



**Contactor,3kW/400V,DC-operated**

**Part no.**

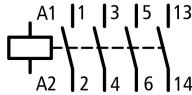
**DILM7-10(24VDC)**

**Article no.**

**276565**



## Delivery programme

|                                                           |                |    |                                                                                          |
|-----------------------------------------------------------|----------------|----|------------------------------------------------------------------------------------------|
| Product range                                             |                |    | Contactors                                                                               |
| Application                                               |                |    | Contactors for Motors                                                                    |
| Subrange                                                  |                |    | Contactors up to 170 A, 3 pole                                                           |
| Connection technique                                      |                |    | Screw terminals                                                                          |
| Pole                                                      |                |    | 3 pole                                                                                   |
| Rated operational current                                 |                |    |                                                                                          |
| AC-3                                                      |                |    |                                                                                          |
| 380 V 400 V                                               | $I_e$          | A  | 7                                                                                        |
| AC-1                                                      |                |    |                                                                                          |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |    |                                                                                          |
| Open                                                      |                |    |                                                                                          |
| at 60 °C                                                  | $I_{th} = I_e$ | A  | 20                                                                                       |
| Max. rating for three-phase motors, 50 - 60 Hz            |                |    |                                                                                          |
| AC-3                                                      |                |    |                                                                                          |
| 220 V 230 V                                               | P              | kW | 2.2                                                                                      |
| 380 V 400 V                                               | P              | kW | 3                                                                                        |
| 660 V 690 V                                               | P              | kW | 3.5                                                                                      |
| AC-4                                                      |                |    |                                                                                          |
| 220 V 230 V                                               | P              | kW | 1                                                                                        |
| 380 V 400 V                                               | P              | kW | 2.2                                                                                      |
| 660 V 690 V                                               | P              | kW | 2.9                                                                                      |
| Contacts                                                  |                |    |                                                                                          |
| N/O = Normally open                                       |                |    | 1 N/O                                                                                    |
| Contact sequence                                          |                |    |     |
| <b>Instructions</b>                                       |                |    | Contacts to EN 50012.<br>Integrated varistor suppressor circuit.<br>with mirror contact. |
| Can be combined with auxiliary contact                    |                |    | DILM32-XHI..<br>DILA-XHI(V)..                                                            |
| Voltage AC/DC                                             |                |    | DC operation                                                                             |

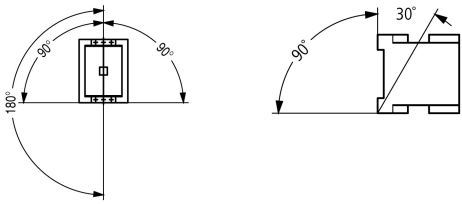
## Approbationen

Product Standards  
UL File No.  
UL CCN  
CSA File No.  
CSA Class No.  
NA Certification  
Specially designed for NA

IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking  
E29096  
NLDX  
012528  
2411-03, 3211-04  
UL Listed, CSA certified  
No

## General

|                                 |              |               |                                 |
|---------------------------------|--------------|---------------|---------------------------------|
| Standards                       |              |               | IEC/EN 60947, VDE 0660, UL, CSA |
| Lifespan, mechanical            |              |               |                                 |
| AC operated                     | Operations   | $\times 10^6$ | 10                              |
| DC operated                     | Operations   | $\times 10^6$ | 10                              |
| Operating frequency, mechanical |              |               |                                 |
| AC operated                     | Operations/h |               | 5000                            |
| 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                                                   |  | °C              |                                                                                     |
| Open                                                                  |  | °C              | - 25 - 60                                                                           |
| Enclosed                                                              |  | °C              | - 25 - 40                                                                           |
| Storage                                                               |  | °C              | - 40 - 80                                                                           |
| Mounting position, AC- and DC operated                                |  |                 |  |
| 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               | 5.7                                                                                 |
| Auxiliary contacts                                                    |  |                 |                                                                                     |
| N/O contact                                                           |  | g               | 3.4                                                                                 |
| N/C contact                                                           |  | g               | 3.4                                                                                 |
| Protection type                                                       |  |                 | IP00                                                                                |
| Protection against direct contact when actuated from front (EN 90274) |  |                 | Finger- and back-of-hand proof                                                      |
| Weight                                                                |  |                 |                                                                                     |
| AC operated                                                           |  | kg              | 0.23                                                                                |
| DC operated                                                           |  | kg              | 0.28                                                                                |
| Terminal capacity main cable                                          |  |                 |                                                                                     |
| 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)                                                |
|                                                                       |  |                 | Also without ferrule.                                                               |
| Solid or stranded                                                     |  | AWG             | 18 - 10                                                                             |
| Main cable connection screw/bolt                                      |  |                 | M3.5                                                                                |
| Tightening torque                                                     |  | Nm              | 1.2                                                                                 |
| 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 - 1.5)<br>2 x (0.75 - 1.5)                                                |
| Solid or stranded                                                     |  | AWG             | 18 - 14                                                                             |
| Control circuit cable connection screw/bolt                           |  |                 | M3.5                                                                                |
| Tightening torque                                                     |  | Nm              | 1.2                                                                                 |
| Tool                                                                  |  |                 |                                                                                     |
| Main cable                                                            |  |                 |                                                                                     |
| Pozidriv screwdriver                                                  |  | Size            | 2                                                                                   |
| Standard screwdriver                                                  |  | mm              | 0.8 x 5.5<br>1 x 6                                                                  |
| Control circuit cables                                                |  |                 |                                                                                     |
| Pozidriv screwdriver                                                  |  | Size            | 2                                                                                   |
| Standard screwdriver                                                  |  | mm              | 0.8 x 5.5<br>1 x 6                                                                  |
| Terminal capacity main cable                                          |  |                 |                                                                                     |

|                                          |  |                 |                                      |
|------------------------------------------|--|-----------------|--------------------------------------|
| Solid                                    |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| flexible                                 |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| flexible with ferrules                   |  | mm <sup>2</sup> | 1 x (0.75 - 1.5)<br>2 x (0.75 - 1.5) |
| Solid or stranded                        |  | AWG             | 18 - 14                              |
| Terminal capacity control circuit cables |  |                 |                                      |
| Solid                                    |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Flexible                                 |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Flexible with ferrule                    |  | mm <sup>2</sup> | 1 x (0.75 - 1.5)<br>2 x (0.75 - 1.5) |
| Solid or stranded                        |  | AWG             | 18 - 14                              |
| Tool                                     |  |                 |                                      |
| Stripping length                         |  | mm              | 10                                   |
| Screwdriver blade width                  |  | mm              | 3.5                                  |

### Main conducting paths

|                                                     |                  |      |       |
|-----------------------------------------------------|------------------|------|-------|
| Rated impulse withstand voltage                     | U <sub>imp</sub> | V AC | 8000  |
| Overvoltage category/pollution degree               |                  |      | III/3 |
| Rated insulation voltage                            | U <sub>i</sub>   | V AC | 690   |
| Rated operational voltage                           | U <sub>e</sub>   | V AC | 690   |
| Safe isolation to VDE 0106 Part 101 and Part 101/A1 |                  |      |       |
| between coil and contacts                           |                  | V AC | 400   |
| between the contacts                                |                  | V AC | 400   |
| Making capacity (p.f. to IEC/EN 60947)              |                  |      |       |
|                                                     | Up to 690 V      | A    | 112   |
| Breaking capacity                                   |                  |      |       |
| 220/230 V                                           |                  | A    | 70    |
| 380/400 V                                           |                  | A    | 70    |
| 500 V                                               |                  | A    | 50    |
| 660/690 V                                           |                  | A    | 40    |
| Short-circuit rating                                |                  |      |       |
| Short-circuit protection maximum fuse               |                  |      |       |
| Type “2” coordination                               |                  |      |       |
| 400 V                                               | gG/gL 500 V      | A    | 20    |
| 690 V                                               | gG/gL 690 V      | A    | 16    |
| Type “1” coordination                               |                  |      |       |
| 400 V                                               | gG/gL 500 V      | A    | 35    |
| 690 V                                               | gG/gL 690 V      | A    | 20    |

### AC

|                                                           |                                  |   |    |
|-----------------------------------------------------------|----------------------------------|---|----|
| AC-1 duty                                                 |                                  |   |    |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                                  |   |    |
| Open                                                      |                                  |   |    |
| at 40 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 22 |
| at 50 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 21 |
| at 55 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 21 |
| at 60 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 20 |
| enclosed                                                  | I <sub>th</sub>                  | A | 18 |
| Conventional free air thermal current, 1 pole             |                                  |   |    |
| open                                                      | I <sub>th</sub>                  | A | 50 |
| enclosed                                                  | I <sub>th</sub>                  | A | 45 |
| AC-3 duty                                                 |                                  |   |    |
| Rated operational current AC-3 open, 50 - 60 Hz, 3 pole   |                                  |   |    |
| 220/230 V                                                 | I <sub>e</sub>                   | A | 7  |
| 240 V                                                     | I <sub>e</sub>                   | A | 7  |

|                                                         |                |     |     |
|---------------------------------------------------------|----------------|-----|-----|
| 380/400 V                                               | I <sub>e</sub> | A   | 7   |
| 415 V                                                   | I <sub>e</sub> | A   | 7   |
| 440V                                                    | I <sub>e</sub> | A   | 7   |
| 500 V                                                   | I <sub>e</sub> | A   | 5   |
| 660/690 V                                               | I <sub>e</sub> | A   | 4   |
| Motor rating                                            | P              | kWh |     |
| 220/230 V                                               | P              | kW  | 2.2 |
| 240V                                                    | P              | kW  | 2.2 |
| 380/400 V                                               | P              | kW  | 3   |
| 415 V                                                   | P              | kW  | 4   |
| 440 V                                                   | P              | kW  | 4.5 |
| 500 V                                                   | P              | kW  | 3.5 |
| 660/690 V                                               | P              | kW  | 3.5 |
| AC-4 duty                                               |                |     |     |
| Rated operational current AC-4 open, 50 - 60 Hz, 3 pole | I <sub>e</sub> |     |     |
| 220/230 V                                               | I <sub>e</sub> | A   | 5   |
| 240 V                                                   | I <sub>e</sub> | A   | 5   |
| 380/400 V                                               | I <sub>e</sub> | A   | 5   |
| 415 V                                                   | I <sub>e</sub> | A   | 5   |
| 440 V                                                   | I <sub>e</sub> | A   | 5   |
| 500 V                                                   | I <sub>e</sub> | A   | 4.5 |
| 660/690 V                                               | I <sub>e</sub> | A   | 4   |
| Motor rating                                            | P              | kWh |     |
| 220/230 V                                               | P              | kW  | 1   |
| 240 V                                                   | P              | kW  | 1.5 |
| 380/400 V                                               | P              | kW  | 2.2 |
| 415 V                                                   | P              | kW  | 2.3 |
| 440 V                                                   | P              | kW  | 2.4 |
| 500 V                                                   | P              | kW  | 2.5 |
| 660/690 V                                               | P              | kW  | 2.9 |

## DC

|                                 |                |   |     |
|---------------------------------|----------------|---|-----|
| Rated operational current, open |                |   |     |
| DC-1 operation                  |                |   |     |
| 60 V                            | I <sub>e</sub> | A | 20  |
| 110 V                           | I <sub>e</sub> | A | 20  |
| 220 V                           | I <sub>e</sub> | A | 15  |
| 440 V                           | I <sub>e</sub> | A | 1   |
| DC-3 operation                  |                |   |     |
| 60 V                            | I <sub>e</sub> | A | 20  |
| 110 V                           | I <sub>e</sub> | A | 20  |
| 220 V                           | I <sub>e</sub> | A | 1.5 |
| 440 V                           | I <sub>e</sub> | A | 0.2 |
| DC-5 operation                  |                |   |     |
| 60 V                            | I <sub>e</sub> | A | 20  |
| 110 V                           | I <sub>e</sub> | A | 20  |
| 220 V                           | I <sub>e</sub> | A | 1.5 |
| 440 V                           | I <sub>e</sub> | A | 0.2 |

## Current heat loss (3 pole)

|                                                   |  |    |      |
|---------------------------------------------------|--|----|------|
| Current heat loss at I <sub>th</sub>              |  | W  | 3    |
| Current heat loss at I <sub>e</sub> to AC-3/400 V |  | W  | 0.37 |
| Impedance per pole                                |  | mΩ | 2.5  |

## Magnet systems

|                   |  |                  |  |
|-------------------|--|------------------|--|
| Voltage tolerance |  | x U <sub>c</sub> |  |
|-------------------|--|------------------|--|

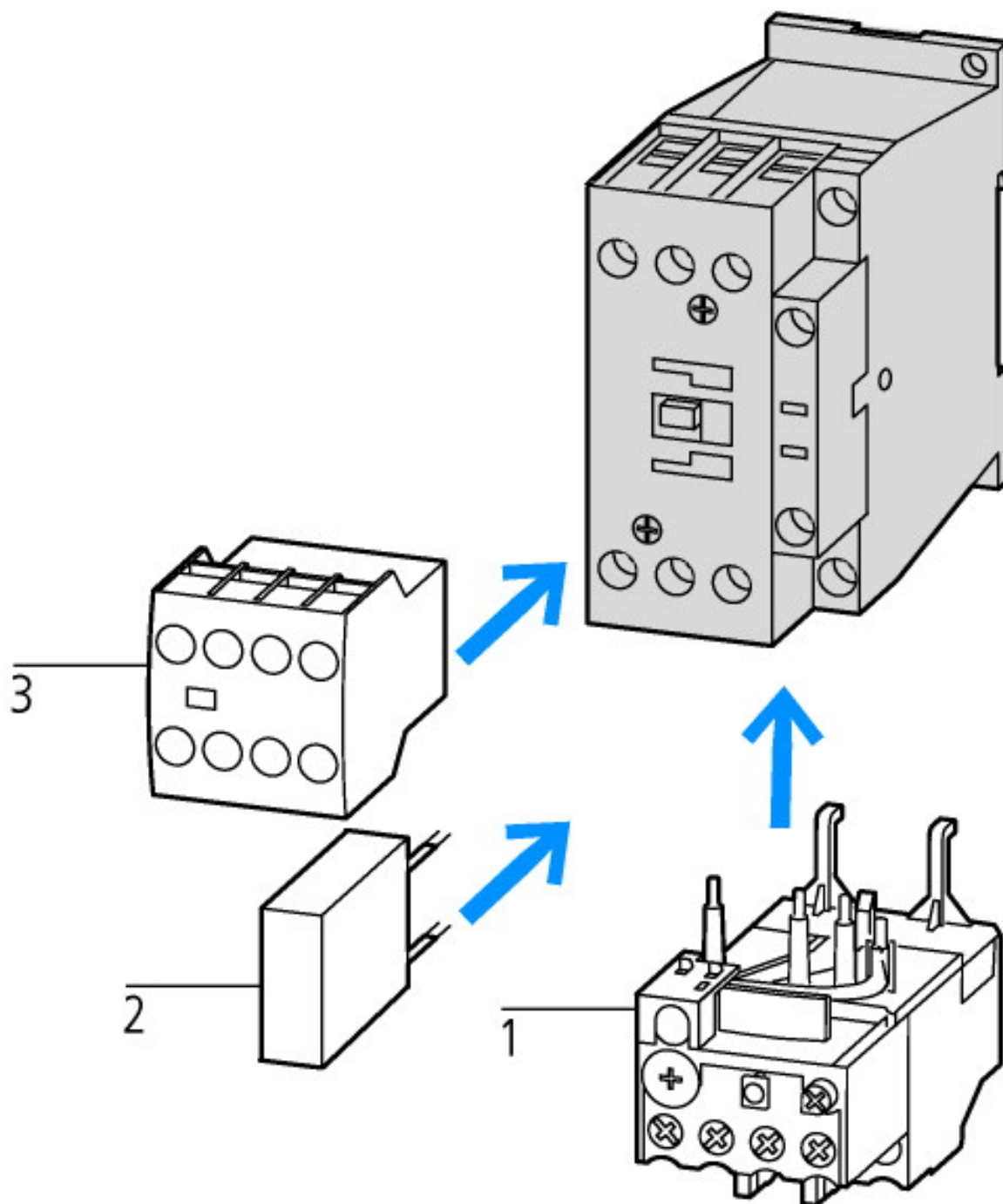
|                                                                        |          |                  |                                                                                     |
|------------------------------------------------------------------------|----------|------------------|-------------------------------------------------------------------------------------|
| AC operated                                                            | Pick-up  | x U <sub>c</sub> | 0.8 - 1.1                                                                           |
| Drop-out voltage AC operated                                           | Drop-out | x U <sub>c</sub> | 0.3 - 0.6                                                                           |
| DC operated                                                            | Pick-up  | x U <sub>c</sub> | 0.7 - 1.2                                                                           |
| Notes                                                                  |          |                  | at least smoothed two-phase bridge rectifier or three-phase rectifier               |
| DC operated                                                            | Drop-out | x U <sub>c</sub> | 0.15 - 0.6                                                                          |
| Power consumption of the coil in a cold state and 1.0 x U <sub>c</sub> |          |                  |                                                                                     |
| 50 Hz                                                                  | Pick-up  | VA               | 24                                                                                  |
| 50 Hz                                                                  | Sealing  | VA               | 3.4                                                                                 |
| 50 Hz                                                                  | Sealing  | W                | 1.2                                                                                 |
| 60 Hz                                                                  | Pick-up  | VA               | 30                                                                                  |
| 60 Hz                                                                  | Sealing  | VA               | 4.4                                                                                 |
| 60 Hz                                                                  | Sealing  | W                | 1.4                                                                                 |
| 50/60 Hz                                                               | Pick-up  | VA               | 27<br>25                                                                            |
| 50/60 Hz                                                               | Sealing  | VA               | 4.2<br>3.3                                                                          |
| 50/60 Hz                                                               | Sealing  | W                | 1.4<br>1.2                                                                          |
| DC operated                                                            | Pick-up  | W                | 3                                                                                   |
| DC operated                                                            | Sealing  | W                | 3                                                                                   |
| Duty factor                                                            |          | % DF             | 100                                                                                 |
| Switching times at 100 % U <sub>c</sub> (approximate values)           |          |                  |                                                                                     |
| Main contacts                                                          |          |                  |                                                                                     |
| AC operated                                                            |          |                  |                                                                                     |
| Closing delay                                                          |          | ms               | 15 - 21                                                                             |
| Opening delay                                                          |          | ms               | 9 - 18                                                                              |
| DC operated                                                            |          |                  |                                                                                     |
| Closing delay                                                          |          | ms               | 31                                                                                  |
| Opening delay                                                          |          | ms               | 12                                                                                  |
| Arcing time                                                            |          | ms               | 10                                                                                  |
| Lifespan, mechanical; Coil 50/60 Hz                                    | at 50 Hz |                  | Mechanical lifespan at 50 Hz approx. 30% lower than under “Technical data, general” |

Electromagnetic compatibility (EMC)

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

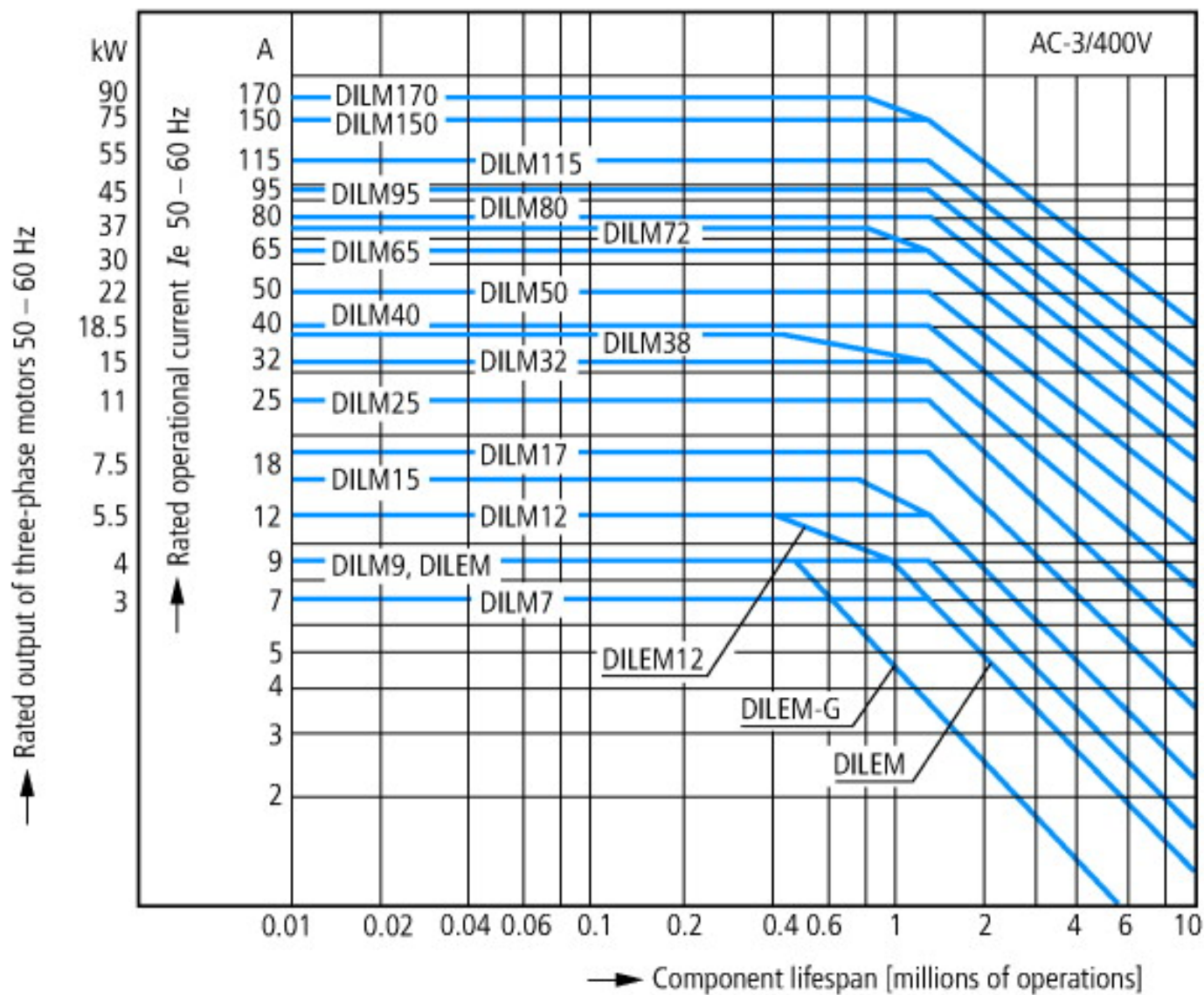
Technische Daten nach ETIM 4.0

|                                                       |  |     |                  |
|-------------------------------------------------------|--|-----|------------------|
| Number of main contacts as N/Os                       |  |     | 3                |
| Rated operation current I <sub>e</sub> at AC-1, 400 V |  |     | 14               |
| Connection type main circuit                          |  |     | Screw connection |
| Rated control voltage U <sub>s</sub> at AC 60HZ       |  | V   | 0                |
| Number of auxiliary contacts as N/Os                  |  |     | 1                |
| Rated control voltage U <sub>s</sub> at AC 50HZ       |  | V   | 0                |
| Number of auxiliary contacts as N/Cs                  |  |     | 0                |
| Suitable for rail-mounting                            |  |     | No               |
| Rated control voltage U <sub>s</sub> at DC            |  | V   | 24               |
| Voltage type for actuation                            |  |     | DC               |
| Rated operation current I <sub>e</sub> at AC-3, 400 V |  | A   | 7                |
| Number of N/Cs as main contact                        |  |     | 0                |
| Motor rating at AC-3, 400 V                           |  | kWh | 3                |

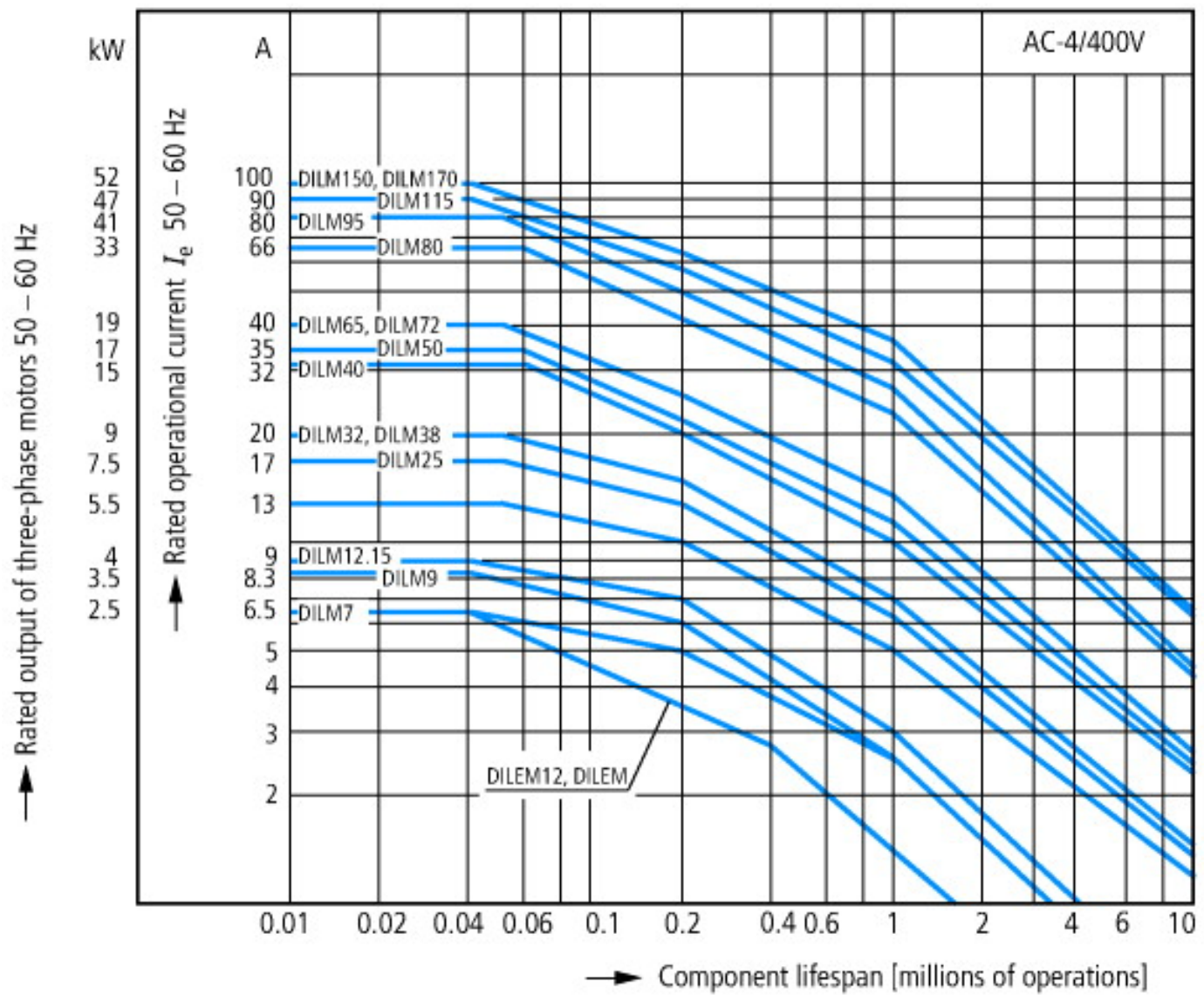


- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules

Projektieren



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



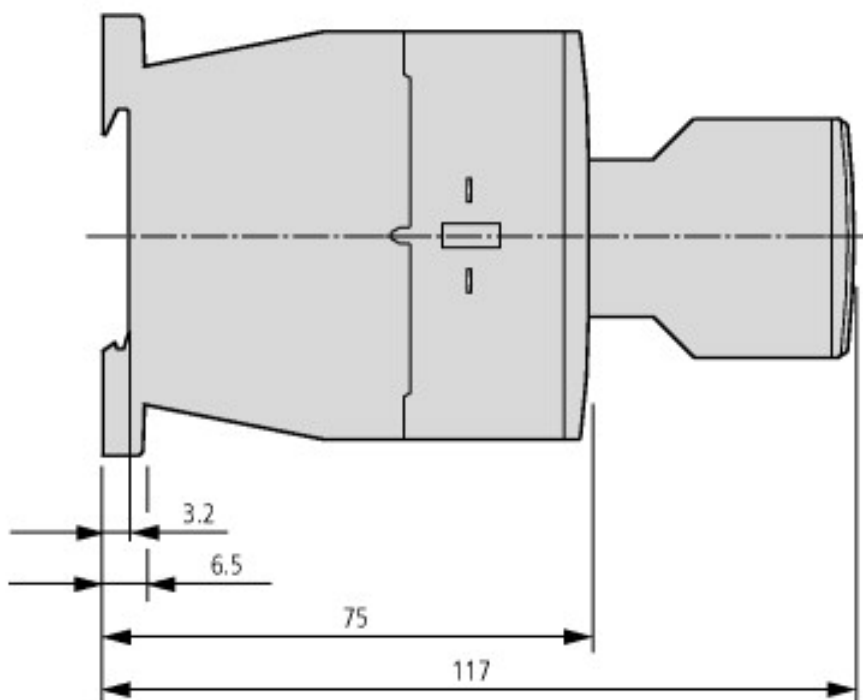
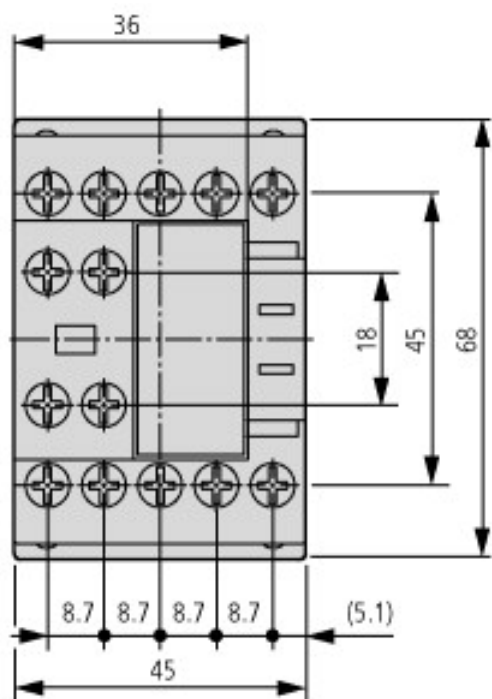
Extreme switching duty  
Squirrel-cage motor  
Operating characteristics  
Inching, plugging, reversing  
Electrical characteristics  
Make: up to 6 x rated motor current  
Break: up to 6 x rated motor current  
Utilization category  
100 % AC-4  
Typical applications  
Printing presses  
Wire-drawing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

## CAD-Daten

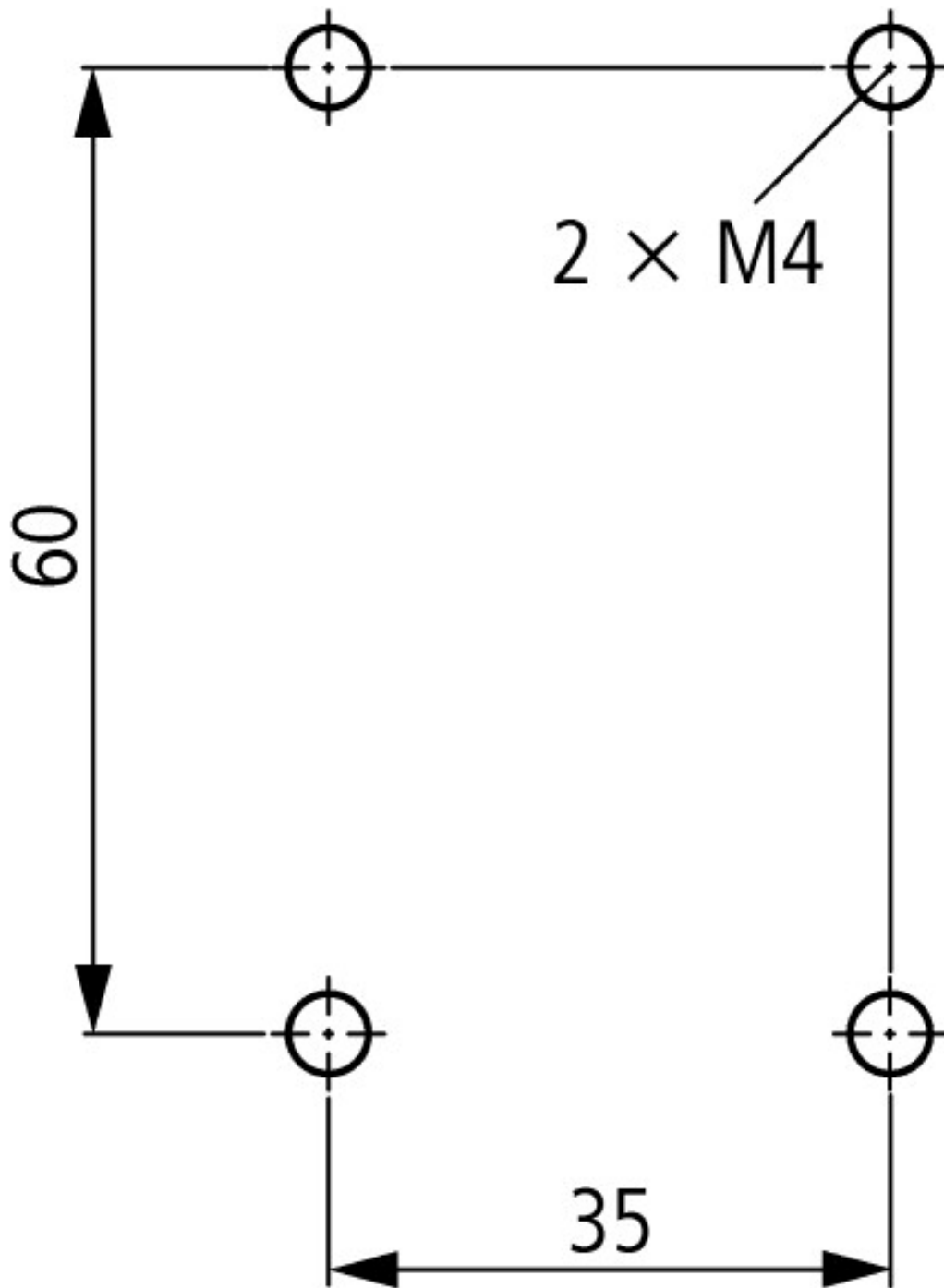
Product standards CAD data:

<http://eaton-moeller.partcommunity.com>

## Dimensions



Contactor with auxiliary contact module



DILM7...DILM15  
DILA...  
Contactor with auxiliary contact module

#### Additional product information (links)

IL03407013Z (AWA2100-2126) contactors

[ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407013Z2010\\_10.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2010_10.pdf)