



Contactors, 3 pole, 380 V 400 V 90 kW, RAC 440: 380 - 440 V 50/60 Hz, AC operation, Screw terminals

Part no. DILM170(RAC440)
Catalog No. 107014
Alternate Catalog No. XTCE170G00L
EL-Nummer (Norway) 4130450

Delivery program

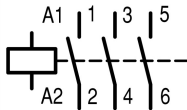
| | | |
|----------------------|--|--|
| Product range | | Contactors |
| Application | | Contactors for Motors |
| Subrange | | Contactors up to 170 A, 3 pole |
| Utilization category | | AC-1: Non-inductive or slightly inductive loads, resistance furnaces NAC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| Notes | | Not suitable for motors with efficiency class IE3. |
| Connection technique | | Screw terminals |
| Number of poles | | 3 pole |

Rated operational current

| | | | |
|---|----------------|---|--|
| AC-3 | | | |
| Notes | | | At maximum permissible ambient temperature (open.) |
| 380 V 400 V | I_e | A | 170 |
| AC-1 | | | |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz | | | |
| Open | | | |
| at 40 °C | $I_{th} = I_e$ | A | 225 |
| enclosed | I_{th} | A | 166 |
| Conventional free air thermal current, 1 pole | | | |
| open | I_{th} | A | 460 |
| enclosed | I_{th} | A | 415 |

Max. rating for three-phase motors, 50 - 60 Hz

| | | | |
|-------------|---|----|----|
| AC-3 | | | |
| 220 V 230 V | P | kW | 52 |
| 380 V 400 V | P | kW | 90 |
| 660 V 690 V | P | kW | 96 |
| AC-4 | | | |
| 220 V 230 V | P | kW | 20 |
| 380 V 400 V | P | kW | 33 |
| 660 V 690 V | P | kW | 48 |

| | | | |
|------------------|--|--|--|
| Contact sequence | | |  |
|------------------|--|--|--|

| | | |
|--|--|--|
| Instructions | | Contacts to EN 50 012. integrated suppressor circuit in actuating electronics Observe electrical lifespan. |
| Can be combined with auxiliary contact | | DILM150-XHI(V).. DILM1000-XHI(V).. |
| Actuating voltage | | RAC 440: 380 - 440 V 50/60 Hz |
| Voltage AC/DC | | AC operation |
| Connection to SmartWire-DT | | no |

Technical data

| | | |
|----------------------|--|---------------------------------|
| General | | |
| Standards | | IEC/EN 60947, VDE 0660, UL, CSA |
| Lifespan, mechanical | | |

| | | | |
|--|-------------------------------------|-------------------|--------------------------------------|
| AC operated | Operations | x 10 ⁶ | 10 |
| Operating frequency, mechanical | | | |
| AC operated | Operations/h | | 3000 |
| Climatic proofing | | | |
| Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30 | | | |
| Ambient temperature | | | |
| Open | | °C | -25 - +60 |
| Enclosed | | °C | - 25 - 40 |
| Storage | | °C | - 40 - 80 |
| Mounting position | | | |
| | | | |
| Mechanical shock resistance (IEC/EN 60068-2-27) | | | |
| Half-sinusoidal shock, 10 ms | | | |
| Main contacts | | | |
| N/O contact | | g | 10 |
| Auxiliary contacts | | | |
| N/O contact | | g | 7 |
| N/C contact | | g | 5 |
| Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted | | | |
| Half-sinusoidal shock, 10 ms | | | |
| Main contacts | | | |
| N/O contact | | g | 10 |
| Auxiliary contacts | | | |
| N/O contact | | g | 7 |
| N/C contact | | g | 5 |
| Degree of Protection | | | |
| | | | IP00 |
| Protection against direct contact when actuated from front (EN 50274) | | | |
| | | | Finger and back-of-hand proof |
| Altitude | | | |
| | | m | Max. 2000 |
| Weight | | | |
| AC operated | | kg | 2.25 |
| Screw connector terminals | | | |
| Terminal capacity main cable | | | |
| Flexible with ferrule | | mm ² | 1 x (10 - 95) 2 x (10 - 70) |
| Stranded | | mm ² | 1 x (16 - 95) 2 x (16 - 70) |
| Solid or stranded | | AWG | single 8...3/0, double 8...2/0 |
| Flat conductor | Lamellenzahl x Breite x Dicke | mm | 2 x (6 x 16 x 0.8) |
| Stripping length | | mm | 24 |
| Terminal screw | | | M10 |
| Tightening torque | | Nm | 14 |
| Tool | | | |
| Hexagon socket-head spanner | SW | mm | 5 |
| Terminal capacity control circuit cables | | | |
| Solid | | mm ² | 1 x (0.75 - 4) 2 x (0.75 - 2.5) |
| Flexible with ferrule | | mm ² | 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) |
| Solid or stranded | | AWG | 18 - 14 |
| Stripping length | | mm | 10 |
| Terminal screw | | | M3.5 |
| Tightening torque | | Nm | 1.2 |

| | | | |
|----------------------|------|--------------------|--|
| Tool | | | |
| Pozidriv screwdriver | Size | 2 | |
| Standard screwdriver | mm | 0.8 x 5.5 1 x 6 | |

Main conducting paths

| | | | |
|--|----------------|------|-------|
| Rated impulse withstand voltage | U_{imp} | V AC | 8000 |
| Overvoltage category/pollution degree | | | III/3 |
| Rated insulation voltage | U_i | V AC | 690 |
| Rated operational voltage | U_e | V AC | 690 |
| Safe isolation to EN 61140 | | | |
| between coil and contacts | | V AC | 690 |
| between the contacts | | V AC | 690 |
| Making capacity (p.f. to IEC/EN 60947) | | | |
| | U_p to 690 V | A | 2100 |
| Breaking capacity | | | |
| 220 V 230 V | | A | 1500 |
| 380 V 400 V | | A | 1500 |
| 500 V | | A | 1500 |
| 660 V 690 V | | A | 1320 |
| Short-circuit rating | | | |
| Short-circuit protection maximum fuse | | | |
| Type "2" coordination | | | |
| 400 V | gG/gL 500 V | A | 250 |
| 690 V | gG/gL 690 V | A | 250 |
| Type "1" coordination | | | |
| 400 V | gG/gL 500 V | A | 250 |
| 690 V | gG/gL 690 V | A | 250 |

AC

| | | | |
|---|----------------|-----|--|
| AC-1 | | | |
| Rated operational current | | | |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz | | | |
| Open | | | |
| at 40 °C | $I_{th} = I_e$ | A | 225 |
| at 50 °C | $I_{th} = I_e$ | A | 200 |
| at 55 °C | $I_{th} = I_e$ | A | 190 |
| at 60 °C | $I_{th} = I_e$ | A | 185 |
| enclosed | I_{th} | A | 166 |
| Conventional free air thermal current, 1 pole | | | |
| open | I_{th} | A | 460 |
| enclosed | I_{th} | A | 415 |
| AC-3 | | | |
| Rated operational current | | | |
| Open, 3-pole: 50 – 60 Hz | | | |
| Notes | | | At maximum permissible ambient temperature (open.) |
| 220 V 230 V | I_e | A | 170 |
| 240 V | I_e | A | 170 |
| 380 V 400 V | I_e | A | 170 |
| 415 V | I_e | A | 170 |
| 440V | I_e | A | 170 |
| 500 V | I_e | A | 170 |
| 660 V 690 V | I_e | A | 100 |
| 380 V 400 V | I_e | A | 170 |
| Motor rating | P | kWh | |
| 220 V 230 V | P | kW | 52 |
| 240V | P | kW | 57 |

| | | | |
|--------------------------|----------------|----|-----|
| 380 V 400 V | P | kW | 90 |
| 415 V | P | kW | 100 |
| 440 V | P | kW | 105 |
| 500 V | P | kW | 120 |
| 660 V 690 V | P | kW | 96 |
| AC-4 | | | |
| Open, 3-pole: 50 – 60 Hz | | | |
| 220 V 230 V | I _e | A | 65 |
| 240 V | I _e | A | 65 |
| 380 V 400 V | I _e | A | 65 |
| 415 V | I _e | A | 65 |
| 440 V | I _e | A | 65 |
| 500 V | I _e | A | 65 |
| 660 V 690 V | I _e | A | 50 |
| Motor rating | | | |
| 220 V 230 V | P | kW | 20 |
| 240 V | P | kW | 22 |
| 380 V 400 V | P | kW | 33 |
| 415 V | P | kW | 39 |
| 440 V | P | kW | 41 |
| 500 V | P | kW | 47 |
| 660 V 690 V | P | kW | 48 |

DC

| | | | |
|--|----------------|---|-----|
| Rated operational current, open | | | |
| DC-1 | | | |
| 60 V | I _e | A | 160 |
| 110 V | I _e | A | 160 |
| 220 V | I _e | A | 90 |

Current heat loss

| | | | |
|---|--|----|------|
| 3 pole, at I _{th} (60°) | | W | 48.7 |
| Current heat loss at I _e to AC-3/400 V | | W | 41.1 |
| Impedance per pole | | mΩ | 0.6 |

Magnet systems

| | | | |
|--|----------|------------------|------------|
| Voltage tolerance | | | |
| AC operated | Pick-up | x U _c | 0.8 - 1.15 |
| Drop-out voltage AC operated | Drop-out | x U _c | 0.25 - 0.6 |
| Power consumption of the coil in a cold state and 1.0 x U_S | | | |
| 50 Hz | Pick-up | VA | 180 |
| 50 Hz | Sealing | VA | 3.1 |
| 50 Hz | Sealing | W | 2.3 |
| 60 Hz | Pick-up | VA | 170 |
| 60 Hz | Sealing | VA | 3.1 |
| 60 Hz | Sealing | W | 2.3 |
| Duty factor | | % DF | 100 |
| Changeover time at 100 % U_S (recommended value) | | | |
| Main contacts | | | |
| AC operated | | | |
| Closing delay | | ms | 28 - 33 |
| Opening delay | | ms | 35 - 41 |
| Arcing time | | ms | 15 |
| Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal). | | mA | ≤ 1 |

Electromagnetic compatibility (EMC)

| | | | |
|-----------------------|--|--|---------------|
| Emitted interference | | | to EN 60947-1 |
| Interference immunity | | | to EN 60947-1 |

Rating data for approved types

| | | | |
|---|----|-----------------|-----|
| Switching capacity | | | |
| Maximum motor rating | | | |
| Three-phase | | | |
| 200 V 208 V | HP | 50 | |
| 230 V 240 V | HP | 60 | |
| 460 V 480 V | HP | 125 | |
| 575 V 600 V | HP | 125 | |
| Single-phase | | | |
| 115 V 120 V | HP | 10 | |
| 230 V 240 V | HP | 30 | |
| General use | | A | 225 |
| Short Circuit Current Rating | | SCCR | |
| Basic Rating | | | |
| SCCR | kA | 10 | |
| max. Fuse | A | 600 | |
| max. CB | A | 600 | |
| 480 V High Fault | | | |
| SCCR (fuse) | kA | 30/100 | |
| max. Fuse | A | 300/300 Class J | |
| SCCR (CB) | kA | 65 | |
| max. CB | A | 250 | |
| 600 V High Fault | | | |
| SCCR (fuse) | kA | 30/100 | |
| max. Fuse | A | 300/600 Class J | |
| SCCR (CB) | kA | 30 | |
| max. CB | A | 350 | |
| Special Purpose Ratings | | | |
| Electrical Discharge Lamps (Ballast) | | | |
| 480V 60Hz 3phase, 277V 60Hz 1phase | A | 160 | |
| 600V 60Hz 3phase, 347V 60Hz 1phase | A | 160 | |
| Incandescent Lamps (Tungsten) | | | |
| 480V 60Hz 3phase, 277V 60Hz 1phase | A | 160 | |
| 600V 60Hz 3phase, 347V 60Hz 1phase | A | 160 | |
| Resistance Air Heating | | | |
| 480V 60Hz 3phase, 277V 60Hz 1phase | A | 160 | |
| 600V 60Hz 3phase, 347V 60Hz 1phase | A | 160 | |
| Refrigeration Control (CSA only) | | | |
| LRA 480V 60Hz 3phase | A | 540 | |
| FLA 480V 60Hz 3phase | A | 90 | |
| LRA 600V 60Hz 3phase | A | 540 | |
| FLA 600V 60Hz 3phase | A | 90 | |
| Definite Purpose Ratings (100,000 cycles acc. to UL 1995) | | | |
| LRA 480V 60Hz 3phase | A | 1020 | |
| FLA 480V 60Hz 3phase | A | 170 | |
| Elevator Control | | | |
| 200V 60Hz 3phase | HP | 30 | |
| 200V 60Hz 3phase | A | 92 | |
| 240V 60Hz 3phase | HP | 40 | |
| 240V 60Hz 3phase | A | 104 | |
| 480V 60Hz 3phase | HP | 75 | |
| 480V 60Hz 3phase | A | 96 | |

| | | |
|------------------|----|-----|
| 600V 60Hz 3phase | HP | 100 |
| 600V 60Hz 3phase | A | 99 |

Design verification as per IEC/EN 61439

| Technical data for design verification | | | |
|--|------------|----|--|
| Rated operational current for specified heat dissipation | I_n | A | 170 |
| Heat dissipation per pole, current-dependent | P_{vid} | W | 13.7 |
| Equipment heat dissipation, current-dependent | P_{vid} | W | 41.1 |
| Static heat dissipation, non-current-dependent | P_{vs} | W | 2.3 |
| Heat dissipation capacity | P_{diss} | W | 0 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 60 |
| 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

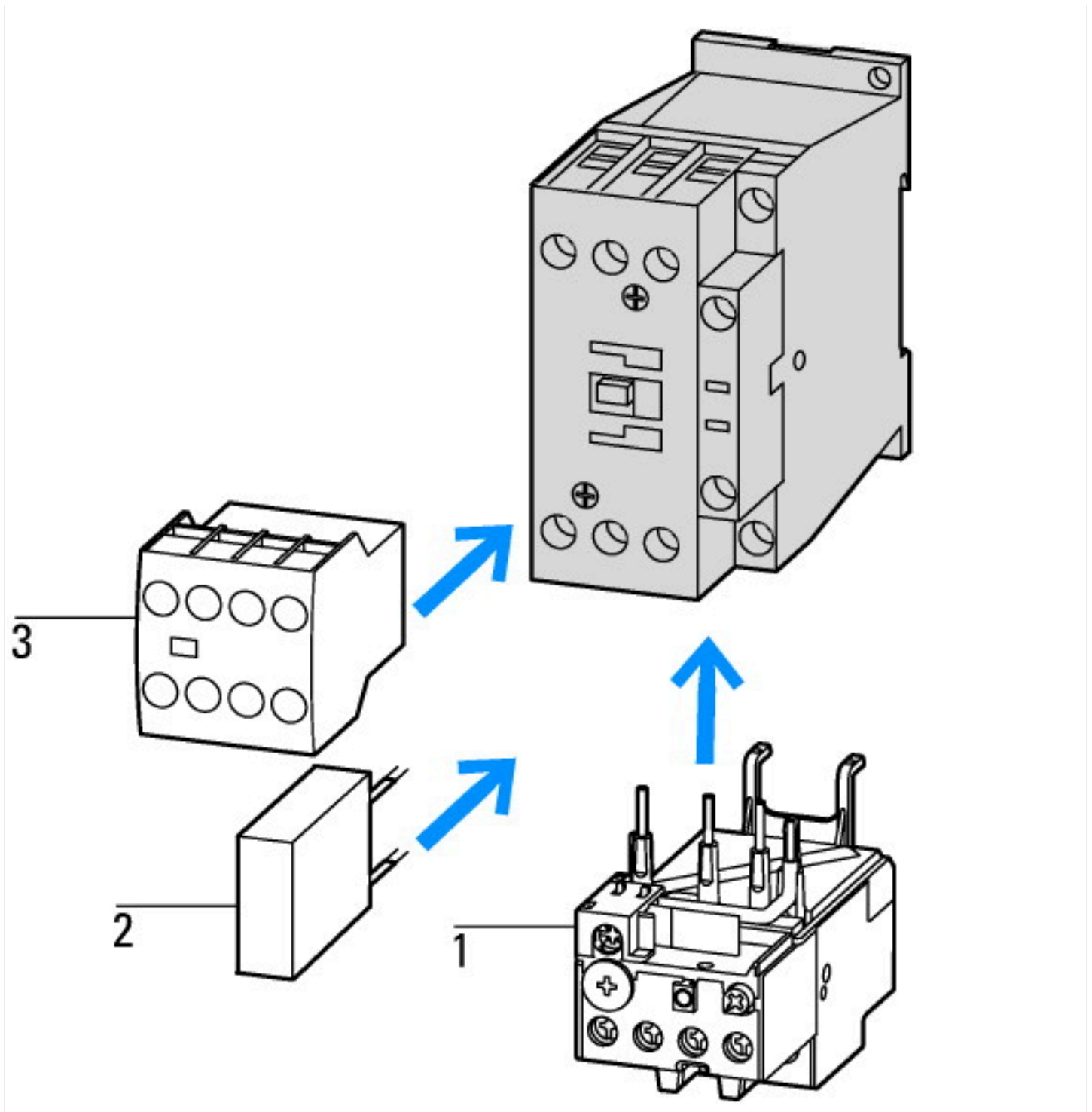
| Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066) | | | |
|---|----|--|-----------|
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015]) | | | |
| Rated control supply voltage U_s at AC 50HZ | V | | 380 - 440 |
| Rated control supply voltage U_s at AC 60HZ | V | | 380 - 440 |
| Rated control supply voltage U_s at DC | V | | 0 - 0 |
| Voltage type for actuating | | | AC |
| Rated operation current I_e at AC-1, 400 V | A | | 225 |
| Rated operation current I_e at AC-3, 400 V | A | | 170 |
| Rated operation power at AC-3, 400 V | kW | | 90 |
| Rated operation current I_e at AC-4, 400 V | A | | 65 |
| Rated operation power at AC-4, 400 V | kW | | 33 |
| Rated operation power NEMA | kW | | 93 |
| Modular version | | | No |
| Number of auxiliary contacts as normally open contact | | | 0 |

| | |
|---|------------------|
| Number of auxiliary contacts as normally closed contact | 0 |
| Type of electrical connection of main circuit | Screw connection |
| Number of normally closed contacts as main contact | 0 |
| Number of main contacts as normally open contact | 3 |

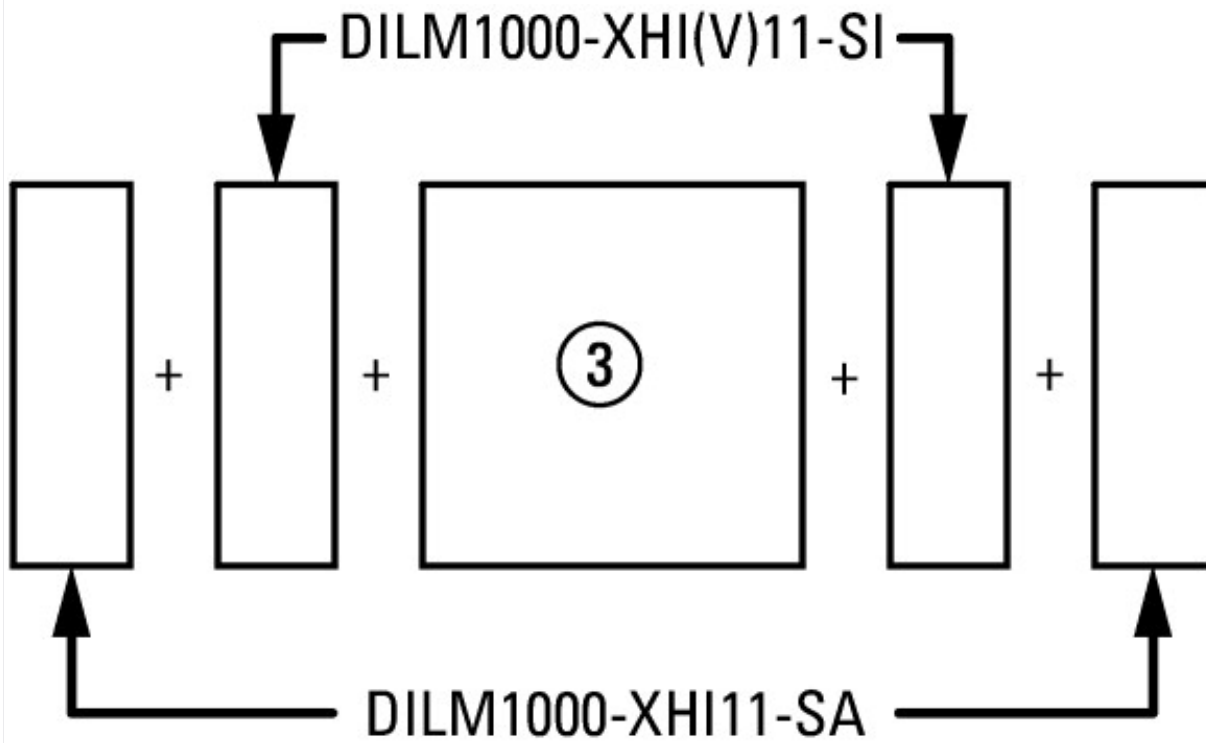
Approvals

| | |
|--------------------------------------|--|
| Product Standards | IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking |
| UL File No. | E29096 |
| UL Category Control No. | NLDX |
| CSA File No. | 012528 |
| CSA Class No. | 2411-03, 3211-04 |
| North America Certification | UL listed, CSA certified |
| Specially designed for North America | No |

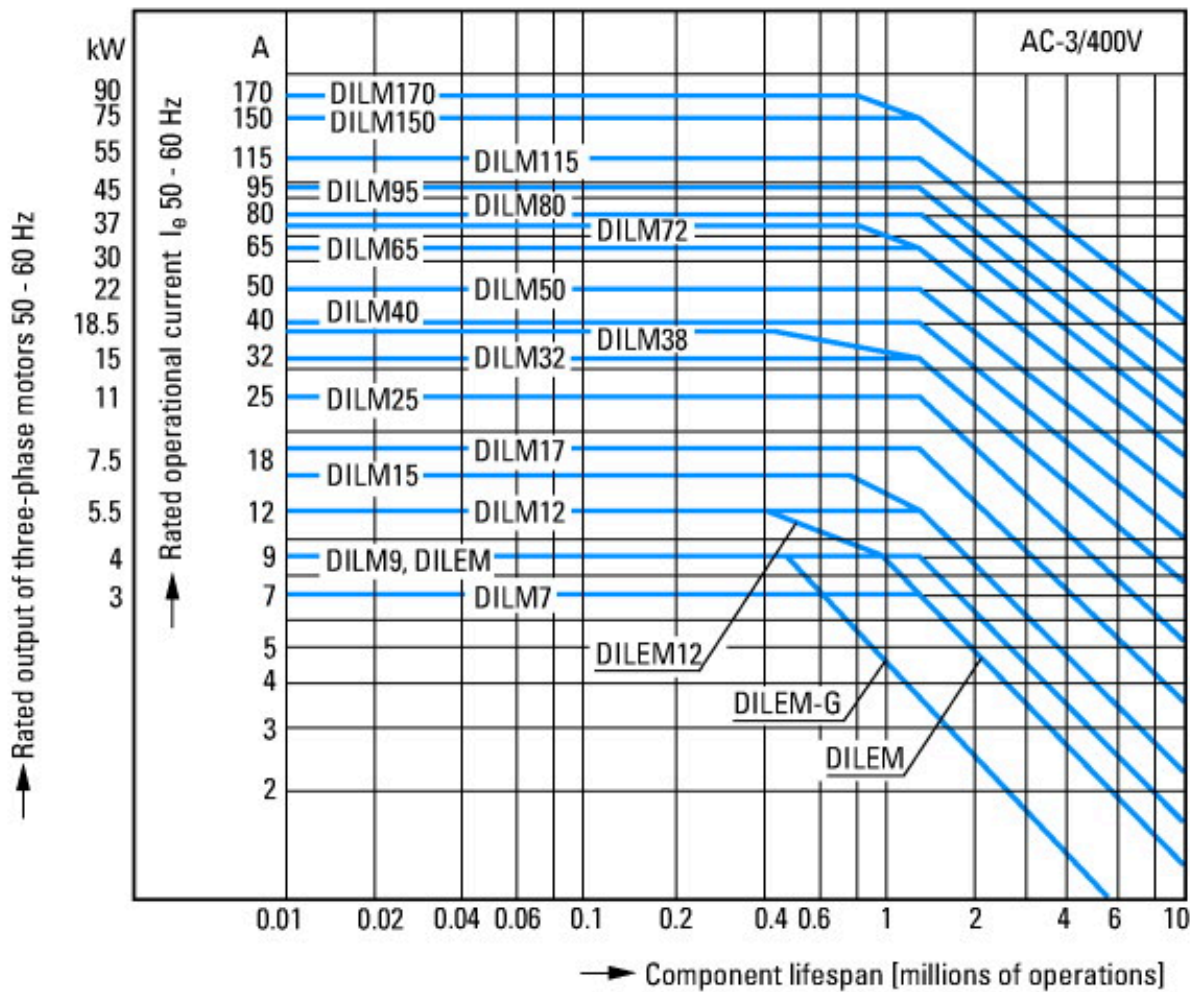
Characteristics



1: Overload relay
2: Suppressor

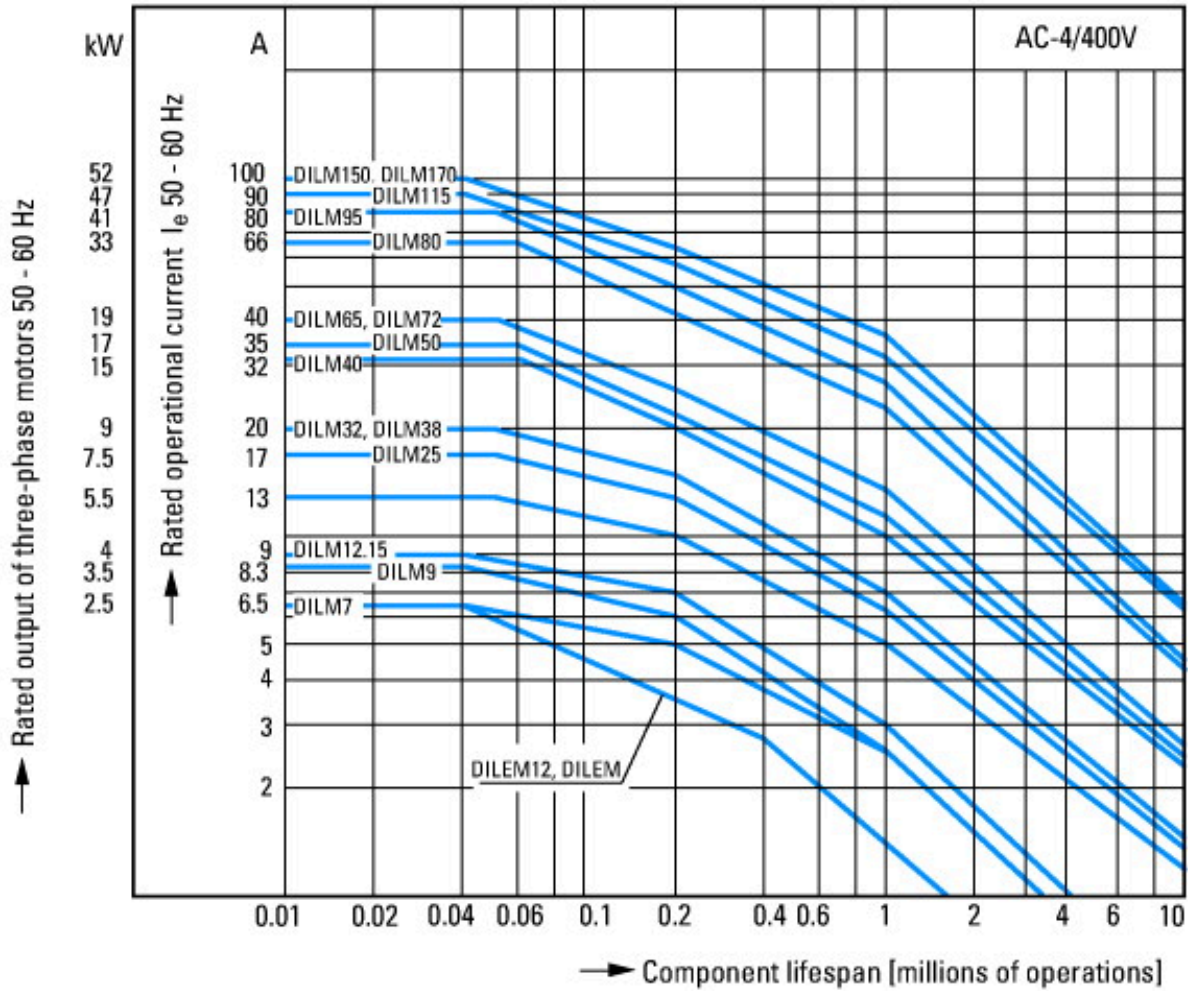


on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA



Squirrel-cage motor
 Operating characteristics
 Starting: from rest
 Stopping: after attaining full running speed
 Electrical characteristics
 Make: up to 6 x rated motor current
 Break: up to 1 x rated motor current
 Utilization category

- 100 % AC-3
- Typical applications
- Compressors
- Lifts
- Mixers
- Pumps
- Escalators
- Agitators
- Fans
- Conveyor belts
- Centrifuges
- Hinged flaps
- Bucket-elevators
- Air conditioning system
- General drives in manufacturing and processing machines

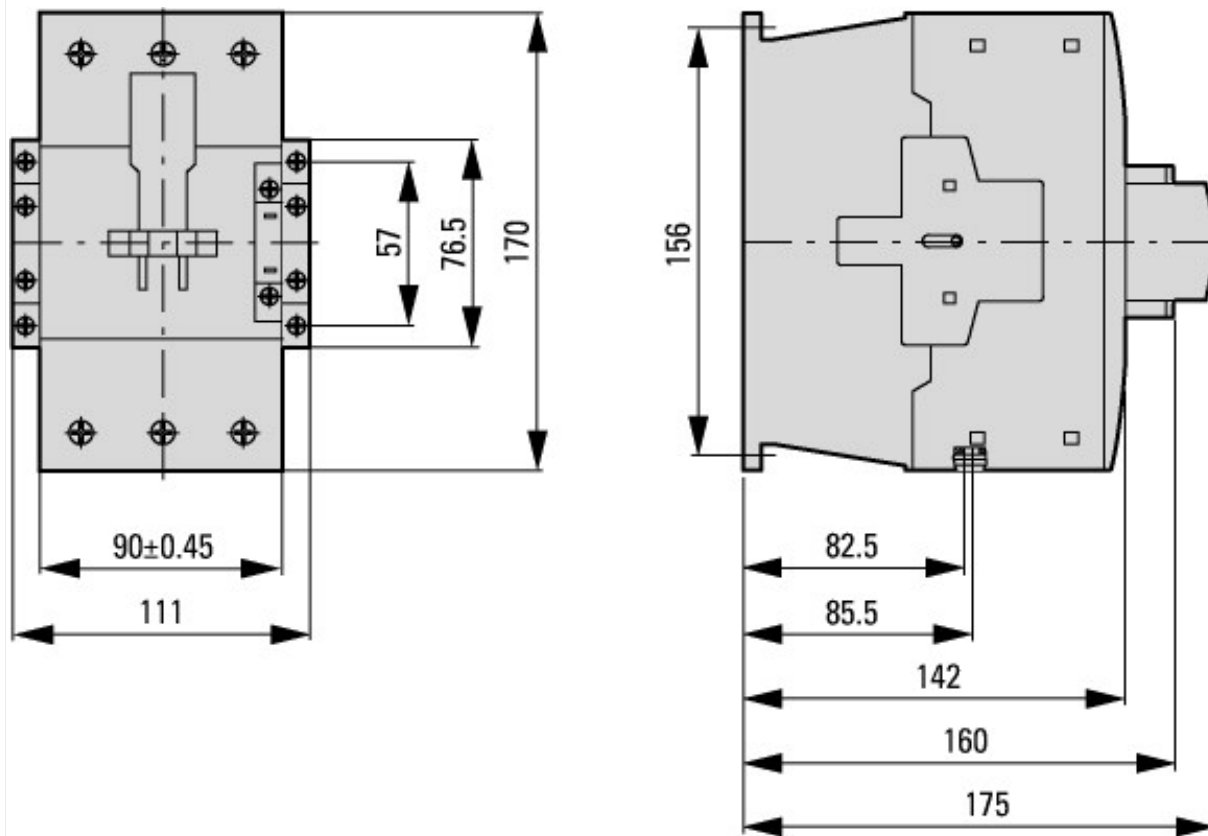


- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing machines
- Centrifuges
- Special drives for manufacturing and processing machines

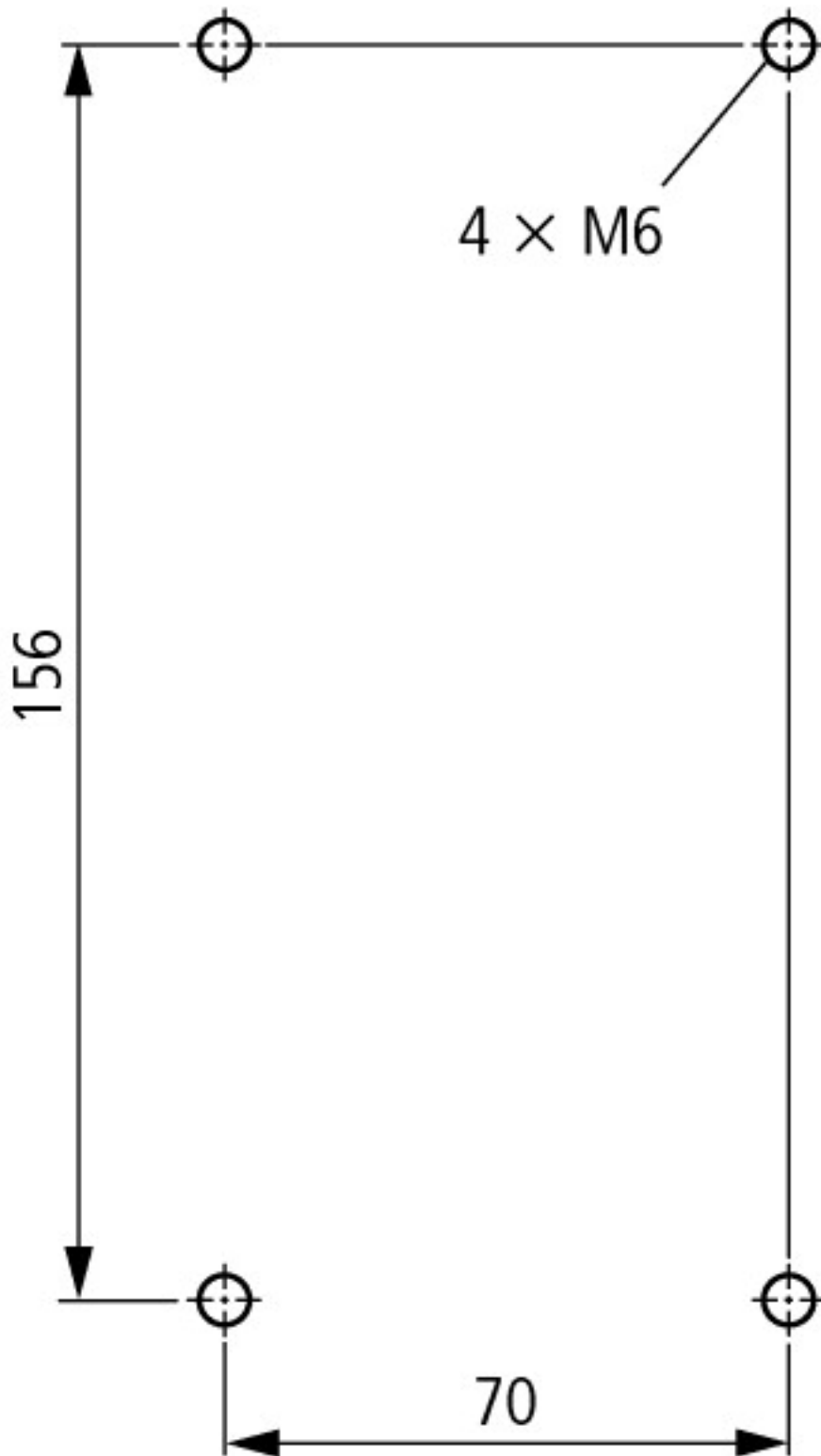


Switching conditions for non-motor consumers, 3 pole, 4 pole
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application
 Electric heat

Dimensions



Contacteur avec module de contact auxiliaire



distance at side to earthed parts: 10 mm

DILM80...DILM170
 DILMC80...DILMC150
 DILMF80...DILMF150

Assets (links)

Declaration of CE Conformity

00003251

Instruction Leaflets

IL03407039Z2019_09

Additional product information (links)

IL03407039Z (AWA2100-2286) Contactors

IL03407039Z (AWA2100-2286) Contactors

ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407039Z2019_09.pdf

Motor starters and "Special Purpose Ratings" for the North American market

http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf

| | |
|--|---|
| Switchgear of Power Factor Correction Systems | http://www.moeller.net/binary/ver_techpapers/ver934en.pdf |
| X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely | http://www.moeller.net/binary/ver_techpapers/ver938en.pdf |
| Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions | http://www.moeller.net/binary/ver_techpapers/ver944en.pdf |
| Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors | http://www.moeller.net/binary/ver_techpapers/ver949en.pdf |
| Switchgear for Luminaires | http://www.moeller.net/binary/ver_techpapers/ver955en.pdf |
| Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts | http://www.moeller.net/binary/ver_techpapers/ver956en.pdf |
| The Interaction of Contactors with PLCs | http://www.moeller.net/binary/ver_techpapers/ver957en.pdf |
| Busbar Component Adapters for modern Industrial control panels | http://www.moeller.net/binary/ver_techpapers/ver960en.pdf |