-in adapter elements<br>- NZM1, N1, NZM2, N2: vertical, 90° right/left<br>with withdrawable unit:<br>- NZM3, N3: vertical, 90 ° left<br>- NZM4, N4: vertical<br>with remote operator:<br>- NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions |
| Direction of incoming supply |  |  | as required                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                 |
| Degree of protection         |  |  |                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                 |
| Device                       |  |  | In the area of the HMI devices: IP20 (basic protection type)                                                            |                                                                                                                                                                                                                                                                                                                                                                                 |
| Enclosures                   |  |  | With insulating surround: IP40<br>With door coupling rotary handle: IP66                                                |                                                                                                                                                                                                                                                                                                                                                                                 |
| Terminations                 |  |  | Tunnel terminal: IP10<br>Phase isolator and band terminal: IP00                                                         |                                                                                                                                                                                                                                                                                                                                                                                 |

### Switching capacity (UL489, CSA 22.2 No. 5.1)

|                       |                 |    |     |
|-----------------------|-----------------|----|-----|
| SCCR 240 V 60 Hz      | I <sub>cu</sub> | kA | 150 |
| SCCR 480Y/277 V 60 Hz | I <sub>cu</sub> | kA | 100 |
| SCCR 480 V 60 Hz      | I <sub>cu</sub> | kA | 100 |
| SCCR 600Y/347 V 60 Hz | I <sub>cu</sub> | kA | 50  |
| SCCR 600 V 60 Hz      | I <sub>cu</sub> | kA | 50  |

### Rated short-circuit making capacity

|                    |                 |    |     |
|--------------------|-----------------|----|-----|
| 240 V 50/60 Hz     | I <sub>cm</sub> | kA | 330 |
| 400/415 V 50/60 Hz | I <sub>cm</sub> | kA | 330 |
| 440 V 50/60 Hz     | I <sub>cm</sub> | kA | 286 |
| 525 V 50/60 Hz     | I <sub>cm</sub> | kA | 143 |
| 690 V 50/60 H      | I <sub>c</sub>  | kA | 74  |

### Rated short-circuit breaking capacity I<sub>cn</sub>

|                                                        |                 |       |       |
|--------------------------------------------------------|-----------------|-------|-------|
| I <sub>cu</sub> to IEC/EN 60947 test cycle O-t-CO      | I <sub>cu</sub> | kA    |       |
| 240 V 50/60 Hz                                         | I <sub>cu</sub> | kA    | 150   |
| 400/415 V 50 Hz                                        | I <sub>cu</sub> | kA    | 150   |
| 440 V 50/60 Hz                                         | I <sub>cu</sub> | kA    | 130   |
| 525 V 50/60 Hz                                         | I <sub>cu</sub> | kA    | 65    |
| 690 V 50/60 Hz                                         | I <sub>cu</sub> | kA    | 35    |
| I <sub>cs</sub> to IEC/EN 60947 test cycle O-t-CO-t-CO | I <sub>cs</sub> | kA    |       |
| 230 V 50/60 Hz                                         | I <sub>cs</sub> | kA    | 150   |
| 400/415 V 50/60 Hz                                     | I <sub>cs</sub> | kA    | 150   |
| 440 V 50/60 Hz                                         | I <sub>cs</sub> | kA    | 130   |
| 525 V 50/60 Hz                                         | I <sub>cs</sub> | kA    | 33    |
| 690 V 50/60 Hz                                         | I <sub>cs</sub> | kA    | 9     |
| Lifespan, mechanical                                   | Operations      |       | 15000 |
| Max. operating frequency                               |                 | Ops/h | 60    |

### Lifespan, electrical

|                |            |    |      |
|----------------|------------|----|------|
| 400 V 50/60 Hz | Operations |    | 5000 |
| 415 V 50/60 Hz | Operations |    | 3000 |
| 690 V 50/60 Hz | Operations |    | 3000 |
| 400 V 50/60 Hz | Operations |    | 2000 |
| 415 V 50/60 Hz | Operations |    | 2000 |
| 690 V 50/60 Hz | Operations |    | 2000 |
|                |            | ms | < 10 |

### Terminal capacity IEC

|                      |  |  |                                                       |
|----------------------|--|--|-------------------------------------------------------|
| Standard equipment   |  |  | Screw connection                                      |
| Optional accessories |  |  | Box terminal<br>Tunnel terminal<br>connection on rear |

|                                                           |      |                 |                                                                                               |
|-----------------------------------------------------------|------|-----------------|-----------------------------------------------------------------------------------------------|
| Copper conductors and cables                              |      |                 |                                                                                               |
| Box terminal                                              |      |                 |                                                                                               |
| Solid                                                     |      | mm <sup>2</sup> | 2 x 16                                                                                        |
| Stranded                                                  |      | mm <sup>2</sup> | 1 x (35 - 240)<br>2 x (25 - 120)                                                              |
| Tunnel terminal                                           |      |                 |                                                                                               |
| Stranded                                                  |      |                 |                                                                                               |
| 1-hole                                                    |      | mm <sup>2</sup> | 1 x (25 - 185)                                                                                |
| Double hole                                               |      | mm <sup>2</sup> | 1 x (50 - 240)<br>2 x (50 - 240)                                                              |
| Bolt terminal and rear-side connection                    |      |                 |                                                                                               |
| Direct on the switch                                      |      |                 |                                                                                               |
| Solid                                                     |      | mm <sup>2</sup> | 1 x 16<br>2 x 16                                                                              |
| Stranded                                                  |      | mm <sup>2</sup> | 1 x (25 - 240)<br>2 x (25 - 240)                                                              |
| Connection width extension                                |      |                 |                                                                                               |
| Connection width extension                                |      | mm <sup>2</sup> | 2 x 300                                                                                       |
| Al conductors, Al cable                                   |      |                 |                                                                                               |
| Tunnel terminal                                           |      |                 |                                                                                               |
| Solid                                                     |      | mm <sup>2</sup> | 1 x 16                                                                                        |
| Stranded                                                  |      |                 |                                                                                               |
| 1-hole                                                    |      | mm <sup>2</sup> | 1 x (25 - 185) <sup>2)</sup>                                                                  |
|                                                           |      |                 | <sup>2)</sup> Up to 240 mm <sup>2</sup> can be connected depending on the cable manufacturer. |
| Double hole                                               |      | mm <sup>2</sup> | 1 x (50 - 240)<br>2 x (50 - 240)                                                              |
| Bolt terminal and rear-side connection                    |      |                 |                                                                                               |
| Direct on the switch                                      |      |                 |                                                                                               |
| Solid                                                     |      | mm <sup>2</sup> | 1 x 16<br>2 x (10 - 16)                                                                       |
| Stranded                                                  |      | mm <sup>2</sup> | 1 x (25 - 120)<br>2 x (25 - 120)                                                              |
| Cu strip (number of segments x width x segment thickness) |      |                 |                                                                                               |
| Box terminal                                              |      |                 |                                                                                               |
|                                                           | min. | mm              | 6 x 16 x 0.8                                                                                  |
|                                                           | max. | mm              | 10 x 24 x 1.0<br>+ 5 x 24 x 1.0<br>(2 x) 8 x 24 x 1.0                                         |
| Bolt terminal and rear-side connection                    |      |                 |                                                                                               |
| Flat copper strip, with holes                             | min. | mm              | 6 x 16 x 0.8                                                                                  |
| Flat copper strip, with holes                             | max. | mm              | 10 x 32 x 1.0 + 5 x 32 x 1.0                                                                  |
| Connection width extension                                |      | mm              | (2 x) 10 x 50 x 1.0                                                                           |
| Copper busbar (width x thickness)                         |      |                 |                                                                                               |
|                                                           | mm   |                 |                                                                                               |
| Bolt terminal and rear-side connection                    |      |                 |                                                                                               |
| Screw connection                                          |      |                 | M10                                                                                           |
| Direct on the switch                                      |      |                 |                                                                                               |
|                                                           | min. | mm              | 20 x 5                                                                                        |
|                                                           | max. | mm              | 30 x 10<br>+ 30 x 5                                                                           |
| Connection width extension                                |      |                 |                                                                                               |
| Connection width extension                                | max. | mm              | 2 x (10 x 50)                                                                                 |
| NA terminal capacity                                      |      |                 |                                                                                               |
| Copper conductors and cables                              |      |                 |                                                                                               |
| Box terminal                                              |      |                 |                                                                                               |
| Stranded                                                  |      | AWG/<br>kcmil   | 1 x (2 - 500)                                                                                 |
| Tunnel terminal                                           |      |                 |                                                                                               |
| solid                                                     |      | AWG             | 1 x 6                                                                                         |
| Stranded                                                  |      | AWG             |                                                                                               |

|                                                           |      |               |                                |
|-----------------------------------------------------------|------|---------------|--------------------------------|
| Double hole fitting                                       |      | AWG/<br>kcmil | 1 x (0 - 500)<br>2 x (0 - 500) |
| Bolt terminal and rear-side connection                    |      |               |                                |
| Connection width extension                                |      | AWG/<br>kcmil |                                |
| Connection width extension                                |      | AWG/<br>kcmil | 2 x 500                        |
| Cu strip (number of segments x width x segment thickness) |      |               |                                |
| Box terminal                                              |      |               |                                |
|                                                           | min. | mm            | 6 x 16 x 0.8                   |
| Bolt terminal and rear-side connection                    |      |               |                                |
| Flat copper strip, with holes                             | min. | mm            | 6 x 16 x 0.8                   |
| Flat copper strip, with holes                             | max. | mm            | 10 x 32 x 1.0 + 5 x 32 x 1.0   |
| Connection width extension                                |      | mm            | (2 x) 10 x 50 x 1.0            |
| Copper busbar (width x thickness)                         | mm   |               |                                |
| Bolt terminal and rear-side connection                    |      |               |                                |
| Screw connection                                          |      |               | M10                            |
| Direct on the switch                                      |      |               |                                |
|                                                           | min. | mm            | 20 x 5                         |
|                                                           | max. | mm            | 30 x 10<br>+ 30 x 5            |
| Connection width extension                                |      | mm            |                                |
| Connection width extension                                | max. | mm            | 2 x (10 x 50)                  |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                  |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                  |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>   | A  | 400                                                                                                                              |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub> | W  | 48                                                                                                                               |
| Operating ambient temperature min.                                                                                     |                  | °C | -25                                                                                                                              |
| Operating ambient temperature max.                                                                                     |                  | °C | 70                                                                                                                               |
| IEC/EN 61439 design verification                                                                                       |                  |    |                                                                                                                                  |
| 10.2 Strength of materials and parts                                                                                   |                  |    |                                                                                                                                  |
| 10.2.2 Corrosion resistance                                                                                            |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.2.3.1 Verification of thermal stability of enclosures                                                               |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat                                             |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.2.4 Resistance to ultra-violet (UV) radiation                                                                       |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.2.5 Lifting                                                                                                         |                  |    | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| 10.2.6 Mechanical impact                                                                                               |                  |    | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| 10.2.7 Inscriptions                                                                                                    |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.3 Degree of protection of ASSEMBLIES                                                                                |                  |    | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| 10.4 Clearances and creepage distances                                                                                 |                  |    | Meets the product standard's requirements.                                                                                       |
| 10.5 Protection against electric shock                                                                                 |                  |    | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| 10.6 Incorporation of switching devices and components                                                                 |                  |    | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| 10.7 Internal electrical circuits and connections                                                                      |                  |    | Is the panel builder's responsibility.                                                                                           |
| 10.8 Connections for external conductors                                                                               |                  |    | Is the panel builder's responsibility.                                                                                           |
| 10.9 Insulation properties                                                                                             |                  |    |                                                                                                                                  |
| 10.9.2 Power-frequency electric strength                                                                               |                  |    | Is the panel builder's responsibility.                                                                                           |
| 10.9.3 Impulse withstand voltage                                                                                       |                  |    | Is the panel builder's responsibility.                                                                                           |
| 10.9.4 Testing of enclosures made of insulating material                                                               |                  |    | Is the panel builder's responsibility.                                                                                           |
| 10.10 Temperature rise                                                                                                 |                  |    | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating                                                                                             |                  |    | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.12 Electromagnetic compatibility                                                                                    |                  |    | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.13 Mechanical function                                                                                              |                  |    | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

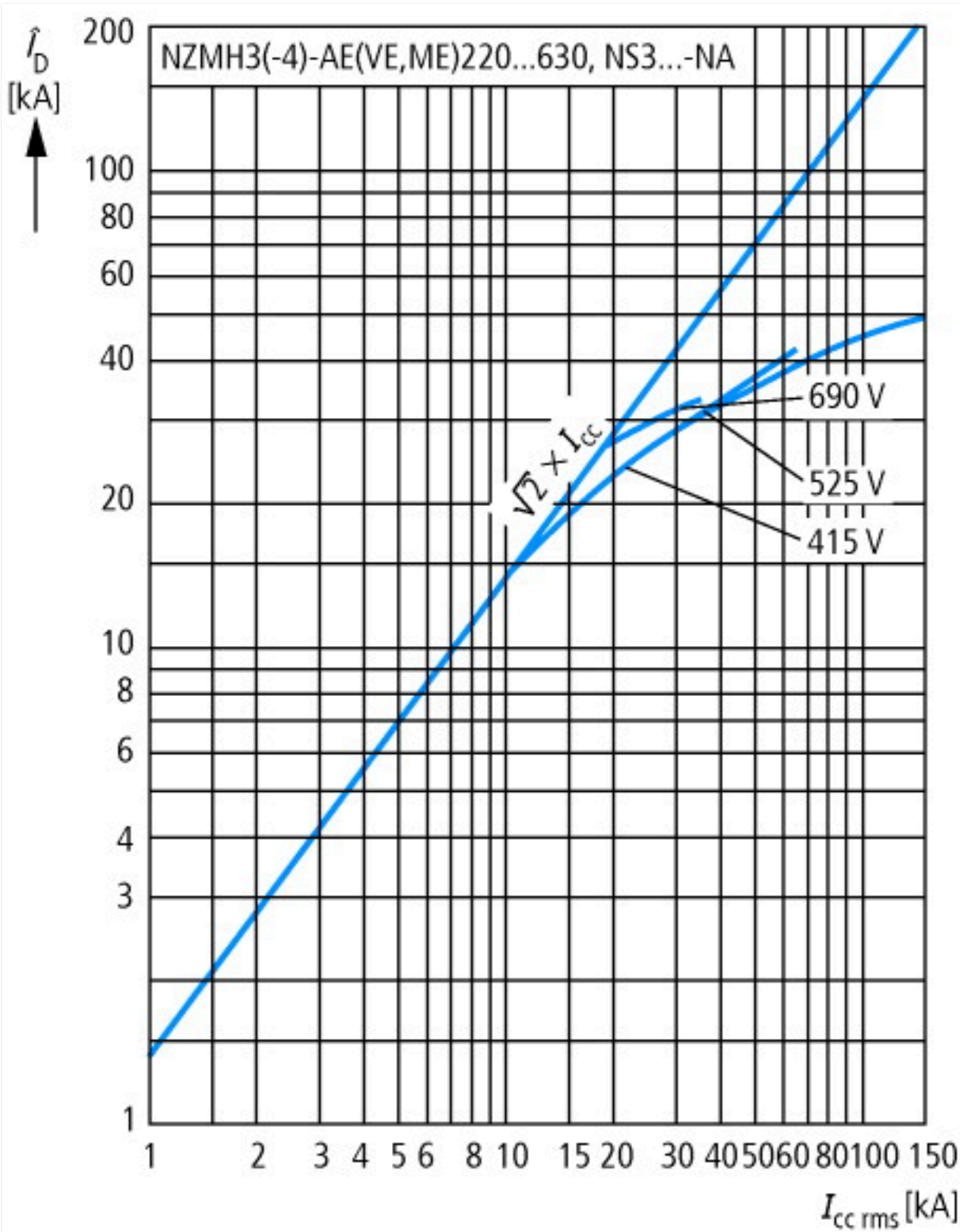
## Technical data ETIM 7.0

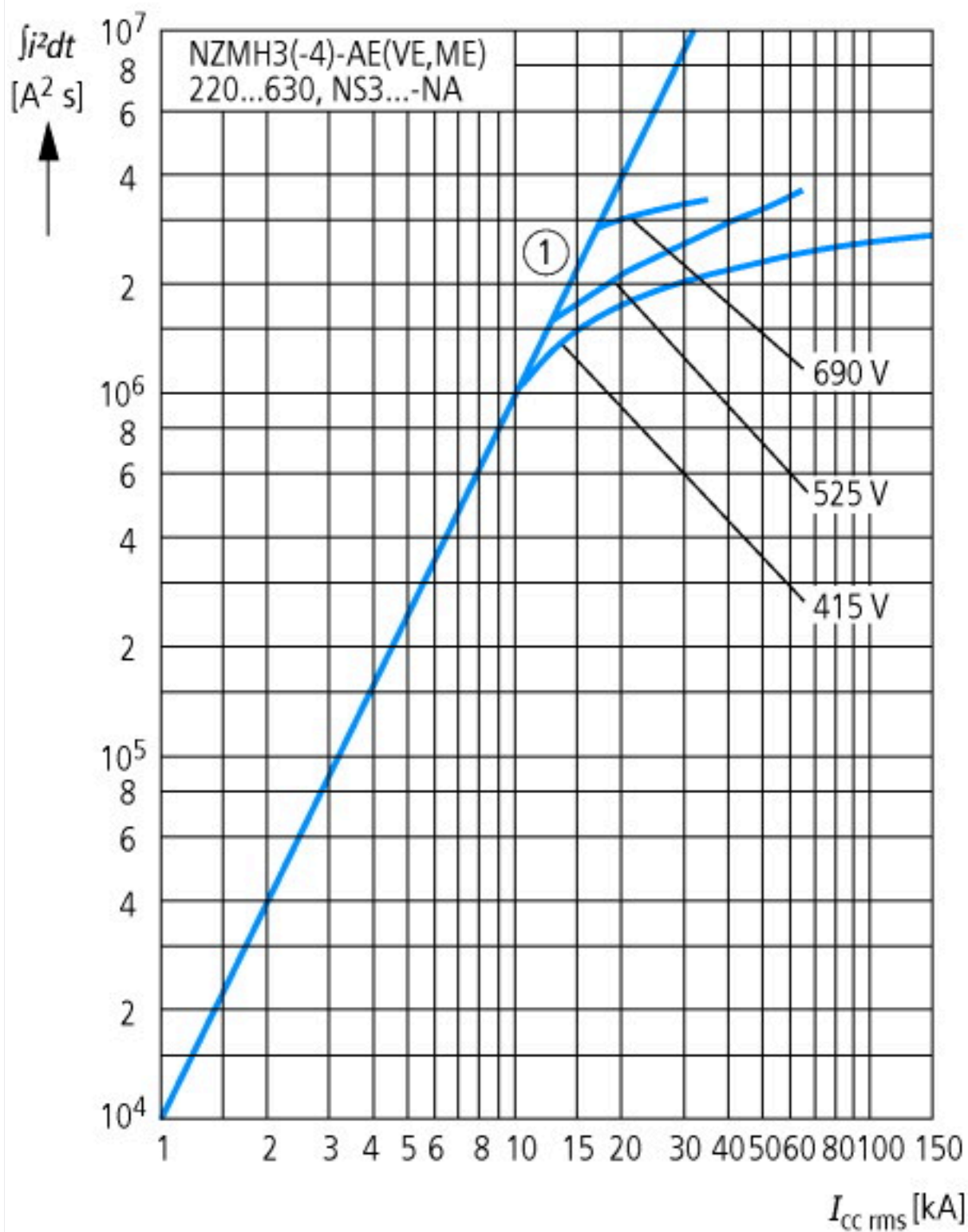
|                                                                                                                                                                                                                                             |    |                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------|
| Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)                                                                                                                 |    |                                          |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013]) |    |                                          |
| Rated permanent current I <sub>u</sub>                                                                                                                                                                                                      | A  | 400                                      |
| Rated voltage                                                                                                                                                                                                                               | V  | 690 - 690                                |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz                                                                                                                                                                       | kA | 150                                      |
| Overload release current setting                                                                                                                                                                                                            | A  | 0 - 0                                    |
| Adjustment range short-term delayed short-circuit release                                                                                                                                                                                   | A  | 0 - 0                                    |
| Adjustment range undelayed short-circuit release                                                                                                                                                                                            | A  | 6600 - 6600                              |
| Integrated earth fault protection                                                                                                                                                                                                           |    | No                                       |
| Type of electrical connection of main circuit                                                                                                                                                                                               |    | Screw connection                         |
| Device construction                                                                                                                                                                                                                         |    | Built-in device fixed built-in technique |
| Suitable for DIN rail (top hat rail) mounting                                                                                                                                                                                               |    | No                                       |
| DIN rail (top hat rail) mounting optional                                                                                                                                                                                                   |    | Yes                                      |
| Number of auxiliary contacts as normally closed contact                                                                                                                                                                                     |    | 0                                        |
| Number of auxiliary contacts as normally open contact                                                                                                                                                                                       |    | 0                                        |
| Number of auxiliary contacts as change-over contact                                                                                                                                                                                         |    | 0                                        |
| With switched-off indicator                                                                                                                                                                                                                 |    | No                                       |
| With under voltage release                                                                                                                                                                                                                  |    | No                                       |
| Number of poles                                                                                                                                                                                                                             |    | 3                                        |
| Position of connection for main current circuit                                                                                                                                                                                             |    | Front side                               |
| Type of control element                                                                                                                                                                                                                     |    | Rocker lever                             |
| Complete device with protection unit                                                                                                                                                                                                        |    | Yes                                      |
| Motor drive integrated                                                                                                                                                                                                                      |    | No                                       |
| Motor drive optional                                                                                                                                                                                                                        |    | Yes                                      |
| Degree of protection (IP)                                                                                                                                                                                                                   |    | IP20                                     |

## Approvals

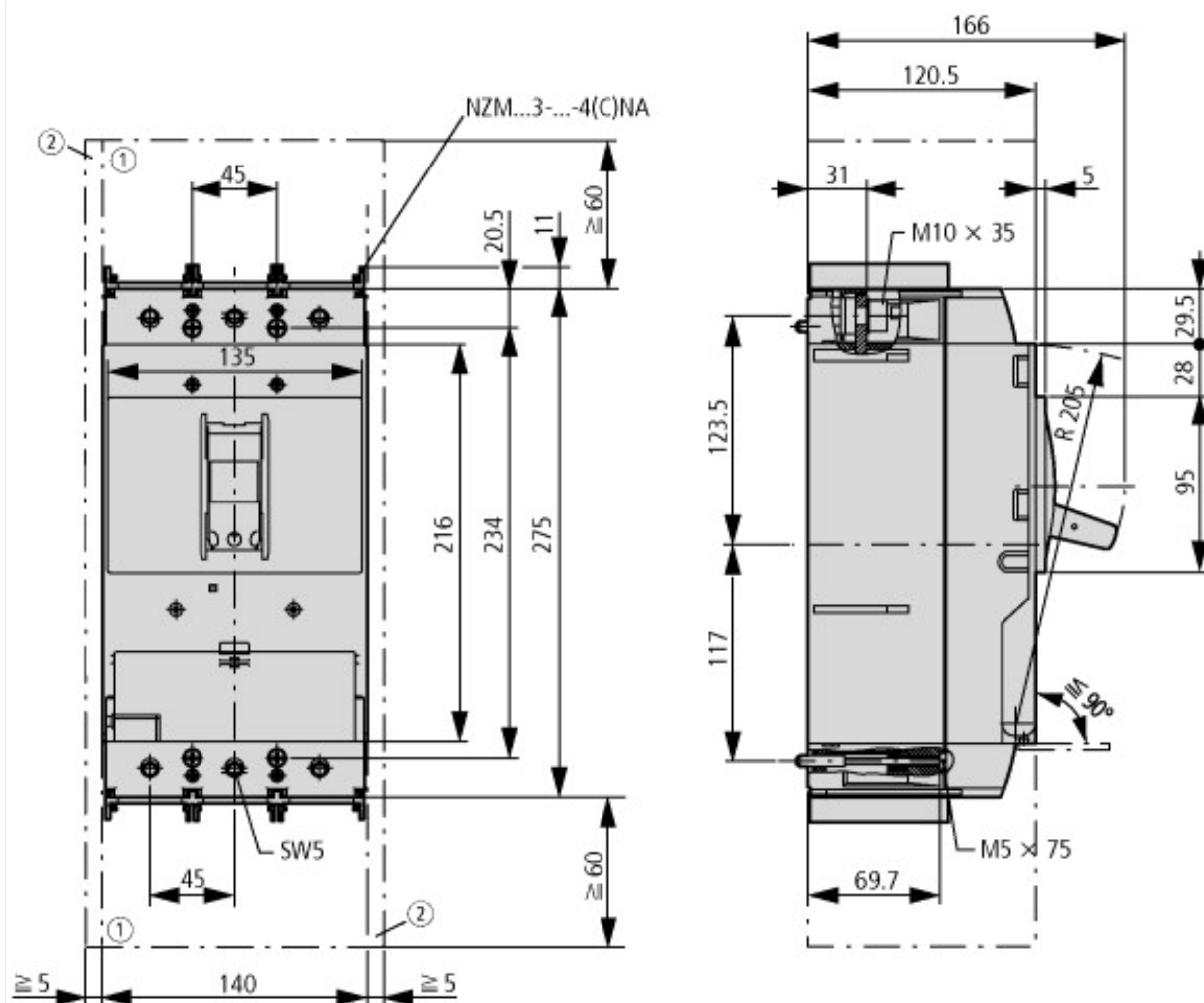
|                                      |  |                                                     |
|--------------------------------------|--|-----------------------------------------------------|
| Product Standards                    |  | UL 489; CSA-C22.2 No. 5-09; IEC 60947-2; CE marking |
| UL File No.                          |  | E148671                                             |
| UL Category Control No.              |  | WJAZ                                                |
| CSA File No.                         |  | 022086                                              |
| CSA Class No.                        |  | 4652-06                                             |
| North America Certification          |  | UL listed, CSA certified                            |
| Specially designed for North America |  | Yes                                                 |
| Suitable for                         |  | Feeder circuits, branch circuits                    |
| Current Limiting Circuit-Breaker     |  | No                                                  |
| Max. Voltage Rating                  |  | 600 V                                               |
| Degree of Protection                 |  | IEC: IP20; UL/CSA Type: -                           |

Characteristics



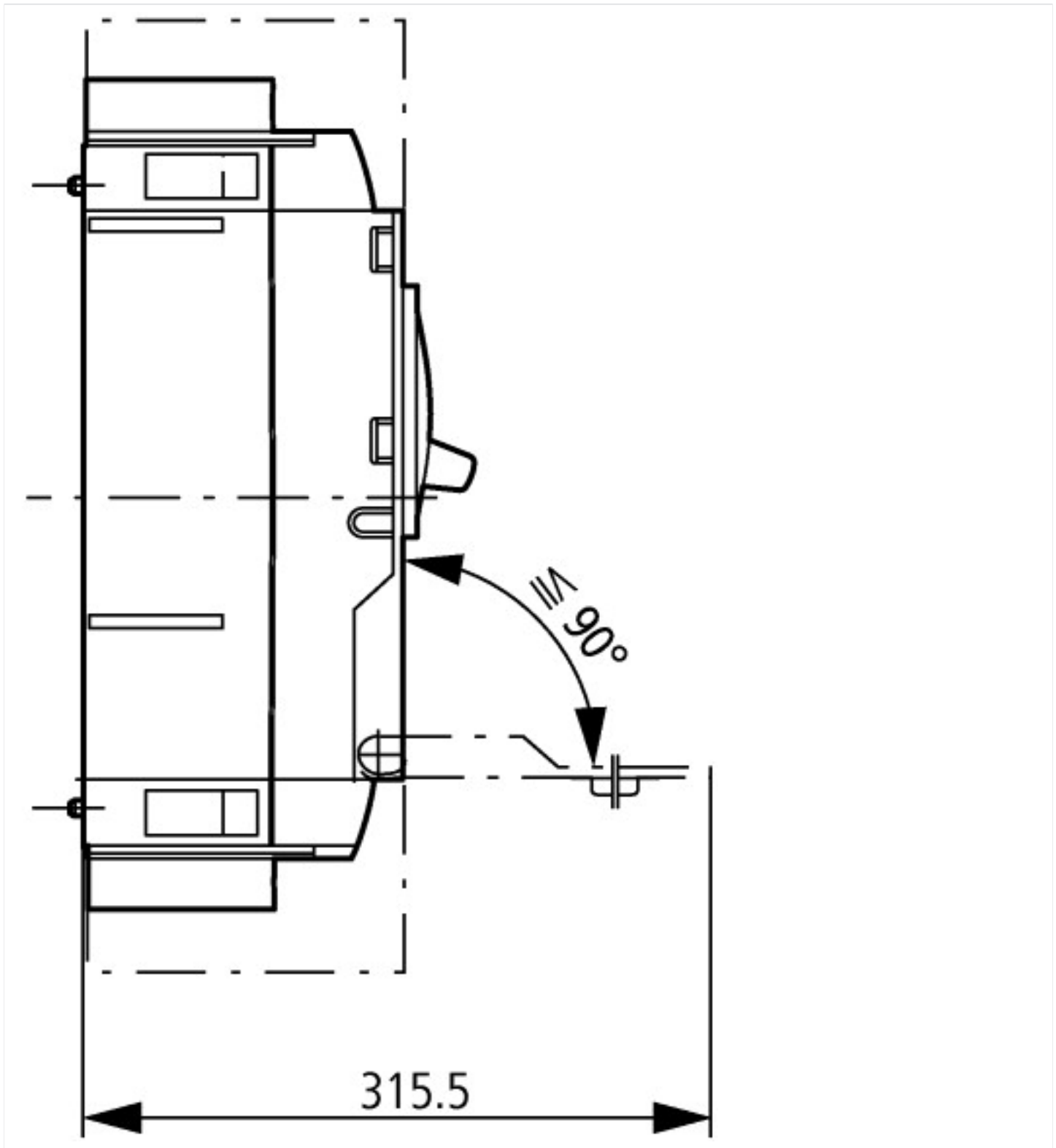


## Dimensions



- ① Blow out area, minimum clearance to adjacent parts
- ② Minimum clearance to adjacent parts





### Additional product information (links)

|                                                               |                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IL01208009Z (AWA1230-1992) Circuit-Breaker, basic unit</b> |                                                                                                                                                                                                                                                 |
| IL01208009Z (AWA1230-1992) Circuit-Breaker, basic unit        | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL01208009Z2018_11.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL01208009Z2018_11.pdf</a>                                                                           |
| Weight                                                        | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171</a>                                                                                         |
| Temperature dependency, Derating                              | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172</a>                                                                                         |
| Effective power loss                                          | <a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174</a>                                                                                         |
| CurveSelect characteristics program                           | <a href="http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm">http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm</a>         |
| Eaton configurator                                            | <a href="http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm">http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm</a> |
| additional technical information for NZM power switch         | <a href="ftp://ftp.moeller.net/DOCUMENTATION/PDF/nzm_technik_de_en.pdf">ftp://ftp.moeller.net/DOCUMENTATION/PDF/nzm_technik_de_en.pdf</a>                                                                                                       |