
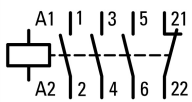




**Contactors, 3 pole, 380 V 400 V 7.5 kW, 1 NC, RDC 240: 200 - 240 V DC, DC operation, Screw terminals**

**Part no. DILM17-01(RDC240)**  
**Catalog No. 277053**  
**Alternate Catalog No. XTCE018C01BD**

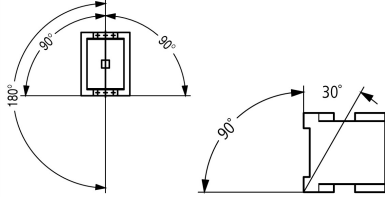
**Delivery program**

|   |                |    |  |   |
|---|----------------|----|--|---|
| 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<br>AC-3/AC-3e: Normal AC induction motors: Starting, switching off while running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
|   |                |    |  |   |
| 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   |
| Number of poles   |                |    |  | 3 pole  |
| <b>Rated operational current</b>                          |                |    |  |   |
| AC-3  |                |    |  |   |
| Notes   |                |    |  | At maximum permissible ambient temperature (open.)<br>Also tested according to AC-3e.   |
| 380 V 400 V   | $I_e$          | A  |  | 18  |
| AC-1  |                |    |  |   |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |    |  |   |
| Open  |                |    |  |   |
| at 40 °C  | $I_{th} = I_e$ | A  |  | 40  |
| enclosed  | $I_{th}$       | A  |  | 32  |
| Conventional free air thermal current, 1 pole             |                |    |  |   |
| open  | $I_{th}$       | A  |  | 88  |
| enclosed  | $I_{th}$       | A  |  | 80  |
| <b>Max. rating for three-phase motors, 50 - 60 Hz</b>     |                |    |  |   |
| AC-3  |                |    |  |   |
| 220 V 230 V   | P              | kW |  | 5   |
| 380 V 400 V   | P              | kW |  | 7.5   |
| 660 V 690 V   | P              | kW |  | 11  |
| AC-4  |                |    |  |   |
| 220 V 230 V   | P              | kW |  | 2.5   |
| 380 V 400 V   | P              | kW |  | 4.5   |
| 660 V 690 V   | P              | kW |  | 6.5   |
| <b>Contacts</b>   |                |    |  |   |
| N/C = Normally closed                                     |                |    |  | 1 NC  |
| Contact sequence  |                |    |  |   |
| <b>Instructions</b>                                       |                |    |  |   |
| Can be combined with auxiliary contact                    |                |    |  | DILA-XHI(V)...  |
| Actuating voltage   |                |    |  | RDC 240: 200 - 240 V DC   |
| Voltage AC/DC   |                |    |  | DC operation  |

|                            |  |    |
|----------------------------|--|----|
| Connection to SmartWire-DT |  | no |
| Frame size                 |  | 2  |

## Technical data

### General

|   |              |                 |  |
|---|--------------|-----------------|--|
| Standards   |              |                 | IEC/EN 60947, VDE 0660, UL, CSA  |
| Lifespan, mechanical  |              |                 |  |
| DC operated   | Operations   | $\times 10^6$   | 10   |
| Operating frequency, mechanical                                       |              |                 |  |
| DC operated   | Operations/h |                 | 5000   |
| Climatic proofing   |              |                 | Damp heat, constant, to IEC 60068-2-78<br>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               | 6.9  |
| Auxiliary contacts  |              |                 |  |
| N/O contact   |              | g               | 5.3  |
| N/C contact   |              | g               | 3.5  |
| 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  |              |                 |  |
| DC operated   |              | kg              | 0.53   |
| Screw connector terminals   |              |                 |  |
| Terminal capacity main cable  |              |                 |  |
| Solid   |              | mm <sup>2</sup> | 1 x (0.75 - 16)<br>2 x (0.75 - 10)   |
| Flexible with ferrule   |              | mm <sup>2</sup> | 1 x (0.75 - 16)<br>2 x (0.75 - 10)   |
| Stranded  |              | mm <sup>2</sup> | 1 x 16   |
| Solid or stranded   |              | AWG             | single 18 - 6, double 18 - 8   |
| Stripping length  |              | mm              | 10   |
| Terminal screw  |              |                 | M5   |
| Tightening torque   |              | Nm              | 3.2  |
| Tool  |              |                 |  |
| Pozidriv screwdriver  |              | Size            | 2  |
| Standard screwdriver  |              | mm              | 0.8 x 5.5<br>1 x 6   |
| Terminal capacity control circuit cables                              |              |                 |  |

|                       |  |                 |                                      |
|-----------------------|--|-----------------|--------------------------------------|
| Solid                 |  | mm <sup>2</sup> | 1 x (0.75 - 4)<br>2 x (0.75 - 2.5)   |
| Flexible with ferrule |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>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<br>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 | 440   |
| between the contacts                   |             | V AC | 440   |
| Making capacity (p.f. to IEC/EN 60947) |             |      |       |
|  | Up to 690 V | A    | 238   |
| Breaking capacity                      |             |      |       |
| 220 V 230 V                            |             | A    | 170   |
| 380 V 400 V                            |             | A    | 170   |
| 500 V                                  |             | A    | 170   |
| 660 V 690 V                            |             | A    | 120   |
| Short-circuit rating                   |             |      |       |
| Short-circuit protection maximum fuse  |             |      |       |
| Type "2" coordination                  |             |      |       |
| 400 V                                  | gG/gL 500 V | A    | 35    |
| 690 V                                  | gG/gL 690 V | A    | 35    |
| Type "1" coordination                  |             |      |       |
| 400 V                                  | gG/gL 500 V | A    | 63    |
| 690 V                                  | gG/gL 690 V | A    | 50    |

### 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 | 40  |
| at 50 °C  | $I_{th} = I_e$ | A | 38  |
| at 55 °C  | $I_{th} = I_e$ | A | 37  |
| at 60 °C  | $I_{th} = I_e$ | A | 35  |
| enclosed  | $I_{th}$       | A | 32  |
| Conventional free air thermal current, 1 pole             |                |   |   |
| open  | $I_{th}$       | A | 88  |
| enclosed  | $I_{th}$       | A | 80  |
| AC-3  |                |   |   |
| Rated operational current                                 |                |   |   |
| Open, 3-pole: 50 – 60 Hz                                  |                |   |   |
| Notes   |                |   | At maximum permissible ambient temperature (open.)<br>Also tested according to AC-3e. |
| 220 V 230 V   | $I_e$          | A | 18  |
| 240 V   | $I_e$          | A | 18  |
| 380 V 400 V   | $I_e$          | A | 18  |

|                          |                |     |      |
|--------------------------|----------------|-----|------|
| 415 V                    | I <sub>e</sub> | A   | 18   |
| 440V                     | I <sub>e</sub> | A   | 18   |
| 500 V                    | I <sub>e</sub> | A   | 18   |
| 660 V 690 V              | I <sub>e</sub> | A   | 12   |
| 380 V 400 V              | I <sub>e</sub> | A   | 18   |
| Motor rating             | P              | kWh |      |
| 220 V 230 V              | P              | kW  | 5    |
| 240V                     | P              | kW  | 5.5  |
| 380 V 400 V              | P              | kW  | 7.5  |
| 415 V                    | P              | kW  | 10   |
| 440 V                    | P              | kW  | 10.5 |
| 500 V                    | P              | kW  | 12   |
| 660 V 690 V              | P              | kW  | 11   |
| AC-4                     |                |     |      |
| Open, 3-pole: 50 – 60 Hz |                |     |      |
| 220 V 230 V              | I <sub>e</sub> | A   | 10   |
| 240 V                    | I <sub>e</sub> | A   | 10   |
| 380 V 400 V              | I <sub>e</sub> | A   | 10   |
| 415 V                    | I <sub>e</sub> | A   | 10   |
| 440 V                    | I <sub>e</sub> | A   | 10   |
| 500 V                    | I <sub>e</sub> | A   | 10   |
| 660 V 690 V              | I <sub>e</sub> | A   | 8    |
| Motor rating             | P              | kWh |      |
| 220 V 230 V              | P              | kW  | 2.5  |
| 240 V                    | P              | kW  | 3    |
| 380 V 400 V              | P              | kW  | 4.5  |
| 415 V                    | P              | kW  | 5    |
| 440 V                    | P              | kW  | 5.5  |
| 500 V                    | P              | kW  | 6    |
| 660 V 690 V              | P              | kW  | 6.5  |

## DC

|                                 |                |   |    |
|---------------------------------|----------------|---|----|
| Rated operational current, open |                |   |    |
| DC-1                            |                |   |    |
| 60 V                            | I <sub>e</sub> | A | 35 |
| 110 V                           | I <sub>e</sub> | A | 35 |
| 220 V                           | I <sub>e</sub> | A | 35 |

## Current heat loss

|   |  |    |     |
|---|--|----|-----|
| 3 pole, at I <sub>th</sub> (60°)                  |  | W  | 7.9 |
| Current heat loss at I <sub>e</sub> to AC-3/400 V |  | W  | 2.1 |
| Impedance per pole                                |  | mΩ | 2.7 |

## Magnet systems

|  |          |                  |  |
|--|----------|------------------|--|
| Voltage tolerance  |          |                  |  |
| DC operated  | Pick-up  | x U <sub>c</sub> | 0.7 - 1.2  |
| Notes  |          |                  | RDC 240 (U <sub>min</sub> 200 V DC/U <sub>max</sub> 240 V DC)<br>Example: U <sub>S</sub> = 0.7 x U <sub>min</sub> - 1.2 x U <sub>max</sub> / U <sub>S</sub> = 0.7 x 200V - 1.2 x 240V DC |
| DC operated  | Drop-out | x U <sub>c</sub> | 0.15 - 0.6   |
| Notes  |          |                  | at least smoothed two-phase bridge rectifier or three-phase rectifier  |
| Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub> |          |                  |  |
| DC operated  | Pick-up  | W                | 12   |
| DC operated  | Sealing  | W                | 0.9  |
| Duty factor  |          | % DF             | 100  |
| Changeover time at 100 % U <sub>S</sub> (recommended value)            |          |                  |  |
| Main contacts  |          |                  |  |
| DC operated  |          | ms               |  |
| Closing delay  |          | ms               |  |

|               |    |    |
|---------------|----|----|
| Closing delay | ms | 47 |
| Opening delay | ms |    |
| Opening delay | ms | 30 |
| Arcing time   | ms | 10 |

### 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<br>208 V                       | HP | 5              |
| 230 V<br>240 V                       | HP | 5              |
| 460 V<br>480 V                       | HP | 10             |
| 575 V<br>600 V                       | HP | 15             |
| Single-phase                         |    |                |
| 115 V<br>120 V                       | HP | 2              |
| 230 V<br>240 V                       | HP | 3              |
| General use                          | A  | 40             |
| Auxiliary contacts                   |    |                |
| Pilot Duty                           |    |                |
| AC operated                          |    | A600           |
| DC operated                          |    | P300           |
| General Use                          |    |                |
| AC                                   | V  | 600            |
| AC                                   | A  | 10             |
| DC                                   | V  | 250            |
| DC                                   | A  | 1              |
| Short Circuit Current Rating         |    |                |
| Basic Rating                         |    |                |
| SCCR                                 | kA | 5              |
| max. Fuse                            | A  | 125            |
| max. CB                              | A  | 125            |
| 480 V High Fault                     |    |                |
| SCCR (fuse)                          | kA | 10/100         |
| max. Fuse                            | A  | 125/70 Class J |
| SCCR (CB)                            | kA | 10/65          |
| max. CB                              | A  | 50/32          |
| 600 V High Fault                     |    |                |
| SCCR (fuse)                          | kA | 10/100         |
| max. Fuse                            | A  | 125/70 Class J |
| SCCR (CB)                            | kA | 10/22          |
| max. CB                              | A  | 50/32          |
| Special Purpose Ratings              |    |                |
| Electrical Discharge Lamps (Ballast) |    |                |
| 480V 60Hz 3phase, 277V 60Hz 1phase   | A  | 40             |
| 600V 60Hz 3phase, 347V 60Hz 1phase   | A  | 40             |
| Incandescent Lamps (Tungsten)        |    |                |
| 480V 60Hz 3phase, 277V 60Hz 1phase   | A  | 40             |
| 600V 60Hz 3phase, 347V 60Hz 1phase   | A  | 40             |
| Resistance Air Heating               |    |                |
| 480V 60Hz 3phase, 277V 60Hz 1phase   | A  | 40             |

|   |    |     |
|---|----|-----|
| 600V 60Hz 3phase, 347V 60Hz 1phase                        | A  | 40  |
| Refrigeration Control (CSA only)                          |    |     |
| LRA 480V 60Hz 3phase                                      | A  | 240 |
| FLA 480V 60Hz 3phase                                      | A  | 40  |
| LRA 600V 60Hz 3phase                                      | A  | 180 |
| FLA 600V 60Hz 3phase                                      | A  | 30  |
| Definite Purpose Ratings (100,000 cycles acc. to UL 1995) |    |     |
| LRA 480V 60Hz 3phase                                      | A  | 108 |
| FLA 480V 60Hz 3phase                                      | A  | 18  |
| Elevator Control  |    |     |
| 200V 60Hz 3phase  | HP | 3   |
| 200V 60Hz 3phase  | A  | 11  |
| 240V 60Hz 3phase  | HP | 3   |
| 240V 60Hz 3phase  | A  | 9.6 |
| 480V 60Hz 3phase  | HP | 7.5 |
| 480V 60Hz 3phase  | A  | 11  |
| 600V 60Hz 3phase  | HP | 10  |
| 600V 60Hz 3phase  | A  | 11  |

## Design verification as per IEC/EN 61439

|  |            |    |  |
|--|------------|----|--|
| Technical data for design verification   |            |    |  |
| Rated operational current for specified heat dissipation   | $I_n$      | A  | 18   |
| Heat dissipation per pole, current-dependent   | $P_{vid}$  | W  | 0.7  |
| Equipment heat dissipation, current-dependent  | $P_{vid}$  | W  | 2.1  |
| Static heat dissipation, non-current-dependent   | $P_{vs}$   | W  | 0.9  |
| 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 Verification of thermal stability of enclosures   |            |    |  |
| 10.2.3.1 Verification of resistance of insulating materials to normal heat   |            |    | Meets the product standard's requirements.   |
| 10.2.3.2 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |            |    | 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 Us at AC 50HZ  | V  | 0 - 0            |
| Rated control supply voltage Us at AC 60HZ  | V  | 0 - 0            |
| Rated control supply voltage Us at DC   | V  | 200 - 240        |
| Voltage type for actuating  |    | DC               |
| Rated operation current Ie at AC-1, 400 V   | A  | 40               |
| Rated operation current Ie at AC-3, 400 V   | A  | 18               |
| Rated operation power at AC-3, 400 V  | kW | 7.5              |
| Rated operation current Ie at AC-4, 400 V   | A  | 10               |
| Rated operation power at AC-4, 400 V  | kW | 4.5              |
| Rated operation power NEMA  | kW | 7.4              |
| Modular version   |    | No               |
| Number of auxiliary contacts as normally open contact   |    | 0                |
| Number of auxiliary contacts as normally closed contact   |    | 1                |
| 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   |



- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules

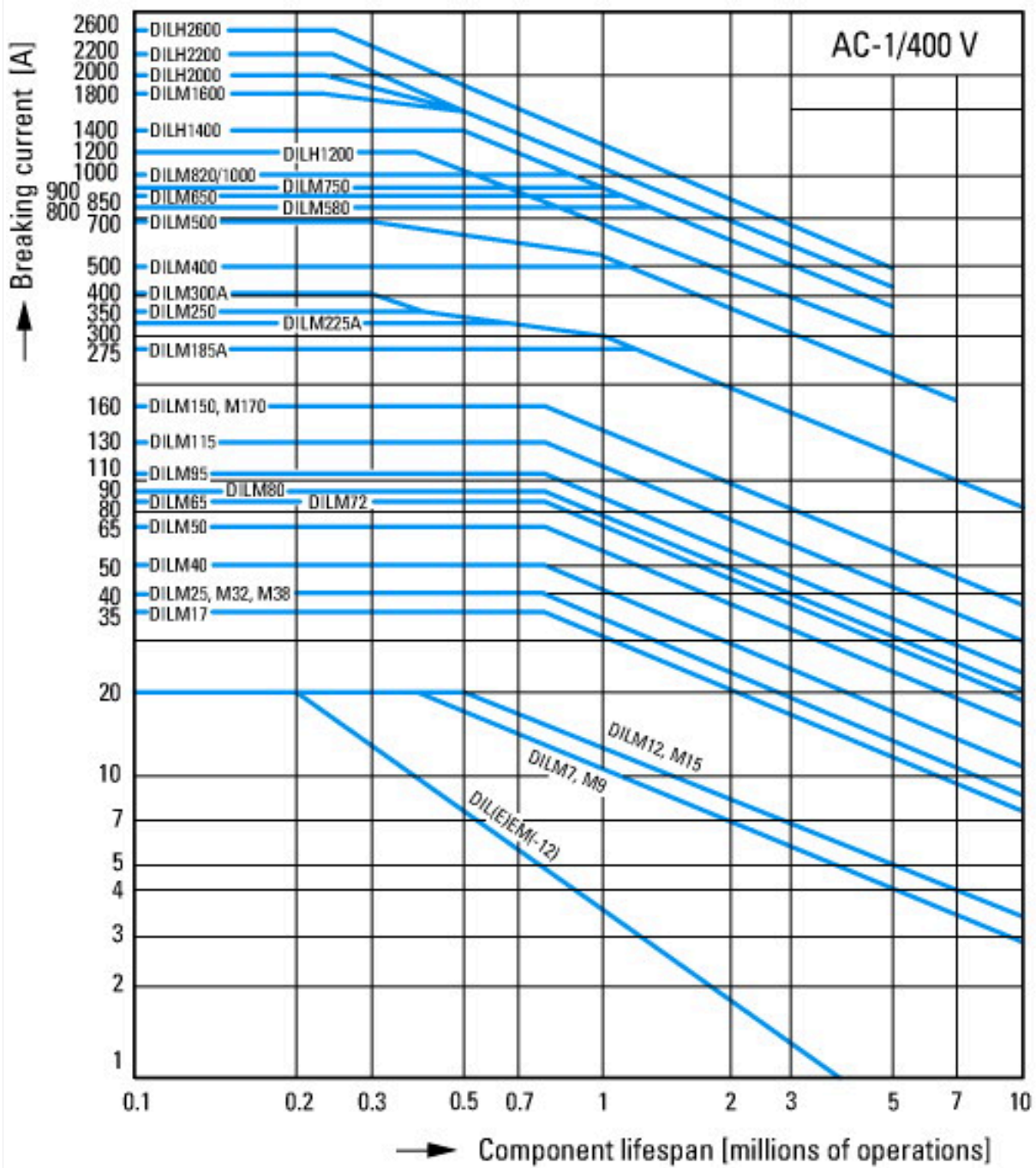




- Squirrel-cage motor
- Operating characteristics
- Starting: from rest
- Stopping: after attaining full running speed
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 1 x rated motor current
- Utilization category
- 100 % AC-3
- Typical applications
- Compressors
- Lifts
- Mixers
- Pumps
- Escalators
- Agitators
- Fans
- Conveyor belts
- Centrifuges
- Hinged flaps
- Bucket-elevators
- Air conditioning system
- General drives in manufacturing and processing machines



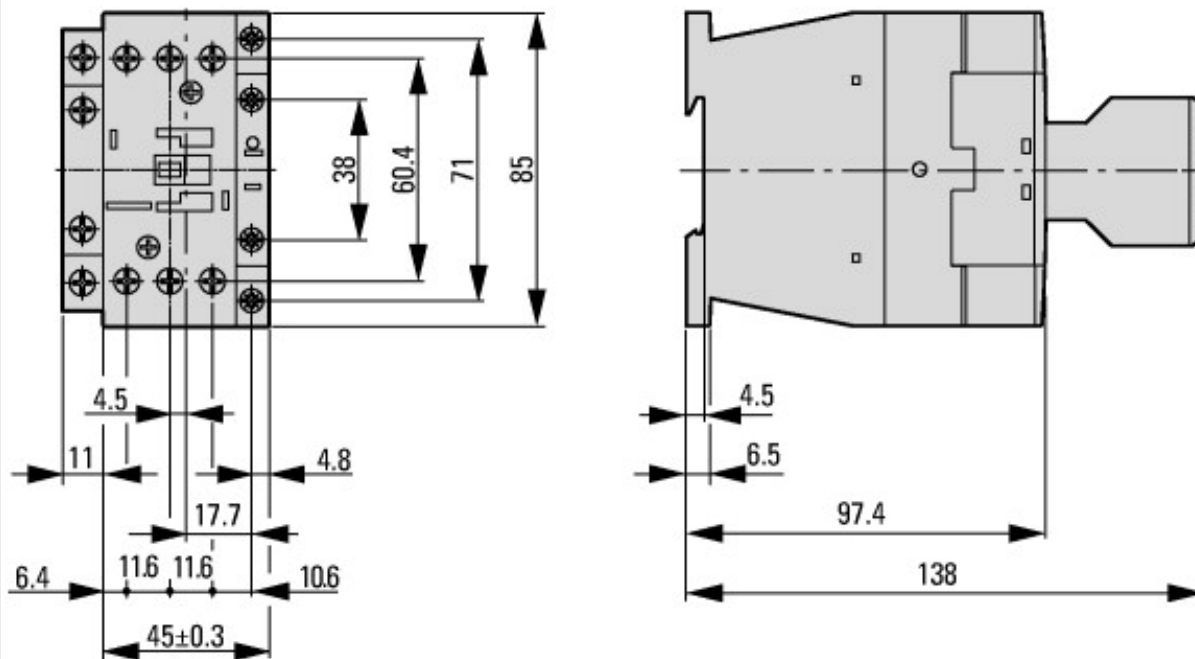
- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing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



Contactor with auxiliary contact module



distance at side to earthed parts: 6 mm

## Additional product information (links)

### IL03407014Z (AWA2100-2127) Contactor

|  |   |
|--|---|
| IL03407014Z (AWA2100-2127) Contactor   | <a href="https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407014Z2020_05.pdf">https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407014Z2020_05.pdf</a>                               |
| Motor starters and "Special Purpose Ratings" for the North American market                   | <a href="http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf">http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf</a> |
| Switchgear of Power Factor Correction Systems  | <a href="http://www.moeller.net/binary/ver_techpapers/ver934en.pdf">http://www.moeller.net/binary/ver_techpapers/ver934en.pdf</a>   |
| X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely               | <a href="http://www.moeller.net/binary/ver_techpapers/ver938en.pdf">http://www.moeller.net/binary/ver_techpapers/ver938en.pdf</a>   |
| Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions | <a href="http://www.moeller.net/binary/ver_techpapers/ver944en.pdf">http://www.moeller.net/binary/ver_techpapers/ver944en.pdf</a>   |
| Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors        | <a href="http://www.moeller.net/binary/ver_techpapers/ver949en.pdf">http://www.moeller.net/binary/ver_techpapers/ver949en.pdf</a>   |
| Switchgear for Luminaires  | <a href="http://www.moeller.net/binary/ver_techpapers/ver955en.pdf">http://www.moeller.net/binary/ver_techpapers/ver955en.pdf</a>   |

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| Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts | <a href="http://www.moeller.net/binary/ver_techpapers/ver956en.pdf">http://www.moeller.net/binary/ver_techpapers/ver956en.pdf</a> |
| The Interaction of Contactors with PLCs  | <a href="http://www.moeller.net/binary/ver_techpapers/ver957en.pdf">http://www.moeller.net/binary/ver_techpapers/ver957en.pdf</a> |
| Busbar Component Adapters for modern Industrial control panels                                 | <a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a> |