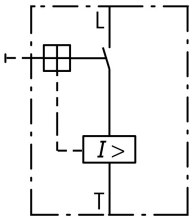
# Short-circuit protective breaker, 3p, im=56A

**Part no.** PKM0-4
**Article no.** 072727
**Catalog No.** XTPM004BNL

Powering Business Worldwide

## Delivery program

| | | | |
|---|---|---|---|
| Product range | | | PKM0 motor protective circuit-breakers up to 32 A |
| Basic function | | | Short-circuit protective device only |
| | | | IE3 |
| Notes | | | Also suitable for motors with efficiency class IE3.<br>IE3-ready devices are identified by the logo on their packaging. |
| Connection technique | | | Screw terminals |
| Contact sequence | | |  |
| **Max. motor rating** | | | |
| AC-3 | | | |
| 220 V 230 V 240 V | P | kW | 0.75 |
| 380 V 400 V 415 V | P | kW | 1.5 |
| 440 V | P | kW | 1.5 |
| 500 V | P | kW | 2.2 |
| 660 V 690 V | P | kW | 3 |
| **Setting range** | | | |
| Short-circuit releases | | | |
| max. | $I_{rm}$ | A | 62 |

**Notes**
When using the PKM0 as short-circuit protection for motors with heavy starting duty, the rated operational current $I_e$ must be over-dimensioned during engineering with the following factors:

CLASS 5 = 1.0

CLASS 10 = 1.0

CLASS 15 = 1.22

CLASS 20 = 1.41

CLASS 25 = 1.58

CLASS 30 = 1.73

CLASS 35 = 1.89

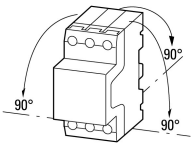
CLASS 40 = 2.0

Can be snap-fitted to IEC/EN 60715 top-hat rail with 7.5 or 15 mm height
Assignment of the short-circuit protective breakers and contactors in “Fuseless motor-starter combinations” section.
An appropriate overload relay must be fitted to protect motors against overload.

## Technical data

### General

| | | | |
|---|---|---|---|
| Standards | | | IEC/EN 60947, VDE 0660 |
| Climatic proofing | | | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature | | | |
| Storage | ϑ | °C | -40 - +80 |
| Open | | °C | -25 - +55 |

| | | | |
|---|---|---|---|
| Enclosed | | °C | - 25 - 40 |
| Mounting position | | |  |
| Direction of incoming supply | | | as required |
| Degree of protection | | | |
| Device | | | IP20 |
| Terminations | | | IP00 |
| Protection against direct contact | | | Finger and back-of-hand proof |
| Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27 | | g | 25 |
| Altitude | | m | 2000 |
| Terminal capacity screw terminals | | $mm^2$ | |
| Solid | | $mm^2$ | 1 x (1 - 6)<br>2 x (1 - 6) |
| Flexible with ferrule to DIN 46228 | | $mm^2$ | 1 x (1 - 6)<br>2 x (1 - 6) |
| Solid or stranded | | AWG | 18 - 10 |
| Terminal capacity springloaded terminals | | | |
| Solid | | $mm^2$ | 1 x (1…2.5)<br>2 x (1…2.5) |
| Flexible with ferrule to DIN 46228 | | $mm^2$ | 1 x (1…2.5)<br>2 x (1…2.5) |
| Solid or stranded | | AWG | 18…14 |
| Specified tightening torque for terminal screws | | | |
| Main cable | | Nm | 1.7 |
| Control circuit cables | | Nm | 1 |

## Main conducting paths

| | | | |
|---|---|---|---|
| Rated impulse withstand voltage | $U_{imp}$ | V AC | 6000 |
| Overvoltage category/pollution degree | | | III/3 |
| Rated operational voltage | $U_e$ | V AC | 690 |
| Rated uninterrupted current = rated operational current | $I_u = I_e$ | A | 32 or current setting of the overcurrent release |
| Rated frequency | f | Hz | 40 - 60 |
| Rated frequency | | Hz | 40 - 60 |
| Current heat loss (3 pole at operating temperature) | | W | 6 |
| Lifespan, mechanical | Operations | $x\ 10^6$ | 0.1 |
| Lifespan, electrical (AC-3 at 400 V) | Operations | $x\ 10^6$ | 0.1 |
| Maximum operating frequency | | Ops./h | |
| Max. operating frequency | | Ops/h | 40 |
| Short-circuit rating | | | |
| DC | | | |
| Short-circuit rating | | | 60 (up to PKM0-16)<br>40 (PKM0-20 to PKM0-32) |
| Motor switching capacity | | $kA_{rms}$ | |
| AC-3 (up to 690 V) | | A | 32 |
| DC-5 (up to 250 V) | | A | 25 (3 contacts in series) |

## Trip blocks

| | | | |
|---|---|---|---|
| Temperature compensation | | | |
| to IEC/EN 60947, VDE 0660 | | °C | - 5 … 40 |
| Operating range | | °C | - 25 … 55 |
| Temperature compensation residual error for T > 40 °C | | | 0.25 %/K |
| Short-circuit release fixed | | $x\ I_u$ | 15 |
| short-circuit release | | | Basic device, fixed: 15.5 x $I_u$ |
| Short-circuit release tolerance | | | ± 20% |

## Design verification as per IEC/EN 61439

| | | | |
|---|---|---|---|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | $I_n$ | A | 4 |
| Heat dissipation per pole, current-dependent | $P_{vid}$ | W | 0 |
| Equipment heat dissipation, current-dependent | $P_{vid}$ | W | 5.33 |
| Static heat dissipation, non-current-dependent | $P_{vs}$ | W | 0 |
| Heat dissipation capacity | $P_{diss}$ | W | 0 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 55 |
| 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 6.0

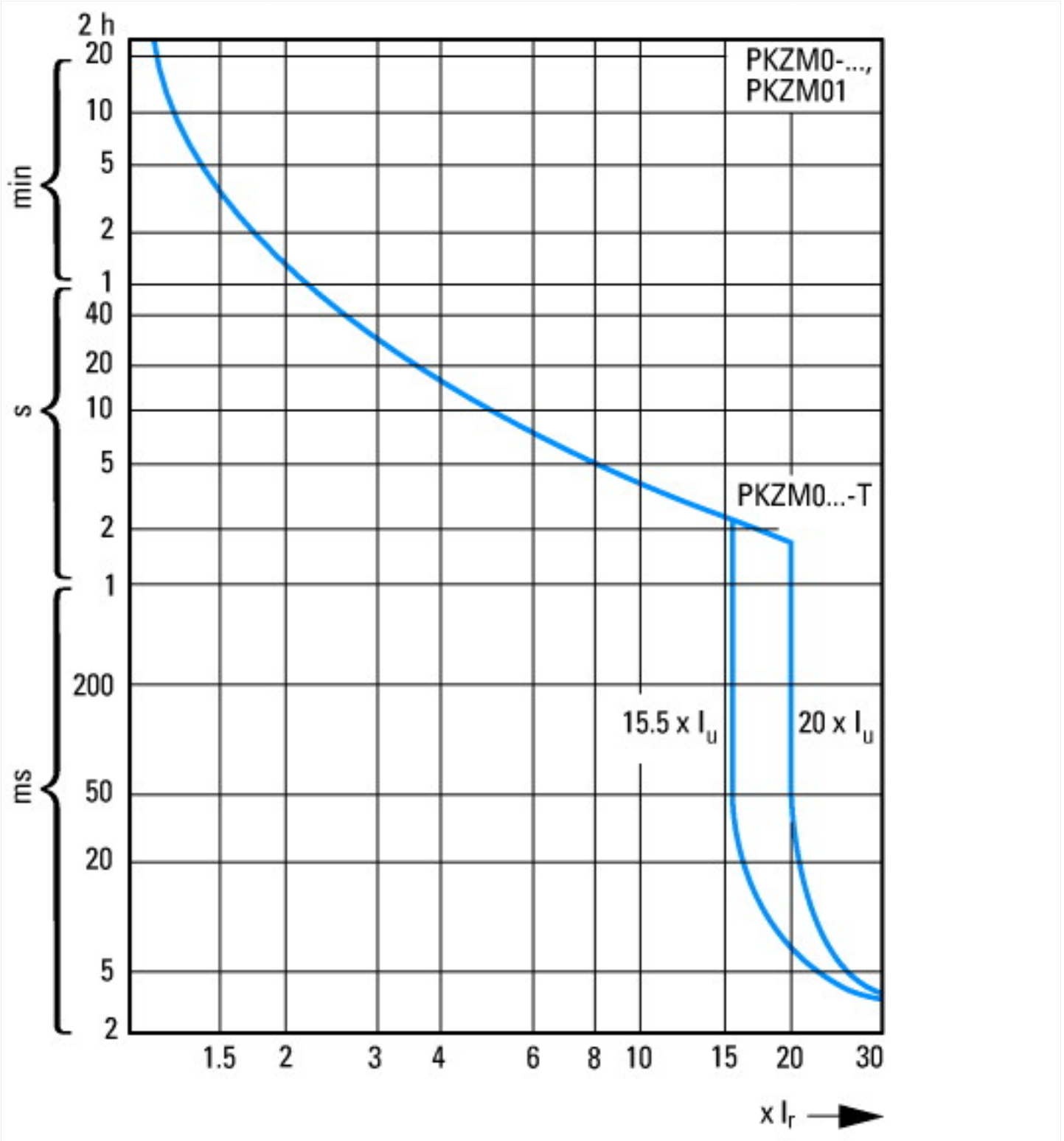
| | | | |
|---|---|---|---|
| Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074) | | | |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss8.1-27-37-04-01 [AGZ529013]) | | | |
| Overload release current setting | | A | 0 - 0 |
| Adjustment range undelayed short-circuit release | | A | 62 - 62 |
| Thermal protection | | | No |
| Phase failure sensitive | | | No |
| Switch off technique | | | Magnetic |
| Rated operating voltage | | V | 690 - 690 |
| Rated permanent current Iu | | A | 4 |
| Rated operation power at AC-3, 230 V | | kW | 0.75 |
| Rated operation power at AC-3, 400 V | | kW | 1.5 |
| Type of electrical connection of main circuit | | | Screw connection |
| Type of control element | | | Turn button |
| Device construction | | | Built-in device fixed built-in technique |
| With integrated auxiliary switch | | | No |
| With integrated under voltage release | | | No |

| | | | |
|---|---|---|---|
| Number of poles | | | 3 |
| Rated short-circuit breaking capacity Icu at 400 V, AC | | kA | 150 |
| Degree of protection (IP) | | | IP20 |
| Height | | mm | 93 |
| Width | | mm | 45 |
| Depth | | mm | 76 |

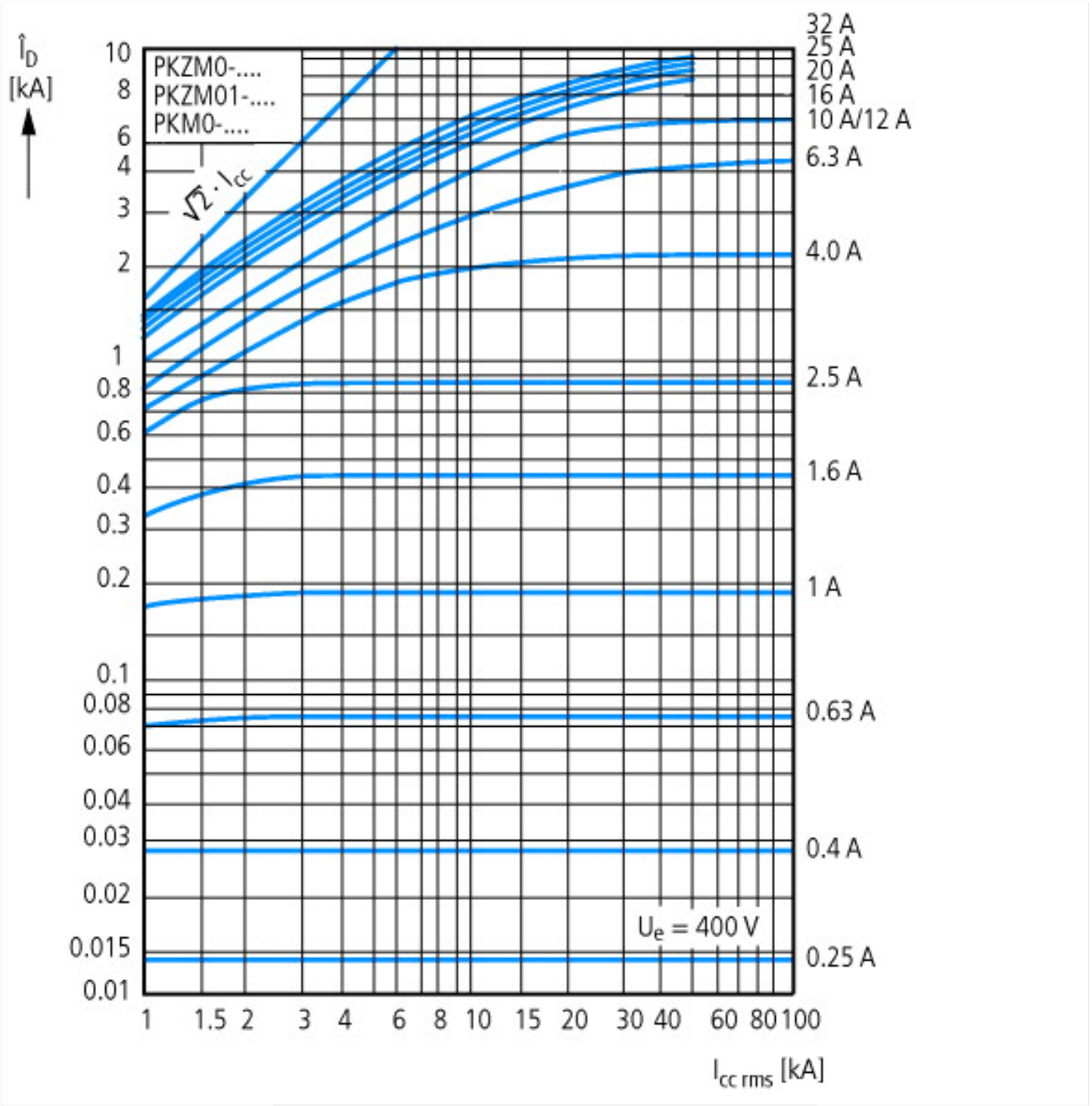
## Approvals

| | | | |
|---|---|---|---|
| Specially designed for North America | | | No |

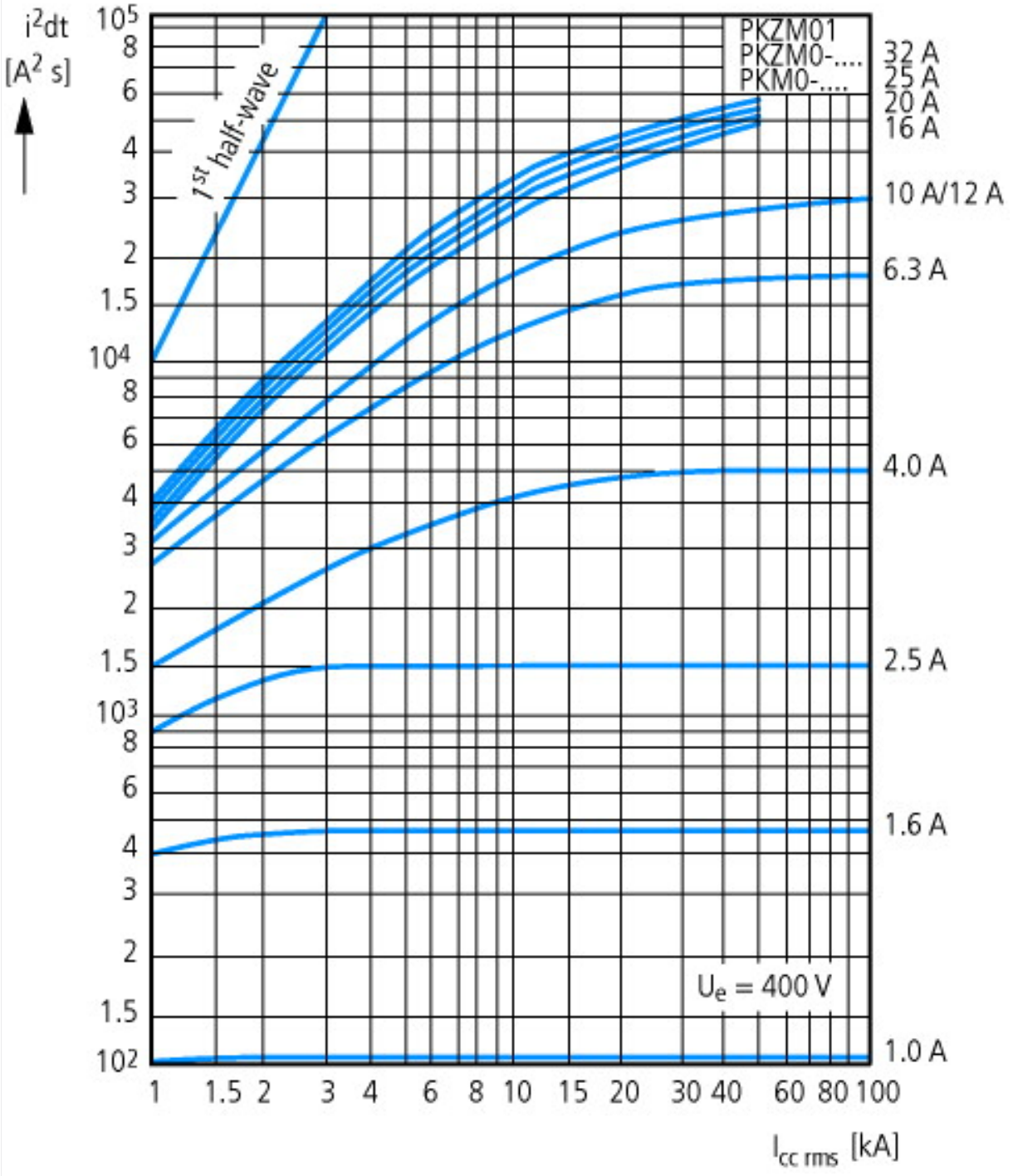
## Characteristics




Motor-protective circuit-breaker tripping characteristic (high-capacity) compact starter, PKZM0-…T (not for PKM0-…), PKZM01

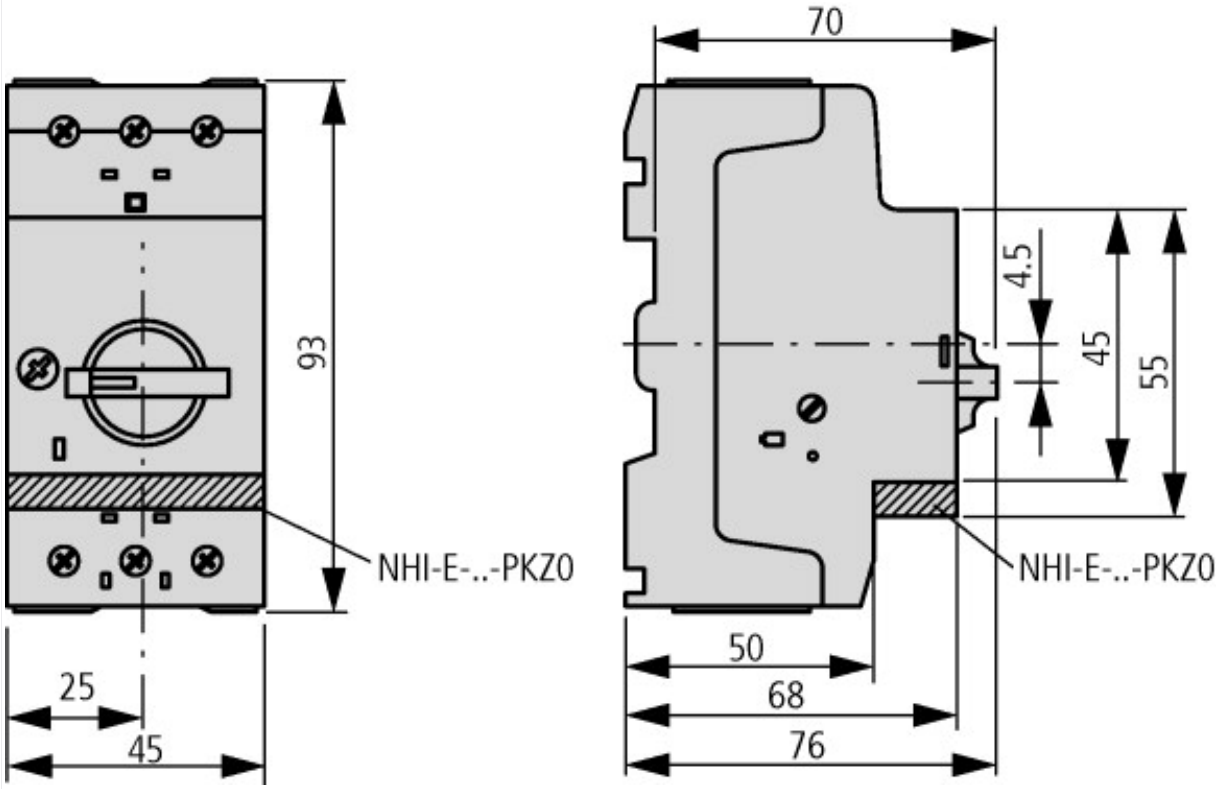



Let-through current

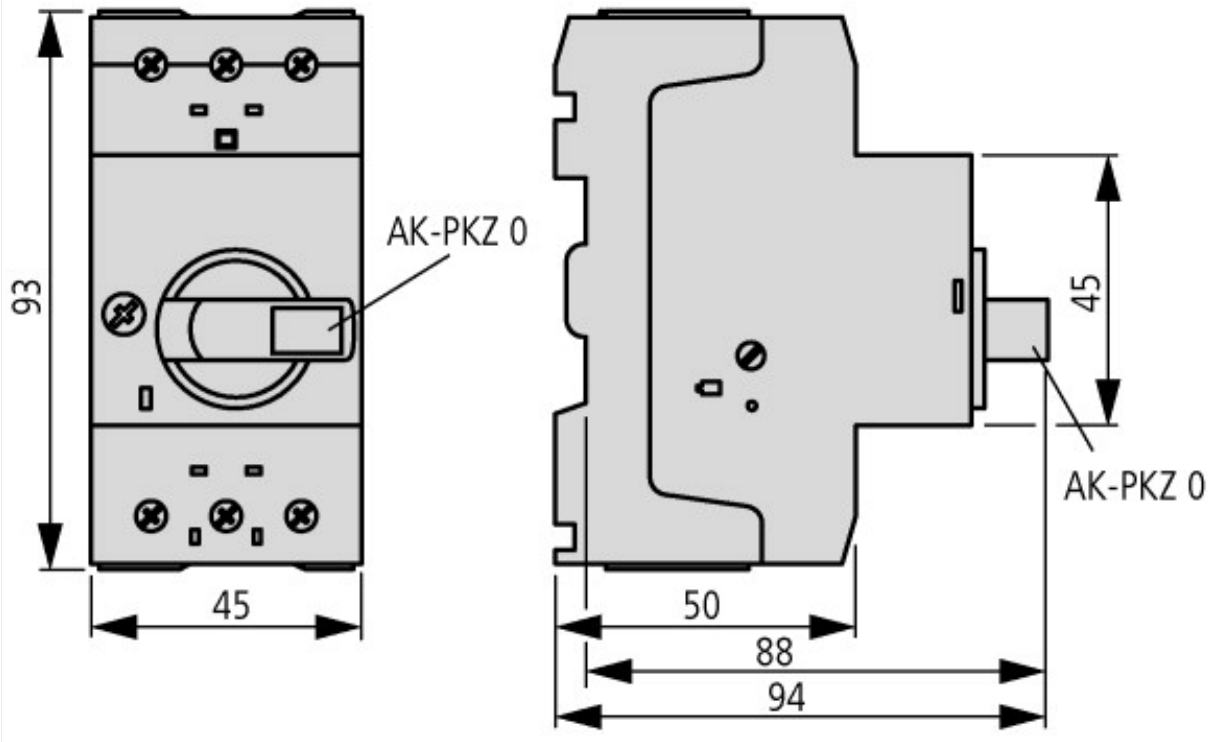



Let-through energy

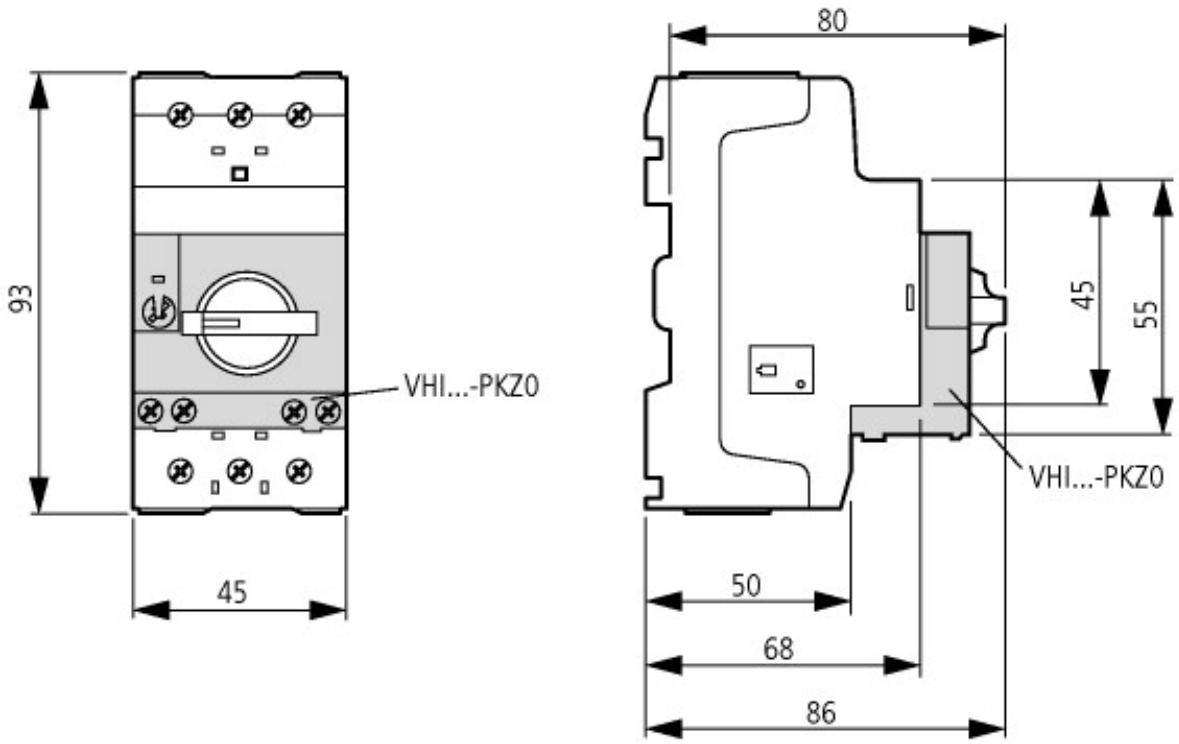
## Dimensions




Motor-protective circuit-breaker with standard auxiliary contact
PKZM0-…(+NHI-E-…-PKZ0)
PKZM0-…-T(+NHI-E-…-PKZ0)
PKM0-…(+NHI-E-…-PKZ0)




Motor-protective circuit-breakers with lockable rotary handles
PKZM0-…+AK-PKZ0




Motor-protective circuit-breakers with early-make auxiliary contacts
PKZM0-…+VHI-…-PKZ0

## Additional product information (links)

| | |
|---|---|
| **IL03407010Z (AWA1210-2138) Motor-protective circuit-breaker** | |
| IL03407010Z (AWA1210-2138) Motor-protective circuit-breaker | ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407010Z2014_02.pdf |
| **IL03407011Z (AWA1210-1925) Motor-protective circuit-breaker** | |
| IL03407011Z (AWA1210-1925) Motor-protective circuit-breaker | ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407011Z2014_02.pdf |
| Motor starters and "Special Purpose Ratings" for the North American market | http://www.moeller.net/binary/ver_techpapers/ver953en.pdf |
| Busbar Component Adapters for modern Industrial control panels | http://www.moeller.net/binary/ver_techpapers/ver960en.pdf |